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1 The Result of findCrispr on 302 sequences
2 GCA_000007005.1_ASM700v1_genomic.fna(findCrispr):
3 START REPEAT
4 SPACER
5 crispr 1
6 1297153 CTTTCAATTCTATAAGAGATTATC TGAGGATATACTTTAATCGGATTGTGTTAGGTGGAGAGATGT spacer
7 length: 42 repeater length: 24
8 1297220 CTTTCAATTCTATAAGAGATTATC CCATCTACCACACCGCGGACACTGGTATAAACATGCACCG spacer
9 length: 40 repeater length: 24
10 1297285 CTTTCAATTCTATAAGAGATTATC TCAGTCTTATTGTGCGAGGAGTAGTGGTAGGAGTGATA spacer
11 length: 37 repeater length: 24
12 1297347 CTTTCAATTCTATAAGAGATTATC GGAAGAGACAAGACTCTACAGTACAATATGCCCCAGAT spacer
13 length: 38 repeater length: 24
14 1297410 CTTTCAATTCTATAAGAGATTATC AACCGGAAGTACGAACATATGTTGCTGAGATTGTGGTCTATG spacer
15 length: 41 repeater length: 24
16 1297476 CTTTCAATTCTATAAGAGATTATC TTTGTGGTACTTGTAGTTGTGATGCTGACGTTCCACTAC spacer
17 length: 39 repeater length: 24
18 1297540 CTTTCAATTCTATAAGAGATTATC TCAAATCAACAAGTTACAGTAACCAACGGTACTTCAAACC spacer
19 length: 40 repeater length: 24
20 1297605 CTTTCAATTCTATAAGAGATTATC TATGTTGTTGTTTGTGTTGAGTTGTGGTCTGCTGTGTAGTT spacer
21 length: 39 repeater length: 24
22 1297669 CTTTCAATTCTATAAGAGATTATC ATCCAGACGAAGTGGGGGCAATCATGCAGCCCCCCTC spacer
23 length: 37 repeater length: 24
24 1297731 CTTTCAATTCTATAAGAGATTATC AAAGATAATGGATAATAACTTAACATTACAGAATTTAAT spacer
25 length: 39 repeater length: 24
26 1297795 CTTTCAATTCTATAAGAGATTATC TAAACTCATGTAGCGTTAGTTGGAGCGGATCTGCACAAGT spacer
27 length: 40 repeater length: 24
28 1297860 CTTTCAATTCTATAAGAGATTATC CCAGTGTTTTACTTAACATCAGTACAAGGATCAAAAC spacer
29 length: 37 repeater length: 24
30 1297922 CTTTCAATTCTATAAGAGATTATC AAGAGTTCGATCGGATTAAAGAGGAGATTGAGCAAA spacer length:
31 36 repeater length: 24
32 1297983 CTTTCAATTCTATAAGAGATTATC AGTGACTCAATACCGGTCACAATATCTTCAGGTGCTCCCAT spacer
33 length: 41 repeater length: 24
34 1298049 CTTTCAATTCTATAAGAGATTATC CGTCCCCATCGAATACGTAAGAGTCTGGAGGGGAATTT spacer
35 length: 38 repeater length: 24
36 1298112 CTTTCAATTCTATAAGAGATTATC TAAAGGTTACGTTAGAACTAGAAAAGAATGGAAATCTGA spacer
37 length: 39 repeater length: 24
38 1298176 CTTTCAATTCTATAAGAGATTATC TGGAGTTTTTCTAGATATTTTGTAAAGTACGTTTCTAGTT spacer length:
39 36 repeater length: 24
40 1298237 CTTTCAATTCTATAAGAGATTATC AATAGGCTATGGTGTGTGGATGGACCTGTATCGTAAAT spacer
41 length: 38 repeater length: 24
42 1298300 CTTTCAATTCTATAAGAGATTATC CACGCAAAAGGATAAACAATATGGTGCGATTCTGAATGG spacer
43 length: 38 repeater length: 24
44 1298363 CTTTCAATTCTATAAGAGATTATC ACAAACAGTGTGTGTTACATTATCCTTCGATTACAACGA spacer
45 length: 39 repeater length: 24
46 1298427 CTTTCAATTCTATAAGAGATTATC CTTCTGTTCTGAAATTATAAAGGACATGCTGATAAAATT spacer
47 length: 39 repeater length: 24
48 1298491 CTTTCAATTCTATAAGAGATTATC CTAAGTGAAGAAGACCCAATTTATATTGCAGGATTTG spacer
49 length: 37 repeater length: 24
50 1298553 CTTTCAATTCTATAAGAGATTATC TGCAGAACCATTAGCTGGTACAGTAACTGTTTGCCA spacer length:
51 36 repeater length: 24
52 1298614 CTTTCAATTCTATAAGAGATTATC ACCATAGTCCCTGATTTCCGTATTCTTTACCCTGTAACCCC spacer
53 length: 41 repeater length: 24
54 1298680 CTTTCAATTCTATAAGAGATTATC GCTTATCTCTCTCATGCGCCATTTCTTCTTTCTTCTTT spacer
55 length: 39 repeater length: 24
56 1298744 CTTTCAATTCTATAAGAGATTATC TATATCCCAAAAAATCTCAGACATTAGAGAGCATTTTTTG spacer
57 length: 39 repeater length: 24
58 1298808 CTTTCAATTCTATAAGAGATTATC AATAGATCCAGAAAATGAATATGTCAAATTAGCTGACATT spacer
59 length: 40 repeater length: 24
60 1298873 CTTTCAATTCTATAAGAGATTATC TTTATTTTCTTGCGATATTTTATTACCGAGACTTTTGCC spacer
61 length: 39 repeater length: 24
62 1298937 CTTTCAATTCTATAAGAGATTATC CAACCACAAGAAGAAACCACTACCCAAGAAATGCAGGG spacer
63 length: 38 repeater length: 24
64 1299000 CTTTCAATTCTATAAGAGATTATC TTTGACTCCTGGGCTTAACGCACCTTCTCTGGCCTCG spacer
65 length: 37 repeater length: 24
66 1299062 CTTTCAATTCTATAAGAGATTATC TTAGCCCAGATGAAGCAACACAAGAGGCTAGTAAGGTT spacer
67 length: 38 repeater length: 24
68 1299125 CTTTCAATTCTATAAGAGATTATC TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGT
69
70 crispr 2
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40 1809772 CTTTCAATTCTATAGTAGATTAGC AACACATTGCTCATATAACTACACCATTCACTATTGCCT spacer
length: 39 repeater length: 24

41 1809836 CTTTCAATTCTATAGTAGATTAGC ACAATGTATGACTATGGATATCAATGGAGCGTCGGCTTA spacer
length: 39 repeater length: 24

42 1809900 CTTTCAATTCTATAGTAGATTAGC CAAATAATCTAGCATTTTCTTCATAAAGTTCATTACATA spacer
length: 39 repeater length: 24

43 1809964 CTTTCAATTCTATAGTAGATTAGC CTTAAAAGTGTGGAGTTTGTGCAGTTAGTTGAATTTTAC spacer
length: 40 repeater length: 24

44 1810029 CTTTCAATTCTATAGTAGATTAGC GTTATTCCTAATTGTTTTTCGGAAATTATTTTGAGAATGA spacer
length: 39 repeater length: 24

45 1810093 CTTTCAATTCTATAGTAGATTAGC GCCGTACTGACTTCTCCCCTGCCAGCGAGGGTTCTCCTCA spacer
length: 40 repeater length: 24

46 1810158 CTTTCAATTCTATAGTAGATTAGC TTCCCCACCATTATGTACCACTATTATGCTTCCATTTAT spacer
length: 39 repeater length: 24

47 1810222 CTTTCAATTCTATAGTAGATTAGC ATGTTCTTTTTCCAGAACTGTAACATAATTTTGTGAT spacer
length: 39 repeater length: 24

48 1810286 CTTTCAATTCTATAGTAGATTAGC TATTTTTGCGTATTTACACGATTTATTTATTTTCGAGAAT spacer
length: 40 repeater length: 24

49 1810351 CTTTCAATTCTATAGTAGATTAGC AGTGATGGTACTACGACCGTGAAAATGAGTTGAAAAA spacer
length: 37 repeater length: 24

50 1810413 CTTTCAATTCTATAGTAGATTAGC CATCACGCAGAATAATGGTTCAGGTAACTTTTTAAG spacer length:
36 repeater length: 24

51 1810474 CTTTCAATTCTATAGTAGATTAGC TGATTATATTCAAGGACAATATGTTGAAACGCCGATTTTA spacer
length: 40 repeater length: 24

52 1810539 CTTTCAATTCTATAGTAGATTAGC AGATGCTATTGGAGGATTTACCAGGTTGGGTATAATGTCAAAT
spacer length: 45 repeater length: 24

53 1810609 CTTTCAATTCTATAGTAGATTAGC TCAGAGTTTTTTTATTTTTTCTATTTGAAATTAAGCAC spacer
length: 38 repeater length: 24

54 1810672 CTTTCAATTCTATAGTAGATTAGC TTGGGTGTTTTGTTTAGGTTTGAAAAAGATTATCTTATTTTC spacer
length: 42 repeater length: 24

55 1810739 CTTTCAATTCTATAGTAGATTAGC CCAACGGCTCTTACGCCCTCCTCGGCATGTACAACGGGAC spacer
length: 40 repeater length: 24

56 1810804 CTTTCAATTCTATAGTAGATTAGC AAGATACCACAACACTTGAGTTAATGCATTATTGAATATGGATACA
spacer length: 47 repeater length: 24

57 1810876 CTTTCAATTCTATAGTAGATTAGC GGAAAGGCTAATGGAGACAAAAAGAAGTCTAAAAAGCA spacer
length: 38 repeater length: 24

58 1810939 CTTTCAATTCTATAGTAGATTAGC TTCTTCAGCTTCTTCCCAACGCTATATGTGCTATTAGGTGTAA spacer
length: 43 repeater length: 24

59 1811007 CTTTCAATTCTATAGTAGATTAGC CGGCACAGTACTACTATCTGAAAGTGTTCATCTCCAAAT spacer
length: 40 repeater length: 24

60 1811072 CTTTCAATTCTATAGTAGATTAGC AACACGTCCTTTTTTCATTTGTAATATCTGAACCTGGA spacer
length: 37 repeater length: 24

61 1811134 CTTTCAATTCTATAGTAGATTAGC CCTAATATCCTCGGGTACTTATAGAACCCTCCTTCTGGT spacer
length: 39 repeater length: 24

62 1811198 CTTTCAATTCTATAGTAGATTAGC
CTGTTAGTAAGCCCCTTGCTACAACCTCTATAGAAGTGCGGGTTTTAAACAGCTGTTTGAGAATATAAACATGGGGTAAAAAAGCTA
CAACTCTATAGAAGTGCGG spacer length: 105 repeater length: 24

63 1811328 CTTTCAATTCTATAGTAGATTAGC ATATTTAAAGTTTTTGCTCAACCAGTTAGGTAACAAGTATTC spacer
length: 42 repeater length: 24

64 1811395 CTTTCAATTCTATAGTAGATTAGC AAAGCGGTTGTTTTCCAGTTCCAGAACTGGAATTCTTA spacer
length: 39 repeater length: 24

65 1811459 CTTTCAATTCTATAGTAGATTAGC GGATTTTTTAAATGGAGTGAATTGATAAAATGATAAAG spacer
length: 37 repeater length: 24

66 1811521 CTTTCAATTCTATAGTAGATTAGC TTGGTGGGGCGATGAACGGCAACGATATGTTGGACGTCA spacer
length: 39 repeater length: 24

67 1811585 CTTTCAATTCTATAGTAGATTAGC CTGGAACAAATTTGAAGAAAGTAAAAAATTGAAATTTTA spacer
length: 41 repeater length: 24

68 1811651 CTTTCAATTCTATAGTAGATTAGC GATAGAGAAAAGTTTATAAAGGAGAGTGAAGATATGTATA spacer
length: 40 repeater length: 24

69 1811716 CTTTCAATTCTATAGTAGATTAGC TCTAACACTTTATGATTTCAAGAACTTTCGAAGAAATA spacer
length: 38 repeater length: 24

70 1811779 CTTTCAATTCTATAGTAGATTAGC TTAGCATGCGAAACAAATGAAGAATTCAGAAGAGAGTTA spacer
length: 39 repeater length: 24

71 1811843 CTTTCAATTCTATAGTAGATTAGC AAAGAATGAGGAAAGAGGCATTGGAAGGCATTGAAGAAGGT spacer
length: 41 repeater length: 24

72 1811909 CTTTCAATTCTATAGTAGATTAGC TGGAGATTTAATTAGATATCATCACTTCGTTCTTTCTCT spacer
length: 40 repeater length: 24

73 1811974 CTTTCAATTCTATAGTAGATTAGC CTGTTACGCCGGTGCTGGAGGGTAAGTTAGTTGGAGAGC spacer
length: 39 repeater length: 24

74 1812038 CTTTCAATTCTATAGTAGATTAGC TTTCCCAGACTTAGTAAAGGACATTTGGAAGGTTCTAA spacer
length: 38 repeater length: 24

75 1812101 CTTTCAATTCTATAGTAGATTAGC ATGAAACAGAAAAAGTTAACATTTTAGACCACCAATTAA spacer
length: 39 repeater length: 24

76 1812165 CTTTCAATTCTATAGTAGATTAGC AAGACCCCGACTTTTTTAAGGTTTACAGATCCCGCAGAAA spacer
length: 39 repeater length: 24

77 1812229 CTTTCAATTCTATAGTAGATTAGC ATGAGGTTTCGTCGTGTAGGGATTAATCCCGTGTCTAAA spacer
length: 38 repeater length: 24

78 1812292 CTTTCAATTCTATAGTAGATTAGC TAATTATCAATGGCAAACCGCATATAATTGGATGAGATT spacer
length: 39 repeater length: 24

79 1812356 CTTTCAATTCTATAGTAGATTAGC TTTACTACACATGTAATAAGTATGTTGATTATGGAATAGAA spacer
length: 41 repeater length: 24

80 1812422 CTTTCAATTCTATAGTAGATTAGC TTGAACACGTGATATAGAACCAGTTGTTCTAATACGT spacer
length: 37 repeater length: 24

81 1812484 CTTTCAATTCTATAGTAGATTAGC AACAATAGCAATAGCTTTGCTTATAGTCGGTGTAAATAA spacer
length: 38 repeater length: 24

82 1812547 CTTTCAATTCTATAGTAGATTAGC TTGTAAAGACTAGGTAAAACCTTTGTTATCATAATAGCAGT spacer
length: 40 repeater length: 24

83 1812612 CTTTCAATTCTATAGTAGATTAGC AGGAGGGGCTATACGTACGATCACGAATGTAACATTATCGTG spacer
length: 42 repeater length: 24

84 1812679 CTTTCAATTCTATAGTAGATTAGC AGTATCTGGCTTTTCGACACAAAACCTTCCTTTACCAA spacer
length: 37 repeater length: 24

85 1812741 CTTTCAATTCTATAGTAGATTAGC ACGACGATGCTATGTGTTGCACTGTATTTGATCACGGTTA spacer
length: 40 repeater length: 24

86 1812806 CTTTCAATTCTATAGTAGATTAGC TACGGTTAAAAGTTGGCAAAAAGCTTAAATTTTTGCA spacer
length: 37 repeater length: 24

87 1812868 CTTTCAATTCTATAGTAGATTAGC CTTATGAGCCTCTTTGAGATGTGTCTCTGACTTCTG spacer length:
36 repeater length: 24

88 1812929 CTTTCAATTCTATAGTAGATTAGC ATAAATAAACTAGGTTTGTATTTATCACCTCCAACAATTC spacer
length: 40 repeater length: 24

89 1812994 CTTTCAATTCTATAGTAGATTAGC AAACGATAAATTAGCACTATATTATAACTATGATTCTACAC spacer
length: 41 repeater length: 24

90 1813060 CTTTCAATTCTATAGTAGATTAGC AACTGTAACCTGGTAGCCTTGGTCAGGTGTTACTGACAGTGTGCAT
spacer length: 45 repeater length: 24

91 1813130 CTTTCAATTCTATAGTAGATTAGC CAAAATGATATACATATAGTACCATCACCTAGCGCAAGA spacer
length: 39 repeater length: 24

92 1813194 CTTTCAATTCTATAGTAGATTAGC GGATATCCAGCAATTGCAACAGGTGGGTCGGGGATATCATTG spacer
length: 42 repeater length: 24

93 1813261 CTTTCAATTCTATAGTAGATTAGC TTTAACTATGACTTTTCAGAATACAACAATTTGCGCAAT spacer
length: 39 repeater length: 24

94 1813325 CTTTCAATTCTATAGTAGATTAGC ATGTATACAATAGATCATATGTTATATATAGAGAATGTACCAA spacer
length: 43 repeater length: 24

95 1813393 CTTTCAATTCTATAGTAGATTAGC TCTTGTACAACTCTCATAACAGTTCATTGCAAAACAGTTCA spacer
length: 42 repeater length: 24

96 1813460 CTTTCAATTCTATAGTAGATTAGC TACACTGTTGCTTTCTAACGCTCTACATCGCGTTG spacer length:
36 repeater length: 24

97 1813521 CTTTCAATTCTATAGTAGATTAGC TGCAGGAGGGCGAGGAAGAATGATAAAGATGGAGGAAA spacer
length: 38 repeater length: 24

98 1813584 CTTTCAATTCTATAGTAGATTAGC TTGTCCCTTCCATGGGCATTTGTCACTTTCACAAAACCT spacer
length: 39 repeater length: 24

99 1813648 CTTTCAATTCTATAGTAGATTAGC ATAAAAAAGAATTATAACTTATTCATCATTCTTTTAAT spacer
length: 39 repeater length: 24

100 1813712 CTTTCAATTCTATAGTAGATTAGC TTATAATCCCGTGACACAGAAAGAATTTTAAATATCATAA spacer
length: 41 repeater length: 24

101 1813778 CTTTCAATTCTATAGTAGATTAGC TAAACTAACAAGTAAAATTATAACTCCTAACGGAATTG spacer
length: 38 repeater length: 24

102 1813841 CTTTCAATTCTATAGTAGATTAGC TGACGATTATAACACTGAACATGAGTATGCAGTAAGTGAAG spacer
length: 41 repeater length: 24

103 1813907 CTTTCAATTCTATAGTAGATTAGC AGAATAATCAGTGATGAACAGTGTGAGAACTTGTCCAAGTTT spacer
length: 43 repeater length: 24

104 1813975 CTTTCAATTCTATAGTAGATTAGC ATGATGTTGAAAATGGACTAAAACCTTTTAGATGAAAAAC spacer
length: 39 repeater length: 24

105 1814039 CTTTCAATTCTATAGTAGATTAGC TGAACGGAACATCTATTTTTACTCCTAACATCATTCAATC spacer
length: 40 repeater length: 24

106 1814104 CTTTCAATTCTATAGTAGATTAGC AAATAATGATAAATAAGGATGAGGTGATAGTACAATGAAAT spacer
length: 41 repeater length: 24

107 1814170 CTTTCAATTCTATAGTAGATTAGC AGCCCTCCAAAATCGTAAAACCTTGAATATATGAAGTTAAATTT spacer
length: 44 repeater length: 24

108 1814239 CTTTCAATTCTATAGTAGATTAGC GTGCTGTAGGCTGTAGGACTGTGAGGTAGCGTTTGAA spacer
length: 38 repeater length: 24

109 1814302 CTTTCAATTCTATAGTAGATTAGC AGAGTTAATAAACATTTTGAATCCCCACGCTAACGAAAA spacer
length: 39 repeater length: 24

110 1814366 CTTTCAATTCTATAGTAGATTAGC ACAAATAACGAAACGAATAAATATAATAAATTATGAAT spacer

length: 38 repeater length: 24
111 1814429 CTTTCAATTCTATAGTAGATTAGC TTGGTGAACCGGTGATAATATTCGTTACGGCGTCCAATACTG spacer
length: 42 repeater length: 24
112 1814496 CTTTCAATTCTATAGTAGATTAGC CCTTACCCTTCAGGAAGCTGCAGAAGATGGTGGAGTAC spacer
length: 38 repeater length: 24
113 1814559 CTTTCAATTCTATAGTAGATTAGC CATCCGTTACGCTGAGCATACTAAGATCTGTCCTATTTGCCAT spacer
length: 43 repeater length: 24
114 1814627 CTTTCAATTCTATAGTAGATTAGC TATGGGGGTCAGTGACACTTATTCCACCGTTCAGTATT spacer
length: 38 repeater length: 24
115 1814690 CTTTCAATTCTATAGTAGATTAGC TGGAATTTTGAATTTTTTGCACCGCTCCAATTATTATTTG spacer
length: 40 repeater length: 24
116 1814755 CTTTCAATTCTATAGTAGATTAGC TTGTCTGTCGGTGAAGCAGTAGTATTTCTAAGAGGCCGTC spacer
length: 40 repeater length: 24
117 1814820 CTTTCAATTCTATAGTAGATTAGC TCTACTTCTGTCTTCTTAGCCATTCAGCTCACCTTT spacer length:
36 repeater length: 24
118 1814881 CTTTCAATTCTATAGTAGATTAGC GTAAGAATAATTTTACAAAATCTTAGTAATTATATAGTTTATA spacer
length: 43 repeater length: 24
119 1814949 CTTTCAATTCTATAGTAGATTAGC CCTCGCTTTAACCGAGGTGTCTCGGTGACGCTTGCTCCG spacer
length: 39 repeater length: 24
120 1815013 CTTTCAATTCTATAGTAGATTAGC AGATTGGTGTATAGTAACAGAAAAGCAGACAACGAAAGG spacer
length: 39 repeater length: 24
121 1815077 CTTTCAATTCTATAGTAGATTAGC ATGTTAGTTATCGGCGTTATAATGGGTATCGGAATCGGTGTA spacer
length: 42 repeater length: 24
122 1815144 CTTTCAATTCTATAGTAGATTAGC CTATTTTTGTCAATAATTTTTTTATTTTTGCATTTTTTCGAAA spacer
length: 42 repeater length: 24
123 1815211 CTTTCAATTCTATAGTAGATTAGC GTAATCTTATTTCTGCGGTAAATTGAGATTATAGATGGTA spacer
length: 40 repeater length: 24
124 1815276 CTTTCAATTCTATAGTAGATTAGC ATCATTTATGCACATTTCAACTCCATTTCCAATATGAA spacer
length: 38 repeater length: 24
125 1815339 CTTTCAATTCTATAGTAGATTAGC CCACGTTTTTTGTCTTAACTTTAATTGATTTATTAGAA spacer
length: 38 repeater length: 24
126 1815402 CTTTCAATTCTATAGTAGATTAGC AAGGTCAATCCATTCTGGGGCGTTAAACCCGCATCCCTG spacer
length: 40 repeater length: 24
127 1815467 CTTTCAATTCTATAGTAGATTAGC GGCAGTGTTAGAATACTAACGGGCGAAGAAGAATGGGTTTAT spacer
length: 42 repeater length: 24
128 1815534 CTTTCAATTCTATAGTAGATTAGC AAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAAG
129
130
131 crispr 3
132 1744007 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
133 1744070 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAAT spacer
length: 41 repeater length: 24
134 1744136 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 24
135 1744199 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
136 1744264 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
137 1744332 GATAATCTACTATAGAATTGAAAG TTAGCCCAACAATTAATAAGATCCTGAAGCAGTCA spacer
length: 37 repeater length: 24
138 1744394 GATAATCTACTATAGAATTGAAAG AGGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGC
139
140
141 crispr 4
142 1305634 GATAATCTCTTATAGAATTGAAAG TTTGCCATTGCAGAATTATCGCCCAGAACAAATTTTC spacer length:
36 repeater length: 24
143 1305695 GATAATCTCTTATAGAATTGAAAG ATCATATATCTTGTATTCCGCATATTTAAATCTTTCTAT spacer
length: 39 repeater length: 24
144 1305759 GATAATCTCTTATAGAATTGAAAG GCGGTTGAAGAAAAGTGCAGGATCACGGGGTCAGGACT spacer
length: 38 repeater length: 24
145 1305822 GATAATCTCTTATAGAATTGAAAG TAGACTATGCGTTATACTATGTCCGCAATGGCATTAGC spacer
length: 38 repeater length: 24
146 1305885 GATAATCTCTTATAGAATTGAAAG TTGTATTTGTCGGTGGGTGAACTAACAAATATACGCCT spacer
length: 38 repeater length: 24
147 1305948 GATAATCTCTTATAGAATTGAAAG TCAATTTGTGAAACTTGTCCCGGCTCATTGGATTTGTT spacer
length: 38 repeater length: 24
148 1306011 GATAATCTCTTATAGAATTGAAAG ATCAAGGGCAAATCGGGAGTCCAGGAGATTCTCGAAGC spacer
length: 38 repeater length: 24
149 1306074 GATAATCTCTTATAGAATTGAAAG CTTGAAATTACAGAAAAAATAACATTCATTTACCCTGT spacer
length: 38 repeater length: 24

150 1306137 GATAATCTCTTATAGAATTGAAAG ATTCCAACGGCACTTCTTATTCTTTACAGTTACGGGC spacer
length: 38 repeater length: 24

151 1306200 GATAATCTCTTATAGAATTGAAAG CAGAATTAGCACGGTTAGTCGAGCAGTTAGAAATTTAC spacer
length: 38 repeater length: 24

152 1306263 GATAATCTCTTATAGAATTGAAAG CTTTGAAGTACTCTTCTCTATGATACGACACCAATTCT spacer
length: 38 repeater length: 24

153 1306326 GATAATCTCTTATAGAATTGAAAG AAATTCTCGCAGAATTCTATCTACCGGACGATGTAGCAT spacer
length: 39 repeater length: 24

154 1306390 GATAATCTCTTATAGAATTGAAAG AAACCCGAAC TTTTGCTATATATAGCATTTCGAACTTTTAC spacer
length: 41 repeater length: 24

155 1306456 GATAATCTCTTATAGAATTGAAAG CGACACCAGTCGGTATTATCTCTTCTTCCTTCAAACCA spacer
length: 38 repeater length: 24

156 1306519 GATAATCTCTTATAGAATTGAAAG GAAAAGTTTGGCAGAAAAAGAGTCTGGCTTTGCCAGAAAG spacer
length: 40 repeater length: 24

157 1306584 GATAATCTCTTATAGAATTGAAAG AAGATTGTGGCTATTGCCGCACCGGCGTAAGCGTATTCT spacer
length: 39 repeater length: 24

158 1306648 GATAATCTCTTATAGAATTGAAAG CCAAATGCCCGTGAAACATAAACATAATCTCCAGTAGAC spacer
length: 39 repeater length: 24

159 1306712 GATAATCTCTTATAGAATTGAAAG GCTAATTCCAATGCTAAGTTATCTAGGGCAACAAACAAT spacer
length: 39 repeater length: 24

160 1306776 GATAATCTCTTATAGAATTGAAAG TCACGTTTGCCGTACTCCACCAAAGATATGTATTGAA spacer
length: 37 repeater length: 24

161 1306838 GATAATCTCTTATAGAATTGAAAG GACTCGAAAGCCAAAGAGAACGAGAAATGGGACCGT spacer length:
36 repeater length: 24

162 1306899 GATAATCTCTTATAGAATTGAAAG AGCATAAGACCAAGCGCAATTGCGAGGTAATCAAAAA spacer
length: 37 repeater length: 24

163 1306961 GATAATCTCTTATAGAATTGAAAG ACAACTCGTTCCTGGGTATCCCTGTTTTGTCTTCTAA spacer
length: 37 repeater length: 24

164 1307023 GATAATCTCTTATAGAATTGAAAG TTTTGTCTCCAAATCGTTTGTCCAATCAAAC TTAATTA spacer
length: 38 repeater length: 24

165 1307086 GATAATCTCTTATAGAATTGAAAG CCTTCAAACATAAGTTTGACAAATACGGTAGCCCCGC spacer
length: 37 repeater length: 24

166 1307148 GATAATCTCTTATAGAATTGAAAG TTTTATCCATTTGATCCCTTCCTTATAATACAGACCTA spacer
length: 38 repeater length: 24

167 1307211 GATAATCTCTTATAGAATTGAAAG CAGATAGATTCCATAACTCACCTCGCCCAAGAAGACT spacer
length: 37 repeater length: 24

168 1307273 GATAATCTCTTATAGAATTGAAAG ATAAAATAATCGTTCAATATTTCAATGAAACTGGTGTTATG spacer
length: 41 repeater length: 24

169 1307339 GATAATCTCTTATAGAATTGAAAG AAAAGCCAATCCCAAGATACATCATCGCAGAAATATTC spacer
length: 38 repeater length: 24

170 1307402 GATAATCTCTTATAGAATTGAAAG TTTTGATAACTAGATGTGGAACCGAAGTTTACTACTAGT spacer
length: 39 repeater length: 24

171 1307466 GATAATCTCTTATAGAATTGAAAG ACAGTACCATCAAAATTAGGATAGCCGCCACAAACC spacer length:
36 repeater length: 24

172 1307527 GATAATCTCTTATAGAATTGAAAG AAAGAAGCGATCAAAAAGCTGGATAAGGAGTTGAAGCA spacer
length: 38 repeater length: 24

173 1307590 GATAATCTCTTATAGAATTGAAAG GGTTTCTCTCTTGTGCGCTCTGCCAGTGCATCATCTA spacer
length: 37 repeater length: 24

174 1307652 GATAATCTCTTATAGAATTGAAAG TCTTGTGTGGTGTAAACGATCTCGAATCCTGGGGGTA spacer
length: 37 repeater length: 24

175 1307714 GATAATCTCTTATAGAATTGAAAG ATAAAACATATGTATTGGTGCCTATAATTAATAGCCAT spacer
length: 38 repeater length: 24

176 1307777 GATAATCTCTTATAGAATTGAAAG TCCAGTTTCCTTTGCAACATTATCTATAAACGTGTCCT spacer
length: 38 repeater length: 24

177 1307840 GATAATCTCTTATAGAATTGAAAG CTCACATGTTTGCTGTGCGAGAAGTTGAATAAGCAG spacer length:
36 repeater length: 24

178 1307901 GATAATCTCTTATAGAATTGAAAG TCTCCTTTTCTTCTAAGCTAAGATAAGCCTGTTTAAT spacer
length: 37 repeater length: 24

179 1307963 GATAATCTCTTATAGAATTGAAAG TTACCTCTACAAC TCCAGCTTCCTCTGTTGAATGCGG spacer
length: 38 repeater length: 24

180 1308026 GATAATCTCTTATAGAATTGAAAG TTCAATTTATGTGTTACTTTTAATAATTGTTTCACTGCC spacer
length: 39 repeater length: 24

181 1308090 GATAATCTCTTATAGAATTGAAAG TCGGATATGTCAGTCTTGACGAATTCGTATGCGTCTCCT spacer
length: 39 repeater length: 24

182 1308154 GATAATCTCTTATAGAATTGAAAG AAATATAAACCATAAATCGTCAACAATTAGACTAACA spacer
length: 37 repeater length: 24

183 1308216 GATAATCTCTTATAGAATTGAAAG CATGGTGGGGGGGCGTCAAAAATTCAGAAATATTTTGCA spacer
length: 39 repeater length: 24

184 1308280 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA spacer
length: 37 repeater length: 24

185 1308342 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCG TGAGGGATACTATGA spacer length:

36 repeater length: 24

186 1308403 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCCGGCTCGTCAGTTTTCCACAGAT spacer
length: 39 repeater length: 24

187 1308467 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA spacer
length: 38 repeater length: 24

188 1308530 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCCAACTA spacer
length: 37 repeater length: 24

189 1308592 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG spacer
length: 39 repeater length: 24

190 1308656 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC spacer
length: 40 repeater length: 24

191 1308721 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA spacer length:
36 repeater length: 24

192 1308782 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCT spacer
length: 38 repeater length: 24

193 1308845 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC spacer
length: 39 repeater length: 24

194 1308909 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCTATCTGACTTTTCTGT spacer
length: 37 repeater length: 24

195 1308971 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG spacer
length: 37 repeater length: 24

196 1309033 GATAATCTCTTATAGAATTGAAAG GTCAAATTTGCCCAACCGAACGTTAGCAAAATGCAGCA spacer
length: 39 repeater length: 24

197 1309097 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 40 repeater length: 24

198 1309162 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAAC spacer
length: 38 repeater length: 24

199 1309225 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT spacer
length: 38 repeater length: 24

200 1309288 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTC spacer
length: 39 repeater length: 24

201 1309352 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA spacer length:
34 repeater length: 24

202 1309411 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG spacer
length: 38 repeater length: 24

203 1309474 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTAT spacer
length: 38 repeater length: 24

204 1309537 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTG spacer length:
36 repeater length: 24

205 1309598 GATAATCTCTTATAGAATTGAAAG CTACTACATCATCCTCTACCACGCCAAGCCAACAAC spacer length:
36 repeater length: 24

206 1309659 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG spacer
length: 37 repeater length: 24

207 1309721 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT spacer
length: 40 repeater length: 24

208 1309786 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC spacer
length: 38 repeater length: 24

209 1309849 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG spacer length:
36 repeater length: 24

210 1309910 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA spacer
length: 38 repeater length: 24

211 1309973 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG spacer
length: 40 repeater length: 24

212 1310038 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA spacer
length: 38 repeater length: 24

213 1310101 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA spacer
length: 41 repeater length: 24

214 1310167 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA spacer length:
36 repeater length: 24

215 1310228 GATAATCTCTTATAGAATTGAAAG TGTTCGTGTCGTTACTGTCGTAAAGCACGTCCTATTA spacer length:
36 repeater length: 24

216 1310289 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG spacer
length: 37 repeater length: 24

217 1310351 GATAATCTCTTATAGAATTGAAAG TCCTTGAGATGTTGATGTTTTATACGGTATTATGTGA spacer
length: 38 repeater length: 24

218 1310414 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTTCGGTTTCGCTTTATACCT spacer
length: 37 repeater length: 24

219 1310476 GATAATCTCTTATAGAATTGAAAG CAAATTTCCGCGAAAATTGTACCGAATTTCCGCATTGCTG spacer
length: 40 repeater length: 24

220 1310541 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGT spacer
length: 39 repeater length: 24

221 1310605 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGA spacer
length: 41 repeater length: 24
222 1310671 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGG spacer
length: 38 repeater length: 24
223 1310734 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAA spacer
length: 38 repeater length: 24
224 1310797 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGT spacer length:
36 repeater length: 24
225 1310858 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC spacer
length: 38 repeater length: 24
226 1310921 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA spacer
length: 40 repeater length: 24
227 1310986 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG spacer
length: 37 repeater length: 24
228 1311048 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTTCAGAAGAATTAT spacer
length: 38 repeater length: 24
229 1311111 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT spacer length:
36 repeater length: 24
230 1311172 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACT spacer
length: 39 repeater length: 24
231 1311236 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT spacer
length: 40 repeater length: 24
232 1311301 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCA spacer
length: 39 repeater length: 24
233 1311365 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAA spacer
length: 37 repeater length: 24
234 1311427 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24
235 1311489 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTGCAAT spacer
length: 37 repeater length: 24
236 1311551 GATAATCTCTTATAGAATTGAAAG TGGTATTCAGTAAATTCATGCTATAGTCAATTTCTTA
237
238
239 crispr 5
240 1254545 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
241 1254611 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
242 1254675 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
243 1254737 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
244 1254800 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
245 1254865 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
246 1254925 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
247 1254989 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
248 1255053 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTTCGATAATA spacer
length: 40 repeater length: 25
249 1255119 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
250 1255183 CTTTCAATTCCTTTTAGGATTAATC GTAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
251 1255247 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
252 1255309 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
253 1255371 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
254 1255436 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTGCAGGAGATTTCAGTATTAC spacer
length: 37 repeater length: 25
255 1255499 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
256 1255564 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAA spacer
length: 38 repeater length: 25
257 1255628 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
258 1255690 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer

length: 39 repeater length: 25
259 1255755 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
260 1255822 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
261 1255885 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTATC spacer length:
35 repeater length: 25
262 1255946 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
263 1256008 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
264 1256071 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
265 1256136 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
266 1256196 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
267 1256261 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC spacer
length: 39 repeater length: 25
268 1256326 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
269 1256392 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25
270 1256456 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25
271 1256519 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA spacer
length: 39 repeater length: 25
272 1256584 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25
273 1256647 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
35 repeater length: 25
274 1256708 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
length: 36 repeater length: 25
275 1256770 CTTTCAATTCCTTTTAGGATTAATC GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
length: 43 repeater length: 25
276 1256839 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
length: 37 repeater length: 25
277 1256902 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC spacer length:
35 repeater length: 25
278 1256963 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
35 repeater length: 25
279 1257024 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
length: 38 repeater length: 25
280 1257088 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
length: 40 repeater length: 25
281 1257154 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
33 repeater length: 25
282 1257213 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
length: 38 repeater length: 25
283 1257277 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
length: 39 repeater length: 25
284 1257342 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
length: 39 repeater length: 25
285 1257407 CTTTCAATTCCTTTTAGGATTAATC TTATCAAGTCGAAGATTGCACTAGAGTCAAAGGTATCA
286
287
288 crispr 6
289 1257470 CTTTCAATTCCTTTTGGGATTAATC ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTAT spacer
length: 39 repeater length: 25
290 1257535 CTTTCAATTCCTTTTGGGATTAATC TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAA spacer
length: 38 repeater length: 25
291 1257599 CTTTCAATTCCTTTTGGGATTAATC ATTATATCATGGAGACCCAGGTGCTGTGACTATCA spacer length:
35 repeater length: 25
292 1257660 CTTTCAATTCCTTTTGGGATTAATC AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTA spacer
length: 42 repeater length: 25
293 1257728 CTTTCAATTCCTTTTGGGATTAATC ATAATATATTTCTGTTCCAACCTACACCTAATGGATTCTGG spacer
length: 38 repeater length: 25
294 1257792 CTTTCAATTCCTTTTGGGATTAATC TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACG spacer length:
35 repeater length: 25
295 1257853 CTTTCAATTCCTTTTGGGATTAATC AAAAGACGTACAAATATACATCGCACCGAACGGACACA spacer
length: 38 repeater length: 25

296 1257917 CTTTCAATTCCTTTTGGGATTAATC GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTG spacer
length: 36 repeater length: 25

297 1257979 CTTTCAATTCCTTTTGGGATTAATC TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTT spacer
length: 36 repeater length: 25

298 1258041 CTTTCAATTCCTTTTGGGATTAATC GATAAAATATTAAATTCTCAAATTCATTTAGA spacer length:
33 repeater length: 25

299 1258100 CTTTCAATTCCTTTTGGGATTAATC AAAATTTGAAACAATATCGCATCTTGAATAATTA spacer length:
34 repeater length: 25

300 1258160 CTTTCAATTCCTTTTGGGATTAATC ACCCCAGAATCCTTGTAAGTAATTTAGTAGCAATGT spacer
length: 36 repeater length: 25

301 1258222 CTTTCAATTCCTTTTGGGATTAATC AGAACAAGGTAAATAGGAGTGTAGTCATAAGGAGAGCAA spacer
length: 39 repeater length: 25

302 1258287 CTTTCAATTCCTTTTGGGATTAATC CTCATTTATTTCGCATCATCTCCCACCTTATCTAAGCC spacer
length: 37 repeater length: 25

303 1258350 CTTTCAATTCCTTTTGGGATTAATC CCCAAGTAAGCGATATTTTAATGGGCTTACTTTTT spacer length:
35 repeater length: 25

304 1258411 CTTTCAATTCCTTTTGGGATTAATC GAAAAATTGGTAGAGGACAATATGAAGAATATATTAT spacer
length: 37 repeater length: 25

305 1258474 CTTTCAATTCCTTTTGGGATTAATC GAAAAAAGAAGGTGATGAGAGAAGATGAGTGAGAAAG spacer
length: 38 repeater length: 25

306 1258538 CTTTCAATTCCTTTTGGGATTAATC GATCTATTTCGAGAGTTTTCGTCACACATAAATA spacer length:
35 repeater length: 25

307 1258599 CTTTCAATTCCTTTTGGGATTAATC ACTTTCATCTTCAATTGGGACGATTAAACTATTTA spacer length:
35 repeater length: 25

308 1258660 CTTTCAATTCCTTTTGGGATTAATC CAAAAATCTCAACGACAACACCAACCACAGCATTAACAA spacer
length: 39 repeater length: 25

309 1258725 CTTTCAATTCCTTTTGGGATTAATC CTGACCTTAGTAATGAGTAATAGATTCCCTGCGATG spacer
length: 36 repeater length: 25

310 1258787 CTTTCAATTCCTTTTGGGATTAATC GGCATTTACAAGTGGTCACCAGAAATGGGCGTGT spacer length:
34 repeater length: 25

311 1258847 CTTTCAATTCCTTTTGGGATTAATC TGCCCCATGTCTTCGGTTTGCAAATCATAAGGTATC spacer
length: 36 repeater length: 25

312 1258909 CTTTCAATTCCTTTTGGGATTAATC CCATTTAAGATCTACTTCACACCACCTTCGCAGGAG spacer
length: 36 repeater length: 25

313 1258971 CTTTCAATTCCTTTTGGGATTAATC ATTTATCTGTTTCATCCGTGGCTTTGCCACTCATTTTCGTCTT spacer
length: 42 repeater length: 25

314 1259039 CTTTCAATTCCTTTTGGGATTAATC TACAAAACTAAAAAATAAAAACTAAAAATTAAAAA spacer
length: 37 repeater length: 25

315 1259102 CTTTCAATTCCTTTTGGGATTAATC TGATAGATTGGGAGAAATACTACCTGAAATTGAAA spacer length:
35 repeater length: 25

316 1259163 CTTTCAATTCCTTTTGGGATTAATC TATGTTGTAGAACTTAAACCTACATACCATTCCGCAATTA spacer
length: 40 repeater length: 25

317 1259229 CTTTCAATTCCTTTTGGGATTAATC CACTAGAATTGAATGTCGACAAACATACGACATGGTTC spacer
length: 38 repeater length: 25

318 1259293 CTTTCAATTCCTTTTGGGATTAATC AATGGAGGCAATGAATGAATTAGAAAGTGAAGAGAGAG spacer
length: 38 repeater length: 25

319 1259357 CTTTCAATTCCTTTTGGGATTAATC TCCAGAATGGAGGGCATATAATGTTGAGCAGTATG spacer length:
35 repeater length: 25

320 1259418 CTTTCAATTCCTTTTGGGATTAATC AAATACAAAGCCGATGAACCGCAATCTGCCCCTACAAT spacer
length: 38 repeater length: 25

321 1259482 CTTTCAATTCCTTTTGGGATTAATC TGAAGAGATTGACGGTATAAAATTTGAAGATATAATTA spacer
length: 38 repeater length: 25

322 1259546 CTTTCAATTCCTTTTGGGATTAATC ATGGTATCTTGAGGCAGTGTACGGGTGATGCTAAGTTA spacer
length: 38 repeater length: 25

323 1259610 CTTTCAATTCCTTTTGGGATTAATC AAGTGCCTCCAGCATTTAGTGCAAGTTGGTTTGATA spacer
length: 36 repeater length: 25

324 1259672 CTTTCAATTCCTTTTGGGATTAATC TTCTGTTAAGCGCTCTTGCAACCTTCATGCCATAGCC spacer
length: 37 repeater length: 25

325 1259735 CTTTCAATTCCTTTTGGGATTAATC CTTACTTGTTGGCTAGGATTTTACCAAATGCAATTGA spacer
length: 37 repeater length: 25

326 1259798 CTTTCAATTCCTTTTGGGATTAATC GGTTCTAGCTTACGTTATCTAATTTGACGTGTGCG spacer
length: 36 repeater length: 25

327 1259860 CTTTCAATTCCTTTTGGGATTAATC CATATAGTTCACCAGCACCCAGCGGTGTGAAGGATA spacer
length: 36 repeater length: 25

328 1259922 CTTTCAATTCCTTTTGGGATTAATC ATTTGAAAATGTTTAACATAACTGGAGTAATTCCAT spacer
length: 36 repeater length: 25

329 1259984 CTTTCAATTCCTTTTGGGATTAATC TTCATCTAGAAGATATGAACAAGCTGTTGATGTGCAA spacer
length: 37 repeater length: 25

330 1260047 CTTTCAATTCCTTTTGGGATTAATC GACATTAGCCCTGGGGGTATCTAAACCATCAGTTGAG spacer
length: 37 repeater length: 25

331 1260110 CTTTCAATTCCTTTTGGGATTAATC ATATGACAACGTAGACATTTTCATTATGGATTGTGA spacer

length: 36 repeater length: 25

332 1260172 CTTTCAATTCCTTTTGGGATTAATC ATCAAAACGGCACAGAACATCTTAGGGCAATTAGC spacer length: 35 repeater length: 25

333 1260233 CTTTCAATTCCTTTTGGGATTAATC TAATATGATTTTATTAAATCTAGTAGTAAAGCCATTA spacer length: 37 repeater length: 25

334 1260296 CTTTCAATTCCTTTTGGGATTAATC AACATCTTAATGCCTTTTATACCGCCAGTTACACATTATATCA spacer length: 42 repeater length: 25

335 1260364 CTTTCAATTCCTTTTGGGATTAATC AATTTACGATATTATACCGGTTGAGCCTGCAAAAAATG spacer length: 38 repeater length: 25

336 1260428 CTTTCAATTCCTTTTGGGATTAATC TGATGATATTCAATGAAGTCCATTAGTACTTCCCCCA

337

338

339 crispr 7

340 1233466 GATTAATCCCAAAAGGAATTGAAAG GAACTAGCTTATAGTTTAGAAGAAAACAAACAAATAA spacer length: 37 repeater length: 25

341 1233529 GATTAATCCCAAAAGGAATTGAAAG ATTTTCAGCTGAAAATTTGAAATCTGTAGATTTGGAT spacer length: 37 repeater length: 25

342 1233592 GATTAATCCCAAAAGGAATTGAAAG TTCCAAAATTGATCTTCTATTGCGTCTTTTATTGCTTT spacer length: 38 repeater length: 25

343 1233656 GATTAATCCCAAAAGGAATTGAAAG ATTGTAGTCTTTATCAATCCACGTTTCTCTAATCTT spacer length: 36 repeater length: 25

344 1233718 GATTAATCCCAAAAGGAATTGAAAG AATTTTATACCGTCAATCTCTTCATTGTCGCCATAAT spacer length: 37 repeater length: 25

345 1233781 GATTAATCCCAAAAGGAATTGAAAG GTGCTTCGCACATCACTCATCTTCTCTCATCACCTT spacer length: 36 repeater length: 25

346 1233843 GATTAATCCCAAAAGGAATTGAAAG AATGTATAAAGGTAACCAGGAGTTGTCCACTTTC spacer length: 35 repeater length: 25

347 1233904 GATTAATCCCAAAAGGAATTGAAAG ATATTTACCTTACTCTTTTGGAGAAAGGTTATACGA spacer length: 36 repeater length: 25

348 1233966 GATTAATCCCAAAAGGAATTGAAAG TTTAGGATTGACGATAAAGAAGATGTTATCGTTGGT spacer length: 36 repeater length: 25

349 1234028 GATTAATCCCAAAAGGAATTGAAAG CGAACGTAGTTTGAACCTGGCGGTATGTAGACATTAGCT spacer length: 39 repeater length: 25

350 1234093 GATTAATCCCAAAAGGAATTGAAAG AGACTTGATGTCGTCCTGTTGCCAATTAGCGAGGGCT spacer length: 37 repeater length: 25

351 1234156 GATTAATCCCAAAAGGAATTGAAAG CTAATAAAGACGTTAGGATGTTTGCAGTTGCCTGATGACCA spacer length: 41 repeater length: 25

352 1234223 GATTAATCCCAAAAGGAATTGAAAG CTGGACAGTATTCAATTTTAACTGCAATTAAACCTCTCT spacer length: 39 repeater length: 25

353 1234288 GATTAATCCCAAAAGGAATTGAAAG CAAAATATATACCGGTCTAAAGGTTTCCTGTATCGCAGAC spacer length: 40 repeater length: 25

354 1234354 GATTAATCCCAAAAGGAATTGAAAG TGCGACTTGCAGTATCGCAGATGCAACCATTTTTGCA spacer length: 37 repeater length: 25

355 1234417 GATTAATCCCAAAAGGAATTGAAAG TTAACCTCCACTAGGTGAACAAGTCGTCAAATCTCAAAT spacer length: 38 repeater length: 25

356 1234481 GATTAATCCCAAAAGGAATTGAAAG TTCAGAATAGCTTAATGCCTCAAATGGTAGATTTGGAATACC spacer length: 42 repeater length: 25

357 1234549 GATTAATCCCAAAAGGAATTGAAAG AAATCTATATCAAGTTGTAATTGGTGTGACAATCAGCT spacer length: 39 repeater length: 25

358 1234614 GATTAATCCCAAAAGGAATTGAAAG TTACAACCTGTTGTCCAACTCCGTGAGTAAACGTATT spacer length: 38 repeater length: 25

359 1234678 GATTAATCCCAAAAGGAATTGAAAG AAATTTGGGACATTAAAAAAGCTAAACAACCTTTGA spacer length: 37 repeater length: 25

360 1234741 GATTAATCCCAAAAGGAATTGAAAG AATTCAAACCCCGGATCAAGAGTTAAACCAAGATG spacer length: 35 repeater length: 25

361 1234802 GATTAATCCCAAAAGGAATTGAAAG ACAATTATTAACGCTTAATTTGCAAGGTATAATTTCTT spacer length: 38 repeater length: 25

362 1234866 GATTAATCCCAAAAGGAATTGAAAG TTCAATATATCATCAGGATTCATTTTTACAATTTT spacer length: 35 repeater length: 25

363 1234927 GATTAATCCCAAAAGGAATTGAAAG ACTTCTACATTTATGTTGACTCCCATCTTGCTCATATCT spacer length: 39 repeater length: 25

364 1234992 GATTAATCCCAAAAGGAATTGAAAG ACTGCTATTTTTAGTTTACGATTTAAGACTGGAGTTTT spacer length: 38 repeater length: 25

365 1235056 GATTAATCCCAAAAGGAATTGAAAG TTATCATTTCTGAGGTTTAGCTTTTTCTATTTTTTCTA spacer length: 37 repeater length: 25

366 1235119 GATTAATCCCAAAAGGAATTGAAAG ATAAC TAATTGACTTAACTTCTTTTTGTTTTCTCGATTA spacer length: 40 repeater length: 25

367 1235185 GATTAATCCCAAAAGGAATTGAAAG CTCGCTAACGTTCAAATCTTTCAATAATTTTTGCACG spacer length: 37 repeater length: 25

368 1235248 GATTAATCCCAAAAGGAATTGAAAG ATCTTTATTTTCATTTTCATATTTCCACACTAGGATGA spacer length: 38 repeater length: 25

369 1235312 GATTAATCCCAAAAAGGAATTGAAAG ATCAAATTTGCGGAAGAGCAGGAAGACCGGGATATGA spacer
length: 37 repeater length: 25

370 1235375 GATTAATCCCAAAAAGGAATTGAAAG GGTTTTCTGCCAACGACTGCAATAAAACCAAAA spacer length:
33 repeater length: 25

371 1235434 GATTAATCCCAAAAAGGAATTGAAAG GTATTTTCTAGAAAACCTCTCAGCTTTTTCTTGGACA spacer
length: 37 repeater length: 25

372 1235497 GATTAATCCCAAAAAGGAATTGAAAG TCCCCTCCCTCTTCTCTGAGTTTCTTCTGGCGATTGTC spacer
length: 37 repeater length: 25

373 1235560 GATTAATCCCAAAAAGGAATTGAAAG TTTATATAATCCTCAACTGTAAATCTTGGGATTTTTTCA spacer
length: 39 repeater length: 25

374 1235625 GATTAATCCCAAAAAGGAATTGAAAG ATATTGTGCAGTAGAATAAATTATAATTGCGATTGCA spacer
length: 37 repeater length: 25

375 1235688 GATTAATCCCAAAAAGGAATTGAAAG ATACAATAGACACTACATGCCTAGATGAAGAGAATA spacer
length: 36 repeater length: 25

376 1235750 GATTAATCCCAAAAAGGAATTGAAAG ACAGAAAAATGAAACCCCGCAACAATATTTCAATTCT spacer
length: 37 repeater length: 25

377 1235813 GATTAATCCCAAAAAGGAATTGAAAG CATCTTTTTCCGTCGCTTTATATCACCTATGGACTCTTC spacer
length: 39 repeater length: 25

378 1235878 GATTAATCCCAAAAAGGAATTGAAAG ACCATACCCAACCTTCTAACAACGTCGTTCTTAACAAC spacer
length: 37 repeater length: 25

379 1235941 GATTAATCCCAAAAAGGAATTGAAAG AGTAAATCAAAAAGCAAATAAGTCAGGGGTGGAGAATT spacer
length: 38 repeater length: 25

380 1236005 GATTAATCCCAAAAAGGAATTGAAAG TAACGTTTTTAGTTATGTGCTTATCTTCTTCGT spacer length:
33 repeater length: 25

381 1236064 GATTAATCCCAAAAAGGAATTGAAAG TTGTAGTTTGAATGCGAAACCATTGCTAAGATATTGATAAT spacer
length: 42 repeater length: 25

382 1236132 GATTAATCCCAAAAAGGAATTGAAAG CGTTATCACAGTTATATTTCTTCTTTAAAATATCATA spacer
length: 37 repeater length: 25

383 1236195 GATTAATCCCAAAAAGGAATTGAAAG TTATCCAGACATTAAGCATGTTGTCGTAGAGGTAGCT spacer
length: 37 repeater length: 25

384 1236258 GATTAATCCCAAAAAGGAATTGAAAG TACTTTTCCATCTTGAGGTATTGCGTTTAGTTGCAC spacer
length: 36 repeater length: 25

385 1236320 GATTAATCCCAAAAAGGAATTGAAAG TAATATTTTCCAGATTGTCTAAAATTCATCAAATT spacer length:
35 repeater length: 25

386 1236381 GATTAATCCCAAAAAGGAATTGAAAG TCTGTCAGTAGCACAAATAATTTGTTCTCATAAATAG spacer
length: 38 repeater length: 25

387 1236445 GATTAATCCCAAAAAGGAATTGAAAG CGCCCATAGGACGGGATTTAGATTTCTTGTAGGATTTGTT spacer
length: 40 repeater length: 25

388 1236511 GATTAATCCCAAAAAGGAATTGAAAG GTAAGGGGGCTATCCATCCCCGCGCGTGAGGCTTTCCGCC spacer
length: 40 repeater length: 25

389 1236577 GATTAATCCCAAAAAGGAATTGAAAG TGAATCGTTATGGGCTTAGTTAATTCCGTAGTTAAAC spacer
length: 37 repeater length: 25

390 1236640 GATTAATCCCAAAAAGGAATTGAAAG AACTTAAAGTTGTTATACGTCATTGGAATAACATTCAT spacer
length: 38 repeater length: 25

391 1236704 GATTAATCCCAAAAAGGAATTGAAAG TTTACGATATTCACGTCGACAGATACCCTTACTGCTGAT spacer
length: 39 repeater length: 25

392 1236769 GATTAATCCCAAAAAGGAATTGAAAG ATAGAATTGCATCAGACAGCTTTCATACCTCCGCATC spacer
length: 37 repeater length: 25

393 1236832 GATTAATCCCAAAAAGGAATTGAAAG TGAATAGCAACATCGTGTAACCTCATCCTCAGCCTT spacer
length: 36 repeater length: 25

394 1236894 GATTAATCCCAAAAAGGAATTGAAAG TCTTTTCGCTCCTTGCACTAGTTTTTTCATTTTGCT spacer length:
34 repeater length: 25

395 1236954 GATTAATCCCAAAAAGGAATTGAAAG ATATCCAACGCTTGAAGTAATATTTGAATGTCAATACTT spacer
length: 39 repeater length: 25

396 1237019 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTT spacer
length: 38 repeater length: 25

397 1237083 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25

398 1237144 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25

399 1237208 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25

400 1237274 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25

401 1237340 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTCAGCCCT spacer length:
35 repeater length: 25

402 1237401 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25

403 1237462 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25

404 1237526 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:

33 repeater length: 25

405 1237585 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25

406 1237648 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25

407 1237713 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25

408 1237778 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25

409 1237843 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25

410 1237907 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25

411 1237972 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25

412 1238036 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25

413 1238101 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25

414 1238164 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25

415 1238228 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25

416 1238290 GATTAATCCCAAAAGGAATTGAAAG TATATTGATGAGTCGAAGAATCTGATGAAGAACTTCCTT spacer
length: 39 repeater length: 25

417 1238355 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25

418 1238415 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25

419 1238477 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

420 1238541 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25

421 1238605 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25

422 1238670 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAATAATCCA spacer
length: 38 repeater length: 25

423 1238734 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25

424 1238798 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTT spacer
length: 37 repeater length: 25

425 1238861 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25

426 1238925 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25

427 1238991 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25

428 1239054 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25

429 1239115 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25

430 1239179 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25

431 1239243 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25

432 1239304 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25

433 1239368 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25

434 1239430 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25

435 1239494 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25

436 1239556 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25

437 1239620 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25

438 1239681 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25

439 1239744 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25

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440 1239809 GATTAATCCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
441 1239873 GATTAATCCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
442 1239935 GATTAATCCCCAAAAGGAATTGAAAG CTAAACCATTTCAAAGGCTAACATCTTCTATGTCTT
443
444
445 crispr 8
446 1587274 CGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGA
GGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAAAACAAGGTGAAGCCATTGTATCACTCCAAGAAG
AGGTGAAGAGACATGGGGAT spacer length: 106 repeater length: 40
447 1587421 CGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGA
AGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAAAACAAGGTGAAGCCATTGTATCACTCCAAGAAG
AGGTGAAGAGACATGGGGAT spacer length: 106 repeater length: 40
448 1587568 CGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGA
TATTTTTCTTTTCTCCTTTTCTTACTTATAAATCTTCATGACTACCCTTTACTCTTCATGCGACCAATTTTAGTTGTAATTAATTTA
ACAATTTCTGGTCGCAAGGA
449
450
451 crispr 9
452 1650667 GTTCTTCTATTCTTTTTGAGTGTTCTTCTAGAATTTTTGA GTGCTCTTCTATTCTTTTAGAA spacer
length: 22 repeater length: 40
453 1650730 GTTCTTCTATTCTTTTTGAGTGTTCTTCTAGAATTTTTGA
GTGCTCTTCTACCCCTTAGCTAATTCCTCCACTCTCTTTGTT spacer length: 43 repeater length: 40
454 1650814 GTTCTTCTATTCTTTTTGAGTGTTCTTCTAGAATTTTTGA GTGCTCTTCTATTCTTTTAGAA spacer
length: 22 repeater length: 40
455 1650877 GTTCTTCTATTCTTTTTGAGTGTTCTTCTAGAATTTTTGA ACTCTCTTTGTTAGTTCTTCTA
456
457
458 GCA_000007065.1_ASM706v1_genomic.fna(findCrispr):
459 START REPEAT
SPACER
460 crispr 1
461 3955434 TGTTC AAGGCAATTGAAGAT GCACAAAAGTACTTTTCAGAAGTTTATTTCCCTTCA spacer length: 36
repeater length: 20
462 3955491 TGTTC AAGGCAATTGAAGAT TCACAAAAGTACCTTTTCAGAAGTTTATTTCCCTTCA spacer length: 36
repeater length: 20
463 3955548 TGTTC AAGGCAATTGAAGAT TTAGCAGCACTAGACCTCACATCACTGTTTTTTATTA
464
465
466 crispr 2
467 503611 ATCAGCTACATAGGCGTAATT
CCCGGAAATTTGAGACACCGTAAATATCTCCGGCAGTATCGTAGCTTCCTTTGAGAACTGGTGAAGATGGATTGCTTATATCAACAA
TCATAAGACCATTACCCC spacer length: 104 repeater length: 21
468 503737 ATCAGCTACATAGGCGTAATT
GCCGTAAACTGCAACATCGCCAGTAGGACCGGCATAACGTCCTTTGAGAATTGGATCAGAAGGATTACTGATATCAACAATCACAA
GACCATCAT spacer length: 95 repeater length: 21
469 503854 ATCAGCTACATAGGCGTAATT
AGCAGCACTAGACCTCACATCACTGTTTTTTATTATTGGTCAATCCATGTAAATCATGCCATGCCTGTTGTTTATCTGGCACTTGAG
AAAAAGCAG
470
471
472 crispr 3
473 2474091 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCTGATGTTTCATCGTTAACTGATGGTA
spacer length: 50 repeater length: 21
474 2474163 ATCTCCACCTGATGTTTCATC GTTTCCAGATTGATCATCTTCACCGGATGTTTCACCGTTATCTGATGGTA
spacer length: 50 repeater length: 21
475 2474235 ATCTCCACCTGATGTTTCATC TATTCAATCTGTTTTAACGTGGGGGTACAGTAATGGGCAGAACTATCAGC
476
477
478 crispr 4
479 3856139 GACACCTCCTGAAGAAGTGAC GCCTCCTGAAGAAGTAACACCAACAGAAGAAG spacer length: 32
repeater length: 21
480 3856193 GACACCTCCTGAAGAAGTGAC
ACCTCCCGAAGAAGTGACACCAACAGAAGAAGTAACACCAACAGAAGAAGTAACACCTCCTGAAGAAGTAACACCTCCTGAAGAAG
spacer length: 86 repeater length: 21
481 3856301 GACACCTCCTGAAGAAGTGAC
ATTCAATCTGTTTTAACGTGGGGGTACAGTAATGGGCAGAACTATCAGCGGTGCATTAATAGGTATGGTTCTTACTTTTGTTTTTT
482
483
484 crispr 5
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485 2328201 TATAATTACAGTTTATATAAT TAAAGTTTATTTAATTTCCA spacer length: 20 repeater
length: 21
486 2328243 TATAATTACAGTTTATATAAT TAAAGTTTATTTAATTTCCA spacer length: 20 repeater
length: 21
487 2328285 TATAATTACAGTTTATATAAT TAAAGTTTGTTTAATTTCCA spacer length: 20 repeater
length: 21
488 2328327 TATAATTACAGTTTATATAAT TAAAGTTTGTTC AATTTCCA spacer length: 20 repeater
length: 21
489 2328369 TATAATTACAGTTTATATAAT CAGTTATTCAATCTGTTTTA
490
491
492 crispr 6
493 3659509 ATACAAATGTAACAGATGACAC
TAACGTAACAGATGGTACAAATGTAACAGATGACACTAACGTAACAGATGGTACAAATGTGACTAATGATACAAATGTGACTAATG
ATACAAATGTGACTAATGATACAAATGTGACTAATGATACAAATGTGACTAATGATACAAATGTGACTAAT spacer
length: 157 repeater length: 22
494 3659689 ATACAAATGTAACAGATGACAC
TAACGTAACAGACGGTACAAATGTAACAGATGGTACAAATGTA ACTATTGATACAAATGTA ACTATTGATACAAATGTA ACTATTG
ATACAAACGTGACTGAC spacer length: 103 repeater length: 22
495 3659815 ATACAAATGTAACAGATGACAC
GTTTATTTAATTTCCAGTTATTCAATCTGTTTTAACGTGGGGGTACAGTAATGGGCAGAACTATCAGCGGTGCATTAATAGGTATG
GTTCTTACTTTTGT
496
497
498 crispr 7
499 667070 TACTCTCCTGT TAAATAAAGAAAGAT GGGTTACAATTTAAAGTTATTGATGAAGTCCCCTCCACATGCAA
spacer length: 45 repeater length: 26
500 667142 TACTCTCCTGT TAAATAAAGAAAGAT GGGTTACAATTTAAAGTTATTGACGAAGTCCCCTCCACATGCAA
spacer length: 45 repeater length: 26
501 667214 TACTCTCCTGT TAAATAAAGAAAGAT TAATTAAAGTTTATTTAATTTCCAGTTATTCAATCTGTTTTAACG
502
503
504 crispr 8
505 3941948 TCCAAATAAGGAACAATAGCTGAAAG
TGCTCGAGTTCTTTTCATCATTAGATTGAATATTGGAAGCTAGATCAAGTGCTTTTTCTATCATTCCTCCTTTTTTTTGCCC
spacer length: 81 repeater length: 26
506 3942056 TCCAAATAAGGAACAATAGCTGAAAG
CGCCATAAATATACAATAGTCATTAAGTTCAATTATAGAGATTGCATCAAGTGCTTTTTCAATCATTTCTTCCTTTTTTTGATC
spacer length: 84 repeater length: 26
507 3942167 TCCAAATAAGGAACAATAGCTGAAAG
AGAAGAAGTGACACCAACAGAAGAAGTAACACCAACAGAAGAAGTAACACCAACAGAAGAAGTGAC
508
509
510 crispr 9
511 2645634 TGATTTATTCCTGATTTATCCTTTATTTAT
TTCCTGATTTATCCTTTATTTATTTTCTGATTTATTCCTGATTTATTCCTGATTTATCCTTGATTTATTCCTGATTTATTC
spacer length: 81 repeater length: 30
512 2645746 TGATTTATTCCTGATTTATCCTTTATTTAT CCTTTATTTATTTCTGATTTATCT spacer length: 25
repeater length: 30
513 2645802 TGATTTATTCCTGATTTATCCTTTATTTAT TCCAGTTATTCAATCTGTTTTAACG
514
515
516 crispr 10
517 291175 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GATCGCAACTCCATAAGGAGCAATTCCTACAGGCACCGTGAAGGTAATACTGTAATTAGACGTATCGATTACGGAAGTAGTGTTAC
TGCCGT spacer length: 92 repeater length: 33
518 291301 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GACTACAACTCCAGAAGGACTGTAATCTACTGGAACACTGGCGATAACAGTGCTGGTCGTTGTGTTAATTACAGAGACACTGCTGT
CGTTTT spacer length: 92 repeater length: 33
519 291427 GTTCGCCACATATACCTTTGTTCCATCCGGACT
TAAGGAGCATGTCCACAGGCACCGTGGAGGTAACAGTGCTGGTTGTTGCATCAATTACAGAGATATTATTGCTGTCATCGTTAGC
CACATA
520
521
522 crispr 11
523 4089383 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGGAAGGCTGGCTTCAGACATCAAGAAGGAATGAGT
spacer length: 36 repeater length: 37
524 4089457 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTTTAGAAATATAAACATTTCTGCTGTCGTGTCT
spacer length: 36 repeater length: 37
525 4089531 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGGAAGGCTGGCTTCAGACATCAAGAAGGAATGAGT
spacer length: 36 repeater length: 37

526 4089605 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTTTAGAAATATAAACATTTCTGCTGCTGCTGCT
spacer length: 36 repeater length: 37

527 4089679 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGGCTATGTACCAATTCCATTAATTACAGGTACA
spacer length: 35 repeater length: 37

528 4089752 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGATATTCAACAGAAGAGGCAAGAAAATATGTTC
spacer length: 34 repeater length: 37

529 4089824 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGTCTAAAAGCCAGGATCTTGACAGTGGATTCTCA
spacer length: 36 repeater length: 37

530 4089898 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATTTGCATCTTCGAAGGCATTTTTTCATTATATCAG
spacer length: 37 repeater length: 37

531 4089973 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGTATTTTCGAACCTCAAACCTGTATAACGCCAGTAT
spacer length: 37 repeater length: 37

532 4090048 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTATACTACAGCGGCAGGAGGAGAGCCGGGCG
spacer length: 33 repeater length: 37

533 4090119 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTACTCTCCTGAATAGATTTACATCTTCCAGGGATA
spacer length: 37 repeater length: 37

534 4090194 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACATGACAGCAACAGACGCAGGAGATATAAGGATC
spacer length: 35 repeater length: 37

535 4090267 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGATTTGTGCTTTAGATTCCCATTGTGCTTTTCAATG
spacer length: 36 repeater length: 37

536 4090341 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAGATTACAGCGTGATCAAACCGAGTTCTTTTAGAG
spacer length: 35 repeater length: 37

537 4090414 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCGTAAGTATATGTATTCAATCGCGAAAACAGTCAG
spacer length: 37 repeater length: 37

538 4090489 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAGTATATCCTTAAAGTACGTCGTTTATAGTATATCC
spacer length: 37 repeater length: 37

539 4090564 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTTTAAGGATATACTATATGTGCGTGGTCTAGCGC
spacer length: 36 repeater length: 37

540 4090638 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGGACGCTCGACGCGTTCGACCAGGCGAACCGG
spacer length: 33 repeater length: 37

541 4090709 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTCGAAGGTTGTCCGAAAATTAAGCGAAGCTTT
spacer length: 36 repeater length: 37

542 4090783 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACGGTGTACCTTTAACGTATACACTATAAGGTATAT
spacer length: 36 repeater length: 37

543 4090857 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTACATCCGCGACGAGATCGAAGGTGAGTTGAA
spacer length: 34 repeater length: 37

544 4090929 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTA AAAAATCCAGTAAATCCCATCCTTATCTAT
spacer length: 34 repeater length: 37

545 4091001 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACGAAATGCGGAAAACGCTTCGGATGTGAAAACGTG
spacer length: 37 repeater length: 37

546 4091076 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCGGGCATTTTTGGGGTCTAGCAGAAACACTTT
spacer length: 34 repeater length: 37

547 4091148 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACGACTGTCTACGAAAATGTTTGGCGACATGGGA
spacer length: 34 repeater length: 37

548 4091220 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAGAGAAAGCTGTTACTGAAACCTTGCAACTT
spacer length: 33 repeater length: 37

549 4091291 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCATACCATTGATCTCAGCCTTGACGCCCTATCG
spacer length: 34 repeater length: 37

550 4091363 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
GCAATACAGCTACAAACAGGAGGGCATAGCCGTAATTTATGTTTCAATCCTTGTTTAAAGTGGATCTTGCTCACGAATGTCTTCCT
TTATCAAGTTTATAAGCTTTCATGTT spacer length: 112 repeater length: 37

551 4091513 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTTTAATAGATCAATCCAGGTTTCGCCCTTTTTT
spacer length: 35 repeater length: 37

552 4091586 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGGAATTAGAAAAGAGGGCGGGACGAGACAGGAA
spacer length: 35 repeater length: 37

553 4091659 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATTATCTCAAATCCCTCTTGACCAAATGACCC
spacer length: 34 repeater length: 37

554 4091731 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCATGCATTTAGAAAAGGGATTTAGCAGCACAGT
spacer length: 34 repeater length: 37

555 4091803 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTGCTCTGATATGTGGCCTGTTTTCTTGCTGTC
spacer length: 34 repeater length: 37

556 4091875 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGCCGGCAGGACTGCCCCACTCTCGCCGCGAT
spacer length: 34 repeater length: 37

557 4091947 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGGTTCTGGCTTGCGAGGCTTATTTATAATCCGAGC
spacer length: 37 repeater length: 37

558 4092022 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTTTTTTCTCCGCGCATAAATTATTGACATAATA
spacer length: 34 repeater length: 37

559 4092094 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAGGCGAAAAGCTGTTCCGGAACTCAACAACCTGATGA
spacer length: 37 repeater length: 37

560 4092169 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCTCAGAGAAATGCATGAAGCAATTGCCGAATTC
spacer length: 35 repeater length: 37

561 4092242 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGGCGGTGTATGATCCTAAATTAATTGGGTAT
spacer length: 33 repeater length: 37
562 4092313 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TACTAAGGGTACTGATTATAAGACATTCTGTGAA
spacer length: 34 repeater length: 37
563 4092385 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
ACCTGCTGATTTAGCGCAGTTTGTAGACCCTCTTAAAGAATGGTTTA spacer length: 47 repeater length: 37
564 4092470 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGCTTCAAACCCTGGAGGGGTGGGCCACGAATGG
spacer length: 34 repeater length: 37
565 4092542 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAAAAAATAGAACAGAAGGAAGCATTAGAATTT
spacer length: 35 repeater length: 37
566 4092615 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAATGTAACAAATAATAATCTAACTCTTAAAG
spacer length: 34 repeater length: 37
567 4092687 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
GTATTTTCTTTATTACTGATATGATCATTGTCGGTGTTCCAATCCTTGTTTTAGTGGATCTTGCTCACGAATCACTTTCTTCTTG
AAATGGGTTCATTTCTTTAGA spacer length: 107 repeater length: 37
568 4092832 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCGAGAACCAAGCTATTGCACTGGAACTCTGAAT
spacer length: 35 repeater length: 37
569 4092905 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAATTATGTTTGCTGATGATGTAGTTACTGGGCC
spacer length: 35 repeater length: 37
570 4092978 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGCTATCATGTGTGGATTACTTCATGATATCT
spacer length: 33 repeater length: 37
571 4093049 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGATCTCGAAATAAGAACTTATCCATTTTTTA
spacer length: 32 repeater length: 37
572 4093119 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAAGTGATCCCGAAGCCGATCAATGGGAGGTA
spacer length: 34 repeater length: 37
573 4093191 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAAAGCACGCCAAGAGACGCGCAGCTCAGAAAT
spacer length: 34 repeater length: 37
574 4093263 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTAGGTTGTTCTGGTTCTTCAAAGACTCAACCGG
spacer length: 35 repeater length: 37
575 4093336 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTTTACCCCGGCTATCTTCATTCGATCCCTCTT
spacer length: 34 repeater length: 37
576 4093408 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGGCTGCGTACGGAGTCGAATAGGACAACCTAAC
spacer length: 35 repeater length: 37
577 4093481 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTCAGCTTCTTCATGAGTCATAGGCATTGAAGCT
spacer length: 36 repeater length: 37
578 4093555 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACGAATTCGCGAGAGAGTATTTCAGAGACGTATC
spacer length: 33 repeater length: 37
579 4093626 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATACAGCCCGTCAACCCGCGAGTGCAGGAATTT
spacer length: 34 repeater length: 37
580 4093698 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAACAATGGTAAACGAACTCATCTTACAAGCA
spacer length: 33 repeater length: 37
581 4093769 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGACAACGCAAAAATGACAACGTTTTTAATTTGGT
spacer length: 35 repeater length: 37
582 4093842 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCAACAACGCCCAAGCGCAGCCGCCGGAACCTC
spacer length: 34 repeater length: 37
583 4093914 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAAAATTGCCCTTTGATATGATTCTGTCAATGTCC
spacer length: 35 repeater length: 37
584 4093987 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGAGGTTGAATGAACGGAACAGCATGAAACCC
spacer length: 35 repeater length: 37
585 4094060 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGGTGTTGTCTGATACTGTGTTGCACTGCAAG
spacer length: 33 repeater length: 37
586 4094131 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGCTATAGATGTCTCCCCGACAACATCT spacer
length: 31 repeater length: 37
587 4094200 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACCCCACAAGTAAATTAGGTGATTATGTTTATG
spacer length: 34 repeater length: 37
588 4094272 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTATATCAGAGATTATTCTGATTCTGGTAGAG
spacer length: 33 repeater length: 37
589 4094343 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTCTTTACTGTCTGTATAGTGTGGTTTCTCTTCA
spacer length: 35 repeater length: 37
590 4094416 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTATAATAATGCTAAACTCACGGGAAACGGC
spacer length: 33 repeater length: 37
591 4094487 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCGGCACCGTTTTAGACGGGCAAGGACAGGCAACA
spacer length: 35 repeater length: 37
592 4094560 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGTTTCATTCTTTTTCTCTTCTCTTATTGCATA
spacer length: 34 repeater length: 37
593 4094632 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTGAGAACGGAACAGCTTATGCGGTTTTTACC
spacer length: 33 repeater length: 37
594 4094703 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGGCGCGTGCTGTTATGATGAAGTAATATTCATCT
spacer length: 35 repeater length: 37
595 4094776 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGAATTATTTTTATTATTCTGGCTAGAAAAATTAA
596


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597
598 crispr 12
599 679342 GTTTCATCCTTGTTTTAGTGGATCTTGCTCGCGAATC CGTTTTTATACCTGTTAATATAGGACGTATACAT
spacer length: 34 repeater length: 38
600 679415 GTTTCATCCTTGTTTTAGTGGATCTTGCTCGCGAATC AGTGGGTCCGACTGGCTTTAGTGGTCTCCTCAG
spacer length: 33 repeater length: 38
601 679487 GTTTCATCCTTGTTTTAGTGGATCTTGCTCGCGAATC CAACCAGTTAATACGATGTGTTACGAGGATGG
spacer length: 32 repeater length: 38
602 679558 GTTTCATCCTTGTTTTAGTGGATCTTGCTCGCGAATC CGAAAGTTGCAGCCCTCAAAACCTTCGTCGACCTG
spacer length: 35 repeater length: 38
603 679632 GTTTCATCCTTGTTTTAGTGGATCTTGCTCGCGAATC TTCCAGTTATTCAATCTGTTTTAACGTGGGGGTAC
604
605
606 crispr 13
607 680152 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAATAAA
TAATGCCCCGCTTCGTGAAACCAGAGCACGATGGTTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAATCCCAATTTCTCAGTTT
GAGAGAGAGAGTTATTTTT spacer length: 105 repeater length: 40
608 680298 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAATAAA GCCTTTTGTCTGATAATCAGGAAGAGGTGG
spacer length: 30 repeater length: 40
609 680369 GTTTCATCCTTGTTTTAATGGATCTTGCTCGCGAATAAA AGTCAAGATCTTCTTTGGTTTTCAATCCTTG
610
611
612 crispr 14
613 2424080 TGTTTATCTGGCACTTGAGAAAAAGCATAACCAAGAGCTT
CAGCAGCACTAGATCTTACATAACTGTTTTTATTATTGGTCAATCTATGTAAATCATGCCATGCCTG spacer length:
67 repeater length: 40
614 2424188 TGTTTATCTGGCACTTGAGAAAAAGCATAACCAAGAGCTT
CAGCAGCAGGGATTTACATTAAATATCTTCATCATTTGGTCAGCCTATGCAAGTCGTCACAAGCTTG spacer length:
67 repeater length: 40
615 2424296 TGTTTATCTGGCACTTGAGAAAAAGCATAACCAAGAGCTT
TTGGTCAGAAAAGGCCTGAAATGAGCCCTTTTTTGGGGCTAAAATTCTTGCTGGAAAATTATCAAAC
616
617
618 GCA_000007185.1_ASM718v1_genomic.fna(findCrispr):
619 START REPEAT
SPACER
620 crispr 1
621 1297225 ACCC
GTGTTATTACGGGTAAATTGCGAGTCTGTTGTATTGGTATTGGGATGTTCCATGTGACTTTTACTCTGGCGTATGGTTTCAT
spacer length: 82 repeater length: 4
622 1297312 ACCC
GTGTTATTACGGGTAAATTGCGAGAGACAACTAGTAGCGTTCGCGAGATTCAAAGGAGATATCACGGTGTGTTTCGTTTCAT
spacer length: 82 repeater length: 4
623 1297399 ACCC
GTGTTATTACGGGTAAATTGCGAGTTTTGCAATCGATGATGCTTTTGCTAGAATTTCTTTCATTTCTGGGTCTAAATCTCTTAATG
TTTCAT spacer length: 92 repeater length: 4
624 1297496 ACCC
CGTAATAATATGGGTAATGAACTGTGCTGGTGCTAAGTGAAAAGATTGCCACCCAATGCCCTAGATCTCTGACTCGCAATTAACC
CGTAAT
625
626
627 crispr 2
628 1297217 GTTT
CATTACCCGTGTTATTACGGGTAAATTGCGAGTCTGTTGTATTGGTATTGGGATGTTCCATGTGACTTTTACTCTGGCGTAT
spacer length: 82 repeater length: 4
629 1297304 GTTT
CATTACCCGTGTTATTACGGGTAAATTGCGAGAGACAACTAGTAGCGTTCGCGAGATTCAAAGGAGATATCACGGTGTGTT
spacer length: 82 repeater length: 4
630 1297391 GTTT
CATTACCCGTGTTATTACGGGTAAATTGCGAGTTTTGCAATCGATGATGCTTTTGCTAGAATTTCTTTCATTTCTGGGTCTAAATC
TCTTAA spacer length: 92 repeater length: 4
631 1297488 GTTT
ATATGGGTAATGAACTGTGCTGGTGCTAAGTGAAAAGATTGCCACCCAATGCCCTAGATCTCTGACTCGCAATTAACCCGTAATA
ATACGG
632
633
634 crispr 3
635 1306914 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
GGTAATGAACTAGTATAATCTCCGTAAATTCATCTGCTACCTCTGGTAGTCTCTGTATTTCCGCAAAC spacer length:
69 repeater length: 36
636 1307020 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC

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AACGCCTGGAGAAAAGCCTTCGGTAAACCCCTAACAGACACAGCCCTAAGACC spacer length: 53 repeater
 length: 36
 637 1307110 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 AATACCAGAACGTCTCACCCGCATGGAACCTTCGGCTTCAGCGGAGTACCACACTCACAG spacer length: 59
 repeater length: 36
 638 1307206 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 CGCTGTGGATAAACGATTGTCCACCGTGATACATAGCCGTCTAACCCCTTCTTCG spacer length: 54 repeater
 length: 36
 639 1307297 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 CTGTCTTCGCTTCTGGCCCTACTGTCTTCGTGAATGTTCCAAGCTCCAGGTAGTCAACTATCAT spacer length: 64
 repeater length: 36
 640 1307398 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 TCTTGAGTAGGATACCGTTGATGATTGCCTCTCTCGTTTCCTTTGCCTCGTAG spacer length: 53 repeater
 length: 36
 641 1307488 CTCGCAATTAACCCGTAATAATATGGGTAATGAAAC
 TGGTGCTAAGTGAAAAGATTGCCACCCAATGCCCTAGATCTCTGACTCGCAAT
 642
 643
 644 crispr 4
 645 1362696 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 AACGTGTGTTGGAAGAGCATCTGGGACAACATAGAGGCAGACTTAAGGTGCAGGATT spacer length: 57 repeater
 length: 36
 646 1362790 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 TTTTGCGGAGTAATCCCATGTTGGTTGTGCGTGACCGTAGAGTGCGGGATAG spacer length: 52 repeater
 length: 36
 647 1362879 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 CCCGCGGACAAGGCTTCGGTCTTGTGGAGGTCTATTGGAGCAGT spacer length: 45 repeater length: 36
 648 1362961 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 GGGTTGCAGTTACACGGCGTATATCATGGCGTCCCAGTGGAGTGGTCAG spacer length: 50 repeater
 length: 36
 649 1363048 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 ACTCGGTGGACACAGAGCTCGCCGCCGCGCTATCGGCACTATGGGAATCAGT spacer length: 52 repeater
 length: 36
 650 1363137 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 GTGTCCGGTTTGCGACTCTTAGGGGGATAACGACTTTCACCTCCGCGTCC spacer length: 50 repeater
 length: 36
 651 1363224 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 CCGGCGGTTAGGCCTCAGCAACGTGGAGAAAGCGATACTTTATGACGATGTCCTTAAGGAG spacer length: 62
 repeater length: 36
 652 1363323 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 AAGTATCACAGCCAGGGCACGGACGAGACAGCGTACTGAGAGGGGGCCAGAGTAGCAACA spacer length: 59
 repeater length: 36
 653 1363419 GTTTCATTACCCATATTATTGCGGGTAAATTGCGAG
 GTTTTCCCGGAGGATCACCCTTTACACTCCGAAACCACCGAAGAGATTCCCCACCCCTC
 654
 655
 656 crispr 5
 657 1111465 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 ATGCAGGCACAATGAGTTTTCGGGACAAAGACGATAATGTATTGTTAAGAGTGTATACGTTTCATTACCCGTATTATCACGGGTAA
 TTGCGAGTATGTTAGCTGGTCGAGGAAATTGTGGCGGTGTTAAACTCCGGAGAAACACGTCAACC spacer length:
 152 repeater length: 36
 658 1111654 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 CTCGCGATGCGTGTGCGGACCGCACCGTGCCCGCGTGCTATGACGGATCTCCTCTTCGCGA spacer length: 61
 repeater length: 36
 659 1111752 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 ACATGAGGTCCAGTTCCAGAAGCCTGAGCGGAAGCGCAAGGCGCTCGACCCGG spacer length: 53 repeater
 length: 36
 660 1111842 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 GGTCAAGGAAGTCTTCCCTTCACTGAAGGAAAACTAGAGGATGACGAGGTTTCATTACCCGTATTATTACGAGTTAATTGCGAGA
 ACCTAACTTAGCATATGATGGTGGTTATAATTACAGATATTAACGCTAGCATAT spacer length: 139 repeater
 length: 36
 661 1112018 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 CAGACTGGGTAAGGGAGGACAGAGACGGGGAGGTGGAGACATGGGTCCTTAA spacer length: 52 repeater
 length: 36
 662 1112107 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 GAGGGCAATGAGGAAGGAACAGCTGAGAGCTCGGGGTATCACCGAGCTAACACC spacer length: 54 repeater
 length: 36
 663 1112198 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
 TCGTAGGGGTAGTAGAAGAAGCATACGAAGGACTCATGGAATCCTGCAAAG spacer length: 51 repeater
 length: 36
 664 1112286 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG

CTAGCTGTGAAGGGAGTGTGTGTAGCGAGCCCCCTGAGAAAAATAATCCGTTGGTT spacer length: 55 repeater length: 36

665 1112378 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
TGCTCGCCCGCTTCTTCCGCGAGACCCTGTATCATGACCGGGAAGAACGCGCTACCGCTTAGCGAGAAGAA spacer length: 71 repeater length: 36

666 1112486 GTTTCATTACCCGTATTATTACGGGTAAATTGCGAG
CTAAGTGAAAAGATTGCCACCCAATGCCCTAGATCTCTGACTCGCAATTAACCCGTAATAATACGGGTAAT

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668

669 GCA_000007225.1_ASM722v1_genomic.fna(findCrispr):

670 START REPEAT
SPACER

671 crispr 1

672 39881 TTTCAACTATCTTT TGATTTTTGGCTCATTAATAAAATTGATGATACTTTCAGCCATAAGAGAAA spacer length: 51 repeater length: 14

673 39947 TTTCAACTATCTTT TGATTTCTGGACATGCGTATGGCGGTAGGCGACGTGTAGAATATAGTGAAAATGG spacer length: 55 repeater length: 14

674 40017 TTTCAACTATCTTT TGATTTCTGGGGGGTAAGTGGTTTGACAAGGAGCAAGCAGTAGAACTGCT spacer length: 50 repeater length: 14

675 40082 TTTCAACTATCTTT TGATTTCTGGGGTCGGCCCAATTACTGAACAAATAGTCTGTATGGTTTTAA spacer length: 50 repeater length: 14

676 40147 TTTCAACTATCTTT TGATTTCTGGGTAATTAAATATTAATTACGACTTGTGCACACACATGGAGAGA spacer length: 53 repeater length: 14

677 40215 TTTCAACTATCTTT TGATTTCTGGGGCGTTGGCAACGCTGGACAGTACGGTGGCGGTGTTGTCA spacer length: 50 repeater length: 14

678 40280 TTTCAACTATCTTT TGATTTCTGGACACGGCATTTCCAACACCGAGGGTGTGGGAGTGGATAGCCGT spacer length: 53 repeater length: 14

679 40348 TTTCAACTATCTTT TGATTTCTGGATATTTGGAAAAATCGATAAGGAAAGACTATTGGAAGTTG spacer length: 50 repeater length: 14

680 40413 TTTCAACTATCTTT TGATTTCTGGAAGTCTCAGACCGTCATTTGATGCTTTGGTTAGTTTTGAAGCC spacer length: 54 repeater length: 14

681 40482 TTTCAACTATCTTT TGATTTCTGGCAGGAGGGTTGTGGGGTGACATGACGTACACGTCTGTGATGCT spacer length: 54 repeater length: 14

682 40551 TTTCAACTATCTTT TGATTTCTGGTGGAGAATTGGCTTCTTAGCTGTTTCTACGCAGCGCCTTTCTGG spacer length: 54 repeater length: 14

683 40620 TTTCAACTATCTTT TGATTTCTGGACCACTGCTAGAACAAATGGAAAAATGGTGGCAAGTTAA spacer length: 48 repeater length: 14

684 40683 TTTCAACTATCTTT TGATTTCTGGGCAAGCGGAAAGGGACACGGTATACGCCGGCTGTACCGAGGTCAT spacer length: 55 repeater length: 14

685 40753 TTTCAACTATCTTT TTGAAACGTTTAGGTGCTCTTGCCAGACATCGAGACGCCGTTGCCCCCGCCGCC

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688 crispr 2

689 95531 GAATCTCAAAAAGAGGATTGAAAG TATTCAGAGTACTCTAGGCCGGTATACAGAGGGCCTAAA spacer length: 39 repeater length: 24

690 95595 GAATCTCAAAAAGAGGATTGAAAG AACACGTCAGCCAGCCCTCCCCATGTGGCCCTGGCTGTACACA spacer length: 43 repeater length: 24

691 95663 GAATCTCAAAAAGAGGATTGAAAG AAAATTTGTAAAGTTAGAGATAGCGAGCCGCGAATTGAGAGCG spacer length: 43 repeater length: 24

692 95731 GAATCTCAAAAAGAGGATTGAAAG TCTTCGGACAATGACGCGCTTAGAATGGGCGATTTATTCAACACGTAC spacer length: 48 repeater length: 24

693 95804 GAATCTCAAAAAGAGGATTGAAAG CAATTACTCTTAATTCAGAGTCTCCCTCACAGACGGCAAAATACTC spacer length: 46 repeater length: 24

694 95875 GAATCTCAAAAAGAGGATTGAAAG ATGTTAATTGAAGGGCCTGAGAACGCTGTTCAAGTTCATTCTCAA spacer length: 44 repeater length: 24

695 95944 GAATCTCAAAAAGAGGATTGAAAG CGTCTTTCTTCTTCGACACCTTGATGTTCAACGCCTCTACA spacer length: 41 repeater length: 24

696 96010 GAATCTCAAAAAGAGGATTGAAAG GTTCTAAATATACCGACGGCCGCGACATTTACTAATTCTCTGA spacer length: 43 repeater length: 24

697 96078 GAATCTCAAAAAGAGGATTGAAAG TTATATACTTGGATCTGTACGTCCCCTTCCGTATATACACCCTGC spacer length: 45 repeater length: 24

698 96148 GAATCTCAAAAAGAGGATTGAAAG TTGACAATTCAGCCCAAAGTGAATCCGTTGATATGGTCG spacer length: 40 repeater length: 24

699 96213 GAATCTCAAAAAGAGGATTGAAAG TCGGTAAATTAGTCAGTGAGAGCTTGTTAGGTATACTCCCCCCTTC spacer length: 46 repeater length: 24

700 96284 GAATCTCAAAAAGAGGATTGAAAG ATACTAATTGTGGCGGGGTTCAACCGTCAGCTGTTCCAGG spacer length: 40 repeater length: 24

701 96349 GAATCTCAAAAAGAGGATTGAAAG GTCCGCAGTCAACAGCCAAAAGAGGGGGAAATAAAC spacer length: 37 repeater length: 24

702 96411 GAATCTCAAAAAGAGGATTGAAAG CTTTATCAACGTAGACCCTTTTGTATATCAAGCTCTTTC spacer length: 39 repeater length: 24

703 96475 GAATCTCAAAAAGAGGATTGAAAG CAGGTAGAGGTGCGGTTCAACAACGTTGTTGGCCACGTGGACTTTTT
spacer length: 47 repeater length: 24

704 96547 GAATCTCAAAAAGAGGATTGAAAG TGGTTAATTCCAAGCTGAGGCAGGTCTGTGGACC spacer length: 34
repeater length: 24

705 96606 GAATCTCAAAAAGAGGATTGAAAG CCCGCGGGCCCCGGCCGCGCCAGCGGCCACCTTGTTTTTGTG spacer
length: 43 repeater length: 24

706 96674 GAATCTCAAAAAGAGGATTGAAAG GCGCCGTCCATGCGAGCACGGGGAAGACTGCCGAGGGGT spacer
length: 39 repeater length: 24

707 96738 GAATCTCAAAAAGAGGATTGAAAG ATTATCTTGACTAGCATCGCCACGGCGGCGAGCCCTGCGAGC spacer
length: 42 repeater length: 24

708 96805 GAATCTCAAAAAGAGGATTGAAAG ATCCTAGGCATTGGGATGTACACTGCGATTTCCCCCTGC spacer
length: 39 repeater length: 24

709 96869 GAATCTCAAAAAGAGGATTGAAAG AGAGTCCCTCCAGCTCCTCGAGGGCGGCGCACACTACGCACAT spacer
length: 43 repeater length: 24

710 96937 GAATCTCAAAAAGAGGATTGAAAG TGCTGTCTGGAGTTTCGGTTGTGCTGGCAGCTGTCTTTGGCGCC spacer
length: 44 repeater length: 24

711 97006 GAATCTCAAAAAGAGGATTGAAAG GCTGTATGGAGAGCCAATGCGCATGCGGCGTAAGACTGTATATA spacer
length: 44 repeater length: 24

712 97075 GAATCTCAAAAAGAGGATTGAAAG GCAAAAGGCCTGCGGAATAGCCAGCCATCCCCCGCCTGGC spacer
length: 41 repeater length: 24

713 97141 GAATCTCAAAAAGAGGATTGAAAG CCTCAATTTCGTCTACCATGGTCTCAGGGTCGATAATAAACTTC spacer
length: 43 repeater length: 24

714 97209 GAATCTCAAAAAGAGGATTGAAAG AGCTTTTTTAAGGGCCTCATTTTTCTGGGCCTCAGTAATAAAG spacer
length: 42 repeater length: 24

715 97276 GAATCTCAAAAAGAGGATTGAAAG TATGCGTTGACCCGGGGCCCTACACAGCTCTCCTACTTAC spacer
length: 40 repeater length: 24

716 97341 GAATCTCAAAAAGAGGATTGAAAG ATGCGTATCATATACGCCGCACCCGCACAACTAATAACCGCAT spacer
length: 44 repeater length: 24

717 97410 GAATCTCAAAAAGAGGATTGAAAG ATACGGTGTACTGCAACGGCCGCGATTTGACTGAATGTACAAAACC
spacer length: 47 repeater length: 24

718 97482 GAATCTCAAAAAGAGGATTGAAAG TAGGTACGTATTTGAGGCGGTCTGCCCTCTGTGCGTGTCCAGT spacer
length: 43 repeater length: 24

719 97550 GAATCTCAAAAAGAGGATTGAAAG GGGAGGCTCAGCAAACAGGACACACAGCTTCCTGGGTACCC spacer
length: 41 repeater length: 24

720 97616 GAATCTCAAAAAGAGGATTGAAAG GCCACCTGCTTAGCCGCCTCCTTCGCCCTCTCAGCCCGCTGGCCTCCGACG
spacer length: 52 repeater length: 24

721 97693 GAATCTCAAAAAGAGGATTGAAAG CGGTGGCGGTGTACCAAATGTTCTACCTAGCCGGCGTCCAGCCGCC spacer
length: 46 repeater length: 24

722 97764 GAATCTCAAAAAGAGGATTGAAAG ATTTTTTCAGTTCTCCCGCCGAAGTGCTTGAGATACTCGCAACCG spacer
length: 44 repeater length: 24

723 97833 GAATCTCAAAAAGAGGATTGAAAG CTAGACGGAACCTCTCACCAGCTCCTCCTCGGCGCGCTTGCGCGC spacer
length: 44 repeater length: 24

724 97902 GAATCTCAAAAAGAGGATTGAAAG CTATTCCAGTGGCGAACTCGGCCGATATCCTAAGCCCTGCGA spacer
length: 42 repeater length: 24

725 97969 GAATCTCAAAAAGAGGATTGAAAG CAGTTGGGACATGTTTGAGAAGGAGCTGGCCAGGGCTAGGAGTGCTGA
spacer length: 48 repeater length: 24

726 98042 GAATCTCAAAAAGAGGATTGAAAG GTACGGATACAGCGCCACTGCTTGACGCGGCGCTCTACGCCGT spacer
length: 44 repeater length: 24

727 98111 GAATCTCAAAAAGAGGATTGAAAG TCGGCACTGGGATCGTCCCTGGCCATAGTCGGCATTTCATGG spacer
length: 42 repeater length: 24

728 98178 GAATCTCAAAAAGAGGATTGAAAG CGCGTTCTCGACACTGTGATGGATCTGATCCGCATGGATGCAGTG spacer
length: 45 repeater length: 24

729 98248 GAATCTCAAAAAGAGGATTGAAAG ACTCGTTGCCCAGAGAGCGCCTCTGGAACCTAGCCAGCAC spacer
length: 40 repeater length: 24

730 98313 GAATCTCAAAAAGAGGATTGAAAG CACAATTGCGAAAAACGCGGCCCATTTGTATATAGCTCTCCC spacer
length: 42 repeater length: 24

731 98380 GAATCTCAAAAAGAGGATTGAAAG CTAATTTTCAGTGATAAGTCCATACGGCCCAATTTGACGACATA spacer
length: 43 repeater length: 24

732 98448 GAATCTCAAAAAGAGGATTGAAAG GCGAGGAGATTGCGCAGGAAGAGAACTCCTGCAAGCGCCGT spacer
length: 41 repeater length: 24

733 98514 GAATCTCAAAAAGAGGATTGAAAG AACTATATAACAAAACCTAGAGCCGCTGTTGAGGAAGGCTA spacer
length: 40 repeater length: 24

734 98579 GAATCTCAAAAAGAGGATTGAAAG CTTGAACTCAACGTCTCCAAGCATTTGTTTATACACGAGCACGCGGG
spacer length: 47 repeater length: 24

735 98651 GAATCTCAAAAAGAGGATTGAAAG CGACGCCGTATCGTCTACTTTACGGCGGGCTTCTTGACAACG spacer
length: 44 repeater length: 24

736 98720 GAATCTCAAAAAGAGGATTGAAAG CACTATTTTGAAGAGTGGCATGTCCATTTTGGCGTCTCTCTT spacer
length: 42 repeater length: 24

737 98787 GAATCTCAAAAAGAGGATTGAAAG GTGCCCCCTCGTGGCCCGGTACCGGGCCCTGACGGCCGCGAG spacer
length: 42 repeater length: 24

738 98854 GAATCTCAAAAAGAGGATTGAAAG CGCTGTCCCAGTTGCGGCGGGTTGGTGTGGCGGTGCGCGGA spacer

length: 42 repeater length: 24
739 98921 GAATCTCAAAAAGAGGATTGAAAG AGCCGCGGCGCCTCTTCACGAGCCCGATGGCGGCGAGCTGC spacer
length: 41 repeater length: 24
740 98987 GAATCTCAAAAAGAGGATTGAAAG GAAAAACAAACCTTTTTCAAGAACTACACCAGGCCCTATAGGGGCCA
spacer length: 48 repeater length: 24
741 99060 GAATCTCAAAAAGAGGATTGAAAG CTGAGTTGACTGATAAGTTCATACGGCCCAATATGACGACA spacer
length: 41 repeater length: 24
742 99126 GAATCTCAAAAAGAGGATTGAAAG CCTCAAAGCCGCTACAATAATCATCGAGGAGTATTCAAAAGA spacer
length: 42 repeater length: 24
743 99193 GAATCTCAAAAAGAGGATTGAAAG TTGAGACTGTGGAGTTCGACATGGTGCGAACAGTGGCTGGTCTCG spacer
length: 45 repeater length: 24
744 99263 GAATCTCAAAAAGAGGATTGAAAG TTTACCTATGTTGAAACTGATATGCGACTAGTGGACTGTAT spacer
length: 41 repeater length: 24
745 99329 GAATCTCAAAAAGAGGATTGAAAG TGTCCAATGAGCACATCTTCAATAGAGGCACCTCTATGC spacer
length: 39 repeater length: 24
746 99393 GAATCTCAAAAAGAGGATTGAAAG AATACGCCTTCCTCGACTCGTGGTCGGCGTAGCACATAATCGT spacer
length: 43 repeater length: 24
747 99461 GAATCTCAAAAAGAGGATTGAAAG AAGATTTTAGTCATCTCCTCCGCCACCAGGAACACTATCCTTGCGGG
spacer length: 47 repeater length: 24
748 99533 GAATCTCAAAAAGAGGATTGAAAG CGGGAGATTGGGCAGGTTCCGCCCTATGGGGACAATATCATCT spacer
length: 44 repeater length: 24
749 99602 GAATCTCAAAAAGAGGATTGAAAG TATCTAAATCAGCTTGTGCGTGGCTTGATAAGCAAAAACATGCTGG spacer
length: 46 repeater length: 24
750 99673 GAATCTCAAAAAGAGGATTGAAAG GTGACGTCTAGATTGGGCAGGAGTGTTTTAGCCCTCTCCCCCGC spacer
length: 44 repeater length: 24
751 99742 GAATCTCAAAAAGAGGATTGAAAG TGTACTGCTGAGTGGCGTTTATCTTGACGGCGATGTAGGTCTCGG spacer
length: 45 repeater length: 24
752 99812 GAATCTCAAAAAGAGGATTGAAAG AAGATCCTCAAGCCACCACTCTGCCGCAGAGCGGCGTCCCTGG spacer
length: 45 repeater length: 24
753 99882 GAATCTCAAAAAGAGGATTGAAAG TTCTGCCTTTCGGGCACCCTTCTCATTTGGCCCCGCCCCAAG spacer
length: 42 repeater length: 24
754 99949 GAATCTCAAAAAGAGGATTGAAAG TCTGGCGAGAAGTGTGTAACGACTACTACCACACAGCCACAGGG spacer
length: 44 repeater length: 24
755 100018 GAATCTCAAAAAGAGGATTGAAAG GAGGTATACTCGGCGGCGTATACATATATAGCCCTAGAGCGC spacer
length: 42 repeater length: 24
756 100085 GAATCTCAAAAAGAGGATTGAAAG ACCATCGTGGAGTGCCAAGTTCGCACCCATCGAATTTACACTA spacer
length: 43 repeater length: 24
757 100153 GAATCTCAAAAAGAGGATTGAAAG AAGCACGATTTGACAAAACAAGGTAAAGGGACTTGGGTTCGCCG spacer
length: 44 repeater length: 24
758 100222 GAATCTCAAAAAGAGGATTGAAAG GTCCCTATACCCTGCTCCGTCCCAGTCTGTAGATGGGTCT spacer
length: 41 repeater length: 24
759 100288 GAATCTCAAAAAGAGGATTGAAAG CTGGCGAGATTGATGTTAGAGCACGCGGACGCCGTTATTGAAATAC
spacer length: 46 repeater length: 24
760 100359 GAATCTCAAAAAGAGGATTGAAAG GCGTTTTTCATCAACAACAACGCCCCGTACCACTCAAGAATAAT spacer
length: 44 repeater length: 24
761 100428 GAATCTCAAAAAGAGGATTGAAAG GTTCAATACGTTTGAAGTTGTCTGCAATTTCTGAACGGCCCT spacer
length: 43 repeater length: 24
762 100496 GAATCTCAAAAAGAGGATTGAAAG TCTCTGTCTCGTACCTTGTAATGTATGGCGTCTTCACAACCTGAATC
spacer length: 48 repeater length: 24
763 100569 GAATCTCAAAAAGAGGATTGAAAG GTAAAACTATATTAACATGCCCAAACGTTATGACCGCCG spacer
length: 40 repeater length: 24
764 100634 GAATCTCAAAAAGAGGATTGAAAG TGGACATTTTCGCCTCTGCTTCGGGCCCATATGATTGGACG spacer
length: 41 repeater length: 24
765 100700 GAATCTCAAAAAGAGGATTGAAAG GTGGCGTTGATCTCCGCCCCGAAGCCCATGCGCGCCCCCAGCTCG spacer
length: 45 repeater length: 24
766 100770 GAATCTCAAAAAGAGGATTGAAAG ACACTGCAGTACCGTGCTTACATGGAATATAGAAGTAGCGCTTAC spacer
length: 45 repeater length: 24
767 100840 GAATCTCAAAAAGAGGATTGAAAG TCCGGCACCCCTCCCAGTGTGCCTCTTCATAAGGGCGATTAGGTAGATGGCC
spacer length: 51 repeater length: 24
768 100916 GAATCTCAAAAAGAGGATTGAAAG GATCTTCGCGCTGAACAGGCGCAACATGTTCTCGCTGAGTT spacer
length: 41 repeater length: 24
769 100982 GAATCTCAAAAAGAGGATTGAAAG GCGGAAAGGGACACGGTATACGCCGGCTGTACCGAGGTCAT
770
771
772 crispr 3
773 45503 CCAGAAATCAAAAAGATAGTTGAAAC GGTGAATATACAGACAATATATCGAACGATGGCCGCAATCCA spacer
length: 42 repeater length: 25
774 45571 CCAGAAATCAAAAAGATAGTTGAAAC TGTGAATACGCTCAGCTTGGCGTGCATCAGTCTCTTCAGAGA spacer
length: 42 repeater length: 25
775 45639 CCAGAAATCAAAAAGATAGTTGAAAC CTGAAAAAGTTCCTGAACGCCGGGTTTTTCGTCGGGACCTTC spacer
length: 42 repeater length: 25

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776 45707 CCAGAAATCAAAAGATAGTTGAAAC AACACTTTCAACCTAACAGTTATCCACTCCGCGATGTCGCTT spacer
length: 42 repeater length: 25
777 45775 CCAGAAATCAAAAGATAGTTGAAAC ATCGTGAAGTTGGCCCTAAGCTTAGAGAATACATCACTCCA spacer
length: 41 repeater length: 25
778 45842 CCAGAAATCAAAAGATAGTTGAAAC TATATCCATATCAGCCTCCGGCCACCGTTAGCTTGATGTC spacer
length: 41 repeater length: 25
779 45909 CCAGAAATCAAAAGATAGTTGAAAC TTATCGAAATACATCAAACCGTCGTGCACGTGGGCCGCACACC spacer
length: 43 repeater length: 25
780 45978 CCAGAAATCAAAAGATAGTTGAAAC ATATACGTTTCACCCGCGCCACGCGTCTGTACTAATGCCGC spacer
length: 41 repeater length: 25
781 46045 CCAGAAATCAAAAGATAGTTGAAAC GTGCGGCTTAAACGAATACGGAAAGACAAAGCTATTCTC spacer
length: 39 repeater length: 25
782 46110 CCAGAAATCAAAAGATAGTTGAAAC AATGTATCTGTACAGACCCCGCATGCATAAAGTATCAAGTACA spacer
length: 43 repeater length: 25
783 46179 CCAGAAATCAAAAGATAGTTGAAAC ATAGTCAGAAGAATAATACAACCTATGACATTACTGGTAATGCCAA spacer
length: 45 repeater length: 25
784 46250 CCAGAAATCAAAAGATAGTTGAAAC GAGGCGGAAGGTTGCGGCATATGGAATAATTGAATGTAATACCC spacer
length: 44 repeater length: 25
785 46320 CCAGAAATCAAAAGATAGTTGAAAC TTCCCGAAGTTGCCTGAAAGCGATGTGATCCGCGGCGCTCT spacer
length: 42 repeater length: 25
786 46388 CCAGAAATCAAAAGATAGTTGAAAC CCATGGCCCGCAAAAAGAATATTTACGCTGGGCCTTCCTCTTG spacer
length: 43 repeater length: 25
787 46457 CCAGAAATCAAAAGATAGTTGAAAC TGTCCACTGTCTGTTTTGCAAATCTTCTACTATATCTGGTAA spacer
length: 43 repeater length: 25
788 46526 CCAGAAATCAAAAGATAGTTGAAAC ATTGTCGCGCTGAAGGCGCCACAGCGCGGCACCGATGTTCA spacer
length: 41 repeater length: 25
789 46593 CCAGAAATCAAAAGATAGTTGAAAC ACTACATGTAAATGACTGCGTGTTTCATAGTGGCAACCTGTAGCG spacer
length: 44 repeater length: 25
790 46663 CCAGAAATCAAAAGATAGTTGAAAC GCGTGTATAGTTCCTGTGGGTTTTTAAGTTTTTCTTTGATTTTT
791
792
793 crispr 4
794 591745 GTTTCATTCTTTTGTAGATTCTTC GAGGGAGGAGAGGAGTGGCAGATTACCACAACACTTTGC spacer
length: 39 repeater length: 25
795 591810 GTTTCATTCTTTTGTAGATTCTTC TGTAAGTGGCCCCGCCCCGGCCTCCACAACATATACAT spacer
length: 41 repeater length: 25
796 591877 GTTTCATTCTTTTGTAGATTCTTC GGTATAGAAAGCAAAAATAGTTGAAATACCGAGGATATGTT spacer
length: 41 repeater length: 25
797 591944 GTTTCATTCTTTTGTAGATTCTTC TTAGCGCTTGGCTGGAAGAAGAGTTAGAAGAATTAA spacer length:
36 repeater length: 25
798 592006 GTTTCATTCTTTTGTAGATTCTTC ATAGGGCTATTACAGAGAATATCTGGAAGAAGCTTAGCAAC spacer
length: 41 repeater length: 25
799 592073 GTTTCATTCTTTTGTAGATTCTTC TATGGCTCTTCTTAAGTTATATTTTTGTAAAGAGAA spacer length:
36 repeater length: 25
800 592135 GTTTCATTCTTTTGTAGATTCTTC CAGCAGAGGCATTCTATTGGGATAGCGTAAACAA spacer length:
35 repeater length: 25
801 592196 GTTTCATTCTTTTGTAGATTCTTC GTCGTCTTGCCAGACATCGAGACGCCGTTGCCCC
802
803
804 GCA_000007305.1_ASM730v1_genomic.fna(findCrispr):
805 START REPEAT
SPACER
806 crispr 1
807 260724 GACTACAAAAGAATTGAAA GTGTTTCATCGCACTTCTTCTTCTGACTCTGCTCCACTTAGGTTCCAATA spacer
length: 49 repeater length: 19
808 260793 GACTACAAAAGAATTGAAA GCGTTAATGAACAATAAGCCTGACACGAACATAAACAGTTCCAATA spacer
length: 47 repeater length: 19
809 260860 GACTACAAAAGAATTGAAA GTTTCATAAGGAGTTTCAAATGGCTCGATGGAATTATGTTCCAATA spacer
length: 47 repeater length: 19
810 260927 GACTACAAAAGAATTGAAA GAGAACCTCCGCAATCTCCTTTGGAGAAAGGCCCTTCTTGAGAGTTCCAATA
spacer length: 52 repeater length: 19
811 260999 GACTACAAAAGAATTGAAA GCTTCTTCGAAGTCGTAGTTTAGTGTGTCAAGATATTCTGTTCCAATA spacer
length: 48 repeater length: 19
812 261067 GACTACAAAAGAATTGAAA GTTCTAGAAGTTCTTCTTGCGAGAGCCAAGAGCGCGGCTGTTCCAATA spacer
length: 47 repeater length: 19
813 261134 GACTACAAAAGAATTGAAA GGTGTACTTAAGAATTTCTTTTCATAACTTTTCTGAAGAGTTCCAATA spacer
length: 47 repeater length: 19
814 261201 GACTACAAAAGAATTGAAA GACATAAGAGACGGAGAGCTTGTTATCTGGAAAGCAAATGTTCCAATA spacer
length: 48 repeater length: 19
815 261269 GACTACAAAAGAATTGAAA GAGTTATAACAAACCAGCATGACCCGCTCTCGGCTGAGTGGCAGGTTCCAATA
spacer length: 53 repeater length: 19

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816 261342 GACTACAAAAGAATTGAAA GCTACCATGGCCATCACCAATAATTAATTGTAAGTTAGGTTCCAATA spacer
 length: 47 repeater length: 19
 817 261409 GACTACAAAAGAATTGAAA GATTTGCTGACAAGCCATCGCAAATTTCTTCTGTTTTGTTCCAATA spacer
 length: 46 repeater length: 19
 818 261475 GACTACAAAAGAATTGAAA GAACTCCACGACAGCATAAGGGACATTTACCATCGTATGTTCCAATA spacer
 length: 47 repeater length: 19
 819 261542 GACTACAAAAGAATTGAAA GTTTTTGTGCTGAGCCAACCCACCCTTTGGTAAACTAGTTCCAATA spacer
 length: 48 repeater length: 19
 820 261610 GACTACAAAAGAATTGAAA
 GGGGGCTGCGGGCCGGCTCACACCCCGAGCTCCCGGCTCGGGGTGCTCATGTTCCAATA spacer length: 59
 repeater length: 19
 821 261689 GACTACAAAAGAATTGAAA GTCCAACATGGTTAACTTCCATCCTCTTAAAAGGAACTGTTCCAATA spacer
 length: 47 repeater length: 19
 822 261756 GACTACAAAAGAATTGAAA GGTAAGGTATTCTTCATAGACACCGCTCTGCATAACGTGTTCCAATA spacer
 length: 47 repeater length: 19
 823 261823 GACTACAAAAGAATTGAAA GTTGAGGCTGGAGAGGGCTTCTTTGTTACTACTTGCGTGTTCCAATA spacer
 length: 47 repeater length: 19
 824 261890 GACTACAAAAGAATTGAAA GTTAACTCGTTTTAGTTTTATGTTTCATGTTCCACACTAAGTTCCAATA spacer
 length: 47 repeater length: 19
 825 261957 GACTACAAAAGAATTGAAA AAGGAGTTTCCAAGATGAGTGCCCCGAGCCGGGGGCTCGGGGCATGG
 826
 827
 828 crispr 2
 829 1091226 CTTCAATTCTTTTGTAGTCTTATTG TAACCCAGTAGAGTTCACGACGAGTGGGTGCAGTATTCTC spacer
 length: 40 repeater length: 25
 830 1091292 CTTCAATTCTTTTGTAGTCTTATTG TAACTTAAGGTTGAGACGGAGAAGGCGTTTCTTGATCTTT spacer
 length: 41 repeater length: 25
 831 1091359 CTTCAATTCTTTTGTAGTCTTATTG TAACCCCGAAGACGTTCTCAAAGATTTAAAAGAGATTTCG spacer
 length: 41 repeater length: 25
 832 1091426 CTTCAATTCTTTTGTAGTCTTATTG GAACGTAACAAAGGTGGGCGTTTCTAGAGAGGTTGGGCAA spacer
 length: 40 repeater length: 25
 833 1091492 CTTCAATTCTTTTGTAGTCTTATTG GAACGGGCTACGAGGACGCCCTGAGGATTATGAAAGAGGTCC spacer
 length: 42 repeater length: 25
 834 1091560 CTTCAATTCTTTTGTAGTCTTATTG GAACCGGAAGCTCATAGAGTTCAATGGAAGGTTGAAGCTCA spacer
 length: 41 repeater length: 25
 835 1091627 CTTCAATTCTTTTGTAGTCTTATTG GAACGTTTGGGCGTATGGTGCCTTAGTGCACGAGTTCCACCG spacer
 length: 42 repeater length: 25
 836 1091695 CTTCAATTCTTTTGTAGTCTTATTG GAACTTTTACGTAGTTTATCACGTCGTCTGCATTTCTTCC spacer
 length: 41 repeater length: 25
 837 1091762 CTTCAATTCTTTTGTAGTCTTATTG GAACTCAAAGACTGTGTGTGGAGCAGCTATTTGCTTCGGCA spacer
 length: 41 repeater length: 25
 838 1091829 CTTCAATTCTTTTGTAGTCTTATTG ATTTACGCTTTAGCTCGTGATCAACCCTAATCCCTAGTTCC
 839
 840
 841 crispr 3
 842 1091426 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTAACAAAGGTGGGCGTTTCTAGAGAGGTTGGGCAA spacer
 length: 36 repeater length: 29
 843 1091492 CTTCAATTCTTTTGTAGTCTTATTGGAAC GGGCTACGAGGACGCCCTGAGGATTATGAAAGAGGTCC spacer
 length: 38 repeater length: 29
 844 1091560 CTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAAGCTCATAGAGTTCAATGGAAGGTTGAAGCTCA spacer
 length: 37 repeater length: 29
 845 1091627 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTTTGGGCGTATGGTGCCTTAGTGCACGAGTTCCACCG spacer
 length: 38 repeater length: 29
 846 1091695 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTTTACGTAGTTTATCACGTCGTCTGCATTTCTTCC spacer
 length: 37 repeater length: 29
 847 1091762 CTTCAATTCTTTTGTAGTCTTATTGGAAC TCAAAGACTGTGTGTGGAGCAGCTATTTGCTTCGGCA spacer
 length: 37 repeater length: 29
 848 1091829 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTCCAAGATGAGTGCCCCGAGCCGGGGGCTCGGGGCA
 849
 850
 851 crispr 4
 852 623119 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGTGGTTAGACGGGTGGTTTGTCTGGAGACTTAGGAC spacer
 length: 37 repeater length: 30
 853 623187 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCAGTCCAGTACAAAGGCACAATTCTCGGTGGAATAC spacer
 length: 37 repeater length: 30
 854 623255 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTCCTTACAATAAGCTCACCGTTGCTGATGTTGTCGG spacer
 length: 37 repeater length: 30
 855 623323 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTGTAAGGAGACCAAGACCACAGTTTATAGGGGACTC spacer
 length: 38 repeater length: 30
 856 623392 CTTTCAATTCTATTTTGGTCTTATTGTAAC ATGGTGATTATGGCGACACTATTGAGTGGTTTCGT spacer
 length: 34 repeater length: 30

857 623457 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGCTGAGAAGGTGTCGAGGGATGTGAAGGCTAGG spacer
length: 34 repeater length: 30
858 623522 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCGGGAGCAAGGTGTTGCAAACCTTGATAGAGTTCC spacer
length: 36 repeater length: 30
859 623589 CTTTCAATTCTATTTTGGTCTTATTGTAAC TGGGCATTGATTTGACATTGCAAAAATTTTTCATTG spacer
length: 37 repeater length: 30
860 623657 CTTTCAATTCTATTTTGGTCTTATTGTAAC TCGGAGTTACCGATTGCTGAAGTAAATGAGAGATTCAAGAT
spacer length: 41 repeater length: 30
861 623729 CTTTCAATTCTATTTTGGTCTTATTGTAAC GTTGTTAATGTATTTCGTTGAGGCAGGGAAGTATAAG spacer
length: 36 repeater length: 30
862 623796 CTTTCAATTCTATTTTGGTCTTATTGTAAC GACTTTTGTATTACAAAATCAGCGTAGTTTACTATCA spacer
length: 37 repeater length: 30
863 623864 CTTTCAATTCTATTTTGGTCTTATTGTAAC ACAAACACAGAAAAGAAGCCAAAGTTATTGAGATT spacer
length: 35 repeater length: 30
864 623930 CTTTCAATTCTATTTTGGTCTTATTGTAAC TAGCTAATGTCCATGAGAGTGTGTGAAAAGCTAGTGA spacer
length: 37 repeater length: 30
865 623998 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCCAAGCTAGTTATTGATGTGTTGCATACCGTATACA spacer
length: 37 repeater length: 30
866 624066 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCCAAGCTAGTTATTGATGTGTTGCATACCGTATACA spacer
length: 37 repeater length: 30
867 624134 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATTCATGGCATGTGGCAATGTTTCTTGATAGGGCAC spacer
length: 37 repeater length: 30
868 624202 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTTTCTTTGCATCTTTTGTATATCCCTTAGACCCAAATC spacer
length: 39 repeater length: 30
869 624272 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTAATTCTTGGGAAAAACAGGGATTATATTATCCA spacer
length: 35 repeater length: 30
870 624338 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGAACGGTCTCCAAGAGGACTTGGCGAATTACGTGA spacer
length: 37 repeater length: 30
871 624406 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATTTTGTCTACTTTGTATGACAATGTCTTATGTG spacer
length: 36 repeater length: 30
872 624473 CTTTCAATTCTATTTTGGTCTTATTGTAAC ATATAATAGGTATGTAGATAAATCACCTCTGAGAAG spacer
length: 37 repeater length: 30
873 624541 CTTTCAATTCTATTTTGGTCTTATTGTAAC CGAATTCGATAGATTGCGAGAAGCTTGTAAGGGTAGAG spacer
length: 37 repeater length: 30
874 624609 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTATTATATATACAGATGTCTTGCAATTATGATGCTT spacer
length: 36 repeater length: 30
875 624676 CTTTCAATTCTATTTTGGTCTTATTGTAAC CGCTATGATATGCTGACGGATGAGGAGTATGCTGAG spacer
length: 36 repeater length: 30
876 624743 CTTTCAATTCTATTTTGGTCTTATTGTAAC TGAAAATAGTGGACGTCATCCCTCCAAGCCAAGTGCC spacer
length: 37 repeater length: 30
877 624811 CTTTCAATTCTATTTTGGTCTTATTGTAAC TATGACTCTGACACAGGTACTAAAATCGAGGAGTTC spacer
length: 36 repeater length: 30
878 624878 CTTTCAATTCTATTTTGGTCTTATTGTAAC CACAAGCACTAGTCCTGCTAGCGTTTTTCAGGAGTGG spacer
length: 36 repeater length: 30
879 624945 CTTTCAATTCTATTTTGGTCTTATTGTAAC ACGAGCATTAGGACTGTGTTATTGTTTTGATCTTT spacer
length: 35 repeater length: 30
880 625011 CTTTCAATTCTATTTTGGTCTTATTGTAAC GTGAGCGCCCTCAAGTACTACGTGAACCATTCCCCT spacer
length: 36 repeater length: 30
881 625078 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTCAATGCAAAGGGCTCACCGCTGCTGGTGAGTATGGT spacer
length: 38 repeater length: 30
882 625147 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTACGCTTTAGCTCGTGATCAACCCTAATCCCTAGTTC
883
884
885 crispr 5
886 1064076 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAGGCTCTACCTAATCATCCTCTTGACACAAC spacer
length: 35 repeater length: 30
887 1064142 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AGTTGACTTCACTACTACTTCTTCATCTATAATTCT spacer
length: 36 repeater length: 30
888 1064209 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GAAGAGAGGTTAGAATAACAGCTATTAGCGTTTCAC spacer
length: 36 repeater length: 30
889 1064276 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTTGGAGATAGAGTTGCAGTAGAAATGATAAGGA spacer
length: 34 repeater length: 30
890 1064341 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CACGGCCTACCTCGCTGAGATCCGGGTAGATGACAG spacer
length: 36 repeater length: 30
891 1064408 CTTTCAATTCTTTTGTAGTCTTATTGGAAC AGGAGAATAAGGTACTTCGACGGCCACACGTCTTATG spacer
length: 37 repeater length: 30
892 1064476 CTTTCAATTCTTTTGTAGTCTTATTGGAAC
CAGGAAGTTGTTGCCAACGGCATAGTAGAGCCACCCCCCGTCATCGCCCGCAAAAA spacer length: 58
repeater length: 30
893 1064565 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTATAAGATTTTCCCATTAAAGCAGAGCTTAGATA spacer
length: 36 repeater length: 30

894 1064632 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTGACTTTAGAGACTTATACAATAACAACAACATATCTAAAGTC
spacer length: 44 repeater length: 30
895 1064707 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCTACAACCCTCCCCTCGTAGTAGTACTTCCCATCG spacer
length: 36 repeater length: 30
896 1064774 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CCTTATATGGGTGTTGTGAAGCAGGATAGAACTCTTG spacer
length: 37 repeater length: 30
897 1064842 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GTCCCCGTAGTCCCTTAGAACTTTGTAGCCCTTCTT spacer
length: 36 repeater length: 30
898 1064909 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTTCCAGCATTCTCTGCCTTCACGTAAACTTCTGTACCC
spacer length: 39 repeater length: 30
899 1064979 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCCAATTAAGTTCCTCCAGACAGATGAAGCCAGCAA spacer
length: 36 repeater length: 30
900 1065046 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CGAGGAAGGCTCCCTCTAAACCAGCCAAGGAGGTTA spacer
length: 36 repeater length: 30
901 1065113 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGGCCACCCACTCCAATGCGCCTTTCCTTTTTGGCCA spacer
length: 38 repeater length: 30
902 1065182 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TATCAAAAGGTTAAGGCTTCTGTAAAAGAACTT spacer
length: 33 repeater length: 30
903 1065246 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TTGCACTCACGTGTAACAAGTACCTGTACAATAGAT spacer
length: 36 repeater length: 30
904 1065313 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CAATATTTTTTCAATGTCTGTCATTGTCCCACCTCC spacer
length: 36 repeater length: 30
905 1065380 CTTTCAATTCTTTTGTAGTCTTATTGGAAC TGTTTTCACTAATCGAAGACTTCGTAAGAGATAACG spacer
length: 36 repeater length: 30
906 1065447 CTTTCAATTCTTTTGTAGTCTTATTGGAAC CTGAAGTGCTCTCAGCCGCAAGGACCGCATACTACA spacer
length: 36 repeater length: 30
907 1065514 CTTTCAATTCTTTTGTAGTCTTATTGGAAC GCTTTTTTCGCCCCAATACTCCTATGGAGTAATTATA
908
909
910 crispr 6
911 695937 GTTACAATAAGACTAAAAATAGAATTGAAAG AGTGAAGAATTTGACGTACAAATGTCCTTAGTGGA spacer
length: 36 repeater length: 30
912 696004 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATGTAGATCTCTGTACCTTTCGGGACCTGTAGGT spacer
length: 36 repeater length: 30
913 696071 GTTACAATAAGACTAAAAATAGAATTGAAAG CAGTTCTACTTTGATAAGACTGTGGTGGTTAATGGTAA spacer
length: 38 repeater length: 30
914 696140 GTTACAATAAGACTAAAAATAGAATTGAAAG CTCTTATGGTGAAGCTTTCGACATTTTCTTTGGATG spacer
length: 36 repeater length: 30
915 696207 GTTACAATAAGACTAAAAATAGAATTGAAAG CGTCTTCTCTGAGATTCTTGGCTCGTTCTAGAGCCA spacer
length: 36 repeater length: 30
916 696274 GTTACAATAAGACTAAAAATAGAATTGAAAG GAGAGTATCAGGAGCTTCTGACCTCCTTATACAGC spacer
length: 36 repeater length: 30
917 696341 GTTACAATAAGACTAAAAATAGAATTGAAAG GACAAAGAACTCCCTAGCGTCCCTCCCCGTGTA CTG spacer
length: 37 repeater length: 30
918 696409 GTTACAATAAGACTAAAAATAGAATTGAAAG CCACACTTCTATCTCAGCACCCCCAAACGTGAAACT spacer
length: 36 repeater length: 30
919 696476 GTTACAATAAGACTAAAAATAGAATTGAAAG TTCTGCCGTCCCTTTTCTCGACGAACCTCATACCG spacer
length: 35 repeater length: 30
920 696542 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGAGGAGATGCTTACTGCGGTTAAAAAGGACATTGCA spacer
length: 38 repeater length: 30
921 696611 GTTACAATAAGACTAAAAATAGAATTGAAAG GGTGCTTGAGCTCGCTAGTGCCCTCCTCTGGGCTA spacer
length: 36 repeater length: 30
922 696678 GTTACAATAAGACTAAAAATAGAATTGAAAG TAATGCTGTACAGGATTGACAAGGAGGCTTACGCTTC spacer
length: 37 repeater length: 30
923 696746 GTTACAATAAGACTAAAAATAGAATTGAAAG TACTATAGGCGGAACCTCCCTGCAATGAAAAATTTTT spacer
length: 36 repeater length: 30
924 696813 GTTACAATAAGACTAAAAATAGAATTGAAAG GCACCTTCTTCACCATCGCCGTCTGGATTGCTGGTA spacer
length: 36 repeater length: 30
925 696880 GTTACAATAAGACTAAAAATAGAATTGAAAG TGTTTTCGAATATTGTTACTTCTTGTGTATCTCTGA spacer
length: 36 repeater length: 30
926 696947 GTTACAATAAGACTAAAAATAGAATTGAAAG ATTCAGTGGGTTCTTCAGAAAGTTCATAAATTCACC spacer
length: 36 repeater length: 30
927 697014 GTTACAATAAGACTAAAAATAGAATTGAAAG CCTTCTTCTTTTTTAAATTTTTTAATTTTCATTA spacer
length: 33 repeater length: 30
928 697078 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATCTAGGCGTCGGGTAATTCTGTAAGGTCTCTGGCTCA
spacer length: 40 repeater length: 30
929 697149 GTTACAATAAGACTAAAAATAGAATTGAAAG ATGACTATCAGGATGATAATCGTTTTTTTTATGCTCGCTTACA
spacer length: 42 repeater length: 30
930 697222 GTTACAATAAGACTAAAAATAGAATTGAAAG ACAGGCAATTAGAACTCTTTCAAAAACGCAGTTCA spacer
length: 36 repeater length: 30
931 697289 GTTACAATAAGACTAAAAATAGAATTGAAAG TAGTGTAAACAACATCATATGGAAAGTCTCCCACGTT spacer

length: 36 repeater length: 30
932 697356 GTTACAATAAGACTAAAAATAGAATTGAAAG GGGTTTACTCCGAACGGTGTCTGCTAACTGATATAG spacer
length: 37 repeater length: 30
933 697424 GTTACAATAAGACTAAAAATAGAATTGAAAG ACTTAGCCACCTCCGAGATGTTTTCGTAATAGTTA spacer
length: 35 repeater length: 30
934 697490 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGTAGGCTCGTGGACTTGGCTTCCACACAATAAT spacer
length: 36 repeater length: 30
935 697557 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTCTTCTCTTACAAAGTCTTCAATGATAGTAAATA spacer
length: 36 repeater length: 30
936 697624 GTTACAATAAGACTAAAAATAGAATTGAAAG TGGGGTCTCGTCGCAATCGGTGCAGTATTCCTAAGCC spacer
length: 37 repeater length: 30
937 697692 GTTACAATAAGACTAAAAATAGAATTGAAAG GCAATTGGGCTTTTTGTAGCTGGAATCTTGGGTGA spacer
length: 35 repeater length: 30
938 697758 GTTACAATAAGACTAAAAATAGAATTGAAAG AAAGATTCTGATTCCCGAAAGGCTTTTTCCGACAC spacer
length: 35 repeater length: 30
939 697824 GTTACAATAAGACTAAAAATAGAATTGAAAG TCACCATTACCTCCTAATCCAATCATCTAACATTGA spacer
length: 36 repeater length: 30
940 697891 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACTCTAATGTTTCATCGACTAACATGTCAATTTCA spacer
length: 37 repeater length: 30
941 697959 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGGATTTGCTACTCTCACGTATAGGGTCCCTACCTC spacer
length: 37 repeater length: 30
942 698027 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATATAGTCGTCTGCTCCTGATACCCAATATAT spacer
length: 34 repeater length: 30
943 698092 GTTACAATAAGACTAAAAATAGAATTGAAAG AGGAGGCTCTAGATGAGCTAATCAGCGCAGAAGGTG spacer
length: 36 repeater length: 30
944 698159 GTTACAATAAGACTAAAAATAGAATTGAAAG ACCACCCCTGGGAAAGGCCTTATGGTACTACCTA spacer
length: 34 repeater length: 30
945 698224 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTAAAAATACTACCCTCAACAATCAATATTGCA spacer
length: 34 repeater length: 30
946 698289 GTTACAATAAGACTAAAAATAGAATTGAAAG AACCTCCCTAAGCCTGTCCTTCCAAGTGAACCTTAT spacer
length: 35 repeater length: 30
947 698355 GTTACAATAAGACTAAAAATAGAATTGAAAG CTCTCTTACTTCTATAAGACTGAAACTTCACACCTA spacer
length: 36 repeater length: 30
948 698422 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACGCTTATTTACCCTGCTTAACACTCTTAACCCC spacer
length: 37 repeater length: 30
949 698490 GTTACAATAAGACTAAAAATAGAATTGAAAG ACATCCCTACATAATAATACGCCACTTGTCCAAAAA spacer
length: 36 repeater length: 30
950 698557 GTTACAATAAGACTAAAAATAGAATTGAAAG ATCTCCATCATACCAATGCTGTGCAAAATCAATCT spacer
length: 35 repeater length: 30
951 698623 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGAAAAGGTTGGGTGATAGGGTTAAGGAGGAGTTAGTG spacer
length: 39 repeater length: 30
952 698693 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACTTAAAGCTGGGATGGGCTATATACAAAGACAGAC spacer
length: 38 repeater length: 30
953 698762 GTTACAATAAGACTAAAAATAGAATTGAAAG GAGATAGAGCTGGTTTTACGTTATGGCAAAATCTTAG spacer
length: 37 repeater length: 30
954 698830 GTTACAATAAGACTAAAAATAGAATTGAAAG GTGCTCTCAGCCGCAAGGACCGCATACTACAACCTTC
955
956
957 crispr 7
958 27091 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTATATGATTCATTTCTTGTCTTAAGCAATCTGATCTGACCAGAGCT
spacer length: 47 repeater length: 30
959 27169 GTTCCAATAAGACTAAAAATAGAATTGAAAG TAAAGTTTATAAACTTTTCGTGTATAGAAAAGTGC spacer
length: 35 repeater length: 30
960 27235 GTTCCAATAAGACTAAAAATAGAATTGAAAG CCGGTTCTGCACCCGAACTTTTCATACCAAAATACTC spacer
length: 37 repeater length: 30
961 27303 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGTCACTACTTTACTGCTACAACCCGCTCTGGGTCTG spacer
length: 35 repeater length: 30
962 27369 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTCTTATGCTGAATTTTTCTGAATCTTCGGATACTGGCA spacer
length: 39 repeater length: 30
963 27439 GTTCCAATAAGACTAAAAATAGAATTGAAAG GCGTTAATGAACAATAAGCCTGACACGAACATAAAC spacer
length: 36 repeater length: 30
964 27506 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGAAATGTGCGTAAAGGTTTTCTTCCCAGGCTTTTCGC spacer
length: 37 repeater length: 30
965 27574 GTTCCAATAAGACTAAAAATAGAATTGAAAG GTAGTGAGGCGTTGAACCTGACCCACCACCAGCCC spacer
length: 35 repeater length: 30
966 27640 GTTCCAATAAGACTAAAAATAGAATTGAAAG CACTACTGTCCTCTCGACAATTGACGTTATTACAGTCG spacer
length: 38 repeater length: 30
967 27709 GTTCCAATAAGACTAAAAATAGAATTGAAAG TCAAACTTTACAAAAGTAAAGAAAAAATTGAACGGG spacer
length: 37 repeater length: 30
968 27777 GTTCCAATAAGACTAAAAATAGAATTGAAAG GCGTGCCGTGTGTTTTTATAACTGCTCTAATGTGTC spacer
length: 36 repeater length: 30

969 27844 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTGCTGCATATCCAGTGTGGTTGGTCTTGAGGTATA spacer
 length: 36 repeater length: 30
 970 27911 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGACATTAGGAGACAGTATAGGCCAGAACTTGCCCA spacer
 length: 36 repeater length: 30
 971 27978 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTAGCAAATTGCCGATTACTGCACATAAAAAAAAT spacer
 length: 35 repeater length: 30
 972 28044 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTTTTTTGCCCGTTTTTTCTTTTCCCTCACCGCTTT spacer
 length: 36 repeater length: 30
 973 28111 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGAATCTATAAGGGATTGAAAGGTCAAGGGTATACTA spacer
 length: 37 repeater length: 30
 974 28179 GTTCCAATAAGACTAAAAATAGAATTGAAAG ACGAACCTCTTTGATCGTAAAAATTTCAATCATCTC spacer
 length: 36 repeater length: 30
 975 28246 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTCCTATGCGGTCATTAGACCCCCGCCGGGGGCCGGCA spacer
 length: 38 repeater length: 30
 976 28315 GTTCCAATAAGACTAAAAATAGAATTGAAAG TGAGTTGTTTAGTCTAACTCTTACACCATCAGAAATA spacer
 length: 37 repeater length: 30
 977 28383 GTTCCAATAAGACTAAAAATAGAATTGAAAG ACAAATTAGTCAGAACCCCCCGCAATGAAAAATTTTT spacer
 length: 37 repeater length: 30
 978 28451 GTTCCAATAAGACTAAAAATAGAATTGAAAG GACAGCGTGGACACGGTGAACGGGCTCTGGAAGG spacer
 length: 34 repeater length: 30
 979 28516 GTTCCAATAAGACTAAAAATAGAATTGAAAG TGCCTATTTCTCGGGTCAAGCCTCCCAGCCTGAACC spacer
 length: 36 repeater length: 30
 980 28583 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGCGGTCTGAGCCTGAGCCGTGCTCCCTCAAGCG spacer
 length: 35 repeater length: 30
 981 28649 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTATTCCTGATAGAACCTTTGCCACTGTTGAATTCCA spacer
 length: 37 repeater length: 30
 982 28717 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTGTATTTCTTGCGTAATACCCCCCAAATAGTTCC spacer
 length: 36 repeater length: 30
 983 28784 GTTCCAATAAGACTAAAAATAGAATTGAAAG CATACTTGCGGATACGGATCCAGTCAAACTTGAC spacer
 length: 35 repeater length: 30
 984 28850 GTTCCAATAAGACTAAAAATAGAATTGAAAG
 AACACTTTCTTAAGTCTGGGTGCTCTATGTTTTGAGTTCCAATAAGACTAAAAATCGAATTGAAAGCTGGAGCGTTGGGCACAAG
 CATGGGGATGATTGTGGA spacer length: 104 repeater length: 30
 985 28985 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGGGTTGGGTCTCAATGGTGTATGGAGCGTTTCTT spacer
 length: 36 repeater length: 30
 986 29052 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTATTAAACGCAATCCGCTCAGCCAAACATCACCCCT spacer
 length: 37 repeater length: 30
 987 29120 GTTCCAATAAGACTAAAAATAGAATTGAAAG TGATGGAGTAGATGAAATTCCTGGGGTGTCTTGGA spacer
 length: 36 repeater length: 30
 988 29187 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGTCTCATCTCGTGCAGCCTTTCTTCCCTCAACCCA spacer
 length: 36 repeater length: 30
 989 29254 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGAGCTAGAATTGATGAAGGAGGTTGCTCAAGTAGTG spacer
 length: 37 repeater length: 30
 990 29322 GTTCCAATAAGACTAAAAATAGAATTGAAAG CACAAAGTTCTTCCATTCTACTAGTCCAGCTCTCTG spacer
 length: 36 repeater length: 30
 991 29389 GTTCCAATAAGACTAAAAATAGAATTGAAAG CTGTCTCCCTAAGAGCATACAATCCTCTGTACTCTA spacer
 length: 36 repeater length: 30
 992 29456 GTTCCAATAAGACTAAAAATAGAATTGAAAG GGAGTAGAAATGCCCAAATTCCTTTAGGGACAAGAT spacer
 length: 37 repeater length: 30
 993 29524 GTTCCAATAAGACTAAAAATAGAATTGAAAG CACCACCACGATGAAGGTACCGTTCTCAACGTCTACTTC spacer
 length: 39 repeater length: 30
 994 29594 GTTCCAATAAGACTAAAAATAGAATTGAAAG AATCAACCCCCAACCTTGCAAGGGTTGCCTCAACTG spacer
 length: 36 repeater length: 30
 995 29661 GTTCCAATAAGACTAAAAATAGAATTGAAAG AACTTCCTCTCCAACCTCCCTCACCTCCTCATCCGACA spacer
 length: 37 repeater length: 30
 996 29729 GTTCCAATAAGACTAAAAATAGAATTGAAAG
 ACTGGATTGAGAGCAACTTGTCGAATTATGTCGTCAAGCTCGTCATTG spacer length: 48 repeater length: 30
 997 29808 GTTCCAATAAGACTAAAAATAGAATTGAAAG GATAATGCTAGGTTATTATATAGGTATAAGGCAAGGTGTCC
 spacer length: 41 repeater length: 30
 998 29880 GTTCCAATAAGACTAAAAATAGAATTGAAAG GTTTCCAAGCCATTCCAACCACCCACATGTGTTGTTTTCA
 spacer length: 41 repeater length: 30
 999 29952 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTTGTGATAGTGTCTTTGCAACGAAGAGCTTGCTGGTC spacer
 length: 39 repeater length: 30
 1000 30022 GTTCCAATAAGACTAAAAATAGAATTGAAAG GAACATTGTCCCCTCCTCCAAACAGTTTTTCATGTC spacer
 length: 36 repeater length: 30
 1001 30089 GTTCCAATAAGACTAAAAATAGAATTGAAAG TAGAGTGCGGCGATTATTTTGGTTCTCAGCGTTGCT spacer
 length: 36 repeater length: 30
 1002 30156 GTTCCAATAAGACTAAAAATAGAATTGAAAG TCAGCAGTTACGTGCTTCTTCCAGGTGAGAATACCA spacer
 length: 36 repeater length: 30
 1003 30223 GTTCCAATAAGACTAAAAATAGAATTGAAAG
 AATAATCAGCAAAATCACGGGACATAGAAGGCTAGACTACATCCTACA spacer length: 48 repeater length: 30

1004 30302 GTTCCAATAAGACTAAAAATAGAATTGAAAG AGAGAATCTGGTAAGGAGACAGTAACTGATCATGCAA spacer
 length: 38 repeater length: 30
 1005 30371 GTTCCAATAAGACTAAAAATAGAATTGAAAG TTCATACAATTCTGGAAGGTTGTAGAAACCAACGTTCC
 1006
 1007
 1008 GCA_000007345.1_ASM734v1_genomic.fna(findCrispr):
 1009 START REPEAT
 SPACER
 1010 crispr 1
 1011 4778867 GAAATTACATATTGAGAATT
 ACATATTGAGAATTACATATTGAGAATTACATATTGAGAATTACATATTGAGAATTACATAT spacer length: 62
 repeater length: 20
 1012 4778950 GAAATTACATATTGAGAATT ACATATTGAGAATTACATAT spacer length: 20 repeater length:
 20
 1013 4778991 GAAATTACATATTGAGAATT ACGGTAGCCTAAAAAACGGA
 1014
 1015
 1016 crispr 2
 1017 24632 GAATATTGATGGAGTATAAA
 TGAATATTGATAAAGTATAAAGGAATATTGATAAAGTATAAAGGAATATTGATGGAATATAATGGAATATTGAAAGAGTATAAA
 spacer length: 84 repeater length: 20
 1018 24737 GAATATTGATGGAGTATAAA
 GGAATATTGAAAGAGTATAAAGGAATATTGATAAAGTATAAAGGAATATTGATGGAATATAATGGAATATTGAAAGAGTATAAA
 spacer length: 84 repeater length: 20
 1019 24842 GAATATTGATGGAGTATAAA GGAATATTGAAAGAGTATAAA spacer length: 21 repeater length: 20
 1020 24884 GAATATTGATGGAGTATAAA AACGATAGGCTGAAAAACGAT
 1021
 1022
 1023 crispr 3
 1024 5244674 GATTGCTCCGCTCTGACAAC
 AGTGAGCATCCCCGACAGCGTCACAACCATTTGGCGATAATGCATTTCATGAGCTGCTCCGCTCTGACAACGTGAACATCCCCGACA
 GCGTCACAACCATTTGGCAATTATGCATTCCA spacer length: 117 repeater length: 20
 1025 5244812 GATTGCTCCGCTCTGACAAC
 AGTGACAATCGGTAGTGGCGTCACTACCATCGGCACCAGCGGTTCCAGGATTGCTCCGCTCTGGCAACAGTGACAATCGGTAGCG
 GCGTCACTACTATCGGTACCAGCGCGTTCCA spacer length: 117 repeater length: 20
 1026 5244950 GATTGCTCCGCTCTGACAAC
 ACGGAATTCTCGAAAAACGATAGGCTGAAAAACGATATTCCTTAAAAACGGCATTATAAAACAGATGCCTACCATCAATTTCGATAA
 GTAGATTTTTTAAGTTTTGCTCATTCATGG
 1027
 1028
 1029 crispr 4
 1030 3137890 TTCAGTCC
 TGATGGAAAAATATGTTGCTACGGCGAGCAATGATAATACATCACGTTTATGGGATGTATCTACAGGTAAACAAATCTTTGCTCTGA
 ACCATACTGATCCAGTGCGTAATGTTGT spacer length: 114 repeater length: 8
 1031 3138013 TTCAGTCC
 TGATGGAAAAATATGTTGCTACGGCGAGCGCTGACAAAACAGCAGGCGTATGGAATACAACCTACAGGTGAAGGAATTTCTGTTCTGA
 ACCATACTGGTAGGGTAAATAATGTTGT spacer length: 114 repeater length: 8
 1032 3138136 TTCAGTCC
 TGATGGAAAAATATATTGCTACGGCAAGTGATGACAATACATCACGTTTATGGGATACAGCTACAGGTAAACAAATCTTTGTTCTGA
 ATCAGACTGATCCGGTGCGTAATGTTGT spacer length: 114 repeater length: 8
 1033 3138259 TTCAGTCC
 TGATGGAAAAATATATCGCAACGGCGAGCGCTGACAATACATCACGTTTATGGGATACAACCTACAGGTAAACAAATCTTTGATATGA
 AACATGATGGTCCGGTAAATAATGTTGT spacer length: 114 repeater length: 8
 1034 3138382 TTCAGTCC
 TGATGGAAAAATATGTTGCTACGGCGAGTGCTGACAAAAAAGCGCGTTTATGGAATGCAACTACAGGTAAAAAAATTTTTGATATGA
 AACATGATAGTGGTATAAATACTGTTGT spacer length: 114 repeater length: 8
 1035 3138505 TTCAGTCC
 TGATGGAAAAATACATAGTAACGGCGAGTGATGACAAAACAGCAGGAGTTTGGGAATACAACCTACAGGTAAAAAAATCTTTGATATGA
 AACATGATGGTTCGGTAAATACTGTTGT spacer length: 114 repeater length: 8
 1036 3138628 TTCAGTCC
 TGATGGAAAAATACATCGCAACGGCAAGCGCTGACAATACATCACGTTTATGGGATACAGCTACAGGTGAAAAAATTTTTTTTCTGA
 ACCATTATGGTTGGGTAAATACTGTTGT spacer length: 114 repeater length: 8
 1037 3138751 TTCAGTCC
 ACTCGAAATTTACGAAAACTACTCGAAAAAGACCCCGAAAATGTAGCATACCAATCTTACGTAGGAGGGACACTCAACAATTTAG
 GAAACTTGCTTTTCGGATATGGGGAGAAT
 1038
 1039
 1040 crispr 5
 1041 2378685 TTCGCG AGCAAGATCCACTAAAACAAGGATTGAAACCAACCATTGCTTCTCTCCTTATTATGTGTATCAGG
 spacer length: 66 repeater length: 6
 1042 2378758 TTCGCG AGCAAGATCCACTAAAACAAGGATTGAAACAAAGATCTTATTTTGCCTAAAGGAATGTACTATCAA

spacer length: 66 repeater length: 6
 1043 2378831 TTCGCG AGCAAGATCCACTAAAACAAGGATTGAAACCCCGCAACATATCCAGTTGTTGTAGATTTTTTGAGT
 spacer length: 66 repeater length: 6
 1044 2378904 TTCGCG AGCAAGATCCACTAAAACAAGGATTGAAACCTCCTTCGGGGCCTGTTGCGTACGACTTGAAATCCTT
 spacer length: 67 repeater length: 6
 1045 2378978 TTCGCG AGCAAGATCCACTAAAACAAGGATTGAAACAAAATTGAGCAATATAAATAAAATTGATATGTTTT
 spacer length: 65 repeater length: 6
 1046 2379050 TTCGCG GTATAACCAGTCACTGAAAATTAAAGAAGAACTGGGGGACAAAAGCGGAATTGCAAAAACACTGC
 1047
 1048
 1049 crispr 6
 1050 2616300 AGATAGGAAGCTAAGAATAAC AGACAGGAAGCTAAGAACAA spacer length: 20 repeater
 length: 21
 1051 2616342 AGATAGGAAGCTAAGAATAAC AGACAGGAAGCTAAGAATAACAGACAGGAAGCTAAGAACAA spacer
 length: 41 repeater length: 21
 1052 2616405 AGATAGGAAGCTAAGAATAAC AGACAGGAAGCTAAGAATAACAGACAGGAAGCTAAGAACAA spacer
 length: 41 repeater length: 21
 1053 2616468 AGATAGGAAGCTAAGAATAAC ACATCAAAACAACAAAACCTCCAAACTGCACCCACCAAAAA
 1054
 1055
 1056 crispr 7
 1057 1625513 ATGACTGCAACCGAAGAGATG GCTGCAACCGAGGAGATGACTGCAACCGAGGA spacer length: 32
 repeater length: 21
 1058 1625567 ATGACTGCAACCGAAGAGATG ACTGAAACCGAAGGAATGACTGAAACCGAAGG spacer length: 32
 repeater length: 21
 1059 1625621 ATGACTGCAACCGAAGAGATG CTCGGAATTTACGAAAACTACTCGAAAAAGA
 1060
 1061
 1062 crispr 8
 1063 2807830 GGATCAGCATACTCGCCTGCT
 ATCTACGGAGACAGGATAGTCTGGATGGATTACCGCAATGACAATGGAAGTTACACGAATTACGATATTTACATGTATGACCTTTC
 AACTCACAAGAACTCAGATTAGCACCAG spacer length: 116 repeater length: 21
 1064 2807968 GGATCAGCATACTCGCCTGCT
 ATCTATGGTGACAGGATAGTATGGTATGATTCGAGGAATGGAGATGATTACAATCCAACTGGAATATTTACATGTACGATCTCTT
 TTCTTCTAAGGAACTCAGATTAGCACCAG spacer length: 116 repeater length: 21
 1065 2808106 GGATCAGCATACTCGCCTGCT
 CGATAGGCTGAAAAACGATATTCCCTAAAAACGGCATTATAAAACAGATGCCTACCATCAATTCGATAAGTAGATTTTTTAAAGTTT
 TGCTCATTCAATGGTTTCCGAGTCTATTTCG
 1066
 1067
 1068 crispr 9
 1069 5244806 TTCCAGGATTGCTCCGCTCTG ACAACAGTGACAATCGGTAGTGGCGTCACTACCATCGGCACCAGCGC spacer
 length: 47 repeater length: 21
 1070 5244875 TTCCAGGATTGCTCCGCTCTG GCAACAGTGACAATCGGTAGCGGCGTCACTACTATCGGTACCAGCGC spacer
 length: 47 repeater length: 21
 1071 5244944 TTCCAGGATTGCTCCGCTCTG CAACAAAACCTCCAACTGCACCCACCAAAAACAACAAAACGGCAA
 1072
 1073
 1074 crispr 10
 1075 992816 AGTCGCCGTCACCGTCAAGGTC
 GGCCAGAGCCGGGAGGAATATGTATCTACAGCAGGCGCATTCAGTTAGAGTTCAAAGTCCACTCAGGGCTGTCCGAAGACCCGG
 TATTCTCATAACCATAGGTAACCTCACTCTTACTACCTATCAGAAGGTCA spacer length: 136 repeater
 length: 22
 1076 992975 AGTCGCCGTCACCGTCAAGGTC
 AGTCAAAGCCGGTGATGCAGTAATAGAACCTATATAAGGCGCATTCAGGAAGTGTTGCGAGTCCACACGGGACTACCTGAAGTCC
 CAGTATTCTCATAACCATAGGTAACCTGCATCATATGCACCGATCATAAGGTCA spacer length: 139 repeater
 length: 22
 1077 993137 AGTCGCCGTCACCGTCAAGGTC
 ATACCAATCTTACGTAGGAGGGACACTCAACAATTTAGGAACTTGCTTTTCGGATATGGGGAGAATTGAAGACGCGAAAAACAGAT
 ACAAAAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGACCCCGAAAAAT
 1078
 1079
 1080 crispr 11
 1081 3652479 TTGTTGTTTATCGTGTTAATTA
 TAGTGAAGTGTTGCTGTTAAGGTTAGTCACATATGCTTCTTTTCTTACTGAAATTCCAGCAGGATATTCTCCAACGTTAATT
 GTGCCTATAAT spacer length: 97 repeater length: 22
 1082 3652599 TTGTTGTTTATCGTGTTAATTA
 CGGTAACGGTGTTGCTGTTAGCGTTACAAACATATGCCTTTTCTCCTGCAACTGCAATTCCAGTAGGATATTCTCCAACATTAATT
 GTGCCTATAAT spacer length: 97 repeater length: 22
 1083 3652719 TTGTTGTTTATCGTGTTAATTA
 AAATTAAGAAGAACTGGGGGACAAAAGCGGAATTGCAAAAACACTGCACCAGCTTGATAGGATTAAAAAGACATGGATAGATTG

AAAGAAAAAAT

1084
1085
1086 crispr 12
1087 3622348 TTTTCTTTACTTTCTCTTTTTT ATTCATTTTTGTCTTTTCTA spacer length: 20 repeater
length: 22
1088 3622391 TTTTCTTTACTTTCTCTTTTTT ACTCATTTTTGTCTTTTCTA spacer length: 20 repeater
length: 22
1089 3622434 TTTTCTTTACTTTCTCTTTTTT CATAGATTAAAAATTCATAG
1090
1091
1092 crispr 13
1093 4771776 AATATAATATCAAAAATATCATA TTCATTTCGAGTTAATATAATATTA AAAATATCATGCTCATCGAGT spacer
length: 45 repeater length: 23
1094 4771845 AATATAATATCAAAAATATCATA CTCATTTCGAGTTAATATAATATTA AAAATATCATACTCATTCGAGT
spacer length: 46 repeater length: 23
1095 4771915 AATATAATATCAAAAATATCATA TCAAAACAACAAAACCTCCAAACTGCACCCACCAAAAACAACAAAA
1096
1097
1098 crispr 14
1099 1869524 CAGGGAAATTTTTCCCAAAAAA
GCATAGATTACGCTATTGTGTTGATGAACGAGGGTAATGCAAGACAAACACTTGCAGAAATGGGCATTAAAAGTAGGGAAAATCTT
GAAATTGCTGTCAGTTTTTACGGCGATG spacer length: 114 repeater length: 23
1100 1869662 CAGGGAAATTTTTCCCAAAAAA
GCATAGATTACGCTATTGCGTTGATGAACGAGGGTAATGCAAGACAAACACTTTCAGAAATGGGCATTAAAAGTAGGGAAAATCTT
GAAATTGCTGTCAGTTTTTACGGCGATG spacer length: 114 repeater length: 23
1101 1869800 CAGGGAAATTTTTCCCAAAAAA
GGAATTTACGAAAACTACTCGAAAAAGACCCCGGAACTTAGCATATCACTCAGAAGTGAACACGATCCAATGTAAAGTAAAAA
AGTTAAAGGTTCCGGGAGATGTTGAAAT
1102
1103
1104 crispr 15
1105 5216089 CCAGTGC GTTCTACGGCTGCACC AACCTGACCTCGGTGACTATACCGGACAGCGTCACCAATATCGGC spacer
length: 45 repeater length: 23
1106 5216158 CCAGTGC GTTCTACGGCTGCACC
GGCCTGATCTCGGTGACCATACCGGACAGTGTACCAATATCGACAACAGCGCGTTCCGTGGCTGCACCGGTCTGGATTCCCTCAC
CATTGGCAATGGCGTCACCACCATCGGC spacer length: 114 repeater length: 23
1107 5216296 CCAGTGC GTTCTACGGCTGCACC
TAGGCTGAAAAACGATATTCCCTAAAAACGGCATTATAAAACAGATGCCTACCATCAATTCGATAAGTAGATTTTTTAAGTTTTGC
TCATTCAATGGTTTCCGAGTCTATTTCGT
1108
1109
1110 crispr 16
1111 2148662 TCCAGGCTTCCGATGTAGATGGT
ACCATCCGATCCTATTGCAGGAGAACCGTAAATCTGGTTTCCGGCGGTGTAGCTCCACTTCAGAGTCCCGTCAGGGTTGAGTGC GT
GGAGTTTGCT spacer length: 96 repeater length: 23
1112 2148782 TCCAGGCTTCCGATGTAGATGGT
GCCATCCGATCCTATTGCAGGAGAACCGTAAATCTGGTTTCCGGTTGTGTA ACTCCATTTGAGAGTCCCGTCAGGATTGAGCGCGT
GGAGTTTTTT spacer length: 96 repeater length: 23
1113 2148902 TCCAGGCTTCCGATGTAGATGGT
CAAAACCTCCAAACTGCACCCACCAAAAACAACAAAACGGCAAAACATCAAAACGGTACCCACCAAGATCCAACAAAACAGCA
AAACATCAAA
1114
1115
1116 crispr 17
1117 1145915 ATCGGTTGAATCATCAGTTGAATC ATCGGTTGAATTATCGGTTGAAT spacer length: 23 repeater
length: 24
1118 1145963 ATCGGTTGAATCATCAGTTGAATC GTCAGTTGAATCATCAGTTGAAT spacer length: 23 repeater
length: 24
1119 1146011 ATCGGTTGAATCATCAGTTGAATC CCAATCTTACGTAGGAGGGACAC
1120
1121
1122 crispr 18
1123 2435966 TAAAAATTCATAGATTGAAAATTC ATAGATTAAATATTCATAGA spacer length: 20 repeater
length: 24
1124 2436011 TAAAAATTCATAGATTGAAAATTC ATAGATTAAATATTCATAGATTGAAAATTCATAGATTGAAAATTCATAGA
spacer length: 50 repeater length: 24
1125 2436086 TAAAAATTCATAGATTGAAAATTC TTAAAGAAGAACTGGGGGACAAAAGCGGAATTGCAAAAACACTGCACCAG
1126
1127
1128 crispr 19

1129 4105440 TAACCTTCATCTGGCTAACCTTCA AGGAACCTAACTTGGAGGAACTAACCTCCAGGGTG spacer length:
35 repeater length: 24

1130 4105500 TAACCTTCATCTGGCTAACCTTCA GGGAGCGAACCTTCATCTGG spacer length: 20 repeater
length: 24

1131 4105545 TAACCTTCATCTGGCTAACCTTCA CTGCTGAAAACCTGACAGTT

1132

1133

1134 crispr 20

1135 1717854 AAATTAGATAGACTTTAAACGATAA
GATCTCAATTAGACATGTTTACATAAAATTAGATAGATTTTAACCGATAAAATTTCAATTAGACATGTTTATTTCAGG spacer
length: 76 repeater length: 25

1136 1717956 AAATTAGATAGACTTTAAACGATAA AATTTCAATTAGACATGTTTATTTCAGG spacer length: 27
repeater length: 25

1137 1718009 AAATTAGATAGACTTTAAACGATAA TAATAGAGTCGCAGAAGAGAATGGCAG

1138

1139

1140 crispr 21

1141 2510481 AAGAACCCCATTTGAGTGAGGTATCC
ACCTGTGCCGTTAACTTCTGAATGCGATTATTATCACTATCGACAACATAAACATTACCCGAAGAATCTACAGCAACGCCCTCAG
GATCATTAATTTGTCCGTTTCCGCTACCA spacer length: 115 repeater length: 25

1142 2510622 AAGAACCCCATTTGAGTGAGGTATCC
GCCTGTGCTGTTAACTTCTGAATGCGGTTGTTGCCTGCATCTGTTACATAAACATTACCCGAAGAATCGACAGCAACACCATGTG
GATAAATAAACTGCCCCGTTTCCGCTGCCC spacer length: 115 repeater length: 25

1143 2510763 AAGAACCCCATTTGAGTGAGGTATCC
AGGAACGATGCTAAACAATTTAGGAACTTGCTTTTCGGATATGGGGAGAATTGAAGACGCGAAAAACAGATACAAAAAGCACTCG
AAATTTACGAAAAACTACTCGAAAAAGAC

1144

1145

1146 crispr 22

1147 5529648 GTATCCTTTAAATCCACCTCCCTTA
AACCTGTATCCTTTAAATCCACCTCTCTTATTATTTTCGTATTGCCCGAAATC spacer length: 52 repeater
length: 25

1148 5529726 GTATCCTTTAAATCCACCTCCCTTA TTGCTTCGTATTGCCCGAAATC spacer length: 22 repeater
length: 25

1149 5529774 GTATCCTTTAAATCCACCTCCCTTA TCAAACAGCTGCTGAAAACCTG

1150

1151

1152 crispr 23

1153 1752708 ATGATTGTTTATACGGTACAATATAC
GGAATGATTATTTATACGGTACAATATACGGAATGATTATTTATACGGTACAATATACGGAATGATTATTTATACGGTACAATATA
CGG spacer length: 89 repeater length: 26

1154 1752824 ATGATTGTTTATACGGTACAATATAC GGAATGATTATTTATACGGTACAATATACAG spacer length: 31
repeater length: 26

1155 1752882 ATGATTGTTTATACGGTACAATATAC AACAAACAAAACCTCCAACTGCACCCACCAA

1156

1157

1158 crispr 24

1159 4102535 TTAAGTTAGTATATTGCATATTAAGTTAG
TACATTGCATATTAAGTTAGTACATTGCATATTAAGTTAGTACATTGCAT spacer length: 50 repeater
length: 29

1160 4102615 TTAAGTTAGTATATTGCATATTAAGTTAG TACATTGCATATTAAGTTAGTACATTGCAT spacer length:
30 repeater length: 29

1161 4102675 TTAAGTTAGTATATTGCATATTAAGTTAG ACGAAAACTACTCGAAAAAGACCCCGGAA

1162

1163

1164 crispr 25

1165 1627371 CTGAAATTGTTGAAAATCCGAAAATAACA CTTCCAATCAAACAGCTGTTGAAAACCTGACAGTTCCGGAA
spacer length: 41 repeater length: 30

1166 1627443 CTGAAATTGTTGAAAATCCGAAAATAACA CTTCCAATCAAACAGCTGCTGAAAACCTGACAGTTCCGGAA
spacer length: 41 repeater length: 30

1167 1627515 CTGAAATTGTTGAAAATCCGAAAATAACA TTTCCAATCAAACAGTTGCTGAAAACCTGACAGTTCCGGAA
spacer length: 41 repeater length: 30

1168 1627587 CTGAAATTGTTGAAAATCCGAAAATAACA AAGCTGAACACAAAACAGTTGAAGTGAAAATCGAAGACTTT

1169

1170

1171 crispr 26

1172 3209951 GCGAGTCAGGACAATACTGCAAGAGTATGG
GACGCATATACAGGTGAGGAAATTTCTGTCTTAAACATGATGCCGGAATAAACAAAGCTGTATTCAACCGTGATGGGAAATATGT
TGCAAC spacer length: 92 repeater length: 30

1173 3210074 GCGAGTCAGGACAATACTGCAAGAGTATGG
AATACGTCTACAGGCAAAGATATTACTCTAAACATGGGGGTGGGGTTCTTGATGTGGCATTTCAGTCCGGATGGAAAATATGTTGC

AAC spacer length: 89 repeater length: 30
 1174 3210194 GCGAGTCAGGACAATACTGCAAGAGTATGG
 TGAAAAATCCGAAAAATAACACTTCCAATCAAACAGCTGCTGAAAACCTGACAGTTCCGGAAGCTGAACACAAAACAGTTGAAGTGA
 AAA
 1175
 1176
 1177 crispr 27
 1178 4523591 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTAACCTTTAATGGGAACGTCTGCGGCTGCTGTTGCTG spacer
 length: 37 repeater length: 30
 1179 4523659 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CGGTTGCAGGAGCTGTAGCGAATGGCTTCATGCAAAC spacer
 length: 37 repeater length: 30
 1180 4523727 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TGCATATACTTTACGCTATCATACCTTTCAAGCG spacer
 length: 35 repeater length: 30
 1181 4523793 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATCCTTTGAATCATGGTTAAAATCCTCAGATATGAC spacer
 length: 36 repeater length: 30
 1182 4523860 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTATCAGGATGTCAATTGGTGTCTCTGATGATATCC spacer
 length: 35 repeater length: 30
 1183 4523926 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGAGTTTTGAGGTCCTTGAACCTGAAAAAGAATC spacer
 length: 35 repeater length: 30
 1184 4523992 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATTCAAAAACAGTTGCATGTTACACCGGTGCAGATGT spacer
 length: 37 repeater length: 30
 1185 4524060 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TCGGCACAGTAGCCTCTAATGGTTCATACATAG spacer
 length: 33 repeater length: 30
 1186 4524124 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGTTTTGTGTTTGTGCTATAAAAAATAATAGTG spacer
 length: 33 repeater length: 30
 1187 4524188 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AACGACATTCATCACAATGTAAGGAATGCTAGTGA spacer
 length: 35 repeater length: 30
 1188 4524254 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGAATCAAGTACGGCTGATGTGTCTTTCCAAGATG spacer
 length: 35 repeater length: 30
 1189 4524320 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AAATGCACGAGCCGCGAGCCGTAATTATATTGACGA spacer
 length: 35 repeater length: 30
 1190 4524386 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TATATTTTTTTGTTGACTCTCAAGAAATCAAGCTG spacer
 length: 35 repeater length: 30
 1191 4524452 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTTATACCTATAAGCCTCCCCTAACCATAGAGGACGACGA
 spacer length: 40 repeater length: 30
 1192 4524523 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GCTCAGGAGATTGAGCAGGGGTAGCTAACGTCATAAACT
 spacer length: 39 repeater length: 30
 1193 4524593 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AATCTTTCCATTTCGTATGGTTTCTCATCTTTTTT spacer
 length: 34 repeater length: 30
 1194 4524658 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GATTTCTTCAGGAGCAGGGACCTGGACAACACCGA spacer
 length: 35 repeater length: 30
 1195 4524724 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TATCATAGGTTGAGTTCTCGGTATGAGATGGATGTTAGA
 spacer length: 39 repeater length: 30
 1196 4524794 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTTGTAAGTGAGCCTTCGATAGATGCCTCTAAGCAGT spacer
 length: 37 repeater length: 30
 1197 4524862 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTGAAGTCTAAGCTAACTCCTGAGATCCAGGAGAAAA spacer
 length: 37 repeater length: 30
 1198 4524930 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGCCTTACATTCTTCGCATCGAGTTCATATTCAA spacer
 length: 34 repeater length: 30
 1199 4524995 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ACTTCAAGAATGCCAGGTAAACCGCATCTGAGAC spacer
 length: 34 repeater length: 30
 1200 4525060 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTGCTGAAACTTCATATTGTTTCATGTTCTCTCTCT spacer
 length: 35 repeater length: 30
 1201 4525126 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATAATCCAACGGGGCATAGTGTGAGGAGTATG spacer
 length: 33 repeater length: 30
 1202 4525190 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AAGTTGCAGAGGACTATCGAAACGAACTGAAGATATG spacer
 length: 38 repeater length: 30
 1203 4525259 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TACATCTTCATATTCATATATATACACTTCAGATA spacer
 length: 35 repeater length: 30
 1204 4525325 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GTTGAATGCGAACGCCTGCGGGGATTTCCGGATAA spacer
 length: 35 repeater length: 30
 1205 4525391 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATGCTATGCTCGGAGCCACTCCGAAAATGAGAGA spacer
 length: 34 repeater length: 30
 1206 4525456 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATTCCACCGCGACAAATAATATATACGTGGATCTC spacer
 length: 35 repeater length: 30
 1207 4525522 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AAAACGATATTCCCTAAAAACGGCATTATAAAACA
 1208
 1209
 1210 crispr 28
 1211 24756 AGGAATATTGAAAGAGTATAAAGGAATATTGA
 TAAAGTATAAAGGAATATTGATGGAATATAATGGAATATTGAAAGAGTATAAAGGAATATTGATGGAGTATA spacer

length: 72 repeater length: 32
1212 24861 AGGAATATTGAAAGAGTATAAAGGAATATTGA TGGAGTATAAAGGAATATTGATGAAGTATA spacer length:
30 repeater length: 32
1213 24924 AGGAATATTGAAAGAGTATAAAGGAATATTGA CAAACTGCACCCATCAAAAACAACAAAAAC
1214
1215
1216 crispr 29
1217 3653484 TCCTCTGGTACCGTTATGTTCTCCTCAGGTAC
CGTTATGTTCTCCTCTGGTACTGTTATGTTCTCCTCTGGTACTGTTATGTT spacer length: 51 repeater
length: 32
1218 3653568 TCCTCTGGTACCGTTATGTTCTCCTCAGGTAC
CGTTATGTTCTCCTCAGGTACCGTTATGTTCTCCTCAGGTACCGTTATGTTCTCCTCTGGTACTGTTATGTTCTCCTCTGGTACTG
TTATGTT spacer length: 93 repeater length: 32
1219 3653694 TCCTCTGGTACCGTTATGTTCTCCTCAGGTAC
AAAAACATCAAAAACGGTACCCACCAAGATCCAACAAAAACAGCAAAACATCAAAAAAGAACCGCAGCGGCTGAGGAGAGTACATGG
CAAGCGA
1220
1221
1222 crispr 30
1223 1726596 GGAAGAAAAGAGTATACAGGAAGAAAAGAGTA TACAGGAAGAAAAGAGTATA spacer length: 20
repeater length: 33
1224 1726650 GGAAGAAAAGAGTATACAGGAAGAAAAGAGTA TACGGAAGAAAAGAGTATA spacer length: 20
repeater length: 33
1225 1726704 GGAAGAAAAGAGTATACAGGAAGAAAAGAGTA GTAGGAGGGACACTCAACAA
1226
1227
1228 crispr 31
1229 2738420 AATATCAAATAAGGTTCTAACATACAATTTATAA
CAGATAATATGCCTGCAAAAATAATGAGACAGATGTATTATATACCATGGTATATATATTTCAAAAAAAGAGTGTGAAGTAAGAATT
AAAACAACATATTTAAAAAAGC spacer length: 109 repeater length: 34
1230 2738564 AATATCAAATAAGGTTCTAACATACAATTTATAA
CAGATAATATGCCTGCAAAAATAATGAGACAGATATATTATATACCATGATATATATATTTCAAAAAAAGAGTGTGAAGTAAGAATT
AAAACAATATATTTAAAAAAGC spacer length: 109 repeater length: 34
1231 2738708 AATATCAAATAAGGTTCTAACATACAATTTATAA
TGAAGTATAGAGGAATATTGAAAGAGTATAAAGGAATATTGAAGGAATATAAAGGAATATTGATGTATATTGATGAGATTTCTCGC
ATATTAAGTCGTTTATCTATTCC
1232
1233
1234 crispr 32
1235 2369218 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATATGTGTTGAGTTGTCTGCGTCCCGTGGGTCA
spacer length: 35 repeater length: 37
1236 2369291 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CACACATGAATTATGAGATTGGGAAACAGAATTAT
spacer length: 35 repeater length: 37
1237 2369364 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TATGCTGTAGCCACCAATAACGATGCTGCAAACA
spacer length: 34 repeater length: 37
1238 2369436 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGCAGGGGTAATCATGACTATACAATTAAGAAAC
spacer length: 35 repeater length: 37
1239 2369509 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAATGCTGTAATAGCTGTACTTTTAATTTCCATT
spacer length: 35 repeater length: 37
1240 2369582 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGGTAACCATCACTTTTGAAATTTCTCTTAACAT
spacer length: 35 repeater length: 37
1241 2369655 ATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGCGAAGCTAGGGAAATCTTCCCAAAAAAAGAA
1242
1243
1244 crispr 33
1245 2310921 TTGCTTTTTTAGCTGACCTTTTCTTTAACTTGTTTTT
TTAGCTGACCTTTTCTTTAACTTGTTTTTTTAGCTGACCTTTTCTTTAG spacer length: 49 repeater length:
37
1246 2311008 TTGCTTTTTTAGCTGACCTTTTCTTTAACTTGTTTTT TTAGCTGACCTTTTCTTTAG spacer length: 20
repeater length: 37
1247 2311066 TTGCTTTTTTAGCTGACCTTTTCTTTAACTTGTTTTT GGGGACAAAAGCGGAATTGC
1248
1249
1250 crispr 34
1251 4063365 AAAAGCACTCGAAATGAGAGAAAAACTACTCGAAAAAGAC
CCCGAAAAATGTAGCATACCAATCATACGTAGGAGGGACACTAAACAATTTAGGAAACTTGCTTAAAAATATGGGGCGCATCGAAGA
CGCGAAAAACAGGTACG spacer length: 103 repeater length: 40
1252 4063509 AAAAGCACTCGAAATGAGAGAAAAACTACTCGAAAAAGAC
CCCGAAAAATGTAGCATACCAATCATACGTAGCAATGACGCTAAACAATTTAGGAAACTTGCTTAAAAATATGGGGCGCATCGAAGA
CGCGAAAAACAAGTACG spacer length: 103 repeater length: 40
1253 4063653 AAAAGCACTCGAAATGAGAGAAAAACTACTCGAAAAAGAC

GTTCCGGAAGCTGAACACAAAACAGTTGAAGTGAAAATCGAAGACTTTGCCTTTAACCCCGACTCGGTACGATTTCTCCCGGGGA
 TACGGTCCGGTGGACAA
 1254
 1255
 1256 crispr 35
 1257 4064085 AAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGAC
 CCCGAAAAATATAGCATACCAATCAGACATAGGAGGGACACTAAACAATTTAGGGACATTGCTTTTCGGATATGGGGAGAATTGAAGA
 TGCGAAAAACAGGTACG spacer length: 103 repeater length: 40
 1258 4064229 AAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGAC
 CCCGAAAAATATAGCATACCAATCAGAAGTAGGAGGGACACTAAACAATTTAGGGACATTGCTTTTCGGATATGGGGAGAATTGAAGA
 CGCGAAAAACAGGTACG spacer length: 103 repeater length: 40
 1259 4064373 AAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGAC
 CCCGAAAAATATAGCATACCAATCAGAAGTAGGAACGATGCTAAACAATTTAGGAACTTGCTTTTCGGATATGGGGAGAATTGAAGA
 CGCGAAAAACAGATACA spacer length: 103 repeater length: 40
 1260 4064517 AAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGAC
 CCCGAAAAATATAGCATACCAATCTTACGTAGGAGGGACACTCAACAATTTAGGAACTTGCTTTTCGGATATGGGGAGAATTGAAGA
 CGCGAAAAACAGATACA spacer length: 103 repeater length: 40
 1261 4064661 AAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGAC
 CCCGAAAAATGTAGCATACCAATCATACTAGGAACATGCTAAACAATTTAGGGACATTGCTTTTCGGATATGGGGAGAATTGAAGA
 CGCGAAAAACAGATACA spacer length: 103 repeater length: 40
 1262 4064805 AAAAGCACTCGAAATTTACGAAAACTACTCGAAAAAGAC
 CTGCAAAGTAATGCGAAGCTGCATTATATTCTCTAACTTGTGTTTCTCCCCAACGCACTCCAAAGAAATAAATTATAGCACTTATG
 AGAACAACCTACAATTGG
 1263
 1264
 1265 crispr 36
 1266 5689567 GCAACTACGAAGAAGCAGTAAAAAAGTATAACCAGTCACT
 GGAAATGAAGGAAGAACTGGGGGACAAAAGCGGAATTGCAATAACACTGTACCAGCTTGGAAATATTCATTATTCTCAG
 spacer length: 79 repeater length: 40
 1267 5689687 GCAACTACGAAGAAGCAGTAAAAAAGTATAACCAGTCACT
 GGAAATGAACAAAAACCGGGGATAAAAAGCGGAATTGCAAAAACACTGCACCAGCTTGGAAATGATTCATCACGATAAG
 spacer length: 79 repeater length: 40
 1268 5689807 GCAACTACGAAGAAGCAGTAAAAAAGTATAACCAGTCACT
 GGAAATAAAGGAAGAACTGGGGGACAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAAATATTCATTATTCTCAG
 spacer length: 79 repeater length: 40
 1269 5689927 GCAACTACGAAGAAGCAGTAAAAAAGTATAACCAGTCACT
 GAGAATGGCAGATATGGCGTATAGTCTGCCTATAGAGGACATAGCGATTTCAACAAATTTTAAAGAATTAGAGCTAGT
 1270
 1271
 1272 crispr 37
 1273 1869643 TCAGTTTTTACGGCGATGCCAGGGAAATTTTTCCCAAAA
 AAGCATAGATTACGCTATTGCGTTGATGAACGAGGGTAATGCAAGACAAACACTTTCAGAAATGGGCATTAAAAGTAGGGAAAATC
 TTGAAATTGCT spacer length: 97 repeater length: 40
 1274 1869781 TCAGTTTTTACGGCGATGCCAGGGAAATTTTTCCCAAAA
 AAACGCAGATTACGCTCGTGTATTGATAAACGAGAGTACTGCAAGGCAAACACTTGCAGAAATGGGCATTGAAAGTAGGGAAAATC
 TTGAAACTGCT spacer length: 97 repeater length: 40
 1275 1869919 TCAGTTTTTACGGCGATGCCAGGGAAATTTTTCCCAAAA
 AATTTAGGAACTTGCTTTTCGGATATGGGGAGAATTGAAGACGCGAAAAACAGATACAAAAAGCACTCGAAATTTACGAAAACT
 ACTCGAAAAAG
 1276
 1277
 1278 crispr 38
 1279 2743581 TGAGTCGCAGAAGAAAAATAGCAGAAATAATGGCACCAGTA
 ATAGAGTCGCAGAAGAGAATGGCAAATATTGTTGCTGACATGACGGAACCAGCAA spacer length: 55 repeater
 length: 40
 1280 2743677 TGAGTCGCAGAAGAAAAATAGCAGAAATAATGGCACCAGTA
 ATAGAGTCGCAGAAGAGAATGGCAGATATTGTTGCTGACATGACGGAACCAGCAA spacer length: 55 repeater
 length: 40
 1281 2743773 TGAGTCGCAGAAGAAAAATAGCAGAAATAATGGCACCAGTA
 AAAGATATGCAGAAAAATGGCAGAAATGATGACACCAGTAAAAGATATGCAGAAAAATAGCAGAAATAATGGCACCAGCAA
 spacer length: 79 repeater length: 40
 1282 2743893 TGAGTCGCAGAAGAAAAATAGCAGAAATAATGGCACCAGTA
 ATAGAGTCGCAGAAGAGAATGGCAGATATTGTTGCTGACATGACGGAACCAGCAATTGAGTCGCAGAAGAAAAATAGCAGAAATAAT
 GGCACCAGCAA spacer length: 97 repeater length: 40
 1283 2744031 TGAGTCGCAGAAGAAAAATAGCAGAAATAATGGCACCAGTA
 AACCTGACAGTTCCGGAAATTGAAATTGTTGAAAATCCGAAAAATAACACTTCCAATCAAACAGCTGCTGAAAACCTGACAGTTCC
 GGAAGCTGAAC
 1284
 1285
 1286 crispr 39
 1287 5414426 TGCACCCACCAAAAACAACAAAAACGGTAAAACATCAAAA

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ACAACAAAAACCTCCAAACTGCACCCATCAAAAACAACAAACCTCCAAA spacer length: 49 repeater length:
40
1288 5414516 TGCACCCACCAAAAAACAACAAAAACGGTAAAACATCAAAA
ACAACAAAAACCTCCAAACTGCACCCATCAAAAACAACAAAAACGGCAAAACATCAAAAACAACAAACCTCCAAA spacer
length: 75 repeater length: 40
1289 5414632 TGCACCCACCAAAAAACAACAAAAACGGTAAAACATCAAAA
GAAATTACATATTGAAATTACATATTGAAATTACATTAATTTGAGAGTTATCTACAATTTATTTGTACACACCTA
1290
1291
1292 crispr 40
1293 37286 TTAAAAAACGGTAGCCTAAAAAACGGAATTCTCGAAAAAC
GATAGGCTGAAAAACAGTATTTCGAAAAACGATATATTAATAAACGATAT spacer length: 49 repeater length:
40
1294 37376 TTAAAAAACGGTAGCCTAAAAAACGGAATTCTCGAAAAAC GATATATTAATAAACGATAT spacer length:
20 repeater length: 40
1295 37437 TTAAAAAACGGTAGCCTAAAAAACGGAATTCTCGAAAAAC TGTTCATTTCAGGATAAGAGA
1296
1297
1298 GCA_000008085.1_ASM808v1_genomic.fna(findCrispr):
1299 START REPEAT
SPACER
1300 crispr 1
1301 13727 ATTTCTAATATAT TAGAAACGTGTCCAATGAATTAGTGTCTATATTATTATTATAGATAACTTTCAA spacer
length: 54 repeater length: 13
1302 13795 ATTTCTAATATAT TAGAAACTTCTTTGCAATACGCTCCAAACACCGATTTCAATTCCTCTCTTTCAA spacer
length: 54 repeater length: 13
1303 13863 ATTTCTAATATAT TAGAAACATCAAAATGAGAACGGAAAAATAACTGTAAATTGAAAGTCTTTCAA spacer
length: 54 repeater length: 13
1304 13931 ATTTCTAATATAT TAGAAACTAGCCAGCAGAATAGAACTGCAGTAAATGATGCCTTCCTTTCAA spacer
length: 52 repeater length: 13
1305 13997 ATTTCTAATATAT TAGAAACAGATAAAGTTATTGAAATAGTAGATTATAATAGAAGATGCTTTCAA spacer
length: 53 repeater length: 13
1306 14064 ATTTCTAATATAT TAGAAACCTTCTAAAAAAGTCTATTTTTTCATTAACCTCCGTCGCACTCTTTCAA spacer
length: 54 repeater length: 13
1307 14132 ATTTCTAATATAT TAGAAACACTATCGTATACTTGATCGAATGTTGATTTGAATGTTTTCTTTCAA spacer
length: 54 repeater length: 13
1308 14200 ATTTCTAATATAT TAGAAACCTTTCTTTCTTTTCAGTAAATTTATTACATCGTCCTGTGTGCTTTCAA spacer
length: 54 repeater length: 13
1309 14268 ATTTCTAATATAT
TAGAAACTATTTCGCCCTCTATCGGGTTTGCTTTAATAAACTCTTTTCGCTACTATGTCCTCCTCTTTAGTATAACTTTCAA
spacer length: 80 repeater length: 13
1310 14362 ATTTCTAATATAT TAGAAACTGTTGTGTGTTGTTGCCTATATAATATATGATGTTGTGCTCTTTCAA spacer
length: 54 repeater length: 13
1311 14430 ATTTCTAATATAT TAGAAACTTCTATATCATATTTATATGCATATAGTCCCAGTTTGAGACTTTCAA spacer
length: 54 repeater length: 13
1312 14498 ATTTCTAATATAT TAGAAACGGAACATTTTGTTTTCTTTGAGCAAATAAATACATCGTCCTTTCAA spacer
length: 54 repeater length: 13
1313 14566 ATTTCTAATATAT TATTAGAAACGGAACATTTTGTTTTCTTTGAGCAAATAAATACATCGTCCTTT
1314
1315
1316 GCA_000008265.1_ASM826v1_genomic.fna(findCrispr):
1317 START REPEAT
SPACER
1318 crispr 1
1319 51355 CTATCTAGTAATTC TTAAACAAAAAAGTGAAAATATCCGGGATATACAAATTATATTCCTTCCAT spacer
length: 51 repeater length: 14
1320 51421 CTATCTAGTAATTC TTAAACGAGTAACTACAGTAGCAGGCAAAATAAATTTTTGAGGAACAGCTTCCAT spacer
length: 56 repeater length: 14
1321 51492 CTATCTAGTAATTC TTAAACTCTTAAAAATAGACGTCGTTTCTGACCCTTTCTTTAAGCTTCCAT spacer
length: 51 repeater length: 14
1322 51558 CTATCTAGTAATTC TTAAACTTGACGTTGTTGCGTGGGATGATGAGTGATATCCTCCTCTTCCAT spacer
length: 51 repeater length: 14
1323 51624 CTATCTAGTAATTC TTAAACAGAGAAGACAGCCTCAAAAAAGCCAAAGAAATACCTCAAAAAGAACTTCCAT
spacer length: 58 repeater length: 14
1324 51697 CTATCTAGTAATTC TTAAACACTAAAAATTGGAATATCGAAAAGATTAGCTCCATCTTAAGCTTCCAT spacer
length: 53 repeater length: 14
1325 51765 CTATCTAGTAATTC TTAAACGATGATCTGCGTCATCCACTCCGGGAAGTGCATGTGGAAAAGCTTCCAT spacer
length: 55 repeater length: 14
1326 51835 CTATCTAGTAATTC TTAAACTTAAAGCCTGGTTCTAGGACTACAAAGGATTGCTTAGCGCTCCCCTTCCAT
spacer length: 57 repeater length: 14
1327 51907 CTATCTAGTAATTC TTAAACCATAAATCTATTCTATTATTATATTGAGGTGGTAAAATGCTTCCAT spacer

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length: 52 repeater length: 14
1328 51974 CTATCTAGTAATTC TTAAACCAATAATGAATTATGGAATAGAAAAAATAGCTAAAATCTTCCAT spacer
length: 50 repeater length: 14
1329 52039 CTATCTAGTAATTC TTAAACTAAAAGCTATTGATCTGCTGGCTAACAACGATATATATCGAGTAGAACTTCCAT
spacer length: 60 repeater length: 14
1330 52114 CTATCTAGTAATTC TTAAACCTTGAAAAAAATTTATGAATTATATATTTCTACATCACTTCCAT spacer
length: 51 repeater length: 14
1331 52180 CTATCTAGTAATTC TTAAACTATAATATTGGTGATAAAAAATGGATAAGGATATGTATGTACTTCCAT spacer
length: 53 repeater length: 14
1332 52248 CTATCTAGTAATTC TATTATTTAACACAACAGGCAAAAACAGAATTAAGACTGGCCATTGAGCTTTC
1333
1334
1335 crispr 2
1336 15 CTTT CAATCCTATTTAGGTTATTATTTAACCTGGATTTTCCTTGGCCATATTTGCCGAGATACTAT spacer length:
61 repeater length: 4
1337 81 CTTT CAATCCTATTTAGGTTATTATTTAACATATATCGGATTTCAAACCCTTATAGATAGACTAG spacer length:
61 repeater length: 4
1338 147 CTTT CAATCCTATTTAGGTTATTATTTAACGCCAGAGGCATTTCTCCGTGCGTGGTCTTTAATG spacer
length: 61 repeater length: 4
1339 213 CTTT TCTAGTAATTCTTAAACCCGGGCAGTGCTATAGTGAAGTTAGTACACAGAGGAAAGACACT
1340
1341
1342 crispr 3
1343 1540715 TCTTT
CAATCCTATTTAGGTTATTATTTAACAAATTTTAACTTTTTGATACACATGTTTTTGTAATACTTTCAATCCTATTTAGGTTAT
TATTTAACTGAATTTGTTATATTTGTGTTTATAAAGTTATTTCCA spacer length: 131 repeater length: 5
1344 1540852 TCTTT CAATCCTATTTAGGTTATTATTTAACTTATTTTCAAGTAAGCTATAAAGAAGGCTTTGAT spacer
length: 60 repeater length: 5
1345 1540918 TCTTT CAATCCTATTTAGGTTATTATTTAACTAAGACTATTACCATATTAAAGAAAAAGCCAAAAA spacer
length: 61 repeater length: 5
1346 1540985 TCTTT CAATCCTATTTAGGTTATTATTTAAACAAGTTCAGATAACGAGCTCTCTGCAATGGGTA spacer
length: 59 repeater length: 5
1347 1541050 TCTTT ATCTAGTAATTCTTAAACCCGGGCAGTGCTATAGTGAAGTTAGTACACAGAGGAAAGAC
1348
1349
1350 GCA_000008645.1_ASM864v1_genomic.fna(findCrispr):
1351 START REPEAT
SPACER
1352 crispr 1
1353 992280 GACATTAAAACAATTAAAGCAC CACAGTTAATCCATGCAATGACTGTGGTGACGGGGGCTTCGC spacer
length: 42 repeater length: 22
1354 992345 GACATTAAAACAATTAAAGCAC ATAGATTGCGGGGGTGGAAACAACCACCCCCAAGGGCTTCGC spacer
length: 42 repeater length: 22
1355 992410 GACATTAAAACAATTAAAGCAC GAAATTCATTCTTGGTAGCTTCCACTGTACTTTCCTGATCCC
1356
1357
1358 crispr 2
1359 983373 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATCTTATGTCCGTTATTTTTTACCTACGTTGCA spacer
length: 34 repeater length: 30
1360 983438 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAACAATAAAATTCAGGGGGACTGAGTACATAAAA spacer
length: 35 repeater length: 30
1361 983504 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTGAAATTACTGAGGATGGTCTCTACTTCCACCT spacer
length: 36 repeater length: 30
1362 983571 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACGGCGTCTGTGACGTCGTTAGAGAGGATGGAGTCG spacer
length: 36 repeater length: 30
1363 983638 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTTTTGTGTGGGTGTGCATTCTGGTTGTGGTTGGT spacer
length: 36 repeater length: 30
1364 983705 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGCGCCGGGCAGACAGCACACATACAAGACTTCACA spacer
length: 37 repeater length: 30
1365 983773 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCACGATGACTCTGTTGAGTTCATCGTATTCTTTTC spacer
length: 37 repeater length: 30
1366 983841 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGATGTTGGGAAGGTTTGGCCATCTGAATGATTTG spacer
length: 35 repeater length: 30
1367 983907 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAACATGGGGACATACGTCCAGGGGGACAGACG spacer
length: 34 repeater length: 30
1368 983972 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACCCTCCAGACTAGCTCATCAATGTACCCATTAC spacer
length: 36 repeater length: 30
1369 984039 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAATACAACCCACACGCCAGTCCATCCTCTTT spacer
length: 34 repeater length: 30
1370 984104 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGTCTGCCCCTATTGTTTTGATCATGTTTGTGCAT spacer
length: 36 repeater length: 30

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1371 984171 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTTTAGAACTAAAAAATAACAAAATAAAAAAGA spacer
length: 36 repeater length: 30

1372 984238 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGTTCTCATAGATGGGCGACAGAAAGACATGAAA spacer
length: 35 repeater length: 30

1373 984304 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTTACTCATGCATTATTAGTGAGAAACAACCTCTT spacer
length: 36 repeater length: 30

1374 984371 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTGAAATTACTGAGGATGGTCTCTACTTCCACCT spacer
length: 36 repeater length: 30

1375 984438 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTCGGTGCCCGGGTCGGTGGTGGCCGGGTCGGG spacer
length: 36 repeater length: 30

1376 984505 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATCATCACGCTTGAAGAGTATAATAAAGTTGTTAAG spacer
length: 37 repeater length: 30

1377 984573 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTTCACTATTTGGGTCATTTATGGGTACTATTTT spacer
length: 35 repeater length: 30

1378 984639 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGAGGGCTGTGCATGCACGGATCAGCAAGGAAACA spacer
length: 37 repeater length: 30

1379 984707 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGATTCTTTCTGACAATAATATGAGGTGATATAA spacer
length: 36 repeater length: 30

1380 984774 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTATGTGCAGTATCCTCTCTATGTCCCCTTCATT spacer
length: 35 repeater length: 30

1381 984840 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTATATTATGTCCATTATTTTTTCATTTACGCTGCA spacer
length: 36 repeater length: 30

1382 984907 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATATTGAAACGTTCAAGGACATGTTGAAGAGGTAT spacer
length: 36 repeater length: 30

1383 984974 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAGGAAACGTTTACCCTTGAAGGGCGTAAGGCCTGAT spacer
length: 37 repeater length: 30

1384 985042 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCGGTGGGGGGTAGGTGGGGGGTGTGAAGGTAGA spacer
length: 36 repeater length: 30

1385 985109 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTATCCATGACTCCTGATGCCCTGGCACGTCGAAGTC spacer
length: 37 repeater length: 30

1386 985177 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTATGTGCAGTATCCTCTCTATGTCCCCTTCATT spacer
length: 35 repeater length: 30

1387 985243 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTTTAGGGACTGTGAGATCGTTGTTGAACATAATA spacer
length: 36 repeater length: 30

1388 985310 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGGTGGGGGTAGGTGGGGGTATAATCAGAACAAA spacer
length: 35 repeater length: 30

1389 985376 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTTTAGGGACTGTGAGATCGTTGTTGAACATAATA spacer
length: 36 repeater length: 30

1390 985443 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGGTGGGGGTAGGTGGGGGTATAATCAGAACAAA spacer
length: 35 repeater length: 30

1391 985509 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATATAGTGCAAATGATTCTAGAAAATAGTAAAAT spacer
length: 35 repeater length: 30

1392 985575 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAAATGAAAAAAGATTCAAAAAACATGCAAAT spacer
length: 35 repeater length: 30

1393 985641 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACAAAGTGCCCCGCATGTCGTGAAAAGATGAAGAA spacer
length: 35 repeater length: 30

1394 985707 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGTGGAGGGCCTCGACTACTACAAGGCTATCAGGT spacer
length: 35 repeater length: 30

1395 985773 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAATCTGACATGAACTGCTATTGCTGTAACCGATA spacer
length: 36 repeater length: 30

1396 985840 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCTAAAAAGGAGTACCTGCAACGGAAAGTACCGG spacer
length: 34 repeater length: 30

1397 985905 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTTTAAATCCTCTAAAACTGTTCTAAACACCAAT spacer
length: 36 repeater length: 30

1398 985972 ATTTCAATCCCATTTTGGTCTGATTTTAAC AACTTCACAGAAAAGCCTCCATGGAGCAAGTGCTC spacer
length: 35 repeater length: 30

1399 986038 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAGGTGAAAGATATGAAAATAAAAGTAAAAATAG spacer
length: 36 repeater length: 30

1400 986105 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTCCTCACTACCACTAAGATCATATGCTGCCGCATA spacer
length: 36 repeater length: 30

1401 986172 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGAGAACTGGATAGGAGGTGAATGAGATGATTG spacer
length: 35 repeater length: 30

1402 986238 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGTTTTTGGAGTCGTATAGCACTATGATCGCACA spacer
length: 35 repeater length: 30

1403 986304 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTTTGACGGTGAGTACAATCTCTGCTGTCAGAACT spacer
length: 37 repeater length: 30

1404 986372 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTTTATGGGTTCTAAACAATAGAACCCCTGATT spacer
length: 35 repeater length: 30

1405 986438 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATAGAATGAAGAGGAAATACAAGAAAACATGCAAAT spacer
length: 36 repeater length: 30

1406 986505 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGTTAATAAAATCGTCGATGATGTTGTAGACAAAATC spacer

length: 38 repeater length: 30
1407 986574 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGGATGAGGAAGGTGACGGCCCTGGGAAGTACAGG spacer
length: 36 repeater length: 30
1408 986641 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACATACCCTTCTTCATATAAGAACTGCACATAGTCAA spacer
length: 37 repeater length: 30
1409 986709 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGAGAAGGGTGAGGACGTCCTTGAGGGCGCATACGATGTCC
spacer length: 41 repeater length: 30
1410 986781 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCTTAGTCGTTATAATCGAGTCGATAAGATTCTTTG spacer
length: 36 repeater length: 30
1411 986848 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTGCTGAGGATGTCTTCGTGTACCCGGTCCTTC spacer
length: 35 repeater length: 30
1412 986914 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGTAGCGAATTACTCCGCTGAGTTCTCATCCTTTGA spacer
length: 37 repeater length: 30
1413 986982 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATTTTGTTCCTCATTTAACTCATCTTTAAAT spacer
length: 36 repeater length: 30
1414 987049 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCAGAGGAAAACGAAGAAAAGGAGAAAATAGAAGCC spacer
length: 36 repeater length: 30
1415 987116 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATCTAAGTAGTATGAGTCTTCAAAGAGGATATTG spacer
length: 36 repeater length: 30
1416 987183 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGGCTTAGTGTGGGTTTTATTGAATCTGTACTTA spacer
length: 35 repeater length: 30
1417 987249 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTGCTGAGGATGTCTTCGTGTACCCGGTCCTTC spacer
length: 35 repeater length: 30
1418 987315 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGTAGCGAATTACTCCGCTGAGTTCTCATCCTTTGA spacer
length: 37 repeater length: 30
1419 987383 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATTTTGTTCCTCATTTAACTCATCTTTAAAT spacer
length: 36 repeater length: 30
1420 987450 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCAGAGGAAAACGAAGAAAAGGAGAAAATAGAAGCC spacer
length: 36 repeater length: 30
1421 987517 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATCTAAGTAGTATGAGTCTTCAAAGAGGATATTG spacer
length: 36 repeater length: 30
1422 987584 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGGCTTAGTGTGGGTTTTATTGAATCTGTACTTA spacer
length: 35 repeater length: 30
1423 987650 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTGAGAAAAAATGAAAGGAAAAGAAGTTGAGAA spacer
length: 35 repeater length: 30
1424 987716 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGCTTGGCCAGGCTGGGGTCCAGGCCACCCTCATCG spacer
length: 37 repeater length: 30
1425 987784 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTTATTTATCGATAAAGTTCTACTCACATGTTTAG spacer
length: 36 repeater length: 30
1426 987851 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGGGAGGACCTCATAAAATTTTGGATTAAAATGT spacer
length: 35 repeater length: 30
1427 987917 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCCCTGAGATGATGTCCTTGATTGTGCTG spacer length:
31 repeater length: 30
1428 987979 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATACATCATATATTAATAAAATAAAAAAATCAAT spacer
length: 37 repeater length: 30
1429 988047 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAGTTCATTGTACTCATTGATCGTCTCTTCATCCC spacer
length: 35 repeater length: 30
1430 988113 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGATTATTGGGACTTACATGCGACAGATTTTTAT spacer
length: 35 repeater length: 30
1431 988179 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCTGAAAATAAAGAAAGCTTCAAATCAAAAAAT spacer
length: 36 repeater length: 30
1432 988246 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTAGCAAGAGACATTGACGATATACACAAGTA spacer
length: 35 repeater length: 30
1433 988312 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGGGGAGAGTCTGACATTCTTGAAGTAGAACCTCCC spacer
length: 36 repeater length: 30
1434 988379 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACACTGTACCCGAACCTCTCCGCGACTTTCTTT spacer
length: 35 repeater length: 30
1435 988445 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGAGGTTATGAAATCAGTAATAGCCTCAAGGAGTAA spacer
length: 36 repeater length: 30
1436 988512 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAAAAGTAACCTATAACAATTACCTATGGCTCATA spacer
length: 35 repeater length: 30
1437 988578 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTCAGTAATGTAATAATCGATATAGCAAGTTGCGAT spacer
length: 37 repeater length: 30
1438 988646 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACGTAACAGTATATACTGTCCAAATGTGCCGCGAGA spacer
length: 36 repeater length: 30
1439 988713 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTATAGGGTCATCCTCGAGGACAGCGCCCGCTT spacer
length: 33 repeater length: 30
1440 988777 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGCTCGGCCAGGCAGGGGTGGAAATGGAACCTCGTC spacer
length: 35 repeater length: 30
1441 988843 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGACGCCCTCAAAGTCTTTTTCCCGTGCGGCCTC spacer
length: 36 repeater length: 30

1442 988910 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATGTCATGACCCGTGCCATGATCCGCCGATCAAA spacer
length: 35 repeater length: 30

1443 988976 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGAATGCCTATTAAGCCTGTATTACAGCATTAGAAG spacer
length: 36 repeater length: 30

1444 989043 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGCCTGGTTCATGGTCGAGGGTCTCCTTGCTTA spacer
length: 34 repeater length: 30

1445 989108 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTTCACTATTTGGGTCATTTATGGGTACTATTTT spacer
length: 35 repeater length: 30

1446 989174 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATGAGGGCTGTGCATGCACGGATCAGCAAGGAAACA spacer
length: 37 repeater length: 30

1447 989242 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGATTCTTTCTGACAATAATATGAGGTGATATAA spacer
length: 36 repeater length: 30

1448 989309 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATATAACGAAATTAAGTCAAATTCGTTTCATTAG spacer
length: 35 repeater length: 30

1449 989375 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGGTTGAGGTTTCAGGTTGAGGTTTCAGGTT spacer
length: 33 repeater length: 30

1450 989439 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATGATCGGGGTGGGTATGTTTCATGCATGGAAAT spacer
length: 35 repeater length: 30

1451 989505 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAATACCTGTTCTCTTCGTATTCTCATCGCAA spacer
length: 35 repeater length: 30

1452 989571 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTTTTTACTCTGTTTAGCCCTTTTTACTGCACAA spacer
length: 35 repeater length: 30

1453 989637 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTACTTTTATAAATAATATCTGAACTTTTTTACCT spacer
length: 35 repeater length: 30

1454 989703 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGGCGGTAAAGCACACTCAACGCTCTGATTGAGTG spacer
length: 36 repeater length: 30

1455 989770 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACAGTCAGCTCCACTGAGTCCATGCTTAGAGCCT spacer
length: 36 repeater length: 30

1456 989837 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTAATTCCAATATGGGCCGATATCTGCCCTCTTT spacer
length: 34 repeater length: 30

1457 989902 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGGAACACCAGGTCCTGGGCTTGTGGGTTCTGCTC spacer
length: 36 repeater length: 30

1458 989969 ATTTCAATCCCATTTTGGTCTGATTTTAAC CATCTGTTTCACCTCTTCTTTTTTTCTTTGT spacer length:
31 repeater length: 30

1459 990031 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTATTAATTTAGTATTGGTTGTTTGGTTAATT spacer
length: 33 repeater length: 30

1460 990095 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATATAACCATATTGAACATTGATTTTAGCGTTTT spacer
length: 35 repeater length: 30

1461 990161 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAGCAGAAACAGTAATAGTCAAATATTATAAGCAC spacer
length: 36 repeater length: 30

1462 990228 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTGATAAGGGTAGTAAACGAACCCGATAGTGAATA spacer
length: 36 repeater length: 30

1463 990295 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAAATAAAACGTTAATATCGATTTAATTCCAAT spacer
length: 34 repeater length: 30

1464 990360 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGTTTCAACTAATGAACTGTCTTAAATTGCTTATT spacer
length: 36 repeater length: 30

1465 990427 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGCAGAACATCATAACATCAGGTAGTCTATACAG spacer
length: 36 repeater length: 30

1466 990494 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGATGGTTTTGATGTTTTGTGTAAAATTCGTGA spacer
length: 33 repeater length: 30

1467 990558 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAGTCACACTGAATACGAAGAAATACAAGACACAG spacer
length: 36 repeater length: 30

1468 990625 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTCTCTTGACGGGAAAATCTACAGGGCCACAATA spacer
length: 36 repeater length: 30

1469 990692 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACACAGTACAATTATTCGGAATAATACACGCACAAT spacer
length: 36 repeater length: 30

1470 990759 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGAACATGCAGATAAAAGATGATATAATAGAAAAA spacer
length: 36 repeater length: 30

1471 990826 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGTATTTTTCTGAATTCACGGATTGCTTCG spacer length:
31 repeater length: 30

1472 990888 ATTTCAATCCCATTTTGGTCTGATTTTAAC TATAATCGAATATTGTTGCGTATTGTGTTGTGTTTT spacer
length: 36 repeater length: 30

1473 990955 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGTTCTTGTGGGTTATTGTTGTCCTAGTCCAGTTTACA spacer
length: 39 repeater length: 30

1474 991025 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTAAAGTTTCTCTGTAGTCCACATCCCCTTTTTTC spacer
length: 35 repeater length: 30

1475 991091 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAGGTGACAAGTATCAGGTTCTCACAGTGTTTCAT spacer
length: 36 repeater length: 30

1476 991158 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACCGATGGTACCTCAGGATACTATTCACCACACTCAC spacer
length: 37 repeater length: 30

1477 991226 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTGAAGACTCATACTACTTAGACAGTTTTGAATTC spacer

length: 35 repeater length: 30
1478 991292 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATCGAGGAATTCTATTTTATCCTCACCAGGATAGCG spacer
length: 36 repeater length: 30
1479 991359 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATGTTTTCCGTTATACTATAGTGCCTTTTGGTATT spacer
length: 35 repeater length: 30
1480 991425 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATACCACACATTTGGATTGTAGGTGGTTGATGTT spacer
length: 36 repeater length: 30
1481 991492 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAGCGGTTAATGTCGTCGATGTCCCTTGTTAT spacer
length: 32 repeater length: 30
1482 991555 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTTGGTAGCTTCCACTGTACTTTTCCTGATCC
1483
1484
1485 crispr 3
1486 1472442 GTTAAAATCAGACCAAAAATGGGATTGAAAT GGTGAAAATACTAACACCCGTAGAAGCCCTTGAAG spacer
length: 35 repeater length: 30
1487 1472508 GTTAAAATCAGACCAAAAATGGGATTGAAAT ATTACAATCGTAAGCATTATGGTGAATCGGCTTG spacer
length: 34 repeater length: 30
1488 1472573 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGAAAACTACGGAATGGTATAAGAATGGTGAGAGA spacer
length: 35 repeater length: 30
1489 1472639 GTTAAAATCAGACCAAAAATGGGATTGAAAT GTAAATGCGAACTATTACTATAATAATAACCTTTA spacer
length: 35 repeater length: 30
1490 1472705 GTTAAAATCAGACCAAAAATGGGATTGAAAT ATATTTACAATTCTAATTTGATTTTTATTTCCCATGAA spacer
length: 38 repeater length: 30
1491 1472774 GTTAAAATCAGACCAAAAATGGGATTGAAAT ACTGGAGGAGATGGAAAAGTGCAGCACGAGTGACAT spacer
length: 36 repeater length: 30
1492 1472841 GTTAAAATCAGACCAAAAATGGGATTGAAAT ATGGAGGTGAAAGGAATGGTAGTGAATGAAAAAATG spacer
length: 36 repeater length: 30
1493 1472908 GTTAAAATCAGACCAAAAATGGGATTGAAAT GAAGCAATGAGCTACGCAGTAGGGTGAGAGAGCAG spacer
length: 35 repeater length: 30
1494 1472974 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTATCGTGAAATACTTATTCTTAATCGGTTTTAGG spacer
length: 35 repeater length: 30
1495 1473040 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTTATATATAATTTTAACATATCCACAAAATAGTACCTA
spacer length: 39 repeater length: 30
1496 1473110 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTACAAACATCTCTATGGTTTCCAGTGCCATGACG spacer
length: 35 repeater length: 30
1497 1473176 GTTAAAATCAGACCAAAAATGGGATTGAAAT TAAAGCTTCATTTGATTTACCGTCCATTACAAACA spacer
length: 35 repeater length: 30
1498 1473242 GTTAAAATCAGACCAAAAATGGGATTGAAAT CCAGGAGAGCATCAATGACATGACCAACCGCCTCAA spacer
length: 36 repeater length: 30
1499 1473309 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTATGCTCTTAGGAGCATAGCGACGTAGTCATACA spacer
length: 35 repeater length: 30
1500 1473375 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTATAAAACCAAGAATGGAAGTAATGAATAGGCCAT spacer
length: 36 repeater length: 30
1501 1473442 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGGGATGTCCTCGATAGGCTGCGAGAGAGCGCAG spacer
length: 34 repeater length: 30
1502 1473507 GTTAAAATCAGACCAAAAATGGGATTGAAAT AAAGGGTGGCGGAGAGTCGGTAGAAACGATGTGCAATG spacer
length: 38 repeater length: 30
1503 1473576 GTTAAAATCAGACCAAAAATGGGATTGAAAT ATCAAGCAAATGGTGATCATTATTTCCAGTACTCTT spacer
length: 36 repeater length: 30
1504 1473643 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTTATTTGGACTGGTTTGCCGTCGAGGAAGAATT spacer
length: 34 repeater length: 30
1505 1473708 GTTAAAATCAGACCAAAAATGGGATTGAAAT TATTGGTCTCTGTCTCATCCACCGTAACGGT spacer
length: 31 repeater length: 30
1506 1473770 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTTTTTATTACCCAATATTTTCTTCAATTCTTTCC spacer
length: 36 repeater length: 30
1507 1473837 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGGACTGATTTAAGCCCAATGGGGGCTCTCAGGGCG spacer
length: 36 repeater length: 30
1508 1473904 GTTAAAATCAGACCAAAAATGGGATTGAAAT ACTGGAAAAAAGAGTACACCACAATCTACACGTAAT spacer
length: 37 repeater length: 30
1509 1473972 GTTAAAATCAGACCAAAAATGGGATTGAAAT GAATGCGAGGAGGCTTAAAGCCACATTCAAG spacer
length: 31 repeater length: 30
1510 1474034 GTTAAAATCAGACCAAAAATGGGATTGAAAT TATTGGTCTCTGTCTCATCCACCGTAACGGT spacer
length: 31 repeater length: 30
1511 1474096 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTTTTTATTACCCAATATTTTCTTCAATTCTTTCC spacer
length: 36 repeater length: 30
1512 1474163 GTTAAAATCAGACCAAAAATGGGATTGAAAT GCTCAATAAGGGTTCGACGTGGCCCCGGAGGCCACG spacer
length: 35 repeater length: 30
1513 1474229 GTTAAAATCAGACCAAAAATGGGATTGAAAT TACTGTGCGATCCACAGCTGACAGTGTAATTAAA spacer
length: 34 repeater length: 30
1514 1474294 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGGACTGATTTAAGCCCAATGGGGGCTCTCAGGGCG spacer
length: 36 repeater length: 30

1515 1474361 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACTGGAAAAAAGAGTACACCACAATCTACACGTAAT spacer
length: 37 repeater length: 30
1516 1474429 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GAATGCGAGGAGGCTTAAAGCCACATTCAAG spacer
length: 31 repeater length: 30
1517 1474491 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGAAGCACTGTGTTGGCTCAATGCTGTCTAAGTGCT spacer
length: 36 repeater length: 30
1518 1474558 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GGGAATACCTGAAGAAGATAAACGCATAGAGTTTGCCG spacer
length: 38 repeater length: 30
1519 1474627 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GCTAGTTCATGGCAGATGAGTTCAGCGAGACCATA spacer
length: 35 repeater length: 30
1520 1474693 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAGATCACGCCCCCAAGCCACCTTAACCCGTCCG spacer
length: 34 repeater length: 30
1521 1474758 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GTACATTTTCGGTGGCGATTTTTTTTCATTTACCACCG spacer
length: 37 repeater length: 30
1522 1474826 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ATCCGAAACATCTCAGTAGCGATTTTTTTTCATTTTCG spacer
length: 36 repeater length: 30
1523 1474893 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GAGTATGGAAATAGCTATGGATGGTGGTTTTCAATTG spacer
length: 37 repeater length: 30
1524 1474961 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGGCGATCGTAAGGGCCCTTAACCTGCGACTG spacer
length: 32 repeater length: 30
1525 1475024 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAGGAGGGAGGAGTGATCCTCCCCTTTCTTTCTC spacer
length: 34 repeater length: 30
1526 1475089 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTCTATCACCTCTTATTTTTCTCTCTGGAGCCG spacer
length: 33 repeater length: 30
1527 1475153 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CTATTTTTTCTTTGTCCTCTGTGGTTCTTTTGGATT spacer
length: 36 repeater length: 30
1528 1475220 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTCTATTTTTCTTTCTTTCTTTTGTCTTTCTTTCTA spacer
length: 37 repeater length: 30
1529 1475288 GTTAAAAATCAGACCAAAAATGGGATTGAAAT AAAATAACACTATCTAAATCATCAAAATCATTT spacer
length: 33 repeater length: 30
1530 1475352 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTGAGGATTTTATATGCTTCAAAGGGGCTTTTTCTCCT spacer
length: 36 repeater length: 30
1531 1475419 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GGACACGCGTATAGCCTGAAGACGACCCTCAGCA spacer
length: 34 repeater length: 30
1532 1475484 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CTTGGTAGCTTCCACTGTACTTTCTCTGATCCCTC
1533
1534
1535 GCA_000008665.1_ASM866v1_genomic.fna (findCrispr):
1536 START REPEAT
SPACER
1537 crispr 1
1538 398369 CTTTCAATCCCATTTTGGTCTGATTTCAAC
TTACTGTGTTCCGAGCTTTTCAGAGGCAGGCCAAGAGCTCTTTTAATCCCATTTTGGTCTGATTTCAACCTTCATGTGCTCTCAACC
AGTAGTATATTGTCCTAACT spacer length: 106 repeater length: 30
1539 398506 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGGCCCCGAATCAACAGGAACACCTGATACACGAAT spacer
length: 36 repeater length: 30
1540 398573 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATGCGGAATTAACAGCATTATCAGGAAAGCGATTATG spacer
length: 37 repeater length: 30
1541 398641 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGGGGGAGGATGAGAGCTCTGTTTGCCGTTCTGGTG spacer
length: 36 repeater length: 30
1542 398708 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTTCTGGCATGGGGAGTTAGCAGGAACGTGGCAGGCT spacer
length: 37 repeater length: 30
1543 398776 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTTAAGCTCTCGGTGCGGCTCTTTGCTCGGTAGAAC spacer
length: 36 repeater length: 30
1544 398843 CTTTCAATCCCATTTTGGTCTGATTTCAAC GACTGTAATCTCAACTCCTCCGCCATCTTCTGAAACT spacer
length: 37 repeater length: 30
1545 398911 CTTTCAATCCCATTTTGGTCTGATTTCAAC CACATTGACGTGGCGGATTAAGCGCTTGTGGAAAGTGTTT
spacer length: 40 repeater length: 30
1546 398982 CTTTCAATCCCATTTTGGTCTGATTTCAAC GATGAAGCCATATTTGTGCGATTATTCCACGACGT spacer
length: 35 repeater length: 30
1547 399048 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTTCTCAACTATCGGTTGTTTGACATTTGTATCCTTT spacer
length: 37 repeater length: 30
1548 399116 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAAGTTCCACATTCCCGTGACTTTCAAGAAGATTAT spacer
length: 36 repeater length: 30
1549 399183 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACAATCTGATCGAACAGATTACCAGTCAAAGCAACTC spacer
length: 37 repeater length: 30
1550 399251 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGCTGAGCTCAGAGGCTTTACCGCTAACACTCGCCTTAAC
spacer length: 41 repeater length: 30
1551 399323 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGTCAAGTTCTCTCTGATCGATTTCGCCAGAGTGGTATAT
spacer length: 41 repeater length: 30
1552 399395 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGAGTCTGCTTACTCCAAGATTTATGTCTCTGTATGTC spacer

length: 39 repeater length: 30
1553 399465 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCGGCAAAACAAGATACCACGATTTCTTCCCATGCC spacer
length: 36 repeater length: 30
1554 399532 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTCCGACTATCACCCAGTCAAACCCCTCGAAGTCCG spacer
length: 36 repeater length: 30
1555 399599 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGGTGCCTTGTAACCTTTCTATTTTTTTGATTGCTC spacer
length: 35 repeater length: 30
1556 399665 CTTTCAATCCCATTTTGGTCTGATTTCAAC TACCGAGCTGCTCAGCGTTGGGATGGAGTATTTTCAAC spacer
length: 36 repeater length: 30
1557 399732 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGCGGGGGAGCAGCCCATCGCCGAATACGACAA spacer
length: 34 repeater length: 30
1558 399797 CTTTCAATCCCATTTTGGTCTGATTTCAAC TACTCCCCTGAAACCTCCTCAGAGCCTTCGTGTCC spacer
length: 35 repeater length: 30
1559 399863 CTTTCAATCCCATTTTGGTCTGATTTCAAC CGTTCGGCGTCGTAGAGGAAGAGAAGAGGGAGTCCAG spacer
length: 37 repeater length: 30
1560 399931 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAGGCGTTTCATCAAGGAGGCTTACCGAGTTCTAAAAAAG
spacer length: 40 repeater length: 30
1561 400002 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGTCGTTTTGAAAACCACCGAGCCGTCAGCGGTTGCGACC
spacer length: 40 repeater length: 30
1562 400073 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAAGATCCTGAAGCCAGATCCAGACCTCAAAGAAGG spacer
length: 36 repeater length: 30
1563 400140 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAATCTCGTCGTCAGCAATCGAGATATTAGCAGTTCCCG spacer
length: 39 repeater length: 30
1564 400210 CTTTCAATCCCATTTTGGTCTGATTTCAAC TATTTAGCCCTCTTAACGACCCGTTCTTCGCTGTTTA spacer
length: 37 repeater length: 30
1565 400278 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTTAAGAACCTTGAATGTCTTACCTGCTGGAAGTCTAAAC
spacer length: 40 repeater length: 30
1566 400349 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCAGCCACGTCGTTGAACCGATGCTCGCAGACTTCAACGGCTC
spacer length: 43 repeater length: 30
1567 400423 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCCGTAACATGCTATTGTTCTCAAGCAAATTATAC spacer
length: 36 repeater length: 30
1568 400490 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAGGAGGAATGATATGTTTATTGGACAAAGACAGG spacer
length: 35 repeater length: 30
1569 400556 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATCGCCAATTGCCTCAACACTCACTTTGCCATAGCAATACA
spacer length: 41 repeater length: 30
1570 400628 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTCGGGGGATTTGATGAGTTGCTTCTCCTCTTGCCCT spacer
length: 37 repeater length: 30
1571 400696 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCCCCTCTGGAGTTCGTGAGGTATGCCTCCTTTA spacer
length: 34 repeater length: 30
1572 400761 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGCCGAGCTGAAGCTGCTCTATGTCGGAGAGTTCC spacer
length: 35 repeater length: 30
1573 400827 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAACGAATCTCAAAGCCCTCGCATTGGAAAGGGTC spacer
length: 35 repeater length: 30
1574 400893 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAAGTACAGACTCTCGAAGCCGCCCGTAAATCGC spacer
length: 35 repeater length: 30
1575 400959 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAACCCCCCTCTTGGTGGAGTTGGCAAAGATTATGT spacer
length: 36 repeater length: 30
1576 401026 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCACGACGCTCCCTAACGGTAAGGCAATAGTTAAAA spacer
length: 36 repeater length: 30
1577 401093 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAGGGCAACAGTTGTTTCGATCTCCTCTCTCGTTAA spacer
length: 35 repeater length: 30
1578 401159 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGTTCAATCAAGTCAAAACGTATTACTCTCAAAGC spacer
length: 35 repeater length: 30
1579 401225 CTTTCAATCCCATTTTGGTCTGATTTCAAC CATTAACAGCTCTCAGAACGATTGGGACAGAACAA spacer
length: 36 repeater length: 30
1580 401292 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGAACTCCACCTCTGGCAACAGCGGCTGCTATTACT spacer
length: 37 repeater length: 30
1581 401360 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCTTGATCGAGGGAGAGAAGAACCCTCGAGTCGTCTGT spacer
length: 37 repeater length: 30
1582 401428 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCAAAAACGTTTTGGAGAGTAGTTCTCGCACTTGCT spacer
length: 36 repeater length: 30
1583 401495 CTTTCAATCCCATTTTGGTCTGATTTCAAC CGCCTTGCTGAAAGCTCTAAGCACCCTTCGGCAA spacer
length: 35 repeater length: 30
1584 401561 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGCAAGTCTTCGATTTGCGCTGCGACTTGTTCAAC
1585
1586
1587 crispr 2
1588 148 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCCTTTCAGCCCTAGTGTGAGTGTGAGTTTACTCT spacer
length: 37 repeater length: 30
1589 216 GTTGAAATCAGACCAAAATGGGATTGAAAG GTTTGTTAAGGGCTTTGATTGCTCCTCGGTGGCTCT spacer
length: 37 repeater length: 30

1590 284 GTTGAAATCAGACCAAAATGGGATTGAAAG TAAAGCAGTTCACCCCTGTTACTGGTTTAACTGCCT spacer
length: 36 repeater length: 30

1591 351 GTTGAAATCAGACCAAAATGGGATTGAAAG GTATTTGAATCAATGAAAAGAAATCTTACCTCGT spacer length:
34 repeater length: 30

1592 416 GTTGAAATCAGACCAAAATGGGATTGAAAG AGTCTTCTGGATGGGTCACAAGGGAGACATCGAGG spacer
length: 35 repeater length: 30

1593 482 GTTGAAATCAGACCAAAATGGGATTGAAAG TCAGCAAGGTTACGTCGGAGATCCTCGAAGAGGGTATC spacer
length: 38 repeater length: 30

1594 551 GTTGAAATCAGACCAAAATGGGATTGAAAG CGAGGATTGCTGCCAAAGAGAGCGCCTCGTTCTTC spacer
length: 35 repeater length: 30

1595 617 GTTGAAATCAGACCAAAATGGGATTGAAAG AAAGTGAACATGCTTAAAGAAATGCTGACAGAAATTG spacer
length: 37 repeater length: 30

1596 685 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCGAGGAAGAGCTTGACGAATTCTTCAAAGCGG spacer
length: 35 repeater length: 30

1597 751 GTTGAAATCAGACCAAAATGGGATTGAAAG TTGCATTTACATCGGCAGAATTGGTCTCGTCGGAAGGCA spacer
length: 39 repeater length: 30

1598 821 GTTGAAATCAGACCAAAATGGGATTGAAAG CGGTTCTCTTACGTACTCATGCGAGAAGTGAGACTCGCGTT spacer
length: 41 repeater length: 30

1599 893 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCAAGTCGTGAAACTGAGCAGTCAAACAGATCGTT spacer
length: 37 repeater length: 30

1600 961 GTTGAAATCAGACCAAAATGGGATTGAAAG TTTTCCCATACAATTACGACTTCGCCGGAAGGCA spacer length:
34 repeater length: 30

1601 1026 GTTGAAATCAGACCAAAATGGGATTGAAAG AGCGAGTTCGACCACGTCGTAGGTCTGCTGTGCGCA spacer
length: 36 repeater length: 30

1602 1093 GTTGAAATCAGACCAAAATGGGATTGAAAG TGTTTGAAGTAGTTGAATACACCGTTGTGCTGTTTGT spacer
length: 37 repeater length: 30

1603 1161 GTTGAAATCAGACCAAAATGGGATTGAAAG AGAGGGAGTATTAGGGCCATACTGGCCGAGTTGTGGT spacer
length: 38 repeater length: 30

1604 1230 GTTGAAATCAGACCAAAATGGGATTGAAAG ATTCCAAATTGCGGAAAAAGATTCGAGGGCAGTTACTTCC spacer
length: 40 repeater length: 30

1605 1301 GTTGAAATCAGACCAAAATGGGATTGAAAG ACGTCGTTTATTGCCGTAACGCTAACACCATACTCAAG spacer
length: 38 repeater length: 30

1606 1370 GTTGAAATCAGACCAAAATGGGATTGAAAG AAAGCCGTCCAGCGATTGTTTTTCATCCGCACCGATAATA spacer
length: 39 repeater length: 30

1607 1440 GTTGAAATCAGACCAAAATGGGATTGAAAG GGTTTAGACTTCCAGCAGGTAAGACATTCAAGGTT spacer
length: 35 repeater length: 30

1608 1506 GTTGAAATCAGACCAAAATGGGATTGAAAG GAGGTAATAGCTGCGAGGGTCAAGCAGGTTTACGAGA spacer
length: 37 repeater length: 30

1609 1574 GTTGAAATCAGACCAAAATGGGATTGAAAG GAGCAATATTAGAAGAACTCATGGCCACTGGCGACTTC spacer
length: 38 repeater length: 30

1610 1643 GTTGAAATCAGACCAAAATGGGATTGAAAG TTACATATCCATTACAGCACCTATGGCTGCCATCAAAA spacer
length: 39 repeater length: 30

1611 1713 GTTGAAATCAGACCAAAATGGGATTGAAAG CTTCAACAACCAGCCTGACCTCAATCTCTCCTCTCTCTTCG spacer
length: 40 repeater length: 30

1612 1784 GTTGAAATCAGACCAAAATGGGATTGAAAG CATGGACATTACAGGCACAGCCAGAGCAAAAGACCTT spacer
length: 36 repeater length: 30

1613 1851 GTTGAAATCAGACCAAAATGGGATTGAAAG TTCGTTAAGCTTTTCTCTAATTAGATTAACCGTTTTTCGT spacer
length: 39 repeater length: 30

1614 1921 GTTGAAATCAGACCAAAATGGGATTGAAAG TTTGATGTGAAAACCGCCCCTAAGCTTCCCGTTTCG spacer
length: 35 repeater length: 30

1615 1987 GTTGAAATCAGACCAAAATGGGATTGAAAG ATCCTCACCGTCGGCGTGTCTTTCCCATTCATTTTCGG spacer
length: 38 repeater length: 30

1616 2056 GTTGAAATCAGACCAAAATGGGATTGAAAG CATCAGCTTATGCATGTAATAAGCGAAGCTACATAACTGCA spacer
length: 41 repeater length: 30

1617 2128 GTTGAAATCAGACCAAAATGGGATTGAAAG ATCTATGTAGAGAAGGTATCCGATTTTCATAGACTGGAG spacer
length: 38 repeater length: 30

1618 2197 GTTGAAATCAGACCAAAATGGGATTGAAAG TATTTTTTTTAAAAAAATATATAAAAAAGGAGGTGATG spacer
length: 37 repeater length: 30

1619 2265 GTTGAAATCAGACCAAAATGGGATTGAAAG CTGTTTCATCCTGTTTCGGAGTGTTGATTTACGCAATTCTC spacer
length: 39 repeater length: 30

1620 2335 GTTGAAATCAGACCAAAATGGGATTGAAAG TCGCTCTCTTGGTAGGTTACTTTGTCTTTACGGAGGT spacer
length: 37 repeater length: 30

1621 2403 GTTGAAATCAGACCAAAATGGGATTGAAAG CGGTTTTCCTCGCTGATCCGACTCTTCAGCCATCGC spacer
length: 35 repeater length: 30

1622 2469 GTTGAAATCAGACCAAAATGGGATTGAAAG TAAGCGTCGCTGGGCGTCGCTCGGTGGTGAACGGGTT spacer
length: 38 repeater length: 30

1623 2538 GTTGAAATCAGACCAAAATGGGATTGAAAG GCCAGGATAATTGAGCGTGTGTAGAGTCTGCCGCTG spacer
length: 37 repeater length: 30

1624 2606 GTTGAAATCAGACCAAAATGGGATTGAAAG ATTTCTGGTCGTGTTTACAACTTAACGAACGCTACG spacer
length: 37 repeater length: 30

1625 2674 GTTGAAATCAGACCAAAATGGGATTGAAAG CCAGCATTGTTCCAGCCGAGCCAAACCGAGAAGG spacer

length: 35 repeater length: 30
1626 2740 GTTGAATCAGACCAAAATGGGATTGAAAG GCCGTTTTTCAGCCTCTTTGCCTTCATCCAGCATT spacer
length: 35 repeater length: 30
1627 2806 GTTGAATCAGACCAAAATGGGATTGAAAG CCTCCTTTGGGTGGAGTTCCAATCAGGAACGTGATTG spacer
length: 37 repeater length: 30
1628 2874 GTTGAATCAGACCAAAATGGGATTGAAAG AAAGAATGACCGAACACCTTAACCTCTCTATAACCCCA spacer
length: 38 repeater length: 30
1629 2943 GTTGAATCAGACCAAAATGGGATTGAAAG CTCTTCCCAACGTCACCCACAGATAACTATCTGGAGAT spacer
length: 38 repeater length: 30
1630 3012 GTTGAATCAGACCAAAATGGGATTGAAAG GTAACCATAACCTACAAGTGCGGAGTGCCCTTGC spacer
length: 34 repeater length: 30
1631 3077 GTTGAATCAGACCAAAATGGGATTGAAAG TACTGCTCCCAGCACAAGGCAGCGCAGGCGTCGTGGTCTT spacer
length: 40 repeater length: 30
1632 3148 GTTGAATCAGACCAAAATGGGATTGAAAG CCTACGGCCGCAAATCGGACAGAGCTTATCCATCCT spacer
length: 36 repeater length: 30
1633 3215 GTTGAATCAGACCAAAATGGGATTGAAAG TTTGCATCTTCACCGGCAATTGTCAGCTGCGAACTCTG spacer
length: 37 repeater length: 30
1634 3283 GTTGAATCAGACCAAAATGGGATTGAAAG ATAGCTCTCTGTAACCTACTTCTCCCCATACCATGTTTCT spacer
length: 41 repeater length: 30
1635 3355 GTTGAATCAGACCAAAATGGGATTGAAAG AGCATCTTCGTCTTCTTTATCCTCTTCAGGAGCTCTA spacer
length: 37 repeater length: 30
1636 3423 GTTGAATCAGACCAAAATGGGATTGAAAG GAAGTTTGCGTTTGTTCAGAAAGTTGTAGAGTGCC spacer
length: 36 repeater length: 30
1637 3490 GTTGAATCAGACCAAAATGGGATTGAAAG AATGCTAATCGGATTCTCTGGTCCATCTGCAAGTGGC spacer
length: 37 repeater length: 30
1638 3558 GTTGAATCAGACCAAAATGGGATTGAAAG TGCTTCATCTTTCTCCAACACTTCTACAATCTTGAC spacer
length: 36 repeater length: 30
1639 3625 GTTGAATCAGACCAAAATGGGATTGAAAG AAGACTACGACTCTTGGTAATCCATCGTTGCCTCTAAT spacer
length: 38 repeater length: 30
1640 3694 GTTGAATCAGACCAAAATGGGATTGAAAG GGAACCCCGTAACTGGCTGCCTTCACGGCTGCGATTACTGCTA
spacer length: 43 repeater length: 30
1641 3768 GTTGAATCAGACCAAAATGGGATTGAAAG ATCAAGAGCCCATGCCGTCAGAGAATGCGTTGAGGAG spacer
length: 37 repeater length: 30
1642 3836 GTTGAATCAGACCAAAATGGGATTGAAAG TCTGATTTTTTCGGCAACAACAACTGAACTCAGAATTG spacer
length: 39 repeater length: 30
1643 3906 GTTGAATCAGACCAAAATGGGATTGAAAG CCTTATCTCATCCTCAGCACCATAAGGCATTTGACCCT spacer
length: 38 repeater length: 30
1644 3975 GTTGAATCAGACCAAAATGGGATTGAAAG CGAGACATTAACACAATTTATTGGGCATGTCCTGACG spacer
length: 37 repeater length: 30
1645 4043 GTTGAATCAGACCAAAATGGGATTGAAAG GCAGACGACGTACACTACTGGGGCGTTGTCAAGGAAC spacer
length: 37 repeater length: 30
1646 4111 GTTGAATCAGACCAAAATGGGATTGAAAG TAAGAACATCTCATAAACTTGTGTTGGACTCGGTAGCTCCCA
spacer length: 42 repeater length: 30
1647 4184 GTTGAATCAGACCAAAATGGGATTGAAAG TGGCGACTTTTGCATAGGTGGCAAGCGTGGCAAGAGGAAAAA
1648
1649
1650 crispr 3
1651 1690931 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CTATTCTCCAAATAAAATTATATAACGCATTAACATCA
spacer length: 38 repeater length: 36
1652 1691006 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAGGAGGGACCGGAAACACACGTTGAAGGGGAACGC
spacer length: 37 repeater length: 36
1653 1691080 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTATAACTCCTATACGGTCAACATTGTAACCTGGGTT
spacer length: 38 repeater length: 36
1654 1691155 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTCGCTTGCCCTGATGAAATCGGATGGCTTTGCGTCCA
spacer length: 39 repeater length: 36
1655 1691231 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATCTTTTGCACTTCCTCCTTAACCTTCTTAATCTCC
spacer length: 36 repeater length: 36
1656 1691304 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GCTCTGCAGGGCCAGGGTAAGACAATTGCTGACATAATT
spacer length: 39 repeater length: 36
1657 1691380 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
CTTCAGGTAACCCCTGAACTAAGACCTACTCGGACAGGATTAAGCTGCCGTATTCCTGAAAATGGAGATTGAAAGCTTCAGGTAAC
CCCTGCACAATTTTCGGCTTTTTTCT spacer length: 111 repeater length: 36
1658 1691528 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTCTAACAGGCACAGGAGAACACATTGCACCCTTGCAA
spacer length: 38 repeater length: 36
1659 1691603 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCTTCAATATCACTGTCCAGTTTCTTGAAGCACACTGGG
spacer length: 39 repeater length: 36
1660 1691679 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATGTCAACATGTTTCATGCCTGCTTCAAAGCCGGATTGCG
spacer length: 39 repeater length: 36
1661 1691755 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTTGGACTATTTCCGCCGAATCTGCACAGACTACTTC
spacer length: 37 repeater length: 36
1662 1691829 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTCTCGCTCAGGTCGGTTAAGGCATCGTTTCATCTC

spacer length: 35 repeater length: 36
 1663 1691901 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 AACGTCGTGCTGAACTTAGGAATAGTGATGTCCAATCT spacer length: 41 repeater length: 36
 1664 1691979 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GAAATCGCTGTATTTCATTTGGTTTTTTGAATTGGAAA
 spacer length: 37 repeater length: 36
 1665 1692053 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAATCTACACCGTTTATTTTAACCGCCTTCATAACAA
 spacer length: 37 repeater length: 36
 1666 1692127 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAAGCTGTTCTGGTGGCAACGATGCGAGTAAATTCT
 spacer length: 36 repeater length: 36
 1667 1692200 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATATACTCCTTACCCCCTATCTTCTTGCTTGAAATTGC
 spacer length: 38 repeater length: 36
 1668 1692275 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCATCCTCTCGTACAGCGTCCTCGTTGAAATGCCGAGA
 spacer length: 38 repeater length: 36
 1669 1692350 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCCCTCTCCCCACTCTCCATATCCTCGATAACGCTGAG
 spacer length: 38 repeater length: 36
 1670 1692425 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTATCAGAGGTGTTGTAATCAAGGACGAGGAGCTGGAT
 spacer length: 39 repeater length: 36
 1671 1692501 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATATCAGCTCTTTTGTGAACTCATCCGTATAGTATGT
 spacer length: 37 repeater length: 36
 1672 1692575 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AATATCTGATTTATCAGGGCGATGCTTATCTCGGAGAA
 spacer length: 38 repeater length: 36
 1673 1692650 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AACTGATACCACAACCTGGTGCACCAACTGAGGTTGCCGC
 spacer length: 39 repeater length: 36
 1674 1692726 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAGTAAACATTGACGGCCAAATTTATCAGGGAGACGT
 spacer length: 37 repeater length: 36
 1675 1692800 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATAAATTCCTGATACATATTATTTGAATCAGAACCCAC
 spacer length: 38 repeater length: 36
 1676 1692875 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTTTATCTGCATCTCCACACTACCTCTGCAGGAAGCT
 spacer length: 38 repeater length: 36
 1677 1692950 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAATAATCTCATCATTGCCTGGAATTTCCGAAGTTAGGG
 spacer length: 39 repeater length: 36
 1678 1693026 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGCAGCCACCAAGTTTGGTGAAGTTGGCAACCATCTT
 spacer length: 36 repeater length: 36
 1679 1693099 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GATACATGCAAAATATCTTGAGTGAGGTGGTTTGATGG
 spacer length: 38 repeater length: 36
 1680 1693174 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AATGCATCAGATTTCATACTCAAGAACCTTCTTAACAA
 spacer length: 37 repeater length: 36
 1681 1693248 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATATTTTCGTATCCTTGAGAGTATCAGCGATCGATTCTG
 spacer length: 38 repeater length: 36
 1682 1693323 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCATATCACCTGATGAAATTCATCCTTTTCCTTTA
 spacer length: 35 repeater length: 36
 1683 1693395 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AATCACGACCCATTTCATATCACCTCTTCTCCAAACCAA
 spacer length: 38 repeater length: 36
 1684 1693470 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TAAATGCTTTCTCACTTCCCTCTTCTCATATATCTCT
 spacer length: 38 repeater length: 36
 1685 1693545 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GAGCTATCAGCAGATGGGCGAGAGTTTAGGCGGCTT
 spacer length: 36 repeater length: 36
 1686 1693618 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGCAAAATAGGGGTGGTAGTAATGCGGTATAATTTTCAGC
 spacer length: 39 repeater length: 36
 1687 1693694 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATGCAAAAGAGAAGTTCGGGTAGTGGTAGTGGGGAAGG
 spacer length: 38 repeater length: 36
 1688 1693769 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTTGCTTGGCCTGCCATCTGAGTCATATGCCCCATCC
 spacer length: 37 repeater length: 36
 1689 1693843 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATGTCGTTGAACTGGGCTTGGATTTCTCTTATAATCGG
 spacer length: 38 repeater length: 36
 1690 1693918 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCCTCGAAGCGGGCCTGCTGCTTGAACCTTACGGTTGT
 spacer length: 38 repeater length: 36
 1691 1693993 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACTGCAGGGGTGTGGACACAAGTGGACCGCAACAGAGGT
 spacer length: 39 repeater length: 36
 1692 1694069 TAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAGTCTTCGATTTGCGCTGCGACTTGTTCAACATCCTCT
 1693
 1694
 1695 GCA_000009965.1_ASM996v1_genomic.fna (findCrispr):
 1696 START REPEAT
 SPACER
 1697 crispr 1
 1698 833503 AAGACTCTAAGAGAATTGAAAG TTTGCCACCCTGAATCACTCTTGCAACCGCTATTCTGAAGTTGCAA spacer
 length: 46 repeater length: 22
 1699 833572 AAGACTCTAAGAGAATTGAAAG CGTCTTCCTCATCGTCGTAGAGCTTGACCCTCCACCCACCGGTTGCAA
 spacer length: 49 repeater length: 22
 1700 833644 AAGACTCTAAGAGAATTGAAAG TTTTGTAGGTGTAGTTTGGTGGTGTGGGCGAGGTTAGTTGCAA spacer

length: 44 repeater length: 22
1701 833711 AAGACTCTAAGAGAATTGAAAG GCGGAGAAGAAGCCACGGGCTACGCAATACTTGCCTACGTTGCAA spacer
length: 45 repeater length: 22
1702 833779 AAGACTCTAAGAGAATTGAAAG AAGAGACGATCATGCTCTACCCCCAGGAGTTGCTCGTGTGCAA spacer
length: 45 repeater length: 22
1703 833847 AAGACTCTAAGAGAATTGAAAG AACGATTTGTTCTCTGTGGACTTGGGTCTCATTGGGAGTTGCAA spacer
length: 44 repeater length: 22
1704 833914 AAGACTCTAAGAGAATTGAAAG GGAACACATCGCCAGGAACCTCAAGCGACTTCGGGTGGTCGGGTGCAA
spacer length: 49 repeater length: 22
1705 833986 AAGACTCTAAGAGAATTGAAAG CCAAAATGAATAAAAGCCCCTATCCCTAATAAATGTAAGTTGCAA spacer
length: 45 repeater length: 22
1706 834054 AAGACTCTAAGAGAATTGAAAG GCAGATGGTGAGATGGAGGTAACAATAGAATTTGTGGGTGCAA spacer
length: 44 repeater length: 22
1707 834121 AAGACTCTAAGAGAATTGAAAG GGTAAACTCAGTCAGAGGGCCAGTGAGGTCCTGAGAGTTGCAA spacer
length: 44 repeater length: 22
1708 834188 AAGACTCTAAGAGAATTGAAAG CCTGTGCAGCCTGGAGGTAGTAGTCACCGATCATTTCTCGTTGCAA spacer
length: 47 repeater length: 22
1709 834258 AAGACTCTAAGAGAATTGAAAG TCTTCAAGTGAAGCGAGGATTTACGCGATCTCTCTCTGTTGCAA spacer
length: 44 repeater length: 22
1710 834325 AAGACTCTAAGAGAATTGAAAG AACACTTGCGAACTTTCCCGGCCAGAACAAAGGAAAGCGAGGTTGCAA spacer
length: 47 repeater length: 22
1711 834395 AAGACTCTAAGAGAATTGAAAG CAAGTTTGAAGAATTAGTCAGTGAAAAAGGCAAACAGTGTTGCAA spacer
length: 45 repeater length: 22
1712 834463 AAGACTCTAAGAGAATTGAAAG CAGACTTGCCGTTCACTGGGACAGGGATGCGGAAGCGGGTTGCAA spacer
length: 45 repeater length: 22
1713 834531 AAGACTCTAAGAGAATTGAAAG ATGGACTGAAAGACCCTCTTCAGTTCTTCCGCGTTTTTGTGTTGCAA spacer
length: 45 repeater length: 22
1714 834599 AAGACTCTAAGAGAATTGAAAG AGTTCTAAGACTCTCCCCAAGAAAGGGCACTACGTCTGTTGCAA spacer
length: 44 repeater length: 22
1715 834666 AAGACTCTAAGAGAATTGAAAG TAGGACATCACCTCACGGTGCTGGCGGGAGGGCCTTCACGGTTGCAA spacer
length: 47 repeater length: 22
1716 834736 AAGACTCTAAGAGAATTGAAAG AGATAACGCTCGACGTGCCAGCAAACAAAGCCGAAGTTGCAA spacer
length: 42 repeater length: 22
1717 834801 AAGACTCTAAGAGAATTGAAAG GAGTTCTAATGATTAGCTTAACAATATCCCCATCTGATGTTGCAA spacer
length: 45 repeater length: 22
1718 834869 AAGACTCTAAGAGAATTGAAAG TCACTTCTCCTGAGAAACGAAAGGAGTCGAGAGTCTGTGTCGCAA spacer
length: 45 repeater length: 22
1719 834937 AAGACTCTAAGAGAATTGAAAG TACTTCCGGCTAAGAACGAAAAGCCGCTCGACAAGCCGGTTGCAA
1720
1721
1722 crispr 2
1723 835067 GTTGCAATAAGACTCTAGGAGAATTGAAA CGATTAAGGGTGGCGTCTGCGCTGGCGAACGGGCTTAC spacer
length: 38 repeater length: 29
1724 835135 GTTGCAATAAGACTCTAGGAGAATTGAAA CGTAGTACTTCTTAAGCATGCGTTCACGCCTTAGATA spacer
length: 37 repeater length: 29
1725 835202 GTTGCAATAAGACTCTAGGAGAATTGAAA CCTGTGGTGGTCATGATAGTACGTGATAGCAGCACTAG spacer
length: 38 repeater length: 29
1726 835270 GTTGCAATAAGACTCTAGGAGAATTGAAA CTCGCTATGACAATCTTTGCGTCCTCATCCATCAGAA spacer
length: 37 repeater length: 29
1727 835337 GTTGCAATAAGACTCTAGGAGAATTGAAA GCTATCAGGCCCTCTGTCTGGCCAGTTAGGTCCTTCCA spacer
length: 38 repeater length: 29
1728 835405 GTTGCAATAAGACTCTAGGAGAATTGAAA GGAAGATCGTGGCCAAGATACTCAACGAGATGTGCGAA spacer
length: 37 repeater length: 29
1729 835472 GTTGCAATAAGACTCTAGGAGAATTGAAA GGTCTTCGCGAGGATCTCCCGTGAAGAAGACTGAGACC spacer
length: 38 repeater length: 29
1730 835540 GTTGCAATAAGACTCTAGGAGAATTGAAA GCAAGGACTACCTACAATTTCCCTACCACTATCGGCGCGTTGCAATA
spacer length: 47 repeater length: 29
1731 835617 GTTGCAATAAGACTCTAGGAGAATTGAAA CGCCGTCACCGGCCAGGCGGAGCGCTTTAGGTTGCAATAAGACTCTA
1732
1733
1734 crispr 3
1735 373101 TTTCAATTCTCCTAGAGTCTTATTGCAAC ACGGCACCACCCCTGCAAACACCACCAGCCAAAGCACGG spacer
length: 39 repeater length: 29
1736 373170 TTTCAATTCTCCTAGAGTCTTATTGCAAC TTTTCCGAAGTTCACTCCTGAGGCCGAGAGGAGGATTG spacer
length: 38 repeater length: 29
1737 373238 TTTCAATTCTCCTAGAGTCTTATTGCAAC ACATAGATATAGAGAAGCCCGCAGACATCAAGAAGGCG spacer
length: 38 repeater length: 29
1738 373306 TTTCAATTCTCCTAGAGTCTTATTGCAAC GTGATGGAGGTGAAAGCCGATGTCTGATGTCCAGATTC spacer
length: 38 repeater length: 29
1739 373374 TTTCAATTCTCCTAGAGTCTTATTGCAAC GAATGGCGATGAAGAGCAGGCGAAGATTGACGCTCAAA spacer
length: 38 repeater length: 29

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1740 373442 TTTCAATTCTCCTAGAGTCTTATTGCAAC TATCCTCCTCACCCTGGCCTCTGCGCCGTACCCTT spacer
length: 36 repeater length: 29
1741 373508 TTTCAATTCTCCTAGAGTCTTATTGCAAC CAAAGAACCCGAACCCTACCACCCTCGCGGAATTG spacer
length: 35 repeater length: 29
1742 373573 TTTCAATTCTCCTAGAGTCTTATTGCAAC TTTCGCGGAGTATTTGCCTTAAATCCTCCTTGATAAT spacer
length: 37 repeater length: 29
1743 373640 TTTCAATTCTCCTAGAGTCTTATTGCAAC TTTCACGTTACCTCACTCAGAAAGCCCTCGCAAACCTC spacer
length: 37 repeater length: 29
1744 373707 TTTCAATTCTCCTAGAGTCTTATTGCAAC AGAAAGCACCAGTATGAGATAGCTCCAATGAAAAACCT spacer
length: 38 repeater length: 29
1745 373775 TTTCAATTCTCCTAGAGTCTTATTGCAAC TCGTTGAACCCGTTAAAAGCCATCTCCCCATCTTCGT spacer
length: 37 repeater length: 29
1746 373842 TTTCAATTCTCCTAGAGTCTTATTGCAAC TTCTCGACATGAAAAGGGAGATGGGCAGAGTCATTGA spacer
length: 37 repeater length: 29
1747 373909 TTTCAATTCTCCTAGAGTCTTATTGCAAC TTGAGTTTGAAGAGCTTTACCTTTTTCTTTGCGTGGAC spacer
length: 38 repeater length: 29
1748 373977 TTTCAATTCTCCTAGAGTCTTATTGCAAC TACCCGAAGCAGAACATGAAACATTTATCGCCTTAAC spacer
length: 37 repeater length: 29
1749 374044 TTTCAATTCTCCTAGAGTCTTATTGCAAC TCCGGCTAAGAACGAAAAGCCGCTCGACAAGCCGGTT
1750
1751
1752 crispr 4
1753 469115 ATTTCAATTCTCTTAGAGTCTTATTGCAAC AAACCTTCCACACCTTGACTTTCACGTCGACGTCGG spacer
length: 36 repeater length: 30
1754 469182 ATTTCAATTCTCTTAGAGTCTTATTGCAAC TCCTCGTCGAGGAAGCCCATGCCAATGGCTCTGCGG spacer
length: 36 repeater length: 30
1755 469249 ATTTCAATTCTCTTAGAGTCTTATTGCAAC GCGCTGGAAGGCCCTCCAGAAAATTGCAGAAATCC spacer
length: 35 repeater length: 30
1756 469315 ATTTCAATTCTCTTAGAGTCTTATTGCAAC AACGCCGTCACCGGCCAGGCGGAGCGCTTTAGGTT
1757
1758
1759 GCA_000011005.1_ASM1100v1_genomic.fna(findCrispr):
1760 START REPEAT
SPACER
1761 crispr 1
1762 2030 ATCTCCTGGTAGAACTCCTT
CCCGTGGGTCTCGCGGTCGCCTCCCCGCCTTTGTGGCCGCCAACTTCCCCGCCTTTGTGGCC spacer length: 63
repeater length: 20
1763 2114 ATCTCCTGGTAGAACTCCTT CCCGTGAGTTTCAGACGTCTTCTCCCCGCCTTTGTGGCC spacer length: 39
repeater length: 20
1764 2174 ATCTCCTGGTAGAACTCCTT TGTCCCGTTCGGGGTGAACGCAATGCTCACAGGCGCATT
1765
1766
1767 crispr 2
1768 1022078 GTACAGCCGCCCCGAAAAGC ACCTGAGAAGCCTGCGCCTGT spacer length: 21 repeater
length: 20
1769 1022120 GTACAGCCGCCCCGAAAAGC ACCTGAGAAGCCTGCGCCTGT spacer length: 21 repeater
length: 20
1770 1022162 GTACAGCCGCCCCGAAAAGC ACCTGAGAAGCCTGCGCCTGC spacer length: 21 repeater
length: 20
1771 1022204 GTACAGCCGCCCCGAAAAGC CATCAAAGCAAAGCGAATCC
1772
1773
1774 crispr 3
1775 926060 ATTGGTGACGTAGGCTCTTGTCCC
ATCCGTCGTTATCGCAATGCCGTCGCGCCGTTTCCTACCGGTATTGTTCCCTATGACGGTGTTTCGTCGATGTATCGATCACCGAGA
CTGTATCACTATTGA spacer length: 101 repeater length: 24
1776 926186 ATTGGTGACGTAGGCTCTTGTCCC
GTCCGGGGTGATTTTGATGCCATACGGGCCCTTTTCCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCGCTGTATCGATCACCG
AGACTGTACCGCTGTTGA spacer length: 104 repeater length: 24
1777 926315 ATTGGTGACGTAGGCTCTTGTCCC
GTCCGGGGTGATCGCAATATTCTGCGGGCCATTCCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCGATGTATCGATCACAG
AGACTGTATTACTGTTGA spacer length: 104 repeater length: 24
1778 926444 ATTGGTGACGTAGGCTCTTGTCCC
GTTTCGGGGTGAACGCAATGCTCACAGGCGCATTTTCCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCGATGTATCGATCACCG
AGACCGTATTATCAATGC spacer length: 104 repeater length: 24
1779 926573 ATTGGTGACGTAGGCTCTTGTCCC
CGTTCGGGGTGAACGCAATGCTCACAGGCGCATTTTCCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCGATGTATCGATCACCG
GAGACCGTATTATCAATG
1780
1781

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1782 crispr 4
1783 943478 TGCCTTTGCCCATGCCGCCTACGTT
AGAGGTCTGGGGCATGCCTTTGCCCATGCCGCCGATGTTGGCGCCCATGTCTG spacer length: 52 repeater
length: 25
1784 943556 TGCCTTTGCCCATGCCGCCTACGTT
AGCGCCTTTGCCCATGCCTCCGACATTGGGCGTGGATAATCCCTTGCCCATTCGCCCCACATTAGAGGTCTGGGGC spacer
length: 76 repeater length: 25
1785 943658 TGCCTTTGCCCATGCCGCCTACGTT
TGTTCTGTCGATGTATCGATCACCAGACCGTATTATCAATGCTATTGGTGACGTAGGCTCTTGTCCCCTTCGGGGT

1786
1787
1788 crispr 5
1789 1777927 CATAAGGATATCGTAGAATTACTCATCAAA
GCAGGCTCAAACCTTGATATTAAGGACATTAATGGCAGAACTGCTTTGATCTACGCGGTAAGAAACAG spacer length:
68 repeater length: 30
1790 1778026 CATAAGGATATCGTAGAATTACTCATCAAA
GCAGGCTCAAACCTTGATATTAAGGATATAACAGGCTGTACAGCTCTGATCTACGCAGCAAGCCTCGG spacer length:
68 repeater length: 30
1791 1778125 CATAAGGATATCGTAGAATTACTCATCAAA
TCGAACGCGAACTTAGATATTCAGGATATCCCTGGCAGTACAGCTCTGATCTACGCAGCAAGCCTCGG spacer length:
68 repeater length: 30
1792 1778224 CATAAGGATATCGTAGAATTACTCATCAAA
TCACCGAGACCGTATTACTGTTGAAATTGGTGACATAGGCCCGTCTTGGCGTGCGGTACGGGCGTTGGT

1793
1794
1795 crispr 6
1796 926244 CCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCTG
CTGTATCGATCACCGAGACTGTACCGCTGTTGAAATTGGTGACGTAGGCTCTTGTCCCGTCCGGGGTGATCGCAATATTCTGCGGG
CCATT spacer length: 91 repeater length: 37
1797 926373 CCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCTG
ATGTATCGATCACAGAGACTGTATTACTGTTGAAATTGGTGACGTAGGCTCTTGTCCCGTCCGGGGTGAACGCAATGCTCACAGGC
GCATT spacer length: 91 repeater length: 37
1798 926502 CCTACTGGTATCGGTGAGCCTATGACGGTGTTTCGTCTG
TCCTAACCTGATAGATAAAACAGGAATGAATGCTTTGGCATATAGTGAAGCTAGCGGGTATAAAGATATCGCACTCATTATAGAAA
ACGCA

1799
1800
1801 crispr 7
1802 926516 TGAGCCTATGACGGTGTTTCGTCTGATGTATCGATCACCGA
GACCGTATTATCAATGCTATTGGTGACGTAGGCTCTTGTCCCGTTCGGGGTGATAGCAACGCCAAACGGGCCACGTCCTACCGGTA
spacer length: 86 repeater length: 39
1803 926642 TGAGCCTATGACGGTGTTTCGTCTGATGTATCGATCACCGA
AACCGTGCCACTACCGTAATTTGCGACGTAGGCTCTAGCCCCGTTTGGAGTGATCGCAATACCAATTGGATAATTTCTACCGGTA
TCG spacer length: 89 repeater length: 39
1804 926771 TGAGCCTATGACGGTGTTTCGTCTGATGTATCGATCACCGA
TGGCGTTTCGCGCCCATATTGGACGCTGCGGTATGCCCTTGCCCTCCGTACATCTGGGCGAACGCCGGCGTCGCCACGCCGATCAGG
CAT

1805
1806
1807 GCA_000011105.1_ASM1110v1_genomic.fna(findCrispr):
1808 START REPEAT
SPACER
1809 crispr 1
1810 32972 CTTTCCACACTATTTA GTTCTACGGAAACGCTAGGGCATTACTAGAAAGAGCAAAAAGCAGGTACA spacer
length: 50 repeater length: 16
1811 33039 CTTTCCACACTATTTA GTTCTACGGAAACAAGAAGTCAGGGATTTTCATAAGAGACGAGGATTCTCA spacer
length: 50 repeater length: 16
1812 33106 CTTTCCACACTATTTA GTTCTACGGAAACTCATAGCCATCGGCTGGCTTAGACGTAAGCCTGATT spacer
length: 49 repeater length: 16
1813 33172 CTTTCCACACTATTTA GTTCTACGGAAACCTCACATTCCTCGAGCAGAACCCGCACTTACTCACCT spacer
length: 50 repeater length: 16
1814 33239 CTTTCCACACTATTTA GTTCTACGGAAACTTTGGCGATGATGGATCAGGAACAAAAGGACGCATTCTT spacer
length: 52 repeater length: 16
1815 33308 CTTTCCACACTATTTA GTTCTACGGAAACAATACTATGAGTGCATAATTAGTATCGAGGTGA spacer length:
46 repeater length: 16
1816 33371 CTTTCCACACTATTTA GTTCTACGGAAACGTAAGGGAGGCTTTTCGCGACGGCAATGGTTACATATA spacer
length: 50 repeater length: 16
1817 33438 CTTTCCACACTATTTA GTTCTACGGAAACCTTATAGACGGGAAAGAGATACACGTTATAAAAGAGCT spacer
length: 51 repeater length: 16
1818 33506 CTTTCCACACTATTTA GTTCTACGGAAACGCTATTGGAGCAAGGGAAATTCAGCTATACAGAAGACA spacer
length: 51 repeater length: 16

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1819 33574 CTTTCCACACTATTTA GTTCTACGGAAACTGGAATAGTGTTATTGCTAGAGTTTTTAGTGGAATTGTTGAG
 spacer length: 55 repeater length: 16
 1820 33646 CTTTCCACACTATTTA GTTCTACGGAAACGAGTTAAGAAGAGAGGCATTAATGTTTGCAGAATATCT spacer
 length: 51 repeater length: 16
 1821 33714 CTTTCCACACTATTTA GTTCTACGGAAACATGAAAGCAGAAACTTGGAAGAACATACTGTACATGTCAGCT
 spacer length: 55 repeater length: 16
 1822 33786 CTTTCCACACTATTTA GTTCTACGGAAACGAACGATGTTGATATGAAGTTCTCATGCCAGATTAT spacer
 length: 49 repeater length: 16
 1823 33852 CTTTCCACACTATTTA GTTCTACGGAAACCTAGGGAATACCTAAGTGCTACTAACTCAAGAACACTT spacer
 length: 51 repeater length: 16
 1824 33920 CTTTCCACACTATTTA GTTCTACGGAAACAGCTTAAATCACTGGGTTATGAGGTTGAACCTATGA spacer
 length: 49 repeater length: 16
 1825 33986 CTTTCCACACTATTTA TGAAAGGAGGTTATCGGACCAGGAGTCAAGCACCCAGGAGTTTGGTTCC
 1826
 1827
 1828 crispr 2
 1829 933971 GTTT CCACACTATTTAGTTCTACGGAAACGCGACGAATTATGGAGCCACGCCCGAGCGGGTGAGCATTC spacer
 length: 65 repeater length: 4
 1830 934041 GTTT CCACACTATTTAGTTCTACGGAAACCTCTTTGGGAACTTTTAGAACAGGCAAAAGAGTTACTTAGGGAGC
 spacer length: 70 repeater length: 4
 1831 934116 GTTT
 CCACACTATTTAGTTCTACGGAACTTTGTTATTATAGGTCAGCGAATGGGGTGGTTATGGCGGACGAGGAGTGGCAGAGTA
 spacer length: 82 repeater length: 4
 1832 934203 GTTT
 AGACTAAAATAGAATTGAAACCATAGCTAGGAATCTTGGCTTTCTCTGGAGAAGGAGGTTCCAATAAGACTAAAAAGAATT
 1833
 1834
 1835 crispr 3
 1836 150421 TCCGTAGAACTTAGTAGTG TGGAAAGTAGAGCTCGAAGTAGACTTTAACCCAGCGGTTCCACTGT spacer
 length: 47 repeater length: 19
 1837 150488 TCCGTAGAACTTAGTAGTG TGGAAAGAGGTCTGGCTCCTCATCCTCAGGAGGCTTCTTAAATGGGT spacer
 length: 47 repeater length: 19
 1838 150555 TCCGTAGAACTTAGTAGTG TGGAAAGGACTTGAAGAAGGATGTAATAACATATGATGACTTCATAGAAGGT
 spacer length: 52 repeater length: 19
 1839 150627 TCCGTAGAACTTAGTAGTG TGGAAAGACTAAGTTGCTAACTAGAGTATTGCTCATCCAAGAATCATACTTCAAGT
 spacer length: 56 repeater length: 19
 1840 150703 TCCGTAGAACTTAGTAGTG TGGAAAGTATCTGAAGCACTATTGCCAACAAATTCTGGAACAATCCGT spacer
 length: 48 repeater length: 19
 1841 150771 TCCGTAGAACTTAGTAGTG TGGAAAGTTGATGACCTTGCCCATTTAGAGTATGACCCAGAACTGT spacer
 length: 47 repeater length: 19
 1842 150838 TCCGTAGAACTTAGTAGTG TGGAAAGCTGATTTATACGGGTTCTCTGGTTTTTCTACCTCAAGT spacer
 length: 45 repeater length: 19
 1843 150903 TCCGTAGAACTTAGTAGTG TGGAAAGACTTTCACGAAGACATCAGGGTTTCTCCGATTCCCTCTGT spacer
 length: 47 repeater length: 19
 1844 150970 TCCGTAGAACTTAGTAGTG TGGAAAGACGTCAATTCCATAGCCCAAATTCTCAGCTACGTCGAATTCAGT
 spacer length: 51 repeater length: 19
 1845 151041 TCCGTAGAACTTAGTAGTG TGGAAAGGGCGTGGAACATCCCAGCGAACGGTTACGACGACATAACGT spacer
 length: 49 repeater length: 19
 1846 151110 TCCGTAGAACTTAGTAGTG TGGAAAGAGCGTCCAGCCACTTGCTGGAACATTTATTGTTTCTAGCTCGGT
 spacer length: 51 repeater length: 19
 1847 151181 TCCGTAGAACTTAGTAGTG
 TGGAAAGACAGTCGTATACAATCCTTGCGAGACATGTGCCCCGAGATGAACTTTCAGT spacer length: 58
 repeater length: 19
 1848 151259 TCCGTAGAACTTAGTAGTG TGGAAAGCATAAAATCTAATAAGGATATCTGTAGACATCAAGCGAGT spacer
 length: 47 repeater length: 19
 1849 151326 TCCGTAGAACTTAGTAGTG
 TGGAAAGTCAACCTTGTCATCAGCAACCGTGTAGGTTATTGTGTACTTTGGGGTTTCCGT spacer length: 60
 repeater length: 19
 1850 151406 TCCGTAGAACTTAGTAGTG TGGAAAGAACTGTCGAGGCCTGCGTTTTGCAGGAACAACCCAAGT spacer
 length: 46 repeater length: 19
 1851 151472 TCCGTAGAACTTAGTAGTG TGGAAAGATAGTAGCATTACTACGACATACTCTGGGCTCTCTGAATGT spacer
 length: 48 repeater length: 19
 1852 151540 TCCGTAGAACTTAGTAGTG TGGAAAGCTCAGCTCTTCTGGGGTTATGACGCCTCCCTCTATAGGT spacer
 length: 46 repeater length: 19
 1853 151606 TCCGTAGAACTTAGTAGTG TGGAAAGAAGAAGGGTAGGAGGAAGAGGAGAGAGGAGTTCTTTGGCTGGGT
 spacer length: 51 repeater length: 19
 1854 151677 TCCGTAGAACTTAGTAGTG TGAAAGGAGGTTATCGGACCAGGAGTCAAGCACCCAGGAGTTTGGTTCCAA
 1855
 1856
 1857 crispr 4
 1858 994360 GTTCCAATAAGACTAAAATAG AATTGAAACTTCTGGAGTGCAAAGTTTGAAAAGGCTTGAATGG spacer

length: 44 repeater length: 21
1859 994426 GTTCCAATAAGACTAAAATAG AATTGAAACAGGCTTTTATTGAGCGTTGGTTTGTATTTTT spacer
length: 41 repeater length: 21
1860 994489 GTTCCAATAAGACTAAAATAG AATTGAAACCAGTTTAAGCTTAACCTCCCACCTGTGAACGTTGAG spacer
length: 45 repeater length: 21
1861 994556 GTTCCAATAAGACTAAAATAG GATTGAAACTTCACGGCTGGTTGGAGGGTACTAGTCTATGATATG spacer
length: 45 repeater length: 21
1862 994623 GTTCCAATAAGACTAAAATAG AATTGAAACTGGAGCGATGGCTCTCGCACTCGGTCTCTTGTTTCAG spacer
length: 45 repeater length: 21
1863 994690 GTTCCAATAAGACTAAAATAG GAACAGGAGCCAATTTTGCTTTATTTCTCTACTAGAGTTACTATA
1864
1865
1866 crispr 5
1867 1117872 CTTTCAATTCTATTTTAGTCTTATTGGAAC AATCGTATGAGGTTCTGCAGTTACGTCGTGAGTG spacer
length: 35 repeater length: 30
1868 1117938 CTTTCAATTCTATTTTAGTCTTATTGGAAC AAACCTTCCTATATCGCCAGCAATATCAATCACAATT spacer
length: 36 repeater length: 30
1869 1118005 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCAGCCCCTGCCTTTCCAGGTGCAGCTGCCAGTCA spacer
length: 36 repeater length: 30
1870 1118072 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGGTCATGGTCTGGCGATGATGTTCCACTTTTA spacer
length: 34 repeater length: 30
1871 1118137 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTAGCCCAATTGGAGCGCGATTATGACTATGCT spacer
length: 34 repeater length: 30
1872 1118202 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGCCACCAAGCACTCCATCTCCTTGATAGTCCAGCCC spacer
length: 38 repeater length: 30
1873 1118271 CTTTCAATTCTATTTTAGTCTTATTGGAAC GATTCTTAGTTCATTAGCCCCAACCTGCCACTCTTG spacer
length: 36 repeater length: 30
1874 1118338 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAGAACAAATCAAGGAACAATAAGAACCTATCC spacer
length: 35 repeater length: 30
1875 1118404 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGGGTTAAAAGACAAGTTCAACCTCAGCAAAAATGT spacer
length: 38 repeater length: 30
1876 1118473 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGATGAACTGAAGTTTCTACTGAGCGAGCTCATAAA spacer
length: 36 repeater length: 30
1877 1118540 CTTTCAATTCTATTTTAGTCTTATTGGAAC CATCCGCAGGCTTCACGTACCAGGAGAACCTGTTTCG spacer
length: 36 repeater length: 30
1878 1118607 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATATTATATACGCTGAACCAGTTTGTGAATGACGC spacer
length: 35 repeater length: 30
1879 1118673 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGGATGTCATAAGATTTACGGACTTCACACCGAGT spacer
length: 36 repeater length: 30
1880 1118740 CTTTCAATTCTATTTTAGTCTTATTGGAAC TATCCAGTCCACGACCTTTATGTGTCCCGTATCCTG spacer
length: 36 repeater length: 30
1881 1118807 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACTTCTCAATTCCACGTGCCTCTACAAATGGACAAG spacer
length: 36 repeater length: 30
1882 1118874 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCACAACCTCTGAACGAATTATTTCTCCAGCAGAAA spacer
length: 36 repeater length: 30
1883 1118941 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTTCTTGAGTAAAGAAATCACGCAGGCAGGTCTTTC
1884
1885
1886 crispr 6
1887 637738 GTTCCAATAAGACTATAAGAGAATTGAAAG TAACCTTAAGCGGGAGGGAACCTGTTGAGTTCATAAGG spacer
length: 38 repeater length: 30
1888 637807 GTTCCAATAAGACTATAAGAGAATTGAAAG ACGACGTAATCAACCTCGAAAAGGGTTCCGCACCTGT spacer
length: 37 repeater length: 30
1889 637875 GTTCCAATAAGACTATAAGAGAATTGAAAG CGTGCTCTGGGTACGCTGTTGCTACGATGTGTGCAGG spacer
length: 37 repeater length: 30
1890 637943 GTTCCAATAAGACTATAAGAGAATTGAAAG TATAGATGTCGTCAAATCTATATAGATGCCGGTGGA spacer
length: 36 repeater length: 30
1891 638010 GTTCCAATAAGACTATAAGAGAATTGAAAG GAGAGAAACGACAGGCTTACCTCCACTTTCAAGCCA spacer
length: 36 repeater length: 30
1892 638077 GTTCCAATAAGACTATAAGAGAATTGAAAG TCAAGTTGATAAAATCATTGCCTGCTCAATATCTTT spacer
length: 36 repeater length: 30
1893 638144 GTTCCAATAAGACTATAAGAGAATTGAAAG AGCTCGGAAGAGGGCAGGATAGGAAAGTATGACGCA spacer
length: 36 repeater length: 30
1894 638211 GTTCCAATAAGACTATAAGAGAATTGAAAG TGTGTTGCATCGGACATGTTTCAGGTATGAAATCCTT spacer
length: 36 repeater length: 30
1895 638278 GTTCCAATAAGACTATAAGAGAATTGAAAG TTCTTCCTTTCCAGCTCGTAACCCAGGGATTTCGAGC spacer
length: 36 repeater length: 30
1896 638345 GTTCCAATAAGACTATAAGAGAATTGAAAG CGGCGAGCTAGATAAGAGGGAGGAGACGCATTTAGA spacer
length: 37 repeater length: 30
1897 638413 GTTCCAATAAGACTATAAGAGAATTGAAAG ACGCTAACGTCAGCATGGAAGACGTTTTGAAGGCTAT spacer
length: 37 repeater length: 30

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1898 638481 GTTCCAATAAGACTATAAGAGAATTGAAAG AACTTCGTA CTGACTCGACTAGCTCCTCCTCATCGTCCT spacer
length: 35 repeater length: 30
1899 638547 GTTCCAATAAGACTATAAGAGAATTGAAAG ATTTAAGATAGACGGGAGAGTACCCATGTAGCTGTCA spacer
length: 37 repeater length: 30
1900 638615 GTTCCAATAAGACTATAAGAGAATTGAAAG GAGTTCATGTGCTGACTTTACACTTGGGTTCTTCTG spacer
length: 37 repeater length: 30
1901 638683 GTTCCAATAAGACTATAAGAGAATTGAAAG AAGCTTGAGGTTGTTTATTATAACGTGAAATGGGATGATGT
spacer length: 41 repeater length: 30
1902 638755 GTTCCAATAAGACTATAAGAGAATTGAAAG TCTGGAAGGAAGGCAATACCAAATCAGAGGTTGA spacer
length: 35 repeater length: 30
1903 638821 GTTCCAATAAGACTATAAGAGAATTGAAAG TCTTGAGTAAAGAAATCACGCAGGCAGGTCTTTCC
1904
1905
1906 GCA_000011125.1_ASM1112v1_genomic.fna(findCrispr):
1907 START REPEAT
SPACER
1908 crispr 1
1909 717252 CTTGAGATAGAA TTGCAAGAGCATCCGAGGGGCCCCACAATGAGGCTGGGGAGGGGTAGAA spacer
length: 49 repeater length: 13
1910 717315 CTTGAGATAGAA TTGCAAGTGGGCCCAGGTCCTGCTGTGACAATAGGTTTCCGTTGCTGTGAA spacer
length: 51 repeater length: 13
1911 717380 CTTGAGATAGAA TTGCAAGATCTATAACATCATCGCGTGCAGCAGGGGGCCAGAGGACTTCGAA spacer
length: 52 repeater length: 13
1912 717446 CTTGAGATAGAA TTGCAAGGGTCTTGGTCTTGCTCCCCCGCGACTACTGGCAGCTCTTCCAGGGGAA spacer
length: 55 repeater length: 13
1913 717515 CTTGAGATAGAA TTGCAAGTGAGCCTAGCCAGCTCGGCCCTGTTACGGGCCTCAACCTCAGAA spacer
length: 51 repeater length: 13
1914 717580 CTTGAGATAGAA TTGCAAGTCGCCATGTAGTCGTACATCGCCCTCTTACGACGTCAGAA spacer length:
48 repeater length: 13
1915 717642 CTTGAGATAGAA TTGCAAGCCGCCGAAGAGGGCCCAGCCTATGATTATTCCGAGGCGAA spacer length:
47 repeater length: 13
1916 717703 CTTGAGATAGAA TTGCAAGTCTTCATCTACAACTTTTACAAAAAGCATGGGCTCACGGGGAA spacer
length: 51 repeater length: 13
1917 717768 CTTGAGATAGAA TTGCAAGTGTGCTAAGAGCCCCGAGAAATGTGTAGCCTCGGAGGGCCCCGAA spacer
length: 51 repeater length: 13
1918 717833 CTTGAGATAGAA TTGCAAGACGTCGAGGTTAGGGTTATGGTGAACGCCAGGGGCAATTAGAGTATACCGAGAA
spacer length: 62 repeater length: 13
1919 717909 CTTGAGATAGAA TTGCAAGAAGGCAATACTCAGGATAGACAGGTACGCCAGGCAGGAGGTAGGAA spacer
length: 53 repeater length: 13
1920 717976 CTTGAGATAGAA TTGCAAGCGACTGTGGCTATAGCCAGGGCACCGACACCGTACTTCGAA spacer
length: 51 repeater length: 13
1921 718041 CTTGAGATAGAA GAATTGCAAGCCTCTCCCCCTACACGACAACGAGGAAGACGGGGCCCTGAA
1922
1923
1924 crispr 2
1925 1277425 CTTGCAATTCTATCTCGAAGATTC CCGAGGGTATATGGTTCGACGAAGTCGACAAATGGGCGAGGGCG spacer
length: 44 repeater length: 24
1926 1277494 CTTGCAATTCTATCTCGAAGATTC AGCGGGGTGAGTAGCCGTGCCTTGGGCTGACTGCAGACTATG spacer
length: 42 repeater length: 24
1927 1277561 CTTGCAATTCTATCTCGAAGATTC ACCTAAGCAGCTTCGACGTAACCGTGTTCACGTGCAG spacer
length: 37 repeater length: 24
1928 1277623 CTTGCAATTCTATCTCGAAGATTC GGCTCCATGGCTGGGCGGAGAGGGCAAGGTGGAGCT spacer length:
36 repeater length: 24
1929 1277684 CTTGCAATTCTATCTCGAAGATTC GCCAGCCGACTTCCGCCTGCTAGGCCCCCTTGGTGGGGTCT spacer
length: 40 repeater length: 24
1930 1277749 CTTGCAATTCTATCTCGAAGATTC TCATAGTCTGGGGGTCTTGGTTCCTCCTAGGCGTCATA spacer
length: 38 repeater length: 24
1931 1277812 CTTGCAATTCTATCTCGAAGATTC TAGACGGAAC TAGCGCGCTGAGGATCGAGCCACTCTTACGGGTA spacer
length: 44 repeater length: 24
1932 1277881 CTTGCAATTCTATCTCGAAGATTC ATTCTCTGGCTACCTCTTCGAGCGCTTCCTTCGCCTCTTTATCCAC
spacer length: 46 repeater length: 24
1933 1277952 CTTGCAATTCTATCTCGAAGATTC CTCTTATATATTTAATCAGTATAACCCTGACAAGCTC spacer
length: 37 repeater length: 24
1934 1278014 CTTGCAATTCTATCTCGAAGATTC CCTCTAGTGAGCGTGGAATTTCCAAAACACCATCAGAC spacer
length: 39 repeater length: 24
1935 1278078 CTTGCAATTCTATCTCGAAGATTC GCGTATGGGGAGCGGGCTGGGCCCGCGGTCATGCTTGCGC spacer
length: 40 repeater length: 24
1936 1278143 CTTGCAATTCTATCTCGAAGATTC CCAGGCACTTGTGTTAAGGTTCTCGAAGCTGAGGATA spacer
length: 37 repeater length: 24
1937 1278205 CTTGCAATTCTATCTCGAAGATTC GATTCGCCCCAAGTGGGCGTGGAAGCGGCTCGGCGCCTTCGT spacer
length: 41 repeater length: 24

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1938 1278271 CTTGCAATTCTATCTCGAAGATTC CAGCACGGTCAGCTGGAGAGGCCAGTAGAGGGGGCCGAGCA spacer
length: 41 repeater length: 24
1939 1278337 CTTGCAATTCTATCTCGAAGATTC CTGTAGGGCTAGGATCGAGAGGTTAGCAAGATGGTG spacer
length: 37 repeater length: 24
1940 1278399 CTTGCAATTCTATCTCGAAGATTC GAGAGGCTGGGCCTCACTGGTAGGGTCGTTATAGTTTCC spacer
length: 39 repeater length: 24
1941 1278463 CTTGCAATTCTATCTCGAAGATTC CGGTGGGGCTTCTATTCTGAGGAGACCAGGGCTAGGTCA
1942
1943
1944 crispr 3
1945 786657 GCATATCCCTAAAGGGAATAGAAAG GTAGACGCCTGCACGGTTCAGCAAATACACGGCATCCT spacer
length: 38 repeater length: 25
1946 786721 GCATATCCCTAAAGGGAATAGAAAG AACTGGAAGAGGGGGAGTAAGAGAGCGTTCTGGGGCT spacer
length: 37 repeater length: 25
1947 786784 GCATATCCCTAAAGGGAATAGAAAG GTAGACCTGGCCGTCGAGGTGTATCTCCATGCAGCC spacer length:
36 repeater length: 25
1948 786846 GCATATCCCTAAAGGGAATAGAAAG TTAGAAGCCTATTAGAGCAGGGCGTGACGATGGCTCGA spacer
length: 39 repeater length: 25
1949 786911 GCATATCCCTAAAGGGAATAGAAAG ATAACCTCGGTGCCAACGCGTTCGCCGTGAATGCTGG spacer
length: 37 repeater length: 25
1950 786974 GCATATCCCTAAAGGGAATAGAAAG GAGAACCTGTAGCGCTCGAGCCTCGCAGCCGCCCTAACGG spacer
length: 40 repeater length: 25
1951 787040 GCATATCCCTAAAGGGAATAGAAAG AAGAGAATTTGCGCCGATGAGGCGGGCGAGGGGTGACGG spacer
length: 39 repeater length: 25
1952 787105 GCATATCCCTAAAGGGAATAGAAAG CTTCAGGTCTGCAATCGCCGCCCTGAGGTTCTGAATAT spacer
length: 38 repeater length: 25
1953 787169 GCATATCCCTAAAGGGAATAGAAAG ACCCGCCGGCGGCCTCCTCGGCGGCATAGGCTGCACAACC spacer
length: 40 repeater length: 25
1954 787235 GCATATCCCTAAAGGGAATAGAAAG GGGAGACTGCTAATCCGGAGGAGGCCCCGTGTGCAAA spacer
length: 37 repeater length: 25
1955 787298 GCATATCCCTAAAGGGAATAGAAAG TCCTAACCGGCGGCCTCCGTATTATCCGGGGCGGCG spacer length:
36 repeater length: 25
1956 787360 GCATATCCCTAAAGGGAATAGAAAG CTGGTTATAGTGAGGCCCTCCGGAGTCTCTATCACAAC spacer
length: 38 repeater length: 25
1957 787424 GCATATCCCTAAAGGGAATAGAAAG CTTTACGCTGCCTTTCTGGCGGGGGTCTGAGCCAG spacer length:
36 repeater length: 25
1958 787486 GCATATCCCTAAAGGGAATAGAAAG TTACGGCATAGGGCTAGACCCTGCTATGAGCGGGGCACCGA spacer
length: 41 repeater length: 25
1959 787553 GCATATCCCTAAAGGGAATAGAAAG CTTACCACCACCATTGGAGCCACCCCAGAGCTGCCTG spacer
length: 37 repeater length: 25
1960 787616 GCATATCCCTAAAGGGAATAGAAAG GATTGCATAGGCGATATACCCGAATCCCAGGTCGGTA spacer
length: 37 repeater length: 25
1961 787679 GCATATCCCTAAAGGGAATAGAAAG AGGAGGCGGAAGTACGAGATAGTTGTTGGGCCCCGAGATGCCGGCT
spacer length: 46 repeater length: 25
1962 787751 GCATATCCCTAAAGGGAATAGAAAG TCCTGGACCTCCGCCTACCCCGCGTCCTAGTCTCCCGG spacer
length: 38 repeater length: 25
1963 787815 GCATATCCCTAAAGGGAATAGAAAG TGGACCCACAAGAAGCTGGTGAAGAGCATTATGGAGTCA spacer
length: 39 repeater length: 25
1964 787880 GCATATCCCTAAAGGGAATAGAAAG CCACCGCCTGAGCTCCCTCTCCAGCTCGGGGTCCACCTG spacer
length: 39 repeater length: 25
1965 787945 GCATATCCCTAAAGGGAATAGAAAG ACCACGACGGTCTCCTCGCCACGCCGAGTAGTAGTCCGT spacer
length: 41 repeater length: 25
1966 788012 GCATATCCCTAAAGGGAATAGAAAG TGAAGAAGCAGCCTAGGCCTATACTAGTCTATGAGCTCTCGAG spacer
length: 43 repeater length: 25
1967 788081 GCATATCCCTAAAGGGAATAGAAAG TTATGAGGTGTGGGAGCGTGATGGTGAGGTTGTTATAAAG spacer
length: 41 repeater length: 25
1968 788148 GCATATCCCTAAAGGGAATAGAAAG AGTGGGCAAGCGGATAACATCTCTATAGAGAGGTCTAC spacer
length: 38 repeater length: 25
1969 788212 GCATATCCCTAAAGGGAATAGAAAG CCACCTGGCGAGCCGCCACCACCCTGCGGCATACGCAGCGCCTG
spacer length: 45 repeater length: 25
1970 788283 GCATATCCCTAAAGGGAATAGAAAG TCGAGCACTTCCAGGCGGCTGGCCTTGCTAGGCTTGAGAACGGCA
spacer length: 45 repeater length: 25
1971 788354 GCATATCCCTAAAGGGAATAGAAAG GCGGTGGTTGTGCTAGCCTTCGCATTGCCCCTCTCGGGCCC spacer
length: 41 repeater length: 25
1972 788421 GCATATCCCTAAAGGGAATAGAAAG CTCTTTCTCGAGCACCAGCCTGCCTTCGGAGTCCATAG spacer
length: 38 repeater length: 25
1973 788485 GCATATCCCTAAAGGGAATAGAAAG TTCACAGTCCACGCCTCGCAGGTCTACCATCTAGTCGATAT spacer
length: 41 repeater length: 25
1974 788552 GCATATCCCTAAAGGGAATAGAAAG GCCGCGCTGAACGCCTACTTGCCGCTGGCTTCGAGGC spacer
length: 38 repeater length: 25
1975 788616 GCATATCCCTAAAGGGAATAGAAAG ATCACAAAAACGTGAACGCGCCCCGCGCTACAGCTTC spacer

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length: 39 repeater length: 25
1976 788681 GCATATCCCTAAAGGGAATAGAAAG CCTCACGTACAGCCACATGGTCCCCAGGCCAGCCAGGAC spacer
length: 39 repeater length: 25
1977 788746 GCATATCCCTAAAGGGAATAGAAAG TTACGGGTGGTGTAACTAGAAATAACTATGAAGAT spacer length:
35 repeater length: 25
1978 788807 GCATATCCCTAAAGGGAATAGAAAG GAAGCAACTCAGAAGAGCTTCCCTCTTGACTCTAAAGCCCT spacer
length: 41 repeater length: 25
1979 788874 GCATATCCCTAAAGGGAATAGAAAG ATGTGCATGGAGTGGGCATCAGAATTAATGAGATAATCAA spacer
length: 40 repeater length: 25
1980 788940 GCATATCCCTAAAGGGAATAGAAAG CTCGGTTACGGCGTTAGCCCCGCCGTTTGCATTGACAAA spacer
length: 39 repeater length: 25
1981 789005 GCATATCCCTAAAGGGAATAGAAAG GTTGCCCTAGCACCCCTGCTGGCCCTGCTCCTAGTAC spacer
length: 37 repeater length: 25
1982 789068 GCATATCCCTAAAGGGAATAGAAAG TACAACCTCCTGAGGTGGCTCGCCGCCTACGGCCCCG spacer
length: 37 repeater length: 25
1983 789131 GCATATCCCTAAAGGGAATAGAAAG TGCAGCCAGCTTTACAACGCTGATCCTCTTCTCACTCCTA spacer
length: 40 repeater length: 25
1984 789197 GCATATCCCTAAAGGGAATAGAAAG GTATATAATGTGCGGGGCTATCCCGCTGCTCATATCCAC spacer
length: 39 repeater length: 25
1985 789262 GCATATCCCTAAAGGGAATAGAAAG CTGGAGCGCCGGGAGCTCAAGAGGGACGGCAGGCGCAGGGCGA spacer
length: 43 repeater length: 25
1986 789331 GCATATCCCTAAAGGGAATAGAAAG TGGGGCTTCTATTCTGAGGAGACCAGGGCTAGGTCACCCACTC
1987
1988
1989 GCA_000011185.1_ASM1118v1_genomic.fna(findCrispr):
1990 START REPEAT
SPACER
1991 crispr 1
1992 109191 CCATACTAACTAGTACAT CTTAAACTATTTCAGAAAAGAGACGATGTTAGCTGGATCGAAATGAAGGCT spacer
length: 50 repeater length: 18
1993 109260 CCATACTAACTAGTACAT CTTAAACTCTTACAAATGTGGACACTAGGGGGATAGCTTTATCCACT spacer
length: 47 repeater length: 18
1994 109326 CCATACTAACTAGTACAT CTTAAACTCCTTTAATTCAGATCTTTTATAAAGCGGGACTTCGTCAATACT spacer
length: 51 repeater length: 18
1995 109396 CCATACTAACTAGTACAT CTTAAACGCTACATCACTGATGTCGATATATTCCGTGCCAAGTCGACT spacer
length: 48 repeater length: 18
1996 109463 CCATACTAACTAGTACAT CTTAAACCGACCGCCGTGGACGGATTTTCGACAACCTACGTTCTGGCT spacer
length: 47 repeater length: 18
1997 109529 CCATACTAACTAGTACAT CTTAAACCTCATCGTTCAAGTGGACGGTGAGAGATATGTCTACT spacer
length: 44 repeater length: 18
1998 109592 CCATACTAACTAGTACAT CTTAAACGAATAAAAGACTTTGATCAAGACAAGGTTCACTTCTATCGACTTCT
spacer length: 53 repeater length: 18
1999 109664 CCATACTAACTAGTACAT CTTAAACTCTACGTCCTCTATCCCGACGACAACAACGAATATTATGCTTCT spacer
length: 51 repeater length: 18
2000 109734 CCATACTAACTAGTACAT CTTAAACTGGGATTATATCCTGGAGGAAAAAATGGAGACGAAAACT spacer
length: 46 repeater length: 18
2001 109799 CCATACTAACTAGTACAT CTTAAACAAGAAGTTTATGATAGCTACGATGCATCACGGGTTTTACT spacer
length: 47 repeater length: 18
2002 109865 CCATACTAACTAGTACAT CTTAAACTCCAAGGATGAGGCAAGATCACGAAGATCGTCTTTTACT spacer
length: 46 repeater length: 18
2003 109930 CCATACTAACTAGTACAT CTTAAACCTAGCGCTGAATACGAGCAAAATATGGAAATTC AAGGCT spacer
length: 46 repeater length: 18
2004 109995 CCATACTAACTAGTACAT CTTAAACTGATAGGGAAGAGAGACCTCGAATATTGGATCGATAACCTCT spacer
length: 49 repeater length: 18
2005 110063 CCATACTAACTAGTACAT CTTAAACTCAAGGCTTTAAAGCAAAAGGTTTTTAGGTGCTGGAAGATAGAGCACT
spacer length: 55 repeater length: 18
2006 110137 CCATACTAACTAGTACAT CTTAAACGATATTTTCATGATAGCGATCAGCTAACGTTTGTGAATGTTCT spacer
length: 49 repeater length: 18
2007 110205 CCATACTAACTAGTACAT CTTAAACAGAAGACGTTCCGGAGGAATACATAAGGGGCATTTTCGACT spacer
length: 48 repeater length: 18
2008 110272 CCATACTAACTAGTACAT CTTAAACGGTGTGACGCTGTCGTTGTCATGCATCTCAATCAGCCTTACGCT spacer
length: 51 repeater length: 18
2009 110342 CCATACTAACTAGTACAT AACAAAGGTGAGAGAAAATGTGTTTCACACCAGTTGGATTTGTAAGATACTT
2010
2011
2012 GCA_000011205.1_ASM1120v1_genomic.fna(findCrispr):
2013 START REPEAT
SPACER
2014 crispr 1
2015 1071758 TGTTTATCCACAGTCTCTTG
TAAAGACTGAATTGCTTCTCTTGTCTTAAACAGTCTCTTGGAGTGATATTATGGCTTGAGT spacer length: 63

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2016 repeater length: 20
 1071842 TGTTTATCCACAGTCTCTTG
 CAAAGATTGGACTGCTTGTGTAGTGATACTATAGCCTCACTTTGTTTTTTGGCTATCTCTTGAAGTGCTTGAATTGCCTCAGT
 spacer length: 84 repeater length: 20
 2017 1071947 TGTTTATCCACAGTCTCTTG
 AAAGAAAGTAATGGCAACAAAGGATGATATTAAGGACATGGCAACTAAAAAGGATATTAAGAAGTTAGAGGTATGGATTAGCGC
 2018
 2019
 2020 crispr 2
 2021 1764371 GATTTGGAGAAAAAGATTGAA
 GGTACTAGAGCAGATTTAGAAAAAGAGATTGAGGACACAAAAACAGAACTTAAGGGTGAGATATCTACAGTTAAAGGAGAGCTGGA
 GAAAAAGATTGAGGACACAAAAACAGAACTCAAACTGAAGTCAATACTGTAAGACA spacer length: 143
 repeater length: 21
 2022 1764536 GATTTGGAGAAAAAGATTGAA
 AACACGAGAATAGACCTTGAGAAAAAGATTGATGATACACGAAAAGATTTGGAGAATAAAATTGAGAATACTAGGAC spacer
 length: 77 repeater length: 21
 2023 1764635 GATTTGGAGAAAAAGATTGAA
 GGATGATATTAAGGACATGGCAACTAAAAAGGATATTAAGAAGTTAGAGGTATGGATTAGCGCCTTAGGTGCTAGAT
 2024
 2025
 2026 crispr 3
 2027 2671319 CTTTCAATTCCATTATGGATTAG CTTACAGTAAAAGAGAAGTACTAACGTTGATGAGGAAACA spacer
 length: 40 repeater length: 23
 2028 2671383 CTTTCAATTCCATTATGGATTAG CACTTGTGATTGAATCTCGTATAATTTAAGCTTGGCATCAT spacer
 length: 41 repeater length: 23
 2029 2671448 CTTTCAATTCCATTATGGATTAG CCTAGACTGAGTTAAATTGTACATGCCTAAAATATAATTAAT spacer
 length: 42 repeater length: 23
 2030 2671514 CTTTCAATTCCATTATGGATTAG CCTCGATTTTCATTAACAACCTTTCCTGAGGAGGACGAGTT spacer
 length: 39 repeater length: 23
 2031 2671577 CTTTCAATTCCATTATGGATTAG CAAAGTGCTTACGATTTATCTGGAACCCCTCTCGTCGGGTG spacer
 length: 41 repeater length: 23
 2032 2671642 CTTTCAATTCCATTATGGATTAG CAAAGCTGCAGAGAATAGCTAGGTTAGTCCAGGGTAAGCAAAC spacer
 length: 43 repeater length: 23
 2033 2671709 CTTTCAATTCCATTATGGATTAG CGTTACAACATTACAATTTTTGGAATTTTCTTCTACAATTA spacer
 length: 42 repeater length: 23
 2034 2671775 CTTTCAATTCCATTATGGATTAG CTGGGTCGTGGAAGTAATCAGAGAGACTTACTGCGAATACTGT spacer
 length: 43 repeater length: 23
 2035 2671842 CTTTCAATTCCATTATGGATTAG CTAACCTCATTTGTGTTTGTAAATAAGTTTTGACGTAGTC spacer
 length: 39 repeater length: 23
 2036 2671905 CTTTCAATTCCATTATGGATTAG CGTACACTATCGTAGATTTTCCGTACTCATAATCAATTTTC spacer
 length: 40 repeater length: 23
 2037 2671969 CTTTCAATTCCATTATGGATTAG CACGCAAGTGCCCACGATACCTGGGGCGATGGCGTTGATGCA spacer
 length: 42 repeater length: 23
 2038 2672035 CTTTCAATTCCATTATGGATTAG CCATCTTGCATGCTGCATACGTTTCATAAAAATGAGGATCA spacer
 length: 41 repeater length: 23
 2039 2672100 CTTTCAATTCCATTATGGATTAG CCCAGAGATTGAATTAGCTGAATTATATTCTTTTACATGTA spacer
 length: 41 repeater length: 23
 2040 2672165 CTTTCAATTCCATTATGGATTAG CCGTAGACGGGTGAACCGTAGTAAGAAGGACTATTAGTAGGTGCC spacer
 length: 45 repeater length: 23
 2041 2672234 CTTTCAATTCCATTATGGATTAG CTCTACGTTACGAATCAGAATTCACAATATGTAATGTATGTAA spacer
 length: 43 repeater length: 23
 2042 2672301 CTTTCAATTCCATTATGGATTAG CATAGAAGTTGATGAGACTTATGATGTTAACATTTGGTATCAAA spacer
 length: 44 repeater length: 23
 2043 2672369 CTTTCAATTCCATTATGGATTAG CGTGAGAGCTTTTTAATAAGTACTAGCGTATTCTATTTACC spacer
 length: 41 repeater length: 23
 2044 2672434 CTTTCAATTCCATTATGGATTAG CGCAGGTAGTATTATGCAAGGTCCAATCAGGGTTAT spacer length:
 36 repeater length: 23
 2045 2672494 CTTTCAATTCCATTATGGATTAG CTACCACTTGTATTGTTGTACTACTATTTAACCATAAAATTTCCATT
 spacer length: 47 repeater length: 23
 2046 2672565 CTTTCAATTCCATTATGGATTAG CCAAACCTCTATTATTATGTTGTTTGGTCTTCAAGTGA spacer
 length: 38 repeater length: 23
 2047 2672627 CTTTCAATTCCATTATGGATTAG CATTAATTGCTAATGTTAAAGGATCTTCTCTTTAATTCTAA spacer
 length: 42 repeater length: 23
 2048 2672693 CTTTCAATTCCATTATGGATTAG CATAGAATAAAGATTGTTAGATTTCTAGTTTTCAACAATTG spacer
 length: 41 repeater length: 23
 2049 2672758 CTTTCAATTCCATTATGGATTAG CATAAGAATAATAAGTTATTATGACTACTCAGAAGTCGTG spacer
 length: 40 repeater length: 23
 2050 2672822 CTTTCAATTCCATTATGGATTAG CATTGAATAATTGTAGAATCTTAAAGCTTGTCAGTCTATAGA spacer
 length: 42 repeater length: 23
 2051 2672888 CTTTCAATTCCATTATGGATTAG CGGAAGATGTTATCCTTTTTTTTAAAGTTTTAAGATTTAGTAG spacer
 length: 43 repeater length: 23

2052 2672955 CTTTCAATTCCATTATGGATTAG CAAGAGGAGCGGGCTTAACGGTATTGTAATTGTTATAAAA spacer
length: 40 repeater length: 23

2053 2673019 CTTTCAATTCCATTATGGATTAG CTAAGATAAAGTCTATTTTTTTATCAGAATTTCCAGATGCTAAATTT
spacer length: 47 repeater length: 23

2054 2673090 CTTTCAATTCCATTATGGATTAG CACATTAAGATATATTAATATTGCCAACTTATGGAAAGTA spacer
length: 41 repeater length: 23

2055 2673155 CTTTCAATTCCATTATGGATTAG CATTCTTCTAATTCTTCTAACATAGATATTAATAAACTCA spacer
length: 40 repeater length: 23

2056 2673219 CTTTCAATTCCATTATGGATTAG CTCTGCTTATTTTGTAGAAAACTCTACAGGGAGGGAAGAGCGTT spacer
length: 45 repeater length: 23

2057 2673288 CTTTCAATTCCATTATGGATTAG CGCGAATGCTTCTTCTAATTGGTATAGTGTGTAATAA spacer
length: 38 repeater length: 23

2058 2673350 CTTTCAATTCCATTATGGATTAG CGGGAGTCAGTAATTTTGCCTAAGCCATTGCACGTATAA spacer
length: 39 repeater length: 23

2059 2673413 CTTTCAATTCCATTATGGATTAG CACGCTTAGACCAGATAGAAAAGAGACTCAAGAAGAAA spacer
length: 38 repeater length: 23

2060 2673475 CTTTCAATTCCATTATGGATTAG CATATAATGATTGCGTCCAAGAAGTGGCATTAGATGATG spacer
length: 39 repeater length: 23

2061 2673538 CTTTCAATTCCATTATGGATTAG CTTGCAAATAGGGAAGATGCAGTAAAGTATTACATTACAT spacer
length: 40 repeater length: 23

2062 2673602 CTTTCAATTCCATTATGGATTAG CAAGATTAAAAAGTTTAGAAGTATACCTTAATTATTAGTTT spacer
length: 41 repeater length: 23

2063 2673667 CTTTCAATTCCATTATGGATTAG CTCATCTGTGGAATTTGTAATTGAGGATAGCTAAAGT spacer length:
37 repeater length: 23

2064 2673728 CTTTCAATTCCATTATGGATTAG CAATGAGTTATGAAGAAGTTTGTCTTTTTATAAAAGAAAAA spacer
length: 41 repeater length: 23

2065 2673793 CTTTCAATTCCATTATGGATTAG CTTCCCTTCTCTAGTCCTTGCCCTATCAAACACTGTTATAA spacer
length: 41 repeater length: 23

2066 2673858 CTTTCAATTCCATTATGGATTAG CAATATGAGGATGAGGTATCTGAGGGTAGCGCTTACAAGGC spacer
length: 41 repeater length: 23

2067 2673923 CTTTCAATTCCATTATGGATTAG CAATGTTTACGGAATACTTATGAGTATACCAGTACTA spacer
length: 38 repeater length: 23

2068 2673985 CTTTCAATTCCATTATGGATTAG CTTAATACTTATTATAGCTACAGTTATTATTGCCCTTATAGTTAT spacer
length: 45 repeater length: 23

2069 2674054 CTTTCAATTCCATTATGGATTAG CTCTATTTTTCTAGATGGTGGAAACGGTAAGGCATAATAGA spacer
length: 41 repeater length: 23

2070 2674119 CTTTCAATTCCATTATGGATTAG CTACACTTAACGATATCCCAATTTACAAAATAATAA spacer length:
36 repeater length: 23

2071 2674179 CTTTCAATTCCATTATGGATTAG CCACCCCTCAGCAGTACTTAGCAGCAGTCAGCTCTCTTA spacer
length: 39 repeater length: 23

2072 2674242 CTTTCAATTCCATTATGGATTAG CCTGGTGCACCTAACGGGTGCTGTGGTAGGTTTCAATTTGTTT spacer
length: 40 repeater length: 23

2073 2674306 CTTTCAATTCCATTATGGATTAG CTTGTTGTGTTCTCTCTCTTTGCGATCTCTTCTAGTTTC spacer
length: 39 repeater length: 23

2074 2674369 CTTTCAATTCCATTATGGATTAG CATAATTATGATCCTTCACTAGACCAAAGGAAGAAGA spacer
length: 38 repeater length: 23

2075 2674431 CTTTCAATTCCATTATGGATTAG CGACACGATAAATCATTCCGATATTAACAAAAAATAGA spacer
length: 39 repeater length: 23

2076 2674494 CTTTCAATTCCATTATGGATTAG CTATCGTTTTGAACTTTGCATGGACGGTATGTATAACTCTA spacer
length: 41 repeater length: 23

2077 2674559 CTTTCAATTCCATTATGGATTAG CATTTTTTAACGTAATTTTGGCTCAGAAAGACGTGACAAAAATG spacer
length: 43 repeater length: 23

2078 2674626 CTTTCAATTCCATTATGGATTAG CTGACTTATTAGAACAGCTAGTGTATGCTATAAATCCAAAC spacer
length: 41 repeater length: 23

2079 2674691 CTTTCAATTCCATTATGGATTAG CATTATCTCCACATGATATACGCCGTAGCGGGGCATATTG spacer
length: 40 repeater length: 23

2080 2674755 CTTTCAATTCCATTATGGATTAG CTAGAAACTTAGACGAAATAACAGAGAAATACGATATACAA spacer
length: 41 repeater length: 23

2081 2674820 CTTTCAATTCCATTATGGATTAG CTGACATGAAAGCGACAAAACGCCAAATAGAATTAATAAA spacer
length: 40 repeater length: 23

2082 2674884 CTTTCAATTCCATTATGGATTAG CCGATTATTTATATATGCTCTTTGTGCTGTCGGCAGTGA spacer
length: 39 repeater length: 23

2083 2674947 CTTTCAATTCCATTATGGATTAG CTCTGCCAGCTTACTCATCTTAGCCACCTCCAACAACCTT spacer
length: 40 repeater length: 23

2084 2675011 CTTTCAATTCCATTATGGATTAG CCTTCTGATTACGATAGACCTTTCCAGTTTATGTGTGTTACAA spacer
length: 43 repeater length: 23

2085 2675078 CTTTCAATTCCATTATGGATTAG CATAGTCAAGTGAGCCTCTGTTTCCTTAAAGAAAAATACAAT spacer
length: 40 repeater length: 23

2086 2675142 CTTTCAATTCCATTATGGATTAG CACTTTTATACGTATCCCCGCTTGTCGGCACCTTAAGTATTC spacer
length: 42 repeater length: 23

2087 2675208 CTTTCAATTCCATTATGGATTAG CAAAATAGCACCAGGAAGGAGACTATACCACCGGGTTATGA spacer

length: 41 repeater length: 23
2088 2675273 CTTTCAATTCCATTATGGATTAG CGACCTCAGTTTAAATGATATGACCTAGTTTTTACTTCCCAGTTAAC
spacer length: 46 repeater length: 23
2089 2675343 CTTTCAATTCCATTATGGATTAG CCTACTACTGATGATGGGAAAGCGTCAGAAGGATCTAAATTAA spacer
length: 43 repeater length: 23
2090 2675410 CTTTCAATTCCATTATGGATTAG CAACTGCCCTGAGCGTGATGTTAAACTCCCCAGTTTAATA spacer
length: 40 repeater length: 23
2091 2675474 CTTTCAATTCCATTATGGATTAG CCTGGTGAGGTTAGAATGCATGATGTAATACGTTTAGGAGA spacer
length: 41 repeater length: 23
2092 2675539 CTTTCAATTCCATTATGGATTAG CGAGACTGATTACTAGAAGAATTAAATAATTTTTGCATATCTT spacer
length: 43 repeater length: 23
2093 2675606 CTTTCAATTCCATTATGGATTAG CATCTCATGTTGATATTCTTCTTTAGCCTTCTCTAGAGCCATTT spacer
length: 44 repeater length: 23
2094 2675674 CTTTCAATTCCATTATGGATTAG CTTGCTCTGGTACTAGTACAACCTCTCTTTTGCCATC spacer length:
36 repeater length: 23
2095 2675734 CTTTCAATTCCATTATGGATTAG CTACATATTTCTGCTGTAGCTGCCATTTATATCATCTTACT spacer
length: 41 repeater length: 23
2096 2675799 CTTTCAATTCCATTATGGATTAG CACTATTACTCAAAGTATCCGTGATTATTATTACAATCA spacer
length: 39 repeater length: 23
2097 2675862 CTTTCAATTCCATTATGGATTAG CATCGCGGGCTGCTGGGTCAAGTTCAGACATGTGATGAGCGTA spacer
length: 43 repeater length: 23
2098 2675929 CTTTCAATTCCATTATGGATTAG CTCTATTATAGAGAAGAGATAGTACTTTTGCTTCTGGAGT spacer
length: 40 repeater length: 23
2099 2675993 CTTTCAATTCCATTATGGATTAG CTAAAAATTTTCCAATTTGAGGATTTCTATCATACTAAATATA spacer
length: 43 repeater length: 23
2100 2676060 CTTTCAATTCCATTATGGATTAG CTTGGAGAACCACCCTGAGCTTTCCGAAATCGTTAACAATAC spacer
length: 42 repeater length: 23
2101 2676126 CTTTCAATTCCATTATGGATTAG CTTCTGCACTAGAAGAACCATGCTCTTTATCAGAATTG spacer
length: 38 repeater length: 23
2102 2676188 CTTTCAATTCCATTATGGATTAG CAGCCAGCGAAGGATATGCAGTGATCGTTCATCATACTGA spacer
length: 40 repeater length: 23
2103 2676252 CTTTCAATTCCATTATGGATTAG CCCCTCGCTTAAACAGAACTGTTAGAGCAAGGCATAATTACAG spacer
length: 44 repeater length: 23
2104 2676320 CTTTCAATTCCATTATGGATTAG CTTAAAGGCGGTGCACCGCTACCCCCGTTTGCGGTAATGTAAA spacer
length: 43 repeater length: 23
2105 2676387 CTTTCAATTCCATTATGGATTAG CTGTTTCATATTTTCATATTTGCAATCTTCAAAATTTCCATAA spacer
length: 41 repeater length: 23
2106 2676452 CTTTCAATTCCATTATGGATTAG CAGCACCGAGTATAGCACCTTCATTAGCTTCTGAAGGACCT spacer
length: 42 repeater length: 23
2107 2676518 CTTTCAATTCCATTATGGATTAG CATAAACCAAAGAAGTGACATTTACGAATACTACTTTGAGT spacer
length: 41 repeater length: 23
2108 2676583 CTTTCAATTCCATTATGGATTAG CCCAAACTAATGAGTATCATAATCGAGTCACCAGATCA spacer
length: 39 repeater length: 23
2109 2676646 CTTTCAATTCCATTATGGATTAG CCACAGGTATCGCGAGGTCAGGGTTTGCTTTAACGAAAT spacer
length: 39 repeater length: 23
2110 2676709 CTTTCAATTCCATTATGGATTAG CTCTGCATTGTGTTATGATAAATACGGTCAGCTTGACGAG spacer
length: 41 repeater length: 23
2111 2676774 CTTTCAATTCCATTATGGATTAG CAAAGTTGAAGTAAAGGTTGTTAAATCATTAGAAAAATTGCCT spacer
length: 43 repeater length: 23
2112 2676841 CTTTCAATTCCATTATGGATTAG CCTCTATCCGGAAGAGTTTGCTAAGATTGACGAATTTTGTA spacer
length: 41 repeater length: 23
2113 2676906 CTTTCAATTCCATTATGGATTAG CTGTTCAAGGAGAAAGCAATAATCAAGGTAAGACAACTG spacer
length: 40 repeater length: 23
2114 2676970 CTTTCAATTCCATTATGGATTAG CTACAGTCCTGTGCGACGTAACATTTGCTTTGCGTAAGCAATACTG
spacer length: 46 repeater length: 23
2115 2677040 CTTTCAATTCCATTATGGATTAG CATCGGTAACCTCATCATAATAAGTAGCATAAACTACTCC spacer
length: 39 repeater length: 23
2116 2677103 CTTTCAATTCCATTATGGATTAG TATAGTCGTTATCTATAGCGTCCTGAATCCTCTCTAAAGCG spacer
length: 41 repeater length: 23
2117 2677168 CTTTCAATTCCATTATGGATTAG CGAAATCCAAAGGAGAAAGGAGAAAAAGCGGAAATTTT spacer
length: 39 repeater length: 23
2118 2677231 CTTTCAATTCCATTATGGATTAG CAACCAGTTTGAGGAGTTCCTTAACAAGTTCATCTTCAGA spacer
length: 40 repeater length: 23
2119 2677295 CTTTCAATTCCATTATGGATTAG CCGTTCATTTTATTAGGGCAGTTGGGTATACACAAGAATTATC spacer
length: 43 repeater length: 23
2120 2677362 CTTTCAATTCCATTATGGATTAG CACGGGGTATATTGTGATCTGGTTCTGACAAAGACGTTGA spacer
length: 40 repeater length: 23
2121 2677426 CTTTCAATTCCATTATGGATTAG CACAAGGAGGAGTATCTCGAGGTTGGGGAGGTTTCATATAGTT spacer
length: 42 repeater length: 23
2122 2677492 CTTTCAATTCCATTATGGATTAG CAGAGCTTGATTTAGAAGGAAAAATATGGTTGTATAATATAAAAT spacer
length: 45 repeater length: 23

2123 2677561 CTTTCAATTCCATTATGGATTAG CAGATAGCATAATCATAATTTAGATCTTTAGCATATTTTCATT spacer
 length: 42 repeater length: 23
 2124 2677627 CTTTCAATTCCATTATGGATTAG CAGGGAAAGGTTTCAGGTTTAAGGCTTATATTTACCGCTGA spacer
 length: 41 repeater length: 23
 2125 2677692 CTTTCAATTCCATTATGGATTAG CTCAAATTGGGACACAAACCATAACCCCAACAATTGAAGATA spacer
 length: 42 repeater length: 23
 2126 2677758 CTTTCAATTCCATTATGGATTAG CTTAAGTAGATATTCTGCCGCAAAATTCCTATGACAATAATGTTT spacer
 length: 45 repeater length: 23
 2127 2677827 CTTTCAATTCCATTATGGATTAG CTAATTTTGAGGGCGAAAATCGTAGGGGATGAAAGATATAC spacer
 length: 41 repeater length: 23
 2128 2677892 CTTTCAATTCCATTATGGATTAG CTTAAAATATAAAGACGTATTAAAGCTAGACGGGAAG spacer length:
 37 repeater length: 23
 2129 2677953 CTTTCAATTCCATTATGGATTAG CTGCCAATAACTATGAAATCAAGATATTTGACAGATGGATAA spacer
 length: 42 repeater length: 23
 2130 2678019 CTTTCAATTCCATTATGGATTAG AAGGATGATATTAAGGACATGGCAACTAAAAAGGATATTAAG
 2131
 2132
 2133 crispr 4
 2134 25999 TTCAATTCCTTTTGGGATTCATC TGTTAGTCGGTCTATGAATTTCTGTGGTAAACGCAAAATC spacer length:
 39 repeater length: 23
 2135 26062 TTCAATTCCTTTTGGGATTCATC TATCATATTTTCATCATTTTCTTTTCTTCACTAACAAATATATTC spacer
 length: 40 repeater length: 23
 2136 26126 TTCAATTCCTTTTGGGATTCATC GGTGAGGTCAAAGAATTAGAGAGTTGGCAATTATATAGTAC spacer
 length: 41 repeater length: 23
 2137 26191 TTCAATTCCTTTTGGGATTCATC CAGCTGACGTAGCCTCTGAGTTAGCTTTCCAGAAATATCTC spacer
 length: 41 repeater length: 23
 2138 26256 TTCAATTCCTTTTGGGATTCATC TATAATAAAGCCCTGGGAAAGGACAGACCCGATATTTTTTCGC spacer
 length: 42 repeater length: 23
 2139 26322 TTCAATTCCTTTTGGGATTCATC AGGACATTTGAGTATCTATAATATTCCAGAGCCAAGAGTC spacer
 length: 40 repeater length: 23
 2140 26386 TTCAATTCCTTTTGGGATTCATC TTGCTCAGCCTCATCAAATTTCTTCCTTTTCAATAAC spacer length:
 37 repeater length: 23
 2141 26447 TTCAATTCCTTTTGGGATTCATC TCAATTGTTTTCTTCAATTGTTTTTCTTCAGACATTTAC spacer length:
 39 repeater length: 23
 2142 26510 TTCAATTCCTTTTGGGATTCATC ACCAATTCGGCTGGAGACATACTGGTGCAGGAGGATTC spacer length:
 38 repeater length: 23
 2143 26572 TTCAATTCCTTTTGGGATTCATC AATCCCTGATTCAAGAACTATTGAGGAATTACTTCATAGC spacer
 length: 40 repeater length: 23
 2144 26636 TTCAATTCCTTTTGGGATTCATC GTAGTTGGTTCTTGAGTATCCTTACATATTCATCTATC spacer length:
 38 repeater length: 23
 2145 26698 TTCAATTCCTTTTGGGATTCATC TTGGCGTAACAATATTTGCTACTAACTTAGGTATTAATC spacer length:
 39 repeater length: 23
 2146 26761 TTCAATTCCTTTTGGGATTCATC GATTATCAATGACAATTCACAGACTTGCTAATTTCAAAC spacer length:
 39 repeater length: 23
 2147 26824 TTCAATTCCTTTTGGGATTCATC ATAGTTAATCCTCTTTGTAGCAAACTACTTTTAAATTCATTTTC spacer
 length: 44 repeater length: 23
 2148 26892 TTCAATTCCTTTTGGGATTCATC ACAATGGAACCTTCTGAACTCAACTCGTTGGATTAGTAC spacer length:
 39 repeater length: 23
 2149 26955 TTCAATTCCTTTTGGGATTCATC AAGAACGAAATACGTGAGAACGGTTTTAGTATATATGTATC spacer
 length: 41 repeater length: 23
 2150 27020 TTCAATTCCTTTTGGGATTCATC TATCAAATGTATGCCTATAGACGAATAATGAGATTAGTC spacer length:
 39 repeater length: 23
 2151 27083 TTCAATTCCTTTTGGGATTCATC TTTGTTTTAGGACTTCTTCTAGTTCTGATCCTCCAAA spacer length:
 37 repeater length: 23
 2152 27144 TTCAATTCCTTTTGGGATTCATC CACAACCTAAATATAAATATGCATTAAATGAAATTTCTAAC spacer
 length: 41 repeater length: 23
 2153 27209 TTCAATTCCTTTTGGGATTCATC AATGCGTCTGCAATAACTACGTTATCCCTCTTCTGTACCTC spacer
 length: 41 repeater length: 23
 2154 27274 TTCAATTCCTTTTGGGATTCATC TCTTTTGAGTTTATTAATTCTTCTTTTAAAGTTCTTTAACC spacer
 length: 40 repeater length: 23
 2155 27338 TTCAATTCCTTTTGGGATTCATC CCATTGAAATGCAAAAAGGTATGATAAAGACTCAAGCTAC spacer
 length: 40 repeater length: 23
 2156 27402 TTCAATTCCTTTTGGGATTCATC AACAGTTCCCCAGTTCTCAGGCCCGTTTCAACTAATAATC spacer
 length: 40 repeater length: 23
 2157 27466 TTCAATTCCTTTTGGGATTCATC CAGAGATATTATTTAACATATGTCGCTCCAGATCTTAAC spacer length:
 39 repeater length: 23
 2158 27529 TTCAATTCCTTTTGGGATTCATC TGCGACCACCAACGCGTTAGCCGTTTACAGACTGCCCTCC spacer
 length: 40 repeater length: 23
 2159 27593 TTCAATTCCTTTTGGGATTCATC ACGACTACAACAAGATACTACAAAAGTTGACAGAGATATTC spacer
 length: 41 repeater length: 23
 2160 27658 TTCAATTCCTTTTGGGATTCATC TTGTCTCTATGATTTTCATGAATCGCATCTCTTAGTTTTGC spacer

length: 40 repeater length: 23
2161 27722 TTCAATTCCTTTTGGGATTCATC ATAAATGGTTTTTCAGTTCCTTAACGTTTCATTTTTTTGTAC spacer
length: 40 repeater length: 23
2162 27786 TTCAATTCCTTTTGGGATTCATC CTGCTATTCTTGCTGAGAACTCGATTTAGCGGATATAGCAATC spacer
length: 44 repeater length: 23
2163 27854 TTCAATTCCTTTTGGGATTCATC GAACCTCCCAGAACTCAAAGTTAAGAAGACTAAACCC spacer length:
39 repeater length: 23
2164 27917 TTCAATTCCTTTTGGGATTCATC TTATAAATGTTGTATTAATAACTAGCTGACCGTTATACCC spacer
length: 40 repeater length: 23
2165 27981 TTCAATTCCTTTTGGGATTCATC AACACCACAATGTTATGTCGCTATGGGAGAATATAAGGC spacer length:
39 repeater length: 23
2166 28044 TTCAATTCCTTTTGGGATTCATC TTTGAGACATTAACACTCTGTACACCAGACAGAGTAACCTTC spacer
length: 42 repeater length: 23
2167 28110 TTCAATTCCTTTTGGGATTCATC TGAATTTCTTCACTCCAGAAAAGATAAATACTACC spacer length: 35
repeater length: 23
2168 28169 TTCAATTCCTTTTGGGATTCATC GAGAAAAAATAAATCCTTTAAACTGACCTCCTCCCTCCTTCC spacer
length: 43 repeater length: 23
2169 28236 TTCAATTCCTTTTGGGATTCATC ATAAGGAGCTTAAGGAGAGGATAGTAAAGGAGTAC spacer length: 35
repeater length: 23
2170 28295 TTCAATTCCTTTTGGGATTCATC GTGGGCATGAACCTTCTACGCCACGCATTGAGGATATAAC spacer
length: 40 repeater length: 23
2171 28359 TTCAATTCCTTTTGGGATTCATC TGAAGCTGGTGCTTACGGCTACCTCTGTGAGCATGTAAAC spacer
length: 40 repeater length: 23
2172 28423 TTCAATTCCTTTTGGGATTCATC TAGAAGATATAGAGCAAAATGTAAATAAAGAAGATTTTC spacer length:
38 repeater length: 23
2173 28485 TTCAATTCCTTTTGGGATTCATC CTTACTCATCTTCCTTCACCTCCATGTGCAATGATC spacer length: 36
repeater length: 23
2174 28545 TTCAATTCCTTTTGGGATTCATC ATATAACAGGGAAACCGAAGAAATTTGGAGTAGACTC spacer length:
37 repeater length: 23
2175 28606 TTCAATTCCTTTTGGGATTCATC TTCTGTTGATTTTTTCTTCTCCATTTTGCGATCACCTTTCC spacer
length: 42 repeater length: 23
2176 28672 TTCAATTCCTTTTGGGATTCATC AACAGTGGAAGGTTTACCTACAAGCTCTGCTTTACCACGC spacer
length: 40 repeater length: 23
2177 28736 TTCAATTCCTTTTGGGATTCATC ACCCAGATCCGCTTTACATAGAGGCTGTGCAATAAACGC spacer
length: 40 repeater length: 23
2178 28800 TTCAATTCCTTTTGGGATTCATC ATTCTACTAATGGTGCAGGGAATATTGTGGAATTTGTATAC spacer
length: 41 repeater length: 23
2179 28865 TTCAATTCCTTTTGGGATTCATC ATCATTATGCCACCTCAGTGGTGCAGTACTGCTAACGCGAC spacer
length: 42 repeater length: 23
2180 28931 TTCAATTCCTTTTGGGATTCATC ATAGTACAAATTTTTAGAAGAACAAAACCATAATTAGC spacer length:
39 repeater length: 23
2181 28994 TTCAATTCCTTTTGGGATTCATC AGAGCATCTCTGGTATGTCCGGTGAGGTGATAGTGTATGC spacer
length: 41 repeater length: 23
2182 29059 TTCAATTCCTTTTGGGATTCATC AAGCGTCTACTTTTTAGTAGATTCTTATAAACTCATAAAAC spacer
length: 41 repeater length: 23
2183 29124 TTCAATTCCTTTTGGGATTCATC ATGACATTGCGTCTGCGATGACTGAAGAGGAGTACAAAAC spacer
length: 41 repeater length: 23
2184 29189 TTCAATTCCTTTTGGGATTCATC GCGATGATGACGGATGGACAGGCTGACTTAAGATGAC spacer length:
37 repeater length: 23
2185 29250 TTCAATTCCTTTTGGGATTCATC ACGATTTTTGGCAATTAGTGGAAGAAAAGAAGCTAACAC spacer length:
39 repeater length: 23
2186 29313 TTCAATTCCTTTTGGGATTCATC GACTCCAGTTACATAAATTGCAAATAACATAATAATCCC spacer length:
39 repeater length: 23
2187 29376 TTCAATTCCTTTTGGGATTCATC GTACACCTAATGGAAAATGTAATCATCATGGACTGAGGGCGC spacer
length: 42 repeater length: 23
2188 29442 TTCAATTCCTTTTGGGATTCATC CTGGACTACAGTCAGTCAAATCTCTAATTCAAC spacer length: 34
repeater length: 23
2189 29500 TTCAATTCCTTTTGGGATTCATC GAAGTTGTTTCTTGATATTTTCAAATTCTACAATTGTATC spacer
length: 40 repeater length: 23
2190 29564 TTCAATTCCTTTTGGGATTCATC TGTGCCGATAATAAACCCCTGCGTATCGAAGGGCTGTATCC spacer
length: 40 repeater length: 23
2191 29628 TTCAATTCCTTTTGGGATTCATC GTTAACTTCTCAACTTGAGAACTCTAACTTTATAATCC spacer
length: 40 repeater length: 23
2192 29692 TTCAATTCCTTTTGGGATTCATC TATCTTAAGAGACTTTATGGAAATAAAGCCTTCAATAAC spacer length:
39 repeater length: 23
2193 29755 TTCAATTCCTTTTGGGATTCATC GAGGATTTTGTAAGAATAGATGAAATCAAAGCGGAATATAAAATC spacer
length: 45 repeater length: 23
2194 29824 TTCAATTCCTTTTGGGATTCATC AGAAATTGAAAGTTTAGAAAGAAAACATATATCACTC spacer
length: 40 repeater length: 23
2195 29888 TTCAATTCCTTTTGGGATTCATC CTCCAGTGGTTCTCATTTTGTGTGACGGTACTGAGTATAC spacer
length: 40 repeater length: 23

2196 29952 TTCAATTCCTTTTGGGATTCATC TTTATTGAAGACTATGATGAAGTTATTGTAGATAAC spacer length: 36
repeater length: 23

2197 30012 TTCAATTCCTTTTGGGATTCATC GTGGTCCATATCCGCCTTCATAAGGTTTAGGTAAAGTTATC spacer
length: 41 repeater length: 23

2198 30077 TTCAATTCCTTTTGGGATTCATC ATAATTGCGGGCAATTGCACCGTACCATGATGAAGCC spacer length:
38 repeater length: 23

2199 30139 TTCAATTCCTTTTGGGATTCATC ACGGGAAAATAATACATAACGTGAAAGATGTTAATAAAATC spacer
length: 41 repeater length: 23

2200 30204 TTCAATTCCTTTTGGGATTCATC GAAGTAGAAATAACAGAAAACCTCCCGTATCCTATTAATC spacer
length: 40 repeater length: 23

2201 30268 TTCAATTCCTTTTGGGATTCATC GGAATACCATCAACAAGCAACTTCTTGCCCTCATATTTTTTC spacer
length: 41 repeater length: 23

2202 30333 TTCAATTCCTTTTGGGATTCATC TTATTTGAAGGAATACAGTGTTTCTGACATGTCCTACACC spacer
length: 40 repeater length: 23

2203 30397 TTCAATTCCTTTTGGGATTCATC AAAGTAGAACACCCGGGCAGAGTAAGAAAATATTTAGAAC spacer
length: 40 repeater length: 23

2204 30461 TTCAATTCCTTTTGGGATTCATC TTAAAATCGGGTCGGCAAATCCAGAAAGGAACTGAAC spacer length:
38 repeater length: 23

2205 30523 TTCAATTCCTTTTGGGATTCATC AGAAGAAGAGGATAATACTTATACACCACATTATCTCATC spacer
length: 40 repeater length: 23

2206 30587 TTCAATTCCTTTTGGGATTCATC AAAGTAATGGCAACAAAGGATGATATTAAGGACATGGCAA

2207

2208

2209 crispr 5

2210 2662855 ACTTCATTAAGAGTGAAAAAGAG CTAAATTATGAGTTTCATCAGTCATACTTTCAATTCCATT spacer
length: 40 repeater length: 24

2211 2662920 ACTTCATTAAGAGTGAAAAAGAG GCCGTTAATGACCAATCTCTTTTTGCATCCCAGAAGTACTTT spacer
length: 42 repeater length: 24

2212 2662987 ACTTCATTAAGAGTGAAAAAGAG GATATTAAGGACATGGCAACTAAAAAGGATATTAAGAAGTTA

2213

2214

2215 crispr 6

2216 2694294 CTTTATTCATAATGCTAATTCCGT CGAAAAAGGTAGAAAATTATTACAGGTTCTTAAGGATAT spacer
length: 39 repeater length: 24

2217 2694358 CTTTATTCATAATGCTAATTCCGT TCACGCTCTTTCAACTCTGCTAGTAATTTTGCTCATGAACT spacer
length: 42 repeater length: 24

2218 2694425 CTTTATTCATAATGCTAATTCCGT TAATGGCAACAAAGGATGATATTAAGGACATGGCAACTAAAA

2219

2220

2221 crispr 7

2222 2664097 CTTTCAATTCCATTAAGGATTATC ATGGGTAGGTAACGTAATATAGACGATACGTCGAGAAGATTC spacer
length: 42 repeater length: 24

2223 2664164 CTTTCAATTCCATTAAGGATTATC TAATAAAAAGTAGTCAGCTTCATCTATGAATATTTTTGTAT spacer
length: 41 repeater length: 24

2224 2664230 CTTTCAATTCCATTAAGGATTATC CTAGGCTTGAAACCAATACTCTGTTTCTCACTTTTCATGTTTAAT spacer
length: 44 repeater length: 24

2225 2664299 CTTTCAATTCCATTAAGGATTATC TCTCTTTCAAATCACTTCAGTGGGGCTAGGATATACTTA spacer
length: 39 repeater length: 24

2226 2664363 CTTTCAATTCCATTAAGGATTATC AAAATGAGCTTGAAAAAATCGAAAACGAACTCAGGTTAATGA spacer
length: 42 repeater length: 24

2227 2664430 CTTTCAATTCCATTAAGGATTATC CCGAATTTACCTAGTGTGTTAGCATAAGAAGAAGTAGG spacer
length: 39 repeater length: 24

2228 2664494 CTTTCAATTCCATTAAGGATTATC CCAAAGATAGGGACATGGGAGGCGCTAGCGAAGTATAAAGT spacer
length: 41 repeater length: 24

2229 2664560 CTTTCAATTCCATTAAGGATTATC TGGACCAGATCGATAGCCGGGATTATAATAGATTTAATAA spacer
length: 40 repeater length: 24

2230 2664625 CTTTCAATTCCATTAAGGATTATC TTTATTATCATAATAATACCAGACTTTTCGTACTCTTTC spacer
length: 39 repeater length: 24

2231 2664689 CTTTCAATTCCATTAAGGATTATC ATTCAATATTTTGTATGGAGTTACAGCCCATAACAACGTT spacer
length: 39 repeater length: 24

2232 2664753 CTTTCAATTCCATTAAGGATTATC AGAACTTCGCGGTAAGGCAAACATCAATTGCAGTTTCTAG spacer
length: 40 repeater length: 24

2233 2664818 CTTTCAATTCCATTAAGGATTATC GGGGTAGCAATGCTAATTTTGGGTACTGATGATTCGGGTAA spacer
length: 41 repeater length: 24

2234 2664884 CTTTCAATTCCATTAAGGATTATC CAAATGTTTTGGGTAATGATATAACCACAGCTTGTAGCCTATT spacer
length: 42 repeater length: 24

2235 2664951 CTTTCAATTCCATTAAGGATTATC AGGGTGTGATATACCTAACATTTCGTTTCATTAGTGTAGCGT spacer
length: 42 repeater length: 24

2236 2665018 CTTTCAATTCCATTAAGGATTATC ATTAATTACTATGGAATCCGTGATATCCGGATAAGGCAATCC spacer
length: 42 repeater length: 24

2237 2665085 CTTTCAATTCCATTAAGGATTATC TTCGTTTCACGTCTTTCATAGTTAAAAATCAGTGTGAGA spacer

length: 39 repeater length: 24

2238 2665149 CTTTCAATTCCATTAAGGATTATC GTAAATGAATTGCCTGGTCTTCTCCACTCTGACAGTTGTAG spacer
length: 41 repeater length: 24

2239 2665215 CTTTCAATTCCATTAAGGATTATC
ATAAGCATCCCGTTATTAGGACCTAACACTACTACAGTCGTCTTTCAATTCCATTTATTAATTTACCGTATCCGCTTTTGCAA
spacer length: 83 repeater length: 24

2240 2665323 CTTTCAATTCCATTAAGGATTATC CCAAAGCTGATGACTGTTAAACTCGAGTCTTCAGATC spacer
length: 37 repeater length: 24

2241 2665385 CTTTCAATTCCATTAAGGATTATC AGGGCGGATTAGCAGTAAACGAAAGCGATTTCAGTAGAATACGAT spacer
length: 44 repeater length: 24

2242 2665454 CTTTCAATTCCATTAAGGATTATC CTTTACAATAAGAAAATTTAACAAAGACCTGAGACAGTTT spacer
length: 40 repeater length: 24

2243 2665519 CTTTCAATTCCATTAAGGATTATC AAAAATTAGAGAAGCTCGCAGAGGATGATGCTGAGACAA spacer
length: 39 repeater length: 24

2244 2665583 CTTTCAATTCCATTAAGGATTATC ATGAGGTAGTGGACATGCTTCGCGATGGTTCGCTAATTTG spacer
length: 40 repeater length: 24

2245 2665648 CTTTCAATTCCATTAAGGATTATC CAAGATGAAGTCGCATTAATTATAAGTTATCATGATAATGA spacer
length: 41 repeater length: 24

2246 2665714 CTTTCAATTCCATTAAGGATTATC AACTCATTAAGTAAAAGCCAATTGATCATCTATAACAG spacer
length: 39 repeater length: 24

2247 2665778 CTTTCAATTCCATTAAGGATTATC TAATATTAACAGTAATTTTTGAGTTATTAATGATAT spacer length:
36 repeater length: 24

2248 2665839 CTTTCAATTCCATTAAGGATTATC AAAAATTCAATCGCTTGTGGTTCAGCTGAACCGTCATAATATTCCA
spacer length: 46 repeater length: 24

2249 2665910 CTTTCAATTCCATTAAGGATTATC CTACAAAACCATTAAGGATTATC CTACAAAACCATTAAGGATTATC CTACAAAACCATTAAGGATTATC
length: 42 repeater length: 24

2250 2665977 CTTTCAATTCCATTAAGGATTATC CTACATGGATTGGAGCGCTAGATGCCGGCACACTAAAAG spacer
length: 39 repeater length: 24

2251 2666041 CTTTCAATTCCATTAAGGATTATC ATGATTGGTGGTAAAGCTGGGGATATTTGGCTGGTGTCTG spacer
length: 40 repeater length: 24

2252 2666106 CTTTCAATTCCATTAAGGATTATC GTATTTCGAACTTAATTTGAATATCTTCCCCTTAGGGGTA spacer
length: 40 repeater length: 24

2253 2666171 CTTTCAATTCCATTAAGGATTATC TTTACACTAGTAACTTAGTTACGTTAGTCTGGAAGTTCTG spacer
length: 41 repeater length: 24

2254 2666237 CTTTCAATTCCATTAAGGATTATC ATTTGCCCACTCTTCCAAATATGATATAGATATCTGTTTTAA spacer
length: 42 repeater length: 24

2255 2666304 CTTTCAATTCCATTAAGGATTATC CAGTTATATAGTAAAAGTTACGTCGAGTATGGAAAAA spacer
length: 37 repeater length: 24

2256 2666366 CTTTCAATTCCATTAAGGATTATC TCTTTATTGTGCATGACAGCCTAAATAAATATGCTCTGACT spacer
length: 41 repeater length: 24

2257 2666432 CTTTCAATTCCATTAAGGATTATC CACAGCTAGAAAAGAACAGAGTTCAAGTAAAAATGAACAA spacer
length: 40 repeater length: 24

2258 2666497 CTTTCAATTCCATTAAGGATTATC AACTCAGAGTAATTACAGTTAAACTGGATGAAGAACTAGTCCA spacer
length: 43 repeater length: 24

2259 2666565 CTTTCAATTCCATTAAGGATTATC CTGAACTTGGTGTACCGTTAGACGTCATAGACTTTATCC spacer
length: 39 repeater length: 24

2260 2666629 CTTTCAATTCCATTAAGGATTATC TTAAATATTTGCTTAAGCTCTTCCTCATCGTCAATAAA spacer
length: 38 repeater length: 24

2261 2666692 CTTTCAATTCCATTAAGGATTATC CTACCCCTAGGGTGTCTTAAGTCAATTCTTTTCTATTTTTT spacer
length: 42 repeater length: 24

2262 2666759 CTTTCAATTCCATTAAGGATTATC TTCTAAGAGCTTAACCACAAACAAATTTGACATAAAATAAGATAA
spacer length: 45 repeater length: 24

2263 2666829 CTTTCAATTCCATTAAGGATTATC TGGACTACAGTCAGTCAAAATCTCTAATTCAACATTTA spacer
length: 38 repeater length: 24

2264 2666892 CTTTCAATTCCATTAAGGATTATC TTCTGACCAGTCGACATGGAATTTTATAGTGAATAACA spacer
length: 38 repeater length: 24

2265 2666955 CTTTCAATTCCATTAAGGATTATC ATAGGAACATAAGATCCCTGTTGATATTTTACTCCAGTAGTAGCA
spacer length: 45 repeater length: 24

2266 2667025 CTTTCAATTCCATTAAGGATTATC CTGCTTAACAAGTTAAGCAGCAATTGTAGAGTGTATTCT spacer
length: 40 repeater length: 24

2267 2667090 CTTTCAATTCCATTAAGGATTATC GGATGATATTAAGGACATGGCAACTAAAAAGGATATTAAG

2268

2269

2270 crispr 8

2271 32702 GATGAATCCCAAAAAGGAATTGAAAG TTCCTAACTTCTTTTCGTAAATGTTAGGAAAAGATTTA spacer length:
37 repeater length: 25

2272 32765 GATGAATCCCAAAAAGGAATTGAAAG ATTAGCATCAACAATTTTCGATGAAGGAGTAGACATACC spacer
length: 39 repeater length: 25

2273 32830 GATGAATCCCAAAAAGGAATTGAAAG AACTAATAATATAGGATTTGTACGGAAGATGATA spacer length:
36 repeater length: 25

2274 32892 GATGAATCCCAAAAAGGAATTGAAAG ACTTTATCTTTTATACCGTAACTCTATACTGGAGAC spacer length:

35 repeater length: 25

2275 32953 GATGAATCCCAAAAGGAATTGAAAG AAGATAGATGACAAGATAACAATAAATTTTCATACAAATA spacer length: 39 repeater length: 25

2276 33018 GATGAATCCCAAAAGGAATTGAAAG CGTAATTAAGCCCCGATTTGTACACCACGCCGTGGGT spacer length: 37 repeater length: 25

2277 33081 GATGAATCCCAAAAGGAATTGAAAG TGATTGATCACAATGAGAAGACTGTAAAGCTGATAAA spacer length: 37 repeater length: 25

2278 33144 GATGAATCCCAAAAGGAATTGAAAG TGTTGAGGCATAAATTAATCTATCCTTAATGAAAA spacer length: 36 repeater length: 25

2279 33206 GATGAATCCCAAAAGGAATTGAAAG TTCTTCCTCAGCCTCCATTTTGTATGATTGTAGTGC spacer length: 39 repeater length: 25

2280 33271 GATGAATCCCAAAAGGAATTGAAAG TTCAATAATCTCTATCTTTCCAAAATCTGTAAATGAAGA spacer length: 39 repeater length: 25

2281 33336 GATGAATCCCAAAAGGAATTGAAAG TATGGGAATGTGAACAGCTTATCCTCATTTTATCCCCAA spacer length: 39 repeater length: 25

2282 33401 GATGAATCCCAAAAGGAATTGAAAG TTTCTGTAATCTCCCTGCTTTCTTAACGTTATCTTATCA spacer length: 39 repeater length: 25

2283 33466 GATGAATCCCAAAAGGAATTGAAAG ATGAACTGTTTGCCCTACTTGATAGCCACTGATTCAAT spacer length: 38 repeater length: 25

2284 33530 GATGAATCCCAAAAGGAATTGAAAG TCGCAAAGCGAAAAATTGAAAATTTTACAATCAA spacer length: 36 repeater length: 25

2285 33592 GATGAATCCCAAAAGGAATTGAAAG GTAAAAATGATGTTCAATAAGTTGTATGGAGATGAAAATTCA spacer length: 42 repeater length: 25

2286 33660 GATGAATCCCAAAAGGAATTGAAAG GAGATTATAGCCGAGATAATAGAAGAATCAAAGCCAAAT spacer length: 39 repeater length: 25

2287 33725 GATGAATCCCAAAAGGAATTGAAAG GTATACTCATTCATAATCTTTTCCATTAAAGCCAAAATA spacer length: 39 repeater length: 25

2288 33790 GATGAATCCCAAAAGGAATTGAAAG GTAAGAGTGTTGAAATATTCATCTACAATAAGTAATCAAAA spacer length: 42 repeater length: 25

2289 33858 GATGAATCCCAAAAGGAATTGAAAG TATTCATTAATTCAGACAGAAGAGAAGATTTTGATTATT spacer length: 40 repeater length: 25

2290 33924 GATGAATCCCAAAAGGAATTGAAAG CTCACTCTCTTGTAATTTTCTAGAGCGATTCTAAA spacer length: 36 repeater length: 25

2291 33986 GATGAATCCCAAAAGGAATTGAAAG CAGTATATTTGTTTAAGTTTCTTGATATTTTGTGCT spacer length: 39 repeater length: 25

2292 34051 GATGAATCCCAAAAGGAATTGAAAG AATATATTTGTTGATATTGAGGAAATTGGAACAAATAC spacer length: 37 repeater length: 25

2293 34114 GATGAATCCCAAAAGGAATTGAAAG ATATAACTTTACACACGTTACACAATAAACCATGAACCA spacer length: 39 repeater length: 25

2294 34179 GATGAATCCCAAAAGGAATTGAAAG TTTATTTTTATTTTTTCCGTTAGGGGTGGGGGATGTT spacer length: 38 repeater length: 25

2295 34243 GATGAATCCCAAAAGGAATTGAAAG GGTACATCTTGGCTTACTATTTTATAGGCTGTCTTCTCT spacer length: 39 repeater length: 25

2296 34308 GATGAATCCCAAAAGGAATTGAAAG GAAATCCTAAAGGCGGTTCAAATCCTTAGCGTAG spacer length: 35 repeater length: 25

2297 34369 GATGAATCCCAAAAGGAATTGAAAG TTTAATTTTCTTAAATAGTCAAAAAAGAACTACTTC spacer length: 37 repeater length: 25

2298 34432 GATGAATCCCAAAAGGAATTGAAAG TATTACTTTGTACATGCGTAATACTAAGATTGTTATT spacer length: 38 repeater length: 25

2299 34496 GATGAATCCCAAAAGGAATTGAAAG GAAGTAGTTAGTAAATGCTACTCGACGTGTGAAATAT spacer length: 38 repeater length: 25

2300 34560 GATGAATCCCAAAAGGAATTGAAAG CTAAAAAGAGACTTTTAACTGGGGAGTTTAATCACCGTC spacer length: 39 repeater length: 25

2301 34625 GATGAATCCCAAAAGGAATTGAAAG TAAAGCCGAATTGTTACTGTACAGTTTCTTTCTCAAC spacer length: 39 repeater length: 25

2302 34690 GATGAATCCCAAAAGGAATTGAAAG CTGTAACTAGAGTTGAAATAACACTTCTATCAAGAACA spacer length: 39 repeater length: 25

2303 34755 GATGAATCCCAAAAGGAATTGAAAG TTTGGCTATTTGATAGCTTGATTTAAGTCACTAATAG spacer length: 38 repeater length: 25

2304 34819 GATGAATCCCAAAAGGAATTGAAAG TTGGAATTTTGGCTCACCCTTTAAGTATTCATCT spacer length: 36 repeater length: 25

2305 34881 GATGAATCCCAAAAGGAATTGAAAG TTAACGGAATCGGTCTAGGTGATTTGCCATTTAA spacer length: 34 repeater length: 25

2306 34941 GATGAATCCCAAAAGGAATTGAAAG AGGAGGAGCTGAACGGTAACCCTATGGTTGACAGTGAGT spacer length: 39 repeater length: 25

2307 35006 GATGAATCCCAAAAGGAATTGAAAG CTTTTCTTTCTGAGTGTGGACAACAATTTCTAA spacer length: 34 repeater length: 25

2308 35066 GATGAATCCCAAAAGGAATTGAAAG TCTTCCTTTTGTGGCTAATTGGTCAAATGATGTTATC spacer length: 37 repeater length: 25

2309 35129 GATGAATCCCAAAAGGAATTGAAAG TAATATATCAAATATCTTTTGAATTGTTGAACAAGTTC spacer length: 38 repeater length: 25

2310 35193 GATGAATCCCAAAAGGAATTGAAAG TTCTACTTATCAAAC TAGTAGGTCTAACATATTACGTC spacer
length: 38 repeater length: 25
2311 35257 GATGAATCCCAAAAGGAATTGAAAG TAATAAGAAGAAAATTGCTAAATGTTTTGAATCATAATGC spacer
length: 40 repeater length: 25
2312 35323 GATGAATCCCAAAAGGAATTGAAAG AAGAAACCTTCAGAAATCCAAATTGAGATATGGTCA spacer length:
36 repeater length: 25
2313 35385 GATGAATCCCAAAAGGAATTGAAAG ATCACTAAATCATTAAC TCTGACTTTGAAAACCATCTCAG spacer
length: 40 repeater length: 25
2314 35451 GATGAATCCCAAAAGGAATTGAAAG AGCTTTCTTAATTAATCCACATGAACATGTCTTACTA spacer length:
37 repeater length: 25
2315 35514 GATGAATCCCAAAAGGAATTGAAAG GCAAAGTAGTACCTTCGGTTTTGTCTTATCCCGCTTAATA spacer
length: 39 repeater length: 25
2316 35579 GATGAATCCCAAAAGGAATTGAAAG AACTCCCTAACGAAC TCTATCTTATCTTGCTTATCCAATA spacer
length: 40 repeater length: 25
2317 35645 GATGAATCCCAAAAGGAATTGAAAG AAGATCCACTAACAGTGCTAAAGCCGATCATTGGTAACCGC spacer
length: 41 repeater length: 25
2318 35712 GATGAATCCCAAAAGGAATTGAAAG TTTGAGTTACTGTCAAAGATTAGCAATTTTTGT TTTGT spacer
length: 38 repeater length: 25
2319 35776 GATGAATCCCAAAAGGAATTGAAAG TTTCTTAACTACAGTGAGTGGAAATATATCTTTAGG spacer length:
36 repeater length: 25
2320 35838 GATGAATCCCAAAAGGAATTGAAAG GATCTTCATGACTATATTAAGTCTTTGGCTTTAGAA spacer length:
36 repeater length: 25
2321 35900 GATGAATCCCAAAAGGAATTGAAAG TTTAACCCCTCTTCAGTATCAAACAAGATTATCTTGT spacer length:
37 repeater length: 25
2322 35963 GATGAATCCCAAAAGGAATTGAAAG TTATGAAGAATAAGGATAACTTTGTTCTTGACAGAAGTG spacer
length: 39 repeater length: 25
2323 36028 GATGAATCCCAAAAGGAATTGAAAG ACGATTACTGGACAGGGTGGGATGGTGAAATTTA spacer length: 34
repeater length: 25
2324 36088 GATGAATCCCAAAAGGAATTGAAAG CGTACTAGTAGTAGCTCTTCTCTCACTATTTGCAATAAATT spacer
length: 41 repeater length: 25
2325 36155 GATGAATCCCAAAAGGAATTGAAAG CTGAATTTACCCCATGAATATTCTACTCCTGCATAACT spacer
length: 38 repeater length: 25
2326 36219 GATGAATCCCAAAAGGAATTGAAAG GGTAAGCCTTTTCGATTGGTACATTTAATTTACTGCCGT spacer
length: 39 repeater length: 25
2327 36284 GATGAATCCCAAAAGGAATTGAAAG AGCAGAATCTATAGGGAATTCAC TTGGAATTAATACT spacer length:
37 repeater length: 25
2328 36347 GATGAATCCCAAAAGGAATTGAAAG CTATCTCATTTTCCTTCGGCAATTCGGTCTGTTTTGA
2329
2330
2331 crispr 9
2332 1775915 AACAAAGAGTTGGAGGAAATAAAAGAAAGTAATGGCAACAAA
GGATGATATTAAGGACATGGCAACAAAAGAGGATCTGAAGAACTTAGCTACT spacer length: 52 repeater
length: 40
2333 1776008 AACAAAGAGTTGGAGGAAATAAAAGAAAGTAATGGCAACAAA
AGAGGACATCAAAAACATGGCAACAAAGGACGATTTGAAGAGTTTGGCAACA spacer length: 52 repeater
length: 40
2334 1776101 AACAAAGAGTTGGAGGAAATAAAAGAAAGTAATGGCAACAAA
TTACTTCATTTTTTCGTTTTTCTCCTTTATAAGTTTTTGT TTTTAAGGTTTTT
2335
2336
2337 GCA_000011585.1_ASM1158v1_genomic.fna(findCrispr):
2338 START REPEAT
SPACER
2339 GCA_000012285.1_ASM1228v1_genomic.fna(findCrispr):
2340 START REPEAT
SPACER
2341 crispr 1
2342 1670962 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTT spacer length:
36 repeater length: 23
2343 1671022 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length:
36 repeater length: 23
2344 1671082 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTC AAGGAAACA spacer length: 34
repeater length: 23
2345 1671140 GTAATAACGACAAGAACTAAAA CAATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer
length: 39 repeater length: 23
2346 1671203 GTAATAACGACAAGAACTAAAA CTAATGCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34
repeater length: 23
2347 1671261 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length:
35 repeater length: 23
2348 1671320 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTAAAAGTAACA spacer length:
36 repeater length: 23

2349 1671380 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length:
35 repeater length: 23

2350 1671439 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34
repeater length: 23

2351 1671497 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length:
35 repeater length: 23

2352 1671556 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length:
36 repeater length: 23

2353 1671616 GTAATAACGACAAGAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34
repeater length: 23

2354 1671674 GTAATAACGACAAGAACTAAAA CTACAATAATTTTCTAGATTTCCAGTAAATGATACAAATT spacer
length: 38 repeater length: 23

2355 1671736 GTAATAACGACAAGAACTAAAA CTTGTCATTAACTGACAACCTTTGTCTCTGACCCAA spacer length:
36 repeater length: 23

2356 1671796 GTAATAACGACAAGAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34
repeater length: 23

2357 1671854 GTAATAACGACAAGAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34
repeater length: 23

2358 1671912 GTAATAACGACAAGAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer
length: 39 repeater length: 23

2359 1671975 GTAATAACGACAAGAACTAAAA CGAATAATTGTAGATCAGCCATCAACTTCCACAC spacer length: 34
repeater length: 23

2360 1672033 GTAATAACGACAAGAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length:
36 repeater length: 23

2361 1672093 GTAATAACGACAAGAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer
length: 39 repeater length: 23

2362 1672156 GTAATAACGACAAGAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length:
37 repeater length: 23

2363 1672217 GTAATAACGACAAGAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33
repeater length: 23

2364 1672274 GTAATAACGACAAGAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length:
36 repeater length: 23

2365 1672334 GTAATAACGACAAGAACTAAAA CCAGGTTCAATTTTCTAGTAAATAATGGCATTACAA spacer length: 34
repeater length: 23

2366 1672392 GTAATAACGACAAGAACTAAAA CAACATCAGACTTTTGCCTTTTATTAGAAGGCTTTGG spacer
length: 38 repeater length: 23

2367 1672454 GTAATAACGACAAGAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34
repeater length: 23

2368 1672512 GTAATAACGACAAGAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length:
36 repeater length: 23

2369 1672572 GTAATAACGACAAGAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34
repeater length: 23

2370 1672630 GTAATAACGACAAGAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTTCT spacer
length: 39 repeater length: 23

2371 1672693 GTAATAACGACAAGAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
length: 39 repeater length: 23

2372 1672756 GTAATAACGACAAGAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length:
37 repeater length: 23

2373 1672817 GTAATAACGACAAGAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34
repeater length: 23

2374 1672875 GTAATAACGACAAGAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length:
37 repeater length: 23

2375 1672936 GTAATAACGACAAGAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length:
36 repeater length: 23

2376 1672996 GTAATAACGACAAGAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer
length: 38 repeater length: 23

2377 1673058 GTAATAACGACAAGAACTAAAA CCTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGA spacer length:
36 repeater length: 23

2378 1673118 GTAATAACGACAAGAACTAAAA ACTTTACAATAATTTTTTCAGGAAAACAAATTGA spacer length:
35 repeater length: 23

2379 1673177 GTAATAACGACAAGAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34
repeater length: 23

2380 1673235 GTAATAACGACAAGAACTAAAA CGAATGTGTCCCCCTAGAGTTTTTACCAAACAACC spacer length:
36 repeater length: 23

2381 1673295 GTAATAACGACAAGAACTAAAA CAAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length:
36 repeater length: 23

2382 1673355 GTAATAACGACAAGAACTAAAA CAACGTTACGACCACTACTACTCAGAAGAAGATAG spacer length:
35 repeater length: 23

2383 1673414 GTAATAACGACAAGAACTAAAA CGAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGA spacer length:
37 repeater length: 23

2384 1673475 GTAATAACGACAAGAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length:

35 repeater length: 23
 2385 1673534 GTAATAACGACAAGAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer
 length: 39 repeater length: 23
 2386 1673597 GTAATAACGACAAGAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length:
 35 repeater length: 23
 2387 1673656 GTAATAACGACAAGAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33
 repeater length: 23
 2388 1673713 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34
 repeater length: 23
 2389 1673771 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTTCTGTTG spacer length:
 35 repeater length: 23
 2390 1673830 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length:
 36 repeater length: 23
 2391 1673890 GTAATAACGACAAGAACTAAAA CACTATTACTTTTGAAAATATGTAGATAAGACTGG spacer length:
 35 repeater length: 23
 2392 1673949 GTAATAACGACAAGAACTAAAA TGGATTGACGTCACCTCAAGATCTATTACCTGTAA
 2393
 2394
 2395 crispr 2
 2396 1650669 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length:
 35 repeater length: 24
 2397 1650729 GTTTGTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length:
 34 repeater length: 24
 2398 1650788 GTTTGTAGTTTCTTGTCGTTATTAC TGATGTGCAATACCGGAGTCAAGATGTTGATGAAA spacer length:
 35 repeater length: 24
 2399 1650848 GTTTGTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length:
 36 repeater length: 24
 2400 1650909 GTTTGTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length:
 36 repeater length: 24
 2401 1650970 GTTTGTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length:
 34 repeater length: 24
 2402 1651029 GTTTGTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33
 repeater length: 24
 2403 1651087 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
 36 repeater length: 24
 2404 1651148 GTTTGTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length:
 34 repeater length: 24
 2405 1651207 GTTTGTAGTTTCTTGTCGTTATTAC TTTTATTTCTATATTTGAATAAAGCATAAAGTAAT spacer length:
 35 repeater length: 24
 2406 1651267 GTTTGTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACA spacer length:
 34 repeater length: 24
 2407 1651326 GTTTGTAGTTTCTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length:
 34 repeater length: 24
 2408 1651385 GTTTGTAGTTTCTTGTCGTTATTAC TATGTTTGTTGTATTGCTAGCGTAATATTGTATTAC spacer length:
 36 repeater length: 24
 2409 1651446 GTTTGTAGTTTCTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length:
 35 repeater length: 24
 2410 1651506 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
 36 repeater length: 24
 2411 1651567 GTTTGTAGTTTCTTGTCGTTATTAC TG TAGTAAATTGATATAATCGGATTGAAGAGAGT spacer length:
 34 repeater length: 24
 2412 1651626 GTTTGTAGTTTCTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33
 repeater length: 24
 2413 1651684 GTTTGTAGTTTCTTGTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length:
 36 repeater length: 24
 2414 1651745 GTTTGTAGTTTCTTGTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length:
 36 repeater length: 24
 2415 1651806 GTTTGTAGTTTCTTGTCGTTATTAC
 CGGTCTTCCAAAATTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA
 TGAAGAAGAAA spacer length: 97 repeater length: 24
 2416 1651928 GTTTGTAGTTTCTTGTCGTTATTAC TATCTAACCCTCTCTTTTCAACTCTTTGAAGATAAA spacer
 length: 37 repeater length: 24
 2417 1651990 GTTTGTAGTTTCTTGTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length:
 36 repeater length: 24
 2418 1652051 GTTTGTAGTTTCTTGTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAA spacer length:
 35 repeater length: 24
 2419 1652111 GTTTGTAGTTTCTTGTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACA spacer length:
 34 repeater length: 24
 2420 1652170 GTTTGTAGTTTCTTGTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTAATAATA spacer length:
 34 repeater length: 24
 2421 1652229 GTTTGTAGTTTCTTGTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33

repeater length: 24

2422 1652287 GTTTtagtttcttgTCGTTATTAC AACaagaattgatgaagTATTCAAAAGAGCGATATGA spacer length: 37 repeater length: 24

2423 1652349 GTTTtagtttcttgTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer length: 38 repeater length: 24

2424 1652412 GTTTtagtttcttgTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length: 34 repeater length: 24

2425 1652471 GTTTtagtttcttgTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length: 34 repeater length: 24

2426 1652530 GTTTtagtttcttgTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTG spacer length: 38 repeater length: 24

2427 1652593 GTTTtagtttcttgTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length: 35 repeater length: 24

2428 1652653 GTTTtagtttcttgTCGTTATTAC AATAAAAGGAGATTTcATAGACTCTATTCTCAA spacer length: 34 repeater length: 24

2429 1652712 GTTTtagtttcttgTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAAACGGCAGTTTTT spacer length: 35 repeater length: 24

2430 1652772 GTTTtagtttcttgTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGAAGTCTGAAAAT spacer length: 36 repeater length: 24

2431 1652833 GTTTtagtttcttgTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length: 36 repeater length: 24

2432 1652894 GTTTtagtttcttgTCGTTATTAC AGAGTGGCATAcCTTATTTGTTTTGTTGAGTTATGAA spacer length: 37 repeater length: 24

2433 1652956 GTTTtagtttcttgTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length: 34 repeater length: 24

2434 1653015 GTTTtagtttcttgTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTT spacer length: 32 repeater length: 24

2435 1653072 GTTTtagtttcttgTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length: 36 repeater length: 24

2436 1653133 GTTTtagtttcttgTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33 repeater length: 24

2437 1653191 GTTTtagtttcttgTCGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCAC spacer length: 36 repeater length: 24

2438 1653252 GTTTtagtttcttgTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length: 35 repeater length: 24

2439 1653312 GTTTtagtttcttgTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length: 36 repeater length: 24

2440 1653373 GTTTtagtttcttgTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGcAGT spacer length: 33 repeater length: 24

2441 1653431 GTTTtagtttcttgTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTA spacer length: 34 repeater length: 24

2442 1653490 GTTTtagtttcttgTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGT spacer length: 35 repeater length: 24

2443 1653550 GTTTtagtttcttgTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCAT spacer length: 36 repeater length: 24

2444 1653611 GTTTtagtttcttgTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGA spacer length: 35 repeater length: 24

2445 1653671 GTTTtagtttcttgTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGA spacer length: 33 repeater length: 24

2446 1653729 GTTTtagtttcttgTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length: 36 repeater length: 24

2447 1653790 GTTTtagtttcttgTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGG spacer length: 35 repeater length: 24

2448 1653850 GTTTtagtttcttgTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length: 36 repeater length: 24

2449 1653911 GTTTtagtttcttgTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGT spacer length: 33 repeater length: 24

2450 1653969 GTTTtagtttcttgTCGTTATTAC CTTcATACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer length: 39 repeater length: 24

2451 1654033 GTTTtagtttcttgTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTAT spacer length: 34 repeater length: 24

2452 1654092 GTTTtagtttcttgTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length: 34 repeater length: 24

2453 1654151 GTTTtagtttcttgTCGTTATTAC TACGCTCCATGCCAGCTGTGCTCTCATCAACACATA spacer length: 37 repeater length: 24

2454 1654213 GTTTtagtttcttgTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length: 34 repeater length: 24

2455 1654272 GTTTtagtttcttgTCGTTATTAC ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCGA spacer length: 35 repeater length: 24

2456 1654332 GTTTtagtttcttgTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAT spacer length: 33 repeater length: 24

2457 1654390 GTTTGTAGTTTCTTGTGCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length:
34 repeater length: 24

2458 1654449 GTTTGTAGTTTCTTGTGCGTTATTAC AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGA spacer
length: 37 repeater length: 24

2459 1654511 GTTTGTAGTTTCTTGTGCGTTATTAC TGACTTATTTTTTTGTCTTAACTTCACTACTCATTTTC spacer
length: 37 repeater length: 24

2460 1654573 GTTTGTAGTTTCTTGTGCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length:
35 repeater length: 24

2461 1654633 GTTTGTAGTTTCTTGTGCGTTATTAC TTCCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length:
35 repeater length: 24

2462 1654693 GTTTGTAGTTTCTTGTGCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length:
34 repeater length: 24

2463 1654752 GTTTGTAGTTTCTTGTGCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGG spacer length: 33
repeater length: 24

2464 1654810 GTTTGTAGTTTCTTGTGCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length:
34 repeater length: 24

2465 1654869 GTTTGTAGTTTCTTGTGCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33
repeater length: 24

2466 1654927 GTTTGTAGTTTCTTGTGCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length:
35 repeater length: 24

2467 1654987 GTTTGTAGTTTCTTGTGCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length:
35 repeater length: 24

2468 1655047 GTTTGTAGTTTCTTGTGCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer
length: 40 repeater length: 24

2469 1655112 GTTTGTAGTTTCTTGTGCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGA spacer length:
35 repeater length: 24

2470 1655172 GTTTGTAGTTTCTTGTGCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAG spacer length:
35 repeater length: 24

2471 1655232 GTTTGTAGTTTCTTGTGCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length:
34 repeater length: 24

2472 1655291 GTTTGTAGTTTCTTGTGCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAGACAT spacer length:
35 repeater length: 24

2473 1655351 GTTTGTAGTTTCTTGTGCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCA spacer length:
36 repeater length: 24

2474 1655412 GTTTGTAGTTTCTTGTGCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA spacer length:
36 repeater length: 24

2475 1655473 GTTTGTAGTTTCTTGTGCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG spacer length:
34 repeater length: 24

2476 1655532 GTTTGTAGTTTCTTGTGCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCG spacer length:
34 repeater length: 24

2477 1655591 GTTTGTAGTTTCTTGTGCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATA spacer length: 33
repeater length: 24

2478 1655649 GTTTGTAGTTTCTTGTGCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTA spacer length: 33
repeater length: 24

2479 1655707 GTTTGTAGTTTCTTGTGCGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACT spacer length: 33
repeater length: 24

2480 1655765 GTTTGTAGTTTCTTGTGCGTTATTAC TTTGATTAAAATGGGTTGGTATGGCATAAAAAA spacer length: 33
repeater length: 24

2481 1655823 GTTTGTAGTTTCTTGTGCGTTATTAC ATCGGAATTATAGGCGGATTTTTAACAATATTCCTAACA spacer
length: 39 repeater length: 24

2482 1655887 GTTTGTAGTTTCTTGTGCGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCA spacer length: 32
repeater length: 24

2483 1655944 GTTTGTAGTTTCTTGTGCGTTATTAC AGAAAGAGGAACATAAGGTCTAGATCTTACCCA spacer length: 33
repeater length: 24

2484 1656002 GTTTGTAGTTTCTTGTGCGTTATTAC TAATTCATCTTTATAGTGTAACTTTTTGAAATAA spacer length:
34 repeater length: 24

2485 1656061 GTTTGTAGTTTCTTGTGCGTTATTAC AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACT spacer
length: 38 repeater length: 24

2486 1656124 GTTTGTAGTTTCTTGTGCGTTATTAC TACACCAGTGAGAATGTCTTCCCGAACTACAAGA spacer length:
35 repeater length: 24

2487 1656184 GTTTGTAGTTTCTTGTGCGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATA spacer length:
34 repeater length: 24

2488 1656243 GTTTGTAGTTTCTTGTGCGTTATTAC GAATAGGGGATGCGATAAACAGTTAGCACACA spacer length:
34 repeater length: 24

2489 1656302 GTTTGTAGTTTCTTGTGCGTTATTAC GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTA spacer length:
34 repeater length: 24

2490 1656361 GTTTGTAGTTTCTTGTGCGTTATTAC ATTCAATTTTTTTTCGTTTTGTGCGTGAAATAAA spacer length:
34 repeater length: 24

2491 1656420 GTTTGTAGTTTCTTGTGCGTTATTAC GCTTGTGGTAACTATTCATCGTCATCAGCAAT spacer length: 33
repeater length: 24

2492 1656478 GTTTGTAGTTTCTTGTGCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTA spacer length:

36 repeater length: 24

2493 1656539 GTTTtagtttcttgTCGTTATTAC GTTTAAACGGTAAATAGATAAAACCAAGAAAAT spacer length: 34
34 repeater length: 24

2494 1656598 GTTTtagtttcttgTCGTTATTAC ACGTCTTGTCGCTGACTTGTAACATCGCTGTTCT spacer length: 34
34 repeater length: 24

2495 1656657 GTTTtagtttcttgTCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGTACAT spacer length: 33
repeater length: 24

2496 1656715 GTTTtagtttcttgTCGTTATTAC ATGCATTcATTAAAGACTTAACAATTCAAGAGT spacer length: 33
repeater length: 24

2497 1656773 GTTTtagtttcttgTCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAG spacer length: 33
repeater length: 24

2498 1656831 GTTTtagtttcttgTCGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT spacer length: 35
35 repeater length: 24

2499 1656891 GTTTtagtttcttgTCGTTATTAC AGATTTTATGAAACATTAACtATTTATTTTATCTA spacer length: 35
35 repeater length: 24

2500 1656951 GTTTtagtttcttgTCGTTATTAC ATTAATCAGATAGAACTAGCAGTGTttttttTATGT spacer length: 35
35 repeater length: 24

2501 1657011 GTTTtagtttcttgTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACtT spacer length: 35
35 repeater length: 24

2502 1657071 GTTTtagtttcttgTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATG spacer length: 34
34 repeater length: 24

2503 1657130 GTTTtagtttcttgTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTcAC spacer length: 34
34 repeater length: 24

2504 1657189 GTTTtagtttcttgTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTT spacer length: 34
34 repeater length: 24

2505 1657248 GTTTtagtttcttgTCGTTATTAC AGAGTACCTTTACCTAACCAGAGCGTCGTATATTA spacer length: 35
35 repeater length: 24

2506 1657308 GTTTtagtttcttgTCGTTATTAC TGtagTCTTGCGCAATACCTGCGCTCTTTAGCAG spacer length: 34
34 repeater length: 24

2507 1657367 GTTTtagtttcttgTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAAT spacer length: 33
repeater length: 24

2508 1657425 GTTTtagtttcttgTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAG spacer length: 34
34 repeater length: 24

2509 1657484 GTTTtagtttcttgTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT spacer length: 37
37 repeater length: 24

2510 1657546 GTTTtagtttcttgTCGTTATTAC TATATTTGGTCAAGTGTtTCTACAGCATTtTAA spacer length: 33
33 repeater length: 24

2511 1657604 GTTTtagtttcttgTCGTTATTAC GCAGAGTCTTTTCGCTACGTCTTTcAGCGTCTCAA spacer length: 34
34 repeater length: 24

2512 1657663 GTTTtagtttcttgTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC spacer length: 36
36 repeater length: 24

2513 1657724 GTTTtagtttcttgTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT spacer length: 36
36 repeater length: 24

2514 1657785 GTTTtagtttcttgTCGTTATTAC GTAGAAAGTCATAACCCAAAACtTCATTTTTTTTGT spacer length: 35
35 repeater length: 24

2515 1657845 GTTTtagtttcttgTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA spacer length: 34
34 repeater length: 24

2516 1657904 GTTTtagtttcttgTCGTTATTAC AGCTCCCATTAATAATCAGGACCACTCCAAATATC spacer length: 34
34 repeater length: 24

2517 1657963 GTTTtagtttcttgTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAATAATTTT spacer length: 35
35 repeater length: 24

2518 1658023 GTTTtagtttcttgTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA spacer length: 34
34 repeater length: 24

2519 1658082 GTTTtagtttcttgTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGGAACCACTATT spacer length: 38
38 repeater length: 24

2520 1658145 GTTTtagtttcttgTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length: 35
35 repeater length: 24

2521 1658205 GTTTtagtttcttgTCGTTATTAC AACTGAAGGAACCTTGtagAGCGGTATGCTTTGCTTCTTCT spacer length: 41
41 repeater length: 24

2522 1658271 GTTTtagtttcttgTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length: 36
36 repeater length: 24

2523 1658332 GTTTtagtttcttgTCGTTATTAC AATGAGATATTCACTGAGGTCATGGAGCGTGAA spacer length: 33
33 repeater length: 24

2524 1658390 GTTTtagtttcttgTCGTTATTAC TTTCTTATTTTTTTAAACGAGGGAAATGGTCAGGCTAAA spacer length: 38
38 repeater length: 24

2525 1658453 GTTTtagtttcttgTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCC spacer length: 31
31 repeater length: 24

2526 1658509 GTTTtagtttcttgTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC spacer length: 37
37 repeater length: 24

2527 1658571 GTTTtagtttcttgTCGTTATTAC TAAGCCTTACTCTTTACATTAAAGTAACAAGTAATA

2528

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2529
2530 crispr 3
2531 1786371 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 25
2532 1786437 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length:
35 repeater length: 25
2533 1786498 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 25
2534 1786560 CTTTCAATCCCTTATGGGATTCTTC TTAAACTGACAACTTTGTCTCTGACCCAAAGTAATA
2535
2536
2537 crispr 4
2538 1826032 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
length: 37 repeater length: 25
2539 1826095 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
length: 36 repeater length: 25
2540 1826157 CTTTCAATCCCTTTTGGGATTCATC TGC GGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
length: 40 repeater length: 25
2541 1826223 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
35 repeater length: 25
2542 1826284 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
length: 37 repeater length: 25
2543 1826347 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
length: 36 repeater length: 25
2544 1826409 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
length: 38 repeater length: 25
2545 1826473 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
length: 41 repeater length: 25
2546 1826540 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
length: 38 repeater length: 25
2547 1826604 CTTTCAATCCCTTTTGGGATTCATC ACAGGCATTAATACCTGCAAAGCCTAGGGTAATAACGA
2548
2549
2550 GCA_000012545.1_ASM1254v1_genomic.fna(findCrispr):
2551 START REPEAT
SPACER
2552 crispr 1
2553 1391347 GACCCGGGTTCAAATCCCGG
TCGTTGCATCTTTCATATGCGGTTGTAGTCTAGTCTGGCTAGGACTTGGGCCTTCCAAGCCTA spacer length: 63
repeater length: 20
2554 1391431 GACCCGGGTTCAAATCCCGG
CAGCCGCACTATACTTTTAAAAAATATTTCTAAAAAATTTATTTAAAAAAAATAACGTATTTTAAATATATGCGGTTGTAGTCTAG
TCTGGCTAGGACTTGGGCCTTCCAAGCCTA spacer length: 116 repeater length: 20
2555 1391568 GACCCGGGTTCAAATCCCGG
ACCAAGAAAAACCAAGAAAAACAGAAGACAAACCAAGAAAAAGAGGACCAGGAAGACCAAGAAAAACCAATAAAACAGAAGACAAAC
CAAGAAAAAGAGGACCAGGAAGACCAAGAA
2556
2557
2558 crispr 2
2559 490169 GTTAAAAATAGACTTAATAGTATGAAAAC CGGATTTGATTAAAACGTATTACCCAATCATATATTT spacer
length: 37 repeater length: 29
2560 490236 GTTAAAAATAGACTTAATAGTATGAAAAC TAGATATTTCAAATTTACAATTACCATTTAAAAAAA spacer
length: 36 repeater length: 29
2561 490302 GTTAAAAATAGACTTAATAGTATGAAAAC AAGAACGTTTTGCTTCTAATTCAGAGTATAATACTTT spacer
length: 37 repeater length: 29
2562 490369 GTTAAAAATAGACTTAATAGTATGAAAAC CCAATGAGGAAGAATATCTCGGTCTAGAAAAGGA spacer
length: 35 repeater length: 29
2563 490434 GTTAAAAATAGACTTAATAGTATGAAAAC AAGGAAATTATAATTATACTCACCAGTATGATATTA spacer
length: 36 repeater length: 29
2564 490500 GTTAAAAATAGACTTAATAGTATGAAAAC CAATAGAGGAATAAAAAACAATGTCAAGTATAATAAA spacer
length: 36 repeater length: 29
2565 490566 GTTAAAAATAGACTTAATAGTATGAAAAC TTGAGGTAGAAATTGATAATGAGTTCATTAATGAA spacer
length: 35 repeater length: 29
2566 490631 GTTAAAAATAGACTTAATAGTATGAAAAC TATATATGGAATAATATTGAAACAGTGTTTAAATA spacer
length: 36 repeater length: 29
2567 490697 GTTAAAAATAGACTTAATAGTATGAAAAC AACAAATAATATGTGTCATTATACTTATAGATTTTA spacer
length: 36 repeater length: 29
2568 490763 GTTAAAAATAGACTTAATAGTATGAAAAC CTGGATAATCAATCCCTTTAAACTAGCCGGACTA spacer
length: 35 repeater length: 29
2569 490828 GTTAAAAATAGACTTAATAGTATGAAAAC TTCGTAGAGGTGGTGAGTCCAACAATTTTATTTTTT spacer
length: 36 repeater length: 29

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2570	490894	GTTTAAATAGACTTAATAGTATGAAAAC	CATCTTCCCATTCATAGTCTTGTTTAAATTCTCCAT	spacer
		length: 36	repeater length: 29	
2571	490960	GTTTAAATAGACTTAATAGTATGAAAAC	TGATAACATTCAAAAAGATATGTGGAAAACAATCAA	spacer
		length: 36	repeater length: 29	
2572	491026	GTTTAAATAGACTTAATAGTATGAAAAC	CACTTGAAATAAAACACATAGTACAATTTCAACTG	spacer
		length: 35	repeater length: 29	
2573	491091	GTTTAAATAGACTTAATAGTATGAAAAC	AGGTCATCAATATCATATTCTTTTACAAGTGTATTT	spacer
		length: 36	repeater length: 29	
2574	491157	GTTTAAATAGACTTAATAGTATGAAAAC	TTATGAAAACAAGTGATGGAACAAATAAAACAATAA	spacer
		length: 36	repeater length: 29	
2575	491223	GTTTAAATAGACTTAATAGTATGAAAAC	GATGCTTTTAAATTAATATATTTTAATATTAATTC	spacer
		length: 35	repeater length: 29	
2576	491288	GTTTAAATAGACTTAATAGTATGAAAAC	ATAGTGAATATACAGACCCCCTTAAAAAGCCAACAAT	spacer
		length: 37	repeater length: 29	
2577	491355	GTTTAAATAGACTTAATAGTATGAAAAC	TGAAAATTGATTATAAAAAAGTAGGAGATGTATTTGA	spacer
		length: 37	repeater length: 29	
2578	491422	GTTTAAATAGACTTAATAGTATGAAAAC	TATGGAATCACGTAAAAGAGCAACGTTGGGTATC	spacer
		length: 35	repeater length: 29	
2579	491487	GTTTAAATAGACTTAATAGTATGAAAAC	TAACAAACTACTCAAAACAAAAATAACAGAAACAG	spacer
		length: 36	repeater length: 29	
2580	491553	GTTTAAATAGACTTAATAGTATGAAAAC	AAAATGGAGATAAAACAGATTATAAAATGGAACCTTAT	spacer
		length: 37	repeater length: 29	
2581	491620	GTTTAAATAGACTTAATAGTATGAAAAC	CTTAGATGCAGTAGAAATGAAAATCTGTTATACTA	spacer
		length: 35	repeater length: 29	
2582	491685	GTTTAAATAGACTTAATAGTATGAAAAC	CATCTTCTGTATTTGGTGGAGTAATATATTTTTCA	spacer
		length: 35	repeater length: 29	
2583	491750	GTTTAAATAGACTTAATAGTATGAAAAC	AACTCTTTTTCCTATTTATTCCTATTTTCAAATA	spacer
		length: 35	repeater length: 29	
2584	491815	GTTTAAATAGACTTAATAGTATGAAAAC	GGTTTATTAATTCATCTTCAATATGTTTCATGTAAT	spacer
		length: 36	repeater length: 29	
2585	491881	GTTTAAATAGACTTAATAGTATGAAAAC	TACCAATAAAATAGTCTTGATTTGTACTTTTAAGCTGG	spacer
		length: 38	repeater length: 29	
2586	491949	GTTTAAATAGACTTAATAGTATGAAAAC	AAATTATTGCTACAACAAAAGATACAATTACAATTAC	spacer
		length: 37	repeater length: 29	
2587	492016	GTTTAAATAGACTTAATAGTATGAAAAC	TTTCATTATTTTGTGTTCTTTGTTGTTGTAGTGT	spacer
		length: 35	repeater length: 29	
2588	492081	GTTTAAATAGACTTAATAGTATGAAAAC	AATGGATTTTGAGCATCATTATCAGGAGTAATACTTG	spacer
		length: 37	repeater length: 29	
2589	492148	GTTTAAATAGACTTAATAGTATGAAAAC	CAAATACTATAGATTACATAATACTTTTAACAGAAAA	spacer
		length: 37	repeater length: 29	
2590	492215	GTTTAAATAGACTTAATAGTATGAAAAC	TTTGTTTGAGGTGGAATTACTTGTGTATACATTGTAT	spacer
		length: 37	repeater length: 29	
2591	492282	GTTTAAATAGACTTAATAGTATGAAAAC	TTATTTAAATGAAAGTGATATACCTAATACAACCTC	spacer
		length: 35	repeater length: 29	
2592	492347	GTTTAAATAGACTTAATAGTATGAAAAC	GTAATGATTTCTACAGTGAAATTGAAGAATTTATA	spacer
		length: 35	repeater length: 29	
2593	492412	GTTTAAATAGACTTAATAGTATGAAAAC	TAATAGTGGACGTTTATATGTAAAGAATATTAAATT	spacer
		length: 36	repeater length: 29	
2594	492478	GTTTAAATAGACTTAATAGTATGAAAAC	CTAGACGAGGATAAAACAATTCCAAGTGATACATG	spacer
		length: 35	repeater length: 29	
2595	492543	GTTTAAATAGACTTAATAGTATGAAAAC	TAATGTTGCAAGACAAATAAAAGAAGTAATTAAGAA	spacer
		length: 36	repeater length: 29	
2596	492609	GTTTAAATAGACTTAATAGTATGAAAAC	TGATTATATTACTGAATCAGAAGCTTTTGACTACAT	spacer
		length: 36	repeater length: 29	
2597	492675	GTTTAAATAGACTTAATAGTATGAAAAC	TACTTCCTCTACTGCAACAATTCTATAAAAAAAT	spacer
		length: 35	repeater length: 29	
2598	492740	GTTTAAATAGACTTAATAGTATGAAAAC	TTTAATCTTCTAAAACATAAATAATCATACAAAAA	spacer
		length: 35	repeater length: 29	
2599	492805	GTTTAAATAGACTTAATAGTATGAAAAC	GCAAATGGTGTTGATACAAATAATATTCGGGAAATG	spacer
		length: 36	repeater length: 29	
2600	492871	GTTTAAATAGACTTAATAGTATGAAAAC	CACCTATATGTACTAGAATTTACGCCCATTTTCATAG	spacer
		length: 36	repeater length: 29	
2601	492937	GTTTAAATAGACTTAATAGTATGAAAAC	GCAAATGGTGTTGATACAAATAATATTCGGGAAATG	spacer
		length: 36	repeater length: 29	
2602	493003	GTTTAAATAGACTTAATAGTATGAAAAC	CACCTATATGTACTAGAATTTACGCCCATTTTCATAG	spacer
		length: 36	repeater length: 29	
2603	493069	GTTTAAATAGACTTAATAGTATGAAAAC	CCAACTGGGTAGAAGCAAATACTACTGCAAACAA	spacer
		length: 35	repeater length: 29	
2604	493134	GTTTAAATAGACTTAATAGTATGAAAAC	CATGAAAAATACATCACAAAAATAAAACAAGTTAC	spacer
		length: 36	repeater length: 29	
2605	493200	GTTTAAATAGACTTAATAGTATGAAAAC	TCTATTCTGTATATATTCAATTTAGGATAGAATTT	spacer

length: 35 repeater length: 29
2606 493265 GTTAAAAATAGACTTAATAGTATGAAAAC TAGTTTAGTGCCCTTAGTATTTAAAGGTTTGTTCAT spacer
length: 36 repeater length: 29
2607 493331 GTTAAAAATAGACTTAATAGTATGAAAAC GAATACAACACTTTAAATACTAGAAATGACAAATA spacer
length: 35 repeater length: 29
2608 493396 GTTAAAAATAGACTTAATAGTATGAAAAC ATCTATATTGGGAAAAAGAAGGCACTTCTTTTAG spacer
length: 35 repeater length: 29
2609 493461 GTTAAAAATAGACTTAATAGTATGAAAAC TTTTATTACTTGCTGCTAAATCCCATACACGACAAT spacer
length: 37 repeater length: 29
2610 493528 GTTAAAAATAGACTTAATAGTATGAAAAC TGGATATAATATGACTGAAATAGGTCGTAATAGTAAAGCT spacer
length: 40 repeater length: 29
2611 493598 GTTAAAAATAGACTTAATAGTATGAAAAC CGGAGATATGTGCCAATTAATTCATCACCTACCTCTTCA spacer
length: 39 repeater length: 29
2612 493667 GTTAAAAATAGACTTAATAGTATGAAAAC CAAAATTGGATGTGGACTATAAACAGCTACTTTTTTAAA spacer
length: 39 repeater length: 29
2613 493736 GTTAAAAATAGACTTAATAGTATGAAAAC
ACAAATAAAACACTAACAGAGTATAGTATTGATAATGTTTAAAAATAGACTTAATAATATGAAAACCTGAACACCATGAAAAGAAAT
GCCCGTGTTTTTATTTT spacer length: 103 repeater length: 29
2614 493869 GTTAAAAATAGACTTAATAGTATGAAAAC CACTCTCACAATCCTTATGATGAATGTATCTACTT spacer
length: 35 repeater length: 29
2615 493934 GTTAAAAATAGACTTAATAGTATGAAAAC GTCTTATCATCAGAATTTTCATCAACAACATCTATT spacer
length: 36 repeater length: 29
2616 494000 GTTAAAAATAGACTTAATAGTATGAAAAC CTTATGAAGGAGAAAAAGAAGTCGAATATAAAAGACA spacer
length: 37 repeater length: 29
2617 494067 GTTAAAAATAGACTTAATAGTATGAAAAC CACTTGTAAGTGTACCACCACCAGTATAACATAATA spacer
length: 36 repeater length: 29
2618 494133 GTTAAAAATAGACTTAATAGTATGAAAAC ACCAAGAAAACAGAAGACAAACCAAGAAAAAGAGGA
2619
2620
2621 crispr 3
2622 1529513 AAAAAGAGGACCAGGAAGACCAAGAAAAAC
CAATAAAACAGAAGATAAAATAGAAGTAGAAGATACAAGTAAACATACCCTACAATTATTGAAAAACAAGAACCACCAA
spacer length: 80 repeater length: 30
2623 1529624 AAAAAGAGGACCAGGAAGACCAAGAAAAAC TAAAAAACAGAAGACAAACCAAAGACAAACCAA spacer
length: 35 repeater length: 30
2624 1529690 AAAAAGAGGACCAGGAAGACCAAGAAAAAC CAAGAAAACAGAAGACAAACCAA spacer length: 23
repeater length: 30
2625 1529744 AAAAAGAGGACCAGGAAGACCAAGAAAAAC CAATAAAACAGAAGACAAACCAA spacer length: 23
repeater length: 30
2626 1529798 AAAAAGAGGACCAGGAAGACCAAGAAAAAC TAAGAAAACAGAAGACAAACCAA
2627
2628
2629 crispr 4
2630 1091284 AATAGAATAAGATCATAATGAAATTGAAAT ACGACACAAATGAATACAGATGCAACTCAAATTACA spacer
length: 36 repeater length: 30
2631 1091351 AATAGAATAAGATCATAATGAAATTGAAAT GGAAGAGACCATAAAAAATGTATTTACGGAATATAT spacer
length: 35 repeater length: 30
2632 1091417 AATAGAATAAGATCATAATGAAATTGAAAT TTTAAGTAACTCATCTGATAATTCAGTTAATGTTA spacer
length: 35 repeater length: 30
2633 1091483 AATAGAATAAGATCATAATGAAATTGAAAT ACTAATATCAACAAACGGAATTTACGACTATTTGG spacer
length: 36 repeater length: 30
2634 1091550 AATAGAATAAGATCATAATGAAATTGAAAT TAAGCATTACCATTAAACAAATTTACAGTTTTCTAC spacer
length: 35 repeater length: 30
2635 1091616 AATAGAATAAGATCATAATGAAATTGAAAT AAAGAACGTTTAATGATTAATTCATCTTCAGAGTCA spacer
length: 36 repeater length: 30
2636 1091683 AATAGAATAAGATCATAATGAAATTGAAAT TGATTTAGAAACATATCAATATCCATTGAAATAG spacer
length: 35 repeater length: 30
2637 1091749 AATAGAATAAGATCATAATGAAATTGAAAT TATTTTCTAATAAATAGAGTAATGCTTCATCATTAT spacer
length: 36 repeater length: 30
2638 1091816 AATAGAATAAGATCATAATGAAATTGAAAT TCAGCATCATTTACACTAGCAACAAGGGTAGGAGT spacer
length: 35 repeater length: 30
2639 1091882 AATAGAATAAGATCATAATGAAATTGAAAT AAGTAAAAAATAATAGAAAAA spacer
length: 36 repeater length: 30
2640 1091949 AATAGAATAAGATCATAATGAAATTGAAAT CTAAACTACACGTGTAGTAACAATACGTGTATCA spacer
length: 35 repeater length: 30
2641 1092015 AATAGAATAAGATCATAATGAAATTGAAAT GCAATTTATCCAGACCCTGTTTCATCGTTACTTCAA spacer
length: 36 repeater length: 30
2642 1092082 AATAGAATAAGATCATAATGAAATTGAAAT CACGTATATCCTGTGTCTTGTGCGTCATAATAGAT spacer
length: 35 repeater length: 30
2643 1092148 AATAGAATAAGATCATAATGAAATTGAAAT ACAGGAAATAATTTATTTAAAGTAAAAGAATTTGA spacer
length: 35 repeater length: 30

2644	1092214	AATAGAATAAGATCATAATGAAATTGAAAT	TATGTTGTTAATACTAATTCTTCTATTATCTTCTCAT	spacer
	length:	37	repeater length:	30
2645	1092282	AATAGAATAAGATCATAATGAAATTGAAAT	ACATCTTCAGCTTTATCTAATTTTTGAACATATCT	spacer
	length:	35	repeater length:	30
2646	1092348	AATAGAATAAGATCATAATGAAATTGAAAT	AATTGTGAAATAAAAAAGAAGATCTTTTAAACAA	spacer
	length:	35	repeater length:	30
2647	1092414	AATAGAATAAGATCATAATGAAATTGAAAT	AATTTAATTACATCAGAACTATTGATTCTGATGGT	spacer
	length:	36	repeater length:	30
2648	1092481	AATAGAATAAGATCATAATGAAATTGAAAT	AATAAAGATGTAGCTGAACGTACTTCTAAACGGTT	spacer
	length:	35	repeater length:	30
2649	1092547	AATAGAATAAGATCATAATGAAATTGAAAT	AGTACTAAGAAATGATTCCTCCATTAATATAACATT	spacer
	length:	36	repeater length:	30
2650	1092614	AATAGAATAAGATCATAATGAAATTGAAAT	TTTTCTTTACGTGTAGACCAGGAGATATATCTC	spacer
	length:	34	repeater length:	30
2651	1092679	AATAGAATAAGATCATAATGAAATTGAAAT	GAAACTGGTAAATTACTTTATTATGGACGTTTTAA	spacer
	length:	35	repeater length:	30
2652	1092745	AATAGAATAAGATCATAATGAAATTGAAAT	ATTGATATTGGAACAAGAGGATACACAAAATGGTCA	spacer
	length:	36	repeater length:	30
2653	1092812	AATAGAATAAGATCATAATGAAATTGAAAT	GCAAATGTATTTAAAGAACTTGTTACTAAACTTAA	spacer
	length:	35	repeater length:	30
2654	1092878	AATAGAATAAGATCATAATGAAATTGAAAT	TAAGAACTATCAAGCAATCCCTTATAATAACCTTTA	spacer
	length:	36	repeater length:	30
2655	1092945	AATAGAATAAGATCATAATGAAATTGAAAT	GTTGCATCACTAGGAAGAATAGTTTGAAGTAAATT	spacer
	length:	36	repeater length:	30
2656	1093012	AATAGAATAAGATCATAATGAAATTGAAAT	TCTAGTTTAGATGATGGTTCTACTTTATCTTTACC	spacer
	length:	35	repeater length:	30
2657	1093078	AATAGAATAAGATCATAATGAAATTGAAAT	GGTTTTAATCCACGGGTGATTAGTGATGAAGAGTTT	spacer
	length:	36	repeater length:	30
2658	1093145	AATAGAATAAGATCATAATGAAATTGAAAT	ACAGGCTGGTAAAAACATTTTTGGAGGAAATAA	spacer
	length:	34	repeater length:	30
2659	1093210	AATAGAATAAGATCATAATGAAATTGAAAT	TCTACGCTTGGTCTTGATTCATGTTTATATGTAAT	spacer
	length:	35	repeater length:	30
2660	1093276	AATAGAATAAGATCATAATGAAATTGAAAT	GAAGCAAAACAAAAGGAGATACTGCAAGAATACTTA	spacer
	length:	36	repeater length:	30
2661	1093343	AATAGAATAAGATCATAATGAAATTGAAAT	AGATTATCAACGCCTAGAATTTGTTGTATATCTTT	spacer
	length:	35	repeater length:	30
2662	1093409	AATAGAATAAGATCATAATGAAATTGAAAT	ATAGAAATCATAATGTATATTTCTGAATACATTTT	spacer
	length:	35	repeater length:	30
2663	1093475	AATAGAATAAGATCATAATGAAATTGAAAT	ATTACTGAAGAAGAGATTAATAATAAATTACCTGCA	spacer
	length:	36	repeater length:	30
2664	1093542	AATAGAATAAGATCATAATGAAATTGAAAT	GATACTATTGCAATTATTATATCTTGATTATACTT	spacer
	length:	35	repeater length:	30
2665	1093608	AATAGAATAAGATCATAATGAAATTGAAAT	AAATGAATTGCACATACAACAAGAATCATAGTACAAA	spacer
	length:	37	repeater length:	30
2666	1093676	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGCATTGATTGCAATATAATTGATTGTTTTCC	spacer
	length:	34	repeater length:	30
2667	1093741	AATAGAATAAGATCATAATGAAATTGAAAT	AAAATTAATAGGTGTTGGATTATCATAAGCAATAGT	spacer
	length:	36	repeater length:	30
2668	1093808	AATAGAATAAGATCATAATGAAATTGAAAT	AATCAGTTAATAGGAGAACCTAATAATGCATAAAGA	spacer
	length:	36	repeater length:	30
2669	1093875	AATAGAATAAGATCATAATGAAATTGAAAT	CTTTCAGGCACAAGTATAGCTGTATCTACTATTTTT	spacer
	length:	36	repeater length:	30
2670	1093942	AATAGAATAAGATCATAATGAAATTGAAAT	TAGTATACACATCTTTTGGTTTTATTGGAGTTTTCC	spacer
	length:	35	repeater length:	30
2671	1094008	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGTAAAAAAGAACTATTTTTTAGTTTCTTTTTAT	spacer
	length:	37	repeater length:	30
2672	1094076	AATAGAATAAGATCATAATGAAATTGAAAT	ATGGTTACTGTATTACTAATCCAATCACCACTTTAT	spacer
	length:	37	repeater length:	30
2673	1094144	AATAGAATAAGATCATAATGAAATTGAAAT	GATATGAAATCTACACAACCTACAAAAGATATGCA	spacer
	length:	35	repeater length:	30
2674	1094210	AATAGAATAAGATCATAATGAAATTGAAAT	TCTCTTGAAAATCCTGATAATAATACTTGATAG	spacer
	length:	35	repeater length:	30
2675	1094276	AATAGAATAAGATCATAATGAAATTGAAAT	CGTATAAGTTATGGTACATTTAAACAATGGCTGA	spacer
	length:	35	repeater length:	30
2676	1094342	AATAGAATAAGATCATAATGAAATTGAAAT	GAAGCAAACCATGAAAAACCACTGAAAGATGTAA	spacer
	length:	35	repeater length:	30
2677	1094408	AATAGAATAAGATCATAATGAAATTGAAAT	GGTGTTAGTACAGGTATGGACGGATTACTCCATGAA	spacer
	length:	36	repeater length:	30
2678	1094475	AATAGAATAAGATCATAATGAAATTGAAAT	ATAAAAATAACAAATGGAACAACAACAAAACAGT	spacer
	length:	35	repeater length:	30
2679	1094541	AATAGAATAAGATCATAATGAAATTGAAAT	GTCGTTGAACAAGAAATAAGAATTATAGAAAATAA	spacer

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length: 35 repeater length: 30
2680 1094607 AATAGAATAAGATCATAATGAAATTGAAAT TTAACATCTACAAGGTCATGAAGAAGTTTTGTTTCA spacer
length: 36 repeater length: 30
2681 1094674 AATAGAATAAGATCATAATGAAATTGAAAT CGATACATTTTTTAAATTACTTGTATCAGTAGTAAT spacer
length: 35 repeater length: 30
2682 1094740 AATAGAATAAGATCATAATGAAATTGAAAT ACTCTTACCCGATTTAATTATGAATATCTTCAAGCA spacer
length: 36 repeater length: 30
2683 1094807 AATAGAATAAGATCATAATGAAATTGAAAT GATGTAGAAGATGAAGTTGATGAATTTCTTGAAGA spacer
length: 35 repeater length: 30
2684 1094873 AATAGAATAAGATCATAATGAAATTGAAAT GATATCTTTCATATATTATCATTTTTTATCATATTTT spacer
length: 36 repeater length: 30
2685 1094940 AATAGAATAAGATCATAATGAAATTGAAAT AAGAAAACAGAAGACAAACCAAAAGACAAACCAAAA
2686
2687
2688 crispr 5
2689 831066 CTATTCCATCATCTTTCATCTTGTGCATTGTTGTTTTCTTC
TATTTTCATCATCTATTGTGTAGTATGGTTTGTTATCTATGTTATCTTCATCTTCTGGGTATGGTATGTAGTCTGTTTTATCTTCAT
TTTCATAG spacer length: 94 repeater length: 40
2690 831201 CTATTCCATCATCTTTCATCTTGTGCATTGTTGTTTTCTTC
TATTTTCATCATCTATTGTGTAGTATGGTTTGTTATCTTCATCTTCTAGGTATGGTGTGTAGTCTGTTTTATCTTCATTTTCATAG
spacer length: 85 repeater length: 40
2691 831327 CTATTCCATCATCTTTCATCTTGTGCATTGTTGTTTTCTTC
TTTGAAATACATCATTATAGAGTTTAAATAGACTTAATTGTAAAACCAAAAAAGATGTACTAACAAAAGAAAATAAAGAGAGT
2692
2693
2694 GCA_000013445.1_ASM1344v1_genomic.fna(findCrispr):
2695 START REPEAT
SPACER
2696 crispr 1
2697 1918645 ACTTCAGAAGGAAACAATTTT
ATTACAGAAGGAGACATTAGGACTTCAAAAGGAAACATTAGAACTTCAGAAGGAAACATTAG spacer length: 62
repeater length: 21
2698 1918729 ACTTCAGAAGGAAACAATTTT ATTACAGAAGGAGACATTAG spacer length: 20 repeater
length: 21
2699 1918771 ACTTCAGAAGGAAACAATTTT AATTGGAACCATGCAGAACT
2700
2701
2702 crispr 2
2703 1466829 GTGACCGTAGGTTTCAGGGGTG
ACTTCTTCGCCTAATTCAGGAGTGACTGTTGGCTCAGGGGTGACTTCTTCGCCTAATTCAGGAGTGACTGTTGGCTCAGGAGTATC
CTCTTCACCGATTACGGG spacer length: 104 repeater length: 21
2704 1466955 GTGACCGTAGGTTTCAGGGGTG
ACTTCTTCGCCTACTTCAGGAGTGACTGTTGGCTCAGGAGTATCCTCTTCACCGATTACGGG spacer length: 62
repeater length: 21
2705 1467039 GTGACCGTAGGTTTCAGGGGTG
ACCTCTTCGCCTACTTCAGGAGTGACTGTTGGCTCAGGAGTAACCTCTTCACCGAATTCAGGAGTGACTGTTGGCTCAGGGGTGAC
TTCTTCGCCTAACTCTGA spacer length: 104 repeater length: 21
2706 1467165 GTGACCGTAGGTTTCAGGGGTG
ACTTCTTCGCCTAATTCAGGAGTGACTGTTGGCTCAGGAGTAACCACTTCACCGAATTCAGGAGTGACTGTTGGCTCAGGGGTGAC
TTCTTCGCCTAACTCTGG spacer length: 104 repeater length: 21
2707 1467291 GTGACCGTAGGTTTCAGGGGTG
ACTTCTTCGCCTACTTCAGGAGTGACTGTTGGCTCAGGAGTATCCTCTTCACCGATTACGGG spacer length: 62
repeater length: 21
2708 1467375 GTGACCGTAGGTTTCAGGGGTG ACTTCTTCACCTAAATCCGG spacer length: 20 repeater
length: 21
2709 1467417 GTGACCGTAGGTTTCAGGGGTG AATTGGAACCATGCAGAACTC
2710
2711
2712 crispr 3
2713 1465917 TCAGCAGTAACCTCTTCACCT ACTTCAGGAGTGACCGTGGG spacer length: 20 repeater
length: 21
2714 1465959 TCAGCAGTAACCTCTTCACCT ACTTCAGGAGTGACCGTGGG spacer length: 20 repeater
length: 21
2715 1466001 TCAGCAGTAACCTCTTCACCT
ACTTCAGGAGTGACTGTTGGCTCAGGAGTAAACTCTTTACCGATTTTCGGGAGTGACCGTGGG spacer length: 62
repeater length: 21
2716 1466085 TCAGCAGTAACCTCTTCACCT
TCGCATCAATGCAGAAACCAAAATTCAACTGTCCCCCTTCCACCAGGGGTTTCTATCTAATTT
2717
2718
2719 crispr 4

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2720 467692 TCCGGTAATCTGATCTGGCAG
 AAATGTCTGGGTGGTTCGGATTTTGGAGTATGCACATTTCAGTTATTGAGACATCTGACGGGGGATACCTGATTGCAGGATATTCGTA
 TTCCAATGACGGCGATGTCTCCGAAAATCATGGCAACAGTGATTATTGGGTAATAAAGATTGATAA spacer length:
 152 repeater length: 21
 2721 467866 TCCGGTAATCTGATCTGGCAG
 AAGAGTCTAGGTGGATCAGATGATGATCATGCATATTCAGTCATTGAGACTTCAGATGGCGGATATCTGCTTGCCGGATATTCCTG
 GTCAGATGATGGCGATGTCTCTGGAAATCACGGATATGCTGACTATTGGGTAGTAAACTTGATAA spacer length:
 152 repeater length: 21
 2722 468040 TCCGGTAATCTGATCTGGCAG
 TTGGAACCATGCAGAACTCTCAAAAGTTCAACTCGTCTGAAATTGGAACATATGCAGGACGCTACCAAATTTAACAGTTCCATGATC
 GGTACTATGCAAAACACCGTCTCAAAATATCCCTCTCCCGCCAGGAGTGACAGTTTAAATTTATTCC
 2723
 2724
 2725 crispr 5
 2726 1467440 TTCTTCACCATACTCTGGAGT GACTGTCGGTTCAGGGGTGA spacer length: 20 repeater
 length: 21
 2727 1467482 TTCTTCACCATACTCTGGAGT GACTGTCGGTTCAGGGGTGA spacer length: 20 repeater
 length: 21
 2728 1467524 TTCTTCACCATACTCTGGAGT TTGGAACATATGCAGGACGCT
 2729
 2730
 2731 crispr 6
 2732 841176 GCCATACCCTTCTATTTTCGGGTCACTTGC AACGCAGACCGCGACGAGGCCTGGGGCAGACTGGAAAGT spacer
 length: 39 repeater length: 30
 2733 841246 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTATTTCTCCTTCAAAACGTTTAAATGTACTTATTCAGT
 spacer length: 40 repeater length: 30
 2734 841317 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAGCAGATGACATAGTAAACAGAATCACTGAACTGGT spacer
 length: 39 repeater length: 30
 2735 841387 GCCATACCCTTCTATTTTCGGGTCACTTGC AACCTATTCCCCTGCACGATTGAGAAACCCGGCGCATAGT
 spacer length: 40 repeater length: 30
 2736 841458 GCCATACCCTTCTATTTTCGGGTCACTTGC AACGACTCAAGTGCAAAGAAAGCAATCATAGAACTTCTGT
 spacer length: 40 repeater length: 30
 2737 841529 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTTTTCATCCCATGCAAACAGGTGCCGGGCAATCAGT spacer
 length: 38 repeater length: 30
 2738 841598 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTATCAGAATTCTGGAAAGCCGTCTCTCAAGAGCGTGTGGT
 spacer length: 43 repeater length: 30
 2739 841672 GCCATACCCTTCTATTTTCGGGTCACTTGC AACCCCTGTCACGAGATGACGTGTCAGCCATGAAGTGGT spacer
 length: 38 repeater length: 30
 2740 841741 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTATCAATTAACCTATGTTCTACTCTTCTGTATGTGT spacer
 length: 39 repeater length: 30
 2741 841811 GCCATACCCTTCTATTTTCGGGTCACTTGC AACATGCGTGCCCGCACGCCTGCACGTTGCCACCTTGGT spacer
 length: 39 repeater length: 30
 2742 841881 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTAACATTGCATTAGAACAACCTCTACGTGGACATCGT spacer
 length: 39 repeater length: 30
 2743 841951 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAAATAGCCCGTCGCCAGGCGATGGTATCACGAATGT spacer
 length: 39 repeater length: 30
 2744 842021 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTAACCGATTTTCAGGTTACCTTTATAGCATATAACAAGT
 spacer length: 41 repeater length: 30
 2745 842093 GCCATACCCTTCTATTTTCGGGTCACTTGC AACATCTCGAATTACAAGGTAGACCCATGGGGTCTATGT spacer
 length: 39 repeater length: 30
 2746 842163 GCCATACCCTTCTATTTTCGGGTCACTTGC AACCCAATACGTTGGTACGTAAAGTACGGATGTGAGGT spacer
 length: 39 repeater length: 30
 2747 842233 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTACTTTTTCCGTAAAGGAGCTGCTTACAGAACTGGT spacer
 length: 39 repeater length: 30
 2748 842303 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAACTAAAAGAGGGCCCCCTAAAATCTCTTAAAGT spacer
 length: 38 repeater length: 30
 2749 842372 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAACTATAGGGAAGGTAAATCTTTACCAGATACTGT spacer
 length: 39 repeater length: 30
 2750 842442 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAAAGGTTTCCATCCTCATAGAATGGAAACAAGCGGGT spacer
 length: 39 repeater length: 30
 2751 842512 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAGATGAGGTATTGGTGCTTAAAGGGCACCCGCTTGT spacer
 length: 39 repeater length: 30
 2752 842582 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAGGAAGAGTCGAACAACAAATTTCAAAAAATTGTAAGT
 spacer length: 41 repeater length: 30
 2753 842654 GCCATACCCTTCTATTTTCGGGTCACTTGC AACTGTGGTGACTTGAGTGGCACCCTATTAGCCGCAAGT
 spacer length: 40 repeater length: 30
 2754 842725 GCCATACCCTTCTATTTTCGGGTCACTTGC AACGGGGGCAGAGTTGCAGATGTTGATATTCACGCTGGT spacer
 length: 39 repeater length: 30
 2755 842795 GCCATACCCTTCTATTTTCGGGTCACTTGC AACGAGGACTTGAGTTGTCCCCTGTGCACAGTCGAAGT spacer
 length: 38 repeater length: 30
 2756 842864 GCCATACCCTTCTATTTTCGGGTCACTTGC AACAACTTCTCCAGCTTGTGCTCTATCTCTATATGATGGT

spacer length: 40 repeater length: 30
 2757 842935 GCCATACCCCTTCTATTTTCGGGTCACTTGC AACTCTCAAATGTAGTGGCCCTTCCCACAAGATTTATTGT
 spacer length: 40 repeater length: 30
 2758 843006 GCCATACCCCTTCTATTTTCGGGTCACTTGC AACTGTACCGTCCTTCCATGCTGCAAATCATTAACAGGT spacer
 length: 39 repeater length: 30
 2759 843076 GCCATACCCCTTCTATTTTCGGGTCACTTGC AACTCATAAGGTTGATCTCATGTTCTAACCAGGTTACGT spacer
 length: 39 repeater length: 30
 2760 843146 GCCATACCCCTTCTATTTTCGGGTCACTTGC AACACCCCAAAATTCATCTGAACGATAAATATTTTTTCGT
 spacer length: 41 repeater length: 30
 2761 843218 GCCATACCCCTTCTATTTTCGGGTCACTTGC GCAGAAACCAAATTCAACTGTCCCCCTTCCACCAGGGGTTT
 2762
 2763
 2764 crispr 7
 2765 2088864 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGATGAATTGAAACACCCTTGGATCATATATATAA
 spacer length: 36 repeater length: 37
 2766 2088938 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTTTTTGTTCTGTTGTTTGTATTTGAACCATCTA
 spacer length: 35 repeater length: 37
 2767 2089011 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGTTGCGATTATATGAAGATTATAAGAAAACGC
 spacer length: 34 repeater length: 37
 2768 2089083 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AAAAATCTATTACAGGGATACAACCTCGTTCTG
 spacer length: 34 repeater length: 37
 2769 2089155 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATCACTGAAGTTCCCTTAGGTGTTGGAGCATTAT
 spacer length: 34 repeater length: 37
 2770 2089227 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGTTTCCACATCAATTTTCATGGTATCACTCCG
 spacer length: 34 repeater length: 37
 2771 2089299 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTTGTTAATTTCTTTAATGCTGCATCACATACTA
 spacer length: 35 repeater length: 37
 2772 2089372 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGGGTCTTGGCCTGCATCATTGGGGGAAGTATA
 spacer length: 34 repeater length: 37
 2773 2089444 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGTGACATGGTCACATCAGTCAAAAAGGATCATG
 spacer length: 36 repeater length: 37
 2774 2089518 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACTATGAATCCTCACGACTTCAAGAGCCGGGCA
 spacer length: 34 repeater length: 37
 2775 2089590 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AACATCTGCAACTCTGCCTCCGCTTGTCAGATTAT
 spacer length: 35 repeater length: 37
 2776 2089663 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCGGTATATCACAAATCATCTGTTGAGTTATAAA
 spacer length: 34 repeater length: 37
 2777 2089735 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTTTACCTTTATGCGCTGAAACCGCTTCCATGGA
 spacer length: 34 repeater length: 37
 2778 2089807 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CGGAGAGCGGGATCCGGGAGTGAGCACACAGCAG
 spacer length: 34 repeater length: 37
 2779 2089879 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TCGAGGGGCTCTGGGGGCTCATGGGATCCGGACCCG
 spacer length: 36 repeater length: 37
 2780 2089953 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACCTGACCGGCCTTTATCGTTGCTCCGGCGGTGAA
 spacer length: 35 repeater length: 37
 2781 2090026 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AATTACCAAGTTTTTCACTGACATACTCGCATCAT
 spacer length: 35 repeater length: 37
 2782 2090099 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGGGCAGGCATGTGATGAGCGGACCAGTGGAAGTC
 spacer length: 35 repeater length: 37
 2783 2090172 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAGTATTTCTGGGGGTCTGTCGTAATTGCTGTCTG
 spacer length: 35 repeater length: 37
 2784 2090245 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GTAATCCTTGCGAGCGGGCTTTATGGTACAGTTAT
 spacer length: 35 repeater length: 37
 2785 2090318 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CAGGCATAAGGGCCTGGTTGAATGGCTAAAACT
 spacer length: 33 repeater length: 37
 2786 2090389 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTATATTGGGAATGTGAGCAATGGTGGATTTATG
 spacer length: 34 repeater length: 37
 2787 2090461 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATTCTTTCAGGGCTTTAAGGTCTTCGCTCATATA
 spacer length: 34 repeater length: 37
 2788 2090533 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC GAACGGAAGGCGCAAATCTCATAACGTTCTGGGATG
 spacer length: 36 repeater length: 37
 2789 2090607 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGCTGCCTTTCGCTCAAACCTCTTGGGGCGCCAG
 spacer length: 36 repeater length: 37
 2790 2090681 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ATATTCCGGTGTTAGAACC GCGGCTCTGCAGA
 spacer length: 33 repeater length: 37
 2791 2090752 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC AGTAGCAACACCGGCATACGAAGCGGGGTTACTC
 spacer length: 34 repeater length: 37
 2792 2090824 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACGTAGATCTCATGAGCAACATTGTGGCTGAACT
 spacer length: 34 repeater length: 37
 2793 2090896 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCATTTGGGTCTGTGTATCGAACTGCACATACCAC
 spacer length: 35 repeater length: 37

2794 2090969 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACGGGTCAGACCCTTCAATGTTTCAGCGACTCTGAAA
 spacer length: 36 repeater length: 37
 2795 2091043 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC CCGGTTCCCCGACATCGAAAGCGTCCCGGAGAGG
 spacer length: 34 repeater length: 37
 2796 2091115 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC CTGAATACCAAGCTAGACAAACTTTTGGCACACTTT
 spacer length: 36 repeater length: 37
 2797 2091189 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC CATTTACCCATTTCAGTACCAGTCCAAACATAACAA
 spacer length: 35 repeater length: 37
 2798 2091262 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC TGATCAGGGGAGTATGTGCAATGCTCAGTTACGAA
 spacer length: 35 repeater length: 37
 2799 2091335 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACACATTTTCTGCGCGCCACGTTACACATATCTG
 spacer length: 35 repeater length: 37
 2800 2091408 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC ACACCAGTCGTAACCGCTTCTGCTGCTGTTGCTG
 spacer length: 34 repeater length: 37
 2801 2091480 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC TCACATCGTATCCTGCCTTGAAATCAAGATATGC
 spacer length: 34 repeater length: 37
 2802 2091552 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC CAGACTATAATCAGCCGTCATTACCAGTCTCTCAA
 spacer length: 35 repeater length: 37
 2803 2091625 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC TTGTCTCCGGTCTTCAGGCATACCACCCGGTCAT
 spacer length: 34 repeater length: 37
 2804 2091697 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC TAATATATTAGACATTAATCCAAGTGGTAAATATT
 spacer length: 35 repeater length: 37
 2805 2091770 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC AGGTCACCCGGTTTGACGATGAGAGAGATTCAAGCC
 spacer length: 36 repeater length: 37
 2806 2091844 GTTTCAATCCCTATCGGGTTTTCTTTTCCATTGTGAC TCTCAAAAGTTCAACTCGTCTGAAATTGGAACATG
 2807
 2808
 2809 crispr 8
 2810 2337799 CAATTGATAGATACGGAACCTTGATCGGTTAAACAAGGC
 GATAGAACCTCGTGAATACCGAACTGGACCGGTTTAATAAGACACC spacer length: 45 repeater length: 38
 2811 2337883 CAATTGATAGATACGGAACCTTGATCGGTTAAACAAGGC
 GATAGAACCTCGTAAATACCGAACTGGACCGGTTTAATAAGACCCC spacer length: 45 repeater length: 38
 2812 2337967 CAATTGATAGATACGGAACCTTGATCGGTTAAACAAGGC
 CTACCAAATTTAACAGTTCCATGATCGGTACTATGCAAAACACCG
 2813
 2814
 2815 crispr 9
 2816 3490330 CATCCACCTGAAAAGTTCAACAGCTCAGAGATTGCATCAA
 TGCACACACCTGAAAAGTTCAACAGCTCAGAGATTGCATCAAT spacer length: 43 repeater length: 40
 2817 3490414 CATCCACCTGAAAAGTTCAACAGCTCAGAGATTGCATCAA
 TGCATCCACCTGAAAAGTTCAACAGCTCAGAGATCGCATCAAT spacer length: 43 repeater length: 40
 2818 3490498 CATCCACCTGAAAAGTTCAACAGCTCAGAGATTGCATCAA
 TGAAATTGGAACCATGCAGAACTCTCAAAAGTTCAACTCGTCT
 2819
 2820
 2821 crispr 10
 2822 1667431 CATCTACAACCGGAACAGCAGTGGGAACAGGACTCGGAAC
 AGCGGTAGCATCTACAACCGGAACCACAGGGGAACAGGACTCGGAACAGCGGTA spacer length: 55 repeater
 length: 40
 2823 1667527 CATCTACAACCGGAACAGCAGTGGGAACAGGACTCGGAAC
 GGTAGGAGCATCTACAACCGGAACCACGGTGGGAACAGGACTCGGAACAGCGGTA spacer length: 55 repeater
 length: 40
 2824 1667623 CATCTACAACCGGAACAGCAGTGGGAACAGGACTCGGAAC
 GGACTCGGAACGGCAGGAGCATCTACAACCGGAACCACGGTGGGAACAGGACTCG
 2825
 2826
 2827 crispr 11
 2828 1466221 CCTCTTCGCCTAACTCCGGAGTGACTGTCGGTTCAGGGGT
 AACTTCTTCACCATACTCCGGAGTAACCGTAGGTTTCAGGGGTAACTCTTCGCCTAACTCCGGAGTGACCGTAGGTTTCAGGGGT
 spacer length: 85 repeater length: 40
 2829 1466347 CCTCTTCGCCTAACTCCGGAGTGACTGTCGGTTCAGGGGT
 AACTTCTTCACCATACTCCGGAGTAACCGTAGGTTTCAGGGGTGACTTCTTACCTAACTCCGGAGTAACGTTCGGTTCAGGGGTGA
 CCTCTTCGCCTAACTCCGGAGTAACGTTCGGTTCAGGGGT spacer length: 127 repeater length: 40
 2830 1466515 CCTCTTCGCCTAACTCCGGAGTGACTGTCGGTTCAGGGGT
 CTGTCCCCCTCCACAGGGTTTCTATCTAATTTTCCCGATCTTTGTCGCTTTGAGTGCTATTTTTTTACTTATACATCGATGA
 GATGATATGCAGGCTCATCATGTCCTATTTATCTTTCTTAT
 2831
 2832
 2833 crispr 12
 2834 501385 GAGTGGGTGTAGGTGTCGGTGTTAGAGTTGGGGTGGGTGT
 AGGTGTCGGAGTTAGAGTTGGAGTGGGTGTAGGAGTCGGTGTTAGAGTT spacer length: 49 repeater length:

40
2835 501475 GAGTGGGTGTAGGTGTCGGTGTTAGAGTTGGGGTGGGTGT
AGGTGTCGGTGTTAGAGTTGGGGTGGGTGTAGGTGTCGGTGTTAGAGTTGGGGTGGGTGTAGGTGTCGGAGTTAGAGTTGGAGTGG
GTGTAGGAGTCGGTGTTAGAGTT spacer length: 109 repeater length: 40
2836 501625 GAGTGGGTGTAGGTGTCGGTGTTAGAGTTGGGGTGGGTGT
TCAACAGCTCAGAGATCGCATCAATGCACACACCTGAAAAGTTCAACAGCTCAGAGATCGCATCAATGCAGAAACCAATTCAACT
GTCCCCCTTCCACCAGGGGTTTC

2837
2838
2839 crispr 13
2840 1467968 GGAATTGCCAGTAGTGATTACGGGAGTAGAGGTTGGAGAC
ACAGTGGCTACAACAACCTGGTGTGTAGGAGTGACCACGGGTGTACTTGTAACGGTGGGCATTACAGTCGGAGTGGCAGTCCTTTG
ACTGTTGACATTGGCTTTGTCAATTCAATTTCC spacer length: 118 repeater length: 40
2841 1468127 GGAATTGCCAGTAGTGATTACGGGAGTAGAGGTTGGAGAC
ACAGTGGCTACAACAACCTGGTGTGTAGGAGTGACCACGGGTGTACTTGTAACGGTGGGCATTACAGTCGGAGTGGCAGTCCTCTG
ACTGTTGATATTGGCTTTGTCAATTCAATTTCC spacer length: 118 repeater length: 40
2842 1468286 GGAATTGCCAGTAGTGATTACGGGAGTAGAGGTTGGAGAC
ACAGTGGCTACAACAACCTGGTGTGTAGGAGTGACCACGGGTGTACTTGTAACGGTGGGCATTACAGTCGGAGTGGCAGTCCTCTG
ACTGTTGACATTGGCTTTGTCAATTCAATTTCC spacer length: 118 repeater length: 40
2843 1468445 GGAATTGCCAGTAGTGATTACGGGAGTAGAGGTTGGAGAC
ACAACCGGAACAGCAGTGGGAACAGGACTCGGAACAGCGGTGACCTCTACAACCGGAACAGCAGTGGGAACAGGACTCGGAACAGC
GGTGACCTCTACAACCGGAACAGCAGTGGGAA

2844
2845
2846 crispr 14
2847 2093953 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGACCCT GATTCTACGGGCCTTTTCAAGTGCAGTTTCCA
spacer length: 32 repeater length: 40
2848 2094026 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGACCCT CATGGATCGGTTGACTGAAAACCTCAGTAGCCA
spacer length: 32 repeater length: 40
2849 2094099 GTTTC AATCCCTATCGGGTTTTCTTTTCCATTGTGACCCT GGAAC TATGCAGGACGCTACCAAATTTAACAG
2850
2851
2852 crispr 15
2853 3489642 TCAACTCATCTGAAATTGGAACCATGCAGAACTCTCAAAA
GTTCAACTCGTCTGAAATTGGAACCATGCAGAACTCTCAAAAAGTTCAACTCATCTGAAATTGGAAC TATGCAGAACTCAAAAAAG
spacer length: 85 repeater length: 40
2854 3489768 TCAACTCATCTGAAATTGGAACCATGCAGAACTCTCAAAA
GTTCAACTCGTCTGAAATTGGAACCATGCAGAACTCAAAAAAGTTCAACTCATCTGAAATTGGAAC TATGCAGAACTCAAAAAAG
spacer length: 85 repeater length: 40
2855 3489894 TCAACTCATCTGAAATTGGAACCATGCAGAACTCTCAAAA
GCCTCTACAACCGGAACCATCGGTGGGAACAGGACTCGGAACAGCGGTGACCTCTACAACCGGAACAGCAGTGGGAACAGGACTCG

2856
2857
2858 GCA_000014945.1_ASM1494v1_genomic.fna (findCrispr):
2859 START REPEAT
SPACER

2860 crispr 1
2861 1557651 CCCAAGAACTCATAGCAGGACCAG AAATCCCCCAGGATAGCACAGATGCCGCGCCGGATGCACCGTAACCATT
spacer length: 49 repeater length: 24
2862 1557725 CCCAAGAACTCATAGCAGGACCAG TGTGAGGGCAACGGTTGGGATTGTTCAACACCCAGAAAGGTAACCATT
spacer length: 48 repeater length: 24
2863 1557798 CCCAAGAACTCATAGCAGGACCAG AGGGATTGAAACGTAGAAATTCTCACAGAAAGAGCTTTCCGGTGATTG
2864
2865
2866 crispr 2
2867 1566093 GCATTTATCCTCTATCATCCCTTA TACGAAGAAGAGCGCGAGAGAAGAAAAGATCCTCGAGCTCATTCTC
spacer length: 46 repeater length: 24
2868 1566164 GCATTTATCCTCTATCATCCCTTA TACGAAGAAGAGCGCGAGAGAAGAAAAGATCCTCGAGCTCATTCTC
spacer length: 46 repeater length: 24
2869 1566235 GCATTTATCCTCTATCATCCCTTA CACGAAGAAGAGCGCGAGAGAAGAAAAGATCCTCGAGCTCATTCTC
spacer length: 46 repeater length: 24
2870 1566306 GCATTTATCCTCTATCATCCCTTA CACGAAGAAGAGCGCGAGAGAAGAAAAGATCCTCGAGCTCATTCTC
spacer length: 46 repeater length: 24
2871 1566377 GCATTTATCCTCTATCATCCCTTA GCAGCAAGACAATGCCTCTCAAGTCATTAGATGGATAAGAGCGTTG
2872
2873
2874 crispr 3
2875 411577 GCTAAAAGCACTCTACTTTCTAGAAGC ACTTTCTAGACCGTGTCCAGTAACGTCTAGCCTAGCGTAGGGA
spacer length: 43 repeater length: 27
2876 411648 GCTAAAAGCACTCTACTTTCTAGAAGC ACTTTCTAGACCGTGTCCAGTAACGTCTGGCCTAGCGTAGGGA
spacer length: 43 repeater length: 27

2877 411719 GCTAAAAGCACTCTACTTTCTAGAAGC TTCATCTCTTATTGGGACAGGTCCTCTGTGTGAACGTGTCCGA
 2878
 2879
 2880 crispr 4
 2881 1340928 GAGATATCGGGAGAGTATTCAAATGGCAGTGCATC CGGCATCGTTGATCCTGATCTACGAGAGCTTGTTG
 spacer length: 35 repeater length: 35
 2882 1340999 GAGATATCGGGAGAGTATTCAAATGGCAGTGCATC CAGCATCGTTGATCCTGATCTACGAGAGCTTGTTG
 spacer length: 35 repeater length: 35
 2883 1341070 GAGATATCGGGAGAGTATTCAAATGGCAGTGCATC CAGCATCGTTGATCCTGATCTACGAGAGCTTGTTG
 spacer length: 35 repeater length: 35
 2884 1341141 GAGATATCGGGAGAGTATTCAAATGGCAGTGCATC GTAGAAATTCTCACAGAAAGAGCTTCCGGTGATT
 2885
 2886
 2887 crispr 5
 2888 670839 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTTCCGGATTAGAATAATAAGGAACCTCCGGTACGG
 spacer length: 36 repeater length: 37
 2889 670913 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GGTATACTAAGCGTACCGTTCGTCTCAACATCGACT
 spacer length: 36 repeater length: 37
 2890 670987 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACACCATATGCTCCGGGCAGAGGAGCATGTTTCACAC
 spacer length: 36 repeater length: 37
 2891 671061 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCAGTCCTCCTCCTCAGGAGGACTGGCTTTTTTCAA
 spacer length: 35 repeater length: 37
 2892 671134 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CACAATAAATCCCCCTTTGAAAACGAGTTCAAG
 spacer length: 33 repeater length: 37
 2893 671205 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATGTAGCTGCATATCTACACCTCCACGGATATAAGA
 spacer length: 37 repeater length: 37
 2894 671280 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCTTCTGGCTCTGGCACGGCGAGAACTATCTCGCCG
 spacer length: 36 repeater length: 37
 2895 671354 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCAAATTACCAAGACAAACATGCTTGTCATGGGT
 spacer length: 35 repeater length: 37
 2896 671427 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTGCGAACTTTGCCATGAGCACCTCTTCGTGAGGTGC
 spacer length: 37 repeater length: 37
 2897 671502 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GATGATTAATCTCATAACTGGTGAGATTTTCGACTCT
 spacer length: 37 repeater length: 37
 2898 671577 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTGTTGATGGTGCTCAGTGACGTTTCGATAGAAG
 spacer length: 35 repeater length: 37
 2899 671650 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AACTGATTTTCCTTGTCGGCAAATTTGTTGTTGTAG
 spacer length: 35 repeater length: 37
 2900 671723 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCCTAGCCCTTTATTGCTGGCTGGAGCTTCTGC
 spacer length: 36 repeater length: 37
 2901 671797 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TACAATTCCTTCCCGCACTCTGAGCACCTCACGA
 spacer length: 34 repeater length: 37
 2902 671869 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AGATGAACTGATACCAGTTCACCTCGGTCGTTTCG
 spacer length: 35 repeater length: 37
 2903 671942 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GGAAATCCCAGACCCCGCTGAGTGTATCTTTCAGT
 spacer length: 35 repeater length: 37
 2904 672015 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCATTCTCGAGCGGAAACGCGCTCGGGCCGAGG
 spacer length: 34 repeater length: 37
 2905 672087 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACTGCCTGCTGCTCAAAGCCGGCGAAGGTGAACCT
 spacer length: 35 repeater length: 37
 2906 672160 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AGGTATCAGGAGACCTGCGGAGCAAGTACACTCCAG
 spacer length: 36 repeater length: 37
 2907 672234 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCGACGATTTTGACTCAAACCAAGCGGTGTATGTCTGA
 spacer length: 37 repeater length: 37
 2908 672309 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC
 TCGTTTTTTGTCGCGCGCACAATCTCACGATACCAACATCATCA spacer length: 44 repeater length: 37
 2909 672391 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCAGCAGCGATCTTACCTCTGAGCAATACTCGCCG
 spacer length: 35 repeater length: 37
 2910 672464 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATGAACTCATCCGAGCGATTCTGTAGATCTGGCC
 spacer length: 35 repeater length: 37
 2911 672537 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACTACTCCTTTGTCTGGAAGATCCAGCATTTACT
 spacer length: 34 repeater length: 37
 2912 672609 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGGCGTCATCAGAATAACCAAGAGCTTTCATTAG
 spacer length: 34 repeater length: 37
 2913 672681 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATTAAATCCTTATCCAGCCTGGTTAAGCCTTACGA
 spacer length: 35 repeater length: 37
 2914 672754 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCTACTAGCGTCGCTTGCGGCGCAAGTAGATATAG
 spacer length: 36 repeater length: 37
 2915 672828 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAGAATTGTAACCTCGTATTAATGGGGCAAATCA
 spacer length: 33 repeater length: 37
 2916 672899 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCTCGGTAAACGGCGAGATAGTCCTCGCCGTCCCA

spacer length: 35 repeater length: 37
 2917 672972 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCTACGCCATACGGCTAGCGTGAAAAAAATGCCGT
 spacer length: 37 repeater length: 37
 2918 673047 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGCCTCCCAGTTCTCGTCGTTCCATACTGTCTCA
 spacer length: 34 repeater length: 37
 2919 673119 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAGTTCCAGGTACTTCTCCTGTCCCGGTGGAATGA
 spacer length: 35 repeater length: 37
 2920 673192 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAAGATGTCATGATCGCATCGGTGATCGGCTCGG
 spacer length: 34 repeater length: 37
 2921 673264 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC
 ACAGCTTAGCGGTCTTGTCTGGCCCCGACAGCGCTCCTCCT spacer length: 42 repeater length: 37
 2922 673344 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCATCGGGTACTGGTGAGCAGCCCTCGCATCC
 spacer length: 34 repeater length: 37
 2923 673416 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GATTTGCCCTGGGCATATCGGATCACTATCTGA
 spacer length: 34 repeater length: 37
 2924 673488 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCACGAACATGTACCGACTGCGGCGCTTCACCCG
 spacer length: 34 repeater length: 37
 2925 673560 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGTCATTACGTTCTCCTACCCGATAATTCCCGGG
 spacer length: 35 repeater length: 37
 2926 673633 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCTCGCTCAATGTCAGAGACGCTCTAGTATCTGG
 spacer length: 35 repeater length: 37
 2927 673706 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGAGGAGGTGAGAGGACGGCTAAACTGCGACGT
 spacer length: 34 repeater length: 37
 2928 673778 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCGACTTGATTGATGAGAGTCGGATCTTCTGGG
 spacer length: 35 repeater length: 37
 2929 673851 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTTGGTTCTGGTGCTGTCATTTTTTCTCCTCCACG
 spacer length: 36 repeater length: 37
 2930 673925 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATTTAGATTTATTTGAAGGCCAGCGGCTCCAGCCA
 spacer length: 36 repeater length: 37
 2931 673999 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATGTCTCCGACAACTTGCAACGGATAATCATTACCA
 spacer length: 36 repeater length: 37
 2932 674073 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGACCTGGACTAAATTTGACATGTCGAAGGAGGAGG
 spacer length: 36 repeater length: 37
 2933 674147 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCACGGCTAGGTAGCCTAAATACTCCTTTTGG
 spacer length: 33 repeater length: 37
 2934 674218 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCCAAATACCATATACGCATTATTGGTATATAAA
 spacer length: 36 repeater length: 37
 2935 674292 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACCTAATGCAGCGGCTCGACAAAGAAGTGCTCAG
 spacer length: 34 repeater length: 37
 2936 674364 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GAGCGCAAAGCACGAGATGCCTTCTTCAGGCGGGA
 spacer length: 35 repeater length: 37
 2937 674437 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTATGTTCCGGTCCACGTACCGGTATGGTCGTGAAA
 spacer length: 36 repeater length: 37
 2938 674511 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACAATCTTCTATTTGCTGCGCACGCCAGCAACG
 spacer length: 34 repeater length: 37
 2939 674583 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACGCGCAGAGGATAACGGAGCTCATGACCGTTCCG
 spacer length: 35 repeater length: 37
 2940 674656 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGAATTCTCTGAGCATAAGTGATATCAAAAAATAT
 spacer length: 36 repeater length: 37
 2941 674730 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATTTAGATTTATTTGAAGGCCAGCGGCTCCAGCCA
 spacer length: 36 repeater length: 37
 2942 674804 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATGTCTCCGACAACTTGCAACGGATAATCATTACCA
 spacer length: 36 repeater length: 37
 2943 674878 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGACCTGGACTAAATTTGACATGTCGAAGGAGGAGG
 spacer length: 36 repeater length: 37
 2944 674952 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGCCACAGCGATAGGTTTTCGAATAATGAAAAGC
 spacer length: 36 repeater length: 37
 2945 675026 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACAGAATCTTCGACCATGATCAGGAACCTCATTCAT
 spacer length: 35 repeater length: 37
 2946 675099 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GCAATTTTCCAGCATGCATCACAACAGAATCACGA
 spacer length: 35 repeater length: 37
 2947 675172 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATGGAGACTTCTGGAAGAAACCCTCTCAACACTCT
 spacer length: 36 repeater length: 37
 2948 675246 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGTCAGGGCATTTCGCCAGGCATATGCTGTGTGT
 spacer length: 34 repeater length: 37
 2949 675318 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCGCTGGCTCCACCTGCGACGGCGACCATTGAG
 spacer length: 35 repeater length: 37
 2950 675391 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTTTCTGCTACGATGGGGGTGTCACGATCCACG
 spacer length: 34 repeater length: 37
 2951 675463 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCTCCAGCAGACTTTGCGACAAGCTCTCCAGTCTG
 spacer length: 35 repeater length: 37

2952 675536 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGACACCTTCATTATATAATACAGAGCATAATATG
 spacer length: 35 repeater length: 37
 2953 675609 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGTGAATACTGTAAGAAGAACAATCTCGCATAT
 spacer length: 34 repeater length: 37
 2954 675681 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGGGATACGTTCAAGCGATCAGCGGATGGAATGAAG
 spacer length: 36 repeater length: 37
 2955 675755 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATACAATGAAAGTCTATATGGTAAATAGAGGCCC
 spacer length: 35 repeater length: 37
 2956 675828 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGCATAAAATGCGCATGTTCTAAAAATAATCCCAAG
 spacer length: 36 repeater length: 37
 2957 675902 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCTCTGATGCAGGAGGAACGGTCGCAACATCCG
 spacer length: 34 repeater length: 37
 2958 675974 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGAACAACTTTAAGATCTGTACGGAACCTCGGTCTCA
 spacer length: 36 repeater length: 37
 2959 676048 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACTTGACTTTTGTATCCAACCAACACATCTTTCGA
 spacer length: 35 repeater length: 37
 2960 676121 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACGATTGATACGAACGTATTCTGAAAGGATGAAGA
 spacer length: 35 repeater length: 37
 2961 676194 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCTTGCAAATCTCCACAGATCGAAGATCGAGGATTG
 spacer length: 37 repeater length: 37
 2962 676269 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCCTTATTAGGATGTGTTCAACGCCGTCGGCAT
 spacer length: 33 repeater length: 37
 2963 676340 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGAACGCTCTGGTCTTTGAGCGCTCGTAACTATTT
 spacer length: 35 repeater length: 37
 2964 676413 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AAATTCCAGCCCAGGATGGGCTGAAGGCGCTCATC
 spacer length: 35 repeater length: 37
 2965 676486 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCCGAATGAATTCACCGTATATGGTACATCGGGAAT
 spacer length: 36 repeater length: 37
 2966 676560 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGCATTTAATGTGTATCGTACACACTTGAAGCCGG
 spacer length: 36 repeater length: 37
 2967 676634 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTCTGGGGATACGCCCCATAATATACGTATACGTCA
 spacer length: 37 repeater length: 37
 2968 676709 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CATCGAGTGGATAAAAAAGACACTCGATGACGAGG
 spacer length: 35 repeater length: 37
 2969 676782 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATATTTCCCTCTCGGGAGACTCGGGAGAATTAC
 spacer length: 34 repeater length: 37
 2970 676854 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGCATCCAGCGCTTCTGCATCATCAAAGCAATTCTG
 spacer length: 35 repeater length: 37
 2971 676927 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACGCTGCCTTCGATATCATGTGCGCGACATGCTTG
 spacer length: 35 repeater length: 37
 2972 677000 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TACACAGCCCTGAGCCAGCGGGTCTCGGGGGCT
 spacer length: 33 repeater length: 37
 2973 677071 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TCGAAAACGTTGTCAGCGTGCCAGTGAACCTCCAA
 spacer length: 36 repeater length: 37
 2974 677145 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ACAATTTAGGAAAAAAAAAAAA spacer length: 20
 repeater length: 37
 2975 677203 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGGACACAATCGGGTGGACAAATCTGCTCATTAGTTCT
 spacer length: 39 repeater length: 37
 2976 677280 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATGAATCGGATGCGCGACGCGATAGCATCGCTATCT
 spacer length: 37 repeater length: 37
 2977 677355 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC ATCATACAGACGTGTTGCGTGTTGATTACAGAAACAA
 spacer length: 37 repeater length: 37
 2978 677430 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CGCCATTGCAAATTCGTGGCGCGGGGAGCCCTGG
 spacer length: 35 repeater length: 37
 2979 677503 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TGTACACAAAAACGCGAAATCAATACCGGTATCTACA
 spacer length: 37 repeater length: 37
 2980 677578 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CTGCGTATCTCCACGCACTGCACGGGTTGTCGAAA
 spacer length: 35 repeater length: 37
 2981 677651 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC CCTCGACAACCTGACCGTTCTTCACTACTGCCTGA
 spacer length: 35 repeater length: 37
 2982 677724 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC GCCCATATCTCTTCGTGATGCTCCGCGGTCCTGCT
 spacer length: 35 repeater length: 37
 2983 677797 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC AGCAGCATCTTTTTTACCTCATGATATCATTATGA
 spacer length: 36 repeater length: 37
 2984 677871 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TTTCTATACTGGGGATGTTGTACTTCCTTGCCCTTCCT
 spacer length: 37 repeater length: 37
 2985 677946 GTCGAAGAGCGAGTTCCAGGAAAACAAGGATTGAAAC TATATTTTGCCAGTTGGCTGAGATCTCCCATCACCTC
 2986
 2987
 2988 crispr 6
 2989 1696036 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGAACGGAGATGTAAGATTTGTGGGGTTCTGCTG

spacer length: 34 repeater length: 37
 2990 1696108 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGCGCTGGATGTGCGGGAGAGCTCATGGTGGATCTG
 spacer length: 37 repeater length: 37
 2991 1696183 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGATCGAGAATTTGACCTCCACGGACCGCTCGGACAT
 spacer length: 37 repeater length: 37
 2992 1696258 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TTCGATGACACGACAATGTGGAGGTGGCACGAAGGA
 spacer length: 36 repeater length: 37
 2993 1696332 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TAAGATTCTTCAGACGATCTGTGTCATTTCGTGATT
 spacer length: 35 repeater length: 37
 2994 1696405 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTACCACCGGAGCATGGAGACCGCTTAGAATCAA
 spacer length: 34 repeater length: 37
 2995 1696477 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGGAGGATGACCTGGGATATGTTATACGATTCACTG
 spacer length: 36 repeater length: 37
 2996 1696551 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TAAATGCCACAATTGCGGAGAGGTTTCGAAGTTCG
 spacer length: 35 repeater length: 37
 2997 1696624 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CGAATCCCGACTGGAGCACTATAAAATTCTGTTCAA
 spacer length: 36 repeater length: 37
 2998 1696698 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TAACCCTCTTCACCCATGCGCCCATTGCTACCTCGCT
 spacer length: 37 repeater length: 37
 2999 1696773 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCAGTTCCCTTTTCATCGGGATTGCGCTTGCAACAA
 spacer length: 36 repeater length: 37
 3000 1696847 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGTCTGTCTTCGCAGTTATCAGCGCAGCATGTGAA
 spacer length: 36 repeater length: 37
 3001 1696921 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGTTTTGGAATTCCGACAATGACGGGCACGGTTCAGGA
 spacer length: 38 repeater length: 37
 3002 1696997 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AGCTCCATCGCGCACAATCCGACTGACCAATGCCTTAT
 spacer length: 38 repeater length: 37
 3003 1697073 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATTCGTCGGAAACTCAGGACAATTCGAGCATATCTCG
 spacer length: 38 repeater length: 37
 3004 1697149 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CATTAAAGCAGTCTTGAGATCACCTTCACAGTCT
 spacer length: 35 repeater length: 37
 3005 1697222 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CGGAAGGCCAACGGGGAGCCATTTCGTCGGCGACGACGA
 spacer length: 38 repeater length: 37
 3006 1697298 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AACCCTTGGAATGGCAAATCTCCAGACCCCAA
 spacer length: 35 repeater length: 37
 3007 1697371 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
 TCTGTAGTAGTCGCTGGAGAATATCACAGGGATCTCGTTG spacer length: 40 repeater length: 37
 3008 1697449 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AACATTCAAATGGATAAAGCCGGTCCGGAATACAT
 spacer length: 36 repeater length: 37
 3009 1697523 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CAAGAGTTTCCTTGATCTCATCAATAATTTTATACAGT
 spacer length: 38 repeater length: 37
 3010 1697599 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTA CTGGTGGATCGAAGAATGTTACTCCAACATGCA
 spacer length: 36 repeater length: 37
 3011 1697673 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAATACTCCGCATCGTGATAATGAATATCCCCAGATG
 spacer length: 37 repeater length: 37
 3012 1697748 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGGTATGACAAAGGTAACGATTAAATGGGATAAAT
 spacer length: 36 repeater length: 37
 3013 1697822 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGCGGCGGTTGGTGCAACGGTTACCGGTGGAGTTG
 spacer length: 35 repeater length: 37
 3014 1697895 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATTCCATCTAGATCAACCTCATCAAAGTTTTTATT
 spacer length: 36 repeater length: 37
 3015 1697969 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CAATAAATCCATCGGATGTTATTACGTTTCATCTAA
 spacer length: 35 repeater length: 37
 3016 1698042 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAATATTTCTCTTCTCATTCAATGATCTCCAAACCC
 spacer length: 36 repeater length: 37
 3017 1698116 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GGGTATTTCTGGAACGGAAGCCGCTACTCAATTGAGG
 spacer length: 37 repeater length: 37
 3018 1698191 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGGATGTTTTGAAGTCAGGAGGTGCGTCAGATCTCGG
 spacer length: 37 repeater length: 37
 3019 1698266 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TTAACGACTTCCTCAACGGCATCCTGAGCTTTCGCGA
 spacer length: 37 repeater length: 37
 3020 1698341 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATTATCTCAAATCGTAGCGCTGTCCGGCCTGAAGA
 spacer length: 37 repeater length: 37
 3021 1698416 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CATATGATGTACTCGTGCCTATAGCTGATTACCAGGG
 spacer length: 37 repeater length: 37
 3022 1698491 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CAGGCGAATTATCTTCATATCTTGCTCCAAGTTATAT
 spacer length: 38 repeater length: 37
 3023 1698567 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GCAAAGATATTACGTGCCCGCGCCGGACATCATAA
 spacer length: 37 repeater length: 37
 3024 1698642 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATACATGTCACCGCGCTTTGATTACCGCATAAC
 spacer length: 35 repeater length: 37

3025 1698715 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATGATATGATTATGCATATTATTGAGATATACATAT
 spacer length: 37 repeater length: 37
 3026 1698790 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TTGGGCGAGTCTCGAGGCGGAACCCCGCTCGGAAA
 spacer length: 36 repeater length: 37
 3027 1698864 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC
 GCATCTCATTTTGCATCAGCTCCTTACAGAGGGAGCTGA spacer length: 39 repeater length: 37
 3028 1698941 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CAATCAGCTCACATACAATTAGAAATCATACAAAC
 spacer length: 35 repeater length: 37
 3029 1699014 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TGATGTGGTATTCTGAGTACCAGCGGGAGTTGG
 spacer length: 34 repeater length: 37
 3030 1699086 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TATAACTTTCTAACTCATCTTTGAGATCACTCACC
 spacer length: 35 repeater length: 37
 3031 1699159 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AATTTAATTTTCGTCGAGGATCATATCAACTTTTTTCCAA
 spacer length: 38 repeater length: 37
 3032 1699235 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAATATCTCGGAGGAGAAAATAAAATCGAAGTGA
 spacer length: 34 repeater length: 37
 3033 1699307 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCGACGTAATCCGGACTGCATACCCATGCCATTCGAT
 spacer length: 37 repeater length: 37
 3034 1699382 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAGACAAGCTCGTTTGATGGATAATCCGCGCCCAGCT
 spacer length: 37 repeater length: 37
 3035 1699457 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GAGTGAGATGGCTCAGAAGGATTACTATGAGATACTC
 spacer length: 37 repeater length: 37
 3036 1699532 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCGAACAACGACTCGCCAGGAGCCGACTTCGCATG
 spacer length: 35 repeater length: 37
 3037 1699605 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GCATTGCATGAATCGAATTATCCGTATCTGCATCTTT
 spacer length: 37 repeater length: 37
 3038 1699680 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGTCCCCGTTCAAGTATGGTTATCATGGACTCCAGG
 spacer length: 37 repeater length: 37
 3039 1699755 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC GTCCAATATTCATCCCCGCGGGCTGTACGACAATCC
 spacer length: 37 repeater length: 37
 3040 1699830 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCCCGGATTCCGTGGAAGTGCTCCTGCAGGCATAGG
 spacer length: 36 repeater length: 37
 3041 1699904 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC AAAATTTTCAATAAATCCATCTCTGGTCCTTACTCGCA
 spacer length: 38 repeater length: 37
 3042 1699980 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CGACTCCGGAGGCCGGCATGCTCCAGCCAGCGGAGCAA
 spacer length: 38 repeater length: 37
 3043 1700056 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CCTGACGCATACTGGTAGTATGCGTCATCTCTATAC
 spacer length: 36 repeater length: 37
 3044 1700130 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC ATATTGATGGATTTCATGGAAGTACGATGCTGAGAAGG
 spacer length: 37 repeater length: 37
 3045 1700205 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CTGCTCACGCGGGCATACTTTCTGGCTGGCTCTGAGG
 spacer length: 37 repeater length: 37
 3046 1700280 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC TCGTGATTCCGCCATCCGTAATACTCTTCCTCAC
 spacer length: 34 repeater length: 37
 3047 1700352 GTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAC CCTCTCAAGTCATTAGATGGATAAGAGCGTTGCA
 3048
 3049
 3050 crispr 7
 3051 1271844 CAGTTCGCAAACCTCAATCGGATACAGGTACGAGGGCATAG
 CAGGATATATTTATCCATCCAACCAGGATGGAACCATAACCCCTGTATCGCATGTACGGATATGGTGATCACTTCTACACAACCAGC
 TACCCAGAGGT spacer length: 97 repeater length: 40
 3052 1271982 CAGTTCGCAAACCTCAATCGGATACAGGTACGAGGGCATAG
 CAGGATATATTTATCCATCCAACCAGGATGGAACCATAACCCCTGTATCGCATGTACGGATATGGTGATCACTTCTACACAACCAAC
 TACCCAGAGGT spacer length: 97 repeater length: 40
 3053 1272120 CAGTTCGCAAACCTCAATCGGATACAGGTACGAGGGCATAG
 GGACAGGTCTCTGTGTGAACGTGTCCGAATGAAGATAAAAACCAGAAATCCGGAGCTTACTGCCCCTGGATGCTGTTTATGAGGC
 AGAATCGGCAG
 3054
 3055
 3056 crispr 8
 3057 614839 CTCCATCCAAAAGGAGCAAGCCACAGATTTCTGAATTCAT
 CTCTTATTGGGACAGGTCTCTGTGTGAATGTGTCCGAATGAAGATTGAGTACCT spacer length: 55 repeater
 length: 40
 3058 614935 CTCCATCCAAAAGGAGCAAGCCACAGATTTCTGAATTCAT
 CTCTTATTGGGACAGGTCTCTGTGTGAACGTGTCCGAATGAAGATTGAGTACCT spacer length: 55 repeater
 length: 40
 3059 615031 CTCCATCCAAAAGGAGCAAGCCACAGATTTCTGAATTCAT
 TGCGGAGATGAGGTCGCAACGAGTGAGAAAACCCGATAGGGATTGAAAGATAGGG
 3060
 3061
 3062 crispr 9

3063 1401033 TTCAGCCACAGGCTTGTCTCAGAGGTGTCATCTGCTGGAAGC
 CCCCTCATGTCCGGCCTGTCCAATCTCCCATCCATCATCGACTTCAGAGCGGGCT spacer length: 55 repeater
 length: 40
 3064 1401129 TTCAGCCACAGGCTTGTCTCAGAGGTGTCATCTGCTGGAAGC
 TCCCTCATGTCCGGCCTGTCCAATCTCCCATCCATCATCGACTTCAGAGCGGGCT spacer length: 55 repeater
 length: 40
 3065 1401225 TTCAGCCACAGGCTTGTCTCAGAGGTGTCATCTGCTGGAAGC
 TGAAACGTAGAAATTCTCACAGAAAGAGCTTTCCGGTGATTGTTATCCTTACCTC
 3066
 3067
 3068 GCA_000015145.1_ASM1514v1_genomic.fna (findCrispr):
 3069 START REPEAT
 SPACER
 3070 crispr 1
 3071 632553 GAACAACTCAAAAAGAGAATTGCA AGGCAATCCAGCAGATGGCCCAGCAATTCCAGCAGCAG spacer length:
 38 repeater length: 23
 3072 632615 GAACAACTCAAAAAGAGAATTGCA AGTACGCATAAAGAAAGCACTAGCAGAACATCTTGAAGCATTGCA spacer
 length: 46 repeater length: 23
 3073 632685 GAACAACTCAAAAAGAGAATTGCA AGGGTACAGCCTTGCGAAGTTTTCTCGGTCGCCAGGGCCTTTTCG spacer
 length: 46 repeater length: 23
 3074 632755 GAACAACTCAAAAAGAGAATTGCA AGGCGATGGGCATCCCTGTGCAGATTGGCGCCAAGCCAATCAGCA spacer
 length: 45 repeater length: 23
 3075 632824 GAACAACTCAAAAAGAGAATTGCA AGCCCTTGCTCCTCGGGAGGCGAGTGCTGCTTCTGCACAGCTC spacer
 length: 45 repeater length: 23
 3076 632893 GAACAACTCAAAAAGAGAATTGCA AGATGTATTCAACGAGGCCAAACTCCTCAGCCTTCTTTACTTCTC spacer
 length: 45 repeater length: 23
 3077 632962 GAACAACTCAAAAAGAGAATTGCA AGCCTACCATGGCGGCCTCCACCCACCCCAAACATTGTAGCTA spacer
 length: 44 repeater length: 23
 3078 633030 GAACAACTCAAAAAGAGAATTGCA GACCTCTCAAGCATTGACACGCCATGACCCGCAAGCGCCATT spacer
 length: 42 repeater length: 23
 3079 633096 GAACAACTCAAAAAGAGAATTGCA AGTCCATGATGACACCCAGTTATCGTTACCAACACCACTA spacer
 length: 41 repeater length: 23
 3080 633161 GAACAACTCAAAAAGAGAATTGCA
 AGCGCTCACACGGTCGAGACCACGCTCTCCTCGATCCACGACACAAGGAGGCGACT spacer length: 56 repeater
 length: 23
 3081 633241 GAACAACTCAAAAAGAGAATTGCA AGTCGTCGCTCACCTATCTCTCCATCACGATACGCAATCGCCACGTCTA
 spacer length: 49 repeater length: 23
 3082 633314 GAACAACTCAAAAAGAGAATTGCA AGGCATATGCAGTATGGTAGGCCTTCCTTGTCCCATTTCTCCAGCT spacer
 length: 46 repeater length: 23
 3083 633384 GAACAACTCAAAAAGAGAATTGCA AGTCCAAGAGCTCTACTTGCCGTCTCTTCAACTCTAGATATTC spacer
 length: 43 repeater length: 23
 3084 633451 GAACAACTCAAAAAGAGAATTGCA AGTCTCCGTGAGACGCTTCTCAAGCTCCTCAGGGTCAACGGTTTTTC spacer
 length: 46 repeater length: 23
 3085 633521 GAACAACTCAAAAAGAGAATTGCA AGAACTCGCTGGCCATCTCCAATAGCTGCTTGATCTTTTGG spacer
 length: 41 repeater length: 23
 3086 633586 GAACAACTCAAAAAGAGAATTGCA AGTCCCAACAGCGTAGCCGTACCTTCTCGCGTGGTCTATGAAG spacer
 length: 43 repeater length: 23
 3087 633653 GAACAACTCAAAAAGAGAATTGCA AGTACATCATATCCTACTTCTCTACTCTCACAGTACTCTTCACATT spacer
 length: 46 repeater length: 23
 3088 633723 GAACAACTCAAAAAGAGAATTGCA AGTCTCCGCCTGCTCGGCGGCCTGCTCTAGCGCCGCTAT spacer
 length: 39 repeater length: 23
 3089 633786 GAACAACTCAAAAAGAGAATTGCA AGTCATTGCCAAGTCTTGCTTGCTGAACGTGAAGTCTTCG spacer
 length: 42 repeater length: 23
 3090 633852 GAACAACTCAAAAAGAGAATTGCA AGTCAATGCTGCTGATGTTGCCGATGCTTGGCGTCGGCACA spacer
 length: 41 repeater length: 23
 3091 633917 GAACAACTCAAAAAGAGAATTGCA AGCCTTGTTTTGCAGACTCGACGAACGTCGGAACACAATCGT spacer
 length: 42 repeater length: 23
 3092 633983 GAACAACTCAAAAAGAGAATTGCA AGGTGAGTACGCAGACACCAAGGCCGCCAAGGTTTCACCCACGTG spacer
 length: 46 repeater length: 23
 3093 634053 GAACAACTCAAAAAGAGAATTGCA AGTTTCTGGAATCAGGACTCTAAGTCTCCTTTCCCAAACAA spacer
 length: 41 repeater length: 23
 3094 634118 GAACAACTCAAAAAGAGAATTGCA AGTGGGAGCGCACGGGGGGTCTGCGCACACTTTACCAATTCA spacer
 length: 42 repeater length: 23
 3095 634184 GAACAACTCAAAAAGAGAATTGCA AGACGAAGACGCTGTACGAGCTGCCGCCACCAGGCAACTACACACCA
 spacer length: 47 repeater length: 23
 3096 634255 GAACAACTCAAAAAGAGAATTGCA AGCGTCATTGTACTCTTTTCGCTCAATTATTATTATGTCGTCG spacer
 length: 43 repeater length: 23
 3097 634322 GAACAACTCAAAAAGAGAATTGCA AGGTGTTAGTAGTTCTCTCATGGTTTTAGTGTGTTTACAG spacer
 length: 41 repeater length: 23
 3098 634387 GAACAACTCAAAAAGAGAATTGCA AGATCCGAAGTGTGCCAGTTCACATTCCATCATTTTTATAGA spacer
 length: 42 repeater length: 23

3099 634453 GAACAACTCAAAAAGAGAATTGCA AGTCTGCTGGATTGCGGGGACATGCGGCGCGAGCTCCCTCAGCATCT
spacer length: 47 repeater length: 23

3100 634524 GAACAACTCAAAAAGAGAATTGCA AGTCCGTTTCGTCCTCAGAGCGAACAGCTTCCTTGCGTACG spacer
length: 40 repeater length: 23

3101 634588 GAACAACTCAAAAAGAGAATTGCA AGTGGACTGACTTCGATTACAAGCAGCACTACGACAATCTCG spacer
length: 42 repeater length: 23

3102 634654 GAACAACTCAAAAAGAGAATTGCA AGGTTCTAGCTGCTGACCCCGACAGCCTCGTCGCTGAGCTTAACCG spacer
length: 46 repeater length: 23

3103 634724 GAACAACTCAAAAAGAGAATTGCA AGCTGTATGTTTGCCGCAACATATCGCTATCACCTTGGG spacer
length: 39 repeater length: 23

3104 634787 GAACAACTCAAAAAGAGAATTGCA AGAGGCATCATCGGCGCGTCAAGGATCACTCCAGCACAGCTCTCCG spacer
length: 46 repeater length: 23

3105 634857 GAACAACTCAAAAAGAGAATTGCA AGACACCTCCACGCGGTCCGGTGCAGCCTCCACTTCCCTTTACAA spacer
length: 45 repeater length: 23

3106 634926 GAACAACTCAAAAAGAGAATTGCA AGGGCCGCGTAGACCATGTAGCCTACTGCTAGCGCTACGGCTGGGTA
spacer length: 47 repeater length: 23

3107 634997 GAACAACTCAAAAAGAGAATTGCA AGGTTTTTACTCTGCCAGGTGTTAACCTCGAATTCAACTCTCATCT spacer
length: 46 repeater length: 23

3108 635067 GAACAACTCAAAAAGAGAATTGCA AGTTATCGCAGCTTGTTTCCTCTTCTTCCGTTTCTCTCCGCT spacer
length: 44 repeater length: 23

3109 635135 GAACAACTCAAAAAGAGAATTGCA
AGGCGGTGCGAACCCCATGCGCGTCGTAGTGGGCTATAATGAGGTCCCTGGACAG spacer length: 54 repeater
length: 23

3110 635213 GAACAACTCAAAAAGAGAATTGCA AGTTTAAATCCGGTTTTCTTTCAATTCCACTTCTGGGTAAAAA spacer
length: 44 repeater length: 23

3111 635281 GAACAACTCAAAAAGAGAATTGCA AGTATACTTGTTATATCTCACCTGATGTCTAGCATTCTTCCACCTC
spacer length: 47 repeater length: 23

3112 635352 GAACAACTCAAAAAGAGAATTGCA AGCTGGGGACCTGTGTCTGGAAACCTCGCTATTATCGCCCCGCCA spacer
length: 45 repeater length: 23

3113 635421 GAACAACTCAAAAAGAGAATTGCA AGACACCATTGCAACAATGAGGATGGTGGTTACTAGCGATAGGGA spacer
length: 46 repeater length: 23

3114 635491 GAACAACTCAAAAAGAGAATTGCA AGTTGATTATTGCCATGACTGTGAAGGCTAGCTGGCCAACGGCAT spacer
length: 45 repeater length: 23

3115 635560 GAACAACTCAAAAAGAGAATTGCA AGCGCAGGCTCAGGCGTGGCACGGCATAGAAAACACTTATACTA spacer
length: 44 repeater length: 23

3116 635628 GAACAACTCAAAAAGAGAATTGCA AGTAGAACAATATATACGGCTCCGTGCCGTCTTTGGCACCTCAGC
spacer length: 47 repeater length: 23

3117 635699 GAACAACTCAAAAAGAGAATTGCA GACGAACGCTTTGTTGACAGAGACCGGTGGGGAGACTGCGGCAACGA
3118
3119

3120 crispr 2

3121 702445 CTTGCAATTCTCTTTTGAGTTGTTC TAGGCTATGTCAAAAAGAGAAATCGCTATAAGAAAAACA spacer
length: 38 repeater length: 25

3122 702509 CTTGCAATTCTCTTTTGAGTTGTTC GAGCGCCTGCTGCAGATCATAGAGTATGAATTGTGCAAGGAG spacer
length: 42 repeater length: 25

3123 702577 CTTGCAATTCTCTTTTGAGTTGTTC AGGGAGGATAAGGACGACCCGCTGGAGGCAATAGCAATAGGTGTCA
spacer length: 46 repeater length: 25

3124 702649 CTTGCAATTCTCTTTTGAGTTGTTC CCTGGCGAACATGGTTATCGTGCTGCCGCCCTCGTAGCCAAACG spacer
length: 44 repeater length: 25

3125 702719 CTTGCAATTCTCTTTTGAGTTGTTC ACGAGTGAGGTACGGGCGTCGAGGAAACTACGGTACATGATTG spacer
length: 44 repeater length: 25

3126 702789 CTTGCAATTCTCTTTTGAGTTGTTC ATTTTGGCCGTTTGGTGGGAAGTTCTCCCACCTGCTCACTTC spacer
length: 43 repeater length: 25

3127 702858 CTTGCAATTCTCTTTTGAGTTGTTC AGTGGTGACAAGGCAGCAAGTAATAGTGCAACTCTGCATACCGAAAG
spacer length: 47 repeater length: 25

3128 702931 CTTGCAATTCTCTTTTGAGTTGTTC AGGTGGAGAGGCTGCTGGGCGGTGAGGCCCTGGCAGGTATAAAG spacer
length: 44 repeater length: 25

3129 703001 CTTGCAATTCTCTTTTGAGTTGTTC ATCCACTCCTCCCTGCTTACCTTCCTCTTTACGACTAG spacer
length: 38 repeater length: 25

3130 703065 CTTGCAATTCTCTTTTGAGTTGTTC CTATGTCCTCCTCCCGTAGGCTCAGGGGCCAGGGCATTAGA spacer
length: 41 repeater length: 25

3131 703132 CTTGCAATTCTCTTTTGAGTTGTTC CAGCAGTTGCTCTAGGGTCTTCGGCACCCACATGGAGTGCTGTGGT
spacer length: 46 repeater length: 25

3132 703204 CTTGCAATTCTCTTTTGAGTTGTTC GGAGGTGAGAGGTATGAGTAGAAAATGTAAATTCGTA spacer
length: 37 repeater length: 25

3133 703267 CTTGCAATTCTCTTTTGAGTTGTTC AGATGAGATAGAGCAGCTGCTAGAGGAGTGCGAAGCCGTTG spacer
length: 41 repeater length: 25

3134 703334 CTTGCAATTCTCTTTTGAGTTGTTC CAAACCTGCGCTACCTCAACGACCTACCACCAACTATTGATA spacer
length: 42 repeater length: 25

3135 703402 CTTGCAATTCTCTTTTGAGTTGTTC AGATGAGATAGAGCAGCTGCTAGAGGAGTGCGAAGCCGTTG spacer
length: 41 repeater length: 25

3136 703469 CTTGCAATTCTCTTTTGAGTTGTTC CAAACCTGCGCTACCTCAACGACCTACCACCAACTATTGATA spacer
length: 42 repeater length: 25
3137 703537 CTTGCAATTCTCTTTTGAGTTGTTC
CCAGGTACGGTGACCTACTGCTTAAACCCGACTGCCTAGCACCAGGAGGGGA spacer length: 52 repeater
length: 25
3138 703615 CTTGCAATTCTCTTTTGAGTTGTTC CATTATACCGATGATGTTTCAGTACTGCTACAGCAATGGCAG spacer
length: 41 repeater length: 25
3139 703682 CTTGCAATTCTCTTTTGAGTTGTTC TGGTGGAGATTGTGAAGTGAGGTGATCGGCATGCAGATG spacer
length: 39 repeater length: 25
3140 703747 CTTGCAATTCTCTTTTGAGTTGTTC AAGAGAGGTGGCAGTGAGGAAAACGTTGATTGTGATGGAAGAAA spacer
length: 44 repeater length: 25
3141 703817 CTTGCAATTCTCTTTTGAGTTGTTC GCGTGGTGCTATGGGTCGTCGAGGACTAGGAGGGCGAAGAG spacer
length: 41 repeater length: 25
3142 703884 CTTGCAATTCTCTTTTGAGTTGTTC CCTCCTCGGAGAGCGTTACATTGCTGAGATATGCCTTT spacer
length: 38 repeater length: 25
3143 703948 CTTGCAATTCTCTTTTGAGTTGTTC TCACATGGCTCGGTTTTCCCCAAAATCACGCATTTCATTGTACG spacer
length: 44 repeater length: 25
3144 704018 CTTGCAATTCTCTTTTGAGTTGTTC ATTAATCAAATCACAATCATTGGGAGCTGCGATCAACAAAAGAAC
spacer length: 45 repeater length: 25
3145 704089 CTTGCAATTCTCTTTTGAGTTGTTC CAAGCATCACCGCATCTACCGGCTCCTGCTACGCCTCGGCCCCAGG
spacer length: 46 repeater length: 25
3146 704161 CTTGCAATTCTCTTTTGAGTTGTTC TTGATTGTAGGCGCGCAAGGCGGTGGTGGCAATAACGCTTTTCG spacer
length: 43 repeater length: 25
3147 704230 CTTGCAATTCTCTTTTGAGTTGTTC TGGCACGCTGGAAGTACTACTACAACGGAGTGAACCAGTTGGAC spacer
length: 44 repeater length: 25
3148 704300 CTTGCAATTCTCTTTTGAGTTGTTC CTTTCGTCCTGTTTCGGCAGTATCAACTATGTGAAGACTGAGATG spacer
length: 43 repeater length: 25
3149 704369 CTTGCAATTCTCTTTTGAGTTGTTC TCGCTCGCTGGCGGTGGCGTCGTCGAGATCGCAAAATCGAAT spacer
length: 42 repeater length: 25
3150 704437 CTTGCAATTCTCTTTTGAGTTGTTC ATACAGCTTCGAGGAACGCGAAGAGCCTGGCCGCTTGCTTCTTGTC
spacer length: 46 repeater length: 25
3151 704509 CTTGCAATTCTCTTTTGAGTTGTTC CAGTATGCATAGACAAGTCTATCGGCAGGATAGAGCCCTATATCAAG
spacer length: 47 repeater length: 25
3152 704582 CTTGCAATTCTCTTTTGAGTTGTTC AGAGGATGTTTCGAGGAGCGGCTGAGGGAGATGCAGGAGACGATAC
spacer length: 45 repeater length: 25
3153 704653 CTTGCAATTCTCTTTTGAGTTGTTC TTAGTAGAATCATAGAAGAAGGTAGTATCAGCATCTTGATAGA spacer
length: 43 repeater length: 25
3154 704722 CTTGCAATTCTCTTTTGAGTTGTTC TTGAAAAAAGACCTGCATGAGGTGGCTCATCATGCGCTT spacer
length: 39 repeater length: 25
3155 704787 CTTGCAATTCTCTTTTGAGTTGTTC AGAGCCCGTTCACCCGCATAGCGGTCAAATGGGAGCCCAGC spacer
length: 41 repeater length: 25
3156 704854 CTTGCAATTCTCTTTTGAGTTGTTC ACCGGTGAGAGGGATGGTAAGGGTCGAGTTTCAGATCAATAC spacer
length: 42 repeater length: 25
3157 704922 CTTGCAATTCTCTTTTGAGTTGTTC TTCACATCATTTCATTGAGTACACAACAGGAGAGAGCTACATAGAG
spacer length: 45 repeater length: 25
3158 704993 CTTGCAATTCTCTTTTGAGTTGTTC ATAGTCATCGAATACAACGGCATATTCATGATGGAATGCAAA spacer
length: 42 repeater length: 25
3159 705061 CTTGCAATTCTCTTTTGAGTTGTTC AGACCCTGAGAAACGAGACAGACTACCCGCCAGCCAGGCTCTGGAG
spacer length: 46 repeater length: 25
3160 705133 CTTGCAATTCTCTTTTGAGTTGTTC ACGTTAGAAACCCCGATGCAGCGATAAAGACACTGAG spacer
length: 37 repeater length: 25
3161 705196 CTTGCAATTCTCTTTTGAGTTGTTC GATATTCACGTAGACCACCACGAGACAAGCATACCGTTC spacer
length: 40 repeater length: 25
3162 705262 CTTGCAATTCTCTTTTGAGTTGTTC CTACATCTCGCTGCGCTACAGCAGCAAGGACGAGGCGTCC spacer
length: 40 repeater length: 25
3163 705328 CTTGCAATTCTCTTTTGAGTTGTTC AAGACCATGAGTGCACAACGATGCAGCAGTTCTACATAGTCTTCAATG
spacer length: 48 repeater length: 25
3164 705402 CTTGCAATTCTCTTTTGAGTTGTTC GAAGAAGGTTGGCAACAAATGGAGGGGCGTTAAAGCCCTT spacer
length: 40 repeater length: 25
3165 705468 CTTGCAATTCTCTTTTGAGTTGTTC AGCAAGCTGAAGTTTAACTCTGCAACGTGGAGAGCTG spacer
length: 38 repeater length: 25
3166 705532 CTTGCAATTCTCTTTTGAGTTGTTC ACGCTTTGTTGACAGAGACCGGTGGGGAGACTGCGGCA
3167
3168
3169 GCA_000015205.1_ASM1520v1_genomic.fna(findCrispr):
3170 START REPEAT
SPACER
3171 crispr 1
3172 39 TACTATCTTTTGATT TCTGGCCGTCGCACATCGAGACCGCCCTCCTTGACGTCATGAGAGTGGCGTTT spacer
length: 53 repeater length: 15
3173 108 TACTATCTTTTGATT TCTGGTTCATGTTCTGTTGCCGTGTGAGATTCCAGCATCACAGCTGAGGTTT spacer

length: 53 repeater length: 15
3174 177 TACTATCTTTTGATT TCTGGCGGCGGGAAGTCCGCTGTCTGAATTGCTGACCGGGGAATATGGTTT spacer
length: 50 repeater length: 15
3175 243 TACTATCTTTTGATT TCTGGCGGCGGGAAGTCCGCTGTCTGAATTGCTGACCGGGGAATATGGTTT spacer
length: 50 repeater length: 15
3176 309 TACTATCTTTTGATT TCTGGACCTCGTTAGTAAAGCAACGAAGAAAATGGCACAATAGAACCTATGTTT spacer
length: 54 repeater length: 15
3177 379 TACTATCTTTTGATT TCTGGACGATTGTGTTTAACCCGGCGCCGTATCCAACAGAGCACATATGGTTT spacer
length: 53 repeater length: 15
3178 448 TACTATCTTTTGATT TCTGGTTTAGGGTCGGTAGCGGAGCGGAGACGGGCGACGGCGATCAAGGTTT spacer
length: 52 repeater length: 15
3179 516 TACTATCTTTTGATT
TCTGGGTACCCGTGGGCAAGCGAATATTGGGCTATGGGGCTGTATAGAGTTTCTACCATCTTTTGATTTCTGGCAAGAACTCCGCG
GCAAATATGTAAAGTTGCATATCATTGATCTGTTT spacer length: 121 repeater length: 15
3180 653 TACTATCTTTTGATT
TCTGGTCACTGTCTGTGGTGAGAGTACTTTAAGCCCCCAATAGTTTCTACATATCTTTTGATTTCTGGGCCCTCAGGGCGGTT
TCGGCGTCCATCATGGCGACCAGCTCGTCGTTT spacer length: 119 repeater length: 15
3181 788 TACTATCTTTTGATT TCTGGCTCTCTGCAGAGGACAGACCAAGGCTTGTCGCTCCAGATGCAACGTTT spacer
length: 53 repeater length: 15
3182 857 TACTATCTTTTGATT TCTGGTTCGTGCGGACGCCGTGTAGCTTCCTCGCGAGCGAGAAGTTTGTGTTT spacer
length: 53 repeater length: 15
3183 926 TACTATCTTTTGATT TCTGGATGCTAAGGCGGGCGCCAGGTTTGCGGCCGGCGGCACCGTGGAGGTTT spacer
length: 53 repeater length: 15
3184 995 TACTATCTTTTGATT TCTGGCCTTAACCACGTGGCCACGATGTCAGTCCCGATAATGTTGGTTT spacer
length: 50 repeater length: 15
3185 1061 TACTATCTTTTGATT TCTGGCGTGGCGGCCCTCCTCAGGGCCCTCCGCCATGAGATAGACATGTTT spacer
length: 51 repeater length: 15
3186 1128 TACTATCTTTTGATT AGAAACGGGGCGTCTGAGACGTCTATCACGACGGGGACAGACGTAATGTCC
3187
3188
3189 crispr 2
3190 38866 CCAGAAATCAAAAGATAGTAGAAAG CTCCTGCTCGGATGCAGAAGGGACTCGGACGGGCGTGTCTGTC spacer
length: 42 repeater length: 25
3191 38934 CCAGAAATCAAAAGATAGTAGAAAG TATGCTCCGGGCTAGACGGCCTCCCCGAGCCCGTGCGGGCGA spacer
length: 42 repeater length: 25
3192 39002 CCAGAAATCAAAAGATAGTAGAAAG TCGCGGTAGCACTGGACGACTGTGTCCCACCCACGCTCCTCA spacer
length: 42 repeater length: 25
3193 39070 CCAGAAATCAAAAGATAGTAGAAAG GTCTGAGACGTCTATCACGACGGGGACAGACGTAATGTCCAG
3194
3195
3196 GCA_000015765.1_ASM1576v1_genomic.fna(findCrispr):
3197 START REPEAT
SPACER
3198 crispr 1
3199 711874 TCACAAACCTTCGGTTTGGT
CGCAAATCAAAGATTTGCTCCGCTGAGGTCGTCGACTTCGTCGCCAACCCGCCTCCGCTTAGGCCGTCCGCGTTGCGTCCAACCCA
CA spacer length: 88 repeater length: 20
3200 711983 TCACAAACCTTCGGTTTGGT
CGCAAATCAAAGATTTGCTCCGCTGAGGTCGTCGACTTCGTCGCCAACCCGCCTCCGCTTAGGCCGTCCGCGTTGCGTCCAGCCCC
CC spacer length: 88 repeater length: 20
3201 712092 TCACAAACCTTCGGTTTGGT
TGAGCACACTTCTTTGTGGTGTCCCGCACTCGCAAGTCATGTTTCGGTCGCTTTGGCTCTCTCCATGCCTTGCTCCGCTAAGGTCGG
CG
3202
3203
3204 crispr 2
3205 839385 CCCCCGTGGGCACGTGGATTGAAAT GCTGCGAGGATATTCTGTTTCGCGCTGGATCAGAGTCGT spacer
length: 38 repeater length: 25
3206 839449 CCCCCGTGGGCACGTGGATTGAAAT CCAAATTCAAAGGCATGAACTGGGTGATCCGACCTGTCGT spacer
length: 40 repeater length: 25
3207 839515 CCCCCGTGGGCACGTGGATTGAAAT TGTTGTTTTCAAATTATCGCATTAATAATCTATCATCTTGTCGT
spacer length: 46 repeater length: 25
3208 839587 CCCCCGTGGGCACGTGGATTGAAAT TGTTGTCTCTGACGACCTCTTCGCGTGGCAAAAGTCGT spacer
length: 38 repeater length: 25
3209 839651 CCCCCGTGGGCACGTGGATTGAAAT GATACGATTGAATCCAAAGCCACGACGATCAAGTCGT spacer
length: 37 repeater length: 25
3210 839714 CCCCCGTGGGCACGTGGATTGAAAT TACCGGTAATACATACGTCGCTAAACAGTGGTAGTCGT spacer
length: 38 repeater length: 25
3211 839778 CCCCCGTGGGCACGTGGATTGAAAT ACAGTGTATGTACCTGAATATCCTTGAAGTGTAGTCGT spacer
length: 38 repeater length: 25
3212 839842 CCCCCGTGGGCACGTGGATTGAAAT ATACTGGGCGCCGTATCCGGACACAACCGCCCCGCGTCGTG spacer

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length: 41 repeater length: 25
3213 839909 CCCCCGTGGGCACGTGGATTGAAAT TTGCGATCTGATTATAAGACATACCTTTTTTATGTCGTG spacer
length: 39 repeater length: 25
3214 839974 CCCCCGTGGGCACGTGGATTGAAAT ATATATATGGTGTGGAATCATCAAACCATCAGTCGTG spacer
length: 39 repeater length: 25
3215 840039 CCCCCGTGGGCACGTGGATTGAAAT CAAGACAAAGAGGACAAAATGACAACCGATCCCGGTCGTG spacer
length: 40 repeater length: 25
3216 840105 CCCCCGTGGGCACGTGGATTGAAAT CTGTTTCCTTCGGTGGGACTGGTGCCACATCTGAGTCGTG spacer
length: 40 repeater length: 25
3217 840171 CCCCCGTGGGCACGTGGATTGAAAT ATCTCCTTTCTTGTATAGTAATAATAGTATTCAAGTCGTG spacer
length: 40 repeater length: 25
3218 840237 CCCCCGTGGGCACGTGGATTGAAAT ATGTCTTCTTTGTTCTGTGTCATTCTAATCTCCAGTCGTG spacer
length: 40 repeater length: 25
3219 840303 CCCCCGTGGGCACGTGGATTGAAAT CTTGACGCCTGATATACCGTTAAGTTTAGACGTCGTG spacer
length: 38 repeater length: 25
3220 840367 CCCCCGTGGGCACGTGGATTGAAAT CACTTCTTTGTGGTGTCCCGCACTCGCAAGTCATGTTG
3221
3222
3223 crispr 3
3224 839902 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT TTGCGATCTGATTATAAGACATACCTTTTTTTA spacer
length: 32 repeater length: 32
3225 839967 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT ATATATATGGTGTGGAATCATCAAACCATC spacer
length: 32 repeater length: 32
3226 840032 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT CAAGACAAAGAGGACAAAATGACAACCGATCCC spacer
length: 33 repeater length: 32
3227 840098 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT CTGTTTCCTTCGGTGGGACTGGTGCCACATCTG spacer
length: 33 repeater length: 32
3228 840164 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT ATCTCCTTTCTTGTATAGTAATAATAGTATTCA spacer
length: 33 repeater length: 32
3229 840230 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT ATGTCTTCTTTGTTCTGTGTCATTCTAATCTCC spacer
length: 33 repeater length: 32
3230 840296 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT CTTGACGCCTGATATACCGTTAAGTTTAGA spacer
length: 31 repeater length: 32
3231 840360 GTCGTGCCCCCGTGGGCACGTGGATTGAAAT CTGAGCACACTTCTTTGTGGTGTCCCGCACT
3232
3233
3234 crispr 4
3235 69643 CTCGCAAACATTCTGTTTGCTCGGCTGAGCACACTTCTTT
GGGGTGTCGCAACTCGCAAGTCATGGTCGGTCGCTATCGCTCTCTCCATGTCTTGCTTAGCTAAGGTCGGCGACTTCGTCACCAA
CCCGC spacer length: 91 repeater length: 40
3236 69775 CTCGCAAACATTCTGTTTGCTCGGCTGAGCACACTTCTTT
GTGGTGTCGCAACTCGCAAGTCATGTTTCGGTCGCTTTGGCTCTCTCCACGCCTTGCTCCGCTAAGGTCGGCGACTTCGTCACCAA
CCCGC spacer length: 91 repeater length: 40
3237 69907 CTCGCAAACATTCTGTTTGCTCGGCTGAGCACACTTCTTT
GTGGTGTCGCAACTCGCAAGTCATGTTTCGGTCGCTTTGGCTCTCTCCATGCCTTGCTCCGCTAAGGTCGGCGACTTCGTCACCAA
CCCGC spacer length: 91 repeater length: 40
3238 70039 CTCGCAAACATTCTGTTTGCTCGGCTGAGCACACTTCTTT
ATCGACTTGCTCGACTGAGGGCACCCCTCCGGGGTCCCCGTAACACAAAAATCCTTATCCTATCCCGACTAAAAGAGAATCATTA
TGAAC
3239
3240
3241 GCA_000015805.1_ASM1580v1_genomic.fna(findCrispr):
3242 START REPEAT
SPACER
3243 crispr 1
3244 1185327 TCAATCC TCTTCTTGAGATTCCTTCGCCGTGGGTCTCGCGATTGGGTTCATTTTAGGTGGGGGCATAGCT
spacer length: 63 repeater length: 7
3245 1185398 TCAATCC TCTTCTTGAGATTCGGGTAATTAGGATATGGGAGGCCGCGGGTATGAAAAGATATGCT spacer
length: 58 repeater length: 7
3246 1185464 TCAATCC TCTTCTTGAGATTCATACTAACGTGTCCGCATATGAAACCTACGCATTAAGAGCT spacer
length: 55 repeater length: 7
3247 1185527 TCAATCC TCTTCTTGAGATTCCTATTTGTAAAGGGGCGAATTTACGCCGTTGTAAACTATGTAAACT
spacer length: 62 repeater length: 7
3248 1185597 TCAATCC TCTTCTTGAGATTCCTCGCCCCGGGAGTGGGGGTACGACGGGGGCCGGGGTCGCT spacer
length: 59 repeater length: 7
3249 1185664 TCAATCC TCTTCTTGAGATTCACCAGTTGACGAAGGTCTGGTCTCCGTGGTTGGACCAGTTTCGAGAACT
spacer length: 62 repeater length: 7
3250 1185734 TCAATCC AGAAGAGGATTGAAAGGTCTGTAGACCACGTAAAGAAGATAGATGTGCTGGTGGGGTTGGGG
3251
3252
3253 crispr 2

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3254 1203351 GAATCTCAAGAAGAGGATTGAAAG GTTGTACGCCGCCGAGCGGGAGCGACGCGGTGGTTTGGTT spacer
length: 40 repeater length: 24

3255 1203416 GAATCTCAAGAAGAGGATTGAAAG TCCTCTTGGATCAACTACCACCGTTACCACTACGACTCAGGTGCG
spacer length: 45 repeater length: 24

3256 1203486 GAATCTCAAGAAGAGGATTGAAAG ACTGTCAGCGATCCAGCTCCACCACCCGCTCCGGAGGACA spacer
length: 40 repeater length: 24

3257 1203551 GAATCTCAAGAAGAGGATTGAAAG CTCTATACGCCGTCGCCAGGATAAGCTCATTGCTTACAACAG spacer
length: 42 repeater length: 24

3258 1203618 GAATCTCAAGAAGAGGATTGAAAG TCCAAAACCTAGACGCCCTCCTCCAGTCACCGTCGGGACTTT spacer
length: 42 repeater length: 24

3259 1203685 GAATCTCAAGAAGAGGATTGAAAG AATCACTCCGGACCCGCTATTAATCGTGGCGGGGTTCAACCGTC spacer
length: 44 repeater length: 24

3260 1203754 GAATCTCAAGAAGAGGATTGAAAG ATATATTGAATCAATAAGGTCCGACGACACCCGTTCAAGCAGGGACCC
spacer length: 48 repeater length: 24

3261 1203827 GAATCTCAAGAAGAGGATTGAAAG TGACCTCTGGGGTCTCCTCCTCTTTATCAACGTAGACCCTTTTG spacer
length: 44 repeater length: 24

3262 1203896 GAATCTCAAGAAGAGGATTGAAAG ACTCTATGCGGCCACGAATTCCTCAGACTCAAGCGTA spacer
length: 38 repeater length: 24

3263 1203959 GAATCTCAAGAAGAGGATTGAAAG GCCCTCACCGTGTGATATTGACGCTCGCATACATATTCATTG spacer
length: 43 repeater length: 24

3264 1204027 GAATCTCAAGAAGAGGATTGAAAG ACAGACCTCTTGAGGAGGTTGAGGGGTCGAGGTGTCCCTCGC spacer
length: 44 repeater length: 24

3265 1204096 GAATCTCAAGAAGAGGATTGAAAG ATTGGCGTTGGCGTCCCGGTGAAAATACTGCGCCACGATGGGAG spacer
length: 44 repeater length: 24

3266 1204165 GAATCTCAAGAAGAGGATTGAAAG ATAGTACTTGCCAGAGCCTAACACGACTATAGTGTTCATA spacer
length: 41 repeater length: 24

3267 1204231 GAATCTCAAGAAGAGGATTGAAAG CATTTTTGCGGCGGCGAGCTCCTCGCCGAATAGCAAGC spacer
length: 38 repeater length: 24

3268 1204294 GAATCTCAAGAAGAGGATTGAAAG TCTGGCGCACCAATCTCGTACACGTCCCCACCTCATCTACG spacer
length: 42 repeater length: 24

3269 1204361 GAATCTCAAGAAGAGGATTGAAAG TTGGGCGCCTTTACCACGGGGGCCGATTTATGATTACTATAGA spacer
length: 44 repeater length: 24

3270 1204430 GAATCTCAAGAAGAGGATTGAAAG TTTCCAGTGTGAAAAAATATCGGTTACTACAGTGTGAATTATG spacer
length: 43 repeater length: 24

3271 1204498 GAATCTCAAGAAGAGGATTGAAAG CCGCACCCGCGATAGGCACTAACCACTTCATGATGCTA spacer
length: 38 repeater length: 24

3272 1204561 GAATCTCAAGAAGAGGATTGAAAG TCCTCGCCACCTGCCTGACGACGAGGGCGCACTCCTCCGCAGC spacer
length: 43 repeater length: 24

3273 1204629 GAATCTCAAGAAGAGGATTGAAAG TAGCTTTGGTAGCGGCAGTGTGAAGTGCCCTCTGGGCCATCA spacer
length: 43 repeater length: 24

3274 1204697 GAATCTCAAGAAGAGGATTGAAAG ATTTCAAAGCCACGTTTGGGTAAACTGTATAACTCTGTCCA spacer
length: 42 repeater length: 24

3275 1204764 GAATCTCAAGAAGAGGATTGAAAG CTCCTGGCGCAGATGTTATTGCATTTGGCAGAGATGTGC spacer
length: 39 repeater length: 24

3276 1204828 GAATCTCAAGAAGAGGATTGAAAG TATTGCTCCCTCAGCTCCCTAGCCAGCCTCTGCGCCCTGTC spacer
length: 41 repeater length: 24

3277 1204894 GAATCTCAAGAAGAGGATTGAAAG AGTCCACCAGCACCGCGGTGGGCGCACGCGGTGCGCAAGGGCC spacer
length: 44 repeater length: 24

3278 1204963 GAATCTCAAGAAGAGGATTGAAAG TCTTTTTTGGGGGCGTTCCTGCGCCCCCTAAACCCCTTTGC spacer
length: 43 repeater length: 24

3279 1205031 GAATCTCAAGAAGAGGATTGAAAG CCTACGTGGCCAATCTCGTGGCCGACCAGCTTCTCAGTC spacer
length: 39 repeater length: 24

3280 1205095 GAATCTCAAGAAGAGGATTGAAAG CAGGCTGGCACAGAGTGGGGACCTGCCCCCTCGTCCTCCTA spacer
length: 40 repeater length: 24

3281 1205160 GAATCTCAAGAAGAGGATTGAAAG TTATTACCGTGCGCCTTATTTTGCCAATAGTGTCTTCTCCT spacer
length: 42 repeater length: 24

3282 1205227 GAATCTCAAGAAGAGGATTGAAAG TACGTATTTGGGCCCACACGTCTTGTGTAATCGCACGAGACCA spacer
length: 43 repeater length: 24

3283 1205295 GAATCTCAAGAAGAGGATTGAAAG CACTTTGGGCATGGGTGCTGTGGTGCAACAGCTTTCCTCTA spacer
length: 42 repeater length: 24

3284 1205362 GAATCTCAAGAAGAGGATTGAAAG TCGCCCGCAACGCCAACAGGCGGGTCTGCAGGCATTCGGCCC spacer
length: 42 repeater length: 24

3285 1205429 GAATCTCAAGAAGAGGATTGAAAG TCGCGGAGAGGAATATCGTGTATAACTACGGAGAGACGC spacer
length: 39 repeater length: 24

3286 1205493 GAATCTCAAGAAGAGGATTGAAAG ATGTAGCGCGCCAGTATTCGATTATATAGCCAGCCACGTATT spacer
length: 43 repeater length: 24

3287 1205561 GAATCTCAAGAAGAGGATTGAAAG TGTATGAATCCCACTATCGCATCGCTAATAGACTTAAACTCAGC spacer
length: 44 repeater length: 24

3288 1205630 GAATCTCAAGAAGAGGATTGAAAG CAGACCGTGAGGCCGCCCCACCGTTAAAGGTGTTAT spacer
length: 38 repeater length: 24

3289 1205693 GAATCTCAAGAAGAGGATTGAAAG

CTTTATCTCGCTCTCCCTTTTTTGCTCTACTACGTTACCCATGGGAATCTCAAGAAGATGATTGAAAGCATGGGAGACGTAAACGC
 CGTTGTGTCCAACGTCTATGCAGTAAAC spacer length: 114 repeater length: 24
 3290 1205832 GAATCTCAAGAAGAGGATTGAAAG
 CTGTAGACCACGTAAAGAAGATAGATGTGCTGGTGGGGTTGGGGTGGGTCTGGTGGGGTTTTTGAGGGGCCTGTGAGTTTTTCGTTT
 TTGTTTGTGGAGGGGGCTTTGTGGGGTG
 3291
 3292
 3293 GCA_000015825.1_ASM1582v1_genomic.fna(findCrispr):
 3294 START REPEAT
 SPACER
 3295 crispr 1
 3296 153293 TCGAA
 GACCTTCGGTCTTCTCGAACTCCCGTCCTACGGACAGTCGTTTCGTTGGAACGTCGCACCCTGCGGGCCATCGCA spacer
 length: 74 repeater length: 5
 3297 153373 TCGAA
 GACCTTCGGTCTTCTCGAGCTCCGGCTCTACGAGCCGTCGCATCCTACGGACCGTCGTTTCGTTGGAACGTCGCA spacer
 length: 74 repeater length: 5
 3298 153453 TCGAA
 GACCTTCGGTCTTCTCGAACTCCTGGCGTTCCGGCAGTCGCAACCCGCACCTCCGGTGCTCCTGCTCCGTTC spacer
 length: 72 repeater length: 5
 3299 153531 TCGAA
 GACCTTCGGTCTTCTCGAACTCCTGGCGTTCCGGCAGTCGCAACCCGCACCTCCGGTGCTCCTGCTCCGTTC spacer
 length: 72 repeater length: 5
 3300 153609 TCGAA CTTTGGGTCTTCTCAAACCTCCGTTCTGTGCGAACGTCGTATTTGAAACCCTTTGGGTTTCTCATGCTCGCTA
 3301
 3302
 3303 crispr 2
 3304 1355828 TCAACTCCGCTCTTTCAGAGCATC GCACTCCGCACCTACGGTGC spacer length: 20 repeater
 length: 24
 3305 1355873 TCAACTCCGCTCTTTCAGAGCATC GCACTCCGCACCTTCGGTGC spacer length: 20 repeater
 length: 24
 3306 1355918 TCAACTCCGCTCTTTCAGAGCATC GCACTCCGCACCTTCGGTGC spacer length: 20 repeater
 length: 24
 3307 1355963 TCAACTCCGCTCTTTCAGAGCATC GCACTCCGCACCTACGGTGC spacer length: 20 repeater
 length: 24
 3308 1356008 TCAACTCCGCTCTTTCAGAGCATC GTTCTGTGCGAACGTCGTAT
 3309
 3310
 3311 crispr 3
 3312 897128 CCCAGCAGGAGCTGGAGAAAATGCG
 CAGCATTTTTCGACCGGCGACTGGTGTTCGACAAGCGCCCGCAGGAGCTGGAGAGAGTGCAGGAGCATTTTCGACCGGCGACTGG
 TGTTTCCGACAAGC spacer length: 100 repeater length: 25
 3313 897254 CCCAGCAGGAGCTGGAGAAAATGCG
 GAGCATTTTTCGACCGGCGACTGGTGTTCGACAAGCGCCCGCAGGAGTTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGG
 TGTTTCCAACAAGC spacer length: 100 repeater length: 25
 3314 897380 CCCAGCAGGAGCTGGAGAAAATGCG
 CAGCATTTTTCGACCGGCGACTGGTGTTCGACAAGCGCCCGCAGGAGTTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGG
 TGTTTCCGACAAGC spacer length: 100 repeater length: 25
 3315 897506 CCCAGCAGGAGCTGGAGAAAATGCG
 GAGCATTTTTCGACCGGCGACTGGTGTTCGACAAGCGCCCGCAGGAGTTGGAGAAAATGCGGAGCATTTTTCGACCGGCGACTGG
 TGTTTCCGACAAGC spacer length: 100 repeater length: 25
 3316 897632 CCCAGCAGGAGCTGGAGAAAATGCG
 CAGCATTTTTCGACCGGCGACTGGTGTTCGACAAGCGCCCGCAGGAGTTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGG
 TGTTTCCGACAAGC spacer length: 100 repeater length: 25
 3317 897758 CCCAGCAGGAGCTGGAGAAAATGCG
 CTCCGCACCTACGGTGCTCAAACCTCCTGCCGTCCGCTACGCTCCCGGCAGTCGTTCCCGGCACCTACGGTGCTCAAACCTCCTGCCG
 TCCGCTACGCTCCC
 3318
 3319
 3320 crispr 4
 3321 499247 GAGCATGAGCACCGCAGGTGCGAGC CGCGACGGTCCATCCGGCCC spacer length: 20 repeater
 length: 25
 3322 499293 GAGCATGAGCACCGCAGGTGCGAGC CGCGACGTTCCATCCGGCCC spacer length: 20 repeater
 length: 25
 3323 499339 GAGCATGAGCACCGCAGGTGCGAGC TGGCGTTCCGGCAGTCGCAA
 3324
 3325
 3326 crispr 5
 3327 161213 GTATTTTCGAAACCCTTTGGGTTTCTCAA ACTCCGTTCTGTGCAAACGT spacer length: 20 repeater
 length: 28
 3328 161262 GTATTTTCGAAACCCTTTGGGTTTCTCAA ACTCCGTTCTGTGCAAACGT spacer length: 20 repeater

length: 28
3329 161311 GTATTTTCGAAACCCTTTGGGTTTCTCAA ACTCCGTTCTGTCTCGGAACGT spacer length: 20 repeater
length: 28
3330 161360 GTATTTTCGAAACCCTTTGGGTTTCTCAA ACTCCGTTCTGTCTCGGAACGT spacer length: 20 repeater
length: 28
3331 161409 GTATTTTCGAAACCCTTTGGGTTTCTCAA CCTACGGACAGTCGTTTCGTT
3332
3333
3334 crispr 6
3335 897028 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGCTGGAGAGAGTGCG spacer
length: 33 repeater length: 29
3336 897091 AGCATTTTTCGACCGGCGACTGGTGTTTCC AACAAAGCACCCAGCAGGAGCTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3337 897154 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGCTGGAGAGAGTGCG spacer
length: 33 repeater length: 29
3338 897217 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGCTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3339 897280 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGTTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3340 897343 AGCATTTTTCGACCGGCGACTGGTGTTTCC
AACAAAGCGCCCGGCAGGAGCTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGGTGTTTCCAACAAGCGCCCGGCAGGAGTTGG
AGAAAATGCGCAGCATTTTTCGACCGGCGACTGGTGTTTCCGACAAGCGCCCGGCAGGAGCTGGAGAAAATGCG spacer
length: 159 repeater length: 29
3341 897532 AGCATTTTTCGACCGGCGACTGGTGTTTCC AACAAAGCGCCCGGCAGGAGTTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3342 897595 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGCTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3343 897658 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGTTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3344 897721 AGCATTTTTCGACCGGCGACTGGTGTTTCC GACAAGCGCCCGGCAGGAGCTGGAGAAAATGCG spacer
length: 33 repeater length: 29
3345 897784 AGCATTTTTCGACCGGCGACTGGTGTTTCC GGAGTTTTCGACCGGACGCTCGGGTGATCTCCA
3346
3347
3348 crispr 7
3349 1051870 CTCCAGCTCCGGCCCTTCGGCCCCGTCGCCA
TTCGAAAATGCTTCGCGTTGTCTCAAGCTCCGGCCCTTCGGCCCCGTCGCCATTCGAAAATGCTTCGCGTTG spacer
length: 71 repeater length: 30
3350 1051972 CTCCAGCTCCGGCCCTTCGGCCCCGTCGCCA TTCGAAAATGCTTCGCGTTG spacer length: 20
repeater length: 30
3351 1052023 CTCCAGCTCCGGCCCTTCGGCCCCGTCGCCA TTCGAAAATGCTTCGCGTTG spacer length: 20
repeater length: 30
3352 1052074 CTCCAGCTCCGGCCCTTCGGCCCCGTCGCCA GAGCATTTTTCGACCGGCGAC
3353
3354
3355 crispr 8
3356 1903824 TGCCGGACGGGAGCATCGTAATCATGGGCGG
GGCGGGCAGCTCGGGCAGGTATGGAAGTCGACCGACGGCGGGGCCATATGGACGGAGTTGTCCAACCCCGGGGAGGGGTACTCAA
GATACTCTCACACCAGCGTCGCG spacer length: 109 repeater length: 31
3357 1903965 TGCCGGACGGGAGCATCGTAATCATGGGCGG
CTGGTACCTCGGCCGTGAAAAACGACGTCTGGCGGTGACCGACAACGGCAGCAGATGGACGCAGGTGACCGAGCACGCCGAGTGGT
CGCCAAGGCTGGGCCACACCTCCGTCGCG spacer length: 115 repeater length: 31
3358 1904112 TGCCGGACGGGAGCATCGTAATCATGGGCGG
GCAGCATTTTTCGACCGGCGACTGGTGTTTCCAATAAGCGCCCAGCAGGAGCTGGAGAACATGCGGAGTTTTTCGACCGGACGCTCGG
GTGATCTCCACTACCCGGTCATTTTTTTAG
3359
3360
3361 crispr 9
3362 897247 ACAAGCGCCCAGCAGGAGCTGGAGAAAATGCG
GAGCATTTTTCGACCGGCGACTGGTGTTTCCGACAAGCGCCCAGCAGGAGTTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGG
TGTTTCC spacer length: 93 repeater length: 32
3363 897373 ACAAGCGCCCAGCAGGAGCTGGAGAAAATGCG
CAGCATTTTTCGACCGGCGACTGGTGTTTCCAACAAGCGCCCAGCAGGAGTTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGG
TGTTTCC spacer length: 93 repeater length: 32
3364 897499 ACAAGCGCCCAGCAGGAGCTGGAGAAAATGCG
GAGCATTTTTCGACCGGCGACTGGTGTTTCCAACAAGCGCCCAGCAGGAGTTGGAGAAAATGCGGAGCATTTTTCGACCGGCGACTGG
TGTTTCC spacer length: 93 repeater length: 32
3365 897625 ACAAGCGCCCAGCAGGAGCTGGAGAAAATGCG
CAGCATTTTTCGACCGGCGACTGGTGTTTCCGACAAGCGCCCGGCAGGAGTTGGAGAAAATGCGCAGCATTTTTCGACCGGCGACTGG
TGTTTCC spacer length: 93 repeater length: 32
3366 897751 ACAAGCGCCCAGCAGGAGCTGGAGAAAATGCG

GAGCATTTTCGACCGGCGACTGGTGTTCGACAAGCGCCCAGCAGGAGCTGGAGAAAATGCGCAGCATTTCGACCGGCGACTGG
TGTTC

3367

3368

3369 GCA_000015945.1_ASM1594v1_genomic.fna(findCrispr):

3370 START REPEAT

SPACER

3371 crispr 1

3372 336671 CAACATAGAAAAGAA TTGAAAGCCTCATAAAAAACAATGTCTTAAAAACAATTATATTTAAGTA spacer
length: 49 repeater length: 14

3373 336735 CAACATAGAAAAGAA TTGAAAGCTCAGCAATCAGCTTATTATCTCTATAAACCTGATATTGGTA spacer
length: 50 repeater length: 14

3374 336800 CAACATAGAAAAGAA TTGAAAGTTCTTTTCTTGAGGGCTTCTCTAAGGGTTTCGGCTACTATGTA spacer
length: 50 repeater length: 14

3375 336865 CAACATAGAAAAGAA TTGAAAGTAGGCGAGGACGACATGGTTAGGTGGAGAGCGAGAACCCGTTGTA spacer
length: 52 repeater length: 14

3376 336932 CAACATAGAAAAGAA TTGAAAGTCCCCCGCCACACCACGCACACAAAACATGCATGCAAAAGTA spacer
length: 49 repeater length: 14

3377 336996 CAACATAGAAAAGAA TTGAAAGTTGTAGAATAGCCTGGGCTACTGCCTCTACCTTCTCTTTAGTA spacer
length: 50 repeater length: 14

3378 337061 CAACATAGAAAAGAA TTGAAAGTTTATCCCCACAAACCTTAGCAGTATATCGTATAACTGGTA spacer
length: 48 repeater length: 14

3379 337124 CAACATAGAAAAGAA TTGAAAGCGGACTCGGTTTTGCCAGCGATATCGGGGTAGCGGATGTGTA spacer
length: 49 repeater length: 14

3380 337188 CAACATAGAAAAGAA TTGAAAGTCCATAAATTTGTGGAGCATACTCTACTAGCATTTCATGTA spacer
length: 49 repeater length: 14

3381 337252 CAACATAGAAAAGAA TTGAAAGAAGATTAATGGAATTGCAACGCTTATTAATGCTATTATTAGGTA spacer
length: 51 repeater length: 14

3382 337318 CAACATAGAAAAGAA TTGAAAGTGCCTGATCAAGCTTCGGCACAATTTTTGTCCTAAATATGTA spacer
length: 50 repeater length: 14

3383 337383 CAACATAGAAAAGAA TTGAAAGTTAGAGACCTATGCGTCCTAATAGAGGTATTGCTCTCCTAGGTA spacer
length: 51 repeater length: 14

3384 337449 CAACATAGAAAAGAA TTGAAAGATAGGAACCGCTCTGTGGCATGCGTTTATAGAAATTGGTA spacer length:
47 repeater length: 14

3385 337511 CAACATAGAAAAGAA TGAAAGAGAGATACAGCGAGATAGATTATACGCCGACAATTGACCAA

3386

3387

3388 crispr 2

3389 564503 GGTAAC AACATAGAAAAGAATTGAAAGTTTCTTTGCTAGTATAACAGCTTCGCTTAAATCACTCGG spacer
length: 59 repeater length: 6

3390 564569 GGTAAC AACATAGAAAAGAATTGAAAGTCATTCTTCCAAGCATAATATAATGCTGTCATGATAG spacer
length: 57 repeater length: 6

3391 564633 GGTAAC AACATAGAAAAGAATTGAAAGATAAGCATTGTTGCTTGCCGTAATTGTTACTGATAC spacer
length: 56 repeater length: 6

3392 564696 GGTAAC
AACATAGAAAAGAATTGAAAGTCATATAATCGTCTTTTTTCTGCTTTATTTCATGTTAATGTAACAACATAGAAAAGAATTGAAAGATT
GTTTCAAATGTTTCGCTTGTCTCCAGTTTGCG spacer length: 121 repeater length: 6

3393 564824 GGTAAC AACATAGAAAAGAATTGAAAGATACAAGACGACTATCCCAAAGAAAAATATAGATTGAT spacer
length: 58 repeater length: 6

3394 564889 GGTAAC TTCTATGTTGTTACTTGTCCGTGATATTTCTAATGGGTTTTCCATATAGTATTCTGCT

3395

3396

3397 crispr 3

3398 330679 TTCAATT CTTTCTATGTTGTTACTCTCGGAATAAATCTTAAATATAGAACTTGGGGAACGAAAC spacer
length: 57 repeater length: 7

3399 330744 TTCAATT CTTTCTATGTTGTTACATGGCTCTACTAATGCTATCAACATGGATAACGAAGAATATTAC spacer
length: 60 repeater length: 7

3400 330812 TTCAATT CTTTCTATGTTGTTACCCCGCCTCGAGTAACGGGGGGCAGACACGGGGCTTAGAGC spacer
length: 56 repeater length: 7

3401 330876 TTCAATT CTTTCTATGTTGTTACGTATATTTGTTCCCGATTTAAGACCGTTTATTATACAGTTACC spacer
length: 59 repeater length: 7

3402 330943 TTCAATT CTTTCTATGTTGTTACCAATGATTACCCAGAAAGAGATCGTTGAATATGTTAGGAAC spacer
length: 57 repeater length: 7

3403 331008 TTCAATT CTTTCTATGTTGTTACTTAAAGACATGGGAAAACCCAAATTTTAACTGTAAATGTTTC spacer
length: 57 repeater length: 7

3404 331073 TTCAATT TCTGTGTTGCTACATTGGTTTCGAATACGTTGTTACGTTTATATTTTATTTTCGAAAT

3405

3406

3407 crispr 4

3408 602868 CTTTCAATTCTTTCTGTGTTGCTAC ATATGAGAATAAGAGCTTCGAGGACATAGATAGAGAAAGAA spacer
length: 41 repeater length: 25

3409 602935 CTTTCAATTCTTTCTGTGTTGCTAC CCCCAGGAATCGTTAAGTGCTTTCTGGGCAAACACTA spacer
 length: 38 repeater length: 25
 3410 602999 CTTTCAATTCTTTCTGTGTTGCTAC AATAGCCTGGGCTACTGCCTCTACCTTCTCTTTAGTAG
 3411
 3412
 3413 crispr 5
 3414 395518 TGTAACAACATAGAAAGAATTGAAAGCC CTTTGTCTAGGCATACCCTAAAGTTTGCATATTG spacer
 length: 34 repeater length: 28
 3415 395581 TGTAACAACATAGAAAGAATTGAAAGCC CTTTGTCTAGGCATACCCTAAAGTTTGCATATTG spacer
 length: 34 repeater length: 28
 3416 395644 TGTAACAACATAGAAAGAATTGAAAGCC TTTTTCCTCGTATTGCCTGAATACTTCGTTAGGCA spacer
 length: 36 repeater length: 28
 3417 395709 TGTAACAACATAGAAAGAATTGAAAGCC
 CTCAGCGAGTCCAGTAGTTCTCCTATATAATTGCTAGTAACAACATAGAAAGAATTGAAAGTAAACATCCTGCTAAAGCAAATAC
 GTATCTATTGGAGT spacer length: 100 repeater length: 28
 3418 395838 TGTAACAACATAGAAAGAATTGAAAGCC
 ACAAACCTTAGCAGTATATCGTATAACTGGTAGCAACATAGAAAGAATTGAAAGCGGACTCGGTTTTGCCAGCGATATCGGGGTAG
 CGGATGTGTAGCAA
 3419
 3420
 3421 GCA_000016385.1_ASM1638v1_genomic.fna(findCrispr):
 3422 START REPEAT
 SPACER
 3423 crispr 1
 3424 1307876 CTTTCAATCCTCTTTTTGAGATTC GAACGCCATGGCCCAAGCCCTGGCGGAGTACGCGGTGAGAT spacer
 length: 41 repeater length: 24
 3425 1307942 CTTTCAATCCTCTTTTTGAGATTC ACTAAGGCAGATGTAGTTATTCCACACGGCGTTAGTGATGATATCA
 spacer length: 46 repeater length: 24
 3426 1308013 CTTTCAATCCTCTTTTTGAGATTC GAGACTGTCAGACCGCCATTGGAGGCGCCGAAGGAGAGAGCCG spacer
 length: 43 repeater length: 24
 3427 1308081 CTTTCAATCCTCTTTTTGAGATTC TCTGACATTATCCGCCACTTCCCTCTGGAGGCTGTTCAGGTGG
 3428
 3429
 3430 crispr 2
 3431 999187 GAATCTCAAAAAGAGGATTGAAAG AACCCGCCAAGGCATTACTGGATCGCCGCCGTCGTTTTGACT spacer
 length: 42 repeater length: 24
 3432 999254 GAATCTCAAAAAGAGGATTGAAAG CGTATATGTGGAGCTCTGGGGGTATCCTGACCCCTCTA spacer
 length: 39 repeater length: 24
 3433 999318 GAATCTCAAAAAGAGGATTGAAAG AGCAGGACGTGTCTAAACAGCTTGACAGAATTGCATCCTTGGCACAG
 spacer length: 47 repeater length: 24
 3434 999390 GAATCTCAAAAAGAGGATTGAAAG AGACGATGTAGTCTTGGCTTGGGCCGTCTTTATACACGCCGAAGCC
 spacer length: 46 repeater length: 24
 3435 999461 GAATCTCAAAAAGAGGATTGAAAG GTCATCACGAAGTATAGTATCAACCCGCCGGCTACTGCGATAAC spacer
 length: 44 repeater length: 24
 3436 999530 GAATCTCAAAAAGAGGATTGAAAG TGCCGTACTACGGCAAAGCAATATACGTCGTTAAAGAGAAC spacer
 length: 41 repeater length: 24
 3437 999596 GAATCTCAAAAAGAGGATTGAAAG AAGCTGTACATCGCCTCTGAGCCCAACGTCTTCTACGGCGA spacer
 length: 41 repeater length: 24
 3438 999662 GAATCTCAAAAAGAGGATTGAAAG TCATCATGGCCATAAACACGAAGAGCCACGGCGAGAAGCCCCA spacer
 length: 43 repeater length: 24
 3439 999730 GAATCTCAAAAAGAGGATTGAAAG GACGTTAACTGCTGAGTACACTTCACGCTCGTGCAACAGCTTAA spacer
 length: 44 repeater length: 24
 3440 999799 GAATCTCAAAAAGAGGATTGAAAG GCCAGAGACATTGGCGTATTGTTGCGCAGGCTGGCGTCCTAC spacer
 length: 43 repeater length: 24
 3441 999867 GAATCTCAAAAAGAGGATTGAAAG ACTAACGCAGCAATCACTATCACCACCGCGATTATTAGTATTGT spacer
 length: 44 repeater length: 24
 3442 999936 GAATCTCAAAAAGAGGATTGAAAG TTTGCACGGCGAATGTAGCTATCTGCCCGGCTGTTGTAATAA spacer
 length: 42 repeater length: 24
 3443 1000003 GAATCTCAAAAAGAGGATTGAAAG CTGCTGGGTCTGGGCGCATCTGTTGCGTTAACTACGTT spacer
 length: 38 repeater length: 24
 3444 1000066 GAATCTCAAAAAGAGGATTGAAAG CCAAACCGTGAGGCCCCGCTCCAGTCTCCGTCTGGACTTTC spacer
 length: 42 repeater length: 24
 3445 1000133 GAATCTCAAAAAGAGGATTGAAAG AAAAGGTTTTGTACGGCGAGGCCACGTACTTCCACTTAAACATGG
 spacer length: 45 repeater length: 24
 3446 1000203 GAATCTCAAAAAGAGGATTGAAAG ATCTGAATACCGTGGCCGGCATCGATGCAGTTGACGACGACGA spacer
 length: 43 repeater length: 24
 3447 1000271 GAATCTCAAAAAGAGGATTGAAAG CAGCTCTCTTCTTTTTTCCCGCCCGCCTTTTTGCAAAAATAAA spacer
 length: 44 repeater length: 24
 3448 1000340 GAATCTCAAAAAGAGGATTGAAAG GGAAGGCATGTGGCGAAGAGGATAAGTTTGACAGAGCTTGC spacer
 length: 41 repeater length: 24
 3449 1000406 GAATCTCAAAAAGAGGATTGAAAG ACATATGGAAGCGCCGAGAGGCCGAAGATGCGTCTCATGCAG spacer

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length: 42 repeater length: 24
3450 1000473 GAATCTCAAAAAGAGGATTGAAAG GTTTTGATATCAAGCTCCGGCACTACATCAGTACAATACGT spacer
length: 41 repeater length: 24
3451 1000539 GAATCTCAAAAAGAGGATTGAAAG CGTAGTCGGCTGGGCGGTAGCCGGAGGAGGTCTGCACCACT spacer
length: 41 repeater length: 24
3452 1000605 GAATCTCAAAAAGAGGATTGAAAG CAGGTAGAGAAACAGCCTGAGGTGCGTCTGCCGGATGAG spacer
length: 39 repeater length: 24
3453 1000669 GAATCTCAAAAAGAGGATTGAAAG AGACATGTATATCTCAGACAGCTCCTTCTTAGCCACCGTCTGG spacer
length: 43 repeater length: 24
3454 1000737 GAATCTCAAAAAGAGGATTGAAAG CAGGCGCCCTGACGCCGGGAGTCTTCGCGCCGGTTTCGGAGA spacer
length: 42 repeater length: 24
3455 1000804 GAATCTCAAAAAGAGGATTGAAAG ACTCGTACACAACCTCGGCTGGGCTTGACATGTGGAG spacer
length: 37 repeater length: 24
3456 1000866 GAATCTCAAAAAGAGGATTGAAAG ATAAAAACTTTAACGAACCGAACCCCCGCCCTAAAGGGCGA spacer
length: 41 repeater length: 24
3457 1000932 GAATCTCAAAAAGAGGATTGAAAG ACACGTCGAAATGCGGCCCAACAGTTTTGCTCACCTGCCA spacer
length: 41 repeater length: 24
3458 1000998 GAATCTCAAAAAGAGGATTGAAAG CCTGTCTTAAACGGCACCATGCCGGTGGCGATCCCCATCG spacer
length: 40 repeater length: 24
3459 1001063 GAATCTCAAAAAGAGGATTGAAAG TGTGTAGCCCCCGACGCCCATATGGCTCCCGGTGCCGCGCGTCT
spacer length: 45 repeater length: 24
3460 1001133 GAATCTCAAAAAGAGGATTGAAAG GCGACATGGACATAAGCGACATGTACATCAGCACATACGCGAAGG
spacer length: 45 repeater length: 24
3461 1001203 GAATCTCAAAAAGAGGATTGAAAG TTGCTAAGGCGAGTCTCTCTTCGTGTACTCTCTCAACA spacer
length: 38 repeater length: 24
3462 1001266 GAATCTCAAAAAGAGGATTGAAAG GAACTGCTTGAGCCGGACGAGCCGCCCGGAGCCGCTTAATG spacer
length: 43 repeater length: 24
3463 1001334 GAATCTCAAAAAGAGGATTGAAAG AAGACGTCGATGGCGTATGGGAAAGGCGGCGGCTCTGCTACC spacer
length: 42 repeater length: 24
3464 1001401 GAATCTCAAAAAGAGGATTGAAAG CTGACATTATCCGCCACTTCCCTCTGGAGGCTGTTTCAGGTGG
3465
3466
3467 GCA_000016525.1_ASM1652v1_genomic.fna(findCrispr):
3468 START REPEAT
3469 SPACER
3469 crispr 1
3470 1833344 AGTTAAAGAAGATAACTCTAAAAA TGACATTTCCCTAAAAAAAG spacer length: 20 repeater
length: 24
3471 1833389 AGTTAAAGAAGATAACTCTAAAAA AGACATTTCCCTAAAAAAAG spacer length: 20 repeater
length: 24
3472 1833434 AGTTAAAGAAGATAACTCTAAAAA GCAATCAGCAGAGTTATAAA
3473
3474
3475 crispr 2
3476 1738472 TGATGTTGATGTTGTTTCTCCTGAA GATGACGGTTCTGAATTTAGGGAAAAAATGGATTATG spacer
length: 37 repeater length: 25
3477 1738535 TGATGTTGATGTTGTTTCTCCTGAA
AATGGTGAATCAGACTTTAGTGAGGATGTAGTTTCTGATGTTGAAATTATTCCTATTGAAGATGATGGTTCTGAGTTTAGTGAGGA
TGTAGTTT spacer length: 94 repeater length: 25
3478 1738655 TGATGTTGATGTTGTTTCTCCTGAA
AGTTCTTGTCTAATTCCACTATAAGTAGCTGCAATTTTATTAACAACACTGCAAATCATGCTGGTGCAATTTATAATGCGGGTTC
TGATTCTA
3479
3480
3481 crispr 3
3482 1177579 CAAAAGTAGAATTACCTACAACAAAACCA
ATACCATAATTATAAATGGCACCACCTTTACTTGTTAGCAGTGTTATTA spacer length: 48 repeater length: 29
3483 1177657 CAAAAGTAGAATTACCTACAACAAAACCA
CGGCCACCATTCAGGATTGCACCAGCACCGTCTGCAGCACTATTATTC spacer length: 48 repeater length: 29
3484 1177735 CAAAAGTAGAATTACCTACAACAAAACCA CCTAAAAGCTGTTCCAATTGCGGAATAAGTAAGCGAAGATTCCAA
3485
3486
3487 crispr 4
3488 438885 TAATTGTAGTTTTATTAACAACACCGCAA
CAAATGATTGGGGAAGTGCAATTTATAATTCTGGTTCTGGTTTGACTGTAA spacer length: 51 repeater
length: 29
3489 438966 TAATTGTAGTTTTATTAACAACACCGCAA
ACAATGGAGCTGGTGCAATTTATAATACTGAATCTGGTTTGACTGTAA spacer length: 48 repeater length: 29
3490 439044 TAATTGTAGTTTTATTAACAACACCGCAA AGCAGAGTTATAAATTGCACCACCAATCTTAGCAGTGTTATTAGTAAA
3491
3492

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3493 crispr 5

3494 152569 ATTTCAATCCTATTATAGTCTTATTTTAAAC AGATGATGTTTTATTGGAGAATGGATATGCAGTAC spacer
length: 35 repeater length: 31

3495 152636 ATTTCAATCCTATTATAGTCTTATTTTAAAC CAGGTTATCATTTTCCATGATTACTTTATCATGTGT spacer
length: 36 repeater length: 31

3496 152704 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTATATGATGCTGTAGACTTAAGATGACTTTCTT spacer
length: 35 repeater length: 31

3497 152771 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACTCACAAAAGAAACAGTGATCCTTATATTGCTC spacer
length: 34 repeater length: 31

3498 152837 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTGAATTAGAAATCACAGTTAAAGAAATACCTA spacer
length: 33 repeater length: 31

3499 152902 ATTTCAATCCTATTATAGTCTTATTTTAAAC TCCTATTTTGGACAATTTTGTTTTAATACCAT spacer
length: 32 repeater length: 31

3500 152966 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATCACCATCATACCATTTTCATTTATATGAATAT spacer
length: 34 repeater length: 31

3501 153032 ATTTCAATCCTATTATAGTCTTATTTTAAAC CTACAAAAACCATTCAAGCAATAAACCTGACT spacer
length: 33 repeater length: 31

3502 153097 ATTTCAATCCTATTATAGTCTTATTTTAAAC TATCTAAATCATTCCTTTTATAAATCACTTCACTGA spacer
length: 36 repeater length: 31

3503 153165 ATTTCAATCCTATTATAGTCTTATTTTAAAC CTGTGTCGTTTAATAATAAATCATTTACGTAACTA spacer
length: 35 repeater length: 31

3504 153232 ATTTCAATCCTATTATAGTCTTATTTTAAAC CTAATACATCTGACATCATAAAACACCTTTCAT spacer
length: 34 repeater length: 31

3505 153298 ATTTCAATCCTATTATAGTCTTATTTTAAAC GACAGTTAAAACATTTGCCATTACAAATTATATAT spacer
length: 35 repeater length: 31

3506 153365 ATTTCAATCCTATTATAGTCTTATTTTAAAC CCATACATTATCATACCAGTAAACCAATTTG spacer
length: 31 repeater length: 31

3507 153428 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTCCACACTATCAAATTTGTTGATTTTTTCCATTC spacer
length: 35 repeater length: 31

3508 153495 ATTTCAATCCTATTATAGTCTTATTTTAAAC AAAAGTATACAAATAATCTGAAAACCATGGGTTCTA spacer
length: 36 repeater length: 31

3509 153563 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATCTTCCTTTTTGATAACAAGATTTGTTTCCTCG spacer
length: 34 repeater length: 31

3510 153629 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACTGGTTTAAATGGTGCTGGAATATCTAATAATCC spacer
length: 35 repeater length: 31

3511 153696 ATTTCAATCCTATTATAGTCTTATTTTAAAC AATATATTTATATAGTAGACGGTATAAAGTAATAT spacer
length: 35 repeater length: 31

3512 153763 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTTGATGTAGTTCTTCTTCAGTTATGTTGAATGTG spacer
length: 35 repeater length: 31

3513 153830 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACATTACCAACCTCAATTTCCATTTCAATAGTTT spacer
length: 35 repeater length: 31

3514 153897 ATTTCAATCCTATTATAGTCTTATTTTAAAC TGCTCCTGCAATCAAATTTAAATCTTGTAACCTT spacer
length: 35 repeater length: 31

3515 153964 ATTTCAATCCTATTATAGTCTTATTTTAAAC CATCACGTCTTAACATTCTAATGTCATCTTCACTCC spacer
length: 36 repeater length: 31

3516 154032 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTACTAATATGGCCAATGGTGTTAAAAGTTTACAA spacer
length: 35 repeater length: 31

3517 154099 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTGTACATGCATTGTCCTGCATGTACTTTTAATGT spacer
length: 35 repeater length: 31

3518 154166 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTTAGTTTATGATACTATGACCAGTGAATCCGACAG spacer
length: 36 repeater length: 31

3519 154234 ATTTCAATCCTATTATAGTCTTATTTTAAAC TAGTTGCAAAAGCTGTGGACACTGCAAGGTTAATTC spacer
length: 36 repeater length: 31

3520 154302 ATTTCAATCCTATTATAGTCTTATTTTAAAC ACCTCCTTTGTAACCTACAGGGTCACGACTGCCA spacer
length: 34 repeater length: 31

3521 154368 ATTTCAATCCTATTATAGTCTTATTTTAAAC TACTGAAAGGCATATCAGAATTAGTATCCAGTACA spacer
length: 35 repeater length: 31

3522 154435 ATTTCAATCCTATTATAGTCTTATTTTAAAC CAATACAGTTGCCTTCTACAATCCCGTTTTTAGTT spacer
length: 35 repeater length: 31

3523 154502 ATTTCAATCCTATTATAGTCTTATTTTAAAC TAGGAAAAGCAATGGGAGCATTGTCTGATGTTAA spacer
length: 34 repeater length: 31

3524 154568 ATTTCAATCCTATTATAGTCTTATTTTAAAC TGTATATGTGAATAATGCTTGTCCATTATTATTC spacer
length: 34 repeater length: 31

3525 154634 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTCTAATTGCATTGCGTTAGGATAATCGCTAACCTG spacer
length: 37 repeater length: 31

3526 154703 ATTTCAATCCTATTATAGTCTTATTTTAAAC TATTAATAAATCTTGTACTATTACTCATTGTCATA spacer
length: 35 repeater length: 31

3527 154770 ATTTCAATCCTATTATAGTCTTATTTTAAAC TCTAAAATCAGTGTATCCTGGTTCTTCATAGT spacer
length: 32 repeater length: 31

3528 154834 ATTTCAATCCTATTATAGTCTTATTTTAAAC CAAAGGTATCTGTGATGGATTTACTAATCATTTTC spacer
length: 34 repeater length: 31

3529 154900 ATTTCAATCCTATTATAGTCTTATTTTAAAC AGTTGCAGTAGTATAAGTAGAAGTTCCTTTATACG spacer
 length: 35 repeater length: 31
 3530 154967 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTGGTTACAAACAAGGTAAAGTTTTTCTACCTT spacer
 length: 33 repeater length: 31
 3531 155032 ATTTCAATCCTATTATAGTCTTATTTTAAAC TTTAGTAGTAGAAATAAGAAAACTGAAAAAGTAA spacer
 length: 35 repeater length: 31
 3532 155099 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTTAGATATTATGATGTTAATGCGGAAGTATGGT spacer
 length: 35 repeater length: 31
 3533 155166 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATTCCTGCATATAGTACAATTACTGGAGTTA spacer
 length: 31 repeater length: 31
 3534 155229 ATTTCAATCCTATTATAGTCTTATTTTAAAC ATCGCAGTGCTTGTAGCAATTATTGGTTTCGTA spacer
 length: 33 repeater length: 31
 3535 155294 ATTTCAATCCTATTATAGTCTTATTTTAAAC AAGTAGTGTTGAATTTACATGGTACAAGTAATA spacer
 length: 33 repeater length: 31
 3536 155359 ATTTCAATCCTATTATAGTCTTATTTTAAAC GTTCTAATTCCACTATAAGTAGCTGCAATTTTA
 3537
 3538
 3539 GCA_000016605.1_ASM1660v1_genomic.fna(findCrispr):
 3540 START REPEAT
 SPACER
 3541 crispr 1
 3542 1083266 CTTT CAACTCTATAGGAGATTAACCTCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTG spacer
 length: 61 repeater length: 4
 3543 1083332 CTTT CAACTCTATAGGAGATTAACCTCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAG spacer
 length: 59 repeater length: 4
 3544 1083396 CTTT CAACTCTATAGGAGATTAACACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGA spacer
 length: 58 repeater length: 4
 3545 1083459 CTTT CCTCGAAGGATCTCTACAAGAAGGGCTATTCTGCGTACGCTTCCACCTCTGGAGGCA
 3546
 3547
 3548 crispr 2
 3549 1137833 GATCCTTTGAGGGTTTGAAA CAAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGTTTGTAG spacer
 length: 46 repeater length: 20
 3550 1137900 GATCCTTTGAGGGTTTGAAA CGCAAAGGCCTTTCCCACACTCTCCAAGGGAGTATGAAGTTTATAG spacer
 length: 46 repeater length: 20
 3551 1137967 GATCCTTTGAGGGTTTGAAA CCTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGTTTGTAG spacer
 length: 46 repeater length: 20
 3552 1138034 GATCCTTTGAGGGTTTGAAA CGCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGACTTGTAG spacer
 length: 48 repeater length: 20
 3553 1138103 GATCCTTTGAGGGTTTGAAA CTAAGTGAACCATGGGTATTCCCCCTCCGGGGAACTTCGACTTGTAG spacer
 length: 48 repeater length: 20
 3554 1138172 GATCCTTTGAGGGTTTGAAA CTCGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGTTTGTAG spacer
 length: 46 repeater length: 20
 3555 1138239 GATCCTTTGAGGGTTTGAAA CGTGTGTGTCCTTCTTTGATGGGGCAGCTGCTCCTCTTGTAG spacer
 length: 46 repeater length: 20
 3556 1138306 GATCCTTTGAGGGTTTGAAA CTATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGTTTGTAG spacer
 length: 46 repeater length: 20
 3557 1138373 GATCCTTTGAGGGTTTGAAA CTCGATAGCGAACCTGATAACTTCGCTTCTATTTCAGTCTGTTTGTAG spacer
 length: 47 repeater length: 20
 3558 1138441 GATCCTTTGAGGGTTTGAAA CATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGTTTGTAG spacer
 length: 47 repeater length: 20
 3559 1138509 GATCCTTTGAGGGTTTGAAA CTACACGACGCGATCACACTCATGCCCCGCTGTCGCCGTTGTTTGTAG
 spacer length: 50 repeater length: 20
 3560 1138580 GATCCTTTGAGGGTTTGAAA CATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGCTTGTAG spacer
 length: 46 repeater length: 20
 3561 1138647 GATCCTTTGAGGGTTTGAAA CCCACCTTCACCTCGCCTTACGGCCCTTTTCCTTCTCAGTTTGTAG spacer
 length: 48 repeater length: 20
 3562 1138716 GATCCTTTGAGGGTTTGAAA AAGAAGGGCTATTCTGCGTACGCTTCCACCTCTGGAGGCAGTTTCAA
 3563
 3564
 3565 crispr 3
 3566 1136094 GTTTCAAACCCTCGAAGGAT
 GTCTACAAACGACAGTCTACACCCCCCCCCGGTCGTGAGTGTGGGAAGCGGGGATCCCATTTCAAACCCTCCAAGGATGTCTAC
 AAACGTGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAG spacer length: 128 repeater length: 20
 3567 1136243 GTTTCAAACCCTCGAAGGAT CTCTACAAACTCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
 length: 46 repeater length: 20
 3568 1136310 GTTTCAAACCCTCGAAGGAT CTCTACAAACCCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
 length: 47 repeater length: 20
 3569 1136378 GTTTCAAACCCTCGAAGGAT CTCTACAAACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACT
 spacer length: 49 repeater length: 20
 3570 1136448 GTTTCAAACCCTCGAAGGAT CTCTACAAGCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTAT spacer

length: 44 repeater length: 20
3571 1136513 GTTTCAAACCCCTCGAAGGAT CTCCTGAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAAC
3572
3573
3574 crispr 4
3575 1082307 TCAACTCCATAGG AGATTAAGTATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATACT spacer
length: 51 repeater length: 13
3576 1082372 TCAACTCCATAGG AGATTAAGTAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATTCT spacer
length: 50 repeater length: 13
3577 1082436 TCAACTCCATAGG AGATTAACAGACCCAAAACCTAAACTCCAAAAAGTCTTTGAGCAATTCT spacer
length: 50 repeater length: 13
3578 1082500 TCAACTCCATAGG AGATTAAGTTACTTCTAATGATTACAGGGATTCTCAGAACCCTTCTCT spacer
length: 49 repeater length: 13
3579 1082563 TCAACTCCATAGG AGATTAACGCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAACT spacer
length: 49 repeater length: 13
3580 1082626 TCAACTCCATAGG AGATTAACGTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAGCT spacer
length: 54 repeater length: 13
3581 1082694 TCAACTCCATAGG AGATTAACAGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGACT spacer
length: 51 repeater length: 13
3582 1082759 TCAACTCCATAGG AGATTAACATCAAATGATGCCAAAAGTGATCTACCTATTCTTTTCATCT spacer
length: 50 repeater length: 13
3583 1082823 TCAACTCCATAGG AGATTAACAACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATTCT spacer
length: 50 repeater length: 13
3584 1082887 TCAACTCCATAGG AGATTAACCGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCTCT spacer
length: 52 repeater length: 13
3585 1082953 TCAACTCCATAGG AGATTAAGTTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAGCT spacer
length: 49 repeater length: 13
3586 1083016 TCAACTCCATAGG AGATTAACAGTTCTACGGAAAACATCAATCCAGATAGCAATAAAGACT spacer
length: 49 repeater length: 13
3587 1083079 TCAACTCCATAGG GAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTC
3588
3589
3590 crispr 5
3591 1253615 CCTTCCAATGGTTACGTGTACGT
AGACGTATTATACGCGCTTGGAATAACATCAGTCTCTGTTATCTCAGCTAATAATGTTGTAGGTAATTTGAAAGTATGTAGCGGGA
CTCTCCCATATACGA spacer length: 102 repeater length: 23
3592 1253741 CCTTCCAATGGTTACGTGTACGT
TGGTGGTGCTCCTTCAGATACAGTCTCTGTTATCTCAGGTAATAATGTTGTAGCTAACGTCCCTGTTGGCTTAGATCCAGTCTACG
CTCTCTACGA spacer length: 96 repeater length: 23
3593 1253861 CCTTCCAATGGTTACGTGTACGT
GCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAGGCGAAAATGGTTCGAGCTCGCTGAGGCACAACGCAAGA
CTGAGGAGGC
3594
3595
3596 crispr 6
3597 1097313 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTG spacer
length: 40 repeater length: 24
3598 1097378 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTAT spacer
length: 39 repeater length: 24
3599 1097442 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTA spacer
length: 39 repeater length: 24
3600 1097506 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAG spacer
length: 38 repeater length: 24
3601 1097569 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTG spacer
length: 41 repeater length: 24
3602 1097635 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATA spacer
length: 39 repeater length: 24
3603 1097699 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATC spacer
length: 41 repeater length: 24
3604 1097765 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAG spacer
length: 38 repeater length: 24
3605 1097828 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24
3606 1097892 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTCTTCTTGTGGTGGTATTACCTA spacer
length: 41 repeater length: 24
3607 1097958 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGA spacer
length: 39 repeater length: 24
3608 1098022 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCTACATGATTGCGAAAAACAACAA spacer length:
36 repeater length: 24
3609 1098083 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCCA spacer
length: 39 repeater length: 24

3610	1098147	CTTAATCTCCTATAGAGTTGAAAG	TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACC	spacer
	length:	38	repeater length:	24
3611	1098210	CTTAATCTCCTATAGAGTTGAAAG	TTTTCTTTCTCATACATTACTCTTATTAGTTTACTAACA	spacer
	length:	39	repeater length:	24
3612	1098274	CTTAATCTCCTATAGAGTTGAAAG	CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTC	spacer
	length:	40	repeater length:	24
3613	1098339	CTTAATCTCCTATAGAGTTGAAAG	TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCT	spacer
	length:	40	repeater length:	24
3614	1098404	CTTAATCTCCTATAGAGTTGAAAG	ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACC	spacer
	length:	38	repeater length:	24
3615	1098467	CTTAATCTCCTATAGAGTTGAAAG	ACTAGGCAAACGATACTGAGACACAGCGGGACTGCA	spacer length:
	36	repeater length:	24	
3616	1098528	CTTAATCTCCTATAGAGTTGAAAG	TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTC	spacer
	length:	41	repeater length:	24
3617	1098594	CTTAATCTCCTATAGAGTTGAAAG	AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACG	spacer
	length:	39	repeater length:	24
3618	1098658	CTTAATCTCCTATAGAGTTGAAAG	TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTC	spacer
	length:	43	repeater length:	24
3619	1098726	CTTAATCTCCTATAGAGTTGAAAG	CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATC	spacer
	length:	39	repeater length:	24
3620	1098790	CTTAATCTCCTATAGAGTTGAAAG	AAATGGGACGATGAGGGTGTTCAACAGATACAACACCACA	spacer
	length:	40	repeater length:	24
3621	1098855	CTTAATCTCCTATAGAGTTGAAAG	ATTATATATAATATATGAATAATAGCCCCGCTTCGCGCCT	spacer
	length:	43	repeater length:	24
3622	1098923	CTTAATCTCCTATAGAGTTGAAAG	TCTTTTGCACATATCCATTCCGACCACATCTCTCGGCTTCGATA	spacer
	length:	43	repeater length:	24
3623	1098991	CTTAATCTCCTATAGAGTTGAAAG	TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACT	spacer
	length:	39	repeater length:	24
3624	1099055	CTTAATCTCCTATAGAGTTGAAAG	TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGA	spacer
	length:	42	repeater length:	24
3625	1099122	CTTAATCTCCTATAGAGTTGAAAG	ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAAC	spacer
	length:	41	repeater length:	24
3626	1099188	CTTAATCTCCTATAGAGTTGAAAG	CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGC	spacer
	length:	37	repeater length:	24
3627	1099250	CTTAATCTCCTATAGAGTTGAAAG	TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCC	spacer
	length:	41	repeater length:	24
3628	1099316	CTTAATCTCCTATAGAGTTGAAAG	TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATT	spacer
	length:	44	repeater length:	24
3629	1099385	CTTAATCTCCTATAGAGTTGAAAG	AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGT	spacer
	length:	43	repeater length:	24
3630	1099453	CTTAATCTCCTATAGAGTTGAAAG	ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCT	spacer
	length:	39	repeater length:	24
3631	1099517	CTTAATCTCCTATAGAGTTGAAAG	ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCC	spacer
	length:	40	repeater length:	24
3632	1099582	CTTAATCTCCTATAGAGTTGAAAG	GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGA	spacer
	length:	40	repeater length:	24
3633	1099647	CTTAATCTCCTATAGAGTTGAAAG	CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAG	spacer
	length:	38	repeater length:	24
3634	1099710	CTTAATCTCCTATAGAGTTGAAAG	GAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAG	
3635				
3636				
3637	crispr 7			
3638	1104327	GTTAATCTTCTATAGAGTTGAAAG	TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCA	spacer
	length:	39	repeater length:	24
3639	1104391	GTTAATCTTCTATAGAGTTGAAAG	TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTT	spacer
	length:	40	repeater length:	24
3640	1104456	GTTAATCTTCTATAGAGTTGAAAG	TTTGTCTGTTTCGATTGGAATAATTCAGCGTTACCATAAA	spacer
	length:	41	repeater length:	24
3641	1104522	GTTAATCTTCTATAGAGTTGAAAG	TACCTGTATGACAATTCGCTAAAAATTTAACTATCTA	spacer
	length:	38	repeater length:	24
3642	1104585	GTTAATCTTCTATAGAGTTGAAAG	TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTA	spacer
	length:	38	repeater length:	24
3643	1104648	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGG	spacer
	length:	41	repeater length:	24
3644	1104714	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCA	spacer
	length:	38	repeater length:	24
3645	1104777	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATC	spacer
	length:	40	repeater length:	24
3646	1104842	GTTAATCTTCTATAGAGTTGAAAG	CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAG	spacer
	length:	38	repeater length:	24
3647	1104905	GTTAATCTTCTATAGAGTTGAAAG	TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATC	spacer

length: 39 repeater length: 24
3648 1104969 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTA spacer
length: 39 repeater length: 24
3649 1105033 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCA spacer
length: 39 repeater length: 24
3650 1105097 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTTCAGTTTCTGCGCCTTCTCCCTCACC spacer
length: 38 repeater length: 24
3651 1105160 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATC spacer
length: 39 repeater length: 24
3652 1105224 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCA spacer
length: 39 repeater length: 24
3653 1105288 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCT
spacer length: 45 repeater length: 24
3654 1105358 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGG spacer
length: 38 repeater length: 24
3655 1105421 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTTTTTTTCCACTAAA spacer
length: 37 repeater length: 24
3656 1105483 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAA spacer
length: 40 repeater length: 24
3657 1105548 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGA spacer
length: 38 repeater length: 24
3658 1105611 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGA spacer
length: 40 repeater length: 24
3659 1105676 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCT spacer
length: 40 repeater length: 24
3660 1105741 GTTAATCTTCTATAGAGTTGAAAG TATATTTCTGTCGCTATATCGCCCAGAAGACGTCTGATA spacer
length: 38 repeater length: 24
3661 1105804 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATC spacer
length: 39 repeater length: 24
3662 1105868 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGA spacer
length: 39 repeater length: 24
3663 1105932 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTGTGTCATAATA spacer
length: 38 repeater length: 24
3664 1105995 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCT spacer
length: 42 repeater length: 24
3665 1106062 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTA spacer
length: 38 repeater length: 24
3666 1106125 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCA spacer
length: 39 repeater length: 24
3667 1106189 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTC spacer
length: 39 repeater length: 24
3668 1106253 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTT spacer
length: 41 repeater length: 24
3669 1106319 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTA spacer length:
34 repeater length: 24
3670 1106378 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAAC spacer length:
36 repeater length: 24
3671 1106439 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAG spacer
length: 39 repeater length: 24
3672 1106503 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTG spacer
length: 40 repeater length: 24
3673 1106568 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTA spacer
length: 37 repeater length: 24
3674 1106630 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGAT spacer
length: 39 repeater length: 24
3675 1106694 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCA spacer
length: 39 repeater length: 24
3676 1106758 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGAC spacer
length: 41 repeater length: 24
3677 1106824 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTT spacer
length: 38 repeater length: 24
3678 1106887 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAAT spacer
length: 38 repeater length: 24
3679 1106950 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTT spacer
length: 38 repeater length: 24
3680 1107013 GTTAATCTTCTATAGAGTTGAAAG ATTTGCGCAATTCATTTGCAATTGTTTCAATTCACTTCAAA spacer
length: 40 repeater length: 24
3681 1107078 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCTTCTTTTCTTTCTTTTCACTA spacer
length: 40 repeater length: 24
3682 1107143 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAAGAGATCTAATAGACGAAGGCGGAATCTTTC spacer
length: 40 repeater length: 24

3683 1107208 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGAC spacer
length: 40 repeater length: 24

3684 1107273 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTTTCGAAGAGAATTGGCGGGGCGCTGTAAT spacer
length: 40 repeater length: 24

3685 1107338 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGG spacer
length: 38 repeater length: 24

3686 1107401 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGA spacer
length: 43 repeater length: 24

3687 1107469 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTA spacer
length: 39 repeater length: 24

3688 1107533 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCC spacer
length: 39 repeater length: 24

3689 1107597 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTG spacer
length: 39 repeater length: 24

3690 1107661 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCT spacer
length: 40 repeater length: 24

3691 1107726 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCG spacer
length: 39 repeater length: 24

3692 1107790 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTT spacer
length: 38 repeater length: 24

3693 1107853 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGG spacer
length: 42 repeater length: 24

3694 1107920 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCT spacer
length: 38 repeater length: 24

3695 1107983 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCT spacer
length: 43 repeater length: 24

3696 1108051 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTG spacer
length: 42 repeater length: 24

3697 1108118 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCA spacer
length: 38 repeater length: 24

3698 1108181 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGC spacer
length: 40 repeater length: 24

3699 1108246 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCA spacer
length: 38 repeater length: 24

3700 1108309 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACAC spacer
length: 37 repeater length: 24

3701 1108371 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTAACTGTGCATG spacer
length: 37 repeater length: 24

3702 1108433 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCCCT spacer
length: 38 repeater length: 24

3703 1108496 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAA spacer
length: 40 repeater length: 24

3704 1108561 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTA spacer
length: 43 repeater length: 24

3705 1108629 GTTAATCTTCTATAGAGTTGAAAG AGATAACATTTTTTCTCTTGTTTAAACGTATCTACGAACCA spacer
length: 41 repeater length: 24

3706 1108695 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGCTGGCTTCATAT spacer
length: 40 repeater length: 24

3707 1108760 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCG spacer
length: 41 repeater length: 24

3708 1108826 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCC spacer
length: 40 repeater length: 24

3709 1108891 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTACCAAAAGAATAATACAAAAATTTA spacer
length: 40 repeater length: 24

3710 1108956 GTTAATCTTCTATAGAGTTGAAAG TTGTCAACAGTTTCCGATAAGTCGTGAAGTTCATGTCATTTA spacer
length: 42 repeater length: 24

3711 1109023 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTTACTTACTTTTTTGAACGAC
spacer length: 50 repeater length: 24

3712 1109098 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCATTTTCTATCCC spacer
length: 39 repeater length: 24

3713 1109162 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAAC spacer length:
34 repeater length: 24

3714 1109221 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATA spacer
length: 40 repeater length: 24

3715 1109286 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAA spacer
length: 39 repeater length: 24

3716 1109350 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAAATCCTTGACCTAAGG spacer
length: 38 repeater length: 24

3717 1109413 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGG spacer
length: 42 repeater length: 24

3718 1109480 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACT spacer

length: 39 repeater length: 24
3719 1109544 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAA spacer
length: 38 repeater length: 24
3720 1109607 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTAGTGGAAAGTTGTACGGTATGAGGAGTCAT spacer
length: 40 repeater length: 24
3721 1109672 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAAACCTTTACAGATTCCCATATCCT spacer
length: 38 repeater length: 24
3722 1109735 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGA spacer
length: 39 repeater length: 24
3723 1109799 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAG spacer
length: 40 repeater length: 24
3724 1109864 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAG spacer
length: 38 repeater length: 24
3725 1109927 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTA spacer
length: 39 repeater length: 24
3726 1109991 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGTGTTTGTGAA spacer
length: 40 repeater length: 24
3727 1110056 GTTAATCTTCTATAGAGTTGAAAG TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAG spacer
length: 39 repeater length: 24
3728 1110120 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGAACCTTACTCAAAGCCCTCAAAGACGA spacer
length: 38 repeater length: 24
3729 1110183 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTT spacer
length: 38 repeater length: 24
3730 1110246 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATA spacer
length: 42 repeater length: 24
3731 1110313 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAAC spacer
length: 38 repeater length: 24
3732 1110376 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCA spacer
length: 42 repeater length: 24
3733 1110443 GTTAATCTTCTATAGAGTTGAAAG GCTTGTTGCTCAGCCATTGCGTAACCTCACCCCA spacer length:
34 repeater length: 24
3734 1110502 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGAAGTCTAG spacer
length: 37 repeater length: 24
3735 1110564 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAA spacer
length: 41 repeater length: 24
3736 1110630 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCC spacer
length: 37 repeater length: 24
3737 1110692 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTT spacer
length: 39 repeater length: 24
3738 1110756 GTTAATCTTCTATAGAGTTGAAAG TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAA spacer
length: 38 repeater length: 24
3739 1110819 GTTAATCTTCTATAGAGTTGAAAG TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGT spacer
length: 40 repeater length: 24
3740 1110884 GTTAATCTTCTATAGAGTTGAAAG TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATA spacer
length: 39 repeater length: 24
3741 1110948 GTTAATCTTCTATAGAGTTGAAAG ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACG spacer length:
36 repeater length: 24
3742 1111009 GTTAATCTTCTATAGAGTTGAAAG TCCACGGAGGGGTGGAGAATGAAACTATTCTGAAGGGA spacer
length: 37 repeater length: 24
3743 1111071 GTTAATCTTCTATAGAGTTGAAAG ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAG spacer
length: 38 repeater length: 24
3744 1111134 GTTAATCTTCTATAGAGTTGAAAG GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAATG spacer
length: 38 repeater length: 24
3745 1111197 GTTAATCTTCTATAGAGTTGAAAG ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATT spacer length:
36 repeater length: 24
3746 1111258 GTTAATCTTCTATAGAGTTGAAAG ACGGTACGCCGTCGCCGACGCGGGGGATACCCTGTATCA spacer
length: 39 repeater length: 24
3747 1111322 GTTAATCTTCTATAGAGTTGAAAG AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACTT spacer
length: 37 repeater length: 24
3748 1111384 GTTAATCTTCTATAGAGTTGAAAG CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAG spacer
length: 39 repeater length: 24
3749 1111448 GTTAATCTTCTATAGAGTTGAAAG AAATTTTGTAGAAGAAATATACGAATGTGTAGATAAAA spacer
length: 37 repeater length: 24
3750 1111510 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTACGATCACTAAGTCTAAGATATAATCGGG spacer
length: 40 repeater length: 24
3751 1111575 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCAT spacer
length: 39 repeater length: 24
3752 1111639 GTTAATCTTCTATAGAGTTGAAAG CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGA spacer
length: 40 repeater length: 24
3753 1111704 GTTAATCTTCTATAGAGTTGAAAG AAAAATTATTCTTGTGATCTGTTGCTGCTATATTGGGTGT spacer
length: 42 repeater length: 24

3754 1111771 GTTAATCTTCTATAGAGTTGAAAG TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACC spacer
length: 40 repeater length: 24

3755 1111836 GTTAATCTTCTATAGAGTTGAAAG GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAGTA spacer
length: 42 repeater length: 24

3756 1111903 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCG spacer
length: 39 repeater length: 24

3757 1111967 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTT spacer
length: 38 repeater length: 24

3758 1112030 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGA spacer
length: 38 repeater length: 24

3759 1112093 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTCCGGTAAGGA spacer
length: 38 repeater length: 24

3760 1112156 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACC spacer
length: 39 repeater length: 24

3761 1112220 GTTAATCTTCTATAGAGTTGAAAG
AACTTCCTACTTAGACCGCGAATTAGCGATCTAGGAATCGAGTTAATCTTCTATGGAGTTGAAAGAGTCTAACCCCTTCTGTCCC
TGATATTTTCTCTAT spacer length: 102 repeater length: 24

3762 1112347 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTC spacer
length: 42 repeater length: 24

3763 1112414 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGC spacer length:
36 repeater length: 24

3764 1112475 GTTAATCTTCTATAGAGTTGAAAG
CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGAGTTAATCTTCGATAGAGTTGAAAGACAAGCCAAATGATGAAGTTAC
TACTACTAATACTACTACTA spacer length: 106 repeater length: 24

3765 1112606 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCA spacer
length: 38 repeater length: 24

3766 1112669 GTTAATCTTCTATAGAGTTGAAAG AGTGATAGAATAAAAGCTATTATTCCAACATTTTCTCT

3767

3768

3769 crispr 8

3770 1136243 GTTTCAAACCCCTCGAAGGATCTCTACAAAC TCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 36 repeater length: 30

3771 1136310 GTTTCAAACCCCTCGAAGGATCTCTACAAAC CTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 37 repeater length: 30

3772 1136378 GTTTCAAACCCCTCGAAGGATCTCTACAAAC AATACTACGTAATATGAATAGGTACTGTGAGACGAGA

3773

3774

3775 crispr 9

3776 1710423 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 43 repeater length: 40

3777 1710507 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTTGTGAGTCCCAACGCAGAATGCAGGAGGCATTCTCAAGCTCGAGGACAGAACC
TCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 127 repeater length: 40

3778 1710675 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
TCTTGATATGTTGAGTCTTTCCGTTAATCCTCTATAGAGTTGAAAGGTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCATG
TTAATCTTCTATAGAGTTGAAAGTGCTTTGTACGTAAAATG

3779

3780

3781 GCA_000017165.1_ASM1716v1_genomic.fna(findCrispr):

3782 START REPEAT
SPACER

3783 crispr 1

3784 1331128 TAAATCCTGACGGAACAGAAAAATGGA
GATTTAAAACGGGAAAGTCGATTTATTCAACTCCAGTTGTATATAACGATGGTACAATCTATTTTGGTTCAAATGACGAACATTTA
TATGCC spacer length: 92 repeater length: 27

3785 1331248 TAAATCCTGACGGAACAGAAAAATGGA
GATTTAAAACAAATGACTCCGTAGTGTCCCAAGTTACTATTGGAAGATGGTACAATCTATTTTGGTTCAAGATAAGGTTTATGCA
spacer length: 86 repeater length: 27

3786 1331362 TAAATCCTGACGGAACAGAAAAATGGA
ACTTTTATGCGGGGTACTGGGTAGTTTCAAACCTGCTATTTCAAATGATGAATCAATATATGTAACATCTCTTGATGGTAATTTA
TATGCC spacer length: 92 repeater length: 27

3787 1331482 TAAATCCTGACGGAACAGAAAAATGGA
GAGGCCTTTCAACCTACGTGTAAAGTACCCATATTCAAATAATTAATAATTCATAAAAAATGCATTTTAAGATCTAACTATCGTT
TAGGAA

3788

3789

3790 crispr 2

3791 127424 ATACGAAACGTTGATCCATCAAACAAGGATTGAGAC CATTTGTAGCATAACAGACGTATTGATTACCTCTAT
spacer length: 36 repeater length: 37

3792 127498 ATACGAAACGTTGATCCATCAAACAAGGATTGAGAC TCTTTGAATATACCATCTGATGAGTCAGCTAAGAT
spacer length: 35 repeater length: 37

3793	127571	ATACGAAACGTTGATCCATCAAAACAAGGATTGAGAC	AAAAAGCGAATTGAATCTTCTCCCGCAATTGGAAA
3794			
3795			
3796	crispr 3		
3797	262821	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CCAATGAAGCAAGTACTAATGAGTCGTATTATACA
		spacer length: 35 repeater length: 37	
3798	262894	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTATCTAATATCCTATTATGTAATGGCTCGCACTCG
		spacer length: 36 repeater length: 37	
3799	262968	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CAGAATCGTAAGTACCTAAATTTATAGTTCCATC
		spacer length: 34 repeater length: 37	
3800	263040	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TGTTACGCCGTTTGC GGTTCCAAAATCAGATATT
		spacer length: 34 repeater length: 37	
3801	263112	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTCTATAGGTGTTGCTTGAAAGTTCCGTAATGTCT
		spacer length: 35 repeater length: 37	
3802	263185	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TGTCTTTTTTTTCCTTGTTTCAACTGAAAGAGATA
		spacer length: 34 repeater length: 37	
3803	263257	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TACAATTCAAGAGAACTGGTGCTTCGGGTAAGATAC
		spacer length: 35 repeater length: 37	
3804	263330	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTGGCCAGGCTTATGCTATGCATATGGAGAATATCCGAA
		spacer length: 39 repeater length: 37	
3805	263407	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCCGACGATACCGGAAAAATCCAATGTATCGGCT
		spacer length: 34 repeater length: 37	
3806	263479	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTGGAAAACACCTACTGTTAATCCTGCAAGTATGAA
		spacer length: 36 repeater length: 37	
3807	263553	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTCATTGTCAACTACTTCTGCGATTCCCAAATCA
		spacer length: 34 repeater length: 37	
3808	263625	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTTATTCTACCCCAACTATTACTATAACTAGCAGA
		spacer length: 35 repeater length: 37	
3809	263698	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TACGTGATGTAGTACGTGTCTGCTGCAGCGATGAATA
		spacer length: 37 repeater length: 37	
3810	263773	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTGTTGATGCAATTCCCTGCCATTGACGTTCCG spacer
		length: 32 repeater length: 37	
3811	263843	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CTGCTCCAAGCATGATTACTGCTACTGCGATGATTG
		spacer length: 36 repeater length: 37	
3812	263917	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	GTTTCTATGTGTTGGGTTGTGCCATTGTTGTAAT
		spacer length: 34 repeater length: 37	
3813	263989	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ACCGATAATGTTTTGTACTCCTTCAACATTTTCTCTAT
		spacer length: 38 repeater length: 37	
3814	264065	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCCAGAATTGATAAACGGTATACATTAAAAACCATT
		spacer length: 36 repeater length: 37	
3815	264139	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCAATTCTTTGTCAAGATGAAATTAAAAGATTATTATA
		spacer length: 38 repeater length: 37	
3816	264215	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TATAGTTCTATTTTTTAACACACTTTAAAAAGTGTG
		spacer length: 35 repeater length: 37	
3817	264288	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTGGAACCGGATTTTATAAATTATATGATATT spacer
		length: 32 repeater length: 37	
3818	264358	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGTTTCATCCATCTCTTTTTTGGTATATTTTCATAATTA
		spacer length: 38 repeater length: 37	
3819	264434	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	GTTCGATATGAGGGGAACCAATCTCAAGTGTTGGGATG
		spacer length: 37 repeater length: 37	
3820	264509	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCTTAAAAGATAAAGGATATGATAAAAGGGATGAT
		spacer length: 35 repeater length: 37	
3821	264582	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AATCAGTAAATCAGTATCGAATATTAAGGGTTTT
		spacer length: 34 repeater length: 37	
3822	264654	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TTTGTAGTTGCTATACTATCCCTCTGTTTTATTT
		spacer length: 34 repeater length: 37	
3823	264726	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TCTGTCAATGTTTCTACTTCCGCTTTAAATCAAT
		spacer length: 35 repeater length: 37	
3824	264799	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CATAAATTAATTTCTTCATTGGTTAGAATGCCCTCG
		spacer length: 36 repeater length: 37	
3825	264873	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	CAGTGAAAATCCATATGAATTGGCACAGTACTTCA
		spacer length: 35 repeater length: 37	
3826	264946	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	TACTCCTTCAACATTCTCTCGATATAAGTCATCTT
		spacer length: 35 repeater length: 37	
3827	265019	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	GATACAGTCTTCACACATTGCACCACTTTCAAGTGTTG
		spacer length: 38 repeater length: 37	
3828	265095	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	ACCACTCCAAAAAGATAATGATTATTTGATAATTA
		spacer length: 36 repeater length: 37	
3829	265169	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AAATATCACATAGGAATAATTTTACCTCCGTAGCGA
		spacer length: 36 repeater length: 37	
3830	265243	GTTTCAATGCTTGTCTAATGCATTATGCTCTTTTAC	AGACGAAAGATCAGTTATTCAACTGATTTTCCACGCA

spacer length: 37 repeater length: 37
 3831 265318 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CCTTCATGTTTTTCCATTTCTTTTATTGTGAAG
 spacer length: 33 repeater length: 37
 3832 265389 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TGAATCAACGTATCCTGTATCAATTTTGAGTTTA
 spacer length: 34 repeater length: 37
 3833 265461 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGTTAATTGCTGTAATTTAAACGAGTTTTTCCTTG
 spacer length: 35 repeater length: 37
 3834 265534 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AAGAATAATGCAATGGCAAACATCACAGATGAGAAA
 spacer length: 36 repeater length: 37
 3835 265608 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATCGAATAGTAGTTTTTTTTCCGAAGTACTCACTTG
 spacer length: 35 repeater length: 37
 3836 265681 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGTTC AAAAGCAATGGCAAGAAAGAATTACAAAGCG
 spacer length: 37 repeater length: 37
 3837 265756 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TCAGACAAACTATGCCTTAACTGTCTTTTTCAGACA
 spacer length: 36 repeater length: 37
 3838 265830 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTGAACTTCTAGTTCTTGAAAATCTACATATTCGG
 spacer length: 35 repeater length: 37
 3839 265903 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTATCGGTTCAAAGTGTAAGTGTGAAGCAGGAT
 spacer length: 34 repeater length: 37
 3840 265975 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATGCCCTTCAGTAATCTCGAATGCAAATCTTTCGACA
 spacer length: 38 repeater length: 37
 3841 266051 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTTGGCCGTACTCAGTATATATAATATCTGAGTCG
 spacer length: 36 repeater length: 37
 3842 266125 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTATTTATGCAAAATAAAGATAAAAAGTTTAAAGCCA
 spacer length: 37 repeater length: 37
 3843 266200 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTTCATGTTGATCCCTCAATTAAAGTTTTCTTTA
 spacer length: 35 repeater length: 37
 3844 266273 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTTAAAAGATAAAGGATATGATAAAAGGGACTAC
 spacer length: 34 repeater length: 37
 3845 266345 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TACTATTTAGTATCCCTTAAAAAACTAGTATCATATGAC
 spacer length: 39 repeater length: 37
 3846 266422 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AAATATTACAGAAGCTCAGCACATAGAATCCATA
 spacer length: 34 repeater length: 37
 3847 266494 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TACCAAGATATTATTTGCACAGTAGGTAACCGGAAA
 spacer length: 36 repeater length: 37
 3848 266568 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TCTATATCTTTTGCTAAAATATTAATTTGATATGCT
 spacer length: 36 repeater length: 37
 3849 266642 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AACAAACCTAGAGGGTGCAGACCTTAGGGGGGCTGAC
 spacer length: 37 repeater length: 37
 3850 266717 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TATTTTACAATTTATAATATGTGAATATTACTAT
 spacer length: 34 repeater length: 37
 3851 266789 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTTTCACAATTTAGCAATATTTATTAAAGTTTTCT
 spacer length: 36 repeater length: 37
 3852 266863 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGAAGAGGAGCTAGAGATGGTGAAGTCAACCGTTATTC
 spacer length: 37 repeater length: 37
 3853 266938 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTACTTATTATTGATTGAAAGGGGGCGATAATGA
 spacer length: 35 repeater length: 37
 3854 267011 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CCTATTTTAATTGTAGTTAAAAAATCAATTAAAA
 spacer length: 34 repeater length: 37
 3855 267083 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGATGTGGAAATGGTAGAAATTATTGAAGAAGAAG
 spacer length: 35 repeater length: 37
 3856 267156 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CCAACTCGGCTGTTGCTTACTATGGGAAAAAAGTT
 spacer length: 35 repeater length: 37
 3857 267229 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ACGATAACGAGACTGTTGAAGTAGACCCAACTCTT
 spacer length: 35 repeater length: 37
 3858 267302 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTTTGTTTCGATTGTTACAGGTCCATAGTTTTTTTTT
 spacer length: 35 repeater length: 37
 3859 267375 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AATTATTACACGACATAATAGACCAATAATTTG
 spacer length: 34 repeater length: 37
 3860 267447 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTCAGATTTTTCAAATTTTTTCGAGGTATGGTATTAT
 spacer length: 37 repeater length: 37
 3861 267522 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AATCGATTATTTCAGAACTAATACGTTCTCTATAT
 spacer length: 34 repeater length: 37
 3862 267594 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TCGTTGTTTGTGAGTTCTTGCATAATATAACACCT
 spacer length: 35 repeater length: 37
 3863 267667 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTTGAATATGGTAAAAACATGTCTTAATTATGATGAT
 spacer length: 38 repeater length: 37
 3864 267743 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AAGATCACC GGTCGGGACCCAGATTTATCTTA
 spacer length: 33 repeater length: 37
 3865 267814 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTTAACAAAAATAGTGAGAACATGAACGATATTG
 spacer length: 35 repeater length: 37

3866 267887 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TGATTCTAATTCACCATTATGTAAGCTACCGGATT
spacer length: 35 repeater length: 37

3867 267960 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TCCAATTCCTGAAGGTCATGATCTGGATCAGGACTTG
spacer length: 37 repeater length: 37

3868 268035 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TAGATCACTATGCTGGAAAAAAGCAACTGAAATAA
spacer length: 36 repeater length: 37

3869 268109 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTGAAAAAATACTTACTGAATTGTCGATTAATGGTGAAA
spacer length: 39 repeater length: 37

3870 268186 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ACTGTAAGGAATTCTGATAAATTTATTCATTCCAGC
spacer length: 36 repeater length: 37

3871 268260 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATCACTAATCTCGTCGACAACCACACATTTTAAGT
spacer length: 35 repeater length: 37

3872 268333 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC
ATTGACTCTTTTAAATTTGATTTTCAGGTGCTAAGTCAATAC spacer length: 40 repeater length: 37

3873 268411 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTCTATTATTGTTTTTTCGTCGTTAGGATTTTCGTC
spacer length: 35 repeater length: 37

3874 268484 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CCAAATGTTTTTTTACGATATCTCTAATTG spacer
length: 31 repeater length: 37

3875 268553 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CGCTTTTAAATTTATATGGTGAAAACAATTTTAAAT
spacer length: 35 repeater length: 37

3876 268626 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTATTTTATAATAATATATTATCTATTATACT
spacer length: 33 repeater length: 37

3877 268697 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AAAACAATTCGATAAAATACATTATGAAATAATAA
spacer length: 36 repeater length: 37

3878 268771 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TACTAAAAGATAAAGGATATGATAAAAGGGATTAC
spacer length: 35 repeater length: 37

3879 268844 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATCACTTTTTTATTATTTCTATTTTCGATAGAATAT
spacer length: 36 repeater length: 37

3880 268918 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TACTACAAAGGATAGAAGACTATTATATAATTGA
spacer length: 34 repeater length: 37

3881 268990 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGTGAGAATACATAAAAACAATCAAAAAGAAGGG
spacer length: 34 repeater length: 37

3882 269062 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTCATTGTCAACTACTTCTGCGATTCCCAAATCA
spacer length: 34 repeater length: 37

3883 269134 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTATTCTACCCCACTATTACTATAACTAGCAGA
spacer length: 35 repeater length: 37

3884 269207 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC AGTGAGAATACATAAAAACAATCAAAAAGAAGGG
spacer length: 34 repeater length: 37

3885 269279 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTGTTGATGCAATTCCTGCCATTGACGTTCCG spacer
length: 32 repeater length: 37

3886 269349 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CTGCTCCAAGCATGATTACTGCTACTGCGATGATTG
spacer length: 36 repeater length: 37

3887 269423 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GTTGTATGTGATGCCTTCCCCTCCCGACTGAACG
spacer length: 34 repeater length: 37

3888 269495 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC CGATATATAATATTATATTATAATATCGGGTCAAA
spacer length: 35 repeater length: 37

3889 269568 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TATCCTGTCTTTGTATTTTCAATTTGTTGAATTAATA
spacer length: 35 repeater length: 37

3890 269641 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC TTTCAATTTTTGCATTTTCTTCAAGATAGTTAAT
spacer length: 34 repeater length: 37

3891 269713 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ATTACTTACTATATATAGTTATCTACACTAAGT
spacer length: 33 repeater length: 37

3892 269784 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GGCCGAAAAATTTAACTTTTAAATAACTGCATATC
spacer length: 34 repeater length: 37

3893 269856 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GAAACGATTGGAGTTAATATGTAAGATTTTGAGTA
spacer length: 35 repeater length: 37

3894 269929 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ACAGGTAATCAAAAGTAATTTGGGGGCAACTGCGTTATA
spacer length: 39 repeater length: 37

3895 270006 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC GACTATTTTTTTTATAAAAGCATAACTATATATATG
spacer length: 35 repeater length: 37

3896 270079 GTTTC AATGCTT GTTCTAATGCATTATGCTCTTTTAC ACCTACGTGTAAAGTACCCATATTCAAATAATTAA
3897
3898
3899 crispr 4
3900 331827 TTTCAAAAATAACGAACTAACTAATGTAGTAATTCCTAATT
CAGTAACGGCTATTGGAAAAAGTGCATTTGAAAATAATAAGTTAATCAATTTAATTATTCCAGATTTCAGTAGTAATCATTGGCGAA
AGTGCATTTTAAAGATAATAAATTAACATAATGTAGTAATTCCAAATTCGTAACAAATATTGGATGGGGTGC spacer
length: 157 repeater length: 40

3901 332025 TTTCAAAAATAACGAACTAACTAATGTAGTAATTCCTAATT
CCGTAACAAATATTGGCTGGAGCACATTTGAAAATAATAAGTTAATCAATTTAATTATTCCAGATTTCAGTAAAAAGTATTGGAGAA
CATGC spacer length: 91 repeater length: 40

3902 332157 TTTCAAAAATAACGAACTAACTAATGTAGTAATTCCTAATT
AGCGAATTGAATCTTCTCCCGCAATTGGAAAAGATGGTACAATCTATTTTGGTTCATATGATGGTAATTTATATGCCATAAATCCT
GACGG

3903
3904

3905 GCA_000017185.1_ASM1718v1_genomic.fna(findCrispr):
3906 START REPEAT
SPACER

3907 crispr 1
3908 87006 ATAACCATAAATGGAAATGCAGG CTCATGGACTGGAATGGAAATGAAAGGAGGAAG spacer length: 33
repeater length: 23
3909 87063 ATAACCATAAATGGAAATGCAGG AGACTATATTGGCTGTGCATATAGGGGTAGCTGGGAAGGAATGACTGGCGGAAC
spacer length: 54 repeater length: 23
3910 87141 ATAACCATAAATGGAAATGCAGG GGATGGAACTGTATATGTATCCTTGGAGCTCCGAGAAATCAGTTTAATCATAA
3911
3912

3913 crispr 2
3914 1121775 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTCCATTGTGGTAGCTTCATAATTACAGTT spacer
length: 31 repeater length: 37
3915 1121844 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TAATTATTTTCGCATGATGTTGCAGAGCATTGAATA
spacer length: 35 repeater length: 37
3916 1121917 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GACATAATATCTCACCAATTTGGTAGTTGTGGC
spacer length: 33 repeater length: 37
3917 1121988 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGGAGTTAGCCCTTGCAGGAGTTGGAAAGG spacer
length: 31 repeater length: 37
3918 1122057 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTCCCTTATATCTCATTAAATAATTTTACGGCGTAG
spacer length: 36 repeater length: 37
3919 1122131 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TGCATATATAAATTCAAATATGTCGATATTACAAA
spacer length: 35 repeater length: 37
3920 1122204 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GGACAGTAAAAACATTATCAGACTATACGGAGGTAA
spacer length: 36 repeater length: 37
3921 1122278 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGTTGTTATGTCGGTGTCTGTTAAATCAAATTTCA
spacer length: 36 repeater length: 37
3922 1122352 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTTGGAGCCATTTCATAATTTTGATTAATTCCA
spacer length: 33 repeater length: 37
3923 1122423 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TGCATATATAAATTCAAATATGTCGATATTACAAA
spacer length: 35 repeater length: 37
3924 1122496 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GGACAGTAAAAACATTATCAGACTATACGGAGGTAA
spacer length: 36 repeater length: 37
3925 1122570 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGTTGTTATGTCGGTGTCTGTTAAATCAAATTTCA
spacer length: 36 repeater length: 37
3926 1122644 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTTTGGAGCCATTTCATAATTTTGATTAATTCCA
spacer length: 33 repeater length: 37
3927 1122715 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC GATCTGATGGAATCATTGAAATTATTGCAAATC
spacer length: 33 repeater length: 37
3928 1122786 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC ATATTTTTGATATTGTTTTCATATTTTGCCTC
spacer length: 32 repeater length: 37
3929 1122856 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC ATATTTTTGATATTGTTTTCATATTTTGCCTC
spacer length: 32 repeater length: 37
3930 1122926 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC TTGTGGCGTTATTATCTCTATTGTGCAGGTCA
spacer length: 32 repeater length: 37
3931 1122996 GTCTAAAAGACACATCCATTAAAACAAGGATGGAAAC ATGTATCCTTGGAGCTCCGAGAAATCAGTTTA
3932
3933

3934 crispr 3
3935 791224 GGCTGATTTCCAGTGCTTTCTTATAATATTTAATGGCTTT
ATCGTATTCTTCTTTTAACCGATGACATAAACTCAAATTGTTATATATGCTCCATTTCTTATCATCT spacer length:
67 repeater length: 40
3936 791332 GGCTGATTTCCAGTGCTTTCTTATAATATTTAATGGCTTT
ATCGTATTCTTCTTTTAACAGATGACATAAACTCAAATTGTTATATATGCTCCATTTCTTATCATCT spacer length:
67 repeater length: 40
3937 791440 GGCTGATTTCCAGTGCTTTCTTATAATATTTAATGGCTTT
TTAAAAGGGGGAACCATTAATAATGGTGATGTTGATGAGTTTTGTGGAATAAGACAAAACGGGG
3938
3939

3940 GCA_000017225.1_ASM1722v1_genomic.fna(findCrispr):
3941 START REPEAT
SPACER

3942 crispr 1
3943 1766460 CATTGATGGTATTTCTGAAATT GTGCTATTATCCGCATACTTTTGGTATATTCCGCTTTCCGTT spacer
length: 42 repeater length: 23


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3944 1766526 CATTGATGGTATTTTCCTGAAATT GTGTTGTTATTTGAAAATTTAACAGAGACCCCGTAATTCCCG spacer
length: 42 repeater length: 23
3945 1766592 CATTGATGGTATTTTCCTGAAATT GGAATTTTCAAACGGGAAGCTGGATAATAGCTACTCCAACAA
3946
3947
3948 crispr 2
3949 1262711 TCTATGCAATAAACCCCGACGGAAGTGG
AAATTTGGTACAAAAAAGCAATAGCATCCGACTTTACGATTTTGAAGACGTACTTTATGTAACGTCCCTCGATGGTTAT
spacer length: 81 repeater length: 35
3950 1262828 TCTATGCAATAAACCCCGACGGAAGTGG
CGTTTTAAACCAATAGGGCAATATATGCAACACCCCATAGTTTCAGAAGATGGAACAATTTATGTTGGATCAAATGACAATTAT
spacer length: 84 repeater length: 35
3951 1262948 TCTATGCAATAAACCCCGACGGAAGTGG
CGTTTTAAACTAATGATACAATAACTTCTGCAGTATCCATTGGTAAAGATGGAACAATTTATTTTGGTTCAGATAAG
spacer length: 78 repeater length: 35
3952 1263062 TCTATGCAATAAACCCCGACGGAAGTGG
AAATTTTATGCTGGATACTGGATTGTTACAAGGCCTGCAATTTCAGAAGATGGAACGATCTATGTAACGTCCCTCGATGGTTAT
spacer length: 84 repeater length: 35
3953 1263182 TCTATGCAATAAACCCCGACGGAAGTGG
CTCTCCCAATATTAGTCACAGAATCTGGAATAACCAAACCTCTTCAACTGATTATGTGAAAAAGCCCCTTCTCCAATACTGGTTA
3954
3955
3956 crispr 3
3957 1625525 GTTACCGAGTTAGGAATAACCAAACCTCTTCAACTGGTTGT
TCGAGAAAAGCACCTCTCCCAATATTAGTCACAGAATCTGGAATAACCAAACCTCTTCAACTGATTATTTGAAAAAGCACCTCTCCCA
ATACT spacer length: 91 repeater length: 40
3958 1625657 GTTACCGAGTTAGGAATAACCAAACCTCTTCAACTGGTTGT
TCGAAAAACTTCCGTCACGTATGTTAATTACGGAATCTGGAATAACCACATTTGATAACACGTTGTATAAAAAAGCCCCTTCTCCA
ATACT spacer length: 91 repeater length: 40
3959 1625789 GTTACCGAGTTAGGAATAACCAAACCTCTTCAACTGGTTGT
GCTGGATAATAGCTACTCCAACAATAGATAAAACGGAACAATCTATTTTGGGACAAGAAATGGAAAATTCTACGCATTATTTAAT
TAATA
3960
3961
3962 GCA_000017625.1_ASM1762v1_genomic.fna(findCrispr):
3963 START REPEAT
SPACER
3964 crispr 1
3965 2066435 TCCGGAATCTTCAGCTCGTGAC AACTCTTTAAAAAAAATCTTCAGCAGCTGAGTGACCGATT spacer
length: 41 repeater length: 22
3966 2066499 TCCGGAATCTTCAGCTCGTGAC AACTCTTTAAAAAAAATCCTCAGCTGCTGAGTGACCGATT spacer
length: 41 repeater length: 22
3967 2066563 TCCGGAATCTTCAGCTCGTGAC
CCACTCTTTAAAAAAAATCCTCAGCAGCTGATTGACCAATTTTCCGGAATCTTCAGTTCGTGATCCACTCTTTAAAAAAAATCATC
AGCAGCTGAGTGACCGATT spacer length: 105 repeater length: 22
3968 2066691 TCCGGAATCTTCAGCTCGTGAC
CTGCTGAGTGACCGATTTTCCGGAATCTTCAGCTCATGACACACTCTTTAAAAAAAATCATCAGCCGCTAAGTGACCGATTTTCCG
GAATCTTCAGCTCATGACA
3969
3970
3971 crispr 2
3972 602501 GGAGTAGCCGTAGCCGTGGTAGT TACTGCAGTAGTGGCGGTTGTAGT spacer length: 24 repeater
length: 23
3973 602549 GGAGTAGCCGTAGCCGTGGTAGT TACTATAGTCGTGGCAGTCGTAGT spacer length: 24 repeater
length: 23
3974 602597 GGAGTAGCCGTAGCCGTGGTAGT CGGCTGTAGTTGTAGTAGTAGCGG
3975
3976
3977 crispr 3
3978 408599 CATCATCATCATGCAGTCGCACATGGACTTCATCATGG
GTGCCATCATCTGCATCATGCCATGGTTGCCATCTCCATGAACTGGTTCATGCACGTGG spacer length: 60
repeater length: 38
3979 408698 CATCATCATCATGCAGTCGCACATGGACTTCATCATGG AGGAGTCCATGCTCTTTGGTTCCATGCACTCTG
spacer length: 33 repeater length: 38
3980 408770 CATCATCATCATGCAGTCGCACATGGACTTCATCATGG TTTGCTTCCATGCACGTGGACATCATCATCATG
3981
3982
3983 GCA_000017945.1_ASM1794v1_genomic.fna(findCrispr):
3984 START REPEAT
SPACER
3985 crispr 1

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3986 89078 CTTT CTATCCTCTCTTGAGACTCCACGCTGTACCAATACTGGGGCGCGTTGTGTGTGCCACACGAAC spacer
length: 63 repeater length: 4
3987 89146 CTTT CTATCCTCTCTTGAGACTCCACTCTGCACCTCCCTCACGTCCTCGTAGACGTGGTCG spacer length:
57 repeater length: 4
3988 89208 CTTT CTATCCTCTCTTGAGACTCCACAAAAAGGTATTTCGCGATGAGCGTGGGAGCCGAGATCA spacer
length: 59 repeater length: 4
3989 89272 CTTT AAAGAGAACTGCAAGATGTCGTCACAGTGAAATACATACACCTTCTGCAAATCTGATTA
3990
3991
3992 crispr 2
3993 413947 ACTTTCCATTCTCTCTTGAGACT CCACAGCTTCTCGACGTTGACGAAGTTCAGTATCGCGCG spacer
length: 39 repeater length: 23
3994 414010 ACTTTCCATTCTCTCTTGAGACT CCACCGCATGCGGAGGAGAGTGGTCATAAGAAGCGAAGATGGT spacer
length: 44 repeater length: 23
3995 414078 ACTTTCCATTCTCTCTTGAGACT TCACGCCTTCGATGTTAAACTTCCATTCCCTTTGATGA spacer length:
38 repeater length: 23
3996 414140 ACTTTCCATTCTCTCTTGAGACT
TCACTGAAGGGGGTTCTCGGGTTAGCTGAACTCTTGATATCGTACTCTTTCCATTCTCTCTTGAGACTTCACATGGAAAGATAATA
CTGAGACCGACATGGGATTTCTGGTGT spacer length: 113 repeater length: 23
3997 414277 ACTTTCCATTCTCTCTTGAGACT
TCACCGAAGCCTTCCATATAAAGCCCCAAGGTCTTTCCCTTAAAGAATTGCGTTCTACCCCGAGTTCACAATTCCTCTGATTTTT
CCCTTTATTTCGAGAAATTTTTCCTCTG
3998
3999
4000 crispr 3
4001 955714 TTAA ACGAAAGAGAACTGCAAGACTTGTTGACGACCTCGTCGAGCTTGTCGTACGCTTGG spacer length:
57 repeater length: 4
4002 955776 TTAA ACGAAAGAGAACTGCAAGATGTCGTCACAGTGAAATACATACACCTTCTGCAAATCTG spacer
length: 58 repeater length: 4
4003 955839 TTAA ACGAAAGAGAACTGCAAGATGTCGTCACAGTGAAATACATACACCTTCTGCAAATCTG spacer
length: 58 repeater length: 4
4004 955902 TTAA TCTCTTGAGACTCCACGGTTCTACAAGCGAGAGACTCACCTGGTACTACATTACCTTG
4005
4006
4007 crispr 4
4008 414079 CTTTCCATTCTCTCTTGAGACTTCAC GCCTTCGATGTTAAACTTCCATTCCCTTTGATGAC spacer length:
35 repeater length: 26
4009 414141 CTTTCCATTCTCTCTTGAGACTTCAC TGAAGGGGGTTCTCGGGTTAGCTGAACTCTTGATATCGTAC spacer
length: 41 repeater length: 26
4010 414209 CTTTCCATTCTCTCTTGAGACTTCAC ATGGAAAGATAATACTGAGACCGACATGGGATTTCTGGTGT spacer
length: 42 repeater length: 26
4011 414278 CTTTCCATTCTCTCTTGAGACTTCAC CTTCCATATAAAGCCCCAAGGTCTTTCCCTTAAAGAATTGC
4012
4013
4014 crispr 5
4015 1010012 CTTTCTATCCTCTTTTGAGACTTCAC AGGAAGTGGCGAACGAGGAGGAGGCCAAGAGACTGTGTG spacer
length: 39 repeater length: 26
4016 1010078 CTTTCTATCCTCTTTTGAGACTTCAC TTGTGAACCCCGTTCTGGTGGTACAGGCCGAGAGCGAGG spacer
length: 39 repeater length: 26
4017 1010144 CTTTCTATCCTCTTTTGAGACTTCAC
AACTTACGAACGGTGACTTAGGTACAACAGGAAGTCTAAGTCTACTTTCTATCCTCTTTTGAGAGTTCACAACACCACGAAGAAGT
TATTGCGTAAAAAACATTACCGAAA spacer length: 111 repeater length: 26
4018 1010282 CTTTCTATCCTCTTTTGAGACTTCAC
CTTCCATATAAAGCCCCAAGGTCTTTCCCTTAAAGAATTGCGTTCTACCCCGAGTTCACAATTCCTCTGATTTTTCCCTTTATTC
GAGAAATTTTTCCTCTGCCCTTCCC
4019
4020
4021 GCA_000018305.1_ASM1830v1_genomic.fna(findCrispr):
4022 START REPEAT
SPACER
4023 crispr 1
4024 1258735 TCCCAAAA GGGATTAGAAAGTATGGAACACATGTATAGATAGAGACCTAGAAACCTACACGAGTTGAAA
spacer length: 61 repeater length: 8
4025 1258805 TCCCAAAA GGGATTAGAAAGTATCCGTTTAGTGTTCCTTGCTTCCACGTGGAGGATTGAAA spacer
length: 56 repeater length: 8
4026 1258870 TCCCAAAA GGGATTAGAAAGTTCCCACTTCCTTAATGTACTCATAATTTTTTAATTATTTTTTGAAA spacer
length: 59 repeater length: 8
4027 1258938 TCCCAAAA GGGATTAGAAAGTTCTAAATAATTTAATGAATCCTGACACAAGTGACTTAATGATTCCTGAAA
spacer length: 63 repeater length: 8
4028 1259010 TCCCAAAA GGGATTAGAAAGTCAAAATTGAGCGCACTAAAGATGGCGGTAGGTAATTAAGGAAA spacer
length: 56 repeater length: 8

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4029 1259075 TCCCAAAA GGGATTAGAAAGCAATATTATCATGGTTTATGCATAAAGTTACAGGTTCTAGAAA spacer
length: 55 repeater length: 8

4030 1259139 TCCCAAAA GGGATTAGAAAGGTAATTATATATATCACTTAACGTTACTTCGTTAAACGCGTAGGAAA spacer
length: 59 repeater length: 8

4031 1259207 TCCCAAAA AAAAGGGATTAGAAAGCTGATGTATCCATATTTCTGCAGAATAGAGTCCGGTATTTGAA
4032
4033

4034 crispr 2

4035 1588905 GAAAATCCCAAGAGGGATTAGAAAG TTTACAAAATCCTCAAATCCCTCAAATTTTTCCATAGGGAATCAA
spacer length: 45 repeater length: 25

4036 1588976 GAAAATCCCAAGAGGGATTAGAAAG TAATTACAGCTGTGAACTCAGGAAACATAAAATATATATCAC spacer
length: 42 repeater length: 25

4037 1589044 GAAAATCCCAAGAGGGATTAGAAAG GCTTATGATGATTGCCGTTGATGGTAAGACATAATTAATCAC spacer
length: 42 repeater length: 25

4038 1589112 GAAAATCCCAAGAGGGATTAGAAAG TTATCACTACTCCAATGCAATGAACCCAGCAAGTCTTCATACTCA
spacer length: 45 repeater length: 25

4039 1589183 GAAAATCCCAAGAGGGATTAGAAAG TAACCTATGCTAGGTATTTCAATTACCCAATGGTCATGCCTATGT
4040
4041

4042 crispr 3

4043 232508 CTTTCTAATCCCTTTTGGGATTTTCTT
TCTCTCTCTTTCACACTACGTACATGGATACAGATATATCTTTCTAATCCCTTTTGGGATTTTCTAGTGACACGAAGTTCAGTGA
TTCGACATTAAGGTAGACTAT spacer length: 107 repeater length: 27

4044 232643 CTTTCTAATCCCTTTTGGGATTTTCTT
GTTTGGTTGAGAATCTGCTCAATAGCGGAGTAAGCCGATCTTTCTAATCCCTTTTGGGATTTTTCATGAAAAATTCATGTTAAATTA
ATTAGAAAAATCATGATTTTC spacer length: 107 repeater length: 27

4045 232778 CTTTCTAATCCCTTTTGGGATTTTCTT
TGTATCCATATTTCTGCAGAAATAGAGTCCGGTATTTGAAAATCCCAAAAGGGATTAGAAAGTTTCCTTGATTATTGACTTGACTAC
TTTCTCTGTTTCCCCGAAAAAT

4046
4047

4048 GCA_000018365.1_ASM1836v1_genomic.fna(findCrispr):

4049 START REPEAT
SPACER

4050 crispr 1

4051 994525 TTTCAATTCTCTTAGAGTCTTATT GCAACCTGTGGGTGGTTCACCAGAGCTTTGCAACGATTA spacer
length: 40 repeater length: 24

4052 994590 TTTCAATTCTCTTAGAGTCTTATT GCAACCCTTGAAATCCCGATAAGCGGGAGCTACGAGTTTC spacer
length: 40 repeater length: 24

4053 994655 TTTCAATTCTCTTAGAGTCTTATT GCAACTTCTTGCCACGGTGCCTACATCACAAGCTACGATGA spacer
length: 42 repeater length: 24

4054 994722 TTTCAATTCTCTTAGAGTCTTATT GCAACGCTCAACATGGACGATGACATCATAGACAGGGTTGCAG spacer
length: 43 repeater length: 24

4055 994790 TTTCAATTCTCTTAGAGTCTTATT
GTAGAGTCTTATTGCAACACCGATGTTGTCAGCCTGTCGTTTTTCATACACTTATAAA spacer length: 57 repeater
length: 24

4056 994872 TTTCAATTCTCTTAGAGTCTTATT GCAACTGCACCTCTTTATCGCGGCCCGGAACGTGCGGAGGAGG spacer
length: 43 repeater length: 24

4057 994940 TTTCAATTCTCTTAGAGTCTTATT
GCAACTCGCTTCGACGGTGGCTTTTGTCTCCGGATTCATCATCGTTTTCAATTCTCTTATTGAGACGAAGTTGGCAACTCCAACACA
TGCGCCC spacer length: 93 repeater length: 24

4058 995058 TTTCAATTCTCTTAGAGTCTTATT GCAACCAGATCGCCTGCTGGGTCTGGCTCATCTGGCCGTGCTCG spacer
length: 44 repeater length: 24

4059 995127 TTTCAATTCTCTTAGAGTCTTATT GCAACCCGGCATCAGGGCTGACACCTACTCAACGACCCTCTATG spacer
length: 44 repeater length: 24

4060 995196 TTTCAATTCTCTTAGAGTCTTATT GCAACAGGAGGAAGATGGCAAGTATCATGTTTATGATAAGAA spacer
length: 42 repeater length: 24

4061 995263 TTTCAATTCTCTTAGAGTCTTATT GCAACACGAATCTATCAACCGAGTCAATGGCCCGAGTTCTA spacer
length: 41 repeater length: 24

4062 995329 TTTCAATTCTCTTAGAGTCTTATT GCAACCCATTGGCCCCTCTTCAAACAACGTCAAGGTAAAATT spacer
length: 42 repeater length: 24

4063 995396 TTTCAATTCTCTTAGAGTCTTATT GCAACCGCGGAGCTCGACCTCATACGTCACGACCACACCCT spacer
length: 41 repeater length: 24

4064 995462 TTTCAATTCTCTTAGAGTCTTATT ACAACCTACCTCAAGCAGTAGGAACGTGTTGTTCCCGTCCGT spacer
length: 42 repeater length: 24

4065 995529 TTTCAATTCTCTTAGAGTCTTATT GCAACCTACTGCTATGATAAACTCCACTGCTCTTTTTAGATGG spacer
length: 43 repeater length: 24

4066 995597 TTTCAATTCTCTTAGAGTCTTATT GCAACATAAAGGGCTCGGGGAGGGTATTCTCCGAGACCCTT spacer
length: 41 repeater length: 24

4067 995663 TTTCAATTCTCTTAGAGTCTTATT GCAACTCTCCCACTCAATCTTATCGATTATCCTATCAATGT spacer
length: 41 repeater length: 24

4068 995729 TTTCAATTCTCTTAGAGTCTTATT GCAACTTTGGGCGACTCTGTTTGCTTTTGC GTTCTGGTATCT spacer
 length: 42 repeater length: 24
 4069 995796 TTTCAATTCTCTTAGAGTCTTATT GCAACATAAAACGGCGGTTTCGATTACTTGTGTCTTGTCTCT spacer
 length: 43 repeater length: 24
 4070 995864 TTTCAATTCTCTTAGAGTCTTATT GCAACTTCGCGTTTGC GACCTGTTTCAGGGGTGATGTTGCCC spacer
 length: 41 repeater length: 24
 4071 995930 TTTCAATTCTCTTAGAGTCTTATT GCAACTTGCCGTGCCGGTGAGGGCTGCTGATGTTCAATACTA spacer
 length: 42 repeater length: 24
 4072 995997 TTTCAATTCTCTTAGAGTCTTATT GCAACGGCAGCTGAGACGGGCGAGAGCGTTGTGTTCACTGT spacer
 length: 41 repeater length: 24
 4073 996063 TTTCAATTCTCTTAGAGTCTTATT GCAACAAGCCGAATCACTTTTGTATTGAGCCCATATTTTATGA spacer
 length: 43 repeater length: 24
 4074 996131 TTTCAATTCTCTTAGAGTCTTATT GCAACTGGCACCCCTGCCAAGACTGCTGCGGCAAAGCTCTGGTT spacer
 length: 43 repeater length: 24
 4075 996199 TTTCAATTCTCTTAGAGTCTTATT GCAACAAACAGAGCAGAGACTCTAAAGAGATGGGTGGGAATTAGT spacer
 length: 45 repeater length: 24
 4076 996269 TTTCAATTCTCTTAGAGTCTTATT GCAACAAAGAGATAAAGCGCGTCGTCGGTGACGGTATTGCCAA spacer
 length: 43 repeater length: 24
 4077 996337 TTTCAATTCTCTTAGAGTCTTATT GCAACCTTGACTTCCTTCTCGATCTTGAGGCTGTCCTTCT spacer
 length: 40 repeater length: 24
 4078 996402 TTTCAATTCTCTTAGAGTCTTATT GCAACCCACGTCGCCCTGGTAGTAAAAATAGACGCTGACGT spacer
 length: 41 repeater length: 24
 4079 996468 TTTCAATTCTCTTAGAGTCTTATT GCAACATGCAGTAGTGCTTAAACCAGCTCTTGATCTTCTTT spacer
 length: 41 repeater length: 24
 4080 996534 TTTCAATTCTCTTAGAGTCTTATT GCAACGGAGACTATGAAACCCTCGAAGCCGATGTAACTGT spacer
 length: 41 repeater length: 24
 4081 996600 TTTCAATTCTCTTAGAGTCTTATT GCAACATGAGCATCAGCCACGGCTCAGTGCCCTGCTCAGGAA spacer
 length: 43 repeater length: 24
 4082 996668 TTTCAATTCTCTTAGAGTCTTATT GCAACATGAAGGCTCAGGCCGACGCGATAAGCCCTGAGAACAC spacer
 length: 43 repeater length: 24
 4083 996736 TTTCAATTCTCTTAGAGTCTTATT GCAACTTCAGAAACCTTGCAATACTTATGATAGTACTGAACCT spacer
 length: 43 repeater length: 24
 4084 996804 TTTCAATTCTCTTAGAGTCTTATT GCAACTCGGAACGGCCTTGCGGTAGATGATGTAACCAACGAG spacer
 length: 42 repeater length: 24
 4085 996871 TTTCAATTCTCTTAGAGTCTTATT GCAACCTGCATACAACCTCGCAAGAGACCTCGTTGAATATGGC spacer
 length: 42 repeater length: 24
 4086 996938 TTTCAATTCTCTTAGAGTCTTATT GCAACCTATGGTCTTGGCCTGGCCGCTGAGCTGAGAGAAAACGA spacer
 length: 44 repeater length: 24
 4087 997007 TTTCAATTCTCTTAGAGTCTTATT GCAACCTGAGCGTCAGGTTTCCACTCCAGGCCAGCATGATTT spacer
 length: 42 repeater length: 24
 4088 997074 TTTCAATTCTCTTAGAGTCTTATT GCAACTCGGCTTCATGAAGTTCTTTTTTCGGCAACATCCTTCT spacer
 length: 42 repeater length: 24
 4089 997141 TTTCAATTCTCTTAGAGTCTTATT GCAACCTCACCGTCAGGCGTGACCAAAATGTGGAGCTCGTT spacer
 length: 41 repeater length: 24
 4090 997207 TTTCAATTCTCTTAGAGTCTTATT GCAACGGTTGCCATCCTGCTGAATATCGCCGGCCTCAATCCTT spacer
 length: 43 repeater length: 24
 4091 997275 TTTCAATTCTCTTAGAGTCTTATT GCAACATAAGCGTCCTGACGGCCTTATCAATGAAGTTGATGTG spacer
 length: 43 repeater length: 24
 4092 997343 TTTCAATTCTCTTAGAGTCTTATT GCAACGGTGTGGATCATGTGAATCTCGTCCTGGGTGAGGACGG spacer
 length: 43 repeater length: 24
 4093 997411 TTTCAATTCTCTTAGAGTCTTATT GCAACAAATCAAAGCTGCCCCGTGTGCTGTACTCCGACATACTC spacer
 length: 43 repeater length: 24
 4094 997479 TTTCAATTCTCTTAGAGTCTTATT GCAACCAACGCTTGGCATTGCCATAGCTCTTGTACTAGCCAT spacer
 length: 42 repeater length: 24
 4095 997546 TTTCAATTCTCTTAGAGTCTTATT GCAACCCCCCTGACAACGAAGAATGAGCCTGCAATGTTACCAA spacer
 length: 43 repeater length: 24
 4096 997614 TTTCAATTCTCTTAGAGTCTTATT GCAACAGTTATTAGTTTGGCCAAGCGCATCTTCCAAAACCTC spacer
 length: 41 repeater length: 24
 4097 997680 TTTCAATTCTCTTAGAGTCTTATT GCAACCTCAATCAGAGGCTCTGGCTGAGTTTCTCAAATTCA spacer
 length: 42 repeater length: 24
 4098 997747 TTTCAATTCTCTTAGAGTCTTATT GCAACGTGAGGATGGCAAAAAGGAAAACCTCTAAGAAAATCAA spacer
 length: 43 repeater length: 24
 4099 997815 TTTCAATTCTCTTAGAGTCTTATT GCAACTGGCAAAGTGCCGAGGGCTGAACTCCGCGAAGCGAC spacer
 length: 41 repeater length: 24
 4100 997881 TTTCAATTCTCTTAGAGTCTTATT GCAACTCCCGTTACGAGCTGTTGGCCGGCCTGCGCAATCTG spacer
 length: 42 repeater length: 24
 4101 997948 TTTCAATTCTCTTAGAGTCTTATT CGATGAAGGCGGACTGCTCGGGGTTTTTCGCGAGGTAGTTTCA
 4102
 4103
 4104 crispr 2
 4105 818816 GTTCCAGTAGGACAGAAATTGTGTGGAAAG GCCCACGACTTTTTAGCGGCGACCGCCGCGAGTTCTTC spacer

length: 38 repeater length: 29
 4106 818884 GTTCCAGTAGGACAGAAATTGTGTGGAAAG GAGGGGCCGGGCCTCAAAATCCCCCAAAGTCCCC spacer
 length: 34 repeater length: 29
 4107 818948 GTTCCAGTAGGACAGAAATTGTGTGGAAAG TGGCCCCGAAACCCTTCCGGGAGAGTGAGGACCCTCG spacer
 length: 36 repeater length: 29
 4108 819014 GTTCCAGTAGGACAGAAATTGTGTGGAAAG TGTGGGTTTCACCGGCGAGGAATCCGAGAGAGAATGTA spacer
 length: 38 repeater length: 29
 4109 819082 GTTCCAGTAGGACAGAAATTGTGTGGAAAG ATGAAGAGGGAAGAGTTCATCAAAACCCTCCTTGAC spacer
 length: 36 repeater length: 29
 4110 819148 GTTCCAGTAGGACAGAAATTGTGTGGAAAG TTGAGTTTTCCCAGCTCGACGCGGTTATTACGCT spacer
 length: 35 repeater length: 29
 4111 819213 GTTCCAGTAGGACAGAAATTGTGTGGAAAG TTGGTGGCCTTCTGGTTCATTGGGCGCTGACGAAC spacer
 length: 35 repeater length: 29
 4112 819278 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CCGTTTCCACCGAGACCGGCCATCCAACCGAACATT spacer
 length: 36 repeater length: 29
 4113 819344 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CTTAGGTCTCTGAAAAGACTCCTTTTCGCTCTTATA spacer
 length: 35 repeater length: 29
 4114 819409 GTTCCAGTAGGACAGAAATTGTGTGGAAAG ATCAGTCGCTCCGGTAAGCTGCTTGATTATTGTGTTGTC spacer
 length: 39 repeater length: 29
 4115 819478 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CTCGACCTTACCCCGCGTCCAGAACTGAATACAAAA spacer
 length: 36 repeater length: 29
 4116 819544 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CTCGCGAGGTAGTAGAACCCGCCTCTCGCCCTCTCG spacer
 length: 36 repeater length: 29
 4117 819610 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CACCCTGAAGGGGGAACAACTCACGGAGGAGCAATAGA spacer
 length: 38 repeater length: 29
 4118 819678 GTTCCAGTAGGACAGAAATTGTGTGGAAAG CCTGGTAAACCTTCAACAACTCATCAACGGCCTCC spacer
 length: 36 repeater length: 29
 4119 819744 GTTCCAGTAGGACAGAAATTGTGTGGAAAG GTCAAACCACCCAAAATCGCTCTCATCTCCAACCGA spacer
 length: 36 repeater length: 29
 4120 819810 GTTCCAGTAGGACAGAAATTGTGTGGAAAG ATGAAGGCGGACTGCTCGGGGTTTTTCGCGAGGTAGT
 4121
 4122
 4123 crispr 3
 4124 828166 GTTTCAGTAGGACAGAAATTGTGTGGAAAC TGTCCGGTGCCCCGCCAACTGTGACATGGTGCTC spacer
 length: 35 repeater length: 29
 4125 828231 GTTTCAGTAGGACAGAAATTGTGTGGAAAC TAATGCGGCGACCTCTAACCTAACGAAGCCCGGTGA spacer
 length: 36 repeater length: 29
 4126 828297 GTTTCAGTAGGACAGAAATTGTGTGGAAAC CGGCTTTTTCTTCTTCTGCCTAACAAAAGATTATG
 4127
 4128
 4129 crispr 4
 4130 728608 GTTTCAATAAGACTCTAAGAGAATTGAAAG GCCTTGGCGTGCTCGCCGCTCTGGGCTTCGTCGTTT spacer
 length: 36 repeater length: 30
 4131 728675 GTTTCAATAAGACTCTAAGAGAATTGAAAG GCCGGATTGAGAACTCCCCTCCCGGTGGCTAATGG spacer
 length: 36 repeater length: 30
 4132 728742 GTTTCAATAAGACTCTAAGAGAATTGAAAG GAGGCCTAAAATATCAGCTCATAGACCCGGAGAACCT spacer
 length: 37 repeater length: 30
 4133 728810 GTTTCAATAAGACTCTAAGAGAATTGAAAG CTATTTTTTACCTGCATCGGCTTCATTCTGCCGGTA spacer
 length: 36 repeater length: 30
 4134 728877 GTTTCAATAAGACTCTAAGAGAATTGAAAG TTCGTGAGAAAGGGCCTCGAGCTTTCGCTTCATTTC spacer
 length: 36 repeater length: 30
 4135 728944 GTTTCAATAAGACTCTAAGAGAATTGAAAG TTATGAACGCTGCACCCAGGCCAGCCAGGAAATCA spacer
 length: 35 repeater length: 30
 4136 729010 GTTTCAATAAGACTCTAAGAGAATTGAAAG GCGTTTTTTCATAGCACTATCACCGACTATTTATTG spacer
 length: 35 repeater length: 30
 4137 729076 GTTTCAATAAGACTCTAAGAGAATTGAAAG TCTTGGCAATGACTACTACGCTGGCCGCTCTGCGAG spacer
 length: 36 repeater length: 30
 4138 729143 GTTTCAATAAGACTCTAAGAGAATTGAAAG ATAGAAAACCTAGGGTTATCGGGTATGTGAGGGTTT spacer
 length: 36 repeater length: 30
 4139 729210 GTTTCAATAAGACTCTAAGAGAATTGAAAG TACCGCGGCCGAGGCCTTCGACGCGGCCCTCGCTAA spacer
 length: 36 repeater length: 30
 4140 729277 GTTTCAATAAGACTCTAAGAGAATTGAAAG ACTACAAGTTCTACATCGCGCCGAACCCTGGATACTT spacer
 length: 37 repeater length: 30
 4141 729345 GTTTCAATAAGACTCTAAGAGAATTGAAAG ACGAGCTGAACGTCCAGGTTCTCCAGGGCGACGCA spacer
 length: 35 repeater length: 30
 4142 729411 GTTTCAATAAGACTCTAAGAGAATTGAAAG AGTTGATGAACATCTTTGCTACATCATATTGTTGA spacer
 length: 36 repeater length: 30
 4143 729478 GTTTCAATAAGACTCTAAGAGAATTGAAAG CCGTGCGTGGTGGACACGATTTTCAGAGCTCCTCAACG spacer
 length: 37 repeater length: 30
 4144 729546 GTTTCAATAAGACTCTAAGAGAATTGAAAG AAGGCCACCCAAGGACCCAGCCCCGACCAGGAACG spacer
 length: 37 repeater length: 30

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4145 729614 GTTTCATAAAGACTCTAAGAGAATTGAAAG AACATAGCCAAACGTCCTTCCTCATCAACGACAGG spacer
length: 35 repeater length: 30
4146 729680 GTTTCATAAAGACTCTAAGAGAATTGAAAG ATGACTTCGCGGACATCAAGCTCAAAGAGCTTCATG spacer
length: 36 repeater length: 30
4147 729747 GTTTCATAAAGACTCTAAGAGAATTGAAAG TTCTACGAAGTCAATGTTTCAGCTTCTTGTTCCTTGTC spacer
length: 37 repeater length: 30
4148 729815 GTTTCATAAAGACTCTAAGAGAATTGAAAG TCGGAGAAGAGCACGGTCAGCTTGGCGTAGAGGTA spacer
length: 35 repeater length: 30
4149 729881 GTTTCATAAAGACTCTAAGAGAATTGAAAG TCCACTCATCCGGCCACAGGCGCTCATTCTCTTTAA spacer
length: 36 repeater length: 30
4150 729948 GTTTCATAAAGACTCTAAGAGAATTGAAAG GTAATCAAGGCCCTTCCTGACCCATTCTCCACTTCC spacer
length: 37 repeater length: 30
4151 730016 GTTTCATAAAGACTCTAAGAGAATTGAAAG ATCCTATCCGAGTTCGAGCCACTCAGATAAGTGCGG spacer
length: 36 repeater length: 30
4152 730083 GTTTCATAAAGACTCTAAGAGAATTGAAAG GGCTTTTACCCCTTTTGCCTCAGAAAGAATTAAGA
4153
4154
4155 crispr 5
4156 294184 GTTTCATTCTCCTAGAGTCTTATTGCAAC AAGGCTACGAGGCAAAGTATAAAGTGGAAGTCAGTA spacer
length: 36 repeater length: 30
4157 294251 GTTTCATTCTCCTAGAGTCTTATTGCAAC CCAAACATTTCCATCCACCTCCATCTTTTTTGCTTTT spacer
length: 36 repeater length: 30
4158 294318 GTTTCATTCTCCTAGAGTCTTATTGCAAC TTGAAGAGATAACTACAGACATGGAGATGTTAGGGGT spacer
length: 37 repeater length: 30
4159 294386 GTTTCATTCTCCTAGAGTCTTATTGCAAC ATATCGCCGCCCCATTTCGACGACATAAGGGCGTATAA spacer
length: 37 repeater length: 30
4160 294454 GTTTCATTCTCCTAGAGTCTTATTGCAAC GAGGGAGAGCCATGAACACCTTCGGTCATTTTTTTGTG spacer
length: 38 repeater length: 30
4161 294523 GTTTCATTCTCCTAGAGTCTTATTGCAAC CCCGATGTCGGTCAGGTCAGCAGCCCCGATGTCG spacer
length: 34 repeater length: 30
4162 294588 GTTTCATTCTCCTAGAGTCTTATTGCAAC GCACTCGGTTGATGGATTTCGCCGAGCTCATGGCCGACA spacer
length: 38 repeater length: 30
4163 294657 GTTTCATTCTCCTAGAGTCTTATTGCAAC CTTGGAAATCTCCATTATGGGTTGATTGTAGTATTC spacer
length: 36 repeater length: 30
4164 294724 GTTTCATTCTCCTAGAGTCTTATTGCAAC CCGTTCGTGGTGTCTTGAAGAGGCCCTTAATGAGT spacer
length: 36 repeater length: 30
4165 294791 GTTTCATTCTCCTAGAGTCTTATTGCAAC TGAGGTCGAGCTCGCCGACGAGGCGGTCAATTAAGTCT spacer
length: 37 repeater length: 30
4166 294859 GTTTCATTCTCCTAGAGTCTTATTGCAAC GCTACTACGACCGCAGGGATGGCTTTGCCGTGGAATT spacer
length: 37 repeater length: 30
4167 294927 GTTTCATTCTCCTAGAGTCTTATTGCAAC CGGGCCTCACCTCCATAGTACGCTTTTTTCGATAGTTA spacer
length: 37 repeater length: 30
4168 294995 GTTTCATTCTCCTAGAGTCTTATTGCAAC GCGCTGGAAGCCGCCCGATACGTCTATGGCCCAAT spacer
length: 35 repeater length: 30
4169 295061 GTTTCATTCTCCTAGAGTCTTATTGCAAC AGTTCCTGCTCCCATTCTTGAGCCGGGCCTCGCGC spacer
length: 36 repeater length: 30
4170 295128 GTTTCATTCTCCTAGAGTCTTATTGCAAC AGAACTACCCGCGACCGCCTTCGGGTCCTTCTCT spacer
length: 36 repeater length: 30
4171 295195 GTTTCATTCTCCTAGAGTCTTATTGCAAC ATGCTAGTATTCCTGCAAAGTTTATAAACACAGAAT spacer
length: 36 repeater length: 30
4172 295262 GTTTCATTCTCCTAGAGTCTTATTGCAAC CTGCTTATTGGGGCTGCTGGGGCTGCCCTGGTTCTA spacer
length: 36 repeater length: 30
4173 295329 GTTTCATTCTCCTAGAGTCTTATTGCAAC GGCCGGTAGTCTCCAGATCCAGGACTATCTCTCCCT spacer
length: 36 repeater length: 30
4174 295396 GTTTCATTCTCCTAGAGTCTTATTGCAAC CTGTCCAGCAGGTCTTTCACCGTACCCTGCACAAACA spacer
length: 37 repeater length: 30
4175 295464 GTTTCATTCTCCTAGAGTCTTATTGCAAC GCGAGATATGCCAGGACAAGGCCGAACGCAGCCGCG spacer
length: 36 repeater length: 30
4176 295531 GTTTCATTCTCCTAGAGTCTTATTGCAAC ACCCCTTCGTGCTCCTCGCTTTTCGCTTTTCGAGGGT spacer
length: 35 repeater length: 30
4177 295597 GTTTCATTCTCCTAGAGTCTTATTGCAAC AGGATGGCGTCGGAGTTTAAGGCGGTGGTGAGCCG spacer
length: 35 repeater length: 30
4178 295663 GTTTCATTCTCCTAGAGTCTTATTGCAAC GAGATGCTAAAGGGAAAGGCCCTGAACTCGCCGCGA spacer
length: 37 repeater length: 30
4179 295731 GTTTCATTCTCCTAGAGTCTTATTGCAAC TAGAACCCGCTCTCGCCCTCTCGAGTTCCAGTAGGA
4180
4181
4182 GCA_000018465.1_ASM1846v1_genomic.fna(findCrispr):
4183 START REPEAT
4184 SPACER
4185 crispr 1

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4185 622310 GGAGAAAAAGGTCCAACCTGG ATTTAAAGGCCCAATCGGTGAAAA spacer length: 24 repeater
 length: 20
 4186 622355 GGAGAAAAAGGTCCAACCTGG TCCTCCCGGCGACAAAGGATTATCTGGATTAAAAGGTCTCCCGGTGAAAA
 spacer length: 51 repeater length: 20
 4187 622427 GGAGAAAAAGGTCCAACCTGG CAAGCAACGCAACATCAACTGTCATGAGAATACTTAACGCAACATCTGAAC
 4188
 4189
 4190 crispr 2
 4191 516581 TTTCTCTTTGTAGTCTTTCTA GCTGGTTTTCTCTTTACAGTCTTTTTCTTTGCAGCAGT spacer length:
 38 repeater length: 21
 4192 516641 TTTCTCTTTGTAGTCTTTCTA ACTGGTTTTCTCTTTACAGTCTTTTTCTTTGCAGCAGT spacer length:
 38 repeater length: 21
 4193 516701 TTTCTCTTTGTAGTCTTTCTA CCTGTACTATCAAGCAACGCAACATCAACTGTCATGAG
 4194
 4195
 4196 crispr 3
 4197 404330 CGATCACTGACACTGGAACTCC
 CTAGAATTTGATACTGCAGATGGATGGACACCAAATATTGTGCCTGTAGACACTGATACATTTGCAGTTGTGTATAATGGAAGTGA
 CAGTGATGGATTTCGTTAAACCTTAAATATTAGTGGAGTAGGT spacer length: 129 repeater length: 23
 4198 404483 CGATCACTGACACTGGAACTCC
 CTAGAATTTGATATCGCAGATGGGCTTTATCCTGATATTGTTGCAGTTGATTTCAGATACATTTGCGATCGTATATACTGGAACAGA
 TACTGATGGATTTCATTAACCTTAAATATTAGTGGAGTAGGT spacer length: 129 repeater length: 23
 4199 404636 CGATCACTGACACTGGAACTCC
 ATGATGCACAGATAACTGGAATGTTTAAACATCTCAGCAAACCTCCACTCCTGTACTATCTGACAATGCTCAAGTCACTGGAATGTTT
 ACCATCAACGCAAACTCCACTCCTGTACTATCTGACAATGCTC
 4200
 4201
 4202 crispr 4
 4203 623436 TTTTGTAGCTGCAGTCTTTCTTTT
 TGCTGCTTTTCTCTTTGGAGCGGCTTTGCGTTTTGCTGCTGCCTTTCTCTTTGGAGCTGC spacer length: 60
 repeater length: 23
 4204 623520 TTTTGTAGCTGCAGTCTTTCTTTT
 TGCTGCTTTTCTCTTTGGAGCGGCTTTGCGTTTTGCTGCTGCCTTTCTCTTTGGAGCTGA spacer length: 60
 repeater length: 23
 4205 623604 TTTTGTAGCTGCAGTCTTTCTTTT
 CAGATAACTGGAATGTTTAAACATCTCAGCAAACCTCCACTCCTGTACTATCTGACAATGCT
 4206
 4207
 4208 crispr 5
 4209 977672 ACCTGTTCTAGCTTGGATTGGTGTGTTT
 GGTTAGGGCATCAATTTCTGCTTGTTTTGATTCTAGTTGTTCTTTTTGTAAAGCCAGTTGAGACTCTAGTTTAGGGTAGGAAGTAG
 GCTTGGATTTGATTTCTTCAAGTTTAGTTTGTGGAACCTCTATCTTATTTTGAAGTGCAATCTTTTCTGATTG spacer
 length: 159 repeater length: 29
 4210 977861 ACCTGTTCTAGCTTGGATTGGTGTGTTT
 GGTGATAGTGTCAATTTCTGCTTGTTTTGATTCTAGTTGCTCTTTTTGTAAAGCCAGTTGAGATTCTAATTCAGGAGAAGGTGATT
 TTGACTTGAGTTCTTCAAGCTCTGCTTTTTGACTTCTAACAAATTTCTGAAGTGTAGTCTTTTCTGACTG spacer
 length: 156 repeater length: 29
 4211 978047 ACCTGTTCTAGCTTGGATTGGTGTGTTT
 CCACTCCTGTACTATCTGACAATGCTCAAGTCACTGGAATGTTCAACATCAACGCAAACTCCACTCCTGTACTATCTGACAATGCT
 CAAGTCACTGGAATGTTCAACATCAACGCAAACTCCACTCCTGTACTATCTGACAATGCTCAAGTCACTG
 4212
 4213
 4214 crispr 6
 4215 1455526 CTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTAATTG
 TTCAAATTTGTTCAAATTTGTTTCAGGAGTAGCTTCTTCATCTTCTAGTTCTGGAGCTAAATCAAGTTCTGTGGAAGTTCTTCTGCAG
 ATTCTTTTGGTAATGAACCTCTAGGACTTGGAGGAGCTGGT spacer length: 127 repeater length: 40
 4216 1455694 CTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTAATTG
 TTCTAATCTTGCTAATTTGTTTCAGGAGTAGCTTCTCTCTTCGGGT spacer length: 46 repeater length: 40
 4217 1455781 CTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTAATTG
 TTCTAATCTTGCTAATTTGTTTCAGGAGTAGCTTCTCTCTTCGGGT spacer length: 46 repeater length: 40
 4218 1455868 CTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTAATTG
 TTCTAATCTTGCTAATTTGTTTCAGGAGTAGCTTCTCTCTTCGGGTCTGGAATTGGTTCGTCTGCAACTGGTTCTGGAGCTAAAT
 CAAGTTCTGTGGAAGTTCTTCTGCAGATTCTTTTGGTAATGAGCCTCTAGGACTTGGAGGAGCTGGT spacer length:
 154 repeater length: 40
 4219 1456063 CTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTAATTG
 CTATCTGATGATGCACAGATAACTGGAATGTTTAAACATCTCAGCAAACCTCCACTCCTGTACTATCTGACAATGCTCAAGTCACTGG
 AATGTTCAACATCAACGCAAACTCCACTCCTGTACTATCTGACAATGCTCAAGTCACTGGAATGTTCA
 4220
 4221
 4222 crispr 7
 4223 1455957 GGAATTGGTTCGTCTGCAACTGGTTCCTGGAGCTAAATCAA

GTTCCTGTGGAAGTTCTTCTGCAGATTCTTTTGGTAATGAGCCTCTAGGACTTGGAGGAGCTGGTTCTGGTTTAGATTCTAACTCC
 TGGATTGTTTCTAATTGTTCTAATCTTGCTAATTGTTTCAGGAGTAGCTTCCTCTTCTTCGGGTTTC spacer length:
 154 repeater length: 40
 4224 1456152 GGAATTGGTTCGTCTGCAACTGGTTCTGGAGCTAAATCAA
 GTTCCTGTGGAAGTTCTTCTGCAGATTCTTTTGGTAATGAACCTCTAGGACTTGGAGGAGCTGGTTC spacer length:
 67 repeater length: 40
 4225 1456260 GGAATTGGTTCGTCTGCAACTGGTTCTGGAGCTAAATCAA
 GTTCCTGTGGAAGTTCTTCTGCAGATTCTTTTGGTAATGAACCTCTAGGACTTGGAGGAGCTGGTTC spacer length:
 67 repeater length: 40
 4226 1456368 GGAATTGGTTCGTCTGCAACTGGTTCTGGAGCTAAATCAA
 GCACAGATAACTGGAATGTTTAACATCTCAGCAAACCTCCACTCCTGTACTATCTGACAATGCTCAAG
 4227
 4228
 4229 crispr 8
 4230 1455690 GGTTCTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTA
 ATTGTTCTAATCTTGCTAATTGTTTCAGGAGTAGCTTCCTCTTCTTC spacer length: 46 repeater length: 40
 4231 1455777 GGTTCTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTA
 ATTGTTCTAATCTTGCTAATTGTTTCAGGAGTAGCTTCCTCTTCTTC spacer length: 46 repeater length: 40
 4232 1455864 GGTTCTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTA
 ATTGTTCTAATCTTGCTAATTGTTTCAGGAGTAGCTTCCTCTTCTTCGCGGTTCTGGAATTGGTTCGTCTGCAACTGGTTCTGGAGCT
 AAATCAAGTTCCTGTGGAAGTTCTTCTGCAGATTCTTTTGGTAATGAGCCTCTAGGACTTGGAGGAGC spacer length:
 154 repeater length: 40
 4233 1456059 GGTTCTGGTTTAGATTCTAACTCCTGGATTTGTTTCTCTA
 GACAATGCTCAAGTCACTGGAAATGTTTACCATCAACGCAAACCTCCACTCCTGTACTATCTGACAATGCTCAAGTCACTGGAATGTT
 CACCATCAACGCAAACCTCCACTCCTGTACTATCTGACAATGCTCAAGTCACTGGAATGTTTACCATCA
 4234
 4235
 4236 crispr 9
 4237 407491 GTTCTATCTGATGATGCACAGATAACTGGAATGTTTAAACA
 TCTCAGCAAACCTCTACTCCTGTACTATCAAGTAACGCAACATCAACTGTCATGAGAATACTTAACGCAACATCTGAACC
 spacer length: 79 repeater length: 40
 4238 407611 GTTCTATCTGATGATGCACAGATAACTGGAATGTTTAAACA
 TCTCAGCAAACCTCTACTCCTGTACTATCAAGCAACGCAACATCAACTGTCATGAGAATACTTAACGCAACATCTGAACC
 spacer length: 79 repeater length: 40
 4239 407731 GTTCTATCTGATGATGCACAGATAACTGGAATGTTTAAACA
 TCTCAGCAAACCTCTACTCCTGTACTATCAAGCAACGCAACATCAACTGTCATGAGAATACTTAACGCAACATCTGAACC
 spacer length: 79 repeater length: 40
 4240 407851 GTTCTATCTGATGATGCACAGATAACTGGAATGTTTAAACA
 TAGATTCTAACTCCTGGATTTGTTTCTCTAATTGTTCTAATCTTGCTAATTGTTTCAGGAGTAGCTTCCTCTTCTTCGGG
 4241
 4242
 4243 GCA_000018485.1_ASM1848v1_genomic.fna(findCrispr):
 4244 START REPEAT
 SPACER
 4245 crispr 1
 4246 485452 TTGAAGCGAGGTAGGGTAGCCAG
 GCCTATCCCGCGGGCTCATAACCCGGAGATCAGAAGTTCAAATCTTCTCCTCGCTACCATTTTTTAATTGATTGTGAAAATAAA
 AATTCGCGTTTTTAAAAATTGTTTTATTGTCTGAATTGTTAGTTTAGAGAAAGTGTA spacer length: 143
 repeater length: 23
 4247 485619 TTGAAGCGAGGTAGGGTAGCCAG CAACCTTTTTTAGAAAAAGGTTGATCAAAAAAGTATCTGAAAAGCTAATTGT
 spacer length: 52 repeater length: 23
 4248 485695 TTGAAGCGAGGTAGGGTAGCCAG TATCCCGCGGGCTCATAACCCGGAGATCAGAAGTTCAAATCTTCTCCTCGC
 4249
 4250
 4251 crispr 2
 4252 214910 ATAATCAATTAAAAAGTGTGGTTATTCC TAACTCAATAACTAGTATTGGAAGAGGAACCTTCTCA spacer
 length: 37 repeater length: 28
 4253 214976 ATAATCAATTAAAAAGTGTGGTTATTCC AGATTCTGTGAAAATTATTGAAGATGGGGCTTTTTTCG spacer
 length: 37 repeater length: 28
 4254 215042 ATAATCAATTAAAAAGTGTGGTTATTCC ACTCAATAACTAGTATTGGAAGAGGTGCTTTTTTATAC
 4255
 4256
 4257 GCA_000019805.1_ASM1980v1_genomic.fna(findCrispr):
 4258 START REPEAT
 SPACER
 4259 crispr 1
 4260 856227 GAATCTCAAG TTGAGGATTGAAAGCGATCAGCTTGACGATCGTGGAGTGTATTACCGACTTCTGCTCCTCG
 spacer length: 61 repeater length: 10
 4261 856299 GAATCTCAAG TTGAGGATTGAAAGCGTAGTGGTAATCTCTAATCTCTAATGATGTCCTCATTCTCC spacer
 length: 58 repeater length: 10
 4262 856368 GAATCTCAAG TTGAGGATTGAAAGCTTCATGACCGCATTAATATATCGGGTCTTGCAATTGCTA spacer

length: 55 repeater length: 10
4263 856434 GAATCTCAAG TTGAGGATTGAAAGCCTCGAGGAAGGCGTGGGGATCCCTGGCCAGCAGCTCAGC spacer
length: 54 repeater length: 10
4264 856499 GAATCTCAAG TTGAGGATTGAAAGTTTAACCGCAGAACTTGTCGATAACTGAAAAACGGGGTT spacer
length: 55 repeater length: 10
4265 856565 GAATCTCAAG TTGAGGATTGAAAGTTGTACTCTTATAGAAACGTATTGTGGCCACCTTACGGCGGAGT spacer
length: 58 repeater length: 10
4266 856634 GAATCTCAAG TTGAGGATTGAAAGCAGTCTCCGCGGATGCTTGTGCATCGTTCGGCGCCGACAACTC spacer
length: 57 repeater length: 10
4267 856702 GAATCTCAAG TTGAGGATTGAAAGATCTTCACAGCGTAGTACACCTGCGTGTGGCTGAGGGAGA spacer
length: 54 repeater length: 10
4268 856767 GAATCTCAAG TTGAGGATTGAAAGCGTCTAGGACGAGGGGCACTATCATTATGCGCCTGTC spacer length:
51 repeater length: 10
4269 856829 GAATCTCAAG ATAGTAGAAACCTTATGACTTCTCTGTCCGCAACATCGAAGATTTCGAGCCT
4270
4271
4272 crispr 2
4273 883097 GATTCTCAGATAGAGATTTGAAG TGCCCTTGGCCAGGTGGACGGCCCAACCCAAGACGAGTAGTG spacer
length: 42 repeater length: 23
4274 883163 GATTCTCAGATAGAGATTTGAAG TGACGGCGGGGTCAACCGCCCGGGGATGTAGATTAGACGTGGCGA spacer
length: 45 repeater length: 23
4275 883232 GATTCTCAGATAGAGATTTGAAG GCGAAACGGGGCGGCACCTCGGCCGAGGACATACTCCGCGGAG spacer
length: 42 repeater length: 23
4276 883298 GATTCTCAGATAGAGATTTGAAG GCCTCACAATTTGCGCCGCTCTATACTTACACGCACACTTAAC spacer
length: 44 repeater length: 23
4277 883366 GATTCTCAGATAGAGATTTGAAG GGTATTGGGTTATATATGGGCCGTCAAGTTTGGTGTGTATTTGG spacer
length: 45 repeater length: 23
4278 883435 GATTCTCAGATAGAGATTTGAAG GACGCCGGCCTGCCCCGGGACGTATGCAATAGACTACTGG spacer
length: 39 repeater length: 23
4279 883498 GATTCTCAGATAGAGATTTGAAG GCTTGGACGCGCAGAGGATCTACAGAAAGCTCCTCGAGTATGTCTG spacer
length: 45 repeater length: 23
4280 883567 GATTCTCAGATAGAGATTTGAAG GATCATTCCCGTACACAAGGTCGGACAGCTTCAGTTGCTGCCCCACCG
spacer length: 47 repeater length: 23
4281 883638 GATTCTCAGATAGAGATTTGAAG GCTGTTTTTCACAGCTGTGATTTCCGGCGTCCGAAGGGGG spacer
length: 39 repeater length: 23
4282 883701 GATTCTCAGATAGAGATTTGAAG GTTGTAGTATATCGTGCCGGCCGACAGGCTGATTTGGGGCAGGGCC spacer
length: 46 repeater length: 23
4283 883771 GATTCTCAGATAGAGATTTGAAG GATTAGGGCATCGCCAACATACTTGAACACCTCGCGGTATTTAG spacer
length: 44 repeater length: 23
4284 883839 GATTCTCAGATAGAGATTTGAAG GGTAAGAATACTACGTCGGTCGCGGGAGCTGTGCTACGTTGATG spacer
length: 44 repeater length: 23
4285 883907 GATTCTCAGATAGAGATTTGAAG GTGTAGTCGGTGTAGGAGCCGCATGCGGTGCCCTGTATGACA spacer
length: 42 repeater length: 23
4286 883973 GATTCTCAGATAGAGATTTGAAG GTTTATTGTCTCCAGCCACGCGGCGTCTCTGTACGCGTATTGAC spacer
length: 45 repeater length: 23
4287 884042 GATTCTCAGATAGAGATTTGAAG GTCTATCGTTATGCCGTTTTCGTTATTGTAGTACAACAGAACGCCGG
spacer length: 47 repeater length: 23
4288 884113 GATTCTCAGATAGAGATTTGAAG GCGCCACACGACGCTTCAAGAGCTACTGAGAGCGCTCTACGC spacer
length: 42 repeater length: 23
4289 884179 GATTCTCAGATAGAGATTTGAAG GATCCTCTGGCCAGGGATAAGCAGAAAAAGGGGATTAC spacer
length: 39 repeater length: 23
4290 884242 GATTCTCAGATAGAGATTTGAAG GCTTCGCGATCAGCTCCGCTATCGCCATTCTTATGATCTCT spacer
length: 41 repeater length: 23
4291 884307 GATTCTCAGATAGAGATTTGAAG GAAACACGAAGAAAAAATACGAGGTCAACGAAAACGGTGAAATA spacer
length: 44 repeater length: 23
4292 884375 GATTCTCAGATAGAGATTTGAAG GCGTCGCCCAGCTTGAACTTTCTGTTGCAGACGTCCAA spacer length:
38 repeater length: 23
4293 884437 GATTCTCAGATAGAGATTTGAAG GCTAACACTGACAGTGCCTGTGACAGATCGCGCCTGATTGCGAC spacer
length: 45 repeater length: 23
4294 884506 GATTCTCAGATAGAGATTTGAAG GGTTTAGACTGTAGAATTCCTTTCCGCATAGCTGGCATTGCAT spacer
length: 43 repeater length: 23
4295 884573 GATTCTCAGATAGAGATTTGAAG GGCCAGTGAAGTAATCTATTTGACATCAGATGGA spacer length: 35
repeater length: 23
4296 884632 GATTCTCAGATAGAGATTTGAAG GTCGGACATTGTGGCAATGTGGGTTTCGTGGTATCATAAGCGA spacer
length: 42 repeater length: 23
4297 884698 GATTCTCAGATAGAGATTTGAAG GCGACAAGGTCGCGTTGGCGGTATCACTATTTAAACCCACGCAACA spacer
length: 46 repeater length: 23
4298 884768 GATTCTCAGATAGAGATTTGAAG GTTATATTGCGCCAGTTACTATTGGCGACAACCTCTCCTCAAC spacer
length: 42 repeater length: 23
4299 884834 GATTCTCAGATAGAGATTTGAAG GCTATCTTGGGTTTTACACGTGCGCCCGGCTTTGGATCCAATATG spacer
length: 45 repeater length: 23

4300 884903 GATTCTCAGATAGAGATTTGAAG GTCTTGGTACACGGCGGTGGCAGGCAGTACTACGCCTTC spacer
 length: 39 repeater length: 23
 4301 884966 GATTCTCAGATAGAGATTTGAAG GATGATGGTCTCGCTCTTGGTGTACAGCCATATGACCAAGCC spacer
 length: 42 repeater length: 23
 4302 885032 GATTCTCAGATAGAGATTTGAAG GGTGGCGAGCTCTCTGAGAAGTAGAACGCGGAGGTGGGTCA spacer
 length: 41 repeater length: 23
 4303 885097 GATTCTCAGATAGAGATTTGAAG GACGTCGACGTATGCAAGCAGGTTGTAACCGCCTAACGAATC spacer
 length: 42 repeater length: 23
 4304 885163 GATTCTCAGATAGAGATTTGAAG GCTAAACTTAAACGTGCTTGAGATCGTTGAGGTATGAGCTCGTGG spacer
 length: 45 repeater length: 23
 4305 885232 GATTCTCAGATAGAGATTTGAAG GTAGTAGACGTGTGTCGCAATTAGGCTCTGCGTCGCGTTT spacer
 length: 40 repeater length: 23
 4306 885296 GATTCTCAGATAGAGATTTGAAG GAGGAGGGATACAGACAGCTCATCCGGTACGTCGAGAGAGGGAG spacer
 length: 45 repeater length: 23
 4307 885365 GATTCTCAGATAGAGATTTGAAG GGCCATACTCCGTGGCCTGCATAGCCGTGAGGAGGGAGCTGGC spacer
 length: 43 repeater length: 23
 4308 885432 GATTCTCAGATAGAGATTTGAAG GCATGATTGAGCGCAGCGAGAAGCTGTCCGACACCGCCGCC spacer
 length: 44 repeater length: 23
 4309 885500 GATTCTCAGATAGAGATTTGAAG GCGCCTTGCTGAGGTCGTACCAGTGCATAAGGCGCTCTGCGAGGC spacer
 length: 45 repeater length: 23
 4310 885569 GATTCTCAGATAGAGATTTGAAG GGTGCTCTACCCGCCGCCGACAAATACATCGCCGTGATCGGCA spacer
 length: 44 repeater length: 23
 4311 885637 GATTCTCAGATAGAGATTTGAAG GTTCTACGACTTTGCGGACAAGCAGACGGTGTATGAATACATGGAG spacer
 length: 46 repeater length: 23
 4312 885707 GATTCTCAGATAGAGATTTGAAG ATGACTTCTCTGTCCGCAACATCGAAGATTCGAGCCTTTCCAGAAA
 4313
 4314
 4315 crispr 3
 4316 1030559 CTTTCAATCCTCTCTTTGAGATTC GCTAGTCGTGTACGCCAGGGCGCGCAACTGCACCGTGGT spacer
 length: 39 repeater length: 24
 4317 1030623 CTTTCAATCCTCTCTTTGAGATTC CGGCGATGGATATGTCTATGTCAACGGCGTTAGGAGGGCT spacer
 length: 40 repeater length: 24
 4318 1030688 CTTTCAATCCTCTCTTTGAGATTC ATCCGTACTACTGGCAGAAGAACGCGTATGCGTTTGAG spacer
 length: 38 repeater length: 24
 4319 1030751 CTTTCAATCCTCTCTTTGAGATTC ACAGGGGCTTCTCTGCGCCAGCTCAAGGGGAGTCT spacer length:
 36 repeater length: 24
 4320 1030812 CTTTCAATCCTCTCTTTGAGATTC GCGTCGATGTCTGTATATGCATATATTTGTGCTGTAATAC spacer
 length: 40 repeater length: 24
 4321 1030877 CTTTCAATCCTCTCTTTGAGATTC GTATGGCCGCCCCGCCAGCACTGATCCTGCCGCCCCCAGGCT spacer
 length: 42 repeater length: 24
 4322 1030944 CTTTCAATCCTCTCTTTGAGATTC GGCTCATGAGGAGTGCGTAGAGCGTGCCAAGACGTGCTACATT spacer
 length: 43 repeater length: 24
 4323 1031012 CTTTCAATCCTCTCTTTGAGATTC GTGGATGGGGCCCTTAACAATTATTGCCCGATCTAGGTTGGTC spacer
 length: 43 repeater length: 24
 4324 1031080 CTTTCAATCCTCTCTTTGAGATTC TTACTGCAGAGGGCCAGCCAGGCCTACAGAACATACATCCGCCG spacer
 length: 44 repeater length: 24
 4325 1031149 CTTTCAATCCTCTCTTTGAGATTC GGCCCTACTAATAGCCGGGGCCCTGGCGGCATCTGGCGCCGGGGC
 spacer length: 45 repeater length: 24
 4326 1031219 CTTTCAATCCTCTCTTTGAGATTC AGGGAGCTTGCGCAGTTGGTTGACAAGCTCGAGAATCTGAGACGT
 spacer length: 45 repeater length: 24
 4327 1031289 CTTTCAATCCTCTCTTTGAGATTC AGATGGCGATAGTATAGTCGTGAAGCAGTTGCCAG spacer length:
 35 repeater length: 24
 4328 1031349 CTTTCAATCCTCTCTTTGAGATTC CGGCATCTGCCACTGTATCAACCACCCCACTATCAAGTATACAGA
 spacer length: 45 repeater length: 24
 4329 1031419 CTTTCAATCCTCTCTTTGAGATTC TACTATCACGCTCCACGCGATTCGTGGTTCTGGTATCCG spacer
 length: 39 repeater length: 24
 4330 1031483 CTTTCAATCCTCTCTTTGAGATTC AGCATGGTAGCGACAGCGCCAAGGTGGTGATGGAGACGTACG spacer
 length: 42 repeater length: 24
 4331 1031550 CTTTCAATCCTCTCTTTGAGATTC GCGTGGCTAACAGTAAGATTAGCGACTGGATTCACTTTTTTGT spacer
 length: 42 repeater length: 24
 4332 1031617 CTTTCAATCCTCTCTTTGAGATTC TGAGGATGATCTGATTTGGGTGGCGAGAAGTTCGGTCTGAA spacer
 length: 42 repeater length: 24
 4333 1031684 CTTTCAATCCTCTCTTTGAGATTC CGCACCGGCGTCGGCAACAAGTCGCTCCTGGTGAGGAGGGCCCTC
 spacer length: 45 repeater length: 24
 4334 1031754 CTTTCAATCCTCTCTTTGAGATTC GACGAATACTACGGGCTTAGGGCCGAGATGCGGTGGTACTG spacer
 length: 43 repeater length: 24
 4335 1031822 CTTTCAATCCTCTCTTTGAGATTC GTTAGCGAGGAGGAGGTGGAGGACGAACTCTACGAGATTG spacer
 length: 40 repeater length: 24
 4336 1031887 CTTTCAATCCTCTCTTTGAGATTC GGACGGGGCCGGCCGTGGCGTGATACGGGTGTGGTCT spacer
 length: 38 repeater length: 24
 4337 1031950 CTTTCAATCCTCTCTTTGAGATTC GTCGTTAGTGTCTATGACCGCAGTGGTACCGCTGTGTTGCAAGT spacer

length: 44 repeater length: 24
4338 1032019 CTTTCAATCCTCTCTTTGAGATTC CGATGTCCACCAACACAATGTCGTCGTCATCAACCGCCA spacer
length: 39 repeater length: 24
4339 1032083 CTTTCAATCCTCTCTTTGAGATTC ACATTTAAAGCCGTAGTTGCTGTAGGACAGGCGGGGAG spacer
length: 39 repeater length: 24
4340 1032147 CTTTCAATCCTCTCTTTGAGATTC TAACATCCATAAGGTTTATTGGTCGTGCGAATGGCACCT
4341
4342
4343 crispr 4
4344 856966 GAATCTCAAAAAGAGGATTGAAAG CAAATACATGTAATACGTTGCAGTATTCTTATACAGCCTACTCTTTA
spacer length: 47 repeater length: 24
4345 857038 GAATCTCAAAAAGAGGATTGAAAG
AATTGCCCCACGACTTGGGGGAGAGAAACGGCGCGTGGGGGTGAATCTCAAAGAGAGGATTGAAAGAGGAGAGCGGCGTCGACGA
CGTCCGCCCTTCCGGGGAAC TTGGG spacer length: 111 repeater length: 24
4346 857174 GAATCTCAAAAAGAGGATTGAAAG
TCAGCTTGTAGACGTTCTCCATGTATTCATCGATATAGTACAGAATCTCAAGTTGAGGATTGAAAGCTCCACCAACGTCCTTATCT
CTTTTAGGCATATTTCCATGTATTG
4347
4348
4349 crispr 5
4350 511830 CCAGAAATCAAAAAGATAGTAGAAAC ATCATATGATCTAACCATAAGACCGAGAGCCTGCCCAGCAGGC spacer
length: 43 repeater length: 25
4351 511899 CCAGAAATCAAAAAGATAGTAGAAAC AGCGACACAGTCACAGCTGTGGTGCCGCCGTTGCTCACGGAGACC
spacer length: 45 repeater length: 25
4352 511970 CCAGAAATCAAAAAGATAGTAGAAAC CTGTAGCTTCTCCCACTCTGCTGCGAGTATATGTCTTACAGTA spacer
length: 43 repeater length: 25
4353 512039 CCAGAAATCAAAAAGATAGTAGAAAC AATTGCCCCGTCCACCTCCTGCACCCTGTCAAGCCACGCGGTG spacer
length: 42 repeater length: 25
4354 512107 CCAGAAATCAAAAAGATAGTAGAAAC TGCTGTCCTAGTGGTTGAAGTACAGCGAGGAACAGCTGCGCCACTA
spacer length: 46 repeater length: 25
4355 512179 CCAGAAATCAAAAAGATAGTAGAAAC AACGTCGATGCCGACCTTAGCGGCCGCGTCGCTAGACTTGCC spacer
length: 43 repeater length: 25
4356 512248 CCAGAAATCAAAAAGATAGTAGAAAC GTATTTGAACGCCCAGGACGCCTTATACGCTACAATCAACG spacer
length: 41 repeater length: 25
4357 512315 CCAGAAATCAAAAAGATAGTAGAAAC ATTGCCTCCTGCAAGATCACGGCCTCGGCCTCCTCGTCTTCGGC spacer
length: 44 repeater length: 25
4358 512385 CCAGAAATCAAAAAGATAGTAGAAAC GAGAGTATGTTGCGCTTGGCGTACTCAAGCGCATACTCGGCG spacer
length: 42 repeater length: 25
4359 512453 CCAGAAATCAAAAAGATAGTAGAAAC TCAGACAGAAGCTCAAGGAGCTCCCCGCCGACGACGTATT spacer
length: 40 repeater length: 25
4360 512519 CCAGAAATCAAAAAGATAGTAGAAAC ATCTGCCTCAATGAATTCTCTTTTCAAGTGAGCTCTACGTCGTACATG
spacer length: 46 repeater length: 25
4361 512591 CCAGAAATCAAAAAGATAGTAGAAAC GCATGGCGCCTCTCCCGCGCAGACTTATAAGTCTGCGCTGTGG spacer
length: 43 repeater length: 25
4362 512660 CCAGAAATCAAAAAGATAGTAGAAAC CAATCGATTTTGGACAGCACATTGACAGGTGGCACATTAAGACGGCT
spacer length: 47 repeater length: 25
4363 512733 CCAGAAATCAAAAAGATAGTAGAAAC CAAATACAAAAGCTCAAAGTTGACGAGCAAACAGAGGTAATCA spacer
length: 43 repeater length: 25
4364 512802 CCAGAAATCAAAAAGATAGTAGAAAC TTCGTCGACGGTCCGCGCGTCTTCACGCTCTTGGAGCCCGA spacer
length: 41 repeater length: 25
4365 512869 CCAGAAATCAAAAAGATAGTAGAAAC TATAGCATGTTAAAGGGCGCCGTTCCAGAGGAGGTGTACAAA spacer
length: 42 repeater length: 25
4366 512937 CCAGAAATCAAAAAGATAGTAGAAAC CCCTAATGACCTTTTTTGGCCTTTTTCGGTTACGTTCAAAGAGTAA spacer
length: 44 repeater length: 25
4367 513007 CCAGAAATCAAAAAGATAGTAGAAAC TGGCTAGGAAGTCGCATACGCCGTATGCGGCGCTCACTGTGTAG spacer
length: 44 repeater length: 25
4368 513077 CCAGAAATCAAAAAGATAGTAGAAAC TACACCTTCCTCTTCAACGTCGCCCTCGGCCTCATCCCCCTC spacer
length: 42 repeater length: 25
4369 513145 CCAGAAATCAAAAAGATAGTAGAAAC AGCCATAAGCCTGCCAAATGGCGGATAAGAAGCACTGATCCTATT
spacer length: 45 repeater length: 25
4370 513216 CCAGAAATCAAAAAGATAGTAGAAAC GTGCGGTACTTTATATCCGCGGGCGCACAGCTCCCGTG spacer
length: 38 repeater length: 25
4371 513280 CCAGAAATCAAAAAGATAGTAGAAAC TAAAACAGGGGGAGCTACGCCCCCTGCGCTGTTTTAAAA spacer
length: 39 repeater length: 25
4372 513345 CCAGAAATCAAAAAGATAGTAGAAAC CTGCTTCGACAGGAGCTCCTCGGCGATTTGGGGCGACACGGGCAC
spacer length: 45 repeater length: 25
4373 513416 CCAGAAATCAAAAAGATAGTAGAAAC ATTATGCTCTCCTTCACCTCGTTTACAACCGACTTGACTATG spacer
length: 42 repeater length: 25
4374 513484 CCAGAAATCAAAAAGATAGTAGAAAC TGTTTTTAGATCTTTTGGGTTTTTAAAGTTTTTTCGTGGTTTT
4375
4376

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4377 crispr 6
4378 526440 GTTCTACTATCTTTTGATTTCTGG AAAGCGTCCAGCGCAATAAGGAATCTTCTGCTAGACATAATAT spacer
length: 43 repeater length: 25
4379 526509 GTTCTACTATCTTTTGATTTCTGG GAGCGGGATCCTCATGTTAACGCCGAGTCGGGACGGCGAAT spacer
length: 41 repeater length: 25
4380 526576 GTTCTACTATCTTTTGATTTCTGG GCCGCGAGTGCGGCACCGGGCCACGCTAAGAACTTCGCAAGCG spacer
length: 44 repeater length: 25
4381 526646 GTTCTACTATCTTTTGATTTCTGG ATAAGAAGTGCAACAAATGCGCTTTGAAGAGAGACTTTATTC spacer
length: 42 repeater length: 25
4382 526714 GTTCTACTATCTTTTGATTTCTGG GTGGATGGGGCCCTTAACAATTATTGCCCGATCTAGGTTGGT
4383
4384
4385 GCA_000020905.1_ASM2090v1_genomic.fna(findCrispr):
4386 START REPEAT
SPACER
4387 crispr 1
4388 768270 GAAGCAATAATGAAGAATTGAAAG TTAATCTACTTCGTCCTCCCGCTGGCAATGCTGGTGAGAATA spacer
length: 42 repeater length: 24
4389 768337 GAAGCAATAATGAAGAATTGAAAG TAGATTTTATCCATGGGCCTTAAATCCAGTTGGCTGGGGC spacer
length: 40 repeater length: 24
4390 768402 GAAGCAATAATGAAGAATTGAAAG ACATATGCCCCGGGGCGGGGGCCTGATTCATTTTGAAGA spacer
length: 38 repeater length: 24
4391 768465 GAAGCAATAATGAAGAATTGAAAG CATGTAATCACCTCTATCATCACCATAGAGGTTAATGAA spacer
length: 41 repeater length: 24
4392 768531 GAAGCAATAATGAAGAATTGAAAG CTGTAGTTGTTTCGGGTACGGCTTCAAACAGTCCACTAGTAGCG spacer
length: 44 repeater length: 24
4393 768600 GAAGCAATAATGAAGAATTGAAAG CAAGTCCGGCTTCGCGCCGATCTACGATGTCATAGGCAAGG spacer
length: 41 repeater length: 24
4394 768666 GAAGCAATAATGAAGAATTGAAAG AAAGAGTCTTCCTTTCCTAGCCATTCGACCAGCGAAGCAGT
4395
4396
4397 crispr 2
4398 752212 GAATACAATAGAAAGAATTGAAAG GTCTCAGTAAATACTTCAATTGCTTCTTTTTTCGTTATTGTGCG spacer
length: 42 repeater length: 24
4399 752279 GAATACAATAGAAAGAATTGAAAG TTTCATAAACTCTCTCACTAGTCGACGCACCAATGCGG spacer
length: 39 repeater length: 24
4400 752343 GAATACAATAGAAAGAATTGAAAG ATGATATAGTTGAATCCCAAACATGTTTTAACCGATATAGC spacer
length: 41 repeater length: 24
4401 752409 GAATACAATAGAAAGAATTGAAAG TAGAGTGAGTTCATAAGTAGTTTGGCAAATTGTCTGGTTA spacer
length: 40 repeater length: 24
4402 752474 GAATACAATAGAAAGAATTGAAAG
TCAAATTTGTCTCTATAAAAAAGAAATGAGGCGTCTATGGAATAAAGAATGGGG spacer length: 53 repeater
length: 24
4403 752552 GAATACAATAGAAAGAATTGAAAG TCAACCTTCTAAGGACGTCTATAACGTCCTTAGAGAGAGATAC spacer
length: 43 repeater length: 24
4404 752620 GAATACAATAGAAAGAATTGAAAG TTTCCGATTTTCCTCACGAATATGAATTCGTCTTCA spacer length:
36 repeater length: 24
4405 752681 GAATACAATAGAAAGAATTGAAAG GCTGTTTCATCGTCTACGCTTATGGCTTTTATTATTCTCTTT spacer
length: 42 repeater length: 24
4406 752748 GAATACAATAGAAAGAATTGAAAG TCTTGATGCCTCTACAAGTAATCTCTCAGCTACA spacer length:
35 repeater length: 24
4407 752808 GAATACAATAGAAAGAATTGAAAG GCGCGTGTGAGAGGCCCCGTAGATATATAGCCAGTGTAGCC spacer
length: 41 repeater length: 24
4408 752874 GAATACAATAGAAAGAATTGAAAG CACGTGTAATTATAAATGATTTACGCCGTTAAAGTTTTTTCAG spacer
length: 43 repeater length: 24
4409 752942 GAATACAATAGAAAGAATTGAAAG AACAAATAGCCGTCCAAGGGGTGTGCTGAATATACCCG spacer length:
37 repeater length: 24
4410 753004 GAATACAATAGAAAGAATTGAAAG TAAATAAAATCTAAACCGTATGAGGTGAGGTGTAAGTCTTGG spacer
length: 42 repeater length: 24
4411 753071 GAATACAATAGAAAGAATTGAAAG TATCGTAATTATAGTTTAGATGCTTGATTACCTGGCGGATTA spacer
length: 42 repeater length: 24
4412 753138 GAATACAATAGAAAGAATTGAAAG TTGTTATAACCCCCATCTCATAACATACGTCTCAAATCCA spacer
length: 39 repeater length: 24
4413 753202 GAATACAATAGAAAGAATTGAAAG ATTAATGCTGACACGTTGTAGCCTTGCTCTTTCAATTTCTCTCA spacer
length: 43 repeater length: 24
4414 753270 GAATACAATAGAAAGAATTGAAAG TCAGGGCGTTTCCTCTACGCGTTTCTGCTGCAGGTAGCAACTGAGC spacer
length: 45 repeater length: 24
4415 753340 GAATACAATAGAAAGAATTGAAAG CATAACCTAGACCTCTTGTTACCAACGAACCTTACCTTTTATT spacer
length: 41 repeater length: 24
4416 753406 GAATACAATAGAAAGAATTGAAAG AGACGTGAAAAAAACGTTTTTAACTAGCTATCACTTACCTT spacer
length: 41 repeater length: 24

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4417 753472 GAATACAATAGAAAGAATTGAAAG TTAAACGCGTTACCACTCAATGCGTTCCCGTCAGAGTGGC spacer
length: 40 repeater length: 24

4418 753537 GAATACAATAGAAAGAATTGAAAG CGCCTCCACGTTTCATATCAACATTGTTGAACAGAGACTT spacer
length: 39 repeater length: 24

4419 753601 GAATACAATAGAAAGAATTGAAAG AAATTTAATACACGCGTTTTATAGTAATCGCTCGCTTTTTTTT spacer
length: 42 repeater length: 24

4420 753668 GAATACAATAGAAAGAATTGAAAG CAGAATATTACAATTCACCTCTAGGTGAACGGGCGTGAGTAG spacer
length: 42 repeater length: 24

4421 753735 GAATACAATAGAAAGAATTGAAAG CGATCACGACAACTGTCTATAACACTACTACTACCACCC spacer
length: 39 repeater length: 24

4422 753799 GAATACAATAGAAAGAATTGAAAG TTATATCCGTAGTGAATATTCAAATGCATTGGCTTT spacer length:
36 repeater length: 24

4423 753860 GAATACAATAGAAAGAATTGAAAG TAGACCTGCCTCGAGACAGTTATAGTTGTATAGACCCTGC spacer
length: 40 repeater length: 24

4424 753925 GAATACAATAGAAAGAATTGAAAG CTTATCCCATGAACGCATTTTACCTTACGCCCCCTACGGTAAAG spacer
length: 43 repeater length: 24

4425 753993 GAATACAATAGAAAGAATTGAAAG TTTGTCTAGCTGTGTGATCACTTCTGTTTTGTCTGTTGATTTTCG spacer
length: 43 repeater length: 24

4426 754061 GAATACAATAGAAAGAATTGAAAG CTTCTGACTCGAGCTCGACTAACACGCTCTCACCTCGCTCT spacer
length: 41 repeater length: 24

4427 754127 GAATACAATAGAAAGAATTGAAAG ATCTTAGATATGACGTAGTACCTGTCCTTCTCCATCGTGTAG spacer
length: 42 repeater length: 24

4428 754194 GAATACAATAGAAAGAATTGAAAG ACTGCTTTCAACCCTCCCGTTAGGGTCTTTCACAGCTCTATAT spacer
length: 43 repeater length: 24

4429 754262 GAATACAATAGAAAGAATTGAAAG TAGTATAGCGCCTTTCCTCAGGGCTACCAACTACCGCGTCTCTC spacer
length: 43 repeater length: 24

4430 754330 GAATACAATAGAAAGAATTGAAAG TATACTACTGGATGATTTGAGTTATGTACTCAATCCACGGAGT spacer
length: 43 repeater length: 24

4431 754398 GAATACAATAGAAAGAATTGAAAG CTTAGTTGCACTATCTCATCATGATACCTGTCTACGTCTATC spacer
length: 42 repeater length: 24

4432 754465 GAATACAATAGAAAGAATTGAAAG CTGTGCTACAAATCTCCCCAGGGCCTCGAGTTTCTCAACTTGGG spacer
length: 45 repeater length: 24

4433 754535 GAATACAATAGAAAGAATTGAAAG GAGGTTCACTACTACCACCCTAGAAGGAGGCTATGTGTT spacer
length: 38 repeater length: 24

4434 754598 GAATACAATAGAAAGAATTGAAAG ACTACCGCATATTAACGTCATTGACACAGCCCGAAATACGT spacer
length: 41 repeater length: 24

4435 754664 GAATACAATAGAAAGAATTGAAAG AGGCAGACAGCGTGAGGCAGGCTAGCATGGAGGAGCTGAAG spacer
length: 41 repeater length: 24

4436 754730 GAATACAATAGAAAGAATTGAAAG TACTCTTTCCCGACACCTTCGACAACCTCGCTAACACTCA spacer
length: 40 repeater length: 24

4437 754795 GAATACAATAGAAAGAATTGAAAG TGAATACGAGGATCAGGATACCGGTGAGATACGTAGTGG spacer
length: 39 repeater length: 24

4438 754859 GAATACAATAGAAAGAATTGAAAG AAGACTACATCGTCTGACCCACTCCACGCTTTCAACAGCCAAGTGA
spacer length: 46 repeater length: 24

4439 754930 GAATACAATAGAAAGAATTGAAAG CAAGACTATTGGCCTCGGCATGAACTTCTTCAATTCATCGTC spacer
length: 42 repeater length: 24

4440 754997 GAATACAATAGAAAGAATTGAAAG CTATTGTGGGCGGGGTGATGTCCGCTACTTTAACTTCTTGA spacer
length: 41 repeater length: 24

4441 755063 GAATACAATAGAAAGAATTGAAAG TTGAAGCGACCGTGGTGTGCGGGCGTAGCTGCGAGCACAGTG spacer
length: 41 repeater length: 24

4442 755129 GAATACAATAGAAAGAATTGAAAG GAGATAATAAAATGTTGGCATTTAGACTATCGCCTCGCTGAAAG spacer
length: 44 repeater length: 24

4443 755198 GAATACAATAGAAAGAATTGAAAG TCGACCATCTCAAATGCTGTACGGGTTTCTGGACACGTTTAA spacer
length: 44 repeater length: 24

4444 755267 GAATACAATAGAAAGAATTGAAAG CCAGCTATACCTAGCTTACCAAAGATGATTCTGTCTAATGGA spacer
length: 42 repeater length: 24

4445 755334 GAATACAATAGAAAGAATTGAAAG ATGGTATATAATGATCGGACATCAATCGACCCGTCGAAT spacer
length: 39 repeater length: 24

4446 755398 GAATACAATAGAAAGAATTGAAAG TGCTCTTTAATACGGCTGAGGGAGTTGATGCAAATAGCTCA spacer
length: 41 repeater length: 24

4447 755464 GAATACAATAGAAAGAATTGAAAG CCAATGACGCTTGCCAGCGATCTACTCCTTGGAATATCTGCA spacer
length: 43 repeater length: 24

4448 755532 GAATACAATAGAAAGAATTGAAAG CTCTACCTTGACCAACAACTCACCTAATATTCTAATAAT spacer
length: 40 repeater length: 24

4449 755597 GAATACAATAGAAAGAATTGAAAG CAATGTACTTATCCACTCTCAAGCATTCAAGCGTCGCATCACTA spacer
length: 44 repeater length: 24

4450 755666 GAATACAATAGAAAGAATTGAAAG TACTGTGCCACCCCGCCTCCCCAGTAGGCTCCCTGAGGTAT spacer
length: 43 repeater length: 24

4451 755734 GAATACAATAGAAAGAATTGAAAG CAGGAACGGGGCTATGCTTTTCGCGTAGTGACAGATAAACA spacer
length: 41 repeater length: 24

4452 755800 GAATACAATAGAAAGAATTGAAAG ATCACACGTTATTAAATCATACGCCTTAGCTATCCATGGTGTAT spacer

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length: 44 repeater length: 24
4453 755869 GAATACAATAGAAAGAATTGAAAG TCTGACATATAGTGTTTTTGAACAGGGGTGGTCGGGATGC spacer
length: 41 repeater length: 24
4454 755935 GAATACAATAGAAAGAATTGAAAG AAATCACAGAAAGTGTTTGTCTCCGACTTGAGACAGGTAT spacer
length: 40 repeater length: 24
4455 756000 GAATACAATAGAAAGAATTGAAAG TCCTTAGATACATGTACATACCCTTAGCAACTACTTCTAAGAT spacer
length: 43 repeater length: 24
4456 756068 GAATACAATAGAAAGAATTGAAAG CGGTTACTGCCGTAGAAAGTGATAAGAGCAAGAACATAGTTG spacer
length: 41 repeater length: 24
4457 756134 GAATACAATAGAAAGAATTGAAAG GCTTAGACTTATCATCGATGAACGACAGATAAAACGCAC spacer
length: 39 repeater length: 24
4458 756198 GAATACAATAGAAAGAATTGAAAG ACGCGACCTGGAGCGGCTGTAGAATACCGTGCTGTCTGAT spacer
length: 40 repeater length: 24
4459 756263 GAATACAATAGAAAGAATTGAAAG TTGCAGTGTGGCGTATGTAGCACTTGACCTCGCTGGCTTCT spacer
length: 41 repeater length: 24
4460 756329 GAATACAATAGAAAGAATTGAAAG CCGCTAGCTAGCCTCAATTTACAGAGGTGGCCCCGGGAGCC spacer
length: 41 repeater length: 24
4461 756395 GAATACAATAGAAAGAATTGAAAG GTTGCCTCCGCCCCTCACGGCTCATGCCCAGCGATGCGAGGT spacer
length: 43 repeater length: 24
4462 756463 GAATACAATAGAAAGAATTGAAAG GAGTACTCAGCTGGAGTGTGACGCGCCACGTAAGGACTGGG spacer
length: 40 repeater length: 24
4463 756528 GAATACAATAGAAAGAATTGAAAG CAGGACTTTTACCTGCAGTGTGTACACACATTTTATTGA spacer
length: 39 repeater length: 24
4464 756592 GAATACAATAGAAAGAATTGAAAG ATCAAGATAGCCCATTTGAGAAAGTTTTTCTTGAATGTCTCT spacer
length: 43 repeater length: 24
4465 756660 GAATACAATAGAAAGAATTGAAAG ACACCAGCACCTGGCGGGGAAGAGGAGAAGGCCGAGCAG spacer
length: 39 repeater length: 24
4466 756724 GAATACAATAGAAAGAATTGAAAG TTTTCTTAACCTTCATCAGCAAATACATAGTCCTTGGGTGCA spacer
length: 41 repeater length: 24
4467 756790 GAATACAATAGAAAGAATTGAAAG AATAATGTCTCCCGGTGATGGAAAATATTCGGTGACGGCTAG spacer
length: 42 repeater length: 24
4468 756857 GAATACAATAGAAAGAATTGAAAG GAGCGGAGCCGACAAAGCAGTACCTAAGATGAGTGAATTC spacer
length: 40 repeater length: 24
4469 756922 GAATACAATAGAAAGAATTGAAAG GACAGAGAAACTAAAAGAGATGAAGCTCGAGAAGGTGATCGCGTGG
spacer length: 46 repeater length: 24
4470 756993 GAATACAATAGAAAGAATTGAAAG GTAATTCCATATATCCGCTGGGTTTTGTTGGTGTTATAGCAGTACTT
spacer length: 46 repeater length: 24
4471 757064 GAATACAATAGAAAGAATTGAAAG TTTAAATGGATACTAGCACGGGTATAATGGAGTTTATAA spacer
length: 40 repeater length: 24
4472 757129 GAATACAATAGAAAGAATTGAAAG CAGGACTTTTACCTGCAGTGTGTACACACATTTTATTGA spacer
length: 39 repeater length: 24
4473 757193 GAATACAATAGAAAGAATTGAAAG TAATGCTACTTTTACGTAGTACTTCTCGAACACTTCTTT spacer
length: 39 repeater length: 24
4474 757257 GAATACAATAGAAAGAATTGAAAG AATATGACACTGCAATCGATTTCGCGTGATGCACGTGCGCGGTG spacer
length: 43 repeater length: 24
4475 757325 GAATACAATAGAAAGAATTGAAAG ATAACCCCGGTTAGTGTACCAGTTACACTATTCATCCACG spacer
length: 40 repeater length: 24
4476 757390 GAATACAATAGAAAGAATTGAAAG CTGGTCAGACCGCAATGCTCTACGAGGAAGACAGTCGACTC spacer
length: 41 repeater length: 24
4477 757456 GAATACAATAGAAAGAATTGAAAG GACAGAGAAACTAAAAGAGATGAAGCTCGAGAAGGTGATCACGTGG
spacer length: 46 repeater length: 24
4478 757527 GAATACAATAGAAAGAATTGAAAG ATAACATATGCGGAGGGGTTGTGACATGAACCTGCGCTACA spacer
length: 41 repeater length: 24
4479 757593 GAATACAATAGAAAGAATTGAAAG AGGGATGGGTTGAGGGATGCAATCACGTGGTATGGTGCATGGTA spacer
length: 44 repeater length: 24
4480 757662 GAATACAATAGAAAGAATTGAAAG CTCTTTATTGTAAACTGTTTACGTAGCGTTTTTTTACACCG spacer
length: 41 repeater length: 24
4481 757728 GAATACAATAGAAAGAATTGAAAG ACTCGCATTGCTCATTAACATAGCTATTGGTATAACTCTG spacer
length: 40 repeater length: 24
4482 757793 GAATACAATAGAAAGAATTGAAAG CGCAGGTCATCAACAACTATCCTTGATGGTTTCATGTTGC spacer
length: 40 repeater length: 24
4483 757858 GAATACAATAGAAAGAATTGAAAG CCGGCTTCGCGCCGATCTACGATGTCATAGGCAAGGTGAA
4484
4485
4486 GCA_000021965.1_ASM2196v1_genomic.fna(findCrispr):
4487 START REPEAT
4488 SPACER
4489 crispr 1
1392154 ATTGAACTTCTGGATCCGGT
GGTTATACGAGTCGACTACGTAGACGCTTCCTGTGTTGTCCACCGCGACACCAGATGGCCAGTGGACCTGCCCCGTCTCCTGAGCCT
TCACTGCCCCATTTTCATGAGGAATCCCCCGGACG spacer length: 120 repeater length: 20

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4490 1392295 ATTGAACTTCTGGATCCGGT
TGTTCTGCTTGTCTGGTCACGTAGACATTGCCAGCACTATCCAGCGCGACACCAGATGGCTGGTTGAACTGCCCCGTCTCCCGAACCA
ATACTGCCCCATTTTCATGAGGAATCCCCCGGACG spacer length: 120 repeater length: 20

4491 1392436 ATTGAACTTCTGGATCCGGT
CATGTTGATACTTATATAAGTTATTCTGAATTCCAAGGATCTGAACCGGAATTGCAGGAATTGGCCAGCATCATCTATCTTGAGGT
ATTTCTTACGCGCGATGATATCCTGATTACACT

4492

4493

4494 crispr 2

4495 1732347 CAACGCGAGATACTTATGTTG
AACGCTGAGGCATATATACCTTAGTATCAATCGATTTCATTGAAGCAAACGATACATGCGCTCTTCACAATCACTCGCATTCCATT
spacer length: 85 repeater length: 21

4496 1732454 CAACGCGAGATACTTATGTTG
AACGCTCGGACATATATACTTTACTTCAAATCCCGATTTCGTGGAATCGGAGTCTGAAGACGTCCTTCACAATCACTCGTGTCTGACT
TC spacer length: 88 repeater length: 21

4497 1732564 CAACGCGAGATACTTATGTTG
CGCTATCCAACGCCAGGGATGTAAAAAACCCGACCTGCCCCGCCGAATCCACCGTTTCGTTCTGCCAGGTCTGGGCGGAAACGGGT
CC

4498

4499

4500 crispr 3

4501 2755064 GGCAACGTCTACGTCGTCGACAC
CGGGAACAACCGGGTCCAGAAGTTCACATCGACCGGCACATTTCATCACACAATGGGGCGGTGAAGGTTTCGGAGACGGGCAGTTCA
ACTTTCTTGGCGGCATCACCGCGGATAGCGC spacer length: 117 repeater length: 23

4502 2755205 GGCAACGTCTACGTCGTCGACAC
GGAGAACGACCGGGTCCAGAAGTTCACATCGACCGGCGAATTTCATCACGAAATGGGGCGGTGATGGTTTCGGGAGTCGGGGAGTTCA
ACTACCCCTATGGTATCGCCGTGGACCGTGC spacer length: 117 repeater length: 23

4503 2755346 GGCAACGTCTACGTCGTCGACAC
TACGCTGCTCAGTCCGGCCCTTGCCGGCCACCCGGAATTCGCGTTCATCAGCGTCCACGTAGCGCCGTTATCGATCGACCTCCATG
TATCATTTCAAAATGGCTCTTGATTTCATTACT

4504

4505

4506 crispr 4

4507 2356712 TAACTGATCCGGGGGTTGCCGGCGC
CGTCCAGCGCAAGGGATGTGCACTTCCCGACATACCCCTCTGAATCCACTGTTTCATTGTGCCAGCCGAACCATCGTGCCACGCA
TACTTCAGGTCATCAGTCCCTTCGTATAA spacer length: 115 repeater length: 25

4508 2356853 TAACTGATCCGGGGGTTGCCGGCGC
TGTCCAGCGCCAGAGAGGTGTACCACCCTACAGTTCCTTTGAATCCACCGTTTCATTGTGCCAGCCAGAGTCATCGTGCCACGCA
TACTTCAGGTCGTTATTCGACAGATCGCT spacer length: 115 repeater length: 25

4509 2356994 TAACTGATCCGGGGGTTGCCGGCGC
TATCCAACGCCAGGGACGTATATGCCCCGACATACCCCTCTGAATCCACCGTTTCGGTGTGCCAGCCAGAGTCATCGTGCCATGCA
TACTTCAGATCGTTATTCGACCAATCGCT spacer length: 115 repeater length: 25

4510 2357135 TAACTGATCCGGGGGTTGCCGGCGC
TGTCAAGAGCAAGGGATGTGTACCACCCGACCCGCCCTCAGAATCCACCGTTTCATTGTGCCAGCCCAAACCGTCGTGCCACGCA
TATTTTCAGGTTGCCATCCGTATCATCGAA spacer length: 115 repeater length: 25

4511 2357276 TAACTGATCCGGGGGTTGCCGGCGC
TCCAACGCCAGGGATGTAAAAAACCCGACCTGCCCCGCCGAATCCACCGTTTCGTTCTGCCAGGTCTGGGCGGAAACGGGTCCGAT
GCCAAGCGATACCAACAGCAGTGCCGCTG

4512

4513

4514 crispr 5

4515 2356853 TAACTGATCCGGGGGTTGCCGGCGCT
GTCCAGCGCCAGAGAGGTGTACCACCCTACAGTTCCTTTGAATCCACCGTTTCATTGTGCCAGCCAGAGTCATCGTGCCACGCAT
ACTTCAGGTCGTTATTCGACAGATCGCT spacer length: 114 repeater length: 26

4516 2356994 TAACTGATCCGGGGGTTGCCGGCGCT
ATCCAACGCCAGGGACGTATATGCCCCGACATACCCCTCTGAATCCACCGTTTCGGTGTGCCAGCCAGAGTCATCGTGCCATGCAT
ACTTCAGATCGTTATTCGACCAATCGCT spacer length: 114 repeater length: 26

4517 2357135 TAACTGATCCGGGGGTTGCCGGCGCT
GTCAAGAGCAAGGGATGTGTACCACCCGACCCGCCCTCAGAATCCACCGTTTCATTGTGCCAGCCCAAACCGTCGTGCCACGCAT
ATTTTCAGGTTGCCATCCGTATCATCGAA spacer length: 114 repeater length: 26

4518 2357276 TAACTGATCCGGGGGTTGCCGGCGCT
TACGCTGCTCAGTCCGGCCCTTGCCGGCCACCCGGAATTCGCGTTCATCAGCGTCCACGTAGCGCCGTTATCGATCGACCTCCATG
TATCATTTCAAAATGGCTCTTGATTTCATT

4519

4520

4521 crispr 6

4522 886871 GAGTACGATGCTTCCGTCCGGCATCGC
GACCGCTGTCTGGCAGTCCCGCTCAGACCATCCGGAGTTCGGGTTCATCAGCGTCCAGGTTTTGCCGTTCATCAGTCGACCTCCAG
TATCATTTGTGAGATTCCCGCTCTCATCCCTACCGCCG spacer length: 125 repeater length: 27

4523 887024 GAGTACGATGCTTCCGTCCGGCATCGC
TACACTGCTGTGATAGAATCTTCCTGACCACCCGGAGTTCGCGTTCATCAGCGTCCATGTAGCGCCGTTCATCGGTTCGACCTCCATG

4524 TGTCGTTTCATATAGGTGGATTTCATTACCACCGCCCA spacer length: 122 repeater length: 27
 887174 GAGTACGATGCTTCCGTCGCGCATCGC
 GCCAGGGATGTAAAAAACCCGACCTGCCCCGCCGAATCCACCGTTTCGTTCTGCCAGGTCTGGGCGGAAACGGGTCCGATGCCAAG
 CGATACCAACAGCAGTGCCGCTGAAAGAATTGACAA
 4525
 4526
 4527 GCA_000022365.1_ASM2236v1_genomic.fna(findCrispr):
 4528 START REPEAT
 SPACER
 4529 crispr 1
 4530 208507 CAATT
 CTCCTAGAGTCTTATTGCAACTACGCGCTACTACTGATGAGGAAGGTAGCAGAACTCCCTTTCAATTCTCTAGAGTCTTATTGCAA
 CGGGAAATATACGTCGATATTGACGCTTATAGGGAAAGCCTT spacer length: 128 repeater length: 5
 4531 208641 CAATT CTCCTAGAGTCTTATTGCAACCTGGGTGGCTGGTCTTCGGCATTGCCCTCATCGGCCTCTT spacer
 length: 62 repeater length: 5
 4532 208709 CAATT CTCCTAGAGTCTTATTGCAACAGGCCGTCCCCGACGCATGCATGGCATCCGCCGGATCCCTT spacer
 length: 62 repeater length: 5
 4533 208777 CAATT CTCCTAGAGTCTTATTGCAACCTTGTCGCTACTTCTTCGCGTAAATTCTGCTCGCCTTTTCTT spacer
 length: 63 repeater length: 5
 4534 208846 CAATT TCTAGGAGAATTGAAAGCGGAACAATAATCGGCGAAAAACCACTTTATCTTATCGAGTTGCAA
 4535
 4536
 4537 crispr 2
 4538 1221278 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGAGATTGGTCAACTCTGGCTTGACTGGAGGGCTGG spacer
 length: 36 repeater length: 30
 4539 1221345 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGCGTAAATGAGGGCCGGTAATTCGCGAGATAAG spacer
 length: 35 repeater length: 30
 4540 1221411 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATACTCAAAGCCGGCCCCAACAGCCCCAAAATAATC spacer
 length: 36 repeater length: 30
 4541 1221478 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGGATCTCCACACGGCCTGGGCCTTCTCAACCTG spacer
 length: 36 repeater length: 30
 4542 1221545 GTTGCAATAAGACTCTAGGAGAATTGAAAG TAGTTCTTAACGAAACTCCGCACCCTCCTCCTAACT spacer
 length: 36 repeater length: 30
 4543 1221612 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTGGGGTGCTCTACCTCGCTAGGACTGGCAAAAAGAG spacer
 length: 37 repeater length: 30
 4544 1221680 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTCATTGAATCCCTCTCAACCTCAAGGTACTCCTTC spacer
 length: 36 repeater length: 30
 4545 1221747 GTTGCAATAAGACTCTAGGAGAATTGAAAG GACTTTGGTCGGGGCCCGCAAAGAGTATCCGAACCTCTCA
 spacer length: 40 repeater length: 30
 4546 1221818 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTAAGTGTTTCATGAATTGATACTGGAAGTCGAAACA spacer
 length: 36 repeater length: 30
 4547 1221885 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGCGTTGTTATTTGCCTCATGCCGATCCCCCA spacer
 length: 34 repeater length: 30
 4548 1221950 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTTGTGCGGGACTACTTCGTAATGGCACACAACGGC spacer
 length: 36 repeater length: 30
 4549 1222017 GTTGCAATAAGACTCTAGGAGAATTGAAAG AACTCGTAACTGAAGATGTTATAGTTGCTTCTATCG spacer
 length: 36 repeater length: 30
 4550 1222084 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAGTTGGTCGTGTGGGTGGGGTTATCAGTGCATGCT spacer
 length: 37 repeater length: 30
 4551 1222152 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTTCTATGACGTATTTATTGATTTTACTGATTATT spacer
 length: 37 repeater length: 30
 4552 1222220 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAGCGAGGTGGGCATCTCCTCAGCGACGGGAGTG spacer
 length: 35 repeater length: 30
 4553 1222286 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGAGTGCACAAAAGAATACATTTCAACTAAAGAA spacer
 length: 35 repeater length: 30
 4554 1222352 GTTGCAATAAGACTCTAGGAGAATTGAAAG AACAAAAACGTGTTTGACTTCCCGGCCTTTACTTT spacer
 length: 36 repeater length: 30
 4555 1222419 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCTAATGGCCCCGGTGGTCGGGGCCGCCGACCAAAGC spacer
 length: 37 repeater length: 30
 4556 1222487 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACGGGAGCACGGCGGAGATCGAGTACACGGTCAAG spacer
 length: 35 repeater length: 30
 4557 1222553 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGTGTAACGTCACGAACTGGCTCAGGCCTTCGTACA spacer
 length: 36 repeater length: 30
 4558 1222620 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAATAATCGGCGAAAAACCACTTTATCTTATCGAGT
 4559
 4560
 4561 crispr 3
 4562 752911 ACGCGGTTGCCATCGCTGACAACGGGGACATTATTGT
 TACGGGTTCTCCTTTCACGATACGGCTTGATGCTAACGGAAACGTGATCTGGACAAAAGACGTGGGCGGT spacer
 length: 70 repeater length: 37
 4563 753019 ACGCGGTTGCCATCGCTGACAACGGGGACATTATTGT


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AGCAGGCAGTTATGGTGACGACGTTTGGGTTCTCAGATTGGATGAGAATGGGAACGTGAAATGGCAAAAAACCTACGGCGGGAGCA
ATTGGGATGAGGCT spacer length: 100 repeater length: 37
4564 753157 ACGCGGTTGCCATCGCTGACAACGGGGACATTATTGT
GTTACATCTTCTATTTGGGTTTCCTTTCAATTCTCCTAGAGTCTTATTGCAACAGGGCGCGAAATTTGCCCTTTGCCCCAACGAA
GAAATAAGAACGTC
4565
4566
4567 GCA_000022385.1_ASM2238v1_genomic.fna(findCrispr):
4568 START REPEAT
SPACER
4569 crispr 1
4570 619238 CTTTCAATTCTATAGTAGATTAAC AAGTGAGGAAAAGAACCTTTCAAATCTCCTATCGGTGT spacer
length: 38 repeater length: 24
4571 619301 CTTTCAATTCTATAGTAGATTAAC TCATTACACCAGTATATTACCATCACTGTCACCTATC spacer
length: 38 repeater length: 24
4572 619364 CTTTCAATTCTATAGTAGATTAAC TCGATAATAATCCACTTTCTAATTCTCAACAATTATATT spacer
length: 39 repeater length: 24
4573 619428 CTTTCAATTCTATAGTAGATTAAC TCAGTAAATGAACAAGTTTCAGCGGTCTTGTCTGAAT spacer length:
37 repeater length: 24
4574 619490 CTTTCAATTCTATAGTAGATTAAC TTCTTTTTCTTTTTTTGAGAAGCCGTTAAAGAAAGTTAAGCTA spacer
length: 43 repeater length: 24
4575 619558 CTTTCAATTCTATAGTAGATTAAC
ATAAACTATATCCTATTATAACAAGCAAAAACCTTACCATCTTTCAATTCTATAGTAGATCAACTACGTGTTTCATACATGTTGATG
GAATTGCTCCAGTTGCAG spacer length: 104 repeater length: 24
4576 619687 CTTTCAATTCTATAGTAGATTAAC TCTTGAAGACTTGGCAAAGAAAGGGTTCTTAAGCT spacer length:
35 repeater length: 24
4577 619747 CTTTCAATTCTATAGTAGATTAAC ATGATTCGCTTAACGATTTTATGAACAGAGTATTATGGT spacer
length: 39 repeater length: 24
4578 619811 CTTTCAATTCTATAGTAGATTAAC GCTGTTTGAGAGAAGAAATAAATAAAAAACGGGTTAGCT spacer
length: 39 repeater length: 24
4579 619875 CTTTCAATTCTATAGTAGATTAAC ACTGCTTTTGCTTTTTCTTGGTGAGAAGTACAGATGCTCAT spacer
length: 41 repeater length: 24
4580 619941 CTTTCAATTCTATAGTAGATTAAC TTGTGACAACCTTTTAGGTACTACCGTACGCCAGGCT spacer length:
37 repeater length: 24
4581 620003 CTTTCAATTCTATAGTAGATTAAC AAAGGGGGGCAAAAATCAGGATTAGAGTCTTTTTTAGATC spacer
length: 40 repeater length: 24
4582 620068 CTTTCAATTCTATAGTAGATTAAC GGGCATAAGAAGCTGGACAGGATAATACAGTATACGCAAGTC spacer
length: 42 repeater length: 24
4583 620135 CTTTCAATTCTATAGTAGATTAAC ATAGTGTGTTAAAAATCAGCTATCTAAGCGGATATATAA spacer
length: 39 repeater length: 24
4584 620199 CTTTCAATTCTATAGTAGATTAAC AGCTAGCCGGTACATTGAAAGTAGGAATCTCGATTACTT spacer
length: 39 repeater length: 24
4585 620263 CTTTCAATTCTATAGTAGATTAAC
AACGCTATGATCACTAGTGCTATAAATATCCAAACCCATACCTTTCAATTCTATAGTAGATTAGCTTTGTAAACCAGTATTTAA
CTTTTCCCTAACTAGC spacer length: 103 repeater length: 24
4586 620391 CTTTCAATTCTATAGTAGATTAAC CCCAGTATTGCCAAAGGTTTTGTGCGATGCCTATACATATGTA spacer
length: 43 repeater length: 24
4587 620459 CTTTCAATTCTATAGTAGATTAAC ATAGGCGTATTAAGCTCTAGCAACCTCTGGAGCTCATCAG spacer
length: 40 repeater length: 24
4588 620524 CTTTCAATTCTATAGTAGATTAAC CAGCCTTAATGTTTAAAAATAAAAAATCTCGTTGGAGCAAA spacer
length: 40 repeater length: 24
4589 620589 CTTTCAATTCTATAGTAGATTAAC GAGGTCGACTTGGATACGATACAAAATGCACAAAGACTGA spacer
length: 40 repeater length: 24
4590 620654 CTTTCAATTCTATAGTAGATTAAC GTGTTATTACAAGGTACTATACAAAACACAAATACGTCA spacer
length: 39 repeater length: 24
4591 620718 CTTTCAATTCTATAGTAGATTAAC AAAAAGCTTATCAAGAAATTGTTAAAAATGTAAATTTAT spacer
length: 39 repeater length: 24
4592 620782 CTTTCAATTCTATAGTAGATTAAC ATGGCAAGTCTTAAGGAAATATTAGATCAATTGGAAAAA spacer
length: 39 repeater length: 24
4593 620846 CTTTCAATTCTATAGTAGATTAAC TCGAAACGATAATTAGGAGAAGAGTTACTATACTAACAT spacer
length: 39 repeater length: 24
4594 620910 CTTTCAATTCTATAGTAGATTAAC GGAAACTTCGACACTTTATATGTGTTTAGTTTTCTTCTGG spacer
length: 42 repeater length: 24
4595 620977 CTTTCAATTCTATAGTAGATTAAC TGAAAGGAACCTTAGAAAAAATATTGAAGAGATATTCGTCTA spacer
length: 41 repeater length: 24
4596 621043 CTTTCAATTCTATAGTAGATTAAC AAATTGATTCATGTCAAACGGTGGTGTGGCATTTATCTG spacer
length: 39 repeater length: 24
4597 621107 CTTTCAATTCTATAGTAGATTAAC TAGGTTAAGTTGTCCTTACTCGTCACATTGGTCTAAGAAGAAT spacer
length: 43 repeater length: 24
4598 621175 CTTTCAATTCTATAGTAGATTAAC CGTTATAGAGTATCTGCCAGCCGTATTCCGATACCCCA spacer
length: 38 repeater length: 24

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4599 621238 CTTTCAATTCTATAGTAGATTAAC ATTATGATGAGTATAAAAAGCAGAATCGAACAGAATTATAATTT spacer
length: 43 repeater length: 24

4600 621306 CTTTCAATTCTATAGTAGATTAAC AAAAGAAATTTTCATAAAGCCTTTTTATGGTGATACAAAGG spacer
length: 40 repeater length: 24

4601 621371 CTTTCAATTCTATAGTAGATTAAC TTCAATTTAGGCTATTCAAATCATTTTTGTGTAAATATAGA spacer
length: 41 repeater length: 24

4602 621437 CTTTCAATTCTATAGTAGATTAAC CTGTTTCTTTTTCTCTTTCCCATCACAAAAAATTGTA spacer length:
37 repeater length: 24

4603 621499 CTTTCAATTCTATAGTAGATTAAC GTATTTTCACGGGATAAATTTTGAAATCGTGAAAAAAGCA spacer
length: 39 repeater length: 24

4604 621563 CTTTCAATTCTATAGTAGATTAAC CCATATGAAAGGACTTCTCATAAATGGAAAAATACTTAATC spacer
length: 41 repeater length: 24

4605 621629 CTTTCAATTCTATAGTAGATTAAC TAAAGAAAACTTTAAATATGAGAGTTGGCATAGATAAAAT spacer
length: 40 repeater length: 24

4606 621694 CTTTCAATTCTATAGTAGATTAAC TTAATGAGGGGAAAAGAGTGGTGGATCATTATTATATTA spacer
length: 39 repeater length: 24

4607 621758 CTTTCAATTCTATAGTAGATTAAC GAGATAAAGAAACAACCTCAAAATGAAAAAGAAGAGTTTTAAA spacer
length: 43 repeater length: 24

4608 621826 CTTTCAATTCTATAGTAGATTAAC GTCTTTTTCCATCTTCTGTTATGATATCTATTTCGATCAG spacer
length: 39 repeater length: 24

4609 621890 CTTTCAATTCTATAGTAGATTAAC GCTAATAGTTTTTAATTCTATTAGGTCATTATTGCATAT spacer
length: 39 repeater length: 24

4610 621954 CTTTCAATTCTATAGTAGATTAAC CCCGTGAACCTTAGGAAATGCAGAGGCTGAGCTTAGAAAAA spacer
length: 40 repeater length: 24

4611 622019 CTTTCAATTCTATAGTAGATTAAC TTCCTTCCACGCCCCCTACAAGAAGGATGAGTTTTT spacer length:
35 repeater length: 24

4612 622079 CTTTCAATTCTATAGTAGATTAAC ACTAAATAATTGGTATAGCGTGGTGTACACGTATAAGTA spacer
length: 39 repeater length: 24

4613 622143 CTTTCAATTCTATAGTAGATTAAC AATTGGCTCAGAATTCCTCAATAAAATTACGAAGTGAAT spacer
length: 39 repeater length: 24

4614 622207 CTTTCAATTCTATAGTAGATTAAC ATTTGTTGATTTGCAGTTGCAATAAATCCAGCGATATAAAT spacer
length: 41 repeater length: 24

4615 622273 CTTTCAATTCTATAGTAGATTAAC CTGAGTTTGATGAAGGAATTAATGAAGAAGAAAGAGAA spacer
length: 38 repeater length: 24

4616 622336 CTTTCAATTCTATAGTAGATTAAC CACAGACTTTCATGGTGTAGAAGTCATCCTGATAAATGT spacer
length: 39 repeater length: 24

4617 622400 CTTTCAATTCTATAGTAGATTAAC ATGTATGTATCAGTCACGTATTCAATTTCCCTTCCTTGGTT spacer
length: 40 repeater length: 24

4618 622465 CTTTCAATTCTATAGTAGATTAAC TCGTACATTCCCTTTCCTATATGCCATCCAGAAATTACCA spacer
length: 39 repeater length: 24

4619 622529 CTTTCAATTCTATAGTAGATTAAC AATTAAAGTATTAATGAAGATGAACTTAAGAACCATA spacer
length: 38 repeater length: 24

4620 622592 CTTTCAATTCTATAGTAGATTAAC
ATGTCGTTAACCGCCCTAGTCAAGGTGCCGGTCAACTGATCTTTCAATTCTATACTAGATTAACCCCAGGTCGGCTCCAGTACTTC
CCCTTGCGTATAAATTG spacer length: 103 repeater length: 24

4621 622720 CTTTCAATTCTATAGTAGATTAAC ATTAGACGCGGTGCCTTATCCGCGGGTAAGTTTGTATTTAG spacer
length: 41 repeater length: 24

4622 622786 CTTTCAATTCTATAGTAGATTAAC ATTCAAACATCTGCTTGAGTACATCAAACGTTACGATGAGAA spacer
length: 42 repeater length: 24

4623 622853 CTTTCAATTCTATAGTAGATTAAC CCGTAGCTGTGTTTCAGCTTTGCGTTATCCAAACTGTTC spacer
length: 38 repeater length: 24

4624 622916 CTTTCAATTCTATAGTAGATTAAC ATTTTTGCCCCGCTCCTCCTCTATCGGCATACCCTGACT spacer
length: 39 repeater length: 24

4625 622980 CTTTCAATTCTATAGTAGATTAAC TGTAAGTCGGTGTATACAATATTCTTTCTCAAAAATT spacer
length: 39 repeater length: 24

4626 623044 CTTTCAATTCTATAGTAGATTAAC ACAAGTTTGATACATTGTTTTTGGTCATCAATTTCAACAT spacer
length: 40 repeater length: 24

4627 623109 CTTTCAATTCTATAGTAGATTAAC AATCCGCCATGTCGTGTGTGTGATCGAATGGGAACATGTC spacer
length: 40 repeater length: 24

4628 623174 CTTTCAATTCTATAGTAGATTAAC TCGCTATCTTTGTGTACATGGCTTTCTTTGCTAACTCG spacer
length: 38 repeater length: 24

4629 623237 CTTTCAATTCTATAGTAGATTAAC AACTACGGTATTAGTAAATTAAGGGAAGGTGAAGAGGAA spacer
length: 39 repeater length: 24

4630 623301 CTTTCAATTCTATAGTAGATTAAC TATAAAACATAATAATTAGATCTGCTTGTGTGTAGACAA spacer
length: 39 repeater length: 24

4631 623365 CTTTCAATTCTATAGTAGATTAAC AAGAACTTAGTGACATGATCAATTATCACAGTATAAA spacer
length: 38 repeater length: 24

4632 623428 CTTTCAATTCTATAGTAGATTAAC GCTTAGTTATGAAACCTGCGAGAACATTGGAGATGTTAA spacer
length: 39 repeater length: 24

4633 623492 CTTTCAATTCTATAGTAGATTAAC TCGATTAGTTTGTGCGATACAGTCCTGCAGTACGGGGGAA spacer
length: 39 repeater length: 24

4634 623556 CTTTCAATTCTATAGTAGATTAAC TGAGGTGACCTGACGATGAAGGTCGCAATATGGATTTCT spacer
length: 39 repeater length: 24

4635 623620 CTTTCAATTCTATAGTAGATTAAC CGCTTACACTTATTTTATTACAATTGCTACTAATTATCGAT spacer
length: 41 repeater length: 24

4636 623686 CTTTCAATTCTATAGTAGATTAAC CCGCCGTTTCATGGTTTTCAAGAAAATTTGAGTTTGAA spacer length:
37 repeater length: 24

4637 623748 CTTTCAATTCTATAGTAGATTAAC AACACTGGGATTGGCAAATGTCCTTCGCCAGTATTAACA spacer
length: 39 repeater length: 24

4638 623812 CTTTCAATTCTATAGTAGATTAAC TTTAAATATCCCGGAAGCCAAAGATTATTAAGGTTAGTGG spacer
length: 40 repeater length: 24

4639 623877 CTTTCAATTCTATAGTAGATTAAC CGGGCATCATTACCACCTACCTCCCTACCTCGGTAAACT spacer
length: 39 repeater length: 24

4640 623941 CTTTCAATTCTATAGTAGATTAAC AGCGTAAATTATCCACCTATAGGAGAATGTTGATAGAT spacer
length: 39 repeater length: 24

4641 624005 CTTTCAATTCTATAGTAGATTAAC CTCTACTTGTTAGATGCTTGCTACTTACGCTATATTCA spacer
length: 38 repeater length: 24

4642 624068 CTTTCAATTCTATAGTAGATTAAC TAGACGAGTATACTTATTGCACTGATGTTGATCATTGTTT spacer
length: 40 repeater length: 24

4643 624133 CTTTCAATTCTATAGTAGATTAAC AGAAACCAAAGCAAGAGCTGGAAACCACATGAGGAGTTT spacer
length: 39 repeater length: 24

4644 624197 CTTTCAATTCTATAGTAGATTAAC ACAGAGCGCCCTCTGGTATGATGTCCGGATACTTATAAAAT spacer
length: 41 repeater length: 24

4645 624263 CTTTCAATTCTATAGTAGATTAAC TAATTTATACGCCAGTACGCGGCAGATCTACGAATATCGT spacer
length: 40 repeater length: 24

4646 624328 CTTTCAATTCTATAGTAGATTAAC TGCTAAATTATTAAGAGCTGAAAGCAAAGATGAAATAATT spacer
length: 40 repeater length: 24

4647 624393 CTTTCAATTCTATAGTAGATTAAC TATTCGATATGGTGAATTAGCAGTCGACGTTGACCTGT spacer
length: 38 repeater length: 24

4648 624456 CTTTCAATTCTATAGTAGATTAAC ATACATAATTATTTGATGAAAGATGGAAGTCGATTATA spacer
length: 38 repeater length: 24

4649 624519 CTTTCAATTCTATAGTAGATTAAC AATAGATAACGGAGCGGAAATACATTACGAGAATGGATAT spacer
length: 40 repeater length: 24

4650 624584 CTTTCAATTCTATAGTAGATTAAC AATATCCCAAATTGAAATATATTGCAACAGTTTATAATG spacer
length: 39 repeater length: 24

4651 624648 CTTTCAATTCTATAGTAGATTAAC GTAAC TTGTACGAAAGAAGAGGAAGTATCCTGTCAACCAG spacer
length: 40 repeater length: 24

4652 624713 CTTTCAATTCTATAGTAGATTAAC AGAATGGCACCGCAACTGTAGTGGATGCTGAGGTAATATA spacer
length: 40 repeater length: 24

4653 624778 CTTTCAATTCTATAGTAGATTAAC TTACCATAGCGTGGACTGAAAGCATATCTACACAAGTACCAC spacer
length: 42 repeater length: 24

4654 624845 CTTTCAATTCTATAGTAGATTAAC TTGATGAAGTCCAGAGTACCGACTGCGACTCCGCATTATG spacer
length: 40 repeater length: 24

4655 624910 CTTTCAATTCTATAGTAGATTAAC TGCGTCTAAAAGAATGAGTAGTCTCTCTTTAGTCC spacer length:
35 repeater length: 24

4656 624970 CTTTCAATTCTATAGTAGATTAAC GGATCATAGCCAAACGCCTGAAGTAATAAAGCCCAAAG spacer
length: 38 repeater length: 24

4657 625033 CTTTCAATTCTATAGTAGATTAAC CGGCATAGATAAATTGCCTGAGGAATCGCTCCGCGGGTA spacer
length: 39 repeater length: 24

4658 625097 CTTTCAATTCTATAGTAGATTAAC ACATTATTTTGACGTAGCAAACGAAGTCCCGTCTCTAC spacer
length: 38 repeater length: 24

4659 625160 CTTTCAATTCTATAGTAGATTAAC TAGGTAAC TGGTACATTTACTTAGAGGAGGAATAAACG spacer
length: 39 repeater length: 24

4660 625224 CTTTCAATTCTATAGTAGATTAAC TTAATTCATCATTTTCCAGATGGAAATGTAGTCATA spacer length:
36 repeater length: 24

4661 625285 CTTTCAATTCTATAGTAGATTAAC ACAATCTAATTTTGTGAATGTTTGT TTTTGT TTAATAGA spacer
length: 39 repeater length: 24

4662 625349 CTTTCAATTCTATAGTAGATTAAC ATTACAGAATGCTAAAATGATAAAGACAGAAAAAGAGACA spacer
length: 40 repeater length: 24

4663 625414 CTTTCAATTCTATAGTAGATTAAC TATGTAATCGTGGGTAATTACACTAGTAGAATTCGATT spacer
length: 38 repeater length: 24

4664 625477 CTTTCAATTCTATAGTAGATTAAC ATAGGACAAATAGCGAGCACGTTAGCGGTATGGACAGAA spacer
length: 39 repeater length: 24

4665 625541 CTTTCAATTCTATAGTAGATTAAC GGAACCAACACTATTATCGTAGAAGTATCAAGTGTACAAA spacer
length: 40 repeater length: 24

4666 625606 CTTTCAATTCTATAGTAGATTAAC CAGTTTTACCATCTCCACTTGAGAATATCCAAATTCCTC spacer
length: 39 repeater length: 24

4667 625670 CTTTCAATTCTATAGTAGATTAAC ACGGGACATTTTATTTCCCTTAAAACGGCGTATAAAAGAG spacer
length: 40 repeater length: 24

4668 625735 CTTTCAATTCTATAGTAGATTAAC TAAGTGCCGAGCTTTGCTAGACTCCCTCAAGTGCGGAA spacer
length: 39 repeater length: 24

4669 625799 CTTTCAATTCTATAGTAGATTAAC TCGCATATAACCCCTGTTTTCTCCCCAACAAAGAAAATGTCATC spacer

length: 44 repeater length: 24
4670 625868 CTTTCAATTCTATAGTAGATTAAC AGGGTTGTCGTCTATTAGCACGACGTCTCCCAGACCCTT spacer
length: 39 repeater length: 24
4671 625932 CTTTCAATTCTATAGTAGATTAAC ATTAAAGTTAATGAGGATGGAACGATGGAGACACTTCAAGA spacer
length: 41 repeater length: 24
4672 625998 CTTTCAATTCTATAGTAGATTAAC AGCTAGTTAGCTAGTTATATAATATAGTAACTTATAAA spacer
length: 38 repeater length: 24
4673 626061 CTTTCAATTCTATAGTAGATTAAC ATTATTATCTTGTACATGTGACACATCATTATACA spacer length:
35 repeater length: 24
4674 626121 CTTTCAATTCTATAGTAGATTAAC ATGTAATAATTTAGGTCACCTAACGCTATGTACTTCTTTTCC spacer
length: 42 repeater length: 24
4675 626188 CTTTCAATTCTATAGTAGATTAAC AAGAATGGATGTACCTAGCTATCCCCCTAATCCACAGAATC spacer
length: 41 repeater length: 24
4676 626254 CTTTCAATTCTATAGTAGATTAAC CTATATAAATCTCTTTACGCTCTTACTTTACGTGAATCT spacer
length: 39 repeater length: 24
4677 626318 CTTTCAATTCTATAGTAGATTAAC ATACAAATATTTCAACATTAAATGCAATAAGTGTAGATA spacer
length: 39 repeater length: 24
4678 626382 CTTTCAATTCTATAGTAGATTAAC CTGAAAAAGTTATTAAATTCAATATTACAATGGCTTATG spacer
length: 39 repeater length: 24
4679 626446 CTTTCAATTCTATAGTAGATTAAC AGAAGAAAAGTTAAATCAAGAACAAAATTTAAATCAGGAGA spacer
length: 41 repeater length: 24
4680 626512 CTTTCAATTCTATAGTAGATTAAC TCGTTGTTAACTCTGCCTTTCCATTATCAACAAAGAATTA spacer
length: 40 repeater length: 24
4681 626577 CTTTCAATTCTATAGTAGATTAAC CTCCATTCTCGTGGAGCCAGATTGGTTACGTGGGGATAA spacer
length: 39 repeater length: 24
4682 626641 CTTTCAATTCTATAGTAGATTAAC TTATCGAGGTCTACAACCTAGGACTTTCATAAGAAAAA spacer
length: 38 repeater length: 24
4683 626704 CTTTCAATTCTATAGTAGATTAAC ATGCTAATCATTACATTTAAGATAATACACAAATATATAAT spacer
length: 41 repeater length: 24
4684 626770 CTTTCAATTCTATAGTAGATTAAC TGTAGTTTGTCAATCTTTTCATATGGTAACGGAATAGTCAACC spacer
length: 43 repeater length: 24
4685 626838 CTTTCAATTCTATAGTAGATTAAC CCAACACCTACAACAAACGGGCTGGAAATGATAAATAACC spacer
length: 40 repeater length: 24
4686 626903 CTTTCAATTCTATAGTAGATTAAC CTCATCATGGGATTTCAAGAGCTATATCTCACGCCGTCA spacer
length: 39 repeater length: 24
4687 626967 CTTTCAATTCTATAGTAGATTAAC GTGAATTTTCTAATTGATTTAGCTAAGAAATTAAAGAATG spacer
length: 40 repeater length: 24
4688 627032 CTTTCAATTCTATAGTAGATTAAC TGCTTTACAATTTTTTTCATCGCTGCATATAAAAAA spacer length:
36 repeater length: 24
4689 627093 CTTTCAATTCTATAGTAGATTAAC CCTTTCTCTCGCTAATTCCTAGCAAATTTGCAATCT
4690
4691
4692 crispr 2
4693 631174 GTTAATCTACTATAGAATTGAAAG ATTATTTTTTACTAAAGAAAGATGGAATAGCAGCAAAAGTGC spacer
length: 41 repeater length: 24
4694 631240 GTTAATCTACTATAGAATTGAAAG ACTTACGTATTTTGAACAATTTACGTAATCTTGAGTTAGAG spacer
length: 41 repeater length: 24
4695 631306 GTTAATCTACTATAGAATTGAAAG GTCTCTGGGTAAATCTCATATACTACTTTTATAAGTCCCTTTT spacer
length: 43 repeater length: 24
4696 631374 GTTAATCTACTATAGAATTGAAAG TGCCTTGCTAAACTTACATGGTAATTTATAATTTTTTGGA spacer
length: 40 repeater length: 24
4697 631439 GTTAATCTACTATAGAATTGAAAG ATTTATTTTCGTTTTACTCGAGAGTTCATTTAATACTT spacer
length: 38 repeater length: 24
4698 631502 GTTAATCTACTATAGAATTGAAAG GTATTTTCATTTAGTCTTAACAAAAGTGGATACAGAACCTAA spacer
length: 41 repeater length: 24
4699 631568 GTTAATCTACTATAGAATTGAAAG AAACATGACAGAAGACCAGAAAAAGCAATTGTTAATGCAA spacer
length: 40 repeater length: 24
4700 631633 GTTAATCTACTATAGAATTGAAAG TTCTTTCTTCTACGATATATCCTCTAGCTATAGCCTCAGC spacer
length: 40 repeater length: 24
4701 631698 GTTAATCTACTATAGAATTGAAAG AATATAAAGTATATCACAAGGGTTGTTTATGCTGTAGATATA spacer
length: 42 repeater length: 24
4702 631765 GTTAATCTACTATAGAATTGAAAG TTGTTTCTTTCATGATTACTCGGAATAAAAATCGGATC spacer
length: 38 repeater length: 24
4703 631828 GTTAATCTACTATAGAATTGAAAG ATAGATCCCTCATACTTACTACGAAAATTAGAGGAGTA spacer
length: 38 repeater length: 24
4704 631891 GTTAATCTACTATAGAATTGAAAG ACTTGACGTCTTGACGGCTTACGATGAGTAAACAAGTAAATTC spacer
length: 44 repeater length: 24
4705 631960 GTTAATCTACTATAGAATTGAAAG AATTCGGCATGGTTTACAATAATCAATGCTTTTTTCC spacer length:
36 repeater length: 24
4706 632021 GTTAATCTACTATAGAATTGAAAG TTTTTCGTCAATTCATGAACTAACTTATCTCATCTTCT spacer
length: 39 repeater length: 24

4707 632085 GTTAATCTACTATAGAAATTGAAAG ACAACCCTAGTGCAGTAGCTATATTCTTTGCGTCTTGGATATC spacer
length: 43 repeater length: 24

4708 632153 GTTAATCTACTATAGAAATTGAAAG TGTTCTATCAGCGTCGTCAAGAAAACGCCACCGTATACG spacer
length: 39 repeater length: 24

4709 632217 GTTAATCTACTATAGAAATTGAAAG AGTAAATTGTACATCAAACGTGCATCATCTGAATGCGGATA spacer
length: 42 repeater length: 24

4710 632284 GTTAATCTACTATAGAAATTGAAAG ATACGAATCACCTTTTTTCCCGATTACGTGACAAAAA spacer length:
37 repeater length: 24

4711 632346 GTTAATCTACTATAGAAATTGAAAG TCCACAATTCTTCTATATCGTCGCTGTAATACGTAAGCA spacer
length: 39 repeater length: 24

4712 632410 GTTAATCTACTATAGAAATTGAAAG TCAATTTTAAGAGCTTTAGTGGAATAATTCAACAAAAA spacer
length: 39 repeater length: 24

4713 632474 GTTAATCTACTATAGAAATTGAAAG
ACATGATATACAAGATAAAAAAGTTACAATAACAGTTATGTTAATCTATTATAGAAATTGAAAGAAAACCTAAAACTTCAATTCA
CTTATAGCTTTTTTCCCTT spacer length: 104 repeater length: 24

4714 632603 GTTAATCTACTATAGAAATTGAAAG AAAATCACGCATGTAGGTCTCTATATCGTACAACACTT spacer
length: 38 repeater length: 24

4715 632666 GTTAATCTACTATAGAAATTGAAAG ATATTCTTCCTTTTTTCTCTTCGTCATTTTTTTATTAG spacer length:
36 repeater length: 24

4716 632727 GTTAATCTACTATAGAAATTGAAAG GTCACATTTAGCAAAAACCTATACTCTGTTCTTGTCTTAT spacer
length: 39 repeater length: 24

4717 632791 GTTAATCTACTATAGAAATTGAAAG ATTAATCTGTCATATTGCGTAATTTATGATATAAAATAT spacer
length: 39 repeater length: 24

4718 632855 GTTAATCTACTATAGAAATTGAAAG GTTCGTGTTCTGGAGGATTAATTATCGGTTCTGGTTCATG spacer
length: 40 repeater length: 24

4719 632920 GTTAATCTACTATAGAAATTGAAAG CTCATCTCTTTTAGTTCTCCGTTATCCATCTCGTAGCATCCT spacer
length: 42 repeater length: 24

4720 632987 GTTAATCTACTATAGAAATTGAAAG CACGTAAATATGAGTCAGGTATTACATAGTTGATGACATTG spacer
length: 41 repeater length: 24

4721 633053 GTTAATCTACTATAGAAATTGAAAG AATATTTTCGGTATCACAAACGAAAATTGTGGTATTTT spacer
length: 38 repeater length: 24

4722 633116 GTTAATCTACTATAGAAATTGAAAG GACTTAACTGTAAAAAGTTAATTCCTTTTTTCTCTTTTCTTTC spacer
length: 44 repeater length: 24

4723 633185 GTTAATCTACTATAGAAATTGAAAG AAACGTAAACCGATCGTCATAAATCCACTTCTCAGTTTC spacer
length: 39 repeater length: 24

4724 633249 GTTAATCTACTATAGAAATTGAAAG CTATTCACTATGCGTTTATTATCTAATATGACAAAGAAAAAG spacer
length: 42 repeater length: 24

4725 633316 GTTAATCTACTATAGAAATTGAAAG TTATTTCTGTATTCAAATTTGATTTTTTCTTTGTTTCTG spacer
length: 39 repeater length: 24

4726 633380 GTTAATCTACTATAGAAATTGAAAG TTGTGATTGAACCGCTTAGGCTGAGTTTTCTGAAACTTCT spacer
length: 40 repeater length: 24

4727 633445 GTTAATCTACTATAGAAATTGAAAG TTAATCATATTTACTAGAGCCGGACCTCCACCAAGTCTATTGA spacer
length: 43 repeater length: 24

4728 633513 GTTAATCTACTATAGAAATTGAAAG CCTTTTTTCACAGATATCTTAATTATTTCTTGTCTTAAGA spacer
length: 39 repeater length: 24

4729 633577 GTTAATCTACTATAGAAATTGAAAG ATTTCCATTTTCCCTAATGAACCTAGAATTACAGTGCTGACT spacer
length: 41 repeater length: 24

4730 633643 GTTAATCTACTATAGAAATTGAAAG AACAACTTATCATCAAATACATTGAGAAAATCTATGAACTAA spacer
length: 43 repeater length: 24

4731 633711 GTTAATCTACTATAGAAATTGAAAG TAGCTCTGCTTTTCATTAGTTAGAAAATCAATTTATGCAATTC spacer
length: 42 repeater length: 24

4732 633778 GTTAATCTACTATAGAAATTGAAAG TTTTCTCTTACAATTTCTTCACTAAATGGCACAATTTTT spacer
length: 39 repeater length: 24

4733 633842 GTTAATCTACTATAGAAATTGAAAG AAGCAATGGATTGCTGAATATAGAACCTCCTGTACCTCCTGCA spacer
length: 43 repeater length: 24

4734 633910 GTTAATCTACTATAGAAATTGAAAG TCTATTGCGACAGTTTGTATTGTCATTTCAATTTTAA spacer length:
37 repeater length: 24

4735 633972 GTTAATCTACTATAGAAATTGAAAG ATATCTATTTTAAAAACGCAATTAAGGAATTTTCTTAT spacer
length: 38 repeater length: 24

4736 634035 GTTAATCTACTATAGAAATTGAAAG TATCTTCTCCACAAGAAATTCAGCTCACGGCACAATCT spacer
length: 38 repeater length: 24

4737 634098 GTTAATCTACTATAGAAATTGAAAG TACTTCGTTTAAAAAGTCAACTGATGTCTCTGCGAAAG spacer
length: 38 repeater length: 24

4738 634161 GTTAATCTACTATAGAAATTGAAAG CAAATCTATTTTTTGCAATTTTACTAGCTTCAATTTTTGAA spacer
length: 41 repeater length: 24

4739 634227 GTTAATCTACTATAGAAATTGAAAG TCTCTGCTTGACTCAATAGTGCCGATAACTCTTTCATTT spacer
length: 39 repeater length: 24

4740 634291 GTTAATCTACTATAGAAATTGAAAG GAACCATAACTCGTGGCAAACGTTACGTCTTCGTAGTCTC spacer
length: 40 repeater length: 24

4741 634356 GTTAATCTACTATAGAAATTGAAAG CCTACGTCTGCTGCTCTCAGCCCTGCTAATGCTGCTTCA spacer
length: 39 repeater length: 24

4742 634420 GTTAATCTACTATAGAAATTGAAAG CGCCATATTTTTCAATATCTTTATGATTTCCCTCACGTGCCA spacer
 length: 42 repeater length: 24
 4743 634487 GTTAATCTACTATAGAAATTGAAAG TTGATGTTCCCTCCATTTGCAATAAGCTGAACGGCATTTA spacer
 length: 39 repeater length: 24
 4744 634551 GTTAATCTACTATAGAAATTGAAAG ATTTTGTCTTCTACAAACGTGTTCATTTTCGGCTCTAAGTA spacer
 length: 41 repeater length: 24
 4745 634617 GTTAATCTACTATAGAAATTGAAAG GCGAAACCATAGATTCACCTCCTCACCTTCTTAGACCACC spacer
 length: 40 repeater length: 24
 4746 634682 GTTAATCTACTATAGAAATTGAAAG ATTACCAGAACGGGCAACCCATGATAGTAAACGACCCCA spacer
 length: 39 repeater length: 24
 4747 634746 GTTAATCTACTATAGAAATTGAAAG ATAGATCCCTCGTACTTACTACGAAAATTAGAGGAGTAC spacer
 length: 39 repeater length: 24
 4748 634810 GTTAATCTACTATAGAAATTGAAAG GTCGGGGTGTCTTAGTAGCGACCTCTTCCTTAAACTTT spacer
 length: 38 repeater length: 24
 4749 634873 GTTAATCTACTATAGAAATTGAAAG TCCGAAGTCATAGAAGAGATTTACAGGAGAAAGAAGGCG spacer
 length: 39 repeater length: 24
 4750 634937 GTTAATCTACTATAGAAATTGAAAG TCAACTGCTATCTCCTGAGCTGTAACACGTTTCATATG spacer length:
 37 repeater length: 24
 4751 634999 GTTAATCTACTATAGAAATTGAAAG GATTCAATAAGATCTTCATACTCTCCAAGAGTATAC spacer length:
 36 repeater length: 24
 4752 635060 GTTAATCTACTATAGAAATTGAAAG TAATTCGCTTATTAGACAAAATGCACTATTGAAACTAAAA spacer
 length: 40 repeater length: 24
 4753 635125 GTTAATCTACTATAGAAATTGAAAG TTCATCTTTACTAGCTAACTTATTTATTTTACTTTTA spacer
 length: 38 repeater length: 24
 4754 635188 GTTAATCTACTATAGAAATTGAAAG TACATGGAGAAGCAGTATATTGAACTATCTAGAAAATAT spacer
 length: 39 repeater length: 24
 4755 635252 GTTAATCTACTATAGAAATTGAAAG CGCATATTTCCAGGAGCAATCTTCGCAACTCATTACTCTA spacer
 length: 41 repeater length: 24
 4756 635318 GTTAATCTACTATAGAAATTGAAAG TACGTGGCTTCTAACCAGAAGAACCACCCATCGCACTC spacer
 length: 38 repeater length: 24
 4757 635381 GTTAATCTACTATAGAAATTGAAAG TTATTTGTTCCAATTACTAATTTTCCGATACTTCCATAA spacer
 length: 39 repeater length: 24
 4758 635445 GTTAATCTACTATAGAAATTGAAAG AACGACTTACAAGCAATTGCCAGGAATTGGCGGATAGG spacer
 length: 39 repeater length: 24
 4759 635509 GTTAATCTACTATAGAAATTGAAAG TTTGCGATAAGATTAGAAACGTTAGAAACATCAATACCA spacer
 length: 39 repeater length: 24
 4760 635573 GTTAATCTACTATAGAAATTGAAAG TCTTTCTCCTCTTCGGCGCTCTTGAAGAACGTAACAATAGCCA spacer
 length: 43 repeater length: 24
 4761 635641 GTTAATCTACTATAGAAATTGAAAG CCTCTTCAGCCGTAAGATCTACATACTCCACAGAGATGA spacer
 length: 39 repeater length: 24
 4762 635705 GTTAATCTACTATAGAAATTGAAAG ACAGCGTACAACTGAAGATCCTCAAAGGAACGCCAACAG spacer
 length: 40 repeater length: 24
 4763 635770 GTTAATCTACTATAGAAATTGAAAG GTAAGCTGGTAGGTCTGGTTGGTGAAGGGGTTTATGTAT spacer
 length: 39 repeater length: 24
 4764 635834 GTTAATCTACTATAGAAATTGAAAG TTCATGGACATTATACACTAGTAAATCACTGCTGTCTCTC spacer
 length: 39 repeater length: 24
 4765 635898 GTTAATCTACTATAGAAATTGAAAG GTGGCGTACAAACAAGCAGATTACATTATTCTTTTCT spacer length:
 37 repeater length: 24
 4766 635960 GTTAATCTACTATAGAAATTGAAAG ATAAGGATCGTTTTTATGTTCTTCTTCGTCATCATCTT spacer
 length: 38 repeater length: 24
 4767 636023 GTTAATCTACTATAGAAATTGAAAG CATGAAACATCACAAACAACAACTAGAGAATCAAATC spacer length:
 37 repeater length: 24
 4768 636085 GTTAATCTACTATAGAAATTGAAAG ATGGCTACATCTAGTTTCATGGTCTCGCAAGGATATATGC spacer
 length: 40 repeater length: 24
 4769 636150 GTTAATCTACTATAGAAATTGAAAG GCAAAATGCTTAATACCTCTAATTTACTTCTGTCTGCTAACA spacer
 length: 42 repeater length: 24
 4770 636217 GTTAATCTACTATAGAAATTGAAAG GAAGAGGTATTGAAAGGAAAACGGTGCAAAAACGAAGGAA spacer
 length: 40 repeater length: 24
 4771 636282 GTTAATCTACTATAGAAATTGAAAG AAGACTTCCAATGCGAGTTGGAATCCTAACGTAGTTA spacer length:
 37 repeater length: 24
 4772 636344 GTTAATCTACTATAGAAATTGAAAG ATTAGTATTGAAATTAGTAACGACAAACATATTTCTAAA spacer
 length: 39 repeater length: 24
 4773 636408 GTTAATCTACTATAGAAATTGAAAG ACCTATTAGTGTCTTTTACGTTTGCTGCCGCATTTACT spacer
 length: 38 repeater length: 24
 4774 636471 GTTAATCTACTATAGAAATTGAAAG TAATGTATGCTGAAACTGGCGGTATTTCCGTGATGTTA spacer
 length: 38 repeater length: 24
 4775 636534 GTTAATCTACTATAGAAATTGAAAG CCATACTACGTTTTTCTCGGTATAAACAGGCTTCTTCTT spacer
 length: 39 repeater length: 24
 4776 636598 GTTAATCTACTATAGAAATTGAAAG TTTTCGTAAACTATTAGATCTGTTTTATCTTCATCACAC spacer
 length: 39 repeater length: 24
 4777 636662 GTTAATCTACTATAGAAATTGAAAG AGCGGAAGCCTAGAAGCGGATCTCAACAAAAAGTGTTTG spacer

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length: 40 repeater length: 24
4778 636727 GTTAATCTACTATAGAAATTGAAAG CTCAAAAGTAATACTTTTTTCTCCTAAACCAAAGTAATATCTTCTT
spacer length: 47 repeater length: 24
4779 636799 GTTAATCTACTATAGAAATTGAAAG AAAATGTCTTCTGGGGTCATAGCTTCGTGAGCGAGTACTA spacer
length: 40 repeater length: 24
4780 636864 GTTAATCTACTATAGAAATTGAAAG CCCATAGAAGTCACAGCAGGGTCACCTCATTCTCCT spacer length:
37 repeater length: 24
4781 636926 GTTAATCTACTATAGAAATTGAAAG TTCCCTCAAACAGCTGTTTTAGGGAGTTGAGAGGGAACACCA spacer
length: 42 repeater length: 24
4782 636993 GTTAATCTACTATAGAAATTGAAAG CAAGAATTGTACCGTTTCTCAGCCTATATGCAAATAATATCT spacer
length: 42 repeater length: 24
4783 637060 GTTAATCTACTATAGAAATTGAAAG CAAAAATATACTCTGTCTTAGAGTTTAAAAATGTTTCTGT spacer
length: 40 repeater length: 24
4784 637125 GTTAATCTACTATAGAAATTGAAAG AACCCAATATTTTCATAATCATTGTTAGGTTCAATGTATCT spacer
length: 40 repeater length: 24
4785 637190 GTTAATCTACTATAGAAATTGAAAG AAACCCTCTTTTAAGCTGAACATATTCACGATACTTTTGGACTG spacer
length: 43 repeater length: 24
4786 637258 GTTAATCTACTATAGAAATTGAAAG TCTCCTCATTTCCATCAATAAGTCTTAACCAGTATCTA spacer
length: 38 repeater length: 24
4787 637321 GTTAATCTACTATAGAAATTGAAAG GAAGAATCATAAATGTAGTAGTTTTTCCAGTTCCTCTGTTAG spacer
length: 42 repeater length: 24
4788 637388 GTTAATCTACTATAGAAATTGAAAG CGAGAAAGGGTTTTTGGGGATAGGGATAGGGGCTGCATTAA spacer
length: 41 repeater length: 24
4789 637454 GTTAATCTACTATAGAAATTGAAAG TCTTTGCTTAAGTTTCTGATATCCTCTAATATACTCC spacer length:
37 repeater length: 24
4790 637516 GTTAATCTACTATAGAAATTGAAAG ATGAAACTTCTGTAATGTCTACTGTTATTCCATTAGTT spacer
length: 38 repeater length: 24
4791 637579 GTTAATCTACTATAGAAATTGAAAG AAGGTTATTGAGATACCTACATTCAACGTACCCGCGTC spacer
length: 38 repeater length: 24
4792 637642 GTTAATCTACTATAGAAATTGAAAG
CTTAGAATGTACTTTTGAACCATAGGAGAATTGAAAATCATGTTAATCTACTATAGAAATTGAAGTGTCTTGTTTATTGTAAGCGAC
AATTTGTAGGGATTCACCTC spacer length: 105 repeater length: 24
4793 637772 GTTAATCTACTATAGAAATTGAAAG
CGAATCAAATCTTACCCTAATTCTAATTATGTAAATTGATAAATCCCCAAAGGGATTGAAAGAACGTAACTTAAATTTGCCTAGA
TGAGTTATATTTTTAGTTA

4794
4795
4796 crispr 3
4797 614481 GATAAATCCCCAAAGGGATTGAGAG TGTATCAGCATAACGGCGTCGACAGCTACGGGAATGGCGTA spacer
length: 41 repeater length: 25
4798 614548 GATAAATCCCCAAAGGGATTGAGAG CGTTGATGTCGATGCTGTTTACGAAGTTTATAACAAAA spacer
length: 38 repeater length: 25
4799 614612 GATAAATCCCCAAAGGGATTGAGAG CTCATCTTAAATGGGTAAACACGGAAACATCGTTTGGT
4800
4801
4802 GCA_000022405.1_ASM2240v1_genomic.fna(findCrispr):
4803 START REPEAT
SPACER
4804 crispr 1
4805 848255 CTTTCAATTCTATAGTAGATTATC TATACTGGAAGAGGGGACTGTGAAGTAGTTACTGGTG spacer length:
37 repeater length: 24
4806 848317 CTTTCAATTCTATAGTAGATTATC ACTAGGACTGTCCGCTTTCGACCCAAAGCGGACTGAAGAGA spacer
length: 41 repeater length: 24
4807 848383 CTTTCAATTCTATAGTAGATTATC AAGACATAAAACAAAATCTGCAGAAGTACAACCTCAGGTT spacer
length: 38 repeater length: 24
4808 848446 CTTTCAATTCTATAGTAGATTATC AGAACAGAAAAAATTATTGCAAGGATTTGATGCGGTTA spacer
length: 38 repeater length: 24
4809 848509 CTTTCAATTCTATAGTAGATTATC ATAGATGCCCATCCGATAGCTTCAGCGACGCCTTCAGTTG spacer
length: 40 repeater length: 24
4810 848574 CTTTCAATTCTATAGTAGATTATC TATTTGAAGATGAGGCTAATGCTTATCAAAAATACGCTT spacer
length: 39 repeater length: 24
4811 848638 CTTTCAATTCTATAGTAGATTATC ACAGGATCCTCAATTGGCAAATACATATGCTAATATAATTGC spacer
length: 42 repeater length: 24
4812 848705 CTTTCAATTCTATAGTAGATTATC ACTTGTTGTACTATGTTATTTACTATTTTCTTCTTTT spacer length:
37 repeater length: 24
4813 848767 CTTTCAATTCTATAGTAGATTATC CTTCTATTACTCCTCCCCCTGGATATTTATTGTGAAT spacer
length: 39 repeater length: 24
4814 848831 CTTTCAATTCTATAGTAGATTATC TTAACCTATGGGTATATTAGATGCCTATCATGCAGTA spacer length:
37 repeater length: 24
4815 848893 CTTTCAATTCTATAGTAGATTATC AGAAGAGCAAACAAGAAAGGAAGAGACTGTAGATCTAC spacer
length: 38 repeater length: 24

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4816 848956 CTTTCAATTCTATAGTAGATTATC GAAGCACTGTATTGAATATTGTAAGTATAGCTATTTGTCA spacer
 length: 40 repeater length: 24
 4817 849021 CTTTCAATTCTATAGTAGATTATC AGTGTTTCCTACGTAATTATGAGCCTCGTCCATAGCTAT spacer
 length: 38 repeater length: 24
 4818 849084 CTTTCAATTCTATAGTAGATTATC ATATTAAACACAATATAATGATAGATGAGGAATTTGCTTA spacer
 length: 40 repeater length: 24
 4819 849149 CTTTCAATTCTATAGTAGATTATC TTGACCTTATCGGCAATTTTCATAAAACCATCTCCTTAA spacer
 length: 39 repeater length: 24
 4820 849213 CTTTCAATTCTATAGTAGATTATC TGTCGACAACGGTTATTTAATAATATTAACCTTGAT spacer length:
 37 repeater length: 24
 4821 849275 CTTTCAATTCTATAGTAGATTATC ATCAACATCACAACAACAAATACAATTGCAAAAAG spacer length:
 35 repeater length: 24
 4822 849335 CTTTCAATTCTATAGTAGATTATC TCCAGAACTTGTTGCACTAAAAGTAAATATGTCTATAA spacer
 length: 38 repeater length: 24
 4823 849398 CTTTCAATTCTATAGTAGATTATC TCTGGATTTACTGATCTTATTAAGTTATGGCAGAATATAG spacer
 length: 40 repeater length: 24
 4824 849463 CTTTCAATTCTATAGTAGATTATC GAAAATTTATTACTTGAGGTGTATATAATTTTTGTAGTA spacer
 length: 39 repeater length: 24
 4825 849527 CTTTCAATTCTATAGTAGATTATC TTAATTCAGTTTCGTAGAATCCTAAGTTTGAATTTT spacer length:
 36 repeater length: 24
 4826 849588 CTTTCAATTCTATAGTAGATTATC CCTAAAGGACGATAACCATTAGGTATTTCTATATCAT spacer length:
 37 repeater length: 24
 4827 849650 CTTTCAATTCTATAGTAGATTATC TATGAGTATGAGCTATATAAAGTTAACGATTACTCAA spacer length:
 37 repeater length: 24
 4828 849712 CTTTCAATTCTATAGTAGATTATC CTGGATTACCTGATATTGCTGCAAGCTCATAAAAGACAA spacer
 length: 39 repeater length: 24
 4829 849776 CTTTCAATTCTATAGTAGATTATC TTTCGTGTTTCGGAAGTGATATATATCACTTTATATCG spacer length:
 37 repeater length: 24
 4830 849838 CTTTCAATTCTATAGTAGATTATC ATATTCTGTCACCGTTATCACTCCCGTCCAGTACTCCGTTG spacer
 length: 41 repeater length: 24
 4831 849904 CTTTCAATTCTATAGTAGATTATC AGTAGAACCAAGTAAAGGAGGAGCAGGGGCATTTGC spacer length:
 36 repeater length: 24
 4832 849965 CTTTCAATTCTATAGTAGATTATC ATGCTCAAAGCAAGTGATGGGATGATTACTAACCTA
 4833
 4834
 4835 crispr 2
 4836 854586 GATAATCTACTATAGAATTGAAAG ACACAATCGGCATCTACGCAAAATAACGTACTGGGGACA spacer
 length: 39 repeater length: 24
 4837 854650 GATAATCTACTATAGAATTGAAAG GCACCAGGGTGTGTGCTCGTCCAGTGCGATCCATG spacer length:
 36 repeater length: 24
 4838 854711 GATAATCTACTATAGAATTGAAAG TCGCCATCGTGGAAAGCGACGCCAACGGATACTATAC spacer length:
 37 repeater length: 24
 4839 854773 GATAATCTACTATAGAATTGAAAG ATTATACTTTTCCTTATTGACGCTTTCCAGTGTAACATCTC spacer
 length: 40 repeater length: 24
 4840 854838 GATAATCTACTATAGAATTGAAAG TATGTAACAAGAATATCAGACCTCCTAGGGATTCCG spacer length:
 36 repeater length: 24
 4841 854899 GATAATCTACTATAGAATTGAAAG TTTTTTACCAATATTGTTATTGTTGAACAAATATTTA spacer
 length: 38 repeater length: 24
 4842 854962 GATAATCTACTATAGAATTGAAAG TATATTACCGTCATTTCGCTCTTCTTATCCTCAGACCG spacer length:
 37 repeater length: 24
 4843 855024 GATAATCTACTATAGAATTGAAAG AGTAAGATGGCAACATAAACTTTTCCTTTGTCATTGAGTTT spacer
 length: 41 repeater length: 24
 4844 855090 GATAATCTACTATAGAATTGAAAG CCTAAGATTGCTAATGCGAGCAATAATGCTAATGGGCT spacer
 length: 38 repeater length: 24
 4845 855153 GATAATCTACTATAGAATTGAAAG CAAAATGGACAAATAGCATTAGGTTGATGAAAATTAC spacer length:
 37 repeater length: 24
 4846 855215 GATAATCTACTATAGAATTGAAAG TTACCACCATTTATTTTGCATATTTGATGGAACTGG spacer
 length: 38 repeater length: 24
 4847 855278 GATAATCTACTATAGAATTGAAAG TGCAACCGCCCTTAGTTTTTCCCTAACCAGTTAGACAGA spacer
 length: 39 repeater length: 24
 4848 855342 GATAATCTACTATAGAATTGAAAG GGGGAACGTACGGACAACATAGCAAAATATTCTACATCG spacer
 length: 39 repeater length: 24
 4849 855406 GATAATCTACTATAGAATTGAAAG TCGCCTATCTGCGTTTCGACTACCACTCCGGCATATATCC spacer
 length: 40 repeater length: 24
 4850 855471 GATAATCTACTATAGAATTGAAAG ATAAAGACGCCAACTGGTACCATAGTAAAGAGATACC spacer length:
 37 repeater length: 24
 4851 855533 GATAATCTACTATAGAATTGAAAG AAACCGAAGCCGGCTGCACCCATGCCAAGTGCAAAAAC spacer
 length: 38 repeater length: 24
 4852 855596 GATAATCTACTATAGAATTGAAAG TTCCACCCGTTGCTAGGGTTCCATTGAACGCTTGCCA spacer length:
 37 repeater length: 24
 4853 855658 GATAATCTACTATAGAATTGAAAG TTAGATAAAGATATAACGTTGATCCGCTTCCAGTGAT spacer length:

37 repeater length: 24

4854 855720 GATAATCTACTATAGAAATTGAAAG AAGCCCAGCTCCTATGTTTCAGGGTTGCGCTATCATG spacer length: 36
36 repeater length: 24

4855 855781 GATAATCTACTATAGAAATTGAAAG ATAATACTCAAAATGTTTATACAACACATGTGATGCGA spacer length: 38
38 repeater length: 24

4856 855844 GATAATCTACTATAGAAATTGAAAG TTACTAGGGGATAATAAACAGATTTTGTCTAATATTTT spacer length: 38
38 repeater length: 24

4857 855907 GATAATCTACTATAGAAATTGAAAG GGTCATACCGCCTTTGCCGGAGCTTATTATTCATATGCC spacer length: 39
39 repeater length: 24

4858 855971 GATAATCTACTATAGAAATTGAAAG CTTACTGCAGATACATAGGGCTTCCTTATCCTATCTTAAC spacer length: 40
40 repeater length: 24

4859 856036 GATAATCTACTATAGAAATTGAAAG TTAGGAAAAGAAGAAATGTATCATGTCCGCACTGATGA spacer length: 38
38 repeater length: 24

4860 856099 GATAATCTACTATAGAAATTGAAAG TTCGAAATAATATATTGTGTAAGCAATGCTAGATACTGTGA spacer length: 41
41 repeater length: 24

4861 856165 GATAATCTACTATAGAAATTGAAAG TTAAAAAAGCTATAAAAAACAATCTACAAGTATTACAAC spacer length: 39
39 repeater length: 24

4862 856229 GATAATCTACTATAGAAATTGAAAG TTTTCGAAGTTTGTAATAATCTTTTTTACAAATAACCA spacer length: 39
39 repeater length: 24

4863 856293 GATAATCTACTATAGAAATTGAAAG GGTATTCCCATGTTTCTCACTCTGAAGTTGAAATTCCC spacer length: 38
38 repeater length: 24

4864 856356 GATAATCTACTATAGAAATTGAAAG AACGCAAATAGCCTGGACCCCCCGTTAAACTCCTCCGCTTA spacer length: 43
43 repeater length: 24

4865 856424 GATAATCTACTATAGAAATTGAAAG TTGTACTTAATTGCTGTATAGGGTATATCTTGCCACTT spacer length: 38
38 repeater length: 24

4866 856487 GATAATCTACTATAGAAATTGAAAG GTAATCATGCCAACGGGCAATAATTCTATGTAACGTAA spacer length: 38
38 repeater length: 24

4867 856550 GATAATCTACTATAGAAATTGAAAG TATAAAATTTTTTGCTAAAATTTTATTTGAAAGATGA spacer length: 36
36 repeater length: 24

4868 856611 GATAATCTACTATAGAAATTGAAAG GTACATTTTGCAATTGATAGGGGGAATAAGCAAACGGAAGCTTT spacer length: 44
44 repeater length: 24

4869 856680 GATAATCTACTATAGAAATTGAAAG TTAAACCATCAAGATATAATTTGACTTTCTTTTTATTCC spacer length: 39
39 repeater length: 24

4870 856744 GATAATCTACTATAGAAATTGAAAG TATAGAGAAAATAACTTAACAACCATATGTAAAAAATGA spacer length: 40
40 repeater length: 24

4871 856809 GATAATCTACTATAGAAATTGAAAG AAATTAATCCCACCTTCTCTTCTTAGAGCTATAGGATC spacer length: 38
38 repeater length: 24

4872 856872 GATAATCTACTATAGAAATTGAAAG AACGTGAGCCGTTTAGTACCAGCACTTTAAGAATTATG spacer length: 38
38 repeater length: 24

4873 856935 GATAATCTACTATAGAAATTGAAAG ATCTTCCCCCTATAAACCCCCCAATTCCTAATCCAT spacer length: 36
36 repeater length: 24

4874 856996 GATAATCTACTATAGAAATTGAAAG GATGTAATTGATAGGGACATACTAGGTAATAGCACCG spacer length: 37
37 repeater length: 24

4875 857058 GATAATCTACTATAGAAATTGAAAG CAGTTGATGGGGAGAAGAAAGAAGATCTTCTTTTTTT spacer length: 37
37 repeater length: 24

4876 857120 GATAATCTACTATAGAAATTGAAAG CTACTTTAAATGTTACAACCTCTGTTTATAAGTATTACTC spacer length: 39
39 repeater length: 24

4877 857184 GATAATCTACTATAGAAATTGAAAG TATCTATCCAATATGTCGTACCAACACTAAGACCACTA spacer length: 38
38 repeater length: 24

4878 857247 GATAATCTACTATAGAAATTGAAAG TGAAATAAGCGAGGAAGAAGTTGAACGACTAGTACC spacer length: 36
36 repeater length: 24

4879 857308 GATAATCTACTATAGAAATTGAAAG ATTGGCACTGAGGGCTATTTTGGATGAAGAATTCAATA spacer length: 38
38 repeater length: 24

4880 857371 GATAATCTACTATAGAAATTGAAAG TATATTGCCAAAAATCACCTACAATATCACCTCCT spacer length: 36
36 repeater length: 24

4881 857432 GATAATCTACTATAGAAATTGAAAG AATGAAACCAGTTCGTAATGATGTAGCACTTTCTACG spacer length: 37
37 repeater length: 24

4882 857494 GATAATCTACTATAGAAATTGAAAG TTGTATTTATGTCCTCCCCACTCATATAGTATAT spacer length: 34
34 repeater length: 24

4883 857553 GATAATCTACTATAGAAATTGAAAG CTCCTTGCTTGCTCCTCCTTTTTTACCCTATTACCC spacer length: 36
36 repeater length: 24

4884 857614 GATAATCTACTATAGAAATTGAAAG ATTATTTTGAAATATACTAAGAACGTCCCGCTACCACTA spacer length: 39
39 repeater length: 24

4885 857678 GATAATCTACTATAGAAATTGAAAG ATTTTGTGCGTATAATTACAATAGAAATTAGTCTACCTA spacer length: 38
38 repeater length: 24

4886 857741 GATAATCTACTATAGAAATTGAAAG TAATGGAAGTTGGCAAATAGATATTCCTGTGTTACTTGTGTTAT spacer length: 44
44 repeater length: 24

4887 857810 GATAATCTACTATAGAAATTGAAAG TCTAATCCTACTCTACAAATATGCTGCTGAAGAAGAGTT spacer length: 39
39 repeater length: 24

4888 857874 GATAATCTACTATAGAAATTGAAAG TCAACATTTACTTCTAGCATCTACTATGATGCTATC spacer length: 38
38 repeater length: 24

4889 857937 GATAATCTACTATAGAATTGAAAG ATATAATCGATTTTTGTCTCATTGTTGTTTACAGTTA spacer length:
37 repeater length: 24

4890 857999 GATAATCTACTATAGAATTGAAAG AATAGAATGTATAATGCTAAAGCTAAGAGAGCTAAATATCT spacer
length: 41 repeater length: 24

4891 858065 GATAATCTACTATAGAATTGAAAG ATATACGGAGATTGGATAGATGATTGTTGTGTCAAGT spacer length:
37 repeater length: 24

4892 858127 GATAATCTACTATAGAATTGAAAG GCTATACCGGCGCCATAAGGAGAGCTTGGACTGGATG spacer length:
37 repeater length: 24

4893 858189 GATAATCTACTATAGAATTGAAAG GCAGCTCCTCCAATTGCTAAAATTTGCCCGGTGTTGTG spacer
length: 39 repeater length: 24

4894 858253 GATAATCTACTATAGAATTGAAAG CTAACCTTTGCCAACTTGTTCTTTAACTCTTCATTTTCCC spacer
length: 39 repeater length: 24

4895 858317 GATAATCTACTATAGAATTGAAAG GCGGTTGTGGCGTATAAAACATACAAGTCTGACT spacer length: 34
repeater length: 24

4896 858376 GATAATCTACTATAGAATTGAAAG TATCCTTACATGATCCCTCGTAAAGTAACGTTAGCAA spacer length:
37 repeater length: 24

4897 858438 GATAATCTACTATAGAATTGAAAG TCTGCGTTAATTGAAGGACTATTAACCGTTTGGCCTTACA spacer
length: 40 repeater length: 24

4898 858503 GATAATCTACTATAGAATTGAAAG TTAGTGCTTACAAAATCACTAGCAATGGGAGAGATACCAT spacer
length: 40 repeater length: 24

4899 858568 GATAATCTACTATAGAATTGAAAG ATATTTACTCCCTTTATGAAACCACTTAAATACGCTATC spacer
length: 39 repeater length: 24

4900 858632 GATAATCTACTATAGAATTGAAAG TCAAAATATTCAAGTGGTTCTGATTTGTATGCTTTTATA spacer
length: 39 repeater length: 24

4901 858696 GATAATCTACTATAGAATTGAAAG GAAAATTTTTTAAACCCCAATTTCGTTCTTTAGCTTATGAG spacer
length: 40 repeater length: 24

4902 858761 GATAATCTACTATAGAATTGAAAG GAAAATATACGACAATTGCTAACAAATAATAAGATGACT spacer
length: 40 repeater length: 24

4903 858826 GATAATCTACTATAGAATTGAAAG TATCTAACAGTAATGGGAAGCATATCCTCTTATTCCT spacer length:
37 repeater length: 24

4904 858888 GATAATCTACTATAGAATTGAAAG ACTAAAGTGCTATAGTGACCTAAGTGAAGATGAGAAA spacer length:
37 repeater length: 24

4905 858950 GATAATCTACTATAGAATTGAAAG GATACAATTGCGTTAGCTAACGCTTCTAAACCGCTAG spacer length:
37 repeater length: 24

4906 859012 GATAATCTACTATAGAATTGAAAG TACCCTGCATCATTCTCACCCTTCCTTAAGAAGGAC spacer length:
37 repeater length: 24

4907 859074 GATAATCTACTATAGAATTGAAAG CATTATATACAATCTTTAAAAGCAATTGTATGAATAAA spacer
length: 38 repeater length: 24

4908 859137 GATAATCTACTATAGAATTGAAAG AAATATCCTGGTTGCCATTACGTACCACCTCCACCAG spacer length:
37 repeater length: 24

4909 859199 GATAATCTACTATAGAATTGAAAG ACTGCTTGCTGATCAATAGCAAAGAAACCCTCTGGTT spacer length:
37 repeater length: 24

4910 859261 GATAATCTACTATAGAATTGAAAG AATATGCCATGAGCAAAGGTAGTATAATATTTCTACTTTTCG spacer
length: 41 repeater length: 24

4911 859327 GATAATCTACTATAGAATTGAAAG TTAGTATTATTGTACGATCGCGAAAGGACAAGAGAA spacer length:
36 repeater length: 24

4912 859388 GATAATCTACTATAGAATTGAAAG AGATTATCTATATTAACGTCAAATCTGTTTAAGTTTTCT spacer
length: 39 repeater length: 24

4913 859452 GATAATCTACTATAGAATTGAAAG CTTAGGTCTTTTTCAAGTTCTGGTTGAAACCGAAATC spacer length:
37 repeater length: 24

4914 859514 GATAATCTACTATAGAATTGAAAG TGTAATTCACCTCTAAATATGAAAGTTTACATTTCCTT spacer
length: 38 repeater length: 24

4915 859577 GATAATCTACTATAGAATTGAAAG ATATTTTTTACTTCAAACATGAAGACCCATTATTACAA spacer length:
37 repeater length: 24

4916 859639 GATAATCTACTATAGAATTGAAAG ATAACTTTTATTGGAAATGGCACTAGCTCTCTTTTCTTT spacer
length: 39 repeater length: 24

4917 859703 GATAATCTACTATAGAATTGAAAG TTTATATAATGCGTCGTCTAAAGTCTCATCTATACTAGC spacer
length: 39 repeater length: 24

4918 859767 GATAATCTACTATAGAATTGAAAG ATGTAAGAGGTAGGCCCTCATCCGTAAGTCGGGCCGTGGG spacer
length: 40 repeater length: 24

4919 859832 GATAATCTACTATAGAATTGAAAG CTTTCCCGTCTCTAAGGTAACGATATTCCGGGACAATGT spacer
length: 39 repeater length: 24

4920 859896 GATAATCTACTATAGAATTGAAAG TCTTCAGAGTGTTGGGGCCGATAATATGGAGTTATCT spacer
length: 38 repeater length: 24

4921 859959 GATAATCTACTATAGAATTGAAAG CAGATTTCTTCTTCGTTCTCAGAAATTTTGTACTCTTG spacer
length: 38 repeater length: 24

4922 860022 GATAATCTACTATAGAATTGAAAG AACTATGCTACCGATATGTCAATAGGTCCTGTGTTTCA spacer
length: 38 repeater length: 24

4923 860085 GATAATCTACTATAGAATTGAAAG ATTTTATAATAGTTGTATATTATTGACTTTACTTGTTTTG spacer
length: 41 repeater length: 24

4924 860151 GATAATCTACTATAGAATTGAAAG ATTTAGAATACTTGCGAAATTACCAGAAGTTACCTCAT spacer

length: 38 repeater length: 24

4925 860214 GATAATCTACTATAGAAATTGAAAG AAAGATATAGTGGATTTCGTTAGGCATAAAACCAGAT spacer length: 36 repeater length: 24

4926 860275 GATAATCTACTATAGAAATTGAAAG TTTCCACTTGTAATTAGTTCATCAATTTTCATAGCTAAT spacer length: 39 repeater length: 24

4927 860339 GATAATCTACTATAGAAATTGAAAG GATCTAAAGTGTGTAAATACATATTTATATTTTTTCCGC spacer length: 39 repeater length: 24

4928 860403 GATAATCTACTATAGAAATTGAAAG ATTTCAATATTTATCTCGTTTATCGGTATGCTGTCTTGTGG spacer length: 41 repeater length: 24

4929 860469 GATAATCTACTATAGAAATTGAAAG AGTACCGCCTAAATACCTCAGGAAATTCACGGCCACAA spacer length: 38 repeater length: 24

4930 860532 GATAATCTACTATAGAAATTGAAAG ATAGTAATCAACGTGAGTACTGCACCCGTCGAAATTG spacer length: 37 repeater length: 24

4931 860594 GATAATCTACTATAGAAATTGAAAG ATATACTCTAGTTACTGAAGGAGCGACACCGAAAAAC spacer length: 37 repeater length: 24

4932 860656 GATAATCTACTATAGAAATTGAAAG TATTTTTGTAATCACACCTATGTTTTCAAATCGGGGGTT spacer length: 39 repeater length: 24

4933 860720 GATAATCTACTATAGAAATTGAAAG AACTATTTTTTATACTTAAAGCTTCTTCTTTATCTTTTA spacer length: 39 repeater length: 24

4934 860784 GATAATCTACTATAGAAATTGAAAG TAGTGTGTAATCTTCATAAGTTTCTACTTTCTTCTCCT spacer length: 38 repeater length: 24

4935 860847 GATAATCTACTATAGAAATTGAAAG ACTCCTCTTCTTAAAAGCTTATAACTGCTATTTTAAATA spacer length: 39 repeater length: 24

4936 860911 GATAATCTACTATAGAAATTGAAAG CACATCTCACCTTTATCTATAACCTTTAAGACGTTAAT spacer length: 38 repeater length: 24

4937 860974 GATAATCTACTATAGAAATTGAAAG CAAAGATGACCCTACACCCACACAACCTTCACTCCC spacer length: 36 repeater length: 24

4938 861035 GATAATCTACTATAGAAATTGAAAG GGTGATTAGATGGCAAAACAATTAGGAACCCCGAAA spacer length: 37 repeater length: 24

4939 861097 GATAATCTACTATAGAAATTGAAAG TTTCCCTGGTCGCAAATAGGGTATGTTGGAATAAGAGG spacer length: 38 repeater length: 24

4940 861160 GATAATCTACTATAGAAATTGAAAG ACTATTGCTATAAATCCTACCGTTAAAATGTCAAACGC spacer length: 38 repeater length: 24

4941 861223 GATAATCTACTATAGAAATTGAAAG AAGAACTTAAAGCCATAATTGTTTCGCATTTAGATTTTGAGC spacer length: 41 repeater length: 24

4942 861289 GATAATCTACTATAGAAATTGAAAG CCCAATGCTAATCCGCCACCTATTGCACCGCCGTATA spacer length: 37 repeater length: 24

4943 861351 GATAATCTACTATAGAAATTGAAAG TATAGATAACTGTTTCATCATCTTCATTCTTGCAATA spacer length: 37 repeater length: 24

4944 861413 GATAATCTACTATAGAAATTGAAAG TTTGATGATAAAGACAATGGCCCACCGTAAGGCTGTATT spacer length: 39 repeater length: 24

4945 861477 GATAATCTACTATAGAAATTGAAAG AATCCCACGCGTGCAACAACAATGGATTTTACACACT spacer length: 37 repeater length: 24

4946 861539 GATAATCTACTATAGAAATTGAAAG ACGAAAGAGAATTTGCTAATTCGTTAATATCTTGAACG spacer length: 38 repeater length: 24

4947 861602 GATAATCTACTATAGAAATTGAAAG AATTGCGTCTGTTCTGTCTCTGCACTCTGCACTATTA spacer length: 37 repeater length: 24

4948 861664 GATAATCTACTATAGAAATTGAAAG ATGAGCTGAAGGAATTAGTTAAGGTCGTAGAGAAAGA spacer length: 37 repeater length: 24

4949 861726 GATAATCTACTATAGAAATTGAAAG CTTATGCGGTCATTAGAACCATACAGCTCCTGGAGGAG spacer length: 38 repeater length: 24

4950 861789 GATAATCTACTATAGAAATTGAAAG TTCTCACATTTATCCTTAGAACCGTCATAATCGTTCAAAATC spacer length: 42 repeater length: 24

4951 861856 GATAATCTACTATAGAAATTGAAAG ATAATGTAAGTTGGATTTTGTAAGTAGAGTCTTTATTTACAA

4952

4953

4954 crispr 3

4955 827533 GATTAATCCTAAAAGGAATTGAAAG CTTACTTTTTTCATGGCACATTCTTGACGCTTGACCGAA spacer length: 38 repeater length: 25

4956 827597 GATTAATCCTAAAAGGAATTGAAAG TTTTTCGCTAAAGTGAGTAAATCTAGGTAATGCTTCG spacer length: 37 repeater length: 25

4957 827660 GATTAATCCTAAAAGGAATTGAAAG GTAATTTTACTAACTCGTTACAAGCTTACAATCTATATCT spacer length: 40 repeater length: 25

4958 827726 GATTAATCCTAAAAGGAATTGAAAG TTTTTTAATATTTTTCTAATTTTCATCACTGATTT spacer length: 34 repeater length: 25

4959 827786 GATTAATCCTAAAAGGAATTGAAAG CTTTCGTCTGCACCCATTTTTTTTGCTTAACTCTTCTAGCA spacer length: 40 repeater length: 25

4960 827852 GATTAATCCTAAAAGGAATTGAAAG AAAAAGTCCACGCTATAATCCCATGAATGTTCTGA spacer length: 34 repeater length: 25

4961 827912 GATTAATCCTAAAAGGAATTGAAAG ATCCGTATATAGTAAATAATGCCACCTAAATCTATTT spacer length: 37 repeater length: 25

4962 827975 GATTAATCCTAAAAAGGAATTGAAAG TTGTCTAAGCTAAAAGCTAAGCAAAAAGCTTATATAC spacer
 length: 37 repeater length: 25
 4963 828038 GATTAATCCTAAAAAGGAATTGAAAG AATAATTTCTTTGCTTTTTCTTCCTCTTGTTGTAATAAT spacer
 length: 39 repeater length: 25
 4964 828103 GATTAATCCTAAAAAGGAATTGAAAG ATAACAACCTTCGCTCCCCGTCGTCCTTAACGAACCTC spacer
 length: 38 repeater length: 25
 4965 828167 GATTAATCCTAAAAAGGAATTGAAAG TTTGTATAATAGAACTTGCCTTCCTAAATCTCAGTT spacer
 length: 37 repeater length: 25
 4966 828230 GATTAATCCTAAAAAGGAATTGAAAG AACACTATTCTCTTCCTTACCTCTTTTACGTCCT spacer length:
 34 repeater length: 25
 4967 828290 GATTAATCCTAAAAAGGAATTGAAAG AAGTTAGCCGAGGTAGTGATTAGCCATGGATAGAT spacer length:
 35 repeater length: 25
 4968 828351 GATTAATCCTAAAAAGGAATTGAAAG ATTTAAATTTCCAGTACCATAAGCAACTGCTTGTCTAT spacer
 length: 38 repeater length: 25
 4969 828415 GATTAATCCTAAAAAGGAATTGAAAG TAGTATTTATAGCTTCTTTTATCGTAAAAACACCTTT spacer
 length: 37 repeater length: 25
 4970 828478 GATTAATCCTAAAAAGGAATTGAAAG GTATAGAACAACCACTGCCTAGCACTGTTTGGGTGTCCA spacer
 length: 39 repeater length: 25
 4971 828543 GATTAATCCTAAAAAGGAATTGAAAG TTAAAATTAGATGATTTGTTAGGCATGTTTGGCTATCC spacer
 length: 38 repeater length: 25
 4972 828607 GATTAATCCTAAAAAGGAATTGAAAG CCAATAAACCCCTACTGCTTACGTGGCTTAATACGTTA spacer
 length: 38 repeater length: 25
 4973 828671 GATTAATCCTAAAAAGGAATTGAAAG TTATATCAATAATGATGGTCTTATCACTGCTGTTCTTCTTC spacer
 length: 41 repeater length: 25
 4974 828738 GATTAATCCTAAAAAGGAATTGAAAG ACGAGTTTGTAGAGTTCAAACGTCTGGTTGAGTATGT spacer
 length: 37 repeater length: 25
 4975 828801 GATTAATCCTAAAAAGGAATTGAAAG GATTTATCAAAAAGCGGAATAACGAAGACGCCAAATT spacer
 length: 37 repeater length: 25
 4976 828864 GATTAATCCTAAAAAGGAATTGAAAG TTCAAAGCTCTAAGCAGGGAGTTAGCCAACGCCTTGT spacer
 length: 37 repeater length: 25
 4977 828927 GATTAATCCTAAAAAGGAATTGAAAG TTTATTATATATAACAATACTATATCCTGCGTCCTTTAG spacer
 length: 39 repeater length: 25
 4978 828992 GATTAATCCTAAAAAGGAATTGAAAG TATTCTAATAATGGAAAGCTACTATGATTTTGTGCA spacer length:
 36 repeater length: 25
 4979 829054 GATTAATCCTAAAAAGGAATTGAAAG TAATTATCAATAATCCATTGAGTTATTGCATAATATCCT spacer
 length: 39 repeater length: 25
 4980 829119 GATTAATCCTAAAAAGGAATTGAAAG ATATCTTGACTCATATTTACACCCGAAAAAATCAA spacer length:
 35 repeater length: 25
 4981 829180 GATTAATCCTAAAAAGGAATTGAAAG TTGATATCTAGGGCGGGCGTTAAATTCGTAGAGGCG spacer length:
 36 repeater length: 25
 4982 829242 GATTAATCCTAAAAAGGAATTGAAAG ACGTGTTATATCTATATCTGTCTTCAGCATGTAACGATT spacer
 length: 39 repeater length: 25
 4983 829307 GATTAATCCTAAAAAGGAATTGAAAG TTTCGCTTCAGAAAAGTCACTTTAGATCACTTTATAT spacer
 length: 37 repeater length: 25
 4984 829370 GATTAATCCTAAAAAGGAATTGAAAG CGTAATCGTTCCAACGGGCAATAATTCTATATATCG spacer length:
 36 repeater length: 25
 4985 829432 GATTAATCCTAAAAAGGAATTGAAAG GAGACTTCTACATCTTGTCCGCTCATCTGTGTTCTTT spacer
 length: 37 repeater length: 25
 4986 829495 GATTAATCCTAAAAAGGAATTGAAAG AAATTATATGGCCTGAAGTGGGTGTTAAGTACGACAA spacer
 length: 37 repeater length: 25
 4987 829558 GATTAATCCTAAAAAGGAATTGAAAG GAGGTTGGACGGCTAACGAATATCCCGCATTAGGCGGA spacer
 length: 38 repeater length: 25
 4988 829622 GATTAATCCTAAAAAGGAATTGAAAG TTCAAACCTCCGGGTCTGTCTCTTCGTAATTAATTTTCTT spacer
 length: 39 repeater length: 25
 4989 829687 GATTAATCCTAAAAAGGAATTGAAAG TCTAATTTGAATGTTATAACCCTGTTTATAAGTAT spacer length:
 35 repeater length: 25
 4990 829748 GATTAATCCTAAAAAGGAATTGAAAG GAACTATTGCACCTTTATAAGTATCCTCTTCTTCAGTTTTCTT spacer
 length: 43 repeater length: 25
 4991 829817 GATTAATCCTAAAAAGGAATTGAAAG AATACATTAGCTATACTTGGATATCCAAGATTTATACC spacer
 length: 38 repeater length: 25
 4992 829881 GATTAATCCTAAAAAGGAATTGAAAG CTTTTGCGTAATAAATTTATACGTCCAATCGGGCATTCT spacer
 length: 39 repeater length: 25
 4993 829946 GATTAATCCTAAAAAGGAATTGAAAG TCCTCAATTGGCAAATACATATGCTAATATAATTGCACT
 4994
 4995
 4996 GCA_000022425.1_ASM2242v1_genomic.fna(findCrispr):
 4997 START REPEAT
 4998 SPACER
 4999 crispr 1
 935767 CTTTCAATTCTATAGTAGATTATC CGTCTGAGGACGGATCCTACGGCGAAGCAGTACTGGAGT spacer
 length: 39 repeater length: 24

5000 935831 CTTTCAATTCTATAGTAGATTATC CGGTTTCGGTGGATTTATATATAGCCACGAGAAGGATG spacer
length: 38 repeater length: 24

5001 935894 CTTTCAATTCTATAGTAGATTATC GTAAACACGACCTCCACTACTACACTATAAATTACATTGC spacer
length: 40 repeater length: 24

5002 935959 CTTTCAATTCTATAGTAGATTATC AGTAAGCAGTGGTTATAAAGATACTGATGAACATAATAGG spacer
length: 39 repeater length: 24

5003 936023 CTTTCAATTCTATAGTAGATTATC TTGATATCGATTATGTTATTTATATTAATGTTAAAAA spacer length:
37 repeater length: 24

5004 936085 CTTTCAATTCTATAGTAGATTATC CTTGTTTATTATTGAGTTGTTTCAAGATGTTGGTATCA spacer
length: 38 repeater length: 24

5005 936148 CTTTCAATTCTATAGTAGATTATC TTTGCATATCTACTGACGTCAGCGATGTATCTAAGGTT spacer
length: 38 repeater length: 24

5006 936211 CTTTCAATTCTATAGTAGATTATC CTTACACTCAACTTAAAAGAAGAAGAGATAATAGCAA spacer length:
37 repeater length: 24

5007 936273 CTTTCAATTCTATAGTAGATTATC CCGAGGCATCATTGATATCTAGGGCGGGCGTTAAATTCGTA spacer
length: 41 repeater length: 24

5008 936339 CTTTCAATTCTATAGTAGATTATC AGGATTATCTCTTCGTCTACGGTGCTCGCGTCCACGATCT spacer
length: 40 repeater length: 24

5009 936404 CTTTCAATTCTATAGTAGATTATC ACGCGGATTAATAGATTCTGCATATGCGACGTTAGAACAA spacer
length: 40 repeater length: 24

5010 936469 CTTTCAATTCTATAGTAGATTATC CTTTGTCTCTCTCAGAAGCTGTTACGTTACTTCTTAGTA spacer
length: 38 repeater length: 24

5011 936532 CTTTCAATTCTATAGTAGATTATC ATTATAAAAAAGATAAACGATTAAGCATTCAATTTGAA spacer
length: 38 repeater length: 24

5012 936595 CTTTCAATTCTATAGTAGATTATC AAATAAATTGAATTTTGACTTACAAGTTTTCTCTCTC spacer
length: 38 repeater length: 24

5013 936658 CTTTCAATTCTATAGTAGATTATC CATCAGATTTAGCTAATATTAACATTCTTCTAGGGGGAT spacer
length: 39 repeater length: 24

5014 936722 CTTTCAATTCTATAGTAGATTATC GCCGGATTTTTTTCATATTTCAAGAAAAAGAATGCGA spacer
length: 38 repeater length: 24

5015 936785 CTTTCAATTCTATAGTAGATTATC AATTTTATATCGAATCTGATTTTTTATTTCAATAATT spacer length:
36 repeater length: 24

5016 936846 CTTTCAATTCTATAGTAGATTATC CCCGACACTTGAATAATAAGGACTAAATAATTAATTA spacer length:
37 repeater length: 24

5017 936908 CTTTCAATTCTATAGTAGATTATC TGAGGAAGAATGATAACACTTTTTGAAGTGTCTTCTTA spacer length:
37 repeater length: 24

5018 936970 CTTTCAATTCTATAGTAGATTATC AATTTCTTGACCGCCGTATGTGACTTTTTTCGGGTCTTA spacer
length: 38 repeater length: 24

5019 937033 CTTTCAATTCTATAGTAGATTATC GCAAAACGATAAACATAATAGTTCCTTCCGGAGCTAGCGG spacer
length: 40 repeater length: 24

5020 937098 CTTTCAATTCTATAGTAGATTATC CGCCTTCTGCACGAGCGTTGGAGCGAACAAACCGTAG spacer length:
37 repeater length: 24

5021 937160 CTTTCAATTCTATAGTAGATTATC TTGTATCACGAAGTGTGGGTGGCCACCCTGAACGATTA spacer
length: 38 repeater length: 24

5022 937223 CTTTCAATTCTATAGTAGATTATC AGAATCACCCCAGCTATTAAAGCCAAACGGCGAAATCGC spacer
length: 40 repeater length: 24

5023 937288 CTTTCAATTCTATAGTAGATTATC GGAAACTCCCACTTCAAGCGTAAACGTTTGCCAGGGCT spacer
length: 38 repeater length: 24

5024 937351 CTTTCAATTCTATAGTAGATTATC TACTTTATTTGTGATAGATGAGGCTCATCATCATTTTCA spacer
length: 39 repeater length: 24

5025 937415 CTTTCAATTCTATAGTAGATTATC ATCCTTATATAATGATATAATAACGCTAGGGTGAGATG spacer
length: 38 repeater length: 24

5026 937478 CTTTCAATTCTATAGTAGATTATC CTTTAATATTGCGGCAAGTGCTCCAGCTGGTTCTGTTG spacer
length: 38 repeater length: 24

5027 937541 CTTTCAATTCTATAGTAGATTATC GAACTAGAGGACTTCTTCCTAAGTGGTCTCGATGAAA spacer length:
37 repeater length: 24

5028 937603 CTTTCAATTCTATAGTAGATTATC AATAATAAACATTCTAGTGATGATATCATTTTACCAATG spacer
length: 39 repeater length: 24

5029 937667 CTTTCAATTCTATAGTAGATTATC AATTACTACTCAAGATATAATAGACTTTCTGACTACAA spacer
length: 38 repeater length: 24

5030 937730 CTTTCAATTCTATAGTAGATTATC TCATGAAATTTATTATTAACAACAAGATATAATTATTT spacer
length: 38 repeater length: 24

5031 937793 CTTTCAATTCTATAGTAGATTATC TAGGGTCTTCTTCAATTGGGTGAGGGAAGAGAGGATAT spacer
length: 39 repeater length: 24

5032 937857 CTTTCAATTCTATAGTAGATTATC ATAGAGCAAACGCTAGATTGTGAGAAAGATGTTTATCGT spacer
length: 40 repeater length: 24

5033 937922 CTTTCAATTCTATAGTAGATTATC CCTCAACTGTTTGAATATCCATAATTAAGTATAATG spacer length:
36 repeater length: 24

5034 937983 CTTTCAATTCTATAGTAGATTATC ATACTAACTATGGGGCAAACCAAGTCTTGCAAGTAA spacer
length: 39 repeater length: 24

5035 938047 CTTTCAATTCTATAGTAGATTATC TTCAACATTCCTCAATTCTCATAAGTTCATTATAGTTTC spacer

length: 38 repeater length: 24
5036 938110 CTTTCAATTCTATAGTAGATTATC TTGATTTTGGGTGCGGACATGGGATGACCCCGATAA spacer length:
37 repeater length: 24
5037 938172 CTTTCAATTCTATAGTAGATTATC CGGCATCCCTGAAACATGCATACTGTATTGTTGAAAGATA spacer
length: 40 repeater length: 24
5038 938237 CTTTCAATTCTATAGTAGATTATC AAAAAAGAAAGAAGAGGAATTCAGTTTAGGGCTTATAGGTT spacer
length: 41 repeater length: 24
5039 938303 CTTTCAATTCTATAGTAGATTATC CCACCTTCTTGATCCTGAAAACGATACGCATCACTGTAA spacer
length: 38 repeater length: 24
5040 938366 CTTTCAATTCTATAGTAGATTATC AATATGTGGTTGAAACAGTTTCGTCGTTCTTCAACGAAGA spacer
length: 40 repeater length: 24
5041 938431 CTTTCAATTCTATAGTAGATTATC AACAAAGACCTCGACGTCCCGTGAGTCCAGGAAGAGGA spacer length:
37 repeater length: 24
5042 938493 CTTTCAATTCTATAGTAGATTATC ATTAATACTCAAGATATAATAGATTTCTTGACTAAAA spacer length:
37 repeater length: 24
5043 938555 CTTTCAATTCTATAGTAGATTATC GAAACTTTAAAAGTCTGCCAGACAAATGTTTAAATATA spacer
length: 38 repeater length: 24
5044 938618 CTTTCAATTCTATAGTAGATTATC TTAGAGACAAATGTCACTTCCATAGACTTATAATAGTTTA spacer
length: 40 repeater length: 24
5045 938683 CTTTCAATTCTATAGTAGATTATC AAAACTTCTATTGAATTTTACTAGATGGTCTTTTTTA spacer length:
36 repeater length: 24
5046 938744 CTTTCAATTCTATAGTAGATTATC TTGTCAATAATTTAGTAGTACCAGTAGCTAAAAGAT spacer length:
36 repeater length: 24
5047 938805 CTTTCAATTCTATAGTAGATTATC AATTAATAAATTATTATTTCAGCAGGTCAAAGAATAAGGAT spacer
length: 40 repeater length: 24
5048 938870 CTTTCAATTCTATAGTAGATTATC ACCTGCAGAACTCATTATCCATCATGTAAGAAGTACGA spacer
length: 38 repeater length: 24
5049 938933 CTTTCAATTCTATAGTAGATTATC ACGCCAATTGACCACAGTGGTCTACTTATTGATGAAGTAT spacer
length: 40 repeater length: 24
5050 938998 CTTTCAATTCTATAGTAGATTATC TCTTTTTTCTTCGTTTCTGTTTCACTTCTATATTTAATC spacer
length: 39 repeater length: 24
5051 939062 CTTTCAATTCTATAGTAGATTATC CCTTACACGTTCAAACCTAATCATCTCGTTACATTAC spacer length:
37 repeater length: 24
5052 939124 CTTTCAATTCTATAGTAGATTATC CATATAATGTTGTTCCCTAGTAGATACCCTAATATAACA spacer
length: 38 repeater length: 24
5053 939187 CTTTCAATTCTATAGTAGATTATC ATAAGGTACTTTACATAGATATAGAAGTTAATAATATAG spacer
length: 39 repeater length: 24
5054 939251 CTTTCAATTCTATAGTAGATTATC ATTGTAGTCACTACTTTAGCACCGCTAAGAATATATTT spacer
length: 38 repeater length: 24
5055 939314 CTTTCAATTCTATAGTAGATTATC GAGGAAGAGATGGAGTCTGGTAAGGAGGTTTTCGTTATTT spacer
length: 40 repeater length: 24
5056 939379 CTTTCAATTCTATAGTAGATTATC AGAAAAGTATTCTATCTTTATCCGGATAATACAGAGT spacer length:
37 repeater length: 24
5057 939441 CTTTCAATTCTATAGTAGATTATC CTTTTCTACACAAGAGAGCCGAGAGAAATAGAATTCAT spacer
length: 38 repeater length: 24
5058 939504 CTTTCAATTCTATAGTAGATTATC TAACCACTTAACCCCCAGTTAAGTGGTTGGAGACTA spacer length:
37 repeater length: 24
5059 939566 CTTTCAATTCTATAGTAGATTATC ACTTCGCTCCGCTTTGGGGCGACGAGGACGAGTTCTACA spacer
length: 39 repeater length: 24
5060 939630 CTTTCAATTCTATAGTAGATTATC TATTAGGAAAGTAAACATCTTCGTTTCCTGATATGATTA spacer
length: 39 repeater length: 24
5061 939694 CTTTCAATTCTATAGTAGATTATC AGGGGATGTAGGAGGAGGATTTGCGAATGATTTTAGAAGAA spacer
length: 41 repeater length: 24
5062 939760 CTTTCAATTCTATAGTAGATTATC AAATATTTATAAGGAACAAAAACATAGAGAAGTACAG spacer
length: 38 repeater length: 24
5063 939823 CTTTCAATTCTATAGTAGATTATC TTAAATATGATTATGAGGGAACAATAAAGATAATTTATT spacer
length: 39 repeater length: 24
5064 939887 CTTTCAATTCTATAGTAGATTATC ATATAATACCATCTATAAATAAAGATAAGAACTTGTG spacer
length: 38 repeater length: 24
5065 939950 CTTTCAATTCTATAGTAGATTATC CCGCAAATACCTTACTTCATCACTATTGTAAACCCA spacer length:
36 repeater length: 24
5066 940011 CTTTCAATTCTATAGTAGATTATC TTAAGTATATTAAGTATCAAAGGGGAAGAAAAAGTAAG spacer
length: 38 repeater length: 24
5067 940074 CTTTCAATTCTATAGTAGATTATC GGTAAACAGTGGTTATAAAGATACTGATGAATTAATAGGA spacer
length: 40 repeater length: 24
5068 940139 CTTTCAATTCTATAGTAGATTATC CCCCTTCTTAATTTTCTTATTAATAAATGATATTGAATAC spacer
length: 39 repeater length: 24
5069 940203 CTTTCAATTCTATAGTAGATTATC TTTATATCACAAAGATGTATTGAGGGAGTTCCAAAGG spacer length:
37 repeater length: 24
5070 940265 CTTTCAATTCTATAGTAGATTATC TGGAAAGAAGTAACCTAGGAAATGTGTACATTACAAT spacer length:
37 repeater length: 24

5071 940327 CTTTCAATTCTATAGTAGATTATC TGGTGTCCCCAATAACACTTGCTTACCGAAGATAAAG spacer length:
37 repeater length: 24

5072 940389 CTTTCAATTCTATAGTAGATTATC ACTAGAGCTTTACTGTTGCAAGAAGCACTACAAAATT spacer length:
37 repeater length: 24

5073 940451 CTTTCAATTCTATAGTAGATTATC CCATTTGCGTCTAGTAATGTAATAATTCGTGGGTAAATTC spacer
length: 40 repeater length: 24

5074 940516 CTTTCAATTCTATAGTAGATTATC ATCTACAATTAAGGACAAATCACGAACGAATAATTGTA spacer
length: 38 repeater length: 24

5075 940579 CTTTCAATTCTATAGTAGATTATC TAAATTTATCGCCAAAATCCTCCACGTTGAATATATAGAGA spacer
length: 41 repeater length: 24

5076 940645 CTTTCAATTCTATAGTAGATTATC TCCCTCACAGATCTCTATTGAGAATTTCCAACCTTTA spacer length:
37 repeater length: 24

5077 940707 CTTTCAATTCTATAGTAGATTATC GTCGTGAAGGTCGAGAAGGGCAAAAACGTCGTCGAGGTG spacer
length: 39 repeater length: 24

5078 940771 CTTTCAATTCTATAGTAGATTATC TTTATACGCCAATACGCCCCACTCCTTCTAATGTCTG spacer length:
37 repeater length: 24

5079 940833 CTTTCAATTCTATAGTAGATTATC AAAGATAACCAAGCCCTAGTTAATGAAAACGAAAAATC spacer
length: 39 repeater length: 24

5080 940897 CTTTCAATTCTATAGTAGATTATC ATTCATTA AAAATGCACCTACATATCATGATCCAG spacer length:
35 repeater length: 24

5081 940957 CTTTCAATTCTATAGTAGATTATC GCTGTTGTAGCTAACATCGCTAGGTTTTGAGGAGATAGG spacer
length: 39 repeater length: 24

5082 941021 CTTTCAATTCTATAGTAGATTATC ACTACCTTCCGGTGAGAACGAGCCACCTGTTCAATACC spacer
length: 38 repeater length: 24

5083 941084 CTTTCAATTCTATAGTAGATTATC TAAAGGTGAAAGGAGAAGTATACAAGTTGAGTTACCAA spacer
length: 38 repeater length: 24

5084 941147 CTTTCAATTCTATAGTAGATTATC AAGGGGGAGGTATTTACTCCGGCCTTAGCGAAATATCTA spacer
length: 39 repeater length: 24

5085 941211 CTTTCAATTCTATAGTAGATTATC TTGTCTCTTCTTCTAATAAGTCCATGCCCTCTGCATCAG spacer
length: 39 repeater length: 24

5086 941275 CTTTCAATTCTATAGTAGATTATC TAGTAGAAGGCGTAATGGAGACCATGCCGAATATTGAAA spacer
length: 39 repeater length: 24

5087 941339 CTTTCAATTCTATAGTAGATTATC CCGCCATGTGTTTACTGGTACAAGTAAAAGAAGGAAA spacer length:
37 repeater length: 24

5088 941401 CTTTCAATTCTATAGTAGATTATC AGCTTACAATCTCAAAGATAATCGCTGAAAGGGAGGGA spacer
length: 38 repeater length: 24

5089 941464 CTTTCAATTCTATAGTAGATTATC AGCCACGGGATAGACAGGTTGCCGGAAGAGACGTTAA spacer length:
37 repeater length: 24

5090 941526 CTTTCAATTCTATAGTAGATTATC TGAATGCAACAGTAAAGGTTAAATTTGCAACAGTGTAAG spacer
length: 41 repeater length: 24

5091 941592 CTTTCAATTCTATAGTAGATTATC TGATAGTTGATGCAGAAAAGATATATAAATATATTATT spacer
length: 38 repeater length: 24

5092 941655 CTTTCAATTCTATAGTAGATTATC TTTCACTATAGTTATCTTGACCCTTATGGCGGGGTTGT spacer
length: 38 repeater length: 24

5093 941718 CTTTCAATTCTATAGTAGATTATC CATGAAATATCTCGAAGCGGGGAAGATAAATTTCTAC spacer length:
37 repeater length: 24

5094 941780 CTTTCAATTCTATAGTAGATTATC GTGTAGCGTCACCTGAGAACCTGCACGGTGAAGCTAG spacer length:
37 repeater length: 24

5095 941842 CTTTCAATTCTATAGTAGATTATC ATGCTCAAAGCAAGTGATGGGACGATTACTAACCTAC

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5097

5098 crispr 2

5099 946465 GATAATCTACTATAGAATTGAAAG TCATTTTACGACATTGTGTGAGGAGCATGGACTTGATGTT spacer
length: 40 repeater length: 24

5100 946530 GATAATCTACTATAGAATTGAAAG CTAAATATTAAAGTTTGCATTCTTTGTACGCGTCACCA spacer
length: 39 repeater length: 24

5101 946594 GATAATCTACTATAGAATTGAAAG GTAAAAATTACAGAATCTCTTTATAAAATTTAGAGCAGAA spacer
length: 41 repeater length: 24

5102 946660 GATAATCTACTATAGAATTGAAAG ATCAGAGTTGATTATTTGCCAACTGGTGCAGTTCTTATAG spacer
length: 40 repeater length: 24

5103 946725 GATAATCTACTATAGAATTGAAAG ATGGTTGAAAGTACGTCATGGAAAGTACTACCGTA spacer length:
35 repeater length: 24

5104 946785 GATAATCTACTATAGAATTGAAAG CTTCTAATTCTTCTTTTAGCCTTGATGCAATCAGTATC spacer
length: 38 repeater length: 24

5105 946848 GATAATCTACTATAGAATTGAAAG GTATTGAACGCAGATATTAAAGCAGCATCTTCATATTCCG spacer
length: 40 repeater length: 24

5106 946913 GATAATCTACTATAGAATTGAAAG CGGCGGTTACAACAACAAGTACTGCATACGTGATGGTGGGT spacer
length: 42 repeater length: 24

5107 946980 GATAATCTACTATAGAATTGAAAG TTGATTAACACTAGAAATCGCATTTGAAATAATCGTTACG spacer
length: 40 repeater length: 24

5108 947045 GATAATCTACTATAGAATTGAAAG GTTCTCTGTTCTGCCATATCGCTATCCAGTAATCAC spacer length:

36 repeater length: 24

5109 947106 GATAATCTACTATAGAATTGAAAG ACCTAGTGGTAATGGGGGATTGCGGTTAAACGTCACCT spacer length: 38 repeater length: 24

5110 947169 GATAATCTACTATAGAATTGAAAG ATTTATAACAACTCCAAGAATGGGAGAGAGTAAACA spacer length: 37 repeater length: 24

5111 947231 GATAATCTACTATAGAATTGAAAG CTTTTCTGTAATCGCTGGGATTCCTCATTATCAGATAA spacer length: 38 repeater length: 24

5112 947294 GATAATCTACTATAGAATTGAAAG TGGCTTGTTAAGCCAGGGAAGTTACACACGTAACGTT spacer length: 37 repeater length: 24

5113 947356 GATAATCTACTATAGAATTGAAAG AAATCTTTCGCTAACGGAGAGGTTAGATCTGCGGC spacer length: 35 repeater length: 24

5114 947416 GATAATCTACTATAGAATTGAAAG CCAGTTGTCGCTTCATATGCAACATCTATCCAATACGT spacer length: 38 repeater length: 24

5115 947479 GATAATCTACTATAGAATTGAAAG AATGGCAAAAGGAAGTAGTTGAATCTTCTCTTAAGTTAA spacer length: 39 repeater length: 24

5116 947543 GATAATCTACTATAGAATTGAAAG ACTACCATCCAGTCCCTACAATTTACCGGGTACAGGTCTA spacer length: 40 repeater length: 24

5117 947608 GATAATCTACTATAGAATTGAAAG TCTGAAGTTGTGCCCCCTCACTTTCCTCCTCCT spacer length: 37 repeater length: 24

5118 947670 GATAATCTACTATAGAATTGAAAG TGTAACGGTTGAATATATTAATCACGTACACACGTATG spacer length: 38 repeater length: 24

5119 947733 GATAATCTACTATAGAATTGAAAG TGGGAAATACTCATCCGCCATGTTTTCACTAAAACAT spacer length: 37 repeater length: 24

5120 947795 GATAATCTACTATAGAATTGAAAG ATTACTAAAAGGTCGTTCTTGGGATCGTATCTATAT spacer length: 36 repeater length: 24

5121 947856 GATAATCTACTATAGAATTGAAAG ACAAATAGAATTGCGACCGGTACAATTTTGACAACAAAAGT spacer length: 42 repeater length: 24

5122 947923 GATAATCTACTATAGAATTGAAAG CTTACTTTTATGGTCCCTTTCTAATTATGCTGACTTCA spacer length: 37 repeater length: 24

5123 947985 GATAATCTACTATAGAATTGAAAG ATATTATCATCATTGAATATCTCTACTGTATATGTTT spacer length: 37 repeater length: 24

5124 948047 GATAATCTACTATAGAATTGAAAG CTAGCATATGTTAGATTTAGCGATTGAATTACAGTTCCCGC spacer length: 41 repeater length: 24

5125 948113 GATAATCTACTATAGAATTGAAAG GTTAGCAGAAATAATAGCTACATATGACCCTAACAATG spacer length: 38 repeater length: 24

5126 948176 GATAATCTACTATAGAATTGAAAG TTAAGTTATTGGGGACAATACGGGGGATTTTTATTCAA spacer length: 38 repeater length: 24

5127 948239 GATAATCTACTATAGAATTGAAAG GTAAATCCATATGAGTTCTATCAACTACTTCAGCAAAGTGG spacer length: 41 repeater length: 24

5128 948305 GATAATCTACTATAGAATTGAAAG TAGAAATAGTATTTCCGTCGGTGGTAGTTAAGTGCTCAAAAA spacer length: 42 repeater length: 24

5129 948372 GATAATCTACTATAGAATTGAAAG ATCTTTGGGAGGGCGAGCGGGTTTATCCCGAAGTTCGG spacer length: 38 repeater length: 24

5130 948435 GATAATCTACTATAGAATTGAAAG AAACCGCATCACAGTGGTTTTGAAGAAGTAAATATTT spacer length: 37 repeater length: 24

5131 948497 GATAATCTACTATAGAATTGAAAG TTTGTGAGTTGGAGACCGTTACGGCCACGCATTCCACGCG spacer length: 40 repeater length: 24

5132 948562 GATAATCTACTATAGAATTGAAAG ATAATACGGTACCTACGTCCATTTGCGACGTCTCATTA spacer length: 39 repeater length: 24

5133 948626 GATAATCTACTATAGAATTGAAAG AGAACGGGTAAGCATTCCTCTACCTTATGCACCACATCAATC spacer length: 42 repeater length: 24

5134 948693 GATAATCTACTATAGAATTGAAAG TAGGGTTTGGGATAGCTAATGCCAATCTAAGTCATCTA spacer length: 38 repeater length: 24

5135 948756 GATAATCTACTATAGAATTGAAAG GAACAGGTCGAAAGAGCTGAGCTTTGGCATGCAATTT spacer length: 37 repeater length: 24

5136 948818 GATAATCTACTATAGAATTGAAAG TTAGTTTGAACAAGTTGGACATAACGTCCGTAGAAC spacer length: 36 repeater length: 24

5137 948879 GATAATCTACTATAGAATTGAAAG TATTGTCCTGCAGTCTCGTAATATACTTTAGTCCCATAC spacer length: 39 repeater length: 24

5138 948943 GATAATCTACTATAGAATTGAAAG TCTATATTGAATTCTATGCATATTCAATATTTCTCAACACCT spacer length: 42 repeater length: 24

5139 949010 GATAATCTACTATAGAATTGAAAG TCTACAATTTTGGAGGAATTTGGATTAGATTTAACTTTA spacer length: 39 repeater length: 24

5140 949074 GATAATCTACTATAGAATTGAAAG TAATTTTTTCGTTGTTTTTATCAAAACACAAAGCACT spacer length: 37 repeater length: 24

5141 949136 GATAATCTACTATAGAATTGAAAG GAAGAAGAGTTAGCAATATTAGATCTATATTGCGCAAATAT spacer length: 41 repeater length: 24

5142 949202 GATAATCTACTATAGAATTGAAAG AATCTACGGTGCAGCAGGTCTATTTTTTGGAGTATTG spacer length: 37 repeater length: 24

5143 949264 GATAATCTACTATAGAATTGAAAG AGTACAGGGACGTTCAATGAGTAAGGCTCCGCAAGGTA spacer length: 38 repeater length: 24

5144 949327 GATAATCTACTATAGAAATTGAAAG TTTGTAACCACCTTTTCGGTTACGCTCTCAAACCTTACCACTAA spacer
length: 43 repeater length: 24
5145 949395 GATAATCTACTATAGAAATTGAAAG AATTCTTTCAATCTTTCTCTTATTGCCTCGTTAACAAATT spacer
length: 40 repeater length: 24
5146 949460 GATAATCTACTATAGAAATTGAAAG TAGACCCTTCTTATCTACTTAGGAAGTTAGACGGTTAC spacer
length: 38 repeater length: 24
5147 949523 GATAATCTACTATAGAAATTGAAAG AGAAAGAAACTGGGCAGAACTAAGAACTTTATATCA spacer length:
37 repeater length: 24
5148 949585 GATAATCTACTATAGAAATTGAAAG TCATTTGTATACAATCTTATACATATTTCTTCATTATTC spacer
length: 39 repeater length: 24
5149 949649 GATAATCTACTATAGAAATTGAAAG ACGTACATAAAAAATTGCTATAGCATTGGAGCTGCGGC spacer
length: 38 repeater length: 24
5150 949712 GATAATCTACTATAGAAATTGAAAG TCCAGGACGGAACAAAGCTAGGGGAATTATTTGCAACGTC spacer
length: 40 repeater length: 24
5151 949777 GATAATCTACTATAGAAATTGAAAG TTATTTCTCAGAATATCAGAGAAATGGGATCGACAAACGG spacer
length: 40 repeater length: 24
5152 949842 GATAATCTACTATAGAAATTGAAAG TATAATAATTAAATACTTTGGTGTAGACTGAAATCTCT spacer
length: 39 repeater length: 24
5153 949906 GATAATCTACTATAGAAATTGAAAG TACCACCGTTGCATTTGTTATCTCTCGGTAGTATACTT spacer
length: 38 repeater length: 24
5154 949969 GATAATCTACTATAGAAATTGAAAG TCAAAAATTTGTTCTTGACAGGTCAGAAAAGGACTGGTAA spacer
length: 40 repeater length: 24
5155 950034 GATAATCTACTATAGAAATTGAAAG TCAACTACTACAACCTCTGCATATGTATTTCTTACAACCTCT spacer
length: 41 repeater length: 24
5156 950100 GATAATCTACTATAGAAATTGAAAG GTGATAATAATCCAGTTGAAGTTGAAGTAGTCATAGATG spacer
length: 39 repeater length: 24
5157 950164 GATAATCTACTATAGAAATTGAAAG TGTACTCTGGATAGGGGAACCCGACAATGAAGATAGCCT spacer
length: 39 repeater length: 24
5158 950228 GATAATCTACTATAGAAATTGAAAG GTTCTAATAGCTTCTGTTTCAGAGATGGGTAGCTA spacer length:
36 repeater length: 24
5159 950289 GATAATCTACTATAGAAATTGAAAG AAGCCCTATTTAGGGGTAAACCCCTAAAACCCACG spacer
length: 38 repeater length: 24
5160 950352 GATAATCTACTATAGAAATTGAAAG CTTGACATTATTCTTATACAATCTAAACAATAACTATGT spacer
length: 39 repeater length: 24
5161 950416 GATAATCTACTATAGAAATTGAAAG GTTTTATTAGATAAAAAATGAAGTTGAAGAAAAAATTATT spacer
length: 39 repeater length: 24
5162 950480 GATAATCTACTATAGAAATTGAAAG ACTGATACTCTATCCCATATATTGCAAGATCCCTAT spacer length:
36 repeater length: 24
5163 950541 GATAATCTACTATAGAAATTGAAAG ATCTTCATCTCCAACTACTGCTATTAACCTTATCTCACT spacer
length: 39 repeater length: 24
5164 950605 GATAATCTACTATAGAAATTGAAAG ATAATGTAAGTTGGATTTTGTAAGTAGAGTCTTTATTTA
5165
5166
5167 crispr 3
5168 911635 GATTAATCCTAAAAGGAATTGAAAG AACTATATCTAGGTGTTTCATGGACGGGTCACCTCATTT spacer
length: 39 repeater length: 25
5169 911700 GATTAATCCTAAAAGGAATTGAAAG ATATTATTCAAAAACTGATTACGTGAATGGATTTA spacer length:
36 repeater length: 25
5170 911762 GATTAATCCTAAAAGGAATTGAAAG TTAATTTCTTTGACTGGTAATTTCTGTTCTATTTCTT spacer
length: 37 repeater length: 25
5171 911825 GATTAATCCTAAAAGGAATTGAAAG TTACCAACCCGTTTTTATTGACAATATAACGGTTGT spacer length:
36 repeater length: 25
5172 911887 GATTAATCCTAAAAGGAATTGAAAG TGATCAATCACTTGTATTCTTTTGTGTAAATTTCTG spacer length:
36 repeater length: 25
5173 911949 GATTAATCCTAAAAGGAATTGAAAG AAGAATGATAGAATACACTACCAGTAAACGTCATAAA spacer
length: 38 repeater length: 25
5174 912013 GATTAATCCTAAAAGGAATTGAAAG ACATAGAGGGCGTTCCTTGTCATAATTAACCATG spacer length:
34 repeater length: 25
5175 912073 GATTAATCCTAAAAGGAATTGAAAG TAATAATGATATATTGTAGATATTATCGTTGCCCGGGG spacer
length: 38 repeater length: 25
5176 912137 GATTAATCCTAAAAGGAATTGAAAG ACTTTTGCGTTTTTCATTTGTCTCTTCTTCTTCAAGTA spacer
length: 37 repeater length: 25
5177 912200 GATTAATCCTAAAAGGAATTGAAAG TTTGTTGGGTGTTTCGTCGTTGTCCCGGCATTGAGGTTT spacer
length: 38 repeater length: 25
5178 912264 GATTAATCCTAAAAGGAATTGAAAG TAAATTTCTATGTTTCATTTCAAGCATTTTTCTCTACCC spacer
length: 39 repeater length: 25
5179 912329 GATTAATCCTAAAAGGAATTGAAAG TATTTATTATAACACAAAGCACTATACACTTCAAAAT spacer
length: 37 repeater length: 25
5180 912392 GATTAATCCTAAAAGGAATTGAAAG AATTTGATCTATCGCGGTATTAATTTGTTCATAACT spacer
length: 37 repeater length: 25
5181 912455 GATTAATCCTAAAAGGAATTGAAAG ACAATAAGATAGAAGGGTCTCTCGCGATAACTCTGTAG spacer

length: 38 repeater length: 25

5182 912519 GATTAATCCTAAAAAGGAATTGAAAG TTAAACTTTTACTAACTTACTAACTTACAACTTA spacer length: 35 repeater length: 25

5183 912580 GATTAATCCTAAAAAGGAATTGAAAG TTCAGTAAGTAAGTTCGATTTTACTTATCGCCCAT spacer length: 35 repeater length: 25

5184 912641 GATTAATCCTAAAAAGGAATTGAAAG ATAGATATGATGAGATGGCAAACAATGTATACTAGGAA spacer length: 38 repeater length: 25

5185 912705 GATTAATCCTAAAAAGGAATTGAAAG CTGACTGGTATCAAAGATAACGCTTTCTTAGGGTTCGT spacer length: 38 repeater length: 25

5186 912769 GATTAATCCTAAAAAGGAATTGAAAG GCAGTTAGGAAAACCACCAGATTGGCTAGTTATATAGCCCA spacer length: 42 repeater length: 25

5187 912837 GATTAATCCTAAAAAGGAATTGAAAG ACAATACCATGTGCAGAATCAATAACAATATGCTG spacer length: 36 repeater length: 25

5188 912899 GATTAATCCTAAAAAGGAATTGAAAG ACTTGTATATCAGATATCATGTCTACTAACGGCAAAT spacer length: 37 repeater length: 25

5189 912962 GATTAATCCTAAAAAGGAATTGAAAG TATCATCATTCTCCTTGATAAACAGTCTCACTTTC spacer length: 36 repeater length: 25

5190 913024 GATTAATCCTAAAAAGGAATTGAAAG AGTTATTTTCGACGTGATTTAACGCACAGTAAGATTTATA spacer length: 39 repeater length: 25

5191 913089 GATTAATCCTAAAAAGGAATTGAAAG CTTGTATGCGCACTTACGAAAAGCCAATAATACTCAA spacer length: 37 repeater length: 25

5192 913152 GATTAATCCTAAAAAGGAATTGAAAG TCAAAATATATATCGATGATTTCTTCAAGATCACT spacer length: 35 repeater length: 25

5193 913213 GATTAATCCTAAAAAGGAATTGAAAG ATAATATTCTCTCTACTATTTCTTCTTTCAACTATTC spacer length: 37 repeater length: 25

5194 913276 GATTAATCCTAAAAAGGAATTGAAAG CTAAATATTTTCGTGTTTATATCAAATGCATATACTT spacer length: 36 repeater length: 25

5195 913338 GATTAATCCTAAAAAGGAATTGAAAG TTATATGTAGTGACGGTAAGTAGTAGCATCTATAACTC spacer length: 38 repeater length: 25

5196 913402 GATTAATCCTAAAAAGGAATTGAAAG GATTACTCTTCACAGATAAACATTCTTTAGGTAATTC spacer length: 37 repeater length: 25

5197 913465 GATTAATCCTAAAAAGGAATTGAAAG TTTTCGTTATCGTTCACGGAATTTATCAATGCAGTTAAT spacer length: 38 repeater length: 25

5198 913529 GATTAATCCTAAAAAGGAATTGAAAG TATAAGAACCTAAAAGAATTAATAAGAGTGTTGACG spacer length: 37 repeater length: 25

5199 913592 GATTAATCCTAAAAAGGAATTGAAAG TTCATTTCCGGCTCACCTAGCCAAATACTCTTTGAA spacer length: 37 repeater length: 25

5200 913655 GATTAATCCTAAAAAGGAATTGAAAG GATATCCATTCTCAGCACTCTTAAATCCGCTGAAAT spacer length: 37 repeater length: 25

5201 913718 GATTAATCCTAAAAAGGAATTGAAAG TAGAATCTAGCAGTACTATGACCCATATAACCATATAC spacer length: 38 repeater length: 25

5202 913782 GATTAATCCTAAAAAGGAATTGAAAG CTTGTTAGTATATCTATTTTCATATTTATACACCCGA spacer length: 37 repeater length: 25

5203 913845 GATTAATCCTAAAAAGGAATTGAAAG ATTAATTCTTTTACTGTATAGAAATATCTCATTT spacer length: 34 repeater length: 25

5204 913905 GATTAATCCTAAAAAGGAATTGAAAG TCCGTTTCTAACTTATTAAAGTATTCATATAATG spacer length: 34 repeater length: 25

5205 913965 GATTAATCCTAAAAAGGAATTGAAAG GTATTAAGTCATCAGAATATCCTTCTAATGATAGA spacer length: 35 repeater length: 25

5206 914026 GATTAATCCTAAAAAGGAATTGAAAG GCTATTAACATTATTAAGTTATAGACATTTTGTCCATATTCTAC spacer length: 44 repeater length: 25

5207 914096 GATTAATCCTAAAAAGGAATTGAAAG ATTGAAAAGACTTTACGAAGTATATACAAGTGCTC spacer length: 35 repeater length: 25

5208 914157 GATTAATCCTAAAAAGGAATTGAAAG AAGTACACTTTATTAGCATTTTCTGGCAAACGATT spacer length: 35 repeater length: 25

5209 914218 GATTAATCCTAAAAAGGAATTGAAAG TGATTCTCATCTATCTCCTCCTCCAATTCCGCGAGGA spacer length: 37 repeater length: 25

5210 914281 GATTAATCCTAAAAAGGAATTGAAAG TTATTAATAATTTTTTCGGGTGTTTTCATGTTTGTGC spacer length: 36 repeater length: 25

5211 914343 GATTAATCCTAAAAAGGAATTGAAAG AAAACTAATTGTATATTAGCAGGGTCACTTTGCACTC spacer length: 37 repeater length: 25

5212 914406 GATTAATCCTAAAAAGGAATTGAAAG GTATGCTATGCAACAGTATTTTAATCTTATTTCTCGGATCC spacer length: 41 repeater length: 25

5213 914473 GATTAATCCTAAAAAGGAATTGAAAG CTATATATTTCGAGAAACAGGAATTTTCCCTGACTTATT spacer length: 38 repeater length: 25

5214 914537 GATTAATCCTAAAAAGGAATTGAAAG TATTAATACTTATTAGCAATCATTGCTGCACGTA spacer length: 36 repeater length: 25

5215 914599 GATTAATCCTAAAAAGGAATTGAAAG TTTAAATTCCTTTTAAACATCACATAATCTTTATTTTCATAT spacer length: 40 repeater length: 25

5216 914665 GATTAATCCTAAAAAGGAATTGAAAG ATTAATACAATTAAGCTCCGTCTTTGCTAGACTCTTTT spacer length: 38 repeater length: 25

5217 914729 GATTAATCCTAAAAGGAATTGAAAG CTAATGAAACATAAGAGCGAAAAGAAGTTTAGTAGAGATT spacer
length: 40 repeater length: 25

5218 914795 GATTAATCCTAAAAGGAATTGAAAG GCTTGTTTCTGATTGATGATATACCTTATTATTACTGG spacer
length: 38 repeater length: 25

5219 914859 GATTAATCCTAAAAGGAATTGAAAG ACAAGATTCGTAACACTATTGACGAAGGTAAGAACGTTATTCTT spacer
length: 44 repeater length: 25

5220 914929 GATTAATCCTAAAAGGAATTGAAAG TTTTACAATCAGATATATTGATAGTTGATTTCTGCT spacer length:
36 repeater length: 25

5221 914991 GATTAATCCTAAAAGGAATTGAAAG TAATTTTCATTTTCATTATTTCTCAACTCCCTTAATTA spacer
length: 37 repeater length: 25

5222 915054 GATTAATCCTAAAAGGAATTGAAAG CTAACATAAACACAACTAAATATAACACTATATAACAC spacer
length: 38 repeater length: 25

5223 915118 GATTAATCCTAAAAGGAATTGAAAG ATACTCTGTTCCCTTGCTCCATCTTTAGTAATTTGCTA spacer
length: 37 repeater length: 25

5224 915181 GATTAATCCTAAAAGGAATTGAAAG ACCTTACTTTCTCTTCTCCCTTTAGATTAAGTTT spacer length:
34 repeater length: 25

5225 915241 GATTAATCCTAAAAGGAATTGAAAG TATAAATAAGCGGTAAAAATGAAGAAAAAACGTTTCTA spacer
length: 39 repeater length: 25

5226 915306 GATTAATCCTAAAAGGAATTGAAAG AGATATTATCCTTATATTCACCTACTTTTTGCAGATATTT spacer
length: 40 repeater length: 25

5227 915372 GATTAATCCTAAAAGGAATTGAAAG TAGAATATCAAGCAGATAAATTAGTAGTACAAGATGTG spacer
length: 38 repeater length: 25

5228 915436 GATTAATCCTAAAAGGAATTGAAAG TCTATTAATATTGTATGCAACATTATTTTAACTTTG spacer length:
36 repeater length: 25

5229 915498 GATTAATCCTAAAAGGAATTGAAAG TAGACAGGTCAGTATAGGTCTTACCATCTAATAAAGCAA spacer
length: 39 repeater length: 25

5230 915563 GATTAATCCTAAAAGGAATTGAAAG AAATTACTATCTTGAATAGAGATATTAGCGTTGTCTATTGC spacer
length: 41 repeater length: 25

5231 915630 GATTAATCCTAAAAGGAATTGAAAG CTATATATGGGAAGGCTTATGATCACCTAGTAGA spacer length:
34 repeater length: 25

5232 915690 GATTAATCCTAAAAGGAATTGAAAG GATGAATATGAAGAATTTGCTACTATAATAGTGAAACTC spacer
length: 39 repeater length: 25

5233 915755 GATTAATCCTAAAAGGAATTGAAAG CTCATCACCCCATGTTTCTTCAAATCCACCCAGATTCT spacer
length: 38 repeater length: 25

5234 915819 GATTAATCCTAAAAGGAATTGAAAG AAGAATCCCCAAGGATAAACACTAGCATATCGAC spacer length:
34 repeater length: 25

5235 915879 GATTAATCCTAAAAGGAATTGAAAG TTCCAAATACACGTTTATTCAATATGATATCCAGCAA spacer
length: 37 repeater length: 25

5236 915942 GATTAATCCTAAAAGGAATTGAAAG TTATTATTTACAGTTATTCTTATCTTTGCCATCCTCACCA spacer
length: 40 repeater length: 25

5237 916008 GATTAATCCTAAAAGGAATTGAAAG TCAAATGAGTAATTTTCTTCATGCAACATAATTCA spacer
length: 37 repeater length: 25

5238 916071 GATTAATCCTAAAAGGAATTGAAAG TCTTTCACATACGTTTCTATACGCTTCTTCTTTCCAT spacer
length: 37 repeater length: 25

5239 916134 GATTAATCCTAAAAGGAATTGAAAG TATAATGTAAGTTGGATTTTGTAGTAGAGTCTTTAT

5240

5241

5242 GCA_000022445.1_ASM2244v1_genomic.fna(findCrispr):

5243 START REPEAT

5244 SPACER

5244 crispr 1

5245 837984 TTTCAATTCTATAGTAGATTATC TATTTATATGAAGAAGGATGAAGGAACGTACAATCTTAACA spacer
length: 41 repeater length: 23

5246 838049 TTTCAATTCTATAGTAGATTATC AAAACCTTTATTACAATATATGACATCTATTCAACAATCGT spacer
length: 41 repeater length: 23

5247 838114 TTTCAATTCTATAGTAGATTATC CCCGCATCTAGCGCTCCAATACATGTAGCGTACTTACAACC spacer
length: 41 repeater length: 23

5248 838179 TTTCAATTCTATAGTAGATTATC TGTGGAGTATATAAACAACATGAGAGAGTTCATAGATA spacer length:
38 repeater length: 23

5249 838241 TTTCAATTCTATAGTAGATTATC AAGGGAAAACAAAGGAAGCAATGGAGGAGCTTGCGAGAGTA spacer
length: 41 repeater length: 23

5250 838306 TTTCAATTCTATAGTAGATTATC CAGTTTCGATAGTAGCAATTCTTCTGCACAAGCAGTTCA spacer
length: 39 repeater length: 23

5251 838369 TTTCAATTCTATAGTAGATTATC TAAGCAAAGTTACGAGAGATGTGCAAAGAATACTGGAAT spacer
length: 39 repeater length: 23

5252 838432 TTTCAATTCTATAGTAGATTATC ACTAGGAAGTTGGGGACTGTGTTTGTGAGAGAGATA spacer length:
37 repeater length: 23

5253 838493 TTTCAATTCTATAGTAGATTATC ACTAGTAAGGCATGGTAGAAAATCCCACCATGAATTAAC spacer
length: 39 repeater length: 23

5254 838556 TTTCAATTCTATAGTAGATTATC TAATATCAAAGCGTCAAATCTTCTTTAGTCCAAGTCTC spacer
length: 39 repeater length: 23

5255	838619 TTTCAATTCTATAGTAGATTATC	GCGACTATTGATATTAATACAGTATTTAGATCTGGATCTAC spacer
	length: 41 repeater length: 23	
5256	838684 TTTCAATTCTATAGTAGATTATC	GTTCCCTTTTGTAGCATAAAAAGAGAAAAAGAGAAACGAG spacer
	length: 40 repeater length: 23	
5257	838748 TTTCAATTCTATAGTAGATTATC	AGAACTTTCCCTCATTACTCTCTTCTTCCCTTAGTAT spacer length:
	38 repeater length: 23	
5258	838810 TTTCAATTCTATAGTAGATTATC	TACATTTAGCATGAAATCCCTAGGGACTTATGCAAATGA spacer
	length: 39 repeater length: 23	
5259	838873 TTTCAATTCTATAGTAGATTATC	ATCCAGAACTTGTGTCATTGAAAGTAAATATGTCTATGAA spacer
	length: 40 repeater length: 23	
5260	838937 TTTCAATTCTATAGTAGATTATC	CCATAAAAGCAGATGGCGATGACCCCTTACGGGGTG spacer length:
	37 repeater length: 23	
5261	838998 TTTCAATTCTATAGTAGATTATC	AAGAAAGTTGTTGACTATTTTATTAGTTATGGCAAAGAGT spacer
	length: 40 repeater length: 23	
5262	839062 TTTCAATTCTATAGTAGATTATC	CATAGAGAACACGATAAAAATCCCGAGTTTAGTCGGAAT spacer
	length: 39 repeater length: 23	
5263	839125 TTTCAATTCTATAGTAGATTATC	AAACAATCAACTACAATAGGAAGAGACAAAGAAGTTGAA spacer
	length: 39 repeater length: 23	
5264	839188 TTTCAATTCTATAGTAGATTATC	CCGTCATTGTTTGGGAATGTCTCCTATCTTAACGAGAACC spacer
	length: 39 repeater length: 23	
5265	839251 TTTCAATTCTATAGTAGATTATC	GAGATGCTAAAATAATGCCTAAATTAAAGTGTCTATTCTCA spacer
	length: 41 repeater length: 23	
5266	839316 TTTCAATTCTATAGTAGATTATC	TTGGTGAGGATGGTAGGGGTGATGATGGAGAACCGCC spacer length:
	37 repeater length: 23	
5267	839377 TTTCAATTCTATAGTAGATTATC	ACGTCGAAGCAAATGATGACAGACCTAAGCCACTTTCTGCATG spacer
	length: 43 repeater length: 23	
5268	839444 TTTCAATTCTATAGTAGATTATC	TTTGTGCCGTCTCTTAGTATCGCTCTTTTCACTTTCCTAT spacer
	length: 40 repeater length: 23	
5269	839508 TTTCAATTCTATAGTAGATTATC	GCGATAGTAAATTTGTCCAATCATTAGAGGAATTAAAGA spacer
	length: 40 repeater length: 23	
5270	839572 TTTCAATTCTATAGTAGATTATC	AGAAAGAGTTAGTGAGAGAGTACGGCGTGAGACCACCAA spacer
	length: 40 repeater length: 23	
5271	839636 TTTCAATTCTATAGTAGATTATC	CTAATTCTTTTTCTATTATATCTGTATAAAATGTTTCGTT spacer
	length: 40 repeater length: 23	
5272	839700 TTTCAATTCTATAGTAGATTATC	CCCTACGGGGACGGGAAAGACACTGATGGGCTTGATGAT spacer
	length: 39 repeater length: 23	
5273	839763 TTTCAATTCTATAGTAGATTATC	CCGTATTACACACATATAGCAATATTCAATCTCATCAATATAT spacer
	length: 43 repeater length: 23	
5274	839830 TTTCAATTCTATAGTAGATTATC	ACACTCCTCATACCTAGCTTTATTTAGCCACGATACTA spacer length:
	38 repeater length: 23	
5275	839892 TTTCAATTCTATAGTAGATTATC	AATTAGGATATAGCTGGAGTCAGATAGCTATTTTTGTGTA spacer
	length: 40 repeater length: 23	
5276	839956 TTTCAATTCTATAGTAGATTATC	ATTGAAATACCATCGGCGGATCCATCCCGTTTAGGTAAGA spacer
	length: 40 repeater length: 23	
5277	840020 TTTCAATTCTATAGTAGATTATC	TCTAAAGAAATAAAACCGTTTACAATATTATTTATAGACTC spacer
	length: 41 repeater length: 23	
5278	840085 TTTCAATTCTATAGTAGATTATC	ACATTTGTACATAGTTAATCCCACGTTACATACCATTTTTT spacer
	length: 41 repeater length: 23	
5279	840150 TTTCAATTCTATAGTAGATTATC	ATGGCTTAAAGAGAATCATCCCAGCTATTGAAGCCAAA spacer
	length: 39 repeater length: 23	
5280	840213 TTTCAATTCTATAGTAGATTATC	ATGGCTAGAGGGAAGAGGTGGATTCAAAGGCAATCAAACATAA spacer
	length: 44 repeater length: 23	
5281	840281 TTTCAATTCTATAGTAGATTATC	CTAATCTGTGTTCCAGTGGCTGCAGAATTACCTGCAGG spacer length:
	38 repeater length: 23	
5282	840343 TTTCAATTCTATAGTAGATTATC	CTCCATAGTTTCCCATCTAGCATCTCTGCAGGTATTT spacer length:
	38 repeater length: 23	
5283	840405 TTTCAATTCTATAGTAGATTATC	AAGGTTAGTTGCTGCAATAAAGGCAGTAATAAATACCGTGTA spacer
	length: 42 repeater length: 23	
5284	840471 TTTCAATTCTATAGTAGATTATC	ATGGAATTGAAAAGTATTTAAAACCAATCCGTTAGTTGCTT spacer
	length: 42 repeater length: 23	
5285	840537 TTTCAATTCTATAGTAGATTATC	TGTAAAGATTGTAAATATTGTTGTAACCTCTGATAGGGTT spacer
	length: 39 repeater length: 23	
5286	840600 TTTCAATTCTATAGTAGATTATC	AGATAACGAATATAAACTTACTGAGGATGCTGCAGGCAGC spacer
	length: 40 repeater length: 23	
5287	840664 TTTCAATTCTATAGTAGATTATC	AGAAACCCTTGCCCAATCTGCCAGATCCTCCAGAATTACCTA spacer
	length: 42 repeater length: 23	
5288	840730 TTTCAATTCTATAGTAGATTATC	AAGGTTATCTGGTCCTGTTTAAACGCATAGGCTATAACTAAA spacer
	length: 41 repeater length: 23	
5289	840795 TTTCAATTCTATAGTAGATTATC	GTGGGTCTTTCCATTCTGCCTTAATTCATTATATAGT spacer length:
	38 repeater length: 23	
5290	840857 TTTCAATTCTATAGTAGATTATC	TTCGAATTATCACTACCAAACACGGGAAAGACAACATT spacer length:

38 repeater length: 23

5291 840919 TTTCAATTCTATAGTAGATTATC TTTTAATCACCAATACCTAAAGAACGATCCAACCTCTGAT spacer
length: 39 repeater length: 23

5292 840982 TTTCAATTCTATAGTAGATTATC ACTTAGGAACAAAGGATACAGTAACGCGGTGTTTAG spacer length:
36 repeater length: 23

5293 841042 TTTCAATTCTATAGTAGATTATC GCGAGAAAACGGGAAAGAAAATAAACGCTGACATTAA spacer length:
37 repeater length: 23

5294 841103 TTTCAATTCTATAGTAGATTATC ATAATACTTCATATTTAATATACCACCCGCTAGCCCCTTG spacer
length: 40 repeater length: 23

5295 841167 TTTCAATTCTATAGTAGATTATC ACTTGTTCATAGCGGTAGCGAAGTTTGTCTCTGCCTGAG spacer
length: 40 repeater length: 23

5296 841231 TTTCAATTCTATAGTAGATTATC AGCGGTGGCGTATGGAAGTGGAAATTTAAGTAGACATGTAAT spacer
length: 42 repeater length: 23

5297 841297 TTTCAATTCTATAGTAGATTATC TGGAGTTGATGTCGTAGTAGAAGAGACTCTTGCGGCAAC spacer
length: 39 repeater length: 23

5298 841360 TTTCAATTCTATAGTAGATTATC CCCGAAAGTGATAGTGAACCTTACCGTTAGGGTTAGTAAA spacer
length: 39 repeater length: 23

5299 841423 TTTCAATTCTATAGTAGATTATC ATTCATAGTCACCCTTATACTCCAATTCAAATACTTTA spacer length:
38 repeater length: 23

5300 841485 TTTCAATTCTATAGTAGATTATC GGGACTTTAGTCCAGAATTGCTTAAACGCGTCAACTACATG spacer
length: 41 repeater length: 23

5301 841550 TTTCAATTCTATAGTAGATTATC CACATATAGCAATATTCAATCTCATTAATGTGCTAGCAAA spacer
length: 40 repeater length: 23

5302 841614 TTTCAATTCTATAGTAGATTATC GGTGACACGTACAAAGAATGTGAATCTCTCATATTCAA spacer length:
38 repeater length: 23

5303 841676 TTTCAATTCTATAGTAGATTATC ATGTTAATAATCTTATCTGGACCACCAAAAGCAGGCAAA spacer
length: 39 repeater length: 23

5304 841739 TTTCAATTCTATAGTAGATTATC ATGAGGTCACCTAAGGGATTGAGGGAAAGGTTTAGGTTTA spacer
length: 39 repeater length: 23

5305 841802 TTTCAATTCTATAGTAGATTATC AATCACTGGAAGCGGATCAACGTTATATCTTTATTTGA spacer length:
38 repeater length: 23

5306 841864 TTTCAATTCTATAGTAGATTATC GATCCATAAATTGTGCTATCTAAATTAGGGTACTCCAATA spacer
length: 40 repeater length: 23

5307 841928 TTTCAATTCTATAGTAGATTATC TTTAAATATATCCTCATTTCTAGGGTTGAAATAAGGTAC spacer
length: 39 repeater length: 23

5308 841991 TTTCAATTCTATAGTAGATTATC GTGTCAGTATATCGTACAACGTCAATAACAGTTCAGCA spacer length:
38 repeater length: 23

5309 842053 TTTCAATTCTATAGTAGATTATC AGGAATGAGGTAAAAGAAGAGCAATTAATGAACCTGTTTA spacer
length: 40 repeater length: 23

5310 842117 TTTCAATTCTATAGTAGATTATC GTTTCTTTTTTATGCTTATGCCTCCTGGCCATGAGAAATT spacer
length: 39 repeater length: 23

5311 842180 TTTCAATTCTATAGTAGATTATC AATAATGGCATCTTTTGGTATGTATAACATACCTCTGAAAA spacer
length: 41 repeater length: 23

5312 842245 TTTCAATTCTATAGTAGATTATC ATGAATACCAGCATAAGTGCGCCAGTTGTGCGGTTTAC spacer length:
38 repeater length: 23

5313 842307 TTTCAATTCTATAGTAGATTATC ATGAACTAAAACAGCACGCGGAAGCCCTGGCCTTAGGGCT spacer
length: 40 repeater length: 23

5314 842371 TTTCAATTCTATAGTAGATTATC ATGATGAATTCACGAAAGTGCTAGATGCAGACAATATAAGAAT spacer
length: 43 repeater length: 23

5315 842438 TTTCAATTCTATAGTAGATTATC TTAGCAGATTCACGTTCTGGTCTTGAATTTTTACTCAT spacer length:
38 repeater length: 23

5316 842500 TTTCAATTCTATAGTAGATTATC ATAACGCAGAAGACGTAATGAGGATGTTACAAGGGGTGATT spacer
length: 41 repeater length: 23

5317 842565 TTTCAATTCTATAGTAGATTATC ATCAAGTCCGAGTTTAAAGACAAACGGATTAGGCGGGTT spacer
length: 39 repeater length: 23

5318 842628 TTTCAATTCTATAGTAGATTATC AACGTTAAATCGTCTATGACTTGTTCAAATATAAAGTC spacer length:
38 repeater length: 23

5319 842690 TTTCAATTCTATAGTAGATTATC GATTATATCAGCAAAAATTACACGGTATCTGGGATCCCA spacer
length: 39 repeater length: 23

5320 842753 TTTCAATTCTATAGTAGATTATC AAAGATTAATCCTTACACCGGTAGGGAAGTGAATTCTT spacer
length: 39 repeater length: 23

5321 842816 TTTCAATTCTATAGTAGATTATC ATTTTGACATGTAGATATGTTCCGTACTTTTTACTACCCG spacer
length: 40 repeater length: 23

5322 842880 TTTCAATTCTATAGTAGATTATC GATAAATATTACCGCCACCGCCTCCGCCACCACCACCT spacer
length: 39 repeater length: 23

5323 842943 TTTCAATTCTATAGTAGATTATC GCTACTTACATTTAAAAGAGAATACATTGAAGATGGAAA spacer
length: 39 repeater length: 23

5324 843006 TTTCAATTCTATAGTAGATTATC TATAATGTAAGTTAGATTTTATAAGTAGAGTCTTTATTT

5325

5326

5327 crispr 2

5328 861534 GATAATCTACTATAGAAATTGAAAG GTAGTTCCAGAAAGCGTAAAAATGAAGCTACTAGACGA spacer
length: 38 repeater length: 24

5329 861597 GATAATCTACTATAGAAATTGAAAG TTGAGTTATTGCGTAATATCCTTGTCCGCTTGTGTGTG spacer
length: 38 repeater length: 24

5330 861660 GATAATCTACTATAGAAATTGAAAG TTTACGACAAAGTTACCTAGACTTTGAACTGCATTTGTAA spacer
length: 41 repeater length: 24

5331 861726 GATAATCTACTATAGAAATTGAAAG ACTTTTCTGATATTCTGAGAAATAATGGAATGTCCCACA spacer
length: 39 repeater length: 24

5332 861790 GATAATCTACTATAGAAATTGAAAG TTTTGTCTGCACTGTTGGAATTTGAAATACATTCATTATT spacer
length: 40 repeater length: 24

5333 861855 GATAATCTACTATAGAAATTGAAAG TGTAACTTTACAGTAAGAAGCTGGATTAGGATTTCTTCTACA spacer
length: 42 repeater length: 24

5334 861922 GATAATCTACTATAGAAATTGAAAG AACCGGGCCTCTCTCATTTAGAAATGACGGATGCTTCTT spacer
length: 38 repeater length: 24

5335 861985 GATAATCTACTATAGAAATTGAAAG TGTATCGTGAAGGTCAGGATTATTCGTTAGGCTCACA spacer
length: 38 repeater length: 24

5336 862048 GATAATCTACTATAGAAATTGAAAG CCTCATCTTCATCAATATTATATTCTTCCTTAGCTGCAT spacer
length: 39 repeater length: 24

5337 862112 GATAATCTACTATAGAAATTGAAAG CTTGATTCTTTCTTCTCCCTTTAGATTATCTAGTTT spacer length:
36 repeater length: 24

5338 862173 GATAATCTACTATAGAAATTGAAAG CTGACCCAACCCTAAAATAACGTATAAGTTCGCTCTCA spacer
length: 38 repeater length: 24

5339 862236 GATAATCTACTATAGAAATTGAAAG AGCCATCCAGGTCTGAAATGACTAAGGGGATTATTT spacer length:
37 repeater length: 24

5340 862298 GATAATCTACTATAGAAATTGAAAG TCTTTTCATTCATTCTGCTTTCCCTGATTTTATAGTA spacer
length: 38 repeater length: 24

5341 862361 GATAATCTACTATAGAAATTGAAAG AGTATGTCCCTATCAATTACATCTGGTATATCCTCAACC spacer
length: 39 repeater length: 24

5342 862425 GATAATCTACTATAGAAATTGAAAG ATATCTCTCTATGAAATTGTACTACTACATCTTCCTCAC spacer
length: 39 repeater length: 24

5343 862489 GATAATCTACTATAGAAATTGAAAG TCCCATCCCCCAGCTAACTCGATATTACCATCATCTA spacer
length: 38 repeater length: 24

5344 862552 GATAATCTACTATAGAAATTGAAAG CTTCTCCAAAAGAAGCACCTTGGTATTATTGTACGA spacer
length: 38 repeater length: 24

5345 862615 GATAATCTACTATAGAAATTGAAAG AGGGTACTACCAGCGTAAATTCGCCTACAATTGATAT spacer
length: 38 repeater length: 24

5346 862678 GATAATCTACTATAGAAATTGAAAG TTCTGTTCTGTGTTGTTCTGTTCTATACTCTGTTCTCT spacer
length: 38 repeater length: 24

5347 862741 GATAATCTACTATAGAAATTGAAAG ATTAAACCAAATGTGCCTTGAGCCAACTTTATTACAA spacer
length: 38 repeater length: 24

5348 862804 GATAATCTACTATAGAAATTGAAAG TACACCCCTCGCGGGGTCATCGCCATCCGCTTTT spacer length:
35 repeater length: 24

5349 862864 GATAATCTACTATAGAAATTGAAAG TATTCTGTCTCTCAAGATTCAAGATTTGAAAACACTT spacer
length: 38 repeater length: 24

5350 862927 GATAATCTACTATAGAAATTGAAAG ATAACAATTCCTAGCTCTTCATCCTATATACCGTCTGT spacer
length: 38 repeater length: 24

5351 862990 GATAATCTACTATAGAAATTGAAAG ATAAATGCTTTTGTGAAAATTTCTTGAAAATTCGCTACATC spacer
length: 43 repeater length: 24

5352 863058 GATAATCTACTATAGAAATTGAAAG TACAATTTGCTAGTTGTATCTACGTTGTTAAACACTA spacer
length: 38 repeater length: 24

5353 863121 GATAATCTACTATAGAAATTGAAAG CATTCTTTCCGCCTTCTCATCTTCTATCTTTTTCTTACT spacer
length: 41 repeater length: 24

5354 863187 GATAATCTACTATAGAAATTGAAAG ATTTGCTCTCTAACTCTATTGTTCCAGTTGAGGAAAC spacer
length: 38 repeater length: 24

5355 863250 GATAATCTACTATAGAAATTGAAAG CTTTTAGGCTATAAGACTCATGCAAATATACAGAGAAG spacer
length: 38 repeater length: 24

5356 863313 GATAATCTACTATAGAAATTGAAAG AACTTATTATGTATTGTTACCATGTGTACATTTCTAGC spacer
length: 38 repeater length: 24

5357 863376 GATAATCTACTATAGAAATTGAAAG ACTTTCGTTTAGATTTACCTAGGGAGATTCAAGAAAAG spacer
length: 38 repeater length: 24

5358 863439 GATAATCTACTATAGAAATTGAAAG TATCGGTGCCTTAGCGTCAAACGTTGAAACAATATTAG spacer
length: 38 repeater length: 24

5359 863502 GATAATCTACTATAGAAATTGAAAG TTTTCACAGAATCCCCGAGCAGTTGGCAATCGCAGCAGC spacer
length: 38 repeater length: 24

5360 863565 GATAATCTACTATAGAAATTGAAAG AATATCTGGATCATATATGCCTTAAGTTTTGGATTATATC spacer
length: 40 repeater length: 24

5361 863630 GATAATCTACTATAGAAATTGAAAG ATAGAATGAATATTGCACCGTCTTTACAACATTACCAA spacer
length: 38 repeater length: 24

5362 863693 GATAATCTACTATAGAAATTGAAAG TTAACACTTAACTTGAGTTATCATCATCAATTGATAA spacer
length: 38 repeater length: 24

5363 863756 GATAATCTACTATAGAAATTGAAAG CCTATACTAACAATTATTGACAACGACACATTACAAGAAG spacer

length: 40 repeater length: 24
5364 863821 GATAATCTACTATAGAAATTGAAAG TTGAACGCTTGCCAATTTGCGATACCACTTGCTTGAGTTCC spacer
length: 41 repeater length: 24
5365 863887 GATAATCTACTATAGAAATTGAAAG ACTCTCAATAGAAAACCTCCCTACCCTGATTTGTTTCATC spacer
length: 38 repeater length: 24
5366 863950 GATAATCTACTATAGAAATTGAAAG TGCACATGTCTCAAGACTATTGTACTTTTGCTTGCAAAGA spacer
length: 40 repeater length: 24
5367 864015 GATAATCTACTATAGAAATTGAAAG TCTAAGATTTCCCCTATAGTATCTTGCAGTTCTTCTAATT spacer
length: 40 repeater length: 24
5368 864080 GATAATCTACTATAGAAATTGAAAG TTTTTCACCTCCTCCAGCTTGGCTTCTAATTCTCTGACA spacer
length: 39 repeater length: 24
5369 864144 GATAATCTACTATAGAAATTGAAAG ATTTAGTTACTGTAAACTCCCCAGTTTACGAAATAATTAA spacer
length: 40 repeater length: 24
5370 864209 GATAATCTACTATAGAAATTGAAAG TACTGCCTGGAAAATATATATGACATTCAAGAAAACAT spacer
length: 38 repeater length: 24
5371 864272 GATAATCTACTATAGAAATTGAAAG ACAAAAACATGAGCCAAATTCCACTCGATTTGGATAT spacer length:
37 repeater length: 24
5372 864334 GATAATCTACTATAGAAATTGAAAG ATTTCAATAAACTTAAAAGTTCTTTATCCAGAATCGATA spacer
length: 39 repeater length: 24
5373 864398 GATAATCTACTATAGAAATTGAAAG ATGACATATTTACAGCACTAAAAGAGGCATTATCAGAGTTA spacer
length: 41 repeater length: 24
5374 864464 GATAATCTACTATAGAAATTGAAAG TAGGAACACTAATAGGTGAGTAAGTATCGAACCTTACA spacer
length: 38 repeater length: 24
5375 864527 GATAATCTACTATAGAAATTGAAAG TCGTAAGAACGATCCTAAAGTTTGTATCGTAAATCC spacer length:
37 repeater length: 24
5376 864589 GATAATCTACTATAGAAATTGAAAG CACTTCCTCAATCTCCTTTACATTATAAGTGACCTT spacer length:
36 repeater length: 24
5377 864650 GATAATCTACTATAGAAATTGAAAG TCATGGGCTTATCACCTCATTCTTCCTCCTCTTCGTCT spacer
length: 38 repeater length: 24
5378 864713 GATAATCTACTATAGAAATTGAAAG ACAATTATTGTGCCGGGTTTAGCATATTCTTCAACTA spacer length:
37 repeater length: 24
5379 864775 GATAATCTACTATAGAAATTGAAAG ACAAGTGTTATTGATATCGGTGCATATGTTGGCGATACTG spacer
length: 40 repeater length: 24
5380 864840 GATAATCTACTATAGAAATTGAAAG CAAACAGCTGTTCAACAACAAACAGTAACGCAACAAGCCTCG spacer
length: 42 repeater length: 24
5381 864907 GATAATCTACTATAGAAATTGAAAG ATCCCAATAGCTCGAAAAACCCCTCACTTTTCGTAAACT spacer
length: 39 repeater length: 24
5382 864971 GATAATCTACTATAGAAATTGAAAG
TTTTAATATAGTCCCTCGACCATAAGTAGAATCTCAGCAATGATAATTTACTATAGAAATTGAAAGCAATATAAAATAATAATAAAAT
TGAAAGGAAGTAAGTGC spacer length: 103 repeater length: 24
5383 865099 GATAATCTACTATAGAAATTGAAAG TTTCTCTCTATGTCATTTGTTCCCTTATAAATGTTTCTCTC spacer
length: 40 repeater length: 24
5384 865164 GATAATCTACTATAGAAATTGAAAG ACTAGCTCTAGCTCTGCTGGAGGATTTAGTGGCTCAACGCTA spacer
length: 42 repeater length: 24
5385 865231 GATAATCTACTATAGAAATTGAAAG TAAAATTCCTAAATTTTGCAATGCTTCTTGCAATAACAA spacer
length: 39 repeater length: 24
5386 865295 GATAATCTACTATAGAAATTGAAAG CTATAATGTAAGTTAGATTTTATAAGTAGAGTCTTTATT
5387
5388
5389 GCA_000022465.1_ASM2246v1_genomic.fna(findCrispr):
5390 START REPEAT
SPACER
5391 crispr 1
5392 698964 CTTTCAATTCTATAGTAGATTAGC AAAATAACAAATTTCAAAGAAGGTAAAGTGAAAAGTGA spacer
length: 38 repeater length: 24
5393 699027 CTTTCAATTCTATAGTAGATTAGC TATGAGTTGATAAGATTTTAAACTAAAACACTACAATAA spacer
length: 39 repeater length: 24
5394 699091 CTTTCAATTCTATAGTAGATTAGC CGAAAATGAAATTGAATATCAACACTTAAATCCAGAGGAT spacer
length: 40 repeater length: 24
5395 699156 CTTTCAATTCTATAGTAGATTAGC GTTGTTTTTAAATTCAAAGATAATGAACTTGTAGAAGTTA spacer
length: 39 repeater length: 24
5396 699220 CTTTCAATTCTATAGTAGATTAGC CAAAACGAGTTGGCAATAAAACCATTATTAAGGTCGTTC spacer
length: 39 repeater length: 24
5397 699284 CTTTCAATTCTATAGTAGATTAGC AAATGAAGAGGATGTGGGTAGTTTTTTCGAAAGACCTTG spacer
length: 39 repeater length: 24
5398 699348 CTTTCAATTCTATAGTAGATTAGC AAAATTGATTGTATTGATAATTATTGTGAAGATGTTGTAGA spacer
length: 41 repeater length: 24
5399 699414 CTTTCAATTCTATAGTAGATTAGC AGGTAAGAACACTTTCACTGAAATCTTAGCAGGAATTGTTG spacer
length: 41 repeater length: 24
5400 699480 CTTTCAATTCTATAGTAGATTAGC TGTAAGAATGTTGATGATGACTTTGGTATACCAGTTGAC spacer
length: 40 repeater length: 24

5401 699545 CTTTCAATTCTATAGTAGATTAGC TTAGTAATCGACATAACGAATACAACGGTAGGCAATAT spacer
length: 38 repeater length: 24
5402 699608 CTTTCAATTCTATAGTAGATTAGC AATATAGAGACTGGATTCACTATAATACCAACAGAATATA spacer
length: 40 repeater length: 24
5403 699673 CTTTCAATTCTATAGTAGATTAGC GTAGGAGACATAATTGCTGGTGCCGGAGGTAAAGCATTAG spacer
length: 40 repeater length: 24
5404 699738 CTTTCAATTCTATAGTAGATTAGC GAATAGTCAAGATCTAATAGTTCTAATATATCCCAACAT spacer
length: 39 repeater length: 24
5405 699802 CTTTCAATTCTATAGTAGATTAGC TTTCTATTTTCACAGACCAATTTTGATGCCGTTCTCCT spacer length:
37 repeater length: 24
5406 699864 CTTTCAATTCTATAGTAGATTAGC CTAAAAACAAGATAACAAGTGTTAAGTTATGTTGACATTAG spacer
length: 40 repeater length: 24
5407 699929 CTTTCAATTCTATAGTAGATTAGC CTACTTCCTTCACTTCCTATCACTATTATAACATATGTAC spacer
length: 40 repeater length: 24
5408 699994 CTTTCAATTCTATAGTAGATTAGC TTACAGGATTTGTTGAAGTGTTAGCCAATGGACACAGTGCAT spacer
length: 42 repeater length: 24
5409 700061 CTTTCAATTCTATAGTAGATTAGC TAGAGCATGCATGAGAGAGACATTAAGAAAGAAATAACATGT spacer
length: 42 repeater length: 24
5410 700128 CTTTCAATTCTATAGTAGATTAGC AAGTATATTTAGTGAATGGGTCAAATTATGTTAAATTACTAA spacer
length: 42 repeater length: 24
5411 700195 CTTTCAATTCTATAGTAGATTAGC TAAATAAACATGCAAGTTAAAGATGAATTTGCTAATATTT spacer
length: 40 repeater length: 24
5412 700260 CTTTCAATTCTATAGTAGATTAGC GGAGGAAAAGTACCGTCGTCTACTAAAACGAATCTATCAACAT spacer
length: 43 repeater length: 24
5413 700328 CTTTCAATTCTATAGTAGATTAGC CAAGATTTCTTGTGATTTTATTTCTTCTATAGACAGATATTA spacer
length: 42 repeater length: 24
5414 700395 CTTTCAATTCTATAGTAGATTAGC AACAGACAACTCATATACATAATATTTTGTATATGACAAA spacer
length: 41 repeater length: 24
5415 700461 CTTTCAATTCTATAGTAGATTAGC GAGCGAATACGGTATAACTGGTCCTAACAGAGCCATTTACC spacer
length: 41 repeater length: 24
5416 700527 CTTTCAATTCTATAGTAGATTAGC CTATTAGCTTTAAATTTCTTCTCTTGACCTTCAACAACCTT spacer
length: 42 repeater length: 24
5417 700594 CTTTCAATTCTATAGTAGATTAGC TTGAGATATGTAAAAATGAACAAATTGCCCGTGTTATTTATAAAG spacer
length: 45 repeater length: 24
5418 700664 CTTTCAATTCTATAGTAGATTAGC AAATGTAATGCCATCTGTTGATAGTTTAGATGACATAAT spacer
length: 39 repeater length: 24
5419 700728 CTTTCAATTCTATAGTAGATTAGC GCTCATCTTAAATGGGTAAACACGGAAACATCGTTTGGT
5420
5421
5422 crispr 2
5423 706739 GCTAATCTACTATAGAATTGAAAG GCAAACAATTGTAAGTGCAGATAACGGGTTTGGTGTCTGT spacer
length: 38 repeater length: 24
5424 706802 GCTAATCTACTATAGAATTGAAAG CAATTATTATGAAAATTCTTTAAGCGAACTGGAAAG spacer length:
37 repeater length: 24
5425 706864 GCTAATCTACTATAGAATTGAAAG ACTTTCTGTACTCTGTTATTTATAATCTTATAACAAACGA spacer
length: 40 repeater length: 24
5426 706929 GCTAATCTACTATAGAATTGAAAG AACGAGGTCGTGGATAGAGCCAAACGAGGTCGTGCTGAG spacer
length: 39 repeater length: 24
5427 706993 GCTAATCTACTATAGAATTGAAAG TAAACGATGTTGCAACTAGGTACGCCAATAATGTTAAAA spacer
length: 39 repeater length: 24
5428 707057 GCTAATCTACTATAGAATTGAAAG ATACTTTTTCTAGACGTAAAACAACCTCGAGACATTAATTCA spacer
length: 41 repeater length: 24
5429 707123 GCTAATCTACTATAGAATTGAAAG AGAACTTTTGCAATGCCAGTCTTATGACTTCACTTCTGT spacer
length: 39 repeater length: 24
5430 707187 GCTAATCTACTATAGAATTGAAAG TCATTATTGATTGTTATATACAATTTATTATTTGATACAT spacer
length: 40 repeater length: 24
5431 707252 GCTAATCTACTATAGAATTGAAAG AGTAGTACGTATAGCGTTGGGAAGAAGCTGAAGAACG spacer length:
37 repeater length: 24
5432 707314 GCTAATCTACTATAGAATTGAAAG ACCACCTATCCATATCGTAAACCCAATCGAAGCAGGAATAGG spacer
length: 42 repeater length: 24
5433 707381 GCTAATCTACTATAGAATTGAAAG ACAGTTACAGAACACACTTATCCTTACCCAAACACAGCTA spacer
length: 40 repeater length: 24
5434 707446 GCTAATCTACTATAGAATTGAAAG AACGTGCTAGAAAATTACTGAAGACTTGCCCTTACAAAAC spacer
length: 40 repeater length: 24
5435 707511 GCTAATCTACTATAGAATTGAAAG GACTGTATTTCTTCCCATTCAGATTATAGATGTCTTG spacer
length: 38 repeater length: 24
5436 707574 GCTAATCTACTATAGAATTGAAAG AGTAGTCCCTCATCTCCAAGCTCACCCGGTCTAGGTG spacer length:
37 repeater length: 24
5437 707636 GCTAATCTACTATAGAATTGAAAG AAGGCAAAAGAATACCTAAGACAGTTAAAAGAAGGAA spacer length:
37 repeater length: 24
5438 707698 GCTAATCTACTATAGAATTGAAAG TTTATATCCACTTTTGCCATTTTGCCAATCTTTATTGGC spacer

length: 39 repeater length: 24
5439 707762 GCTAATCTACTATAGAATTGAAAG TTACATATCATGACGTGGTTTTCTTTTGCCTCGACTAT spacer
length: 38 repeater length: 24
5440 707825 GCTAATCTACTATAGAATTGAAAG AACAACTCTGATTTCTAAATCGTTCCTCAAACCTCTGATA spacer
length: 40 repeater length: 24
5441 707890 GCTAATCTACTATAGAATTGAAAG ATTTTCATATTTTTATTTACATTTTTTGTCTCTCCAGCTATAT spacer
length: 43 repeater length: 24
5442 707958 GCTAATCTACTATAGAATTGAAAG
GTAGTATCCTTTCTTCTAATCGTAGCAACTACACTGGCTCGCTAATCTAATATAGAATTGAAAGTTTTCTCAAGTGTTTTTATT
CTTTTATTCATAATTATTTT spacer length: 106 repeater length: 24
5443 708089 GCTAATCTACTATAGAATTGAAAG TTTGCCATGCTAAAAGTACAGGTGTCTCAACATATT spacer length:
36 repeater length: 24
5444 708150 GCTAATCTACTATAGAATTGAAAG ACTGTCCAAAAAGGTATTCAAAAAAGTGATGTAACAATTT spacer
length: 40 repeater length: 24
5445 708215 GCTAATCTACTATAGAATTGAAAG ACATATGTTATTAATATTGTATCACTTATAGCTCTAA spacer length:
37 repeater length: 24
5446 708277 GCTAATCTACTATAGAATTGAAAG CTTAGGTATGCCACTTTTAAGATAGCATTAGCTTTAGTG spacer
length: 39 repeater length: 24
5447 708341 GCTAATCTACTATAGAATTGAAAG TCTTCAGTTTACCGATATCGGTCAGAGTTTTTATTAACGCC spacer
length: 41 repeater length: 24
5448 708407 GCTAATCTACTATAGAATTGAAAG CTCATCTTAAATGGGTAAACACGGAAACATCGTTTGGTGT
5449
5450
5451 GCA_000022545.1_ASM2254v1_genomic.fna(findCrispr):
5452 START REPEAT
SPACER
5453 crispr 1
5454 1328782 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTACGTAGTTTTTGAGCCGTAGCAACTCTGTCCTT spacer
length: 35 repeater length: 30
5455 1328848 GTTCCAATAAGACTTTAAAAGAATTGAAAG GTTTGTTTGCTTTCATCTTCGTAAAACTTATGT spacer
length: 34 repeater length: 30
5456 1328913 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATTATAACGAAAAAGTATACAGACGTCTTTGTCGAG spacer
length: 36 repeater length: 30
5457 1328980 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTTTCGCAAACTTCTTCTTATACAGTACCTGCCACCG spacer
length: 36 repeater length: 30
5458 1329047 GTTCCAATAAGACTTTAAAAGAATTGAAAG ACAAATGAAACAACCTTCACTTGAAAAGATATTAC spacer
length: 35 repeater length: 30
5459 1329113 GTTCCAATAAGACTTTAAAAGAATTGAAAG TGGTAGTAATACAAGTACTTTTTTATACGTTAATGC spacer
length: 35 repeater length: 30
5460 1329179 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTAATGAACCTGATAAGTATTTCGTCTAATACGTGTGTAAATA
spacer length: 42 repeater length: 30
5461 1329252 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATGTACATCCAACCTCCCCTGACACATCCTCATACC spacer
length: 35 repeater length: 30
5462 1329318 GTTCCAATAAGACTTTAAAAGAATTGAAAG ATGCTTTCTCTTTGTGTGGTGGTAGTGAAGTAAT spacer
length: 35 repeater length: 30
5463 1329384 GTTCCAATAAGACTTTAAAAGAATTGAAAG TTATAAAGGGAAATGCGTTAAACATTAATGCCCCCT spacer
length: 35 repeater length: 30
5464 1329450 GTTCCAATAAGACTTTAAAAGAATTGAAAG CATGTTACTATCACTCAACGTAAACCAGAGTAATA spacer
length: 35 repeater length: 30
5465 1329516 GTTCCAATAAGACTTTAAAAGAATTGAAAG CCGTGTATGCTAAAATCTCTTTCATAACTTTTTTGA spacer
length: 36 repeater length: 30
5466 1329583 GTTCCAATAAGACTTTAAAAGAATTGAAAG AGAGGTCATTATAGAATCCCCAAGGAGGGAGTGGAG spacer
length: 36 repeater length: 30
5467 1329650 GTTCCAATAAGACTTTAAAAGAATTGAAAG GAAAGTCGTAGAGTGGAGGAATGGAAATGGCGCGGAT spacer
length: 37 repeater length: 30
5468 1329718 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTGTTCTTGAGGTATGCTTCAAACCTTCAAGTGTT spacer
length: 36 repeater length: 30
5469 1329785 GTTCCAATAAGACTTTAAAAGAATTGAAAG TCAAATCAGAGCACTAGGGTGACAAGAAAAAATAG spacer
length: 35 repeater length: 30
5470 1329851 GTTCCAATAAGACTTTAAAAGAATTGAAAG CAAAAACCTCTTTTTGGTTTTCTCCTCCTTATCATC spacer
length: 36 repeater length: 30
5471 1329918 GTTCCAATAAGACTTTAAAAGAATTGAAAG TCTTAATTGCTCTTTGTTCTGCTTCTACCATCTTTT spacer
length: 36 repeater length: 30
5472 1329985 GTTCCAATAAGACTTTAAAAGAATTGAAAG TGGGGTCTCCCAATACCACCATGCCAGCGGTGTGT spacer
length: 35 repeater length: 30
5473 1330051 GTTCCAATAAGACTTTAAAAGAATTGAAAG ACAAGTCCTACAACCTGGTATGTTGTTCCAAATTGT spacer
length: 35 repeater length: 30
5474 1330117 GTTCCAATAAGACTTTAAAAGAATTGAAAG CTATTATACTACGCAATAGACTTCCTAGGCAGGG spacer
length: 34 repeater length: 30
5475 1330182 GTTCCAATAAGACTTTAAAAGAATTGAAAG CAGGGTGAGGAATGATATCGATTTAGAGGCAGGCTT spacer
length: 36 repeater length: 30

5476 1330249 GTTCCAATAAGACTTTAAAAGAATTGAAAG CATGGATGGTGGAAAATGAAGTGCCCGCGGCGGCGG spacer
 length: 36 repeater length: 30
 5477 1330316 GTTCCAATAAGACTTTAAAAGAATTGAAAG GCGGTGCTTAAGCTTTCAAGGGTTATGCGGTTCCAA
 5478
 5479
 5480 GCA_000023945.1_ASM2394v1_genomic.fna(findCrispr):
 5481 START REPEAT
 SPACER
 5482 crispr 1
 5483 2859385 TAGCGGGAGGTGGATTTGAAC
 CGCGGTCGTTCCGCTTCGCTCCACTTCCTGCTTCAAATCCACTACGGCGACAGCACAGCGAGGATGGCGCAGAGATACACCTCTGC
 GCCGTAAATTCGCTGAGAA spacer length: 105 repeater length: 21
 5484 2859512 TAGCGGGAGGTGGATTTGAAC
 TACGCGAAACGCTCGCTACGCTCGCGTTTCTCTATTTCAAATCCACTCTATACGGCTTTTGGCGACGCTGAACTCGTCGCTTCGCT
 CCTCGTTATTTGCGCGCCAAAAA spacer length: 109 repeater length: 21
 5485 2859643 TAGCGGGAGGTGGATTTGAAC
 CACGCCCACTTCGGTTCGCTTCGCTCCCTCGTGGTCTACTTCAAATCACCGTGACCGATATTCGCCGCTCGCGAGTTTGCAGCGGC
 AGAAGT spacer length: 92 repeater length: 21
 5486 2859757 TAGCGGGAGGTGGATTTGAAC
 AAACCATGGCCGAAACCGGCCATATAGCACGTGATACCACTGCCTGGGAGTTAGTGTTTTTCGTCGACCGTCAATAGCCACGAAAC
 CCGGGG
 5487
 5488
 5489 crispr 2
 5490 1326243 TTCAAATTCGGGCCTAGGCTT
 CTACCGACACAATTCTGCGAGGCGTTAGTCGCCGAGCGATTGCTGTGTGCGGTGAAGCCGAAACCGGCATTTGAATCCCTGCCAGTG
 GCACGCCCGCACAGCGACCGAAGGGAGCGAGCAGGAACCCCTGGCTCCG spacer length: 135 repeater
 length: 21
 5491 1326400 TTCAAATTCGGGCCTAGGCTT
 TTTCCGAGCGATTGACCCCGGAGCGTCAGCGATGGGGTCTGAGCGAGTGAAATGCCAAAGCGGAATTTGAATCCCTGGAAGACGC
 AGCGGCCGACCATGGGGAGGGCGACCGTCTTCCTCCG spacer length: 123 repeater length: 21
 5492 1326545 TTCAAATTCGGGCCTAGGCTT
 ACGATGACAGCGGCTGGGACTGGGGAGACGATGACGGATCCGATTCTGGAGATGATGACGGGTCCGGAGACGTGGGAGTGAGTCCC
 GATGGGACGCCAGCCAAC TATTACGATGTCGACGTGA
 5493
 5494
 5495 crispr 3
 5496 652995 GGTTCAAATCCCAGCCCCACCG
 CTTCTGCGCGAACGAACGTGAGCGCGGAGCGGTGCAACTGGATTTGAATCACGGCAGACGCGCGCAGCGAAGCGAGCACGTCTGGC
 ATC spacer length: 89 repeater length: 22
 5497 653107 GGTTCAAATCCCAGCCCCACCG
 TACTTTTGTGCGGAGCAAAACCGCGAGCGATAAATACGTCAACTGGGATTTGAATTAGAGAAGGTGGAGCGCGAGTGGAGCGAGCG
 ACCACCTTCGCG spacer length: 98 repeater length: 22
 5498 653228 GGTTCAAATCCCAGCCCCACCG
 CTTCTGCGCGAACGAACGTGAGCGCGGAGCGGTGCAACTGGATTTGAAGCCGACAAGTCGCGAGCCCGCGCAACGAAGTGAGCAGGA
 CCGTCTTGGCT spacer length: 97 repeater length: 22
 5499 653348 GGTTCAAATCCCAGCCCCACCG
 ACCATGGCCGAAACCGCCATATAGCACGTGATACCACTGCCTGGGAGTTAGTGTTTTTCGTCGACCGTCAATAGCCACGAAACCC
 GGGGGGTCGAT
 5500
 5501
 5502 crispr 4
 5503 2339381 GTGCGACGGCCGAGATTTGAAC
 TCGATGGCGAGACGGTCGCTCACTTCGTTTCGCGCTGCGACTCGCGTAGTTCAAATCTCTATTACCGCATTACCCCTCGCGCTGAAG
 CGAGCGACACGCAAAGCGGTTCGCTCGCGGTTTTGCGCTCGGTAGA spacer length: 131 repeater length: 22
 5504 2339535 GTGCGACGGCCGAGATTTGAAC
 CAGATGGAGACGTTCCGGGCGTGCGCCTTCGCTTCGCTCAGGCGGTCCGGGCCTGCGACTCCCAGGGTTCAAATCTCTCATCCGCA
 CCGCACAGCGTTCTGGATCGCGACGCGATGAAACGCGTTCGCTTGAAAGTTAGAACGCTGAGAA spacer length: 149
 repeater length: 22
 5505 2339707 GTGCGACGGCCGAGATTTGAAC
 CTCGACGCGATCAAGAACGGCGCGACTGAGAGCGCTTCAACCCACGAGGGTCCGTCTGAAACGAATACTCAAACGACGTTTCAGG
 GCTGAATACCATCCGTTCAACCCACGAGGGTCCGTCTGAAACTGTCGTCGGTCCGGGATCG
 5506
 5507
 5508 crispr 5
 5509 396150 ATGCGCGGGACCGGATTTGAACCG
 GACCGAGAAAATGCTCGCTCACTTCGTTTCGCTGTGCGTTTCTCGTAGGGTTCAAATCCTAATGGCGACTGCAGTCGCTCGCGATTTT
 GCGAGCGACAGC spacer length: 98 repeater length: 24
 5510 396273 ATGCGCGGGACCGGATTTGAACCG
 CGAGGACTTCGTTTCGCTCGTCCTCTGGGCCGCAAATCCTCATCGCGATTGCTGCTGCTCGCGGAGTTGCTCGCAGCACC
 spacer length: 80 repeater length: 24

5511 396378 ATGCGCGGGACCGGATTTGAACCG
 CTCAAACGACGTTTCAGGGCTGAATACCATCCGCTTCAACCCACGAGGGTCCGTCTGAAACTGTCGTCGGTCCGGGATC
 5512
 5513
 5514 crispr 6
 5515 1840677 GTGGTTCAAATCCGCCCCGACCCA
 TTCTGCGACGAACGGACGTGAGGAGCGAATGGCATGGCGGTTTGTAGCCCAGAGGACGAGCGAAGTGAAGTCCT spacer
 length: 73 repeater length: 24
 5516 1840775 GTGGTTCAAATCCGCCCCGACCCA
 CTTCTGACGGCGACTGCGACGAGTGAAACGAGGAGCCAGCGCCGTTTGTGTGGTTACAAGGATTTGAAAGAGAGAACACGCAGCGC
 GAACGTAGTGAGCGACCGTGTTTCG spacer length: 110 repeater length: 24
 5517 1840910 GTGGTTCAAATCCGCCCCGACCCA
 TTTTGCGGCGAACAATTCGTGAGCCGCAAATGCGGTGATACGGATTTGAAGTAGACCACGAGCGAGTGAAACGAGCGACGTGGG
 spacer length: 84 repeater length: 24
 5518 1841019 GTGGTTCAAATCCGCCCCGACCCA
 GACAGCGGCTGGGACTGGGGAGACGATGACGGATCCGATTCTGGAGATGATGACGGGTCCGGAGACGTGGGAGTGAGTCCCGAT
 5519
 5520
 5521 crispr 7
 5522 1840774 CGTGGTTCAAATCCGCCCCGACCCA
 CTTCTGACGGCGACTGCGACGAGTGAAACGAGGAGCCAGCGCCGTTTGTGTGGTTACAAGGATTTGAAAGAGAGAACACGCAGCGC
 GAACGTAGTGAGCGACCGTGTTTC spacer length: 109 repeater length: 25
 5523 1840909 CGTGGTTCAAATCCGCCCCGACCCA
 TTTTGCGGCGAACAATTCGTGAGCCGCAAATGCGGTGATACGGATTTGAAGTAGACCACGAGCGAGTGAAACGAGCGACGTGG
 spacer length: 83 repeater length: 25
 5524 1841018 CGTGGTTCAAATCCGCCCCGACCCA
 ATCTGCGGGTTATGAGCCCGCCGAATCTCCTAGCTATCCCATCCCGCTACCTATCTGTACCCTCGGTTCGTCGAATTAAGGGTT
 5525
 5526
 5527 crispr 8
 5528 2793066 GTGACAGCAGTTGGGACTGGGGAGAC GGTGACAGCGGTTGGGACTGGGGAGAC spacer length: 27
 repeater length: 26
 5529 2793120 GTGACAGCAGTTGGGACTGGGGAGAC AGTGACAGCAGCTGGGACTGGGGAGAC spacer length: 27
 repeater length: 26
 5530 2793174 GTGACAGCAGTTGGGACTGGGGAGAC GGACCCCTACGGGATAGCGTCCTAAGC
 5531
 5532
 5533 crispr 9
 5534 1415805 GCTTCAACCCACGAGGGTCCGTCTGAAAC GAGTACAGTAACGACGTCTCAGGGTTGAATACTGTC spacer
 length: 36 repeater length: 30
 5535 1415872 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCCCCGACCCCTGGGGGAGCAATCACAATTGCC spacer
 length: 33 repeater length: 30
 5536 1415936 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCTTTTCGCCAACCGGACGCCGCCCTGAAAATCG spacer
 length: 35 repeater length: 30
 5537 1416002 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCGACCATGCCGCCGAACATCACCGTCGACAGG spacer
 length: 33 repeater length: 30
 5538 1416066 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCGCTCGACGCGATCAAGAACGGCGCGACTGAGAG spacer
 length: 35 repeater length: 30
 5539 1416132 GCTTCAACCCACGAGGGTCCGTCTGAAAC GAATACTCAAACGACGTTTCAGGGCTGAATACCATC spacer
 length: 36 repeater length: 30
 5540 1416199 GCTTCAACCCACGAGGGTCCGTCTGAAAC TGTGTCGTCGGTCCGGGATCGACCCTCGATGACTGCA spacer
 length: 35 repeater length: 30
 5541 1416265 GCTTCAACCCACGAGGGTCCGTCTGAAAC AATACTCAAACGACGTTTCAGGGCTGAATACCATC spacer
 length: 35 repeater length: 30
 5542 1416331 GCTTCAACCCACGAGGGTCCGTCTGAAAC GGTGATGACGCTATTACTCATCTCCCTAAACGCGA spacer
 length: 35 repeater length: 30
 5543 1416397 GCTTCAACCCACGAGGGTCCGTCTGAAAC TGGTCGCGCTGTGCGCCCCGTCGATCGCCGTGATCG spacer
 length: 36 repeater length: 30
 5544 1416464 GCTTCAACCCACGAGGGTCCGTCTGAAAC TGGGCATGATCCAGGCTTTCGACTTCCACGTCCG spacer
 length: 34 repeater length: 30
 5545 1416529 GCTTCAACCCACGAGGGTCCGTCTGAAAC CTGCCTCACGTTGCTATCCACGAAACCCAGTCC spacer
 length: 35 repeater length: 30
 5546 1416595 GCTTCAACCCACGAGGGTCCGTCTGAAAC CTGCCTCACGTTGCTATCCACGAAACCCAGTCC spacer
 length: 35 repeater length: 30
 5547 1416661 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGAAGCGGGCCTGGGTGATCGCCAGAGCAGCCA spacer
 length: 34 repeater length: 30
 5548 1416726 GCTTCAACCCACGAGGGTCCGTCTGAAAC GATCGCATCACCTTCATCGGGGAGCGTGCCCCGCT spacer
 length: 35 repeater length: 30
 5549 1416792 GCTTCAACCCACGAGGGTCCGTCTGAAAC CAGTCAGGTCGGTGTGGTGAACGTCGAACTCACC spacer
 length: 34 repeater length: 30
 5550 1416857 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCTGTTTTACAGACGGAGTTCTGGGTTCGAATCC spacer

length: 35 repeater length: 30
5551 1416923 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCCGAGTTCTATGCTCGATGGCCCCCGATTTCAGC spacer
length: 35 repeater length: 30
5552 1416989 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGGCTCGGTGACTGTCTTGATGCCGAGATCCTCGT spacer
length: 35 repeater length: 30
5553 1417055 GCTTCAACCCACGAGGGTCCGTCTGAAAC TCGGTCTCGACGCCGACGAGTACCGCGAGCAACT spacer
length: 34 repeater length: 30
5554 1417120 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGGAATCGGCTCTGGCACCGTCGAGAAGCTCCGCG spacer
length: 35 repeater length: 30
5555 1417186 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGACGTCGGCTTTGCCGAAGCCCTCTCCGCT spacer
length: 32 repeater length: 30
5556 1417249 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGGGTGGAGGTCTTGCCGGTGTGCCCCACGAC spacer
length: 34 repeater length: 30
5557 1417314 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCAGCATGGAGGCCGCGCCGTCGAACTACCCGA spacer
length: 33 repeater length: 30
5558 1417378 GCTTCAACCCACGAGGGTCCGTCTGAAAC CAGCCAGTCACGTCGCGCTTACAGGTATCGCAAT spacer
length: 34 repeater length: 30
5559 1417443 GCTTCAACCCACGAGGGTCCGTCTGAAAC TGGAACGTCAACGTCTTCGGTCCAGGTCACAGAGTC spacer
length: 36 repeater length: 30
5560 1417510 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGGGCAAGAAGACTCGGTAGCCGTCGCCCTCGGCCT spacer
length: 36 repeater length: 30
5561 1417577 GCTTCAACCCACGAGGGTCCGTCTGAAAC TAGTCCGCAAGTTCCAGCATTCGCGAGTCGAGCAT spacer
length: 35 repeater length: 30
5562 1417643 GCTTCAACCCACGAGGGTCCGTCTGAAAC GATTCGGATGTCTTTATGCCCTCGATCAAAACCA spacer
length: 34 repeater length: 30
5563 1417708 GCTTCAACCCACGAGGGTCCGTCTGAAAC TCGACGAGCTCGAGGAGAAGGTCGACCAGGTCCGCG spacer
length: 36 repeater length: 30
5564 1417775 GCTTCAACCCACGAGGGTCCGTCTGAAAC GGCTCGACGACGCATGACGCACGCACTGATCGCCG spacer
length: 35 repeater length: 30
5565 1417841 GCTTCAACCCACGAGGGTCCGTCTGAAAC GAGACGACTTGCGGACCGTCGTCGGTCGGTGCCT spacer
length: 34 repeater length: 30
5566 1417906 GCTTCAACCCACGAGGGTCCGTCTGAAAC ATACCGGGATCGGGATCGACCCAGATCCGCCGCT spacer
length: 34 repeater length: 30
5567 1417971 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGTCGACGCGATCGTCGCCCAGACCGAACCGATCG spacer
length: 36 repeater length: 30
5568 1418038 GCTTCAACCCACGAGGGTCCGTCTGAAAC AAATCCACACGATGCCATGGTTGTGATTGTCTTG spacer
length: 35 repeater length: 30
5569 1418104 GCTTCAACCCACGAGGGTCCGTCTGAAAC GACCTCCACGCCGAGGAGGGGCCGATCCCCGTGA spacer
length: 34 repeater length: 30
5570 1418169 GCTTCAACCCACGAGGGTCCGTCTGAAAC ATCGCCAGGTCGAGCTGGTCCTGCTGCAGCTCCC spacer
length: 34 repeater length: 30
5571 1418234 GCTTCAACCCACGAGGGTCCGTCTGAAAC ATGCACTCGCCACCGTCGACGATCCCGGACGTCG spacer
length: 34 repeater length: 30
5572 1418299 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGACGACGGCGCATATGACGAGTTCGCCC GAATCCT spacer
length: 36 repeater length: 30
5573 1418366 GCTTCAACCCACGAGGGTCCGTCTGAAAC TGCTGGAGATCCTCGCCCCTGGCGACGTCGAGACGC spacer
length: 36 repeater length: 30
5574 1418433 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCCCCGAGGACGTCTACCGCGAGCACATCCTCGCGA spacer
length: 35 repeater length: 30
5575 1418499 GCTTCAACCCACGAGGGTCCGTCTGAAAC CATCGCCCGCCTTCTGGTCGACCGCGCGAGAATCT spacer
length: 36 repeater length: 30
5576 1418566 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGCGACCGCCCCGATCGCCGTCGACGACCCGA spacer
length: 33 repeater length: 30
5577 1418630 GCTTCAACCCACGAGGGTCCGTCTGAAAC GGCCGGCGTCTGGGCGAGCGTGTCTGGAGTGCA spacer
length: 34 repeater length: 30
5578 1418695 GCTTCAACCCACGAGGGTCCGTCTGAAAC TCCGACGCACGGGACCTGTACGTGGTCGGAATCCT spacer
length: 36 repeater length: 30
5579 1418762 GCTTCAACCCACGAGGGTCCGTCTGAAAC TTAGAAATCACCCCCGAGATTCATGACAGTCTGCT spacer
length: 35 repeater length: 30
5580 1418828 GCTTCAACCCACGAGGGTCCGTCTGAAAC GATGTCGGAGATGTTTCGAGAGGGTCCGGCTCATT spacer
length: 34 repeater length: 30
5581 1418893 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCGCAGTGAACGCACTCCGACATCGTTAGGCCTCC spacer
length: 35 repeater length: 30
5582 1418959 GCTTCAACCCACGAGGGTCCGTCTGAAAC CCACTGAAATCAAAGTCCGACTCCTCTCCGGATC spacer
length: 34 repeater length: 30
5583 1419024 GCTTCAACCCACGAGGGTCCGTCTGAAAC CGCGATATATAATATATATGCTCGCGTCCTGAACG spacer
length: 35 repeater length: 30
5584 1419090 GCTTCAACCCACGAGGGTCCGTCTGAAAC GCCGAAACCGCCATATAGCACGTGATACCACTGC
5585
5586
5587 GCA_000024185.1_ASM2418v1_genomic.fna(findCrispr):

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5588 START REPEAT
5589 SPACER
5590 crispr 1
5590 2071506 AAAAAAAGAGATTAAAAATT
AATCTAATCTCCAATAAAGTTAAAAAAGAGATTAAAAATTAATCTAATCTCCAATAAAGT spacer length: 60
repeater length: 20
5591 2071587 AAAAAAAGAGATTAAAAATT AATCTAATCCCAATAAAGTT spacer length: 20 repeater length:
20
5592 2071628 AAAAAAAGAGATTAAAAATT AAAAGAAAAAATACCTAAA
5593
5594
5595 crispr 2
5596 2458924 AAAGAAAAAATAGACTAAAA TAGAGAAAACAAGCTATAACTAAATAAAATAAGGATAAA spacer length:
39 repeater length: 20
5597 2458984 AAAGAAAAAATAGACTAAAA
AACTAAAAAATAACTTAACTAAGAAAAACAATAACAAATAAAGAAAAATAGACTAAAAAACTAAAAATAACTTAACTAAGAAAAAC
AATAACAAA spacer length: 95 repeater length: 20
5598 2459100 AAAGAAAAAATAGACTAAAA
AAAGAAAAAATACCTAAAAAGAATTAAACTAGAAAAAAGAAAAAAGGATTAAAAATTAATAAAAAGAAAAGAATAAGAATTAT
TTAACTTCA
5599
5600
5601 crispr 3
5602 1652271 AAATATAGTTTTGAGTCTTT AAACCATTATTTAAGTTTAAATTACTTAATGAATGAA spacer length: 37
repeater length: 20
5603 1652329 AAATATAGTTTTGAGTCTTT AAACCATTATTTAAGTTTAAATTACTTAATTAATGAA spacer length: 37
repeater length: 20
5604 1652387 AAATATAGTTTTGAGTCTTT GAATAAAAATAAAGCCTAAAAATCGAATAATAAAAGA
5605
5606
5607 crispr 4
5608 2518899 AACGGAACGGAAACGGAAC CGGAATAGGTGACTTATTCAACAGAAACGGAAC spacer length: 33
repeater length: 20
5609 2518953 AACGGAACGGAAACGGAAC CGGAATAGGTGACTTATTCAACAGAAACGGAAC spacer length: 33
repeater length: 20
5610 2519007 AACGGAACGGAAACGGAAC AGGCATCCCAGGTATTGGCGGAAACAGCACAGG spacer length: 33
repeater length: 20
5611 2519061 AACGGAACGGAAACGGAAC AAAACTATAAAAAAGTCCCATTTATTAACTAA
5612
5613
5614 crispr 5
5615 1675248 ACTGCCAAAAAAAACACAAA AACACAAAAAACTTGTAACAC spacer length: 21 repeater
length: 20
5616 1675290 ACTGCCAAAAAAAACACAAA AACACAAAAAACTTGTAACAC spacer length: 21 repeater
length: 20
5617 1675332 ACTGCCAAAAAAAACACAAA AACACAAAAAACTTGTAACC spacer length: 20 repeater length:
20
5618 1675373 ACTGCCAAAAAAAACACAAA AAATCAAAAAAAGATTAAA
5619
5620
5621 crispr 6
5622 1566777 CAGATACAGAAACACCCTCT TTAGCAGATATAGGAATACCTTCATTA spacer length: 27 repeater
length: 20
5623 1566825 CAGATACAGAAACACCCTCT CTTGCAGATATAGGAATACCTTCATTA spacer length: 27 repeater
length: 20
5624 1566873 CAGATACAGAAACACCCTCT AAGAAAAAATACCTAAAAGAATTAAA
5625
5626
5627 crispr 7
5628 1399631 GCTTAAATATTATTAAAAA TGAATACTATTGATTAATTTT spacer length: 21 repeater
length: 20
5629 1399673 GCTTAAATATTATTAAAAA TGAATACTTTTGATAATTCT spacer length: 20 repeater length:
20
5630 1399714 GCTTAAATATTATTAAAAA AATCTAATCCTCATTTATCA
5631
5632
5633 crispr 8
5634 1612804 GGAAAAAATGAGCAAAAAAT TTAGGAAAAAATCAGTGAAATTTTAAAAAATTAGATTAAAAAATTGAAAAATT
spacer length: 54 repeater length: 20
5635 1612879 GGAAAAAATGAGCAAAAAAT TTAGGAAAAAATCCGTGAAATTTTCGGAAAAATTAGTTTAGAAATTTGAAAAATT
spacer length: 54 repeater length: 20

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5636 1612954 GGAAAAAATGAGCAAAAAAT AATAAAAAATAAGCCTAAAAATCGAATAATAAAAGATTTAAAAAATAAAAAA
5637
5638
5639 crispr 9
5640 849703 GGTGGTTTGGTAGTTTTTGG CACTTTTTGGCACTTTTTGGCACTTTT spacer length: 27 repeater
length: 20
5641 849751 GGTGGTTTGGTAGTTTTTGG CACTTTTTGGCTACTTTTTGGTTATTTTGGTGTTTTGATATTTTTTGGCACTTTT
spacer length: 55 repeater length: 20
5642 849827 GGTGGTTTGGTAGTTTTTGG ATTGAATAAAATGAATAAAATAAATTAAAATGAAAAAAGAAAAATGATTAAAT
5643
5644
5645 crispr 10
5646 747137 TTTTAAAGAGTATTTTCAGAG GCATTTTCATTATTCCAATC spacer length: 20 repeater length: 20
5647 747178 TTTTAAAGAGTATTTTCAGAG GCATTTTTATTATTCCAATC spacer length: 20 repeater length: 20
5648 747219 TTTTAAAGAGTATTTTCAGAG GCATTTTTATTATTCCAATC spacer length: 20 repeater length: 20
5649 747260 TTTTAAAGAGTATTTTCAGAG ATTATAACAGCTATAAAAAA
5650
5651
5652 crispr 11
5653 506049 TTTTGTAGTGTGTTTGTGTTTAG TTTTTTGGGGGGTCTGTAGTTTTGTTTTTGGGTT spacer length: 35
repeater length: 20
5654 506105 TTTTGTAGTGTGTTTGTGTTTAG GTTTTTTGGGGGGTCTGTAGTTTTGTTTTTGGGTT spacer length: 36
repeater length: 20
5655 506162 TTTTGTAGTGTGTTTGTGTTTAG AAACATAAAAAAGTCCCATTTATTAACTAACGAA
5656
5657
5658 crispr 12
5659 1663650 ACTTGCTGAATTATCCTCAAA GCTTGAATTTGCAATAAGGTCTACACTCCCAAACACCTGTATTGCACCTCCAT
spacer length: 53 repeater length: 21
5660 1663725 ACTTGCTGAATTATCCTCAAA ACTTGAATTTGCAATAAGGCTTAAATTCCAATCCGCCTGAATTGCACCACCAT
spacer length: 53 repeater length: 21
5661 1663800 ACTTGCTGAATTATCCTCAAA ATCAAAAAAAGATTAAATTAATAAAGAGTCGGAATAGA
5662
5663
5664 crispr 13
5665 1797845 ATAGTTAAAACTAAATAAAT
GCTAATAAATAGTTAAAACTAAATGAATACTAATTAATAATAGTTAAAACTAAATGAATACTAATTA spacer length:
67 repeater length: 21
5666 1797934 ATAGTTAAAACTAAATAAAT GCTAATAAATAGTTAAAACTAAATGAATACTAATTA spacer length:
37 repeater length: 21
5667 1797993 ATAGTTAAAACTAAATAAAT TAAAAATAAAGCCTAAAAATCGAATAATAAAAGATTT
5668
5669
5670 crispr 14
5671 1405083 ATGCTCTAGAGAGTAGTGAAA AGGAACGAGAGAAATTAAGT spacer length: 20 repeater
length: 21
5672 1405125 ATGCTCTAGAGAGTAGTGAAA TTGAACGGCAGAAATTAAGT spacer length: 20 repeater
length: 21
5673 1405167 ATGCTCTAGAGAGTAGTGAAA TGAATAAAATGAATAAAATA
5674
5675
5676 crispr 15
5677 2605722 CCATTACCACCAGGATCAGTA
CCATTTCGCCCCGAGAGGTTCCATTACCCTAGGATCAGTACCGTTACCACCAGGGCTAGTACCATTACCCTTGGAGAAGT
spacer length: 83 repeater length: 21
5678 2605827 CCATTACCACCAGGATCAGTA CCATTACCCTTGGAGAAGT spacer length: 20 repeater
length: 21
5679 2605869 CCATTACCACCAGGATCAGTA TTAAAGAAATAGAAATTAAA
5680
5681
5682 crispr 16
5683 1260619 GCTTGTATTTCTTCCTCTTTT GTTTGTATTTTTTCGTCTAT spacer length: 20 repeater
length: 21
5684 1260661 GCTTGTATTTCTTCCTCTTTT GCTTGTATTTTTTCGTCTAT spacer length: 20 repeater
length: 21
5685 1260703 GCTTGTATTTCTTCCTCTTTT AATTAAAAAATTATAAATAT
5686
5687
5688 crispr 17
5689 2605804 TACCATTACCCTTGGAGAAG TACCATTACCACCAGGATCA spacer length: 20 repeater
length: 21

5690 2605846 TACCATTACCACTTGGAGAAG TACCATTACCACCAGGATCAGTACCGTTACCACCAGGGCTA spacer
 length: 41 repeater length: 21
 5691 2605909 TACCATTACCACTTGGAGAAG ATCATGTTTAGCTTAAAAAATCATTAAAATTAAAAATTAA
 5692
 5693
 5694 crispr 18
 5695 1476677 TGATGATTCTGAATTGGAAGA CGAATTTGAGTTTATAGAAGAATTAG spacer length: 26 repeater
 length: 21
 5696 1476725 TGATGATTCTGAATTGGAAGA CGAATTTGAGTTTATAGAAGAATTAG spacer length: 26 repeater
 length: 21
 5697 1476773 TGATGATTCTGAATTGGAAGA
 TGAAGAATTTGAATTTATTGATGATTAGATGATGATTTTGGTTCAGAAGATGAATATGAACTAG spacer length: 65
 repeater length: 21
 5698 1476860 TGATGATTCTGAATTGGAAGA
 TATAACAGCTATAAAAAATAAGAAATTTAACTATTTTTTAATGATAAAAAGAAAACTAAAAAAAT
 5699
 5700
 5701 crispr 19
 5702 98305 TTATAGTTTACTTATAGTTTA
 CCTATTACTTTATTATGATTTAGTTATAGTTTACTTATAATTTACTTATAGTTTACTTATTGTTTTATTGTAGTTTA spacer
 length: 77 repeater length: 21
 5703 98404 TTATAGTTTACTTATAGTTTA
 GTTATAGTTTACTTATAGTTTACCTATTGTTTTATTGTAGTTTACTTATAGTTTACTTATTGTTTACCTATTGTTTTATTGTAGTT
 TA spacer length: 88 repeater length: 21
 5704 98514 TTATAGTTTACTTATAGTTTA
 ACTATAAAAAAGTCCCATTTATTAACTAACGAAAATAAGGAGGTAAAAGATGAATCAAGACGATATACAAATTTGTAAAGAGATA
 GC
 5705
 5706
 5707 crispr 20
 5708 1140431 TTATTTATCGAAAATATAGGG CTTAATTTTCATAGTTAAACG spacer length: 21 repeater
 length: 21
 5709 1140474 TTATTTATCGAAAATATAGGG CTTAATTTTCATAGTTAAACG spacer length: 21 repeater
 length: 21
 5710 1140517 TTATTTATCGAAAATATAGGG CTTAATTTTCATAGTTAAACG spacer length: 20 repeater
 length: 21
 5711 1140559 TTATTTATCGAAAATATAGGG CCTAAAAATCGAATAATAAA
 5712
 5713
 5714 crispr 21
 5715 145991 TTTTATGAAGATTTGATATAT AGTTTAAATTATTGCTTATGGTTTAA spacer length: 26 repeater
 length: 21
 5716 146039 TTTTATGAAGATTTGATATAT GGTTTAAATTATTGCTTATGGTTTAA spacer length: 26 repeater
 length: 21
 5717 146087 TTTTATGAAGATTTGATATAT AAAAATAAAGCCTAAAAATCGAATAA
 5718
 5719
 5720 crispr 22
 5721 2138699 AATCGTTTTTAAAATTAGTTTT ATATAGATTAAGAAATAGTTT spacer length: 21 repeater
 length: 22
 5722 2138743 AATCGTTTTTAAAATTAGTTTT GTATTAATAGTTTAATCTTTT spacer length: 21 repeater
 length: 22
 5723 2138787 AATCGTTTTTAAAATTAGTTTT TATTGGTTTCAATTCCTTTTAT
 5724
 5725
 5726 crispr 23
 5727 1264683 TCTCAATTTTATTATTTTTATT TATTTTTCAATCTTAATTTTATTATTTTTATTATTTTTTTCA spacer
 length: 42 repeater length: 22
 5728 1264748 TCTCAATTTTATTATTTTTATT ATTTTTTTCATTCTCAATTTTATTATTTTTATTATTTTTCCA spacer
 length: 40 repeater length: 22
 5729 1264811 TCTCAATTTTATTATTTTTATT AATAAAATGAATAAAATAAATTAAATGAAAAAAGAAA
 5730
 5731
 5732 crispr 24
 5733 66243 TTATTATTTTTTAACTAGTTAT GGTAAGTTTTTTTATTTAGAATTAGCTAAAAAGAGCT spacer length: 36
 repeater length: 22
 5734 66302 TTATTATTTTTTAACTAGTTAT TTAAGTTTTTTTTTATTTAGAATTAGTTAAAAAGAGTT spacer length: 37
 repeater length: 22
 5735 66362 TTATTATTTTTTAACTAGTTAT AAAGAAATAGAAATTAAATTTTTTCGGTAGAATTAATT
 5736
 5737

5738 crispr 25
5739 97982 TTAATGGTAGTTTTGTTATGACT TACCTATTACTTTATATTTG spacer length: 20 repeater
length: 23
5740 98026 TTAATGGTAGTTTTGTTATGACT TACCTATTACTTTATAGTTG spacer length: 20 repeater
length: 23
5741 98070 TTAATGGTAGTTTTGTTATGACT TAACTATGGCTTTATAGTTG spacer length: 20 repeater
length: 23
5742 98114 TTAATGGTAGTTTTGTTATGACT TAAAAAATTATAAATATAGA
5743
5744
5745 crispr 26
5746 623111 TTTTTTTATTTTTTTATTTTCAGA TTATTTTTTTTTTATTTTAACTACTA spacer length: 26 repeater
length: 23
5747 623161 TTTTTTTATTTTTTTATTTTCAGA GTATTCTTTTATTATTTTTTTTTTATTTTAACTACTA spacer length:
36 repeater length: 23
5748 623221 TTTTTTTATTTTTTTATTTTCAGA ATGTTTAGCTTAAAAAATCATTAAAATTAAAAATT
5749
5750
5751 crispr 27
5752 1925838 AAAAAAAGAATATAAACAAAAAAT ACAAAAAACAGCACAAAAAGAATATAAACAAAAAATACAAAAAACAG
spacer length: 49 repeater length: 24
5753 1925912 AAAAAAAGAATATAAACAAAAAAT ACAAAAAACAGTAAAAACACAA spacer length: 24 repeater
length: 24
5754 1925961 AAAAAAAGAATATAAACAAAAAAT AAAATAACTTAAATAACTCAATAA
5755
5756
5757 crispr 28
5758 485176 GGAAAAAATCTGATTGAATTTTTT AAAAAAATAGAAATTAAATTTTTTCGGTAGAATTAATTT spacer
length: 39 repeater length: 24
5759 485240 GGAAAAAATCTGATTGAATTTTTT TAAAGAAATAGAAATTAAATTTTTTCGGTAGAATTAATTT spacer
length: 39 repeater length: 24
5760 485304 GGAAAAAATCTGATTGAATTTTTT ACAGCTATAAAAAATAAGAAATTTAACTATTTTTTAATGA
5761
5762
5763 crispr 29
5764 2527148 GGAATAATTCAAAAAGGAATTAAA CCCACAATTTAAATCACAAAAAAT spacer length: 24 repeater
length: 24
5765 2527197 GGAATAATTCAAAAAGGAATTAAA TCCACAATTTAAATCACAAAAAAT spacer length: 25
repeater length: 24
5766 2527247 GGAATAATTCAAAAAGGAATTAAA TCCACAATTTAAATCACAAAAAAT spacer length: 25
repeater length: 24
5767 2527297 GGAATAATTCAAAAAGGAATTAAA TAAAAAAGTCCCATTATTAAACTA
5768
5769
5770 crispr 30
5771 1216749 TGATTGTTTTTATTAAATATAATT TTAAAGCTTATATTTGAATAA spacer length: 21 repeater
length: 24
5772 1216795 TGATTGTTTTTATTAAATATAATT TTAAAGCTTATATTTAAATAA spacer length: 21 repeater
length: 24
5773 1216841 TGATTGTTTTTATTAAATATAATT AAAAAAAGAAAAAATACCT
5774
5775
5776 crispr 31
5777 1553048 TTTTAGTAGATTAGCTTTTGCAAT TTTTTTCCAAATCTTATAAGCAGGAGGCCAGAAAGATCGCAACCCTT
spacer length: 47 repeater length: 24
5778 1553120 TTTTAGTAGATTAGCTTTTGCAAT ACATATAGATAAATCCTTATGGATAGAGAGGGTAGGTCGCAATCCTT
spacer length: 47 repeater length: 24
5779 1553192 TTTTAGTAGATTAGCTTTTGCAAT AAATACTACACAGGTGTTAAAATCGGAGAAATTTGTCGCAATCCTT
spacer length: 47 repeater length: 24
5780 1553264 TTTTAGTAGATTAGCTTTTGCAAT ACTATAAGAGTTAAAGGCCAAAGCCTTTAAAGATGTCGCAATCCTT
spacer length: 47 repeater length: 24
5781 1553336 TTTTAGTAGATTAGCTTTTGCAAT TCAATAGGAATGAAATAACAAATGACGCGCAGAAGGTCGCAATCCTT
spacer length: 47 repeater length: 24
5782 1553408 TTTTAGTAGATTAGCTTTTGCAAT ATAAGGGTATGTTAAAAACCCTAAAAACTATAAACGTCGCAATCCTT
spacer length: 48 repeater length: 24
5783 1553481 TTTTAGTAGATTAGCTTTTGCAAT TATGAAATATAAGAGTTCTCAGATAAATGGGAGAAGTCGCAATCCTT
spacer length: 48 repeater length: 24
5784 1553554 TTTTAGTAGATTAGCTTTTGCAAT AGAACGGAGGAATTTCTTATGACTAATGAAAAATCTGTCGCAATCCTT
spacer length: 48 repeater length: 24
5785 1553627 TTTTAGTAGATTAGCTTTTGCAAT ACATTGCTAGACACATAGGAATGGTGGAATATGATGTCGCAATCCTT
spacer length: 47 repeater length: 24

5786 1553699 TTTTAGTAGATTAGCTTTTGAAT CGACTACGAAGCAACTATTAGCAGAATGACCAAATGTCGCAATCCTT
spacer length: 47 repeater length: 24

5787 1553771 TTTTAGTAGATTAGCTTTTGAAT AAGAATCAGAAAAAAGAAAAAATACCTAAAAGAATTAAACTAG

5788

5789

5790 crispr 32

5791 2882808 TAATGAAATTATGATTGAAGGAATA ATAAAATTTTATCTAAAAA spacer length: 20 repeater
length: 25

5792 2882854 TAATGAAATTATGATTGAAGGAATA AAAAAATTTTATCTAAAAA spacer length: 20 repeater
length: 25

5793 2882900 TAATGAAATTATGATTGAAGGAATA TAAAGCCTAAAAATCGAATA

5794

5795

5796 crispr 33

5797 912790 AACTTTTTAACTTTTTTTTACAATT TCACTATTTTTATAGTTATTTTTTATAGTTTAC spacer length:
34 repeater length: 26

5798 912851 AACTTTTTAACTTTTTTTTACAATT CACTATTTTTATAGTTATTTTTTATAGTTTAC spacer length: 32
repeater length: 26

5799 912910 AACTTTTTAACTTTTTTTTACAATT GTTTCATTCTTTTATTGGTGAAATTTTAAA

5800

5801

5802 crispr 34

5803 1951618 AAAAAGATTCAAAAACGAATAAAAAAT AAAACCTAAAATAGAACAAA spacer length: 20 repeater
length: 27

5804 1951666 AAAAAGATTCAAAAACGAATAAAAAAT AAAGCCTAAAATAGAACAAA spacer length: 20 repeater
length: 27

5805 1951714 AAAAAGATTCAAAAACGAATAAAAAAT ATGAATAAAATAAATTAAAA

5806

5807

5808 crispr 35

5809 398632 TATTCTAAGAAGTACTCTAAGGATTGAT TTGCGGTTGCTTATGACTGA spacer length: 20 repeater
length: 28

5810 398681 TATTCTAAGAAGTACTCTAAGGATTGAT TTGGGGTTGCTTATGACTGA spacer length: 20 repeater
length: 28

5811 398730 TATTCTAAGAAGTACTCTAAGGATTGAT ACGTTTCTTTAATGAAATAA

5812

5813

5814 crispr 36

5815 357492 TTTTATCTTTTAGGGATACTTTTTCTAT TTTTTTATTTTTTTTTATCATG spacer length: 22
repeater length: 28

5816 357543 TTTTATCTTTTAGGGATACTTTTTCTAT TTTTTTATTTTTTTTTATCATG spacer length: 22
repeater length: 28

5817 357594 TTTTATCTTTTAGGGATACTTTTTCTAT TTTTTTATTTTTTCTCATT spacer length: 20 repeater
length: 28

5818 357643 TTTTATCTTTTAGGGATACTTTTTCTAT TAAAAGAATCCATTATTTTG

5819

5820

5821 crispr 37

5822 1592209 AATAATTAAACGTTTCTATTTTATTTTAG CAAAGATAAAAAGAATATGC spacer length: 20
repeater length: 29

5823 1592259 AATAATTAAACGTTTCTATTTTATTTTAG CAAAGATAAAAAGAAAGCATTTCATGT spacer length: 26
repeater length: 29

5824 1592315 AATAATTAAACGTTTCTATTTTATTTTAG AGAAATTAAATTTTTCGGTAGAATTA

5825

5826

5827 crispr 38

5828 2206974 TAAAAAAATTTGAATAAAAAAATTATAAC AGTTATATAAAAATAAGAAAT spacer length: 21
repeater length: 29

5829 2207025 TAAAAAAATTTGAATAAAAAAATTATAAC AGCTATAAAAATAAGAAAT spacer length: 20
repeater length: 29

5830 2207075 TAAAAAAATTTGAATAAAAAAATTATAAC AAAAAATTTTATCTAAAAA

5831

5832

5833 crispr 39

5834 2195447 AAAAAAAGGCTTATAGAAAAATTGAATAAA TGAATAAAATAAATTAAAAAT spacer length: 20
repeater length: 30

5835 2195498 AAAAAAAGGCTTATAGAAAAATTGAATAAA ATGAATAAAATAAATTAAAAAT spacer length: 21
repeater length: 30

5836 2195550 AAAAAAAGGCTTATAGAAAAATTGAATAAA TGAATAAAATAAATTAAAAAT spacer length: 20
repeater length: 30

5837 2195601 AAAAAAAGGCTTATAGAAAAATTGAATAAA CTAAAAAAATCATTAAAAAT

5838
5839
5840 crispr 40
5841 707386 ATATCAATTTTACACTTTTCATATCAATTTTC TCATTCTCAAGTCAATTTTCACATTTT spacer length: 26
repeater length: 30
5842 707443 ATATCAATTTTACACTTTTCATATCAATTTTC
ACATTTTCAAGTCAATTTTCACATTTTTCATATCAATTTTACACTTTTCATATCAATTTTACACTTT spacer length: 64
repeater length: 30
5843 707538 ATATCAATTTTACACTTTTCATATCAATTTTC
CTTAAATAACTCAATAAATAAAAAATAAAAAATTAGTTTATAAAAAATAAATAAAGAATAAA
5844
5845
5846 crispr 41
5847 1033189 ATTTCAATCCCAAAATGGTCTGATTTTAAAC GCTCCAAACTTATCAGCATTTTCAGATTTATAATA spacer
length: 35 repeater length: 30
5848 1033255 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TCATCATTTCCATCTACGATTGGTTCGTTAAAA spacer
length: 33 repeater length: 30
5849 1033319 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TTACGAGAGTAACATTCTTCTGAAGCACAGTTGGTA spacer
length: 36 repeater length: 30
5850 1033386 ATTTCAATCCCAAAATGGTCTGATTTTAAAC AGGTAATAATATGAAATTACCACTACTGTTGGAGTA spacer
length: 36 repeater length: 30
5851 1033453 ATTTCAATCCCAAAATGGTCTGATTTTAAAC AAAACCATTCTCCAATAATATCTTCTGTGCATATT spacer
length: 35 repeater length: 30
5852 1033519 ATTTCAATCCCAAAATGGTCTGATTTTAAAC CACACTTTTGACACCATAATGGACTCTTTCTT spacer
length: 32 repeater length: 30
5853 1033582 ATTTCAATCCCAAAATGGTCTGATTTTAAAC ATTCATTCCCCCTTACTAATTCTACAAGTTTAAA spacer
length: 34 repeater length: 30
5854 1033647 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TAGAGACAGTACAACCTCAATATGGATTAAATAGTGA spacer
length: 36 repeater length: 30
5855 1033714 ATTTCAATCCCAAAATGGTCTGATTTTAAAC AGAATCTACGAGAATTATTCTATCATAACTGGTTA spacer
length: 35 repeater length: 30
5856 1033780 ATTTCAATCCCAAAATGGTCTGATTTTAAAC ATTCTGCTGATGGATTAAGTTGCACCTTTATCTGCTA spacer
length: 36 repeater length: 30
5857 1033847 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TAATCCTAACCTTTATCGGTAACCTTGATATTGCA spacer
length: 34 repeater length: 30
5858 1033912 ATTTCAATCCCAAAATGGTCTGATTTTAAAC CCAAAAAAACATAAAAAAAGACTCGGTAG spacer
length: 31 repeater length: 30
5859 1033974 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TCATCTATGTCTGCCCCATATTGTATGATTCCGT spacer
length: 34 repeater length: 30
5860 1034039 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TCATCTATGTCTGCCCCATATTGTATGATTCCGT spacer
length: 34 repeater length: 30
5861 1034104 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TATTTGGTAGAGTCAAACCACATCGGACAGTCATC spacer
length: 35 repeater length: 30
5862 1034170 ATTTCAATCCCAAAATGGTCTGATTTTAAAC ACAAAGTAGAATTAAATCTTGGTAACTGGGTAA spacer
length: 33 repeater length: 30
5863 1034234 ATTTCAATCCCAAAATGGTCTGATTTTAAAC GTTTGACTATCACTATCGTGGATGATATTGAGCA spacer
length: 34 repeater length: 30
5864 1034299 ATTTCAATCCCAAAATGGTCTGATTTTAAAC ATAAATTATTGTTTAATAAAGAACCTGATAAGTTT spacer
length: 35 repeater length: 30
5865 1034365 ATTTCAATCCCAAAATGGTCTGATTTTAAAC CTTAGTCCAGTATTGGCACCTATGACTAGTGTT spacer
length: 33 repeater length: 30
5866 1034429 ATTTCAATCCCAAAATGGTCTGATTTTAAAC GGTGCTGAGTTATATGATGTGGAAATTGATTTTA spacer
length: 34 repeater length: 30
5867 1034494 ATTTCAATCCCAAAATGGTCTGATTTTAAAC CAGAAAGCGATGTTTGGAGAGTTCTTTGAAGATGC spacer
length: 35 repeater length: 30
5868 1034560 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TATGTATGTTCCGATGATTAGTATCATTGTGTTGA spacer
length: 35 repeater length: 30
5869 1034626 ATTTCAATCCCAAAATGGTCTGATTTTAAAC ACGGACATATAATTTATGATACAAGCAATGTATACA spacer
length: 36 repeater length: 30
5870 1034693 ATTTCAATCCCAAAATGGTCTGATTTTAAAC CAGCTTACAAAGAAATAATCGCTGATATCAGTAATA spacer
length: 36 repeater length: 30
5871 1034760 ATTTCAATCCCAAAATGGTCTGATTTTAAAC AATGACCTTATGGATAATACTAAAACAGTTAAAA spacer
length: 34 repeater length: 30
5872 1034825 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TGTGCTAGTTAATGCTAATCCTGCTCCTTCATA spacer
length: 33 repeater length: 30
5873 1034889 ATTTCAATCCCAAAATGGTCTGATTTTAAAC TAGAACCTTTCAAGGAAGACATAGTCTGCTATTGT spacer
length: 35 repeater length: 30
5874 1034955 ATTTCAATCCCAAAATGGTCTGATTTTAAAC CTTGCAGAACTGGACTTGCTCCTAGAATACAATT spacer
length: 34 repeater length: 30
5875 1035020 ATTTCAATCCCAAAATGGTCTGATTTTAAAC ATACATATCAAAGACCCTCATATCCGAAACAATGT spacer
length: 35 repeater length: 30

5876 1035086 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCTTCGATTTCTGTGGAATAATTGTGTGAAATCG spacer
length: 33 repeater length: 30
5877 1035150 ATTTCAATCCCAAAATGGTCTGATTTTAAC ATGTCACCTTGTCTTAAGTGGTGTCTTAAGTCCT spacer
length: 35 repeater length: 30
5878 1035216 ATTTCAATCCCAAAATGGTCTGATTTTAAC CAGTAGAATTCGATGCACAAAGGACAATGAGTA spacer
length: 33 repeater length: 30
5879 1035280 ATTTCAATCCCAAAATGGTCTGATTTTAAC GCTCCAAACTTATCAGCATTTTCAGATTTATAATA spacer
length: 35 repeater length: 30
5880 1035346 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCATCATTTCCATCTACGATTGGTTCGTTAAAA spacer
length: 33 repeater length: 30
5881 1035410 ATTTCAATCCCAAAATGGTCTGATTTTAAC TTACGAGAGTAACATTCTTCTGAAGCACAGTTGGTA spacer
length: 36 repeater length: 30
5882 1035477 ATTTCAATCCCAAAATGGTCTGATTTTAAC GCACTTGGAACTGCCGATGGTGTGCGAAACATCT spacer
length: 34 repeater length: 30
5883 1035542 ATTTCAATCCCAAAATGGTCTGATTTTAAC GAAAAGACATCATGTCAACAATTATGAATTGGAAG spacer
length: 35 repeater length: 30
5884 1035608 ATTTCAATCCCAAAATGGTCTGATTTTAAC TTGATGATTTTATACATTCTTTTAGTTTAGAACG spacer
length: 34 repeater length: 30
5885 1035673 ATTTCAATCCCAAAATGGTCTGATTTTAAC CCAGAGTTGATAAAAAATGTACAAAACAGTTATTA spacer
length: 35 repeater length: 30
5886 1035739 ATTTCAATCCCAAAATGGTCTGATTTTAAC GCGAGGAGTGCCTAAATTCACATTCAAGCAATACT spacer
length: 35 repeater length: 30
5887 1035805 ATTTCAATCCCAAAATGGTCTGATTTTAAC GACAATGAAATTAAGAAATTAATAATCATTATTGGA spacer
length: 35 repeater length: 30
5888 1035871 ATTTCAATCCCAAAATGGTCTGATTTTAAC CCTTACCATCGCTTCAGATTAGCAGAACTACTG spacer
length: 34 repeater length: 30
5889 1035936 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCCAAGGTTGGCTACTTCAATGATACTGACTCTTT spacer
length: 35 repeater length: 30
5890 1036002 ATTTCAATCCCAAAATGGTCTGATTTTAAC TTTACGTTGTCTGTACCGCTTTCATCATCAACCA spacer
length: 35 repeater length: 30
5891 1036068 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCGCAATAACACCGAAATTATCTAATACGAATTCA spacer
length: 35 repeater length: 30
5892 1036134 ATTTCAATCCCAAAATGGTCTGATTTTAAC TGCAGAAGCCCAGTTCCAAATCTTCAACTTGGACA spacer
length: 35 repeater length: 30
5893 1036200 ATTTCAATCCCAAAATGGTCTGATTTTAAC TTGTAAATTTATAGGGAATAAGACTACTGAAGAAA spacer
length: 35 repeater length: 30
5894 1036266 ATTTCAATCCCAAAATGGTCTGATTTTAAC
CTTTAGTAAATGGGGGGGGCAAACTTTTAGTAAATATTCAATCCCAAAATGGGTCTGATTTTAACCTGTGTGTATAGTTGAAGT
TGCAATTGTTGATA spacer length: 100 repeater length: 30
5895 1036397 ATTTCAATCCCAAAATGGTCTGATTTTAAC GTGCAAGTCTCCAATAGATTATTTCTCCCTA spacer
length: 34 repeater length: 30
5896 1036462 ATTTCAATCCCAAAATGGTCTGATTTTAAC CCATATTCTCTACCCAAATATAAGAATAGGATTTT spacer
length: 36 repeater length: 30
5897 1036529 ATTTCAATCCCAAAATGGTCTGATTTTAAC TCCTCTGGAGCATAATAATTGAATCCTAATTTTA spacer
length: 34 repeater length: 30
5898 1036594 ATTTCAATCCCAAAATGGTCTGATTTTAAC AATTCAAATCCAACGATGTAATTTCCATCGCTTA spacer
length: 34 repeater length: 30
5899 1036659 ATTTCAATCCCAAAATGGTCTGATTTTAAC TATTTAGGATTGAAGAAATTGTTAATGATTGTATTG spacer
length: 36 repeater length: 30
5900 1036726 ATTTCAATCCCAAAATGGTCTGATTTTAAC TGAAACAAGTTCAAGCCAAGTATAACACCTTTTCAA spacer
length: 36 repeater length: 30
5901 1036793 ATTTCAATCCCAAAATGGTCTGATTTTAAC AAATTTATTGATATCTTATTTTTATGCCTTTTTTT spacer
length: 35 repeater length: 30
5902 1036859 ATTTCAATCCCAAAATGGTCTGATTTTAAC TGTTTCAGTCTCTACAATTAAGTCCTCTAGGTTTA spacer
length: 34 repeater length: 30
5903 1036924 ATTTCAATCCCAAAATGGTCTGATTTTAAC CCGAACCTTACTTTGAAGATGAGGAAACCTTTGAAGAT spacer
length: 38 repeater length: 30
5904 1036993 ATTTCAATCCCAAAATGGTCTGATTTTAAC AAACAAGAAAACACTGCAACTAGTAATATTTTCTA spacer
length: 35 repeater length: 30
5905 1037059 ATTTCAATCCCAAAATGGTCTGATTTTAAC TATGTTGATGCGAAATACCCTAACAGCTTCAG spacer
length: 32 repeater length: 30
5906 1037122 ATTTCAATCCCAAAATGGTCTGATTTTAAC TAAAAAATAAGAAATTTAACTATTTTTTAATGA
5907
5908
5909 crispr 42
5910 583505 TCTTCTTTGGAGTTTTCTTTAATTTTCAGTG TCTTTTTCTTTTTTATCTAA spacer length: 20
repeater length: 30
5911 583556 TCTTCTTTGGAGTTTTCTTTAATTTTCAGTG TCTTTTTCTTTTTTATATAA spacer length: 20
repeater length: 30
5912 583607 TCTTCTTTGGAGTTTTCTTTAATTTTCAGTG GTCCCATTTATTAACTAAC
5913

5914
 5915 crispr 43
 5916 1757714 TTTATTAGATTTATTAGATTTATTCTTATT TTCAGATTTATCTTTTTTAG spacer length: 20
 repeater length: 30
 5917 1757765 TTTATTAGATTTATTAGATTTATTCTTATT CTCAGATTTATCTTTTTTAG spacer length: 20
 repeater length: 30
 5918 1757816 TTTATTAGATTTATTAGATTTATTCTTATT ATTGTTGTTGGTGAAGTTAG
 5919
 5920
 5921 crispr 44
 5922 651098 TTTTGTGTTTTCTTTTTTTCTTTTTTTTT
 AGAGTTTATTATTGGAGTTTTGTTTTTTTAAAGTTTTATTATTGGA spacer length: 50 repeater
 length: 30
 5923 651179 TTTTGTGTTTTCTTTTTTTCTTTTTTTTT TTAAGTTTTATTATTGGA spacer length: 20
 repeater length: 30
 5924 651230 TTTTGTGTTTTCTTTTTTTCTTTTTTTTT AAAAGGAAGGTAATTGTTTT
 5925
 5926
 5927 crispr 45
 5928 827523 CTACAATCTTTGGTTTTTTTTGGTTTAATAA GTTTGAATTTTTTTTTTTAAT spacer length: 21
 repeater length: 31
 5929 827576 CTACAATCTTTGGTTTTTTTTGGTTTAATAA GTTTGAATTTTTTTTTTTAAT spacer length: 20
 repeater length: 31
 5930 827628 CTACAATCTTTGGTTTTTTTTGGTTTAATAA TCTAAAAAACAAATATTTA
 5931
 5932
 5933 crispr 46
 5934 1678994 TTAAATCATGTTTAGCTTAAAAAATCATT GAAATAAAAAATTAATTAAA spacer length: 21
 repeater length: 31
 5935 1679047 TTAAATCATGTTTAGCTTAAAAAATCATT GAAATAAAAAATTAATTAAA spacer length: 20
 repeater length: 31
 5936 1679099 TTAAATCATGTTTAGCTTAAAAAATCATT GAAAAAATACCTAAAAGAA
 5937
 5938
 5939 crispr 47
 5940 385183 TTTGTTTTGTAATGAGTTTTGGTATGGTTTT TTTTAGTTGTTTGGGGATTT spacer length: 20
 repeater length: 31
 5941 385235 TTTGTTTTGTAATGAGTTTTGGTATGGTTTT TTTTAGTTGTTTGGGGATTT spacer length: 20
 repeater length: 31
 5942 385287 TTTGTTTTGTAATGAGTTTTGGTATGGTTTT TTTTAGTTGTTTGGGGATTT spacer length: 21
 repeater length: 31
 5943 385340 TTTGTTTTGTAATGAGTTTTGGTATGGTTTT TTTTAGTTGTTTGGGGATTT spacer length: 20
 repeater length: 31
 5944 385392 TTTGTTTTGTAATGAGTTTTGGTATGGTTTT TTTTAGTTGTTTGGGGATTT spacer length: 21
 repeater length: 31
 5945 385445 TTTGTTTTGTAATGAGTTTTGGTATGGTTTT CTATAAAAAAGTCCCATTTAT
 5946
 5947
 5948 crispr 48
 5949 77913 GTGTGAAATTGATTTTATTTTCGTAAAATTGTT GTGATGTTGTTAAATTGATGTGAA spacer length: 24
 repeater length: 32
 5950 77970 GTGTGAAATTGATTTTATTTTCGTAAAATTGTT CTTATTTTCGTAAAATTTACTTTAT spacer length: 24
 repeater length: 32
 5951 78027 GTGTGAAATTGATTTTATTTTCGTAAAATTGTT CTTATTTTCGTAAAATTTACTTTAT spacer length: 24
 repeater length: 32
 5952 78084 GTGTGAAATTGATTTTATTTTCGTAAAATTGTT TTTTCTCTTCAATATTTTGTCTGA
 5953
 5954
 5955 crispr 49
 5956 370130 GTTTATTAGTTTAATTGCTTAGAATTAGTTTA GAACTACTATATTTGGTTTGAAT spacer length: 24
 repeater length: 32
 5957 370187 GTTTATTAGTTTAATTGCTTAGAATTAGTTTA GAACTTTCAATTTTGGTTTGAATT spacer length: 25
 repeater length: 32
 5958 370245 GTTTATTAGTTTAATTGCTTAGAATTAGTTTA TTTGTGGTGGATAGGGGAATAAAAC
 5959
 5960
 5961 crispr 50
 5962 873672 AAAGTGTTAAATTGTTGTCATCTCGTAAAATTG
 ACTTCAAAATGTAAATTTGTTGTCATTTTGTTAAATTGTTGTGGGAATGTGAAATTGATTT spacer length: 61
 repeater length: 33
 5963 873767 AAAGTGTTAAATTGTTGTCATCTCGTAAAATTG TAGTGGGGGTGTGAAATTGATTT spacer length: 23

repeater length: 33
5964 873824 AAAGTGTAAATTGTTGTCATCTCGTAAAATTG AATTAAAAAATTAAATTTACTA
5965
5966
5967 crispr 51
5968 843913 GGTGTGGCTTTTATTTTTTTGGGCATTATATGT AGTGGTTTTTAACATTTTTGGCTATTAT spacer length:
28 repeater length: 33
5969 843975 GGTGTGGCTTTTATTTTTTTGGGCATTATATGT TGTGGTTTTTAACATTTTTGGCTATTAT spacer length:
28 repeater length: 33
5970 844037 GGTGTGGCTTTTATTTTTTTGGGCATTATATGT AAAAAAGAAAAAATACCTAAAAGAAT
5971
5972
5973 crispr 52
5974 968913 TATTGGTTATTTTTTTATCCAATCTTTTATATA CTATTGGTTATTTTTTTATCCAATCTTTTATATG spacer
length: 34 repeater length: 33
5975 968981 TATTGGTTATTTTTTTATCCAATCTTTTATATA GTGTTGGTTATTTTTTTATCCAATCTTTTATATG spacer
length: 34 repeater length: 33
5976 969049 TATTGGTTATTTTTTTATCCAATCTTTTATATA AAAATCGAATAATAAAAGATTTAAAAAATAAAA
5977
5978
5979 crispr 53
5980 2156913 TGTCTAAACTCTTCCTTTTTCTCTTCCTTTCTC ATCTTTTTCTCTTCAATATT spacer length: 20
repeater length: 33
5981 2156967 TGTCTAAACTCTTCCTTTTTCTCTTCCTTTCTC AACTTTTTCTCTTCAATATT spacer length: 20
repeater length: 33
5982 2157021 TGTCTAAACTCTTCCTTTTTCTCTTCCTTTCTC TCTTTTATTGGTGGAATTT
5983
5984
5985 crispr 54
5986 340692 AATATTTTAACTTTTATAAACTATTTTTTTATA CTATTTTTTTTGTAGGGTT spacer length: 20
repeater length: 34
5987 340747 AATATTTTAACTTTTATAAACTATTTTTTTATA CTATTTTTTTTGTAGGGTT spacer length: 21
repeater length: 34
5988 340803 AATATTTTAACTTTTATAAACTATTTTTTTATA GGATTATTCAATCATTTCATT
5989
5990
5991 crispr 55
5992 2734094 ACATCAATTTTACGAAATGACAACAATTTACAC GACGAAGTCAATTTACATTTTAATACAACCTTTACACGAT
spacer length: 41 repeater length: 34
5993 2734170 ACATCAATTTTACGAAATGACAACAATTTACAC TTTCGTACAACCTTTACACGAT spacer length: 22
repeater length: 34
5994 2734227 ACATCAATTTTACGAAATGACAACAATTTACAC AATAAATTAAATGAAAAAAAA
5995
5996
5997 crispr 56
5998 1903803 AAATAAATAAAAAATTAGTTAAAAAATAAAAAAAAAA TAACTTAAATAACTCAATAAATA spacer length:
23 repeater length: 35
5999 1903862 AAATAAATAAAAAATTAGTTAAAAAATAAAAAAAAAA ATAACTTAAATAACTCAATAAATA spacer length:
24 repeater length: 35
6000 1903922 AAATAAATAAAAAATTAGTTAAAAAATAAAAAAAAAA ATGAAATGGCTAAATTGATGTGAA
6001
6002
6003 crispr 57
6004 1750462 ATCCATTATTTTCATAATTTAACCCTAAAAGAATC CATTAGTTATTATAGCCAAA spacer length: 20
repeater length: 35
6005 1750518 ATCCATTATTTTCATAATTTAACCCTAAAAGAATC CATTAGTTCTTATTAAGCCAAA spacer length: 22
repeater length: 35
6006 1750576 ATCCATTATTTTCATAATTTAACCCTAAAAGAATC CTTAAATAACTCAATAAATAA
6007
6008
6009 crispr 58
6010 2254338 GAATAAACTCTAAAAAAACAAATATTTAAAAAATACTCAAAAAACCAATATTTG spacer length: 20
repeater length: 35
6011 2254394 GAATAAACTCTAAAAAAACAAATATTTAAAAAATACTCAAAAAACCAATATTTG spacer length: 21
repeater length: 35
6012 2254451 GAATAAACTCTAAAAAAACAAATATTTAAAAAATACTCAAAAAACCAATATTTG
6013
6014
6015 crispr 59
6016 486219 GCATTTTCTAGGTCGTTAGCTATTTTAGTTGCATT
AACTTTAGCTTCTTCCAATTGGGTTGTTAGATTGTCAACTGTTTGATT spacer length: 48 repeater length: 35

6017 486303 GCATTTTCTAGGTCGTTAGCTATTTTAGTTGCATT
 AACTTTAGCTTCTTCCAATTGATGAGTTAAATCATTGATGGTTTGATCATTATTGGCTTGTGCTTCTTCTAATTGGCGAGTTAAAT
 CATCAACTATTTGATT spacer length: 102 repeater length: 35
 6018 486441 GCATTTTCTAGGTCGTTAGCTATTTTAGTTGCATT
 TTTAGATTTAGGATATTCATAAATCTACTTAAGATCATCTGAAGTACCTTAGGAGGATATTTTATGGCATTCTTTTTCATCTTAT
 TGAAGACTATTTCCCTT
 6019
 6020
 6021 crispr 60
 6022 2148850 GGTTTCAATTCTTTTATTGGTGGAAATTTTAAAAA GCGATATGTGGGGTTTTTAT spacer length: 20
 repeater length: 35
 6023 2148906 GGTTTCAATTCTTTTATTGGTGGAAATTTTAAAAA GCGATATGTGGGGTTTTTAT spacer length: 20
 repeater length: 35
 6024 2148962 GGTTTCAATTCTTTTATTGGTGGAAATTTTAAAAA AAGTGATATGTGGGGTTTTTAT spacer length: 22
 repeater length: 35
 6025 2149020 GGTTTCAATTCTTTTATTGGTGGAAATTTTAAAAA AAGTGATATGTGGGGTTTTTAT spacer length: 22
 repeater length: 35
 6026 2149078 GGTTTCAATTCTTTTATTGGTGGAAATTTTAAAAA AAAATTAAAAAAATAATTGATT
 6027
 6028
 6029 crispr 61
 6030 1572035 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT
 AAAAAGACACTTAAAAATTATGGAACAAAAAAGGAGTCACAATCCTTGTTTTAAAAGATTACTTTTTGCAATTCTGATTCCCTTA
 ACAAACTCACAAATAAGGGAAAAA spacer length: 109 repeater length: 36
 6031 1572181 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT
 ATTAACAAGGAAACAGAAATGGAGATTAAGACACTGTCACAATCATTGTTTTAGTAGATTACTTTTTGCAATATTTTCATTTTTTGA
 CTGATGTTGTTCTTGAAGAAA spacer length: 107 repeater length: 36
 6032 1572325 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT GTAGGTATATTTCTTATAGAATAAATAAAATTTAT
 spacer length: 35 repeater length: 36
 6033 1572397 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ACAATAACAGAGACAACAGTACTGAAGAAACAGTAA
 spacer length: 36 repeater length: 36
 6034 1572470 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATGAAATCATTGAAACACTTGTTGAAATTCATGCA
 spacer length: 35 repeater length: 36
 6035 1572542 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT TATGGTAGTTGAGAAAGTTACAAAAGTTAGGGCTAA
 spacer length: 36 repeater length: 36
 6036 1572615 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT CCTTATTGAATGATACCAAAGACAAAGTGGACGAAT
 spacer length: 36 repeater length: 36
 6037 1572688 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AGAGTTAAAAGAGAGTTTAGCTATAGCAAGAGTTT
 spacer length: 35 repeater length: 36
 6038 1572760 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AAGAGCTAATAAACAACTAAAGAATATATGCTTAAGCT
 spacer length: 39 repeater length: 36
 6039 1572836 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATAAGATTAGTTTTGATATTATTAGATTTTTTTCT
 spacer length: 35 repeater length: 36
 6040 1572908 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT TCGGTTCTTCCGTCTCTCGTGTGTCCGTCGCGGGTGC
 spacer length: 37 repeater length: 36
 6041 1572982 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT CCTAATACCTATTGTAAATCTTTTCAATTTAAAGA
 spacer length: 36 repeater length: 36
 6042 1573055 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT GACAACTTTATACCTTAAGAAAGGTTCAAGGTGT
 spacer length: 35 repeater length: 36
 6043 1573127 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT CAATCATTGAGTATACGATAAAGAGTGTAACGACT
 spacer length: 35 repeater length: 36
 6044 1573199 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AGATAATAGATAAATTGAGGTGTTAAATATGTTAT
 spacer length: 35 repeater length: 36
 6045 1573271 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATATCATTATAGACAAATATAGACAAAAAGAAATT
 spacer length: 35 repeater length: 36
 6046 1573343 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATATCATTATAGACAAATATGACAAAAAGAAATT
 spacer length: 34 repeater length: 36
 6047 1573414 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT GGCAAAATTGAACGATTTAAGCCAATACGACACTT
 spacer length: 35 repeater length: 36
 6048 1573486 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AATTAATGAAAATTATATAGGTGATTATTTATGT
 spacer length: 34 repeater length: 36
 6049 1573557 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATGAATTTGACTTAAGAAGCCAACCTTAAGAAGA
 spacer length: 35 repeater length: 36
 6050 1573629 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATCAAAATGTAATGATGCCATACCATTATCATTTA
 spacer length: 35 repeater length: 36
 6051 1573701 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATTATTGTGACACAAAAAAGAAATTTCTTGACAAA
 spacer length: 36 repeater length: 36
 6052 1573774 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT CAAAAATACATTTTACAAAGATATGCTTAAAGTCTT
 spacer length: 36 repeater length: 36
 6053 1573847 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT CCCATATGGAAGTCGCGAGGGAATCAAAGAAGAG
 spacer length: 34 repeater length: 36

6054 1573918 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AAAGTTCAAGGGGTAACAAGACAAGCATACTTCG
spacer length: 34 repeater length: 36

6055 1573989 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATCAAAAAACTTTTATATTTTTTATTGGTGATAAAAT
spacer length: 37 repeater length: 36

6056 1574063 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATATACAAGTTATAAAAACTTGAGAGTTATAAAAAAGC
spacer length: 37 repeater length: 36

6057 1574137 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AGAGTATGGTTGTCACCTTTAGGGAGGATTTCTAA
spacer length: 34 repeater length: 36

6058 1574208 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ACCTTAGAACTCTTAAACAAGTAAACATCGAGC
spacer length: 35 repeater length: 36

6059 1574280 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT GAAATACAGATTAAGCAATCAGGCATATAGACAA
spacer length: 34 repeater length: 36

6060 1574351 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT AAAGACACTTTAGATGTAATTGTTTCGCTATAATGAA
spacer length: 36 repeater length: 36

6061 1574424 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT ATTATATTAAAACTCAAATACTATAGATAGATTT
spacer length: 35 repeater length: 36

6062 1574496 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT TTAATGGACTTATAGTTAGTTATGACTTAAAGCAC
spacer length: 36 repeater length: 36

6063 1574569 TCACAATCCTTGTTTTAGTAGATTACTTTTTGCAAT CCATTATTTTGTCAATTATTAGCCATAGAAGCTATTT
6064
6065

6066 crispr 62

6067 1553251 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ACTATAAAGAGTTAAAGGCCAAAGCCTTTAAAGA
spacer length: 34 repeater length: 37

6068 1553323 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT TCAATAGGAATGAAATAACAAATGACGCGCAGAA
spacer length: 34 repeater length: 37

6069 1553395 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ATAAGGGTATGTTAAAAACCCTAAAAAACTATAAA
spacer length: 35 repeater length: 37

6070 1553468 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT TATGAAATATAAAGAGTTCTCAGATAAATGGGAGA
spacer length: 35 repeater length: 37

6071 1553541 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT AGAACGGAGGAATTTCTTATGACTAATGAAAAATC
spacer length: 35 repeater length: 37

6072 1553614 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ACATTGCTAGACACATAGGAATGGTGAATATGA
spacer length: 34 repeater length: 37

6073 1553686 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT CGACTACGAAGCAACTATTAGCAGAATGACCAA
spacer length: 34 repeater length: 37

6074 1553758 GTCGCAATCCTTGTTTTAGTAGATTAGCTTTTGCAAT ACGATGACATCAATTTAACACTATGAAGTCAATT
6075
6076

6077 crispr 63

6078 1301864 TAATTCTCTTTTTTTTATAATTTTTTTCTTATTTTTTT
TTCAATTCTTTTTTTCCTTTTTTTTAAATTCTCTTTTTTTTATAATTTTTTTCTTATTTTT spacer length: 58
repeater length: 37

6079 1301960 TAATTCTCTTTTTTTTATAATTTTTTTCTTATTTTTTT AATTCTCTTTTTTTTATAATTTTTTTCTTATTTTT
spacer length: 35 repeater length: 37

6080 1302033 TAATTCTCTTTTTTTTATAATTTTTTTCTTATTTTTTT TTATCTAAAAAATTAATGAAATTATGAAATTAAAA
6081
6082

6083 crispr 64

6084 1000683 AGAAAAATAAATTTTAAAGGATTATTAATAAAGAAAAATA
ATTAGAATATCAGAAATAGAAAAAAATAGAAAAAAATAGTA spacer length: 42 repeater length: 40

6085 1000766 AGAAAAATAAATTTTAAAGGATTATTAATAAAGAAAAATA
ATTAGAATATCCGAAATAGAAAAAAATAGAAAAAAATAGTA spacer length: 42 repeater length: 40

6086 1000849 AGAAAAATAAATTTTAAAGGATTATTAATAAAGAAAAATA
CATTAAAAATTAAAAATTAAAAAAATAATTGATTTGAATTGAT
6087
6088

6089 crispr 65

6090 2609179 CATGATTTTGGGTGAAGACGGAATTTTCGACATTTCCGTT
TCGACCATTCCAATAGATTGCACCACCTCTCCCATAGGCAAAATAAGATGTCCGCTATGCTTAGTTTCAGCAGTATTATTTACAA
ATATGCAAGAAGTGACTTTACCTTCACTATCATCCCAATATAATGCACCTCCATCATTGTCA spacer length: 148
repeater length: 40

6091 2609368 CATGATTTTGGGTGAAGACGGAATTTTCGACATTTCCGTT
TCGACCATTCCAATAGATTGCACCACCTTAATTGCATCGTTGTTGGTGAAATTTGAATATTTTACAATACTCTCTGCACCAGAGC
AATAAATCGCACCTCCAGCAAAGTA spacer length: 112 repeater length: 40

6092 2609521 CATGATTTTGGGTGAAGACGGAATTTTCGACATTTCCGTT
TTGACCAAACCAATAAATTGCACCCCATTAATGCATTATTGTTGGTGAAATTTGAATATTCTACAATACTCTCAGCACCAGAGC
AATAAATCGCACCTCCATAAGAGCCA spacer length: 112 repeater length: 40

6093 2609674 CATGATTTTGGGTGAAGACGGAATTTTCGACATTTCCGTT
TTGACCAAACCAATAAATTGCACCACCATATATGCATTATTGTTGGTGAAATTTGAATATTCTACAATACTCTCAGCACCAGAGC
AATAAATCGCACCTCCATAAGAGCCA spacer length: 112 repeater length: 40

6094 2609827 CATGATTTTGGGTGAAGACGGAATTTTCGACATTTCCGTT
CAATAAAATAAAAAATAAAATAAAATAGTTTATAAAAAATAAAATAAAGAATAAAGTCTTTTAAATGAATCCAATTACATTTTAGTCA
TCAAATCCATTATTGAAAAAGGATCT

6095

6096

6097 crispr 66

6098 1816361 CTAAAAGAATTAAAACTCTAAAAAAAAGAATCAGAAAAA
AGAAAAAATACCTAAAAGAATTAAAACTCTAAAAAAAAGAATCAGAAAAAAGAAAAAATA spacer length: 64
repeater length: 40

6099 1816466 CTAAAAGAATTAAAACTCTAAAAAAAAGAATCAGAAAAA
AAAGAAAAAATACCTAAAAGAATTAAAACTCTAAAAAAAAGAATCAGAAAAAAGAAAAAATA spacer length:
68 repeater length: 40

6100 1816575 CTAAAAGAATTAAAACTCTAAAAAAAAGAATCAGAAAAA
TTAATGAAATTATGAAATTAAAAAATTATAAATATAGACAGAATTATAAAATTATTAAGGTAAAAATT

6101

6102

6103 crispr 67

6104 2609532 GTGAAGACGGAATTTTCGACATTTCCGTTTTGACCAAACC
AATAAATTGCACCCCCATTAAATGCATTATTGTTGGTGAAATTTGAATATTCTACAATACTCTCAGCACCAGAGCAATAAATCGCA
CCTCCATAAGAGCCAGCATGATTTTG spacer length: 112 repeater length: 40

6105 2609685 GTGAAGACGGAATTTTCGACATTTCCGTTTTGACCAAACC
AATAAATTGCACCACTTATATGCATTATTGTTGGTGAAATTTGAATATTCTACAATACTCTCAGCACCAGAGCAATAAATCGCA
CCTCCATAAGAGCCAGCATGATTTTG spacer length: 112 repeater length: 40

6106 2609838 GTGAAGACGGAATTTTCGACATTTCCGTTTTGACCAAACC
ATTGATATGAAATGGCTAAATTGATGTAAAAAACTATGCCATTTATTAATAAGTAAATCTAGATATTCAACAATGTTTGTGAA
GATTTAATAAATAATTTATCAAATTT

6107

6108

6109 crispr 68

6110 1605235 TGTTTCCATCACCATCTAAAGGATTATCACCATTAGAATC
AGAACCATCAGGATTTCCGGAATTATCACCAGACTTATTATCACCATCGGAATTATCGGAACCGTCAGATGTA spacer
length: 73 repeater length: 40

6111 1605349 TGTTTCCATCACCATCTAAAGGATTATCACCATTAGAATC
AGAACCATCAGGATTACCAGAACCATTAGAACTATTGTTTCCATCACCATCTAAAGGTTTCATCACCATTTCCACCATTAGGATCAG
AACCATCAGATGTACTGTTTCCATCACCATCTGAAGAATTATCACCATCAGGATTAGAACCATCAGATGTA spacer
length: 157 repeater length: 40

6112 1605547 TGTTTCCATCACCATCTAAAGGATTATCACCATTAGAATC
ATTTACTTTATGGTGTGAAATTGTTTTCTTGATAAAATCAATTTATTCGTATCAATTAAGACTTAAAGTCTTCGAATTTTTTAA
ATTTATTTAAGTTAAGAAATTATTCTTTTATTCTTTCTAAAAAGTCTTTTTTGTTCCTTATGGCCTTATCA

6113

6114

6115 GCA_000025505.1_ASM2550v1_genomic.fna(findCrispr):

6116 START REPEAT
SPACER

6117 crispr 1

6118 273663 TCAATCCTC TTTTCATCGAGCAAAAACCTTCTTGAGGAGAAGGGAAACCCAGAGGAGTTCAACT spacer
length: 54 repeater length: 9

6119 273727 TCAATCCTC TTTTCATCGAGATTCTTTTGCTTCCGCTGATAGTTTTGCTGGCACTAATTCCTCCT spacer
length: 56 repeater length: 9

6120 273793 TCAATCCTC TTTTCATCGAGCGGGATAGGAGGCACAGGCAGATTTATGGACATAATGGTGACTACCT spacer
length: 58 repeater length: 9

6121 273861 TCAATCCTC TTTTCATCGAGAAGGAATTAAAAGGAGTCAAAACGAAGCTGGACGAATACCGCT spacer
length: 54 repeater length: 9

6122 273925 TCAATCCTC TTTTCATCGAGTAAATGCCTCAGTTCGGTGGTGGAGGTGGTGTGGTATAACT spacer
length: 53 repeater length: 9

6123 273988 TCAATCCTC TTTTCATCGAGTGTCTCCAGCTTTTCAGACTGGAGTTTTTCGCAACTCCTGCTCCT spacer
length: 54 repeater length: 9

6124 274052 TCAATCCTC TTTTCATCGAGAATTGGAAGAAAAGACGAACTTATGACGACATTATACGCCT spacer
length: 53 repeater length: 9

6125 274115 TCAATCCTC TTTTCATCGAGCGTTCTACCTGAACCATTCAACTACAGATGCATCCATTATAATCT spacer
length: 56 repeater length: 9

6126 274181 TCAATCCTC ATTTGAGATTCCGTTGTACTCTAACAAAATTTACGTGCAATGGAAGTATATAACGC

6127

6128

6129 crispr 2

6130 432573 TGCATCAACCTGCGTCAACC GCTGCATCAACCTCAGCATCAACCGCTTCATCAACCTGCTG spacer length:
41 repeater length: 20

6131 432635 TGCATCAACCTGCGTCAACC
TCAGCATCAACCTCTGCTGCTTCAACCTCTGCGTCAACCGCTACTGCTGCATCAACCTCTGCTGCGTCAACCGCTATTGCTGCGTC
AACCGCTGCATCAACCTCTGCTGCGTCAACCTTTGCATCAACCT spacer length: 130 repeater length: 20

6132 432786 TGCATCAACCTGCGTCAACC

GTCAAAATTCGCTCGAGCAAGTCTCCTATGACAACCTCCGATGAGGAAAATAACTGCAAAGTACAGTATCACAAAAGAATCGCAAAA
AAGCCGACTCCAGCCAGAAATAGGACTGCCGGGTGAGGGAAGAT

6133
6134
6135 crispr 3
6136 1318858 CTCGATGAAAAGAGGATTGAAAG TCGTGAAGTATCCCGCCTTCTTCTTGGGAGGTGATTTAACGA spacer
length: 42 repeater length: 23
6137 1318924 CTCGATGAAAAGAGGATTGAAAG ACATACTCACCACCTCTCACATTCGTGGAGACAATAACCC spacer
length: 40 repeater length: 23
6138 1318988 CTCGATGAAAAGAGGATTGAAAG CCAATTGGAAATTTTCGTTGAAAGTTCGAAAAAGTTTTT spacer
length: 38 repeater length: 23
6139 1319050 CTCGATGAAAAGAGGATTGAAAG TCGCAACCTTGTTCGGTCTGTATCTAATCACCTACCAA spacer
length: 39 repeater length: 23
6140 1319113 CTCGATGAAAAGAGGATTGAAAG GATTATGGCTTCAGATGGGTTTGGAACACTTTTAAGAGT spacer
length: 39 repeater length: 23
6141 1319176 CTCGATGAAAAGAGGATTGAAAG AAGCCATAGTATTCAAGCAGGTAACCATGCCTTCCTA spacer length:
37 repeater length: 23
6142 1319237 CTCGATGAAAAGAGGATTGAAAG TCTTATTTCCCTCCTGTAAACCTCTTCAAACCTCGTCT spacer
length: 39 repeater length: 23
6143 1319300 CTCGATGAAAAGAGGATTGAAAG GCGATTTGGCTACTTTCTTGTAGCCTATCAGCTCGTGA spacer
length: 38 repeater length: 23
6144 1319362 CTCGATGAAAAGAGGATTGAAAG ACCTGATCGTCCGTACCATCACAAACGTAATCTCCTGACTT spacer
length: 41 repeater length: 23
6145 1319427 CTCGATGAAAAGAGGATTGAAAG TAGAGATACACTGTTCTCCTTCTTACCCTCTTAACCTTAG spacer
length: 40 repeater length: 23
6146 1319491 CTCGATGAAAAGAGGATTGAAAG GTCTATTGTGTCTTTGTTGGTTATCTTCTTGAAGTCTTCCA spacer
length: 41 repeater length: 23
6147 1319556 CTCGATGAAAAGAGGATTGAAAG ATATTATCCCTCCAGTGCAGCTTTTCTTTTGTAGTAGTAGGG spacer
length: 42 repeater length: 23
6148 1319622 CTCGATGAAAAGAGGATTGAAAG TTGTCTGTTCCAAATGGAACCTCCAGATCGTCGGCAAAA spacer
length: 39 repeater length: 23
6149 1319685 CTCGATGAAAAGAGGATTGAAAG AAGAGAGAGTCTAATCTATGCAGTTATTGTGAATTTATA spacer
length: 39 repeater length: 23
6150 1319748 CTCGATGAAAAGAGGATTGAAAG ATCGTAGGGACAGAACCGGGTAGCTTTTCGAAATACTTGGTT spacer
length: 41 repeater length: 23
6151 1319813 CTCGATGAAAAGAGGATTGAAAG AGAACAGTTGCTGCTGCCGGCTTCTTTTGTAGGTAAGAATGG spacer
length: 41 repeater length: 23
6152 1319878 CTCGATGAAAAGAGGATTGAAAG TTGGAGGCTTACCGATGCTGTTGGAGCTTTACATAACAGTG spacer
length: 41 repeater length: 23
6153 1319943 CTCGATGAAAAGAGGATTGAAAG ACCTTTTTTAAATTCTCTATCCACGTTTGTACTGTAGGAA spacer
length: 39 repeater length: 23
6154 1320006 CTCGATGAAAAGAGGATTGAAAG TGTTGTAGGCTTCGTTAGGCGTTCTTGCCCTAATTTTGG spacer
length: 39 repeater length: 23
6155 1320069 CTCGATGAAAAGAGGATTGAAAG CTCATCGCCCATCCACCTCCTCATAACCAACTCCGCAATT spacer
length: 40 repeater length: 23
6156 1320133 CTCGATGAAAAGAGGATTGAAAG CTTCGTGTCCAAGTTGTAGAGCCACAACGCTATCCTGTACC spacer
length: 41 repeater length: 23
6157 1320198 CTCGATGAAAAGAGGATTGAAAG TCAAATTCGCTCGAGCAAGTCTCCTATGACAACCTCCGATGA
6158
6159
6160 crispr 4
6161 824286 GTTTCAGTCCTCTATTTGAGATTC ACAGTTTCCCTTACCTTGAACCCGAATTTTTCGAGTTCTTCGAGCTTAT
spacer length: 49 repeater length: 24
6162 824360 GTTTCAGTCCTCTATTTGAGATTC ACGCAGAGGGAGGTTACGGTCATAGAGGACATACAGCTTA spacer
length: 40 repeater length: 24
6163 824425 GTTTCAGTCCTCTATTTGAGATTC CTGACTATTTAAGGCAGAACGGCTATGCTGTGTTTGGCA spacer
length: 39 repeater length: 24
6164 824489 GTTTCAGTCCTCTATTTGAGATTC AGTGGGCGTGGTTTGGATTAGCAGGCATGAGCTTAGCGAA spacer
length: 40 repeater length: 24
6165 824554 GTTTCAGTCCTCTATTTGAGATTC TTGAAGGCTATAGTGGACGAGGGCTGGGAGTGGATATTTA spacer
length: 40 repeater length: 24
6166 824619 GTTTCAGTCCTCTATTTGAGATTC GTGTGATAGCTGCGGGAATACCGGTCATCGTTAATATTCTA spacer
length: 41 repeater length: 24
6167 824685 GTTTCAGTCCTCTATTTGAGATTC TGAAAGGAAAAAACTGCTGTATTATGCTCGGCGTAACGAA spacer
length: 40 repeater length: 24
6168 824750 GTTTCAGTCCTCTATTTGAGATTC ATATGAGCAAGTATGAAAAGAAGGTCAGAGTAGTGGTTGA spacer
length: 40 repeater length: 24
6169 824815 GTTTCAGTCCTCTATTTGAGATTC CGAGGTTGTAAGAATTGGTGGAGTTGAGGTATGGATAA spacer
length: 38 repeater length: 24
6170 824878 GTTTCAGTCCTCTATTTGAGATTC CTGGAAGGAGTCACCTACACCGAGGAGACTGCAACAATC spacer
length: 39 repeater length: 24

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6171 824942 GTTTCAGTCCTCTATTTGAGATTC CGGAGCCAGAGGTGGAGTTGACATTCCGGCGGAAGACAAG spacer
length: 40 repeater length: 24
6172 825007 GTTTCAGTCCTCTATTTGAGATTC CAACACATATATTACTTACCCCTAAGCAGAGACAGAATGAAG spacer
length: 42 repeater length: 24
6173 825074 GTTTCAGTCCTCTATTTGAGATTC TGGAACCACGAGTCATCAGAGACGCCATCGAGAGAGCCA spacer
length: 39 repeater length: 24
6174 825138 GTTTCAGTCCTCTATTTGAGATTC TTTTCTGCTACGACTTTCTCGAAAGTGTTCACCAAGTAC spacer
length: 41 repeater length: 24
6175 825204 GTTTCAGTCCTCTATTTGAGATTC GAAGAATTGAGAAGAGTTTTGGAGACGAAGATATTTTGA spacer
length: 39 repeater length: 24
6176 825268 GTTTCAGTCCTCTATTTGAGATTC CAGAAAGAAGGCAGAACGAATTAAGGAATTGAAAAGGAAAA spacer
length: 41 repeater length: 24
6177 825334 GTTTCAGTCCTCTATTTGAGATTC TTATCTCTATCTTCCCTGAGGGCATTCTTGCAGCCCTCATA spacer
length: 42 repeater length: 24
6178 825401 GTTTCAGTCCTCTATTTGAGATTC TGAGCACATCAGGTCTCCCCTCTTCGTTTTCTGATACCCTT
6179
6180
6181 GCA_000025665.1_ASM2566v1_genomic.fna(findCrispr):
6182 START REPEAT
SPACER
6183 crispr 1
6184 977730 CCACATGG TACTTCTTCTACTTGATAGGATAAAGAGAGAGGGAATAATAACAGAAGTGTTCAC spacer
length: 57 repeater length: 8
6185 977796 CCACATGG TACTTCTTCTACTGATTGAAAATGATATATGTTTGAGGTGAGAAAAATGGTTTCAC spacer
length: 57 repeater length: 8
6186 977862 CCACATGG TACTTCTTCTACGGAGTTTGGGATGAAATAAATAAAAAAGTGGAGAATAGGTTTCAC spacer
length: 58 repeater length: 8
6187 977929 CCACATGG TACTTCTTCTACGTAATCTACAAAAAGATAAACAATAAATTCGTATTGGTTTCAC spacer
length: 56 repeater length: 8
6188 977994 CCACATGG TACTTCTTCTACTGATTGAAAATGATATATGTTTGAGGTGAGAAAAATGGTTTCAC spacer
length: 57 repeater length: 8
6189 978060 CCACATGG TACTTCTTCTACAGATATGGCAAAGGAAATAAGCAAAGTTATTGAAATTGTTTCAC spacer
length: 57 repeater length: 8
6190 978126 CCACATGG TACTTCTTCTACCTTAAGTATGAAAACATAGATAAAATCGTTGGAAACGTTTCAC spacer
length: 57 repeater length: 8
6191 978192 CCACATGG ATCAAACAACAATTGCAGCAATAATGGGTGGGATGGCATAGGGATAGTGTGGTCTTC
6192
6193
6194 crispr 2
6195 619057 GGTCTTCCAGCAACACTATATCAAACAA TACTTGCAGCAATAATAGTCGGGATGGCATAGGGATA spacer
length: 37 repeater length: 28
6196 619123 GGTCTTCCAGCAACACTATATCAAACAA CAATTGCAGCAATAATGGGTGGGATGGCATAGAGATA spacer
length: 37 repeater length: 28
6197 619189 GGTCTTCCAGCAACACTATATCAAACAA ACAATGAAGATACTGATGAGCTTGTGCAATTATGTT
6198
6199
6200 GCA_000092185.1_ASM9218v1_genomic.fna(findCrispr):
6201 START REPEAT
SPACER
6202 crispr 1
6203 772206 GAAACAATAGAGAAAAAATTGAAAG CAGGGAATTCTTTAAAGCTTTAGAAGCGCAAAAAGTCGAGG spacer
length: 41 repeater length: 24
6204 772272 GAAACAATAGAGAAAAAATTGAAAG GTTGATGGCTTAACAACAATTGGTTTTGGCGGTGTG spacer length:
36 repeater length: 24
6205 772333 GAAACAATAGAGAAAAAATTGAAAG ATATATGTAGTATCGGTAAGTGCTAGTGTATCAGCAAATAA spacer
length: 44 repeater length: 24
6206 772402 GAAACAATAGAGAAAAAATTGAAAG CGTATTACTAATACGCCTTTTCTGCCCTCATCGGTTTCGGT spacer
length: 41 repeater length: 24
6207 772468 GAAACAATAGAGAAAAAATTGAAAG ACACCTTAGTCGTGAAAAATCCAAGCCGAAAGAATACCCT spacer
length: 39 repeater length: 24
6208 772532 GAAACAATAGAGAAAAAATTGAAAG CGCTATACTCCATCACATACAAGTTGTCTCGCCCCG spacer length:
37 repeater length: 24
6209 772594 GAAACAATAGAGAAAAAATTGAAAG GTGTTAATAAAGCAACCCTACACCGCATACGCTATAATCGTGA spacer
length: 43 repeater length: 24
6210 772662 GAAACAATAGAGAAAAAATTGAAAG TATATTGCTCGCGCAATTCTTTAAGCTCTTTTCTCAA spacer length:
37 repeater length: 24
6211 772724 GAAACAATAGAGAAAAAATTGAAAG ATCGCAGCAACGCTATCGAGCCTATGTGTTGATTTCGTT spacer
length: 38 repeater length: 24
6212 772787 GAAACAATAGAGAAAAAATTGAAAG ACGTTTGAATCCGCGATGGAAACATCGGCTTTAGTAAG spacer
length: 38 repeater length: 24
6213 772850 GAAACAATAGAGAAAAAATTGAAAG ACCGCGAGGAGCGGGCGAGAAATTATTGTTTCCTGTT spacer

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length: 38 repeater length: 24
6214 772913 GAAACAATAGAGAAAAATTGAAAG CGTGTAAGGTTGCTAACGCTTGATAAGCTAACACCGTTCACC spacer
length: 42 repeater length: 24
6215 772980 GAAACAATAGAGAAAAATTGAAAG CTACGGGTTTCGAGCTTAAAAAAGCCGTTTTTCGAGAGCG spacer
length: 38 repeater length: 24
6216 773043 GAAACAATAGAGAAAAATTGAAAG TTGAGGCTCTCAGCTAGCTGGGGTATCAGCGATTTGAACAC spacer
length: 41 repeater length: 24
6217 773109 GAAACAATAGAGAAAAATTGAAAG ATTTCTACATTTTCATAATTGAGGTGTAATATATGTCCCAGA spacer
length: 41 repeater length: 24
6218 773175 GAAACAATAGAGAAAAATTGAAAG CGAACAAATTAATCATTAGTAATGGCAAAATGATATACG spacer
length: 39 repeater length: 24
6219 773239 GAAACAATAGAGAAAAATTGAAAG TATTGTTAAATGGTGTATTATTGCTGATACAGCACTAGCA spacer
length: 40 repeater length: 24
6220 773304 GAAACAATAGAGAAAAATTGAAAG TCGCAGGGTCAAATGTGGTTATAGCGGACATTTATATCACCC spacer
length: 42 repeater length: 24
6221 773371 GAAACAATAGAGAAAAATTGAAAG TGTGCTTTACACGGCTGATGAACCGCCTCATTACCCAATTG spacer
length: 41 repeater length: 24
6222 773437 GAAACAATAGAGAAAAATTGAAAG ATGGAGCTAGAGCTCATAAAGCTAATTATCCTATTTCTAA spacer
length: 40 repeater length: 24
6223 773502 GAAACAATAGAGAAAAATTGAAAG TCATAGTTGAATATGACTCATAACGCGTTAATGCGTCGTC spacer
length: 40 repeater length: 24
6224 773567 GAAACAATAGAGAAAAATTGAAAG TACCATAAGCTTTTTTTCATTAGTGATTTACAATGACGGC spacer
length: 39 repeater length: 24
6225 773631 GAAACAATAGAGAAAAATTGAAAG AAAATTGAAAGTATTTTCACTCCTCCAGGGTGCATTTACACACCCCTT
spacer length: 50 repeater length: 24
6226 773706 GAAACAATAGAGAAAAATTGAAAG AGACAAGACTTCACGATTGGAGTAATAAACGATGTAGTA spacer
length: 39 repeater length: 24
6227 773770 GAAACAATAGAGAAAAATTGAAAG CTAGTCCCATATGTAAGGTCTAATATGCGTATTGGTGGCTTG spacer
length: 42 repeater length: 24
6228 773837 GAAACAATAGAGAAAAATTGAAAG TATCCATATTGTTCCGAATGACCTATTCATTTGTGCAT spacer
length: 38 repeater length: 24
6229 773900 GAAACAATAGAGAAAAATTGAAAG TGGGACAGTGCCACTACGCATATGGCTGTGAGCCCACTA spacer
length: 40 repeater length: 24
6230 773965 GAAACAATAGAGAAAAATTGAAAG AATAAGGAAATGAAGGAAGCGTTTGCGAAAAAGCTAAG spacer
length: 38 repeater length: 24
6231 774028 GAAACAATAGAGAAAAATTGAAAG GAGGATTGGATTCCCTGGTAACTTGTGTGAGCCAATACTACG spacer
length: 41 repeater length: 24
6232 774094 GAAACAATAGAGAAAAATTGAAAG CACAACCTCAAACCTCAAATTAGCTATTACGAATTCGCAAATAA spacer
length: 42 repeater length: 24
6233 774161 GAAACAATAGAGAAAAATTGAAAG CACAAGCATATACAACCTTGCTCGACACAATGGATAAGTAT spacer
length: 40 repeater length: 24
6234 774226 GAAACAATAGAGAAAAATTGAAAG CCGAACCCGTCGTGCTGGGTAGTGTAAGTTTACGAGCC spacer
length: 40 repeater length: 24
6235 774291 GAAACAATAGAGAAAAATTGAAAG TGTATTATATCCAATATTCCGTATATTCTAGCACTCATTGCA spacer
length: 42 repeater length: 24
6236 774358 GAAACAATAGAGAAAAATTGAAAG AAGATAAAAGTGAGCATTGTGAAATAGGGAGTGGAAAAG spacer
length: 40 repeater length: 24
6237 774423 GAAACAATAGAGAAAAATTGAAAG CTCATTACCGCGCAATTGTTCAAGCTTATTTGCGAATTCG spacer
length: 40 repeater length: 24
6238 774488 GAAACAATAGAGAAAAATTGAAAG TCACGGCAAAGCCCTGGAAAACGTACGGCAGCATCGTGGCTACTG spacer
length: 45 repeater length: 24
6239 774558 GAAACAATAGAGAAAAATTGAAAG TCGCCTTCGACTTCACATCCCTCATCAACATGATAACGC spacer
length: 39 repeater length: 24
6240 774622 GAAACAATAGAGAAAAATTGAAAG TTAACCGTTTTTCTTCCCCTGTTCCGCCACAGTTGGATTTT spacer
length: 40 repeater length: 24
6241 774687 GAAACAATAGAGAAAAATTGAAAG CTAAAAACATTAAGCCCAATGGGGATTAAAGGTAAAGCAGGC spacer
length: 43 repeater length: 24
6242 774755 GAAACAATAGAGAAAAATTGAAAG TATATTTCGCGTGAGTTTAAAGCGAAATGGCGAGATAGTTG spacer
length: 40 repeater length: 24
6243 774820 GAAACAATAGAGAAAAATTGAAAG TGAGGATAGGGATTGTCTGGGAGTGCCCGTGGACTCCCAG spacer
length: 40 repeater length: 24
6244 774885 GAAACAATAGAGAAAAATTGAAAG TTTGATACGGTAAACAAAATACAACATGATTAGTAAGATAAAT spacer
length: 43 repeater length: 24
6245 774953 GAAACAATAGAGAAAAATTGAAAG TTAATTTTACCGGTACGGGATAATTTTTCATCACAAAG spacer
length: 38 repeater length: 24
6246 775016 GAAACAATAGAGAAAAATTGAAAG TTTTAAATCAATTGGGAAGCGTTAATAGCTCTTACC spacer length:
36 repeater length: 24
6247 775077 GAAACAATAGAGAAAAATTGAAAG AGACTTGAGACCCAGGGACATGAGACCCACCGAGAAACAT spacer
length: 41 repeater length: 24
6248 775143 GAAACAATAGAGAAAAATTGAAAG TAATAAACGCTCACGGGTGAAACGCTTAGTGATGTA spacer length:
37 repeater length: 24

6249 775205 GAAACAATAGAGAAAAATTGAAAG CTTGAAAACCGTCACCTGGCTGGTGTAGTCCTCGATGACAAACTTTC
spacer length: 47 repeater length: 24

6250 775277 GAAACAATAGAGAAAAATTGAAAG CTACAACATTGTTTAGACTAATACCTTTATGCTCAGCTAATT spacer
length: 42 repeater length: 24

6251 775344 GAAACAATAGAGAAAAATTGAAAG TTGTATCGATAGCTATTAACATGGGCTTGTCGCTT spacer length:
35 repeater length: 24

6252 775404 GAAACAATAGAGAAAAATTGAAAG AGCCCAGCCCCGAAGCTCAGCCTTTTTTTCAAGCCCTTTC spacer
length: 41 repeater length: 24

6253 775470 GAAACAATAGAGAAAAATTGAAAG TGTGCCCCCTCCGTAGTGATTGCTACTTTCTGCTGTGTT spacer
length: 38 repeater length: 24

6254 775533 GAAACAATAGAGAAAAATTGAAAG CAGCACATTGGATATGGTATAAACCTCTATTATAAGT spacer length:
37 repeater length: 24

6255 775595 GAAACAATAGAGAAAAATTGAAAG AGAGTGGATTGTGAACAAGGGGACTGTGAGCGAGGAGGAGA spacer
length: 41 repeater length: 24

6256 775661 GAAACAATAGAGAAAAATTGAAAG TTCTTACATTCTTACGCGGAATTTTCCGCGTGTAAGAAT spacer
length: 39 repeater length: 24

6257 775725 GAAACAATAGAGAAAAATTGAAAG GTCTCGCGTGCTAGCAGGTTGAGTGCGGTCGGGGTTTTAGT spacer
length: 41 repeater length: 24

6258 775791 GAAACAATAGAGAAAAATTGAAAG ATAACGTTGAGTTGCTGTTCAACGTGCCAGGGATAAGCTC spacer
length: 41 repeater length: 24

6259 775857 GAAACAATAGAGAAAAATTGAAAG GACGCCCTAGCCTTCGCGATCCCCTGCTTCGTCCTCTCG spacer
length: 39 repeater length: 24

6260 775921 GAAACAATAGAGAAAAATTGAAAG AGAAATACAAGCGATATAAGATAAAA spacer length: 26
repeater length: 24

6261 775972 GAAACAATAGAGAAAAATTGAAAG AGTAGGAAGCCGTCGGGGCTTCTTGTTTTATCGTAA spacer length:
36 repeater length: 24

6262 776033 GAAACAATAGAGAAAAATTGAAAG AGGGCCACGCCAAGGACAGCTAAGAGCGGTATAAGCTT spacer
length: 38 repeater length: 24

6263 776096 GAAACAATAGAGAAAAATTGAAAG CTTAAAAACGGTCCTCCAAACCCCCCGTAACGCCCC spacer length:
37 repeater length: 24

6264 776158 GAAACAATAGAGAAAAATTGAAAG CTTAGTGCCTTACTGAAACATATGACAACTATGTGAACAGTAAGAA spacer
length: 45 repeater length: 24

6265 776228 GAAACAATAGAGAAAAATTGAAAG AGCCAGCACGAGTTAAGCGTCCACGTCTCGTTTGTTTTGT spacer
length: 40 repeater length: 24

6266 776293 GAAACAATAGAGAAAAATTGAAAG CTAACGCCAATACCTCTTCAACCATAGCCCACTGTGGCA spacer
length: 39 repeater length: 24

6267 776357 GAAACAATAGAGAAAAATTGAAAG TTTTTTAACAACGCTAAAACATCACTGTCAATCATAAT spacer
length: 38 repeater length: 24

6268 776420 GAAACAATAGAGAAAAATTGAAAG TTATGCTGGTTTTGAAGAAATTGGTTGAGTCAACCAGGTAAAT spacer
length: 43 repeater length: 24

6269 776488 GAAACAATAGAGAAAAATTGAAAG ACTTACTTATGTTAAATCGTAGATATCTTGAAAACGC spacer
length: 38 repeater length: 24

6270 776551 GAAACAATAGAGAAAAATTGAAAG AGACAGCGCTAGAGAATGGTCATGTTAAGAAGCTAGGGTTT spacer
length: 41 repeater length: 24

6271 776617 GAAACAATAGAGAAAAATTGAAAG TCGAAATACCATGTGTAAAGATGGGGTGCTATAGTGTGCGCG spacer
length: 42 repeater length: 24

6272 776684 GAAACAATAGAGAAAAATTGAAAG ATTTGATAACTTGTAATGTAGTCATTTACTCCTAGATA spacer
length: 38 repeater length: 24

6273 776747 GAAACAATAGAGAAAAATTGAAAG AATATGGTTGTTTTCAAGCGCTATAGCAAGCTCGGGGGT spacer
length: 39 repeater length: 24

6274 776811 GAAACAATAGAGAAAAATTGAAAG CGCGGAAACGCAGCAGTTTAAATCCGAACCAATCGG spacer length:
37 repeater length: 24

6275 776873 GAAACAATAGAGAAAAATTGAAAG AATATGTAAAGGAGAAAATCCTGTATTATGAGAAAAACGGGAA spacer
length: 43 repeater length: 24

6276 776941 GAAACAATAGAGAAAAATTGAAAG ATTCAGCGTGTCAATGCTAGTGTCTTATAGAAGTTGAACACC spacer
length: 43 repeater length: 24

6277 777009 GAAACAATAGAGAAAAATTGAAAG CAATCTATATGATGTGCCATTCCATATTATTAAATGGTGT spacer
length: 40 repeater length: 24

6278 777074 GAAACAATAGAGAAAAATTGAAAG TTAATAAGGATATTAGAAAAACCCAAAAAGCGAAAAATAT spacer
length: 40 repeater length: 24

6279 777139 GAAACAATAGAGAAAAATTGAAAG GGGTTTACAGGCTCACGGGCCTCGGTGAATACTATG spacer length:
36 repeater length: 24

6280 777200 GAAACAATAGAGAAAAATTGAAAG TATGGAAACATATCCCGCATAGAAGATTGAGAAAAATGGC spacer
length: 40 repeater length: 24

6281 777265 GAAACAATAGAGAAAAATTGAAAG AAGCAAAAACCAAACCCACAGGTTAACTCCCCAAACCA spacer
length: 38 repeater length: 24

6282 777328 GAAACAATAGAGAAAAATTGAAAG CCAGTATTACATTACGGAAGACTTCACGGTCTGCACTA spacer
length: 39 repeater length: 24

6283 777392 GAAACAATAGAGAAAAATTGAAAG GTATAAAATGATATTTGAGAAATGCTATAGGGATAAAA spacer
length: 38 repeater length: 24

6284 777455 GAAACAATAGAGAAAAATTGAAAG ACCATTGCCAAGCCAATCGTCATGTTCAACAAGCTCGACA spacer

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length: 40 repeater length: 24
6285 777520 GAAACAATAGAGAAAAAATTGAAAG TGTGCAACGTTGAACGGGTTGACGTAGTCGCTTAGCA spacer length:
37 repeater length: 24
6286 777582 GAAACAATAGAGAAAAAATTGAAAG CCTCCCACGGGGCCAGAGGACCCTCCTATTAACTATGG spacer
length: 39 repeater length: 24
6287 777646 GAAACAATAGAGAAAAAATTGAAAG GTTGACAGGGCGGTTGTCAGGCTTGGCGATGCTAATATTG spacer
length: 40 repeater length: 24
6288 777711 GAAACAATAGAGAAAAAATTGAAAG GCGTTTATCGCTTAACCGCTCTAGGCGAATACTACGTTA spacer
length: 39 repeater length: 24
6289 777775 GAAACAATAGAGAAAAAATTGAAAG TCGTTTCCCAGAGGGTCAATCCTACCTACCCATGCATTG
6290
6291
6292 GCA_000092305.1_ASM9230v1_genomic.fna(findCrispr):
6293 START REPEAT
SPACER
6294 crispr 1
6295 235897 CATCCCC TTAGGGGCGTTATTTTACAGAATTTAAAAGTGTTATCATCTACGAAAGAAAAGAGTTT spacer
length: 59 repeater length: 7
6296 235964 CATCCCC TTAGGGGCGTTATTTTACTTTGAACGAATTCAGAAATAGAGCAATAATAGAATGTTT spacer
length: 57 repeater length: 7
6297 236029 CATCCCC TTAGGGGCGTTATTTTACGATGTGATATTCAGAATAAACTACCTGATGGGTTTATGTTT spacer
length: 60 repeater length: 7
6298 236097 CATCCCC TTAGGGGCGTTATTTTACTTAAAGACATTATATGATGAACTGCCTAAAATAAGTTT spacer
length: 55 repeater length: 7
6299 236160 CATCCCC TTAGGGGCGTTATTTTACCTGGAGACTTCTGAAGCATTAAGGCTCAGCTTGGTTCGTTT spacer
length: 60 repeater length: 7
6300 236228 CATCCCC TTAGGGGCGTTATTTTACGAATTTTCAGTTATATTTGAAATTTCAATCACTGCGTTT spacer
length: 57 repeater length: 7
6301 236293 CATCCCC AGTCCATTAAAACAAGGATGAATAATAAAACAAAAAATCATAAACTCTTTTTTCA
6302
6303
6304 crispr 2
6305 245952 GTCCATTAAAACAAGGATGGAA ACTAAATTCTCCAAGGTCACAAATGGTTTTAAACGCGTGTGTTGAATCGCC
spacer length: 50 repeater length: 22
6306 246025 GTCCATTAAAACAAGGATGGAA ACTCAGTGATTCTTTGTAAGATGTATGTGGAGATACAGTTTGAATCGCC
spacer length: 49 repeater length: 22
6307 246097 GTCCATTAAAACAAGGATGGAA ACAATTTATCTTCTAATATATCTTTTGCGTAGTATGATAGTTTGAATCGCC
spacer length: 51 repeater length: 22
6308 246171 GTCCATTAAAACAAGGATGGAA ACAGTCGTTTCTTGCTAATTCCCAACTATATATATAAGTTTGAATCGCC
spacer length: 49 repeater length: 22
6309 246243 GTCCATTAAAACAAGGATGGAA ACACCCCAAATCAATTATCACATCGACTAAGTGTGGGGTAGTTTGAATCGCC
spacer length: 52 repeater length: 22
6310 246318 GTCCATTAAAACAAGGATGGAA ACTGTTCACTTTTCTCAAGTAACTTCAAGAGTTTCTGGTTTGAATCGCC
spacer length: 49 repeater length: 22
6311 246390 GTCCATTAAAACAAGGATGGAA ACTTTCCTCATACTCAAACCTGATACCCAAATCCCCAACTGGTTTGAATCGCC
spacer length: 53 repeater length: 22
6312 246466 GTCCATTAAAACAAGGATGGAA ACACCCCAAATCAATTATCACATCGACTAAGTGTGGGGTAGTTTGAATCGCC
spacer length: 52 repeater length: 22
6313 246541 GTCCATTAAAACAAGGATGGAA
ACTGTAAATACTGTAAATTATCATTAGATACATACGATAGTCATAAGATATAGTTTGAATCGCC spacer length: 64
repeater length: 22
6314 246628 GTCCATTAAAACAAGGATGGAA ACTATACTATAACCGCTAAGTAATTAACCGACAAAAGTTTGAATCGCC
spacer length: 48 repeater length: 22
6315 246699 GTCCATTAAAACAAGGATGGAA ACAGTATAGATGGTAAAGAGCAGGAATGTCCTGAAATTGTGTTTGAATCGCC
spacer length: 52 repeater length: 22
6316 246774 GTCCATTAAAACAAGGATGGAA ACCTGTTATCAGTCCTTTTTTTCTGAGATATTGCAAGTTTGAATCGCC
spacer length: 48 repeater length: 22
6317 246845 GTCCATTAAAACAAGGATGGAA ACAATTACGGGTATTTTACAACAGCAGTAAGCCAAGCCAGTTTGAATCGCC
spacer length: 51 repeater length: 22
6318 246919 GTCCATTAAAACAAGGATGGAA ACTGAGTTCATCTTTTCCAGATCTTATAATATCTTCAATATGTTTGAATCGCC
spacer length: 53 repeater length: 22
6319 246995 GTCCATTAAAACAAGGATGGAA ACAAACATTCATAATAAAACCTCTTCCAGCCATTCCTTGTGTTTGAATCGCC
spacer length: 50 repeater length: 22
6320 247068 GTCCATTAAAACAAGGATGGAA ACAGCAAGAATTTCTTTTCTAAATTTTCAGCATTGAAGTGTGTTTGAATCGCC
spacer length: 51 repeater length: 22
6321 247142 GTCCATTAAAACAAGGATGGAA ACAGCTCTTCTTTGAGCTTTTCTAATGTCAATTTTAGAGAGTTTGAATCGCC
spacer length: 52 repeater length: 22
6322 247217 GTCCATTAAAACAAGGATGGAA ACTAAATCAAATTTATTGATGCTTCTATTATTGCCTTGTGTTTGAATCGCC
spacer length: 49 repeater length: 22
6323 247289 GTCCATTAAAACAAGGATGGAA ACGTAAAGTTTCCAACGTTAGCATTAATCAATTGGAGAAGTTTGAATCGCC
spacer length: 52 repeater length: 22

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6324 247364 GTCCATTAAAAACAAGGATGGAA
ACTTACTTTTGAGAACTTTTTTAATAACGAAATTAAAGATTATAGTTTGAATCGCC spacer length: 56 repeater
length: 22

6325 247443 GTCCATTAAAAACAAGGATGGAA
ACTTACTTTTGAGAACTTTTTTAATAACGAAATTAAAGATTATAGTTTGAATCGCC spacer length: 56 repeater
length: 22

6326 247522 GTCCATTAAAAACAAGGATGGAA GGATGGAAACCTAACTATCACATCTATATTTATGAATTCATCAAGTTTGAATCGCC

6327

6328

6329 crispr 3

6330 531383 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC AGGGTGAAACCAGTTGCTGGAATGTTGACTATGACA
spacer length: 37 repeater length: 37

6331 531458 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC CTAAGCTCTCTTCTCTCTAACTTGAGAAATAAAG
spacer length: 34 repeater length: 37

6332 531530 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC GTGATAGAAACATCTTTTTTATGAATTGTTTGATTGT
spacer length: 37 repeater length: 37

6333 531605 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC CATTTTGGAGCCATAGGGATAATATGGAGCTTACA
spacer length: 35 repeater length: 37

6334 531678 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC ATGAAGATTGGCAAATGATTAGGCTATTATTCAAG
spacer length: 35 repeater length: 37

6335 531751 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC TGTTCCAAACACAGATGAGTGGTTAGATTGGGCTATC
spacer length: 37 repeater length: 37

6336 531826 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC GAAAATCTCTTAAAATACTTAATGAAAATGAAAATC
spacer length: 36 repeater length: 37

6337 531900 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC ACACAACAACCTTACGACTTCCTGAAGTGTTTAC
spacer length: 34 repeater length: 37

6338 531972 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC AGTGCAGATGAAATACAACTAGAAGAAAACCATTGAAG
spacer length: 39 repeater length: 37

6339 532049 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC TTTTAGACAAACTAAAGAAATGGGGGCTAATAGAA
spacer length: 35 repeater length: 37

6340 532122 GTTTCCATCCTTGTTTTAATGGACTGGCGATTCAAAC ATTTTATATCGAAACTCCTATAAAAAACTTTCTTT

6341

6342

6343 crispr 4

6344 604543 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC TCAAGCCGTCCTCAATTTTTTATTTTTTGATCAACAA
spacer length: 36 repeater length: 37

6345 604617 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC GATACTCAAGAGAACTATATCTTGAATATGAGAAA
spacer length: 35 repeater length: 37

6346 604690 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC TTCTGGTAAGTCTTCTAATTCATTAATTATCTTTT
spacer length: 35 repeater length: 37

6347 604763 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC CAGGGCTATTACAGTTCCTACAGCTCTATCTA spacer
length: 32 repeater length: 37

6348 604833 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC ATAAAGAGAAAACATGAAGAGATTAAAGAAACAAA
spacer length: 35 repeater length: 37

6349 604906 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC
TGATACCCCTAAAAGAGTATTCCTAAGAAAAATAAGAAGA spacer length: 40 repeater length: 37

6350 604984 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC TGAAAAGGCATTAATGAGTAGAATTATTCAATATA
spacer length: 35 repeater length: 37

6351 605057 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC AAATGAATGAAATAGAATTAAGTGGGGGCATAAAA
spacer length: 35 repeater length: 37

6352 605130 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC
AATGTATAGAGGAAAAATTTGGTGTTAGTGGGTCAATGACAGTGTG spacer length: 46 repeater length: 37

6353 605214 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC AATCCGGGGAGTATCGTCCAATATCCAGAACAGGA
spacer length: 35 repeater length: 37

6354 605287 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC GGAAAAATAGAATGGTTAGAAAAAGAACAAGAAGAG
spacer length: 37 repeater length: 37

6355 605362 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC AAATGGTGATCCAATCACATACATAGATGAGTATAGC
spacer length: 37 repeater length: 37

6356 605437 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC TTATTATATGAAATAATAAGTGAAGTTGAAAAA
spacer length: 33 repeater length: 37

6357 605508 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC GTGTTTTGTGGAAAGTGACAAATGATTGAGAAATAT
spacer length: 35 repeater length: 37

6358 605581 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC GACAGAGGGGAAGACTACTACGACATGTTGCCAAAA
spacer length: 36 repeater length: 37

6359 605655 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC GACAAAAAAGAAGTTTGAAGAGACAAGAGAAATTT
spacer length: 35 repeater length: 37

6360 605728 GTTTCCATCCTTGTTTTAATGGACTGGTGATTCAAAC ATTTTATATCAAAACTCCTATAAAAAACTTTCTTT

6361

6362

6363 crispr 5

6364 767940 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC ATAAATAGATTAAAGGGGCTGGGATTGATTGATA

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6365 spacer length: 34 repeater length: 37
768012 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC GAAATAATTACCCATTACTTCCTTAAAAAAGCTTAA
6366 spacer length: 36 repeater length: 37
768086 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC AGCTATGTTAGGGTATTTGTACTCCAGTAGTCTGAG
6367 spacer length: 36 repeater length: 37
768160 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC AGGATCAGTATGTCTGGTCTATATAGTTCAAGAATTT
6368 spacer length: 37 repeater length: 37
768235 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC GTGGGTTTGGAGTAACTACTCATTCATGATCACCT
6369 spacer length: 35 repeater length: 37
768308 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC TTGTTTTTTGTATCTATTGATATGAATACTCCAGTTCCA
6370 spacer length: 39 repeater length: 37
768385 GTTTGAATCACCAGTCCATTAAAAACAAGGATGGAAAC AAAATCATAAAACTCTTTTTTCAATAAATTTCAAAGCTA
6371
6372
6373 GCA_000092465.1_ASM9246v1_genomic.fna(findCrispr):
6374 START REPEAT
SPACER
6375 crispr 1
6376 541480 CTTTCAATTTTTCTAAATTGTTTC AATAGAAGCGGTAAAGAAGGGCTATTATCACATGGATC spacer
length: 38 repeater length: 24
6377 541543 CTTTCAATTTTTCTAAATTGTTTC GGTGTCTGTGTCTGGCTAGGAGTAGTTGTTTCTGATCCACTA spacer
length: 42 repeater length: 24
6378 541610 CTTTCAATTTTTCTAAATTGTTTC ATATGTTTCCACTGCTATCAAGTGCTTTAACCCTTATTA spacer
length: 39 repeater length: 24
6379 541674 CTTTCAATTTTTCTAAATTGTTTC TTTACTTGAAGCCGTGTGGGACATAGAATCTAACCGTTT spacer
length: 40 repeater length: 24
6380 541739 CTTTCAATTTTTCTAAATTGTTTC CAAACATTTTGAAAACACTTGATAATTCCCATAGGCTC spacer
length: 38 repeater length: 24
6381 541802 CTTTCAATTTTTCTAAATTGTTTC TTTATTACTAGATACCAATTGTAAACCTTGCTCAAT spacer
length: 38 repeater length: 24
6382 541865 CTTTCAATTTTTCTAAATTGTTTC GCTCCATATTTGGCTTGACAAAAAGCTAAAAACGTTGATAAC spacer
length: 42 repeater length: 24
6383 541932 CTTTCAATTTTTCTAAATTGTTTC CTCGGTCTAGCTGCTGCAAACAATGAAAGCATAAGCCCCTCTTC spacer
length: 44 repeater length: 24
6384 542001 CTTTCAATTTTTCTAAATTGTTTC GGGCAAGAGGGCAAGAGGGCAAAACAAACAATATATTGTTAT spacer
length: 42 repeater length: 24
6385 542068 CTTTCAATTTTTCTAAATTGTTTC TATCCTTTTGTAACAGTTCATTAAGATATTGCCTCAGTAGCA
6386
6387
6388 crispr 2
6389 193950 CCTTCAATTCTTTCTGTGTTGTTAC
AAGGGACTTGATAACAGACTGGGAAAAAGATAAGATTTGGGACCTTCAATTCTTTTTGTGTTGTTACCTAATGAAATTGGTAGAC
TACAAACAATAAGCGATGTAA spacer length: 107 repeater length: 25
6390 194083 CCTTCAATTCTTTCTGTGTTGTTAC CACGGTTTATTCTTACCGTAATTATGAGTGGAAAATAA spacer
length: 39 repeater length: 25
6391 194148 CCTTCAATTCTTTCTGTGTTGTTAC TATCCTTTTGTAACAGTTCATTAAGATATTGCCTCAGTA
6392
6393
6394 crispr 3
6395 716213 GTAACAACACAAAAAGAATTGAAGG CTAACGTTTTCTTATTGATCACTAAGAATATGGTATGTA spacer
length: 40 repeater length: 25
6396 716279 GTAACAACACAAAAAGAATTGAAGG TTGAAAATCAGCATACGCTCTGGTCTCTCGGTGCAAA spacer
length: 38 repeater length: 25
6397 716343 GTAACAACACAAAAAGAATTGAAGG ACATTTAGCGATGTTGAATATGTATATATATGTGATGGCA spacer
length: 40 repeater length: 25
6398 716409 GTAACAACACAAAAAGAATTGAAGG TTCACTTTTTCATTGTTTATTTTAATTTTTGTTTTTGTAT
6399
6400
6401 GCA_000144915.1_ASM14491v1_genomic.fna(findCrispr):
6402 START REPEAT
SPACER
6403 crispr 1
6404 2 TTTCAACACCATTC TTGGTTTCCCATTTGGTAAATGAGATTGTGGTTACGCATCCAGAGCATAA spacer length:
49 repeater length: 15
6405 67 TTTCAACACCATTC TTGGTTTCGCCGTTGAAGTAGTCCTCGTCGTCGTCGACACCTCCTCCA spacer length:
49 repeater length: 15
6406 132 TTTCAACACCATTC TTGGTTTCTGATTGTAACCTGGGGCGCTGACAGGGTACATGTAGGTG spacer length: 46
repeater length: 15
6407 194 TTTCAACACCATTC
TTGGTTTCACGTGCCCTATGGAACGCTGAAGGTATACCTATCAAGGTCAAGTTTCAACGCCATTCCTTGGTTTCGCCAGAGTGTCA
ATTAACCCCCAACGTAAGCGGAGGGC spacer length: 114 repeater length: 15

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6408 324 TTTCAACACCATTCC TTGGTTTCATCTCCTTCTTGTCCTGCCAGGTACGCAATTATG spacer length: 44
 repeater length: 15
 6409 384 TTTCAACACCATTCC TTGGTTTCTTATGTCATACTCCTTTGCTGCCTCGTGGAGCTGTCCTGCTA spacer
 length: 50 repeater length: 15
 6410 450 TTTCAACACCATTCC TTGGTTTCTAGAGGACTTTCTTAACAACGCCATTGATATCCTTGTAAATCAG spacer
 length: 51 repeater length: 15
 6411 517 TTTCAACACCATTCC TTGGTTTCTAGAGCATATAAAGGAGGAAGATATCGAGAAGTTCCT spacer length: 45
 repeater length: 15
 6412 578 TTTCAACACCATTCC TTGGTTTCGCCAAGCACAAGCGACAACCCTAACCGCCCCCATGT spacer length: 44
 repeater length: 15
 6413 638 TTTCAACACCATTCC TTGGTTTCCAAGAGAAGTTTTATTTGACGCAGTAGACAACAAGGAAAGAG spacer
 length: 50 repeater length: 15
 6414 704 TTTCAACACCATTCC TTGGTTTCGCGTAGACCTGGAAGCGGTACTCTGCGTAGACAAGG spacer length: 44
 repeater length: 15
 6415 764 TTTCAACACCATTCC TTGGTTTCACATTTTGTGTTAGGCAGAGGACAGCAAATTTAACAGT spacer length: 45
 repeater length: 15
 6416 825 TTTCAACACCATTCC TTGGTTTCTAAATAACTCTCTCGTTCTCGTCTACCTCATAACGGTCGTTCTCTAA spacer
 length: 54 repeater length: 15
 6417 895 TTTCAACACCATTCC TTGGTTTCCAAGTTTGTTCAGAAAATTGCCTTGAAAGATTCAAGCTATTTCT spacer
 length: 52 repeater length: 15
 6418 963 TTTCAACACCATTCC GTTGAAACATGGCGTTCTGCGCAAGAATGCCGTGCTGTGGTATGTCATAGGA
 6419
 6420
 6421 crispr 2
 6422 19724 GAAACCAAGGAATGGTGTGAAAC TCTCTAAATACAATCGGCTTCTGATCCTTGGTAAATG spacer length:
 37 repeater length: 24
 6423 19786 GAAACCAAGGAATGGTGTGAAAC CCTCATGTTTCATTGGGATATAAATTGACAACTATCCACG spacer
 length: 39 repeater length: 24
 6424 19850 GAAACCAAGGAATGGTGTGAAAC GCTTCATGCCGATAAGGCCGGCTGACCTAAATTGGTTAAGA spacer
 length: 41 repeater length: 24
 6425 19916 GAAACCAAGGAATGGTGTGAAAC CATAGAAAGATAGTTTCAGGGGTTTAAATTTCCATAGGTTCA spacer
 length: 42 repeater length: 24
 6426 19983 GAAACCAAGGAATGGTGTGAAAC TGACGTTAGCGTGAACGGGGACAGGATAAGCATAACTATA spacer
 length: 40 repeater length: 24
 6427 20048 GAAACCAAGGAATGGTGTGAAAC ACTAGAACTTTATCCATGTCCACAAACCATGTTATGGC spacer length:
 38 repeater length: 24
 6428 20111 GAAACCAAGGAATGGTGTGAAAC CGAGAAACCAATTAACCTTAGACGCATACAAAAGATAATTAACGAGTCA
 spacer length: 49 repeater length: 24
 6429 20185 GAAACCAAGGAATGGTGTGAAAC TAAGTATCTTCAAAGCCCTTATAAACTTGCTACCCTCTTGA spacer
 length: 42 repeater length: 24
 6430 20252 GAAACCAAGGAATGGTGTGAAAC ACGCAATCATAGCCTTTGATGTTATCGCCACAGCTAACT spacer
 length: 39 repeater length: 24
 6431 20316 GAAACCAAGGAATGGTGTGAAAC CCTCCACTGGCCTGTAGGTATAGTTTGCGAAGTGGTATG spacer
 length: 39 repeater length: 24
 6432 20380 GAAACCAAGGAATGGTGTGAAAC CAAAAGTCCGTGTGGTCTTCCCCCTCAAATCGAAATATTG spacer
 length: 41 repeater length: 24
 6433 20446 GAAACCAAGGAATGGTGTGAAAC TCTGCACAGTGCACACTGAACCTGTTGGCCTTTCCGCC spacer length:
 38 repeater length: 24
 6434 20509 GAAACCAAGGAATGGTGTGAAAC
 TCTGAACAAACTTGCGGGTTTAACATTAACGAGAAATACGACAGTGAATAATAATA spacer length: 56 repeater
 length: 24
 6435 20590 GAAACCAAGGAATGGTGTGAAAC CTGCTATTATTTGCTTGTCATAATCTGTTGGCATAACCCCTGTG spacer
 length: 43 repeater length: 24
 6436 20658 GAAACCAAGGAATGGTGTGAAAC ATCAGCGTAAGCTGTTTCATACTTCCTCTGTGCAATTACAGT spacer
 length: 41 repeater length: 24
 6437 20724 GAAACCAAGGAATGGTGTGAAAC ACTTTCCACTCATATCTATTCTGAACGTCAACAATATAC spacer
 length: 39 repeater length: 24
 6438 20788 GAAACCAAGGAATGGTGTGAAAC AGGTTATACTGCCCCAGCGGCTTCGGCCTCCCCAG spacer length:
 36 repeater length: 24
 6439 20849 GAAACCAAGGAATGGTGTGAAAC CCATAGGGGAAGCTCCACTTCTTTCACAACTCTGC spacer length:
 36 repeater length: 24
 6440 20910 GAAACCAAGGAATGGTGTGAAAC GCAGCTTTGCCAGTTCTCCCTCAATAGTGTATTCTATA spacer length:
 37 repeater length: 24
 6441 20972 GAAACCAAGGAATGGTGTGAAAC TTTATGATATTAACGGTAGGCGCCGTGAGGACTAT spacer length: 35
 repeater length: 24
 6442 21032 GAAACCAAGGAATGGTGTGAAAC CTTGCTATCACGTCCCTAACGTTTCATGCCCTGGTCT spacer length:
 37 repeater length: 24
 6443 21094 GAAACCAAGGAATGGTGTGAAAC TGGGGCCATTCTCTGCTATCTCATACACTTCTTTCATA spacer length:
 38 repeater length: 24
 6444 21157 GAAACCAAGGAATGGTGTGAAAC ACTTGACCTCGTAATGATATTCGTGGTCGGCATAGTGGGCT spacer
 length: 41 repeater length: 24

6445 21223 GAAACCAAGGAATGGTGGTTGAAAC
GCCTTTTCGCGCTCACTTCCTCTCCACTGTTGTGCCGCTGTAAAGGAGTCGTTTACGTCATACACCTTTGCAGTCAGAACTTCC
TCTTCCACTGTTGTGCCGC spacer length: 105 repeater length: 24
6446 21353 GAAACCAAGGAATGGTGGTTGAAAC GTAGGGACCAGTAATGACCGTGCTTCAGGGAGGAATAGGAGGAAA spacer
length: 45 repeater length: 24
6447 21423 GAAACCAAGGAATGGTGGTTGAAAC AGTTCTTCAAACATCGCAAAAATAGCTGAGGAAAACG spacer length:
37 repeater length: 24
6448 21485 GAAACCAAGGAATGGTGGTTGAAAC TTTATATAAAACCTGGTGAACCTACATGGCTACTCGTAAGCTTC spacer
length: 43 repeater length: 24
6449 21553 GAAACCAAGGAATGGTGGTTGAAAC ATCCTAATGACGTCCATTGGCACTCCAGGGACTTCCTCA spacer
length: 39 repeater length: 24
6450 21617 GAAACCAAGGAATGGTGGTTGAAAC TAGATATTTGGGCTCACGAAAATCTTTCTGTCATGAAGT spacer
length: 39 repeater length: 24
6451 21681 GAAACCAAGGAATGGTGGTTGAAAC TGCTGGATGCCGGTAGCGGGCCCCCTTGGCACTTCTACGGTAGAAC spacer
length: 45 repeater length: 24
6452 21751 GAAACCAAGGAATGGTGGTTGAAAC ACTACGCCGTGGAGGCAATGTCCTTTGCTCTCGAG spacer length: 35
repeater length: 24
6453 21811 GAAACCAAGGAATGGTGGTTGAAAC GTCCTCACCAGGCCCACAAGTTCAATTGGTGTCTTTAGCG spacer
length: 39 repeater length: 24
6454 21875 GAAACCAAGGAATGGTGGTTGAAAC ACTTCCTGCGCGCTCACGCTCTCTCGCTCGCTTTTCTGT spacer
length: 40 repeater length: 24
6455 21940 GAAACCAAGGAATGGTGGTTGAAAC TCTTATTTCTTCGCCGCCCCAGGCCGCTACTATTTCCGC spacer
length: 39 repeater length: 24
6456 22004 GAAACCAAGGAATGGTGGTTGAAAC
CAGGTGAAACAAAATATAATATGTCAATTGCGTTGTTTAGGAACTAAGGAATGGTGGTTGAAACATGCACCACAAGGTAGTATCCT
TCGTCGAGATACCTACT spacer length: 103 repeater length: 24
6457 22132 GAAACCAAGGAATGGTGGTTGAAAC TCACTGTTTCCCTCGCACGGGTGGGTAGATTCCAC spacer length:
36 repeater length: 24
6458 22193 GAAACCAAGGAATGGTGGTTGAAAC TGTGGCAAGCTTTCTCCTTTGCTTTATCTCGCTTATTGTCTTTG spacer
length: 44 repeater length: 24
6459 22262 GAAACCAAGGAATGGTGGTTGAAAC TCTCAATGAGGTGTTGCAGTAGCTTCACGTCATTCCGTGCGAAA
6460
6461
6462 crispr 3
6463 5774 GAAACCACGAGATGGTGGTTGCAAC GAAGACCAACAGACTCAGGCTCTGAGTCAGGAAGCCTAA spacer length:
39 repeater length: 24
6464 5838 GAAACCACGAGATGGTGGTTGCAAC AACTCCGTTACGTCAATGTCTACCGTGATCATGATGTCAGCC spacer
length: 42 repeater length: 24
6465 5905 GAAACCACGAGATGGTGGTTGCAAC GGTTGAACGCTACTTGTGCTAGAAAGTCGTCATCGTTTTCA spacer
length: 41 repeater length: 24
6466 5971 GAAACCACGAGATGGTGGTTGCAAC TAGAACGTTAGCGGAATGACGCCAAGCTGGAATGCCGT spacer length:
38 repeater length: 24
6467 6034 GAAACCACGAGATGGTGGTTGCAAC TTGCCCTGGCGTGGACCTTAGAACCTGGTGCCTTGA spacer length:
37 repeater length: 24
6468 6096 GAAACCACGAGATGGTGGTTGCAAC CTGGGGAGCATGCCTAGGGAGAAGGCGTTGGCTAAAATAACCCT spacer
length: 44 repeater length: 24
6469 6165 GAAACCACGAGATGGTGGTTGCAAC TGAGGCATGGCCTCAGGGTCAAGGCGAAAGAAAGAAATGAA spacer
length: 41 repeater length: 24
6470 6231 GAAACCACGAGATGGTGGTTGCAAC TAGTGAAGTCCTTCAGTTCGGCCAAAAAGCGCCATCA spacer length:
38 repeater length: 24
6471 6294 GAAACCACGAGATGGTGGTTGCAAC GGC GTTCTGCGCAAGAATGCCGTGCTGTGGTATGTCAT
6472
6473
6474 crispr 4
6475 1415505 GAATCCGCTCAATGGAATTGAAAG AATACTATTAGTTATCACAGAGCGTTTATAAATTTT spacer length:
36 repeater length: 24
6476 1415566 GAATCCGCTCAATGGAATTGAAAG CAGGGTAAATACGTCGGCCTTGCCATAGGTGCCATTCTCA spacer
length: 40 repeater length: 24
6477 1415631 GAATCCGCTCAATGGAATTGAAAG CTATTTTAGTCTCGGCATGGGCGGAAGCGCAAGACTTAC spacer
length: 41 repeater length: 24
6478 1415697 GAATCCGCTCAATGGAATTGAAAG CTCGCCCATGTTAGCCAGCGCAACCGCAGCGTCTGCTAGGTGCGG
spacer length: 45 repeater length: 24
6479 1415767 GAATCCGCTCAATGGAATTGAAAG TTATTCAAGAAAAAGTCCCGGGCAAAGGCCCTTACGCTT spacer
length: 39 repeater length: 24
6480 1415831 GAATCCGCTCAATGGAATTGAAAG GTTAGCCTTTATGTAGTCCTCTATAGCCTCCCGGACTAT spacer
length: 39 repeater length: 24
6481 1415895 GAATCCGCTCAATGGAATTGAAAG CTCAATGAGGTGTTGCAGTAGCTTCACGTCATTCCGTGCG
6482
6483
6484 crispr 5
6485 15743 GTTACAACACCATCTCGTGGTTTC GCGGATGTATCACCTAAAGCCGAAGTTTGTGATAAG spacer length:

36 repeater length: 24
6486 15804 GTTACAACACCATCTCGTGGTTTC TGGATTACTTGCGGCAAACATACTTAGTTTCTACTCTT spacer length:
38 repeater length: 24
6487 15867 GTTACAACACCATCTCGTGGTTTC CCGAGTATGTTACGTCCTCTGCCTCAGAAAGGCCGAGCCTT spacer
length: 42 repeater length: 24
6488 15934 GTTACAACACCATCTCGTGGTTTC GCAGGCTCTGGAAGGCCATACTGTCCCTACAGAACCCAGA spacer
length: 40 repeater length: 24
6489 15999 GTTACAACACCATCTCGTGGTTTC TTTCTATCTGAGGCGTGAGAGCATGGGTGAGAGGGTTTCT spacer
length: 40 repeater length: 24
6490 16064 GTTACAACACCATCTCGTGGTTTC GAAGTTTAAGCTATTCTTGCTAACACATATCAATCAACTCA spacer
length: 41 repeater length: 24
6491 16130 GTTACAACACCATCTCGTGGTTTC AGTTTTTATGAAAAATCCTTAAAGAACTTGGCCTTTCT spacer
length: 39 repeater length: 24
6492 16194 GTTACAACACCATCTCGTGGTTTC GCGTTTATTACGCGACCTGGGGCAGCGCAACAGTGGAAG spacer
length: 40 repeater length: 24
6493 16259 GTTACAACACCATCTCGTGGTTTC GCGTCTTTCTTTATAATTGACCATTGATGAATTTTGTTT spacer
length: 39 repeater length: 24
6494 16323 GTTACAACACCATCTCGTGGTTTC GTTGTATACGATAACTACGGGTCTGGGTCCATCCAACCT spacer
length: 40 repeater length: 24
6495 16388 GTTACAACACCATCTCGTGGTTTC TACAAACACGTTTGCCTGTTTGAAGAAGCTGGGCCTTATA spacer
length: 40 repeater length: 24
6496 16453 GTTACAACACCATCTCGTGGTTTC GTCTCAGAATGAAAGCTCGGAGGGGACTCCCCAGACT spacer length:
37 repeater length: 24
6497 16515 GTTACAACACCATCTCGTGGTTTC CGAGAGACGTGAGCGAGGTGAGGAATGTGGAGAGCGAGTTG spacer
length: 41 repeater length: 24
6498 16581 GTTACAACACCATCTCGTGGTTTC ACGGGGAAAGAAACCATCACCGGAACGGTAGTAGGGGGGAATG spacer
length: 43 repeater length: 24
6499 16649 GTTACAACACCATCTCGTGGTTTC GGCTGTTTCACTGCCTGCAGGAGCACCCAGAGTACTTG spacer length:
37 repeater length: 24
6500 16711 GTTACAACACCATCTCGTGGTTTC GAGGTGCTAAAGAACGGGTTCACATCTGTCGTGGGCCACC spacer
length: 40 repeater length: 24
6501 16776 GTTACAACACCATCTCGTGGTTTC AGGAAGTTCAGTTCGTTGAACCTCTACGACATAATCTTT spacer
length: 39 repeater length: 24
6502 16840 GTTACAACACCATCTCGTGGTTTC TAGCCGTTTCGGGATTGACGTGGAACGGCTGCGCTCTTATGG spacer
length: 41 repeater length: 24
6503 16906 GTTACAACACCATCTCGTGGTTTC ATTACATCTCAAGATCAGGGCTAACATGGAGCGGTT spacer length:
36 repeater length: 24
6504 16967 GTTACAACACCATCTCGTGGTTTC TATTCATTATGGACAAAGCGTTCAATGTTTACAACAACACC spacer
length: 42 repeater length: 24
6505 17034 GTTACAACACCATCTCGTGGTTTC TCGTATGGGTCTTTTTTGGGCTCTACGCATGTTTGGA spacer length:
38 repeater length: 24
6506 17097 GTTACAACACCATCTCGTGGTTTC TCAGCGCTACAAACATGTCCTTCCCAGCTGGCTACATA spacer length:
38 repeater length: 24
6507 17160 GTTACAACACCATCTCGTGGTTTC TAGCTCTTTTTCTTCGCTTGCCCCATGGCCCCATGGC spacer length:
38 repeater length: 24
6508 17223 GTTACAACACCATCTCGTGGTTTC TATCAGGAGGTTGCCATCAGCATTTGTTCTGGCTGGGGCTA spacer
length: 41 repeater length: 24
6509 17289 GTTACAACACCATCTCGTGGTTTC GAATCCGTCCAAGGTGGGAGCTCAACGACAGGAATCCATCC
6510
6511
6512 GCA_000145985.1_ASM14598v1_genomic.fna(findCrispr):
6513 START REPEAT
SPACER
6514 crispr 1
6515 536391 TCAATTCC ATATATTGGATTCATAGAGGTATATACGGGAAGATCCTTGTTTACGATATGTACTACAACCT spacer
length: 61 repeater length: 8
6516 536461 TCAATTCC ATATATTGGATTCTGAGCTTATAAAAAGAATTGTTACCGACATAGAGAGACATACTGACT spacer
length: 60 repeater length: 8
6517 536530 TCAATTCC ATATATTGGATTTCGGGAATATATGAACACAGCGGTATACCAATTTATGTGATTGATACACT spacer
length: 61 repeater length: 8
6518 536600 TCAATTCC ATATATTGGATTCCCTTAAGGAGAATGGCTTTGATCCAACAAGAACAATTGTATTCTACAACCT
spacer length: 62 repeater length: 8
6519 536671 TCAATTCC ATATATTGGATTCCACTAGGTTGGCGATTGCAGGCTCAATGATTGGAGAAATACGGGCT spacer
length: 59 repeater length: 8
6520 536739 TCAATTCC ATATATTGGATTCTAGCTAATCGAGGAAAAAGATTATGACGCAATGGCATTCTATAAACT spacer
length: 58 repeater length: 8
6521 536806 TCAATTCC ATATATTGGATTCAATGTTCTCGTTCTTTGGGAAGTGGGGCGATCCAGATAAATACAATCT spacer
length: 61 repeater length: 8
6522 536876 TCAATTCC AAAAGGGAGTAGAAAGATGAATACATATGATACATATCCCCTTGTTGCCATTCAAGAATCTT
6523
6524

6525 crispr 2
 6526 546661 TCCTATAAA TGGAAATTGAAAGCTCTGGAATCTCATCGCTTACATTCATAGTTAGACCTGGCAAGCAGTGA
 spacer length: 61 repeater length: 9
 6527 546732 TCCTATAAA TGGAAATTGAAAGTACAGACCTATAACATTGAGCAAGTATCCAGAACAGTATGAAAGGAAGA
 spacer length: 61 repeater length: 9
 6528 546803 TCCTATAAA TGGAAATTGAAAGTTACCCGTGAGCGGATCCATCTTCAATATGTTATGAGTCCTGTAAGA spacer
 length: 60 repeater length: 9
 6529 546873 TCCTATAAA TGGAAATTGAAAGATCGTATCACGGATCTTGGCAAAGACGTCAATATCAGAAATTGAGGA spacer
 length: 59 repeater length: 9
 6530 546942 TCCTATAAA TGGAAATTGAAAGATAGAGAAGATATGCAGCCAGACTAGACCTGATAAACACTCTACAGTTAAGA
 spacer length: 64 repeater length: 9
 6531 547016 TCCTATAAA TGGAAATTGAAAGGTAGACGTAGCAACACGCGGCCACAGACCGCCATCCACCTTCAAGA spacer
 length: 58 repeater length: 9
 6532 547084 TCCTATAAA TGGAAATTGAAAGTGTGGAGAAAACCTTGGAAATGATTTTGTATCAAACACAGAAATGGAATCTGA
 spacer length: 63 repeater length: 9
 6533 547157 TCCTATAAA TGGAAATTGAAAGCACTGAGTTCTCATTAGTTTTTTCTTTTAAGGTGTGTCCACCTAGA spacer
 length: 58 repeater length: 9
 6534 547225 TCCTATAAA AAAGGGAGTAGAAAGTGGCGATTCTAATCATCGCACTTCTCTGTCTTGGTTTtagAGGT
 6535
 6536
 6537 crispr 3
 6538 869202 GAAACTCCCAAAAGGGAGTAGAAA GATCTACATCACATTATCAGAGCTTCCATCCTATCTCTCAGAAT spacer
 length: 44 repeater length: 24
 6539 869271 GAAACTCCCAAAAGGGAGTAGAAA GGTCACCTATAATGATATTGAACAAAGACGAGTCTATAACATATT spacer
 length: 44 repeater length: 24
 6540 869340 GAAACTCCCAAAAGGGAGTAGAAA GTCTAGACATAGGATATTTAATGATGGAGATAGAGGAGATCAAGA spacer
 length: 45 repeater length: 24
 6541 869410 GAAACTCCCAAAAGGGAGTAGAAA GCGGAGTCTATTCTGTGCGAGACCTCCTTGTAGACACATTTGTTG spacer
 length: 45 repeater length: 24
 6542 869480 GAAACTCCCAAAAGGGAGTAGAAA GATCTACACCACCTCTTTTTTCTTGAACATGATTCTATAATATAGCTTTCT
 spacer length: 50 repeater length: 24
 6543 869555 GAAACTCCCAAAAGGGAGTAGAAA GACTAGCACCATCTACGTCATTGGTTATCCGTTCCAGTTGCTA spacer
 length: 43 repeater length: 24
 6544 869623 GAAACTCCCAAAAGGGAGTAGAAA GGCCCAGCCACCGCCGCCCATGGGTTAAAGCATGATAGA spacer
 length: 39 repeater length: 24
 6545 869687 GAAACTCCCAAAAGGGAGTAGAAA GCAAGATGTTAGAAGAAAGTATGAGGCGATGAGAAGGGAAGCGCTTA
 spacer length: 47 repeater length: 24
 6546 869759 GAAACTCCCAAAAGGGAGTAGAAA GTTGCATAGTGGAGTATTATCCTTACAACATCTGTTGATGCTATTGGGTCTT
 spacer length: 52 repeater length: 24
 6547 869836 GAAACTCCCAAAAGGGAGTAGAAA GGTGTTTTTCGAGAGGAACATTAGGTGTGAAAGCAGTTTTATTAGGTATG
 spacer length: 50 repeater length: 24
 6548 869911 GAAACTCCCAAAAGGGAGTAGAAA GGTTAACATCTCTATACTCATTAACACATATCTTAACATTCTCA spacer
 length: 44 repeater length: 24
 6549 869980 GAAACTCCCAAAAGGGAGTAGAAA GATGTGCTCAGCTTCAGGTAGTGTCTGCTCAACACTTCTGTGGAA
 spacer length: 46 repeater length: 24
 6550 870051 GAAACTCCCAAAAGGGAGTAGAAA GATTAGAAATGCTACTCTTTTCCCTGTCTCCGAGTCTCCCAACTCA
 spacer length: 47 repeater length: 24
 6551 870123 GAAACTCCCAAAAGGGAGTAGAAA
 GGTAGGCGGTGGCGGTGGCTGTGCTGGCTTTACATATGTTATAGTTGTATTTG spacer length: 53 repeater
 length: 24
 6552 870201 GAAACTCCCAAAAGGGAGTAGAAA GTCTATGTTAGCTTCTATGTGCGAGTATATAACAATTCCTAAAGAAT
 spacer length: 47 repeater length: 24
 6553 870273 GAAACTCCCAAAAGGGAGTAGAAA GAGCCACGAATATATCCACGCAGCCAAGCTACACCAACTAGCCCTA
 spacer length: 46 repeater length: 24
 6554 870344 GAAACTCCCAAAAGGGAGTAGAAA GATTTGATATAGATGTAGATGCACCTGCATGGATATATCTATTGCC
 spacer length: 46 repeater length: 24
 6555 870415 GAAACTCCCAAAAGGGAGTAGAAA
 GAACGACAAACCAATCCGTCATAGTCGTGCAACCATCCGTACCATAGTGTGT spacer length: 53 repeater
 length: 24
 6556 870493 GAAACTCCCAAAAGGGAGTAGAAA GTATCAGATATAGACGCAATGGACTTGACAGAGCTATCACTGAGA spacer
 length: 45 repeater length: 24
 6557 870563 GAAACTCCCAAAAGGGAGTAGAAA GATATAATATATATAGTCCAGAGACAGCAGAACACTACTCATC spacer
 length: 43 repeater length: 24
 6558 870631 GAAACTCCCAAAAGGGAGTAGAAA GATAGGAGAATCATGGTGTAAACAACATTGTTAGATGCTCCTATGATACTG
 spacer length: 50 repeater length: 24
 6559 870706 GAAACTCCCAAAAGGGAGTAGAAA GCTAGACTCATAACCAAAGAATATACGCCTGCTCAACAGACTATGCACT
 spacer length: 51 repeater length: 24
 6560 870782 GAAACTCCCAAAAGGGAGTAGAAA GATGAATACATATGATACATATCCCCTTGTGCCATTCAAGAATCTTATA
 spacer length: 49 repeater length: 24
 6561 870856 GAAACTCCCAAAAGGGAGTAGAAA TGAATACATATGATACATATCCCCTTGTGCCATTCAAGAATCTTATATG
 6562

6563
 6564 crispr 4
 6565 566965 GAATCCTATATATGGAATTGAAAG CAGAGACAAAGCATGTTGATGTTACTGAGGAGATTAGGAAGAG spacer
 length: 43 repeater length: 24
 6566 567033 GAATCCTATATATGGAATTGAAAG CATTAACCTCTTCTGCCTCTATAGCTTCTTCTCAACGCCTGT spacer
 length: 42 repeater length: 24
 6567 567100 GAATCCTATATATGGAATTGAAAG TAACATGTCATTTAGTAGATCCACCAATGAGACCTGACCAGAGAGATA
 spacer length: 48 repeater length: 24
 6568 567173 GAATCCTATATATGGAATTGAAAG TGTGCTATACCAGCACCTATCCTCTTAAGTTCACCCAATGTTA spacer
 length: 43 repeater length: 24
 6569 567241 GAATCCTATATATGGAATTGAAAG TAAATGCCAACGCTTCATACATGTTTGACATTGTAGTTGA spacer
 length: 40 repeater length: 24
 6570 567306 GAATCCTATATATGGAATTGAAAG GTTCAGCAGAATCATGAAGTTCAGCAGAAAGCTGTCTG spacer
 length: 38 repeater length: 24
 6571 567369 GAATCCTATATATGGAATTGAAAG TCTATCCCCTGATAATATCTAGCACAGACTTTGCCAAGACCTTGA spacer
 length: 45 repeater length: 24
 6572 567439 GAATCCTATATATGGAATTGAAAG TTAGAACTATAGTATCTCACATCTCTCGACATACACCTTCCTCCTC
 spacer length: 46 repeater length: 24
 6573 567510 GAATCCTATATATGGAATTGAAAG TGCTCAGAACCCTTGACAGCACAGCGTCTTCTAGGCTGGGC spacer
 length: 41 repeater length: 24
 6574 567576 GAATCCTATATATGGAATTGAAAG GATATATCTTAGAACTCTATCCTTAGCCCAATCATATATGACA spacer
 length: 43 repeater length: 24
 6575 567644 GAATCCTATATATGGAATTGAAAG GGCGATTCTAATCATCGCACTTCTCTGTCTTGGTTTAGAGGTT
 6576
 6577
 6578 crispr 5
 6579 856541 CTTTCTACTCCCTTTTGGGAGTTTC
 TTAACAAGCAGCTATGGATCAGCTGTCATAGTCGGCGTCGCGGACGTCTTTCTACTCCCTTTTGGAGTTTCTTAACTGTATCAAA
 TCCGCGATTCTGGTTCAGAGCAACGGACAAAT spacer length: 118 repeater length: 25
 6580 856685 CTTTCTACTCCCTTTTGGGAGTTTC TGTTGTAACACTTTATTTATAGACTCGAGATCTAGTCTATACGCAATCGAG
 spacer length: 51 repeater length: 25
 6581 856762 CTTTCTACTCCCTTTTGGGAGTTTC GTTCTACATAGATAGTAGCGGGAATACGGTTTACGTAACCTGCGTA
 spacer length: 45 repeater length: 25
 6582 856833 CTTTCTACTCCCTTTTGGGAGTTTC
 AGATATATGGACAGGTGCTACAGGCTATAGCATCCATCAGAGCTTTCTACTCCCTTTTGGAGTTTCAGGATATAGCCTATAGCAA
 ATATAAACTCCAAAGAGACACAGAAA spacer length: 114 repeater length: 25
 6583 856973 CTTTCTACTCCCTTTTGGGAGTTTC CAGATATGTGTCAGGCTTCCCCGTGCAATAAGGAAATATTTGGAGCAG
 spacer length: 48 repeater length: 25
 6584 857047 CTTTCTACTCCCTTTTGGGAGTTTC
 CTTACTGCTTTGGGTACATATGTCTCTGGCTCTAGCCCTAGGAAGTTGTAGTATG spacer length: 54 repeater
 length: 25
 6585 857127 CTTTCTACTCCCTTTTGGGAGTTTC ATTTTTTGAGGTGGGAAGATGGGAAGAGACTATGTATACCTTGGA
 spacer length: 48 repeater length: 25
 6586 857201 CTTTCTACTCCCTTTTGGGAGTTTC TCTCCTCATGCCGAGCTTTACAAGTAATGAGTATGTAACCTATGTCTA
 spacer length: 47 repeater length: 25
 6587 857274 CTTTCTACTCCCTTTTGGGAGTTTC ACGTATGATTCCTCGATCTTATCCTTCTGGCAGAGTAGCGTTCCA
 spacer length: 45 repeater length: 25
 6588 857345 CTTTCTACTCCCTTTTGGGAGTTTC GTGGTAGAGTTATCGAGGTGGGTAGGCCAGATGTTGACGTTACGAAG
 spacer length: 48 repeater length: 25
 6589 857419 CTTTCTACTCCCTTTTGGGAGTTTC TCATTTACAAATCCGTATTGGTTCGTTAGGAGAGCTCTCAAAGATA
 spacer length: 45 repeater length: 25
 6590 857490 CTTTCTACTCCCTTTTGGGAGTTTC ATCAAGCAACAATAAGAGCTTGATCATCATAGCTATTGTACTTAGACC
 spacer length: 48 repeater length: 25
 6591 857564 CTTTCTACTCCCTTTTGGGAGTTTC AATTGCCTTTGCAGGTTATTTCTTGGGGCTTACAGAGACTA spacer
 length: 42 repeater length: 25
 6592 857632 CTTTCTACTCCCTTTTGGGAGTTTC TTGGCTTGTGATCTGCGGACTTTGCGATTAACTATCTTGATTAA spacer
 length: 44 repeater length: 25
 6593 857702 CTTTCTACTCCCTTTTGGGAGTTTC TGCTGGACATGGATAACCTCAATGGGCTGTCTCCGATCATGA spacer
 length: 43 repeater length: 25
 6594 857771 CTTTCTACTCCCTTTTGGGAGTTTC
 AGGGATACTAACATCTCTATTGCCATTGATATTAACAATAGTTGTCATCATG spacer length: 52 repeater
 length: 25
 6595 857849 CTTTCTACTCCCTTTTGGGAGTTTC TATATAAGACGTATTTCGAGATAATAGATCTATTTCGCTGTAAG spacer
 length: 43 repeater length: 25
 6596 857918 CTTTCTACTCCCTTTTGGGAGTTTC AATAGACATTTCGTCAATAGCTGTGCCCTGATTGTTGCAACAACAA
 spacer length: 45 repeater length: 25
 6597 857989 CTTTCTACTCCCTTTTGGGAGTTTC AGGCGTGCTATCATGATTGGCTCTGTGCTGCGATCCTGACTGT spacer
 length: 44 repeater length: 25
 6598 858059 CTTTCTACTCCCTTTTGGGAGTTTC GTGTGGAGAAAACCTGGAAATGATTTTGATCAAACACAGAAATG
 6599
 6600

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6601 crispr 6
6602 1494345 GAATCCAATAAAATGGAATTGAAAGA
TCTTCCGTTATAACAAGGTATTCCGCAAGTGTAGCTAGTTGTGGAATCCAATAAAATGGAATTGAAAGTACTTGGGATGATAGGTCT
TGGTGTAGCTACATGGATATTTGTT spacer length: 111 repeater length: 25
6603 1494482 GAATCCAATAAAATGGAATTGAAAGA GGTATGTTATCAGGTAGTAGGTCTGGGCTGGGATAATTACGTGGGG
spacer length: 46 repeater length: 25
6604 1494554 GAATCCAATAAAATGGAATTGAAAGA
GCCATATCCCAACCTATTATTGCAAAATTATATTTATTTAGGAATCCAATAAAATGGAATTGAAAGTTCTTAACAATGTCCTCGACT
ATATGTATCTGGAGAGCGTTTGGT spacer length: 110 repeater length: 25
6605 1494690 GAATCCAATAAAATGGAATTGAAAGA
TTTCCAGATCGGAAGTTGTTATCATTTATCCACACACTATACTTTATGGAATCCAATAAAATGGAATTGAAAGGTATATCCTTAGCT
GCTTAAGTTTCTCTTCAAGCATCTTCTCATCTA spacer length: 119 repeater length: 25
6606 1494835 GAATCCAATAAAATGGAATTGAAAGA
CTGAGTTCTCATTAGTTTTTTCTTTTAAGGTGTGTCCACCTAGAATCCTATAAAATGGAATTGAAAGCTGAGGGGCTGGCCTCTGTG
ATTCTGAGAGCCATTTGACAACTAGGAATCCTA

6607
6608
6609 GCA_000147875.1_ASM14787v1_genomic.fna(findCrispr):
6610 START REPEAT
SPACER
6611 crispr 1
6612 51388 GTCGGTGTGCTGCTGTCGTGGG GTTGGAGTTGCAGTGGTTGG spacer length: 21 repeater length: 20
6613 51430 GTCGGTGTGCTGCTGTCGTGGG GTTGGAGTTGCAGTGGTTGG spacer length: 21 repeater length: 20
6614 51472 GTCGGTGTGCTGCTGTCGTGGG AGTTGGAGTTGCAGTGGTTGG spacer length: 21 repeater length: 20
6615 51514 GTCGGTGTGCTGCTGTCGTGGG AGTTGGAGTTGCAGTGGTTGG spacer length: 21 repeater length: 20
6616 51556 GTCGGTGTGCTGCTGTCGTGGG GGTCTTCGGGTAGCCCAGAGT
6617
6618
6619 crispr 2
6620 33479 CATATGGTTATGAGAATACCGGGTCT
CCGGGTAGCCCGGAGTGGACTGCGAAATCTTCTTGGGAATACCCTTGATATAGGTTCTGCTTCAAACAGCTTTTGCCGATCTTGA
CGGTGACGGTGATTATGACCTTATGATTGGAATATCTACAGGATTC spacer length: 132 repeater length: 26
6621 33638 CATATGGTTATGAGAATACCGGGTCT
CCGGGTAGCCCGGAGTGGACTGCGAAATCAGAATGGGATAGCCCTGATGATATAGGTTCTACTTCAAACCCAACTTGACCGATCT
TGACGGTGATGGCGACTATGACCTTATGATCGGTGAATCTCAAGGCGTT spacer length: 135 repeater
length: 26
6622 33800 CATATGGTTATGAGAATACCGGGTCT
GGTAGCCAGAGTGGACTGCGAAATCCGAATGGGATAGCCCTGATGTAGGCAATTCTGCAGCACCGGCATTGGCCGATCTTGATGG
TGATGGTGACTATGACCTTATGATCGGTGCAAGTGATGGAATCACATAT

6623
6624
6625 GCA_000148385.1_ASM14838v1_genomic.fna(findCrispr):
6626 START REPEAT
SPACER
6627 crispr 1
6628 1084987 GAAGAT TTCAATAGAATATTGAAAGATGTTGAGTGCACCTAACTCCCTGAGTAATTTAATCGCCTCGCTTGTATT
spacer length: 69 repeater length: 6
6629 1085063 GAAGAT TTCAATAGAATATTGAAAGTTTATTATCGAAATGCCATAATCTTCCGAATCCTGCTATTTGAG
spacer length: 63 repeater length: 6
6630 1085133 GAAGAT TTCAATAGAATATTGAAAGATTATCATTGATATTAGGTTTCCGTCTCTTTTCGATGCTCTCGATTTTCGT
spacer length: 68 repeater length: 6
6631 1085208 GAAGAT TTCAATAGAATATTGAAAGTAATGAGACGTGAACCTGTTTGGGGGGATAATGATGGAGT spacer
length: 59 repeater length: 6
6632 1085274 GAAGAT TTCAATAGAATATTGAAAGCCGTGCAAAACCTTCCTCCAGTGTTATGAACCGCGAAACACC spacer
length: 62 repeater length: 6
6633 1085343 GAAGAT TCAATAGAATATTGAAAGCCGTGCAAAACCTTCCTCCAGTGTTATGAACCGCGAAACACCA
6634
6635
6636 crispr 2
6637 135395 TTCAATATT
CTATTGAAATCTTCGCTACATAACCGTATGGGTGTGGGACTCTATGGCGGAAATGTACCTTTCAATATTCTATATGAAATCTTCTC
CCTGATTGAGGTGAGGTATGAGTCAATGCCGTGGCGATATAATAC spacer length: 130 repeater length: 9
6638 135535 TTCAATATT CTATTGAAATCTTCCGTTCATATCATTTGCCCTTTTCAACTTTGGCATCATGAGGATC spacer
length: 58 repeater length: 9
6639 135603 TTCAATATT CTATTGAAATCTTCTGAGGATGGACTACAAATCAGGCTGTTCAAGGGAAGGAAGTAC spacer
length: 57 repeater length: 9
6640 135670 TTCAATATT CTATTGAAATCTTCCAAATTGTGTGCTATAAAGTCGGGGAAGATGCATTTAATGGAGACC spacer
length: 60 repeater length: 9
6641 135740 TTCAATATT CTATTGAAATCTTCAACAAGGATATAGAATAGTAAGGGCGAGTGAGGCATTATTACAAAGGGC
spacer length: 62 repeater length: 9
6642 135812 TTCAATATT CTATTGAAATCTTCTGCGGAGATGAACGATGCAGGTGTGTGGCAGAAACGCTCAAGC spacer

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length: 57 repeater length: 9
6643 135879 TTCAATATT CTATTGAAATCTTCGTGACTGGAGGCTTGCCTCGAGTGTGGCTTGAGGGTTATCACC spacer
length: 58 repeater length: 9
6644 135947 TTCAATATT CTATTGAAATCTTCCCGGGGACGTACAACGGCAGGTCATGGTCGCCGGCTACCAAGCC spacer
length: 59 repeater length: 9
6645 136016 TTCAATATT TTGAAATCTTCCAGGGAAGCATTGCTAATGTTTTATCAGCGCATAATGGCATCGTCT
6646
6647
6648 crispr 3
6649 1601283 CCTTCTATTCTCTTTAGAGATTA TCTCTCGTACTCACACATACTCGATCCTGGCACTCATGAATTCCT
spacer length: 47 repeater length: 23
6650 1601354 CCTTCTATTCTCTTTAGAGATTA TCCTCACCACATTGAGGTCCCTGGCTCATTTCATCGACATACCAAACAAC
spacer length: 49 repeater length: 23
6651 1601427 CCTTCTATTCTCTTTAGAGATTA TCCGTTCCGTTGTATATCCACACGTTGTAAACCGAGTTGTACGTGA
spacer length: 46 repeater length: 23
6652 1601497 CCTTCTATTCTCTTTAGAGATTA TCTTGGAGTCATTTGTTTTGCCCGTACTGTCAACAGCTACACCGTTAG
spacer length: 48 repeater length: 23
6653 1601569 CCTTCTATTCTCTTTAGAGATTA TCCTGAATACGTAGGTGCCTGGTGCCGTGAAGCCACTCGAAATA
spacer length: 49 repeater length: 23
6654 1601642 CCTTCTATTCTCTTTAGAGATTA CCAGCCTAGGCCTGTCTTGCCGCCGCCGACCGCGGTGCGAGATAGTG
spacer length: 46 repeater length: 23
6655 1601712 CCTTCTATTCTCTTTAGAGATTA
TCGCCGGCCCGAGCTCATGTTACTGCAAACTCGAGGGGATTGGGTGCACGCAGA spacer length: 54 repeater
length: 23
6656 1601790 CCTTCTATTCTCTTTAGAGATTA TCAAAAACCTTATAAATCAGTCCTGAGCAAAAACAATGTATGAAAGAA
spacer length: 47 repeater length: 23
6657 1601861 CCTTCTATTCTCTTTAGAGATTA TCATTCCTAATCACCTACACCTCAAATTCGCAGGTAATGGAATAACTTC
spacer length: 49 repeater length: 23
6658 1601934 CCTTCTATTCTCTTTAGAGATTA TCTCGTTAAAAGATACGGGGCAGGAAATAATGACATTTGAAGAGGGATT
spacer length: 49 repeater length: 23
6659 1602007 CCTTCTATTCTCTTTAGAGATTA TCGTGTCTAAAAATGACGATGCATGTGAGTGGTTTAAGGCGTGGTTGAC
spacer length: 49 repeater length: 23
6660 1602080 CCTTCTATTCTCTTTAGAGATTA TCTCAGTAGTCATTATGATGTACTGCCAGACGGCCATTCCCCTATTG
spacer length: 47 repeater length: 23
6661 1602151 CCTTCTATTCTCTTTAGAGATTA TCTACTGTGAATGCGTTGAATGTCAACACAGCTACTTACCAGCAA spacer
length: 45 repeater length: 23
6662 1602220 CCTTCTATTCTCTTTAGAGATTA TCAATACAATAATAAGAGTCCCTGCGGACCCTAACGGTAAGCCGACA
spacer length: 47 repeater length: 23
6663 1602291 CCTTCTATTCTCTTTAGAGATTA TCAAAGATGGTGCCAGTATTGCCAGGCAATGAAATTCATGATGGTT
spacer length: 46 repeater length: 23
6664 1602361 CCTTCTATTCTCTTTAGAGATTA TCTAAAGCAGTCTATCAAGCATTCCGTGATTTTCCTTAAGGAAA spacer
length: 43 repeater length: 23
6665 1602428 CCTTCTATTCTCTTTAGAGATTA TCTCTCTTATAGTAGGGTAGTTAGGTAGGGTAGGGTTGTGTGTGTGGGG
spacer length: 49 repeater length: 23
6666 1602501 CCTTCTATTCTCTTTAGAGATTA TCTCGGTGGTGTGAACCGTGTGGTGCGAAGTTAATTGAGGTTAGTC
spacer length: 47 repeater length: 23
6667 1602572 CCTTCTATTCTCTTTAGAGATTA TCTCAACGGTATCGTGGAATTCAGGTGTTTCGGTAATCACCTC spacer
length: 43 repeater length: 23
6668 1602639 CCTTCTATTCTCTTTAGAGATTA TCATAAATCACCGTACTCAATGCATGAAACGACCTTGATGAAACCCATCAC
spacer length: 51 repeater length: 23
6669 1602714 CCTTCTATTCTCTTTAGAGATTA CCGTTGCAAAACCTTCCTCCAGTGTTATGAACCGCGAAACACCAGAAGATT
6670
6671
6672 crispr 4
6673 1610754 GATATTCTCTAAAGAGAATAGAAGG GTGCTGTTGATGATCCATGTGTAGCCCTGCCCATTGATGTGAT
spacer length: 44 repeater length: 25
6674 1610824 GATATTCTCTAAAGAGAATAGAAGG AGTTCCCCGTATAACCTAGCCAGGTCCTGGCGTTTATGACG spacer
length: 41 repeater length: 25
6675 1610891 GATATTCTCTAAAGAGAATAGAAGG ACTGCTAGTTTCCGCACAATGCCTAACACATACTACTACATCAAT
spacer length: 45 repeater length: 25
6676 1610962 GATATTCTCTAAAGAGAATAGAAGG ATAAGTACTTTCCCAACCCAGGTGGTGTGTACTCTATCC spacer
length: 39 repeater length: 25
6677 1611027 GATATTCTCTAAAGAGAATAGAAGG TTGAGCCAGGCGATTGGGCTTGGGTACATGAATGGGACATTGGG
spacer length: 44 repeater length: 25
6678 1611097 GATATTCTCTAAAGAGAATAGAAGG CTGGCTTCTGTGTGGTTGCCACGTCCTTTGGTATGCCGATTG spacer
length: 42 repeater length: 25
6679 1611165 GATATTCTCTAAAGAGAATAGAAGG GTGATTTAGCACCATTGTGTCCATTGAGAAAATTCCTAAGTAAGTA
spacer length: 46 repeater length: 25
6680 1611237 GATATTCTCTAAAGAGAATAGAAGG CAGGATAGACAAGGGATTATTCGATGAACTTGACAAGGAAGCCATAA
spacer length: 47 repeater length: 25
6681 1611310 GATATTCTCTAAAGAGAATAGAAGG GCAGGGAGTATTTACATTGCGGACTTAGATGCTGACTTCAA spacer

length: 41 repeater length: 25
6682 1611377 GATATTCTCTAAAGAGAATAGAAGG ATCGATTCCCGTGAACACCAGGACGGCGTTAATGGCGAGTATG spacer
length: 43 repeater length: 25
6683 1611446 GATATTCTCTAAAGAGAATAGAAGG ACATAATCTATATAGATCGTCCGAGAAAACATTTTCAAACCTC spacer
length: 42 repeater length: 25
6684 1611514 GATATTCTCTAAAGAGAATAGAAGG
TGTTGACTCCCTTGAACCCCTGGGATTGGACTCTGACATACTTGTATTAGAGCATTT spacer length: 56 repeater
length: 25
6685 1611596 GATATTCTCTAAAGAGAATAGAAGG GTAGATTATTGCGTCATTACTGCTGAACCCAGTGCCTGGGTTGAAA
spacer length: 46 repeater length: 25
6686 1611668 GATATTCTCTAAAGAGAATAGAAGG TGCTAAGCTCAGTACCTGTTTCCACAGTGGGTCGTAGACGAATAGGTT
spacer length: 48 repeater length: 25
6687 1611742 GATATTCTCTAAAGAGAATAGAAGG TCGACGCGACCTTCTCATAATCCGTCTGAGTCTCGGTAGCGTCATGGG
spacer length: 49 repeater length: 25
6688 1611817 GATATTCTCTAAAGAGAATAGAAGG TGCTTGATAACTCCCTTACCTTGATTTCAACATTTTTCCC spacer
length: 40 repeater length: 25
6689 1611883 GATATTCTCTAAAGAGAATAGAAGG GATGAAGATGGGGAACATTGAACTTTGGCAGGTTGTGGATTA spacer
length: 42 repeater length: 25
6690 1611951 GATATTCTCTAAAGAGAATAGAAGG CGAATTAACAATGAACCTAATCCAGGAAGCCGTCTCCTCTAGGAGAG
spacer length: 47 repeater length: 25
6691 1612024 GATATTCTCTAAAGAGAATAGAAGG GTGGGTTGTGTGCGCTGGATTGTTGACTCCAATTGACTCACGCTA
spacer length: 45 repeater length: 25
6692 1612095 GATATTCTCTAAAGAGAATAGAAGG GGGAATTTCCCTGCCAGCCACGTGCGCCACCAGCCACATAAAT spacer
length: 41 repeater length: 25
6693 1612162 GATATTCTCTAAAGAGAATAGAAGG AAAACAAAACTGTTTACAATCAATCTACACCGTCTACACCGTTAAA
spacer length: 47 repeater length: 25
6694 1612235 GATATTCTCTAAAGAGAATAGAAGG CTTCTTCCCATCCCCACAGTTGAGTTCTAGAAGCTCATTCGACATATT
spacer length: 48 repeater length: 25
6695 1612309 GATATTCTCTAAAGAGAATAGAAGG ATTCCATACAGGCTTGGCTTTTGTCTCTCCATTCTCTTTTT spacer
length: 42 repeater length: 25
6696 1612377 GATATTCTCTAAAGAGAATAGAAGG TTGAATAAAGTGACCTAAGCGTCTGTGATAGTGGACCGTAGCTAA
spacer length: 45 repeater length: 25
6697 1612448 GATATTCTCTAAAGAGAATAGAAGG GACATTGGTAAGGCATGCCGATACCTTGCAGAATTAAAAAATGCGTTGAA
spacer length: 50 repeater length: 25
6698 1612524 GATATTCTCTAAAGAGAATAGAAGG ATGAACATGAACCTACTGCGTACGTTTGTCTGGTATGAATATCCA
spacer length: 44 repeater length: 25
6699 1612594 GATATTCTCTAAAGAGAATAGAAGG ATTCTTCAACCACCTCTGGGTAGTGAACCGCAATGCGGACTAACTGCTTA
spacer length: 50 repeater length: 25
6700 1612670 GATATTCTCTAAAGAGAATAGAAGG ATCCCAGTCCTTGAAGCATGCAAACCTATCGGAGACGTCTCAGTG
spacer length: 45 repeater length: 25
6701 1612741 GATATTCTCTAAAGAGAATAGAAGG CTGAAGTCCCTGGCGAGGAACCTAGCCAAGGAACCTAAGGAG spacer
length: 41 repeater length: 25
6702 1612808 GATATTCTCTAAAGAGAATAGAAGG GCCAAACCGATGGTGGAACACCCATCGTGAACACGCCGTTCC spacer
length: 42 repeater length: 25
6703 1612876 GATATTCTCTAAAGAGAATAGAAGG GTTATGTACCCGGGCACGGTGAACCCGCTTGGCAATACGCC spacer
length: 41 repeater length: 25
6704 1612943 GATATTCTCTAAAGAGAATAGAAGG AGAAGCTATCCGTACTACTTCATTGCGCAGGTGCTTAGTTCATGA
spacer length: 45 repeater length: 25
6705 1613014 GATATTCTCTAAAGAGAATAGAAGG ATTCATGAACCTTCGTGGTGTGATAGTATTCACAAACGTGCCATT
6706
6707
6708 GCA_000151205.2_ASM15120v2_genomic.fna(findCrispr):
6709 START REPEAT
SPACER
6710 crispr 1
6711 464541 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTCCAATATCGCTTTAAAGCTTATTCTCGGCGTTT spacer
length: 35 repeater length: 30
6712 464607 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCTATATTGGAACCTCAAATCTCTGAAGTCTTCTC spacer
length: 35 repeater length: 30
6713 464673 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GACGGATTACCGATGCCCCCGCCTTACGGCGTT
6714
6715
6716 crispr 2
6717 464741 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ATATATCGAGGAGCGGTTGTGGAGGTTATATAACCA spacer
length: 36 repeater length: 30
6718 464808 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GGGGTTCCGGCTGGAGCGTATTTACTTCCACCGGAA spacer
length: 36 repeater length: 30
6719 464875 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CTTCTTATTCTCGGCGTCCATTCTCGACCCAAT spacer
length: 35 repeater length: 30
6720 464941 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCCACGTTCAACGTCAGCTTCCACCTAAAGTCAGCC spacer
length: 36 repeater length: 30

6721 465008 CTTTCAATTCTCCTCGAGTCTTATTGCAAC ACCCTCTTCATCCGGCACATCCACCCACGTGATGTT spacer
 length: 36 repeater length: 30
 6722 465075 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGCATTGGCGGGGGACAATCCGGACAGTAATGAAAC spacer
 length: 36 repeater length: 30
 6723 465142 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GTCCTCGAACTTGTACTCATAAGTGACACTGTCCCCGT spacer
 length: 38 repeater length: 30
 6724 465211 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AGATCTCGCGAACAATGGTGGCCTCATCGGGACGC spacer
 length: 35 repeater length: 30
 6725 465277 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGGAGGTGAAGGCGAGGGAGAGGGTGTGGCCGCGCTC spacer
 length: 38 repeater length: 30
 6726 465346 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TTGATCCCCCGCGTTCCATGCCTTGTGCGCCCTCTT spacer
 length: 36 repeater length: 30
 6727 465413 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CGGTTTCGGCCGTGTTTCGAGTTTTTCGATGATTTTG spacer
 length: 35 repeater length: 30
 6728 465479 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGGGAGCGTCGCAACGTCAGTAATGTTGAGCTCAGTCATG
 spacer length: 40 repeater length: 30
 6729 465550 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CCACCGGGATTTTGTGGCCCTCTTCGTCGGTCTTTTTTCGT
 spacer length: 40 repeater length: 30
 6730 465621 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GCCTGATTTTCGTATTTTGGATCGTCGCGGTACTTCT spacer
 length: 36 repeater length: 30
 6731 465688 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AACCTGCGCGAGGACAAATGACAGCGATGTTCCAAC spacer
 length: 36 repeater length: 30
 6732 465755 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GTGTATGTAGACCCTCATGTATCCCTCCTGTTGCAA
 6733
 6734
 6735 crispr 3
 6736 1219336 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAAGGTGAAGACGGATGGACAGGCGAGCGGGGCCG spacer
 length: 35 repeater length: 30
 6737 1219402 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGACTGGCTCGACAGCGATGAGCTTTTAACGGTTTAC spacer
 length: 38 repeater length: 30
 6738 1219471 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAGAAAGCCGTCGAAGGAGATGGAGAACTGGAGCGTGC spacer
 length: 38 repeater length: 30
 6739 1219540 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCAAATCTGGCAAGTTGTCTTCCGTCAATTTGCCCG spacer
 length: 36 repeater length: 30
 6740 1219607 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGAGTAATTCGATGAGGGCAGGTTGTAGCTTTTCGCTT spacer
 length: 38 repeater length: 30
 6741 1219676 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAATCGTGAACGTGGGTTCGCTTTTCGGCGTATTTTC spacer
 length: 36 repeater length: 30
 6742 1219743 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTCTCAAAGAAGAGCTTGCGAAGCTGACTTACACGG spacer
 length: 36 repeater length: 30
 6743 1219810 GTTGCAATAAGACTCGAGGAGAATTGAAAG TTCATTAAATTTTCGGCGTTGTGGCTTATTACATTTG spacer
 length: 38 repeater length: 30
 6744 1219879 GTTGCAATAAGACTCGAGGAGAATTGAAAG GTCATCGCAATCGCGGCACTAATCGCGGCGATTGTC spacer
 length: 36 repeater length: 30
 6745 1219946 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATCAGTGATTACGAGAACTGCAGAGATGATCGCGCTATAAA
 spacer length: 41 repeater length: 30
 6746 1220018 GTTGCAATAAGACTCGAGGAGAATTGAAAG GGTTGAACGCAACAACTGGCTCAGGCCGTCTAGAGG spacer
 length: 38 repeater length: 30
 6747 1220087 GTTGCAATAAGACTCGAGGAGAATTGAAAG GTGACACGAGGAACACGTCACTGTTTGCATGGAGCT spacer
 length: 36 repeater length: 30
 6748 1220154 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAGGGCCTCATCCTGATCTTCTCGCGAGTATTGGGG spacer
 length: 37 repeater length: 30
 6749 1220222 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCGCTCAATGCCGAGCACTAGGTAAACGTAGTGTA spacer
 length: 35 repeater length: 30
 6750 1220288 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATGCGGAATTTGTTTACATCAAGGCCGTGCGGAA spacer
 length: 34 repeater length: 30
 6751 1220353 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATCACGGTATCAAGGCATCGCAGGCGGGCACTTAC spacer
 length: 35 repeater length: 30
 6752 1220419 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGTAGAGTTCAGGGCCAGCCTCGGGCTTCGCGTAAACCA
 spacer length: 39 repeater length: 30
 6753 1220489 GTTGCAATAAGACTCGAGGAGAATTGAAAG CAACGTGCTTCTTCAAGCCCTTTGCCGCCGCGAGGAT spacer
 length: 37 repeater length: 30
 6754 1220557 GTTGCAATAAGACTCGAGGAGAATTGAAAG AAAACTTTAATTATTATTGGTGCGTACGTTTGTGTTG spacer
 length: 36 repeater length: 30
 6755 1220624 GTTGCAATAAGACTCGAGGAGAATTGAAAG CCCAGAAACGGGCGAAACGGCAGACTAAACGGGCT spacer
 length: 35 repeater length: 30
 6756 1220690 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAGGGAAGTGAAGGAGGGGCGCCTATGAGGCCGGGG spacer
 length: 36 repeater length: 30
 6757 1220757 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGTGTGTGCATTGTGGACGGGCACGGGTGAGGAGCG spacer
 length: 37 repeater length: 30
 6758 1220825 GTTGCAATAAGACTCGAGGAGAATTGAAAG ACATGGTGGAGGAGATATACAACCTTGAGGAACT spacer

length: 34 repeater length: 30
6759 1220890 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAAGAGACCCCTGAAGCTGAAGAGGAGCACGCCCCG spacer
length: 36 repeater length: 30
6760 1220957 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGGGCATCGGCATACTCTGCATGGCAATATCGGACAG spacer
length: 37 repeater length: 30
6761 1221025 GTTGCAATAAGACTCGAGGAGAATTGAAAG TACTGAGTCTGCAATCCCCAACAAAGCGAAGGCTTTT spacer
length: 36 repeater length: 30
6762 1221092 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCACGCTACTGATGTTGAAGTGCTCCTCATTCGCA spacer
length: 35 repeater length: 30
6763 1221158 GTTGCAATAAGACTCGAGGAGAATTGAAAG CCTGCAGACGCTGAGGGACGTTTCCGGGCTTGGCCTC spacer
length: 37 repeater length: 30
6764 1221226 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGCCGTACAGAATTGAAGGTATCAGCACGAGAACTG spacer
length: 36 repeater length: 30
6765 1221293 GTTGCAATAAGACTCGAGGAGAATTGAAAG CGCGGAGGTAGAGGAAAAACCCGCCCTCGGGACGCG spacer
length: 37 repeater length: 30
6766 1221361 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGTTGAATGTGCCGATAAAGGTGCTCCCGAGGTACAC spacer
length: 38 repeater length: 30
6767 1221430 GTTGCAATAAGACTCGAGGAGAATTGAAAG CGACGTAGGTCGTGACGGTCGTATCGACGTAGTGCA spacer
length: 36 repeater length: 30
6768 1221497 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAAATCAAGGTGGCGTCTCAGGTAATAGCTGTATCTCTTTG
spacer length: 41 repeater length: 30
6769 1221569 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGGAAATATTCGCTCTCTATCCCCGCGTGCGCCACC spacer
length: 36 repeater length: 30
6770 1221636 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATACCAAAGAACCGCGACAAGCTCTTCGTTGACA spacer
length: 34 repeater length: 30
6771 1221701 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGTTTATGATTCCGTAAGAAGCGCCGTCTACGT spacer
length: 34 repeater length: 30
6772 1221766 GTTGCAATAAGACTCGAGGAGAATTGAAAG TTTGCCCCCTGAGCCGCCTGAGCCGGAGCCGGTTCC spacer
length: 35 repeater length: 30
6773 1221832 GTTGCAATAAGACTCGAGGAGAATTGAAAG TGAGATAGATTCACTTCTACACGAGCATTTGTTGGTA spacer
length: 37 repeater length: 30
6774 1221900 GTTGCAATAAGACTCGAGGAGAATTGAAAG ACGGAGACAGCATCACGTACGAGTACAAGTTCGAG spacer
length: 35 repeater length: 30
6775 1221966 GTTGCAATAAGACTCGAGGAGAATTGAAAG CATGGACTGACATTACTGGCCTAAAGGTAAAGACAG spacer
length: 36 repeater length: 30
6776 1222033 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCGAAAGGAGTTGATGTCGTCGAGCTTCCGGTCCATGTTGTCG
spacer length: 43 repeater length: 30
6777 1222107 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATGGACGGATTACCGATGCCCCCGCCTTACGGCGTTGCAAT
6778
6779
6780 crispr 4
6781 1610449 CGTTGCAATAAGACTCTAGGAGAATTGAAAG
GGGTGATATGACTGTCAGCGTTGAAATGTACCCCTCTTGTGCAATAAGACTCCAGGAGAATTGAAAGACGACTAATCGAAAGCTT
TCGATAGTACTCCATTC spacer length: 103 repeater length: 31
6782 1610584 CGTTGCAATAAGACTCTAGGAGAATTGAAAG
TGTCGGGGTCGCTGATCTCTGCGATAATGTAGTTCTGTTGCAATAAGACTCTAGGAGAATTGAAAGCGGTAGCTTCTTCCTGGCTC
TGATCCCAAGTAACT spacer length: 101 repeater length: 31
6783 1610717 CGTTGCAATAAGACTCTAGGAGAATTGAAAG
CTGTGTATGTAGACCCTCATGTATCCCTCCTGTTGCAATAAGACTCTAAGAGAGAAGACCAAAATGTCGCAAAATATTTAATCCCA
GAGTTCAAAGTGCGT
6784
6785
6786 GCA_000152265.2_ASM15226v2_genomic.fna(findCrispr):
6787 START REPEAT
SPACER
6788 crispr 1
6789 15 ATTTCAATTCCTATATGGAATTATTTTAAC TTATTAGACAAACCACTAATATAAAAGAAATGCTT spacer
length: 36 repeater length: 30
6790 82 ATTTCAATTCCTATATGGAATTATTTTAAC CTAAAAAAGATATAAAGCTCATTTACCTAATTTTTT spacer
length: 36 repeater length: 30
6791 149 ATTTCAATTCCTATATGGAATTATTTTAAC GGTGCTGCTGGATTTCGATTTAGGAGTTCCTGAAAG spacer
length: 35 repeater length: 30
6792 215 ATTTCAATTCCTATATGGAATTATTTTAAC TTGATGAACAACGTTGTAATGACGTTTAAATTATTTTA spacer
length: 38 repeater length: 30
6793 284 ATTTCAATTCCTATATGGAATTATTTTAAC CTGAAAAATTAAGGGATTACAAAAACCAGCTTTTAAAA spacer
length: 38 repeater length: 30
6794 353 ATTTCAATTCCTATATGGAATTATTTTAAC TGAGGGATTACATTTCCCGTATCTTTTCCCGCCAGGG spacer
length: 38 repeater length: 30
6795 422 ATTTCAATTCCTATATGGAATTATTTTAAC CTTCTCGTTGGAGGTTCTCCATGCCAGGATATATCC spacer
length: 36 repeater length: 30
6796 489 ATTTCAATTCCTATATGGAATTATTTTAAC AATATCTTATAGGTCTCACTGCAACCGTCAGGGAAT spacer

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length: 36 repeater length: 30
6797 556 ATTTCAATTCCTATATGGAATTATTTTAAC AAAAAGAGTATTGTTCTGGTAAACTGTTGCACTTG spacer
length: 35 repeater length: 30
6798 622 ATTTCAATTCCTATATGGAATTATTTTAAC CGTGCCTCAATGCCAAGGAACAGATCCCTTGTGCCA spacer
length: 36 repeater length: 30
6799 689 ATTTCAATTCCTATATGGAATTATTTTAAC TCTGCACAGGGAATATCATGCCCAGCAGGTCTCCG spacer
length: 35 repeater length: 30
6800 755 ATTTCAATTCCTATATGGAATTATTTTAAC AGAAAATTCAACGGTTTCATGAAGATGGCGAGATAA spacer
length: 36 repeater length: 30
6801 822 ATTTCAATTCCTATATGGAATTATTTTAAC GTTGATTTTTTAAATGATTATGCCTTTTTTTGGTCTA spacer
length: 37 repeater length: 30
6802 890 ATTTCAATTCCTATATGGAATTATTTTAAC TCATTAATTTAATAGTAACACAGTATATTACTTAATT
6803
6804
6805 crispr 2
6806 1194568 GTGTTTAGTCTATCTATAAGGGTTTGAAAT AAAATAGGTTTTTACGGTAATGAGGGTTGCTGTGGAAA spacer
length: 38 repeater length: 30
6807 1194637 GTGTTTAGTCTATCTATAAGGGTTTGAAAT TTTTCATATCTTTTGCCACCTCCGAATTTGATAAA spacer
length: 35 repeater length: 30
6808 1194703 GTGTTTAGTCTATCTATAAGGGTTTGAAAT CGTAAACGGGGGGGTAATTAATACCGTGTAGAATAT spacer
length: 36 repeater length: 30
6809 1194770 GTGTTTAGTCTATCTATAAGGGTTTGAAAT TTGTCCTAAATCCTATCAATTCCTTTGTTTCCATTTT spacer
length: 37 repeater length: 30
6810 1194838 GTGTTTAGTCTATCTATAAGGGTTTGAAAT TAACACCAAGTCCTAATAAATTATTCCATGCCTCTA spacer
length: 36 repeater length: 30
6811 1194905 GTGTTTAGTCTATCTATAAGGGTTTGAAAT TCTGAGGCCTGATTACCTGAGGATTCTTGACCTT spacer
length: 34 repeater length: 30
6812 1194970 GTGTTTAGTCTATCTATAAGGGTTTGAAAT ATAAAATCCTGGACTGTAAACACAATCCGAGCTGCC spacer
length: 36 repeater length: 30
6813 1195037 GTGTTTAGTCTATCTATAAGGGTTTGAAAT CCGAGTGCTGATTTTAAGTCTACTACTATGCAATGT
6814
6815
6816 GCA_000166095.1_ASM16609v1_genomic.fna(findCrispr):
6817 START REPEAT
SPACER
6818 GCA_000186365.1_ASM18636v1_genomic.fna(findCrispr):
6819 START REPEAT
SPACER
6820 crispr 1
6821 1000324 ACCTCAATGTAAAGAGGATTGAAAG AGTCTACCGAGGAACAATATGACACGGTTTATCGCATTa spacer
length: 39 repeater length: 25
6822 1000389 ACCTCAATGTAAAGAGGATTGAAAG TAAGAATAACTACTACGTGTCCCGTCGGGCATACGAGT spacer
length: 38 repeater length: 25
6823 1000453 ACCTCAATGTAAAGAGGATTGAAAG GAAGGCTATTAGCGATATGAACACGGCTAGATGTATT spacer
length: 37 repeater length: 25
6824 1000516 ACCTCAATGTAAAGAGGATTGAAAG TAGTAACCACCGGGTGTATTGCTAACCAGCGAATTAAAG spacer
length: 39 repeater length: 25
6825 1000581 ACCTCAATGTAAAGAGGATTGAAAG ATGGTGTACACGGTTTTATAGTCTAGTGCCTGAGGTC spacer
length: 38 repeater length: 25
6826 1000645 ACCTCAATGTAAAGAGGATTGAAAG ACTCAGTGTTGCTCGGTGGCTTCTACTATAATGGGA spacer
length: 36 repeater length: 25
6827 1000707 ACCTCAATGTAAAGAGGATTGAAAG ATTATGCAAAAGAAACCCCTAGGCTTCTACCCTTCTA spacer
length: 38 repeater length: 25
6828 1000771 ACCTCAATGTAAAGAGGATTGAAAG CTAGCACCTGGCGAGACTAAGACTATAACGCTACCATT spacer
length: 38 repeater length: 25
6829 1000835 ACCTCAATGTAAAGAGGATTGAAAG CACGGTGAAGAAGAAGCCGCCGGGCAACGTCATCTGCTTA spacer
length: 40 repeater length: 25
6830 1000901 ACCTCAATGTAAAGAGGATTGAAAG ATAGGCTCCTCCTGAGGCTCCTTCATGATGCGTAGGGGA spacer
length: 39 repeater length: 25
6831 1000966 ACCTCAATGTAAAGAGGATTGAAAG ACTATTCTCGACAGGTCAAGGGTAACTCCTTTCCACTCA spacer
length: 40 repeater length: 25
6832 1001032 ACCTCAATGTAAAGAGGATTGAAAG TCTCCGCCACCGCGCTGAAAGCACCGTCAAAGGCTACAA spacer
length: 39 repeater length: 25
6833 1001097 ACCTCAATGTAAAGAGGATTGAAAG ATGACGCCAAGTTAGTTAAATCAGCAGTTGTAATCTC spacer
length: 37 repeater length: 25
6834 1001160 ACCTCAATGTAAAGAGGATTGAAAG TAATACCCGAGGAGGCAAGGGAATACAGGGATATGTGT spacer
length: 38 repeater length: 25
6835 1001224 ACCTCAATGTAAAGAGGATTGAAAG GCCATTAACCTCTACTGCTGTCAATACCACTTCCTCATA spacer
length: 39 repeater length: 25
6836 1001289 ACCTCAATGTAAAGAGGATTGAAAG ATTGTTGAATGGGTCAATATACACTTTGCCGTCTAGTAACA spacer
length: 40 repeater length: 25

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6837 1001355 ACCTCAATGTAAAGAGGATTGAAAG ATGACCCAATCACACTCAACATCATTGAGGCACTCTTCC spacer
length: 39 repeater length: 25

6838 1001420 ACCTCAATGTAAAGAGGATTGAAAG ATACTCCTCGTGCTCCTTCTCGTATTTCTTGTGCTCC spacer
length: 37 repeater length: 25

6839 1001483 ACCTCAATGTAAAGAGGATTGAAAG CTTATTGTCCTTCAGCCACCTATACACTATTTCAACGC spacer
length: 38 repeater length: 25

6840 1001547 ACCTCAATGTAAAGAGGATTGAAAG TTTGGCTGGCGGTTCTGATACTCAGTCCATGATAAATC spacer
length: 38 repeater length: 25

6841 1001611 ACCTCAATGTAAAGAGGATTGAAAG ACATCACCCTAGTGGGGTATGTTGTGCTTCCCATT spacer
length: 37 repeater length: 25

6842 1001674 ACCTCAATGTAAAGAGGATTGAAAG ACTCCCTGAGGGAGTCCCAGTTTATCCCCGGGGTTTC spacer
length: 37 repeater length: 25

6843 1001737 ACCTCAATGTAAAGAGGATTGAAAG AGCGAATACCCGGTGATCACGCCGGCGAACATGCTTGC spacer
length: 38 repeater length: 25

6844 1001801 ACCTCAATGTAAAGAGGATTGAAAG TAGAGGTGGTTGGGTATGAGCTACATGGTTGAAGTATG spacer
length: 38 repeater length: 25

6845 1001865 ACCTCAATGTAAAGAGGATTGAAAG CTGGGATTGATGTTGAAGTTGAGGCTTGCGAGGAGGCTG spacer
length: 39 repeater length: 25

6846 1001930 ACCTCAATGTAAAGAGGATTGAAAG TCAGAGCCCTCGGGGGCAAAGCCCTCGGGGGCTCGACC spacer
length: 38 repeater length: 25

6847 1001994 ACCTCAATGTAAAGAGGATTGAAAG CTCCATTCCCTTATACACTCCCACTCGATGTCATCATA spacer
length: 38 repeater length: 25

6848 1002058 ACCTCAATGTAAAGAGGATTGAAAG ATTAGATCATATAATATTAGGTAAACCTAGCGTTTTTA spacer
length: 37 repeater length: 25

6849 1002121 ACCTCAATGTAAAGAGGATTGAAAG TCATCACCTTGGTGAGTAATCTGAGTAACATCCCCGATG spacer
length: 39 repeater length: 25

6850 1002186 ACCTCAATGTAAAGAGGATTGAAAG CCTCACTCCCCTTCACCTCCCAGCGCGAGATACGCTA spacer
length: 37 repeater length: 25

6851 1002249 ACCTCAATGTAAAGAGGATTGAAAG ACTCATCTTCCGTGGGAGGCGAGCCCCTAATGCCATAG spacer
length: 38 repeater length: 25

6852 1002313 ACCTCAATGTAAAGAGGATTGAAAG CGCATGCCGTTAATGTAGTCATCCTCAAGGGCCCG spacer length:
35 repeater length: 25

6853 1002374 ACCTCAATGTAAAGAGGATTGAAAG AGCAAGTAAATAACGACGCTGCGGTGATAACCAATGCCAA spacer
length: 40 repeater length: 25

6854 1002440 ACCTCAATGTAAAGAGGATTGAAAG GGGTCGGCCAGTATAATGTACTCCACGTCCCGCGGCATA spacer
length: 39 repeater length: 25

6855 1002505 ACCTCAATGTAAAGAGGATTGAAAG GGGAGCTCCGTGCGGAGCGAGTACTTCACAGCGTACTC spacer
length: 38 repeater length: 25

6856 1002569 ACCTCAATGTAAAGAGGATTGAAAG TTAACGTCAAGTGCATATACATAATTATCGTCATTTTC spacer
length: 38 repeater length: 25

6857 1002633 ACCTCAATGTAAAGAGGATTGAAAG GTAAACACCCTTTCTGGATCTGCTGAAGAACGGCA spacer
length: 37 repeater length: 25

6858 1002696 ACCTCAATGTAAAGAGGATTGAAAG CATTTACGCTTACAATGCTATCCCTGAAGGTTACATTA spacer
length: 38 repeater length: 25

6859 1002760 ACCTCAATGTAAAGAGGATTGAAAG TATTCGCTATGGCTGGAGGCATAGGTCTAGGTCTATTC spacer
length: 38 repeater length: 25

6860 1002824 ACCTCAATGTAAAGAGGATTGAAAG GATTAGTGTAGTTGCCCATGAGGTCAGCACCGGGGATTG spacer
length: 39 repeater length: 25

6861 1002889 ACCTCAATGTAAAGAGGATTGAAAG TATAATCCGCCAACCGATATGGAACGGGCTCCAGATAC spacer
length: 38 repeater length: 25

6862 1002953 ACCTCAATGTAAAGAGGATTGAAAG ACCTGAGATGTTAACGGGACGAGGCTTATAACCACGGCTA spacer
length: 40 repeater length: 25

6863 1003019 ACCTCAATGTAAAGAGGATTGAAAG TTGCACCTCTGTAGGGTTTCCCGTGCCTCGGCGAGGATT spacer
length: 39 repeater length: 25

6864 1003084 ACCTCAATGTAAAGAGGATTGAAAG TAGAGAGGTTTATGGTCTCAATTAGTCAAAAAGTCGAG spacer
length: 38 repeater length: 25

6865 1003148 ACCTCAATGTAAAGAGGATTGAAAG GCATATATCTCAGAGAAGAAGCCCAAGTCCGATACACTT spacer
length: 39 repeater length: 25

6866 1003213 ACCTCAATGTAAAGAGGATTGAAAG CCCTTCTTCTCCACTAGTATTAGGTAGCCGTGCTTGT spacer
length: 37 repeater length: 25

6867 1003276 ACCTCAATGTAAAGAGGATTGAAAG GTAGTAACCACCGGGTGTATTGCTAACCAGCGAATTA

6868

6869

6870 crispr 2

6871 969597 CTTTCAATCCTCTTTACATTGAGGC AGGTGCTCAACGCGGGCCCCATTGACCTCGTGGTCAAT spacer
length: 39 repeater length: 25

6872 969662 CTTTCAATCCTCTTTACATTGAGGC TCCAGTGGACGCCTTTGGCATCGGTGTAACAATGG spacer length:
35 repeater length: 25

6873 969723 CTTTCAATCCTCTTTACATTGAGGC TGGTTCTCCCATTCACATTTAGGACATCGATGAGATAC spacer
length: 38 repeater length: 25

6874 969787 CTTTCAATCCTCTTTACATTGAGGC TTTAGGACATCGATGAGATACTCGAATTCCTCCCGTTATA spacer

length: 39 repeater length: 25
6875 969852 CTTTCAATCCTCTTTACATTGAGGC CAGCGGAGTGTAGTAAATGGTCAGGGTAATTCATTACG spacer
length: 38 repeater length: 25
6876 969916 CTTTCAATCCTCTTTACATTGAGGC TCAATGTATAGCCCCCTTCTACTAGTAGTAGCGTCAATGC spacer
length: 40 repeater length: 25
6877 969982 CTTTCAATCCTCTTTACATTGAGGC TTCGGCATAGGTGTAATAATGGTTGACCGCAAGGTGTTT spacer
length: 39 repeater length: 25
6878 970047 CTTTCAATCCTCTTTACATTGAGGC CTACGGATTCCAGAGCATTTCATCTCCAAGCGTATTACA spacer
length: 38 repeater length: 25
6879 970111 CTTTCAATCCTCTTTACATTGAGGC GTAATCCCATAGCGATGAAACCGTGAAAAGGTATTTCG spacer
length: 38 repeater length: 25
6880 970175 CTTTCAATCCTCTTTACATTGAGGC CTAAATGGTGTTCAGCGCCAACGCACTACCCGTAACCA spacer
length: 39 repeater length: 25
6881 970240 CTTTCAATCCTCTTTACATTGAGGC GCCGAAGGCCCTTCAACGCTACGTAAGCGTCAAGCAGCGT spacer
length: 39 repeater length: 25
6882 970305 CTTTCAATCCTCTTTACATTGAGGC TATCGGCCGCGAGTACTACACTGGCGACGGAGGCAG spacer length:
36 repeater length: 25
6883 970367 CTTTCAATCCTCTTTACATTGAGGC GCTGGATGACCTGAAGGAGCAATTAAGACAAGGGCTAA spacer
length: 38 repeater length: 25
6884 970431 CTTTCAATCCTCTTTACATTGAGGC TTGCGCGAGCTCCAGTTCACCGACCTCGAGATCGAGTTA spacer
length: 39 repeater length: 25
6885 970496 CTTTCAATCCTCTTTACATTGAGGC CGTAGGCCATGTCAAGCATCTTTGCCTCCCTCCTTCACG spacer
length: 39 repeater length: 25
6886 970561 CTTTCAATCCTCTTTACATTGAGGC GCCTCCTTATCGCCCTTCGCAGCCTTTATTATCAGCTTC spacer
length: 39 repeater length: 25
6887 970626 CTTTCAATCCTCTTTACATTGAGGC ACTAGAGGAGGCGGAGCGGAAGCTGGGGATAAAGAAGG spacer
length: 38 repeater length: 25
6888 970690 CTTTCAATCCTCTTTACATTGAGGC CGGGGAAGTGGTATGTAGCCGCGGTCTCGTTCAGGTTCG spacer
length: 39 repeater length: 25
6889 970755 CTTTCAATCCTCTTTACATTGAGGC TTGCGCGAGCTGCAGTTCTCGGAGCTGGAGATCGAGTTA spacer
length: 39 repeater length: 25
6890 970820 CTTTCAATCCTCTTTACATTGAGGC CCTATGATAAAAGCGGTGCCAGTATCGACACACCTGC spacer
length: 37 repeater length: 25
6891 970883 CTTTCAATCCTCTTTACATTGAGGC CGACCAGTGCTAGGAACGCCCGGTATATCATCAGTATA spacer
length: 38 repeater length: 25
6892 970947 CTTTCAATCCTCTTTACATTGAGGC GGAGGATGGTGAGCCGGCTGTCTCGGTTGAAGCCTAC spacer
length: 37 repeater length: 25
6893 971010 CTTTCAATCCTCTTTACATTGAGGC TGTTAGGCACGGCCCTAAGCTACATATTCTACAGGCT spacer
length: 37 repeater length: 25
6894 971073 CTTTCAATCCTCTTTACATTGAGGC TGAAGAGGTATCTCACCGATGATTTAATCCTTGCCG spacer
length: 37 repeater length: 25
6895 971136 CTTTCAATCCTCTTTACATTGAGGC TGAAGCCGTAAAACCCTATATGGTGGTAGCACGGACGA spacer
length: 38 repeater length: 25
6896 971200 CTTTCAATCCTCTTTACATTGAGGC GTGGGGTGATATATTCTCTGGGCCCTTCGGCAGGCTA spacer
length: 37 repeater length: 25
6897 971263 CTTTCAATCCTCTTTACATTGAGGC CTAGCTCAAACAGCCACTGATACGACTACTACCACAA spacer
length: 37 repeater length: 25
6898 971326 CTTTCAATCCTCTTTACATTGAGGC TTAAGCGATACGCCCGTTATACCTAACTATGTGTTCCGC spacer
length: 39 repeater length: 25
6899 971391 CTTTCAATCCTCTTTACATTGAGGC CGCCGGCCCCGCGGGATCTGCCCGCCAGCACCGCTAGA spacer
length: 38 repeater length: 25
6900 971455 CTTTCAATCCTCTTTACATTGAGGC CTAGGAGCGATGGTTACATTAGTCAGCTCGAACCGGG spacer
length: 37 repeater length: 25
6901 971518 CTTTCAATCCTCTTTACATTGAGGC TGTACCTTTCACAGTTGAAAAAGGAAGGGATAATTAG spacer
length: 37 repeater length: 25
6902 971581 CTTTCAATCCTCTTTACATTGAGGC CGAGCTACGAGGCCCTTCAAAACATTAATGAATTTCTCTCA spacer
length: 40 repeater length: 25
6903 971647 CTTTCAATCCTCTTTACATTGAGGC AGCTTGATAATGCCCATGAGTAGCCTGCCGAAGGGGCCA spacer
length: 39 repeater length: 25
6904 971712 CTTTCAATCCTCTTTACATTGAGGC AAGGCGTTAAGCTGCAGCCCTACAGCACTGGCTACC spacer length:
36 repeater length: 25
6905 971774 CTTTCAATCCTCTTTACATTGAGGC AAGAATTAATCGAGCAGGAATGGCTCAACGAGGAGGAGCTT spacer
length: 41 repeater length: 25
6906 971841 CTTTCAATCCTCTTTACATTGAGGC TTCTACTTCAATGCCGTCAAATTTGTCGTAGAACTAGGC spacer
length: 39 repeater length: 25
6907 971906 CTTTCAATCCTCTTTACATTGAGGC AGCAGCCCTACCCCCGTAAATATGACGTTGAAGCCGTA spacer
length: 39 repeater length: 25
6908 971971 CTTTCAATCCTCTTTACATTGAGGC GAAGAAGCTGCTGCGTCTCATTAAGGAGAACTTGACG spacer
length: 38 repeater length: 25
6909 972035 CTTTCAATCCTCTTTACATTGAGGC CTTATCTAACTGTGACTAATACCTATACCGTATATGAT spacer
length: 38 repeater length: 25

6910 972099 CTTTCAATCCTCTTTACATTGAGGC TGAACCAGCCCAAACCCAAAACCAAGCCCATTAATTGAA spacer
 length: 38 repeater length: 25
 6911 972163 CTTTCAATCCTCTTTACATTGAGGC AAGACTTAGCGGGCTTGACACAGGTTTACCGGTTTAGGCA spacer
 length: 40 repeater length: 25
 6912 972229 CTTTCAATCCTCTTTACATTGAGGC CTTCTCCACTAGTATTAGGTAGCCGTGCTTGTAACCTCAA
 6913
 6914
 6915 crispr 3
 6916 1028458 GCCTCAATGTAAAGAGGATTGAAAG ATCCGGGCCGAAGTAATCGACATATTGGCCCGTAAAATGG spacer
 length: 40 repeater length: 25
 6917 1028524 GCCTCAATGTAAAGAGGATTGAAAG GTTCACATTTGCGAACACTATTTCATACCCATAGACAATG spacer
 length: 39 repeater length: 25
 6918 1028589 GCCTCAATGTAAAGAGGATTGAAAG ACCTCTATCCTTATCCACTTTTCATAAATGGGCCGGTTT spacer
 length: 39 repeater length: 25
 6919 1028654 GCCTCAATGTAAAGAGGATTGAAAG TCGCACTGATTATCGAGGAGGGCTTACTCCTATGGTTCA spacer
 length: 39 repeater length: 25
 6920 1028719 GCCTCAATGTAAAGAGGATTGAAAG ATATCCCCGGCGGTGCGCCCGACGGTATATGAAGCCCTCG spacer
 length: 39 repeater length: 25
 6921 1028784 GCCTCAATGTAAAGAGGATTGAAAG TCCCAGCTGGAGTAGTCATCCAGATGCGGTTTAACCA spacer
 length: 37 repeater length: 25
 6922 1028847 GCCTCAATGTAAAGAGGATTGAAAG TTATAGCTAACGCAATACGCTCGCGTCTTTCTTCCACTA spacer
 length: 39 repeater length: 25
 6923 1028912 GCCTCAATGTAAAGAGGATTGAAAG CGAATTAAGACGCCTAACCCCTCCCCAGAGCCTGAG spacer length:
 35 repeater length: 25
 6924 1028973 GCCTCAATGTAAAGAGGATTGAAAG CCAACGAGCTAGGCTGGTACGGCATCCATTACAGGGAG spacer
 length: 38 repeater length: 25
 6925 1029037 GCCTCAATGTAAAGAGGATTGAAAG CTCTAAGTATGACCTCCTCGGTAGCCCTCTCAATACATG spacer
 length: 39 repeater length: 25
 6926 1029102 GCCTCAATGTAAAGAGGATTGAAAG GTGTAATGCACCATTAAAGCCTGCGTGGTCTTTATGA spacer
 length: 37 repeater length: 25
 6927 1029165 GCCTCAATGTAAAGAGGATTGAAAG ACCCAATTGAGGTTTTACCGCTCACATATCCCTGA spacer
 length: 36 repeater length: 25
 6928 1029227 GCCTCAATGTAAAGAGGATTGAAAG CTCGGGTTAGTGTAATTGATGCTGGTTACCTGCTGCAGC spacer
 length: 39 repeater length: 25
 6929 1029292 GCCTCAATGTAAAGAGGATTGAAAG AGAGGATCCCGAGCTACCTGAAGGCGAGAAGATAATCCTA spacer
 length: 40 repeater length: 25
 6930 1029358 GCCTCAATGTAAAGAGGATTGAAAG TTTCTTCAGCTCAAAGCCTATATCGTGGTCTAGCACAT spacer
 length: 38 repeater length: 25
 6931 1029422 GCCTCAATGTAAAGAGGATTGAAAG ATACTATCGCATTACTCCAGAAGCTATTTGACACGACTG spacer
 length: 39 repeater length: 25
 6932 1029487 GCCTCAATGTAAAGAGGATTGAAAG CTATTGCTACTCCACACGCCTCCCCGCTAGTGAACCAC spacer
 length: 38 repeater length: 25
 6933 1029551 GCCTCAATGTAAAGAGGATTGAAAG TAAATTGTTTAAAATGATTATCACTCAACCTCATGGA spacer
 length: 37 repeater length: 25
 6934 1029614 GCCTCAATGTAAAGAGGATTGAAAG GTGGGTACGTATATGGTGTACCATTAGTAAGGTATA spacer
 length: 37 repeater length: 25
 6935 1029677 GCCTCAATGTAAAGAGGATTGAAAG TTGCACAGGCGTTTTCTGCTGCTGTTCTAGTTATGG spacer
 length: 37 repeater length: 25
 6936 1029740 GCCTCAATGTAAAGAGGATTGAAAG ATTTTCTGCCTTATCTAGGCTGGCCCGGCTCATTAAACC spacer
 length: 39 repeater length: 25
 6937 1029805 GCCTCAATGTAAAGAGGATTGAAAG CTGAGGAGATCCCCGAGAGTCGTGAGTCAAGGGCTTTTA spacer
 length: 40 repeater length: 25
 6938 1029871 GCCTCAATGTAAAGAGGATTGAAAG TTCAGCTGCTGATCAATTCTGCCCCGCCACTTCAATATTG spacer
 length: 40 repeater length: 25
 6939 1029937 GCCTCAATGTAAAGAGGATTGAAAG ATATTGGCGCCAGACTTATTATATTGAACCTCGTTTAA spacer
 length: 38 repeater length: 25
 6940 1030001 GCCTCAATGTAAAGAGGATTGAAAG GCTCTAACAAGTTGAGCCGGCTGATAGCCTTGCGGTAGC spacer
 length: 39 repeater length: 25
 6941 1030066 GCCTCAATGTAAAGAGGATTGAAAG ATGGATGACTGCTACTGGCAGTACGGCGACTATAGTAG spacer
 length: 38 repeater length: 25
 6942 1030130 GCCTCAATGTAAAGAGGATTGAAAG TATAATTATATCGGGAGTGGTTTCGGGTATATATTTTA spacer
 length: 38 repeater length: 25
 6943 1030194 GCCTCAATGTAAAGAGGATTGAAAG CTAGATCCCTGATCCTTATAGGATCCTAGACTCGTTAA spacer
 length: 38 repeater length: 25
 6944 1030258 GCCTCAATGTAAAGAGGATTGAAAG TAGCTATGTCTTGCAAGGCTTTCTCCGCCTTGCTTAAGCCTA spacer
 length: 42 repeater length: 25
 6945 1030326 GCCTCAATGTAAAGAGGATTGAAAG AAAATGTCGGGCGGGGTATTTAAGCGTTGTGTTTTGT spacer
 length: 37 repeater length: 25
 6946 1030389 GCCTCAATGTAAAGAGGATTGAAAG TTACGATCACCTTGCTTTTCTACTAGTATGAGGTACCC spacer
 length: 38 repeater length: 25
 6947 1030453 GCCTCAATGTAAAGAGGATTGAAAG TGCTACCCTTTATCAGCAACGCTAGCTCACGGGCCCCAC spacer

length: 38 repeater length: 25
6948 1030517 GCCTCAATGTAAAGAGGATTGAAAG ACGAGCTGGAAGTATACCGTGGTATACCAGGCTCCCGTG spacer
length: 39 repeater length: 25
6949 1030582 GCCTCAATGTAAAGAGGATTGAAAG TGGAGACCGTTACCAAGATCAATAGTAGAACTGAGATA spacer
length: 38 repeater length: 25
6950 1030646 GCCTCAATGTAAAGAGGATTGAAAG GTAAC TTATTTTCATTTTCCAGAAGTGGTATTCTACCA spacer
length: 38 repeater length: 25
6951 1030710 GCCTCAATGTAAAGAGGATTGAAAG TATGGGGTTACAAAAGCTATATGGGATTAACTGCTGG spacer
length: 38 repeater length: 25
6952 1030774 GCCTCAATGTAAAGAGGATTGAAAG TG TAGTCAACCCTTGCAACAGGCACAGCCGTGTACACGG spacer
length: 39 repeater length: 25
6953 1030839 GCCTCAATGTAAAGAGGATTGAAAG CTACCATAGGGGTAGCTTATAAACAGCTGTGTAGTGTA spacer
length: 38 repeater length: 25
6954 1030903 GCCTCAATGTAAAGAGGATTGAAAG CCAGCTTTTACATATATTTTAAGGTAATGGTATCCGT spacer
length: 37 repeater length: 25
6955 1030966 GCCTCAATGTAAAGAGGATTGAAAG AAAACATACATATATAGTCAGCAGGCGATATATAT spacer length:
35 repeater length: 25
6956 1031027 GCCTCAATGTAAAGAGGATTGAAAG ATACTCTCCCTCACAACCGGGACGGGATCCACCATGC spacer
length: 37 repeater length: 25
6957 1031090 GCCTCAATGTAAAGAGGATTGAAAG ACGTAGGAAGGTATTCCAGGATTCCTTTCCCTTATATCTT spacer
length: 40 repeater length: 25
6958 1031156 GCCTCAATGTAAAGAGGATTGAAAG TTAAATTTAAAGGCCCTCCAACACTACCGCGTCGCCCCGCC spacer
length: 39 repeater length: 25
6959 1031221 GCCTCAATGTAAAGAGGATTGAAAG GTCAGCAACGAGGAGCTTCTGCAGCTACTACGCAACTACGA spacer
length: 41 repeater length: 25
6960 1031288 GCCTCAATGTAAAGAGGATTGAAAG TTACTGCCGCCACCTTCTTGCCGTCATACTGCAGTGTG spacer
length: 38 repeater length: 25
6961 1031352 GCCTCAATGTAAAGAGGATTGAAAG ATAAGCCTAGTGAGAGAAGCTTCTTCTCAGCTCA spacer length:
35 repeater length: 25
6962 1031413 GCCTCAATGTAAAGAGGATTGAAAG CCGTCCTGCTTACACCCGGCTTTGCAGGCCTCCCATAT spacer
length: 38 repeater length: 25
6963 1031477 GCCTCAATGTAAAGAGGATTGAAAG CTCACGAATGCCACCGGGTTCAACCCGGCCACAGTGCTG spacer
length: 39 repeater length: 25
6964 1031542 GCCTCAATGTAAAGAGGATTGAAAG CCACAGTTATAAAGTGGGGCCTGGTGGCCCCGTTTCGGCT spacer
length: 39 repeater length: 25
6965 1031607 GCCTCAATGTAAAGAGGATTGAAAG ATATATCCACTCCACTGATTTACCAAGGGCTCAGGGCTC spacer
length: 40 repeater length: 25
6966 1031673 GCCTCAATGTAAAGAGGATTGAAAG AGAACACGGGAAGCGATGGATGGGTTAGGGTAAGGGT spacer
length: 37 repeater length: 25
6967 1031736 GCCTCAATGTAAAGAGGATTGAAAG ACGGGTTCCTCCCCTGGCGGCGCCAGCTTAATCCACTCA spacer
length: 39 repeater length: 25
6968 1031801 GCCTCAATGTAAAGAGGATTGAAAG TG TAAAAGTGCTAAAAGCTAAGTACAACA ACTGTAAGGTA spacer
length: 40 repeater length: 25
6969 1031867 GCCTCAATGTAAAGAGGATTGAAAG ATAAAATAAGGCGCGCTAGGGGGCTGGCCGGGGGGCGGA spacer
length: 39 repeater length: 25
6970 1031932 GCCTCAATGTAAAGAGGATTGAAAG ATTGGGACAGATTTCAAGCCCTATGGTGCCCTCCAAA spacer
length: 37 repeater length: 25
6971 1031995 GCCTCAATGTAAAGAGGATTGAAAG CTTCACCGGTGGTGAGGTCAACTATATATGGGCTCG spacer
length: 36 repeater length: 25
6972 1032057 GCCTCAATGTAAAGAGGATTGAAAG ATTAGGTAGGATCCACGGCATCTACCTAGTAGGGACCCC spacer
length: 40 repeater length: 25
6973 1032123 GCCTCAATGTAAAGAGGATTGAAAG CTGTAACCGTGGTTGAAACATTACCGGCAAGGAGGGTA spacer
length: 38 repeater length: 25
6974 1032187 GCCTCAATGTAAAGAGGATTGAAAG GTTTCATATGTCTCCCTCAATTCTCTAATATGCATTTAGA spacer
length: 41 repeater length: 25
6975 1032254 GCCTCAATGTAAAGAGGATTGAAAG AGTCTTTTACCGGGTTCAACTTGTTTCATTAATTCACGC spacer
length: 39 repeater length: 25
6976 1032319 GCCTCAATGTAAAGAGGATTGAAAG ACGGCAGCCTCCCGTAGAAAAAGCTGCAGTCTCCCCGTG spacer
length: 39 repeater length: 25
6977 1032384 GCCTCAATGTAAAGAGGATTGAAAG TAAAGTAATCCAATACCTCCCGGGGATCTCCCTCTGTGGT spacer
length: 40 repeater length: 25
6978 1032450 GCCTCAATGTAAAGAGGATTGAAAG CTTGTAGGAATGTTGCTTGATGCGGGCCCCGCCGGGATTTG
6979
6980
6981 GCA_000189555.1_ASM18955v1_genomic.fna(findCrispr):
6982 START REPEAT
SPACER
6983 crispr 1
6984 725209 CTTTCAATTCTATAGTAGATTAGC CAGCTGTTTCAGATCATAAGTAATTTGTGCTATTATATAGT spacer
length: 41 repeater length: 24
6985 725275 CTTTCAATTCTATAGTAGATTAGC TTAGAATGAAAATTGTCTCATTGCCTCTTCTTTAACTTTGT spacer

length: 41 repeater length: 24
6986 725341 CTTTCAATTCTATAGTAGATTAGC AGGGTTCGATTTGACTTATGCCCTAGTGACTCGATGGC spacer
length: 39 repeater length: 24
6987 725405 CTTTCAATTCTATAGTAGATTAGC ACGCGGTGAACTTTCTGTCTTTCAGGAATTCGGAAATCTC spacer
length: 40 repeater length: 24
6988 725470 CTTTCAATTCTATAGTAGATTAGC GAGAGATGTACAAAATCAGAAGGACAGACCCTGGAAGA spacer
length: 38 repeater length: 24
6989 725533 CTTTCAATTCTATAGTAGATTAGC GCGTAGTTGAGGAGTTTTTTCCTAATTTTTGCCATAAGAACTT spacer
length: 43 repeater length: 24
6990 725601 CTTTCAATTCTATAGTAGATTAGC CGGCAATGAGTTTTGGGTAAATGTGGTGGAAATTGAT spacer length:
37 repeater length: 24
6991 725663 CTTTCAATTCTATAGTAGATTAGC CTGGGACACTGAAAGAGAGTTAGTGAGTCTGCACTTT spacer length:
37 repeater length: 24
6992 725725 CTTTCAATTCTATAGTAGATTAGC AAGGAGTCACTGATTGGATTATTCGTATTTAGTAAAAAGA spacer
length: 40 repeater length: 24
6993 725790 CTTTCAATTCTATAGTAGATTAGC TAGGGGCTTCAAACGAACTACCGACTGAAGAAGAATTA spacer
length: 38 repeater length: 24
6994 725853 CTTTCAATTCTATAGTAGATTAGC ATAAACTTTATATACCACCAAACAATATATTGTAGA spacer
length: 40 repeater length: 24
6995 725918 CTTTCAATTCTATAGTAGATTAGC CGGATATACAAAGCAGAACTAGGAAAGATCTAATTCATTATAG spacer
length: 43 repeater length: 24
6996 725986 CTTTCAATTCTATAGTAGATTAGC CACGCCCAGATATGTCTATACCTGTAACCTCTTTGGAAAACT spacer
length: 42 repeater length: 24
6997 726053 CTTTCAATTCTATAGTAGATTAGC TTACTTAACTAAAGTTCTGAGCCAAGTCTTAAACCTAG spacer
length: 38 repeater length: 24
6998 726116 CTTTCAATTCTATAGTAGATTAGC TGAATTTCTTACAAACATATAAATTGTAATTGATGAATTT spacer
length: 40 repeater length: 24
6999 726181 CTTTCAATTCTATAGTAGATTAGC TAGTAAAAACGTACTATTTTTTTTGATTGCAAGATGATACTC spacer
length: 42 repeater length: 24
7000 726248 CTTTCAATTCTATAGTAGATTAGC ATGGCATACTACGACGTCAGTAGGGAAGTACTAGAGATTTACA spacer
length: 40 repeater length: 24
7001 726313 CTTTCAATTCTATAGTAGATTAGC CTAACATGGTAGCTTTCATGGCAGGCGACGTCAGTAGTG spacer
length: 39 repeater length: 24
7002 726377 CTTTCAATTCTATAGTAGATTAGC TAGTAAAAACGTACTATTTTTTTTGATTGCAAGATGATACTC spacer
length: 42 repeater length: 24
7003 726444 CTTTCAATTCTATAGTAGATTAGC ATGGCATACTACGACGTCAGTAGGGAAGTACTAGAGATTTACA spacer
length: 40 repeater length: 24
7004 726509 CTTTCAATTCTATAGTAGATTAGC CTAACATGGTAGCTTTCATGGCAGGCGACGTCAGTAGTG spacer
length: 39 repeater length: 24
7005 726573 CTTTCAATTCTATAGTAGATTAGC AAAAATTCGCTACTACAAATCTTAGTTAAGTCCTGTT spacer length:
37 repeater length: 24
7006 726635 CTTTCAATTCTATAGTAGATTAGC CATCACTCGTAGCTATATACCTTGGGACAAGGACTCTG spacer
length: 38 repeater length: 24
7007 726698 CTTTCAATTCTATAGTAGATTAGC AATTGCCTAACTTTTCGCCGCTTATCTCTTCTTAAAT spacer
length: 38 repeater length: 24
7008 726761 CTTTCAATTCTATAGTAGATTAGC CAAATTTCTGGCCGGGGGGCCAGAATATCGGTAATCGA spacer
length: 38 repeater length: 24
7009 726824 CTTTCAATTCTATAGTAGATTAGC GATATTGTTAATAGAGTTGTAATTGAAGTAATTGGAAAGG spacer
length: 40 repeater length: 24
7010 726889 CTTTCAATTCTATAGTAGATTAGC TAGGCGTCGCAAAGTTCTTCCGTGACATTGCAGACTGG spacer
length: 38 repeater length: 24
7011 726952 CTTTCAATTCTATAGTAGATTAGC TGAATGGTGCGATAAATATCCTACATATCCCCGAGTCTC spacer
length: 39 repeater length: 24
7012 727016 CTTTCAATTCTATAGTAGATTAGC ATGATAATAGAGAGAATAAAGAGAGAACTGGGGAGTTAA spacer
length: 40 repeater length: 24
7013 727081 CTTTCAATTCTATAGTAGATTAGC CGTGTCAATATCGATTGGGAAGACTTCAAGAAGGATCAA spacer
length: 39 repeater length: 24
7014 727145 CTTTCAATTCTATAGTAGATTAGC AATAATCGCTCGCCTTCTTAGCCTCTGCAATTATCTGCG spacer
length: 39 repeater length: 24
7015 727209 CTTTCAATTCTATAGTAGATTAGC TTTATTAGCCCCGCGAGGGCTTTACAATTAAAGAAATAGCGT spacer
length: 41 repeater length: 24
7016 727275 CTTTCAATTCTATAGTAGATTAGC CCATAGAACTAAACGGAAAAATTGTCAGTGTGAGGGTG spacer
length: 39 repeater length: 24
7017 727339 CTTTCAATTCTATAGTAGATTAGC AGAAAGGGTAGGGAGACTAATAAAAATGCTTCCCAGTA spacer
length: 38 repeater length: 24
7018 727402 CTTTCAATTCTATAGTAGATTAGC CGAGGTCTCTCCTCATCTATACTTTTGATAATTGATATTAG spacer
length: 41 repeater length: 24
7019 727468 CTTTCAATTCTATAGTAGATTAGC GGTATTAACGGTTGACGATAAACAATTAGAAGACAGAAT spacer
length: 39 repeater length: 24
7020 727532 CTTTCAATTCTATAGTAGATTAGC ACTATTGATTAGATTTTTTTGAGTCTGCCCAGAAAGATGAA spacer
length: 40 repeater length: 24

7021	727597 CTTTCAATTCTATAGTAGATTAGC	AGAAAGATCTGAAAGGACCTGAACGAAATTGGGCAGAATT spacer
	length: 40 repeater length: 24	
7022	727662 CTTTCAATTCTATAGTAGATTAGC	CATTTTTGCTATTTAGCCATCCCAGACCGGAAGGACTT spacer
	length: 39 repeater length: 24	
7023	727726 CTTTCAATTCTATAGTAGATTAGC	TAGATGAGATTGTTGACCGTTGGCGGTGGGGAATATACT spacer
	length: 39 repeater length: 24	
7024	727790 CTTTCAATTCTATAGTAGATTAGC	TAAGTTTAGGGAAAGGTTTAAAAACGCCTAAAAAGAGAG spacer
	length: 40 repeater length: 24	
7025	727855 CTTTCAATTCTATAGTAGATTAGC	GATATGAATGGAGAATTACTCCATAATTTGATCCTAAAATC spacer
	length: 41 repeater length: 24	
7026	727921 CTTTCAATTCTATAGTAGATTAGC	CATTCATGGGGAATTCCTCCATCTTCATCTTCACCACCA spacer
	length: 39 repeater length: 24	
7027	727985 CTTTCAATTCTATAGTAGATTAGC	GGGTAATAATGGGCATAGGCATAGGGGTGCTATCGGCT spacer
	length: 39 repeater length: 24	
7028	728049 CTTTCAATTCTATAGTAGATTAGC	GATAAGCGATAAGCCCCGCGACTGCGAAGATGACAAAGAAG spacer
	length: 41 repeater length: 24	
7029	728115 CTTTCAATTCTATAGTAGATTAGC	TGGTAGTACAACCTGTTACAAATCCTATTGGCAGCTTTA spacer
	length: 38 repeater length: 24	
7030	728178 CTTTCAATTCTATAGTAGATTAGC	CAGTTGATAAGTATCCATACATTCAAGCACGAGGAT spacer length:
	36 repeater length: 24	
7031	728239 CTTTCAATTCTATAGTAGATTAGC	CGGTGCTGCGGCCCTTCTTCATACTTTTGTTGTTAGCGGTCA spacer
	length: 41 repeater length: 24	
7032	728305 CTTTCAATTCTATAGTAGATTAGC	AACTTTTATAACTGATGATAATAGAGAATTCGTATTTTGT spacer
	length: 40 repeater length: 24	
7033	728370 CTTTCAATTCTATAGTAGATTAGC	AGGGAGAGCTGTTAAAGGATCTTCAGCATCTCCGTGAAATA spacer
	length: 41 repeater length: 24	
7034	728436 CTTTCAATTCTATAGTAGATTAGC	CACCCCAAACAAATCCAAACCCATGGAAAAGGTAATGA spacer
	length: 39 repeater length: 24	
7035	728500 CTTTCAATTCTATAGTAGATTAGC	TTGGGAGTATATAGTAGAAATACGGTGCATTGGGTAAA spacer
	length: 38 repeater length: 24	
7036	728563 CTTTCAATTCTATAGTAGATTAGC	TGAGTTCTTTAACGGATTTCATGTGGTGATTAAAAAAT spacer length:
	37 repeater length: 24	
7037	728625 CTTTCAATTCTATAGTAGATTAGC	ATATAGGTTGCCAAATGATTCTATAACAATTAGTATTC spacer
	length: 38 repeater length: 24	
7038	728688 CTTTCAATTCTATAGTAGATTAGC	CATTTCTGCTTCTATGCAATAAGACCACTGCTCTGCTTT spacer
	length: 39 repeater length: 24	
7039	728752 CTTTCAATTCTATAGTAGATTAGC	TTAAAGCACCGTTCAGGTCATGAAGCTTGTGTCCTC spacer
	length: 39 repeater length: 24	
7040	728816 CTTTCAATTCTATAGTAGATTAGC	TGCTACCGTACGGAGTGGCGACCCGTACGGTAAAGAGC spacer
	length: 38 repeater length: 24	
7041	728879 CTTTCAATTCTATAGTAGATTAGC	ACTTCAATTACGCTTTTGTCGCCATATGTTATCAGTCT spacer
	length: 38 repeater length: 24	
7042	728942 CTTTCAATTCTATAGTAGATTAGC	CCAGGAATGTAAGAAGATTAGCAATTCGAAAAAGAATT spacer
	length: 39 repeater length: 24	
7043	729006 CTTTCAATTCTATAGTAGATTAGC	TTCACTATCAGCTTTATGTGATAATTCAGTCCGATTTA spacer
	length: 39 repeater length: 24	
7044	729070 CTTTCAATTCTATAGTAGATTAGC	TTGTCTCACCATCTAATTCTATTGCTTTCTCATAATCA spacer
	length: 38 repeater length: 24	
7045	729133 CTTTCAATTCTATAGTAGATTAGC	AAAATAAAAAATCATTTTACAATCCTTTCTATTTTATCAAGA spacer
	length: 41 repeater length: 24	
7046	729199 CTTTCAATTCTATAGTAGATTAGC	AAATTAGAGCCATTAGTACGATTAATATTAGACGTAAGT spacer
	length: 40 repeater length: 24	
7047	729264 CTTTCAATTCTATAGTAGATTAGC	TAATGTGTTAAATCCTCCCTGGATTTACTTTGTACATCT spacer
	length: 39 repeater length: 24	
7048	729328 CTTTCAATTCTATAGTAGATTAGC	TTGGGTTATGTAAGTCGGGTCGAAGAAGAACAGCATAGAAGTAA spacer
	length: 44 repeater length: 24	
7049	729397 CTTTCAATTCTATAGTAGATTAGC	AAAGACCTCTTCAGAGTGGCAAATGTACCTATCATTTTGGT spacer
	length: 41 repeater length: 24	
7050	729463 CTTTCAATTCTATAGTAGATTAGC	ATGAGAACTCTATATTTGACCATCTCCACATAGAATAAA spacer
	length: 39 repeater length: 24	
7051	729527 CTTTCAATTCTATAGTAGATTAGC	GGTCACGAAAAAATAAGAAAGAAATAGTAGAATTTGAA spacer
	length: 38 repeater length: 24	
7052	729590 CTTTCAATTCTATAGTAGATTAGC	GGTTTGACAGACCCCGCCACTTACTCTCTGTCTTCTCCTCT spacer
	length: 40 repeater length: 24	
7053	729655 CTTTCAATTCTATAGTAGATTAGC	CTGGTCTAAATAGTGGATTTTATAGGAGCGAAATCATTA spacer
	length: 39 repeater length: 24	
7054	729719 CTTTCAATTCTATAGTAGATTAGC	TTAGTAATTATCACACAGTAAAGTCAGTGCCGAAGCTT spacer
	length: 39 repeater length: 24	
7055	729783 CTTTCAATTCTATAGTAGATTAGC	TAAGTCAGAGAATCACAGCGGAACCTTATCAATTATT spacer length:
	37 repeater length: 24	
7056	729845 CTTTCAATTCTATAGTAGATTAGC	GGTAATGGAGTCGTAGGCGGATCAGTGCCCACTACAACAATATT spacer

length: 44 repeater length: 24
7057 729914 CTTTCAATTCTATAGTAGATTAGC ACGCGACGATATGGCAAACCTTCTCCGCAACAGACTGCACAA spacer
length: 41 repeater length: 24
7058 729980 CTTTCAATTCTATAGTAGATTAGC CTGTCAGAAGAGGGATTTATGTTTATGAGCTTACAGAGAAGGGTCG
spacer length: 46 repeater length: 24
7059 730051 CTTTCAATTCTATAGTAGATTAGC TCAAGGAATTCTACAATGTCATAATTTCTATATTTTTTA spacer
length: 39 repeater length: 24
7060 730115 CTTTCAATTCTATAGTAGATTAGC CCGGTATTTGGATTTATCGCATACACTAATTGTTCAAC spacer
length: 38 repeater length: 24
7061 730178 CTTTCAATTCTATAGTAGATTAGC AGAGCGATCTATCCAGTAGAGATTAACGAAAAATAATTTTTTTTCA spacer
length: 45 repeater length: 24
7062 730248 CTTTCAATTCTATAGTAGATTAGC CTATACTGTAGGACGTTTTCTGAGTTACACGAGAGCTTTAG spacer
length: 41 repeater length: 24
7063 730314 CTTTCAATTCTATAGTAGATTAGC GTTGTCTATGGATGACGAGCCAAGAAAATGCGATAATAG spacer
length: 38 repeater length: 24
7064 730377 CTTTCAATTCTATAGTAGATTAGC CACACTCACTTCGTTACGCATTAATTAGCTATTTAGCGA spacer
length: 39 repeater length: 24
7065 730441 CTTTCAATTCTATAGTAGATTAGC ATAATTTGGTTGCTAACGTTAATCATCAACAAAAGATTGTCA spacer
length: 42 repeater length: 24
7066 730508 CTTTCAATTCTATAGTAGATTAGC ATCGCAATGCTGGGAATTGGGTGGTGGCTAGGTTCTTCAT spacer
length: 40 repeater length: 24
7067 730573 CTTTCAATTCTATAGTAGATTAGC CTCCATAGGAATTAAATCTAGATTGTCCATGACATTGA spacer
length: 38 repeater length: 24
7068 730636 CTTTCAATTCTATAGTAGATTAGC ACAATTTTCAGCATGCACTGCGGACGCTTATGTTTGTTATT spacer
length: 40 repeater length: 24
7069 730701 CTTTCAATTCTATAGTAGATTAGC TTTATATACCAATAGAAGAACGTGAACAGATACCGCCAGAT spacer
length: 41 repeater length: 24
7070 730767 CTTTCAATTCTATAGTAGATTAGC TTATAAAGAGAAATTTTTAGGTTAAGGGAGAAAATT spacer length:
36 repeater length: 24
7071 730828 CTTTCAATTCTATAGTAGATTAGC CTGATCTTTCTTGAAATCTTCCCAATCAATGTTTACTCTAA spacer
length: 41 repeater length: 24
7072 730894 CTTTCAATTCTATAGTAGATTAGC CATAAATATGAGTAAGACATTAGAATACATCAAAAAAATG spacer
length: 40 repeater length: 24
7073 730959 CTTTCAATTCTATAGTAGATTAGC CTGAAACTACTGTCGTTTCTGTGCTTAGCGTCAACTAGA spacer
length: 39 repeater length: 24
7074 731023 CTTTCAATTCTATAGTAGATTAGC ATACGCCGAATTAGAGCTAATCACTGAGAAATACGGTATATC spacer
length: 42 repeater length: 24
7075 731090 CTTTCAATTCTATAGTAGATTAGC TTACTCTATAGCTAGTGTCTACTTTAAGGCAAGAAAAT spacer
length: 39 repeater length: 24
7076 731154 CTTTCAATTCTATAGTAGATTAGC TTTTGCATACTCTCCCCCTCTGTCTATTTAATTATTCGTTT spacer
length: 41 repeater length: 24
7077 731220 CTTTCAATTCTATAGTAGATTAGC ACGTCTATTTCTTCTACCGGAGCAGATCGATAACTTT spacer
length: 38 repeater length: 24
7078 731283 CTTTCAATTCTATAGTAGATTAGC CTATTAAAAGCACAAATTCAGGAATATGTTTAAAAATTT spacer
length: 39 repeater length: 24
7079 731347 CTTTCAATTCTATAGTAGATTAGC AGATGTAGTTAGCCACCTATTGGTGGAGGATAATTATTTTGT spacer
length: 43 repeater length: 24
7080 731415 CTTTCAATTCTATAGTAGATTAGC CGGCTGCAAAGTATCATATATTCAGTTTTTTCGCACTATT spacer
length: 39 repeater length: 24
7081 731479 CTTTCAATTCTATAGTAGATTAGC TCAACTTTGTATCGTACCTTAACGGTGTGATTTATATCG spacer
length: 39 repeater length: 24
7082 731543 CTTTCAATTCTATAGTAGATTAGC TACGTTACAAAACTGAATAAACACCCCAAGTTTACAGA spacer
length: 38 repeater length: 24
7083 731606 CTTTCAATTCTATAGTAGATTAGC ACGACTTCAACCCACACCTAACGATAAACCATATTTCTTAG spacer
length: 43 repeater length: 24
7084 731674 CTTTCAATTCTATAGTAGATTAGC AAGTTTTTATTTTTTCTGATAATTTATTGAACGAAATGGA spacer
length: 40 repeater length: 24
7085 731739 CTTTCAATTCTATAGTAGATTAGC CACTGATAGGGATTGCCATTACTGTGATTATTGCACTAC spacer
length: 39 repeater length: 24
7086 731803 CTTTCAATTCTATAGTAGATTAGC TTTAAAGTCTAGCTTACCGTTGTGCAACTTCATAAAGA spacer
length: 38 repeater length: 24
7087 731866 CTTTCAATTCTATAGTAGATTAGC GCCTTTGCAGGAATTTCTAAAGGATAAGAATAAACAGGA spacer
length: 39 repeater length: 24
7088 731930 CTTTCAATTCTATAGTAGATTAGC AAGAACTACAACACCACCGTCAATTTGCAAGTTCAAAC spacer
length: 39 repeater length: 24
7089 731994 CTTTCAATTCTATAGTAGATTAGC AAGAACAGAAAGGAAAACGATCTGAAAAGGAGAATAAT spacer
length: 38 repeater length: 24
7090 732057 CTTTCAATTCTATAGTAGATTAGC ATAAATTATCTTCAAGAAAGAGGAAAAAGTGATATACA spacer
length: 38 repeater length: 24
7091 732120 CTTTCAATTCTATAGTAGATTAGC TAGTCAATAAATGTCTGATTGTTGTTTTCCAACCTCTAA spacer
length: 38 repeater length: 24

7092	732183	CTTTC AATTCTATAGTAGATTAGC	CATACCCGACACAAGAAAGTATGTTGAGGATTATGCCAA spacer
	length:	39	repeater length: 24
7093	732247	CTTTC AATTCTATAGTAGATTAGC	TTATTCTCAGCGACAAGGTCTTTGAAATAGTAAAATGGAAA spacer
	length:	41	repeater length: 24
7094	732313	CTTTC AATTCTATAGTAGATTAGC	CTAGATATAATATATTATATTTGGTCCATAGGAGGACCA spacer
	length:	39	repeater length: 24
7095	732377	CTTTC AATTCTATAGTAGATTAGC	TCTTTAAATCTCATTTCTTTCACCATTTATCTTTTCTC spacer
	length:	38	repeater length: 24
7096	732440	CTTTC AATTCTATAGTAGATTAGC	AAGAAAATAAAAAGATTGAAATTCTTAAAGCTTACAAGA spacer
	length:	39	repeater length: 24
7097	732504	CTTTC AATTCTATAGTAGATTAGC	TTGGAATATTTTTACAAGGTGTAGAATTAATTGGAATT spacer
	length:	38	repeater length: 24
7098	732567	CTTTC AATTCTATAGTAGATTAGC	TATGGCCTATGATTTTGACACACTTTCCTCAATTTTCC
7099			
7100			
7101	crispr	2	
7102	736642	GCTAATCTACTATAGAATTGAAAG	ACACTGGGCGATAACGGGAACGACAGGGGCGGGAAAGA spacer
	length:	38	repeater length: 24
7103	736705	GCTAATCTACTATAGAATTGAAAG	TTTATTTTTTTCAAAC TAATTCGCAAAAATTGAAAGTCGA spacer
	length:	39	repeater length: 24
7104	736769	GCTAATCTACTATAGAATTGAAAG	TATAATTATCTTTAGTCTTCCATCCATGGTATTTTCAAGAA spacer
	length:	40	repeater length: 24
7105	736834	GCTAATCTACTATAGAATTGAAAG	TATAAATATGGTGTCAAGTGACGAATTAATAACATAACCAG spacer
	length:	43	repeater length: 24
7106	736902	GCTAATCTACTATAGAATTGAAAG	TTACTTCTTAGTGTTTTTACGAAAGTGAAAGCATTATCG spacer
	length:	39	repeater length: 24
7107	736966	GCTAATCTACTATAGAATTGAAAG	TCAATATATCTTCCAATGCTGTTTTTGATATAGTCGACAAC spacer
	length:	41	repeater length: 24
7108	737032	GCTAATCTACTATAGAATTGAAAG	GAAATAGAAAAAGCTTTAAGAATTAAATATCTCTTCTGCC spacer
	length:	41	repeater length: 24
7109	737098	GCTAATCTACTATAGAATTGAAAG	AAAGAAGATCAAGATTTAAGATATGTAATGACCTTTGGA spacer
	length:	39	repeater length: 24
7110	737162	GCTAATCTACTATAGAATTGAAAG	CAACTTTAACACCAATTTTTTGGTTAATGGCACATAAA spacer
	length:	38	repeater length: 24
7111	737225	GCTAATCTACTATAGAATTGAAAG	TCATCTAAAACGTAGATATTGTATAATGGGGGCATTCTA spacer
	length:	39	repeater length: 24
7112	737289	GCTAATCTACTATAGAATTGAAAG	ATATTGCTTTAATCCTCGACCTACTGTCCTTAGTTA spacer length:
	length:	36	repeater length: 24
7113	737350	GCTAATCTACTATAGAATTGAAAG	CACTAATTATTGAACTAAGATGGGTTTTGTAACTGTC spacer
	length:	38	repeater length: 24
7114	737413	GCTAATCTACTATAGAATTGAAAG	AAAAAATAGATATTACTTTATGCTTTGTCTCCTAGAGCGA spacer
	length:	40	repeater length: 24
7115	737478	GCTAATCTACTATAGAATTGAAAG	TATAATAAATATTATGTATATGGTTTGATTTACTTGTT spacer
	length:	38	repeater length: 24
7116	737541	GCTAATCTACTATAGAATTGAAAG	ATGTTGATTATAGTTAACTGTCCATTTTGATAAATTTCTATT spacer
	length:	42	repeater length: 24
7117	737608	GCTAATCTACTATAGAATTGAAAG	TTAATTTTATCATCACCCATTTTTCTCTTGCTAATAACT spacer
	length:	39	repeater length: 24
7118	737672	GCTAATCTACTATAGAATTGAAAG	AATGTATACACTTGATAAATTGGAATTATAACTTTCAATCC spacer
	length:	41	repeater length: 24
7119	737738	GCTAATCTACTATAGAATTGAAAG	GTCTCAAATATGTAGCTATTGCTGAACGTTATGAAAA spacer length:
	length:	37	repeater length: 24
7120	737800	GCTAATCTACTATAGAATTGAAAG	TGACTGTTGATATAAGCCGTATCATTAATGCGTATAAGG spacer
	length:	39	repeater length: 24
7121	737864	GCTAATCTACTATAGAATTGAAAG	TTATTATATACGATAATATCATAGCCAACGTCTTTCAAC spacer
	length:	39	repeater length: 24
7122	737928	GCTAATCTACTATAGAATTGAAAG	CCACCTGGCGTGATATAGATATTCTTATATTCAAGC spacer length:
	length:	36	repeater length: 24
7123	737989	GCTAATCTACTATAGAATTGAAAG	TTACTAAGAAATACTGAACCATACATATTATTTCTA spacer length:
	length:	36	repeater length: 24
7124	738050	GCTAATCTACTATAGAATTGAAAG	ATTATAGAGATATGGACTCTCACAAACAAAAGAACTGTAACTG spacer
	length:	44	repeater length: 24
7125	738119	GCTAATCTACTATAGAATTGAAAG	ATATTGATTGATTAAAATAGCGTTGTTTAGATAGTTGTAA spacer
	length:	41	repeater length: 24
7126	738185	GCTAATCTACTATAGAATTGAAAG	GTTATCGTACTTAATTAATATGTTGAATGGTAACGTTATGTCT spacer
	length:	43	repeater length: 24
7127	738253	GCTAATCTACTATAGAATTGAAAG	TCATACACCTTGTGATTAATTTTGTGTTGACTTTAACGC spacer
	length:	38	repeater length: 24
7128	738316	GCTAATCTACTATAGAATTGAAAG	AAGTTTATTACCATTTTTGCTGAAAACGAGGATGAGGCA spacer
	length:	39	repeater length: 24
7129	738380	GCTAATCTACTATAGAATTGAAAG	TTAACTACTAGAATTTTAACGTCTTCGTCACCGATATGATATTCC spacer

length: 44 repeater length: 24
7130 738449 GCTAATCTACTATAGAAATTGAAAG CTTGTTCTTGTACTAGTTGGTCTGGCACCTCGACTATAACTTT spacer
length: 43 repeater length: 24
7131 738517 GCTAATCTACTATAGAAATTGAAAG TCATCAGAGACCCCATCCTTAACCTTTCTCATCGCCTTGAAG spacer
length: 42 repeater length: 24
7132 738584 GCTAATCTACTATAGAAATTGAAAG TCTATTCTTCCAATACCTCTCTAATTCTCTAAATTCCTCC spacer
length: 40 repeater length: 24
7133 738649 GCTAATCTACTATAGAAATTGAAAG AGTTCATAGAGCCCTATGGGAATCCCTACTAATCCCG spacer length:
37 repeater length: 24
7134 738711 GCTAATCTACTATAGAAATTGAAAG TTTGTGCTATATATAATGTAAGCTTCTGATGAATTGAAAAATATCT
spacer length: 46 repeater length: 24
7135 738782 GCTAATCTACTATAGAAATTGAAAG TTTTTCAGCGTCAGGCCAGACAGAAGCGATAGTTCTATTCC spacer
length: 41 repeater length: 24
7136 738848 GCTAATCTACTATAGAAATTGAAAG TTCTCTATTCCAGCCATCTCAACAACCTCCTCCTTTAAC spacer
length: 40 repeater length: 24
7137 738913 GCTAATCTACTATAGAAATTGAAAG GTTTCCTAGACCGTGAAGTGTGCTTTAGCTCCAGCGGACTC spacer
length: 41 repeater length: 24
7138 738979 GCTAATCTACTATAGAAATTGAAAG AAAAATATTTATAGAGAGAGATGAGTGAAAGTATATGGCAATAG spacer
length: 44 repeater length: 24
7139 739048 GCTAATCTACTATAGAAATTGAAAG TTTTTCATATAAAACTACATTCCTGCCATGAACCATC spacer
length: 38 repeater length: 24
7140 739111 GCTAATCTACTATAGAAATTGAAAG GAGAAAGATACGTGTTATCTATTTCGTAGAGCTTCTTATTCC spacer
length: 41 repeater length: 24
7141 739177 GCTAATCTACTATAGAAATTGAAAG TCGTTTTTTTAGGGAAGAGTTTGGCGAGTGTGCAGCTTATT spacer
length: 40 repeater length: 24
7142 739242 GCTAATCTACTATAGAAATTGAAAG TCGCTATTATTGTCAAAGAAATAATATACTTTTATCTCCT spacer
length: 40 repeater length: 24
7143 739307 GCTAATCTACTATAGAAATTGAAAG TTTTATCAACAATAACCTGAAATTCCTCGAATCTAAA spacer
length: 38 repeater length: 24
7144 739370 GCTAATCTACTATAGAAATTGAAAG CTCAATATTTTCAACCGACTGGAATAATATAATAAATCTGAA spacer
length: 42 repeater length: 24
7145 739437 GCTAATCTACTATAGAAATTGAAAG TCATTTCCCTAAGATCCCTTACATTTTCCAAGTAAGAGA spacer
length: 38 repeater length: 24
7146 739500 GCTAATCTACTATAGAAATTGAAAG TTAGGAGTCGTAGCACAGGGAGCTGTACAGTCACAGA spacer length:
37 repeater length: 24
7147 739562 GCTAATCTACTATAGAAATTGAAAG ACTATATACTCATAATCTCCTATTATTTGCCTCTCGGC spacer
length: 38 repeater length: 24
7148 739625 GCTAATCTACTATAGAAATTGAAAG TAAGTGTTACGATCTTTTTTACCGACCCTTTTTCTGAT spacer
length: 38 repeater length: 24
7149 739688 GCTAATCTACTATAGAAATTGAAAG ATTCTGTTCTTTGAGAACGGGTATGAGACTATCTTTA spacer length:
37 repeater length: 24
7150 739750 GCTAATCTACTATAGAAATTGAAAG AATATAATTCTTGTAAGCCTAACACAATTTTTCTAACTT spacer
length: 39 repeater length: 24
7151 739814 GCTAATCTACTATAGAAATTGAAAG ATTCTGTTGTAATAGTTCTTGTAATTCTTGTAATGTTAAC spacer
length: 40 repeater length: 24
7152 739879 GCTAATCTACTATAGAAATTGAAAG TCACTCTATTAGGCTATTGTTGTTTGTGCTTCTTCCCTG spacer
length: 39 repeater length: 24
7153 739943 GCTAATCTACTATAGAAATTGAAAG AAAATGTTAAACATTCTAAGATCTTGAAAATCTGTTCTT spacer
length: 39 repeater length: 24
7154 740007 GCTAATCTACTATAGAAATTGAAAG TCTTCTTAGTTACTTTGTTTACGAAATCAATTGCATCC spacer
length: 38 repeater length: 24
7155 740070 GCTAATCTACTATAGAAATTGAAAG ATTTTGGGTTGAAAAATAATTATATAATTAATAACT spacer length:
36 repeater length: 24
7156 740131 GCTAATCTACTATAGAAATTGAAAG GGCTGGATAAACTGCACGTGCACCGGTGTTTGGCTAGCGGGC spacer
length: 42 repeater length: 24
7157 740198 GCTAATCTACTATAGAAATTGAAAG GCGGGAATTGGTGTGGAACTCTATCACAATCCACCTTCTCCA spacer
length: 43 repeater length: 24
7158 740266 GCTAATCTACTATAGAAATTGAAAG ATGGAATTCTTTCTATATACGCGACCTTTAGGATAACTATAA spacer
length: 42 repeater length: 24
7159 740333 GCTAATCTACTATAGAAATTGAAAG GCTAGCTGCGAAATTTGTATCGTTAGCTCGTAAGGCAGA spacer
length: 39 repeater length: 24
7160 740397 GCTAATCTACTATAGAAATTGAAAG CATTGACCTTAAACGTTACAACCTCTCACGGGATCACCTCAT spacer
length: 41 repeater length: 24
7161 740463 GCTAATCTACTATAGAAATTGAAAG TTATTTTATCAGTAGGTACACCTCTGACTATTTTTAAT spacer
length: 38 repeater length: 24
7162 740526 GCTAATCTACTATAGAAATTGAAAG ACACTGTATGTTATGATATGAAAACCTGGAAGGAACCTCGA spacer
length: 40 repeater length: 24
7163 740591 GCTAATCTACTATAGAAATTGAAAG TTTTGATTTATTTATACTGTTTATTAACCTTAAGATTTTTTTC spacer
length: 43 repeater length: 24
7164 740659 GCTAATCTACTATAGAAATTGAAAG AGGAATGTAAAATGTACCGCCCTAGGAAACACGAAACTC spacer
length: 39 repeater length: 24

7165 740723 GCTAATCTACTATAGAAATTGAAAG TCGGAAGAGATAGTTAATTCAATAGTTGTTTTTTCAGTCTTGG spacer
length: 43 repeater length: 24

7166 740791 GCTAATCTACTATAGAAATTGAAAG AACGGTAAAAACGCGTAAAACAACCTATTTTGGGT spacer length:
36 repeater length: 24

7167 740852 GCTAATCTACTATAGAAATTGAAAG TTCTGCACTACTCCTAACCTTAGTTAATACGACACCTATT spacer
length: 40 repeater length: 24

7168 740917 GCTAATCTACTATAGAAATTGAAAG AATTTAATTTCCAAAATTACAATTCCTAATGGAATAGCGGGA spacer
length: 42 repeater length: 24

7169 740984 GCTAATCTACTATAGAAATTGAAAG TTAATTTCAACAAAGAAAGAGCCGAATTACTTAACGATC spacer
length: 39 repeater length: 24

7170 741048 GCTAATCTACTATAGAAATTGAAAG TATACTGGAATGAACCCAATACTAACTTCTACATATGCACA spacer
length: 41 repeater length: 24

7171 741114 GCTAATCTACTATAGAAATTGAAAG GCAGGGTTCGTAGATACTTAAAAGAGCTGTACGGGGA spacer length:
37 repeater length: 24

7172 741176 GCTAATCTACTATAGAAATTGAAAG TCCTCTGATGTTGGTGCTAGTTTTACTATCAGCGATGGCA spacer
length: 40 repeater length: 24

7173 741241 GCTAATCTACTATAGAAATTGAAAG AATTTGCATCTTTATATAGAGAGTACAAGTTCTTTATC spacer
length: 38 repeater length: 24

7174 741304 GCTAATCTACTATAGAAATTGAAAG TTTCCAGAACACGAATCTCGTCTTTTAGTTTTATTTAATT spacer
length: 39 repeater length: 24

7175 741368 GCTAATCTACTATAGAAATTGAAAG TAAATTGTATACATTTACCTGCTAATTTATATATAACAACA spacer
length: 42 repeater length: 24

7176 741435 GCTAATCTACTATAGAAATTGAAAG ATTACTGGATCTTTGAGTCCTATTATTCCCTATTACTTTGTTA spacer
length: 42 repeater length: 24

7177 741502 GCTAATCTACTATAGAAATTGAAAG ATGATCATACATCATGTCATAACTTTTCATGAGTTTCTACG spacer
length: 41 repeater length: 24

7178 741568 GCTAATCTACTATAGAAATTGAAAG TTAGCAATAATTACGCCCAGATCATAGGACTGGCTTATG spacer
length: 40 repeater length: 24

7179 741633 GCTAATCTACTATAGAAATTGAAAG TCTGTTACGCCGAGTGCCGGTAACACTTGAGCCATTTG spacer
length: 38 repeater length: 24

7180 741696 GCTAATCTACTATAGAAATTGAAAG CAGTTAATGTCGTTAAGTTCTAGGTTTAGCAAAAGTCG spacer
length: 38 repeater length: 24

7181 741759 GCTAATCTACTATAGAAATTGAAAG TATATTAAGGAGATTCCTAATTCTGAATGCTAACTCTT spacer
length: 38 repeater length: 24

7182 741822 GCTAATCTACTATAGAAATTGAAAG GGTCTAGCCGTAATTAATGGGAAAAATTGATATGAC spacer length:
36 repeater length: 24

7183 741883 GCTAATCTACTATAGAAATTGAAAG TTTGTAAATTGTATTATATATCCATTCATATCTACAGAT spacer
length: 39 repeater length: 24

7184 741947 GCTAATCTACTATAGAAATTGAAAG GCTCCACCGCCTTTTACCATTCCCTGAATATGATAATAG spacer
length: 39 repeater length: 24

7185 742011 GCTAATCTACTATAGAAATTGAAAG CTTTCTTTCTGCTTTTCGTACTAGGTTTTCTTCTTTTTTC spacer
length: 40 repeater length: 24

7186 742076 GCTAATCTACTATAGAAATTGAAAG AAAGTTTCACCGAGTGGTCTATGGTTATTAATAAAATA spacer
length: 38 repeater length: 24

7187 742139 GCTAATCTACTATAGAAATTGAAAG GAGTAAAATCCTAACTTTGAAAGGTAGGCGTCTAAAAAATTGTTGTCC
spacer length: 48 repeater length: 24

7188 742212 GCTAATCTACTATAGAAATTGAAAG AAAAAAGACTTAATAGTTACAGCAAAAATGGTCAAAAAAATACA spacer
length: 44 repeater length: 24

7189 742281 GCTAATCTACTATAGAAATTGAAAG ATACTTTTTAACGTTTTTCATTTATCATGTTTCTATCACTA spacer
length: 40 repeater length: 24

7190 742346 GCTAATCTACTATAGAAATTGAAAG CTCCTTTTTCTCCTATAGTAGGAATAGATAAACAACTTCGC spacer
length: 41 repeater length: 24

7191 742412 GCTAATCTACTATAGAAATTGAAAG TTCGTACTGTCCTCTCAGCAAAGCCCTATATTTTTTCG spacer
length: 38 repeater length: 24

7192 742475 GCTAATCTACTATAGAAATTGAAAG AAAGGAACACCAATTCCTATTCTACAGCTGCAGCTGTGCC spacer
length: 41 repeater length: 24

7193 742541 GCTAATCTACTATAGAAATTGAAAG TTATTGAATAAAACAGAGTACAAAATATTTAGTGGTGATA spacer
length: 40 repeater length: 24

7194 742606 GCTAATCTACTATAGAAATTGAAAG ATGGCCTATGATTTTGACACACTTTCCTCAATTTTCCTTT

7195

7196

7197 GCA_000189575.1_ASM18957v1_genomic.fna (findCrispr):

7198 START REPEAT

SPACER

7199 crispr 1

7200 355293 TTCAATTCTATAGTAGATTAGC TGAGGGCAAAAATTCTTAGAGATGTTATCGACGACTTGGCGC spacer
length: 42 repeater length: 22

7201 355358 TTCAATTCTATAGTAGATTAGC CACTTTCTTTTCGCTCGTCAAGTATAGGTGAAACATCAGAC spacer
length: 41 repeater length: 22

7202 355422 TTCAATTCTATAGTAGATTAGC TACGCAGAATCCTGAGCAAATAGGTATCGCCGCCCTCGTC spacer
length: 40 repeater length: 22

7203 355485 TTCAATTCTATAGTAGATTAGC CTTACGAATTGCGTTTGTGTTAGTGTGCCTGATACAACAGC spacer
length: 41 repeater length: 22

7204 355549 TTCAATTCTATAGTAGATTAGC CCGCGTTTACCGCGAATACCGCGATCTCCCCGGATTCTGTTAAC spacer
length: 45 repeater length: 22

7205 355617 TTCAATTCTATAGTAGATTAGC AGACTGAGTGAAATTCTGAAAGTGTTGAAGGAACCGGAAAC spacer
length: 41 repeater length: 22

7206 355681 TTCAATTCTATAGTAGATTAGC TGAGGCTGATGAGTCTAGATTTAGAACTGGATATATTCAATGC spacer
length: 43 repeater length: 22

7207 355747 TTCAATTCTATAGTAGATTAGC CATTACCACAGCCTGGTGGAACTTTACCAGGTTCACTTTAC spacer
length: 41 repeater length: 22

7208 355811 TTCAATTCTATAGTAGATTAGC
TCGTCAGCCTCTGCCGAATTATGTTTCATATACCATGTTTTCTTTCAATTCTATAGCAGATTAGCGTATTTTTATATTAGAAAAT
ATGTAAAAAGACTACATGTTCTC spacer length: 109 repeater length: 22

7209 355943 TTCAATTCTATAGTAGATTAGC CTAAAGAAGTGGCAATCACAACAAAGGATGGTAAAAGCATTAC spacer
length: 43 repeater length: 22

7210 356009 TTCAATTCTATAGTAGATTAGC TTTCACTACTGTAATGTTGTGAGTTTCATGTCTTATCATC spacer
length: 40 repeater length: 22

7211 356072 TTCAATTCTATAGTAGATTAGC CTTATACCCAAATGTCACATAGATTTGCTAAACCGATAGC spacer
length: 40 repeater length: 22

7212 356135 TTCAATTCTATAGTAGATTAGC CTTTCGTTGATCATTATCTCATCAACAACATAATCATCCCTCACAC spacer
length: 46 repeater length: 22

7213 356204 TTCAATTCTATAGTAGATTAGC GTTACGTTATAGAAACAAGCAGAACTAACAGAAGTATATC spacer
length: 40 repeater length: 22

7214 356267 TTCAATTCTATAGTAGATTAGC GTCAACTCTCCTAACTCCAATTGAGGAGTGGAAATGAGATCTCATC spacer
length: 45 repeater length: 22

7215 356335 TTCAATTCTATAGTAGATTAGC CTATGACAAACACGAAACCTATCATGAACAGCGGTGCAAAC spacer
length: 41 repeater length: 22

7216 356399 TTCAATTCTATAGTAGATTAGC CCGATTTCTTGGCGTCTGATTCTGATTCGGGCAATATGC spacer length:
39 repeater length: 22

7217 356461 TTCAATTCTATAGTAGATTAGC AAAAAACATATTCGGTTATCCCCACGCCTCTACCACCACCC spacer
length: 42 repeater length: 22

7218 356526 TTCAATTCTATAGTAGATTAGC GTTGTTGATTATAATTATAGCTGTCGCAGTGACAGCAGAC spacer
length: 40 repeater length: 22

7219 356589 TTCAATTCTATAGTAGATTAGC CTATCCATAGATCGCCCCTATTAGTCAACACGTTGTTGTGC spacer
length: 41 repeater length: 22

7220 356653 TTCAATTCTATAGTAGATTAGC TACTTGTATAACAATAGAGGCAATTATCGCTATGGCATGGG spacer
length: 41 repeater length: 22

7221 356717 TTCAATTCTATAGTAGATTAGC CGTTAGGAGCGCTAGGTGGTGGACTTTTCGGGATAGCGCC spacer
length: 40 repeater length: 22

7222 356780 TTCAATTCTATAGTAGATTAGC CTAAAATATCATGGATATCGATAGATAATGAAAAGTATATAACC spacer
length: 44 repeater length: 22

7223 356847 TTCAATTCTATAGTAGATTAGC TCGGAATCGTGCCAAGTTAATCAACAACCAGATGGTCACAC spacer
length: 41 repeater length: 22

7224 356911 TTCAATTCTATAGTAGATTAGC CCGTGCCATTTGGAGCTCCACCTAAAAATGTGTAAAATC spacer
length: 40 repeater length: 22

7225 356974 TTCAATTCTATAGTAGATTAGC TAAAAATTAAGCAAGCATTACGTGACGCCGTAAGAGAGAC spacer
length: 40 repeater length: 22

7226 357037 TTCAATTCTATAGTAGATTAGC ACCAAGATGAAGATAAAAAGAACTATTATCGTTTTGACGTC spacer
length: 41 repeater length: 22

7227 357101 TTCAATTCTATAGTAGATTAGC ATTAATTTATTGACAGTCTATCTTATAAATAATCATGAAAAC spacer
length: 42 repeater length: 22

7228 357166 TTCAATTCTATAGTAGATTAGC CTTCAACAACAGCAAATGCAGGTCTAACAACCTCAGATGTC spacer
length: 41 repeater length: 22

7229 357230 TTCAATTCTATAGTAGATTAGC CTAATTCTGGTTCAAGCAACATCACTATAATAATAAAC spacer length:
38 repeater length: 22

7230 357291 TTCAATTCTATAGTAGATTAGC CGGTGCTGCATGCAGCATTATCCGCTCACCTAGTATTATC spacer
length: 41 repeater length: 22

7231 357355 TTCAATTCTATAGTAGATTAGC GTTACTCTTTTGATATTTCTCATTTTTTTCAATTTTTATTACC spacer
length: 42 repeater length: 22

7232 357420 TTCAATTCTATAGTAGATTAGC TGAATGACCTTATAAGACTGATGAGACGAGCTTATGAAGAGAAC spacer
length: 44 repeater length: 22

7233 357487 TTCAATTCTATAGTAGATTAGC CTGTCGACTTCTACCAAATTGAAGGTAAAACAATATATTATATAC spacer
length: 45 repeater length: 22

7234 357555 TTCAATTCTATAGTAGATTAGC CCATTCTGTTAAGTGGCACTATGCCTTCCGCCGATTATCTTAGGAC spacer
length: 46 repeater length: 22

7235 357624 TTCAATTCTATAGTAGATTAGC CCAGCAAATGGCTCAAGTATTACCAGCGTTAGGTGTAACAGAC spacer
length: 43 repeater length: 22

7236 357690 TTCAATTCTATAGTAGATTAGC CCCGTCGCTATCTTCTACAGTCTCTTGTGTAAAGTATC spacer length:
38 repeater length: 22

7237 357751 TTCAATTCTATAGTAGATTAGC TTAGGTAGGTACTCATTTACCCATAAATTATATTGTAGTATC spacer
length: 42 repeater length: 22

7238 357816 TTCAATTCTATAGTAGATTAGC TTGTCGACTACTGAAGATAAGGATATCTCTATATGAATC spacer length:
39 repeater length: 22

7239 357878 TTCAATTCTATAGTAGATTAGC TCAAAGTTTACGCGAATAGACCCGGACACCGTGGTATCATAACAAC spacer
length: 46 repeater length: 22

7240 357947 TTCAATTCTATAGTAGATTAGC GAAGCTGAGGCATTAGAAGCAGAAAGAAGGGGAAGAGTATGACT spacer
length: 44 repeater length: 22

7241 358014 TTCAATTCTATAGTAGATTAGC ACAGGGAATTTCGCAATACTCTAGTACGTACACACAAATAGCTAACC spacer
length: 46 repeater length: 22

7242 358083 TTCAATTCTATAGTAGATTAGC GGAGCTGCTTCTAAATTATTTATAGCGAAATCTATATGTACGGC spacer
length: 44 repeater length: 22

7243 358150 TTCAATTCTATAGTAGATTAGC TCAAATGGTCTAATTTTTGATGAAATTCAAACCTGGAAAGAC spacer
length: 42 repeater length: 22

7244 358215 TTCAATTCTATAGTAGATTAGC CTTTGGGGATCCGTTACATTAATCCCACCGTTTAGTATCTC spacer
length: 41 repeater length: 22

7245 358279 TTCAATTCTATAGTAGATTAGC ACTACTATCCCTTCTACTCTACAAGAAGGGGTTGAGAGATGC spacer
length: 42 repeater length: 22

7246 358344 TTCAATTCTATAGTAGATTAGC GTTAGGGCATGTTTCATCAATGTTTGGGCATGAAAATGTAATAAC spacer
length: 44 repeater length: 22

7247 358411 TTCAATTCTATAGTAGATTAGC GAGAAGGAGCGGAAATATTTACGCGAATTGTGGAATGAGGC spacer
length: 41 repeater length: 22

7248 358475 TTCAATTCTATAGTAGATTAGC AGGATCATCCCGTTCCTTCTGGTGACGGTGGTCTATAAGTTTAAC spacer
length: 45 repeater length: 22

7249 358543 TTCAATTCTATAGTAGATTAGC GAATTCCATGTCTTGCTAATTGTACATGATAATTTACAATTTTC spacer
length: 44 repeater length: 22

7250 358610 TTCAATTCTATAGTAGATTAGC CGAGTGAATCTATAACGGGTAGTGGAAACACATTAGTAAACGC spacer
length: 43 repeater length: 22

7251 358676 TTCAATTCTATAGTAGATTAGC TACCAAACACCTCCCTAACCTGACTCTTTGTCAACGTCAGC spacer
length: 41 repeater length: 22

7252 358740 TTCAATTCTATAGTAGATTAGC TCTGCATTTTTTCACGATTTACGTAAATCTTTTCCATCTAC spacer
length: 41 repeater length: 22

7253 358804 TTCAATTCTATAGTAGATTAGC TTCAATTATTGCTTCACCATAACTGCCATCATCACTAGTC spacer
length: 40 repeater length: 22

7254 358867 TTCAATTCTATAGTAGATTAGC TTTATCGAAAGATTTAAATATCTAATTTGCGTACAAGATAATC spacer
length: 43 repeater length: 22

7255 358933 TTCAATTCTATAGTAGATTAGC AAAAATATAACGACAGATTGACGGAAATCGAGAAAGACCCGTTC spacer
length: 44 repeater length: 22

7256 359000 TTCAATTCTATAGTAGATTAGC TTGAGAAAAAAGGGATAATCAAGAGTGAGGGGGATGGAACAC spacer
length: 42 repeater length: 22

7257 359065 TTCAATTCTATAGTAGATTAGC ACCGGTCTCTTCTTCATGTAAGTATCTATAGCGTTAGTCTGC spacer
length: 41 repeater length: 22

7258 359129 TTCAATTCTATAGTAGATTAGC ATCAAGAGACCAAGAAAATACTAGACAGTCTTTACGATAAGC spacer
length: 42 repeater length: 22

7259 359194 TTCAATTCTATAGTAGATTAGC AATGCAGTGGCGGAATCTAAGGATTATTCAATAGATGATAC spacer
length: 41 repeater length: 22

7260 359258 TTCAATTCTATAGTAGATTAGC ATAGAAGATATTGGAACAATAACTTCAGATAATTTTATAGAC spacer
length: 42 repeater length: 22

7261 359323 TTCAATTCTATAGTAGATTAGC ATTATTCTAGTTCCTAACAAATGTTTCCTTCCAATTTACGACT spacer
length: 42 repeater length: 22

7262 359388 TTCAATTCTATAGTAGATTAGC AGAACCTCCTACTTGTGACTCTTTCTAACATGTCAAAAGAC spacer
length: 41 repeater length: 22

7263 359452 TTCAATTCTATAGTAGATTAGC TTGTCTTGTGGGCATCTTAACTCTACTACGCCGTTTTGATC spacer
length: 41 repeater length: 22

7264 359516 TTCAATTCTATAGTAGATTAGC ACGGGTACTAAGGATAGGATAATGATTAACGAAAAGAAGTTGAC spacer
length: 44 repeater length: 22

7265 359583 TTCAATTCTATAGTAGATTAGC ACAGACGCTATAAGAAGAAGAATAGAAGAATTGCTGAAGTC spacer
length: 41 repeater length: 22

7266 359647 TTCAATTCTATAGTAGATTAGC AATTCCGCGGATCAATCTTTACAGAAATGGTACAACCTC spacer length:
38 repeater length: 22

7267 359708 TTCAATTCTATAGTAGATTAGC ATAAATATCAAATGTTTGCCTATTTCAGGATAATGAGGCTTAC spacer
length: 43 repeater length: 22

7268 359774 TTCAATTCTATAGTAGATTAGC GGATAATTCTTCAGAATTTAAGTAACTATGTAGTTTATATC spacer
length: 41 repeater length: 22

7269 359838 TTCAATTCTATAGTAGATTAGC TCAATTCCCTCCGCGAATTCTTTTGGAAAAACAAAAGAGATTAGC spacer
length: 44 repeater length: 22

7270 359905 TTCAATTCTATAGTAGATTAGC AGTGACACATATCGAAATGTCACACTATGGTTGAAAATGTTCCC spacer
length: 44 repeater length: 22

7271 359972 TTCAATTCTATAGTAGATTAGC ATGGGGACCAGTCACGCTGATACCACCATTTTCAATTCTC spacer
length: 40 repeater length: 22

7272 360035 TTCAATTCTATAGTAGATTAGC CGGTGTATATGAACAATCCTGGACCAGCGTAACCGTTATACGC spacer
length: 43 repeater length: 22

7273 360101 TTCAATTCTATAGTAGATTAGC TATTAGTTAACACAAAACCTAATTTTTCTATTTCTCTCACC spacer

length: 41 repeater length: 22

7274 360165 TTCAATTCTATAGTAGATTAGC AGTATGTAGTGGAATACATCAAAGATAGCATAGGTGATTTAGCAGAC spacer
length: 47 repeater length: 22

7275 360235 TTCAATTCTATAGTAGATTAGC AGAAAATAAAAGAATTAAATCAGTACCCGTGTTTAGTAATTGTAC spacer
length: 45 repeater length: 22

7276 360303 TTCAATTCTATAGTAGATTAGC CTGAGTATTGTATTTTCATCATAGAATGGCGGGTCAGTGAAAC spacer
length: 42 repeater length: 22

7277 360368 TTCAATTCTATAGTAGATTAGC GAAAAACTAAAGAAGAAAGATCTCGTTACTTTTCAATATTATTGAC spacer
length: 45 repeater length: 22

7278 360436 TTCAATTCTATAGTAGATTAGC TCACCCGTTTATGGGGTAGGTAATACCGGGTTTTCTCAATC spacer
length: 42 repeater length: 22

7279 360501 TTCAATTCTATAGTAGATTAGC TTGCCCCCATATTTTGTTTAAACGAAAAAATATAAAAGCTTTTC spacer
length: 46 repeater length: 22

7280 360570 TTCAATTCTATAGTAGATTAGC CTTTGAGGTGGAGGTGGCGAAGTCCAAGAGATATCTGGAAC spacer
length: 42 repeater length: 22

7281 360635 TTCAATTCTATAGTAGATTAGC CAAGAGGCCGTGATCGAGAGGGCGTTAGAATCTCTAAAGCGC spacer
length: 42 repeater length: 22

7282 360700 TTCAATTCTATAGTAGATTAGC TACCATATTATAATGAAATAAAATTTATTTCTAAAATTACC spacer
length: 41 repeater length: 22

7283 360764 TTCAATTCTATAGTAGATTAGC TATGGCCCCCAATTAAGTAGTACTTATGCACAATATGATAAC spacer
length: 43 repeater length: 22

7284 360830 TTCAATTCTATAGTAGATTAGC AATTGAAGGTTCGAATTTTCTCACTTCAAATATTTTAAAC spacer
length: 42 repeater length: 22

7285 360895 TTCAATTCTATAGTAGATTAGC ACGATATCGCTGAGATTGTCAGGATCCACGTTGAAAGAGTAC spacer
length: 42 repeater length: 22

7286 360960 TTCAATTCTATAGTAGATTAGC CCAATACCCCCATCAAAAAATGTATGTTGACTTGAAGTC spacer length:
39 repeater length: 22

7287 361022 TTCAATTCTATAGTAGATTAGC TTCAAATTTAAATGTTAAAGATAAACTGTGACAATAATC spacer
length: 40 repeater length: 22

7288 361085 TTCAATTCTATAGTAGATTAGC GAGACCAGCTATGGTCCTCTATAGGTGGACCATCTCAGGACCAGCTAC
spacer length: 49 repeater length: 22

7289 361157 TTCAATTCTATAGTAGATTAGC ATAGCGACACTGGCTATCGGATGGTGGCTAGGGTCTACATTC spacer
length: 42 repeater length: 22

7290 361222 TTCAATTCTATAGTAGATTAGC TCGGAGAACTGGGTAGGTTTTTGGAGAACATAACCGATGAC spacer
length: 41 repeater length: 22

7291 361286 TTCAATTCTATAGTAGATTAGC ATGGAGAGGGCAAAAAGTCAACTGTCTAACCCCGGGTGGGTC spacer
length: 42 repeater length: 22

7292 361351 TTCAATTCTATAGTAGATTAGC GCCAGCGCCACCCGTATAAGCAAATGTCATATTAGCATAAATC spacer
length: 43 repeater length: 22

7293 361417 TTCAATTCTATAGTAGATTAGC TCGCTATACCGGTATTGATAAATAATGCCTTAGTCTTCTCAGGATC spacer
length: 46 repeater length: 22

7294 361486 TTCAATTCTATAGTAGATTAGC CGTAACTTTACAATAAAAAATAAAAAGGAGGTATTGTAAGC spacer
length: 40 repeater length: 22

7295 361549 TTCAATTCTATAGTAGATTAGC CCCTGCAAAGCCACCGGGCATTCCAGCCGGTAGTATGGGTGGC spacer
length: 43 repeater length: 22

7296 361615 TTCAATTCTATAGTAGATTAGC TTACTTTAATGGGAAAAACGAGTAGAAAAATTTAAATACTC spacer
length: 41 repeater length: 22

7297 361679 TTCAATTCTATAGTAGATTAGC ACGGTCGCTCAAAAGGCGACCGTGATAAAAGTCAAGTTC spacer length:
39 repeater length: 22

7298 361741 TTCAATTCTATAGTAGATTAGC AGTCCTCCGAGATATTGAAAGCCTTAAGATATTGATAGTAC spacer
length: 41 repeater length: 22

7299 361805 TTCAATTCTATAGTAGATTAGC AAAAACTTCTTAATTGCTTCTCTTTGTTTTTCGCCTGTAAC

7300

7301

7302 crispr 2

7303 365879 CTAATCTACTATAGAATTGAAAG ACAACGTTGATCCAATTAATCTTGTTGCTGCAGGAGTCGGTG spacer
length: 43 repeater length: 23

7304 365946 CTAATCTACTATAGAATTGAAAG TTAAATTTAATTTTAAATTCATAACCGTTAGCGTCACCATT spacer
length: 41 repeater length: 23

7305 366011 CTAATCTACTATAGAATTGAAAG TTTGCACTCACCGTTACGCTAGTAGTGTCATTAATAGAAT spacer
length: 40 repeater length: 23

7306 366075 CTAATCTACTATAGAATTGAAAG TTTTCGATTTTTTCTCGCTCTCGCGAGAACTTTTTCAATCA spacer
length: 41 repeater length: 23

7307 366140 CTAATCTACTATAGAATTGAAAG ATTAGCCCGTGAAGGATTCACAGTTCAACAGATAGCATT spacer
length: 39 repeater length: 23

7308 366203 CTAATCTACTATAGAATTGAAAG ACTCAGTGCCTGCTCCTCCAAACGCTTCCGTGCCGTAATAT spacer
length: 41 repeater length: 23

7309 366268 CTAATCTACTATAGAATTGAAAG AGAACTTAAAAAATGAAGAGATAAAAAGATAAATATGTCATAACT spacer
length: 46 repeater length: 23

7310 366338 CTAATCTACTATAGAATTGAAAG ATCACGCCTTCCTCTACTTCAAGAGTAAGGAAGTCAGG spacer length:
38 repeater length: 23

7311	366400 CTAATCTACTATAGAATTGAAAG	GTTGTTAGGGAAAGCGCTTAGATACGATACGTTAGA spacer length: 36 repeater length: 23
7312	366460 CTAATCTACTATAGAATTGAAAG	AACATTTACAAACATAGTCATTACTCCAGAGTTTAACTGTGC spacer length: 42 repeater length: 23
7313	366526 CTAATCTACTATAGAATTGAAAG	TTAGGCGTTAACCACACCCAACCGATAATTTTCGTAATCAT spacer length: 40 repeater length: 23
7314	366590 CTAATCTACTATAGAATTGAAAG	TTTAATTCAAAACTTCCGCCTCTACTAGTTAGTAAATATAA spacer length: 41 repeater length: 23
7315	366655 CTAATCTACTATAGAATTGAAAG	GTAAAACCATTTTGAATTTTGCAATTACCAAATCATCTT spacer length: 40 repeater length: 23
7316	366719 CTAATCTACTATAGAATTGAAAG	TGTCTTCAAGAAGGTGCCTAAGCACCTTCTTTTTGGGGTCTT spacer length: 42 repeater length: 23
7317	366785 CTAATCTACTATAGAATTGAAAG	GATTAGGTATGAATTTATTGGTTACTATTAGATCTCCT spacer length: 38 repeater length: 23
7318	366847 CTAATCTACTATAGAATTGAAAG	AGTGCTGTCATCAAATGAAAAAGAAGACTGACTTTATAA spacer length: 40 repeater length: 23
7319	366911 CTAATCTACTATAGAATTGAAAG	CATTTTGTATATCTTTCACACGAATTAGATCAGCTAGCTAA spacer length: 41 repeater length: 23
7320	366976 CTAATCTACTATAGAATTGAAAG	AACGAGATTGAGAAAATCGTTACTGACACAAAGCTAAGAG spacer length: 40 repeater length: 23
7321	367040 CTAATCTACTATAGAATTGAAAG	TTTCCGCTAAAATTTTTTAATATATAAATGTTTTTACGCCGT spacer length: 42 repeater length: 23
7322	367106 CTAATCTACTATAGAATTGAAAG	TCAGTCCCCTAGAAACAATTACATAGTCCATAGCTCCA spacer length: 39 repeater length: 23
7323	367169 CTAATCTACTATAGAATTGAAAG	TTTAAAGCCAAATTCATGATATTACCAAATTGACTGAAATATTAT spacer length: 45 repeater length: 23
7324	367238 CTAATCTACTATAGAATTGAAAG	TTTTCTATCACTATTATATATTATATATTATGACAAATTTAT spacer length: 42 repeater length: 23
7325	367304 CTAATCTACTATAGAATTGAAAG	ATCAGTCGAGGGACGGTAAATATCACAAGGCCTATGAAATCCT spacer length: 43 repeater length: 23
7326	367371 CTAATCTACTATAGAATTGAAAG	CATTCAGTGTATATAGTTCCTAGTTTTTCGATTCCCTATGCATAT spacer length: 44 repeater length: 23
7327	367439 CTAATCTACTATAGAATTGAAAG	CCTCTCTGTAAACGTAAATACTTATCAATCGATAGTTGTCTT spacer length: 42 repeater length: 23
7328	367505 CTAATCTACTATAGAATTGAAAG	ATCATGAGAAAAATAGTCGATACTCTCCCCACTTAAGGAG spacer length: 41 repeater length: 23
7329	367570 CTAATCTACTATAGAATTGAAAG	GAAACATTTAGTAAATAAATCCAAATGCACTTCTATTAATT spacer length: 42 repeater length: 23
7330	367636 CTAATCTACTATAGAATTGAAAG	TGAGACTTTACTACTGGAAACTCATAAATTCTGCCCTTGAAGTA spacer length: 44 repeater length: 23
7331	367704 CTAATCTACTATAGAATTGAAAG	GCTTTTCGAATATCATAGTCTGGCAAGTTTGTGCGTTCACC spacer length: 41 repeater length: 23
7332	367769 CTAATCTACTATAGAATTGAAAG	CAAACCTCAAACAAAAAGTGAAAGCGAATATGATTTTTTTAG spacer length: 40 repeater length: 23
7333	367833 CTAATCTACTATAGAATTGAAAG	TCCAGTACGTTATGTAAGATGAACCGGCACCGTCACCTACGA spacer length: 42 repeater length: 23
7334	367899 CTAATCTACTATAGAATTGAAAG	TTTTTATATCAAAGTTATAGATATAATCGCGGGCCATAT spacer length: 39 repeater length: 23
7335	367962 CTAATCTACTATAGAATTGAAAG	TAAGAATTTTCATCTGCTTCGTGCTGAACATTAACATATTT spacer length: 42 repeater length: 23
7336	368028 CTAATCTACTATAGAATTGAAAG	TTTATTTCATGTCAAATTAGGCTAGAGACCCCACTCCTTGAGG spacer length: 42 repeater length: 23
7337	368094 CTAATCTACTATAGAATTGAAAG	CTTAATGTCGGTGGTACAATACCGCCAAAGGCTATAGTGT spacer length: 40 repeater length: 23
7338	368158 CTAATCTACTATAGAATTGAAAG	GCTAAAAACAGCTGTTCAAAGTGTGTGAGACCATCACT spacer length: 39 repeater length: 23
7339	368221 CTAATCTACTATAGAATTGAAAG	AATTCATATAAATTCTACACTTTCTACTGGAATTGAAAAT spacer length: 39 repeater length: 23
7340	368284 CTAATCTACTATAGAATTGAAAG	TCAGCTGGACGTAAAAAAGATGCTGCTATGTCTATACC spacer length: 38 repeater length: 23
7341	368346 CTAATCTACTATAGAATTGAAAG	AATTAGAATAATCAGTTACATCGTAATTGTCAAAATCGACG spacer length: 41 repeater length: 23
7342	368411 CTAATCTACTATAGAATTGAAAG	TCTAAGCTCGTTTACTGAATAATGTGTGACTATGCTTAGA spacer length: 40 repeater length: 23
7343	368475 CTAATCTACTATAGAATTGAAAG	TATGCCGTCCCGACGTTAGTCCCTTGCTGTCCTAAATTA spacer length: 39 repeater length: 23
7344	368538 CTAATCTACTATAGAATTGAAAG	GAATAGGCTATTGTTGCTTATGCTTCTTCCCTGAAGTAATA spacer length: 41 repeater length: 23
7345	368603 CTAATCTACTATAGAATTGAAAG	GTAAAACATAATGGGAAGGCCAGGGTTGCGTAAATTTCCAC spacer length: 41 repeater length: 23
7346	368668 CTAATCTACTATAGAATTGAAAG	TATTATTTTTTCTACTCGTGCTGTTGGTACATTCTCGTTT spacer

length: 40 repeater length: 23
7347 368732 CTAATCTACTATAGAATTGAAAG TTCAAGTGTGTAAATTAGAGTGTGTTGGACAGAGAACTG spacer
length: 41 repeater length: 23
7348 368797 CTAATCTACTATAGAATTGAAAG TTTCAAAGGGGCTGAATTTTACGTTGACGATAATATCTAC spacer
length: 40 repeater length: 23
7349 368861 CTAATCTACTATAGAATTGAAAG TAACGTAATCAACTAAGCCTGGCGTCGCTATACCAGTATTAAT spacer
length: 43 repeater length: 23
7350 368928 CTAATCTACTATAGAATTGAAAG CATAAATTCTGCCCTTGAAGTAAATGTCATAAACTTCAATAC spacer
length: 42 repeater length: 23
7351 368994 CTAATCTACTATAGAATTGAAAG TTCGTCTTATTCTCTAATACATTATTATTATATATGAATACTC spacer
length: 43 repeater length: 23
7352 369061 CTAATCTACTATAGAATTGAAAG TCTCTCTGGCCCACCGGTGGGCCAGCGGAGGACCCGGGGGTC spacer
length: 42 repeater length: 23
7353 369127 CTAATCTACTATAGAATTGAAAG GTAAATAACAGTAAATTTTGAATAACTTCGAAGAACTGCA spacer
length: 41 repeater length: 23
7354 369192 CTAATCTACTATAGAATTGAAAG TTTATTCCCTTTATCTTCAGAATTCTAGAAGCTATTTTAT spacer
length: 40 repeater length: 23
7355 369256 CTAATCTACTATAGAATTGAAAG CGTGGAGCTCCGAACCCTTCTCAAACGTCACACTACGGTCA spacer
length: 39 repeater length: 23
7356 369319 CTAATCTACTATAGAATTGAAAG GAAGAGAGTGAAGAACTAAAGAAAAAAGGAAAAGCTGT spacer length:
38 repeater length: 23
7357 369381 CTAATCTACTATAGAATTGAAAG TTTTGAGTTTTGTTAATTGTGATGACATCACGCTCAGTAATA spacer
length: 42 repeater length: 23
7358 369447 CTAATCTACTATAGAATTGAAAG GAGAGAAAATACCGCTAATCTCATTACAGTACCAAAAATCAT spacer
length: 43 repeater length: 23
7359 369514 CTAATCTACTATAGAATTGAAAG CGCCTCACTCCGCCGTTTGTGTCACGGTAGGTGAGGT spacer length:
37 repeater length: 23
7360 369575 CTAATCTACTATAGAATTGAAAG TCAGTTAATAACAGTTTTTGGATTGATGATAATGCCAAATTTTC spacer
length: 43 repeater length: 23
7361 369642 CTAATCTACTATAGAATTGAAAG GGGCTTCCTATTAGTTATAGTGTAGGAGCAATTTCTTCAT spacer
length: 40 repeater length: 23
7362 369706 CTAATCTACTATAGAATTGAAAG CAAGATGCAGAAGATTTAAAATTAATTGCTGAATTCTT spacer length:
38 repeater length: 23
7363 369768 CTAATCTACTATAGAATTGAAAG TAGAGCGGGATTACCGTTAAAATGAGAAAGATTAATGAA spacer
length: 39 repeater length: 23
7364 369831 CTAATCTACTATAGAATTGAAAG ACTTGACCCCGAGATACTCTTTTTTCTCATTAGTTGTT spacer length:
38 repeater length: 23
7365 369893 CTAATCTACTATAGAATTGAAAG TGGTGTGACGTGTGCTACCGTGATGCCGTGTTCCCTCTT spacer
length: 40 repeater length: 23
7366 369957 CTAATCTACTATAGAATTGAAAG CTCGGTTCCTGAGTACACAAGCTTTACTATTATTTTCGC spacer
length: 40 repeater length: 23
7367 370021 CTAATCTACTATAGAATTGAAAG TAATTTAACGTTATTATATCATTGTATAGGCTGATAGTG spacer
length: 39 repeater length: 23
7368 370084 CTAATCTACTATAGAATTGAAAG TTTGAATGATTGTGGATCTTTGTTGACTCTTTTTGATAC spacer
length: 39 repeater length: 23
7369 370147 CTAATCTACTATAGAATTGAAAG CTTTAGACATAGATTAAAATCGGGGGCAAAAAATGCCACA spacer
length: 42 repeater length: 23
7370 370213 CTAATCTACTATAGAATTGAAAG TAACGCTAGTAGTATCGTTTATAGAATTCCTACCCATGCATCT spacer
length: 44 repeater length: 23
7371 370281 CTAATCTACTATAGAATTGAAAG ACTTCGTACCCCGCACCCCTCCGCAGTCTTTATCAAATCTGT spacer
length: 41 repeater length: 23
7372 370346 CTAATCTACTATAGAATTGAAAG ATTTTCATCTTCTGTGACCCATTCTTCCACTTCTTCTTCCT spacer
length: 40 repeater length: 23
7373 370410 CTAATCTACTATAGAATTGAAAG ATTTTCATCTATTTTCATCTTCTTCTTCTTGTGTAACATTTTCTTT spacer
length: 44 repeater length: 23
7374 370478 CTAATCTACTATAGAATTGAAAG AGGAATACTTTCCCGTTGACCGCGCTTATATTAAGTGC spacer length:
38 repeater length: 23
7375 370540 CTAATCTACTATAGAATTGAAAG TCATTGACAAAGTTTCGGGTGATAAATTAACATTAGGAATTGA spacer
length: 43 repeater length: 23
7376 370607 CTAATCTACTATAGAATTGAAAG CTCGTTATAATTATCGCGATCGCAATGCTGGGAATTGGTT spacer
length: 40 repeater length: 23
7377 370671 CTAATCTACTATAGAATTGAAAG TTCTTTGAAGTCCAGGTCCGCAAAGAATACATCAGCCTGGA spacer
length: 41 repeater length: 23
7378 370736 CTAATCTACTATAGAATTGAAAG TCTGTGGGTTCACTTCTATTACATTATTCGCCGTAAAGCAACA spacer
length: 43 repeater length: 23
7379 370803 CTAATCTACTATAGAATTGAAAG TCTAAGGTCAAAATTATAATTATGGCTAGTGCCAGTGGGGT spacer
length: 41 repeater length: 23
7380 370868 CTAATCTACTATAGAATTGAAAG ATTCCGAGTAAGGGGTGAGCTGAGTGGCTAACAAGAGGAA spacer
length: 41 repeater length: 23
7381 370933 CTAATCTACTATAGAATTGAAAG ATTATATGTAATAGGAATAACACCAACTTTTGCTTTTCGCTAA spacer
length: 42 repeater length: 23

7382 370999 CTAATCTACTATAGAATTGAAAG TATAAAGTCACTTTACAACAAACCTACGCATATGCATTTAG spacer
length: 41 repeater length: 23

7383 371064 CTAATCTACTATAGAATTGAAAG CGGGTGGCAATCGTGATTACCATTCCATTTACACCTCTATCT spacer
length: 42 repeater length: 23

7384 371130 CTAATCTACTATAGAATTGAAAG AACGACAGATCTTATTTTATTAGAAGAATTACGAAAAGTCTGCTC spacer
length: 43 repeater length: 23

7385 371197 CTAATCTACTATAGAATTGAAAG ATTAAGTGTAAACTGATAGCATGTACGCGGAGGTCTGCTACAG spacer
length: 45 repeater length: 23

7386 371266 CTAATCTACTATAGAATTGAAAG CTAAGTTGTTTAGTTTGACGTTTTCTATCGCTTGGAATAAA spacer
length: 42 repeater length: 23

7387 371332 CTAATCTACTATAGAATTGAAAG ACACAAACAATAACACCGTCGAAGAGGTATCGACAAAAAC spacer
length: 40 repeater length: 23

7388 371396 CTAATCTACTATAGAATTGAAAG ACTTGACCCCGAGATACTCTTTTTCTCATTAGTTGTT spacer length:
38 repeater length: 23

7389 371458 CTAATCTACTATAGAATTGAAAG TTGTTTCAGTTACTAGATAATGAAGGAAAAGCATTGGAATTAG spacer
length: 43 repeater length: 23

7390 371525 CTAATCTACTATAGAATTGAAAG CGATAACAAAATCTTCAGGATTCATAAAATCAAAATGGT spacer
length: 39 repeater length: 23

7391 371588 CTAATCTACTATAGAATTGAAAG CTGGGTAGGACTGTTTACCTGTTTTATAGCAAACCCCTGA spacer
length: 40 repeater length: 23

7392 371652 CTAATCTACTATAGAATTGAAAG CAATGAATTCCTTTCTGTATCAAAGACTCCCTCAGCAA spacer
length: 39 repeater length: 23

7393 371715 CTAATCTACTATAGAATTGAAAG CTCGATTTAAATTTGGAGTGGTGAAAGAGATGAAAATAGA spacer
length: 40 repeater length: 23

7394 371779 CTAATCTACTATAGAATTGAAAG ATACATCCGCGGTTGGGGTCTGTGTTATGACCCCATTC spacer
length: 39 repeater length: 23

7395 371842 CTAATCTACTATAGAATTGAAAG TATTCACCCTGGCAGATATAAGAATTACCTTCAGTTA spacer length:
37 repeater length: 23

7396 371903 CTAATCTACTATAGAATTGAAAG TTCAGAGCGTTGATAAATGAATAGAACACTGTATATTTTCG spacer
length: 40 repeater length: 23

7397 371967 CTAATCTACTATAGAATTGAAAG TATCAACTTTTATTCTAGTCATGTCTCTACCAACTTCTTC spacer
length: 41 repeater length: 23

7398 372032 CTAATCTACTATAGAATTGAAAG GTTTTTTAGTTCTATTACTATTTTCTTCTATATCTTCTTC spacer
length: 40 repeater length: 23

7399 372096 CTAATCTACTATAGAATTGAAAG ACTTCATAATTCTACGATATCCATACTGTTGATATGATTT spacer
length: 40 repeater length: 23

7400 372160 CTAATCTACTATAGAATTGAAAG ATTGTTTGCAATGACGCTCTTCCGTCAGCATCGTATGAA spacer
length: 39 repeater length: 23

7401 372223 CTAATCTACTATAGAATTGAAAG CGTGCAGTTGATGATGACTTATCAGAGGCGACGTTTGACAA spacer
length: 41 repeater length: 23

7402 372288 CTAATCTACTATAGAATTGAAAG TCGAAAGGTTACGAAGTAGATGAAATTGCTGAAATGTTGA spacer
length: 40 repeater length: 23

7403 372352 CTAATCTACTATAGAATTGAAAG TTAGGAATGCCTTTGATAACATACCCTTTGTAGTAT spacer length:
36 repeater length: 23

7404 372412 CTAATCTACTATAGAATTGAAAG AGACTATAGTTATAGTTTGTGTTTGACGTAGATATCATTATC spacer
length: 42 repeater length: 23

7405 372478 CTAATCTACTATAGAATTGAAAG ATCTTGAGATAATCTCACTCATCGGGACACCCTAAAT spacer length:
38 repeater length: 23

7406 372540 CTAATCTACTATAGAATTGAAAG TCAGCGTCAGTACTGTACATCTTATAACGTATGACTTTTCCCA spacer
length: 43 repeater length: 23

7407 372607 CTAATCTACTATAGAATTGAAAG TATTTCACTAAATACTCCATGTATATCTCAACACACTCA spacer
length: 39 repeater length: 23

7408 372670 CTAATCTACTATAGAATTGAAAG GTAATTAGGGGGCTAAGACACGTCCATCTAACCCATTT spacer length:
38 repeater length: 23

7409 372732 CTAATCTACTATAGAATTGAAAG GTGAGTGTAGATTATCTCTTCAGCAATTGCCTCAATCAG spacer
length: 39 repeater length: 23

7410 372795 CTAATCTACTATAGAATTGAAAG TTCGTCAAATCCCCTTGTCCTATCAATTCTTTATATTCATC spacer
length: 41 repeater length: 23

7411 372860 CTAATCTACTATAGAATTGAAAG CACGTAACCTGACCATACTTCTTCACTGAACTCCTGAA spacer length:
38 repeater length: 23

7412 372922 CTAATCTACTATAGAATTGAAAG CAACAAAACTCTAAATAACCCCAATTACACAATTTAA spacer length:
38 repeater length: 23

7413 372984 CTAATCTACTATAGAATTGAAAG ATTCTAAAATAAGCATACATTTGGTATCGTTTTGCATCTTTCTGG spacer
length: 45 repeater length: 23

7414 373053 CTAATCTACTATAGAATTGAAAG TCTATCATATAGACAATGTATCTCTTTATTTTCTCTAT spacer length:
38 repeater length: 23

7415 373115 CTAATCTACTATAGAATTGAAAG TCACAGATTACCGCTTTGACCTCACGTGGCGGGTTCTT spacer length:
38 repeater length: 23

7416 373177 CTAATCTACTATAGAATTGAAAG TTCTAACGTTAGTTGTACAATAAATAACAGATGCAATAAA spacer
length: 40 repeater length: 23

7417 373241 CTAATCTACTATAGAATTGAAAG GAGCGAAGACTTACAAAAGTACATAGGGAACTAGGA spacer length:

37 repeater length: 23
7418 373302 CTAATCTACTATAGAATTGAAAG ACTTCTTAATTGCTTCTCTTTGTTTTTCGCCTGTAAC
7419
7420
7421 crispr 3
7422 753266 GTAACAACACAAAAGAACTAAAAAC GTCATCGCTTGTCTGGTGCTAAACTGAATATCTG spacer length: 33
repeater length: 24
7423 753324 GTAACAACACAAAAGAACTAAAAAC CCTTAGAGAAACCATAGTTTAAACGATGTTT spacer length: 31
repeater length: 24
7424 753380 GTAACAACACAAAAGAACTAAAAAC ACTGTTTTTTTGTCTATGCCGAAAACCTCAATTAAT spacer length: 34
repeater length: 24
7425 753439 GTAACAACACAAAAGAACTAAAAAC AACCCCTACCGGGTCTTTTTACGGCATTATTGATCC spacer length:
35 repeater length: 24
7426 753499 GTAACAACACAAAAGAACTAAAAAC TCTTTGCTAAGTAAAGAGCTGATAGGAGCGAACGTT spacer length:
36 repeater length: 24
7427 753560 GTAACAACACAAAAGAACTAAAAAC AGGTTTAGCTTTTTCTTGTTCGCTAAAAAACGAATTT spacer
length: 38 repeater length: 24
7428 753623 GTAACAACACAAAAGAACTAAAAAC ATTCTATACTTTTCTAATTTAGAGAAAAAATTCT spacer length: 34
repeater length: 24
7429 753682 GTAACAACACAAAAGAACTAAAAAC ATTCTGTCAATATCGAGTTGCCCCACTTCCATTTTCT spacer length:
37 repeater length: 24
7430 753744 GTAACAACACAAAAGAACTAAAAAC ATCTTCTTATTTCTTTCACAACCTTTCACAACCTTCTA spacer length:
36 repeater length: 24
7431 753805 GTAACAACACAAAAGAACTAAAAAC TTTATTATGAGTAACGAAAACCTCTTTGAATCGA spacer length: 34
repeater length: 24
7432 753864 GTAACAACACAAAAGAACTAAAAAC ATAGACCCGTCATACCTTAGTGCTACAAATAAA spacer length: 33
repeater length: 24
7433 753922 GTAACAACACAAAAGAACTAAAAAC CCTTGAAATAAATATCAAAAATTTCAAACCCGTAA spacer length:
35 repeater length: 24
7434 753982 GTAACAACACAAAAGAACTAAAAAC TACAAACAGAACGACAAGCCTAGCCTTTTACGGTA
7435
7436
7437 crispr 4
7438 740059 GTTTATAGTTTCTTTGTGTTGTTAC TGACTTTTGAAGGATGTGCGAAAATGATGCAACTGG spacer length:
36 repeater length: 24
7439 740120 GTTTATAGTTTCTTTGTGTTGTTAC ATGTGTCCCTCTCTATGATAACGAAACTGGCAAGT spacer length:
35 repeater length: 24
7440 740180 GTTTATAGTTTCTTTGTGTTGTTAC AACTATTGGTGAGAAAATGGAGGTAGACATAAAAT spacer length:
35 repeater length: 24
7441 740240 GTTTATAGTTTCTTTGTGTTGTTAC ATTTATTCTCCAAATATTGGCAACCAAACAAGTG spacer length: 34
repeater length: 24
7442 740299 GTTTATAGTTTCTTTGTGTTGTTAC CAATATCTGATAAGACCCAATGAGAAGTGCGACCTAT spacer length:
37 repeater length: 24
7443 740361 GTTTATAGTTTCTTTGTGTTGTTAC AAGAGGAAAAAAGCACAAAGTGAAAGTAAATGAGGTGA spacer
length: 38 repeater length: 24
7444 740424 GTTTATAGTTTCTTTGTGTTGTTAC ATAAAAAGAATTAATATAACACCATCTGACAAAC spacer length: 34
repeater length: 24
7445 740483 GTTTATAGTTTCTTTGTGTTGTTAC CTTTGGCACTTCCACTAGCCCCACGCCGGGTATCT spacer length:
35 repeater length: 24
7446 740543 GTTTATAGTTTCTTTGTGTTGTTAC AATACATAAGGACAGACGAGCAAGAAAGAGAAG spacer length: 33
repeater length: 24
7447 740601 GTTTATAGTTTCTTTGTGTTGTTAC TTTTAGTGTGGAGATCATTTGCATCACCTAATT spacer length: 33
repeater length: 24
7448 740659 GTTTATAGTTTCTTTGTGTTGTTAC ATAATATGCTAATTTCTATATTATATAATTAGC spacer length: 33
repeater length: 24
7449 740717 GTTTATAGTTTCTTTGTGTTGTTAC AGTTAAGTTTTGTTTTTTTCTTCTTAATTTCTAA spacer length: 34
repeater length: 24
7450 740776 GTTTATAGTTTCTTTGTGTTGTTAC ATTAGATGAAGAAATCTTTCTTCTGTTTTTAATT spacer length: 34
repeater length: 24
7451 740835 GTTTATAGTTTCTTTGTGTTGTTAC CAGAAAACCTGGTTTATTGATGAAATTTTTTCTATT spacer length:
35 repeater length: 24
7452 740895 GTTTATAGTTTCTTTGTGTTGTTAC ATAGGCCCGTTATCTCCATTGTCACTAAGCATT spacer length: 33
repeater length: 24
7453 740953 GTTTATAGTTTCTTTGTGTTGTTAC ATTAGGAACAAAAAGAAATTGAAAAAATATTA spacer length: 33
repeater length: 24
7454 741011 GTTTATAGTTTCTTTGTGTTGTTAC AATTATTCTATATATTCTATAGTTAATGGCAATCCAG spacer length:
36 repeater length: 24
7455 741072 GTTTATAGTTTCTTTGTGTTGTTAC ATTTATTCTCCAAATATTGGCAACCAAACAAGTG spacer length: 34
repeater length: 24
7456 741131 GTTTATAGTTTCTTTGTGTTGTTAC TACGTAAAATATCTTAATAAGTGATCGAAAAT spacer length: 32
repeater length: 24

7457 741188 GTTTATAGTTTCTTTGTGTTGTTAC CTTAGTTTGGGTTTCAGGATACCTGAAGATTTCTTTA spacer length:
36 repeater length: 24
7458 741249 GTTTATAGTTTCTTTGTGTTGTTAC ACAGCTTCTTCTTCAGTACCAGTTTCCGTTAAAGT spacer length:
35 repeater length: 24
7459 741309 GTTTATAGTTTCTTTGTGTTGTTAC ATAGAAGACCTCCTAACAGAACTGCAGACTGAATA spacer length:
35 repeater length: 24
7460 741369 GTTTATAGTTTCTTTGTGTTGTTAC AGCAAATAAAGTTAAGTTTAAGATCAAAGCAAAAA spacer length:
35 repeater length: 24
7461 741429 GTTTATAGTTTCTTTGTGTTGTTAC AAGAATTGCAAAACAATTATTAACAATTGTAAATT spacer length:
35 repeater length: 24
7462 741489 GTTTATAGTTTCTTTGTGTTGTTAC
TTTATAAGTGAGGTGTCTGGCAATCCAGCGTAGAAAAGTTTTAGTTTCTTTGTATTGTTACAAGTCGTCAAAAACAACAGCATAAA
ACGGAAAGT spacer length: 95 repeater length: 24
7463 741609 GTTTATAGTTTCTTTGTGTTGTTAC CTTAGGAATTCCTTAAGCAGCTGCAAAGTCCTAA spacer length:
35 repeater length: 24
7464 741669 GTTTATAGTTTCTTTGTGTTGTTAC GTGATACGAACATGGTGATTAAAGAAATCTACG spacer length: 34
repeater length: 24
7465 741728 GTTTATAGTTTCTTTGTGTTGTTAC ACTCTTCTATTTTTTCATCAAAAAGTGATATT spacer length: 33
repeater length: 24
7466 741786 GTTTATAGTTTCTTTGTGTTGTTAC ATGATTTTGCAAGAAGTTTTCAATTTTAGATATT spacer length: 34
repeater length: 24
7467 741845 GTTTATAGTTTCTTTGTGTTGTTAC ACTCAACAGTAAAGGAACTCATAAATCCCTCCTT spacer length:
35 repeater length: 24
7468 741905 GTTTATAGTTTCTTTGTGTTGTTAC ATGATTTTGCAAGAAGTTTTCAATTTTAGATATT spacer length: 34
repeater length: 24
7469 741964 GTTTATAGTTTCTTTGTGTTGTTAC GAAAGCGAGGACGATTTAATAAGCGTGATTCAT spacer length: 33
repeater length: 24
7470 742022 GTTTATAGTTTCTTTGTGTTGTTAC AACTTCTTAATTGCTTCTCTTTGTTTTTCGCCT
7471
7472
7473 GCA_000190315.1_ASM19031v1_genomic.fna(findCrispr):
7474 START REPEAT
SPACER
7475 GCA_000191585.1_ASM19158v1_genomic.fna(findCrispr):
7476 START REPEAT
SPACER
7477 crispr 1
7478 1655524 CAGGAACAGGAACCACAACACTAAACAACAACACAG CCACAAACAACAAAGTATCCGGAATATCAGTA spacer
length: 32 repeater length: 36
7479 1655593 CAGGAACAGGAACCACAACACTAAACAACAACACAG
TCACAAACAACAAAGTATCCGGAATATCAGTATCAAGTTCTGGAAAAACCACACTAAACAACAACACAGCCTCTAGCAACACACAA
AACGGAATAAGCGTA spacer length: 101 repeater length: 36
7480 1655731 CAGGAACAGGAACCACAACACTAAACAACAACACAG
ATCAGGAATATCTGTATCAAGTTCTGGTAGTTCTGTTATCAAGGGTAGCACAGTTTCTGGCAACTCTCAAAATGGGATAATTATAT
CTGGAAAGGGAACCTT
7481
7482
7483 GCA_000193375.1_ASM19337v1_genomic.fna(findCrispr):
7484 START REPEAT
SPACER
7485 crispr 1
7486 975903 GAGAATTGGAAGAGGTGGGA AGAAAACAACAAGAGATGGGA spacer length: 21 repeater length:
20
7487 975945 GAGAATTGGAAGAGGTGGGA GGAAAACGAGCGTAGGTGGGAGGAGAAACAACAAGAGGTGGGA spacer
length: 42 repeater length: 20
7488 976008 GAGAATTGGAAGAGGTGGGA GGAAAACGAGAGACGTTGGCGCGAGTGGTTTCGAGACGTGGAA
7489
7490
7491 GCA_000194625.1_ASM19462v1_genomic.fna(findCrispr):
7492 START REPEAT
SPACER
7493 crispr 1
7494 666103 GAAA
TCAGACTAATGTAGGATTGAAAGTTCTAATGCCGTGAAGTATGCTCTTTTTGCTTCGGGAGGTTGAAATCAGACTAATGTAGGATT
GAAAGGATTGTGGCGGTGATTTGGTGGACTTAGGCAACAATGAGT spacer length: 131 repeater length: 4
7495 666239 GAAA
TCAGACTAATGTAGGATTGAAAGTACTTCAGACAATACAATATCCCAATCGAACAACACAGTTGAAATCAGACTAATGTAGGATTG
AAAGACGGTGAACGTTGATCATCCTTTGATTGTCTTGCTGGTTGT spacer length: 131 repeater length: 4
7496 666375 GAAA TCAGACTAATGTAGGATTGAAAGTGTCCATCAAAGGCCAACGGAGGATGAGGTTCAAGAGT spacer
length: 63 repeater length: 4
7497 666443 GAAA CAGACTATTGTAGGATTGAAAGGAGTGTGATGAGGGCGGCGCATTACGAAAATAAACGGTT

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7498
7499
7500 crispr 2
7501 83683 GTTGAAATCAGACTATTGTAGGATTGAAAG AACTGTGACCGAATCGAGAAACGAAAGAAAAGAAAG spacer
length: 36 repeater length: 30
7502 83750 GTTGAAATCAGACTATTGTAGGATTGAAAG CGTTTAGAAACGTCCCCGGCCATGTCGAGGGGGGCTATTTTGTT
spacer length: 44 repeater length: 30
7503 83825 GTTGAAATCAGACTATTGTAGGATTGAAAG CGAGAAATGGTCGAAGCGATAGGGCTGAAAGAAGGCG spacer
length: 37 repeater length: 30
7504 83893 GTTGAAATCAGACTATTGTAGGATTGAAAG TGCTCGGGGCGTTAAGTGTGGGAAGATAGGAAAGGC spacer
length: 37 repeater length: 30
7505 83961 GTTGAAATCAGACTATTGTAGGATTGAAAG TCCCACGGTAGCATTCTGGTAGTAAATCCATCACCT spacer
length: 36 repeater length: 30
7506 84028 GTTGAAATCAGACTATTGTAGGATTGAAAG CCAGATAGCTTCATGAGGAGATAGATAACTGCACCT spacer
length: 36 repeater length: 30
7507 84095 GTTGAAATCAGACTATTGTAGGATTGAAAG GAGCAGGAGCGGGAGCACTTGGTGGAGCAATAGGCG spacer
length: 36 repeater length: 30
7508 84162 GTTGAAATCAGACTATTGTAGGATTGAAAG GTTCAGATCGAAGGACAGATCAGGTTGGAGATTAGAA spacer
length: 37 repeater length: 30
7509 84230 GTTGAAATCAGACTATTGTAGGATTGAAAG CAGATTGGCTGGCAGGCTGGCAAGGGGTTCTACGA spacer
length: 35 repeater length: 30
7510 84296 GTTGAAATCAGACTATTGTAGGATTGAAAG GAGGGAGACGGGCGGTGTGTAGCATGGCAGGGTATAG spacer
length: 37 repeater length: 30
7511 84364 GTTGAAATCAGACTATTGTAGGATTGAAAG GTATTTAGTGGTGAATGTCTGTATCCTGTACTGG spacer
length: 35 repeater length: 30
7512 84430 GTTGAAATCAGACTATTGTAGGATTGAAAG CTGGTTCGTTCTTTCTCTCTGCGCGTACGACATCAAG spacer
length: 37 repeater length: 30
7513 84498 GTTGAAATCAGACTATTGTAGGATTGAAAG TTCCCGTTGACTGTTTCTTCGTCTGCAAATCTCTTCG spacer
length: 37 repeater length: 30
7514 84566 GTTGAAATCAGACTATTGTAGGATTGAAAG CCGTCAGGTGGTGGTGGAGGTATTGTAATCAAGTA spacer
length: 35 repeater length: 30
7515 84632 GTTGAAATCAGACTATTGTAGGATTGAAAG ATTGCTACACGTCCAGCACTGGCCGGACTCATTGTAG spacer
length: 37 repeater length: 30
7516 84700 GTTGAAATCAGACTATTGTAGGATTGAAAG AACAGGAAGATGGACAAGCCCAGCACGCCAGCGAAGAT spacer
length: 38 repeater length: 30
7517 84769 GTTGAAATCAGACTATTGTAGGATTGAAAG TAATGGTTGCCGGGAAGGCGATTTTGTTAATGAAAGC spacer
length: 37 repeater length: 30
7518 84837 GTTGAAATCAGACTATTGTAGGATTGAAAG CATGTCGCATCTATACTGATGCGGTGTTTTAAATG spacer
length: 36 repeater length: 30
7519 84904 GTTGAAATCAGACTATTGTAGGATTGAAAG TCTGCCGGGAATAAGGGGGAGGATATGATGGATACAA spacer
length: 37 repeater length: 30
7520 84972 GTTGAAATCAGACTATTGTAGGATTGAAAG TCGATGAGGGCGGCGCATTACAGAAAATAAACGGTTG
7521
7522
7523 crispr 3
7524 665148 TTGAAA
TCAGACTAATGTAGGATTGAAAGGAGATTTCCCCTTTCAATCCTCATCCTCATCTATCTCCCGTTGAAATCAGACTAATGTAGGAT
TGAAAGCTGCGACGTATCAAGAGTCTTTCCGTTAGCCGTTTCAT spacer length: 130 repeater length: 6
7525 665285 TTGAAA
TCAGACTAATGTAGGATTGAAAGGCACAGAAAATTGAGTGCTGGAGAGGATGCAAAAAAATGTTGAAATCAGACTAATGTAGGATT
GAAAGATCGGGGAGGGAGATTAGGATGGATATAGAGTGTCTA spacer length: 128 repeater length: 6
7526 665420 TTGAAA TCAGACTAATGTAGGATTGAAAGGAGTTCTTTGGCAGAGATAAGTTCAGTAAGGTTATCTCAA spacer
length: 63 repeater length: 6
7527 665490 TTGAAA
TCAGACTAATGTAGGATTGAAAGGCGCTATTCTTTTACTTCTCGCAATGCGGTAATCAATGGTTGAAATCAGACTAATGTAGGATT
GAAAGAAGCGCTTGGCTGCTTACTGCGTGGCTCAGTACTGCGC spacer length: 129 repeater length: 6
7528 665626 TTGAAA
TCAGACTAATGTAGGATTGAAAGGAGGTGGTTAGAGACATCTTGAATAAAATGATGGGCAAGTTGAAATCAGACTAATGTAGGATT
GAAAGCTTATTGACTTCTTCAATTCTCCCTTTTAGATATAGAT spacer length: 129 repeater length: 6
7529 665762 TTGAAA
GTAGGATTGAAAGGAGGTGGTTAGAGACATCTTGAATAAAATGATGGGCAAGTTGAAATCAGACTAATGTAGGATTGAAAGCTTAT
TGACTTCTTCAATTCTCCCTTTTAGATATAGATGTTGAAATCA
7530
7531
7532 GCA_000195895.1_ASM19589v1_genomic.fna(findCrispr):
7533 START REPEAT
SPACER
7534 crispr 1
7535 3183896 AGAGC
AAGTTTATACTGTTCTTCTGCTTCCTCATGGCGGCCCATATCTGAAAGGAGAATTCGTAATTTGAATGTATGCTCGCATCATTGG
GATCTGATTC spacer length: 96 repeater length: 5

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7536 3183998 AGAGC
 AAGTTTATACTGTTCTCTGCCTCATCGAGACGCCCCATATCTGAAAGGAGATTTCCGTAATTATAGTGTGTTTTTACATGTTTGG
 GATCTGATTC spacer length: 96 repeater length: 5
 7537 3184100 AGAGC
 AAGTTTATACTGTTCTCTGCCTCATCGAGGCGCCCCATATCTGAAAGGAGATTTCCGTAATTATAGTGTGTGTTGACATGTTTGG
 GATCTGATTC spacer length: 96 repeater length: 5
 7538 3184202 AGAGC
 AAGTTTATACTGTTCTCTGCTTCGTCACGGCGCCCCATATCTGAAAGGAGAATTCATAATTTGAATGTGTGCTCGCATCATTGG
 GCTCTGATTC spacer length: 96 repeater length: 5
 7539 3184304 AGAGC
 AGTTTGATCAAAAAGTGTGAGCGAAATATATTTTCAGAGTTGCAATCATCGAAGAGAAACATATTCATAAAAAATATATGGAGATAA
 GAATGCCAGA
 7540
 7541
 7542 crispr 2
 7543 3775342 TACGATGAAGCATTACAAGC
 TTATGACAAAAGCCATAGCGATAAAATCCTAATTATGTTCGATGCCTGGAATAGCAAAGGTAATGCCTTATATAGATTGGGCAA
 spacer length: 81 repeater length: 20
 7544 3775444 TACGATGAAGCATTACAAGC
 AAGCAATAAAGCCATAGCGATAAACCCCTAATTATGCCGATGCCTGGAATGGCAAAGGTAATGCCTTATATGGATTGGGCAG
 spacer length: 81 repeater length: 20
 7545 3775546 TACGATGAAGCATTACAAGC
 TTATGATAAAGCCATAGCGATAAACCCCTAATTATGCCTATGCCTGGAATGGCAAAGGTAATGCCTTATATAGATTGGGCAG
 spacer length: 81 repeater length: 20
 7546 3775648 TACGATGAAGCATTACAAGC
 CAGTATTAAAAAAGGCATTTAAAAACAGATGCCTATATTATTCAGTATCTAAGTCTTTTTTATTTTGTTTTTTAATATAA
 7547
 7548
 7549 crispr 3
 7550 1198632 AAAGTAAAAACAAACGAAAGA ATAAATGAATGAAGGTAAGAACAGATT spacer length: 27 repeater
 length: 21
 7551 1198681 AAAGTAAAAACAAACGAAAGA ATAAATGAATAAAGGTAAGAACAGATT spacer length: 27 repeater
 length: 21
 7552 1198730 AAAGTAAAAACAAACGAAAGA AAAATGAAAGAAGAACTGGGAAACAAA
 7553
 7554
 7555 crispr 4
 7556 1945381 ATCCCTATTAACCTAATCTTTA TCAACTGATCTCTATTAACCT spacer length: 20 repeater
 length: 21
 7557 1945423 ATCCCTATTAACCTAATCTTTA TCAACTGATCCTAACTGATCCCATTAACCT spacer length: 30
 repeater length: 21
 7558 1945475 ATCCCTATTAACCTAATCTTTA CAGTACTAAATCAAAAACAGAAACAGAAAA
 7559
 7560
 7561 crispr 5
 7562 3194716 CAACTCTGATTATCTATTACA
 ACCAACTCTGATTTTATCTATTACAGCCAACTCTAATTATCTATTACAGCCAACTCTAATTATCTATTACAG spacer
 length: 72 repeater length: 21
 7563 3194810 CAACTCTGATTATCTATTACA GCCAACTCTAATTATCTATTACAG spacer length: 24 repeater
 length: 21
 7564 3194856 CAACTCTGATTATCTATTACA GAATGTCGATGGTAGACTAGAGAT
 7565
 7566
 7567 crispr 6
 7568 3969303 CACTGCAAAAACAAATCTGTGT
 AGGTGAAAATAAAGACGGAAGACTGGAGATATTCTACATACGCATGAATGATGATCGACTCTGCCACAACCTGGCAGAAAGAACCGG
 GAGGTGAATGGTCCGGTGAATATGAATCCTACGATGGAAGCAACTATT spacer length: 134 repeater length:
 21
 7569 3969459 CACTGCAAAAACAAATCTGTGT
 GTACCAGAATATAGATGGTAGACTTGATATATTTTACATAGCCACGAATGATAGACTTTACTACAACCTGGCAGGTATCTCCTAATA
 GTGTTTGGAAAGGCCACGCGGAATTCAAAAACGGGAGCCACTATT spacer length: 131 repeater length: 21
 7570 3969612 CACTGCAAAAACAAATCTGTGT
 GTACCAGAATATAGATGGTAGACTGGAGATATTCTACATAGGCACGAATGATAGACTCTACCACAACCTGGCAGAAATCTCTTGATG
 GTGGTTGGCACGGTGAAGAAGAATTCAAACACGGAGGCCACTATT spacer length: 131 repeater length: 21
 7571 3969765 CACTGCAAAAACAAATCTGTGT
 GGGCCGGAATTACGATGGTAGACTGGAGATATTCTACATAGGCACGAATGATAGACTCTACCACAACCTGGCAGGAAAAACCGAATG
 GTGGTTGGCAAGGTGAAGAAGAATTCAAAGACGGGAGCCACTATT spacer length: 131 repeater length: 21
 7572 3969918 CACTGCAAAAACAAATCTGTGT
 GAATCAGACAGTAACAATACAGATAGCAAAGAAAATATTGAAGGAGATGACTCAAAAAGTTCAAAAAGTGATGGATCTAACTGTAA
 ATGCAAAAATAATAACAGTAAATAAAAACAGCCATCCAAGAAAATAA
 7573

7574
7575 crispr 7
7576 2437186 AATCAAAAGAACCAAAGGAAGG ATCAAAAGAATCAAAAGGATCAAAAGAACCAAAGGAAGGATCAAAA spacer
length: 46 repeater length: 22
7577 2437255 AATCAAAAGAACCAAAGGAAGG GAACCAAAGGAAGGATCAAAAGAATTAAAGAACCAAAGGAAGGATCAAAA
spacer length: 51 repeater length: 22
7578 2437329 AATCAAAAGAACCAAAGGAAGG AGTTGAATTAAAACCAGTTGAATTAAAACCAGTTGAATTAAAACCAGTTGA
7579
7580
7581 crispr 8
7582 2919590 AATTCGATGAGATGAAATTCGA TAAGTGAAATTCGATAAGTG spacer length: 20 repeater
length: 22
7583 2919633 AATTCGATGAGATGAAATTCGA TAAGTGAAATTCGATAAGTGAAATTCGATAAGTG spacer length: 34
repeater length: 22
7584 2919690 AATTCGATGAGATGAAATTCGA TACAGATAGCAAAGGAAATATCGAAGAAAATGAT
7585
7586
7587 crispr 9
7588 1655452 GAATCTAGTAAATTTTGAATCC
AGCATATTTTGAATCTAGTTAATTTTGAATCCGGCACATTTTGAATCCAGCATATTT spacer length: 57 repeater
length: 22
7589 1655532 GAATCTAGTAAATTTTGAATCC GGCACATTTTGAATTTAGTAAATTT spacer length: 25 repeater
length: 22
7590 1655580 GAATCTAGTAAATTTTGAATCC TATTAAAAAAGGCATTTAAAAACAG
7591
7592
7593 crispr 10
7594 3260849 GTTATTAATGGAAATTATTAAT GGAAATTATTAATGAAATTATTAATGAAATTATTAATGAAATTATTAATGGA
spacer length: 52 repeater length: 22
7595 3260924 GTTATTAATGGAAATTATTAAT
GAAATTATTAATGGAAATTATTAATGAAATTATTAATGAAATTATTAATGAAATTATTAATGAAATTATTAATGAAATTATTAATG
GA spacer length: 88 repeater length: 22
7596 3261035 GTTATTAATGGAAATTATTAAT
AATGAAAGAAGAACTGGGAAACAAAAGCGGAATTGCAATAACACTGCACCAGATAGGAAGAATAAATGAAGAAGAGGGAGAATATA
AT
7597
7598
7599 crispr 11
7600 366535 TCCACTAAAATAAGGATTGAAA CTTTGCATTTCTCTCTTTTCGAAGAAATTTTCTCTGAGTCGAGAGGTAGC
spacer length: 50 repeater length: 22
7601 366608 TCCACTAAAATAAGGATTGAAA TCAAGATAATATCTGTTCAATTTCTCTCTCTAATAACCATTCGCGAGCAAG
spacer length: 51 repeater length: 22
7602 366682 TCCACTAAAATAAGGATTGAAA GTACTAAATCAAAAACAGAAACAGAAAATAATACAGAAAATCAGGGAATAG
7603
7604
7605 crispr 12
7606 161855 TTCTTATTCTACTTCTTATTCT ATTTCTTATTCTATTTCTGATTTTG spacer length: 25 repeater
length: 22
7607 161903 TTCTTATTCTACTTCTTATTCT
CTTACTTATTCTCTTTCTTATTCTCTTTCTTATTCTCTTACTTATTCTCTTTCTTATTCTCTTTCTTATTCTCTTACTTATTCTAT
TTCTTATTCTCTTTCTTATTCTA spacer length: 109 repeater length: 22
7608 162035 TTCTTATTCTACTTCTTATTCT
AAAAAGTTCAGGAATTAATGTATCTGATTGGTATAAAATAATAGCAGTAAATAAAACAGTTGCTCAAGAAAACGAATCAAACAGTA
ACAATACAGATAGCAAAGGAAAT
7609
7610
7611 crispr 13
7612 3845691 TTTCATCAATTACTCTTTTTGT CTTGGGAGTTTCACAATTCC spacer length: 20 repeater
length: 22
7613 3845734 TTTCATCAATTACTCTTTTTGT CTTGGGAGTTTCACAGTTCC spacer length: 20 repeater
length: 22
7614 3845777 TTTCATCAATTACTCTTTTTGT GAAACAAGAGAAATTTTAGG
7615
7616
7617 crispr 14
7618 3009664 GCATTTGGAACATTGTGTCAGGA TATTGCATTAGGGATATTGGATTTGGCATAT spacer length: 31
repeater length: 23
7619 3009719 GCATTTGGAACATTGTGTCAGGA AGATTGCATTAGGAATATTGGATTTGGGATAT spacer length: 32
repeater length: 23
7620 3009775 GCATTTGGAACATTGTGTCAGGA ATTCAGACTCAGACTTAAGTGATGGAAGTTCA
7621

7622
 7623 crispr 15
 7624 2265477 GTGTCAATTACAGAAACAGTACC
 TGTATGTGAAGTTGAATCAATGTTACCTTTACCTGAACATCCACCAGGTATATCTACCGTTACGTATGCTCTCGTTCCATTCCGGAC
 TGACTGCAATTCCATGTGGCAAGCTTCCAACATTTACTGTGCGAGTAACATTGTTTGTTC spacer length: 147
 repeater length: 23
 7625 2265648 GTGTCAATTACAGAAACAGTACC
 TTTATAGTAAGGATAACTATTGGAGTTAACCACATACACCTTTGTTCCATCTGGAGTGAATTCATGTGGATTTTTTTTCCA
 CATTTACTGTCTGTTGTAATAGTGTTCGTTGTC spacer length: 117 repeater length: 23
 7626 2265789 GTGTCAATTACAGAAACAGTACC
 AAGAAAATATCGAAGAAAATGATTCAAAAAGTTCAGGAATTAATGTATCTGATTGGTATAAAATAATAGCAGTAAATAAACAGTT
 GCTCAAGAAAACGAATCAAAACAGTAACAATA
 7627
 7628
 7629 crispr 16
 7630 1217691 ACTAAAAACGGATTTTCAAAAAAC GGTACTAAAAATGGATTTTCAAAAAACGG spacer length: 29
 repeater length: 24
 7631 1217745 ACTAAAAACGGATTTTCAAAAAAC GGTATCTTAAAAACGATCTTTGAAAAACGG spacer length: 31
 repeater length: 24
 7632 1217801 ACTAAAAACGGATTTTCAAAAAAC CAGACAGTAACAATACAGATAGCAAAGAAAA
 7633
 7634
 7635 crispr 17
 7636 3059688 CTGATAAATCGGTCAAACATTTGC CGGTAAATCAGTCAAACCTGTTGCCGGTAAACCAGTCAAAGTT spacer
 length: 43 repeater length: 24
 7637 3059756 CTGATAAATCGGTCAAACATTTGC CGGTAAATCAGTCAAACCTGTT spacer length: 21 repeater
 length: 24
 7638 3059802 CTGATAAATCGGTCAAACATTTGC CAACACCATTTAGGAAATAAA
 7639
 7640
 7641 crispr 18
 7642 2287303 ATTAAATCTGAGACAGCTGTGCAGC
 TGCTAATAAACGCACTGAATGATGAAAATGAAAATGTGCAGAGGGGAGCGGCAGAGGCACCTTGAAAATATTGAATCTGAGACAGCT
 GTGCAGCCGCTAATTAACGCACTGAATGATGAAAATGAAGATGTGCGGAGGAGCGCGGTAGAGGCACCTTGAAA spacer
 length: 160 repeater length: 25
 7643 2287489 ATTAAATCTGAGACAGCTGTGCAGC
 CGCTAATCAACGCATTGAAAGATGAAGATGATGATCTTCGGTGGAATGTGGCAGAGATACTTGAAAAATAAAATCTGATACAGCA
 GTGAAGCTGCTAATCAACGCACTGAAAGATGAAAATTCACACGTGCGATTGAGCGCGGCAGAGGCACCTTGAAA spacer
 length: 160 repeater length: 25
 7644 2287675 ATTAAATCTGAGACAGCTGTGCAGC
 TGCTAATTAACGCACTGAATGATGAAAATGAAGATGTGCGGAGGAGCGCGGTAGAGGCACCTTGAAA spacer length:
 67 repeater length: 25
 7645 2287768 ATTAAATCTGAGACAGCTGTGCAGC
 CGCTAATTAACGCACTGAATGATGAAAATGAAGATGTGCGGAGGAGCGCGGTAGAGGCACCTTGAAA spacer length:
 67 repeater length: 25
 7646 2287861 ATTAAATCTGAGACAGCTGTGCAGC
 CGCTAATAAACGCACTCAAAGATGAAAATGAATATGTGCGGAGGAGCGCGGTAGAGGCACCTTGAAA spacer length:
 67 repeater length: 25
 7647 2287954 ATTAAATCTGAGACAGCTGTGCAGC
 GAATTTAAAACCAGTTGAATTAAAACCAGTTGAATTAAAACCAGTTGAATTAAAATCAGTTAGGTGGT
 7648
 7649
 7650 crispr 19
 7651 1503993 ATTATAATTTTCCCAAAGTAATTAT CCACTATAATTTTCCCAAAGTAATTATC spacer length: 28
 repeater length: 25
 7652 1504047 ATTATAATTTTCCCAAAGTAATTAT CCACTATAATTTTCCCAAAGTAATTATT spacer length: 28
 repeater length: 25
 7653 1504101 ATTATAATTTTCCCAAAGTAATTAT GATAGTCAAGAAAATATCGAAGAAAATG
 7654
 7655
 7656 crispr 20
 7657 3066991 CCTCTTCAAAAACCTCTTCAGAAAC TTCTCCAGAAACCTCTTCAAAA spacer length: 22 repeater
 length: 25
 7658 3067039 CCTCTTCAAAAACCTCTTCAGAAAC CTCTTCAAAAACCTCTTCAAAAACCTCTTCAAAA spacer length:
 34 repeater length: 25
 7659 3067099 CCTCTTCAAAAACCTCTTCAGAAAC AAACGTAATTGTGCTTTGGGGGTAAACGTATAGG
 7660
 7661
 7662 crispr 21
 7663 1207191 GCTTACAAAAAACTCACTTACAAAA AACTCACTTACAAAAAACTCACTTACAAAAAGTCC spacer length:
 35 repeater length: 25

7664 1207252 GCTTACAAAAAACTCACTTACAAAA
 AACTCACTTACAAAAAACTCACTTACAAAAAACTCACTTACAAAAAACTCACTTACAAAAAACTCACTTACAAAAAACTCACTTAC
 AAAAACTCACTTACAAAAAGTCC spacer length: 110 repeater length: 25
 7665 1207388 GCTTACAAAAAACTCACTTACAAAA AACTCACTTACAAAAAGTCC spacer length: 20 repeater
 length: 25
 7666 1207434 GCTTACAAAAAACTCACTTACAAAA AAAAAAGTGTGAGCGAAATAT
 7667
 7668
 7669 crispr 22
 7670 1277021 GTTGAATTGAATGAAAGTTGAATTA AAACCAGTTGAATTTAAACCAGTTGAATTGAATGAA spacer
 length: 36 repeater length: 25
 7671 1277083 GTTGAATTGAATGAAAGTTGAATTA AAACCAGTTGAATTGAATGAA spacer length: 21 repeater
 length: 25
 7672 1277130 GTTGAATTGAATGAAAGTTGAATTA AAACCAGTTGAATTTAAACC spacer length: 20 repeater
 length: 25
 7673 1277176 GTTGAATTGAATGAAAGTTGAATTA ATGCCGATGCCTGGAATGGC
 7674
 7675
 7676 crispr 23
 7677 4037413 AAGAGAATAATAGATATGGGGAGTAA GAATAACATGATCTGAGGGA spacer length: 20 repeater
 length: 26
 7678 4037460 AAGAGAATAATAGATATGGGGAGTAA GAATAACATGATCTGAGGGA spacer length: 20 repeater
 length: 26
 7679 4037507 AAGAGAATAATAGATATGGGGAGTAA AAATAACATGATCTGAGGAA spacer length: 20 repeater
 length: 26
 7680 4037554 AAGAGAATAATAGATATGGGGAGTAA GCTTTGGGGGTAAACGTATA
 7681
 7682
 7683 crispr 24
 7684 2821313 ATATTAATTGTAGAATCATATTAATT GCAGAATTATATTAATTGCAGAATCATATTAATTGCAGAAT spacer
 length: 41 repeater length: 26
 7685 2821381 ATATTAATTGTAGAATCATATTAATT ACAGAATTATATTAATTACAGAATTATATTAATTACAGAAT spacer
 length: 41 repeater length: 26
 7686 2821449 ATATTAATTGTAGAATCATATTAATT TGAGAACTGTAACGGATCAGAATGCGCAGGAACTGCTGTG
 7687
 7688
 7689 crispr 25
 7690 1421255 TATTTGATGTAGGATACATCCAAATG CCCACCATAAAGGCACAGAAC spacer length: 21 repeater
 length: 26
 7691 1421303 TATTTGATGTAGGATACATCCAAATG CCCACCATAAAGGCACAGAAC spacer length: 21 repeater
 length: 26
 7692 1421351 TATTTGATGTAGGATACATCCAAATG CCCACATAAAGGCACAGAAC spacer length: 20 repeater
 length: 26
 7693 1421398 TATTTGATGTAGGATACATCCAAATG GATACATCCAAATGTCACAT
 7694
 7695
 7696 crispr 26
 7697 2355173 GGAAAGCCCGTTTGAAAAACGTAATTG CGCTTTGGGGGTAAACGTAT spacer length: 20 repeater
 length: 27
 7698 2355221 GGAAAGCCCGTTTGAAAAACGTAATTG TGCTTTGGGGGTAAACGTAT spacer length: 20 repeater
 length: 27
 7699 2355269 GGAAAGCCCGTTTGAAAAACGTAATTG TGCTTTGGGGGTAAACGTAT spacer length: 20 repeater
 length: 27
 7700 2355317 GGAAAGCCCGTTTGAAAAACGTAATTG GAATAAAGGTAATAGTCCCC
 7701
 7702
 7703 crispr 27
 7704 2714568 GTAATCGGTACTGTTATCGATACTGCC ATCGATACTGCCATTGGTAT spacer length: 20 repeater
 length: 27
 7705 2714616 GTAATCGGTACTGTTATCGATACTGCC
 ATCGATACTGCCATTGGTATTGTAATCGGTACTGTTATCTATAACCGCCATTGGTATTGTAATCGGTACTGTTATCTATAACCGCCAT
 TGGTATCTATAACCGCCATTGGTACCGCCATTGGTAC spacer length: 122 repeater length: 27
 7706 2714766 GTAATCGGTACTGTTATCGATACTGCC
 AGAAGAACTGGGAAACAAAAGCGGAATTGCAATAACACTGCACCAGATAGGAAGAATAAATGAAGAAGAGGGAGAATATAATAGTG
 CTCTCAGAAATTATTTAATCTCTTTTCAATTTTTG
 7707
 7708
 7709 crispr 28
 7710 3186646 TTGCCTCATTTTCGAGTGCTTTTTTCGTA
 CTTTTGTTTTGCCTCTTCAATGCGCCCCATATCAGAAAGCAAGGCACCTAAATTGTTGATCGTCATTGCTACATCTGACTGATAGG
 CTACGTTTTTGGGGTCTTTTTGGAGAAGTT spacer length: 116 repeater length: 27

7711 3186790 TTGCCTCATTTCGAGTGCTTTTTTCGTA
 CCTTTGTTTCGCCTCTTCAACGTGCCCCATCTCGGAAAGTAAGGTACCTAAATTGTTGAGCGTCGTTCTATGTAAGATTGATAAG
 CTACGTTTTTCGGGGTCTTTTATGAGGAGTT spacer length: 116 repeater length: 27
 7712 3186934 TTGCCTCATTTCGAGTGCTTTTTTCGTA
 CTTTTGTTTTGCCTCTTCAATGTGCCCCATATCAGAAAGCAAGGCACCTAAATTGTTTCAGTGTCTATTGCTACATCTGACTGATAGG
 CTACATTTTCGGGGTCTTTATGTAAGAGTT spacer length: 116 repeater length: 27
 7713 3187078 TTGCCTCATTTCGAGTGCTTTTTTCGTA
 AAACCAGTTGAATTA AAAACAGTTGAATTA AAAATCAGTTAGGTGGTTCACAAGGTTTGTTCTATGTCAATGAAGTTTATTACTGGA
 TCAGTTTTGAAGCTGCCCCGTATTTCCCTC
 7714
 7715
 7716 crispr 29
 7717 3969452 ACTATTACACTGCAAAACAAATCTGTGTG
 TACCAGAATATAGATGGTAGACTTGATATATTTTACATAGCCACGAATGATAGACTTTACTACAACCTGGCAGGTATCTCCTAATAG
 TGTTTGAAAGGCCACGCGGAATTCAAAAACGGGAGC spacer length: 123 repeater length: 29
 7718 3969605 ACTATTACACTGCAAAACAAATCTGTGTG
 TACCAGAATATAGATGGTAGACTGGAGATATTCTACATAGGCACGAATGATAGACTCTACCACAACCTGGCAGAAATCTCTTGATGG
 TGGTTGGCACGGTGAAGAAGAATTCAAACACGGAGGC spacer length: 123 repeater length: 29
 7719 3969758 ACTATTACACTGCAAAACAAATCTGTGTG
 GGCCGAATTACGATGGTAGACTGGAGATATTCTACATAGGCACGAATGATAGACTCTACCACAACCTGGCAGGAAAAACCGAATGG
 TGGTTGGCAAGGTGAAGAAGAATTCAAAGACGGGAGC spacer length: 123 repeater length: 29
 7720 3969911 ACTATTACACTGCAAAACAAATCTGTGTG
 CAGACAGTAACAATACAGATAGCAAAGAAAATATTGAAGGAGATGACTCAAAAAGTTCAAAAAGTGATGGATCTAACTGTAAATGC
 AAAATAATAACAGTAATAAAAACAGCCATCCAAGAAA
 7721
 7722
 7723 crispr 30
 7724 356467 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TGAAC TTGAAATTCAGGACTGGCTAGCAAAAGAA spacer
 length: 34 repeater length: 30
 7725 356532 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC GTTGAATCAAAAATATATCCAGCAAGTATTGTCCT spacer
 length: 35 repeater length: 30
 7726 356598 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC GTAATAGTAAAATATAATCTATCATTGATCTCGAA spacer
 length: 36 repeater length: 30
 7727 356665 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC AATGCAAGATATGATCATACAGGCGGACCTGATTTAG spacer
 length: 37 repeater length: 30
 7728 356733 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC CCGCATGGAGAGAAACAGACGGAATCCACGCAAAA spacer
 length: 35 repeater length: 30
 7729 356799 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TGTGTCTATAACTGATATTCTTAATGCAAACGAT spacer
 length: 34 repeater length: 30
 7730 356864 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TATTCTGAGTCTGGATATCCCGAACTCCCAAAATAC spacer
 length: 36 repeater length: 30
 7731 356931 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC AATCTAGGAGTCTTAATCTTTCATCAAGAAGCCCCCT spacer
 length: 36 repeater length: 30
 7732 356998 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC ATTGGAAGCAGCTAGTCGGGGTTGCCTGCGGGTCT spacer
 length: 35 repeater length: 30
 7733 357064 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC CTGTCAAAACTCGATGCACAGACACCTGTTAGTAT spacer
 length: 35 repeater length: 30
 7734 357130 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC CTTTTTTGGAGCAACACATATGAACCTTAAAAATA spacer
 length: 35 repeater length: 30
 7735 357196 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TATCCTGGACATAGACACGAAGCAGTATGGATAAGA spacer
 length: 36 repeater length: 30
 7736 357263 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC ATCAATATATAATAATTCCTAGAATTATAAGTATAAA spacer
 length: 37 repeater length: 30
 7737 357331 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC GAATGTGACGGATGTGAAACAATACGGGTGGGAA spacer
 length: 34 repeater length: 30
 7738 357396 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TTTAGGAATAATCTTCTTAGTTCCCGAGTACAACACG spacer
 length: 37 repeater length: 30
 7739 357464 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC GAGTTCAACCGGTGACCGGCGGAGCAATTGAAAAA spacer
 length: 35 repeater length: 30
 7740 357530 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TATAATTCTAACAATTGTACGGATTTAAAAAATT spacer
 length: 34 repeater length: 30
 7741 357595 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC TCAGCTACCGAAGGATTTCAAGGGGTTTTTACTC spacer
 length: 34 repeater length: 30
 7742 357660 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC ATCAAATCCACTTTTTATATAAGCATCTTTTACG spacer
 length: 34 repeater length: 30
 7743 357725 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC CTAAC TAAGTATTCAAGGAATGCTGGAGGATTAGGA spacer
 length: 36 repeater length: 30
 7744 357792 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC GTTTAATTGGCTCCCAGCAGTCACACCCATAGCAG spacer
 length: 35 repeater length: 30
 7745 357858 GTTAAAAATCAGGCCTTAGAGGGATTGAAAC GAGGATTAGGATGATTGGCAATAAACTAACTT spacer
 length: 34 repeater length: 30

7746 357923 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATGATGATTTTAGTGGAGTGTGGTCTTAAGTC spacer
length: 35 repeater length: 30
7747 357989 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTGATTCATGGGATATCGGAGGGACGAGCAATGCA spacer
length: 35 repeater length: 30
7748 358055 GTTAAATCAGGCCTTAGAGGGATTGAAAC CATATAAAGAAAGTAAATAAGAACTCATGAATTATA spacer
length: 37 repeater length: 30
7749 358123 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATTTAGGTGATCCTGTTCTACTGGTTCCTGTGT spacer
length: 34 repeater length: 30
7750 358188 GTTAAATCAGGCCTTAGAGGGATTGAAAC GAATCTGTGAATTTAATATCTAAATGTCAAATAT spacer
length: 35 repeater length: 30
7751 358254 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTGCTCTTCTTTAACCCCACTTGAAATTTTATAT spacer
length: 35 repeater length: 30
7752 358320 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATAAAAACAAAAACGATTGTCTGTCTAAGCTATA spacer
length: 34 repeater length: 30
7753 358385 GTTAAATCAGGCCTTAGAGGGATTGAAAC GTGTATGTTTCTGACAGCTCAATAATAGTTAGAT spacer
length: 34 repeater length: 30
7754 358450 GTTAAATCAGGCCTTAGAGGGATTGAAAC AGATATTCTTTTTGAAGCCCTTTAAATCTATAAGT spacer
length: 36 repeater length: 30
7755 358517 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTAGTTATAAACCATTTATAGACACAGTAGCAGCAC spacer
length: 36 repeater length: 30
7756 358584 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATTGCAATATCGAGAATATCTTTTACGGAAATTGC spacer
length: 35 repeater length: 30
7757 358650 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATATTCGGATGGAAAACACTCCCTTGGTGTGAAAC spacer
length: 35 repeater length: 30
7758 358716 GTTAAATCAGGCCTTAGAGGGATTGAAAC CCTCAAGTTCTCCATCGCTTCAACGAATAGATATCA spacer
length: 36 repeater length: 30
7759 358783 GTTAAATCAGGCCTTAGAGGGATTGAAAC GCATAATACAAAGTACTGTTACTCATTCCGCTCT spacer
length: 34 repeater length: 30
7760 358848 GTTAAATCAGGCCTTAGAGGGATTGAAAC CACGTAACTTTCAAGGACATGATATCTTGTAGAAA spacer
length: 35 repeater length: 30
7761 358914 GTTAAATCAGGCCTTAGAGGGATTGAAAC ACGACTACGGCTAAAGTATTTGCTTCAGCAGTTGG spacer
length: 35 repeater length: 30
7762 358980 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATCAAATGGCGGTATTAGAAAATCTGTATGGAAA spacer
length: 35 repeater length: 30
7763 359046 GTTAAATCAGGCCTTAGAGGGATTGAAAC GCAATTTCCAAGGTTTCCATTTGGAAATGCAAAA spacer
length: 35 repeater length: 30
7764 359112 GTTAAATCAGGCCTTAGAGGGATTGAAAC TTATGAGCATCATTATCATGTTTCCGCTTTTTAG spacer
length: 34 repeater length: 30
7765 359177 GTTAAATCAGGCCTTAGAGGGATTGAAAC GGGTAAGATTAAGTCCATGGATAATCGAAGAAGA spacer
length: 34 repeater length: 30
7766 359242 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATCTCAGTCTGTAGGGTATGGGGCAACCTGCTTA spacer
length: 35 repeater length: 30
7767 359308 GTTAAATCAGGCCTTAGAGGGATTGAAAC
GCTTCTCTGTTTGATCCAGAAGGGATATTCATTTTTTCGTTAAATCAGGCCTTAGAGGGACTGAAACGTTTCACCAAAGAAAATC
TCTTTCATTTCTTAG spacer length: 102 repeater length: 30
7768 359441 GTTAAATCAGGCCTTAGAGGGATTGAAAC AATCTTCAAATGGCGCTGCTGGCATGATATCCTCAC spacer
length: 36 repeater length: 30
7769 359508 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATATAATCTCTACAAATTTTCGTCATATATCCTTG spacer
length: 35 repeater length: 30
7770 359574 GTTAAATCAGGCCTTAGAGGGATTGAAAC AAAAATATGAAAACCAAAGGCGGGGCATTTAAAACT spacer
length: 38 repeater length: 30
7771 359643 GTTAAATCAGGCCTTAGAGGGATTGAAAC ATGTTACCATCCCATTTCTGATTAAACAAGTTTCC spacer
length: 37 repeater length: 30
7772 359711 GTTAAATCAGGCCTTAGAGGGATTGAAAC CAAAAACAGAAACAGAAAATAATACAGAAAATCAGGG
7773
7774
7775 crispr 31
7776 3775502 ATGCCTGGAATGGCAAAGGTAATGCCTTATAT
GGATTGGGCAGATACGATGAAGCATTACAAGCTTATGATAAAGCCATAGCGATAAACCTAATTATGCC spacer length:
69 repeater length: 32
7777 3775604 ATGCCTGGAATGGCAAAGGTAATGCCTTATAT
AGATTGGGCAGATACGATGAAGCATTACAAGCATATGATAAAGCCATAGCGATAAACCTAATTATGCC spacer length:
69 repeater length: 32
7778 3775706 ATGCCTGGAATGGCAAAGGTAATGCCTTATAT
GAAAAAAGTTTGATCAAAAAGTGTGAGCGAAATATATTTTCAGAGTTGCAATCATCGAAGAGAAACATAT
7779
7780
7781 crispr 32
7782 2329079 TAGATGATGGAAATTCAAACAATAGCCCAGATG ATGGTAATTCAGATTCAGGG spacer length: 20
repeater length: 33
7783 2329133 TAGATGATGGAAATTCAAACAATAGCCCAGATG ATGGTAATTCAGACTCAGGG spacer length: 20

repeater length: 33

7784 2329187 TAGATGATGGAAATTCAAACAATAGCCCAGATG AACTTTTTTCGAAAAAAGTTT

7785

7786

7787 crispr 33

7788 501224 GCAACATAAACATTACCCGAAGAATCTACAGCAA
CACCATTTGGGTCATAAATACCATTTGGGTCATAAATTTGTCTGTTGTCGGTTCATTAGAACCCCATTTGAGTGAGGTATCTGCCT
ATGCTGTTAACTTCTGAATGCGCTGATTATATTTATC spacer length: 124 repeater length: 34

7789 501383 GCAACATAAACATTACCCGAAGAATCTACAGCAA
TACTCAACGGAAATTCAAATTTGTCGGTTGCCGCTACCATAAGAACCCCATTTGAGTGAGGTATCCGCCTGTGCTGTTAAATTTTGA
ATGCGATTATTACCACTATC spacer length: 106 repeater length: 34

7790 501524 GCAACATAAACATTACCCGAAGAATCTACAGCAA
CGCCCTCAGGATCATTAATTTGTCGGTTGCCGCTACCATAAGAACCCCATTTGAGTGAGGTATCCGCCGTTGCTGTTAACTTCTGA
ATGCGATTATTACCACTATC spacer length: 106 repeater length: 34

7791 501665 GCAACATAAACATTACCCGAAGAATCTACAGCAA
AATCAAAAAACAGAAACAGAAAAATAATACAGAAAATCAGGGAATAGTAGAAGACATTGAGCAAGAGACTGACTTAGCTGACTCTATT
TTACATTACAAAGTATATAA

7792

7793

7794 crispr 34

7795 1872303 ATTGATGTCATTATGCGCATACAGCTTGGACATCA ACCCTTTTAAAAGGCTTGACCGAAAAAAGGC spacer
length: 31 repeater length: 35

7796 1872370 ATTGATGTCATTATGCGCATACAGCTTGGACATCA ACCCTTTTAAAAGGCTTGACCGAAAAAAGGT spacer
length: 31 repeater length: 35

7797 1872437 ATTGATGTCATTATGCGCATACAGCTTGGACATCA TTTAGGAATACGGCGCTGGATAATGAAGCG

7798

7799

7800 crispr 35

7801 4007450 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC
TTTCTGTACGATCTGGTAATTGCTACAGCTAGTTTAGGCTTCAATTCTGCCACAATCTTTTCGGTTATGGAAACGAGAAGCTACAGGA
CGCTTATAAAACCCGTAAAAA spacer length: 108 repeater length: 36

7802 4007595 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC
ATAAGCACCATTTCGAATGGTTCGCCAGTGTAACTGTAAAGCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAACATGTTATGATTCA
ATTACTAACCACCGTTTTTGTATA spacer length: 109 repeater length: 36

7803 4007741 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC GTACAAATCCCGCAGTAGTGAGACTTTCCCCAACTA
spacer length: 36 repeater length: 36

7804 4007814 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TCGATCCTTCGATTACTCCCGAACTTTTAAATCT
spacer length: 35 repeater length: 36

7805 4007886 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TCGGCCATTTTATTTTATTAGGATTCCCCCAATCT
spacer length: 35 repeater length: 36

7806 4007958 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TCAGTATAAGCCAGAGTCAAAGGGTGCACAGGCATA
spacer length: 36 repeater length: 36

7807 4008031 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC AGAGGTCGACGATACCAACCAGGATTCTGGCAGTTG
spacer length: 36 repeater length: 36

7808 4008104 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TCGCCTTTCTCAAACAGGCTCTGTATCGTTTCGATAAT
spacer length: 37 repeater length: 36

7809 4008178 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TGGAACGGCTGTTGTTGGTGTACTCGGTTGGGAA
spacer length: 34 repeater length: 36

7810 4008249 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC ACCTTTCTGTGATACCAAAGAAGTTTCAAATAATC
spacer length: 36 repeater length: 36

7811 4008322 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TCATCAGTATATTTTTCTGCAATCGTATCATACAAT
spacer length: 36 repeater length: 36

7812 4008395 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TTTATATGGGAATGTCAGTAAACATGTGGTTCGGGC
spacer length: 35 repeater length: 36

7813 4008467 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TTGTAAAAGACCATCTGTATAATTGCCTGCAGTT
spacer length: 34 repeater length: 36

7814 4008538 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC GGGTTTTGAAGTAAACCTTTTCCCACATTACCCACA
spacer length: 36 repeater length: 36

7815 4008611 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC TGGCGTTAAAGGTTACCTTCTTGACCAACTCTAG
spacer length: 35 repeater length: 36

7816 4008683 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC CTTCTCTCCTTCCTTCGCATCGCAGCCGAACCCAT
spacer length: 35 repeater length: 36

7817 4008755 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC GGAAGTTTTGAAAACGGGCCAGTCTTCGCTGGGGA
spacer length: 35 repeater length: 36

7818 4008827 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC ATACTAAAAACAAAAATCCACCCAACAACAGGGCACCT
spacer length: 38 repeater length: 36

7819 4008902 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC GAGACGAGACAGTACACAACATGTGAATGCCCATACTG
spacer length: 38 repeater length: 36

7820 4008977 GCTTCAATTCTGCCACAACCTTTTCGGTTATGGAAAC CTCAGACTTAAGTGATGGAAGTTCAGATTCTGGCTCGA

7821

7822

7823 crispr 36
 7824 1686381 TACGACAAAGCACTCCCACTTTATCAAAGGGCACTTG
 GTATTTCGTGAAAACATTCTAGGTTCCCAACACCTAGATGTTGCAAATTCATAAACAATTCGCAGTGCTCTATGAAAGTATGGGA
 GA spacer length: 88 repeater length: 37
 7825 1686507 TACGACAAAGCACTCCCACTTTATCAAAGGGCACTTG
 GTATTTCGTGAAAATGTTTTAGGTTTCCAACACCCGTCTGTTGCAACAACCCTAGACAATCTTGCACTACTCTATTATCGTATGGGC
 GC spacer length: 88 repeater length: 37
 7826 1686633 TACGACAAAGCACTCCCACTTTATCAAAGGGCACTTG
 TTGGATAATAAATCGTATGTAAACAACCTTAATTTTGATATTCGATTATAGTTCCTGATAACAGATGTCCACAGGTTCTAATCTAAT
 AA
 7827
 7828
 7829 crispr 37
 7830 4213404 TAGTACAGTTACTGCAATCTTTTTGTAAAAAAGATTGA
 CCACAACCTTTTTTGCAAAAAAGATTGAACAAAACTTGACAACGATAG spacer length: 48 repeater length: 38
 7831 4213491 TAGTACAGTTACTGCAATCTTTTTGTAAAAAAGATTGA
 CCACAACCTTTTTTGCAAAAAAGATTGAACAAAACTTGACAACGATAA spacer length: 48 repeater length: 38
 7832 4213578 TAGTACAGTTACTGCAATCTTTTTGTAAAAAAGATTGA
 AGCGAAATATATTTTCAGAGTTGCAATCATCGAAGAGAAACATATTCAT
 7833
 7834
 7835 crispr 38
 7836 501378 TATCGGCAACATAAACATTACCCGAAGAATCTACAGCAA
 TACTCAACGGAAATTCAAATTGTCCGTTGCCGCTACCATAAGAACCCCATAGAGTGAGGTATCCGCCTGTGCTGTTAAATTTTTGA
 ATGCGATTATTACCA spacer length: 101 repeater length: 39
 7837 501519 TATCGGCAACATAAACATTACCCGAAGAATCTACAGCAA
 CGCCCTCAGGATCATTAATTTGTCCGTTGCCGCTACCATAAGAACCCCATAGAGTGAGGTATCCGCCGTTGCTGTTAACTTCTGA
 ATGCGATTATTACCA spacer length: 101 repeater length: 39
 7838 501660 TATCGGCAACATAAACATTACCCGAAGAATCTACAGCAA
 AGTGATGGAAGTTCAGATTCTGGCTCGAATGATAGTAACCTCAGATTACAGGTTAGACGATGGAAATTCAGACACTAGCCCAGATGA
 TGGTAATTCAGATTC
 7839
 7840
 7841 crispr 39
 7842 121360 AATAGCAGTAAATAAAAACAGTTGCTCAAGAAAACGAATCA
 AACAGTAACGATACAGATAGCAAAGAAAATATCGAAGAAAATGATTCAAAAAGCTCAGAAAGCAATGTATCTGACTGGTATAAAA
 spacer length: 85 repeater length: 40
 7843 121486 AATAGCAGTAAATAAAAACAGTTGCTCAAGAAAACGAATCA
 AACAGTAACGATACAGATAGTCAAGAAAATATCGAAGAAAATGATTCAAAAAGTTCAGAAAGCAATGTATCTGACTGGTATAAAA
 spacer length: 85 repeater length: 40
 7844 121612 AATAGCAGTAAATAAAAACAGTTGCTCAAGAAAACGAATCA
 AACAGTAACGATACAGATAGTCAAGAAAATATCGAAGAAAATGATTCAAAAAGTTCAGGAATTAATGTATCTGATTGGTATAAAA
 spacer length: 85 repeater length: 40
 7845 121738 AATAGCAGTAAATAAAAACAGTTGCTCAAGAAAACGAATCA
 AACAGTAACAATACAGATAGCAAAGGAAATATCGAAGAAAATAATTCAAAAAGTTCAGAAATTAATGTATCTGACTGGTATAAAA
 spacer length: 85 repeater length: 40
 7846 121864 AATAGCAGTAAATAAAAACAGTTGCTCAAGAAAACGAATCA
 AACAGTAACAATACAGATAGCAAAGGAAATATCGAAGAAAATGATTCAAAAAGTTCAGAAATTAATGTAACTGATTGGTATAAAA
 spacer length: 85 repeater length: 40
 7847 121990 AATAGCAGTAAATAAAAACAGTTGCTCAAGAAAACGAATCA
 AACTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAAATGAAAGAAGAACTGGGAAACAAAAGCGGAATTGCAATAACAC
 7848
 7849
 7850 crispr 40
 7851 120713 ACAGAAACAGAAAATAATACTAAATCAAAAATAGAAACAG
 TAGAAAATAATACTAAATCAAAAACAGAAACAGAAAATAATACTAAATCAAAAACAGTAGAAAATAATACTAAATCAAAA
 spacer length: 85 repeater length: 40
 7852 120839 ACAGAAACAGAAAATAATACTAAATCAAAAATAGAAACAG TAGAAAACAGTACTAAATCAAA spacer
 length: 22 repeater length: 40
 7853 120902 ACAGAAACAGAAAATAATACTAAATCAAAAATAGAAACAG
 TAGAAAACAGTACTAAATCAAAAACAGAAACAGAAAATAATACTAAATCAAA spacer length: 52 repeater
 length: 40
 7854 120995 ACAGAAACAGAAAATAATACTAAATCAAAAATAGAAACAG
 ATGATTCAAAAGTTTCAGGAATTAATGTATCTGATTGGTATAAAAATAATAGC
 7855
 7856
 7857 crispr 41
 7858 3969659 AGATATTCTACATAGGCACGAATGATAGACTCTACCACAA
 CTGGCAGAAATCTCTTGATGGTGGTTGGCACGGTGAAGAAGAATTCAAACACGGAGGCCACTATTACACTGCAAAACAAATCTGTG
 TGGGCCGGAATTACGATGGTAGACTG spacer length: 112 repeater length: 40
 7859 3969812 AGATATTCTACATAGGCACGAATGATAGACTCTACCACAA

CTGGCAGGAAAAACCGAATGGTGGTTGGCAAGGTGAAGAAGAATTCAAAGACGGGAGCCACTATTACACTGCAAAACAAATCTGTG
TGGGCCAGAATGCCGATGGTAGACTG spacer length: 112 repeater length: 40

7860 3969965 AGATATTCTACATAGGCACGAATGATAGACTCTACCACAA
GATAGCAAAGAAAAATATTGAAGGAGATGACTCAAAAAGTTCAAAAAGTGATGGATCTAACTGTAAATGCAAAATAATAACAGTAAA
TAAACAGCCATCCAAGAAAAATAAT

7861
7862

7863 crispr 42

7864 3969833 ATGATAGACTCTACCACAACCTGGCAGGAAAAACCGAATGG
TGGTTGGCAAGGTGAAGAAGAATTCAAAGACGGGAGCCACTATTACACTGCAAAACAAATCTGTGTGGGCCAGAATGCCGATGGTA
GACTGGAGATATTCTACATAGGCACG spacer length: 112 repeater length: 40

7865 3969986 ATGATAGACTCTACCACAACCTGGCAGGAAAAACCGAATGG
TGGTTGGCACGGTGAAGAAGAATTCAAAGACGGAAGCCACTATTACGCTGCAAAACAAATCTGTGTGGGCCAGAATGTTCGATGGTA
GACTAGAGATATTCTACATAGCCACG spacer length: 112 repeater length: 40

7866 3970139 ATGATAGACTCTACCACAACCTGGCAGGAAAAACCGAATGG
GGTAAAAAAAATTGTCTGTTGTGCGGTTCCATTAGAACCCCATTTAGTGAGGTAACCGCCTGTGCTATTAACTTCTGAATGCGGTG
ATTGCCAGTATCGGTAACATAAACGT

7867
7868

7869 crispr 43

7870 3286570 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATTGAAGAAGAACTGGGAGACAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAATGATTCATCAGGATCAGGGCA
spacer length: 79 repeater length: 40

7871 3286690 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATGAAAGAAGAACTGGGAAACAAAAGCGGAATTGCAGGAACACTGCACCAGCTTGGAATGATTCATCAGAAGCAGGGCA
spacer length: 79 repeater length: 40

7872 3286810 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATGAAAGAAGAACTGGGAAACAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAATGATTCATCAGGATCAGGGCA
spacer length: 79 repeater length: 40

7873 3286930 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATTGAAGAAGAGCTTGGAGATAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAATGTTTATTATTCTCAGGGCA
spacer length: 79 repeater length: 40

7874 3287050 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATGAAAGAAGAACTGGGAAACAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAATGATTCATCAGAAGCAGGGCA
spacer length: 79 repeater length: 40

7875 3287170 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATGAAAGAAGAACTGGGAAACAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAATGATTCATCAGAAGCAGGGCA
spacer length: 79 repeater length: 40

7876 3287290 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
ATTGAAGAAGAGCTTGGAGATAAAAGCGGAATTGCAATAACACTGCACCAGCTTGGAATGTTTATTATTCTCAGGGCA
spacer length: 79 repeater length: 40

7877 3287410 CTACGAAGAAGCAGTCAAAAAGTATAACCAGTCACTGAAA
AAACTGTACCTCGAATCTAACTATAGCTTTTGCCTGATACTGCAAAAAGTATATATTTAAATGGGAATTGTCAGCATC

7878
7879

7880 crispr 44

7881 120872 GAAACAGTAGAAAACAGTACTAAATCAAAAACAGAAACAG AAAATAATACTAAATCAAAAAT spacer
length: 22 repeater length: 40

7882 120935 GAAACAGTAGAAAACAGTACTAAATCAAAAACAGAAACAG
AAAATAATACTAAATCAAAAACAGAAACAGAAAATAATACTAAATCAAAAAT spacer length: 52 repeater
length: 40

7883 121028 GAAACAGTAGAAAACAGTACTAAATCAAAAACAGAAACAG
TAAATTTGTCCGTTTCCATTGCCTGAAGAACCCCATTTAGTGAGGTGTCCGC

7884
7885

7886 crispr 45

7887 3131206 GGAGAATGCTGTGACAACTGTACTGAGAAGTGAATGGGT
CAGAATGCGCAGGAACTGCTGTGACGAATGTGCAGATGTTTGTGGCCAGGATTGCAA spacer length: 58
repeater length: 40

7888 3131305 GGAGAATGCTGTGACAACTGTACTGAGAAGTGAATGGGT
CAGAATGCGCAGGAAATTTGCTGTGACGAATGTGCAGATGTTTGTAGCCAGGATTGCAA spacer length: 58
repeater length: 40

7889 3131404 GGAGAATGCTGTGACAACTGTACTGAGAAGTGAATGGGT
AATTAAACCAGTTGAATTAAACCAGTTGAATTAAATCAGTTAGGTGGTTTACAAG

7890
7891

7892 crispr 46

7893 3665598 TAATACAGCACGTTTATGGGATGCAGATACAGGTAAACAA
ATTTTTGTTCTAAACCATAGTGGTTGGGTGAATAATGTTGTATTAGTCCTGATGGAAAATACGCAGCCACGGCGAGTAATG
spacer length: 82 repeater length: 40

7894 3665721 TAATACAGCACGTTTATGGGATGCAGATACAGGTAAACAA

ATTTTGTCTCTAAACCATGGCGATTGGGTGAATAATGTTGTATTACAGTCCTGATGGAAAATACGTAGCTACGGCGAGTAATG
 spacer length: 82 repeater length: 40
 7895 3665844 TAATACAGCACGTTTATGGGATGCAGATACAGGTAAACAA
 CTGAATGCGATTATTACCACTATCGGCAACATAAACATTACCCGAAGAATCTACAGCAACACCATTTAGGAAATAAAATTGT
 7896
 7897
 7898 crispr 47
 7899 647885 TCTCGAAATATATTTTCAGAGGTGCAACAACTTTTTTCGAA AAAAATTTGATCAAAAAGCGTGAGCGAAAT
 spacer length: 30 repeater length: 40
 7900 647956 TCTCGAAATATATTTTCAGAGGTGCAACAACTTTTTTCGAA AAAAGTTTGATCAAAAAGCGTGAGCGAAAT
 spacer length: 30 repeater length: 40
 7901 648027 TCTCGAAATATATTTTCAGAGGTGCAACAACTTTTTTCGAA TATTAGCTACGGAATTCACTTTGTTCGAA
 7902
 7903
 7904 crispr 48
 7905 3183983 TTGGGATCTGATTCAAGAGCAAGTTTATACTGTTTCCTCTG
 CCTCATCGAGACGCCCCATATCTGAAAGGAGATTTCCGTAATTATAGTGTGTTTTTACATG spacer length: 61
 repeater length: 40
 7906 3184085 TTGGGATCTGATTCAAGAGCAAGTTTATACTGTTTCCTCTG
 CCTCATCGAGGCGCCCCATATCTGAAAGGAGATTTCCGTAATTATAGTGTGTTGACATG spacer length: 61
 repeater length: 40
 7907 3184187 TTGGGATCTGATTCAAGAGCAAGTTTATACTGTTTCCTCTG
 TCGAAGAAAATGATTCAAAAAGTTCAGGAATTAATGTATCTGATTGGTATAAAATAATAGC
 7908
 7909
 7910 GCA_000195915.1_ASM19591v1_genomic.fna(findCrispr):
 7911 START REPEAT
 SPACER
 7912 crispr 1
 7913 846049 GTAAAATAGAACCTTAATAGGATTGAAAG AGTTCGTTTCAGGCTGAGGGATAAGACCGAAAAAAT spacer
 length: 36 repeater length: 29
 7914 846115 GTAAAATAGAACCTTAATAGGATTGAAAG ACGAGTGCCGATGCAATCAAGAACGAAGAGGACTATA spacer
 length: 37 repeater length: 29
 7915 846182 GTAAAATAGAACCTTAATAGGATTGAAAG TCTCACAAGCTTCTACGACCGAGACTGCATCGCCT spacer
 length: 35 repeater length: 29
 7916 846247 GTAAAATAGAACCTTAATAGGATTGAAAG TTCTCTGCAGTCATGGTCAGATTTCAGTCATAGCAG spacer
 length: 35 repeater length: 29
 7917 846312 GTAAAATAGAACCTTAATAGGATTGAAAG TTGGAAAGATCCGTAAGGTCTTTCTGCTGCAAATA spacer
 length: 35 repeater length: 29
 7918 846377 GTAAAATAGAACCTTAATAGGATTGAAAG AGCGACACCTGCTGGGTCGGGTGTACAAGACAAC spacer
 length: 35 repeater length: 29
 7919 846442 GTAAAATAGAACCTTAATAGGATTGAAAG TTCCTCCTCGCCATCATCTTCGACTACCGTTTCGCT spacer
 length: 35 repeater length: 29
 7920 846507 GTAAAATAGAACCTTAATAGGATTGAAAG GTTTACGGCGATCGAACTGAAGCAGTCTCACCT spacer
 length: 35 repeater length: 29
 7921 846572 GTAAAATAGAACCTTAATAGGATTGAAAG AGAAGAGATATATCCGGAACAACCTACGGGGCTACT spacer
 length: 35 repeater length: 29
 7922 846637 GTAAAATAGAACCTTAATAGGATTGAAAG ATATATATGAACGAAGTGATATATACCGGAAACCG spacer
 length: 35 repeater length: 29
 7923 846702 GTAAAATAGAACCTTAATAGGATTGAAAG CACGTTGACGGTGAAGTTCTGGACGTCAGTATAA spacer
 length: 34 repeater length: 29
 7924 846766 GTAAAATAGAACCTTAATAGGATTGAAAG TCGGAAATAAAGCGTATGCTTGATGAGGGATGGGTC spacer
 length: 36 repeater length: 29
 7925 846832 GTAAAATAGAACCTTAATAGGATTGAAAG AATGGGGATAACGGCAATTTAGAAGTGGGTTCACG spacer
 length: 36 repeater length: 29
 7926 846898 GTAAAATAGAACCTTAATAGGATTGAAAG TAGCCACCTTTCCCATCTTTATGGCCAGGAATGAAG spacer
 length: 36 repeater length: 29
 7927 846964 GTAAAATAGAACCTTAATAGGATTGAAAG AAGTACATCGCATTCTCAACTATGGCGAAACCCATGCC spacer
 length: 38 repeater length: 29
 7928 847032 GTAAAATAGAACCTTAATAGGATTGAAAG AGTAGAGAACTCTTGAGAACTGCGTTCCGCGAA spacer
 length: 35 repeater length: 29
 7929 847097 GTAAAATAGAACCTTAATAGGATTGAAAG ACGATATCCTCATCGCAGAACCCGACCGATGTGGGCAA spacer
 length: 38 repeater length: 29
 7930 847165 GTAAAATAGAACCTTAATAGGATTGAAAG ATCTGACCAACTCAAACACCACAGGCACACCCTTCAA spacer
 length: 37 repeater length: 29
 7931 847232 GTAAAATAGAACCTTAATAGGATTGAAAG GTACTTCCCCGGTGGCGAGCAATACAGCGGAAAC spacer
 length: 34 repeater length: 29
 7932 847296 GTAAAATAGAACCTTAATAGGATTGAAAG AGACGTGGCACCCTTATCGCCGACCCGCTTCCAGA spacer
 length: 36 repeater length: 29
 7933 847362 GTAAAATAGAACCTTAATAGGATTGAAAG AAAGTCACGCTGTCACCGACGTCCGTTGGGTTCTG spacer
 length: 35 repeater length: 29

7934 847427 GTAAAATAGAACCTTAATAGGATTGAAAG AATCACCAAAGGAATAGAAGAAACCGCCTCCATTACG spacer
length: 37 repeater length: 29

7935 847494 GTAAAATAGAACCTTAATAGGATTGAAAG TAATTGTACGGAGAGGTGCCTCCTGATACCGAAGC spacer
length: 35 repeater length: 29

7936 847559 GTAAAATAGAACCTTAATAGGATTGAAAG GATATATTCGGCTGCAACCTTCCTGAACATATCTTT spacer
length: 36 repeater length: 29

7937 847625 GTAAAATAGAACCTTAATAGGATTGAAAG AAAATATGGGGTACAAGACCGAAAGAAGGATAAGGG spacer
length: 36 repeater length: 29

7938 847691 GTAAAATAGAACCTTAATAGGATTGAAAG AGTTGGTAAAGTTTTTGAATGGAATACCAGACTAG spacer
length: 36 repeater length: 29

7939 847757 GTAAAATAGAACCTTAATAGGATTGAAAG TTTTTGTAGATGTTCTAGATTGGAGGACTGGATTTA spacer
length: 37 repeater length: 29

7940 847824 GTAAAATAGAACCTTAATAGGATTGAAAG ATTTTGATCTGGGCGGATGCTCCGCTGTATGATGATGT spacer
length: 38 repeater length: 29

7941 847892 GTAAAATAGAACCTTAATAGGATTGAAAG ATTTATACGGACACGGACAGTTTCTTCGTGGTAAAC spacer
length: 36 repeater length: 29

7942 847958 GTAAAATAGAACCTTAATAGGATTGAAAG AATGTGCGGAATGCTGACGCCGGCGCTGATATTCCC spacer
length: 36 repeater length: 29

7943 848024 GTAAAATAGAACCTTAATAGGATTGAAAG GTTAAGCTAACTTAAAGACCGATGAACTGGAAATT spacer
length: 36 repeater length: 29

7944 848090 GTAAAATAGAACCTTAATAGGATTGAAAG ATGAGTGGCAAATATATCATGAAATCGATGAGTT spacer
length: 34 repeater length: 29

7945 848154 GTAAAATAGAACCTTAATAGGATTGAAAG ATTGGAATCACGGTGTGATCTTAATAACAGATTTGGC spacer
length: 38 repeater length: 29

7946 848222 GTAAAATAGAACCTTAATAGGATTGAAAG CCACAAGTGAGATCGGCATAGCCCCTGCATAATAGCT spacer
length: 37 repeater length: 29

7947 848289 GTAAAATAGAACCTTAATAGGATTGAAAG CCAGAGCTTCGGCTTCTCAACCTCCGGATACGGG spacer
length: 34 repeater length: 29

7948 848353 GTAAAATAGAACCTTAATAGGATTGAAAG GCGAGAATTCAAAGCCATATATATTATCGGAAAGTC spacer
length: 36 repeater length: 29

7949 848419 GTAAAATAGAACCTTAATAGGATTGAAAG TTTATGGCTGAAATAACGGGGAATGACCCCAAATATCG spacer
length: 38 repeater length: 29

7950 848487 GTAAAATAGAACCTTAATAGGATTGAAAG TACACATTCGGCTCTTCCTTAAGCTCCGCAACGCTG spacer
length: 36 repeater length: 29

7951 848553 GTAAAATAGAACCTTAATAGGATTGAAAG AGTCTTCATTGCTTTACCCCCATAAATCAGATCCTC spacer
length: 36 repeater length: 29

7952 848619 GTAAAATAGAACCTTAATAGGATTGAAAG CTGGAACGTGATCGACTGCGAATAGCCATATTGATCC spacer
length: 37 repeater length: 29

7953 848686 GTAAAATAGAACCTTAATAGGATTGAAAG TTTGTTCAGTTCTTCTTTGAGATCTCGAAACTAT spacer
length: 36 repeater length: 29

7954 848752 GTAAAATAGAACCTTAATAGGATTGAAAG TTCCGCAAGCACTGGGGGATCCTGAATAACAGAAGAGGC spacer
length: 39 repeater length: 29

7955 848821 GTAAAATAGAACCTTAATAGGATTGAAAG TGCACGCCTGCCCTGAGATGAATCCTCTTCTTCC spacer
length: 34 repeater length: 29

7956 848885 GTAAAATAGAACCTTAATAGGATTGAAAG ACACCTGATCCGACCGAACACCCCTAAAATGAATT spacer
length: 35 repeater length: 29

7957 848950 GTAAAATAGAACCTTAATAGGATTGAAAG GTATGATGCCTGGACAGTCTGCCCCTGGTCAAATG spacer
length: 35 repeater length: 29

7958 849015 GTAAAATAGAACCTTAATAGGATTGAAAG GTTCTGGAGTGGCTGGCTTATCGCGACTGAATGTA

7959

7960

7961 GCA_000200715.1_ASM20071v1_genomic.fna(findCrispr):

7962 START REPEAT
SPACER

7963 crispr 1

7964 1007851 CACCAA
CAGGTATGAACTACGAGATCATGGGCGCAGACGATCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGC
ATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCG spacer length: 137 repeater
length: 6

7965 1007995 CACCAA
CAGGTATGAACTACGAGATCATGGGTGCAGACGGTCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGC
ATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCG spacer length: 137 repeater
length: 6

7966 1008139 CACCAA
CAGGTATGAACTACGAGATCATGGGCGCAGACGATCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGC
ATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCG spacer length: 137 repeater
length: 6

7967 1008283 CACCAA
CAGGTATGAACTACGAGATCATGGGCGCAGACGATCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGC
ATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCG spacer length: 137 repeater
length: 6

7968 1008427 CACCAA
 CAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGC
 ATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCG spacer length: 137 repeater
 length: 6
 7969 1008571 CACCAA
 CGTGGTCGTATCCCAGCTGAGCACCGTGGCTGTCTCCGACGCGCTCATGTTCTCTGATGTTCCCGGGCGGTCCGCGTGCCGGTAG
 AGCACGAAGCAATCGCCATAGAGACGCCCTGCACTCTGATGATTCCATGG
 7970
 7971
 7972 crispr 2
 7973 1669067 GCAGCACCACCCGCGGACAA ACCTGCAGAGGTAAAACCTGCCGCGGACAAACCTGAAGTAAAACC spacer
 length: 45 repeater length: 20
 7974 1669133 GCAGCACCACCCGCGGACAA ACCTGCAGAGCTAAAACCTGCCGCGGACAAACCGGCGGAAACCAAACC spacer
 length: 48 repeater length: 20
 7975 1669202 GCAGCACCACCCGCGGACAA ATGGTCACCCTGTCCGATACTGCGGGCTCGTCGGGCGCCATTCTCATG
 7976
 7977
 7978 crispr 3
 7979 1007790 GGGCCC
 CGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGG
 CGCAGACGATCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGG spacer length: 137 repeater
 length: 6
 7980 1007934 GGGCCC
 CGCATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGG
 TGCAGACGGTCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGG spacer length: 137 repeater
 length: 6
 7981 1008078 GGGCCC
 CGCATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGG
 CGCAGACGATCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGG spacer length: 137 repeater
 length: 6
 7982 1008222 GGGCCC
 CGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGG
 CGCAGACGATCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGG spacer length: 137 repeater
 length: 6
 7983 1008366 GGGCCC
 CGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGG
 CGCAGACGATCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGG spacer length: 137 repeater
 length: 6
 7984 1008510 GGGCCC
 GCTCTTCAACTTTTCTACCGCCTTATCTGCCGCGGCCAGATCCTCCGGCGTCGCCCTGTATTTCTCGGGTACCGGGAATGGCTCA
 ACGGTGCCATGATGCGACTCTTCAACTTTTCTACCGCCTTATCTGCCGCG
 7985
 7986
 7987 crispr 4
 7988 1007898 GTAGG
 CGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCCGCATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAG
 TGCCGGCACCAACAGGTATGAACTACGAGATCATGGGTGCAGACGGTCCCAC spacer length: 138 repeater
 length: 5
 7989 1008042 GTAGG
 CGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCCGCATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAG
 TGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCAC spacer length: 138 repeater
 length: 5
 7990 1008186 GTAGG
 CGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCCGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAG
 TGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCAC spacer length: 138 repeater
 length: 5
 7991 1008330 GTAGG
 CGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCCGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAG
 TGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCAC spacer length: 138 repeater
 length: 5
 7992 1008474 GTAGG
 GCTCAACGCTGCCATAAAGTGGCTCTTCAACTTTTCTACCGCCTTATCTGCCGCGGCCAGATCCTCCGGCGTCGCCCTGTATTTCT
 TCGGGTACCGGGAATGGCTCAACGGTGCCATGATGCGACTCTTCAACTTTTC
 7993
 7994
 7995 crispr 5
 7996 1980450 TCCCTGTCGCGCCTTCTATC
 CCCGAAGCTGTACCCGCGCCGCTATCACCAGAGTCTCCCGGTCACGCCGCTGTCCGCAAAATC spacer length: 66
 repeater length: 20
 7997 1980537 TCCCTGTCGCGCCTTCTATC GCCAAAGTCCCCGCGCCTTCTATCACCAGTC spacer length: 30
 repeater length: 20

7998 1980588 TCCCTGTCGCGCCTTCTATC TCCCCGACGTTCCCCGAGCCCCGTTGTGCCCC
 7999
 8000
 8001 crispr 6
 8002 1007818 TGATGG
 AGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCACAGTAGGCGATGAC
 GAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTATCCGAC spacer length: 137 repeater
 length: 6
 8003 1007962 TGATGG
 AGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGGTGCAGACGGTCCCACAGTAGGCGATGAC
 GAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTATCCGAC spacer length: 137 repeater
 length: 6
 8004 1008106 TGATGG
 AGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCACAGTAGGCGATGAC
 GAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTGGGTGAT spacer length: 137 repeater
 length: 6
 8005 1008250 TGATGG
 AGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCACAGTAGGCGATGAC
 GAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTGGGTGAT spacer length: 137 repeater
 length: 6
 8006 1008394 TGATGG
 AGCTCGTCGATGATGCAGCAGTGCCGGCACCAACAGGTATGAACTACGAGATCATGGGCGCAGACGATCCCACAGTAGGCGATGAC
 GAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTATCCGAC spacer length: 137 repeater
 length: 6
 8007 1008538 TGATGG
 TATGAACTACGAGATCATGGGTGCAGACGATCCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGG
 TAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCAC
 8008
 8009
 8010 crispr 7
 8011 1721212 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTTCGGGCTTCTTGGGCTCCGGCTTCTCGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCCCTTTGGCATAGTGCCGC
 GGGGAGACTGCGGTTTCGGGCTTCTTGGGCTCTGGTTTGGTGCTGGTCTTTTCAAATCC spacer length: 144
 repeater length: 20
 8012 1721377 TTTGGCAGGGTGCCGCGGGG
 AGACTGTGGTTCTGCGGGCTTGGGTTTCTAGGCTTGGGTTTCTCTGGTTTCTAGGGGCGGCACTGGGTTTTTCAAATCC spacer
 length: 75 repeater length: 20
 8013 1721473 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTCTGCGGGCTTGGGTTTCTAGGCTTGGGTTTCTCTGGTTTCTAGGGGCGGCACTGGGTTTTTCAAATCC spacer
 length: 75 repeater length: 20
 8014 1721569 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTCTGTAGGCTTGGGCTCCGGCTTCTTGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCC spacer length:
 69 repeater length: 20
 8015 1721659 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTTCGGGCTTCTTGGGCTCCGGCTTCTCGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCC spacer length:
 69 repeater length: 20
 8016 1721749 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTTCGGGCTTGGGCTCCGGCTTCTCGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCC spacer length: 66
 repeater length: 20
 8017 1721836 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTTCGGGCTTGGGCTCCGGCTTCTCGGGCTCTGGTTTAGCGCTGGACTTTTCAAATCCTTTTGGCAGGCTGCCGCGGG
 GCGACTGTGGTTTCGGGCTTGGGCTCCGGCTTCTCGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCC spacer length:
 153 repeater length: 20
 8018 1722010 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTTCGGGCTTGGGCTCCGGCTTGGGTTTCTCGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCC spacer
 length: 72 repeater length: 20
 8019 1722103 TTTGGCAGGGTGCCGCGGGG
 CGACTGTGGTTCTGTAGGCTTGGGCTCCGGCTTCTTGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCC spacer length:
 69 repeater length: 20
 8020 1722193 TTTGGCAGGGTGCCGCGGGG CGACTGTGGTTTCGGGCTTCTTGGGCTCTGGTTTAGTGCTGGGTTTTTCAAATCC
 spacer length: 54 repeater length: 20
 8021 1722268 TTTGGCAGGGTGCCGCGGGG TTGGCTTGCCGCCGTCTATAACGCCCGGCGCATCATCTCTGATATTGTGCCCA
 8022
 8023
 8024 crispr 8
 8025 699597 AAGG GCATGAGGGCCGAGATGCTCCCCAAAAGGATATGGTCGAGATGGCCGAGAACAT spacer length:
 55 repeater length: 4
 8026 699657 AAGG GCATGAGGGCCGAGATGCTCCCCAAAAGGATATGGCCGAGATGGCCGAGAACAT spacer length:
 55 repeater length: 4
 8027 699717 AAGG GCATGAGGGCCGAGATGCTCCCCAAAAGGATATGGCCGAGATGGCCGAGAACAT spacer length:
 55 repeater length: 4

8028 699777 AAGG ACGTGGTTCGTATCCCAGCTGAGCACCGTGGCTGTCTCCGACGCGCTCATGTTCTC
 8029
 8030
 8031 crispr 9
 8032 1499035 AAGTGGTAGAGCCCGTGGAGG TCCCGCAGGTATCTGAGCCT spacer length: 20 repeater
 length: 21
 8033 1499077 AAGTGGTAGAGCCCGTGGAGG CGGAGCCTCCGAGGTGCGCGAGCCT spacer length: 26 repeater
 length: 21
 8034 1499125 AAGTGGTAGAGCCCGTGGAGG GGGCCTTGCCACCATTGCGGATACTG
 8035
 8036
 8037 crispr 10
 8038 1498161 CCCACTGTATCCGACGCAGGTG
 CTAGGGTCCACAACAGGGGGCCAATCATAGTTACGGCATCAGATACGCCCCGACGTAGCAGACGCAGGTGCTCGGGTACACGACGGC
 GGGCCAATCGTACTTATGCCGTCCGATAC spacer length: 115 repeater length: 22
 8039 1498299 CCCACTGTATCCGACGCAGGTG CTCGGGTACACGACGGCGGGCCAATCGTGCTTATGCCGTCCGATAC spacer
 length: 46 repeater length: 22
 8040 1498368 CCCACTGTATCCGACGCAGGTG CCCGTTGTGCCCCGAGCCCCGCCGCAACTGTTCCCGCTCCAACCGTTC
 8041
 8042
 8043 crispr 11
 8044 296037 CGCAAGCCTGCTGGCCGCAAACC
 AGCGGCGAAGAAGGGTGCCAAACGACGCAAGTACCCGGCAGGAAGCCCGCAGG spacer length: 54 repeater
 length: 23
 8045 296115 CGCAAGCCTGCTGGCCGCAAACC
 AGCGGCGAAGAAGGGCGCCAAGCGGCGAAAGTCGCCTGGCAGAAAGCCCGCAGG spacer length: 54 repeater
 length: 23
 8046 296193 CGCAAGCCTGCTGGCCGCAAACC TCACCCTGTCCGATACTGCGGGCTCGTCGGGCGCCATTCTCATGCCGCCACTCG
 8047
 8048
 8049 crispr 12
 8050 1534165 CTCATCGAATGCAATCTCGTGCCCC
 GTCCAGTCAGCCCTGCCGGCCCCAACCTCCTGGCATCATCTGCAACCGGTACGG spacer length: 55 repeater
 length: 25
 8051 1534246 CTCATCGAATGCAATCTCGTGCCCC
 GTCCAGTCAGCCCTGCCGGTCTCTCCGTTGCACTGTCCACTATCGGTACAGACTCATCGAATGCAATCCCGAGCCCCATCCCCGT
 CAGACCGTTTATCCCCCTCGTGCCGTCATCTACAACCGGTACAG spacer length: 130 repeater length: 25
 8052 1534402 CTCATCGAATGCAATCTCGTGCCCC
 ACTTTTCTACCGCCTTATCTGCCGCGGCCAGATCCTCCGGCGTGCCTGTATTTCTCGGGTACCGGGAATGGCTCAACGGTGCC
 ATGATGCGACTCTTCAACTTTTCTACCGCCTTATCTGCCGCGG
 8053
 8054
 8055 crispr 13
 8056 500306 CTTGCATTTATCATCCCCATTGTGATG
 ATATCCCCTGACGCTTCCACGACTGGCGCATCCTTTGCGTGAAGGTGCACATTCAACTTAACTGCATCTGCCAGCCTGCCTACATC
 spacer length: 86 repeater length: 27
 8057 500420 CTTGCATTTATCATCCCCATTGTGATG
 ATATCCCCTGACGCTTCCACGACGGGCGCATCTTTTGCCAGAAGGTGCACATTACGCATCTGCCGGCCGTCTATGTC
 spacer length: 86 repeater length: 27
 8058 500534 CTTGCATTTATCATCCCCATTGTGATG
 CGATGAAGGTATGCGGATGCATGTGTTCCCAAATGTACATGATCACAGAAGAGGACAGCCCCACATTACCGACCCCGGCA
 8059
 8060
 8061 crispr 14
 8062 436201 GCGCCGTCGTCCACGACGGGCGTGCTC TTTGCAATTGCATCTGTTCTAGAACGGCTGC spacer length:
 32 repeater length: 27
 8063 436261 GCGCCGTCGTCCACGACGGGCGTGCTC CTGGCAATTGCATCTGTTCTAGAACGGCCGT spacer length:
 32 repeater length: 27
 8064 436321 GCGCCGTCGTCCACGACGGGCGTGCTC CGTGCCCGAGCCCGTTGTGCCCGAGCCCGCCG
 8065
 8066
 8067 crispr 15
 8068 1434883 ATGCCGCGGCTGCACGGAACATCTAGCGC GCAAACATCAGCAGTTTGATCACCATA spacer length: 27
 repeater length: 29
 8069 1434940 ATGCCGCGGCTGCACGGAACATCTAGCGC GCAAACATCAGCAGTTTGATCACCATC spacer length: 27
 repeater length: 29
 8070 1434997 ATGCCGCGGCTGCACGGAACATCTAGCGC CCAGCTCCTCCGGCGTCGCCCTGTATT
 8071
 8072
 8073 crispr 16
 8074 1391471 CGGGCATCAGCCGACAGGACAATCGATT

GGGGACCGTGATGAGAGCAGCAGCCGATGCCCTATCGATAGCTGACAGTGTGGCAGTATCCGCAATGGCGGCAAGGCCAGCAACTG
 ATGCACCTACGGTTGCAGA spacer length: 105 repeater length: 29
 8075 1391606 CGGGCATCAGCCGACAGGACAATCGATT
 GGGGACCGTGATGAGAGCAGCAGCCGATGCCCTATCGATAGCTGACAGTGTGGCAGTATCCGCAATGGCGGCAAGGCCAGCAACTG
 ATGCACCTGCGGTTGCCGA spacer length: 105 repeater length: 29
 8076 1391741 CGGGCATCAGCCGACAGGACAATCGATT
 GAAGGGTGTC AAGCGCGAAAGACCACCAAAAAGACTGCCGCAAAAAGAAAGGTCCGCGCTAGGCGCGCAGGGCTTCGATTAAACA
 GCCGCCGGCCTGGCCGGCG
 8077
 8078
 8079 crispr 17
 8080 856824 GCATCCATATCCGAAGGAGATTCCCCGTC
 GTTTGAGGATACATCGGGTGCGGATACCACGGGGAAGATAGGCGAGGCGGATGCGCCGGCAGTGGGCGAGGATTACACCCTGGCCC
 GGAC spacer length: 90 repeater length: 29
 8081 856944 GCATCCATATCCGAAGGAGATTCCCCGTC
 ATTTGAGGATGTATCGGGCACGGATACCACGGGGAAGATAGGCGAGACGGATGCGCCGGCAGTGGACGAGGATTACACCCTGGCCC
 GGAC spacer length: 90 repeater length: 29
 8082 857064 GCATCCATATCCGAAGGAGATTCCCCGTC
 TATCTGCCGCGGCCAGATCCTCCGGCGTCGCCCTGTATTTCTCGGGTACCGGGAATGGCTCAACGGTGCCATGATGCGACTCTTCA
 ACTT
 8083
 8084
 8085 crispr 18
 8086 1154110 ATAGAGGCGGCAGTATCAAAGCTCTCAGAG
 GTACAGCCCGCCGGGCGGCCAGGAATCAGGCATGATGGATAGGCTCTCTGGAATAGAGGCGGCAATAGCAAAGCTCACAGAGGTACA
 GCCGCCCGGAGGACAGGAACCATCCGATATATCGGCGAGGCTCTCCGG spacer length: 134 repeater length:
 30
 8087 1154275 ATAGAGGCGGCAGTATCAAAGCTCTCAGAG
 GTGCAGCCCGCCGGGCGGCCAGGAATCAGGCATGACGGATAGGCTGTCCGGC spacer length: 50 repeater
 length: 30
 8088 1154356 ATAGAGGCGGCAGTATCAAAGCTCTCAGAG
 TTGTGAGCCCGAGGTGGTAGAATCTGAAGTGGCGGAGCCCGTGGAGGCG
 8089
 8090
 8091 crispr 19
 8092 261043 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA CTGTTCCCGCTCCAACCGTCCCCGACGT spacer length:
 28 repeater length: 31
 8093 261103 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA ATGTTCCCGCTCCAACCGTCCCCGACGT spacer length:
 28 repeater length: 31
 8094 261163 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA CTGTTCCCGCTCCAACCGTCCCCGACGT spacer length:
 28 repeater length: 31
 8095 261223 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA ATGTTCCCGCTCCAACCGTCCCCGACGT spacer length:
 28 repeater length: 31
 8096 261283 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA ATGTTCCCGCTCCAACCGTCCCCGACGT spacer length:
 28 repeater length: 31
 8097 261343 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA CTGTTCCCGCTCCAACCGTCCAGACGT spacer length:
 28 repeater length: 31
 8098 261403 CCCGAGCCCGTTGTGCCCCGAGCCCGCCGCAA CGCGCGAGATAGGCGGGCCCGGCTTGAC
 8099
 8100
 8101 crispr 20
 8102 699584 GGCC GAGAACATCAAGGGCATGAGGGCCGAGATGCTCCCCAAAAAGGATATGGTCGAGA spacer length:
 55 repeater length: 4
 8103 699644 GGCC GAGAACATCAAGGGCATGAGGGCCGAGATGCTCCCCAAAAAGGATATGGCCGAGA spacer length:
 55 repeater length: 4
 8104 699704 GGCC GAGAACATCAAGGGCATGAGGGCCGAGATGCTCCCCAAAAAGGATATGGCCGAGA spacer length:
 55 repeater length: 4
 8105 699764 GGCC CTTGTCACTCCTGTCGTGTATGTCGTAATCCCATTCGCCTATGTCAAAGATCTCG
 8106
 8107
 8108 crispr 21
 8109 242555 GAGTGCATTCCATAATCCTTGTCACTCCTGTCGTG CATGCCGTGCCCCTTGTACCCATGCC spacer
 length: 27 repeater length: 35
 8110 242618 GAGTGCATTCCATAATCCTTGTCACTCCTGTCGTG
 CATGCCGTGCCCCTTGTACCCATGCCAGAGTGCATTCCGTGCCCCTTGTACCCATGCC spacer length: 60
 repeater length: 35
 8111 242714 GAGTGCATTCCATAATCCTTGTCACTCCTGTCGTG
 TTTTCTACCGCCTTATCTGCCGCGGCCAGATCCTCCGGCGTCGCCCTGTATTTCTCGGG
 8112
 8113
 8114 crispr 22

8115 171875 GCCTCGCCCATTCCTTGGGCAGTGTGCCTTTTGG TTTTTCGGTGGTTCAGGCTGTGCTGCAGGCTT spacer
 length: 33 repeater length: 35
 8116 171944 GCCTCGCCCATTCCTTGGGCAGTGTGCCTTTTGG
 CTTTGTGGGCTCTGGTTTTGGCTCTGCGGGTTTTGCCTCGCCCATTCCTTTGGCAGTGTGCCTTTTGGTTTTTTCGGTGGTTCAG
 GCTGTGCTGTAGGCTT spacer length: 102 repeater length: 35
 8117 172082 GCCTCGCCCATTCCTTGGGCAGTGTGCCTTTTGG
 GCGCGTTGTGCCCCGAGCCCCGCCAAGTGTCCCGCTCCAACCGTTCCAGACGTGCCCGAGCCCGTTGTGCCCGAGCCCCGCCGAA
 ATGTTCCCCGCTCCGGA
 8118
 8119
 8120 crispr 23
 8121 17953 CGGATGATTCACCGGCGGCCTTGGCCCCGGGATCGC CCTTTTCTTTGGCCCCCTGTATCG spacer length: 23
 repeater length: 36
 8122 18013 CGGATGATTCACCGGCGGCCTTGGCCCCGGGATCGC TCTCCGCTTTGACCCCGGGTTCG spacer length: 23
 repeater length: 36
 8123 18073 CGGATGATTCACCGGCGGCCTTGGCCCCGGGATCGC GTCTACACCGGGCGTGCTCCTCG
 8124
 8125
 8126 crispr 24
 8127 344555 CTCCGGCGCGGTCCGGGCGATATGCAGTGGCCTCCCGG
 TCTGCGGATCGGGATCCGTTCTCCGATCCGGCGCGGCAGGATATGGAATGACCGCGGCC spacer length: 60
 repeater length: 38
 8128 344654 CTCCGGCGCGGTCCGGGCGATATGCAGTGGCCTCCCGG
 TCTGCGGATCGGGATCCGTTCTCCGATCCGGCGCGGCAGGATATGGAATGACCGCGGCC spacer length: 60
 repeater length: 38
 8129 344753 CTCCGGCGCGGTCCGGGCGATATGCAGTGGCCTCCCGG
 TCTGCGGATCGGGATCCGTTCTCCGATCCGGCGCGGCAGGATATGGAATGACCGCGGCT spacer length: 60
 repeater length: 38
 8130 344852 CTCCGGCGCGGTCCGGGCGATATGCAGTGGCCTCCCGG
 CGTCTGCAATGCCCCGGCGCATCAACTTCCATTATAATGGACATCTTTGCCAGCTGCAGGC
 8131
 8132
 8133 crispr 25
 8134 1506025 ACCCGCGTGCCGCAGATCCACACGGTCAACGTCTCCGATG
 ATCCCGTGCCGGCAACCATGGGCAATACAAACGTACAGGGCGGCAGCAGCACATGGCGCCTGGACTTGATAAGCCCCTGTTGACG
 AGCAGCGGTGCGGCGGATCA spacer length: 106 repeater length: 40
 8135 1506172 ACCCGCGTGCCGCAGATCCACACGGTCAACGTCTCCGATG
 ATCCCGTGCCGGCAACCATGGGCAATACAAACGTACAGGGCGGCAGCAGCACATGGCGCCTGGAGTTGATACGCCCTGTTGACG
 AGCAGCGGCGCGGCAGATCA spacer length: 106 repeater length: 40
 8136 1506319 ACCCGCGTGCCGCAGATCCACACGGTCAACGTCTCCGATG
 GATAGGCGGGCCCCGGCTTGACAACGGTGGTTCGATACGATGAAGCTCAGTGACGATGTTGCCGTGCTGCCGATCAGGGCGCCGATCC
 CGATCAACGGTTCCGACAAT
 8137
 8138
 8139 crispr 26
 8140 801942 AGGGCGCCGATCCCGATCAACGGTTCCGACAATCCCACAG
 TGATGGAGAACAACAGTGCCACGCGGAGATAGGCGGGCCCCGGCTTGACAACGGTGGTTCGATACGATGAAGCTCGTCGATGATGTT
 GCCGTGCTGCCGAT spacer length: 100 repeater length: 40
 8141 802083 AGGGCGCCGATCCCGATCAACGGTTCCGACAATCCCACAG
 TGATAGAGAACAACAGTGCCACGCGGAGATAGGCGGGCCCCGGCTTGACAACGGTGGTTCGATACGATGAAGCTCGTCGATGATGTT
 GCCGTGCTGCCGAT spacer length: 100 repeater length: 40
 8142 802224 AGGGCGCCGATCCCGATCAACGGTTCCGACAATCCCACAG
 TGATAGAGAACAACAGTGCCACGCGGAGATAGGCGGGCCCCGGCTTGACAACGGTGGTTCGATACGATGAAGCTCGTCGATGATGTT
 GCCGTGCTGCCGAT spacer length: 100 repeater length: 40
 8143 802365 AGGGCGCCGATCCCGATCAACGGTTCCGACAATCCCACAG
 GGGCACGGCAAAATATCGCAGGGATGCCGCGGGTGCACATGATAGGCGGTCTTGATAAGCTGATACTGGGATCCGCGGGCACCACAA
 ATGCCACCATGGTA
 8144
 8145
 8146 crispr 27
 8147 1913024 AGTGCCCCAGGTGCACGACCGGCCAGCCTCCGACGCGCCC TCATTCTCTGACATATCCACCGCGTTAGTTACGA
 spacer length: 34 repeater length: 40
 8148 1913099 AGTGCCCCAGGTGCACGACCGGCCAGCCTCCGACGCGCCC TCATTCTCTGACATATCCACCGCGTTAGTTACGA
 spacer length: 34 repeater length: 40
 8149 1913174 AGTGCCCCAGGTGCACGACCGGCCAGCCTCCGACGCGCCC TCATTCTCTGAAATGTCCACCGCGTTGATCACGG
 spacer length: 34 repeater length: 40
 8150 1913249 AGTGCCCCAGGTGCACGACCGGCCAGCCTCCGACGCGCCC TCATTCTCTGAAATGTCCACCGCGTTGATCACGG
 spacer length: 34 repeater length: 40
 8151 1913324 AGTGCCCCAGGTGCACGACCGGCCAGCCTCCGACGCGCCC CAGTAGGCGATGACGAGATGGTCATGCGTAATCC
 8152
 8153

8154 crispr 28
 8155 243278 CCGTACTTGTCATGCATGCCCTTTTCCATGTGGCCCATT C TATCGCCCATCTTGTCCGTCATATT spacer
 length: 25 repeater length: 40
 8156 243344 CCGTACTTGTCATGCATGCCCTTTTCCATGTGGCCCATT C TATCGCCCATCTTGTCTGTCATGTT spacer
 length: 25 repeater length: 40
 8157 243410 CCGTACTTGTCATGCATGCCCTTTTCCATGTGGCCCATT C TATCGCCCATCTTGTCTGTCATATT spacer
 length: 25 repeater length: 40
 8158 243476 CCGTACTTGTCATGCATGCCCTTTTCCATGTGGCCCATT C GCCTGCCGTCGATGACATGATGGAT
 8159
 8160
 8161 crispr 29
 8162 272349 CGGCATCTTCGACCTGCCCAGCCTCTCTGCCGCAACCGGG
 TCGCCCGCCTTTACCCTGTATTTCTCGGGCAGCTCGATGCTGTCATAGGATGTCCTATCCACCT spacer
 length: 73 repeater length: 40
 8163 272463 CGGCATCTTCGACCTGCCCAGCCTCTCTGCCGCAACCGGG
 TCACCCGCCTTTACCCTGTATTTCTGGGGCAGCTCGATGCTGTCATAGGATGTCCTATCCACCT spacer
 length: 73 repeater length: 40
 8164 272577 CGGCATCTTCGACCTGCCCAGCCTCTCTGCCGCAACCGGG
 GGCCCCGCATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCACAGGTAT
 8165
 8166
 8167 crispr 30
 8168 427634 CGGGCTCGTCGGGCGCCATTCTCATGCCGCCACTCGGGGC
 CAATCCGCCATCGCCCAGCTCCGGCGTATCTGAAACCTGCAGCTCTGCACCGATGGTCACCCTGTCCGATACT spacer
 length: 73 repeater length: 40
 8169 427748 CGGGCTCGTCGGGCGCCATTCTCATGCCGCCACTCGGGGC
 CAATCCGCCATCGCCCAGCTCCGGCGTATCTGAAACCTGCAGCTCTGCACCGATGGTCACCCTGTCCGATACT spacer
 length: 73 repeater length: 40
 8170 427862 CGGGCTCGTCGGGCGCCATTCTCATGCCGCCACTCGGGGC
 ACTCGCGCCATCTGCCAGCTCCGGCGTATCTGAAACCTGCAGCTCTGCACCGATGGTCACCCTGTCCGATACT spacer
 length: 73 repeater length: 40
 8171 427976 CGGGCTCGTCGGGCGCCATTCTCATGCCGCCACTCGGGGC
 CGCCCCGCGCATCATCTCCTGATATTGTGCCCATGCGGGCTGTAATGGCGCCGTCGCTAACTACGGGCTTACT
 8172
 8173
 8174 crispr 31
 8175 1791234 CTGTCGGCTGATGCCCCGTTCTGCAACCGTAGGTGCATCAG
 ATACCGGTCTTGCCGCCATTGCAGATACTGCCACACTATCAGCTATCGATAGGGCATCGGCTGCTGATCTCATCACCTCTCCTGAA
 TCGATTGT spacer length: 94 repeater length: 40
 8176 1791369 CTGTCGGCTGATGCCCCGTTCTGCAACCGTAGGTGCATCAG
 TTGCGGGCCTTGCCACCATTGCGGATACTGACACGCTGTCGGCGAGGGATAGGGCATCGGCTGCTGATCTCATCACCTCTCCTGAA
 TCGATTAT spacer length: 94 repeater length: 40
 8177 1791504 CTGTCGGCTGATGCCCCGTTCTGCAACCGTAGGTGCATCAG
 TTGCGGGCCTTGCCACCATTGCGGATACTGCCACACTGTCGGCGAGGGATAGGGCATCGGCTGCTGATCTCATTACCTCTCCTGAA
 TCGATTGT spacer length: 94 repeater length: 40
 8178 1791639 CTGTCGGCTGATGCCCCGTTCTGCAACCGTAGGTGCATCAG
 TTGCGGGCCTTGCCACCATTGCGGATACTGCCACACTGTCGGCGAGGGATAGGGCATCGGCTGCTGATCTCATTACCTCTCCTGAA
 TCGATTGT spacer length: 94 repeater length: 40
 8179 1791774 CTGTCGGCTGATGCCCCGTTCTGCAACCGTAGGTGCATCAG
 CCCACAGTAGGCGATGACGAGATGGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGA
 TGATGCAG
 8180
 8181
 8182 crispr 32
 8183 1918919 CTTGCAAACCACGTGGTCGTATCCCAGCTGAGCACCGTGG
 CCGTCTCCGACGCGCTCATCTTCTCTGATGTTCCCGGGGCGGTCCGCGTGCCGTGTAGACCACGAAGCAATCGCCATCGACGCGCTC
 CTGCCCTCCGATGGCGG spacer length: 103 repeater length: 40
 8184 1919063 CTTGCAAACCACGTGGTCGTATCCCAGCTGAGCACCGTGG
 CCGTCTCCGACGCGCTCATGTTCTCTGATGTTACCGGGGCGGTCCGCGTGCCGGTAGAGCACGAAGCAATCGCCATCGACGCGCTC
 CTGCCCTCCGATGGCGG spacer length: 103 repeater length: 40
 8185 1919207 CTTGCAAACCACGTGGTCGTATCCCAGCTGAGCACCGTGG
 CGACGCGCTCATGTTCTCTGATGTTCCCGGGGCGGTCCGCGTGCCGGTAGAGCACGAAGCAATCGCCATAGAGACGCCCTGCACT
 CTGATGATTCCATGGCG
 8186
 8187
 8188 crispr 33
 8189 802647 GCGCCGATCCCGATCAACGGTTCCGACAATCCCACGGTGA
 TAGAGAACAACAGTGCCACGCGCGAGATAGGCGGGCCCGGCTTGACAACGGTGGTCGATACGATGAAGCTCGTCGATGATGTTGCC
 GTGCTGCCGATCAG spacer length: 100 repeater length: 40
 8190 802788 GCGCCGATCCCGATCAACGGTTCCGACAATCCCACGGTGA
 TAGAGAACAACAGTGCCACGCGCGAGATAGGCGGGCCCGGCTTGACAACGGTAGTCGATACGATGAAGCTCAGTGACGATGTTGCC

GTGCTGCCGATCAG spacer length: 100 repeater length: 40
 8191 802929 GCGCCGATCCCGATCAACGGTTCGACAATCCCACGGTGA
 TAGAGAACAACAGTGCCACGCGGAGATAGGCGGGCCCGGCTTGACAACGGTAGTCGATACGATGAAGCTCAGTGATTATGTTGCC
 GTGCTGCCGATCAG spacer length: 100 repeater length: 40
 8192 803070 GCGCCGATCCCGATCAACGGTTCGACAATCCCACGGTGA
 TAGAGAACAACAGTGCCACGCGGAGATAGGCGGGCCCGGCTTGACAACGGTGGTCGATACGATGAAGCTCAGTGACGATGTTGCC
 GTGCTGCCGATCAG spacer length: 100 repeater length: 40
 8193 803211 GCGCCGATCCCGATCAACGGTTCGACAATCCCACGGTGA
 TAGAGAACAACAGTGCCACGCGGAGATAGGCGGGCCCGGCTTGACAACGGTGGTCGATACGATGAAGCTCAGTGACGATGTTGCC
 GTGCTGCCGATCAG spacer length: 100 repeater length: 40
 8194 803352 GCGCCGATCCCGATCAACGGTTCGACAATCCCACGGTGA
 CTTTTCCTACCGCCTTATCTGCCGCGCCAGATCCTCCGGCGTCGCCCTGTATTTCTCGGGTACCGGGAATGGCTCAACGGTGCCA
 TGATGCGACTCTTC
 8195
 8196
 8197 crispr 34
 8198 857873 GCTGCAGGCATCCGATGCGCCCGTCGTGGAGGATATGATG
 GATACTACAGTTGAGGGAATGTACAGGTTTGACGAGAGGGACGGGCCAGGCATTACGGATGGCGCCGGCCTCGGGGTCT
 spacer length: 79 repeater length: 40
 8199 857993 GCTGCAGGCATCCGATGCGCCCGTCGTGGAGGATATGATG
 AATACTATCGTTGAGGGAATGTACAAGTTTGACGAGAGGGACGGGCCCGGCATTGCAGATGGCGCCAGCCTCGGGGTCT
 spacer length: 79 repeater length: 40
 8200 858113 GCTGCAGGCATCCGATGCGCCCGTCGTGGAGGATATGATG
 CGCCGGTTCTTGAAACCATGGGCACGGCAAATATCGCAGGGATGCCGCGGGTGCACATGATAGCGGTCTTGATAAGCT
 8201
 8202
 8203 crispr 35
 8204 439488 GGGCTTACTTGTCCCTTCTGCAACATCCTTGCCCATTACT
 TTTGGCTTGCCGCCGTCTATAACGCCTGGCGCATCATCTCCTGATATTGTGCCCATGCGGGCTGTCGTGGCGCCGTGCTAACTA
 spacer length: 85 repeater length: 40
 8205 439614 GGGCTTACTTGTCCCTTCTGCAACATCCTTGCCCATTACT
 TTTGGCTTGCCGCCGTCTATAACGCCCGCGCATCATCTCCTGATATTGTGCCCATGCGGGCTGTAATGGCGCCGTGCTAACTA
 spacer length: 85 repeater length: 40
 8206 439740 GGGCTTACTTGTCCCTTCTGCAACATCCTTGCCCATTACT
 CGCGCTGGGGCTTGCCCGGATGGCAGCCGACAGGCCTGCCGTGATGACATGATGGATACGGGTAGTGAGAGCACGAGCAGGCTT
 8207
 8208
 8209 crispr 36
 8210 575473 GTACCAGAAATGGCTCAACGCTGCCATAAAGTGGCTCTTC
 AACTTTTCCTACTGGCTCATCTGGCGCAGCCAGCTCCTCCGGCGTCGCCCTGTATTTCTTG spacer length: 61
 repeater length: 40
 8211 575575 GTACCAGAAATGGCTCAACGCTGCCATAAAGTGGCTCTTC
 AACTTTTCCTACTGGCTCATCTGGCGCAGCCAGCTCCTCCGGCGTCGCCCTGTATTTCTCG spacer length: 61
 repeater length: 40
 8212 575677 GTACCAGAAATGGCTCAACGCTGCCATAAAGTGGCTCTTC
 AACTTTTCCTACTGGCTCATCTGGCGCAGCCAGCTCCTCCGGCGTCGCCCTGTATTTCTCG spacer length: 61
 repeater length: 40
 8213 575779 GTACCAGAAATGGCTCAACGCTGCCATAAAGTGGCTCTTC
 CACCGCGTTAGTTACGGTGGCATCCGTAATGCACGACCTGCCCGTCTCCGACGCGCCTGTT
 8214
 8215
 8216 crispr 37
 8217 1187844 GTGCCGGGATGTACGACCGCAGCCCGGACGACGGGCCCCG
 CGTATCCGACAGGTCCGCGCTGGGGCTTGCCCGATGGCAGCCGACAGGCCTGTAGTCGATGACATGATGGATACGGAT
 spacer length: 79 repeater length: 40
 8218 1187964 GTGCCGGGATGTACGACCGCAGCCCGGACGACGGGCCCCG
 CGTATCCGACAGGTCCGCGCTGGGGCTTGCCCGATGGCAGCCGACAGGCCTGTAGTCGATGACATGATGGATACGGAC
 spacer length: 79 repeater length: 40
 8219 1188084 GTGCCGGGATGTACGACCGCAGCCCGGACGACGGGCCCCG
 CCGGGTTGCGCGGATGATTCACCGGCGGCCTTGCCCTCGGGATCGCCCTCCACTTTGGCCCCGGGATCGCCCTTCTCTC
 8220
 8221
 8222 crispr 38
 8223 526609 GTTTCCAATTGCGGCGTGA CTCCCTTCCCGCTTGGGCACG
 CCGCCGTCTGCAACACTCGGCGTATCATCTGCCGTTATATCCCCATGCGCGATACAGTGGCCTCATCAACCACGATGACCGTGC
 spacer length: 85 repeater length: 40
 8224 526735 GTTTCCAATTGCGGCGTGA CTCCCTTCCCGCTTGGGCACG
 CCGCCGTCTGCAACACTCGGCGCATCATCTGCCGTTATATCCCCATGCGCGATACAGTGGCCTCATCAACCACGACGGCCGTGC
 spacer length: 85 repeater length: 40
 8225 526861 GTTTCCAATTGCGGCGTGA CTCCCTTCCCGCTTGGGCACG
 ATACTGCCACACTGTCGGCGAGGGATAGGGCATCGGCTGCTGATCTCATTACCTCTCCTGAATCGATTGTCCTGTCGGCTGATGC

8226
 8227
 8228 crispr 39
 8229 1390932 TATCGATAGCTGACGGGGTTGCAGTATCTGCAATGGCGGC
 AAGGCCGGCATCGGATGCACCAACGGTTGCCGAGATGGTATCAGCCGACAGGACAATCGATTCTGGGGGAGGTGGCGAGCTCCGCAG
 CTGATGCC spacer length: 94 repeater length: 40
 8230 1391067 TATCGATAGCTGACGGGGTTGCAGTATCTGCAATGGCGGC
 AAGACCAGCATCAGATGCACCTACGATTGCCGAGATGGTATCAGCCGACAGGACAGTTGATTCTGGGGACTGTGATGAGAGCAGCAG
 CCGATGCC spacer length: 94 repeater length: 40
 8231 1391202 TATCGATAGCTGACGGGGTTGCAGTATCTGCAATGGCGGC
 CCGCAACTGTTCCCGCTCCAACCGTTCCAGACGTGCCCCGAGCCCGTGTGCCCCGAGCCCGCCGCAAATGTTCCCGCTCCGGAGGGC
 GCCGGCGC
 8232
 8233
 8234 crispr 40
 8235 1009021 TCATGGGCGCAGACGGTCCCACAGTAGGCGATGACGAGAT
 GGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTGGGTGATGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAA
 CAGGTATGAACTACGAG spacer length: 103 repeater length: 40
 8236 1009165 TCATGGGCGCAGACGGTCCCACAGTAGGCGATGACGAGAT
 GGTCATGCGTAATCCGGGCGGGCCCCGCATGGTAGCGGTATCCGACGTGATGGAGCTCGTCGATGATGCAGCAGTGCCGGCACCAA
 CAGGTATGAACTACGAG spacer length: 103 repeater length: 40
 8237 1009309 TCATGGGCGCAGACGGTCCCACAGTAGGCGATGACGAGAT
 CCGGGTCGCCCCGCTTTACACTGTACTTTTCGGGCACCTCGGCCAGCCTGGTGCCGTATAGGACGACTTTGCAGCTCTCCGCACA
 CTCGCCCTCGCCCAGCCT
 8238
 8239
 8240 crispr 41
 8241 1009899 TCGGTCTCCGATGTAGGCATGCGGATGCATGTCATGGTTC
 CGGAAATGCACATGATCACGGAAGTGGACAGCCCCACATTACCGACCCCGGCAGGGCGCACCGTGTCTGGGGATCCCATCCCGATC
 ATGGGCGGAGATGATCC spacer length: 103 repeater length: 40
 8242 1010043 TCGGTCTCCGATGTAGGCATGCGGATGCATGTCATGGTTC
 CGGAAATGCACATGATCACGGAAGTGGACAGCCCCACATTACCGACCCCGGCAGGGCGCACCGTGCAGGGGATCCCATCCCGATC
 ATGGGCGGAGATGATCC spacer length: 103 repeater length: 40
 8243 1010187 TCGGTCTCCGATGTAGGCATGCGGATGCATGTCATGGTTC
 CCTCCGGCATCTTCGACCTGCCAGCCTCTCTGCCGCAACCGGGTCGCCCCGCTTTACACTGTACTTTTCGGGCACCTCGGCCAGC
 CTGGTGCCGTCATAGGA
 8244
 8245
 8246 crispr 42
 8247 1721629 TCTGGTTTAGCGCTGGGCTTTTCAAATCCTTTTGGCAGGG
 TGCCGCGGGGCGACTGTGGTTCGGGCTTCTTGGGCTCCGGCTTCTCGGG spacer length: 49 repeater length:
 40
 8248 1721719 TCTGGTTTAGCGCTGGGCTTTTCAAATCCTTTTGGCAGGG
 TGCCGCGGGGCGACTGTGGTTCGGGCTTGGGCTCCGGCTTCTCGGG spacer length: 46 repeater length: 40
 8249 1721806 TCTGGTTTAGCGCTGGGCTTTTCAAATCCTTTTGGCAGGG
 TGCCGCGGGGCGACTGTGGTTCGGGCTTGGGCTCCGGCTTCTCGGGCTCTGGTTTAGCGCTGGACTTTTCAAATCCTTTTGGCAGG
 CTGCCGCGGGGCGACTGTGGTTCGGGCTTGGGCTCCGGCTTCTCGGG spacer length: 133 repeater length: 40
 8250 1721980 TCTGGTTTAGCGCTGGGCTTTTCAAATCCTTTTGGCAGGG
 TGCCGCGGGGCGACTGTGGTTCGGGCTTGGGCTCCGGCTTGGGTTTCTCGGGCTCTGGTTTAGCGCTGGGCTTTTCAAATCCTTTT
 GGCAGGGTGCCGCGGGGCGACTGTGGTTCGTAGGCTTGGGCTCCGGCTTCTTGGG spacer length: 142 repeater
 length: 40
 8251 1722163 TCTGGTTTAGCGCTGGGCTTTTCAAATCCTTTTGGCAGGG
 CGGGCTCGTCGGGCGCCATTCTCATGCCGCCACTCGGGGCACTCGCGCCATCTGCCAGCTCCGGCGTATCTGAAACCTGCAGCTCT
 GCGCCGATGGTCGCCCTGTCCGATACTGCGGGCTCATCAGGCGCCATTCTCATGCC
 8252
 8253
 8254 GCA_000204585.1_ASM20458v1_genomic.fna(findCrispr):
 8255 START REPEAT
 SPACER
 8256 crispr 1
 8257 212018 GGTGAAAAAGGTCCACAAGG
 TCCACAAGGTCCACCAGGTGCAAAAGGTCTAACCGGAGTTCCAGGCCCAATTGGTGATAAGGGAGAAAAAGGAACACAAGGTCCAC
 AAGGCGACAAAGGTCTCACAGGTCCAAGTGGTCCACA spacer length: 123 repeater length: 20
 8258 212162 GGTGAAAAAGGTCCACAAGG CCCACAAGGCTCTCAAGGTGAAAGAGGTCCATCAGGCCCAAT spacer
 length: 42 repeater length: 20
 8259 212225 GGTGAAAAAGGTCCACAAGG GTCGACTGCAACATCTACTGGAAAAGCAAACCTCATAATCTCC
 8260
 8261
 8262 crispr 2
 8263 54355 CTATTGTCGATTTGTATACTCCTGCAGAATCAAATATCTG
 AATACGATTGTTTCCCTGATCAGCTACATAGATATCTCCTGCAGAATCTACTGCAATTCTACAGGACCACTGAGTTGATATTCTG

GTGTAAGACCATTA spacer length: 100 repeater length: 40
 8264 54496 CTATTGTCGATTTGTATACTCCTGCAGAATCAAATATCTG
 AATACGATTGTTTCCCTGATCAGCTACATAGATATCTCCTGCAGAATCTACTGCAACTCCTTCAGGAAAATCAAATTGATATTCTG
 GTGTAAGACCATTA spacer length: 100 repeater length: 40
 8265 54637 CTATTGTCGATTTGTATACTCCTGCAGAATCAAATATCTG
 AATGCGATTGTTACTTGGATCAACTACATAGATATCTCCTGCAGAATCTACTGCAATGCCATCAGGATCTTCAAAGTGATCATCAT
 CTGATCCTGGTTCTCCTGTTACA spacer length: 109 repeater length: 40
 8266 54787 CTATTGTCGATTTGTATACTCCTGCAGAATCAAATATCTG
 GATACGGCTGTTAAAAACATCAGCTACATAGATATCTCCTGCAGAATCTACTGCAACTCCTGCTGGAAAATCAAATTGATATTCTG
 GTGTAAGACCATTA spacer length: 100 repeater length: 40
 8267 54928 CTATTGTCGATTTGTATACTCCTGCAGAATCAAATATCTG
 TGAATACGATTATTCTGTTGGTCTCCTACATAGATATCTCCTGCAGAGTCGACTGCAACATCTACTGGAAAAGCAAACCTCATAATC
 TCCTATGCCATTAC
 8268
 8269
 8270 GCA_000204925.1_ASM20492v1_genomic.fna(findCrispr):
 8271 START REPEAT
 SPACER
 8272 crispr 1
 8273 1006634 AATCCTTCATGGAGTTGAAAG CAACCACATTAAGGAGTATGTGAGGATCAAGTCTGAGTA spacer length:
 39 repeater length: 21
 8274 1006695 AATCCTTCATGGAGTTGAAAG TCTTTATCAATAAAAGCCTCAGAGTCATAACTTAATATCCCGTA spacer
 length: 44 repeater length: 21
 8275 1006761 AATCCTTCATGGAGTTGAAAG TATCCCCGATAGTCCTTAAAAACAAGGGCAAGACGTTGTA spacer
 length: 42 repeater length: 21
 8276 1006825 AATCCTTCATGGAGTTGAAAG GTGGGAATGCTTCAGGAAATGCTAGTACAAGCAATCAAGTA spacer
 length: 41 repeater length: 21
 8277 1006888 AATCCTTCATGGAGTTGAAAG TTATCCCTTTGATCTTGGGTTTCTTCACACTCTCACCAGGTA spacer
 length: 42 repeater length: 21
 8278 1006952 AATCCTTCATGGAGTTGAAAG AAAATAAGGGCAAATAAGTTGCACTGTATACAATATAAGTA spacer
 length: 42 repeater length: 21
 8279 1007016 AATCCTTCATGGAGTTGAAAG TTAGTTCTTCTCTTTTCTCTTTCTCTCTTCTCTCTCGTA spacer
 length: 44 repeater length: 21
 8280 1007082 AATCCTTCATGGAGTTGAAAG TCTCCCTTCTTTCCCCTACCCAGCCCCCCCCCTACCCCCGTA spacer
 length: 43 repeater length: 21
 8281 1007147 AATCCTTCATGGAGTTGAAAG TCAAACCTGAGGTAGTAAGTGTGATTGATTGCGTTAAGTGTGTA spacer
 length: 44 repeater length: 21
 8282 1007213 AATCCTTCATGGAGTTGAAAG ATAGTAAAAAAGTCGTTAACATAGTTCAGAGAGCTTTAGGTA spacer
 length: 43 repeater length: 21
 8283 1007278 AATCCTTCATGGAGTTGAAAG AGTTGATTCCTTTGATAGGACAGAGTAAAGGAGAGCGAGTA spacer
 length: 41 repeater length: 21
 8284 1007341 AATCCTTCATGGAGTTGAAAG CTAATAAAATAAAGAACTAGAAATAAATAGATAGAAAACGATATGTA spacer
 length: 47 repeater length: 21
 8285 1007410 AATCCTTCATGGAGTTGAAAG TTGACTCCCTAAGGTTGCCACGCCTTGCTTCCACGGTA spacer length:
 38 repeater length: 21
 8286 1007470 AATCCTTCATGGAGTTGAAAG TGTTTAACAGACTGATAGCCATCTCTAGATACATTTGGTGTA spacer
 length: 42 repeater length: 21
 8287 1007534 AATCCTTCATGGAGTTGAAAG TCCAAATAAATATAATTATTCCATTCTGTATAGTTATTGTA spacer
 length: 41 repeater length: 21
 8288 1007597 AATCCTTCATGGAGTTGAAAG GACCTAATGCGGTTGTACTCACTACTATCTTAGCGTTACCGGTA spacer
 length: 44 repeater length: 21
 8289 1007663 AATCCTTCATGGAGTTGAAAG TCATCACAATTAATATTACAATAGTATAAACTTTTAGCGTA spacer
 length: 41 repeater length: 21
 8290 1007726 AATCCTTCATGGAGTTGAAAG AGATTTAGTAGTAATCTTATGGAAAAAGATATACAAAAGTA spacer
 length: 41 repeater length: 21
 8291 1007789 AATCCTTCATGGAGTTGAAAG TTCCTTATTAGTCCCTCAACAAAGTCATTTTTCTCTTACGTA spacer
 length: 43 repeater length: 21
 8292 1007854 AATCCTTCATGGAGTTGAAAG TTTCCCATAGCTGAGTTGAGTAACAGTTTGTAGTAAAGGGTA spacer
 length: 43 repeater length: 21
 8293 1007919 AATCCTTCATGGAGTTGAAAG TTGTAGAAATGGGGTATGATACAACGTGGTACCATAATTTTCGTA spacer
 length: 44 repeater length: 21
 8294 1007985 AATCCTTCATGGAGTTGAAAG TGGGTAAGTTGGTGTACATAACTTTCAATGAGATTGATGAGTA spacer
 length: 43 repeater length: 21
 8295 1008050 AATCCTTCATGGAGTTGAAAG TTTTAGTATTTGCTCTATGAATCCTATTAAATATGCGGGTA spacer
 length: 41 repeater length: 21
 8296 1008113 AATCCTTCATGGAGTTGAAAG TGTATTCCAACATGCTACTCGTAAGGAGTTACGCAGACAGGTA spacer
 length: 43 repeater length: 21
 8297 1008178 AATCCTTCATGGAGTTGAAAG AACGCGTCCCACGTGCCTAACGTGTACTGCGTGTGTACGTA spacer
 length: 42 repeater length: 21
 8298 1008242 AATCCTTCATGGAGTTGAAAG AAATTAATTATAGTCTTTTGAACATTATTTACCTGTAATGTA spacer
 length: 42 repeater length: 21

8299 1008306 AATCCTTCATGGAGTTGAAAG GCCGCCCCTGGCGGGTTTTGAGACACTTCCTGAGTCATTTGTA spacer
length: 43 repeater length: 21

8300 1008371 AATCCTTCATGGAGTTGAAAG GACACCACGCCTGCTAACTCCTCGCCTTCACTTATTTTTGTA spacer
length: 42 repeater length: 21

8301 1008435 AATCCTTCATGGAGTTGAAAG ATAACGACTTCGCCACTGTTGACAAGCTCGACATTAACGAGTA spacer
length: 43 repeater length: 21

8302 1008500 AATCCTTCATGGAGTTGAAAG TGAGGACTCCTTTCACGTTAAGGACGTCGTTTACGGTTACCGTA spacer
length: 43 repeater length: 21

8303 1008565 AATCCTTCATGGAGTTGAAAG CAAATCGTGAGTGTGAGTTTTTCATTTCGGGACTTACACGTA spacer
length: 41 repeater length: 21

8304 1008628 AATCCTTCATGGAGTTGAAAG AAATTGAAACTCACACTCACGGTTTCCGGGACGGTTTGGTA spacer
length: 41 repeater length: 21

8305 1008691 AATCCTTCATGGAGTTGAAAG AGAGAGTCAAAAACATTACAGGATCGCTTATGAACTAGCGCGAGGTA spacer
length: 47 repeater length: 21

8306 1008760 AATCCTTCATGGAGTTGAAAG AAACCTTCTGGTATGATTTGCTGCAGACCGTTATTGAGTGTA spacer
length: 42 repeater length: 21

8307 1008824 AATCCTTCATGGAGTTGAAAG AACTCTTTCGCTGCCATTTTCATCCCTCAGTTCGTATGCTGTA spacer
length: 42 repeater length: 21

8308 1008888 AATCCTTCATGGAGTTGAAAG AATTTTTTGGTGAGACTGTTAGAGTGAGAAGTAGTGTA spacer length:
38 repeater length: 21

8309 1008948 AATCCTTCATGGAGTTGAAAG AAAGTAGTCTTTGACAAGCCATCATTAACGACGGAGAAAGTCGGTA spacer
length: 46 repeater length: 21

8310 1009016 AATCCTTCATGGAGTTGAAAG TGAGAACTCAGGCGCTTCGTTTCGTGTTGATGTAGTATTTGTA spacer
length: 42 repeater length: 21

8311 1009080 AATCCTTCATGGAGTTGAAAG AATCTGTGGGTGTAAGTTCCAAAATTGAAACTCACACTCGTA spacer
length: 42 repeater length: 21

8312 1009144 AATCCTTCATGGAGTTGAAAG TTTTTTTCGATATTTGGCTCATTTTCTCTACTAATAAAATGTA spacer
length: 42 repeater length: 21

8313 1009208 AATCCTTCATGGAGTTGAAAG ACTCACAACCGTCCCAGTCTCACTTCTAGTTAAAAGCACGTA spacer
length: 42 repeater length: 21

8314 1009272 AATCCTTCATGGAGTTGAAAG CTAGGAGAAAGGCCGCGGGCGTCGTACGCCCCCGGTCGGTA spacer
length: 41 repeater length: 21

8315 1009335 AATCCTTCATGGAGTTGAAAG ACCCCCTCAACAGAGAGATCACTCTTATCCACACTCGCCCGTA spacer
length: 43 repeater length: 21

8316 1009400 AATCCTTCATGGAGTTGAAAG TATAAACAATTTGGTGATAGTGTAGTAATAACTGTCAGGTA spacer
length: 41 repeater length: 21

8317 1009463 AATCCTTCATGGAGTTGAAAG TCAATATAAAAGCTTAAATACCTCTTTTTCTTATTCTTAATGTA spacer
length: 44 repeater length: 21

8318 1009529 AATCCTTCATGGAGTTGAAAG ATTAGGTATTGTAAGCTGCGTTGTGCTTTGACCAGTAATCGTA spacer
length: 43 repeater length: 21

8319 1009594 AATCCTTCATGGAGTTGAAAG ATTGATTTTAAATGTTATTATGTCGCTAAGATTGTCATGTA spacer
length: 41 repeater length: 21

8320 1009657 AATCCTTCATGGAGTTGAAAG CTGTTGTTCCCTCGTATCTTTGCACCCACTCGTAAGCTCTTGTA spacer
length: 43 repeater length: 21

8321 1009722 AATCCTTCATGGAGTTGAAAG ATTTTACACGCTTTTAACATAAATGTCCGCGATCCAGTA spacer length:
39 repeater length: 21

8322 1009783 AATCCTTCATGGAGTTGAAAG CTATATATTCTCTCATTTTGATTAACCTTCTACTTGGTA spacer length:
38 repeater length: 21

8323 1009843 AATCCTTCATGGAGTTGAAAG AAAATGAACTACGTTTTTACACTACGTTAAAAATACGTCATGTA spacer
length: 43 repeater length: 21

8324 1009908 AATCCTTCATGGAGTTGAAAG TGTTACGGTAGCGAACACGGTTATCTTACCATTAAAGTA spacer
length: 40 repeater length: 21

8325 1009970 AATCCTTCATGGAGTTGAAAG TAGAGGAAGGATTTGAACTACCGCTAGTAGAGGCGGCAGCCGTA spacer
length: 44 repeater length: 21

8326 1010036 AATCCTTCATGGAGTTGAAAG TCAAAATATGTAGAGTTTCTGAAAGTTCTAGTACTGTGTA spacer
length: 40 repeater length: 21

8327 1010098 AATCCTTCATGGAGTTGAAAG AGATGAGATAGTAAGTGAAGCCATAAACGATATGGTCAGGATTGGTA spacer
length: 47 repeater length: 21

8328 1010167 AATCCTTCATGGAGTTGAAAG GATAGTAATTCTGCATCACGTCAAGGATTGTTTTGATGAGTA spacer
length: 42 repeater length: 21

8329 1010231 AATCCTTCATGGAGTTGAAAG AGGAAGGACATAACTATTAACCTATCGCCCTGGGAGCGTA spacer
length: 40 repeater length: 21

8330 1010293 AATCCTTCATGGAGTTGAAAG ATTATACCTAGACCGTACACAATGCCCTGACCAACAGGGTA spacer
length: 41 repeater length: 21

8331 1010356 AATCCTTCATGGAGTTGAAAG TAGACATTAGTTCAAACGTGGTAACACATTTCGGTTAGTA spacer length:
39 repeater length: 21

8332 1010417 AATCCTTCATGGAGTTGAAAG GATTGTATAATCCTGTGAGCGTCAAACGACCTCATTCGGTA spacer
length: 42 repeater length: 21

8333 1010481 AATCCTTCATGGAGTTGAAAG TCATATGTCTGATCATTATACTGTTTAGTTATTTGAAAGGTA spacer
length: 42 repeater length: 21

8334 1010545 AATCCTTCATGGAGTTGAAAG CAAACTGACATAACACAACAATTATCAACCACATATTATGTA spacer

length: 42 repeater length: 21

8335 1010609 AATCCTTCATGGAGTTGAAAG TATGAGATTAAGACTGCGAACAAGTTACCGATCACTCCACGCATGTA spacer
length: 47 repeater length: 21

8336 1010678 AATCCTTCATGGAGTTGAAAG AGATCTCCACCAAATGAGGGGTCAAGAGATATTCTCAGTA spacer
length: 40 repeater length: 21

8337 1010740 AATCCTTCATGGAGTTGAAAG GATCTACACACCTCAAGCTCCAAGTGTAGATGGTTATATGTA spacer
length: 42 repeater length: 21

8338 1010804 AATCCTTCATGGAGTTGAAAG TCTCATCCTCTCCCAGAAAAGGGAGATTCAAGACACTAGTA spacer
length: 41 repeater length: 21

8339 1010867 AATCCTTCATGGAGTTGAAAG TGAACACCCTGGATTCTTCCCCCATTTAAGTATTATGTA spacer length:
39 repeater length: 21

8340 1010928 AATCCTTCATGGAGTTGAAAG TTTGAATCAGACCAACTTGGTAGTTTGAAAAGAGAGAGTA spacer
length: 40 repeater length: 21

8341 1010990 AATCCTTCATGGAGTTGAAAG
ATCTGGGCAGGAACCTTGCAACAAGGCAACGTTGTAGGGGCAGTAGAATCCTTCATAGAGTTGAAAGTTGTCACTATACCCATATTGC
CATTCCACAGTTATGAGTA spacer length: 105 repeater length: 21

8342 1011117 AATCCTTCATGGAGTTGAAAG TTACTCTTTTCTGATGGCAGAATCTTGTATAGAAGGTGTA spacer
length: 40 repeater length: 21

8343 1011179 AATCCTTCATGGAGTTGAAAG TTTATACTCCATGGGGTGAAAAACATGGGGTATCTCAAGTA spacer
length: 41 repeater length: 21

8344 1011242 AATCCTTCATGGAGTTGAAAG ATTATCAAGTAAGTACTTCACTACGTCGTTTATCTTCTGGTA spacer
length: 42 repeater length: 21

8345 1011306 AATCCTTCATGGAGTTGAAAG AATATAACATATAACGAAAAGGGGAATTTTTTTGAGTACCGTA spacer
length: 43 repeater length: 21

8346 1011371 AATCCTTCATGGAGTTGAAAG TTGAACCTGATGTATCTAGTAACACTACCACCGTATCCTTGTA spacer
length: 43 repeater length: 21

8347 1011436 AATCCTTCATGGAGTTGAAAG GAAGCAAGCATGTGAGGAGTTACATGGCTGACACTCTCTTGTA spacer
length: 43 repeater length: 21

8348 1011501 AATCCTTCATGGAGTTGAAAG TGCCTAACATGAGTTGGCAGCGCATTTAGCTCACATGTA spacer
length: 40 repeater length: 21

8349 1011563 AATCCTTCATGGAGTTGAAAG ATCTTATCATGTATATACGAAAAACCAATATGCTCTTACGTA spacer
length: 43 repeater length: 21

8350 1011628 AATCCTTCATGGAGTTGAAAG ACAGTAGCCACAAGTTGATTAGCCGCTTGTAATCCTGTA spacer
length: 40 repeater length: 21

8351 1011690 AATCCTTCATGGAGTTGAAAG GCCTCGTTCCTGAGGTGTCTATTACTAGCTTCATGTA spacer length:
38 repeater length: 21

8352 1011750 AATCCTTCATGGAGTTGAAAG AACACCACATAATTCCTCTTTGTCCCTCTTCAGACTGTA spacer
length: 41 repeater length: 21

8353 1011813 AATCCTTCATGGAGTTGAAAG CTTCTTTGCGTTCTTGGTTTCTCTTGAGCTTGTCGGTA spacer length:
39 repeater length: 21

8354 1011874 AATCCTTCATGGAGTTGAAAG AAAAAGGAATTTGAAACTCAAAGCTTTCACCCGCTAAAGTA spacer
length: 41 repeater length: 21

8355 1011937 AATCCTTCATGGAGTTGAAAG TATAATTTAGATAAGTATTTGTGAACTCTTCCCTTATGTGTA spacer
length: 42 repeater length: 21

8356 1012001 AATCCTTCATGGAGTTGAAAG AACACAAGGAGAGGTAGGTAAAGTATACTGAGATCTTGATTGTA spacer
length: 44 repeater length: 21

8357 1012067 AATCCTTCATGGAGTTGAAAG TAAGGGACATGTCAACGTATCAAACGGCGTAGCTACGCCGTA spacer
length: 43 repeater length: 21

8358 1012132 AATCCTTCATGGAGTTGAAAG TAAACACTCCTCAACCCTCTTTACCATCTCTAGATCGCGTA spacer
length: 42 repeater length: 21

8359 1012196 AATCCTTCATGGAGTTGAAAG GTTACACTACTTACGTCAGTTAGCAATGTTACGAGATGGTTTGTA spacer
length: 45 repeater length: 21

8360 1012263 AATCCTTCATGGAGTTGAAAG AGGAATAGAGATAGCTCTAGCTACCCTCTTAATCACGTA spacer length:
39 repeater length: 21

8361 1012324 AATCCTTCATGGAGTTGAAAG TCAAGCTCTGGACTAGTGATCCATGCTTACCCTCACTTGTA spacer
length: 42 repeater length: 21

8362 1012388 AATCCTTCATGGAGTTGAAAG TAATCCTGTCCGCAAGCTCGTCCCTCAGGTAGGATATCAGTA spacer
length: 42 repeater length: 21

8363 1012452 AATCCTTCATGGAGTTGAAAG TGTTGCATAGCCTCAATCGGTGGTAGACCAAACCTTCAACGTA spacer
length: 44 repeater length: 21

8364 1012518 AATCCTTCATGGAGTTGAAAG CTTCAATTTATATATTTCTCACCTCTACTCTCTCTTTCTTAAT

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8368 985337 TTTCAACTCCATGAAGGATTCTA CACACTGAGGACCTGACAGATGAGGACTTGAAGGGATATGGCC spacer
length: 43 repeater length: 23

8369 985404 TTTCAACTCCATGAAGGATTCTA CCACGGGCATAATATGATAAAGAACTTGGCTACTGTTCTCAT spacer
length: 42 repeater length: 23

8370 985470 TTTCAACTCCATGAAGGATTCTA CACGGTTCTACACCGCGCGGGAAGGGTCTTCTTCGTTAAAA spacer
length: 42 repeater length: 23

8371 985536 TTTCAACTCCATGAAGGATTCTA CAAGACCCAATCGTAGCTGAGTACGATCTGACGTATATGTTA spacer

length: 42 repeater length: 23
8372 985602 TTTCAACTCCATGAAGGATTCTA CGCGACGAAAACAAGAGGGAAAGCGAAATCATTCTAAGAAA spacer
length: 41 repeater length: 23
8373 985667 TTTCAACTCCATGAAGGATTCTA CATCCACGTTTACGATTGGCACTCAGTGGTCCCAGGGGTAGAAATAAAAAA
spacer length: 52 repeater length: 23
8374 985743 TTTCAACTCCATGAAGGATTCTA CATGAACAAAAGAAAGGTGAGGACATGATCTTCTATGATG spacer
length: 40 repeater length: 23
8375 985807 TTTCAACTCCATGAAGGATTCTA CCATACCACACATTATAATTAAACATTCTTATCAAATTGTAA spacer
length: 42 repeater length: 23
8376 985873 TTTCAACTCCATGAAGGATTCTA CGTAGTAGCGACGTGTTCAAGGCAGTCGTTACATCGTTTA spacer
length: 40 repeater length: 23
8377 985937 TTTCAACTCCATGAAGGATTCTA CTTGGGTAGCTACCCTCTTGATTACTTTTCTCAGATCATC spacer
length: 41 repeater length: 23
8378 986002 TTTCAACTCCATGAAGGATTCTA CTTATATATTGCCATAATAAGTTTGGGGGAAGCTCTG spacer length:
37 repeater length: 23
8379 986063 TTTCAACTCCATGAAGGATTCTA CGGCGAAATAGTGTGTAATGACGACCGAAACGAAATTATGATT spacer
length: 43 repeater length: 23
8380 986130 TTTCAACTCCATGAAGGATTCTA CGGGGGCAAGCTCCCCTCTACTCTCACGATAATGATGAGGA spacer
length: 41 repeater length: 23
8381 986195 TTTCAACTCCATGAAGGATTCTA CTCTTGAGGATTTTTATGCCTCCTCGACAAAGTCCCCCGTG spacer
length: 41 repeater length: 23
8382 986260 TTTCAACTCCATGAAGGATTCTA CAGATGATATAGAGCTTTACTTTGCACCGAATGGTAATAT spacer
length: 40 repeater length: 23
8383 986324 TTTCAACTCCATGAAGGATTCTA CATCAACGCCAAAGACCGTCATCATCAAATCCGTCTACAA spacer
length: 40 repeater length: 23
8384 986388 TTTCAACTCCATGAAGGATTCTA CTTAGGAGTGAAAATCAATCAACCATTTGAAGATGATAAAA spacer
length: 41 repeater length: 23
8385 986453 TTTCAACTCCATGAAGGATTCTA CTGAGTAAATCCAACTCATCATCTTTGACTTTCTCAATCA spacer
length: 41 repeater length: 23
8386 986518 TTTCAACTCCATGAAGGATTCTA CAAGAAAAACATACTGAGGGTGATCTACACCCTGAGAAAC spacer
length: 41 repeater length: 23
8387 986583 TTTCAACTCCATGAAGGATTCTA CGACATACATGACATGAAATTGAGTTATGCATTTTATTCTC spacer
length: 42 repeater length: 23
8388 986649 TTTCAACTCCATGAAGGATTCTA CGAGAAGGGGAGTAGACGAGTGATAAGGTGACGTTCTTTAA spacer
length: 42 repeater length: 23
8389 986715 TTTCAACTCCATGAAGGATTCTA CTTCAACTTTTACTTGATAAAACACTACAATCTTTAA spacer length:
36 repeater length: 23
8390 986775 TTTCAACTCCATGAAGGATTCTA CTTCAACTTTTACTTGATAAAACACTACAATCTTTAA spacer length:
36 repeater length: 23
8391 986835 TTTCAACTCCATGAAGGATTCTA CTCGACCGTAGCAGATATCGCAAGTGAAAAAGGAACTG spacer length:
38 repeater length: 23
8392 986897 TTTCAACTCCATGAAGGATTCTA CAAAAAATAAGATAAAATGTGATGACAAAACGAATGAAATAA spacer
length: 42 repeater length: 23
8393 986963 TTTCAACTCCATGAAGGATTCTA CAGTGATACCCTACCTTCAAGGGAAGGGGACGGGAT spacer length:
36 repeater length: 23
8394 987023 TTTCAACTCCATGAAGGATTCTA CAGAACGCCCTTAAGCTAGCGAAGAAGGCCCTTTCTCAG spacer
length: 39 repeater length: 23
8395 987086 TTTCAACTCCATGAAGGATTCTA CACTGTTAGAGAGGCACCTTAAGCTAGCGAAGGAGGCTCTA spacer
length: 40 repeater length: 23
8396 987150 TTTCAACTCCATGAAGGATTCTA CTTTCAAATCATGATGAGATTTGTAGAAAGATTTATAAGCATT spacer
length: 43 repeater length: 23
8397 987217 TTTCAACTCCATGAAGGATTCTA CAGGTGATCCACGAGTGTGGACTTATGGTATTGGAAATAT spacer
length: 40 repeater length: 23
8398 987281 TTTCAACTCCATGAAGGATTCTA AAAAAGACCTTCCTCTGCCCTGAGTTATCACATTTTGTGTT spacer
length: 39 repeater length: 23
8399 987344 TTTCAACTCCATGAAGGATTCTA CGGGCGTTTACCCCCGCCCCCGGGGTAACTATCTGCT spacer
length: 40 repeater length: 23
8400 987408 TTTCAACTCCATGAAGGATTCTA CCTTGCTCAGAATCGTAGTAGTACCCAGGTGGACAACACTAGT spacer
length: 41 repeater length: 23
8401 987473 TTTCAACTCCATGAAGGATTCTA CACCGGGCGGAGTTCCTTAGAACCCAACCAGCGTAGTAGT spacer
length: 40 repeater length: 23
8402 987537 TTTCAACTCCATGAAGGATTCTA CAATAAAACCTAATAAAATTGGGTATTTGACGTTGAAAT spacer
length: 40 repeater length: 23
8403 987601 TTTCAACTCCATGAAGGATTCTA CCCCCATCTGGTATGCCCTTGAGGAATTCTATATATCGAAA spacer
length: 41 repeater length: 23
8404 987666 TTTCAACTCCATGAAGGATTCTA CAGGGAAAAAACTGCCCTCATGGCGTTAACTGGCGATAAG spacer
length: 41 repeater length: 23
8405 987731 TTTCAACTCCATGAAGGATTCTA CTTGCTCGTCTACCGCGTTTACCCCCGCGGCCCGGGTTTG spacer
length: 40 repeater length: 23
8406 987795 TTTCAACTCCATGAAGGATTCTA CAATTACTAGACCCAGTCTACGAGGGCGTTGGGTGGTCATA spacer
length: 41 repeater length: 23

8407 987860 TTTCAACTCCATGAAGGATTCTA
CTTGATAGTGGTGTATGATAAAATGATAATGAAGCCTCAGATCTTTCAACTCCATGAAGGATTTTACCTACCGCATTTCGCGGGC
GGTATGTCCTTCTGAGTACA spacer length: 106 repeater length: 23

8408 987990 TTTCAACTCCATGAAGGATTCTA CAAATTTTGTCTCTAAAATGCCCTTGAGGGGGGGGA spacer length:
38 repeater length: 23

8409 988052 TTTCAACTCCATGAAGGATTCTA CTTCAAGATTTTTTGTACTCTATAAAAGGTGAGTTATT spacer length:
38 repeater length: 23

8410 988114 TTTCAACTCCATGAAGGATTCTA CTTATCAGGGCTTGATCCTTGACCTCTTGAGACAAGTAC spacer
length: 40 repeater length: 23

8411 988178 TTTCAACTCCATGAAGGATTCTA CAGATAGGTCTGCGGAAAGCTGTGACGCCTTATTGTAACC spacer
length: 40 repeater length: 23

8412 988242 TTTCAACTCCATGAAGGATTCTA CAAGAAGATCTTGACGATTGTTGTAAAGATAAATACATAAT spacer
length: 41 repeater length: 23

8413 988307 TTTCAACTCCATGAAGGATTCTA CAAGAAGATCTTGACGATTGTTGTAAAGATAAATACATAAT spacer
length: 41 repeater length: 23

8414 988372 TTTCAACTCCATGAAGGATTCTA CAATTTTTTACTGAATACGATAGTTATATGATTCTAAAGT spacer
length: 41 repeater length: 23

8415 988437 TTTCAACTCCATGAAGGATTCTA CCCGGTTGAGCTACGTGAAGCGGTTCAAGATTATCTTTACTGTTTA spacer
length: 46 repeater length: 23

8416 988507 TTTCAACTCCATGAAGGATTCTA CAATAATTGAAGCTAAAAATGAGTGGGAAGCTAGATACTTTTT spacer
length: 43 repeater length: 23

8417 988574 TTTCAACTCCATGAAGGATTCTA CGGGAACATAATTTATGATGATGATGACGAACTAATAA spacer
length: 40 repeater length: 23

8418 988638 TTTCAACTCCATGAAGGATTCTA CGTTGGCGGTGAAGACGTTCCGCAAAGCATGAGTGACGCAA spacer
length: 41 repeater length: 23

8419 988703 TTTCAACTCCATGAAGGATTCTA CCCGCGGGGAAAGGAACAGAGAAGGAAGAACGTGTAA spacer length:
38 repeater length: 23

8420 988765 TTTCAACTCCATGAAGGATTCTA CAAAAATGTGATAAGAAAACACTATATAATTGAAAGGGAA spacer
length: 41 repeater length: 23

8421 988830 TTTCAACTCCATGAAGGATTCTA CACTTAAACAAGTATAACAGAAACATTACAACGATGTATAT spacer
length: 41 repeater length: 23

8422 988895 TTTCAACTCCATGAAGGATTCTA CCATCAACGGGCGTCATCTTAGTAACGCCAAGTCTTAATG spacer
length: 40 repeater length: 23

8423 988959 TTTCAACTCCATGAAGGATTCTA CCAGGAGTGCCAGTTTCTCCACAAATGTCAGATACAGA spacer length:
38 repeater length: 23

8424 989021 TTTCAACTCCATGAAGGATTCTA CGCGAAGCTAACTCCTTCCTTAACCTTCTTCACCTCGTCTG spacer
length: 40 repeater length: 23

8425 989085 TTTCAACTCCATGAAGGATTCTA CGACAGAAAAGAACCGCCCTTATTTTATTGGGCGATTATG spacer
length: 40 repeater length: 23

8426 989149 TTTCAACTCCATGAAGGATTCTA CTCGCCGCCATCAAAGTCGCCAATATAGACGATAGTTCTGTCT spacer
length: 44 repeater length: 23

8427 989217 TTTCAACTCCATGAAGGATTCTA CCTTAGAAAGGCACAAGTAATCAAGGCCCTAAAATGGGCT spacer
length: 40 repeater length: 23

8428 989281 TTTCAACTCCATGAAGGATTCTA CCTAACTAACGTGAAAGACGTAGATCTCATAACTATGATGTTA spacer
length: 43 repeater length: 23

8429 989348 TTTCAACTCCATGAAGGATTCTA CTAAGAAGAAAGGAGAGAGAGGAATTTGTTAATCAACTCTA spacer
length: 41 repeater length: 23

8430 989413 TTTCAACTCCATGAAGGATTCTA CAGGGGAGGCTCTTCACCTCCACCAACCCCTGTCCCTGA spacer
length: 40 repeater length: 23

8431 989477 TTTCAACTCCATGAAGGATTCTA CTTGGAAAAGAGAGGTTTAGGTATGGTAATAAAGTAATTAGT spacer
length: 42 repeater length: 23

8432 989543 TTTCAACTCCATGAAGGATTCTA CATGAAACCCCTCAGGGGGCGGGGTAACGCTCCCAAGCT spacer
length: 41 repeater length: 23

8433 989608 TTTCAACTCCATGAAGGATTCTA CACGCAACTTTGTGAGAGGTAGGTCGCACAAGGGACTGCAG spacer
length: 41 repeater length: 23

8434 989673 TTTCAACTCCATGAAGGATTCTA CAAAAATGCAAGAGATCCATCCCCAAACCCAAACCCCGC spacer
length: 40 repeater length: 23

8435 989737 TTTCAACTCCATGAAGGATTCTA CCAAAAGTGGGCCCTAGAACTATTGAAGGAGGAGGGGGGGGA spacer
length: 42 repeater length: 23

8436 989803 TTTCAACTCCATGAAGGATTCTA CTCAGACAGAGCGAGTCAATCAGTGCGAGTCAGTCAG spacer length:
37 repeater length: 23

8437 989864 TTTCAACTCCATGAAGGATTCTA CGCAGAAAAGTATTTGAAAGAGGCGTTTAGGCGGATGGAT spacer
length: 40 repeater length: 23

8438 989928 TTTCAACTCCATGAAGGATTCTA CTTAATAGTCATTATTTTGTATGAGATAATGGACTTTAT spacer length:
38 repeater length: 23

8439 989990 TTTCAACTCCATGAAGGATTCTA CTTGACGTCATTGAAGACTACTTTTATCAAAAAACGGAA spacer
length: 40 repeater length: 23

8440 990054 TTTCAACTCCATGAAGGATTCTA CTTCTCTGAAAGAGTTGAAAAAGTCATTTTTGACAGATAA spacer
length: 40 repeater length: 23

8441 990118 TTTCAACTCCATGAAGGATTCTA CCAGTGCCTAAGTGAGTCAGTGAGCGTAACAGTGTAACAATC spacer
length: 42 repeater length: 23

8442	990184 TTTCAACTCCATGAAGGATTCTA	CAAGATGATATTTTCGAGGCCCGCAAGAGGGCCTTACAAA spacer
	length: 40 repeater length: 23	
8443	990248 TTTCAACTCCATGAAGGATTCTA	CCGGGTATAGGTGTTCCGGCACTCTTGGATAGAGTTC spacer length:
	37 repeater length: 23	
8444	990309 TTTCAACTCCATGAAGGATTCTA	CTTGTTAACTACCGTTATCACCAATTGGCTGAAGGTGTA spacer
	length: 39 repeater length: 23	
8445	990372 TTTCAACTCCATGAAGGATTCTA	CTTTCAAAAATTCCGAAGATTGTGTTTGACAAGCCTTCGC spacer
	length: 40 repeater length: 23	
8446	990436 TTTCAACTCCATGAAGGATTCTA	CATTTTCGATTTTGTATTTTGAATTATAAGGGGGAGTATA spacer
	length: 40 repeater length: 23	
8447	990500 TTTCAACTCCATGAAGGATTCTA	CAGTAAAGGGGAGCTTGTCCCCCTACTCTCGATAGATAATCC spacer
	length: 42 repeater length: 23	
8448	990566 TTTCAACTCCATGAAGGATTCTA	CAGAGCATTTCTTTTCGCGGTACCCCGACCACGTCGA spacer length:
	36 repeater length: 23	
8449	990626 TTTCAACTCCATGAAGGATTCTA	CGTACTGAAGGATAGGCACCTGTGGTAACTGTGAAGTGTAC spacer
	length: 41 repeater length: 23	
8450	990691 TTTCAACTCCATGAAGGATTCTA	CGTTGAGGAAGATATCCCTAACTGGGAGTGGCGAACAAG spacer
	length: 39 repeater length: 23	
8451	990754 TTTCAACTCCATGAAGGATTCTA	CAGCAGTTGTATCTCGTTGATCGTATCTCCCGCGTTGAT spacer
	length: 39 repeater length: 23	
8452	990817 TTTCAACTCCATGAAGGATTCTA	CGGTATCCAGGCAAGGCGTCAAAAAACGCCTGGATCA spacer length:
	37 repeater length: 23	
8453	990878 TTTCAACTCCATGAAGGATTCTA	CGCGACACCTCTCCTAGACAATTGTACTAATATATACTTGAA spacer
	length: 42 repeater length: 23	
8454	990944 TTTCAACTCCATGAAGGATTCTA	CGGTAGAGATTTTTTGATATGGGTGTTATCTAGAATTGAGAAAGT spacer
	length: 45 repeater length: 23	
8455	991013 TTTCAACTCCATGAAGGATTCTA	CTGTGATAGTGAATAATACTGTGAAAAAGCTCAGTGTAAG spacer
	length: 40 repeater length: 23	
8456	991077 TTTCAACTCCATGAAGGATTCTA	CTTCTATGCGGTATGGTTTAGGTCAATGAAATTGCCGGA spacer
	length: 39 repeater length: 23	
8457	991140 TTTCAACTCCATGAAGGATTCTA	CGTTGAGGGAGAGCCGGAGACTGTGCGACGTTTTCTATGAC spacer
	length: 40 repeater length: 23	
8458	991204 TTTCAACTCCATGAAGGATTCTA	CAAAAATTTGACAGAGGTATGTAAGTATCTGCCTCATCTAAAA spacer
	length: 43 repeater length: 23	
8459	991271 TTTCAACTCCATGAAGGATTCTA	CATAAAGTATCCACTCCACATCTCTGAGATCTTCATAAAGCA spacer
	length: 42 repeater length: 23	
8460	991337 TTTCAACTCCATGAAGGATTCTA	CAAAGATGGAAGTCATAAAATGGCTTATGGGGCTTTTTTCA spacer
	length: 40 repeater length: 23	
8461	991401 TTTCAACTCCATGAAGGATTCTA	CGATGATGAAGTATTAACACAGAAGTCAGAAGGTGAGGAT spacer
	length: 40 repeater length: 23	
8462	991465 TTTCAACTCCATGAAGGATTCTA	CTGGATTTAATATAACTGTCCCTCCACAGAGTGGAATAA spacer
	length: 39 repeater length: 23	
8463	991528 TTTCAACTCCATGAAGGATTCTA	CGTAATGCCATTGCAGTACGTGTTTCAGCCTCAAGGTACTG spacer
	length: 41 repeater length: 23	
8464	991593 TTTCAACTCCATGAAGGATTCTA	CGAGAGGAAGATGTGGGGCAGAGTGAGATAATTGCTTCAGA spacer
	length: 41 repeater length: 23	
8465	991658 TTTCAACTCCATGAAGGATTCTA	CAACGTACATCTCGAACAGTTTCAGCCTGGGCATGATCCC spacer
	length: 40 repeater length: 23	
8466	991722 TTTCAACTCCATGAAGGATTCTA	CCTATCTCGACCACACCGAAAACCACGACAACACTATAAC spacer
	length: 40 repeater length: 23	
8467	991786 TTTCAACTCCATGAAGGATTCTA	CAGCCACTTATTCGCTTACTTTAGTGCCAGTGCGA spacer length: 35
	repeater length: 23	
8468	991845 TTTCAACTCCATGAAGGATTCTA	CAGGGATACTCAAAAAGTAGCATAACAGTTGGGTAGAG spacer length:
	38 repeater length: 23	
8469	991907 TTTCAACTCCATGAAGGATTCTA	CCTGCACCTTCTGCTTCTACTACCTCTTCTTCATCTTCTGG spacer
	length: 41 repeater length: 23	
8470	991972 TTTCAACTCCATGAAGGATTCTA	CCTAACAACTTCATGGGGTAGTAGTGATGATAAAGTGTTAAC spacer
	length: 42 repeater length: 23	
8471	992038 TTTCAACTCCATGAAGGATTCTA	CACATGTCCCCAATAATGACCCTTTCTATCGTAATCACGTTC spacer
	length: 42 repeater length: 23	
8472	992104 TTTCAACTCCATGAAGGATTCTA	CAAGCATTTGAAGCTCATAGCCCTCTATCTTGCTTTTTTCT spacer
	length: 40 repeater length: 23	
8473	992168 TTTCAACTCCATGAAGGATTCTA	CGGGTATCCTGATCTGGGTGTCTACTTGATTGGGGGACTGTG spacer
	length: 42 repeater length: 23	
8474	992234 TTTCAACTCCATGAAGGATTCTA	CCTAACTTGAAGTAAATTTAACGCATTTTCGGGTACACCG spacer
	length: 40 repeater length: 23	
8475	992298 TTTCAACTCCATGAAGGATTCTA	CATGCAAATGCAATAATATATTATTCACAATTAAATCGTCTA spacer
	length: 42 repeater length: 23	
8476	992364 TTTCAACTCCATGAAGGATTCTA	CCTAATTACTGATAACCCAATTTTGAATTTGATCTTAAATAC spacer
	length: 42 repeater length: 23	
8477	992430 TTTCAACTCCATGAAGGATTCTA	CCTGAACAGATAGCATTATAATCTAATAATAAAATA spacer length:

36 repeater length: 23

8478 992490 TTTCAACTCCATGAAGGATTCTA CTCATGTACCCGGACGGGATACCAGACAAGATCTCTACGA spacer
length: 40 repeater length: 23

8479 992554 TTTCAACTCCATGAAGGATTCTA CATTGATATTTCTTGTCTGGCTACTGTCAAGCTCCCAT spacer
length: 39 repeater length: 23

8480 992617 TTTCAACTCCATGAAGGATTCTA CAGAAGTACACTTCGATAGTTATAGATACCCTCCTTCTC spacer
length: 39 repeater length: 23

8481 992680 TTTCAACTCCATGAAGGATTCTA CGAGAAACTTAAAGTTAGGTGGATCTGGAGACATAGCAATGG spacer
length: 42 repeater length: 23

8482 992746 TTTCAACTCCATGAAGGATTCTA CTGATTTAGTTAATGACAAGAAAAGATGTTTAAATATCAG spacer
length: 39 repeater length: 23

8483 992809 TTTCAACTCCATGAAGGATTCTA CAAGAAGAGAGTGGAGAGAAGGAAAAGAAGTATAATATATATAATA spacer
length: 46 repeater length: 23

8484 992879 TTTCAACTCCATGAAGGATTCTA CGGGGACTTAAATGAGAAAGATTTTTTTCATCATGAT spacer length:
37 repeater length: 23

8485 992940 TTTCAACTCCATGAAGGATTCTA CTAGATTGGGATGAGCAAAGTATTTATTTAAGATTAGATAA spacer
length: 41 repeater length: 23

8486 993005 TTTCAACTCCATGAAGGATTCTA CCACTTGTGGTTAATTATGATTGTATAAATGGCTTCAT spacer length:
38 repeater length: 23

8487 993067 TTTCAACTCCATGAAGGATTCTA CAAATCAAACCTCTACCTTCGTGGGTAAAGGCGAACGACG spacer
length: 39 repeater length: 23

8488 993130 TTTCAACTCCATGAAGGATTCTA CAGGCAACGATATTATCGTCATCAATACGGACAGGACA spacer length:
38 repeater length: 23

8489 993192 TTTCAACTCCATGAAGGATTCTA CTTCTTTATTTTTCTATGTGGTACCAATTAGGGCTGATT spacer
length: 39 repeater length: 23

8490 993255 TTTCAACTCCATGAAGGATTCTA CAAGAGGAAGAGAGTGAGGATTTTGTAGTGTTAGGATTGG spacer
length: 40 repeater length: 23

8491 993319 TTTCAACTCCATGAAGGATTCTA CAGGAATGCTGAAAATAGAGATGGACAAGTCTTTAGTTGGAATC spacer
length: 44 repeater length: 23

8492 993387 TTTCAACTCCATGAAGGATTCTA CTTACGTTTACTACACAACGTTTAGCAGAATAGGAGAGA spacer
length: 40 repeater length: 23

8493 993451 TTTCAACTCCATGAAGGATTCTA CTCATATATTCTGTTATATATGTAGTATATACCCACAGC spacer
length: 39 repeater length: 23

8494 993514 TTTCAACTCCATGAAGGATTCTA CATGACGTATGGTAACACTCCACTAGTTGAGGGTGTAAACTG spacer
length: 42 repeater length: 23

8495 993580 TTTCAACTCCATGAAGGATTCTA CTTTCACACTTGTTAACAAGATAACATTCAAAACATTTCAT spacer
length: 40 repeater length: 23

8496 993644 TTTCAACTCCATGAAGGATTCTA CGCTATAGGTAGTGTGATAGCCTGAGGGAACGTGTAGGTGT spacer
length: 41 repeater length: 23

8497 993709 TTTCAACTCCATGAAGGATTCTA CTCAGTGTGCTCACCTCGAACACAACGTTCTTACCGTGTT spacer
length: 41 repeater length: 23

8498 993774 TTTCAACTCCATGAAGGATTCTA CTCTTCTGTTCCGCCCCACACTCACCTGACAGGAA spacer length: 35
repeater length: 23

8499 993833 TTTCAACTCCATGAAGGATTCTA CTTGCTATCATCAACTCAGTGAAAGTGAATTATATTATGTT spacer
length: 41 repeater length: 23

8500 993898 TTTCAACTCCATGAAGGATTCTA CAATGAAATCATGAAAGTTAGACTTGAAGTTGATGAAA spacer length:
38 repeater length: 23

8501 993960 TTTCAACTCCATGAAGGATTCTA CTGGGCGAGAGGGTGCGCCTCAACACGCCTTAGAGCGTG spacer
length: 39 repeater length: 23

8502 994023 TTTCAACTCCATGAAGGATTCTA CTACGTTGATTGAAACTATTGGTTTTTGGGACATAAGAG spacer
length: 39 repeater length: 23

8503 994086 TTTCAACTCCATGAAGGATTCTA CCTAAAGGATATCAAATACATATCTACTATAAAGGATGGTA spacer
length: 41 repeater length: 23

8504 994151 TTTCAACTCCATGAAGGATTCTA CGGTTTTAATACTAACGGAAGTGAAGTAGCGGGTAATGCGC spacer
length: 41 repeater length: 23

8505 994216 TTTCAACTCCATGAAGGATTCTA CAAAAAAGACTTAAATATCAACTAATTGACAACTACTATC spacer
length: 40 repeater length: 23

8506 994280 TTTCAACTCCATGAAGGATTCTA CCTTCCTCTCTATTTAACTGTGGGTCTCTCTTATTTTTTA spacer
length: 39 repeater length: 23

8507 994343 TTTCAACTCCATGAAGGATTCTA CGGAGATGGATGGGGATAGTGTTTTTACCATCTTCTGATGA spacer
length: 41 repeater length: 23

8508 994408 TTTCAACTCCATGAAGGATTCTA CCGAACCCAACGTTAACATGCCCACTTGCACTAACTAAAT spacer
length: 40 repeater length: 23

8509 994472 TTTCAACTCCATGAAGGATTCTA CCAGGTTTGCCAGGTCTGGGGGAAGACTTACATGGCTACAAGAT spacer
length: 44 repeater length: 23

8510 994540 TTTCAACTCCATGAAGGATTCTA CTTGATATGGCTAATGATGTAATGAAACAAATAGAAGAAAA spacer
length: 41 repeater length: 23

8511 994605 TTTCAACTCCATGAAGGATTCTA CATGATAGTGGTGATTAGGTAATGTTTTTCAAGCCTCAGAT spacer
length: 41 repeater length: 23

8512 994670 TTTCAACTCCATGAAGGATTCTA CAAGTGAGTTGTTGAGTGCATAACCTCTGTTGGTCA spacer length:
37 repeater length: 23

8513	994731 TTTCAACTCCATGAAGGATTCTA	CTGAGGAGGGAGTGAAGGCGACCTACGAGTGGCTGAA spacer length: 37 repeater length: 23
8514	994792 TTTCAACTCCATGAAGGATTCTA	CATAGATATGATATATATACTAGTAGTGTAATATAATCAAA spacer length: 43 repeater length: 23
8515	994859 TTTCAACTCCATGAAGGATTCTA	CTATCAATGTTACCTATCTTTTCCCTAACGTAAAGTATAG spacer length: 40 repeater length: 23
8516	994923 TTTCAACTCCATGAAGGATTCTA	CAAAAATTAAATAGAAGAATCCTGAAGGGTTAAATTGTT spacer length: 41 repeater length: 23
8517	994988 TTTCAACTCCATGAAGGATTCTA	CAAAGGTATAACGTAACCGTCTACAAAATCGCCTTTCTCTAA spacer length: 42 repeater length: 23
8518	995054 TTTCAACTCCATGAAGGATTCTA	CTTCAAGAGAGTATAAAGAAATTCAAGAAGAGATCA spacer length: 36 repeater length: 23
8519	995114 TTTCAACTCCATGAAGGATTCTA	CGTATTTAAACCACTAGAATACAGTTTAACTACTTGCTA spacer length: 40 repeater length: 23
8520	995178 TTTCAACTCCATGAAGGATTCTA	CTTAAACGCGGGGCAAACCAACAACGGCCAAGGAGGAAACC spacer length: 41 repeater length: 23
8521	995243 TTTCAACTCCATGAAGGATTCTA	CTCAACAAACGTACAGGCTATCCCGTGGACGATAATGAG spacer length: 39 repeater length: 23
8522	995306 TTTCAACTCCATGAAGGATTCTA	CAAGCTTTTCCAATATTTTCCAATTTTGTGAAAACCTTACTA spacer length: 41 repeater length: 23
8523	995371 TTTCAACTCCATGAAGGATTCTA	CTATACATATTTTTTGCAGACTTAACGCCAAACATCACATAC spacer length: 42 repeater length: 23
8524	995437 TTTCAACTCCATGAAGGATTCTA	CGAAAAAGATATAATAGTGAATATTGAAGTAAAGCTA spacer length: 38 repeater length: 23
8525	995499 TTTCAACTCCATGAAGGATTCTA	CTCACTATAAAAACTAGGATAACTCCAAACGTTTTAGATA spacer length: 40 repeater length: 23
8526	995563 TTTCAACTCCATGAAGGATTCTA	CGAACGTGTAGGTGTAGTTAGTACTACTAGACCCAACCGTGA spacer length: 42 repeater length: 23
8527	995629 TTTCAACTCCATGAAGGATTCTA	CACAGTTAAATGGAATAAAAACCCATTCAATGTTAAATTTGT spacer length: 42 repeater length: 23
8528	995695 TTTCAACTCCATGAAGGATTCTA	CCTTAGTAATCTACGTTGTAGCTGGGCACGCGTACAACGA spacer length: 40 repeater length: 23
8529	995759 TTTCAACTCCATGAAGGATTCTA	CGATGGATTCCAGAGAAAGAGATGATAATGTCAGAAGATG spacer length: 40 repeater length: 23
8530	995823 TTTCAACTCCATGAAGGATTCTA	CGGGCAAATAATATGCAAAGATGAAACAATAACAGATCTTG spacer length: 41 repeater length: 23
8531	995888 TTTCAACTCCATGAAGGATTCTA	CTACTATAATGACGTTGAGTATCTTGAGATACCGAAAAA spacer length: 39 repeater length: 23
8532	995951 TTTCAACTCCATGAAGGATTCTA	CTTAATGTAATAATGAATACAGTAAAAAGATTCAATAAGT spacer length: 40 repeater length: 23
8533	996015 TTTCAACTCCATGAAGGATTCTA	CAGGACTTAGTCAAACGGATTGAACAGTGTA AAAAGGAGCT spacer length: 41 repeater length: 23
8534	996080 TTTCAACTCCATGAAGGATTCTA	CGGGAATTACTTGAGAAACAGATGGAAAAGTATGAGAAA spacer length: 39 repeater length: 23
8535	996143 TTTCAACTCCATGAAGGATTCTA	CGTGCTACCCGTTCCCGTCACTGCCGAGACGTCAGTCAATAG spacer length: 42 repeater length: 23
8536	996209 TTTCAACTCCATGAAGGATTCTA	CGTGCATAGAACTGTTTGAGTTTCCTAACCGCTAAGTACAA spacer length: 41 repeater length: 23
8537	996274 TTTCAACTCCATGAAGGATTCTA	CAAAACCCACCACAGGGGGTAAACTGTGGATGAAGTAAT spacer length: 41 repeater length: 23
8538	996339 TTTCAACTCCATGAAGGATTCTA	CCTGGTAAACCTCTCTACCGCATACCTCAACTTTACTTCA spacer length: 41 repeater length: 23
8539	996404 TTTCAACTCCATGAAGGATTCTA	CATAAATCTGAGATGAGACTATGACAAGAAGTGATATATTC spacer length: 41 repeater length: 23
8540	996469 TTTCAACTCCATGAAGGATTCTA	CAAGAAGATGAAGGTGAGTGAGAAAAAGTTGCGGGATTA spacer length: 39 repeater length: 23
8541	996532 TTTCAACTCCATGAAGGATTCTA	CTCAATTCTTCTATTGGCAGAGGGGGTAGGGGGGGCT spacer length: 39 repeater length: 23
8542	996595 TTTCAACTCCATGAAGGATTCTA	CACCATTATCTAAAGGGTAGGGTTGACTTGGTTATTGA spacer length: 38 repeater length: 23
8543	996657 TTTCAACTCCATGAAGGATTCTA	CGAGATCATTTTTATGTAGATGGAGAAGAGAAAAATT spacer length: 37 repeater length: 23
8544	996718 TTTCAACTCCATGAAGGATTCTA	CGAGCTATTGCCAGTAACAGTGTACGTATAGGATTCTAGTCC spacer length: 42 repeater length: 23
8545	996784 TTTCAACTCCATGAAGGATTCTA	CATTTTAAGTGTTTTCGCTACATTAGAGGTAAAAGACTATA spacer length: 41 repeater length: 23
8546	996849 TTTCAACTCCATGAAGGATTCTA	CTCAGCTTCTCCCTCGAACATGGTAAGCATGATATTTAAT spacer length: 40 repeater length: 23
8547	996913 TTTCAACTCCATGAAGGATTCTA	CCAGGATTCAAGAAACAGATTGATTATAAAGTTGGAA spacer length: 37 repeater length: 23
8548	996974 TTTCAACTCCATGAAGGATTCTA	CCTTCGTCAGTAAACGTCGTCGATTTCATGTAACAAGTCAATT spacer length: 37 repeater length: 23


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length: 42 repeater length: 23
8549 997040 TTTCAACTCCATGAAGGATTCTA CTGTTTAGGTGAGAAGATTGTCTTTCACATATAGGCCT spacer length:
38 repeater length: 23
8550 997102 TTTCAACTCCATGAAGGATTCTA CATGAAGTGGCCTAGACCTGACCCCTGATGATGGAATCTC spacer
length: 40 repeater length: 23
8551 997166 TTTCAACTCCATGAAGGATTCTA CATAAAGGGGGTTACCATCAAAGTGCTCTCTGATGTTGT spacer
length: 39 repeater length: 23
8552 997229 TTTCAACTCCATGAAGGATTCTA CTCAAAGGGATAATGGCATATGATAGTGAAGCATATGTTA spacer
length: 40 repeater length: 23
8553 997293 TTTCAACTCCATGAAGGATTCTA CCAGGACTATCAGGACTACCCAAGCAGCGCTTGGCCTTCAGCTG spacer
length: 44 repeater length: 23
8554 997361 TTTCAACTCCATGAAGGATTCTA CACTACGTACAATGCAGTACCTAGGAGGTAGCCTAGAGTAGAAT
8555
8556
8557 GCA_000211475.1_ASM21147v1_genomic.fna(findCrispr):
8558 START REPEAT
SPACER
8559 crispr 1
8560 1689254 TTCT
TTCAATTCTATTTTAGTCTTATTGGAACAGATTAAGCCGATAATCCTCAACGAAGACCAAATAGCTTTCAATTCTATTTTAGTCTT
ATTGGAAGTCTATCTTCGTCTGTTGGGAGGCTCATGAAGAA spacer length: 127 repeater length: 4
8561 1689386 TTCT
TTCAATTCTATTTTAGTCTTATTGGAACAGGTTATCCTTAGAGAGCATAGCCTCAGCCTTAGCCTCTTTCAATTCTATTTTAGTCT
TATTGGAACCTCTTACTACCATCCTCACCTTACGCTCAATC spacer length: 129 repeater length: 4
8562 1689520 TTCT
TTCAATTCTATTTTAGTCTTATTGGAACGACGCTATGGCCTGAGAAGGGGGGGCTCTTAGTATTGCCTTTCAATTCTATTTTAGTC
TTATTGGAACGAAAATCTTCTATAGCTCCAATATTGCGTTTGAG spacer length: 130 repeater length: 4
8563 1689655 TTCT
TTCAATTCTATTTTAGTCTTATTGGAACAGGGGAAGCAGGGGATGGCAGTTTATCAGAAATTTTACTTTCAATTCTATTTTAGTCT
TATTGGAACACGTCAAGAAGAAATATAGAACTGATTCTAGAAAAG
8564
8565
8566 crispr 2
8567 1495039 GCTTTCAATTCTCTTTTAGTCTTATTGGAAGT CCTTCTTTGCTCCATATGTAGCTTATTTCTTGT spacer
length: 34 repeater length: 32
8568 1495106 GCTTTCAATTCTCTTTTAGTCTTATTGGAAGT AGACACGATAGTCTTTATCGAGTTTATCTATGA spacer
length: 33 repeater length: 32
8569 1495172 GCTTTCAATTCTCTTTTAGTCTTATTGGAAGT AGGGGAAGCAGGGGATGGCAGTTTATCAGAAAT
8570
8571
8572 GCA_000213215.1_ASM21321v1_genomic.fna(findCrispr):
8573 START REPEAT
SPACER
8574 crispr 1
8575 1583823 CTTTCAATTCTATAGTAGATTATC TTCCCGTCGATCTCAATTGCGTTAGTGCCTGTGAGCGTACCAA spacer
length: 43 repeater length: 24
8576 1583891 CTTTCAATTCTATAGTAGATTATC TATGATACAGCGGAACCAGAATTATTAGCACAGTTGGCT spacer
length: 39 repeater length: 24
8577 1583955 CTTTCAATTCTATAGTAGATTATC
TACGTTTTCCTACTTCGGCGTCTCTCCAGCACCTTACGGTGGCTTTCAATTCTATACTAGATTATCTTGTCTTCGGCGTAGAGAGTT
ACTTTAATCGTTTCAAAT spacer length: 105 repeater length: 24
8578 1584085 CTTTCAATTCTATAGTAGATTATC CTCTGTAAGTATCACACTGAAAGTGAACGGATAGTTGGGAT spacer
length: 41 repeater length: 24
8579 1584151 CTTTCAATTCTATAGTAGATTATC GCTGAGATACTTGTCTTCTTTATGGCGCAGTTATTTTC spacer
length: 38 repeater length: 24
8580 1584214 CTTTCAATTCTATAGTAGATTATC CAAGAGAAAGCTTTTTAAACCCCTTTCCCTTTTTCTCAT spacer
length: 40 repeater length: 24
8581 1584279 CTTTCAATTCTATAGTAGATTATC AAAGAAAGATTGCGTAATAATCTTACCGCAGTATATTTAT
8582
8583
8584 crispr 2
8585 1588353 GATAATCTACTATAGAATTGAAAG AACCAGTTGGGCAGAAAGTTTAAATACCAGTCCGCGAAGA spacer
length: 40 repeater length: 24
8586 1588418 GATAATCTACTATAGAATTGAAAG TATCTGTTACAGTATCCTTGAAGTTTTCAAATCTAGTAA spacer
length: 39 repeater length: 24
8587 1588482 GATAATCTACTATAGAATTGAAAG AAAGATAAGAAGATTGTAATTAACGTTGCACATGATGAAC spacer
length: 40 repeater length: 24
8588 1588547 GATAATCTACTATAGAATTGAAAG TTTTCTTCGTTGACTTTATTCTCCATCTCAGTTTTATTT spacer
length: 40 repeater length: 24
8589 1588612 GATAATCTACTATAGAATTGAAAG ACTGGACTAACCATGGTGCTTACTTCTTAATGTTGAAATA
8590

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8591
8592 crispr 3
8593 1562889 GTTGAAATAAGGAAGAACTGAAAG TCGACGACTATCTCATCTTTAAGTACTTGCCTTGCAGTCTT spacer
length: 41 repeater length: 24
8594 1562955 GTTGAAATAAGGAAGAACTGAAAG TTCTCTTTTAGCCTTCTATCCCAGGGATTAAGT spacer length: 33
repeater length: 24
8595 1563013 GTTGAAATAAGGAAGAACTGAAAG AATCCAGTCAAACCAGCTAATAGTTTTCTGA spacer length: 32
repeater length: 24
8596 1563070 GTTGAAATAAGGAAGAACTGAAAG TTCTTCTTACTGAACATGAAGAGACCGTATACC spacer length: 33
repeater length: 24
8597 1563128 GTTGAAATAAGGAAGAACTGAAAG GGATTGTTCTGGATCCATTGACTCTGAAGATTACT spacer length:
35 repeater length: 24
8598 1563188 GTTGAAATAAGGAAGAACTGAAAG AAAAACAAATCCCCAAATAAATCCCCAAAATAATA spacer length:
35 repeater length: 24
8599 1563248 GTTGAAATAAGGAAGAACTGAAAG GTATCCCTACTGGATTTGTCACCACGGTATAATTT spacer length:
35 repeater length: 24
8600 1563308 GTTGAAATAAGGAAGAACTGAAAG TCTTTATCCTCTTTTATCATTGTATCCCCATA spacer length: 33
repeater length: 24
8601 1563366 GTTGAAATAAGGAAGAACTGAAAG CTTACCTTTTATTCCTGCTATTTCCCCTTCTACC spacer length: 33
repeater length: 24
8602 1563424 GTTGAAATAAGGAAGAACTGAAAG CAATAGCTTTTCGCCAATTATCAGCCACCGGATCA spacer length:
34 repeater length: 24
8603 1563483 GTTGAAATAAGGAAGAACTGAAAG TTCTCTTAGTATTTTTACATATCTCAACGAAAA spacer length: 33
repeater length: 24
8604 1563541 GTTGAAATAAGGAAGAACTGAAAG AACAAGGACGTATTGAACACCGTCAAGAGGGCA spacer length: 33
repeater length: 24
8605 1563599 GTTGAAATAAGGAAGAACTGAAAG ATCTTGCAACCTTGTCTGCAGCTTGGCAATA spacer length: 32
repeater length: 24
8606 1563656 GTTGAAATAAGGAAGAACTGAAAG CAAAAGGAAGGTGGAGCATACCTGGGACTACAGTG spacer length:
35 repeater length: 24
8607 1563716 GTTGAAATAAGGAAGAACTGAAAG TATCAATATGCCGTTTTAGAGAATTTCCCATTA spacer length: 33
repeater length: 24
8608 1563774 GTTGAAATAAGGAAGAACTGAAAG TTTTTAAAGTCGTAATTAACGATTATTATCGCG spacer length: 33
repeater length: 24
8609 1563832 GTTGAAATAAGGAAGAACTGAAAG CTACGTTTCCGCCCTACTATCACTACAATATCA spacer length: 33
repeater length: 24
8610 1563890 GTTGAAATAAGGAAGAACTGAAAG TAATGAGTTTATCAGGCTTAGTATGTCATCAACA spacer length:
34 repeater length: 24
8611 1563949 GTTGAAATAAGGAAGAACTGAAAG TCAACTGCTCTCCCTATATAGTAAGAAGCCTCTCTT spacer length:
36 repeater length: 24
8612 1564010 GTTGAAATAAGGAAGAACTGAAAG AGAGAACGTGAGGATAAAGGAAGTCGATGTTG spacer length: 32
repeater length: 24
8613 1564067 GTTGAAATAAGGAAGAACTGAAAG CACTTCTATAGAGCTGTAGCAGACAGCCTTTATA spacer length:
34 repeater length: 24
8614 1564126 GTTGAAATAAGGAAGAACTGAAAG CTAGGCTTTTAGGGCATAAACGGCGTGCTAACTGC spacer length:
35 repeater length: 24
8615 1564186 GTTGAAATAAGGAAGAACTGAAAG AAATCGGGAAAAAGCCCGGTATTTTTGACGTGT spacer length:
34 repeater length: 24
8616 1564245 GTTGAAATAAGGAAGAACTGAAAG TATATAACGATATAATAACGCTCTAACTAAGG spacer length: 33
repeater length: 24
8617 1564303 GTTGAAATAAGGAAGAACTGAAAG ATCACACGGAAAGAAAGTCGTAGTTACCACCTT spacer length: 33
repeater length: 24
8618 1564361 GTTGAAATAAGGAAGAACTGAAAG GGAACTCCAGAAAAGAATGAGGATCAGACAGTC spacer length: 33
repeater length: 24
8619 1564419 GTTGAAATAAGGAAGAACTGAAAG GCCCTGTGCTAATACAGGCGCTGCAAGAGTTTG spacer length: 33
repeater length: 24
8620 1564477 GTTGAAATAAGGAAGAACTGAAAG CTATTTGCCAAGTGGATTAAACGAGTTGGACT spacer length: 33
repeater length: 24
8621 1564535 GTTGAAATAAGGAAGAACTGAAAG AAATATTATTTTAGAGGTGAGAAAAATAGACGA spacer length: 33
repeater length: 24
8622 1564593 GTTGAAATAAGGAAGAACTGAAAG TCTTGAAGGGCGAGGTTTGTCTGTTTCAGTC spacer length: 33
repeater length: 24
8623 1564651 GTTGAAATAAGGAAGAACTGAAAG ATTCCAGTCTATCAAGTAGGGGATCCCAAAGAC spacer length: 33
repeater length: 24
8624 1564709 GTTGAAATAAGGAAGAACTGAAAG TGAGATATTGGTGTGGGATATGGGTTTAAAGCAA spacer length:
34 repeater length: 24
8625 1564768 GTTGAAATAAGGAAGAACTGAAAG TTTGCCGTCTTTTTCTTTATAGTTGTACACCAG spacer length: 33
repeater length: 24
8626 1564826 GTTGAAATAAGGAAGAACTGAAAG GCTACTGGACTTAAATACGTCGCTTCAATTAAA spacer length: 33
repeater length: 24
8627 1564884 GTTGAAATAAGGAAGAACTGAAAG CTGTTGTAGTTTTCTGTGTAGTATTATCCTTAACT spacer length:

35 repeater length: 24

8628 1564944 GTTGAAATAAGGAAGAACTGAAAG GTAGATTTGGACGTATTACTTAATATCGTGAAG spacer length: 33
repeater length: 24

8629 1565002 GTTGAAATAAGGAAGAACTGAAAG AAGAAAGATTGCGTAATAATCTTACCGCAGTAT

8630

8631

8632 crispr 4

8633 354893 GTTGCATCCCCAAAAGGGATTGAAA TTATAGCAATATTCCTCATTGTTTTAACACCTTCTTAGC spacer
length: 39 repeater length: 24

8634 354957 GTTGCATCCCCAAAAGGGATTGAAA TACTTCTATGAAACTATTGCTACCCCATAGGTCATACT spacer
length: 38 repeater length: 24

8635 355020 GTTGCATCCCCAAAAGGGATTGAAA TTTGCATAAACACCGCCTGCCAGTATGAGGTTATTAGCCA spacer
length: 40 repeater length: 24

8636 355085 GTTGCATCCCCAAAAGGGATTGAAA TCCTATAGTGAAATAGTAATTTGCTATTTTACTCAAT spacer length:
37 repeater length: 24

8637 355147 GTTGCATCCCCAAAAGGGATTGAAA TATATTGGAAGGGGCTTTGTCTTACCCAATCTTTAGA spacer length:
37 repeater length: 24

8638 355209 GTTGCATCCCCAAAAGGGATTGAAA TTTGTTCCGCAAGTACGTTTGTCTTGCCTTCTTATATTA spacer
length: 39 repeater length: 24

8639 355273 GTTGCATCCCCAAAAGGGATTGAAA TTAATTATTGAATTATCGCGGTCAAATGAACGGTAATA spacer
length: 39 repeater length: 24

8640 355337 GTTGCATCCCCAAAAGGGATTGAAA TAGACAATTTCTCATCCTATCGGTTCCCGTTAAAATTTA spacer
length: 40 repeater length: 24

8641 355402 GTTGCATCCCCAAAAGGGATTGAAA TGGTTTTTTTCACTTCTTCAGGAGTAGATAAAAAAATCTC spacer
length: 39 repeater length: 24

8642 355466 GTTGCATCCCCAAAAGGGATTGAAA TTTGAATTTCTCACCAGCGTCCTTAAGATTCATCGCTCTCAT spacer
length: 42 repeater length: 24

8643 355533 GTTGCATCCCCAAAAGGGATTGAAA TAGACACTATATCCTTTTATTGAAAATATCGTCATTATG spacer
length: 39 repeater length: 24

8644 355597 GTTGCATCCCCAAAAGGGATTGAAA TCAAAGCACGCAAAGTCACTAATAGACATACCACTACCC spacer
length: 39 repeater length: 24

8645 355661 GTTGCATCCCCAAAAGGGATTGAAA TTCCCTAAGATTTTTTAGCAATAAATTAAGGTATGTTG spacer length:
37 repeater length: 24

8646 355723 GTTGCATCCCCAAAAGGGATTGAAA TTCGGTAGCGTCTATAGCAAAGCACATTCCATCAGAA spacer length:
37 repeater length: 24

8647 355785 GTTGCATCCCCAAAAGGGATTGAAA TTAACGTATTGGTCAGGGCTAAGAACTTTCCTATATGC spacer
length: 38 repeater length: 24

8648 355848 GTTGCATCCCCAAAAGGGATTGAAA TAAGTTCGACCCGTACGCGGTATTCGGGAGGACATTTG spacer
length: 38 repeater length: 24

8649 355911 GTTGCATCCCCAAAAGGGATTGAAA TTTAACAGCATGCTTGTGATAGAATTGTTATGTTTTGC spacer
length: 38 repeater length: 24

8650 355974 GTTGCATCCCCAAAAGGGATTGAAA TAATAAAATCGGAATAGCAAACCTATTGCACTCAATTC spacer
length: 39 repeater length: 24

8651 356038 GTTGCATCCCCAAAAGGGATTGAAA TGGTACTATCTCTACTTGGTCGCATACAGCGTTTATATC spacer
length: 39 repeater length: 24

8652 356102 GTTGCATCCCCAAAAGGGATTGAAA TTCTAATCTCTTCAAGAAGTTTCATCTTCACGCTTTCTG spacer
length: 39 repeater length: 24

8653 356166 GTTGCATCCCCAAAAGGGATTGAAA TATGAACTCCCAGACCTTGACCTTAACACGTGCGTAGT spacer
length: 38 repeater length: 24

8654 356229 GTTGCATCCCCAAAAGGGATTGAAA TAGACAAGAACAATGGCATTGCCAACTTCATATAGGTAAA spacer
length: 40 repeater length: 24

8655 356294 GTTGCATCCCCAAAAGGGATTGAAA TATGACGGTCTCAGATAACGGCTGTATCGTCACAACAGC spacer
length: 39 repeater length: 24

8656 356358 GTTGCATCCCCAAAAGGGATTGAAA TATCTTAGCTTCAGCGTTATTTACAACGATTTTTATTTT spacer
length: 39 repeater length: 24

8657 356422 GTTGCATCCCCAAAAGGGATTGAAA TTAGAAAGCTACGGGATCCCCATGGAGCTAAGAGGAAT spacer
length: 38 repeater length: 24

8658 356485 GTTGCATCCCCAAAAGGGATTGAAA
GATAACTCTACAATATTCCATTACACATTGACTTATCATGTTGCATCCCCAAAAGGGATTGAAGTAAAAAATGTAATATCTATTC
AGACCCATTGAAATAG spacer length: 102 repeater length: 24

8659 356612 GTTGCATCCCCAAAAGGGATTGAAA GATATTGTTGAAAAATAACGGAACCTCTTCAGAATA spacer
length: 38 repeater length: 24

8660 356675 GTTGCATCCCCAAAAGGGATTGAAA GAAAAGGTGATGCGAATGGATCCCCTAAATAAATCTAAAT spacer
length: 40 repeater length: 24

8661 356740 GTTGCATCCCCAAAAGGGATTGAAA GATACGAAGTGTTCACAAGGTTAATTAGAGAATACAACA spacer
length: 39 repeater length: 24

8662 356804 GTTGCATCCCCAAAAGGGATTGAAA GAGATAGGAAACCTTGGTCTTGCTCCATAAAGTTCTGTGTC spacer
length: 41 repeater length: 24

8663 356870 GTTGCATCCCCAAAAGGGATTGAAA GCTCTCTCAAGATCGGTATATATCTTTTTTGACCAAGCAA spacer
length: 39 repeater length: 24

8664 356934 GTTGCATCCCCAAAAGGGATTGAAA GTTGATGTAATGAAGTCAACGACTTTTTTGGCAACTGAAAAT spacer

length: 42 repeater length: 24
8665 357001 GTTGCATCCCAAAAGGGATTGAAA GAATACCAATGAGTGAGTGAAATAGAATATATCTCCTC spacer
length: 38 repeater length: 24
8666 357064 GTTGCATCCCAAAAGGGATTGAAA GTGAAGGAATTACGTCGGTTTAAGCAAATATACGTGAT spacer
length: 38 repeater length: 24
8667 357127 GTTGCATCCCAAAAGGGATTGAAA GTTATAACAACCAGTAAAGACATTCTCTATTATTTTTGAA spacer
length: 40 repeater length: 24
8668 357192 GTTGCATCCCAAAAGGGATTGAAA GTAAACCTCGACCTCCTGGGTTTAACAGTGCTGTTCTCA spacer
length: 39 repeater length: 24
8669 357256 GTTGCATCCCAAAAGGGATTGAAA GAGTTTCCTCATATACGTAATCATATTCCGCCTCTAAGTC spacer
length: 40 repeater length: 24
8670 357321 GTTGCATCCCAAAAGGGATTGAAA GTTAATTATAACATCTTCATTCTCTTCCTCATCATACC spacer
length: 38 repeater length: 24
8671 357384 GTTGCATCCCAAAAGGGATTGAAA GACTATTACTTTTCGTTAAATTCTACTGCAGTAAGCTAT spacer
length: 38 repeater length: 24
8672 357447 GTTGCATCCCAAAAGGGATTGAAA GGCTTTTTTCGATTTGCTTTTTTAATCAATTCAACAAAGG spacer
length: 38 repeater length: 24
8673 357510 GTTGCATCCCAAAAGGGATTGAAA GTAGAAGCGTGAAGAAAATCGTTGTAATTGATGAGGC spacer length:
37 repeater length: 24
8674 357572 GTTGCATCCCAAAAGGGATTGAAA GGGATTTAATTTATTTGGATATATGACTACTAATATAT spacer
length: 38 repeater length: 24
8675 357635 GTTGCATCCCAAAAGGGATTGAAA GTGTGAGAAATTGAGTATAAGTTGTACAACGCGATTA spacer length:
37 repeater length: 24
8676 357697 GTTGCATCCCAAAAGGGATTGAAA GGTGTAGTTCTCTGGGTCAGAGCAATATTCGCCAAATTT spacer
length: 39 repeater length: 24
8677 357761 GTTGCATCCCAAAAGGGATTGAAA GTTTTCACTATAGAAAAGTACTGGATAGCCTTGAACCTCA spacer
length: 40 repeater length: 24
8678 357826 GTTGCATCCCAAAAGGGATTGAAA GACTGTTGTTTAGCCTCTTCCTCCTTCTGAGCCCATTCT spacer
length: 40 repeater length: 24
8679 357891 GTTGCATCCCAAAAGGGATTGAAA GCTATACTTCCGTTTTTCATCTTTAATCCTACTTCTAACC spacer
length: 39 repeater length: 24
8680 357955 GTTGCATCCCAAAAGGGATTGAAA GATAACTTTACAAGTTCTTCTAAATTCTTTTGAGTCTG spacer
length: 38 repeater length: 24
8681 358018 GTTGCATCCCAAAAGGGATTGAAA GTTTATAGCTATTCTGTAAACCTTTATGTTGGTGTGCAC spacer
length: 40 repeater length: 24
8682 358083 GTTGCATCCCAAAAGGGATTGAAA GACCTATTTGCGTTAATAGAAAGGAGAAATCCCGAAT spacer
length: 38 repeater length: 24
8683 358146 GTTGCATCCCAAAAGGGATTGAAA ATAGAAGAATGGGTAAAGAAAGATTGCGTAATAATCTT
8684
8685
8686 crispr 5
8687 371298 CTTTCAATCCCTTTTGGGATGCAAC TCACTTACTTCAATATTTTTTGAAAGTGAAGAAACGC spacer
length: 37 repeater length: 25
8688 371361 CTTTCAATCCCTTTTGGGATGCAAC CTTTAAATCGCATAGCGAATTATTCTCAAGTTTGAT spacer
length: 37 repeater length: 25
8689 371424 CTTTCAATCCCTTTTGGGATGCAAC TGGAACATTTGTAAAAACAGGGCATTATGCCTTTAC spacer
length: 38 repeater length: 25
8690 371488 CTTTCAATCCCTTTTGGGATGCAAC TGGAAAGGGAGGCGGCATATTTTTGGGCCTTCAATT spacer
length: 38 repeater length: 25
8691 371552 CTTTCAATCCCTTTTGGGATGCAAC GAAAATACGAAATCATTTATGCTGAATTTCCGCTTAATA spacer
length: 39 repeater length: 25
8692 371617 CTTTCAATCCCTTTTGGGATGCAAC GGTTCAAACCAGCCTGGTATAATGAACCAAACCAGG spacer
length: 37 repeater length: 25
8693 371680 CTTTCAATCCCTTTTGGGATGCAAC AATTGAAGTGAATGGTACAAGATATTGGATAAACACGC spacer
length: 38 repeater length: 25
8694 371744 CTTTCAATCCCTTTTGGGATGCAAC GAATTATCCGAAAGATGTACAAGATGTTTTTAACATTAGATAAACACGC
spacer length: 49 repeater length: 25
8695 371819 CTTTCAATCCCTTTTGGGATGCAAC TACTATTTGTGATGAACATGAGCTTTGTCTTTCAAAT spacer
length: 38 repeater length: 25
8696 371883 CTTTCAATCCCTTTTGGGATGCAAC TCCCCTTAGGTTTCGTCCAGGTTTCATGAACCTCGGTGA spacer
length: 38 repeater length: 25
8697 371947 CTTTCAATCCCTTTTGGGATGCAAC GCTTCTTTCAAATACTCCAGAAGTTTAGGGGAGTTGTC spacer
length: 38 repeater length: 25
8698 372011 CTTTCAATCCCTTTTGGGATGCAAC GTTTTATTAATCTCTGTCCTTATTTCTCTTTTCTCA
8699
8700
8701 crispr 6
8702 378643 TTTGTTGCATCCCAAAAGGGATTGAAAGA
TTTTTATTGTGACATTAGATAGCGTAATACTGTAATGAGTTGCATCCCAAAAGGGATTGAAAGGCAGCTTTTGCAGCAGTAGCTTG
GGATAATCGCA spacer length: 97 repeater length: 29
8703 378770 TTTGTTGCATCCCAAAAGGGATTGAAAGA ATTCAATTTTACCTAACTCTCCTATTTTGACCTCTC spacer

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length: 36 repeater length: 29
8704 378836 TTTGTTGCATCCCCAAAAGGGATTGAAAGA GGGGAGGAAGTCAGCTAAGGAGGAAGTAGAGGAGAT
8705
8706
8707 crispr 7
8708 1843074 CGTTAAGCTCATACTACCAAACGGAACAATAGAAGAATGG
GTAAATAATGGTACAATAATACAAATTCCAAAAACAATATACATAAACTCTACAAGCAGATATTATTTAAATAATACAAATACCTC
GTTTATAATATGTAGACCAATGATAATAAAGCCTTGCTATAAATTACAATACC spacer length: 139 repeater
length: 40
8709 1843254 CGTTAAGCTCATACTACCAAACGGAACAATAGAAGAATGG
CTGGATTGCGACTCTGATTTAATATTACCAAAAATAATACAAATTAATGATACTAGATACATATTAAACGAGCAGAATAATATAAT
AGAAATACTAGGCTGTGCTATCTTGTGCCCAAAATATGATGTGTATTACC spacer length: 136 repeater
length: 40
8710 1843431 CGTTAAGCTCATACTACCAAACGGAACAATAGAAGAATGG
GTAATAATCTTACCGCAGTATATTTATATTTCAAGTTATGAGAGATATGTGTTAAATTCAACACAGTTCGTTATAGTTCACTCACC
ATTAGTTATCCAACCTGAGTACATTAAACAATATTTGATTAATATCAATG

8711
8712
8713 GCA_000214415.1_ASM21441v1_genomic.fna(findCrispr):
8714 START REPEAT
SPACER
8715 crispr 1
8716 1056817 AAAA TCAGACCCATAGGGGGATGGAAATTGTTATCACCTCCTTTTTGTTTTTTGAGTGGTTTGATAACAGT
spacer length: 67 repeater length: 4
8717 1056889 AAAA TCAGACCCATAGGGGGATGGAAATTTTACATTTTAAGTTGCACTGTTTAAATATATCACAGT spacer
length: 63 repeater length: 4
8718 1056957 AAAA TCAGACCCATAGGGGGATGGAAATAACAACCTTGCTGAGGAGTGTGGTGTTCAACTGTTGCGT spacer
length: 63 repeater length: 4
8719 1057025 AAAA TCAGACCCATAGGGGGATGGAAATTTTTGAAATCATCTATTATAGATGCATTAAGATCTTCAA
8720
8721
8722 crispr 2
8723 1002284 ACCCTTAGGGG GATGGAAACTTTGTCCAAAACAAAAAATACTACGACGAGGAACTGTTAAATCA spacer
length: 55 repeater length: 11
8724 1002351 ACCCTTAGGGG GATGGAAACACATCTTCTACAATTTCTACAATATTCCTCTTTAATAGTTAAATCA spacer
length: 56 repeater length: 11
8725 1002419 ACCCTTAGGGG GATGGAAACATGTAAGGATTTTCTATAAAAATATCTGCTATTCTAATTGTTAAATCA
spacer length: 58 repeater length: 11
8726 1002489 ACCCTTAGGGG GATGGAAACTGTTGGTTCTTTTTGTTACTGAGTATGTCTTTTGTGGTATCGTTAAATCA
spacer length: 60 repeater length: 11
8727 1002561 ACCCTTAGGGG GATGGAAACTGTTGGTTCTTTTTGTTACTGAGTATGTCTTTTGTGGTATCGTTAAATCA
spacer length: 60 repeater length: 11
8728 1002633 ACCCTTAGGGG GATGGAAACATTCTTTTATCTTTTATTTTTCTCTTGCCATTTTGAGTTAAATCA spacer
length: 56 repeater length: 11
8729 1002701 ACCCTTAGGGG GATGGAAACAAATTTATTGCGTTTATCCATGCCATCATTGTTATTTCTTTTGGGGTTAAATCA
spacer length: 64 repeater length: 11
8730 1002777 ACCCTTAGGGG GATGGAAACACAATTTTCTACATCCTAAAATTTTGAAATCATTATATCCATAGTTAAATCA
spacer length: 63 repeater length: 11
8731 1002852 ACCCTTAGGGG GATGGAAACAGATTTTAAACAGTTTTTAACAAGCATTATCAATAACCATGAGGTAAATCA
spacer length: 62 repeater length: 11
8732 1002926 ACCCTTAGGGG GATGGAAACATTATAGAGTAATGACTGATGAAAACATCCTTTTAGTTAAATCA spacer
length: 55 repeater length: 11
8733 1002993 ACCCTTAGGGG CTTAGGGGGATGGAAATGCTGGTGGAGCTGTTAAGTAATTTACATAGATATTAAC
8734
8735
8736 crispr 3
8737 738969 ATCC ATTAAAACAAGGATGGAAACGCAATATCTCTAAACATGCTACATCACCATTTTCACGGTTTGAATTGCT
spacer length: 69 repeater length: 4
8738 739043 ATCC ATTAAAACAAGGATGGAAACACTTCTTGCCATCAAGCACTATCGAAGCACCTTCAGTTTGAATTGCT
spacer length: 68 repeater length: 4
8739 739116 ATCC ATTAAAACAAGGATGGAAACTTGTAATAATTACTAAAACCGCTTATGAAAAAGTCTGGTTTGAATTGCT
spacer length: 68 repeater length: 4
8740 739189 ATCC CAGACCCATAGGGGGATGGAAATTTTTGAAATCATCTATTATAGATGCATTAAGATCTTCAAATAGT
8741
8742
8743 crispr 4
8744 220891 ATCCCCCTAT GGGTCTGATTTTAACTATTTAAAGGACTTGTGGAGTGAATTACCTATACAGTAATTTTC spacer
length: 58 repeater length: 10
8745 220960 ATCCCCCTAT GGGTCTGATTTTAACTAACATAAAAAGAAGATAGAGAAGAGAAGATATAAGTTTC spacer
length: 57 repeater length: 10
8746 221028 ATCCCCCTAT GGGTCTGATTTTAAACACAGTCATAATCATAGCAAAACCCATTGCCAGCATGTAATGTTTC

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spacer length: 60 repeater length: 10
 8747 221099 ATCCCCCTAT GGGTCTGATTTTAAATTTTTTGAAAAAGAAGCCCAAATAAACGACCTAATGGAGTTTC spacer
 length: 57 repeater length: 10
 8748 221167 ATCCCCCTAT GGGTCTGATTTTAAATTAATTTTATTAATTCATCAATATATTTATATGTAATGTTTC spacer
 length: 57 repeater length: 10
 8749 221235 ATCCCCCTAT GGGTCTGATTTTAAATCATATTTGGAGGCAGAGGATAACAATTATCAGAACATGTTTC spacer
 length: 57 repeater length: 10
 8750 221303 ATCCCCCTAT GGGTCTGATTTTAAATTATATTAGTGAGATAGCACAAGCAACGGAGAGTATAGTTTC spacer
 length: 56 repeater length: 10
 8751 221370 ATCCCCCTAT GGGTCTGATTTTAAATCGAGGTTGGTGTTCGTGGCACAAAATTAGAAAACCTAGTTTC spacer
 length: 58 repeater length: 10
 8752 221439 ATCCCCCTAT GGGTCTGATTTTAAATTAGAAGTGGATTTAGTGTTGAGAGAGGTTAAAGCAGTTGTTTC spacer
 length: 58 repeater length: 10
 8753 221508 ATCCCCCTAT CTTAGGGGGATGGAAATGCTGGTGGAGCTGTTAAGTAATTTACATAGATATTAACAGT
 8754
 8755
 8756 crispr 5
 8757 7999 TCCTTGTTT TAATGGATGAGTAATTCAAACACGGAGACAGTGCAAAAAGAGTAATTTTAAGGACAGTGTTC
 spacer length: 64 repeater length: 9
 8758 8073 TCCTTGTTT TAATGGATGAGTAATTCAAACATCTATTGTTTTATACTTATGTTTCATGGTCTTTAACCTGTTTC
 spacer length: 65 repeater length: 9
 8759 8148 TCCTTGTTT TAATGGATGAGTAATTCAAACAAGAGATATTCAAAGGAACAAGATGGGAAGATTTTCAGGTTTC
 spacer length: 64 repeater length: 9
 8760 8222 TCCTTGTTT TAATGGATGAGTAATTCAAACTATTAGAATATCTTCAAGGTATATAATGATAGAAAATTGTTTC
 spacer length: 65 repeater length: 9
 8761 8297 TCCTTGTTT TAATGGATGAGCAATTCAAACAAGAACTACTAAAACAAAGACTGTTATTAGAAGTTAGTTTC
 spacer length: 63 repeater length: 9
 8762 8370 TCCTTGTTT TAATGGATGAGGTATTCAAACCTAACTTGTGAAATGACAACAAATACTACAATTGCGTTTC
 spacer length: 63 repeater length: 9
 8763 8443 TCCTTGTTT TAATGGATGAGGTATTCAAACACGATGGGATATTTTCATCAGAGCCGCTTTATTTAGGGTTTC
 spacer length: 64 repeater length: 9
 8764 8517 TCCTTGTTT TAATGGATGAGGTATTCAAACGTGGTTAGAGGAAAAATTAAATCCATTCTATGCAAGTTTC spacer
 length: 62 repeater length: 9
 8765 8589 TCCTTGTTT TCCATTAAAACAAGGATGGAAACCGGTTGGCATGATGTTGAGTATTTAGTGGCAACGTTGA
 8766
 8767
 8768 crispr 6
 8769 126698 CAGCCTTAAATTCCCAAATCT
 TATTACCAGTTCTTAAATCCAAGCGTAGGTGTATCCTCCCAAACATCCCAATACAACAATATCGTCTTTTATGGATATTCCCCTT
 ACATCCTCA spacer length: 95 repeater length: 21
 8770 126815 CAGCCTTAAATTCCCAAATCT
 TCTTACCAGTTTTTAAATTCAAAGCGTAGATATTTTTTATCTCCTTCTTCAAAAGCTCACCACATCCCAATACAACAATATCGTCT
 TTTATGGATATTTCTCTACACTCTCA spacer length: 113 repeater length: 21
 8771 126950 CAGCCTTAAATTCCCAAATCT
 GAAATTTTTGAAATCATCTATTATAGATGCATTAAGATCTTCAAATAGTTAAATCAGACCCATAGGGGGATGGAAATAATAAGG
 CAAGCTTGAATTAACTCTCAATTAG
 8772
 8773
 8774 crispr 7
 8775 1491739 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC AGGATGATGTTAAGAAAATCGTAGAGTTTCTTTCTTCATA
 spacer length: 40 repeater length: 31
 8776 1491811 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC TCAAGTTCAGCAATGCACTTAAGAAGTAAATATC spacer
 length: 35 repeater length: 31
 8777 1491878 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC TGTGAATGCGATGATGGATTAACAGTTAAAGCAT spacer
 length: 34 repeater length: 31
 8778 1491944 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC TACATGAATGATGCTAAAAGGGTTGTTATAGTTGTTGAGAAG
 spacer length: 42 repeater length: 31
 8779 1492018 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC GACAATGAAGAGCCAAACCCACTAAACAATAAACTT spacer
 length: 36 repeater length: 31
 8780 1492086 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC ACTTTCAAACGCATAAGTCCAAATACTGCTAAAAA spacer
 length: 36 repeater length: 31
 8781 1492154 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC GTAACTTTGCAAGTAACTCAAGAATTTCCAGTAACT spacer
 length: 36 repeater length: 31
 8782 1492222 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC CTCATTTATTATGTGCCACACTTAAAAAAGATTA spacer
 length: 35 repeater length: 31
 8783 1492289 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC AATTTGAAAATAAGCAGTTAAACAAATCTCTCAAT spacer
 length: 35 repeater length: 31
 8784 1492356 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC ATAACCTCTCTAATCCGCTGTCTAACATATTCGTTAAAA
 spacer length: 40 repeater length: 31
 8785 1492428 GTTTCATCCCCCTAAGGGTCTGATTTTAAAC AATTTGTTACAACCAACAACCTTGCAGAAGAGT spacer
 length: 33 repeater length: 31

8786 1492493 GTTTCCATCCCCCTAAGGGTCTGATTTTAAC TATAGCCAGAAAATACCCATATTTCAAACCTCTAC spacer
length: 35 repeater length: 31
8787 1492560 GTTTCCATCCCCCTAAGGGTCTGATTTTAAC GTATTATTTGATGATTCCGATGAGTATGCTAAAAAAG spacer
length: 37 repeater length: 31
8788 1492629 GTTTCCATCCCCCTAAGGGTCTGATTTTAAC TCGTACAGATTACCGTCTGAAATTTTGAAATTCTCA spacer
length: 36 repeater length: 31
8789 1492697 GTTTCCATCCCCCTAAGGGTCTGATTTTAAC TGGAGCTGTTAAGTAATTTACATAGATATTAACAGT
8790
8791
8792 crispr 8
8793 221093 GTTTCCATCCCCCTATGGGTCTGATTTTAAT TTTTGTGAAAAGAAGCCCAAATAAACGACCTAATGG spacer
length: 36 repeater length: 31
8794 221161 GTTTCCATCCCCCTATGGGTCTGATTTTAAT TAAATTTTATTAATTCATCAATATATTTATATGTAA spacer
length: 36 repeater length: 31
8795 221229 GTTTCCATCCCCCTATGGGTCTGATTTTAAT CATATTTGGAGGCAGAGGATAACAATTATCAGAACA spacer
length: 36 repeater length: 31
8796 221297 GTTTCCATCCCCCTATGGGTCTGATTTTAAT TATATTAGTGAGATAGCACAAGCAACGGAGAGTAT spacer
length: 35 repeater length: 31
8797 221364 GTTTCCATCCCCCTATGGGTCTGATTTTAAT CGAGGTTGGTGTTCGTGGCACAAAATTAGAAAACCTT spacer
length: 37 repeater length: 31
8798 221433 GTTTCCATCCCCCTATGGGTCTGATTTTAAT TAGAAGTGGATTTAGTGTGAGAGAGGTTAAAGCAGT spacer
length: 37 repeater length: 31
8799 221502 GTTTCCATCCCCCTATGGGTCTGATTTTAAT TTCGTTGTTGAAAATATTCCTTAGACCATGTATC spacer
length: 34 repeater length: 31
8800 221568 GTTTCCATCCCCCTATGGGTCTGATTTTAAT AAGAAAGTTATGGATTATTTAGATTGTTTCCATC
8801
8802
8803 crispr 9
8804 1515631 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA AAAGGTATCATGTATTCTCTAATTATTTTGATTATTCGCAAT
spacer length: 42 repeater length: 32
8805 1515706 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA CGAATGATAAGAGCCTTAAGGTTGCGATGCAAAT spacer
length: 34 repeater length: 32
8806 1515773 ATTTCCATCCCCCTAAGGGTCTGATTTTAACA TCCTTATTTTATACCTAAACTCCTATATAAATCT
8807
8808
8809 crispr 10
8810 592635 AGTTAAAATCAGACCCTTAGGGGGATGGAAATG GAACACCATTCAATATTATGAATCTAAATCTTG spacer
length: 33 repeater length: 33
8811 592702 AGTTAAAATCAGACCCTTAGGGGGATGGAAATG AGAACTTTGAGTTACAAGTATTGCAAACCAT spacer
length: 32 repeater length: 33
8812 592768 AGTTAAAATCAGACCCTTAGGGGGATGGAAATG
AGAGGGACGACATTAGTTCATTGGATTGTAGAAGTCAATTGCTTTGGCTTTTGATTGA spacer length: 58
repeater length: 33
8813 592860 AGTTAAAATCAGACCCTTAGGGGGATGGAAATG
TCAAGGTATATAATGATAGAAAATTGTTTCCATCCTTGTTTTAATGGATGAGCAATTC
8814
8815
8816 crispr 11
8817 1182094 GTTTGAATACTCAGTCCATTAAAACAAGGATGGAAAC
ACTAAGCAAAAATAAAGAGTTTATGAAGTTACTACAAGAA spacer length: 39 repeater length: 37
8818 1182171 GTTTGAATACTCAGTCCATTAAAACAAGGATGGAAAC
ATTACAATAACATCTTCATCATCAACTAAAACATACCTTCTA spacer length: 42 repeater length: 37
8819 1182251 GTTTGAATACTCAGTCCATTAAAACAAGGATGGAAAC
ATAGATGCATTAAGATCTTCAAAATAGTTAAAATCAGACCCA
8820
8821
8822 crispr 12
8823 717719 TGTTTCCATCCTTGTTTTAATGGATGAGATATTCAAAC
ATATATCGCTGTGTGGTATTCTTATGTATGCGTTTCGTTCC spacer length: 40 repeater length: 38
8824 717798 TGTTTCCATCCTTGTTTTAATGGATGAGATATTCAAAC
ATATATCGCTGTGTGGTATTCTTATGTATGCGTTTCGTTCC spacer length: 40 repeater length: 38
8825 717877 TGTTTCCATCCTTGTTTTAATGGATGAGATATTCAAAC ATACTATCCACCTATTGTTTTTTCATATGAAAT
spacer length: 34 repeater length: 38
8826 717950 TGTTTCCATCCTTGTTTTAATGGATGAGATATTCAAAC ATGAAAACATCCTTTTAGTTAAAATCAGACCCT
8827
8828
8829 GCA_000214725.1_ASM21472v1_genomic.fna(findCrispr):
8830 START REPEAT
SPACER
8831 crispr 1
8832 1514289 AATGTACTGTTCCCCACAGT CGAACTACCCCCACAATTGTAGATTGCTCCACCATTATGTGCGGTGTTGCCTGT

spacer length: 54 repeater length: 20
 8833 1514364 AATGTACTGTTCCCCACAGT
 TAAAGTTCCAAAAAAGTTGCGGATGGCCCCACCCTCACATTAGATCCATCAATTGAATTGTTTGT spacer length: 66
 repeater length: 20
 8834 1514451 AATGTACTGTTCCCCACAGT
 ATAAGAGGTAAACAAAAATAAATCAAAAAATCCGCCTAAAATTCAATAATTAATTTTTTTAATGTAC
 8835
 8836
 8837 crispr 2
 8838 1531249 TATTTCAA TCCTAAAATAGTCTGATTCTAACAACACCTGCATACAGCAATATCAATTTAATTTTAT spacer
 length: 58 repeater length: 8
 8839 1531316 TATTTCAA
 TCCTAAAATAGTCTGATTCTAACCTTTTAGGAACTGGAGATGGGTTTCATAGAAGTAGCCAATTTCAATCCTAAAATAGTCTGATTC
 TAACTTACCACCCTTAACGGATGGCGTGATTGATGGTGC spacer length: 125 repeater length: 8
 8840 1531450 TATTTCAA TCCTAAAATAGTCTGATTCTAACGCATTTGTGGACATCCAGATATTACGGTGTGGATG spacer
 length: 58 repeater length: 8
 8841 1531517 TATTTCAA TCCTAAAATAGTCTGATTCTAACAGGTTTCAAACCTCTTTCTTCATATTCAAGAGCC spacer
 length: 57 repeater length: 8
 8842 1531583 TATTTCAA TCCTAAAATAGTCTGATTCTAACAGTTCATAATTTACATCTGTACCAAATTTACTTTTC spacer
 length: 58 repeater length: 8
 8843 1531650 TATTTCAA TCCTAAAATAGTCTGATTCTAACTCATGATCATGGTGTGTTACCTGATAGTGTGCA spacer
 length: 57 repeater length: 8
 8844 1531716 TATTTCAA
 TCCTAAAATAGTCTGATTCTAACTAACTCTTTATGGTTATCCATGTTTAACTTATACCAATTTCAATCCTAAAATAGTCTGATTCT
 AACTCCTTTTCTTCCATACACATCTATATCTCCAATC spacer length: 123 repeater length: 8
 8845 1531848 TATTTCAA
 TACAAGAACAATAAGAGGTAAACAAAAATAAATCAAAAAATCCGCCTAAAATTCAATAATTAATTTTTTTAATGTACTTTTTTAACG
 TGATTTTCCGAATTATACCTATCAGATCTCTATCCAC
 8846
 8847
 8848 crispr 3
 8849 1429353 ACTGTGGAGAACAGTACATTCACA
 AACACATCGCAAACGTTGATGGTGGAGCCATCTACAATAATGGTGGTAGTTT spacer length: 53 repeater
 length: 24
 8850 1429431 ACTGTGGAGAACAGTACATTCACA GGCAACGCAGCAAACAATGGTGGAGCCATCTCCAAAAATGATGGGGATAT
 spacer length: 50 repeater length: 24
 8851 1429506 ACTGTGGAGAACAGTACATTCACA GGTAAACAAAAATAAATCAAAAAATCCGCCTAAAATTCAATAATTAATTTT
 8852
 8853
 8854 crispr 4
 8855 1053608 GTGTTGACGCAGTTGTTGTTGTGG CTGGTGTGGATGTTGCTGTTGTTGTGGCT spacer length: 29
 repeater length: 24
 8856 1053662 GTGTTGACGCAGTTGTTGTTGTGG CTGGTGTGGATGTTGCTGTTGTTGTGGCT spacer length: 29
 repeater length: 24
 8857 1053716 GTGTTGACGCAGTTGTTGTTGTGG ATGTTGCTGTTGTTGTGGCT spacer length: 20 repeater
 length: 24
 8858 1053761 GTGTTGACGCAGTTGTTGTTGTGG AACAAAAATAAATCAAAAAAT
 8859
 8860
 8861 crispr 5
 8862 303345 GTGGTAATGGAATTTTCAGTAAATGG
 AAATAATGTAACCATTTTCAGGGAATACTGTGACCGATAATGGCAGTAATGAGAATTTTCAGCTACAATGGGGATAATATAACT
 spacer length: 82 repeater length: 25
 8863 303453 GTGGTAATGGAATTTTCAGTAAATGG
 AGATAATGCAACTATTTTCAGGGAATACTGTGACAGATAATGGTGCTAATACAATTATTCATGGATGGTACACGAATTATAAC
 spacer length: 82 repeater length: 25
 8864 303561 GTGGTAATGGAATTTTCAGTAAATGG
 GCATTGCAGATGAAACCCACATCAGCGAATTTCAATCCTAAAATAGTCTGATTCTAACCAGGTGTTGTCTCATATATGATC
 8865
 8866
 8867 crispr 6
 8868 787690 GCTTTAGAGTTGGATCCCAACTATTTT
 AATGTATGGTACAATAAAGGATACACATTTGTAAAGCTTGAAAAATATCGAGAAGCATTGGAATGTTATGATAA spacer
 length: 74 repeater length: 27
 8869 787792 GCTTTAGAGTTGGATCCCAACTATTTT
 GGTGTTTGGTTTAAATAAGGGATATGCATTAACGGAGCTTGGAGAGTATTTGGAAGCATTGGAATGTTATGATGA spacer
 length: 74 repeater length: 27
 8870 787894 GCTTTAGAGTTGGATCCCAACTATTTT
 AACAAAAATAAATCAAAAAATCCGCCTAAAATTCAATAATTAATTTTTTTAATGTACTTTTTTAACGTGATTTTCC
 8871
 8872

8873 crispr 7
 8874 1054920 TGTGGTTGCAGCCGCGAGTTCCAGTTCCA
 CCATGGGTCTATTCTGCAACATCTTGAGTTTTTTGAAGTCGTCTCGGTCTCTGCAGTTTACTCTAAATCTATCAGGATCTCTGAAGT
 TCATTCTGAAGTTGTCCCGGTGTCTGTTTCATGAAC spacer length: 121 repeater length: 28
 8875 1055070 TGTGGTTGCAGCCGCGAGTTCCAGTTCCA
 CCATGGGTCTGTTCCACACTCTGAAGTTGTTCCCTATGATGTCTTTTCATGAAT spacer length: 52 repeater
 length: 28
 8876 1055151 TGTGGTTGCAGCCGCGAGTTCCAGTTCCA
 CATCTTCGTTTGCGAATATGAAGTTGTCTTCGATGTTGGTGAAGGCAGAGTC
 8877
 8878
 8879 crispr 8
 8880 751273 AGATTGCTCCACCATAGTTTGCGGTGTTG
 CCTGTGAGTGTGCTGTTGGTCACTGTTAACTTCCATAAACATTGAGAATTGCTCCACCATAGTTTGCGGTGTTGTTGTTGAGAGT
 GCTGTTGGTTACTGTTAAAAGTCCCTTCTCATTC spacer length: 120 repeater length: 29
 8881 751423 AGATTGCTCCACCATAGTTTGCGGTGTTG
 CCTGTGAATGTGCTGTTGGTTACGTTTAAAGTTCCACTAAAGCTGCTGATGGCTCCACCATAAGTTGTTGCGGTGTTGTTGTTGAG
 TGTGCTGTTGGTTACTGTTAAAAGTTCCCTCGTTG spacer length: 120 repeater length: 29
 8882 751573 AGATTGCTCCACCATAGTTTGCGGTGTTG
 AATAAATCAAAAATCCGCCTAAAATTCAATAATTAATTTTTTTAATGTACTTTTTTAACGTGATTTTCCGAATTATACCTATCAGAT
 CTCTATCCACCTATCTGTACTTACATTATTAGTA
 8883
 8884
 8885 crispr 9
 8886 2191055 GAAAAAGAAATACAAGAACAATAAGAGG
 AATGTTAAACAGGGGCGAACTCGAAAAAGAAATACAGGACCAAATAAGGAAAGTGATAAATGGAGGCAAACT spacer
 length: 72 repeater length: 29
 8887 2191157 GAAAAAGAAATACAAGAACAATAAGAGG
 AATATTAATCAGGGGCGAACTCGAAAAAGAAATACAAACCCAAATAAGAGGAATGCTAAACAGAGGCGAACT spacer
 length: 72 repeater length: 29
 8888 2191259 GAAAAAGAAATACAAGAACAATAAGAGG
 GTTGATCCGTATAGGCTTATTCCGTTATCTTCGTTTGCGAATATGAAGTTGTCTGCAATTAGGTTGAAGTT
 8889
 8890
 8891 crispr 10
 8892 1533040 ATTTCAATCCTAAAAATAGTCTGATTCTAACGA TGGATGTTTTAGGGCAGATCAATTAATTAGATT spacer
 length: 33 repeater length: 32
 8893 1533106 ATTTCAATCCTAAAAATAGTCTGATTCTAACGA CTTCTACAACACTTATACGGTTGAAAGCTCCAG spacer
 length: 33 repeater length: 32
 8894 1533172 ATTTCAATCCTAAAAATAGTCTGATTCTAACGA ATCAAAATATGAAACGGGCTCATTTATGACCAA spacer
 length: 33 repeater length: 32
 8895 1533238 ATTTCAATCCTAAAAATAGTCTGATTCTAACGA TATTTCTGGAAATGCTGTGACTGGTAATGGTGT
 8896
 8897
 8898 crispr 11
 8899 1057034 TTTGCGAATATGTTGTTAAGTAGAATTGCGTTG TCGTCAGATCCGTATAGGCTTATTCCGTTATCTTC spacer
 length: 35 repeater length: 33
 8900 1057103 TTTGCGAATATGTTGTTAAGTAGAATTGCGTTG AAGTTGGATCCGTATAGGCTTATTCCGTTATCTTC spacer
 length: 35 repeater length: 33
 8901 1057172 TTTGCGAATATGTTGTTAAGTAGAATTGCGTTG TTGGCGATGGCTCCACCACCATATTGATTTGCGGT
 8902
 8903
 8904 crispr 12
 8905 1057624 AGAGTCTTCGACGTTTATTCCGTTATCTTCGTTTGCGAAT ATGAAGTTGTCTTCGATGTTGGTGAAGA spacer
 length: 28 repeater length: 40
 8906 1057693 AGAGTCTTCGACGTTTATTCCGTTATCTTCGTTTGCGAAT
 ATGAAGTTGTCTTCGATGTTGGTGAAAGCTGAGTCTTCGACGTTTATTCCGTTGTACCGTTTCCGATTACGTTGTTGTCTTCGAT
 GTTGGTGAAGA spacer length: 97 repeater length: 40
 8907 1057831 AGAGTCTTCGACGTTTATTCCGTTATCTTCGTTTGCGAAT
 AGAGAGTCTTCGACGTTTATTCCGTTATCTTCGTTTGCGATTACGGTGTGTCTTCGATGTTGGTGAAAGCTGAGTCTTCGACGTT
 TATTCCATTGC
 8908
 8909
 8910 crispr 13
 8911 1057911 CGTTTATTCCGTTGTACCGTTTTCCGATTACGGTGTTGTC TTCTATTTCCGGTGAAGGCTGAGTCTTCC spacer
 length: 28 repeater length: 40
 8912 1057980 CGTTTATTCCGTTGTACCGTTTTCCGATTACGGTGTTGTC
 TTCTATTTCCGGTGAAGGCTGAGTCTTCGACGTTTATTCCGTTATCTTCGTTTGCGAATATGAAGTTGTCTTCGATGTTGGTGAAAG
 CTGAGTCTTCG spacer length: 97 repeater length: 40
 8913 1058118 CGTTTATTCCGTTGTACCGTTTTCCGATTACGGTGTTGTC
 ACCACTTGAGGCAGTTGCAGTTGTATTGTCTGCTGCTACTGCTCCACAGATTACTAATGCAAATACGAACGTTAATGCTAACA

TTGCAGTTCGC
 8914
 8915
 8916 crispr 14
 8917 1057300 GTCATCTTCGTTTGCGAATATGAAGTTGTCTTCGATGTTG GTGAAGGCAGAGTCTTCTAAACTTATTC spacer
 length: 28 repeater length: 40
 8918 1057369 GTCATCTTCGTTTGCGAATATGAAGTTGTCTTCGATGTTG GTGAAGAGAGAGTCTTCTAAACTTATTC spacer
 length: 28 repeater length: 40
 8919 1057438 GTCATCTTCGTTTGCGAATATGAAGTTGTCTTCGATGTTG CACTTATTCCATTATCGCCGTTTGCAGAA
 8920
 8921
 8922 GCA_000215995.1_ASM21599v1_genomic.fna(findCrispr):
 8923 START REPEAT
 SPACER
 8924 crispr 1
 8925 556592 AAGACTCAAAGAGAA TTGAAAGTCCGGGCTAACCTCGTAAGTCTGGACGTTCTCGGGGGTTCCAA spacer
 length: 53 repeater length: 15
 8926 556661 AAGACTCAAAGAGAA TTGAAAGTCCCGTCTCCGGCTTCTTCATCGTGAAGAAGAACATCGTTCCAA spacer
 length: 52 repeater length: 15
 8927 556729 AAGACTCAAAGAGAA TTGAAAGCCCCGGCTCGGAGCTCAAATCAGGAAAAGGTTCAAATGTTCCAA spacer
 length: 51 repeater length: 15
 8928 556796 AAGACTCAAAGAGAA TTGAAAGTTCTAATAATCACGAGTACGACGTCTTCGTCGTCATGTTCCAA spacer
 length: 50 repeater length: 15
 8929 556862 AAGACTCAAAGAGAA TTGAAAGTCGTTTTCTTCATTATTATCTATGTCATTACACCTATGTTCCAA spacer
 length: 51 repeater length: 15
 8930 556929 AAGACTCAAAGAGAA TTGAAAGCGGGGCGCGAGCCGGCGGGAAATCCGCCCCCGGGGGTTCCAA spacer
 length: 51 repeater length: 15
 8931 556996 AAGACTCAAAGAGAA TTGAAAGCTGGATCTCTCTGAATTCTTCTGGATCACTAGTAACCTGTTCCAA spacer
 length: 52 repeater length: 15
 8932 557064 AAGACTCAAAGAGAA TTGAAAGTACTGAGAAGCATTACTATCGTGAAGTCTGGGCTGTGTTCCAA spacer
 length: 50 repeater length: 15
 8933 557130 AAGACTCAAAGAGAA TTGAAAGTCGGGCTTCCGCCCCAGACTGGCCTGTGGACGTAAATCACGACCTCGTTCCAA
 spacer length: 60 repeater length: 15
 8934 557206 AAGACTCAAAGAGAA TTGAAAGGCAGTAGTTTGTGCTGCTCGTTCATAACTACATATAGTGTTCCTCCAA spacer
 length: 52 repeater length: 15
 8935 557274 AAGACTCAAAGAGAA TTGAAAGGTTGGGGCGGAGATAATAGACTTCGAGGGCGCCGCGAGCGTTCCAA spacer
 length: 53 repeater length: 15
 8936 557343 AAGACTCAAAGAGAA TTGAAAGTCATTCGCAGTGTATAAAAACACGTGGTTGGCGGTGTTCCAA spacer
 length: 49 repeater length: 15
 8937 557408 AAGACTCAAAGAGAA TTGAAAGAAGAAGAAGGTGTGCGAGGATGTCGTTTTTCGACGTGTATCTCGGTTCCAA
 spacer length: 57 repeater length: 15
 8938 557481 AAGACTCAAAGAGAA TTGAAAGCTTTGAAATTCTCGTAGAGGCCATTGGGGTCCCGGGGTGTTCCAA spacer
 length: 52 repeater length: 15
 8939 557549 AAGACTCAAAGAGAA AAAGTTACCACTCCCCCTAACACTACTTCAATCTCAAAGTTCTTTGTTTCCG
 8940
 8941
 8942 crispr 2
 8943 32429 CGTAGAACGTAATCGTGTGGAA AGAATTTGTCAATACTCCATGTCATAGCCCTCACCACCGTGTTT spacer
 length: 44 repeater length: 22
 8944 32496 CGTAGAACGTAATCGTGTGGAA AGTGTAAGTATTGAAGAATTCAACGAAGCTATTAATGAAGTTT spacer
 length: 43 repeater length: 22
 8945 32562 CGTAGAACGTAATCGTGTGGAA AGTTCTCTTCGCCTCTTCCCACAACCCCCATCCCATTAAATGTTT spacer
 length: 44 repeater length: 22
 8946 32629 CGTAGAACGTAATCGTGTGGAA AGGTGGATATGTGGGAGGAGGATGGTGCCCTTATCGTGTTT spacer
 length: 41 repeater length: 22
 8947 32693 CGTAGAACGTAATCGTGTGGAA AGAGATTGCACCAACAGGTTATCGCATTACTACAGGTGGTTT spacer
 length: 42 repeater length: 22
 8948 32758 CGTAGAACGTAATCGTGTGGAA AGTTCATGGTCATCACCTAATAAATAACAGCGTAACCCTCCCGTTT spacer
 length: 47 repeater length: 22
 8949 32828 CGTAGAACGTAATCGTGTGGAA AGGCTGACTTTCTTGTGTAGCAGTTGCTGAAGAGGTGCGGTTT spacer
 length: 44 repeater length: 22
 8950 32895 CGTAGAACGTAATCGTGTGGAA AGTGACGGTGTGAGCATGGTCTTCGTCATGGTCTTCTTCGGTGTGTTT
 spacer length: 49 repeater length: 22
 8951 32967 CGTAGAACGTAATCGTGTGGAA AGCCACTCCCACCACCCCCACGCATAATAAAGAAGCAAGGAATGTTT spacer
 length: 46 repeater length: 22
 8952 33036 CGTAGAACGTAATCGTGTGGAA
 AGCTGCTGATGGAAAAACATTCTACATCTGGCCTGAGGGTTTCCGTAGAACGTAACCGTGTGGAAAGCTCTTCAACAAGCGAATAC
 ACTTCAAGGACAAGATCGTCATGTTT spacer length: 112 repeater length: 22
 8953 33171 CGTAGAACGTAATCGTGTGGAA AGCGACATTCCCCAGCCCTTCGAGGATATCGTCGATTGATGTTT spacer
 length: 44 repeater length: 22
 8954 33238 CGTAGAACGTAATCGTGTGGAA AGGGGCGCGTGCTCGTGCCCTCGCCTGCCAGCCGGCAACTGGGTTT spacer

length: 46 repeater length: 22
8955 33307 CGTAGAACGTAATCGTGTGGAA AGTCCACGCGGCCGCTAGCTTCTTCTCTCCTCCATCCTCGTTT spacer
length: 44 repeater length: 22
8956 33374 CGTAGAACGTAATCGTGTGGAA AGTCTCAAGCACATCTGCTTCTAGCAAATAGTCTGGAAAGTGTTT spacer
length: 45 repeater length: 22
8957 33442 CGTAGAACGTAATCGTGTGGAA AGCTTCATAAAGCAGTACTGGAGCCCAGGGGCATTCTCGTTT spacer
length: 42 repeater length: 22
8958 33507 CGTAGAACGTAATCGTGTGGAA AGGTGTTTTTATCCATAAATCTGTCCCAAGGTCTACGTCAGTTT spacer
length: 44 repeater length: 22
8959 33574 CGTAGAACGTAATCGTGTGGAA AGTGGAGCTCCGGAGGGAGGGGTTCCTGTGGAGCCCCTCCCGGTTT spacer
length: 47 repeater length: 22
8960 33644 CGTAGAACGTAATCGTGTGGAA AGTAACCTGGGCAAGCTTTGTGCTGTCGTTTACATACACACCGTTT spacer
length: 44 repeater length: 22
8961 33711 CGTAGAACGTAATCGTGTGGAA AGAGTTCCTCCCGACCTTGCAGAGGGAAAAGGGATTCTATGTTT spacer
length: 44 repeater length: 22
8962 33778 CGTAGAACGTAATCGTGTGGAA AGCCTCCCGGTGAGTTCTACACTGTACCTTAGGGAGATGATTTTCGTTT spacer
length: 48 repeater length: 22
8963 33849 CGTAGAACGTAATCGTGTGGAA AGATTTCAACGCCCGCATTTGTACCTGGCGAACCTTGACGTTT spacer
length: 43 repeater length: 22
8964 33915 CGTAGAACGTAATCGTGTGGAA ACGTACTCTACAAAGATCTCAAATAACTCCTCCTCGTTCCAAT
8965
8966
8967 crispr 3
8968 1272599 GTTTCCGTAGAACGGAATCGTGTGGAAAG AAAGTAGGTATTTTGGATGAAGGGAGGTGATTGCTGTGAAG
spacer length: 41 repeater length: 29
8969 1272670 GTTTCCGTAGAACGGAATCGTGTGGAAAG TATCACTTTTTCAATGACTTTTCTCCCCCTATCATCC spacer
length: 37 repeater length: 29
8970 1272737 GTTTCCGTAGAACGGAATCGTGTGGAAAG TCGTCGATCAACGTGAACGTCACAAACACAAGCTTGGACG
spacer length: 40 repeater length: 29
8971 1272807 GTTTCCGTAGAACGGAATCGTGTGGAAAG TTACCCTCCCCCTAACACTACTTCAATCTCAAAGTTCTT
spacer length: 40 repeater length: 29
8972 1272877 GTTTCCGTAGAACGGAATCGTGTGGAAAG AAATTCTTCCTGAATTCTCTATACGAACTAAATACAAC spacer
length: 38 repeater length: 29
8973 1272945 GTTTCCGTAGAACGGAATCGTGTGGAAAG CAAGGGGCGTGGAGGCGCTGTATCGAAAATTGCGCCC spacer
length: 37 repeater length: 29
8974 1273012 GTTTCCGTAGAACGGAATCGTGTGGAAAG
GTCTACATCGAGGCTCTACCAGAGCGGATTGCAGCCCCCACACGGTCT spacer length: 49 repeater length:
29
8975 1273091 GTTTCCGTAGAACGGAATCGTGTGGAAAG ACATGCTCACGATGAAAATCGACAGTGTTATGACC spacer
length: 35 repeater length: 29
8976 1273156 GTTTCCGTAGAACGGAATCGTGTGGAAAG GGTTTTCTCATCCCACTGCGCGTGGATTAGAGCAGA spacer
length: 36 repeater length: 29
8977 1273222 GTTTCCGTAGAACGGAATCGTGTGGAAAG CTAAAGCACTGCGTGAGGCGCGTGAGGCCTCAGATGGGCG
spacer length: 40 repeater length: 29
8978 1273292 GTTTCCGTAGAACGGAATCGTGTGGAAAG CTTTAGCGTCGAAATTGGGTCGATGGAAAGAAAGGT spacer
length: 36 repeater length: 29
8979 1273358 GTTTCCGTAGAACGGAATCGTGTGGAAAG GTGAAGAACTGACGATCTTCCTTGCCCTATTCCACCGACC
spacer length: 41 repeater length: 29
8980 1273429 GTTTCCGTAGAACGGAATCGTGTGGAAAG ACTCTACAAAGATCTCAAATAACTCCTCCTCGTTCCAATAA
8981
8982
8983 crispr 4
8984 41222 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CCTCAACAACAAGCACAACTATTCTGTCGTCTACAAT spacer
length: 37 repeater length: 30
8985 41290 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GCGCAAATAGTTCTCCCCACAGAGCTCGAGCTCTCCACG spacer
length: 39 repeater length: 30
8986 41360 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GAGGGCGGGGCTGGCGTGGAGGATGAACGCGGTC spacer
length: 34 repeater length: 30
8987 41425 CTTTCAATTCTCTTTGAGTCTTATTGGAAC AAAGGAAATAGTTAGTTTCTTTACGGAAGAACCAGAA spacer
length: 37 repeater length: 30
8988 41493 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TTTGGTACGTAAGCGCGATGACGGCAAGTACGAGCTGATAG
spacer length: 41 repeater length: 30
8989 41565 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GGTGATACTAGAGGACGAGGAGGAGTTATTCGAGCTT spacer
length: 37 repeater length: 30
8990 41633 CTTTCAATTCTCTTTGAGTCTTATTGGAAC AAATGTAAAAATGAGGGGGCTTCAGATCCACCCAC spacer
length: 36 repeater length: 30
8991 41700 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TTCAACGTTTCTGGTTGTTATCTCGTCTGGAGCAGC spacer
length: 36 repeater length: 30
8992 41767 CTTTCAATTCTCTTTGAGTCTTATTGGAAC ACTCTCACACGGACACACAAAAATCCTGGTTACA spacer
length: 35 repeater length: 30
8993 41833 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TCCAGCCTGTTGGCCTGGGTGAAGGAGGGGAAGAAG spacer

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length: 36 repeater length: 30
8994 41900 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CGTTGTCCCAATAGAGCACTACAACGAGAAGAAGAAG spacer
length: 37 repeater length: 30
8995 41968 CTTTCAATTCTCTTTGAGTCTTATTGGAAC AGCATCCATACGGAAGTTGCGTTAAGCTGTACTATG spacer
length: 36 repeater length: 30
8996 42035 CTTTCAATTCTCTTTGAGTCTTATTGGAAC CCGGCCGGGCCCAAATTTCTTCAGCTCAGCCGTCCGGCTTTTG
spacer length: 44 repeater length: 30
8997 42110 CTTTCAATTCTCTTTGAGTCTTATTGGAAC TATCCATTGCCCCCACCTTTTTTATGATAATTCTAT spacer
length: 37 repeater length: 30
8998 42178 CTTTCAATTCTCTTTGAGTCTTATTGGAAC GGTTTTTGTCTGTTTTCTTCTATGCTTTTCTTGGGA
8999
9000
9001 GCA_000217995.1_ASM21799v1_genomic.fna(findCrispr):
9002 START REPEAT
SPACER
9003 crispr 1
9004 1562901 AAGTAGGTGGACTTGTTGGT
TATAATCAGGACGAGAATATTACAGATTCTTACTCCACGGGTGATGTAACCGGTAACAAT spacer length: 60
repeater length: 20
9005 1562982 AAGTAGGTGGACTTGTTGGT
CGGAACATTGGATTGACTATCATAAACTCACATTCCACAGGTGAAGTGACCGGTAACAAT spacer length: 60
repeater length: 20
9006 1563063 AAGTAGGTGGACTTGTTGGT
GAAAATTGGGGTACTATTGATAATTCATACTCCACAGGTGAAGTGACCGGTAACGATCAA
9007
9008
9009 crispr 2
9010 1448560 TCATATGCAACTGGAAATGT
AAACGGTTTTGTTAGTGTGGTGGACTTGTTGGACACAATAATTATGGTGCAATTGAAAATTCATATGCGACCGGAAATGTTGAAG
GTAATTTTTATGTTGGTGGACTGGTTGGAGATAATCGAGGAAACATTGAAAA spacer length: 138 repeater
length: 20
9011 1448719 TCATATGCAACTGGAAATGT
TGATGGTTGGGATTATGTCGGTGGACTTGCTGGGTGCAATTCAGGTACAGTAAACAATTCATATGCAACAGGAGGTGTTGAAGGCT
CTAATTGGATCGGTGGACTGGTTGGAGATAATCGAGGAAACATCGAAAA spacer length: 135 repeater
length: 20
9012 1448875 TCATATGCAACTGGAAATGT
AAATGGTTTTGCTAATGTTGGTGGACTGGTTGGTCAAAGTCGTGATGATGGAGCAATTATTAC spacer length: 63
repeater length: 20
9013 1448959 TCATATGCAACTGGAAATGT
TGACGGGAGTTGGTCTGTCTGGTGGGTGGTTGGAAATAACCGAGGAAACATCGAAAA spacer length: 57 repeater
length: 20
9014 1449037 TCATATGCAACTGGAAATGT
TGATGGTTGGTGGGATTATATTGGTGGACTGGTTGGTTGGAATAGTGGAACATTAAAGAA spacer length: 60
repeater length: 20
9015 1449118 TCATATGCAACTGGAAATGT
CTCTGTTTCTTATATATTTGATTAGAAAGGATGAAGGCAACTTTCTTCCGTATACAGAAT
9016
9017
9018 crispr 3
9019 1678142 GGTTTCATCCCCACGTGTGTGGGGAAGTC TTCAAAGAATTCTATAGGGTTAAAAACAAGTG spacer length:
32 repeater length: 28
9020 1678203 GGTTTCATCCCCACGTGTGTGGGGAAGTC ATCTGTTGAATATGTTACTGTTCGATTTACTG spacer length:
32 repeater length: 28
9021 1678264 GGTTTCATCCCCACGTGTGTGGGGAAGTC ATGGTCTGTGGAGATGATGGTGAGAGGAAGGT spacer length:
32 repeater length: 28
9022 1678325 GGTTTCATCCCCACGTGTGTGGGGAAGTC AGTGCCAGCACTCTCATCCACTTTCCAATACC spacer length:
32 repeater length: 28
9023 1678386 GGTTTCATCCCCACGTGTGTGGGGAAGTC CCTATTTTAATCTCATCTTTCATTATTAAAC spacer length:
32 repeater length: 28
9024 1678447 GGTTTCATCCCCACGTGTGTGGGGAAGTC TCGATCAGACAGGGACGGATGCAAGTTCTAAC spacer length:
32 repeater length: 28
9025 1678508 GGTTTCATCCCCACGTGTGTGGGGAAGTC ATCACCCTAAGCGTTTTAGTACTCCCTGGTAAA spacer
length: 34 repeater length: 28
9026 1678571 GGTTTCATCCCCACGTGTGTGGGGAAGTC TGGGACAGACTTTACACAGTTCAACCCGTTAA spacer length:
32 repeater length: 28
9027 1678632 GGTTTCATCCCCACGTGTGTGGGGAAGTC GTTGAAGGATTAACCTCCGAATCTATCCGCTACA spacer
length: 33 repeater length: 28
9028 1678694 GGTTTCATCCCCACGTGTGTGGGGAAGTC TTTTTCCTCAACACAAAATAACCACATGGGGT spacer length:
32 repeater length: 28
9029 1678755 GGTTTCATCCCCACGTGTGTGGGGAAGTC ATTATCATAATCATTGAACCAAACCGTTTTAA spacer length:
32 repeater length: 28

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9030 1678816 GGTTTCATCCCCACGTGTGTGGGGAAGCTC GGTCCTGAATTTCGCAGGTATCATATATTGCAT spacer length:
 32 repeater length: 28
 9031 1678877 GGTTTCATCCCCACGTGTGTGGGGAAGCTC ATCCCGCACATAAACCCGTTGTTCGACCCGCT spacer length:
 32 repeater length: 28
 9032 1678938 GGTTTCATCCCCACGTGTGTGGGGAAGCTC GATTGATGCTATCGATTTCTTCCCCGTTGTGT spacer length:
 32 repeater length: 28
 9033 1678999 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TCTTTATCCCCCATGGGTGCATAATGTGACCA spacer length:
 32 repeater length: 28
 9034 1679060 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TCTTTCAGCAAGCCTTCTTTTTGCTTCTGAAT spacer length:
 32 repeater length: 28
 9035 1679121 GGTTTCATCCCCACGTGTGTGGGGAAGCTC ATATTGCTTCAGCAATATCTAAACCAATATTT spacer length:
 32 repeater length: 28
 9036 1679182 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TGGTAAAGCAAGGTTTTGTCCAACTTTAGTC spacer length:
 32 repeater length: 28
 9037 1679243 GGTTTCATCCCCACGTGTGTGGGGAAGCTC GAATTACTCATATCGGTATCAAATAAATTATA spacer length:
 32 repeater length: 28
 9038 1679304 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TGCATCACCATACCACATCATGATATGCCCGA spacer length:
 32 repeater length: 28
 9039 1679365 GGTTTCATCCCCACGTGTGTGGGGAAGCTC ATCTAAACTCAAACCTACTCGTTACGATTAAA spacer length:
 32 repeater length: 28
 9040 1679426 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TTCGCATTATATCAGAATTTGATTTACCTGTAG spacer
 length: 33 repeater length: 28
 9041 1679488 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TACCCATCATCAGTGAATCCGTCATCTGGTAC spacer length:
 32 repeater length: 28
 9042 1679549 GGTTTCATCCCCACGTGTGTGGGGAAGCTC GTAAGTATATTCTGAAGATATCGACAGGGTAAA spacer length:
 32 repeater length: 28
 9043 1679610 GGTTTCATCCCCACGTGTGTGGGGAAGCTC CCGTCACCGCTTTTTTGTGGCAAAAACCTTTAC spacer length:
 32 repeater length: 28
 9044 1679671 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TGGTTCTAAGTTGTCCCATAGTACTAAAAAGC spacer length:
 32 repeater length: 28
 9045 1679732 GGTTTCATCCCCACGTGTGTGGGGAAGCTC TCTTATATATTTGATTAGAAAGGATGAAGGCA
 9046
 9047
 9048 GCA_000220175.2_ASM22017v1_genomic.fna(findCrispr):
 9049 START REPEAT
 SPACER
 9050 crispr 1
 9051 693134 TTCTAACAACTGCTCTTTTAG CTGCTTTTCTTCTAACATCT spacer length: 20 repeater length:
 21
 9052 693176 TTCTAACAACTGCTCTTTTAG CTGCTTTTCTTCTAACAGCT spacer length: 20 repeater length:
 21
 9053 693218 TTCTAACAACTGCTCTTTTAG TTCATTATTGTATCTGTCAA
 9054
 9055
 9056 crispr 2
 9057 553651 GGTCCAATGGGTGACAAAGGTCCA
 ACAGGTCCACCCGGTCTTATTGGTGACAAAGGTCCAACAGGACCCACTGGTCCACCCGGTCTTATTGGTGACAAAGGTACAACAGG
 TCTCAGGGTTTTCTTGGTATAAGGGTCCCCAAGGTGACAA spacer length: 128 repeater length: 24
 9058 553804 GGTCCAATGGGTGACAAAGGTCCA
 CCTGGAGAAAAAGGAATTACTGGAGATAAAGGAGATAAAGGCGATAAGGGAATTTTTGGTCTCTCTGGAGAAAAAGGTGACAAAGG
 TTCAAC spacer length: 92 repeater length: 24
 9059 553921 GGTCCAATGGGTGACAAAGGTCCA
 GTAACCTGGTTCATTATTGTATCTGTCAACATATGACTGTGGATCTCTTGTAGGATCAACAAAAGATGCTAATCCAATTTCTGTTG
 GTTCAG
 9060
 9061
 9062 crispr 3
 9063 160337 AACCATTTCTTGTAACCTTGGTTCATTATTGTATCTGTCAA
 TGTAATATTGTGGATCTAGGTTTGGATCAACAAAAGGAGCTATCTCTTTTGGTTCTTCCAAACCCACGGCTTGATAAATTGAGGAA
 TATTCTGGAAAGTTTTTCATC spacer length: 106 repeater length: 40
 9064 160484 AACCATTTCTTGTAACCTTGGTTCATTATTGTATCTGTCAA
 CATATGACTGTGGATCTCTTGTAGGATCAACAAAAGATGCTAATCCAATTTCTGTTGGTTCAGGTTCTTCCAAACCCACGGCTTGA
 TAAATTGAGGAATATTCTGGAAAGTTTTTCATC spacer length: 118 repeater length: 40
 9065 160643 AACCATTTCTTGTAACCTTGGTTCATTATTGTATCTGTCAA
 CTAGCTGCAGTTCGTCTTGGAGATGCTCTCTTGCAGTTGCTGCTGCTCTTTTAGCTGCCCCACTTCGTTTTCTTCTTGCTGCCAT
 TTTTAGTGCTTCAGCTGCTTTTTTTAGCGGCAT
 9066
 9067
 9068 crispr 4
 9069 1596136 CTTCTACACCAGCTGAAGACAATGTTGCTGAGGCTACAAC
 TTCTGATAACACAATTTCTGATAATACTGCCTCAGCAGACACTTCATCT spacer length: 52 repeater

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length: 40
9070 1596229 CTTCTACACCAGCTGAAGACAATGTTGCTGAGGCTACAAC
CTCATCTAATGTTACAAATTACGCTAATACAAC TTGCCTCAGCAGACACTTCATCT spacer length: 56 repeater
length: 40
9071 1596326 CTTCTACACCAGCTGAAGACAATGTTGCTGAGGCTACAAC
CATATGACTGTGGATCTCTTGTAGGATCAACAAAAGATGCTAATCCAATTTCTGTT

9072
9073
9074 crispr 5
9075 252267 TACTGATCCTGAAACTATTAACGGATTTCAAGATTCAGAC
GGTTGTCCAGATGTGGTTCCCTCCAAC TGACACTGACAGTGACGGTATTCAAGATTCTTCAGACTCTTGTC spacer
length: 70 repeater length: 40
9076 252378 TACTGATCCTGAAACTATTAACGGATTTCAAGATTCAGAC
GGTTGTCCAGATGTAGCCCAACCAACTGACACTGACAGTGACGGTATTCCAGATTCTTCAGACTCTTGTC spacer
length: 70 repeater length: 40
9077 252489 TACTGATCCTGAAACTATTAACGGATTTCAAGATTCAGAC
GCTGCAGTTTCGTCTTGGAGATGCTCTCTTGCGAGTTGCTGCTGCTCTTTTAGCTGCCCCGACTTCGTTTTTC

9078
9079
9080 GCA_000220645.1_ASM22064v1_genomic.fna (findCrispr):
9081 START REPEAT
SPACER
9082 crispr 1
9083 288311 CCTGACGGAACTGAAAAATGG
CGCTTTAAAACTAATGATTCGATAACATCTGCAGCTTCGATTGGAAAAGATGGAACAATTTATTTTGGTTTCAGATAAAGTCTATGC
AATAAA spacer length: 92 repeater length: 21
9084 288425 CCTGACGGAACTGAAAAATGG
AATTTTACGCAGGTTACTGGACTGTTACGAGGCCTGCAATTTCAGAAGACGGAACAATTTATGTAAC TTCGTTGATGGGCACTT
ATACGCAATAAA spacer length: 98 repeater length: 21
9085 288545 CCTGACGGAACTGAAAAATGG
ATTGCAACCCCTCGAACTCCTATGAGACTAGGCCCTCAACCTAGCGCCTTTAACCAGGCTTGGCAACCCTCGCACAGTGAACCTTTG
AAAAGTGCTTAT

9086
9087
9088 crispr 2
9089 1592756 AAAAAATATGCGAGGGAAGGGATT
TAAACGCAACCCTTTGAAAAAGTGTTCATCCCAAAAATCGCATTAATTTGTTTT spacer length: 56 repeater
length: 24
9090 1592837 AAAAAATATGCGAGGGAAGGGATT
TAAACGCAACCCTTTGAAAAAGTGTTCATCCCAAAAATCGCATTAATTTGTTTT spacer length: 55 repeater
length: 24
9091 1592917 AAAAAATATGCGAGGGAAGGGATT
GAACCCCTCGAACTCCTATGAGACTAGGCCCTCAACCTAGCGCCTTTAACCAGGCT

9092
9093
9094 crispr 3
9095 969195 CCTGTAACGTATGCATTTCCACCATCATCTAGTGCAA
GTCCATATCCGATGTCAATTTCCAGCTGATTTAACGTACTGCTCCAGAGAAGAGTTCCGTTTGGAGCATACTTTGCAGTTACCATG
TCGTAGTCGGTACCCGTTCTGAA spacer length: 109 repeater length: 37
9096 969342 CCTGTAACGTATGCATTTCCACCATCATCTAGTGCAA
GTCCATATCCGCAACCTAAACTTGAACCCCATCGAATAATTTATACCATTCCATAGTCCCGTTTGGAGCATATTTGGTTGTGAGC
ATAGTGCTACGGCCAAAATAATGTATGCATT spacer length: 118 repeater length: 37
9097 969498 CCTGTAACGTATGCATTTCCACCATCATCTAGTGCAA
AGCCCGCCCCGTTTCCCCTAATTTACGGTAGCCTGATTCTAAAAGAATAA CTGCAAAATAACAAGCATTGAAACCGAAGCAAGA
GCAAGTTTAATTTCTAAAAC TCTTTTATCTTC

9098
9099
9100 crispr 4
9101 1030344 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC TTACCTCTATCATATACATATTTATCTTATAGAT
spacer length: 34 repeater length: 37
9102 1030416 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC ATTTTTCGGGTTATCCCATCTGCAAGAATTATAT
spacer length: 34 repeater length: 37
9103 1030488 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC CAGTATTAGATATAACTGATCCTGAATGCTACCAAGT
spacer length: 37 repeater length: 37
9104 1030563 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC ACGCTTTTCTTACCATCTCAGTTCTGTGCGTAAGT
spacer length: 34 repeater length: 37
9105 1030635 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC AAAAAAATAATTAAATTTCCCATCCAAAGTCATCA
spacer length: 36 repeater length: 37
9106 1030709 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC TTAATGGTGGCGTATTTTCAATATTTCCCGAAGA
spacer length: 35 repeater length: 37
9107 1030782 CTAAAAGAATAA CTTGCAAAATAACAAGCATTGAAAC AAAAAAATAATTAAATTTCCCATCCAAAGTCATCA

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spacer length: 36 repeater length: 37
 9108 1030856 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTAATGGTGGCGTATTTTTCAATATTTCCCGAAGA
 spacer length: 35 repeater length: 37
 9109 1030929 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AAATGTTTTTGCCGGCAATTCGTAAAAGACAGCAG
 spacer length: 35 repeater length: 37
 9110 1031002 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ATTTTTTTAAATTCATTTACGAGGATATCTATCCT
 spacer length: 35 repeater length: 37
 9111 1031075 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTTCCGACTGGGACTCTCATTTTTCCGAGTGTGTTA
 spacer length: 36 repeater length: 37
 9112 1031149 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AAAATAACTCTTTAATGTCTTCTTTTTTGTATTTAT
 spacer length: 36 repeater length: 37
 9113 1031223 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CCAATGTCTGTTGGTAGTGAAAATATTTTACCA
 spacer length: 33 repeater length: 37
 9114 1031294 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ATGGATCAATGGAACAAATGAGGTGACCAACTTG
 spacer length: 34 repeater length: 37
 9115 1031366 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAGATGGATTAAGTGCATATAATTTAGATTATAA
 spacer length: 34 repeater length: 37
 9116 1031438 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ACCGTTTCACAAAGTTTAAACTGCAGTCTTCAC
 spacer length: 34 repeater length: 37
 9117 1031510 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTTCTTTTCCAAGCGTTATAATAAACTCATTACCT
 spacer length: 35 repeater length: 37
 9118 1031583 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TGCCATCATTCCAAGGTCTTCAAAGAAATTTCAA
 spacer length: 35 repeater length: 37
 9119 1031656 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CTGTCGTTTCAGTCCAATAAGGCGTTAGGTTTGAA
 spacer length: 35 repeater length: 37
 9120 1031729 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ATGTCATACAATTATAGTCATCCGGCACTGACTCA
 spacer length: 35 repeater length: 37
 9121 1031802 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ACTGTTTTTCCTTTTGACTCCATAACAAAAACC
 spacer length: 33 repeater length: 37
 9122 1031873 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CCTACAATGAAAAGAGAATGACTACCGAATGCGTGT
 spacer length: 36 repeater length: 37
 9123 1031947 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CTACACGCTTAGAATCTTCTTACTTGCAAGTACCATGG
 spacer length: 38 repeater length: 37
 9124 1032023 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTGCAATTGCGTTAGATTTGTTCACTCGAATAT
 spacer length: 33 repeater length: 37
 9125 1032094 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAACCCCTGTGCGATTTTGAAATAATTTTTGAAG
 spacer length: 33 repeater length: 37
 9126 1032165 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC
 TCGATGAAGCGGCATTGCTTGATGATTATGCAATAAGAGA spacer length: 40 repeater length: 37
 9127 1032243 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TATACTCGTAAAAGAAATATGAATATAGAAACAG
 spacer length: 34 repeater length: 37
 9128 1032315 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CACGAAGGGGTAGAAGAATGGAGTTAGCAATATAT
 spacer length: 35 repeater length: 37
 9129 1032388 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTCTCTTTGTCAAATCAATGATAATCCCCCTTAC
 spacer length: 35 repeater length: 37
 9130 1032461 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAAAAAGAAACCATGTCTTCTTCAGGTACCCTGCC
 spacer length: 35 repeater length: 37
 9131 1032534 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CTAAAATTAATTTCCGCATTTTTATGATATTCGT
 spacer length: 34 repeater length: 37
 9132 1032606 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TCGGTTTTTGTACGTTCACTTCTGTGTTTACGTAT
 spacer length: 36 repeater length: 37
 9133 1032680 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CATGAAGTTTCAAGACGCAACACTGGTAGAGTTA
 spacer length: 34 repeater length: 37
 9134 1032752 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AATCGTATTCTCCTCCTAATAATTGCAGTGTATCC
 spacer length: 35 repeater length: 37
 9135 1032825 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CACATTTTGATGGTGAAGTATCCAGGAATGGGTAA
 spacer length: 35 repeater length: 37
 9136 1032898 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AGCTTCTTTGTAATCCATATACTCATTCTTAGGG
 spacer length: 35 repeater length: 37
 9137 1032971 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTAAATTACGGCTTAGATTATGAAGATAACGCGCTAT
 spacer length: 37 repeater length: 37
 9138 1033046 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAAAGACGGAAAAATAATAAAATATACTGGAGA
 spacer length: 34 repeater length: 37
 9139 1033118 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TCCCACCACAAACCAACACGCTCGGCCGTTCCGTCG
 spacer length: 36 repeater length: 37
 9140 1033192 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAAAGACGGAAAAATAATAAAATATACTGGAGA
 spacer length: 34 repeater length: 37
 9141 1033264 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AGGATATCGGGCCAATCTGAGCCGTTAACTAACGT
 spacer length: 35 repeater length: 37
 9142 1033337 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TATACATGGCAACTGCAAAAGAAGCGGACGATAT
 spacer length: 34 repeater length: 37

9143 1033409 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CAATTACATTGAATGGATGTGTATCGGATTTGGAA
 spacer length: 35 repeater length: 37
 9144 1033482 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GCATTTCAAAAAAATTATTATAAACTTCCCTAAG
 spacer length: 34 repeater length: 37
 9145 1033554 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTATAAAGATACCTTGAGCAGTTTCAGGCCTCATAA
 spacer length: 36 repeater length: 37
 9146 1033628 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTGGATAGCAAGTGTATGATGTATTTTGCATATAG
 spacer length: 35 repeater length: 37
 9147 1033701 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC AGTCTTCGATTTCTTCATATTGCTCTTGATTTTCT
 spacer length: 35 repeater length: 37
 9148 1033774 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CCGTTACCGAATGCGAAAATGTCGGCAGGGGCTCCAT
 spacer length: 37 repeater length: 37
 9149 1033849 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GTTATTTAGATAACCCTTGTGAAAATCCGTACAAT
 spacer length: 35 repeater length: 37
 9150 1033922 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TACTGTGATAGCCTATTTAGAAAACGGAATAGT
 spacer length: 34 repeater length: 37
 9151 1033994 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC ACAGACTTATTTGCAAAAGGAAAATCATTCAAA
 spacer length: 33 repeater length: 37
 9152 1034065 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TTGTGCTGATGAAATGTTTCGAGCTGTTGAGGT
 spacer length: 33 repeater length: 37
 9153 1034136 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC CAAGAATCGATATGACATCATCATACGTTCCAGA
 spacer length: 34 repeater length: 37
 9154 1034208 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC GCACACTTCAAGACCGAAAAAAGACAGTTAGGC
 spacer length: 34 repeater length: 37
 9155 1034280 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC
 TTAGCCCGCCCCGTTTCCCTAATTTACGGTAGCCTGAT spacer length: 40 repeater length: 37
 9156 1034358 CTAAAAGAATAACTTGCAAAATAACAAGCATTGAAAC TAATTTCTAAACTCTTTTATCTTCTTCGATAGTTCATGT
 9157
 9158
 9159 GCA_000221185.1_ASM22118v1_genomic.fna(findCrispr):
 9160 START REPEAT
 SPACER
 9161 crispr 1
 9162 345777 AGACTCTAGGA GAATTGAAAGTGGGCTTAGCGATAAGCCAAAGCGGTATTTTCGTATGTTGCAAT spacer
 length: 54 repeater length: 11
 9163 345843 AGACTCTAGGA GAATTGAAAGTGAGGATGAGTCCACCGGCTATGATTATCTTAGTCCGGGTGCAAT spacer
 length: 56 repeater length: 11
 9164 345911 AGACTCTAGGA GAATTGAAAGAAAACGCAGCTGTGCCCTTGTTGAGGTACTCTGTGAACGTTGCAAT spacer
 length: 56 repeater length: 11
 9165 345979 AGACTCTAGGA GAATTGAAAGTCCGCCGGGGGTGGGCCTCTTTGCGGGTCTCCCTGTTGCAAT spacer
 length: 55 repeater length: 11
 9166 346046 AGACTCTAGGA GAATTGAAAGGTTCGGGCAGGCTGGTGAGGGCCAGGTTCTATTATGCGTTGCAAT spacer
 length: 55 repeater length: 11
 9167 346113 AGACTCTAGGA GAATTGAAAGTATGCTCCTCTATACTTTCCTTTCCATGCTCATGCTTGTTGCAAT spacer
 length: 55 repeater length: 11
 9168 346180 AGACTCTAGGA GAATTGAAAGGCCCGATACGGGCTACTGGAGGATTCTGCTTTAATTGTTGCAAT spacer
 length: 54 repeater length: 11
 9169 346246 AGACTCTAGGA GAATTGAAAGTCATCACGAAGAGGGAGAGGGTTATCACCTCGAAGTTGCAAT spacer
 length: 53 repeater length: 11
 9170 346311 AGACTCTAGGA GAATTGAAAGCGTATTCGTGCTCCCTGTGCGGTGGCGTCTTAAAGTGGTTGCAAT spacer
 length: 55 repeater length: 11
 9171 346378 AGACTCTAGGA GAATTGAAAGGTGAGCTCGTACTCTGCAAGATCGTTCAGTTCAATCGTTGCAAT spacer
 length: 54 repeater length: 11
 9172 346444 AGACTCTAGGA AGAATTGAAAGTCGGCTGGGTGGCGGGTTTATACGCGCGTGGTCAAAAGTTGC
 9173
 9174
 9175 crispr 2
 9176 137614 CTTTCCACACAACACTGTTCTACGGAAAC GCCTCGAAACGCTCATCCTGTTCTCTCGGACGAGTAT spacer
 length: 38 repeater length: 29
 9177 137682 CTTTCCACACAACACTGTTCTACGGAAAC GAGAACTTTGGAGTTGTCAACGCGAACGTAGGGGCGA spacer
 length: 37 repeater length: 29
 9178 137749 CTTTCCACACAACACTGTTCTACGGAAAC TCCTTACCGTGTACTCCTTCTTGCAGGGAAGGCG spacer
 length: 36 repeater length: 29
 9179 137815 CTTTCCACACAACACTGTTCTACGGAAAC TCCTTTCCACCCGAGTAAAGCACCGCTGGCCTCCTG spacer
 length: 36 repeater length: 29
 9180 137881 CTTTCCACACAACACTGTTCTACGGAAAC TAGAGCATGCAAAGGGCGCGTTCATCGGGTCAT spacer
 length: 34 repeater length: 29
 9181 137945 CTTTCCACACAACACTGTTCTACGGAAAC GAGCTGAGCCCAGCGCGTCATTCTCAATCCTCCTTAGAATC
 spacer length: 42 repeater length: 29
 9182 138017 CTTTCCACACAACACTGTTCTACGGAAAC AGGATAGGGCCGGGGAAAATCCTCACCGAGACGC spacer
 length: 34 repeater length: 29

9183	138081	CTTTCCACACAACACTGTTCTACGGAAAC	ACTACTGCGACGTTGAGAAGCTCGACGGCGAGCGCG	spacer
		length: 36	repeater length: 29	
9184	138147	CTTTCCACACAACACTGTTCTACGGAAAC	CGCCCTGCGCCATGTGGAAGAGGCTAAGGAAACCT	spacer
		length: 35	repeater length: 29	
9185	138212	CTTTCCACACAACACTGTTCTACGGAAAC	TCGATGCAGCGTACTCCAATTACTCATACGTGAGCTTTG	spacer
		length: 39	repeater length: 29	
9186	138281	CTTTCCACACAACACTGTTCTACGGAAAC	ATGGTAGGGCATCAGACGGGGTTTGCAGGTAGTCCA	spacer
		length: 36	repeater length: 29	
9187	138347	CTTTCCACACAACACTGTTCTACGGAAAC	CATAGTATCAGTTAGGCCGAGGGCCTCAGTTAGG	spacer
		length: 34	repeater length: 29	
9188	138411	CTTTCCACACAACACTGTTCTACGGAAAC	CGCCCTTATCCGGCTGTAATTATTGTATAATGCTACG	spacer
		length: 37	repeater length: 29	
9189	138478	CTTTCCACACAACACTGTTCTACGGAAAC	AGAGATACGGGCCGCTGTGTGGAATGCAATTGCAAAA	spacer
		length: 37	repeater length: 29	
9190	138545	CTTTCCACACAACACTGTTCTACGGAAAC	GGAAAGGAGCCGCGCGTTATAAGCTCGATGTTTAC	spacer
		length: 36	repeater length: 29	
9191	138611	CTTTCCACACAACACTGTTCTACGGAAAC	AACGTCGTAATGCTTCCGTTAGATGCACCCACCCG	spacer
		length: 36	repeater length: 29	
9192	138677	CTTTCCACACAACACTGTTCTACGGAAAC	TCGATGTGATGGAAGTCCACCCGGCGAGGCGGCCGT	spacer
		length: 36	repeater length: 29	
9193	138743	CTTTCCACACAACACTGTTCTACGGAAAC	TGACGCGCCCGCTAAACCCACACCCAGTCAGATGG	spacer
		length: 35	repeater length: 29	
9194	138808	CTTTCCACACAACACTGTTCTACGGAAAC	TTCTTGACCTGCTGGCGTTCCTGACGACAAGGCGA	spacer
		length: 35	repeater length: 29	
9195	138873	CTTTCCACACAACACTGTTCTACGGAAAC	AAAAGCAGCCCCCTGCTCGAGCCATCAGCGCCGGGAGGAG	spacer
		length: 40	repeater length: 29	
9196	138943	CTTTCCACACAACACTGTTCTACGGAAAC	AGGCCGCCCCGGTCAAGAAGCGCTACAAGGTGGGGGACA	spacer
		length: 38	repeater length: 29	
9197	139011	CTTTCCACACAACACTGTTCTACGGAAAC	GTGGGTGTTTCGTGATGAATACGGCGGTATTTCATT	spacer
		length: 34	repeater length: 29	
9198	139075	CTTTCCACACAACACTGTTCTACGGAAAC	TATGAGGGCGTTCCTCAGCCCTTCCCGATACCGGTC	spacer
		length: 36	repeater length: 29	
9199	139141	CTTTCCACACAACACTGTTCTACGGAAAC	CTTGCGGAAGTTCGCGAGGGTCTAAATGAAAATTATGT	spacer
		length: 38	repeater length: 29	
9200	139209	CTTTCCACACAACACTGTTCTACGGAAAC	ATTATCATGTGCCCTGGGAGAGGGTGGATGATGTGG	spacer
		length: 36	repeater length: 29	
9201	139275	CTTTCCACACAACACTGTTCTACGGAAAC	GGACCGAGGACCCGAGGACCCTCGCGCCGAGTTCG	spacer
		length: 36	repeater length: 29	
9202	139341	CTTTCCACACAACACTGTTCTACGGAAAC	AAAGACGTGTACGCGGAAGTGAACGCAGAGGATGG	spacer
		length: 35	repeater length: 29	
9203	139406	CTTTCCACACAACACTGTTCTACGGAAAC	TTCTTATTGATGAAAAGATAAAGGAAGGGTACTTTT	spacer
		length: 36	repeater length: 29	
9204	139472	CTTTCCACACAACACTGTTCTACGGAAAC	GGTAGTTGATGAGGCAACTCATTATCAATATGTGTTCCGC	spacer
		length: 40	repeater length: 29	
9205	139542	CTTTCCACACAACACTGTTCTACGGAAAC	CCTCGACAAGACGATAGAGGCCATCTGCAAAGCGTGCGG	spacer
		length: 39	repeater length: 29	
9206	139611	CTTTCCACACAACACTGTTCTACGGAAAC	TAGATTTGGGCGATTTCTGAATCGCTGAGGGCGCGCGT	spacer
		length: 38	repeater length: 29	
9207	139679	CTTTCCACACAACACTGTTCTACGGAAAC	TCGGGCCGGCGGTAGCATCACACGGAAGGACCTTT	spacer
		length: 35	repeater length: 29	
9208	139744	CTTTCCACACAACACTGTTCTACGGAAAC	CCGTTCACTCCGGGTGGTGAAGATGGCGTCCCCGT	spacer
		length: 37	repeater length: 29	
9209	139811	CTTTCCACACAACACTGTTCTACGGAAAC	CAAATAACTGCTCAAAGGCTGGGTGACGAAGTATGCT	spacer
		length: 38	repeater length: 29	
9210	139879	CTTTCCACACAACACTGTTCTACGGAAAC	AGCTTACCGTTACTCAGGCCGACGTCTCCGCTATC	spacer
		length: 35	repeater length: 29	
9211	139944	CTTTCCACACAACACTGTTCTACGGAAAC	ACATACATAAGTCGAGGGGTCCGCTCGGAGTTTGGATT	spacer
		length: 38	repeater length: 29	
9212	140012	CTTTCCACACAACACTGTTCTACGGAAAC	TCGATGAAGGACCCGCGAGCATGGAGAGGGACCCC	spacer
		length: 35	repeater length: 29	
9213	140077	CTTTCCACACAACACTGTTCTACGGAAAC	TCAGGGCCGGGGACATACGGGTTCGGCCGTTGCAA	
9214				
9215				
9216	crispr 3			
9217	131235	CTTTCCACACAATTCTGTCCTACGGAAAC	GTCATACCAAAAAGCAGTCGTGGGTGCGGGGGTCTCT	spacer
		length: 36	repeater length: 29	
9218	131301	CTTTCCACACAATTCTGTCCTACGGAAAC	TATTCCTCTGACCCACAAGCACGGTTGTATGGCAGGTTAT	spacer
		length: 40	repeater length: 29	
9219	131371	CTTTCCACACAATTCTGTCCTACGGAAAC	TTCGAGGACCGCGAGCCTTTCCTTCTCTCAAACCTCC	spacer
		length: 37	repeater length: 29	
9220	131438	CTTTCCACACAATTCTGTCCTACGGAAAC	AGAGGGTCCGAGGTTATCCCCATGTCATACGTTCC	spacer

length: 35 repeater length: 29

9221 131503 CTTTCCACACAATTCTGTCCTACGGAAAC CCCGACCAACGACGAGGCAAAGGCCCTTTTCGCCAACCC spacer
length: 38 repeater length: 29

9222 131571 CTTTCCACACAATTCTGTCCTACGGAAAC CAAAAAGCGGTTTCTCCTCGCTCATTGGCTCCCGACCTCCT
spacer length: 41 repeater length: 29

9223 131642 CTTTCCACACAATTCTGTCCTACGGAAAC AAGACGTTGGAATAACCCATTTCCGAACCTCTCGAACCC spacer
length: 37 repeater length: 29

9224 131709 CTTTCCACACAATTCTGTCCTACGGAAAC CAAAACATGCAGGCTGTGGGCGCAGGGGGAGAAAAGTTT spacer
length: 39 repeater length: 29

9225 131778 CTTTCCACACAATTCTGTCCTACGGAAAC GGGAACCGACGCCGGAACCGGTGTACATAGTGGTGGAGA spacer
length: 39 repeater length: 29

9226 131847 CTTTCCACACAATTCTGTCCTACGGAAAC GATTTGCAAAAGGTCGCCTAACTCTTCAGCCACCTTG spacer
length: 37 repeater length: 29

9227 131914 CTTTCCACACAATTCTGTCCTACGGAAAC CCGGTGGCCTCGCTACTGATGGACCACATGAGCCTG spacer
length: 36 repeater length: 29

9228 131980 CTTTCCACACAATTCTGTCCTACGGAAAC GAACATAGTTCTAACGACAAAACCTTCGGGGGTGGT spacer
length: 35 repeater length: 29

9229 132045 CTTTCCACACAATTCTGTCCTACGGAAAC CCTTGTCACCCACAAGTCGACATACGCTCCGGGC spacer
length: 34 repeater length: 29

9230 132109 CTTTCCACACAATTCTGTCCTACGGAAAC CTGGGATAACTGAAGGGTCCTCAGAGTGGACGGAG spacer
length: 35 repeater length: 29

9231 132174 CTTTCCACACAATTCTGTCCTACGGAAAC AACAGAGAAGAGGCGATTAGGCGCACGCTTGAGGAGC spacer
length: 37 repeater length: 29

9232 132241 CTTTCCACACAATTCTGTCCTACGGAAAC TTCAGGAAAGCGATAACGCCGACCCGGACCACCCAATCACCC
spacer length: 42 repeater length: 29

9233 132313 CTTTCCACACAATTCTGTCCTACGGAAAC GCTTATGGGCGAGCTTGCGGACGATTAGCAACCACT spacer
length: 36 repeater length: 29

9234 132379 CTTTCCACACAATTCTGTCCTACGGAAAC CCGCGGCCGTCGTCGTGAGCATGAGGGAACACGGC spacer
length: 35 repeater length: 29

9235 132444 CTTTCCACACAATTCTGTCCTACGGAAAC CCGCGGCCGTCGTCGTGAGCATGAGGGAACACGGC spacer
length: 35 repeater length: 29

9236 132509 CTTTCCACACAATTCTGTCCTACGGAAAC TGTTCACTACCGAGGAGGTTACGCCGATTTGAGGACG spacer
length: 38 repeater length: 29

9237 132577 CTTTCCACACAATTCTGTCCTACGGAAAC AGAGAAAGTTGAGCATTTGGAGGCACTAGACGACTTC spacer
length: 37 repeater length: 29

9238 132644 CTTTCCACACAATTCTGTCCTACGGAAAC TACTCCTCCCACGGTTCGGGCGGTTCTGGGAAGTT spacer
length: 35 repeater length: 29

9239 132709 CTTTCCACACAATTCTGTCCTACGGAAAC AAAAGATGGGAGGTGAGGATAGGTGAATGAGGTTG spacer
length: 35 repeater length: 29

9240 132774 CTTTCCACACAATTCTGTCCTACGGAAAC ATTGGCTGCATCGGACGACGAGGAAAAGAAGAAGGAGGTCC
spacer length: 41 repeater length: 29

9241 132845 CTTTCCACACAATTCTGTCCTACGGAAAC CCGGTGTGTTTTTGCAGAGAGTATAGGGCGGCGGTCC spacer
length: 37 repeater length: 29

9242 132912 CTTTCCACACAATTCTGTCCTACGGAAAC AGAACTTTGAGAAGCACCTGAATGTGAAGAAGGCCA spacer
length: 36 repeater length: 29

9243 132978 CTTTCCACACAATTCTGTCCTACGGAAAC ATGACAACAATGAAGTTTATTTTGGTCTAAGGGATAA spacer
length: 37 repeater length: 29

9244 133045 CTTTCCACACAATTCTGTCCTACGGAAAC CTACTTCCCTGAGGTCATCGGCCGCCGCTGAGGAATTAC spacer
length: 40 repeater length: 29

9245 133115 CTTTCCACACAATTCTGTCCTACGGAAAC TCTCGTAGTCCTCGCTTATGTTCTCGATGTAGTTG spacer
length: 36 repeater length: 29

9246 133181 CTTTCCACACAATTCTGTCCTACGGAAAC CTGGGTTGGCGGGTTTATACGCGCGTGGTCAAAAGT

9247

9248

9249 crispr 4

9250 1907425 GTTGCAATAAGACTCTGGGAGAATTGAAA GTCGGGAACGCCCAAGTTTATTACGCGGCCGATTACC spacer
length: 37 repeater length: 29

9251 1907492 GTTGCAATAAGACTCTGGGAGAATTGAAA GCGGTTGGCTCATCGGTAGAAACGGGCTCATCTATAAT spacer
length: 38 repeater length: 29

9252 1907560 GTTGCAATAAGACTCTGGGAGAATTGAAA GGAGGACGTGGAAAAAGTCGTCAGGGACTTTTTTCG spacer
length: 35 repeater length: 29

9253 1907625 GTTGCAATAAGACTCTGGGAGAATTGAAA GAGATGAAACGCCGTCTGGACATTGACGATGAAGAA spacer
length: 36 repeater length: 29

9254 1907691 GTTGCAATAAGACTCTGGGAGAATTGAAA GCGAAAACGGGTCTGGGCTCGAACTCATCAAGCTCAAAGG spacer
length: 39 repeater length: 29

9255 1907760 GTTGCAATAAGACTCTGGGAGAATTGAAA GTTTACTAGCTCTGGTGCTATCAACGCCAGGTGTA spacer
length: 36 repeater length: 29

9256 1907826 GTTGCAATAAGACTCTGGGAGAATTGAAA GGGAGGACGACGGAGCCCCTCATAGTCGAGGGGAAAGG spacer
length: 38 repeater length: 29

9257 1907894 GTTGCAATAAGACTCTGGGAGAATTGAAA GAGTAGGTCCCAGTTTTGTTAAGTAGCGGCTCAATCT spacer
length: 37 repeater length: 29

9258 1907961 GTTGCAATAAGACTCTGGGAGAATTGAAA GTTGGCCTCGGTTCGCGTTACCTGGGTAAAGGTCGCGT spacer
 length: 38 repeater length: 29
 9259 1908029 GTTGCAATAAGACTCTGGGAGAATTGAAA CTGGTAGAATGTGTTAGGTCCTGGGTTGAGCGTCTAAA spacer
 length: 38 repeater length: 29
 9260 1908097 GTTGCAATAAGACTCTGGGAGAATTGAAA CTGGAATACTTTGTGGACAGCATTACGCACAAGAC spacer
 length: 36 repeater length: 29
 9261 1908163 GTTGCAATAAGACTCTGGGAGAATTGAAA CGCTCAGGGCCGGGACATACGGGTTCGGCCGGTTGC
 9262
 9263
 9264 GCA_000223395.1_ASM22339v1_genomic.fna(findCrispr):
 9265 START REPEAT
 SPACER
 crispr 1
 9266 461092 CTTTCAATTCATTCTTGGTTGTTTC GCAATACTACGTGGTGAAGAGGTGCCGCCAGAGTCAGGCATTGA spacer
 length: 44 repeater length: 25
 9267 461162 CTTTCAATTCATTCTTGGTTGTTTC GAGAGCATGACGTGTGTGTGCACAACCGGCAAGAAGGGCGTGTGA
 spacer length: 45 repeater length: 25
 9268 461233 CTTTCAATTCATTCTTGGTTGTTTC CAGCGCCTGCTCCTAGGCCGTGACCGTGACGAGGAGACGGTCTATGTCAC
 spacer length: 50 repeater length: 25
 9269 461309 CTTTCAATTCATTCTTGGTTGTTTC GGGTGTGGTAGCCGAACGATAGCCTGGCTAGTGATAGTGTGT spacer
 length: 42 repeater length: 25
 9270 461377 CTTTCAATTCATTCTTGGTTGTTTC CCAAACCTTGCCACCAATGCCTCAGCCAACACCAAAACCGTAA spacer
 length: 42 repeater length: 25
 9271 461445 CTTTCAATTCATTCTTGGTTGTTTC TCCCCGCGATTGTGCGATACGCCGGGTGTCGTTACCGTTG spacer
 length: 39 repeater length: 25
 9272 461510 CTTTCAATTCATTCTTGGTTGTTTC CTGTGTCCGCGCCCCGGGGACACCCCTCCCTCAGCATGTGCT spacer
 length: 41 repeater length: 25
 9273 461577 CTTTCAATTCATTCTTGGTTGTTTC CCCTTGTAGCGAGCCACGGCCAACACACCAACCCGATGCTAGT spacer
 length: 43 repeater length: 25
 9274 461646 CTTTCAATTCATTCTTGGTTGTTTC ACCGCTCTACGCCACCCCTACCTGAACGTCACGACCG spacer
 length: 38 repeater length: 25
 9275 461710 CTTTCAATTCATTCTTGGTTGTTTC ACAAACGCGCGATATATAGACGCGCGGGCTATAATATAATATAACGCG
 spacer length: 50 repeater length: 25
 9276 461786 CTTTCAATTCATTCTTGGTTGTTTC CTCGATAGCTCTACGAATCGCCTCTGAGCGATTTATTCCAC spacer
 length: 41 repeater length: 25
 9277 461853 CTTTCAATTCATTCTTGGTTGTTTC ACGGATACGTCTCGCACAGACGTACCTCTATCGTCACTTTATCTTT
 spacer length: 46 repeater length: 25
 9278 461925 CTTTCAATTCATTCTTGGTTGTTTC GAAACCCTCTTGACGGGAATGTGGCAGGGCAAGTGA spacer
 length: 37 repeater length: 25
 9279 461988 CTTTCAATTCATTCTTGGTTGTTTC CTACCAACGTGCTGGTGGCCGAGCCAGCCTAGCCCCGGACAT spacer
 length: 43 repeater length: 25
 9280 462057 CTTTCAATTCATTCTTGGTTGTTTC GGCGCTGCTGGAAGCCGTGGTGGAGTCTATACCGGTGCTGGA spacer
 length: 42 repeater length: 25
 9281 462125 CTTTCAATTCATTCTTGGTTGTTTC
 TACCCGACTGCCAGGGGAGTACACGTTTACGCCACTAGCGAGTCACCATGGG spacer length: 52 repeater
 length: 25
 9282 462203 CTTTCAATTCATTCTTGGTTGTTTC GCTGCTGCAGCCTTTATTGCACAGAACGGCTCGTAGCTTA spacer
 length: 40 repeater length: 25
 9283 462269 CTTTCAATTCATTCTTGGTTGTTTC CTCGAGAGCCTCTATGAGAGCGTTAGAGGCACTAGCAAGCTCACAGT
 spacer length: 47 repeater length: 25
 9284 462342 CTTTCAATTCATTCTTGGTTGTTTC TCCAATTGCCAGGATCCTCGAGAAGGAGTTAGGTGAAGTAGCC spacer
 length: 43 repeater length: 25
 9285 462411 CTTTCAATTCATTCTTGGTTGTTTC CTAGGAGTTGAAGGGTTTGAAGGCTGAGGCTGGGATGAT spacer
 length: 39 repeater length: 25
 9286 462476 CTTTCAATTCATTCTTGGTTGTTTC CTCGTAGGCGAGGTGTACCGCTGGCGTGCCCATCGCCATTGCCT spacer
 length: 44 repeater length: 25
 9287 462546 CTTTCAATTCATTCTTGGTTGTTTC GTAGGGGGTTGCGGGTACGCTGCATGGTTGACGAGCCGCTGG spacer
 length: 42 repeater length: 25
 9288 462614 CTTTCAATTCATTCTTGGTTGTTTC CCGAGCCCGAAGGAGCTTGGCGCGCGCTCTTCAAGGGCG spacer
 length: 40 repeater length: 25
 9289 462680 CTTTCAATTCATTCTTGGTTGTTTC CGATGGCAACGAGGTTGACGTGCACTTCGACCACCTGGCGC spacer
 length: 41 repeater length: 25
 9290 462747 CTTTCAATTCATTCTTGGTTGTTTC GCGTTGGAGAGGCTGCTGGAGGAGCGGAGGGTTGACGCGA spacer
 length: 40 repeater length: 25
 9291 462813 CTTTCAATTCATTCTTGGTTGTTTC GCGTAGACCTTACGACGCGCCCCCTGCTGGCCGCTTGCCCA spacer
 length: 43 repeater length: 25
 9292 462882 CTTTCAATTCATTCTTGGTTGTTTC CAGTAGCATGCCGCTATACTACGAAGTGTTCTGTGAAGTG spacer
 length: 39 repeater length: 25
 9293 462947 CTTTCAATTCATTCTTGGTTGTTTC ACGCAGTGTAACCCGGGAGAGTACGCGTTCAACGTGTCAGGTCA spacer
 length: 44 repeater length: 25
 9294 463017 CTTTCAATTCATTCTTGGTTGTTTC ATCATGGACTTCTTCAACCGGTGAGCGTCGTTGAGCAT spacer

length: 39 repeater length: 25
9296 463082 CTTTCAATTCATTCTTGGTTGTTTC CGGGGTACGTGGTCACAACCGCATCACCGTGTGTGCAGCGAA spacer
length: 42 repeater length: 25
9297 463150 CTTTCAATTCATTCTTGGTTGTTTC AAACCAGCGCCGTGCCTCGGAAACGGTGATTATGTAGAAATAG spacer
length: 43 repeater length: 25
9298 463219 CTTTCAATTCATTCTTGGTTGTTTC CTACGAATAGCATAGGCGGGCACCGTATCTACCTACCCGAGTATG
spacer length: 45 repeater length: 25
9299 463290 CTTTCAATTCATTCTTGGTTGTTTC GCAACCCGGCCTAGCTGTAGCCATGCTTGTATGCTTCGCCATATA
spacer length: 45 repeater length: 25
9300 463361 CTTTCAATTCATTCTTGGTTGTTTC AATAGCTCCACTACTTGGTCAACGGCGTACCCCATCCACT spacer
length: 40 repeater length: 25
9301 463427 CTTTCAATTCATTCTTGGTTGTTTC AGGCGAAGCCCGACGAGGTTGCCGCCGAGATATCTGGTATC spacer
length: 41 repeater length: 25
9302 463494 CTTTCAATTCATTCTTGGTTGTTTC TAGGATAGAGACGGTGAAGGGCAACGGGGCGTTCTTCGAGACTAGT
spacer length: 46 repeater length: 25
9303 463566 CTTTCAATTCATTCTTGGTTGTTTC TGATTCTCCCACCCGGCTGAGCGGTGATGACGGCAGCCTCCAC spacer
length: 43 repeater length: 25
9304 463635 CTTTCAATTCATTCTTGGTTGTTTC AGGGCAGTAGGATTAGCGCCAGGAGTGGCGCGAGGGTTATCAAAA
spacer length: 45 repeater length: 25
9305 463706 CTTTCAATTCATTCTTGGTTGTTTC TACCACGAGCAGACGGCTACGCCGCGCACCCAGCGAGAGGCTATCG
spacer length: 47 repeater length: 25
9306 463779 CTTTCAATTCATTCTTGGTTGTTTC TCCGCGCGGAGATCCATCTCTCCCGCCCCGCGCTTCGGGTA spacer
length: 43 repeater length: 25
9307 463848 CTTTCAATTCATTCTTGGTTGTTTC TCGCTCGAGGAGGTGAGGAGGCTGGCCCAGGAGGGTA spacer
length: 37 repeater length: 25
9308 463911 CTTTCAATTCATTCTTGGTTGTTTC GTCGCGTAGTATACGCGCCGCGGTGAGCACCCGAGCTGCT spacer
length: 41 repeater length: 25
9309 463978 CTTTCAATTCATTCTTGGTTGTTTC CTGGCCGTGGCCCCCTCTCGCAATCGGCCTCAGCTTCCTC spacer
length: 39 repeater length: 25
9310 464043 CTTTCAATTCATTCTTGGTTGTTTC GGAGAAGATGGCGGTCTCAGGGCCCGCCCGCGAGGCGGTCCC spacer
length: 44 repeater length: 25
9311 464113 CTTTCAATTCATTCTTGGTTGTTTC ATAGGGGTCGTCTGGCAACACGACCTTCGAGATAACGTTCAACGTGACGA
spacer length: 51 repeater length: 25
9312 464190 CTTTCAATTCATTCTTGGTTGTTTC CATCGAGGCTCTGGACTACCTCGCCGAGATGATAGACTATAGG spacer
length: 43 repeater length: 25
9313 464259 CTTTCAATTCATTCTTGGTTGTTTC GCCAGGCCCCGAGGCGGTGAGGTTTGACAACGTGGAGAGGAACGG spacer
length: 44 repeater length: 25
9314 464329 CTTTCAATTCATTCTTGGTTGTTTC ACCTTGGCGTCCGGCAGTGGCGGGGCCGACGGCCCCACCAGGCCCCG
spacer length: 47 repeater length: 25
9315 464402 CTTTCAATTCATTCTTGGTTGTTTC GGATTGTTCTAGCATCTGCTCCGAACCCAAATCATAATTC spacer
length: 40 repeater length: 25
9316 464468 CTTTCAATTCATTCTTGGTTGTTTC CGTGGCATAGTGATAGTGGCAACGCATACTGACATATTCCACGTCGGT
spacer length: 48 repeater length: 25
9317 464542 CTTTCAATTCATTCTTGGTTGTTTC TACGGCAGGAGCGCCGAGCAGGTTGAGCTCGCGAGCCT spacer
length: 38 repeater length: 25
9318 464606 CTTTCAATTCATTCTTGGTTGTTTC TCTAGCTCTACGCTCACGTTGAGGGGCACGGCTCTCACCC spacer
length: 40 repeater length: 25
9319 464672 CTTTCAATTCATTCTTGGTTGTTTC CATGGGCGCGGTTGAGACCTTCGAGGACAGGATAGCCTCG spacer
length: 40 repeater length: 25
9320 464738 CTTTCAATTCATTCTTGGTTGTTTC TCTATGGTGGATGGCGAGGACGGCGACATCTGGTACGA spacer
length: 38 repeater length: 25
9321 464802 CTTTCAATTCATTCTTGGTTGTTTC
CCGTGTCCTGGTCAACCAACCAGCTCCTAGCCCCGGGCGTGCGCTGCAGCTCTTCGT spacer length: 57 repeater
length: 25
9322 464885 CTTTCAATTCATTCTTGGTTGTTTC ACGAGGTGAGAGACTTCACAGAGATAGCCCGCATAGTAGCAAAAACG
spacer length: 47 repeater length: 25
9323 464958 CTTTCAATTCATTCTTGGTTGTTTC TGGAACCGCCGCCACCGTTGGCCTGACGCTATTTCGTGATT spacer
length: 40 repeater length: 25
9324 465024 CTTTCAATTCATTCTTGGTTGTTTC TCCGGATCCCCGCACCGCGTATAGAGGGTATGCGCGGGGTATA spacer
length: 44 repeater length: 25
9325 465094 CTTTCAATTCATTCTTGGTTGTTTC ACATGGAGGAGCCAAGGCTCATAACCGCGATACGCGAGAAT spacer
length: 41 repeater length: 25
9326 465161 CTTTCAATTCATTCTTGGTTGTTTC CAGAAGTCTTACGACGGATACTAGTGGTGCAAATAAT spacer
length: 37 repeater length: 25
9327 465224 CTTTCAATTCATTCTTGGTTGTTTC ACTACACGACCCTGCAAATTCCTATCGTGTATAGTGTAT spacer
length: 41 repeater length: 25
9328 465291 CTTTCAATTCATTCTTGGTTGTTTC GCGGTCTGGAGCCCGGTGCACGGATCTACATCTACGATG spacer
length: 39 repeater length: 25
9329 465356 CTTTCAATTCATTCTTGGTTGTTTC CTGGCCCGCGCACTTGGCGTTGAGGGTGTGGAGGCAAGC spacer
length: 39 repeater length: 25
9330 465421 CTTTCAATTCATTCTTGGTTGTTTC ACGAGGCAGTGTGTTAGTGACGATAGGCCGGTGTGTAGCGAG spacer

length: 42 repeater length: 25
9331 465489 CTTTCAATTCATTCTTGGTTGTTTC TTAACAGCGTACTTCAGCGCTTCGCGGACGCCAACGCGTA spacer
length: 40 repeater length: 25
9332 465555 CTTTCAATTCATTCTTGGTTGTTTC CGCGTTGGTCTTGTAGCTCTCTGCGCCGGCGTCCACGCGGGAGTC
spacer length: 45 repeater length: 25
9333 465626 CTTTCAATTCATTCTTGGTTGTTTC CCCGCATGGGTCTACCCCTCTCCCGAGATGCGCAAGGTAGCGAC spacer
length: 44 repeater length: 25
9334 465696 CTTTCAATTCATTCTTGGTTGTTTC GTAGCTCTCGATCCACCCGCGGAACACAGGGTCGGCAT spacer
length: 38 repeater length: 25
9335 465760 CTTTCAATTCATTCTTGGTTGTTTC CAGCCTCACTAGAATCTCGTATATCTCGCGGGCTTGTGTGA spacer
length: 41 repeater length: 25
9336 465827 CTTTCAATTCATTCTTGGTTGTTTC GCTCGGTGTTCAAGTCGGTGGTCTACGACCGTTGCGGGTGCCTCCAG
spacer length: 47 repeater length: 25
9337 465900 CTTTCAATTCATTCTTGGTTGTTTC AGTGATATGCTAGTCGGTGATTTATGGTGATAATAAACGTGCT spacer
length: 43 repeater length: 25
9338 465969 CTTTCAATTCATTCTTGGTTGTTTC GTACTGAAAAGTGTTGGTCTACTTGATAAGCTAAGAATGTA spacer
length: 41 repeater length: 25
9339 466036 CTTTCAATTCATTCTTGGTTGTTTC AATACAAAACAATCAAGATATTGACGGGCCTGCCTTTAGTAAATGTA
spacer length: 47 repeater length: 25
9340 466109 CTTTCAATTCATTCTTGGTTGTTTC TTGTAATGCGGGGTGAGGGCATGAACTGAGAGAATTAGT spacer
length: 40 repeater length: 25
9341 466175 CTTTCAATTCATTCTTGGTTGTTTC GACGTCGTAATGCAGATCATGACGCGGTGGTTGCTAACGCCAC spacer
length: 43 repeater length: 25
9342 466244 CTTTCAATTCATTCTTGGTTGTTTC TGCGGATAGAGGAGGGGAGGATAACGTTTCCGATCGGGGT spacer
length: 40 repeater length: 25
9343 466310 CTTTCAATTCATTCTTGGTTGTTTC AAAACGATCCGTGTCGAGTCCGGCCTCGCGATAATCAAGGT spacer
length: 41 repeater length: 25
9344 466377 CTTTCAATTCATTCTTGGTTGTTTC
AGCGTCACGTCCCAGCTTCTCTGCCGTAGGCGGTGTACGCTGGTTGGTCTGG spacer length: 53 repeater
length: 25
9345 466456 CTTTCAATTCATTCTTGGTTGTTTC ATGCCCCGTGTGGACGATGTCCCCGAGGAAGAGCCAGGGCTCCTGCATGCGAAA
9346
9347
9348 crispr 2
9349 425840 CTTTCAATTCATTCTTTGTTGTTTC GTCCTCGCGGCGCTAGTGCTACTTGTGCCTGCTCTGGCGGCTAGCA
spacer length: 46 repeater length: 25
9350 425912 CTTTCAATTCATTCTTTGTTGTTTC CGGCAAATGCAGCACGTTGTAGTGCCATACCTATCTGCATGG spacer
length: 42 repeater length: 25
9351 425980 CTTTCAATTCATTCTTTGTTGTTTC CTACAGCCAGTGGCGACGATGGACGATGTGAAGACGCTCCA spacer
length: 41 repeater length: 25
9352 426047 CTTTCAATTCATTCTTTGTTGTTTC TCGTATACCTGGCGGAGTGGCTCCGTGCTCATTATCGTGTCTA spacer
length: 43 repeater length: 25
9353 426116 CTTTCAATTCATTCTTTGTTGTTTC CCGCTACGCCGCACTCGTTGACCTTCCGCCCCATCCCAAGAGTA spacer
length: 44 repeater length: 25
9354 426186 CTTTCAATTCATTCTTTGTTGTTTC CCGTGCGGGCTGGGGAGGGGCGGGCGGAGACACCGAGGCACAG spacer
length: 43 repeater length: 25
9355 426255 CTTTCAATTCATTCTTTGTTGTTTC GAGCCGACGAGAGACTCCTCCTGGCCCCGGCACCGGG spacer
length: 37 repeater length: 25
9356 426318 CTTTCAATTCATTCTTTGTTGTTTC CACTACGACGACTACCAGCCAACAAGCTTCGACAACGA spacer
length: 38 repeater length: 25
9357 426382 CTTTCAATTCATTCTTTGTTGTTTC CTCACAGCACGTCACCCCACTACCATGACAACCACCCTGCC spacer
length: 41 repeater length: 25
9358 426449 CTTTCAATTCATTCTTTGTTGTTTC ACATAGTGCCGCTTGAGCGCATTGACGACCCGGAGCGGTT spacer
length: 40 repeater length: 25
9359 426515 CTTTCAATTCATTCTTTGTTGTTTC CCGCCCTGCTGTACGCTATCAAACAAAATCCGAACATACTGCG spacer
length: 43 repeater length: 25
9360 426584 CTTTCAATTCATTCTTTGTTGTTTC GTGCGCATGCTCGTGCTAGTCACCCGCGGATTGCACTACTT spacer
length: 41 repeater length: 25
9361 426651 CTTTCAATTCATTCTTTGTTGTTTC TTTGGTATCGGTATTCTGCTTGGTGCAATTGCTAACGCCACCA spacer
length: 43 repeater length: 25
9362 426720 CTTTCAATTCATTCTTTGTTGTTTC CTTATGCCCTCTTTTGCCCACTTGCGGAATAGCTCTATCCACTG spacer
length: 44 repeater length: 25
9363 426790 CTTTCAATTCATTCTTTGTTGTTTC TACGAGGCGCCCGACTGGCACCCGGAGGGAGTCACGGTAACCGT spacer
length: 44 repeater length: 25
9364 426860 CTTTCAATTCATTCTTTGTTGTTTC TGGGCAGCCGCCAAAGCCCGTCTATGCCAGCGGCGGCTA spacer
length: 39 repeater length: 25
9365 426925 CTTTCAATTCATTCTTTGTTGTTTC TAGGCCTGCTAACACCCTGGCTCATACTAGGAGCAATGGCGACGGGCTACG
spacer length: 51 repeater length: 25
9366 427002 CTTTCAATTCATTCTTTGTTGTTTC CTGGCCCTGCAGGTCGATCACTGGGGTTATCGTGGTGT spacer
length: 38 repeater length: 25
9367 427066 CTTTCAATTCATTCTTTGTTGTTTC AAAAGATTGCTAAATGGCTCGAAGAGGACTTGTCTGACGA spacer

length: 40 repeater length: 25
9368 427132 CTTTCAATTCATTCTTTGTTGTTTC GGGTTCATAGCATGGGCGGTTGGTATAGACGCCGAGATGGCCAG spacer
length: 44 repeater length: 25
9369 427202 CTTTCAATTCATTCTTTGTTGTTTC TAAGGGCGAGGAGCGCGAGGTTGACATGTGGGTCGT spacer length:
36 repeater length: 25
9370 427264 CTTTCAATTCATTCTTTGTTGTTTC CTCGTCGCTACCCTCGATGAGGTACGGTGGTAGCATGAGCGCTG spacer
length: 44 repeater length: 25
9371 427334 CTTTCAATTCATTCTTTGTTGTTTC GCTCAGGTCCCTCCGGTGCGTTCTCCAGCGCGTAGTTAA spacer
length: 38 repeater length: 25
9372 427398 CTTTCAATTCATTCTTTGTTGTTTC GGGCGGACAGTTCTTCCACTACACGGTGTGTGCTGGCTAAC spacer
length: 42 repeater length: 25
9373 427466 CTTTCAATTCATTCTTTGTTGTTTC TATGCCTCGCGCCTTGGCCCAAGAACCTATATCGCGTACTCGT spacer
length: 43 repeater length: 25
9374 427535 CTTTCAATTCATTCTTTGTTGTTTC CCAGGATGGCCGCCGCGGCGGCAAGATGTCCGCCTCTACCA spacer
length: 42 repeater length: 25
9375 427603 CTTTCAATTCATTCTTTGTTGTTTC TCGGCTCGGCTTCCGTTCCCTAGAGCGGCGGTATCGCCTAGA spacer
length: 41 repeater length: 25
9376 427670 CTTTCAATTCATTCTTTGTTGTTTC TATGTAACGCCGCGTTTCAGTGGCATGACGATGAGATGGGT spacer
length: 41 repeater length: 25
9377 427737 CTTTCAATTCATTCTTTGTTGTTTC ACGAGAGCGGCGGCACGATATGCGAGTGTGAAGCCGACGATGT spacer
length: 43 repeater length: 25
9378 427806 CTTTCAATTCATTCTTTGTTGTTTC ACAGGGCCTCTCTACTCGACGCCAGGAAGCTGGTAAGGGT spacer
length: 40 repeater length: 25
9379 427872 CTTTCAATTCATTCTTTGTTGTTTC CACGTTCTCCAGCCACTTTAGGAGCCACTCTTTCTTCTCC spacer
length: 40 repeater length: 25
9380 427938 CTTTCAATTCATTCTTTGTTGTTTC CCATGCGGCGGCTGCCGCTTCTCCACCAGCCGTCTTCAT spacer
length: 39 repeater length: 25
9381 428003 CTTTCAATTCATTCTTTGTTGTTTC CTCGACCTTATCGCATGGCATGCAGTGAGCATGAGGAATGT spacer
length: 41 repeater length: 25
9382 428070 CTTTCAATTCATTCTTTGTTGTTTC CGCATAACCCTCTATACGCGGTGCGGGGATCCGGAAATGGTG spacer
length: 41 repeater length: 25
9383 428137 CTTTCAATTCATTCTTTGTTGTTTC CAGGCTTGGGTGCGTGTCCACGCCCGAAGTCCGGTATCTTGCCAG spacer
length: 44 repeater length: 25
9384 428207 CTTTCAATTCATTCTTTGTTGTTTC ACGTAGCTTAGGGTGAACATGCCAACCGCTGGCTCTGTGT spacer
length: 41 repeater length: 25
9385 428274 CTTTCAATTCATTCTTTGTTGTTTC GAGGCTCTGGCAGATGGCCAAGGGCAGTGTGGCAAGAAGCG spacer
length: 42 repeater length: 25
9386 428342 CTTTCAATTCATTCTTTGTTGTTTC CGTCCTTCGCGGGTTTACGCGTGGGGGTGCGTGGGATGGAGGCCG
spacer length: 45 repeater length: 25
9387 428413 CTTTCAATTCATTCTTTGTTGTTTC ACACGCGTTTTTTTCAACTTGCGCGACCTCGCACATCACGATCTG spacer
length: 44 repeater length: 25
9388 428483 CTTTCAATTCATTCTTTGTTGTTTC TTACGCGGTAGGCCCACGCGGAGGTGGTCGCGGGTGAA spacer
length: 38 repeater length: 25
9389 428547 CTTTCAATTCATTCTTTGTTGTTTC TATCGCGACAAACGTGCGCAGTGATGGACGAATATACCT spacer
length: 39 repeater length: 25
9390 428612 CTTTCAATTCATTCTTTGTTGTTTC ACAGTGGAGGTGAGCAAGCCATCCGACTGGTCTAGGAACAGGGCT
spacer length: 45 repeater length: 25
9391 428683 CTTTCAATTCATTCTTTGTTGTTTC ATGGGCTGTGTGCGGAGAACTGCTACCACGCGTGTATCATGGCATT
spacer length: 46 repeater length: 25
9392 428755 CTTTCAATTCATTCTTTGTTGTTTC CCGTGTGTGGCAAAAGTCGAAGGCAGAGGCGGCTACAAACCA spacer
length: 42 repeater length: 25
9393 428823 CTTTCAATTCATTCTTTGTTGTTTC CTTGATTCTCAGCGCCACGAACGACGCTCTAGTATCGTCAATGA spacer
length: 44 repeater length: 25
9394 428893 CTTTCAATTCATTCTTTGTTGTTTC AGGCTGAACAGCTAGCACGGGGGAGGACACGAGCCATGAACG spacer
length: 42 repeater length: 25
9395 428961 CTTTCAATTCATTCTTTGTTGTTTC GTGACGGGGTACCTAGCCACGGTTGTACCTCCTAGATGTTTCAT spacer
length: 44 repeater length: 25
9396 429031 CTTTCAATTCATTCTTTGTTGTTTC TCGCGGTAATAGTCCCCAGCGTCCGGGTCCACTGGTATCTCG spacer
length: 42 repeater length: 25
9397 429099 CTTTCAATTCATTCTTTGTTGTTTC ACTGAGGCCAGGGAGGAGCGGGAGCAGAAGCCCAGCGAGGCTT spacer
length: 43 repeater length: 25
9398 429168 CTTTCAATTCATTCTTTGTTGTTTC CGCGCGACGTTATGGTCGTTCCCGCCGCGTCCGCCTCA spacer
length: 38 repeater length: 25
9399 429232 CTTTCAATTCATTCTTTGTTGTTTC CTCGCTTCGAGAGGATAGTGATAAGGTGCGAGCCTATGAC spacer
length: 40 repeater length: 25
9400 429298 CTTTCAATTCATTCTTTGTTGTTTC GTTAAACTAGAAATGAAAGCGCAAGGTTGTGAAAACGGGT spacer
length: 40 repeater length: 25
9401 429364 CTTTCAATTCATTCTTTGTTGTTTC CCCAGAAATATCTCGAACCAGGAAATATCGAGCCCCGATAGGGTCACATT
spacer length: 49 repeater length: 25
9402 429439 CTTTCAATTCATTCTTTGTTGTTTC CTCACCCACCCGACCAGCGACCCATCACTAGCATTGTAGAACTC spacer
length: 44 repeater length: 25

9403 429509 CTTTCAATTCATTCTTTGTTGTTTC GTATTTGCACCACCAGCCGCAAGGCAGTATATGCCGCTTTTTTC spacer
length: 43 repeater length: 25

9404 429578 CTTTCAATTCATTCTTTGTTGTTTC CGCCTGGAGGTCTTCTGCGAGTGCAAGGGGTGTAGAGCC spacer
length: 39 repeater length: 25

9405 429643 CTTTCAATTCATTCTTTGTTGTTTC ATGATCTCAAATCGCGTCTCTTTACCGCCGCGATCCTCTCCAG spacer
length: 43 repeater length: 25

9406 429712 CTTTCAATTCATTCTTTGTTGTTTC CATCAACGCTGTATCGTTCTTCCGCGATACGCCAAACCACTT spacer
length: 42 repeater length: 25

9407 429780 CTTTCAATTCATTCTTTGTTGTTTC GGATGTTACAACCCCAATAGTACCCAGTGTTCATGTTC spacer
length: 39 repeater length: 25

9408 429845 CTTTCAATTCATTCTTTGTTGTTTC CGCGAGTGGTGGTTCGTGAAGGCGCGTCGCATAACCGT spacer
length: 38 repeater length: 25

9409 429909 CTTTCAATTCATTCTTTGTTGTTTC CGCAGTTCCTGGCCACTGCCCCGCCAGGTGCTAGAGAAGCTCG spacer
length: 42 repeater length: 25

9410 429977 CTTTCAATTCATTCTTTGTTGTTTC TTTGGCTTCTCTTCATCCTCTAGACAATCACCGAGAATCAAGT spacer
length: 43 repeater length: 25

9411 430046 CTTTCAATTCATTCTTTGTTGTTTC ATACATGTATGGGGTGGAGGTAGGTGATGCGACCAGTCATAGGC spacer
length: 44 repeater length: 25

9412 430116 CTTTCAATTCATTCTTTGTTGTTTC GCGCAAATGCTCGATACGTCCGCGGGAATATCCGCTGTAGGCCTCCA
spacer length: 48 repeater length: 25

9413 430190 CTTTCAATTCATTCTTTGTTGTTTC AAGTCCGGAATCTCGCTGGAGATGCCGAGGCGGGTTTCG spacer
length: 40 repeater length: 25

9414 430256 CTTTCAATTCATTCTTTGTTGTTTC ACGGCCGCTGGCATATCCTCGCTCAGTAGCGTAGCTCCGATCA spacer
length: 43 repeater length: 25

9415 430325 CTTTCAATTCATTCTTTGTTGTTTC CTGAAGGTTATGCTGGTGGTGTATGATGGTGAATGCCAGTT spacer
length: 42 repeater length: 25

9416 430393 CTTTCAATTCATTCTTTGTTGTTTC TGCCCCGTGGACGATGTCCCCGAGGAAGAGCCAGGGCTCCT

9417

9418

9419 crispr 3

9420 388807 GAAACAACCAAGAATGAATTGAAAG CACGCCAGAACTGCTGATCAAGCTGAAGGTGAAGGAATCCA spacer
length: 42 repeater length: 25

9421 388875 GAAACAACCAAGAATGAATTGAAAG AACGACGTTGACTGGGGCGACGCTAGGGTCATAGTGGTGGACTCGC
spacer length: 46 repeater length: 25

9422 388947 GAAACAACCAAGAATGAATTGAAAG TGCTAGGCTTATGCCCATCGCCCTTTCTGCCTCGTGTATCTTGG spacer
length: 44 repeater length: 25

9423 389017 GAAACAACCAAGAATGAATTGAAAG TTCTTGCCATGGGCGAGCGAGTAGAGGTACCTAGCCGCCAGGA spacer
length: 43 repeater length: 25

9424 389086 GAAACAACCAAGAATGAATTGAAAG CATTGACGTATCTAGGTTCCACCCACAGACGTGCCCTCTGA spacer
length: 43 repeater length: 25

9425 389155 GAAACAACCAAGAATGAATTGAAAG AACCTAACACGGCTACTCACAAGCCACCACGGGCCATC spacer
length: 38 repeater length: 25

9426 389219 GAAACAACCAAGAATGAATTGAAAG CACGTCCTCGGGCTTCTGGAGCCGCTTCCTGAGCTTGAATAC spacer
length: 42 repeater length: 25

9427 389287 GAAACAACCAAGAATGAATTGAAAG GACCTGGGTTTGGGCGGCCATCCCACACACACCCCGCCGGGTCC spacer
length: 44 repeater length: 25

9428 389357 GAAACAACCAAGAATGAATTGAAAG GCACATGTTCTGCAAACCTTACCCCGCTAGAGTCCACCA spacer
length: 41 repeater length: 25

9429 389424 GAAACAACCAAGAATGAATTGAAAG CACAAGATAGCCGGTATTGACATTGATGAAGAGGAGCTGACG spacer
length: 42 repeater length: 25

9430 389492 GAAACAACCAAGAATGAATTGAAAG TAACAGCAACCGGTCAGGTCAAGTTTCGTGGTGAAGCAGTA spacer
length: 40 repeater length: 25

9431 389558 GAAACAACCAAGAATGAATTGAAAG CCGGCGGCAGACGCGGTCTGACCTGCACTTGTCTAGCTCTCT spacer
length: 42 repeater length: 25

9432 389626 GAAACAACCAAGAATGAATTGAAAG CCTGGCTTGGATACGTCTGGTGCAGCCGTATACGCGACGCTTCCAGTGACA
spacer length: 51 repeater length: 25

9433 389703 GAAACAACCAAGAATGAATTGAAAG TTTCTCACCACGCTGGCTTACCCCGCTCTCCATGCTTTTCG spacer
length: 40 repeater length: 25

9434 389769 GAAACAACCAAGAATGAATTGAAAG TTGAACTTCGTCGGGATGAAGTGCACGTTGATGTACGATGACGGCT
spacer length: 46 repeater length: 25

9435 389841 GAAACAACCAAGAATGAATTGAAAG CAGCCTCATGACTAGCTTGTGCACGGCCTTGACGAGCCCGCCTAG
spacer length: 45 repeater length: 25

9436 389912 GAAACAACCAAGAATGAATTGAAAG GGCCACCACCGTCAGCCCGAAGAGCGTCTCTATAGCGTCCA spacer
length: 41 repeater length: 25

9437 389979 GAAACAACCAAGAATGAATTGAAAG CACCTTTGCCGGCGGCCACTCCTCGACGATCCAGAACGGCTC spacer
length: 42 repeater length: 25

9438 390047 GAAACAACCAAGAATGAATTGAAAG GCGCTATACATCAGCTTGACGGCCACCGTTGTCTTGCCCGTG spacer
length: 42 repeater length: 25

9439 390115 GAAACAACCAAGAATGAATTGAAAG GTTGGATTAGCTCGGTTGCTCCAGGCATACCACCCGACCCCGA spacer
length: 44 repeater length: 25

9440 390185 GAAACAACCAAGAATGAATTGAAAG GACATCCTCTGGCTTCGCTAGGCGTCGTTTACGCTTGAAGACAA spacer

length: 44 repeater length: 25
9441 390255 GAAACAACCAAGAATGAATTGAAAG CAGTAGTTCAGCTGGGCCCAGAGGACGCGGTGGTTGACCCCCAC spacer
length: 44 repeater length: 25
9442 390325 GAAACAACCAAGAATGAATTGAAAG AACTAATAACTCGCTCAACGTCATCTGGGGTCAGGAATTTTCG spacer
length: 43 repeater length: 25
9443 390394 GAAACAACCAAGAATGAATTGAAAG CGCCGCGTCTAGCTCCGCCTGCACACGGGCCGCGATGGTGTCTGA spacer
length: 44 repeater length: 25
9444 390464 GAAACAACCAAGAATGAATTGAAAG TCGATATCCCTGAGGGCGTGCTCTACGAGCATCCTTCCGT spacer
length: 40 repeater length: 25
9445 390530 GAAACAACCAAGAATGAATTGAAAG TGGTGGCAGCAGCTCATAACCTGGTAGCCTGCGCCGCGCA spacer
length: 41 repeater length: 25
9446 390597 GAAACAACCAAGAATGAATTGAAAG TCGGATGTTGAGGTGGCCGTGATACTCCGTCACCTCCGCAACA spacer
length: 43 repeater length: 25
9447 390666 GAAACAACCAAGAATGAATTGAAAG GGGGGTGTATACGTATCGGGTTAGAGGCCCTCGGGGGCGCT spacer
length: 41 repeater length: 25
9448 390733 GAAACAACCAAGAATGAATTGAAAG
TGACCACCCATCGGTAAACACGCACTATTGCTTGTTCATACAACGCTCCTCGTTGCTA spacer length: 56 repeater
length: 25
9449 390815 GAAACAACCAAGAATGAATTGAAAG GGCATCAAGTGCCAGGATTAGTGGCTCTTCGCCCCGAATGTCAA spacer
length: 44 repeater length: 25
9450 390885 GAAACAACCAAGAATGAATTGAAAG CGCCTTGAACGTGACGATCCGCATAGATCCGCACCGGTGTTACC spacer
length: 44 repeater length: 25
9451 390955 GAAACAACCAAGAATGAATTGAAAG CCATCCATGCAGACGGTGGTGAATGCCGGACATAGACGATG spacer
length: 42 repeater length: 25
9452 391023 GAAACAACCAAGAATGAATTGAAAG GTTCTCGCCGCCGTAGTACATGCGTATCGTCACCGTCCCGT spacer
length: 41 repeater length: 25
9453 391090 GAAACAACCAAGAATGAATTGAAAG CGAGACCCTCAGCGACGCGCTCTCTAACGCTGTTTA spacer length:
36 repeater length: 25
9454 391152 GAAACAACCAAGAATGAATTGAAAG CCCTGTGGACGATGTCCCCGAGGAAGAGCCAGGGCT
9455
9456
9457 GCA_000226975.3_ASM22697v3_genomic.fna(findCrispr):
9458 START REPEAT
SPACER
9459 GCA_000230715.3_ASM23071v3_genomic.fna(findCrispr):
9460 START REPEAT
SPACER
9461 crispr 1
9462 3676340 CGACGGCACCGTCTTCGTCGG
AAGTTGGGACGGCAATCTGTACGCAGTGGATACCGAGACAGGCACCGAACGGTGGCACTTCGAAACCGATGCCCAGGTTCGATTTCGT
CGCCGACAGTAG spacer length: 98 repeater length: 21
9463 3676460 CGACGGCACCGTCTTCGTCGG
GAGCAACGACGCCACTCTGTACGCCGTAAACGCCGAGACAGGTACCGAACGGTGGGGTTTCGACACCGACGAGGCTGTCCAATTCGT
CGCCGACAGTGG spacer length: 98 repeater length: 21
9464 3676580 CGACGGCACCGTCTTCGTCGG
GAGCAACGACGCCACTCTGTACGCCGTAGACGCCGAAACGGGTACCGAACGGTGGGGTTTCGACACCGACGAGGCTGTCCAATTCGT
CGCCGACAGTGG spacer length: 98 repeater length: 21
9465 3676700 CGACGGCACCGTCTTCGTCGG
GAGCAACGACGCCACTCTGTACGCCGTAGACGCCGAAACGGGTGCCGAACAGTGGCATTTCGAAACTGGTGACCGGGTACAGTCGT
CGCCGACGGTGG spacer length: 98 repeater length: 21
9466 3676820 CGACGGCACCGTCTTCGTCGG
AAGAGAACGACGAAACCGACGAAACCGACGAAACCGACGAAGTCGTCACCTCAGAAGATCGGCCAGCTCACGTTTCGAGCAGTTTCGAC
GTGGAGTCGATT
9467
9468
9469 crispr 2
9470 1770263 CGGGCCAGCGTGTCCGGGTGG ACCCTGCCCACTTTTCGTCGTCATCGTCGCCCG spacer length: 32
repeater length: 21
9471 1770317 CGGGCCAGCGTGTCCGGGTGG TCCCTGGGTGCTCTCGTTGTCACTGCCCG spacer length: 29
repeater length: 21
9472 1770368 CGGGCCAGCGTGTCCGGGTGG ACATCGAGCGGGAGACAGATGCCGGATGC
9473
9474
9475 crispr 3
9476 2014464 CGTCGAAGTCGTCCTCGAGTC GTTCCTGTTCCGCTTCGAGT spacer length: 20 repeater
length: 21
9477 2014506 CGTCGAAGTCGTCCTCGAGTC GTTCCTGTTCCGCTTCGAGC spacer length: 20 repeater
length: 21
9478 2014548 CGTCGAAGTCGTCCTCGAGTC AGAGAACGACGAAACCGACG
9479
9480

9481 crispr 4
 9482 1046250 GACGAAGTCAACGAAGAAGAGAACGACGAA GTCGAGGGCGAGGACGAAAC spacer length: 20
 repeater length: 30
 9483 1046301 GACGAAGTCAACGAAGAAGAGAACGACGAA ACCGACGAAACCGACGAAAC spacer length: 20
 repeater length: 30
 9484 1046352 GACGAAGTCAACGAAGAAGAGAACGACGAA ACCGACGAAACCGACGAAGT
 9485
 9486
 9487 crispr 5
 9488 3413161 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTGTCGTGTACGCGTGTGTTTCGACGAGTTCGAG spacer
 length: 33 repeater length: 30
 9489 3413225 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCGACAGGAGCGACGACGTCGATGAACAGGTAT spacer
 length: 34 repeater length: 30
 9490 3413290 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGGGTGGCGTCGGGATCGGGCCGCGAGGCATGCC spacer
 length: 35 repeater length: 30
 9491 3413356 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACCCTCGAAAGCGTCGAAGTTCGGCTCGAGGTCG spacer
 length: 34 repeater length: 30
 9492 3413421 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTGGGTCTCACTGCCAGATATGGAACACGCA spacer
 length: 31 repeater length: 30
 9493 3413483 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAGCGTTGGGAGATGGTGATATGGGTGATGGTGAG spacer
 length: 35 repeater length: 30
 9494 3413549 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGTATTCAACCTCGAGCTCGTCCCCGGCCTCAACGT spacer
 length: 37 repeater length: 30
 9495 3413617 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CAAGAGCCGGTCGAACACATCAAGTGGGTCAAACAG spacer
 length: 36 repeater length: 30
 9496 3413684 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACACCGTCTGGTGGAGGTCAGGCGCAGGACG spacer
 length: 31 repeater length: 30
 9497 3413746 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTTACATGACGACCGCCCGCAGTAGCGCGTCCCC spacer
 length: 34 repeater length: 30
 9498 3413811 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GCCCGGCGGATGCTGGTGCCTGTCAGGACGG spacer
 length: 32 repeater length: 30
 9499 3413874 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCACCGTCCTCCCCGGTCTCCTCGCTCGAAGGG spacer
 length: 35 repeater length: 30
 9500 3413940 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CACTGCCCCGAGCTGTGGAACGAGATCGAGGGCC spacer
 length: 34 repeater length: 30
 9501 3414005 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CATGCCACGGTTTAAAATCAGATGGGCGTAGTAGGG spacer
 length: 36 repeater length: 30
 9502 3414072 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GATGTATTTCGATGCCAGTCCGCGTTGAGTAGCT spacer
 length: 33 repeater length: 30
 9503 3414136 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCGTCCAGTCGTAGATCGGGTAGACGTTGTAAGCG spacer
 length: 37 repeater length: 30
 9504 3414204 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCAGTCACTGATTCCGACTGTTTGTGCGGTCATACG spacer
 length: 35 repeater length: 30
 9505 3414270 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCCTTAAGCCGCCGAGTCACAACCCGAACAGACT spacer
 length: 35 repeater length: 30
 9506 3414336 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCACACGCGGGACACTCTGGAATGCCGAGCCCC spacer
 length: 33 repeater length: 30
 9507 3414400 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCATCTCGGACATACTCAGCCCTCGTCAGTTTTGAG spacer
 length: 37 repeater length: 30
 9508 3414468 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CGAAAGCACCCCAAGCACCCCGAAAGCACCCC spacer
 length: 33 repeater length: 30
 9509 3414532 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCGGTGCCCCGACTGGGTGACGAAAGCGACGTGCT spacer
 length: 35 repeater length: 30
 9510 3414598 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACCGACTCGTTGATCCACCAGTTCGCGAGGACGG spacer
 length: 34 repeater length: 30
 9511 3414663 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACGAAGAGTCGCGGACGTGGGACGAGGGCGCTC spacer
 length: 34 repeater length: 30
 9512 3414728 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CCCGGTGGCGACGTCGTCAAGAGCGTGCACGAGCA spacer
 length: 35 repeater length: 30
 9513 3414794 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGCGAAGGTCGTCCTCGTCGAGCGTGTCCAGCTG spacer
 length: 35 repeater length: 30
 9514 3414860 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAACTCAACCTGACCACCGACGCCTTTGAGCCGA spacer
 length: 34 repeater length: 30
 9515 3414925 GTTTCAGACGAACCCTCGTGGGGTTGAAGC AATCTCCGATACTCCGACTGTCTGATTCCGTATCC spacer
 length: 35 repeater length: 30
 9516 3414991 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCGTCGTGCAACAGCGGAGTACTACGACGG spacer
 length: 32 repeater length: 30
 9517 3415054 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GCCGGTCGATCACGCCGACCGTGTGGCCCGTAC spacer
 length: 33 repeater length: 30
 9518 3415118 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCCAGAACGTCGCGCACGAGCTGCATCTGTAC spacer
 length: 33 repeater length: 30

9519	3415182	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GGACTGTTTGTTCGGTCATACGCCACCGTGAGTG	spacer
	length:	33	repeater length:	30
9520	3415246	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACTGCAGACCCTGTTGACAACAGAGACGTGCTCG	spacer
	length:	34	repeater length:	30
9521	3415311	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACTGCAGACCCTGTTGACAACAGAGACGTGCT	spacer
	length:	32	repeater length:	30
9522	3415374	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGACAGAAGCGAGTCAAAGAAGACTGGCTCGAAGTG	spacer
	length:	36	repeater length:	30
9523	3415441	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCCTGGTGTGTTGGACCAAACCGGATCAGCCGAGAGC	spacer
	length:	35	repeater length:	30
9524	3415507	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCTACTGCACGCGTTGTGAGAACTGACTTCGCCA	spacer
	length:	36	repeater length:	30
9525	3415574	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AGCTCCTCGACGAAGCGACCGATACCTTCCT	spacer
	length:	31	repeater length:	30
9526	3415636	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCCCCGGGTCGTTACTCATCGTCCTCACCCCAGA	spacer
	length:	35	repeater length:	30
9527	3415702	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGGCTGTTATCACGTCGGCACTGTGTAACCTTGTGGG	spacer
	length:	37	repeater length:	30
9528	3415770	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCACCACTTGTTCGCCTTTTCGCGTGCCTGTGCCCCG	spacer
	length:	35	repeater length:	30
9529	3415836	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AAACAAGGCCACTGGATCGCCACGACGATGGCGTCG	spacer
	length:	37	repeater length:	30
9530	3415904	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCTCTACCGGCAACGCATATCTCGAATTGTGGGAT	spacer
	length:	35	repeater length:	30
9531	3415970	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCTGGCTGTTGATCTCCTTGTTCGTGAGGAACG	spacer
	length:	33	repeater length:	30
9532	3416034	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTTGTTGCGAAGCGCTCTCCGGTACGTCTCCGGGTCTG	spacer
	length:	37	repeater length:	30
9533	3416102	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATCACTGTCCGACAGTTGATGCGCCGCGACCACGA	spacer
	length:	35	repeater length:	30
9534	3416168	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATGGTTACTGGGTCTCTGGACTTTTGATAAAC	spacer
	length:	32	repeater length:	30
9535	3416231	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCCACCCCGTCGCGTACGCCAGCGCCGCTGGAC	spacer
	length:	34	repeater length:	30
9536	3416296	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACCGATCACCCAGACTACGCAGAAGCCGACGAACA	spacer
	length:	35	repeater length:	30
9537	3416362	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCAACCACACGTCACCTCATACAGACCCACCTCGGAA	spacer
	length:	36	repeater length:	30
9538	3416429	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCCCCGTCGTCGGGCAACAGCGGGGCCGCTTCGTCA	spacer
	length:	36	repeater length:	30
9539	3416496	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCGCCGTCGTGAGACCACGAGAACGACCCATACC	spacer
	length:	34	repeater length:	30
9540	3416561	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGTCGGGACCGTCACGTCTTTCTGGGCGTGAACGAC	spacer
	length:	36	repeater length:	30
9541	3416628	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATCGGTCGCTCACCTCATCGAGAGTGGCCGTTAGGA	spacer
	length:	36	repeater length:	30
9542	3416695	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TACGTCATGGGGGTGATCTGGGACTGATGAGCCT	spacer
	length:	34	repeater length:	30
9543	3416760	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCTCCGGTCCTTTTCGCGGCCGCTCGCACCGACGC	spacer
	length:	34	repeater length:	30
9544	3416825	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTTCGTCGTCATCTGCATTTGCTACTGATTGGTGGC	spacer
	length:	36	repeater length:	30
9545	3416892	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CAAGAACAGGCCGAGAAGTGGTTTGAAAAGCAT	spacer
	length:	33	repeater length:	30
9546	3416956	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTCCGTCACGGCCGTATCATCGGTTTCGAGGTGCGT	spacer
	length:	36	repeater length:	30
9547	3417023	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AGCACCCCGAGCACCCCGAAAGCACCCCGGAC	spacer
	length:	33	repeater length:	30
9548	3417087	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTTGACTCATGGCGTCGACGAAAACCTCCTTACACC	spacer
	length:	36	repeater length:	30
9549	3417154	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GCATTGACGTAGCCAATGCCGGCCTGTGGGAT	spacer
	length:	32	repeater length:	30
9550	3417217	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GCCTACCACCCGCGAGGGCGACCTCGAGGACGAGC	spacer
	length:	34	repeater length:	30
9551	3417282	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTGCGATATACGCTAATTATAGTCTGTCCGGATGG	spacer
	length:	35	repeater length:	30
9552	3417348	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTCGAGGATGTGTGTTAGTCGGTAATCGGTCGGGTCT	spacer
	length:	37	repeater length:	30
9553	3417416	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGACGCGGTCGCGAACGATCTCGAGAACGTCACCT	spacer
	length:	37	repeater length:	30
9554	3417484	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTCAACCTGATCGAGACGTTTCATCCACAGCGAGAA	spacer

	length: 35	repeater length: 30	
9555	3417550	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGAGGTGACGGTCAACGGCGTCCCCGGCTACGGGT spacer
	length: 35	repeater length: 30	
9556	3417616	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTGTTGCCATATTTTCGTCGCCGTTGTCGGCGTCG spacer
	length: 34	repeater length: 30	
9557	3417681	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GCGGTATTCGAGTTCTCGACCGTCGTCTGATCGTCG spacer
	length: 36	repeater length: 30	
9558	3417748	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TTCGCGCACGAAAAGCAGAAGTGAAGTACAGG spacer
	length: 33	repeater length: 30	
9559	3417812	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGAGTAGTGTAGCCCAACGGCCAGCCAAAAC spacer
	length: 33	repeater length: 30	
9560	3417876	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCCCGTCTGTTTCGACGAGATAACAACGCAACCTGCTCG spacer
	length: 37	repeater length: 30	
9561	3417944	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CGAGATACGCCCCGAATTTTCGACACCGTAGTACGCC spacer
	length: 36	repeater length: 30	
9562	3418011	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTCTCGGAGTGTGCGGGTTGCCGTGGGGTCCTCGGA spacer
	length: 36	repeater length: 30	
9563	3418078	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGATACGATACGGCGAAAAGAAGGAACGACTTCG spacer
	length: 35	repeater length: 30	
9564	3418144	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CAACAGTTAAGGGGGATCACCCAGGCGGTTCGATCA spacer
	length: 35	repeater length: 30	
9565	3418210	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ACCACGTTTGTGTGCGCGCCGCTTATAGATAACGGC spacer
	length: 36	repeater length: 30	
9566	3418277	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATCCGACTCACCGTCTCATCGTCAAGCGACATAACCG spacer
	length: 37	repeater length: 30	
9567	3418345	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCCGAACGCATCGAAGCCAAACAGACATCCCGCT spacer
	length: 34	repeater length: 30	
9568	3418410	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGCGTTGTGGACGAAAGTCAAACCTCCGCTATCGCG spacer
	length: 36	repeater length: 30	
9569	3418477	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TGGCTGAGATAGACCGTGTTACGGTTCGAACCCACCA spacer
	length: 36	repeater length: 30	
9570	3418544	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AACTACGTCTTCGGTCTGTGAGTAACACTGTAG spacer
	length: 34	repeater length: 30	
9571	3418609	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATGCGGTACTACGACTTCATCCACCCCGAGGACG spacer
	length: 34	repeater length: 30	
9572	3418674	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GAACAGTCGGGACCAACCAGCGCGACGTCGTCGAG spacer
	length: 35	repeater length: 30	
9573	3418740	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	AACCGGACTCGTGGCGTACTCCCACGGCCGGTCAAG spacer
	length: 36	repeater length: 30	
9574	3418807	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTGCGGTGCCGAGTCGCTGGACGTGCGCATCTCC spacer
	length: 34	repeater length: 30	
9575	3418872	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GATGTTGTCCGTTATCTCAGACCAACACTCTTCG spacer
	length: 34	repeater length: 30	
9576	3418937	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTCTTCGCAGCCGCCACAGTAGCGCTGGACTGCCCC spacer
	length: 36	repeater length: 30	
9577	3419004	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTGACCACGACGTCGCGCTCTGGACGGTCGACC spacer
	length: 34	repeater length: 30	
9578	3419069	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCGGACAGGTTTCCGGAGGTGGTACTGCGTCAGC spacer
	length: 34	repeater length: 30	
9579	3419134	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CAGCGGTGACCATGGCGTCTTCGGGGTCGGATAAG spacer
	length: 35	repeater length: 30	
9580	3419200	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GCGATCGGGGACTCGAGTGCGGTGTTTCGTCGACG spacer
	length: 34	repeater length: 30	
9581	3419265	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TGGGTCTGGGTTCGAGATGACGTCCAGGACCGG spacer
	length: 32	repeater length: 30	
9582	3419328	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	ATCTTGTGCGGCACCTGCTCGGGATCGAGGACGTCG spacer
	length: 36	repeater length: 30	
9583	3419395	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGGTGAGGTGCGCGCTCCAGATCGACGAGCCGA spacer
	length: 34	repeater length: 30	
9584	3419460	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCCGCAGTCGGTACACTCGCCGTAGGTCCCGATCC spacer
	length: 35	repeater length: 30	
9585	3419526	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	GTCTCGTCGAACATCCATTGGGGCCTCTACG spacer
	length: 31	repeater length: 30	
9586	3419588	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTGACCACGACGTCGCGCTCTGGACGGTCGACCCG spacer
	length: 36	repeater length: 30	
9587	3419655	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	TCGTCCTGCTGGCGGTGCTCTTGCTGACGGTCTAC spacer
	length: 35	repeater length: 30	
9588	3419721	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CTCGAGCCGGGCGAGTCGCTGCTGGACGTAGCCGC spacer
	length: 35	repeater length: 30	
9589	3419787	GTTTCAGACGAACCCTCGTGGGGTTGAAGC	CCGTATACCTTCGACGGCAGTGGCGACGCGCC spacer
	length: 32	repeater length: 30	

9590 3419850 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAGGTTGACGTGGCCGGGGATTGCACGGCGGCC spacer
 length: 33 repeater length: 30
 9591 3419914 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTGGCGAGGGTCCGAGTGTTCGGATTTCGACGGTCGA spacer
 length: 35 repeater length: 30
 9592 3419980 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TTCAATCTCGCCCTGGATACGTTTCGACGGCGTCTT spacer
 length: 35 repeater length: 30
 9593 3420046 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGTCGCTCACAGCGACGACTACGGCGGCGGC spacer
 length: 33 repeater length: 30
 9594 3420110 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TAAGGAAAGGGATGGGACGCCTCGGAATTGAACCG spacer
 length: 35 repeater length: 30
 9595 3420176 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGAGGCCGCCGGCTTCGGTGCAGGTTCGATTG spacer
 length: 35 repeater length: 30
 9596 3420242 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCGTCGGCTCGGACAAGGCGAGCGTCCGGCGGC spacer
 length: 34 repeater length: 30
 9597 3420307 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTTCGTTACCTGCAGGTTCGGTTAACGGCAGGTACG spacer
 length: 35 repeater length: 30
 9598 3420373 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TCGCTCTCGCCGATGGAAGTCGAGCCGCCGAC spacer
 length: 32 repeater length: 30
 9599 3420436 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ATGCAAGATAAACTCGAAATGGCAAAGAACGCCGGCA spacer
 length: 37 repeater length: 30
 9600 3420504 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTGTGTTTCGCAAACGACACGGCCACCTTCGGTCCG spacer
 length: 36 repeater length: 30
 9601 3420571 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCATCGTCGGCCGGTTCGGGGGTGAGTGATCGT spacer
 length: 34 repeater length: 30
 9602 3420636 GTTTCAGACGAACCCTCGTGGGGTTGAAGC ACTTTATAGACCTCTTTTCGCTCCTGTTTCGTCGACT spacer
 length: 36 repeater length: 30
 9603 3420703 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAACTCGACTTCCGCGAGCGGTCCGACGACGCC spacer
 length: 33 repeater length: 30
 9604 3420767 GTTTCAGACGAACCCTCGTGGGGTTGAAGC TACTGAAACTGGAATAGACTAAGCCAGTAGCAGCA spacer
 length: 35 repeater length: 30
 9605 3420833 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GTGACCTCGTCCTCGTCGACCTCGGTAATTTGCTG spacer
 length: 35 repeater length: 30
 9606 3420899 GTTTCAGACGAACCCTCGTGGGGTTGAAGC CTCCCGAATATCGGTCTTCGTTTCGCTCGTTTCACT spacer
 length: 36 repeater length: 30
 9607 3420966 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GACCATTTCTGGCCGGCCGACTTCGGCTCGGCC spacer
 length: 33 repeater length: 30
 9608 3421030 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GGGTTCGGAGTGCTGGTCGTAGAGGACGTGATGGT spacer
 length: 35 repeater length: 30
 9609 3421096 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAAGATGAGGACGGCGAGTTTGACGCTGAAGCA spacer
 length: 33 repeater length: 30
 9610 3421160 GTTTCAGACGAACCCTCGTGGGGTTGAAGC GAAACGGGTGCCGAACAGTGGCATTTCGAAACT
 9611
 9612
 9613 crispr 6
 9614 3676461 GACGGCACCGTCTTCGTCGGGAGCAACGACGCCACTCTGT
 ACGCCGTAAACGCCGAGACAGGTACCGAACGGTGGGGTTTCGACACCGACGAGGCTGTCCAATCGTCGCCGACAGTGGC
 spacer length: 79 repeater length: 40
 9615 3676581 GACGGCACCGTCTTCGTCGGGAGCAACGACGCCACTCTGT
 ACGCCGTAGACGCCGAAACGGGTACCGAACGGTGGGGTTTCGACACCGACGAGGCTGTCCAATCGTCGCCGACAGTGGC
 spacer length: 79 repeater length: 40
 9616 3676701 GACGGCACCGTCTTCGTCGGGAGCAACGACGCCACTCTGT
 CGAAACCGACGAAGTCGTCACTCAGAAGATCGGCCAGCTCACGTTTCGAGCAGTTTCGAGCTGGAGTCGATTTTCGATCGAC
 9617
 9618
 9619 GCA_000231015.3_ASM23101v3_genomic.fna(findCrispr):
 9620 START REPEAT
 SPACER
 9621 crispr 1
 9622 973388 CTTTCAATTCTTTCTATTGTATTC CTATAAACATACTCCACAGAGCTGCAACGCAAGAGATGT spacer
 length: 39 repeater length: 24
 9623 973452 CTTTCAATTCTTTCTATTGTATTC GAGGGCGGTCTCAGTCAAGAAAGAGACGTACGAGAAGCT spacer
 length: 39 repeater length: 24
 9624 973516 CTTTCAATTCTTTCTATTGTATTC TCAATTAAGTTATATTTTTCTGTGCTTGGTTTTGGGTTTGGGT spacer
 length: 44 repeater length: 24
 9625 973585 CTTTCAATTCTTTCTATTGTATTC TATAGTAATTCAAGCAGTCAGAGATGTAAAACCGCCGAGCAA spacer
 length: 42 repeater length: 24
 9626 973652 CTTTCAATTCTTTCTATTGTATTC GCTGCGAGAAACGAGGCCAGTGAGCTGCTCGGCAAAGTGA spacer
 length: 40 repeater length: 24
 9627 973717 CTTTCAATTCTTTCTATTGTATTC ATTTAGAGCTTAAGAAGCAGAGGCTGAATCTGTTGATCGAGCAGAT
 spacer length: 46 repeater length: 24
 9628 973788 CTTTCAATTCTTTCTATTGTATTC GCGAGGGCGTCTCAGCTAGTGTGACGTGTATCAAGCTAAAT spacer

length: 42 repeater length: 24
9629 973855 CTTTCAATTCTTTCTATTGTATTC AAAATGATATTCGTAAACCGCCGATTTCTACGATTTCCCAGG spacer
length: 43 repeater length: 24
9630 973923 CTTTCAATTCTTTCTATTGTATTC CATTTAATTTAATAGTCATATAGAATGATACATTAGCGAGTG spacer
length: 42 repeater length: 24
9631 973990 CTTTCAATTCTTTCTATTGTATTC TTCTTTTCAACGTATTCTCCGCCATTATAGCCGTACGTGTTCT spacer
length: 43 repeater length: 24
9632 974058 CTTTCAATTCTTTCTATTGTATTC CTCGCTATGAGCTGAGCGGTGATCGCAACTGGCAGCGTGAAAT spacer
length: 43 repeater length: 24
9633 974126 CTTTCAATTCTTTCTATTGTATTC GTGATACTAGTTAATATTCTAACATTTGCCGCGCGCAGAA spacer
length: 40 repeater length: 24
9634 974191 CTTTCAATTCTTTCTATTGTATTC TTCAGGGGTTTATAAACTTTTACGTGGAGGGATGGGGG spacer
length: 38 repeater length: 24
9635 974254 CTTTCAATTCTTTCTATTGTATTC AATTACTTCTAATTATAAGATGCCCCGTGTCTTCTATATAAC spacer
length: 41 repeater length: 24
9636 974320 CTTTCAATTCTTTCTATTGTATTC TCCCTCAACACAAGCATCTGCCGAAGCACTCTACTGCAGTTCAC TTC
spacer length: 47 repeater length: 24
9637 974392 CTTTCAATTCTTTCTATTGTATTC GACGAGCTTATACAGATTCTAGAGCCTAGCGAAAACAATGAAAA spacer
length: 44 repeater length: 24
9638 974461 CTTTCAATTCTTTCTATTGTATTC GCTCACAGCATGAGAAGAGCGGGGCAAGCATAGACACTATCCC spacer
length: 43 repeater length: 24
9639 974529 CTTTCAATTCTTTCTATTGTATTC TACAGGGCACCCCGTCTTCGTGAAGAACTCGCGTAAGA spacer
length: 39 repeater length: 24
9640 974593 CTTTCAATTCTTTCTATTGTATTC TCTTTCCATTGCTATTATTGATCAGCGCAATGCGAGACC spacer
length: 39 repeater length: 24
9641 974657 CTTTCAATTCTTTCTATTGTATTC TTCACTGTGAATTGAAGTAGTTCTATTCACTGTGAATGGAGAC spacer
length: 43 repeater length: 24
9642 974725 CTTTCAATTCTTTCTATTGTATTC TGCGGGCCAGGGCGAGGTGAATAGAATGAGCGCTCTCCCCG spacer
length: 41 repeater length: 24
9643 974791 CTTTCAATTCTTTCTATTGTATTC TGTACGAGTTAAAGACAGATGATGTTATTTTTCTCG spacer length:
36 repeater length: 24
9644 974852 CTTTCAATTCTTTCTATTGTATTC TATACTCTTCCAAGTCCGTTTCATAGTTGTTTCTGCTGTGGAGA spacer
length: 43 repeater length: 24
9645 974920 CTTTCAATTCTTTCTATTGTATTC TTTGATCTTTGATGTATTTCATGTTTATTTTTGGTGTCTTGGGT
9646
9647
9648 GCA_000235685.3_ASM23568v3_genomic.fna(findCrispr):
9649 START REPEAT
SPACER
9650 crispr 1
9651 322549 TTCCCCGAGGACGGCTTGATG GTTGGTGCCCTGAACACGTCATCGAAGGAG spacer length: 30
repeater length: 20
9652 322600 TTCCCCGAGGACGGCTTGATG GTCGGAGCCTTGAACACGTCATCGAAGGAG spacer length: 30
repeater length: 20
9653 322651 TTCCCCGAGGACGGCTTGATG TCGAATCCCGCCAAGTCCATGGAATTCCTT
9654
9655
9656 crispr 2
9657 1156990 ACACCCACACCCACAACCTACC GCAACTACCTCCCCGACACCCACTCGGACTCCCACACCCACACCTTCGCC
spacer length: 50 repeater length: 21
9658 1157062 ACACCCACACCCACAACCTACC GCAACTACCTCCCCGACACCCACTCAGACCCCCACACCCACACCTTCGCC
spacer length: 50 repeater length: 21
9659 1157134 ACACCCACACCCACAACCTACC ACAACTACCTCTCCTACTCCCACTCGGACTCCCACACCCACACCTTCGCC
spacer length: 50 repeater length: 21
9660 1157206 ACACCCACACCCACAACCTACC ACAACTACCTCTCCTACTCCCACTCGGACTCCCACACCCACACCTTCGCC
spacer length: 50 repeater length: 21
9661 1157278 ACACCCACACCCACAACCTACC TGTAATAATCCACCTCCCAGCAGATGATTATCCCAGACGACTCCCACAA
9662
9663
9664 crispr 3
9665 1550512 GAACGCGTAGACCTGCCGATC
TTTGCTCCCGACATACACAACGCCATCCACCACCGCCGGACTCGACGTGACCTCGCCGTTTCGTGTACGCGCTCCACAATTTTCGTTT
CCGTCGTGGCAT spacer length: 98 repeater length: 21
9666 1550632 GAACGCGTAGACCTGCCGATC
TTTGCTCCCGATATACACAACGCCACCCACCACCGCCGGACTCGACGTGACCTCGCCGTTTCGTGTACGCGCTCCACAATTTTCGTTT
CCGTCGTGGCGT spacer length: 98 repeater length: 21
9667 1550752 GAACGCGTAGACCTGCCGATC
GTTTGCTCCCGACATACACAACGCCATCCACCACCGCCGGGCTCGACGTGACTTCACCGTTTCGTGTACGTGCTCCACACCTTCGTTT
CCGTCGTGGCAT spacer length: 98 repeater length: 21
9668 1550872 GAACGCGTAGACCTGCCGATC
GTTTGCTCCCGACATACACAACGCCATCCACCACCGCCGGACTCGACGTGACCTCGCCGTTTCGTGTACGCGCTCCACAATTTTCGTTT

CCGTCGTGGCAT spacer length: 98 repeater length: 21
9669 1550992 GAACGCGTAGACCTGCCGATC
TTTGCTCCCGATATACACAACGCCACCCACCACCGCCGGACTCGACGTGACCTCGCCGTTTCGTGTACGCGCTCCATAACTTCGTTC
CCGTCGTGGCGT spacer length: 98 repeater length: 21
9670 1551112 GAACGCGTAGACCTGCCGATC
GTTGCTCCCGATATACACAACGCCACCCACCACCGCCGGGCTCGACGTGACCTCGCCGTTTCGTGTACGTGCTCCACACCTTCGTTC
CCGTCGTGGCGT spacer length: 98 repeater length: 21
9671 1551232 GAACGCGTAGACCTGCCGATC
GAATCCCGCCAAGTCCATGGAATTCCTTTTAAAAATTTTAATGCACAATAAAGCAAACGGAAAAAAGAGACCCGTCCGGATGGTCA
CTTCTTCTGCAT
9672
9673
9674 crispr 4
9675 1974430 GGGTTGCCGTCGGTGTTCGGAGTGAGAG TTGCCGTCGGTGTTCGGAGTGGGGGTTGCCGTCGGTGTTCGGAGTG
spacer length: 44 repeater length: 27
9676 1974502 GGGTTGCCGTCGGTGTTCGGAGTGAGAG TTGCCGTCGGTGTTCGGAGTG spacer length: 20 repeater
length: 27
9677 1974550 GGGTTGCCGTCGGTGTTCGGAGTGAGAG TCCACCTCCCAGCAGATGAT
9678
9679
9680 crispr 5
9681 795235 GAGTTCCCCACATGCGTGGGGATGAACC GCGATGCGCTTTGCAGAATCCTTCCTGACAATA spacer length:
33 repeater length: 28
9682 795297 GAGTTCCCCACATGCGTGGGGATGAACC AAAGAAATACAACGGCAAAGTCCCGGAAAAAA spacer length:
32 repeater length: 28
9683 795358 GAGTTCCCCACATGCGTGGGGATGAACC GAAAACGCGGGGAATTGGCGCGACCTTTCCCA spacer length:
32 repeater length: 28
9684 795419 GAGTTCCCCACATGCGTGGGGATGAACC GTTATTGCGGGCTCGTTCAAGACCTTCGCTTG spacer length:
32 repeater length: 28
9685 795480 GAGTTCCCCACATGCGTGGGGATGAACC ACAGTCCGTTTACACTATTATCTGAAGGAATA spacer length:
32 repeater length: 28
9686 795541 GAGTTCCCCACATGCGTGGGGATGAACC ACAAGAGGCTCCGGGCCCGGATGGAAGGTATC spacer length:
32 repeater length: 28
9687 795602 GAGTTCCCCACATGCGTGGGGATGAACC GGATGAACTCCGCCCGGGTTCGCTTCCAGGTC spacer length:
32 repeater length: 28
9688 795663 GAGTTCCCCACATGCGTGGGGATGAACC GTTGATGTGATACCAGCCGTTGGGATACGAGA spacer length:
32 repeater length: 28
9689 795724 GAGTTCCCCACATGCGTGGGGATGAACC ACAGATGGACCGGGTGAGGTACGCCGGCAGGT spacer length:
32 repeater length: 28
9690 795785 GAGTTCCCCACATGCGTGGGGATGAACC TTTATCAATGGGCCGACGATTTAAGAAAGCAT spacer length:
32 repeater length: 28
9691 795846 GAGTTCCCCACATGCGTGGGGATGAACC AACAGCAAAGACCTCGAAGCATTTCATAGAGA spacer length:
32 repeater length: 28
9692 795907 GAGTTCCCCACATGCGTGGGGATGAACC ATTCGAATCCAGCCTGACCGCTGCCACCAATC spacer length:
32 repeater length: 28
9693 795968 GAGTTCCCCACATGCGTGGGGATGAACC AACGGTCAGGCCAGGTAACGCGAGTAGCTCGC spacer length:
32 repeater length: 28
9694 796029 GAGTTCCCCACATGCGTGGGGATGAACC TAATACGATAACAGCCACACATACTACAAAAA spacer length:
32 repeater length: 28
9695 796090 GAGTTCCCCACATGCGTGGGGATGAACC AAAGTCGAGGCAGAGGATTTTCCTGACATATAT spacer length:
32 repeater length: 28
9696 796151 GAGTTCCCCACATGCGTGGGGATGAACC ACTCGGCATCCTGAAGGGACTCTCTGATCTTG spacer length:
32 repeater length: 28
9697 796212 GAGTTCCCCACATGCGTGGGGATGAACC ATTCACAGATGGAACAAAACAAGAAACTCA spacer length:
32 repeater length: 28
9698 796273 GAGTTCCCCACATGCGTGGGGATGAACC AGTCGACATAGATAAGCGATTTGTCGCTTTGC spacer length:
32 repeater length: 28
9699 796334 GAGTTCCCCACATGCGTGGGGATGAACC AATACGTTGACCTTTTCAAGAGGAAGAGGCA spacer length:
32 repeater length: 28
9700 796395 GAGTTCCCCACATGCGTGGGGATGAACC CTATTCTCTATTTTTTTATATCTAAATTCCT spacer length:
31 repeater length: 28
9701 796455 GAGTTCCCCACATGCGTGGGGATGAACC AATCTCTTCGGTTTCTTCACCGTTGGGACTGT spacer length:
32 repeater length: 28
9702 796516 GAGTTCCCCACATGCGTGGGGATGAACC GTCAGAGAGACAATCGTCGAGTGCCATCCGGA spacer length:
32 repeater length: 28
9703 796577 GAGTTCCCCACATGCGTGGGGATGAACC ACTGAAGCGCAAGGTCAATGTCATGAACCATG spacer length:
32 repeater length: 28
9704 796638 GAGTTCCCCACATGCGTGGGGATGAACC GATTGATTATCCGGCTGGGTTCGATCCGGATG spacer length:
32 repeater length: 28
9705 796699 GAGTTCCCCACATGCGTGGGGATGAACC AACAGCAAAGACCTCGAAGCATTTCATAGAGA spacer length:
32 repeater length: 28

9706 796760 GAGTTCCCCACATGCGTGGGGATGAACC AAGTGTAAGAATAGAAATATCATCCATACTTT spacer length:
 32 repeater length: 28
 9707 796821 GAGTTCCCCACATGCGTGGGGATGAACC AACGGTCAGGCCAGGTAACGCGAGTAGCTCGC spacer length:
 32 repeater length: 28
 9708 796882 GAGTTCCCCACATGCGTGGGGATGAACC AGACCTCGTCGCCGTCGCGTTCCAAGTATTTA spacer length:
 32 repeater length: 28
 9709 796943 GAGTTCCCCACATGCGTGGGGATGAACC GTTGGTTCCTGGTGAACACCTGCGGATGTTTC spacer length:
 32 repeater length: 28
 9710 797004 GAGTTCCCCACATGCGTGGGGATGAACC GGAAATAGTGGATTTTTTCGGTGAAGAAAATA spacer length:
 32 repeater length: 28
 9711 797065 GAGTTCCCCACATGCGTGGGGATGAACC GTGCATAACGGTGCCTCACCAGTCAAACCAG spacer length:
 32 repeater length: 28
 9712 797126 GAGTTCCCCACATGCGTGGGGATGAACC CCAAGTCCATGGAATTCCTTTTAAAAATTTTA
 9713
 9714
 9715 crispr 6
 9716 1805890 ACACCAAAACCTACTACCTATCCCGTTGT AAAATCCACCTCCCAGCAGCTACCAATCCCAACACCAACCCC
 spacer length: 42 repeater length: 29
 9717 1805962 ACACCAAAACCTACTACCTATCCCGTTGT GAAATCCACCTCCCAGCAGCTACCAATCCCAACACCAACCCC
 spacer length: 42 repeater length: 29
 9718 1806034 ACACCAAAACCTACTACCTATCCCGTTGT CCATGGAATTCCTTTTAAAAATTTTAATGCACAATAAAGCAA
 9719
 9720
 9721 crispr 7
 9722 1492610 GGAGTTGGCGTCGGGGTCAGGGTCGGCGTCATTGTCGGAG
 TGGGGGATGGAGTTGGCGTCGGAGTAACTGTCAACGTGGGAGTCGGTGT spacer length: 49 repeater length:
 40
 9723 1492700 GGAGTTGGCGTCGGGGTCAGGGTCGGCGTCATTGTCGGAG
 TAGGGAACGAAGTCGGAGTCGGAGTAACTGTCAACGTGGGAGTCGGTGT spacer length: 49 repeater length:
 40
 9724 1492790 GGAGTTGGCGTCGGGGTCAGGGTCGGCGTCATTGTCGGAG
 GATGATTATCCCGACGACGACTCCCAACAATAACCGGCACAACCATTGCA
 9725
 9726
 9727 crispr 8
 9728 1568818 GGGGCTGACGCCCCGCCGCTGCGGCACCCCGTGTGGCGAT
 AGGACCAGTGCAGGGGAACAGGTCATAGCACAATCCCCGATCAACCCTGCCCGCACCCCCCTCCGGGCAATTAGACGACAGACCGCA
 CTCCCATCCTTAGACGCTCT spacer length: 106 repeater length: 40
 9729 1568965 GGGGCTGACGCCCCGCCGCTGCGGCACCCCGTGTGGCGAT
 AGGGCCAGTGCTAAGTGACAGGACATGACACAGTCCCAATCAACCCTGCCACCTCCTATCCTCACACGGGGGTGGTCCGGAGGG
 GGTTCCCCCCTCCGGGCAATTGGACGACCGACCGCACTCCCTTCATCAGACGCTCC spacer length: 142 repeater
 length: 40
 9730 1569148 GGGGCTGACGCCCCGCCGCTGCGGCACCCCGTGTGGCGAT
 CGCCATCCACCACCGCCGGGCTCGACGTGACCTCGCCGTTTCGTGTACGCGCTCCACAATTTTCGTTCCGTCATCCGCGTTCAATGCA
 TACACAGATCTGTCTGCTCCCCACGTATACAACGCCATCCACCACCGCCGGACT
 9731
 9732
 9733 crispr 9
 9734 214199 GGTTCGAATCCCGCCAAGTCCATGGGAACGTTTTTTTTTGGA
 GGATGAGAGGGTACTGGAAGCGACCGGGAGGTCGCTGCGGGGTCGAGGGGCGGAGCCCCCGGTCCGAAAAAGGAAAGGCCGC
 spacer length: 82 repeater length: 40
 9735 214322 GGTTCGAATCCCGCCAAGTCCATGGGAACGTTTTTTTTTGGA
 GGATGAGAGGGTACTGGAAGCGACCGGGAGGTCGCTGCGGGGTCGAGGGGCGGAGCCCCCGGTCCGAAAAAGGAAAGGCCGC
 spacer length: 82 repeater length: 40
 9736 214445 GGTTCGAATCCCGCCAAGTCCATGGGAACGTTTTTTTTTGGA
 GGATGAGAAGGTACTGGAAGCGACCGGGAGGTCGCTGCGGGGTCGAGGGGCGGAGCCCCCGGTCCGAAAAAGGAAAGGCCGC
 spacer length: 82 repeater length: 40
 9737 214568 GGTTCGAATCCCGCCAAGTCCATGGGAACGTTTTTTTTTGGA
 TCGGCGTCATTGTTGGAGTGGGGTTGGGGTCAGGGTCTGCGTTGGAACCTCTGTATTGACAGGACCGGACTCGGCGTCACC
 9738
 9739
 9740 GCA_000243255.1_ASM24325v1_genomic.fna (findCrispr):
 9741 START REPEAT
 SPACER
 9742 crispr 1
 9743 329416 AAACACTCCGGAATCAACTGC CGCAGCAGAGGAGACTGTAAACCCTG spacer length: 26 repeater
 length: 21
 9744 329464 AAACACTCCGGAATCAACTGC TACAGCAGAGGAGACTGTAAACCCTG spacer length: 26 repeater
 length: 21
 9745 329512 AAACACTCCGGAATCAACTGC AATAAGCAGAATAACAAGGAAATAAC
 9746

9747
 9748 crispr 2
 9749 1360101 CAGAATCTGAAATTCTGATAT CTCATCTCTTACTTTACCCG spacer length: 20 repeater
 length: 21
 9750 1360143 CAGAATCTGAAATTCTGATAT TTCATCTCTTACTTTACCCG spacer length: 20 repeater
 length: 21
 9751 1360185 CAGAATCTGAAATTCTGATAT ATAAGCAGAATAACAAGGAA
 9752
 9753
 9754 crispr 3
 9755 2034348 TCGGAGTTGCGGTTGCTGTAG GCGTTGGTGTAGCAGTAGCA spacer length: 20 repeater
 length: 21
 9756 2034390 TCGGAGTTGCGGTTGCTGTAG GTGTCGGTGTAGCAGTGGCA spacer length: 20 repeater
 length: 21
 9757 2034432 TCGGAGTTGCGGTTGCTGTAG TAAGCAGAATAACAAGGAAA
 9758
 9759
 9760 crispr 4
 9761 2034247 TGGTGTAGCAGTAGCAGTCGG TGTCGCGGTTGCTGTGGGCG spacer length: 20 repeater
 length: 21
 9762 2034289 TGGTGTAGCAGTAGCAGTCGG TGTCGCGGTTGCTGTGGGTG spacer length: 20 repeater
 length: 21
 9763 2034331 TGGTGTAGCAGTAGCAGTCGG AGTTGCGGTTGCTGTAGGCG spacer length: 20 repeater
 length: 21
 9764 2034373 TGGTGTAGCAGTAGCAGTCGG
 AGTTGCGGTTGCTGTAGGTGTCGGTGTAGCAGTGGCAGTCGGAGTTGCGGTTGCTGTAGGTGTCGGTGTAGCAGTCGGTGTGCGCG
 TTGCTGTAGGCG spacer length: 98 repeater length: 21
 9765 2034493 TGGTGTAGCAGTAGCAGTCGG
 AACTTTGACAATGTGGATTAACTTTGACAATGTGGATTAAAAGCAAATTTTGAAAATTTTTTTCAGGTTTTAAGTAATCTATCTT
 CAGGCATAACCG
 9766
 9767
 9768 crispr 5
 9769 2370821 TAACATTAAATAGTTATCACAA
 TTTAGTATAACATATCAGTGATAACATTAAATAGTTATCACAGTTTAGTATAACATATCAGTG spacer length: 63
 repeater length: 22
 9770 2370907 TAACATTAAATAGTTATCACAA TTTAGTATAACATATCAGTG spacer length: 20 repeater
 length: 22
 9771 2370950 TAACATTAAATAGTTATCACAA CCGCTAAGATCATCAGAATA
 9772
 9773
 9774 crispr 6
 9775 962545 TCTCCGGTGGAATAACAGTTATTTAT
 AGAACCACCAGGGTTCTCCAGCCCTGCAAAACCGCCGGCAAAACCGCCCTCTGCAGTGGA spacer length: 60
 repeater length: 26
 9776 962632 TCTCCGGTGGAATAACAGTTATTTAT
 CGAACC GCCGTATCCTGGCCCAAAGACCACCGGCAAAACCACCGCTCCCTGCAATGGC spacer length: 60
 repeater length: 26
 9777 962719 TCTCCGGTGGAATAACAGTTATTTAT
 CAGAAGATGAAACTGAATCAGAAGAAACCAACGATAATTCCGGATTAGAAGAACCTGCCG
 9778
 9779
 9780 crispr 7
 9781 2130447 CAGTTATCTTCAGTCAGTTGTCTTCAG
 GCAGTTGTCTTCAGTCAGTTATCTTCAGTCAGTTATCTTCAGTCAGTTATCTTCAG spacer length: 56 repeater
 length: 27
 9782 2130531 CAGTTATCTTCAGTCAGTTGTCTTCAG
 TCAGTTATCTTCAGGCAGTTATCTTCAGTCAGTTATCTTCAGTCAGTTATCTTCAGTCAGTTATCTTCAGTCAGTTATCTTCAGTC
 AGTTATCTTCAGTCAGTTATCTTCAG spacer length: 112 repeater length: 27
 9783 2130671 CAGTTATCTTCAGTCAGTTGTCTTCAG
 GACAATCAGAAAAGGAAATAAAGTCAACATTACCGAAATCCCCATCCTAAACGGATAAAGGATTAAATATTTTAAGCTCATCAGAC
 ATTTATTTTGAGAAAATAACCGATTC
 9784
 9785
 9786 crispr 8
 9787 444497 GAAGAAGCTGAAGCCGAAGAAGAAGCA GCAGTAGTAGTAGTAGATGA spacer length: 20 repeater
 length: 27
 9788 444545 GAAGAAGCTGAAGCCGAAGAAGAAGCA
 GCAGTAGTAGCAGCTGAAGAAGAAGCTGAAGAAGAAGAAGAAGAAGAAGCAGCAGATGA spacer length: 62
 repeater length: 27
 9789 444635 GAAGAAGCTGAAGCCGAAGAAGAAGCA

AATAACAAGGAAATAACGGAGAATACCCAAAAAAGCAAGAAAAAGAACAGCCAGAAAATAA
 9790
 9791
 9792 crispr 9
 9793 2175523 GCAGAATTCAGGCACATGCAGACCGGAA
 CAATACAAACCAGAGTTTTTAAGGCAGCGGCACAGAGAGCAGCAGCAAAGAACAGCAAAAAATAGAGGAGATGATTATCATAACAA
 AAAGAGCAGCAGAATAACTTCTGCTGACGCA spacer length: 117 repeater length: 28
 9794 2175669 GCAGAATTCAGGCACATGCAGACCGGAA
 TGGCACAAACCAAGGCTTTAAAGCAAGAGCACAGAAAGCAGCAGAAAAGAACAACAAAAATAAAGGAAGTGATTATCATAACAA
 AAAGAGCAGCAGAATGACTTCTGCTGACGCA spacer length: 117 repeater length: 28
 9795 2175815 GCAGAATTCAGGCACATGCAGACCGGAA
 CAGCTGGAAGAGAAGAGCAGAGAGACTGAAGAGATAAGAACTCTGATTTCTGAGAAAGAACTTGAGATCAATAAATTAAATCTGA
 GCTGCAGGAGAGTAATTCCGGATATCAAATA
 9796
 9797
 9798 crispr 10
 9799 2501729 GGATTAAAATCTGACAATGTGAATTAAA CTTTGACAATGTGGATTAACTTTGACAATA spacer length:
 31 repeater length: 28
 9800 2501789 GGATTAAAATCTGACAATGTGAATTAAA
 ATCCGACAATGTGAATTAAAATCCGACAATGTGAATTAAAATCTGACAATG spacer length: 51 repeater
 length: 28
 9801 2501869 GGATTAAAATCTGACAATGTGAATTAAA
 GAAAAAAGAACAGCCAGAAAATAAGCAGAATAACCAAATAACAGCATGGAA
 9802
 9803
 9804 crispr 11
 9805 2389897 CGGAATAGTCAGCGAAGTCAGATAATTAA TGATACATATTCTGTTTTTCGATGACCTCAAGTTATTTTG spacer
 length: 39 repeater length: 29
 9806 2389966 CGGAATAGTCAGCGAAGTCAGATAATTAA TGATACATATCCTGTTTTTCGATGACCTCAAGTTATTTTG spacer
 length: 39 repeater length: 29
 9807 2390035 CGGAATAGTCAGCGAAGTCAGATAATTAA AAAAGGAAATAAAGTCAACATTACCGAAATCCCCATCCT
 9808
 9809
 9810 crispr 12
 9811 122761 ACAGAACAGCAGTGAATTCAGTAATAACTGCC CGATACATCATCCGGAGAAAATCAG spacer length: 25
 repeater length: 32
 9812 122819 ACAGAACAGCAGTGAATTCAGTAATAACTGCC AGATACATCATCCGGAGAAAATAAAG spacer length: 26
 repeater length: 32
 9813 122878 ACAGAACAGCAGTGAATTCAGTAATAACTGCC GTGGATTAACTTTGACAATGTGGAT
 9814
 9815
 9816 crispr 13
 9817 2662068 AAACCAGAAATAATTTTAAGAACGGTAGACAATCA
 GATCAATAAAAGAAGCCCAGAATATCAAAATATCTGATTCTCATTTGGA spacer length: 48 repeater length: 35
 9818 2662152 AAACCAGAAATAATTTTAAGAACGGTAGACAATCA
 AATCAACAAAAAAGCCCATAATATCAAAATTACGGATCCTCATTTGGA spacer length: 48 repeater length: 35
 9819 2662236 AAACCAGAAATAATTTTAAGAACGGTAGACAATCA
 AGAATATCCGCTAAGGTCATCAGAACCGTCAGGGAGATCAGGGAGAAC
 9820
 9821
 9822 crispr 14
 9823 1911284 GAGAAGAGCAGAGAGACTGAAGAGACAGTATCGCAG
 TTAGCTGAGATAAAATAACGAAAATAAAATAATCAGAGAGCAGCTGGAGGAGAAGAGCAGAGAGACTGAAGAGATAAGAACACAGCT
 GGA spacer length: 89 repeater length: 36
 9824 1911410 GAGAAGAGCAGAGAGACTGAAGAGACAGTATCGCAG
 CTAGCCGAGATAAAATAACGAAAATAAAATAATCAGAGAACAGCTGGA spacer length: 47 repeater length: 36
 9825 1911494 GAGAAGAGCAGAGAGACTGAAGAGACAGTATCGCAG
 AAGCAGAATTCAGGCACATGCAGACCGGAACAATACAAACCAGAGTT
 9826
 9827
 9828 crispr 15
 9829 1046876 AGACCTTCAAAATTATCAATATCTTCAAAACCGCTAAGAT
 CAGCAGAATCTTCAGGGAGAACAGGGAGAACAAATTTCTGAACCGGAGACGCTCTCTACAGCTTCAGCAGTGAAGTTCATCAATATCG
 CTCAGATCGCCGAATTCATC spacer length: 106 repeater length: 40
 9830 1047023 AGACCTTCAAAATTATCAATATCTTCAAAACCGCTAAGAT
 CAGCAGAATATCCGCTAAGGTCATCAGAACCGTCAGGGAGATCCGGGAGAACAAATTTCTGAACCGGAGACGCTCTCTACACCTTCA
 GCAGTGACATCGTCAATATCGCTCAGATCACCGAATTCGTC spacer length: 127 repeater length: 40
 9831 1047191 AGACCTTCAAAATTATCAATATCTTCAAAACCGCTAAGAT
 AAGAACAGCCAGAAAATAAGCAGAATAACCAAATAACAGCATGGAAAAAGAGAAAAAAACGTGAACAGGCAGAGAATAAGTAGAA
 TAATCCAACAATAACGGAGAATACCCAAAAAAGCAAGAAAA
 9832

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9833
9834 crispr 16
9835 1352690 CAAGGAAATAACGGAGAATACCCAAAAAAGCAAGAAAAAA
AAGAACAGCCAGAAAAATAAGCAGAATAACCAAATAACAGCATGGAAAAAGAGAAAAAACGTGAACAGTCAGAGAATAAGTAGAATA
spacer length: 86 repeater length: 40
9836 1352817 CAAGGAAATAACGGAGAATACCCAAAAAAGCAAGAAAAAA
AGAACAGCCAGAAAAATAAGCAGAATAACCAAATAACAGCATGAAAAAAGAGAAAAAACGTGAACAGTCAGAGAATAAGCAGAATA
spacer length: 85 repeater length: 40
9837 1352943 CAAGGAAATAACGGAGAATACCCAAAAAAGCAAGAAAAAA
AGAACAGCCAGAGAATAAGCAGAATAACCAAATAACAGCATGGAAAAAGAGAAAAAACGTGAACAGTCAGAGAATAAGCAGAAT
A spacer length: 87 repeater length: 40
9838 1353071 CAAGGAAATAACGGAGAATACCCAAAAAAGCAAGAAAAAA
AATCAGAAGAAACCAACGATAATTCCGGATTAGAAGAACCTGCCGCAGGAGAATTATCCAATCATCAGAGAGCAACCCCTATCTT
C
9839
9840
9841 crispr 17
9842 1120509 CAGGGGAAGTATCACCGTCAGCCGGGAGCACAGGGGCAGC
ATCACCGCTGTTCATCCGCAGGAGGTTTCAAGGCAAGGTTCTGGAGAAGCAGGTTCTGAAGTCTCAGGGGAGACAGAGAGAGCTTCTG
AAGAAATT spacer length: 94 repeater length: 40
9843 1120644 CAGGGGAAGTATCACCGTCAGCCGGGAGCACAGGGGCAGC
ACCACCGCTGTTCATCCACAGGAGATTCAAGGCAAGGTTCTGAAGAAGCAGGTTCTGAAGTCTTAGGAGAGGCAGAGAGAGCTTCTG
AAGAGATT spacer length: 94 repeater length: 40
9844 1120779 CAGGGGAAGTATCACCGTCAGCCGGGAGCACAGGGGCAGC
CGGAGAAAAATAAAGAACAGACAGAATAAAATAAGTAAATTTTCGATAATCATTCAGGAAAGATCATACACCATATGATCACAAAAA
AATTATAG
9845
9846
9847 crispr 18
9848 919855 CTTATGTCCGTCCATGAACGCTTTCATAAGTTCACGGGCG
GTTTCGTTGTACACCGACTCAAGAGCTGCACGAATGTCACTGACATCACAGCCCTGTTTCTCAAGACTGTCAAGGTGTGTGTTTCAT
GCGGTCCCCGGCTTCACCGGATGCTGAATATCTGCCTTCTCTCACCGGCACCTTCAGGCGGTGTTCAGTTCTC spacer
length: 160 repeater length: 40
9849 920056 CTTATGTCCGTCCATGAACGCTTTCATAAGTTCACGGGCG
GTTTCATTGTACACCGACTCAAGAGCTGCACGAATGTCACTGACATCACAGCCCTGCTCCTCAAGACTGTCAAGGTGTGTGTTTCAT
GCGGTCCCCGGCTTCACCGGATGCTGAATATCTGCCTTCTCTCACCGGCACCTTCAGGCGGTGTTCAGTTCTC spacer
length: 160 repeater length: 40
9850 920257 CTTATGTCCGTCCATGAACGCTTTCATAAGTTCACGGGCG
GAAATAAAGTCAACATTACCGAAATCCCCATCCTAAACGGATAAAGGATTAAATATTTTAAGCTCATCAGACATTTATTTTGAGAA
AATAACCGATTCCCACAGAAATTCAGGATCTTAATCGGATAAAGGACTAATTATTTTAAGCCCGGTAGAAATAA
9851
9852
9853 crispr 19
9854 1355451 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTTCTTCTTCCCTGTTTCTGCTTGTCCG
spacer length: 31 repeater length: 40
9855 1355523 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTTCTTCTTCCCTGTTTCTGCTTGTCCG spacer
length: 28 repeater length: 40
9856 1355592 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTTCTTCTTCCCTGTTTCTGCTTGTTCG
spacer length: 31 repeater length: 40
9857 1355664 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTTCTTCTTCCCTGTTTCTGCTTGTCCG spacer
length: 28 repeater length: 40
9858 1355733 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTTCTTCTTCCCTGTTTCTGCTTGTCCG
spacer length: 31 repeater length: 40
9859 1355805 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTGCTTCTTCTTCCCTGTTTCTGCTTGTCCG
spacer length: 34 repeater length: 40
9860 1355880 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT GCTTCTTCTTCTTCCCTGTTTCTGCTTGTCCG
spacer length: 31 repeater length: 40
9861 1355952 TGTTTTGTTTTCTTTCTGTTTTTCCTTCCCTGTTCTTTTCT AATATCGCTCAGATCACCGAATTCGTCCAGA
9862
9863
9864 GCA_000245095.2_ASM24509v2_genomic.fna(findCrispr):
9865 START REPEAT
SPACER
9866 crispr 1
9867 910360 GATAATCTACTATAGAATTGAA AGCTGATATACTATCCTCCGGCTTAACATAGTATATTATAACA spacer
length: 43 repeater length: 22
9868 910426 GATAATCTACTATAGAATTGAA AGTAGTCCACGAGTACGGTGTTTCAGGATTTTCTACACA spacer length:
39 repeater length: 22
9869 910488 GATAATCTACTATAGAATTGAA AGTGTAACGCGTATGTTACCCTTCACGCTCACGAAGTTT spacer
length: 40 repeater length: 22
9870 910551 GATAATCTACTATAGAATTGAA AGTGTAATTCGAGTGCATCAGGATATCCGTTGTTATT spacer length:

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38 repeater length: 22
9871 910612 GATAATCTACTATAGAAATTGAA AGACCACTGCTTACCAATCTTCTTATTGCAACCGATCCTA spacer
length: 40 repeater length: 22
9872 910675 GATAATCTACTATAGAAATTGAA AGTAAGACTGAAAATTCTTACAAATGTTCTATGGCATAT spacer length:
39 repeater length: 22
9873 910737 GATAATCTACTATAGAAATTGAA AGAGTATCGGTATGTCTACGCCATATCTCACACTTACTTGA spacer
length: 41 repeater length: 22
9874 910801 GATAATCTACTATAGAAATTGAA AGCATAACAAATTTTCTGTTTGAGTCGTATTATTTGATA spacer length:
39 repeater length: 22
9875 910863 GATAATCTACTATAGAAATTGAA AGCTCGAAAACCCAACCACTCCCGTTAAACTTTTACTAAC spacer
length: 40 repeater length: 22
9876 910926 GATAATCTACTATAGAAATTGAA AGCTGAATTCTCCGCCGTATCTTTCTGCAATATCCTCCAAG spacer
length: 41 repeater length: 22
9877 910990 GATAATCTACTATAGAAATTGAA AGTTCCGTGAAATTATAAAGTTCTGTTACACTACAAATTT spacer
length: 40 repeater length: 22
9878 911053 GATAATCTACTATAGAAATTGAA AGTACATAAAGTTAATCACTATGGATATGGCATCATCTTT spacer
length: 40 repeater length: 22
9879 911116 GATAATCTACTATAGAAATTGAA AGGTAAAAGTACAAATCTACGTATTGACACCAGTATATG spacer length:
39 repeater length: 22
9880 911178 GATAATCTACTATAGAAATTGAA AGTGAAATTCACCTCTAAAAATCATTGAACTACACTCTTCA spacer
length: 41 repeater length: 22
9881 911242 GATAATCTACTATAGAAATTGAA AGGCCACTCGGAGCTCCCGTTACAAAAAGATCTATCAGTTTA spacer
length: 42 repeater length: 22
9882 911307 GATAATCTACTATAGAAATTGAA AGTATATAAATCCGAAAGTGGGAAAGAGAGAGAAAGATTTAT spacer
length: 42 repeater length: 22
9883 911372 GATAATCTACTATAGAAATTGAA AGAGCGCAGATCCCGCCCGCTTGGGCAAAATGGACACACTCG spacer
length: 42 repeater length: 22
9884 911437 GATAATCTACTATAGAAATTGAA AGAGCGTAAGTAGATTGTTATCCAGCACGACGTGATAGATTG spacer
length: 42 repeater length: 22
9885 911502 GATAATCTACTATAGAAATTGAA AGTTATATTATCGAAAATGTCTGAAGAACACGTTTAGATCG spacer
length: 40 repeater length: 22
9886 911565 GATAATCTACTATAGAAATTGAA AGAAAGCAAATATAACTTCAGTAATACCTAAATTATTAGAATTA spacer
length: 44 repeater length: 22
9887 911632 GATAATCTACTATAGAAATTGAA AGTTTTTTTATCGACTTAGAACCTAGTTGATAACTTTTCGA spacer length:
39 repeater length: 22
9888 911694 GATAATCTACTATAGAAATTGAA AGGCCATGACGTTGCGAGATTGAAGGTGCAAAACGTGAAGAT spacer
length: 42 repeater length: 22
9889 911759 GATAATCTACTATAGAAATTGAA AGGTTTACTATATAAAAACTGAAAAAGTTTAAGGATCAA spacer
length: 40 repeater length: 22
9890 911822 GATAATCTACTATAGAAATTGAA AGTGAGTTATATCGAGGCACATTAACGGGAGTATTGCCAATAA spacer
length: 43 repeater length: 22
9891 911888 GATAATCTACTATAGAAATTGAA AGCAGGAGGTGAGGGGAATGAGCAGTGAAGAGATACCT spacer length:
38 repeater length: 22
9892 911949 GATAATCTACTATAGAAATTGAA AGTTTCTTATTGACTTAGAACCTAGTTGATAACTTTTCGA spacer length:
39 repeater length: 22
9893 912011 GATAATCTACTATAGAAATTGAA AGTATGTCATTGATGACCATGTAATGGAACGGGTGAGGAA spacer
length: 40 repeater length: 22
9894 912074 GATAATCTACTATAGAAATTGAA AGCCTAGTGTATGGAAAGAAGTTGAGAAATTAGAGCAA spacer length:
38 repeater length: 22
9895 912135 GATAATCTACTATAGAAATTGAA AGTTTCATTGAAACGATAAGGGGTGGAAAGAGTGACTAAGA spacer
length: 41 repeater length: 22
9896 912199 GATAATCTACTATAGAAATTGAA AGACACCTTACCCATCCCCAACCAACCCACCTGCA spacer
length: 41 repeater length: 22
9897 912263 GATAATCTACTATAGAAATTGAA AGCGCGACTTATACCTAATGATGCTTATGCGAAATATAG spacer length:
39 repeater length: 22
9898 912325 GATAATCTACTATAGAAATTGAA AGTACTAGGTGGTTTTGGTTGGATATTAAATTTATCATA spacer
length: 40 repeater length: 22
9899 912388 GATAATCTACTATAGAAATTGAA AGTTTCCACTGTCAATGATAATCGTCGGCTTTTCTTTCTT spacer
length: 40 repeater length: 22
9900 912451 GATAATCTACTATAGAAATTGAA AGTTTGAAGATAAGTTCTATGGAGTTGCGATAGCATATA spacer length:
39 repeater length: 22
9901 912513 GATAATCTACTATAGAAATTGAA AGAATATTTTATCAGTTATGATGATAATCAAATGGGTAGATTC spacer
length: 43 repeater length: 22
9902 912579 GATAATCTACTATAGAAATTGAA AGAATAACTTCGATAGTGGTTGCAACACCAGGATTTGTAT spacer
length: 40 repeater length: 22
9903 912642 GATAATCTACTATAGAAATTGAA AGATATTGTGTCTGTAACCATTCCATATATAGGTTCCATG spacer
length: 40 repeater length: 22
9904 912705 GATAATCTACTATAGAAATTGAA AGATCTATTTTATTGTTACCTAACATGGTTAAGAAAGTCTT spacer
length: 41 repeater length: 22
9905 912769 GATAATCTACTATAGAAATTGAA AGATGCTGCCCCAGCGTTAGATGGTTATGTGCTGTTTTATAA spacer
length: 42 repeater length: 22

9906 912834 GATAATCTACTATAGAAATTGAA AGTGGTCTGGTCAGCTTTTCATAGGCGTCGCTTTTAAAC spacer length:
38 repeater length: 22

9907 912895 GATAATCTACTATAGAAATTGAA AGGATAAAGATTGACTTCTCTTTACACAATAAATAAATACTCAG spacer
length: 43 repeater length: 22

9908 912961 GATAATCTACTATAGAAATTGAA AGTTAGCGAAAGCCAAAGCACCAAGAAAAACAATTACTCTC spacer
length: 41 repeater length: 22

9909 913025 GATAATCTACTATAGAAATTGAA AGTTTGATAATGGAGGTATTGTACTTGCACGTAACGATATCG spacer
length: 42 repeater length: 22

9910 913090 GATAATCTACTATAGAAATTGAA AGATTATCAGTACCGAAGGACGGAGCTTTACGGCTTCATCT spacer
length: 41 repeater length: 22

9911 913154 GATAATCTACTATAGAAATTGAA AGAAACTTATAACGCCGTTCTGGTTGTGGATGAAAGGAGC spacer
length: 40 repeater length: 22

9912 913217 GATAATCTACTATAGAAATTGAA AGTCGATAACGGTCTGTGTAAAGCGGTTGGATTGTAAC spacer length:
37 repeater length: 22

9913 913277 GATAATCTACTATAGAAATTGAA AGTTTCCTCAGTCATGAGTGGATCACCTCATCCCTTACTAT spacer
length: 41 repeater length: 22

9914 913341 GATAATCTACTATAGAAATTGAA AGCAGCAGATATTTCTTGAACAACTCTAACGTCTCCTCATCAA spacer
length: 43 repeater length: 22

9915 913407 GATAATCTACTATAGAAATTGAA AGATCCTCAATAGAAAACCTCCCTACCCTGATTTGTTTCAT spacer length:
39 repeater length: 22

9916 913469 GATAATCTACTATAGAAATTGAA AGATATCTTATATAATTCTACAATTGAAAAACGGTAATGT spacer
length: 40 repeater length: 22

9917 913532 GATAATCTACTATAGAAATTGAA AGGACACGGATTGGGTTTACCGAGACGAGAGGACAATACTCAA spacer
length: 44 repeater length: 22

9918 913599 GATAATCTACTATAGAAATTGAA AGGTTGTCTGTTTTACCCCGCTCTCAAATCGGTTAATATG spacer
length: 40 repeater length: 22

9919 913662 GATAATCTACTATAGAAATTGAA AGAAAGTTGAAGACAGAGGAAACCAATACTACATAGAGTT spacer
length: 40 repeater length: 22

9920 913725 GATAATCTACTATAGAAATTGAA AGTTTATATAAGTCCTAGGAACTATCACCTACCATTTAAA spacer
length: 41 repeater length: 22

9921 913789 GATAATCTACTATAGAAATTGAA AGATATATCTTATATCTCTCAGTTTTACGCACAATTCGTCAATC spacer
length: 44 repeater length: 22

9922 913856 GATAATCTACTATAGAAATTGAA AGAAATTTTTTCGATTTCAAAGAAGGCGAAATCACATTATA spacer
length: 40 repeater length: 22

9923 913919 GATAATCTACTATAGAAATTGAA AGTCCTATGTGTTTCTGCCATTCATCATTGTTTTTCAACC spacer
length: 41 repeater length: 22

9924 913983 GATAATCTACTATAGAAATTGAA AGCTAGCTTCTCCTCTTAATACTCTATCTATATCTCTTCCCA spacer
length: 42 repeater length: 22

9925 914048 GATAATCTACTATAGAAATTGAA AGTAGTCATTTTCAGACCTGGATGGCTAGGAGTTCCCCTCT spacer
length: 41 repeater length: 22

9926 914112 GATAATCTACTATAGAAATTGAA AGCTGGGACAAACTGCGTTAAAGAATCTGCTAAAGAAAGGTGT spacer
length: 43 repeater length: 22

9927 914178 GATAATCTACTATAGAAATTGAA AGCAAGTTCAAATTGAGGAAGTTGAGGTAAGTTGAGGTCTATAA spacer
length: 44 repeater length: 22

9928 914245 GATAATCTACTATAGAAATTGAA AGTGTGAAAAGGACAAGGAAGTTTGGTTGGAGAACGGCGAT spacer
length: 41 repeater length: 22

9929 914309 GATAATCTACTATAGAAATTGAA AGCTCTTCTATATCTTAGTCCTCATAATTGTACCCGCA spacer length:
38 repeater length: 22

9930 914370 GATAATCTACTATAGAAATTGAA AGATGTGCATCTTCATCAGTGTATCTAATGTAGGTCTTACCG spacer
length: 42 repeater length: 22

9931 914435 GATAATCTACTATAGAAATTGAA AGCCCGGAACGTTATGACTTGTTACGTCCCCGCCGGTACATT spacer
length: 42 repeater length: 22

9932 914500 GATAATCTACTATAGAAATTGAA AGAAACCTTTATTACAATATATGACATCTGTTCAACAA spacer length:
38 repeater length: 22

9933 914561 GATAATCTACTATAGAAATTGAA AGATATCATTAATGCATTTGATAGTAAATTTACTGCATTTT spacer
length: 42 repeater length: 22

9934 914626 GATAATCTACTATAGAAATTGAA AGGTCTGCACATCTTCCATGACGATCATATTACCCTCAAT spacer
length: 40 repeater length: 22

9935 914689 GATAATCTACTATAGAAATTGAA AGGACTTCATCGCTACTTTGCTCTATTGCTTTTTGTCTTG spacer
length: 40 repeater length: 22

9936 914752 GATAATCTACTATAGAAATTGAA AGTGGGTTTATATTCGTAAAATACAAACCACCTTGCACATCTT spacer
length: 43 repeater length: 22

9937 914818 GATAATCTACTATAGAAATTGAA AGAAGTATTGCCAACTACGATCTCATTATAAACGGTTATCTC spacer
length: 42 repeater length: 22

9938 914883 GATAATCTACTATAGAAATTGAA AGTATTATCTTTATCTTCTATCACCTCTGCTTTGTTTAGCT spacer
length: 41 repeater length: 22

9939 914947 GATAATCTACTATAGAAATTGAA AGCTCAACTTGGAATTATGAAGACGTTCAAGATTTTCGTTTT spacer
length: 41 repeater length: 22

9940 915011 GATAATCTACTATAGAAATTGAA AGCTCGTTCCACCGTTAATCTGTATTACATCAAGAATCTGA spacer
length: 41 repeater length: 22

9941 915075 GATAATCTACTATAGAAATTGAA AGTCTAATATAATTTATAGTGTGGTAGTCGAGGTTGTGTTTA spacer

length: 42 repeater length: 22

9942 915140 GATAATCTACTATAGAAATTGAA AGAACGTTCCCGAACTTGATCCTAGATTTGTCATTTGAATT spacer
length: 41 repeater length: 22

9943 915204 GATAATCTACTATAGAAATTGAA AGCTTTCTCAATAAGTTTAGTCATGATTTCCCTTTGGACT spacer length:
39 repeater length: 22

9944 915266 GATAATCTACTATAGAAATTGAA AGTTTTAAGGAGATGGTTTTATGAAAATTGCCGATAAGGTCA spacer
length: 42 repeater length: 22

9945 915331 GATAATCTACTATAGAAATTGAA AGTGTCGTATTGATTTAGTTCCTAGCTCGTAGTGATCTAT spacer
length: 40 repeater length: 22

9946 915394 GATAATCTACTATAGAAATTGAA AGACAAAAGCTATAGAAGGGGCACTCTAAGCATTCCGGCATC spacer
length: 41 repeater length: 22

9947 915458 GATAATCTACTATAGAAATTGAA AGGGATTGATAGATTGATAGATAGAGGTTCCCCAAAATGGCC spacer
length: 42 repeater length: 22

9948 915523 GATAATCTACTATAGAAATTGAA AGTTATATTCCTTCATATTAGAATCTTTTATGATACCAT spacer length:
39 repeater length: 22

9949 915585 GATAATCTACTATAGAAATTGAA AGATTATTTATGTTTCATACCCAGCCTGGTGGAGATGGGGATG spacer
length: 42 repeater length: 22

9950 915650 GATAATCTACTATAGAAATTGAA AGAACATTGAAGACTATCTAAGTTTTTCGTAAACGGAAGG spacer
length: 40 repeater length: 22

9951 915713 GATAATCTACTATAGAAATTGAA AGACTTTTTAGAAAGAGGAAATGGTTCCCCTTAATACTACGAG spacer
length: 43 repeater length: 22

9952 915779 GATAATCTACTATAGAAATTGAA AGACGCTTACGGCTTAGCTCAGAGTTTCGATACAATCTTCA spacer
length: 41 repeater length: 22

9953 915843 GATAATCTACTATAGAAATTGAA AGTCCAGAGTTCTATTTTTATCTATTTCTTTCAGAAAGTTT spacer
length: 41 repeater length: 22

9954 915907 GATAATCTACTATAGAAATTGAA AGATTTGATAATACTTATTTCTCAATTCAACTTCTAAATA spacer
length: 40 repeater length: 22

9955 915970 GATAATCTACTATAGAAATTGAA AGTAGCATTTCCCTATTACTTGTAACACTTGGTGGTTTGCC spacer
length: 40 repeater length: 22

9956 916033 GATAATCTACTATAGAAATTGAA AGAGCTTGCGTTGTTGGCATGGATGACCTATACGCCGAA spacer length:
39 repeater length: 22

9957 916095 GATAATCTACTATAGAAATTGAA AGAATGGGATGAACGTCAGTATACGAATAGGTGCACCTTT spacer
length: 40 repeater length: 22

9958 916158 GATAATCTACTATAGAAATTGAA GTTTATGCGAGAAAAGTTTTCCAAAGATGTGGGTTTAA spacer length:
38 repeater length: 22

9959 916219 GATAATCTACTATAGAAATTGAA AGGTTTCTAAAAATCAAGTAAAAGAAGTGATCGGGCGTAT spacer
length: 40 repeater length: 22

9960 916282 GATAATCTACTATAGAAATTGAA AGCATTATAGACATTACAAATCCCAATTCTGGAAATATA spacer length:
39 repeater length: 22

9961 916344 GATAATCTACTATAGAAATTGAA AGGGTAAATTGATCGATATGAAATATAATATACAAAATAA spacer
length: 40 repeater length: 22

9962 916407 GATAATCTACTATAGAAATTGAA AGACACGTGAAAATCTTTTGAATGCGTACAAGGTTTACATTA spacer
length: 42 repeater length: 22

9963 916472 GATAATCTACTATAGAAATTGAA AGTGATGAAATAGATCCTGTTGCTCTCGCAGCAGTCTTAT spacer
length: 40 repeater length: 22

9964 916535 GATAATCTACTATAGAAATTGAA AGAATTATTTTCAATTTCAATACTCCCCGCTTTACGAGT spacer length:
39 repeater length: 22

9965 916597 GATAATCTACTATAGAAATTGAA AGATACAATATATGTTATACTAATATATAAGCTTTTCGCT spacer
length: 41 repeater length: 22

9966 916661 GATAATCTACTATAGAAATTGAA AGAAAGCTTCTTGAAAAGTTAAGTCATGCGTAATTTTTTA spacer length:
39 repeater length: 22

9967 916723 GATAATCTACTATAGAAATTGAA AGTTACAGTTATTGAAATCAATAGCGAGAGACAAAACT spacer length:
39 repeater length: 22

9968 916785 GATAATCTACTATAGAAATTGAA AGTGGACACTGATATAATAACGCCCCCGTAGCTTCATCTCTTTG spacer
length: 44 repeater length: 22

9969 916852 GATAATCTACTATAGAAATTGAA AGATATTTCTTCCCTTTTTGTTTTAAAACTTGTGATTT spacer length:
38 repeater length: 22

9970 916913 GATAATCTACTATAGAAATTGAA AGACCAAGGATCAGATTATTTTACTAAAATCTCTTACAAA spacer
length: 40 repeater length: 22

9971 916976 GATAATCTACTATAGAAATTGAA AGTATTATTACTGGTCTTGAAGTAGCTAGTTGCTTTACTG spacer
length: 40 repeater length: 22

9972 917039 GATAATCTACTATAGAAATTGAA AGCCGACAATTACTGCTGGTCAGACACCAATTCAATA spacer length:
37 repeater length: 22

9973 917099 GATAATCTACTATAGAAATTGAA AGATGTAATAATCATCTCCTCTCCCGCCAAACGATAAATG spacer
length: 40 repeater length: 22

9974 917162 GATAATCTACTATAGAAATTGAA CTATAATGTAAGTTGGATTTTGTAAGTAGAGTCTTTATTT

9975

9976

9977 crispr 2

9978 900722 CTTTCAATTCTATAGTAGATTATC AGGAGCTGCAGGGAGAGAGCTAGGGACTTTAATAAAGA spacer
length: 38 repeater length: 24

9979 900785 CTTTCAATTCTATAGTAGATTATC GGCAC TGGTAACAGTCATGAGACTTTATACGTGTTTA spacer length: 37 repeater length: 24
9980 900847 CTTTCAATTCTATAGTAGATTATC CTTAATCATTTCAACTGTCGATTTAATTGAAGGTAT spacer length: 36 repeater length: 24
9981 900908 CTTTCAATTCTATAGTAGATTATC TATATACGATAGGCGTTAATGGGCCAACATAATTAGTA spacer length: 38 repeater length: 24
9982 900971 CTTTCAATTCTATAGTAGATTATC TAATATTTAGTGCTTCTCAGATGGTAATAAGTTATAAT spacer length: 38 repeater length: 24
9983 901034 CTTTCAATTCTATAGTAGATTATC GTGACATGATTAACCACCACTGCGGTGGAATTAGCTAT spacer length: 38 repeater length: 24
9984 901097 CTTTCAATTCTATAGTAGATTATC CATATTGGTTAGATCTATCATACGAGGCGGTAACGG spacer length: 36 repeater length: 24
9985 901158 CTTTCAATTCTATAGTAGATTATC ATGGTCGCTACCCAAGTATTATTACTTTGTTTTGACA spacer length: 37 repeater length: 24
9986 901220 CTTTCAATTCTATAGTAGATTATC ATACAGTACAGCATTCTGCTTCATTGTCAGTTTCGCCAT spacer length: 39 repeater length: 24
9987 901284 CTTTCAATTCTATAGTAGATTATC TAAAATTCCCGAGAAGATAATCGAGGGCATCTTTGAAT spacer length: 38 repeater length: 24
9988 901347 CTTTCAATTCTATAGTAGATTATC TTACTTGGCATCCAAAGATCTAAGCCCTCTTTATTACCT spacer length: 40 repeater length: 24
9989 901412 CTTTCAATTCTATAGTAGATTATC GGGGAAAGGCCAAAGAGACATATCACTGAGGTAGAACTTCTG spacer length: 42 repeater length: 24
9990 901479 CTTTCAATTCTATAGTAGATTATC CCACGTTAAGCTATGGACAGGCCTTAGACGTAAGCA spacer length: 36 repeater length: 24
9991 901540 CTTTCAATTCTATAGTAGATTATC CTTTCCGCACTTCGCTTCAAACCTACCAGAAATTAGC spacer length: 37 repeater length: 24
9992 901602 CTTTCAATTCTATAGTAGATTATC ATCTCAACACCTTTAATTTTCCTCACGTACTATATTAC spacer length: 38 repeater length: 24
9993 901665 CTTTCAATTCTATAGTAGATTATC CTGTCCCTTGTGTGTGCACTAACAAACAACCAATAGAA spacer length: 38 repeater length: 24
9994 901728 CTTTCAATTCTATAGTAGATTATC GGAGACTTATATTTTTCTACCCCGCCGTCGCCGACACG spacer length: 38 repeater length: 24
9995 901791 CTTTCAATTCTATAGTAGATTATC TCTTAGGTTGTGCTGCAGCTACACCCTGAGGAAACCT spacer length: 37 repeater length: 24
9996 901853 CTTTCAATTCTATAGTAGATTATC AGATACACAGAACTGAAGACATACCAGATGTTATAAATG spacer length: 40 repeater length: 24
9997 901918 CTTTCAATTCTATAGTAGATTATC TATAAAGGATTTGGTTGGAGAAGTGATACAGACTTATT spacer length: 38 repeater length: 24
9998 901981 CTTTCAATTCTATAGTAGATTATC ATGGAGTTGCAAGCTTCCAGCGTGCTGAGGTATAA spacer length: 35 repeater length: 24
9999 902041 CTTTCAATTCTATAGTAGATTATC TGGAAAAAGGATGAAAAAGGCGAGGGAGGATTATTGTAT spacer length: 39 repeater length: 24
10000 902105 CTTTCAATTCTATAGTAGATTATC TAAAAAAGTAGTGGCGGGGAGAAATAAAGGTTTACCCAGACTTTCAATTCTTATAGTAGATTATCGAAGAAATTCAGAAAGAACAG AAGCTGACGATTGATAG spacer length: 103 repeater length: 24
10001 902233 CTTTCAATTCTATAGTAGATTATC ACCAGCTTCTTTGGCTTCTACCCAACACTGTATATCTTAT spacer length: 40 repeater length: 24
10002 902298 CTTTCAATTCTATAGTAGATTATC TATTTTATGGGCTATTAGAGCTAAAGAGGATGAAATTA spacer length: 38 repeater length: 24
10003 902361 CTTTCAATTCTATAGTAGATTATC CTCTACGTCCAGCCTGAGGTTGCGGTCGGCGTACTT spacer length: 36 repeater length: 24
10004 902422 CTTTCAATTCTATAGTAGATTATC AGACAAACGTAAGTACGAGTG TAGGAATTCTAGAGTTAA spacer length: 39 repeater length: 24
10005 902486 CTTTCAATTCTATAGTAGATTATC TGTGGGACATTCCGCTTTTCTTAAGAATTAGTGAAAA spacer length: 37 repeater length: 24
10006 902548 CTTTCAATTCTATAGTAGATTATC CTGTGTCATAAAATCCCTTGTATTTCGAACGGTTGTGTTCCCC spacer length: 42 repeater length: 24
10007 902615 CTTTCAATTCTATAGTAGATTATC AGGGTTTACGGCGTTAATTTTTACGTTCTTATTCAATTCA spacer length: 40 repeater length: 24
10008 902680 CTTTCAATTCTATAGTAGATTATC GAATTTTTATTACAAAAATAAGAAAAAAGGTCGATAAAGT spacer length: 40 repeater length: 24
10009 902745 CTTTCAATTCTATAGTAGATTATC CCTATTCTAGATCAGGTGTGGCAGCATATACAAAGTTGC spacer length: 39 repeater length: 24
10010 902809 CTTTCAATTCTATAGTAGATTATC TTCAATCAATTGGAAGCTGGTGGAAAGTAAAAGACGCTG spacer length: 39 repeater length: 24
10011 902873 CTTTCAATTCTATAGTAGATTATC CAAGGTCATCAATGCAAACTAAAAAGTTTCGTTTTG spacer length: 37 repeater length: 24
10012 902935 CTTTCAATTCTATAGTAGATTATC CTAGTAGCGGTAGTGCACGGTTAGCGTGGTCGTGA spacer length: 36 repeater length: 24
10013 902996 CTTTCAATTCTATAGTAGATTATC TCGATCTTATCATTATTACGCCCGCCAACCTTCTACCTA spacer length: 39 repeater length: 24

10014	903060 CTTTCAATTCTATAGTAGATTATC	GCGTTATTTTCAGTCTGAAGAGTATAATTTGTATAAAG spacer length: 37 repeater length: 24
10015	903122 CTTTCAATTCTATAGTAGATTATC	CAGATGTTACTGCTCTTATGTTGCATAATACTTTAGATCGAT spacer length: 42 repeater length: 24
10016	903189 CTTTCAATTCTATAGTAGATTATC	TAATTCCTACTGTGATTAATATAGCTTCCTTAGCGTTGT spacer length: 39 repeater length: 24
10017	903253 CTTTCAATTCTATAGTAGATTATC	ACATTTGGACTTGATAATAACAATGAGTTTGCAACTTGA spacer length: 39 repeater length: 24
10018	903317 CTTTCAATTCTATAGTAGATTATC	ATTTGCCGATAACATCTTAGGGAGACTTTTAGTAACAAAC spacer length: 40 repeater length: 24
10019	903382 CTTTCAATTCTATAGTAGATTATC	AACCTTACGTTGTCAAAAACCCTAATGCTCTATTCTG spacer length: 36 repeater length: 24
10020	903443 CTTTCAATTCTATAGTAGATTATC	CTTCATCGCCAGGGCAAAATTACTTGTACAACGAAGTAT spacer length: 39 repeater length: 24
10021	903507 CTTTCAATTCTATAGTAGATTATC	ACTACAATTACATTATTCGCAATTGTAAGTGGTCTTAGCG spacer length: 40 repeater length: 24
10022	903572 CTTTCAATTCTATAGTAGATTATC	ATGTTGTAGTAGAAGAGACTCTTGCGACTGGAAGTGCAG spacer length: 39 repeater length: 24
10023	903636 CTTTCAATTCTATAGTAGATTATC	TAGATACACCGTAGGATTGGGGTATCTATTTTTTGTATG spacer length: 38 repeater length: 24
10024	903699 CTTTCAATTCTATAGTAGATTATC	TATCCTTTGTTTATTAGTTGCCTTATCGCCACAGAGCCAA spacer length: 40 repeater length: 24
10025	903764 CTTTCAATTCTATAGTAGATTATC	CTTTGTGTTCTCTGGACCCAATTGTTACCGCAGTTT spacer length: 37 repeater length: 24
10026	903826 CTTTCAATTCTATAGTAGATTATC	GTCATAGACTTTGACGATGTAAACAGACAGCGGGAGTA spacer length: 38 repeater length: 24
10027	903889 CTTTCAATTCTATAGTAGATTATC	ATTCGATCTTTACACAGCTGTAGCAGACTACGTTTCCA spacer length: 38 repeater length: 24
10028	903952 CTTTCAATTCTATAGTAGATTATC	TTTAATTCATCAAATTTCTTCTTTAAGTCCACGAACTCT spacer length: 40 repeater length: 24
10029	904017 CTTTCAATTCTATAGTAGATTATC	AACCCACCTGCCAACGCATCAGTTAAAAGCATAACAA spacer length: 38 repeater length: 24
10030	904080 CTTTCAATTCTATAGTAGATTATC	AAGAAAACATTAGGTGGTGGAGGTGGTGGCTAATGGTAAC spacer length: 40 repeater length: 24
10031	904145 CTTTCAATTCTATAGTAGATTATC	CCTCCTCTCCGCGTTTGCTGCAGCTTCTCTGGCAATTTTCTGCT spacer length: 44 repeater length: 24
10032	904214 CTTTCAATTCTATAGTAGATTATC	CCTAGGTCTGTTGTTTGAAGAGCATTATATTATGTTACTAA spacer length: 40 repeater length: 24
10033	904279 CTTTCAATTCTATAGTAGATTATC	GAGGGTTCAAGTTAAGAAGGAGGGCAAAGTCATTTTCAC spacer length: 39 repeater length: 24
10034	904343 CTTTCAATTCTATAGTAGATTATC	ACCGGCATTCTGAGGTTTGGTACCATATGCAGAAGCA spacer length: 37 repeater length: 24
10035	904405 CTTTCAATTCTATAGTAGATTATC	AAATCTTTCTCTCTCTTTCCCGCTTTCAAATTTATATAG spacer length: 39 repeater length: 24
10036	904469 CTTTCAATTCTATAGTAGATTATC	CAGCAAAAGAACTCATGTAATAGACAGTAGAAGAGT spacer length: 36 repeater length: 24
10037	904530 CTTTCAATTCTATAGTAGATTATC	ATGCACTCGAATTTACATGAGAAAATGCAGTAGAGTTA spacer length: 38 repeater length: 24
10038	904593 CTTTCAATTCTATAGTAGATTATC	ATAGTTAATAAGTGATGGGGATGGATGAGTGTATGAACATAAG spacer length: 43 repeater length: 24
10039	904661 CTTTCAATTCTATAGTAGATTATC	CTGGAGAAACATGTCCGAGGTAACACACATAACCGTA spacer length: 37 repeater length: 24
10040	904723 CTTTCAATTCTATAGTAGATTATC	AAGTGTCCACAGGATGGGGAAGTAATTGATATGTTAAGAG spacer length: 40 repeater length: 24
10041	904788 CTTTCAATTCTATAGTAGATTATC	TTATTTATTTGAACTCTATTTTCTCGTTCATAGGATAT spacer length: 39 repeater length: 24
10042	904852 CTTTCAATTCTATAGTAGATTATC	TTCTTTGAAAGCAAGTGTTTTAACGCCGTTTGCGTTA spacer length: 37 repeater length: 24
10043	904914 CTTTCAATTCTATAGTAGATTATC	TCGGCACAACAAACACAAGGAGGAGGAGGTTTATGCAG spacer length: 39 repeater length: 24
10044	904978 CTTTCAATTCTATAGTAGATTATC	TCTGCAGCATTAGACAGTGAAGTCTCTGATTGCATCTGCAT spacer length: 40 repeater length: 24
10045	905043 CTTTCAATTCTATAGTAGATTATC	AGGGGTTGTATAGTGTCAAGACTGTAGATTGAGATGGTGTAC spacer length: 42 repeater length: 24
10046	905110 CTTTCAATTCTATAGTAGATTATC	AAGTTCTAATATTCGTGCTTGCAATAGCGATAGTAATA spacer length: 38 repeater length: 24
10047	905173 CTTTCAATTCTATAGTAGATTATC	TCAATCAACAACACAACAACAAATACAATTACAAAAAG spacer length: 38 repeater length: 24
10048	905236 CTTTCAATTCTATAGTAGATTATC	ATTATAGCGTTAATAATTATAAGTACTCTCCCGTTTTTCG spacer length: 40 repeater length: 24
10049	905301 CTTTCAATTCTATAGTAGATTATC	CAAACATGGACAATTGTAGACATTTACGACAGAGGAA spacer length: 37 repeater length: 24

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37 repeater length: 24
10050 905363 CTTTCAATTCTATAGTAGATTATC AACCAAAAGTTAGAACACAGGAGCAAGCTTTACAA spacer length:
36 repeater length: 24
10051 905424 CTTTCAATTCTATAGTAGATTATC CCATTTTCAGCGTTTAAAAAGCCCATTTCAGAAAGGAATTG spacer
length: 39 repeater length: 24
10052 905488 CTTTCAATTCTATAGTAGATTATC CCTGGCCCGCCAACGTCTATGTTTAGCGGGGCATAGG spacer length:
37 repeater length: 24
10053 905550 CTTTCAATTCTATAGTAGATTATC TTAAAATACAAGGGGGAGAAGTCAAAAAAGTGGGGAA spacer length:
37 repeater length: 24
10054 905612 CTTTCAATTCTATAGTAGATTATC TTGCATGCTATAGGAGAAGAGGGAGAAGTTTGAAACAC spacer
length: 38 repeater length: 24
10055 905675 CTTTCAATTCTATAGTAGATTATC GATTAAAGTCAATGAAAGACACTTGAATCGCAAAATCTT spacer
length: 39 repeater length: 24
10056 905739 CTTTCAATTCTATAGTAGATTATC CGTGACATGATTAACCACCACTGCGGTGGAATTAGCTAT
10057
10058
10059 GCA_000245175.2_ASM24517v2_genomic.fna(findCrispr):
10060 START REPEAT
SPACER
10061 crispr 1
10062 880535 CTTTCAATTCTATAGTAGATTATC AAGCCAGGGTGTGGGCATACGTACCTCAGCTTTTTTATC spacer
length: 39 repeater length: 24
10063 880599 CTTTCAATTCTATAGTAGATTATC TATCAAATCAAGATTACACACAAGTAGAAGCGGAAGGC spacer
length: 38 repeater length: 24
10064 880662 CTTTCAATTCTATAGTAGATTATC TATCCAGGATTTCCCTGTGGAGGCCACCAGAATGATGCGT spacer
length: 40 repeater length: 24
10065 880727 CTTTCAATTCTATAGTAGATTATC AGAAAGGTAATAAAATTTGAGTACAGACGTACGGGAT spacer length:
37 repeater length: 24
10066 880789 CTTTCAATTCTATAGTAGATTATC TGCTTCATATTTTAATGTTCTAACTTTTACTTTTTTG spacer length:
37 repeater length: 24
10067 880851 CTTTCAATTCTATAGTAGATTATC GACAAGCAGTTTCGTATGGTACTGGAAATTTAAATAGATAT spacer
length: 41 repeater length: 24
10068 880917 CTTTCAATTCTATAGTAGATTATC TAATCTTAACAGGGCTCGGAATTTTGTCTTAGTCT spacer length:
36 repeater length: 24
10069 880978 CTTTCAATTCTATAGTAGATTATC TTTATTAAAGGTACTGAATAACCTTCAGCATTAATAA spacer length:
37 repeater length: 24
10070 881040 CTTTCAATTCTATAGTAGATTATC AAATAATTAATGAAAATCCTTATGGGAAATTAATATATT spacer
length: 39 repeater length: 24
10071 881104 CTTTCAATTCTATAGTAGATTATC TCAGTAATTTTCATAAACCGGGTGGAAATTTGTCCATTTT spacer
length: 39 repeater length: 24
10072 881168 CTTTCAATTCTATAGTAGATTATC TAGATACAAAAGAAAATTATTCATGACACTATTTGATA spacer
length: 38 repeater length: 24
10073 881231 CTTTCAATTCTATAGTAGATTATC ATTTTCCTCGAACGTTACCAACGTAAACGTTCTATTCA spacer
length: 38 repeater length: 24
10074 881294 CTTTCAATTCTATAGTAGATTATC ATAGATAAAAGCGGATCTATGGGAGAAGTTATGAGGA spacer length:
37 repeater length: 24
10075 881356 CTTTCAATTCTATAGTAGATTATC CATAATACTATTATAGTGTCAACTGTACTCTATATTGCAA spacer
length: 40 repeater length: 24
10076 881421 CTTTCAATTCTATAGTAGATTATC TGGAGATGAACCAGAAATAGAGCTAAAGGAAATCGAAG spacer
length: 38 repeater length: 24
10077 881484 CTTTCAATTCTATAGTAGATTATC ATTGGATGTCAACAGGGGATTTATACCTATATATGGATA spacer
length: 39 repeater length: 24
10078 881548 CTTTCAATTCTATAGTAGATTATC TCTGAAGTACCATCTCCCCAATCAATTGTGACAGTAA spacer length:
37 repeater length: 24
10079 881610 CTTTCAATTCTATAGTAGATTATC ATAAAGAGATAGTCAGTTTTTATAAGGATTCTCTCGATA spacer
length: 39 repeater length: 24
10080 881674 CTTTCAATTCTATAGTAGATTATC GTTAAATTTTTCTTTCCGGGAAGATTAATGGTATGA spacer length:
37 repeater length: 24
10081 881736 CTTTCAATTCTATAGTAGATTATC CGTCAATTGCCACAGGTGCAGTACTTAAATTAATTACG spacer
length: 38 repeater length: 24
10082 881799 CTTTCAATTCTATAGTAGATTATC ACCTGTTATATGGATGGTAGTGTAAATGACGTTTGAGA spacer
length: 38 repeater length: 24
10083 881862 CTTTCAATTCTATAGTAGATTATC ATGACAAAATTAAAGAGTATGATATATGATGCACTTAAA spacer
length: 39 repeater length: 24
10084 881926 CTTTCAATTCTATAGTAGATTATC CCAGATATGTGAAAGGTTAATACTTGACATCGTAAAC spacer length:
37 repeater length: 24
10085 881988 CTTTCAATTCTATAGTAGATTATC CTCTTTCCAGTATTTGTTTTGGTCTCTTCAGCTTGAGGA spacer
length: 39 repeater length: 24
10086 882052 CTTTCAATTCTATAGTAGATTATC AATAAACTAGAATACGAATACCGTCGAACATCATAT spacer length:
37 repeater length: 24
10087 882114 CTTTCAATTCTATAGTAGATTATC AAATGTAAATGTAGAAGGAAAGCCAAAGTTGATAGTG spacer length:

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37 repeater length: 24
 10088 882176 CTTTCAATTCTATAGTAGATTATC GAAGAGGCTCGAAAGGAAGCTAATAATTTCAAGAAGGCTA spacer
 length: 40 repeater length: 24
 10089 882241 CTTTCAATTCTATAGTAGATTATC CTGAAGCACTACTACCACCAGAGACACCGAAACCTCCAC spacer
 length: 39 repeater length: 24
 10090 882305 CTTTCAATTCTATAGTAGATTATC TCACGGTGTACGACAATATTTCTATTGCCCTCTAAGTAC spacer
 length: 40 repeater length: 24
 10091 882370 CTTTCAATTCTATAGTAGATTATC TTTGGTATGATGATTTCTGATATGGTATTACAATATAC spacer
 length: 39 repeater length: 24
 10092 882434 CTTTCAATTCTATAGTAGATTATC TAGGATCAAGCGGAGTGCAGGTAAATACGGGGTATGC spacer length:
 37 repeater length: 24
 10093 882496 CTTTCAATTCTATAGTAGATTATC ATCATAAGCTACTTCACCGGCGGATTAGGTAATGTGTT spacer
 length: 38 repeater length: 24
 10094 882559 CTTTCAATTCTATAGTAGATTATC CCTGCTGGTTTAAACACCTGGTCAAGTAAAAACATTA spacer length:
 36 repeater length: 24
 10095 882620 CTTTCAATTCTATAGTAGATTATC TAAATAACATCCGAGTACTCACCTAGTGCATCTGGTATA spacer
 length: 39 repeater length: 24
 10096 882684 CTTTCAATTCTATAGTAGATTATC ACTATCATCCCGCTATAAATTCAATCAAATAGAAG spacer length:
 35 repeater length: 24
 10097 882744 CTTTCAATTCTATAGTAGATTATC ATGCTCAAAGCAAGTGATGGGACGATTACTAACCT
 10098
 10099
 10100 crispr 2
 10101 887365 GATAATCTACTATAGAATTGAAAG CTAACGCAAACGGCGTTAAACACTTGCTTTCAAAGAA spacer
 length: 38 repeater length: 24
 10102 887428 GATAATCTACTATAGAATTGAAAG CATCCGTTAATGGTGGTTTAAATCCAATATAAACTCCA spacer
 length: 38 repeater length: 24
 10103 887491 GATAATCTACTATAGAATTGAAAG ATTTTTAGCGGGTTATGTAGGAGGAGGGTTTAAACATA spacer length:
 37 repeater length: 24
 10104 887553 GATAATCTACTATAGAATTGAAAG CACTTATACCTAGTACGGGTGGGAGTCAATGACAGA spacer length:
 36 repeater length: 24
 10105 887614 GATAATCTACTATAGAATTGAAAG CTATCACTGCGTCATAGGGTTGTATCGTTTGTTTTAG spacer length:
 37 repeater length: 24
 10106 887676 GATAATCTACTATAGAATTGAAAG ATCATAGTATCATTTAGAATAACAAAAACATTAACATC spacer
 length: 39 repeater length: 24
 10107 887740 GATAATCTACTATAGAATTGAAAG ACGCATACAGTTCATCCAATAACTACACAACACTCCTCTA spacer
 length: 40 repeater length: 24
 10108 887805 GATAATCTACTATAGAATTGAAAG GTAAACACATGGCGGATATGTGATGCCATTGCTATCTTT spacer
 length: 39 repeater length: 24
 10109 887869 GATAATCTACTATAGAATTGAAAG ATTACGATGATGATGACGAAGACGGCGAGGGCATAGTCC spacer
 length: 39 repeater length: 24
 10110 887933 GATAATCTACTATAGAATTGAAAG TTTCTTGTTCTTCAGGACTAGGACGTCGTAGTCCA spacer length:
 36 repeater length: 24
 10111 887994 GATAATCTACTATAGAATTGAAAG TGATGTTTTGATACGCTGTTTTAAATCGGCTTTTTTGT spacer
 length: 38 repeater length: 24
 10112 888057 GATAATCTACTATAGAATTGAAAG TATAATTCTCCTCATCATCCGCCATTATTATAGGAAAGTT spacer
 length: 40 repeater length: 24
 10113 888122 GATAATCTACTATAGAATTGAAAG AAGTTATCCTCGTTATTTAGTTTCTCAATGAAGTAGTAC spacer
 length: 39 repeater length: 24
 10114 888186 GATAATCTACTATAGAATTGAAAG TCATTCATCGATCCAGCATTGAAGAGAGAAGGACGTT spacer length:
 37 repeater length: 24
 10115 888248 GATAATCTACTATAGAATTGAAAG ATCTCCTATACTGACTTTAAACCCGCCGACTATTTTCTCT spacer
 length: 40 repeater length: 24
 10116 888313 GATAATCTACTATAGAATTGAAAG GAATAGAACTATAGCAGAAATAACAGCTTGCACTCCGA spacer
 length: 38 repeater length: 24
 10117 888376 GATAATCTACTATAGAATTGAAAG AATTTTATGACTACGCCACCCATACCTTTAGCACGTA spacer length:
 37 repeater length: 24
 10118 888438 GATAATCTACTATAGAATTGAAAG TTCTTGTAATGTCGTTATGTTACCATCATCTTTAATCT spacer
 length: 38 repeater length: 24
 10119 888501 GATAATCTACTATAGAATTGAAAG ATATTTTTACTTCAAACATGAAGACCCATTATTACAACCT spacer
 length: 39 repeater length: 24
 10120 888565 GATAATCTACTATAGAATTGAAAG TTTAAGGAGATGGTTTTATGAAAATTGCAGATAAGGTCA spacer
 length: 39 repeater length: 24
 10121 888629 GATAATCTACTATAGAATTGAAAG TATTTACACCGCCTTTCCCATTACCCTATCGCGGTT spacer length:
 36 repeater length: 24
 10122 888690 GATAATCTACTATAGAATTGAAAG CCATATCCAGGATTTCCCTGTGGAGGCCACCAGAAT spacer length:
 36 repeater length: 24
 10123 888751 GATAATCTACTATAGAATTGAAAG TTGTAATAAATATTGGCTACCATTATGATACTCTACT spacer length:
 37 repeater length: 24
 10124 888813 GATAATCTACTATAGAATTGAAAG TGATTTCCACTTCTTGAAGTGTGTAGTTTGTGTTGATATC spacer
 length: 39 repeater length: 24

10125 888877 GATAATCTACTATAGAATTGAAAG TACTTACACCCTTGTTTTAAGTATCTATTTTTGGGT spacer length: 37 repeater length: 24

10126 888939 GATAATCTACTATAGAATTGAAAG GTGGGGGTGGGGAACCCCGCGGGTTACTGAAC spacer length: 33 repeater length: 24

10127 888997 GATAATCTACTATAGAATTGAAAG CGTGATAATTATAAATGGGCTGAGGCTATGGGTAATAAAGT spacer length: 41 repeater length: 24

10128 889063 GATAATCTACTATAGAATTGAAAG TTAAATGATCCAATAGGATTTGTAATTGTTGTAGAA spacer length: 36 repeater length: 24

10129 889124 GATAATCTACTATAGAATTGAAAG AACCTAAGGTAAAGGCTTCTACGTGCTGTTTTAGGTCA spacer length: 38 repeater length: 24

10130 889187 GATAATCTACTATAGAATTGAAAG AAGTAGGTACGTATAAGTCCGCATTCACACGTTTAAC spacer length: 37 repeater length: 24

10131 889249 GATAATCTACTATAGAATTGAAAG TCAGTCGTTTCAACGGCTGTAAACATTGACTATTCAAAT spacer length: 39 repeater length: 24

10132 889313 GATAATCTACTATAGAATTGAAAG ACTCCACCTCGTCTCCACTACCACCAACTGTATTCAA spacer length: 39 repeater length: 24

10133 889377 GATAATCTACTATAGAATTGAAAG GTGTACATCCATCATTGTCTTTTATTGAACAGATTATGTCATT spacer length: 43 repeater length: 24

10134 889445 GATAATCTACTATAGAATTGAAAG TCTAGTATAACTTTATACAAAAGCGGAAGTCAAATA spacer length: 37 repeater length: 24

10135 889507 GATAATCTACTATAGAATTGAAAG AATAGAATTTGTCCATTTACTGCGGAAATATTTGCTACT spacer length: 39 repeater length: 24

10136 889571 GATAATCTACTATAGAATTGAAAG AATTTCTCATGGCTAGGAGGCACAAGTCACATCATAA spacer length: 37 repeater length: 24

10137 889633 GATAATCTACTATAGAATTGAAAG CTCAGATTTCCATAATTGATCGAATGTTTGAAGGATGG spacer length: 38 repeater length: 24

10138 889696 GATAATCTACTATAGAATTGAAAG ATTGTTTTCTTATTTTCTTATCCATCATACTTTCTTCCC spacer length: 39 repeater length: 24

10139 889760 GATAATCTACTATAGAATTGAAAG GTAATAGATAATTCCTCGTTTCTATCGTTGAAAGGATC spacer length: 38 repeater length: 24

10140 889823 GATAATCTACTATAGAATTGAAAG ATAGCAATATGATGTACTATATTTAAATGAAAACTG spacer length: 37 repeater length: 24

10141 889885 GATAATCTACTATAGAATTGAAAG TACTTTTTCTTCACCTTTGATATTTAATTTTACTATGA spacer length: 38 repeater length: 24

10142 889948 GATAATCTACTATAGAATTGAAAG GTTATTCTATTAAATGTGCATACTTCTTGATTTGCCGCCA spacer length: 40 repeater length: 24

10143 890013 GATAATCTACTATAGAATTGAAAG CTAGTGCCAGGGTTCAGGGGTGTACCCTCACTGCCAC spacer length: 37 repeater length: 24

10144 890075 GATAATCTACTATAGAATTGAAAG TTTAGATTAAGTTTTACATAAATTATAGACACGATAAC spacer length: 38 repeater length: 24

10145 890138 GATAATCTACTATAGAATTGAAAG ATCATCAGGCCCATGAGCGTTTTGCCGGTGCCGGTCG spacer length: 37 repeater length: 24

10146 890200 GATAATCTACTATAGAATTGAAAG AGGACGTAATTCTACAATTGTTCTAGTAACTCCTTGGGGCGG spacer length: 42 repeater length: 24

10147 890267 GATAATCTACTATAGAATTGAAAG ATAAAATTGAAGGGCATGGAACAAGACGTTATAGAGGAA spacer length: 39 repeater length: 24

10148 890331 GATAATCTACTATAGAATTGAAAG AAATGCGTATCAAGTTGCAGAGCAGAACAATATAAGTAG spacer length: 39 repeater length: 24

10149 890395 GATAATCTACTATAGAATTGAAAG ATCTTCAAAAATATGCCTTAATTCGTCTTCGGACGTCGCAGATAATCTAGTATAGAATTGAAAGTCATAAGGTTTTACTGTTGCAGT AGGTGTTAAATTAG spacer length: 100 repeater length: 24

10150 890520 GATAATCTACTATAGAATTGAAAG TTCTAATAGCTGAACCCCTGCTTGATAGTCTCTATTA spacer length: 37 repeater length: 24

10151 890582 GATAATCTACTATAGAATTGAAAG AAACAAACTTCTCAACCATCAACAACACCACCTACATC spacer length: 38 repeater length: 24

10152 890645 GATAATCTACTATAGAATTGAAAG AACAACTGGATTTTTTGAATGATTGACACTTTTATGACTA spacer length: 40 repeater length: 24

10153 890710 GATAATCTACTATAGAATTGAAAG ATCGACATGTTGGGGACCTTTAGTATGGGCATATTTGA spacer length: 38 repeater length: 24

10154 890773 GATAATCTACTATAGAATTGAAAG TGGATCTGAGTTTTTAACGATTTTCTTAGCAAAGTGGGGAG spacer length: 42 repeater length: 24

10155 890840 GATAATCTACTATAGAATTGAAAG ATGTCGTTAAATGCATTTGATAGTAAATTTACCGCATTT spacer length: 39 repeater length: 24

10156 890904 GATAATCTACTATAGAATTGAAAG TATATGCCATCACTCACACCAGCATTAGCAGTAGCGG spacer length: 37 repeater length: 24

10157 890966 GATAATCTACTATAGAATTGAAAG ATAGAAGGGGCGAAAGGAAGAGCAATAAGTGCTATCAT spacer length: 38 repeater length: 24

10158 891029 GATAATCTACTATAGAATTGAAAG GTTAATGACTAATTCTATAGATTTGGAGGAATATTGTA spacer length: 38 repeater length: 24

10159 891092 GATAATCTACTATAGAATTGAAAG AAAATATTGTTTGGTGTGTATTTATTTGTGCCAAATTA spacer length: 39 repeater length: 24

10160 891156 GATAATCTACTATAGAAATTGAAAG TATTTATACAGTAAAGTTTTGGCAAATTCCAATTGTA spacer length:
37 repeater length: 24
10161 891218 GATAATCTACTATAGAAATTGAAAG TAGTATAATCCGCGTATTCACCGTTTATCACGTTTTCAA spacer
length: 39 repeater length: 24
10162 891282 GATAATCTACTATAGAAATTGAAAG ATTAATTCTTTCTTCTTTTCTGCTCATAATATTTTATTTTCATCT spacer
length: 42 repeater length: 24
10163 891349 GATAATCTACTATAGAAATTGAAAG TATCGCTTAAGTAGGGTAAGAATTGATTAAGATAAGA spacer length:
37 repeater length: 24
10164 891411 GATAATCTACTATAGAAATTGAAAG ATTTTATCGAGATATCATAATTACCATATGTTATA spacer length:
35 repeater length: 24
10165 891471 GATAATCTACTATAGAAATTGAAAG CTAATTCCAATATATCCTATTTGTGACCAAGGGAATG spacer length:
37 repeater length: 24
10166 891533 GATAATCTACTATAGAAATTGAAAG TATATCATGCGGTATAAATGCGGGGTCGGCTTCCTCG spacer length:
37 repeater length: 24
10167 891595 GATAATCTACTATAGAAATTGAAAG TTTACGGGCACTTTTCGGTCACCTTTTCGCTCACCTCA spacer
length: 38 repeater length: 24
10168 891658 GATAATCTACTATAGAAATTGAAAG AGAGCCGAGATGATAATTAAACAAGCAAAACAATATCT spacer
length: 38 repeater length: 24
10169 891721 GATAATCTACTATAGAAATTGAAAG TTTGAATTTTTCTTGCGAAAAAGTATATCTGAACAGCT spacer
length: 38 repeater length: 24
10170 891784 GATAATCTACTATAGAAATTGAAAG TGGCAATCGTAATAATGCCCCGTAACCGTAAGCTCTGAGA spacer
length: 39 repeater length: 24
10171 891848 GATAATCTACTATAGAAATTGAAAG TATATTATACGAAATACCATCATCTTTCGTGAATGTACC spacer
length: 39 repeater length: 24
10172 891912 GATAATCTACTATAGAAATTGAAAG AATAAATATATTATAGATCCTATCAGCATCGCCTTAGGAG spacer
length: 40 repeater length: 24
10173 891977 GATAATCTACTATAGAAATTGAAAG TTATTTTGCATCACCTCCTTCTAAGCCCTAAGACTA spacer length:
36 repeater length: 24
10174 892038 GATAATCTACTATAGAAATTGAAAG TAGAAAAATTTATCAATAGCCTAGTAACACTGAAGTTTCCT spacer
length: 41 repeater length: 24
10175 892104 GATAATCTACTATAGAAATTGAAAG ATTCCAAAGTTACGTCATCGATGACCACGTAATGGAA spacer length:
37 repeater length: 24
10176 892166 GATAATCTACTATAGAAATTGAAAG GAATAAGCGGGGCGAAGCCGACGTGTACGCCGTGTCTTT spacer
length: 39 repeater length: 24
10177 892230 GATAATCTACTATAGAAATTGAAAG ATAATGTAAGTTGGATTTTGTAGTAGTCTTTATTTA
10178
10179
10180 crispr 3
10181 858023 GATTAATCCTAAAAGGAATTGAAAG TTACTTTCTTCTCCACTATCTCCCATATGTCACGCTT spacer
length: 37 repeater length: 25
10182 858086 GATTAATCCTAAAAGGAATTGAAAG ACAATAAGATAGAAGGGTCTCTCGCGATAACTCTGTAG spacer
length: 38 repeater length: 25
10183 858150 GATTAATCCTAAAAGGAATTGAAAG TTCAGTAAGTAAGTTCGATTTTACTTATCGCCCAT spacer length:
35 repeater length: 25
10184 858211 GATTAATCCTAAAAGGAATTGAAAG ATAGATATGATGAGATGGCAAACAATGTATACTAGGAA spacer
length: 38 repeater length: 25
10185 858275 GATTAATCCTAAAAGGAATTGAAAG CTGACTGGTATCAAAGATAACGCTTTCTTAGGGTTTCGT spacer
length: 38 repeater length: 25
10186 858339 GATTAATCCTAAAAGGAATTGAAAG GCAGTTAGGAAAACCACCAGATTTGGCTAGTTATATAGCCCA spacer
length: 42 repeater length: 25
10187 858407 GATTAATCCTAAAAGGAATTGAAAG ACAATACCATGTGCAGAATCAATAACAATATGCTG spacer length:
36 repeater length: 25
10188 858469 GATTAATCCTAAAAGGAATTGAAAG ACTTGTATATCAGATATCATGTCTACTAACGGCAAAT spacer
length: 37 repeater length: 25
10189 858532 GATTAATCCTAAAAGGAATTGAAAG TATCATCATTTCTCCTTGATAAACAGTCTCACTTTC spacer length:
36 repeater length: 25
10190 858594 GATTAATCCTAAAAGGAATTGAAAG AGTTATTTTCGACGTGATTTAACGCACAGTAAGATTTATA spacer
length: 39 repeater length: 25
10191 858659 GATTAATCCTAAAAGGAATTGAAAG CTTGTATGCGCACTTACGAAAAGCCAATAATACTCAA spacer
length: 37 repeater length: 25
10192 858722 GATTAATCCTAAAAGGAATTGAAAG TCAAAATATATATCGATGATTTCTTCAAGATCACT spacer length:
35 repeater length: 25
10193 858783 GATTAATCCTAAAAGGAATTGAAAG ATAATATTCTCTCTACTATTTCTTCTTTCAACTATTC spacer
length: 37 repeater length: 25
10194 858846 GATTAATCCTAAAAGGAATTGAAAG CTAAATATTTTCGTGTTTATATCAAATGCATATACTT spacer length:
36 repeater length: 25
10195 858908 GATTAATCCTAAAAGGAATTGAAAG TTATATGTAGTGACGGTAAGTAGTAGCATCTATAACTC spacer
length: 38 repeater length: 25
10196 858972 GATTAATCCTAAAAGGAATTGAAAG GATTACTCTTCACAGATAAACATTCTTTAGGTAATTC spacer
length: 37 repeater length: 25
10197 859035 GATTAATCCTAAAAGGAATTGAAAG TTTCGTTATCGTTTACGGAATTTATCAATGCAGTTAAT spacer

length: 38 repeater length: 25

10198 859099 GATTAATCCTAAAAGGAATTGAAAG TATAAGAACCTAAAAGAATTAATAAGAGTGTGACG spacer
length: 37 repeater length: 25

10199 859162 GATTAATCCTAAAAGGAATTGAAAG TTCATTTCCGGCTCACCTAGCCAAATACTCTTTGAA spacer
length: 37 repeater length: 25

10200 859225 GATTAATCCTAAAAGGAATTGAAAG GATATCCATTCTCTCAGCACTCTTAAATCCGCTGAAAT spacer
length: 37 repeater length: 25

10201 859288 GATTAATCCTAAAAGGAATTGAAAG TAGAATCTAGCAGTACTATGACCCATATAACCATATAC spacer
length: 38 repeater length: 25

10202 859352 GATTAATCCTAAAAGGAATTGAAAG CTTGTTAGTATATCTATTTTCATATTTATACACCCGA spacer
length: 37 repeater length: 25

10203 859415 GATTAATCCTAAAAGGAATTGAAAG ATTAATTCTTTTACTGTATAGAAATATCTCATTT spacer length:
34 repeater length: 25

10204 859475 GATTAATCCTAAAAGGAATTGAAAG TCCGTTTCTAACTTATTAAAGTATTCATATAATG spacer length:
34 repeater length: 25

10205 859535 GATTAATCCTAAAAGGAATTGAAAG GTATTAAGTCATCAGAATATCCTTCTAATGATAGA spacer length:
35 repeater length: 25

10206 859596 GATTAATCCTAAAAGGAATTGAAAG GCTATTAACATTATTAAGTTATAGACATTTTGTCCATATTCTAC spacer
length: 44 repeater length: 25

10207 859666 GATTAATCCTAAAAGGAATTGAAAG ATTGAAAAGACTTTACGAAGTATATACAAGTGCTC spacer length:
35 repeater length: 25

10208 859727 GATTAATCCTAAAAGGAATTGAAAG AAGTACACTTTATTAGCATTTTCTGGCAAACGATT spacer length:
35 repeater length: 25

10209 859788 GATTAATCCTAAAAGGAATTGAAAG GATATAATGATCTTGATGAAAAAGCAAGAAAGGTGTTG spacer
length: 39 repeater length: 25

10210 859853 GATTAATCCTAAAAGGAATTGAAAG TGATTCTCATCTATCTCCTCCTCCAATTCCGCGAGGA spacer
length: 37 repeater length: 25

10211 859916 GATTAATCCTAAAAGGAATTGAAAG TTATTAATAATTTTTCGGGTGTTTTCATGTTTGTGC spacer length:
36 repeater length: 25

10212 859978 GATTAATCCTAAAAGGAATTGAAAG AAAACTAATTGTATATTAGCAGGGTCACTTTGCACTC spacer
length: 37 repeater length: 25

10213 860041 GATTAATCCTAAAAGGAATTGAAAG GTATGCTATGCAACAGTATTTTAATCTTATTTCTCGGATCC spacer
length: 41 repeater length: 25

10214 860108 GATTAATCCTAAAAGGAATTGAAAG CTATATATTTCGAGAAACAGGAATTTTCCCTGACTTATT spacer
length: 38 repeater length: 25

10215 860172 GATTAATCCTAAAAGGAATTGAAAG TATTTAAATACTTATTAGCAATCATTGCTGCACGTA spacer length:
36 repeater length: 25

10216 860234 GATTAATCCTAAAAGGAATTGAAAG ATTAAATTCCTTTTAACATCACATAATCTTTATTTTCATAT spacer
length: 40 repeater length: 25

10217 860300 GATTAATCCTAAAAGGAATTGAAAG ATTAATACAATTAAGCTCCGTCTTTGCTAGACTCTTTT spacer
length: 38 repeater length: 25

10218 860364 GATTAATCCTAAAAGGAATTGAAAG CTAATGAAACATAAGAGCGAAAAGAAGTTTAGTAGAGATT spacer
length: 40 repeater length: 25

10219 860430 GATTAATCCTAAAAGGAATTGAAAG GCTTGTTTCTGATTGATGATATACCTTATTATTACTGG spacer
length: 38 repeater length: 25

10220 860494 GATTAATCCTAAAAGGAATTGAAAG ACAAGATTTCGTAACACTATTGACGAAGGTAAGAACGTTATTCTT spacer
length: 44 repeater length: 25

10221 860564 GATTAATCCTAAAAGGAATTGAAAG TTTTACAATCAGATATATTGATAGTTGATTTCTGCT spacer length:
36 repeater length: 25

10222 860626 GATTAATCCTAAAAGGAATTGAAAG TAATTTTCAATTTTCATTATTTCTCAACTCCCTTAATTA spacer
length: 37 repeater length: 25

10223 860689 GATTAATCCTAAAAGGAATTGAAAG TGATTCTCATCTATCTCCTCCTCCAATTCCGCGAGGA spacer
length: 37 repeater length: 25

10224 860752 GATTAATCCTAAAAGGAATTGAAAG CTAACTAAAACACAATAAATAACACTATATAACAC spacer
length: 38 repeater length: 25

10225 860816 GATTAATCCTAAAAGGAATTGAAAG ATACTCTGTTCCCTTGCTCCATCTTTAGTAATTTGCTA spacer
length: 37 repeater length: 25

10226 860879 GATTAATCCTAAAAGGAATTGAAAG ACCTTACTTTCTCTTCTCCCTTTAGATTAAGTTT spacer length:
34 repeater length: 25

10227 860939 GATTAATCCTAAAAGGAATTGAAAG TATAAATAAGCGGTAAAAATGAAGAAAAAACGTTTCTA spacer
length: 39 repeater length: 25

10228 861004 GATTAATCCTAAAAGGAATTGAAAG AGATATTATCCTTATATTCACCTACTTTTTGCAGATATTT spacer
length: 40 repeater length: 25

10229 861070 GATTAATCCTAAAAGGAATTGAAAG TAGAATATCAAGCAGATAAATTAGTAGTACAAGATGTG spacer
length: 38 repeater length: 25

10230 861134 GATTAATCCTAAAAGGAATTGAAAG TCTATTAATATTGTATGCAACATTATTTTAACTTTG spacer length:
36 repeater length: 25

10231 861196 GATTAATCCTAAAAGGAATTGAAAG TAGACAGGTCAGTATAGGTCTTACCATCTAATAAAGCAA spacer
length: 39 repeater length: 25

10232 861261 GATTAATCCTAAAAGGAATTGAAAG AAATTACTATCTTGAATAGAGATATTAGCGTTGTCTATTGC spacer
length: 41 repeater length: 25

10233 861328 GATTAATCCTAAAAGGAATTGAAAG CTATATATGGGAAGGCTTATGATCACCTAGTAGA spacer length:
34 repeater length: 25

10234 861388 GATTAATCCTAAAAGGAATTGAAAG GATGAATATGAAGAATTTGCTACTATAATAGTGAAACTC spacer
length: 39 repeater length: 25

10235 861453 GATTAATCCTAAAAGGAATTGAAAG CTCATCACCCCATGTTTCTTCAAATCCACCCAGATTCT spacer
length: 38 repeater length: 25

10236 861517 GATTAATCCTAAAAGGAATTGAAAG AAGAATCCCCAAGGATAAACACTAGCATATCGAC spacer length:
34 repeater length: 25

10237 861577 GATTAATCCTAAAAGGAATTGAAAG TTCCAAATACACGTTTATTCAATATGATATCCAGCAA spacer
length: 37 repeater length: 25

10238 861640 GATTAATCCTAAAAGGAATTGAAAG TTATTATTTACAGTTATTCTTATCTTTGCCATCCTCACCA spacer
length: 40 repeater length: 25

10239 861706 GATTAATCCTAAAAGGAATTGAAAG TCAAAATGAGTAATTTTTCTTCATGCAACATAATTCA spacer
length: 38 repeater length: 25

10240 861770 GATTAATCCTAAAAGGAATTGAAAG TCTTTCACATACGTTTCTATACGCTTCTTCTTTCCAT spacer
length: 37 repeater length: 25

10241 861833 GATTAATCCTAAAAGGAATTGAAAG ATTTTCATAAACCGGTGGAATTTGTCCATTTTGCTT

10242

10243

10244 GCA_000245215.2_ASM24521v2_genomic.fna(findCrispr):

10245 START REPEAT
SPACER

10246 crispr 1

10247 872914 TAATCTACTATAGAATTGAAAG GTTTCTAAAAGACGGTGAAGTTATTCTTGTATCAGAACAG spacer
length: 40 repeater length: 22

10248 872977 TAATCTACTATAGAATTGAAAG ACTTGTGGAAGCATTAGGGCAAAGAGCCGTACACACTATAG spacer
length: 41 repeater length: 22

10249 873041 TAATCTACTATAGAATTGAAAG GCGTATCCCTGTGCAGATATCGTTATTCTCCCAGTAATG spacer length:
39 repeater length: 22

10250 873103 TAATCTACTATAGAATTGAAAG TCCATGTGAAATCTTTAACGTTGTTTTCTTATCAACATCATG spacer
length: 43 repeater length: 22

10251 873169 TAATCTACTATAGAATTGAAAG TTTAAGATCCCCTCTTATTCTGTACGGATCATCGTTAAGG spacer
length: 40 repeater length: 22

10252 873232 TAATCTACTATAGAATTGAAAG AACATATGTGAGGCACAAATGGCCAAATTATTTCGACACTAG spacer
length: 41 repeater length: 22

10253 873296 TAATCTACTATAGAATTGAAAG TTTCTGCAGCTTTCTCTTCTATTTTATTCAATAACAATTG spacer
length: 40 repeater length: 22

10254 873359 TAATCTACTATAGAATTGAAAG TTTTGAAATCCAACACTAGCAGGGTCATCTAGGATAACTATG spacer
length: 40 repeater length: 22

10255 873422 TAATCTACTATAGAATTGAAAG ATCTTTTTTATCAGAAATAGCGGTTTTAAATTTTTATAAAG spacer
length: 40 repeater length: 22

10256 873485 TAATCTACTATAGAATTGAAAG GATATTGAACCGCTTTTCTCGCGAAAAGCTTTTATAGTG spacer
length: 40 repeater length: 22

10257 873548 TAATCTACTATAGAATTGAAAG GTATTTGTTTTGGTCTCTTCAGCTTGAGGAATGGATGTACG spacer
length: 41 repeater length: 22

10258 873612 TAATCTACTATAGAATTGAAAG ACGACAGCCACAACAGCGCCACCTGCAGCGACTGAAGCGG spacer
length: 40 repeater length: 22

10259 873675 TAATCTACTATAGAATTGAAAG GGTTTCATCACAACCTTACTCCAATAAGTTCGTATACTTG spacer length:
38 repeater length: 22

10260 873736 TAATCTACTATAGAATTGAAAG CCCTGATTATTAGGCATTTTATTCGCCCTCCTCTCTTATG spacer
length: 40 repeater length: 22

10261 873799 TAATCTACTATAGAATTGAAAG TTAGGATCGGTTGCAATAAGGAAATTGGTATCAAAGGATATG spacer
length: 43 repeater length: 22

10262 873865 TAATCTACTATAGAATTGAAAG TAGGATTTACTGCGTATGTTTCTTCTTTTACTTTCTCTACTG spacer
length: 42 repeater length: 22

10263 873930 TAATCTACTATAGAATTGAAAG TAGATTCATCATATTCATTAAGAATCTTCAAACTTCGCTTTG spacer
length: 43 repeater length: 22

10264 873996 TAATCTACTATAGAATTGAAAG GTGTTAGTTTGAGAGAATGCAACGTTACTTAGTAATAATGTG spacer
length: 42 repeater length: 22

10265 874061 TAATCTACTATAGAATTGAAAG AGGGTTATATGAAATTGAAAGCCCTGGAGTAGCGTAAAG spacer length:
39 repeater length: 22

10266 874123 TAATCTACTATAGAATTGAAAG AAAAAATTGTTGGAGAGTTCAAAAAAGAGGTGTCCGTTG spacer
length: 40 repeater length: 22

10267 874186 TAATCTACTATAGAATTGAAAG TTAGACCATAGCGGTTTGTTAATTGATGAAGTAGCAGGGAG spacer
length: 41 repeater length: 22

10268 874250 TAATCTACTATAGAATTGAAAG TCAATAAACGTAACCGTAACACCATCAGCAACTTCTGGG spacer length:
39 repeater length: 22

10269 874312 TAATCTACTATAGAATTGAAAG ACAGTATTGAGACTAACTAAAAATGGTATTACGTTATTG spacer length:
39 repeater length: 22

10270 874374 TAATCTACTATAGAATTGAAAG TTAATTCATATGTGACCCAAGCACCAGTAACGTTTATGAG spacer
length: 41 repeater length: 22

10271 874438 TAATCTACTATAGAAATTGAAAG GAATGAAGTCTATTGTGTCAAAGTTTACGCCTAGTTCCGCG spacer
length: 41 repeater length: 22

10272 874502 TAATCTACTATAGAAATTGAAAG ATCAGTTCAAGAATTGGGTGAGCGGGAATGGGTAGGATG spacer length:
39 repeater length: 22

10273 874564 TAATCTACTATAGAAATTGAAAG TATTTCTCATGAAAAACGACCTGATTAACTGATGAAGG spacer length:
39 repeater length: 22

10274 874626 TAATCTACTATAGAAATTGAAAG TACATATCTGCACTTGTAGCATATTGTTTTATAGCATTTG spacer
length: 40 repeater length: 22

10275 874689 TAATCTACTATAGAAATTGAAAG TACTTCCGCGGTGCCGTTTCGCTATAAATAGCCCAGAGCCGTTTAG spacer
length: 45 repeater length: 22

10276 874757 TAATCTACTATAGAAATTGAAAG AATAACGTTCCAGCGAATTCAACTACAGGAGCTTTGATGCTG spacer
length: 42 repeater length: 22

10277 874822 TAATCTACTATAGAAATTGAAAG TGTTTCTTCCCTCCAGATAAGGCGACTACTATTATTAGG spacer length:
39 repeater length: 22

10278 874884 TAATCTACTATAGAAATTGAAAG CCAATCCCAACCGCTCGAAAACCCAACCACTCCCGTTG spacer length:
38 repeater length: 22

10279 874945 TAATCTACTATAGAAATTGAAAG CTATTTGGTACAATAGTGGTAACATTAGTTATGTTACAGG spacer
length: 41 repeater length: 22

10280 875009 TAATCTACTATAGAAATTGAAAG CTGGTTTCAGCAAACGGCGTCACATCCTTTAACTTCTATTG spacer
length: 41 repeater length: 22

10281 875073 TAATCTACTATAGAAATTGAAAG ACAACACTACCACCGCTAACTAACGGCCCTCCTGAATCCCCCTG spacer
length: 44 repeater length: 22

10282 875140 TAATCTACTATAGAAATTGAAAG GAAGTATCCCAATCTTCTTTATGTCTTCGCCAACCTAAG spacer
length: 40 repeater length: 22

10283 875203 TAATCTACTATAGAAATTGAAAG ATTAGAATCTATGAAGTTGAAGACGGAATAAGGGTCAAAAG spacer
length: 41 repeater length: 22

10284 875267 TAATCTACTATAGAAATTGAAAG TATCTATTCCTTCCCAATATTTCTGTGTTTTACGCTCATATACTG spacer
length: 45 repeater length: 22

10285 875335 TAATCTACTATAGAAATTGAAAG CATTCCACCAACATCGTCCATTGTTATCGATGGTGTG spacer length:
37 repeater length: 22

10286 875395 TAATCTACTATAGAAATTGAAAG CAGCACGCTGGAAGCTAGGGCGTCAGCCTAAATACAG spacer length:
37 repeater length: 22

10287 875455 TAATCTACTATAGAAATTGAAAG GTCTAGTTTTTGTGCCCGTTATTTTGCTATGATG spacer length: 35
repeater length: 22

10288 875513 TAATCTACTATAGAAATTGAAAG CTCTATTTCTTCTTCGAATTTCCCTTAGTGTGTAATCTTCAG spacer
length: 42 repeater length: 22

10289 875578 TAATCTACTATAGAAATTGAAAG TACTAGAAATCCCGCCACTATTCCTATGAAATTAGTTAGCAAG spacer
length: 43 repeater length: 22

10290 875644 TAATCTACTATAGAAATTGAAAG CAAACTCAGCGATAAGCAAAAGTTTAAACAGCTGTTTG spacer length:
39 repeater length: 22

10291 875706 TAATCTACTATAGAAATTGAAAG ATGTTTGGTAAGTTTAGCAAGGCAAGTTTGGTTCAGCAAGG spacer
length: 41 repeater length: 22

10292 875770 TAATCTACTATAGAAATTGAAAG CATAGATTCTCATAGGCAATATAGCTACTTTGTCATCATG spacer
length: 40 repeater length: 22

10293 875833 TAATCTACTATAGAAATTGAAAG GAAAATAAAAAGCTTTTTAGAAATATACTTCTAAATAG spacer length:
38 repeater length: 22

10294 875894 TAATCTACTATAGAAATTGAAAG TTTATTATTGAGTTGTTTCAAGATGTTGGTATCATAGG spacer length:
38 repeater length: 22

10295 875955 TAATCTACTATAGAAATTGAAAG CTGTATCTCCCAATACGTCAATACACTTCCAGAAGACGTG spacer
length: 41 repeater length: 22

10296 876019 TAATCTACTATAGAAATTGAAAG TTTTGTTTGAACCTCCTCCAGTAATTTTCTATCTCATCTTG spacer
length: 41 repeater length: 22

10297 876083 TAATCTACTATAGAAATTGAAAG ACAAATCCGTATCGGATCTAACACATCAGATCGTTCCATG spacer
length: 40 repeater length: 22

10298 876146 TAATCTACTATAGAAATTGAAAG ATTTCCGTCTCTATCTCTTCTATATTCGTAGTCTCAG spacer length:
37 repeater length: 22

10299 876206 TAATCTACTATAGAAATTGAAAG AGCAGTTAGAGATATTTAGCTGAAGGAAACGCTGAGAAAGATATG spacer
length: 46 repeater length: 22

10300 876275 TAATCTACTATAGAAATTGAAAG TTCTGTTTATGCAGCGCAGTAACGAAGTTCACCATTCTGG spacer
length: 40 repeater length: 22

10301 876338 TAATCTACTATAGAAATTGAAAG ATTAAGTTCATCTAGATGATATATAGTTTGTGCTTTTG spacer length:
38 repeater length: 22

10302 876399 TAATCTACTATAGAAATTGAAAG AGAGCAGTTAGACCAATTGTACCACTCCATTCAAAAAATG spacer
length: 40 repeater length: 22

10303 876462 TAATCTACTATAGAAATTGAAAG CGATGATTTCCCTACGTTTCATGGTAAACATGTTCAAGCG spacer
length: 40 repeater length: 22

10304 876525 TAATCTACTATAGAAATTGAAAG GGTTGTAAATACGCCACGTGAATTGGAGCGCTAGACGCGGGG spacer
length: 42 repeater length: 22

10305 876590 TAATCTACTATAGAAATTGAAAG TTGGCTGGAACCAGATATTGCTGAGGTAAGCTAGTTCCG spacer length:
39 repeater length: 22

10306 876652 TAATCTACTATAGAAATTGAAAG AAATTACTAACCTTACTATCAATTTTTTAAGTAAATCTTG spacer

length: 40 repeater length: 22
10307 876715 TAATCTACTATAGAATTGAAAG ACATCTTTGTGGCCGTGAACTTCCTCAGATATTTTCGGGGCTAG spacer
length: 43 repeater length: 22
10308 876781 TAATCTACTATAGAATTGAAAG ATACCAAGGCTGAATGGAGGCCTAGAGTAAACCCCCCAG spacer length:
39 repeater length: 22
10309 876843 TAATCTACTATAGAATTGAAAG TTCAATGTTAAACTGGAATAAATGGTGTGAATATCCTG spacer
length: 40 repeater length: 22
10310 876906 TAATCTACTATAGAATTGAAAG TCTGATCTGTTATCAGGTCTAATGAGTATTTGGCCTTAG spacer length:
39 repeater length: 22
10311 876968 TAATCTACTATAGAATTGAAAG TTGCATAATCTTTTCTGAATCCTAATGCCATCTTTTCCTTG spacer
length: 41 repeater length: 22
10312 877032 TAATCTACTATAGAATTGAAAG ACAATCCGCAATTAATTCTTTACATTCTCCAAATATTTTG spacer
length: 41 repeater length: 22
10313 877096 TAATCTACTATAGAATTGAAAG TTCTTGAGCTCATAAATCGGGCTGAGGTCCTCATAATG spacer length:
38 repeater length: 22
10314 877157 TAATCTACTATAGAATTGAAAG AAAACCGGGATACGAACGTGTTCTCTACAGAGGTAATGTAG spacer
length: 41 repeater length: 22
10315 877221 TAATCTACTATAGAATTGAAAG ATCTTTGAAAGATAATTAATAAGTAGCTCTAGATCCTTTG spacer
length: 40 repeater length: 22
10316 877284 TAATCTACTATAGAATTGAAAG CTATATCTCCCTAAAACATCGATACATTTCCAGAAAACG spacer length:
39 repeater length: 22
10317 877346 TAATCTACTATAGAATTGAAAG ATTATATTATCAAGACCTTTAGGTGTTGTGTATGAGATAG spacer
length: 40 repeater length: 22
10318 877409 TAATCTACTATAGAATTGAAAG AATGATTGAACTACTAAAGTCAGTGGCGGAACTGCAGGCTG spacer
length: 41 repeater length: 22
10319 877473 TAATCTACTATAGAATTGAAAG AACGGTGAAAGTGCTACTTTATCATACGGGCAAGCATTAGAG spacer
length: 42 repeater length: 22
10320 877538 TAATCTACTATAGAATTGAAAG GTAATACTCAAAGTGTTTATATAACACGTGAGACGCAAG spacer length:
39 repeater length: 22
10321 877600 TAATCTACTATAGAATTGAAAG GTAATGATGAACTTTACAAAATTCCTCATTGTATTAGCCG spacer
length: 40 repeater length: 22
10322 877663 TAATCTACTATAGAATTGAAAG AGGTGTATAGGTGACATGTGATATCTGTTCTCCTCCTGATG spacer
length: 42 repeater length: 22
10323 877728 TAATCTACTATAGAATTGAAAG TTTCAAATCATTGTAGTCCCAAATAAAGGGTATTTTTTG spacer length:
39 repeater length: 22
10324 877790 TAATCTACTATAGAATTGAAAG CGATACTCGAACGGTTGCGTACCCCAAGGACGTAATTCTAG spacer
length: 41 repeater length: 22
10325 877854 TAATCTACTATAGAATTGAAAG GTTTCATAAGATATCGCAGAATAAATGGCGGTAATGGTCTG spacer
length: 42 repeater length: 22
10326 877919 TAATCTACTATAGAATTGAAAG TCTAATAATACTAATAATAATCAACAACTCAGACTACATG spacer
length: 41 repeater length: 22
10327 877983 TAATCTACTATAGAATTGAAAG TAATAATCTGTAACGCTTACAGTTATCTTAACTGGAG spacer length:
37 repeater length: 22
10328 878043 TAATCTACTATAGAATTGAAAG CATAAAGTATATGTGCTGAAGTCTTCTTTGATCCGATAG spacer length:
39 repeater length: 22
10329 878105 TAATCTACTATAGAATTGAAAG AAGATAACACATTTATTTTCTACGTAGTACTTACATACTG spacer
length: 40 repeater length: 22
10330 878168 TAATCTACTATAGAATTGAAAG CTTATTCCCGAATGATTTCTTCTCCTATAGATTTCTCAAG spacer
length: 42 repeater length: 22
10331 878233 TAATCTACTATAGAATTGAAAG AAGACTTAGATCATGGTGTGATACATCAATATTTAGGAG spacer length:
39 repeater length: 22
10332 878295 TAATCTACTATAGAATTGAAAG ATACCCCTACACTGGTATATATTCAGCCGTATATAGG spacer length:
37 repeater length: 22
10333 878355 TAATCTACTATAGAATTGAAAG GAAAGCGTAAAGATGAAGTTACTAGACGAAATCAAAAAG spacer length:
39 repeater length: 22
10334 878417 TAATCTACTATAGAATTGAAAG ATACCTTTTTTAACGTCGGATACCATAATCATTAATCCCGCG spacer
length: 41 repeater length: 22
10335 878481 TAATCTACTATAGAATTGAAAG CCCATGATTTTCAATTCACCAATTGTACAAAAATATATTCTTG spacer
length: 43 repeater length: 22
10336 878547 TAATCTACTATAGAATTGAAAG AACGATGCTACCGCATTTGTTAATAAATTTCTAAGTTTTGTG spacer
length: 43 repeater length: 22
10337 878613 TAATCTACTATAGAATTGAAAG CCTACCGTGACTGCGACATAATGGGGTATTATTGCATAATG spacer
length: 41 repeater length: 22
10338 878677 TAATCTACTATAGAATTGAAAG CGCCGTCGCCGACGCGGGGGTATGTAGTCAGTATTACTG spacer length:
39 repeater length: 22
10339 878739 TAATCTACTATAGAATTGAAAG GTAGACGCTACTGCATTAGGCATAGGTGTTATAAACGTG spacer length:
39 repeater length: 22
10340 878801 TAATCTACTATAGAATTGAAAG AGATTTGTCATTTGAATTATATACTATGAGTAAATGTTAG spacer
length: 41 repeater length: 22
10341 878865 TAATCTACTATAGAATTGAAAG GAAGGCAGTGCAATCTTATATGTGTTCCCTTTTTCTTTTGG spacer
length: 41 repeater length: 22

10342 878929 TAATCTACTATAGAAATTGAAAG AATCAGGGGATGATACTAGTTTTTCACATACAACGGACAGTCGG spacer
length: 43 repeater length: 22
10343 878995 TAATCTACTATAGAAATTGAAAG GCTTTCTGCCGAACCTTTTCAGCAGTCATTATAGCTCCG spacer length:
38 repeater length: 22
10344 879056 TAATCTACTATAGAAATTGAAAG AGTGTTAGTATAAATCGCGAACAAAATAAGCGGATAAAGAG spacer
length: 41 repeater length: 22
10345 879120 TAATCTACTATAGAAATTGAAAG GTTACGGGTACTGTTTGTGTATAATATGAGGGGTAACATCATG spacer
length: 42 repeater length: 22
10346 879185 TAATCTACTATAGAAATTGAAAG TGTGGCAACACAAATATAGCTTCACAGATAACATCCCTTTG spacer
length: 41 repeater length: 22
10347 879249 TAATCTACTATAGAAATTGAAAG TGGAAACCGCTCACGTAAACACTTATAAATCCATTCTCTTG spacer
length: 41 repeater length: 22
10348 879313 TAATCTACTATAGAAATTGAAAG ATTAGTTTTATTAAATGATCCATCAATTCAAACCTTTGACATG spacer
length: 42 repeater length: 22
10349 879378 TAATCTACTATAGAAATTGAAAG ATTGACTACATTCAAGCCACCAACGGTAACGATAAATTTACG spacer
length: 42 repeater length: 22
10350 879443 TAATCTACTATAGAAATTGAAAG TTTCATGTTTTTGTATCATTCAATCCTTGGCAATTGAGTG spacer
length: 41 repeater length: 22
10351 879507 TAATCTACTATAGAAATTGAAAG AAATTAGTATAGACTAAATAATTTTTAAATAATATTAAAAA
10352
10353
10354 crispr 2
10355 864558 CTTTCAATTCTATAGTAGATTATC ATAAAAGCAAAAGAGGGAAAGAGAGAGAAAGATTTAT spacer length:
37 repeater length: 24
10356 864620 CTTTCAATTCTATAGTAGATTATC AAGTGGTTTTCCAGGGTGCTGGAAAACTACTTAT spacer length: 34
repeater length: 24
10357 864679 CTTTCAATTCTATAGTAGATTATC GTTCGATTTATATACTGCAGTAGTAGATTATGTTAGTT spacer
length: 38 repeater length: 24
10358 864742 CTTTCAATTCTATAGTAGATTATC TTGTGACAATAAACTATACTTATCATCGTCACTTAGTGTA spacer
length: 41 repeater length: 24
10359 864808 CTTTCAATTCTATAGTAGATTATC ATTGATAAATAGTGGTTATAAGGATAGTGATCAACTTA spacer
length: 38 repeater length: 24
10360 864871 CTTTCAATTCTATAGTAGATTATC GTGCTGCGGCTACTGGAATACAAGCATCAGGTATCGCAA spacer
length: 40 repeater length: 24
10361 864936 CTTTCAATTCTATAGTAGATTATC AAGATTTCCGCAAAAGAAGTTTTGGTATCAGTTTAAGG spacer
length: 39 repeater length: 24
10362 865000 CTTTCAATTCTATAGTAGATTATC TCGCAACATTGTATATGTCATATTATGATAAGAAGT spacer length:
36 repeater length: 24
10363 865061 CTTTCAATTCTATAGTAGATTATC GTAAAATAACTACACAAGGTGCTGAAAATCTCAGGATCG spacer
length: 39 repeater length: 24
10364 865125 CTTTCAATTCTATAGTAGATTATC TGATAAAATACAACAATTGTATCCAAATATTCCAT spacer length:
35 repeater length: 24
10365 865185 CTTTCAATTCTATAGTAGATTATC GTGTTGGATTTTCGGACGGTATACGTACAGTAAAGATA spacer
length: 38 repeater length: 24
10366 865248 CTTTCAATTCTATAGTAGATTATC ATCATCATCGGGCATCTGCATACAAATACGTTGAAGTC spacer
length: 38 repeater length: 24
10367 865311 CTTTCAATTCTATAGTAGATTATC
ATCGCTCTAACATTTTCAGAATCAGTATGGTGTTAATATACTTTCAATTCTATATTAGATTATCTGCACTAAATATTGAACTCCATT
ATGATATTCTACTATA spacer length: 102 repeater length: 24
10368 865438 CTTTCAATTCTATAGTAGATTATC TGGGGTGAGGGTACGTACTGCGATAACTGATATGCATTT spacer
length: 39 repeater length: 24
10369 865502 CTTTCAATTCTATAGTAGATTATC ACAACATGCAGATAATATTCTAGCAAGACTTTTAGAACAAC spacer
length: 41 repeater length: 24
10370 865568 CTTTCAATTCTATAGTAGATTATC AACAAATGCGGTAGGAAGTTTAGGTAACCTTTGTCGTAA spacer
length: 38 repeater length: 24
10371 865631 CTTTCAATTCTATAGTAGATTATC CCAAATAACAATATAAGCCACCCCGATGAATGTGAGGG spacer
length: 39 repeater length: 24
10372 865695 CTTTCAATTCTATAGTAGATTATC AGCATTAGATGTTACTATCGGTCCTGGAGGGATTTCCG spacer
length: 38 repeater length: 24
10373 865758 CTTTCAATTCTATAGTAGATTATC TCTTCATTAATTTAATGAGGTCATTTTTCATGAGAAAT spacer
length: 38 repeater length: 24
10374 865821 CTTTCAATTCTATAGTAGATTATC ATGTCGTAGTAGAAGAGACTCTTGCGACTGGAAGTGCAG spacer
length: 39 repeater length: 24
10375 865885 CTTTCAATTCTATAGTAGATTATC AATCCCTCGTTCAATTAATCTCCTTATCGCTACCGAACCTA spacer
length: 41 repeater length: 24
10376 865951 CTTTCAATTCTATAGTAGATTATC CGACAATTTCAACGGGTGCAGTGCTTACGTTGATTGTTA spacer
length: 39 repeater length: 24
10377 866015 CTTTCAATTCTATAGTAGATTATC CGACTAGAATATTTTCGTTTCGTGGTGAATCTTAATG spacer length:
36 repeater length: 24
10378 866076 CTTTCAATTCTATAGTAGATTATC TCTACTATAAAGAGTGCGTTAGATGACGCTATAGAGAA spacer
length: 38 repeater length: 24

10379 866139 CTTTCAATTCTATAGTAGATTATC ATTCTAACGACATCAATACTTATCATAGACCTCATTTCG spacer
length: 39 repeater length: 24

10380 866203 CTTTCAATTCTATAGTAGATTATC AGAAGGATGAGGGAAAGGAAAGTGCAAAGTGATCCCA spacer length:
37 repeater length: 24

10381 866265 CTTTCAATTCTATAGTAGATTATC CCTTGTATCCAAGACACAGTTACTATCACATTAAAAA spacer length:
37 repeater length: 24

10382 866327 CTTTCAATTCTATAGTAGATTATC ATCGCATCACATGTGTTGTATAAACATTTTGAATATTA spacer
length: 38 repeater length: 24

10383 866390 CTTTCAATTCTATAGTAGATTATC TACAGACAATACGGAGAAAGAATAGACCAAAAAATCAT spacer
length: 38 repeater length: 24

10384 866453 CTTTCAATTCTATAGTAGATTATC ATGTAGTAATACTTGACGACCCTGCTAGTTGGATTTCAA spacer
length: 40 repeater length: 24

10385 866518 CTTTCAATTCTATAGTAGATTATC TCCCCAAGATTGTTGTACTTGTGTAACATATTGTAATA spacer
length: 38 repeater length: 24

10386 866581 CTTTCAATTCTATAGTAGATTATC AGGAACTAATAATAACATTGGCGGTTGACGTACTAGCTC spacer
length: 39 repeater length: 24

10387 866645 CTTTCAATTCTATAGTAGATTATC AGTACATACGGTGCTACGACTTCGGTAAGTCCAGATT spacer length:
37 repeater length: 24

10388 866707 CTTTCAATTCTATAGTAGATTATC TAGGAGGAGGGTTTAACATAATACCATCCGTTTCACGG spacer
length: 38 repeater length: 24

10389 866770 CTTTCAATTCTATAGTAGATTATC GCTGTATCTTTTCTCACAGTGTGTAGATAAGGTCTA spacer length:
37 repeater length: 24

10390 866832 CTTTCAATTCTATAGTAGATTATC TTGGTATTACAGCTAGGGTTTGCTGCTGCTGGTGG spacer length:
35 repeater length: 24

10391 866892 CTTTCAATTCTATAGTAGATTATC AGGAGCGGGAGAGGCAATCCATGCTCTTGAGGTGGCGAATT spacer
length: 41 repeater length: 24

10392 866958 CTTTCAATTCTATAGTAGATTATC ACAATAAATATCCAGGGGGAGGAGTAATAGAAGTAA spacer length:
37 repeater length: 24

10393 867020 CTTTCAATTCTATAGTAGATTATC AATAACTCAAACAAGTATCACCTTTACAAAACATAAC spacer
length: 38 repeater length: 24

10394 867083 CTTTCAATTCTATAGTAGATTATC CCTTCTTTCTGTTTAAGGGGGAAGAAGAATGTCAACTG spacer length:
37 repeater length: 24

10395 867145 CTTTCAATTCTATAGTAGATTATC TTTAGGTATACTTTACGGCATTCTAACTGCGATAGCA spacer length:
37 repeater length: 24

10396 867207 CTTTCAATTCTATAGTAGATTATC AAGATAAAGCTCTAAAGTGATTAAGAAATGATGAAGGC spacer
length: 38 repeater length: 24

10397 867270 CTTTCAATTCTATAGTAGATTATC TATAAGGGATTTCGGTTGGAGAAGTGATACAGACTTATT spacer
length: 38 repeater length: 24

10398 867333 CTTTCAATTCTATAGTAGATTATC ATCGGCAAATTGCTGCGCTTCTGGATTTCCGAAATCGA spacer
length: 38 repeater length: 24

10399 867396 CTTTCAATTCTATAGTAGATTATC GTTAGTTTTTGCACCTGGCATGGCTGCAGCCGGTTTCGGTT spacer
length: 41 repeater length: 24

10400 867462 CTTTCAATTCTATAGTAGATTATC TCGTAATTGTGAAAAATAAGACTGCAGCAAGTGCAA spacer length:
36 repeater length: 24

10401 867523 CTTTCAATTCTATAGTAGATTATC AATAGTACTTTGAACACCTCATATGCCTCTCTAGCCTCT spacer
length: 39 repeater length: 24

10402 867587 CTTTCAATTCTATAGTAGATTATC ATACTGAAACACTTTCCCTACTTGAGGGGACGTAA spacer length:
36 repeater length: 24

10403 867648 CTTTCAATTCTATAGTAGATTATC AAAAGAAGTTCAGAAACGGCAATAAGGAGATTCAACTACA spacer
length: 40 repeater length: 24

10404 867713 CTTTCAATTCTATAGTAGATTATC ATATAAATCCGAAAGCACGTTAGTGAGAGAGAAAGATTTAT spacer
length: 41 repeater length: 24

10405 867779 CTTTCAATTCTATAGTAGATTATC ACGATGAACTAAAACAGCACGCGGAAGCCTTAGCGT spacer length:
36 repeater length: 24

10406 867840 CTTTCAATTCTATAGTAGATTATC GAAGTTCTTACTAGCGATTAATATAGCATTTACAGCATTGG spacer
length: 41 repeater length: 24

10407 867906 CTTTCAATTCTATAGTAGATTATC CAATATATTCGCAACATAGAGAAAGACTGGTAGCTAT spacer
length: 38 repeater length: 24

10408 867969 CTTTCAATTCTATAGTAGATTATC AAGGCAGTGCAATCTTATATGTGTTCCCTTTTTCTTTT

10409

10410

10411 GCA_000245235.2_ASM24523v2_genomic.fna (findCrispr):

10412 START REPEAT

SPACER

10413 crispr 1

10414 849972 CTTTCAATTCTATATTAGATTATC TCTGGTTGCCCAATACTTAAGCTTAAAGAATTAGTT spacer
length: 38 repeater length: 24

10415 850035 CTTTCAATTCTATATTAGATTATC CGGATTATCATGGCGTTGGTTGATGTCTGCTTCTGTCTG spacer
length: 39 repeater length: 24

10416 850099 CTTTCAATTCTATATTAGATTATC ACGCTTTAGCACAGGCACTGGTCAAGGGTATTATGAAC spacer
length: 39 repeater length: 24

10417	850163 CTTTCAATTCTATATTAGATTATC	GCAATTACAAGGGGCAGAAGCTACTGAAAGTATAACAGGAA	spacer
	length: 41 repeater length: 24		
10418	850229 CTTTCAATTCTATATTAGATTATC	AGCGACCGGTAGGCAGTAGCAGCAGACAGGACCTTAG	spacer length:
	37 repeater length: 24		
10419	850291 CTTTCAATTCTATATTAGATTATC	TTAGATCCGTTATAAAATGCATTACACAGTAGCCATCAATA	spacer
	length: 42 repeater length: 24		
10420	850358 CTTTCAATTCTATATTAGATTATC	ACGTCTAGATTATTTGAAAGTCCGCACTCACAAATAA	spacer length:
	37 repeater length: 24		
10421	850420 CTTTCAATTCTATATTAGATTATC	AAAACAATGAAAAGATGAGAGTAGGAAGTTTTCTAGTG	spacer
	length: 38 repeater length: 24		
10422	850483 CTTTCAATTCTATATTAGATTATC	CTTCGGCTGTATTGTTATTATTCTTTGTATCGTTCTTTA	spacer
	length: 39 repeater length: 24		
10423	850547 CTTTCAATTCTATATTAGATTATC	CTCATTATAGACGTTATAAATCCAAATAGCGGAAATA	spacer length:
	37 repeater length: 24		
10424	850609 CTTTCAATTCTATATTAGATTATC	AGTGTATTTACTGATAACGGGAATAGAAAGAATCCTTTC	spacer
	length: 39 repeater length: 24		
10425	850673 CTTTCAATTCTATATTAGATTATC	GAGAGATGAGTGAAAGTAATATATGGCAATAGGAGAAATTT	spacer
	length: 41 repeater length: 24		
10426	850739 CTTTCAATTCTATATTAGATTATC	CCCTTATATTATCTAATGCTTTATTTACCGCATCACTTA	spacer
	length: 39 repeater length: 24		
10427	850803 CTTTCAATTCTATATTAGATTATC	ACGTTACATTGCAGAATGGGCATCTATTCTTTTCGATA	spacer
	length: 38 repeater length: 24		
10428	850866 CTTTCAATTCTATATTAGATTATC	ATAATGTAAGTTGGATTTTGTAAGTAGAGTCTTTATTT	
10429			
10430			
10431	crispr 2		
10432	860426 GATAATCTACTATAGAATTGAAAG	AATTAAATCAAGAAGAAAAAGAAGTAGATGAGTTTTTTT	spacer
	length: 38 repeater length: 24		
10433	860489 GATAATCTACTATAGAATTGAAAG	AATGAAATTACAGAAAAACTTTTTGAGGAATTTGGATTA	spacer
	length: 39 repeater length: 24		
10434	860553 GATAATCTACTATAGAATTGAAAG	GTATTGTTAATCACCAACTCACCGTTTTGCCAGTACG	spacer length:
	37 repeater length: 24		
10435	860615 GATAATCTACTATAGAATTGAAAG	TTTATAAATAGAGAGTTTGTTTTTAGCGTATCTACTTTCTC	spacer
	length: 41 repeater length: 24		
10436	860681 GATAATCTACTATAGAATTGAAAG	ACAGAAGAAGATAAAAAAGAAAGTCTATCAGAGCATAGATG	spacer
	length: 40 repeater length: 24		
10437	860746 GATAATCTACTATAGAATTGAAAG	ACCCGCATTCAACCCCGCGGGGAATCCCCCGGCCCC	spacer length:
	37 repeater length: 24		
10438	860808 GATAATCTACTATAGAATTGAAAG	ACGTTAGAGGAAGTACGCAAAACGTTAAGTACCGTCAA	spacer
	length: 38 repeater length: 24		
10439	860871 GATAATCTACTATAGAATTGAAAG	CAAGGCTATGTACCAGTGCAAATAATAGGGCAAAGCGC	spacer
	length: 38 repeater length: 24		
10440	860934 GATAATCTACTATAGAATTGAAAG	TGAAAGTGTGTATCACACCACACTACTACATTCTCA	spacer length:
	36 repeater length: 24		
10441	860995 GATAATCTACTATAGAATTGAAAG	GCTAGGGCGGTGGCAAACCATGTTTTACCAGTTCCA	spacer length:
	36 repeater length: 24		
10442	861056 GATAATCTACTATAGAATTGAAAG	GAAACTGAAGCACCTTGAGGCGAAGGGCCAAGCGGTGA	spacer
	length: 38 repeater length: 24		
10443	861119 GATAATCTACTATAGAATTGAAAG	ATGGTGCGCCTTGTTGTTCTAAAAGTCTTGCTAATATA	spacer
	length: 38 repeater length: 24		
10444	861182 GATAATCTACTATAGAATTGAAAG	ACGGGGTTAGCATTATTAGATTCCAATCGTAGAATAAGCC	spacer
	length: 40 repeater length: 24		
10445	861247 GATAATCTACTATAGAATTGAAAG	CAAATCTACAAGATACGTGGGTACTATCTCACCGC	spacer length:
	36 repeater length: 24		
10446	861308 GATAATCTACTATAGAATTGAAAG	TGCAGTAAAACCGCAAAATGGACAAATTCCACCTGGTT	spacer
	length: 38 repeater length: 24		
10447	861371 GATAATCTACTATAGAATTGAAAG	TTCCCTTGTTGAATTAGTAAGTGTGTATCTGATTT	spacer length:
	36 repeater length: 24		
10448	861432 GATAATCTACTATAGAATTGAAAG	TCAAATGTACCCCGCAATATCCTCTTCTCTACATTCACT	spacer
	length: 39 repeater length: 24		
10449	861496 GATAATCTACTATAGAATTGAAAG	AAATTTGATGTTTAATGTTGGTAGTGTAAGTTTGAAGGA	spacer
	length: 40 repeater length: 24		
10450	861561 GATAATCTACTATAGAATTGAAAG	GGTTGATATGCATATGTTTGTGTAAGTGTACGCGAAAAT	spacer
	length: 39 repeater length: 24		
10451	861625 GATAATCTACTATAGAATTGAAAG	AGCCAAAAAGTACTTCCTTTTTGCACATAAAAATTGAA	spacer
	length: 38 repeater length: 24		
10452	861688 GATAATCTACTATAGAATTGAAAG	CCTCTTCTTGGTCTTCCTTTACAACCTTCTTCCTCATCC	spacer
	length: 38 repeater length: 24		
10453	861751 GATAATCTACTATAGAATTGAAAG	TACTAACCTTATCTTGCGCCCTAAGAGTAAGACCGTAT	spacer
	length: 38 repeater length: 24		
10454	861814 GATAATCTACTATAGAATTGAAAG	TTACAGAGTGTGAAAGAAGTCAGGTAAGAGATTAAG	spacer length:

36 repeater length: 24

10455 861875 GATAATCTACTATAGAATTGAAAG GCTAATTCTCTTTCTGCATTTCTCTCTAAATTTAATTC spacer length: 38 repeater length: 24

10456 861938 GATAATCTACTATAGAATTGAAAG ATCAAGGATCAGGCAATATTATTAAATGTAATGGAGAT spacer length: 38 repeater length: 24

10457 862001 GATAATCTACTATAGAATTGAAAG TTAAATAGATCTGTGAATCCTTCTCTTGAGAGATGATACG spacer length: 40 repeater length: 24

10458 862066 GATAATCTACTATAGAATTGAAAG CCCAATACGTTGAACCAATGCTAAGACCAGTTACAATA spacer length: 38 repeater length: 24

10459 862129 GATAATCTACTATAGAATTGAAAG ATCGAATTTCCATCTCATCAGGAACCTGCACAAGTTGCC spacer length: 39 repeater length: 24

10460 862193 GATAATCTACTATAGAATTGAAAG TCCTCATCTATATACATCACACCACTGAAATATATTA spacer length: 37 repeater length: 24

10461 862255 GATAATCTACTATAGAATTGAAAG ATCGATCAAGAGACTTATGAGTTATTAATAAGCAGTAG spacer length: 40 repeater length: 24

10462 862320 GATAATCTACTATAGAATTGAAAG ATACTATCACCTGTAGAGAGATACTGTGTCAGCAATAATT spacer length: 40 repeater length: 24

10463 862385 GATAATCTACTATAGAATTGAAAG AGTTAGATCAAACCTCGGGAAGCAGTAAGAAAAGAAGTGT spacer length: 39 repeater length: 24

10464 862449 GATAATCTACTATAGAATTGAAAG AATGCTTGCCTTAGCTGAGATTTTAGAACAGGTTTA spacer length: 36 repeater length: 24

10465 862510 GATAATCTACTATAGAATTGAAAG AATGGACTCCTCACACGTTTAAGTTGGGAAATCCAGTTA spacer length: 40 repeater length: 24

10466 862575 GATAATCTACTATAGAATTGAAAG CTTTCATTTTGTCTAGCTTATATTGAATAATATTTAATGA spacer length: 40 repeater length: 24

10467 862640 GATAATCTACTATAGAATTGAAAG CATTAACGCAAACCTACTAGCACTTTCGCATTTACTTAT spacer length: 38 repeater length: 24

10468 862703 GATAATCTACTATAGAATTGAAAG CAGGATGGGGAAGTAATTGATATGTTAAGAGATGGAAGTT spacer length: 40 repeater length: 24

10469 862768 GATAATCTACTATAGAATTGAAAG TCTGAAGTAATCCGTATTGTCCTGCAGTCTCGTAATATACT spacer length: 41 repeater length: 24

10470 862834 GATAATCTACTATAGAATTGAAAG CACTACTATAGAATGATGGTATGATGGTGTACGGGTCGGTA spacer length: 41 repeater length: 24

10471 862900 GATAATCTACTATAGAATTGAAAG AGGTCTGTGATTGAAGAGCATTTATTATGTTACTAAG spacer length: 38 repeater length: 24

10472 862963 GATAATCTACTATAGAATTGAAAG CTATTTCCATCAGTTGATTGGTCTCCGACGTTAGGTGAG spacer length: 39 repeater length: 24

10473 863027 GATAATCTACTATAGAATTGAAAG CTGTTAAAGTCCTCATTGATGTATAATTCTAACCCT spacer length: 36 repeater length: 24

10474 863088 GATAATCTACTATAGAATTGAAAG TTTTGGCTTAGCAGATTTAAAGTTCAAGCATATCATT spacer length: 37 repeater length: 24

10475 863150 GATAATCTACTATAGAATTGAAAG ATAGTGTGTTTCAGGTACTGGGCGTATTCCAACATACTCAA spacer length: 40 repeater length: 24

10476 863215 GATAATCTACTATAGAATTGAAAG AATGCTTTAAGTTTTTGTCTATATCTTCTACTTTTTTG spacer length: 38 repeater length: 24

10477 863278 GATAATCTACTATAGAATTGAAAG AATGTCGCTCTTTATAGCGTCCATAGCGTCATTTCTC spacer length: 37 repeater length: 24

10478 863340 GATAATCTACTATAGAATTGAAAG CAAATTCATCAGTTAAAAGCATAACAATAACTAATCA spacer length: 37 repeater length: 24

10479 863402 GATAATCTACTATAGAATTGAAAG ACGAAATGAGGACGGTGATAAGTATTGATGTCGTTACTAT spacer length: 40 repeater length: 24

10480 863467 GATAATCTACTATAGAATTGAAAG TCATACATTCAAAAGCTTATATTAGATAATAAAGATAAT spacer length: 39 repeater length: 24

10481 863531 GATAATCTACTATAGAATTGAAAG TATACCGCCGTGAAGTACAATGGATATGATGAAGGAACT spacer length: 39 repeater length: 24

10482 863595 GATAATCTACTATAGAATTGAAAG GGATAATGAATGTGACGTGCAATATCGTTGATAATATC spacer length: 38 repeater length: 24

10483 863658 GATAATCTACTATAGAATTGAAAG GACATCATATGACTACGGTTATCAATGGTCAGTAGG spacer length: 36 repeater length: 24

10484 863719 GATAATCTACTATAGAATTGAAAG TCTATGACCTTCTCTGGGATTTTATCTATCGCGAACAT spacer length: 38 repeater length: 24

10485 863782 GATAATCTACTATAGAATTGAAAG TATCAGGGGATGTAGATTTACCGGTTTACTTTTTACC spacer length: 37 repeater length: 24

10486 863844 GATAATCTACTATAGAATTGAAAG TGAACAGGTTTCGTACTCAGGCACAGGCTCGTATTCCCTC spacer length: 39 repeater length: 24

10487 863908 GATAATCTACTATAGAATTGAAAG TGTTACTTTACCTTCCCATCCTATTATTTCTTTTGACA spacer length: 38 repeater length: 24

10488 863971 GATAATCTACTATAGAATTGAAAG AAATAGTTTAGAAGCTTTTGTGGCGTAACTGGTGTGA spacer length: 37 repeater length: 24

10489 864033 GATAATCTACTATAGAATTGAAAG TTCCACCTTTAGCAATCCATTTTCATAGATAAGAATTAGAA spacer length: 40 repeater length: 24

10490 864098 GATAATCTACTATAGAAATTGAAAG AGGTTTTAGGTGAAAAGCTTAATCGGGTGAAAAATGT spacer length:
37 repeater length: 24

10491 864160 GATAATCTACTATAGAAATTGAAAG ATAAGCGGAAAGTTTGAGAGTGTAACGGAGAAAGTTACA spacer
length: 39 repeater length: 24

10492 864224 GATAATCTACTATAGAAATTGAAAG TCTTAGACGCGACGAACCTCCTCATATACTTTATCGC spacer length:
37 repeater length: 24

10493 864286 GATAATCTACTATAGAAATTGAAAG CAAATGGCACCGTATGGTTCAGTAATGGTTAATACCTTAAT spacer
length: 41 repeater length: 24

10494 864352 GATAATCTACTATAGAAATTGAAAG GTAATAGATAATTCCTCGTTTCTATCGTTGAAAGGATC spacer
length: 38 repeater length: 24

10495 864415 GATAATCTACTATAGAAATTGAAAG ATAGCAATATGATGTACTATATTTAAATGAAAACTG spacer length:
37 repeater length: 24

10496 864477 GATAATCTACTATAGAAATTGAAAG TACTTTTCTTCACCTTTGATATTTAATTTTACTATGA spacer length:
37 repeater length: 24

10497 864539 GATAATCTACTATAGAAATTGAAAG GTTATTCTATTAAATGTGCATACTTCTTGATTTGCCGCCA spacer
length: 40 repeater length: 24

10498 864604 GATAATCTACTATAGAAATTGAAAG CTAGTGCCAGGGTTCAGGGGTGTACCCTCACTGCCAC spacer length:
37 repeater length: 24

10499 864666 GATAATCTACTATAGAAATTGAAAG TTTAGATTAAGTTTTACATAAATTATAGACACGATAAC spacer
length: 38 repeater length: 24

10500 864729 GATAATCTACTATAGAAATTGAAAG ATAAACTAAATATTGACGTGAAACCGCAACTAATAGATA spacer
length: 39 repeater length: 24

10501 864793 GATAATCTACTATAGAAATTGAAAG ATAACAATAATAAATGTTACTATTGAGGGCGTATTATTCCCA spacer
length: 42 repeater length: 24

10502 864860 GATAATCTACTATAGAAATTGAAAG ATGTAGTTGCATCTCCTTATTGCCGTTTCTGAAGTTCTTT spacer
length: 40 repeater length: 24

10503 864925 GATAATCTACTATAGAAATTGAAAG AAAAGAGTATTAATTGATCTGGCTATAGCGTCCTTCCTTA spacer
length: 40 repeater length: 24

10504 864990 GATAATCTACTATAGAAATTGAAAG AGATTTTGTAGTGCTTCTTGCAGCAGTAAAGCTCTA spacer length:
36 repeater length: 24

10505 865051 GATAATCTACTATAGAAATTGAAAG CTATCGGCTTATATCTAACATCCTCTGGGAGGCTTTCCA spacer
length: 39 repeater length: 24

10506 865115 GATAATCTACTATAGAAATTGAAAG GTATGCTTATCGTATAAAGTAATTTGCCAAAGTTGTAC spacer
length: 38 repeater length: 24

10507 865178 GATAATCTACTATAGAAATTGAAAG TTCGATTTTGGGAATCCACCGCCAGCAATTCGCAGA spacer
length: 38 repeater length: 24

10508 865241 GATAATCTACTATAGAAATTGAAAG AACTCCAGTACTGCTTCGCCGTAGGATCCGTCCTCAGAC spacer
length: 39 repeater length: 24

10509 865305 GATAATCTACTATAGAAATTGAAAG TTTCTATTAAGAGAAAGTTACACTTTATCAAAAGACAC spacer
length: 38 repeater length: 24

10510 865368 GATAATCTACTATAGAAATTGAAAG AGAAACAGTGTATGGGATAAATTAGGTATAAGTGGC spacer length:
36 repeater length: 24

10511 865429 GATAATCTACTATAGAAATTGAAAG CCACCACCACAGTATATAATACATTTGATGGATTATTA spacer
length: 38 repeater length: 24

10512 865492 GATAATCTACTATAGAAATTGAAAG TACTTCATCACGTCCACGTTTGTTATTTTTGTTGATTTA spacer
length: 39 repeater length: 24

10513 865556 GATAATCTACTATAGAAATTGAAAG ATTCCAAAGTTACGTCATCGATGACCACGTAATGGAA spacer length:
37 repeater length: 24

10514 865618 GATAATCTACTATAGAAATTGAAAG GAATAAGCGGGGCGAAGCCGACGTGTACGCCGTGTCTTT spacer
length: 39 repeater length: 24

10515 865682 GATAATCTACTATAGAAATTGAAAG AATGAAAAGATGAGAGTAGGAAGTTTCTAGTGACTTTT

10516

10517

10518 GCA_000245275.2_ASM24527v2_genomic.fna(findCrispr):

10519 START REPEAT
SPACER

10520 crispr 1

10521 888613 GATAATCTACTATAGAAATTGAAA GTGTTTTGTATACAGACTCACGAAGTTATAGCCGTACCA spacer
length: 39 repeater length: 23

10522 888676 GATAATCTACTATAGAAATTGAAA GGCGACGGCGGGGTAGAAAAATATAAGTCTCCCCGCCA spacer
length: 39 repeater length: 23

10523 888739 GATAATCTACTATAGAAATTGAAA GTTTGCTGTACGTAAATTTGTATACCATTAGTAGATGGA spacer
length: 39 repeater length: 23

10524 888802 GATAATCTACTATAGAAATTGAAA GGGCGATGATGTTAATTCAGTCTCATAAAATCCTAGATTAGA spacer
length: 42 repeater length: 23

10525 888868 GATAATCTACTATAGAAATTGAAA GCAAACAAACATCTATGTGTTATGCTTACCGACAAACAC spacer
length: 39 repeater length: 23

10526 888931 GATAATCTACTATAGAAATTGAAA GCAACTATGAAGACGAAAATGTAGATGATGTAGCTAGGTATG spacer
length: 42 repeater length: 23

10527 888997 GATAATCTACTATAGAAATTGAAA GATCTCCTATACTGACTTTAAACCCGCCGACTATTTTCTCT spacer
length: 41 repeater length: 23

10528 889062 GATAATCTACTATAGAAATTGAAA GGAATAGAACTATAGCAGAAATAACAGCTTGCCTCCGA spacer
length: 39 repeater length: 23

10529 889125 GATAATCTACTATAGAAATTGAAA GAATTTTATGACTACGCCACCCATACCTTTAGCACGTA spacer length:
38 repeater length: 23

10530 889187 GATAATCTACTATAGAAATTGAAA GTTCTTGTAATGTCGTTATGTTACCATCATCTTTAATCT spacer
length: 39 repeater length: 23

10531 889250 GATAATCTACTATAGAAATTGAAA GATATTTTTACTTCAAACATGAAGACCCATTATTACAACCT spacer
length: 40 repeater length: 23

10532 889314 GATAATCTACTATAGAAATTGAAA GTTTAAGGAGATGGTTTTATGAAAATTGCAGATAAGGTCA spacer
length: 40 repeater length: 23

10533 889378 GATAATCTACTATAGAAATTGAAA GTATTTACACCGCCTTTCCCATTACCCTATCGCGGTT spacer length:
37 repeater length: 23

10534 889439 GATAATCTACTATAGAAATTGAAA GCCATATCCAGGATTTCCCTGTGGAGGCCACCAGAAT spacer length:
37 repeater length: 23

10535 889500 GATAATCTACTATAGAAATTGAAA GTTGTAATAAATATTGGCTACCATTATGATACTCTACT spacer length:
38 repeater length: 23

10536 889562 GATAATCTACTATAGAAATTGAAA AGTGATTTCCACTTCTTGAAGTGTGTAGTTTGTGTTGATATC spacer
length: 41 repeater length: 23

10537 889627 GATAATCTACTATAGAAATTGAAA GTACTTACACCCTTGTTTTAAGTATCTATTTTTGGGT spacer length:
38 repeater length: 23

10538 889689 GATAATCTACTATAGAAATTGAAA GGTGGGGGTGGGGGAACCCCCGCGGGGTTTACTGAAC spacer length:
38 repeater length: 23

10539 889751 GATAATCTACTATAGAAATTGAAA GCGTGATAATTATAAATGGGCTGAGGCTATGGGTAATAAAGT spacer
length: 42 repeater length: 23

10540 889817 GATAATCTACTATAGAAATTGAAA GTTAAATGATCCAATAGGATTTGTAATTGTTGTAGAA spacer length:
37 repeater length: 23

10541 889878 GATAATCTACTATAGAAATTGAAA GAACCTAAGGTAAAGGCTTCTACGTGCTGTTTTAGGTCA spacer
length: 39 repeater length: 23

10542 889941 GATAATCTACTATAGAAATTGAAA GAAGTAGGTACGTATAAGTCCGCATTCACACGTTTAAC spacer length:
38 repeater length: 23

10543 890003 GATAATCTACTATAGAAATTGAAA GTCAGTCGTTTTCAACGGCTGTAAACATTGACTATTCAAAT spacer
length: 40 repeater length: 23

10544 890067 GATAATCTACTATAGAAATTGAAA GACTCCACCTCGTCTCCACTACCACCAACTGTATTCAA spacer
length: 40 repeater length: 23

10545 890131 GATAATCTACTATAGAAATTGAAA GGTGTACATCCATCATTGCTTTTATTGAACAGATTATGTCATT spacer
length: 43 repeater length: 23

10546 890198 GATAATCTACTATAGAAATTGAAA GGCACCCTCACTAGCCTTTATAAGATCAGTAGAAATTTT spacer
length: 39 repeater length: 23

10547 890261 GATAATCTACTATAGAAATTGAAA GTCTAGTATAACTTTATACAAAAGCGGAAGTGC AAATA spacer length:
38 repeater length: 23

10548 890323 GATAATCTACTATAGAAATTGAAA GATTGTTTTCTTATTTTCTTATCCATCATACTTTCTTCCC spacer
length: 40 repeater length: 23

10549 890387 GATAATCTACTATAGAAATTGAAA GGTAATAGATAATTCCTCGTTTCTATCGTTGAAAGGATC spacer
length: 39 repeater length: 23

10550 890450 GATAATCTACTATAGAAATTGAAA GATAGCAATATGATGTACTATATTTAAATGAAAACTG spacer length:
38 repeater length: 23

10551 890512 GATAATCTACTATAGAAATTGAAA GTACTTTTTCTTCACCTTTGATATTTAATTTTACTATGA spacer
length: 39 repeater length: 23

10552 890575 GATAATCTACTATAGAAATTGAAA GGTTATTCTATTAAATGTGCATACTTCTTGATTTGCCGCCA spacer
length: 41 repeater length: 23

10553 890640 GATAATCTACTATAGAAATTGAAA GCTAGTGCCAGGGTTCAGGGGTGTACCCTCACTGCCAC spacer length:
38 repeater length: 23

10554 890702 GATAATCTACTATAGAAATTGAAA GTTTAGATTAAGTTTTACATAAATTATAGACACGATAAC spacer
length: 39 repeater length: 23

10555 890765 GATAATCTACTATAGAAATTGAAA GATCATCAGGCCCATGAGCGTTTTGCCGGTGCCGGTCG spacer length:
38 repeater length: 23

10556 890827 GATAATCTACTATAGAAATTGAAA GAGGACGTAATTCTACAATTGTTCTAGTAACCTTGGGGCGG spacer
length: 43 repeater length: 23

10557 890894 GATAATCTACTATAGAAATTGAAA GATAAAATTGAAGGGCATGGAACAAGACGTTATAGAGGAA spacer
length: 40 repeater length: 23

10558 890958 GATAATCTACTATAGAAATTGAAA GAAATGCGTATCAAGTTGCAGAGCAGAACAATATAAGTAG spacer
length: 40 repeater length: 23

10559 891022 GATAATCTACTATAGAAATTGAAA GATCTTCAAAATATGCCTTAATTCGTCTTCGGACGTCGC spacer
length: 39 repeater length: 23

10560 891085 GATAATCTACTATAGAAATTGAAA GTCATAAGGTTTTACTGTTGCAGTAGGTGTTAAATTAG spacer length:
38 repeater length: 23

10561 891147 GATAATCTACTATAGAAATTGAAA GTTCTAATAGCTGAACCCCTGCTTGATAGTCTCTATTA spacer length:
38 repeater length: 23

10562 891209 GATAATCTACTATAGAAATTGAAA
GAAACAACTTCTCAACCATCAACAACACCACCTACATCGGATAATCTACTATAGAAGTTGAAAGAACAACCTGGATTTTTTGAATG
ATTGACACTTTTATGACTA spacer length: 105 repeater length: 23

10563 891338 GATAATCTACTATAGAAATTGAAA GATCGACATGTTGGGGACCTTTAGTATGGGCATATTTGA spacer
length: 39 repeater length: 23
10564 891401 GATAATCTACTATAGAAATTGAAA GTGGATCTGAGTTTTTAAACGATTTTCTTAGCAAAGTGGGGGAG spacer
length: 44 repeater length: 23
10565 891469 GATAATCTACTATAGAAATTGAAA GATGTCGTTAAATGCATTTGATAGTAAATTTACCGCATTT spacer
length: 40 repeater length: 23
10566 891533 GATAATCTACTATAGAAATTGAAA GTATATGCCATCACTCACACCAGCATTAGCAGTAGCGG spacer length:
38 repeater length: 23
10567 891595 GATAATCTACTATAGAAATTGAAA GATAGAAGGGGCGAAAGGAAGAGCAATAAGTGCTATCAT spacer
length: 39 repeater length: 23
10568 891658 GATAATCTACTATAGAAATTGAAA GGTTAATGACTAATTCTATAGATTTGGAGGAATATTGTA spacer
length: 39 repeater length: 23
10569 891721 GATAATCTACTATAGAAATTGAAA GAAAATATTGTTTGGTGTGTATTTATTTGTGCCAAATTA spacer
length: 40 repeater length: 23
10570 891785 GATAATCTACTATAGAAATTGAAA GTATTTATACAGTAAAGTTTTGGCAAATTCCAATTGTA spacer length:
38 repeater length: 23
10571 891847 GATAATCTACTATAGAAATTGAAA GTAGTATAATCCGCGTATTCACCGTTTATCACGTTTTCAA spacer
length: 40 repeater length: 23
10572 891911 GATAATCTACTATAGAAATTGAAA GATTAATTCTTTCTTCTTTTGTCTATAATATTTTATTTTCATCT spacer
length: 43 repeater length: 23
10573 891978 GATAATCTACTATAGAAATTGAAA GATTTTTTCCCAAACCGATTTGAGAAACGAAAAAACTCAT spacer
length: 41 repeater length: 23
10574 892043 GATAATCTACTATAGAAATTGAAA GATAAACTAAATATTGACGTGAAACCGCAACTAATAGATA spacer
length: 40 repeater length: 23
10575 892107 GATAATCTACTATAGAAATTGAAA GATAACAATAATAAATGTTACTATTGAGGGCGTATTATTTCCCA spacer
length: 43 repeater length: 23
10576 892174 GATAATCTACTATAGAAATTGAAA GTTGTAGTTGCATCTCCTTATTGCCGTTTCTGAACTTCTTT spacer
length: 41 repeater length: 23
10577 892239 GATAATCTACTATAGAAATTGAAA GAAAAGAGTATTAATTGATCTGGCTATAGCGTCCTTCCTTA spacer
length: 41 repeater length: 23
10578 892304 GATAATCTACTATAGAAATTGAAA GAGATTTTGTAGTGTCTTCTTGCAGCAGTAAAGCTCTA spacer length:
37 repeater length: 23
10579 892365 GATAATCTACTATAGAAATTGAAA GCTATCGGCTTATATCTAACATCCTCTGGGAGGCTTTCCA spacer
length: 40 repeater length: 23
10580 892429 GATAATCTACTATAGAAATTGAAA GGGCGTGTGCGCTCATCTTTATCAATTTCGTAAAGCTCCAT spacer
length: 40 repeater length: 23
10581 892493 GATAATCTACTATAGAAATTGAAA GGTATGCTTATCGTATAAAGTAATTTGCCAAAGTTGTAC spacer
length: 39 repeater length: 23
10582 892556 GATAATCTACTATAGAAATTGAAA GTTCGATTTTGGGAATCCACCGCCCAGCAATTTCGCAGA spacer
length: 39 repeater length: 23
10583 892619 GATAATCTACTATAGAAATTGAAA GAACTCCAGTACTGCTTCGCCGTAGGATCCGTCCTCAGAC spacer
length: 40 repeater length: 23
10584 892683 GATAATCTACTATAGAAATTGAAA GTTTCTATTAAGAGAAAGTTACACTTTATCAAAAGACAC spacer
length: 39 repeater length: 23
10585 892746 GATAATCTACTATAGAAATTGAAA GAGAAACAGTGTATGGGATAAATTAGGTATAAGTGGC spacer length:
37 repeater length: 23
10586 892807 GATAATCTACTATAGAAATTGAAA GCCACCACCACAGTATATAATACATTTGATGGATTATTA spacer
length: 39 repeater length: 23
10587 892870 GATAATCTACTATAGAAATTGAAA GTACTTCATCACGTCCACGTTTGTATTTTTGTTGATTTA spacer
length: 40 repeater length: 23
10588 892934 GATAATCTACTATAGAAATTGAAA GATTCCAAAGTTACGTCATCGATGACCACGTAATGGAA spacer length:
38 repeater length: 23
10589 892996 GATAATCTACTATAGAAATTGAAA GGAATAAGCGGGGCGAAGCCGACGTGTACGCCGTGTCTTT spacer
length: 40 repeater length: 23
10590 893060 GATAATCTACTATAGAAATTGAAA GTCTTATATAAAATCAAAATTGTATGAAATCCAAGCTGAAGTTTT spacer
length: 45 repeater length: 23
10591 893129 GATAATCTACTATAGAAATTGAAA CATGCTCAAAGCAAGTGATGGGACGATTACTAACCTACGATCAAT
10592
10593
10594 crispr 2
10595 878592 CTTTCAATTCTATAGTAGATTATC TAGGTTAAGAAGGGGAGAATTTTCTCAGTCTGGAGGAG spacer
length: 38 repeater length: 24
10596 878655 CTTTCAATTCTATAGTAGATTATC
GTATAAGTTATAATACAAATCCTAACACGTCATTCTGGCTTTCAATTCTATAGAAGATTATCACCTAAAAAGAAGAAAATAGTAA
TAATATAATACAA spacer length: 99 repeater length: 24
10597 878779 CTTTCAATTCTATAGTAGATTATC GGACTCCGTTCTTGTAGAGCCGAACAGCCCCACTCTGA spacer
length: 38 repeater length: 24
10598 878842 CTTTCAATTCTATAGTAGATTATC AATTTTTGTTTTAATGAAGGGTTATTAGCAATTAATTGT spacer
length: 39 repeater length: 24
10599 878906 CTTTCAATTCTATAGTAGATTATC TAAATAGGCGTTCTATAATGGTAGAATAAGCGTTTAA spacer
length: 38 repeater length: 24

10600	878969 CTTTCAATTCTATAGTAGATTATC	TAATATCGTGTTTTCAATCATGGGCTATAAGTACTAT spacer length: 37 repeater length: 24
10601	879031 CTTTCAATTCTATAGTAGATTATC	ACTTCTTTTATCTTGCTAAGCAATCTTACGAGAAGAGCT spacer length: 38 repeater length: 24
10602	879094 CTTTCAATTCTATAGTAGATTATC	GGAAC TACTTGAGGATGAGGGAATAAAAGGTACTGCAAA spacer length: 39 repeater length: 24
10603	879158 CTTTCAATTCTATAGTAGATTATC	TGAGGCAACGCATTGCTTATCGGTGCTTCTTCGTTATT spacer length: 38 repeater length: 24
10604	879221 CTTTCAATTCTATAGTAGATTATC	ACCTGCAACATCAAAAATGAAAAC TGGGTGTAAAAA spacer length: 37 repeater length: 24
10605	879283 CTTTCAATTCTATAGTAGATTATC	ATCATCAGTACAAAATGTTGATGCTAATAATCTCTAT spacer length: 37 repeater length: 24
10606	879345 CTTTCAATTCTATAGTAGATTATC	AAGTGTAATGATAATGCAGTGGTATTAATAAATCCCGATA spacer length: 41 repeater length: 24
10607	879411 CTTTCAATTCTATAGTAGATTATC	ATTATATTGAGTGAATATAATAACTTTAATGATGAGATTA spacer length: 40 repeater length: 24
10608	879476 CTTTCAATTCTATAGTAGATTATC	TAATAGTTTATTATATTTCTGCAGCTTGTGTATAACTTT spacer length: 40 repeater length: 24
10609	879541 CTTTCAATTCTATAGTAGATTATC	ATGGCAAAAACAATTAGGAACCCCGAAACCGCAGTAAATAA spacer length: 41 repeater length: 24
10610	879607 CTTTCAATTCTATAGTAGATTATC	AAGAAGCTCTAATGTTTCGGTTTCCAGGGTATAGATGTCA spacer length: 39 repeater length: 24
10611	879671 CTTTCAATTCTATAGTAGATTATC	CTGTTAAAACGAACAAC TTAGTCTTAGGTTTAACCACA spacer length: 38 repeater length: 24
10612	879734 CTTTCAATTCTATAGTAGATTATC	CTCGCAACGGCTAGGGGTAAGACATTCTCAGACATTCTAA spacer length: 40 repeater length: 24
10613	879799 CTTTCAATTCTATAGTAGATTATC	AAAAAATTAGAGTAGGTAGTTTTGTAAAGCGTATAAAAT spacer length: 39 repeater length: 24
10614	879863 CTTTCAATTCTATAGTAGATTATC	AAGAAGCTCTAATGTTTCGGTTTCCAGGGTATAGATGTCA spacer length: 39 repeater length: 24
10615	879927 CTTTCAATTCTATAGTAGATTATC	CTGTTAAAACGAACAAC TTAGTCTTAGGTTTAACCACA spacer length: 38 repeater length: 24
10616	879990 CTTTCAATTCTATAGTAGATTATC	CTCGCAACGGCTAGGGGTAAGACATTCTCAGACATTCTAA spacer length: 40 repeater length: 24
10617	880055 CTTTCAATTCTATAGTAGATTATC	AAAAAATTAGAGTAGGTAGTTTTGTAAAGCGTATAAAAT spacer length: 39 repeater length: 24
10618	880119 CTTTCAATTCTATAGTAGATTATC	TCTTTGGACCGATGGAAAGCGGAAAGACTACATTCGTTAAA spacer length: 41 repeater length: 24
10619	880185 CTTTCAATTCTATAGTAGATTATC	TAGATCCACTAAATCCTCCAGCAGAGCTAGAGCTACTAGT spacer length: 40 repeater length: 24
10620	880250 CTTTCAATTCTATAGTAGATTATC	GGAGCTATTCTTCTAAGTCTTGAAC TACTAACTGATTA spacer length: 39 repeater length: 24
10621	880314 CTTTCAATTCTATAGTAGATTATC	TATGCGTTTATACCATCACCTGCAGTATTATTTCCAAC T spacer length: 39 repeater length: 24
10622	880378 CTTTCAATTCTATAGTAGATTATC	TAGGTTTACGTCCTTGAATGAAGTCTATGACGTCAA spacer length: 36 repeater length: 24
10623	880439 CTTTCAATTCTATAGTAGATTATC	ACAAACTAATTACCAAGGGGTGAGCTAAATGGTAGATAA spacer length: 39 repeater length: 24
10624	880503 CTTTCAATTCTATAGTAGATTATC	TCTTTAATAGCTCTTGGTTTACTTTACCTAAAATCGTAT spacer length: 39 repeater length: 24
10625	880567 CTTTCAATTCTATAGTAGATTATC	TTTTGAGGGATGCAGTCATAGCATACATCTCAAATAAGC spacer length: 39 repeater length: 24
10626	880631 CTTTCAATTCTATAGTAGATTATC	GAAATTTTAGAAATGGGCGGAAAAATTATAGTAGGAGTAT spacer length: 40 repeater length: 24
10627	880696 CTTTCAATTCTATAGTAGATTATC	ATGCAACACTAATCAATGTCCAATTCAATATTCTACAAA spacer length: 39 repeater length: 24
10628	880760 CTTTCAATTCTATAGTAGATTATC	AATTTCCCTAATTCCTCGTTGTAGGAGAAGCCTTCGA spacer length: 36 repeater length: 24
10629	880821 CTTTCAATTCTATAGTAGATTATC	ATCATTCGTTTTTTAAACCTAATATTATATTTTCATATAA spacer length: 38 repeater length: 24
10630	880884 CTTTCAATTCTATAGTAGATTATC	GCGTTGAGCCACTAAGTCCAGTAGAGCTAGAACTAGAGCTAT spacer length: 42 repeater length: 24
10631	880951 CTTTCAATTCTATAGTAGATTATC	ATTAGTTCATCAGTATCTTTATATCCTTTTGCTATC spacer length: 36 repeater length: 24
10632	881012 CTTTCAATTCTATAGTAGATTATC	TTTCTAACGACAGTCTCAGATGAGGTTACAAAAGGCATA spacer length: 39 repeater length: 24
10633	881076 CTTTCAATTCTATAGTAGATTATC	CAGATAAGTGAATACGTGATGAGGGCAAATCACGGA spacer length: 36 repeater length: 24
10634	881137 CTTTCAATTCTATAGTAGATTATC	TCTGAACAGGCTCTCCGACCTCCGAACCCCGTCTACCCA spacer length: 39 repeater length: 24
10635	881201 CTTTCAATTCTATAGTAGATTATC	CTTGTGACTGAAGACTTTCTAATTAAGCAATTTATG spacer length: 36 repeater length: 24

36 repeater length: 24

10636 881262 CTTTCAATTCTATAGTAGATTATC TGGGCAGAACTAAGAACTTTATATCAAGAATTCATGG spacer
length: 38 repeater length: 24

10637 881325 CTTTCAATTCTATAGTAGATTATC ATGCAGCAAAAGAACTCATGTAATAAACAGTAGAACTAT spacer
length: 39 repeater length: 24

10638 881389 CTTTCAATTCTATAGTAGATTATC GTGATTTTAGCATGATATACACGTTTTACGTAAAGC spacer length:
36 repeater length: 24

10639 881450 CTTTCAATTCTATAGTAGATTATC GTGTTTGAAGTATATTAAGAAGCAGGTGATAAAATA spacer length:
36 repeater length: 24

10640 881511 CTTTCAATTCTATAGTAGATTATC GTATGTTATAAGATGTCGTGTAATAGACCGGCTCCTTA spacer
length: 38 repeater length: 24

10641 881574 CTTTCAATTCTATAGTAGATTATC ACAAAAAGTAGAAGATATAGAACAAAACTTAAAGCAT spacer
length: 38 repeater length: 24

10642 881637 CTTTCAATTCTATAGTAGATTATC GTACAAGATGTCAATGAAGTACTAATTCTCTAGCACTCG spacer
length: 40 repeater length: 24

10643 881702 CTTTCAATTCTATAGTAGATTATC AAATGCTATAAAACAATATGCTACAAGTGCAGATATGT spacer
length: 38 repeater length: 24

10644 881765 CTTTCAATTCTATAGTAGATTATC GTGGGAAATAAATGTAACACTTACCAATCAAAATATACCA spacer
length: 40 repeater length: 24

10645 881830 CTTTCAATTCTATAGTAGATTATC ATAAAATGTAAATAGTCATGTTTCATCATCAACTACAATTT spacer
length: 40 repeater length: 24

10646 881895 CTTTCAATTCTATAGTAGATTATC AAAAATGATTACAATAAAAGAGCAAAATTATCAGGTACC spacer
length: 39 repeater length: 24

10647 881959 CTTTCAATTCTATAGTAGATTATC TGTCTCATACTCTAGTTGCAAACGCATCTTTACTGCAT spacer
length: 38 repeater length: 24

10648 882022 CTTTCAATTCTATAGTAGATTATC ATAGCAATAGTGATAAATGGTACAAGATACACTGAAGTT spacer
length: 39 repeater length: 24

10649 882086 CTTTCAATTCTATAGTAGATTATC ATAGTCAAGACTTTGCACATTTATGTTACCACTAAGGTACA spacer
length: 41 repeater length: 24

10650 882152 CTTTCAATTCTATAGTAGATTATC AACTTAACGATAGTATGATTGATGCATTGATGGATAGAA spacer
length: 39 repeater length: 24

10651 882216 CTTTCAATTCTATAGTAGATTATC ATTCGCAATTGTAAGTGGTCTTAGTATTGGTTCAACGTAT spacer
length: 40 repeater length: 24

10652 882281 CTTTCAATTCTATAGTAGATTATC GACGATTATTACGTTTATATTAGCGAACTACTGATGAAA spacer
length: 40 repeater length: 24

10653 882346 CTTTCAATTCTATAGTAGATTATC AAGCCAAGAAAAAGCGTGGAGCAAAACTTAAAGCAT spacer length:
37 repeater length: 24

10654 882408 CTTTCAATTCTATAGTAGATTATC GCGTATTTACAGGAAACCAATTATGCAACTCTTATACATG spacer
length: 40 repeater length: 24

10655 882473 CTTTCAATTCTATAGTAGATTATC AACGCTTCAAGTGCTTGTGAAAACCCGTTTTCTAACGAAT spacer
length: 40 repeater length: 24

10656 882538 CTTTCAATTCTATAGTAGATTATC GATCACAAGAAATAACTACTGCAACATTTTATGCATCAG spacer
length: 39 repeater length: 24

10657 882602 CTTTCAATTCTATAGTAGATTATC AATATGTTATACAGTATTGTATACGTAGCTAAAT spacer length: 34
repeater length: 24

10658 882661 CTTTCAATTCTATAGTAGATTATC TAACGAATTAGGGAACTCATAAGCTAAATAACAACGT spacer
length: 38 repeater length: 24

10659 882724 CTTTCAATTCTATAGTAGATTATC TAAATCTTTCTCTCTCACTAACGTGCTTTTCGGATTTAAT spacer
length: 39 repeater length: 24

10660 882788 CTTTCAATTCTATAGTAGATTATC CACTATCAAATAGTGGGAATACATTAACAATAAGTGTC spacer
length: 38 repeater length: 24

10661 882851 CTTTCAATTCTATAGTAGATTATC TAGTGCCAAATAGCGATATCAGTTTGCTAATTACTGAAA spacer
length: 39 repeater length: 24

10662 882915 CTTTCAATTCTATAGTAGATTATC TGGATGGGCATTTTTTACCCTAATTTAACTAACTCATTC spacer
length: 40 repeater length: 24

10663 882980 CTTTCAATTCTATAGTAGATTATC GCCCAATGTAGTAAAGAATTTCTGGAACAAATTACTAG spacer
length: 39 repeater length: 24

10664 883044 CTTTCAATTCTATAGTAGATTATC CAACACCATCGCTATGTTTTGTCTGGAATTTGAAGATCA spacer
length: 39 repeater length: 24

10665 883108 CTTTCAATTCTATAGTAGATTATC TAAAGTTTTCTGTTTTCAAAAAGTGAAAAGCTTTATAAT spacer
length: 39 repeater length: 24

10666 883172 CTTTCAATTCTATAGTAGATTATC CTTTCATCAGTTTAATCAGGTCGTTTTTCATGAGAAAT spacer length:
37 repeater length: 24

10667 883234 CTTTCAATTCTATAGTAGATTATC GAAAGAAGGTTGCGAAGAATATACTTCTAACGCTAAAG spacer
length: 38 repeater length: 24

10668 883297 CTTTCAATTCTATAGTAGATTATC AGTACTCCAGTTATCGAGCTTAGGTTTATTGCAGACGTT spacer
length: 39 repeater length: 24

10669 883361 CTTTCAATTCTATAGTAGATTATC AAGAAGTATATCTATATCCGTTACTATTCACTAAGTCAA spacer
length: 39 repeater length: 24

10670 883425 CTTTCAATTCTATAGTAGATTATC CTACATGAGGAAATGCTATACTTTATTGTAAGACGTA spacer length:
37 repeater length: 24

10671 883487 CTTTCAATTCTATAGTAGATTATC GTTGCTGCAGCACTTAAATTAATCACGATGGGTTTCATCC spacer
length: 39 repeater length: 24
10672 883551 CTTTCAATTCTATAGTAGATTATC ACTCCACGCTGTCTCTTTTTGAACGTTTCGATCATCA spacer length:
37 repeater length: 24
10673 883613 CTTTCAATTCTATAGTAGATTATC GCCATCAATAAGTTCAACTGGGTTGAGGGTGTTCCTTA spacer
length: 39 repeater length: 24
10674 883677 CTTTCAATTCTATAGTAGATTATC TATATTTAAATTATATGCTAACTCGTTATTCATTACTTT spacer
length: 39 repeater length: 24
10675 883741 CTTTCAATTCTATAGTAGATTATC AAAAGAAATAACGGCATCTATTGGGAGACTTCGTGCTA spacer
length: 38 repeater length: 24
10676 883804 CTTTCAATTCTATAGTAGATTATC TACTAAATCATATAACAACCGTGCTTCATATTCATTTA spacer
length: 38 repeater length: 24
10677 883867 CTTTCAATTCTATAGTAGATTATC CTGCAGATGCCTGGCCTATAAGAGTTTATAATCCTTAA spacer
length: 38 repeater length: 24
10678 883930 CTTTCAATTCTATAGTAGATTATC GCATCATCAAGTGGTCTAAATATTTTCATCAGTATCTA spacer length:
37 repeater length: 24
10679 883992 CTTTCAATTCTATAGTAGATTATC ATAATGTAAGTTGGATTTTGTAGTAGAGTCTTTATT
10680
10681
10682 crispr 3
10683 853218 GATTAATCCTAAAAGGAATTGAAAG ATTATCAAACGGATGGGTAAACCTATATAAAACATCGCC spacer
length: 39 repeater length: 25
10684 853283 GATTAATCCTAAAAGGAATTGAAAG ATAGTCTATTTATCGTCTTCTTACCCTACAGCGAATTCC spacer
length: 39 repeater length: 25
10685 853348 GATTAATCCTAAAAGGAATTGAAAG TTTATACAATGAACATAATTCTTCATCGTTGTATTGT spacer
length: 37 repeater length: 25
10686 853411 GATTAATCCTAAAAGGAATTGAAAG ATAATTATGAATAGATCAAATAATAAGAGAAACGAT spacer length:
36 repeater length: 25
10687 853473 GATTAATCCTAAAAGGAATTGAAAG AACGTACCGCATGTTTCATATCCCTGTAAAGTATTTAG spacer
length: 37 repeater length: 25
10688 853536 GATTAATCCTAAAAGGAATTGAAAG CTATCTAGTTCCTCTCTAATATTTTTATTAATCTTAAGAT spacer
length: 40 repeater length: 25
10689 853602 GATTAATCCTAAAAGGAATTGAAAG TCTTCGGAGTAGTAAGGAACTCTTATTTACCTAAAAA spacer
length: 38 repeater length: 25
10690 853666 GATTAATCCTAAAAGGAATTGAAAG TCACTTATTTTCTTCATTATCTGAGTGTGACAACGTCTT spacer
length: 40 repeater length: 25
10691 853732 GATTAATCCTAAAAGGAATTGAAAG ACAATTCCTACGCCTGGGACTTTTACTTTCTCCTTCTCC spacer
length: 39 repeater length: 25
10692 853797 GATTAATCCTAAAAGGAATTGAAAG TTCATGGGCGGGTCACCTCATCCTTTCCCTTTATTTTCAT spacer
length: 39 repeater length: 25
10693 853862 GATTAATCCTAAAAGGAATTGAAAG CCTTGTAACCTTTACAGTAAGAAGCTGGATTAGGATTT spacer
length: 37 repeater length: 25
10694 853925 GATTAATCCTAAAAGGAATTGAAAG AAGAATTTTGCTAACTGTTCTTTATTCGCAAGAGTTA spacer
length: 37 repeater length: 25
10695 853988 GATTAATCCTAAAAGGAATTGAAAG ATAGTCCAGTTTTAGCAGTACTTTATTCTTATGTAT spacer length:
36 repeater length: 25
10696 854050 GATTAATCCTAAAAGGAATTGAAAG ACTTTAATTCTAGACCAGTCCGATAGGATATCTCT spacer length:
35 repeater length: 25
10697 854111 GATTAATCCTAAAAGGAATTGAAAG TAGATTAAACGAAGAGGAAAAGAGAATGCTAGAAG spacer length:
35 repeater length: 25
10698 854172 GATTAATCCTAAAAGGAATTGAAAG GTACCAGCAAACGGTTATGGTCTGATTTATGCTTATTTT spacer
length: 39 repeater length: 25
10699 854237 GATTAATCCTAAAAGGAATTGAAAG ACATAGATGATCTTATAACCCCTTAACGTCTCTTCCGGCAA spacer
length: 41 repeater length: 25
10700 854304 GATTAATCCTAAAAGGAATTGAAAG AACTCTAGTTTTATTGGTTTCTTTTCCCCCTTATTCT spacer
length: 37 repeater length: 25
10701 854367 GATTAATCCTAAAAGGAATTGAAAG AAATATTAAAGTTTTGCATTCTTTGTACGCGTCACCAA spacer
length: 38 repeater length: 25
10702 854431 GATTAATCCTAAAAGGAATTGAAAG ATATTTTTAAGCTTCTTAGTAAAAGAAGGATATCT spacer length:
35 repeater length: 25
10703 854492 GATTAATCCTAAAAGGAATTGAAAG ATTGTTAAATCAGTTATTCTCGGTCTCATTATAAAATTC spacer
length: 39 repeater length: 25
10704 854557 GATTAATCCTAAAAGGAATTGAAAG CACTACTTGTGTATATGCGTAACTATTAGAATTGATAT spacer
length: 39 repeater length: 25
10705 854622 GATTAATCCTAAAAGGAATTGAAAG TTCAAATACCCTAATTGTTCTCTCTACCTCATTTAGAT spacer
length: 38 repeater length: 25
10706 854686 GATTAATCCTAAAAGGAATTGAAAG TTAGTATATCATATGCTTCCTTCATCATGTCAATAT spacer length:
36 repeater length: 25
10707 854748 GATTAATCCTAAAAGGAATTGAAAG GGGCAACCACCCTTCACGGGGTGGTTCGGGTAGCACCCACCTACCCGTTACC
spacer length: 51 repeater length: 25
10708 854825 GATTAATCCTAAAAGGAATTGAAAG ATATTTTCAACTCTATAGCCGTTTTTCATGCATTCTTCTGA spacer

length: 41 repeater length: 25
10709 854892 GATTAATCCTAAAAAGGAATTGAAAG TCGTATATCTGTACAATCTTCAATTCGTTAAGTAGTTT spacer
length: 38 repeater length: 25
10710 854956 GATTAATCCTAAAAAGGAATTGAAAG AATTCCTTTTATCTTTGCTTCCAGCTCTTCTATCTTCTT spacer
length: 38 repeater length: 25
10711 855020 GATTAATCCTAAAAAGGAATTGAAAG TTAGCTAGATCAGCTGCTTCAGCTTCTCTCAGCGCTCT spacer
length: 38 repeater length: 25
10712 855084 GATTAATCCTAAAAAGGAATTGAAAG CCGCCCTACTTGTTTTTATATTAAATGCTATTCC spacer length:
34 repeater length: 25
10713 855144 GATTAATCCTAAAAAGGAATTGAAAG TTAAGTCCTTTGATGTGACAGATTATATCAAAATTGA spacer
length: 37 repeater length: 25
10714 855207 GATTAATCCTAAAAAGGAATTGAAAG TGATAATCTTCAACCTTAATAAATTCGAAATAAATAT spacer
length: 37 repeater length: 25
10715 855270 GATTAATCCTAAAAAGGAATTGAAAG TTAGAACAAATCGTAAATGAGTATTATGATATGAAGTGC spacer
length: 39 repeater length: 25
10716 855335 GATTAATCCTAAAAAGGAATTGAAAG ACTTTATACTGTAGATATTTACCGGGTAGGACAAAGTA spacer
length: 38 repeater length: 25
10717 855399 GATTAATCCTAAAAAGGAATTGAAAG CTTGAATAAGCACTTATAGAATTTTTATTAATAGCTTCA spacer
length: 39 repeater length: 25
10718 855464 GATTAATCCTAAAAAGGAATTGAAAG TCTTGTCTAGTTCATCTAACAATTTTAATAGCGTCTCG spacer
length: 38 repeater length: 25
10719 855528 GATTAATCCTAAAAAGGAATTGAAAG ATAGTCACGTATATTGGATACCCAAGCTTCTCATAATT spacer
length: 38 repeater length: 25
10720 855592 GATTAATCCTAAAAAGGAATTGAAAG ATCAGTATTGGGAAGTAGATTGCTTTGCCTTTATTCTC spacer
length: 38 repeater length: 25
10721 855656 GATTAATCCTAAAAAGGAATTGAAAG CAATAATGTTTATGTCTTTTGTTCCTAAATTCT spacer length:
35 repeater length: 25
10722 855717 GATTAATCCTAAAAAGGAATTGAAAG TTTTCTTTTACCTCGATGTAAATATTTACTTCTTCA spacer
length: 37 repeater length: 25
10723 855780 GATTAATCCTAAAAAGGAATTGAAAG CTAAACCTATCAGAGTTAGCAGAATATAGTAATATTGATAT spacer
length: 41 repeater length: 25
10724 855847 GATTAATCCTAAAAAGGAATTGAAAG AGGATCTCAAGACATATGGTAACAAGTTTGTCTTCT spacer length:
36 repeater length: 25
10725 855909 GATTAATCCTAAAAAGGAATTGAAAG ATTTCTGTACATCAAGTATTTTGATGACAGTAAGAAATATT spacer
length: 40 repeater length: 25
10726 855975 GATTAATCCTAAAAAGGAATTGAAAG ACCATATCTTTCCATGCATCAGTTTCTTGACTTCCATA spacer
length: 38 repeater length: 25
10727 856039 GATTAATCCTAAAAAGGAATTGAAAG AAATCAATATATAGTGCTTCAGATAGTGGCACATA spacer length:
35 repeater length: 25
10728 856100 GATTAATCCTAAAAAGGAATTGAAAG ATATATTTCTTTACTAGTTGCTGTGACGATTTAACGCTGC spacer
length: 40 repeater length: 25
10729 856166 GATTAATCCTAAAAAGGAATTGAAAG CTAGTTATCCCTGCCCTACCGGTAAGTCTAACGAATAT spacer
length: 38 repeater length: 25
10730 856230 GATTAATCCTAAAAAGGAATTGAAAG TCTTGTAGAACTTTATCCACTTTACTTTTTCTTCG spacer length:
36 repeater length: 25
10731 856292 GATTAATCCTAAAAAGGAATTGAAAG ATATTCTTGCAATTGCTTCTAAAGTTCCAATGCTTATT spacer
length: 38 repeater length: 25
10732 856356 GATTAATCCTAAAAAGGAATTGAAAG AGGTAACCTCTAAGATAGTAAGGTAATGCTAAACGAACCA spacer
length: 40 repeater length: 25
10733 856422 GATTAATCCTAAAAAGGAATTGAAAG GTTACAAAATTAGAATACTATTTAACAACTTATCAA spacer
length: 37 repeater length: 25
10734 856485 GATTAATCCTAAAAAGGAATTGAAAG TTTAATTCTTTAATATAAGTAAGCTGTTCTACATAGA spacer
length: 37 repeater length: 25
10735 856548 GATTAATCCTAAAAAGGAATTGAAAG GACTACAATTGGCAAAGATCATTAGTTGGTAGTATA spacer
length: 37 repeater length: 25
10736 856611 GATTAATCCTAAAAAGGAATTGAAAG TATTCATATCTGCCAATGAGTAATGTATACTTCTA spacer length:
35 repeater length: 25
10737 856672 GATTAATCCTAAAAAGGAATTGAAAG GAAAGTTCTTTTTGCAGACGTTGCGCTAATCGAATAATA spacer
length: 39 repeater length: 25
10738 856737 GATTAATCCTAAAAAGGAATTGAAAG GTAAATACCAGGTTCCCTACTATAATCGTTACTGC spacer length:
36 repeater length: 25
10739 856799 GATTAATCCTAAAAAGGAATTGAAAG ATATATAGGTTCCATGTCATTGCTCCCCAACATAAT spacer
length: 37 repeater length: 25
10740 856862 GATTAATCCTAAAAAGGAATTGAAAG ACGTTCAACTTTAGCGATTATCTACTTTCTCTTCAT spacer
length: 37 repeater length: 25
10741 856925 GATTAATCCTAAAAAGGAATTGAAAG TAAGCTTATCAGATATTCTACAGCTTTGTCAAATTCTT spacer
length: 38 repeater length: 25
10742 856989 GATTAATCCTAAAAAGGAATTGAAAG TCTTTTAGTGTTGAAAGATTTGCTTTATCATTTAAAAA spacer
length: 38 repeater length: 25
10743 857053 GATTAATCCTAAAAAGGAATTGAAAG TCGTGAGGGCAGAGATAGCAAAGAAGTCAAAGTATAATG spacer
length: 39 repeater length: 25

10744 857118 GATTAATCCTAAAAGGAATTGAAAG ATAAGTTTAAACGCCTAGGGTACTCCCTGCGTAAATT spacer length: 36 repeater length: 25
10745 857180 GATTAATCCTAAAAGGAATTGAAAG GTTAAGCTCTATGTCCTGCAGGATAATACTTTT spacer length: 33 repeater length: 25
10746 857239 GATTAATCCTAAAAGGAATTGAAAG AATCATATACTGTATCGTTTCGTTACAATCACGTTATA spacer length: 37 repeater length: 25
10747 857302 GATTAATCCTAAAAGGAATTGAAAG TTGCTAATGATTCAACGTTAGTCTCTACTATTTCT spacer length: 35 repeater length: 25
10748 857363 GATTAATCCTAAAAGGAATTGAAAG TTCATGAAAACATCTCTGTCAAGTCTTTTTAATCCTAA spacer length: 38 repeater length: 25
10749 857427 GATTAATCCTAAAAGGAATTGAAAG TATTACTCTTAGCAGCTTGCTCATAATTTATACTA spacer length: 35 repeater length: 25
10750 857488 GATTAATCCTAAAAGGAATTGAAAG TATTTTGCCCAATAGGTCTTTCGGAGTTATACCTTTC spacer length: 37 repeater length: 25
10751 857551 GATTAATCCTAAAAGGAATTGAAAG TCTCATCTTTAGTGCTTCTTTCTAAGCTCTTCCCATTCTTCCTTATCTC spacer length: 50 repeater length: 25
10752 857627 GATTAATCCTAAAAGGAATTGAAAG TCTCATCTTTAGCAATAAATCATGAGTTACTGGA spacer length: 34 repeater length: 25
10753 857687 GATTAATCCTAAAAGGAATTGAAAG ATTTTTATCGCCCCGTCAATCATCAGATCTTTAAC spacer length: 35 repeater length: 25
10754 857748 GATTAATCCTAAAAGGAATTGAAAG ATAGATAGAAATTACTCTCTACTGGATCCGCAACTT spacer length: 36 repeater length: 25
10755 857810 GATTAATCCTAAAAGGAATTGAAAG TTAGGAAGAAGGGGGACTACTGTAGTGTGTGTTACAAT spacer length: 38 repeater length: 25
10756 857874 GATTAATCCTAAAAGGAATTGAAAG CATATATAGTGAATTTCTTTTGAGATAATAGATTA spacer length: 35 repeater length: 25
10757 857935 GATTAATCCTAAAAGGAATTGAAAG TAGACAGGTCAGTATAGGTCTTACCATCTAATAAAGCAA spacer length: 39 repeater length: 25
10758 858000 GATTAATCCTAAAAGGAATTGAAAG ATTACACTTAAGATTGTTGCTTTTTTACCTATTACT spacer length: 36 repeater length: 25
10759 858062 GATTAATCCTAAAAGGAATTGAAAG TTCTACACTTTCAGAGAACATAGTTTCTTTATTTAC spacer length: 36 repeater length: 25
10760 858124 GATTAATCCTAAAAGGAATTGAAAG ATAACTCTACTACTATTTTCTCATGTAAATTCCTAGTGCA spacer length: 40 repeater length: 25
10761 858190 GATTAATCCTAAAAGGAATTGAAAG CTGTTACTCAAATATTATTCACCTCCATCTTTTG spacer length: 34 repeater length: 25
10762 858250 GATTAATCCTAAAAGGAATTGAAAG TTTAATCTTATTTCTTATGTCTATGCCTTCTTCACG spacer length: 36 repeater length: 25
10763 858312 GATTAATCCTAAAAGGAATTGAAAG ATTTAAATTATATTTTAGGGCGTATCTGTCTAGCAGTTGT spacer length: 40 repeater length: 25
10764 858378 GATTAATCCTAAAAGGAATTGAAAG TTATTATTTACAGTTATTCTTATCTTTGCCATCCTCACCA spacer length: 40 repeater length: 25
10765 858444 GATTAATCCTAAAAGGAATTGAAAG TCAAATGAGTAATTTTCTTCATGCAACATAATTCA spacer length: 37 repeater length: 25
10766 858507 GATTAATCCTAAAAGGAATTGAAAG TCTTTCACATACGTTTCTATACGCTTCTTCTTCCAT spacer length: 37 repeater length: 25
10767 858570 GATTAATCCTAAAAGGAATTGAAAG TATAATGTAAGTTGGATTTTGTAAGTAGAGTCTTTAT
10768
10769
10770 GCA_000246985.3_ASM24698v3_genomic.fna(findCrispr):
10771 START REPEAT
10772 SPACER
10773 crispr 1
10774 860438 AATTCTTTT AAAGTCTTATTGGAAGTGAAGGTTTCCAGGTATCCTTATACCGTGATCCTCCCTTT spacer length: 57 repeater length: 9
10775 860505 AATTCTTTT AAAGTCTTATTGGAAGTAGACGATGTTAAGAAGTTTGCTTTTGAAGTTCAAGACTTT spacer length: 57 repeater length: 9
10776 860572 AATTCTTTT AAAGTCTTATTGGAACCCGGCGACTGTCCAAGAGGTAAATGGTCGTTTTGCGGTTCTTAAGCTTT spacer length: 65 repeater length: 9
10777 860647 AATTCTTTT AAAGTCTTATTGGAAGTACTCCACCGATAACCGCACCGGCTATTGTTCCAACCTCCCTTT spacer length: 60 repeater length: 9
10778 860717 AATTCTTTT AAAGTCTTATTGGAACATCCTGACGCCTTAAGAACATAATGCCAGTCTGTGCTCTTT spacer length: 57 repeater length: 9
10779 860784 AATTCTTTT AAAGTCTTATTGGAACGTTCTAATAGGCGTTGGAGTACTCTACATGTTGCTGAGCTTT spacer length: 58 repeater length: 9
10780 860852 AATTCTTTT AAAGTCTTATTGGAACGCCAGAACAACCTCGCTGACCAAGTCGCCGGAACACTCTTT spacer length: 57 repeater length: 9
10781 860919 AATTCTTTT AAAGTCTTATTGGAACAGCTAAGGAAGGTGACTATTCTACAGCCATAGTCGGCTTT spacer length: 57 repeater length: 9
10782 860986 AATTCTTTT AAAGAATTGAAAGACAGGACTAAGCGGGGCAGTTTACGAGGGCTATATTGTTCCAAT

10783
10784 crispr 2
10785 31 TTCAATTCTTCTAAAGTCTTATTGGAA CAGCTTGATGGCTTTGAATGAAAAAACTGCGCTCTTGAC spacer
length: 39 repeater length: 27
10786 98 TTCAATTCTTCTAAAGTCTTATTGGAA CTAAACTTGCTTGAGATTTTCGCGGCGATTTTACTATAC spacer length:
38 repeater length: 27
10787 164 TTCAATTCTTCTAAAGTCTTATTGGAA CAAAGACAACCTCGTAACAATTGGGTTGGTCTTGCTGTTC spacer
length: 39 repeater length: 27
10788 231 TTCAATTCTTCTAAAGTCTTATTGGAA CTTGAAAAAGAACTCAGGGAGCAATCAACCTATACAACGAC spacer
length: 41 repeater length: 27
10789 300 TTCAATTCTTCTAAAGTCTTATTGGAA CACAGTAGAGCAGACAGTAAATGCGCTCGCAAGCATACCTAC spacer
length: 42 repeater length: 27
10790 370 TTCAATTCTTCTAAAGTCTTATTGGAA CACGGGAACGCGACCGAAGAGGACGTGCAACTATTGTTAAAGAAC spacer
length: 45 repeater length: 27
10791 443 TTCAATTCTTCTAAAGTCTTATTGGAA TTCCCCCTTATGTTAGCTATAGGGTTTCTAGGTCTTTTGG spacer
length: 40 repeater length: 27
10792 511 TTCAATTCTTCTAAAGTCTTATTGGAA CGGGCGAAACTAGAGTCCCTAAAGCCGGATGGCTAGAAC spacer
length: 39 repeater length: 27
10793 578 TTCAATTCTTCTAAAGTCTTATTGGAA CTAGAGGGGCAACGACCGCCCAAATAATGCAGATTTTC spacer
length: 38 repeater length: 27
10794 644 TTCAATTCTTCTAAAGTCTTATTGGAA CATAGACTTTAACCCATGCTGTACAGTCTATAAAATCTC spacer
length: 39 repeater length: 27
10795 711 TTCAATTCTTCTAAAGTCTTATTGGAA CAAGAATACCTAGAAACGAAATTCGGGGGCGGTGAATGAC spacer
length: 40 repeater length: 27
10796 779 TTCAATTCTTCTAAAGTCTTATTGGAA CACGGATGGCATAGAAATATTATCCATGCCATCACGAAC spacer
length: 40 repeater length: 27
10797 847 TTCAATTCTTCTAAAGTCTTATTGGAA CTCTACGTCGCCCATTATGGCTATGCTCTCTTGTAATGCTC spacer
length: 41 repeater length: 27
10798 916 TTCAATTCTTCTAAAGTCTTATTGGAA CGGAATTTTCGGTCTGAATGGAAAGTAACGGATAAAGGCAAATTC spacer
length: 45 repeater length: 27
10799 989 TTCAATTCTTCTAAAGTCTTATTGGAA CGGGCGCCGTAAGTCGCCCCCTAAGTACCCGCCTTAAGGC spacer
length: 40 repeater length: 27
10800 1057 TTCAATTCTTCTAAAGTCTTATTGGAA CCACCTTTTTGTTAATTATGCTTTTGTCTTCTTTAAC spacer
length: 38 repeater length: 27
10801 1123 TTCAATTCTTCTAAAGTCTTATTGGAA CCAAATTCGATATATTAGAACGAACCGCCGGCTTAC spacer
length: 38 repeater length: 27
10802 1189 TTCAATTCTTCTAAAGTCTTATTGGAA CAGTTATTCTTTAACGGCCGATGGGGCTTTAAATGAAGAC spacer
length: 40 repeater length: 27
10803 1257 TTCAATTCTTCTAAAGTCTTATTGGAA CACGGGAACGCGACCGAAGAGGACGTGCAACTATTGTTAAAGAAC
spacer length: 45 repeater length: 27
10804 1330 TTCAATTCTTCTAAAGTCTTATTGGAA CTTCCCCCTTATGTTAGCTAATAGGGTTTCTAGGTCTTTTGGC spacer
length: 43 repeater length: 27
10805 1401 TTCAATTCTTCTAAAGTCTTATTGGAA CGGGGCGAAACTAGAGTCCCTAAAGCCGGATGGCTAGAAC spacer
length: 40 repeater length: 27
10806 1469 TTCAATTCTTCTAAAGTCTTATTGGAA CTAGAGGGGCAACGACCGCCCAAATAATGCAGATTTTC spacer
length: 38 repeater length: 27
10807 1535 TTCAATTCTTCTAAAGTCTTATTGGAA CATAGACTTTAACCCATGCTGTACAGTCTATAAAATCTC spacer
length: 39 repeater length: 27
10808 1602 TTCAATTCTTCTAAAGTCTTATTGGAA CAAGAATACCTAGAAACGAAATTCGGGGGCGGTGAATGAC spacer
length: 40 repeater length: 27
10809 1670 TTCAATTCTTCTAAAGTCTTATTGGAA CCGACTAAATCCGTTTTTATCGTCGCGGAATTATCGAC spacer
length: 38 repeater length: 27
10810 1736 TTCAATTCTTCTAAAGTCTTATTGGAA CCTAGCCTTTCCCCGCTCTTATCTCTCATATAAATGTC spacer
length: 38 repeater length: 27
10811 1802 TTCAATTCTTCTAAAGTCTTATTGGAA CTTTACGACGCCGTCCGCGACTATTTGCAAGGCGGTACCTTTC spacer
length: 43 repeater length: 27
10812 1873 TTCAATTCTTCTAAAGTCTTATTGGAA CTTAAAACATTAATGAACATTGAGAAACATTAAAAAATTC spacer
length: 41 repeater length: 27
10813 1942 TTCAATTCTTCTAAAGTCTTATTGGAA CCCGGTTCGGACGGGGCGGCTACGGGCTAGCATTCATACC spacer
length: 40 repeater length: 27
10814 2010 TTCAATTCTTCTAAAGTCTTATTGGAA CAAGCCGTTCTACAAAATGAAGACGAAGAAGACGAAC spacer
length: 37 repeater length: 27
10815 2075 TTCAATTCTTCTAAAGTCTTATTGGAA CCCAGTCCGAGCTTAACGCATGGGCTAAAGCACTAGAAAAGAC spacer
length: 43 repeater length: 27
10816 2146 TTCAATTCTTCTAAAGTCTTATTGGAA CCCTTTACAATAAGCGGCGCTGAGTTACGTATAAGGC spacer
length: 37 repeater length: 27
10817 2211 TTCAATTCTTCTAAAGTCTTATTGGAA CGGTAGATTAAGAACGGCGTTTTATTCTTAGTATTTTC spacer length:
36 repeater length: 27
10818 2275 TTCAATTCTTCTAAAGTCTTATTGGAA CTAGCTCTTGAAGTTATCACACCGTTAGGTATATGGAC spacer
length: 38 repeater length: 27
10819 2341 TTCAATTCTTCTAAAGTCTTATTGGAA CGTGGTGTTCGGACGCCGAAATCCAAATTAAAGACAATCC spacer

length: 41 repeater length: 27
10820 2410 TTCAATTCTTCTAAAGTCTTATTGGAA CTGAAGTTGATAGTTGGATGTTTAATGGTAGAAGTTTTTC spacer
length: 39 repeater length: 27
10821 2477 TTCAATTCTTCTAAAGTCTTATTGGAA CCAAGAAGGACACCTGGAGAAACACTTAACCTTGCAAGTC spacer
length: 40 repeater length: 27
10822 2545 TTCAATTCTTCTAAAGTCTTATTGGAA CTTAAAAGTTCTCTTTGGTGGTCAAACAGTCTTCCAAGCATC spacer
length: 42 repeater length: 27
10823 2615 TTCAATTCTTCTAAAGTCTTATTGGAA CCTTGAAGCGGCAATAAACTTTTTTAGGCACAACATATTC spacer
length: 40 repeater length: 27
10824 2683 TTCAATTCTTCTAAAGTCTTATTGGAA AGGACTAAGCGGGGCAGTTTACGAGGGCTATATTGTTCCA
10825
10826
10827 crispr 3
10828 208872 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AGTTGGTCTTTTTTCTATACCGTATTCTTCCGCCC spacer
length: 35 repeater length: 30
10829 208938 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GAGGATACCCAGCCATTCTGGAACATAAGTTTCGAA spacer
length: 36 repeater length: 30
10830 209005 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTTCTTACTCCCAACATTTTCAGCATTTTCTAACTAAT spacer
length: 36 repeater length: 30
10831 209072 GTTCCAATAAGACTTTTAAAAGAATTGAAAG CTTTTCAAATTCATGGTATCTCTGCCTTGCTTCATG spacer
length: 36 repeater length: 30
10832 209139 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTGAAGACCTTTGGGGGTCTCTGGCATGATGTCATCA spacer
length: 37 repeater length: 30
10833 209207 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ACAGCTTCATCTAACTTGACGACAATCTCGACATCA spacer
length: 36 repeater length: 30
10834 209274 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ACTTCTTTTCCACAGATACTACATTTCTTCTTTTCTTCCAT
spacer length: 41 repeater length: 30
10835 209346 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AGGGGGGACGCTAGAACCCCTTAAAATATTG spacer length:
31 repeater length: 30
10836 209408 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTCTTTTAGTTCCTTGAACGTTATTTCTATTTCTCT spacer
length: 36 repeater length: 30
10837 209475 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TAAAATATTGAAAAAGAAGTTACGACGGATTTAGAA spacer
length: 37 repeater length: 30
10838 209543 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AAAATGGATTATTAGCCGACGGGGCGGTACCGAT spacer
length: 35 repeater length: 30
10839 209609 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AAAACCGTAGCTACGGGTATTTTGTTCCTTCCGGG spacer
length: 36 repeater length: 30
10840 209676 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AAAGCTGGGGAGAGTGATTAAATGAAAATGAAA spacer
length: 33 repeater length: 30
10841 209740 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AGAATATTCCATCTCTAGCGCACGGCTATAAATTTTC spacer
length: 36 repeater length: 30
10842 209807 GTTCCAATAAGACTTTTAAAAGAATTGAAAG CTAGCTTCGTCAATGATATAAAGCAAATAGGGGGCAT spacer
length: 37 repeater length: 30
10843 209875 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AAACATTTTCCACGAAAAGGCTACCCTAGTGGGCATG spacer
length: 37 repeater length: 30
10844 209943 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ATATTCTAAATTTATCGAATTCTTAGAAGACTACCT spacer
length: 36 repeater length: 30
10845 210010 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GCCGACGACGTGGACGGCTAGAGAAGCGTTAAATTT spacer
length: 36 repeater length: 30
10846 210077 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TTCTTTAACAATAGTTTCGACGTCCTCTTCGGTTCG spacer
length: 35 repeater length: 30
10847 210143 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GAATCCCCCGCCCCGGATTTTCCCCGCGCTAAAGCCGCTATTAG
spacer length: 46 repeater length: 30
10848 210220 GTTCCAATAAGACTTTTAAAAGAATTGAAAG AGTTACTACTACAGTAACGAACGACACCGCTAGGTT spacer
length: 36 repeater length: 30
10849 210287 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TAGGTCTTTTGAAATTTGAGGTATACCTTTACCGTT spacer
length: 36 repeater length: 30
10850 210354 GTTCCAATAAGACTTTTAAAAGAATTGAAAG CGGTCTAAAGGGACGCGTTCACCGTCTAAGTCCGCACAA spacer
length: 39 repeater length: 30
10851 210424 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TAGGGTCTTAATGTTTCAACGAGAATAATGAGGTCAATCGAA
spacer length: 42 repeater length: 30
10852 210497 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TCAACCAGCTTGAGTATCAGGGCGATTGTAATTGCGAGAG
spacer length: 40 repeater length: 30
10853 210568 GTTCCAATAAGACTTTTAAAAGAATTGAAAG ATGTCTCTCATTCTCTCTGTTTTTTCACCGCTGACAC spacer
length: 37 repeater length: 30
10854 210636 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GAAGAGATCGATGCAAACATATGTTCTCCACCAATTGG spacer
length: 37 repeater length: 30
10855 210704 GTTCCAATAAGACTTTTAAAAGAATTGAAAG TATTGAAAACGACCCCGTGAGTAAAAAGGCAACTC spacer
length: 35 repeater length: 30
10856 210770 GTTCCAATAAGACTTTTAAAAGAATTGAAAG GAGCTTGGGTATCTAAAGACAAGTGTCGAGCCGTCTT spacer
length: 37 repeater length: 30

10857	210838	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	CTTTAAGCTGGGAGATTTACGTAGAGGTTGATGCATA	spacer
	length:	37	repeater length:	30
10858	210906	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	CACTTCCTCCGGTAAAGCCCCCTTCACTTACCAAGTCG	spacer
	length:	37	repeater length:	30
10859	210974	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	GTAAGTCGTAGTTCACAAGGTCGCTTTGGAGCTTAG	spacer
	length:	36	repeater length:	30
10860	211041	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	AATTTGAAGCAACTTTTAGTTCTGCTGATGGGCTTA	spacer
	length:	36	repeater length:	30
10861	211108	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	GTCTGGTTCGCTAAGCACTTCTTGTGCTACGTCATC	spacer
	length:	36	repeater length:	30
10862	211175	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	TGCATTGACCCTTGCAGAGAATGTGAAATGATCCG	spacer
	length:	35	repeater length:	30
10863	211241	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	ATTCATATTTTTCTCAGCATCTATTTTATGGCTTAA	spacer
	length:	36	repeater length:	30
10864	211308	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	AGAATTGGAGCACCAGCGTAGTAGGCAATTGAGAG	spacer
	length:	35	repeater length:	30
10865	211374	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	AAGCTCTTTACGATTTCAACGACTTCATACGGGATG	spacer
	length:	36	repeater length:	30
10866	211441	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	CGGATGGACTCACTGGACAAAGTGCGGTTACTGAAT	spacer
	length:	36	repeater length:	30
10867	211508	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	TAGGAAATCCCTCTTTAGAGTCCCAATGATTGCAGA	spacer
	length:	36	repeater length:	30
10868	211575	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	GGAATGATGAAGAATATTAGGCCAACCCCTATCACG	spacer
	length:	36	repeater length:	30
10869	211642	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	ATAGGCCGATGCCTTGACATCAACGTGCCGTGGAATCCA	spacer
	length:	39	repeater length:	30
10870	211712	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	ATCAATTGAAGGCTTGAAGAGGCCGCGTCCGCTTG	spacer
	length:	35	repeater length:	30
10871	211778	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	TCGCATAGGCTTCCAAAAGGTCTTCCGGCTTGCG	spacer
	length:	34	repeater length:	30
10872	211843	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	TCCTTCGCCGTCAAGGCCTTTCGTCTGATGCTTTCCTC	spacer
	length:	38	repeater length:	30
10873	211912	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	TGAGTGGTGGGATGAGAACGTGTACTAACCCCTTC	spacer
	length:	34	repeater length:	30
10874	211977	GTTCCAATAAGACTTTTAAAAGAATTGAAAG	GAACGGGACGAAGCTAAGTTACTACGTGGAGAGT	
10875				
10876				
10877	crispr 4			
10878	406450	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TAGAAAGAAAAGAGGTCAGTGATTTTGTTCAGTATA	spacer
	length:	38	repeater length:	30
10879	406519	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	ATATTAAAGATTCCCCTACCGTTAACCCGTCTAAA	spacer
	length:	35	repeater length:	30
10880	406585	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TCATTAGCCAGATAGACACCATAGAACACCTAAAAA	spacer
	length:	36	repeater length:	30
10881	406652	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	GAATTCGAAGTTTTAGTCGTAAAAGACAAAGAAGAA	spacer
	length:	36	repeater length:	30
10882	406719	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TCAACGAACCAACACCATACACCACGAACGTACCCC	spacer
	length:	36	repeater length:	30
10883	406786	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	CACGTGATAACATAGTCCCCGCGGCGGGTTCGTTAAAT	spacer
	length:	38	repeater length:	30
10884	406855	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TTTCCATACAGTTGACCGGGAATTCCCCCTTATGTTA	spacer
	length:	37	repeater length:	30
10885	406923	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TTTCTCGAAATTGATTTTTTAAGCCACGTGGGCGTAGTA	spacer
	length:	39	repeater length:	30
10886	406993	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	AATAAATTCTACTACTTCGTCAAGTACATTTTACA	spacer
	length:	35	repeater length:	30
10887	407059	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	CGAATTTTCGGGCGTATTCTTCTATTAGCTCTATCAC	spacer
	length:	37	repeater length:	30
10888	407127	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TATTTTATGGCAGTGACTTAATAAGCGTTAGGTTTTGCCGGA	spacer
	length:	42	repeater length:	30
10889	407200	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TGATAAACCCCCCTGTATTTGCCGCCCCGAACCGGT	spacer
	length:	36	repeater length:	30
10890	407267	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TAAAATACATTGACCTAGAACTTTTAAGCATGCTAGAAA	spacer
	length:	39	repeater length:	30
10891	407337	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	AAAATAACGGGGTTCACGTGAATGTTTAGCCCCCTTT	spacer
	length:	36	repeater length:	30
10892	407404	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	ATTGCACCCGTATTATTTCCCTTTGTGTGCTCCATGCTT	spacer
	length:	39	repeater length:	30
10893	407474	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	TTATTTAACCCATTTAAACCCATTTAATACGGCTTTT	spacer
	length:	37	repeater length:	30
10894	407542	GTTCCAATAAGACTTTTAAAAGAATTGAAAT	ATGGGTGCCGGGAATCAATGAAAACTTAAAAATCC	spacer

length: 35 repeater length: 30
10895 407608 GTTCCAATAAGACTTTAAAAAGAATTGAAAT TTAGAATAGTGACACTTTTTAACTAAAAAATGAAC spacer
length: 36 repeater length: 30
10896 407675 GTTCCAATAAGACTTTAAAAAGAATTGAAAT AGCGACTTCTCAATGGACACGCCCCGTCGCGAGGTTTCG spacer
length: 37 repeater length: 30
10897 407743 GTTCCAATAAGACTTTAAAAAGAATTGAAAT CACTACTTCGGTCACTTGATCAGAGAGCCATTCTGCA spacer
length: 37 repeater length: 30
10898 407811 GTTCCAATAAGACTTTAAAAAGAATTGAAAT GTGTTTTTGCGATGTATTCAATCTTCATGCGAGTAAATGAGGAAA
spacer length: 45 repeater length: 30
10899 407887 GTTCCAATAAGACTTTAAAAAGAATTGAAAT ACTATCCCGCTTTGTGAGGTTTTAGACGCTACGAACTGTTCC
spacer length: 42 repeater length: 30
10900 407960 GTTCCAATAAGACTTTAAAAAGAATTGAAAT TCATGAACTCATCACCATAATGAACTTAGTTTCAT spacer
length: 37 repeater length: 30
10901 408028 GTTCCAATAAGACTTTAAAAAGAATTGAAAT TTCACTTTAACCACCACCTTGATGCCTAACCTCTTTA spacer
length: 36 repeater length: 30
10902 408095 GTTCCAATAAGACTTTAAAAAGAATTGAAAT CCCATTACCCCTCCTTTGAATGTCACGCTCTCGAAGGGTTTT
spacer length: 42 repeater length: 30
10903 408168 GTTCCAATAAGACTTTAAAAAGAATTGAAAT AATTTTCATTAAGGTTCTCATCGTATTTTTTGGATAATA spacer
length: 37 repeater length: 30
10904 408236 GTTCCAATAAGACTTTAAAAAGAATTGAAAT AAGTCCTTTTGCTAATGCGATAGCTTCGTTTACCTTCT spacer
length: 38 repeater length: 30
10905 408305 GTTCCAATAAGACTTTAAAAAGAATTGAAAT TTTTTTTGTTAATTCCCTGAAGATAATTGGGATATTACCACC
spacer length: 42 repeater length: 30
10906 408378 GTTCCAATAAGACTTTAAAAAGAATTGAAAT AACCTCAATTGCTTGTTTTATTCTTTCTCTAAATTG spacer
length: 36 repeater length: 30
10907 408445 GTTCCAATAAGACTTTAAAAAGAATTGAAAT TAGAACTTATGAAAGCTATGTAATTGAAGAGCAGAAAG spacer
length: 38 repeater length: 30
10908 408514 GTTCCAATAAGACTTTAAAAAGAATTGAAAT CAGTAACTTAACCACGTGTTGAATGTTCTTTTTTAA spacer
length: 36 repeater length: 30
10909 408581 GTTCCAATAAGACTTTAAAAAGAATTGAAAT GCCTCGCTTACTCTCTTCAAGAACTCCCTCTTTCAA
10910
10911

10912 GCA_000253055.1_ASM25305v1_genomic.fna(findCrispr):

10913 START REPEAT

SPACER

10914 crispr 1

10915 225270 CCTTCAAATCTCTATCTGAGATTC AATAGCTGGATGGGGATTGGCGCATGCGCTTGGCTGGAACC spacer
length: 41 repeater length: 24
10916 225336 CCTTCAAATCTCTATCTGAGATTC CTTGCTCATAGTCGAAGCAATACATCTTGGGACGGCGACCTCC spacer
length: 43 repeater length: 24
10917 225404 CCTTCAAATCTCTATCTGAGATTC CTCGACTGCGTCGAACCTTCATATCGCGCTCAACGCGCACGT spacer
length: 41 repeater length: 24
10918 225470 CCTTCAAATCTCTATCTGAGATTC CGCTCGGTTGGACACGTGGACTCGATAGCTTGGCGCATCT spacer
length: 40 repeater length: 24
10919 225535 CCTTCAAATCTCTATCTGAGATTC AGATCCATGTGCCGATCTTCGTGTTGCCCGTCTCGTCGAATA spacer
length: 42 repeater length: 24
10920 225602 CCTTCAAATCTCTATCTGAGATTC ATAACAAGATCAACCTTGTCGCCAATGAGCTCGCTAAGCAAGG spacer
length: 43 repeater length: 24
10921 225670 CCTTCAAATCTCTATCTGAGATTC GAGAACATCGCAATAAAGATAACGGAGGAACAGCTACG spacer
length: 38 repeater length: 24
10922 225733 CCTTCAAATCTCTATCTGAGATTC CGCCGTACTTCTTCAGCACCTCCTTACCCGTTCTTCAGAA spacer
length: 42 repeater length: 24
10923 225800 CCTTCAAATCTCTATCTGAGATTC GTGCAGATATGTGAACAAGCCGTACGCGAAGCCGGTCAGGATAA spacer
length: 44 repeater length: 24
10924 225869 CCTTCAAATCTCTATCTGAGATTC GGTCCGTCTCGATTCCGGATTGGCTGTGATAGTGACAAAAG spacer
length: 41 repeater length: 24
10925 225935 CCTTCAAATCTCTATCTGAGATTC CAGAAGAGCTCGAACTTTACGACCTTGCGTCCGATATATTTCGT spacer
length: 43 repeater length: 24
10926 226003 CCTTCAAATCTCTATCTGAGATTC GGCGATTTCAAATACCGCTATGAGGCGATATCCTACTGGG spacer
length: 40 repeater length: 24
10927 226068 CCTTCAAATCTCTATCTGAGATTC GAGTAGAGGTACCCTCCGTCGACGACCGCCCCCTGCGTGATGCTCAGTT
spacer length: 49 repeater length: 24
10928 226142 CCTTCAAATCTCTATCTGAGATTC AGGTGTAGTCGGTATAGCTGATGCCGTTGCACTGCACCTGGT spacer
length: 42 repeater length: 24
10929 226209 CCTTCAAATCTCTATCTGAGATTC ACGATCTCGCCATGCTTGAGACGAAGCTTAGGTTGGGCTTT spacer
length: 41 repeater length: 24
10930 226275 CCTTCAAATCTCTATCTGAGATTC TGGAGCGTATTTTCGCAATACGAGGATGCCGCACATATATCCAA spacer
length: 43 repeater length: 24
10931 226343 CCTTCAAATCTCTATCTGAGATTC AGCAATCCGCCCGGGTCGGCGCATGCCAACACAGCGTCCA spacer
length: 41 repeater length: 24
10932 226409 CCTTCAAATCTCTATCTGAGATTC AATTGGAGGGAAACCACGGCCGTGCTGACAGACGCCGGCA spacer

length: 40 repeater length: 24
10933 226474 CCTTCAAATCTCTATCTGAGATTC CCTGTATTGCCGGCCGTCGGCCCCCTCCACGACGAAGAAGT spacer
length: 41 repeater length: 24
10934 226540 CCTTCAAATCTCTATCTGAGATTC ATTGCTGATAGTGTTCCTGCTAGTTGTCATTTGGCCTATACTAA spacer
length: 44 repeater length: 24
10935 226609 CCTTCAAATCTCTATCTGAGATTC CCAGAGTGCTCGATGAGGCGGGCATAGACAGGTACTCCATCACCG spacer
length: 45 repeater length: 24
10936 226679 CCTTCAAATCTCTATCTGAGATTC GTATAGCCGCTCACAGGGGTGAACGATACAGACTGTGCGCC spacer
length: 41 repeater length: 24
10937 226745 CCTTCAAATCTCTATCTGAGATTC TGTTTAGGGAGAAGATTAGGGAGAAAAATTGAAAGAGAA spacer
length: 39 repeater length: 24
10938 226809 CCTTCAAATCTCTATCTGAGATTC ACTATCTCGATGTGAACAACATATGCATCAATGTCGGCGCCG spacer
length: 42 repeater length: 24
10939 226876 CCTTCAAATCTCTATCTGAGATTC CAAAAAAGGAGGTGGACGTTCAACGTCCTCTGCACGTACCTA
10940
10941
10942 crispr 2
10943 1076040 CTTTCAATCCTCTCTTTGAGATTC ATCGCTTGCATACAAATTAGAGTATACAGAAAAAGAAGTT spacer
length: 40 repeater length: 24
10944 1076105 CTTTCAATCCTCTCTTTGAGATTC AGTTCAGTGTTGAGATAACGATAAAGAAAAGCTATGTAGAGAAA spacer
length: 44 repeater length: 24
10945 1076174 CTTTCAATCCTCTCTTTGAGATTC TTCTATTCCTCATTCTTAAGACTTGTGGCCCAAGTCTT spacer
length: 38 repeater length: 24
10946 1076237 CTTTCAATCCTCTCTTTGAGATTC
GAGTGCTTAAGCTCTATGGAGAGCAATAGAGAAGTACTCTGTAAGATTGTCACCTA spacer length: 56 repeater
length: 24
10947 1076318 CTTTCAATCCTCTCTTTGAGATTC CGTATATTCCATGTTTTCTCTTATCAGCATGATCCTGTGACAT spacer
length: 43 repeater length: 24
10948 1076386 CTTTCAATCCTCTCTTTGAGATTC GTTGTCCGTCCTCTTTGACGGCTCAGTGCTGTCCGTCAGGC spacer
length: 41 repeater length: 24
10949 1076452 CTTTCAATCCTCTCTTTGAGATTC CAATGGTGTGTTCAAGCTGATATTGTTAGCTTCGTCATCAATAGA
spacer length: 45 repeater length: 24
10950 1076522 CTTTCAATCCTCTCTTTGAGATTC CTTACGATGGTATCGATGTTAATTGTGCCGATGTTGATCGTCG spacer
length: 44 repeater length: 24
10951 1076591 CTTTCAATCCTCTCTTTGAGATTC CGAAAAAGAAGGGATTAGGAGGTGGTAGCGGACACGAC spacer
length: 39 repeater length: 24
10952 1076655 CTTTCAATCCTCTCTTTGAGATTC CCAGGAAGAAAGCCAGGAGATCCTCGTCGACAGAATGAGGGAAAA
spacer length: 45 repeater length: 24
10953 1076725 CTTTCAATCCTCTCTTTGAGATTC AGATTTCGAGCTCTTTGCTGGCAGATTGGGATACCTCGAGAAG spacer
length: 42 repeater length: 24
10954 1076792 CTTTCAATCCTCTCTTTGAGATTC ATAGTACATAGCCGCCGCGCCTAAAGGTTTTTTCCTCAAATC spacer
length: 42 repeater length: 24
10955 1076859 CTTTCAATCCTCTCTTTGAGATTC GCCCATCAGAAAATTCAGCAATTCTTTATAGAATATTCTCA spacer
length: 41 repeater length: 24
10956 1076925 CTTTCAATCCTCTCTTTGAGATTC TGGCGCGAATATGTGCGCTATATTGAGGAGCTGTACAGGGAT spacer
length: 42 repeater length: 24
10957 1076992 CTTTCAATCCTCTCTTTGAGATTC AGCCATCGGAGAAAAAGCGCAAGAAGGGCTATCTAGTCAAG spacer
length: 41 repeater length: 24
10958 1077058 CTTTCAATCCTCTCTTTGAGATTC CTGTGAAGAACACGTTTATCAAGTAGGCCACAAAGGCGAACTG spacer
length: 43 repeater length: 24
10959 1077126 CTTTCAATCCTCTCTTTGAGATTC AAGTATATTGACTCTCCAATCGGCATAACGTGTATCCGCCAG spacer
length: 42 repeater length: 24
10960 1077193 CTTTCAATCCTCTCTTTGAGATTC ATCGACTGGAGGGGGCTGACGGAGGGGTTGAGGAGCGTGCCCCGCAAG
spacer length: 48 repeater length: 24
10961 1077266 CTTTCAATCCTCTCTTTGAGATTC TGTCGCACTTGCTCAGCATGCGGCCGCTCTGGGTGGTACTCT spacer
length: 41 repeater length: 24
10962 1077332 CTTTCAATCCTCTCTTTGAGATTC CGACGAGACACTGTGAGTGCTTGCGCTGCGTGTACACGAG spacer
length: 40 repeater length: 24
10963 1077397 CTTTCAATCCTCTCTTTGAGATTC ACATCCTCCAGCACGTCTGGAACATATAGCGCAGTG spacer
length: 37 repeater length: 24
10964 1077459 CTTTCAATCCTCTCTTTGAGATTC ACACATTCCGACAGCGGCTCACCGCCGAGAGCGACTCG spacer
length: 39 repeater length: 24
10965 1077523 CTTTCAATCCTCTCTTTGAGATTC GAAGAAAAGATCGAGGAAATACCGGGCGAGTGGTTAAGC spacer
length: 39 repeater length: 24
10966 1077587 CTTTCAATCCTCTCTTTGAGATTC GCGACGTACCACGCCAGGATGTCTTGTATCCGCTCCCCGCG spacer
length: 42 repeater length: 24
10967 1077654 CTTTCAATCCTCTCTTTGAGATTC CCGCCTTCAAAGGGCCCCCTCTGTGTATATACGTGTATATA spacer
length: 40 repeater length: 24
10968 1077719 CTTTCAATCCTCTCTTTGAGATTC ACGCGGATCTACGTGGTCAGGCATGCGATCGCATATCCGACTTC spacer
length: 44 repeater length: 24
10969 1077788 CTTTCAATCCTCTCTTTGAGATTC TGAGGCGCTCTGAAACACAGCTGTGATGTTAAATAC spacer length:

36 repeater length: 24

10970 1077849 CTTTCAATCCTCTCTTTGAGATTC TGGGAAGGAGCCAGTCGGCTCCCCAGACGGCCGGGGCGAAG spacer
length: 41 repeater length: 24

10971 1077915 CTTTCAATCCTCTCTTTGAGATTC GCGTCGGGGATGTGCGTGACGTCAACGCCCTTTGTGTC spacer
length: 38 repeater length: 24

10972 1077978 CTTTCAATCCTCTCTTTGAGATTC AAGATGAGAAAAAGAGGTAAACGATCGCGGATGTACT spacer
length: 38 repeater length: 24

10973 1078041 CTTTCAATCCTCTCTTTGAGATTC TATACGACGCCTACGTGGGCCTCTTCCTCCTCCTCCCCGTGAGCGGCGA
spacer length: 49 repeater length: 24

10974 1078115 CTTTCAATCCTCTCTTTGAGATTC GCGGACATTTGCGCCGCACGAATAATCAACTACATCTCTCAATAC
spacer length: 45 repeater length: 24

10975 1078185 CTTTCAATCCTCTCTTTGAGATTC TTTCAAATACCGCTATGAGGCGATATCCTACTGGGTCTTTCAAAT

10976

10977

10978 crispr 3

10979 1081877 GAATCTCAAAGAGAGGATTGAAAG TCTGGACTGTGTGTTGCAACAGCGAAGTCGCGAACACCTCGA spacer
length: 42 repeater length: 24

10980 1081944 GAATCTCAAAGAGAGGATTGAAAG CGTTGATGTGGCCGGGACTGGCTGACTCAGCTATTACGT spacer
length: 39 repeater length: 24

10981 1082008 GAATCTCAAAGAGAGGATTGAAAG ACTTCAAGGCGTGCTTGCTGGCGTTTTAGGCGACGATGAGC spacer
length: 41 repeater length: 24

10982 1082074 GAATCTCAAAGAGAGGATTGAAAG CTCTTTTTCTGCCCCGTTCTTCCAACCTCTTCGCCGGTTCG spacer
length: 40 repeater length: 24

10983 1082139 GAATCTCAAAGAGAGGATTGAAAG CCGAGTAGCCGACGGCGCGTCCGCTCACTTAAGATCTC spacer
length: 38 repeater length: 24

10984 1082202 GAATCTCAAAGAGAGGATTGAAAG TGTGATAGATGAGATAGACAAAATCAAGTTCAGCACCACG spacer
length: 40 repeater length: 24

10985 1082267 GAATCTCAAAGAGAGGATTGAAAG GCGCACTAATTACCGCCCCGGCGCAGGATTACCAATCTTGCCGGGCCGGT
spacer length: 50 repeater length: 24

10986 1082342 GAATCTCAAAGAGAGGATTGAAAG TTGGTCTCAGGCGCGCGGTAGCCTTCCAGCTGTACGACCAACTCGA
spacer length: 46 repeater length: 24

10987 1082413 GAATCTCAAAGAGAGGATTGAAAG TCCGGAGGAGGCGGCGAAGAGGATGATAGAGTTGGCCAGGCTG spacer
length: 43 repeater length: 24

10988 1082481 GAATCTCAAAGAGAGGATTGAAAG GGCATGATTGGTTGCGCCGGGAGCTCTGGGATGTGATCCGCC spacer
length: 42 repeater length: 24

10989 1082548 GAATCTCAAAGAGAGGATTGAAAG CTACTTGGAGTATGCCGGTCAAATTCGGTGGGGCGGACGTCGTAC
spacer length: 45 repeater length: 24

10990 1082618 GAATCTCAAAGAGAGGATTGAAAG TTTGTTGAAATAATCACCGTAACCCAGGCTTTCCAACCATCT spacer
length: 42 repeater length: 24

10991 1082685 GAATCTCAAAGAGAGGATTGAAAG ATCGCTTGTTCCAACCGGGCTCCTCTATAATTGTCGTCATTAGCTT
spacer length: 45 repeater length: 24

10992 1082755 GAATCTCAAAGAGAGGATTGAAAG ACTGGATCATCGATGGGCAGAATGCGGGCGTGTGCGCTATAT spacer
length: 42 repeater length: 24

10993 1082822 GAATCTCAAAGAGAGGATTGAAAG CAAGTCGTCGAGAAGTATTTTGGTCTGCTGAAGCAGTACGGTTTTT
spacer length: 45 repeater length: 24

10994 1082892 GAATCTCAAAGAGAGGATTGAAAG GTACCACGACATCAGCCATGTGACTGTTGCGCCTAGCTCAATCT spacer
length: 44 repeater length: 24

10995 1082961 GAATCTCAAAGAGAGGATTGAAAG ACTTGAATTTCAACAATGTCACCAGCACATATGTCCAGGCTAG spacer
length: 43 repeater length: 24

10996 1083029 GAATCTCAAAGAGAGGATTGAAAG ATTTTTATTTCCTCATAAACATGGTCTCAAGGTGAGAACTAAGC spacer
length: 43 repeater length: 24

10997 1083097 GAATCTCAAAGAGAGGATTGAAAG AATGGCTCCAAGGGATCGTTCTCTAGACTCCAATTTTTCTAA spacer
length: 42 repeater length: 24

10998 1083164 GAATCTCAAAGAGAGGATTGAAAG TTTGTGACGGGATCTTGCGACATGCGGTACGCTGCAGTGTC spacer
length: 42 repeater length: 24

10999 1083231 GAATCTCAAAGAGAGGATTGAAAG GCTCCACCAGCAGTACCCATATAGCGTGAACCTTTTCGCCGG spacer
length: 43 repeater length: 24

11000 1083299 GAATCTCAAAGAGAGGATTGAAAG AGTGCGCAGACCCCTGCACAGGCCGGCGTCCTTCACAAA spacer
length: 39 repeater length: 24

11001 1083363 GAATCTCAAAGAGAGGATTGAAAG ATGTAGAGCTTGACCGGCGCCCCAGGATAGGGCACCGGGCC spacer
length: 41 repeater length: 24

11002 1083429 GAATCTCAAAGAGAGGATTGAAAG TCTGTATCCCGCCGGCGCGTGGAGAAGGCGTTTCTCCACAACGTCGTCCT
spacer length: 50 repeater length: 24

11003 1083504 GAATCTCAAAGAGAGGATTGAAAG TCGAGGACGATGTAGTCGGGATTGCTCGCGTTTATCAGCTTG spacer
length: 42 repeater length: 24

11004 1083571 GAATCTCAAAGAGAGGATTGAAAG CTCGTGGATACTCCAAGCGAAAGAGTTCACGTTATACGGCTA spacer
length: 42 repeater length: 24

11005 1083638 GAATCTCAAAGAGAGGATTGAAAG TCCACAAGCCTCACGGCCGTCTTACGGCGCGGCCCGGTCTGACG
spacer length: 45 repeater length: 24

11006 1083708 GAATCTCAAAGAGAGGATTGAAAG GGGATATACTACACGGCCCTGCGCGTCATCGGGAACAAGCGCATG
spacer length: 45 repeater length: 24

11007 1083778 GAATCTCAAAGAGAGGATTGAAAG TATTCGGTAGATTCCGGCGTAAAAGGTCTGGGCGGCGA spacer
length: 38 repeater length: 24
11008 1083841 GAATCTCAAAGAGAGGATTGAAAG CCGTGCACCTATGACTTTCAAGTACTCAAGGACGTTA spacer
length: 37 repeater length: 24
11009 1083903 GAATCTCAAAGAGAGGATTGAAAG AAAAAAGGAGGTGGACGTTCAACGTCCTCTGCACGTA
11010
11011
11012 crispr 4
11013 345411 TTTCTACTATCTTTTGATTTCAC ACGCGCTCTACGCCGTCCACGCGAGGCTATATAGCATCGCGAT spacer
length: 43 repeater length: 24
11014 345479 TTTCTACTATCTTTTGATTTCAC TCAATGGCGATACAGCGTGGGGGCTGTAGTGCCATGGCTCAC spacer
length: 43 repeater length: 24
11015 345547 TTTCTACTATCTTTTGATTTCAC CGAAGAGGTCTCTGGAGCGGCTGGGGAGCTAAAATATCCCCTCCCGTA
spacer length: 48 repeater length: 24
11016 345620 TTTCTACTATCTTTTGATTTCAC CCCGCTTTTTCTCCGACCACGTAAGTGTGGAAGTCAAACGTGAT
spacer length: 46 repeater length: 24
11017 345691 TTTCTACTATCTTTTGATTTCAC GCACCTACCTCTCTGTGTGTGGCCAGTCCATCGGAGATAAC spacer
length: 43 repeater length: 24
11018 345759 TTTCTACTATCTTTTGATTTCAC AGCTAGGCTACATTTCTAAGACTGGCGGTGCTCACTTTGTGGAAG spacer
length: 45 repeater length: 24
11019 345829 TTTCTACTATCTTTTGATTTCAC AAAGAAGGGATTAGGAGGTGGTAGCGGACACGACTCTTTCAATCC
11020
11021
11022 crispr 5
11023 317075 GTGGAAATCAAAAAGATAGTAGAAAC TGTACTTTAGGAATAATATACTCGTCAAGTATCTTGTAATAC spacer
length: 42 repeater length: 25
11024 317143 GTGGAAATCAAAAAGATAGTAGAAAC TTGCCCTTCAGAAGGTCGCCCTCCTTTACGTTGCAACCCCA spacer
length: 41 repeater length: 25
11025 317210 GTGGAAATCAAAAAGATAGTAGAAAC ATTAGACGTTGTAGCACTAACGCCTCTTTCACAACATTTAT spacer
length: 41 repeater length: 25
11026 317277 GTGGAAATCAAAAAGATAGTAGAAAC GCCGGGCATGTGAGCCCCCGTTCGATGTGCTCATAAGTCTG spacer
length: 41 repeater length: 25
11027 317344 GTGGAAATCAAAAAGATAGTAGAAAC AGAAAGCCAGGAGATCCTCGTCGACAGAATGAGGGAAAAGC
11028
11029
11030 crispr 6
11031 1096170 CTTTCAATCCTCTTTTTGAGATTTCAGC
GTGGCTCCACTCGTCGGAGCATGCGACGAAGCCGGCCTTTCAATCCTCTTTTTGAGATTCCCTGGCTGTGTAAAGGTTGTGCAAG
TACCTGGTCAA spacer length: 97 repeater length: 27
11032 1096295 CTTTCAATCCTCTTTTTGAGATTTCAGC
ACGATGAGGAGGCCGAGGAACCCCTTGAACCTGTCCCCTTTCAATCCTCTTTTTGAGATTCTTCTTCAGCCACCACCAGAATAGGA
AGGCCGCCACGATGA spacer length: 101 repeater length: 27
11033 1096424 CTTTCAATCCTCTTTTTGAGATTTCAGC
CTTGACAAATACCGTACCGCTACCCTCATATTGATAGAATCTCAAAGAGAGGATTGAAAGGGGATATACGTCTCGGATTAAGCAT
AGCAGCTTCACCTCT
11034
11035
11036 GCA_000258425.1_ASM25842v1_genomic.fna(findCrispr):
11037 START REPEAT
SPACER
11038 crispr 1
11039 41 CTCTCAGATAGAA TTGAAAGTTGGCATATTTACTCCCCTTGCTCAGAATCAAGCATTGAA spacer length: 47
repeater length: 13
11040 102 CTCTCAGATAGAA TTGAAAGTTCACAAATTTAGTCACAAATGCGCTAGGAAACAGAAGAA spacer length: 47
repeater length: 13
11041 163 CTCTCAGATAGAA TTGAAAGTCAAACCCATGCTTTCTTAGTATTTCTGCTGCTTCTGAA spacer length: 46
repeater length: 13
11042 223 CTCTCAGATAGAA TTGAAAGCTCTTGCTAATGCTCTAGCAGTCGATCATAGTAGGCGAA spacer length: 46
repeater length: 13
11043 283 CTCTCAGATAGAA TTGAAAGAATAGCAAAATCCACTTATCGCCTACCCAATCTTTAAAGAA spacer length: 48
repeater length: 13
11044 345 CTCTCAGATAGAA TTGAAAGATTTTAAGCGGGATCGTGGCTCCTGTGCTGTCAACCGGAA spacer length: 47
repeater length: 13
11045 406 CTCTCAGATAGAA TTGAAAGTTGCCTTTATCGGTAATGTATATTTTCCGGCTTACATGAA spacer length: 47
repeater length: 13
11046 467 CTCTCAGATAGAA TTGAAAGAACCATCCCCAAACATATTGAATACCGCTAAGTATAGCGAA spacer length: 48
repeater length: 13
11047 529 CTCTCAGATAGAA TTGAAAGCTTGAGACCCCTTGCCCACTCCTGCTGAAACACTTATGAA spacer length: 48
repeater length: 13
11048 591 CTCTCAGATAGAA TTGAAAGTATACAGACCATCTCTCACAGCATCAGCTACAGCCATGAA spacer length: 47
repeater length: 13

11049 652 CTCTCAGATAGAA TTGAAAGAGAATTGTAAGTGAAGCAATCGCAACAACAATAACTAAGAA spacer length: 48
repeater length: 13
11050 714 CTCTCAGATAGAA TTGAAAGAACTCTTCCATGTATTCAACCAAACCTTTCCAAATCCTGAA spacer length: 47
repeater length: 13
11051 775 CTCTCAGATAGAA GAATTGAAAGAACTCTTCCATGTATTCAACCAAACCTTTCCAAATCCT
11052
11053
11054 crispr 2
11055 55254 CTTTCAATTCTATCTAACAGATTC TTGAACAGTATGGGGGGGATCCTCGCGAGACCAAT spacer length: 35
repeater length: 24
11056 55314 CTTTCAATTCTATCTAACAGATTC CCCGCAGGCAGGCGATAGAAAACATTGTTAATGCGC spacer length:
36 repeater length: 24
11057 55375 CTTTCAATTCTATCTAACAGATTC TAACCGGGCTGGTTTGTGCAGTATTCGACGGGATC spacer length: 35
repeater length: 24
11058 55435 CTTTCAATTCTATCTAACAGATTC GCAATTTGCTAATTGCCACAAGAATAAAACAACACTAC spacer length:
36 repeater length: 24
11059 55496 CTTTCAATTCTATCTAACAGATTC AGCAGTCGGGCCACGTTAATCCGGGGCTAATTTCCCTT spacer length:
38 repeater length: 24
11060 55559 CTTTCAATTCTATCTAACAGATTC ACTCTCAATGTCAGCGTTACTAACTCGCAGCTAAAT spacer length:
36 repeater length: 24
11061 55620 CTTTCAATTCTATCTAACAGATTC TTGGTAGGCGCAATTACGTTTATTAGCCAACTGAACG spacer length:
37 repeater length: 24
11062 55682 CTTTCAATTCTATCTAACAGATTC AGCTAAGCAACCGCAACAACAACAACAAAGCACACTTG spacer length:
38 repeater length: 24
11063 55745 CTTTCAATTCTATCTAACAGATTC ACTACCTTTGGCAGGAGTTATACGAGAAGAACTA spacer length: 35
repeater length: 24
11064 55805 CTTTCAATTCTATCTAACAGATTC AAAACAATCGAAGAGGACATAGAAAACCTTAAGAGA spacer length:
36 repeater length: 24
11065 55866 CTTTCAATTCTATCTAACAGATTC GGATCCCCAGCGTTGACATATACGAAACGAACTCGT spacer length:
36 repeater length: 24
11066 55927 CTTTCAATTCTATCTAACAGATTC CGAAGACAAAAGTAAGCAAGATGAAATAGCGGATT spacer length: 35
repeater length: 24
11067 55987 CTTTCAATTCTATCTAACAGATTC AATTTATCGCTGGCCAATACTCTTAAAGATCATGGCT spacer length:
37 repeater length: 24
11068 56049 CTTTCAATTCTATCTAACAGATTC AAGCGTTATATTTGAGCTTACTATAGTAGCGTTTACA spacer length:
37 repeater length: 24
11069 56111 CTTTCAATTCTATCTAACAGATTC CAGAGGGTAAGATAAACGAGGGGCTGATCGCCCTA spacer length: 35
repeater length: 24
11070 56171 CTTTCAATTCTATCTAACAGATTC TAAAATTAATAGCGAAATTCAAGCGGTGATTTCATA
11071
11072
11073 crispr 3
11074 13013 CTTTCAATTCTATCTGAGAGATTC CTAGTAGAATTAAAGTATGTTGATAGGCTGAACAAGA spacer length:
37 repeater length: 24
11075 13075 CTTTCAATTCTATCTGAGAGATTC AAAGCGGGTTAAGAGTTTTCAAAGAAGACGAGTTCC spacer length:
36 repeater length: 24
11076 13136 CTTTCAATTCTATCTGAGAGATTC ACATAACTTTAATTCAGAAACGCTAAAGCTCTTGATTGGAAACAGAG
spacer length: 47 repeater length: 24
11077 13208 CTTTCAATTCTATCTGAGAGATTC AGTGGGCTTACAAGACATTTTTAGTCTAAGAGAGA spacer length: 35
repeater length: 24
11078 13268 CTTTCAATTCTATCTGAGAGATTC AAATCAAGCAATTATGTGAAAGCGGCAAGCTGGTCA spacer length:
36 repeater length: 24
11079 13329 CTTTCAATTCTATCTGAGAGATTC AAATAGCTGATGCATTAGGGTTCTTCATAACTATCAC spacer length:
37 repeater length: 24
11080 13391 CTTTCAATTCTATCTGAGAGATTC ATGTCGATATACTTATTTTTTCGCCTTTTGCCTTTT spacer length:
36 repeater length: 24
11081 13452 CTTTCAATTCTATCTGAGAGATTC ACGTTAAGCGTGGCAGCACTTGAAGCAATATTCACA spacer length:
36 repeater length: 24
11082 13513 CTTTCAATTCTATCTGAGAGATTC TGTGGGCTGGTAAATACTTCGAAGCCGTGCTGCCG spacer length: 35
repeater length: 24
11083 13573 CTTTCAATTCTATCTGAGAGATTC AAGTCAAGCCCTGTCCCAGCTATTTTTGTTGAGGC spacer length: 35
repeater length: 24
11084 13633 CTTTCAATTCTATCTGAGAGATTC AACGCTGGCTTTAATGAATTGAATTTCTTCACC spacer length: 33
repeater length: 24
11085 13691 CTTTCAATTCTATCTGAGAGATTC ATGGTGAAGTTGTTGAAGAACAGCCCGGTTTTATAA spacer length:
36 repeater length: 24
11086 13752 CTTTCAATTCTATCTGAGAGATTC CGGAAGAAATAGCACAGCAAGTTAAGCTCATACTTG spacer length:
36 repeater length: 24
11087 13813 CTTTCAATTCTATCTGAGAGATTC AACCCAAACCCCAAACCAAGTAAAGATCCTAGAG spacer length: 35
repeater length: 24
11088 13873 CTTTCAATTCTATCTGAGAGATTC GTAGTTCAAATTAGCGTTGATCAAATTATGGTGCCGG spacer length:

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37 repeater length: 24
11089 13935 CTTTCAATTCTATCTGAGAGATTC CAATGCGTTTGAATTTACTGAAATGCATTTGGTAAT spacer length:
36 repeater length: 24
11090 13996 CTTTCAATTCTATCTGAGAGATTC ACAGCATGGGATCCTTCAGCCTATCCAAGTTGCTCTCA spacer length:
38 repeater length: 24
11091 14059 CTTTCAATTCTATCTGAGAGATTC TACAAAATAATGCTAAAGTATTTGAAGCAGTTACAAA spacer length:
37 repeater length: 24
11092 14121 CTTTCAATTCTATCTGAGAGATTC CGATTCCGAAAAAGATATATAGTTTATAGCTAAATAG
11093
11094
11095 crispr 4
11096 61768 GAATCTGTTAGATAGAATTGAAAG TGAGGATGACTACATTGTAGTGCCTCCACAGAGACAG spacer length:
37 repeater length: 24
11097 61830 GAATCTGTTAGATAGAATTGAAAG TGTCAACTTCAAGCTGAATTACTTGCTGCTGATCGC spacer length:
36 repeater length: 24
11098 61891 GAATCTGTTAGATAGAATTGAAAG TTTGTGCCACTTTTTGCGATCGGCGCGATTGTGCTAAA spacer length:
38 repeater length: 24
11099 61954 GAATCTGTTAGATAGAATTGAAAG AAATCCGCTATTTTCATCTTGCTTACTTTTGTCTTC spacer length: 35
repeater length: 24
11100 62014 GAATCTGTTAGATAGAATTGAAAG GACGAGTTCGTTTCGTATATGTCAACGCTGGGGATC spacer length:
36 repeater length: 24
11101 62075 GAATCTGTTAGATAGAATTGAAAG TTCTCTTAAGTTTTCTATGTCTCTTCGATTGTTTT spacer length:
36 repeater length: 24
11102 62136 GAATCTGTTAGATAGAATTGAAAG TTAGTTTCTTCTCGTATAACTCCTGCCAAAGGTAG spacer length: 35
repeater length: 24
11103 62196 GAATCTGTTAGATAGAATTGAAAG GCAAGTGTGCTTTGTTGTTGTTGTTGCGGTTGCTTAGC spacer length:
38 repeater length: 24
11104 62259 GAATCTGTTAGATAGAATTGAAAG GCGTTCAGTTGGCTAATAAACGTAATTGCGCCTACCA spacer length:
37 repeater length: 24
11105 62321 GAATCTGTTAGATAGAATTGAAAG CTCCAATGCCTGGGGCACTAGAGTTATTATTATTA spacer length: 35
repeater length: 24
11106 62381 GAATCTGTTAGATAGAATTGAAAG TAATAACGAGGCCTTCGTTCTCGAGCTGTTTCAA spacer length: 35
repeater length: 24
11107 62441 GAATCTGTTAGATAGAATTGAAAG ACTCCTAGCCCAATATCAATTAATGCAAGTTCTGTAG spacer length:
37 repeater length: 24
11108 62503 GAATCTGTTAGATAGAATTGAAAG TATAACATGCATCTTATCACCTAAGCTATCATCTTCCT spacer length:
38 repeater length: 24
11109 62566 GAATCTGTTAGATAGAATTGAAAG GCTTTAGATATCTCGTGTTCCTTCAGATAGTATTTA spacer length:
36 repeater length: 24
11110 62627 GAATCTGTTAGATAGAATTGAAAG CTTGTTATTTTTCCCTTGGCTAACGAGACTGTCTAAG spacer length:
36 repeater length: 24
11111 62688 GAATCTGTTAGATAGAATTGAAAG TTAGACACGGCGAGACGCAGATAATACCCTGGACCGG spacer length:
37 repeater length: 24
11112 62750 GAATCTGTTAGATAGAATTGAAAG CTTTGGCAGGAGTTATACGAGAAGAACTAACTTTCA
11113
11114
11115 GCA_000263735.1_ASM26373v1_genomic.fna(findCrispr):
11116 START REPEAT
SPACER
11117 crispr 1
11118 155199 GTTCCA ATAAGACTAAAAAAGAATTGAAAGGTGGAATCCTATCAATTTTCGTTGCGGAGGCTCT spacer
length: 59 repeater length: 6
11119 155265 GTTCCA ATAAGACTAAAAAAGAATTGAAAGTCATAGATAAGGGATTCTCCCTCATGGTATCTTGTCA spacer
length: 61 repeater length: 6
11120 155333 GTTCCA ATAAGACTAAAAAAGAATTGAAAGCTCTTCCTTACCAGTCTGTCTGTCCTTGTAGACCGCC spacer
length: 61 repeater length: 6
11121 155401 GTTCCA ATAAGACTAAAAAAGAATTGAAAGCCAGGTGTTGGAGGAGATGGGGAGGGCTTCTTTAGG spacer
length: 61 repeater length: 6
11122 155469 GTTCCA ATAAGACTAAAAAAGAATTGAAAGTCAAGTTGCTACCCAAGTCTTGTATCACTCCAAGAC spacer
length: 60 repeater length: 6
11123 155536 GTTCCA TAAATAGTATGGAAAGTTGTCCATCGGGTGCAGCACCCATGTACATTTTTGTGGTTTCCG
11124
11125
11126 crispr 2
11127 154590 TCCAATAA GACTATAAGAGAATTGAAAGCAAGAGGATCCAGAAGCCAGCTGATGAGCGTCTCTGGGTTCAG
spacer length: 64 repeater length: 8
11128 154663 TCCAATAA GACTATAAGAGAATTGAAAGGGGGCTGTAAAAGGGCTGAAAAAGAGGCTATGGGGG spacer
length: 57 repeater length: 8
11129 154729 TCCAATAA GACTATAAGAGAATTGAAAGATTCGCCAGAAAAGCCGAAGAAGAACTCAAAACCTTCG spacer
length: 58 repeater length: 8
11130 154796 TCCAATAA GACTATAAGAGAATTGAAAGCTCTTAACTGACTTATTATCTCAGATTTGGCTCCAGG spacer

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length: 58 repeater length: 8
11131 154863 TCCAATAA GACTATAAGAGAATTGAAAGTATTTTCAACAAATAAGACATAGAAAGCAAGAGCTTTATG spacer
length: 60 repeater length: 8
11132 154932 TCCAATAA GACTATAAGAGAATTGAAAGGAAGTGTGCTGGCTCGGAGAGCTTCTTGCGGCCGGCGG spacer
length: 58 repeater length: 8
11133 154999 TCCAATAA GACTATAAGAGAATTGAAAGTGGGCTCGATTTTCATCCCATGGGGGCTACTGATAATCG spacer
length: 58 repeater length: 8
11134 155066 TCCAATAA AATAGTATGGAAAGGACTTCAAGGATAACAAAATCGCCGAGGTTGGTTTTCTGGGCAG
11135
11136
11137 crispr 3
11138 110562 TCCGAAGAA CTAAATAGTATGGAAAGTTTCCCTTATCTCATAACATTGCCGATCACCAATTGTATGGT spacer
length: 58 repeater length: 9
11139 110630 TCCGAAGAA CTAAATAGTATGGAAAGCTGGTAAATGGTGGGTGGTTCGGTAATACTAGCGAGCAGCAAAGT
spacer length: 62 repeater length: 9
11140 110702 TCCGAAGAA CTAAATAGTATGGAAAGAGATTACCGTCAATTCTATATGTAACACTACTGCGAACCACCAGT spacer
length: 60 repeater length: 9
11141 110772 TCCGAAGAA CTAAATAGTATGGAAAGACGTTGCCTGCTCGACTGATATAATGCCATCTCTAACCGGT spacer
length: 58 repeater length: 9
11142 110840 TCCGAAGAA CTAAATAGTATGGAAAGTGTCCAATTCTCTTTTATGTCTTTTGAAAACAAATCAGT spacer
length: 56 repeater length: 9
11143 110906 TCCGAAGAA CTAAATAGTATGGAAAGCCCTCTTCAAAAACGCTAACAACCTCAGATATCCAAGT spacer
length: 55 repeater length: 9
11144 110971 TCCGAAGAA CTAAATAGTATGGAAAGTTGTCCATCGGGTGCAGCACCCATGTACATTTTTGTGGT spacer
length: 56 repeater length: 9
11145 111037 TCCGAAGAA CTAAATAGTATGGAAAGGACTTCAAGGATAACAAAATCGCCGAGGTTGGTTTTCTGGGCAGT
spacer length: 62 repeater length: 9
11146 111109 TCCGAAGAA GTAGTATGGAAAGGGGAGGAGGCGATGGGCTGTTAGGTTTATGAACACCTTTTCTTGTTTCC
11147
11148
11149 crispr 4
11150 987532 TCTTT
CCATACTATTTAGTTCTTCGGAAACCCCTTTCTTTGGGGGTGTTGTTGTGCAGGTGATTTTTCCCTTTCCATACTATTTAGTTCTTC
GGAAACAAGTGATGACACCGGACGTTGAGCCACCCAACAAC spacer length: 127 repeater length: 5
11151 987665 TCTTT
CCATACTATTTAGTTCTTCGGAAACTTGATGAGCTGGGGCCGGTAGGGGCCCCAGACAGCACTTTCCATACTATTTAGTTCTTCGG
AAACAAGTTCTAGGTATGAAAGAGATTGCCTTGCTGTGTTGTCTGT spacer length: 132 repeater length: 5
11152 987803 TCTTT CCATACTATTTAGTTCTTCGGAAACAAGGCCAGGGAGGTTCGGGAAGCGCTTGATCGGCG spacer
length: 59 repeater length: 5
11153 987868 TCTTT CCATACTATTTAGTTCTTCGGAAACATGAGTTATATGAAGAGTTTAATGATTACATTCAAAGCAA
spacer length: 66 repeater length: 5
11154 987940 TCTTT TAAAAAAGAATTGAAAGTCAAGTTGCTACCCAAGTCTTGTATCACTCCAAGACCGTTCCAATAAGA
11155
11156
11157 crispr 5
11158 800572 TTTTATGCTTATTGGAAGT GCGCTGAGGAGAAGTGGGCAAAGAGGATCATGCCTTTCAATT spacer
length: 43 repeater length: 21
11159 800637 TTTTATGCTTATTGGAAGT CAAGCCGATAGAAGGAGACAGAACCCAGCAACCCTCTTTCAATTC spacer
length: 46 repeater length: 21
11160 800705 TTTTATGCTTATTGGAAGT GGAGTTACTCTCAGTGTCTGGACATCCACTGCAATCAGTTCCAAT
11161
11162
11163 crispr 6
11164 177499 GTTCCGAAGAACTTAGTAGTATGGAAAG CTCTATTATGTTAATAATTTCTTCCACCTTCATACAA spacer
length: 37 repeater length: 29
11165 177566 GTTCCGAAGAACTTAGTAGTATGGAAAG
AGGATTTTTGATAGCGGAATTGTGATGGTGTACCGTGTTTCCGAAGAACTAAATAGTATGGAAAGTAGATTCTGGAGGGAGCTTC
GGCGAAACAGTCAAGAACGCCATCAA spacer length: 112 repeater length: 29
11166 177708 GTTCCGAAGAACTTAGTAGTATGGAAAG
TTCGTAGACTACTGGACGGGGCCCTTTGCGTTCCAATAAGACTATAAGAGAATTGAAAGAACTTCTTACACATTTTCATCAAATTC
AGCAAATTTTGAGTTCCAATAAGACT
11167
11168
11169 crispr 7
11170 800829 TTTCAATTCTCTTATAGTCTTATTGGAAC TTGATGCTCCTTCTAAGCCTGTTGAGATACATAAGAA spacer
length: 37 repeater length: 29
11171 800896 TTTCAATTCTCTTATAGTCTTATTGGAAC TCGAATGGGTCTCTAAAAATCAGGGGGATGTTGAAATAA spacer
length: 39 repeater length: 29
11172 800965 TTTCAATTCTCTTATAGTCTTATTGGAAC GCCGAGGCCCCACCCGGGGGCGGGGGAACCCCAAG spacer
length: 37 repeater length: 29
11173 801032 TTTCAATTCTCTTATAGTCTTATTGGAAC AAGATCTACCTCCACAATGTCCCCATCTTAATTCCC spacer

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length: 37 repeater length: 29
11174 801099 TTTCAATTCTCTTATAGTCTTATTGGAAC CAAAAACATCCTTATACGGGTCAACACTCCACCGAC spacer
length: 37 repeater length: 29
11175 801166 TTTCAATTCTCTTATAGTCTTATTGGAAC GCGAGATCCTAAGGGACAAGTACGGCTTTGACTTTTCGG spacer
length: 39 repeater length: 29
11176 801235 TTTCAATTCTCTTATAGTCTTATTGGAAC CTTATGTCAGGTACTATTCTCTGATTATCATACTGAAT spacer
length: 39 repeater length: 29
11177 801304 TTTCAATTCTCTTATAGTCTTATTGGAAC GTTGCTACCCAAGTCTTGTATCACTCCAAGACCGTTCCA
11178
11179
11180 crispr 8
11181 154726 GGTTC AATAAGACTATAAGAGAATTGAAAG
ATTGCGCAGAAAAGCCGAAGAAGAACTCAAAACCTTCGTTC AATAAGACTATAAGAGAATTGAAAGCTCTTAACTGACTTATTA
TCTCAGATTTGGCTCC spacer length: 102 repeater length: 31
11182 154860 GGTTC AATAAGACTATAAGAGAATTGAAAG
TATTTTCAACAAATAAGACATAGAAAGCAAGAGCTTTATGTTCCA AATAAGACTATAAGAGAATTGAAAGGAACTGTGCTGGCTCGG
AGAGCTTCTTGCGGCCGG spacer length: 104 repeater length: 31
11183 154996 GGTTC AATAAGACTATAAGAGAATTGAAAG
CTCTCAGTGTCTTGACATCCACTGCAATCAGTTCCA AATAAGACTATAAGAGAATTGAAAGTCCCCTTGGGTGGACACTTGGAGG
CAAAACGGTAAAGTTCCA
11184
11185
11186 GCA_000264495.1_ASM26449v1_genomic.fna(findCrispr):
11187 START REPEAT
SPACER
11188 crispr 1
11189 968055 CTTTCAATTCTTCTTGATTGCTTC CTTCTGCAGGCACGCATCCAGTGTAGCGTACTCGCTCAA spacer
length: 39 repeater length: 24
11190 968119 CTTTCAATTCTTCTTGATTGCTTC ACCGAGGAGCAGAAGAAGGTGCTGGACGCCCTCAACGAGCTGATC spacer
length: 45 repeater length: 24
11191 968189 CTTTCAATTCTTCTTGATTGCTTC TTGTTACAGAGTTGGTTGTAGTACTCCGTCAGGAGATATCTGATT spacer
length: 45 repeater length: 24
11192 968259 CTTTCAATTCTTCTTGATTGCTTC GGCTGTGACGCGGAGGAGGGACATCCTAGATGCGTA spacer length:
36 repeater length: 24
11193 968320 CTTTCAATTCTTCTTGATTGCTTC TTTCTGGAGGCGCGTGGAGGACCTTCTAAAAGACATTTA spacer
length: 40 repeater length: 24
11194 968385 CTTTCAATTCTTCTTGATTGCTTC ATGAGTTGATCAACAAATACAATAAGGGCGAGTTGATCCC spacer
length: 40 repeater length: 24
11195 968450 CTTTCAATTCTTCTTGATTGCTTC TAGTAGTCCCTCGCAGTTCTCAACGTGTACGTAAACATGC spacer
length: 40 repeater length: 24
11196 968515 CTTTCAATTCTTCTTGATTGCTTC TGGCAGAGAGGTAGGGCGTGAACCTCGAGACGAGAATACTCG spacer
length: 42 repeater length: 24
11197 968582 CTTTCAATTCTTCTTGATTGCTTC AGAAAATGTATGTCCGCACATACCCAAGGAATACATAGAA spacer
length: 40 repeater length: 24
11198 968647 CTTTCAATTCTTCTTGATTGCTTC TCACTGGCGTCAAGAAGAGGTACGTGGCTCACGTGGTCTGG spacer
length: 41 repeater length: 24
11199 968713 CTTTCAATTCTTCTTGATTGCTTC ACCTCCTGGCAGAGGCTGACGCCCTGCTCAAGAAGCAGGAGA spacer
length: 42 repeater length: 24
11200 968780 CTTTCAATTCTTCTTGATTGCTTC CTCACCTAGGGGTCGTCCTCGTAGTCGTCGTCCTCGTAGTCC spacer
length: 42 repeater length: 24
11201 968847 CTTTCAATTCTTCTTGATTGCTTC ATTGAAGACTATCTTGTCTCGTCCACACCCTTGATGCACTCCGA spacer
length: 45 repeater length: 24
11202 968917 CTTTCAATTCTTCTTGATTGCTTC ACGGGTGTCAAGAAGGGCGAATGGGGCGCGGGAAAAA spacer
length: 39 repeater length: 24
11203 968981 CTTTCAATTCTTCTTGATTGCTTC AATATCGGCGAGAACGCGTTTCGTATCGCGTCGAAGATACCGCCG spacer
length: 45 repeater length: 24
11204 969051 CTTTCAATTCTTCTTGATTGCTTC TTGAGATGCGTTAGGTTAATTAGCCCGCATTAAGTGTATATAA spacer
length: 43 repeater length: 24
11205 969119 CTTTCAATTCTTCTTGATTGCTTC
TAATTCCACCTGTTGTACCCGCTCCAGTCTCTCCACCCTGAAGTACTTCCGC spacer length: 54 repeater
length: 24
11206 969198 CTTTCAATTCTTCTTGATTGCTTC ACTAGAAGTGTATCGTGATGTTCTGTGGTGGTACCACGAT spacer
length: 40 repeater length: 24
11207 969263 CTTTCAATTCTTCTTGATTGCTTC ACCCTATCACCGTGAGAAGTTATGTGTTAGAGGGAAAA spacer
length: 38 repeater length: 24
11208 969326 CTTTCAATTCTTCTTGATTGCTTC TTCTTTCAGTTTTTTCATAGGTGGGAGTCCTAACATAGATT spacer
length: 40 repeater length: 24
11209 969391 CTTTCAATTCTTCTTGATTGCTTC GATAGAGAAGCCGAGCTGGCTCGACCCGATTCTGCGAGACT spacer
length: 41 repeater length: 24
11210 969457 CTTTCAATTCTTCTTGATTGCTTC GCCTGGGTGCTGACGCGCCAAGGCATCGAGATAAACGT spacer
length: 38 repeater length: 24

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11211	969520	CTTTC AATTCTTCTTGATTGCTTC	ATGCTGTGTGGAAGGCGGCGCACAAAGAGGCTCGGCCCCGATA	spacer
	length:	41	repeater length:	24
11212	969586	CTTTC AATTCTTCTTGATTGCTTC	TCGACTCCTCGAGCTCTGCTAATATCTCCTCGTCGAGAACC	spacer
	length:	41	repeater length:	24
11213	969652	CTTTC AATTCTTCTTGATTGCTTC	ATGGTGAGGCTGTAATCAATGGACGCAGAATTGTATTCCCATATA	spacer
	length:	43	repeater length:	24
11214	969720	CTTTC AATTCTTCTTGATTGCTTC	CTGTACTCGTGAAGCTGGTTCACGACAGTTTTAATTTTCGC	spacer
	length:	41	repeater length:	24
11215	969786	CTTTC AATTCTTCTTGATTGCTTC	AGCCAAAAAGCTGGAGCTATACATGGGCTTTATGCTAAGCGGTAA	spacer
	length:	45	repeater length:	24
11216	969856	CTTTC AATTCTTCTTGATTGCTTC	CCGGGATAGACGTGGACAAATACGCCGACTCGATACTGGAGCTGAC	spacer
	length:	46	repeater length:	24
11217	969927	CTTTC AATTCTTCTTGATTGCTTC	TTAATGTACGCCACTTTTCGGGCGGTACACGTATCTTTGTT	spacer
	length:	41	repeater length:	24
11218	969993	CTTTC AATTCTTCTTGATTGCTTC	GGCGACGGAAATAGTTAAATCGGAGTGCGAGGTGTTAAAGACTTG	spacer
	length:	45	repeater length:	24
11219	970063	CTTTC AATTCTTCTTGATTGCTTC	AGCTCACCATGCGGATAACTAACTCCGACTCGGCGGCTAG	spacer
	length:	40	repeater length:	24
11220	970128	CTTTC AATTCTTCTTGATTGCTTC	TGGTGCCTCGAAGCGTACGAGGCGGGGCTGAAATATGCTGGCGGC	spacer
	length:	45	repeater length:	24
11221	970198	CTTTC AATTCTTCTTGATTGCTTC	AGAACCTGGCCACGCGAGAGGAGGCGGCAGAGATACTGCGTCACC	spacer
	length:	45	repeater length:	24
11222	970268	CTTTC AATTCTTCTTGATTGCTTC	AAGTATTTTAACATCACTGATCCAAGCCTCATTCCATCTAA	spacer
	length:	41	repeater length:	24
11223	970334	CTTTC AATTCTTCTTGATTGCTTC	TCGCGCGCGTGGGCGCCACCACAGCTGTGTACGCCAAG	spacer
	length:	38	repeater length:	24
11224	970397	CTTTC AATTCTTCTTGATTGCTTC	GTTGCGGATGTCGAGTTCGAAAGCGGCAGGCACGCGGT	spacer
	length:	38	repeater length:	24
11225	970460	CTTTC AATTCTTCTTGATTGCTTC	GTCAACGAGGTAGGAGTCTTGGAGCTTTGGATATTCAA AATT	spacer
	length:	42	repeater length:	24
11226	970527	CTTTC AATTCTTCTTGATTGCTTC	TTCCAAGCCGTAGAGCGTGATAAGACCAATGAACACTATA	spacer
	length:	40	repeater length:	24
11227	970592	CTTTC AATTCTTCTTGATTGCTTC	CCCCGAAGAAACACTTTTTTTCATCGCGGGTAATATTCCCT	spacer
	length:	40	repeater length:	24
11228	970657	CTTTC AATTCTTCTTGATTGCTTC	CCCGTCTTCTTCGACGCCGTGTACACCACGTAAAGCTTA	spacer
	length:	39	repeater length:	24
11229	970721	CTTTC AATTCTTCTTGATTGCTTC	CCCACGACCTTCAAGGCAACACACCCCCACAAGCTTATTAGC	spacer
	length:	42	repeater length:	24
11230	970788	CTTTC AATTCTTCTTGATTGCTTC	ATCGGGCCGAGGCGCTTGTGCGCCGCTTCCACACAGCATTA	spacer
	length:	42	repeater length:	24
11231	970855	CTTTC AATTCTTCTTGATTGCTTC	ACGTCGAGCAGGCTGTAAACCCGGGCTATTTAGCCGTGA ACT	spacer
	length:	42	repeater length:	24
11232	970922	CTTTC AATTCTTCTTGATTGCTTC	TGAGGAGGTACCAGCCGCCAGACTGGTGAACATACCTGC	spacer
	length:	40	repeater length:	24
11233	970987	CTTTC AATTCTTCTTGATTGCTTC	GAATGGAAACCCGAGAGATGGGGTTAGGCGATTTACAGCG	
11234				
11235				
11236	crispr 2			
11237	975000	GAAGCAATCAAGAAGAATTGAAAG	CGGACACCACAGCTGTGGCACCACAGGCTACGGCACAGGCTCC	spacer
	length:	43	repeater length:	24
11238	975068	GAAGCAATCAAGAAGAATTGAAAG	ACGATCGAGGAGGTCACGATACGAGACCCGGTA ACTAAGCAG	spacer
	length:	42	repeater length:	24
11239	975135	GAAGCAATCAAGAAGAATTGAAAG	GAACTCGATCATTGCGACCTGGCCTCAGTGCTTGCGCTTCTT	spacer
	length:	42	repeater length:	24
11240	975202	GAAGCAATCAAGAAGAATTGAAAG	GCATAGCCGAGCTCGCCGAGACCAGGCTGAAGGGGGGTGCGGGC	spacer
	length:	44	repeater length:	24
11241	975271	GAAGCAATCAAGAAGAATTGAAAG	CGAGCATCTGCTTGAAAGCCGTGAACAATCCGAGCTCGGGGTAT	spacer
	length:	44	repeater length:	24
11242	975340	GAAGCAATCAAGAAGAATTGAAAG	AGCACTTGACTCGCTCTAGAGAAGTCGTAGCCATACTCA	spacer
	length:	39	repeater length:	24
11243	975404	GAAGCAATCAAGAAGAATTGAAAG	TACAAGGTGATGGAAGAGGCCGCTACACCACTCCGAGC	spacer
	length:	39	repeater length:	24
11244	975468	GAAGCAATCAAGAAGAATTGAAAG	TTAGTACTGGTTTACCATCGGTTGTTGTAAAGTACTCTACTT	spacer
	length:	42	repeater length:	24
11245	975535	GAAGCAATCAAGAAGAATTGAAAG	CATTTTTACCCTTCGCCCCCTACGGTAAAGAATAGCCGTGG	spacer
	length:	40	repeater length:	24
11246	975600	GAAGCAATCAAGAAGAATTGAAAG	TTACTA ACTGCTTGAACAGCTTTCGCGGTTTATTGAGTAGTA	spacer
	length:	42	repeater length:	24
11247	975667	GAAGCAATCAAGAAGAATTGAAAG	CCTTAGAGCTCTTGAAGGGGATGACAATCCTGTCTGCTCC	spacer
	length:	38	repeater length:	24
11248	975730	GAAGCAATCAAGAAGAATTGAAAG	GTTTAGCGTCGTGTCTGAAGATTTCTGATTCTGTCGAAGATT	spacer

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length: 40 repeater length: 24
11249 975795 GAAGCAATCAAGAAGAATTGAAAG ACTTGAGAGTAGCCTCGTGAGTTTAGCATAAACATACTC spacer
length: 39 repeater length: 24
11250 975859 GAAGCAATCAAGAAGAATTGAAAG CGGGGACGGAGAGCAGCTCGTCTTCGACGAAGTGTACGAG spacer
length: 40 repeater length: 24
11251 975924 GAAGCAATCAAGAAGAATTGAAAG ACTCCATGATACAAAAACGCCCTTTCAAATTTCCCTCCTTTA spacer
length: 42 repeater length: 24
11252 975991 GAAGCAATCAAGAAGAATTGAAAG GGCGACTACTACGACTACGAGTGGAATCTTCAACGAATA spacer
length: 41 repeater length: 24
11253 976057 GAAGCAATCAAGAAGAATTGAAAG TCAGCTAACCCATCACTCACTATTGGAACACAACATACACCATCCCAG
spacer length: 49 repeater length: 24
11254 976131 GAAGCAATCAAGAAGAATTGAAAG ACTACCGCATATTGACCAGCCTGACCCAACCAGAGGTAAACA spacer
length: 43 repeater length: 24
11255 976199 GAAGCAATCAAGAAGAATTGAAAG TTTTACCCCAGTCAAACAGGACATCTATAATGTGATACT spacer
length: 39 repeater length: 24
11256 976263 GAAGCAATCAAGAAGAATTGAAAG TTTATGGTGTGGACCGGTACACGTACCCGCGTTTCACAG spacer
length: 40 repeater length: 24
11257 976328 GAAGCAATCAAGAAGAATTGAAAG GTACTTTTTCCAGTCTTCAAGACCCACGGATCCTTA spacer length:
37 repeater length: 24
11258 976390 GAAGCAATCAAGAAGAATTGAAAG TTTTTTAAATATAAGTTGCATACCCTTCTCCTAGGTGATGAG spacer
length: 42 repeater length: 24
11259 976457 GAAGCAATCAAGAAGAATTGAAAG AGACAGATAATCATTCACCCAGAACATCACGGTGCCT spacer
length: 40 repeater length: 24
11260 976522 GAAGCAATCAAGAAGAATTGAAAG TTCCACGGGAGTCGCCTTTTATTCTTATTTATAAATATTT spacer
length: 40 repeater length: 24
11261 976587 GAAGCAATCAAGAAGAATTGAAAG GAGAGGTAGGGCGTGAACCTCGAGACGAGAATACTCGTCT
11262
11263
11264 GCA_000265525.1_ASM26552v1_genomic.fna(findCrispr):
11265 START REPEAT
SPACER
11266 crispr 1
11267 49 TTGCAATAA GACTCTGGGAGAATTGAAACATTAGTATCACGGGCAGGCTTATCGCCCCTGCTACTA spacer
length: 57 repeater length: 9
11268 116 TTGCAATAA GACTCTGGGAGAATTGAAACTAGAGTATCACTTGCTCCACGCCATTGGCTTTAGCCTCA spacer
length: 59 repeater length: 9
11269 185 TTGCAATAA GACTCTGGGAGAATTGAAACTAAGCATTTTTTGCCTTCGTGTCGTATGTAGTCTTAA spacer
length: 57 repeater length: 9
11270 252 TTGCAATAA GACTCTGGGAGAATTGAAACCTGGCAACAGCATAAAGTACTGCCCACCTGTTACCAA spacer
length: 57 repeater length: 9
11271 319 TTGCAATAA GACTCTGGGAGAATTGAAACGGCTGCCCCCTGGGTACTCTATTACCGCTGCCGTCCTA spacer
length: 58 repeater length: 9
11272 387 TTGCAATAA GACTCTGGGAGAATTGAAACAGTTTAAGAAGGCCGTTTACGACGGAGAGGGCTTTT spacer
length: 56 repeater length: 9
11273 453 TTGCAATAA GACTCTGGGAGAATTGAAACGTTGGCGGCATGAGCGTGGGCGAGGGCATCGTGAAC spacer
length: 56 repeater length: 9
11274 519 TTGCAATAA GACTCTGGGAGAATTGAAACATAATCCTTTTGTGTTGTATAGTTCACTACTCTTAATGT spacer
length: 58 repeater length: 9
11275 587 TTGCAATAA GTGGTTCTGAAACGGTTAACTTTTTTGCCCTATTGAGCAAATAGAGTAACGCCGAACC
11276
11277
11278 crispr 2
11279 1722316 TTTCCACACAATTCTGTCCTA TGGAAACTCTACGATGCAGACAACGATCTTGACGTGACAATGCTTTT spacer
length: 47 repeater length: 21
11280 1722385 TTTCCACACAATTCTGTCCTA TGGAAACTTCGTCAAGGCATGGGATCTCATTCTTACACAATTCTGA spacer
length: 45 repeater length: 21
11281 1722452 TTTCCACACAATTCTGTCCTA CGGAAACTCCTGGACGTCAAGGAAGAGTACGTACTCCCCGGGTTCGT spacer
length: 47 repeater length: 21
11282 1722521 TTTCCACACAATTCTGTCCTA CGGAAACGGGCAGAATCAGAACGTTTCAGCGCTCGCGAACATGACGA spacer
length: 47 repeater length: 21
11283 1722590 TTTCCACACAATTCTGTCCTA CGGAAACGCACAGAAGCCCTTGAGGCAATCAGCTCGCTGAGAGTG spacer
length: 45 repeater length: 21
11284 1722657 TTTCCACACAATTCTGTCCTA CGGAAACAGAAGTGATTAGAGCGGAGGAAGGCCCAAGGTAACC spacer
length: 43 repeater length: 21
11285 1722722 TTTCCACACAATTCTGTCCTA CGGAAACACATCACAAACCGCTCCTGGCCGACCTGGACGAAGTAA spacer
length: 45 repeater length: 21
11286 1722789 TTTCCACACAATTCTGTCCTA CGGAAACCAGAGAAATTCGGGGCTTTCAAGATTCCGGACGACAA spacer
length: 44 repeater length: 21
11287 1722855 TTTCCACACAATTCTGTCCTA CGGAAACTGCAGTTGCACGTGCCGTTGCTAATCCCCGTCCAGTTCACG
spacer length: 48 repeater length: 21
11288 1722925 TTTCCACACAATTCTGTCCTA CGGAAACAAAACGCTGTTTTCTGTCCTCCTCTTCGACTTCGAAATCGA spacer

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length: 47 repeater length: 21
11289 1722994 TTTCCACACAATTCTGTCCTA CGGAAACATGTTTCGAGGAGGTTGAGAAGAATGGAGGCTGAAAAGGT spacer
length: 46 repeater length: 21
11290 1723062 TTTCCACACAATTCTGTCCTA CGGAAACAAGGAGGTGAAGACATGAGCACCCGCCTCTTTGACGT spacer
length: 44 repeater length: 21
11291 1723128 TTTCCACACAATTCTGTCCTA CGGAAACAGTATGACCCTCTCGACCTCCATCATGCCCACCACCTT spacer
length: 45 repeater length: 21
11292 1723195 TTTCCACACAATTCTGTCCTA CGGAAACTTATTGTTGCAGCAAGATCAGTATATATGTCAGGAGCA spacer
length: 45 repeater length: 21
11293 1723262 TTTCCACACAATTCTGTCCTA CGGAAACATGAGCGTGAACGTGGAACCTTACCCCTCCAGCGCGGCCGT
spacer length: 48 repeater length: 21
11294 1723332 TTTCCACACAATTCTGTCCTA CGGAAACTCATGAGCGACCCTCCTTCTCTACAGGGGGCAGTTCTT spacer
length: 45 repeater length: 21
11295 1723399 TTTCCACACAATTCTGTCCTA CGGAAACACGACCTCAGGGACGGCCCCACCGAGGTAAACGAGCT spacer
length: 44 repeater length: 21
11296 1723465 TTTCCACACAATTCTGTCCTA CGGAAACTCCGCGAGGTCCGGGTCCATGCTGAGAAGGTGATTA spacer
length: 43 repeater length: 21
11297 1723530 TTTCCACACAATTCTGTCCTA CGGAAACTTGACTTCTACTCGAACGTTTACAGGCAGAAGGTCAT spacer
length: 44 repeater length: 21
11298 1723596 TTTCCACACAATTCTGTCCTA CGGAAACCCTTCACTTCCGGCGGAACTACGTCCCGAATTCTAT spacer
length: 43 repeater length: 21
11299 1723661 TTTCCACACAATTCTGTCCTA GTTAACTTTTTTGCCTATTGAGCAAATAGAGTAACGCCGAA
11300
11301
11302 crispr 3
11303 1868115 GTTTCAGAACCACATGATGTTTGGAAAC
GAGCTAATGAAGCTTCTGAAGGAGTTTAACATCACGAACCCCGCACCCAGCTCCC spacer length: 56 repeater
length: 28
11304 1868200 GTTTCAGAACCACATGATGTTTGGAAAC
TAACCCAGCTTGACGAACCTCTGGAGGGAGTGTTTTGTTGTCAATCCACG spacer length: 52 repeater
length: 28
11305 1868281 GTTTCAGAACCACATGATGTTTGGAAAC GTCCCCCTTCCAGCGATGCCGTCACAATCTCGGGGTAAAGTTCA
spacer length: 46 repeater length: 28
11306 1868356 GTTTCAGAACCACATGATGTTTGGAAAC AGCGCCTTGAGGAGCTTAAGCTCCTCGTCTGACTAT spacer
length: 35 repeater length: 28
11307 1868420 GTTTCAGAACCACATGATGTTTGGAAAC
TCGTCCATGGAGCCACTGACGTCGACGAATACTATGAGGAGTGGCGCCTTCT spacer length: 52 repeater
length: 28
11308 1868501 GTTTCAGAACCACATGATGTTTGGAAAC
GGTACTGTAACCACAGGTTTTTGTGCAACCTGATGTTGAGTTTCAGAACCAC
11309
11310
11311 crispr 4
11312 1709598 GTTTCCAAACATTATGTGGTTCTGAAAC
TCGAAGAAATCAGGAATACAATAGACGATTTTCGACGAGCTCCCCGACA spacer length: 48 repeater length: 28
11313 1709675 GTTTCCAAACATTATGTGGTTCTGAAAC ACCATAACTTAAATGAAGCGTTTCGGTAACGCTCAAAC spacer
length: 38 repeater length: 28
11314 1709742 GTTTCCAAACATTATGTGGTTCTGAAAC CGGGGAGTGCGATAAGCTTCCTCAGTTTTGCTAAGGA spacer
length: 37 repeater length: 28
11315 1709808 GTTTCCAAACATTATGTGGTTCTGAAAC
GCGGATGAAGTTTGGAAGGCTATTAAAGAGGGTAAATTAAGGGGTTCAGTATTGGTG spacer length: 58
repeater length: 28
11316 1709895 GTTTCCAAACATTATGTGGTTCTGAAAC
TCGTGAAAGTTGATGGTAATGTAGGATTCTTCAACGGAGAGCGCCTCG spacer length: 48 repeater length: 28
11317 1709972 GTTTCCAAACATTATGTGGTTCTGAAAC
ATCATTCCAAGCGAAATGTCACCAACCAAGTTAGAGTTGATAACTGCT spacer length: 48 repeater length: 28
11318 1710049 GTTTCCAAACATTATGTGGTTCTGAAAC GGTGCTCTTGCTCTCGTAGGCGCTGCCAATGTTGCAATAAGACTCTA
11319
11320
11321 crispr 5
11322 1745480 CTTTCCACACAACACTGTTCTACGGAAAC
ACAGTTGGTGAGTGACTCTCCTCACGAATCCGGACTTCTTTCCACACAATTCTGTCCTACGGAACTCGGGCAAGTGGCTGAACA
TTGCGCATCTTCCCGACG spacer length: 104 repeater length: 29
11323 1745614 CTTTCCACACAACACTGTTCTACGGAAAC TGCTTTGGATTGCCCATATCTCGCTTTTCTGGATTG spacer
length: 36 repeater length: 29
11324 1745680 CTTTCCACACAACACTGTTCTACGGAAAC CTCCGAGGTTTCGAGAGCGAGGAGATACCGCTGACTTCCA spacer
length: 39 repeater length: 29
11325 1745749 CTTTCCACACAACACTGTTCTACGGAAAC TCTGTCCTCAGGGTGGCCGTTGAGGTTCTGAAGG spacer
length: 34 repeater length: 29
11326 1745813 CTTTCCACACAACACTGTTCTACGGAAAC GGTGAATTACAATGAAGTGTCTGTCTGCGGTGGGGAG spacer
length: 38 repeater length: 29

11327 1745881 CTTTCCACACAACACTGTTCTACGGAAAC CTCCTTCTTAGCCGCGTTCAACTGGTTCTGGATTTCC spacer
length: 37 repeater length: 29
11328 1745948 CTTTCCACACAACACTGTTCTACGGAAAC TGAAAACGTCGTCGATTGAAGACTGGTCGCAGAGA spacer
length: 35 repeater length: 29
11329 1746013 CTTTCCACACAACACTGTTCTACGGAAAC TTGATGTCGCAGGGCTTCTTGGTGGTGACAATGCA spacer
length: 35 repeater length: 29
11330 1746078 CTTTCCACACAACACTGTTCTACGGAAAC TGGTAAGTGTTCGACTTGCTTTAAGAGATGGGTTGCTT spacer
length: 38 repeater length: 29
11331 1746146 CTTTCCACACAACACTGTTCTACGGAAAC CATAGACCGCTCCCGCTACCGAACTCCCTAATAATA spacer
length: 36 repeater length: 29
11332 1746212 CTTTCCACACAACACTGTTCTACGGAAAC GTTCCAAAGTTCATGATCTGGGATGGAGACTATATT spacer
length: 36 repeater length: 29
11333 1746278 CTTTCCACACAACACTGTTCTACGGAAAC GGGAGTTTTTGGCTACGTATTGGGTTCTCTTT spacer
length: 33 repeater length: 29
11334 1746341 CTTTCCACACAACACTGTTCTACGGAAAC TTTTGTGTGTATAGTTCACTACTCTTAATGTGT
11335
11336
11337 crispr 6
11338 1877573 TGTTTCAGAACCACATAATGTTTGGAAAC
GACACCCTCAATCTCAAACCTCAACGAGGGGTAGTCCCTTCTCTTCTT spacer length: 50 repeater
length: 29
11339 1877653 TGTTTCAGAACCACATAATGTTTGGAAAC
CCACGCTGACGATATAGGACACAACCTTACCGAGTGGGCTATCCGAC spacer length: 47 repeater length: 29
11340 1877730 TGTTTCAGAACCACATAATGTTTGGAAAC CGGGTCGCTCTTGCTCTCGTAGGCGCTGCCAATGTTGCAATAAGACT
11341
11342
11343 crispr 7
11344 100516 TTTCAATTCTCCCAGAGTCTTATTGCAAC GTGATGACGCCCCACCACATCTTTTTAGTTTATGTTA spacer
length: 37 repeater length: 29
11345 100583 TTTCAATTCTCCCAGAGTCTTATTGCAAC GGGCTTCATGAACGGCTCATTCTCCTTTCAATTCTT spacer
length: 36 repeater length: 29
11346 100649 TTTCAATTCTCCCAGAGTCTTATTGCAAC CAGCTTTGAAATGCTCGCGAGGAAGTTCGACATCCCCA spacer
length: 38 repeater length: 29
11347 100717 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTGGGTGGCGTCAAGATAATACAATGCCCCCTCCC spacer
length: 36 repeater length: 29
11348 100783 TTTCAATTCTCCCAGAGTCTTATTGCAAC TGTGCTGTGGGCCTTTGCAAAGACTCTCTCCTATGTCA spacer
length: 38 repeater length: 29
11349 100851 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTGCCTACCGTAACGGCCTTGGTAAACTGCGTTTCCC spacer
length: 37 repeater length: 29
11350 100918 TTTCAATTCTCCCAGAGTCTTATTGCAAC GAAGCGGTTGATTTGGCTCAACCGCTCATCAACGT spacer
length: 35 repeater length: 29
11351 100983 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCGAAAATTTTGGATTTTTTGGCACAGAAAGTTAGCA spacer
length: 37 repeater length: 29
11352 101050 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACACCACGGTCGCCCACCTTCCGCTCAATCCTGA spacer
length: 34 repeater length: 29
11353 101114 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCAAAAACAAAACCACCGTTCCCGCCGTTCCCCTTAT spacer
length: 37 repeater length: 29
11354 101181 TTTCAATTCTCCCAGAGTCTTATTGCAAC CCATCATAACCGCCATACTACTCCCCAACATAACC spacer
length: 35 repeater length: 29
11355 101246 TTTCAATTCTCCCAGAGTCTTATTGCAAC TAGCGGCTGACCCACAAGTTAAAGCCGCTAATCTGGT spacer
length: 37 repeater length: 29
11356 101313 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTCTCTTCTTATAAAAGGTTTACTTCCAGTGGAAACCAC spacer
length: 38 repeater length: 29
11357 101381 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCCATGGCCCCGGCCAATGCGATGAACGCGTCGGCCA spacer
length: 37 repeater length: 29
11358 101448 TTTCAATTCTCCCAGAGTCTTATTGCAAC AGAGATAAAGGGGAAAGCCGCTACAAACCTGGAAAA spacer
length: 36 repeater length: 29
11359 101514 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACCGCCGACTACAAGTTCTACATCGTGCCGAATCC spacer
length: 35 repeater length: 29
11360 101579 TTTCAATTCTCCCAGAGTCTTATTGCAAC AAAATCCTTGAGCGCGTGTTCAGGAGGCAGTGAAGAC spacer
length: 38 repeater length: 29
11361 101647 TTTCAATTCTCCCAGAGTCTTATTGCAAC CCGCTATGGCGAGTATCCCTACACTTGCCTGCAACTC spacer
length: 37 repeater length: 29
11362 101714 TTTCAATTCTCCCAGAGTCTTATTGCAAC GGGCGCTCAAGACTGCTTTATGATAAAACCCCGATACT spacer
length: 38 repeater length: 29
11363 101782 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCGCAGTAAAAACAGTGCCCGACTGCCTGGAATAATGC spacer
length: 38 repeater length: 29
11364 101850 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTCTGGCCTTGGCCTTATCTTTAACCTTCAGCTTCA spacer
length: 36 repeater length: 29
11365 101916 TTTCAATTCTCCCAGAGTCTTATTGCAAC TTCCGTTCTGCTTGAAGTATTCAACGATAACTTCA spacer
length: 35 repeater length: 29

11366 101981 TTTCAATTCTCCCAGAGTCTTATTGCAAC AGGACGTTGAGCGGGTGAGGGAAGTCTGAGGGAGACTTT spacer
length: 37 repeater length: 29
11367 102048 TTTCAATTCTCCCAGAGTCTTATTGCAAC AGCCTCTTATGCACTGAACCAGAATTCTCCAGAATTC spacer
length: 37 repeater length: 29
11368 102115 TTTCAATTCTCCCAGAGTCTTATTGCAAC AAAATCCTTGAGCGCGTGTTCAGGAGGCAGTGAAGAC spacer
length: 38 repeater length: 29
11369 102183 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCTTAAGTAGGCGTTGCCTTCTTTTGTACATAATA spacer
length: 36 repeater length: 29
11370 102249 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACCTTATCTCTCTCACTCATTCTCGCTCACCTCTCG spacer
length: 36 repeater length: 29
11371 102315 TTTCAATTCTCCCAGAGTCTTATTGCAAC CATCTTGCCGTCTTTCTGCTAAGTTGGTGGCAAATTC spacer
length: 37 repeater length: 29
11372 102382 TTTCAATTCTCCCAGAGTCTTATTGCAAC CGAGACAGACGTTCCAAATAAAATGGAACAGAA spacer
length: 33 repeater length: 29
11373 102445 TTTCAATTCTCCCAGAGTCTTATTGCAAC TTCTGGAGGTTTGGACTAAGGAGGCTGACGGCCACCCC spacer
length: 38 repeater length: 29
11374 102513 TTTCAATTCTCCCAGAGTCTTATTGCAAC GACCATCGCCGAAGCCTGCCCTTGTGTGCTTCGTC spacer
length: 36 repeater length: 29
11375 102579 TTTCAATTCTCCCAGAGTCTTATTGCAAC ACTAAAACCGCCTCGCTCGATTGGGTTTGTGGTGAAAGTG spacer
length: 40 repeater length: 29
11376 102649 TTTCAATTCTCCCAGAGTCTTATTGCAAC GGCCTGGAGGAGTTTGCAGGCGCCGTAAGTTCCGTAG spacer
length: 37 repeater length: 29
11377 102716 TTTCAATTCTCCCAGAGTCTTATTGCAAC CTATGACGTCGAGCTTTTTGATTTTTGTCTGGGTCGAG spacer
length: 37 repeater length: 29
11378 102783 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCGGAGAGTGGGAGGGCTTTCTCGCGGTAACGGATAG spacer
length: 37 repeater length: 29
11379 102850 TTTCAATTCTCCCAGAGTCTTATTGCAAC GCTGAGCATGTGGGTAAGCTGGTTGAGGTGAAGGGTCG spacer
length: 38 repeater length: 29
11380 102918 TTTCAATTCTCCCAGAGTCTTATTGCAAC ATTCAGCCTCATTCTCTGCTATTTCTGCTATTTCTCTC spacer
length: 37 repeater length: 29
11381 102985 TTTCAATTCTCCCAGAGTCTTATTGCAAC TTCTTCTCATTGTGCGAGGTAGATGATGACTCCGTAG spacer
length: 36 repeater length: 29
11382 103051 TTTCAATTCTCCCAGAGTCTTATTGCAAC TCCTTTTGTGTATAGTTCACTACTCTTAATGTGT
11383
11384
11385 crispr 8
11386 1877974 GAGTTTCAGAACCACATAATGTTTGAAAC TCATGATTGGAGCCAGATTACCAACCCGCCCTC spacer
length: 33 repeater length: 30
11387 1878038 GAGTTTCAGAACCACATAATGTTTGAAAC
ACCCTACCGCGGCGGTAAATAGATTACCTCCCCCTGAATGGGTTTCAGAACCACATAATGTTTGAAACGCTATGGCCAATATGAAC
GGTACAACGTACGCCAGGAACATGT spacer length: 111 repeater length: 30
11388 1878180 GAGTTTCAGAACCACATAATGTTTGAAAC
GGGAATTCGCCCCGTTGCCCCAGTAAAAGCCTATGCAGTCTCGAATATTTAAGCCTTTCTGAAGACCACTGGAAAAGAGCCCGCCA
AAAGTCGTGGATCCAAGAAGCCAAA
11389
11390
11391 crispr 9
11392 347447 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTTACCAACGCCGCCGCGAGGTCGTCGCCGTG spacer
length: 33 repeater length: 30
11393 347511 GTTGCAATAAGACTCTAGGAGAATTGAAAC AGGAGGAGGCCTGGCGGAGGGTCGAGAGAATCCACATG spacer
length: 38 repeater length: 30
11394 347580 GTTGCAATAAGACTCTAGGAGAATTGAAAC ACACACGAAGTTATTGCAATTTTGGCGTTATTGGTGGG spacer
length: 38 repeater length: 30
11395 347649 GTTGCAATAAGACTCTAGGAGAATTGAAAC TTGGCTGAGCGTCGGTAACTTGTGCGCTTGCAATAG spacer
length: 37 repeater length: 30
11396 347717 GTTGCAATAAGACTCTAGGAGAATTGAAAC ATACTTGCCACCGCTGTAATACAGAACCTCGCCCGT spacer
length: 36 repeater length: 30
11397 347784 GTTGCAATAAGACTCTAGGAGAATTGAAAC CACGAGGCGACAACCTACTCGAATATAAAAGACAAC spacer
length: 35 repeater length: 30
11398 347850 GTTGCAATAAGACTCTAGGAGAATTGAAAC GGGGTCGAGTGATGAGCACGACGCCAGAATGCTT spacer
length: 35 repeater length: 30
11399 347916 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTATAAGTAGCCGTCTCAATCCCTCGACTGCCCACCT spacer
length: 37 repeater length: 30
11400 347984 GTTGCAATAAGACTCTAGGAGAATTGAAAC GTAGTAGCGTTATAGTCTATGCTGAGGCTGCTAACA spacer
length: 36 repeater length: 30
11401 348051 GTTGCAATAAGACTCTAGGAGAATTGAAAC CTCTTCTTTATCGTGCCTATAATCGCTGGTAGCGTG spacer
length: 36 repeater length: 30
11402 348118 GTTGCAATAAGACTCTAGGAGAATTGAAAC CTGTGCTTCTTGTAGATGGCCTCAAGGACTTCGTTGA spacer
length: 37 repeater length: 30
11403 348186 GTTGCAATAAGACTCTAGGAGAATTGAAAC TCATTTCTGAGGGCGACATAAAGGCCTATAACTACA spacer
length: 36 repeater length: 30

11404 348253 GTTGAATAAGACTCTAGGAGAATTGAAAC GGCCGTCCCGGTGAGCGTTGCCGCTGAGACGGATAA spacer
length: 36 repeater length: 30
11405 348320 GTTGAATAAGACTCTAGGAGAATTGAAAC GCACTTCCGCGTCAATCCACCTCGGGTCGCTGTCTGT spacer
length: 37 repeater length: 30
11406 348388 GTTGAATAAGACTCTAGGAGAATTGAAAC AAGCTTAAACGGGGGTATCTCGTAAAAATCGCCGCC spacer
length: 36 repeater length: 30
11407 348455 GTTGAATAAGACTCTAGGAGAATTGAAAC ATCGACGAAAATTTAATAATCGGGCTGGTGGGTGGTTG spacer
length: 38 repeater length: 30
11408 348524 GTTGAATAAGACTCTAGGAGAATTGAAAC AGTAACCTTATCAGGTCCTTAGCCCTTCCCTCCGC spacer
length: 35 repeater length: 30
11409 348590 GTTGAATAAGACTCTAGGAGAATTGAAAC CAAGCTTTACATATGCCTCATTCCCCGCCAGTATAA spacer
length: 37 repeater length: 30
11410 348658 GTTGAATAAGACTCTAGGAGAATTGAAAC TGTTGTACGTGAACATACCCTCTTCCATGGCATCAA spacer
length: 36 repeater length: 30
11411 348725 GTTGAATAAGACTCTAGGAGAATTGAAAC GTGAGCATTTTCATATTTTTGCCCTTTGTTATACAA spacer
length: 36 repeater length: 30
11412 348792 GTTGAATAAGACTCTAGGAGAATTGAAAC GCACGCTCAGCGGCGGCTACATTGCAATCGACAGC spacer
length: 35 repeater length: 30
11413 348858 GTTGAATAAGACTCTAGGAGAATTGAAAC ATGCCAACGTCAGCATGGAGGACGTTCTCAAGGCG spacer
length: 35 repeater length: 30
11414 348924 GTTGAATAAGACTCTAGGAGAATTGAAAC AGGAAGAGTTACATCATACTGGTGGACCCGGAGGT spacer
length: 35 repeater length: 30
11415 348990 GTTGAATAAGACTCTAGGAGAATTGAAAC GCGATCGGGTTTTTCAGTCTTAATCCACACCACTAGGG spacer
length: 37 repeater length: 30
11416 349058 GTTGAATAAGACTCTAGGAGAATTGAAAC CTGAGTAATTTTAGGCTCGTTGAGGACCTCGGCGTCG spacer
length: 37 repeater length: 30
11417 349126 GTTGAATAAGACTCTAGGAGAATTGAAAC TCGTCGAGCGTTACGGGGTCCCGCTTCATGCTCGCG spacer
length: 36 repeater length: 30
11418 349193 GTTGAATAAGACTCTAGGAGAATTGAAAC AGACTGCATCAAGGAAGGCTGCGACAGTGACGTTTT spacer
length: 36 repeater length: 30
11419 349260 GTTGAATAAGACTCTAGGAGAATTGAAAC GTCATTGCGAGCATTGCGATGCTACCGATGACGAGG spacer
length: 36 repeater length: 30
11420 349327 GTTGAATAAGACTCTAGGAGAATTGAAAC GGTAGATAATCCAGAAAGCCCTGGCCGTCTCTGCAA spacer
length: 36 repeater length: 30
11421 349394 GTTGAATAAGACTCTAGGAGAATTGAAAC TTGCCTCGGTCTGCTGTACGGTGATGTTATGTTG spacer
length: 37 repeater length: 30
11422 349462 GTTGAATAAGACTCTAGGAGAATTGAAAC AACAGAACCATCTCAGAGTTTGTCTATGCCTATCACC spacer
length: 36 repeater length: 30
11423 349529 GTTGAATAAGACTCTAGGAGAATTGAAAC AGGGCAACGCTTATAATCAGTTTCAGCGCGTAGTTTCG spacer
length: 37 repeater length: 30
11424 349597 GTTGAATAAGACTCTAGGAGAATTGAAAC CTTGCTTATAAGGGGCAGAATTCTACCCCTTTTCG spacer
length: 35 repeater length: 30
11425 349663 GTTGAATAAGACTCTAGGAGAATTGAAAC AGAGCGGTGCTTATCTTCTCTGGAAGCCTTGACTCTT spacer
length: 37 repeater length: 30
11426 349731 GTTGAATAAGACTCTAGGAGAATTGAAAC GTACCTGAGGCCGAACCGCCTCCAGCCCCAAACCTTGA spacer
length: 39 repeater length: 30
11427 349801 GTTGAATAAGACTCTAGGAGAATTGAAAC GAAGTATCTCATCGAGAACAAAGACGCGTTGCGTGT spacer
length: 36 repeater length: 30
11428 349868 GTTGAATAAGACTCTAGGAGAATTGAAAC ATTCCCCGGGTCTCGATTTTAAGTTCTTCCTTCAC
11429
11430
11431 crispr 10
11432 1740098 AGCTTTCCACACAATTCTGTCCTACGGAAAC TCAGCCTCAGGATCAGCAGATTGACAAAGAAACA spacer
length: 34 repeater length: 31
11433 1740164 AGCTTTCCACACAATTCTGTCCTACGGAAAC
AAGAGATGAAGCGCTCATTCCATCATCACCTCACGCCCTGCTTTCCACACAATTCTGTCCTACGGAAACGAATGAGTCTGGAGGA
CTTTCTTATGCCTACTGAAG spacer length: 106 repeater length: 31
11434 1740302 AGCTTTCCACACAATTCTGTCCTACGGAAAC
GGAACGTCGGCCCGTCCCTGGTCACACTTTCCACACAATTCTGTCCTACGGAAACGCTCCGGGAATTCCCCGGGTCTCGATTTTA
AGTTCTTTCTTCACCGCTAT
11435
11436
11437 GCA_000270325.1_ASM27032v1_genomic.fna (findCrispr):
11438 START REPEAT
SPACER
11439 crispr 1
11440 897008 TCCCGCGAGAGGGA ATTGAAAGATCTGAATCCCATCCCCTATGATACACATTTGACTCTGCACCCTCTG
spacer length: 56 repeater length: 14
11441 897079 TCCCGCGAGAGGGA ATTGAAAGATGTTTAGCGGGTCTATTCCGTCGCCTGACACTGTATATCTCTG spacer
length: 52 repeater length: 14
11442 897146 TCCCGCGAGAGGGA ATTGAAAGGAGCTCGAGAAGAAACGCATAGCCGAGGAAATAGCCAGGCTCCTG spacer

length: 53 repeater length: 14
11443 897214 TCCCGCGAGAGGGA ATTGAAAGACTTCGGTATTGTAGTCACCAAGTCTCCAAAGAAGATTATCTGCTG spacer
length: 54 repeater length: 14
11444 897283 TCCCGCGAGAGGGA ATTGAAAGCTTGGGGGGTGAAGACATGAGTTTCACAGGACTACGTCAACCTCTG spacer
length: 55 repeater length: 14
11445 897353 TCCCGCGAGAGGGA ATTGAAAGCTATGCTGGTGGAAAAACCTCCGAAAGCGCCCTAACAGCTG spacer
length: 49 repeater length: 14
11446 897417 TCCCGCGAGAGGGA ATTGAAAGACTCCGAGGATGTTGATGATTGGTGTGAGGACATCGAATATCACTG spacer
length: 54 repeater length: 14
11447 897486 TCCCGCGAGAGGGA ATTGAAAGCCATGGAAAAAAGGAGGGGGAGTTTGTGAATGTAGCAGGTTCTG spacer
length: 54 repeater length: 14
11448 897555 TCCCGCGAGAGGGA ATTGAAAGTAAAGACATCAACGATAGGCATCAGGATTTCTACGACAGTCTG spacer
length: 51 repeater length: 14
11449 897621 TCCCGCGAGAGGGA ATTGAAAGGCTGAAACTCGCTGACCATTTTCGTACCCCCTCCCGCCGGGAGGCTTCTG
spacer length: 58 repeater length: 14
11450 897694 TCCCGCGAGAGGGA ATTGAAAGTATAAAGTGAAGTTTGAGGGCATGTTTAGTAAGATAGTTTCTG spacer
length: 51 repeater length: 14
11451 897760 TCCCGCGAGAGGGA ATTGAAAGACATTAAGCAGACGGGAGAGGAGGAAGTCAAAGACCTCGTCCTG spacer
length: 52 repeater length: 14
11452 897827 TCCCGCGAGAGGGA ATTGAAAGCCGATAGCCAGCCGGAAACCTATGAACTCCTGTCTGAGACCCTG spacer
length: 52 repeater length: 14
11453 897894 TCCCGCGAGAGGGA GGATCAGTAGTGCGGATTTTAGTGCTCTTCAGAAGGAAAAGTTCCTGGATCT
11454
11455
11456 crispr 2
11457 104395 CTTTCAATTCCCTCTCGCGGGATCA GTGAGAGCGAACCTCATAGGTGTGGGAATGGATTTGAAAAGTG spacer
length: 43 repeater length: 25
11458 104464 CTTTCAATTCCCTCTCGCGGGATCA GACTGCATCGACTGCCAAAAAGTTCTGAAGCCGACGAGGACA spacer
length: 42 repeater length: 25
11459 104532 CTTTCAATTCCCTCTCGCGGGATCA GTTAAATACCTTTATCCAGAGGCTCAGGGTATGGCGAAATTA spacer
length: 42 repeater length: 25
11460 104600 CTTTCAATTCCCTCTCGCGGGATCA GCCGCGATGACTTTTCCGTCTGCGTTTAATGCCTCGACGAA spacer
length: 41 repeater length: 25
11461 104667 CTTTCAATTCCCTCTCGCGGGATCA GACCCACCAAACCTTTATCATAAAATTCTATCAAACCTTATATACTT
spacer length: 46 repeater length: 25
11462 104739 CTTTCAATTCCCTCTCGCGGGATCA GAAATACGCTTGCTTTTGTGTTAGACAATTCCCTGCCAAGCA spacer
length: 42 repeater length: 25
11463 104807 CTTTCAATTCCCTCTCGCGGGATCA GATGTTGTGGAAGGCAAATGGCTGAAAGGTGTTCCGGAGCCGA spacer
length: 43 repeater length: 25
11464 104876 CTTTCAATTCCCTCTCGCGGGATCA GAGTCTCTCAGATTATTAATCGACAAGCATAAGCCCCACCTTGA spacer
length: 44 repeater length: 25
11465 104946 CTTTCAATTCCCTCTCGCGGGATCA GTGAGTTTCCAACACAATCAACGTAAACACTTTTTCTAAAA spacer
length: 41 repeater length: 25
11466 105013 CTTTCAATTCCCTCTCGCGGGATCA GAAAAGTTAAGGGGTATGTTTTGGTGGTGGGGTGTGAATGTCCAAAGTG
spacer length: 49 repeater length: 25
11467 105088 CTTTCAATTCCCTCTCGCGGGATCA GTCGGGGAGTGGAGTAGGTAGTGGGAGTATGGGGTTGTGG spacer
length: 40 repeater length: 25
11468 105154 CTTTCAATTCCCTCTCGCGGGATCA GAGAGATGGTTTAGTCTTGGATTTGGATGACGTGGGCTGTG spacer
length: 41 repeater length: 25
11469 105221 CTTTCAATTCCCTCTCGCGGGATCA GATAACACGAGCTGCAGCCCCCACCAGGATGCATGCCTACTGGG spacer
length: 44 repeater length: 25
11470 105291 CTTTCAATTCCCTCTCGCGGGATCA GCTGGGCAGGTAATACCCTCTTTATCTGGCCTGAGAAAGTTTAATA
spacer length: 46 repeater length: 25
11471 105363 CTTTCAATTCCCTCTCGCGGGATCA GACACTTGACTGACGCTGGGTAATCCCAGTGGGCCCCCACC spacer
length: 42 repeater length: 25
11472 105431 CTTTCAATTCCCTCTCGCGGGATCA GATAGAATAACATTTGAAATGGCGAGACGAGGTGTTCTCTTTA spacer
length: 43 repeater length: 25
11473 105500 CTTTCAATTCCCTCTCGCGGGATCA GGACGGCAAGGCAATCGTAGTCTTTTGTGAACTGAAGACACAA spacer
length: 43 repeater length: 25
11474 105569 CTTTCAATTCCCTCTCGCGGGATCA GACTTTCCCACTCAGAGCCTTTGCCCTTAGCCCCCTGCCTCATAGTACA
spacer length: 48 repeater length: 25
11475 105643 CTTTCAATTCCCTCTCGCGGGATCA GTCGGATACCTTTTCCGCCAGCCAGACCAAGCCGTTGTGTAT spacer
length: 42 repeater length: 25
11476 105711 CTTTCAATTCCCTCTCGCGGGATCA GAAATCGTACAAGAGCGCTGTACAGCTGCAGACATAGACAA spacer
length: 42 repeater length: 25
11477 105779 CTTTCAATTCCCTCTCGCGGGATCA GAAATGGATAAGCTCCTCGGCGGGAATTGTTTCGCTGATGAT spacer
length: 42 repeater length: 25
11478 105847 CTTTCAATTCCCTCTCGCGGGATCA GACCGCCTGCTAAGCCTCCGGTGAAAAAGCCGGAGAAAAGTCA spacer
length: 43 repeater length: 25
11479 105916 CTTTCAATTCCCTCTCGCGGGATCA GAGAAGTATCTGAAATACAGAGGCGAGAAGATTGGGTAT spacer
length: 39 repeater length: 25

11480 105981 CTTTCAATTCCCTCTCGCGGGATCA GAACTAAATCTTCATGATCTTTATCAGACATAGCATTAGTAT spacer
length: 42 repeater length: 25
11481 106049 CTTTCAATTCCCTCTCGCGGGATCA TTTCAAAAGCTGAAGATCGATTTTCGACAACTTTTTTACTTTC
11482
11483
11484 crispr 3
11485 723600 CTTTCCATCCTCTTTTCATTGACAG TGTCGTTGACGAATTTGGTAAACGCGTTTGGCAATGATTCTAAGAA
spacer length: 46 repeater length: 25
11486 723672 CTTTCCATCCTCTTTTCATTGACAG TTTCTCGGCCCCCTGGGGTCGGGAAATCGCAAATTGT spacer
length: 38 repeater length: 25
11487 723736 CTTTCCATCCTCTTTTCATTGACAG ATACAGTGCAGCTCTGCGGCTCAGAGCATCCAGCCAAAATG spacer
length: 42 repeater length: 25
11488 723804 CTTTCCATCCTCTTTTCATTGACAG TATCCTCATAGACCCGCCATGGCATCTCAAATATGACCA spacer
length: 39 repeater length: 25
11489 723869 CTTTCCATCCTCTTTTCATTGACAG TTTATAGTGTTTTCTCGGAACATCGGACATATGTAG spacer length:
36 repeater length: 25
11490 723931 CTTTCCATCCTCTTTTCATTGACAG GCAGGGTTATCCCCGTATCTGCTCGGCGCCGTCGAAGTC spacer
length: 40 repeater length: 25
11491 723997 CTTTCCATCCTCTTTTCATTGACAG TTCTGAAGAGGTGCCAGAACATCATGAGATATAAAGCTTT spacer
length: 40 repeater length: 25
11492 724063 CTTTCCATCCTCTTTTCATTGACAG AGACCCACCAAACCTTTATCATAAAATTCTATCAAACCTTA
11493
11494
11495 crispr 4
11496 966241 CTGATCCCGCAAGAGGGAATTGAAAG CATCATTGAACTCGGTCGGCTTAATGAATTGACCTAACGC spacer
length: 40 repeater length: 26
11497 966308 CTGATCCCGCAAGAGGGAATTGAAAG TCAACACCTATATCACCAGTTGCTTCCGCATAAATGTCTG spacer
length: 40 repeater length: 26
11498 966375 CTGATCCCGCAAGAGGGAATTGAAAG CTTCCACAGTAACATACAGACGGCTGCCGACGAACAAGGAGCTCA
spacer length: 45 repeater length: 26
11499 966447 CTGATCCCGCAAGAGGGAATTGAAAG CTTCCACAGTAATTGTGGTGGATGTCGCAGCCGCCGAGAACTC
spacer length: 44 repeater length: 26
11500 966518 CTGATCCCGCAAGAGGGAATTGAAAG CAATGAAAACCCAGGATTGCCAGAGCCATGTCTCTGGATATA spacer
length: 42 repeater length: 26
11501 966587 CTGATCCCGCAAGAGGGAATTGAAAG CTGTGAGCGGTGTGGGACTTTGCTTATTGAGCATT spacer length:
35 repeater length: 26
11502 966649 CTGATCCCGCAAGAGGGAATTGAAAG GTGTTCTCAGCTATGCTGCCCAGATTAGACCTGACAGTAT spacer
length: 40 repeater length: 26
11503 966716 CTGATCCCGCAAGAGGGAATTGAAAG GATGCCTCTAAGTGGCGACAGCGGCAGCAGCTCTGGC spacer
length: 37 repeater length: 26
11504 966780 CTGATCCCGCAAGAGGGAATTGAAAG ATACTATGCATGGCTAAAGTGGTCAGCATCAGTATCCCAGA spacer
length: 41 repeater length: 26
11505 966848 CTGATCCCGCAAGAGGGAATTGAAAG CTTTTGGCTGTCTCAGGGGTAAAGCCATGTTTTCTGTGCAACCC spacer
length: 43 repeater length: 26
11506 966918 CTGATCCCGCAAGAGGGAATTGAAAG TGCTATGTGGTTACAGTAAACGCAACGATTTATCTTCACA spacer
length: 40 repeater length: 26
11507 966985 CTGATCCCGCAAGAGGGAATTGAAAG TTATCTGCCGAGTGAGCTTGAGGCTGCAGTTAAGCGTCT spacer
length: 39 repeater length: 26
11508 967051 CTGATCCCGCAAGAGGGAATTGAAAG TCATCGCTTCGCCAAGGCTTCGCAGGAAACCAGCGGTCTT spacer
length: 40 repeater length: 26
11509 967118 CTGATCCCGCAAGAGGGAATTGAAAG TGTTACTAGTGTGTGCTTTTATTCTGCTCTATCTGCT spacer
length: 37 repeater length: 26
11510 967182 CTGATCCCGCAAGAGGGAATTGAAAG CATCGGCTGCAGCGCCGGTCATGTTTCGCGTAGTTTTGCTCCA spacer
length: 42 repeater length: 26
11511 967251 CTGATCCCGCAAGAGGGAATTGAAAG GTATCCTTCCCCGGGCACGCTCATGGACAGCCTCAGGTAACCCC
spacer length: 44 repeater length: 26
11512 967322 CTGATCCCGCAAGAGGGAATTGAAAG TGGTGCCTGACACGCCTGAGCTCTCAGCATATAA spacer length:
34 repeater length: 26
11513 967383 CTGATCCCGCAAGAGGGAATTGAAAG TAAAGACATAGGCAGGTATGGTTTTCTCTCCAGCTGCC spacer
length: 38 repeater length: 26
11514 967448 CTGATCCCGCAAGAGGGAATTGAAAG TTATGCTACTTCAGAGCACAAGCTTATCATAGAATTAGAG spacer
length: 40 repeater length: 26
11515 967515 CTGATCCCGCAAGAGGGAATTGAAAG AGCCCTCAAAGACCTACACCGCCTACGGCCTAGACGCCTCCCC spacer
length: 43 repeater length: 26
11516 967585 CTGATCCCGCAAGAGGGAATTGAAAG AATCGTCTCATAACATTTCATGGGCGAGGCTGACCACGATGGCGTCA
spacer length: 46 repeater length: 26
11517 967658 CTGATCCCGCAAGAGGGAATTGAAAG TCGGCGACTTCGTGAGAGATGTTGCGGAAGTTAATATTAGC spacer
length: 41 repeater length: 26
11518 967726 CTGATCCCGCAAGAGGGAATTGAAAG TCTACCACTCTTCATCGTTGCTATATTTTTGTGAATTACTT spacer
length: 41 repeater length: 26
11519 967794 CTGATCCCGCAAGAGGGAATTGAAAG AACTCATGCCGCTTATAATATATCTACGCTTAACAACCCCG spacer

length: 41 repeater length: 26
11520 967862 CTGATCCCGCAAGAGGGAATTGAAAG CCTCAGAAACAGTAGATAATTTTTACCTACAATTCCATAT spacer
length: 40 repeater length: 26
11521 967929 CTGATCCCGCAAGAGGGAATTGAAAG CCATGTAGTGCTGAAAACCTTGCAATTCCAAATTGCATCTTGA spacer
length: 42 repeater length: 26
11522 967998 CTGATCCCGCAAGAGGGAATTGAAAG CTAGGTCTCCAGGAGCGGATGGACTTTATCATGGCTAAA spacer
length: 39 repeater length: 26
11523 968064 CTGATCCCGCAAGAGGGAATTGAAAG CCGCGGATGTTCTTTTGAACATCAACTGCTGCGATGGCTACT spacer
length: 42 repeater length: 26
11524 968133 CTGATCCCGCAAGAGGGAATTGAAAG CGAGTTGCACATCATTGACCTCGGCATCATTTCTGAAAATC spacer
length: 41 repeater length: 26
11525 968201 CTGATCCCGCAAGAGGGAATTGAAAG CACCTATACGCCGAGACCAGCCACTTCTACCCTGGCCGCGGC spacer
length: 43 repeater length: 26
11526 968271 CTGATCCCGCAAGAGGGAATTGAAAG TCCTGATTGGTTGGGGGCTCTGCCTCGGACTCGGTCTCAG spacer
length: 41 repeater length: 26
11527 968339 CTGATCCCGCAAGAGGGAATTGAAAG CATCTACTAGTTCGCCAACCTGCCCACGCCTACCGCGAATCC spacer
length: 42 repeater length: 26
11528 968408 CTGATCCCGCAAGAGGGAATTGAAAG TTTAATAGTTATTCTTTTAACAGTGCGGATTCTGCATCGC spacer
length: 41 repeater length: 26
11529 968476 CTGATCCCGCAAGAGGGAATTGAAAG TCTTCAGCGATGCTAATCAACACCCTCGCCATAACCGCC spacer
length: 39 repeater length: 26
11530 968542 CTGATCCCGCAAGAGGGAATTGAAAG TGTGTGTTGAACGACTCGGATAAGCGTTCAGCCAGCCATGAA spacer
length: 41 repeater length: 26
11531 968610 CTGATCCCGCAAGAGGGAATTGAAAG TTATGCTGCTGGTGATTCTCGACGACTACTTCTACTTCTAC spacer
length: 42 repeater length: 26
11532 968679 CTGATCCCGCAAGAGGGAATTGAAAG TTGGCGATGTGCCAAGGTAGCTGTTTCGAGGTCCGGCGAGACAA spacer
length: 43 repeater length: 26
11533 968749 CTGATCCCGCAAGAGGGAATTGAAAG ACCACATCGGCAATCACATTTCGCTTGGATGGCTTGTGGC spacer
length: 39 repeater length: 26
11534 968815 CTGATCCCGCAAGAGGGAATTGAAAG TGAAAGCATGAACGAAATAATGGTAGCGAATAATTCTTCCG spacer
length: 41 repeater length: 26
11535 968883 CTGATCCCGCAAGAGGGAATTGAAAG GCAACCGTCAGCACGTGGCTTGCAGGGACGAGGTTCTCCCTAAGCT
spacer length: 46 repeater length: 26
11536 968956 CTGATCCCGCAAGAGGGAATTGAAAG GATGTTGTGGAAGGCAAATGGCTGAAAGGTGTTCCGGAGCCGATCT
11537
11538
11539 crispr 5
11540 103716 CTTTCAATTCCCTCTTGCGGGATCAG TTCGTCGCTCTTCCACGGGGAGCCAATCAATCGAAATGGTTTCTCG
spacer length: 46 repeater length: 26
11541 103789 CTTTCAATTCCCTCTTGCGGGATCAG AGCGAAAGAGGCGCGAGCCAGATAATCGGCTATGAGGAGA spacer
length: 40 repeater length: 26
11542 103856 CTTTCAATTCCCTCTTGCGGGATCAG TATTATGTTGAGCGGTGCGCTGAGGAGGCGGCCAACTAT spacer
length: 39 repeater length: 26
11543 103922 CTTTCAATTCCCTCTTGCGGGATCAG ACTCATAGCGGTACTGGTCATGGTTGGTCTTATGATACA spacer
length: 39 repeater length: 26
11544 103988 CTTTCAATTCCCTCTTGCGGGATCAG ATGTTTCATGTCATCGAGAGGTTACATGAGAGCATACGCATATTGCAA
spacer length: 47 repeater length: 26
11545 104062 CTTTCAATTCCCTCTTGCGGGATCAG TCAGAAAAACCACTTCACATTCATGGTGGTGAGGTAGATGCC spacer
length: 42 repeater length: 26
11546 104131 CTTTCAATTCCCTCTTGCGGGATCAG CACGTATGAGAAAGTAGAGCAGATTGTTCTGCCAATAGTTGT spacer
length: 42 repeater length: 26
11547 104200 CTTTCAATTCCCTCTTGCGGGATCAG ACTCATAGCGGTACTGGTCATGGTTGGTCTTATGATACA spacer
length: 39 repeater length: 26
11548 104266 CTTTCAATTCCCTCTTGCGGGATCAG TTTTAAC TAAGACCCGGCTCATACGACTCATCAGA spacer length:
35 repeater length: 26
11549 104328 CTTTCAATTCCCTCTTGCGGGATCAG TTCTGAAGAGGTGCCAGAACATCATGAGATATAAA
11550
11551
11552 crispr 6
11553 1131881 CAATTCCCTCTCGCGGGATCAGTGAATTTGTAGGTAAAAA TTATCTGCTGTTTCTGAGCTT spacer
length: 21 repeater length: 40
11554 1131943 CAATTCCCTCTCGCGGGATCAGTGAATTTGTAGGTAAAAA
TTATCTGCTGTTTCTGAGCTTTCAATTCCCTCTCGCGGGATCAGTTCAGAGATGTTCTCACCGATGAGGAGCAGGATTTGGTGACT
TTCAATTCCCTCTCGCGGGATCAGGACAGCGCGGCTGCATTCAATAGAGTTGTGAAGAGCCGGCTT spacer length:
153 repeater length: 40
11555 1132137 CAATTCCCTCTCGCGGGATCAGTGAATTTGTAGGTAAAAA TTATCTGCTGTTTCTGAGCTT spacer
length: 21 repeater length: 40
11556 1132199 CAATTCCCTCTCGCGGGATCAGTGAATTTGTAGGTAAAAA GAGGTGAATGAAGTGATAGAA
11557
11558
11559 GCA_000275605.1_ASM27560v1_genomic.fna(findCrispr):

11560 START REPEAT
SPACER

11561 crispr 1

11562 59735 GACTACAAAAGAATTGAAAG TGTTTCATCGCACTTCTTCTTCTGACTCTGCTCCACTTAGGTTCCAATA spacer
length: 48 repeater length: 20

11563 59804 GACTACAAAAGAATTGAAAG GCGTTAATGAACAATAAGCCTGACACGAACATAAACAGTTCCAATA spacer
length: 46 repeater length: 20

11564 59871 GACTACAAAAGAATTGAAAG TTTCAATAAGGAGTTTCAAATGGCTCGATGGAATTATGTTCCAATA spacer
length: 46 repeater length: 20

11565 59938 GACTACAAAAGAATTGAAAG AGAACCTCCGCAATCTCCTTTGGAGAAAGGCCCTTCTTGAGAGTTCCAATA
spacer length: 51 repeater length: 20

11566 60010 GACTACAAAAGAATTGAAAG CTTCTTCGAAGTCGTAGTTTAGTGTGTCAAGATATTCTGTTCCAATA spacer
length: 47 repeater length: 20

11567 60078 GACTACAAAAGAATTGAAAG TTCTAGAAGTTCTCTTGCGAGAGCCAAGAGCGCGGCTGTTCCAATA spacer
length: 46 repeater length: 20

11568 60145 GACTACAAAAGAATTGAAAG GTGTACTTAAGAATTTCTTTTCATAACTTTTCTGAAGAGTTCCAATA spacer
length: 46 repeater length: 20

11569 60212 GACTACAAAAGAATTGAAAG ACATAAGAGACGGAGAGCTTGTTATCTGGAAAGCAAATGTTCCAATA spacer
length: 47 repeater length: 20

11570 60280 GACTACAAAAGAATTGAAAG AGTTATAACAAACCAGCATGACCCGCTCTCGGCTGAGTGGCAGGTTCCAATA
spacer length: 52 repeater length: 20

11571 60353 GACTACAAAAGAATTGAAAG CTACCATGGCCATCACCAATAATTAATTGTAAGTTAGGTTCCAATA spacer
length: 46 repeater length: 20

11572 60420 GACTACAAAAGAATTGAAAG ATTTGCTGACAAGCCATCGCAAAATTCTTCTGTTTTGTTCCAATA spacer
length: 45 repeater length: 20

11573 60486 GACTACAAAAGAATTGAAAG AACTCCACGACAGCATAAGGGACATTTACCATCGTATGTTCCAATA spacer
length: 46 repeater length: 20

11574 60553 GACTACAAAAGAATTGAAAG TTTTTGTGCTGAGCCAACCCACCACTTTGGTAAACTAGTTCCAATA spacer
length: 47 repeater length: 20

11575 60621 GACTACAAAAGAATTGAAAG
GGGGCTGCGGGCCGGCTCACACCCGAGCTCCCGGCTCGGGGTGCTCATGTTCCAATA spacer length: 58
repeater length: 20

11576 60700 GACTACAAAAGAATTGAAAG TGGGATAATAAAGCCTCTATACTTCTTTGAATAATAGGTTCCAATA spacer
length: 46 repeater length: 20

11577 60767 GACTACAAAAGAATTGAAAG TCCAACATGGTTAACTTCCATCCTCTTAAAAGGAAGTGTCCAATA spacer
length: 46 repeater length: 20

11578 60834 GACTACAAAAGAATTGAAAG GTAAGGTATTCTTCATAGACACCGCTCTGCATAACGTGTTCCAATA spacer
length: 46 repeater length: 20

11579 60901 GACTACAAAAGAATTGAAAG TTGAGGCTGGAGAGGGCTTCTTTGTTACTACTTGCGTGTCCAATA spacer
length: 46 repeater length: 20

11580 60968 GACTACAAAAGAATTGAAAG TTAACTCGTTTAGTTTTATGTTTCATGTTCCACACTAAGTTCCAATA spacer
length: 46 repeater length: 20

11581 61035 GACTACAAAAGAATTGAAAG AGGATGCCCCAACCTGAATATACCCCGCACTAACTAAGTGTTCCTCA

11582

11583

11584 crispr 2

11585 893740 CTTCAATTCTTTTGTAGTCTTATTG TAACCCAGTAGAGTTCACGACGAGTGGGTGCAGTATTCTC spacer
length: 40 repeater length: 25

11586 893806 CTTCAATTCTTTTGTAGTCTTATTG TAACTTAAGGTTGAGACGGAGAAGGCGTTTCTTGATCTTT spacer
length: 41 repeater length: 25

11587 893873 CTTCAATTCTTTTGTAGTCTTATTG TAACCCGAAGACGTTCTCAAAGATTTAAAAGAGATTTGC spacer
length: 41 repeater length: 25

11588 893940 CTTCAATTCTTTTGTAGTCTTATTG GAACGTAACAAAGGTGGGCGTTTCTAGAGAGGTTGGGCAA spacer
length: 40 repeater length: 25

11589 894006 CTTCAATTCTTTTGTAGTCTTATTG GAACGGGCTACGAGGACGCCCTGAGGATTATGAAAGAGGTCC spacer
length: 42 repeater length: 25

11590 894074 CTTCAATTCTTTTGTAGTCTTATTG GAACCGGAAGCTCATAGAGTTCAATGGAAGGTTGAAGCTCA spacer
length: 41 repeater length: 25

11591 894141 CTTCAATTCTTTTGTAGTCTTATTG GAACGTTTGGGCGTATGGTGCCTTAGTGCACGAGTTCCACCG spacer
length: 42 repeater length: 25

11592 894209 CTTCAATTCTTTTGTAGTCTTATTG GAACTTTTCACGTAGTTTATCACGTCGTCTGCATTTCTTCC spacer
length: 41 repeater length: 25

11593 894276 CTTCAATTCTTTTGTAGTCTTATTG GAACTCAAAGACTGTGTGTGGAGCAGCTATTTGCTTCGGCA spacer
length: 41 repeater length: 25

11594 894343 CTTCAATTCTTTTGTAGTCTTATTG ATTTACGCTTTAGCTCGTGATCAACCCTAATCCCTAGTTCC

11595

11596

11597 crispr 3

11598 893940 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTAACAAAGGTGGGCGTTTCTAGAGAGGTTGGGCAA spacer
length: 36 repeater length: 29

11599 894006 CTTCAATTCTTTTGTAGTCTTATTGGAAC GGGCTACGAGGACGCCCTGAGGATTATGAAAGAGGTCC spacer

length: 38 repeater length: 29
11600 894074 CTTCAATTCTTTTGTAGTCTTATTGGAAC CGGAAGCTCATAGAGTTCAATGGAAGGTTGAAGCTCA spacer
length: 37 repeater length: 29
11601 894141 CTTCAATTCTTTTGTAGTCTTATTGGAAC GTTTGGGCGTATGGTGCCTTAGTGCACGAGTTCCACCG spacer
length: 38 repeater length: 29
11602 894209 CTTCAATTCTTTTGTAGTCTTATTGGAAC TTTTCACGTAGTTTATCACGTCGTCTGCATTTCTTCC spacer
length: 37 repeater length: 29
11603 894276 CTTCAATTCTTTTGTAGTCTTATTGGAAC TCAAAGACTGTGTGTGGAGCAGCTATTTGCTTCGGCA spacer
length: 37 repeater length: 29
11604 894343 CTTCAATTCTTTTGTAGTCTTATTGGAAC CCCAAACCTGAATATACCCCGCACTAACTAAGTGTTCC
11605
11606
11607 crispr 4
11608 1465454 CTTTCAATTCTATTTTAGTCTTATTGGAAC
AATTGTGGAAGTTCCATCTCAGATTAAATCAGATGTGGGGGCTCTCTTTCAATTCTATTTTAGTTCTTATTGGAACCATGCCCCG
AGCCCCCGGCTCGGGGCACTCATCTTGGAACCT spacer length: 119 repeater length: 30
11609 1465604 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATTGCATGATCAGTTTACTGTCTCCTTACCAGATTCTC spacer
length: 38 repeater length: 30
11610 1465673 CTTTCAATTCTATTTTAGTCTTATTGGAAC
GTGTAGGATGTAGTCTAGCCTTCTATGTCCCGTGATTTTGCTGATTAT spacer length: 48 repeater length: 30
11611 1465752 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATGGTATTCTCACCTGGAAGAACGACGTAAGTCTG spacer
length: 36 repeater length: 30
11612 1465819 CTTTCAATTCTATTTTAGTCTTATTGGAAC GAGCAACGCTGAGAACC AAAATAATCGCCGCACTCT spacer
length: 36 repeater length: 30
11613 1465886 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGACATGAAAACTGTTTGGAGGAGGGGACAATGTT spacer
length: 36 repeater length: 30
11614 1465953 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGACCAGCAAGCTCTTCGTTGCAAAGAACACTATCACAA
spacer length: 39 repeater length: 30
11615 1466023 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATGAAAACAACACATGTGGGGTGGTTGGAATGGCTTGGA
spacer length: 41 repeater length: 30
11616 1466095 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGGACACCTTGCCCTTATACCTATATAATAACCTAGCATTAT
spacer length: 41 repeater length: 30
11617 1466167 CTTTCAATTCTATTTTAGTCTTATTGGAAC
TCAATGACGAGCTTGACGACATAAATCGACAAGTTGCTCTCAATCCAG spacer length: 48 repeater length: 30
11618 1466246 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGTCGGATGAGGAGGTGAGGGAGTTGGAGAGGAAGT spacer
length: 37 repeater length: 30
11619 1466314 CTTTCAATTCTATTTTAGTCTTATTGGAAC CCAGTTGAGGCAACCTTGCAAGGTTTGGGGTTGAT spacer
length: 36 repeater length: 30
11620 1466381 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGAAGTAGACGTTGAGAACGGTACCTTCATCGTGGTGGT
spacer length: 39 repeater length: 30
11621 1466451 CTTTCAATTCTATTTTAGTCTTATTGGAAC CATCTTGTCCTTAAGGGGAATTTGGGCATTTCTACTC spacer
length: 37 repeater length: 30
11622 1466519 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATAGAGTACAGAGGATTGTATGCTCTTAGGGAGACA spacer
length: 36 repeater length: 30
11623 1466586 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACAGAGAGCTGGACTAGTAGAATGGAAGAACTTTGT spacer
length: 36 repeater length: 30
11624 1466653 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCACTACTTGAGCAACCTCCTTCATCAATTCTAGCTC spacer
length: 37 repeater length: 30
11625 1466721 CTTTCAATTCTATTTTAGTCTTATTGGAAC GTGGGTTGAGGGAAGAAAGGCTGCAGGAGATGAGAC spacer
length: 36 repeater length: 30
11626 1466788 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTCCCAAGACACCCAGGAATTTTCATCTACTCCATC spacer
length: 36 repeater length: 30
11627 1466855 CTTTCAATTCTATTTTAGTCTTATTGGAAC GAGGGGTGATGTTTGGCTGAGCGGATTGCGTTTAATA spacer
length: 37 repeater length: 30
11628 1466923 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAAGAAACGCTCCATACACCATTGAGAACCCAACCC spacer
length: 36 repeater length: 30
11629 1466990 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCCACAATCATCCCCATGCTTGTGCCCAACGCTCCA spacer
length: 37 repeater length: 30
11630 1467058 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCAAAAACATAGACGACCCAGAGTTAAGGAAAGTGT spacer
length: 36 repeater length: 30
11631 1467125 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGTCAAGTTTTGACTGGATCCGTATCCGCAAGTAT spacer
length: 35 repeater length: 30
11632 1467191 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGAAC TATTTGGGGGGTATTACCGCAAGAAATACA spacer
length: 36 repeater length: 30
11633 1467258 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGAATTCAACAGTGGCAAAGGTTCTATCAGGAATA spacer
length: 37 repeater length: 30
11634 1467326 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGCTTGAGGGAGCGACGGCTCAGGCTCAGACCGC spacer
length: 35 repeater length: 30
11635 1467392 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGTT CAGGCTGGGAGGCTTGACCCGAGAATAGCGC spacer
length: 36 repeater length: 30
11636 1467459 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCCTTCCAGAGCCCGTTACCGTGTCCACGCTGT spacer

length: 34 repeater length: 30
11637 1467524 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAAAAATTTTTCATTGCGGGGGTCTGACTAATTTG spacer
length: 37 repeater length: 30
11638 1467592 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTATTTCTGATGGTGTAAAGATTAGACTAAACAACCTC spacer
length: 37 repeater length: 30
11639 1467660 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGCCGGCCCCCGGCGGGGTCTAATGACCGCATAGGA spacer
length: 38 repeater length: 30
11640 1467729 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGAGATGATTGAAATTTTACGATCAAAGAGGTTTCG spacer
length: 36 repeater length: 30
11641 1467796 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATAGTATACCCTTGACCTTTCATCCCTTATAGATTC spacer
length: 37 repeater length: 30
11642 1467864 CTTTCAATTCTATTTTAGTCTTATTGGAAC AAAAGCGGTGAGGGAAAAGAAAAACGGGCAAAAAA spacer
length: 36 repeater length: 30
11643 1467931 CTTTCAATTCTATTTTAGTCTTATTGGAAC TATTTTTTTTATGTGCAGTAATCGGCAATTTGCTA spacer
length: 35 repeater length: 30
11644 1467997 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTGGGCAAGTTCTGGCCTATACTGTCTCCTAATGTC spacer
length: 36 repeater length: 30
11645 1468064 CTTTCAATTCTATTTTAGTCTTATTGGAAC ATATACCTCAAGACCAACCACACTGGATATGCAGCA spacer
length: 36 repeater length: 30
11646 1468131 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGACACATTAGAGCAGTTATAAAAACACACGGCAGC spacer
length: 36 repeater length: 30
11647 1468198 CTTTCAATTCTATTTTAGTCTTATTGGAAC ACCCGTTCAATTTTTTCTTTACTTTTGTAAAGTTTTG spacer
length: 37 repeater length: 30
11648 1468266 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGACTGTAATAACGTCAATTGTGCGAGAGGACAGTAGT spacer
length: 38 repeater length: 30
11649 1468335 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGGGCTGGTGGTGGTCAAGTTCAACGCCTCACTA spacer
length: 35 repeater length: 30
11650 1468401 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGCGAAAGCCTGGGAAGAAAACCTTTACGCACATTTTC spacer
length: 37 repeater length: 30
11651 1468469 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGTTTATGTTCTGTGTCAGGCTTATTGTTCAATTAACG spacer
length: 36 repeater length: 30
11652 1468536 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTGCCAGTATCCGAAGATTGAGAAAAATTCAGCATAAGA
spacer length: 39 repeater length: 30
11653 1468606 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCGACCCAGAGCGGGTGTAGCAGTAAAGTATGAC spacer
length: 35 repeater length: 30
11654 1468672 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGAGTATTTTGGTATGAAAGTTTCGGGTGCAGAACCG spacer
length: 37 repeater length: 30
11655 1468740 CTTTCAATTCTATTTTAGTCTTATTGGAAC TGCACTTTTCTATACACGAAAAGTTTATAAACTTT spacer
length: 35 repeater length: 30
11656 1468806 CTTTCAATTCTATTTTAGTCTTATTGGAAC
CAGCTCTGGTCAGATCAGATTGCTTAAGACAAGAAATGAATCATATA spacer length: 47 repeater length: 30
11657 1468884 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTACGCTTTAGCTCGTGATCAACCCTAATCCCTAGTTCCAATAAGAC
11658
11659
11660 crispr 5
11661 426205 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGGTGGTTAGACGGGTGGTTTGTGAGACTTAGGAC spacer
length: 37 repeater length: 30
11662 426273 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCAGTCCAGTACAAAGGCACAATTCTCGGTGGAATAC spacer
length: 37 repeater length: 30
11663 426341 CTTTCAATTCTATTTTGGTCTTATTGTAAC CTCCTTACAATAAGCTCACCGTTGCTGATGTTGTCTCG spacer
length: 37 repeater length: 30
11664 426409 CTTTCAATTCTATTTTGGTCTTATTGTAAC TTGTAAGGAGACCAAGACCACAGTTTATAGGGGACTC spacer
length: 38 repeater length: 30
11665 426478 CTTTCAATTCTATTTTGGTCTTATTGTAAC ATGGTGATTATGGCGACACTATTGAGTGGTTTCGT spacer
length: 34 repeater length: 30
11666 426543 CTTTCAATTCTATTTTGGTCTTATTGTAAC AGCTGAGAAGGTGTCGAGGGATGTGAAGGCTAGG spacer
length: 34 repeater length: 30
11667 426608 CTTTCAATTCTATTTTGGTCTTATTGTAAC GCGGGAGCAAGGTGTTGCAAACCTTGATAGAGTTCC spacer
length: 36 repeater length: 30
11668 426675 CTTTCAATTCTATTTTGGTCTTATTGTAAC TGGGCATTGATTTGACATTGCAAAAATTTTTCATTG spacer
length: 37 repeater length: 30
11669 426743 CTTTCAATTCTATTTTGGTCTTATTGTAAC TCGGAGTTACCGATTGCTGAAGTAAATGAGAGATTCAAGAT
spacer length: 41 repeater length: 30
11670 426815 CTTTCAATTCTATTTTGGTCTTATTGTAAC GTTGTTAATGTATTTCGTTGAGGCAGGGAAGTATAAG spacer
length: 36 repeater length: 30
11671 426882 CTTTCAATTCTATTTTGGTCTTATTGTAAC GACTTTTGTATTACAAAATCAGCGTAGTTTACTATCA spacer
length: 37 repeater length: 30
11672 426950 CTTTCAATTCTATTTTGGTCTTATTGTAAC ACAAACACAGAAAAGAAGCCAAAGTTATTGAGATT spacer
length: 35 repeater length: 30
11673 427016 CTTTCAATTCTATTTTGGTCTTATTGTAAC TAGCTAATGTCCATGAGAGTGTGTGAAAAGCTAGTGA spacer
length: 37 repeater length: 30

11674	427084	CTTTC AATTCTATTTTGGTCTTATTGTAAC	GCCAAGCTAGTTATTGATGTGTTGCATACCGTATACA	spacer
		length: 37	repeater length: 30	
11675	427152	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TATTCATGGCATGTGGCAATGTTTCTTGATAGGGCAC	spacer
		length: 37	repeater length: 30	
11676	427220	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CTTTCTTTGCATCTTTTGTATATCCCTTAGACCCAAATC	spacer
		length: 39	repeater length: 30	
11677	427290	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TTAATTCTTGGGAAAAACAGGGATTATATTATCCA	spacer
		length: 35	repeater length: 30	
11678	427356	CTTTC AATTCTATTTTGGTCTTATTGTAAC	AGGAACGGTCTCCAAGAGGACTTGGCGAATTACGTGA	spacer
		length: 37	repeater length: 30	
11679	427424	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TATTTTGTCTACTTTGTATGACAATGTCTTATGTG	spacer
		length: 36	repeater length: 30	
11680	427491	CTTTC AATTCTATTTTGGTCTTATTGTAAC	ATATAATAGGTATGTAGATAAATCACCTCTGAGAAG	spacer
		length: 37	repeater length: 30	
11681	427559	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CGAATTTCGATAGATTTCGAGAAGCTTGTAAGGGTAGAG	spacer
		length: 37	repeater length: 30	
11682	427627	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CTATTATATATACAGATGTCTTGCATTATGATGCTT	spacer
		length: 36	repeater length: 30	
11683	427694	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CGCTATGATATGCTGACGGATGAGGAGTATGCTGAG	spacer
		length: 36	repeater length: 30	
11684	427761	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TGAAAATAGTGGACGTCATCCCTCCAAGCCAAGTGCC	spacer
		length: 37	repeater length: 30	
11685	427829	CTTTC AATTCTATTTTGGTCTTATTGTAAC	TATGACTCTGACACAGGTACTAAAATCGAGGAGTTC	spacer
		length: 36	repeater length: 30	
11686	427896	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CACAAGCACTAGTCCTGCTAGCGTTTTTCAGGAGTGG	spacer
		length: 36	repeater length: 30	
11687	427963	CTTTC AATTCTATTTTGGTCTTATTGTAAC	ACGAGCATTAGGACTGTGTTATTGTTTTGATCTTT	spacer
		length: 35	repeater length: 30	
11688	428029	CTTTC AATTCTATTTTGGTCTTATTGTAAC	GTGAGCGCCCTCAAGTACTACGTGAACCATTCCCCT	spacer
		length: 36	repeater length: 30	
11689	428096	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CTCAATGCAAAGGGCTCACCGCTGCTGGTGAGTATGGT	spacer
		length: 38	repeater length: 30	
11690	428165	CTTTC AATTCTATTTTGGTCTTATTGTAAC	CCTTGATCTCAGCATGTCCAGAAACGAAGTCCTGGC	spacer
		length: 36	repeater length: 30	
11691	428232	CTTTC AATTCTATTTTGGTCTTATTGTAAC	GCTTTTTTCGCCCCAATACTCCTATGGAGTAATTATA	
11692				
11693				
11694	crispr 6			
11695	865558	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CGGAGGCTCTACCTAATCATCCTCTTGACACAAC	spacer
		length: 35	repeater length: 30	
11696	865624	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	AGTTGACTTCACTACTACTTCTTCATCTATAATTCT	spacer
		length: 36	repeater length: 30	
11697	865691	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	GAAGAGAGGTTAGAATAACAGCTATTAGCGTTTCAC	spacer
		length: 36	repeater length: 30	
11698	865758	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TTTGGAGATAGAGTTGCAGTAGAAATGATAAGGA	spacer
		length: 34	repeater length: 30	
11699	865823	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CACGGCCTACCTCGCTGAGATCCGGGTAGATGACAG	spacer
		length: 36	repeater length: 30	
11700	865890	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	AGGAGAATAAGGTACTTCGACGGCCACACGTCTTATG	spacer
		length: 37	repeater length: 30	
11701	865958	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CAGGAAGTTGTTGCCAACGGCATAGTAGAGCCACCCCGTCATCGCCCGCAAAAA	spacer length: 58
		repeater length: 30		
11702	866047	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CTTATAAGATTTTCCCATTTAAGCAGAGCTTAGATA	spacer
		length: 36	repeater length: 30	
11703	866114	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CTGACTTTAGAGACTTATACAATAACAACAACATATCTAAAGTC	spacer length: 44
		repeater length: 30		
11704	866189	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	GCTACAACCCTCCCCTCGTAGTAGTACTTCCCATCG	spacer
		length: 36	repeater length: 30	
11705	866256	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CCTTATATGGGTGTTGTGAAGCAGGATAGAACTCTTG	spacer
		length: 37	repeater length: 30	
11706	866324	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	GTCCCCGTAGTCCCTTAGAACTTTGTAGCCCTTCTT	spacer
		length: 36	repeater length: 30	
11707	866391	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CTTCCAGCATTCTCTGCCTTCACGTAACTTCTGTACCC	spacer
		length: 39	repeater length: 30	
11708	866461	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	GCCAATTAAGTTCCTCCAGACAGATGAAGCCAGCAA	spacer
		length: 36	repeater length: 30	
11709	866528	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CGAGGAAGGCTCCCTCTAAACCAGCCAAGGAGGTTA	spacer
		length: 36	repeater length: 30	
11710	866595	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TGGCCACCCACTCCAATGCGCCTTTCACTTTTTGGCCA	spacer
		length: 38	repeater length: 30	

11711	866664	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TATCAAAGGTTAAGGCTTCTGTAAAAGAACTT spacer
		length: 33 repeater length: 30	
11712	866728	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CCCGAGCGAGAGCTCGGGGTGATCATCATTGGAACT spacer
		length: 37 repeater length: 30	
11713	866796	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TAAGTGATTGGCTAAATCCTCATAGAATCCCAACTC spacer
		length: 36 repeater length: 30	
11714	866863	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TGTAAATGTTTGTAAATATGTGTATGCAATCATTGTT spacer
		length: 36 repeater length: 30	
11715	866930	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TATCAAAGGTTAAGGCTTCTGTAAAAGAACTT spacer
		length: 33 repeater length: 30	
11716	866994	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TTCTATAGCTCCCCTGTCAACCCAAATTACTGCGA spacer
		length: 35 repeater length: 30	
11717	867060	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TTGGGTAAGATGGAGGGTAGAAGATACAGAAGATTA spacer
		length: 36 repeater length: 30	
11718	867127	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TTCCCCAACCTCCGATTTGTTTTTGAGGTTTTTGAGT spacer
		length: 38 repeater length: 30	
11719	867196	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	AGAAGTAACAAGGAGGTGGGAGATGGAAGAAATGAA spacer
		length: 36 repeater length: 30	
11720	867263	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CTTGAACTTAAGCCACTCTATTGCGTATGGGTAGAGCT spacer
		length: 38 repeater length: 30	
11721	867332	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	
		TCTCCACTTGCTCCAGTGGAACACACCTTTACGTTTGCCAAGTTCCA spacer length: 48 repeater length: 30	
11722	867411	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	
		TGTAGGAATATCTATAAGATTAAATGTCAGAGCTTCAGCGATCGAAGT spacer length: 48 repeater length: 30	
11723	867490	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	AGTGGCAGAGAACAGAAATTTTGTCAAAAACGGAAA spacer
		length: 36 repeater length: 30	
11724	867557	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TTGCCAGTGGATATCATTAAAGGTTCTGAGGGAGGCAGTC spacer
		length: 39 repeater length: 30	
11725	867627	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	GAGTTCGTAGGATAATAACAAGGAACGAAAAGTTTA spacer
		length: 36 repeater length: 30	
11726	867694	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	AAGGCGTGGGAAGAACAATATCGGGAATTAAGATAGT spacer
		length: 37 repeater length: 30	
11727	867762	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TTGCACTCACGTGTAACAAGTACCTGTACAATAGAT spacer
		length: 36 repeater length: 30	
11728	867829	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CAATATTTTTTCAATGTCTGTCTATTGTCCACCTCC spacer
		length: 36 repeater length: 30	
11729	867896	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	TGTTTTCACTAATCGAAGACTTCGTAAGAGATAACG spacer
		length: 36 repeater length: 30	
11730	867963	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	CTGAAGTGCTCTCAGCCGCAAGGACCGCATACTACA spacer
		length: 36 repeater length: 30	
11731	868030	CTTTC AATTCTTTTGTAGTCTTATTGGAAC	GTGCTCTCAGCCGCAAGGACCGCATACTACAACCTTT
11732			
11733			
11734	crispr 7		
11735	499027	GTTACAATAAGACTAAAATAGAATTGAAAG	AGTGAAGAATTTGACGTACAAATGTCCTTAGTGGA spacer
		length: 36 repeater length: 30	
11736	499094	GTTACAATAAGACTAAAATAGAATTGAAAG	TGATGTAGATCTCTGTACCTTTTCGGGACCTGTAGGT spacer
		length: 36 repeater length: 30	
11737	499161	GTTACAATAAGACTAAAATAGAATTGAAAG	CAGTTCTACTTTGATAAGACTGTGGTGGTTAATGGTAA spacer
		length: 38 repeater length: 30	
11738	499230	GTTACAATAAGACTAAAATAGAATTGAAAG	CTCTTATGGTGAAGCTTTTCGACATTTTCTTTGGATG spacer
		length: 36 repeater length: 30	
11739	499297	GTTACAATAAGACTAAAATAGAATTGAAAG	CGTCTTCTCTGAGATTCTTGGCTCGTTCTAGAGCCA spacer
		length: 36 repeater length: 30	
11740	499364	GTTACAATAAGACTAAAATAGAATTGAAAG	GAGAGTATCAGGAGCTTTCTGACCTCCTTATACAGC spacer
		length: 36 repeater length: 30	
11741	499431	GTTACAATAAGACTAAAATAGAATTGAAAG	GACAAAGAACTCCCTAGCGTCCCTCCCCGTGTACTTG spacer
		length: 37 repeater length: 30	
11742	499499	GTTACAATAAGACTAAAATAGAATTGAAAG	CCACACTTCTATCTCAGCACCCCCAAACGTGAACT spacer
		length: 36 repeater length: 30	
11743	499566	GTTACAATAAGACTAAAATAGAATTGAAAG	TTCTGCCGTCCCTTTTCTCGACGAACCTCATACCG spacer
		length: 35 repeater length: 30	
11744	499632	GTTACAATAAGACTAAAATAGAATTGAAAG	TTGAGGAGATGCTTACTGCGGTTAAAAGGACATTGCA spacer
		length: 38 repeater length: 30	
11745	499701	GTTACAATAAGACTAAAATAGAATTGAAAG	GGTGCTTGAGCTCGCTAGTGCCCTCCTCTGGGCTA spacer
		length: 36 repeater length: 30	
11746	499768	GTTACAATAAGACTAAAATAGAATTGAAAG	TAATGCTGTACAGGATTGACAAGGAGGCTTACGCTTC spacer
		length: 37 repeater length: 30	
11747	499836	GTTACAATAAGACTAAAATAGAATTGAAAG	TACTATAGGCGGAACTCCCTGCAATGAAAAATTTTT spacer
		length: 36 repeater length: 30	
11748	499903	GTTACAATAAGACTAAAATAGAATTGAAAG	GCACCTTCTTCACCATCGCCGTCTGGATTGCTGGTA spacer

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length: 36 repeater length: 30
11749 499970 GTTACAATAAGACTAAAAATAGAATTGAAAG TGTTTTTCGAATATTGTTACTTCTTGTGTATCTCTGA spacer
length: 36 repeater length: 30
11750 500037 GTTACAATAAGACTAAAAATAGAATTGAAAG ATTCACTGGGTTCTTCAGAAAGTTCATAAATTCACC spacer
length: 36 repeater length: 30
11751 500104 GTTACAATAAGACTAAAAATAGAATTGAAAG CCTTCTTCTTTTTTAAATTTTTTAATTTTCATTA spacer
length: 33 repeater length: 30
11752 500168 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATCTAGGCGTCGGGTAATTCTGTAAGGTCTCTGGCTCA
spacer length: 40 repeater length: 30
11753 500239 GTTACAATAAGACTAAAAATAGAATTGAAAG ATGACTATCAGGATGATAATCGTTTTTTTTATGCTCGCTTACA
spacer length: 42 repeater length: 30
11754 500312 GTTACAATAAGACTAAAAATAGAATTGAAAG ACAGGCAATTAGAACTCTTTCAAAAACGCAGTTCA spacer
length: 36 repeater length: 30
11755 500379 GTTACAATAAGACTAAAAATAGAATTGAAAG TAGTGTAAACAACATCATATGGAAAGTCTCCCACGTT spacer
length: 36 repeater length: 30
11756 500446 GTTACAATAAGACTAAAAATAGAATTGAAAG GGGTTTACTCCGAACGGTGTCTGCTAACTGATATAG spacer
length: 37 repeater length: 30
11757 500514 GTTACAATAAGACTAAAAATAGAATTGAAAG ACTTAGCCACCTCCGAGATGTTTTTCGTAATAGTTA spacer
length: 35 repeater length: 30
11758 500580 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGTAGGCTCGTGGACTTGGCTTCCACACAATAAT spacer
length: 36 repeater length: 30
11759 500647 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTCTTCTCTTACAAAGTCTTCAATGATAGTAAATA spacer
length: 36 repeater length: 30
11760 500714 GTTACAATAAGACTAAAAATAGAATTGAAAG TGGGGTCTCGTCGCAATCGGTGCAGTATTCCTAAGCC spacer
length: 37 repeater length: 30
11761 500782 GTTACAATAAGACTAAAAATAGAATTGAAAG GCAATTGGGCTTTTTGTAGCTGGAATCTTGGGTGA spacer
length: 35 repeater length: 30
11762 500848 GTTACAATAAGACTAAAAATAGAATTGAAAG AAAGATTCTGATTCCCGAAAGGCTTTTTCCGACAC spacer
length: 35 repeater length: 30
11763 500914 GTTACAATAAGACTAAAAATAGAATTGAAAG TCACCATTACCTCCTAATCCAATCATCTAACATTGA spacer
length: 36 repeater length: 30
11764 500981 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACTCTAATGTTTCATCGACTAACATGTCAATTTCA spacer
length: 37 repeater length: 30
11765 501049 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGGATTTGCTACTCTCACGTATAGGGTCCCTACCTC spacer
length: 37 repeater length: 30
11766 501117 GTTACAATAAGACTAAAAATAGAATTGAAAG TGATATAGTCGTCTGCTCCTGATACCCAATATAT spacer
length: 34 repeater length: 30
11767 501182 GTTACAATAAGACTAAAAATAGAATTGAAAG AGGAGGCTCTAGATGAGCTAATCAGCGCAGAAGGTG spacer
length: 36 repeater length: 30
11768 501249 GTTACAATAAGACTAAAAATAGAATTGAAAG ACCACCCCTGGGAAAGGCCTTATGGTACTACCTA spacer
length: 34 repeater length: 30
11769 501314 GTTACAATAAGACTAAAAATAGAATTGAAAG CTTAAAAATACTACCCTCAACAATCAATATTGCA spacer
length: 34 repeater length: 30
11770 501379 GTTACAATAAGACTAAAAATAGAATTGAAAG CTCTCTTACTTCTATAAGACTGAAACTTCACACCTA spacer
length: 36 repeater length: 30
11771 501446 GTTACAATAAGACTAAAAATAGAATTGAAAG TAACGCTTATTTACCCTGCTTAACACTCTTAACCCC spacer
length: 37 repeater length: 30
11772 501514 GTTACAATAAGACTAAAAATAGAATTGAAAG ACATCCCTACATAATAATACGCCACTTGTCCAAAAA spacer
length: 36 repeater length: 30
11773 501581 GTTACAATAAGACTAAAAATAGAATTGAAAG ATCTCCATCATACCAATGCTGTGCAAAATCAATCT spacer
length: 35 repeater length: 30
11774 501647 GTTACAATAAGACTAAAAATAGAATTGAAAG TTGAAAAGGTTGGGTGATAGGGTTAAGGAGGAGTTAGTG spacer
length: 39 repeater length: 30
11775 501717 GTTACAATAAGACTAAAAATAGAATTGAAAG TAAACTTAAGCTGGGATGGGCTATATACAAAGACAGAC spacer
length: 38 repeater length: 30
11776 501786 GTTACAATAAGACTAAAAATAGAATTGAAAG GAGATAGAGCTGGTTTTACGTTATGGCAAAATCTTAG spacer
length: 37 repeater length: 30
11777 501854 GTTACAATAAGACTAAAAATAGAATTGAAAG TTCATACAATTCTGGAAGGTTGTAGAAACCAACGTT
11778
11779
11780 GCA_000275865.1_ASM27586v1_genomic.fna(findCrispr):
11781 START REPEAT
SPACER
11782 crispr 1
11783 1417023 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGGGTCGACGTGGCCACCGTCAACAACGTCC spacer
length: 32 repeater length: 32
11784 1417088 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AATCCGTCGGCACCATCCAGCTCGCCTTCTT spacer
length: 31 repeater length: 32
11785 1417152 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGGTGCTCGTAGGGATTGTAGTAATCCGTGA spacer
length: 32 repeater length: 32
11786 1417217 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TCGGGCAAAAACACCGGATTAAACAGCCAAGA spacer

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length: 32 repeater length: 32
11787 1417282 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TTAACAAGGTCGTCCCCGGGAAAGGCTGCGCCC spacer
length: 33 repeater length: 32
11788 1417348 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GATTTCCAGGAGATGTTGCCCGGGTTTCTTCA spacer
length: 32 repeater length: 32
11789 1417413 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GATTTGAGGCCAGGAACTGCGATACTGTGGGGTC spacer
length: 34 repeater length: 32
11790 1417480 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ACGGCGTCCAGGATGCTGCCGAAGATGCCGG spacer
length: 31 repeater length: 32
11791 1417544 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGCGTCGAGGTACAGTTCCTCGGTGGTCTCCG spacer
length: 33 repeater length: 32
11792 1417610 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AGTGGTCTGACCCGGACGGCGGCGGGGTGCG spacer
length: 31 repeater length: 32
11793 1417674 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GACGCCCTCGGCGAGGTCGTCCAGATACGCG spacer
length: 30 repeater length: 32
11794 1417737 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC ATACCTATGAGTTGGAACCCTTTTTCTTACC spacer
length: 31 repeater length: 32
11795 1417801 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGCCGGGACCTCGATCAACTGTGGGCATATTA spacer
length: 32 repeater length: 32
11796 1417866 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CATCGGGCTGACGTTCTACGACGCCGACACTAT spacer
length: 33 repeater length: 32
11797 1417932 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AGTTTGGACTGTTTCAGGTCTTATAAAAGTGTG spacer
length: 32 repeater length: 32
11798 1417997 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GTTCGATATAGCCGCTGACCCCTGCACCTCCG spacer
length: 33 repeater length: 32
11799 1418063 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GTGGGTGGTCCGGCGTCCGGGCGTTCGTGAGGCG spacer
length: 33 repeater length: 32
11800 1418129 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TCCGGAAGGTTTCGAGAGGTCTGCATCATGTATC spacer
length: 33 repeater length: 32
11801 1418195 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGTCTCCCACCAACCAACCCTGCAAAAGCAC spacer
length: 31 repeater length: 32
11802 1418259 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GATCCACCTTTGCGTCAAACGCCGCTGCGTTA spacer
length: 33 repeater length: 32
11803 1418325 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGTCTGCTCATGCAGCCTCGCCGGGAATGC spacer
length: 31 repeater length: 32
11804 1418389 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCCAGCGCTGATCACTTGGTGGGGCGCCACAT spacer
length: 33 repeater length: 32
11805 1418455 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CAGATGCCCTGGTGATCGGGGATGGGTTCGCTG spacer
length: 33 repeater length: 32
11806 1418521 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CATCTACCGTCGGGGATGCCTCTGAGACCCGGCCGC spacer
length: 36 repeater length: 32
11807 1418590 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGGGCAGGTAAACTGTGCCCGTACTGGTCG spacer
length: 32 repeater length: 32
11808 1418655 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GAGGCGACTCCAGATACCCCCCGACACCTCCC spacer
length: 33 repeater length: 32
11809 1418721 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGGACAGAGGCGGCGGCAACGCCGCATCGA spacer
length: 32 repeater length: 32
11810 1418786 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGGCCGACCTGGTCCGGGCCCTCGGCATCGC spacer
length: 31 repeater length: 32
11811 1418850 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTGGTGGATTTGCCTTTCTTACGGAGATCGAC spacer
length: 32 repeater length: 32
11812 1418915 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCTCGTCGCCGGGGCTGGGCTCTGGGCGATTG spacer
length: 32 repeater length: 32
11813 1418980 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGCCGATACCCCCGCTGCCGTCGCGTGGCGTC spacer
length: 33 repeater length: 32
11814 1419046 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTGGCAAAGGGCATTGTGGATCTGGCGAGT spacer
length: 30 repeater length: 32
11815 1419109 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GGCCTCGAAAACGGCAACGGCGATCGAAAAT spacer
length: 32 repeater length: 32
11816 1419174 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCCCGCATCGAGTATTACCCGAGGCGGTC spacer
length: 31 repeater length: 32
11817 1419238 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CACTGGCAAAGGGCATTGTGGATCTGGCGAGT spacer
length: 32 repeater length: 32
11818 1419303 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC AACAGTGGTAGCCCTCTCCATGTTTTTGGGGAG spacer
length: 33 repeater length: 32
11819 1419369 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC TAGGATATGTGCTCGACCAGATCATCATAGGCA spacer
length: 33 repeater length: 32
11820 1419435 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGAACCGACACGATCAAGCAACGCCAACCCT spacer
length: 32 repeater length: 32
11821 1419500 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTTGAGGGCGAGACGACGATCACGCTGGCCG spacer
length: 32 repeater length: 32

11822	1419565	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	GGGGCAAGGACATCGGCGACTCCCCGCAAT	spacer
	length:	31	repeater length:	32
11823	1419629	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CTTCATGTCGGCAGGATTCTCGCAGGAAAACC	spacer
	length:	32	repeater length:	32
11824	1419694	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGCTGGTCTTGGTTGCAGACCCGAGGCCGT	spacer
	length:	32	repeater length:	32
11825	1419759	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ATGACCTCGGTCCCGGTCCGCATCTCCGGGA	spacer
	length:	31	repeater length:	32
11826	1419823	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ACCAGTTGGTCGCGGTCTCAGCGGAGGCGTCGG	spacer
	length:	33	repeater length:	32
11827	1419889	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	TTTGCCGGTGTTCACTCTCGCACGGTTCGCTT	spacer
	length:	32	repeater length:	32
11828	1419954	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	GTGCTATTACGGGGCGATTGCCGAGCTGCGGA	spacer
	length:	32	repeater length:	32
11829	1420019	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	TTGACCAGACGGTATCCCCGCCGACCATTACAT	spacer
	length:	33	repeater length:	32
11830	1420085	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	AGGCGGTCAAAATAACCGTGTACGTGCCTGG	spacer
	length:	31	repeater length:	32
11831	1420149	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGTCGAGGTCGTCGCCGACGGATACATCACTG	spacer
	length:	32	repeater length:	32
11832	1420214	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ACGACCCCGCCGCCGATCCCTCATTTGTCTGG	spacer
	length:	31	repeater length:	32
11833	1420278	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	TCACCCCGGACGCCGACGCCCGCGATACTC	spacer
	length:	31	repeater length:	32
11834	1420342	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	GTGATTGTTCTGTGCTTGGTTTTGCATTAACAT	spacer
	length:	33	repeater length:	32
11835	1420408	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ATGCAGCAGGTATCGCACACGGCGACGCCCA	spacer
	length:	31	repeater length:	32
11836	1420472	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	AGTTGAAATCCACATTTCCGACACCGGAACGA	spacer
	length:	32	repeater length:	32
11837	1420537	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCAACACCTACGGCTCAGGCACGCCTGAAG	spacer
	length:	32	repeater length:	32
11838	1420602	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCGTCTCTCGGCAACACCTCCGGCACCGCCG	spacer
	length:	32	repeater length:	32
11839	1420667	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGCCCTGGCGGACCTCAACCGGCACCTGAA	spacer
	length:	30	repeater length:	32
11840	1420730	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	ATGGCTATGTGTCTGGGTACTGGACCTCTCT	spacer
	length:	31	repeater length:	32
11841	1420794	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	TGCCCCATACTCAGGCCGCTCAGAACACTCA	spacer
	length:	32	repeater length:	32
11842	1420859	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	AGACAACGTCGCCAGACACATGGTCGTAACG	spacer
	length:	31	repeater length:	32
11843	1420923	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGGCCTTGAAAGAAGAACATCCGTGGCTTAA	spacer
	length:	32	repeater length:	32
11844	1420988	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	GATGACCCACTGGAAAAATATCGCCACCTCTA	spacer
	length:	32	repeater length:	32
11845	1421053	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CTCGACCACGGATGCCTTCATCCCGGATGGGA	spacer
	length:	32	repeater length:	32
11846	1421118	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGCCTGCTCATGGATGACCACGACACCCTTC	spacer
	length:	32	repeater length:	32
11847	1421183	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCCGGTTTGCGGGCACGTTGATCATGCCGATG	spacer
	length:	32	repeater length:	32
11848	1421248	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCTTCTGCATCACATATTCGACATCGGCCTCCG	spacer
	length:	33	repeater length:	32
11849	1421314	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CAGGTAGCACCGGCCTTCAACCGGCATCTGCG	spacer
	length:	32	repeater length:	32
11850	1421379	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCATAGGCCCTCCGCAGTTTGTCTAGAGAGTTCCG	spacer
	length:	34	repeater length:	32
11851	1421446	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGACTACTCGAGTTTCAATGGTGTCTGTCGTTGT	spacer
	length:	33	repeater length:	32
11852	1421512	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CACCGGCTTACCCATCGCCATGCACTCCTGCT	spacer
	length:	32	repeater length:	32
11853	1421577	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CATCCGATCCTCCGTGACCATGCGGAACCACTC	spacer
	length:	33	repeater length:	32
11854	1421643	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGGGTGCCTCGGCTACCTTAGAACCGTCAAAGA	spacer
	length:	33	repeater length:	32
11855	1421709	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CCGGATCGGGTGTATCATGTGCCCCATGCAGGGCA	spacer
	length:	35	repeater length:	32
11856	1421777	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGCCCGCCCTCATCATCTCCCCTGCCGCCCGTGA	spacer
	length:	34	repeater length:	32
11857	1421844	ATTTCAATCCACGTGCCTGCGTGAGGCACGAC	CGAGGTCGTGCAGTTCATCCGGGCGCATTATCC	spacer

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length: 33 repeater length: 32
11858 1421910 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CATCGTCCTTATGCGCATGTGGAAACGCCCCGA spacer
length: 33 repeater length: 32
11859 1421976 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CACTCTGCCCCGCACACCTCGCACGTGAAGATCA spacer
length: 34 repeater length: 32
11860 1422043 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGGAGAGGTCCCACACGGTGAGGGCGACCCCTG spacer
length: 34 repeater length: 32
11861 1422110 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGAGATCACAGCATGACACACATCGAGATCAG spacer
length: 32 repeater length: 32
11862 1422175 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGTCAAGGGCGTTTCGGGTCAAGACGTTTCGACG spacer
length: 32 repeater length: 32
11863 1422240 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCGACCTGGGTCTGTTGTGTGATCTTTACAGCCGA spacer
length: 34 repeater length: 32
11864 1422307 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCCTGTCTCTCGATCGGCAACCGCCGGGGCGACA spacer
length: 33 repeater length: 32
11865 1422373 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CCTGATGCCCCCTTCTGCGTCTCCCACCACACCT spacer
length: 34 repeater length: 32
11866 1422440 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCATTCATCCCCGCCATCACGGCACCTCGATAT spacer
length: 34 repeater length: 32
11867 1422507 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGCGAACCCGGCGAGAGTGGCAATACATCCCA spacer
length: 33 repeater length: 32
11868 1422573 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGGCGAGGTCAAGCCGGTATCGGAGTTCTACC spacer
length: 32 repeater length: 32
11869 1422638 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC GCCTTCGTTGCCGAAGCCGATCAGACGATCTT spacer
length: 32 repeater length: 32
11870 1422703 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CGCGCGCTCTTGTGGTTCGTCGTATCCGGTAT spacer
length: 32 repeater length: 32
11871 1422768 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CTTTCAGTTCCCGCCGAGGAAGCCCAAGCACGACC spacer
length: 35 repeater length: 32
11872 1422836 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CACGCCCGGAACGTTTTATGACTGTATCACCG spacer
length: 32 repeater length: 32
11873 1422901 ATTTCAATCCACGTGCCTGCGTGAGGCACGAC CACTATATATTGGAGGACAAATATCTTTCTTG
11874
11875
11876 GCA_000299365.1_ASM29936v1_genomic.fna(findCrispr):
11877 START REPEAT
SPACER
11878 crispr 1
11879 11580 AAATCACTCTCTGACTCAGTAACTATCTCTGACTCAGTA TCTGCTTCTATTGTCCAAAT spacer length: 20
repeater length: 39
11880 11640 AAATCACTCTCTGACTCAGTAACTATCTCTGACTCAGTA
ACAACTACTATATCACTGAGCAAATCATTCTCAGAATCTGTCTCAGTATCCGATCAACTCTCACTCTCACTCAC spacer
length: 74 repeater length: 39
11881 11754 AAATCACTCTCTGACTCAGTAACTATCTCTGACTCAGTA
TCTGCTTTTATAGTTCAAACAAAATCACTTTCCGATTCTATATCGATATCAGACTCTATCTCATTGTCCCTCAC
11882
11883
11884 GCA_000299395.1_ASM29939v1_genomic.fna(findCrispr):
11885 START REPEAT
SPACER
11886 crispr 1
11887 716161 GCTGCCTTTCTCTTTGGAGC GGCTTTGCGTTTAGAAGCAGCCTTTCTCTTAGGTGCTGCTTTTCTTTT spacer
length: 48 repeater length: 20
11888 716230 GCTGCCTTTCTCTTTGGAGC TGCTTTTTTAGCTGCAGTTTTTCTCTTTGGAGCGGCTCTGCGTTTTGC spacer
length: 48 repeater length: 20
11889 716299 GCTGCCTTTCTCTTTGGAGC CTAAGCGTACAGCAAAGAAAGCAGCTCCAAAGAGAAAGGCAGCAGCAA
11890
11891
11892 crispr 2
11893 569103 GCAGTAAAAAGAACTGCAACTAAA
GCTAAGCGTACAGCAAAGAAAGCAGCTCCAAAGAGAAAGGCAGCTAGCAAAGCTAAGCGTACAGTTAAGAA spacer
length: 71 repeater length: 24
11894 569199 GCAGTAAAAAGAACTGCAACTAAA GCTAAGCGTACAGCAAAGAA spacer length: 20 repeater
length: 24
11895 569244 GCAGTAAAAAGAACTGCAACTAAA CGTACAGCAAAGAAAGCAGC
11896
11897
11898 crispr 3
11899 501659 GGTTTTCTCTTTACAACCTTTTTTC TTTGCTACTGCCTTTTTTATC spacer length: 20 repeater
length: 24
11900 501704 GGTTTTCTCTTTACAACCTTTTTTC TTTGCTACTGCCTTTTTTAGA spacer length: 20 repeater

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length: 24
11901 501749 GGTCTTCTCTTTACAACCTTTTTTC TTTGCTACTGCCTTTTTTAGA spacer length: 20 repeater
length: 24
11902 501794 GGTCTTCTCTTTACAACCTTTTTTC GTACAGCAAAGAAAGCAGCT
11903
11904
11905 crispr 4
11906 167464 TGGCTCATCTAATCCGACTGCCTCATAAATTG
TCATTTTGGGATAGTTTTTCATCAAACCATTTCTTGTATGTTGTTTCCTTGTGTATCTATCAACATAATACTGTGGATCCAAATTT
GGATCAACAAATGGGGCTAATGTTT spacer length: 111 repeater length: 32
11907 167608 TGGCTCATCTAATCCGACTGCCTCATAAATTG
AAGAATATTGTGAATAGTTTTTCATCAAACCATTTCTTGTAACTTGCCTCGTTGTTGTATCTATCAACATAACTCTGTGGATCTTTA
GTTTCACTACAAATGCAGCTGGAATAAGTA spacer length: 117 repeater length: 32
11908 167758 TGGCTCATCTAATCCGACTGCCTCATAAATTG
GCGTACAGCAAAGAAAGCAGCTCCAAAGAGAAAGGCAGCAGCAAAAAAGCAGCTCCAAAGAGAAAGGCAGCAGCAAAACGCAAAG
CCGCTCCAAAGAGAAAGGCAGCAAAAAGACG
11909
11910
11911 GCA_000300255.2_ASM30025v2_genomic.fna(findCrispr):
11912 START REPEAT
SPACER
11913 crispr 1
11914 867719 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA
GACCCACGTTAGGAAGGCTCTGCCTATCGATCTACACTGGTAGAAATTCTGAATGAGTTTTAGACTGCGGAGTCCGTTGCCTTTGT
TATTG spacer length: 91 repeater length: 33
11915 867844 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACAAACGGTAGCCAGGAAGGCTGGCC spacer length:
28 repeater length: 33
11916 867906 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGACGGAAGTGATAGGGTAACCGCACCT spacer
length: 30 repeater length: 33
11917 867970 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGATGCATCCGCAATGTGTGCCTGCT spacer length:
28 repeater length: 33
11918 868032 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGTACCTTGACCGCAAAAAGTGAACCG spacer
length: 29 repeater length: 33
11919 868095 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTAACATGACAGGAAATCCACCCGA spacer length:
27 repeater length: 33
11920 868156 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCCTCGGCGGCAGATGTGGAGACAGA spacer length:
28 repeater length: 33
11921 868218 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACACATCAAGCCCCCTCCAGTCATCCGTC spacer
length: 29 repeater length: 33
11922 868281 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACATTAAGGGGCAGTGCCGAACCG spacer length:
27 repeater length: 33
11923 868342 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA
GACCCACTTCACAGCCAAAAGCGTATCTTTATCTACACTAGTAGAGATTCTGAATGAGTTTTAGACCAACCAAATATGGCCCGTTG
TTGTTTG spacer length: 93 repeater length: 33
11924 868469 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCAACCAAATATGGCCCGTTGTTGTTTG spacer
length: 30 repeater length: 33
11925 868533 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACACTTATGACGACATTTTTAGGGCATA spacer
length: 29 repeater length: 33
11926 868596 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCCCTGCCGCTGAATATCTTTGCACC spacer
length: 29 repeater length: 33
11927 868659 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGCCGAGGCGTGGCGGGATGGTTCC spacer length:
28 repeater length: 33
11928 868721 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGTTTCGCCCTCTCTCGGTTTCATCA spacer length:
27 repeater length: 33
11929 868782 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTCGCCTTGTCTCGAGGCGGTCCTTG spacer length:
28 repeater length: 33
11930 868844 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCTTCAGATCTTCAGGATCATCCTCA spacer length:
28 repeater length: 33
11931 868906 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGGTGACGCAGCTGACCGCCGAACGCG spacer
length: 29 repeater length: 33
11932 868969 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTCTCTCCTTCATCTGGCCTGTCCGT spacer length:
28 repeater length: 33
11933 869031 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGAACGCCCCGAGGTCTGAAGGCCGCAA spacer
length: 29 repeater length: 33
11934 869094 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTGTGCGGCTCGTCGCTTTCCCGTGGT spacer
length: 30 repeater length: 33
11935 869158 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTACCCCTTCCTCCGTACGTAGTCTT spacer length:
28 repeater length: 33
11936 869220 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCACAGCCGACTTCATCAGGAAGAGA spacer length:
28 repeater length: 33
11937 869282 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCCACGAAAGCCTTACGCTCCGCTTTG spacer

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length: 29 repeater length: 33
11938 869345 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACATGCGCTCCGCGATCAACTCCATCG spacer length:
28 repeater length: 33
11939 869407 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACCAGGCGGACATGGAAAGCGCGATAG spacer length:
28 repeater length: 33
11940 869469 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACACGCTGAAGATAGACGACGTGAGCTT spacer
length: 29 repeater length: 33
11941 869532 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACTAACCTTCCGTAAGTAACACGTTTATAT spacer
length: 31 repeater length: 33
11942 869597 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACCGATCATCGCAGACGAGGTAGATTCA spacer
length: 29 repeater length: 33
11943 869660 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA AACAGTGTCTGTTACGTGTGGTATTCT spacer length:
28 repeater length: 33
11944 869722 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACCCGGTCTGCGTCTTGGCGAAGCTC spacer length:
28 repeater length: 33
11945 869784 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACAAGAAGGCCGTGGTGGTCACCGCCAC spacer
length: 29 repeater length: 33
11946 869847 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACGCACCACGTGGGCGACCCTCATCA spacer length:
27 repeater length: 33
11947 869908 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACAGACGTTGAATCTCTGGCGGTTGC spacer length:
27 repeater length: 33
11948 869969 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACCAGGTCGAACTTGAGAACGGAAGACT spacer
length: 29 repeater length: 33
11949 870032 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACCTGCAGCGCACTGTTCCCAATTTTA spacer length:
28 repeater length: 33
11950 870094 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACCGCCCGAAGAAGCCCAGGAATTCTA spacer length:
28 repeater length: 33
11951 870156 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACGTTACGGCACCGTGGGGAATATCGT spacer
length: 29 repeater length: 33
11952 870219 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACTCCGGTCTTGGAGTAGTGAGCCACT spacer length:
28 repeater length: 33
11953 870281 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACGGGAGTTCGACCAGTTCATAACCTGGA spacer
length: 30 repeater length: 33
11954 870345 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACGGAGCAGTATTAGACTTAATCGTCT spacer length:
28 repeater length: 33
11955 870407 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACGGCGCGGCCCGCAGCTTCCTGACCG spacer length:
28 repeater length: 33
11956 870469 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GATGAGTTTTAGACGGGAGTTCGACCAGTTCATAACCTGGA
spacer length: 41 repeater length: 33
11957 870544 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA GACGGAGCAGTATTAGACTTAATCGTCT spacer length:
28 repeater length: 33
11958 870606 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA CAGCTTCCTGACCGAATCTACACTAGTA

11959
11960
11961 GCA_000303155.1_ASM30315v1_genomic.fna(findCrispr):
11962 START REPEAT
SPACER
11963 crispr 1
11964 281180 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC ATTTTGAAGGCACGAGAAACAACTATTCTGAATATC
spacer length: 37 repeater length: 36
11965 281254 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC TACAGATTTCTTGCAATTCTAACGCTCAAAGATGAATG
spacer length: 38 repeater length: 36
11966 281329 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC TGACTGGCATTGTAATACCGCCAGATTGGCTAGGTA
spacer length: 36 repeater length: 36
11967 281402 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC CAGATGAAAATATGAGTTTACATTTACTGCATGTATACT
spacer length: 39 repeater length: 36
11968 281478 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC TCTCTGTCTGGTTCATGCCGTTGTTCCGCGTAGGTGC
spacer length: 37 repeater length: 36
11969 281552 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC CAAAGCGTCAGCAACCAGGTAAATGAGCGCATGCAACAAA
spacer length: 40 repeater length: 36
11970 281629 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC
TACAACCTCTGGCTATCGGGCTACAATCCCCGGGAGATAAG spacer length: 41 repeater length: 36
11971 281707 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC TAGACGTTTCATGCACTTTGTGAAGATGTTTGAAGTTTCT
spacer length: 39 repeater length: 36
11972 281783 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC TTATGTGTTAGAGGTCATTACCCGCGACTGGTACTT
spacer length: 36 repeater length: 36
11973 281856 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC TCAATATGGAATTTTCGCCAGAGAAAAACGGCGTGGTGCA
spacer length: 40 repeater length: 36
11974 281933 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC
AATACTACAAAAAGATGCGCAAGATGTATGGCAACATTTAC spacer length: 41 repeater length: 36
11975 282011 TTTCAATCTCCACTATTTGGAGATTTCGCGTTTTTAAC GGGCATTTATGCAGTTAGCTTTTACGAGATAGGCAACCT

spacer length: 40 repeater length: 36
 11976 282088 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GTATTGGAGAAAGGCGCAACTACATGAGTGAGATATTCTG
 spacer length: 40 repeater length: 36
 11977 282165 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TTACAAAACAGTGTTTACCACTATGTGGGCATAGCA
 spacer length: 36 repeater length: 36
 11978 282238 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 GAGCGATGCCAAGAACCCTAGGCCCATGAATCCAGTATGGGC spacer length: 42 repeater length: 36
 11979 282317 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TTGTTTCCATGTCCATAAGCTTGATGACTTGTCATGTAAG
 spacer length: 39 repeater length: 36
 11980 282393 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AGATACGACAGTGAAAAAAGAGCAGCAGCGTCGTATTATTT spacer length: 41 repeater length: 36
 11981 282471 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GTACCATACGTGACTCCATCGAAAACGACGCCAACAT
 spacer length: 37 repeater length: 36
 11982 282545 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GTTGACAGACAGGAGCGCCTTTAGGAACGTGTCAGGCG
 spacer length: 38 repeater length: 36
 11983 282620 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TGCTTGTGTGGGTATCAGTCGGCGACAAATTCAGCCCTT
 spacer length: 40 repeater length: 36
 11984 282697 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC CTGAATGTCTTGTGTGCTTCCTGCTCTACGATTTTCCC
 spacer length: 38 repeater length: 36
 11985 282772 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC CTTGTTCAATACTGCTAGATGGGCCTCCCAGTCAA
 spacer length: 35 repeater length: 36
 11986 282844 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 TCGTTAACGTCGGAGTAAACGACTTTTCATGTTATTGTAATC spacer length: 41 repeater length: 36
 11987 282922 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 AAGAAGGCAAGAGAAAACAGTTGATGTCACCGACTATACGGT spacer length: 41 repeater length: 36
 11988 283000 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AAGACTCCTGAAACGGTGGGATTCGCTCAACCACATAGG
 spacer length: 39 repeater length: 36
 11989 283076 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC
 CTGGTAGCCAGGCTATCCCTGCCAGGCCACGCTTGGCACCA spacer length: 41 repeater length: 36
 11990 283154 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AACAAGTACAAACGGAATAGACATAGATAATAGATATAGG
 spacer length: 40 repeater length: 36
 11991 283231 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GCAGAACGGCAGAGTGCTGAGTGCTGACCTATC spacer
 length: 33 repeater length: 36
 11992 283301 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC TGTATTAAACTCCGCTTTCTGACCAAAGAAACAAAG
 spacer length: 37 repeater length: 36
 11993 283375 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AACGACCATGAGGTCATGGCGTTCCTGTTTGCGTATCAGC
 spacer length: 40 repeater length: 36
 11994 283452 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AGGAGCCAGTATTTGAATGTCAACAAGTACAAACGGAAT
 spacer length: 39 repeater length: 36
 11995 283528 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC CAGGGCCCGCTCTCACCAAGGAACAAGTCGTCTACAATCT
 spacer length: 40 repeater length: 36
 11996 283605 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GAATCCATGTTCTGCGTATGTCGCAAGCGTCCCCTGA
 spacer length: 38 repeater length: 36
 11997 283680 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GCCATGGCCGAAGCCACTTGGGCTGGCATGTATGTCC
 spacer length: 37 repeater length: 36
 11998 283754 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC GCTTTGGTGTCTGGTACAGATCGCAAGGCGGGCAACTGGA
 spacer length: 40 repeater length: 36
 11999 283831 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC AGATGAAGCGACTGATCAAGCTCCTAAAAGAAGAATAAA
 spacer length: 39 repeater length: 36
 12000 283907 TTTCAATCTCCACTATTTGGAGATTCGCGTTTTTAAC CACTTTTTTCGGCTCTTTTAGTTAAACCGAGCACGAATTA
 12001
 12002
 12003 GCA_000306725.1_ASM30672v1_genomic.fna(findCrispr):
 12004 START REPEAT
 SPACER
 12005 GCA_000317795.1_ASM31779v1_genomic.fna(findCrispr):
 12006 START REPEAT
 SPACER
 12007 crispr 1
 12008 1076681 TTGATGTTGTGGTTGATGTTGTGGTGGTTG
 ATGGAGTTGTGGTTGATGTTGTGGTGGTTGATGGAGTTGTGGTTGATGTG spacer length: 50 repeater
 length: 30
 12009 1076762 TTGATGTTGTGGTTGATGTTGTGGTGGTTG ATGGAGTTGTGGTTGATGTG spacer length: 20
 repeater length: 30
 12010 1076813 TTGATGTTGTGGTTGATGTTGTGGTGGTTG TTAACATTACTCCATCATA
 12011
 12012
 12013 crispr 2
 12014 1088327 CGTTTGATAGTGAAGTGCTTAGGGATGATATGGAAGATGA TAGGGATGATATCTGTGATTCTAATGTGGAGTTA
 spacer length: 34 repeater length: 40
 12015 1088402 CGTTTGATAGTGAAGTGCTTAGGGATGATATGGAAGATGA

CAATGCAGAGTAATCGTTTGATAGTGAAGTTGATAGGGATGATATGGAAGATGATAGGGATGATATCTGTGATTCTAATGTGGAGT
TA spacer length: 88 repeater length: 40

1088531 CGTTTGATAGTGAAGTGCTTAGGGATGATATGGAAGATGA
ATTACTCCATCATAACATAAAGCAGTTCTATATCATAATAAAATTACCAAATGAGACCGAAAGCAATTGGTTTAATCAGGGCTTTAT
AA

crispr 3

1488632 TTGCCTAGTATGATATATAAATGGTAGTGAAGAAAGATATG
TATTAAACCAAAACACAACAGATAGTTGTTAATAAAGCATTAAACATTACTCCATCATAACATAAAGCAGTTCTATATCATAATAAAA
TTACCAAATGAGACCGAAAGCAATTGGTTTAATTCAAACCTATGTTATAAC spacer length: 136 repeater
length: 40

1488809 TTGCCTAGTATGATATATAAATGGTAGTGAAGAAAGATATG
TATTAAACCAAAACACAACAGATAGTTGTTAATAAAGCATTAAACATTACTCCATCATAACATAAAGCAGTTCTATGATGTAATTATT
TTGCCTAATGGAACGATTAGTAATTGGTTTAATTCAAACCTATGTTATAAC spacer length: 136 repeater
length: 40

1488986 TTGCCTAGTATGATATATAAATGGTAGTGAAGAAAGATATG
TATTAAACCAAAACACAACAGATAGTTGTTAATAAAGCATTAAACATTACTCCATCATAACATAAAGCAGTTCTATATCATAATAAAA
TTACCAAATGAGACCGAAAGCAATTGGTTTAATCAGGGCTTTATAATAAC spacer length: 136 repeater
length: 40

1489163 TTGCCTAGTATGATATATAAATGGTAGTGAAGAAAGATATG
AGTGAAGAAAGATATGTATTAAACCAAAACACAACAGATAGTTGTTAATAAAGCATTAAACATTACTCCATCATAACATAAAGCAGTT
CTATATCATAATAAAATTACCAAATGAGACCGAAAGCAATTGGTTTAATC

GCA_000327485.1_ASM32748v1_genomic.fna(findCrispr):

START REPEAT
SPACER

crispr 1

524426 GGAGGGTTCTTCGAAATCCGAAAG GTGCATCTAACAGTGAGGACGAGGAAAGCC spacer length: 30
repeater length: 24

524481 GGAGGGTTCTTCGAAATCCGAAAG GTGCATCTAACAGTGAGGACGAGGAAAGCT spacer length: 30
repeater length: 24

524536 GGAGGGTTCTTCGAAATCCGAAAG GACTGTAAAATACTCGTTAAGTGTTCATGA

crispr 2

1976161 ATATCCCTGACAAGGAAGCAGCATGG
AATATTCTTTTAACCTTAGCTAATGATCCGATTATTTTGTAAATGCGTACCGCAGATGCTCTTGAAAGATCTTTTCG
spacer length: 81 repeater length: 26

1976269 ATATCCCTGACAAGGAAGCAGCATGG
GATACTCTTCTAACCTTATCCAGTGTTCCGGATTATTTTGTAAACGAGTACCGCAGATGCTCTTGAAAGATCTTTTCG
spacer length: 81 repeater length: 26

1976377 ATATCCCTGACAAGGAAGCAGCATGG
TGAGGGTTCTTCGAAGTGGTGGCCACAACAGTTCCGTGGTCCCTCCGTCTTACCTCAGTTCCGGAGGCAGTGCCCTGCCGGC

crispr 3

2643916 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TATTTTTTCAAATCTGTTGCGTGTAGATCCGGG spacer
length: 33 repeater length: 32

2643982 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCGATTCTCGGGGCATGGTCAGGGAAGTGGGG spacer
length: 32 repeater length: 32

2644047 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTCACCGATCCGCCATACGTCAAGGAGCTCTA spacer
length: 32 repeater length: 32

2644112 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC CACCGTCCTTCTCTCCCATCACGACAAGCGCCT spacer
length: 33 repeater length: 32

2644178 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCCGGAATACAGCACAGTGCCCCCGGTACTATC spacer
length: 33 repeater length: 32

2644244 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TAGGAGATGACCCTAGAATATGGGCTTTTGA spacer
length: 31 repeater length: 32

2644308 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTCAGGAGTCGTTCCCGTACCGGCAGGTTTGTTC spacer
length: 34 repeater length: 32

2644375 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TGTCGAGCCACGACCGGACCAACAGGTAACCCG spacer
length: 33 repeater length: 32

2644441 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTGCATCGCCCTTTGTTTCAATGGCGATGGAA spacer
length: 32 repeater length: 32

2644506 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GCTATTTCGTGAACCACCTTTTATTGATGGACC spacer
length: 32 repeater length: 32

2644571 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TGCCCCGCTCGTCAATGACCATCCCGTTGGAA spacer
length: 32 repeater length: 32

2644636 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCCTGGTTTGACCGCAGTTTATCGTATTCTGGA spacer

	length: 33	repeater length: 32	
12053	2644702	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TGCAAATGGCAGAGTATACCGAAAGATCGATGC spacer
	length: 33	repeater length: 32	
12054	2644768	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTCTTTCAAGCAGGGGATTTTATGGAGCTCTG spacer
	length: 32	repeater length: 32	
12055	2644833	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TCAGCATGTCGGGGAGTTCCAGTTCAACCTCAT spacer
	length: 33	repeater length: 32	
12056	2644899	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CTTTCGCTTCCGTGGATCTCAACTTCCCGAGGCA spacer
	length: 34	repeater length: 32	
12057	2644966	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GAAAAAATGTGTATGTGCATAATGGGTACTCTG spacer
	length: 33	repeater length: 32	
12058	2645032	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CGCCTTTGTGTACATCGCGAACCCGAAAGAATCAT spacer
	length: 35	repeater length: 32	
12059	2645100	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TATTTTTTAACCTTCACCGTTACGCGATCGCGG spacer
	length: 33	repeater length: 32	
12060	2645166	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	ATTTTCAGGAGATGAAAGTACATGGTTAACGTAA spacer
	length: 34	repeater length: 32	
12061	2645233	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	AGATATAGATAATAAATCTGCACAATGAATTAA spacer
	length: 33	repeater length: 32	
12062	2645299	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TCATCAATCATAATATCACCCAAACATATTAC spacer
	length: 32	repeater length: 32	
12063	2645364	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CCTTCGACGGGATGCAGTCCGGTGTCTGTGA spacer
	length: 31	repeater length: 32	
12064	2645428	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GGATCAACCTTTCCCCCGCAAAGCCTGCAGCG spacer
	length: 32	repeater length: 32	
12065	2645493	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTTTGATCACAGAGATATTTTTTAGACATCTGG spacer
	length: 33	repeater length: 32	
12066	2645559	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTCGTATGGTGGGGATGGCTTGTTCATGCCGAT spacer
	length: 32	repeater length: 32	
12067	2645624	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CCCCATCGCAGTTTTTCATCCCGGTCGAAACTC spacer
	length: 33	repeater length: 32	
12068	2645690	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TCAGATGGACCGCCCCCTCCAATTGACGTAAT spacer
	length: 32	repeater length: 32	
12069	2645755	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GCATTACCCGCCCCGGAGAGGTTTCGAGCTCGA spacer
	length: 32	repeater length: 32	
12070	2645820	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	AGGTCCGGCCCCATCGTCCGGGCCGCATTTCGTCC spacer
	length: 34	repeater length: 32	
12071	2645887	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GTTTCAGATCCCAGATCCGTTTCATAGACTTTC spacer
	length: 32	repeater length: 32	
12072	2645952	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GGATTGCTGCGAAGGGTGCCTTGAAAGAGTGCA spacer
	length: 33	repeater length: 32	
12073	2646018	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GCCGTACGTGCCCCGCCATGTACATCAGGAGCT spacer
	length: 32	repeater length: 32	
12074	2646083	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TATGCGTCCCTGATCTTTTTCTTGTATCCTCCC spacer
	length: 33	repeater length: 32	
12075	2646149	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CGCTTTCCTCGGTGGAATGCGGAAAAGGATGTG spacer
	length: 33	repeater length: 32	
12076	2646215	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TCCACATATTGTCTGGTGTACTCATGGGAGAT spacer
	length: 32	repeater length: 32	
12077	2646280	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CCATTTTGCACACCTGTCTTTTGTTCGTCGATC spacer
	length: 33	repeater length: 32	
12078	2646346	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTTGCCAGCACCCGGGCCACGTCTGCATCTCGC spacer
	length: 33	repeater length: 32	
12079	2646412	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTGGCATTACTCCCGATTCAAATAACATTATCA spacer
	length: 33	repeater length: 32	
12080	2646478	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CTGCAATGTTTCAAAGGTTGTTAGCCTTATGC spacer
	length: 32	repeater length: 32	
12081	2646543	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	ATTGCGCTTTGCATCTCCCTGTATGCTACACTT spacer
	length: 33	repeater length: 32	
12082	2646609	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTAACGGTTTAGTAGATGCAACGCTATCTGT spacer
	length: 31	repeater length: 32	
12083	2646673	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CTTTTTACTGGTTGTCATGACAATCTTTGTAATCA spacer
	length: 35	repeater length: 32	
12084	2646741	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	TTAAATATGTTGTACTAGAATCAATCTCTAT spacer
	length: 31	repeater length: 32	
12085	2646805	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CAGTGTTTCAAAGCTCTGGATCGTGCCGTGGAAG spacer
	length: 34	repeater length: 32	
12086	2646872	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	CTGCAATGTTTCAAAGGTTGTTAGCCTTACGC spacer
	length: 32	repeater length: 32	
12087	2646937	ATTTCAACCCCACTCCCGCGAAGGGAGTGAC	GTTACCATTCTTTTTTCATCTCCTGCTCTAATATA spacer
	length: 34	repeater length: 32	

12088 2647004 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTGCGATCATGCAGATTAACGCCTGCGCTGCAA spacer
length: 33 repeater length: 32
12089 2647070 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TGAAGTGGTGGATGGATTCCACCGGACCCGCGTT spacer
length: 34 repeater length: 32
12090 2647137 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC ATGGTGACGGCATTATTATGCACCATTCACGG spacer
length: 31 repeater length: 32
12091 2647201 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTCCGGGGAATCGCGGATGCCTTTGCGGATCAATGGG
spacer length: 37 repeater length: 32
12092 2647271 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TAATACAAAACCACTTCATTATCTGTCTAAAT spacer
length: 33 repeater length: 32
12093 2647337 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCGGTGGTCTGTTGACCGGATCAAGGATGGTAAGC spacer
length: 35 repeater length: 32
12094 2647405 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GTCTCTTTTGTGACCGTATATCTACCACAAA spacer
length: 32 repeater length: 32
12095 2647470 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC CGGGACCACCAGCGTTGCATCGCGCCGTAATCAA spacer
length: 35 repeater length: 32
12096 2647538 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GCTCCGAGATCGCGTTGCTGATCGTGGAGATGC spacer
length: 33 repeater length: 32
12097 2647604 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GAAAAGGAGGGAGAGGAGGAAGCGGCAGAAACAGAG spacer
length: 36 repeater length: 32
12098 2647673 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCACTCCTGCACAGCAGGCGTTGGTTATCGAAC spacer
length: 33 repeater length: 32
12099 2647739 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTAGATGGGCAATTGTATTACCCGTTCCGGA spacer
length: 32 repeater length: 32
12100 2647804 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GCGTTCCTGAAGACGGGGCCGCATGTCCTGACG spacer
length: 33 repeater length: 32
12101 2647870 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GGGGATCCTTGAGCGACTCGCTCCGACCTTGAT spacer
length: 33 repeater length: 32
12102 2647936 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TCCCTTGATAGGGTGCGAGTGGACCGGGTTGTA spacer
length: 33 repeater length: 32
12103 2648002 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TACTATTGCAAGTATCCGTTTTACATCCATG spacer
length: 31 repeater length: 32
12104 2648066 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTGATGAGCTCGGGATGTGATCTGGATGTTTCATC spacer
length: 34 repeater length: 32
12105 2648133 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GTAAAGTTTACTGTTTACGCGCAATCCCATTAA spacer
length: 33 repeater length: 32
12106 2648199 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TATTACGCTGAATACAGGGATTGGAGGGCAAA spacer
length: 32 repeater length: 32
12107 2648264 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTAGGTTCTAAATTTGTTGCTGTATAATTTCC spacer
length: 32 repeater length: 32
12108 2648329 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTTATCTATCGGTTAAATGGTGTGCAACATGG spacer
length: 32 repeater length: 32
12109 2648394 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC TTTTACGTTTCCCTGGTTTTTAACCCTTAAATT spacer
length: 33 repeater length: 32
12110 2648460 ATTTCAACCCCACTCCCGCGAAGGGAGTGAC GCCGCGAAATTTTGCGTATTTTCCGCTGAATCG
12111
12112
12113 crispr 4
12114 938519 GTCGAAGACCGTGAGGATGAGAAGAACCCGTGAG GGTTCTTCGATTTTCCAAGA spacer length: 20
repeater length: 34
12115 938574 GTCGAAGACCGTGAGGATGAGAAGAACCCGTGAG AGTTCTTCGATTTTCCAAGA spacer length: 20
repeater length: 34
12116 938629 GTCGAAGACCGTGAGGATGAGAAGAACCCGTGAG GTTAAGTGTTTCATGAAGAAA
12117
12118
12119 crispr 5
12120 2098698 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG GACATTTACCCAATGGCTGATTGGCAGTTAGCGA
spacer length: 34 repeater length: 37
12121 2098770 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG TATTTACGGCGTTCTGTTCAATCTTAACCGCCGGATAG
spacer length: 38 repeater length: 37
12122 2098846 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG GTTACGGGGGAGAAGGGACTGCATTGCGGTCTTACA
spacer length: 36 repeater length: 37
12123 2098920 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG ACCGAGCAGGGCAAACGCTCGCTGGCGGTTCTTG
spacer length: 34 repeater length: 37
12124 2098992 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG CAGGGGTAACTTTGCTGGGTTCAAGCAGGTGTGTCCG
spacer length: 37 repeater length: 37
12125 2099067 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG TCCTATAACATCGCACGCAACAGTGGTCTTTTCGG
spacer length: 34 repeater length: 37
12126 2099139 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG CAAGAGGCGGAAAACAAACACCTCACGGTTGACG
spacer length: 34 repeater length: 37
12127 2099211 GTTTCAATCCTTGTTCTCGTGGATGTTTCGCTCGAAG GGAATTATCTTGTATTACAGTCATTTCGCACGATGGC

spacer length: 35 repeater length: 37
 12128 2099284 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCTATAGGTAATATAGGTAATTGTCGCCCCGGCTT
 spacer length: 34 repeater length: 37
 12129 2099356 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AAACCTCTCATTTTGGGCTTCTTTTCCAAGTGTT
 spacer length: 34 repeater length: 37
 12130 2099428 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGTTTTATCCGAGCGGTGCGCCCCGGGTCAAAAG
 spacer length: 33 repeater length: 37
 12131 2099499 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGTACTCGAAATCATTGATAGTCGTAGTGTTTG
 spacer length: 33 repeater length: 37
 12132 2099570 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CAGAATTGAATGAACAGATTGCAGAACTCGAAGCAAA
 spacer length: 37 repeater length: 37
 12133 2099645 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCAGAATATAGTATTATGCATTTGTAGCCGGTG
 spacer length: 33 repeater length: 37
 12134 2099716 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CATCGAGAAGGACGGCGGGTTGCTCGTCAAGGGT
 spacer length: 34 repeater length: 37
 12135 2099788 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TTTACAGTATTGCGGGTGTATTATTCATCTGCACGATT
 spacer length: 38 repeater length: 37
 12136 2099864 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AGACGAAATGGAAAAAAGAAATTGACGCACTGC
 spacer length: 34 repeater length: 37
 12137 2099936 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTACATATTAATCATCTCAGACCATGTTCCCTTATC
 spacer length: 35 repeater length: 37
 12138 2100009 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TCGTCTGGCTTACGCTCTTTCTTTTCAGCCATCTT
 spacer length: 35 repeater length: 37
 12139 2100082 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AGGGTATGATACCTTACAACAATCTTTTTGTGAGGT
 spacer length: 36 repeater length: 37
 12140 2100156 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTCCACCTGGTAAGCGGTATTTTAGTGGTTTTT
 spacer length: 33 repeater length: 37
 12141 2100227 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGCGGCAAGGTCTATGTTGAAATGAAATTCGTTGT
 spacer length: 35 repeater length: 37
 12142 2100300 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTAATGGTTCCAAATTCCGATCTGGTGTTATCA
 spacer length: 33 repeater length: 37
 12143 2100371 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGAAAGCGTCACATCGTCCACTACCGCAGATCCGGC
 spacer length: 36 repeater length: 37
 12144 2100445 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TACGGAAATTCTGCGACATTTTCCCACCGTCGGG
 spacer length: 34 repeater length: 37
 12145 2100517 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CGTGTGGGTTGTCGAGGGGTGATACCGTGTTTTTC
 spacer length: 35 repeater length: 37
 12146 2100590 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGGGATCAATGGAGACTATACTATAACCGGAAATG
 spacer length: 34 repeater length: 37
 12147 2100662 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG ATACACCGGCTGGTTATGGCACGGGCGCATGGT
 spacer length: 33 repeater length: 37
 12148 2100733 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TTTAATGTCTGTTGAACCAACATCGGAACCAACA
 spacer length: 34 repeater length: 37
 12149 2100805 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GGAATGAACACAGAGAGTGTTTCATCAATGTGG
 spacer length: 33 repeater length: 37
 12150 2100876 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TCTGGCATAACCGCTTGATACTCTTCATAGAGT
 spacer length: 33 repeater length: 37
 12151 2100947 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG ATGATTGTAGGATCGAAGGCGAAGAAGAAGATGAA
 spacer length: 35 repeater length: 37
 12152 2101020 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGCTTCTTTTCTTGTGTAGAACACTTTTCCTATG
 spacer length: 34 repeater length: 37
 12153 2101092 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTGAAACCATGTTAGCACCCGATACAATCAAACGA
 spacer length: 35 repeater length: 37
 12154 2101165 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CAAGCTTTGCTACAATCTAATGTTGTCTTGGGGTATAT
 spacer length: 38 repeater length: 37
 12155 2101241 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG GTGAAACCATGTTAGCACCCGATACAATCAAACGA
 spacer length: 35 repeater length: 37
 12156 2101314 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCGTTCCTGTTCTCTTAAGAGGGGAGGGGAGGGG
 spacer length: 34 repeater length: 37
 12157 2101386 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGACAATCGGTTGGGTATATCCATCATTCCTGA
 spacer length: 33 repeater length: 37
 12158 2101457 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG TGTGGGGTCCCAATCGGGCCCTTCTTTTCGTCCAC
 spacer length: 34 repeater length: 37
 12159 2101529 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CCAGCCGGAGGCGATCATGGCTCCGTTGATCGCACC
 spacer length: 36 repeater length: 37
 12160 2101603 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AAACGCCCCGGAACGGTCAAGGCGCCCGTTAAGAAAA
 spacer length: 36 repeater length: 37
 12161 2101677 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG CATACTTACCGCGGGGAACGAGGCACATTCTCTGG
 spacer length: 35 repeater length: 37
 12162 2101750 GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG AAGTAGTTCTCGGATCTCCACATCTCGTAAGTT
 spacer length: 33 repeater length: 37

12163	2101821	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TATTTCTTAATTAATAATATACAATTAGGCTCAA
		spacer length: 34	repeater length: 37
12164	2101893	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGAATATTTCTTTTCAGGCAGTCTTTACCATTT
		spacer length: 33	repeater length: 37
12165	2101964	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GGAACGGGTGTTCTGTAGTAGTTGGAATAGGTG
		spacer length: 34	repeater length: 37
12166	2102036	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTATTGCGGGAAACTGATCACGGCCCGGGATGAA
		spacer length: 34	repeater length: 37
12167	2102108	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CTCTCTTCCGGAGTACTTGCCATAACATAACATAAC
		spacer length: 35	repeater length: 37
12168	2102181	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCGGAACCTCTTTCATGTACGGCAGATAATCACG
		spacer length: 33	repeater length: 37
12169	2102252	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	AAGTCGAAGAATTTAAGATACTGTCACATGATT
		spacer length: 33	repeater length: 37
12170	2102323	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GCATCTCCTCAAAAATCCTCTACGCGTGGAGAG
		spacer length: 33	repeater length: 37
12171	2102394	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GCAAAGTGCGCGGAATTTTGCATGCGGTTTGTCAAG
		spacer length: 36	repeater length: 37
12172	2102468	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTATTAGGGGATGCATGGCACAACCAGTTTAATCCGC
		spacer length: 37	repeater length: 37
12173	2102543	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TCATATCAATGTCATATTGGTATGCCCCGGTGGT
		spacer length: 33	repeater length: 37
12174	2102614	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TATCAGGTTTTCTGTTGCTTGTGTGGCATGGCCC
		spacer length: 34	repeater length: 37
12175	2102686	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGGACTGGTCACGACACCGCATTCACATTCCAAT
		spacer length: 34	repeater length: 37
12176	2102758	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCAACAGGTCAGTTCTACAACCATGCGTTATCATA
		spacer length: 35	repeater length: 37
12177	2102831	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TTATCCTACCAGTGACCACGGAACCCGAGATATGG
		spacer length: 35	repeater length: 37
12178	2102904	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CAGGTGGTAGTTGAACGACCCTTATACCTGATCG
		spacer length: 34	repeater length: 37
12179	2102976	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	ACTGATCACGGGACGATCTATTACGAGCGGAGA
		spacer length: 33	repeater length: 37
12180	2103047	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCAGTACAAAGGATACCCTGGTGGATACGCTTGGCTG
		spacer length: 37	repeater length: 37
12181	2103122	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GTACTIONTGCACCGTCACACTGGATCGGGCGCTGG
		spacer length: 35	repeater length: 37
12182	2103195	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GATACCACATTTTAGATCGAACTAATACTTTCTT
		spacer length: 34	repeater length: 37
12183	2103267	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGTTGAGAATCCATCGTCACCGAATGACCAATT
		spacer length: 33	repeater length: 37
12184	2103338	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TTCGCCCCGGGACAACACCGGCAAGCCTGGTGGAT
		spacer length: 34	repeater length: 37
12185	2103410	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	GGTGGAGTATATACCTGGACAGAGATTGGCAGCCCCA
		spacer length: 36	repeater length: 37
12186	2103484	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CCAGACCCAGATATTTCGGATCTCCTGATGAGGTATCA
		spacer length: 37	repeater length: 37
12187	2103559	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	TGGAGCCTACAAGTCCACTTCGCACACCTGAGCAG
		spacer length: 35	repeater length: 37
12188	2103632	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	AAGTCTGCTATTCCATTACCATTGGCAGCATATA
		spacer length: 34	repeater length: 37
12189	2103704	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	AATAGTCTCTAATGAGAAGTAACTAAAATCAAAG
		spacer length: 34	repeater length: 37
12190	2103776	GTTTCAATCCTTGTTCCTCGTGGATGTTTCGCTCGAAG	CGTTAAGTGTTTCATGAAGAAATACCTGATGTATG
12191			
12192			
12193	GCA_000327505.1_ASM32750v1_genomic.fna(findCrispr):		
12194	START	REPEAT	
	SPACER		
12195	crispr 1		
12196	503071	CTTTCAATCCCA ACATGGTCTGATTCTAACATCCTCAATTCGTTATGAGATAGATTTTACAGATACCA	spacer length: 56 repeater length: 12
12197	503140	CTTTCAATCCCA ACATGGTCTGATTCTAACTTCCTTATCTATTATATCCTCAACTTTAGACAATAAA	spacer length: 55 repeater length: 12
12198	503208	CTTTCAATCCCA ACATGGTCCGATTCTAACACTGCTGATGGCGTATTTGGTTTTCGCTGGTGTGAG	spacer length: 53 repeater length: 12
12199	503274	CTTTCAATCCCA ACATGGTCTGATTCTAACAAAGAGAGATTGCAAAAACAAAATAGATCACTAGCTG	spacer length: 54 repeater length: 12
12200	503341	CTTTCAATCCCA ACATGGTCTGATTCTAACACATGAGAAAACACCCACTTTTTTTTATAGGAAATC	spacer length: 53 repeater length: 12


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12201 503407 CTTTCAATCCCA ACATGGTCTGATTCTAACGGCGAAAAGCTGTATAGACACTACATACAAGACGGCGAG spacer
length: 57 repeater length: 12
12202 503477 CTTTCAATCCCA ACATGGTCTGATTCTAACATGTGAACTTTTTATAGCGACAATGCCAGGTATGAA spacer
length: 55 repeater length: 12
12203 503545 CTTTCAATCCCA ACATGGTCTGATTCTAACTTTGATGAGGTCCGGGAGAAGGATAAAAGTTTCGGATC spacer
length: 56 repeater length: 12
12204 503614 CTTTCAATCCCA ACATGGTCTGATTCTAACGTTGAGCCTCGCAACCTTGTCGCCTCCTGGAGCTTC spacer
length: 55 repeater length: 12
12205 503682 CTTTCAATCCCA ACATGGTCTGATTCTAACACATATCCGAAGTTAGGAGGACCCCCATGCATTGC spacer
length: 55 repeater length: 12
12206 503750 CTTTCAATCCCA ACATGGTCTGATTCTAACATGAGCAAACCGCGGAGGTCAAGTGTGTCTGGATTAT spacer
length: 55 repeater length: 12
12207 503818 CTTTCAATCCCA GTCTGATTCTAACTCGATCCAACCAAGCCATTCCGCCTGGAGATATATCTCCTTT
12208
12209
12210 crispr 2
12211 1291863 CCAGCAACACAATTTACAACAA
TCCCGCGGATGGCATCTACCTAGAAGATTCCAGCAAAAATGTGCTCACCAACAATATCATCTACAAGAATTGGAATGGCATCTACC
TGGATTCTTCCAACAGCATCACGATCACCTGGAGCAACACGATC spacer length: 130 repeater length: 22
12212 1292016 CCAGCAACACAATTTACAACAA CTCTGAGGATGGCATCCGCCTGTGGGATTCCATCAGCAACACGCTC spacer
length: 46 repeater length: 22
12213 1292085 CCAGCAACACAATTTACAACAA TGATGATGGCATCTACCTGTATTCTTCCATCAGCAACACGCTC spacer
length: 43 repeater length: 22
12214 1292151 CCAGCAACACAATTTACAACAA TGCTCATCGGTATTTCTGGGCTCTCACGAATTTCTTTCAATC
12215
12216
12217 crispr 3
12218 1375074 CTTTCAATCCCAACATGGTCTGATTCTAACCTC ATCCGCTATCTTTTTTTCAGTATCCACGCCGCCTCCC spacer
length: 35 repeater length: 33
12219 1375143 CTTTCAATCCCAACATGGTCTGATTCTAACCTC ACCTTCCTTAACCACCCTTTCCAGTTCCTCTGCAACA
spacer length: 37 repeater length: 33
12220 1375214 CTTTCAATCCCAACATGGTCTGATTCTAACCTC TACCTGGTGGATTCCAGCAACAATGTGCTCACCAACA
12221
12222
12223 GCA_000328525.1_ASM32852v1_genomic.fna(findCrispr):
12224 START REPEAT
SPACER
12225 crispr 1
12226 2017922 AATCCCTCCACCGGCTCTTT
CTGCGACGAACGGACGTGAGGAGTGAAAAGTATGACTGGAGGGATTTGAACTACGGAACGAGGGAGCGAAGCGACCGAAGTTCAGG
TGGTTCA spacer length: 93 repeater length: 20
12227 2018036 AATCCCTCCACCGGCTCTTT
CTGCGACGAACGGACGTGAGGAGTGAAAAGTATGACTGGAGGGATTTGAACTACGAGACGAGTCGCAGCACCGAACGAAGTGAGGTGAT
CGTCTCGGCGTTGTTCA spacer length: 103 repeater length: 20
12228 2018160 AATCCCTCCACCGGCTCTTT
GACGACCACGCCGACGAGCACGATCACGGCCAGTACGACCCCCACGCCTGGGTAGACCCCGTCAGGGCCACGCAAATGGTCGAAAC
GATTGCCGACGGACTCG
12229
12230
12231 crispr 2
12232 1565335 AGACGATCACCACGAAGACGG CGAACAAGATCACGATGAGG spacer length: 20 repeater
length: 21
12233 1565377 AGACGATCACCACGAAGACGG CGAACACGATCACGATGAGG spacer length: 20 repeater
length: 21
12234 1565419 AGACGATCACCACGAAGACGG TCGACGAACGTAGCGTGGT
12235
12236
12237 crispr 3
12238 2034472 GAGGAACCGGTTGAGGAAGAA
GAACCTGACGACAAGGAACCGAAAGAAGCGGAAGAGCCTGCCGAGGAGAACGTTACCGAGCCTGA spacer length: 65
repeater length: 21
12239 2034559 GAGGAACCGGTTGAGGAAGAA
GAACCCGACGACAAGGAACCGAAAGAAGCGGAAGAGCCTGCCGAGGAGAACGTTACCGAGCCTGA spacer length: 65
repeater length: 21
12240 2034646 GAGGAACCGGTTGAGGAAGAA
CGACCACGCCGACGAGCACGATCACGGCCAGTACGACCCCCACGCCTGGGTAGACCCCGTCAGGG
12241
12242
12243 crispr 4
12244 1703243 AGTGGGTTGGGGCAGATTCTGAAC
CGGAGGAAGCCGGTCGCCTCACTCCGTTTCGGCGCTGCGCCTTCCAGGGTCCGAATCGTTGTTAATCACTTCTCCGACGGAGACTCG

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TCACTCCGTTCTCGTTGGTGCCTCGGAG spacer length: 115 repeater length: 23
1703382 AGTGGGTTGGGGCAGATTTCGAAC
TGCTGCAAGACGTGCTCGCTTCGCTGCGCGGACTTGCCTAGTTTCGAAGTGTCCAACGGAACGGATTTGCTGCTCGCGAATTTGCT
CGCAGCAAAAT spacer length: 97 repeater length: 23
1703503 AGTGGGTTGGGGCAGATTTCGAAC
CACGCCGACGAGCACGATCACGGCCAGTACGACCCCCACGCCTGGGTAGACCCCGTCAGGGCCACGCAAATGGTCGAAACGATTGC
CGACGGACTCG

GCA_000338775.1_ASM33877v1_genomic.fna(findCrispr):

START REPEAT
SPACER

crispr 1

1668885 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCTCTACTACTTTCTGCTCTTCTT spacer length:
36 repeater length: 23
1668945 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length:
36 repeater length: 23
1669005 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTCAGGAAACA spacer length: 34
repeater length: 23
1669063 GTAATAACGACAAGAACTAAAA CAATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer
length: 39 repeater length: 23
1669126 GTAATAACGACAAGAACTAAAA CTAATGCCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34
repeater length: 23
1669184 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length:
35 repeater length: 23
1669243 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTAAAAGTAACA spacer length:
36 repeater length: 23
1669303 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length:
35 repeater length: 23
1669362 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34
repeater length: 23
1669420 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length:
35 repeater length: 23
1669479 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length:
36 repeater length: 23
1669539 GTAATAACGACAAGAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34
repeater length: 23
1669597 GTAATAACGACAAGAACTAAAA CTACAATAATTTTCAGATTTCCAGTAAATGATACAAATT spacer
length: 38 repeater length: 23
1669659 GTAATAACGACAAGAACTAAAA CTTGTCATTAACTGACAACCTTTGTCTCTGACCCAA spacer length:
36 repeater length: 23
1669719 GTAATAACGACAAGAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34
repeater length: 23
1669777 GTAATAACGACAAGAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34
repeater length: 23
1669835 GTAATAACGACAAGAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer
length: 39 repeater length: 23
1669898 GTAATAACGACAAGAACTAAAA CGAATAATTGTAGATCAGCCATCAACTTCCACAC spacer length: 34
repeater length: 23
1669956 GTAATAACGACAAGAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length:
36 repeater length: 23
1670016 GTAATAACGACAAGAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer
length: 39 repeater length: 23
1670079 GTAATAACGACAAGAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length:
37 repeater length: 23
1670140 GTAATAACGACAAGAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33
repeater length: 23
1670197 GTAATAACGACAAGAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length:
36 repeater length: 23
1670257 GTAATAACGACAAGAACTAAAA CCAGGTTCAATTTTCAGTAAATAATGGCATTACAA spacer length: 34
repeater length: 23
1670315 GTAATAACGACAAGAACTAAAA CAACATCAGACTTTTGCACCTTTATTAGAAGGCTTTGG spacer
length: 38 repeater length: 23
1670377 GTAATAACGACAAGAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34
repeater length: 23
1670435 GTAATAACGACAAGAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length:
36 repeater length: 23
1670495 GTAATAACGACAAGAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34
repeater length: 23
1670553 GTAATAACGACAAGAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCTT spacer
length: 39 repeater length: 23

12281 1670616 GTAATAACGACAAGAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
length: 39 repeater length: 23

12282 1670679 GTAATAACGACAAGAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length:
37 repeater length: 23

12283 1670740 GTAATAACGACAAGAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34
repeater length: 23

12284 1670798 GTAATAACGACAAGAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length:
37 repeater length: 23

12285 1670859 GTAATAACGACAAGAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length:
36 repeater length: 23

12286 1670919 GTAATAACGACAAGAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer
length: 38 repeater length: 23

12287 1670981 GTAATAACGACAAGAACTAAAA CCTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGA spacer length:
36 repeater length: 23

12288 1671041 GTAATAACGACAAGAACTAAAA ACTTTACAATAATTTTTTCAGGAAAACAAATTGA spacer length:
35 repeater length: 23

12289 1671100 GTAATAACGACAAGAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34
repeater length: 23

12290 1671158 GTAATAACGACAAGAACTAAAA CGAATGTGTCCCCCTAGAGTTTTTACCAAACAACC spacer length:
36 repeater length: 23

12291 1671218 GTAATAACGACAAGAACTAAAA CAAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length:
36 repeater length: 23

12292 1671278 GTAATAACGACAAGAACTAAAA CAACGTTACGACCACTACTACTCAGAAGAAGATAG spacer length:
35 repeater length: 23

12293 1671337 GTAATAACGACAAGAACTAAAA CGAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGA spacer length:
37 repeater length: 23

12294 1671398 GTAATAACGACAAGAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length:
35 repeater length: 23

12295 1671457 GTAATAACGACAAGAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer
length: 39 repeater length: 23

12296 1671520 GTAATAACGACAAGAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length:
35 repeater length: 23

12297 1671579 GTAATAACGACAAGAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33
repeater length: 23

12298 1671636 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34
repeater length: 23

12299 1671694 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTTCTGTTG spacer length:
35 repeater length: 23

12300 1671753 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length:
36 repeater length: 23

12301 1671813 GTAATAACGACAAGAACTAAAA CACTATTACTTTTGAAAATATGTAGATAAGACTGG spacer length:
35 repeater length: 23

12302 1671872 GTAATAACGACAAGAACTAAAA TATTACAAACAGGTTTTATCTTTAAGTTATAGCGA

12303

12304

12305 crispr 2

12306 1648592 GTTTTAGTTTCTTGTCGTTATTAC ATCATTTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length:
35 repeater length: 24

12307 1648652 GTTTTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length:
34 repeater length: 24

12308 1648711 GTTTTAGTTTCTTGTCGTTATTAC TGATGTCTGAATACCGGAGTCAAGATGTTGATGAAA spacer length:
35 repeater length: 24

12309 1648771 GTTTTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length:
36 repeater length: 24

12310 1648832 GTTTTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length:
36 repeater length: 24

12311 1648893 GTTTTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length:
34 repeater length: 24

12312 1648952 GTTTTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33
repeater length: 24

12313 1649010 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
36 repeater length: 24

12314 1649071 GTTTTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length:
34 repeater length: 24

12315 1649130 GTTTTAGTTTCTTGTCGTTATTAC TTTTTATTCTATATTTGAATAAAGCATAAAGTAAT spacer length:
35 repeater length: 24

12316 1649190 GTTTTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACA spacer length:
34 repeater length: 24

12317 1649249 GTTTTAGTTTCTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length:
34 repeater length: 24

12318 1649308 GTTTTAGTTTCTTGTCGTTATTAC TATGTTTGTGTATTGCTAGCGTAATATTGTATTAC spacer length:

36 repeater length: 24

12319 1649369 GTTT TAGTTT CTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length: 35
35 repeater length: 24

12320 1649429 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length: 36
36 repeater length: 24

12321 1649490 GTTT TAGTTT CTTGTCGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGT spacer length: 34
34 repeater length: 24

12322 1649549 GTTT TAGTTT CTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33
repeater length: 24

12323 1649607 GTTT TAGTTT CTTGTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length: 36
36 repeater length: 24

12324 1649668 GTTT TAGTTT CTTGTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length: 36
36 repeater length: 24

12325 1649729 GTTT TAGTTT CTTGTCGTTATTAC
CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA
TGAAGAAGAAA spacer length: 97 repeater length: 24

12326 1649851 GTTT TAGTTT CTTGTCGTTATTAC TATCTAACCCTCTCTTTTCAACTCTTTGAAGATAAA spacer
length: 37 repeater length: 24

12327 1649913 GTTT TAGTTT CTTGTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length: 36
36 repeater length: 24

12328 1649974 GTTT TAGTTT CTTGTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAA spacer length: 35
35 repeater length: 24

12329 1650034 GTTT TAGTTT CTTGTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACA spacer length: 34
34 repeater length: 24

12330 1650093 GTTT TAGTTT CTTGTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTTAATAATA spacer length: 34
34 repeater length: 24

12331 1650152 GTTT TAGTTT CTTGTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33
repeater length: 24

12332 1650210 GTTT TAGTTT CTTGTCGTTATTAC AACAGAATTGATGAAGTATTCAAAGAGCGATATGA spacer
length: 37 repeater length: 24

12333 1650272 GTTT TAGTTT CTTGTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer
length: 38 repeater length: 24

12334 1650335 GTTT TAGTTT CTTGTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length: 34
34 repeater length: 24

12335 1650394 GTTT TAGTTT CTTGTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length: 34
34 repeater length: 24

12336 1650453 GTTT TAGTTT CTTGTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAAGAAAGAATTG spacer
length: 38 repeater length: 24

12337 1650516 GTTT TAGTTT CTTGTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length: 35
35 repeater length: 24

12338 1650576 GTTT TAGTTT CTTGTCGTTATTAC AATAAAAGGAGATTTTCATAGACTCTATTCTCAA spacer length: 34
34 repeater length: 24

12339 1650635 GTTT TAGTTT CTTGTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTT spacer length: 35
35 repeater length: 24

12340 1650695 GTTT TAGTTT CTTGTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGAAGTCTGAAAAT spacer length: 36
36 repeater length: 24

12341 1650756 GTTT TAGTTT CTTGTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length: 36
36 repeater length: 24

12342 1650817 GTTT TAGTTT CTTGTCGTTATTAC AGAGTGGCATACCTTATTTGTTTTGTTGAGTTATGAA spacer
length: 37 repeater length: 24

12343 1650879 GTTT TAGTTT CTTGTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length: 34
34 repeater length: 24

12344 1650938 GTTT TAGTTT CTTGTCGTTATTAC ATAACAATTGTCGGTAAGTATTTAGACGCTT spacer length: 32
repeater length: 24

12345 1650995 GTTT TAGTTT CTTGTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length: 36
36 repeater length: 24

12346 1651056 GTTT TAGTTT CTTGTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33
repeater length: 24

12347 1651114 GTTT TAGTTT CTTGTCGTTATTAC ATTGGATAGTCAGTACCAAAGGTACATTAAGCCAC spacer length: 36
36 repeater length: 24

12348 1651175 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length: 35
35 repeater length: 24

12349 1651235 GTTT TAGTTT CTTGTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length: 36
36 repeater length: 24

12350 1651296 GTTT TAGTTT CTTGTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGACAGT spacer length: 33
repeater length: 24

12351 1651354 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTA spacer length: 34
34 repeater length: 24

12352 1651413 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGT spacer length: 35
35 repeater length: 24

12353 1651473 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTTCAT spacer length:

36 repeater length: 24

12354 1651534 GTTT TAGTTT CTTGTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGA spacer length: 35
35 repeater length: 24

12355 1651594 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGA spacer length: 33
repeater length: 24

12356 1651652 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length: 36
36 repeater length: 24

12357 1651713 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGG spacer length: 35
35 repeater length: 24

12358 1651773 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length: 36
36 repeater length: 24

12359 1651834 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGT spacer length: 33
repeater length: 24

12360 1651892 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer length: 39
length: 39 repeater length: 24

12361 1651956 GTTT TAGTTT CTTGTCGTTATTAC TCTTGAAAGACCTTAAAAAAGGATTGATTTAT spacer length: 34
34 repeater length: 24

12362 1652015 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length: 34
34 repeater length: 24

12363 1652074 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATA spacer length: 37
length: 37 repeater length: 24

12364 1652136 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length: 34
34 repeater length: 24

12365 1652195 GTTT TAGTTT CTTGTCGTTATTAC ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCGA spacer length: 35
35 repeater length: 24

12366 1652255 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAAT spacer length: 33
repeater length: 24

12367 1652313 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length: 34
34 repeater length: 24

12368 1652372 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAGAAGACTGCTAGACAAATTTGACAGTGA spacer length: 37
length: 37 repeater length: 24

12369 1652434 GTTT TAGTTT CTTGTCGTTATTAC TGACTTATTTTTTGTCTTAACTTCACTACTCATTTTC spacer length: 37
length: 37 repeater length: 24

12370 1652496 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length: 35
35 repeater length: 24

12371 1652556 GTTT TAGTTT CTTGTCGTTATTAC TTCCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length: 35
35 repeater length: 24

12372 1652616 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length: 34
34 repeater length: 24

12373 1652675 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGG spacer length: 33
repeater length: 24

12374 1652733 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length: 34
34 repeater length: 24

12375 1652792 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33
repeater length: 24

12376 1652850 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length: 35
35 repeater length: 24

12377 1652910 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length: 35
35 repeater length: 24

12378 1652970 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer length: 40
length: 40 repeater length: 24

12379 1653035 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGA spacer length: 35
35 repeater length: 24

12380 1653095 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAG spacer length: 35
35 repeater length: 24

12381 1653155 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length: 34
34 repeater length: 24

12382 1653214 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAAGACAT spacer length: 35
35 repeater length: 24

12383 1653274 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCA spacer length: 36
36 repeater length: 24

12384 1653335 GTTT TAGTTT CTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA spacer length: 36
36 repeater length: 24

12385 1653396 GTTT TAGTTT CTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG spacer length: 34
34 repeater length: 24

12386 1653455 GTTT TAGTTT CTTGTCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCG spacer length: 34
34 repeater length: 24

12387 1653514 GTTT TAGTTT CTTGTCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATA spacer length: 33
repeater length: 24

12388 1653572 GTTT TAGTTT CTTGTCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTA spacer length: 33
repeater length: 24

12389	1653630	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTCTTCAGAAAATCATCAACACGCATATACT	spacer length: 33 repeater length: 24
12390	1653688	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTGATTAAAAATGGGTTGGTATGGCATAAAAAA	spacer length: 33 repeater length: 24
12391	1653746	GTTTGTAGTTTCTTGTGCGTTATTAC	ATCGGAATTATAGGCGGATTTTTAACAAATATTCCTAACA	spacer length: 39 repeater length: 24
12392	1653810	GTTTGTAGTTTCTTGTGCGTTATTAC	GGAGACAAAGTTTGTCTGTGCAATATATCCCA	spacer length: 32 repeater length: 24
12393	1653867	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCA	spacer length: 33 repeater length: 24
12394	1653925	GTTTGTAGTTTCTTGTGCGTTATTAC	TAATTCATCTTTATAGTGTAACTTTTTGAAATAA	spacer length: 34 repeater length: 24
12395	1653984	GTTTGTAGTTTCTTGTGCGTTATTAC	AACATAAGAAAAATTCAGTCAGCAGTATTAATACTACTACT	spacer length: 38 repeater length: 24
12396	1654047	GTTTGTAGTTTCTTGTGCGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAAACTACAAGA	spacer length: 35 repeater length: 24
12397	1654107	GTTTGTAGTTTCTTGTGCGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATA	spacer length: 34 repeater length: 24
12398	1654166	GTTTGTAGTTTCTTGTGCGTTATTAC	GAATAGGGGATGCGATAAACAGTTAGCACACAACA	spacer length: 34 repeater length: 24
12399	1654225	GTTTGTAGTTTCTTGTGCGTTATTAC	GGCATATAGAATTTTTTCGCTTTGTTGCCTCTTTA	spacer length: 34 repeater length: 24
12400	1654284	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAA	spacer length: 34 repeater length: 24
12401	1654343	GTTTGTAGTTTCTTGTGCGTTATTAC	GCTTGTGGTAACATATCCATCGTCATCAGCAAT	spacer length: 33 repeater length: 24
12402	1654401	GTTTGTAGTTTCTTGTGCGTTATTAC	AACGCATTATTGCTAATGCACGGTGCTAACAACTCTA	spacer length: 36 repeater length: 24
12403	1654462	GTTTGTAGTTTCTTGTGCGTTATTAC	GTTTAAAACGGTAAATAGATAAAACCAAGAAAAT	spacer length: 34 repeater length: 24
12404	1654521	GTTTGTAGTTTCTTGTGCGTTATTAC	ACGTCTTGTGCTGACTTGTAACATCGCTGTTCT	spacer length: 34 repeater length: 24
12405	1654580	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGAAGTGCAAAAAAATGGCTACGGTGACAT	spacer length: 33 repeater length: 24
12406	1654638	GTTTGTAGTTTCTTGTGCGTTATTAC	ATGCATTCAATTAAAGACTTAACAATTCAAGAGT	spacer length: 33 repeater length: 24
12407	1654696	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTTTCTTAATTTATTACAGTTATATGAACAG	spacer length: 33 repeater length: 24
12408	1654754	GTTTGTAGTTTCTTGTGCGTTATTAC	ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT	spacer length: 35 repeater length: 24
12409	1654814	GTTTGTAGTTTCTTGTGCGTTATTAC	AGATTTTATGAAACATTAACATTTTATTTTATCTA	spacer length: 35 repeater length: 24
12410	1654874	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTAATCAGATAGAACTAGCAGTGTTTTTTATGT	spacer length: 35 repeater length: 24
12411	1654934	GTTTGTAGTTTCTTGTGCGTTATTAC	ACCTTCACTTATTGAAGATGGGGCTGAAACAACTT	spacer length: 35 repeater length: 24
12412	1654994	GTTTGTAGTTTCTTGTGCGTTATTAC	TTGGTTACTGATATTTTCTGAACTCCAGCAAATG	spacer length: 34 repeater length: 24
12413	1655053	GTTTGTAGTTTCTTGTGCGTTATTAC	CGTTAAACAGACTAGGCTCAGGACAAGCATTAC	spacer length: 34 repeater length: 24
12414	1655112	GTTTGTAGTTTCTTGTGCGTTATTAC	AGCCCAAATCTGTTATCTCTTTAGAATGAAATTT	spacer length: 34 repeater length: 24
12415	1655171	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAGTACCTTTACCTAACAGAGCGTCGTATATTA	spacer length: 35 repeater length: 24
12416	1655231	GTTTGTAGTTTCTTGTGCGTTATTAC	TGTAGTCTTGCAGCAATACCTGCGCTCTTTAGCAG	spacer length: 34 repeater length: 24
12417	1655290	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAGCTATACAACGAGGCTATATAAATAAAAT	spacer length: 33 repeater length: 24
12418	1655348	GTTTGTAGTTTCTTGTGCGTTATTAC	GTGAAGATGTCGATAGTGACGATAGCTGAGATAG	spacer length: 34 repeater length: 24
12419	1655407	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT	spacer length: 37 repeater length: 24
12420	1655469	GTTTGTAGTTTCTTGTGCGTTATTAC	TATATTTGGTCAAGTGTTTCTACAGCATTTTAA	spacer length: 33 repeater length: 24
12421	1655527	GTTTGTAGTTTCTTGTGCGTTATTAC	GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAA	spacer length: 34 repeater length: 24
12422	1655586	GTTTGTAGTTTCTTGTGCGTTATTAC	GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC	spacer length: 36 repeater length: 24
12423	1655647	GTTTGTAGTTTCTTGTGCGTTATTAC	CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT	spacer length: 36 repeater length: 24
12424	1655708	GTTTGTAGTTTCTTGTGCGTTATTAC	GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGT	spacer length: 34 repeater length: 24

35 repeater length: 24
 12425 1655768 GTTT TAGTTT CTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA spacer length:
 34 repeater length: 24
 12426 1655827 GTTT TAGTTT CTTGTCGTTATTAC AGCTCCCATTTAAATCAGGACCACTCCAAATATC spacer length:
 34 repeater length: 24
 12427 1655886 GTTT TAGTTT CTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTTAAATATTTT spacer length:
 35 repeater length: 24
 12428 1655946 GTTT TAGTTT CTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA spacer length:
 34 repeater length: 24
 12429 1656005 GTTT TAGTTT CTTGTCGTTATTAC TATAAAAAAGCATTTCACAGTCTTGAAACCACTATT spacer
 length: 38 repeater length: 24
 12430 1656068 GTTT TAGTTT CTTGTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length:
 35 repeater length: 24
 12431 1656128 GTTT TAGTTT CTTGTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCT spacer
 length: 41 repeater length: 24
 12432 1656194 GTTT TAGTTT CTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length:
 36 repeater length: 24
 12433 1656255 GTTT TAGTTT CTTGTCGTTATTAC AATGAGATATTCAGTGAGGTCATGGAGCGTGAA spacer length: 33
 repeater length: 24
 12434 1656313 GTTT TAGTTT CTTGTCGTTATTAC TTTCCTTATTTTTTAACGAGGGAAATGGTCAGGCTAAA spacer
 length: 38 repeater length: 24
 12435 1656376 GTTT TAGTTT CTTGTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCC spacer length: 31
 repeater length: 24
 12436 1656432 GTTT TAGTTT CTTGTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC spacer
 length: 37 repeater length: 24
 12437 1656494 GTTT TAGTTT CTTGTCGTTATTAC CATTACAGCAGCAATATCAAACATCAGAACAACAATT
 12438
 12439
 12440 crispr 3
 12441 1784395 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCCTTCACCGATCTATGTTAAAGCAA spacer
 length: 40 repeater length: 25
 12442 1784461 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length:
 35 repeater length: 25
 12443 1784522 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
 length: 36 repeater length: 25
 12444 1784584 CTTTCAATCCCTTATGGGATTCTTC ACATTAGAACAACAATATCAAACATTACAGCAGCAA
 12445
 12446
 12447 crispr 4
 12448 1824055 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
 length: 37 repeater length: 25
 12449 1824118 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
 length: 36 repeater length: 25
 12450 1824180 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
 length: 40 repeater length: 25
 12451 1824246 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
 35 repeater length: 25
 12452 1824307 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
 length: 37 repeater length: 25
 12453 1824370 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
 length: 36 repeater length: 25
 12454 1824432 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
 length: 38 repeater length: 25
 12455 1824496 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
 length: 41 repeater length: 25
 12456 1824563 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
 length: 38 repeater length: 25
 12457 1824627 CTTTCAATCCCTTTTGGGATTCATC GGTTTTATCTTTAAGTTATAGCGACACATTGATATCGA
 12458
 12459
 12460 crispr 5
 12461 1752294 ATTACAGCAGCAATATCAAACATCAGAACAACAATTAAAC
 TATTACAGAGATCAATATCAAACATTAGAACAACAATATCAAACATTACAGCAGCAATATCAAACATTAGAACAACAATATCAAA
 spacer length: 85 repeater length: 40
 12462 1752420 ATTACAGCAGCAATATCAAACATCAGAACAACAATTAAAC
 TATTACAGAGATCAATATCAAACATTAGAACAACAATATCAAA spacer length: 43 repeater length: 40
 12463 1752504 ATTACAGCAGCAATATCAAACATCAGAACAACAATTAAAC
 TATTACAGAGATCAATATCAAACATTAGAACAACAATATCAAA spacer length: 43 repeater length: 40
 12464 1752588 ATTACAGCAGCAATATCAAACATCAGAACAACAATTAAAC
 ACAACAATATCAAACATTACAGCAGCAATATCAAACATCAGAA
 12465

12466
12467 GCA_000340315.1_ASM34031v1_genomic.fna(findCrispr):
12468 START REPEAT
SPACER
12469 crispr 1
12470 1670966 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTT spacer length:
36 repeater length: 23
12471 1671026 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length:
36 repeater length: 23
12472 1671086 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTCAGGAAACA spacer length: 34
repeater length: 23
12473 1671144 GTAATAACGACAAGAACTAAAA CAATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer
length: 39 repeater length: 23
12474 1671207 GTAATAACGACAAGAACTAAAA CTAATGCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34
repeater length: 23
12475 1671265 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length:
35 repeater length: 23
12476 1671324 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTAAAAGTAACA spacer length:
36 repeater length: 23
12477 1671384 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length:
35 repeater length: 23
12478 1671443 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34
repeater length: 23
12479 1671501 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length:
35 repeater length: 23
12480 1671560 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length:
36 repeater length: 23
12481 1671620 GTAATAACGACAAGAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34
repeater length: 23
12482 1671678 GTAATAACGACAAGAACTAAAA CTACAATAATTTTCAGATTTCCAGTAAATGATACAAATT spacer
length: 38 repeater length: 23
12483 1671740 GTAATAACGACAAGAACTAAAA CTTGTCATTAACTGACAACCTTGTCTCTGACCCAA spacer length:
36 repeater length: 23
12484 1671800 GTAATAACGACAAGAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34
repeater length: 23
12485 1671858 GTAATAACGACAAGAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34
repeater length: 23
12486 1671916 GTAATAACGACAAGAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer
length: 39 repeater length: 23
12487 1671979 GTAATAACGACAAGAACTAAAA CGAATAATTGTAGATCAGCCATCAACTTCCACAC spacer length: 34
repeater length: 23
12488 1672037 GTAATAACGACAAGAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length:
36 repeater length: 23
12489 1672097 GTAATAACGACAAGAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer
length: 39 repeater length: 23
12490 1672160 GTAATAACGACAAGAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length:
37 repeater length: 23
12491 1672221 GTAATAACGACAAGAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33
repeater length: 23
12492 1672278 GTAATAACGACAAGAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length:
36 repeater length: 23
12493 1672338 GTAATAACGACAAGAACTAAAA CCAGGTTCAATTTTCAGTAAATAATGGCATTACAA spacer length: 34
repeater length: 23
12494 1672396 GTAATAACGACAAGAACTAAAA CAACATCAGACTTTTGCACCTTTATTAGAAGGCTTTGG spacer
length: 38 repeater length: 23
12495 1672458 GTAATAACGACAAGAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34
repeater length: 23
12496 1672516 GTAATAACGACAAGAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length:
36 repeater length: 23
12497 1672576 GTAATAACGACAAGAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34
repeater length: 23
12498 1672634 GTAATAACGACAAGAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTCT spacer
length: 39 repeater length: 23
12499 1672697 GTAATAACGACAAGAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
length: 39 repeater length: 23
12500 1672760 GTAATAACGACAAGAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length:
37 repeater length: 23
12501 1672821 GTAATAACGACAAGAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34
repeater length: 23
12502 1672879 GTAATAACGACAAGAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length:
37 repeater length: 23

12503 1672940 GTAATAACGACAAGAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length: 36 repeater length: 23
12504 1673000 GTAATAACGACAAGAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer length: 38 repeater length: 23
12505 1673062 GTAATAACGACAAGAACTAAAA CCTCGTATTCTGTAAAAGCCCTCGTGGGTGGTGACGA spacer length: 36 repeater length: 23
12506 1673122 GTAATAACGACAAGAACTAAAA ACTTTACAACATAATTTTTTCAGGAAAACAAATTGA spacer length: 35 repeater length: 23
12507 1673181 GTAATAACGACAAGAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34 repeater length: 23
12508 1673239 GTAATAACGACAAGAACTAAAA CGAATGTGTCCCCCTAGAGTTTTTCACCAAACAACC spacer length: 36 repeater length: 23
12509 1673299 GTAATAACGACAAGAACTAAAA CAAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length: 36 repeater length: 23
12510 1673359 GTAATAACGACAAGAACTAAAA CAACGTTACGACCCTACTACTCAGAAGAAGATAG spacer length: 35 repeater length: 23
12511 1673418 GTAATAACGACAAGAACTAAAA CGAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGA spacer length: 37 repeater length: 23
12512 1673479 GTAATAACGACAAGAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length: 35 repeater length: 23
12513 1673538 GTAATAACGACAAGAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer length: 39 repeater length: 23
12514 1673601 GTAATAACGACAAGAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length: 35 repeater length: 23
12515 1673660 GTAATAACGACAAGAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33 repeater length: 23
12516 1673717 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34 repeater length: 23
12517 1673775 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTTCTGTTG spacer length: 35 repeater length: 23
12518 1673834 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length: 36 repeater length: 23
12519 1673894 GTAATAACGACAAGAACTAAAA CACTATTACTTTTTGAAAATATGTAGATAAGACTGG spacer length: 35 repeater length: 23
12520 1673953 GTAATAACGACAAGAACTAAAA TGGATTGACGTCACCTCAAGATCTATTACCTGTAA
12521
12522
12523 crispr 2
12524 1650673 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length: 35 repeater length: 24
12525 1650733 GTTTGTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length: 34 repeater length: 24
12526 1650792 GTTTGTAGTTTCTTGTCGTTATTAC TGATGTCTGAATACCGGAGTCAAGATGTTGATGAAA spacer length: 35 repeater length: 24
12527 1650852 GTTTGTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length: 36 repeater length: 24
12528 1650913 GTTTGTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length: 36 repeater length: 24
12529 1650974 GTTTGTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length: 34 repeater length: 24
12530 1651033 GTTTGTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33 repeater length: 24
12531 1651091 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length: 36 repeater length: 24
12532 1651152 GTTTGTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length: 34 repeater length: 24
12533 1651211 GTTTGTAGTTTCTTGTCGTTATTAC TTTTTATTCTATATTTGAATAAAGCATAAAGTAAT spacer length: 35 repeater length: 24
12534 1651271 GTTTGTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACA spacer length: 34 repeater length: 24
12535 1651330 GTTTGTAGTTTCTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length: 34 repeater length: 24
12536 1651389 GTTTGTAGTTTCTTGTCGTTATTAC TATGTTTGTTGTATTGCTAGCGTAATATTGTATTAC spacer length: 36 repeater length: 24
12537 1651450 GTTTGTAGTTTCTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length: 35 repeater length: 24
12538 1651510 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length: 36 repeater length: 24
12539 1651571 GTTTGTAGTTTCTTGTCGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGT spacer length: 34 repeater length: 24
12540 1651630 GTTTGTAGTTTCTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33

repeater length: 24
 12541 1651688 GTTTtagtttcttgTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length:
 36 repeater length: 24
 12542 1651749 GTTTtagtttcttgTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length:
 36 repeater length: 24
 12543 1651810 GTTTtagtttcttgTCGTTATTAC
 CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA
 TGAAGAAGAAA spacer length: 97 repeater length: 24
 12544 1651932 GTTTtagtttcttgTCGTTATTAC TATCTAACCCTCTCTTTTCAACTCTTTGAAGATAAA spacer
 length: 37 repeater length: 24
 12545 1651994 GTTTtagtttcttgTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length:
 36 repeater length: 24
 12546 1652055 GTTTtagtttcttgTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAA spacer length:
 35 repeater length: 24
 12547 1652115 GTTTtagtttcttgTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACA spacer length:
 34 repeater length: 24
 12548 1652174 GTTTtagtttcttgTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTTAATAATA spacer length:
 34 repeater length: 24
 12549 1652233 GTTTtagtttcttgTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33
 repeater length: 24
 12550 1652291 GTTTtagtttcttgTCGTTATTAC AACAGAATTGATGAAGTATTCAAAAGAGCGATATGA spacer
 length: 37 repeater length: 24
 12551 1652353 GTTTtagtttcttgTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer
 length: 38 repeater length: 24
 12552 1652416 GTTTtagtttcttgTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length:
 34 repeater length: 24
 12553 1652475 GTTTtagtttcttgTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length:
 34 repeater length: 24
 12554 1652534 GTTTtagtttcttgTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTG spacer
 length: 38 repeater length: 24
 12555 1652597 GTTTtagtttcttgTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length:
 35 repeater length: 24
 12556 1652657 GTTTtagtttcttgTCGTTATTAC AATAAAAGGAGATTTTCATAGACTCTATTCTCAA spacer length:
 34 repeater length: 24
 12557 1652716 GTTTtagtttcttgTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTT spacer length:
 35 repeater length: 24
 12558 1652776 GTTTtagtttcttgTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGACTCTGAAAAT spacer length:
 36 repeater length: 24
 12559 1652837 GTTTtagtttcttgTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length:
 36 repeater length: 24
 12560 1652898 GTTTtagtttcttgTCGTTATTAC AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAA spacer
 length: 37 repeater length: 24
 12561 1652960 GTTTtagtttcttgTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length:
 34 repeater length: 24
 12562 1653019 GTTTtagtttcttgTCGTTATTAC ATAACAATTGTCGGTAACCTATTTAGACGCTT spacer length: 32
 repeater length: 24
 12563 1653076 GTTTtagtttcttgTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length:
 36 repeater length: 24
 12564 1653137 GTTTtagtttcttgTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33
 repeater length: 24
 12565 1653195 GTTTtagtttcttgTCGTTATTAC ATTGGATAGTCAGTACCAAAGGTACATTAAGCCAC spacer length:
 36 repeater length: 24
 12566 1653256 GTTTtagtttcttgTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length:
 35 repeater length: 24
 12567 1653316 GTTTtagtttcttgTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length:
 36 repeater length: 24
 12568 1653377 GTTTtagtttcttgTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGCAGT spacer length: 33
 repeater length: 24
 12569 1653435 GTTTtagtttcttgTCGTTATTAC TTTCCAGCCCAGCCTCTTGCAGCTTCTAGCCTA spacer length:
 34 repeater length: 24
 12570 1653494 GTTTtagtttcttgTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGT spacer length:
 35 repeater length: 24
 12571 1653554 GTTTtagtttcttgTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCAT spacer length:
 36 repeater length: 24
 12572 1653615 GTTTtagtttcttgTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGA spacer length:
 35 repeater length: 24
 12573 1653675 GTTTtagtttcttgTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGA spacer length: 33
 repeater length: 24
 12574 1653733 GTTTtagtttcttgTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length:
 36 repeater length: 24
 12575 1653794 GTTTtagtttcttgTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGG spacer length:

35 repeater length: 24

12576 1653854 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length: 36 repeater length: 24

12577 1653915 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGTATATCTGTCCCTGCAGTGTCTAGT spacer length: 33 repeater length: 24

12578 1653973 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer length: 39 repeater length: 24

12579 1654037 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAAGACCTTAAAAAAGGATTGATTTAT spacer length: 34 repeater length: 24

12580 1654096 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length: 34 repeater length: 24

12581 1654155 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATA spacer length: 37 repeater length: 24

12582 1654217 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length: 34 repeater length: 24

12583 1654276 GTTT TAGTTT CTTGTCGTTATTAC ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCCGA spacer length: 35 repeater length: 24

12584 1654336 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAAT spacer length: 33 repeater length: 24

12585 1654394 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length: 34 repeater length: 24

12586 1654453 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAGAAGCTGCTAGACAAATTTGACAGTGA spacer length: 37 repeater length: 24

12587 1654515 GTTT TAGTTT CTTGTCGTTATTAC TGACTTATTTTTTGTCTTAACTTCACTACTCATTTTC spacer length: 37 repeater length: 24

12588 1654577 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length: 35 repeater length: 24

12589 1654637 GTTT TAGTTT CTTGTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length: 35 repeater length: 24

12590 1654697 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length: 34 repeater length: 24

12591 1654756 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGG spacer length: 33 repeater length: 24

12592 1654814 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length: 34 repeater length: 24

12593 1654873 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33 repeater length: 24

12594 1654931 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length: 35 repeater length: 24

12595 1654991 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length: 35 repeater length: 24

12596 1655051 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer length: 40 repeater length: 24

12597 1655116 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGA spacer length: 35 repeater length: 24

12598 1655176 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAG spacer length: 35 repeater length: 24

12599 1655236 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length: 34 repeater length: 24

12600 1655295 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAAGACAT spacer length: 35 repeater length: 24

12601 1655355 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTCATAATCA spacer length: 36 repeater length: 24

12602 1655416 GTTT TAGTTT CTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA spacer length: 36 repeater length: 24

12603 1655477 GTTT TAGTTT CTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG spacer length: 34 repeater length: 24

12604 1655536 GTTT TAGTTT CTTGTCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCG spacer length: 34 repeater length: 24

12605 1655595 GTTT TAGTTT CTTGTCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATA spacer length: 33 repeater length: 24

12606 1655653 GTTT TAGTTT CTTGTCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTA spacer length: 33 repeater length: 24

12607 1655711 GTTT TAGTTT CTTGTCGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACT spacer length: 33 repeater length: 24

12608 1655769 GTTT TAGTTT CTTGTCGTTATTAC TTTGATTAAAATGGGTTGGTATGGCATAAAAAA spacer length: 33 repeater length: 24

12609 1655827 GTTT TAGTTT CTTGTCGTTATTAC ATCGGAATTATAGGCGGATTTTTAACAATATTCCTAACA spacer length: 39 repeater length: 24

12610 1655891 GTTT TAGTTT CTTGTCGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCA spacer length: 32 repeater length: 24

12611	1655948	GTTTGTAGTTTCTTGTCGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCA	spacer length: 33 repeater length: 24
12612	1656006	GTTTGTAGTTTCTTGTCGTTATTAC	TAATTCATCTTTTATAGTGTAACTTTTTGAAATAA	spacer length: 34 repeater length: 24
12613	1656065	GTTTGTAGTTTCTTGTCGTTATTAC	AACTAAGAAAAATTCAGTCAGCAGTATTA	ACTACTACT spacer length: 38 repeater length: 24
12614	1656128	GTTTGTAGTTTCTTGTCGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAACTACAAGA	spacer length: 35 repeater length: 24
12615	1656188	GTTTGTAGTTTCTTGTCGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATA	spacer length: 34 repeater length: 24
12616	1656247	GTTTGTAGTTTCTTGTCGTTATTAC	GAATAGGGGATGCGATAAACCCAGTTAGCACACA	spacer length: 34 repeater length: 24
12617	1656306	GTTTGTAGTTTCTTGTCGTTATTAC	GGCATATAGAATTTTTTCGCTTTGTTGCCTCTTTA	spacer length: 34 repeater length: 24
12618	1656365	GTTTGTAGTTTCTTGTCGTTATTAC	ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAA	spacer length: 34 repeater length: 24
12619	1656424	GTTTGTAGTTTCTTGTCGTTATTAC	GCTTGTGGTAACATATCCATCGTCATCAGCAAT	spacer length: 33 repeater length: 24
12620	1656482	GTTTGTAGTTTCTTGTCGTTATTAC	AACGCATTATTGCTAATGCACGGTGCTAACAACTCTA	spacer length: 36 repeater length: 24
12621	1656543	GTTTGTAGTTTCTTGTCGTTATTAC	GTTTAAAACGGTAAATAGATAAAACCAAGAAAAT	spacer length: 34 repeater length: 24
12622	1656602	GTTTGTAGTTTCTTGTCGTTATTAC	ACGTCTTGTGCTGACTTGTAACATCGCTGTTCT	spacer length: 34 repeater length: 24
12623	1656661	GTTTGTAGTTTCTTGTCGTTATTAC	AAAGAAGTGCAAAAAAATGGCTACGGTGTACAT	spacer length: 33 repeater length: 24
12624	1656719	GTTTGTAGTTTCTTGTCGTTATTAC	ATGCATTCAATTAAAGACTTAACAATTCAAGAGT	spacer length: 33 repeater length: 24
12625	1656777	GTTTGTAGTTTCTTGTCGTTATTAC	AAGTTTCTTAATTTATTACAGTTATATGAACAG	spacer length: 33 repeater length: 24
12626	1656835	GTTTGTAGTTTCTTGTCGTTATTAC	ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT	spacer length: 35 repeater length: 24
12627	1656895	GTTTGTAGTTTCTTGTCGTTATTAC	AGATTTTATGAAACATTAACATTTTATTTTATCTA	spacer length: 35 repeater length: 24
12628	1656955	GTTTGTAGTTTCTTGTCGTTATTAC	ATTAATCAGATAGAACTAGCAGTGTTTTTTATGT	spacer length: 35 repeater length: 24
12629	1657015	GTTTGTAGTTTCTTGTCGTTATTAC	ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT	spacer length: 35 repeater length: 24
12630	1657075	GTTTGTAGTTTCTTGTCGTTATTAC	TTGGTTACTGATATTTTCTGAACTCCAGCAAATG	spacer length: 34 repeater length: 24
12631	1657134	GTTTGTAGTTTCTTGTCGTTATTAC	CGTTAAACAGACTAGGCTCAGGACAAGCATTAC	spacer length: 34 repeater length: 24
12632	1657193	GTTTGTAGTTTCTTGTCGTTATTAC	AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTT	spacer length: 34 repeater length: 24
12633	1657252	GTTTGTAGTTTCTTGTCGTTATTAC	AGAGTACCTTTACCTAACAGAGCGTCGTATATTA	spacer length: 35 repeater length: 24
12634	1657312	GTTTGTAGTTTCTTGTCGTTATTAC	TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAG	spacer length: 34 repeater length: 24
12635	1657371	GTTTGTAGTTTCTTGTCGTTATTAC	AGAAGCTATACAACGAGGCTATATAAATAAAAT	spacer length: 33 repeater length: 24
12636	1657429	GTTTGTAGTTTCTTGTCGTTATTAC	GTGAAGATGTCGATAGTGACGATAGCTGAGATAG	spacer length: 34 repeater length: 24
12637	1657488	GTTTGTAGTTTCTTGTCGTTATTAC	AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT	spacer length: 37 repeater length: 24
12638	1657550	GTTTGTAGTTTCTTGTCGTTATTAC	TATATTTGGTCAAGTGTCTTACAGCATTTTAA	spacer length: 33 repeater length: 24
12639	1657608	GTTTGTAGTTTCTTGTCGTTATTAC	GCAGAGTCTTTTCGCTACGTCTTTCAGCGTCTCAA	spacer length: 34 repeater length: 24
12640	1657667	GTTTGTAGTTTCTTGTCGTTATTAC	GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC	spacer length: 36 repeater length: 24
12641	1657728	GTTTGTAGTTTCTTGTCGTTATTAC	CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT	spacer length: 36 repeater length: 24
12642	1657789	GTTTGTAGTTTCTTGTCGTTATTAC	GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGT	spacer length: 35 repeater length: 24
12643	1657849	GTTTGTAGTTTCTTGTCGTTATTAC	ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA	spacer length: 34 repeater length: 24
12644	1657908	GTTTGTAGTTTCTTGTCGTTATTAC	AGCTCCCATTAATAATCACGACCACTCCAAATATC	spacer length: 34 repeater length: 24
12645	1657967	GTTTGTAGTTTCTTGTCGTTATTAC	AGTTATAATCTATCTCCGGAACATTAATAATTTT	spacer length: 35 repeater length: 24
12646	1658027	GTTTGTAGTTTCTTGTCGTTATTAC	ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA	spacer length: 34 repeater length: 24

34 repeater length: 24
12647 1658086 GTTTtagtttcttgTCGTTATTAC TATAAAAAAGCATTTCACAGTCTTGAAACCACTATT spacer
length: 38 repeater length: 24
12648 1658149 GTTTtagtttcttgTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length:
35 repeater length: 24
12649 1658209 GTTTtagtttcttgTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCT spacer
length: 41 repeater length: 24
12650 1658275 GTTTtagtttcttgTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length:
36 repeater length: 24
12651 1658336 GTTTtagtttcttgTCGTTATTAC AATGAGATATTCAGTGGGTCATGGAGCGTGAA spacer length: 33
repeater length: 24
12652 1658394 GTTTtagtttcttgTCGTTATTAC TTTCTTATTTTTTAACGAGGGAAATGGTCAGGCTAAA spacer
length: 38 repeater length: 24
12653 1658457 GTTTtagtttcttgTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCC spacer length: 31
repeater length: 24
12654 1658513 GTTTtagtttcttgTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC spacer
length: 37 repeater length: 24
12655 1658575 GTTTtagtttcttgTCGTTATTAC TAAGCCTTACTCTTTACATTAAGTAACAAGTAATA
12656
12657
12658 crispr 3
12659 1786207 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 25
12660 1786273 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length:
35 repeater length: 25
12661 1786334 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 25
12662 1786396 CTTTCAATCCCTTATGGGATTCTTC TTAAACTGACAACCTTGTCTCTGACCCAAAGTAATA
12663
12664
12665 crispr 4
12666 1825867 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
length: 37 repeater length: 25
12667 1825930 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
length: 36 repeater length: 25
12668 1825992 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
length: 40 repeater length: 25
12669 1826058 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
35 repeater length: 25
12670 1826119 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
length: 37 repeater length: 25
12671 1826182 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
length: 36 repeater length: 25
12672 1826244 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTGTA spacer
length: 38 repeater length: 25
12673 1826308 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
length: 41 repeater length: 25
12674 1826375 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
length: 38 repeater length: 25
12675 1826439 CTTTCAATCCCTTTTGGGATTCATC ACAGGCATTAATACCTGCAAAGCCTAGGGTAATAACGA
12676
12677
12678 GCA_000341715.1_ASM34171v1_genomic.fna (findCrispr):
12679 START REPEAT
SPACER
12680 crispr 1
12681 419459 ATCAGCTACATAGGCGTAATT
CCCGGAAATTGAGACACCGTAAATATCTCCGGCAGTATCGTAGCTTCCTTTGAGAACTGGTGAAGATGGATTGCTTATATCAACAA
TCATAAGACCATTACCCC spacer length: 104 repeater length: 21
12682 419585 ATCAGCTACATAGGCGTAATT
GCCGTAAACTGCAACATCGCCAGTAGGACCGGCATAACGTCCTTTGAGAATTGGATCAGAAGGATTACTGATATCAACAATCACAA
GACCATCAT spacer length: 95 repeater length: 21
12683 419702 ATCAGCTACATAGGCGTAATT
AAGTGACACAGAAGAAGTGACACCAACAGAAGAAGTGACGCCCACTGGAGAAATAATAGTACCTGTTG
AAACAATAC
12684
12685
12686 crispr 2
12687 2139866 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCTGATGTTTCATCGTTAACTGATGGTA
spacer length: 50 repeater length: 21
12688 2139938 ATCTCCACCTGATGTTTCATC GTTTCAGATTGATCATCTTCACCGGATGTTTCACCGTTATCTGATGGTA

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spacer length: 50 repeater length: 21
12689 2140010 ATCTCCACCTGATGTTTCATC TGACACAGAAGAAGTGACACCAACAGAAGAAGTGACACCAACAGAAGAAG
12690
12691
12692 crispr 3
12693 3235576 GAAGAAGTGACACCTCCCGAAGAAGTGAC GCCTCCTGAAGAAGTAACACCAACAGAAGAAGCGACACCTCC
spacer length: 42 repeater length: 29
12694 3235648 GAAGAAGTGACACCTCCCGAAGAAGTGAC
ACCAACAGAAGAAGTAACACCAACAGAAGAAGTAACACCTCCTGAAGAAGTAACACCTCCTGAAGAAGGAAGAAGCGACACCTCC
spacer length: 85 repeater length: 29
12695 3235763 GAAGAAGTGACACCTCCCGAAGAAGTGAC
CCTTTATAAATACAAGAAAACTTCTCATACGCAGATATTCCGGTAACAGCAATCTACGCATTTTCTAGAAGATCTGGAAGTCTT
12696
12697
12698 crispr 4
12699 236762 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GACTGCAACTCCATAAGGAGCAATTCCTACAGGCACCGTGAAGGTAATACTGTAATTAGACGTATCGATTACGGAAGTAGTGTTAC
TGCCGT spacer length: 92 repeater length: 33
12700 236888 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GACTACAACCTCCAGAAGGACTGTAATCTACTGGAACACTGGCGATAACAGTGCTGGTCGTTGTGTTAATTACAGAGACACTGCTGT
CGTTTT spacer length: 92 repeater length: 33
12701 237014 GTTCGCCACATATACCTTTGTTCCATCCGGACT
CACCAACAGAAGAAGTGACACCAACAGAAGAAGTGACGCCCACTGGAGAAATAATAGTACCTGTTGAAACAATACCACAGGAGGAT
GTAGTA
12702
12703
12704 crispr 5
12705 577548 TGTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT TCTATACGAAAATGAAATATTGACTGATGAAAGT
spacer length: 34 repeater length: 38
12706 577621 TGTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT GAAGATGAATATAATAATTTAGAACAGAGTATT
spacer length: 33 repeater length: 38
12707 577693 TGTTTCAATCCTTGTTTTAATGGATCTTGCTCGCGAAT AGCATGTCCACAGGCACCGTGGAGGTAACAGT
12708
12709
12710 GCA_000350305.1_ASM35030v1_genomic.fna(findCrispr):
12711 START REPEAT
SPACER
12712 crispr 1
12713 675993 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC TACCCTTGACAAGACCTCGATGCAGGCAT spacer
length: 29 repeater length: 36
12714 676059 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC ATTGTCTGCCGGTGATTACTCAGGATTCC spacer
length: 29 repeater length: 36
12715 676125 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC TTCCTCTTGAGCTCGAAGAGACGCTTGGAG spacer
length: 30 repeater length: 36
12716 676192 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC ACTCAGTATGGGCCATGCATCGACGAGTA spacer
length: 29 repeater length: 36
12717 676258 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC AATCATCGCCGGGGTACAGCCTGTGCGAC spacer
length: 29 repeater length: 36
12718 676324 GTTTGAGAGTGTTGTCAAATACGAGGTAACCTCAATC ATTACCCAAGCCATGTTTGAGAGTGTTGT
12719
12720
12721 GCA_000364745.1_ASM36474v1_genomic.fna(findCrispr):
12722 START REPEAT
SPACER
12723 crispr 1
12724 344178 TTTCAATTCTATAGTAGATTAG CGGGGTTTTAGGGGATGTCCCCCTAATGCCGGCCTCCCAAGT spacer
length: 42 repeater length: 22
12725 344243 TTTCAATTCTATAGTAGATTAG CAGTTAAAGTTGAAAGAAGCGGCACAAAACGAAGAGAAAGT spacer
length: 41 repeater length: 22
12726 344307 TTTCAATTCTATAGTAGATTAG CTCACCAACTTGCACGGGCACATTTGCTTGCCCCCATCTCC spacer
length: 42 repeater length: 22
12727 344372 TTTCAATTCTATAGTAGATTAG CCTATTGCAAGCTTTTGGATATGATTACAAAAGATGGATACAGA spacer
length: 45 repeater length: 22
12728 344440 TTTCAATTCTATAGTAGATTAG CATGGAAAATCACGCTGAACCTATATACTTTCACTTACAGA spacer
length: 40 repeater length: 22
12729 344503 TTTCAATTCTATAGTAGATTAG CCTCTCGCAAAAAACGGGCAATATCGTTAGGAGAGGGCG spacer length:
39 repeater length: 22
12730 344565 TTTCAATTCTATAGTAGATTAG CTTTGTACAATACTGTGTACATAACTGTTGCACATCTTCTA spacer
length: 41 repeater length: 22
12731 344629 TTTCAATTCTATAGTAGATTAG CATTCACTAGAAAGATTGCTAGAAGTTAGAATCAATTCGTTAG spacer
length: 43 repeater length: 22

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12732 344695 TTTCAATTCTATAGTAGATTAG CAAATAATTAAGTACTTACCGGAACCTATACAACGTGTTCTCA spacer
length: 43 repeater length: 22

12733 344761 TTTCAATTCTATAGTAGATTAG CATTGATAGATTGAGAAAGAGAGATTGAAAGATAGAAAGGTTTATA spacer
length: 46 repeater length: 22

12734 344830 TTTCAATTCTATAGTAGATTAG CATTGATATTTATGTAAAAGGCAGAATGTACGAATTTCCAG spacer
length: 42 repeater length: 22

12735 344895 TTTCAATTCTATAGTAGATTAG CAGACAGTATCGGCGGAGTTGTTAGGGATGGTATCATTT spacer length:
39 repeater length: 22

12736 344957 TTTCAATTCTATAGTAGATTAG TAGTTATAGAAATAAGTACATTAGCTTTGCAATTTCAACTA spacer
length: 41 repeater length: 22

12737 345021 TTTCAATTCTATAGTAGATTAG CAAGTTTTGAGTAAGGAGGAGTTAGAACAGTTGTTAAAGGA spacer
length: 41 repeater length: 22

12738 345085 TTTCAATTCTATAGTAGATTAG CACTGATTAGTCTAGTGTCTGTTAGGGCAAAAATGGATCTTTAA spacer
length: 43 repeater length: 22

12739 345151 TTTCAATTCTATAGTAGATTAG CAAGCTGTTAACGTTGATCGCTATCAAGAGTGCTTTCTATGA spacer
length: 42 repeater length: 22

12740 345216 TTTCAATTCTATAGTAGATTAG CAGAAGTTCGGAGTTATTGCCAAAGCGTGAAAAACCAGGATCAG spacer
length: 45 repeater length: 22

12741 345284 TTTCAATTCTATAGTAGATTAG
CAAAATCATGCTGAGTTGTACGCTCTTTACAGTGAGCAAAGGTCTTTCAATTCTATACTAGATTAGCATGGAGTAAGTGAGGAATGC
ATAAGACAAGCGATATCGAGT spacer length: 107 repeater length: 22

12742 345414 TTTCAATTCTATAGTAGATTAG CTCATCATTTACCATTCCATCAAACAGCACAAAGTAAGGGGGT spacer
length: 42 repeater length: 22

12743 345479 TTTCAATTCTATAGTAGATTAG CCTATTCCTTTTCGAAAAGGATGCAAAACGATACCAATATTT spacer
length: 42 repeater length: 22

12744 345544 TTTCAATTCTATAGTAGATTAG CATCCGTAACCTTTACAATAAAAGTAGAAAGGAGGTATTGTAAG spacer
length: 43 repeater length: 22

12745 345610 TTTCAATTCTATAGTAGATTAG CTAGACAAGTTTTTTTTATGAGTGAAGTAGCTTTGAAAGAAT spacer
length: 41 repeater length: 22

12746 345674 TTTCAATTCTATAGTAGATTAG CACTTCTAAGTAGAAGTCAAATTCCAATATAGAAATATAAG spacer
length: 41 repeater length: 22

12747 345738 TTTCAATTCTATAGTAGATTAG CCTATGCTCTCATTTTAGTATCTCTGAAGTCAAAGATGA spacer length:
39 repeater length: 22

12748 345800 TTTCAATTCTATAGTAGATTAG CTTAATGATTCTGACCTTCTAGTGGTTATGAATGATCAAGAAG spacer
length: 43 repeater length: 22

12749 345866 TTTCAATTCTATAGTAGATTAG CGGCAGTGGGATATCTATCAGAGCTCTGGCGTATTTTGTAAC spacer
length: 42 repeater length: 22

12750 345931 TTTCAATTCTATAGTAGATTAG CTTTCATTGTTAGGCATTGATAGTTTTAATGCCATAATGTAAC spacer
length: 43 repeater length: 22

12751 345997 TTTCAATTCTATAGTAGATTAG CTATGCTCACCTGGAGAGAGACAAATTCTACGGAAGTTT spacer length:
39 repeater length: 22

12752 346059 TTTCAATTCTATAGTAGATTAG CAGAGGTTGGGGGGAGAGAGGTGAAGTCCCTAAAATCTTTCTA spacer
length: 43 repeater length: 22

12753 346125 TTTCAATTCTATAGTAGATTAG TAGTGTAACGGACTAGAAGATGGATCCTGTAACGTCATGA spacer
length: 41 repeater length: 22

12754 346189 TTTCAATTCTATAGTAGATTAG CCTAAAGCAGTCATTGTCCCTATATCCTAGGTATTCTAAGAATAT spacer
length: 45 repeater length: 22

12755 346257 TTTCAATTCTATAGTAGATTAG CGACAATGCCTATTGATAATATTACAATTATACCAAACAA spacer
length: 40 repeater length: 22

12756 346320 TTTCAATTCTATAGTAGATTAG CCTGCCCATTTAATTCTCCTAGCAATCTTACTATATTT spacer length:
38 repeater length: 22

12757 346381 TTTCAATTCTATAGTAGATTAG CGTTACTAGAGAGGAATACAAAGAACTTATTGGATTTCTCTGA spacer
length: 42 repeater length: 22

12758 346446 TTTCAATTCTATAGTAGATTAG CCAGTAGCCAATATGCCGTTTCGCCTTCATCCTTTACGCTG spacer
length: 40 repeater length: 22

12759 346509 TTTCAATTCTATAGTAGATTAG CTATATAATTATCGATGACGAAACAATCTTCATTAAATTT spacer
length: 40 repeater length: 22

12760 346572 TTTCAATTCTATAGTAGATTAG CTGGCCTTACATTGCGGGTGCTGCTATTGCAGCAGCAGGCAT spacer
length: 42 repeater length: 22

12761 346637 TTTCAATTCTATAGTAGATTAG CTACTTCAGTCCATAGATCACCGTTTGCCGTGATGATACTTTT spacer
length: 43 repeater length: 22

12762 346703 TTTCAATTCTATAGTAGATTAG CTTCTGGATTTGCTACATTTCCGTTAACATAAGAACC spacer length:
38 repeater length: 22

12763 346764 TTTCAATTCTATAGTAGATTAG CAAGCTAAGAAAGAGCAAGAGAGAGATAAGCAGCTAAGGGATC spacer
length: 43 repeater length: 22

12764 346830 TTTCAATTCTATAGTAGATTAG CAAAGTTTTATAGCCTCCCTAATGACCTCGCTTCGGCTTAGA spacer
length: 42 repeater length: 22

12765 346895 TTTCAATTCTATAGTAGATTAG CATTAATTTTTTAAAAGAGATGAATGTTAAGTTTCAAGTAAA spacer
length: 42 repeater length: 22

12766 346960 TTTCAATTCTATAGTAGATTAG CCAATAGAGGCAAACCTATCACCTTCCATGATTCTCTTTAA spacer
length: 41 repeater length: 22

12767 347024 TTTCAATTCTATAGTAGATTAG CGCGTCCAGAATAATAGATGATATCCTCGATGAACATATGACG spacer
length: 43 repeater length: 22

12768 347090 TTTCAATTCTATAGTAGATTAG CAAAATGACACCCCAAAACCTTGAAACCAAAATATGAAAG spacer
length: 41 repeater length: 22

12769 347154 TTTCAATTCTATAGTAGATTAG CAAAATGGAGGAAGTAAATTAACGTGTATAACAAAATTG spacer
length: 41 repeater length: 22

12770 347218 TTTCAATTCTATAGTAGATTAG CATAACAATCCCAAAAAGTATTGCGGAAGAACTCTTGAGGAA spacer
length: 42 repeater length: 22

12771 347283 TTTCAATTCTATAGTAGATTAG CGGTAATTCTTGGTTATTGTTTCAGTCATCCCAGACCAAGA spacer
length: 40 repeater length: 22

12772 347346 TTTCAATTCTATAGTAGATTAG CCAAGGCACGAGAGAGTTAATCGTAGAAGCCATAGCGAG spacer length:
39 repeater length: 22

12773 347408 TTTCAATTCTATAGTAGATTAG CATAAATATGGAGATACTGAAAAAATATTTAAAAAATTT spacer
length: 40 repeater length: 22

12774 347471 TTTCAATTCTATAGTAGATTAG CTAAGGGGTTTGTGTTTGGGGTTATCTATAGATAGAGAGATA spacer
length: 44 repeater length: 22

12775 347538 TTTCAATTCTATAGTAGATTAG CCTGACTTCTCTCGTTAATGAGCCTGTTAGCTGATATGTT spacer
length: 40 repeater length: 22

12776 347601 TTTCAATTCTATAGTAGATTAG CCCCTTCTCTTCATGAAGAAGTACGTTAAAAAATAAGGC spacer length:
39 repeater length: 22

12777 347663 TTTCAATTCTATAGTAGATTAG CACAAAAACCCGGGGGATTCCCCGGTTTCCCCGGATTCCC spacer
length: 41 repeater length: 22

12778 347727 TTTCAATTCTATAGTAGATTAG CTCGGAAGGATTCTATTTCAGAAATGAGAAAGATTTCTAC spacer length:
39 repeater length: 22

12779 347789 TTTCAATTCTATAGTAGATTAG CGAAATAATATTGACGTATGATGAAATCAGGGAAAATGATTTT spacer
length: 43 repeater length: 22

12780 347855 TTTCAATTCTATAGTAGATTAG CTTGAAGGATTTTTTCAATATTGCAGAAAGAGATGAGTTAG spacer
length: 41 repeater length: 22

12781 347919 TTTCAATTCTATAGTAGATTAG CAAGTATCAAATATCCTATCTTGGACTAAATGTACATTATAAATT spacer
length: 45 repeater length: 22

12782 347987 TTTCAATTCTATAGTAGATTAG CATTTTTACGGCCTGCTGCATGAAAAAATACAACTGTATA spacer
length: 42 repeater length: 22

12783 348052 TTTCAATTCTATAGTAGATTAG CAACATTACACTAGCTCCAGTTAGTGAAAAACCTCATAA spacer length:
39 repeater length: 22

12784 348114 TTTCAATTCTATAGTAGATTAG CTAAGTTTAACCCCGCTTTCACATTAAACGGACAAACCGTAA spacer
length: 42 repeater length: 22

12785 348179 TTTCAATTCTATAGTAGATTAG CATCTTCTTGAGATACTGCTTTATCTCCTCTTCTTTCATGTT spacer
length: 42 repeater length: 22

12786 348244 TTTCAATTCTATAGTAGATTAG CTAGCTCTCTAATTTTCGTGGTCTAATTCTAGGAATAGTTCTTTTT spacer
length: 45 repeater length: 22

12787 348312 TTTCAATTCTATAGTAGATTAG CCTTAGTCTTTCTTCTGCTTCTACGAATTTCTTAAAGAACC spacer
length: 41 repeater length: 22

12788 348376 TTTCAATTCTATAGTAGATTAG CGGTAATCCCCCTATACCAGATGGAATGACCTAAGTAAAG spacer
length: 41 repeater length: 22

12789 348440 TTTCAATTCTATAGTAGATTAG CAAGAAAAGTAGAAAATTGTTAGAAAAAATGGCAATGGAAGTGCT spacer
length: 45 repeater length: 22

12790 348508 TTTCAATTCTATAGTAGATTAG CAAAATTAAGACACTACTGAGAGCAGGAGGGATATATGTTAG spacer
length: 42 repeater length: 22

12791 348573 TTTCAATTCTATAGTAGATTAG CCCTAATTCTTTTGAGACTAGTCTAGCTAAGCGTAACGGATAATT spacer
length: 45 repeater length: 22

12792 348641 TTTCAATTCTATAGTAGATTAG CTCAGAAACAGAAACAGCTCCTTCTTCAGTATCATTTGCCGT spacer
length: 42 repeater length: 22

12793 348706 TTTCAATTCTATAGTAGATTAG CATGCTGATGACGTAATTAGGAGGGTGAAAAAATCGCTA spacer length:
39 repeater length: 22

12794 348768 TTTCAATTCTATAGTAGATTAG CGTATACCCAGTTTGCAAAAACGTTTCAATTTGTTGTCTTAA spacer
length: 42 repeater length: 22

12795 348833 TTTCAATTCTATAGTAGATTAG CGTCTTATAACGCCGTTTGGTATAGTTTGGTCAAGTTTAC spacer
length: 40 repeater length: 22

12796 348896 TTTCAATTCTATAGTAGATTAG CTTCATATTTCGTA CTGACTCGGACTTTTCTACTTGAATATTTAG spacer
length: 40 repeater length: 22

12797 348959 TTTCAATTCTATAGTAGATTAG CTGAGCATAAGTTGAAGTATCTATTGAATCTGCATTATCAAAAGTT spacer
length: 46 repeater length: 22

12798 349028 TTTCAATTCTATAGTAGATTAG CATGCATTTATTCCAGTTACTGTAGTATCTTTAATTGATTCAATAG spacer
length: 46 repeater length: 22

12799 349097 TTTCAATTCTATAGTAGATTAG CCCTTCATTTTTCCAACCCCTAACTCAAATCTTAATACGC spacer
length: 40 repeater length: 22

12800 349160 TTTCAATTCTATAGTAGATTAG CGAATTTGCCAGACAATTTCGCCTAAGCTTCTAGACTATTTAA spacer
length: 42 repeater length: 22

12801 349225 TTTCAATTCTATAGTAGATTAG CAATATATCATCAGTACCATACGTATCTTGAATCTCTCCT spacer
length: 40 repeater length: 22

12802 349288 TTTCAATTCTATAGTAGATTAG CTTTTATCGGTGGTAATGGATTATTCCCCCAATACAGATAC spacer

length: 41 repeater length: 22
12803 349352 TTTCAATTCTATAGTAGATTAG CTCATATGCTTCCTGTAAATGATATATGGCGTCATTATACC spacer
length: 41 repeater length: 22
12804 349416 TTTCAATTCTATAGTAGATTAG CATCGGGCACGCGGGCACTGTTCAACTAGTAAATCAGTTATG spacer
length: 42 repeater length: 22
12805 349481 TTTCAATTCTATAGTAGATTAG CCATCAGATCAAGACCTAGTTTTTGTCCAGGTCTTATTATGAC spacer
length: 43 repeater length: 22
12806 349547 TTTCAATTCTATAGTAGATTAG CTAGATGATTCTGAAGTTGTGCGAGTTCGTCGACAACAACGGTG spacer
length: 43 repeater length: 22
12807 349613 TTTCAATTCTATAGTAGATTAG CGAGCATTGATAACGTCTTCAGTCGTTACGAAATATTTTACATTT spacer
length: 45 repeater length: 22
12808 349681 TTTCAATTCTATAGTAGATTAG CGAAGAAGTGAAAGATCATCTTAAAGAACTATACTATTGAC spacer
length: 42 repeater length: 22
12809 349746 TTTCAATTCTATAGTAGATTAG TATGTTCTTTAGTGTGAAAAATAGCGAGGTAGTTCCAGAGTT
12810
12811
12812 crispr 2
12813 353820 GCTAATCTACTATAGAATTGAAAG TTACTAGAATGACAAAGGAAGCACTAGGGCGTTTAAAGG spacer
length: 39 repeater length: 24
12814 353884 GCTAATCTACTATAGAATTGAAAG TTCGATTAAAGGAAATATTTTTTGACTTACATTTTGCAT spacer
length: 39 repeater length: 24
12815 353948 GCTAATCTACTATAGAATTGAAAG TATTTCTAATTTGCAAATTAATAGATATGAAAAACCAAACTTTT spacer
length: 45 repeater length: 24
12816 354018 GCTAATCTACTATAGAATTGAAAG TAATCAATACATAAACTGTGTAGAAAACCTTTATATACCC spacer
length: 40 repeater length: 24
12817 354083 GCTAATCTACTATAGAATTGAAAG TCCTTATTTTAGGTATTAGTTTATCCCAATCCAGGGTA spacer
length: 38 repeater length: 24
12818 354146 GCTAATCTACTATAGAATTGAAAG ACAAGTTAGGGACTACTTCTTGTAAGTCTCGGAGAACGCT spacer
length: 41 repeater length: 24
12819 354212 GCTAATCTACTATAGAATTGAAAG TAGATGACTCTTTACTTTTCGATCTGAGTTTTCTTAATC spacer
length: 38 repeater length: 24
12820 354275 GCTAATCTACTATAGAATTGAAAG ATTAATTCGGTTATAACTTATGCGAAGAGTTTGATAG spacer length:
37 repeater length: 24
12821 354337 GCTAATCTACTATAGAATTGAAAG TTCTAGTAGCCTTTTCGAAATTCGGCATTGTAGTAAACG spacer
length: 39 repeater length: 24
12822 354401 GCTAATCTACTATAGAATTGAAAG TTTCCCTTTGCAAAATGTAATCCGGATCCGCCCAATTTTCA spacer
length: 41 repeater length: 24
12823 354467 GCTAATCTACTATAGAATTGAAAG CGTTCAATCATGACAGAGGCTAACCCCATTTGCCCTTAACCTTGT spacer
length: 43 repeater length: 24
12824 354535 GCTAATCTACTATAGAATTGAAAG TTAAGCTTTCTATGATGTCATTGTTGATTATTATAACTTT spacer
length: 40 repeater length: 24
12825 354600 GCTAATCTACTATAGAATTGAAAG TAGACTCTAGCGTAGACTTTAAAATAAAAGAGAGGTGA spacer
length: 38 repeater length: 24
12826 354663 GCTAATCTACTATAGAATTGAAAG TTCTAGTAATATGGATTCTATACTATTCAAACGGGTAT spacer
length: 38 repeater length: 24
12827 354726 GCTAATCTACTATAGAATTGAAAG CATACCACCGACTTCTCTATCTTATTAAGGTTTTAT spacer length:
36 repeater length: 24
12828 354787 GCTAATCTACTATAGAATTGAAAG TTTGGCGGGTAAGTTCTCATTCTCATAAAGTTCCACGCG spacer
length: 39 repeater length: 24
12829 354851 GCTAATCTACTATAGAATTGAAAG TATTTTCGTTTTCCCTGAGGGGGATTGATTGTTTTCC spacer
length: 38 repeater length: 24
12830 354914 GCTAATCTACTATAGAATTGAAAG ATCCAGACATGACCAAATGGGTCATGTCTAGACCGTAAAT spacer
length: 40 repeater length: 24
12831 354979 GCTAATCTACTATAGAATTGAAAG TTAATATCGTAAAATATCTCAAGTAAACTTCATTTG spacer length:
37 repeater length: 24
12832 355041 GCTAATCTACTATAGAATTGAAAG GTATTATTAACGCGAAAAATATCGTTATTATTAATACA spacer
length: 38 repeater length: 24
12833 355104 GCTAATCTACTATAGAATTGAAAG CTTAAAGCACCTACGCCGGCACCTATTAGTGTACCAATA spacer
length: 39 repeater length: 24
12834 355168 GCTAATCTACTATAGAATTGAAAG TTATCATTTCCAATTACTATCTCATGTGTATCGTGATATG spacer
length: 40 repeater length: 24
12835 355233 GCTAATCTACTATAGAATTGAAAG AACATAAGTAGAATTGAAAGAAGAGTAACATGTAGTACAACCTCTCA
spacer length: 46 repeater length: 24
12836 355304 GCTAATCTACTATAGAATTGAAAG CTGTCAATAATGAAGGTTACGTCTTTTATCCCTACTTCCT spacer
length: 40 repeater length: 24
12837 355369 GCTAATCTACTATAGAATTGAAAG AATTCTTCTAAAAAATTAATTATTTCTCTTTTATTTCA spacer
length: 39 repeater length: 24
12838 355433 GCTAATCTACTATAGAATTGAAAG GCACCTATGGCGACCCAAAACAGCGTGATCCGCTG spacer length:
36 repeater length: 24
12839 355494 GCTAATCTACTATAGAATTGAAAG ATATTTTTGATTATATTCTTTTTCTCAAGTATTTTTAT spacer
length: 38 repeater length: 24

12840 355557 GCTAATCTACTATAGAAATTGAAAG AATTATATCATATCAGTAAGCCAACTAGTATCTCGAGCACA spacer
length: 42 repeater length: 24

12841 355624 GCTAATCTACTATAGAAATTGAAAG GATCTTTCCTTGTGCCAGCAGTTCCTCTAGCTCCTTGCTG spacer
length: 40 repeater length: 24

12842 355689 GCTAATCTACTATAGAAATTGAAAG TAGGATTTACACCATAATAAATATCGGCGGTCTCCCTGT spacer
length: 39 repeater length: 24

12843 355753 GCTAATCTACTATAGAAATTGAAAG AATACCTCAATTATTTTCGCCTTTAGTTAACAATAATGGTTT spacer
length: 41 repeater length: 24

12844 355819 GCTAATCTACTATAGAAATTGAAAG TCCCATAACGCCTCAATGGGGAACGCGTGCTGATATTT spacer
length: 38 repeater length: 24

12845 355882 GCTAATCTACTATAGAAATTGAAAG CATACCATTTATAAGGCTCCACCTTCGCCTTAGCCTTACCAT spacer
length: 42 repeater length: 24

12846 355949 GCTAATCTACTATAGAAATTGAAAG GAGTTTGACTTATCTCTCTACTGTTTTCCATTAGACTCACCC spacer
length: 42 repeater length: 24

12847 356016 GCTAATCTACTATAGAAATTGAAAG CTGTTATTTTCGTTGAACTGAACTACTACCGGAAGCTCTA spacer
length: 39 repeater length: 24

12848 356080 GCTAATCTACTATAGAAATTGAAAG CCTATGGACCTTCTTAGGACCTCGTTTTGTTAATCTTGGCC spacer
length: 40 repeater length: 24

12849 356145 GCTAATCTACTATAGAAATTGAAAG TCTTGAAATTAAATCTAGAATTGATGGTATCGGCGTATA spacer
length: 39 repeater length: 24

12850 356209 GCTAATCTACTATAGAAATTGAAAG TTATAAAAATTCAAAATGTATACAACCATTACGCATACA spacer
length: 39 repeater length: 24

12851 356273 GCTAATCTACTATAGAAATTGAAAG AGGTTTTGGATTAAAGGTTGCTAGAGCATTAAATAGGATTG spacer
length: 41 repeater length: 24

12852 356339 GCTAATCTACTATAGAAATTGAAAG ATTTCTTCACGGTGTGTGAGGCAATACTCCCTATACTTC spacer
length: 39 repeater length: 24

12853 356403 GCTAATCTACTATAGAAATTGAAAG TGCAATAACAGTTGTAGTAGTACTACTACTACCAGCAG spacer
length: 38 repeater length: 24

12854 356466 GCTAATCTACTATAGAAATTGAAAG GCCCCACCAGCCATAGAGATCAAGTTCAGAAGGAAAGGT spacer
length: 39 repeater length: 24

12855 356530 GCTAATCTACTATAGAAATTGAAAG TAGGCTTTATTTTCTTTATAACACTGTAACGCTCTTTATTTA spacer
length: 42 repeater length: 24

12856 356597 GCTAATCTACTATAGAAATTGAAAG TTGGTTTTTTTGCTTGGCAATTTTTGTCACTGGGAATAAT spacer
length: 39 repeater length: 24

12857 356661 GCTAATCTACTATAGAAATTGAAAG ATTCTAACGTTCCGTTTTTTGAATGCTATCTTGAGAGGTTTTCAG spacer
length: 42 repeater length: 24

12858 356728 GCTAATCTACTATAGAAATTGAAAG TCTTCGGGGATCGGTATCATGCCCCAATCACACACAATAT spacer
length: 41 repeater length: 24

12859 356794 GCTAATCTACTATAGAAATTGAAAG ATTATACCGTGAAAGTAACTTATAATTAATCAAAAATA spacer
length: 38 repeater length: 24

12860 356857 GCTAATCTACTATAGAAATTGAAAG TTTCTTTATTTTGAAATCAGTAATCTGTTAGTGTTATTA spacer
length: 38 repeater length: 24

12861 356920 GCTAATCTACTATAGAAATTGAAAG AGTCAAAGCGACTGGTATGCCCCAGTTCTCCGCATAAAA spacer
length: 39 repeater length: 24

12862 356984 GCTAATCTACTATAGAAATTGAAAG TCTGCCCAGAGAATTCCTTTATGGTTCTGGATATCCTTGGT spacer
length: 40 repeater length: 24

12863 357049 GCTAATCTACTATAGAAATTGAAAG TTGGACTGATGAAAAGTGGATATTGCTCTATGAAATCA spacer
length: 38 repeater length: 24

12864 357112 GCTAATCTACTATAGAAATTGAAAG TTACCAATTAATTCACTAAACTCATCTTGACTAATTTTTTA spacer
length: 40 repeater length: 24

12865 357177 GCTAATCTACTATAGAAATTGAAAG GGATGACCGGCTTCAAAAAATTCACTTGTATCTAAATTT spacer
length: 39 repeater length: 24

12866 357241 GCTAATCTACTATAGAAATTGAAAG TATAATAGATTCTCTTTATTTTTTCAGGTTAAATCCAATA spacer
length: 39 repeater length: 24

12867 357305 GCTAATCTACTATAGAAATTGAAAG GGGCAAAAAGTAGAGAGTAAAGTTAGAAAGTAAAAACA spacer
length: 38 repeater length: 24

12868 357368 GCTAATCTACTATAGAAATTGAAAG AATCTAATAGAGGAGCTCGAAAAGTACAAAAAGAAGGAG spacer
length: 40 repeater length: 24

12869 357433 GCTAATCTACTATAGAAATTGAAAG TATTTTTCAATTTTGCAGAAGTGCTTGGGCCCTTTGTGCGTCAG spacer
length: 44 repeater length: 24

12870 357502 GCTAATCTACTATAGAAATTGAAAG TCTGAATTATTGAATTTATACATAAATTACTATCAACAT spacer
length: 39 repeater length: 24

12871 357566 GCTAATCTACTATAGAAATTGAAAG AAAATACTTTTAACTTGATTGCTACGGCGGAACCTTAT spacer
length: 38 repeater length: 24

12872 357629 GCTAATCTACTATAGAAATTGAAAG ATTCCATAAGTTGTAATATTTACGCTTACATTTGTTTTTACT spacer
length: 42 repeater length: 24

12873 357696 GCTAATCTACTATAGAAATTGAAAG TTTCGTGGCTATGGTATTATCTTATCTTCTTCTCCGGT spacer
length: 38 repeater length: 24

12874 357759 GCTAATCTACTATAGAAATTGAAAG TTTTCTCCTGATTTACTTCTTTTCTTTCTTCACTCATTTT spacer
length: 40 repeater length: 24

12875 357824 GCTAATCTACTATAGAAATTGAAAG GAGAAATTAAGAAATGATGGTTTTGAAGTGTTATGGACAC spacer

length: 40 repeater length: 24
12876 357889 GCTAATCTACTATAGAAATTGAAAG TCCGAATAATTACTTCCGTGTAGCTATCAAGAAGATTA spacer
length: 38 repeater length: 24
12877 357952 GCTAATCTACTATAGAAATTGAAAG AGAATTTACAAAGAACTCAGAGGAGCATAATAGGGTAAT spacer
length: 39 repeater length: 24
12878 358016 GCTAATCTACTATAGAAATTGAAAG AATTTCTATACTTCTTTTGAGTAAAATTGGAGCACCCCTGCT spacer
length: 42 repeater length: 24
12879 358083 GCTAATCTACTATAGAAATTGAAAG TCATCAATTCCTAAAGCCTCTTCAATTTCTTCAATGTACA spacer
length: 41 repeater length: 24
12880 358149 GCTAATCTACTATAGAAATTGAAAG GTTAAAGTTGCTGAAAGTGGAGGTTACGTAGAACTATACCTAC spacer
length: 43 repeater length: 24
12881 358217 GCTAATCTACTATAGAAATTGAAAG TATCCGTTAACATGAACATATCGGCAAAACCGAAGGGGA spacer
length: 39 repeater length: 24
12882 358281 GCTAATCTACTATAGAAATTGAAAG AAAC TTGTTTGACAAAGTCAGTATTGCAGACATAAGCA spacer
length: 38 repeater length: 24
12883 358344 GCTAATCTACTATAGAAATTGAAAG ATTTCTATCAATTTCTTAAACTCTTCACTTGAAAGTTCT spacer
length: 39 repeater length: 24
12884 358408 GCTAATCTACTATAGAAATTGAAAG ATATGAACAAAGGTTTATGCTACTGAACAACGCAAAAT spacer
length: 38 repeater length: 24
12885 358471 GCTAATCTACTATAGAAATTGAAAG AAGACGAAGATTATCAGACCTTTATTCATGTCAAATTAGGCT spacer
length: 42 repeater length: 24
12886 358538 GCTAATCTACTATAGAAATTGAAAG AGTTGAAGGAGATGAACGTCTGAGTCATGGGGAGAGTCA spacer
length: 39 repeater length: 24
12887 358602 GCTAATCTACTATAGAAATTGAAAG TAAATTATGCCCATAGCCCCAAAAGCTCTTGAAAAAGCA spacer
length: 40 repeater length: 24
12888 358667 GCTAATCTACTATAGAAATTGAAAG GTTTTTGAAAAAATTTTATAATAAACATTTTCAGGGTTTG spacer
length: 40 repeater length: 24
12889 358732 GCTAATCTACTATAGAAATTGAAAG TAACACATATGAGCTGGAATTATGTTATGAGGAAAACGGA spacer
length: 40 repeater length: 24
12890 358797 GCTAATCTACTATAGAAATTGAAAG GAGCGGGGGTATAGCAATTTTTCGAAAGCAGAAGAGAAAAA spacer
length: 41 repeater length: 24
12891 358863 GCTAATCTACTATAGAAATTGAAAG ACCATTTAGTACTGCAGGGAAAAGGGAAGGGCTACAGGA spacer
length: 39 repeater length: 24
12892 358927 GCTAATCTACTATAGAAATTGAAAG TCTATGTGAAAAGAGCAACCATGCATCTTTCTCTGCATTAA spacer
length: 41 repeater length: 24
12893 358993 GCTAATCTACTATAGAAATTGAAAG ACCTTGTTTTACCATAACCACCTTAACCTACCAACAACTCT spacer
length: 40 repeater length: 24
12894 359058 GCTAATCTACTATAGAAATTGAAAG CGATATTCGAAATACTTACCGCCCTCACCTAACTTTACGT spacer
length: 40 repeater length: 24
12895 359123 GCTAATCTACTATAGAAATTGAAAG ACCCGCATTCTAACACAACACTACGTTTCGCTTTTCGGCA spacer
length: 40 repeater length: 24
12896 359188 GCTAATCTACTATAGAAATTGAAAG AACCAATTATCTCATAATCGTCAGTATTATCGATAACGC spacer
length: 39 repeater length: 24
12897 359252 GCTAATCTACTATAGAAATTGAAAG ATTTTTTTATTCACCTACCGATTTGTGACGAAACGAAACGGA spacer
length: 41 repeater length: 24
12898 359318 GCTAATCTACTATAGAAATTGAAAG TTAATATTTTTTTTTTGGCAAGCCTATTTTTTCTCAACATTT spacer
length: 41 repeater length: 24
12899 359384 GCTAATCTACTATAGAAATTGAAAG CTAAC TTTTTTTTTTGATATACTCTAATTTCTTACTCATTCTTT spacer
length: 42 repeater length: 24
12900 359451 GCTAATCTACTATAGAAATTGAAAG ATTTTTTTTAAAGAGGCCACTTTTTTATTCCTAGTCTGAA spacer
length: 38 repeater length: 24
12901 359514 GCTAATCTACTATAGAAATTGAAAG CATTTAGCCTTAACTCAAACCTTGTCATACCCGAATCCTCAA spacer
length: 42 repeater length: 24
12902 359581 GCTAATCTACTATAGAAATTGAAAG ATGGCACTGGGGTCGTCAAAAAGCACTACGTCATAACGT spacer
length: 39 repeater length: 24
12903 359645 GCTAATCTACTATAGAAATTGAAAG CTCCCTCTCTCTGTCTATCCTAACTTTTGAAC TTA CTTTCT spacer
length: 41 repeater length: 24
12904 359711 GCTAATCTACTATAGAAATTGAAAG AGTGATTATTTTAGAATATGTCCCGCCATACCAATAGAAAG spacer
length: 41 repeater length: 24
12905 359777 GCTAATCTACTATAGAAATTGAAAG GTATTGCTCATTATTGATTGATTAACGACTTATCTAACT spacer
length: 40 repeater length: 24
12906 359842 GCTAATCTACTATAGAAATTGAAAG AATTGATGAAATATTCTTCTATCCAATGTCGTTTAATG spacer
length: 38 repeater length: 24
12907 359905 GCTAATCTACTATAGAAATTGAAAG TTCTCCTTTCTCCTCTTTCCATTTCCCGATAAGTATTATT spacer
length: 40 repeater length: 24
12908 359970 GCTAATCTACTATAGAAATTGAAAG GTGATAGGGTTAAAAATAAGGGATAAACACATAGG spacer length:
35 repeater length: 24
12909 360030 GCTAATCTACTATAGAAATTGAAAG GATCTTGACCGGGTTTGACCTATGGAAACAGCAATAATA spacer
length: 39 repeater length: 24
12910 360094 GCTAATCTACTATAGAAATTGAAAG TGTCTAGCTAATTGTAAATGATAATTAATAACTTTTGGAT spacer
length: 40 repeater length: 24

12911 360159 GCTAATCTACTATAGAAATTGAAAG AATGACGATTTCTGTTCTCAACGTTGACGCAAAGACGGCG spacer
length: 40 repeater length: 24
12912 360224 GCTAATCTACTATAGAAATTGAAAG AAATGTCCTCAAAAACAACGTGATAGATCCTTACGAGACAG spacer
length: 41 repeater length: 24
12913 360290 GCTAATCTACTATAGAAATTGAAAG GGTCTTGCTCTCATGAAGACCACTGCCTCACCAACTGAT spacer
length: 39 repeater length: 24
12914 360354 GCTAATCTACTATAGAAATTGAAAG CACTCTTTCTCCTATTGCTATTTTTCCCTCTTCATCATTTTC spacer
length: 42 repeater length: 24
12915 360421 GCTAATCTACTATAGAAATTGAAAG GGGAATCATAGATTAAGATAGAGGGTGGAATAAATGTCCC spacer
length: 41 repeater length: 24
12916 360487 GCTAATCTACTATAGAAATTGAAAG ACTTTGACTTGTTTTTGTCATCTTTTTATCCCCAAT spacer length:
35 repeater length: 24
12917 360547 GCTAATCTACTATAGAAATTGAAAG TTTCGCTTAAGAATAACGCCTTTTCTACTTTCTCTTTGTT spacer
length: 40 repeater length: 24
12918 360612 GCTAATCTACTATAGAAATTGAAAG TTGGAATTACGTAAAATTTCTAAATTATTCTTACGTA spacer length:
37 repeater length: 24
12919 360674 GCTAATCTACTATAGAAATTGAAAG TTTTTATTATTATCCTTAAGTTATATCCCTATCAATGATTTT spacer
length: 42 repeater length: 24
12920 360741 GCTAATCTACTATAGAAATTGAAAG
ATCATAAAAGAATGGCAAAAGTACAGTACTCAACAATTAACAGAGGCTAATCTAGTATAGAAATTGAAAGACGATATAAACATGCCT
AAAGAAGTCTTCCAGATCAAGTT spacer length: 109 repeater length: 24
12921 360875 GCTAATCTACTATAGAAATTGAAAG
AGCTTTTGCAATAACTTTTCCATAAAATGTAACAACACAAAGAACTAAAACATGAATTTTATGAGTTGACAAAAGATAAAAAATT
TTTGTAACAACACAAAGAACTA
12922
12923
12924 crispr 3
12925 597389 GTAACAACACAAAGAACTAAAAC AAAAAGTCATTCTTTTTTTTATAATCCAAGAGATAA spacer length:
36 repeater length: 24
12926 597450 GTAACAACACAAAGAACTAAAAC ATAATCAGAAATCATAAAATAGAGAAAAATGCAAACT spacer length:
37 repeater length: 24
12927 597512 GTAACAACACAAAGAACTAAAAC TGGATTACCATTTTCCACCTCTATTCTCTATAA spacer length: 34
repeater length: 24
12928 597571 GTAACAACACAAAGAACTAAAAC TAGAGTTAAGGTCGCATGACAATAACATAATAATT spacer length:
35 repeater length: 24
12929 597631 GTAACAACACAAAGAACTAAAAC AACGTTAATAGAGACACTTGGGTCTTATTTTCAC spacer length: 34
repeater length: 24
12930 597690 GTAACAACACAAAGAACTAAAAC AAAATTTAGAAAGTAGGAGAAAAGAACAATCTATAGAG spacer
length: 38 repeater length: 24
12931 597753 GTAACAACACAAAGAACTAAAAC ACTGGAGCTTTTGCAATAACTTTTCCATAAAA spacer length: 32
repeater length: 24
12932 597810 GTAACAACACAAAGAACTAAAAC ATGAATTTTATGAGTTGACAAAAGATAAAAAATTTT spacer length:
36 repeater length: 24
12933 597871 GTAACAACACAAAGAACTAAAAC TTAAAATACTCATCAAATGTAAGGTATTTTATAA spacer length: 34
repeater length: 24
12934 597930 GTAACAACACAAAGAACTAAAAC TAAAAGTTCCGTGTTTTTGACGAGCGTGAAATTTT spacer length:
36 repeater length: 24
12935 597991 GTAACAACACAAAGAACTAAAAC AATCTCTCTTTTTTGACCATTTTCATCATAATAAA spacer length:
35 repeater length: 24
12936 598051 GTAACAACACAAAGAACTAAAAC CAACAATATATTTTGAATGGAGCTAAGGTAATCG spacer length: 34
repeater length: 24
12937 598110 GTAACAACACAAAGAACTAAAAC TAATGTAAATGCCAGCTTTGTTTCACCAGATACCT spacer length:
35 repeater length: 24
12938 598170 GTAACAACACAAAGAACTAAAAC TTATTTGTCAGTAGCAAGCGGAAGTAAGGCAAA spacer length: 33
repeater length: 24
12939 598228 GTAACAACACAAAGAACTAAAAC ACAAAAAGGAGTTACGTTAGCAAAAGAAGACTAGA spacer length:
35 repeater length: 24
12940 598288 GTAACAACACAAAGAACTAAAAC ATGTCTATGCTTGGGCTACTGGAAAATGCACAGT spacer length: 34
repeater length: 24
12941 598347 GTAACAACACAAAGAACTAAAAC ATAGTGATTGTGGCTTCATCAGAAAGATTAAGA spacer length: 33
repeater length: 24
12942 598405 GTAACAACACAAAGAACTAAAAC TTCGCTATTATTAGCGTTATACCTAGCGAAAAAAC spacer length:
35 repeater length: 24
12943 598465 GTAACAACACAAAGAACTAAAAC TTTTTTGTTTCTTGTTTTGTCATTTATTTTACCC spacer length:
35 repeater length: 24
12944 598525 GTAACAACACAAAGAACTAAAAC AGCCCTCACCAGAGTGATGATTAGCGAAAGAACCA spacer length:
35 repeater length: 24
12945 598585 GTAACAACACAAAGAACTAAAAC TCTTCGTCAAAAAATAATATGTTCTTATTTGATC spacer length:
35 repeater length: 24
12946 598645 GTAACAACACAAAGAACTAAAAC AATTGGTGGATTAATCAACCTAAGTCGAAAATCAAT spacer length:
37 repeater length: 24

12947 598707 GTAACAACACAAAAGAACTAAAAAC ACCGTATAGTGTCACTATTTCCCATAGTCGTCA spacer length: 34
repeater length: 24
12948 598766 GTAACAACACAAAAGAACTAAAAAC TATGCTTTTGAATGTCTGTTCTTCTGAATTCGATA spacer length:
35 repeater length: 24
12949 598826 GTAACAACACAAAAGAACTAAAAAC AAAAGAAAAACTTAAAAAGAAGAAGAAAAATAAAAAA spacer length:
36 repeater length: 24
12950 598887 GTAACAACACAAAAGAACTAAAAAC TAATTTTTTCTGCTATGGCGGAACCTCATGCATAC spacer length: 34
repeater length: 24
12951 598946 GTAACAACACAAAAGAACTAAAAAC TCTTCTTTCATACAAAGGAATTTTCTGTTCTTCT spacer length: 34
repeater length: 24
12952 599005 GTAACAACACAAAAGAACTAAAAAC AACACCCTAGGTTCCCTTAGCACCTCAGGTTGT spacer length: 33
repeater length: 24
12953 599063 GTAACAACACAAAAGAACTAAAAAC AAAAAAGATTAACCTGGAAACAATTCCGCAAGAACCT spacer length:
37 repeater length: 24
12954 599125 GTAACAACACAAAAGAACTAAAAAC TTTTATGAGTTGACAAAAGATAAAAAATTTTGTAAAC
12955
12956
12957 crispr 4
12958 573744 GTTTATAGTTTCTTTGTGTTGTTAC ATTCTCAATATTTTAGTGCCAATTTGCCATATTA spacer length: 34
repeater length: 24
12959 573803 GTTTATAGTTTCTTTGTGTTGTTAC AGTATGAATGGCAGACGAAAAGTTGTATCGTAAAA spacer length:
35 repeater length: 24
12960 573863 GTTTATAGTTTCTTTGTGTTGTTAC GCGTTAGGCGCAATTAATGCAGAATATAAAGAAA spacer length: 34
repeater length: 24
12961 573922 GTTTATAGTTTCTTTGTGTTGTTAC AAAAGTTAAGTAAATTTGTAGATCAGTTTTTTGA spacer length: 34
repeater length: 24
12962 573981 GTTTATAGTTTCTTTGTGTTGTTAC TCCAGGTGAGGAAGTTGGTGAAGAGAATAAACAG spacer length:
35 repeater length: 24
12963 574041 GTTTATAGTTTCTTTGTGTTGTTAC ATTGGAGAAGTAAACGATAGTTTCATATTGCTCTA spacer length:
35 repeater length: 24
12964 574101 GTTTATAGTTTCTTTGTGTTGTTAC ATTTCTTTATAATCACTTTCACCTTAGCCTCAAGGGC spacer length:
36 repeater length: 24
12965 574162 GTTTATAGTTTCTTTGTGTTGTTAC ACTGCTTGACTATTTACAGAACGCCAGGGTCTCCT spacer length:
35 repeater length: 24
12966 574222 GTTTATAGTTTCTTTGTGTTGTTAC ATATTTAAAGAACTTATGGAATTTTACGGAATAA spacer length: 34
repeater length: 24
12967 574281 GTTTATAGTTTCTTTGTGTTGTTAC AAATTGATACATTTGTTTGGGTGAGGTAGCATG spacer length: 33
repeater length: 24
12968 574339 GTTTATAGTTTCTTTGTGTTGTTAC AAAGTGGGGATAAAAAATGAATGTAAGTCAAAAAGA spacer length:
36 repeater length: 24
12969 574400 GTTTATAGTTTCTTTGTGTTGTTAC AAATATATTGTTTGATCTTCCCGATAATACAG spacer length: 32
repeater length: 24
12970 574457 GTTTATAGTTTCTTTGTGTTGTTAC ATAAATGAAGTTAGAGGAATTTATTATGTTCCACAA spacer length:
36 repeater length: 24
12971 574518 GTTTATAGTTTCTTTGTGTTGTTAC ATATAAGCAGCTTTCATTATGATATTTTTGTAC spacer length: 33
repeater length: 24
12972 574576 GTTTATAGTTTCTTTGTGTTGTTAC AGCCGTTTCAAGACCAGTGATTATAAGGTATGTGAT spacer length:
36 repeater length: 24
12973 574637 GTTTATAGTTTCTTTGTGTTGTTAC ATCAGCAACGCATATACATATGCCAGCCTATCAG spacer length: 34
repeater length: 24
12974 574696 GTTTATAGTTTCTTTGTGTTGTTAC AATTATTAAAGTCACGGATACAATAGAATTGGTG spacer length: 34
repeater length: 24
12975 574755 GTTTATAGTTTCTTTGTGTTGTTAC CTTTCATGATATCGCAATAACTAAGGACGGAAAAATA spacer length:
36 repeater length: 24
12976 574816 GTTTATAGTTTCTTTGTGTTGTTAC GCGAAAGGCGATTGTGGAATGTTATCAGCTAAAA spacer length: 34
repeater length: 24
12977 574875 GTTTATAGTTTCTTTGTGTTGTTAC CTGTCTTTTGACATCGTCCGCACCTGCGAGAAT spacer length: 33
repeater length: 24
12978 574933 GTTTATAGTTTCTTTGTGTTGTTAC TTAGAATACATAATAAAAAACATTTCAAATAGCA spacer length: 33
repeater length: 24
12979 574991 GTTTATAGTTTCTTTGTGTTGTTAC CTCTACTATTGTATCCAACTCTGCTACAAAAT spacer length: 33
repeater length: 24
12980 575049 GTTTATAGTTTCTTTGTGTTGTTAC TACGCATACGGGAGAATCATGAGGCTTGTCGAGA spacer length: 34
repeater length: 24
12981 575108 GTTTATAGTTTCTTTGTGTTGTTAC GCGATTCTAACTTTACTGCAGTACCTAAATTAAT spacer length: 34
repeater length: 24
12982 575167 GTTTATAGTTTCTTTGTGTTGTTAC GAGTACTGTAGTAGCGGTCAATCAATAAAGG spacer length: 32
repeater length: 24
12983 575224 GTTTATAGTTTCTTTGTGTTGTTAC TTACTTACTAAATGGAGCGAATAATCAGGTCAA spacer length: 33
repeater length: 24
12984 575282 GTTTATAGTTTCTTTGTGTTGTTAC CTACATACACAATCAATTACGCACCTAGGGCAAA spacer length: 34

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repeater length: 24
12985 575341 GTTTAGTTTCTTTGTGTTGTTAC AAATAGATGTCTGATGAAATAAATAAAGCATATCTA spacer length:
36 repeater length: 24
12986 575402 GTTTAGTTTCTTTGTGTTGTTAC TGATAGCTGCATAAGTATATAAGAAATAAGAAATTC
12987
12988
12989 GCA_000385565.1_ASM38556v1_genomic.fna(findCrispr):
12990 START REPEAT
SPACER
12991 crispr 1
12992 1677582 GTTGGGGTTGGTGTGGATGTTGGTGTGTTGGTTCAGG
AGTGGATGTTGGGGTTGGGGTAGGTTTCAGGAGTGGGTGTTGGAGTGGTTGGCACGGG spacer length: 57 repeater
length: 35
12993 1677675 GTTGGGGTTGGTGTGGATGTTGGTGTGTTGGTTCAGG
AGTGGATGTTGGGGTTGGGGTTGGAGTAGTTGGAATTGATGTAGCTGGTGGTTTGGTTGGGGTTGGGGTAGGTTTCAGGATTGGATG
TTGGGGTTGGGGTTGGAGTAGTTGGCACAGG spacer length: 117 repeater length: 35
12994 1677828 GTTGGGGTTGGTGTGGATGTTGGTGTGTTGGTTCAGG
CATTCATGGTGTACGATACGAGAGGAAATATGGGGGTCAAAAAGAAACATGGGTAATCTTTTTACAGAGTGCTTGATACGAGAGGA
AATGGGGGTGTCCTTCCAATCCTAGGACACC
12995
12996
12997 crispr 2
12998 78564 AATAGCTTATGTGCGGATTTCCGTTTCGAGTCAAGGGCTA
GTGATGGATGTCTGCCACCTCCACTGCTGTCAACTGTTTCAATAACTCGCTCCCATTCATGCTGAATTGGGTTGAAAAACATTTCT
GCATACTTTTATCTCGCCGAATGTGTTGTTGTAGTAATAG spacer length: 125 repeater length: 39
12999 78729 AATAGCTTATGTGCGGATTTCCGTTTCGAGTCAAGGGCTA
GTGATGTGTAAGGGTATACCATCCAAGTGGAAACATCCAACCTCAACGAATACGGTATGCCACCCGAAGATGTCCTTATATGCATAT
TTTATACTACCATATTATATAA spacer length: 107 repeater length: 39
13000 78876 AATAGCTTATGTGCGGATTTCCGTTTCGAGTCAAGGGCTA
ATGGTGTACGATACGAGAGGAAATATGGGGGTCAAAAAGAAACATGGGTAATCTTTTTACAGAGTGCTTGATACGAGAGGAAATGG
GGGTGTCCTTCCAATCCTAGG
13001
13002
13003 crispr 3
13004 1191021 ACCTTGAATTAAGATGTAAAACTAACACCATCTTTCAATC
CTACAGTCTGATCATTCATGGTGTACGATACGAGAGGAAATATGGGGGTCAAAAAGAAACATGGGTAATCTTTTTACAGAGTGCTT
GATACGAGAGGAAATGGGGGTGTCCTTCCAATCCTAGGA spacer length: 125 repeater length: 40
13005 1191187 ACCTTGAATTAAGATGTAAAACTAACACCATCTTTCAATC
CTACAGTCTGATCATTCATGGTGTACGATACGAGAGGAAATATGGGGGTCAAAAAGAAACATGGGTAATCTTTTTACAGAGTGCTT
GATACGAGAGGAAATGGGGGTGTCCTTCCAATCCTAGGA spacer length: 125 repeater length: 40
13006 1191353 ACCTTGAATTAAGATGTAAAACTAACACCATCTTTCAATC
CTACAGTCTGATCATTCATGGAGTACGATACGAGAGGAAATATGGGGGTCAAAAAGAAACATGGGTAATCTTTTTACAGAGTGCTT
GATACGAGAGGAAATGGGGGTGTCCTTCCAATCCTAGGA spacer length: 125 repeater length: 40
13007 1191519 ACCTTGAATTAAGATGTAAAACTAACACCATCTTTCAATC
TACGATACGAGAGGAAATATGGGGGTCAAAAAGAAACATGGGTAATCTTTTTACAGAGTGCTTGATACGAGAGGAAATGGGGGTGT
CCTTCCAATCCTAGGACACCTTGAATTAAGATGTAAAC
13008
13009
13010 GCA_000403645.1_ASM40364v1_genomic.fna(findCrispr):
13011 START REPEAT
SPACER
13012 crispr 1
13013 360303 GAGTCGTCCGACGAGTCGTCGCTGTCGTCG CCGTCGTCTCATCACTGTC spacer length: 20
repeater length: 30
13014 360354 GAGTCGTCCGACGAGTCGTCGCTGTCGTCG CCGTCGTCTCATCACTGCC spacer length: 20
repeater length: 30
13015 360405 GAGTCGTCCGACGAGTCGTCGCTGTCGTCG CCATCTCGAGTTCGCCCTCG
13016
13017
13018 GCA_000404165.1_ASM40416v1_genomic.fna(findCrispr):
13019 START REPEAT
SPACER
13020 crispr 1
13021 1911195 ACTATTTTTAAATATTGAAT CTTATAAAGAAGAAAAATAGTATGCTAAAATAAAAAAGATAAA spacer
length: 44 repeater length: 20
13022 1911260 ACTATTTTTAAATATTGAAT ATTATAAAAAAGAAAAAGAGTATGCTAAAATAAAAAAGATAAA spacer
length: 44 repeater length: 20
13023 1911325 ACTATTTTTAAATATTGAAT ATTATAAAAAAGAAAAAGAGTATGCTAAAATAAAAAAGATAAA spacer
length: 44 repeater length: 20
13024 1911390 ACTATTTTTAAATATTGAAT AATAGAATACAAATCAAATCCAATGATAAAAAATGAACTTCAA
13025
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13026
13027 crispr 2
13028 391951 GTTTCATTTAGTTTTTAACTGGGA GTTTCATTTTTTAATTTGGT spacer length: 20 repeater length: 24
13029 391996 GTTTCATTTAGTTTTTAACTGGGA GTTTCATTTTTTAATTTGGT spacer length: 20 repeater length: 24
13030 392041 GTTTCATTTAGTTTTTAACTGGGA GTTTCGTTTTTAGTTTGGT spacer length: 20 repeater length: 24
13031 392086 GTTTCATTTAGTTTTTAACTGGGA GTTTCGTTTTTAGTTTGGT spacer length: 20 repeater length: 24
13032 392131 GTTTCATTTAGTTTTTAACTGGGA AATCTAAAACTCTACTCTT
13033
13034
13035 crispr 3
13036 134110 AATCCCATAAATGGTCTTATTTTAAT AAGCAAGAAATGATTAATTACGACGTTATAGACGATTT spacer length: 38 repeater length: 25
13037 134174 AATCCCATAAATGGTCTTATTTTAAT TTATAGAGAATGTTGAAGAGTATGTGCGAGAATTTTAATTT spacer length: 41 repeater length: 25
13038 134241 AATCCCATAAATGGTCTTATTTTAAT AATTAAATCATATGCTTTTAGCCTCTTTAACTCTATATTT spacer length: 40 repeater length: 25
13039 134307 AATCCCATAAATGGTCTTATTTTAAT AAGTAACTTATCATCTATATCTGCTTTATAATTAGAATTT spacer length: 40 repeater length: 25
13040 134373 AATCCCATAAATGGTCTTATTTTAAT TAAACCGTACTGGTATCAACGGTAGGGTATTGACCAAATTT spacer length: 41 repeater length: 25
13041 134440 AATCCCATAAATGGTCTTATTTTAAT ATTGAAAGGAAAAAATTATAATTCTCCTTTCTCATTATTT spacer length: 41 repeater length: 25
13042 134507 AATCCCATAAATGGTCTTATTTTAAT ATATACTCTACTATACAATATTAAATTGTAGTTTGATTT spacer length: 39 repeater length: 25
13043 134572 AATCCCATAAATGGTCTTATTTTAAT TTATTCGAATGTTGATATTGAAAATCTTCGATTAGTATTT spacer length: 40 repeater length: 25
13044 134638 AATCCCATAAATGGTCTTATTTTAAT TTTGATTCAAGTTATATGTAGTTTTGGTGATTTAGGATTT spacer length: 39 repeater length: 25
13045 134703 AATCCCATAAATGGTCTTATTTTAAT ATGGAGTCCGAGGAATTCACACCACTTTTTGGTGAAATTT spacer length: 40 repeater length: 25
13046 134769 AATCCCATAAATGGTCTTATTTTAAT AATATTAAGCATATTGATATTAAGAGACTATAACAAGATTT spacer length: 41 repeater length: 25
13047 134836 AATCCCATAAATGGTCTTATTTTAAT CTTTAAACCGTTTTTTTAAATAAATAGGATGGAAAATTT spacer length: 39 repeater length: 25
13048 134901 AATCCCATAAATGGTCTTATTTTAAT CAGGAACTCATCAACACTATTCAGATTATGATAATATTT spacer length: 39 repeater length: 25
13049 134966 AATCCCATAAATGGTCTTATTTTAAT ATTATATAATACTTTTAATTTAGCATTGTGCCCTGTTAATTT spacer length: 42 repeater length: 25
13050 135034 AATCCCATAAATGGTCTTATTTTAAT TAAATCTATTTCTAATAGGGATACTGAAATATCAATATTT spacer length: 40 repeater length: 25
13051 135100 AATCCCATAAATGGTCTTATTTTAAT GATATTAACCTTAAATATAATGATGAGAATAACAAAATTT spacer length: 40 repeater length: 25
13052 135166 AATCCCATAAATGGTCTTATTTTAAT ATAAATATCTAAGCTCCTAAATCGAAAGGTATAGCAAATTT spacer length: 41 repeater length: 25
13053 135233 AATCCCATAAATGGTCTTATTTTAAT GATATTGGATTGTTGAAAATCCAAACCTTTATATACTAATTT spacer length: 42 repeater length: 25
13054 135301 AATCCCATAAATGGTCTTATTTTAAT ACTATAATGGTTCAAATATGGTTAATCCTTTAAGTAATTT spacer length: 40 repeater length: 25
13055 135367 AATCCCATAAATGGTCTTATTTTAAT TCACTATATCATTTTTACGGTTTAGGGGTATGTTTGAATTT spacer length: 41 repeater length: 25
13056 135434 AATCCCATAAATGGTCTTATTTTAAT TCAATTAACGGCAACAACCTATATTACAGTTGATGGTATTT spacer length: 40 repeater length: 25
13057 135500 AATCCCATAAATGGTCTTATTTTAAT TCAATTAACGGCAACAACCTATATTACAGTTGATGGTATTT spacer length: 40 repeater length: 25
13058 135566 AATCCCATAAATGGTCTTATTTTAAT
GATATGATCCACCTTGAAATGTTTGATTAATTGATTTCAATCCCATAAATAGTCTTATTTTAATTGTTTCGTTGTCTTCTTCATGT
TTTCAGATTTTCAAAAATTT spacer length: 105 repeater length: 25
13059 135697 AATCCCATAAATGGTCTTATTTTAAT GAGAGGAAATCAACACTCCAATCATTATGCTTGATAATATTT spacer length: 42 repeater length: 25
13060 135765 AATCCCATAAATGGTCTTATTTTAAT TTAAAAGGGTTGCAAGGATACTTCGTAACACTGCATATTT spacer length: 40 repeater length: 25
13061 135831 AATCCCATAAATGGTCTTATTTTAAT TTAATATAAGTATTGATGAGGTTCTTGATAGTGAATATTT spacer length: 40 repeater length: 25
13062 135897 AATCCCATAAATGGTCTTATTTTAAT AAAAATGATAAAGTGGAATGAATTTTGAATTTAAAGATTT spacer length: 41 repeater length: 25
13063 135964 AATCCCATAAATGGTCTTATTTTAAT TTTATCTTTTTTTGTTTCATCTTACCAAATTCGCGGTTATTT spacer length: 41 repeater length: 25

13064 136031 AATCCCAT AATGGTCTTATTTTAAT CCATCATTCTCGGGGTATCCTTTACGAAGATAATACTATTT spacer
length: 41 repeater length: 25

13065 136098 AATCCCAT AATGGTCTTATTTTAAT TTCTTTTTCAAGCTCTTTAATTTTCTTTTCCATTTCTATTT spacer
length: 41 repeater length: 25

13066 136165 AATCCCAT AATGGTCTTATTTTAAT TAATATAGGCGGCGACCTTATAGACTGTATTATTTAATTT spacer
length: 40 repeater length: 25

13067 136231 AATCCCAT AATGGTCTTATTTTAAT CTTTATATACTATGCATTACAATGTATTATTGTAGTATTT spacer
length: 40 repeater length: 25

13068 136297 AATCCCAT AATGGTCTTATTTTAAT TCGGTTGTGCCTCTCGGTCGGTGGGTTGTGTCGCTATTT spacer
length: 39 repeater length: 25

13069 136362 AATCCCAT AATGGTCTTATTTTAAT TAAATCATTATTATAGTAGTGTTTCATATGGTATATAAATTT spacer
length: 41 repeater length: 25

13070 136429 AATCCCAT AATGGTCTTATTTTAAT CAGAAAGTGGAAAATGGAACCTGAATTATAATATGATTT spacer
length: 39 repeater length: 25

13071 136494 AATCCCAT AATGGTCTTATTTTAAT ATGTTTGATGGTATATCTTTAAGGTTACATTTAAGCAATTT spacer
length: 41 repeater length: 25

13072 136561 AATCCCAT AATGGTCTTATTTTAAT TATTAAAGTTATATATTCCAGTTTCTATTGTAATACATTT spacer
length: 40 repeater length: 25

13073 136627 AATCCCAT AATGGTCTTATTTTAAT TTTATGATTTTATTATCTTTAATTTTCATCGTATTGTTATTT spacer
length: 41 repeater length: 25

13074 136694 AATCCCAT AATGGTCTTATTTTAAT GGCATTGAAAGATAAGGGGCATAGTGTTAAGAGTGTATTT spacer
length: 40 repeater length: 25

13075 136760 AATCCCAT AATGGTCTTATTTTAAT ATTCTTTAACTTTAACTCTTCTGAAAGGTTTAAAAATTT spacer
length: 39 repeater length: 25

13076 136825 AATCCCAT AATGGTCTTATTTTAAT CAGAGGCTACTGTGAATATCCTGTTTGAGAATTTTAATTT spacer
length: 40 repeater length: 25

13077 136891 AATCCCAT AATGGTCTTATTTTAAT AAAGAGATCAATAGAATTTTAAATAAATATATAATAATTT spacer
length: 40 repeater length: 25

13078 136957 AATCCCAT AATGGTCTTATTTTAAT AGTTACTTAGATTATGTAAGGATAAAGGTTTTAAAGATTT spacer
length: 40 repeater length: 25

13079 137023 AATCCCAT AATGGTCTTATTTTAAT TAAAAAATTGAAACAGCTGGAACAAACCAATTAATTT spacer
length: 39 repeater length: 25

13080 137088 AATCCCAT AATGGTCTTATTTTAAT GAACCAAACACTAATTACAGTAAAAAATTTTTGTATATTT spacer
length: 40 repeater length: 25

13081 137154 AATCCCAT AATGGTCTTATTTTAAT TACTATTTATAAAAAAAGTATTACTCGAAGATCTTGATTT spacer
length: 40 repeater length: 25

13082 137220 AATCCCAT AATGGTCTTATTTTAAT CTTATAATATATTTTCGTGAAATGAAATTTTTATAAATTT spacer
length: 39 repeater length: 25

13083 137285 AATCCCAT AATGGTCTTATTTTAAT AGGTTTTACCATTACGCATAGTCCACAATGTATGGTAATTT spacer
length: 41 repeater length: 25

13084 137352 AATCCCAT AATGGTCTTATTTTAAT GTATTGCTCCACAGTGTTTCGCATACTTGTTCTGCGATTT spacer
length: 39 repeater length: 25

13085 137417 AATCCCAT AATGGTCTTATTTTAAT ATGGTGATAAAATGAAAACACAATACAGAATGGAAAATTT spacer
length: 40 repeater length: 25

13086 137483 AATCCCAT AATGGTCTTATTTTAAT
GGATTAAACAGTAATTCCAAAAAGCAAAATACAGTATTTCAATCCTATAATGGTCTTATTTTAATTTATACACCACCACAAATAG
ATAATGATATATTAGATTT spacer length: 105 repeater length: 25

13087 137614 AATCCCAT AATGGTCTTATTTTAAT TCATAAAGGTATATCCTACATCTATGGTTAAACGGTATTT spacer
length: 40 repeater length: 25

13088 137680 AATCCCAT AATGGTCTTATTTTAAT TCTTTCCCAAGCGGCAGGACCTGCATTGAAAGGTTATTT spacer
length: 40 repeater length: 25

13089 137746 AATCCCAT AATGGTCTTATTTTAAT CATTCTATTTAATTCCTCTTCACTTGAATATAATTATTT spacer
length: 40 repeater length: 25

13090 137812 AATCCCAT AATGGTCTTATTTTAAT
TAAAAAAGGATTATTAACAACTATAAAGCTGTATTACATTTCAATTCCATAATGGTCTTATTTTAATGATGAGGATTATAATACCA
TTATTGAACCGTTACTTAATTT spacer length: 108 repeater length: 25

13091 137946 AATCCCAT AATGGTCTTATTTTAAT CTTTTTATTTTCATCCACTTTTAAACATACTCCTGCATTT spacer
length: 39 repeater length: 25

13092 138011 AATCCCAT AATGGTCTTATTTTAAT TTTGTTTAATTATTTAATACTTATTTTATAGGTTGTATTT spacer
length: 40 repeater length: 25

13093 138077 AATCCCAT AATGGTCTTATTTTAAT TCCAGACTTCATTTTTGCATAGGGCAACTCTTTAATCATTT spacer
length: 41 repeater length: 25

13094 138144 AATCCCAT AATGGTCTTATTTTAAT TAGTTTTTACCATCTCTTGGTTCAAATACACTAATCTCATTT spacer
length: 42 repeater length: 25

13095 138212 AATCCCAT AATGGTCTTATTTTAAT ATACACAGGGTAAAAGCAGTGAACAGGAATTGGTCATTT spacer
length: 39 repeater length: 25

13096 138277 AATCCCAT AATGGTCTTATTTTAAT ACACCACAGTACTAATAGAGACAGGGGTAGCAGCTGCATTT spacer
length: 41 repeater length: 25

13097 138344 AATCCCAT AATGGTCTTATTTTAAT TAGTGAGGGTAAATTGGATATTAAATGTAAGGACCTATTT spacer
length: 40 repeater length: 25

13098 138410 AATCCCAT AATGGTCTTATTTTAAT TCTTTGATAATCTTATCGCATTATATGTTTCCTGATATTT spacer

length: 40 repeater length: 25
13099 138476 AATCCCATAAATGGTCTTATTTTAAT TATCATTATTGCTTTTCGGAGTGCACCTTCAAAGGTATTT spacer
length: 40 repeater length: 25
13100 138542 AATCCCATAAATGGTCTTATTTTAAT GGAAGAAAACCGAAAGAAAAAATAGATGTTAAATAGATTT spacer
length: 41 repeater length: 25
13101 138609 AATCCCATAAATGGTCTTATTTTAAT GTGAAGTTGCCTGGGACAAGTTTTGGCAGGCAATTAAATTT spacer
length: 41 repeater length: 25
13102 138676 AATCCCATAAATGGTCTTATTTTAAT AAGAGAAATTCCTTAAACACATCATGGATGAAATCGTATTT spacer
length: 41 repeater length: 25
13103 138743 AATCCCATAAATGGTCTTATTTTAAT AATCGATGAGTTAGTGCAAAATGATGAGTTTTCAAATTT spacer
length: 39 repeater length: 25
13104 138808 AATCCCATAAATGGTCTTATTTTAAT AAGCTTGAAGATTTTTCCCTAATGTGTGATAATTGTAGATTT spacer
length: 42 repeater length: 25
13105 138876 AATCCCATAAATGGTCTTATTTTAAT ATTTCTCAGCAGAATAATCCTTGAATATATTTTCAATTT spacer
length: 40 repeater length: 25
13106 138942 AATCCCATAAATGGTCTTATTTTAAT CGGCGGCCGCTACCTTAGGATATGATGCTAGTCTTATTT spacer
length: 39 repeater length: 25
13107 139007 AATCCCATAAATGGTCTTATTTTAAT CTCCTATTATTTTTTTGAATTCGGATTCTGTTATTGTATTT spacer
length: 41 repeater length: 25
13108 139074 AATCCCATAAATGGTCTTATTTTAAT AAATGTAAAAAGAAGATACTTCAACAGAAACCTCATATTT spacer
length: 40 repeater length: 25
13109 139140 AATCCCATAAATGGTCTTATTTTAAT TGAATGAAAATAAGTAATATGAAAGAATTGAATGATATTT spacer
length: 40 repeater length: 25
13110 139206 AATCCCATAAATGGTCTTATTTTAAT GTGGATATGGAGCAATTATCATATGATGTTGAATGATTT spacer
length: 39 repeater length: 25
13111 139271 AATCCCATAAATGGTCTTATTTTAAT CAGGTAGAAGCACACCAATAATACTAATTATCATACATTT spacer
length: 41 repeater length: 25
13112 139338 AATCCCATAAATGGTCTTATTTTAAT TGTAAGCTCCATTAAGCTCAGGTGCTTTTTTACCCCAATTT spacer
length: 40 repeater length: 25
13113 139404 AATCCCATAAATGGTCTTATTTTAAT ACTACAATACACCTGTCTGTTATGTGTCTTGTTAAAATTT spacer
length: 40 repeater length: 25
13114 139470 AATCCCATAAATGGTCTTATTTTAAT TCCTTTTTCAATGTATAGTATCCATCATCGTCAGGTATTT spacer
length: 40 repeater length: 25
13115 139536 AATCCCATAAATGGTCTTATTTTAAT TTAAAGACCTCTTTATTATCGAGGCGAGGCTTGTATATTT spacer
length: 40 repeater length: 25
13116 139602 AATCCCATAAATGGTCTTATTTTAAT TATTATATGGAAAGAATATTGTTGAGGATATGAAAGAATTT spacer
length: 41 repeater length: 25
13117 139669 AATCCCATAAATGGTCTTATTTTAAT AGCAATACAATCTATTGCTTTTTGGAGAAGTTCCTTATTT spacer
length: 40 repeater length: 25
13118 139735 AATCCCATAAATGGTCTTATTTTAAT ACGTTGGGAATTTCCAGCCGGTTTTGATTGAGTACATTT spacer
length: 39 repeater length: 25
13119 139800 AATCCCATAAATGGTCTTATTTTAAT TTACAGATAATTTAAACCTCTAAGACTTAATTCTTATTT spacer
length: 40 repeater length: 25
13120 139866 AATCCCATAAATGGTCTTATTTTAAT AAAAAATAAGAAATGAATATTTAATTGATTTTCAATATTT spacer
length: 40 repeater length: 25
13121 139932 AATCCCATAAATGGTCTTATTTTAAT AGGGGGTATTGAATACCTTAAACAACAAATATTAAAATTT spacer
length: 40 repeater length: 25
13122 139998 AATCCCATAAATGGTCTTATTTTAAT CTCAAAGAATTATATTATAATGATAAGGATATGGTATTT spacer
length: 39 repeater length: 25
13123 140063 AATCCCATAAATGGTCTTATTTTAAT CTCAAAGAATTATATTATAATGATAAGGATATGGTATTT spacer
length: 39 repeater length: 25
13124 140128 AATCCCATAAATGGTCTTATTTTAAT TCTATTTCTTTTATGATACTTGTTAAAGCTTCATCATTT spacer
length: 39 repeater length: 25
13125 140193 AATCCCATAAATGGTCTTATTTTAAT ACTGCAATATGGAGTTTTATGGGATTATTAGAAGAATTT spacer
length: 39 repeater length: 25
13126 140258 AATCCCATAAATGGTCTTATTTTAAT TTGATATTTTCAGAACTTGAAAACTATTAATCATATTT spacer
length: 39 repeater length: 25
13127 140323 AATCCCATAAATGGTCTTATTTTAAT AAAAAAGGATTCTTAACAATTATAAAATTGTATTACATTT spacer
length: 40 repeater length: 25
13128 140389 AATCCCATAAATGGTCTTATTTTAAT TTTTCAATAACAATAATTCCAATACTGAAATATATAATTT spacer
length: 40 repeater length: 25
13129 140455 AATCCCATAAATGGTCTTATTTTAAT TTCTATTATGTGTTTGAAGTTCATATGTTATAATATTT spacer
length: 39 repeater length: 25
13130 140520 AATCCCATAAATGGTCTTATTTTAAT CGGTTAAATTTTCCCTTAGGTAATGCTTCACATTCTAAATTT spacer
length: 41 repeater length: 25
13131 140587 AATCCCATAAATGGTCTTATTTTAAT TAGTGCCGTTAATCTAATTCCAAGAGCCAAATATATTAAATTT spacer
length: 43 repeater length: 25
13132 140656 AATCCCATAAATGGTCTTATTTTAAT CAACAAAATAAACAAAGTTTTAGGAGCATTATTTGAATTT spacer
length: 40 repeater length: 25
13133 140722 AATCCCATAAATGGTCTTATTTTAAT GAGTTCCAAAAAACCATGAAGAAATTTCCAAAATAATTT spacer
length: 41 repeater length: 25

13134	140789 AATCCCATAAATGGTCTTATTTTAAT	TCTGACCAACTGCAGGAATTCCATCTGACCAACTGCATTT spacer
	length: 40 repeater length: 25	
13135	140855 AATCCCATAAATGGTCTTATTTTAAT	AAAATGGTCCTGCTGCTTAAGGTCTAATATATCCATTT spacer
	length: 38 repeater length: 25	
13136	140919 AATCCCATAAATGGTCTTATTTTAAT	TTTCTGCATAGTCTGTTAAATCATCTAATATTATAAATTT spacer
	length: 40 repeater length: 25	
13137	140985 AATCCCATAAATGGTCTTATTTTAAT	ATTTATATGAACATAATTCTTATCCAAACCCATTGGATTT spacer
	length: 40 repeater length: 25	
13138	141051 AATCCCATAAATGGTCTTATTTTAAT	AGCTCTGACCACTACCACTTACAAAAAGATTGCATATTT spacer
	length: 40 repeater length: 25	
13139	141117 AATCCCATAAATGGTCTTATTTTAAT	ATGTTGATGAGATTGCTAAAAAGCATTGATTCAATTT spacer
	length: 39 repeater length: 25	
13140	141182 AATCCCATAAATGGTCTTATTTTAAT	AAGGAAACAGAATAAAAGAATGGAGGTATTAAAGTAATTT spacer
	length: 40 repeater length: 25	
13141	141248 AATCCCATAAATGGTCTTATTTTAAT	ATAGACACAGGTGTTTATACTTCTGGTACTGTTATATTT spacer
	length: 39 repeater length: 25	
13142	141313 AATCCCATAAATGGTCTTATTTTAAT	ATTTTATAAATTTTTTCTGTATTGCTGCAGTATTATTT spacer
	length: 40 repeater length: 25	
13143	141379 AATCCCATAAATGGTCTTATTTTAAT	
	AATAGCATATAACATACTATTATATAGCAACCTGCAAGCACATTTCAATCCCATAAATGGTATTATTTTAATCAGCAAATAGAAAAA	
	TCATATATTTTTCTTGTTGTATTT spacer length: 110 repeater length: 25	
13144	141515 AATCCCATAAATGGTCTTATTTTAAT	CTGAATTCGAGGATATGGTCATACAATGTATTGTAATTT spacer
	length: 39 repeater length: 25	
13145	141580 AATCCCATAAATGGTCTTATTTTAAT	TTATCCCCTGCAGATTACCAGTTCAGATTGGTAACATTT spacer
	length: 40 repeater length: 25	
13146	141646 AATCCCATAAATGGTCTTATTTTAAT	TTTCACGTAACATTAATAATATCATATCTGAACATTCATTT spacer
	length: 41 repeater length: 25	
13147	141713 AATCCCATAAATGGTCTTATTTTAAT	CAAATCCATTGATGAGCAATACAATTGAAGTATCTTAATTT spacer
	length: 41 repeater length: 25	
13148	141780 AATCCCATAAATGGTCTTATTTTAAT	TGGTATGATTTCAGAGTCTGCAACATCTGTGGATCAGTATTT spacer
	length: 41 repeater length: 25	
13149	141847 AATCCCATAAATGGTCTTATTTTAAT	ATTTGAATCCGTACTTGTCTGCTTCTCAATAATCATATTT spacer
	length: 40 repeater length: 25	
13150	141913 AATCCCATAAATGGTCTTATTTTAAT	ATAGAAAGTGAAAAATAGGAACTCATATAATATAAATTT spacer
	length: 40 repeater length: 25	
13151	141979 AATCCCATAAATGGTCTTATTTTAAT	TCCTATCAGAGTAACGACCCGTTTATCATAAATCAAATTT spacer
	length: 39 repeater length: 25	
13152	142044 AATCCCATAAATGGTCTTATTTTAAT	AGTTATAATTCTGCTACCTGTTATTTTCAAATATATTATTT spacer
	length: 41 repeater length: 25	
13153	142111 AATCCCATAAATGGTCTTATTTTAAT	TACTTATGAGAGATACTATATTGTAGTTTGTGAGGATTT spacer
	length: 39 repeater length: 25	
13154	142176 AATCCCATAAATGGTCTTATTTTAAT	ATTTCCATTGAGATTTCTGAGATTTTGCTTTGGGATATTT spacer
	length: 40 repeater length: 25	
13155	142242 AATCCCATAAATGGTCTTATTTTAAT	CTTTGGGATTGGAGAGATGATGGATACGATGATGAGATTT spacer
	length: 40 repeater length: 25	
13156	142308 AATCCCATAAATGGTCTTATTTTAAT	TTCTCCATTACTCAAATCCAATTGCACAACACCATATTT spacer
	length: 39 repeater length: 25	
13157	142373 AATCCCATAAATGGTCTTATTTTAAT	CTTGAAGATTTTCAGTTTGATGTGTGATAATTGTAGATTT spacer
	length: 39 repeater length: 25	
13158	142438 AATCCCATAAATGGTCTTATTTTAAT	TTTATGGTATAATGATAAGTCCGACCGTAATTATCTGTATTT spacer
	length: 42 repeater length: 25	
13159	142506 AATCCCATAAATGGTCTTATTTTAAT	AACGGGATGGATCTTGGCTTTATCCCTCTAGTACTTAATTT spacer
	length: 41 repeater length: 25	
13160	142573 AATCCCATAAATGGTCTTATTTTAAT	AGATGACATTTTATTCATTAAAACAAGTAAATTTAAATTT spacer
	length: 40 repeater length: 25	
13161	142639 AATCCCATAAATGGTCTTATTTTAAT	TAAACTAAAAATTATTTTTTTTTTGGAGGCATATAGTTAATTT spacer
	length: 42 repeater length: 25	
13162	142707 AATCCCATAAATGGTCTTATTTTAAT	CAAATAAAAGACGAGCAAGTCGACGACTTCGAGGAGTATTT spacer
	length: 41 repeater length: 25	
13163	142774 AATCCCATAAATGGTCTTATTTTAAT	ATCCTTTTTCAATGTGTAGTATCCGTCATCGTCAGGTATTT spacer
	length: 41 repeater length: 25	
13164	142841 AATCCCATAAATGGTCTTATTTTAAT	ATATGATTTTTAAACCATGTTATAACAGGTTAGCTAATTT spacer
	length: 40 repeater length: 25	
13165	142907 AATCCCATAAATGGTCTTATTTTAAT	GCTCTACAGCAGGTGGGTCAACAAGCATTAAGTTTATTT spacer
	length: 39 repeater length: 25	
13166	142972 AATCCCATAAATGGTCTTATTTTAAT	CTGACCCTATATTGATTTCTTTGATTATACTGGAAAATTT spacer
	length: 41 repeater length: 25	
13167	143039 AATCCCATAAATGGTCTTATTTTAAT	GAGGTTTCCGTGCAAACGGCGAATACTATCCAGGTCTATTT spacer
	length: 41 repeater length: 25	
13168	143106 AATCCCATAAATGGTCTTATTTTAAT	CCATTGCTCAAAGCAATACTTATACCATTATCCTATTT spacer
	length: 38 repeater length: 25	

13169	143170	AATCCCATAATGGTCTTATTTTAAT	AAACAACCAGTTACAAGTTGTATCGTAGGGGTAACAATTT	spacer
	length:	40	repeater length:	25
13170	143236	AATCCCATAATGGTCTTATTTTAAT	ACGTAGAATTTCAATAGCTGTACTGAATGAAATCTGATTT	spacer
	length:	40	repeater length:	25
13171	143302	AATCCCATAATGGTCTTATTTTAAT	GAAAAAGGAGAGCATAATCTTATTTTCATCAGAGATTTATTT	spacer
	length:	41	repeater length:	25
13172	143369	AATCCCATAATGGTCTTATTTTAAT	CTACATAATCACCATCACAGGAAACATTGAAGAAGAATTT	spacer
	length:	40	repeater length:	25
13173	143435	AATCCCATAATGGTCTTATTTTAAT	ATCATCTGTCTTACTCCAATGTTTCACACCAATTTAAATTT	spacer
	length:	40	repeater length:	25
13174	143501	AATCCCATAATGGTCTTATTTTAAT	AAGACAAAGTTACTTGCAGATATTCAAAGAAATAATTT	spacer
	length:	39	repeater length:	25
13175	143566	AATCCCATAATGGTCTTATTTTAAT	ATGATAGACGCTATTAAAGCGGGTATTACTAGGCTTATTT	spacer
	length:	40	repeater length:	25
13176	143632	AATCCCATAATGGTCTTATTTTAAT	TTTATAACGGTGGAGTGTGCGAAAAACGATATTTTAAATTT	spacer
	length:	41	repeater length:	25
13177	143699	AATCCCATAATGGTCTTATTTTAAT	ATAACTGGAAATGATTAATTATGTATCTTAATCAGGAATTT	spacer
	length:	41	repeater length:	25
13178	143766	AATCCCATAATGGTCTTATTTTAAT	AAGCATCCAATTTATCTTCCTCATACTTCTTAATAAAATTT	spacer
	length:	41	repeater length:	25
13179	143833	AATCCCATAATGGTCTTATTTTAAT	ACGACAAATAAGTCATCATCAACAAAATCTACCTTATTT	spacer
	length:	39	repeater length:	25
13180	143898	AATCCCATAATGGTCTTATTTTAAT	ATGGGGACGTCGTGTTAGAAACCTTCTAAAAGCAATATTT	spacer
	length:	40	repeater length:	25
13181	143964	AATCCCATAATGGTCTTATTTTAAT	AATGCAGACGGTACAAAACAAGTCCGTACCGATGGCATTT	spacer
	length:	40	repeater length:	25
13182	144030	AATCCCATAATGGTCTTATTTTAAT	AACTGGTCTTGCAGTATTGTTGATGTTACTGCATTAATTT	spacer
	length:	41	repeater length:	25
13183	144097	AATCCCATAATGGTCTTATTTTAAT	GAGGAGGCTATCAGTATATATACTGAGGCTTTAGCTAATTT	spacer
	length:	41	repeater length:	25
13184	144164	AATCCCATAATGGTCTTATTTTAAT	CCTGCAAAACAGATACAAGCTTGGCTTAAAAAGCAATTT	spacer
	length:	39	repeater length:	25
13185	144229	AATCCCATAATGGTCTTATTTTAAT	CTTTTGTTTATAATTATGTTTTTTTGCTCCTAACTTGATTT	spacer
	length:	40	repeater length:	25
13186	144295	AATCCCATAATGGTCTTATTTTAAT	TGGGAATTGGTGTCTTTTTATAAAGAACTTCTTTCATTT	spacer
	length:	40	repeater length:	25
13187	144361	AATCCCATAATGGTCTTATTTTAAT	CTTTTTAGTGAAACCATTACGTAAAGTACTGAAAGCATTT	spacer
	length:	40	repeater length:	25
13188	144427	AATCCCATAATGGTCTTATTTTAAT	AAGGTCTTCAATAAGTTCTATCTCGTCATTTGTGTAATTT	spacer
	length:	40	repeater length:	25
13189	144493	AATCCCATAATGGTCTTATTTTAAT	AAAAAGCAAAAAAGAGAATTAAAGATTTTTTAAATCATTT	spacer
	length:	41	repeater length:	25
13190	144560	AATCCCATAATGGTCTTATTTTAAT	ACTCAACTTGGAGATTCTACTCAAACAGGTTTCAGATTT	spacer
	length:	39	repeater length:	25
13191	144625	AATCCCATAATGGTCTTATTTTAAT	CATTAATTCAACTTAGCATCGGAAAGAATAGTCTGATTT	spacer
	length:	40	repeater length:	25
13192	144691	AATCCCATAATGGTCTTATTTTAAT	TGGAGACGGATCTATTATTTATCCAAGCGTTACCTAATTT	spacer
	length:	40	repeater length:	25
13193	144757	AATCCCATAATGGTCTTATTTTAAT	GATAATAAAAGTCTTCTTATTCATGATCTTGTGTAATTT	spacer
	length:	39	repeater length:	25
13194	144822	AATCCCATAATGGTCTTATTTTAAT	AAAAACAAAAGGATTTTTAACATTAAGTTTTAATCCATTT	spacer
	length:	40	repeater length:	25
13195	144888	AATCCCATAATGGTCTTATTTTAAT	CAAATAGATAAGAAACATATGAAATTTAATTACTCAGATTT	spacer
	length:	41	repeater length:	25
13196	144955	AATCCCATAATGGTCTTATTTTAAT	TAAATTTATCCTGTTGTTTTATGTCTGTTATATCGATTT	spacer
	length:	39	repeater length:	25
13197	145020	AATCCCATAATGGTCTTATTTTAAT	ACGCCGCTCCTGCCTTGCTATACTTTTTAATATGTATTT	spacer
	length:	40	repeater length:	25
13198	145086	AATCCCATAATGGTCTTATTTTAAT	TGGTAGCGGTGACCATTTTGCTAAACTGTACATCATCCATTT	spacer
	length:	43	repeater length:	25
13199	145155	AATCCCATAATGGTCTTATTTTAAT	TTTATTTATCACAAAAGTTGACCATACTTTTGAAGGATTT	spacer
	length:	40	repeater length:	25
13200	145221	AATCCCATAATGGTCTTATTTTAAT	AAAAATTACTGATAAACTAAAGCGACCCGTAAATAATTT	spacer
	length:	40	repeater length:	25
13201	145287	AATCCCATAATGGTCTTATTTTAAT	TACCTACAGTGTTCGTTTCGGTTTAGTGCCATATGTTAATTT	spacer
	length:	41	repeater length:	25
13202	145354	AATCCCATAATGGTCTTATTTTAAT	TTTTTCAAACCTCTTTTATGGCCTCCTCTTTACTCCTATTT	spacer
	length:	40	repeater length:	25
13203	145420	AATCCCATAATGGTCTTATTTTAAT	GCGCTAAGTGTAATTTTTTTTTGTGTTGTTGTATTGTATTT	spacer
	length:	41	repeater length:	25
13204	145487	AATCCCATAATGGTCTTATTTTAAT	AAGTGCCAGTCTTAATGCTGAGCCAGTTACAAAACATTT	spacer

length: 40 repeater length: 25
13205 145553 AATCCCAT AATGGTCTTATTTTAAT TAGTGAATGAGTTAGTTGAATTTACTGGTGAGGAAGGATTT spacer
length: 41 repeater length: 25
13206 145620 AATCCCAT AATGGTCTTATTTTAAT GAAGAAAAAGAACTCATCACAGAAGAAGAACTTTTAAATTT spacer
length: 41 repeater length: 25
13207 145687 AATCCCAT AATGGTCTTATTTTAAT TCATAAAAACAGTAATCCAAAATTACAGTAGAAATGATTT spacer
length: 40 repeater length: 25
13208 145753 AATCCCAT AATGGTCTTATTTTAAT CTTTGATGGGGATTTTTTCCCGCCATAAAGGTTTACCATTT spacer
length: 41 repeater length: 25
13209 145820 AATCCCAT AATGGTCTTATTTTAAT TTTCACCCCCATAACATTAGTTTGAAGAAAGTATTTATTT spacer
length: 39 repeater length: 25
13210 145885 AATCCCAT AATGGTCTTATTTTAAT ATACTCAGGTAAAACGAATAGTAATGGTACAGTTACATTATTT spacer
length: 43 repeater length: 25
13211 145954 AATCCCAT AATGGTCTTATTTTAAT CTGTATCTGTAAAGGACGATTTAAATCCTGTGATAATATTT spacer
length: 41 repeater length: 25
13212 146021 AATCCCAT AATGGTCTTATTTTAAT TTAACCCCTTCTTTACTACATTCTCAATTATTACATTT spacer
length: 38 repeater length: 25
13213 146085 AATCCCAT AATGGTCTTATTTTAAT AGTACTCAAACCCTCCAAATTTGTTTTTACCAGATTTATTT spacer
length: 41 repeater length: 25
13214 146152 AATCCCAT AATGGTCTTATTTTAAT AAGACTGCACAATAAAAGTATCCCACCTAAAAAAATTT spacer
length: 38 repeater length: 25
13215 146216 AATCCCAT AATGGTCTTATTTTAAT GGATATTACCCTGTAAAATGTAGCTATGACGGTAACAAATTT spacer
length: 42 repeater length: 25
13216 146284 AATCCCAT AATGGTCTTATTTTAAT TATGATTTCAATGAGGATTATGAAAAAATATAGAAATTT spacer
length: 40 repeater length: 25
13217 146350 AATCCCAT AATGGTCTTATTTTAAT CTAGAGACTGGTGTAAATCTAGGATTATCCATATTT spacer length:
36 repeater length: 25
13218 146412 AATCCCAT AATGGTCTTATTTTAAT TGTTGAAACCCAGTCTGGAGGAAAACATATTTACCTTATTT spacer
length: 41 repeater length: 25
13219 146479 AATCCCAT AATGGTCTTATTTTAAT GGTATCTTAAATGAGATTATTAAAGAGTATCAATCTAATTT spacer
length: 41 repeater length: 25
13220 146546 AATCCCAT AATGGTCTTATTTTAAT TGCGAACTTCTTAAAAGAGAAGGGCAAGATATAATGATTT spacer
length: 40 repeater length: 25
13221 146612 AATCCCAT AATGGTCTTATTTTAAT GAGCAAAATTGATAATCTTCTACACGACCTATTACAAATTT spacer
length: 41 repeater length: 25
13222 146679 AATCCCAT AATGGTCTTATTTTAAT TCAGTACTGTGAGGTAATCTTAGTTGATATGCAAGTATTT spacer
length: 40 repeater length: 25
13223 146745 AATCCCAT AATGGTCTTATTTTAAT GAGCAGACCGTCATAGTCCTGGTGCAATTGCAAGAATGATTT spacer
length: 42 repeater length: 25
13224 146813 AATCCCAT AATGGTCTTATTTTAAT TGACACTACTAATTTCTTTAAAGTAGAAAATATCCGGATTT spacer
length: 41 repeater length: 25
13225 146880 AATCCCAT AATGGTCTTATTTTAAT CAGCTTAACTGCGATGCCTGCTAATTATGATACTTTATTT spacer
length: 40 repeater length: 25
13226 146946 AATCCCAT AATGGTCTTATTTTAAT GAAGACTAGGTGTACATATACAGGCACATAATAACCATTT spacer
length: 40 repeater length: 25
13227 147012 AATCCCAT AATGGTCTTATTTTAAT AACTCATCAATCTGCTCCTCTAACTCTTTTCTTTTCTATTT spacer
length: 41 repeater length: 25
13228 147079 AATCCCAT AATGGTCTTATTTTAAT TGGAAATTTAATCTGTGACGGTGGACTATAAAAATGTATTT spacer
length: 40 repeater length: 25
13229 147145 AATCCCAT AATGGTCTTATTTTAAT TTGCAGCATAATCATAACCAATTCCATGTTAAGAACATTT spacer
length: 40 repeater length: 25
13230 147211 AATCCCAT AATGGTCTTATTTTAAT AGGAGGTACCATTTTTTTGAGTTGTTTTCAAGGTCATTT spacer
length: 39 repeater length: 25
13231 147276 AATCCCAT AATGGTCTTATTTTAAT TGATAATAAAAGTCTTCTTATTCATGATCTTGTGTAATTT spacer
length: 40 repeater length: 25
13232 147342 AATCCCAT AATGGTCTTATTTTAAT TCGCATATTTCTTCTTTTATCAAACCTCTTTCATGATTT spacer
length: 40 repeater length: 25
13233 147408 AATCCCAT AATGGTCTTATTTTAAT TGGATCATTAACAATCAATGAGGTAAGGTCAGGTTAATTT spacer
length: 40 repeater length: 25
13234 147474 AATCCCAT AATGGTCTTATTTTAAT AGTAATCCACTCCATATGGAGGGTCTGTTAGTAATATTT spacer
length: 39 repeater length: 25
13235 147539 AATCCCAT AATGGTCTTATTTTAAT ATGATACAGTAAACAATATCTTATATATACACACCCAATTT spacer
length: 41 repeater length: 25
13236 147606 AATCCCAT AATGGTCTTATTTTAAT TGTAAGTATACATCAACAGCGACTATGCCAATTCTTATTT spacer
length: 40 repeater length: 25
13237 147672 AATCCCAT AATGGTCTTATTTTAAT TTTTCACCAACTTGTAATAGCAATTCTCCAGGATTATTT spacer
length: 39 repeater length: 25
13238 147737 AATCCCAT AATGGTCTTATTTTAAT CTTTTCTTTCTTCTTGATTAACCTTTTTACTCTTTTTTAATTT spacer
length: 40 repeater length: 25
13239 147803 AATCCCAT AATGGTCTTATTTTAAT TTACATACCGTAAACAGTCCGTTGAAAATAATGCTCATTT spacer
length: 40 repeater length: 25

13240	147869 AATCCCATAATGGTCTTATTTTAAT	TCGAACCTCCTGAAGATTTTTTCTTCTTCACTATAATGTTATTT spacer
	length: 44 repeater length: 25	
13241	147939 AATCCCATAATGGTCTTATTTTAAT	CAAGTGATACGTTGTAATTTATTACCCATATTTGTATTT spacer
	length: 39 repeater length: 25	
13242	148004 AATCCCATAATGGTCTTATTTTAAT	CGTTAGTATCAGTTACTTTGAACTGAATGGTGTAGGATTT spacer
	length: 40 repeater length: 25	
13243	148070 AATCCCATAATGGTCTTATTTTAAT	TACACCAACACTCCGTCTATTTGACTCAATAAATGAATTT spacer
	length: 40 repeater length: 25	
13244	148136 AATCCCATAATGGTCTTATTTTAAT	ACTTCTTGGTGTGAAAGGTATAAACACATTGAAGTATTT spacer
	length: 40 repeater length: 25	
13245	148202 AATCCCATAATGGTCTTATTTTAAT	ACCTGCATATCCACTATTGGCGGTTAAATTAACACCATTT spacer
	length: 40 repeater length: 25	
13246	148268 AATCCCATAATGGTCTTATTTTAAT	GGTATAAAAGCATAATGCCCAATAACCTTACATTCAAATTT spacer
	length: 41 repeater length: 25	
13247	148335 AATCCCATAATGGTCTTATTTTAAT	ATTTTAGGCATTTCTAAGCACCTCCTTTAATTGATTATTT spacer
	length: 40 repeater length: 25	
13248	148401 AATCCCATAATGGTCTTATTTTAAT	AATTTTGAGTGCAATATCACAGGAACATACAATACATATTT spacer
	length: 41 repeater length: 25	
13249	148468 AATCCCATAATGGTCTTATTTTAAT	TCCTTTAATGTTTTTTTTTATTTAATTGTATGTTTATATTT spacer
	length: 40 repeater length: 25	
13250	148534 AATCCCATAATGGTCTTATTTTAAT	GATGAACAACATGACGAAATACTATGTCTAGACTGATTT spacer
	length: 39 repeater length: 25	
13251	148599 AATCCCATAATGGTCTTATTTTAAT	AATACCCTGTTCTCAGTATAAACCATCTCATAATCGAATTT spacer
	length: 41 repeater length: 25	
13252	148666 AATCCCATAATGGTCTTATTTTAAT	ATTATCACCTGCAGATTACCAGTTCCAAATTGGTAACATTT spacer
	length: 41 repeater length: 25	
13253	148733 AATCCCATAATGGTCTTATTTTAAT	AAAACTTTTCGATATAAACCCCTGGAGATCATATAGAAATTT spacer
	length: 41 repeater length: 25	
13254	148800 AATCCCATAATGGTCTTATTTTAAT	AAGTTAATGGATAAGAATAAAGGTTAATCCCATTTTATTT spacer
	length: 40 repeater length: 25	
13255	148866 AATCCCATAATGGTCTTATTTTAAT	ATACAGTACTGATGATCTTGAAGCAAGAAAAATTTTATTT spacer
	length: 41 repeater length: 25	
13256	148933 AATCCCATAATGGTCTTATTTTAAT	CTTCAGTTAATGTTCCCTTCAACTAAACCAAACTTTATTT spacer
	length: 40 repeater length: 25	
13257	148999 AATCCCATAATGGTCTTATTTTAAT	CGGATAATGTTGCAGAATTGTTAACAATCAATATATGCATTT spacer
	length: 42 repeater length: 25	
13258	149067 AATCCCATAATGGTCTTATTTTAAT	GGGTTCTAACTGACCAAGATGTTTTATCTAATCAAGATTT spacer
	length: 40 repeater length: 25	
13259	149133 AATCCCATAATGGTCTTATTTTAAT	TTCTACAGAACATGAGAATAATATATAATCAGAAGAATTT spacer
	length: 40 repeater length: 25	
13260	149199 AATCCCATAATGGTCTTATTTTAAT	TACTTGATCCCTTTTTAATTCTTGATACTCTTCAATATTT spacer
	length: 40 repeater length: 25	
13261	149265 AATCCCATAATGGTCTTATTTTAAT	TTGCTTTCTTGAAAACTAAAAAGGTGATTACGAAATTT spacer
	length: 39 repeater length: 25	
13262	149330 AATCCCATAATGGTCTTATTTTAAT	GAAGGATATGAAAAAATTGAAGAATTTGTTACAAATTT spacer
	length: 39 repeater length: 25	
13263	149395 AATCCCATAATGGTCTTATTTTAAT	TTATAGGGCAGGTTTGTACGACATTATCAATTACATATTT spacer
	length: 40 repeater length: 25	
13264	149461 AATCCCATAATGGTCTTATTTTAAT	GTTTTTTTTGTTGTAATAATGAAAGTTTGAAAATTTGATTT spacer
	length: 41 repeater length: 25	
13265	149528 AATCCCATAATGGTCTTATTTTAAT	TGATTAAAGATTTTTTGGAACCGGCAGGATAGTTGAATTT spacer
	length: 41 repeater length: 25	
13266	149595 AATCCCATAATGGTCTTATTTTAAT	TACTGCATACATTAACCCAAGTCTACAGGTAAAGAATTT spacer
	length: 40 repeater length: 25	
13267	149661 AATCCCATAATGGTCTTATTTTAAT	TGCCTCTTGAGATAACACCTACAATGTTTCGTTCCGGTATTT spacer
	length: 40 repeater length: 25	
13268	149727 AATCCCATAATGGTCTTATTTTAAT	AACATATTTCAAATATGAGGGAACAACATACAAAAATTT spacer
	length: 39 repeater length: 25	
13269	149792 AATCCCATAATGGTCTTATTTTAAT	TTCTAGATCATAGATGGCATATGCACACCACCTATTTTCAAATTT
	spacer length: 45 repeater length: 25	
13270	149863 AATCCCATAATGGTCTTATTTTAAT	ACAGCAGGAACAAAACTAACACACATGAATTTTAATTT spacer
	length: 39 repeater length: 25	
13271	149928 AATCCCATAATGGTCTTATTTTAAT	TAGGAGGTACCATTTTTTTGAGTTGTTTTCAAGGTCATTT spacer
	length: 40 repeater length: 25	
13272	149994 AATCCCATAATGGTCTTATTTTAAT	TGTATCCATCAGTTAAAAACCCCTTTTTCTTTTCTAATTT spacer
	length: 40 repeater length: 25	
13273	150060 AATCCCATAATGGTCTTATTTTAAT	CTTTCTATCCGTTCTGCTTCGGCGGTTCTTTGCCTAATTT spacer
	length: 40 repeater length: 25	
13274	150126 AATCCCATAATGGTCTTATTTTAAT	ATTATAATGTCCAATTACAACAACATGATTACTAGAAATTT spacer
	length: 41 repeater length: 25	
13275	150193 AATCCCATAATGGTCTTATTTTAAT	AGGATATCCGCCGCCTCATCAAGTGTGAATGATTCGTATTT spacer

length: 41 repeater length: 25
13276 150260 AATCCCATATGGTCTTATTTTAAT AACACACCGTCGACACAGTGACCATCTCAAGTTACACATTT spacer
length: 42 repeater length: 25
13277 150328 AATCCCATATGGTCTTATTTTAAT ATACAAAATCAAATCCAATGATAAAAAATGAACTTCAATATA
13278
13279
13280 crispr 4
13281 1420842 AATTATTTATTCAATATATAACAAT
TGTTAATTACCATATAAAAAACATTTTCCTTTCTCATGATAATTAAAAATCATATATTGAAAATAATTTTCAATTTTATAAAATAT
ATACAATTATTATAAAAAAG spacer length: 105 repeater length: 25
13282 1420973 AATTATTTATTCAATATATAACAAT
AGTTATTTTTCATATATAAAGGTTTCCTTTAAAAATGAAAATAGCCTAAGAAACATATCGAAAAATCACCTTTTAATTTTATAAA
G spacer length: 87 repeater length: 25
13283 1421086 AATTATTTATTCAATATATAACAAT
AGAAAAATAGTAAATGAAAACCAGAATACCATAAAAAGATAAAAAATCCAAACAAAATACAAAAGCCACAGGAACTGAAAGAAAACC
A
13284
13285
13286 crispr 5
13287 860333 CTTTATTTTCGCTTTGACTATTTTTT TTTATTGAGTTTGTATTTTATT spacer length: 22 repeater
length: 26
13288 860382 CTTTATTTTCGCTTTGACTATTTTTT TATTTAGATTGTATTTTGT spacer length: 20 repeater
length: 26
13289 860429 CTTTATTTTCGCTTTGACTATTTTTT CTAAAACTCTACTCTTATA
13290
13291
13292 crispr 6
13293 333836 TTTTATACTTTTTATGTGCTATTTTTTATCGTTTTTT
GATTTTTTAGCTATTTTTTAATTATTGCTGTTAAATTATCATTCGGCTTAT spacer length: 51 repeater
length: 36
13294 333924 TTTTATACTTTTTATGTGCTATTTTTTATCGTTTTTT
TGATTTTTTAGCTATTTTTTTAATTATTGCTGTTAAATTATCATTCGGCTTAT spacer length: 53 repeater
length: 36
13295 334014 TTTTATACTTTTTATGTGCTATTTTTTATCGTTTTTT
TTTTATTTTATATAAAATCTCTATAAAGATCAATCTTCTTCTTGATTGAATAT
13296
13297
13298 crispr 7
13299 511680 ACGTTTTAATCTTCTTTTATTTTCAAATCTTATAATTTA GGAATAAAAATTGATAGGTTATAGTTA spacer
length: 28 repeater length: 39
13300 511748 ACGTTTTAATCTTCTTTTATTTTCAAATCTTATAATTTA GGAATAAAAATTGATAGGTTATAGTT spacer
length: 26 repeater length: 39
13301 511814 ACGTTTTAATCTTCTTTTATTTTCAAATCTTATAATTTA GGAATAAAAATTGATAGGTTATAGTT spacer
length: 27 repeater length: 39
13302 511881 ACGTTTTAATCTTCTTTTATTTTCAAATCTTATAATTTA AACTTCAATATAATAAGATTAATTAAG
13303
13304
13305 crispr 8
13306 1440776 ACACAACCCAGAAACCCCAAACTAACCTTAAACAAAAAA
ATAAAAAACAAAAATTTTAAAAACCGTAGACAATATGCACAGAAC spacer length: 45 repeater length: 40
13307 1440862 ACACAACCCAGAAACCCCAAACTAACCTTAAACAAAAAA
TAAAAAACAAAAATTTTAAAAACCGTAGACAATATGCACAGAAC spacer length: 44 repeater length: 40
13308 1440947 ACACAACCCAGAAACCCCAAACTAACCTTAAACAAAAAA
AATGATAAAAAATGAACTTCAATATAATAAGATTAATTAAGGT
13309
13310
13311 crispr 9
13312 1467702 ATAGCAAAAACCAACCAAAAGCCAAGAAACCAGAAAAATAG
CTAACACTGCCAAAACCAACGAAAACAAAATAAACAAAACCCAAAACAACAA spacer length: 52 repeater
length: 40
13313 1467795 ATAGCAAAAACCAACCAAAAGCCAAGAAACCAGAAAAATAG
CCGACACTGCCAATACTACCGAAAACAAAATAAACAAAACCCAAAACAACAA spacer length: 52 repeater
length: 40
13314 1467888 ATAGCAAAAACCAACCAAAAGCCAAGAAACCAGAAAAATAG
ATTTTCAAATCTTATAATTTAAGACTTAAAATAATCTTTTTATAAAATATTA
13315
13316
13317 crispr 10
13318 1523807 TGAATCTAATTTTAAAAAACCTAAATTTTAAATTTAAAT
CTAAAACTCTACTCTTATATTAAAACTAATTTTAAATTTTATTTTAT spacer length: 49 repeater length:
40

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13319 1523897 TGAATCTAATTTTAAAAAACCTAAATTTTAAATTAAAT
CTAAAAACTCTACTCTTATATTAAGCTAATTTTAAATTCATTAAAT spacer length: 49 repeater length:
40
13320 1523987 TGAATCTAATTTTAAAAAACCTAAATTTTAAATTAAAT
AACCACCAAAAGCCAAGAAACCAGAAAAATAGTAAATGAAAACCAGAAT

13321
13322
13323 crispr 11
13324 1803118 TTAAAAAAATCAGTTAGATAAAAAATAGAATACAAAATCAA
ATCCCATATAAAGAATATAATTCAAAAATTTAAACTGATTCTGAAAA spacer length: 49 repeater length:
40
13325 1803208 TTAAAAAAATCAGTTAGATAAAAAATAGAATACAAAATCAA
ATCCCATATAAAGAATATAATTCAAAAATTTAAACTGATCCTGGAAA spacer length: 49 repeater length:
40
13326 1803298 TTAAAAAAATCAGTTAGATAAAAAATAGAATACAAAATCAA
CAGAAAAATAGTAAATGAAAACCAGAATACCATAAAAGATAAAAAATCCA

13327
13328
13329 GCA_000404225.1_ASM40422v1_genomic.fna(findCrispr):
13330 START REPEAT
SPACER
13331 crispr 1
13332 940593 TACATTCTAGTTTAGATGGATTTCTAAC TAGCAAAAAATGCAGAACTTCTTGCTAATTCGATTTTCAT spacer
length: 39 repeater length: 28
13333 940661 TACATTCTAGTTTAGATGGATTTCTAAC CATCCTTTGCCCGTTTGCATACCTGCTTACCGTTGCAT spacer
length: 39 repeater length: 28
13334 940729 TACATTCTAGTTTAGATGGATTTCTAAC GTCATCTGTGCTGACTCTTGCATATAAACTGCAAGTCA
13335
13336
13337 crispr 2
13338 964941 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
ATTTACCTTTATATTTGATCAATTTTGATGGCTGACGGTTTCCAGAGGCGGCTGCAGGTGTGCTTTCTATACGCTTCATAGGCCAT
CCAGATCTATATCTGTAGCGGAAAGTATTCTTATCAAGTCC spacer length: 127 repeater length: 31
13339 965100 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
TTTTACCTTTATATGTGATGAGCCTCGGATCTCTGCCATGCTTCCCGTTGACCGATTCTTTCTCAATCTCTTTTCATTGACCAACCC
TGCTGTATCGATAGTTAAAGGTACATAGCTTGAGACC spacer length: 124 repeater length: 31
13340 965256 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
ATTTACCTTTATATTTGATCAATTTTGATGGCTGACGGTTTCCAGAGGTGGCAGGTGTGCTTTCTATACGCTTCATAGGCCATCCA
GATCTATATCTGTAGCGGAAAGTATTCTCATCAAGTCC spacer length: 124 repeater length: 31
13341 965412 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
TCTGTGCTGACTCTTGATATAAACTGCAAGTCAGAAATCCATCATCTATAGTCAAAACCACAATATCTCCAAATTATATCTTCA
ATTTCTTGAAACAATGATTCCTATATTGCAGTATGCTG

13342
13343
13344 crispr 3
13345 930280 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCGGCTCGAGCTGAACGAATCCAAAGAGATATAGT spacer
length: 35 repeater length: 31
13346 930347 GTTAGAAATCCATCTAAACTAGAATGTAAAT GAGGTAGCTGAATTAATACTACTGGGATTATTACATC spacer
length: 35 repeater length: 31
13347 930414 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATTGCCTGAAGTGCATCGTTGCCATACGCATCCCT spacer
length: 35 repeater length: 31
13348 930481 GTTAGAAATCCATCTAAACTAGAATGTAAAT GTTATTAGATACACTCCCTGCGAAGGGGGTTATATC spacer
length: 36 repeater length: 31
13349 930549 GTTAGAAATCCATCTAAACTAGAATGTAAAT TTGAACAGTCGGTAGGCTTGAACACTTCAGCGGTA spacer
length: 35 repeater length: 31
13350 930616 GTTAGAAATCCATCTAAACTAGAATGTAAAT AGGACGTGTATAGGCGAAATGCCGCTTCGCGGAATG spacer
length: 36 repeater length: 31
13351 930684 GTTAGAAATCCATCTAAACTAGAATGTAAAT ATACAAAGGGACAGCATCACGTCTAAAACCATCCT spacer
length: 35 repeater length: 31
13352 930751 GTTAGAAATCCATCTAAACTAGAATGTAAAT AGAGATATAGCAGCATCAAGAGTACCACGAGCAGC spacer
length: 35 repeater length: 31
13353 930818 GTTAGAAATCCATCTAAACTAGAATGTAAAT TAACGAAACAGAGCAAGAGCGTGTGGAGCGCTATCG spacer
length: 36 repeater length: 31
13354 930886 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAAGTTATCATATAGCGTCTTCACAGTTTCATAGAT spacer
length: 36 repeater length: 31
13355 930954 GTTAGAAATCCATCTAAACTAGAATGTAAAT TCTTTGAGCATGCATTGCATATACGTTTATAACTAT spacer
length: 36 repeater length: 31
13356 931022 GTTAGAAATCCATCTAAACTAGAATGTAAAT AAGTGGTACGATATAACAGCATCTAAGGAGAAACTA spacer
length: 36 repeater length: 31
13357 931090 GTTAGAAATCCATCTAAACTAGAATGTAAAT GCCTTCTTTCTTCAAGCTCCGCCCCAATGAAAAA spacer
length: 35 repeater length: 31

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13358	931157	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GTAGTAGCCCACGATACCTCACCATCCATACTGTT	spacer
		length: 35	repeater length: 31	
13359	931224	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TATCTACTTCTCCTTCCCTTAGTCGATAATCTTCAT	spacer
		length: 36	repeater length: 31	
13360	931292	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GATTATTATACAGATGGCGATAAAGGCAGAGTTA	spacer
		length: 34	repeater length: 31	
13361	931358	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTTCGAGGCTAAATAATCCGCCTTCATTAAATGTTC	spacer
		length: 36	repeater length: 31	
13362	931426	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTAAATAGTGATAGAGATATCTCGTATCAAACCAC	spacer
		length: 35	repeater length: 31	
13363	931493	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCCTCATAACTGAGTCCAGTGGGATCGACGGGCA	spacer
		length: 34	repeater length: 31	
13364	931559	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACACATGTAAGAAATTTTGACTATGTTCTAAAGGAA	spacer
		length: 36	repeater length: 31	
13365	931627	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCAGATATAACAGTATCGAGAGTAGAACGAGCAAT	spacer
		length: 35	repeater length: 31	
13366	931694	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTGTCGACTGATACGGTCTGATTAAACCCTTTTC	spacer
		length: 35	repeater length: 31	
13367	931761	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	AGAGTGTTTGTGTTTTACAAATGAGTATCCAAAGTAC	spacer
		length: 36	repeater length: 31	
13368	931829	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GAGACCAATTTAACCCAGGACTTGTTAGAATCACCA	spacer
		length: 36	repeater length: 31	
13369	931897	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	AAATGCTCAGTTAAGACCCTGGCAACAGCACTTAG	spacer
		length: 35	repeater length: 31	
13370	931964	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACTCAATAGGAAGAAAAGCCGAAGAAGGAACTCCA	spacer
		length: 35	repeater length: 31	
13371	932031	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CCCGAAGTTGATCTTGTTACTGTAGTTCTACCTGCT	spacer
		length: 36	repeater length: 31	
13372	932099	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTAGGGTATCACGTCACAGATACTCATATCAACAA	spacer
		length: 35	repeater length: 31	
13373	932166	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GCTGGTTGAGCGTCTGCTGATTAAAGCAGGAACCG	spacer
		length: 34	repeater length: 31	
13374	932232	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	AAACTGGCAGTAAACGGATTAAGCCAATTGTGAGTA	spacer
		length: 36	repeater length: 31	
13375	932300	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTAAGAACTAGATACTATTACGATTTTATTCAAAC	spacer
		length: 35	repeater length: 31	
13376	932367	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CATTGTTCCAAATAGGCACGCACTCGTCTAATGTCAG	spacer
		length: 37	repeater length: 31	
13377	932436	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GAGGAAATTAAATACCCCTCTGCCAGCTAGTGACC	spacer
		length: 35	repeater length: 31	
13378	932503	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GAACTAGGAAGCGAGCCTAAGGTTGATTATGTTGC	spacer
		length: 35	repeater length: 31	
13379	932570	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTTTAGGATATGTATTTGACATTACCAATATTTTT	spacer
		length: 35	repeater length: 31	
13380	932637	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGAGCGTGTATTACAACGGACGTGAGCTTGTTGAA	spacer
		length: 35	repeater length: 31	
13381	932704	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGCTTGAAGATATTAATGTATCTTCATTTATGTAT	spacer
		length: 35	repeater length: 31	
13382	932771	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTGGAACAAAATTAAACAGGAAGCCAGTATCTCCG	spacer
		length: 35	repeater length: 31	
13383	932838	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GTGGATACTTGTTAAAAGAGACAACGTATAAGATCAA	spacer
		length: 37	repeater length: 31	
13384	932907	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGTAGAAAGCTTGATTGACGGTCACGGGCAGTTTT	spacer
		length: 35	repeater length: 31	
13385	932974	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTATACTGGAGAATTGGTCAGTTACATCAGGATAA	spacer
		length: 35	repeater length: 31	
13386	933041	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTTTTGCCGTGACAGTCAGTATACAATCAGTGGAAC	spacer
		length: 36	repeater length: 31	
13387	933109	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TTTATTCTTGTCATCTCAATGTTAACGGTTGACTGGTCA	spacer
		length: 39	repeater length: 31	
13388	933180	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	ACCTCAAGAGGGATTTCAATCCTCACACGGATCTA	spacer
		length: 35	repeater length: 31	
13389	933247	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	GGCGGTACGCTGGTGATCCTATAACCATATCGCTT	spacer
		length: 35	repeater length: 31	
13390	933314	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CTGCCCATGCCAGACTCTTACCCTACCCTCAACT	spacer
		length: 35	repeater length: 31	
13391	933381	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TAATGCGAACTGTGTGACTGTTAACCCTCTTAAGCC	spacer
		length: 36	repeater length: 31	
13392	933449	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	TGAGTCTGTTGCTTCTTCTACATGAGCTTCAGGTA	spacer
		length: 35	repeater length: 31	
13393	933516	GTTAGAAATCCATCTAAACTAGAAATGTAAAT	CCATGGTATCAATACAGGCAACATAATCAACCTTA	spacer

	length: 35	repeater length: 31	
13394	933583	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTCGAATGAAGAATACATCTATAAGTGTGAGATGC spacer
	length: 35	repeater length: 31	
13395	933650	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTTGTACATTGATATGCCGATCCGGCGGTAATAGTC spacer
	length: 36	repeater length: 31	
13396	933718	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTACCTCGAAATCATCAAGAACTAACTAATGGAG spacer
	length: 35	repeater length: 31	
13397	933785	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTGTAGTACCTACATAAGAACCATCAGCAAAGTGA spacer
	length: 35	repeater length: 31	
13398	933852	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTGTTAGTATCAATGTTATCCCTAATTGCACATTAG spacer
	length: 36	repeater length: 31	
13399	933920	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TAAGCTCGGTCCGAGATTAACATTAGACGAATGCG spacer
	length: 35	repeater length: 31	
13400	933987	GTTAGAAATCCATCTAAACTAGAATGTAAAT	AAAGAAATCATACAATGGGTTCATAGCAGTTATAAAAA spacer
	length: 38	repeater length: 31	
13401	934057	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTAAATTAGCTAGGAGGCTGGCGGGGGATGAAATCA spacer
	length: 36	repeater length: 31	
13402	934125	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACGACTCGCTAAAAAATGGAGCATGCGTCTCTGCT spacer
	length: 35	repeater length: 31	
13403	934192	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GTGGGTGGCAGGCGCTTGTATATACCACACGCATCG spacer
	length: 36	repeater length: 31	
13404	934260	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGGCATGGAAGTGAAGTAAGGAAGTCGTGGTATAAAT spacer
	length: 38	repeater length: 31	
13405	934330	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACAATATTGTTTAACTTACTGGACTTCCCCAGTC spacer
	length: 35	repeater length: 31	
13406	934397	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTGCTGATGGGTTACAGACCTCTCAATCGTGAAGTT spacer
	length: 36	repeater length: 31	
13407	934465	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGGGTGGCAGGCGCTTGTATATATCACACGCATCG spacer
	length: 35	repeater length: 31	
13408	934532	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTTGAGGGCTGCAAGCCCTCTTAATCTTGTCTAATA spacer
	length: 36	repeater length: 31	
13409	934600	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTTATATGGTGGTGACGGCATTGTATCCGGCCCT spacer
	length: 35	repeater length: 31	
13410	934667	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GATACGATTTGCCATGGGTAAGTATTTGAATGAT spacer
	length: 35	repeater length: 31	
13411	934734	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTCGTTATGCGAACAAGACCAGGGTTGAACATGTCA spacer
	length: 36	repeater length: 31	
13412	934802	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGTATAACAAGGGGTATTCCTTAGGAAGTTCCTCA spacer
	length: 34	repeater length: 31	
13413	934868	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GAAAGCAACAATGAACAAACAAATATATAAAGACTA spacer
	length: 36	repeater length: 31	
13414	934936	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTACGCGATATTGCATTTCTACTGTTGTCTCAAA spacer
	length: 35	repeater length: 31	
13415	935003	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TACCAAAGTCTGCATCATTGTATGTGTCAGCTCA spacer
	length: 35	repeater length: 31	
13416	935070	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTTTCCTTTCATATTCCCAAGAGTCTGTTGCTTC spacer
	length: 35	repeater length: 31	
13417	935137	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTCAAAAACTTATCATTGCTTGTCTGTAGTCTTA spacer
	length: 35	repeater length: 31	
13418	935204	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCGTCTACTCTGCCTGTAGATCCTACTGGTTTGAG spacer
	length: 35	repeater length: 31	
13419	935271	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACACAATGGGCACAGAAATAGAAGATAATGATGTGCG spacer
	length: 36	repeater length: 31	
13420	935339	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTAAGTGGGAATACATCGGTAGAGAGACATTAC spacer
	length: 35	repeater length: 31	
13421	935406	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCATACAGTTTACATCACTAAAGCAGAAAAACGCCT spacer
	length: 36	repeater length: 31	
13422	935474	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCGCGAACATGCGCCTAATGTCTACGCGCGTGTAG spacer
	length: 35	repeater length: 31	
13423	935541	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CCCAATATTGCGCGCGAACTGTTCCGACAGGCCA spacer
	length: 35	repeater length: 31	
13424	935608	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GATTCATACGTTGTTTATCCAGCTCTACAAATGCC spacer
	length: 35	repeater length: 31	
13425	935675	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CAACCAAAGAACCTTTACATGCAACCTTAAAGAAG spacer
	length: 35	repeater length: 31	
13426	935742	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ATTTAACCAGCTGGCAGACCTCGGAATTTTGGTAA spacer
	length: 35	repeater length: 31	
13427	935809	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCATATACGGGTATCTAAATACAAGCCGCTGCATG spacer
	length: 35	repeater length: 31	
13428	935876	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CAGGGTAGCGGTGAGTGCATCATAGACGCTGAGAA spacer
	length: 35	repeater length: 31	

13429 935943 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CTGACTGTCTCTAACAGCCGGTTGAGTCTATAGTA spacer
length: 35 repeater length: 31
13430 936010 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GCTGGTGAAGCATACCAATCTAAAAACATTTTACAT spacer
length: 37 repeater length: 31
13431 936079 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ATGTCAAGATAAGAACGATAAACACCGTCCCTATCA spacer
length: 36 repeater length: 31
13432 936147 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TGATGCCGATCTGCGGTTACAGACGGAGTGCAGT spacer
length: 35 repeater length: 31
13433 936214 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTGGTGTTCCTGAGCCGGTTGTAACTGCTCCAATC spacer
length: 36 repeater length: 31
13434 936282 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTCTGTGAGGTGGGTGATATTCTGTGAATCGTCG spacer
length: 34 repeater length: 31
13435 936348 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CGAACTATGGGAATGTATGGGCGTATGATCTAGCAA spacer
length: 36 repeater length: 31
13436 936416 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTCAGTGCTCCTGAAATTGTGGAGGTGATCGTATT spacer
length: 35 repeater length: 31
13437 936483 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CAGGCTGATTACTGTCAAATAACGGTGTATTGGCGG spacer
length: 36 repeater length: 31
13438 936551 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ATAACAATCGTCATTGGCGCGTTTCTGGTTAACGT spacer
length: 35 repeater length: 31
13439 936618 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CTTGGCAGAACAACTAAAAGATCTTACCGTGTG spacer
length: 34 repeater length: 31
13440 936684 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GCACCTGGCTATAAACCTGATGAGGAATTGATAGAC spacer
length: 36 repeater length: 31
13441 936752 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GAAAGAAGGGGCAGTCCCCTGGATTCAATACAAGA spacer
length: 35 repeater length: 31
13442 936819 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TAGGAATGGCTAACATTGCATCCGGCATTATAGACA spacer
length: 36 repeater length: 31
13443 936887 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ACGTTTTATACACAAGATGGAAACGATTAGTTGACT spacer
length: 36 repeater length: 31
13444 936955 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GAAATCAATCGGCTTTTTGTTCATCCATGTTTCACT spacer
length: 35 repeater length: 31
13445 937022 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CAAGATCTTAATCAAAGGCCTTGGAGAAGGAGTTG spacer
length: 35 repeater length: 31
13446 937089 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ACAAGCACCTGGTGTGACGCCCGATGTGATCAATT spacer
length: 35 repeater length: 31
13447 937156 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TATAACGTTGCGTACGAAGGAGCGAGATTAAAGCG spacer
length: 35 repeater length: 31
13448 937223 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TACATATATCGAGAGCCTTCTAATCTGGTGCTGATA spacer
length: 36 repeater length: 31
13449 937291 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CCAGTAACTTAAGAACTCCGCACTCTTCGAAGCTT spacer
length: 36 repeater length: 31
13450 937359 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTTTGAGGTGTGTTTATGCAAGTAAATAATGTTAAA spacer
length: 36 repeater length: 31
13451 937427 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GGCATCTTCGATCTTAAGCAAGATCTTCATACTAAA spacer
length: 36 repeater length: 31
13452 937495 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CACTAAGCAAGCGGCAAAAGCGTTTGACGATTTA spacer
length: 34 repeater length: 31
13453 937561 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GGCACCTCACAGAAAAGGAAATAAGAGCAGTAAGCA spacer
length: 35 repeater length: 31
13454 937628 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CATCTTCAGAAAAAAGGGATCTTCTCAGAACATAC spacer
length: 35 repeater length: 31
13455 937695 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTTTACCTTTATATGTGATGAGTTTGCATCGTGAA
13456
13457
13458 GCA_000415965.1_J07B_scf56329a_trim_genomic.fna(findCrispr):
13459 START REPEAT
SPACER
13460 crispr 1
13461 68056 GTCCCAGTCACGCTTCCAGAGGC
TGTTGCATTCCGTATCTTTCCGTCCGAGCCCAGGGCGCCATTGATACCGACGAGTCCGCCCACATTCCCCGTCCCAGTCACGCTCC
CGGTAGCGGTTCCGTTCGTAATAGTTCCAACAACATTAATTCGAATGAGTCCGCCCACCTCGATC spacer length: 150
repeater length: 23
13462 68230 GTCCCAGTCACGCTTCCAGAGGC
AGCTGCGCTCCGTATCGTCCAGTGTGGCTCCGATGAGTCCGCCCACACTCCCAGTCCC spacer length: 60
repeater length: 23
13463 68314 GTCCCAGTCACGCTTCCAGAGGC
TGTGTTTGTGACGGTTCATTAACATTAATAATTGAGTCCGATGAGTCCGCCCACACCCCC
13464
13465
13466 GCA_000415985.1_HQW2_08err_032412a_genomic.fna(findCrispr):

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13467 START REPEAT
13468 SPACER
13468 crispr 1
13469 286482 TCACACCCCCAGAGGCAGTCGCGTCTTTGAT
TACCCCATCTCATCATTTGAACCCGACTAGTCCACCAGTGAGGGCTAATCCATCGACATTCCCACAGGCTGTAGCGTTCATGATTC
TGCCACGACTTTGTCCAACTAATCCGCCCACGGAGTCTGAACCA spacer length: 130 repeater length: 31
13470 286644 TCACACCCCCAGAGGCAGTCGCGTCTTTGAT
TACCACATCTCATCACTGAATCCGACCAGTCCACCAGTGAAATCCGATCCGTCGACATTCTAGAGGCTGTTGCGTTCGTGATTG
TGCTTCCATTCTCAGCGAGTCCAACGAGACCGCCGGTCGCGTTCGTGCCA spacer length: 136 repeater
length: 31
13471 286812 TCACACCCCCAGAGGCAGTCGCGTCTTTGAT
CCACATTCTCATCAGCTACTCCGACCAGTCCACCAGTGAAATTTAATCCATCGACATTCCCAGAGGCAGTCGCATTTACAATCATC
CCACCTCATCACTGATTCCGACCAGCCCACCAGTGAAATCTAGTCCATC
13472
13473
13474 GCA_000446015.1_ASM44601v1_genomic.fna(findCrispr):
13475 START REPEAT
13476 SPACER
13476 crispr 1
13477 632676 CTTCAATTCTTT CTGAGTTGCATCCTCGATTATGAGGCCGAGGACAAGGGCGATCAGGAAAAAGTT spacer
length: 54 repeater length: 12
13478 632743 CTTCAATTCTTT CTGAGTTGCATCTTGGTATATCACGCAAGAGGACTTAGACAAGGCTCTACAATACGC spacer
length: 57 repeater length: 12
13479 632813 CTTCAATTCTTT CTGAGTTGCATCATATTATACCGTAAGCCAACTTTTCACATATGGAAGCATTG spacer
length: 53 repeater length: 12
13480 632879 CTTCAATTCTTT CTGAGTTGCATCGGCTTGCTTGATGTCCTCTATTTCTGCCGTAATTGCTTTTAGT spacer
length: 55 repeater length: 12
13481 632947 CTTCAATTCTTT CTGAGTTGCATCAGCCGGGGCAGGGGAGGACCAGCCCCAAATATACATTAT spacer
length: 51 repeater length: 12
13482 633011 CTTCAATTCTTT CTGAGTTGCATCACTGTATGATGGAAGAGACTATCACGGCCCCCTCCACACCT spacer
length: 53 repeater length: 12
13483 633077 CTTCAATTCTTT CTGAGTTGCATCTTCTACGTTGCCGACCAGGTTTCAATGGCACTTTATGGT spacer
length: 51 repeater length: 12
13484 633141 CTTCAATTCTTT CTGAGTTGCATCCCTCTCCAGCATCCTCGCGGTCGCAGAGACGAAGGGGA spacer
length: 50 repeater length: 12
13485 633204 CTTCAATTCTTT CTGAGTTGCATCTCTAACACAGCTGCGCAGCTTTATTTATGAATGGATAA spacer
length: 50 repeater length: 12
13486 633267 CTTCAATTCTTT CTGAGTTGCATCCAAGGTGTTGAAAATTATCTTGTATCCATTTATTTCT spacer length:
49 repeater length: 12
13487 633329 CTTCAATTCTTT CTGAGTTGCATCTCAATGTCAGCCCTAGCATACTTAATCTGCCCATTT spacer length:
48 repeater length: 12
13488 633390 CTTCAATTCTTT ATTGAAAGCAAGTCTATGGCATGAAAAACGACGCGCCCGTCGGTGAGG
13489
13490
13491 crispr 2
13492 620802 CCTTCAATTCTTTCTTAGTTGCATC ATCGGAAACACTTATTTTCTGGTTTATGTCCTTATTCA spacer
length: 38 repeater length: 25
13493 620866 CCTTCAATTCTTTCTTAGTTGCATC AGGTGGCTCCGCGCCCTCGAGTCCCCCGCAGACACTCGTGT spacer
length: 41 repeater length: 25
13494 620933 CCTTCAATTCTTTCTTAGTTGCATC ACACATATTCTTCACACCGCACGAGCTCCAGCCAGTGCTAGCAC spacer
length: 44 repeater length: 25
13495 621003 CCTTCAATTCTTTCTTAGTTGCATC GTACAGACAGACAGCACAGGCAGAATAGTGTACAATAGAAT spacer
length: 41 repeater length: 25
13496 621070 CCTTCAATTCTTTCTTAGTTGCATC AGCACGTATATCCACCACATTTTCTGCACCTCTTTTTTCA spacer
length: 41 repeater length: 25
13497 621137 CCTTCAATTCTTTCTTAGTTGCATC GTCGAGCGCATGGATTATTCGAGCGTCACGAAGAACA spacer
length: 39 repeater length: 25
13498 621202 CCTTCAATTCTTTCTTAGTTGCATC TCGATATCGTTTTCGACGCCCCGCCGAACCCACACAGGACCCT spacer
length: 42 repeater length: 25
13499 621270 CCTTCAATTCTTTCTTAGTTGCATC TAATCTGGGGCGTGGAATCTATGTAGCCACTTCGTTC spacer
length: 37 repeater length: 25
13500 621333 CCTTCAATTCTTTCTTAGTTGCATC TACCATGTTTGCTTTTCTAGCAGGTGTAATTTCAAGT spacer
length: 37 repeater length: 25
13501 621396 CCTTCAATTCTTTCTTAGTTGCATC AGAAGTGGCAGGGGAGGAATTGTATCCGCTTATACG spacer length:
36 repeater length: 25
13502 621458 CCTTCAATTCTTTCTTAGTTGCATC GTAACGAGGCAAAGCACACAGCAATTGATTGCCTACATCCTCT spacer
length: 43 repeater length: 25
13503 621527 CCTTCAATTCTTTCTTAGTTGCATC CAGACAGCTTAAGGAGTTCCAGTTGAGGATGGAGAGGCTC spacer
length: 40 repeater length: 25
13504 621593 CCTTCAATTCTTTCTTAGTTGCATC TCAAGCGAGTCTGGGTCACTTGCCTTTGCTTTTTTCAA spacer
length: 38 repeater length: 25

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13505 621657 CCTTCAATTCTTTCTTAGTTGCATC AGGAGGCGTGACGGGAAGGAATACGAGTATGGCATGGTG spacer
length: 39 repeater length: 25
13506 621722 CCTTCAATTCTTTCTTAGTTGCATC AATGAATAGGCAAAGAAAGCTAGGAAAGCTGTTAAAGCA spacer
length: 39 repeater length: 25
13507 621787 CCTTCAATTCTTTCTTAGTTGCATC GCTAGAATTTTCAAAGCTCGACCTATCCCTTACCAGCTTC spacer
length: 40 repeater length: 25
13508 621853 CCTTCAATTCTTTCTTAGTTGCATC TGTGGGAAAATGGTTCAACACCTCAAACCTAGATTCAATCT spacer
length: 40 repeater length: 25
13509 621919 CCTTCAATTCTTTCTTAGTTGCATC AGGATTGGCCTCTTGAAGAAAGCAGATGGGGAAAGCA spacer
length: 37 repeater length: 25
13510 621982 CCTTCAATTCTTTCTTAGTTGCATC GGCGCTAGGACTTATAAGCATCACCTATAGGATTATCAAG spacer
length: 40 repeater length: 25
13511 622048 CCTTCAATTCTTTCTTAGTTGCATC GTTGGCTAATGGGGATGACCAAGGTATACGCGTATGTG spacer
length: 38 repeater length: 25
13512 622112 CCTTCAATTCTTTCTTAGTTGCATC AACGCAAGGGTTGAGGAATATAGGGAAACACTGCAGTCAA spacer
length: 40 repeater length: 25
13513 622178 CCTTCAATTCTTTCTTAGTTGCATC CACAGCTATGAAACCAGTAATATTTCTCGATAAATC spacer length:
36 repeater length: 25
13514 622240 CCTTCAATTCTTTCTTAGTTGCATC TATTTCTGGCTTTTGAAGTTTCCAGAGATAAATAGCAAT spacer
length: 39 repeater length: 25
13515 622305 CCTTCAATTCTTTCTTAGTTGCATC GACAGGGTGAGGCCGGGGACGCCACACAGATAATCG spacer length:
36 repeater length: 25
13516 622367 CCTTCAATTCTTTCTTAGTTGCATC TATGGCATGAAAAACGACGCGCCCGTCGGTGAGGAT
13517
13518
13519 crispr 3
13520 432492 GATGCAACTGAGAAAAGAATTGAAAGC GAAAAGTCCTGCTATGCAGTAGTCATTTTCGCACAAAAG spacer
length: 39 repeater length: 26
13521 432558 GATGCAACTGAGAAAAGAATTGAAAGC TAATAGCAAAATCTGGTTCAATTTTCCATGTCTG spacer length:
34 repeater length: 26
13522 432619 GATGCAACTGAGAAAAGAATTGAAAGC AGTCTATGGCATGAAAAACGACGCGCCCGTCGGT
13523
13524
13525 GCA_000499765.1_Methanobacterium_genomic.fna(findCrispr):
13526 START REPEAT
SPACER
13527 crispr 1
13528 805970 TGTTTCGGTTATTGACACTGC
TACCAACAATGTGACCAACAACATAACCGTAGGAAATAATCCTTATGGTGTGCGTTTAATCCGAATGGTACCATAGCTTATGTAA
CAAACCAGGGTAGTGGTA spacer length: 104 repeater length: 21
13529 806096 TGTTTCGGTTATTGACACTGC
TACCTACAATGTGACCACAACAATACTCGTAGGATCCAGTCCATCTGGTGTGCGGTGAGTCCGGATGGTACCATAGCCTATGTAG
CAAACCAGGGTAGTGGTA spacer length: 104 repeater length: 21
13530 806222 TGTTTCGGTTATTGACACTGC
TACCAACACTGTTATCACCAACATAACCGTAGGAAATAATCCTTATGGTGTGCGTTTAATCCGGATGGTACCATAGCCTATGTAG
CAAACCAGGGTAGTGATA spacer length: 104 repeater length: 21
13531 806348 TGTTTCGGTTATTGACACTGC
CACCTACAATGTTACCACAACAATACTCGTAGGAACTGGTCCTATTGGTGTGCGGTGAGTCCGGATGGTACCACAGCTTACGTAA
CCGTCCGTAGCAGTAATT spacer length: 104 repeater length: 21
13532 806474 TGTTTCGGTTATTGACACTGC
TACCAACAATGTTACCACAACAATACTCGTAGGAACTGGTCCTATTGGTGTGCGGTGAGTCCGGATGGTACCACAGTCTACGTAG
CAAACCTATCTTAGTAATT spacer length: 104 repeater length: 21
13533 806600 TGTTTCGGTTATTGACACTGC
GATTGAAACTCTTTTAAGCCCTCATTGTCTTCTAACTCATCATTGAGTTGCAGAGGTATTTCCAATATATACTGGAGATAAGTGTT
GTCAATATCATCAGAGGC
13534
13535
13536 crispr 2
13537 110379 TTTCCCTTTTATTTGTTCTTC
AATTTTCTTTTCAATTGCGGCCCTCAGTCTTTCCCTTATTTGTTCTTCAATTTTTTTATCGATTTTCAGCCTGAA spacer
length: 74 repeater length: 21
13538 110475 TTTCCCTTTTATTTGTTCTTC GACTTCTTTTTCGATTTTCAGCCTGAA spacer length: 26 repeater
length: 21
13539 110523 TTTCCCTTTTATTTGTTCTTC CTTTTAAGCCCTCATTGTCTTCTAAC
13540
13541
13542 crispr 3
13543 806093 TAGTGTTTCGGTTATTGACACTGC
TACCTACAATGTGACCACAACAATACTCGTAGGATCCAGTCCATCTGGTGTGCGGTGAGTCCGGATGGTACCATAGCCTATGTAG
CAAACCAGGGTAGTG spacer length: 101 repeater length: 24
13544 806219 TAGTGTTTCGGTTATTGACACTGC

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TACCAACACTGTTATCACCAACATAACCGTAGGAAATAATCCTTATGGTGTTCGTTTTAATCCGGATGGTACCATAGCCTATGTAG
CAAACCAGGGTAGTG spacer length: 101 repeater length: 24
806345 TAGTGTTTCGGTTATTGACACTGC
CAAGCCGAAATTTCTGTCTATTTGGCCCAATTCATTGTATTCTTTTCATCTTTCATAGTATTTAAATTGTCGTTGTTCAATGAGGGG
ATTCTTTTATATGGT

crispr 4

392636 ATTTCCAATAAAAAAAGGATTGAAAC CCCATAATCTGAGGGGTACGGTGTGGGCAGATAAACCGTTGCAGAAG
spacer length: 47 repeater length: 26
392710 ATTTCCAATAAAAAAAGGATTGAAAC TTATCTAAAATTTTCATGCCCCGTTCTGTATTTTCATAGGTTGCAGAAG
spacer length: 46 repeater length: 26
392783 ATTTCCAATAAAAAAAGGATTGAAAC TTATCTAAAATTTTCATGCCCCGTTCTGTATTTTCATAGGTTGCAGAAG
spacer length: 46 repeater length: 26
392856 ATTTCCAATAAAAAAAGGATTGAAAC CCACCATCTGCTACATCTTTTAAAGCTTTTTTAATAAAGTTGCAGAAG
spacer length: 48 repeater length: 26
392931 ATTTCCAATAAAAAAAGGATTGAAAC CCCTCCTTTCTTTTTTCAATACGTGGAATAAATGGGTTGCAGAAG
spacer length: 45 repeater length: 26
393003 ATTTCCAATAAAAAAAGGATTGAAAC CCCTCCTTTCTTTTTTCAATACGTGGAATAAATGGGTTGCAGAAG
spacer length: 45 repeater length: 26
393075 ATTTCCAATAAAAAAAGGATTGAAAC CCATATAGCTCTTGTATGTCTTCATTTTCTACCAAGTTGCAGAAG
spacer length: 45 repeater length: 26
393147 ATTTCCAATAAAAAAAGGATTGAAAC ATTCCATGCTCAGCTCTCTTTTCTTTGTCTTTGAACAGTTGCAGAAG
spacer length: 47 repeater length: 26
393221 ATTTCCAATAAAAAAAGGATTGAAAC CTTTCCACCAGTTATTCTTCTCGTCCATTTTTATTGTTGCAGAAG
spacer length: 45 repeater length: 26
393293 ATTTCCAATAAAAAAAGGATTGAAAC AGATTCACCTTCCCACGGAGTGTTCCTTGTTCAGTTGCAGAAG
spacer length: 46 repeater length: 26
393366 ATTTCCAATAAAAAAAGGATTGAAAC TGAAACTCTTTTAAGCCCTCATTGTCTTCTAACTCATCATTGAGTT

crispr 5

356541 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTGATATTATTGTGTATCATATATCATTACCCTTGT spacer
length: 36 repeater length: 30
356608 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ACTTGGGCATAACATTTTACCTGATCTATAAATAA spacer
length: 35 repeater length: 30
356674 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AATATCTTTACCGTTATGTATGAAAAATTGTCTAT spacer
length: 35 repeater length: 30
356740 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TGTTACATCAAAAAGGGGATTGTATTCTTCAGAA spacer
length: 35 repeater length: 30
356806 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TAAATATTCAAGGGCATCAGTAATAGGCCTTATA spacer
length: 34 repeater length: 30
356871 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CACGTGCATTCTCTACGGCAGCAATTGGCTGAAGC spacer
length: 35 repeater length: 30
356937 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CAAAACCGGTGGTAATCACATATTCGTAGATGGTTG spacer
length: 36 repeater length: 30
357004 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCATTAAAATAGAAATACCAGAAGCAGACCTAACA spacer
length: 35 repeater length: 30
357070 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTACTTGAGATTGAGGTACATTTGTAAAACAGAGA spacer
length: 35 repeater length: 30
357136 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTTACAAGAGGATAGATCATGATCGATGATCCCC spacer
length: 34 repeater length: 30
357201 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTATAAAACCTGAAACCATATATTCTGGAGAAGTAA spacer
length: 36 repeater length: 30
357268 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TATAACCACAACCTGACCCTACTAATCAAACCATAA spacer
length: 35 repeater length: 30
357334 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTGTATCAACCCCTATTCCAGAAGTGGCCAACTA spacer
length: 35 repeater length: 30
357400 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ACAATCTTTCTACCATCTCCGAATTCTTCATTCAT spacer
length: 35 repeater length: 30
357466 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTCTCCGTCTTTGCAATTAGTTTATTTCTTGTTTA spacer
length: 35 repeater length: 30
357532 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTTAAAATGCAGAATAAGAAGTGACGAACCATGAA spacer
length: 35 repeater length: 30
357598 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GCTGGACCAGGTCAAAAAAAAAATACCTTAAAGTAA spacer
length: 35 repeater length: 30
357664 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TAGCGATAGCCGGCGAAATATTAACCAGAATAGCTA spacer
length: 36 repeater length: 30
357731 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGATCTTAAAAGAAGAGGTATTATACTACTACTA spacer
length: 35 repeater length: 30
357797 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAGAATTTAACCTAACAAAATCAAAGAGTGATACA spacer

length: 35 repeater length: 30
13583 357863 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGGGGACATTTTGAAAGATGGTTTTAAAGTGAAAA spacer
length: 35 repeater length: 30
13584 357929 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GATTTCAGACTACGATGGTGTCTACTGGAATTGATAA spacer
length: 35 repeater length: 30
13585 357995 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TATTATTAAGGAAAGGAGGTAAAAAGTGTTAAACA spacer
length: 35 repeater length: 30
13586 358061 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTACATTTCTATACTCTCCCCGTTTCATCGCCGCTAT spacer
length: 36 repeater length: 30
13587 358128 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GCCTTCAGGAAAAATACACTGCAGATATCTACGCT spacer
length: 35 repeater length: 30
13588 358194 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTGTGAGAAAGTGGGTTTGTGAGGCCGACTCCTT spacer
length: 35 repeater length: 30
13589 358260 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTTTTTTTTTGATCTAAACTCTATTTTTTTTAAATAT spacer
length: 34 repeater length: 30
13590 358325 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAGGCACTATTGATGTAATTAAATATGAACTCCCT spacer
length: 35 repeater length: 30
13591 358391 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCCGAGGATCTCAACTTCTAAAAGACATTCTAATAT spacer
length: 36 repeater length: 30
13592 358458 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GAGCTGGTGGGTGGTAGTACCGTTACTTATCGTG spacer
length: 35 repeater length: 30
13593 358524 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CGGACATTGTACCGGATACTGTGCCGATTTTGCG spacer
length: 35 repeater length: 30
13594 358590 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CCATCTGAAGGGCTACATGTACAATTACGAACAGG spacer
length: 35 repeater length: 30
13595 358656 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTAGAGGAGGCTCTCAAACCTCCGCTGCGGCCT spacer
length: 35 repeater length: 30
13596 358722 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTTAAATGATGTAATCCAAAGTCAATCCATGCAAA spacer
length: 35 repeater length: 30
13597 358788 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTAATATAACATTGAATAATTTTCTGTTTGCATATA spacer
length: 36 repeater length: 30
13598 358855 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATGTATGAAATAGATGAAAATACGATAAGACTCAA spacer
length: 35 repeater length: 30
13599 358921 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAAATGGGTGAAAAAAGCCTATAACGAATCATTA spacer
length: 35 repeater length: 30
13600 358987 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CCAGAGCATACTAATCAGGACAGATTCTACTTGG spacer
length: 35 repeater length: 30
13601 359053 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAGACTACAATCTTTCCCTGATCATATTGAATTTT spacer
length: 35 repeater length: 30
13602 359119 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGAAAAAATTAGATAAATCAATTGGGGTCCCCCA spacer
length: 35 repeater length: 30
13603 359185 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATCTATACTCAGGATGAAACCATCGAAATTCCACC spacer
length: 35 repeater length: 30
13604 359251 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TAGAACCCTGTTCCGTTACCTTTAAACATGAATC spacer
length: 36 repeater length: 30
13605 359318 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTGACCATTTTGATGGGAGAGGATTATAATGACAG spacer
length: 35 repeater length: 30
13606 359384 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AACTGTGGCATATTATGATTATGCTTCCATTTCTG spacer
length: 35 repeater length: 30
13607 359450 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CATGTGAATGTCATCCAGATCACCCATGGTTTCCA spacer
length: 35 repeater length: 30
13608 359516 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAGTGCCTGGGAACAGGAATTTGCCCTTTTTGGTG spacer
length: 35 repeater length: 30
13609 359582 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTCCATAACTATGTATTAATTCACCAAGACAATCT spacer
length: 35 repeater length: 30
13610 359648 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CCTCGTGGTCTTATCAGCCCATCACTAATATTCGTA spacer
length: 36 repeater length: 30
13611 359715 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCCTTCAAACGCCCTTATTACTTTACGTCATATTT spacer
length: 35 repeater length: 30
13612 359781 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GATCCGGGTAGTACATACTATTAATTTCTACACCT spacer
length: 35 repeater length: 30
13613 359847 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TGTACTCATGTTTGGCTTGATGATTCAGGGGTGA spacer
length: 35 repeater length: 30
13614 359913 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATACTTATGAGTAATTAATAACAGGAGTTGATACT spacer
length: 35 repeater length: 30
13615 359979 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATAATAGCATAATAAAAGTCAATGAAATATTCTTTT spacer
length: 36 repeater length: 30
13616 360046 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGGGGATTACAGCGGAACAAGTTTACCATATCCTT spacer
length: 35 repeater length: 30
13617 360112 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTACTTCCACCCTGGAGGAATGTACGGAGGTTACA spacer
length: 35 repeater length: 30

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13618 360178 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AAAAATTGTGGCAAATGGTAGAAGTTTAAAAAATGT spacer
length: 36 repeater length: 30
13619 360245 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CCCCCAATCAATGAAAATAGATATCTTATTAAATG spacer
length: 35 repeater length: 30
13620 360311 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GGAGAACTATCCGGCCATTATATCCTGCGTTTACA spacer
length: 35 repeater length: 30
13621 360377 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CATTATATGTGGAGTTGGTTTTTCAGTTGCCTTGTA spacer
length: 35 repeater length: 30
13622 360443 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCATTCTTCATCGCAGTTAAACTATCAGTTAAACT spacer
length: 35 repeater length: 30
13623 360509 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCCTCATTTTACCGGTTTTGTCCACGAATTTATCGA spacer
length: 36 repeater length: 30
13624 360576 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GCCCAAGCTTTCCTCTACGGCGACCCAATGTCCTA spacer
length: 35 repeater length: 30
13625 360642 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTCTTATGAGGATTGGAAAGCCAGACAACCAAACAG spacer
length: 36 repeater length: 30
13626 360709 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTGCGGGTGTAAACTCATACCGCCTAAGAGTAGTG spacer
length: 35 repeater length: 30
13627 360775 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATGCCTGAAATCTATAAATGAGAGCAGGCCGTAC spacer
length: 34 repeater length: 30
13628 360840 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTTAGACGCTTCCTTAAATTGGATACGGATGAGATT spacer
length: 36 repeater length: 30
13629 360907 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CGATTTTTTCATTTTGAGGATCTGGAGTTTCTTTTA spacer
length: 35 repeater length: 30
13630 360973 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTTTTTCAACTTCTACTATTTCTTCTTCTAATTCCC spacer
length: 36 repeater length: 30
13631 361040 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC ATTGTCAAGGTTCTAGGAACATCAGAGTACTATAA spacer
length: 35 repeater length: 30
13632 361106 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GTTCCAACAAGGGCTTCGTCTTCACGAATTTCTAG spacer
length: 35 repeater length: 30
13633 361172 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTCTTCTGACACTCTAGTTGATGATTGAGTAGTTA spacer
length: 35 repeater length: 30
13634 361238 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC GGGGGCATCATGTTAATGTGGTTCTTTTCAATATTC spacer
length: 36 repeater length: 30
13635 361305 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TCTCTACATTCTTACTGGCATCTTTTAAACACGCTT spacer
length: 35 repeater length: 30
13636 361371 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC TTATTCCCCCAGGGTTTCCATTATACCATATATTTA spacer
length: 36 repeater length: 30
13637 361438 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AACAGAACGCTCCCAAACCTTTAGACCCCACTGG spacer
length: 34 repeater length: 30
13638 361503 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC AGGATGACTTAAAATATACTCTCCTTTCTATTTAC spacer
length: 35 repeater length: 30
13639 361569 ATTTCAATCCTAAAAATAGTCTGATTTTAAAC CTTTTAAGCCCTCATTGTCTTCTAACTCATCATTG
13640
13641
13642 GCA_000504205.1_ASM50420v1_genomic.fna(findCrispr):
13643 START REPEAT
SPACER
13644 crispr 1
13645 128736 TCAAAATCAACTGGGACTTC
AGCAGGACTCAGGTCCAATGAATCAAGATCAAGAGGAAGTTCTCAGGAACAAGTTTCTCAGGAAGA spacer length: 63
repeater length: 20
13646 128820 TCAAAATCAACTGGGACTTC
AGCAGGACTCAGGTCCAATGAATCAAGATCAAGAGGAAGTTCTCAGGAACAAGTTTCTCAGGAAGA spacer length: 63
repeater length: 20
13647 128904 TCAAAATCAACTGGGACTTC
GTCAGGACTCAGGTCCAATGACTCAAGGTCAAGAGGAAGTTCTTCTCAGCAACAAGTTTCTCAGGAGA spacer length: 63
repeater length: 20
13648 128988 TCAAAATCAACTGGGACTTC
CAAGGATTGAAACCGGAAATCCCAACTTATGCCGAAGTTTGTAAATATGCAATTCTAAATCAAGA
13649
13650
13651 crispr 2
13652 460678 GAGTTCCAGATGCCAGAATTGAA
GCCACCGGAGCAAGAAATGACACAACAGGAATTCCAGATGCCTGAATTGAAACCACTGGAGCAAGAAATGACACAACAGGAATTCC
AGATGCCTGAATTGAAACCGGAGCAAGAAATAGCACAATC spacer length: 129 repeater length: 23
13653 460831 GAGTTCCAGATGCCAGAATTGAA
GCTGCCGGAGCAAGAAACGACACAACAGGAATTCCAGATGCCAGAATTGAAACCGCCGGAGCAAGAAGCAGAACAACC
spacer length: 78 repeater length: 23
13654 460933 GAGTTCCAGATGCCAGAATTGAA
ACCGCCGGGGCAAGAAGCAGAACAACCGGAGTTCCAGATGCCAGAGTTTAAGCCACCGGAACAAGAAGCAGAACAACC

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spacer length: 78 repeater length: 23
 13655 461035 GAGTTCCAGATGCCAGAATTGAA
 GATTGAAACCGAAATCCCAACTTATGCCGAACCTTTGTAATATGCAATTCTAAATCAAGATCCATTATAACAAGGATTG
 13656
 13657
 13658 crispr 3
 13659 460920 AGCAGAACAACCGGAGTTCCAGATGCCAGA ATTGAAACCGCCGGGGCAAG spacer length: 20
 repeater length: 30
 13660 460971 AGCAGAACAACCGGAGTTCCAGATGCCAGA GTTTAAGCCACCGGAACAAG spacer length: 20
 repeater length: 30
 13661 461022 AGCAGAACAACCGGAGTTCCAGATGCCAGA
 ATTGAAACCGCCGGGGCAAGAGGCAGAACAACAGGAATTCCAGATGCCAGAATTGAAACCACCGGAGCAAG spacer
 length: 71 repeater length: 30
 13662 461124 AGCAGAACAACCGGAGTTCCAGATGCCAGA
 AACTCTTGAATACCATCATCCGTAAAGTGAGTTTTCTGAATTCAAATGCAAGCTCCATTAAAATAAGGAT
 13663
 13664
 13665 crispr 4
 13666 782149 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TATTTAGCTACTGGATACATCAGCCGCCGACCTGTGCA
 spacer length: 38 repeater length: 36
 13667 782224 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TCACCTCCTTTGTTATGGGGAACCTGCAGGTTCTTC
 spacer length: 36 repeater length: 36
 13668 782297 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TCTATGAAAGATTCTATAATCTGTCTGTTCCGAATTGG
 spacer length: 36 repeater length: 36
 13669 782370 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TTATTTCCACCACCCTACTGGCCACTGTGTTTTA
 spacer length: 36 repeater length: 36
 13670 782443 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TTCAATAGCATATACTGTTCTTGTGCTATCAGAATAA
 spacer length: 37 repeater length: 36
 13671 782517 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TCCCGATGAAGATATAGAAGGCGTGAGAATTCCAAAG
 spacer length: 37 repeater length: 36
 13672 782591 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TTGATTCTACCGTCTGGTGTTATACAATGCGTGATTTTT
 spacer length: 39 repeater length: 36
 13673 782667 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TCTTATATTTCTTATTCCTTCATGCAATGCGGACTCTA
 spacer length: 38 repeater length: 36
 13674 782742 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TTACATGTAAAGTCAAGACCTGTCAATATGGGTCT
 spacer length: 35 repeater length: 36
 13675 782814 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA
 TAAATTGAAGATGACAATCAGAACACAATTATACGACAGTACCAG spacer length: 45 repeater length: 36
 13676 782896 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TAATGTATAAGTTTTATTTTCGGTAACAGTAAAAAC
 spacer length: 36 repeater length: 36
 13677 782969 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TATAGGACTTGGTGTTGCATTCTGCTGCTCTATTT
 spacer length: 35 repeater length: 36
 13678 783041 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TTTAACCATCCTGTCTTCCTCACTGAAGTTTGCAGAGAT
 spacer length: 39 repeater length: 36
 13679 783117 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TATGAACCAGCAAAATTCCAGTATCCGCCGCTTTCA
 spacer length: 36 repeater length: 36
 13680 783190 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA TCTCGTTTAAGTGGTGGGAAATAATGAAAAAAT
 spacer length: 34 repeater length: 36
 13681 783261 ATTCAAATGTAAGATCCATTAAAAACAAGGATTGAAA CGGAACAGGAGCTGGGACAAACGGCATTTCGCAT
 13682
 13683
 13684 crispr 5
 13685 804163 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CAGACTATTATTTCTCACTGGAATGATAGCATAGAC
 spacer length: 37 repeater length: 37
 13686 804238 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATGAATCATATATGAATGATTTCATTAGATGATGAAT
 spacer length: 36 repeater length: 37
 13687 804312 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC GAGAAAGGATCTATCGGTATCTCCCTTGATAGATACA
 spacer length: 36 repeater length: 37
 13688 804386 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CTGAAAGTATAGACATTTTCAGAAAAATCAAGTA
 spacer length: 33 repeater length: 37
 13689 804457 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATAGATTAGATATTTTTGAGATAAAAGAAGGCTTG
 spacer length: 35 repeater length: 37
 13690 804530 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TTTAGGACGAACTGTTGCGACTGATTAAACAGAT
 spacer length: 35 repeater length: 37
 13691 804603 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC AGTAAATGGACTGTGGAGCATCGCGGCTGGTTACCG
 spacer length: 36 repeater length: 37
 13692 804677 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TATATTTCCCTATAAAGCATAACCCTACTTAAAGCTG
 spacer length: 37 repeater length: 37
 13693 804752 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC AATACTATAGAGTACTATAGTATATTGGTAATGTAT
 spacer length: 36 repeater length: 37
 13694 804826 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CTTTAAACCCCTTCATATTAGGGTTTTCTTTATAT

spacer length: 35 repeater length: 37
 13695 804899 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TTTCTTTTATTATGGGGAACCTGCAGGTTCTTCCATGT
 spacer length: 38 repeater length: 37
 13696 804975 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CATGATTAGCCTCTGTTTCAAATAGCTCATTA
 spacer length: 34 repeater length: 37
 13697 805047 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATTCTACTAGCATTTTATATTCTTCTAATGATA
 spacer length: 33 repeater length: 37
 13698 805118 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATAAAATCAATGGCTTCGCTATATGGAGGATTGT
 spacer length: 35 repeater length: 37
 13699 805191 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TGATAGTTGCCGGTGTCTTGGTATGTCTGCACGCC
 spacer length: 36 repeater length: 37
 13700 805265 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TTGTAGTGCCTGATATTGTAGCCGGTGGTCTCAGGT
 spacer length: 36 repeater length: 37
 13701 805339 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ACTAATATAATCATACAGGCATGTAATGATATTGGAT
 spacer length: 37 repeater length: 37
 13702 805414 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATTTTTTCTGTATCTTCTTTTGCTTCTGCCTGATT
 spacer length: 35 repeater length: 37
 13703 805487 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TAGTTCTCACAAGTTTCTACTCTAGATTCAATTT
 spacer length: 34 repeater length: 37
 13704 805559 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC AAGTAAAATCCATTGTAGCGGGAGTACTTGCCATAA
 spacer length: 36 repeater length: 37
 13705 805633 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATACTCCTGTAGGAAGCATGCCATTCATAGTTAT
 spacer length: 34 repeater length: 37
 13706 805705 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC AGGTTTACCATTTGAAAGCCCCCTAAAAAAGGG
 spacer length: 34 repeater length: 37
 13707 805777 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC GACATTATTGCCCTCCGCCACATGATTACAGCCTCG
 spacer length: 38 repeater length: 37
 13708 805853 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ACTTCATACAAGAGTAATCCCCCACTGCCG spacer
 length: 31 repeater length: 37
 13709 805922 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TTATGGGAACATCCGAAAATGATTTCTCTTCT
 spacer length: 34 repeater length: 37
 13710 805994 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC AAACAGATTTCATATTCAATTGTTTCAATCACTGTT
 spacer length: 35 repeater length: 37
 13711 806067 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CTGATAAGGGTATTGTCAAATCTCGTCTCCTTGTTT
 spacer length: 36 repeater length: 37
 13712 806141 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CTGGATACCTGGAAAGGACCAGAAATTAAATCATAA
 spacer length: 36 repeater length: 37
 13713 806215 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TTTTAGGATCCTTCAGGAATCCCGGCAAAACTA
 spacer length: 34 repeater length: 37
 13714 806287 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TAGGATGCATCAACCCATGTATCAACTTCATTAC
 spacer length: 34 repeater length: 37
 13715 806359 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ATAAGTTAATTGTAGTACCTGCTATTGCCGCTGGCGG
 spacer length: 37 repeater length: 37
 13716 806434 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TGTCTTTGAGTGCCTTGTCAAAGAACTTATCACCG
 spacer length: 35 repeater length: 37
 13717 806507 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC CTGGATACCTGGAAAGGACCAGAAATTAAATCATA
 spacer length: 35 repeater length: 37
 13718 806580 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ACTGGAATATTTCAACACCTTTTGTTCACGCCATCT
 spacer length: 38 repeater length: 37
 13719 806656 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC TGAAGTCATCAAAAAGACTCATGCTTCAGCCCCCA
 spacer length: 35 repeater length: 37
 13720 806729 ATTCAAAATCAAGATCCACTAAAACAAGGATTGAAAC ACAGGAGCTGGGACAAACGGCATTGCGATGCCG
 13721
 13722
 13723 crispr 6
 13724 128931 CTCAGGTCCAATGACTCAAGGTCAAGAGGAACCTTCTTCAG
 CAACAACCTTCAGGAGAAATCAAAATCAACTGGGACTTCGTCAGG spacer length: 43 repeater length: 40
 13725 129015 CTCAGGTCCAATGACTCAAGGTCAAGAGGAACCTTCTTCAG
 CAACATCCTCAGAAAGACTCAAAATCAACTGGAGCTGCATCAGG spacer length: 43 repeater length: 40
 13726 129099 CTCAGGTCCAATGACTCAAGGTCAAGAGGAACCTTCTTCAG
 GCCACCGGAACAGGAGCTGGGACAAACGGCATTGCGATGCCG
 13727
 13728
 13729 GCA_000508305.1_ASM50830v1_genomic.fna(findCrispr):
 13730 START REPEAT
 SPACER
 13731 crispr 1
 13732 1841193 CATTTCTTAGTCCTTCTATCTC TTTCTCACCTCGCTTCTCAGATCTTCTATTTCTTTCTCATA spacer
 length: 43 repeater length: 22
 13733 1841259 CATTTCTTAGTCCTTCTATCTC
 TTTCTAGTCTCATTCCTCAAATTCTCCATATCACTTTTCGTAAAGTTTCTCAGCTCATTCATATCGTTTTTTATA spacer

length: 76 repeater length: 22
13734 1841358 CATTCTTAGTCCTTCTATCTC
GGCGAAGGCGCAGTTAGAATGGGAAGATTTAAAAATGTTCTTTCAATCCCTTTTGGGATGCATCTGATGTGTTTAT

13735
13736
13737 crispr 2

13738 1846031 CTTTCAATCCCTTTTGGGATGCATC TACGCTACGTTGAAGAATTTGCGCGTTCTGGATACT spacer
length: 36 repeater length: 25

13739 1846093 CTTTCAATCCCTTTTGGGATGCATC AAAATAATACCTGAGGCATGGCTAAACGCATTACAACAAT spacer
length: 40 repeater length: 25

13740 1846159 CTTTCAATCCCTTTTGGGATGCATC GGATTCTGGTTGTTCTTTAATGATGCTCTATGGATTA spacer
length: 37 repeater length: 25

13741 1846222 CTTTCAATCCCTTTTGGGATGCATC GAGCATTACGTGAAGTAGTATCAGATGCTGTGGTAAGGG spacer
length: 39 repeater length: 25

13742 1846287 CTTTCAATCCCTTTTGGGATGCATC ATAAAAGATTTACAAAAAGGGCTAAAAAGCGGAGTCT spacer
length: 37 repeater length: 25

13743 1846350 CTTTCAATCCCTTTTGGGATGCATC AACGAGCGACGCCAAATTCACGGAGCCTGAAATGG spacer length:
35 repeater length: 25

13744 1846411 CTTTCAATCCCTTTTGGGATGCATC CTTTAGGATTGGCTAGGATATTCGTGACGGTTTTAAGTA spacer
length: 39 repeater length: 25

13745 1846476 CTTTCAATCCCTTTTGGGATGCATC AGGTTTTATAGCTTAATTGTTAAGCGTTTAACTTTTTTA spacer
length: 38 repeater length: 25

13746 1846540 CTTTCAATCCCTTTTGGGATGCATC TAGATGACTGGTTGATATTCCTAAAGGACTATATCATAAATCTA
spacer length: 44 repeater length: 25

13747 1846610 CTTTCAATCCCTTTTGGGATGCATC TTGGAATATAAGGTATTGCCGGGTATTTACATATTGAT spacer
length: 38 repeater length: 25

13748 1846674 CTTTCAATCCCTTTTGGGATGCATC TAAAAATTTTAACTTTTTTTGATCAATTTTCTCATGGA spacer
length: 38 repeater length: 25

13749 1846738 CTTTCAATCCCTTTTGGGATGCATC TTGTGGTATGTAATGGTGAGGGGTAGATGAGGATAA spacer
length: 37 repeater length: 25

13750 1846801 CTTTCAATCCCTTTTGGGATGCATC TTACACGACAAGACCTAAGCTCACAGACCTAGCCA spacer length:
35 repeater length: 25

13751 1846862 CTTTCAATCCCTTTTGGGATGCATC CAGAAATGAGGTACGATAAGTTTTTCAGTTAATGTCCAAG spacer
length: 39 repeater length: 25

13752 1846927 CTTTCAATCCCTTTTGGGATGCATC AAAATAGGAGGTGGGTACAGCAAAGGGGTATGGTATTTCA spacer
length: 39 repeater length: 25

13753 1846992 CTTTCAATCCCTTTTGGGATGCATC TAGATATTTGATAGTTCCTTTAGGCGAATACTACC spacer length:
35 repeater length: 25

13754 1847053 CTTTCAATCCCTTTTGGGATGCATC CTAGACAGCAACAGAAGAATCAGCCCCACTACGAGTT spacer
length: 37 repeater length: 25

13755 1847116 CTTTCAATCCCTTTTGGGATGCATC TTATAATAGATTTATTCAGAAATGTTGAGTCATATGTTA spacer
length: 39 repeater length: 25

13756 1847181 CTTTCAATCCCTTTTGGGATGCATC TTTTCTTACGGCTAGCGTTATGCTCATAATCCCAGTCTTCC spacer
length: 41 repeater length: 25

13757 1847248 CTTTCAATCCCTTTTGGGATGCATC CAAGAACTTTTAAAGGGAGGGGTGATAACATCATTAGTA spacer
length: 40 repeater length: 25

13758 1847314 CTTTCAATCCCTTTTGGGATGCATC AAGATATATAATATTTACTAATGTGAATGCGAATCAATTAA spacer
length: 41 repeater length: 25

13759 1847381 CTTTCAATCCCTTTTGGGATGCATC GATCTTCATAATCTGATATTATTACTTTCAATTCATTTA spacer
length: 39 repeater length: 25

13760 1847446 CTTTCAATCCCTTTTGGGATGCATC TTTTAAACGCAAAATATATTAACAACAATAACATAATAA spacer
length: 38 repeater length: 25

13761 1847510 CTTTCAATCCCTTTTGGGATGCATC ATTAAATATTTGAGAATCTATGGGACTGCCAATGTTA spacer
length: 37 repeater length: 25

13762 1847573 CTTTCAATCCCTTTTGGGATGCATC AAGAAGAAGATATGGAGATCATGTCTTTGAGAAAATTA spacer
length: 38 repeater length: 25

13763 1847637 CTTTCAATCCCTTTTGGGATGCATC TCTAGCGCCTGTGTTAACCCACTCTGTGGGGTTTTAT spacer
length: 37 repeater length: 25

13764 1847700 CTTTCAATCCCTTTTGGGATGCATC CTCAGCGTTATCAACAGGGTTAGAAAATTGCGTATGGAC spacer
length: 39 repeater length: 25

13765 1847765 CTTTCAATCCCTTTTGGGATGCATC CGAAAACAGCCTTCACTGCTCCGGCTTAAATGTTATCA spacer
length: 38 repeater length: 25

13766 1847829 CTTTCAATCCCTTTTGGGATGCATC AATACGTATACAATAAACATATTGTTTAGCTTAAACA spacer
length: 38 repeater length: 25

13767 1847893 CTTTCAATCCCTTTTGGGATGCATC CGAACTGTGGTTACCCAACACAGCATATACTAATACAT spacer
length: 38 repeater length: 25

13768 1847957 CTTTCAATCCCTTTTGGGATGCATC AAAGATAAAGTTACCCGAAAGTGCAATCGATGCATTAT spacer
length: 38 repeater length: 25

13769 1848021 CTTTCAATCCCTTTTGGGATGCATC CCAACGATAACAGCCACTGTATCCGGTGGTACAAGTACG spacer
length: 39 repeater length: 25

13770 1848086 CTTTCAATCCCTTTTGGGATGCATC TCCCAGACACCCAAACGATAAGTATGATATGTTAGTGT spacer

length: 38 repeater length: 25
13771 1848150 CTTTCAATCCCTTTTGGGATGCATC AGGCGCCGGGTATGCTATAATATTAAATAATATTTGAT spacer
length: 38 repeater length: 25
13772 1848214 CTTTCAATCCCTTTTGGGATGCATC GGTATGGTCTTCCATATGGGGAAATACAATAACGGTAA spacer
length: 39 repeater length: 25
13773 1848279 CTTTCAATCCCTTTTGGGATGCATC ATGCGGTTTGGGGGGTAATTGGTATCCCCACAGTAGCCG spacer
length: 39 repeater length: 25
13774 1848344 CTTTCAATCCCTTTTGGGATGCATC GGGCTTTACTCATTTTTTTTTATCACCCTCTATGAT spacer
length: 36 repeater length: 25
13775 1848406 CTTTCAATCCCTTTTGGGATGCATC AATGGACAATTTACAATTTCCGCACCATTACAATCGGGAT spacer
length: 40 repeater length: 25
13776 1848472 CTTTCAATCCCTTTTGGGATGCATC GCTGATAACCGCTTACGGAAATACCAGTTTGTTCATA spacer
length: 38 repeater length: 25
13777 1848536 CTTTCAATCCCTTTTGGGATGCATC CCGGTAAAAGTGCTAAAGTTGGTACAGAAAGTACACA spacer
length: 37 repeater length: 25
13778 1848599 CTTTCAATCCCTTTTGGGATGCATC CCAATACTGCTACCAAGGGATAAAATAATGATAGAAGC spacer
length: 38 repeater length: 25
13779 1848663 CTTTCAATCCCTTTTGGGATGCATC AATATATGAGTGAAAACGAAAACGAAAGTGGAAAGAAAA spacer
length: 39 repeater length: 25
13780 1848728 CTTTCAATCCCTTTTGGGATGCATC TGGAAGACTTCTATTTCAGAGCTAATATCACAACCTACAT spacer
length: 38 repeater length: 25
13781 1848792 CTTTCAATCCCTTTTGGGATGCATC TTGATGGTAAGGCTGAATGTGAGAGTTACGGGTATT spacer
length: 36 repeater length: 25
13782 1848854 CTTTCAATCCCTTTTGGGATGCATC TGATGAGTGGGGATATATTTACAGTGTGTTAGTAAATAC spacer
length: 39 repeater length: 25
13783 1848919 CTTTCAATCCCTTTTGGGATGCATC TAATTTGTCTAGTATACATAGTGTACTTACTTAAGTAAT spacer
length: 39 repeater length: 25
13784 1848984 CTTTCAATCCCTTTTGGGATGCATC TGTCTAACGTCATTAATATCATGATTCTTCGCATATCT spacer
length: 38 repeater length: 25
13785 1849048 CTTTCAATCCCTTTTGGGATGCATC ACTTGGATAATAACTGGCTAACAGAAAAGTGGAGTAGTA spacer
length: 39 repeater length: 25
13786 1849113 CTTTCAATCCCTTTTGGGATGCATC AGTAAATAGAGAGAGAAGATAGGTAGGCTATTGAT spacer length:
35 repeater length: 25
13787 1849174 CTTTCAATCCCTTTTGGGATGCATC TATTGTTAGTGTACTGATAATGAAAGGTTTATTATTA spacer
length: 38 repeater length: 25
13788 1849238 CTTTCAATCCCTTTTGGGATGCATC CTATCAAGTTACATTACGATGTACAGTATGTGCAAACGACGTTTT
spacer length: 45 repeater length: 25
13789 1849309 CTTTCAATCCCTTTTGGGATGCATC TTAATTATCCCTATTCCTTTTATTATATATATATTAGGGA spacer
length: 40 repeater length: 25
13790 1849375 CTTTCAATCCCTTTTGGGATGCATC TTTATGTGGCCTTTTATATATGTTGTTGAAGTTATAATC spacer
length: 39 repeater length: 25
13791 1849440 CTTTCAATCCCTTTTGGGATGCATC AAATATCACCTTATCATCTTGTAATATTCTAACATGACCTTTT spacer
length: 43 repeater length: 25
13792 1849509 CTTTCAATCCCTTTTGGGATGCATC CATGGGCTGATGTGCAAACATGTGTTAAAGGTGTACAA spacer
length: 38 repeater length: 25
13793 1849573 CTTTCAATCCCTTTTGGGATGCATC GTTAACGTCGTAAAAGTAAGGAGATTAATGCGTAAAT spacer
length: 38 repeater length: 25
13794 1849637 CTTTCAATCCCTTTTGGGATGCATC GTGGGGTGTGCGTCCCAAGAACCCTATTTCCAGTTCTGTTC spacer
length: 41 repeater length: 25
13795 1849704 CTTTCAATCCCTTTTGGGATGCATC ATGTGATTGCACATTTTTTATGATCATTTTATGCGGGAAG spacer
length: 39 repeater length: 25
13796 1849769 CTTTCAATCCCTTTTGGGATGCATC TGAAGTTGTTGACATTATAATGGAGTCAGAGTATATTA spacer
length: 38 repeater length: 25
13797 1849833 CTTTCAATCCCTTTTGGGATGCATC TTGATACTGAAAGGAAGACGATTACAGTCAAACCTAGAGA spacer
length: 39 repeater length: 25
13798 1849898 CTTTCAATCCCTTTTGGGATGCATC CGGACACTGACAAAATCGCAGAAGAATGGATTAATAAA spacer
length: 38 repeater length: 25
13799 1849962 CTTTCAATCCCTTTTGGGATGCATC TTAATCAATATCGCGCGAAAGTAAATGCTTTATTGGGTG spacer
length: 39 repeater length: 25
13800 1850027 CTTTCAATCCCTTTTGGGATGCATC GGATGCATCATTTATATTGGTTCCGCGCACGGGCATATCCACCCA
spacer length: 45 repeater length: 25
13801 1850098 CTTTCAATCCCTTTTGGGATGCATC AAATAATTTCTAAATAACGTGGTATGGTAAGGGTATACTCAA spacer
length: 42 repeater length: 25
13802 1850166 CTTTCAATCCCTTTTGGGATGCATC GACAAGAAGTTTTCAGGAAAGAGCCATACAGTATTTGACA spacer
length: 38 repeater length: 25
13803 1850230 CTTTCAATCCCTTTTGGGATGCATC CTATATGCAAATTATCTTAGATGATGATATTACTATAGC spacer
length: 39 repeater length: 25
13804 1850295 CTTTCAATCCCTTTTGGGATGCATC AAGCTCTCGATAATAATGAACGTAAGATCTGCCTAAT spacer
length: 37 repeater length: 25
13805 1850358 CTTTCAATCCCTTTTGGGATGCATC ATCACAAATGAGGTAGTGCCGACTGGTCTTCAGCTTC spacer
length: 37 repeater length: 25

13806	1850421	CTTTCAATCCCTTTTGGGATGCATC	AATAATACATCTCAACCTATTATACTAAATAAAGAGCTCT	spacer
		length: 40	repeater length: 25	
13807	1850487	CTTTCAATCCCTTTTGGGATGCATC	GAGAAAATAAGCAAGTTCTTTTTATTGGTCAAAATGAA	spacer
		length: 38	repeater length: 25	
13808	1850551	CTTTCAATCCCTTTTGGGATGCATC	ACAAAAGAAAAGACGAGGTAATGACGTGGCATATTAAAGTT	spacer
		length: 41	repeater length: 25	
13809	1850618	CTTTCAATCCCTTTTGGGATGCATC	TAATGGCAGATAAAATTCGAATCCTTGTTTTAATTTTA	spacer
		length: 38	repeater length: 25	
13810	1850682	CTTTCAATCCCTTTTGGGATGCATC	AGAGAGATCAATATTGATGAAATCAGAAGTATATTAGATC	spacer
		length: 40	repeater length: 25	
13811	1850748	CTTTCAATCCCTTTTGGGATGCATC	ATTACTTAGCGAATTAATAGACACATTAACAGATGTCA	spacer
		length: 38	repeater length: 25	
13812	1850812	CTTTCAATCCCTTTTGGGATGCATC	AACTTCTCATCCAGCGTCTGCTTATCCAATTGTGAATAGTA	spacer
		length: 41	repeater length: 25	
13813	1850879	CTTTCAATCCCTTTTGGGATGCATC	ACGAGTACACTAACAATAAATTGGTCTATGCCAGTTAC	spacer
		length: 38	repeater length: 25	
13814	1850943	CTTTCAATCCCTTTTGGGATGCATC	GAAATTGTAAGCACGATCGCGTTACTGGCAGAAAAACAA	spacer
		length: 39	repeater length: 25	
13815	1851008	CTTTCAATCCCTTTTGGGATGCATC	TAATCGTATTTCGTATTAGGTATTGAATGCATATACAAAT	spacer
		length: 39	repeater length: 25	
13816	1851073	CTTTCAATCCCTTTTGGGATGCATC	AAGGTTAATCGAGGCTAAGAGGGTTAACTGACATTTTATG	spacer
		length: 41	repeater length: 25	
13817	1851140	CTTTCAATCCCTTTTGGGATGCATC	ATAAATGCCGTTACTGATCTGTATTGGCGCCGTACC	spacer
		length: 36	repeater length: 25	
13818	1851202	CTTTCAATCCCTTTTGGGATGCATC	AAAAGTAGAAGATTTAGCGGAAATCGAGTTTGCCAATA	spacer
		length: 38	repeater length: 25	
13819	1851266	CTTTCAATCCCTTTTGGGATGCATC	CAATTAAAGTATATTGAACAATTTGCGAGTGCCGGATATT	spacer
		length: 40	repeater length: 25	
13820	1851332	CTTTCAATCCCTTTTGGGATGCATC	TTAATTCAACGAGACTGCGAAGCACCGAGGGAAATAGTAC	spacer
		length: 40	repeater length: 25	
13821	1851398	CTTTCAATCCCTTTTGGGATGCATC	TTAAGTAAGGCGTTTTTCGCGGGATAGATATATTTTTCC	spacer
		length: 38	repeater length: 25	
13822	1851462	CTTTCAATCCCTTTTGGGATGCATC	TCGAGCAACACTCGTTAGCTCGTCTTCTGCTGCAGACGTTT	spacer
		length: 41	repeater length: 25	
13823	1851529	CTTTCAATCCCTTTTGGGATGCATC	TAAGTACGTGATTGAGGCTTAACTTTGGGGATTATCTA	spacer
		length: 39	repeater length: 25	
13824	1851594	CTTTCAATCCCTTTTGGGATGCATC	TAGTAGTAAGTAGTCTGGACACTTACATTTAACACTTTT	spacer
		length: 39	repeater length: 25	
13825	1851659	CTTTCAATCCCTTTTGGGATGCATC	ACGTTAACTGAGGAAAGACTACTAGCGCTCTCGACCCACGCA	spacer
		length: 42	repeater length: 25	
13826	1851727	CTTTCAATCCCTTTTGGGATGCATC	CAAAAAAGAAGACACAAACCACACTCAGCTTACACTCC	spacer
		length: 38	repeater length: 25	
13827	1851791	CTTTCAATCCCTTTTGGGATGCATC	TAAAGAAGGAATACTGAAGATTGTAAATGAAATGGTA	spacer
		length: 37	repeater length: 25	
13828	1851854	CTTTCAATCCCTTTTGGGATGCATC	CTGGCTAACATATAATAACGGTACACTCGCTCTCGCC	spacer
		length: 37	repeater length: 25	
13829	1851917	CTTTCAATCCCTTTTGGGATGCATC	CAAAAAGTACCGTAAATCAATACAACGTATATATCTA	spacer
		length: 38	repeater length: 25	
13830	1851981	CTTTCAATCCCTTTTGGGATGCATC	ACAAGTATGGAATGGTTTGGTTGCATTTGGTAATGATGT	spacer
		length: 39	repeater length: 25	
13831	1852046	CTTTCAATCCCTTTTGGGATGCATC	ATTTTTTCGTATGGGTTACCGTTTGACGTTGGCTTTACCA	spacer
		length: 40	repeater length: 25	
13832	1852112	CTTTCAATCCCTTTTGGGATGCATC	GTAAGAGAGATTCATTTTTCTGAGTGGGGTGAGATGA	spacer
		length: 37	repeater length: 25	
13833	1852175	CTTTCAATCCCTTTTGGGATGCATC	AACACACACGTTATAGTTTTAAATCACTGAGTGAATTATTTAAT	spacer
		length: 44	repeater length: 25	
13834	1852245	CTTTCAATCCCTTTTGGGATGCATC	CAACATACTTCTGTAGTTTCAACTGGTATAGATAGCAAAA	spacer
		length: 41	repeater length: 25	
13835	1852312	CTTTCAATCCCTTTTGGGATGCATC	TTAATTGTGTCATTCTGAGTCACCCTCAACCCATAGCGTA	spacer
		length: 40	repeater length: 25	
13836	1852378	CTTTCAATCCCTTTTGGGATGCATC	ATGTATTTCGTATACGAGGTACTAGGGAACTTATATAC	spacer
		length: 38	repeater length: 25	
13837	1852442	CTTTCAATCCCTTTTGGGATGCATC	GACAGATATGGTAGTGGATGCCTATGGAATTGAAAGTCTTA	spacer
		length: 41	repeater length: 25	
13838	1852509	CTTTCAATCCCTTTTGGGATGCATC	CAATGACATGGATAGTGAAGATAATAAGAATATATAAAA	spacer
		length: 39	repeater length: 25	
13839	1852574	CTTTCAATCCCTTTTGGGATGCATC	TTAACTACCCCCACAATAGCTGCTGATGGAAGACTTGAGT	spacer
		length: 40	repeater length: 25	
13840	1852640	CTTTCAATCCCTTTTGGGATGCATC	CAAATATAATGTGAAGACAACATTGCGTAATACCAACTTATA	spacer
		length: 42	repeater length: 25	
13841	1852708	CTTTCAATCCCTTTTGGGATGCATC	ACTATTATAGAGGGCAATGCGAGGAGGAAGGTTTGTTA	spacer

length: 38 repeater length: 25
13842 1852772 CTTTCAATCCCTTTTGGGATGCATC TAATCCTTTTACCTAAATATCGAGATACTATTATATCTTCTTC spacer
length: 43 repeater length: 25
13843 1852841 CTTTCAATCCCTTTTGGGATGCATC AAGAAATAAGAGCGAGAAACAAAACGAAAACGAAATCA spacer
length: 39 repeater length: 25
13844 1852906 CTTTCAATCCCTTTTGGGATGCATC TAGAGAAGGGTCTTCTAGAAAGAAGACCGGTAAAGA spacer
length: 36 repeater length: 25
13845 1852968 CTTTCAATCCCTTTTGGGATGCATC ATGCACGTATTGCGAATAATGCAACGTGTGGCACTGTGACAT spacer
length: 42 repeater length: 25
13846 1853036 CTTTCAATCCCTTTTGGGATGCATC CATGGTCTCACACCCTCTGTGCTAAATGCTTAATCATCTC spacer
length: 40 repeater length: 25
13847 1853102 CTTTCAATCCCTTTTGGGATGCATC AGGGGAAAACAAGAGTATATGAGTTTAGTGATGGTATCT spacer
length: 39 repeater length: 25
13848 1853167 CTTTCAATCCCTTTTGGGATGCATC CAGAAAGAGGCTAAGAACAGTAGGTTAGCGCGCGTAACCT spacer
length: 40 repeater length: 25
13849 1853233 CTTTCAATCCCTTTTGGGATGCATC ACGATGTAATGAGGCATTACAGAAAAGCAGATGAAGAGACTG spacer
length: 42 repeater length: 25
13850 1853301 CTTTCAATCCCTTTTGGGATGCATC AGCACCTGCTAAAGCGACACTATTGTTGTAAGGATCC spacer
length: 37 repeater length: 25
13851 1853364 CTTTCAATCCCTTTTGGGATGCATC GAGCAAGTTGCAGTTAATCGCTCAATGCTGAAGATAAG spacer
length: 38 repeater length: 25
13852 1853428 CTTTCAATCCCTTTTGGGATGCATC ATATAAGGGGAGATATATATTGTATATTACAATTTTAC spacer
length: 38 repeater length: 25
13853 1853492 CTTTCAATCCCTTTTGGGATGCATC CCACAAATGAAGGCGAAAATATACGCGTTAAGTGAGAGGA spacer
length: 40 repeater length: 25
13854 1853558 CTTTCAATCCCTTTTGGGATGCATC TTGGTCGATACCTTGAGGTTTTGAAATACGTAAGT spacer length:
35 repeater length: 25
13855 1853619 CTTTCAATCCCTTTTGGGATGCATC TTGGTCGATACCTTGAGGTTTTGAAATACGTAAGT spacer length:
35 repeater length: 25
13856 1853680 CTTTCAATCCCTTTTGGGATGCATC AAAACCAAATTCAAACCCCGCGGGTGTGGGGGTTTTT spacer
length: 38 repeater length: 25
13857 1853744 CTTTCAATCCCTTTTGGGATGCATC AAATGTATATAATCTTGTTATTCAGCCAGCGTATGATGAGTACGTGTTG
spacer length: 49 repeater length: 25
13858 1853819 CTTTCAATCCCTTTTGGGATGCATC ATATACGATTTCCAAATAAGGAGTAAAAGTAGAGAGGGT spacer
length: 39 repeater length: 25
13859 1853884 CTTTCAATCCCTTTTGGGATGCATC CAGCGTTACCGTCAGACCCAGATTTGCCCCAAGCGTTTA spacer
length: 39 repeater length: 25
13860 1853949 CTTTCAATCCCTTTTGGGATGCATC TCGAATATTGAAGTGAGAATCATAAATTATTAATACAC spacer
length: 38 repeater length: 25
13861 1854013 CTTTCAATCCCTTTTGGGATGCATC GTGGGAGATTTCGTGAAATTGCATGGAAGATGTTGGCGGAA spacer
length: 40 repeater length: 25
13862 1854079 CTTTCAATCCCTTTTGGGATGCATC TAAAAAATTGTTAAGGCTGGCAAATCTTGAAAAGGTAC spacer
length: 38 repeater length: 25
13863 1854143 CTTTCAATCCCTTTTGGGATGCATC ATGATGGAACATGGTGTAAATTATGCATGAGATTGTCTG spacer
length: 37 repeater length: 25
13864 1854206 CTTTCAATCCCTTTTGGGATGCATC AATATCCTTACCTTTTGCACCGTCCACTCCATAACTTCG spacer
length: 39 repeater length: 25
13865 1854271 CTTTCAATCCCTTTTGGGATGCATC TTGATTTTGCCTTTTGATTTCAGAGGTATTATACTACAAGGATATCA
spacer length: 45 repeater length: 25
13866 1854342 CTTTCAATCCCTTTTGGGATGCATC TATATTTTATTTCAACTTTTAAGCGTTTAACTTTTTATTATTA spacer
length: 43 repeater length: 25
13867 1854411 CTTTCAATCCCTTTTGGGATGCATC AACGTTACAATGATGGTAAGTGGAGATTATATTAAGTAC spacer
length: 39 repeater length: 25
13868 1854476 CTTTCAATCCCTTTTGGGATGCATC AATGGATGTCGATGAAGCTGTCTCAAAGGTTTCATGTTGTT spacer
length: 40 repeater length: 25
13869 1854542 CTTTCAATCCCTTTTGGGATGCATC AGCCAGCTGCGCTTTTGTAGATAATTGCGTCAATTCAA spacer
length: 38 repeater length: 25
13870 1854606 CTTTCAATCCCTTTTGGGATGCATC ATTGAATAAGATTGAACCTCCTGATTTAGGAGATA spacer length:
35 repeater length: 25
13871 1854667 CTTTCAATCCCTTTTGGGATGCATC ATTGACCGGAAACAAACCATCATTATCATTACTTGAT spacer
length: 37 repeater length: 25
13872 1854730 CTTTCAATCCCTTTTGGGATGCATC AAAAATATTAAGTCAATATGAAGAGCCGCGTTATGCTA spacer
length: 38 repeater length: 25
13873 1854794 CTTTCAATCCCTTTTGGGATGCATC ATATTACAATCACCATGAAGGTAAAACAGTTGGATGAA spacer
length: 38 repeater length: 25
13874 1854858 CTTTCAATCCCTTTTGGGATGCATC AAACCTGAGGCACAAATAAGACGTGAGTTAACAGTATATC spacer
length: 39 repeater length: 25
13875 1854923 CTTTCAATCCCTTTTGGGATGCATC ATTTAAAATGAATACTATAATATATTCCACTCAATTATA spacer
length: 39 repeater length: 25
13876 1854988 CTTTCAATCCCTTTTGGGATGCATC CAATACCTTCCAATATTAGCCACTGTAGCAATAGTAAT spacer
length: 38 repeater length: 25

13877 1855052 CTTTCAATCCCTTTTGGGATGCATC CAATACCTTCCAATATTAGCCACTGTAGCAATAGTAAT spacer
length: 38 repeater length: 25
13878 1855116 CTTTCAATCCCTTTTGGGATGCATC TGCAATTTTTTACATGTCATATTTAGTATTTAGTATTCA spacer
length: 38 repeater length: 25
13879 1855180 CTTTCAATCCCTTTTGGGATGCATC CGTCATATGTAGCGCAATGCGTAGCACTTGGCGGAACAAC spacer
length: 40 repeater length: 25
13880 1855246 CTTTCAATCCCTTTTGGGATGCATC ATAATAACCCAATGGAATGGTATGTAAAAATGAT spacer length:
34 repeater length: 25
13881 1855306 CTTTCAATCCCTTTTGGGATGCATC GGATTGAAAGTTATGACAAAGGAGGTTGATATTGAGGGTTTTAG
spacer length: 44 repeater length: 25
13882 1855376 CTTTCAATCCCTTTTGGGATGCATC ACGATGGTAGAGAAATTGTTTTATGCGGGGGTGATTAATG spacer
length: 40 repeater length: 25
13883 1855442 CTTTCAATCCCTTTTGGGATGCATC CCCAACGGGCACGGGGAGTTTTTCAGACGTCCCTAAGC spacer
length: 38 repeater length: 25
13884 1855506 CTTTCAATCCCTTTTGGGATGCATC AAGTTCTTTTCGCAACTTCAACATTCTGCGCCGGCTCCA spacer
length: 38 repeater length: 25
13885 1855570 CTTTCAATCCCTTTTGGGATGCATC CGTGGCGCTTAAGGCTTAATATATTTTAAGGCTTAA spacer
length: 36 repeater length: 25
13886 1855632 CTTTCAATCCCTTTTGGGATGCATC TTTATAGTTGCTGTGGATGCAGACATTTGGGTCATGATA spacer
length: 39 repeater length: 25
13887 1855697 CTTTCAATCCCTTTTGGGATGCATC CCGGGACTAAGTATATCATGGGGATAAAAAAATGA spacer length:
35 repeater length: 25
13888 1855758 CTTTCAATCCCTTTTGGGATGCATC AAAGACAGAACTAATGATGTAAATGTAAATAACTACTTAA spacer
length: 40 repeater length: 25
13889 1855824 CTTTCAATCCCTTTTGGGATGCATC AGAAGTAAGCGTTCTATCTTGCAACGTCACTATAAACTC spacer
length: 39 repeater length: 25
13890 1855889 CTTTCAATCCCTTTTGGGATGCATC AGATGAAGTCAGGATCTCCATAGTTAAATGGCACAACAATAATAA
spacer length: 45 repeater length: 25
13891 1855960 CTTTCAATCCCTTTTGGGATGCATC ATTTAGTAGTAGCAATTAACATAATAGTATTTTCTCCTTT spacer
length: 40 repeater length: 25
13892 1856026 CTTTCAATCCCTTTTGGGATGCATC CAGAAATAGATTTCTGGGGTTGTTACCGCATACTTTGGT spacer
length: 39 repeater length: 25
13893 1856091 CTTTCAATCCCTTTTGGGATGCATC CACAAATAAGGCAGGGGTTTTACAACGAACAGCAAATAA spacer
length: 39 repeater length: 25
13894 1856156 CTTTCAATCCCTTTTGGGATGCATC TGATTTTTCAGTCAGAAATATTGCTCTATAAGGATATTA spacer
length: 38 repeater length: 25
13895 1856220 CTTTCAATCCCTTTTGGGATGCATC CTAGAGGATATGGGAGCCCCGCCAGATGTTGTCG spacer length:
34 repeater length: 25
13896 1856280 CTTTCAATCCCTTTTGGGATGCATC AGAGTTTTCGGCAATCGCCCCAACAGGCACTAGCCGTGTGGG spacer
length: 40 repeater length: 25
13897 1856346 CTTTCAATCCCTTTTGGGATGCATC TTATATAATGCGTAGTGCCGTTGATGAGAACATTTATAT spacer
length: 39 repeater length: 25
13898 1856411 CTTTCAATCCCTTTTGGGATGCATC AGGTTATGAAGTGGGGTATCAAAGTTGTGAAGATAACGA spacer
length: 39 repeater length: 25
13899 1856476 CTTTCAATCCCTTTTGGGATGCATC CCTTTTTTCAATTCATCAGCACTCAGGTTACTAAATAC spacer
length: 38 repeater length: 25
13900 1856540 CTTTCAATCCCTTTTGGGATGCATC ATCATTGTAGCGGTTATATAATTTAAATAGCCATATGCA spacer
length: 39 repeater length: 25
13901 1856605 CTTTCAATCCCTTTTGGGATGCATC AGAATTTATTACGAGTTGGATAATAATTGCAGAAATA spacer
length: 37 repeater length: 25
13902 1856668 CTTTCAATCCCTTTTGGGATGCATC ATAGCCGATTGCAACATTTTCTACGTTTGAGTATCTG spacer
length: 38 repeater length: 25
13903 1856732 CTTTCAATCCCTTTTGGGATGCATC TAGGTCACACTGTTTTAAGCAGCCTAGAGACAGGGTTTA spacer
length: 39 repeater length: 25
13904 1856797 CTTTCAATCCCTTTTGGGATGCATC TTCAACTCCTCTTTATCCCTCTTTATTGCATTCTCCAGC
13905
13906
13907 GCA_000513315.1_ANOR1_genomic.fna(findCrispr):
13908 START REPEAT
SPACER
13909 crispr 1
13910 1165899 ACAACAA
CATCACAGGAACATCAGGCCATGGTGTTGCTCTGGATGCATCCAGCAGCAACAACACCAATATAACCTTCGCC spacer
length: 73 repeater length: 7
13911 1165980 ACAACAA
CATCACAGGAACATACAAATGGTGTTTCTCTGTCTGCATCCAGCAGCAACAACACCAATATAACCTTCAGCAGCAACAACACCAATA
TAACCTTCGCC spacer length: 97 repeater length: 7
13912 1166085 ACAACAA
CATCACAGGAACATACGCATCTGGTGTTTCTCTGGGTGCATCCAGCAGCAACAACACCAATATAACCTTCGCC spacer
length: 73 repeater length: 7
13913 1166166 ACAACAA CATCACAGGAACATATGGTGTTGATCTGTATGCATCCAGCAGCAACAACACCAATATAACCTTCGCC

spacer length: 67 repeater length: 7
 13914 1166241 ACAACAA
 CATCACAGGAACATCACTAGGTGTTTATCTGGAGGCATACAGCAGCAACAACACCAATATAACCTTCGCC spacer
 length: 70 repeater length: 7
 13915 1166319 ACAACAA
 CATCACAGGAACATCAGGCCATGGTGTGCTCTGGATGCATCCAGCAGCAACAACACCAATATAACCTTCGCC spacer
 length: 73 repeater length: 7
 13916 1166400 ACAACAA
 AATAAGTACAATATTAGATTAAATAGTTAAAATATTAAATTAAATAGTTAATTTATTAGTTAATAATATTCTA
 13917
 13918
 13919 crispr 2
 13920 1165959 ACACCAA
 TATAACCTTCGCCAACAAACATCACAGGAACATACAATGGTGTCTCTGTCTGCATCCAGCAGCAACAACACCAATATAACCT
 TCAGCAGCAAC spacer length: 97 repeater length: 7
 13921 1166064 ACACCAA
 TATAACCTTCGCCAACAAACATCACAGGAACATACGCATCTGGTGTCTCTGGGTGCATCCAGCAGCAAC spacer
 length: 73 repeater length: 7
 13922 1166145 ACACCAA TATAACCTTCGCCAACAAACATCACAGGAACATATGGTGTGATCTGTATGCATCCAGCAGCAAC
 spacer length: 67 repeater length: 7
 13923 1166220 ACACCAA
 TATAACCTTCGCCAACAAACATCACAGGAACATCACTAGGTGTTTATCTGGAGGCATACAGCAGCAAC spacer
 length: 70 repeater length: 7
 13924 1166298 ACACCAA
 TATAACCTTCGCCAACAAACATCACAGGAACATCAGGCCATGGTGTGCTCTGGATGCATCCAGCAGCAAC spacer
 length: 73 repeater length: 7
 13925 1166379 ACACCAA
 TATAACCTTCGCCAACAAACATCACAGGAACATACAATGGTGTGAGCTGTATGCATCCAGCAGCAAC spacer
 length: 70 repeater length: 7
 13926 1166457 ACACCAA TATATTAAACAAAGTGTATAAAATAAACTATAATAAAATAAAATCTATTAGAAAAATTAATATTAATGA
 13927
 13928
 13929 crispr 3
 13930 1163264 GGTT
 ATATGTGGTATTTTTGCTGCTGGATGCATCCAGAGCAACACCATGGCCTGATGTTCCCTGTGAATTGTTGTGTAATCTTGGTTATAT
 GTGGTATTGTTATCGCTGTATGCACCCAGATAAACACCATTTGTATGTTCCCTGTGAATTGTTGTATTGTCT spacer
 length: 156 repeater length: 4
 13931 1163425 GGTT
 ATATGTGGTATTTTTGCTGCTGGATGCAGACAGATAAACACCTCGTGATGTTCCCTGTGATGTTATTGGCTTGTTTATATGATGTGT
 TGTATCGCTGTCTGCATACAGAGAAACACCATTTGCCTGATGTTCCCTGTGAGTTGTTATATTGTCT spacer length:
 152 repeater length: 4
 13932 1163582 GGTT
 ATATGTGGTATTTTTGCTGCTGTCTGCATACAGATAAACACCATCGTAGTATGTTCCCTGTGTTTGTATTTTTGGCTTTGGTTTAT
 TGGTATTGTTATCGCTGGATGCATACAGCTCAACACCATTTGTATGTTCCCTGTGGATTGTTGTGTAGTTT spacer length:
 155 repeater length: 4
 13933 1163742 GGTT
 ACAACATCACAGGAACATACAATGGTGTGAGCTGTATGCATCCAGCAGCAACAACACCAATATAACCTTCGCCAACAAACATC
 ACAGGAACATATGGTGTGCTCTGGATGCAGACAGCAGCAACAACACCAATATAACCTTCGCCAACAAAC
 13934
 13935
 13936 crispr 4
 13937 1415253 TATGCATACAGATAAACACC
 ATAGTCTGTTCCCTGTGATATTTTATTGGCTTTGGTTTATATGTGGCGTTGTTGCTGCT spacer length: 58
 repeater length: 20
 13938 1415332 TATGCATACAGATAAACACC
 TCGTGATGTTCCCTGTGAGTTGTTGTATTGTCTTGTGTTTATATGGTTGTGTTGTTATCGCT spacer length: 59
 repeater length: 20
 13939 1415412 TATGCATACAGATAAACACC
 CAACAACAACATCACAGGAACATATGGTGTGCTCTGGATGCAGACAGCAGCAACAACA
 13940
 13941
 13942 crispr 5
 13943 1163262 TTGG
 TTATATGTGGTATTTTTGCTGCTGGATGCATCCAGAGCAACACCATGGCCTGATGTTCCCTGTGAATTGTTGTGTAATCTTGGTTAT
 ATGTGGTATTGTTATCGCTGTATGCACCCAGATAAACACCATTTGTATGTTCCCTGTGAATTGTTGTATTGT spacer
 length: 156 repeater length: 4
 13944 1163423 TTGG
 TTATATGTGGTATTTTTGCTGCTGGATGCAGACAGATAAACACCTCGTGATGTTCCCTGTGATGTTATTGGCTTGTTTATATGATGT
 GTTGTATCGCTGTCTGCATACAGAGAAACACCATTTGCCTGATGTTCCCTGTGAGTTGTTATATTGT spacer length:
 152 repeater length: 4
 13945 1163580 TTGG

TTATATGTGGTATTTTTGCTGCTGTCTGCATACAGATAAACACCATCGTAGTATGTTCCCTGTGTTTGTATTTTTGGCTTTGGTTT
ATTGGTATTGTTATCGCTGGATGCATACAGCTCAACACCATTGTATGTTCCCTGTGGATTGTTGTGTAGT spacer length:
155 repeater length: 4

13946 1163740 TTGG
CTAATATAACCTTTGCCAACACAACATCACTGGATTGTATTATGGTGTGTATGTTTATTCTAATGATGGTAATGTTAGTGGTGT
ATGTTTTTGAATAATACTATAAAATTCTACTGGTGGTAATGGTTTTTATTTTGATAATGGTGGTAGTGGT

13947
13948
13949 crispr 6
13950 1264136 ATGCAAGTTATGGTGGTGCAT TGGTAAACATATGGTAATTTAAGTATTTCTGGTTCTGTTTTTAATATTAAT
spacer length: 52 repeater length: 22
13951 1264211 ATGCAAGTTATGGTGGTGCAT TATTAATTCAGGTGGAAATTCAGGATTGATGATTCTACTTTTACTAATAAT
spacer length: 52 repeater length: 22
13952 1264286 ATGCAAGTTATGGTGGTGCAT ACAGGAACATATGGTGTGCTCTGGATGCAGACAGCAGCAACAACACCAATA
13953
13954
13955 crispr 7
13956 1347569 GGTAAGTTAATTTAAGTGATT
GTAATATAAATAGTGGTACAATATATAAATGGTAATATGAATTTAGCTGATTCTAATTTTATAGATTCTGGTATTTCTAATTCT
GA spacer length: 88 repeater length: 22
13957 1347680 GGTAAGTTAATTTAAGTGATT CTAATTTTATAGATTCTGGTATTTCTAATTCTGA spacer length: 34
repeater length: 22
13958 1347737 GGTAAGTTAATTTAAGTGATT ACTGGATTGTATTATGGTGTGTATGTTTATTCTA
13959
13960
13961 crispr 8
13962 1910424 ATAATAAAAAATAAATAAGTACAATA CTAGATTAAATAATCAAAAA spacer length: 20 repeater
length: 25
13963 1910470 ATAATAAAAAATAAATAAGTACAATA CTAGATTAAATAATTAAAA spacer length: 20 repeater
length: 25
13964 1910516 ATAATAAAAAATAAATAAGTACAATA TAAATAAACTATAATAAAA
13965
13966
13967 crispr 9
13968 1779263 ATAATATGTTAAACTAATATATTAAAA CAAATTGTAATATATTAAATTGTAATATATTAAAT spacer
length: 35 repeater length: 27
13969 1779326 ATAATATGTTAAACTAATATATTAAAA CAAATTGTAATATATTAAAT spacer length: 20 repeater
length: 27
13970 1779374 ATAATATGTTAAACTAATATATTAAAA ATTAAATAGTTAAATATTA
13971
13972
13973 crispr 10
13974 1661356 AATATAACCTTTGCCAACACAACATCACAGGAACA
GACGATGGTGTATTATCTGTATGCAGACAGCAGCAACAACAC spacer length: 41 repeater length: 36
13975 1661434 AATATAACCTTTGCCAACACAACATCACAGGAACA
GACGATGGTGTGTATCTGTATGCAGACAGCAGCAACAACAC spacer length: 41 repeater length: 36
13976 1661512 AATATAACCTTTGCCAACACAACATCACAGGAACA
TACGATGGTGTATTATCTGGATGCCAGCAGCAGCAACAC spacer length: 41 repeater length: 36
13977 1661590 AATATAACCTTTGCCAACACAACATCACAGGAACA
TACGATGGTGTATTATCTGGGTGCATACAGCAGCAGCAACAC spacer length: 41 repeater length: 36
13978 1661668 AATATAACCTTTGCCAACACAACATCACAGGAACA
TACGATGGTGTATTATCTGGATGCATCCAGCAGCAACAACAC spacer length: 41 repeater length: 36
13979 1661746 AATATAACCTTTGCCAACACAACATCACAGGAACA
TCAGGCAATGGTGTGGTCTGGATGCATACAGCAGCAACAC spacer length: 41 repeater length: 36
13980 1661824 AATATAACCTTTGCCAACACAACATCACAGGAACA
TCAGGCAATGGTGTATTATCTGTATGCAGACAGCAGCAACAACAC spacer length: 44 repeater length: 36
13981 1661905 AATATAACCTTTGCCAACACAACATCACAGGAACA
TATGGTGTGCTCTGGATGCAGACAGCAGCAACAACACCAATAT
13982
13983
13984 crispr 11
13985 2174818 GCGGTGTTGTTGTTGAAAGTTGAGTTAATTACACTCATAT
TAGCACCACCAATGTTGTAGATTGCTCCACCATTATAGGTTACGATGTTGTTGTTGAAAGTTGAATTAATTACACTCATATCATCA
TCTTGTTGCTAGATTGCTCCACCATTATTGGT spacer length: 118 repeater length: 40
13986 2174977 GCGGTGTTGTTGTTGAAAGTTGAGTTAATTACACTCATAT
TAGCACCACCAATGTTGTAGATTGCTCCACCATTATAGGTTACGGTGTGTTGTTGTTGAAAGTTGAGTTAATTACACTCATATTAGCA
CCAGTATTATCGATTGCTCCACCAAAATT spacer length: 115 repeater length: 40
13987 2175133 GCGGTGTTGTTGTTGAAAGTTGAGTTAATTACACTCATAT
ATGGTGTGTATGTTTATTCTAATGATGGTAATGTTAGTGGTGTATGTTTTTGAATAATACTATAAATTCTACTGGTGGTAATGGT
TTTTATTTGATAATGGTGGTAGTGGTGC

13988

13989
13990 crispr 12
13991 1416912 TGGTGTCTTATCTGTATGCATACAGCAGCAACAACACCAAT ATAACCTTCGCCAACAACAACATCACAGGAACAT
spacer length: 34 repeater length: 40
13992 1416987 TGGTGTCTTATCTGTATGCATACAGCAGCAACAACACCAAT
ATAACCTTCGCCAACAACAACATCACAGGAACATCAGGCTATGGTGTGGTCTGTCTGCATCCAGCAGCAACAACACCAATATAAC
CTTCGCCAACAACAACATCACAGGAACATACTACG spacer length: 121 repeater length: 40
13993 1417149 TGGTGTCTTATCTGTATGCATACAGCAGCAACAACACCAAT
AAACTATAATAAAAAATAAATCTATTAGAAAAATTAATATTAATGAAAAATATAATATATGTTGTTACTATGAAAAAGAGTCTGTT
GGTCTGTGAAACTAAATTTTTCAACATGGATAA
13994
13995
13996 GCA_000513855.1_ASM51385v1_genomic.fna(findCrispr):
13997 START REPEAT
SPACER
13998 crispr 1
13999 800328 ACTACTGCGGCTACAACAACACTAC
GACCACTACCACAACACCTCCTACGACTACAACAACCACCCTACCACAACACTACAAC spacer length: 57 repeater
length: 23
14000 800409 ACTACTGCGGCTACAACAACACTAC
GACCACTTCAACTACAGCGGCAACTACCACAACACTACAACAACCCTACCACAACGACTAC spacer length: 60
repeater length: 23
14001 800493 ACTACTGCGGCTACAACAACACTAC
TACTGGCCCGTGTCAACGGTGAGTCTCACGTAGTCGCCAGCGTTGAATACAATAGAAAGA
14002
14003
14004 crispr 2
14005 930947 GAATACAATAGGAAGAATTGAAAG
CATTCAGCATCCTGTCCACTCTACCTACAAAAGGTGAATACAATAGAAAGAATTGAAAGTCGGGTCTCCGCGAGCTCCACGAGACG
GCAGGTCGATCTTGCTG spacer length: 103 repeater length: 24
14006 931075 GAATACAATAGGAAGAATTGAAAG TATTGTAGAATCTCAAGAGATCTCTACGCTCCTTGAAGAACTCT spacer
length: 44 repeater length: 24
14007 931144 GAATACAATAGGAAGAATTGAAAG GGCCCGTGTCAACGGTGAGTCTCACGTAGTCGCCAGCGTTGAAT
14008
14009
14010 GCA_000517445.1_ASM51744v1_genomic.fna(findCrispr):
14011 START REPEAT
SPACER
14012 crispr 1
14013 855524 GCTT
TCAATTCTCTTAGAGTCTTATTGAACTTTATGAAATGTTACAAAATGAATTCGATACAAAGTTTACTTTCAATTCTCTTAGAGTCT
TATTGAAACTCCTTTTACTGTGTTGAATTGCTCTTCATCTTCAA spacer length: 130 repeater length: 4
14014 855659 GCTT TCAATTCTCTTAGAGTCTTATTGAAACACAGCTGTAGCTGAACCACCTAGTGCAAAAATCCA spacer
length: 62 repeater length: 4
14015 855726 GCTT TCAATTCTCTTAGAGTCTTATTGAAACAGAAATGAAAGTAGATAAAGAAAAATCAGAGAAA spacer
length: 62 repeater length: 4
14016 855793 GCTT CTTTAGAAGAATTGAAATTTTATAGAGGAAGGCTTGAAGACACTTAGGAACGTGGGTTTCAA
14017
14018
14019 crispr 2
14020 553735 TAAGACTTTAGAAGAA TTGAAATATGAAGAACTATTTTTGTTGGCTCCCCGTCTGGGGTAGTTTCA spacer
length: 50 repeater length: 16
14021 553802 TAAGACTTTAGAAGAA TTGAAATTAGCTGGACTTCCTTCTTATTTCTAAAGAAAACCCAAAGTTTCA spacer
length: 51 repeater length: 16
14022 553870 TAAGACTTTAGAAGAA TTGAAATTTCTTTTTGGTTTTGTATGTTGTCCACTTCTCTAAGTGTTTCA spacer
length: 50 repeater length: 16
14023 553937 TAAGACTTTAGAAGAA TTGAAATGACCTCAATTGTTTGGCTCTTTGTGGTGTTCCTAACAAAGTTTCA spacer
length: 51 repeater length: 16
14024 554005 TAAGACTTTAGAAGAA TTGAAATTTTCCTAGCACCTTGCTAGCTTTTGTATTCTTGCATAGTTTCA spacer
length: 50 repeater length: 16
14025 554072 TAAGACTTTAGAAGAA TTGAAATATTGATGGCTATGAGGGTGTGGAAGTTGGAGAAAGCTGTTTCA spacer
length: 50 repeater length: 16
14026 554139 TAAGACTTTAGAAGAA TTGAAATGCTTTATTGAGCCAGAGCGGGAATTCTTTCTTTTTGATTAGTTTCA spacer
length: 53 repeater length: 16
14027 554209 TAAGACTTTAGAAGAA TTGAAATGCTTGCTATCTCTTTTGATGACAGTGGTCTTAAGGAAAAGTTTCA spacer
length: 52 repeater length: 16
14028 554278 TAAGACTTTAGAAGAA TTGAAATAATGGTTACAAAATCGAAATCTACATTATGGACTTAGTGGTTTCA spacer
length: 52 repeater length: 16
14029 554347 TAAGACTTTAGAAGAA TTGAAATGAAAAATCAAGTTTGTACCATAGCAACCTTCAAAGCTTGTTTCA spacer
length: 51 repeater length: 16
14030 554415 TAAGACTTTAGAAGAA TTGAAATGTTGAGGACCTTATCTGCATCAAGCATATCAACGACTGTTTCA spacer

length: 50 repeater length: 16
14031 554482 TAAGACTTTAGAAGAA TTGAAATGCGGCTCATCAGACTCCTTATCAAAGATTATCGAGTGTTC spacer
length: 49 repeater length: 16
14032 554548 TAAGACTTTAGAAGAA TTGAAATCCTACAATGCTGATGAAGAACAACGAGAATGCCACGTTTC spacer
length: 48 repeater length: 16
14033 554613 TAAGACTTTAGAAGAA TTGAAATTTGCACCTTCAGCAAGACCTACTGTTCCCCATCCAATGTTTC spacer
length: 51 repeater length: 16
14034 554681 TAAGACTTTAGAAGAA TTGAAATTCAGCAGACCTCTTAAGCCTCACATCTACACCCCTCCGCGTTTC spacer
length: 53 repeater length: 16
14035 554751 TAAGACTTTAGAAGAA AATTGAAATTTATAGAGGAAGGCTTGAAGACACTTAGGAACGTGGGTTTCAA
14036
14037
14038 crispr 3
14039 855860 TCTTT CAATTCTCTTAGAGTCTTATTGAAACCATTTTCCCACCTCTTGTATGCATCCAAGAAATGT spacer
length: 61 repeater length: 5
14040 855927 TCTTT CAATTCTCTTAGAGTCTTATTGAAACACAAAACCTTGCACTCTTGAGTCTAATCCTGATTATT spacer
length: 62 repeater length: 5
14041 855995 TCTTT CAATTCTCTTAGAGTCTTATTGAAACCTGTACAGTTACTGAATCAGCGTTGGGGAAGTTG spacer
length: 61 repeater length: 5
14042 856062 TCTTT
CAATTCTCTTAGAGTCTTATTGAAACGATTTTCAGGACTGTTATTAAGTCCCTGGTAGAACCAGCTTTCAATTCTCTTAGAGTCTTA
TTGAAACTGAGCCTGGCATTTACACATTCAGAATCGAGGCA spacer length: 127 repeater length: 5
14043 856195 TCTTT
TTCTAAAGTCTTATTGAAACCAATTACATGCTTAGAGAAGCTATTCTCAAGGTCGAGGTATTTCAATTCTTCTAAAGTCTTATTGA
AACACATCATTCACGATGAAGCTACAGCAATCTTTATTCAA
14044
14045
14046 crispr 4
14047 954068 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TGGGTCACAATCAACTTCGAAGGCGACGCTGACAAG spacer
length: 36 repeater length: 30
14048 954135 ATTTCAATTCTTCTAAAGTCTTATTGAAAC GCACCGCTCCAAGTCGGCAATGCATTGATGCTGTCAA spacer
length: 37 repeater length: 30
14049 954203 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CTGATCACCGAGGCTAAGCTTTGATGGGTTGAGCAA spacer
length: 36 repeater length: 30
14050 954270 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CGTAAGTATCGTTGAACTTAACCCAAACCAAGTAAT spacer
length: 36 repeater length: 30
14051 954337 ATTTCAATTCTTCTAAAGTCTTATTGAAAC GGTCTTGCAAAGCCAAGATACAGCTTCTATATACTCA spacer
length: 37 repeater length: 30
14052 954405 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CTCCGCGGGGGACTTAGATGTGAGGCTTAAGAAGTTTG spacer
length: 39 repeater length: 30
14053 954475 ATTTCAATTCTTCTAAAGTCTTATTGAAAC ATCTTCCAGGACAAAGTGCATGGTCCAGGAAGATA spacer
length: 35 repeater length: 30
14054 954541 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CATCGGCATTAGGATCCCAAAGAGGTTGCCGAAGT spacer
length: 37 repeater length: 30
14055 954609 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TCACTTTGAGGGTGTAGTTGCCATCTTTGGCAGAGGAG spacer
length: 39 repeater length: 30
14056 954679 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TGAAAAGTGCATGATAAAGCCTTAATCCACCCTTCTTC spacer
length: 38 repeater length: 30
14057 954748 ATTTCAATTCTTCTAAAGTCTTATTGAAAC AGGAACTCGGAATAACAAAACAAAACCTCAAGAAGC spacer
length: 36 repeater length: 30
14058 954815 ATTTCAATTCTTCTAAAGTCTTATTGAAAC ATAGCGAGCCGAGACAGGGAATAAAGCTGATGTGG spacer
length: 36 repeater length: 30
14059 954882 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CGTAAGTATCGTTGAACTTAACCCAAACCAAGTAAT spacer
length: 36 repeater length: 30
14060 954949 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TTGAGGAGTTAAGAGAGAAGGGCTACGAGGATGCACT spacer
length: 37 repeater length: 30
14061 955017 ATTTCAATTCTTCTAAAGTCTTATTGAAAC GGGGAGAACAGAAAAGCCTAAGCATTGACGACGAAGT spacer
length: 37 repeater length: 30
14062 955085 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CTAACCTAAGATCGATTAAACTGTATTGCTGAGCG spacer
length: 36 repeater length: 30
14063 955152 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CCCCAGCATGGGGATAGGGGTTAGGCGTCATAGGAA spacer
length: 36 repeater length: 30
14064 955219 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CAATAACTTCCCTCTCAAGAGGTTTCAAGATAGAAGT spacer
length: 36 repeater length: 30
14065 955286 ATTTCAATTCTTCTAAAGTCTTATTGAAAC AAATGTTTTGCGATGAAGCTACAGCAATCTTTATTC spacer
length: 36 repeater length: 30
14066 955353 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TTCGCTCTACTTAGAAGTTTTGCACCTTCTCTATAA spacer
length: 37 repeater length: 30
14067 955421 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TCTTACCGACATTTTCATCAGGCTTGAACGAGAACAG spacer
length: 36 repeater length: 30
14068 955488 ATTTCAATTCTTCTAAAGTCTTATTGAAAC AAGTAGAAAACAAAAGGTTTTAGAGATTGAGCTTT spacer

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length: 36 repeater length: 30
14069 955555 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CCGTGCATTGTTCCCGCAATCCCCTTGCCAGGAACAATTA
spacer length: 40 repeater length: 30
14070 955626 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CTCCGCCAACTCTTAGTATGCCTAAACCTCCCGAATCTC spacer
length: 39 repeater length: 30
14071 955696 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TTGAAGACCGATTTGAGGCTGATTTTAGATGGAAAG spacer
length: 36 repeater length: 30
14072 955763 ATTTCAATTCTTCTAAAGTCTTATTGAAAC CGCCAAGTGCCCAAAGTACTACACAAAGAAAGAAGA spacer
length: 36 repeater length: 30
14073 955830 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TCAATGCAAACCATCTGCCATCGTGCTTCACATCGTC spacer
length: 37 repeater length: 30
14074 955898 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TCTCACCGACAACATATCATCGCCGTCATGATTTTTG spacer
length: 36 repeater length: 30
14075 955965 ATTTCAATTCTTCTAAAGTCTTATTGAAAC TGAACCGCTATGGCAACCTTTGCCCTGCTGCTACG spacer
length: 36 repeater length: 30
14076 956032 ATTTCAATTCTTCTAAAGTCTTATTGAAAC GAAGGCTTGAAGACACTTAGGAACGTGGGTTTCAAT
14077
14078
14079 GCA_000585495.1_ASM58549v1_genomic.fna(findCrispr):
14080 START REPEAT
SPACER
14081 crispr 1
14082 678271 TTCTCCTC GAGTCTTATTGCAACATTTTGTCCCACTGCGAGGCTATCATCACTAAATCTACTTTCA spacer
length: 58 repeater length: 8
14083 678338 TTCTCCTC GAGTCTTATTGCAACCGAAAATTTTGATGATAGCCAACCCACCAAACGTTCTTTCA spacer
length: 58 repeater length: 8
14084 678405 TTCTCCTC GAGTCTTATTGCAACGCATAAGCTAGAGTTTGTAAACACGGGTAGTGAAATAACTTTCA spacer
length: 59 repeater length: 8
14085 678473 TTCTCCTC GAGTCTTATTGCAACACGTCTGACGAATCGTGTAAGTGGCCCCCGTGAAGTGTTC spacer
length: 58 repeater length: 8
14086 678540 TTCTCCTC GAGTCTTATTGCAACGTGCGCAAGCCCCATGAGCATCACCGTTTATTCCTTAGTTTC spacer
length: 58 repeater length: 8
14087 678607 TTCTCCTC GAGTCTTATTGCAACTGCCGTAAAAAGAAGAACAGTGGTGATAGGGGTGGGAGTTTC spacer
length: 58 repeater length: 8
14088 678674 TTCTCCTC GAGTCTTATTGCAACACTCTTGCCACCCAGCAGAACCTCAACCAGACCTACGGTTTC spacer
length: 58 repeater length: 8
14089 678741 TTCTCCTC AGGAGAATTGAAAGCAAGGAGAACC CGCTCGAGTACCTGAAGAAGAAGCGTTGCAATA
14090
14091
14092 crispr 2
14093 451542 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTGAGCGCCATGGGTACAGGAGCCAGCCTGGTAATA spacer
length: 36 repeater length: 30
14094 451609 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTTCTATTTACCGGCACCACCAAGACCAAGACAGAA spacer
length: 36 repeater length: 30
14095 451676 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCTCCTCTCTTAGCCAAGTGCTCTATCCTGCTCCTCC spacer
length: 37 repeater length: 30
14096 451744 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TATAGGACGACGGTAACACTATCAGAGGTCCACGT spacer
length: 35 repeater length: 30
14097 451810 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTCCCTGGCGGACGTGGCCATCGAGCTTGAGCTTC spacer
length: 35 repeater length: 30
14098 451876 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ATACACGCCAACAAAGTGTGATACAACCTCAAACAC spacer
length: 36 repeater length: 30
14099 451943 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCTGGCGACAGGCTCTGAGGACGTTGAGAAGGTT spacer
length: 34 repeater length: 30
14100 452008 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AAGAAAAGTGGGGTCGTGAAGGTAAGGAGTGGCTT spacer
length: 36 repeater length: 30
14101 452075 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCAGCTGTGGAGCTTCGCCCTCCAACCGCCTTTCTT spacer
length: 36 repeater length: 30
14102 452142 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCGGACAACGCGCCTTCCAAGGCGCGCCTTGAGATA spacer
length: 36 repeater length: 30
14103 452209 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AAAGGCGAGGTCTGGCTGGCTGAGCGTTTAGGCCCT spacer
length: 36 repeater length: 30
14104 452276 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTATTTTCTTTGATTCTCCACCCTTGAGGTAGATG spacer
length: 35 repeater length: 30
14105 452342 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTGTTCGCCGGGCATCCGCCTGACACTGACGGGACG spacer
length: 36 repeater length: 30
14106 452409 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACTCAGTTCTGTTTTTATAGTATCCCTTCTCGACGAC spacer
length: 37 repeater length: 30
14107 452477 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTTATTTCAAGGACTTCGCCATGAAGTTGCCCTACATT spacer
length: 38 repeater length: 30
14108 452546 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AGGCACATGTTTCGGTATTTTGTGAAGGCTCAACAA spacer

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length: 36 repeater length: 30
14109 452613 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGCCACCACCATAACCGTAACTCTCTCAGATAACG spacer
length: 36 repeater length: 30
14110 452680 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ATAGCTCCCTCACCCGAGTAGGACCATCAGCACCT spacer
length: 35 repeater length: 30
14111 452746 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTCTTTCAAGAAGTCAAGGACTGGGGAGCGGATCCC spacer
length: 36 repeater length: 30
14112 452813 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACCTCGGGAGGCTTCATAGACCTTAAGAAGTATTTTC spacer
length: 36 repeater length: 30
14113 452880 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCTCGACCGCGAGGCGCGAGAGATTGTTGATAAGGT spacer
length: 36 repeater length: 30
14114 452947 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GGATGGCCACCCTCCCATGCCCAGAGCATCCTCC spacer
length: 35 repeater length: 30
14115 453013 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TCTGCATTGTGAGCGCTGATAGTGCTCCAGGTTTTT spacer
length: 36 repeater length: 30
14116 453080 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTGTATGAGGGTGCTCATACACTCACTTTTCGAGAAAA spacer
length: 37 repeater length: 30
14117 453148 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCAGAGACTTAGAGCGGATCCTGATAATGTAGCTC spacer
length: 35 repeater length: 30
14118 453214 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TGGGTTTTGCTGGGTTCTCCTACGTGGACAGAAAAA spacer
length: 36 repeater length: 30
14119 453281 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GTGGAGTGGCTGGTGGATATATAGGTGGAGCGATCC spacer
length: 36 repeater length: 30
14120 453348 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CATCACAATACGCTCGTTCGGCAAACTGAGACCT spacer
length: 35 repeater length: 30
14121 453414 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CAGAGAAGGCCGTCCAATTGGGTGAACATCATCA spacer
length: 35 repeater length: 30
14122 453480 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCACAGCTGAAAGAGAAGCTGAGGAGTCAGCAGGACA spacer
length: 37 repeater length: 30
14123 453548 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTACTGAAGTCATTGCGTCGCTGAAATGGAAAATGCA spacer
length: 37 repeater length: 30
14124 453616 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTTACGAGCCGAAGCAGAGGGTCATCATCTGGTTCA spacer
length: 36 repeater length: 30
14125 453683 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TGCAATAAGCCCGTACTCTAATAACACCCGCTCTGCC spacer
length: 37 repeater length: 30
14126 453751 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CGCGGTAATCAGCTTCCTGTTCAGTTTTGCTTTAGGGA spacer
length: 38 repeater length: 30
14127 453820 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ATTTTCTCATTCAGCCCCCTCCACAATCGTTTGAATA spacer
length: 36 repeater length: 30
14128 453887 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CACTTTCAGCGCAGGGTATGCTTCGGCCTGGAGCC spacer
length: 35 repeater length: 30
14129 453953 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TTTTCTCCCACTCGTAGCCGAAGCGTTCAAGCTCG spacer
length: 36 repeater length: 30
14130 454020 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CTCATTGATGAGGTTCAGAACCTCCTCCAGCACCCCG spacer
length: 37 repeater length: 30
14131 454088 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGCATGGCGTTGGAGATAGAAGGGGAAGCGAAACG spacer
length: 36 repeater length: 30
14132 454155 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AATCAACCGTGTAATACCTCAATCCCACGAAATGG spacer
length: 35 repeater length: 30
14133 454221 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CAGGCCAAGGGACGAAAGCCTTGGGGTGAGTTCGT spacer
length: 35 repeater length: 30
14134 454287 CTTTCAATTCTCTTCGAGTCTTATTGCAAC CCAGTTCTCGCTCTATGACGTTGACTCAGTCATCTT spacer
length: 36 repeater length: 30
14135 454354 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TCGAAGTCATCAACTTCATACAGGGCAGAGCAGAAC spacer
length: 36 repeater length: 30
14136 454421 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TGGTCTCGTTAAAGAGAGTCGCCACGTTGCCGCT spacer
length: 34 repeater length: 30
14137 454486 CTTTCAATTCTCTTCGAGTCTTATTGCAAC TCTCCACATTGAGGCAAAGAAGTTAGATAATACG spacer
length: 34 repeater length: 30
14138 454551 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGAACCTTCCTACTCCTGGCCTCCTGATAATAGAA spacer
length: 36 repeater length: 30
14139 454618 CTTTCAATTCTCTTCGAGTCTTATTGCAAC AAAGGTTAAGGCCCTGGTCGAAAAGGGCCTCTTAAT spacer
length: 36 repeater length: 30
14140 454685 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GGTAGCAATATTGCATTTTTTCACTGCAAATGAGC spacer
length: 34 repeater length: 30
14141 454750 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GCGGTTAAGGTGGGGTTGAGATGGGCGACATAAC spacer
length: 34 repeater length: 30
14142 454815 CTTTCAATTCTCTTCGAGTCTTATTGCAAC GAGGTTAAGGTAGGCTCGATGAGTCAGGAGAACATG spacer
length: 36 repeater length: 30
14143 454882 CTTTCAATTCTCTTCGAGTCTTATTGCAAC ACGGGTCAGGGACGAGATGAAGGCTTTTTTGCGTTGC spacer
length: 36 repeater length: 30

14144	454949	CTTTC AATTCTCTTCGAGTCTTATTGCAAC	TATTAGAATTTCTTATCCTGTGCTGTGGCGTTGAA	spacer
	length:	36	repeater length:	30
14145	455016	CTTTC AATTCTCTTCGAGTCTTATTGCAAC	GAGCGTTAAGGAGCTGGAGATAAACAGGGA ACTAAA	spacer
	length:	36	repeater length:	30
14146	455083	CTTTC AATTCTCTTCGAGTCTTATTGCAAC	AGAACCGCGTCGAGTACCTGAAGAAGAAGCGTTGCA	
14147				
14148				
14149		crispr 3		
14150	182361	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTTTTGTGTCTTGTCCGCTACGTCGTCCGGCACCC	spacer
	length:	36	repeater length:	30
14151	182428	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TCATGAAGTCGTCACGATTAAGGAAAAAGTGTA AAA	spacer
	length:	36	repeater length:	30
14152	182495	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTGTTTTTTCAGTCGTCAAGCCAAGCAACGCA AAAA	spacer
	length:	35	repeater length:	30
14153	182561	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GAAGTTCCGGCGTCAAATGTAACACTCTTTATCTGC	spacer
	length:	36	repeater length:	30
14154	182628	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTGTTTTTTCAGTCGTCAAGCCAAGCAACGCA AAAAG	spacer
	length:	36	repeater length:	30
14155	182695	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AATTTTTCAGTTCTAGCCAGCCCCAAGGACCAACTT	spacer
	length:	36	repeater length:	30
14156	182762	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CCTCCTGTTGTGTTATAGTTATAGTCTCATTCTAACT	spacer
	length:	37	repeater length:	30
14157	182830	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CGAACTCCGGTTTTCTCATGCCATTTCTGTGTGCTC	spacer
	length:	36	repeater length:	30
14158	182897	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TATTGAGCATTTGGATTACTTTTCGTTGGGAATGTAG	spacer
	length:	36	repeater length:	30
14159	182964	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AAAAATTTTCAGTCCAGTTCCTTGAGAACATTAGAGA	spacer
	length:	37	repeater length:	30
14160	183032	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GGGTCTCCCTCACCATTGACCTTGACGCCATAAGC	spacer
	length:	35	repeater length:	30
14161	183098	GTTGCAATAAGACTCTAGGAGAATTGAAAG	ATCCCCCAAACCATAGCCCAAGCCCCGAGGCCAATAA	spacer
	length:	36	repeater length:	30
14162	183165	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TATTTGTCTTTTATCGTCAATCTCAACGTCCCATCG	spacer
	length:	36	repeater length:	30
14163	183232	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CCTCCTGCGCGGGATTCTCCTTTTACAGCCCTACCC	spacer
	length:	37	repeater length:	30
14164	183300	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AAAGTATGGCCCTGTGAAGAGGATTGGCTTTGAGCT	spacer
	length:	36	repeater length:	30
14165	183367	GTTGCAATAAGACTCTAGGAGAATTGAAAG	ACGAGGTTTGGGTGAAGCTCAGCGAGGGCGGTCTCT	spacer
	length:	36	repeater length:	30
14166	183434	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GAGACGGGGAAACGACGGAGAGTAAAGAACTGGAGG	spacer
	length:	36	repeater length:	30
14167	183501	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TGCGGCCAGCTCCGACCAGAAGCAGGCGATTCTGA	spacer
	length:	35	repeater length:	30
14168	183567	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GTTATCATATCCCACTCGCCACGTGCTGTTCTCTCA	spacer
	length:	36	repeater length:	30
14169	183634	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GATTTTTCAGCTGAAATACAGGCAACCCCTAGCCA	spacer
	length:	34	repeater length:	30
14170	183699	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GACCGGTGTCGAGCATCTGCTTGATTTCTGAAGCGT	spacer
	length:	36	repeater length:	30
14171	183766	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTCGTGCTTGGTCAGGCGCTTTTCTTCGGCAACCTT	spacer
	length:	36	repeater length:	30
14172	183833	GTTGCAATAAGACTCTAGGAGAATTGAAAG	TGACTGCTGTCGTGCCGATGGGGATGAGTGGCTTCCG	spacer
	length:	37	repeater length:	30
14173	183901	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GAGGTGGTGGACAATGAATGAGCGCATCTTGAAGGA	spacer
	length:	36	repeater length:	30
14174	183968	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GGGCGAGGAACATTGACATCGTTGGGTGGTTTGTG	spacer
	length:	35	repeater length:	30
14175	184034	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AGGGTTGCGTTCTGCTGGAAGGAATCCAGAAAG	spacer
	length:	34	repeater length:	30
14176	184099	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CGCTATAAACCCGACGTGTTTAAACACGTTGCGATG	spacer
	length:	36	repeater length:	30
14177	184166	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CTTTGCAGGGACGTCGTTTTATTATTCCGCATACCG	spacer
	length:	36	repeater length:	30
14178	184233	GTTGCAATAAGACTCTAGGAGAATTGAAAG	CCGTAAACGTGCTCGGAGACCCAGCGGGGCACTTC	spacer
	length:	35	repeater length:	30
14179	184299	GTTGCAATAAGACTCTAGGAGAATTGAAAG	ACCCCAAGGAGGATAAGAAGCTCGCCGAGAGCATGT	spacer
	length:	36	repeater length:	30
14180	184366	GTTGCAATAAGACTCTAGGAGAATTGAAAG	AGCGAACTACTTTCCCGGCTTAAATTCGGGAATAA	spacer
	length:	35	repeater length:	30
14181	184432	GTTGCAATAAGACTCTAGGAGAATTGAAAG	GGGTGCAGAGCTGCTGGACAAAGTAGGCGATAGGCT	spacer

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length: 36 repeater length: 30
14182 184499 GTTGCAATAAGACTCTAGGAGAATTGAAAG GTACGTTGAGAAGGGCGTTTATGCAATCAAGTTCAGC spacer
length: 37 repeater length: 30
14183 184567 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCACCGCCCAGAGCATTTACCACGCCAGCATTGA spacer
length: 35 repeater length: 30
14184 184633 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGGGGCTTTCTTTTTGCGTGGCATCACTTAGCACCCCCC
spacer length: 40 repeater length: 30
14185 184704 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGAAGTAGCGGTCAACTTTCATCATATCATTGCTGTTTCA
14186
14187
14188 crispr 4
14189 707404 ATCTTTCAATTCTCCTCGAGTCTTATTGCAAC
TTTTCTTTCTTTGGAGAGCTCACGGATTGGGTACCCTTTCAATTCTCCTCGAGTCTTATTGCAACCGAGCTAAAGCGCGAACTCT
ACGAAACAATACTCA spacer length: 101 repeater length: 32
14190 707538 ATCTTTCAATTCTCCTCGAGTCTTATTGCAAC
ATTACCGCCGAGGAAGCCTACAACCTCGTCTCCAGTCTTTCAATTCTCCTCGAGTCTTATTGCAACTCCTTGCGGTTGAGCTCCT
CGACAGGCTGAAAGA spacer length: 101 repeater length: 32
14191 707672 ATCTTTCAATTCTCCTCGAGTCTTATTGCAAC
GGTTTGTGTTGGTTAAGGTGCGTAACATCTTCTTTCAATTCTCTTCGAGTCTTATTGCAACAGGGCGCAAACTCGTCCTTCCGCCC
AACGAAGAGAAGAGA
14192
14193
14194 GCA_000591035.1_ASM59103v1_genomic.fna(findCrispr):
14195 START REPEAT
SPACER
14196 crispr 1
14197 313030 GAATCTTCGCGATAGAATTGCGAG CTTACTTAACGTATTCGGCCCCGTGTTTAACCGATTGCGTGTCCGGCGAATCG
spacer length: 52 repeater length: 24
14198 313107 GAATCTTCGCGATAGAATTGCGAG GTGTAGGAGGCGCCTCTAACTGTCGCTACGTAAGCCATA spacer
length: 39 repeater length: 24
14199 313171 GAATCTTCGCGATAGAATTGCGAG TGCCCCAGATCTTCGAGCTGCCTCTCGGTCCGCTCACGCG spacer
length: 40 repeater length: 24
14200 313236 GAATCTTCGCGATAGAATTGCGAG GGAGCTTGAGGGGCTTAGGGCCGAGGTTAGACGGCTAGAATCT spacer
length: 43 repeater length: 24
14201 313304 GAATCTTCGCGATAGAATTGCGAG TACATAGCCAATGATGGGACGACCAGGTACTATATCGAGT spacer
length: 40 repeater length: 24
14202 313369 GAATCTTCGCGATAGAATTGCGAG CCTTTATATCGTTCATCAACTCTGCTATAATTATGTGCTGTCT spacer
length: 43 repeater length: 24
14203 313437 GAATCTTCGCGATAGAATTGCGAG GTCTCTCTCCGCTTGGAGGCTGGAGGCCACCTGTCC spacer length:
37 repeater length: 24
14204 313499 GAATCTTCGCGATAGAATTGCGAG TCTTCCTGGGCCTCGCTGTCTCGGCGTAAACGCTCTCA spacer
length: 38 repeater length: 24
14205 313562 GAATCTTCGCGATAGAATTGCGAG TTGGCTTTAAGTTGTTTCTCTTTATATACTTAACTAAA spacer
length: 38 repeater length: 24
14206 313625 GAATCTTCGCGATAGAATTGCGAG TATTTACGTAGACGTCTAATCGTCTGAGCCGGAGAACCAATC spacer
length: 42 repeater length: 24
14207 313692 GAATCTTCGCGATAGAATTGCGAG AGCGACACACTACCTAGACAGGCTAGTGCTGGCCAGACG spacer
length: 39 repeater length: 24
14208 313756 GAATCTTCGCGATAGAATTGCGAG GCGTGAGATAAGGGCCCTAGCCCTGCTTAAGGCAAAGGGCC spacer
length: 41 repeater length: 24
14209 313822 GAATCTTCGCGATAGAATTGCGAG GCGACATTGGTAAGACCAGCCCCAGACTTGCCCCGAGA spacer length:
37 repeater length: 24
14210 313884 GAATCTTCGCGATAGAATTGCGAG ATTCTTAGTGGGGGTGATCTCGACCCCCGCCCCGCTC spacer length:
37 repeater length: 24
14211 313946 GAATCTTCGCGATAGAATTGCGAG CGGTCCAGCTCGAAGCAATAGATGAATACGGCAACGTG spacer
length: 38 repeater length: 24
14212 314009 GAATCTTCGCGATAGAATTGCGAG GCAGGGGCGAGAAGCAGCTGCGCAGGCAGGTTAGGGAGCTTG spacer
length: 42 repeater length: 24
14213 314076 GAATCTTCGCGATAGAATTGCGAG AGCCTGGCGAGCCTGTCGATACTCGGCTACGCCTACAGAATC
14214
14215
14216 crispr 2
14217 737714 GCATATCCCTAAAGGGAATAGAAAG TTCAGGGATAGGCTTGGCAAGAAGCTTTTCCTAGTGCAACAG spacer
length: 42 repeater length: 25
14218 737782 GCATATCCCTAAAGGGAATAGAAAG AATGAGAAGATGAGTTGGGCACATGCCAAAGACGCCTAC spacer
length: 39 repeater length: 25
14219 737847 GCATATCCCTAAAGGGAATAGAAAG CTAGCCAGGGTGGCCAGGGAAACGCTTGAGGAGAAGGT spacer
length: 38 repeater length: 25
14220 737911 GCATATCCCTAAAGGGAATAGAAAG ATAGCCCCGATGAACCGGGGTAAAACCTCCTGGATGGAGGC spacer
length: 41 repeater length: 25
14221 737978 GCATATCCCTAAAGGGAATAGAAAG AACACTCTTTTCCTTAATAATGAATTCTTGATCTTGGCC spacer

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length: 39 repeater length: 25
14222 738043 GCATATCCCTAAAGGGAATAGAAAG CAGTCTAAGGGTGGGTACACCTGTGTACAGAACGAGAG spacer
length: 38 repeater length: 25
14223 738107 GCATATCCCTAAAGGGAATAGAAAG
CTAACTCTCTTTCCAGCCGTCGGTTCAGGCGGATCTTGACAATACCTAAAGGGAATAGAAAGCTAACTCTCTATTACTGATAAGAA
ACGGTAAGACGC spacer length: 98 repeater length: 25
14224 738231 GCATATCCCTAAAGGGAATAGAAAG TTAAACTCTCAAGCCTGTTATATTTATCAGCAATACTAGCTG spacer
length: 42 repeater length: 25
14225 738299 GCATATCCCTAAAGGGAATAGAAAG TACGTGAGGCAGTATCTGGATGGTGAAGTGGGGGTGGCT spacer
length: 38 repeater length: 25
14226 738363 GCATATCCCTAAAGGGAATAGAAAG CTCAGCCTCCCCAGCAGCTCCATCGCCACATGCCTCGC spacer
length: 38 repeater length: 25
14227 738427 GCATATCCCTAAAGGGAATAGAAAG TACGCCATGAGCCCCGAGGTACAGCGAGCTGGTGGGCAGG spacer
length: 39 repeater length: 25
14228 738492 GCATATCCCTAAAGGGAATAGAAAG CGCCTTGTCGTCGGGGAACCCCATGTACTTCAGCTCCGCG spacer
length: 40 repeater length: 25
14229 738558 GCATATCCCTAAAGGGAATAGAAAG CCTCCCAGCCCGGACTTTACAGAGTCTTCTATAAACTTCTCG spacer
length: 42 repeater length: 25
14230 738626 GCATATCCCTAAAGGGAATAGAAAG TTACGTTTATTTTTTGTGACCCACGGGCCTCGACTGATACGTA spacer
length: 44 repeater length: 25
14231 738696 GCATATCCCTAAAGGGAATAGAAAG AGGAACCTGGCTACCAGGCTTGCTAGTCTCCTGGCGTC spacer
length: 38 repeater length: 25
14232 738760 GCATATCCCTAAAGGGAATAGAAAG TGCTTCGAGGCTGGGAAGATGGCGTGCTAGGTGAGTTAGCA spacer
length: 41 repeater length: 25
14233 738827 GCATATCCCTAAAGGGAATAGAAAG AGCCCCCTGGCTCCATGGAAGCGTATAGCAAGAATAGTACCG spacer
length: 42 repeater length: 25
14234 738895 GCATATCCCTAAAGGGAATAGAAAG AGCCCCCTACCTCGCCGCGGGCGAACCCGACCCAGAT spacer
length: 37 repeater length: 25
14235 738958 GCATATCCCTAAAGGGAATAGAAAG ATGGTGATGTAGGCCTCCAGGACGGCCATACTGTGTAGT spacer
length: 39 repeater length: 25
14236 739023 GCATATCCCTAAAGGGAATAGAAAG AGGCAGGCGGGGGCTGAGGGTGTGGGTGAGAGGATAGGCAGGG spacer
length: 43 repeater length: 25
14237 739092 GCATATCCCTAAAGGGAATAGAAAG GCAACCTCGTCAGGCTTCCACACGTTGCTAGCCACGGC spacer
length: 38 repeater length: 25
14238 739156 GCATATCCCTAAAGGGAATAGAAAG TCGCAACCTCCTATCTGGCCGTTGTCACCGTTGCG spacer length:
35 repeater length: 25
14239 739217 GCATATCCCTAAAGGGAATAGAAAG GGCAAATACTGTGTAAGGTCTACGGATGCCGTCTGCGCGGTTG spacer
length: 43 repeater length: 25
14240 739286 GCATATCCCTAAAGGGAATAGAAAG CTGCATGAGCCCGTGTGTGCTGCTGGGCGGTATGCCAGC spacer
length: 40 repeater length: 25
14241 739352 GCATATCCCTAAAGGGAATAGAAAG GGCCTGGGACCGCGGCTCTCGCCTGGCTAGCCCTCTACAGG spacer
length: 41 repeater length: 25
14242 739419 GCATATCCCTAAAGGGAATAGAAAG GCTATAGTAGCGTAGGTGCCAGAGTTGTTGAGATCATATT spacer
length: 40 repeater length: 25
14243 739485 GCATATCCCTAAAGGGAATAGAAAG ATGATACTCGAGGAGTATGGGGGTGATGGGTTGTGGAG spacer
length: 39 repeater length: 25
14244 739550 GCATATCCCTAAAGGGAATAGAAAG TTCATAACAGCGTTTAGCCAGGTCACACCTATCCACCCC spacer
length: 43 repeater length: 25
14245 739619 GCATATCCCTAAAGGGAATAGAAAG ATGCCACAGCTCAGCCTCTATCTACTGCTAGCCAAGC spacer
length: 38 repeater length: 25
14246 739683 GCATATCCCTAAAGGGAATAGAAAG GGCGGGCGTGGACTACAGGCTCCAGCCGTACCTGCCA spacer
length: 37 repeater length: 25
14247 739746 GCATATCCCTAAAGGGAATAGAAAG AGGCGGTGGTAGCGGGGGCTCGGGCGGCAGCGCGGTGGC spacer
length: 40 repeater length: 25
14248 739812 GCATATCCCTAAAGGGAATAGAAAG GGTTCGTTGACCGGTCTTCACGAGTTCACCCACTATCTG
14249
14250
14251 GCA_000591055.1_ASM59105v1_genomic.fna(findCrispr):
14252 START REPEAT
SPACER
14253 crispr 1
14254 2287344 CGGCGGCAGTAGCGGTGGTGG TGGCAGTAGCGGTGGCGGAGGGG spacer length: 23 repeater
length: 21
14255 2287389 CGGCGGCAGTAGCGGTGGTGG TGGCAGTAGCGGTGGCGGAG spacer length: 20 repeater
length: 21
14256 2287431 CGGCGGCAGTAGCGGTGGTGG AGCAAACGGTGGGCGAAACG
14257
14258
14259 crispr 2
14260 221489 GAGCGCCAGCGAGGAGCACGC ATTGGCGAGCGGCGACGACGGAGCCGCGAGCGGTGAGGCG spacer length:
40 repeater length: 21

14261 221551 GAGCGCCAGCGAGGAGCACGC ATTGGCGAGCGGCGACGACGAGCCGCGAGCGGCGAGGCG spacer length:
40 repeater length: 21

14262 221613 GAGCGCCAGCGAGGAGCACGC GCGTCAGCGAGGCCTGCTCGCCACGACGTGAGAAACGATG

14263

14264

14265 crispr 3

14266 370840 CCGGTTTCGAACCCGGCAGGGCCCA
CTTCTGTGCGACGAGCGGACGCGAGGAGCCGGACGTGCCGTCTTCCGGTTTCGAACCCTGCCACGAGCGAGCGAAGCGAGTGAAGTG
GC spacer length: 88 repeater length: 24

14267 370953 CCGGTTTCGAACCCGGCAGGGCCCA
CTTTTGTGCGACGAGCGGACGCGAGGAGCCGGACGTGCCGTCTTCCGGTTTCGAACCCTGCCACGAGCGAGCGAAGCGAGTGAAGTG
GC spacer length: 88 repeater length: 24

14268 371066 CCGGTTTCGAACCCGGCAGGGCCCA
AGGCGTCCAAGATCGCATCGAGCAGCTTCGATTGGGCGGCCGCGAGGTGTTTCGAAAACGTCGAGGTAGTGATACCGAGCGCGTCG
GC

14269

14270

14271 crispr 4

14272 2763369 GCGAACCCGACGCAGAAAAAGGTCTG
GAAGCAATCGAGGACCAGCGTCCGCGCGCCGAGGCGCGGGTTCGCCGGCTGTGAGACCGAAGGTTCGAACAGCCGGCCTTTTTTCA
TCGACGTTTTTCAAGGAGTGGTTCGCCTCT spacer length: 116 repeater length: 25

14273 2763511 GCGAACCCGACGCAGAAAAAGGTCTG
GAAGCAATCGAGGACCAGCGTCCGCGCGCCGAGGCGCGGGTTCGCCGGCTGTGAGACCGAAGGTTCGAACAGCCGGCCTTTTTTCA
TCGACGTTTTTCAAGGAGTGGTTCGCCTCC spacer length: 116 repeater length: 25

14274 2763653 GCGAACCCGACGCAGAAAAAGGTCTG
ACGGTGGGCGAAACGGTTCGACGAGAAGGTTCGAAGAGAAAGTCGAGCAGACGGTCAAAGAGACCATCGACGGCGAGGACGGGACGGA
CGACGCCAATACGTAGGCGATACCGGACTC

14275

14276

14277 crispr 5

14278 1375472 TGCGCGGGACCGGATTTCGAACCGGA
GGGAGACGGTCGGCCTCGCTTCGCTCAGCCGCTGCGACTCCCTGGGTTCGAACCCGCTGACGATGCCACTCCGCACTGCTGTTCGG
AGATGGC spacer length: 93 repeater length: 25

14279 1375591 TGCGCGGGACCGGATTTCGAACCGGA
ACCAGACGTGCTCGCTTCGCTGCGCGCTCTGGTGGGACTCGAACCGCTCCTGCTCTCTCGTCGCTTCGCTCCTCA spacer
length: 76 repeater length: 25

14280 1375693 TGCGCGGGACCGGATTTCGAACCGGA
TTCGAACACCACCAGCAGTGCCGAGCGTCAGCGAGGCCTGCTCGCCACGACGTGAGAAACGATGCGGCCGGGGAG

14281

14282

14283 crispr 6

14284 1266335 ACCGTCGAGGAGACGGTCGGTGACAC
GGTCGAGGAGACTGTCGGCGAAACCGTCGAGGAGAAAGTCGAAGAAACCGTCGAAAA spacer length: 57 repeater
length: 26

14285 1266419 ACCGTCGAGGAGACGGTCGGTGACAC
GGTCGAAGAGACTGTCGAGGAGACCGTCGGCGAAACCGTCGAGGAGAAAGTCGAAGA spacer length: 57 repeater
length: 26

14286 1266503 ACCGTCGAGGAGACGGTCGGTGACAC
GGAAGACGAGCCTCGCGATCGGAGGGGACGAAACCGCCCCACCGTCACCCGGTCCGG

14287

14288

14289 crispr 7

14290 948977 CGAGTGTGCTCCGGGCGAAGCGAGTGCGTC
CTGAACGAAGCGAGTGCGTCCTGAACGAAGCGAGTGCGTCTCGAACGAA spacer length: 49 repeater length:
30

14291 949057 CGAGTGTGCTCCGGGCGAAGCGAGTGCGTC TCGAACGAAGCGAGTGCGTCTCGAACGAA spacer length:
29 repeater length: 30

14292 949117 CGAGTGTGCTCCGGGCGAAGCGAGTGCGTC GGCCTGCTCGCCACGACGTGAGAAACGAT

14293

14294

14295 crispr 8

14296 2801497 AGTGTTTCGTCGTTGCGGAGCGAGCGTAAGCGAGCGATGC
AACGCCGAGGCTCGGAAGACGAGCCTCGCGAGTCTTCCGGTGTTTCGGCGCGGCGGGTTCGCGCCGAAGCTTGTGAGGCGAGCGTA
GCGAGTCTCA spacer length: 96 repeater length: 40

14297 2801634 AGTGTTTCGTCGTTGCGGAGCGAGCGTAAGCGAGCGATGC
AACGCCGAGGTTTCGGAAGACGAGCCTCGCGAGTCTTCCGGTGTTTCGGCGCGGCGGGTTCGCGCCGAAGCTTGTGAGGCGAGCGTA
GCGAGTCTCA spacer length: 96 repeater length: 40

14298 2801771 AGTGTTTCGTCGTTGCGGAGCGAGCGTAAGCGAGCGATGC
AACGCCGAGGTTTCGGAAGACGAGCCTCGCGAGTCTTCCGGTGTTTCGGCGCGGCGGGTTCGCGCCGAAGCTTGTGAGGCGAGCGTA
GCGAGTCTCA spacer length: 96 repeater length: 40

14299 2801908 AGTGTTTCGTCGTTGCGGAGCGAGCGTAAGCGAGCGATGC

ACGACGTGAGAAACGATGCGGCCGGGGAGTTTCACCCTGGAAGACGCAGCGCAACGGGGTGAGCGACCGTCTGCCTCCGGTTCAA
CTCCCTCTCG

14300

14301

14302 crispr 9

14303 2351564 CCGAGCGTCAGCGAGGCCTGCTCGCCACGACGTGAGAAAC

GGTGCGGCCGGGGAGTTGATCCCTGGGCGTCGCGCGCAGCGAAGCGAGCACGTCTACCTCCGGTTCAACTCCCTCTCGGCCCCGTAT
TCCGTTTTCGAACACCACCGAGCAGT spacer length: 111 repeater length: 40

14304 2351716 CCGAGCGTCAGCGAGGCCTGCTCGCCACGACGTGAGAAAC

GATGCGGCTGGGGAGTTGATCCCTGGGCGTCGCGCGCAGCGAAGCGAGCACGTCCGGCTCCGGTTCAACTCCCTCTCGGCCCCGTAT
TCCGTTTTCGAACACCACCGAGCAGT spacer length: 111 repeater length: 40

14305 2351868 CCGAGCGTCAGCGAGGCCTGCTCGCCACGACGTGAGAAAC

GATGCGGCTGGGGAGTTGATCCCTGGGCGTCGCGCGCAGCGAAGCGAGCACGTCCGGCTCCGGTTCAACTCCCTCTCGGCCCCGTAT
TCCGTTTTCGAACACCACCGAGCAGT spacer length: 111 repeater length: 40

14306 2352020 CCGAGCGTCAGCGAGGCCTGCTCGCCACGACGTGAGAAAC

TCGAGCAGCTTCGATTGGGCGGCCGCGAGGTGTTTCGAAAACGTCGAGGTAGTGATACCGAGCGCGTCGGCGACCTCGCCGGCGTT
CGCGCCCTTCGGGTGATCGAAGTAG

14307

14308

14309 GCA_000698785.1_ASM69878v1_genomic.fna (findCrispr):

14310 START REPEAT

SPACER

14311 crispr 1

14312 187037 CCGCCAGCTCCACCGGCACC

GCCGCCATTGCTACCCGGTTCTCCAGGTTCTCCAGGCTCTCCCGGCTCGCCAGGTTCTCCTGGTTCTCCACAAGCTCCTCCATCGC
CGCCGTACCTCCGGC spacer length: 102 repeater length: 20

14313 187160 CCGCCAGCTCCACCGGCACC ACCACCTGCTCCGCCAGTCTCTCCATCGCCGCCGTACCTCCGGC spacer
length: 45 repeater length: 20

14314 187226 CCGCCAGCTCCACCGGCACC ATAGATGGAAGCAACAATGCAAAGATTGCAAGCATAACAGGTTGGG

14315

14316

14317 crispr 2

14318 1374418 ACAATGATGATGACCACTACT

GGTCAAGCTACAACAACAAGCACGATGATGACGACAATGATGATGACTTTGACTGTGTTTGCTTCTTCAAGGACAAC spacer
length: 77 repeater length: 21

14319 1374517 ACAATGATGATGACCACTACT

GGTCAAGCTACAACAACAAGCACGATGATGACGACAATGATGACAAGGACGTCATTGTATGCATCCTTAAGAAC spacer
length: 74 repeater length: 21

14320 1374613 ACAATGATGATGACCACTACT

AGATGGAAGCAACAATGCAAAGATTGCAAGCATAACAGGTTGGGGTGAATCCTTCTGGAATAGCTGTCAACCCAG

14321

14322

14323 crispr 3

14324 2174924 GTTTGAATCGCACTATTATAGGATTGAAAG CAGGCTAAGGATGCGTTGTTCGGAGTGGAACATAGA spacer
length: 35 repeater length: 30

14325 2174990 GTTTGAATCGCACTATTATAGGATTGAAAG GAAGTACCAGGTATTGAGAGAGATGGTAGAAGTAG spacer
length: 35 repeater length: 30

14326 2175056 GTTTGAATCGCACTATTATAGGATTGAAAG TACGGCAATTCGGCAAGGATAGCCACAGGCT spacer
length: 32 repeater length: 30

14327 2175119 GTTTGAATCGCACTATTATAGGATTGAAAG TCAGCAATCATCCCCCGGATGTTGCCGTTAATCAT spacer
length: 35 repeater length: 30

14328 2175185 GTTTGAATCGCACTATTATAGGATTGAAAG TAGTTGGCGCCGCTGTCGTTGCAGCCGTCGCATCCG spacer
length: 36 repeater length: 30

14329 2175252 GTTTGAATCGCACTATTATAGGATTGAAAG CAGTTAGCAGACTATCAATACAACATCTGGCAGTCG spacer
length: 36 repeater length: 30

14330 2175319 GTTTGAATCGCACTATTATAGGATTGAAAG ACAATCCACAGTTAGGTACAGGCATACCATCAAGTG spacer
length: 36 repeater length: 30

14331 2175386 GTTTGAATCGCACTATTATAGGATTGAAAG GTTTGGGTACGGCAGGGATTTTGTCTTTGCCCTTTA spacer
length: 36 repeater length: 30

14332 2175453 GTTTGAATCGCACTATTATAGGATTGAAAG TAAAGAGACCGAGGCCGATGATTCCAACCACTATGC spacer
length: 36 repeater length: 30

14333 2175520 GTTTGAATCGCACTATTATAGGATTGAAAG CTTTGAGACGACCTTCCGCTTCCATAGTCGTATT spacer
length: 35 repeater length: 30

14334 2175586 GTTTGAATCGCACTATTATAGGATTGAAAG AATATGATAAAGGATAGGTTATACGCTCCATGTCC spacer
length: 35 repeater length: 30

14335 2175652 GTTTGAATCGCACTATTATAGGATTGAAAG TTGTAAAAGGAGTGCCAAGAACTACGTTTTTGGATT spacer
length: 35 repeater length: 30

14336 2175718 GTTTGAATCGCACTATTATAGGATTGAAAG AGCAGGGAGTTTCTCCCGTTCTCTCATCATTACCC spacer
length: 35 repeater length: 30

14337 2175784 GTTTGAATCGCACTATTATAGGATTGAAAG TAAAGCGCGCCGTGGCGCGTGCCGCTCGCCTCCA spacer
length: 34 repeater length: 30

14338 2175849 GTTTGAATCGCACTATTATAGGATTGAAAG CCCCCTTACTTGCCGTTGCTCAGTGC GTTCAACGCT spacer
length: 36 repeater length: 30
14339 2175916 GTTTGAATCGCACTATTATAGGATTGAAAG CTGTTAACAATTTGGATGTCAAGCCCCACATACTT spacer
length: 35 repeater length: 30
14340 2175982 GTTTGAATCGCACTATTATAGGATTGAAAG GCAGCAGGTGCCGGCAATCCGGACGCAATAATGAG spacer
length: 35 repeater length: 30
14341 2176048 GTTTGAATCGCACTATTATAGGATTGAAAG CCGCTTGACGACGACTTTGAAGACGACGACGCTCC spacer
length: 35 repeater length: 30
14342 2176114 GTTTGAATCGCACTATTATAGGATTGAAAG AAAAAGTTAAAGAATTGGCAAAAAGCGTGCCTGCT spacer
length: 35 repeater length: 30
14343 2176180 GTTTGAATCGCACTATTATAGGATTGAAAG ATTGTTGCAGTAAAGATATGGCCTATTTGCGCGCT spacer
length: 35 repeater length: 30
14344 2176246 GTTTGAATCGCACTATTATAGGATTGAAAG AATATCCTTGGGAAATCACGTTGATGTCTAGCCAT spacer
length: 35 repeater length: 30
14345 2176312 GTTTGAATCGCACTATTATAGGATTGAAAG AGCACCATGAAAGGAATCTTGCGCTTGCGTTTTTT spacer
length: 35 repeater length: 30
14346 2176378 GTTTGAATCGCACTATTATAGGATTGAAAG TAATTTGGCTCTCTGAAAGACCGCCCCACATGCTC spacer
length: 35 repeater length: 30
14347 2176444 GTTTGAATCGCACTATTATAGGATTGAAAG GGTAGACAAATACGGTAATGGGGTGGGCCTGGTAA spacer
length: 35 repeater length: 30
14348 2176510 GTTTGAATCGCACTATTATAGGATTGAAAG GGTATCAGGACCATCAACAGCCCCAAGCACAATTA spacer
length: 35 repeater length: 30
14349 2176576 GTTTGAATCGCACTATTATAGGATTGAAAG GACGTTCCACCGCCGCCAGTGAAGGCGGGCTGCCG spacer
length: 36 repeater length: 30
14350 2176643 GTTTGAATCGCACTATTATAGGATTGAAAG ATCTCCAAACCAAGTAGTAAATGCGTATGGTATCAA spacer
length: 36 repeater length: 30
14351 2176710 GTTTGAATCGCACTATTATAGGATTGAAAG CTTCAACGCTCAACGAGGATAACCCGATGTCGCT spacer
length: 34 repeater length: 30
14352 2176775 GTTTGAATCGCACTATTATAGGATTGAAAG ACCGGGCCATGCCTTGTTTTACTCGTCCGCATGGCT spacer
length: 36 repeater length: 30
14353 2176842 GTTTGAATCGCACTATTATAGGATTGAAAG AGGTCTATCTTGCAACCGGCAAAAAGATCGCAATAG spacer
length: 36 repeater length: 30
14354 2176909 GTTTGAATCGCACTATTATAGGATTGAAAG AGTTCATGAGAGCACTGCAGGTGGTATTTACCTAG spacer
length: 35 repeater length: 30
14355 2176975 GTTTGAATCGCACTATTATAGGATTGAAAG TCCTTCTGGAATAGCTGTCAACCCAGATACAAACA
14356
14357
14358 crispr 4
14359 2347669 CTTTGCCACCGGCCTCGGCACCGGCCTCGGC
TACCACCTCCCGTCATTTACCGAGCAGCTGAAGGAGGAGATCATTGGCTGGATAGACAAGGACAGCA spacer length:
67 repeater length: 31
14360 2347768 CTTTGCCACCGGCCTCGGCACCGGCCTCGGC
CGCTCATTCAGCACCTCGACGGGATAACGCAGCGGGGAATCCTCGACTGGATAGACAAGGACAGCA spacer length:
67 repeater length: 31
14361 2347867 CTTTGCCACCGGCCTCGGCACCGGCCTCGGC
GGGTGAATCCTTCTGGAATAGCTGTCAACCCAGATACAAACAGAATCTATGTTACTAACTATATAGA
14362
14363
14364 crispr 5
14365 1475494 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC TTAAGGAGAAAGAAAGAACTATTCGTTTGTTGGT
spacer length: 35 repeater length: 37
14366 1475567 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC AACAACTGGAAATAGGTGAGCTGTACTCTTTTGAA
spacer length: 35 repeater length: 37
14367 1475640 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC CAATACTCGAGGTATTAGGCTTTGAAAATAGAA
spacer length: 33 repeater length: 37
14368 1475711 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC AGACTGGTTCAGGGCTATCTGCCGCAAGTATGGGT
spacer length: 35 repeater length: 37
14369 1475784 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC TCAACATTTCTATGGGAAGAGGGATAAGAATGA
spacer length: 33 repeater length: 37
14370 1475855 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC CCTGTTCAAAGCACCTTCAGAGCTGTAAGTTCA
spacer length: 35 repeater length: 37
14371 1475928 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC AAGATGACACTCGACGGTACCAACTATTATGCA
spacer length: 33 repeater length: 37
14372 1475999 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC ATGCCAATTTCCAGCTTAATGAGTACGGCGTGAAAT
spacer length: 36 repeater length: 37
14373 1476073 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC TTCGATATTTGAAACATAACAGAAAGTGATTCT
spacer length: 34 repeater length: 37
14374 1476145 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC TCCATACCACAGAATCCAACGAAATCTCAATGAC
spacer length: 34 repeater length: 37
14375 1476217 GTTTCAATCCTTGTTTTAATGGATTTGTCTTTTCAGAC GCTTGTTATGAACGACTATGCCGACCTTGGCTTCA
spacer length: 36 repeater length: 37

14376	1476291	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TGCTACGGACCCGGCAGCTACATACTGATCAAGG
	spacer length:	34	repeater length: 37
14377	1476363	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACAACGACGACGATGAGGAGGCCGACGACAACAAAA
	spacer length:	36	repeater length: 37
14378	1476437	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCCCAGAGTGTGCCTATTACATAATCGTATTCCCTTA
	spacer length:	36	repeater length: 37
14379	1476511	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GACGGAGGCTATCTTTTCCTGGAAGGAAGTATCA
	spacer length:	34	repeater length: 37
14380	1476583	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CCCAAGTAGAAGCCACCGAGTCAGTGGTGGTATCTA
	spacer length:	36	repeater length: 37
14381	1476657	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GATAGGCAAGGACCTGTGCGACCAGCAGCTTTCG
	spacer length:	34	repeater length: 37
14382	1476729	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GTCATCTGTCTAGGTGGAACAGGCCCGCTAGTCT
	spacer length:	33	repeater length: 37
14383	1476800	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GTACGTGAAATTGTTTGCCCTGCAACCAGCCGC
	spacer length:	33	repeater length: 37
14384	1476871	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTCTATGGTCATCCAGCATTTCGACTACGGACTAG
	spacer length:	34	repeater length: 37
14385	1476943	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GCATGCAAACGTCGTGTTGACTGGAAGAATGACGTC
	spacer length:	36	repeater length: 37
14386	1477017	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CGGGATATCGAGCCTAACCTAGTGACTGCAATAG
	spacer length:	34	repeater length: 37
14387	1477089	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GTATATCTCTCAGTCACTTCGGATAGCGACAGA
	spacer length:	33	repeater length: 37
14388	1477160	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CATTTGACCAGTCACGCGCATACTCAAATGAGAGGA
	spacer length:	36	repeater length: 37
14389	1477234	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCTATCACGTATGATGCCCACCCTCTCACTGGTAG
	spacer length:	35	repeater length: 37
14390	1477307	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GATCGTTATAGCGCCGTCGCCTACTGCATTAAA
	spacer length:	33	repeater length: 37
14391	1477378	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATCTTGACCTTAGGCATAAACACGCCTGCAAGC
	spacer length:	33	repeater length: 37
14392	1477449	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TAAAGGGCCAAAAACCGGGAGAGAGGTGGTTAACG
	spacer length:	35	repeater length: 37
14393	1477522	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AAGAAAGTCCTTGACGGCTATGGTAGTATCCTTT
	spacer length:	34	repeater length: 37
14394	1477594	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GAATCAAAATTAAGACACGCTTGGCACGTTGGC
	spacer length:	33	repeater length: 37
14395	1477665	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTCCTCCAGAGCCTACTCCTGCAGGACTTAGCTCT
	spacer length:	35	repeater length: 37
14396	1477738	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCCCTTACCATATACTCGATTATTGCCTTTAGGTT
	spacer length:	35	repeater length: 37
14397	1477811	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATGCTAGAGCGGGTAATCATACATGCCAAGAGTTTCA
	spacer length:	37	repeater length: 37
14398	1477886	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACATCTTCGACTACCACGGCGTGGTGCCGACAAGG
	spacer length:	35	repeater length: 37
14399	1477959	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AATCTTTTTTCCCTCTCCTTTTATTTTGTAATATG
	spacer length:	35	repeater length: 37
14400	1478032	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACCCGTTTTTTCGTCCTTTATCCCTACGTCGGCAT
	spacer length:	35	repeater length: 37
14401	1478105	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTCTCTGGATTCTCACCTTGTACATACAGTTAGG
	spacer length:	34	repeater length: 37
14402	1478177	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATCTCAAAACACTTGCCAACCAGTAAGAGTAGCA
	spacer length:	34	repeater length: 37
14403	1478249	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ACTAGTAGGTGAAGATCACCTAATTTATTCTATAA
	spacer length:	35	repeater length: 37
14404	1478322	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	CTTCTGTATATTTTCCACCCTTACAACATAGTAAGC
	spacer length:	36	repeater length: 37
14405	1478396	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATACATCGTTTTCTTGTCGGTGATTGACGGCTTGCG
	spacer length:	36	repeater length: 37
14406	1478470	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	GAGATCACCGAATATGCAGAGAACTGGCTTCTGT
	spacer length:	34	repeater length: 37
14407	1478542	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	ATATTTCGGCCAGCTCGTGGACGTCGTTGGTATCCC
	spacer length:	36	repeater length: 37
14408	1478616	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AGGGCTACGAAAGACGTTTCCAGTAGGTTTATGC
	spacer length:	34	repeater length: 37
14409	1478688	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TCAAATAATTTACGAGTTAGCTCTAGGGTAAGTG
	spacer length:	34	repeater length: 37
14410	1478760	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	AGCTGGAGGGGATTCTACCCTTACTTCTGATTTCA
	spacer length:	35	repeater length: 37
14411	1478833	GTTTCAATCCTTGTTTTAATGGATTTGTCTTTCAGAC	TGAAAGGACCAGGGCGGACAAGGGAGTCCAGTACA

spacer length: 35 repeater length: 37

1478906 GTTTC AATCCTTGTTT TAAATGGATTTGTCTTTCAGAC TAGATGGCACCGTCTCTGTGATTGATGGTAATAGT

crispr 6

1032556 CTGTCATAGATGGAAGCAACAATGCAAAGATTGCAAGCAT

ACAGGTTGGCGCATATTCACAAATATCTGTCAACCCAGATACAAACAGAATCTATGTTACAGAACATCACATTGTTAACAACATAG
AACAAAAACGGTACGGTA spacer length: 103 repeater length: 40

1032700 CTGTCATAGATGGAAGCAACAATGCAAAGATTGCAAGCAT

ACAGGTTGGGGTGAATCCTTCTGGAATAGCTGTCAACCCAGATACAAACAGAATCTATGTGATACACCACTATAATAAAATAAATG
ACAAATGGCAAAACGGTACGGTA spacer length: 109 repeater length: 40

1032850 CTGTCATAGATGGAAGCAACAATGCAAAGATTGCAAGCAT

AGATTGCAAGCATACAGGTTGGGGTGAATCCTTCTGGAATAGCTGTCAACCCAGATACAAACAGAATCTATGTTACTAACTATATA
GATGGCACCGTCTCTGTGATTGA

GCA_000725425.1_ASM72542v1_genomic.fna(findCrispr):

START REPEAT

SPACER

crispr 1

736243 GGT CCAATAAGACTTTAGAAAGTATTGAAAGATCGGGCAGGTTGCGGAGTGGGTAGTTGAAAAAG spacer
length: 61 repeater length: 4

736309 GGT

CCAATAAGACTTTAGAAAGTATTGAAAGCTCTGGCGTGAGAGGTGCAAAGTTTGCAAAGATATTAGTTCCAATAAGACTTTAGAAAGT
ATTGAAAGCACTCAAGGCGTTGCAGCACATTGAGATTGAGATC spacer length: 129 repeater length: 4

736443 GGT CCAATAAGACTTTAGAAAGTATTGAAAGTCATCTTTAGCATGAAGTAGCTCAAAGGAGTGTT spacer
length: 61 repeater length: 4

736509 GGT CTCTAAAGTCTTATTGGAACAGGGGCGGATTTTTGAGATTTTGTCTATAAACCCCTATG

crispr 2

1426489 CTTTCAATTCTTCTAAAGTCTTATTGGAAC

TCATAGATGGCAGAAAAATTCGCTTTTGGCAAGAAACACTTTCAATACTTCTAAAGTCTTATTGGAAGTGGAGGGGTGAGCGGTGG
CAAGTAGGAAGAGAAAACT spacer length: 105 repeater length: 30

1426625 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTTCTCAGAAACCCAAACATCAATAGACCAGACC spacer
length: 35 repeater length: 30

1426691 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GTTGGTATAGAATTATTTGACAAATTCAGCGATAAG spacer
length: 36 repeater length: 30

1426758 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CGGTTATAAAGAGCTTTACAAATACGAAAACGGCCG spacer
length: 36 repeater length: 30

1426825 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTGTAACAGGATTATAAACCTCCTCAGCCCCTATT spacer
length: 35 repeater length: 30

1426891 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTTTGGAAGTGCACCGTAGTAAGTCCAAAATTTATA spacer
length: 36 repeater length: 30

1426958 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGTGAACAACACTCCAAAAGCCGGTCTAATCTATGT spacer
length: 36 repeater length: 30

1427025 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CAGGATAATTCAAACGTTTACATTGACAACAACCA spacer
length: 35 repeater length: 30

1427091 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TAACCCTAAGCTTTTCCCACAAGTACTAAAGTTTAC spacer
length: 36 repeater length: 30

1427158 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTTTGAGGACAAGGTAGATAGAACAAATGAGTTCT spacer
length: 35 repeater length: 30

1427224 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGCAGCAATACACAAGCAAGACAATCACAATAAACG spacer
length: 36 repeater length: 30

1427291 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GCTTTTACTACTCGTTTCAGGCCTTTTGCAAGTATG spacer
length: 36 repeater length: 30

1427358 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCGCCCACCAAACCCCTTTTCGATTAAACCTACT spacer
length: 34 repeater length: 30

1427423 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GAACACTAGGCAAAGGGTAAAAGAGTTATACGAAA spacer
length: 35 repeater length: 30

1427489 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CATATCTGTTGCATACACTACTGCTTCGCTGAGGAT spacer
length: 36 repeater length: 30

1427556 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGAGGGTGAGGATTTAACGATTATTAGATTTAGCA spacer
length: 35 repeater length: 30

1427622 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCATTTGAACATTTTGAACGCTTAGAGGTTTGTAAT spacer
length: 36 repeater length: 30

1427689 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CTTGCACCCAGCAGTATCCATGTCTGAGATTACA spacer
length: 34 repeater length: 30

1427754 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CACCGGATTGGGTGTGTACGCTATTAGCCGCTTTA spacer
length: 35 repeater length: 30

1427820 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTAAACAGTCAGAACTAAAACAAATACTGAGCAAGA spacer

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length: 36 repeater length: 30
14451 1427887 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCTCGAAGGGGATAAAATAATAATTGAAAAAGCGA spacer
length: 35 repeater length: 30
14452 1427953 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TCATAGCTAGTGCCGTTTCTGAAAACAATGAAGTTA spacer
length: 36 repeater length: 30
14453 1428020 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TGTGATTATTGTGAATATTGTTTTAGTATTGTTA spacer
length: 34 repeater length: 30
14454 1428085 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGTTCCTAACCTGCCTATCAGAAACCCCCAGTATC spacer
length: 35 repeater length: 30
14455 1428151 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CGATTCTCCGATCACAATGGCGAACATTGCCCAGAGC spacer
length: 37 repeater length: 30
14456 1428219 CTTTCAATTCTTCTAAAGTCTTATTGGAAC CCTCTTAGTCCGTTTATAACTGATGAGTATAGAGTA spacer
length: 36 repeater length: 30
14457 1428286 CTTTCAATTCTTCTAAAGTCTTATTGGAAC AGCCAGCCGTGCAGCTCGCTTATGTAACCCTCCCAA spacer
length: 36 repeater length: 30
14458 1428353 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTGCTAAAGCCAAGAATCTAGCTAAAATTCCAAGA spacer
length: 35 repeater length: 30
14459 1428419 CTTTCAATTCTTCTAAAGTCTTATTGGAAC TTGAAAGGGATGAAATGACGGGTGAATGGATGTTTAAAG
spacer length: 39 repeater length: 30
14460 1428489 CTTTCAATTCTTCTAAAGTCTTATTGGAAC GGATTTTTGAGATTTTGTCTATAAACCCCTATGAAAAC
14461
14462
14463 crispr 3
14464 1003934 GTTCCAATAAGACTTTAGAAAGTATTGAAAT GAGCTGGCAGAACGTGCTTTAACAGCAACGGAGCTTA spacer
length: 37 repeater length: 30
14465 1004002 GTTCCAATAAGACTTTAGAAAGTATTGAAAT GAGCTGGCAGAACGTGCTTTAACAGCAACGGAGCTTA spacer
length: 37 repeater length: 30
14466 1004070 GTTCCAATAAGACTTTAGAAAGTATTGAAAT CAGTGCCCTTTCTCGTCATCGAGGCGACAGGGTGGA spacer
length: 36 repeater length: 30
14467 1004137 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TTGAAGGACCTCCAACCTCGAGCTTTTCGACAGCAG spacer
length: 36 repeater length: 30
14468 1004204 GTTCCAATAAGACTTTAGAAAGTATTGAAAT CATTTTTGTCGCCAAGGCCACAGCGGCGGCACTGAA spacer
length: 36 repeater length: 30
14469 1004271 GTTCCAATAAGACTTTAGAAAGTATTGAAAT GACTTTACGAAGCACAACAAGGATATTCTACCGATTTTCA
spacer length: 40 repeater length: 30
14470 1004342 GTTCCAATAAGACTTTAGAAAGTATTGAAAT ATGAGATGCTTAGTTTTGATGATATTAGCCTGGTC spacer
length: 35 repeater length: 30
14471 1004408 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TGACCCTGAGCGGCCTGGCGTATATGGAGCTTTCGG spacer
length: 36 repeater length: 30
14472 1004475 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TAGAGAAAGTTAGGGAGGAGTTGGGAGAGGCTAAT spacer
length: 35 repeater length: 30
14473 1004541 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TCAATTCCTGCAGGGGGGAGCATTACAATTTATCTTT spacer
length: 37 repeater length: 30
14474 1004609 GTTCCAATAAGACTTTAGAAAGTATTGAAAT ATGGTGCTTAATTTTGTATGAAAAAACGCTTTTTTA spacer
length: 36 repeater length: 30
14475 1004676 GTTCCAATAAGACTTTAGAAAGTATTGAAAT ATTGCGTTATTGTCTTTAGTGTAACCACTGAGCC spacer
length: 35 repeater length: 30
14476 1004742 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TAAGGGGTGTAATAGTCTTCAACTCATTGTAAATTG spacer
length: 36 repeater length: 30
14477 1004809 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TGCAAGTATCGAAAGACGGGGATTTATTGGCAATA spacer
length: 35 repeater length: 30
14478 1004875 GTTCCAATAAGACTTTAGAAAGTATTGAAAT CGGTCTTGAGGTTATCTCGGTTTTGGAGGAGCTTG spacer
length: 35 repeater length: 30
14479 1004941 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TTGACTACCGCTTTGGTAGTAGATTTACGGTAACCG spacer
length: 37 repeater length: 30
14480 1005009 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TTGTGTTGCTAAAGGCATAATAAAGGGTTACTGA spacer
length: 34 repeater length: 30
14481 1005074 GTTCCAATAAGACTTTAGAAAGTATTGAAAT AACTTTGGGAAAACCTGGAAAACAAGGGCTTCTTTGG spacer
length: 36 repeater length: 30
14482 1005141 GTTCCAATAAGACTTTAGAAAGTATTGAAAT AGTGATAAGGTGATATACATGGAAGAATTTAAGGA spacer
length: 35 repeater length: 30
14483 1005207 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TTCCTTGGAAGATCAATTGAGTTGTTAGTAAGTGTA spacer
length: 36 repeater length: 30
14484 1005274 GTTCCAATAAGACTTTAGAAAGTATTGAAAT TTCCTTGGAAGATCAATTGAGTTGTTAGTAAGTGTA spacer
length: 36 repeater length: 30
14485 1005341 GTTCCAATAAGACTTTAGAAAGTATTGAAAT GCGGATTTTTGAGATTTTGTCTATAAACCCCTATG
14486
14487
14488 GCA_000730285.1_ASM73028v1_genomic.fna (findCrispr):
14489 START REPEAT SPACER

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14490 crispr 1
14491 1586376 AACGCATTCTGTCCAGGCCGCGACAA
CGATTGCAGCGGTGAAAACGGCGGCGCAGGTGGAGATGGAGGCAATGGTGGTGATGGTGGAGATGACTGTTCCGATAACAGCGATT
GCAGCGGTGAAAACGGTGGAAAACGGCGGCAATGGCGGAAATGGAGG spacer length: 132 repeater length: 26
14492 1586535 AACGCATTCTGTCCAGGCCGCGACAA
TGACTGTGGCGGCGCGCATGGAGGTGAGGGAGGCAATGGCGGAAATGGAGGCAATGGCGGCGACAACCTGTTCTGACGATAGCGATT
GCAGCGGCGGCGATGGAGGTGATGGAGGCAACGGTGGAGACGGTGG spacer length: 132 repeater length: 26
14493 1586694 AACGCATTCTGTCCAGGCCGCGACAA
CGATTGTAGCGGCGAGGAATTCTGTCCAGGTCACAACAGGGATTGTACCGACGGACGCGGAGACTAAAAGTCGCAACACAAGATAT
ACATGAAAATGGCGGTAAGAAGAAGCACCGCCTAATCTCTTCAATT

14494
14495
14496 crispr 2
14497 2110971 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ACATGGAACGCAACGGTAACAGCACAAACGCCA
spacer length: 33 repeater length: 37
14498 2111042 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ATTCTTTGCAACATACTGTGAGAGCCAAAGACACTTG
spacer length: 37 repeater length: 37
14499 2111117 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC AGACAAGAATCTCCCAAAAAGCTCGTCATGGTTCA
spacer length: 35 repeater length: 37
14500 2111190 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GGAAGCGGCAAGGATCAGGGTCGCCATCGAAGACG
spacer length: 35 repeater length: 37
14501 2111263 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GCTTGGCAGATTCAATTTCCATATTTCCGCAACTC
spacer length: 35 repeater length: 37
14502 2111336 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TGCTGTCAACATTCTAGTGCGGGAGCGCCTAGA
spacer length: 33 repeater length: 37
14503 2111407 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC AGGAATCAATGTCGGCAAGCCTGTAGCTCAAACA
spacer length: 34 repeater length: 37
14504 2111479 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ACAAAGAGATCAAGATGCCTCCGACACCCGAACCTAG
spacer length: 36 repeater length: 37
14505 2111553 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TTCAACGACTACACTGCATCAACAGGTAGACCAG
spacer length: 34 repeater length: 37
14506 2111625 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC AAGCGTCTCTCCCTTGACAGAGCCGTTTCATCTT
spacer length: 33 repeater length: 37
14507 2111696 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ACGCGTACCCCGTCATGGCGCCTATCTGCCCCTTG
spacer length: 35 repeater length: 37
14508 2111769 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TCTTTCTTGTGACTTCGGTGAAAGAGAGTGCTG
spacer length: 34 repeater length: 37
14509 2111841 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ATCTCCTTGTGACCGGAAAGTCGCCATAGAACGCG
spacer length: 36 repeater length: 37
14510 2111915 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TTGGGGCCAGTTCTGCCAGAACGTTGAGGCATTC
spacer length: 34 repeater length: 37
14511 2111987 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC CTATCTTCTGCCATCTCAATAGCTCAGCTCCAGG
spacer length: 34 repeater length: 37
14512 2112059 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC CTGCTATCGTCAAAGTTCAAAGCAACCGTGTAG
spacer length: 33 repeater length: 37
14513 2112130 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GGCCAGAATCCCGCTAGAGCTGGTCGAAGTCAAGC
spacer length: 35 repeater length: 37
14514 2112203 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC CGCGAGAATCAGGGGAAATTCTGACGAGGCCAAGA
spacer length: 35 repeater length: 37
14515 2112276 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TTGCCCCATTCCCTTCTCACGAGCAAGTTTGT
spacer length: 33 repeater length: 37
14516 2112347 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TGCGGCTCTTGCGGCGCTCTGATAGAGTGCGACA
spacer length: 34 repeater length: 37
14517 2112419 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ACAAAGTCAGGAGTTTCCCATTCGTCCATGGGGA
spacer length: 34 repeater length: 37
14518 2112491 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GTGTCCGTGTTGCTATACTGGCCATTGCGATCCTT
spacer length: 35 repeater length: 37
14519 2112564 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GGCAAGTTTGAGCGCGAAGAAAAGCCGGTCGATTAC
spacer length: 36 repeater length: 37
14520 2112638 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TGGTTAAAGAACCTCCCCCCCCTAAAACCG spacer
length: 30 repeater length: 37
14521 2112706 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GGCAGGAAAAGGAGGGAAATAGAAAGGAGTAAA
spacer length: 33 repeater length: 37
14522 2112777 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ATTATCACTATCAACACGGACAACACCGTAGACG
spacer length: 34 repeater length: 37
14523 2112849 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC GGCACAAAGACGGACCTATCGGAAAAGCTTGGGAT
spacer length: 35 repeater length: 37
14524 2112922 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC TTCGTTGCGTCGGCGCGCCGTCAATAATGGCATAG
spacer length: 35 repeater length: 37
14525 2112995 GTTTC AATCCTT GTTGTGGTGGATTTCGTCTTTCAGAC ACCACCAATCGAGAATGAGGTATCCCTTGTTATA
spacer length: 34 repeater length: 37

14526	2113067	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GATTTCAGAAGAGGCTCACGACATCGCCGTTGAGC
		spacer length: 34 repeater length: 37	
14527	2113139	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACACCACGAGAGACAAGAACAACGACGGGAAAAGC
		spacer length: 35 repeater length: 37	
14528	2113212	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCCGAAATTGCGGGTATGGAGGTAGAGGCGGAG
		spacer length: 33 repeater length: 37	
14529	2113283	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CCAAAGGCGGAGGCAGATATTACAATAGAAAAC
		spacer length: 33 repeater length: 37	
14530	2113354	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CGTAAAGGAGGTGTCCGAGTCGATAAACGTCTTG
		spacer length: 34 repeater length: 37	
14531	2113426	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACAATGTTTGCCCCGCCGAAGTCATTTATCAGGCTG
		spacer length: 36 repeater length: 37	
14532	2113500	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GACCCGCACAACTACCAAAGGCTCCAAGGCTAT
		spacer length: 34 repeater length: 37	
14533	2113572	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTCTCGGTTGGCGGGTTTCCTGCTCCGCTGGCAAC
		spacer length: 35 repeater length: 37	
14534	2113645	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTTTCGGAACGGGTCAAGTCGCGCCCGATGATGAC
		spacer length: 35 repeater length: 37	
14535	2113718	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GCACTATTTCCGTCGCTTCCGGTAGCTGTAATA
		spacer length: 33 repeater length: 37	
14536	2113789	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CTTCATTTACCAATGTGATAGCTCCTGCAGGAGA
		spacer length: 34 repeater length: 37	
14537	2113861	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTGTAAACCTCCATTGTTTTACCGTAGGCGGTT
		spacer length: 33 repeater length: 37	
14538	2113932	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCGATATGATATAGTCGGGGTTGCGTGAGACTG
		spacer length: 33 repeater length: 37	
14539	2114003	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AAAGGACGGCTGCTGCCTTGCGCCTCACTGATTC
		spacer length: 34 repeater length: 37	
14540	2114075	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TATTTTTGCGCTCAATTTGCCCGCAACCGTATGT
		spacer length: 34 repeater length: 37	
14541	2114147	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AATCTGCTCCCTCAGGATATTCATCTCCTTCTGCAAT
		spacer length: 37 repeater length: 37	
14542	2114222	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ATCTATTGAAGGCACGAATCTTCTTCTATGACAT
		spacer length: 34 repeater length: 37	
14543	2114294	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TTGAATGCTTCGCTTCCGAAGGCGCCGACGTTCAA
		spacer length: 35 repeater length: 37	
14544	2114367	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CGTATATCATTGTACTATTTCGGTTTTCGGGCACTG
		spacer length: 34 repeater length: 37	
14545	2114439	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ATACAGGATAGTTCCACATTGCGGACATGCCATG
		spacer length: 34 repeater length: 37	
14546	2114511	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGCCGGTGGAGAAAAACAACGAGTGGAGGACGAAG
		spacer length: 35 repeater length: 37	
14547	2114584	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACGAGGATTTCAATCCTGAGGAGTTCGTAAGAG
		spacer length: 33 repeater length: 37	
14548	2114655	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AAGCAAGCGGTAGACATGGCCAACGAGTTGAAAAAT
		spacer length: 36 repeater length: 37	
14549	2114729	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AATTGACGCCTTTTGCTCGGGCTCGGGCTTTAGG
		spacer length: 34 repeater length: 37	
14550	2114801	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GTAACGGGTCTTGCTACCAATTACGGAGAGGAGTTTG
		spacer length: 37 repeater length: 37	
14551	2114876	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGTTGCAGTTCGAGGGCGTTCTCTTGTTTCGTGAGTAT
		spacer length: 37 repeater length: 37	
14552	2114951	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGGATATCCACTACTGGTACAGGTATGCCGCAA
		spacer length: 33 repeater length: 37	
14553	2115022	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCGATTTTGCCCTTTCTGCTGCAGTGGACGTCCAG
		spacer length: 35 repeater length: 37	
14554	2115095	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	TCTAAAATCCGCGGTATAAGGACCATCGAGAAA
		spacer length: 33 repeater length: 37	
14555	2115166	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	AGGCAGTTGATCTTACGATTGGCGTGCACTACAATAC
		spacer length: 37 repeater length: 37	
14556	2115241	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	CTTTAGCGCCTCTCGTATCACTTCTTTGTTAAA
		spacer length: 33 repeater length: 37	
14557	2115312	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACTCTGCCCTGTGAAGCGAGATGATGCTGTGACACA
		spacer length: 35 repeater length: 37	
14558	2115385	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GATGGTGTGCTCGCCCTGCTTGTCCATGTTGGCA
		spacer length: 34 repeater length: 37	
14559	2115457	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	GACCAACGACAGGGAATACTTTGACGACGAGGTTA
		spacer length: 35 repeater length: 37	
14560	2115530	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ACACAGATGGCACTCATGGCGCAGTCGGTGAATAT
		spacer length: 35 repeater length: 37	
14561	2115603	GTTTCAATCCTTGTTGTGGTGGATTTCGTCTTTCAGAC	ATGTCAAGCCAGCGTTTCTTTATCATGCCCTGCAGCC

spacer length: 37 repeater length: 37
 14562 2115678 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TATGTTACGCAGTCAGATTTGGACGCAGGCACG
 spacer length: 33 repeater length: 37
 14563 2115749 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CGTAGTGTAGTTGGGCTGCTTGCCGTAAGTGGAA
 spacer length: 33 repeater length: 37
 14564 2115820 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TGTTTGTCTGTGCTTGATGTGCCTGTGGTGAGT
 spacer length: 33 repeater length: 37
 14565 2115891 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CATAAAAAAGAGGAGGAAATGGTGGAAAAATGA
 spacer length: 33 repeater length: 37
 14566 2115962 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AATTCTTCTACCTGAAGAGGCCAGCCGAGCCGGGG
 spacer length: 35 repeater length: 37
 14567 2116035 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GCTCTTCCAGGAATGGATGACAAAGTACGTGGAG
 spacer length: 34 repeater length: 37
 14568 2116107 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TCAGGGAACAGCAATACCGCCAATGCCGCTGATG
 spacer length: 34 repeater length: 37
 14569 2116179 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TATTGCTCGTGGCGGAAATCTGACTATTTACCTTT
 spacer length: 35 repeater length: 37
 14570 2116252 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGAATGAGGACGAGCTGGCGCTTGCCCTGCGCAGTT
 spacer length: 35 repeater length: 37
 14571 2116325 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CTTTTTCGATGTTGCCATGCCTAACTACTTGTAG
 spacer length: 34 repeater length: 37
 14572 2116397 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GGGTGAGCAAGTCGACATCACCCCTGCAGCGCGT
 spacer length: 34 repeater length: 37
 14573 2116469 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC
 TCTACAGTGTCTTTTGTGTTGCTTCCAGTCGCGTATGGATTCTTAAGATAA spacer length: 51 repeater
 length: 37
 14574 2116558 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GTTAAAAGCGACACAGAGAAGTCACCTTCTATCT
 spacer length: 34 repeater length: 37
 14575 2116630 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GAGTCCCAGTCCGTGCGGGGTGTTGCGGCCTTGA
 spacer length: 34 repeater length: 37
 14576 2116702 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CGTCCTTTTGTGGCGGGTCTTCAACCACTAGTTTTG
 spacer length: 36 repeater length: 37
 14577 2116776 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGCACATTCACTTTGCGCTTGCGCTTCCGGAAGTT
 spacer length: 35 repeater length: 37
 14578 2116849 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AAGTTCCAAGTCACCAACGAACAGGGCTGGGTAAACAA
 spacer length: 37 repeater length: 37
 14579 2116924 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GCAGCAAATCAATCTGTACCGATGCGATTTGTT
 spacer length: 33 repeater length: 37
 14580 2116995 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TTCGGGAACCTTTTTGCTTGCGCCGTATTTGGTG
 spacer length: 34 repeater length: 37
 14581 2117067 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GCTATCTGTTATAACGCTACTTTCTAGTCATAAA
 spacer length: 34 repeater length: 37
 14582 2117139 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TACAGCAGGGACGAATCTTAGTGAAAAATAGATT
 spacer length: 35 repeater length: 37
 14583 2117212 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TGTAACAAGCTGAAAAATCGTCTTTGTTATCTTT
 spacer length: 34 repeater length: 37
 14584 2117284 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGCCGGTGGAGAAAAACAACGAGTGGAGGACGAAG
 spacer length: 33 repeater length: 37
 14585 2117357 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC ACGAGGATTTCAATCCTGAGGAGTTCGTAAGAG
 spacer length: 33 repeater length: 37
 14586 2117428 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AAGCAAGCGGTAGACATGGCCAACGAGTTGAAAAAT
 spacer length: 36 repeater length: 37
 14587 2117502 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGCTTATGAGCAAGGACCCTAGACTTGAGCGCAGG
 spacer length: 35 repeater length: 37
 14588 2117575 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CAGGCATTTCGTCTACGAATGCAGCTATCGGGTCC
 spacer length: 34 repeater length: 37
 14589 2117647 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GGATGGTGCAAACAACAAGACGATAAGAACGTCCT
 spacer length: 35 repeater length: 37
 14590 2117720 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC GGCCATAGAACAAAGGTCCTTTATGTTTGGCTTC
 spacer length: 34 repeater length: 37
 14591 2117792 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC TTTGCAGGCAACGGAAACGACAGCGTAGGCTCTA
 spacer length: 34 repeater length: 37
 14592 2117864 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC ATCTTTTGTCTAGCTCTTCTTTGTTATAATGC
 spacer length: 33 repeater length: 37
 14593 2117935 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CCAGCAAGGGGCAAGACACAACCTTTTGAATGGACC
 spacer length: 36 repeater length: 37
 14594 2118009 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC AGTTTTAGGTTTAAGGTCTACGATGTTGTCTACAG
 spacer length: 35 repeater length: 37
 14595 2118082 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC ATGCTATCTAGCTTCATATCCTTGTATTTTTTCTT
 spacer length: 35 repeater length: 37
 14596 2118155 GTTTCAATCCTTGTGTGGTGGATTTCGTCTTTCAGAC CATAAATGCCAGTTTTGTGCTCAAACCGCAATT


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14597
14598
14599 GCA_000734035.1_ASM73403v1_genomic.fna(findCrispr):
14600 START      REPEAT
      SPACER
14601 crispr 1
14602 539422 GTTGCCGTTCTCCTTATGAGATTC TTACTTTGACTCCTGACGAGGGTGAAGCGCTGAGAATT spacer
      length: 38 repeater length: 24
14603 539485 GTTGCCGTTCTCCTTATGAGATTC AAACGTATAGAGGAGCATCCGGAGCTAGGATACTCCT spacer length:
      37 repeater length: 24
14604 539547 GTTGCCGTTCTCCTTATGAGATTC CGGAGCAACTAATGAAGGCATAGATGACTGCGAGGATATAT spacer
      length: 41 repeater length: 24
14605 539613 GTTGCCGTTCTCCTTATGAGATTC AAAAAAATGAGGAAATACTTAGCAGGGCGTTTGGTA spacer length:
      36 repeater length: 24
14606 539674 GTTGCCGTTCTCCTTATGAGATTC CGGGCAGTATAGAATTCCTGCCGAGGAGGTCAAGAGAATC spacer
      length: 40 repeater length: 24
14607 539739 GTTGCCGTTCTCCTTATGAGATTC ATTGGTATTTAGTAGCCTTTGAATCAGCAGGCTATTA spacer length:
      37 repeater length: 24
14608 539801 GTTGCCGTTCTCCTTATGAGATTC TGCATGGAGAAGATGGTTGAATTGAGTAACTACGAGCTGGGCTACT
      spacer length: 46 repeater length: 24
14609 539872 GTTGCCGTTCTCCTTATGAGATTC GAGGTGGGACGAATGGACTATGACAGAATAGTTATT spacer length:
      36 repeater length: 24
14610 539933 GTTGCCGTTCTCCTTATGAGATTC GGAGAGGGTGCAGAGTTTGAAGTATAAGCTTAGGAAGACTAAT spacer
      length: 43 repeater length: 24
14611 540001 GTTGCCGTTCTCCTTATGAGATTC TTAAAGAAGCGAGACTTGAGGCGAAGGAGAAGTTCCT spacer length:
      37 repeater length: 24
14612 540063 GTTGCCGTTCTCCTTATGAGATTC AAGCACGAGTTTGAAGCTTTGGTGGGGGAGGAAATTACTG spacer
      length: 40 repeater length: 24
14613 540128 GTTGCCGTTCTCCTTATGAGATTC GATTCTTGAAGACTTTGGTGATGAGGTTATAGTAACAACATA spacer
      length: 41 repeater length: 24
14614 540194 GTTGCCGTTCTCCTTATGAGATTC GAAGGTGAAAATGGAAGATGCAGTGAGAGATGCTATGATT spacer
      length: 40 repeater length: 24
14615 540259 GTTGCCGTTCTCCTTATGAGATTC ATGAGAAGTTGAAGAAGGTGATAGGATGAGGGCGAAGATA spacer
      length: 40 repeater length: 24
14616 540324 GTTGCCGTTCTCCTTATGAGATTC TTGTCTGGATAAGCCGACACGAGCTAACCAAGGAGAATTAT spacer
      length: 41 repeater length: 24
14617 540390 GTTGCCGTTCTCCTTATGAGATTC CAACAATGAAAAAGATGGATTTACAGTGTGCTGGCAGCTG spacer
      length: 40 repeater length: 24
14618 540455 GTTGCCGTTCTCCTTATGAGATTC GTAAAAGTGTATTATTACGTTGATCCTGAGTGGGGTTGT spacer
      length: 38 repeater length: 24
14619 540518 GTTGCCGTTCTCCTTATGAGATTC GTCATTTTTTTGGCGTTTGTGAGAGTGCCTGTACTT spacer length:
      35 repeater length: 24
14620 540578 GTTGCCGTTCTCCTTATGAGATTC TGGTTGAATGGGTAAAGAATACTGTAACAGCAGAAGAT spacer
      length: 38 repeater length: 24
14621 540641 GTTGCCGTTCTCCTTATGAGATTC AAATGGTAGGTGATAAAATGGAAGATGGAGTCCTAAAAC spacer
      length: 39 repeater length: 24
14622 540705 GTTGCCGTTCTCCTTATGAGATTC TGGTAAGTGGTTGGAACACCGAGAGATTACGGGATGATACAA spacer
      length: 42 repeater length: 24
14623 540772 GTTGCCGTTCTCCTTATGAGATTC TATATGATGACCGAGTGAGAACTGAGGCAGATAAAAAT spacer length:
      37 repeater length: 24
14624 540834 GTTGCCGTTCTCCTTATGAGATTC TTATTAATATGGTGTATGTTTACCACCCACGAAATTTT spacer
      length: 38 repeater length: 24
14625 540897 GTTGCCGTTCTCCTTATGAGATTC TATCAAGAGAGTGCGGATTAACGGGCGGTATTTCTAT spacer length:
      37 repeater length: 24
14626 540959 GTTGCCGTTCTCCTTATGAGATTC CAAGCAACGAGTACAGCGTAGCAACGACCCCATTTG spacer length:
      36 repeater length: 24
14627 541020 GTTGCCGTTCTCCTTATGAGATTC GTGGAGATACCATTTCAGAATATTTAACCACGAATTT spacer length:
      37 repeater length: 24
14628 541082 GTTGCCGTTCTCCTTATGAGATTC GGTAAGATGGCATTCAGAGCGGTGCAACAACCCCATC spacer
      length: 39 repeater length: 24
14629 541146 GTTGCCGTTCTCCTTATGAGATTC TAGTCGTGGACGTCGGAGGAAAACCTGAGCCAGAAA spacer length:
      36 repeater length: 24
14630 541207 GTTGCCGTTCTCCTTATGAGATTC CAGAATGGAGAAGTCCTAGTGTGGAAGGAGGACACATG spacer
      length: 38 repeater length: 24
14631 541270 GTTGCCGTTCTCCTTATGAGATTC GCAGTAGTGTCCGTAGGTGTAATATGACCAGTTCTCAGCATA spacer
      length: 42 repeater length: 24
14632 541337 GTTGCCGTTCTCCTTATGAGATTC CTCAGAGAGAAGCTTAAGGGATTCTATGAGGACTACAAGT spacer
      length: 40 repeater length: 24
14633 541402 GTTGCCGTTCTCCTTATGAGATTC TTTGAGAGGGGTAGAATAGTTATCGAGCACAAAACAG spacer
      length: 38 repeater length: 24
14634 541465 GTTGCCGTTCTCCTTATGAGATTC CGAAAATCTACAGGCAAAGCGGTTCACTTGCATTGATAATT spacer

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length: 41 repeater length: 24
14635 541531 GTTGCCGTTCTCCTTATGAGATTC TATGGTATACATGTACCACCCAAGAGATTTCTCGAAAA spacer
length: 38 repeater length: 24
14636 541594 GTTGCCGTTCTCCTTATGAGATTC TGAAACAAACGAAATGGTGTACTTTGCAGACTATCT spacer length:
36 repeater length: 24
14637 541655 GTTGCCGTTCTCCTTATGAGATTC CACATGCCATACAACCTACCTCCTCGAGATACTGA spacer length: 34
repeater length: 24
14638 541714 GTTGCCGTTCTCCTTATGAGATTC TAAGAAATTTGAAAATGCTGATGCGGATGAGGAATGCAT spacer
length: 39 repeater length: 24
14639 541778 GTTGCCGTTCTCCTTATGAGATTC TGCAGAGGTTGGTGAATTCCCATTGTTAAGACGGTGTTTA spacer
length: 41 repeater length: 24
14640 541844 GTTGCCGTTCTCCTTATGAGATTC CTGTGCAGATTGCCGTCCCGGAGGATAAGCTGTACCGTA spacer
length: 39 repeater length: 24
14641 541908 GTTGCCGTTCTCCTTATGAGATTC TGTTAGAGATGTCTCGAGGGCATTGGTGGGCCAACTA spacer
length: 38 repeater length: 24
14642 541971 GTTGCCGTTCTCCTTATGAGATTC ATAAGATGAGTGGGGTAGTTGGGTGAACCAGTTTGGTG spacer
length: 39 repeater length: 24
14643 542035 GTTGCCGTTCTCCTTATGAGATTC GTGTAATTAGAAGTGAGCCTGTAATAGCCTACTGGAAA spacer
length: 38 repeater length: 24
14644 542098 GTTGCCGTTCTCCTTATGAGATTC ACTTAATAAGAGATTGAGGAAACAGGTGCTTGAGGAA spacer length:
37 repeater length: 24
14645 542160 GTTGCCGTTCTCCTTATGAGATTC CGAAGGCAGCTACTTTCCAGATACGGACGTGAACACAG spacer
length: 38 repeater length: 24
14646 542223 GTTGCCGTTCTCCTTATGAGATTC CCCCCTCCTCCGGCTTCTCAACTTCCATCGTTGAAAT
14647
14648
14649 crispr 2
14650 558967 CTATTGCCGTTCTCCTTATGAGATTC
AAAACCGAGCAAAGCTAAACTAAAGCCAACTATAATTGCCGTTCTCCTTATGAGATTCCGAAATCACCCGCCGGCGGTGTTAGCGT
ATGCGGTAT spacer length: 95 repeater length: 26
14651 559089 CTATTGCCGTTCTCCTTATGAGATTC
TGATGTAATATGGCAAGGAAGGGAACGAGAAGCCAGATTATATTGCCGTTCTCCTTATGAGATTCTTTTGATAGTACCGCTCGACG
ATGTGGTGTGTAT spacer length: 99 repeater length: 26
14652 559215 CTATTGCCGTTCTCCTTATGAGATTC
TGAAAGCAAGTCTTCGATTTGCGCTGCGACTTGTTCAACATCCTCTGTAAGAATGGAAGTCTCCTGAAAATGGAGATCGTGAGAAC
TTCATAAAACAGC
14653
14654
14655 crispr 3
14656 372935 CTTTCAATCCCATTTTGGTCTGATTTCAAC
TTACTGTGTTCCGAGCTTTTCAGAGGCAGGCCAAGAGCTCTTTTAATCCCATTTTGGTCTGATTTCAACCTTCATGTGCTCTCAACC
AGTAGTATATTGTCCTAACT spacer length: 106 repeater length: 30
14657 373072 CTTTCAATCCCATTTTGGTCTGATTTCAAC AGGCCCCGAATCAACAGGAACACCTGATACACGAAT spacer
length: 36 repeater length: 30
14658 373139 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATGCGGAATTAACAGCATTATCAGGAAAGCGATTATG spacer
length: 37 repeater length: 30
14659 373207 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGGGGGAGGATGAGAGCTCTGTTTGCCGTTCTGGTG spacer
length: 36 repeater length: 30
14660 373274 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTTCTGGCATGGGGAGTTAGCAGGAACGTGGCAGGCT spacer
length: 37 repeater length: 30
14661 373342 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTTAAGCTCTCGGTGCGGCTCTTTGCTCGGTAGAAC spacer
length: 36 repeater length: 30
14662 373409 CTTTCAATCCCATTTTGGTCTGATTTCAAC GACTGTAATCTCAACTCCTCCGCCATCTTCTGAAACT spacer
length: 37 repeater length: 30
14663 373477 CTTTCAATCCCATTTTGGTCTGATTTCAAC CACATTGACGTGGCGGATTAAGCGCTTGTGGAAAGTGTTT
spacer length: 40 repeater length: 30
14664 373548 CTTTCAATCCCATTTTGGTCTGATTTCAAC GATGAAGCCATATTTGTCGCATTATTCCACGACGT spacer
length: 35 repeater length: 30
14665 373614 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTTCTCAACTATCGGTGTTTTGACATTTGTATCCTTT spacer
length: 37 repeater length: 30
14666 373682 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAAGTTCCACATTCCTGACTTTCAAGAAGATTAT spacer
length: 36 repeater length: 30
14667 373749 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACAATCTGATCGAACAGATTACCAGTCAAAGCAACTC spacer
length: 37 repeater length: 30
14668 373817 CTTTCAATCCCATTTTGGTCTGATTTCAAC GATAGACAGCGTTGATAAGGGTTTTAACTTCATTCC spacer
length: 36 repeater length: 30
14669 373884 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTGTCAGTTCTCTTCTGATCGATTGCGCCAGAGTGGTATAT
spacer length: 41 repeater length: 30
14670 373956 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGAGTCTGCTTACTCCAAGATTTATGTCTCTGTATGTC spacer
length: 39 repeater length: 30
14671 374026 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAGAGAAACATCTATCCTTTATGCACCTGCTGAACTTGCA

spacer length: 40 repeater length: 30
 14672 374097 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAAGATGGAGGATTGCGTGGTGGAGCATATAATCTGTC spacer
 length: 37 repeater length: 30
 14673 374165 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCAGGATATGTTGATTTGGAAACACAACACTACAGTCAA spacer
 length: 37 repeater length: 30
 14674 374233 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCGGCAAAACAAGATACCACGATTTCTTCCCATGCC spacer
 length: 36 repeater length: 30
 14675 374300 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTCCGACTATCACCCAGTCAAACCCCTCGAAGTCCG spacer
 length: 36 repeater length: 30
 14676 374367 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGGATCATTTTTTGGTTGGAATCACAATATGTAAA spacer
 length: 34 repeater length: 30
 14677 374432 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAACCCAAATATCTTATGCGTTTTTCCAAACCCATTT spacer
 length: 37 repeater length: 30
 14678 374500 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGTCGTCCGACAGGTTTAAGGTCGTGTAGTCGAAGTAC spacer
 length: 38 repeater length: 30
 14679 374569 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACGTCTCCGCTCAGAGGGCGCATGCATTGACCAAAATATGTCAG
 spacer length: 44 repeater length: 30
 14680 374644 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGAGGAACGATCCTGCGGATCCTGCGCGACGATATTACC
 spacer length: 40 repeater length: 30
 14681 374715 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGCAGGACGGTTGCGTAGCTCAGCGCCTGGATGAAGA spacer
 length: 38 repeater length: 30
 14682 374784 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGGCCAGCCTGCTAATGGAGGAGGAACCGGTGAAA spacer
 length: 36 repeater length: 30
 14683 374851 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGTTCTTCACGTTTGTTTTGAGTTATTAGGTCGTCAG spacer
 length: 38 repeater length: 30
 14684 374920 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTTACCACATGCTGTTAATGTCATGCAGTATTGGGAAA spacer
 length: 38 repeater length: 30
 14685 374989 CTTTCAATCCCATTTTGGTCTGATTTCAAC ACAGTGCAGTCATTATGATTCCAATAACCCATGCAT spacer
 length: 36 repeater length: 30
 14686 375056 CTTTCAATCCCATTTTGGTCTGATTTCAAC ATTCCCTCAAGTATTACGTATGGCAAAGCTGGTGTT spacer
 length: 36 repeater length: 30
 14687 375123 CTTTCAATCCCATTTTGGTCTGATTTCAAC CAAGTAGTCCGTTATTAGGTTGTTAATGTCAGTTTGTAT spacer
 length: 39 repeater length: 30
 14688 375193 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGCTATAATAAGCGAACACTTCACGCATAAAGAACAGA spacer
 length: 39 repeater length: 30
 14689 375263 CTTTCAATCCCATTTTGGTCTGATTTCAAC GACCCCGCCGAGTTCATTGAAGACCTAAACGACGC spacer
 length: 35 repeater length: 30
 14690 375329 CTTTCAATCCCATTTTGGTCTGATTTCAAC TTACGTTGAAGTGGCTGATTCCGCTTCGCTGCACTTTA spacer
 length: 38 repeater length: 30
 14691 375398 CTTTCAATCCCATTTTGGTCTGATTTCAAC CTGTGTCGACATGGTGAAAGATCTTGAAC TCAACTC spacer
 length: 37 repeater length: 30
 14692 375466 CTTTCAATCCCATTTTGGTCTGATTTCAAC GCTGCCATGAAGCTGTCCGCTTCCTGACTCATTAC spacer
 length: 35 repeater length: 30
 14693 375532 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTAGCAGACATGAAACACTTTTCCGCCTGCAGTCAA spacer
 length: 36 repeater length: 30
 14694 375599 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCCTAAGTCAAGCTTGAGAACATCTTTTGGCAATGCAA spacer
 length: 38 repeater length: 30
 14695 375668 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGTTTCATATCCACGCTGAGGTATCCGAGATGAGTG spacer
 length: 35 repeater length: 30
 14696 375734 CTTTCAATCCCATTTTGGTCTGATTTCAAC CCGATGATGTACCTGAAGCTCCAGAAGTTGTGTACC spacer
 length: 36 repeater length: 30
 14697 375801 CTTTCAATCCCATTTTGGTCTGATTTCAAC AACTCTATGACGGCAGTCCCGTAGTCCGCCAAAAA spacer
 length: 35 repeater length: 30
 14698 375867 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTTTTCTCAATCTTGCTCTGCATCGAATTCAGGAAC spacer
 length: 36 repeater length: 30
 14699 375934 CTTTCAATCCCATTTTGGTCTGATTTCAAC TAAGGCCACCTATGCGAGCCTGATCGAGGGGCTCGGGCTC
 spacer length: 40 repeater length: 30
 14700 376005 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGGGGTAATGATGAATTCTATTGGATACAGCTTGAGGAG spacer
 length: 39 repeater length: 30
 14701 376075 CTTTCAATCCCATTTTGGTCTGATTTCAAC TGAATCTCCTATTTTGATAACGTCAGTGTTGGAAC spacer
 length: 35 repeater length: 30
 14702 376141 CTTTCAATCCCATTTTGGTCTGATTTCAAC GTGCTTCGAGCTCGGCTGCGAGAGCAGGCCGAGATC spacer
 length: 37 repeater length: 30
 14703 376209 CTTTCAATCCCATTTTGGTCTGATTTCAAC GGCAAAAGAGAGGTTATGACGTGCGGCATACCCTAAACTCCTC
 spacer length: 43 repeater length: 30
 14704 376283 CTTTCAATCCCATTTTGGTCTGATTTCAAC GAAC TACTTACCCTAACTTTAAACCCTCCTGTAATCCT spacer
 length: 38 repeater length: 30
 14705 376352 CTTTCAATCCCATTTTGGTCTGATTTCAAC AAGAAGGAAAAAGAGGAGAAGGAACTAATAGTTCA spacer
 length: 36 repeater length: 30
 14706 376419 CTTTCAATCCCATTTTGGTCTGATTTCAAC TCTGGGAGGGATGGTTATATTTAGGTGTTGGCGATT C spacer
 length: 37 repeater length: 30

14707	376487	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGATGATGTATTATGCTCAGACGAGACTAAATCCCTAAACA
		spacer length: 41	repeater length: 30
14708	376559	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AAAACGGAGTGAAAACGGGGAGGGACTGGAGGGGATGAGA
		spacer length: 40	repeater length: 30
14709	376630	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGAAGCAAAGCCAATATACAAAAGCAGGACAGTGA
		length: 35	repeater length: 30
14710	376696	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTTCTCGCCAGTCTTTGCTGTAGCGTAGTAGTAAAACC
		length: 38	repeater length: 30
14711	376765	CTTTCAATCCCATTTTGGTCTGATTTCAAC	AGTCTATGCCAGCAACATTGATAATGATGTTATTGT
		length: 36	repeater length: 30
14712	376832	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTGCCTAAAGTGAAAGAAGCATTAGACATGAAGATACGA
		length: 39	repeater length: 30
14713	376902	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GATATTGATATTAGAATACATAGTTGCAATATTGTTT
		length: 37	repeater length: 30
14714	376970	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TACCTTATGATAGTGGTGAAGCGTTAAAGATTGGAAA
		length: 37	repeater length: 30
14715	377038	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTTTTTTATATTAAAGCACCTAAATGTGAAGATTGCAAAAG
		spacer length: 40	repeater length: 30
14716	377109	CTTTCAATCCCATTTTGGTCTGATTTCAAC	CATTTTGTGCAAATCCTGCCATCATACACAACATAGT
		length: 37	repeater length: 30
14717	377177	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTGTGACAGTCACTCATACTTGTGTGTTGCTGTCAAGTGC
		length: 39	repeater length: 30
14718	377247	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GGTTGATGATGTTGTGGATAGTTTGGAGCTAACAA
		length: 35	repeater length: 30
14719	377313	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GCATATTTGTTGAAGGAGTTGAATAAAGAAAAGAT
		length: 35	repeater length: 30
14720	377379	CTTTCAATCCCATTTTGGTCTGATTTCAAC	ATTGATACGGCACATAGAGAGTTTGTGGGTTTATAAG
		length: 38	repeater length: 30
14721	377448	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TTGAGGAGGAGGTGATTGAGATGGATGGGGAGTTAGA
		length: 37	repeater length: 30
14722	377516	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GCACGAAATACTTCTACGAATCGACAGTCTAGAATC
		length: 36	repeater length: 30
14723	377583	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TAGAGCTAGGGAGATAGCATATAAAGATTATACAAAAGT
		length: 39	repeater length: 30
14724	377653	CTTTCAATCCCATTTTGGTCTGATTTCAAC	GTAAAGAATAGATTTGTTGAGCAGTTGAGACGTATAATT
		length: 39	repeater length: 30
14725	377723	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGTGCCAACACATCGCCAACAGTGAAATTGCTAA
		length: 34	repeater length: 30
14726	377788	CTTTCAATCCCATTTTGGTCTGATTTCAAC	TGGCGACTTTTGCATAGGTGGCAAGCGTGGCAAG
14727			
14728			
14729	crispr 4		
14730	148	GTTGAAATCAGACCAAAAATGGGATTGAAAG	AATCATTGTATCTGACAAAGGTTGTATATATCTCCTGT
		length: 38	repeater length: 30
14731	217	GTTGAAATCAGACCAAAAATGGGATTGAAAG	ATATTTGTTTCATATAGCAGATGATGAAAGCATTGCAA
		length: 37	repeater length: 30
14732	285	GTTGAAATCAGACCAAAAATGGGATTGAAAG	ACTTATATATTTTTCCTCATTACACCAAATGTCC
		length: 35	repeater length: 30
14733	351	GTTGAAATCAGACCAAAAATGGGATTGAAAG	CTTTTTTAACTCTCCCATAACTCTGTCAAATGCATCTCCTTAA
		spacer length: 44	repeater length: 30
14734	426	GTTGAAATCAGACCAAAAATGGGATTGAAAG	TATTTATCTTCCCTGAACCTCTTGAGAAACTCCTT
		length: 35	repeater length: 30
14735	492	GTTGAAATCAGACCAAAAATGGGATTGAAAG	TTGTAGTCGTCCCACTTACTGTCAAATCACCCAAAA
		length: 36	repeater length: 30
14736	559	GTTGAAATCAGACCAAAAATGGGATTGAAAG	ATTGATGACAATGTTGATGATGGGTTTCAAGACAGTGG
		length: 37	repeater length: 30
14737	627	GTTGAAATCAGACCAAAAATGGGATTGAAAG	AACACTTCTGTCCAACATCAAAAAACATCCACTTGTTA
		length: 40	repeater length: 30
14738	698	GTTGAAATCAGACCAAAAATGGGATTGAAAG	CTAACTACCTCTGTGCATGCCCTCTTATCCCTTGCATAA
		length: 39	repeater length: 30
14739	768	GTTGAAATCAGACCAAAAATGGGATTGAAAG	TCCTTTTCAAACCTTAGCCAAAAAATACGGAGCAG
		length: 36	repeater length: 30
14740	835	GTTGAAATCAGACCAAAAATGGGATTGAAAG	ACAACTCCAAAACCAAAACCATCGACCTCAAGACA
		length: 35	repeater length: 30
14741	901	GTTGAAATCAGACCAAAAATGGGATTGAAAG	GATAAATGTTTTTGCAGGTGGAAGAAGTCCACTGC
		length: 34	repeater length: 30
14742	966	GTTGAAATCAGACCAAAAATGGGATTGAAAG	CTTTCTATAACCGTTTACGTCGATAAGCGTATCTTTGCC
		length: 39	repeater length: 30
14743	1036	GTTGAAATCAGACCAAAAATGGGATTGAAAG	AACTCTTAGCCTGTGACGGCGTTATTGTTGCGGTTT
		length: 36	repeater length: 30
14744	1103	GTTGAAATCAGACCAAAAATGGGATTGAAAG	AACTCAACCCTAATTCTCAACCTATTTTGGGGGTG
			spacer

length: 35 repeater length: 30
14745 1169 GTTGAATCAGACCAAAATGGGATTGAAAG TAAATTCATGTAGTACTCTTCGATTACTTTGTGTAG spacer
length: 37 repeater length: 30
14746 1237 GTTGAATCAGACCAAAATGGGATTGAAAG AACTCTTTCCCGCTCCTCCGGCTTCTCAACTTCCAT spacer
length: 37 repeater length: 30
14747 1305 GTTGAATCAGACCAAAATGGGATTGAAAG ATTGAAGGCTCTGGCACGGTGGCAATTGAGATTCC spacer
length: 35 repeater length: 30
14748 1371 GTTGAATCAGACCAAAATGGGATTGAAAG AAAGAACGACAACGGAGGAATTAATGAGTCAATATG spacer
length: 36 repeater length: 30
14749 1438 GTTGAATCAGACCAAAATGGGATTGAAAG CGGCACAGCTTGATTCTCGAAGTTGGTCACGTATTCTG spacer
length: 37 repeater length: 30
14750 1506 GTTGAATCAGACCAAAATGGGATTGAAAG TGTTACAGTGCCGTCTTGCAGGATGAAGGCTTTATCAAGC spacer
length: 40 repeater length: 30
14751 1577 GTTGAATCAGACCAAAATGGGATTGAAAG GAGGAAATCAACATTGAAGCCAGAAAACCAGTTCC spacer
length: 35 repeater length: 30
14752 1643 GTTGAATCAGACCAAAATGGGATTGAAAG CCTATTGGCAGCATACCTCTTGGATACTACTCTGCAG spacer
length: 37 repeater length: 30
14753 1711 GTTGAATCAGACCAAAATGGGATTGAAAG GGCTCCGTTTTGAATAACCACTTCCCTAATCTGTGT spacer
length: 36 repeater length: 30
14754 1778 GTTGAATCAGACCAAAATGGGATTGAAAG ATCGACGTACGCAAAATCAGACCTCTGAAGGCTCGAC spacer
length: 37 repeater length: 30
14755 1846 GTTGAATCAGACCAAAATGGGATTGAAAG GTTGAAAGACTGGCAAAGAGTCCAGGAATATGGGAACTC spacer
length: 40 repeater length: 30
14756 1917 GTTGAATCAGACCAAAATGGGATTGAAAG CTCTCCCATGGACACAACCGCATACTCCGAGAAGGTA spacer
length: 37 repeater length: 30
14757 1985 GTTGAATCAGACCAAAATGGGATTGAAAG CGTCTTTTCGCTCCTGGCATTCTGGCTTTTCGCC spacer
length: 34 repeater length: 30
14758 2050 GTTGAATCAGACCAAAATGGGATTGAAAG GTGTTGCACCACTTTCGAAGAGTGTGAACGGAAACA spacer
length: 36 repeater length: 30
14759 2117 GTTGAATCAGACCAAAATGGGATTGAAAG TGGTAAAAATCGAAGAGGTTTGATTGTTCTGGGAGTT spacer
length: 37 repeater length: 30
14760 2185 GTTGAATCAGACCAAAATGGGATTGAAAG GGTTGTAGGATGGAGCGAGGATGAATGAATCGAGCTTGGATG
spacer length: 43 repeater length: 30
14761 2259 GTTGAATCAGACCAAAATGGGATTGAAAG ATCAAACCTCTGTCATATTCTCACCTTAATATATGT spacer
length: 35 repeater length: 30
14762 2325 GTTGAATCAGACCAAAATGGGATTGAAAG TGTAGTAGCTTGTTGGTCTCGTTGTTCTTGATGGGGAT spacer
length: 38 repeater length: 30
14763 2394 GTTGAATCAGACCAAAATGGGATTGAAAG GAGGACTACAGGTCTTTTGGATGGGCCACAGGGGT spacer
length: 36 repeater length: 30
14764 2461 GTTGAATCAGACCAAAATGGGATTGAAAG TGTTTCTTGAGCACGCTTACGTAGTGCTCTATCCTG spacer
length: 36 repeater length: 30
14765 2528 GTTGAATCAGACCAAAATGGGATTGAAAG TGAGCTGCTCACCTCACTTTAAACCCTCCCGTAATCCA spacer
length: 39 repeater length: 30
14766 2598 GTTGAATCAGACCAAAATGGGATTGAAAG ATGGACGGAAACGAGTTCAGCAGTTCGTAGTTGAT spacer
length: 36 repeater length: 30
14767 2665 GTTGAATCAGACCAAAATGGGATTGAAAG CTTTAATTGCCCATCTGTCTTTTTTCTTCAATGCGT spacer
length: 36 repeater length: 30
14768 2732 GTTGAATCAGACCAAAATGGGATTGAAAG GTTGTTGCGAACGGCAATAACCTTGACATCTATGCCG spacer
length: 37 repeater length: 30
14769 2800 GTTGAATCAGACCAAAATGGGATTGAAAG AGAAAGTAAATATTGCTTGGGTCTTGAAAAGTAACGT spacer
length: 38 repeater length: 30
14770 2869 GTTGAATCAGACCAAAATGGGATTGAAAG ATCTCAATTTCAAGCTTTTGGTTACTGAAATTGCT spacer
length: 35 repeater length: 30
14771 2935 GTTGAATCAGACCAAAATGGGATTGAAAG GTAGCTTCTTGTTCAATTTACTCACCATCCCATAGCC spacer
length: 36 repeater length: 30
14772 3002 GTTGAATCAGACCAAAATGGGATTGAAAG TTTCTTTTTCTGCCCCCTCGGGATTGCAACAGCTGTT spacer
length: 37 repeater length: 30
14773 3070 GTTGAATCAGACCAAAATGGGATTGAAAG TGCATATTGCACAAACCAGCTTAGAACGCTTACCTGA spacer
length: 37 repeater length: 30
14774 3138 GTTGAATCAGACCAAAATGGGATTGAAAG CGTTTCCTTGTAACCTGAGTCCCTCTCGGAGATCTTC spacer
length: 37 repeater length: 30
14775 3206 GTTGAATCAGACCAAAATGGGATTGAAAG TACTAAGTCTCGCATCTCAACCCTCGCAGCCATCGC spacer
length: 37 repeater length: 30
14776 3274 GTTGAATCAGACCAAAATGGGATTGAAAG ACAACTTTTTTGGACATTACATCACCCCGACAAATCAA spacer
length: 40 repeater length: 30
14777 3345 GTTGAATCAGACCAAAATGGGATTGAAAG TTTGTGCGCGGTGCTATTGTTGCAGGCATAGGGCTT spacer
length: 36 repeater length: 30
14778 3412 GTTGAATCAGACCAAAATGGGATTGAAAG TGGGGATTTTGAAGTGGCTCGGGGTCGTCGAGGTAG spacer
length: 35 repeater length: 30
14779 3478 GTTGAATCAGACCAAAATGGGATTGAAAG GTCATATTGAGCTGCTCCAAAACAGGCCTGAAAGCA spacer
length: 36 repeater length: 30

14780 3545 GTTGAATCAGACCAAAATGGGATTGAAAG ATAGCTCTCTGTAACCTACTTCTTCCCCATACCATGTTTCT spacer
length: 41 repeater length: 30
14781 3617 GTTGAATCAGACCAAAATGGGATTGAAAG AGCATCTTCGTCTTCTTTATCCTCTTCAGGAGCTCTA spacer
length: 37 repeater length: 30
14782 3685 GTTGAATCAGACCAAAATGGGATTGAAAG GAAGTTTGCCTTTGTTCCAGAAGTTTGTAGAGTGCC spacer
length: 36 repeater length: 30
14783 3752 GTTGAATCAGACCAAAATGGGATTGAAAG AATGCTAATCGGATTCTCTGGTCCATCTGCAAGTGGC spacer
length: 37 repeater length: 30
14784 3820 GTTGAATCAGACCAAAATGGGATTGAAAG TGCTTCATCTTTCTCCAACACTTCTACAATCTTGAC spacer
length: 36 repeater length: 30
14785 3887 GTTGAATCAGACCAAAATGGGATTGAAAG AAGACTACGACTCTTGGTAATCCATCGTTGCCTCTAAT spacer
length: 38 repeater length: 30
14786 3956 GTTGAATCAGACCAAAATGGGATTGAAAG GGAACCCCGTAACTGGCTGCCTTCACGGCTGCGATTACTGCTA
spacer length: 43 repeater length: 30
14787 4030 GTTGAATCAGACCAAAATGGGATTGAAAG ATCAAGAGCCCATGCCGTCAGAGAATGCGTTGAGGAG spacer
length: 37 repeater length: 30
14788 4098 GTTGAATCAGACCAAAATGGGATTGAAAG TCTGATTTTTTCGGCAACAACAACTGAACTCAGAATTG spacer
length: 39 repeater length: 30
14789 4168 GTTGAATCAGACCAAAATGGGATTGAAAG CCTTATCTCATCTCAGCACCATAAGGCATTTGACCCT spacer
length: 38 repeater length: 30
14790 4237 GTTGAATCAGACCAAAATGGGATTGAAAG TTTCTTCTTTTGATGTATAATCTGAAGACTCAGACGAT spacer
length: 38 repeater length: 30
14791 4306 GTTGAATCAGACCAAAATGGGATTGAAAG CGAGACATTAACACAATTTATTGGGCATGTCCTGACG spacer
length: 37 repeater length: 30
14792 4374 GTTGAATCAGACCAAAATGGGATTGAAAG GCAGACGACGTACACTACTGGGGCGTTGTCAAGGAAC spacer
length: 37 repeater length: 30
14793 4442 GTTGAATCAGACCAAAATGGGATTGAAAG TAAGAACATCTCATAAACTTGTGTTGGACTCGGTAGCTCCCA
spacer length: 42 repeater length: 30
14794 4515 GTTGAATCAGACCAAAATGGGATTGAAAG ATAAAGGGCTTTTCTTGCCATAATTCTATAGCTCTCG spacer
length: 37 repeater length: 30
14795 4583 GTTGAATCAGACCAAAATGGGATTGAAAG ACGAACAACCTATCTCTGCTTGGTGAAAACCTTATCTGA spacer
length: 37 repeater length: 30
14796 4651 GTTGAATCAGACCAAAATGGGATTGAAAG AGCGTAACCACCAACTCCAACCTCCAGCTCCCAATGCTG spacer
length: 38 repeater length: 30
14797 4720 GTTGAATCAGACCAAAATGGGATTGAAAG TCAGGTCTGCGATAATCATCTGGCCGCTCGTCCAA spacer
length: 35 repeater length: 30
14798 4786 GTTGAATCAGACCAAAATGGGATTGAAAG CAGAACTCTCCCAACGAGGCTCTCGGCAAACTCAG spacer
length: 35 repeater length: 30
14799 4852 GTTGAATCAGACCAAAATGGGATTGAAAG ATCGTCTTCTGGAACGAATGCATCTGCAGGAATGTAAAA spacer
length: 39 repeater length: 30
14800 4922 GTTGAATCAGACCAAAATGGGATTGAAAG TTTGATTGAGTGGGTAAAGGCCTAAATACGGGCTAC spacer
length: 37 repeater length: 30
14801 4990 GTTGAATCAGACCAAAATGGGATTGAAAG TCTGGAAGTCCCTCGACCTCAGCCCCATTCAGGCATG spacer
length: 37 repeater length: 30
14802 5058 GTTGAATCAGACCAAAATGGGATTGAAAG TGGGGATTTTACTGGCTCTGGGTCTGCGAGGTAGGG spacer
length: 37 repeater length: 30
14803 5126 GTTGAATCAGACCAAAATGGGATTGAAAG CGATTTTACGGCCTAAAAACGTCTCTTACTCCAAACCTTGT spacer
length: 40 repeater length: 30
14804 5197 GTTGAATCAGACCAAAATGGGATTGAAAG GCTTGAAAATGAAGTCGATGGGGTCCTTAGCCTGGGC spacer
length: 37 repeater length: 30
14805 5265 GTTGAATCAGACCAAAATGGGATTGAAAG GTCTACAGCCTTATAGATGTAGGCAAGCCACTCAACA spacer
length: 37 repeater length: 30
14806 5333 GTTGAATCAGACCAAAATGGGATTGAAAG CATGTTTTGCATGAAAGGGAACCTCCCGCAGCCGGT spacer
length: 35 repeater length: 30
14807 5399 GTTGAATCAGACCAAAATGGGATTGAAAG ACAGCAAAGGAAAAGGCACTGCTTTCTGAAGGAGCACC spacer
length: 38 repeater length: 30
14808 5468 GTTGAATCAGACCAAAATGGGATTGAAAG TAGTACGGTCGGCCGAGCTTCTCGGCAATCTCTGCATAGT spacer
length: 40 repeater length: 30
14809 5539 GTTGAATCAGACCAAAATGGGATTGAAAG CCGTGCGGTGGAAGAGAGAAGGGGAGAGCCAGAGTCT spacer
length: 38 repeater length: 30
14810 5608 GTTGAATCAGACCAAAATGGGATTGAAAG CCTCCGGCTTCTCAACTTCCATCGTTGAAATCAGACCA
14811
14812
14813 crispr 5
14814 1849400 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CACTCCAAGCCCCTCCTTTTCTATATCTCGGAATAAC
spacer length: 37 repeater length: 37
14815 1849475 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAGCAGGATTTGATAAGAATACTTACTGGCATACTTA
spacer length: 37 repeater length: 37
14816 1849550 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCACCAAACCTTCTCGTCCATCCAATCCTTCCACTCATC
spacer length: 38 repeater length: 37
14817 1849626 GTAAGAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTTGACGGGTGGGTAGATGACATTACTCCAATAATA

spacer length: 36 repeater length: 37
 14818 1849700 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TAATAAGAAATTATGTAAACACTTGGGTGAATATAAA
 spacer length: 37 repeater length: 37
 14819 1849775 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATTGTCATCAATCAGCTCACATAAAAATATTAAAT
 spacer length: 37 repeater length: 37
 14820 1849850 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 AAATCATGTGCTTCAAATGTTATGTTATACACTGCATTTT spacer length: 40 repeater length: 37
 14821 1849928 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTCTCTGCCCCAGAATCCCTGCGATTTCCCTGATTA
 spacer length: 37 repeater length: 37
 14822 1850003 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CAAGTTGCTTCAATCTATCTTCAACCTGCTTATACCA
 spacer length: 37 repeater length: 37
 14823 1850078 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACAAATCGTCCCCCGACAACATCGTGCCATTTCATT
 spacer length: 36 repeater length: 37
 14824 1850152 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATTTCTTCATAATTCTCAAACCTCAAACCTCAAAT
 spacer length: 36 repeater length: 37
 14825 1850226 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACAATAGTTGAAATCCCATTCTTCATCGCTTCCTTTA
 spacer length: 37 repeater length: 37
 14826 1850301 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTAAGTGTATATCCAAAATCAAATCTTAAATCATACTT
 spacer length: 38 repeater length: 37
 14827 1850377 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCAGTAACCTTTGTATCCCATGTTATCAATCTCATCG
 spacer length: 37 repeater length: 37
 14828 1850452 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTCCATACTTTGCAATGCTTTTCATCATCTGCTATATG
 spacer length: 37 repeater length: 37
 14829 1850527 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GACCTACTACAAACATCCTCTCATACGTAATATAAC
 spacer length: 36 repeater length: 37
 14830 1850601 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CGTAATATTGCCCTTCAACTCTGTTTTTATATTTG
 spacer length: 36 repeater length: 37
 14831 1850675 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TAATATACTCAACAAATCCCTTAAGCTCTGGCACTCTT
 spacer length: 38 repeater length: 37
 14832 1850751 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTATACTGTGATTTCGTGGAAGTATTTTCGTGCACA
 spacer length: 36 repeater length: 37
 14833 1850825 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 ATTGATAAGTTGGAAGTGTATGATGGTGAGACATGGGAG spacer length: 39 repeater length: 37
 14834 1850902 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATCCACTTTCATACTACCACCCCCAACTCAAATA
 spacer length: 36 repeater length: 37
 14835 1850976 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GAGAGAGAATGCGAGTGCTCAGAGACAGATTGTATGAG
 spacer length: 38 repeater length: 37
 14836 1851052 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACATCAATACCCTTCTCTCTACAAGCTTCAAAAAAT
 spacer length: 36 repeater length: 37
 14837 1851126 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CATCAAACCTCATATTCCTTAACAACAACCAAAAAATGC
 spacer length: 37 repeater length: 37
 14838 1851201 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGCTCTCTCCTTATTGACTAATCCAGCAATAAAATC
 spacer length: 37 repeater length: 37
 14839 1851276 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AGTTATTTTTTGTATGACTTTGAAGATGGCATATACT
 spacer length: 36 repeater length: 37
 14840 1851350 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 ACCAATTCTCTCTCATCAATATGTGCTCCACTAATATTC spacer length: 39 repeater length: 37
 14841 1851427 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGTA AAAACCTTCTTTTCGTCTAAACAACACACCCTTA
 spacer length: 37 repeater length: 37
 14842 1851502 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTTAACTTTGTCCCGCACAATATTTCTGCAAACAATAC
 spacer length: 38 repeater length: 37
 14843 1851578 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CATATATTAAATATGTCATCCACCTCTCCATATAC
 spacer length: 35 repeater length: 37
 14844 1851651 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATAATATATCCAATACGCTGCTCTGTCAACACTGACA
 spacer length: 37 repeater length: 37
 14845 1851726 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTGGAGAGACTGTTGCAAGGGGACTTGCCATATCAGG
 spacer length: 36 repeater length: 37
 14846 1851800 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAACCCAAATATTTGCTCAAATGCTTCCCTAACTCT
 spacer length: 36 repeater length: 37
 14847 1851874 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GTAATTATGAATACCACTCCATCTCTCACCTTGAAC
 spacer length: 36 repeater length: 37
 14848 1851948 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG
 AATATCCCTCTAACCCAACCATGCCATGTCATGTCGAA spacer length: 39 repeater length: 37
 14849 1852025 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTATGCCTATCACTAACAGACTGCATGAGAACCCCTT
 spacer length: 38 repeater length: 37
 14850 1852101 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TAGAAATATATTTTGGTTACAAGGTGTACGAATATC
 spacer length: 37 repeater length: 37
 14851 1852176 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTATCATTGGGTCTTTCAACCCCGGTATGGGCACTTCA
 spacer length: 38 repeater length: 37
 14852 1852252 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AATCATCGAGTTTGCTCTCGATGACATTAAGCTTATTT
 spacer length: 38 repeater length: 37

14853	1852328	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TCAACTTCTTTAACCTTCAGCACCAGCTCGTCGTCCTT
	spacer length:	38	repeater length: 37
14854	1852404	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATATCGTCAACTCCTTGCCCATCAATACTATGATTGG
	spacer length:	37	repeater length: 37
14855	1852479	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	CCATACCAACCATCTCAACCACCTCAACTTATCTTG
	spacer length:	36	repeater length: 37
14856	1852553	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTATACCTGTATGCTTCATATTCCACAACCTCAACCT
	spacer length:	37	repeater length: 37
14857	1852628	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATCTCTGCATCTACACCAAAAAACCCAAACGGACTA
	spacer length:	36	repeater length: 37
14858	1852702	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TCGACTATGCCCTTGCAAACATCGCAATACTCTGCT
	spacer length:	36	repeater length: 37
14859	1852776	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	AGATTATGTCCTCCTCACTTCCCTCAATCCCAGCCT
	spacer length:	36	repeater length: 37
14860	1852850	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TGATTAGTATCCCTGTCAGCACTCCAACGACATTGATG
	spacer length:	38	repeater length: 37
14861	1852926	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TATTCCAAATGATTGGCACAATATAACCAAACCTCT
	spacer length:	36	repeater length: 37
14862	1853000	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTGTTCTCCTCAAACACACTTGATGTGTATAACCG
	spacer length:	35	repeater length: 37
14863	1853073	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	CTGATTATTTCGTGCCTTTTTGTGCGGCTTCCATTAT
	spacer length:	37	repeater length: 37
14864	1853148	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TATTAGCATGTTTTGCATATGTTATGGCACCAGATG
	spacer length:	36	repeater length: 37
14865	1853222	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTATTGTTGATTTCGCTTATGTGGTAGGCCTTGCAGA
	spacer length:	36	repeater length: 37
14866	1853296	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	GTCAGCAAATCTTCTCGTAACAAAACCTCATCCACCTC
	spacer length:	38	repeater length: 37
14867	1853372	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	GCATATTCTGGATAATGCTTCTTTGCCACTCCTTAA
	spacer length:	37	repeater length: 37
14868	1853447	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TATATGGGTAAATTGACAAAATGCATGAGAAGGCA
	spacer length:	35	repeater length: 37
14869	1853520	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATATTAACATTCAAACCTTGCTCCATCCGCGCTACAACTC
	spacer length:	39	repeater length: 37
14870	1853597	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTGTTGCACTCTGCAACCTTATGTGCTGCATCTTCCA
	spacer length:	37	repeater length: 37
14871	1853672	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATAAAGCGTCTTTAACAATCTCCACAGTTAATTTTCGC
	spacer length:	37	repeater length: 37
14872	1853747	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTCTACTCCCACAATCCTCACAAACCTCTACAACCT
	spacer length:	36	repeater length: 37
14873	1853821	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ACCAACCCCCAATCCATCATACCACCTCATTCATCG
	spacer length:	36	repeater length: 37
14874	1853895	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ACATCATCTGCTATCTGCTTCAACTCATCTGGCTCA
	spacer length:	36	repeater length: 37
14875	1853969	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTGCCTTCCCAAGCGCCACATTTGATGCATCTATCT
	spacer length:	36	repeater length: 37
14876	1854043	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TATACTTGCTCTCTTCCCTTCAGCTTGTGCCACTTCTCT
	spacer length:	38	repeater length: 37
14877	1854119	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATCTTTGTCCCATCTGACATTGAAACATATTCCCGC
	spacer length:	36	repeater length: 37
14878	1854193	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTAATCCATTTTGCAACTCTCCATGCAACCTTTCTTG
	spacer length:	37	repeater length: 37
14879	1854268	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ACCTCACCCACCATGTTGACCACCTCAAAAAATATTA
	spacer length:	37	repeater length: 37
14880	1854343	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	CTAACTGCAGGAGCGTTGCCAAAGTGCTCCTTAATGG
	spacer length:	37	repeater length: 37
14881	1854418	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATTAACTTCGCAAAGGATTGTTACCGCATAGTC
	spacer length:	33	repeater length: 37
14882	1854489	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATTGTCCACGTGATAACTAAATCGTCATTTGGGTTA
	spacer length:	36	repeater length: 37
14883	1854563	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TTATTCTCGTTATCCAGTTAATCGCTCCCTCAAATT
	spacer length:	36	repeater length: 37
14884	1854637	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ATTCTACGCATTTGCCGTTACCGCAACAGGTGTAACA
	spacer length:	37	repeater length: 37
14885	1854712	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	AAATGTAGCTGTGCGTTCGCTCTGCGTATTAAAAG
	spacer length:	35	repeater length: 37
14886	1854785	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	ACACATCGTTGAGTACGAACGGTGGAGACGTAATTG
	spacer length:	36	repeater length: 37
14887	1854859	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TCAACACTTTGATGATCTGTGTGGCTACTTTGTCCAA
	spacer length:	37	repeater length: 37
14888	1854934	GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG	TCAAAAATGGAGCAGTCGAGCAATATCGAGATAAC

spacer length: 35 repeater length: 37
 14889 1855007 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TTAATCAACTTCTCTGCCTCCTCCTCACTCTGCACTT
 spacer length: 37 repeater length: 37
 14890 1855082 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGAAGGAAGAGCTGCTGCAGAAGATGAAAAAGCAA
 spacer length: 36 repeater length: 37
 14891 1855156 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAGACAACACACTGTGGATTGTGAAAGGAGAAAT
 spacer length: 34 repeater length: 37
 14892 1855228 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGAATCGTCAATCCAGCCGCTTCGGCTGCAGCTCCC
 spacer length: 36 repeater length: 37
 14893 1855302 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACGTCGGCGTGGTCACGGAGGTTAGAGAGATAAACGA
 spacer length: 37 repeater length: 37
 14894 1855377 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CATGATTTGAGCAAATGACGCATCAGGTGGTAAAGCT
 spacer length: 37 repeater length: 37
 14895 1855452 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AAAAGACTATCCGACGCATTTGGTGAACCTAAACCACC
 spacer length: 38 repeater length: 37
 14896 1855528 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ATAGAGGGCGGATATTTGCGCATTAAGATATGGGAA
 spacer length: 36 repeater length: 37
 14897 1855602 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TCTAATTCGCTGATTTGGCCGCTTTTCAACATTCCGC
 spacer length: 37 repeater length: 37
 14898 1855677 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACTTTTCGAGGTCTTCAAGCGTCGGCATCTT spacer
 length: 31 repeater length: 37
 14899 1855746 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACAAGATAGAGCAGCTGGTGAACCTTCTACGCCGAGAG
 spacer length: 37 repeater length: 37
 14900 1855821 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG TGAAGAGTTAGAAAAGGCTGGTTTTCCAACAAACTT
 spacer length: 36 repeater length: 37
 14901 1855895 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG GCACCACTTCGTCGGCTGAGTGAACGAGCCAGCTCCAG
 spacer length: 38 repeater length: 37
 14902 1855971 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG CCCTCGAAGCGGGCCTGCTGCTTGAACCTTACGGTTG
 spacer length: 37 repeater length: 37
 14903 1856046 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG ACTGCAGGGGTGTGGACACAAGTGGACCGCAACAGAGG
 spacer length: 38 repeater length: 37
 14904 1856122 GTAAGAAAAGGGAGGCTCCTGAAAATGGAGATTGAAAG AGTCTTCGATTTGCGCTGCGACTTGTTCAACATCCTCT
 14905
 14906
 14907 GCA_000739065.1_ASM73906v1_genomic.fna(findCrispr):
 14908 START REPEAT
 SPACER
 14909 crispr 1
 14910 160583 ACCGAAA CGGTCTGATTTTAACAACATTCCTAAGCAATTGATACTTGTATAATTTATAGGTGTTTCCA spacer
 length: 61 repeater length: 7
 14911 160652 ACCGAAA CGGTCTGATTTTAACCTCATCGTCTGTAAATCTATTGTAGTCGTCTCCATGTTTCCA spacer
 length: 58 repeater length: 7
 14912 160718 ACCGAAA CGGTCTGATTTTAACATAAATGGTGATAAAATGGCATATAGAATAATTAGGTGTTTCCA spacer
 length: 58 repeater length: 7
 14913 160784 ACCGAAA
 CGGTCTGATTTTAACAAATTTTAACAGTGTGTTGATGATAAATCATACCATAATTTGTAGTATCATTGTTTCCA spacer
 length: 74 repeater length: 7
 14914 160866 ACCGAAA CGGTCTGATTTTAACAATTTAAAAATAAAAAAGAAATATTTAATAAAAAAAGTTTCCA spacer
 length: 58 repeater length: 7
 14915 160932 ACCGAAA CGGTCTGATTTTAACGTGTGTTAGTATGTCTTGAAATTAAAGCAAAATCTGTGTTTCCA spacer
 length: 58 repeater length: 7
 14916 160998 ACCGAAA GACCGATTTCGGTATGGAAACCATTATCAACCTTTATAACTGCAAAAAGTAATTTTTGT
 14917
 14918
 14919 crispr 2
 14920 769292 CAGACCGTTT CGGTATGGAAACTGCATAAAATTTAGCTTGTCTAAATAATCTAATTCGTTAAAGTTAAAA
 spacer length: 61 repeater length: 10
 14921 769364 CAGACCGTTT CGGTATGGAAACATCGGTTAGGTAGGTTGTGGTAGGTAGTAACCGAAAGTTAAAA spacer
 length: 55 repeater length: 10
 14922 769430 CAGACCGTTT CGGTATGGAAACAATGATATCAACGTATTAATTCAAGAAACAAATAGGGTTAAAA spacer
 length: 55 repeater length: 10
 14923 769496 CAGACCGTTT CGGTATGGAAACAAGGATGAGATTGAAGAACTGATGAAATGAAACCGGTTAAAA spacer
 length: 55 repeater length: 10
 14924 769562 CAGACCGTTT CGGTATGGAAACTATTAGAAAATAACACAATAGTTGACTGGAAACTTCTAAATATTCGTTAAAA
 spacer length: 65 repeater length: 10
 14925 769638 CAGACCGTTT CGGTATGGAAACAATGATCCAAATTTGGTTATTGGAAGATTAGCGTTAAAA spacer length:
 51 repeater length: 10
 14926 769700 CAGACCGTTT CGGTATGGAAACGCCACTATCGGTTGGATATTTTTTGTATTTGTGTTAAAA spacer length:
 51 repeater length: 10
 14927 769762 CAGACCGTTT
 CGGTATGGAAACCATTTTGAATTTTACTTCAATTGATTTTACAATTTTACATTTATCTATAGTTAAAA spacer length:

67 repeater length: 10
14928 769840 CAGACCGTTT CGGTATGGAAACAATTTGTCATTATCAATCATAGTAAAAATATTTTTATAATAGTTAAAA
spacer length: 60 repeater length: 10
14929 769911 CAGACCGTTT CGTTACGGTATGGAAACATCTCTATACAGACTGAAAATGGATACATAACAAGTTAAAATC
14930
14931
14932 crispr 3
14933 152748 GTTAAAA TCAGACCGTTACGGTATGGAAACCCATTTGTGTTAATAATGAAATGAATTTTCATCA spacer
length: 56 repeater length: 7
14934 152812 GTTAAAA TCAGACCGTTACGGTATGGAAACAAGATGTTATAAAAAGTAGTGATTGGAACATTT spacer
length: 57 repeater length: 7
14935 152877 GTTAAAA TCAGACCGTTACGGTATGGAAACATTAGGTAAAGGTTCTGGAAAATCTACTATGTGTTG spacer
length: 59 repeater length: 7
14936 152944 GTTAAAA TCAGACCGTTACGGTATGGAAACCATAAATCAATAACAATTGAAGTATTTTCATCTAT spacer
length: 58 repeater length: 7
14937 153010 GTTAAAA TCAGACCGTTACGGTATGGAAACTTTTTTATAGTTTGCTCATATTTTTGTGCTTTCTTGC spacer
length: 60 repeater length: 7
14938 153078 GTTAAAA TCAGACCGTTACGGTATGGAAACTCCTTCTCAATAACATAAACGTGCTTAATCTTGCCAGCTTCT
spacer length: 65 repeater length: 7
14939 153151 GTTAAAA GACCGTTTCGGTATGGAAACAATTTGTCATTATCAATCATAGTAAAAATATTTTTATAATAGTTA
14940
14941
14942 crispr 4
14943 784071 TTAAA ATCAGACCGATTTCGGTATGGAAACAAAATTAAAATGCCAAAAGTTGCAACACAATTAGCAAAAAGA
spacer length: 65 repeater length: 5
14944 784142 TTAAA ATCAGACCGATTTCGGTATGGAAACGATATTAATTTATCACTTCCAGACATCTTTAAGAAA spacer
length: 60 repeater length: 5
14945 784208 TTAAA ATCAGACCGATTTCGGTATGGAAACAAAATCAAAGACATCGAATACAAAATTAATCTCAT spacer
length: 60 repeater length: 5
14946 784274 TTAAA ATCAGACCGATTTCGGTATGGAAACGAATAATAATCCTTATCAAAAATGTATATCCCTCTTA spacer
length: 61 repeater length: 5
14947 784341 TTAAA CAGACCGTTTCGGTATGGAAACGCGGGTGCGTTTTCCACAGTTGCAAAGAAAAAAGTAAGT
14948
14949
14950 crispr 5
14951 320419 ATTTCCATACCGAAACGGTCTGATTTTAAC TCATGAATTAGTTAAAGCATATCAAAGACATAAAGATTTTCAT
spacer length: 42 repeater length: 30
14952 320492 ATTTCCATACCGAAACGGTCTGATTTTAAC TATAAGTTTGTTCATAATACTATAACCAACGCTCTAACTGCTCCCT
spacer length: 46 repeater length: 30
14953 320569 ATTTCCATACCGAAACGGTCTGATTTTAAC GAGTATAGAAATAAAATCTGGGGTTATTGTTACAAAAAATTAAG
spacer length: 45 repeater length: 30
14954 320645 ATTTCCATACCGAAACGGTCTGATTTTAAC CAAATTCATTTCAAATTCATAAGTGTCTCCAGACAAATCA
spacer length: 41 repeater length: 30
14955 320717 ATTTCCATACCGAAACGGTCTGATTTTAAC AAAACATTCATTATATAACAAAAGCATTAAATTTCTG spacer
length: 36 repeater length: 30
14956 320784 ATTTCCATACCGAAACGGTCTGATTTTAAC TTTCATTGTAGTATCAAATAAATCATTATTACCTG spacer
length: 35 repeater length: 30
14957 320850 ATTTCCATACCGAAACGGTCTGATTTTAAC ATTATATATATCATTATTATATGAACAAATGAATG spacer
length: 35 repeater length: 30
14958 320916 ATTTCCATACCGAAACGGTCTGATTTTAAC TATGTGGAGAAAGACTTGTTGGAGAGGATATTTATGAAATA
spacer length: 41 repeater length: 30
14959 320988 ATTTCCATACCGAAACGGTCTGATTTTAAC AATTCAACATTTCTTGTTTTAATGTATCATCAATAGTATCA
spacer length: 41 repeater length: 30
14960 321060 ATTTCCATACCGAAACGGTCTGATTTTAAC TTCTGTGCATATCAATGAGAATACTTGGGTTAGTCTCCATGT
spacer length: 42 repeater length: 30
14961 321133 ATTTCCATACCGAAACGGTCTGATTTTAAC CTAAATCACCAAAGTTATATAGTGCTTTTATATCAA spacer
length: 36 repeater length: 30
14962 321200 ATTTCCATACCGAAACGGTCTGATTTTAAC TGCACCGTCAAGTTTTTCTTCAATATAAACTTTATCAT spacer
length: 38 repeater length: 30
14963 321269 ATTTCCATACCGAAACGGTCTGATTTTAAC AAAATATGCACCTAAAAAGCAAAAAGTGAAAAAGT spacer
length: 35 repeater length: 30
14964 321335 ATTTCCATACCGAAACGGTCTGATTTTAAC ATCAACCTTTATAACTGCAAAAAGTAATTTTTGTT
14965
14966
14967 crispr 6
14968 287538 GTTTCATACCGTAACGGTCTGATTTTAAC
TTATAAAATGAAAAATAAAGGCAGTATTGGAATGATTGAGTTTCCATACCAAACGGTCTGATTTTAAC TTGCATACATTGCTAAA
AAATATCTGTAGGTGAAACT spacer length: 106 repeater length: 30
14969 287675 GTTTCATACCGTAACGGTCTGATTTTAAC TATCACTTGTGGTTACCGTAAACTAAATG spacer length:
31 repeater length: 30
14970 287737 GTTTCATACCGTAACGGTCTGATTTTAAC GATGCAATAACTTCATTAGCCCCACCTGTATTAAATACGGAGCATT

spacer length: 46 repeater length: 30
 14971 287814 GTTTCATACCGTAACGGTCTGATTTTAAC CAAATTCCCACTAACACCGAAACTATCTCCCTA spacer
 length: 35 repeater length: 30
 14972 287880 GTTTCATACCGTAACGGTCTGATTTTAAC ATCCCTTTAGATTCTCAATTCTGTAGGCAGTTAGA spacer
 length: 35 repeater length: 30
 14973 287946 GTTTCATACCGTAACGGTCTGATTTTAAC TTAATCTTAAAAGTGGTGAATAGGAGCTGGTGGTGGG spacer
 length: 39 repeater length: 30
 14974 288016 GTTTCATACCGTAACGGTCTGATTTTAAC CATTAAGTATAATAATACAATTGATAGATTAAAA spacer
 length: 35 repeater length: 30
 14975 288082 GTTTCATACCGTAACGGTCTGATTTTAAC AAAATAGATGAAAATACTTCAATTGTTATTGATTTAT spacer
 length: 37 repeater length: 30
 14976 288150 GTTTCATACCGTAACGGTCTGATTTTAAC TTTAAGTTTTGTTATTGTTTCGTAAATTTTAAATAATTCTT
 spacer length: 41 repeater length: 30
 14977 288222 GTTTCATACCGTAACGGTCTGATTTTAAC AAGATTGACGAATATCAACACCTTCAGAAAAAGAATATTTAG
 spacer length: 43 repeater length: 30
 14978 288296 GTTTCATACCGTAACGGTCTGATTTTAAC TTTTGATGTTTCTGGAGTTTATTCACATAATTG spacer
 length: 33 repeater length: 30
 14979 288360 GTTTCATACCGTAACGGTCTGATTTTAAC CAATGTAGAATTTGATATTACTAATATTTGGGATATATCTT
 spacer length: 41 repeater length: 30
 14980 288432 GTTTCATACCGTAACGGTCTGATTTTAAC CTATACAGACTGAAAATGGATACATAACAAGTTAAATCAG
 14981
 14982
 14983 crispr 7
 14984 1522152 GTTTCATTCCGAATCGGTCTGATTTTAAC AAGTAGAATTAATAAAGTCGCATATGACAAAAGCAGATAAAGA
 spacer length: 43 repeater length: 30
 14985 1522226 GTTTCATTCCGAATCGGTCTGATTTTAAC CTCTTCATTCAAGTCCCTCCTTTGAAAATGTATGCGCCTTATA
 spacer length: 44 repeater length: 30
 14986 1522301 GTTTCATTCCGAATCGGTCTGATTTTAAC AAGCAAACCTTAGAAGACCCCGATATTATAGAGTTGT spacer
 length: 36 repeater length: 30
 14987 1522368 GTTTCATTCCGAATCGGTCTGATTTTAAC TGTCAATTATCAATCATAGTAAAAATATTTTTATAAT
 14988
 14989
 14990 crispr 8
 14991 784140 AGTTAAAATCAGACCGATTTCGGTATGGAAAC GATATTAATTTATCACTTCCAGACATCTTTAAGA spacer
 length: 34 repeater length: 31
 14992 784206 AGTTAAAATCAGACCGATTTCGGTATGGAAAC
 AAAAATCAAAGACATCGAATACAAAATTAATCTCATGTTAAAATCAGACCGATTTCGGTATGGAAACGAATAATAATCCTTATCAAA
 AATGTATATCCCTCT spacer length: 101 repeater length: 31
 14993 784339 AGTTAAAATCAGACCGATTTCGGTATGGAAAC
 TGCGTTTTCCACAGTTGCAAAGAAAAAAGTAAGTTAAAATCAGACCGTTACGGTATGGAAACACACTACTGAACATATTTTGTAAAT
 CCTGTTAAATATCCC
 14994
 14995
 14996 crispr 9
 14997 287325 AGTTTCCATACCAAAACGGTCTGATTTTAAC
 TACTACATATATGTAAATTGGTGATAAAATGGCTGATGTAAGTTTCCATACCGAAACGGTCTGATTTTAACGCCGTTTAATTCTCT
 TACCGCCTCACACCTCCCTTGCAA spacer length: 111 repeater length: 31
 14998 287468 AGTTTCCATACCAAAACGGTCTGATTTTAAC
 AACTTCTATAGGAATAGTTATTTTACAGTATAATTCATCGTTTCCATACCGTAACGGTCTGATTTTAACCTTATAAAATGAAAATAA
 AAGGCAGTATTGGAATGATT spacer length: 106 repeater length: 31
 14999 287606 AGTTTCCATACCAAAACGGTCTGATTTTAAC
 CAACCTTTATAACTGCAAAAAGTAATTTTTGTTTATGGTTAAAATCAGACCGATTTCGGTATGGAAACATTTTTTTAATTTTTGTCT
 CGTTTAGTATTTTTTGAGT
 15000
 15001
 15002 GCA_000744315.1_ASM74431v1_genomic.fna(findCrispr):
 15003 START REPEAT
 SPACER
 15004 crispr 1
 15005 3401050 AATCTGTGTAAGTCTTCCCAT
 GCTTCTGTTTGTGACATATATTGAAATGCAGTCTCCAATGACCTCACTGCATCCTTTCTCACATCATCATTTTTCATCTAGGGT
 spacer length: 86 repeater length: 21
 15006 3401158 AATCTGTGTAAGTCTTCCCAT
 ATCTGTTGTTTGTGAGTATATATTGGAAAGCAGTCTTCACTACAACCTGCTACTCCCTTTTTGACATCAGCGTTTCTATCTAAAGT
 spacer length: 86 repeater length: 21
 15007 3401266 AATCTGTGTAAGTCTTCCCAT
 ATAGTGAATAAAAAATAATAGTGAATAAAAAATAATAGTAAATAAAAAACAATAGATATAGAAAATAATATCTCGTATTTCTGCAGGG
 15008
 15009
 15010 crispr 2
 15011 1633496 AGATATTTGATTAAAAGATAT TTGATTAAGAGATATTTGATTAAGAGATATTTGATTAA spacer length:

38 repeater length: 21
15012 1633556 AGATATTTGATTAAAAAGATAT TTGATTAAGAGATATTTAATTAAGACACTTGATCAAAAGATCTCCGATTGA
spacer length: 53 repeater length: 21
15013 1633631 AGATATTTGATTAAAAAGATAT TAGTGAATAAAAAATAATAGTGAATAAAAAATAATAGTAAATAAAAAACAATAGAT
15014
15015
15016 crispr 3
15017 1757558 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCTGATGTTTCATCGTTACCTGATGGTA
spacer length: 50 repeater length: 21
15018 1757630 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCGGATGTCTCACCGTTATCTGATGGTA
spacer length: 50 repeater length: 21
15019 1757702 ATCTCCACCTGATGTTTCATC AGTGAATAAAAAATAATAGTGAATAAAAAATAATAGTAAATAAAAAACAATAG
15020
15021
15022 crispr 4
15023 4052262 GGAGTTGGTGTAGGGGTTGGT GTGGGAGTTGGCGTGGGGGTTGGTTCGGGAGT spacer length: 32
repeater length: 21
15024 4052316 GGAGTTGGTGTAGGGGTTGGT GTAGGAGTTGGTGTAGGAGTTGGCGTGGGGGTTGGTTCGGGAGT spacer
length: 44 repeater length: 21
15025 4052382 GGAGTTGGTGTAGGGGTTGGT GCCTATTTTCAGCAAGTCTTTGTCTAGCGTTAGCCTCTTTCCCCA
15026
15027
15028 crispr 5
15029 1626399 TAATTAAAGTTTATTTAATTT CCAGTATAATTACAGTTTAT spacer length: 20 repeater
length: 21
15030 1626441 TAATTAAAGTTTATTTAATTT CCAGTATAATTACAGTTTAC spacer length: 20 repeater
length: 21
15031 1626483 TAATTAAAGTTTATTTAATTT TATTCAATCTGTTTTAACGT
15032
15033
15034 crispr 6
15035 2190026 ATTTTCAGCAAGTCTTTGTCTAGC
ATTACCTTCATTTATCAGCACAAAAGCATAATCTGCACTTTTTTTTGGACAAAATTTTCTTGGCATTGTCGCAAAGACTGACAGCAG
TTTCAAAAATTTTCCCTGCTGTTAATGCC spacer length: 114 repeater length: 23
15036 2190164 ATTTTCAGCAAGTCTTTGTCTAGC
ATTACCTTCATTTATCAGCACAAAAGCATAATCTGCACTTTTTTTTGGACAAAATTTTCTTGGCATTGTCGCAAAGACTGACAGCAG
TTTCAAAAATTTTCCCTGCTGTTAATGCC spacer length: 114 repeater length: 23
15037 2190302 ATTTTCAGCAAGTCTTTGTCTAGC
ATTACCTTCGTTCAATTAATGTAAGAGCGTAAGGTACGTTTGCTTTGAATAAAATTTGCCGAGAATTTCCATAAAGACTGACGGCAG
TTTCAAAAATTTTCCCTGCTGTTAATGCC spacer length: 114 repeater length: 23
15038 2190440 ATTTTCAGCAAGTCTTTGTCTAGC
GAATAAAAAATAATAGTGAATAAAAAATAATAGTAAATAAAAAACAATAGATATAGAAAATAATATCTCGTATTTTCTGCAGGGTTTTA
AATCGAAGGTTATCAACAAACTATCAAA
15039
15040
15041 crispr 7
15042 1968967 TTCCTGATTTATCTTTGATTTAT TCCTGATTTATTCCTGATTT spacer length: 20 repeater
length: 23
15043 1969011 TTCCTGATTTATCTTTGATTTAT TCCTGATTTATTCCTGATTT spacer length: 20 repeater
length: 23
15044 1969055 TTCCTGATTTATCTTTGATTTAT TCCTGATTTATTCCTGATTTATCCTTTATTTATCCTTTATTTA spacer
length: 43 repeater length: 23
15045 1969122 TTCCTGATTTATCTTTGATTTAT TATTTTCAGCAAGTCTTTGTCTAGCGTTAGCCTCTTTCCCCAAT
15046
15047
15048 crispr 8
15049 820625 GTGAATATAAAAAATAGTGAATAAAAA AAATAGTGAATAAAAAATAATAGTGAATATAAAAAAT spacer
length: 36 repeater length: 27
15050 820689 GTGAATATAAAAAATAGTGAATAAAAA TAATAGTGAATATAAAAAAT spacer length: 20 repeater
length: 27
15051 820737 GTGAATATAAAAAATAGTGAATAAAAA AAGGTTGAGCCAAAGCCTTT
15052
15053
15054 crispr 9
15055 345139 TACAGAAATTTTTGGTCAAGCTTTTTTTTTTAA AAAGGTTGAGCCAGAGCTTT spacer length: 20
repeater length: 31
15056 345191 TACAGAAATTTTTGGTCAAGCTTTTTTTTTTAA AAAAGTTGAGCCAGAGCTTT spacer length: 20
repeater length: 31
15057 345243 TACAGAAATTTTTGGTCAAGCTTTTTTTTTTAA GAAGAGTAGTGCATTAAAAAC
15058
15059

15060 crispr 10
15061 2190131 GCAGTTTCAAAAATTTTCCCTGCTGTTAATGCC
CATTTCAGCAAGTCTTTGTCTAGCATTACCTTCATTTATCAGCACAAAAGCATAATCTGCACCTTTTTTTGGACAAAATTTTCTTGG
CATTGTGCGAAAAGACTGAC spacer length: 105 repeater length: 32
15062 2190269 GCAGTTTCAAAAATTTTCCCTGCTGTTAATGCC
CATTTCAGCAAGTCTTTGTCTAGCATTACCTTCGTTTCATTAATGTAAGAGCGTAAGGTACGTTTGCTTTGAATAAAATTTGCCGAG
AATTTCCATAAAAGACTGAC spacer length: 105 repeater length: 32
15063 2190407 GCAGTTTCAAAAATTTTCCCTGCTGTTAATGCC
TTTAACGTGGGGGTACAGTAATGGGCAGAACTATCAGCGGTGCATTAATAGGTATGGTTCTTACTTTTGTTTTTTATTTTATTCCG
GTGGTAAATCCGTAGCTC
15064
15065
15066 crispr 11
15067 3673014 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GATCGCAACTCCATAAGGAGCAATTCCTACAGGCACCGTGAAGGTAATACTGTAATTAGACGTATCGATTACGGAAGTAGTGTTAC
TGCCGT spacer length: 92 repeater length: 33
15068 3673140 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GACTACAACCTCCAGAAGGACTGTAATCTACTGGAACACTGGCGATAACAGTGCTGGTCGTTGTGTTAATTACAGAGACACTGCTGT
CGTTTT spacer length: 92 repeater length: 33
15069 3673266 GTTCGCCACATATACCTTTGTTCCATCCGGACT
GAAGCCAGATAAGCTTTTTCCGGGCTTTGGGATGTTTCAATCCTTGTTTTAGTGATCTTGCTCGCAATAGGGCAAAAATTTCC
GTTATT
15070
15071
15072 crispr 12
15073 3235203 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AATATTGTACTAGGGCACCTGCAAAAAACCATAT
spacer length: 34 repeater length: 37
15074 3235275 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTAACTGTTTAGTTGCTTCCCTTGCGGAATCCC
spacer length: 34 repeater length: 37
15075 3235347 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTATTAACCCGCTTCTCTTCTTATTTGCAGCTTC
spacer length: 35 repeater length: 37
15076 3235420 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CACTCGTACTCGTTCCCTACATCAATTGTAGCAGCC
spacer length: 36 repeater length: 37
15077 3235494 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAAATTAAAGTCACGCATGTACGTGCTCCTAAAG
spacer length: 36 repeater length: 37
15078 3235568 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGATATTAGAGTCAAGGTGCTGTAGCTGGAG
spacer length: 33 repeater length: 37
15079 3235639 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGTACTGTAGATGCAATAAGGGCTAAACCTGTATC
spacer length: 36 repeater length: 37
15080 3235713 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCAAGAGGTAGAAGAGCAGGAAGAACCAGAACA
spacer length: 34 repeater length: 37
15081 3235785 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTCTGTGAAAAATCCTTTTCTCCAAAAACGTTCT
spacer length: 34 repeater length: 37
15082 3235857 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TATGGATCTGCCAATACATCATTCGAGTTTTGGTGA
spacer length: 36 repeater length: 37
15083 3235931 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATTAAACCATATTGTAGGTGTTTTACCTTTC
spacer length: 33 repeater length: 37
15084 3236002 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACGCAGCATGATAGGAAAAGTGAAAATTCCAAAT
spacer length: 35 repeater length: 37
15085 3236075 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTCCCTTAGTGTAGAGGTCAATCACGGAGGGCCTT
spacer length: 37 repeater length: 37
15086 3236150 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAAAAGTAAAACATTAAGAAGAGCACTCTTCAGAT
spacer length: 36 repeater length: 37
15087 3236224 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTTATCAGGAGTTCCTAATAGCCCGTCTGTAATT
spacer length: 35 repeater length: 37
15088 3236297 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATTAGGAGTCGCAGGGAGAAGAGCCCGATACC
spacer length: 35 repeater length: 37
15089 3236370 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTTCAGTTTTGCTCCATGCTTTCAGTTTTGGT
spacer length: 34 repeater length: 37
15090 3236442 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AACAGTCCTCACAATAAAAAATCATCACCGTACCAA
spacer length: 35 repeater length: 37
15091 3236515 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GAAGCGGAATAATTAGCAATTGCTTTTGCTACACCA
spacer length: 36 repeater length: 37
15092 3236589 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCCAGCCTCTAAGTTGAGTATCAAGCTGTTTCT
spacer length: 34 repeater length: 37
15093 3236661 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTCTCAGCCGGGTGCTCTTCAACAAGTATCT
spacer length: 36 repeater length: 37
15094 3236735 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTTGGCTACTTCAAATTCAGTTTGTAGTTTATTA
spacer length: 36 repeater length: 37
15095 3236809 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACGTTATCCCACTTTTCTTTGGTGATTCCATAG
spacer length: 36 repeater length: 37

15096	3236883	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAATCACACATTCTTTAAAGTCTTCTATCGTAACTT
		spacer length: 37 repeater length: 37	
15097	3236958	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAAAGTTAGATGTACGTGGCGCATAAGATACACTT
		spacer length: 35 repeater length: 37	
15098	3237031	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTTTTATAGTTGTTACTACTATAATAATCACCTCT
		spacer length: 35 repeater length: 37	
15099	3237104	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCATTCCCTCGAAGCTACAAACACAACAAATCTAAAT
		spacer length: 37 repeater length: 37	
15100	3237179	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCTCGCTCTTGCCGGATGGGACGTAAATGAAATCA
		spacer length: 35 repeater length: 37	
15101	3237252	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAACCTCCTGCTTCAATCTGTTTCGGGGGTTGCTACG
		spacer length: 36 repeater length: 37	
15102	3237326	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCTCGTTTCTTTTTTTTTGAAAATCCCAGATTATGACG
		spacer length: 37 repeater length: 37	
15103	3237401	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCTCAGGGAGCGCGGAGGCACAGCGAGAAGAC
		spacer length: 33 repeater length: 37	
15104	3237472	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAGAAGTCTGAACCTGTGGAGCAGTTGAAAA
		spacer length: 33 repeater length: 37	
15105	3237543	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAATTGGCGATTTCTTTAGAGTTAAAGGTAAG
		spacer length: 32 repeater length: 37	
15106	3237613	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACATAGTCATACATGCTGTCATAGAGGTTACGTAT
		spacer length: 36 repeater length: 37	
15107	3237687	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGCTATCTTAGCTATCTTTTCGGCTCGTTGGA
		spacer length: 33 repeater length: 37	
15108	3237758	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CATTCAACGATATTTACAAGCCTAGTGTAATCCCC
		spacer length: 35 repeater length: 37	
15109	3237831	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AACCTTCTACAAGATAATCCAGCCACATTTTTTTT
		spacer length: 34 repeater length: 37	
15110	3237903	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCACCTTGTAGGTAATAATCTTTCCGATTACTA
		spacer length: 33 repeater length: 37	
15111	3237974	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCCAAGAGCCGTGTAACCTGCATGTTGCGGCTTT
		spacer length: 34 repeater length: 37	
15112	3238046	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCCCTCCTTAAGTTGTCACCGTTCCGAGTCCA
		spacer length: 32 repeater length: 37	
15113	3238116	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAAAAATGTTCTTTCTTGCAAATCCGGTTAAC
		spacer length: 35 repeater length: 37	
15114	3238189	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTTCTCCTGATTTCGTTATCTATGCGATGTAATACAC
		spacer length: 36 repeater length: 37	
15115	3238263	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTATGGTGATCCAGAGAAGGATATTCCGGCGAAAGA
		spacer length: 36 repeater length: 37	
15116	3238337	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATTCATGCTTCAACTTCCTGCGTTCCCTTGCTCC
		spacer length: 35 repeater length: 37	
15117	3238410	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACCCTGGGTCTTCTGAATGGTACTGGACAGGTTCA
		spacer length: 35 repeater length: 37	
15118	3238483	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GGGTATATAGTATGTTGTAGTAACGTAGGAGGAA
		spacer length: 34 repeater length: 37	
15119	3238555	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATAGTGTATCTGTGACACTTACAACCGGCACTGA
		spacer length: 35 repeater length: 37	
15120	3238628	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCGTGTCTTCTATGTCGAAAAATAATCCTCATCG
		spacer length: 35 repeater length: 37	
15121	3238701	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAATTCCAAGATCACCATGCCAGATGGCTCTAAT
		spacer length: 34 repeater length: 37	
15122	3238773	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACGTAATTGATGTATAACGATATACATTTTCCT
		spacer length: 33 repeater length: 37	
15123	3238844	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGATTGATCTTACCATCTCCTATTATTGTAAGCA
		spacer length: 34 repeater length: 37	
15124	3238916	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGTCTCCTCCAACGTGCATCACTTCTTCATACACTT
		spacer length: 36 repeater length: 37	
15125	3238990	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAAATTTCCGTTATTTGGCCAGAAAAGACCTGAAA
15126			
15127			
15128	crispr 13		
15129	3244221	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAGTGGATACATGCCCCACATGACCCCATTGAAC
		spacer length: 34 repeater length: 37	
15130	3244293	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTCGACTTCCCATCTCCTGCTCCTGATGTCAA
		spacer length: 33 repeater length: 37	
15131	3244364	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CGGGACTCTGAGGTGATCAAGAATGACAAATGCAC
		spacer length: 35 repeater length: 37	
15132	3244437	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTGCATATTGTAGAGCAATCTTCATTACGACTGCT
15133			
15134			

15135 crispr 14
15136 40 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTCTCATATTTATTTTAAGGCTATGCGTTTCTGA spacer
length: 35 repeater length: 37
15137 113 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GGGAACCCTGAGTTTATCACAATCGAAACTCTC spacer
length: 33 repeater length: 37
15138 184 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AACTATAATGAACCCGAAAATATTCAATCCTATGAAA
spacer length: 37 repeater length: 37
15139 259 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGGATAAGCCGCTGCAATGAATACAAGGACTGCC spacer
length: 35 repeater length: 37
15140 332 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAAGATTTACCTGATCTGGACCTTCAAGGCGGGTTT
spacer length: 36 repeater length: 37
15141 406 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCGATAAACTCCCTTAAGTCCAGTATCCAATTTA spacer
length: 35 repeater length: 37
15142 479 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ACAGTTCCCATAGATATTTTCAATTCCCCTCCA spacer
length: 33 repeater length: 37
15143 550 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGAGTACGGTTGGATTATTACTCTCTACAGTATTT spacer
length: 35 repeater length: 37
15144 623 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAGTTTTGCATGAGCCGGATAAAGAAGTCCTGCA spacer
length: 34 repeater length: 37
15145 695 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTGAAATGCTGATGATTAGCGGCATTCTGAGTA spacer
length: 34 repeater length: 37
15146 767 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GTTGGTATGATGGAATAACAGATTTAATGGATTTT
spacer length: 36 repeater length: 37
15147 841 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCGAATACTGTACTATTATTAGATCCATTAAATCTA
spacer length: 36 repeater length: 37
15148 915 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGGGTACTGACATGGTATCTAGGATACAGAA spacer
length: 33 repeater length: 37
15149 986 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CAATCACTATGACCTTCCTCAAGCATGATATTATTT
spacer length: 36 repeater length: 37
15150 1060 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTTTCCACTTCTAAACTTCCTACACAAGTACTTA spacer
length: 34 repeater length: 37
15151 1132 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GCTTTGCATGAGCTGGATAACAAGAGCCCCGCA spacer
length: 32 repeater length: 37
15152 1202 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCAGGCATCAGATGGAGCCCTCCCCATAATAGACT
spacer length: 35 repeater length: 37
15153 1275 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCTTACAGACCTCTTGGAAGCTGGGTATTCATAGA
spacer length: 35 repeater length: 37
15154 1348 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCAGATATCTGAAATCTGATAAACATAACAATTT spacer
length: 34 repeater length: 37
15155 1420 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GATCTTGAGAAGTGGAATTACCTGGCACTCATGA
spacer length: 35 repeater length: 37
15156 1493 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GTATTTTTTTCAGATGAATCTATAGCTCCATCATTT
spacer length: 36 repeater length: 37
15157 1567 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAAGGAGCGAAAACATGCTACGTAAAATAATTAAGTTCTTT
spacer length: 41 repeater length: 37
15158 1646 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AGAAAATGAGAACCGGATTTTTGACGACGACATT spacer
length: 34 repeater length: 37
15159 1718 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGTCAGGAGTGAAATAGTAAGTATTCCAGATCCATTT
spacer length: 37 repeater length: 37
15160 1793 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GCTGATTCCTTCGAGATTACTGCCGATTTTGAA spacer
length: 33 repeater length: 37
15161 1864 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATGATTAAATTCTCATTCCGCCGCTCTTGAA spacer
length: 32 repeater length: 37
15162 1934 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTTAAAGTCTTTGAGGTAAACATTGTTATTCC spacer
length: 33 repeater length: 37
15163 2005 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTTGATTTTCCCTTTTATATCTACTTGACTTTTTT
spacer length: 36 repeater length: 37
15164 2079 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTAACGTGCTCCATGTATCCAGCTGTGTATTTT spacer
length: 34 repeater length: 37
15165 2151 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GACATCACCTGCAGGAGTGATAAAATTTACAGATAG
spacer length: 36 repeater length: 37
15166 2225 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CACTAATGAAATTAATTCCTATAGTCGCTATTC spacer
length: 33 repeater length: 37
15167 2296 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CTCTAACGTAATCTACATCACAGAGTGCCATGAC spacer
length: 34 repeater length: 37
15168 2368 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CGGGGATCTTCTCGGGATCTTCTAAGAGCTTC spacer
length: 33 repeater length: 37
15169 2439 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCTGTGCATATAGTCTTTAGAACATGGCTTAAC spacer
length: 33 repeater length: 37
15170 2510 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT AAAAATGACTGAAGACAACGTAAACTATGAACTAC
spacer length: 35 repeater length: 37

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15171 2583 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATTTAGGCACTCTCTAGTTGCCAGGGTAGACGGA spacer
length: 34 repeater length: 37
15172 2655 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT GACACAGAAGAGGCTTAACCATGCTAACTAAAGA spacer
length: 34 repeater length: 37
15173 2727 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTGTGTGTATTATTTGCTCTCCGTTCAATTACA spacer
length: 33 repeater length: 37
15174 2798 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TCTGAAAGATTGTGACTTCCAGCATGTTTCATAT spacer
length: 33 repeater length: 37
15175 2869 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT ATTGTTAAACAGAAATGCAATTGGATTTGATAATGA
spacer length: 36 repeater length: 37
15176 2943 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT CCGTTGAGTTCCGAGGAATATACCTCGTCAGCCAGGCGA
spacer length: 39 repeater length: 37
15177 3020 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TGAAGCCCAGATAAGCTTTTTCCGGGCTTTGGGA spacer
length: 34 repeater length: 37
15178 3092 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCGCGAAT TTTAACGTGGGGGTACAGTAATGGGCAGAACTAT
15179
15180
15181 GCA_000744455.1_ASM74445v1_genomic.fna(findCrispr):
15182 START REPEAT
SPACER
15183 crispr 1
15184 802822 ATTACAAATTCCTCCACCAT
CATATTGGTCTGCGTGGTTATTGTTGATTGTTGAGTTTTCTATGGTGCAATGTTTCAT spacer length: 57 repeater
length: 20
15185 802900 ATTACAAATTCCTCCACCAT
TATATTTTGTCAATGTTGTTTGTGATTGTTACTCCTCTTATGGTTACTGTGCCATGAACATTACCAATTCCTCCACCATTTAATTCT
GTTGAGGTGTTGTTGGTGATTGTTGAGTTTTCTATGGTTAACGTGCAATGTTTCAT spacer length: 141 repeater
length: 20
15186 803062 ATTACAAATTCCTCCACCAT
ATAACATTCACTCTACTTAATAAATAGGAGTATGGGATGGTGTCTTCTCTAATTTTTTACCACAGTCCCATAACTATGGTTTC
CCAAAATATGTGGAAAATACCTCCCTACTCCTTATAATAAAAAAAGGTTTAATTA
15187
15188
15189 crispr 2
15190 1200963 AATAAACCAAATTATCAAATA
CAACATTACCCCAATATAATAAATAGGGCAGGGGTTGTCTACCTCAGTTTTTTGCTCAAAAAAACTCTATCTCTTAATATTTTTGT
GTCCATGAAATTTGATAAAATCCCTCCCTGCCCGCCTTCTAATTATAAAAAATTTGTAAATA spacer length: 149
repeater length: 21
15191 1201134 AATAAACCAAATTATCAAATA
GAACAGTACCCATAATAATAATATGGGCAGGGAATAAGCGCCTTTCAACACTTATTTTTTAGTTTTCTAAAATTTATCCCTGCCC
GCCTCCTAATTATT spacer length: 100 repeater length: 21
15192 1201256 AATAAACCAAATTATCAAATA
AACATTCACTCTACTTAATAAATAGGAGTATGGGATGGTGTCTTCTCTAATTTTTTACCACAGTCCCATAACTATGGTTTCCC
AAAATATGTGGAAA
15193
15194
15195 GCA_000762265.1_ASM76226v1_genomic.fna(findCrispr):
15196 START REPEAT
SPACER
15197 crispr 1
15198 92365 TATTGTAGATGGCCCCACCAT CACCAGAAGCGGTGTTATTTTTTAGTGTACTGTTTGTACAGTTAAACTTCCA
spacer length: 53 repeater length: 21
15199 92440 TATTGTAGATGGCCCCACCAT CACCATAGGCGTAGTTATTTGTGAATGTACTGTTTGTACAGTTAAACTTCCA
spacer length: 53 repeater length: 21
15200 92515 TATTGTAGATGGCCCCACCAT CCAATATGCTGTGTTGTCTGTGAATGCACTGTTTGTACAGTTAAACTTCCAG
15201
15202
15203 crispr 2
15204 183073 TTTCCCTTTTATTTGTTCTTC
AATTTTCTTTTCAATTGCGGCTCAGTCTTCCCTTATTTGTTCTTCAATTTTTTTATCGATTTTCAGCCTGAA spacer
length: 74 repeater length: 21
15205 183169 TTTCCCTTTTATTTGTTCTTC GACTTCTTTTTCGATTTTCAGCCTGAA spacer length: 26 repeater
length: 21
15206 183217 TTTCCCTTTTATTTGTTCTTC ACTTCTTTTTCGATTTTCAGCCTGAAT
15207
15208
15209 GCA_000789255.1_ASM78925v1_genomic.fna(findCrispr):
15210 START REPEAT
SPACER
15211 crispr 1
15212 977342 CTTT CAATCCCTTCAAGGTCTGATTTTAACAGAATGTTTGTATATCCTCCGAGAATTAGGAAATAA spacer

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length: 62 repeater length: 4
15213 977409 CTTT CAATCCCTTCAAGGTCTGATTTTAAACATATAGAAAAGGTAAAGGAGCAGGTTGAAGTAATAAA spacer
length: 63 repeater length: 4
15214 977477 CTTT CAATCCCTTCAAGGTCTGATTTTAACCCAAATGATGAATATCTTGAGTTTAAAGGATGACAA spacer
length: 61 repeater length: 4
15215 977543 CTTT TCAGACCTTGAAGGGATTGAAAGGAAAAAATAATAGAAAAAATTTACACCTTTTCTGCCTT
15216
15217
15218 crispr 2
15219 1354096 CTTTCAATCCCTTAAAGGTCTGATTTCAAC TTCGAAGGAGTCTCCAAACCCAAATCTAATGATGTGT spacer
length: 37 repeater length: 30
15220 1354164 CTTTCAATCCCTTAAAGGTCTGATTTCAAC ATGTTTACCGCATAAGCCCCGAATATGCTTTTCTG spacer
length: 35 repeater length: 30
15221 1354230 CTTTCAATCCCTTAAAGGTCTGATTTCAAC GCTGGGGATTGGCTTAAACAGCAAATACAAACCTACA spacer
length: 37 repeater length: 30
15222 1354298 CTTTCAATCCCTTAAAGGTCTGATTTCAAC AAAAAATCTATCAGCTAAAAACGACGCTTATAGAAT spacer
length: 36 repeater length: 30
15223 1354365 CTTTCAATCCCTTAAAGGTCTGATTTCAAC TCAGCAAGTGGAGGAGCATGAATTAAGGTGCCGAGATCAT
spacer length: 40 repeater length: 30
15224 1354436 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CCATCCGGTTCTATAGCATACTTGACGTCATCTTT spacer
length: 35 repeater length: 30
15225 1354502 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CTTTCCTCGTTAGTTATATAGTTGTAAACTGAGAT spacer
length: 35 repeater length: 30
15226 1354568 CTTTCAATCCCTTAAAGGTCTGATTTCAAC CCTTAGAGGGGTTCAAGAAGTCCATGTTGATCTCA spacer
length: 35 repeater length: 30
15227 1354634 CTTTCAATCCCTTAAAGGTCTGATTTCAAC ACTCGGATTCCCGTATGCGATGTTTCAGCTCGCTCGAA spacer
length: 37 repeater length: 30
15228 1354702 CTTTCAATCCCTTAAAGGTCTGATTTCAAC GCAGCAGCAAGCTGCAACAGTTACCCAGAACACTGCA spacer
length: 37 repeater length: 30
15229 1354770 CTTTCAATCCCTTAAAGGTCTGATTTCAAC TATGAGATAGACAAAAAGTATTGGGACATGCTCAA spacer
length: 36 repeater length: 30
15230 1354837 CTTTCAATCCCTTAAAGGTCTGATTTCAAC ACCAATCTTAATTGGAGGTAACCTAACATAGTTATT spacer
length: 37 repeater length: 30
15231 1354905 CTTTCAATCCCTTAAAGGTCTGATTTCAAC AAGGCAATAATAACAGCATGCATGAACTATAAAGAG spacer
length: 36 repeater length: 30
15232 1354972 CTTTCAATCCCTTAAAGGTCTGATTTCAAC AAATAATAGAAAAAATTTACACCTTTTCTGCCTTCA
15233
15234
15235 crispr 3
15236 1415562 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC GAAGAAGGCCATGAGTGGAATTGCTGAGACGAGAAGG spacer
length: 37 repeater length: 30
15237 1415630 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC CCACTACAGAAGGCCGAACCTCACAGAACATATATGAA spacer
length: 37 repeater length: 30
15238 1415698 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC ATATATGCTTGTTTTTCGTGTCTGGCTTTATCCTTGC spacer
length: 36 repeater length: 30
15239 1415765 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC GAAACTGTCTGAAGTCCTTGAACCTGATTCTCTGCTT spacer
length: 38 repeater length: 30
15240 1415834 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC CACCGAGCATGGCAACGAGATTAAGTCCGACTGCGAGAG
spacer length: 39 repeater length: 30
15241 1415904 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC CTTGTACTTCGTTACCTGTGTACATTCTGCACCACAC spacer
length: 38 repeater length: 30
15242 1415973 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC AACGAAAACGAGCATATAAGCCCAATTATAAAGATCC spacer
length: 37 repeater length: 30
15243 1416041 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC TAGAAACCCTTAAAAAGTTGAATTGCAGAAAAGTTAA spacer
length: 37 repeater length: 30
15244 1416109 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC TCAATTATTTTTGGAGGTGTATATGTGTGGTGAGGG spacer
length: 36 repeater length: 30
15245 1416176 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC GGATTTTCGAAAAACGGCTTTGGTTGATTATGATT spacer
length: 35 repeater length: 30
15246 1416242 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC TGAGAGTATTGAGTGTATCACCACGCCAAGCACAAGT spacer
length: 37 repeater length: 30
15247 1416310 CTTTCAATCCCTTAAAGGTCTGATTTTAAAC AATAATAGAAAAAATTTACACCTTTTCTGCCTTCATC
15248
15249
15250 crispr 4
15251 648742 GTTAAAAATCAGACCTTGAAGGGATTGAAAG AGAGGAAGATGAGGAAGAGGGGTTTATAATTATCAA spacer
length: 36 repeater length: 30
15252 648809 GTTAAAAATCAGACCTTGAAGGGATTGAAAG TGTTTCAGGGCGGAAGTATGCGAGGTAATCTTCGATCT spacer
length: 37 repeater length: 30
15253 648877 GTTAAAAATCAGACCTTGAAGGGATTGAAAG AATAATAACAGCATGCATGAACTATAAAGAGGCTTTC
15254

15255
15256 crispr 5
15257 1644255 CTTTCAATCCCTTCAAGGTCTGATTTTAAACGA GTTTTTCAGCGTTGAAAAGAGCAGAGTTTGAAAAGGCC
spacer length: 37 repeater length: 32
15258 1644325 CTTTCAATCCCTTCAAGGTCTGATTTTAAACGA AATGCGATAACTGCGGAAAAATCATTGAAAATGAC spacer
length: 35 repeater length: 32
15259 1644393 CTTTCAATCCCTTCAAGGTCTGATTTTAAACGA AATATTCCCCCAGATTCTCTATAAAAAGCTTTCTTC
15260
15261
15262 GCA_000800805.1_ASM80080v1_genomic.fna(findCrispr):
15263 START REPEAT
SPACER
15264 crispr 1
15265 1314463 TATCACAGACCCCGAGATAACGGA TCCTGAAATCACCGACCCAG spacer length: 20 repeater
length: 24
15266 1314508 TATCACAGACCCCGAGATAACGGA TCCTGAAATCACCGACCCAG spacer length: 20 repeater
length: 24
15267 1314553 TATCACAGACCCCGAGATAACGGA TCCTGAAATCACCGACCCAGATATCACCGACCCAG spacer length:
35 repeater length: 24
15268 1314613 TATCACAGACCCCGAGATAACGGA TTGTAGATTCTACTAGTGGCAGGGCACAATTTGGAG
15269
15270
15271 crispr 2
15272 550128 GGGGAGACTCCCCGCTGTTTTTTGTTGATCTT
GAGTTCTTAAGGTGTTTTCTGTTCTTATCAGGAAGAACTTAGCGGGGAGCAATAG spacer length: 55 repeater
length: 32
15273 550216 GGGGAGACTCCCCGCTGTTTTTTGTTGATCTT
GAGTTCTTAAGGTGTTTTCTGTTCTTATCAGGAAGAACTTAGCGGGGAGCAAT spacer length: 53 repeater
length: 32
15274 550302 GGGGAGACTCCCCGCTGTTTTTTGTTGATCTT
CACTAGTGGCAGGGCACAATTTGGAGAAAAAACTCAAAACAAATCTCTTAATA
15275
15276
15277 crispr 3
15278 1021325 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AGGCGCAGGACCTGGGCTGTAATC spacer length:
24 repeater length: 35
15279 1021385 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AAATTGTTCAAAAGGATCTTATGAA spacer length:
25 repeater length: 35
15280 1021446 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT TCCATCATTCGCGGTATAATAGATAC spacer length:
25 repeater length: 35
15281 1021507 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AATTTAGAGATAATAAGAAAAAAC spacer length:
24 repeater length: 35
15282 1021567 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GTGACCTGTGCACCAGGACTCATG spacer length:
24 repeater length: 35
15283 1021627 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GTGTTAGCAATATCTATCACCTGTAG spacer
length: 26 repeater length: 35
15284 1021689 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT ATAAGGTTGAACTATAAATTCTGAA spacer
length: 26 repeater length: 35
15285 1021751 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AAACCTAACCAGCCGATACTCAGGC spacer length:
25 repeater length: 35
15286 1021812 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GTACACTCAGGGTGTCTGGCTCTAC spacer length:
25 repeater length: 35
15287 1021873 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AGCTGAAACCTGATTAGTAACGGCCG spacer
length: 26 repeater length: 35
15288 1021935 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GGATTGATAAAAGTTGTATCTATTG spacer length:
25 repeater length: 35
15289 1021996 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GTCTTAGGTGATAAAATGAACAACG spacer length:
25 repeater length: 35
15290 1022057 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GGCTGATAACCCTGAATGCGATGAGAG spacer
length: 27 repeater length: 35
15291 1022120 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AAGAGTTGAATCCCGACCTGAAGGT spacer length:
25 repeater length: 35
15292 1022181 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT ACTGAGATTGCGCCTGCGCCGTGGA spacer length:
25 repeater length: 35
15293 1022242 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GCCCACAGTTTTACAAGTCCGATA spacer length:
24 repeater length: 35
15294 1022302 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT GACAAATTAAACAACATGAAAGAGCA spacer
length: 26 repeater length: 35
15295 1022364 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT TAAATGCGCCATGCGTCCCCGCTGG spacer length:
25 repeater length: 35
15296 1022425 CTCAAAACTCATTCGAATCTCTACTCTTTGTAGAT AACACGGCGTTGATTGCGTCCGCGTC spacer

length: 26 repeater length: 35
15297 1022487 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GGCACAGTTATGGATAATAACCTTCC spacer
length: 26 repeater length: 35
15298 1022549 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GTACTGCACACCCGACAGCGTGGTA spacer length:
25 repeater length: 35
15299 1022610 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AATGCAGTTAAGCTATTAGCTTAAC spacer length:
25 repeater length: 35
15300 1022671 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GAGGGATGGACTACTTGCCAGACGTA spacer
length: 27 repeater length: 35
15301 1022734 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GTAATGTGTCAAGCACATACTATGCG spacer
length: 26 repeater length: 35
15302 1022796 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TAGATATACTCGAAGTCTCGAACAT spacer length:
25 repeater length: 35
15303 1022857 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AGATCAACTTCGATCATCCGAGGA spacer length:
24 repeater length: 35
15304 1022917 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AACGGAGAACGAAAGATCCTGTCCTC spacer
length: 26 repeater length: 35
15305 1022979 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TAACATAACCTTCGCTTCCTGTATCG spacer
length: 26 repeater length: 35
15306 1023041 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT ACGTTCACTAATCTCACTGGCTGTAA spacer
length: 26 repeater length: 35
15307 1023103 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TTTGTGAACGAAATAACTGCCACAT spacer length:
25 repeater length: 35
15308 1023164 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GTATGAGAACCTTGTGATTGGGGTA spacer length:
25 repeater length: 35
15309 1023225 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TCGGAGCTCCAGGGCGGAATGTGCGC spacer
length: 26 repeater length: 35
15310 1023287 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TATACGGTATCGGATAACGCAGGA spacer length:
24 repeater length: 35
15311 1023347 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AGTGCGCCCTCAAGTACGGAAAATA spacer length:
25 repeater length: 35
15312 1023408 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AAGTAGTCAAGGACTTTTGTAAACGG spacer length:
25 repeater length: 35
15313 1023469 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TCTCAAGATACTGGTTCTGATCGCA spacer length:
25 repeater length: 35
15314 1023530 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AGTATCGCCGAGTAGTCCCAATTCAA spacer
length: 26 repeater length: 35
15315 1023592 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AAATACACACCAACAGAGTTTTAA spacer length:
24 repeater length: 35
15316 1023652 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TAATAAGAAGGAACGCCTAAGTTGGA spacer
length: 26 repeater length: 35
15317 1023714 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TAACAGCAACCAAGGCCATCACAGTAT spacer
length: 27 repeater length: 35
15318 1023777 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TCAGGTAATGTTTCCTTCTCAGACAG spacer length:
25 repeater length: 35
15319 1023838 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GACGCCATTCTCGGTGCGTATCGAC spacer length:
25 repeater length: 35
15320 1023899 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT CAAGATACACACCCGGTGTGTAAGGA spacer
length: 26 repeater length: 35
15321 1023961 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT TGTAAGAAAAGGGGTGGTTTCGGTGCT spacer
length: 27 repeater length: 35
15322 1024024 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT CTCACTCAGCTAACGAACCTCACAG spacer length:
25 repeater length: 35
15323 1024085 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT CACAACAGATCGGCCTTGATGCATGG spacer
length: 26 repeater length: 35
15324 1024147 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AACACGTCCATAATCTTAACCAGAT spacer length:
25 repeater length: 35
15325 1024208 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AAGTCCGCCATAACCTTTCTTTGT spacer length:
25 repeater length: 35
15326 1024269 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GTCATGGATACGAGGCTTGATTGTG spacer length:
25 repeater length: 35
15327 1024330 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AAATTCGGTGATGGACAGGGCACGGC spacer
length: 26 repeater length: 35
15328 1024392 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AGTTATCATTTTCGCGCTCAAACCTCT spacer length:
25 repeater length: 35
15329 1024453 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AATATATATACGCGGAGCAACTGG spacer length:
25 repeater length: 35
15330 1024514 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT GGCAGCAATCCGCGGATGAGCCCAA spacer length:
25 repeater length: 35
15331 1024575 CTCAAAACCTCATTCGAATCTCTACTCTTTGTAGAT AGTGGCAGGGCACAAATTTGGAGAAA
15332

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15333 GCA_000802205.2_ASM80220v2_genomic.fna(findCrispr):
15334 START REPEAT
15335 SPACER
15336 crispr 1
15337 1333783 GTGTGAATGACCTTGTGTTGGT
ATTGCTATCTACTACTAATACCTCTCCTAAGTTGCCTATATACATGTTACCATTGCTTGGATTATATTTTAGAAATTGAGGGCTAT
CTCCAGCATCAAT spacer length: 99 repeater length: 20
15338 1333903 GTGTGAATGACCTTGTGTTGGT
ATTGCTATCTATTACTAAAACTGATCCAAAGTTACTAGCGTACATGTTACCATTACTCGGATTATATTCTAAAACATTAGGACTGC
CGTTTACTTGTAT spacer length: 99 repeater length: 20
15339 1334023 GTGTGAATGACCTTGTGTTGGT
AACAATGCAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAAGATCAAGA
TAGTGAACAGAAT
15340
15341
15342 crispr 2
15343 9832 TTGG
CCTATACCTTGGTTAGCCTTGTACC GCCACTGCCACTACCGCCACTTTGGGCTGCTGCATTGTTTCCGGTGTAGTTTGGCTTTG
AGTATTCTTGTGCTACATGAATTGCTTAAGGAACCGCTGCTACACATTGTGCGTTTTGGTTAGAGGATTGTG spacer
length: 160 repeater length: 4
15344 9997 TTGG
CCTATACCTTGGTTAGCAGTGTACC GCCCTTTACCACTACCACCTTGTGTCTACTGCATTGCTTCCGCTGTTTGCTTGATTTTG
AGTACTGGTGTATTACATGAATTAGCTACGTTTCCCTCCACCAACGCATTGTGCGTTTTGATTAGAGGTTTGTG spacer
length: 160 repeater length: 4
15345 10162 TTGG
CCTATACCTTGGTTAGCAGTGTACC GCCCTTTACCACTACC GCCACTTTGGGCTGCTGCATTGTTTCCGCTGTTTGCTTGATTTTG
ATTATTTACGTTATTACATGAATTTGCTGTATTTCCACCAGATACACATTGTGCGTTTTGATTAGAGGTTTGTG spacer
length: 160 repeater length: 4
15346 10327 TTGG
AATGCAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAAGATCAAGATAG
TGAACAGAATTCCCAATGTGTTTCAGGCGAAGATGCAACTGTTTCTTGTAACAACGTTAGTTTCCAAAATCAAG
15347
15348
15349 crispr 3
15350 2551698 CTGCTACTGCTACTGCTTGAA TCGCCGTCGTCGTCATTGCT spacer length: 20 repeater
length: 21
15351 2551740 CTGCTACTGCTACTGCTTGAA TCGCCGTCGTCGTCATTGCT spacer length: 20 repeater
length: 21
15352 2551782 CTGCTACTGCTACTGCTTGAA
TCGCCGTCGTCGTCATTGCTACTGCTACTGCTTGAATCGCCGTCGTCGTCATTGCTACTGCTACTGCTTGAATCGCCGTCGTCGTC
ATTGCT spacer length: 92 repeater length: 21
15353 2551896 CTGCTACTGCTACTGCTTGAA TCGCCGTCGTCGTCATTGCTACTGCTACTGCT spacer length: 32
repeater length: 21
15354 2551950 CTGCTACTGCTACTGCTTGAA TCGCCGTCGTCGTCATTGCT spacer length: 20 repeater
length: 21
15355 2551992 CTGCTACTGCTACTGCTTGAA
TCGCCGTCGTCGTCATTGCTACTGCTTGAATCGCCGTCGTCGTCATTGCTACTGCTTGAATCGCCGTCGTCGTCATTGCTACTGCT
spacer length: 86 repeater length: 21
15356 2552100 CTGCTACTGCTACTGCTTGAA TCGCCGTCGTCGTCATTGCT spacer length: 20 repeater
length: 21
15357 2552142 CTGCTACTGCTACTGCTTGAA
TCGCCGTCGTCGTCATTGCTACTGCTACTGCTTGAATCGCCGTCGTCGTCATTGCT spacer length: 56 repeater
length: 21
15358 2552220 CTGCTACTGCTACTGCTTGAA CAATGCAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATG
15359
15360
15361 crispr 4
15362 3149793 TCGCCAAAAGTTTTGTTGGTTTTTG
TAAGTTGACATTGTTTCTTGAGCCTATTGAATCTCCACCAGAACTACAAGGCTTCTTTGGTTTGAGGATTGTTCTTGGCCAATTG
CTTGGTTTGCAGAGTTGCCGCTACCTTTACCGTTGCCGCCACTTTGACCTGCTACGTT spacer length: 144
repeater length: 23
15363 3149961 TCGCCAAAAGTTTTGTTGGTTTTTG
TAAGTTGAGGTTATTTCCAGATAGAATGGAATCTCCACCAGAACTACAAGGCTTCTTTGGTTTGAGGATTGTTCTTGGCCAATTG
CTTGGTTTGCAGAGTTGCCGCTGATTTACCGTTGCCGCCACTTTGACCTATTGTGTT spacer length: 144
repeater length: 23
15364 3150129 TCGCCAAAAGTTTTGTTGGTTTTTG
TAAGTTTGCAATTATTACAAGATACAGTAGCATCTTCTCCTGAAACACATAATGCATTTTGGTTAGAGGATTGTGATTGACCGATTC
CTTGGTTTGCAGAGTTGCCGCTACCTTTACCGTTGCCGCCACTTTGACCTGCTGTGTT spacer length: 144
repeater length: 23
15365 3150297 TCGCCAAAAGTTTTGTTGGTTTTTG

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GGCACTCAAGTTATTGCAGGATGCAGCTATACTCCCTCCAGCAACACATAATGCATTTTGGTTAGAGGATTGTGATTGACCGATTC
CTTGGTTTGCAGAGTTGCCGCTACCTTTACCGTTGCCGCCACTTTGACCTGCTGTGTT spacer length: 144
repeater length: 23

15366 3150465 TCGCCAAAGTTTTGTTGGTTTTG
GGCACTCAAGTTATTGCAGGACACATCTATATCTCCGCCAGCAACACATAATGCATTTTGGTTAGAGGATTGTGATTGACCGATTC
CTTGGTTTGCAGAGTTGCCGCTACCTTTACCGTCGCCTCCTATTTGACCTGCTACGTT spacer length: 144
repeater length: 23

15367 3150633 TCGCCAAAGTTTTGTTGGTTTTG
GATATTGAAAAGGCCAGTATCTTCGAGAACTCAAATTTCAATTCCGCTGAAAAGAGAGGTCCCGGTAATAATCAAGAATCCATATGT
TCGCGAAGAGGTAGTTATAAGAAAAAAACCAGTGAAGGAAACCAAATAATTACTTCA

15368
15369
15370 crispr 5
15371 2903630 ACTACAAAGCTGCCTGTATCGTTAG
TTAATACAATTCCTGCAGCAGCACTACGTGGGATGAAATAGTTAGTGGTGGAGTTTTTTTATCTGAAGTACATTTGAAGCGTCACTG
GAGTTACTTGAGACAGCAATGTTAATGGAGTTACT spacer length: 121 repeater length: 25

15372 2903777 ACTACAAAGCTGCCTGTATCGTTAG
TTAATACAATTCCTGCTGCAGCAGCAGCACTACTTGGGATAGAAATGTTAGTGGTGGAGTTTTTTTATGTGAAGTACATTTGAAGCA
TTACTTGGGATAGAAATGTTGGTGGAGTTACT spacer length: 118 repeater length: 25

15373 2903921 ACTACAAAGCTGCCTGTATCGTTAG
AGATAACCCTTCCTGCAGCAGTATTACTAGAGATGGCAATATTAGTGGAGTTACT spacer length: 55 repeater
length: 25

15374 2904002 ACTACAAAGCTGCCTGTATCGTTAG
AGCCTCTGGTGGCAACACTGCAGGTTTCAGGAAACAACGCAAACACTCAGACTCAA

15375
15376
15377 crispr 6
15378 1846691 CTGACCAAACCCAAGGGTTAGGAGG
ATCAGATGTTGAAAAGCCAGTATCTTCTCAAACCCCTCCTAGTCAAACCCTT spacer length: 52 repeater
length: 25

15379 1846769 CTGACCAAACCCAAGGGTTAGGAGG
TTCAGATGTTGAAAAGCCAGTATCTTCTCAAACCCCTCCTAGTCAAACCCTT spacer length: 52 repeater
length: 25

15380 1846847 CTGACCAAACCCAAGGGTTAGGAGG TTGTTTGTGTTGTTTCATTATCATCACTGCTTGTTTGTTCATTATCATCACTGC
15381
15382
15383 crispr 7
15384 165825 GCCATTAAGTTTACTCTTTATGAAA
CCATCACCGGTAATTGTCCACTGCTGACCCAAGCCATTATTTTGTGGCCAGGTTTGTATATAAGCACCTGGACGTGGATCTGATGC
ACGAATTTCAAGAACCA spacer length: 103 repeater length: 25

15385 165954 GCCATTAAGTTTACTCTTTATGAAA
CCATCACCGGTAATTGTCCACTGCTGACCCAAGCCATTATTTTGTGTCCAAGTTTGTATAAAAGCACCGGGACGTGGATCTGATCC
TGGAATATCAAGAACCA spacer length: 103 repeater length: 25

15386 166083 GCCATTAAGTTTACTCTTTATGAAA
CTTGGTTTACAAGTCTTAGGGAAGTATTTTGTAGCTTGGTTAAAGGCCTCGTTGTTTACATAATTGGTTCCTATATTTTGGGCATAG
ACTACAGGGGCCAAAGC

15387
15388
15389 crispr 8
15390 248998 GGTAAGTATTTCAGAAAGCTATAAAAT
GGTTTGATAAAGCTCTAGCGATAAAATCCCAATTATACCTCTGCTTTGGAGGAAAAAGGCCTTACATATGAAAATCA spacer
length: 76 repeater length: 25

15391 249100 GGTAAGTATTTCAGAAAGCTATAAAAT
GGTTTGATAAAGCTCTAGCGATAAAATCCCAACTATGCATATGCTTTTAATGATAATGCTAATACATTATTCGAGAA spacer
length: 76 repeater length: 25

15392 249202 GGTAAGTATTTCAGAAAGCTATAAAAT
ACTTTGACAAGGCACTTCAAGTCAACCCCAATGATGGCTATATACTAACTGCAAAAGGAAGTGTATTACGTGATAT spacer
length: 76 repeater length: 25

15393 249304 GGTAAGTATTTCAGAAAGCTATAAAAT
ACTTTGACAAGGCACTTCAAGTCAACCCCAATGATGGCTATATACTAACTGCAAAAGGAAGTGTATTGCTTGCTCT spacer
length: 76 repeater length: 25

15394 249406 GGTAAGTATTTCAGAAAGCTATAAAAT
AACAGTTGATGTTGGAGATGGTCCATCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATGTGACCAACCCA

15395
15396
15397 crispr 9
15398 2588932 AGTTGCCGTTGCTGTCAAACTTTTGGA
CACGATGATTTTTCATCGTCAGTTACATACACAAAGGCTGAAGCATCCACGGCTACCCCTTTGGGAAACTTGAAGTCCCCCTTGTC
GAGCCTTTGTTTCCCCATTCATAATG spacer length: 113 repeater length: 27

15399 2589073 AGTTGCCGTTGCTGTCAAACTTTTGGA
TACGGCAGTTGCCATCATCAGCTACATATAAGTGGCCTGCAGCATCCACGGCTACCCCTTTGGGAAACTTGAAGTCCCCCTTGTC

GAGCCTTTGTTTCCCCATTCACATAATG spacer length: 113 repeater length: 27
15400 2589214 AGTTGCCGTTGCTGTCAAACCTTTTGGA
TGCGATGATTTGCATCGTCGGCTACGTATACATGGTCATTGGAGTCCACTGCAATACCATAAGGGTGCTTCATTTGACCATCTCTC
GAACCTTCTGAACCCACGCTGTAATA spacer length: 113 repeater length: 27
15401 2589355 AGTTGCCGTTGCTGTCAAACCTTTTGGA
CACGATGATTTTCATCGTCAGTTACATACACAAAGGCTGAAGCATCCACGGCTACCCCTTTGGGAAACTTGAACCTCCCCCTTGTC
GAGCCTTTGTTTCCCCATTCACATAATG spacer length: 113 repeater length: 27
15402 2589496 AGTTGCCGTTGCTGTCAAACCTTTTGGA
TATTGCTGCAGCAGCACTACGTGGGATGGAATAGGTTGTGGTGGATTACTCTCGCCCAATTTGGTCAGAAGAAGGTTCTTTCCTT
CACTCTCTGACAAGTTATTTACGGTTT
15403
15404
15405 crispr 10
15406 2339329 AAAGTTACCTTCGCTATCAAACCTTTTGAA
CGTTATTGTTATCAGTATCTGTGACGTATATATTGTCCAAAGAATCTATGGCAACGCCTTCGGGAGCATTGAATTGACCATCACCA
GTACCCATTGAACCCCATTTAAACA spacer length: 111 repeater length: 29
15407 2339470 AAAGTTACCTTCGCTATCAAACCTTTTGAA
TATTAAGTTTGCCATGTCACCTTACGTAGGAGTTACCTACAGAATCCAATTTTATAGTATGAGGATGCATGAATTGACCATCACCA
GTACCCATTGAACCCCATTTAAACA spacer length: 111 repeater length: 29
15408 2339611 AAAGTTACCTTCGCTATCAAACCTTTTGAA
CGTTATTGTTATCCATATCAACAACATAAACATTCCTATCTTTGTCTACATCTACTCCATGAGGTACTCCGAAGTACCCTGCTGCC
TTACCTTTTGACCCCACTTTGAGA
15409
15410
15411 crispr 11
15412 885411 CCACTACCACCTTGTTGTGCTGCTGCGTT
GTTTCCAGTGTTTGTGTTGACTTTGTGTGTTTGCCTTGTTCCTGAACCAGCAGTGTTGCCCCAGATACTACACCACTACCTTGGT
TAGAGGATTGTGATTGGCCTATACCTTGGTTAGCTGTGTTGCCACCTTT spacer length: 135 repeater
length: 29
15413 885576 CCACTACCACCTTGTTGTGCTGCTGCGTT
ACTACCGGTGTTATTTTGACTTTGTGTGTTTGCCTTGTTCCTGAACCAGCAGTGTTGCCACCAGATACTACACCACTACCTTGGT
TAGAGGATTGTGATTGACCAATTGCTTGGTTAGCTGTGTTGCCACCTTT spacer length: 135 repeater
length: 29
15414 885741 CCACTACCACCTTGTTGTGCTGCTGCGTT
TGATGGAACAATGCAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAAG
ATCAAGATAGTGAACAGAATTCCCAATGTGTTTCAGGCGAAGATGCAAC
15415
15416
15417 crispr 12
15418 2984522 TCGATGGCTTTGTCGTAGCAGGCTATGGC
TTCTTGTTATCTCCTAAATAAATAACAAAGATAGGCCTTTGTTGTTGTAGGCATCAGCATACTGTGGGTTTAT spacer
length: 72 repeater length: 29
15419 2984624 TCGATGGCTTTGTCGTAGCAGGCTATGGC
TTCTTGTTATTTCCAGTAACCGGCAAACTAAACCTTTGTTGCAAAATGCGAGATCATATTTGGGGTTTAT spacer
length: 72 repeater length: 29
15420 2984726 TCGATGGCTTTGTCGTAGCAGGCTATGGC
ATCCTGACTTCCAATGTAATATAAAGACAAGCCTTTGTTGTTGTAGGCATCAGCATACTGTGGGTTTAT spacer length:
69 repeater length: 29
15421 2984825 TCGATGGCTTTGTCGTAGCAGGCTATGGC
TTCTTGTTATCTCCTAAATAAATAACAAAGATAGGCCTTTGTTGTTGTAGGCATCAGCATACTGTGGGTTTAT spacer
length: 72 repeater length: 29
15422 2984927 TCGATGGCTTTGTCGTAGCAGGCTATGGC
TTCTTGTTATTTCCAGTAACCGGACAAGGCTATACCTTTGTTGTAAAATGCAAGATCATATTCGGGGTTTAT spacer
length: 72 repeater length: 29
15423 2985029 TCGATGGCTTTGTCGTAGCAGGCTATGGC
TTCTTGTTATCTCCTAAATAAATAACAAAGATAGGCCTTTGTTGTTGTAGGCATCAGCATACTGTGGGTTTAT spacer
length: 72 repeater length: 29
15424 2985131 TCGATGGCTTTGTCGTAGCAGGCTATGGC
TTCTTGTTATTTCCAGTAACCGGACAAGGCTATACCTTTGTTGTAAAATGCAAGATCATATTCGGGGTTTAT spacer
length: 72 repeater length: 29
15425 2985233 TCGATGGCTTTGTCGTAGCAGGCTATGGC
CAGCACTACTACTACTACCACCAGCAGTAGCAGCAGCAAAGGCGATGTGCCTATGGCTTTACCATTTAATTC
15426
15427
15428 crispr 13
15429 1322331 AACGATGACAACAATAATGACAAGAGCAGCA ATAACAATGACAACAATAATAACAATAACAA spacer
length: 31 repeater length: 31
15430 1322394 AACGATGACAACAATAATGACAAGAGCAGCA ATAACAACAATAATAACAATAACAA spacer length: 25
repeater length: 31
15431 1322451 AACGATGACAACAATAATGACAAGAGCAGCA GTAAAAAAGGCAATGGCGGTAATGA
15432

15433
15434 crispr 14
15435 2899007 ATTTGTCCTTGTCCAAGCATTCCTAAAGATG ATGGTCTTTGTTGAGATTGATCCATTGC spacer length:
28 repeater length: 31
15436 2899067 ATTTGTCCTTGTCCAAGCATTCCTAAAGATG GTCTTTGTTGAGATTGATCCATTGC spacer length: 25
repeater length: 31
15437 2899124 ATTTGTCCTTGTCCAAGCATTCCTAAAGATG GATTGACCGATTTCCTTGGTTTGCAG
15438
15439
15440 crispr 15
15441 1486172 TCAGCCAACCAAGGAATTGGACAATCACAAA
GCTCAAACCAAGGTAGTGGTGTAGCCTCTGGTGGCAATACAACCTGATTCTGGAAACAACCTCCAATAATCAAAGCCAACTAACACC
GGAAACAACGCAGCAGCACAAAAGTGGTGGCAGTGGTAGTGGTGGCAA spacer length: 133 repeater length: 31
15442 1486337 TCAGCCAACCAAGGAATTGGACAATCACAAA
CTTCCAACCAAGGTAGTGGTGTAGCCTCTGGTGGCAACACTGCAGGTTTCAGGAAACAACGCAAACACTCAGACTCAAAACAACACT
GGGAGTAACGCTGTAGGACAACAAGGTGGCAGTGGTGGTGGTGCCAA spacer length: 133 repeater length: 31
15443 1486502 TCAGCCAACCAAGGAATTGGACAATCACAAA
CTTCCAACCAAGGTAGTGGTGTAGCCTCTGGTGGCAATACAACCTGATTCTGGAAACAACCTCCAATACTCAAAGTCAAACCTAACACC
GGAAACAACGCAGCAGCTCAGCAAGGTGGCAGTGGTAGTGGTGGCAA spacer length: 133 repeater length: 31
15444 1486667 TCAGCCAACCAAGGAATTGGACAATCACAAA
CTTCCAACCAAGGTAGTGGTGTAGCCTCTGGTGGCAACACTGCAGGTTTCAGGAAACAACGCAAACACTCAGACTCAAAACAACACT
GGGAGTAACGCTGTAGGACAACAAGGTGGCAGTGGTAGTGGTGGCAA spacer length: 133 repeater length: 31
15445 1486832 TCAGCCAACCAAGGAATTGGACAATCACAAA
CCTCAAACCAAAAACGCACAATGTGTTGCTGGTGGAAATACCGCAAATTCATGTAACAACACAAATACTCAAAACCAAGCCAATAGC
GGAAATAACGCAGCTGCTCAAAGTGGCGGCAGTGGTAGTGGTGGCAA spacer length: 133 repeater length: 31
15446 1486997 TCAGCCAACCAAGGAATTGGACAATCACAAA
CCTCCAATCAAAATGCACAATGTGTAGGTGGCAGTAACGTAGCTGATTTCATGTAATAATACAAGCACTCAAAACCAAGCAAATAGT
GGCAGTAACGCTGTAGGACAACAAGGTGGCAGTGGTAGTGGTGGCAA spacer length: 133 repeater length: 31
15447 1487162 TCAGCCAACCAAGGAATTGGACAATCACAAA
CCTCAAACCAAAAACGCACAATGTGTAGCAGGCGGCTCGTTAAGCAATTCATGTAGCAACAAAAATACTCAAAGTCAAACCTAACACC
GGAAATAACGCAGCTGCTCAAAGTGGCGGCAGTGGTAGTGGTGGCAA spacer length: 133 repeater length: 31
15448 1487327 TCAGCCAACCAAGGAATTGGACAATCACAAA
CTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAAGATCAAGATAGTGAACAGAAT
TCCCAATGTGTTTCAGGCGAAGATGCAACTGTTTCTTGTAACAACGT
15449
15450
15451 crispr 16
15452 1697683 TCAAAACACCAATGCTAGTGATATCCCTATCAAA
CAAATAATGGAGGCAACTCCTTCCAATGCAACAGCCCTCCAAGATATTGTCAAAAATAATTCTAATAAAGCAGCTCAAAACAAAGA
CAATGCTACTTTAAACACAGCAATTCCTCTAGACCTCAGGATCTCATTCCAGTCGTTGTTAATATGA spacer length:
154 repeater length: 34
15453 1697872 TCAAAACACCAATGCTAGTGATATCCCTATCAAA
AATATAATTAATACTGTTCCCTTCCAATGCAACAGCCCTCCAAGATATTGTCAAAAATAATTCTAATAAAGCAGCTCAAAACAAAGA
CAATGCTACTTTAAACAACAGCAATTCCTCTAGACCTCAGGATCTCATTCCAGTCGTTGTTAATATGA spacer length:
154 repeater length: 34
15454 1698061 TCAAAACACCAATGCTAGTGATATCCCTATCAAA
AAGGTAGTGGTGTAGCCTCTGGTGGCAACACTTCAGGAAACAACGCAAACACTCAGACTCAAAACAACACTGGGAGTAAC
GCTGTAGGACAACAAGGTGGCAGTGGTAGTGGTGGCAATTTCAGCCAACCAAGGAATTGGACAATCACA
15455
15456
15457 crispr 17
15458 56461 TTGGTTTTGTGCATTCAAGTTATTACAAGAACTA
AAGTTCCGGTACCTGATACATAGTGCCTTTTGGTTAGAGGATTGTGATTGACCGATTGCTTGGTTAGCTGTGTTGCCACCACTT
TTACCTTTTCCGCTTCCACTGCCACCTTGTTGTGCTAATGCGTTATTTCCGGTGTGTT spacer length: 144
repeater length: 35
15459 56641 TTGGTTTTGTGCATTCAAGTTATTACAAGAACTA
TAGTTCCGGTACCTGACAAACATGCTGCGTTTTGGTTAGAGGATTGTGATTGGCCTATGCCTTGGTTAGCCTTGTTACCGCCTTTA
CCAGTACCTCCTTGTTGTGCGGTGCATTGTTTTCCGCTGTTTG spacer length: 129 repeater length: 35
15460 56806 TTGGTTTTGTGCATTCAAGTTATTACAAGAACTA
AAACGCACAATGTGTTGCTGGTGGAAATACCGCAAATTCATGTAACAACACAAATACTCAAAACCAAGCCAATAGCGGAAATAACG
CAGCTGCTCAAAGTGGCGGCAGTGGTAGTGGTGGCAATTCAGC
15461
15462
15463 crispr 18
15464 2351508 TAATTCCATTTTGTGTTGGGTTGTTGTCACCAACTA
AACTTTGACTAGATGGGTTTGTATCTTCAGTGTTAGAGGGAGCATCTCTGTTAGTAACTTGCTTATAATGTGCG spacer
length: 74 repeater length: 36
15465 2351619 TAATTCCATTTTGTGTTGGGTTGTTGTCACCAACTA
GGCTTTGACTAGATGGGTTTGTATCTTCAGTGTTAGAGGGAGCATCTCTGTTAGTAACTTGCTTATAATGTGCG spacer
length: 74 repeater length: 36
15466 2351730 TAATTCCATTTTGTGTTGGGTTGTTGTCACCAACTA

AAATGCACAATGTGTAGGTGGCAGTAACGTAGCTGATTCATGTAATAATACAAGCACTCAAAACCAAGCAAATAG

crispr 19

9991 TTGTGATTGGCCTATACCTTGGTTAGCAGTGTACC GCC
TTTACCCTACCACCTTGTGTCTTACTGCATTGCTTCCGCTGTTTGCTTGATTTTGGTACTGGTGTATTACATGAATTAGCTA
CGTTTCCCTCCACCAACGCATTGTGCGTTTTGATTAGAGG spacer length: 125 repeater length: 39
10156 TTGTGATTGGCCTATACCTTGGTTAGCAGTGTACC GCC
TTTACCCTACCGCCACTTTGGGCTGCTGCATTGTTTCCGCTGTTTGCTTGATTTTGGTATTATTACATGAATTTGCTG
TATTTCCACCAGATACACATTGTGCGTTTTGATTAGAGG spacer length: 125 repeater length: 39
10321 TTGTGATTGGCCTATACCTTGGTTAGCAGTGTACC GCC
GCACAATGTGTAGCAGGCGGCTCGTTAAGCAATTTCATGTAGCAACAAAATACTCAAAGTCAAATAACACCGGAAATAACGCAGC
TGCTCAAAGTGGCGGCAGTGGTAGTGGTGGCAATTCAGC

crispr 20

602227 AACGTAAGTGTCCAAAACCAAGATAATGATGGAAACAATG
CAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAAGGGCGGTAATGATGCTGACCAAGGTATAGGCCAATCTCAATCGTCAAAA
CAGAATTCCCAATGTGTCTCTGGTGACGATACAAATGACTCTTGTA spacer length: 133 repeater length: 40
602401 AACGTAAGTGTCCAAAACCAAGATAATGATGGAAACAATG
CAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAATCTCAATCGTCAAAA
CAGAATTCCCAATGTGTCTCTGGTGGCAGTCTGGGTAATTCTTGTA spacer length: 133 repeater length: 40
602575 AACGTAAGTGTCCAAAACCAAGATAATGATGGAAACAATG
GCAGTGTAGTCTCTGGTCCCAGCACTGTTGATTCTGGAAACAACGCAAACCTCACAAGCCAAGACAACAGTGGAAACAATGCAGCA
GCACAAGAAGGAGGTAGCGGTGATAGCGGTGATAGCGGTGATAGCGG

crispr 21

3150230 ACCGATTCCCTTGGTTTGCAGAGTTGCCGCTACCTTTACCG
TTGCCGCCACTTTGACCTGCTGTGTGTGCGCCAAAGTTTTGTTGGTTTTGGGCACTCAAGTTATTGCAGGATGCAGCTATACTCCC
TCCAGCAACACATAATGCATTTTGGTTAGAGGATTGTGATT spacer length: 127 repeater length: 40
3150398 ACCGATTCCCTTGGTTTGCAGAGTTGCCGCTACCTTTACCG
TTGCCGCCACTTTGACCTGCTGTGTGTGCGCCAAAGTTTTGTTGGTTTTGGGCACTCAAGTTATTGCAGGACACATCTATATCTCC
GCCAGCAACACATAATGCATTTTGGTTAGAGGATTGTGATT spacer length: 127 repeater length: 40
3150566 ACCGATTCCCTTGGTTTGCAGAGTTGCCGCTACCTTTACCG
TCGCTCTTATTTGACCTGCTACGTTATCGCCAAAGTTTTGTTGGTTTTGTAAGTTTGCATTATTACAAGATAGAGCTACATCCTC
ACCAGCAACACATAATGCATTTTGGTTAGAGGATTGTGATT spacer length: 127 repeater length: 40
3150734 ACCGATTCCCTTGGTTTGCAGAGTTGCCGCTACCTTTACCG
GTTTCAGGAAACAACGCAAACACTCAGACTCAAACAACACTGGGAGTAACGCTGTAGGACAACAAGGTGGCAGTGGTAGTGGTGGC
AATTCAGCCAACCAAGGAATTGGACAATCACAACCTCAAA

crispr 22

1486341 CCAACCAAGGAATTGGACAATCACAACCTTCCAACCAAGG
TAGTGGTGTAGCCTCTGGTGGCAACACTGCAGGTTTCCAGGAAACAACGCAAACACTCAGACTCAAACAACACTGGGAGTAACGCTG
TAGGACAACAAGGTGGCAGTGGTGGTGGTGCCAACTCA spacer length: 124 repeater length: 40
1486506 CCAACCAAGGAATTGGACAATCACAACCTTCCAACCAAGG
TAGTGGTGTAGCCTCTGGTGGCAATACTCAACTGATTCTGGAAACAACCTCAATACTCAAAGTCAAATAACACCGGAAACAACGCAG
CAGCTCAGCAAGGTGGCAGTGGTAGTGGTGGCAATTCA spacer length: 124 repeater length: 40
1486671 CCAACCAAGGAATTGGACAATCACAACCTTCCAACCAAGG
CAGATGATGTCTCTGTTATAGAAACAACGGGCTCCAAACCTATTGTTGATGCAATATCCGATCAATCAATAAGCATTAGAAATTTA
GTTCTTTCGTATGGAAACAATATGTAGACGATGATGAT

crispr 23

3100766 CCTGCTACATTGTTTCCGAAGTTGGTTTGCTCTTGTTAC
TTAGGTTGTTGCAAGAGGCACTAGTATCATCGCCAGAAACACATAAGCTTCTTTGGTTTGCTGATTGGGATTGGCCTATACCTTGT
GTTGCAGTATTGCCGCTTCCGCTACCACTGCCGCTTGTG spacer length: 127 repeater length: 40
3100934 CCTGCTACATTGTTTCCGAAGTTGGTTTGCTCTTGTTAC
TTAGGTTGTTGCAAGAGGCACTAGTACTACCGCCAGAAACACAAAGGCTACCTTGGTTTGCTGATTGGGATTGGCCTATACCTTGT
GTTGCAGTATTGCCGCCACCTTTATATCCGCTGCCGCTTGTG spacer length: 130 repeater length: 40
3101105 CCTGCTACATTGTTTCCGAAGTTGGTTTGCTCTTGTTAC
TTAGGTTGTTGCATGAGCCGAAGGTGCCATCACCCTTACACAACTGCACCTTGCTTTACTGATTGGGATTGGCCTATACCTTGT
GTTGCAGTATTGCCGCTTCCGCTACCACTGCCGCTTGTG spacer length: 127 repeater length: 40
3101273 CCTGCTACATTGTTTCCGAAGTTGGTTTGCTCTTGTTAC
TCTTCGAGAACTCAAATTTCAATTCCGCTGAAAAGAGAGGTCCCGGTAATAATCAAGAATCCATATGTTTCGCGAAGAGGTAGTTAT
AAGAAAAAAAACCAAGTGAAGGAAACCAAAATAATTACTTCAG

crispr 24

1909487 CGGCGGCAACAGCGCCAACCAAGGAATCGGCCAATCACAA

GAATCAGAACAAAGTGCATTATGTGTTTCTGGAGAAGGGACATTTCATATCTTGTAACAACCTGAACTTCCAAAACCAAGAAAATAG
TGGAAGCAATGCACTATTACAAAGTGGAGGAAATGGTGGTGATGATGACGATTATA spacer length: 142 repeater
length: 40

15503 1909670 CGGCGGCAACAGCGCCAACCAAGGAATCGGCCAATCACAA
TCATCCAGTCAAAAAAGTGGAGTAGTCTCTGGTGACGATTGAGTATTATCAGGTAACAACATAAACGTACAAAACCAAGAAAATAG
TGGAACAATGCAGCAGCACAAAGTGGAGGAAATGGTGGTGATGATGACGGTGACGATA spacer length: 142 repeater
length: 40

15504 1909853 CGGCGGCAACAGCGCCAACCAAGGAATCGGCCAATCACAA
GCACTACTACTACTACCACCAGCAGTAGCAGCAGCAAAGGCGATGTGCCTATGGCTTTACCATTTAATTCAAATATGGCCGATGAA
TCCGATGATGAGAAGGATTATTCTAGTGTAAATCCCTTTCCCATGATTTCAAAAATA

15505
15506
15507 crispr 25

15508 1475998 CTGATCAGGCCCTTTTCAGACATATTCAATAAGGTAGGTCC
CTTGCTGGGCCTTTTGATGAGTGGGGCTAATTCTTCCTCCTCCTCCTCCTTACCCCTCTCCTCTTTCTCGCAATCAAACGAATCCT
TTGGTGCAAGTAGCTTTGATAACCAATCCTCATTTCCGTCTTCCACCATCCAATCCGCAAGC spacer length: 148
repeater length: 40

15509 1476187 CTGATCAGGCCCTTTTCAGACATATTCAATAAGGTAGGTCC
CTTGCTGGGCCTTTTGATGAGTGGAGGTGGTTTGCCCTCTTCTTCCTCCTCCTTACCCCTCTCCTCTTTCTCGCAATCAAACGAAT
CCTTTGGTGCAAGTAGCTTTGATAACCAATCCTCATTTCCGTCTTCCACCATCCAATCCGCAAGC spacer length: 151
repeater length: 40

15510 1476379 CTGATCAGGCCCTTTTCAGACATATTCAATAAGGTAGGTCC
CAGCTGCTCAAGATGGCGGAAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAAGATCAAGATAGTGAA
CAGAATTCCCAATGTGTTTCAGGCGAAGATGCAACTGTTTCTTGTAACAACGTTAGTTTCCAAA

15511
15512
15513 crispr 26

15514 2024894 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
TAAGTACTAAACCTATCCAATCAGATGAGGCAGTTGAAACAGAGAAAAC spacer length: 49 repeater length:
40

15515 2024984 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
TAAACACAGATGAGAAAAAAATCATAACCCCATCAAAAATCATTTGTTGCAAGGATGATACTAGTGCAGGTTC spacer
length: 73 repeater length: 40

15516 2025098 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
TAAGTACTAAACCTATCCAATCAGATGAGGCAGTTGAAACAGAGAAAAC spacer length: 49 repeater length:
40

15517 2025188 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
TAAGTACTAAACCTATCCAATCAGATGAGGCAGTTGAAACAGAGAAAAC spacer length: 49 repeater length:
40

15518 2025278 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
TAAACACAGATGAGAAAAAAATCATAACCCCATCAAAAATCATTTGTTGCAAGGATGATACTAGTGCAGGTTC spacer
length: 73 repeater length: 40

15519 2025392 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
TAAGTACTAAACCTATCCAATCAGATGAGGCAGTTGAAACAGAGAAAAC spacer length: 49 repeater length:
40

15520 2025482 GATTCTACTTCCACTTCTCTTGCAAGCCCATTAAAGAAAG
ACTGCAGGTTGAGGAAACAACGCAAACTCAGACTCAAAACAACACTG

15521
15522
15523 crispr 27

15524 486523 GCACTGTTCCATGTATGAGGATTGGGTTTTGCTCTGATAA TTCGAGCATATCTTCATCTGACAAT spacer
length: 25 repeater length: 40

15525 486589 GCACTGTTCCATGTATGAGGATTGGGTTTTGCTCTGATAA TTCGAGCATATCTTCATCTGACAAT spacer
length: 25 repeater length: 40

15526 486655 GCACTGTTCCATGTATGAGGATTGGGTTTTGCTCTGATAA AGATAGCACTTCTTCATCTGACAAT spacer
length: 25 repeater length: 40

15527 486721 GCACTGTTCCATGTATGAGGATTGGGTTTTGCTCTGATAA TATCATCACTGCTTGTTTGTTTCATT

15528
15529
15530 crispr 28

15531 249202 GGTAAGTATTTCAGAAGCTATAAAATACTTTGACAAGGCAC
TTCAAGTCAACCCCAATGATGGCTATATACTAACTGCAAAAGGAAGTGTATTACGTGATAT spacer length: 61
repeater length: 40

15532 249304 GGTAAGTATTTCAGAAGCTATAAAATACTTTGACAAGGCAC
TTCAAGTCAACCCCAATGATGGCTATATACTAACTGCAAAAGGAAGTGTATTGCTTGCTCT spacer length: 61
repeater length: 40

15533 249406 GGTAAGTATTTCAGAAGCTATAAAATACTTTGACAAGGCAC
AAACGGTAAAAAAGGCAATGGCGGTAATGATGCTGACCAAGGTATAGGCCAAGATCAAGAT

15534
15535
15536 crispr 29

15537 3137760 TCAGGAGCTTGGTTTACAAGTCCTAGGGAAGTATTTTTAG CTTGGTTCAAAGCACTTTTAAATTC spacer
length: 25 repeater length: 40
15538 3137826 TCAGGAGCTTGGTTTACAAGTCCTAGGGAAGTATTTTTAG CTTGGTTCAAAGCACTTTTAAATTC spacer
length: 25 repeater length: 40
15539 3137892 TCAGGAGCTTGGTTTACAAGTCCTAGGGAAGTATTTTTAG
CTTGGTTTACAAGTCCTAGGGAAGTATTTTTAGCTTGGTTCAAAGCACTTTTAAATTC spacer length: 58
repeater length: 40
15540 3137991 TCAGGAGCTTGGTTTACAAGTCCTAGGGAAGTATTTTTAG
CTTGGTTTACAAGTCCTAGGGAAGTATTTTTAGCTTGGTTTACAAGTCCTAGGGAAGTATTTTTAGCTTGGTTCAAAGCACTTTTT
AATTC spacer length: 91 repeater length: 40
15541 3138123 TCAGGAGCTTGGTTTACAAGTCCTAGGGAAGTATTTTTAG
TGCTGACCAAGGTATAGGCCAAGATCAAGATAGTGAACAGAATTCCCAATGTGTTTCAGGCGAAGATGCAACTGTTTCTTGTAACA
ACGTT
15542
15543
15544 crispr 30
15545 420970 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
TGGCTAATACAAATTCAAATGATGTCTCTGTTATAGAAAGCTCTAGCAATACGGTTATTTCAACAGTTGATGTTGGAGATGGTCC
spacer length: 85 repeater length: 40
15546 421096 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
TGGCTAATGCATTATCAGATGATGTCTCTGTTATAGAAAGCTCTAGCAATACGGTTATTTCAACAGTTGATGTTGGAGATGGTCC
spacer length: 85 repeater length: 40
15547 421222 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
TGGCTAATGCATATTCGAATAATGTCTCTGTTATAGAAAGCTCTAGCAATACGGTTATTTCAACAGTTGATGTGGGGGAACGCC
spacer length: 85 repeater length: 40
15548 421348 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
TGGCTAATGCATATTCGAATAATGTCTCTGTTATAGAAAGCTCTAGCAATACGGTTATTTCAACAGTTGATGTGGGGGAACGCC
spacer length: 85 repeater length: 40
15549 421474 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
TGACCAACCTGGTGTGAGATGATGTCTCTGTTATAGAAAGCTCTAGCAATACGGTTATTTCAACAGTTGATGTTGGAGATGGTCC
spacer length: 85 repeater length: 40
15550 421600 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
TGGCTAATGCATATTCGAATAATGTCTCTGTTATAGAAAGCTCTAGCAATACGGTTATTTCAACAGTTGATGTTGGAGATGGTCC
spacer length: 85 repeater length: 40
15551 421726 TCTGCTCTGGCGTTTAACCCAAGCAATAATAACATCTATG
GATGTCTCTGTTATAGAAACAACGGGCTCCAAACCTATTGTTGATGCAATATCCGATCAATCAATAAGCATTAGAAATTTAGTTC
15552
15553
15554 crispr 31
15555 1486825 TGGCAATTCAGCCAACCAAGGAATTGGACAATCACAAACC
TCAAACCAAAACGCACAATGTGTTGCTGGTGGAATACCGCAAATTCATGTAACAACACAAATACTCAAACCAAGCCAATAGCGG
AAATAACGCAGCTGCTCAAAGTGGCGGCAGTGGTAGTG spacer length: 124 repeater length: 40
15556 1486990 TGGCAATTCAGCCAACCAAGGAATTGGACAATCACAAACC
TCCAATCAAATGCACAATGTGTAGGTGGCAGTAACGTAGCTGATTATGTAATAATACAAGCACTCAAACCAAGCAAATAGTGG
CAGTAACGCTGTAGGACAACAAGGTGGCAGTGGTAGTG spacer length: 124 repeater length: 40
15557 1487155 TGGCAATTCAGCCAACCAAGGAATTGGACAATCACAAACC
TAGGGAAGTATTTTTAGCTTGGTTAAAGGCCTCGTTGTTTACATAATTGGTTCCTATATTTTGGGCATAGACTACAGGGGCCAAAG
CCAACAAGGGCACTAAATTTCCCAACCAAGAATAAGTTA
15558
15559
15560 GCA_000812185.1_ASM81218v1_genomic.fna(findCrispr):
15561 START REPEAT
SPACER
15562 crispr 1
15563 843492 TAGCTTTTGGCTTTTGGTTTTT
CTTCTTTTGGTTTTGATTCTTTAGCTTTTGGCTTTTCTTCTTTTGGTTTTGATTCT spacer length: 56 repeater
length: 21
15564 843570 TAGCTTTTGGCTTTTGGTTTTT CTTCTTTTGGTTTTGATTCT spacer length: 20 repeater length:
21
15565 843612 TAGCTTTTGGCTTTTGGTTTTT CTGGCCCTCCTGGAGAAAAA
15566
15567
15568 crispr 2
15569 836479 TTCTGCTTGTGCTTTTGCTGC GGCTTCAGCTTCTGCTTTTGTGTCAG spacer length: 26 repeater
length: 21
15570 836527 TTCTGCTTGTGCTTTTGCTGC GGCTTCAGCTTCTGCTTGTGCGTCAG spacer length: 26 repeater
length: 21
15571 836575 TTCTGCTTGTGCTTTTGCTGC TGGCCCTCCTGGAGAAAAAGGTCCAA
15572
15573
15574 crispr 3

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15575 679495 TTTTGCTGCCTTTCTTTTTGG AGCTGCTTTACGTTTTGCGGCCTTACGTTTTGGAGCTGCTTTAC spacer
length: 44 repeater length: 21
15576 679561 TTTTGCTGCCTTTCTTTTTGG
GGCTGCTTTACGTTTTGCTGCTTTACGTTTTGGAGCTGCCTTACGTTTTGCTGCTTTCTTTTTGGGGCTGCTTTTC spacer
length: 77 repeater length: 21
15577 679660 TTTTGCTGCCTTTCTTTTTGG
AAGCCGAAAAAGCAAGATTAGAGAAAAGAAGAATCATCTAAAAATGATAACACTGATCTTGCCTCTGAACTCAAG

15578
15579
15580 crispr 4
15581 628626 CTGATTGGTGCAGACCTTTCAAAT
TCAAATCTGTCTTACGCGAATCTTTCAGGATTAGATCTTTCTGACACAAATTTATCTGAAACAAT spacer length: 65
repeater length: 24
15582 628716 CTGATTGGTGCAGACCTTTCAAAT
ACAAAAATTGGGAGATATGAATTTTGAAGGGAGGGATTTGTCTTACGCGAATCTTTCAGGATTAGATCTTTCTGACACAAATTTATC
TGAAACAAT spacer length: 95 repeater length: 24
15583 628836 CTGATTGGTGCAGACCTTTCAAAT
ACAAAAATTGGGAGATATGAATTTTGAAGGGAGGGATTTGTCTTACGCGAATCTTTCAGGATTAGATCTTTCTGACACAAATTTATC
TGAAACAAT spacer length: 95 repeater length: 24
15584 628956 CTGATTGGTGCAGACCTTTCAAAT
CAAAAGCTCAGGCTGATGCAGAAGCAAAAGCAAAAGCCGAATCTGCACAACCTCAAAGAGAACTTGAAGAAGCCAAAGCCGAAAAA
GCAAGATTA

15585
15586
15587 crispr 5
15588 919088 GGTTCCTCAACAACTGGTTCAGGTTC
TGGTTCCGGTTCCGGTTCCGGTTCTTCAACAACTGGTTCGGGTTTTGGTTCTGGTTCTGGTTCTGGAACAAATGGTTCTGGTTCTG
GTTCTGGTTCCGGTTCTGGTTCTGGTTCTGGTTCTTCAACAACTGGTTCGGGTTTTGGTTC spacer length: 147
repeater length: 26
15589 919262 GGTTCCTCAACAACTGGTTCAGGTTC TGGTTCTGGTTCCGGTTCTGGTTCTGGTTTC spacer length: 30
repeater length: 26
15590 919319 GGTTCCTCAACAACTGGTTCAGGTTC AAAGCCGAAAAAGCAAGATTAGAGAAAGAA

15591
15592
15593 crispr 6
15594 459726 TGGAGAAAAAGGTCCACGCGGTCCAC
AAGGTCCTCCTGGTGACAAAGGAATAACTGGTGACCTGGTCCACAAGGCGACCGCGGAACAATTGGTCCACAAGGTGAACAAGGC
CCTCCTGGTCTAA spacer length: 99 repeater length: 26
15595 459852 TGGAGAAAAAGGTCCACGCGGTCCAC
AAGGAATTC AAGGTCCACAAGGTGAACAAGGAAAACAAGGTTTGCAAGGCCCTCCTGGTGACAAAGGCTCACAGGGTCCACAAGGT
TCTG spacer length: 90 repeater length: 26
15596 459969 TGGAGAAAAAGGTCCACGCGGTCCAC
GCAAGATTAGAGAAAAGAAGAATCATCTAAAAATGATAACACTGATCTTGCCTCTGAACTCAAGGCTGAATTAGACAATTTACG
TAAA

15597
15598
15599 crispr 7
15600 721878 GCTGCTTTTTTCAGCGGCTGCTTTGTCTGCTGC TGCTTTTTTCAGCGGCTGCTTTTTTCAGC spacer length:
27 repeater length: 32
15601 721938 GCTGCTTTTTTCAGCGGCTGCTTTGTCTGCTGC GGCTGCTGCTGCTTTGTCTGC spacer length: 21
repeater length: 32
15602 721992 GCTGCTTTTTTCAGCGGCTGCTTTGTCTGCTGC GCTCAGGCTGATGCAGAAGCA

15603
15604
15605 crispr 8
15606 533608 AGCAAAAAGCTCAGGCTGATGCAGAAGCAAAAGCAAAAGCC
GAATCTGCACAACCTCCAAAGAGAACTTGAAGAAGCCAAAGCCGAAAAAGAACAGCTAGAACGAGAAGAGGCTGAAGAAAGAGCAGC
AGCTGAGGCAG spacer length: 97 repeater length: 40
15607 533746 AGCAAAAAGCTCAGGCTGATGCAGAAGCAAAAGCAAAAGCC
GAAGCTGCACAACCTCCAAAGAGAACTTGAAGAAGCCAAAGCCGAAAAAGCAAGATTAGAGAAAGAAGAGGCTGAAGAAAGAGCAGC
AGCTGAGGCAG spacer length: 97 repeater length: 40
15608 533884 AGCAAAAAGCTCAGGCTGATGCAGAAGCAAAAGCAAAAGCC
GAATCTGCACAACCTCCAAAGAGAACTTGAAGAAGCCAAAGCCGAAAAAGCAAGATTAGAGAAAGAAGAGGCTGAAGAAAGAGCAGC
AGCTGAGGCAG spacer length: 97 repeater length: 40
15609 534022 AGCAAAAAGCTCAGGCTGATGCAGAAGCAAAAGCAAAAGCC
AGAATCATCTAAAAATGATAACACTGATCTTGCCTCTGAACTCAAGGCTGAATTAGACAATTTACGTAAAGAACTTGAAAATGTTG
ATGATGAAGAT

15610
15611
15612 GCA_000813245.1_ASM81324v1_genomic.fna(findCrispr):
15613 START REPEAT

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SPACER

15614 crispr 1

15615 1574813 CCTTCAATTCTTTCTGAGTTGCATC AAAGACATTAAGCAAAGTTGGTAAGAGGACAACCATGAGCAA spacer
length: 42 repeater length: 25

15616 1574881 CCTTCAATTCTTTCTGAGTTGCATC CCTCAGCAAGCTCCCGCTAATATTAGATGAACAACAAAAGAATCACTCG
spacer length: 50 repeater length: 25

15617 1574957 CCTTCAATTCTTTCTGAGTTGCATC GGGCGCAAAAATGCTCCTAGTGCGGCCAGTAGAAAAAGCGCG spacer
length: 42 repeater length: 25

15618 1575025 CCTTCAATTCTTTCTGAGTTGCATC CGTTGCCACTACGACATAGGCGTTTTCAGTCGTGGCTCA spacer
length: 37 repeater length: 25

15619 1575088 CCTTCAATTCTTTCTGAGTTGCATC TCCGAATAGAACCTACGAAGTTACCTGCCATTGTACCCCTT spacer
length: 41 repeater length: 25

15620 1575155 CCTTCAATTCTTTCTGAGTTGCATC TTGCTCAGCCAGCTTGCAATCAGTAATCCCCAACTACT spacer
length: 39 repeater length: 25

15621 1575220 CCTTCAATTCTTTCTGAGTTGCATC AGTAGCAAAGGAACATTTGAGGAACGCCCTGAACTATCTAG spacer
length: 41 repeater length: 25

15622 1575287 CCTTCAATTCTTTCTGAGTTGCATC TTTCCGGAGAATGCGTCTGCGATGCACCACCGATATATG spacer
length: 38 repeater length: 25

15623 1575351 CCTTCAATTCTTTCTGAGTTGCATC AATGGCTGTAAATTCCACCCTGTTAGCATCTGTGGTGGGTATG spacer
length: 43 repeater length: 25

15624 1575420 CCTTCAATTCTTTCTGAGTTGCATC AGCTCCACCGGGTACAATTGGTTCTCCAAGACATGGACTA spacer
length: 40 repeater length: 25

15625 1575486 CCTTCAATTCTTTCTGAGTTGCATC CTCCTCTGCAATTTTGCAGGCTAAGTTTTTCAGCTCGGGATA spacer
length: 42 repeater length: 25

15626 1575554 CCTTCAATTCTTTCTGAGTTGCATC ACATTGTTCAACATAAGCGGTTTCAGGTACGCTTAACGTG spacer
length: 39 repeater length: 25

15627 1575619 CCTTCAATTCTTTCTGAGTTGCATC TTAATACTAATACTAATAGTAATACTAATACTAGTAATTA spacer
length: 40 repeater length: 25

15628 1575685 CCTTCAATTCTTTCTGAGTTGCATC CATTGCAATTACGTAGTTCAAGAGTGCCTTGACCTTAGC spacer
length: 39 repeater length: 25

15629 1575750 CCTTCAATTCTTTCTGAGTTGCATC GCGCTGGCGAAGGCCACGAACGGCTGGCTAGCCCTGG spacer
length: 37 repeater length: 25

15630 1575813 CCTTCAATTCTTTCTGAGTTGCATC CGTGGCCAAAGCCCAGGCAGAGGCACAGAAGGCGCTACAG spacer
length: 40 repeater length: 25

15631 1575879 CCTTCAATTCTTTCTGAGTTGCATC GAGAATATCTAGCCTGCTTGGACAAGTGTCAAAGACTGGCTA spacer
length: 42 repeater length: 25

15632 1575947 CCTTCAATTCTTTCTGAGTTGCATC AAGACAATATCGGGGATGTCAAAGTAGTCGTTTCTCGTGATGTCA
spacer length: 45 repeater length: 25

15633 1576018 CCTTCAATTCTTTCTGAGTTGCATC TCGGGCTTTGATTTTTGGATATGCTTTTCCGTCAATCAA spacer
length: 39 repeater length: 25

15634 1576083 CCTTCAATTCTTTCTGAGTTGCATC ATGACTTGGTAAACCAATATCGCGTTGAGAGAGTAAT spacer
length: 37 repeater length: 25

15635 1576146 CCTTCAATTCTTTCTGAGTTGCATC AAAGCGGGGATAAATCTTGAACCCTATAAGGACGCCTTA spacer
length: 39 repeater length: 25

15636 1576211 CCTTCAATTCTTTCTGAGTTGCATC TGTCTCCTCGAAGCCGTGTATAAGACCGAGTACAAA spacer
length: 36 repeater length: 25

15637 1576273 CCTTCAATTCTTTCTGAGTTGCATC CTGAGGGCGTAGAACAAGCAATAGAAAAGCTCGTAGAATATATTAA
spacer length: 46 repeater length: 25

15638 1576345 CCTTCAATTCTTTCTGAGTTGCATC ATCGCTGGCGCGGGAACCTGGACTAAAAGCCACGTTTTTC spacer
length: 38 repeater length: 25

15639 1576409 CCTTCAATTCTTTCTGAGTTGCATC GGAAGAGGAGTGGGCGATAGACTTCGAGAACCAGGAC spacer
length: 37 repeater length: 25

15640 1576472 CCTTCAATTCTTTCTGAGTTGCATC GCCTTGTTGCGTGGCATGAGCGTGACTATCTGTTTTGC spacer
length: 38 repeater length: 25

15641 1576536 CCTTCAATTCTTTCTGAGTTGCATC TAGTTGATGCTTGTGAAGTGTATCTGTGTCGGGCAGTGGT spacer
length: 40 repeater length: 25

15642 1576602 CCTTCAATTCTTTCTGAGTTGCATC CACTCTTAACATCACTGCATGACCGTATTGACTACCTGCAAA spacer
length: 43 repeater length: 25

15643 1576671 CCTTCAATTCTTTCTGAGTTGCATC AAAGACAATCAAGGGGGTAGTTACCGCTGTCTACCTGTTG spacer
length: 40 repeater length: 25

15644 1576737 CCTTCAATTCTTTCTGAGTTGCATC ATAGAAATAGTGTGTGATGCGATAGAATATTCGCTAGATA spacer
length: 40 repeater length: 25

15645 1576803 CCTTCAATTCTTTCTGAGTTGCATC CTTCTCGCTGTATCCTGCGGCTTCTGCGGCTTCTGCAATGC spacer
length: 41 repeater length: 25

15646 1576870 CCTTCAATTCTTTCTGAGTTGCATC ACAATTGTAAAACAGGGTCCCGTAAAAGGGTCCAAAATCA spacer
length: 40 repeater length: 25

15647 1576936 CCTTCAATTCTTTCTGAGTTGCATC TGATGTCTAAGCCTTCTGTAATCTTTAGCATAGTGTC spacer
length: 37 repeater length: 25

15648 1576999 CCTTCAATTCTTTCTGAGTTGCATC ATGACTTATATTTATGTATTGGGAAATCTCTACATACCATG spacer
length: 41 repeater length: 25

15649 1577066 CCTTCAATTCTTTCTGAGTTGCATC CTACATCATTGACGTGAATACTGCCGAGATACTGCGGAAAA spacer

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length: 41 repeater length: 25
15650 1577133 CCTTCAATTCTTTCTGAGTTGCATC TACAGTCTGTGCTGTTGCGCCGTTTGTCCACACTGCG spacer
length: 37 repeater length: 25
15651 1577196 CCTTCAATTCTTTCTGAGTTGCATC TCTATTTTCTCTCACCCTCGACCATGGCTCGAATA spacer
length: 37 repeater length: 25
15652 1577259 CCTTCAATTCTTTCTGAGTTGCATC ATAGGTTTTTTATAGGGCTGGTGAAACATTGTTGATAACTAT spacer
length: 42 repeater length: 25
15653 1577327 CCTTCAATTCTTTCTGAGTTGCATC GAAAATTGCGTCATTCATCTCCTTAGCCATTCTGAGGATGTA
15654
15655
15656 crispr 2
15657 311023 GATGCAACTCAGAAAAGAATTGAAAG GTAATACATCGCTATTGCAAACTCAAGATCATTAGGCTAA spacer
length: 41 repeater length: 25
15658 311090 GATGCAACTCAGAAAAGAATTGAAAG ATGCTCGACCCCCAGCTGTGATAGCGGTAGTGGAGGAC spacer
length: 39 repeater length: 25
15659 311155 GATGCAACTCAGAAAAGAATTGAAAG CAAACGAGGCGTGGAGAGCAGCAGCCATGCAGGCAGCCGAC spacer
length: 41 repeater length: 25
15660 311222 GATGCAACTCAGAAAAGAATTGAAAG TTACCACCTTGATTGCAATGGTATTGTTGTCTCCGAATTC spacer
length: 40 repeater length: 25
15661 311288 GATGCAACTCAGAAAAGAATTGAAAG TGCCTATGCGAAGCTCAGGGAGACTTTTCCAGAGCTGC spacer
length: 39 repeater length: 25
15662 311353 GATGCAACTCAGAAAAGAATTGAAAG ACAGGCTAGAACGACAGCTTGACCTACACCAACAACAAGCTAA spacer
length: 44 repeater length: 25
15663 311423 GATGCAACTCAGAAAAGAATTGAAAG AGAATCATCCTTGCCACGCCACTTGAGCTTCTCCTCCC spacer
length: 38 repeater length: 25
15664 311487 GATGCAACTCAGAAAAGAATTGAAAG AGGATGGAAAGATAAAGGTCACGGCGCTGAAGAAGCTC spacer
length: 38 repeater length: 25
15665 311551 GATGCAACTCAGAAAAGAATTGAAAG ATTGTAACATATCTGCCGAAGCCGACCCTGCCGCCCCCGA spacer
length: 40 repeater length: 25
15666 311617 GATGCAACTCAGAAAAGAATTGAAAG GTCATAGAGGACTACAGGCCAGACATCGGCATCAAGCCT spacer
length: 39 repeater length: 25
15667 311682 GATGCAACTCAGAAAAGAATTGAAAG CTCCCTGAAGTGCTCGTTTAGAAACCTCTTGAGGAGCCA spacer
length: 39 repeater length: 25
15668 311747 GATGCAACTCAGAAAAGAATTGAAAG TTCTCGTAGTCCACGACCCAGAGCTCGACCGCGTGTATAGC spacer
length: 41 repeater length: 25
15669 311814 GATGCAACTCAGAAAAGAATTGAAAG ACGCCCAGGTACTAGTAAACGCCCCACAGCCGGAAC spacer
length: 37 repeater length: 25
15670 311877 GATGCAACTCAGAAAAGAATTGAAAG CTAGACAAGTCTTCCTCAACTACAAGAAGATATACAA spacer
length: 37 repeater length: 25
15671 311940 GATGCAACTCAGAAAAGAATTGAAAG TCCAGGGCCTAGGCTTAAGGTTCCAGACCGCTAAACTTTGT spacer
length: 43 repeater length: 25
15672 312009 GATGCAACTCAGAAAAGAATTGAAAG TGAGGGTAGATGCCAATCCTCCGAGTAGCACCTCTTATTCA spacer
length: 41 repeater length: 25
15673 312076 GATGCAACTCAGAAAAGAATTGAAAG TAGTTGGAAGTGATGCAGATTTAACAATTTCTTCGG spacer
length: 37 repeater length: 25
15674 312139 GATGCAACTCAGAAAAGAATTGAAAG GTCGGAAACAACGAAATGCTATTCAACGTAAAAGGCAGATT spacer
length: 41 repeater length: 25
15675 312206 GATGCAACTCAGAAAAGAATTGAAAG ACAGGAAAATTGCGTCATTCATCTCCTTAGCCATTCTGAGG
15676
15677
15678 GCA_000816105.1_ASM81610v1_genomic.fna(findCrispr):
15679 START REPEAT
SPACER
15680 crispr 1
15681 457107 ATTCTCCT AGAGTCTTATTGCAACAGTATGCGCGGCGAAAAAAGAGGAAGACGACGCCCCGCTTTC spacer
length: 59 repeater length: 8
15682 457175 ATTCTCCT AGAGTCTTATTGCAACCTGCTCTTCCTCGTGATGGCCCTGGTGGCATCATCAGGCTTTC spacer
length: 60 repeater length: 8
15683 457244 ATTCTCCT AGAGTCTTATTGCAACACATTAAGCTGATTGTCTCTATTGTTAGCTGGGCTCTCTTTC spacer
length: 58 repeater length: 8
15684 457311 ATTCTCCT AGAGTCTTATTGCAACCGCCGTGAAACGGCCCGGAGAGCTAAAAAGAAAAGTGCATTTC spacer
length: 60 repeater length: 8
15685 457380 ATTCTCCT AGAGTCTTATTGCAACGCGCCGAGCTAACGGAGTCACCCTCTATGTTGACTTTC spacer
length: 58 repeater length: 8
15686 457447 ATTCTCCT AGAGTCTTATTGCAACGCTCTAGCTGGGGGTGTGGTGCTATGAAGAGGCTTCCTTTC spacer
length: 57 repeater length: 8
15687 457513 ATTCTCCT AGAGTCTTATTGCAACGTGTACGGCGTTGACAAGCAGGACATGCACGCCGTCGCTTTC spacer
length: 58 repeater length: 8
15688 457580 ATTCTCCT AAGAGAATTGAAAGCGCGAGAGTAGCCCAACCCCTCACCTCCTCCTGTTGCAATAAG
15689
15690

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15691 crispr 2
15692 604299 CTTTCAATTCTCCAGAGTCTTATTGCAAC GCACGTGAGAACTACCGTTTGGCAAAGCCCCAC spacer
length: 34 repeater length: 30
15693 604364 CTTTCAATTCTCCAGAGTCTTATTGCAAC AAGCCAAACTTCCTGTTTAACCCCCGAAACAAAGCTA spacer
length: 37 repeater length: 30
15694 604432 CTTTCAATTCTCCAGAGTCTTATTGCAAC TGGCCTTGGCTACGCCTACAAGGTTTACAACGAAAA spacer
length: 36 repeater length: 30
15695 604499 CTTTCAATTCTCCAGAGTCTTATTGCAAC GAGTAGCCCAACCCCCTCACCTCCTCCTGTTGCAAT
15696
15697
15698 crispr 3
15699 1798198 GTTGCAATAAGACTCGAAGAGAATTGAAAG GAATCACATGTGCGGGAAGTATACATCGTTGGGCA spacer
length: 35 repeater length: 30
15700 1798264 GTTGCAATAAGACTCGAAGAGAATTGAAAG ATCTTGCCGATTACGCGGAATTTGGCGCCGCTCGGGCCCTC
spacer length: 41 repeater length: 30
15701 1798336 GTTGCAATAAGACTCGAAGAGAATTGAAAG CAGCAAGATCGACCAGATGCCTGCTGTTACGGATCA spacer
length: 36 repeater length: 30
15702 1798403 GTTGCAATAAGACTCGAAGAGAATTGAAAG GCAGTGGCGGTGAGGAAGTCGAGCGGGGTGCCGTC spacer
length: 35 repeater length: 30
15703 1798469 GTTGCAATAAGACTCGAAGAGAATTGAAAG TTGCGTCCACCCACGCCGAGCCGTCCAGACCTTGA spacer
length: 36 repeater length: 30
15704 1798536 GTTGCAATAAGACTCGAAGAGAATTGAAAG TTTCAATGAGTTTACGAAGGCTGTGCAGCAGGAGATG spacer
length: 37 repeater length: 30
15705 1798604 GTTGCAATAAGACTCGAAGAGAATTGAAAG GGAGTAACATCAAGGTGGGATTATGTAATTGTCCGC spacer
length: 36 repeater length: 30
15706 1798671 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCTTTATACCAACGCATGGCTTCCACACTTCAACTT spacer
length: 36 repeater length: 30
15707 1798738 GTTGCAATAAGACTCGAAGAGAATTGAAAG CTTTCACGCGTTCGGGCCGTCAGCGGCTTGCTCTC spacer
length: 35 repeater length: 30
15708 1798804 GTTGCAATAAGACTCGAAGAGAATTGAAAG CTTTCACGCGTTCGGGCCGTCAGCGGCTTGCTCTCCTGCA
spacer length: 40 repeater length: 30
15709 1798875 GTTGCAATAAGACTCGAAGAGAATTGAAAG GTTTTAACCTCGTGGACAACCTGACCCTCTCCCCCTA spacer
length: 36 repeater length: 30
15710 1798942 GTTGCAATAAGACTCGAAGAGAATTGAAAG AAATGCCCTCGCTCTGGACGAGGCCCTTCCTGCAA spacer
length: 36 repeater length: 30
15711 1799009 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCTTCTTCTATGGTTTGCACGCTTCGACTGCTTCC spacer
length: 36 repeater length: 30
15712 1799076 GTTGCAATAAGACTCGAAGAGAATTGAAAG TGTTTTTTGATGTGTGCTATTATTTTCTCTCCGGCT spacer
length: 36 repeater length: 30
15713 1799143 GTTGCAATAAGACTCGAAGAGAATTGAAAG CAATCTCCTTTTGGGCTTCGCGTAAGGCTTTGATAAA spacer
length: 37 repeater length: 30
15714 1799211 GTTGCAATAAGACTCGAAGAGAATTGAAAG AACGCTGGGCTTCAACTGCGCGGGAGGGGAAGGCAG spacer
length: 36 repeater length: 30
15715 1799278 GTTGCAATAAGACTCGAAGAGAATTGAAAG AAATGGCGTTTACTGTATAATGCTGATTATGGGGCG spacer
length: 36 repeater length: 30
15716 1799345 GTTGCAATAAGACTCGAAGAGAATTGAAAG TAACTAAAGTTTAACCTCTATATAAACTTTTCCTT spacer
length: 35 repeater length: 30
15717 1799411 GTTGCAATAAGACTCGAAGAGAATTGAAAG AAAGCTCCTCGGGGATGAGCCCACGAACTCACCGCT spacer
length: 37 repeater length: 30
15718 1799479 GTTGCAATAAGACTCGAAGAGAATTGAAAG CGGAGCCGCCGCGGCTATGGTGCCGAGCTCAAGCG spacer
length: 36 repeater length: 30
15719 1799546 GTTGCAATAAGACTCGAAGAGAATTGAAAG GCATCAGCGGCGGCAGCATCAGCGAGGGCCAGGTC spacer
length: 35 repeater length: 30
15720 1799612 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCATCTTTTCCACCTCCATCCCCTGCCGGGCCAAGCG spacer
length: 37 repeater length: 30
15721 1799680 GTTGCAATAAGACTCGAAGAGAATTGAAAG CGCGGGGTACGGCGGCTTGACCTCGCAGCGGCGGCA spacer
length: 37 repeater length: 30
15722 1799748 GTTGCAATAAGACTCGAAGAGAATTGAAAG GAGTCACGCGGTACGCAATGCCGCCGTATGGCCCTTC spacer
length: 37 repeater length: 30
15723 1799816 GTTGCAATAAGACTCGAAGAGAATTGAAAG AACATGAGCGTGATGATCGGGTTCTTATGGTAGAA spacer
length: 35 repeater length: 30
15724 1799882 GTTGCAATAAGACTCGAAGAGAATTGAAAG AGGAGTTTGTTTAGGGCTCGGTGTATTGCTTTATAT spacer
length: 36 repeater length: 30
15725 1799949 GTTGCAATAAGACTCGAAGAGAATTGAAAG ATTCAGTTTACGTTTATGGGCTCGTTGTGGCATGGG spacer
length: 36 repeater length: 30
15726 1800016 GTTGCAATAAGACTCGAAGAGAATTGAAAG ACGACCTCTTTAAAATGCTGGAGGAGGTGGAAGAA spacer
length: 35 repeater length: 30
15727 1800082 GTTGCAATAAGACTCGAAGAGAATTGAAAG TAGGGTTAGCATGGATATAAATGTCGTGTTTCATGA spacer
length: 36 repeater length: 30
15728 1800149 GTTGCAATAAGACTCGAAGAGAATTGAAAG TCAAAGTCATCAAAGAACTCGAACACTTGCTCTTTC
15729

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15730
15731 GCA_000828555.1_ASM82855v1_genomic.fna(findCrispr):
15732 START          REPEAT
15733 SPACER
15734 crispr 1
15735 315303 GCAATAAACCCCGACGGAAGTGAATAATGG
CGCTTTAAACTAATGATTCGATAACATCTGCAGCTTCGATTGGAAGATGGAACAATTTATTTTGGTTCAGATAAAGTCTA
spacer length: 83 repeater length: 30
15736 315417 GCAATAAACCCCGACGGAAGTGAATAATGG
AATTTTACGCGAGTTACTGGACTGTTACGAGGCCTGCAATTTTCAAGATGGAACAATCTACGTAACCTCACTTGATGGGCACTT
ATA spacer length: 89 repeater length: 30
15737 315537 GCAATAAACCCCGACGGAAGTGAATAATGG
GAAACTTAAAAATCAACCTGAAACACCTTCTTTTAAACCTCTAAAAGAATAACTTGCAAAATAACAAGCATTGAAACCGAAGCAAG
AGC
15738
15739 crispr 2
15740 1010042 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATAAAATGTGTCGAGGAAAACGTATGATTTCTTTTAA
spacer length: 37 repeater length: 37
15741 1010117 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TTTTCAGTTGATAATTCTTTCTCACCATATTTGT
spacer length: 33 repeater length: 37
15742 1010188 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GAGTGTGTGGCTCTGAATGTGTGCGGGGATTAAGT
spacer length: 34 repeater length: 37
15743 1010260 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TTTAACACCCCGTCATTAATAAATACACCTGATGA
spacer length: 35 repeater length: 37
15744 1010333 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATTTTTTAAGCCCCCCCCAAAGAGTGAGAATATG
spacer length: 34 repeater length: 37
15745 1010405 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC AAAGCATGGGTTGAAATGAACACAACAGAAAAAA
spacer length: 34 repeater length: 37
15746 1010477 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TCCCTTATGGTTTCAATTTCTTTTTTAAATTCTGC
spacer length: 35 repeater length: 37
15747 1010550 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GTCCATGTTAATCCGTAGTCAGTAGACCGGTAGATAT
spacer length: 37 repeater length: 37
15748 1010625 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GATAGTTGTCTGTCGTATCTTGGATTTTTCAGTTCA
spacer length: 35 repeater length: 37
15749 1010698 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TTAATGCCAAGCAGTTTAAAGGCTTTAAGCTCTGAAC
spacer length: 37 repeater length: 37
15750 1010773 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATACCTCGACTTCTACGACTCCGAGCCATCCCA
spacer length: 33 repeater length: 37
15751 1010844 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TAATAAGTTTTTTGAATTGTTAAAGACGTGTACC
spacer length: 35 repeater length: 37
15752 1010917 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATGGATCAATGGAACAAATGAGGTGACCAACTTGT
spacer length: 35 repeater length: 37
15753 1010990 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CCCATCATTCCAGGGCCCTTACCAGTTGCACCTGTGG
spacer length: 37 repeater length: 37
15754 1011065 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC AAATTAGATGTTAAAGATATAAAAGCTGTTCAAT
spacer length: 34 repeater length: 37
15755 1011137 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TGTGTAATCTCCCCATAGTTCTTCCCCTAAACTTCCT
spacer length: 37 repeater length: 37
15756 1011212 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TATTTCTGCGAGGTCAAAAGTATAATCGAACCCGTTT
spacer length: 38 repeater length: 37
15757 1011288 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TCAGAAGCGGATAAATTAGTAAATAAAGTATTAAGA
spacer length: 36 repeater length: 37
15758 1011362 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CTCTTAAAAACTTCTCTTTTATACCATTCTATAAAC
spacer length: 35 repeater length: 37
15759 1011435 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATCAAAGCAGTAAATAGTGAAAAAGAAGTATATGTGG
spacer length: 37 repeater length: 37
15760 1011510 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CTATTCTTTGAGTATAATTTATACACCCCTGCTTTCT
spacer length: 37 repeater length: 37
15761 1011585 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TGTATGCTTCGCTATCTCCAGAAATACGGCCTTGAAT
spacer length: 37 repeater length: 37
15762 1011660 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC
GCCTTTTCGATTTTCAGTTTCTCGTTCATCTGAATGTAT spacer length: 39 repeater length: 37
15763 1011737 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC
TTTTTGATGGTTCGGTTTCAGTTGGATAGTATCGTTTTAA spacer length: 39 repeater length: 37
15764 1011814 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CAATTACCGACTCTGTAAGCGTTGCAATCTCTTT
spacer length: 34 repeater length: 37
15765 1011886 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GAAGTAATGAAACGAAAAGGTGAAATTATGAATGCA
spacer length: 36 repeater length: 37
15766 1011960 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GCATTTTAATGGGGATATACTGTCCCCCTACAAA
spacer length: 34 repeater length: 37

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15767	1012032	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AATCCTCCGGCTTCATACTCATAAAATATTCATAAA
		spacer length: 36 repeater length: 37	
15768	1012106	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GTATTACAGGTAATCACATAATACCAGATAGTATCA
		spacer length: 36 repeater length: 37	
15769	1012180	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AATTTGATGTAAATGATGCAAATTCGGATATAAAAG
		spacer length: 36 repeater length: 37	
15770	1012254	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATGATAAGGGGGAATTTGTTGGTTCAAACCAATT
		spacer length: 35 repeater length: 37	
15771	1012327	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATAATTTTGAAGCGGTAGATCTTGAAGATTTTTTTG
		spacer length: 36 repeater length: 37	
15772	1012401	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTCCTTTATGTGGAAAAATCGTTGTACTTTGTATCAACT
		spacer length: 39 repeater length: 37	
15773	1012478	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTGTCAAGAGGTGAAAAATTGACGGAAAAATAATGAT
		spacer length: 37 repeater length: 37	
15774	1012553	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAAATAAACGTTAATTCATTAAGGATTATAAAACAT
		spacer length: 36 repeater length: 37	
15775	1012627	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	ATAGTTTCTGGCAACGCTATATTACTATTTAG
		spacer length: 32 repeater length: 37	
15776	1012697	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CATTATTAAACTCAAGTTGTGCTTTTGTATCATT
		spacer length: 34 repeater length: 37	
15777	1012769	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTAGTGCGATTAGTGCACCTTAGCAATTGCAAAT
		spacer length: 35 repeater length: 37	
15778	1012842	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TGTGTTTTGAATTGTTCCAGTATTGCTTCCCTTAC
		spacer length: 35 repeater length: 37	
15779	1012915	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CCATTGTACTCAATACGGTTGGTGGCGAATTAGCACC
		spacer length: 37 repeater length: 37	
15780	1012990	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CTTCGGTTTTTTAAATCGTCGATTTTGTACCTTG
		spacer length: 34 repeater length: 37	
15781	1013062	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTCAACGCTAATTTTCATGATATCAACCTAATTA
		spacer length: 35 repeater length: 37	
15782	1013135	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GAATCTCCAAACATTGGAGTAAACCGTGCTGCAAT
		spacer length: 35 repeater length: 37	
15783	1013208	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAACTACACAAAATGCAATAATCTGGACTATTTTGA
		spacer length: 36 repeater length: 37	
15784	1013282	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CTAATAACGATTTTCATAGTTTCACCTTTAATTTAAT
		spacer length: 36 repeater length: 37	
15785	1013356	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GAGTTTGGATGTTGTATCCGTGGTCTAGCAAGTG
		spacer length: 34 repeater length: 37	
15786	1013428	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAATCTAAAACATTGCATCCAACAAAGTCTCCAAG
		spacer length: 35 repeater length: 37	
15787	1013501	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TCAATGACCTTTCCATTTTTTCTTCACCAATCTAAAA
		spacer length: 37 repeater length: 37	
15788	1013576	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AAACCAGATATCTCGAAGTTCACTGATTTCGCAAT
		spacer length: 34 repeater length: 37	
15789	1013648	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TCGCCTTGTCCAATTGATGCATCAAGTTCGTCAT
		spacer length: 34 repeater length: 37	
15790	1013720	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTTCACAAATTCGTTATATGCTGCAACTTTTCCT
		spacer length: 35 repeater length: 37	
15791	1013793	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TAAAAAAGAAATGATAAGACATAAAATAAAAAATACA
		spacer length: 36 repeater length: 37	
15792	1013867	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTAATGCATATGACACAGAGTTAGAATTAAATGG
		spacer length: 34 repeater length: 37	
15793	1013939	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GCATACACTGATGGCTTAACGTCACCAAATTCT
		spacer length: 33 repeater length: 37	
15794	1014010	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CTTCTAATATATACTATGGTTATACTTCTATATAT
		spacer length: 35 repeater length: 37	
15795	1014083	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TATAGTATAATAAACATGTTAATTATTAGAAATAA
		spacer length: 35 repeater length: 37	
15796	1014156	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TATAATATAGTAGTCGAGGGCTACCTGCCAGGCTTCTC
		spacer length: 39 repeater length: 37	
15797	1014233	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GAAGTGCAATGAATAGGAGGGGGAATGAAGAAGCG
		spacer length: 35 repeater length: 37	
15798	1014306	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CGATCAACTTTGGGTCTACCCCCAACACGACCTCG
		spacer length: 35 repeater length: 37	
15799	1014379	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	GATACAATTATTCTCAAAAACCGTCAAGGATTAA
		spacer length: 34 repeater length: 37	
15800	1014451	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	CAAACATTCCCAATTTTCGGGCAATTTCAATACA
		spacer length: 34 repeater length: 37	
15801	1014523	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	TTTTCTCACTATATATGGTCAAGAAATAATTTTCGG
		spacer length: 35 repeater length: 37	
15802	1014596	CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC	AACTCACAAATCAGTTCTTCGTCATCTGTGTAGTA


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spacer length: 35 repeater length: 37
15803 1014669 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CTCGATTGATGTGTACAAAATGGCTTATGGTGCT
spacer length: 35 repeater length: 37
15804 1014742 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GCGTGGTTTGTATGGCTCAGCTCAACCATATTCTAAA
spacer length: 36 repeater length: 37
15805 1014816 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC GATACTATTTTTTTGATTATGTAATAATTTTAGT
spacer length: 33 repeater length: 37
15806 1014887 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TCAAATATAGGAATTCCAAAGATAGCTTACGAGAT
spacer length: 35 repeater length: 37
15807 1014960 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TAAGATATTGGAAAAAAAAGGATACCTTAAAAA
spacer length: 33 repeater length: 37
15808 1015031 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TTAATTTTGCATGATTAATTGTTACTATTCTCTGT
spacer length: 34 repeater length: 37
15809 1015103 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CAAATATGGGAATTCCAAAGATAGCTTATGAGAT
spacer length: 34 repeater length: 37
15810 1015175 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATAACCATTTCATGAAACAATGGTTGATAGGATAGA
spacer length: 35 repeater length: 37
15811 1015248 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC ATATATCTTTCAACAACCTTCTACGCTTCTCTTACC
spacer length: 35 repeater length: 37
15812 1015321 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CATATTGTCATGTAATCTCTAATTATTTCAATAGAG
spacer length: 36 repeater length: 37
15813 1015395 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CTTCTGAATAAACATTCTCATTATCATATAAATA
spacer length: 34 repeater length: 37
15814 1015467 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC AATTTTCGTTAATAGTTAAACAACCCCATAGG
spacer length: 34 repeater length: 37
15815 1015539 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TCTTCTGTGCTGGTTTGGGGTGTAGTAATGGTAT
spacer length: 34 repeater length: 37
15816 1015611 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC TTTCGGGATGTTTCATTAATTTTGTAGCTGTAAC
spacer length: 34 repeater length: 37
15817 1015683 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC CATTGATTGATGAACCTTCAAAAATGAATAAACAA
spacer length: 35 repeater length: 37
15818 1015756 CTAAAAGAGTAAAAATGCAATAGAACAAAGCATTGAAAC AAAAGCCTTATGGAAGATGTCAAGATGCATATTAC
15819
15820
15821 GCA_000875775.1_ASM87577v1_genomic.fna(findCrispr):
15822 START REPEAT
SPACER
15823 crispr 1
15824 1462250 ACAAAGATGGGTTTGACAAA AAAGTTATGATAAAAACGGGTAT spacer length: 24 repeater
length: 20
15825 1462295 ACAAAGATGGGTTTGACAAA
AAAGTTATGATAAGAATGGATACAACAAAAACGGGTTTAACAAAAAAGGTTATGATAAAAAAGGATATGATAAAAAAGGA
spacer length: 81 repeater length: 20
15826 1462397 ACAAAGATGGGTTTGACAAA
CAAAACGTACTGCTAAGAACAAAGCATCAAAAGCAAAACGAAAAACAAACGTTAATCTACTTTTGGGAATCCATATCTTT
15827
15828
15829 crispr 2
15830 722335 GAAGAACCATCTAAAGAAGCACCAAAGAAAGAAGAACCCAG
CTAAAGAAGCACCAAAGAAAGAAGAACCCAGCTAAAGAAGCACCAAAGAAAGAAGAACCCAGCTAAAGAAGCACCAAAGAA
spacer length: 79 repeater length: 40
15831 722455 GAAGAACCATCTAAAGAAGCACCAAAGAAAGAAGAACCCAG
CTAAAGAAGCACCAAAGAAAGAAGAACCCAGCTAAAGAAGCACCAAAGAAAGAAGAACCCATCTAAAGAAGCACCAAAGAA
spacer length: 79 repeater length: 40
15832 722575 GAAGAACCATCTAAAGAAGCACCAAAGAAAGAAGAACCCAG
AAGCATCAAAAGCAAAACGAAAAACAAACGTTAATCTACTTTTGGGAATCCATATCTTTATTTTTTACTTATAATCAA
15833
15834
15835 crispr 3
15836 655500 GCAAAACGTACCGCAAAAAAGACAGCACCTAAAGCAAAAC GTACTGTCAAACGCGTTGCAAAAAA spacer
length: 25 repeater length: 40
15837 655566 GCAAAACGTACCGCAAAAAAGACAGCACCTAAAGCAAAAC GTACTGTCAAACGCGTTGCAAAAAA spacer
length: 25 repeater length: 40
15838 655632 GCAAAACGTACCGCAAAAAAGACAGCACCTAAAGCAAAAC
GTACTGCTAAGAACAAGCATCAAAAGCAAAACGTAAGTACTGCTAAGAACAAGCATCAAA spacer length: 58
repeater length: 40
15839 655731 GCAAAACGTACCGCAAAAAAGACAGCACCTAAAGCAAAAC
ACTGCTAAGAACAAGCATCAAAAGCAAAACGAAAAACAAACGTTAATCTACTTTTG
15840
15841
15842 GCA_000955905.3_ASM95590v3_genomic.fna(findCrispr):

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15843      START      REPEAT
15844      SPACER
15844      crispr 1
15845      1456684 AGACGGTGAACAGACGACGA
15845      TAACGTAAC TGCCGAGGGCCAAAATGGAGATGGCGATGGAGAATTCGATGATGACAATGTGGAAGCCAGTGATG spacer
15845      length: 74 repeater length: 21
15846      1456780 AGACGGTGAACAGACGACGA TAACGTAGAGGAAAGTGATG spacer length: 20 repeater
15846      length: 21
15847      1456822 AGACGGTGAACAGACGACGA AGATAAGATCATTGTATCTT
15848
15849
15850      crispr 2
15851      592551 CTGAAATGAAAGAGAAGAAAG ACGCCAAGAAAACAGCAGTCAAAGAGAAGAAAGAAACCAAAAAG spacer
15851      length: 44 repeater length: 21
15852      592617 CTGAAATGAAAGAGAAGAAAG ACGCCAAGAAAACAGCAGTCAAAGAGAAGAAAGAAACCAAAAAA spacer
15852      length: 44 repeater length: 21
15853      592683 CTGAAATGAAAGAGAAGAAAG TTAGATAAGATCATTGTATCTTACCCCCCAATCTTTTATTTTTT
15854
15855
15856      GCA_000956175.1_ASM95617v1_genomic.fna(findCrispr):
15857      START      REPEAT
15857      SPACER
15858      crispr 1
15859      1455983 AAAGACGGGTTTAACAAAAA
15859      CGGTTATGACAAAAATGGTTATGACAAGGACGGTTATGACAATCGGGGTTTTTCCATAGATGGAATTCACATCGATACAAAAATTG
15859      CTTTTGA spacer length: 93 repeater length: 20
15860      1456097 AAAGACGGGTTTAACAAAAA
15860      TGGTTATGATGAAAATGGGTTTAACAAAAATGGTTATGACAAAAATGGGTTTAACAAAAATGGGTTTAACAAAAATGGTTATGATG
15860      AAAATGGGTATGATAGTAACGGGTATGACAAAAAGGATACAA spacer length: 129 repeater length: 20
15861      1456247 AAAGACGGGTTTAACAAAAA
15861      AGAAACCATTCAACCCAAATCAAAAAAACCTAATAATTCAAAGCCTTCAGAAAAGTAATTCATTAATCTATTTTTGAGAGATGAA
15861      TATGTGCAATTTTCCATGTTGGTTGTTTTACTAGTACAAATGT
15862
15863
15864      crispr 2
15865      709398 ATTCAACCCAAATCAAAAAA AATCTAACTCACCAAGAAAC spacer length: 21 repeater length:
15865      20
15866      709440 ATTCAACCCAAATCAAAAAA ATCTAACTCACCAAGAAAC spacer length: 20 repeater length: 20
15867      709481 ATTCAACCCAAATCAAAAAA ATCTAACTCACCAAGAAAC spacer length: 20 repeater length: 20
15868      709522 ATTCAACCCAAATCAAAAAA AATCTAACTCACCAAGAAAC spacer length: 21 repeater length:
15868      20
15869      709564 ATTCAACCCAAATCAAAAAA GAAACCATTCAACCCAAATCA
15870
15871
15872      crispr 3
15873      1175342 CCTTGTGGACCTTTTTCTCC AGAAGGACCTGTAGTTCCCCGCTCACCTTGTGAACCTTGTGG spacer
15873      length: 42 repeater length: 20
15874      1175405 CCTTGTGGACCTTTTTCTCC
15874      AGGAGCACCAATTGGACCTGTAGGACCTTTTTCTCCAACAGGTCCTATTGCACCTTTTTCTCCTTTTTTACCCTGAGGTCCAGGAA
15874      CTCCTGTAAGACCCTTAGAACCTGCAGGACCTTGTGG spacer length: 123 repeater length: 20
15875      1175549 CCTTGTGGACCTTTTTCTCC
15875      AAACCATTCAACCCAAATCAAAAAAACCTAATAATTCAAAGCCTTCAGAAAAGTAATTCATTAATCTATTTTTGAGAGATGAATA
15875      TGTGCAATTTTCCATGTTGGTTGTTTTACTAGTACAA
15876
15877
15878      crispr 4
15879      1175981 CCTTTGTCACCAACAGGGCCAG
15879      TAGCACCTTTGTCTCCTTTGTCTCCTGGAGGGCCAACAATTCCTTTGTACCTTTGTCTCCTTTGTACCCAGTAGAACCCCTTGTC
15879      CCGGTAACACCTTTGTACCCAGATAATCCTTTTTTCGCCAGTTGGTCCTTTGTACCCAGTTGC spacer length: 148
15879      repeater length: 22
15880      1176152 CCTTTGTCACCAACAGGGCCAG
15880      GCGGACCATCAGGTCCTTTATTTCCAACAGGTCCTTGTGGACCGGGAGGGCCAGGTGG spacer length: 58
15880      repeater length: 22
15881      1176233 CCTTTGTCACCAACAGGGCCAG
15881      GGTATGATAGTAACGGGTATGATGAAAATGGATTTCGATGAAAATGGTTTTGATCTAGA
15882
15883
15884      crispr 5
15885      1275747 CAGCTAGAAAGACTGCTGCAAAGA AAGAGGTAGTAAAGAGAAAA spacer length: 20 repeater
15885      length: 24
15886      1275792 CAGCTAGAAAGACTGCTGCAAAGA AAAAGATAGTAAAGAGAAAA spacer length: 20 repeater

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length: 24
15887 1275837 CAGCTAGAAAAGACTGCTGCAAAGA AAAAGGTAGTAAAGAGAAAA spacer length: 20 repeater
length: 24
15888 1275882 CAGCTAGAAAAGACTGCTGCAAAGA
AAAAGGTAGTAAAGAGAAAAACCAGCTAGAAAGTCTGCTGCAAAGAAAAAGGTAGTAAAGAGAAAA spacer length: 65
repeater length: 24
15889 1275972 CAGCTAGAAAAGACTGCTGCAAAGA AAAAGGTAGTAAAGAGAAAA spacer length: 20 repeater
length: 24
15890 1276017 CAGCTAGAAAAGACTGCTGCAAAGA AAAAGGTAGTAAAGAGAAAA spacer length: 20 repeater
length: 24
15891 1276062 CAGCTAGAAAAGACTGCTGCAAAGA ATTCAACCCAAATCAAAAAA
15892
15893
15894 crispr 6
15895 251103 ACCAGAACCAATCACTGAACCAGAA
CCCCCTTCCAGTCCAAGAGGTTTCATTACCAAAAAGATTCAACAGAAGAGCTTCCTCAAGAACTAGATCTTG spacer
length: 70 repeater length: 25
15896 251199 ACCAGAACCAATCACTGAACCAGAA
CCCCCTTCCAGTCCAAGAGGTTTCATTACCAAAAAGATTCAACAGAAGAGCTTCCTCAAGAACTAGATCTTG spacer
length: 70 repeater length: 25
15897 251295 ACCAGAACCAATCACTGAACCAGAA
CCCCCTTCCAGTCCAAGAGGTTTCATTACCAAAAAGATTCAACAGAAGAGCTTCCTCAAGAACTAGATCTTG spacer length:
69 repeater length: 25
15898 251390 ACCAGAACCAATCACTGAACCAGAA
GAGGAAGAAGCTACTCCTGAACAAATTAGCTAGATTAGAGCAATTAGAAAAACAAATTGAAAAATTAGAGTCAC spacer
length: 73 repeater length: 25
15899 251489 ACCAGAACCAATCACTGAACCAGAA
CCCCCTTCCAGTCCAAGAGGTTTCATTACCAAAAAGATTCAACAGAAGAGCTTCCTCAAGAACTAGATCTTG spacer
length: 70 repeater length: 25
15900 251585 ACCAGAACCAATCACTGAACCAGAA
TGACAAACTAGGATATGATCATATAGGTTATGACAAAAGAAGGATACAACCAAGAGGGATACAACAAATTC
15901
15902
15903 crispr 7
15904 4433 TGAGTCAGATAGTGTTGCAGAGATGGC
TGATGTGGTTGCAATGGTGTGAGTTAGGGCTAATGAGTCAGATAGTGTAGCAGAGATGGCTGATGTGGTTGCAATGGTGTGAGTTA
GGGCTA spacer length: 92 repeater length: 27
15905 4553 TGAGTCAGATAGTGTTGCAGAGATGGC
AGTAGTTGCGGATACTACATCAGTTAGTGCAAGTGAGTCAGATAGTGTGTCAGAGAAGACATTGTTTGAAGAGACTGTGTGAGTTA
GGGCTA spacer length: 92 repeater length: 27
15906 4673 TGAGTCAGATAGTGTTGCAGAGATGGC
ATAGTAACGGGTATGATGAAAAATGGATTTCGATGAAAATGGTTTTGATCTAGATGGGTTTTGATGAAAATGGGTATGATAGTAACGGG
TATGAC
15907
15908
15909 crispr 8
15910 1042817 CTAAACGCAGAGCCGCTCCAAAGAGAAA AACTGCAGCTAAAAAAGCAGCTCCAAAGAGAAAGGCA spacer
length: 37 repeater length: 28
15911 1042883 CTAAACGCAGAGCCGCTCCAAAGAGAAA
AACTGCAGCTAAAAAAGCAGCTCCAAAGAGAAAAGGCAGCAAAGAGGAAAGCAGCACCAAAAAGAAAAGCTGCT spacer
length: 73 repeater length: 28
15912 1042985 CTAAACGCAGAGCCGCTCCAAAGAGAAA
CTAATAATTCAAAGCCTTCAGAAAAGTAATTCATTAATCTATTTTTGAGAGATGAATATGTGCAATTTTCCAT
15913
15914
15915 crispr 9
15916 1456103 GGGTTTAAACAAAAATGGTTATGATGAAAATGGGT TTAACAAAAATGGTTATGACAAAAATGGGTTTAAACAAAA
spacer length: 40 repeater length: 34
15917 1456178 GGGTTTAAACAAAAATGGTTATGATGAAAATGGGT ATGATAGTAACGGGTATGACAAAAAAGGATACAATAAAGA
spacer length: 40 repeater length: 34
15918 1456253 GGGTTTAAACAAAAATGGTTATGATGAAAATGGGT AACGTCGACGTTAAGCTGTCTATACTATCTTTTTTCTTAT
15919
15920
15921 crispr 10
15922 10161 CTGAGTACGTCAGAGATAGCCATGATTGAATCAGAT
GTGCTAGAAAAATATGGTCTCACCTGTAGATTTGGTTAATGTTGT spacer length: 44 repeater length: 36
15923 10242 CTGAGTACGTCAGAGATAGCCATGATTGAATCAGAT
ACGTGTGAATCAGGTGTAGTGTGTTGCTGAGAATCTTGATAGTGTAC spacer length: 47 repeater length: 36
15924 10326 CTGAGTACGTCAGAGATAGCCATGATTGAATCAGAT
ACGTGTGAATCAGGTGTAGTGTGTTGCTGAGAATCTTGATAGTGTAC spacer length: 47 repeater length: 36
15925 10410 CTGAGTACGTCAGAGATAGCCATGATTGAATCAGAT

TAATTCAAAGCCTTCAGAAAAGTAATTCATTAATCTATTTTTTGAGAG

15926

15927

15928 crispr 11

15929 4810 CAATGATGCTTGCTGTGGTTGCTATAGTATCAGAGATAG CTAGAGAGTCATCAAGTGTT spacer length: 20
repeater length: 39

15930 4870 CAATGATGCTTGCTGTGGTTGCTATAGTATCAGAGATAG CTAGAGAGTCATCAAGTGTT spacer length: 20
repeater length: 39

15931 4930 CAATGATGCTTGCTGTGGTTGCTATAGTATCAGAGATAG TTAGAGAGTCATCAAGTGTT spacer length: 20
repeater length: 39

15932 4990 CAATGATGCTTGCTGTGGTTGCTATAGTATCAGAGATAG TATGATAGTAACGGGTATGA

15933

15934

15935 GCA_000968355.2_ASM96835v2_genomic.fna(findCrispr):

15936 START REPEAT

SPACER

15937 crispr 1

15938 2150494 ATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 23

15939 2150556 ATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 23

15940 2150620 ATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 23

15941 2150686 ATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 23

15942 2150750 ATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 23

15943 2150812 ATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer
length: 39 repeater length: 23

15944 2150875 ATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 23

15945 2150938 ATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 23

15946 2151001 ATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 23

15947 2151064 ATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 23

15948 2151128 ATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 23

15949 2151191 ATAATCTCTTATAGAATTGAAAG ACCACGAGCAGCACCCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 23

15950 2151254 ATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
length: 40 repeater length: 23

15951 2151318 ATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTTATCGCTGGTAACGTCG spacer
length: 38 repeater length: 23

15952 2151380 ATAATCTCTTATAGAATTGAAAG ACACCTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 23

15953 2151444 ATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 23

15954 2151508 ATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer length:
37 repeater length: 23

15955 2151569 ATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 23

15956 2151631 ATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
length: 39 repeater length: 23

15957 2151694 ATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 23

15958 2151756 ATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 23

15959 2151818 ATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 23

15960 2151883 ATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTCCGCATCTGGTACACCATT spacer
length: 39 repeater length: 23

15961 2151946 ATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 23

15962 2152009 ATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer length:
37 repeater length: 23

15963 2152070 ATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 23

15964 2152132 ATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTTCAGTCTATTCTGGCGGC spacer
length: 40 repeater length: 23

15965 2152196 ATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 23

15966 2152258 ATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer length:
37 repeater length: 23

15967 2152319 ATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 23

15968 2152383 ATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 23

15969 2152446 ATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCACTAA spacer
length: 38 repeater length: 23

15970 2152508 ATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 23

15971 2152572 ATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 23

15972 2152637 ATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer length:
37 repeater length: 23

15973 2152698 ATAATCTCTTATAGAATTGAAAG ATCTGAATTTTCCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 23

15974 2152761 ATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 23

15975 2152825 ATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 23

15976 2152887 ATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 23

15977 2152949 ATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAACGTTAGCAAAAATGCAGCAC spacer
length: 40 repeater length: 23

15978 2153013 ATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 23

15979 2153078 ATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 23

15980 2153141 ATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 23

15981 2153204 ATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 23

15982 2153268 ATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 23

15983 2153327 ATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 23

15984 2153390 ATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 23

15985 2153450 ATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 23

15986 2153512 ATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 23

15987 2153574 ATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 23

15988 2153636 ATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 23

15989 2153701 ATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 23

15990 2153764 ATAATCTCTTATAGAATTGAAAG AGATTGTTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 23

15991 2153828 ATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 23

15992 2153891 ATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGAACGCTAAGAA spacer
length: 38 repeater length: 23

15993 2153953 ATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 23

15994 2154021 ATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 23

15995 2154086 ATAATCTCTTATAGAATTGAAAG CTAAC TTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 23

15996 2154148 ATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT spacer length:
36 repeater length: 23

15997 2154208 ATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 23

15998 2154271 ATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 23

15999 2154333 ATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer length:
37 repeater length: 23

16000 2154394 ATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer

length: 42 repeater length: 23
16001 2154460 ATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 23
16002 2154523 ATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 23
16003 2154587 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer length:
37 repeater length: 23
16004 2154648 ATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 23
16005 2154710 ATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 23
16006 2154773 ATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 23
16007 2154837 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 23
16008 2154901 ATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCGACCAAAGCTAATA spacer
length: 39 repeater length: 23
16009 2154964 ATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 23
16010 2155028 ATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 23
16011 2155095 ATAATCTCTTATAGAATTGAAAG ATACAGATTTGTTATCCATATCCTACATGACTTTCC spacer length:
37 repeater length: 23
16012 2155156 ATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 23
16013 2155219 ATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 23
16014 2155283 ATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCGGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 23
16015 2155347 ATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 23
16016 2155409 ATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 23
16017 2155473 ATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 23
16018 2155541 ATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACAAGTATC spacer
length: 38 repeater length: 23
16019 2155603 ATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 23
16020 2155668 ATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 23
16021 2155732 ATAATCTCTTATAGAATTGAAAG CAATCCCATTGTTTTACTCACTTCTAAGAACCTCGC spacer length:
37 repeater length: 23
16022 2155793 ATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 23
16023 2155857 ATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 23
16024 2155921 ATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 23
16025 2155984 ATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAGC spacer
length: 40 repeater length: 23
16026 2156048 ATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 23
16027 2156112 ATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 23
16028 2156176 ATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 23
16029 2156241 ATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 23
16030 2156305 ATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 23
16031 2156368 ATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer length:
37 repeater length: 23
16032 2156429 ATAATCTCTTATAGAATTGAAAG ATCTACTACATCATCCTCTACCACGGCAAGCCAACAACCTGCGT spacer
length: 43 repeater length: 23
16033 2156496 ATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 23
16034 2156558 ATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 23
16035 2156623 ATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTCT spacer
length: 39 repeater length: 23

16036 2156686 ATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer length:
37 repeater length: 23

16037 2156747 ATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 23

16038 2156810 ATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 23

16039 2156875 ATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 23

16040 2156938 ATAATCTCTTATAGAATTGAAAG TTTGCGCATTCTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 23

16041 2157004 ATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer length:
37 repeater length: 23

16042 2157065 ATAATCTCTTATAGAATTGAAAG TGTCTGTCGTTACTGTCTGTAAGCACGTCCTATTAT spacer length:
37 repeater length: 23

16043 2157126 ATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 23

16044 2157188 ATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 23

16045 2157251 ATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTCGGTTGCTTTTATACCTT spacer
length: 38 repeater length: 23

16046 2157313 ATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 23

16047 2157378 ATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 23

16048 2157442 ATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT spacer
length: 42 repeater length: 23

16049 2157508 ATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCTCAGATTCATTATGGG spacer
length: 39 repeater length: 23

16050 2157571 ATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 23

16051 2157634 ATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer length:
37 repeater length: 23

16052 2157695 ATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCCT spacer
length: 39 repeater length: 23

16053 2157758 ATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 23

16054 2157823 ATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 23

16055 2157885 ATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 23

16056 2157948 ATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer length:
37 repeater length: 23

16057 2158009 ATAATCTCTTATAGAATTGAAAG CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAACATA spacer
length: 40 repeater length: 23

16058 2158073 ATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 23

16059 2158138 ATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 23

16060 2158202 ATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 23

16061 2158264 ATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 23

16062 2158326 ATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA spacer
length: 38 repeater length: 23

16063 2158388 ATAATCTCTTATAGAATTGAAAG ATCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTA

16064

16065

16066 crispr 2

16067 2557814 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24

16068 2557877 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCTCAAAT spacer
length: 41 repeater length: 24

16069 2557943 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 24

16070 2558006 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24

16071 2558071 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACCTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24

16072 2558139 GATAATCTACTATAGAATTGAAAG CCCGCCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24

16073 2558203 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTG

16074
16075
16076 crispr 3
16077 2134718 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCCTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
16078 2134784 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
16079 2134848 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
16080 2134910 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
16081 2134973 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
16082 2135038 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
16083 2135098 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
16084 2135162 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
16085 2135226 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTTCGATAATA spacer
length: 40 repeater length: 25
16086 2135292 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
16087 2135356 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
16088 2135420 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
16089 2135482 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
16090 2135544 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
16091 2135609 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25
16092 2135672 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
16093 2135737 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAA spacer
length: 38 repeater length: 25
16094 2135801 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
16095 2135863 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
16096 2135928 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
16097 2135995 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
16098 2136058 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
16099 2136119 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
16100 2136181 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
16101 2136244 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
16102 2136309 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
16103 2136369 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
16104 2136434 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAAC spacer
length: 39 repeater length: 25
16105 2136499 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
16106 2136565 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25
16107 2136629 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25
16108 2136692 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACAACTGAAAAAATTA spacer
length: 39 repeater length: 25
16109 2136757 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25
16110 2136820 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
35 repeater length: 25

16111	2136881	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC	spacer
		length: 36	repeater length: 25	
16112	2136943	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC	spacer
		length: 43	repeater length: 25	
16113	2137012	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT	spacer
		length: 37	repeater length: 25	
16114	2137075	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC	spacer length:
		35	repeater length: 25	
16115	2137136	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT	spacer length:
		35	repeater length: 25	
16116	2137197	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT	spacer
		length: 38	repeater length: 25	
16117	2137261	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC	spacer
		length: 40	repeater length: 25	
16118	2137327	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTA	spacer length:
		33	repeater length: 25	
16119	2137386	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA	spacer
		length: 38	repeater length: 25	
16120	2137450	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA	spacer
		length: 39	repeater length: 25	
16121	2137515	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT	spacer
		length: 39	repeater length: 25	
16122	2137580	CTTTCAATTCCTTTTAGGATTAATC	GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA	
16123				
16124				
16125	crispr 4			
16126	2112739	GATTAATCCCAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTGCGCA	spacer
		length: 36	repeater length: 25	
16127	2112801	GATTAATCCCAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC	spacer
		length: 37	repeater length: 25	
16128	2112864	GATTAATCCCAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT	spacer
		length: 38	repeater length: 25	
16129	2112928	GATTAATCCCAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAAT	spacer
		length: 40	repeater length: 25	
16130	2112994	GATTAATCCCAAAAGGAATTGAAAG	GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG	spacer
		length: 39	repeater length: 25	
16131	2113059	GATTAATCCCAAAAGGAATTGAAAG	TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT	spacer
		length: 37	repeater length: 25	
16132	2113122	GATTAATCCCAAAAGGAATTGAAAG	GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG	spacer
		length: 38	repeater length: 25	
16133	2113186	GATTAATCCCAAAAGGAATTGAAAG	CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC	spacer
		length: 40	repeater length: 25	
16134	2113252	GATTAATCCCAAAAGGAATTGAAAG	CAAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT	spacer
		length: 39	repeater length: 25	
16135	2113317	GATTAATCCCAAAAGGAATTGAAAG	TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA	spacer
		length: 38	repeater length: 25	
16136	2113381	GATTAATCCCAAAAGGAATTGAAAG	CGCTTTCGACTGCGACAACGTGCTTTGGCTCATTTGTTG	spacer
		length: 40	repeater length: 25	
16137	2113447	GATTAATCCCAAAAGGAATTGAAAG	TTATTTCAAATACATATTATCTCCGCCATATGTTTACA	spacer
		length: 37	repeater length: 25	
16138	2113510	GATTAATCCCAAAAGGAATTGAAAG	ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT	spacer
		length: 37	repeater length: 25	
16139	2113573	GATTAATCCCAAAAGGAATTGAAAG	TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT	spacer
		length: 39	repeater length: 25	
16140	2113638	GATTAATCCCAAAAGGAATTGAAAG	CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT	spacer
		length: 38	repeater length: 25	
16141	2113702	GATTAATCCCAAAAGGAATTGAAAG	AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT	spacer
		length: 43	repeater length: 25	
16142	2113771	GATTAATCCCAAAAGGAATTGAAAG	GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC	spacer
		length: 36	repeater length: 25	
16143	2113833	GATTAATCCCAAAAGGAATTGAAAG	GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT	spacer
		length: 38	repeater length: 25	
16144	2113897	GATTAATCCCAAAAGGAATTGAAAG	GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC	spacer length:
		35	repeater length: 25	
16145	2113958	GATTAATCCCAAAAGGAATTGAAAG	AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAA	spacer
		length: 41	repeater length: 25	
16146	2114025	GATTAATCCCAAAAGGAATTGAAAG	TTCTAATCTTTTGCCATTACTGCATCATATCTACTA	spacer
		length: 37	repeater length: 25	
16147	2114088	GATTAATCCCAAAAGGAATTGAAAG	ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATA	spacer
		length: 37	repeater length: 25	
16148	2114151	GATTAATCCCAAAAGGAATTGAAAG	ACAAAACGAGGAGTTTATAGTAAAATCAACTATGAA	spacer

length: 36 repeater length: 25

16149 2114213 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length: 34 repeater length: 25

16150 2114273 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length: 35 repeater length: 25

16151 2114334 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer length: 37 repeater length: 25

16152 2114397 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length: 35 repeater length: 25

16153 2114458 GATTAATCCCAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer length: 38 repeater length: 25

16154 2114522 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer length: 36 repeater length: 25

16155 2114584 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTAGTTACCACAATGCACCA spacer length: 37 repeater length: 25

16156 2114647 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGA spacer length: 38 repeater length: 25

16157 2114711 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer length: 36 repeater length: 25

16158 2114773 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer length: 41 repeater length: 25

16159 2114840 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGC spacer length: 38 repeater length: 25

16160 2114904 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer length: 36 repeater length: 25

16161 2114966 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer length: 38 repeater length: 25

16162 2115030 GATTAATCCCAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer length: 41 repeater length: 25

16163 2115097 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer length: 39 repeater length: 25

16164 2115162 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length: 35 repeater length: 25

16165 2115223 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTT spacer length: 38 repeater length: 25

16166 2115287 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length: 35 repeater length: 25

16167 2115348 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer length: 38 repeater length: 25

16168 2115412 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer length: 40 repeater length: 25

16169 2115478 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer length: 40 repeater length: 25

16170 2115544 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTCAGCCCT spacer length: 35 repeater length: 25

16171 2115605 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length: 35 repeater length: 25

16172 2115666 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer length: 38 repeater length: 25

16173 2115730 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length: 33 repeater length: 25

16174 2115789 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer length: 37 repeater length: 25

16175 2115852 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer length: 39 repeater length: 25

16176 2115917 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGTGGGGGGCAAGGGCCCCG spacer length: 39 repeater length: 25

16177 2115982 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer length: 39 repeater length: 25

16178 2116047 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer length: 38 repeater length: 25

16179 2116111 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer length: 39 repeater length: 25

16180 2116176 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATT spacer length: 38 repeater length: 25

16181 2116240 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer length: 39 repeater length: 25

16182 2116305 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer length: 37 repeater length: 25

16183 2116368 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer length: 38 repeater length: 25

16184 2116432 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25

16185 2116494 GATTAATCCCAAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25

16186 2116554 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25

16187 2116616 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25

16188 2116679 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25

16189 2116743 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAAGACATTCTC spacer
length: 39 repeater length: 25

16190 2116808 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25

16191 2116873 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25

16192 2116937 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCTG spacer
length: 41 repeater length: 25

16193 2117004 GATTAATCCCAAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25

16194 2117067 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25

16195 2117128 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25

16196 2117190 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25

16197 2117251 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

16198 2117315 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTCTG spacer
length: 37 repeater length: 25

16199 2117378 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25

16200 2117441 GATTAATCCCAAAAAGGAATTGAAAG TCAAACATCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25

16201 2117504 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTCTGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25

16202 2117567 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATT spacer
length: 39 repeater length: 25

16203 2117632 GATTAATCCCAAAAAGGAATTGAAAG
AAAAACTTTTTCACATTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

16204 2117763 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

16205 2117827 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGCTCATA spacer
length: 36 repeater length: 25

16206 2117889 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25

16207 2117952 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25

16208 2118018 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25

16209 2118083 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25

16210 2118145 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTCTGCTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25

16211 2118206 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25

16212 2118267 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAGCGACAGACGGTCTGA spacer
length: 37 repeater length: 25

16213 2118330 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25

16214 2118392 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25

16215 2118457 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTAT spacer
length: 37 repeater length: 25

16216 2118520 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25

16217 2118585 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25

16218 2118649 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGA spacer
length: 39 repeater length: 25

16219 2118714 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
16220 2118778 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
16221 2118843 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25
16222 2118907 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
16223 2118971 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTT spacer
length: 37 repeater length: 25
16224 2119034 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
16225 2119098 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
16226 2119164 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCC GCAACTCT spacer
length: 37 repeater length: 25
16227 2119227 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25
16228 2119288 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25
16229 2119352 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
16230 2119416 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25
16231 2119477 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
16232 2119541 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25
16233 2119603 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
16234 2119667 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
16235 2119729 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
16236 2119793 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
16237 2119854 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
16238 2119917 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
16239 2119982 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
16240 2120046 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
16241 2120108 GATTAATCCCAAAAAGGAATTGAAAG GGTATTCAAGTAAATTCATGCTATAGTCAATTTCTTA
16242
16243
16244 crispr 5
16245 2052134 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAAC spacer length: 55 repeater
length: 28
16246 2052218 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28
16247 2052344 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTTCTTTCACTTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
16248
16249
16250 crispr 6
16251 2414270 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39
16252 2414396 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
16253 2414501 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT
16254
16255
16256 GCA_000968395.2_ASM96839v2_genomic.fna(findCrispr):

	START	REPEAT	
16257	START	REPEAT	
	SPACER		
16258	crispr 1		
16259	2150494	ATAATCTCTTATAGAATTGAAAG	TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
	length: 38	repeater length: 23	
16260	2150556	ATAATCTCTTATAGAATTGAAAG	CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
	length: 40	repeater length: 23	
16261	2150620	ATAATCTCTTATAGAATTGAAAG	TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTATT spacer
	length: 42	repeater length: 23	
16262	2150686	ATAATCTCTTATAGAATTGAAAG	GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
	length: 40	repeater length: 23	
16263	2150750	ATAATCTCTTATAGAATTGAAAG	AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
	length: 38	repeater length: 23	
16264	2150812	ATAATCTCTTATAGAATTGAAAG	GAAGTGTCTGGTGTTCATGAAATATGGGTATGCATATT spacer
	length: 39	repeater length: 23	
16265	2150875	ATAATCTCTTATAGAATTGAAAG	GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
	length: 39	repeater length: 23	
16266	2150938	ATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
	length: 39	repeater length: 23	
16267	2151001	ATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
	length: 39	repeater length: 23	
16268	2151064	ATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
	length: 40	repeater length: 23	
16269	2151128	ATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
	length: 39	repeater length: 23	
16270	2151191	ATAATCTCTTATAGAATTGAAAG	ACCACGAGCAGCAGCTCAAATATAACACCGCCAAAAATC spacer
	length: 39	repeater length: 23	
16271	2151254	ATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
	length: 40	repeater length: 23	
16272	2151318	ATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG spacer
	length: 38	repeater length: 23	
16273	2151380	ATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAAACCGCACTGACTTACAATTACC spacer
	length: 40	repeater length: 23	
16274	2151444	ATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
	length: 40	repeater length: 23	
16275	2151508	ATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer length:
	37	repeater length: 23	
16276	2151569	ATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
	length: 38	repeater length: 23	
16277	2151631	ATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
	length: 39	repeater length: 23	
16278	2151694	ATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
	length: 38	repeater length: 23	
16279	2151756	ATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
	length: 38	repeater length: 23	
16280	2151818	ATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA spacer
	length: 41	repeater length: 23	
16281	2151883	ATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTCCGCATCTGGTACACCATT spacer
	length: 39	repeater length: 23	
16282	2151946	ATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
	length: 39	repeater length: 23	
16283	2152009	ATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer length:
	37	repeater length: 23	
16284	2152070	ATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
	length: 38	repeater length: 23	
16285	2152132	ATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTTCAGTCTATTCTGGCGGC spacer
	length: 40	repeater length: 23	
16286	2152196	ATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
	length: 38	repeater length: 23	
16287	2152258	ATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer length:
	37	repeater length: 23	
16288	2152319	ATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTCCACAGATA spacer
	length: 40	repeater length: 23	
16289	2152383	ATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
	length: 39	repeater length: 23	
16290	2152446	ATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCAACTAA spacer
	length: 38	repeater length: 23	
16291	2152508	ATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
	length: 40	repeater length: 23	
16292	2152572	ATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
	length: 41	repeater length: 23	

16293 2152637 ATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer length:
37 repeater length: 23

16294 2152698 ATAATCTCTTATAGAATTGAAAG ATCTGAATTTTCCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 23

16295 2152761 ATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 23

16296 2152825 ATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 23

16297 2152887 ATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 23

16298 2152949 ATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAACGTTAGCAAAAATGCAGCAC spacer
length: 40 repeater length: 23

16299 2153013 ATAATCTCTTATAGAATTGAAAG TCCCTTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer
length: 41 repeater length: 23

16300 2153078 ATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 23

16301 2153141 ATAATCTCTTATAGAATTGAAAG GTTTTATTTTATAAACGGCGGTCTAGATAAAAATACAGTT spacer
length: 39 repeater length: 23

16302 2153204 ATAATCTCTTATAGAATTGAAAG TCACCTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 23

16303 2153268 ATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 23

16304 2153327 ATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 23

16305 2153390 ATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 23

16306 2153450 ATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 23

16307 2153512 ATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 23

16308 2153574 ATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 23

16309 2153636 ATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 23

16310 2153701 ATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 23

16311 2153764 ATAATCTCTTATAGAATTGAAAG AGATTGTTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 23

16312 2153828 ATAATCTCTTATAGAATTGAAAG CCAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 23

16313 2153891 ATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGAACGCTAAGAA spacer
length: 38 repeater length: 23

16314 2153953 ATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 23

16315 2154021 ATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 23

16316 2154086 ATAATCTCTTATAGAATTGAAAG CTAAC TTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 23

16317 2154148 ATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT spacer length:
36 repeater length: 23

16318 2154208 ATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 23

16319 2154271 ATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 23

16320 2154333 ATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTCGACAGCTT spacer length:
37 repeater length: 23

16321 2154394 ATAATCTCTTATAGAATTGAAAG TTAATTTATTGTTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 23

16322 2154460 ATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 23

16323 2154523 ATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 23

16324 2154587 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer length:
37 repeater length: 23

16325 2154648 ATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 23

16326 2154710 ATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 23

16327 2154773 ATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 23

16328 2154837 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer

length: 40 repeater length: 23
16329 2154901 ATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCGGACCAAAGCTAATA spacer
length: 39 repeater length: 23
16330 2154964 ATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAAACACTGTTATTGGT spacer
length: 40 repeater length: 23
16331 2155028 ATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 23
16332 2155095 ATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer length:
37 repeater length: 23
16333 2155156 ATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 23
16334 2155219 ATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 23
16335 2155283 ATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 23
16336 2155347 ATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 23
16337 2155409 ATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 23
16338 2155473 ATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 23
16339 2155541 ATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTATC spacer
length: 38 repeater length: 23
16340 2155603 ATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAAACTATG spacer
length: 41 repeater length: 23
16341 2155668 ATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 23
16342 2155732 ATAATCTCTTATAGAATTGAAAG CAATCCCATTTCGTTTTACTCACTTCTAAGAACCTCGC spacer length:
37 repeater length: 23
16343 2155793 ATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 23
16344 2155857 ATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 23
16345 2155921 ATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 23
16346 2155984 ATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAAACAAATTGGGTAGC spacer
length: 40 repeater length: 23
16347 2156048 ATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 23
16348 2156112 ATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 23
16349 2156176 ATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 23
16350 2156241 ATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 23
16351 2156305 ATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 23
16352 2156368 ATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer length:
37 repeater length: 23
16353 2156429 ATAATCTCTTATAGAATTGAAAG ATCTACTACATCATCCTCTACCACGGCAAGCCAACAACTGCGT spacer
length: 43 repeater length: 23
16354 2156496 ATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 23
16355 2156558 ATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 23
16356 2156623 ATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAAATAATTCT spacer
length: 39 repeater length: 23
16357 2156686 ATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer length:
37 repeater length: 23
16358 2156747 ATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 23
16359 2156810 ATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 23
16360 2156875 ATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 23
16361 2156938 ATAATCTCTTATAGAATTGAAAG TTTGCGCATTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 23
16362 2157004 ATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer length:
37 repeater length: 23
16363 2157065 ATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTAT spacer length:
37 repeater length: 23

16364 2157126 ATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 23
16365 2157188 ATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 23
16366 2157251 ATAATCTCTTATAGAATTGAAAG GCACAATTCCGCAACGATTTTCGGTTCGCTTTATACCTT spacer
length: 38 repeater length: 23
16367 2157313 ATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 23
16368 2157378 ATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 23
16369 2157442 ATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT spacer
length: 42 repeater length: 23
16370 2157508 ATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGGG spacer
length: 39 repeater length: 23
16371 2157571 ATAATCTCTTATAGAATTGAAAG AAATCAAACGGAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 23
16372 2157634 ATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGTA spacer length:
37 repeater length: 23
16373 2157695 ATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCCT spacer
length: 39 repeater length: 23
16374 2157758 ATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 23
16375 2157823 ATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 23
16376 2157885 ATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 23
16377 2157948 ATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer length:
37 repeater length: 23
16378 2158009 ATAATCTCTTATAGAATTGAAAG CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAATA spacer
length: 40 repeater length: 23
16379 2158073 ATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAAC TTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 23
16380 2158138 ATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 23
16381 2158202 ATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAAC spacer
length: 38 repeater length: 23
16382 2158264 ATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 23
16383 2158326 ATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA spacer
length: 38 repeater length: 23
16384 2158388 ATAATCTCTTATAGAATTGAAAG ATCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTA
16385
16386
16387 crispr 2
16388 2557814 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
16389 2557877 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAAC TCAAAT spacer
length: 41 repeater length: 24
16390 2557943 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 24
16391 2558006 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
16392 2558071 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
16393 2558139 GATAATCTACTATAGAATTGAAAG CCCGCCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
16394 2558203 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTG
16395
16396
16397 crispr 3
16398 2134718 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
16399 2134784 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
16400 2134848 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
16401 2134910 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
16402 2134973 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAAACTCATTCAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
16403 2135038 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:

34 repeater length: 25

16404 2135098 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

16405 2135162 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

16406 2135226 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTTCGATAATA spacer
length: 40 repeater length: 25

16407 2135292 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25

16408 2135356 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25

16409 2135420 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25

16410 2135482 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25

16411 2135544 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25

16412 2135609 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25

16413 2135672 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25

16414 2135737 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACTGATATTACGGTAA spacer
length: 38 repeater length: 25

16415 2135801 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTCACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25

16416 2135863 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25

16417 2135928 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25

16418 2135995 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25

16419 2136058 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25

16420 2136119 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25

16421 2136181 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25

16422 2136244 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25

16423 2136309 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25

16424 2136369 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25

16425 2136434 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC spacer
length: 39 repeater length: 25

16426 2136499 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25

16427 2136565 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25

16428 2136629 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25

16429 2136692 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA spacer
length: 39 repeater length: 25

16430 2136757 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25

16431 2136820 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
35 repeater length: 25

16432 2136881 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
length: 36 repeater length: 25

16433 2136943 CTTTCAATTCCTTTTAGGATTAATC GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
length: 43 repeater length: 25

16434 2137012 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
length: 37 repeater length: 25

16435 2137075 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC spacer length:
35 repeater length: 25

16436 2137136 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
35 repeater length: 25

16437 2137197 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
length: 38 repeater length: 25

16438 2137261 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
length: 40 repeater length: 25

16439 2137327 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
33 repeater length: 25
16440 2137386 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
length: 38 repeater length: 25
16441 2137450 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCATTACACAAA spacer
length: 39 repeater length: 25
16442 2137515 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
length: 39 repeater length: 25
16443 2137580 CTTTCAATTCCTTTTAGGATTAATC GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA
16444
16445
16446 crispr 4
16447 2112739 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCA spacer
length: 36 repeater length: 25
16448 2112801 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC spacer
length: 37 repeater length: 25
16449 2112864 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT spacer
length: 38 repeater length: 25
16450 2112928 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAAT spacer
length: 40 repeater length: 25
16451 2112994 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG spacer
length: 39 repeater length: 25
16452 2113059 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT spacer
length: 37 repeater length: 25
16453 2113122 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG spacer
length: 38 repeater length: 25
16454 2113186 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC spacer
length: 40 repeater length: 25
16455 2113252 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT spacer
length: 39 repeater length: 25
16456 2113317 GATTAATCCCAAAAGGAATTGAAAG TTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA spacer
length: 38 repeater length: 25
16457 2113381 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTG spacer
length: 40 repeater length: 25
16458 2113447 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACA spacer
length: 37 repeater length: 25
16459 2113510 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
length: 37 repeater length: 25
16460 2113573 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT spacer
length: 39 repeater length: 25
16461 2113638 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
length: 38 repeater length: 25
16462 2113702 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
length: 43 repeater length: 25
16463 2113771 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC spacer
length: 36 repeater length: 25
16464 2113833 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
length: 38 repeater length: 25
16465 2113897 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTGGCAACTGGTATGTTGTATTTTGC spacer length:
35 repeater length: 25
16466 2113958 GATTAATCCCAAAAGGAATTGAAAG AATTTGTGTACACGGCTAGGATTTTTTTTCTAGATGTACAA spacer
length: 41 repeater length: 25
16467 2114025 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25
16468 2114088 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTGTAACAAATA spacer
length: 37 repeater length: 25
16469 2114151 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAA spacer
length: 36 repeater length: 25
16470 2114213 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25
16471 2114273 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25
16472 2114334 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer
length: 37 repeater length: 25
16473 2114397 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length:
35 repeater length: 25
16474 2114458 GATTAATCCCAAAAGGAATTGAAAG ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer
length: 38 repeater length: 25
16475 2114522 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTGTGTTCTGAC spacer
length: 36 repeater length: 25
16476 2114584 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCA spacer

length: 37 repeater length: 25
16477 2114647 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTGA spacer
length: 38 repeater length: 25
16478 2114711 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer
length: 36 repeater length: 25
16479 2114773 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer
length: 41 repeater length: 25
16480 2114840 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTCTGGCAACCTCACTTATTCACGTGGGGGTGC spacer
length: 38 repeater length: 25
16481 2114904 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25
16482 2114966 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer
length: 38 repeater length: 25
16483 2115030 GATTAATCCCAAAAAGGAATTGAAAG TTGAACCTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer
length: 41 repeater length: 25
16484 2115097 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25
16485 2115162 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25
16486 2115223 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTT spacer
length: 38 repeater length: 25
16487 2115287 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25
16488 2115348 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25
16489 2115412 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25
16490 2115478 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25
16491 2115544 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTTCAGCCCT spacer length:
35 repeater length: 25
16492 2115605 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25
16493 2115666 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25
16494 2115730 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25
16495 2115789 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25
16496 2115852 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25
16497 2115917 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25
16498 2115982 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25
16499 2116047 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25
16500 2116111 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25
16501 2116176 GATTAATCCCAAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25
16502 2116240 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25
16503 2116305 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25
16504 2116368 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25
16505 2116432 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25
16506 2116494 GATTAATCCCAAAAAGGAATTGAAAG TTTTTATTTAAGAACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25
16507 2116554 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25
16508 2116616 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTGTTCTGA spacer
length: 37 repeater length: 25
16509 2116679 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25
16510 2116743 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTCTTTTGTAAAGACATTCTC spacer
length: 39 repeater length: 25
16511 2116808 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25

16512 2116873 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25

16513 2116937 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGT spacer
length: 41 repeater length: 25

16514 2117004 GATTAATCCCAAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25

16515 2117067 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25

16516 2117128 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25

16517 2117190 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25

16518 2117251 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

16519 2117315 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGT spacer
length: 37 repeater length: 25

16520 2117378 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25

16521 2117441 GATTAATCCCAAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25

16522 2117504 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25

16523 2117567 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATT spacer
length: 39 repeater length: 25

16524 2117632 GATTAATCCCAAAAAGGAATTGAAAG
AAAAACTTTTCACATTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

16525 2117763 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

16526 2117827 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25

16527 2117889 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25

16528 2117952 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25

16529 2118018 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25

16530 2118083 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25

16531 2118145 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25

16532 2118206 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25

16533 2118267 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAGCGACAGACGGTCGA spacer
length: 37 repeater length: 25

16534 2118330 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25

16535 2118392 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25

16536 2118457 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTAT spacer
length: 37 repeater length: 25

16537 2118520 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25

16538 2118585 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25

16539 2118649 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGA spacer
length: 39 repeater length: 25

16540 2118714 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25

16541 2118778 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25

16542 2118843 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25

16543 2118907 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTAAATATAACATATA spacer
length: 38 repeater length: 25

16544 2118971 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAATAAAATCGTGGCTTT spacer
length: 37 repeater length: 25

16545 2119034 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25

16546 2119098 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25

16547 2119164 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCCGCAACTCT spacer
length: 37 repeater length: 25

16548 2119227 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25

16549 2119288 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25

16550 2119352 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25

16551 2119416 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25

16552 2119477 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25

16553 2119541 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25

16554 2119603 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25

16555 2119667 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25

16556 2119729 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25

16557 2119793 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25

16558 2119854 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25

16559 2119917 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25

16560 2119982 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25

16561 2120046 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25

16562 2120108 GATTAATCCCAAAAAGGAATTGAAAG GGTATTTCAGTAAATTCATGCTATAGTCAATTTCTTA

16563

16564

16565 crispr 5

16566 2052134 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAAC spacer length: 55 repeater
length: 28

16567 2052218 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28

16568 2052344 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA

16569

16570

16571 crispr 6

16572 2414270 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39

16573 2414396 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39

16574 2414501 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAGAGTCGTTTGAGAGGT

16575

16576

16577 GCA_000968435.2_ASM96843v2_genomic.fna(findCrispr):

16578 START REPEAT
SPACER

16579 crispr 1

16580 2150494 ATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer
length: 38 repeater length: 23

16581 2150556 ATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer
length: 40 repeater length: 23

16582 2150620 ATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCACGGCACAACGGAGGCATGCAAATTATT spacer
length: 42 repeater length: 23

16583 2150686 ATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAGT spacer
length: 40 repeater length: 23

16584 2150750 ATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer
length: 38 repeater length: 23

16585 2150812 ATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTTCATGAAATATGGGTATGCATATT spacer

length: 39 repeater length: 23
16586 2150875 ATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer
length: 39 repeater length: 23
16587 2150938 ATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT spacer
length: 39 repeater length: 23
16588 2151001 ATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT spacer
length: 39 repeater length: 23
16589 2151064 ATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA spacer
length: 40 repeater length: 23
16590 2151128 ATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG spacer
length: 39 repeater length: 23
16591 2151191 ATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC spacer
length: 39 repeater length: 23
16592 2151254 ATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT spacer
length: 40 repeater length: 23
16593 2151318 ATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCTG spacer
length: 38 repeater length: 23
16594 2151380 ATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC spacer
length: 40 repeater length: 23
16595 2151444 ATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA spacer
length: 40 repeater length: 23
16596 2151508 ATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT spacer length:
37 repeater length: 23
16597 2151569 ATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT spacer
length: 38 repeater length: 23
16598 2151631 ATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA spacer
length: 39 repeater length: 23
16599 2151694 ATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA spacer
length: 38 repeater length: 23
16600 2151756 ATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT spacer
length: 38 repeater length: 23
16601 2151818 ATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA spacer
length: 41 repeater length: 23
16602 2151883 ATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTGCCCATCTGGTACACCATT spacer
length: 39 repeater length: 23
16603 2151946 ATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA spacer
length: 39 repeater length: 23
16604 2152009 ATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG spacer length:
37 repeater length: 23
16605 2152070 ATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC spacer
length: 38 repeater length: 23
16606 2152132 ATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTTCACTCTATTCTGGCGGC spacer
length: 40 repeater length: 23
16607 2152196 ATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA spacer
length: 38 repeater length: 23
16608 2152258 ATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA spacer length:
37 repeater length: 23
16609 2152319 ATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA spacer
length: 40 repeater length: 23
16610 2152383 ATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT spacer
length: 39 repeater length: 23
16611 2152446 ATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCACTAA spacer
length: 38 repeater length: 23
16612 2152508 ATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA spacer
length: 40 repeater length: 23
16613 2152572 ATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT spacer
length: 41 repeater length: 23
16614 2152637 ATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG spacer length:
37 repeater length: 23
16615 2152698 ATAATCTCTTATAGAATTGAAAG ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCTA spacer
length: 39 repeater length: 23
16616 2152761 ATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT spacer
length: 40 repeater length: 23
16617 2152825 ATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC spacer
length: 38 repeater length: 23
16618 2152887 ATAATCTCTTATAGAATTGAAAG TTATTGTGAGAAAAAGAAATTATACTCCGATTAATAGC spacer
length: 38 repeater length: 23
16619 2152949 ATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAAGCTTAGCAAAAATGCAGCAC spacer
length: 40 repeater length: 23
16620 2153013 ATAATCTCTTATAGAATTGAAAG TCCCTTTTCAAGTTTGCAATATGTTAGAGCGAGCTTCGCAAA spacer
length: 41 repeater length: 23

16621 2153078 ATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC spacer
length: 39 repeater length: 23

16622 2153141 ATAATCTCTTATAGAATTGAAAG GTTTTATTTTATAAACGGCGGGTCTAGATAAAATACAGTT spacer
length: 39 repeater length: 23

16623 2153204 ATAATCTCTTATAGAATTGAAAG TCACTCTTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 23

16624 2153268 ATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 23

16625 2153327 ATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 23

16626 2153390 ATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 23

16627 2153450 ATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 23

16628 2153512 ATAATCTCTTATAGAATTGAAAG ATCCCCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 23

16629 2153574 ATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 23

16630 2153636 ATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 23

16631 2153701 ATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 23

16632 2153764 ATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 23

16633 2153828 ATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 23

16634 2153891 ATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGAACGCTAAGAA spacer
length: 38 repeater length: 23

16635 2153953 ATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 23

16636 2154021 ATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTCCACACCTCAT spacer
length: 41 repeater length: 23

16637 2154086 ATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 23

16638 2154148 ATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGTT spacer length:
36 repeater length: 23

16639 2154208 ATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 23

16640 2154271 ATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCTCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 23

16641 2154333 ATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCTT spacer length:
37 repeater length: 23

16642 2154394 ATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 23

16643 2154460 ATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 23

16644 2154523 ATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 23

16645 2154587 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer length:
37 repeater length: 23

16646 2154648 ATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC spacer
length: 38 repeater length: 23

16647 2154710 ATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 23

16648 2154773 ATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTACCT spacer
length: 40 repeater length: 23

16649 2154837 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 23

16650 2154901 ATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 23

16651 2154964 ATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 23

16652 2155028 ATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 23

16653 2155095 ATAATCTCTTATAGAATTGAAAG ATACAGATTTGTTATCCATATCCTACATGACTTTCC spacer length:
37 repeater length: 23

16654 2155156 ATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 23

16655 2155219 ATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 23

16656 2155283 ATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer

length: 40 repeater length: 23
16657 2155347 ATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 23
16658 2155409 ATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCTAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 23
16659 2155473 ATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 23
16660 2155541 ATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACACAAGTATC spacer
length: 38 repeater length: 23
16661 2155603 ATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 23
16662 2155668 ATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 23
16663 2155732 ATAATCTCTTATAGAATTGAAAG CAATCCCATTTCGTTTTACTCACTTCTAAGAACCTCGC spacer length:
37 repeater length: 23
16664 2155793 ATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 23
16665 2155857 ATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 23
16666 2155921 ATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 23
16667 2155984 ATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAAACAAATTGGGTAGC spacer
length: 40 repeater length: 23
16668 2156048 ATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 23
16669 2156112 ATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 23
16670 2156176 ATAATCTCTTATAGAATTGAAAG TTCAAACTAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 23
16671 2156241 ATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 23
16672 2156305 ATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 23
16673 2156368 ATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer length:
37 repeater length: 23
16674 2156429 ATAATCTCTTATAGAATTGAAAG ATCTACTACATCATCCTCTACCACGGCAAGCCAACAACCTGCGT spacer
length: 43 repeater length: 23
16675 2156496 ATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 23
16676 2156558 ATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACACGTTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 23
16677 2156623 ATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAAATAATTCT spacer
length: 39 repeater length: 23
16678 2156686 ATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer length:
37 repeater length: 23
16679 2156747 ATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 23
16680 2156810 ATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 23
16681 2156875 ATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 23
16682 2156938 ATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 23
16683 2157004 ATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer length:
37 repeater length: 23
16684 2157065 ATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCTGTAAGCACGTCCTATTAT spacer length:
37 repeater length: 23
16685 2157126 ATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 23
16686 2157188 ATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 23
16687 2157251 ATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTCCGGTTCGCTTTATACCTT spacer
length: 38 repeater length: 23
16688 2157313 ATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 23
16689 2157378 ATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 23
16690 2157442 ATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGAT spacer
length: 42 repeater length: 23
16691 2157508 ATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCTCAGATTCATTATGGG spacer
length: 39 repeater length: 23

16692 2157571 ATAATCTCTTATAGAATTGAAAG AAATCAAACGGAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 23
16693 2157634 ATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTAGTGTA spacer length:
37 repeater length: 23
16694 2157695 ATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCCT spacer
length: 39 repeater length: 23
16695 2157758 ATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 23
16696 2157823 ATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 23
16697 2157885 ATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 23
16698 2157948 ATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer length:
37 repeater length: 23
16699 2158009 ATAATCTCTTATAGAATTGAAAG CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAATA spacer
length: 40 repeater length: 23
16700 2158073 ATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 23
16701 2158138 ATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 23
16702 2158202 ATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTTCTAGATCAAC spacer
length: 38 repeater length: 23
16703 2158264 ATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 23
16704 2158326 ATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA spacer
length: 38 repeater length: 23
16705 2158388 ATAATCTCTTATAGAATTGAAAG ATCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTA
16706
16707
16708 crispr 2
16709 2557814 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
16710 2557877 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCTCAAAT spacer
length: 41 repeater length: 24
16711 2557943 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 24
16712 2558006 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
16713 2558071 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
16714 2558139 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
16715 2558203 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTG
16716
16717
16718 crispr 3
16719 2134718 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
16720 2134784 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
16721 2134848 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
16722 2134910 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
16723 2134973 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTCAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
16724 2135038 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
16725 2135098 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
16726 2135162 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
16727 2135226 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATA spacer
length: 40 repeater length: 25
16728 2135292 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
16729 2135356 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
16730 2135420 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
16731 2135482 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer

length: 36 repeater length: 25
16732 2135544 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
16733 2135609 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25
16734 2135672 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
16735 2135737 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACTGATATTACGGTAA spacer
length: 38 repeater length: 25
16736 2135801 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTCACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
16737 2135863 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
16738 2135928 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
16739 2135995 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
16740 2136058 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
16741 2136119 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
16742 2136181 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
16743 2136244 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
16744 2136309 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
16745 2136369 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
16746 2136434 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC spacer
length: 39 repeater length: 25
16747 2136499 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
16748 2136565 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25
16749 2136629 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25
16750 2136692 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA spacer
length: 39 repeater length: 25
16751 2136757 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25
16752 2136820 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
35 repeater length: 25
16753 2136881 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
length: 36 repeater length: 25
16754 2136943 CTTTCAATTCCTTTTAGGATTAATC GAATTCATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
length: 43 repeater length: 25
16755 2137012 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
length: 37 repeater length: 25
16756 2137075 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC spacer length:
35 repeater length: 25
16757 2137136 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
35 repeater length: 25
16758 2137197 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
length: 38 repeater length: 25
16759 2137261 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
length: 40 repeater length: 25
16760 2137327 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
33 repeater length: 25
16761 2137386 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
length: 38 repeater length: 25
16762 2137450 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
length: 39 repeater length: 25
16763 2137515 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
length: 39 repeater length: 25
16764 2137580 CTTTCAATTCCTTTTAGGATTAATC GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA
16765
16766
16767 crispr 4
16768 2112739 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCA spacer
length: 36 repeater length: 25

16769 2112801 GATTAATCCCAAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC spacer
length: 37 repeater length: 25

16770 2112864 GATTAATCCCAAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT spacer
length: 38 repeater length: 25

16771 2112928 GATTAATCCCAAAAAGGAATTGAAAG TGTTTCACAAATTTCAAAC TTGCAAACGCAACAATTAAAT spacer
length: 40 repeater length: 25

16772 2112994 GATTAATCCCAAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG spacer
length: 39 repeater length: 25

16773 2113059 GATTAATCCCAAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT spacer
length: 37 repeater length: 25

16774 2113122 GATTAATCCCAAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG spacer
length: 38 repeater length: 25

16775 2113186 GATTAATCCCAAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC spacer
length: 40 repeater length: 25

16776 2113252 GATTAATCCCAAAAAGGAATTGAAAG CAAAATTCCAAACTTTGGGAATTTCTAGTTTCCAAATTT spacer
length: 39 repeater length: 25

16777 2113317 GATTAATCCCAAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA spacer
length: 38 repeater length: 25

16778 2113381 GATTAATCCCAAAAAGGAATTGAAAG CGCTTTCGACTGCGACAAC TGTCTGTTGGCTCATTTGTTG spacer
length: 40 repeater length: 25

16779 2113447 GATTAATCCCAAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACA spacer
length: 37 repeater length: 25

16780 2113510 GATTAATCCCAAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
length: 37 repeater length: 25

16781 2113573 GATTAATCCCAAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT spacer
length: 39 repeater length: 25

16782 2113638 GATTAATCCCAAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
length: 38 repeater length: 25

16783 2113702 GATTAATCCCAAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
length: 43 repeater length: 25

16784 2113771 GATTAATCCCAAAAAGGAATTGAAAG GCTTTAACTTGGTACGCAC TTTACGCCATGATAAAC spacer
length: 36 repeater length: 25

16785 2113833 GATTAATCCCAAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
length: 38 repeater length: 25

16786 2113897 GATTAATCCCAAAAAGGAATTGAAAG GTTGAATTTTGGCAACTGGTATGTTGTATTTTGC spacer length:
35 repeater length: 25

16787 2113958 GATTAATCCCAAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTTAGATGTACAA spacer
length: 41 repeater length: 25

16788 2114025 GATTAATCCCAAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25

16789 2114088 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATA spacer
length: 37 repeater length: 25

16790 2114151 GATTAATCCCAAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAA spacer
length: 36 repeater length: 25

16791 2114213 GATTAATCCCAAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25

16792 2114273 GATTAATCCCAAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25

16793 2114334 GATTAATCCCAAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer
length: 37 repeater length: 25

16794 2114397 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length:
35 repeater length: 25

16795 2114458 GATTAATCCCAAAAAGGAATTGAAAG ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer
length: 38 repeater length: 25

16796 2114522 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer
length: 36 repeater length: 25

16797 2114584 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTAGTTACCACAATGCACCA spacer
length: 37 repeater length: 25

16798 2114647 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGA spacer
length: 38 repeater length: 25

16799 2114711 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer
length: 36 repeater length: 25

16800 2114773 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer
length: 41 repeater length: 25

16801 2114840 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTGGCAACCTCACTTATTCACGTGGGGGTGC spacer
length: 38 repeater length: 25

16802 2114904 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25

16803 2114966 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer
length: 38 repeater length: 25

16804 2115030 GATTAATCCCAAAAAGGAATTGAAAG TTGAACTGTAGAAATTTGTTTCATATGAAACAGCATAATTTT spacer

length: 41 repeater length: 25
16805 2115097 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25
16806 2115162 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25
16807 2115223 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTTC spacer
length: 38 repeater length: 25
16808 2115287 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25
16809 2115348 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25
16810 2115412 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25
16811 2115478 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25
16812 2115544 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCAGTCAAAAGACTTTCAGCCCT spacer length:
35 repeater length: 25
16813 2115605 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25
16814 2115666 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25
16815 2115730 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25
16816 2115789 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25
16817 2115852 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25
16818 2115917 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25
16819 2115982 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25
16820 2116047 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25
16821 2116111 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25
16822 2116176 GATTAATCCCAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25
16823 2116240 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25
16824 2116305 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25
16825 2116368 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25
16826 2116432 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25
16827 2116494 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25
16828 2116554 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25
16829 2116616 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25
16830 2116679 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25
16831 2116743 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAAGACATTCTC spacer
length: 39 repeater length: 25
16832 2116808 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25
16833 2116873 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25
16834 2116937 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGT spacer
length: 41 repeater length: 25
16835 2117004 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25
16836 2117067 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25
16837 2117128 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25
16838 2117190 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25
16839 2117251 GATTAATCCCAAAAGGAATTGAAAG ACCCAGCAGCATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

16840 2117315 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGT spacer
length: 37 repeater length: 25
16841 2117378 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTACACGCTT spacer
length: 37 repeater length: 25
16842 2117441 GATTAATCCCAAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25
16843 2117504 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25
16844 2117567 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATT spacer
length: 39 repeater length: 25
16845 2117632 GATTAATCCCAAAAAGGAATTGAAAG
AAAACTTTTCACATTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25
16846 2117763 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25
16847 2117827 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25
16848 2117889 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25
16849 2117952 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTCATCT spacer
length: 40 repeater length: 25
16850 2118018 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25
16851 2118083 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25
16852 2118145 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25
16853 2118206 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25
16854 2118267 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAGCGACAGACGGTCGA spacer
length: 37 repeater length: 25
16855 2118330 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25
16856 2118392 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25
16857 2118457 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTAT spacer
length: 37 repeater length: 25
16858 2118520 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25
16859 2118585 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25
16860 2118649 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGA spacer
length: 39 repeater length: 25
16861 2118714 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
16862 2118778 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
16863 2118843 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25
16864 2118907 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
16865 2118971 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTT spacer
length: 37 repeater length: 25
16866 2119034 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
16867 2119098 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
16868 2119164 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25
16869 2119227 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25
16870 2119288 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25
16871 2119352 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
16872 2119416 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25
16873 2119477 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
16874 2119541 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25

16875 2119603 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
16876 2119667 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
16877 2119729 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
16878 2119793 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
16879 2119854 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
16880 2119917 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
16881 2119982 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
16882 2120046 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
16883 2120108 GATTAATCCCAAAAAGGAATTGAAAG GGTATTTCAGTAAATTCATGCTATAGTCAATTTCTTA
16884
16885
16886 crispr 5
16887 2052134 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAC spacer length: 55 repeater
length: 28
16888 2052218 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAAGAGGA spacer length: 97 repeater length: 28
16889 2052344 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTCCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
16890
16891
16892 crispr 6
16893 2414270 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39
16894 2414396 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
16895 2414501 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAGAGTCGTTTGAGAGGT
16896
16897
16898 GCA_000969885.1_ASM96988v1_genomic.fna(findCrispr):
16899 START REPEAT
SPACER
16900 crispr 1
16901 829564 GAAGAAGCCGTAAAACCTGTA
CAACCAGTCCCTGAAAATTGCAGAAGAGCTCGGGAACAAAAGCGGAATTGCACACACACTGCACAATCTTGGAACGATTCATCAGG
ATCAGGGCAACTA spacer length: 99 repeater length: 20
16902 829684 GAAGAAGCCGTAAAACCTGTA
CAACCAGTCCCTGAAAATTGCAGAAGAGCTCGGGAACAAAAGCGGAATTGCATCAACACTGCACCAGCTTGGAATGATTCATCAGA
GGCAGGGCAACTA spacer length: 99 repeater length: 20
16903 829804 GAAGAAGCCGTAAAACCTGTA
TAACAATTCAATTGCTTGGTATAAGCGAGCATGTGTTTTTTCACTTATCAATGACAAGGAGCAAGCAATGTCTGATTTAAAGTACG
CAATTGAGCTTAA
16904
16905
16906 crispr 2
16907 1291329 TTATTCCTGATATTTTTGTTCC TGATATTTTTGTTTCCTGATATTTCTGTTCTAATATC spacer length:
36 repeater length: 22
16908 1291388 TTATTCCTGATATTTTTGTTCC TGATATTTCTGTTCTAATATC spacer length: 21 repeater
length: 22
16909 1291432 TTATTCCTGATATTTTTGTTCC AAATGAGAGAAGTCCAAATAA
16910
16911
16912 crispr 3
16913 303708 CCAACATTAATTGTGCCTATAAC
GTTGTTGTTTATCGTGTTAATTACAGTTACAGTGTTGCTGTTAGCATTGGTCACATATGCATTTGTTCTTGCAACCGCAATTCCAG
CAGGATTCTT spacer length: 96 repeater length: 23
16914 303828 CCAACATTAATTGTGCCTATAAC
ATTGTTGTTTATCGTATTAATCACAGTGACAGTATTGCTGTTGATATTGACCACATATGCATTTGTTCTGCGACTGCAATTCCAG

AAGGATGCTC spacer length: 96 repeater length: 23
 16915 303948 CCAACATTAATTGTGCCTATAAC
 TGTATTATTCGTGTTAATTACAGTTACAGTGTTGCTGTTAGCATTGGTCACATACGCATTTGTTCTGCAAATGCAATTCCAGCA
 GGATAATCTC
 16916
 16917
 16918 crispr 4
 16919 950057 CTGTAGATAAGAATGTAGATAAGA ATGTAGACAAAACCTACAGATGACAAAACCTACAGATGATACA spacer
 length: 41 repeater length: 24
 16920 950123 CTGTAGATAAGAATGTAGATAAGA CTACAGATAAAAACCTACAGATGATACA spacer length: 26
 repeater length: 24
 16921 950174 CTGTAGATAAGAATGTAGATAAGA AAAACTGCAGATGATACATCTGTAAA
 16922
 16923
 16924 crispr 5
 16925 966915 TGATAAAGCCATTCAGCTTGATCC
 TAACAATTCAATTGCTTGGGATAACAAAGGATGCACTCTCGATAGCTTAAGTAGGTATGATGAAGCAATAAATGCCT spacer
 length: 77 repeater length: 24
 16926 967017 TGATAAAGCCATTCAGCTTGATCC
 GAGCAATTCATTTGCTTGAATAATAAAGGAAGCGCTCTCTATAGTTTAGGTAAGTATGATGAAGCAATAGATGCCT spacer
 length: 77 repeater length: 24
 16927 967119 TGATAAAGCCATTCAGCTTGATCC
 AACCTAAGTAGGTTATTGATATTTGTTTTATTGTCTATTACTTGCCGCAGAATATTCAAAAAACAAAACCGTTAGGA
 16928
 16929
 16930 crispr 6
 16931 3029861 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGGGTTGCCACTTGCTGGACCTGCTCCCTGCGCGAGA
 spacer length: 38 repeater length: 37
 16932 3029937 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCTGGTCTCTTCTGCTGGCTCCACCCACGCTTGTGTT
 spacer length: 37 repeater length: 37
 16933 3030012 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GATAGTGAGCTTGTAACGATCTCCACGAACCTGA
 spacer length: 35 repeater length: 37
 16934 3030085 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGATTGAAAGCCCGGAAGCCGCTTGAGTATAAGTAT
 spacer length: 37 repeater length: 37
 16935 3030160 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CATCGTACCAGAGTTTGGCCGCCATCAATTCCCTTG
 spacer length: 36 repeater length: 37
 16936 3030234 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATCTCTGCCGTCTGCTGTCTATGCCTGGACGGTAT
 spacer length: 35 repeater length: 37
 16937 3030307 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTCAAACCTTACTAATCTAACACATGAAATCGTAAC
 spacer length: 36 repeater length: 37
 16938 3030381 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTTATAGCTGTCTGCATAGACTCAGGCATATT
 spacer length: 34 repeater length: 37
 16939 3030453 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGATTCAAGTGTTTCACGGCTTTCTGTCTCTCCGA
 spacer length: 34 repeater length: 37
 16940 3030525 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCGCAGCAGCCGACGGGATGGTCTCAAAGGCAGCA
 spacer length: 36 repeater length: 37
 16941 3030599 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTGTATCAGTAAGATGTGTACTAAGAGCAATGCA
 spacer length: 35 repeater length: 37
 16942 3030672 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCCCGTATATGCTTTCTCAAAAAGAGAGAGCGTA
 spacer length: 35 repeater length: 37
 16943 3030745 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATATCGGCATTGCAGGCACGGATAAAGATCTTC
 spacer length: 33 repeater length: 37
 16944 3030816 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATAAGCAGTTTCAAAAATATACTAAATAAAA
 spacer length: 33 repeater length: 37
 16945 3030887 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTGATCCAACGCTTGATATGAACCTTTGAACGAG
 spacer length: 33 repeater length: 37
 16946 3030958 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAGAGTACGAAGGTCTTGATCTTGAGACTATA
 spacer length: 33 repeater length: 37
 16947 3031029 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 CTGTAAATGTTGCGCTGTTCATTAAAAACAAGGATTGAAACTTAGGGGAGTTGTTACAGGGGATTAATGATATTCTT
 spacer length: 78 repeater length: 37
 16948 3031145 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCGATTTCCGAACTGATAAACTCATCTCAAAA
 spacer length: 34 repeater length: 37
 16949 3031217 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATAGGGACTCCCCATTCTGCAGCTTCCGGGCTAAT
 spacer length: 37 repeater length: 37
 16950 3031292 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACCTAGTGGGTTTGTATGTAAACAGATAAAAAAT
 spacer length: 34 repeater length: 37
 16951 3031364 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTGTGATGTCTTTGTGTGTGTTATTTAGTATCTCA
 spacer length: 36 repeater length: 37
 16952 3031438 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGAGTTGGTATAAAGCAAAGAGAGTCAGGCAGATT
 spacer length: 35 repeater length: 37

16953	3031511	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCCCATGTTTCTTTTGTAAATGTCTTCGACGTGATACG
		spacer length: 37 repeater length: 37	
16954	3031586	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTCCAGGGTGGTTCTATTTCGTCGCTTGTAGGGGCT
		spacer length: 35 repeater length: 37	
16955	3031659	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCATCCAGTACCCATTTCAGCTTTGGTTCTTTTT
		spacer length: 34 repeater length: 37	
16956	3031731	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGACAGCCTCACGCGAAATGAACGTGTGATATCCCT
		spacer length: 36 repeater length: 37	
16957	3031805	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTTTCATGCTCAGTTCCTCCAAAAGGTATTAGGCG
		spacer length: 36 repeater length: 37	
16958	3031879	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGAAGATAATGCAGATGAAATAGAAGAACTAAC
		spacer length: 34 repeater length: 37	
16959	3031951	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGGGTATTCCAGGTTGTTGAGAATATCTTTGTTT
		spacer length: 34 repeater length: 37	
16960	3032023	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATAGTGACACGGTGGATACCGTAAAGGGAAATGACA
		spacer length: 36 repeater length: 37	
16961	3032097	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCTAAGGCTTTTTGAGCGCATTTCTCGACAAG
		spacer length: 33 repeater length: 37	
16962	3032168	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACCCCTGAGAGCTGCACGGTCTTGAGCATAAACGAG
		spacer length: 36 repeater length: 37	
16963	3032242	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAGTCGTAGGTGCGTTTGATTCTGTCAAATTAAT
		spacer length: 35 repeater length: 37	
16964	3032315	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACAGGTTCTCCATCGGCTCAGCCATCGTATTAATTAC
		spacer length: 37 repeater length: 37	
16965	3032390	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATGATTGCGGTCTTGCCACACCCCGGGCCGCCG
		spacer length: 33 repeater length: 37	
16966	3032461	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCTGGGATAAAATTAAACAGTGGTCACTGGTAA
		spacer length: 34 repeater length: 37	
16967	3032533	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTCAATTTCTTCGAAATTTGCAGCCCGCATCGCTG
		spacer length: 36 repeater length: 37	
16968	3032607	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGCTTAGTCATGCACTCATCTATAATGTCAATAAGA
		spacer length: 36 repeater length: 37	
16969	3032681	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTGTGAAGTGTATGTTATGGATTGCGCCTACTTG
		spacer length: 35 repeater length: 37	
16970	3032754	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GGCTGGATTACCCACCACTCACCGCCGCCGTATATA
		spacer length: 36 repeater length: 37	
16971	3032828	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCAACCCGTCCGCAATCCATACCGGGAACTTTCCA
		spacer length: 35 repeater length: 37	
16972	3032901	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGTCATTCCGAAAGAGCAAACGATGCAGGGTCTA
		spacer length: 35 repeater length: 37	
16973	3032974	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCGTTCCATTACGCGCAACGCATACGGCAACTGACG
		spacer length: 36 repeater length: 37	
16974	3033048	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCAGAAAAGAAGCATTCCTAGCCGACCCCATGATAAG
		spacer length: 38 repeater length: 37	
16975	3033124	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCCTGATTTTCTGAGATAACTGGAGATGTAAGTACG
		spacer length: 35 repeater length: 37	
16976	3033197	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TACTGCTTGCTTATCATATCCTCTTCGAGAACTCA
		spacer length: 36 repeater length: 37	
16977	3033271	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CACCTTCCTCCATACACTTTCCTCCATAACGAAAA
		spacer length: 35 repeater length: 37	
16978	3033344	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAATTTCTGTTCTGGACCTTCAGAGCCTGGATAAG
		spacer length: 34 repeater length: 37	
16979	3033416	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCCGTTTGCTCAGAACTACCCGATATATCAGCC
		spacer length: 34 repeater length: 37	
16980	3033488	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTTATTTCCACATATTCAAACCTTTTTCAGTAGCAT
		spacer length: 36 repeater length: 37	
16981	3033562	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGATTTTCATGTTTTAAATTGGTAAAAAATGCGTAT
		spacer length: 35 repeater length: 37	
16982	3033635	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCGAACTATACCCCTCCGGGTATTCTGGTAAGTTTAA
		spacer length: 38 repeater length: 37	
16983	3033711	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTGTCCTGCGGTACTCATCATTGACATAAACTCG
		spacer length: 35 repeater length: 37	
16984	3033784	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCCAGTCTCCTCTTACTATGGGAAAGGCAGCAGGTA
		spacer length: 37 repeater length: 37	
16985	3033859	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AATAAAAAGAGTCCAAATGAGAGAAGTCCAAATAAAA
16986			
16987			
16988	crispr 7		
16989	2418206	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	ATATTTCCAGGCGAGACCACCAAAGACGATTACAAGA
		spacer length: 37 repeater length: 37	
16990	2418281	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	CAGAAGGTGCTCTCGTTACAGCAATGACGTTTATTT

spacer length: 36 repeater length: 37
 16991 2418355 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AACTGGCCTTCTTACGGAGATTGGCGGCGGACAT
 spacer length: 35 repeater length: 37
 16992 2418428 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGAAATGTAAACCTGTACAACCTCAATGTTTGACTAT
 spacer length: 36 repeater length: 37
 16993 2418502 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGCCAAAAAAGATGAGTTTTAAATCGGTCAAACA
 spacer length: 35 repeater length: 37
 16994 2418575 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CGTATAATGATGCTACTGTTCTCGCTTCACAAATG
 spacer length: 35 repeater length: 37
 16995 2418648 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACAGACTTCCACACCGAGATGGTTATTTATTCGG
 spacer length: 34 repeater length: 37
 16996 2418720 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCCTTGAGATCGTTATCAGTCTAATTTCTTAATA
 spacer length: 34 repeater length: 37
 16997 2418792 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTGAATGGGCGTGTGTACTCGGCTGGGGTCTGAGGA
 spacer length: 37 repeater length: 37
 16998 2418867 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT GTATCGGTAGAATTACAGGAACGGACACTTTCACACA
 spacer length: 36 repeater length: 37
 16999 2418941 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTTAAACGGGTCTATATCTGCAACGACAACGAAGCAA
 spacer length: 38 repeater length: 37
 17000 2419017 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAATCCTTTTCGCTATCGGTAGAAGTGTAAACCATGT
 spacer length: 36 repeater length: 37
 17001 2419091 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAGAAGATTTTAAGACACTTACCGCAGCCGATCTTAA
 spacer length: 37 repeater length: 37
 17002 2419166 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TCAGAGAACCTAACCGTTAATTAGGCATCCCTAATAT
 spacer length: 37 repeater length: 37
 17003 2419241 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACCATAATATAACATCTCTCAATTTACTTGCTGAAT
 spacer length: 36 repeater length: 37
 17004 2419315 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTATTCTTCTTTGTAGTATCATCTAGAAGCCGTTT
 spacer length: 35 repeater length: 37
 17005 2419388 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTCTCAAACCTTTTGTGCGACTTCTTCAGGGAGCT
 spacer length: 34 repeater length: 37
 17006 2419460 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT TGATATGAAGAATTGCGCGGATGAGACTTACCAGGCA
 spacer length: 37 repeater length: 37
 17007 2419535 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CACCAGACAGCTTGGACGGATTAATCTTAAAATTAGG
 spacer length: 37 repeater length: 37
 17008 2419610 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT GGCAGGATAACGGTATCATTTTCGGCGACTTGAGT
 spacer length: 35 repeater length: 37
 17009 2419683 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTGCCCCGCTTCGCAGCTTCTTCCAGGCAGAGATGAT
 spacer length: 38 repeater length: 37
 17010 2419759 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAACTGATAATTGTAGATACATTAAGTTGAAAGGT
 spacer length: 36 repeater length: 37
 17011 2419833 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAGTGAGAGGCATTTATTACGCTCCATAACAGCC
 spacer length: 35 repeater length: 37
 17012 2419906 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTGTACTGCTGCCTGATGTGCATCATGGATGATCT
 spacer length: 36 repeater length: 37
 17013 2419980 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATCAACGAAAGAGTACGAATATTCAGGAACCTTC
 spacer length: 34 repeater length: 37
 17014 2420052 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTTGCAAAACAAACGTGATGCTCTGGAATTAATGA
 spacer length: 35 repeater length: 37
 17015 2420125 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT GTCAATCCAAACCGTGAAAAAGAGCTTCGAGAAC
 spacer length: 35 repeater length: 37
 17016 2420198 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTTTTTTTTCACGGTTCACCTCCTGTGTAAAGTGTT
 spacer length: 35 repeater length: 37
 17017 2420271 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACTAAAACCTGATTATATCACGGTAGCTGCAAAATCG
 spacer length: 36 repeater length: 37
 17018 2420345 GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT ATGAGAGAAGTCCAAATAAAAAGAGTCCAAATGAGA
 17019
 17020
 17021 crispr 8
 17022 1021592 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGAAGACAACAGGAGCCGGGCAGGAGTCTTTAAAC
 spacer length: 36 repeater length: 37
 17023 1021666 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCGCTACCCATGCTAAACGGTTATCCCCACATCC
 spacer length: 35 repeater length: 37
 17024 1021739 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTTTCCCCACCCTGAAAGAGACCTGAGACGAAAG
 spacer length: 34 repeater length: 37
 17025 1021811 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTTTCCCCACCCTGAAAGAGACCTGAGACGAAAG
 spacer length: 34 repeater length: 37
 17026 1021883 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATGTAGATGGGATTGCCTAACCACCTCACTTGTA
 spacer length: 33 repeater length: 37
 17027 1021954 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGTAAATGCCGAGGATCACGAAACGTTTGTAGAAT
 spacer length: 36 repeater length: 37

17028	1022028	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGAATTCTTCAGTTCATCCCTGATAGGTCTTTCACCC
	spacer length: 37	repeater length: 37	
17029	1022103	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTTCTCACCGGACATGGTCGAGGATGGTATGACT
	spacer length: 34	repeater length: 37	
17030	1022175	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCATTTTGATTTTATTTTTTTTCGTTTGATCTAAC
	spacer length: 34	repeater length: 37	
17031	1022247	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTAATTTAATCAGGCTTATAACTGAACTCCCCGAC
	spacer length: 36	repeater length: 37	
17032	1022321	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTCAGACAAAAAGAACGCAACTGTGGAGAAGGTAT
	spacer length: 36	repeater length: 37	
17033	1022395	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GATATTGTACGCGGGTGCAGTCGATTGTCCTTGAAA
	spacer length: 36	repeater length: 37	
17034	1022469	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAGTATCCGGTACGAACGCTCAGCTGTACATAGGC
	spacer length: 35	repeater length: 37	
17035	1022542	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAGTATTGGATGAGTACGAAGAGATGAAAAAGGAA
	spacer length: 35	repeater length: 37	
17036	1022615	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TGGTCTTCCCGCTGTGCCCTCTGCACTCCCAGGAG
	spacer length: 35	repeater length: 37	
17037	1022688	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTCTAACGAGAAACAGGTAAGTTCTTGTCCAAATT
	spacer length: 35	repeater length: 37	
17038	1022761	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAAAGGAACTGCTGGAAGGTTATCTATACGAGCCA
	spacer length: 35	repeater length: 37	
17039	1022834	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATTATGCAAGCGGAGGAACGGTATAGGAACCGCAGC
	spacer length: 37	repeater length: 37	
17040	1022909	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATGGTTGAAATTACCTTCCCGCTTGGAATTCTTCAGT
	spacer length: 36	repeater length: 37	
17041	1022983	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGGCTTGATGTCTTGCCAATGGATACAAAGAAGATA
	spacer length: 36	repeater length: 37	
17042	1023057	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGCAGTCGAAAAGATTTTGAATGTCAGAGAAGAA
	spacer length: 34	repeater length: 37	
17043	1023129	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAATCGACGACAAGATTACCTTTATTTACGGTACT
	spacer length: 35	repeater length: 37	
17044	1023202	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGATCGTCAGATGCTTTTGTGGAAAGAACTGTACG
	spacer length: 35	repeater length: 37	
17045	1023275	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GAGCTGGATGTAATTCTCATCCTGGCTGCACTACGA
	spacer length: 36	repeater length: 37	
17046	1023349	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGTTTTATATCAGTTTTTGACGATTTTCGGGAATATCA
	spacer length: 36	repeater length: 37	
17047	1023423	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAAGATTAAAGTTTTGTAGTAAAGCCCCAAAGCCT
	spacer length: 34	repeater length: 37	
17048	1023495	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATATTTAAACAGTTGACTGCCTACGCAAAGAACACT
	spacer length: 37	repeater length: 37	
17049	1023570	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GAGGTGGAAATGTCGAATGTCGAATTATGATACAC
	spacer length: 35	repeater length: 37	
17050	1023643	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCGTCAATTTTTTCAGGATCGAATGACCCATTTAT
	spacer length: 34	repeater length: 37	
17051	1023715	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCAACCGCTACCGAATTTTCGTTTTTTGAATACTT
	spacer length: 34	repeater length: 37	
17052	1023787	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCCGGGGGTTGAAGGTTGGCGGCCTTCAATCTCTAC
	spacer length: 36	repeater length: 37	
17053	1023861	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTTAATCTTGTCTTCTCTGCTCTCTCAATCTCAG
	spacer length: 35	repeater length: 37	
17054	1023934	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCAGTGTATGATAAAATGTACTGTCTGAAAGGGAAAAGC
	spacer length: 39	repeater length: 37	
17055	1024011	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTTTTTTCCCGTTTTTCATCGAGAGAATTCTCAT
	spacer length: 34	repeater length: 37	
17056	1024083	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CATCAAAAAATACCTCTTGAGTAGTGCCATCTTT
	spacer length: 34	repeater length: 37	
17057	1024155	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TGGGATAAATGACGAGGTTGAGATTCAGGCAGCT
	spacer length: 34	repeater length: 37	
17058	1024227	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTAATCAACAAAAAATTGAGGGAAACAATAATGA
	spacer length: 35	repeater length: 37	
17059	1024300	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATATTTTATCTAAGAAGGCGAGAAATATTTACC
	spacer length: 33	repeater length: 37	
17060	1024371	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTTATACCAGTTTGCAAAATCCCAGTTTCCAGCTCT
	spacer length: 36	repeater length: 37	
17061	1024445	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TAGTCAATCCCCAGGACGTCCAGGACCTCGATGAAT
	spacer length: 36	repeater length: 37	
17062	1024519	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATGGATATTCTTCTGTACGCTGTTCTGCTCGTTTTG
	spacer length: 36	repeater length: 37	
17063	1024593	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTGCTTAAGCTGTCTGGGAGGGTTGGGGCTGAAGAT

spacer length: 36 repeater length: 37
 17064 1024667 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTCGTTCAAGGTTTCATCGTGGGGTAGTTGACATA
 spacer length: 34 repeater length: 37
 17065 1024739 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCTTAATGCAGAGATGGAGAATGCTGGAGTTCTGAGTG
 spacer length: 38 repeater length: 37
 17066 1024815 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTTAATGGTTGCAGGTGGAGCTGCAGCAGGAGCA
 spacer length: 34 repeater length: 37
 17067 1024887 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTATAACGAGGTAATCAGGGAAAGGCTAAAACAA
 spacer length: 34 repeater length: 37
 17068 1024959 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTGTCCCATACACATCTGAAAATTTCTGACCATTG
 spacer length: 36 repeater length: 37
 17069 1025033 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTGTCAATAGCTCGGCATACGGTCCTTTTCGGCAA
 spacer length: 34 repeater length: 37
 17070 1025105 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAATAGTACCCCAATCAATAGTCTTTTTATTGACC
 spacer length: 35 repeater length: 37
 17071 1025178 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGGTATGTCGTCATGTTCTGTCTCAATGTCTATAG
 spacer length: 36 repeater length: 37
 17072 1025252 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GATGGGGAAAGCTGCTCGGTGCTGGACTTGTGGAGC
 spacer length: 37 repeater length: 37
 17073 1025327 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GGGATGAAGAAACCACGCTCTTCGTAGATTTTCCG
 spacer length: 35 repeater length: 37
 17074 1025400 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AATTAACCTCGGATAATTTAGTTCTGAAGGGCAAAA
 spacer length: 35 repeater length: 37
 17075 1025473 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTTTATTTGTACGGGGTGTACGGGGTATTTTTGAAAA
 spacer length: 37 repeater length: 37
 17076 1025548 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GCCGAGAACCGAGGAATAGACCTCTGTGTAATAAACA
 spacer length: 37 repeater length: 37
 17077 1025623 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGATGATTTGGATTTATAACAGGATATTTTGAGGG
 spacer length: 35 repeater length: 37
 17078 1025696 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGGCGTTGTAGATGTTTAAACAGGGTCAATAAGT
 spacer length: 34 repeater length: 37
 17079 1025768 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGAGAGGCTACAGGAGTTATCCTTCGAGGGAGTAAAA
 spacer length: 37 repeater length: 37
 17080 1025843 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGACTAGGATGTCAGCTGAGATATTCATCCGAGCC
 spacer length: 35 repeater length: 37
 17081 1025916 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCTTAGGTTGTACAATATACTATAACAACCTATTACTAT
 spacer length: 38 repeater length: 37
 17082 1025992 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTGAATCATTGGTGAGTTTTCAAACGGCTACCTT
 spacer length: 34 repeater length: 37
 17083 1026064 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTCACAGAGCGCATGATATGCCACATACGTAATCT
 spacer length: 35 repeater length: 37
 17084 1026137 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CGGATATTATATGTGTGGATACAATCAGAAGGAAT
 spacer length: 35 repeater length: 37
 17085 1026210 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TAGGGATATCACACGTTTATTTTCGCGTGAGGCCGTC
 spacer length: 36 repeater length: 37
 17086 1026284 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCCTCGCACTCATCCGACTCTGGAAAATATCCGCA
 spacer length: 35 repeater length: 37
 17087 1026357 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATCACGGAAAAAGGCAGCACAGCCGAGCGTGAAGCC
 spacer length: 36 repeater length: 37
 17088 1026431 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATGTTTGCAACGGCATAATCTCCCGAAGGCGAATAT
 spacer length: 36 repeater length: 37
 17089 1026505 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TAAAAAATTTAGTAAGTGAACCTTCAATAGACTCCT
 spacer length: 36 repeater length: 37
 17090 1026579 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAAAAGAACTAATTCGGAGGAAAAGAAAATGATA
 spacer length: 34 repeater length: 37
 17091 1026651 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGTATATCCTGTTTTTCAAAGTATGGTCATGCAG
 spacer length: 34 repeater length: 37
 17092 1026723 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGTAaaaaaaATATAAACACCTATAATAATATAGGAA
 spacer length: 36 repeater length: 37
 17093 1026797 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGGTTAGAATTTGCACTTAAACCGGGGTGAAGA
 spacer length: 34 repeater length: 37
 17094 1026869 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAATTTTTCTCTATTTGGCTAGAAAAAGCCTGA
 17095
 17096
 17097 crispr 9
 17098 2323870 GTCTTCACATACTGGAGCTTCTTCACAGACGTCTTTTGG AGTCTTCTCTACTTTCTTAT spacer length:
 20 repeater length: 39
 17099 2323930 GTCTTCACATACTGGAGCTTCTTCACAGACGTCTTTTGG AGTCTTCTCTACTTTCTTAT spacer length:
 20 repeater length: 39
 17100 2323990 GTCTTCACATACTGGAGCTTCTTCACAGACGTCTTTTGG AGTCTCTCTACTTTCTTAT spacer length:
 20 repeater length: 39

17101 2324050 GTCTTCACATACTGGAGCTTCTTCACAGACGTCTTTTGG AATTTTCTTTTATTTGGCTA
17102
17103
17104 crispr 10
17105 1891842 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
GTGAAGAAATAGGTTCTGCAGGGTAGATGAGTTATAAACCAACTGCAGAACCCGGGGTATAACGGGGGACGAACAAAATAGAGAAA
GGAGTGAGGGATTGAAATGATCATAAAATTTTGAGTATTCAAAGATTGTACAGTTCTTCCA spacer length: 146
repeater length: 40
17106 1892029 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
GTAGAGAAATAGGTTATGCAGGATAGATGGGTATAAACCAACTGCATAGCTCAGGGGATAACGGGGACGAACAAAATAGAGAAA
GGAGTGAGGGATTGAAATGATCATAAAATTTTGAGTATTCAAAGATTACAAAGATCTTCCA spacer length: 146
repeater length: 40
17107 1892216 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
TTGGCTAGAAAAAGCCTGAGATTACTACTATATTAAAACCTAAATTTCTTGTGGGATATTATCAAACCCCTTTATAAATACAAGAAA
AACAGCGTTTTTTAGAGGTTTGAAATATCTCAGTATACGCCTTTCTTTTTATTAACTT
17108
17109
17110 crispr 11
17111 1636143 TCCAAATGAGGAAAGCCCAAATGAGGAGAATCCAAATGAG
GAGAATCCAAATGAGGAGAATCCAAATGAGGAGAATCCAAATGAGGAGAATCCAAATGAGGAGAATCCAAATGAGGAGAATCCAA
TGAGGAGAATCCAAATGAGGAGA spacer length: 109 repeater length: 40
17112 1636293 TCCAAATGAGGAAAGCCCAAATGAGGAGAATCCAAATGAG
GAGAATCCAAATGAGGAGAATCCAAATGAGGAAAGCCCAAATGAGGAAAGCCCAAATGAGGAGAATCCAAATGAGGAGA
spacer length: 79 repeater length: 40
17113 1636413 TCCAAATGAGGAAAGCCCAAATGAGGAGAATCCAAATGAG
CTGTAAATAAGAATGTAGATAAAACTACAGATAAAACTGCAGACAAGAATGTAGATAACATAGTTGCAGACAACTCAA
17114
17115
17116 GCA_000969925.1_ASM96992v1_genomic.fna(findCrispr):
17117 START REPEAT
SPACER
17118 crispr 1
17119 73064 TACAGTTTTACGGCTTCTTC
ATAGTTGCCCTGCCTCTGATGAATCATTCCAAGCTGGTGCAGTGTTGATGCAATTCGCTTTTGTTCCTCGAGCTCTTCTGCAATTT
TCAGGGACTGGTT spacer length: 99 repeater length: 20
17120 73184 TACAGTTTTACGGCTTCTTC
ATAGTTGCCCTGATCCTGATGAATCGTTCCAAGATTGTGCAGTGTGTGTGCAATTCGCTTTTGTTCCTCGAGCTCTTCTGCAATTT
TCAGGGACTGGTT spacer length: 99 repeater length: 20
17121 73304 TACAGTTTTACGGCTTCTTC
CTCCAGTATGTGAAGACACTGAAGAAGTAGAAGAAGCTCCGGTAGAGTGTAATAAATAAGGAAAATAGCATATGTGTTGGAGAGT
ATAACCAACTCTC
17122
17123
17124 crispr 2
17125 2782860 GGAACAAAAATATCAGGAATAA AGATATTAGAACAGAAATATC spacer length: 21 repeater
length: 22
17126 2782904 GGAACAAAAATATCAGGAATAA GGATATTAGAACAGAAATATCAGGAACAAAAATATC spacer length:
36 repeater length: 22
17127 2782963 GGAACAAAAATATCAGGAATAA CAGTATGTGAAGACACTGAAGAAGTAGAAGAAGCTC
17128
17129
17130 crispr 3
17131 608677 GTTATAGGCACAATTAATGTTGG
AGAGCATCCTTCTGGAATTGCAGTCGCAGGAACAAATGCATATGTGGTCAATATCAACAGCAATACTGTCACTGTGATTAATACGA
TAAACAACAA spacer length: 96 repeater length: 23
17132 608797 GTTATAGGCACAATTAATGTTGG
GAAGAATCCTGCTGGAATTGCGGTTGCAGGAACAAATGCATATGTGACCAATGCTAACAGCAACACTGTAAGTGAATTAACACGA
TAAACAACAA spacer length: 96 repeater length: 23
17133 608917 GTTATAGGCACAATTAATGTTGG
CGTCTGTGAAGAAGCTCCAGTATGTGAAGACACTGAAGAAGTAGAAGAAGCTCCGGTAGAGTGTAATAAATAAGGAAAATAGCAT
ATGTGTTGGA
17134
17135
17136 crispr 4
17137 3070035 GGATCAAGCTGAATGGCTTTATCA
TAGGCATCTATTGCTTCATCATACTTACCTAACTATAGAGAGCGCTTCCTTTATTATTCCAAGCAAATGAATTGCT spacer
length: 77 repeater length: 24
17138 3070137 GGATCAAGCTGAATGGCTTTATCA
AAGGCATTTATTGCTTCATCATACTTAAAGCTATCGAGAGTGCATCCTTTGTTATCCCAAGCAATTGAATTGTT spacer
length: 77 repeater length: 24
17139 3070239 GGATCAAGCTGAATGGCTTTATCA

TTAGGAACAAAGCTTAATTTAAAAAGAAAATAATATTTAAAAATTTTCAGCAGAAAGTATTGTTTTAACTTAAAAAAG

17140
17141
17142
17143
17144
17145
17146
17147
17148

crispr 5

3086980 TCTTATCTACATTCTTATCTACAG CTGTATCATCTGTAGTTTTATCTGTA spacer length: 26
repeater length: 24
3087031 TCTTATCTACATTCTTATCTACAG TTGTATCATCTGTAGTTTTGTCATCTGTAGTTTTGTCTACA spacer
length: 41 repeater length: 24
3087097 TCTTATCTACATTCTTATCTACAG GACGTCTGTGAAGAAGCTCCAGTATGTGAAGACACTGAAGA

17149
17150
17151
17152
17153

crispr 6

1716215 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG GAGACTCCAAAAGACGTCTGTGAAGAA spacer length:
27 repeater length: 32
1716275 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG GAGACTCCAAAAGACGTCTGTGAAGAA spacer length:
27 repeater length: 32
1716335 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG AAGACTCCAAAAGACGTCTGTGAAGAA spacer length:
27 repeater length: 32
1716395 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG GAGACTCCAAAAGACGTCTGTAAAGAA spacer length:
27 repeater length: 32
1716455 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG
AAGACTCCAAAAGACGTCTGTGAAGAAGCTCCAGTATGTGAAGCTCCACAAAAGATGTATGTAAAAA spacer length:
69 repeater length: 32
1716557 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG GAGACTCCAAAAGACGTCTGTAAAGAA spacer length:
27 repeater length: 32
1716617 CTCCAGTATGTGAAGACAATAAGAAAGTAGAG GTAGAAGAAGCTCCGGTAGAGTGATAA

17155
17156
17157
17158

crispr 7

3012036 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC GAAAAAATAGAACCCTGGCATGAAGTAACAGATTTT
spacer length: 36 repeater length: 37
3012110 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TATTTTACGCAGATATCGCCGTTTCCGAAGATGTTT
spacer length: 36 repeater length: 37
3012184 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TACCGTTATCCCCTCTTATGCGTTCTCCGATCTCTA
spacer length: 36 repeater length: 37
3012258 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC AGATTCTTAAGTTTTGTAATTATCATGCGTCTACC
spacer length: 35 repeater length: 37
3012331 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CCAAACATACAGATGTGCTTTGCTGGGAGCTTGTC
spacer length: 36 repeater length: 37
3012405 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATTTTATATGGCTATGCTTATCTTAGTCTTTTTT
spacer length: 34 repeater length: 37
3012477 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CATCTATCGTTTGCCCTGGCTGAATCCTGTAAAGT
spacer length: 35 repeater length: 37
3012550 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTCAGAAATTAAAAATATTCTTCAGACTCGAAAA
spacer length: 34 repeater length: 37
3012622 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC AGTACTGCTCCTGCTGGAAGCCTCCCTTCCTTCAATC
spacer length: 37 repeater length: 37
3012697 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTTTCTGTTGCAAAACCAACACAGGAATTTTG
spacer length: 32 repeater length: 37
3012767 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC
TAAATGCATGCCATCAACGAAGCTAACTTTTCGTGTATTC spacer length: 39 repeater length: 37
3012844 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATTTCTAGAAGTTCGGCCTTTTTGTACTCCTCAGA
spacer length: 35 repeater length: 37
3012917 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TATAGGGGTTGGTGCTCAGACAACCATAGTGGATAT
spacer length: 36 repeater length: 37
3012991 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTGTCAATGTCTGCTCTTTTCCATAGAGCTTCCGGG
spacer length: 36 repeater length: 37
3013065 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CTAGGTTTATACTGTTATCCGCCGCGTGCATTTT
spacer length: 34 repeater length: 37
3013137 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CTGCGACACATACGGCAACAGCAGGGAATTATAGAT
spacer length: 36 repeater length: 37
3013211 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TAAGCTCCATAACTGTTCCCGCTGTAAGTAAAA
spacer length: 33 repeater length: 37
3013282 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTTAATTTTTTCATCAAACGCTTTATCAGCTGCTT
spacer length: 34 repeater length: 37
3013354 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TATCGAGGGCCAAGACTTCGACCAAGATAAATTAA
spacer length: 35 repeater length: 37
3013427 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC CTCCGGATCTGGTCAGAAGTTCGCCTTGGTCTTTCC
spacer length: 36 repeater length: 37
3013501 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TAGAGTGTGATATGTCTGAATGGGTCACTTATTACCC
spacer length: 37 repeater length: 37

17180	3013576 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CGCGCTGGATGAGTTTCGGACCGTCCTGATCTGTAA
	spacer length: 37 repeater length: 37	
17181	3013651 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCACTCTATTTAGTTAACTATATATACTATTAA
	spacer length: 33 repeater length: 37	
17182	3013722 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CAGGCGGACTCAGGTAAGCCTGAAGAAGAACATAG
	spacer length: 35 repeater length: 37	
17183	3013795 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	AAAGTTACGATACTTACAAAAGGCGGGCGCAGATC
	spacer length: 35 repeater length: 37	
17184	3013868 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TTGTTATCTTACAGCATCACTCGGAAATTCAACC
	spacer length: 34 repeater length: 37	
17185	3013940 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TTCTCGATTTTCTTACTTCTGTGTAAACTGATTTAG
	spacer length: 36 repeater length: 37	
17186	3014014 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CTGTGCCGGGTTTGTCTACCCTAGTTACCTGATG
	spacer length: 34 repeater length: 37	
17187	3014086 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ATTCGGATTGGGGTTCCCGTAAATCGTTTTTCT
	spacer length: 34 repeater length: 37	
17188	3014158 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	AGAGTAAACCCGACAACGAGAGACATAACATAATT
	spacer length: 35 repeater length: 37	
17189	3014231 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCTGTTGCCTCTGCCCTAACTTCCACGCTATTAACA
	spacer length: 36 repeater length: 37	
17190	3014305 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TGTTTGGCTGAGATATTTTCTATGAGCTTTTCTTT
	spacer length: 35 repeater length: 37	
17191	3014378 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	GTTGGTCACTCATATAGGAGAGCTGACCCAGATA
	spacer length: 34 repeater length: 37	
17192	3014450 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TATACTTCTGTACTATCTACTCTAATGTTCTTAG
	spacer length: 34 repeater length: 37	
17193	3014522 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCAATATAGACATAATTTCTCTATACCATACAGTTC
	spacer length: 37 repeater length: 37	
17194	3014597 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	AACCATTGATTAGGAGCCCATACTCTTATTATTGC
	spacer length: 35 repeater length: 37	
17195	3014670 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ATTTATTTGATTGAAAGGGATAAGTACGCTTCTGAACT
	spacer length: 38 repeater length: 37	
17196	3014746 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ACCTAAGGCTCTCTGTAAACGCTCTGGTTAATCG
	spacer length: 35 repeater length: 37	
17197	3014819 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCAGCGTCACCCGTTTTTAAATTCAATGTCGCTCAC
	spacer length: 35 repeater length: 37	
17198	3014892 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ATCTTGAGTTTTTCTTCTGCACCAAGAGCCGTAC
	spacer length: 34 repeater length: 37	
17199	3014964 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CTGAGAGGCGCACAGGGTAAAATAGCAGCAATCG
	spacer length: 34 repeater length: 37	
17200	3015036 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CCGGAAGCCCTGCGAAAGTCACTGATAAAAAGCTCA
	spacer length: 36 repeater length: 37	
17201	3015110 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TGGATTGTACATTACTTTATCATCTCCTTGTATTA
	spacer length: 35 repeater length: 37	
17202	3015183 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TACAGATAAAACTAATCAAGGGGTTTATAATGACAG
	spacer length: 36 repeater length: 37	
17203	3015257 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	GCAGTTTTATCTCCATGAGCGCAAACGAGTTTAA
	spacer length: 34 repeater length: 37	
17204	3015329 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCTGGATTGTACATTCTTTCTCTCCTTGTATTATC
	spacer length: 35 repeater length: 37	
17205	3015402 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ACCTGATCTTCCTCTTCATTGAGGAAGAATTCAAA
	spacer length: 35 repeater length: 37	
17206	3015475 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CTTTTCACAGCTTTTGCAATGTCGCTAAACTTGC
	spacer length: 34 repeater length: 37	
17207	3015547 ATTCGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CTGTGAAGAAGCTCCAGTATGTGAAGACACTGAA
17208		
17209		
17210	crispr 8	
17211	1620629 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CAACAAATGCTTAGAAGAAATGAAAAGTTTAGTCCC
	spacer length: 36 repeater length: 37	
17212	1620703 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTGGCTCTACTATGAAGCTCGGGCTCCGGTAATA
	spacer length: 35 repeater length: 37	
17213	1620776 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCCAGCTTCACATGCAACAGGCTGTACTATTC
	spacer length: 33 repeater length: 37	
17214	1620847 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTTTTGACATGACCGAGGCGAGCGCATTCTCTT
	spacer length: 34 repeater length: 37	
17215	1620919 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CCCTGTTTCAAGCACTCTGGGCATAACTTTTCGAGG
	spacer length: 35 repeater length: 37	
17216	1620992 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	AAACTTACACTGAGTTTTACCCTCTATAGAAGAAG
	spacer length: 36 repeater length: 37	
17217	1621066 ATTCGAATGCAAGATCCATTAAAAACAAGGATTGAAAC	CTGCTATAGGTGACAATATAGATAATGGCGAAATTCT

spacer length: 37 repeater length: 37
 17218 1621141 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC TCGGGTAAACGTGCCTATGTGTTTTGTTGACAAGT
 spacer length: 35 repeater length: 37
 17219 1621214 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC TCTGAACCTGGTTATCATTTCCAGCGACGGGAGAAA
 spacer length: 36 repeater length: 37
 17220 1621288 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC CATATTGCGTTTGCCTGTTTGACCCTGAGAATT
 spacer length: 33 repeater length: 37
 17221 1621359 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC CTATCTTGAGACCACAACATCGACCGAGTTTT
 spacer length: 32 repeater length: 37
 17222 1621429 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC ATTGAACTCGCGGCTGAACTCGTTGCGCTCTTG
 spacer length: 33 repeater length: 37
 17223 1621500 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC ATGCTTCCTCTATCATTTGTACCGTCCGATAAGCT
 spacer length: 35 repeater length: 37
 17224 1621573 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC ACTATAGTAATCCTTGTGATCTCGGGCGTTATCGTT
 spacer length: 36 repeater length: 37
 17225 1621647 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC TCAATGGACATCCAGAACCGAGAATCCTTTTTTTAT
 spacer length: 35 repeater length: 37
 17226 1621720 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC AGGGATAATGGAGTTTCCGAAGCAGAATTAAAGAG
 spacer length: 35 repeater length: 37
 17227 1621793 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC CATGTTAGCACTAGATGTAGTCAAGGCACTTAACG
 spacer length: 35 repeater length: 37
 17228 1621866 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC TAACCACCACCATTCTTAATCACATTTTCCCTGTGG
 spacer length: 36 repeater length: 37
 17229 1621940 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC CTGTGGATGTCATTTTTTCAAGCTCCTAATTTTA
 spacer length: 34 repeater length: 37
 17230 1622012 ATTCTGAATGCAAGATCCATTAAAAACAAGGATTGAAAC TGAAGAAGTAGAAGAAGCTCCGGTAGAGTGTA
 17231
 17232
 17233 crispr 9
 17234 994913 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TGTAAACTTACCAGAATACCCGGAGGGGTATAGTTTCG
 spacer length: 38 repeater length: 37
 17235 994989 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATACGCATTTTTTACCAATTTAAACATGAAATC
 spacer length: 35 repeater length: 37
 17236 995062 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GATGCTACTGAAAAAGTTTTGAATATGTGGAAATAA
 spacer length: 36 repeater length: 37
 17237 995136 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ATGTGGAGTACTGGGAGTTTTCAACGTTTGGCAGCGT
 spacer length: 37 repeater length: 37
 17238 995211 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TAATTCAGGAAAACCTGGATCTGGCACATTTCGAA
 spacer length: 33 repeater length: 37
 17239 995282 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATGCAGAGATGGAGAATGCTGGAGTTCTGAGTA
 spacer length: 34 repeater length: 37
 17240 995354 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GACGCGGTGACCTATCGCACCTGCCCCGCCAGTA
 spacer length: 34 repeater length: 37
 17241 995426 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AACTGAAATCCCTTTCGGCGGGCATCTGAGATCGA
 spacer length: 35 repeater length: 37
 17242 995499 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GATATGATTGGTGTCTCATCTGACACACCCGGAGT
 spacer length: 35 repeater length: 37
 17243 995572 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCCAAGAAGGACACACCAAAAGAGAAATGGGAAAAA
 spacer length: 36 repeater length: 37
 17244 995646 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GTGGGGCGAGCTACATCTGCTGTGATGTTGTCAATAA
 spacer length: 37 repeater length: 37
 17245 995721 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCTTTCCTGCACCGAGTGAACATAATAAGAGTA
 spacer length: 34 repeater length: 37
 17246 995793 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TAAGAAACGAAGTTGCAGCCGGAAACAAGCAGTTT
 spacer length: 35 repeater length: 37
 17247 995866 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATGGGGAATACTCGGAGGTTAAGCCGGATGAGA
 spacer length: 34 repeater length: 37
 17248 995938 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTGGTTCTTATTTTAGTTACATTCCCGAAAATC
 spacer length: 33 repeater length: 37
 17249 996009 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCGGAAGGGATCCAAGTTTTACCCCCAGTTTTTCAG
 spacer length: 36 repeater length: 37
 17250 996083 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TATTTGTGATGCCGCCGGCGATAAACTCAAAATTC
 spacer length: 35 repeater length: 37
 17251 996156 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCTAAAGCATAATTAGTTTTACAGCATTCTTATTT
 spacer length: 36 repeater length: 37
 17252 996230 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ACATTGAAAACCTCTTTGACATATATATCCATGCAA
 spacer length: 36 repeater length: 37
 17253 996304 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATATCCACTATGGTTGTCTGAGCACCAACCCCTAT
 spacer length: 36 repeater length: 37
 17254 996378 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ATTTAAGCGTTTTTCGACAGACCAGCACTACTA spacer
 length: 32 repeater length: 37

17255	996448	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GCTAATCAAGAATATTATCCGCCTTTTCGAAGTT
	spacer length: 33	repeater length: 37	
17256	996519	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCAAGAGTAGATCGCTCAAATGCATGGGTAGACG
	spacer length: 34	repeater length: 37	
17257	996591	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCATTTGGTTTTACTCCTTCCGGTAGGACTGTTGT
	spacer length: 35	repeater length: 37	
17258	996664	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CAGGGAGAAGGTCCAGAAAGTGGCAACCCCATAACCA
	spacer length: 37	repeater length: 37	
17259	996739	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTTTATAGTAATTCCTAAAGATCAGACGATGCAGGCT
	spacer length: 37	repeater length: 37	
17260	996814	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCTGCTTCAGCAGAAATAAGGGTTCTGGATAAGGATG
	spacer length: 37	repeater length: 37	
17261	996889	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ACTGCACCGAGTGAACATAATAAGAGACTGTGTTAT
	spacer length: 36	repeater length: 37	
17262	996963	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCAGTATTATCAACCGGTGAAAAGTTCGATAATC
	spacer length: 35	repeater length: 37	
17263	997036	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTGCCGACTTAGTTTTTCGAGGCAGAGAGCAAGTTG
	spacer length: 35	repeater length: 37	
17264	997109	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAATGATATTTATGCCAGTGTTCAGACGGCACCT
	spacer length: 35	repeater length: 37	
17265	997182	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTTTTCTAAAGCATGTAGGCTTTCTGCCTTCTCACT
	spacer length: 36	repeater length: 37	
17266	997256	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGGACCCGCTTTATTTTTTGGTTCGCTGATAATCA
	spacer length: 35	repeater length: 37	
17267	997329	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTCCTTTTTTCATTTTCACTTCTCTAGTCA
	spacer length: 35	repeater length: 37	
17268	997402	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATTCTAGCTCCTCACCAGGGAAATCCCCCGACA
	spacer length: 35	repeater length: 37	
17269	997475	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CACATATAGAAAGAGATATAAAGTTAGAACCTGAG
	spacer length: 35	repeater length: 37	
17270	997548	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTGAAAAATCTGTCCAAAGTGAGGTATATGGTTGCG
	spacer length: 36	repeater length: 37	
17271	997622	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CGGCGGAAAGTACATCGAATCGTAAAAGACTCTTA
	spacer length: 35	repeater length: 37	
17272	997695	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GAATGAAAAATATCACCAGACCCCGAGCTTCAAT
	spacer length: 34	repeater length: 37	
17273	997767	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCCCTGGAACCCCTGCTCAGGCGAAGCATTTTCA
	spacer length: 34	repeater length: 37	
17274	997839	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GAATGTATGTCAATGATCTATGCGCAGTACTCGGC
	spacer length: 35	repeater length: 37	
17275	997912	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AACTTCCCAGCACTCTTTTTAGTTAAACAGTTTCT
	spacer length: 36	repeater length: 37	
17276	997986	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GCCACGAAATATCTGCGATCCTCCTCAACATTTT
	spacer length: 34	repeater length: 37	
17277	998058	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GCGCTGTGCTTGTTGTTGTTTGGTCACAGACTAAATTA
	spacer length: 38	repeater length: 37	
17278	998134	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GTGGGTACAAACGAGTTTTACCTGATCTTCCTCT
	spacer length: 34	repeater length: 37	
17279	998206	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GGCACGGGACCCGTTTGGGTTATGACGTTGTTGGTA
	spacer length: 36	repeater length: 37	
17280	998280	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AATATGGAAGTCACAGACGAGCCAGTATACCATGAT
	spacer length: 36	repeater length: 37	
17281	998354	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	ATAATTTAAAGGTTTCTATTTTGATTTTTAGACAG
	spacer length: 35	repeater length: 37	
17282	998427	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTGGAAGAACAACCGGAAAACGTTCAACGAAGCTT
	spacer length: 35	repeater length: 37	
17283	998500	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AGCGTTATAATAGGGGATCTTGTGACCAGAGAGAA
	spacer length: 35	repeater length: 37	
17284	998573	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAATCTCCCCAAGCGGCGAAGGCGTTCACGTCATA
	spacer length: 35	repeater length: 37	
17285	998646	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCTTCTTTTGATAGCGTTTTAAATCCTTTTTTTGA
	spacer length: 35	repeater length: 37	
17286	998719	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GGCTACAAAGACCGCTGTAAGATTTCAAAGGATGTG
	spacer length: 36	repeater length: 37	
17287	998793	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AGTTCTTCAGCATCCACGAATTTATTGTCATGAAT
	spacer length: 35	repeater length: 37	
17288	998866	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CGGCTTCTATGACCTCAGATGTTCTATCTTTGTTTA
	spacer length: 36	repeater length: 37	
17289	998940	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TTTTAAGCTCTTCAAGTTGCATCTTAATCAAGA
	spacer length: 33	repeater length: 37	
17290	999011	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AACGAAGGAGATCTTCACAACCTTGAAAGATCTCC

spacer length: 35 repeater length: 37
 17291 999084 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT TCGGAAAAAAGTTTCAGAGTATGGGAACTGCCC
 spacer length: 33 repeater length: 37
 17292 999155 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT CTCTTTATTGTACCTTGCTCGTTATCATCAACATAG
 spacer length: 36 repeater length: 37
 17293 999229 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT ATTACGAATTTTTTCTTTATAATTTGCGTTTAATGT
 spacer length: 36 repeater length: 37
 17294 999303 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT AAATAAAAAATAGGAAAGTATTGATTATCCCAATTGA
 spacer length: 36 repeater length: 37
 17295 999377 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT CCTTAATGATTATCGACTTTGTCTTCTATATTTT
 spacer length: 34 repeater length: 37
 17296 999449 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT TTAGGTTTAATTAGGGGTTTGTATATCAGGTGCTTT
 spacer length: 36 repeater length: 37
 17297 999523 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT CAGGCAGATATGGGATGGGAGGGCTCAACCCTTACC
 spacer length: 36 repeater length: 37
 17298 999597 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT GATATCATCAGGCGAGGAACCTTCTGAGGATGATT
 spacer length: 35 repeater length: 37
 17299 999670 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT TTTCTTTTTCTGCTTTTGATGCCAATATTTACCTC
 spacer length: 36 repeater length: 37
 17300 999744 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT TTCAGGGTGGGGATGAGAGCGAAGCCTCGCACCGTA
 spacer length: 36 repeater length: 37
 17301 999818 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT TGTGGAGTACTGGGAAAAATCAACATTTTGCAGCGT
 spacer length: 36 repeater length: 37
 17302 999892 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT GATATTACATAAGAACAACGTCGGCAGACCCGACGA
 spacer length: 36 repeater length: 37
 17303 999966 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT ACAGAAAAATCGTGGGTCATAATTGGGAGGCTATCAA
 spacer length: 37 repeater length: 37
 17304 1000041 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT ACAGCATCAGAAAACGCATTGCGAAATTTACAGTTT
 spacer length: 36 repeater length: 37
 17305 1000115 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT GTGGCAATCTTGATTTTGTATTTTCAGATTTACG
 spacer length: 35 repeater length: 37
 17306 1000188 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT TCTGAGGTGCAAAATAAGACTATAAAAAATCGTATC
 spacer length: 35 repeater length: 37
 17307 1000261 GTTTC AATCCTTGTTTT AATGGATCTTGCTCTCGAAT AGGAGTTTTTGTCTGTACTTATCCAAATTCGCAG
 17308
 17309
 17310 crispr 10
 17311 993453 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AACTTAGTATATAGTAATAGGTTTCAAAGTATAT
 spacer length: 34 repeater length: 37
 17312 993525 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT TTCACAATTGCATAGTATATCGCACTCTTCATCTG
 spacer length: 35 repeater length: 37
 17313 993598 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT GTTACCTCGGTTACCTCTATTTTTAGGGTATCTT
 spacer length: 34 repeater length: 37
 17314 993670 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AAATCCCGGCACAGGACAAGGTAAAAACCCACGTC
 spacer length: 35 repeater length: 37
 17315 993743 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT CTCTTTGCCTTTAACCGTTTTTCTAAGCTTTTAA
 spacer length: 34 repeater length: 37
 17316 993815 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AGCAAGTGAGTAATATATCTAATCTGCCTTGTTTTAG
 spacer length: 37 repeater length: 37
 17317 993890 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT ATTTATAGGGCTTCCCGATGATGTTTATAACGCTTTTC
 spacer length: 38 repeater length: 37
 17318 993966 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AATCTTATACATATCTTAGTAGAAGTTAATAAGA
 spacer length: 34 repeater length: 37
 17319 994038 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AACAGAGCTTATACGATGAAGCAGGGATTAACACAA
 spacer length: 36 repeater length: 37
 17320 994112 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT TAGTTCTTCCATGGTTTTAATTTACAGGGTTGTAATGA
 spacer length: 37 repeater length: 37
 17321 994187 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT CTGACAGGTATATTTGTATTTATTTCTTTATATTA
 spacer length: 35 repeater length: 37
 17322 994260 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT GAGAAATTGTTAATTTTCGTTATCGGTTGAACCGG
 spacer length: 35 repeater length: 37
 17323 994333 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AACACTTTCGAAAGCTGAGTTTAGACAGTTCTGA
 spacer length: 33 repeater length: 37
 17324 994404 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT AATGTATGTCAACGGCGTTAACTTAGTATATATTA
 spacer length: 35 repeater length: 37
 17325 994477 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT TTGCTTACCCGGGTTTTTTGCGTTCCAGACAGCTTTTA
 spacer length: 38 repeater length: 37
 17326 994553 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT ATCTTAAGATTTTCGACTGATAACGAACTTGTA
 spacer length: 33 repeater length: 37
 17327 994624 GTTTC AATCCTTGTTTT AGTGGATCTTGCAATTCGAAT TCCGAAATGAAGTGGCAGCCGGAAACAAGCAGTTT
 spacer length: 35 repeater length: 37

17328 994697 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGATAAAGCTTCGTTTTCCGAATACGCTTCAAAA
 spacer length: 34 repeater length: 37
 17329 994769 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TATACTATACTAAGATAGAATATAGTATAGTATA
 spacer length: 34 repeater length: 37
 17330 994841 GTTTCATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTAATGTTTTTGCATGGAGATATCATATTTCGTGA
 17331
 17332
 17333 crispr 11
 17334 2419058 CATTTGGGCTTTCCTCATTGATTCTCCTCATTGAT TCTCCTCATTGCGCTTTCC spacer length:
 20 repeater length: 39
 17335 2419118 CATTTGGGCTTTCCTCATTGATTCTCCTCATTGAT TCTCCTCATTGCGATTCTCC spacer length:
 20 repeater length: 39
 17336 2419178 CATTTGGGCTTTCCTCATTGATTCTCCTCATTGAT CTCCGGTAGAGTGTAATAA
 17337
 17338
 17339 crispr 12
 17340 2157133 ACAGCTTATTTAGAACGAGTAGAAGAATTTGAAGACTTCT
 GCCTGGAAGATCTTTGTAATCTTTGAATACTCAAAATTTATGATCATTTCATCCCTCACTCCTTTCTCTATTTTGTTCGTCCCCG
 TTATCCCTGAGCTATGCAGTTGGGTTTATAACCCATCTATCCTGCATAACCTATTTCTC spacer length: 146
 repeater length: 40
 17341 2157320 ACAGCTTATTTAGAACGAGTAGAAGAATTTGAAGACTTCT
 GCCTGGAAGAACTGTACAATCTTTGAATACTCAAAATTTATGATCATTTCATCCCTCACTCCTTTCTCTATTTTGTTCGTCCCCC
 GTTATACCCCGGGTCTGCAGTTGGTTTATAACTCATCTACCCTGCAGAACCTATTTCTT spacer length: 146
 repeater length: 40
 17342 2157507 ACAGCTTATTTAGAACGAGTAGAAGAATTTGAAGACTTCT
 AGTATGTGAAGACACTGAAGAAGTAGAAGAAGCTCCGGTAGAGTGTAATAAATAAGGAAAATAGCATATGTGTTGGAGAGTATAA
 CCAACTCTCCACACAGAATGTTGACATTTAACAACCGAATACAATTAGCTTTCAAATGAG
 17343
 17344
 17345 GCA_000969965.1_ASM96996v1_genomic.fna(findCrispr):
 17346 START REPEAT
 SPACER
 17347 crispr 1
 17348 4116903 AATCCTATTATTACTCATCG AATCTTATTATCACTCATCGTAGTAA spacer length: 26 repeater
 length: 20
 17349 4116950 AATCCTATTATTACTCATCG AATCTTATTATTACTCATCGAATCCCATTATTACTCATC spacer length:
 39 repeater length: 20
 17350 4117010 AATCCTATTATTACTCATCG TCATAACTTGAATAAACCAATCTACCCATTTTGGAAAAG
 17351
 17352
 17353 crispr 2
 17354 1565115 AGACGAAAAAAGGAGAAAAGA GAAAGAGAAAGAGAAAGGAGACGAAAAAAGGGGAAAGAGAAAAGAAAAAG
 spacer length: 49 repeater length: 20
 17355 1565185 AGACGAAAAAAGGAGAAAAGA GAAAGAGAAAGGAGACGAAAAAAGAGAAAAGAAAAAGAAAAAG spacer
 length: 42 repeater length: 20
 17356 1565248 AGACGAAAAAAGGAGAAAAGA GTAGTAGATGGTCATAAACAAAAACAGATTCAAGTGGCGTA
 17357
 17358
 17359 crispr 3
 17360 2820 ATAATTCAAATCTAATGATT TAGGTTTTAAAACTCAGATT spacer length: 20 repeater length: 20
 17361 2861 ATAATTCAAATCTAATGATT TAGGTTTTAAAACTCAGTTT spacer length: 20 repeater length: 20
 17362 2902 ATAATTCAAATCTAATGATT CAGGTTTTAAAACTCAGTTT spacer length: 20 repeater length: 20
 17363 2943 ATAATTCAAATCTAATGATT CATAACTTGAATAAACCAAT
 17364
 17365
 17366 crispr 4
 17367 2153735 CTTGAGTGGGCTAAGCTTGA AAAGGCTAACCTTGAAAGGGCTAACTTTGAAAAGCTAACCTTAGAGGAGCTAA
 spacer length: 54 repeater length: 20
 17368 2153810 CTTGAGTGGGCTAAGCTTGA
 GGGAGCTAACCTTAGAGGAGCTAACCTTAAAGAAGCTAACCTTGAGTGGGCTAAGATTGAAAGGGCTAACCTTGAAAAGGCTAACC
 TTGAAAAGGGCTAACCTTGAAAAGGCTAA spacer length: 114 repeater length: 20
 17369 2153945 CTTGAGTGGGCTAAGCTTGA
 TAGTAGATGGTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAACAAAAACAGATTCAAGTGGCGTAGTAGGT
 GATCATAAACAAAAACAGATTCAAGTG
 17370
 17371
 17372 crispr 5
 17373 1978766 GACAATGG
 AGAAACTAAAACTTCAGTAAAAAGTCCCGAAAAGGTAAAAGCCCCAGCAAAAAGCTGTGATAATGAAGAACTAAAACTCCAGTAA
 AAAACACTGAAGACGTTGAACAGGCTCCAGCAAAAGACTG spacer length: 126 repeater length: 8
 17374 1978901 GACAATGG AGAAACTAAAACTCCAGTAAGAAACATTGAAGATGTTGAACAGTCTCAAGCAAAAGACTG spacer

length: 60 repeater length: 8
1978970 GACAATGG
AGAAACTAAAACTCCAGTAAAAAGTCCCGAAAAGGTAAAAGCCCCAGCAAAAAGCTGTGATAATGAAGAACTAAAACTTCAGTAA
AAAACACTGAAGACGTTGAACAGGCTCCAGCAAAAAGACTG spacer length: 126 repeater length: 8
1979105 GACAATGG
AGAAACTAAAACTTCAGTAAAAAGTCCCGAAAAGGTAAAAGCCCCAGCAAAAAGCTGTGATAATGAAGAACTAAAACTTCAGTAA
AAAACACTGAAGACGTTGAACAGGCTCCAGCAAAAAGACTG spacer length: 126 repeater length: 8
1979240 GACAATGG AGAAACTAAAACTTCAGTAAAAAGTCCCGAAAAGGTAAAAACCCAGCAAAAAGCTG spacer
length: 57 repeater length: 8
1979306 GACAATGG AGAAACTAAAACTTCAGTAAAAACACTGAAGACGTTGAACAGGCTCCAGCAAATGACTG spacer
length: 60 repeater length: 8
1979375 GACAATGG
AGAAACTAAAACTTCAGAAAAAGTCCCGAAAAGGTAAAAGCCCCAGCAAAAAGCTGTGATAATGAAGAACTAAAACTTCAGTAA
AAAACACTGAAGACGTTGAACAGGCTCCAGCAAAAAGACTG spacer length: 126 repeater length: 8
1979510 GACAATGG
AGGATTTAAAAAGAAAGAGGAATTGAAAAAGAGAGGAATTGAAAAAGAGAGGAATTGAAAAAGAGAGGAATTGAAAAAGAGAGGAAT
TGAAAAAGAGAGGATTTGAAAAAGAGGGGATTTAAAGAA

17381
17382
17383 crispr 6
17384 774685 AATTCAGGAATAAATATTCAG GAATACAAATTTAAAGATAG spacer length: 20 repeater length:
21
17385 774727 AATTCAGGAATAAATATTCAG GAATACAAATTTAAAGATAG spacer length: 20 repeater length:
21
17386 774769 AATTCAGGAATAAATATTCAG GAATAATAATCTAAAGATAG spacer length: 20 repeater length:
21
17387 774811 AATTCAGGAATAAATATTCAG AAATAAAAATTTAAAGATAG spacer length: 20 repeater length:
21
17388 774853 AATTCAGGAATAAATATTCAG GAATAAAAATTTAAAGATAA spacer length: 20 repeater length:
21
17389 774895 AATTCAGGAATAAATATTCAG TAACTTGAATAAACCAATCT

17390
17391
17392 crispr 7
17393 3419842 AGATCCTAAAAAAGAATGAAG GGATCCTAAAAAAGAATGAA spacer length: 20 repeater
length: 21
17394 3419884 AGATCCTAAAAAAGAATGAAG AGATCCTAAAAAAGAATGAA spacer length: 20 repeater
length: 21
17395 3419926 AGATCCTAAAAAAGAATGAAG AAATGAATATCTCGATTAAA

17396
17397
17398 crispr 8
17399 1187210 ATCAGCTACATAGGCGTAATT
CCCGGAAATTTAGACACCGTAAATATCTCCGGCAGTATCGTAGCTTCCTTTGAGAACTGGTGAAGATGGATTGCTTATATCAACAA
TCATAAGACCATTACCCC spacer length: 104 repeater length: 21
1187336 ATCAGCTACATAGGCGTAATT
GCCGGAAACTACAACATCGCCAGTAGGACCTGCATAACGTCCTTTGAGAATTGGATCCGAAGGATTACTGATATCAACAATCACAA
GACCATCAT spacer length: 95 repeater length: 21
1187453 ATCAGCTACATAGGCGTAATT
GTAGATGGTCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGA
TCATAAAACA

17402
17403
17404 crispr 9
17405 1143692 CAGGTTGCGAATTGCAAGTTG AGATACAGGTTGCTAATAGT spacer length: 20 repeater
length: 21
17406 1143734 CAGGTTGCGAATTGCAAGTTG ATATACAGGTTGCTAATAGT spacer length: 20 repeater
length: 21
17407 1143776 CAGGTTGCGAATTGCAAGTTG ATATACAGGTTGCTAATAGTACAGGTTGCTAATAGT spacer length: 36
repeater length: 21
17408 1143834 CAGGTTGCGAATTGCAAGTTG AGAGAGGAATTGAAAAAGAGAGGAATTGAAAAAGAG

17409
17410
17411 crispr 10
17412 1616435 GATCCCGTAATATACTTCATT GACGCGTAGCTATAAGGTGGAGCAAATTCAGGACGGCTTGAAAAC spacer
length: 45 repeater length: 21
17413 1616502 GATCCCGTAATATACTTCATT TATGGCGTAACTGCGAGATGGAGCAAGTTAAGGACAGTCTGAAAGC spacer
length: 47 repeater length: 21
17414 1616571 GATCCCGTAATATACTTCATT AGAGGAATTGAAAAAGAGAGGAATTGAAAAAGAGAGGAATTGAAAAA

17415
17416

17417 crispr 11
17418 3273623 TATTGATACCTAAATAATACC TATCTTATGCCTTTAATGATG spacer length: 21 repeater
length: 21
17419 3273666 TATTGATACCTAAATAATACC TATCCTATGCCTTTAAGATG spacer length: 20 repeater
length: 21
17420 3273708 TATTGATACCTAAATAATACC AACTTGAATAAACCAATCTA
17421
17422
17423 crispr 12
17424 1716946 TCCTTGTCCTTTATCTTTTAG TCCTTGTCCTTTATCTTTTA spacer length: 20 repeater
length: 21
17425 1716988 TCCTTGTCCTTTATCTTTTAG TCCTTGTCCTTTATCTTTTA spacer length: 20 repeater
length: 21
17426 1717030 TCCTTGTCCTTTATCTTTTAG TAAACCAATCTACCCATTTT
17427
17428
17429 crispr 13
17430 1438405 TTTTCTCTAATTGGTTTTCTC TAATTGGATTTATCTTATTG spacer length: 20 repeater
length: 21
17431 1438447 TTTTCTCTAATTGGTTTTCTC CAATTGGATTTATCTTATTG spacer length: 20 repeater
length: 21
17432 1438489 TTTTCTCTAATTGGTTTTCTC AATGAATATCTCGATTAAAT
17433
17434
17435 crispr 14
17436 1848190 CAACCAAACCTTACACAGTCAA ACCTTACACAATCAAACCTCACGCAACCAAACCTTAC spacer length:
37 repeater length: 22
17437 1848250 CAACCAAACCTTACACAGTCAA ACCTTATACAATCAAACCTTAC spacer length: 22 repeater
length: 22
17438 1848295 CAACCAAACCTTACACAGTCAA GCCTTATACAACCAAACCTTAC spacer length: 22 repeater
length: 22
17439 1848340 CAACCAAACCTTACACAGTCAA AGATGGTCATAAACAAAAACA
17440
17441
17442 crispr 15
17443 534487 TCTATTCTGGTTCTACTCTGGTT CTACTCTGGTTCTATTCTGG spacer length: 20 repeater
length: 23
17444 534531 TCTATTCTGGTTCTACTCTGGTT
CTATTCTGGTTCTATTCTGGTTCTATTCTGGTTCTATTCTGGTTCTATTCTGGTTCTATTCTGG spacer length: 64
repeater length: 23
17445 534619 TCTATTCTGGTTCTACTCTGGTT
AAAAATCTCTAATAAAAAATTTTTATACTCTTACACCAATATTATACAGTTATATATTTACAGAAT
17446
17447
17448 crispr 16
17449 2803270 GAATAATGAAGACTATAGGTCTGG GGAATATCCAGACTCAACTC spacer length: 20 repeater
length: 24
17450 2803315 GAATAATGAAGACTATAGGTCTGG AGAATATCCAGACTCAACTC spacer length: 20 repeater
length: 24
17451 2803360 GAATAATGAAGACTATAGGTCTGG AGAATATCCAGACTCAACTC spacer length: 20 repeater
length: 24
17452 2803405 GAATAATGAAGACTATAGGTCTGG AACATTTAGTAAAATCTCT
17453
17454
17455 crispr 17
17456 648464 CGTTTTTTTATTCCCGTTTTTTATTC
CCGTTTTTATTCCCGTTTTTATTCCCGTTTTTTTTTATTCCCGTTTTTTTTTATTC spacer length: 54 repeater
length: 25
17457 648544 CGTTTTTTTATTCCCGTTTTTTATTC CCGTTTTTATTCCCGTTTTTTATTC spacer length: 24 repeater
length: 25
17458 648594 CGTTTTTTTATTCCCGTTTTTTATTC CAACCAAACCTCACACAATCAAAC
17459
17460
17461 crispr 18
17462 3958206 AGTAAAACATTTCAGTAAAACATTTAG
CAAAACATTTAGCAAAACATTTAGCAAAACATTTAGTAAAACATTTAGCAAAACATTTAGTAAAACATTTAGTAA
AACATTTAGTAAAACATTTAGTAAAACATTTAGTAAAACATT spacer length: 129 repeater length: 26
17463 3958362 AGTAAAACATTTCAGTAAAACATTTAG TAAAACATTTAGTAAAACATT spacer length: 21 repeater
length: 26
17464 3958410 AGTAAAACATTTCAGTAAAACATTTAG TAAAACATTTAGTAAAACATTTAGTAAAACATTTAGCAAAACATT
spacer length: 45 repeater length: 26

17465 3958482 AGTAAACATTTCAGTAAACATTTAG AACACTGAAAAACAATACCAGTTTAATACAAGGCGCCGGCTTAA
17466
17467
17468 crispr 19
17469 471480 GGATAATGAGGATAATGAGGATAATG AAGATTATGGGATAATGAAGATTAT spacer length: 25
repeater length: 26
17470 471532 GGATAATGAGGATAATGAGGATAATG AAGATTATGGGATAATGAAGATAATG spacer length: 26
repeater length: 26
17471 471585 GGATAATGAGGATAATGAGGATAATG GAATTGAAAAAGAGAGGAATTGAAAA
17472
17473
17474 crispr 20
17475 2907482 AAAAGAGAGGATTTAAAAGAAAGAGGA ATTGAAAAAGAGAGTAATTGAAAAAGAGAGGAATTG spacer
length: 36 repeater length: 27
17476 2907546 AAAAGAGAGGATTTAAAAGAAAGAGGA ATTGAAAAAGAGAGGATTTG spacer length: 20 repeater
length: 27
17477 2907594 AAAAGAGAGGATTTAAAAGAAAGAGGA TTGAAAAAGAGAGGAATTGA
17478
17479
17480 crispr 21
17481 3958366 AAACATTCAGTAAACATTTAGTAAAA CATTAGTAAACATTTAGT spacer length: 20 repeater
length: 27
17482 3958414 AAACATTCAGTAAACATTTAGTAAAA CATTAGTAAACATTTAGTAAACATTTAGCAAAACATTTAGT
spacer length: 44 repeater length: 27
17483 3958486 AAACATTCAGTAAACATTTAGTAAAA GAAAAAGAGAGGAATTGAAAAAGAGAGGAATTGAAAAAGAGAGG
17484
17485
17486 crispr 22
17487 3742302 AGAAGAGCTCGAGGAAGATATTGAAGA AGAGCTCAAGGAAGATATTG spacer length: 20 repeater
length: 27
17488 3742350 AGAAGAGCTCGAGGAAGATATTGAAGA AGAGTTCAAGGAAGAGCTCGAGGAAGATATTG spacer length:
32 repeater length: 27
17489 3742410 AGAAGAGCTCGAGGAAGATATTGAAGA CAGGAATAAAAATTTAAAGATAATAATTCAGG
17490
17491
17492 crispr 23
17493 3526414 GAGTCCCCACACGCGTGGGGATGAACC GCGCCAGCATGTAAAAACGTTTCCAATCATT spacer length:
32 repeater length: 28
17494 3526475 GAGTCCCCACACGCGTGGGGATGAACC GATGGGATGAAAAAAAAGGAGAATGGACGTTA spacer length:
32 repeater length: 28
17495 3526536 GAGTCCCCACACGCGTGGGGATGAACC GCTGCCTGTGTAACCTGACTCACACTTATTTT spacer length:
32 repeater length: 28
17496 3526597 GAGTCCCCACACGCGTGGGGATGAACC GGTCTCCAGATCCTGGACCCTGGAACCTGCTTC spacer length:
32 repeater length: 28
17497 3526658 GAGTCCCCACACGCGTGGGGATGAACC GCCGGGTATTTCTGCCATGTCCTTAACCTTCT spacer length:
32 repeater length: 28
17498 3526719 GAGTCCCCACACGCGTGGGGATGAACC GTAAGAGATTGAATTCAATTACCCCGTCTTTG spacer length:
32 repeater length: 28
17499 3526780 GAGTCCCCACACGCGTGGGGATGAACC GATTATTATAGATGTTATCCGGAGCTGTCAAA spacer length:
32 repeater length: 28
17500 3526841 GAGTCCCCACACGCGTGGGGATGAACC GTTCTTTTTGAATACAACGACTCGCAAACATG spacer length:
32 repeater length: 28
17501 3526902 GAGTCCCCACACGCGTGGGGATGAACC GTTGTGCTTATACCTTTGCCTGAACAATTCGT spacer length:
32 repeater length: 28
17502 3526963 GAGTCCCCACACGCGTGGGGATGAACC GCCGAAATTAAAACCCATACCTGTAATTCCCC spacer length:
32 repeater length: 28
17503 3527024 GAGTCCCCACACGCGTGGGGATGAACC GTCTCAAAAATCCAGATAATACTCTGGTAGTT spacer length:
32 repeater length: 28
17504 3527085 GAGTCCCCACACGCGTGGGGATGAACC GACGTGCCCCATGTGAACTCTCCGGTCATA spacer length:
32 repeater length: 28
17505 3527146 GAGTCCCCACACGCGTGGGGATGAACC GAACTATTATAGAGTTCCCCAGGGTTCTACC spacer length:
32 repeater length: 28
17506 3527207 GAGTCCCCACACGCGTGGGGATGAACC GTCTCTCCCTTTTCTCTGTCTATATACTGTTC spacer length:
32 repeater length: 28
17507 3527268 GAGTCCCCACACGCGTGGGGATGAACC GTTGAAAAAGTAGTCAAACAAAAATACTATTC spacer length:
32 repeater length: 28
17508 3527329 GAGTCCCCACACGCGTGGGGATGAACC GGTTTCACGCTTGCAAATAATGATTTACCCCC spacer length:
32 repeater length: 28
17509 3527390 GAGTCCCCACACGCGTGGGGATGAACC GAAGCCGCAGCAAAGAGGGTAGACTCATTTAT spacer length:
32 repeater length: 28
17510 3527451 GAGTCCCCACACGCGTGGGGATGAACC GTCCCTGCGGCGACTCCTCCCAAATTACTTTA spacer length:

	32 repeater length: 28		
17511	3527512 GAGTTCCCCACACGCGTGGGGATGAACC	GATTATTGAGGTGTGTTTAAATGCCGTGTCCGT	spacer length:
	32 repeater length: 28		
17512	3527573 GAGTTCCCCACACGCGTGGGGATGAACC	GCAATGGATGATACACAGATTGTAGTGCGAGA	spacer length:
	32 repeater length: 28		
17513	3527634 GAGTTCCCCACACGCGTGGGGATGAACC	GTGCTAGCACATGGATACAAACGACAATGCAA	spacer length:
	32 repeater length: 28		
17514	3527695 GAGTTCCCCACACGCGTGGGGATGAACC	GACTTCTCAGATAGAGCCGTAGACGAGCTTAT	spacer length:
	32 repeater length: 28		
17515	3527756 GAGTTCCCCACACGCGTGGGGATGAACC	GATTGGCCTGCTATTGTCAGGAAATATGAATT	spacer length:
	32 repeater length: 28		
17516	3527817 GAGTTCCCCACACGCGTGGGGATGAACC	GGATTACAGGGCAAATTATGGGGGGTCTGGAC	spacer length:
	32 repeater length: 28		
17517	3527878 GAGTTCCCCACACGCGTGGGGATGAACC	GTCGGAATAATCCGCAATTCCGGTTATTGCTT	spacer length:
	32 repeater length: 28		
17518	3527939 GAGTTCCCCACACGCGTGGGGATGAACC	GATTATTTCCGCAAATGTCGAAATTACAGAAA	spacer length:
	32 repeater length: 28		
17519	3528000 GAGTTCCCCACACGCGTGGGGATGAACC	GAAGGGTTATTAAAAGAAATGGATAATCGCGG	spacer length:
	32 repeater length: 28		
17520	3528061 GAGTTCCCCACACGCGTGGGGATGAACC	GTTGTATATCTCACAGTGAAACCGGACGAGAA	spacer length:
	32 repeater length: 28		
17521	3528122 GAGTTCCCCACACGCGTGGGGATGAACC	GGATATCGGGTTTCTGTATTTTCCCTTGTTG	spacer length:
	32 repeater length: 28		
17522	3528183 GAGTTCCCCACACGCGTGGGGATGAACC	GGAACGCACCTCATTGTTACGGGCTGGACTTC	spacer length:
	32 repeater length: 28		
17523	3528244 GAGTTCCCCACACGCGTGGGGATGAACC	GACACACAGGACCGCTACATTCGTTTTTAAG	spacer length:
	32 repeater length: 28		
17524	3528305 GAGTTCCCCACACGCGTGGGGATGAACC	GTCAGGGTATATGTAAAAACGTCTTTGAAGG	spacer length:
	32 repeater length: 28		
17525	3528366 GAGTTCCCCACACGCGTGGGGATGAACC	GCAAGTAGGACGGCAAACCTTCTGAAGCCGC	spacer length:
	32 repeater length: 28		
17526	3528427 GAGTTCCCCACACGCGTGGGGATGAACC	GGATTACGATTTCCGTTCCCTGATGAACTAAAA	spacer length:
	32 repeater length: 28		
17527	3528488 GAGTTCCCCACACGCGTGGGGATGAACC	GGGCCAACGATAGCAGCTAATAGGATTTATGA	spacer length:
	32 repeater length: 28		
17528	3528549 GAGTTCCCCACACGCGTGGGGATGAACC	GGACATCCGAGAAGGGGCAGTGACAGACTATG	spacer length:
	32 repeater length: 28		
17529	3528610 GAGTTCCCCACACGCGTGGGGATGAACC	GGAGGGATTACAACGTTAGTACCTGACCATCT	spacer length:
	32 repeater length: 28		
17530	3528671 GAGTTCCCCACACGCGTGGGGATGAACC	GTTGCTTATCAGAACCACGCTGTCGCCACCGT	spacer length:
	32 repeater length: 28		
17531	3528732 GAGTTCCCCACACGCGTGGGGATGAACC	GGTCACATAGACCTTCATAATTGTCTTCCCCC	spacer length:
	32 repeater length: 28		
17532	3528793 GAGTTCCCCACACGCGTGGGGATGAACC	GAATGACGTTGAAAAACAAATGACGTTGAAA	spacer length:
	32 repeater length: 28		
17533	3528854 GAGTTCCCCACACGCGTGGGGATGAACC	GAATTTTCACTTCGAGTACTGTAAATGATGGA	spacer length:
	32 repeater length: 28		
17534	3528915 GAGTTCCCCACACGCGTGGGGATGAACC	GGCTTAACAACCACTGAGAAAGCTGAAATCGC	spacer length:
	32 repeater length: 28		
17535	3528976 GAGTTCCCCACACGCGTGGGGATGAACC	GTTGAATTTTGGCTTTAATTGTCAAAGAGTGC	spacer length:
	32 repeater length: 28		
17536	3529037 GAGTTCCCCACACGCGTGGGGATGAACC	GGTTCTCAAATTTGTTTCATTGGATTGATGA	spacer length:
	32 repeater length: 28		
17537	3529098 GAGTTCCCCACACGCGTGGGGATGAACC	GCCGTGGTTTTTTTACAACGAAATGTAAGGGG	spacer length:
	32 repeater length: 28		
17538	3529159 GAGTTCCCCACACGCGTGGGGATGAACC	GATCGAATAACCCATTTTTGAAATTAATATACCGAGTTCCCCACATGCGTGGGGATGAACCGGCAGCCCAGGAAGCAGCCGCTAAATAGCCG	spacer length: 93 repeater length: 28
17539	3529281 GAGTTCCCCACACGCGTGGGGATGAACC	GCCGGTTACTAAAACGCCACTCCTTGATCTGA	spacer length:
	32 repeater length: 28		
17540	3529342 GAGTTCCCCACACGCGTGGGGATGAACC	GCTTAACGTCTCTGTATCCAACGCTTTAGTG	spacer length:
	32 repeater length: 28		
17541	3529403 GAGTTCCCCACACGCGTGGGGATGAACC	GTAATTGGAGCATATTGAATATAGAAAGTGAG	spacer length:
	32 repeater length: 28		
17542	3529464 GAGTTCCCCACACGCGTGGGGATGAACC	TCAGAGGAAGATACTGCAACTGGAAAATCGAA	spacer length:
	32 repeater length: 28		
17543	3529525 GAGTTCCCCACACGCGTGGGGATGAACC	GGTCGAGGTTGACACAAAACAGCAGTTAGTAA	spacer length:
	32 repeater length: 28		
17544	3529586 GAGTTCCCCACACGCGTGGGGATGAACC	GACTGGATGAGAGAAAAAGAGGATATCGCAAT	spacer length:
	32 repeater length: 28		
17545	3529647 GAGTTCCCCACACGCGTGGGGATGAACC	GTATTTTCATCAACCGTATGCCACACACAAAA	spacer length:

32 repeater length: 28
 17546 3529708 GAGTCCCCACACGCGTGGGGATGAACC GTGCCGTCTCTTCAGGTCTCCGCTGAAAAAAC spacer length:
 32 repeater length: 28
 17547 3529769 GAGTCCCCACACGCGTGGGGATGAACC GTTGTGGTTAAAGCAGTGTCTGCATCTGTAAA
 17548
 17549
 17550 crispr 24
 17551 898 GTACATATTAATTGTCCATATAAACCAT CTTATATAAACCATCTTAAAT spacer length: 23 repeater
 length: 28
 17552 950 GTACATATTAATTGTCCATATAAACCAT CTTATATAAACCATCTTAAAC spacer length: 23 repeater
 length: 28
 17553 1002 GTACATATTAATTGTCCATATAAACCAT CGGAGCCCGAAACCAATGTAACG
 17554
 17555
 17556 crispr 25
 17557 1685427 ACATACGTGTATGTGACGAATATTATCAG
 CAATACTGTCACCATAATTAACGCAGCTACAAACACTGTTGCAGCCACGGTTGACGTTGGGGATCATCCTTCAGGAATCGCAATGC
 ACCCTGATGG spacer length: 96 repeater length: 29
 17558 1685553 ACATACGTGTATGTGACGAATATTATCAG
 CAATACTGTCACCATAATTAACGCAGCTACAAACACTGTTGCAGCCACGGTTGATGTTGGGGATTATCCCGCTGGAATCGCAATGC
 ACCCTGATGG spacer length: 96 repeater length: 29
 17559 1685679 ACATACGTGTATGTGACGAATATTATCAG
 AAACCAATCTACCCATTTTGAAAAAGTTGATATATTTCAGACAAGAACTTGTTCAATATTTTTTAATAAATATCTGGTTTTTGTGGAA
 ATTTTCATTA
 17560
 17561
 17562 crispr 26
 17563 554109 CAAAAAACAGATACAAGTAATGTAGTAGA
 CGATCAGGACCAAAAAACAGATACAAGTGACGTAGTAGATGATCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATA
 AACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAA spacer length: 126 repeater length: 29
 17564 554265 CAAAAAACAGATACAAGTAATGTAGTAGA
 TGGTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGATAATCATA
 AACAAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAA spacer length: 126 repeater length: 29
 17565 554421 CAAAAAACAGATACAAGTAATGTAGTAGA
 AACAAATATTTGAATTTTCCAAATGAATATCTCGATTAAATGAATATCTCAATTTTTTTCAATCACGGTCATCAATCACAGTTACAA
 ATAAGATAATTTATACAGTTTATTTTCGTTGCGGGTACTAA
 17566
 17567
 17568 crispr 27
 17569 4096234 CGACCTGACTATCTCAACCTGACTATCTC AACCTGACTATCTCAACCTGACTATCTCGACCTGACTATC
 spacer length: 40 repeater length: 29
 17570 4096304 CGACCTGACTATCTCAACCTGACTATCTC
 AACCTGACTATCTCAACCTGACTATCTCAACCTGACTATCTCAACCTGACTATCTCAACCTGACTATCTCAACCTGACTATCTCAA
 CCTGACTATCTCGGCTGACTATC spacer length: 110 repeater length: 29
 17571 4096444 CGACCTGACTATCTCAACCTGACTATCTC
 TATTTCAGGAATAAAAAATTTAAAGATAATAAATTCAGGAATAAACTTCAAAAATAATAATTCAGGAATAAAAA
 CCTCCGTTGAAGAGGTTGTAAAA
 17572
 17573
 17574 crispr 28
 17575 3192212 GTTTCATCCCTCTAAGGTCTGATTTTAAAC CAAGTTTCCCCAACGAGATTAGGGGGACGTGTTA spacer
 length: 35 repeater length: 30
 17576 3192278 GTTTCATCCCTCTAAGGTCTGATTTTAAAC AACTCGGATTGATGCTTGTAAGGTATGTATTTTG spacer
 length: 36 repeater length: 30
 17577 3192345 GTTTCATCCCTCTAAGGTCTGATTTTAAAC CCTTAACGAAGATACAAACATAGACTTCTCAAAAGA spacer
 length: 36 repeater length: 30
 17578 3192412 GTTTCATCCCTCTAAGGTCTGATTTTAAAC GAGGGGAAAGGAGTTTGAGGAATGGATCGAATCAATTATC
 spacer length: 40 repeater length: 30
 17579 3192483 GTTTCATCCCTCTAAGGTCTGATTTTAAAC TTGCTTTTGAATTTGCATACTTATATGCCAAAAAC spacer
 length: 36 repeater length: 30
 17580 3192550 GTTTCATCCCTCTAAGGTCTGATTTTAAAC TCCGTTAGCAAGTCAGACAATAAAAAAGAACAG spacer
 length: 34 repeater length: 30
 17581 3192615 GTTTCATCCCTCTAAGGTCTGATTTTAAAC TTTCATCCAAAGCTGGACGCAAAAAAGGACGTGGACG spacer
 length: 37 repeater length: 30
 17582 3192683 GTTTCATCCCTCTAAGGTCTGATTTTAAAC AAGAAAAATCACTAATGAATCCAAAAGTTTTTAG spacer
 length: 34 repeater length: 30
 17583 3192748 GTTTCATCCCTCTAAGGTCTGATTTTAAAC CAGGAAATATTTGTATGCTTCAAACAGCCTAATTT spacer
 length: 35 repeater length: 30
 17584 3192814 GTTTCATCCCTCTAAGGTCTGATTTTAAAC ATGAAACATCATTCGCAGGGTCAAGCTTCTCGA spacer
 length: 33 repeater length: 30
 17585 3192878 GTTTCATCCCTCTAAGGTCTGATTTTAAAC CTGAAATTACAGACATCAATGCAACATATATA spacer

length: 32 repeater length: 30
17586 3192941 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GCCCGTATTTTTTCAAATATGTCCGTAGATGCTTTTG spacer
length: 36 repeater length: 30
17587 3193008 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATTTGCATCACAGTATGCTTGAAGGACTTGTACTT spacer
length: 35 repeater length: 30
17588 3193074 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ACCATCAGCAGACAGAAGCCGATAATGAGCTACGG spacer
length: 35 repeater length: 30
17589 3193140 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CACTACCTCTTATACCATATTTCTGCATTATACTCT spacer
length: 36 repeater length: 30
17590 3193207 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TGAAAAAGTGAGAATGGTTATTTTTGAAGGTGCGAA spacer
length: 36 repeater length: 30
17591 3193274 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GTGCATTAACAATTCTATGGTACTCAATCCAATGT spacer
length: 35 repeater length: 30
17592 3193340 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AATTCCATGAATCAGATTGTCCAGTTCCTCCATTAAA spacer
length: 37 repeater length: 30
17593 3193408 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TGCAATGGTCATAGATGGGGTAGAAGATGTTGTAA spacer
length: 35 repeater length: 30
17594 3193474 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GCTCTGGGAAGTGACTGTATCTCAGGAGGTATACCTG spacer
length: 37 repeater length: 30
17595 3193542 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TAGATTACTTCAAATTAATAATATGTTCCATGAGGT spacer
length: 35 repeater length: 30
17596 3193608 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CCTTCTACACTTTTTTTAGAGGGGCCAAGCTCCCA spacer
length: 35 repeater length: 30
17597 3193674 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGGATATCAGCAGGGCGGCGATTTTCGCAAACGATCTC spacer
length: 37 repeater length: 30
17598 3193742 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TAAAAAAGTGATAGAGTCTCTCAACCTTCTTT spacer
length: 32 repeater length: 30
17599 3193805 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGTTACCACTTTAAAAACCAACTATCAACTAC spacer
length: 33 repeater length: 30
17600 3193869 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ACAATCTGCACAACCTGCAAACAAGTACTCCCG spacer
length: 34 repeater length: 30
17601 3193934 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GTGGATTGCTGGCGGATTTTACCCCCCATTCCCATA spacer
length: 37 repeater length: 30
17602 3194002 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TCTGATGAGATCGAGGCAATTGACAAAGGGAACGCA spacer
length: 36 repeater length: 30
17603 3194069 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTCACGAACCGAATAGCCTTTTTTAAGGGACGGTACCCT spacer
length: 38 repeater length: 30
17604 3194138 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATTGGCAATACCATTAAAATGAAGGGGTATATTC spacer
length: 34 repeater length: 30
17605 3194203 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CTGATCCCAGACAGCAAATCATTGTCCCCATGTCT spacer
length: 35 repeater length: 30
17606 3194269 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TCTGTACGCAACACTCTTAATTCTCTTCTCATGA spacer
length: 34 repeater length: 30
17607 3194334 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AAGCCC GTTATCGTGTTTTCTGTATAGCTCATGTT spacer
length: 35 repeater length: 30
17608 3194400 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTACGTTAAGGCGGCGTCTGTCAACCGTGGGTTCC spacer
length: 35 repeater length: 30
17609 3194466 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CCTTGACGACGTCAAGTCCTTAATGTGCAATGATCAA spacer
length: 37 repeater length: 30
17610 3194534 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATGTTTCAATTTCGTCACCTGCGTGGGTACCGCAATAATTA
spacer length: 39 repeater length: 30
17611 3194604 GTTTCAATCCCTCTAAGGTCTGATTTTAAC AGCTATCTCTCCCTGTTTAAATTTTATTTTGTTAA spacer
length: 35 repeater length: 30
17612 3194670 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTTTAATGCACATGAGCCATGGTTCCGAAAACACAA spacer
length: 37 repeater length: 30
17613 3194738 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTGACCGAGCAGTCGGGAACATATCTCTTACTGAGA spacer
length: 36 repeater length: 30
17614 3194805 GTTTCAATCCCTCTAAGGTCTGATTTTAAC TTGGGAGTATGAAACGCTTAGTCAAAAATTCTTCGT spacer
length: 36 repeater length: 30
17615 3194872 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATAGGAATTTTCGAGAATCAAAACGGGATCGGAA spacer
length: 34 repeater length: 30
17616 3194937 GTTTCAATCCCTCTAAGGTCTGATTTTAAC GTGTTGCAAACAGGTAACCCAATGATTATCACAAA spacer
length: 35 repeater length: 30
17617 3195003 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CAACATGGCACTTTACAGAAAAACCGCTTTAGTTG spacer
length: 35 repeater length: 30
17618 3195069 GTTTCAATCCCTCTAAGGTCTGATTTTAAC CCCTCAACAACCCGGTTAGAGGCTATAAAGGAAATA spacer
length: 36 repeater length: 30
17619 3195136 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ACAGTTCACGTGACAACCTGTGTCACTGAAGACCAG spacer
length: 35 repeater length: 30
17620 3195202 GTTTCAATCCCTCTAAGGTCTGATTTTAAC ATGCTTGCACTTGCTTTTTATTATGAAAACATTGT spacer
length: 34 repeater length: 30

17621 3195267 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ATTGTATTACCGCCATACTCAAACATATAAAGTC spacer
length: 34 repeater length: 30
17622 3195332 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ATCCTCAAGTGTCTTGAACCTGAATATGACGACA spacer
length: 35 repeater length: 30
17623 3195398 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ATTAATACTATATTGACAGTATTATATAATTTAATAT spacer
length: 37 repeater length: 30
17624 3195466 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ACAGCTCGATAGGATAGAACGCGTGAAAGGCATTA spacer
length: 35 repeater length: 30
17625 3195532 GTTTC AATCCCTCTAAGGTCTGATTTTAAC CCAACACTTACGACGTGTTCGAACCTGGGACATACG spacer
length: 36 repeater length: 30
17626 3195599 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TGTGTTTTTTCGTATATCGTACCGATCCAATTAAA spacer
length: 35 repeater length: 30
17627 3195665 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ACAGAATGACGACCTTGTAACAGATCAATTAAACA spacer
length: 36 repeater length: 30
17628 3195732 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TATAGGCGGACTTCTTATAGTACTCGGTCCTGTTGTA spacer
length: 37 repeater length: 30
17629 3195800 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TCAGCTACATTTCCAGTTCTGACATTCTTCTCCTAA spacer
length: 37 repeater length: 30
17630 3195868 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TTGTAATCAGTCTTACAAAATAATGGAGGGAAAGAA spacer
length: 36 repeater length: 30
17631 3195935 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GATTGGATTCTCACGGCTCAAACATAAACAGGGGAACG spacer
length: 38 repeater length: 30
17632 3196004 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TATATATCGCGGTAGATAACGTTTTTGCAGTGTAGC spacer
length: 36 repeater length: 30
17633 3196071 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GCTGTAATCAGTCTTACAAAATAATGGAGGGAAAGAA spacer
length: 37 repeater length: 30
17634 3196139 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GAGTTTGTCTCTTCTCTCAAGGTTGCCATGGACA spacer
length: 35 repeater length: 30
17635 3196205 GTTTC AATCCCTCTAAGGTCTGATTTTAAC CTAATTGGTAATGGTACAGTTACAAGTGGAACATA spacer
length: 34 repeater length: 30
17636 3196270 GTTTC AATCCCTCTAAGGTCTGATTTTAAC ACGCATAAGCGTTGAGGTATGGTTTCGTATCCTTT spacer
length: 35 repeater length: 30
17637 3196336 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TGCCTGCTTGGAAGAACATCGTGATGAGGTAGGA spacer
length: 35 repeater length: 30
17638 3196402 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TGTCAATACCTTGATGAGATCTGTTTCGTTTCGAGATGAA
spacer length: 39 repeater length: 30
17639 3196472 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AGGGGAAGCATCTAACCGTCCAACCTGCCCACACT spacer
length: 35 repeater length: 30
17640 3196538 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TTATCTTACTGGTGAGTACGAGGAGATCAAGAATGCTA spacer
length: 38 repeater length: 30
17641 3196607 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TCGGCTACAATTATCCTAATCATTCCGTCGTCTG spacer
length: 34 repeater length: 30
17642 3196672 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GAGGAAGATATCCTCGAATATAAAACCCCGAATTCCA spacer
length: 37 repeater length: 30
17643 3196740 GTTTC AATCCCTCTAAGGTCTGATTTTAAC GAGGGTATTACAGTTGAAAATTGTAGAATAAAAGTA spacer
length: 36 repeater length: 30
17644 3196807 GTTTC AATCCCTCTAAGGTCTGATTTTAAC AAACGTATCAGATGCACGCATACAGAACATCATAA spacer
length: 35 repeater length: 30
17645 3196873 GTTTC AATCCCTCTAAGGTCTGATTTTAAC TCGATTAAATGAATATCTCAATTTTTTTCAATCAC
17646
17647
17648 crispr 29
17649 932684 AAAAAAATCATAAAATTTTATCATAA CTTGA
TTTAAAAAATCATAAAATTTTCATCATAA CTTGATTTAAAAAATCATAAAATTTTCATCATAA CTTGATTTAAAAAATCATAAA
TTTCATCATAA CTTGATT spacer length: 104 repeater length: 31
17650 932820 AAAAAAATCATAAAATTTTATCATAA CTTGA TTTAAAAAATCATAAAATTTTCATCATAA CTTGATT spacer
length: 36 repeater length: 31
17651 932888 AAAAAAATCATAAAATTTTATCATAA CTTGA AGGCGCCGGCTTAATTAACCCCACTTTCCGCAGTAA
17652
17653
17654 crispr 30
17655 471366 TGAGGATAATGAAGATTATGGGATAATGAAG
ATAATGGGATAATGAAGATAATGGGATAATGAAGATAATGGGATAATGAAGATAATGAAGATAATGAAGATTATGGGA
TAATGAGGATA spacer length: 97 repeater length: 31
17656 471495 TGAGGATAATGAAGATTATGGGATAATGAAG ATTATGGGATAATGAGGATA spacer length: 20
repeater length: 31
17657 471547 TGAGGATAATGAAGATTATGGGATAATGAAG GAAACCAATGTAACGGAGCC
17658
17659
17660 crispr 31
17661 911366 ACAAACAATATTTGAATTTTCCAAATGAATA GTAAGAAGAAATTCATAGTTTTAAGGAGTCGT spacer

length: 32 repeater length: 32
17662 911431 AAAAAACAATATTTGAATTTTCCAAATGAATA GTAAGAAGAAATTCATAGTTTTAAGGAGTCGC spacer
length: 32 repeater length: 32
17663 911496 AAAAAACAATATTTGAATTTTCCAAATGAATA AAATAACATAACAGAACTCGAAGCTAACTTA
17664
17665
17666 crispr 32
17667 1319664 CTTTTCCTTTCTGGTTTCCTTTTCCTTTCTGAT CTCTTTTTCCTTTCTGATTT spacer length: 20
repeater length: 33
17668 1319718 CTTTTCCTTTCTGGTTTCCTTTTCCTTTCTGAT TTCCTTTTTCCTTTCTGATTT spacer length: 20
repeater length: 33
17669 1319772 CTTTTCCTTTCTGGTTTCCTTTTCCTTTCTGAT AAAAAAACAGATTCAAGTG
17670
17671
17672 crispr 33
17673 590498 AAGTCTAAGATAGTCAGGGAGTCTAAGATAGTCAG GGAGTCTAAGATAGTCAGGAAGTCTAAGATAGTCAG
spacer length: 36 repeater length: 35
17674 590570 AAGTCTAAGATAGTCAGGGAGTCTAAGATAGTCAG
AAAGTCTAAGATAGTCAGGAAGTCTAAGATAGTCAGAAAGTCTAAGATAGTCAGGAAGTCTAAGATAGTCAGGAAGTCTAAGATAG
TCAG spacer length: 90 repeater length: 35
17675 590696 AAGTCTAAGATAGTCAGGGAGTCTAAGATAGTCAG
AAAATTTTATACTCTTACACCAATATTATACAGTTATATATTTACAGAATCACATTCTTTTCAGAGTCTGAATATCATTTTCAGAGG
AGTA
17676
17677
17678 crispr 34
17679 3282143 AATTCAGGATCTGATGATAATTCAGGATCTGATGA
TAATTCAGGATCCGATGATGATTTCAGGATCCGATGACAATTCAGGATCCGATGATGATTTCAGGATCCGATGATAATTCAGGATCCG
ATGA spacer length: 90 repeater length: 35
17680 3282269 AATTCAGGATCTGATGATAATTCAGGATCTGATGA
CAATTCAGGATCCGATGATAATTCAGGATCCGATGATAATTCAGGATCTGATGATAATTCAGGATCCGATGATGATTTCAGGATCTG
ATGATAATTCAGGATCCGATGA spacer length: 108 repeater length: 35
17681 3282413 AATTCAGGATCTGATGATAATTCAGGATCTGATGA
AAATCTCTAATAAAAAATTTTATACTCTTACACCAATATTATACAGTTATATATTTACAGAATCACATTCTTTTCAGAGTCTGAATA
TCATTTTCAGAGGAGTACGTTCT
17682
17683
17684 crispr 35
17685 1295017 AGTATTATGCTGATAAGCTATACTGATAAGTATTA TGCTGATAAGTTATCTTGAT spacer length: 20
repeater length: 35
17686 1295073 AGTATTATGCTGATAAGCTATACTGATAAGTATTA
TGCTGATAAGTTATCTTGATGAGTATTATGCTGATAAGTTATCTTGAT spacer length: 48 repeater length: 35
17687 1295157 AGTATTATGCTGATAAGCTATACTGATAAGTATTA
AACCTCACACAATCAAACCTCACACAGTCATATAAAACAGTATATGTG
17688
17689
17690 crispr 36
17691 3179668 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAAAGAATTCTATAATAATGAAATCCGTCCAGCACTT
spacer length: 37 repeater length: 37
17692 3179743 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT
AAAAAGAACTGGACTCACTGAGGCAAACTCAGAGTTTCAATCCTTGTTTTAGTGGATCCTTGTTTTAGTGGATCTTGCTCACG
AATTGTCGTATGGCAGCAATAGAAAACAAGATCGACGAG spacer length: 125 repeater length: 37
17693 3179906 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCGAGTATAAGGGTATAGTATGTAAACGAACTATA
spacer length: 37 repeater length: 37
17694 3179981 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTTGACCGAATAGCGCGCCCCGCATTGGGGCAT
spacer length: 36 repeater length: 37
17695 3180055 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATTTTCGTCATTTGCACTGAGTACACCATACAT
spacer length: 35 repeater length: 37
17696 3180128 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCTAGTTTCAACATTTCGTAATTATTGGTCTTGTTG
spacer length: 36 repeater length: 37
17697 3180202 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGAACGTCTTTAAATGATCTCACAGAGAAATACT
spacer length: 35 repeater length: 37
17698 3180275 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGAAGAGCGCAGAGTTTTAGCATTAGAGTCGATCG
spacer length: 35 repeater length: 37
17699 3180348 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGATGCGCTTAACAAGTACGACGGGGATATTT
spacer length: 33 repeater length: 37
17700 3180419 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATCAGAAGAATATCATTACTTACAACCTCTATAA
spacer length: 34 repeater length: 37
17701 3180491 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGATATTTTCCGGGCAACTTATGAGAAAGTGGAGGA
spacer length: 36 repeater length: 37
17702 3180565 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGAAGACTGTGATATGATAGGTCATTATGCATTTA

spacer length: 36 repeater length: 37
 17703 3180639 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAGTTTCATGTGTTTCCTGGTCAACGTATTTA
 spacer length: 33 repeater length: 37
 17704 3180710 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCCTCTTTTGTCTTCTTTGCAGATTCAATGAGTT
 spacer length: 34 repeater length: 37
 17705 3180782 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGACTTCTTCCGTCATCTCCTGCGAAGGAAGGACCGT
 spacer length: 37 repeater length: 37
 17706 3180857 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATTACGCCTTTTTATGATGATTATTAATTATTTTT
 spacer length: 36 repeater length: 37
 17707 3180931 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTTTTATAACAAAGCTGGGGATGTCCAGGGATTC
 spacer length: 35 repeater length: 37
 17708 3181004 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTATGTCTAGATTAGAGGGGCTGAGGTGCTTA
 spacer length: 34 repeater length: 37
 17709 3181076 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGGCATTATATCGCCACTGATCGAGATGCGTGG
 spacer length: 34 repeater length: 37
 17710 3181148 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTTTCAGGACTGCCCCGTCTTCAAAAACCCACCTTT
 spacer length: 36 repeater length: 37
 17711 3181222 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATCAAATCTGCCGAGATAATTCTGTATGAAAAA
 spacer length: 34 repeater length: 37
 17712 3181294 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TACAAAGAAAAAATCAGAAGGCGAATACAAATAC
 spacer length: 34 repeater length: 37
 17713 3181366 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGAAC TAAACGGAATTATGGATGAAATTCAATGT
 spacer length: 34 repeater length: 37
 17714 3181438 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGAAAGATGCAGATGAGGAACTTAAACAGGCAGTTG
 spacer length: 36 repeater length: 37
 17715 3181512 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TACTTCACCAGAGTCATAACGCCGGGATCGATTA
 spacer length: 34 repeater length: 37
 17716 3181584 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCATGTACTCCGAATTAACGGTCGGATGCACATAT
 spacer length: 36 repeater length: 37
 17717 3181658 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCATGTACTCCGAATTAACGGTCGGATGCACATAT
 spacer length: 36 repeater length: 37
 17718 3181732 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAATTACGAAGCCACGGGGAGCACCGGAGAGAAC
 spacer length: 35 repeater length: 37
 17719 3181805 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAAACGCATAGCAGCTTTTAGCCGATAGCGATT
 spacer length: 35 repeater length: 37
 17720 3181878 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACATAGACCTCTCAAAGGGTTTACAGTCATCGACCTG
 spacer length: 38 repeater length: 37
 17721 3181954 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCGTTTTTAAAGCCTTCCAAAATTCCGAGATA
 spacer length: 33 repeater length: 37
 17722 3182025 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAAACGCATAGCAGCTTTTAGCCGATAGCGATT
 spacer length: 35 repeater length: 37
 17723 3182098 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACATAGACCTCTCAAAGGGTTTACAGTCATCGACCTG
 spacer length: 38 repeater length: 37
 17724 3182174 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCGTTTTTAAAGCCTTCCAAAATTCCGAGATA
 spacer length: 33 repeater length: 37
 17725 3182245 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTCATAATCTTCTAATACCCTATCAAGAGCATCA
 spacer length: 35 repeater length: 37
 17726 3182318 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACCTTTGCTTCGTAGCGCACTGTTTCCACGGCA
 spacer length: 33 repeater length: 37
 17727 3182389 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTGAGGTAGATCCGAATGGACATTATGTGTAT
 spacer length: 34 repeater length: 37
 17728 3182461 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACAAGATCTCAGCTAATTCATTATACTCCCCGGTTGG
 spacer length: 38 repeater length: 37
 17729 3182537 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTGACGAAGAACCGGTAAGTGAAGCTTAAACTG
 spacer length: 35 repeater length: 37
 17730 3182610 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGCGTTTTTATGCCTGTTGTGATCTCGATAGGTGGG
 spacer length: 35 repeater length: 37
 17731 3182683 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GGGAGGAAGTGGATGGGAGTGGCGGGGGCACTGTA
 spacer length: 35 repeater length: 37
 17732 3182756 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATATGCCCTGACTTCTTCTCGTGTCTGCCTGCC
 spacer length: 35 repeater length: 37
 17733 3182829 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTCTAACAGTAGATCTGTCAAACATGGAGATT
 spacer length: 34 repeater length: 37
 17734 3182901 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTAATTTTCATCCAAAAGTGTGTTTGGAGCAACCGG
 spacer length: 35 repeater length: 37
 17735 3182974 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGCAACCACTTTCAGAGAAAAGGGCGGCTCACTTTCAT
 spacer length: 38 repeater length: 37
 17736 3183050 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTAGAAGTTACAAAGAAAGAAAAACAATAA
 spacer length: 34 repeater length: 37
 17737 3183122 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTTCCCCCAAATTATGTAGAGGGGGAGGAAATTT
 spacer length: 34 repeater length: 37

17738 3183194 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTTTGGACATCACAGTCACGGAGGGCATCATGG
spacer length: 34 repeater length: 37

17739 3183266 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAACCTACCTATGGATAATTAAAACCTTATTTGAGG
spacer length: 36 repeater length: 37

17740 3183340 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGCCTTAACAAAATTAAAACAGATTCCGGCAGAAA
spacer length: 36 repeater length: 37

17741 3183414 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACGGAGCCCGAAACCAATGTAACGGAGCCCGAAAC

17742

17743

17744 crispr 37

17745 1433036 CTGAATCTTCTCCATTGTTGATGGTGCTTCCTGAATCTT CTCCATTATATTCTGTGCTT spacer length:
20 repeater length: 39

17746 1433096 CTGAATCTTCTCCATTGTTGATGGTGCTTCCTGAATCTT TCCCATTATATTCTGTGCTT spacer length:
20 repeater length: 39

17747 1433156 CTGAATCTTCTCCATTGTTGATGGTGCTTCCTGAATCTT CAATCAAACCTCACACAGTC

17748

17749

17750 crispr 38

17751 1977271 AGAAGAGGAAGAAGAAGTAGTGGATGAAGCAGTGCCTGCA
TCTGTAAAGGAAGAAGAAGAGGAAGAAGAAGTAGTAGATGAAGCAGTGCCTGCACCTGTAAAGGAAGAAGAAGAGGAAGAAGAAGA
GGAAAAAGAGTAGTGCCTGCATCTGTAAAGGAAG spacer length: 121 repeater length: 40

17752 1977433 AGAAGAGGAAGAAGAAGTAGTGGATGAAGCAGTGCCTGCA
TCTGTAAAGGAAGAAGAAGAGGAAGAAGAAGTAGTAGATGAAGCAGTGCCTGCACCTGTAAAGGAAGAAGAAGAGGAAGAAGAAGT
AGTTGTGGTTAAAGCAGTGTCTGCATCTGTAAAGG spacer length: 121 repeater length: 40

17753 1977595 AGAAGAGGAAGAAGAAGTAGTGGATGAAGCAGTGCCTGCA
GTAACGGAGCCCCGAAACCAATGTAACGGAGCCCCGAAAATAACGTAACAGAACCCGAAAATAACGTAACGGAGCCCCGAAAATAACGT
AACGGAGCCCCGAAACCAATGTAACAGAGCCCCGAAA

17754

17755

17756 crispr 39

17757 1684435 AGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAAC
AGAACCCGAAACCAATGTAACGGAGCCCGAAACCAATGTAACG spacer length: 43 repeater length: 40

17758 1684519 AGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAAC
AGAACCCGAAACCAATGTAACGGAGCCCGAAACCAATGTAACGGAGCCCGAAACCAATGTAACG spacer length: 64
repeater length: 40

17759 1684624 AGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAAC
CTAACTTAACGAAATCGAAGCCAACCTAACGCTATCAGAAATCAACTTAACAGAACCCGGAAC

17760

17761

17762 crispr 40

17763 1592214 ATAAACTACTTTGTAGTTAGAATAGTAGAGAGTAAATAT
CCCATTATATATTTCCTCCAGATTTTAGTATATTCTTTACTCACTTGTTTCATATATTCTGTACATTTTTTATACAGTTATTGTAA
CCCCTTTTCAGCTTTATTTTTTCACCAGCGAGCTCTCATGTAGAGTTTGGTGCGTT spacer length: 141 repeater
length: 40

17764 1592396 ATAAACTACTTTGTAGTTAGAATAGTAGAGAGTAAATAT
CCCATTATGTTTCCCTCCAGATTTTGTATATTCTTTTTTTACTTGTTTCATAAATTCCTGTACATTTTTTATACAGTTATTGTAA
CCCCTTTCAACTTTATTTTTTCACCAGCGAGCTCTCATGTAGAGTTTGGTACGTT spacer length: 141 repeater
length: 40

17765 1592578 ATAAACTACTTTGTAGTTAGAATAGTAGAGAGTAAATAT
ATACCAGTTTAAATACAAGGCGCCGGCTTAATTAACCCACTTTCCGCAGTAAATTTTCGTATACTCACAATTATTCCTGCTATCAA
TTTTCAATATAACGAATTTATTGAATTTATGTGCAGGAGTTAAAAACAGCGAGAT

17766

17767

17768 crispr 41

17769 2393625 CATCATCTCCGCCAGGACCATCGTCTCCGCCAGGACCATC GTCTCCACCAGGACCATCGTCTCCGCCAGGA
spacer length: 31 repeater length: 40

17770 2393697 CATCATCTCCGCCAGGACCATCGTCTCCGCCAGGACCATC GTCTCCGCCAGGACCATCATCTCCGCCAGGA
spacer length: 31 repeater length: 40

17771 2393769 CATCATCTCCGCCAGGACCATCGTCTCCGCCAGGACCATC GGAATTGAAAAAGAGAGGAATTGAAAAAGAG

17772

17773

17774 crispr 42

17775 746286 CCCTTTGCAGAGCTGGATAAACTTCTACTTTGAATCTATC GCACAACACTGAAAAACAATACCAGTTATAC
spacer length: 32 repeater length: 40

17776 746359 CCCTTTGCAGAGCTGGATAAACTTCTACTTTGAATCTATC ACACAACACTGAAAAACAATACCAGTTATA
spacer length: 31 repeater length: 40

17777 746431 CCCTTTGCAGAGCTGGATAAACTTCTACTTTGAATCTATC TTGAATTTTCCAAATGAATATCTCGATTAAA

17778

17779

17780 crispr 43

17781 554944 GTAATGTAGTAGATGATCATAAACAAAAACAGATTCAAG

17782 TAATGTAGTAGATGGTCATAAAACAAAAACAGATGCA spacer length: 37 repeater length: 40
 555022 GTAATGTAGTAGATGATCATAAAACAAAAACAGATTCAAG
 TGGCATAGTATATTCTCATAAAACAAAAACAGATGCAAGTAATGTAGTATATTCTTATAAACAAAAACAGATGCA spacer
 length: 76 repeater length: 40
 17783 555139 GTAATGTAGTAGATGATCATAAAACAAAAACAGATTCAAG
 TATTTGAATTTTCCAAATGAATATCTCGATTAAATGAATATCTCAATTTTTTTTCAATCACGGTCATCAATCACAGT
 17784
 17785
 17786 crispr 44
 17787 554296 GTCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 TCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAAAC
 AAAAAACAGATACAAGTAATGTAGTAGAT spacer length: 115 repeater length: 40
 17788 554452 GTCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 TCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAAAC
 AAAAAACAGATGCAAGTGACGTAGTAGAT spacer length: 115 repeater length: 40
 17789 554608 GTCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 TCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAATCAAAAAACAGATTCAAGTGGCGTAGTAGAT spacer
 length: 76 repeater length: 40
 17790 554725 GTCATAAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 GTCTGCATCTGTAAAGGAAGAAGAGGAAGAAGAAGTAGTGGATGAAGCAGTGCCTGCACCTGTAAAGGAAGAAAAA
 17791
 17792
 17793 crispr 45
 17794 1613933 TTAAGTGTGATGGATTAACTGTGATGGATTAACTGTTG
 ATAGATTAACTGTGATGGATTAACTGTGATGGATTAACTGTGATGG spacer length: 49 repeater length:
 40
 17795 1614023 TTAAGTGTGATGGATTAACTGTGATGGATTAACTGTTG
 ATAGATTAACTGTGATGGATTAACTGTGATGGATTAACTGTGATGG spacer length: 64
 repeater length: 40
 17796 1614128 TTAAGTGTGATGGATTAACTGTGATGGATTAACTGTTG
 AGTTGTTAATCCTGCCATCTATGAATTAACGCCTCTTGATAATACACAGGCTCTCAAGGAATAT
 17797
 17798
 17799 GCA_000969985.1_ASM96998v1_genomic.fna(findCrispr):
 17800 START REPEAT
 SPACER
 17801 crispr 1
 17802 1311045 ATACGGAAATAGAGCCTGAT GATGAAGAAGCCGAAACAAATCTCTCGAAA spacer length: 30
 repeater length: 20
 17803 1311096 ATACGGAAATAGAGCCTGAT GATGAAGAGGCCGAAACAAATCTCTCGGAA spacer length: 30
 repeater length: 20
 17804 1311147 ATACGGAAATAGAGCCTGAT GAAATATATTTTCGAGATATTTTCGCTCACAC
 17805
 17806
 17807 crispr 2
 17808 1198855 GTTCCATCTGCTCCTATTGC
 TGGTGAACCTAATCTGTTTTCTACGGCATATGTCCATTTTAATGTTCCGTCAGGGTTTAATGCATATAATTTGTTGTCATTGC
 TCCCGAAGTAGAT spacer length: 99 repeater length: 20
 17809 1198975 GTTCCATCTGCTCCTATTGC
 CGGTGAACCAATCTGGTTTCCTGTTATTGCATATGTCCATTTGAGTGTTCATCAGAGTTTAACGCATATAATTTGTTGTCGCTGC
 TTCCAATATATAT spacer length: 99 repeater length: 20
 17810 1199095 GTTCCATCTGCTCCTATTGC
 AAATATATTTTCGAGATATTTTCGCTCACACTTTTTTGATCAAACTTTTTTCGAAAAGTTTGTGCAACTCTGAAATATATTTTCGCTA
 CTGTATTTTACAA
 17811
 17812
 17813 crispr 3
 17814 1028983 AGAATAAGAAGTAGAATAAGAA
 ATAGAATAAGAAAGAGAATAAGAAATAGAATAAGTAAGAGAATAAGAAAGAGAATAAGAAAGAGAATAAGTAAGAGAATAAGAAAG
 AGAATAAGAAAGAGAATAAGTAA spacer length: 109 repeater length: 22
 17815 1029115 AGAATAAGAAGTAGAATAAGAA GCAAAATCAGAAATAGAATAAGAAA spacer length: 25 repeater
 length: 22
 17816 1029163 AGAATAAGAAGTAGAATAAGAA TTGCAACTCTGAAATATATTTTCGCT
 17817
 17818
 17819 crispr 4
 17820 824336 TTTCAATCCTTATTTTAGTGGA TCTTGCTCGCGAATGGTTATTAGGAGGAAGAAATGAACAGATATTATCTTG
 spacer length: 51 repeater length: 22
 17821 824410 TTTCAATCCTTATTTTAGTGGA AGCTACCTCTCGACTCAGGAAAAATTTCTTCGAAAAGGAGGAAATGCAA
 spacer length: 50 repeater length: 22
 17822 824483 TTTCAATCCTTATTTTAGTGGA TATATTTTCGAGATATTTTCGCTCACACTTTTTTGATCAAACTTTTTTCGAAA

17823
17824
17825 crispr 5
17826 1656568 GATTCCTTTAATCTTTTACCTGG CAAAAAGGGAGAGCGACCAA spacer length: 20 repeater length: 23
17827 1656612 GATTCCTTTAATCTTTTACCTGG CAAAAAGGGAGAGCAACCAA spacer length: 20 repeater length: 23
17828 1656656 GATTCCTTTAATCTTTTACCTGG CAAAAAGGGAGAGCAACCAA spacer length: 20 repeater length: 23
17829 1656700 GATTCCTTTAATCTTTTACCTGG TCACACTTTTTGATCAAACCT
17830
17831
17832 crispr 6
17833 1616121 TTAATGCATACAACCTTATTAATA AGATTTTTGAACATTGTTTACCTGGAGC spacer length: 28 repeater length: 23
17834 1616173 TTAATGCATACAACCTTATTAATA AAGATTTCTGAACATTGTTTACCTGGAGT spacer length: 29 repeater length: 23
17835 1616226 TTAATGCATACAACCTTATTAATA GTAAGATTGGTAAGATACGTTTTTCGGGGT
17836
17837
17838 crispr 7
17839 1258654 TTACAACAACAATAAAATCAGATTT ACGATAACAATATTATCATA spacer length: 20 repeater length: 25
17840 1258700 TTACAACAACAATAAAATCAGATTT ACGACAACAATATGATCACA spacer length: 20 repeater length: 25
17841 1258746 TTACAACAACAATAAAATCAGATTT CAATAATAAGTTTAAAGTTT
17842
17843
17844 crispr 8
17845 831299 GTTTCATCCCTCTAAGGCCTGATTTTAAAC CGGAAACTTGTTTTAATCAGAAATGGGATGGTGAACA spacer length: 37 repeater length: 30
17846 831367 GTTTCATCCCTCTAAGGCCTGATTTTAAAC CAGTTTTAAATGCCCCGCCTTTTGGTTTTTCATAGTTTT spacer length: 38 repeater length: 30
17847 831436 GTTTCATCCCTCTAAGGCCTGATTTTAAAC GCAAGGATATATGACGAAAATTTGTAGAGATTATA spacer length: 35 repeater length: 30
17848 831502 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TGTGAGGATATCATGCCAGCAGCGCCATTTGAAGAT spacer length: 36 repeater length: 30
17849 831569 GTTTCATCCCTCTAAGGCCTGATTTTAAAC
ACTAAGAAAAATGAAAGAGATTTTCTTTGGTGAAACGTTTCAGTCCCTCTAAGGCCTGATTTTAAACGAAAAATGAATATCCCTTCTGGATCAAACAGAGAAG spacer length: 102 repeater length: 30
17850 831702 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TTAAGCAGGTTGCCCCATACCCTACAGACTGAGAT spacer length: 35 repeater length: 30
17851 831768 GTTTCATCCCTCTAAGGCCTGATTTTAAAC GTCTTCTTCGATTATCCATGGACTTAATCTTACC spacer length: 34 repeater length: 30
17852 831833 GTTTCATCCCTCTAAGGCCTGATTTTAAAC GCTAAAAAGCGGAAACATGATAATGATGCTCATA spacer length: 34 repeater length: 30
17853 831898 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TTTTTTGCAATTTCCAAATGGAAACCTTGGAATTG spacer length: 35 repeater length: 30
17854 831964 GTTTCATCCCTCTAAGGCCTGATTTTAAAC ATTTCCATACAGATTTTCTGAATACCGCCATTTGA spacer length: 35 repeater length: 30
17855 832030 GTTTCATCCCTCTAAGGCCTGATTTTAAAC CCCAACTGCTGAAGCAAATACTTTAGCCGTAGTCG spacer length: 35 repeater length: 30
17856 832096 GTTTCATCCCTCTAAGGCCTGATTTTAAAC GTTTCACAAGATATCATGTCCTTGAAAGTTACGT spacer length: 35 repeater length: 30
17857 832162 GTTTCATCCCTCTAAGGCCTGATTTTAAAC CAGAGCGGAATGAGTAACAGTACTTTGTATTATG spacer length: 34 repeater length: 30
17858 832227 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TTGATATCTATTTCGTTGAAGCGATGGAGAACTTGAG spacer length: 36 repeater length: 30
17859 832294 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TGTTTCACACCAAGGGAGTGTTTTCCATCCGAATA spacer length: 35 repeater length: 30
17860 832360 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TGCAATTTCCGTAAAAGATATTCTCGATATTGCAA spacer length: 35 repeater length: 30
17861 832426 GTTTCATCCCTCTAAGGCCTGATTTTAAAC AGTGCTGCTACTGTGTCTATAAATGGTTTATAACTA spacer length: 36 repeater length: 30
17862 832493 GTTTCATCCCTCTAAGGCCTGATTTTAAAC AACTTATAGATTTTAAAGGGCTTCAAAAAGAATATC spacer length: 36 repeater length: 30
17863 832560 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TATCTAACTATTATTGAGCTGTCAGAAACATACA spacer length: 34 repeater length: 30
17864 832625 GTTTCATCCCTCTAAGGCCTGATTTTAAAC GTATAGCTTAGACAGACAATCGTTTTTGTTTTTTA spacer length: 34 repeater length: 30
17865 832690 GTTTCATCCCTCTAAGGCCTGATTTTAAAC TATATAAAATTTCAAGTTGGGGTTAAAGAAGAGCA spacer

length: 35 repeater length: 30
17866 832756 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CATATTTGACATTTTAGATATTAAATTCACAGATT spacer
length: 35 repeater length: 30
17867 832822 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AACACAGGAACCAGTAGAACAGGATCACCTAAAT spacer
length: 34 repeater length: 30
17868 832887 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC TTATAATTCATGAGTTTCTTATTTACTTTCTTTATAT spacer
length: 37 repeater length: 30
17869 832955 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CTGCATTGCTCGTCCCTCCGATATCCCATGAATCA spacer
length: 35 repeater length: 30
17870 833021 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CGACTTAAGACCAAACACTCCACTAAAATCATCAT spacer
length: 35 repeater length: 30
17871 833087 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AAAGTTTAGTTTTATTGCCAATCATCCTAATCCT spacer
length: 34 repeater length: 30
17872 833152 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ACTGCTATGGGTGTGACTGCTGGGAGCCAATTAAA spacer
length: 35 repeater length: 30
17873 833218 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ATCCTAATCCTCCAGCATTCCTTGAATACTTAGTTA spacer
length: 36 repeater length: 30
17874 833285 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC TCGTAAAAGATGCTTATATAAAAAGTGGATTGTA spacer
length: 34 repeater length: 30
17875 833350 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AGAGTAAAACCCCTTGAAATCCTTCGGTAGCTG spacer
length: 34 repeater length: 30
17876 833415 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CAATTTTTTAAATCCGTACAATTGTTAGAATTAT spacer
length: 34 repeater length: 30
17877 833480 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ATTTTTC AATTGCTCCGCCGTCACCGTTGAACT spacer
length: 35 repeater length: 30
17878 833546 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ACGTGTTGTACTCGGGAAC TAAGAAGATTATTCCTAA spacer
length: 37 repeater length: 30
17879 833614 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC TTTCCACCCGTATTGTTTCACATCCGTCACATT spacer
length: 34 repeater length: 30
17880 833679 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ATTTATACTTATAATTCTAGGAATTATTATATATTGA spacer
length: 37 repeater length: 30
17881 833747 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CTCTTATCCATACTGCTTCGTGTCTATGTCCAGGAT spacer
length: 36 repeater length: 30
17882 833814 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ATATTTTTTAAGGTT CATATGTGTTGCTCCAAAAA spacer
length: 35 repeater length: 30
17883 833880 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC GATACTAACAGGTGTCTGTGCATCGAGTTTTGACA spacer
length: 35 repeater length: 30
17884 833946 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CAGACCCGCAGGCAACCCCGACTAGCTGCTTCCAA spacer
length: 35 repeater length: 30
17885 834012 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AAGGGGCTTCTTGATGAAAGATTAAGACTCCTAGAT spacer
length: 36 repeater length: 30
17886 834079 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AGTATTTTGGGAGTTCGGGATATCCAGACTCAGAAT spacer
length: 36 repeater length: 30
17887 834146 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC TATCGTTTGCATTAAGAATATCAGTTATAGACAC spacer
length: 34 repeater length: 30
17888 834211 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC CTTTTGCGTGGATTCCGTCTGTTTCTCTCCATGCG spacer
length: 35 repeater length: 30
17889 834277 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC ACTAAATCAGGTCCGCCTGTATGATCATATCTTGCAT spacer
length: 37 repeater length: 30
17890 834345 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC GTTCGAGATCAAATGATAGATTATATTTTACTATTA spacer
length: 36 repeater length: 30
17891 834412 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AAGGACAATACTTGCTGGATATATTTTTGATTCAA spacer
length: 35 repeater length: 30
17892 834478 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC TTTCTTTTGCTAGCCAGTCCTGAATTTCAAGTTC spacer
length: 34 repeater length: 30
17893 834543 GTTTC AATCCCTCTAAGGCCTGATTTTAAAC AGTTTAAAGTTTTTCATGTTTACAATAAGTTTTCT
17894
17895
17896 crispr 9
17897 689208 GATTCTTCGGGTAATGTTTATGTTGCCGATA
AGGGTAATAAATGCATT CAGAGTTTAAACAGCAACGGCGGACACCTCACTCAATGGGGTTCTTCAGGCAATGGAAACGGACAATTT
TATTTCCCTAAATGGTGTTGCTGT spacer length: 109 repeater length: 31
17898 689349 GATTCTTCGGGTAATGTTTATGTTGCCGATA
GTGGTAATAATCGCATT CAGAGTTTAAACAGCAACGGCGGATACCTCACTCAATGGGGTTCTTATGGTAGCGGCAACGGACAATTT
AATGATCCTGAGGGCGTTGCTGT spacer length: 109 repeater length: 31
17899 689490 GATTCTTCGGGTAATGTTTATGTTGCCGATA
GTGGTAATAATCGCATT CAAAAATTTAAACAGCACAGGCGGATACCTCACTCAATGGGGTTCTTATGGTAGCGGCAACGGACAATTT
GAATTTCCGTTGAGTATTGCTGT spacer length: 109 repeater length: 31
17900 689631 GATTCTTCGGGTAATGTTTATGTTGCCGATA
CAATCAGTTACATTAATTCCTGAACTTTTTGAATCATTTTCTTCGATATTTTCTTTGCTATCTGTATCGTTACTGTTTGATTTCGTT
TTCTTGAGCAATTGTTTTATTTA

17901
17902
17903 crispr 10
17904 1621019 GCTGGAGTTTTTCGGTCAAGCCTTTTTTCAAA
AGGGTTGTGATCACACCGATAGGGTTCGGGGATAAGTTTATCAAATTCAAACGT spacer length: 54 repeater
length: 31
17905 1621105 GCTGGAGTTTTTCGGTCAAGCCTTTTTTCAAA GGGTTGTGATCACGCAGACCACGTTGT spacer length:
27 repeater length: 31
17906 1621164 GCTGGAGTTTTTCGGTCAAGCCTTTTTTCAAA GAAATATATTTTCGCTACTGTATTTTAC
17907
17908
17909 crispr 11
17910 1472588 GATTTTTTCGGTCAAGCCTTTTTTTAAAAGGGTT TTGATCATGCCTACCACGTTGTTGCT spacer length:
26 repeater length: 34
17911 1472649 GATTTTTTCGGTCAAGCCTTTTTTTAAAAGGGTT
GCGAGCAAACCGTTTTTTAAAAGTTTTTTGATCATGCCTACCACGTTGTTGCT spacer length: 54 repeater
length: 34
17912 1472738 GATTTTTTCGGTCAAGCCTTTTTTTAAAAGGGTT
GAGAAGGTTTTCATAAATTTTCGAGTGAGTTTTTCGTACCTTTGTTTAGCCTCTTC
17913
17914
17915 crispr 12
17916 689341 TTGCTGTAGATTCTTCGGGTAATGTTTATGTTGCCGATA
GTGGTAATAATCGCATTCAGAAGTTTAAACAGCAACGGCGGATACCTCACTCAATGGGGTTCTTATGGTAGCGGCAACGGACAATTT
AATGATCCTGAGGGC spacer length: 101 repeater length: 39
17917 689482 TTGCTGTAGATTCTTCGGGTAATGTTTATGTTGCCGATA
GTGGTAATAATCGCATTCAAAAATTTAAACAGCACAGGCGGATACCTCACTCAATGGGGTTCTTATGGTAGCGGCAACGGACAATTT
GAATTTCCGTTGAGT spacer length: 101 repeater length: 39
17918 689623 TTGCTGTAGATTCTTCGGGTAATGTTTATGTTGCCGATA
TGATTGGTAAGATACGTTTTTCGGGGTCAGTTGCGAGAAGGTATTGAGAGATTTGAAGGTGTAGCTCATAGCAATTTTTTGCTTGAA
GAAAACGTCCCGTGT
17919
17920
17921 crispr 13
17922 1069986 GATTTAGTACTGTTTTCTACTGTTTCTATTTTTGATTTAG
TATTATTTTCTGTTTCTGTTTTGATTTAGTATTATTTTCTGTTTCTGTTTT spacer length: 52 repeater
length: 40
17923 1070079 GATTTAGTACTGTTTTCTACTGTTTCTATTTTTGATTTAG TATTATTTTCTGTTTCTGTTTT spacer
length: 22 repeater length: 40
17924 1070142 GATTTAGTACTGTTTTCTACTGTTTCTATTTTTGATTTAG GGCAAGCAGCCTGGCAGCCGCA
17925
17926
17927 crispr 14
17928 542974 TCGAAAAAGTTTGTTGCACCTCTGAAATATATTTTCGAGAT ATTTTCGCTCACGCTTTTTGATCAAACTTTT
spacer length: 30 repeater length: 40
17929 543045 TCGAAAAAGTTTGTTGCACCTCTGAAATATATTTTCGAGAT ATTTTCGCTCACGCTTTTTGATCAAATTTTT
spacer length: 30 repeater length: 40
17930 543116 TCGAAAAAGTTTGTTGCACCTCTGAAATATATTTTCGAGAT CTCACACTTTTTGATCAAACTTTTTTCGAA
17931
17932
17933 crispr 15
17934 1069010 TGATTCGTTTTCTTGAGCAACTGTTTTATTTACTGCTATT
TTTTTATACCAATCAGTTACATTAATTTCTGAACTTTTTGAATCATTTTCTTCGATATTTTCCTTTGCTATCTGTATTGTTACTGT
spacer length: 85 repeater length: 40
17935 1069136 TGATTCGTTTTCTTGAGCAACTGTTTTATTTACTGCTATT
ATTTTATACCAGTCAGATACATTAATTTCTGAACTTTTTGAATTATTTTCTTCGATATTTTCCTTTGCTATCTGTATTGTTACTGT
spacer length: 85 repeater length: 40
17936 1069262 TGATTCGTTTTCTTGAGCAACTGTTTTATTTACTGCTATT
ATTTTATACCAATCAGATACATTAATTCCTGAACTTTTTGAATCATTTTCTTCGATATTTTCTTGACTATCTGTATCGTTACTGT
spacer length: 85 repeater length: 40
17937 1069388 TGATTCGTTTTCTTGAGCAACTGTTTTATTTACTGCTATT
TTTTTATACCAGTCAGATACATTGCTTTCTGAACTTTTTGAATCATTTTCTTCGATATTTTCTTGACTATCTGTATCGTTACTGT
spacer length: 85 repeater length: 40
17938 1069514 TGATTCGTTTTCTTGAGCAACTGTTTTATTTACTGCTATT
TTTTTATACCAGTCAGATACATTGCTTTCTGAGCTTTTTTGAATCATTTTCTTCGATATTTTCTTTGCTATCTGTATCGTTACTGT
spacer length: 85 repeater length: 40
17939 1069640 TGATTCGTTTTCTTGAGCAACTGTTTTATTTACTGCTATT
AGAATAAGAAATGGAATAAAAAATAAAAAACAAAATAGTAATTATTTTATACAGTAAAGCCAGCCTGCATGTAAGAATACCAGA
17940
17941
17942 crispr 16

17943 1492552 TTTAGTGTAGTTCCTACGTAAGATTGGTAAGATACGTTTT
CGAGGTCAGTTGCGAGGAGGTTTTTCATAAATTTCAAGTGCCTTTTCGTACCTTTGTTTCGCCTCTTCAATGCGCCCCATATCAGAA
AGCAAGGCACCTAAATT spacer length: 103 repeater length: 40

17944 1492696 TTTAGTGTAGTTCCTACGTAAGATTGGTAAGATACGTTTT
CGGGGTCGGTTGCGAGGAGGTTTTTCATAAATTTGAGTGAGTTTTTCGTACCTTTGTTTCGCCTCTTCAATGCGCCCCATATCAGAA
AGCAAGGCACCTAAATT spacer length: 103 repeater length: 40

17945 1492840 TTTAGTGTAGTTCCTACGTAAGATTGGTAAGATACGTTTT
CTTTTTTCGAAAAAGTTTGTGCAACTCTGAAATATATTTTCGCTACTGTATTTTACAAGGTAATCTATTTGAGGAATAGTTAATAA
TCATATATAAAGAAGGA

17946
17947
17948 GCA_000970005.1_ASM97000v1_genomic.fna(findCrispr):
17949 START REPEAT
SPACER

17950 crispr 1
17951 3894505 AATCCTATTATTACTCATCG AATCTTATTATCACTCATCGTAGTAA spacer length: 26 repeater
length: 20
17952 3894552 AATCCTATTATTACTCATCG AATCTTATTATCACTCATCGAATCCCATTATTACTCATC spacer length:
39 repeater length: 20
17953 3894612 AATCCTATTATTACTCATCG GTAGTAGATGGTCATAAACAAAAACAGATTCAAGTGGC
17954
17955
17956 crispr 2
17957 2980376 ACTAAAACAAGGATTG AAACATCCGTTTTTCTCTTACTACAATACCCTATACGCGCCATTTCGTGAGCAAGATC
spacer length: 57 repeater length: 16
17958 2980450 ACTAAAACAAGGATTG AAACCGGAAGTGAGCCGAATAAAGCCAGGGGTCCGCAGTATTCGTGAGCAAGATC
spacer length: 55 repeater length: 16
17959 2980522 ACTAAAACAAGGATTG AAACATTGTCCTCTCACATGGTCACAATGCCCGAATATTTATTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17960 2980595 ACTAAAACAAGGATTG AAACCTGCGCAAATCTGCTATAGAGGATTGTGATTTTGAGATTTCGTGAGCAAGATC
spacer length: 57 repeater length: 16
17961 2980669 ACTAAAACAAGGATTG AAACCTTGTTTGCATGCCTATACCATCTGCAATGAATCCAATTTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17962 2980742 ACTAAAACAAGGATTG AAACCTACGTGATATCGACGCTCGCGACTGTGCCATTTATTATTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17963 2980815 ACTAAAACAAGGATTG
AAACCTTCCTCTCTCTTATTGAGGATAGCCTGAACTATTTTAATTTCTGATTTCGTGAGCAAGATC spacer length: 66
repeater length: 16
17964 2980898 ACTAAAACAAGGATTG AAACCTATATGATAAGTGCGTAGTAGTAGTGTAGTAAATTCGTGAGCAAGATC
spacer length: 53 repeater length: 16
17965 2980968 ACTAAAACAAGGATTG AAACCACTTAACAAATCTACAGCTTCACCCGACGGGCAAATTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17966 2981041 ACTAAAACAAGGATTG AAACCTACCGTTTTTTGACCAGTCCTCAGAAGGTGTTATAATTCGTGAGCAAGATC
spacer length: 55 repeater length: 16
17967 2981113 ACTAAAACAAGGATTG AAACATAAATCCGTTTTTGTAGTCATGTCTATTGATTCCGATTTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17968 2981186 ACTAAAACAAGGATTG AAACCTCTCCTTGATGGTTGGGTTTTGTTTCTTGTTTTATTTCGTGAGCAAGATC
spacer length: 54 repeater length: 16
17969 2981257 ACTAAAACAAGGATTG AAACCTCGATGTGCGGTATCTTGCAACTCTACATGCAACCATTTCGTGAGCAAGATC
spacer length: 55 repeater length: 16
17970 2981329 ACTAAAACAAGGATTG AAACGTCGTCAAGTGAAACCTCCGCGAATGAAGTCGGGGTATTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17971 2981402 ACTAAAACAAGGATTG AAACAATACAACGGCTTTTTTTTCCATATCTTGACCAGGGGATTTCGTGAGCAAGATC
spacer length: 56 repeater length: 16
17972 2981475 ACTAAAACAAGGATTG AATGTAGTAGATGGTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCA
17973
17974
17975 crispr 3
17976 1463685 AGACGAAAAAAGGAGAAAAGA GAAAGAGAAAGAGAAAGGAGACGAAAAAAGGGGAAAGAGAAAAGAAAAAG
spacer length: 49 repeater length: 20
17977 1463755 AGACGAAAAAAGGAGAAAAGA GAAAGAGAAAGGAGACGAAAAAAGAGAAAGAAAAAGAAAAAG spacer
length: 42 repeater length: 20
17978 1463818 AGACGAAAAAAGGAGAAAAGA TCAGGAATAAATATTCAGGAATAAAAAATTTAAAGATAGTAAT
17979
17980
17981 crispr 4
17982 2820 ATAATTCAAATCTAATGATT TAGGTTTTAAAACTCAGATT spacer length: 20 repeater length: 20
17983 2861 ATAATTCAAATCTAATGATT TAGGTTTTAAAACTCAGTTT spacer length: 20 repeater length: 20
17984 2902 ATAATTCAAATCTAATGATT CAGGTTTTAAAACTCAGTTT spacer length: 20 repeater length: 20
17985 2943 ATAATTCAAATCTAATGATT CAAATGAATATCTCGATTAA
17986

17987
17988 crispr 5
17989 2645285 ATCATGCAATAGACAAAATT AATCAAACAATTCAATTATT spacer length: 20 repeater length: 20
17990 2645326 ATCATGCAATAGACAAAATT AATCAAACAATTTGATTATT spacer length: 20 repeater length: 20
17991 2645367 ATCATGCAATAGACAAAATT AGTAGATGGTCATAAACAAA
17992
17993
17994 crispr 6
17995 443139 ATGGGATAATGAGGATAATG GGATAATGAAGATAATGGGATAATGAAGAT spacer length: 30
repeater length: 20
17996 443190 ATGGGATAATGAGGATAATG AGGATAATGAGGATAATGAGGATAATGAAGATTATGGGATAATGAAGAT spacer
length: 49 repeater length: 20
17997 443260 ATGGGATAATGAGGATAATG TTGAAACACGAGGGGGAAATACTTATATAAATATTTATTCTTTAAATTA
17998
17999
18000 crispr 7
18001 2069170 TTGTTTT GCTGGAAGCTGTTTTTCAACTTTGGAAAACAATTTGCCAGAAGACAAGAAGATTAGTTTTCAATC
spacer length: 64 repeater length: 7
18002 2069242 TTGTTTT GCTGGAAGCTGTTTTTCAACCTGAGGATAGGAATACCGGAAAGAGAAACCCTGCTTGGTTTTCAATC
spacer length: 66 repeater length: 7
18003 2069316 TTGTTTT GCTGGAAGCTGTTTTTCAACAAAAGAATAGGAAACATGATAACGGTTACAATAACTGTTTTCAATC
spacer length: 65 repeater length: 7
18004 2069389 TTGTTTT GCTGGAAGCTGTTTTTCAACATAAATAAAAAATATTAAATCGGCTTATGAGCTAAAGTTTTCAATC
spacer length: 64 repeater length: 7
18005 2069461 TTGTTTT GCTGGAAGCTGTTTTTCAACTCCCCAACTCGAAGGGGGATTGAAGTATGTCCAACAGTTTTCAATC
spacer length: 66 repeater length: 7
18006 2069535 TTGTTTT GCTGGAAGCTGTTTTTCAACTGCCCCAAATGTGGGGAACCCTCATTTTATGCAGGGTTGTTTTCAATC
spacer length: 67 repeater length: 7
18007 2069610 TTGTTTT AAAGACAGTAATTCAGGAATAAATATTCAGGAATAAAAATTTAAAGATAGTAATTCAGGAATAAATA
18008
18009
18010 crispr 8
18011 956783 AACCGGACTTATTGAACCGGA TTCATTGAACCGGATTCATT spacer length: 20 repeater length: 21
18012 956825 AACCGGACTTATTGAACCGGA CATATTGAACCGGACATATTGAACCGGACATATTGAACCGGACATATT spacer
length: 48 repeater length: 21
18013 956895 AACCGGACTTATTGAACCGGA AATGAATATCTCGATTAAATGAATATCTCAATTTTTTTTCAATCACGGT
18014
18015
18016 crispr 9
18017 2587204 ACTTGCTGAAATGGGCATTGA
CAGCAGGGGAAAATCTTGAACTACGGTCAGTCTTTACGGCGATGCTAGGGATATTTTATCCAAAACAAGCGTAAATTACGCTCTTG
CGTTGGTGAACGAGAGTAATGCTCGAAGAA spacer length: 116 repeater length: 21
18018 2587342 ACTTGCTGAAATGGGCATTGA
CAGCAGGGGAAAATCTTGAACTGCTATTAGTCTTTGCGGAAATTCTCGGCAAATTTTATCCAAAACAAGTGATGATTACGCTCGTG
CGTTAGTGAACGAGAGCAATGCAAGACAAA spacer length: 116 repeater length: 21
18019 2587480 ACTTGCTGAAATGGGCATTGA
TAACAGGGGAAAATCTTGGAAGTCCGTCAGTCTTTACGGTAATGCTCGGCAAATATTATCCAAAACAAGCGCAGATTACGCTGGTG
TGTTGATAAACGAGGGTAATGCTAGACAAA spacer length: 116 repeater length: 21
18020 2587618 ACTTGCTGAAATGGGCATTGA
CAGCAGGATAAAATCTTGGAAGTCTGTTAGTCTTTACGGTGATGCCAGGGATATTTTATCCAAAAAAGCGAATTTTACGCTCGTG
CGTTGATAAACGAGGTTAATGCGAGACAAA spacer length: 116 repeater length: 21
18021 2587756 ACTTGCTGAAATGGGCATTGA
CAGCAGGGGAAAATCTTGGAAGTCCGTCAGTCTTTGCGGTAATGCTCGGCAAATATTATCCAAAACAAGTGCAGATTACGCTCTTT
CATTGATGAATGAGGGTAATGCAAGAAAAA spacer length: 116 repeater length: 21
18022 2587894 ACTTGCTGAAATGGGCATTGA
TAGATGGTCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGGTGAT
CATAAACAAAAAACAGATTCAAGTGGCGTA
18023
18024
18025 crispr 10
18026 3868383 GACCTGACTATCTCAACCTGA CTATCTCAACCTGACTATCTCAACCTGACTATCTCGACCTGACTATCT
spacer length: 48 repeater length: 21
18027 3868453 GACCTGACTATCTCAACCTGA CTATCTCAACCTGACTATCT spacer length: 20 repeater
length: 21
18028 3868495 GACCTGACTATCTCAACCTGA GTAAAATCTCTAATAAAAAAT
18029
18030
18031 crispr 11

18032 1515040 GATCCCGTAATATACTTCATT GACGCGTAGCTATAAGGTGGAGCAAATTCAGGACGGCTTGAAAAC spacer
length: 45 repeater length: 21
18033 1515107 GATCCCGTAATATACTTCATT TATGGCGTAACTGCGAGATGGAGCAAGTTAAGGACAGTCTGAAAGC spacer
length: 47 repeater length: 21
18034 1515176 GATCCCGTAATATACTTCATT GTAAAACATTTAGTAAAATCTCTAATAAAAATTTTTATACTCTTACA
18035
18036
18037 crispr 12
18038 742959 GTAATTCAGGAATAAATATTC AAGAATAAAAATTTAAAGAC spacer length: 20 repeater length:
21
18039 743001 GTAATTCAGGAATAAATATTC AGGAATAAAAATTTAAAGAC spacer length: 20 repeater length:
21
18040 743043 GTAATTCAGGAATAAATATTC AGGAATAAAAATTTAAAGAT spacer length: 20 repeater length:
21
18041 743085 GTAATTCAGGAATAAATATTC AGGAATAAAAATTTAAAGAT spacer length: 20 repeater length:
21
18042 743127 GTAATTCAGGAATAAATATTC CACACAACACTGAAAAACA
18043
18044
18045 crispr 13
18046 1606875 TCCTTGTCCTTATCTTTTAG TCCTTGTCCTTTATCTTTTA spacer length: 20 repeater
length: 21
18047 1606917 TCCTTGTCCTTATCTTTTAG TCCTTGTCCTTATCTTTTA spacer length: 20 repeater
length: 21
18048 1606959 TCCTTGTCCTTATCTTTTAG AATATTCAGGAATAAAAAT
18049
18050
18051 crispr 14
18052 1337915 TTTTCTCTAATTGGTTTTCTC TAATTGGATTTATCTTATTG spacer length: 20 repeater
length: 21
18053 1337957 TTTTCTCTAATTGGTTTTCTC CAATTGGATTTATCTTATTG spacer length: 20 repeater
length: 21
18054 1337999 TTTTCTCTAATTGGTTTTCTC AATGTAACGGAGCCCGAAAC
18055
18056
18057 crispr 15
18058 2852483 ATGCCTTTAATGATGGTATTGA TACCTAAATAATACCTATCT spacer length: 20 repeater
length: 22
18059 2852526 ATGCCTTTAATGATGGTATTGA TACCTAAATAATACCTATCC spacer length: 20 repeater
length: 22
18060 2852569 ATGCCTTTAATGATGGTATTGA AAAGATAATAATTCAGGAAT
18061
18062
18063 crispr 16
18064 2217057 TTGACTGTGTAAGGTTTGGTTG CGTAAGGTTTGGTTGTATAAGG spacer length: 22 repeater
length: 22
18065 2217102 TTGACTGTGTAAGGTTTGGTTG CGTAAGGTTTGATTGTATAAGG spacer length: 22 repeater
length: 22
18066 2217147 TTGACTGTGTAAGGTTTGGTTG TGTAAGGTTTGGTTGCGTGAGGTTTGATTGTGTAAGG spacer length:
37 repeater length: 22
18067 2217207 TTGACTGTGTAAGGTTTGGTTG AAACACGAGGGGAAATACTTATATAAATATTTATTC
18068
18069
18070 crispr 17
18071 2084594 ACTACTTCTTCTCCTCTTCTTC CTCTTCTTCTCCTCTTTTTCTTCCTTTACAGGTGCAGGCACTGCTTCATC
spacer length: 51 repeater length: 23
18072 2084669 ACTACTTCTTCTCCTCTTCTTC CTTTACAGATGCAGACACTGCTTTAACCAC spacer length: 30
repeater length: 23
18073 2084723 ACTACTTCTTCTCCTCTTCTTC TTCCTTTACAGGTGCAGGCACTGCTTCATC spacer length: 30
repeater length: 23
18074 2084777 ACTACTTCTTCTCCTCTTCTTC TTCCTTTACAGATGCAGGCACTGCTTCATC spacer length: 30
repeater length: 23
18075 2084831 ACTACTTCTTCTCCTCTTCTTC AACGGTCAAAACGCTACAACCTCGTAAAAGT
18076
18077
18078 crispr 18
18079 3348596 ATAGGTTATTAGAATATAGAAAA
TAGGTTATTAGAATATAGAAGATAGGTTATTAGAATATAGAAGATAGGTTATTAGAATATAGAA
GATAGGTTATTAGAATATAGAA spacer length: 108 repeater length: 23
18080 3348728 ATAGGTTATTAGAATATAGAAAA TGGGTAATTAGAATATAGAA spacer length: 20 repeater
length: 23

18081 3348772 ATAGGTTATTAGAAATATAGAAAA CCACAAAACAATATTTGAAT
18082
18083
18084 crispr 19
18085 3908675 AAATCATGAACTAAATCATGAACA
GAATCATGAACAGAATCATGAACAGAATCATGAACTAAATCATGAACAGAATCATGAACTAAATCATGAACAGAATCATGAAC
spacer length: 83 repeater length: 24
18086 3908783 AAATCATGAACTAAATCATGAACA
GAATCATGAACTAAATCATGAACAGAATCATGAACTAAATCATGAACAGAATCATGAACAGAATCATGAACTAAATCATGAACAGA
ATCATGAACTAAATCATGAACAGAATCATGAACTAAATCATGAACAGAATCATGAAC spacer length: 143
repeater length: 24
18087 3908951 AAATCATGAACTAAATCATGAACA
ATAAATATTCAGGAATAAAAAATTTAAAGATAGTAATTCAGGAATAAAATATTCAGGAATAAAAAATTTAAAGATAGTAATTCAGGAAT
AAATATTCAGGAATAAAAAATTTAAAGATAATAATTCAGGAATAATTATTCAGGAATA
18088
18089
18090 crispr 20
18091 2994979 ACGGATTCAACAGATTCAACAGAT TCAACGGATTCAACGGATTCAACGGATTCAACGGATTCAACAGATTC
spacer length: 47 repeater length: 24
18092 2995051 ACGGATTCAACAGATTCAACAGAT TCAACAGATTCAACAGATTC spacer length: 20 repeater
length: 24
18093 2995096 ACGGATTCAACAGATTCAACAGAT TCAACAGATTCAACAGATTC spacer length: 20 repeater
length: 24
18094 2995141 ACGGATTCAACAGATTCAACAGAT AATATCTCGATTAAATGAAT
18095
18096
18097 crispr 21
18098 3354531 CTATAGTCTTCATTATTCGGAGTT
GAGTCTGGATATTCTCCAGACCTATAGTCTTCATTATTCAGAGTTGAGTCTGGATATTCTCCAGACCTATAGTCTTCATTATTCAG
AGTTGAGTCTGGATATTCTCCAGACCTATAGTCTTCATTATTCAGAGTTGAGTCTGGATATTCTCCAGA spacer length:
155 repeater length: 24
18099 3354711 CTATAGTCTTCATTATTCGGAGTT GAGTCTGGATATTCGCCAGA spacer length: 20 repeater
length: 24
18100 3354756 CTATAGTCTTCATTATTCGGAGTT TAATACAAGGCGCCGGCTTA
18101
18102
18103 crispr 22
18104 1719153 AGTAAACATTCAGTAAACATTTAG
CAAAACATTTAGCAAAACATTTAGCAAAACATTTAGTAAACATTTAGCAAAACATTTAGTAAACATTTAGTAAACATTTAGTAA
AAACATTTAGTAAACATTTAGTAAACATT spacer length: 117 repeater length: 26
18105 1719297 AGTAAACATTCAGTAAACATTTAG TAAACATTTAGTAAACATT spacer length: 21 repeater
length: 26
18106 1719345 AGTAAACATTCAGTAAACATTTAG TAAACATTTAGTAAACATTTAGTAAACATTTAGCAAAACATT
spacer length: 45 repeater length: 26
18107 1719417 AGTAAACATTCAGTAAACATTTAG AGCCCGAAACCAATGTAACGGAGCCCGAAACCAATGTAACGGAGC
18108
18109
18110 crispr 23
18111 1719301 AAACATTCAGTAAACATTTAGTAAAA CATTAGTAAACATTTAGT spacer length: 20 repeater
length: 27
18112 1719349 AAACATTCAGTAAACATTTAGTAAAA CATTAGTAAACATTTAGTAAACATTTAGCAAAACATTTAGT
spacer length: 44 repeater length: 27
18113 1719421 AAACATTCAGTAAACATTTAGTAAAA GCCCGAACTAACATAACAGAACTCGAAGCTAACTTAACGGAAA
18114
18115
18116 crispr 24
18117 1646027 TTAATCATCCAGTTACTCATTCAACTA
CTCATTCAACTACTCATTGTTACTCATCCAGTTACTCATCCAGTTACTCATCCAGTTACTCATCCA spacer length:
68 repeater length: 27
18118 1646123 TTAATCATCCAGTTACTCATTCAACTA CTCATCCAGTTACTCATCCA spacer length: 20 repeater
length: 27
18119 1646171 TTAATCATCCAGTTACTCATTCAACTA TCATAAACAAAAACAGATT
18120
18121
18122 crispr 25
18123 898 GTACATATTAATTGTCCATATAAACCAT CTTATATAAACCATCTTAAAT spacer length: 23 repeater
length: 28
18124 950 GTACATATTAATTGTCCATATAAACCAT CTTATATAAACCATCTTAAAC spacer length: 23 repeater
length: 28
18125 1002 GTACATATTAATTGTCCATATAAACCAT TCTAATAAAAAATTTTATACTCT
18126

18127
18128 crispr 26
18129 1575463 ACATACGTGTATGTGACGAATATTATCAG
CAATACTGTCACCATAATTAACGCAGCTACAAACACTGTTGCAGCCACGGTTGACGTTGGGGATCATCCTTCAGGAATCGCAATGC
ACCCTGATGG spacer length: 96 repeater length: 29
18130 1575589 ACATACGTGTATGTGACGAATATTATCAG
CAATACTGTCACCATAATTAACGCAGCTACAAACACTGTTGCAGCCACGGTTGATGTTGGGGATTATCCCGCTGGAATCGCAATGC
ACCCTGATGG spacer length: 96 repeater length: 29
18131 1575715 ACATACGTGTATGTGACGAATATTATCAG
TTAGTAAAAATCTCTAATAAAAAATTTTATACTCTTACACCAATATTATACAGTTATATATTTACAGAATCACATTCTTTTCAGAGTC
TGAATATCAT
18132
18133
18134 crispr 27
18135 526059 CAAAAAACAGATACAAGTAATGTAGTAGA
CGATCAGGACCAAAAAACAGATACAAGTGACGTAGTAGATGATCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATA
AACAAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAA spacer length: 126 repeater length: 29
18136 526215 CAAAAAACAGATACAAGTAATGTAGTAGA
TGGTCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAACAAAAAACAGATTCAAGTGGCGTAGTAGATAATCATA
AACAAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAA spacer length: 126 repeater length: 29
18137 526371 CAAAAAACAGATACAAGTAATGTAGTAGA
ACCAATGTAACGGAGCCCGAAACCAATGTAACGGAGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAACGGAGCCCAAAA
CAATGTAACGGAGCCCGAAACCAATGTAACGGAGCCCGAA
18138
18139
18140 crispr 28
18141 2860962 AATT
CAGGATCCGATGATAATTCAGGATCTGATGGTGATTTCAGGATCTGATGACAATTCAGGATCTGATGATAATTCAGGATCCGATGA
spacer length: 85 repeater length: 4
18142 2861052 AATT
CAGGATCCGATGATAATTCAGGATCTGATGATAATTCAGGATCTGATGATAATTCAGGATCCGATGATGATTTCAGGATCCGATGAC
AATTCAGGATCCGATGATGATTTCAGGATCCGATGA spacer length: 121 repeater length: 4
18143 2861178 AATT CAGGATCCGATGATAATTCAGGATCTGATGATAATTCAGGATCTGATGACAATTCAGGATCCGATGA
spacer length: 67 repeater length: 4
18144 2861250 AATT GGA CTTATTGAACCGGACTTATTGAACCCGAAAACATAATTTCTCACTTTTTTTATTCTCAGCTTC
18145
18146
18147 crispr 29
18148 2969861 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGAGATACTCGATAAGAATCTTATCATCTTCTCTG spacer
length: 36 repeater length: 30
18149 2969928 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACTTTACAGCCCCCTTTTACTGGTGACCTATAATAT spacer
length: 36 repeater length: 30
18150 2969995 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTTCTGTGCTGCAACGGTATAGGCTGCAATGACAG spacer
length: 36 repeater length: 30
18151 2970062 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATATTTACTTTGGTTTGACATATTATCACTCCTC spacer
length: 34 repeater length: 30
18152 2970127 GTTAAAATCAGACCTTAGAGGGATTGAAAC GCTTTCTGTTGAGATGCTGCGGTGTGTGAATATAAA spacer
length: 36 repeater length: 30
18153 2970194 GTTAAAATCAGACCTTAGAGGGATTGAAAC TAATACACATCAGTACAGACATTATTTCCCATGTGAT spacer
length: 37 repeater length: 30
18154 2970262 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTCAGGACAATAATCAGCCCGCCTGATGTCACAC spacer
length: 34 repeater length: 30
18155 2970327 GTTAAAATCAGACCTTAGAGGGATTGAAAC AGCACCATACTCAACCATCTGTTCTGGTGTCAGCTC spacer
length: 36 repeater length: 30
18156 2970394 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTTCTTACGTTCTTTTCTGATAGGAATAACAT spacer
length: 34 repeater length: 30
18157 2970459 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAGTCATATCATTATCATGATTATAAAAAATACAT spacer
length: 34 repeater length: 30
18158 2970524 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTCAAGAAATATGTAGAGGCTATGATGTTCTATAAGA spacer
length: 37 repeater length: 30
18159 2970592 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTCTTCTACTGCTTTAATGCCTCCAATAAGGAGAGCA spacer
length: 37 repeater length: 30
18160 2970660 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATAGCGTTTTAAGCGATATGGGCTGTACACGCT spacer
length: 33 repeater length: 30
18161 2970724 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGCCTGCAAGGCAGACACCATTACCCAGATAGCAG spacer
length: 36 repeater length: 30
18162 2970791 GTTAAAATCAGACCTTAGAGGGATTGAAAC TATGATTTCTTCTTCTTAACAACACTACGTGAACTCT spacer
length: 35 repeater length: 30
18163 2970857 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTCATCTTTTACGCTAGAATCCTGAAACTCAGAA spacer
length: 36 repeater length: 30
18164 2970924 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTAACAAGGTCTTCGACTGCATCGATAGCGAAG spacer

length: 33 repeater length: 30
18165 2970988 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAGATACCGAAATTGAAGAGGTAATAAAGAAAAT spacer
length: 35 repeater length: 30
18166 2971054 GTTAAAATCAGACCTTAGAGGGATTGAAAC TGTACGCCATAGTCAAGGCTCCGATAGATATCG spacer
length: 34 repeater length: 30
18167 2971119 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAACCGGAGCAAACCTTAAACCGTTCTGGAAA spacer
length: 34 repeater length: 30
18168 2971184 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGCTAACGGAACCTGGTTTTGGGGTATGTAATGTAT spacer
length: 36 repeater length: 30
18169 2971251 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTAGCACAAGCTGAACAGGCTTCGGGAGTGCTGAAAACC
spacer length: 39 repeater length: 30
18170 2971321 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGTACCCTGATGGATTTATCTTAAGATCAGGATGC spacer
length: 36 repeater length: 30
18171 2971388 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAATCATGTATCTCTATAACTCTCTAAATCATTATACT spacer
length: 38 repeater length: 30
18172 2971457 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAAAAAGACATGACGGTAATGAATACTGATCGTATACGAATCAGT
spacer length: 45 repeater length: 30
18173 2971533 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTAACACGTCCCCCTAATCTCGTTGGGGGAAACTT spacer
length: 35 repeater length: 30
18174 2971599 GTTAAAATCAGACCTTAGAGGGATTGAAAC CAAAAACAATGTAACGGAGCCCCGAAACCAATGTAA
18175
18176
18177 crispr 30
18178 845623 CACAAAACAATATTTGAATTTTCCAAATGAAT TGTAAGAAGAAATTCATAGTTTTAAGGAGTCG spacer
length: 32 repeater length: 32
18179 845688 CACAAAACAATATTTGAATTTTCCAAATGAAT AGTAAGAAGAAATTCATAGTTTTAAGGAGTCG spacer
length: 32 repeater length: 32
18180 845753 CACAAAACAATATTTGAATTTTCCAAATGAAT ACTCGAAGCTAACTTAACGGAAATCGAAGCCA
18181
18182
18183 crispr 31
18184 2232298 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT ATCACAGTACATATCACGACAACGAACTAATTTAT spacer
length: 36 repeater length: 32
18185 2232367 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT AACATGGATTAAACTGATCAAACAGAAAACCG spacer
length: 32 repeater length: 32
18186 2232432 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT GTTTCCTAAGATTTTCATGTTTAACGCGATAAA spacer
length: 32 repeater length: 32
18187 2232497 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT TTTTATATCTCGTTTGCTCAATTTTCTTTTATAT spacer
length: 34 repeater length: 32
18188 2232564 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT CTGTAATCCCAAAATAAAAATCAACTTTTCCA spacer
length: 32 repeater length: 32
18189 2232629 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT ATCATACTGAGCAATCATCGAAAGAGCAGCATCA spacer
length: 34 repeater length: 32
18190 2232696 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT TCTAAGGATGTTATAGAAAAGATGGCGCGGGT spacer
length: 32 repeater length: 32
18191 2232761 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT TAGGTACACTTTGATCGCTCCGGAAGCTTCT spacer
length: 32 repeater length: 32
18192 2232826 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT GATTTAGAATTTTTCAAAAACAAAGAACTGAA spacer
length: 33 repeater length: 32
18193 2232892 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT CAACATTGAAGGGCGTTACGGTCTATATTTGCATGT
spacer length: 37 repeater length: 32
18194 2232962 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT AATAACGATTTTTTAAAAACACTGGAGCGACAAA spacer
length: 33 repeater length: 32
18195 2233028 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT CAAAATCATTAGATCTAACATGGGAATCAGCAA spacer
length: 33 repeater length: 32
18196 2233094 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT CTGCTATCGATACGATGAGGCCAACATGTCTAT spacer
length: 33 repeater length: 32
18197 2233160 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT TCGATGATGCTCCGAGGGTTGGCGGAGTATATAA spacer
length: 34 repeater length: 32
18198 2233227 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT CATCGTCTGCTTTCGGAGTAGTGTATATTATCCT spacer
length: 34 repeater length: 32
18199 2233294 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT AATTCCTGTTGTGTTGAGATCAAGCCCGTCTATGAGCGTGT
spacer length: 41 repeater length: 32
18200 2233368 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT TCGTTTCATTCCAAGCTCAAACATTGTAACAGA spacer
length: 33 repeater length: 32
18201 2233434 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT ATGTCAAATTTAGCAATTGTATGAAGGCCTGA spacer
length: 32 repeater length: 32
18202 2233499 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT TCTTCTTCTTCGGAAGGTTTGAACCATATTGG spacer
length: 32 repeater length: 32
18203 2233564 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT AAATCTAAATTGGATTTGGTTTGCAAATGATGG spacer
length: 33 repeater length: 32

18204 2233630 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT ATAATTTCAATTGTGGATGACACTTTAAAA spacer
length: 30 repeater length: 32

18205 2233693 GTCGCACCCTTCGCGGGTGTGTGGATTGAAAT AAAAAACAATACCAGTTTAATACAAGGCGC

18206

18207

18208 crispr 32

18209 270399 AAGTATATAAAATATATAAATAACTAATATATAA GTATATAAATGACAAATATA spacer length: 20
repeater length: 33

18210 270453 AAGTATATAAAATATATAAATAACTAATATATAA ATAAATAAATGACGAATATA spacer length: 20
repeater length: 33

18211 270507 AAGTATATAAAATATATAAATAACTAATATATAA ACAATATTTGAATTTTCCAA

18212

18213

18214 crispr 33

18215 2084723 ACTACTTCTTCTTCCTCTTCTTCTTCCTTTACA GGTGCAGGCACTGCTTCATC spacer length: 20
repeater length: 33

18216 2084777 ACTACTTCTTCTTCCTCTTCTTCTTCCTTTACA GATGCAGGCACTGCTTCATC spacer length: 20
repeater length: 33

18217 2084831 ACTACTTCTTCTTCCTCTTCTTCTTCCTTTACA AAAACAATATTTGAATTTTC

18218

18219

18220 crispr 34

18221 1219926 CTTTTCTTTCTGGTTTCCTTTTCCTTTCTGAT CTCTTTTTCCTTTCTGATTT spacer length: 20
repeater length: 33

18222 1219980 CTTTTCTTTCTGGTTTCCTTTTCCTTTCTGAT TTCCTTTTCCTTTCTGATTT spacer length: 20
repeater length: 33

18223 1220034 CTTTTCTTTCTGGTTTCCTTTTCCTTTCTGAT AAAAATTTAAAGATAGTAAT

18224

18225

18226 crispr 35

18227 1332547 CTGAATCTTCTCCATTGTTGATGGTGCTTCCTGAATCTT CTCCATTATATTCTGTGCTT spacer length:
20 repeater length: 39

18228 1332607 CTGAATCTTCTCCATTGTTGATGGTGCTTCCTGAATCTT TCCCATTATATTCTGTGCTT spacer length:
20 repeater length: 39

18229 1332667 CTGAATCTTCTCCATTGTTGATGGTGCTTCCTGAATCTT TATCATCGAATACATACACA

18230

18231

18232 crispr 36

18233 1574471 AGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAAC
AGAACCCGAAACCAATGTAACGGAGCCCGAAAACAATGTAACG spacer length: 43 repeater length: 40

18234 1574555 AGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAAC
AGAACCCGAAACCAATGTAACGGAGCCCGAAAACAATGTAACGGAGCCCGAAACCAATGTAACG spacer length: 64
repeater length: 40

18235 1574660 AGCCCGAAACCAATGTAACGGAGCCCGAAAATAAAGTAAC
AATGAGGATAATGGGATTATGAGGATAATGAGGATAAAACACATATTAGTTAAAAAAAAGAAAT

18236

18237

18238 crispr 37

18239 1490826 ATAAACTACTTTGTAGTTAGAATAGTAGAGAGTAAATAT
CCCATTATATATTCTCCAGATTTTAGTATATTCTTTACTCACTTGTTTCATATATTCTGTACATTTTTATACAGTTATTGTTAA
CCCCTTTTCACTTTATTTTTTACCAGCGAGCTCTCATGTAGAGTTTGGTGCGTT spacer length: 141 repeater
length: 40

18240 1491008 ATAAACTACTTTGTAGTTAGAATAGTAGAGAGTAAATAT
CCCATTATGTTTCCCTCCAGATTTTGTATATTCTTTTTTTTACTTGTTTCATAAATTCCTGTACATTTTTATACAGTTATTGTTA
ACCCACTTTCACTTTATTTTTTACCAGCGAGCTCTCATGTAGAGTTTGGTACGTT spacer length: 142 repeater
length: 40

18241 1491191 ATAAACTACTTTGTAGTTAGAATAGTAGAGAGTAAATAT
TGTATAAGGTTTGAAGTGTGTGAGGTTTGATTGTGTATAGTTTGACGGTATTAAGGAAGAGTATGACTGTACGGTGTAACAAACGAA
CGTTCACAGTAAAAATCAAAAAAACGAGAATTAAACGGAAGTCCTATTTTTTCTA

18242

18243

18244 crispr 38

18245 714584 CCCTTTCAGAGCTGGATAAACTTCTACTTTGAATCTATC GCACAACACTGAAAAACAATACCAGTTATAC
spacer length: 32 repeater length: 40

18246 714657 CCCTTTCAGAGCTGGATAAACTTCTACTTTGAATCTATC ACACAACACTGAAAAACAATACCAGTTATA
spacer length: 31 repeater length: 40

18247 714729 CCCTTTCAGAGCTGGATAAACTTCTACTTTGAATCTATC TGTGTGAGGTTTGATTGTGTATAGTTTGACG

18248

18249

18250 crispr 39

18251 526894 GTAATGTAGTAGATGATCATAAACAAAAACAGATTCAAG

18252 TAATGTAGTAGATGGTCATAAACAAAAACAGATGCA spacer length: 37 repeater length: 40
 526972 GTAATGTAGTAGATGATCATAAACAAAAACAGATTCAAG
 TGGCATAGTATATTCTCATAAACAAAAACAGATGCAAGTAATGTAGTATATTCTTATAAACAAAAACAGATGCA spacer
 length: 76 repeater length: 40
 18253 527089 GTAATGTAGTAGATGATCATAAACAAAAACAGATTCAAG
 CAATGTAACGGAGCCCCGAAACCAATGTAACGGAGCCCCGAAACCAATGTAACGGAGCCCCGAAATAAAGTAACGGAG
 18254
 18255
 18256 crispr 40
 18257 526246 GTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 TCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAAAC
 AAAAAACAGATACAAGTAATGTAGTAGAT spacer length: 115 repeater length: 40
 18258 526402 GTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 TCATAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAAACAAAAACAGATTCAAGTGGCGTAGTAGGTGATCATAAAC
 AAAAAACAGATGCAAGTGACGTAGTAGAT spacer length: 115 repeater length: 40
 18259 526558 GTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 TCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAATCATAATCAAAAAACAGATTCAAGTGGCGTAGTAGAT spacer
 length: 76 repeater length: 40
 18260 526675 GTCATAAACAAAAACAGATTCAAGTGGCGTAGTAGATAA
 AATAACTAATATATAAATAAATAAATTAATAAAGTCTCAAAATGAATAAATTCCGATGGACTGTTTCAGGGTTCAGG
 18261
 18262
 18263 crispr 41
 18264 1512526 TTAAGTGTGATGGATTAAGTGTGATGGATTAAGTGTG
 ATAGATTAAGTGTGATGGATTAAGTGTGATGGATTAAGTGTGATGG spacer length: 49 repeater length:
 40
 18265 1512616 TTAAGTGTGATGGATTAAGTGTGATGGATTAAGTGTG
 ATAGATTAAGTGTGATGGATTAAGTGTGATGGATTAAGTGTGATGG spacer length: 64
 repeater length: 40
 18266 1512721 TTAAGTGTGATGGATTAAGTGTGATGGATTAAGTGTG
 GGAATAAAAAATTTAAAGATAGTAATTCAGGAATAAATATTCAGGAATAAAAAATTTAAAGATAGT
 18267
 18268
 18269 GCA_000970045.1_ASM97004v1_genomic.fna(findCrispr):
 18270 START REPEAT
 SPACER
 18271 crispr 1
 18272 2459695 AAATGGAGCAAATTCAGGAC GGTTTCACCGATCCCGTAACATACTTCATTGGCGTGCAGACTGT spacer
 length: 44 repeater length: 20
 18273 2459760 AAATGGAGCAAATTCAGGAC AGTATCAAACCTGATCCCGTAATATACTTCATTGGCGTGCAGACTGT spacer
 length: 47 repeater length: 20
 18274 2459828 AAATGGAGCAAATTCAGGAC AAAAACGGTTCAGATTCAAAAAACGGTTCAATATTCAAAAAACGGTTC
 18275
 18276
 18277 crispr 2
 18278 2153116 ACAGATAATAACGCATCGAA
 CAACAATGAAATAGGCCTCTATCTGCGTTACTCCAGCGACAACACGCTGACAGATAATAACGCATCGATCAACAATGAAAAAGGCA
 TCGAACTGCGTGAAATCCAGCGCAACACGTT spacer length: 117 repeater length: 20
 18279 2153254 ACAGATAATAACGCATCGAA
 TAACTATCACGGCATCTTTCTGTGGTTCTCCAATGACAATAACACGCTGACAGGCAACACTGTATCGGATAATGTTTTCGGCATCT
 ATCTGGGGTATTCCAATAACAGCACGCT spacer length: 114 repeater length: 20
 18280 2153389 ACAGATAATAACGCATCGAA
 TCAAAAAAGGGGGAATCTAACCCCTCAAAAAAGGGGGAATCTAACCCCTCAAAAAAGGGGGAACAAACCCCTCGACCCTCTTCTGGTAG
 AAAAGGTACTGCTGGGCGTAACCGCAAT
 18281
 18282
 18283 crispr 3
 18284 2717387 ACGTATTTTCCATCAGGACT
 GAAGACAGCATTATACACCAGATCAGTATGATTCAGAACAGCAGTTTCTTCCCCTGTAGATGCGTCCCATAAACTTGCTTTCCAGT
 CCAAATCTTCGGGTCCAGACCCATTGGGTCCAAATCACTGTAGCCACAT spacer length: 138 repeater
 length: 20
 18285 2717546 ACGTATTTTCCATCAGGACT
 GAATACAGCATTATAAACATAATTATAATGGTTCGGAACATCAGTTCCTTACCTGTGAATGCGTTCCATAAACTTGCTTTCAAGT
 CCGAATTTATTGTAGC spacer length: 102 repeater length: 20
 18286 2717669 ACGTATTTTCCATCAGGACT
 CAAAAACGGATGGAAAAAAGGGTTCAAGTTCAATCAAAAAACGGTTGTGAAATGGGTGGAATTTTTTCCCTTCTATCTTTCAAT
 CCGCATAAACCTCCAC
 18287
 18288
 18289 crispr 4
 18290 1291833 AGTCAA

TCTGTGTACATCTTGCCATGCCTGTTGTTTATCCGGCACATCTCTAAAAACAGTTCCAATTGCTTCTGCCGCTTCCCTTCGCACCC
 TGCTGTTTTTATCTG spacer length: 101 repeater length: 6
 18291 1291941 AGTCAA
 TCTGTGTACATCTTGCCACGCCTGTTGTTTATCCGGCAAGTCTCTAAAAACCCTTCGAAGTGCTTCTGCCGCTTCCCTTCGCACCC
 TGCTGTTTTTATCTG spacer length: 101 repeater length: 6
 18292 1292049 AGTCAA
 TCTGTGTACATCTTGCCACGCCTGTTGTTTATCCGGCAAGTCTCTAAAAACCCTTCGAAGTGCTTCTGCCGCTTCCCTTCGCACCC
 TGCTGTTTTTATCTG spacer length: 101 repeater length: 6
 18293 1292157 AGTCAA
 TCTGTGTACATCTTGCCACGCCTGTTGTTTATCTTGGGCATCTTTAATATTATTCATAAGTGCATTTAATGCTCTCCATCGCACAT
 CTTTATCTTCATCTG spacer length: 101 repeater length: 6
 18294 1292265 AGTCAA
 TCTGTGTACATCTTGCCACGCCTGTTGTTTATCTTGGACATCTTTAATATTATCAATAAGTGCATTTAGTGCTCCCCATCGCACCC
 TGCTGTTTTTATCTG spacer length: 101 repeater length: 6
 18295 1292373 AGTCAA
 CGCTTGCCCTGAACATCCAGATGTAGGTATTGCGCTTAACAATCTGGCTGGAGTTTATCAAGATTTAGGTAGATCTTCCGAAGCC
 GAATCTCTGTATACC
 18296
 18297
 18298 crispr 5
 18299 4204425 ATAAGAACTCATTTGTAAGA
 ACTCATTTGTAAGAATTCATTTGTAAGAACTCATTTGTAAGAACCTATCCAGTTATGGATCC spacer length: 62
 repeater length: 20
 18300 4204508 ATAAGAACTCATTTGTAAGA ACCTATCCAGTTATGGATCC spacer length: 20 repeater length:
 20
 18301 4204549 ATAAGAACTCATTTGTAAGA ACCTATCCAGTTATGGATCC spacer length: 20 repeater length:
 20
 18302 4204590 ATAAGAACTCATTTGTAAGA CAAAAAAGGGGAATCTAAC
 18303
 18304
 18305 crispr 6
 18306 13088 CCGAGCGGCACTCCTGAAC AACCTTGACAAACCCTGAACAAC spacer length: 25 repeater
 length: 20
 18307 13134 CCGAGCGGCACTCCTGAAC
 AACCTTAGACAACCTCCTGAACAACCTCCTGAGCGGAACCTCCTGAGCGGAACCTCCTGAGCGGAAC spacer length: 64
 repeater length: 20
 18308 13219 CCGAGCGGCACTCCTGAAC
 CTGCCGCTTCCCTTCGCACCCTGCTGTTTTTATCTGAAGTCAATCTGTGTACATCTTGCCACGC
 18309
 18310
 18311 crispr 7
 18312 682882 AAGTTGATTCAAAAACGGATG GGAAAACGGTTCAAGTTCAATTAAAAACGTTGCTAAAATCGGTC spacer
 length: 45 repeater length: 21
 18313 682949 AAGTTGATTCAAAAACGGATG
 GGAAAACGGTTCAAGTTCAATTAAAAACGTTGCTAAAATCGGTCAAATTTGATTCAAAAACGGATGTAAAACGGTTCAATTTCA
 ATCAAAAACGTTGCTAAACTCGGTC spacer length: 112 repeater length: 21
 18314 683083 AAGTTGATTCAAAAACGGATG
 AAAACGGATGGAAAAAGGGTTCAAGTTCAATCAAAAACGGTTGTGAAAATGGGTTGAATTTTTTCCCTTCTATCTTTCAAATCC
 GCATAAACCTCCACATGAAACCAAAA
 18315
 18316
 18317 crispr 8
 18318 9641 ATTATGCTTTTTCTTTGGAGA CTATGTGTTTTCCCTTAGGG spacer length: 20 repeater length: 21
 18319 9683 ATTATGCTTTTTCTTTGGAGA CTATGTGATTCTCTGGGGTAACTATGTGTTTTCCCTAGGG spacer length:
 41 repeater length: 21
 18320 9746 ATTATGCTTTTTCTTTGGAGA TCCAGATGTAGGTATTGCGCTTAACAATCTGGCTGGAGTTT
 18321
 18322
 18323 crispr 9
 18324 2152338 GCTGACAGATAATACAGCATC
 GAATAACTATGAAGGCATCTTTCTGGGGTCCCTCCAGCGACAACACGCTGACCAGCAACATTGTATCGGACAACAGGGGCGGCATCT
 TTCTGCAGGACTCCAGCGACAACG spacer length: 110 repeater length: 21
 18325 2152470 GCTGACAGATAATACAGCATC AAACAACCTCTGACGGCATCTATGTGTACTACTACAGCGACAACAACA spacer
 length: 47 repeater length: 21
 18326 2152539 GCTGACAGATAATACAGCATC AAAAAGGGGGAATCTAACCCCTCAAAAAGGGGGAATCTAACCCCTCAA
 18327
 18328
 18329 crispr 10
 18330 1973004 GGCTGTGTTGTTGGAAAGTGT ATTGTTACCGGATTTCGACCAGATTGACTCCGAAGGTGTTGTTGC spacer
 length: 44 repeater length: 21
 18331 1973070 GGCTGTGTTGTTGGAAAGTGT ATTGTTACCGGATTCAACCAGAATGACTCCGAAGGTGTTGTCGA spacer

length: 44 repeater length: 21
18332 1973136 GGCTGTGTTGTTGGAAAGTGT GCCGCTTCCCTTCGCACCCTGCTGTTTTTATCTGAAGTCAATCT
18333
18334
18335 crispr 11
18336 673668 TCGAATGCTGTTATTGTTTCA TCCTTCTCAGTGAGCTTTCC spacer length: 20 repeater length: 21
18337 673710 TCGAATGCTGTTATTGTTTCA
TTCTTTTCAGCAAGTTTCGCCCTCGAAGTTTTATTGTTTCATCCTTTTCAGCAAACCTTTTC spacer length: 62
repeater length: 21
18338 673794 TCGAATGCTGTTATTGTTTCA
TGAAACTTGATAAGCTCCTCAATAAAGTCTCGGTAATCCTCAGTCCGTGAGCAAAATCCACT
18339
18340
18341 crispr 12
18342 669431 ATTGTTTTGTTATTGTTTTGTC GCTGTTTTTTATTGTTTTGTTTATTGTTTTGTTATTGTTTTGTTATTGTTTTGT
spacer length: 54 repeater length: 22
18343 669508 ATTGTTTTGTTATTGTTTTGTC
GCTGTTTTTTATTGTTTTGTTTATTGTTTTGTTATTGTTTTGTTATTGTTTTGTTATTGTTTTGTTATTGTTTTGT spacer
length: 76 repeater length: 22
18344 669607 ATTGTTTTGTTATTGTTTTGTC
GAAACTAAGATTAAATCTTCATCTTCAGGTGCTAAAAAAGGTCCGTGAGCAAAATCCACTAAAAAAGGATTGAAA
18345
18346
18347 crispr 13
18348 1956642 TTCAGTCATCGGGATGCACTTT TTAGTTATCATAATACCTTT spacer length: 20 repeater
length: 22
18349 1956685 TTCAGTCATCGGGATGCACTTT TCAGTTATCAGAATACCTTT spacer length: 20 repeater
length: 22
18350 1956728 TTCAGTCATCGGGATGCACTTT CTTAGTGGTTCCAACAACAC
18351
18352
18353 crispr 14
18354 485118 TTCTTCTTTCTATACCTGGTTT
TCTTTCATTCTGTTCTTACCTTATATGTAGAACTGGAAATAGCTAAACCAGAATTCATTGAATGCGAAAATTAAGAAGTCCAGCAT
TTTGATTTCCTCCCTGATGTGATTTT spacer length: 111 repeater length: 22
18355 485252 TTCTTCTTTCTATACCTGGTTT
TCTTTCATCCCGTTCTTTCCCTTAGATGCAGAACTGGAACCAGCTGCATATAAAGGTGTTAAATGCGAAAATCACGAAGTCCAGCAT
TTTGATTTCCTCCCTGATGTGATTTT spacer length: 111 repeater length: 22
18356 485386 TTCTTCTTTCTATACCTGGTTT
CTTTCATCCTGTCTTACCTTACATGAAGAACTGGAAAAAGCTGTATGCAAAGGTGTTAAATGCGAAAATCAAGAAGTCCAGCATT
TTAATCCCCCGAAACGGTTTT spacer length: 108 repeater length: 22
18357 485517 TTCTTCTTTCTATACCTGGTTT
ACATTATACATCATGGCAATAGTCATACACGTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAACACATTCTCGATGTCCAAC
GTTCGCCATTCTCCAGTCCGT
18358
18359
18360 crispr 15
18361 3829324 AAGCAATAATGATTGGAACCTTAA AAGACTGAATTTATTTACTTAATTT spacer length: 25 repeater
length: 23
18362 3829373 AAGCAATAATGATTGGAACCTTAA CAGATTGAATTTATTTACTCAACAT spacer length: 25 repeater
length: 23
18363 3829422 AAGCAATAATGATTGGAACCTTAA GTTTTGAGAACTCTCGAAGTGATCA
18364
18365
18366 crispr 16
18367 3202840 AGATGAAGAGAGAAGAAAAAAGA GAAGAAGAGAGAGAAGAAGA spacer length: 20 repeater
length: 23
18368 3202884 AGATGAAGAGAGAAGAAAAAAGA GAAGAAGAGAGAGAAGAAGA spacer length: 20 repeater
length: 23
18369 3202928 AGATGAAGAGAGAAGAAAAAAGA TGAAGAGAGAAGAAGAGAGAGAAGAGGAAAGATGAAGAGGA spacer
length: 41 repeater length: 23
18370 3202993 AGATGAAGAGAGAAGAAAAAAGA ACGGATGGAAAAAAGGGTTCAAGTTCAATCAAAAAACGGTT
18371
18372
18373 crispr 17
18374 1766366 AGTTGAAAAATCTTACTCAACTC
GATATATCTGGAAATCAGTTAACTTCATTGCCACCTGAAATCTCAAAGTTGAAAAATCTTACTACACTTAACATATCTGGTAATCA
ATTGACTTCGCTGCCTCCTGAAATCGCA spacer length: 114 repeater length: 23
18375 1766504 AGTTGAAAAATCTTACTCAACTC TCCATATATAATAATCAATTGACTTGGCTGCCTCCTGAAATCGCA spacer
length: 45 repeater length: 23

18376 1766573 AGTTGAAAAATCTTACTCAACTC GATGAAGTGAGAAGAAAAAGAGAGAAGAAGAGAGAAGGAGAATAG
18377
18378
18379 crispr 18
18380 3132355 ATCTAACCCCCAAAAAAGGGGAAT TTAACCCTCAAAAAAAGGGG spacer length: 20 repeater
length: 23
18381 3132399 ATCTAACCCCCAAAAAAGGGGAAT
TTAACCCCTCAAAAAAAGGGGGAATCTAACCCCTCAAAAAAAGGGGGAATCTAACCCCTCAAAAAAGG
GG spacer length: 88 repeater length: 23
18382 3132511 ATCTAACCCCCAAAAAAGGGGAAT
AGATGTAGGTATTCGCCTTAACAATCTGGCTGGAGTTTATCAAGATTTAGGTAGATCTTCCGAAGCCGAATCTCTGTATACCCGTG
CC
18383
18384
18385 crispr 19
18386 1762789 GAAATCTCAGAGTTGAAAAATCT TACTAAACTTGACATACAACATAATCAATTGACTTCGCTTCCGCC spacer
length: 45 repeater length: 23
18387 1762858 GAAATCTCAGAGTTGAAAAATCT AACTCAACTTGACATATCTGGTAATCAATTGAGTTCGCTGCCGTC spacer
length: 45 repeater length: 23
18388 1762927 GAAATCTCAGAGTTGAAAAATCT AAGGGGGAATCTAACCCCTCAAAAAAGGGGGAATCTAACCCCTCAAA
18389
18390
18391 crispr 20
18392 2681022 GAAGAAAACGAAACTTCTGAAGA GGAAATGATTCCTGAAGAAGAAATACCACC spacer length: 30
repeater length: 23
18393 2681076 GAAGAAAACGAAACTTCTGAAGA GGAAATGATTCCTGAAGAAGAAGTAACACC spacer length: 30
repeater length: 23
18394 2681130 GAAGAAAACGAAACTTCTGAAGA GCTTCCCTTCGCACCCTGCTGTTTTTATCT
18395
18396
18397 crispr 21
18398 2277832 GTTTC AATCCTTGTTTTAGTGGA AGCTACTTCTCGACAAATATGGCTGACGCTCTTCAGGCAGTTGTAGGAA
spacer length: 49 repeater length: 23
18399 2277905 GTTTC AATCCTTGTTTTAGTGGA AGCTACTTCTCGACTATATTAACACATACGAGCATGTAAAGAGAATGA
spacer length: 48 repeater length: 23
18400 2277977 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCACGAATCTTGTAATCGGGTCAACATCTCACACTAATTGTTAT
spacer length: 50 repeater length: 23
18401 2278051 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTAACGAATCAGTGATAATATGTACAACAAAATACACAATA
spacer length: 48 repeater length: 23
18402 2278123 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCACGAATTCCCATGCTTACTCGTGCTGCAGGTCAGACTACTCA
spacer length: 50 repeater length: 23
18403 2278197 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTAACGAATCTGACCAAAATATCAGGATTACCAATAGATTACCGT
spacer length: 50 repeater length: 23
18404 2278271 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCACGAATACTGCCTTATGGACAACCTGGTGACGGCATTGTTGAT
spacer length: 50 repeater length: 23
18405 2278345 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCACGAATGAGCTGAACGAACCTGACAGGACAGACGCGAAGA
spacer length: 48 repeater length: 23
18406 2278417 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTTCTGCTATCCGTCTTTCTCTCCCTCGTAACCGAA
spacer length: 50 repeater length: 23
18407 2278491 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTTTATACACTGTTTGTTCTCCGTTTATCAT spacer
length: 45 repeater length: 23
18408 2278560 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATACGCGTTACAAGGTCCCAAGCTTCAGGCAGTGTTA
spacer length: 49 repeater length: 23
18409 2278633 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATAAATTCACGGAGGGCGCTCAGGCTCTCGTCGGGT
spacer length: 48 repeater length: 23
18410 2278705 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATACCGCACTCACTGAGGTAGCCATGAGTCAGGACG
spacer length: 48 repeater length: 23
18411 2278777 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGGGTGTGAGTTGGAACCTTCTTTTGCATTGAAATG
spacer length: 49 repeater length: 23
18412 2278850 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATAAATTAGAGTTGTATCGACAAGAGAAGAATTACAT
spacer length: 49 repeater length: 23
18413 2278923 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTG
spacer length: 50 repeater length: 23
18414 2278997 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTG
spacer length: 50 repeater length: 23
18415 2279071 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTTATTCCAATGTCAAAGGCCACTTTGATGGAGGATG
spacer length: 50 repeater length: 23
18416 2279145 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCCGGGGATTTCTCGGGAGGAAAGGGAGAAGTTGG
spacer length: 48 repeater length: 23
18417 2279217 GTTTC AATCCTTGTTTTAGTGGA TCTTGCTCAAGAATATAGGCGGTTGCATAGGCATTATAATCTTTGTACCT
spacer length: 50 repeater length: 23

18418 2279291 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCGGTGTTAAACAGTTAGAGAGATGATGGGATACTCC
 spacer length: 50 repeater length: 23
 18419 2279365 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTCATACGCGGTTGCGGGGATAGTGCCTATTTGCGG
 spacer length: 50 repeater length: 23
 18420 2279439 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCTGAATCCGGCATAACCGTCTACAAAATGGACCGAT
 spacer length: 49 repeater length: 23
 18421 2279512 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCTGCCGTCTGGCATGGTTTCCACGTGCTCGAAATCT
 spacer length: 50 repeater length: 23
 18422 2279586 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGGGGGTGTGTTGTTTCGGGGTCATGTCGTATCCTGA
 spacer length: 49 repeater length: 23
 18423 2279659 GTTTCAATCCTTGTTTTAGTGGA
 TCTTGCTCAAGAATTACAGCAGCACCTACGCCCTGCGGCGATTACACCGGCAGGCCCAAATTT spacer length: 62
 repeater length: 23
 18424 2279745 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCGGTGCGGAAGCCTGCCCCAACTTGATTTTTTG
 spacer length: 48 repeater length: 23
 18425 2279817 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCTCTCCGTTTCCCGTCCCGCTTAATAGCTGCTGG
 spacer length: 49 repeater length: 23
 18426 2279890 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGTTCTCAGTGCCTTGTGCACGGGATAACCTGATTC
 spacer length: 49 repeater length: 23
 18427 2279963 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCTTACTGTATACTCTACTATGCAACCTAACT
 spacer length: 47 repeater length: 23
 18428 2280034 GTTTCAATCCTTGTTTTAGTGGA
 TCTTGCTCAAGAATTTATACATACATATACATATACATATACTTACTCTCT spacer length: 56 repeater
 length: 23
 18429 2280114 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGATCTCCCTGCAGTCTTCCAAAATTCAGGATTT
 spacer length: 49 repeater length: 23
 18430 2280187 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATACGTGGACCTCGGGGCCACATATTCAAATCCAACT
 spacer length: 49 repeater length: 23
 18431 2280260 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTCAGCCCCCTACCCTGCAGTCGTGGAATGAGAGTG
 spacer length: 49 repeater length: 23
 18432 2280333 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCTGAATAAAATCTGTGATACTTTTCACGATGAA
 spacer length: 47 repeater length: 23
 18433 2280404 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTTAGCCCCCTTTTGAGTACCCGAAGCCGCCGACTG
 spacer length: 48 repeater length: 23
 18434 2280476 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCTCAGCCGACTACGCCACCACACCAGTACAATACA
 spacer length: 49 repeater length: 23
 18435 2280549 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATAGGATATTTGACCAATAGTTCACCCTCCAATATTT
 spacer length: 49 repeater length: 23
 18436 2280622 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCCGTTTTTCGAAGTTTTATATGAACCGTGGTATAA
 spacer length: 48 repeater length: 23
 18437 2280694 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTCATTGATTTTTGGGTCCGTGTCCGGTTGCCATGC
 spacer length: 49 repeater length: 23
 18438 2280767 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCCGGGATCATTGACAGAATAGACTGTGGAGTATA
 spacer length: 48 repeater length: 23
 18439 2280839 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTTTTATAATCCTGATATTTCCGGAAAATTGAAGGC
 spacer length: 49 repeater length: 23
 18440 2280912 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATACGCATCCGAATGGACCGACGTGGCCACCAAGTGG
 spacer length: 49 repeater length: 23
 18441 2280985 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATCCTATTGAAATATGTCTCAGGCAGGGACACACAGAA
 spacer length: 50 repeater length: 23
 18442 2281059 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATACCAACATCCGGAAGAATGGCATAACCCGGATTTCA
 spacer length: 50 repeater length: 23
 18443 2281133 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATATCACAAATGGGTAAACTATGAATCTCTCAAAAG
 spacer length: 49 repeater length: 23
 18444 2281206 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATTGTATGAATTTATGAGAGAAAAAGGGGAATTTTGA
 spacer length: 49 repeater length: 23
 18445 2281279 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATATTTCCGGTCGATGGTCCTGAAAGTAGGCGGGACA
 spacer length: 49 repeater length: 23
 18446 2281352 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATAAATCGTTATTATTTCCCGTGGGAAAATAGACCCTCTA
 spacer length: 52 repeater length: 23
 18447 2281428 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGGCCAAAATCCCTAAATGCCTACTCCCGGAAGTGAT
 spacer length: 50 repeater length: 23
 18448 2281502 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATATAGATAGCTCGGGCAACGGAAACAACGGGACG
 spacer length: 47 repeater length: 23
 18449 2281573 GTTTCAATCCTTGTTTTAGTGGA TCTTGCTCAAGAATGCCTTTGTCCCGTCCGATGTGTATATACCATTCCG
 spacer length: 49 repeater length: 23
 18450 2281646 GTTTCAATCCTTGTTTTAGTGGA AACTTGATAAGCTCCTCAATAAAGTCTCGGTAATCCTCAGTCCGTGAGC
 18451
 18452
 18453 crispr 22
 18454 3323635 TTTTAACTACCTTTTTTACTAC

TTTTTACTACTTTTTTACTACTTTTTTACTACTTTTTTACTACTTTTTTACTACTTTTTTACTACTTTTTTACT
ACTTATTAAC TAAC spacer length: 100 repeater length: 23
3323759 TTTTAACTACCTTTTTTACTAC
TTTTTAACTACCTTTTTTAACTACCTTTTTTAACTACCTTTTTTAACTACCTTTTTTAACTACTTTTTTAACTATACTT
TTTAACTACTTTTTTAACTATACTTTTTTACTA spacer length: 118 repeater length: 23
3323901 TTTTAACTACCTTTTTTACTAC
AACTAAGATTAAATCTTCATCTTCAGGTGCTAAAAAAGGTCCGTGAGCAAAATCCACTAAAAAAGGATTGAACTGAATGATATC
CTAGAGATAGACGTAGACGGACGAAAGTCCGC

crispr 23
3009810 AAGGTTAGCCTCTTTAAGGTCAGC
CCATCCAAGGTTAGCCCCTAAAAGGTTAGCCCCTAAAAGGTTAGCCTCCTTAAGGTCAGCCCCTTACAAGATCAGCACATCCAAGGC
TAGCCTCTCTAAGGTTAGCCCCTAAAAGGTTAGCCTCTCTAAGGTTAGCCCCTTCAAGGTTAGCCTTTC spacer length:
155 repeater length: 24
3009990 AAGGTTAGCCTCTTTAAGGTCAGC CCATCCAAGGTCAGCCCCTAAAAGGTTAGCCCCTTCAAGGTTAGCCTTTC
spacer length: 50 repeater length: 24
3010065 AAGGTTAGCCTCTTTAAGGTCAGC CTCAACTTTACATACTTAGTAATCAGTTGAGTTCGCTTCCGCCTGAAATA

crispr 24
3422740 CCTCTGGATAAGTAACTCCTGAAT
AAGTAGCCCCCTGGATAAGTAGCCCCTGGATAAGTAACTCCTAAATAAGTAACTCCTAAATAAGTA spacer length: 65
repeater length: 24
3422830 CCTCTGGATAAGTAACTCCTGAAT AAATAGCCCCTGAATAAGTA spacer length: 20 repeater
length: 24
3422875 CCTCTGGATAAGTAACTCCTGAAT CCAAACCTGATCCCGCAATC

crispr 25
1535584 GCCTCTTTTTCTGTTTAGCTTGGG CCTCTTTTTTGTCCAGCTAG spacer length: 20 repeater
length: 24
1535629 GCCTCTTTTTCTGTTTAGCTTGGG CCTTTTTTTTTGTTCAGCTTGGGCTCTTTTTTGTCCAGCTAG spacer
length: 42 repeater length: 24
1535696 GCCTCTTTTTCTGTTTAGCTTGGG AATTTCCATCATTACTTACCATGTTGCCGTAACACGTTGG

crispr 26
2475765 GTTCAGATACTACAAGTTCAGAAA CAGCAGATTCCGATTCCACA spacer length: 20 repeater
length: 24
2475810 GTTCAGATACTACAAGTTCAGAAA CAGCAGATTCCGATTCCACA spacer length: 20 repeater
length: 24
2475855 GTTCAGATACTACAAGTTCAGAAA
CAGCAGACTCGGATTCTACAGGTTTCAAGAACAGCAGATTTGGATTCCACATATTCCGACTCTGCAGGTTCAAGTGCTGTA
spacer length: 80 repeater length: 24
2475960 GTTCAGATACTACAAGTTCAGAAA
GCAAATCTATGCAGCAATCTGAATTTGAAGCCCTGCTTTGTTATTAAAAATCCATATTTTCAGGGATTTTTTATGTTTTT

crispr 27
3319250 TAAACATTAAAAATTTATATCAACC GTTCAGATACACAACCCGTA spacer length: 20 repeater
length: 24
3319295 TAAACATTAAAAATTTATATCAACC GTTCAGATACACAACCTGCA spacer length: 20 repeater
length: 24
3319340 TAAACATTAAAAATTTATATCAACC GTTTAGATATAACAACCCGTA spacer length: 20 repeater
length: 24
3319385 TAAACATTAAAAATTTATATCAACC ATTCAATTGCTTTTCTCACA

crispr 28
2708350 TTTTCCATCCGGCGTGACTGCAAC
TCCTTTAGGACAGCTGCCGACAGGCACCCTGGCTGTAACAGTGTGTTAGCTGTGTCAATTACAGAGACGTTGTTGCTGCCATAGT
TCGCCACATATACCT spacer length: 101 repeater length: 24
2708476 TTTTCCATCCGGCGTGACTGCAAC
CCCCCTGGGACGGCTTCCAACAGGCACATTATCTGTAACAGTGCTTGTGGCTGTATCAATTACAGAGACGTTGTTGCTTTTCAGAGT
TCGCCACATATACCT spacer length: 101 repeater length: 24
2708602 TTTTCCATCCGGCGTGACTGCAAC
AGCATTGAGTTGATTTTCTTTTCTTAACTTCCTCGCGACAAAAGTTTCCCTCCTCTTTGCACCTTGCCCAACCACCCTTAAAC
AGGAGCGCTCAGTGC

18497 crispr 29
18498 2241261 AACCTTGAAAGGGCTAACCTTGAAA
GGGCTAACCTTGAAAGAGGCTAATCTTGAGGGGGCTAACCTTAAAGGAGCTAACCTTGAGTGGGCTAAGATTGAAAAGGCTAACCTT
GAAAAGGC spacer length: 94 repeater length: 25
18499 2241381 AACCTTGAAAGGGCTAACCTTGAAA
AGGCTCACCTTGAGTGGGCTAAGCTTGAGGGAGCTAACCTTAGAGGGGCTAACCTTAAAGAAGCTAACCTTGAGTGGGCTAAGATT
GAAAAGGCTAACCTTGAAAAGGC spacer length: 109 repeater length: 25
18500 2241516 AACCTTGAAAGGGCTAACCTTGAAA
TATACATCATGGCAATAGTCATACACGTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAACACATTCTCGATGTCCAACTGTTC
CGCCATTCTCCAGTCCGTGAGCA
18501
18502
18503 crispr 30
18504 4200172 ACTTCATTACACCACTTCTTTACAC
TACTTCTTTACACTACTTCATTACACCACTTCATTACACCACTTCATTACACCACTTCATTACACCACTTCATTACAC
spacer length: 78 repeater length: 25
18505 4200276 ACTTCATTACACCACTTCTTTACAC CACTTCATTACACCACTTCATTACACCACTTCATTACAC spacer
length: 39 repeater length: 25
18506 4200341 ACTTCATTACACCACTTCTTTACAC TTGAGAACTCTCGAAGTGATCATTATGAAGTTATCCGAT
18507
18508
18509 crispr 31
18510 3789981 AGTTTACCGTTTTTCAATTGCAATT
TTTAGTTTGCCATTTTTCAATTGCAATTTTTAGTTTGCCATTTTTCAATTGCAATTTT spacer length: 58
repeater length: 25
18511 3790065 AGTTTACCGTTTTTCAATTGCAATT
TTTAGTTTGCCATTTTTCAATTGCAATTTTTAGTTTGCCATTTTTCAATTGCAACTTTCAGTTTACCGTTTTTCAATTGCAACTTT
CAGTTTACCGTTTTTCAATTGCAACTTT spacer length: 114 repeater length: 25
18512 3790205 AGTTTACCGTTTTTCAATTGCAATT
CTCAAAAAGGGGGAATCTAACCCTCAAAAAGGGGGAATCTAACCCTCAAAAAGGGGAACAAAACCCTCGACCCTCTTCTGGTA
GAAAAGGTACTGCTGGGCGTAACCGCAA
18513
18514
18515 crispr 32
18516 2813960 ATAAAACGGAAAAAAAATAAAACGGA AAAAAATAAAACGTAAAAAA spacer length: 20 repeater
length: 25
18517 2814006 ATAAAACGGAAAAAAAATAAAACGGA AAAAAATAAAGCGGAAAAA spacer length: 20 repeater
length: 25
18518 2814052 ATAAAACGGAAAAAAAATAAAACGGA TATCAACCGTTTTGAGAACT
18519
18520
18521 crispr 33
18522 3836805 CACGGAACAAGAGTGGACATGAACA TGCTCATGAAGCCGGAAGGGCATGAACACGA spacer length: 32
repeater length: 25
18523 3836863 CACGGAACAAGAGTGGACATGAACA TGCTCATGAAGCCGGAAGGGCATGAACACGG spacer length: 32
repeater length: 25
18524 3836921 CACGGAACAAGAGTGGACATGAACA AGAACTCATTGTGAAGAACTCATTGTGAAGAA
18525
18526
18527 crispr 34
18528 2152486 GCATCAAACAACTCTGACGGCATCT ATGTGTACTACTACAGCGACAACAACACGCTGACAGATAATAC spacer
length: 43 repeater length: 25
18529 2152555 GCATCAAACAACTCTGACGGCATCT
CTCTTAGTGGTTCCAACAGCAGCTGACAAATAATACCGCATCGAACAACGACTATTACGGCATCTCTCTTAGTGGTTCCGACAAC
AAGCTGACCAGCAACAT spacer length: 103 repeater length: 25
18530 2152684 GCATCAAACAACTCTGACGGCATCT
CTAATAAAAATAACCAAGAAAGAAATAAGTAGTAACTAACAATAACCGTGATAAGGGGTAAGCTAATGAAATCTGAATGGGGGAT
CTGATTGGCGCTTCCGG
18531
18532
18533 crispr 35
18534 2716592 GCCGTAGCGACATATTTTCCATCAG
AACTAAAATTAACATCATTTACACAACCATAATGGTTCGAGAACAAGAACTGATTTACCTGTAGATACATTCCATATGCGTGATGTG
TTGTCAGCACT spacer length: 97 repeater length: 25
18535 2716715 GCCGTAGCGACATATTTTCCATCAG
GACTGAAGACAACATCATTTACCCAATCATTATGGTTGAGAGTAGAAGTGTCTGTAGATACAATGCGTGATGTATTGTCAGCACT
spacer length: 85 repeater length: 25
18536 2716826 GCCGTAGCGACATATTTTCCATCAG
GAGGAAAAATTCGTTAATGGGGGAATTGAATGAAGATACGTGTGGTTAGTTCCAGGGAAGAGATTTTTACGCTTAATCCTAATGA
18537
18538

18539 crispr 36
18540 4210615 CAGCAAATTTATACAGCAAATCTATG TAGCAAATTTATACAGCAAATTTAT spacer length: 25
repeater length: 26
18541 4210667 CAGCAAATTTATACAGCAAATCTATG
CAGCAAATCTATGCAGCAAATCTATGCAGCAAATCTATGCAGCAAATCTATGTAGCAAATCTATGTAGCAAATTTATACAGCAAAT
TTATGCAGCAAATCTATGCAGCAAATCTATGCAGCAAATTTAT spacer length: 129 repeater length: 26
18542 4210823 CAGCAAATTTATACAGCAAATCTATG
ATGGAAAAAGGGTTCAAGTTCAATCAAAAAACGGTTGTGAAAATGGGTTGAATTTTTTCCCTTCTATCTTTCAAATCCGCATAAA
CCTCCACATGAAACCAAAAAATCTCCACTCAAATAAATACTC
18543
18544
18545 crispr 37
18546 1374166 GTACCCACAGAGGTACCCACAGAAGT
GCCAGGAGAGGTACCTGCAGAAGTACCCGCAGAAGTGTCCACAGAAGTGTCCACAGAGGTACCCACAGA spacer length:
69 repeater length: 26
18547 1374262 GTACCCACAGAGGTACCCACAGAAGT ACCCACAGAAGTACCCACAGAAGTACCCACAGA spacer length:
33 repeater length: 26
18548 1374322 GTACCCACAGAGGTACCCACAGAAGT CAAGAAAGAAATAAGTAGTAACAAATAAATAA
18549
18550
18551 crispr 38
18552 683853 TTTTGGCCATTTATGCCGTTGCACGG
GTGGAACATTCCCAAAAGTGAGTAAAGACCTGCAATATCCTGTGCAATTGC spacer length: 51 repeater
length: 26
18553 683931 TTTTGGCCATTTATGCCGTTGCACGG
GTGGAACATTCCCAAAAGTAAAGTAAAGACCTGCAATATCCTGTGCAATTGC spacer length: 51 repeater
length: 26
18554 684009 TTTTGGCCATTTATGCCGTTGCACGG TATGGATCCCATAGAAGTCAATTTGTAAGAAGTCAATTTGTAAGAAGTCACT
18555
18556
18557 crispr 39
18558 485247 TTTTGGTCTTCTTTCTATACCTGGTTT
TCTTTCATCCCGTTCTTTCCCTTAGATGCAGAAGTGGAAACAGCTGCATATAAAGGTGTTAAATGCGAAAATCACGAAGTCCAGCAT
TTTGATTTCCCCCTGATGTG spacer length: 106 repeater length: 27
18559 485381 TTTTGGTCTTCTTTCTATACCTGGTTT
CTTTCATCCTGTCTTACCTTACATGAAGAACTGGAAAAAGCTGTATGCAAAGGTGTTAAATGCGAAAATCAAGAAGTCCAGCATT
TTAATCCCCCGAAACG spacer length: 103 repeater length: 27
18560 485512 TTTTGGTCTTCTTTCTATACCTGGTTT
CTCCTGAAGAGGAAGTGACTTCCGAGGGACCAACAATCATAAGTCCTGAAACTAGTACAAAACTTACACCGTAAGAATAGAGAAC
TTCAGAGCTTCCCCCTC
18561
18562
18563 crispr 40
18564 1966969 TTGTAAGTGAATCTTAGTTTAACTGAAT CTTAGTTTAACTGAATATCA spacer length: 20 repeater
length: 28
18565 1967018 TTGTAAGTGAATCTTAGTTTAACTGAAT
CTTAGTTTAACTGAATCTTAGTTTAACTGAATCTTAGTTTAACTGAATATCATTGTAACGGAATCTTAG
TTTAATTGAATATCA spacer length: 101 repeater length: 28
18566 1967148 TTGTAAGTGAATCTTAGTTTAACTGAAT
AGAAGTCAATTTGTAAGAAGTCAATTTGTAAGAAGTCACTCACTCATTAGCTTCAGGGTCCGCACAAGATCTGTCCTGGAAAGGATTC
CAACCAGATTCCCAT
18567
18568
18569 crispr 41
18570 904891 GAACAATATAATGGGTGACGTGACTAAGA CATGGGGGCAATATAATGGGTGATATGGCTAAGATACGG spacer
length: 39 repeater length: 29
18571 904960 GAACAATATAATGGGTGACGTGACTAAGA TACGGGGAACAATATAATGGGTGACGTGGCTAAGATACGG spacer
length: 40 repeater length: 29
18572 905030 GAACAATATAATGGGTGACGTGACTAAGA ATAACCAAGAAAGAAATAAGTAGTAACAAATAAACC
18573
18574
18575 crispr 42
18576 3675797 GTTTCATCCTTGTTTTAGTGGATTTTGC TCACGGACGGTCATCATCTGCGGGAGTCTCGGTTTGACTAGATCG
spacer length: 45 repeater length: 29
18577 3675872 GTTTCATCCTTGTTTTAGTGGATTTTGC TCACGGACGATACCGGGCAGGAGGCATTGCGAGGGTGCTTTA
spacer length: 42 repeater length: 29
18578 3675944 GTTTCATCCTTGTTTTAGTGGATTTTGC CCACGGACGGCGCGGAGAATGGAATTTTCGATTATGTTTTTTCA
spacer length: 44 repeater length: 29
18579 3676018 GTTTCATCCTTGTTTTAGTGGATTTTGC TCACGGACTGCTTTATTAGGGTTGAACTGCAAATTTATCT
spacer length: 41 repeater length: 29
18580 3676089 GTTTCATCCTTGTTTTAGTGGATTTTGC TCACGGACTGTAGGTGTAAATATTCCAAAACTGAAAGATTAT

spacer length: 43 repeater length: 29
 18581 3676162 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCCTCCACAGATACCCCGGCGTTTTTCATGGTCTCA
 spacer length: 43 repeater length: 29
 18582 3676235 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACATTTAGAGAAAACCGCATAAGCGGGTTTCGACTTT
 spacer length: 43 repeater length: 29
 18583 3676308 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACGTATTGGAACTATATGTACACTACAGCCAAAA
 spacer length: 41 repeater length: 29
 18584 3676379 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACTTTTACCATCCTGATTTTCATGACCTATCATGCAAAT
 spacer length: 44 repeater length: 29
 18585 3676453 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACGCAGCCACGGCGGCGTTTTTGGTTGGAATCAGGTATA
 spacer length: 45 repeater length: 29
 18586 3676528 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCCTTTCCAATATTGGAAAGTGCCGGAAGATGTATC
 spacer length: 43 repeater length: 29
 18587 3676601 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCTAGACGGCGGGAACGTTCCCATATCTACAGCAT
 spacer length: 42 repeater length: 29
 18588 3676673 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCAGGTCCAGTTACGGCAGCCCATAGCCCAAAACAT
 spacer length: 43 repeater length: 29
 18589 3676746 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACACAAGCTCAGCGCCACCAGCCAGTGGAACAGTTCA
 spacer length: 43 repeater length: 29
 18590 3676819 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCCGAGTTTACCCCGCCCGCGTCAAAACACATATCAG
 spacer length: 44 repeater length: 29
 18591 3676893 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCTAATGAATCACTCTCACCCCGGACCGGTGATATA
 spacer length: 44 repeater length: 29
 18592 3676967 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACTTTAGAACTGGGATAAAGAGCTACTTGAAGACTT
 spacer length: 43 repeater length: 29
 18593 3677040 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACTCAGCGAAATCTTTACACCAATGTAATTGAATTTT
 spacer length: 43 repeater length: 29
 18594 3677113 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACACAAAAATGTAAGACACGAATAGAAGAGAACGTACA
 spacer length: 44 repeater length: 29
 18595 3677187 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACGCTATATGTGTTGTGACAATTCGGGGCTCATTG
 spacer length: 42 repeater length: 29
 18596 3677259 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACAAAGCCATGTGATACGACAGGGGAGAGAGAGAATAA
 spacer length: 44 repeater length: 29
 18597 3677333 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACATAGCCCTTGAGCATGTATGGCTATGGTCCTCA
 spacer length: 42 repeater length: 29
 18598 3677405 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACGGCTGAGAGAAATACAAATAGCTGGAGCATTACGA
 spacer length: 43 repeater length: 29
 18599 3677478 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACACCATGACCAGCGACTTCATCGATAACGGAAACGA
 spacer length: 43 repeater length: 29
 18600 3677551 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACGGGACTTGAAGCAGGCGACCCGGACAAAGGTGGAAG
 spacer length: 44 repeater length: 29
 18601 3677625 GTTTCAATCCTTGTTTTAGTGGATTTTGC
 TCACGGACAAAGAAATATAAAAAACCCTAGCCAAATACAGGCTCAGATATCAGCTGTATTAGGCGAAGGCAGACATTTACTAGTAAAG
 TATAAGGGGAAAAACAGAGGCATAGGGAAAACACCAAGTATTTGACGATCGACGAAG spacer length: 144
 repeater length: 29
 18602 3677799 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACTTGTCTTATTACCTCGATCAATCGACCAAGTTTT
 spacer length: 43 repeater length: 29
 18603 3677872 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCCCTTCATCATCTATGAGCCTGCTTCCATCATCT
 spacer length: 42 repeater length: 29
 18604 3677944 GTTTCAATCCTTGTTTTAGTGGATTTTGC TCACGGACCCCGGTAATTCGTGCCTACATCAGCTTTTGGCGTTGT
 spacer length: 45 repeater length: 29
 18605 3678019 GTTTCAATCCTTGTTTTAGTGGATTTTGC ACCAAGAAAGAAATAAGTAGTAATAACAAAATAACCGTGATAAG
 18606
 18607
 18608 crispr 43
 18609 1292399 CCTGTTCTTTGTCCGGCACATCTTTAAAAA
 AAATTCCAAGTGAAGCTGTCGCTTCCAGTCGCAAATCTCTTTTTTTATCTGGATATTCAAACCACTTAAAAGTGCTATTCCCACG
 TGCCATAGAACACTTTTGTCTTTATCTGAAGCCATTCTGTGTACATCTTGCCAC spacer length: 140 repeater
 length: 30
 18610 1292570 CCTGTTCTTTGTCCGGCACATCTTTAAAAA
 TAGTTCTAATTGCTCCTGCCGCTTCTATTTCGCACCTTTCTGTTTTTATCTGAAGTCAGCCTGTGTACATCTTGCCAC spacer
 length: 77 repeater length: 30
 18611 1292678 CCTGTTCTTTGTCCGGCACATCTTTAAAAA
 TAGTTCTAATTGCTCCTGCCGCTTCTATTTCGCACCTTTCTGTTTTTATCTGAAGTCAGCCTGTGTACATCTTGCCAC spacer
 length: 77 repeater length: 30
 18612 1292786 CCTGTTCTTTGTCCGGCACATCTTTAAAAA
 TAGTTCTAATTGCTCCTGCCGCTTCCCTTCGCACCCCGCTGTTTTTCGTCTGAAGTCAGCCTGTGTACATCTTGCCAC spacer
 length: 77 repeater length: 30
 18613 1292894 CCTGTTCTTTGTCCGGCACATCTTTAAAAA
 GGGTTTCTCGGCTTCTTCAACCTGATCCATGAAAGTTGGAATACATCTCAAATCGATAAAACCTGGTTTTTTTCTAA
 18614

18615
 18616 crispr 44
 18617 2277977 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATCTTGTAATCGGGTCAACATCTCACACTAATTGTTAT
 spacer length: 43 repeater length: 30
 18618 2278051 GTTTC AATCCTTGTTTTAGTGGATCTTGCT AACGAATCAGTGATAATATGTACAACAAAATACACA ACTA
 spacer length: 41 repeater length: 30
 18619 2278123 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATCCCATGCTTACTCGTGCTGCAGGTCAGACTACTCA
 spacer length: 43 repeater length: 30
 18620 2278197 GTTTC AATCCTTGTTTTAGTGGATCTTGCT AACGAATCTGACCAAAATATCAGGATTACCAATAGATTACCGT
 spacer length: 43 repeater length: 30
 18621 2278271 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATACTGCCTTATGGACA ACTGGTGACGGCATTGTTGAT
 spacer length: 43 repeater length: 30
 18622 2278345 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATGAGCTGAACGAACCTGACAGGACAGACGCGAAGA
 spacer length: 41 repeater length: 30
 18623 2278417 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATTTCTCGGTATCCGTCTTTCTCTCCCTCGTAACCGAA
 spacer length: 43 repeater length: 30
 18624 2278491 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATTTCTATACACTGTTTGTTCTCCGTTTATCAT spacer
 length: 38 repeater length: 30
 18625 2278560 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATACGCGTTACAAGGTCCCAAGCTTCAGGCAGTGTTA
 spacer length: 42 repeater length: 30
 18626 2278633 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATAAATTCACGGAGGGCGCTCAGGCTCTCGTCGGGT
 spacer length: 41 repeater length: 30
 18627 2278705 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATACCGCACTCACTGAGGTAGCCATGAGTCAGGACG
 spacer length: 41 repeater length: 30
 18628 2278777 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATGGGTGTGAGTTGGAACCTTCTTTTGCA TTGAAATG
 spacer length: 42 repeater length: 30
 18629 2278850 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATAAATTAGAGTTGTATCGACAAGAGAAGAATTACAT
 spacer length: 42 repeater length: 30
 18630 2278923 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATGCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTG
 spacer length: 43 repeater length: 30
 18631 2278997 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATGCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTG
 spacer length: 43 repeater length: 30
 18632 2279071 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATTTATTCCAATGTCAAAGGCCACTTTGATGGAGGATG
 spacer length: 43 repeater length: 30
 18633 2279145 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCCGGGGATTCTCGGGAGGAAAGGGAGAAGTTGG
 spacer length: 41 repeater length: 30
 18634 2279217 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATATAGGCGGTTGCATAGGCATTATAATCTTTGTACCT
 spacer length: 43 repeater length: 30
 18635 2279291 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCGGTGTTAAACAGTTAGAGAGATGATGGGATACTCC
 spacer length: 43 repeater length: 30
 18636 2279365 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATTCATACGCGGTTGCGGGGGATAGTGCGTATTTGCGG
 spacer length: 43 repeater length: 30
 18637 2279439 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCTGAATCCGGCATACCGTCTACAAAATGGACCGAT
 spacer length: 42 repeater length: 30
 18638 2279512 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCTGCCGTCTGGCATGGTTTCCACGTGCTCGAAATCT
 spacer length: 43 repeater length: 30
 18639 2279586 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATGGGGGTGTGTTGTTTCGGGGTCATGTCGTATCCTGA
 spacer length: 42 repeater length: 30
 18640 2279659 GTTTC AATCCTTGTTTTAGTGGATCTTGCT
 CAAGAATTACAGCAGCACCTACGCCTGCGGCGATTACACCGGCAGGCCAAATTT spacer length: 55 repeater
 length: 30
 18641 2279745 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCGGTGCGGAAGCCTGCCCCAAACTTGATTTTTTG
 spacer length: 41 repeater length: 30
 18642 2279817 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCTCTCCGTTTCCCGTCCCGCTTAATAGCTGCTGG
 spacer length: 42 repeater length: 30
 18643 2279890 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATGTTCTCAGTGCGTTTGTGTCAGGGATAACCTGATTC
 spacer length: 42 repeater length: 30
 18644 2279963 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCTTACTGTATACTCTACTATGCAACCTAACT
 spacer length: 40 repeater length: 30
 18645 2280034 GTTTC AATCCTTGTTTTAGTGGATCTTGCT
 CAAGAATTTATACATACATATACATATACATATACTTACTCTCT spacer length: 49 repeater length:
 30
 18646 2280114 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATGATCTCCCTGCAGTCTTCCAAAATTCAGGATTT
 spacer length: 42 repeater length: 30
 18647 2280187 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATACGTGGACCTCGGGGCCACATATTCAAATCCA ACT
 spacer length: 42 repeater length: 30
 18648 2280260 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATTCAGCCCCCTACCCTGCAGTCGTGGAATGAGAGTG
 spacer length: 42 repeater length: 30
 18649 2280333 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATCTGAATAAAATCTGTGATACTTTTCACGATGAA
 spacer length: 40 repeater length: 30
 18650 2280404 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CAAGAATTTAGCCCCCTTTGAGTACCCGAAGCCGCGGACTG

spacer length: 41 repeater length: 30
 18651 2280476 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATCTCAGCCGACTACGCCACCACACCAGTACAATACA
 spacer length: 42 repeater length: 30
 18652 2280549 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATAGGATATTTGACCAATAGTTACCCCTCCAATATTT
 spacer length: 42 repeater length: 30
 18653 2280622 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATCCGTTTTTCGAAGTTTTATATGAACCGTGGTATAA
 spacer length: 41 repeater length: 30
 18654 2280694 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATTCATTGATTTTTGGGTCCGTGTCCGGTTGCCATGC
 spacer length: 42 repeater length: 30
 18655 2280767 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATCCGGGATCATTGACAGAATAGACTGTGGAGTATA
 spacer length: 41 repeater length: 30
 18656 2280839 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATTTTTATAATCCTGATATTTCCGGAAAATTGAAGGC
 spacer length: 42 repeater length: 30
 18657 2280912 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATACGCATCCGAATGGACCGACGTGGCCACCAAGTGG
 spacer length: 42 repeater length: 30
 18658 2280985 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATCCTATTGAAATATGTCTCAGGCAGGGACACACAGAA
 spacer length: 43 repeater length: 30
 18659 2281059 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATACCAACATCCGGAAGAATGGCATAACCCGGATTTCA
 spacer length: 43 repeater length: 30
 18660 2281133 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATATCACAAATGGGTTAAACTATGAATCTCTCAAAAG
 spacer length: 42 repeater length: 30
 18661 2281206 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATTGTATGAATTTATGAGAGAAAAAGGGGAATTTTGA
 spacer length: 42 repeater length: 30
 18662 2281279 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATATTTCCGGTTCGATGGTCCTGAAAGTAGGCGGGACA
 spacer length: 42 repeater length: 30
 18663 2281352 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATAAATCGTTATTATTTCCCGTGGGAAAATAGACCCTCTA
 spacer length: 45 repeater length: 30
 18664 2281428 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATGGCCAAAATCCCTAAATGCCTACTCCCGGAAGTGAT
 spacer length: 43 repeater length: 30
 18665 2281502 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATATAGATAGCTCGGGCAACGGAAACAACGGGACG
 spacer length: 40 repeater length: 30
 18666 2281573 GTTTCAATCCTTGTTTTAGTGGATCTTGCT CAAGAATGCCTTTGTCCCGTCCGATGTGTATATACCATTCCG
 spacer length: 42 repeater length: 30
 18667 2281646 GTTTCAATCCTTGTTTTAGTGGATCTTGCT GAGAAGAAAAAGAGAGAAGAAGAGAGAAGGAGAATAGGTGTA
 18668
 18669
 18670 crispr 45
 18671 683032 GGATGTAAAAACGGTTCAATTTCAATCAAAAA ACGTTGCTAAACTCGGTCTGAAGTTGATTCAAAAA spacer
 length: 34 repeater length: 32
 18672 683099 GGATGTAAAAACGGTTCAATTTCAATCAAAAA ACGTTGCTAAACTCGGTCAAAGTTGATTCAAAAA spacer
 length: 35 repeater length: 32
 18673 683167 GGATGTAAAAACGGTTCAATTTCAATCAAAAA TTTATTTACCCAATGACAGTAAAGCTTTTTTCATTA
 18674
 18675
 18676 crispr 46
 18677 931682 TTCATCAGTCACTTCATCCTGTTCTTCGTCAAT CACTTCACCAGCTTCTGGGATGTAGAACTGCCAT spacer
 length: 35 repeater length: 33
 18678 931751 TTCATCAGTCACTTCATCCTGTTCTTCGTCAAT TACTTCACCAGCTTCTGGGATGTAGAACTGCCAT spacer
 length: 35 repeater length: 33
 18679 931820 TTCATCAGTCACTTCATCCTGTTCTTCGTCAAT TTCGCCTTAACAATCTGGCTGGAGTTTATCAAGAT
 18680
 18681
 18682 crispr 47
 18683 690956 CGGTTCAATATTCAAAAAACGGTTCAATATTCAA AAACGGTTCAATATTCAAAA spacer length: 20
 repeater length: 34
 18684 691011 CGGTTCAATATTCAAAAAACGGTTCAATATTCAA AAACGGTTCAATATTCAAAAACGGTTCAATATTCAAAA
 spacer length: 38 repeater length: 34
 18685 691084 CGGTTCAATATTCAAAAAACGGTTCAATATTCAA AGCTAACCTTGATGGGGCTAACCTTGATGGGGCTGACC
 18686
 18687
 18688 crispr 48
 18689 2487554 GAATCACAGAAAAAGCGCTTGCCCTGAACATCC
 AGATGTAGGTACTTTCTTAAACAATCTGGCTGTAGTTTATCAAGATTTAGGCAGGTCTTCTGAAGCCGAACCTCTCAATATTCTGTT
 CCCTG spacer length: 91 repeater length: 34
 18690 2487680 GAATCACAGAAAAAGCGCTTGCCCTGAACATCC
 GATTGTAGGTACTTGCCTTAAACAATCTGGCTCTAGTTTATCAAGATTTAGGTAGATCTTCCGAAGCCGAATCTCTCAATATTCTGTG
 CCCTG spacer length: 91 repeater length: 34
 18691 2487806 GAATCACAGAAAAAGCGCTTGCCCTGAACATCC
 AACCTCAAAAAAGGGGAATCTAACCTCAAAAAAGGGGAACAAACCTCGACCCTCTTCTGGTAGAAAAGGTACTGCTGGGCG
 TAACC
 18692

18693
18694 crispr 49
18695 2254317 TCAATGGCTTCATTGTATTTTGTAAAGTTTCACTTC
ATCTTCTTTCTCAATCTGCCCAAGTTCACGAAGAGTAAGACCTTTATCGTACCAAGCCTCTGGAGAATCATTCTTAATTCCTATAG
CTTTGTCAAAAGC spacer length: 99 repeater length: 35
18696 2254452 TCAATGGCTTCATTGTATTTTGTAAAGTTTCACTTC
GTTTTCTTGCTCAATTTTCGCCAAGTTCACGAAGAGCAATACCTTTAAAATGCCAGGAATCTGAATAATCATTTTTTAAATCCTATAG
CTTTGGAGAAAAGC spacer length: 99 repeater length: 35
18697 2254587 TCAATGGCTTCATTGTATTTTGTAAAGTTTCACTTC
CATCATTACTTACCATGTTGCCGGTAAACACGTTGGAATCGCAATCTTCGTAAAGGTAAATTCCATAACAATCTTCATCGGAATCA
CCGGCATTGCTCA
18698
18699
18700 crispr 50
18701 2546720 ACGAAGAAGATAACTAAGTAGTAATAATAAAATAA CCAAGAAATAGCTGACTAAT spacer length: 20
repeater length: 36
18702 2546777 ACGAAGAAGATAACTAAGTAGTAATAATAAAATAA CCAATAAATAGCTGACTAAT spacer length: 20
repeater length: 36
18703 2546834 ACGAAGAAGATAACTAAGTAGTAATAATAAAATAA GTAGTAATAACAAAATAAC
18704
18705
18706 crispr 51
18707 2475212 ATTTTCAGGAGATTCAATTTCCGAAGATTTCGAGTTCA
GAAGATTCAATTTCCGAAGATTTCGAGTTCAAGAGATTCAATTTTCAGGAGATTCAATTTTCAGGAGATTCAATTTTCAGGAGATTCAAT
TTCAGGAGATTCAATTTTCAGGAGATTTC spacer length: 113 repeater length: 36
18708 2475362 ATTTTCAGGAGATTCAATTTCCGAAGATTTCGAGTTCA
AGAGATTCAATTTTCAGGAGATTCAATTTTCAGGAGATTCAATTTTCAGGAGATTCAATTTTCAGGAGATTTC spacer length:
68 repeater length: 36
18709 2475467 ATTTTCAGGAGATTCAATTTCCGAAGATTTCGAGTTCA
TATCTTGACATCTTTAATATTATCAATAAGTGCATTTAGTGCTCCCCATCGCACCCCTGCTGTTTTTA
18710
18711
18712 crispr 52
18713 2794713 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TACATTATTTGTGGATATTTGTATCCAACTTTCACC
spacer length: 36 repeater length: 37
18714 2794787 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AATTTCGACGATATTTCATGTTGCTGCGTAAAATAAA
spacer length: 35 repeater length: 37
18715 2794860 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AAAGTGTAAGATCAAAAAAAAAATATATGATT
spacer length: 33 repeater length: 37
18716 2794931 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CGAAATACGCGACCCTGACCACGGCCAAGTTGACC
spacer length: 35 repeater length: 37
18717 2795004 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATTTTGTGCTAGTGATGGTCGGGGCGGTGAAGGGG
spacer length: 35 repeater length: 37
18718 2795077 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC GTGAACTCGCCATGCTCAACGCAATTGCTCAGGGT
spacer length: 35 repeater length: 37
18719 2795150 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CCGAAAACGCAAACTATAAATATTGAAATCTG
spacer length: 33 repeater length: 37
18720 2795221 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TGATTCTTACTGGTTAAATGCTTCTTTACACCCTG
spacer length: 35 repeater length: 37
18721 2795294 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTACCGTGTACCCTGCCGCCGTAGCCTGGGATGT
spacer length: 34 repeater length: 37
18722 2795366 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AAATGGGTACGTTACTGACCGACATTAAGACACT
spacer length: 34 repeater length: 37
18723 2795438 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AGGAATGGATAGAAGAACTCAAAGCCGATTCTGAG
spacer length: 35 repeater length: 37
18724 2795511 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATATAAACCCAACTACCCTAGGGTATGTAATTTCA
spacer length: 35 repeater length: 37
18725 2795584 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TGTCTGAGAATTAAATCCCCTGTCCCGACAGTGTA
spacer length: 35 repeater length: 37
18726 2795657 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTGGAAAATGACTGATTGACGCAATCAAACAGGTCC
spacer length: 36 repeater length: 37
18727 2795731 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATTTTCGACTGCGCCCCCGTAGAGGGTTGCGTCGAT
spacer length: 35 repeater length: 37
18728 2795804 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TGTGTTATCCATGAGCTGACGGCCAACATTACA
spacer length: 34 repeater length: 37
18729 2795876 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AAAATCCTGCAGTTTCTGGGAAATTGCAGGCAG
spacer length: 33 repeater length: 37
18730 2795947 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CTCTTTCATTGTGGGCTGTGTAAATTTGAGCCCG
spacer length: 34 repeater length: 37
18731 2796019 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ACAGTTACAAACTTCTGTATTAGTTCTTTGTCCAT
spacer length: 35 repeater length: 37

18732	2796092	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATGACGTTCCCAGTGATTGATATATTTTCCAATGT
		spacer length: 35 repeater length: 37	
18733	2796165	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CAGTACCAATTATTTCTAAAATATTACAATTGTTT
		spacer length: 35 repeater length: 37	
18734	2796238	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TATATAGCACTATCTTTTACATAGCCAAAGCTATACAT
		spacer length: 38 repeater length: 37	
18735	2796314	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATAATTATCTAACAAATCTTAAAATAGCTTTGGCCG
		spacer length: 36 repeater length: 37	
18736	2796388	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TACACCTCATCCACAGAAAAACCGGTCCATTCAACAA
		spacer length: 37 repeater length: 37	
18737	2796463	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CCATCAGAGATAAAGCTCTGATAGCTTTTTTTAT
		spacer length: 33 repeater length: 37	
18738	2796534	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTTAAGCGGATTCTCCAAAAAATCAAAGACGAATG
		spacer length: 35 repeater length: 37	
18739	2796607	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	GAAAAATATTGGGACACCCTACGTAACCTGGGATAT
		spacer length: 36 repeater length: 37	
18740	2796681	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TACCCGCCCTCAAATGTTTCTGAGATGATCCCGGTG
		spacer length: 36 repeater length: 37	
18741	2796755	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATACTCCTTCTCCCTTCTCCGGCTTTGTGTTTCAGT
		spacer length: 35 repeater length: 37	
18742	2796828	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTGAATGGGTAGTTATAGGGCGTTCACCGTACAT
		spacer length: 35 repeater length: 37	
18743	2796901	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ACCATTGTTTCGCAACCTGCCCGGAGTGGTAAAC
		spacer length: 35 repeater length: 37	
18744	2796974	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTGTATTGTAGGTAAATGTACCTACGGAGGATCTA
		spacer length: 35 repeater length: 37	
18745	2797047	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AGTGTGCTATACATTTTGGGAATGTATTGATT
		spacer length: 33 repeater length: 37	
18746	2797118	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AAATCTGATGTTGGGGGAGATGTGACCTGTTCTGA
		spacer length: 35 repeater length: 37	
18747	2797191	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATTTTTAAGAGGTCCAAACCATGCCAAAAGTATC
		spacer length: 34 repeater length: 37	
18748	2797263	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TGTTTACTATTTGTGTTCTTACTTTCCCTCCAAAATT
		spacer length: 37 repeater length: 37	
18749	2797338	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATAAGTCCACGATGAAAAACGGGCTTGAAGGGATT
		spacer length: 36 repeater length: 37	
18750	2797412	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	AAAAAGTATAAGGTATGATGTATCTACGAGATTGC
		spacer length: 35 repeater length: 37	
18751	2797485	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATCTATTATCCCGAATTAAAAACTGTGCAGAAG
		spacer length: 33 repeater length: 37	
18752	2797556	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TAAGTGCGGCCTTTGTAGCCAGTAAAGCCCCTGCAA
		spacer length: 36 repeater length: 37	
18753	2797630	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TCCCCGAGTGCCCCGCCAGAGGTTCCAGGAATTCA
		spacer length: 36 repeater length: 37	
18754	2797704	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTGAAGCCGGTATAGGATGGGCTGAAGAAAATAA
		spacer length: 34 repeater length: 37	
18755	2797776	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	GTATTTGGAGACATAACAGCCCGTAATACAGGCA
		spacer length: 34 repeater length: 37	
18756	2797848	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	CGTAAACGGTGCATCAGGCTACACTCTTGAATGC
		spacer length: 34 repeater length: 37	
18757	2797920	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTTTGTACCATCTGGTACTCGGTCATGAGCCCCA
		spacer length: 34 repeater length: 37	
18758	2797992	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TATGGATACTCCTTTCTTGAACTTGCGGCGGGG
		spacer length: 34 repeater length: 37	
18759	2798064	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATCATATTCATGATTTTCTATTACACACATCCTTA
		spacer length: 35 repeater length: 37	
18760	2798137	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTCATACAGTCACCCCAAACCAACCAAGAATTTTT
		spacer length: 35 repeater length: 37	
18761	2798210	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTGAGATAAAAGACTCTACTCAATTTGAAAACCGGCC
		spacer length: 37 repeater length: 37	
18762	2798285	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ATGGGAGTTGAAGCTGTTGCCGATGCCATGACCG
		spacer length: 34 repeater length: 37	
18763	2798357	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	ACAATTTTGAAAAATTGCTTGTAATCCATATAAAA
		spacer length: 35 repeater length: 37	
18764	2798430	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TCCGGATTGTTAAGTGTTTTTGTGATTTCTTGTTT
		spacer length: 35 repeater length: 37	
18765	2798503	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTCTGTTGTTCAATAGAATGGTAAGAAATTAAA
		spacer length: 33 repeater length: 37	
18766	2798574	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	TTCTGTTGTTCAATAGAATGGTAAGAAATTAAA
		spacer length: 33 repeater length: 37	
18767	2798645	GTCCGTGAGCAAAATCCACTAAAACAAGGATTGAAAC	GTAACCGAGTTTGAATTGTTGGTCAGGAAATCATA

spacer length: 35 repeater length: 37
 18768 2798718 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TAATACCAACCGGTGCGACCTGGCATGTTAGGGAAG
 spacer length: 36 repeater length: 37
 18769 2798792 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACAACAGCAATAATAAAATGAGTACCCGGAAACA
 spacer length: 35 repeater length: 37
 18770 2798865 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACAACACATTATACATCATGGCAATAGTCATACA
 spacer length: 35 repeater length: 37
 18771 2798938 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACAACACATTATACATCATGGCAATAGTCATACA
 spacer length: 35 repeater length: 37
 18772 2799011 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ACATTCTCGATGTCCAAGTGTTCGCCATTCTCC
 spacer length: 34 repeater length: 37
 18773 2799083 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ACCGTTGTCGCTCCTAACGGCTCCACACAATCAAC
 spacer length: 35 repeater length: 37
 18774 2799156 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TGTCACTGTGTCGATCTGCAGGACTCCGTTTTTTTCC
 spacer length: 36 repeater length: 37
 18775 2799230 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC AATAGAGAATTTTTTGATCTGGCGCAAAGTTCTGA
 spacer length: 35 repeater length: 37
 18776 2799303 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TATAAAAGATATGAAAAATGCGGAGATGGCAGAAA
 spacer length: 35 repeater length: 37
 18777 2799376 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC ATTGGTCTTCGGTCAAGGCTTGCTTTTTTGAGAGCAG
 spacer length: 36 repeater length: 37
 18778 2799450 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTCCCTGGGGATTATTATATCTGGATCTCGTGATC
 spacer length: 35 repeater length: 37
 18779 2799523 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC GATACTGTATACATAGCATGTGAGGGAAGTTCTAATA
 spacer length: 37 repeater length: 37
 18780 2799598 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TAATCCAGCAATCGCCCTCAAAAATATGATCAGTA
 spacer length: 35 repeater length: 37
 18781 2799671 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TAAGTATCAGCGTAAAGATCTGATATAGATTCT
 spacer length: 33 repeater length: 37
 18782 2799742 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC
 AATTTGCATATAAACAAATATAATCATTATTTTCGTTTGTCCGTGAGCAAAAATCCACTAAAAAAGGATTGAAACAAAAAGCGTCCAT
 GTCATCCACCCCTTAAAAAT spacer length: 106 repeater length: 37
 18783 2799886 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC CACTGAACTAAATCAGCTATCGGAAGATCAATTAAAA
 spacer length: 37 repeater length: 37
 18784 2799961 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC TTGATAAGCTCCTCAATAAAGTCTCGGTAATCCTC
 spacer length: 35 repeater length: 37
 18785 2800034 GTCCGTGAGCAAAAATCCACTAAAACAAGGATTGAAAC GTCCGGCACATCTTTAAAAAAATTTCCAAGTGAAG
 18786
 18787
 18788 crispr 53
 18789 2805120 GTCCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCGGGTTAACAGCCGCGAGCCGTGAAAGATGATC
 spacer length: 33 repeater length: 37
 18790 2805191 GTCCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTGGGCGGTATCGATATTAGGGTTATGGATGT
 spacer length: 34 repeater length: 37
 18791 2805263 GTCCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAATCAAAAAACGTTGCTAAACTCGGTCAAAGT
 18792
 18793
 18794 crispr 54
 18795 2278417 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTCCTGGTATCCGTCTTTCTCTCCCTCGTAACCGAA
 spacer length: 36 repeater length: 37
 18796 2278491 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTCATACACTGTTTGTTCTCCGTTTATCAT spacer
 length: 31 repeater length: 37
 18797 2278560 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACGCGTTACAAGGTCCCAAGCTTCAGGCAGTGTTA
 spacer length: 35 repeater length: 37
 18798 2278633 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AAATTCACGGAGGGCGCTCAGGCTCTCGTCGGGT
 spacer length: 34 repeater length: 37
 18799 2278705 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACCGCACTCACTGAGGTAGCCATGAGTCAGGACG
 spacer length: 34 repeater length: 37
 18800 2278777 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GGGTGTGAGTTGGAACCTTCTTTTGCATTGAAATG
 spacer length: 35 repeater length: 37
 18801 2278850 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AAATTAGAGTTGTATCGACAAGAGAAGAATTACAT
 spacer length: 35 repeater length: 37
 18802 2278923 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTG
 spacer length: 36 repeater length: 37
 18803 2278997 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GCCATTCTAGGTGTGGCGATTATTGGAAAGGAACTG
 spacer length: 36 repeater length: 37
 18804 2279071 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTATTCCAATGTCAAAGGCCACTTTGATGGAGGATG
 spacer length: 36 repeater length: 37
 18805 2279145 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGGGGATTTCTCGGGAGGAAAGGGAGAAGTTGG
 spacer length: 34 repeater length: 37
 18806 2279217 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ATAGGCGGTTGCATAGGCATTATAATCTTTGTACCT

spacer length: 36 repeater length: 37
 18807 2279291 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGTGTAAACAGTTAGAGAGATGATGGGATACTCC
 spacer length: 36 repeater length: 37
 18808 2279365 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCATACGCGGTTGCGGGGATAGTGCCTATTTGCGG
 spacer length: 36 repeater length: 37
 18809 2279439 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGAATCCGGCATAACCGTCTACAAAATGGACCGAT
 spacer length: 35 repeater length: 37
 18810 2279512 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGCCGTCTGGCATGGTTTCCACGTGCTCGAAATCT
 spacer length: 36 repeater length: 37
 18811 2279586 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GGGGGTGTGTTGTTTCGGGGTCATGTCGTATCCTGA
 spacer length: 35 repeater length: 37
 18812 2279659 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT
 TACAGCAGCACCTACGCTGCGGCGATTACACGGCAGGCCAAATTT spacer length: 48 repeater length: 37
 18813 2279745 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGTCGGGAAGCCTGCCCCAACTTGATTTTTTG
 spacer length: 34 repeater length: 37
 18814 2279817 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTCTCCGTTTCCCGTCCCGCTTAATAGCTGCTGG
 spacer length: 35 repeater length: 37
 18815 2279890 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GTTCTCAGTGCCTTGTGCACGGGATAACCTGATTC
 spacer length: 35 repeater length: 37
 18816 2279963 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCTTACTGTATACTCTACTATGCAACCTAACT
 spacer length: 33 repeater length: 37
 18817 2280034 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT
 TTATACATACATATACATATACATATACAATACTTACTCTCT spacer length: 42 repeater length: 37
 18818 2280114 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GATCTCCCTGCAGTCTTCCAAAATTCAGGATTT
 spacer length: 35 repeater length: 37
 18819 2280187 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACGTGGACCTCGGGGCCACATATTCAAATCCAACT
 spacer length: 35 repeater length: 37
 18820 2280260 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCAGCCCCCTACCCTGCAGTCGTGGAATGAGAGTG
 spacer length: 35 repeater length: 37
 18821 2280333 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTGAATAAAATCTGTGATACTTTTCACGATGAA
 spacer length: 33 repeater length: 37
 18822 2280404 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTAGCCCCCTTTTGAGTACCCGAAGCCGCCGACTG
 spacer length: 34 repeater length: 37
 18823 2280476 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CTCAGCCGACTACGCCACCACACAGTACAATACA
 spacer length: 35 repeater length: 37
 18824 2280549 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AGGATATTTGACCAATAGTTTACCCTCCAATATTT
 spacer length: 35 repeater length: 37
 18825 2280622 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGTTTTTCGAAGTTTTATATGAACCGTGGTATAA
 spacer length: 34 repeater length: 37
 18826 2280694 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCATTGATTTTTGGGTCCGTGTCCGTTGCCATGC
 spacer length: 35 repeater length: 37
 18827 2280767 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCGGGATCATTGACAGAATAGACTGTGGAGTATA
 spacer length: 34 repeater length: 37
 18828 2280839 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TTTTATAATCCTGATATTTCCGGAAAATTGAAGGC
 spacer length: 35 repeater length: 37
 18829 2280912 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACGCATCCGAATGGACCGACGTGGCCACCAAGTGG
 spacer length: 35 repeater length: 37
 18830 2280985 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT CCTATTGAAATATGTCTCAGGCAGGGACACACAGAA
 spacer length: 36 repeater length: 37
 18831 2281059 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ACCAACATCCGGAAGAATGGCATAACCCGGATTTCA
 spacer length: 36 repeater length: 37
 18832 2281133 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ATCACAAATGGGTTAACTATGAATCTCTCAAAAG
 spacer length: 35 repeater length: 37
 18833 2281206 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TGTATGAATTTATGAGAGAAAAAGGGGAATTTTGA
 spacer length: 35 repeater length: 37
 18834 2281279 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ATTTCCGGTCGATGGTCCTGAAAGTAGGCGGGACA
 spacer length: 35 repeater length: 37
 18835 2281352 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AAATCGTTATTATTTCCCGTGGGAAAATAGACCCTCTA
 spacer length: 38 repeater length: 37
 18836 2281428 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GGCCAAAATCCCTAAATGCCTACTCCCGGAAGTGAT
 spacer length: 36 repeater length: 37
 18837 2281502 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT ATAGATAGCTCGGGCAACGGAAACAACGGGACG
 spacer length: 33 repeater length: 37
 18838 2281573 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT GCCTTTGTCCCGTCCGATGTGTATATACCATTCCG
 spacer length: 35 repeater length: 37
 18839 2281646 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT AAAAGGCACTCATGCTGCAGGGGACCGGATCAAACG
 spacer length: 36 repeater length: 37
 18840 2281720 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCAAGAAT TCTCGAAGTGATCATTATGAAGTTATCCGATATTGA
 18841
 18842
 18843 crispr 55

18844 3702264 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
TCGAAAAGTGTGTAGATATGATGAACAAAAAATGGCATTTAG spacer length: 42 repeater length: 37

18845 3702344 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TATATATACACCATTCTGAAGAATTTACGATAAAAT
spacer length: 35 repeater length: 37

18846 3702417 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGCAAAACATGATGCCCCCTATGGGTTTTTTTGAG
spacer length: 34 repeater length: 37

18847 3702489 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC ATCATAACCAAGACCGACTACTAATAGGAAAGGTAG
spacer length: 36 repeater length: 37

18848 3702563 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TAAACGAATAAGAAAAACATGTATAAATGGTTTTAGA
spacer length: 37 repeater length: 37

18849 3702638 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTGGTAATAGTTGCCATACTTGCACTTCTGCTTAT
spacer length: 35 repeater length: 37

18850 3702711 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGTGCAGTGAAGGGGTACTGCACAATAAAAAATAGTA
spacer length: 37 repeater length: 37

18851 3702786 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CGGAATTTGTTCCGATGACTGATGATGGATATTTAT
spacer length: 36 repeater length: 37

18852 3702860 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CAGATGGTTGCAGGACAGTCCCAGGGTGGATGAGC
spacer length: 35 repeater length: 37

18853 3702933 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GAGGAAAAGCATGAAATATTACCCTATACTTTTTATT
spacer length: 36 repeater length: 37

18854 3703007 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CCTTGAATGCGACAGAAAACCGCTCTGCCACCCTG
spacer length: 35 repeater length: 37

18855 3703080 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TAGAAGGGCTGGAAATACAGCAGGAAGCTTTGTT
spacer length: 34 repeater length: 37

18856 3703152 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AATGGACCTGATCCGCAACCTGTAACAATACAGGT
spacer length: 35 repeater length: 37

18857 3703225 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AATGGACCTGATCCGCAACCTGTAACAATACAGGT
spacer length: 35 repeater length: 37

18858 3703298 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TCATAAAGGAGTTAAGAAATGAACCCCCCAAATT
spacer length: 35 repeater length: 37

18859 3703371 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC ATCATGATGATAGAAGTAGATTAAGGAAAGGTGAGAAG
spacer length: 38 repeater length: 37

18860 3703447 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GACGAAAACCTCGCCACCAATTGTGTGGCTTAAG
spacer length: 34 repeater length: 37

18861 3703519 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GATAAATAATTAATCTATCACAATTTTAAATTATT
spacer length: 35 repeater length: 37

18862 3703592 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
TGAGGCAGAACTCGTCGTAAATGAAGAAGGTATATAGG spacer length: 39 repeater length: 37

18863 3703669 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GTCGTAGTTATGGGTGCTTTGTTCTTGGTATCCTC
spacer length: 35 repeater length: 37

18864 3703742 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTAAGGAAGCAATCTCTTGTGGCCTCTTGGTTATAA
spacer length: 36 repeater length: 37

18865 3703816 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TTTGGTGGCGAGCGGAGTATGTATATCTGCAAGTG
spacer length: 35 repeater length: 37

18866 3703889 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TATCCTCTTCGGCGTGTTTAATGTACTCAATTCTG
spacer length: 34 repeater length: 37

18867 3703961 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CTTTTCTTCTTTAATTACTGGCTATAGATTGCGT
spacer length: 35 repeater length: 37

18868 3704034 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CAAGGAAGATGCACAAGAGCTTCTTAAACAAGCGAC
spacer length: 36 repeater length: 37

18869 3704108 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GGGAGGATTGACAGATATTACTATTATGTAATAGTTG
spacer length: 37 repeater length: 37

18870 3704183 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC CCACATACTTCAGCAAAGGATACGGGCATCACG
spacer length: 33 repeater length: 37

18871 3704254 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
AAAAATGTGACTGAATCCCAACAGTCACCTGAAGAGGTGA spacer length: 39 repeater length: 37

18872 3704331 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGTTACTTTCTGGCATTGAAAACAAAAAACA
spacer length: 35 repeater length: 37

18873 3704404 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GGACCGAAAGACATCTTTAAAATCGCTCTTTACG
spacer length: 34 repeater length: 37

18874 3704476 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TGGCGAGTCCGAAAAAGAAGCAGTCTCGGTTCTAAA
spacer length: 36 repeater length: 37

18875 3704550 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC TCGATTTGGCTTAGCCCAGGCAATACGAAAAGTAA
spacer length: 35 repeater length: 37

18876 3704623 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC AGAAGAGGCAAGGAAAAGTAATGCGAGGAATGTA
spacer length: 34 repeater length: 37

18877 3704695 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC
AAGGCAATGGATATGGCAAAGGCAAGATGATTGTTTGT spacer length: 41 repeater length: 37

18878 3704774 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GATTGGTGCCAATTTTGTCTTTTCTGTTATAT
spacer length: 33 repeater length: 37

18879 3704845 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTGCAAC GACAGGGGCTTATCAAATAAAAAACAATTAAATCTA

spacer length: 37 repeater length: 37
 18880 3704920 GTTTC AATCCTTGT TTTGCTGGAAGCTG TTTTGCAAC GTCCTAAATGTGGGACGGAAGACAATGAATATGTC
 spacer length: 35 repeater length: 37
 18881 3704993 GTTTC AATCCTTGT TTTGCTGGAAGCTG TTTTGCAAC AGGGGGAAGCCTTGAGAGGATT CAGACCAATAAGTTA
 spacer length: 37 repeater length: 37
 18882 3705068 GTTTC AATCCTTGT TTTGCTGGAAGCTG TTTTGCAAC TAACCAAGAAAGAAATAAGTAGTA ACTAACA AAAATAA
 18883
 18884
 18885 crispr 56
 18886 2876547 ACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGAAACT AACTGAAATTA ACTGAAACT spacer length:
 20 repeater length: 39
 18887 2876607 ACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGAAACT
 AACTGAAACTAACTGAACTAACTGAACTAACTGAACTAACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGA
 AATTA ACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGAAATTA spacer length: 130 repeater length: 39
 18888 2876777 ACTGAAATTA ACTGAAATTA ACTGAAATTA ACTGAAACT
 AATTTCCATCATTACTT ACCATGTTGCCGGTAAACACGTTGGAATCGCAATCTTCGTAAAGGTAAATTCCATAACAATCTTCATCG
 GAATCACCGGCATTGCTCAAAGTGTTGCCGGTAAACACGTTGGA
 18889
 18890
 18891 crispr 57
 18892 2073089 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 GGGCTCTCCCAGATGACTGTATGCTAAGCCCAGATTTCCGAGGTGATTTCTTCTCCGCGCCTGTCGCGCGATTTCCTTTA
 spacer length: 79 repeater length: 40
 18893 2073209 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 GGGCTCTCCCAGATGACTGTATGCGTTGCCAGATTTCCGAGGTCTGCACCTTCTCCGCGCCTGTCGCGCGATTTCCTTTA
 spacer length: 79 repeater length: 40
 18894 2073329 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 GGGCTCGCCCAGATGACTGTATGCTAAGCCCAGATTTCCGAGGCGATTTCCTTCTCCGCGCCTGTCGCGCGATTTCCTTTA
 spacer length: 79 repeater length: 40
 18895 2073449 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 GGGCTCTCCCAGATGACTGTATGCTAAGCCCAGATTTCCAAGGTCTGCACCTTCTCCGCGCCTGTCGCGCGATTTCCTTTA
 spacer length: 79 repeater length: 40
 18896 2073569 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 GGGCTCTCCCAGATCACTGTATGCTAAGCCCAGATTTCCGAGGCGATTTCCTTCTCCGCGCCTGTCGCGCGATTTCCTTTA
 spacer length: 79 repeater length: 40
 18897 2073689 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 GGGCTCTCCCAGATGACTGTATGCTAAGCCCAGATTTCCAAGGTCTGCACCTTCTCCGCGCCTGTCGCGCGATTTCCTTTA
 spacer length: 79 repeater length: 40
 18898 2073809 AAATTTTCAGTGCCTGTTTCGTAATATTCAATTGCTTTTCT
 CTGTTTTTATCTGAAGTCAATCTGTGTACATCTTGCCACGCTTGTTGTTTATCCGGCACGTCTCTAAAAATAGTTCTAA
 18899
 18900
 18901 crispr 58
 18902 2820123 ACCGCAAGGTGAGCAGGGACCAGCAGGACCGCAAGGTGAG
 CAGGGACCAAAAAGGAGACACTGGTGACCAAGGACCAGCAG spacer length: 40 repeater length: 40
 18903 2820204 ACCGCAAGGTGAGCAGGGACCAGCAGGACCGCAAGGTGAG
 CAGGGACCGGCAGGACCACAAGGTGAGCAGGGACCAGCAG spacer length: 40 repeater length: 40
 18904 2820285 ACCGCAAGGTGAGCAGGGACCAGCAGGACCGCAAGGTGAG
 AATGGGTGACGTGGCTAAGATACGGGGAACAATATAATGG
 18905
 18906
 18907 crispr 59
 18908 2595628 AGATTCTCTTCGGATTCTCTCGGCTTCTTCTCAGATTCC TCTTCGGATTCTCTCGGTTTCTTCTCT spacer
 length: 25 repeater length: 40
 18909 2595694 AGATTCTCTTCGGATTCTCTCGGCTTCTTCTCAGATTCC GCTTCGGATTCTCTCGGTTTCTTCTCT spacer
 length: 25 repeater length: 40
 18910 2595760 AGATTCTCTTCGGATTCTCTCGGCTTCTTCTCAGATTCC TGCTAAGCCCAGATTTCCAAGGTCT
 18911
 18912
 18913 crispr 60
 18914 1293374 GTACATCTTGCCACGCCTGTTGTTTATCCGGCACATCTTT
 AAAAATAGTTCTAATTGCTCCTGCCGCTTCCCTTCGCACATCTTCATCTTCATCTGAAGTCAATCTG spacer length:
 67 repeater length: 40
 18915 1293482 GTACATCTTGCCACGCCTGTTGTTTATCCGGCACATCTTT
 AAAAATAGTTCTAATTGCTCCTGCCGCTTCCCTTCGCACCCTGCTGTTTTATCTGAAGTCAATCTG spacer length:
 67 repeater length: 40
 18916 1293590 GTACATCTTGCCACGCCTGTTGTTTATCCGGCACATCTTT
 AAAATCTTACTGAACTTAACGTATCTTCCAACATATTGAGTTCGCTGCCGTCTGAAATCTCTGAGTT
 18917
 18918
 18919 crispr 61

18920 3743390 TCTTCCTTTCCGGATAATTCTTCCTTTCCGGTTAATTCTT CCTTTCGGTTAATTCTTCCTTTCCGGTTAA
spacer length: 31 repeater length: 40

18921 3743462 TCTTCCTTTCCGGATAATTCTTCCTTTCCGGTTAATTCTT
CCTTTCGGTTAATTCTTCCTTTCCGGATAATTATTCCTTTCCGGTTAATTATTCCTTTCCGGTTAATTATTCCTTCCCGGTTAAT
TATTCCTTCCCGGATAATTATTCCTTTCCGGATAA spacer length: 121 repeater length: 40

18922 3743624 TCTTCCTTTCCGGATAATTCTTCCTTTCCGGTTAATTCTT
GGTATTCGCCCTTAAAAATTTAGCACAAATTTTTCCGTAATCAAAATAAATACCTTAAGGCCAGACCTTATTATGAGCGAGCAATTAA
AGTTGTGGAAAAACCAAGGGTGAATAAGTCTTG

18923

18924

18925 crispr 62

18926 1292574 TTCTTTGTCCGGCACATCTTTAAAAATAGTTCTAATTGCT
CCTGCCGCTTCTATTTCGCACCTTTCTGTTTTTATCTGAAGTCAGCCTGTGTACATCTTGCCACGCCT spacer length:
67 repeater length: 40

18927 1292682 TTCTTTGTCCGGCACATCTTTAAAAATAGTTCTAATTGCT
CCTGCCGCTTCTATTTCGCACCTTTCTGTTTTTATCTGAAGTCAGCCTGTGTACATCTTGCCACGCCT spacer length:
67 repeater length: 40

18928 1292790 TTCTTTGTCCGGCACATCTTTAAAAATAGTTCTAATTGCT
CCTGCCGCTTCCCTTCGCACCCCGCTGTTTTTCGTCTGAAGTCAGCCTGTGTACATCTTGCCACGCCT spacer length:
67 repeater length: 40

18929 1292898 TTCTTTGTCCGGCACATCTTTAAAAATAGTTCTAATTGCT
TCCATCATTACTTACCATGTTGCCGGTAAACACGTTGGAATCGCAATCTTCGTAAAGGTAAATTCCA

18930

18931

18932 crispr 63

18933 3456176 TTGGAGTTGCAATAATCATCAAGGTAAATTCCACAACATT
CGGCATCATAATCACCGTCGTTGCTCAAAGTGTTGTTCAGTAAACACGTTGGAATTGCATTCATAGTAAAGGTAAATTCCGTAACAG
TCGTAATCGGAATTCCTATAATTACTTACCATGTTGCCGTGTAACCT spacer length: 133 repeater length: 40

18934 3456350 TTGGAGTTGCAATAATCATCAAGGTAAATTCCACAACATT
CGGCATCATAATCACCGTCGTTGCTCAAAGTGTTGTTCAGTAAACACGTTGGAATTGCATTCATAGTAAAGGTAAATTCCGTAACAG
TCGTAATCGGAATTCCTATAATTACTTACCATGTTGCCGTGTAACCT spacer length: 133 repeater length: 40

18935 3456524 TTGGAGTTGCAATAATCATCAAGGTAAATTCCACAACATT
ATAAAGTCTCGGTAATCCTCAGTCCGTGAGCAAAATCCACTAAAACAAGGATTGAACTAAGATTAAATCTTCATCTTCAGGTGCT
AAAAAAGGTCCGTGAGCAAAATCCACTAAAAAAGGATTGAACTGA

18936

18937

18938 GCA_000970085.1_ASM97008v1_genomic.fna(findCrispr):

18939 START REPEAT
SPACER

18940 crispr 1

18941 2137133 AATGTGCCTTCGCTGTCAAA
TTTCTGAATGCGATTATTTTCCGTATCTGCAGCATAAACATTGCCTGAGGAATCTACGGCAACACCACACACATTATGAAGTTGTC
CGTCATCGCTGCCATAAGAGCCCCATTTAGTTAG spacer length: 120 repeater length: 20

18942 2137274 AATGTGCCTTCGCTGTCAAA
CTTCTGAATGCGGTGATTCCACATATCACCAACGTAAACGTTATCTGAAGAATCTACAGCAACACCATATGGAAGATCAAATTGTC
CGTCACCGCTGCCATAAGAGCCCCATTTTGTAG spacer length: 120 repeater length: 20

18943 2137415 AATGTGCCTTCGCTGTCAAA
AACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGGTACAGA
TAATAGTAATAATAGCGATAATAGCGATACAGGA

18944

18945

18946 crispr 2

18947 3755430 GTGGCTGTAACCTTTGTTTGT
TACGGTGTCAATTACAGAAACATTGTTGCTCTGCCAATCTGCCACATATATTTTTGTTCCATCCGGGGTGATTGCAATATCACCAG
GACCGTCTTCTACAGACAC spacer length: 105 repeater length: 20

18948 3755556 GTGGCTGTAACCTTTGTTTGT
TGCCGTATCGATTACGGATACGTCGTTGCTGCCTGTATTGGTTATATACACCTTATTTCCATCAGGACTGACTGCAACATCAGTAG
GATGGTCTCCTACAGGCAC spacer length: 105 repeater length: 20

18949 3755682 GTGGCTGTAACCTTTGTTTGT
ACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGGTACAGAT
AATAGTAATAATAGCGATA

18950

18951

18952 crispr 3

18953 2324521 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGTACTGTCCATACTTCCTTTTATTAAAGAAATAAATA
spacer length: 56 repeater length: 17

18954 2324595 GTTTCAATCCTTGTTTT AGTGGTTGTTGCTGTTTTAGTCCGGAACGTAACATTGGTCTGAAGACGACCAAAAT
spacer length: 57 repeater length: 17

18955 2324670 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGTGTCCGAAGCCGTATCCAGGTTCCCTGGAAATGAAGCA
spacer length: 58 repeater length: 17

18956 2324746 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGTGGTAAGCCTCAGCTTGACACGGGAAGAATTTTGA

spacer length: 55 repeater length: 17
 18957 2324819 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGCTGTCCAGCATGTAAGGGTTCAGGATCAATCAGGCAA
 spacer length: 57 repeater length: 17
 18958 2324894 GTTTCAATCCTTGTTTT AGTGGCTGTTACCGTTTTTCTGGAAGTAGGAATAGGATTGTATCGTAATACAAAG
 spacer length: 56 repeater length: 17
 18959 2324968 GTTTCAATCCTTGTTTT AGTGGCTGTTACCGTTTTTTCATGGAGATGAATTAATGAAAGATGCAGTCAATTTTA
 spacer length: 56 repeater length: 17
 18960 2325042 GTTTCAATCCTTGTTTT AGTGGCTGTTACCGTTTTTCTCTGTCTTATAGGTATAATGGATATTTTAGAACATAGT
 spacer length: 58 repeater length: 17
 18961 2325118 GTTTCAATCCTTGTTTT AGTGGCTGTTACCGTTTTTCAAAGGAGAGGAGAGGCAAAATGATTATAGATTATT
 spacer length: 56 repeater length: 17
 18962 2325192 GTTTCAATCCTTGTTTT
 AGTGGCTGTTACCGTTTTTCAATATAAAAGGAGTGAAAGAATGTCAGGGGAAGAATTTGT spacer length: 60
 repeater length: 17
 18963 2325270 GTTTCAATCCTTGTTTT AGTGGCTGTTACCGTTTTTCCAGAATGAAATTGTTGCTTGCCGTGTTTCTTATC
 spacer length: 54 repeater length: 17
 18964 2325342 GTTTCAATCCTTGTTTT AGTGGCTGTTACCGTTTTTCAAAAATACATAGAGATCAGGTTAGAGAAAGAGAA
 spacer length: 55 repeater length: 17
 18965 2325415 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGAAGGATACAATAGAGGTAGCCTTGAGTTTTATAGA
 spacer length: 55 repeater length: 17
 18966 2325488 GTTTCAATCCTTGTTTT
 AGTGGCTGTTGCTGTTTTAGATAATGTTGGATAACATACAAACCTGCAAGATTGAAGAG spacer length: 59
 repeater length: 17
 18967 2325565 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGCGGAACATTCCACATTCCTGCCCCGTGGTTCAATG
 spacer length: 55 repeater length: 17
 18968 2325638 GTTTCAATCCTTGTTTT AGTGGCTGTTGCTGTTTTAGCGTGAATCCGAAATCGTATTTGAAGAACAATGCGAA
 spacer length: 57 repeater length: 17
 18969 2325713 GTTTCAATCCTTGTTTT GATTGTACGTATCGGCAACATAAACATAACCCGAAGGATCTGCAGCAACACTATGTG
 18970
 18971
 18972 crispr 4
 18973 458593 AATAAACTTCATTGACGCGTA
 AGCTGTAAAAATGGAGTAAATTCAAGACGGCTTGAAAACCGATCTCGAAATCTATTTTCATTAACACGTAAGCTGTAAAATGGAGCAA
 ATTCAGGACAGTCTGAAAGCTGATTCCG spacer length: 114 repeater length: 21
 18974 458729 AATAAACTTCATTGACGCGTA
 GCTATAAGGTGAAGCAAATTCAGGACGGCTTGAAAACCGATCCCGTAATATACTTCATTTATGGCGTAAACTGCGAGATGAAGCAA
 ATTCAGGACGGCTTGAAAGCTGATTCCG spacer length: 114 repeater length: 21
 18975 458865 AATAAACTTCATTGACGCGTA
 TTTCTTACTGGATGGGGTCTTATGGCGGTGGCGATGGGCAATTTAGCTCTCCATTTGGTATAACTGTTGATTCTTTGGGCAATGT
 TTATGTCGCCGATACTGACAATCATCGC
 18976
 18977
 18978 crispr 5
 18979 1168414 GAACCTCTGTATACCCGTGCC
 CTGGAAATTACAGAAAGACGCTGGGACCGGAACATCCAGATGTAGGAACTTGTCTTAATAATCTAGCGGAACCTTTATAGAAATTC
 AGGTAGGTATTCTGAAGC spacer length: 104 repeater length: 21
 18980 1168540 GAACCTCTGTATACCCGTGCC
 TTGGAAATTACAGAAAGAGCACTGGGACCTGATCATCCAGATGTAGGCACTCGTCTTAATAATCTAGCTTTGTTATATAGCAATTT
 AGGCAGACATTCTGAAGC spacer length: 104 repeater length: 21
 18981 1168666 GAACCTCTGTATACCCGTGCC
 GATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAA
 CAACGGTACAGATAATAG
 18982
 18983
 18984 crispr 6
 18985 3422712 GAAGAAGAGGAAGCTGAAGAA
 AAGGCTGAAGAAGAGGAAGCCGAAGAAGAGGCTGAAGAAGAGGAAGCCGAAGAAGAGGCTGAAGAAGAGGAAGCCGAAGAAGAGGC
 spacer length: 86 repeater length: 21
 18986 3422820 GAAGAAGAGGAAGCTGAAGAA GAGGAAGCCGAAGAAGAGGCTGAAGAAGAGGAAGC spacer length: 35
 repeater length: 21
 18987 3422877 GAAGAAGAGGAAGCTGAAGAA ATAGAGAACAACGATACAGACAACAACGATACAGA
 18988
 18989
 18990 crispr 7
 18991 3065473 CCGTTGGCGTTGAGCGCATAGA
 CACTGTTATCGTAACTCCCGGCGTACACGGTTCCGTCGGATCCGATCGCAGGGGAGCTATAAATGCGTCCGCTGGTAGCGTAACTC
 CATTTGAGGGT spacer length: 97 repeater length: 22
 18992 3065593 CCGTTGGCGTTGAGCGCATAGA
 CGCTGTTATCGTAACTCCCCACGTACACGGTCCCATCTGACCCGATCGCAGGGGAACCATAGTAGATACGGCCGCCGGTAGCGTAC
 GTCCATTTGAGGGT spacer length: 100 repeater length: 22
 18993 3065716 CCGTTGGCGTTGAGCGCATAGA

CAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAAC
GGTACAGATAATAG

crispr 8

2136727 AAACCTTCTGGATGCGATGATTGT
ATGTATCGGCAACATATACATTACCCGAAGAATCTGCTGTAACACCAAATGGTTGAATTAAGTGTCCGTCATTGCTGCCATAAGAA
CCCCATCCAGCAAGGAATGTTCCGTTGCTGT spacer length: 117 repeater length: 23
2136868 AAACCTTCTGGATGCGATGATTGT
TTGTATCAGCAACATAAACATTACCCAAAGAATCTACAGCGATACCATATGGACGAGAAAATTGTCCGTCGCTACTGCCATAATAA
CCCCATCTGGTAATGAAGTTGCCGCTGTTGT spacer length: 117 repeater length: 23
2137009 AAACCTTCTGGATGCGATGATTGT
GAAATTGCAGAAAGAGCACTGGGACCGGAACATCCAAATGTAGGAAGTTGCCTTCAAACTTAGCAATTTTTTTATTACGAACAACG
AAAAATATCTTAAGGCCAGATCCTATTGTGAG

crispr 9

2994142 TAGAACGCACTGCCACCGATGCT TGGAATGACCACCGAGGTCAGGCCGTTGCATTG spacer length: 33
repeater length: 23
2994199 TAGAACGCACTGCCACCGATGCT TGTAACACTGTCAGGAATGACCACCGAGGTCAGGCCGCTGCATTT spacer
length: 45 repeater length: 23
2994268 TAGAACGCACTGCCACCGATGCT GACATTGTTTCCTATGGGCACAGAGGTCAGGCCGGAACATCCATA

crispr 10

2277849 CTCCTGAAATATCCGAGTTAAAAAA CTTGACTCAACTTGACATATTTAGCAATCAATTGAGTTCGCTT spacer
length: 43 repeater length: 25
2277918 CTCCTGAAATATCCGAGTTAAAAAA
TCTTACAACACTTAACCTTCATAAAAAATAAATTGAGTTCGTTTCCTCCTGAAATATCAAAGTTGAAAAATCTTATTGGGCTTGACA
TCTCCAGAAATAGATTAGGTTCTCTT spacer length: 112 repeater length: 25
2278056 CTCCTGAAATATCCGAGTTAAAAAA
CCACGGTTGATGTTGGTGATTATCTCTGCTGGAATTGCAATGCACCCTGATGGGAAGTACGTGTATGTGACGAATGTTATCAGCAAC
ACCGTCACCATAATTAACGTAGCTAC

crispr 11

1022230 AATTGTCTGTTGAATCGTCAGTTGAAT CATCTGTTGAATCGTCTGTT spacer length: 20 repeater
length: 27
1022278 AATTGTCTGTTGAATCGTCAGTTGAAT
CATCTGTTGAATCGTCTGTTGAATCGTCTGTTGAATTGTCTGTTGAATCGTCTGTT spacer length: 56 repeater
length: 27
1022362 AATTGTCTGTTGAATCGTCAGTTGAAT
TCGGCAACATAAACATAACCCGAAGGATCTGCAGCAACACTATGTGGGTGATCAAA

crispr 12

504579 ATTCAGAAATTTGATAGCAGTGGTAAA
CTTCTTACTAGCTGGGGTTCTTATGGCAGTGAGGATAGGGAATTTAGCTCTCCATTTGGTGTAAGTGTGATTCTTTGGGTAATGT
TTATGTTGCCGACACTTGCAATTATCG spacer length: 113 repeater length: 27
504720 ATTCAGAAATTTGATAGCAGTGGTAAA
TTTCTTACTGGATGGGGTTCCCTCTGGGGATAGCTCTGGACAATTTAGTCTACTTAGTGGAATAACTGTGCATCCTGCTGACCACGT
TTATGTCGCCGATACTAATAATCATCG spacer length: 113 repeater length: 27
504861 ATTCAGAAATTTGATAGCAGTGGTAAA
CCGAAGAAGAGGCTGAAGAAGAGGCTGAAGAAGAGGCTGAAGAAGAGGAAGCCGAAGAAGAGGAAGCCGAAGAAGACTTAGAGGAC
GACTTAGAAGAAGATCTGGAAGAATTC

crispr 13

1593101 GCCTGCTCATCAGATACAGGATGAGCC TGCCCATCAGATACAGGATG spacer length: 20 repeater
length: 27
1593149 GCCTGCTCATCAGATACAGGATGAGCC TGCCCATCAGATACAGGATGAGCCTGCCATCAGATACAGGATG
spacer length: 44 repeater length: 27
1593221 GCCTGCTCATCAGATACAGGATGAGCC AAAATGGAGCAAATTCAGGACAGAGTAAAAACCTGATTCTCTCAA

crispr 14

1991689 TCAATTGCTTTTTCTCGACTCTCCAAGAT
CATTATATGCTAGACCCATATCTCCAAGGTTATCTACTTCTTTTCGCCAGTACCCAAGTTCTTGAGCAATTTTTCAGTGCCTTTTCA
TGACA spacer length: 91 repeater length: 28
1991809 TCAATTGCTTTTTCTCGACTCTCCAAGAT
TATTATATGCTAGACCCATATCTCCAAGGTTATTTACTTCTTTTCGCCGGTACCCAAGTTCTTGAGCAATTTTCTGTGCCTTTTCA

TGACA spacer length: 91 repeater length: 28
 19035 1991929 TCAATTGCTTTTCTCGACTCTCCAAGAT
 ATCAGTTGTTCTGAATCGTCAGTTGAATCATCTGTTGAATCATCTGTTGAATCGTCAGTTGAATCATCAGTTGTTCTGAATCAT
 CTGTT
 19036
 19037
 19038 crispr 15
 19039 1055806 GATATAGTCCGGTTGGATTGTGGGGTAATAT AGTCCGGTTGGATTGTGGGG spacer length: 20
 repeater length: 31
 19040 1055858 GATATAGTCCGGTTGGATTGTGGGGTAATAT
 AGTCCGGTTGGATTGTGGGGTAATATAGTCCGGTTGGATTGTGGGGTAATATAGTCCGGT
 TGGATTGTGGGGTAATATAGTCCGGTTGGATTGTGGGG spacer length: 124 repeater length: 31
 19041 1056014 GATATAGTCCGGTTGGATTGTGGGGTAATAT
 AGTTGAATCATCAGTTGTTCTGAATCATCTGTTGAATCATCAGTTGTTCTGAATCATCTGTTGAATCATCAGTTGTTCTGAAT
 CATCGACTCCAGCACCTGAATCTCCAGTACCGGGGTCT
 19042
 19043
 19044 crispr 16
 19045 2278117 TTCGCTTCCTCCTGAAATCTCAGAGTTGAAAAA CTTGACTCAACTCGATGTTTCAGGTAATCAATTGA spacer
 length: 35 repeater length: 33
 19046 2278186 TTCGCTTCCTCCTGAAATCTCAGAGTTGAAAAA
 TCTTATTTGGCTTGATATCTCCAGAAATAAATTGGGTTTCGCTTCCTCCAGAAATAGTAAAGTTGAAAAATCTTATTTGGCTTAATA
 TCTCTAGGAATAAATTGA spacer length: 104 repeater length: 33
 19047 2278324 TTCGCTTCCTCCTGAAATCTCAGAGTTGAAAAA
 GATTGTAACTTTCTTCTGGGTTCCATTTCTTCAGTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAATAGGGCAAAAATTTCC
 GTTATTTGGCCAGAAAAAG
 19048
 19049
 19050 crispr 17
 19051 1767536 ACATACGTGTATGTGACTAATATTGTCAGCAATAC
 TGTCACTGTGATTAACGCAGCTACAAACACTGTTGCAGCCACGGTTGATGTTGGCCAGAATCCTTCCGGAATAGCCGTGAACCCTG
 CTGG spacer length: 90 repeater length: 35
 19052 1767662 ACATACGTGTATGTGACTAATATTGTCAGCAATAC
 CGTTACTGTGATTAACGCAGCTACAAACACTGTTGCAGCCACGGTTGATGTTGGCCAGAATCCTTCCGGAATTGTAGTGCATCCTG
 CTGG spacer length: 90 repeater length: 35
 19053 1767788 ACATACGTGTATGTGACTAATATTGTCAGCAATAC
 TCAAAGCTTATTTCTTCCCAAGAAGAAATGATCGTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAGAGGGTCGTTTTCCCTT
 ATTT
 19054
 19055
 19056 crispr 18
 19057 1834632 CCCCAGATGTAGAGACTGGTTCTCTCATAATACATG
 GCGACTTTGTTGTAAACAAGAGTAAAGAATCCCATTGTATATTCCTCCAGATTACGATTCCTGTTCAATTTATTCTTCCGAAAAGA
 TAGCTAAGGAAGCGATTACTTTTCAGTTCAAATAGATATTATTAATCCGTATCCATTGTTATTTAGTTCCAGCC spacer
 length: 160 repeater length: 36
 19058 1834829 CCCCAGATGTAGAGACTGGTTCTCTCATAATACATG
 GCGACTTTGTTGTAAACAAGAGTAAAGAACCCCATTTGTATATTCCTCCAGATTTTCGATTCCTGTTTTATTTGTTCTTCCGAAAAGA
 TAGCTAAGGAAGCGATTACTTTTCAGTTCAAATAGATATTATTAATCCGTATCCATTGTTATTTAGTCCAGGC spacer
 length: 160 repeater length: 36
 19059 1835026 CCCCAGATGTAGAGACTGGTTCTCTCATAATACATG
 TTGATATAATCATCAACATAAACACCGCCAGAAGAATCTACAGCAACACTATATGGAAGATTGAATTGTCCGTCGCCCCCGCCATA
 ATAACCCCATTTTGAAACAAAAGTATAATTTTCGGTATGCTTAGGGAAAACAGTTATCGTAGCTGATTTCAAT
 19060
 19061
 19062 crispr 19
 19063 2390577 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGCGAGGTTTCGGAGAGAGTAGAGGGAAGAAAATG
 spacer length: 34 repeater length: 37
 19064 2390649 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATAGGCCCGTTGTACGGAGTCGGGGTACCTGTT
 spacer length: 34 repeater length: 37
 19065 2390721 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGGGAAAACGTACCGTTGGGTTGTTGAAACTGCA
 spacer length: 34 repeater length: 37
 19066 2390793 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAATCAAACGGTGCCCATTTGTCCCCCGGGAAAAC
 spacer length: 35 repeater length: 37
 19067 2390866 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 TGGAATATCTTTCTCAATTCGGAAGCGAGTTCAAGTTTTAATCCTTGTTTTAGTGGATCTTGCTCACGAATAAATCATTATAATGG
 CCTGCCTGTAAAAATCAAAG spacer length: 105 repeater length: 37
 19068 2391009 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGAGAAGACCTCGATGCCATAGACGAGATGCTAT
 spacer length: 34 repeater length: 37
 19069 2391081 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCTTGGCAGGTTTCGCAATTGAACTTGGAGCAGATG
 spacer length: 35 repeater length: 37
 19070 2391154 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAATCGAAGTGGGGGAAACCGTTGGCACCCCTTG

spacer length: 34 repeater length: 37
 19071 2391226 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAAGATGCCTACAATCAACGTCCACAAAGGCAAGT
 spacer length: 36 repeater length: 37
 19072 2391300 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTATCTGAACATTTCGGAACATCTACATAGAATTTG
 spacer length: 37 repeater length: 37
 19073 2391375 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTATACCGACCTCTCCCAGGCTGTAGCCGGATT
 spacer length: 33 repeater length: 37
 19074 2391446 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACAGTGGTTTGATATTACCAATTCCACAGAACAAGAAG
 spacer length: 38 repeater length: 37
 19075 2391522 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTATTGAATTTTGATGAAGTCGTGTACGGGAATT
 spacer length: 35 repeater length: 37
 19076 2391595 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGCTTCCTGGTCCCCGACTCGGTACCTGATGCTT
 spacer length: 36 repeater length: 37
 19077 2391669 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCAATGCAGCGGCTGGGACAGATCCATGTATCT
 spacer length: 34 repeater length: 37
 19078 2391741 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGGAACCATCAGATGATGAAATTGACAGCATTATTA
 spacer length: 37 repeater length: 37
 19079 2391816 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTCAGGTTTCGATACTTCACCTACTGATGCTTATA
 spacer length: 35 repeater length: 37
 19080 2391889 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAGTCCCAGAGCTCCCTTAGAAGATCATAACAGCC
 spacer length: 35 repeater length: 37
 19081 2391962 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCACTTGCTTTTGTATCAGACATCTTTTCCACCTT
 spacer length: 35 repeater length: 37
 19082 2392035 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTTGCAATTTTCACCGTATCACCGTAGAAATC
 spacer length: 34 repeater length: 37
 19083 2392107 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CACATATAAACCCCATTGACCCCCGTATACTCACT
 spacer length: 35 repeater length: 37
 19084 2392180 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTTCCCTCAACTCTTTATATTGATTTTTTGAGA
 spacer length: 34 repeater length: 37
 19085 2392252 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAATTTGTACTGCCCGGACAAAACACATCTGTACTTT
 spacer length: 37 repeater length: 37
 19086 2392327 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTAGATTTTAATGATTCTCCTTCTTCGGAATCC
 spacer length: 34 repeater length: 37
 19087 2392399 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTTGATTGCTGAGTGTTTCATATTCAGAATATT
 spacer length: 34 repeater length: 37
 19088 2392471 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAAATCCAGGTAAAAGCGTGAATGCTATGAGAAGA
 spacer length: 35 repeater length: 37
 19089 2392544 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCCCATAATAAGAATATGTCCTGATTGCAATGAA
 spacer length: 35 repeater length: 37
 19090 2392617 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATTCACCTTACTGATAATCTGAACGAACACCCAGGG
 spacer length: 37 repeater length: 37
 19091 2392692 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCTACCGACCCGGTCATCATGAGAAAACGAGAGTAC
 spacer length: 37 repeater length: 37
 19092 2392767 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 CCTTGCGATATTCATGGGCGTTATGGTTCTGGCAGCTCTT spacer length: 40 repeater length: 37
 19093 2392845 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATCCCAACGCTTACCGAGTCACCTATGTTATACTT
 spacer length: 35 repeater length: 37
 19094 2392918 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTTAATTTTTCTTGGGGTTGTAATCCTTCAAATT
 spacer length: 35 repeater length: 37
 19095 2392991 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGATTGGGTTTGATGTATACATATACATAAAAC
 spacer length: 35 repeater length: 37
 19096 2393064 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAAGTGCAGGTTAACAGCTAACAAAGCGCAGACTT
 spacer length: 36 repeater length: 37
 19097 2393138 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTGAAATTATCTGAGTTCCCATGAGTTCAATATCA
 spacer length: 36 repeater length: 37
 19098 2393212 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGTCCGCAGATGATACTTACGCGGGGAACGGT
 spacer length: 33 repeater length: 37
 19099 2393283 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCTACTATTCTGTAGATGATTTACAGGTTCTTG
 spacer length: 34 repeater length: 37
 19100 2393355 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGATTGAACAGAAGAAAAACATCCGCATATCAAA
 spacer length: 36 repeater length: 37
 19101 2393429 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCGCCTGTATCATCGGCGGTAGAATTTCGCGACGTA
 spacer length: 35 repeater length: 37
 19102 2393502 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAAGAAAACGAAGAATTGCAGTGAAAAACGGATACT
 spacer length: 36 repeater length: 37
 19103 2393576 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACACATGACTGAATACAATACAGAATTTGAAATA
 spacer length: 35 repeater length: 37
 19104 2393649 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGATATGCAAATACTTTATCTTGATGCAGTTCAAAA
 spacer length: 36 repeater length: 37
 19105 2393723 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GCCGAATAAACGGGGGAACCTCAAACCTACATCGA
 spacer length: 35 repeater length: 37

19106	2393796	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATTAAGAAGATTTTGGAGGAAGATGAATGACTGAAGA
		spacer length: 37 repeater length: 37	
19107	2393871	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GATGGAGTATCTTCTCAAGGATACAAATTTCAAAT
		spacer length: 35 repeater length: 37	
19108	2393944	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATGATTGATGTTGCCACGGAAACGCAGAAGGAGAGA
		spacer length: 36 repeater length: 37	
19109	2394018	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTCTTCTATTGTGTGAGTGTCTGCGAACTTCTTAAT
		spacer length: 36 repeater length: 37	
19110	2394092	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGAACTTATCAAAATGATAGATGAACAGCCCGTTA
		spacer length: 35 repeater length: 37	
19111	2394165	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGGGCTTCCTTTTCGTTCTTCTTCTATATCGTATTTT
		spacer length: 36 repeater length: 37	
19112	2394239	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GAGCTTTTGGGAGCACTTGGTGGCACTGAAGCAA
		spacer length: 34 repeater length: 37	
19113	2394311	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTCTTGTATCTTCATGGTCAATTTTGGTCATTGT
		spacer length: 35 repeater length: 37	
19114	2394384	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACTTATTCTCTATATTCTAATACGCTAAACTCATAT
		spacer length: 36 repeater length: 37	
19115	2394458	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTGTGCAATCGTCTTTGATATATTAATGATTTTTT
		spacer length: 35 repeater length: 37	
19116	2394531	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTCTCTGAGGATGATGAGGACCTTACCGAAGACG
		spacer length: 34 repeater length: 37	
19117	2394603	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TACATGAAAGTGGATAGGGGATTTAAAAAAGGAAAA
		spacer length: 36 repeater length: 37	
19118	2394677	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACCTACACCGCTTCTGAGAGGTCTGTTCAAT
		length: 31 repeater length: 37	spacer
19119	2394746	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGGGCATAGACACATTTTCGTATATCGAACGG
		spacer length: 32 repeater length: 37	
19120	2394816	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTCGGAAATGTCCAGACTTGGGGCAATCAAATCA
		spacer length: 35 repeater length: 37	
19121	2394889	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTGTTTTTTTTCTGTCCCATAAACGAGCGTTAAGG
		spacer length: 35 repeater length: 37	
19122	2394962	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GCAATATGATCATGATATTGACAGCCGCGAGGAT
		spacer length: 34 repeater length: 37	
19123	2395034	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTTTTTCGGCCATTCTGTTTCACCCATCATTTTCA
		spacer length: 36 repeater length: 37	
19124	2395108	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGTTCGCCTGCAAAGATAACTAACACTTACTGATAT
		spacer length: 36 repeater length: 37	
19125	2395182	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CCCGGGACTAAAGAAAGGCGGGGGCACCGGGTCAA
		spacer length: 35 repeater length: 37	
19126	2395255	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCCCCACTCGAGTACAGGACCGTAGACCCGCTGTAA
		spacer length: 36 repeater length: 37	
19127	2395329	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TGATTGTAACCTTCTTCTGGGTTCCTATTTCTTC
		spacer length: 34 repeater length: 37	
19128	2395401	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTCCCCAGATATCCAAGAGTATCCCCTTCATTTT
19129			
19130			
19131	crispr 20		
19132	3870788	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CAAAAAGGCTAAGTTTTGACGCAAGGCCTTCTATG
		spacer length: 35 repeater length: 37	
19133	3870861	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CGAAGATTTGTTACTGTATTTGGAATATCAAATGAT
		spacer length: 36 repeater length: 37	
19134	3870935	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGTTATAAACGTTGTCCGTATCAATGTACATCAGGAT
		spacer length: 37 repeater length: 37	
19135	3871010	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATAGACGACTTGAAAGAAAACATCGAGATATCGA
		spacer length: 34 repeater length: 37	
19136	3871082	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTGATAGCATCGGATGTATACATATACATAAAAC
		spacer length: 35 repeater length: 37	
19137	3871155	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTTGTTAGGCGCTCGGTCTCGATTAAATTCGGTGGATGTCCCA
		spacer length: 42 repeater length: 37	
19138	3871235	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACTATTTTTATAATTGTTTTTGTATACCGTCAAT
		spacer length: 35 repeater length: 37	
19139	3871308	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGTCGCACATGTTGCCAATGCTCCGAAATATTAT
		spacer length: 34 repeater length: 37	
19140	3871380	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACTCAATATATTACGATCTCTGGTGGAACGAAATA
		spacer length: 35 repeater length: 37	
19141	3871453	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GAATCGCAAGCAGCGCGGCTGACATAATCAATGGA
		spacer length: 35 repeater length: 37	
19142	3871526	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CATATAACACAAGGGGAATTTTCATATTTTAATA
		spacer length: 34 repeater length: 37	
19143	3871598	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGTTCTTTGTGGAGAGGATGATTTTCATTTGTA

spacer length: 33 repeater length: 37
 19144 3871669 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGATAGAGAGTATGATAGAGTTCCTGTACACA
 spacer length: 32 repeater length: 37
 19145 3871739 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTTCGTTGTTATCTTTTCCAAATAATCGCATACG
 spacer length: 34 repeater length: 37
 19146 3871811 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTAAGAATCGTCATATCATTTGATATGACATAAAAAAT
 spacer length: 37 repeater length: 37
 19147 3871886 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTTTGTTCGGGGGTAATCCCCCTGAACCATACCGA
 spacer length: 37 repeater length: 37
 19148 3871961 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGATGAAAACATAAECTCCCTATCAAATCCAACCC
 spacer length: 36 repeater length: 37
 19149 3872035 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTATTAAAGAAGCAAAGAAGGAAAGAGAGCAACTTG
 spacer length: 36 repeater length: 37
 19150 3872109 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACAGCTACAATTTCCCGGATAGTGGAATCGTCAATA
 spacer length: 36 repeater length: 37
 19151 3872183 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAGGAGGCTGAAGGAGTCTAAAATCCTTGAAGAAA
 spacer length: 35 repeater length: 37
 19152 3872256 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGATGACAAACGCATTAGCAGCATTTTCAAAGA
 spacer length: 35 repeater length: 37
 19153 3872329 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACATATCCGCCATTTGCTTTAATGAGGATTGCAGA
 spacer length: 36 repeater length: 37
 19154 3872403 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACTCCCTTTTTCTTCTATCGCATCATCCCGATAA
 spacer length: 35 repeater length: 37
 19155 3872476 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGGAATTATCTGAGTTCCCATGAGTTCGATATCG
 spacer length: 34 repeater length: 37
 19156 3872548 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTACCTTGCTTGTTTTTGTGACAGGGATAAAAGAA
 spacer length: 35 repeater length: 37
 19157 3872621 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGAAAGAGTCTCAGGAAAAGTATTGTCCTGTAG
 spacer length: 34 repeater length: 37
 19158 3872693 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGCCCGTTCAATTCCGGGCAGACGGCAACATAGCA
 spacer length: 35 repeater length: 37
 19159 3872766 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAAAGTAGGAATGATATTCCAAGGGGGTAAATAC
 spacer length: 34 repeater length: 37
 19160 3872838 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGGTGATAATTCGGGGGGTATACATGAGAATTATC
 spacer length: 36 repeater length: 37
 19161 3872912 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGACGGCAGACTATTTTGTAAATGTGTACATGGGCT
 spacer length: 35 repeater length: 37
 19162 3872985 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACTTCAGGAAAAAAGGTTTCATCAGAGAAGGTGAAC
 spacer length: 36 repeater length: 37
 19163 3873059 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGATAACAGGAAAGACGTCATAGTATTCTGTGAC
 spacer length: 35 repeater length: 37
 19164 3873132 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
 ATTGATATCTGAGAACGAGCTCAGACCCGGAAACTCGGAAAAT spacer length: 43 repeater length: 37
 19165 3873213 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACAAGCGTGAGCCCCTATGTAAGCGTCCCACTGA
 spacer length: 35 repeater length: 37
 19166 3873286 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAGATGAAAATGAACGGGATCATAAACACGATCAG
 spacer length: 35 repeater length: 37
 19167 3873359 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CACACGAAAGCAGGCAGACGACACTATTAAAAAAG
 spacer length: 35 repeater length: 37
 19168 3873432 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTTTAGGGTTTTACAGTACTCGGATGACCAAT
 spacer length: 33 repeater length: 37
 19169 3873503 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTTTTCATAGATATTATCATTTATTTCTTGATCT
 spacer length: 34 repeater length: 37
 19170 3873575 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GACGTGGTGTAAGTGAATTTGGGTGTTATGAGT
 spacer length: 33 repeater length: 37
 19171 3873646 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TACTCATTTTTTCCATTCTCCTGGGGTCGCTCTTAC
 spacer length: 35 repeater length: 37
 19172 3873719 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTAAAAAATGGTATCGAAGAAGGTTGTTGGGGGGTGA
 spacer length: 37 repeater length: 37
 19173 3873794 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATATGGAGGTATACTATTTTGGCTGAAAATATAGAT
 spacer length: 36 repeater length: 37
 19174 3873868 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTGTTGAATTATCTCAGAGTCAAGTTTTGAGAGTAT
 spacer length: 37 repeater length: 37
 19175 3873943 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACCGTATATGAAAAGACAAGATCTACTTTTCGATA
 spacer length: 35 repeater length: 37
 19176 3874016 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATTTTTAGACTTCTTATGGTACAAGTTACATTCAA
 spacer length: 35 repeater length: 37
 19177 3874089 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGACAAATCAGATAATAATCCTATATGCCCTTGGG
 spacer length: 36 repeater length: 37
 19178 3874163 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GGGATTAATTTTCGAGTAAAAGAATTAGAGTGTGA
 spacer length: 35 repeater length: 37

19179 3874236 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACTCTTAGGACCTAATACATATTATGTTAGCAATTCT
spacer length: 37 repeater length: 37

19180 3874311 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACACATAAAAAAATAGAATAATGCAGAGAGTTAAA
spacer length: 36 repeater length: 37

19181 3874385 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAGAAGATGAACCTAACGTATGAATATTTAGAACAG
spacer length: 36 repeater length: 37

19182 3874459 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGATGACGTAATAGCTCGTACTTCGACATCTGGG
spacer length: 35 repeater length: 37

19183 3874532 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCTGCGGAGGAATCTAACCGCCTACAATGTATTCCCA
spacer length: 37 repeater length: 37

19184 3874607 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAAAATAAGGGTGTGATTCTTGAGAGAAGTAT
spacer length: 33 repeater length: 37

19185 3874678 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTTTGCTTCTCTTTTCGCGGCTTCAATTAGTATTT
spacer length: 35 repeater length: 37

19186 3874751 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACATGCCACGGGCGCGCGCTTCATCGGCGGGACCA
spacer length: 36 repeater length: 37

19187 3874825 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGGAATTGTTGGGATTTCTGTAGAAGAACAGAAGAAA
spacer length: 37 repeater length: 37

19188 3874900 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTTTCTCCCCTTCTTCAAGGGCCTGTTGTACTTC
spacer length: 34 repeater length: 37

19189 3874972 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAAAACAGTCACCAGAAAATACTATTCTTCA
spacer length: 32 repeater length: 37

19190 3875042 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATATTCTGCTCAATCACCGACTGCATCCACTTCTC
spacer length: 35 repeater length: 37

19191 3875115 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTGCCTCTTGATACCCCTTTGAAGTGTGTATATA
spacer length: 35 repeater length: 37

19192 3875188 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCTATTTCTTGAACTGAACTCCGTGAAGTGCGAATC
spacer length: 37 repeater length: 37

19193 3875263 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAATAATTTGGAATCATTATCATGCGCTGAAGA
spacer length: 33 repeater length: 37

19194 3875334 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGTTCCGCGTCGATGGTCACAAGATCGCAATGC
spacer length: 34 repeater length: 37

19195 3875406 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATCCAAAAGGATAGCACCTGTCCGCGACGATTGG
spacer length: 35 repeater length: 37

19196 3875479 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACCGATACCAGCGAATGGCAAAAGATCAAACACCTC
spacer length: 36 repeater length: 37

19197 3875553 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTCCGGTTATGAAACATACTGCCGGAACAACATT
spacer length: 34 repeater length: 37

19198 3875625 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGTGACGCTAGGCCGATATATCGAAGGCTTAGC
spacer length: 34 repeater length: 37

19199 3875697 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATTTCTGGCTCCCTCGAAATTGATGAAATGTAT
spacer length: 33 repeater length: 37

19200 3875768 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTATGAATACTACTATATATACTTTTTTAATTA
spacer length: 33 repeater length: 37

19201 3875839 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATCATCAGTTGAATCGTCAGTTGAATCATCAGT

19202

19203

19204 crispr 21

19205 4639744 CTATAGAGAACAACGATACAGACAACAACGATACAGACAA
CAACGATACAGACAATAAACAACACTACAGACAACAACACTATAGAGAACAACGATACAGACAACAAC spacer length: 64
repeater length: 40

19206 4639849 CTATAGAGAACAACGATACAGACAACAACGATACAGACAA CAACGATACAGACAATAAACAACACTACAGACAACAAC
spacer length: 34 repeater length: 40

19207 4639924 CTATAGAGAACAACGATACAGACAACAACGATACAGACAA TTATGGCGGTGGCGATGGGCAATTTAGCTCTCCA

19208

19209

19210 crispr 22

19211 2339090 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAGTTG
AATGAACAGTTGAGGATAATAGCGATGTTTATAAGTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAGCATTGAAGTATCAAG
TGTTTGTGCATATTTTCT spacer length: 104 repeater length: 40

19212 2339235 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAGTTG
AGGTTGAAGATCTGACTGTGAAGGAGGGCTATATGTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAGTCGGAAACAAAATGG
ATTTAATTGGCCAAGAAG spacer length: 104 repeater length: 40

19213 2339380 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAGTTG
TACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGGTACAGATAATA
GTAATAATAGCGATAATA

19214

19215

19216 crispr 23

19217 1022559 TCAGTTGTTCTGAATCGTCAGTTGAATCATCTGTTGAAT
CATCAGTTGTTCTGAATCATCAGTTGAATCATCTGTTGAATCATCAGTTGTTCTGAATCATCTGTTGAATCATCTGTTGAATC

spacer length: 85 repeater length: 40
 19218 1022685 TCAGTTGTTTCCTGAATCGTCAGTTGAATCATCTGTTGAAT
 CATCAGTTGTTTCCTGAATCATCAGTTGAATCATCTGTTGAATCATCAGTTGTTTCCTGAATCATCAGTTGAATCATCTGTTGAATC
 spacer length: 85 repeater length: 40
 19219 1022811 TCAGTTGTTTCCTGAATCGTCAGTTGAATCATCTGTTGAAT
 AGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGGTACAGATAATAGT
 19220
 19221
 19222 GCA_000970125.1_ASM97012v1_genomic.fna(findCrispr):
 19223 START REPEAT
 SPACER
 19224 crispr 1
 19225 4593523 AAAA
 TAACAACAATACAGAGAACAACAATACAGACAATAACACTATAGAGAACAACACTATAGAGAACAACGATACTGATAACAACACTA
 CAGGAACAACA spacer length: 97 repeater length: 4
 19226 4593625 AAAA TAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGGAACAACA spacer length: 52
 repeater length: 4
 19227 4593682 AAAA TAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGGAACAACA spacer length: 52
 repeater length: 4
 19228 4593739 AAAA ACGGTTACAATTGCTTCTGCTGTTCTCTGTGCGACATATCTGTCTTGATCTG
 19229
 19230
 19231 crispr 2
 19232 4593544 ACAA
 CAATACAGACAATAACACTATAGAGAACAACACTATAGAGAACAACGATACTGATAACAACACTACAGGAACAACAGAAAATAACA
 ACAATACAGAG spacer length: 97 repeater length: 4
 19233 4593646 ACAA CAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAG spacer length: 52
 repeater length: 4
 19234 4593703 ACAA CAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAG spacer length: 52
 repeater length: 4
 19235 4593760 ACAA CAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGAT
 19236
 19237
 19238 crispr 3
 19239 4593547 ACAA
 TACAGACAATAACACTATAGAGAACAACACTATAGAGAACAACGATACTGATAACAACACTACAGGAACAACAGAAAATAACAACA
 ATACAGAGAAC spacer length: 97 repeater length: 4
 19240 4593649 ACAA TACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAAC spacer length: 52
 repeater length: 4
 19241 4593706 ACAA TACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAAC spacer length: 52
 repeater length: 4
 19242 4593763 ACAA CGGTTACAATTGCTTCTGCTGTTCTCTGTGCGACATATCTGTCTTGATCTGA
 19243
 19244
 19245 crispr 4
 19246 4593541 AGAA
 CAACAATACAGACAATAACACTATAGAGAACAACACTATAGAGAACAACGATACTGATAACAACACTACAGGAACAACAGAAAATA
 ACAACAATACA spacer length: 97 repeater length: 4
 19247 4593643 AGAA CAACAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACA spacer length: 52
 repeater length: 4
 19248 4593700 AGAA CAACAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACA spacer length: 52
 repeater length: 4
 19249 4593757 AGAA GGATCCGTGCAACGATACAGAAAAGGATGAGATTTGCCCGGATGTACCGGAA
 19250
 19251
 19252 crispr 5
 19253 4593443 AGGAA CAACAGAAAATAACAAAACACTACAGATAGCAAAGCTACAGGAACGACAAAAAATAACAACAATA spacer
 length: 63 repeater length: 5
 19254 4593512 AGGAA
 CAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTATAGAGAACAACACTATAGAGAACAACGATACTGAT
 AACAACTA spacer length: 96 repeater length: 5
 19255 4593614 AGGAA CAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTA spacer length: 51
 repeater length: 5
 19256 4593671 AGGAA CAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTA spacer length: 51
 repeater length: 5
 19257 4593728 AGGAA AACAAACAATACAGAGAACAACAATACAGACAATAACACTACAGGAACAACA
 19258
 19259
 19260 crispr 6
 19261 1198345 ATGGTCACAGAGGTCAGGGC AGCGCAGCCCTTGAACGAATAGCTGCCGATGCTGATGACATTATTTCC spacer
 length: 48 repeater length: 20

19262 1198414 ATGGTCACAGAGGTCAGGGC
GATACAGTCGCAGAATGCATAGTTGCCGATGCTGGTGACATTGTTTCCTATGTTACCGAGGTAATGGAGATGCAGCCCTGGAATG
CGCTGGTGCCGATTTCCGGTGACGCTGTCCGG spacer length: 117 repeater length: 20

19263 1198552 ATGGTCACAGAGGTCAGGGC
ACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGGTACAGAT
AATAGTAATAATAGCGATAATAGCGATACAG

19264

19265

19266 crispr 7

19267 3024069 CAAAAACGGTTCCAATTGCT
TCTGCTGTTCTCTGTGCGACATCACTATCGTGATCTGAAGTCAGTCTGTGTAAATCTTGCCATGCCTGTTCTTTATCCGGGACATA
T spacer length: 87 repeater length: 20

19268 3024177 CAAAAACGGTTCCAATTGCT
TCTGCTGTTCTCTGTGCGACATCACTATCTTGATCTGAAGTCAGTCTGTGTAAAGTCTTTCCATGCCTGTTCTTTATCCGGGACATA
T spacer length: 87 repeater length: 20

19269 3024285 CAAAAACGGTTCCAATTGCT
CCTGTTGCTCTCTGTGCGACATCGCTATCTTGATCTGAAGTCAGTCTGTGTAAAGTCTTTCCATGCCTGTTCTTTATCCGGGACATA
T spacer length: 87 repeater length: 20

19270 3024393 CAAAAACGGTTCCAATTGCT
GCTGTTCTCTGTGCGACATATCTGTCTTGATCTGAAGTCAATCTGTGTAAATCTTTCCACGCCTGTTCTTTATCCGGGATATATTC
A

19271

19272

19273 crispr 8

19274 4937596 CAATAAGAAAAGTAAAGAAG AGACGATAAGAAAAGTAAAGAAGAG spacer length: 25 repeater
length: 20

19275 4937642 CAATAAGAAAAGTAAAGAAG AGACGATAAGAAAAGTAAAGAAAAG spacer length: 25 repeater
length: 20

19276 4937688 CAATAAGAAAAGTAAAGAAG CAGAAAAGGATGAGATTTGCCCGGA

19277

19278

19279 crispr 9

19280 3702877 GTGGCTGTAACCTTTGTTTGT
TACGGTGTCAATTACAGAAACATTGTTGCTCTGCCAATCTGCCACATATATTTTTGTTCCATCCGGGGTGATTGCAATATCACCAG
GACCGTCTTCTACAGACAC spacer length: 105 repeater length: 20

19281 3703003 GTGGCTGTAACCTTTGTTTGT
TACCGTATCGATTACGGATACGTCGTTGCTGCCTGTATTGGTTATATACACCTTATTTCCATCAGGACTGACTGCAACATCAGTAG
GATGGTCTCCTACAGGCAC spacer length: 105 repeater length: 20

19282 3703129 GTGGCTGTAACCTTTGTTTGT
ACAACAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGAC
AACAACACTATAGAGAACA

19283

19284

19285 crispr 10

19286 994666 GTTCCTGAATCGTCAGTTGAA
TCATCTGTTGAATCATCAGTTGTTCCCTGAATCATCAGTTGAATCATCTGTTGAATCATCAGTTGTTCCCTGAATCATCAGTTGAATC
ATCTGTTGAATCATCAGT spacer length: 104 repeater length: 21

19287 994792 GTTCCTGAATCGTCAGTTGAA TCATCTGTTGAATCATCAGT spacer length: 20 repeater length:
21

19288 994834 GTTCCTGAATCGTCAGTTGAA TCATCTGTTGAATCATCAGT spacer length: 20 repeater length:
21

19289 994876 GTTCCTGAATCGTCAGTTGAA ACTACAGGAACAACAGAAAA

19290

19291

19292 crispr 11

19293 2887576 CGGACGGGACCGTGTACGTGGG
GAGTTTAGACGGCAATCTCTATGCGCTCAACCCCGACGGAACAGAAAAATGGAACCTACACTACCGGTGGTCAATTCAGGTACGGTT
GCCCTGCAATCGCT spacer length: 100 repeater length: 22

19294 2887699 CGGACGGGACCGTGTACGTGGG
GAATTACGATAACAGCGTCTATGCGCTCAACCCCAACGGTACCCTCAAATGGAGTTACGCTACCGGTGGTTACATTTATGGCTCCC
CTGCAATCGCT spacer length: 97 repeater length: 22

19295 2887819 CGGACGGGACCGTGTACGTGGG
ATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGACAACAAC
ACTATAGAGAA

19296

19297

19298 crispr 12

19299 1905789 CATTCATCAGACTTCTGATGGTGG
TTATATTGTGCGCCGGTAGTTCCCTATTCAAGCGACGGGAATGTGACAGGGAACCACGGGATTACTGATTATTGGATTGTGAACTGG
ATACAGGAGGGAATATTGAATGGCAAAAATGCCTTGGAGGTTCAAGTTATGATAAAGCGAGTA spacer length: 149
repeater length: 24

19300 1905963 CATTCATCAGACTTCTGATGGTGG
TTATATTGTCGCCGGTGGTTCTATTCAAAAGACGGGAATGTGACAGGAAACCACGGGAGTAGTGATTATTGGATTGTGAAACTGG
ATACAGGAGGGGATATTGAATGGCAAAAATGCCTTGGAGGTTCAATTGAAGAAGAAGCGCGTA spacer length: 149
repeater length: 24

19301 1906137 CATTCATCAGACTTCTGATGGTGG
ACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACA
CGGTACAGATAATAGTAATAATAGCGATAATAGCGATACAGGAACAACAGAAGACGATACTAC

19302

19303

19304 crispr 13

19305 4424406 TCCGGTCTGACCACATTGAGCATCCC
GAACAGCGTAACCACCATCGGTACCAGAGCATTCGAAGATTGCTCCGCTCTGACCTCGTTGAGCATCCCGGACAGTGTAACCACCA
TCGGTGACAACGCGTTCTCAGATTG spacer length: 111 repeater length: 26

19306 4424544 TCCGGTCTGACCACATTGAGCATCCC
GGACAGCGTAACCAGTATTGGCAATTATATGTTTCAGGGTTGCTCCGGTTTGACCACATTGAGCATCCCGGACAGCGTAACCAGTA
TTGGCAATTATATGTTTCAGGGTTG spacer length: 111 repeater length: 26

19307 4424682 TCCGGTCTGACCACATTGAGCATCCC CGACAATGTCACTACTATTGGTACCAGAGCATTCGAAGATTG spacer
length: 42 repeater length: 26

19308 4424751 TCCGGTCTGACCACATTGAGCATCCC AGAACAACAATACAGACAATAACACTACAGGAACAACAGAAA

19309

19310

19311 crispr 14

19312 994391 AATTGTCTGTTGAATCGTCAGTTGAAT CATCTGTTGAATCGTCTGTT spacer length: 20 repeater
length: 27

19313 994439 AATTGTCTGTTGAATCGTCAGTTGAAT
CATCTGTTGAATCGTCTGTTGAATCGTCTGTTGAATTGTCTGTTGAATCGTCTGTT spacer length: 56 repeater
length: 27

19314 994523 AATTGTCTGTTGAATCGTCAGTTGAAT
ACAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGA

19315

19316

19317 crispr 15

19318 3023632 ATATCCAAAAACGGTTACAATTGCTTCTGCT
ACACTCTGTGCGACATATTTGTCTTGATCTGAAGTCAGTCTGTGTAAATCTTGCCATGCCTGTTCTTTATCCGAGA spacer
length: 76 repeater length: 31

19319 3023740 ATATCCAAAAACGGTTACAATTGCTTCTGCT
ACACTCTGTGCGACATATCTGTCTTGATCTGAAGTCAGTCTGTGTAAATCTTGCCATGCCTGTTCTTTATCCGGGA spacer
length: 76 repeater length: 31

19320 3023848 ATATCCAAAAACGGTTACAATTGCTTCTGCT
ACACTACAGGAACAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGACAACAACAC

19321

19322

19323 crispr 16

19324 1028151 GATATAGTCCGGTTGGATTGTGGGGTAATAT AGTCCGGTTGGATTGTGGGG spacer length: 20
repeater length: 31

19325 1028203 GATATAGTCCGGTTGGATTGTGGGGTAATAT
AGTCCGGTTGGATTGTGGGGTAATATAGTCCGGTTGGATTGTGGGGTAATATAGTCCGGT
TGGATTGTGGGG spacer length: 98 repeater length: 31

19326 1028333 GATATAGTCCGGTTGGATTGTGGGGTAATAT
ACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGGTACAGAT
AATAGTAATAAT

19327

19328

19329 crispr 17

19330 4047607 AAGGATCCGTGCAACGATACAGAAAAGGATGAG ATTTGCCCCGGGTGTACCGGA spacer length: 20
repeater length: 33

19331 4047661 AAGGATCCGTGCAACGATACAGAAAAGGATGAG ATTTGCCCCGGGTGTACCGGA spacer length: 20
repeater length: 33

19332 4047715 AAGGATCCGTGCAACGATACAGAAAAGGATGAG ATTTGCCCCGGATGTACCGGA spacer length: 20
repeater length: 33

19333 4047769 AAGGATCCGTGCAACGATACAGAAAAGGATGAG ATTTGCCCCGGGTGTACCGGA spacer length: 20
repeater length: 33

19334 4047823 AAGGATCCGTGCAACGATACAGAAAAGGATGAG TACAGACAATAACACTACAG

19335

19336

19337 crispr 18

19338 1718393 ACATACGTGTATGTGACTAATATTGTCAGCAATAC
TGTCCTGTGATTAAACGCAGCTACAAACACTGTTGCAGCCACGGTTGATGTTGGCCAGAATCCTTCCGGAATAGCCGTGAACCCTG
CTGG spacer length: 90 repeater length: 35

19339 1718519 ACATACGTGTATGTGACTAATATTGTCAGCAATAC
CGTTACTGTGATTAAACGCAGCTACAAACACTGTTGCAGCCACGGTTGATGTTGGCCAGAATCCTTCCGGAATTGCAGTGCATCCTG

CTGG spacer length: 90 repeater length: 35

1718645 ACATACGTGTATGTGACTAATATTGTCAGCAATAC
TGAAATCTCTGAATTGAAAAACCTGACTCAACTTAACATATCTGACAATCAACTTACTTCATTGCCATCTGAAATCTCTGAATTGA
AATA

crispr 19

4343844 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AGATATAATTTGATAGGTGGTTTTTGGAAATATG
spacer length: 34 repeater length: 37

4343916 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTAATTTTTTTAGTAGTATAATAATATTCTATCCCT
spacer length: 38 repeater length: 37

4343992 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC AACAAATATCTGACACTCTCAATAACGCATCATT
spacer length: 35 repeater length: 37

4344065 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCAGTCTTAGACTACAACGAGGAAACAATCATGT
spacer length: 35 repeater length: 37

4344138 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC GTGATTATTATTTCAAATATACCCAATATCTGAA
spacer length: 34 repeater length: 37

4344210 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAGAAAACCTGGATCGGATGGTGCGGTCGTGTTTT
spacer length: 35 repeater length: 37

4344283 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAATGTATTGTGATGGACATGGATATCTGAGG
spacer length: 34 repeater length: 37

4344355 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTATCTCGTATGATGACTTTGACAGAAAAATTGAA
spacer length: 36 repeater length: 37

4344429 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC GACAGTGAAAGAGAAAAACCTCAGAATCATTAAC
spacer length: 35 repeater length: 37

4344502 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CTATCGGGTACAAGGACCCGAACAACAATGAAT
spacer length: 33 repeater length: 37

4344573 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGGCGATTATTGTGACCGCCGTGTACAAGTTTTTTGA
spacer length: 36 repeater length: 37

4344647 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAGCTTTGCAACTACATCCAAAAATAAATTAACA
spacer length: 35 repeater length: 37

4344720 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAGTCCTCAATCAAGCAATGAAAAACATTTTCT
spacer length: 35 repeater length: 37

4344793 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TACATGCAGCCCCGACATCCCCCTTCCCCCACATCG
spacer length: 36 repeater length: 37

4344867 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
TTGTTTCGATTAAACTATTAATGGGGGAGTAAAGATTTCGAGAGCAAGATCCACTAAAAAAGGATTGAAACTTGATTCCATACCC
CCCAATCCCGCTCTGCCGTCCA spacer length: 108 repeater length: 37

4345013 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC CGGTAATGGGATTGCAGTATCTGAAAGTAACGCA
spacer length: 34 repeater length: 37

4345085 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAAAAATAATCGAACAGTTAAACGAACATGAGA
spacer length: 34 repeater length: 37

4345157 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATCAGCAGAGCCTTTAAACTGAGTCAGGAATTG
spacer length: 35 repeater length: 37

4345230 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTCCGGAAAAATAAGCATAATGGTGCACGTATATG
spacer length: 36 repeater length: 37

4345304 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
CATCTACATCGTATCTGAGCATCGCAAAGACTTCAAGGACTT spacer length: 42 repeater length: 37

4345384 ATTTCGAGAGCAAGATCCACTAAAACAAGGATTGAAAC
CGGAAAAAGACCCATGCAAAAACGATACAAAACCCGATAAAC

crispr 20

2261792 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CTGAGGAGCAGAAAGGAGATTATATTGAACCAGATTTT
spacer length: 38 repeater length: 37

2261868 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GAGCAAAAAAGTCGAGCCGGATCCCGAAGGGGATGAG
spacer length: 37 repeater length: 37

2261943 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAGTGCAGGCGCTGCGGCTGTATGCCAGTTGTTT
spacer length: 34 repeater length: 37

2262015 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC GTTTTTCCCAAGGGGTCTTTGCATTTTAGATTCTCT
spacer length: 36 repeater length: 37

2262089 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC AAGACATGGACGAAGACAAAGAGATAGGATATG
spacer length: 33 repeater length: 37

2262160 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CAGTTTTGCCGGAAAACATACCCTAAATTACCTCA
spacer length: 35 repeater length: 37

2262233 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CGGAATAGACTCTCAAGAGGTATGTACCTATTTT
spacer length: 34 repeater length: 37

2262305 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC CGGGGTTTTTAAATAAAAAATAAAATAGAAAC
spacer length: 32 repeater length: 37

2262375 GTCTCAATCCTTGTTTTAGTGGAACCTACTTCTCGAC ATCCCACAAGGTGAAGTTCCTGTAGTATTGGTTGA
spacer length: 35 repeater length: 37

19377 2262448 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC AAGGGCAGTAAAAAATGCTACGGCAAAATTAAAAAC
spacer length: 36 repeater length: 37
19378 2262522 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC CAATGGAACGTAAAATTTCCAATACAAAAGCTCAGA
spacer length: 36 repeater length: 37
19379 2262596 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC CCGATAAACAGGGAATTTACAGGCAGCATCGGGTAAT
spacer length: 38 repeater length: 37
19380 2262672 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC CCGGCGAGTACGGAATGATTGTTGAGTCAAATTC
spacer length: 35 repeater length: 37
19381 2262745 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC
TTTCGGACTGGAATGTCTCAATGGACGTTGCAGTTAAAGGA spacer length: 41 repeater length: 37
19382 2262824 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC TAAGATGTGAGATCTGATAGAGGTAGTTTCACTA
spacer length: 34 repeater length: 37
19383 2262896 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC TGTGTAGTATGGGAAGTAAACTAAGGATAATCA
spacer length: 34 repeater length: 37
19384 2262968 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC GGCAGCATAAATGCCACAACGATGGCTGACTATC
spacer length: 34 repeater length: 37
19385 2263040 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC GCCTTATACATGATAGCAACTGGAGGCTCCGGAGT
spacer length: 35 repeater length: 37
19386 2263113 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC TTAGGGATATCATGAATGAGAAAGGGAAAGCATTAG
spacer length: 36 repeater length: 37
19387 2263187 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC TCTCAGGCATGGGATGCGATTGCTCTTAAGATTATC
spacer length: 36 repeater length: 37
19388 2263261 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC ATTTTCAGCAGACAGCTGATAATGCAGAATAATCAA
spacer length: 35 repeater length: 37
19389 2263334 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC GCATCCTGCTAAAGGAGCTAATGGAGAATCGGATCCT
spacer length: 37 repeater length: 37
19390 2263409 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC TCGTAGACGACAACGGATATTGCGTTGCTGAGTATA
spacer length: 36 repeater length: 37
19391 2263483 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC ATTTGTTCTTCCATTGCTTGACCTGCTGGAACA
spacer length: 34 repeater length: 37
19392 2263555 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC AAATGTACTTTCAACGCCTTCGTAAAGCTGGAAA
spacer length: 34 repeater length: 37
19393 2263627 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC CCTGCCAACAGGACGTCATTTACGTCATCGTAGC
spacer length: 34 repeater length: 37
19394 2263699 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC ATGAAAGCAAGTGAACCTCATCGAGAATCTTAATGA
spacer length: 35 repeater length: 37
19395 2263772 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC AAACGGAAAGGTTTGAGGTTGACCGAGCCTTCATAGC
spacer length: 37 repeater length: 37
19396 2263847 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC ACGAGGTGGAGAAAAAACATTACTCGGCTGAAG
spacer length: 33 repeater length: 37
19397 2263918 GTCTCAATCCTTGTTTTAGTGGAAACCTACTTCTCGAC CAGACAACAACGATACAGACAACAACGATACAG
19398
19399
19400 crispr 21
19401 2243289 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC AGGTGATGTAAAATGATTGAAACTAAAACAGAAAT
spacer length: 35 repeater length: 37
19402 2243362 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC GATGTGGATTTCTTCGCGGACGTTTATTTTGATG
spacer length: 34 repeater length: 37
19403 2243434 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC
TTGAAAAAGGAGGAAAGAATTCCAACCTGTTTATGAGGTTTCAATCCTTTTTTTAGTGGAAAGCTACTTTTCGACTATAATCCCTGAG
AGGTTTGTTGTTGGAGAAGAACA spacer length: 109 repeater length: 37
19404 2243581 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC GATGTGGATTTCTTCGCGGACGTTTATTTTGATG
spacer length: 34 repeater length: 37
19405 2243653 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC
TTGAAAAAGGAGGAAAGAATTCCAACCTGTTTATGAGGTTTCAATCCTTTTTTTAGTGGAAAGCTACTTTTCGACTATAATCCCTGAG
AGGTTTGTTGTTGGAGAAGAACA spacer length: 109 repeater length: 37
19406 2243800 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC CGGAAATCCTCTATGAAACTACGGACCATTATG
spacer length: 35 repeater length: 37
19407 2243873 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC TTCAATACCAAGGAGTAGTACGTCATGTATCAAG
spacer length: 34 repeater length: 37
19408 2243945 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC GTAAGGAGGAGGGACTTGAAAAAGATTCTCTTGA
spacer length: 35 repeater length: 37
19409 2244018 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC ATTATGTACAATCCCATACTTCATTCTGAATCGTCG
spacer length: 35 repeater length: 37
19410 2244091 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC TCATTCCGGGACTTTGCATGGGAATTATTGTTATG
spacer length: 35 repeater length: 37
19411 2244164 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC TTGCAAAAAATCTATGATCTGAGAGAAGTAACA
spacer length: 34 repeater length: 37
19412 2244236 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC CGTTTGACATGAATACAGACACCAGAGGGGAGACTGT
spacer length: 37 repeater length: 37
19413 2244311 GTTTC AATCCTTGTTTTAGTGGAAAGCTACTTTTCGAC GGTGAAGTTCCGGCTGGATACCAGGAAAGGGTTG

spacer length: 34 repeater length: 37
 19414 2244383 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC AGTTTAAATTTGCAGAGTAATAGCTCTTTTCGTTAAT
 spacer length: 36 repeater length: 37
 19415 2244457 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC TGTGATAAGAATCTATCACCATCCTCTCCAAGAA
 spacer length: 34 repeater length: 37
 19416 2244529 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC TGTGATAAGAATCTATCACCATCCTCTCCAAGAA
 spacer length: 34 repeater length: 37
 19417 2244601 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC GAGCACAATAGACTCGTGAATGAGAGAAGAAACAAA
 spacer length: 36 repeater length: 37
 19418 2244675 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC TGGCCATATGTACTGATAAAAGTCAGACTTAATG
 spacer length: 34 repeater length: 37
 19419 2244747 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC TATAAAAAAGGAAGTTTTAGAAGCAACCATTAAAAA
 spacer length: 36 repeater length: 37
 19420 2244821 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC AAGAAAGCGAAAGAACAGGAGTAGATACACTATTT
 spacer length: 35 repeater length: 37
 19421 2244894 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC AAAAGAGAGGATTTACCCCCGAAGAGGAGATAAAA
 spacer length: 35 repeater length: 37
 19422 2244967 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC AAAAAAGATAAAAACTAATAAAAGAGGTTCAAA
 spacer length: 34 repeater length: 37
 19423 2245039 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC TTTCTAAAAAGGTTGAGAGAAATAATCTTGCTAT
 spacer length: 35 repeater length: 37
 19424 2245112 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC AGAAAATAACGACATTAAAATGTTCTTAGAAAAGGA
 spacer length: 36 repeater length: 37
 19425 2245186 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC GAGACTGAAACAAAAATAGGAGTTACGAAAGAAC
 spacer length: 34 repeater length: 37
 19426 2245258 GTTTC AATCCTTGTTTTAGTGG AAGCTACTTTTCGAC TTGGTGATTATCCTGCTGGAATTGCAATGCACCC
 19427
 19428
 19429 crispr 22
 19430 2312093 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TGCGAGGTTCCGAGAGAGTAGAGGGAAGAAAATG
 spacer length: 34 repeater length: 37
 19431 2312165 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT CTGGAATCATCAACGGAAAGCCATAAGTGCGTTTT
 spacer length: 35 repeater length: 37
 19432 2312238 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TTCCACACGATTGAGGAAGAGAACAACCTTAACG
 spacer length: 33 repeater length: 37
 19433 2312309 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT CTTTTAACAGCGCAGAGGGATTGAGTGAAACGAA
 spacer length: 35 repeater length: 37
 19434 2312382 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT AGCAAAAACCGCAAAGATAGTATCCTCTCCTATTG
 spacer length: 35 repeater length: 37
 19435 2312455 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TCCCACTAGCAGATTTACTTCAGTGTTACCTGA
 spacer length: 35 repeater length: 37
 19436 2312528 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT GATGCTTATGAAGCCCATCATCCTTATTCTACCT
 spacer length: 34 repeater length: 37
 19437 2312600 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT CTTTTTTGGCTCTTATGCCTGCATTGATCCTTTCT
 spacer length: 35 repeater length: 37
 19438 2312673 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT CCTTCTCCGGTAATCTGGTTCCGGACTAATA spacer
 length: 31 repeater length: 37
 19439 2312742 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TTTCTACTAATTTATTATTTTCAACGATCTTTAT
 spacer length: 34 repeater length: 37
 19440 2312814 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT
 CTCGTTAGTTTTTCATCTATCGATCTTGCACAGACCGCGG spacer length: 40 repeater length: 37
 19441 2312892 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TGTACAGATCAGGGCTGTTTCCATGCCTCCGATCA
 spacer length: 35 repeater length: 37
 19442 2312965 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TGTACAGATCAGGGCTGTTTCCATGCCTCCGATCA
 spacer length: 35 repeater length: 37
 19443 2313038 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TTGACAAATCCATAGATAAACGTGGAAGTGA
 spacer length: 33 repeater length: 37
 19444 2313109 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TCTGTTTTTCTCAGATTTTGACGGCTTCGGAACTA
 spacer length: 35 repeater length: 37
 19445 2313182 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT CACACATTTTCGATTATCCGGAATTCGGGAATGG
 spacer length: 34 repeater length: 37
 19446 2313254 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TGTGGACGACGGAAGTATAGATTCAACATACAAT
 spacer length: 34 repeater length: 37
 19447 2313326 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TGATATTCTGAACATAGTAGAAGCATGTAGATCAG
 spacer length: 35 repeater length: 37
 19448 2313399 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TATTATTATGTACTGAGAATAAGCGAGGTTGATA
 spacer length: 34 repeater length: 37
 19449 2313471 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT AAGAAAATAGTTTCAGTTAGACGTTAAGGAGTGT
 spacer length: 34 repeater length: 37
 19450 2313543 GTTTC AATCCTTGTTTTAGTGG ATCTTGCTCACGAAT TTCAAAATTACAATAGGGATTCGAAAGCAAGATCCA
 spacer length: 36 repeater length: 37

19451	2313617	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GAGACACAAACGCCACGCTTAATACAATGGGATCAT
		spacer length: 36 repeater length: 37	
19452	2313691	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTCTTGCGAAATTTTGAGACAGATGTTACTTCC
		spacer length: 33 repeater length: 37	
19453	2313762	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGAAATTTGAATCTGGTGATGTATTACAGATTGTA
		spacer length: 35 repeater length: 37	
19454	2313835	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GTTTCTGAGAAGGTAGTGGTCTTAAATCCTCAATT
		spacer length: 35 repeater length: 37	
19455	2313908	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAAAATGTACTAAATTCATCAAAGATATGGAAAT
		spacer length: 34 repeater length: 37	
19456	2313980	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGTTGGAATTTATGTTTCTGGGAACAACAAGTTTC
		spacer length: 35 repeater length: 37	
19457	2314053	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GGCTCAATCGTTACCGTTTTGCCCCGGGGATAATA
		spacer length: 35 repeater length: 37	
19458	2314126	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATAATGTAAGGTTAGCCGGTGCGTATTTGTGTTT
		spacer length: 34 repeater length: 37	
19459	2314198	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGCAGCTCGATACACTATCAGGAAGTTTAGCACTA
		spacer length: 35 repeater length: 37	
19460	2314271	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTATCAATAGACTTCGAAACGTCGCATGAAATTAAG
		spacer length: 36 repeater length: 37	
19461	2314345	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GAATTTATAATTGGAGAAGTGTATGGTTTAAGATGGA
		spacer length: 37 repeater length: 37	
19462	2314420	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTCCCAGTTGAACCTATGCAAAAAATG spacer
		length: 30 repeater length: 37	
19463	2314488	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATCATCATCTAATATCATCTTAATAAAAGCAATTA
		spacer length: 35 repeater length: 37	
19464	2314561	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GTCAGATGCAACAGTGCCACCTGAAGATCCTTTTC
		spacer length: 35 repeater length: 37	
19465	2314634	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GATATTCTCGATGTTAATTGAGATTGTGTACCTGC
		spacer length: 36 repeater length: 37	
19466	2314708	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CATATTACAAAACCATGATTGAAAAACATATACT
		spacer length: 35 repeater length: 37	
19467	2314781	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AACGCAAACCTAACAGGTGGTGAATTATGATAAAGG
		spacer length: 35 repeater length: 37	
19468	2314854	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTTCGAGCAAACGCGCTTCAGTTTCATCTGTA
		spacer length: 36 repeater length: 37	
19469	2314928	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACATTTCAGCCGGACAAGTTCTTCCAGTTTCAGG
		spacer length: 33 repeater length: 37	
19470	2314999	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TATGGTATCCGAAACCATGCTTCGAACCGATTTA
		spacer length: 34 repeater length: 37	
19471	2315071	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGAAAATATTGCACGGTTCACAGTGACGCAAAAAG
		spacer length: 35 repeater length: 37	
19472	2315144	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CAATTGCAAGAAAAGCGTTTTATTTCGCGAGGGTGAA
		spacer length: 36 repeater length: 37	
19473	2315218	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCTTGGAGCTTTTCTTGCGTCTTTCATTCTGTAA
		spacer length: 34 repeater length: 37	
19474	2315290	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGATGGCATTATCGATGGTCCCTAAAAAGCGACCGG
		spacer length: 36 repeater length: 37	
19475	2315364	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GTGGTGTTATTGAGCGTTTCACTATCAAGAGAG
		spacer length: 33 repeater length: 37	
19476	2315435	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCAGGACGTGGCCTGCCTTCAGGGTGGTGTGCTGA
		spacer length: 36 repeater length: 37	
19477	2315509	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGTACCGGGTTTATTTCTTCGGTATGGTACCTGAT
		spacer length: 35 repeater length: 37	
19478	2315582	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
		AGAAGCACCGCAAGCGTGATTTTGTGGTCCCTGTTTTCCG spacer length: 41 repeater length: 37	
19479	2315661	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACACATTGTTTACGATCGTGGTGTTATTGAATCC
		spacer length: 34 repeater length: 37	
19480	2315733	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GGACATCTCAGAACAAGCTCAAATCATTTCTCCC
		spacer length: 34 repeater length: 37	
19481	2315805	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CGAGGCTGATACAATTATAGTAGCCCTCGCCTTCAT
		spacer length: 36 repeater length: 37	
19482	2315879	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GGTCCTACAGACGTTTAGGACGAAAAGGAACCTG
		spacer length: 34 repeater length: 37	
19483	2315951	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAGCTGGTATTGTTCTGGTTCTTGGATTCTTAGGA
		spacer length: 35 repeater length: 37	
19484	2316024	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAATTGCATCAGGATCAACCGTACAACTGAATAT
		spacer length: 35 repeater length: 37	
19485	2316097	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TATCTGTCTTGATCTGAAGTCAATCTGTGTAAATC
19486			
19487			

19488 crispr 23
 19489 3821795 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTTCTTGATACAGGGGATGTTACATGTATGATGGGAA
 spacer length: 37 repeater length: 37
 19490 3821870 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTTTGGGACGTGGTCCCGGATATCCGCGAACGTGCG
 spacer length: 37 repeater length: 37
 19491 3821945 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATTGATCCTACCCCCATTTGCAGACTCATTGTA
 spacer length: 33 repeater length: 37
 19492 3822016 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAAGTTGAAGAAATATTACAGTCGTATATCCCAGAAA
 spacer length: 38 repeater length: 37
 19493 3822092 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATCTGATTATTATGTTGGTGGAAAACTGGATACA
 spacer length: 35 repeater length: 37
 19494 3822165 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTCCGTGCGATAATGTTGACGAGAAAGGGTATT
 spacer length: 33 repeater length: 37
 19495 3822236 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGTGAGAATATATGATGATTATTAATAGTGAAGAC
 spacer length: 35 repeater length: 37
 19496 3822309 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CACTCTACACTTTTTTATATTAGTACTTCCATATT
 spacer length: 35 repeater length: 37
 19497 3822382 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCAATTTTCAGTATCTATTATCCCACTGTGACATA
 spacer length: 35 repeater length: 37
 19498 3822455 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTAATACCACAATTGGAAGTACTTATTTCAAGAGGA
 spacer length: 36 repeater length: 37
 19499 3822529 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGTAAATACTCTGCCTATTGGGTATTCAACCTCT
 spacer length: 35 repeater length: 37
 19500 3822602 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGTCGATACCGAGGAGCCTGTCTAAGCTGGTAGGGT
 spacer length: 37 repeater length: 37
 19501 3822677 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGAAAATATCAGCAGTGTTTTTGATCCTCTCCCTG
 spacer length: 36 repeater length: 37
 19502 3822751 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTTTCTATCATCCCTTTCCTGGCATACTGTATTTT
 spacer length: 36 repeater length: 37
 19503 3822825 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATAAGTTTACAGCAGATTAAGAGGCGTTTCAAATGA
 spacer length: 36 repeater length: 37
 19504 3822899 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TATAGTATAGTATAACATAAGACAAAGGGTGAA
 spacer length: 33 repeater length: 37
 19505 3822970 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATTAAAAGATAGATTAAAGGAGAAATAATAATG
 spacer length: 33 repeater length: 37
 19506 3823041 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAATAATTACGGAACGTCTACGAGTACAGTAAAA
 spacer length: 34 repeater length: 37
 19507 3823113 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGATATAAGCATCAGTGGGCGACGTGTCAAAT
 spacer length: 33 repeater length: 37
 19508 3823184 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTCATATTGCTGGTCAGCAAAATTTCTGAGTATGT
 spacer length: 36 repeater length: 37
 19509 3823258 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCGAAAAAATAAAAAGATATACAGCGTGATGATGTA
 spacer length: 35 repeater length: 37
 19510 3823331 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCATGAGAGTTCCTCCATTCAATTATATGAGTAT
 spacer length: 34 repeater length: 37
 19511 3823403 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AATTCCAGATATTAACAGATTACAATAAACACTTAG
 spacer length: 36 repeater length: 37
 19512 3823477 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGTCCCGGTGAAAAATAGTATTGCCAAAACAAATA
 spacer length: 36 repeater length: 37
 19513 3823551 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TATCGTCAATATATCCCCGCGCCCGGGTCCGACAA
 spacer length: 36 repeater length: 37
 19514 3823625 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTATTTCTGTGAAATCGTAATCCTCAAGTGCCAA
 spacer length: 34 repeater length: 37
 19515 3823697 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCACGGAAGTGTGAGGAATAATCAACGACATTTCA
 spacer length: 35 repeater length: 37
 19516 3823770 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAAAAACATATCCAGTTACTGCAGGCCATCAAAG
 spacer length: 34 repeater length: 37
 19517 3823842 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAGAAGAAAATTCATTCCATCCTACATAAACAGTTG
 spacer length: 36 repeater length: 37
 19518 3823916 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCTAGCATTGAAGAGAGTTCATCAATTAATCCACCG
 spacer length: 36 repeater length: 37
 19519 3823990 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATCTTCCGAGTCTTCGAGGCCATCTGTCATTACT
 spacer length: 34 repeater length: 37
 19520 3824062 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGATGGGTTTTACCGTCGATGGGATATTACAGAGT
 spacer length: 36 repeater length: 37
 19521 3824136 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TACTCGATTGTGGCACCGTTTCCCCAATTCCAACAG
 spacer length: 36 repeater length: 37
 19522 3824210 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTCAAAACTCTCCTTGGTATACATGTCCTCACT
 spacer length: 33 repeater length: 37
 19523 3824281 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGGCTTCAAGGGATTCTCATAAGCCTCCTGATCA
 spacer length: 36 repeater length: 37

19524	3824355	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTATCCTACTGTTCTTAGTGCAACTACTCAAAAATC
		spacer length: 37 repeater length: 37	
19525	3824430	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CACATCGGGTATGTGTGTTTTTTGTGGGCGCGAAA
		spacer length: 35 repeater length: 37	
19526	3824503	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATTCTATATACTATATGTACCTTAATATAATATTC
		spacer length: 36 repeater length: 37	
19527	3824577	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AAACGTGTTGAAACCGAAACATTCGAAAGTGTA
		spacer length: 33 repeater length: 37	
19528	3824648	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTGGCAGACCCGAAAGAGAACCTGACAGAAAAGAGT
		spacer length: 36 repeater length: 37	
19529	3824722	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GGTGGAGTTTGAAGGATGTGATTTAATGACTT
		spacer length: 32 repeater length: 37	
19530	3824792	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATGTGAAGCGTGATACAAAATTTCCAAAACAAAT
		spacer length: 35 repeater length: 37	
19531	3824865	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATAATCCTATTATACTATAACTTTCTTTTTTTGA
		spacer length: 34 repeater length: 37	
19532	3824937	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGAGGCAAAGAAATTTTCAAGATGTACCAACGAAAA
		spacer length: 35 repeater length: 37	
19533	3825010	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGCTTTTTTGACGGCGTGAATAACCTCCGTAGAT
		spacer length: 33 repeater length: 37	
19534	3825081	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CCGTGCTTGTGGTTGCTCGTTGAGAAGACTGAA
		spacer length: 35 repeater length: 37	
19535	3825154	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTTGTATTTCGTGAGTGCCATTGTAGCTCAGTTG
		spacer length: 33 repeater length: 37	
19536	3825225	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GCAGGGAAGAGCTGGCTATCGGGACGATCCTAAATCA
		spacer length: 37 repeater length: 37	
19537	3825300	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GGGAGGAGCTGGCAATCGGAACAATCCTCAATCAC
		spacer length: 35 repeater length: 37	
19538	3825373	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GAAGAATTTGAAGGGTGTAACTGGTTAGGAGAAT
		spacer length: 35 repeater length: 37	
19539	3825446	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GTTTCTATTTTTATCTATTGAGTCCTAATTTTGC
		spacer length: 34 repeater length: 37	
19540	3825518	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AATATTTATTATCAGACAAAGCCGGAAGCTGATAC
		spacer length: 35 repeater length: 37	
19541	3825591	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ATGGATATTCTAATCCAAATCTTGAGTCTTTTCAT
		spacer length: 36 repeater length: 37	
19542	3825665	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGTTCCCATAAGAGTTAATCCGGCCGTAACACCA
		spacer length: 34 repeater length: 37	
19543	3825737	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TGTTGTCCAGTCTCACGGAGGAATTTGCTTTCTGT
		spacer length: 35 repeater length: 37	
19544	3825810	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GAATTTACAGAATCTACTTTTATACCACCGGTTG
		spacer length: 34 repeater length: 37	
19545	3825882	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TCTTCAATTTCTCATTTGTATCAGAAATTTTATTCT
		spacer length: 37 repeater length: 37	
19546	3825957	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CTTATTTTATTTCATGGTTTTATCTTTCTCCAGGTA
		spacer length: 35 repeater length: 37	
19547	3826030	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TCTGCCTTTTCCCGGTCTTTCCCTTCTTAATAATCA
		spacer length: 36 repeater length: 37	
19548	3826104	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AGAAAGAGGGGGAAACGTTGGGGGATGCGGGATAT
		spacer length: 35 repeater length: 37	
19549	3826177	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACAGGCCCTGCATAACTCATAGCATCACCCAATTGG
		spacer length: 36 repeater length: 37	
19550	3826251	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TCAGACTATTGTAGAATGATGAATCATATAAGC
		spacer length: 33 repeater length: 37	
19551	3826322	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	GATCTCAAATTACAAATACAATACAATCTCATTG
		spacer length: 34 repeater length: 37	
19552	3826394	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	AATTGAACGCCAGGAAGTTATGCCAATGCTTCCAG
		spacer length: 35 repeater length: 37	
19553	3826467	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TATTTGATATTGTGTATGTGGCCGGTCCAGTCAG
		spacer length: 34 repeater length: 37	
19554	3826539	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CTATTTGTTTTTATTCTTAATTGATATATAGGATC
		spacer length: 35 repeater length: 37	
19555	3826612	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	TTTGCATATATAGCAACAGACAAATATAAAAGA
		spacer length: 33 repeater length: 37	
19556	3826683	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	CATGTCCACTTCATATCGAGTGTATTCTATTCTATG
		spacer length: 35 repeater length: 37	
19557	3826756	GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT	ACCTGAAATCTCTGAATTGAAAAACCTGACTCAAC
19558			
19559			
19560	crispr 24		
19561	1717536	AAGCTGAAGTGACCGAGACTGAAGCTGAAGTAACCGAGAC	

TGAAGCAGATGAAACAGAGACTGAAGCTGAAGTAACCGAGACTGAAGCTGAAGTAACCGAGACTGAAGCTGAAGTAACCGAGACTG
 AAGCTGAAGTAACCGAGACTGAAGCTGAAGTAACCGAGACA spacer length: 127 repeater length: 40
 19562 1717704 AAGCTGAAGTGACCGAGACTGAAGCTGAAGTAACCGAGAC
 AGAAGCTGAAGTAACCGAGACTGAAGCTGAAGTAACCGAGACA spacer length: 43 repeater length: 40
 19563 1717788 AAGCTGAAGTGACCGAGACTGAAGCTGAAGTAACCGAGAC
 CCTGACTCAACTTAACATATCTGACAATCAACTTACTTCATTG
 19564
 19565
 19566 crispr 25
 19567 4593911 CGATACAGACAACAACACTATAGAAAACAACGATACAGAC
 AACAAACGATACTGATAACAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAACAACAATACAGACAATAAACA
 CACTACAGACAACAACACTATAGAGAACAACGATACAGACAACAACGATACAGACAACA spacer length: 136 repeater
 length: 40
 19568 4594088 CGATACAGACAACAACACTATAGAAAACAACGATACAGAC
 AACAAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACAACGATACAGACAACA spacer length: 64
 repeater length: 40
 19569 4594193 CGATACAGACAACAACACTATAGAAAACAACGATACAGAC
 CCGTTTCTTTTTCAGTGTGCCAGGGAGGTTGAAACTGTGCAGCCAGCTTGCTCTCCCAGTCGCGGA
 19570
 19571
 19572 crispr 26
 19573 2136160 GATCACTGTCCTGTAGGGTTGGAACCTGAATTTTGAGTTT
 AATTTTAGTTTTTAACCATTTTTCTTATTATCTCAAATTGAAATTAGTCCTCTCGAGCGCAGCGAGAAGGACAGCGTACTGCAGAGC
 CGCAACTCTGCTGTAAAAACTGCCCGATTTACCCTGAAGTCACAGGTTTC spacer length: 136 repeater
 length: 40
 19574 2136337 GATCACTGTCCTGTAGGGTTGGAACCTGAATTTTGAGTTT
 AATTTTAGTTTTAGCCATTTTTCTTATTATCTCAAATTGAAATTAGTCCTCTCGAGCACAGCGAGAAGGACAGCGTACTGCAGAGC
 CGCAACTCTGCTGTAAAAACTGCCCTATTTACCCTGAAGTCACAGGTTTC spacer length: 136 repeater
 length: 40
 19575 2136514 GATCACTGTCCTGTAGGGTTGGAACCTGAATTTTGAGTTT
 TCTATAATATGGCTCGAAGATATAGAATTCGAGAGCAAGATCCACTAAAAAAGGATTGAAACTAAATTCTCCATCTATAAACAGT
 TCAACGATTGGGATTTCGAGAGCAAGATCCACTAAAAAAGGATTGAAACT
 19576
 19577
 19578 crispr 27
 19579 1771331 GTTCCAGCCGCCCCAGATGTAGAGACTGGTTCTCTCATAA
 TACATGGCGACTTTGTTGTAAACAAGAGTAAAGAATCCCATTGTATATTCCCTCCAGATTACGATTCCCTGTTCAATTTATTCTTCCG
 AAAAGATAGCTAAGGAAGCGATTACTTTTCAGTTCAAATAGATATTATTAATCCGTATCCATTGTTATTT spacer
 length: 156 repeater length: 40
 19580 1771528 GTTCCAGCCGCCCCAGATGTAGAGACTGGTTCTCTCATAA
 TACATGGCGACTTTGTTGTAAACAAGAGTAAAGAACCCCATTTGTATATTCCCTCCAGATTTTCGATTCCCTGTTTAATTTATTCTTCCG
 AAAAGATAGCTAAGGAAGCGATTACTTTTCAGTTCAAATAGATATTATTAATCCGTATCCATTGTTATTT spacer
 length: 156 repeater length: 40
 19581 1771725 GTTCCAGCCGCCCCAGATGTAGAGACTGGTTCTCTCATAA
 TGAAGCGGATGAAACAGAGACAGAAGCTGAAGTAACCGAGACTGAAGCAGATGAAACAGAGACAGAAGCAGATGTAAGTGAAGACAG
 AAGCTGTTGAAACTGCACCGGAAGCTAATGAAACTGAACTTGGCAACAGAACAGAAGTGGAGAACATAAC
 19582
 19583
 19584 crispr 28
 19585 2195225 TGAAGTCAACTCAACATCTCTAGAAATCAACTTACTTCATT GACACCTGAAATCTCTGAATTGAAAAGC spacer
 length: 28 repeater length: 40
 19586 2195294 TGAAGTCAACTCAACATCTCTAGAAATCAACTTACTTCATT GCCACCTGAAATCTCTGAGTTGAAAAAC spacer
 length: 28 repeater length: 40
 19587 2195363 TGAAGTCAACTCAACATCTCTAGAAATCAACTTACTTCATT CGGATGTACCGGAAAAAGACCCATGCAA
 19588
 19589
 19590 crispr 29
 19591 3023270 TTGATTAAAGTCTTTCCACGCCTGTTCTTTATCCGGGACAT
 ATCCAAAAACAGTTCCAAGTCTCTGTTGCTCTCTGTGCGACATCGCTATCTTGATCTGAAGTCAG spacer length:
 67 repeater length: 40
 19592 3023378 TTGATTAAAGTCTTTCCACGCCTGTTCTTTATCCGGGACAT
 ATCCAAAAACAGTTCCAATTGCTCCTGTTGCTCTCTGTGCGACATCGCTATCTTGATCTGAAGTCAG spacer length:
 67 repeater length: 40
 19593 3023486 TTGATTAAAGTCTTTCCACGCCTGTTCTTTATCCGGGACAT
 TGAATTTTGAGTTTAAATTTTAGTTTCAGCCATTTTCCGTTTCTTTTCAGTGTGCCAGGGAGGTTGAA
 19594
 19595
 19596 GCA_000970145.1_ASM97014v1_genomic.fna(findCrispr):
 19597 START REPEAT
 SPACER
 19598 crispr 1

19599 5037169 AAAA
 TAACAACAATACAGAGAACAACAATACAGACAATAACACTATAGAGAACAACACTATAGAGAACAACGATACTGATAACAACACTA
 CAGGAACAACA spacer length: 97 repeater length: 4
 19600 5037271 AAAA TAACAACAATACAGAGAACAACGATACTGATAACAACACTACAGGAACAACA spacer length: 52
 repeater length: 4
 19601 5037328 AAAA TAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGGAACAACA spacer length: 52
 repeater length: 4
 19602 5037385 AAAA AACGGTAGCCTAAAAAACGATATATTAAAAACGCTAAGCTGAAAAACGTAA
 19603
 19604
 19605 crispr 2
 19606 4174196 GTGGCTGTAAC TTTGTTTGT
 TACGGTGTCAATTACAGAAACATTGTTGCTCTGCCAATCTGCCACATATATTTTTGTTCCATCCGGGGTGATTGCAATATCACCAG
 GACCGTCTTCTACAGACAC spacer length: 105 repeater length: 20
 19607 4174322 GTGGCTGTAAC TTTGTTTGT
 TGCCGTATCGATTACGGGATACGTCGTTGCTGCCTGTATTGGTTATATACACCTTATTTCCATCAGGACTGACTGCAACATCAGTAG
 GATGGTCTCCTACAGGCAC spacer length: 105 repeater length: 20
 19608 4174448 GTGGCTGTAAC TTTGTTTGT
 AACAACAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAACAACGATACAGACAACAACACTACAGA
 CAACAACGATACAGACAAC
 19609
 19610
 19611 crispr 3
 19612 1085875 ATTTTCACTTAAATTTGATAA
 ATTCTCTCTTTTTTCAGTTATATTCTCACTTAAATTTGATAAATTTTCTCTTTTTTCAGTTA spacer length: 62
 repeater length: 21
 19613 1085959 ATTTTCACTTAAATTTGATAA GTTTTCTCTTTTCTCTGATA spacer length: 20 repeater
 length: 21
 19614 1086001 ATTTTCACTTAAATTTGATAA CAACAATACAGACAATAACA
 19615
 19616
 19617 crispr 4
 19618 4881822 CATCCCCGACAGCGTCACAAC CATCGGCAACGACGCGTTCTCAGATTGCTCCGCTCTGACAACAGCGA spacer
 length: 47 repeater length: 21
 19619 4881891 CATCCCCGACAGCGTCACAAC TATTGGTGATTATGCATTACATCGCTGCTTCGGACTGACAACAGTGA spacer
 length: 47 repeater length: 21
 19620 4881960 CATCCCCGACAGCGTCACAAC AATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATAC
 19621
 19622
 19623 crispr 5
 19624 3893147 TGGTGACGCTGTCCGGGATGG
 TCACTGTTGTGACGGCCGAGCAGTCGCGGAACGCATAGTAGCCAATGCTGGTTACATTGTTTCCGATGGTCACAGAGGCAAGGGCG
 GTGCAGCCACGGAACGCACTGGCATCAATG spacer length: 116 repeater length: 21
 19625 3893285 TGGTGACGCTGTCCGGGATGG
 TCACGGTTGCCAGTCCGGAGCAGCCGTAGAACGCATAGGTGCCGATGCTGGTGACACCGTCCGGAATGGTCACAGAGTTAAGACCG
 GTGCAGCCAGAGAACGAGACATCAATG spacer length: 116 repeater length: 21
 19626 3893423 TGGTGACGCTGTCCGGGATGG
 GATACAGACAACAACGATACAGACAACAACGGTACAGATAATAGTAATAATAGCGATAATAGCGATACAGGAACAACAGAAGACGA
 TACTACCGGAACAAC TGTCCGGTGTACAGC
 19627
 19628
 19629 crispr 6
 19630 2441397 CCGTTGGGGTTGAGCGCATAGA
 GGCTCTTATCGTAACTCCCGGCGTACACGGTCCCGTCCGGAGCGATTGCAGGGGAGCCATAAATGTAACCACCGGTAGCATAACTC
 CATTTGAGGGT spacer length: 97 repeater length: 22
 19631 2441517 CCGTTGGGGTTGAGCGCATAGA
 GATTTTTGTGCGGGCTTCCCACGTACACGGTCCCGTCCGGAGCGATTGCAGGGGAGCCATAAATGTAACCACCGGTAGCGTAACTC
 CATTTGAGGGT spacer length: 97 repeater length: 22
 19632 2441637 CCGTTGGGGTTGAGCGCATAGA
 ATCAGAGTGACAGTATTGCTGACAATATTAGTCACATACACGTATGTCCCAGCAGGGTTCACGGCTATTCCGGAAGGATGATCACC
 GACATCAACTT
 19633
 19634
 19635 crispr 7
 19636 3196731 ATGGTTCCATCGACACCAATTGC
 TGGTGCACTGCGGTAAAAATTTGGTTCCGATTTTTTTTACTCCATTTGAGTGTTCCATCTGGATTTAATGCATGGAAATTGCTTATGC
 CGTCCCCAATGTA spacer length: 99 repeater length: 23
 19637 3196854 ATGGTTCCATCGACACCAATTGC
 TGGTGAAGTGTAGATAGAAAATCCAGTTTTGTAATTCCATTTAAGTGTTCCGTCAGGATTTAAAGCATAAACATTTGGGGTGGTAG
 TTCCGACAGTTCCAATGTA spacer length: 105 repeater length: 23
 19638 3196983 ATGGTTCCATCGACACCAATTGC

TGTTTGTAGTCTGCGTTAATCACAGTGACAGTATTGCTGACAATATTAGTCACATACACGTATGTCCCAGCAGGGTTCACGGCTATT
CCGGAAGGATGATCACCGA

crispr 8

1068516 GTTGAATCATCTGTTGAATCGTC
TGTGAATTGTCTGTTGAATCGTCTGTTGAATTGTCTGTTGAATCGTCAGTTGAATCATCAGTTGAATCATCAGTTGAATCGTCAG
TTGAATCATCAGTTGAATCGTCAGTTGAATCATC spacer length: 120 repeater length: 23
1068660 GTTGAATCATCTGTTGAATCGTC AGTTGAATCATCAGTTGAATCATC spacer length: 24 repeater
length: 23
1068708 GTTGAATCATCTGTTGAATCGTC GCAGTACTCCGGACATGATAATCC

crispr 9

3545010 TGTCAGCTTCTTTTATGTCAGCTC CTTTTATGTCAGCTTCTTTT spacer length: 20 repeater
length: 24
3545055 TGTCAGCTTCTTTTATGTCAGCTC
CTTTTATGTCAGCTTATTTTATGTCAGCTCCTTTTATGTCAGCTTCTTTTATGTCAGCTTCTTTT spacer length: 65
repeater length: 24
3545145 TGTCAGCTTCTTTTATGTCAGCTC
AGCTGCGTTAATCACAGTGACAGTATTGCTGACAATATTAGTCACATACACGTATGTCCCAGCAG

crispr 10

4875225 TCCGGTCTGACCACATTGAGCATCCC
GAACAGCGTAACCAACATCGGTACCAGAGCATTCGAAGATTGCTCCGCTCTGACCTCGTTGAGCATCCCGGACAGTGTAACCACCA
TCGGTGACAACGCGTTCTCAGATTG spacer length: 111 repeater length: 26
4875363 TCCGGTCTGACCACATTGAGCATCCC
GGACAGCGTAACCAGTATTGGCAATTATATGTTTCAGGGTTGCTCCGGTTTGACCACATTGAGCATCCCGGACAGCGTAACCAGTA
TTGGCAATTATATGTTTCAGGGTTG spacer length: 111 repeater length: 26
4875501 TCCGGTCTGACCACATTGAGCATCCC CGACAATGTCACTACTATCGGTACCAGAGCATTTCGAAGATTG spacer
length: 42 repeater length: 26
4875570 TCCGGTCTGACCACATTGAGCATCCC AAAAACCTTACAACACTTGACTTATCTCTCAACGAGCTGACA

crispr 11

1068652 AATCATCAGTTGAATCATCTGTTGAAT CGTCAGTTGAATCATCAGTT spacer length: 20 repeater
length: 27
1068700 AATCATCAGTTGAATCATCTGTTGAAT CGTCAGTTGAATCATCAGTTGTTCTT spacer length: 26
repeater length: 27
1068754 AATCATCAGTTGAATCATCTGTTGAAT ATGATAATCCTTATCAGTCGTGACCC

crispr 12

1961423 CATCAGATACAGGATGAGCCTGCTCAT CAGATACAAGATGAGCCTGC spacer length: 20 repeater
length: 27
1961471 CATCAGATACAGGATGAGCCTGCTCAT CAGATACAGGATGAGCCTGC spacer length: 20 repeater
length: 27
1961519 CATCAGATACAGGATGAGCCTGCTCAT ACAGACAATAACACTACAGG

crispr 13

1130789 CCACCACCCCATGAGTAATATAAGTACCGTTG
CTGTCAAACCTTCTGAATGCGCTGATTGTCCGTATCAGCAACATAAACATTGTCCAATGAATCTACAGCAACACCATGTGGACCAGA
AAATAGTCCGGCAGCGGCGCC spacer length: 107 repeater length: 33
1130930 CCACCACCCCATGAGTAATATAAGTACCGTTG
CTGTCAAACCTTCTGAATGCGTTCATTGGACGTATCGGCAACATAAACATTTCCCGATGAATCGACAGCAACACCATGTGGACTATA
AAATAGTCCGTCACCGGCTCC spacer length: 107 repeater length: 33
1131071 CCACCACCCCATGAGTAATATAAGTACCGTTG
GTTACGGCTATTCGGAAGGATGATCACCGACATCAACTTTGGCTTTAACTTCGTTTGTAGCTGCATCAATTACGGATAACCGTGT
TGTTATTAACGTTTCGTCACAT

crispr 14

3893958 CAGAGCGGAGCAATCCTGGAACGCGCTGGTGCCGAT AGTAGTGACGCCGCTACCGATTGTCACTGTTG spacer
length: 32 repeater length: 36
3894027 CAGAGCGGAGCAATCCTGGAACGCGCTGGTGCCGAT GGTAGTGACGCCGCTACCGATTGTCACTGTGG spacer
length: 32 repeater length: 36
3894096 CAGAGCGGAGCAATCCTGGAACGCGCTGGTGCCGAT AATCATCTGTTGAATCATCTGTTGAATCATCT

19684 crispr 15
19685 1853613 CATGTATTATGAGAGAACCAGTCTCTACATCTGGGG
TGCCTGGGACTAAATAACAATGGATACGGATTAATAATATCTATTTGAACTGAAAAGTAATCGCTTCCTTAGCTATCTTTTCGGAA
GAACAAATTAACAGGAATCGAAATCTGGAGGAATATATAATGGGATTCTTTACTCTTGCTTACAGCAAAGTTG spacer
length: 160 repeater length: 36
19686 1853810 CATGTATTATGAGAGAACCAGTCTCTACATCTGGGG
CGGCTGGAACATAAACAATGGATACGGATTAATAATATCTATTTGAACTGAAAAGTAATCGCTTCCTTAGCTATCTTTTCGGAA
GAATAAATTAACAGGAATCGAAATCTGGAGGAATATACAATGGGATTCTTTACTCTTGTTTACAACAAAGTCG spacer
length: 160 repeater length: 36
19687 1854007 CATGTATTATGAGAGAACCAGTCTCTACATCTGGGG
CTGAATCTCCAGTACCGGGGTCTCCTGTATCCGAACCTCCACTGTCTCCAGCTATTTCTTCTACAGCAGATGCCATTCCGGGAGCC
ATTCTTGAATTATTAGCATTACTAATAGTACATAAATTAAAGAAGCAAAAAACCAGTTTTTCATTTTTTTTAG
19688
19689
19690 crispr 16
19691 5037492 AACACGATACAGACAACAACACTACAGACAACAACA
CTACAGACAACAACACTACAGACAACAACGATACAGACAACAACGATAACAGACAAC
AACACTACAGA spacer length: 97 repeater length: 37
19692 5037627 AACACGATACAGACAACAACACTACAGACAACAACA
GAAAATAACAACAATACAGAGAACAACAATACAGACAATAACACTACAGGAACAACAGAAAATAACAACAATACAGA spacer
length: 77 repeater length: 37
19693 5037742 AACACGATACAGACAACAACACTACAGACAACAACA
GACTCCAGCACCTGAATCTCCAGTACCGGGGTCTCCTGTATCCGAACCTCCACTGTCTCCAGCTATTTCTTCTACAG
19694
19695
19696 crispr 17
19697 2819269 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTGGGAGTTTCAGTAATTATGGGCTGCCC GTTGTGCG
spacer length: 36 repeater length: 37
19698 2819343 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTACATCTTTTGGTGGTACACATTTGAGGAAACAT
spacer length: 35 repeater length: 37
19699 2819416 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATAAAATACCAATTATAACCACGGCAACGATGACAG
spacer length: 37 repeater length: 37
19700 2819491 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATTTTTGGTGTAAGGTTGCAAAGACCTGTCAGGAGA
spacer length: 37 repeater length: 37
19701 2819566 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGAGGAATAAACAACGTATCAGCACAAAGGAGCG
spacer length: 35 repeater length: 37
19702 2819639 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAAAACAAGCTGTTTTATGTGGAGCTACAGGATCAG
spacer length: 36 repeater length: 37
19703 2819713 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTCCACCCATGAACGCGGCTCACTGTCAGGACCTG
spacer length: 36 repeater length: 37
19704 2819787 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAATGTTCTAAGAGCAAGGTTTGAGGACTACGGATCGT
spacer length: 38 repeater length: 37
19705 2819863 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTATCAATACCCCTATAGAAAACGAAACAACGG
spacer length: 33 repeater length: 37
19706 2819934 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTACCATCGAGCCGTCACAGACATTATCATGAATA
spacer length: 36 repeater length: 37
19707 2820008 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTGACCTGCGGCGACCATCTCAGATACAGTATC
spacer length: 34 repeater length: 37
19708 2820080 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGTTATTGATTGGGAAGAGACAGCAGAAAATT
spacer length: 33 repeater length: 37
19709 2820151 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGTAAAATATTGGAAAATGTTATTTTAACTAAAG
spacer length: 35 repeater length: 37
19710 2820224 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT
ACCATATAACCAAAAAACAAGAACTCGGTACAGTATTTGA spacer length: 39 repeater length: 37
19711 2820301 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTTTATGACTGCTGATGATTTTATTGAAGCATGGA
spacer length: 36 repeater length: 37
19712 2820375 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGGCCACAAATGCAAAAAATATCAATGTAAAT
spacer length: 34 repeater length: 37
19713 2820447 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT
TTTTTCCAGATGGTTTTGAAAGTTCAGGACTTGATCAA spacer length: 39 repeater length: 37
19714 2820524 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AGTTTTTCTTACCTTTCCTAGATCAAGAGTAGTA
spacer length: 34 repeater length: 37
19715 2820596 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAACAGTCCATCACGGTTAGGGTGTCAGCCGTGTT
spacer length: 35 repeater length: 37
19716 2820669 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAAACAAGACTTGAGCCATCACTAAAGAACATTGT
spacer length: 36 repeater length: 37
19717 2820743 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTTTTGAGACTGATGCGTTTTACCGTACCATGTGA
spacer length: 37 repeater length: 37
19718 2820818 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCGATCTTGGGGAAGGCGGCACACAGAGTATA
spacer length: 33 repeater length: 37
19719 2820889 GTTTC AATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGCATATCATTATAGAGCGTGGAGGACTATTGAA

spacer length: 35 repeater length: 37
 19720 2820962 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCTTATATTTGATCATAGACCAGATTTCAATTCGT
 spacer length: 35 repeater length: 37
 19721 2821035 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGTCGTAAGAGAATTTACGGTGTAATCCTTTCT
 spacer length: 35 repeater length: 37
 19722 2821108 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTTTAGACTGTACGATGTACAGATGTACATGTACA
 spacer length: 36 repeater length: 37
 19723 2821182 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTGGTGGAGCGGCTGTTACCCGCGAAATATATT
 spacer length: 33 repeater length: 37
 19724 2821253 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCCGCCGCCGCTGATAAATGAACCGACGATCCG
 spacer length: 33 repeater length: 37
 19725 2821324 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAATATTCGATTTTCGATTTGTGGAATCTGGGATATG
 spacer length: 36 repeater length: 37
 19726 2821398 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GATTGTTGATAGGTATGCCGCCGCCATCGATCCGAG
 spacer length: 36 repeater length: 37
 19727 2821472 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACCACGAACGAGTTAACATCTTCTTCCTTTTACCC
 spacer length: 36 repeater length: 37
 19728 2821546 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTACATTATTCATTTCCACAAAAACGATATCA
 spacer length: 35 repeater length: 37
 19729 2821619 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTAAATTCCTATCAGAGAAGGCCAGGAATTCCTT
 spacer length: 36 repeater length: 37
 19730 2821693 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCTGTAATGTCCTTTCCATCTTTGCTGATAACT
 spacer length: 34 repeater length: 37
 19731 2821765 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGAGTTTGCTGATATTTCTTATGACAATCCGCCGA
 spacer length: 36 repeater length: 37
 19732 2821839 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTATTTATGTTTCGGTTCGATTGACTGGACTTCG
 spacer length: 34 repeater length: 37
 19733 2821911 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCAAATTTTCGATCGATCTGATTGATGACACCAGA
 spacer length: 35 repeater length: 37
 19734 2821984 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGAGTTCAAAAGCCTGTAGACCTGCACATTT
 spacer length: 32 repeater length: 37
 19735 2822054 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATATACAACGTCTCCGTCAATTGATAATACTACG
 spacer length: 34 repeater length: 37
 19736 2822126 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CACCGGAGCATATTCACACCAGATAATCCTGATCT
 spacer length: 35 repeater length: 37
 19737 2822199 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTCAAAGTCCACGTACACCAGTCGGACTCGTC
 spacer length: 33 repeater length: 37
 19738 2822270 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 TCATGCATATCTTTGTTAGATTCATCAAACGTGTCGTGT spacer length: 39 repeater length: 37
 19739 2822347 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTCGTACAGGTAAGTGTGATGATTGTGTGATCCAGAA
 spacer length: 37 repeater length: 37
 19740 2822422 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATTAGAACTATCTGATCACAGTCTAATGCACTGGA
 spacer length: 36 repeater length: 37
 19741 2822496 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGTTACGATAGCCAAGTGTAACGGCGAAAG spacer
 length: 31 repeater length: 37
 19742 2822565 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATCAGCCCCACTTTTTATTATAATATCTATTTTT
 spacer length: 35 repeater length: 37
 19743 2822638 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTCCGGGATGCTCACCGTTGTCAGAGCGGAGCAAA
 19744
 19745
 19746 crispr 18
 19747 4282906 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCTTTTTCTGTTTCGTCTGTAAGATCTACCATAT
 spacer length: 33 repeater length: 37
 19748 4282977 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGATATTACGACCGCCATAAGATTTGGTCAGAAT
 spacer length: 35 repeater length: 37
 19749 4283050 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTTTGCTTTAATCCGCCGACCGGAGATAAGTCCGG
 spacer length: 36 repeater length: 37
 19750 4283124 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGAATGAAAGGTGAATGTGCACTACGACGACAGGCCA
 spacer length: 37 repeater length: 37
 19751 4283199 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCATTCTCATCTGCCTTTTTTTTCTCTTCTTCTA
 spacer length: 34 repeater length: 37
 19752 4283271 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGACGATGATTGGGACGACGAACAGGAAGTATGGG
 spacer length: 36 repeater length: 37
 19753 4283345 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAGGGGATCGCTGGAGGGAATGACAGCATGATTGAT
 spacer length: 36 repeater length: 37
 19754 4283419 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAATGATTGGTAACCTTATCCAGGGAATGATGAAGA
 spacer length: 36 repeater length: 37
 19755 4283493 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTAAGATCTTCAAGAGTCAGAACTTTTCTATTGAGGG
 spacer length: 37 repeater length: 37
 19756 4283568 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTTCATTATCGAAACATAGTTTGCCATCTTTTGTTA
 spacer length: 37 repeater length: 37

19757 4283643 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTTGATTCTGTATCATGTCCATGTGAAGAGGCTC
spacer length: 34 repeater length: 37

19758 4283715 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTACCGGAACTGTTATAAGCATTCCAATATGTAC
spacer length: 34 repeater length: 37

19759 4283787 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AACGACCAGATTGACTTCATTAAAGGAATTGTTGA
spacer length: 34 repeater length: 37

19760 4283859 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
TGGGAGTCAACCTTACCGTCTTAGTCATACTGGTTTCAATCCTTATTTTAGTGGATCTTGCTTTTCAATAATCCCGTTCAATATTG
TATATATCGAGATAAAAA spacer length: 104 repeater length: 37

19761 4284001 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACGAGGGGAAGGTTTCATTAGAAACCCCCAAGAGA
spacer length: 35 repeater length: 37

19762 4284074 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGCAAAGTAGCCTGTACGGACGAATTAGCCTGACA
spacer length: 36 repeater length: 37

19763 4284148 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCGGCTGCGTCTAATGTTGTACGTGTAGTACAGTT
spacer length: 35 repeater length: 37

19764 4284221 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CTGAGATTCCCCAATTGTCGAGTCTGTGCCTCCAA
spacer length: 35 repeater length: 37

19765 4284294 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAGAGTTAACTGAGTTGCTATTTCGAAAGAGGCATAAT
spacer length: 37 repeater length: 37

19766 4284369 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAGAAATGATAGCCTATCTTTAGGCTATCTTA
spacer length: 32 repeater length: 37

19767 4284439 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
CTCATTTTCATCGAAATCCTTTAGGACCTTCTGCTCACGC spacer length: 40 repeater length: 37

19768 4284517 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATACCCTGAGCAAATCCCTTAATACTACCAATACCT
spacer length: 36 repeater length: 37

19769 4284591 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GCCATCTAAACGCATAGCAGAAGAAGAAGTATCTT
spacer length: 35 repeater length: 37

19770 4284664 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGCCGCAGTTCTCATTCTGCGAAATCGTCCATCTTT
spacer length: 37 repeater length: 37

19771 4284739 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGACAGACTTGCAAGGCCGTCAACGTTTAAAAGT
spacer length: 34 repeater length: 37

19772 4284811 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAAGATCCATTTTCAACGGGGACCAATAACGCATGG
spacer length: 36 repeater length: 37

19773 4284885 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGAATCGTATTTTAATTCTTCGTATTACGATTGG
spacer length: 35 repeater length: 37

19774 4284958 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GCACAGAGAACTTCATACAATGATTTCAGTCCATC
spacer length: 34 repeater length: 37

19775 4285030 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAATGCCAGTGACCTCCGTAATCTATCCCCCTATA
spacer length: 36 repeater length: 37

19776 4285104 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGTCTATGGTATCCATACTCGCAGATGGCAGTC
spacer length: 34 repeater length: 37

19777 4285176 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GTAGGCAGTACCTACAAACAGCAACGAAGGAAA
spacer length: 33 repeater length: 37

19778 4285247 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGTAGATAAGTATGCGGCAGCCATCGATCCCAG
spacer length: 34 repeater length: 37

19779 4285319 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAGATAATCTCAGGCCGATCAACAAAAGACAAGGA
spacer length: 35 repeater length: 37

19780 4285392 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TAGTTGCTGCCTTCAGAATCTCAGTTTCATGATT
spacer length: 34 repeater length: 37

19781 4285464 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAGTATTGCGCGAAAAGAGCATCATGACCAAGCT
spacer length: 34 repeater length: 37

19782 4285536 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTGCGCCTTCAGCTAGACACCATTACCAAGAAT
spacer length: 34 repeater length: 37

19783 4285608 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TTATTCTTACCCCAATTTTGCAGAATCGTCTTAGC
spacer length: 35 repeater length: 37

19784 4285681 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCGATTCAATTTGGGCCCTGTGGATTTTCAACGATA
spacer length: 35 repeater length: 37

19785 4285754 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGTGCAGTCACGGGGGAGCCTCCCAACTCATG
spacer length: 33 repeater length: 37

19786 4285825 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAGGGGCGAAGCCCCTTCCCTTGACCAATATAGA
spacer length: 35 repeater length: 37

19787 4285898 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGTTTTTGATATGACCGCTATCAGAAAAATCTATG
spacer length: 36 repeater length: 37

19788 4285972 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TCCTCTTCAATGGCGGGTATGCTATTTCTGATG
spacer length: 34 repeater length: 37

19789 4286044 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAAAAACAATGGTATGATGCAATACTGTTTG
spacer length: 32 repeater length: 37

19790 4286114 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CCGATGAGTACATAGTCCACGCCGTCCCCGAAT
spacer length: 33 repeater length: 37

19791 4286185 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GGGATAGTTAAGCCGGATTGGCGAGTAGTGAAA
spacer length: 33 repeater length: 37

19792 4286256 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAGTTAGAGCCTTTTCCGCTCAAACCTTTGTTTCTCA
spacer length: 37 repeater length: 37
19793 4286331 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGGTTATCGTGTGCGTTGAATATCCGCCACGTTT
spacer length: 35 repeater length: 37
19794 4286404 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGCGGCGTTGGATGTTCAACCCCGTGATATATTCA
spacer length: 35 repeater length: 37
19795 4286477 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AAGACGCTGTTTTAAGCAAGTTGGTTTGAGGGATGT
spacer length: 36 repeater length: 37
19796 4286551 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CGCTGTTGTTACTTCGTGGGAAAAGCAAACGAAT
spacer length: 35 repeater length: 37
19797 4286624 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGTCCTGGATGTGTAGCACGTTATTATCCTCCACAA
spacer length: 37 repeater length: 37
19798 4286699 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CAAATTCTGAAATTGCTTTCTCGGCTGCCTGCTG
spacer length: 34 repeater length: 37
19799 4286771 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CATCGGATTGTTTTTACTCCAAATAATGTCTTGGC
spacer length: 35 repeater length: 37
19800 4286844 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGAATTCGAAAGATGTGAAAAAATGAAGGAGTTGGA
spacer length: 36 repeater length: 37
19801 4286918 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGATCATGACGACTGAAATCGATATGCTATATGCG
spacer length: 36 repeater length: 37
19802 4286992 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
TGTTGAGTAGTTGCTGTGACATGCACAGAATTAGATGTTTCAATCCTTGTTTTAGTGGATCTTGTTTTTCAATATCGGTGCGAGGT
TCGGATGGACAAGGGGGGAAAA spacer length: 108 repeater length: 37
19803 4287138 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT AGGAAATCAGTTTCACGGATCACGAACTTCGTGAT
spacer length: 35 repeater length: 37
19804 4287211 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAAAAGATGAAAAGGTGAACAGAAAATGAGCTACT
spacer length: 35 repeater length: 37
19805 4287284 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ACTCTTGAAGAAGGTACTGGAATCTGTCTCTAT
spacer length: 34 repeater length: 37
19806 4287356 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT
CTGGTTTGAATGTCCATGTTGGGGAGTTAATGTCACCGC spacer length: 39 repeater length: 37
19807 4287433 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GGATATACAGACAAGCAACTCCGCAATGGAACCTG
spacer length: 35 repeater length: 37
19808 4287506 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GAGATGCAGGTGAAAACCCAGATGATTACAGACTT
spacer length: 35 repeater length: 37
19809 4287579 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT ATGATATTCAATTCATCGTCGTCATCCGGCAAAC
spacer length: 33 repeater length: 37
19810 4287650 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT TGAAAACTAGCTAACCCCTCCGGTATCCTATACCT
spacer length: 35 repeater length: 37
19811 4287723 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT CATAACATTTTTGCCCTTCTCGCTTCCTTGTTATGT
spacer length: 36 repeater length: 37
19812 4287797 GTTTCAATCCTTGTTTTAGTGGATCTTGCTTTTCAAT GCCCCACTTTTTATTATAATATCTATTTTTAGTTTC
19813
19814
19815 crispr 19
19816 2768563 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TCCGAAATACAGAGTCCGCCAATCGTACCAGGAAGTA
spacer length: 37 repeater length: 37
19817 2768638 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CTGCTTTTTTTTTTCTATTCTCTTTTATATTTTT
spacer length: 33 repeater length: 37
19818 2768709 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GACACTGGTAAAGGAATATTAACCTGTTTCCCTTTT
spacer length: 36 repeater length: 37
19819 2768783 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AGGAGAACAAGAAATGAGAAACATCAACAAAAATTGG
spacer length: 37 repeater length: 37
19820 2768858 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AGGATTACGAAAGAGGGCCGCTCCTTGAATTAC
spacer length: 33 repeater length: 37
19821 2768929 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TATAAAAATGAATTTTCCCTGTAGCAGATCTATGT
spacer length: 35 repeater length: 37
19822 2769002 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GACTACAAGGATGAATATACTATGGTAGATGAAGA
spacer length: 35 repeater length: 37
19823 2769075 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ACATCATCCGTTTCCCTACTACCTTGAACGAAGTTGT
spacer length: 36 repeater length: 37
19824 2769149 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AGAAAACGCCATATTTCTGCTAGAAAATACTATTT
spacer length: 35 repeater length: 37
19825 2769222 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTACCGTTGCTTTATCCGATTTTAGCCTCTTCATGG
spacer length: 36 repeater length: 37
19826 2769296 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GAATGTACGTTGAAAGAAGGAGAAATGAACATAG
spacer length: 34 repeater length: 37
19827 2769368 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTTCGGTGATGCTTGTATTGTTGGCAATCAGTTTA
spacer length: 35 repeater length: 37
19828 2769441 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AAAATAGCAGAGATAAACCAGGCCTGTTAACAGA
spacer length: 34 repeater length: 37

19829 2769513 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG GGAGGAATGACAATGAATGTCGTGAAATCAATATTAT
spacer length: 37 repeater length: 37

19830 2769588 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ATATTGTACTTGGCAGTCTCCTGAATCTGATCAA
spacer length: 34 repeater length: 37

19831 2769660 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ATAAAAGATTGTGTACTGCAAAGACGATATTGTAG
spacer length: 35 repeater length: 37

19832 2769733 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG ATGTGGAGCATATCCAGAGCTAAAAACAATAAAA
spacer length: 35 repeater length: 37

19833 2769806 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG AAGAGGTTGAAATTCCTTATTCTTTAGAACAGATTGA
spacer length: 37 repeater length: 37

19834 2769881 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG TTTCTAATTGTTTCTTTTATGGTAGCGGTATTT
spacer length: 33 repeater length: 37

19835 2769952 GTTTCAATCCTTGTTTTAGTGGCTGTTGCTGTTTTAG CGTTTTCCCTTATTTACAGCAAATTATTAAATA

19836

19837

19838 crispr 20

19839 3113414 CAACTGCCACCTGAAATTACAGAACTTAAAAACCTTACA GAACTTAACTTATCATGGAACCAGCTGAC spacer
length: 29 repeater length: 39

19840 3113483 CAACTGCCACCTGAAATTACAGAACTTAAAAACCTTACA ATACTTTCCTTATCTTCGAACCAGCTGAC spacer
length: 29 repeater length: 39

19841 3113552 CAACTGCCACCTGAAATTACAGAACTTAAAAACCTTACA GTTCCGTCAGATCCGATTCCGGGTGCACT

19842

19843

19844 crispr 21

19845 5355297 TTAAAAAACGGTAGCCTAAAAAACGATATATTAAAAAAC GGTAGCTTAAAAAACGATAT spacer length:
20 repeater length: 39

19846 5355357 TTAAAAAACGGTAGCCTAAAAAACGATATATTAAAAAAC
GGTAGCTTAAAAAACGATATATTAAAAAACGGTAGCTTAAAAAACGATAT spacer length: 50 repeater
length: 39

19847 5355447 TTAAAAAACGGTAGCCTAAAAAACGATATATTAAAAAAC
ATACAGACAACAACGGTACAGATAATAGTAATAATAGCGATAATAGCGAT

19848

19849

19850 crispr 22

19851 3405430 ACATCAACCGTGGCTGCAACAGTGTTTGTAGCTGCGTTAA
TCACAGTGACGGTATTGCTGACAATATTAGTCACATACACGTATGTTCCAGCAGGATGCAATTCCGGAAGGATTCTGGCC
spacer length: 85 repeater length: 40

19852 3405556 ACATCAACCGTGGCTGCAACAGTGTTTGTAGCTGCGTTAA
TCACAGTGACAGTATTGCTGACAATATTAGTCACATACACGTATGTCCCAGCAGGGTTCACGGCTATTCCGGAAGGATTCTGGCC
spacer length: 85 repeater length: 40

19853 3405682 ACATCAACCGTGGCTGCAACAGTGTTTGTAGCTGCGTTAA
AGGAACAACAGAAAAATAACAACAATACAGAGAACAACGATACAGACAACAACACTACAGACAACAACGATACAGACAACAACACT

19854

19855

19856 crispr 23

19857 2014206 GGGTCGTCATGCCAACCACGAGCAAGTTCCTGAACTGCAG
TACCCCGGACATGATAATCCTTATCAGTCGTGGCCCTCTGTTTTATAATATTTAGGGTTTC spacer length: 61
repeater length: 40

19858 2014308 GGGTCGTCATGCCAACCACGAGCAAGTTCCTGAACTGCAG
TACCCCGGACATGATAATCCTTATCAGTCGTGGCCCTCTGTTTTATAATATTTAGGGTTTT spacer length: 61
repeater length: 40

19859 2014410 GGGTCGTCATGCCAACCACGAGCAAGTTCCTGAACTGCAG
AGACAACAACGGTACAGATAATAGTAATAATAGCGATAATAGCGATACAGGAACAACAGAA

19860

19861

19862 crispr 24

19863 3406345 GTCTCATCTTCTCCGGTCTCATCTTCTCCTGTTTCATCTT
CTCCTGTTTCATCTTCTCCTGTTTCATCTTCTCCTGTTTCATCTTCTCCTGTTTCATCTTCTCCTGTTTCATCTTCTCCTGTTTC
TCTTCTCCGGTCTCATCTTCTCC spacer length: 109 repeater length: 40

19864 3406495 GTCTCATCTTCTCCGGTCTCATCTTCTCCTGTTTCATCTT
TTCCGGTCTCATCTTCTCCTTTTTTCATCTTCTCCTGTCTCATCTTCTCCTTTTTTCATCTTCTCCTGTCTCATCTTCTCC
spacer length: 79 repeater length: 40

19865 3406615 GTCTCATCTTCTCCGGTCTCATCTTCTCCTGTTTCATCTT
CGGCTATTCCGGAAGGATGATCACCGACATCAACTTTGGCTTTAACTTCGTTTGTAGCTGCATCAATTACGGATACCGT

19866

19867

19868 crispr 25

19869 2371357 TGCGTATAGTTTGTGTCACGGCTTCCGATATAGATGGTT
CCATTGGATCCGATTGCGGGGAACCATATATCATACCTCCTGTGGTGTACGTCCATTTTAGGGTTCCGTGCGCGTTCA
spacer length: 79 repeater length: 40

19870 2371477 TGCGTATAGTTTGTGTCACGGCTTCCGATATAGATGGTT

CCGTCAGATCCAATTGCAGGTGAATTATATATCATACCTCCTGTGGTGTACTTCCATTTTAGGGTTCCATCGGCGTTCA
spacer length: 79 repeater length: 40

2371597 TGCGTATAGTTTGTGTGCACGGCTTCCGATATAGATGGTT
ATAACACTACAGGAACAACAGAAAATAACAACAATACAGAGAACAACGATACAGACAACAACACTACAGACAACAACGA

GCA_000970165.1_ASM97016v1_genomic.fna(findCrispr):

START REPEAT

SPACER

crispr 1

902305 ATCCATTAAAA CAAGGATTGAACTTTGGATTGGCTTAATTCCTTCTCTGCATGAAGATTCGCGAGCAA

spacer length: 59 repeater length: 11

902376 ATCCATTAAAA CAAGGATTGAACTAATAAAATTTGGGTATTGAAACCATTACATTACCATTTCGCGAGCAA

spacer length: 60 repeater length: 11

902448 ATCCATTAAAA CAAGGATTGAACTTTTCTAAAACGTGTCCCGATGAAAGTATAATCATCAAATTCGCGAGCAA

spacer length: 62 repeater length: 11

902522 ATCCATTAAAA CAAGGATTGAAACATTCTTCGGACTCACC GGTTAATTCGGAAACACAATTCGCGAGCAA

spacer length: 60 repeater length: 11

902594 ATCCATTAAAA CAAGGATTGAACTCTGAGCAATAATAGGCGTCATTGAAGCCCACATGCATTTCGCGAGCAA

spacer length: 61 repeater length: 11

902667 ATCCATTAAAA CAAGGATTGAACTAAATGTGGTCAGATGAAACACATAGCAGGAGTTGATTTCGCGAGCAA

spacer length: 60 repeater length: 11

902739 ATCCATTAAAA CAAGGATTGAAACCCCGTCTGGTAACATGAAGAGTACGACGGTACTTTATTTCGCGAGCAA

spacer length: 61 repeater length: 11

902812 ATCCATTAAAA CAAGGATTGAAACCACACTCTATTGAATTCTTCAGGGTTTTCCACATTTTATTTCGCGAGCAA

spacer length: 63 repeater length: 11

902887 ATCCATTAAAA CAAGGATTGAAACTACACCCGCATCCATTGTTTGAGCACATTTTCAGTTAGATTTCGCGAGCAA

spacer length: 62 repeater length: 11

902961 ATCCATTAAAA CAAGGATTGAAACCTGAAGGAGATTACATCCTGCAGTTTTATATTGAATTCGCGAGCAA

spacer length: 59 repeater length: 11

903032 ATCCATTAAAA GCAAGATCCACTAAAACAAGGATTGAACTAAAGAGTGGTTAAAGGACGAATCCAAAAA

crispr 2

1253967 TGACCGCACGGCGAGTGCTG

GTAATAGCTTGTAAAGAACTTATTTCTAAAAATATTAGATCCATGTAATCAATAGCTACTGCCGTTATTTTAAAAAATGTTGCAAT

TAATCTTGCTTAATGTGCAGTTCTGAAATTA spacer length: 118 repeater length: 20

1254106 TGACCGCACGGCGAGTGCTG

ATAATAAAAAATTAATATCAAGTAAAAAAGAGATAATCTCTATAATAAGCTACATTGCCGTTATTCAATTACACACCATAACGT

AGATACACTGTATGTAGTCTGTAAATTA spacer length: 116 repeater length: 20

1254243 TGACCGCACGGCGAGTGCTG

ACAAACCCACATGCTCTCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCCGCACTGGAAGCAGTGGATTG

ACAGGTCTCTGTTTTTTTGGCTGGGACTCGG

crispr 3

3215821 GATGAAACATCAGGTGGAGAT GTACCATCAGATAACGGTGAAACATCCGGTGAAGATGATCAATCTGGAAA

spacer length: 50 repeater length: 21

3215893 GATGAAACATCAGGTGGAGAT ATACCATCAGTTAACGATGAAACATCAGGTGAAGATGATCAATCTGGAAA

spacer length: 50 repeater length: 21

3215965 GATGAAACATCAGGTGGAGAT GCGTTGGTAACAATAAATCAAAAGTCTATATTTTGAATAGTGTACAATCA

crispr 4

3355866 TTAATTATATAAACTGTAATT ATACTGGAAATTAAACAAAC spacer length: 20 repeater
length: 21

3355908 TTAATTATATAAACTGTAATT ATACTGGAAATTAAATAAAC spacer length: 20 repeater
length: 21

3355950 TTAATTATATAAACTGTAATT TAAACAAGGATTGAACTC

crispr 5

1254099 AAATTAATGACCGCACGGCGAG

TGCTGATAATAAAAAATTAATATCAAGTAAAAAAGAGATAATCTCTATAATAAGCTACATTGCCGTTATTCAATTACACACCAT

AACGTAGATACACTGTATGTTAGTCTGT spacer length: 114 repeater length: 22

1254236 AAATTAATGACCGCACGGCGAG

TGCTGGTAATAAAAAATGAATGTTTCAGTTGTGGTGCAAGTCAGTTACTAAAATCAGCATCTATACCGTGATTCAATTTTTTCATAT

AATTCAACTATACTTGACATCATCTAA spacer length: 113 repeater length: 22

1254372 AAATTAATGACCGCACGGCGAG

AAAACAAGGATTGAACTAAAGAGTGGTTAAAGGACGAATCCAAAAAATCAATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAA

ACTCCGTCGACTCCGTAGTCTCTCAAG

19912
19913
19914 crispr 6
19915 1301737 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
CAAACGACAGCAGTGTCTCTGTAATTAACACAACGACCAGCAGTGTATCGCCAGTGTTCAGTAGATTACAGTCCTTCTGGAGT
TGTAGT spacer length: 92 repeater length: 33
19916 1301863 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
TACGGCAGTAACACTACTTCCGTAATCGATACGTCTAATTACAGTATTACCTTCACGGTGTCTGTAGGAATTGCTCCTTATGGAGT
TGCGAT spacer length: 92 repeater length: 33
19917 1301989 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
TCTCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCCGCACTGGAAGCAGTGGATTGACAGGTCCTGTTTT
TTTGGC
19918
19919
19920 crispr 7
19921 3096888 CCTGAACTTAATAACTGACTGAGATTAACAATTA
CTAGAAATTAATAACTGACTGAAATTAACAATTAACCTGAAATTGATGATTATTTAATTTAGCAATTA spacer length:
68 repeater length: 34
19922 3096991 CCTGAACTTAATAACTGACTGAGATTAACAATTA ACCTGAACTTAATGATTATTTAATTTAGCAATTA spacer
length: 34 repeater length: 34
19923 3097060 CCTGAACTTAATAACTGACTGAGATTAACAATTA TGATTATTTAATTTAGCAATTAACCTGAAAGTTA
19924
19925
19926 crispr 8
19927 900625 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AACGTGATAACATTATCAAAGATGATCTGTCAAGCCAG
spacer length: 38 repeater length: 37
19928 900701 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGGGATGATTTACACAATACCCATATCATGA
spacer length: 33 repeater length: 37
19929 900772 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAGATGTGGCCAGTGCAGGCCAGATAATTTATTTAG
spacer length: 37 repeater length: 37
19930 900847 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTAAATTCTGGGCATGTCATCCTATAGCGGAA
spacer length: 34 repeater length: 37
19931 900919 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAAGTTGGATTAAGACTCCATTACAAGCCTCTA
spacer length: 34 repeater length: 37
19932 900991 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAGTATAAGCTGTTCTGTGGAGGAACCGAAAAA
spacer length: 34 repeater length: 37
19933 901063 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTGTTTTATCAAGCTGCACCCAGGTCCTGCAC
spacer length: 34 repeater length: 37
19934 901135 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAAGTGGTCCTTTGTTTAAGATCGCTGCCTGTTCAA
spacer length: 36 repeater length: 37
19935 901209 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAGAGTGGTTAAAGGACGAATCCAAAAAATC
spacer length: 33 repeater length: 37
19936 901280 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCGTCGACTCCGTAGTCTCTCAAGCCGTAATAC
spacer length: 34 repeater length: 37
19937 901352 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGTTTATATACTCAACAAGGTTAATATACTTAAA
spacer length: 34 repeater length: 37
19938 901424 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCTGTGGGATGCCTAATTTATCTACCCAATCG
spacer length: 33 repeater length: 37
19939 901495 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGTAGCAAGCCACGAACCAGACGTAATAAGAG
spacer length: 34 repeater length: 37
19940 901567 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATATTAATAAACCGTGTAGGGTGGATGCATGT
spacer length: 34 repeater length: 37
19941 901639 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGGTAATACTCAATTTTTCCCAATGACTTTAC
spacer length: 34 repeater length: 37
19942 901711 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGAATAACAATGTTTAACTCAAAGACTTTAA
spacer length: 33 repeater length: 37
19943 901782 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATTGTATTCTTCTGGAATCTCAAGCCCGTATTT
spacer length: 35 repeater length: 37
19944 901855 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGTCCCCGCGTGCGAGCAGGCGACCCACATACTC
spacer length: 35 repeater length: 37
19945 901928 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAATGTCGTCGTCAAAAATCCTGTTCTCATTCTTCT
spacer length: 35 repeater length: 37
19946 902001 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAGGCTTTCTCATCAGTCTTTTGAAGTTGATGA
spacer length: 34 repeater length: 37
19947 902073 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGAAATGACTATGGATACCTCAGTCGATGGATAC
spacer length: 35 repeater length: 37
19948 902146 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGGAACCAGAAGCAGCTATACTAAAATTTCAAGC
spacer length: 35 repeater length: 37
19949 902219 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTAATGATTATTTAATTTAGCAATTAACCTGAAA
19950
19951

19952	crispr 9	
19953	1610347 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATTGTGTTGGACGAGTCGGCGTTAGTCCTGAATATA
	spacer length: 36 repeater length: 37	
19954	1610421 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGTCCCCTACCTGCTTATATGGCCATTTCTTCG
	spacer length: 34 repeater length: 37	
19955	1610493 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCCGTTCCCTAATTCATTTTCTGACTTATCTATAATT
	spacer length: 36 repeater length: 37	
19956	1610567 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAGATACGCCTCATTTCAGGAACGGGTAAAGCTG
	spacer length: 34 repeater length: 37	
19957	1610639 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GAACACCTTCTCGTTCTTTTTTGGCCTGATACTT
	spacer length: 34 repeater length: 37	
19958	1610711 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATAAGGCTTTGTTACCTGTACCTGTGACCTTATTA
	spacer length: 35 repeater length: 37	
19959	1610784 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTTTTCTCCGCGATACGGTCAATTAGGTCCATCT
	spacer length: 34 repeater length: 37	
19960	1610856 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTTCACGCTCCTATCACCTTGTCATTGTAGTAA
	spacer length: 34 repeater length: 37	
19961	1610928 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATTACAACTGTGTAACCGGAGGCTGTAAGATATTT
	spacer length: 36 repeater length: 37	
19962	1611002 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATGCGGTGATCGTGTAAGATTTCAGAGGTCAGA
	spacer length: 33 repeater length: 37	
19963	1611073 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAGAAACAAAGATCCAGCTATCCAGAGCAACTTACG
	spacer length: 36 repeater length: 37	
19964	1611147 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATTCACGCAATCAAGGGGATTGCATTAGGCTTGAT
	spacer length: 36 repeater length: 37	
19965	1611221 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATGGGACAGGTTGGAGAAATTTTTGCACTTGCT
	spacer length: 33 repeater length: 37	
19966	1611292 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTGTTCAAGTTCACTGACCTCTCCGAAAATGCTCTCT
	spacer length: 36 repeater length: 37	
19967	1611366 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATCTCGTCTGAAAGTTCATGAATCAACTCTAAT
	spacer length: 33 repeater length: 37	
19968	1611437 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCAAGCCTGATTATGAGGTAACTGGCATCACCG
	spacer length: 34 repeater length: 37	
19969	1611509 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATTCTGGAAAAGTTCTTCACTTTGTACCAATCTTTTT
	spacer length: 37 repeater length: 37	
19970	1611584 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATCTCACAGATGTGAACGGGCAGAATAGTACAA
	spacer length: 33 repeater length: 37	
19971	1611655 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAACCAAACGAGGGCGAAAAAAGAAGCTCGGTTCCC
	spacer length: 36 repeater length: 37	
19972	1611729 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTAATAACCATTCCCTAGCCTGTTTTTTATACCCTC
	spacer length: 37 repeater length: 37	
19973	1611804 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAATACTCGTACACTACCACGACATAACTCGCAT
	spacer length: 35 repeater length: 37	
19974	1611877 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAAGAGATACGGAAGCTATAGTTTATGCACATG
	spacer length: 34 repeater length: 37	
19975	1611949 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTAAGAGTCTTGGAAGGAAAATTTCGGTTTTTAT
	spacer length: 34 repeater length: 37	
19976	1612021 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAGAAATCTATGCTTGGAAGATGGGAAAATAAA
	spacer length: 36 repeater length: 37	
19977	1612095 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACCACAATGGGAAACGTGGATATGGGAGGTACTG
	spacer length: 34 repeater length: 37	
19978	1612167 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGAGATAAGCCTCATTTCAGGAACGGGTAAAGCTG
	spacer length: 34 repeater length: 37	
19979	1612239 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	
	AACTCAGATAACTATATAAAATCAACCACACCATTATAAA spacer length: 39 repeater length: 37	
19980	1612316 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATGAGTGAAAATTACCCGGAACAAAAGTTTGTATG
	spacer length: 37 repeater length: 37	
19981	1612391 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CATTTCGTGGTCCCTATACCTACAGAATTTTCAGATAAG
	spacer length: 37 repeater length: 37	
19982	1612466 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATATTGATAAATTCAATGATAATTATAGAAT
	spacer length: 34 repeater length: 37	
19983	1612538 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATGTTATTGTTATTCTGCTTTTTTGTCTTTGAGT
	spacer length: 34 repeater length: 37	
19984	1612610 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAATCCCAGCCAACCAACTTCCGGCAAACGGAAA
	spacer length: 34 repeater length: 37	
19985	1612682 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATATTATTAAAGGCTTCTTCAAAATCGAAGTATT
	spacer length: 34 repeater length: 37	
19986	1612754 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CATCACAGTAGAACAAAAACGAGAGTTGAAAACC
	spacer length: 34 repeater length: 37	
19987	1612826 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCAGGTCCAGGATGTCCTACAGCTCACCCGGAAGTG
	spacer length: 37 repeater length: 37	

19988	1612901 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TATGCTCTGAACTTGTAATAATCATCATATGAAACG
19989	1612975 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TCAAAACAGAAGTGCAATGAATAAGTGTAACAAT
19990	1613046 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TGAAGTTTCGGAATGATACTGATGAACTCCTTGAA
19991	1613119 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CCGAAGAATACGAACCGATCACACTGAAACCCGACA
19992	1613193 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	GTCAATATGGCATCTTTGTCTGGAATATAGGGGA
19993	1613265 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TACAGTCGCTTGTTATGCCCGCTACATCGTTTTT
19994	1613337 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CTCGACCTCGTCGTCCTCGTCTACTTCCAGCGCGT
19995	1613410 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TCGGTTAAGCCCGTCTATACGTTTGAGTTAAGCCATG
19996	1613485 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	AGCCTCCTGCATTTCAAGTGCCGCTTTCTTCTCT
19997	1613557 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	AGCTCTGCGGCTTTCAGATAGACTGACCATGTAG
19998	1613629 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	CACCCTTCGAACTCGGGCAATAACCTTGAAGCT
19999	1613700 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TATCCCCTTAGATCCCTATAGACATACATGCCCCG
20000	1613772 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	AATAATAGAAATTACATAAGTAAGTATTAGTTAA
20001	1613844 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TTTCCAGGGGAGCTCCGAGAAATACACCGTCTATT
20002	1613917 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CTCTTGAAACAGATGGAAAAGTTTTAGTTTTTGCCAA
20003	1613991 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TAAAGAGTGACATGTGTGCAGATGGATACCAGAG
20004	1614064 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TTAAAGCGTTTGTGAAGGTGAGCTAATGATTGAA
20005	1614136 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 32 repeater length: 37	CCCGGAAACGGTGAGAGCATGACCGAATTAGA
20006	1614206 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TCGCTTTCGTTTTTTGTATCGAGTCCGTATCCGTCT
20007	1614280 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TTGTTTTGTGGATGCACTGTGTAGGGATAGTCCG
20008	1614352 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TGCTACGATTGACAGCCGGACGAGTCCACATTGCCG
20009	1614426 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TATTGCGGTTCAAACCTCCGATGAATCTTTTTTG
20010	1614497 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CAATAAGGTCGCTGCTTTCGGGCTTGTGCTGCCT
20011	1614570 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AATTATTGTGATAAACTTCTGCAGCTGTAGTAAAGA
20012	1614644 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AAAACGATGTCGCCGGGATTACATCGGACTGTATGA
20013	1614718 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	ACATAACTTTTAGCTTCGGCTGCCGTGTCGAATTTT
20014	1614792 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TAATCGTCGAGTTCGCCCCACAGTTCAAACATT
20015	1614863 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TTTCAAGAACAGAGAAGAAGCAGAAAGCGCGACAA
20016	1614936 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TGCAGCCGACGAAAGCAAAAACATTTCTCTTGCA
20017	1615008 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCCTCCCGCAACTCCTTATTTCTCATGCTAGCGTTCAC spacer length: 39 repeater length: 37	
20018	1615085 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	GACATTGAAACTGACAACACAGAAGGCAATGGAC
20019	1615157 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	CTACTGATAGAATTAATTCGAATGGGACGTTCTA
20020	1615229 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	CAGATTTGTTTTACTCTTCTAAGAGTAGGTATTGACT
20021	1615304 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TATGGCCTTGGCCTCGCGCAAAATTCGCCTATAG
20022	1615376 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CATTAAAAAAGGTAACAGCCCGAAGTATATCCAAAA
20023	1615450 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC	TCATAAAATATGCGTTTTTCTTCTCGTTTTCTCCAT

spacer length: 35 repeater length: 37
 20024 1615523 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGACTTAAGGAATCTATTGTTTGGATGGATT
 spacer length: 32 repeater length: 37
 20025 1615593 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGTGCGACTTTTAGAATACAACCTTGATAAAATAC
 spacer length: 36 repeater length: 37
 20026 1615667 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTTTCAGGGAATTCATTTCTAAGAACTCTTGCAGAAT
 spacer length: 37 repeater length: 37
 20027 1615742 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTACAAGGCGTTCCTCAAAGTAATACAATAATAAAA
 spacer length: 37 repeater length: 37
 20028 1615817 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACGAATCCCATTAACCTGTATTTCAGTCGCTTTCTTG
 spacer length: 36 repeater length: 37
 20029 1615891 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTGCAAATTAAGCTCATCCCTAATCCATGCCGG
 spacer length: 35 repeater length: 37
 20030 1615964 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGATGTTGTCGGAGGGGACATCTACAGCAATG
 spacer length: 33 repeater length: 37
 20031 1616035 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTACACTCTCCAAATAAAAAAGGGAAATCTGAA
 spacer length: 35 repeater length: 37
 20032 1616108 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATACAATAAAAAATAATTAACAGTGATAAAAAACA
 spacer length: 35 repeater length: 37
 20033 1616181 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGATCAGGACGACGGCAATAATACTGAAGAATCC
 spacer length: 35 repeater length: 37
 20034 1616254 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AACTCATTCCTTCTTGATGTCTGAAGCCAGCCTTCC
 spacer length: 36 repeater length: 37
 20035 1616328 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATATAGTTGAGCCATCATAAGTTACTTCCTGAGA
 20036
 20037
 20038 crispr 10
 20039 455580 CTTATAGAAAATGCTAAGGATCATATCTTTCACTCCATTC
 TTTTCTATATTTTGTTCATTCCCCGTTATACACTCTGCAATGGACCCTGAGTACATAACTCCTTTAATAGCCCTTGCGATTCCCC
 CTTATAGCTCAATTACATACAGTAAAAGAGCTGGAAGACTGTGGAATTGTAGACTACTGATACAG spacer length: 151
 repeater length: 40
 20040 455772 CTTATAGAAAATGCTAAGGATCATATCTTTCACTCCATTC
 TTTTCTTTTATTTTGTTCATTCCCCGTTATACCCGCTCTATCGGGCCCGGAGCATATAGCCCTTATAGCCTGGTAGTTTCCCGT
 AGTAGCTCAATTACATACAGTAAAATAACTTGAAGACGGTAGATGTGTAGGTGATTTCTACAG spacer length: 149
 repeater length: 40
 20041 455962 CTTATAGAAAATGCTAAGGATCATATCTTTCACTCCATTC
 AAACGTGGAAGGCATCGAGTACAAACCCACATGCTCTCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCC
 GCACTGGAAGCAGTGGATTGACAGGTCCTGTTTTTTTTGGCTGGGACTCGGCTTTTTCCCTGTT
 20042
 20043
 20044 crispr 11
 20045 1116527 TTTGCTCTCTCAAGAGGACTAATTGACATATTTATGAATC
 AGCCGTGAATCAAACGTGGAAGGCATCGAGTACAAACCCACATGCTCTCCATCCCGAGTTCCTTCTCGGGAGGACGGTGTCTTTTT
 CGCTCG spacer length: 92 repeater length: 40
 20046 1116660 TTTGCTCTCTCAAGAGGACTAATTGACATATTTATGAATC
 AGCCGTGAATCAAACGTGGAAGGCATCGAGTACAAACCCACATGCTCTCCATCCCGAGTTCCTTCTCGGGAGTACGGTGTCTTTTT
 CGCTCG spacer length: 92 repeater length: 40
 20047 1116793 TTTGCTCTCTCAAGAGGACTAATTGACATATTTATGAATC
 CAGCTATACTAAAATTTCAAGCTATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAACTTAAGGTCGTAGGCATAAGCGACTGA
 TGTATA
 20048
 20049
 20050 GCA_000970185.1_ASM97018v1_genomic.fna(findCrispr):
 20051 START REPEAT
 SPACER
 20052 crispr 1
 20053 3302776 ACTGTAATTATACTGGAAATT AAATAAACTTTAATAATATA spacer length: 20 repeater
 length: 21
 20054 3302818 ACTGTAATTATACTGGAAATT AAATAAACTTTAATAATATA spacer length: 20 repeater
 length: 21
 20055 3302860 ACTGTAATTATACTGGAAATT TTAAATAAACTTTAATTATA
 20056
 20057
 20058 crispr 2
 20059 2768660 ATTGAATAAGAATCTAATTTA
 ACAAGAAAACAAATTGAGTAAGAAACAAATTGAATAGGAAATAAATTTAACAAGAAGCA spacer length: 58
 repeater length: 21
 20060 2768740 ATTGAATAAGAATCTAATTTA ACAAGAAACAAATTGAGTAAGAAACA spacer length: 26 repeater
 length: 21
 20061 2768788 ATTGAATAAGAATCTAATTTA TAAATAAACTTTAATTATATAAACTA
 20062

20063
 20064 crispr 3
 20065 4059555 CTGATCTGATAAAGAAGATAA CTGATCTAATAAAGAAGATA spacer length: 20 repeater
 length: 21
 20066 4059597 CTGATCTGATAAAGAAGATAA CTAATCTGATAAAGAAGATA spacer length: 20 repeater
 length: 21
 20067 4059639 CTGATCTGATAAAGAAGATAA CTAATCTGATAAAGAAGATA spacer length: 20 repeater
 length: 21
 20068 4059681 CTGATCTGATAAAGAAGATAA TGAAACATACTTTCATCAGT
 20069
 20070
 20071 crispr 4
 20072 3165902 GATGAAACATCAGGTGGAGAT GTACCATCAGATAACGGTGAGACATCCGGTGAAGATGATCAATCTGGAAA
 spacer length: 50 repeater length: 21
 20073 3165974 GATGAAACATCAGGTGGAGAT ATACCATCAGTTAACGATGAAACATCAGGTGAAGATGATCAATCTGGAAA
 spacer length: 50 repeater length: 21
 20074 3166046 GATGAAACATCAGGTGGAGAT AACTTTAATTATATAAACTATAATTATAATTGATTAGATATATAGTTGAG
 20075
 20076
 20077 crispr 5
 20078 1776621 CTTCTTCTGTTGGTGTTACTTCTTC
 TGTTGGTGTCACTTCTTCTGTTGGTGTCACTTCTTCAGGAGGTGTCGCTTCTTCAGGAGGTGTTACTTCTTCTGTTGGTGTG
 spacer length: 82 repeater length: 25
 20079 1776729 CTTCTTCTGTTGGTGTTACTTCTTC TGTTGGTGTCACTTCTTCGGGAGGTGTCACTTCTTCAGGAGGTGTC
 spacer length: 46 repeater length: 25
 20080 1776801 CTTCTTCTGTTGGTGTTACTTCTTC TCGGAGACACGAACGGGAATATGAGCAATGTGACCGCAGATAATAC
 20081
 20082
 20083 crispr 6
 20084 2474501 TTACCGATGATGAAAACGGGAACATGA TCGGAGATATGAACGGGAAT spacer length: 20 repeater
 length: 27
 20085 2474549 TTACCGATGATGAAAACGGGAACATGA CCGGAGATATGAACGGAAAT spacer length: 20 repeater
 length: 27
 20086 2474597 TTACCGATGATGAAAACGGGAACATGA ATAACTATAATTATAATTG
 20087
 20088
 20089 crispr 7
 20090 1175114 CTTTTATTTTTCACCTTCATTTCTATTTT AACTTTTATTTTTCACCTTCATTTCTGTTTTT spacer
 length: 32 repeater length: 29
 20091 1175176 CTTTTATTTTTCACCTTCATTTCTATTTT TGCTTTTATTTTTCACCTTCATTTCCATTTTA spacer
 length: 32 repeater length: 29
 20092 1175238 CTTTTATTTTTCACCTTCATTTCTATTTT AACTTTTATTTTTCACCTTCATTTCTGTTTTT spacer
 length: 32 repeater length: 29
 20093 1175300 CTTTTATTTTTCACCTTCATTTCTATTTT TTTAATTATATAAACTATAATTATAATTGATT
 20094
 20095
 20096 crispr 8
 20097 1239717 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 CAAAACGACAGCAGTGCTCTGTGAATTAACACAACGACCAGCACTGTTATCGCCAGTGTGCCAGTAGATTACAGTCCTTCTGGAGT
 TGTAGT spacer length: 92 repeater length: 33
 20098 1239843 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 TACGGCAGTAACACTACTTCCGTAATCGATACGTCTAATTACAGTATTACCTTCACGGTGTCTGTAGGAATTGCTCCTTATGGAGT
 TGCGAT spacer length: 92 repeater length: 33
 20099 1239969 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 CATCAGTCAATATTTTCATTTTCGTATAGAATTCGCGAGCAAGATCCATTAACAAGGATTGAAACAATGGATTTGGAGACCGTTC
 TCTACT
 20100
 20101
 20102 crispr 9
 20103 1508588 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CGAGGGAAGGAACCACAAGAGCACAGGGAAATTAT
 spacer length: 35 repeater length: 37
 20104 1508661 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACATATACATATAATAAGTCTATAGGGTTTTTGCA
 spacer length: 36 repeater length: 37
 20105 1508735 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGTTTCTGCACAGTCACCCACTAGTATTTTCGT
 spacer length: 33 repeater length: 37
 20106 1508806 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATTAGGCTTTGCAAAAGTACTTGGTACGCCCTTA
 spacer length: 36 repeater length: 37
 20107 1508880 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGTAAATGTTATATTTTTCCAGAAGGGTTTTAAAC
 spacer length: 37 repeater length: 37
 20108 1508955 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAAAATGATGGACCTTATCACAGCAGGGGAAAAC
 spacer length: 35 repeater length: 37

20109	1509028	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACATATCCCCTGATTCTGATAATGTCAGAGGTTG
		spacer length: 34 repeater length: 37	
20110	1509100	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCTCCTTATGCTCTAATAATAACAGACGAAAC
		spacer length: 34 repeater length: 37	
20111	1509172	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACATTTTTTTTGTGTTTTCTTTTTCTTTTTCTTG
		spacer length: 34 repeater length: 37	
20112	1509244	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AACTGCATTTCATTTTTTTGAATGTGACAATATAT
		spacer length: 34 repeater length: 37	
20113	1509316	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATACAACATGAGCACAGCCAACAGGGAAATAA
		spacer length: 33 repeater length: 37	
20114	1509387	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATAAAGGCGATAACATGAGAAACAATGCAAAAT
		spacer length: 34 repeater length: 37	
20115	1509459	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GAGTTAACGTAGCGTCTTCATAAGAAGATGCAA
		spacer length: 33 repeater length: 37	
20116	1509530	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TACTCCTTATGCTCTAATAATCGCAGACGAAAC
		spacer length: 33 repeater length: 37	
20117	1509601	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTCTGATATTATTAGCTATTTCTTTGATTTGAGTT
		spacer length: 36 repeater length: 37	
20118	1509675	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTTGTAATAATCTACTCAGGATGCGCTGAAAAGCG
		spacer length: 34 repeater length: 37	
20119	1509747	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTCTGAATATATTTTGCATCCTCTAGTGTGTAA
		spacer length: 34 repeater length: 37	
20120	1509819	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATATACTTTTCGTATCCTTGATCAATTGAATATC
		spacer length: 34 repeater length: 37	
20121	1509891	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTATAGTTGGAGCTACATATGGATTTCGTTAATTTT
		spacer length: 35 repeater length: 37	
20122	1509964	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTATAAAAATCTTGAATATATTTTAACTGTTGA
		spacer length: 33 repeater length: 37	
20123	1510035	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATTCTATGATATCATTTTCCGAGATTGGTATTTT
		spacer length: 35 repeater length: 37	
20124	1510108	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTGGGTTTCCGTCTCCATCTATGACCCCGGCTCTC
		spacer length: 35 repeater length: 37	
20125	1510181	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATTTGTTGTACTCCTTTCTGTCAGGTTCTCTTTCT
		spacer length: 36 repeater length: 37	
20126	1510255	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTTCTGCGAGGTTCTTATGCAGAAGTTCCTTTTCT
		spacer length: 35 repeater length: 37	
20127	1510328	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAAAACCGTTTCAATCCCTACTTCGTTAAGAGT
		spacer length: 34 repeater length: 37	
20128	1510400	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATAGTAGTTTTGCGTATTAGAATATAGAAGTAA
		spacer length: 34 repeater length: 37	
20129	1510472	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATAATAGAAATTACATAAGTAAGTATTAGTTA
		spacer length: 33 repeater length: 37	
20130	1510543	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAAGGTTGCCAGGATACATATCTTGTACTCAG
		spacer length: 34 repeater length: 37	
20131	1510615	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATTCGCACACTCAACAAAAAACGAACCCCTAGA
		spacer length: 34 repeater length: 37	
20132	1510687	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATTATGTAACCAATGAAAAAGGATATAAGA
		spacer length: 34 repeater length: 37	
20133	1510759	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAAAAAGTCAAGTAGATATAAAAGGGAAAATCAAAA
		spacer length: 37 repeater length: 37	
20134	1510834	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TATTTATCATCAGTTTTTTTTAAGTTTCTTTCCCAATAT
		spacer length: 38 repeater length: 37	
20135	1510910	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAAGATACGCATCGTCACAAAATTCATAGATTTT
		spacer length: 34 repeater length: 37	
20136	1510982	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATGCTCGGAGAAAGAGCCGAAACAGACGAAGGTT
		spacer length: 34 repeater length: 37	
20137	1511054	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	CACATGGCTCTCTCTCTACCAACAACGCCCAAGC
		spacer length: 34 repeater length: 37	
20138	1511126	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	AATGCGAATGGAAGCCCGTACATAATCCAGATAT
		spacer length: 34 repeater length: 37	
20139	1511198	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TACAACATAGTTGCCATATCGTTTGAAGTATGA
		spacer length: 33 repeater length: 37	
20140	1511269	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAATCCATGATGCTCCGGTTTTGAATACTTTCC
		spacer length: 34 repeater length: 37	
20141	1511341	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTGTGCGACTGATTAAATCTATCCGGTGAAGACCCG
		spacer length: 36 repeater length: 37	
20142	1511415	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATCAATTATTTAATACATAATTAAATTGTATCCTGT
		spacer length: 36 repeater length: 37	
20143	1511489	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGTATATCAACTCATCGAAAATATGGCAAAGGAG
		spacer length: 34 repeater length: 37	
20144	1511561	ATTTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTTGTGATTTTTTCCAACGTCTCTAAGATAATAAA

spacer length: 34 repeater length: 37
 20145 1511633 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATACAGTGCTTCAATAGGCCCGGTCATTTTCTT
 spacer length: 35 repeater length: 37
 20146 1511706 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGGCTGTTAGTGGATCACTAACAGGAATGGTTAGC
 spacer length: 36 repeater length: 37
 20147 1511780 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAGCCCTCCGCCCGTTCTGCCTTCTCTTACTC
 spacer length: 34 repeater length: 37
 20148 1511852 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAAGGACTTTGTAGAGCTGGAAGACACAGAAGA
 spacer length: 34 repeater length: 37
 20149 1511924 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGCAGTCTCATCTAGCATCAGGAAGTCTTTGACA
 spacer length: 35 repeater length: 37
 20150 1511997 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAAATTGTACACCCATGGTCCCAGCAATTTGTA
 spacer length: 34 repeater length: 37
 20151 1512069 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAAGGTCTTTTTTTGTGATGTAGAACACATCTTCT
 spacer length: 36 repeater length: 37
 20152 1512143 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAACCTCGAACCTTCACTTGCGACTCGAACCTCACT
 spacer length: 36 repeater length: 37
 20153 1512217 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTGAAGGTTTCGAGCCGCAAGTAAAGGTGAGCCTGA
 spacer length: 35 repeater length: 37
 20154 1512290 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCTAAGCCTGTTTAAAAGCCTCTAATCCTGGGA
 spacer length: 34 repeater length: 37
 20155 1512362 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTAACACAAATAATTATTATATGTTAGGAAGAAC
 spacer length: 36 repeater length: 37
 20156 1512436 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAATATAATCTCAGGCAGGCTTTAACAGTCTCCC
 spacer length: 35 repeater length: 37
 20157 1512509 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTAAGATCGGCTTTGCTAATGTTTCATCACTTG
 spacer length: 34 repeater length: 37
 20158 1512581 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACAAGGTCTACGACTGTAAAGCCTTTTGAGAGG
 spacer length: 33 repeater length: 37
 20159 1512652 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTTAACTTCTTTGCATTCTATTTTTTTTCATGAT
 spacer length: 35 repeater length: 37
 20160 1512725 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTCTTATTGATGGCGCTAATCTTCCTTCTTTTCG
 spacer length: 35 repeater length: 37
 20161 1512798 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TATATAGTCCTTCGATAACGATTATTTATACGTT
 spacer length: 34 repeater length: 37
 20162 1512870 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGATTCTAAAATGGTGTGTGTACATAGAACAGA
 spacer length: 34 repeater length: 37
 20163 1512942 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATGATGAGTGTGAGACAAAAACGGATACTG
 spacer length: 32 repeater length: 37
 20164 1513012 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTATTACTTCCCATTCCTCAGAAAACAGTTCA
 spacer length: 34 repeater length: 37
 20165 1513084 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAACCAGTCCCGCGATTACAAGCATCGAAATGATAC
 spacer length: 37 repeater length: 37
 20166 1513159 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CGAAGTTAAATGATGGTGGGTGGAAGTTTGACGGT
 spacer length: 35 repeater length: 37
 20167 1513232 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCATATGCCCCATCTGTGCGCATATAATCGCATAT
 spacer length: 36 repeater length: 37
 20168 1513306 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACACTCTGTGCGTTTGCCTTGTTAAATTCTG
 spacer length: 33 repeater length: 37
 20169 1513377 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGATACGCTGCCCCAAGAAGCCCCACCTGCCCCTGCA
 spacer length: 36 repeater length: 37
 20170 1513451 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATGATGAGTGTGAGACAAAAACGGATACTG
 spacer length: 32 repeater length: 37
 20171 1513521 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTATTACTTCCCATTCCTCAGAAAACAGTTCA
 spacer length: 34 repeater length: 37
 20172 1513593 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAACCAGTCCCGCGATTACAAGCATCGAAATGATAC
 spacer length: 37 repeater length: 37
 20173 1513668 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CGAAGTTAAATGATGGTGGGTGGAAGTTTGACGGT
 spacer length: 35 repeater length: 37
 20174 1513741 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCATATGCCCCATCTGTGCGCATATAATCGCATAT
 spacer length: 36 repeater length: 37
 20175 1513815 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACACTCTGTGCGTTTGCCTTGTTAAATTCTG
 spacer length: 33 repeater length: 37
 20176 1513886 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGATACGCTGCCCCAAGAAGCCCCACCTGCCCCTGCA
 spacer length: 36 repeater length: 37
 20177 1513960 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATCTATACTAACCAGCCACACTTTAGCCCTGCA
 spacer length: 36 repeater length: 37
 20178 1514034 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGAGATCCTTAGAATCTTTCCAAGTAGGCTGCT
 spacer length: 34 repeater length: 37
 20179 1514106 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAACCTCTTGGAGCTCTGCATAGGTATCTATAA
 spacer length: 33 repeater length: 37

20180	1514177 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TAAGCTACTATTTTACCTTGTCTGACTAAATCTGCA
20181	1514251 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TTCAATGATCTCTACTTTTGCCGGGAAAGATTGCG
20182	1514323 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	AAAAGCGACTTGCATATACTACAGAGCCGGTTCCG
20183	1514396 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TAATTTTCATCATGCCCACAGGTTGCAATGGTGTCA
20184	1514469 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TGGCCTCGATCTCTGCTGTAGACCCCTTTTCCTC
20185	1514541 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TAACCGGCATACAGAGCCATTATTAATTGTACCAAAA
20186	1514616 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 32 repeater length: 37	CAGGGGCGAATTTCGTCTTTTACCGTCGGGACA
20187	1514686 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TGCAAGTAAATTACGGTGAAGTGTTGCAGTTTCT
20188	1514759 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TGACTGAGAGACAGAGGAACGAAATTAGAAAAA
20189	1514830 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	GGATTTATCAAGGCGTTAACAGATACAATATCCA
20190	1514902 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTAATTTTCGCGTATATCGTCTATAAACTTTTCACA
20191	1514976 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AAGGTTTATCTTTTTCTCAATGTTTCAAATGTTT
20192	1515050 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TCCTTGGCTACTTCAAATTCAGTTTGTAGTTTATTA
20193	1515124 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AAAACGTTATCCCACTTTTCTTTGGTGATTCCATAG
20194	1515198 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TCAATCACACATTCTTTAAAGTCTTCTATCGTAACTT
20195	1515273 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TAAAGTTAGATGTACGTGGCGCATAAGATACACTT
20196	1515346 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	GTTTTATAGTTGTTACTACTATAATAATCACCTCT
20197	1515419 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TTCAATTCCTCGAAGCTACAAACACAACAAATCTAAAT
20198	1515494 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CCTCGCTCTTGCCGGATGGGACGTAAATGAAATCA
20199	1515567 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AAAACCTCCTGCTTCAATCTGTTTCGGGGGTTGCTACG
20200	1515641 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	CCTCGTTTCTTTTTTTTTGAAAATCCCAGATTATGACG
20201	1515716 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TTCTCAGGGAGCGCGGAGGCACAGCGAGAAGAC
20202	1515787 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TTAAGAAGTCTGAACCTGTGGAGCAGTTGAAAA
20203	1515858 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 32 repeater length: 37	AAATTGGCGATTTCTTTAGAGTTAAAGGTAAG
20204	1515928 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	ACATAGTCATACATGCTGTCATAGAGGTTACGTAT
20205	1516002 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TAGCTATCTTAGCTATCTTTTCGGCTCGTTGGA
20206	1516073 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CATTCAACGATATTTACAAGCCTAGTGTAATCCCC
20207	1516146 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	AACCTTCTACAAGATAATCCAGCCACATTTTTTTT
20208	1516218 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	CCACCTTGTAGGTAATAATCTTTCCGATTACTA
20209	1516289 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TTCCAAGAGCCGTGTAAGTGCATGTTGCGGCTTT
20210	1516361 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 32 repeater length: 37	TCCCTCCTTAAGTTGTCACCGTTCCGAGTCCA
20211	1516431 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	GTTCTCCTGATTTCGTTATCTATGCGATGTAATACAC
20212	1516505 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTATGGTGATCCAGAGAAGGATATTCCGGCGAAAGA
20213	1516579 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TATTCATGCTTCAACTTCCTGCGTTCCTTGCTCC
20214	1516652 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	ACCCTGGGTCTTCTGAATGGTACTGGACAGGTTCA
20215	1516725 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC	GGGTATATAGTATGTTGTAGTAACGTAGGAGGAA

spacer length: 34 repeater length: 37
 20216 1516797 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAGTGTATCTGTGACACTTACAACCGGCACTGA
 spacer length: 35 repeater length: 37
 20217 1516870 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGTGTCTTCTATGTGCGAAAAATAATCCTCATCG
 spacer length: 35 repeater length: 37
 20218 1516943 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAATTCCAAGATCACCATGCCAGATGGCTCTAAT
 spacer length: 34 repeater length: 37
 20219 1517015 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACGTAATTGATGTATAACGATATACATTTTCCT
 spacer length: 33 repeater length: 37
 20220 1517086 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGATTGATCTTACCATCTCCTATTATTGTAAGCA
 spacer length: 34 repeater length: 37
 20221 1517158 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGTCTCCTCCAACGTGCATCACTTCTTCATACACTT
 spacer length: 36 repeater length: 37
 20222 1517232 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAAGAAGAGTAGTGCATTAAAACATCTAGAATCC
 spacer length: 35 repeater length: 37
 20223 1517305 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATCTTAAAAAACGCATTTGATAAATATGATGGG
 spacer length: 35 repeater length: 37
 20224 1517378 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCCGTCGATAATTACCAGGGCACGGAAGAGGACTG
 spacer length: 36 repeater length: 37
 20225 1517452 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGTATGTACATGTCTCCGATCCTCATACTCAATAAC
 spacer length: 36 repeater length: 37
 20226 1517526 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GCATCATCGTTTCCGGACCCGAGAGATATGATATC
 spacer length: 35 repeater length: 37
 20227 1517599 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCACCATATTTGATAAAAAATACGTTAGTATGTTA
 spacer length: 35 repeater length: 37
 20228 1517672 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGCCAGTGTGTCAGCTTCCGTGCGGGTTTGTGTTG
 spacer length: 36 repeater length: 37
 20229 1517746 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAACACAATTGAAGTTATTCCCTATCGCTATATTCT
 spacer length: 35 repeater length: 37
 20230 1517819 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGGAAAAGGTATCCGAAATACAGGTATTACAGGTA
 spacer length: 36 repeater length: 37
 20231 1517893 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CATAACAAATTCGATATTCATCTCTCGATACT
 spacer length: 32 repeater length: 37
 20232 1517963 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATAGGCATATAATTGATGTTTTGATAGAAAA
 spacer length: 33 repeater length: 37
 20233 1518034 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TATAGAATTGTAATTGCAACAGACGATGAAACA
 spacer length: 33 repeater length: 37
 20234 1518105 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCGTTATTGCCTCGTTTTTACCAATTATCCCTTTT
 spacer length: 36 repeater length: 37
 20235 1518179 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGATCGTACTGTAAGTCTTTACCAAATCGTCAAG
 spacer length: 35 repeater length: 37
 20236 1518252 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CATCAGTCAATATTTTCATTTTCGTATAGAATTTCG
 20237
 20238
 20239 crispr 10
 20240 859170 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AAGTTTCTAGATGGAGATATAAGGCTCCAGTTAG
 spacer length: 34 repeater length: 37
 20241 859242 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CAAGCTTTCCATTTTTTGATAGAGTAGTCATAAGG
 spacer length: 34 repeater length: 37
 20242 859314 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TAAAAGCTGATAAAACAGATCAATCATTGTATACA
 spacer length: 35 repeater length: 37
 20243 859387 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CAAATTCATCTTTTCTTTTCGATTGTTTGATTT
 spacer length: 34 repeater length: 37
 20244 859459 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CAAATTCATCTTTTCTTTTCGATTGTTTGATTTTTTG
 spacer length: 38 repeater length: 37
 20245 859535 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATACTCATTTGCGTAACATTCGCCTACTGCTTGC
 spacer length: 34 repeater length: 37
 20246 859607 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ACGATGTTCAACGGTCATTGTACAGTTTTTGCA
 spacer length: 33 repeater length: 37
 20247 859678 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATTCGTAATAGTATAGTATAGTAGTAAAATAGAAC
 spacer length: 35 repeater length: 37
 20248 859751 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TACTGATGTTCTCGGCCAAAATGGGCTACCTCTCCC
 spacer length: 36 repeater length: 37
 20249 859825 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TATAGGGGCATGTTTTTCAGTCCTCCTGCTTCGTTATCT
 spacer length: 38 repeater length: 37
 20250 859901 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC CATATGAAGGAATCATACACCCTATATACATCATTT
 spacer length: 36 repeater length: 37
 20251 859975 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AAAACATAAAGAAGAGTACTCACCTGAAGTGCA
 spacer length: 34 repeater length: 37
 20252 860047 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TAATACGCTTCATTTGTCCAGTATCAAATTGCAAAA
 spacer length: 36 repeater length: 37

20253	860121	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATCAGATTGTGAAAGAAACTCAGTTGTGTGAAAAA
		spacer length: 35 repeater length: 37	
20254	860194	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CACACTGCATTGCTTTCTCTCTGTATTCTTCATG
		spacer length: 34 repeater length: 37	
20255	860266	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAGTATTTGTATGTACATCATAGATTTTAGCTATG
		spacer length: 35 repeater length: 37	
20256	860339	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TACTTAAGTGATAGACCATTACAGCCCCTAGT
		spacer length: 32 repeater length: 37	
20257	860409	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAGGAGTAGTTTTTCGAGGTCCATGTGTCTCCGT
		spacer length: 33 repeater length: 37	
20258	860480	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACAACAACGACATACATTACGAACATAACAGCCA
		spacer length: 34 repeater length: 37	
20259	860552	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAGACACTGGCGAAGGAAAAGACCAAAAAAACA
		spacer length: 33 repeater length: 37	
20260	860623	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAAGAGTCCATGTTTGAAACTGTAAAGGACCCCTG
		spacer length: 35 repeater length: 37	
20261	860696	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAATCTTCTATAGTTTCATATTCAATAACACCAACT
		spacer length: 36 repeater length: 37	
20262	860770	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAGAAATGGAAAGACGAAGATAGAATAAAAGAAAA
		spacer length: 35 repeater length: 37	
20263	860843	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATAAACAACTACAGCATATATTGTAGCTGCAAG
		spacer length: 34 repeater length: 37	
20264	860915	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTTCTCACTCTCCTTTCTCTTTTCGTGTCTCTCT
		spacer length: 34 repeater length: 37	
20265	860987	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAATTATGGACGGAGCAACACCAATTATAAGAA
		spacer length: 33 repeater length: 37	
20266	861058	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTAAAACTGGAAAAGAGCTTATAGTTGCAGCCCCAGGG
		spacer length: 39 repeater length: 37	
20267	861135	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTGAATGATCGGAGCCAAAAAATGAAAGTATTA
		spacer length: 34 repeater length: 37	
20268	861207	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAAATACTAGAAGTAAACGGGACTAAGATAAT
		spacer length: 33 repeater length: 37	
20269	861278	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGAACCGCAATTCGGGCTCTTCTAGTGACTCCT
		spacer length: 33 repeater length: 37	
20270	861349	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CATAGTAGCAGACGCATCCCCGGCTTTGTTTCG
		spacer length: 34 repeater length: 37	
20271	861421	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGAAGTGTGGGAAGAAGCGTATAAGAGAGCCGA
		spacer length: 33 repeater length: 37	
20272	861492	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACATAATATTCAAAAAATAATATCACATCTGCAAC
		spacer length: 35 repeater length: 37	
20273	861565	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGTATTAAAAAAGGCTGGATGAATTTTAGAGATT
		spacer length: 34 repeater length: 37	
20274	861637	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATCATTGATATAATATTAGTTTAATATGTTAT
		spacer length: 33 repeater length: 37	
20275	861708	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATCGTAGATGTCACATTCCCTCCAAAATTGTGGGAA
		spacer length: 36 repeater length: 37	
20276	861782	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATATTTTATTTGGAGCTAGAGCCCTGTACCATCT
		spacer length: 34 repeater length: 37	
20277	861854	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTAAGCTCTGAAAAAGATCCAGAACTTCGGGGCAGG
		spacer length: 37 repeater length: 37	
20278	861929	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GACTCCCGGCATGGGCTTATAACTTTTCTTTTCA
		spacer length: 34 repeater length: 37	
20279	862001	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACATACTCAAGTGCCTTTTTCTCAACGACAATAAG
		spacer length: 35 repeater length: 37	
20280	862074	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTACGGGGTCAGAGACCAAAGTGGATATTATGATA
		spacer length: 35 repeater length: 37	
20281	862147	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATCGCGTCAGTGGACACGCCCCGCCCTTTTCTTTCC
		spacer length: 37 repeater length: 37	
20282	862222	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCTCAGGTGTTCCGCCGGGAAATGAAGGACGGAA
		spacer length: 34 repeater length: 37	
20283	862294	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAGCATTAAGTACTAGTACTAGTACTTAGAGAAA
		spacer length: 34 repeater length: 37	
20284	862366	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTATAATAGTAACAATCTCATTATAAACCCCCACA
		spacer length: 35 repeater length: 37	
20285	862439	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAAATTTGCAAGATCGAAAACGCAATCTATGAAA
		spacer length: 35 repeater length: 37	
20286	862512	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTACAGATATATATTATATATATATGTATTTCTT
		spacer length: 34 repeater length: 37	
20287	862584	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGGATAGGTTATTTGAAATTGGAACCTCAGAAAGA
		spacer length: 34 repeater length: 37	
20288	862656	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCTTATTACCCTTAGATTTCTTCGCCAGGACCCTAA

spacer length: 36 repeater length: 37
 20289 862730 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTACTTGCTTTTGAATGCTCCAAAACCTCCAGA
 spacer length: 33 repeater length: 37
 20290 862801 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAATAAGATTCCCATGTATGCCCAGGAGGTAGCTTA
 spacer length: 36 repeater length: 37
 20291 862875 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GGCTTTGATTATGGGTATGGATGGCGCATGTGG
 spacer length: 33 repeater length: 37
 20292 862946 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTTTGCTGCTGCTGTAACCTGTTTCAATCATTAGC
 spacer length: 35 repeater length: 37
 20293 863019 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATGTATATTTCATATATTCGAGCACGGCGAAGAAC
 spacer length: 35 repeater length: 37
 20294 863092 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGATCGTGGAGGGAGAAGATTGAGTAATAAAAA
 spacer length: 34 repeater length: 37
 20295 863164 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACATAGATTTTGACGAGCAGGACATAAACCAGG
 spacer length: 34 repeater length: 37
 20296 863236 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAATGATTTCATACCTTTGTAATTCAGATTTAAG
 spacer length: 34 repeater length: 37
 20297 863308 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTGCAGAGCTTAGGGCAAATGGTGCGACTGATGAA
 spacer length: 36 repeater length: 37
 20298 863382 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAGCAGATGATGTAGTGCTTGTATTATCAGGTGACA
 spacer length: 37 repeater length: 37
 20299 863457 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TACTGATGATTTTAAATGACATTGCTGACTCTGAAA
 spacer length: 35 repeater length: 37
 20300 863530 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGATTATGTTTTGTGTCTTGAGGATAAAAAGATAGC
 spacer length: 37 repeater length: 37
 20301 863605 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTATAAAGTTAAAGTAGAACTAAATTTCAACC
 spacer length: 34 repeater length: 37
 20302 863677 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCTCATCTGGAACCCATATATTCATTCTCGGCAT
 spacer length: 35 repeater length: 37
 20303 863750 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAAAAATTAAGAACGTTGTCATGCTCTCATGCCT
 spacer length: 35 repeater length: 37
 20304 863823 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAATGTTTTTGTATGGCTGTTCAAATGCGGGGAT
 spacer length: 34 repeater length: 37
 20305 863895 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAATGACGTCCCTCCGAATATTAAGGTAAGTTC
 spacer length: 35 repeater length: 37
 20306 863968 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAGAGTCTTACTTTTCTTCCACCAATGATAATTTTCG
 spacer length: 36 repeater length: 37
 20307 864042 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAGACAAAGCAGGAAGGAAGATTGAAACTCGTTC
 spacer length: 34 repeater length: 37
 20308 864114 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GAGTGTTTGAGGTTCAAGTCTGCCGGACATGCGG
 spacer length: 34 repeater length: 37
 20309 864186 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCAGTTGCGTCTATCGAAATCACAAACGAGATAA
 spacer length: 35 repeater length: 37
 20310 864259 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACCCTCCCTCTTAAACATGTTTCCGTTTGAAT
 spacer length: 35 repeater length: 37
 20311 864332 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAAAATAGAATCCACTCAAACCGAAGCCCTGA
 spacer length: 33 repeater length: 37
 20312 864403 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGATAGTCACGGTGTCTATCTTCCAGAATAACACA
 spacer length: 35 repeater length: 37
 20313 864476 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATATCAACTGCACATTCTTCCACAATATCATT
 spacer length: 34 repeater length: 37
 20314 864548 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTGTATTTTCTTCCGGCATGAAATCCTTGA
 spacer length: 33 repeater length: 37
 20315 864619 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAATTATGTTGAGTTGAGAGTGAATTCAGGTTG
 spacer length: 34 repeater length: 37
 20316 864691 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GAAAACAGGATTGAACGGGCTAAAGCATTGAAAGCT
 spacer length: 36 repeater length: 37
 20317 864765 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TACCGTTCATGGTATCGGACATATCAAAGCCAGCAA
 spacer length: 36 repeater length: 37
 20318 864839 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CATTCCCTTCCCCTGTTCTGAGCCTCCCTGTG
 spacer length: 33 repeater length: 37
 20319 864910 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTATTGTGAACCCCCGAGACCTAAGAGGATTTTC
 spacer length: 35 repeater length: 37
 20320 864983 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTCCACAATCAACATACCCCGTAAGCCCATCAAAC
 spacer length: 36 repeater length: 37
 20321 865057 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATTTTTGCCATGCCTGCCGCGTCTAATCCTATC
 spacer length: 35 repeater length: 37
 20322 865130 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATCCCGTGGTCTCTTCGTCTACATTAATAG
 spacer length: 33 repeater length: 37
 20323 865201 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACAGCTACCCGGACAGGGAAGTATAAGGACCTGGCA
 spacer length: 37 repeater length: 37

20324 865276 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATTTTGTGACATACCCCTGAAATTCATAGACTT
 spacer length: 34 repeater length: 37
 20325 865348 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAGAATATAATACAAACAATCCTTATAACGAACT
 spacer length: 34 repeater length: 37
 20326 865420 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATGTATATTCATATATTCGAGCACGGCGAAGAAC
 spacer length: 35 repeater length: 37
 20327 865493 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGATCGTGGAGGGAGAAGATTGAGTAATAAAAA
 spacer length: 34 repeater length: 37
 20328 865565 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACATAGATTTTGACGAGCAGGACATAAACCAGG
 spacer length: 34 repeater length: 37
 20329 865637 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAATGATTTCATACCTTTGTAATTCAGATTTAAG
 spacer length: 34 repeater length: 37
 20330 865709 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTCCGGATTTTGTGGATTCTTGATATTTCCCTG
 spacer length: 35 repeater length: 37
 20331 865782 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC
 GGTTGCCCGTATGGTGTTCGATCATATCTTCGTCACTCC spacer length: 40 repeater length: 37
 20332 865860 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACCAAACCAAAGCAAGCCAGAAAGCCTGGCAGTATC
 spacer length: 36 repeater length: 37
 20333 865934 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTCTGCGGGTGGGGCTGCCGTACAATGGGCGGG
 spacer length: 35 repeater length: 37
 20334 866007 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAACGATGTAATGTTTTGGAATTGCTTTTCACCT
 spacer length: 34 repeater length: 37
 20335 866079 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAGACCCCGCAAGGCCAGAGTGCGGTCTTAAC
 spacer length: 34 repeater length: 37
 20336 866151 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTCATAAATTCGAGTCACATAAATATCCATGATT
 spacer length: 35 repeater length: 37
 20337 866224 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCGGCTTTATCTATTCAGGAATCTGAACTAAAA
 spacer length: 34 repeater length: 37
 20338 866296 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATACTTTCATCAGTCAATATTTTCATTTTCGTATAG
 spacer length: 35 repeater length: 37
 20339 866369 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GCAGCAATACTACTTCTGTAATTGATACAGCCACA
 20340
 20341
 20342 GCA_000970205.1_ASM97020v1_genomic.fna(findCrispr):
 20343 START REPEAT
 SPACER
 20344 crispr 1
 20345 1762388 ATCTTCAATTGCCTTGAACA TTGAAGGGGAATAAACTTCTGAAAGGTACTTTTGTG spacer length: 36
 repeater length: 20
 20346 1762445 ATCTTCAATTGCCTTGAACA TTGAAGGGGAATAAACTTCTGAAAAGTACTTTTGTG spacer length: 36
 repeater length: 20
 20347 1762502 ATCTTCAATTGCCTTGAACA ACATTAAAGTAAACACGAACGCATGAATGCACTAA
 20348
 20349
 20350 crispr 2
 20351 1081643 AATTACGCCTATGTAGCTGAT
 AATGATGGTCTTGTGATTGTTGATATCAGTAATCCTTCTGATCCAATTCTCAAAGGACGTTATGCCGGTCTACTGGCGATGTTGC
 AGTTTACGG spacer length: 95 repeater length: 21
 20352 1081760 AATTACGCCTATGTAGCTGAT
 TGGGGTAATGGTCTTATGATTGTTGATATAAGCAATCCATCTTCACCAGTTCTCAAAGGAAGCTACGATACTGCCGGAGATATTTA
 CGGTGTCTCAATTTCCGG spacer length: 104 repeater length: 21
 20353 1081886 AATTACGCCTATGTAGCTGAT
 ATTAAAGTAAACACGAACGCATGAATGCACTAATAGATTGCAATTGATTAGAAAACTCGTTAGAGATTAAGAGCCTATCCGAAAA
 GTGTTGTGACCTGTGTAG
 20354
 20355
 20356 crispr 3
 20357 3253750 GATGAAACATCAGGTGGAGAT GTACCATCAGATAACGGTGAAACATCCGGTGAAGATGATCAATCTGGAAA
 spacer length: 50 repeater length: 21
 20358 3253822 GATGAAACATCAGGTGGAGAT ATACCATCAGTTAACGATGAAACATCAGGTGAAGATGATCAATCTGGAAA
 spacer length: 50 repeater length: 21
 20359 3253894 GATGAAACATCAGGTGGAGAT TTAAATAAACTTTAATTATATAAACTGTAATTATAATTGATTAGATATAT
 20360
 20361
 20362 crispr 4
 20363 3395778 TTAATTATATAAACTGTAATT ATACTGGAAATTGAACAAAC spacer length: 20 repeater
 length: 21
 20364 3395820 TTAATTATATAAACTGTAATT ATACTGGAAATTAAACAAAC spacer length: 20 repeater
 length: 21
 20365 3395862 TTAATTATATAAACTGTAATT ATACTGGAAATTAAATAAAC spacer length: 20 repeater
 length: 21

20366 3395904 TTAATTATATAAACTGTAATT ATACTGGAAATTAAATAAAC spacer length: 20 repeater
 length: 21
 20367 3395946 TTAATTATATAAACTGTAATT ACTGTAATTATAATTGATTA
 20368
 20369
 20370 crispr 5
 20371 2062566 GTGTCATCTGTTACATTTGTAT
 TGTCAGTCACGTTTGTATCAATAGTTACATTTGTATCAATAGTTACATTTGTATCAATAGTTACATTTGTACCATCTGTTACATTT
 GTACCGTCTGTTACGTT spacer length: 103 repeater length: 22
 20372 2062692 GTGTCATCTGTTACATTTGTAT
 CATTAGTCACATTTGTATCATTAGTCACATTTGTACCATCTGTTACGTTAGTGTATCTGTTACATTTGTACCATCTGTTACGTT
 spacer length: 85 repeater length: 22
 20373 2062800 GTGTCATCTGTTACATTTGTAT
 ATAAACTGTAATTATAATTGATTAGATATATAGTTGAGCCATCATAAGTTACTTCCTGAGAGAAGCATTTTTATTTTCAAATCCT
 20374
 20375
 20376 crispr 6
 20377 980676 TTTTCTTTTTCTCTCTCTTTTCT CCCTTTTCTTTTCTCTTCCC spacer length: 20 repeater
 length: 23
 20378 980720 TTTTCTTTTTCTCTCTCTTTTCT CCCTTTCTCTTCTCTTCTCTTCTCTTCCC spacer length: 30
 repeater length: 23
 20379 980774 TTTTCTTTTTCTCTCTTTTCT CAATTAACCTGAAAGTTAATATTATACCAT
 20380
 20381
 20382 crispr 7
 20383 1774226 CTTTCAGCTATTGTTCCCTTATTTGGA
 GGATCAAAAAAGGAAGAAATGATTGAAAAAGCACTTGATGCAATCTCTATAATTGAACTTAATGACTATTGTATATTTATGGC
 spacer length: 84 repeater length: 26
 20384 1774337 CTTTCAGCTATTGTTCCCTTATTTGGA
 TGGGCAAAAAAGGAGGAATGATAGAAAAAGCACTTGATCTAGCTTCCAATATTCAATCTAATGATGAAAGAACTCGAGC
 spacer length: 81 repeater length: 26
 20385 1774445 CTTTCAGCTATTGTTCCCTTATTTGGA
 GCAGCAATACTACTTCTGTAATTGATACAGCCACAAACAACGTTATAGCCTCTGTGCCCGTAGGATGGAGTCCGGTTGGAG
 20386
 20387
 20388 crispr 8
 20389 1295977 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 CAAAACGACAGCAGTGTCTCTGTAATTAACACAACGACCAGCACTGTTATCGCCAGTGTTCAGTAGATTACAGTCCTTCTGGAGT
 TGTAGT spacer length: 92 repeater length: 33
 20390 1296103 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 TACGGCAGTAACACTACTTCCGTAATCGATACGTCTAATTACAGTATTACCTTCACGGTGCCTGTAGGAATTGCTCCTTATGGAGT
 TGCGAT spacer length: 92 repeater length: 33
 20391 1296229 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 TAGCAATTAACCTGAAAGTTAATATTATACCATTTGATTGATCGACTTTTTCAGTTTGCCCTGATATTTATCTGATATTTATAATT
 AATGCC
 20392
 20393
 20394 crispr 9
 20395 901787 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC CTAAATTTCACTCTTCTTGATTTTGGGAAAGTA
 spacer length: 35 repeater length: 37
 20396 901860 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC ATACAAATAGAGATAGATTAGATAAGTATAATGA
 spacer length: 34 repeater length: 37
 20397 901932 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC ATTTGCATACTTCTCCTACAGTACCGCTTCCGGCAA
 spacer length: 36 repeater length: 37
 20398 902006 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC AAATTGAAACCGCGATAGGCTACGGGTGGATTGAAA
 spacer length: 36 repeater length: 37
 20399 902080 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC GTTATTTTCAGGAGTGGTTTTCGCTGTCCATGTAT
 spacer length: 35 repeater length: 37
 20400 902153 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC TATTATATATTACTTTCACGTAGGTAAAATTAGTTA
 spacer length: 36 repeater length: 37
 20401 902227 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC AAAGGAAAAAATTAGTATTGTCTAGGAACTCAATT
 spacer length: 35 repeater length: 37
 20402 902300 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC TTATCCTTCTGAGGATTAGGCTTGTCCCGTATCA
 spacer length: 34 repeater length: 37
 20403 902372 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC ATAATGAAGAAGCACACAGAAAAGGTGTAAGCCA
 spacer length: 35 repeater length: 37
 20404 902445 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC TTAAGTTGCCAGACTGAACGCTTATTTCTAGTTC
 spacer length: 34 repeater length: 37
 20405 902517 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC AAAATAGTGCCTACCGTACCGCCCATTGCAG spacer
 length: 31 repeater length: 37
 20406 902586 ATCGCAATCGGTTAGAAAACCTCGTTAGAGATTGAAAC TTAAGATGTGATGGGAACCTGTGATAATTTATTAC

spacer length: 35 repeater length: 37
 20407 902659 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC CTTGATTTTGTATCAGGTTGAAGAACCCCATACCGG
 spacer length: 36 repeater length: 37
 20408 902733 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TACCTGTCGTGGAATCTGGGAATTCCTGGATTAT
 spacer length: 34 repeater length: 37
 20409 902805 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC
 AATTCCTCGCATAGTG TAGAAAAGTGGATTTACTATTACTG spacer length: 40 repeater length: 37
 20410 902883 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTTTATATATAACGATGTTTTGTCTGGATATTTCAG
 spacer length: 35 repeater length: 37
 20411 902956 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC AATAGATACTGTCTTGCTGTGCCTCCTGTAGCTG
 spacer length: 34 repeater length: 37
 20412 903028 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ATAGATATCGCACGGTATTATGTTAATGGGGAAA
 spacer length: 34 repeater length: 37
 20413 903100 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ATGGCCGATGTTGGAATGGCAACCGCCGACATGACA
 spacer length: 36 repeater length: 37
 20414 903174 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC GGAGATATTAGCCCAGGTTGGCGAAATGTACGCGTG
 spacer length: 36 repeater length: 37
 20415 903248 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC CGTAATGATTCCGATCTTCAGGCTATTATTTTCGGCTG
 spacer length: 37 repeater length: 37
 20416 903323 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TATTGGAGGGATAAGTGGGGGCATGGTTATTATTC
 spacer length: 35 repeater length: 37
 20417 903396 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ACCCTCTCAACGCTAACTACTTCCAGGATCTTATCAA
 spacer length: 37 repeater length: 37
 20418 903471 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC CAATCAGGTTATTATTCAGGAGTCGCAGGGAGAAG
 spacer length: 35 repeater length: 37
 20419 903544 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC GAGAATTAACAGACTTTCATATCTATGAATCAGAA
 spacer length: 35 repeater length: 37
 20420 903617 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC CCAAATCTGAACATTATTATTCTGCTCTGCTGCA
 spacer length: 35 repeater length: 37
 20421 903690 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TATGGCAGTCTTGCCATCAAAC TGCCTCCTTCGGG
 spacer length: 35 repeater length: 37
 20422 903763 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTTTATCTGACCACATTTATAAAAAGTATTATTTCT
 spacer length: 36 repeater length: 37
 20423 903837 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ATTTCAGTTGAGGATTCTACAGAACAAAACCCAGTTT
 spacer length: 36 repeater length: 37
 20424 903911 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ACCCTCTCAACGCTAACTACTTCCAGGATCTTATCAA
 spacer length: 37 repeater length: 37
 20425 903986 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC GTCAATCTCAATGTTGGCACACATTCCGTAGTGA
 spacer length: 34 repeater length: 37
 20426 904058 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC AATGAAACGTCCTTATCTATAGTCTCAACGTCAC
 spacer length: 34 repeater length: 37
 20427 904130 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC AAATTGTGACCCCGGTAACAGGAATTGCCCTTGTT
 spacer length: 35 repeater length: 37
 20428 904203 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TCATTCTCGGGGAAGTCTTCAAGCGAAGCGGGCTT
 spacer length: 35 repeater length: 37
 20429 904276 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ATATCATGATCAGGATTGTAAACGTCGGCTTGTA
 spacer length: 35 repeater length: 37
 20430 904349 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TAAAACATGGTATAATAAAGATCTCAAATTAAGCG
 spacer length: 35 repeater length: 37
 20431 904422 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTTTGTATTGTCCTCGTCTCGCGGATCGAATGCGT
 spacer length: 35 repeater length: 37
 20432 904495 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTTTCCCTATGTTCTTAAAAAAGTGAGTTGTCA
 spacer length: 33 repeater length: 37
 20433 904566 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTAATTTTGCCACGTCATTATATGACTCGGTT spacer
 length: 32 repeater length: 37
 20434 904636 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC GAAACTGACAATAACTACGGAAAGGGCCTGAAA
 spacer length: 33 repeater length: 37
 20435 904707 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC CTGTCTCCCTCGACTTGTGCGAAAACGGCGCAGAG
 spacer length: 35 repeater length: 37
 20436 904780 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTTCGGATGTTGAACATAACAAAAGCATTACAGGAA
 spacer length: 36 repeater length: 37
 20437 904854 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC GAACAATAAGTTATGACAGTTTCGATCAAAAAATTA
 spacer length: 36 repeater length: 37
 20438 904928 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TCCGTAAAAATGGATAGAACTGAAAAAAGTGTATG
 spacer length: 35 repeater length: 37
 20439 905001 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC ACATCTACGATTAAC TCATCATCTGAAAGCAGCCG
 spacer length: 35 repeater length: 37
 20440 905074 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC TTTCTCCTGGCAGTCTTTTGAACAGTATACATCTGC
 spacer length: 36 repeater length: 37
 20441 905148 ATCGCAATCGGTTAGAAAAC TCGTTAGAGATTGAAAC CAATTTGAACTACACAGTTCTTAGAACCATCATA
 spacer length: 35 repeater length: 37

20442	905221	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TCCATGGTTGAGGATGGGCAGATTAGAAACATAAT
		spacer length: 35 repeater length: 37		
20443	905294	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTCTCCGACAATTTCAAAGATATCTGAATTTCTGA
		spacer length: 35 repeater length: 37		
20444	905367	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	AGTAAAGGGGTGCTGTACGAGAGGGTAAACGGGAA
		spacer length: 35 repeater length: 37		
20445	905440	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CCTTGATACTCGGCCTCTTGATCCAAAAAGAAAAC
		spacer length: 35 repeater length: 37		
20446	905513	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TATTTTATTGTAAGGGGTACGGATTTCATAAGGGGTA
		spacer length: 36 repeater length: 37		
20447	905587	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	GAATAAACCAAACGTTGTAATCCCCGCATACCAGTA
		spacer length: 36 repeater length: 37		
20448	905661	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTGCAATATCCGCGAGAAGAGAGGAATATACTAG
		spacer length: 34 repeater length: 37		
20449	905733	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CTCTGGAGTCCTCATGGCCACTTACAAGGGAGAAT
		spacer length: 35 repeater length: 37		
20450	905806	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TACAATTCTTTCCCTAGCGCCGTCTGTATATCCA
		spacer length: 35 repeater length: 37		
20451	905879	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	ACAGGAATTTCAAATAAGCCCTGCCCTCCTACTACAT
		spacer length: 37 repeater length: 37		
20452	905954	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TATATGGTAATGTAGTTTTAGAAACCACAGGAGGA
		spacer length: 35 repeater length: 37		
20453	906027	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	TTGAATTTACTGAAAAC
		spacer length: 37 repeater length: 37		
20454	906102	ATCGCAATCGGTTAGAAAAC	TCGTTAGAGATTGAAAC	CTGAAAGTTAATATTATACCATTTGATTGATCGACTT
20455				
20456				
20457	crispr 10			
20458	1620229	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		ATCTCCACTCCCTAGTTCCAATCTTCCCCCGTCG
		spacer length: 36 repeater length: 37		
20459	1620303	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TTTCTTTTGCAAGTGGTCCTTTGTTTAAGATCGCT
		spacer length: 35 repeater length: 37		
20460	1620376	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TAGGGAATGTCTATGAAAATCCTGAACTTATTGA
		spacer length: 34 repeater length: 37		
20461	1620448	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		ATTACCATTTTTATTTAATTAGCTATAAGTACT
		spacer length: 33 repeater length: 37		
20462	1620519	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TAATGGGCGTTTACTGGGTAATAGAGTCCATAA
		spacer length: 33 repeater length: 37		
20463	1620590	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		ACATAAACATAATCACCTAATTTTACTTGTGGGG
		spacer length: 34 repeater length: 37		
20464	1620662	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TAGATGTTGTCGGGGGAGACATCTATAGCAA spacer
		length: 31 repeater length: 37		
20465	1620731	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		ACTTGCAGTGCAACACAGTATCAGACAACACCA
		spacer length: 33 repeater length: 37		
20466	1620802	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		AGGGTTTCATGCTGTTTTCCGTTTATTCAACCTCT
		spacer length: 35 repeater length: 37		
20467	1620875	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		CGGACATTGACAGAATCATATCAAAGGGCAATTTT
		spacer length: 35 repeater length: 37		
20468	1620948	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		CGAGGTTTCCGGCGGCTGCGCTTGGGCGTTGTTG
		spacer length: 34 repeater length: 37		
20469	1621020	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TACCAAATTAAAAACGTTGTCATTTTTTGCGTTGTC
		spacer length: 35 repeater length: 37		
20470	1621093	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		CTGCTTGTAAGATGAGTTCGTTTACCATTGTTT
		spacer length: 33 repeater length: 37		
20471	1621164	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		AAAATTCCTGCACTCGCGGGTTGACGGGCTGTAT
		spacer length: 34 repeater length: 37		
20472	1621236	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TGATACGTCTCTGAATACTCTCTCGCGAATTCG
		spacer length: 33 repeater length: 37		
20473	1621307	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		CCGAACAGCATTTTCGCTATTTTCCGGGCTTCTTC
		spacer length: 35 repeater length: 37		
20474	1621380	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TGAATTCAGCAATGGCTTCATGGGTTTCCCGAAGG
		spacer length: 35 repeater length: 37		
20475	1621453	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		CGCAAACCGTAACCATGTGGTTACGCTGATGCTGT
		spacer length: 35 repeater length: 37		
20476	1621526	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		CTGATTTTCGGTTTTCAATTCTTTTTCCCTTCT
		spacer length: 33 repeater length: 37		
20477	1621597	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TGAGATAAGCCTCATTTCAGGAACGGGTTAAGCTG
		spacer length: 34 repeater length: 37		
20478	1621669	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		AGGGCCTTTGCGATCTCGCTATACTGGCTTATATTA
		spacer length: 36 repeater length: 37		
20479	1621743	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC		TCTCCTCTTGCAATTTCTGTCTCCTATTTTTTGGC

spacer length: 34 repeater length: 37
 20480 1621815 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCAATGTCGGGGACCAATCCAGGTGAGCCTCGG
 spacer length: 34 repeater length: 37
 20481 1621887 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGTGTTTCGATGGCTCTGTGTTTCGATTGCTGAC
 spacer length: 34 repeater length: 37
 20482 1621959 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAACAATAGAATCGTGCGCCCTGGCCACGAGGGG
 spacer length: 34 repeater length: 37
 20483 1622031 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CATTATTCCAGGTGAATGTCATATTTCCATTTGT
 spacer length: 34 repeater length: 37
 20484 1622103 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTCATTGTTCCACGCTCCTGTTTTGGCGTTATA
 spacer length: 34 repeater length: 37
 20485 1622175 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CATTCCATTTGTTTCCATCCATATCTGTTAATG
 spacer length: 33 repeater length: 37
 20486 1622246 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACCTTAAAGACTTAGTAGAAAAGTCAAAAA
 spacer length: 33 repeater length: 37
 20487 1622317 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAGCTTGCCATATGCTCTGGCTATTTTTCTTTCCT
 spacer length: 36 repeater length: 37
 20488 1622391 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGCGTAAGGCTCTCTAAGATACAAGCATATTC
 spacer length: 33 repeater length: 37
 20489 1622462 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTGATGTTAGTCTTAAAGTTCGGAGCCACCAAC
 spacer length: 34 repeater length: 37
 20490 1622534 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTTGTATCCTATTTTCAGTAGCAATTGCCTTATA
 spacer length: 34 repeater length: 37
 20491 1622606 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGCTTAAGCTCAGGCGAAGAGCAAATGGTAAGAAT
 spacer length: 35 repeater length: 37
 20492 1622679 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGAGATGGGAACCGGAAAGACAAGGACAGCAATCG
 spacer length: 36 repeater length: 37
 20493 1622753 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTACGTGATAGATGGGAATCAAACAACCGAGATC
 spacer length: 34 repeater length: 37
 20494 1622825 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGGATTCAACATTTGATTGATCGTGCTAAATT
 spacer length: 34 repeater length: 37
 20495 1622897 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCATGAATGTCCTCTTAATTGACGTAGATTTCGAC
 spacer length: 35 repeater length: 37
 20496 1622970 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAATGTGGTCAGATGAAACACATAGCAGGAGTG
 spacer length: 34 repeater length: 37
 20497 1623042 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGATTAATTCCCTGCCCTATTCTAACACCTTCTT
 spacer length: 34 repeater length: 37
 20498 1623114 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTCCAAGACGGAGATATCTGGAGAGTTGATAAT
 spacer length: 34 repeater length: 37
 20499 1623186 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTATTTATGGGCGTTGCTTGCTCCGGTTTTGTAC
 spacer length: 34 repeater length: 37
 20500 1623258 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGAGAGAAACGACATCATGACAATAGATCATGA
 spacer length: 34 repeater length: 37
 20501 1623330 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAAACAGTGATTGTACTCTCAGAACCCTTTCAA
 spacer length: 34 repeater length: 37
 20502 1623402 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTGATATTGTTTTTGGCATTGTTTTACCTTCACT
 spacer length: 34 repeater length: 37
 20503 1623474 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGTTTTAATCCTATTTGCAACAATTGAAGAATC
 spacer length: 34 repeater length: 37
 20504 1623546 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATCGGCTCGATCTTATAAAATTTATTTTCA
 spacer length: 32 repeater length: 37
 20505 1623616 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTAATTCGCTTGCCCCTTCAGAAATCTTAAACTG
 spacer length: 34 repeater length: 37
 20506 1623688 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAGGTTCTAATAACCGAAACAAAGCTAGGCAACG
 spacer length: 34 repeater length: 37
 20507 1623760 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGCTTCAATGCCTATGACTCATGAAGAAGCTGAGA
 spacer length: 36 repeater length: 37
 20508 1623834 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGTTAGGTTGTCCTATTCGACTCCGTACGCAGCCA
 spacer length: 35 repeater length: 37
 20509 1623907 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAGAGGGATCGAATGAAAATAGCCGGGGTAAAG
 spacer length: 34 repeater length: 37
 20510 1623979 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATATACCTTATAGTGTATACGTTAAAGGTACACCG
 spacer length: 36 repeater length: 37
 20511 1624053 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAAGCTTCGCTTAATTTTCCGGACAACCTTCGAAA
 spacer length: 36 repeater length: 37
 20512 1624127 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCGGTTCGCCTGGTCAACGCGTCGAGCGTCC
 spacer length: 33 repeater length: 37
 20513 1624198 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGCGCTAGACCACGCACATATAGTATATCCTTAAAG
 spacer length: 36 repeater length: 37
 20514 1624272 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGATATACTATAAACGACGTACTTTAAGGATATACT
 spacer length: 37 repeater length: 37

20515 1624347 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTGACTGTTTTTCGCGATTGAATACATATACTTACGA
 spacer length: 37 repeater length: 37
 20516 1624422 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTCTAAAAGAACTCGGTTTGATCACGCTGAATCT
 spacer length: 35 repeater length: 37
 20517 1624495 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GCATTGAAAGCACAAATGGGAATCTAAAGCACAAATC
 spacer length: 36 repeater length: 37
 20518 1624569 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CGATCCTTATATCTCCTGCGTCTGTTGCTGTCATG
 spacer length: 35 repeater length: 37
 20519 1624642 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATCCCTGGAAGATGTAAATCTATTTCAGGAGAGTAG
 spacer length: 37 repeater length: 37
 20520 1624717 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGCCCGGCTCCTCCTCCTGCCGCTGTAGTATA
 spacer length: 33 repeater length: 37
 20521 1624788 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATACTGGCGTTATACAGTTTTGAAGTTCGAAAATAC
 spacer length: 37 repeater length: 37
 20522 1624863 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTGATATAATGAAAAATGCCTTCGAAGATGCAAATA
 spacer length: 37 repeater length: 37
 20523 1624938 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCGCCTCCCTTACTCGACCAATGACACATAAAG
 spacer length: 34 repeater length: 37
 20524 1625010 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGAGAATCCACTGTCAAGATCCTGGCTTTTAGACA
 spacer length: 36 repeater length: 37
 20525 1625084 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAACATATTTTCTTGCCTCTTCTGTTGAATATC
 spacer length: 34 repeater length: 37
 20526 1625156 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTACCTGTAATTAATGGAATTGGTACATAGCCT
 spacer length: 35 repeater length: 37
 20527 1625229 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAGACACGACAGCAGGAAATGTTTATATTTCTAAAG
 spacer length: 36 repeater length: 37
 20528 1625303 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AACTCATTCTTCTTGATGTCTGAAGCCAGCCTTCC
 spacer length: 36 repeater length: 37
 20529 1625377 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTGAAATTGATGATTATTTAATTTAGCAATTAACC
 20530
 20531
 20532 crispr 11
 20533 969248 CTCGGGAGTACGCTGTCCTTCCCGAATTGCGCATCGGGAG
 TACGCTGTCCTTCCCGAATTGCGCATCGGGAGTACGCTGTCCTTCCCGAATTGCGGCTCGGGAGTACGCTGTCCTTCCCGAATTGC
 G spacer length: 87 repeater length: 40
 20534 969376 CTCGGGAGTACGCTGTCCTTCCCGAATTGCGCATCGGGAG TACGCTGTCCTTCCCGAATTGCG spacer
 length: 23 repeater length: 40
 20535 969440 CTCGGGAGTACGCTGTCCTTCCCGAATTGCGCATCGGGAG CATGAATGCACTAATAGATTGCA
 20536
 20537
 20538 crispr 12
 20539 3137559 TGATTATTTAATTTAGCAATTAACCTGAACTTAATAACTG ACTGAAATTAACAATTACTAGAAATTG spacer
 length: 27 repeater length: 40
 20540 3137627 TGATTATTTAATTTAGCAATTAACCTGAACTTAATAACTG ACTGAAATTAACAATTAACTGAAATTG spacer
 length: 28 repeater length: 40
 20541 3137696 TGATTATTTAATTTAGCAATTAACCTGAACTTAATAACTG TAAACTGTAATTATAATTGATTAGATAT
 20542
 20543
 20544 GCA_000970225.1_ASM97022v1_genomic.fna(findCrispr):
 20545 START REPEAT
 SPACER
 20546 crispr 1
 20547 2266154 TGTTC AAGGCAATTGAAGAT GCACAAAAGTACTTTTCAGAAGTTTATTTCCCTTCA spacer length: 36
 repeater length: 20
 20548 2266211 TGTTC AAGGCAATTGAAGAT TCACAAAAGTACTTTTCAGAAGTTTATTTCCCTTCA spacer length: 36
 repeater length: 20
 20549 2266268 TGTTC AAGGCAATTGAAGAT TTATTCAATCTGTTTTAACATGGGGGTACAGTAATG
 20550
 20551
 20552 crispr 2
 20553 3133743 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCTGATGTTTCATCGTTAACTGATGGTA
 spacer length: 50 repeater length: 21
 20554 3133815 ATCTCCACCTGATGTTTCATC GTTTCAGATTGATCATCTTCACCGGATGTTTCACCGTTATCTGATGGTA
 spacer length: 50 repeater length: 21
 20555 3133887 ATCTCCACCTGATGTTTCATC TAATTGTTAATTTTCAGTCAGTTATTAATTTCTAGTAATTGTTAATCTCAG
 20556
 20557
 20558 crispr 3
 20559 2993110 TATAATTACAGTTTATATAAT TAAAGTTTATTTAATTTCCA spacer length: 20 repeater
 length: 21
 20560 2993152 TATAATTACAGTTTATATAAT TAAAGTTTATTTAATTTCCA spacer length: 20 repeater

length: 21
20561 2993194 TATAATTACAGTTTATATAAT TAAAGTTTGTTTAATTTCCA spacer length: 20 repeater
length: 21
20562 2993236 TATAATTACAGTTTATATAAT TAAAGTTTGTTC AATTTCCA spacer length: 20 repeater
length: 21
20563 2993278 TATAATTACAGTTTATATAAT CAGGTTAATTGTTAATTTCA
20564
20565
20566 crispr 4
20567 1904700 ATACAAATGTAACAGATGACAC
TAACGTAACAGATGGTACAAATGTAACAGATGACACTAACGTAACAGATGGTACAAATGTGACTAATGATACAAATGTGACTAATG
ATACAAATGTGACTAATGATACAAATGTGACTAATGATACAAATGTGACTAATGATACAAATGTGACTAAT spacer
length: 157 repeater length: 22
20568 1904880 ATACAAATGTAACAGATGACAC
TAACGTAACAGACGGTACAAATGTAACAGATGGTACAAATGTAAC TATTGATACAAATGTAAC TATTGATACAAACGTGACTGAC
spacer length: 85 repeater length: 22
20569 1904988 ATACAAATGTAACAGATGACAC
TATGGCAGCAATACTACTTCTGTAATTGATACAGCCACAAACAACGTTATAGCCTCTGTGCCC GTAGGATGGAGTCCGGTTGGAG
20570
20571
20572 crispr 5
20573 800148 TTAA TGGATCTTGCTCGCGAATCGGATGTTATACCACCGTTGCGGGTTGAGATGTTGTTTCAATCCTTGT
spacer length: 66 repeater length: 4
20574 800219 TTAA TGGATCTTGCTCGCGAATCCATTAATTTTAATCGTGTTACTTGAAGTTCCTGGTTTCAATCCTTGT
spacer length: 66 repeater length: 4
20575 800290 TTAA TGGATCTTGCTCGCGAATCTGAATTAGCTAAGTATGGTGTCAACCATATGTGAGTTTCAATCCTTGT
spacer length: 67 repeater length: 4
20576 800362 TTAA TCCACTAAAACAAGGATTGAACTAG AATACAAAGCCAAAATACAAGGGGTTGAGGTTATTCGCGAG
20577
20578
20579 crispr 6
20580 2252525 TCCAAATAAGGAACAATAGCTGAAAG
TGCTCGAGTTCTTTTCATCATTAGATTGAATATTGGAAGCTAGATCAAGTGCTTTTTTCTATCATTCTCCTTTTTTTTTTGCCC
spacer length: 81 repeater length: 26
20581 2252633 TCCAAATAAGGAACAATAGCTGAAAG
CGCCATAAATATACAATAGTCATTAAGTTCAATTATAGAGATTGCATCAAGTGCTTTTTTCAATCATTTCTTCCTTTTTTTTGATC
spacer length: 84 repeater length: 26
20582 2252744 TCCAAATAAGGAACAATAGCTGAAAG
CTTTCAGGTTTGG AAGGTCGAAGGATTGACTACTATTTCGTGAGCAAGATCCATTAAAACAAGGATTGAAACCTGTCTTTTCA
20583
20584
20585 crispr 7
20586 800141 CCTT GTTTTAATGGATCTTGCTCGCGAATCGGATGTTATACCACCGTTGCGGGTTGAGATGTTGTTTCAA
spacer length: 66 repeater length: 4
20587 800212 CCTT GTTTTAATGGATCTTGCTCGCGAATCCATTAATTTTAATCGTGTTACTTGAAGTTCCTGGTTTCAA
spacer length: 66 repeater length: 4
20588 800283 CCTT GTTTTAATGGATCTTGCTCGCGAATCTGAATTAGCTAAGTATGGTGTCAACCATATGTGAGTTTCAA
spacer length: 67 repeater length: 4
20589 800355 CCTT AGCTTCCACTAAAACAAGGATTGAAAGTTGTTCTTTGAGTCCCTAACTTTTTTAAAATTCTTCTAA
20590
20591
20592 crispr 8
20593 1313128 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
CAAAACGACAGCAGTGTCTCTGTAATTAACACAACGACCAGCACTGTTATCGCCAGTGTTCCAGTAGATTACAGTCCTTCTGGAGT
TGTAGT spacer length: 92 repeater length: 33
20594 1313254 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
TACGGCAGTAACACTACTTCCGTAATCGATACGTCTAATTACAGTATTACCTTCACGGTGCCTGTAGGAATTGCTCCTTATGGAGT
TGCGAT spacer length: 92 repeater length: 33
20595 1313380 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
TTAACATGGGGGTACAGTAATGGGCAGAACTATCAGCGGTGCATTAATAGGTATGGTTCTTACTTTTGTTTTTTATTTTATTCCGG
TGGTAA
20596
20597
20598 crispr 9
20599 1614554 GTCGAGAAGTAGCTTCCACTAAAACAAGGATTGAAA CTTTTTCCCAATTTACTTCCTCCTCATTGAACATTT
spacer length: 36 repeater length: 36
20600 1614627 GTCGAGAAGTAGCTTCCACTAAAACAAGGATTGAAA
CGATTTTGCGTTTCTTCTCCCATAAAGCTGGAAGTATTT spacer length: 40 repeater length: 36
20601 1614704 GTCGAGAAGTAGCTTCCACTAAAACAAGGATTGAAA CGGATTATTAGTTGAAGTATCCGTGAATTGGACTGTAA
spacer length: 38 repeater length: 36
20602 1614779 GTCGAGAAGTAGCTTCCACTAAAACAAGGATTGAAA CTTTTTTATGTTGTATCGAGCGAGTCCGTTAAATACG

spacer length: 37 repeater length: 36
 20603 1614853 GTCGAGAAGTAGCTTCCACTAAAACAAGGATTGAAA CTATTTTGCTAAACAATACTGCGTTCAGCTTATCAA
 spacer length: 36 repeater length: 36
 20604 1614926 GTCGAGAAGTAGCTTCCACTAAAACAAGGATTGAAA TCAGTTATTAATTTCTAGTAATTGTTAATCTCAGTC
 20605
 20606
 20607 crispr 10
 20608 1604387 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTGAATGGTGCCTCCAAGTCGGGCGGATCCA
 spacer length: 33 repeater length: 37
 20609 1604458 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCGGAAATGATGTCCCATCCGATACCGGACAGAAATA
 spacer length: 37 repeater length: 37
 20610 1604533 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TCAGATCGGTTTGCCGGTCTGCGTTTCCATCGAAATGGA spacer length: 39 repeater length: 37
 20611 1604610 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGCTCAAGATGCTGCCAAAGCTATGACTCTGCTAG
 spacer length: 36 repeater length: 37
 20612 1604684 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GAAACTTTAAATTCAATTTTCATATGATACCTTGA
 spacer length: 34 repeater length: 37
 20613 1604756 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAATCCTCAATTCCACCGATTCCATATTTATCA
 spacer length: 35 repeater length: 37
 20614 1604829 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATTATGTGTCGTTAATGCCTTGAGTGTGTCAGAGAG
 spacer length: 37 repeater length: 37
 20615 1604904 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTAACGCTTCTTGTTTTGTCTCTCCCAATTCTTCAA
 spacer length: 37 repeater length: 37
 20616 1604979 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTTCTTACAGTCTGGCAAAGAAGGGCTTGAC
 spacer length: 32 repeater length: 37
 20617 1605049 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGCAGTTTTCTACTAAGCGGTTTCATGTTTCCTAC
 spacer length: 34 repeater length: 37
 20618 1605121 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGATGTGTAGCCCACTCTTTCCAAGCTTCCATAT
 spacer length: 35 repeater length: 37
 20619 1605194 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATGATATCAAATAACAGGCTGGAATTATACGGT
 spacer length: 35 repeater length: 37
 20620 1605267 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACTCCCTTAGTGTAGAGGTCAATCACGGAGGGCC
 spacer length: 35 repeater length: 37
 20621 1605340 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATCCGGCGTGCTGCAAAGCCTATAGACCACAGAA
 spacer length: 36 repeater length: 37
 20622 1605414 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATAGGTGTAAAGACTTATAGTAATTTGTAAGATAA
 spacer length: 36 repeater length: 37
 20623 1605488 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCTTATGAGCAGATGCAGGCTGAAACATGAAAGAG
 spacer length: 36 repeater length: 37
 20624 1605562 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTACAGGCAACCCTCCAATTACTATCCCCGACTG
 spacer length: 35 repeater length: 37
 20625 1605635 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAAACCATAGAGGACTATGGATATACGCCTA
 spacer length: 33 repeater length: 37
 20626 1605706 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAGTTCGATTCTACTGCTCCGGCATCGCTTCCG
 spacer length: 34 repeater length: 37
 20627 1605778 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGAGAGTTGACTATCTTTGCAGTTTTCTTAATCT
 spacer length: 36 repeater length: 37
 20628 1605852 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATACCTACACTTCAGCACAAGCGGGGCGCTATG
 spacer length: 33 repeater length: 37
 20629 1605923 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACAGGGGGTGGTAAGAGTGCTTGAAAGATGTAAA
 spacer length: 37 repeater length: 37
 20630 1605998 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGGAGATGCTACAGCAGAAATTAAACTCGATGA
 spacer length: 34 repeater length: 37
 20631 1606070 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGTAAAATGCAATTAGTAAACCCAAGTGATAAAAT
 spacer length: 35 repeater length: 37
 20632 1606143 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATAAATTGCAGAATGGTGGTGTAATGATAAAAGT
 spacer length: 35 repeater length: 37
 20633 1606216 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTGAACCCACCGGAACCCCCTTTTCGTGATATACCT
 spacer length: 35 repeater length: 37
 20634 1606289 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAAAAACATAAAGAGGTTCTGGAAATAATGAT
 spacer length: 33 repeater length: 37
 20635 1606360 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAGCGGAATAATTAGCAATTGCTTTTGCTACACCA
 spacer length: 35 repeater length: 37
 20636 1606433 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAGCTTATTGCAGAATACAACCGTAACAGGCTAAA
 spacer length: 36 repeater length: 37
 20637 1606507 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAATGTATCTGCGAAGGCTCTCGTTCCCTGGTGTA
 spacer length: 35 repeater length: 37
 20638 1606580 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTCTGTTTTTGCTTTGAGTTCTCCCGTAGGTGT
 spacer length: 35 repeater length: 37
 20639 1606653 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCGAGAGTGTTATGGCGACGATCAAAGCGAAA
 spacer length: 34 repeater length: 37

20640	1606725	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAACATCATCCAGGTTGTAGGATCGAACTCTTCTACA
		spacer length: 36 repeater length: 37	
20641	1606799	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GGCTGAATCTCCGAAACCAACCTTATATAATGATTA
		spacer length: 36 repeater length: 37	
20642	1606873	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGTTAAAATTCCTTCTGAAGAATTGAACGGGGCT
		spacer length: 34 repeater length: 37	
20643	1606945	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	
		AGTGCTCTACTTTTGATACACCTTCTGAATTCACATGGAAC	spacer length: 41 repeater length: 37
20644	1607024	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAAGCTTCAGCTTTTTTCTCTTGCTTTTTTGCAAAA
		spacer length: 34 repeater length: 37	
20645	1607096	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCTCAGTCCTCGATATCCAAGGCGAACACCTTTAAAA
		spacer length: 37 repeater length: 37	
20646	1607171	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGAGTAATTGACCCAGACGTCTGGGTAAAGGTA
		spacer length: 34 repeater length: 37	
20647	1607243	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GAGAATGGACTTGTCTTCATGTAACACTTCCCATGA
		spacer length: 37 repeater length: 37	
20648	1607318	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATAAAATATATCGGCATGCGTATCCAGAATTTT
		spacer length: 33 repeater length: 37	
20649	1607389	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTGGAGCTACATACGGATTGGTGAGAACTATAT
		spacer length: 33 repeater length: 37	
20650	1607460	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GAACTCCTGCACAAGTCCCCGGACTCCGTAAGTG
		spacer length: 34 repeater length: 37	
20651	1607532	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCAGGCCATTTTATAGCGGACGATGGGCGGTAAGA
		spacer length: 35 repeater length: 37	
20652	1607605	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GAGGTTGAGTTTTCCGATTCCGGGCGAACGGGGCAA
		spacer length: 36 repeater length: 37	
20653	1607679	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGGAGTATGCAGCATTAGCGGGTTAAGTGTTGCG
		spacer length: 35 repeater length: 37	
20654	1607752	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTATAGTATCATAAAACGTGATGTCAACACAGC
		spacer length: 34 repeater length: 37	
20655	1607824	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	
		TCCAGCAAAACATTATACCCATACCTACTGCAAGAAAAAT	spacer length: 40 repeater length: 37
20656	1607902	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAGATAGCAAAATAGCTCTGAGCCAGCCCGACT
		spacer length: 34 repeater length: 37	
20657	1607974	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGCAGCTGGTCAGGCTCCGGACCTGTCAGCAATGA
		spacer length: 35 repeater length: 37	
20658	1608047	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AACATATAGATTAAAACCTATATGACAGAAGAAAACC
		spacer length: 36 repeater length: 37	
20659	1608121	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACAAAATTGCGGTTAGTAATGGTGTTTTAGATGTTG
		spacer length: 36 repeater length: 37	
20660	1608195	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAGGACGCCATAACATTTGTTAATTATGCTAAA
		spacer length: 34 repeater length: 37	
20661	1608267	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ACCTTCCCGTGGTCCTTGCCGGGGATACCCCCCTGG
		spacer length: 36 repeater length: 37	
20662	1608341	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CTCTTTTTTTTTTGTGCTGTTAGAAAATATGTCCCG
		spacer length: 35 repeater length: 37	
20663	1608414	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATTACTGCTGTTTTACCGTCTGTTGTGGATCTCAGA
		spacer length: 36 repeater length: 37	
20664	1608488	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGCAAAAGTATAGTAGATCAGTTTGGAGCTTGACC
		spacer length: 35 repeater length: 37	
20665	1608561	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGATGCAACAGGCGGGGTTAACGCTCTCACAAC
		spacer length: 35 repeater length: 37	
20666	1608634	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGGAGGGTCACAAAACGTGATAATGACCTCTGCAAC
		spacer length: 36 repeater length: 37	
20667	1608708	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	
		TATATGTATACGTACTATTACGTATATCGAATAAATTGAGAGGTCA	spacer length: 46 repeater length: 37
20668	1608792	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	ATGCCTTTCAGTTCTCTTTTTATGTTTTCTAGCT
		spacer length: 34 repeater length: 37	
20669	1608864	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTACTACATGGACACTGTGACCCCCATCGGCTA
		spacer length: 33 repeater length: 37	
20670	1608935	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGATTGTACCTCTCATAACACACTATGTTTTCT
		spacer length: 33 repeater length: 37	
20671	1609006	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GCAGTCTGGCTGGCTTCCATGATACGAAGCTGTT
		spacer length: 34 repeater length: 37	
20672	1609078	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCAAGCCTCTTATCGAGACTGTCCAAGGCTTCTG
		spacer length: 34 repeater length: 37	
20673	1609150	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCCAGGGAGTCAAAAACGACGGGACAACTACGA
		spacer length: 34 repeater length: 37	
20674	1609222	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTACCCTGAAATGAAACGGTCACAGGAAACCCAAGA
		spacer length: 36 repeater length: 37	
20675	1609296	ATTCTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCACTTTCAGTAATGGGGAATAGTCGCCCTATAACG

spacer length: 37 repeater length: 37
 20676 1609371 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAATTCCGTTTCCATATCTGCAATATAAAAAAATT
 spacer length: 35 repeater length: 37
 20677 1609444 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCGTCGCCTACCTTGTCCAGGTTCCAGGCTCCA
 spacer length: 35 repeater length: 37
 20678 1609517 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACGCAGACGATAATTAAAAGGGATTGCTCAAT
 spacer length: 33 repeater length: 37
 20679 1609588 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TAAATGTAGATACAACCTCAGATTCTTTTATCTG
 spacer length: 34 repeater length: 37
 20680 1609660 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGAGATTGTATTTTTTATATATTACAATGTTGTCCC
 spacer length: 36 repeater length: 37
 20681 1609734 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCAATAGCGGACGACGGTAAAAGCGCAGTAGTACA
 spacer length: 35 repeater length: 37
 20682 1609807 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GAAAATACCTGTATGCCTCCAAACGCTTGATTTTC
 spacer length: 35 repeater length: 37
 20683 1609880 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC
 TTTTCTGGTTCGATTTCTGGCATATCTGAGCCACCAGGT spacer length: 39 repeater length: 37
 20684 1609957 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CACCTTTGAGAGTCCAAGAGCTTCCAACATTGCG
 spacer length: 34 repeater length: 37
 20685 1610029 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACAAAGAACCGGAGCCCACAAAATGACAGAAAAC
 spacer length: 34 repeater length: 37
 20686 1610101 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AAATACCGCCCTGCCAGTCTATCCCGTTATATCC
 spacer length: 34 repeater length: 37
 20687 1610173 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTCTGGTCAATGTTTGCAGGAGGGACCAGGTAA
 spacer length: 33 repeater length: 37
 20688 1610244 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCCAGGTCCAGCACTTAGAAGGATATAACACATT
 spacer length: 34 repeater length: 37
 20689 1610316 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAACCGCCTTTAAACTCGCTTCAATGTGGGCTA
 spacer length: 34 repeater length: 37
 20690 1610388 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATGTCTAAGTACCTGGAGGGGGTCTTAACGGCAG
 spacer length: 35 repeater length: 37
 20691 1610461 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTATTCCCTGGTATAGTTCATGCGGGAACAGTA
 spacer length: 33 repeater length: 37
 20692 1610532 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CACATGTTCCAGCAAATCCGCCTTGACTATTTCCG
 spacer length: 36 repeater length: 37
 20693 1610606 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTTATCAGGCGGGCTGGATTCAACCACTCTTTTA
 spacer length: 35 repeater length: 37
 20694 1610679 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTCGTTTGCAGATATTCCAATATTCTGTCTCTG
 spacer length: 33 repeater length: 37
 20695 1610750 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ACATATGTCATTTTTTTTAGCTCCTGTTCAATTGAAT
 spacer length: 35 repeater length: 37
 20696 1610823 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATACTCTTAATATCCTCCAGCATTTCCGGGGATAAA
 spacer length: 36 repeater length: 37
 20697 1610897 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CGAGAAAGGGCGGTGTCAATGTGGTATTTTCCAG
 spacer length: 34 repeater length: 37
 20698 1610969 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GGATAGCGTTTACTATACTGTGCAACCTGGACCG
 spacer length: 34 repeater length: 37
 20699 1611041 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGCCTTAGTTTTGCGGTCTGGTCCCCTGTGAGGA
 spacer length: 34 repeater length: 37
 20700 1611113 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCCTGGTTTCAATGGAGATAGTAAAGGGAGAGG
 spacer length: 34 repeater length: 37
 20701 1611185 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AACTCTATATAATGCATCTAGGTGATGGTCTAGA
 spacer length: 35 repeater length: 37
 20702 1611258 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC ATAATCATTTTTTCTTCACACTTCTTTAATCTCATC
 spacer length: 35 repeater length: 37
 20703 1611331 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TCACAAAAGGGTTAATAATTGAGGCCTGCTGTTGT
 spacer length: 35 repeater length: 37
 20704 1611404 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTGCAGTATTCTTTCTGAATATTATCAGTAAAG
 spacer length: 33 repeater length: 37
 20705 1611475 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC CTTTGAAGATATAAGCAAAGCTGTCCTTCGAC
 spacer length: 34 repeater length: 37
 20706 1611547 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GGAAACACAGGATTTAAATTAAGATCGCTTCGGACT
 spacer length: 36 repeater length: 37
 20707 1611621 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC GCCTGTTTCGAGTGCCTCATCTTTGAGGGCAGTAAC
 spacer length: 35 repeater length: 37
 20708 1611694 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC AGCATTGTATATCTACAATGTAGCAAAGTATATA
 spacer length: 34 repeater length: 37
 20709 1611766 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TTATAATATTGAATGTTTGAACATCTGTAAAACCG
 spacer length: 35 repeater length: 37
 20710 1611839 ATTCGTGAGCAAGATCCACTAAAAACAAGGATTGAAAC TGTGTTGTTTCGATGTTTTTCATCGAATTCCTGGAA
 spacer length: 35 repeater length: 37

20711	1611912	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAAGTAAGTGTGGCAGGAGTCCCCAAAGTAA	spacer
		length: 31	repeater length: 37	
20712	1611981	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CACATTAAAATAATGAAATCTGTATTTGCTTTCAA	
		spacer length: 35	repeater length: 37	
20713	1612054	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TCGTATACAAAAGACTTATTCTCTGGCATATAATTT	
		spacer length: 36	repeater length: 37	
20714	1612128	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGTCATCTACCCTGATTGATTGATGGGGGCGTGTTA	
		spacer length: 36	repeater length: 37	
20715	1612202	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGATACCGTGCAGCATAAGAATACGGATGCCCCAC	
		spacer length: 34	repeater length: 37	
20716	1612274	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CAATTTTCGTTTGACATTTTATATATCTCCTATAG	
		spacer length: 34	repeater length: 37	
20717	1612346	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TACTGTTTCGGCGGTTCTTCGCATTGTTGCGTCAA	
		spacer length: 34	repeater length: 37	
20718	1612418	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGAAATTCAATACCTCCGCACAAGATCAGATATT	
		spacer length: 34	repeater length: 37	
20719	1612490	ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTATTAATTTCTAGTAATTGTTAATCTCAGTCAG	
20720				
20721				
20722	crispr 11			
20723	1628084	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	GAAGCAAGTAAGGACTAATCCCCGCCATTTCAATGG	
		spacer length: 36	repeater length: 37	
20724	1628158	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	GTCTGGAATTGTTTCATATCGGATGCTTTCTTTTGCTC	
		spacer length: 37	repeater length: 37	
20725	1628233	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	GAGTGTCTAATTCTTCTCTTGTGAGATAGTCCACT	
		spacer length: 35	repeater length: 37	
20726	1628306	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TTGTTAGCTTCGATTGTTGCATACCCGGATTCTATAA	
		spacer length: 36	repeater length: 37	
20727	1628380	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	AAAACATGTACATAAACTGTAGCTTCCGTATCT	
		spacer length: 33	repeater length: 37	
20728	1628451	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TAGTCCCCTACCTGCTTATATGGCCATTTCTTC	
		spacer length: 33	repeater length: 37	
20729	1628522	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ATTCGTCTTGGTCTTCGTTTGGAGCTTCAGAACT	
		spacer length: 35	repeater length: 37	
20730	1628595	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	AACTTCCAAAAGTGTTCGACTCTTCCAGTAAGGT	
		spacer length: 34	repeater length: 37	
20731	1628667	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TCTCCCTGGTAATGAGTTTTACATGGGTCATACATC	
		spacer length: 36	repeater length: 37	
20732	1628741	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ACAAATGTTGTCTCTGGATGAAATCAATATCTGG	
		spacer length: 34	repeater length: 37	
20733	1628813	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	CTCGAAAGGGTATCCTGGTCAAACCTGTAGAT	
		spacer length: 32	repeater length: 37	
20734	1628883	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	CATGGTGGGTTTTGCCCCGCAACCGATGCTACA	
		spacer length: 34	repeater length: 37	
20735	1628955	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	GGTCACTTCGTACGACCGCTGTGAAGCCGTTCTCTC	
		spacer length: 36	repeater length: 37	
20736	1629029	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TTGAGAAGAAAGACATGGGGTTTCGATGAATATATA	
		spacer length: 35	repeater length: 37	
20737	1629102	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TATGCGCACAGATGGGGCATATGGATAATTTGGAA	
		spacer length: 35	repeater length: 37	
20738	1629175	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ACTCATTACAGGCTTGAATCTCTGGATGACCTGGAT	
		spacer length: 36	repeater length: 37	
20739	1629249	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ATTATATTTTCTGTGCAATAATATTGTTTTTCA	
		spacer length: 33	repeater length: 37	
20740	1629320	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	AATTCTGACGCGCATGTTTCCAAGAAGCATTCCGAAG	
		spacer length: 37	repeater length: 37	
20741	1629395	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	CAGACAATATCAGCAGGTGAAAGAGGGGGATT	
		spacer length: 33	repeater length: 37	
20742	1629466	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	GGAAACTTCTTAATAGTTTGCTTCCTGATTTCTT	
		spacer length: 34	repeater length: 37	
20743	1629538	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TGGGACCATCGCGGACACCGGAGCGACCACAGTAG	
		spacer length: 35	repeater length: 37	
20744	1629611	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ATTTTTTTCTTCGCGCATGAGTACAAACATTTAT	
		spacer length: 34	repeater length: 37	
20745	1629683	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TAATCAATATCAAGTTGGTCCCATATGGCAATATTAT	
		spacer length: 37	repeater length: 37	
20746	1629758	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	ACCGTGATGTTGAACCATTTGTTTTTCGATCTCAATAATT	spacer length: 39
				repeater length: 37
20747	1629835	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	CCTAAATTCGTAACCTTTGGCCTTGATATATTTTCA	
		spacer length: 35	repeater length: 37	
20748	1629908	ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC	TGTTAACTGGGAACAGAAAACAGCTATTGTTGAAA	

spacer length: 35 repeater length: 37
 20749 1629981 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC CTAATGGGTTTTTCATGGGCCCGCATCGTTTCAAT
 spacer length: 34 repeater length: 37
 20750 1630053 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC AATAGTTGAATGGATTAACTGGCATTATTATTGGCA
 spacer length: 35 repeater length: 37
 20751 1630126 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC ATATACGACCTCATATGTCAATCACCTGACATCAAT
 spacer length: 37 repeater length: 37
 20752 1630201 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC CTTTCATTTCCCTCACACCCTAATTGGAATCAAAA
 spacer length: 35 repeater length: 37
 20753 1630274 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC CATTGTTAATGAATATACGTTACAGTTAGGTCTGTGT
 spacer length: 37 repeater length: 37
 20754 1630349 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC TCTTTCTCAGTAAATGTGAAATGCTTCTCAAACCTCT
 spacer length: 36 repeater length: 37
 20755 1630423 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC TTGGGTGTATAATCCACCCTGCTTCTGTGTATAATT
 spacer length: 36 repeater length: 37
 20756 1630497 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC TTTTGTAAGTCTAATTCATCCCGTATCCATGCCG
 spacer length: 34 repeater length: 37
 20757 1630569 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC AAATCGTGGGAATAATCACAGATCAGGGGCTTGA
 spacer length: 34 repeater length: 37
 20758 1630641 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC AAGATATGGTAGATAAGCACCATATCATACTAAA
 spacer length: 34 repeater length: 37
 20759 1630713 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC ATCCGCTGAACCGGTCCTTACGAGAGACGCAC
 spacer length: 36 repeater length: 37
 20760 1630787 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC CCTATGTAACCATCAACCAGATGGAAATCAAGAG
 spacer length: 34 repeater length: 37
 20761 1630859 ATTCGTGAGCAAGGTCCACTAAAACAAGGATTGAAAC TTTAACATGGGGGTACAGTAATGGGCAGAACTAT
 20762
 20763
 20764 crispr 12
 20765 3248912 TTCAGGTTAATTGCTAAATTAAATAATCATCAATTTT AGGTTAATTGTTAATCTCAGTCAGTTATTAA spacer
 length: 31 repeater length: 37
 20766 3248981 TTCAGGTTAATTGCTAAATTAAATAATCATCAATTTT AGGTTAATTGTTAATTTTCAGTCAGTTATTAA spacer
 length: 31 repeater length: 37
 20767 3249050 TTCAGGTTAATTGCTAAATTAAATAATCATCAATTTT TAGTAATTGTTAATTTTCAGTCAGTTATTAA spacer
 length: 30 repeater length: 37
 20768 3249118 TTCAGGTTAATTGCTAAATTAAATAATCATCAATTTT TCAGTCAGTTATTAAATTTCTAGTAATTGTT
 20769
 20770
 20771 GCA_000970245.1_ASM97024v1_genomic.fna(findCrispr):
 20772 START REPEAT
 SPACER
 20773 crispr 1
 20774 1075072 AGGAGCTAAACTTGAAAGGGC GTACCTTATAGAGGCTAACCTGGAAGGAACCTTCAAGGAGCTAAACTCG
 spacer length: 53 repeater length: 21
 20775 1075147 AGGAGCTAAACTTGAAAGGGC
 TAAACTTGAGAGAGCATACCTTATAGAGGCTAACCTCCAAGGGACTGATCTTTATGGAGCTAATCTCCAGGGGGCCAACCTTCAGG
 AAGCTAACCTTTATGGAGCCGACCTTCAAGAGGCTAACTTGAAGGGGCTAACCTTC spacer length: 143
 repeater length: 21
 20776 1075312 AGGAGCTAAACTTGAAAGGGC
 CAAACCCACATGCTCTCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCCGCACTGGAAGCAGTGGATTGA
 CAGGTCCTGTTTTTTTTGGCTGGGACTCGGCTTTTTCCCTGTTGAATTCGACTGTATG
 20777
 20778
 20779 crispr 2
 20780 2214609 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCTGATGTTTCATCGTTAACTGATGGTA
 spacer length: 50 repeater length: 21
 20781 2214681 ATCTCCACCTGATGTTTCATC GTTTCCAGATTGATCATCTTCACCGATGTCTCACCGTTATCTGATGGTA
 spacer length: 50 repeater length: 21
 20782 2214753 ATCTCCACCTGATGTTTCATC CAGGTTAATTGTTAATTTTCAGTCAGTTATTAAATTTCTAGTAATTGTTAAT
 20783
 20784
 20785 crispr 3
 20786 2073050 TTACAGTTTATATAATTAAAG TTTATTTAATTTCCAGTATA spacer length: 20 repeater
 length: 21
 20787 2073092 TTACAGTTTATATAATTAAAG TTTGTTTAATTTCCAGTATA spacer length: 20 repeater
 length: 21
 20788 2073134 TTACAGTTTATATAATTAAAG CCGTTTTTTAGATTACCGTTT
 20789
 20790
 20791 crispr 4
 20792 4135742 TTTTAAATTACCGTTTTTTTA

AATTACCGTTTTTCAAATTACCGTTTTTCAAATTACCGTTTTTCAAATTACCGTTTTTAGATTACC
 spacer length: 81 repeater length: 21
 20793 4135845 TTTTAAATTACCGTTTTTAA AATTACCGTTTTTAGATTACC spacer length: 21 repeater
 length: 21
 20794 4135888 TTTTAAATTACCGTTTTTAA AATTACCGTTTTTAGATTACC spacer length: 21 repeater
 length: 21
 20795 4135931 TTTTAAATTACCGTTTTTAA GAAAGGGCTAAACTTGAGAGG
 20796
 20797
 20798 crispr 5
 20799 3724513 GTGTCATCTGTTACATTTGTAT
 TGTCAGTCACGTTTGTATCAATAGTTACATTTGTATCAATAGTTACATTTGTACCATCTGTTACATTTGTACCGTCTGTTACGTT
 spacer length: 85 repeater length: 22
 20800 3724621 GTGTCATCTGTTACATTTGTAT
 CATTAGTCACATTTGTATCATTAGTCACATTTGTATCATTAGTCACATTTGTATCATTAGTCACATTTGTATCATTAGTCACATTT
 GTATCATTAGTCACATTTGTACCATCTGTTACGTTAGTGTACATCTGTTACATTTGTACCATCTGTTACGTT spacer
 length: 157 repeater length: 22
 20801 3724801 GTGTCATCTGTTACATTTGTAT
 AACCCACATGCTCTCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCCGCACTGGAAGCAGTGGATTGACA
 GGTCTGTTTTTTTGCTGGGACTCGGCTTTTTCCCTGTTGAATTCGACTGTATGTCTTTCTTCAATAGAA
 20802
 20803
 20804 crispr 6
 20805 2429467 CTTTGATTTATTCCTGATTTATT CCTGATTTATTCCTGATTTA spacer length: 20 repeater
 length: 23
 20806 2429511 CTTTGATTTATTCCTGATTTATT CCTGATTTATTCCTGATTTATTCCTGATTTA spacer length: 31
 repeater length: 23
 20807 2429566 CTTTGATTTATTCCTGATTTATT ACTGAAGAAGAAGCTACTGAAGAAGCTAAAT
 20808
 20809
 20810 crispr 7
 20811 2051126 TGAAGAAGAAGTAGCTGAAGAAG CTACCGAAGAAGAAGTAGCTGAAGAAGTAG spacer length: 30
 repeater length: 23
 20812 2051180 TGAAGAAGAAGTAGCTGAAGAAG CTACCGAAGAAGAAGTAGCTGAAGAAGCTACCGAAGAAGAAGTACCTG
 spacer length: 48 repeater length: 23
 20813 2051252 TGAAGAAGAAGTAGCTGAAGAAG TGAATCAGCCGTGAATCAAACGTGGAAGGCATCGAGTACAAACCCACA
 20814
 20815
 20816 crispr 8
 20817 3296829 GAGCAAGATCCACTAAAACAAGGATTGAAAC TTACAATTGATGTTTCAGGCCTTGAAGATGGCGTATTTCG
 spacer length: 39 repeater length: 31
 20818 3296900 GAGCAAGATCCACTAAAACAAGGATTGAAAC AAATGTGATACAAATAGAGATAGATTAGATAAGTATAAATTTCG
 spacer length: 43 repeater length: 31
 20819 3296975 GAGCAAGATCCACTAAAACAAGGATTGAAAC GATAATACCAAGCTGACAAGCTCTTAGAACTGCGAATTTCG
 spacer length: 40 repeater length: 31
 20820 3297047 GAGCAAGATCCACTAAAACAAGGATTGAAAC GTGGAAGCGGTAAATCGGTAGACCTGCTGAAAGATAAATTTCG
 spacer length: 42 repeater length: 31
 20821 3297121 GAGCAAGATCCACTAAAACAAGGATTGAAAC TTATTCCCTTGTATAGCTCACGCGGAACCGTAGAATTTCG
 spacer length: 40 repeater length: 31
 20822 3297193 GAGCAAGATCCACTAAAACAAGGATTGAAAC TAATGAGATTGTTACTATTATAAATTAATTACAATAATTTCG
 spacer length: 41 repeater length: 31
 20823 3297266 GAGCAAGATCCACTAAAACAAGGATTGAAAC GGAAATATCAGGAAGCAAATAGGAAGCTTGAAGAGAATTTCG
 spacer length: 41 repeater length: 31
 20824 3297339 GAGCAAGATCCACTAAAACAAGGATTGAAAC ACAAAGAAACCGGGAAGGACGAAACCCCAAATATCATTTCG
 spacer length: 41 repeater length: 31
 20825 3297412 GAGCAAGATCCACTAAAACAAGGATTGAAAC AAACTCATGACCGCCATGCTCGGGGATGAAAACACATTTCG
 spacer length: 40 repeater length: 31
 20826 3297484 GAGCAAGATCCACTAAAACAAGGATTGAAAC CTATCCTTTTGATGGATATAATCAATATGCGCCTTAAATTTCG
 spacer length: 42 repeater length: 31
 20827 3297558 GAGCAAGATCCACTAAAACAAGGATTGAAAC AATGCAACTTATTATGGGGTATGGTGTGCTCCTGTCATTTCG
 spacer length: 41 repeater length: 31
 20828 3297631 GAGCAAGATCCACTAAAACAAGGATTGAAAC TCTGAGAGTTTCTCCGGCTTCCGGTACTCTTGTATATTTCG
 spacer length: 40 repeater length: 31
 20829 3297703 GAGCAAGATCCACTAAAACAAGGATTGAAAC AACGGTGATAGAAACGGGCGAACTGGCATCCTCAAATTTCG
 spacer length: 40 repeater length: 31
 20830 3297775 GAGCAAGATCCACTAAAACAAGGATTGAAAC CCATGTTAAATCCTCACGTTGATATCAGATATTGAATTTCG
 spacer length: 40 repeater length: 31
 20831 3297847 GAGCAAGATCCACTAAAACAAGGATTGAAAC AGTTTTCCCTCAAACATCTGATTACCTAGGGCAGATTTCG
 spacer length: 39 repeater length: 31
 20832 3297918 GAGCAAGATCCACTAAAACAAGGATTGAAAC TTGAAAAGGGTATTATTTCGAAATATGGATTTTGGTATTTCG
 spacer length: 40 repeater length: 31

20833 3297990 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTCTCAGGATATTGAGAATCCAACCTCTAGCAGGTCATATTTCG
 spacer length: 42 repeater length: 31
 20834 3298064 GAGCAAGATCCACTAAAAACAAGGATTGAAAC ACTTTAAGGCGGGAAGTCCCCTTCCTCGCCATCAGGATTTCG
 spacer length: 41 repeater length: 31
 20835 3298137 GAGCAAGATCCACTAAAAACAAGGATTGAAAC AATCTGAAGTGCCTCAGCTTCGGTATGATGTTGAATTTCG
 spacer length: 39 repeater length: 31
 20836 3298208 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TGACTAAAATGCTTGACGGAATTATATCGGATTAATTTCG
 spacer length: 39 repeater length: 31
 20837 3298279 GAGCAAGATCCACTAAAAACAAGGATTGAAAC ATGTCGTTCTCGCCATTGACCCCTTGACACCTGAGATTTCG
 spacer length: 40 repeater length: 31
 20838 3298351 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTTGTGTCCTGATTCTGTCTGTTAAAGTGTGCGCAATATTTCG
 spacer length: 42 repeater length: 31
 20839 3298425 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAATCCACTCAATAGAAACCACATCTGGAAACATATTTCG
 spacer length: 40 repeater length: 31
 20840 3298497 GAGCAAGATCCACTAAAAACAAGGATTGAAAC CAGAGCTTATCAAAGGATACGCAGAAGGGAAATAATTTCG
 spacer length: 39 repeater length: 31
 20841 3298568 GAGCAAGATCCACTAAAAACAAGGATTGAAAC ATCCAGGGATGGGCTAATGATATAGGCGTACTCATGATTTCG
 spacer length: 41 repeater length: 31
 20842 3298641 GAGCAAGATCCACTAAAAACAAGGATTGAAAC AAAAGTCAGTCCCGGCCAGCCTATGCGCTAAGACTTCAATTTCG
 spacer length: 43 repeater length: 31
 20843 3298716 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TCTTTTGAGACTCGCGGAAAATGCTTCAGCTGGGGACGATTTCG
 spacer length: 43 repeater length: 31
 20844 3298791 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTTACCGGGGATGTGACAGTCAGGGAATACGGCATATTTCG
 spacer length: 41 repeater length: 31
 20845 3298864 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TGTAATGGTACACTCTCTGAGGAAACGGTAACAAATTTCG
 spacer length: 40 repeater length: 31
 20846 3298936 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTTTGCACCTACGCTTGAAAATTTAATAGATTATGTAAATTTCG
 spacer length: 43 repeater length: 31
 20847 3299011 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTATAGAGAGCTTTTCTTCTGTATTTTCAACTAAGATTTCG
 spacer length: 41 repeater length: 31
 20848 3299084 GAGCAAGATCCACTAAAAACAAGGATTGAAAC
 ATTGTGCACGTTTTTCTTTGCGTATTTCGGTTTTTGCTCGGTATTTCG spacer length: 46 repeater length: 31
 20849 3299162 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAGAATTAAATATTCACCAAAGTTTAGTTTTTTATTTCG
 spacer length: 39 repeater length: 31
 20850 3299233 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TGGCAACAACAAAACAGAAACAGTAAAAAGCAAAAATTTCG
 spacer length: 40 repeater length: 31
 20851 3299305 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TACAAATCCTGGACATTTCCAGAATATGAATTCCCATTTCG
 spacer length: 40 repeater length: 31
 20852 3299377 GAGCAAGATCCACTAAAAACAAGGATTGAAAC TTAGCTGCCGATTCAAGAGCTGGTCCGAAAATTTCGAGAGC
 20853
 20854
 20855 crispr 9
 20856 2995873 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 CAAAACGACAGCAGTGTCTCTGTAATTAACACAACGACCAGCACTGTTATCGCCAGTGTTCAGTAGATTACAGTCCTTCTGGAGT
 TGTAGT spacer length: 92 repeater length: 33
 20857 2995999 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 TACGGCAGTAACACTACTTCCGTAATCGATACGTCTAATTACAGTATTACCTTCACGGTGCCTGTAGGAATTGCTCCTTATGGAGT
 TCGCAT spacer length: 92 repeater length: 33
 20858 2996125 AGTCCGGATGGAACAAAGGTATATGTGGCGAAC
 AGTCATTTTAGATATACCTCGCAAACATTATTTCGCGAGCAAGATCCATTAAAACAAGGATTGAAACTTTTATTTTTTGTGACACTT
 ATTGTT
 20859
 20860
 20861 crispr 10
 20862 2370422 TCAGGTTAATTGCTAAATTAAATAATCATCAATTTT AGGTTAATTGTTAATTTTCAGTCAGTTATTAAG spacer
 length: 32 repeater length: 36
 20863 2370491 TCAGGTTAATTGCTAAATTAAATAATCATCAATTTT TAGTAATTGTTAATTTTCAGTCAGTTATTAAG spacer
 length: 31 repeater length: 36
 20864 2370559 TCAGGTTAATTGCTAAATTAAATAATCATCAATTTT TTGTGACACTTATTGTTATATTGTCATAATT
 20865
 20866
 20867 crispr 11
 20868 890110 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC TTGTCAATTCCGTAAAAAACGTTAAACGAAAAT
 spacer length: 33 repeater length: 37
 20869 890181 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC AAAAGGAACTGAAGAAGGAAAAGCAGATTCCCTTACT
 spacer length: 37 repeater length: 37
 20870 890256 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATATTATGCCCGTTGAATGTGATTGTTTCATTG
 spacer length: 33 repeater length: 37
 20871 890327 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC ATTTTCACTAACCAACAGTGTAAAATCAAAGACG
 spacer length: 34 repeater length: 37
 20872 890399 ATTCGCGAGCAAGATCCATTAAAACAAGGATTGAAAC GCAGTTAGAGAATGGACTTGTCTTCATGTAACACT

spacer length: 36 repeater length: 37
 20873 890473 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAACCGTAGAGTCCGAATATATATCGACTTTCA
 spacer length: 34 repeater length: 37
 20874 890545 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATAAATGGAATTAACATTACAGGTGCTGGAACCTG
 spacer length: 37 repeater length: 37
 20875 890620 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGGTTAAGGGACTTTTCGACAGCAGGAAGCTCTTTTG
 spacer length: 36 repeater length: 37
 20876 890694 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACTCGCGAGCAGGGAATAACCATTACCGAGA
 spacer length: 33 repeater length: 37
 20877 890765 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGTCAAACGTGTGGAGATGCTGAAAGAGCGTAAA
 spacer length: 35 repeater length: 37
 20878 890838 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATAACGCTAAATACTAATTAATATTGAA
 spacer length: 36 repeater length: 37
 20879 890912 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGAAAAATTTTTGTCTCGGTACTCTCGTCTTTT
 spacer length: 35 repeater length: 37
 20880 890985 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACAATCTCTTTTTGCATCATGCCCTGCAATATA
 spacer length: 34 repeater length: 37
 20881 891057 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTCTTTCTCTTTCTGCTTCAGTCACATCTGTAAT
 spacer length: 34 repeater length: 37
 20882 891129 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCTGACCCAGACTTTCCAAACAGCAAAGCATTAG
 spacer length: 34 repeater length: 37
 20883 891201 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCATCCAAACATCCCCGCTTTTTTGGACTGTTAT
 spacer length: 35 repeater length: 37
 20884 891274 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACTTTGAATGTGTAAATAGTAAATAGTGAAAGATT
 spacer length: 35 repeater length: 37
 20885 891347 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAATGCTTCTGGAAAGCATCGGGCTTTTAATTGG
 spacer length: 34 repeater length: 37
 20886 891419 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAGTGTTAATGAGGGGGCAGTACAGGGAAACG
 spacer length: 33 repeater length: 37
 20887 891490 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATCAGAGCAATTCTTATTTTCGGGGCTGCACT
 spacer length: 33 repeater length: 37
 20888 891561 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACAAACACGTATAACTATTTTATACTCTTCTTCAG
 spacer length: 36 repeater length: 37
 20889 891635 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GGAATCATTTTTTACCGTTATCGTGGTCTCTGGTGCTC
 spacer length: 36 repeater length: 37
 20890 891709 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCGAGGTGAACACTGAAAACTGAAAGAATATTG
 spacer length: 34 repeater length: 37
 20891 891781 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCTGTCTGGGCATGAAGCAGAACTTAGAACAGATCT
 spacer length: 36 repeater length: 37
 20892 891855 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTAACCTCTCGGTTTTTTTTTACATTCTCCCCGTA
 spacer length: 34 repeater length: 37
 20893 891927 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTACACTCTTCGATCTAATGAAGAATCAGAAA
 spacer length: 33 repeater length: 37
 20894 891998 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAATCAGGATATTCATGTTAAAAATATTGAAA
 spacer length: 33 repeater length: 37
 20895 892069 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAAAAAACTCGAAACTGAAATGGGGAAGGCGTTA
 spacer length: 35 repeater length: 37
 20896 892142 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACATGGTTATGGAAGCTTCGATGTCCCTGACG
 spacer length: 33 repeater length: 37
 20897 892213 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACACGACATCGTTTGGAGGGATCCATAGCACATAAT
 spacer length: 36 repeater length: 37
 20898 892287 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGCAAGGGCTTAAAGGTGATCTTGTATGGTAG
 spacer length: 33 repeater length: 37
 20899 892358 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTCCCTCCAACGTTTTTAAGGGGCTTACTGCCCC
 spacer length: 35 repeater length: 37
 20900 892431 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATGTGGCTATATTCAACATCAAATTCCTTTTT
 spacer length: 34 repeater length: 37
 20901 892503 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATCTCTAAAAATCCATATCTAACATGCAGCTATA
 spacer length: 35 repeater length: 37
 20902 892576 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCGCCTCACTCGCTTGGCCTTATGATGATTAC
 spacer length: 33 repeater length: 37
 20903 892647 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGCGATCCGCCAAAAGAGAAAGCTGTTTCAGG spacer
 length: 32 repeater length: 37
 20904 892717 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACTGTTGAATTAATTTTCGATGTCGTTTTCTGAAAAA
 spacer length: 36 repeater length: 37
 20905 892791 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTCACTCTCCAAATAAAAAAGGGAAATCTG
 spacer length: 33 repeater length: 37
 20906 892862 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAACAATATCATAACGAACACACAGAAAAGAAAC
 spacer length: 35 repeater length: 37
 20907 892935 ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTGGTCAGTCCGATACTGAAATAGAAAATATTGAA
 spacer length: 36 repeater length: 37

20908	893009	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGGCGACTCCGGTAAATTCATACAAAGTTGTAGAA
		spacer length: 35 repeater length: 37	
20909	893082	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAGTAGTATGACAATATAGAGTATGTACTAGGGCGG
		spacer length: 36 repeater length: 37	
20910	893156	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATACATTGTTAGCGTTAATAGAATCTATGGCAG
		spacer length: 34 repeater length: 37	
20911	893228	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTATTATGTCAGTACATCCCTTCCTTAGCACCAT
		spacer length: 34 repeater length: 37	
20912	893300	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGCACATGTTTTCAAAGACACCATGAATCCATTGA
		spacer length: 35 repeater length: 37	
20913	893373	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAGTAGTATGACTAATACTATGTACTGATAAAA
		spacer length: 33 repeater length: 37	
20914	893444	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GATTTTTCTACCCCTAGCTGCCTCGACTCTCCAA
		spacer length: 34 repeater length: 37	
20915	893516	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGCCAAGCTGCACGGCATTGCATTAGAACCTCTTGTA
		spacer length: 37 repeater length: 37	
20916	893591	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAGATCAGAACAGGAGAAATCTTAAATGGTAGG
		spacer length: 33 repeater length: 37	
20917	893662	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTCTATCTGCTTCTTCAGTGTTCATTCTTAAGC
		spacer length: 36 repeater length: 37	
20918	893736	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCAATCATAAATATCACCTCATCCAAGAATCAAAC
		spacer length: 35 repeater length: 37	
20919	893809	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATACCCTCCTTCTCCTTACTGTATCGAATGAGTT
		spacer length: 34 repeater length: 37	
20920	893881	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTTGCGACCTGCCTTAGAAGTCACGTTTTTATA
		spacer length: 34 repeater length: 37	
20921	893953	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTAAAGCGTTTGTGAAGGTGAGCTAATGATTGAA
		spacer length: 34 repeater length: 37	
20922	894025	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATGTAATGAGGGATATCTATATCAGAGCAATTCTG
		spacer length: 35 repeater length: 37	
20923	894098	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GCTTCCTTTTCTCAGTCTCTTCTATTTCTGCTG
		spacer length: 35 repeater length: 37	
20924	894171	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAAACCATGACCTGGGAAAACGAAAACACTTAC
		spacer length: 33 repeater length: 37	
20925	894242	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGTAGATGGAGTACTTGAAGGAACCGCAACGTCTGC
		spacer length: 36 repeater length: 37	
20926	894316	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CGATAGTGGCAGACGGAATAATGAGAGCGGTAAA
		spacer length: 34 repeater length: 37	
20927	894388	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGGTCTGGATCGAAGATAAAATCATGTATGACGGG
		spacer length: 35 repeater length: 37	
20928	894461	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAGAAACATAAGCAAACGTTTCCCCTAATTCTATTTGAT
		spacer length: 39 repeater length: 37	
20929	894538	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTACATTGCCGTTGATATCGATCCGCGTGAGAGTAG
		spacer length: 36 repeater length: 37	
20930	894612	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	
		AGCGCGGGCATCCTGATATGACCGCAGGAGAAGATTCGCGAGCAAGGTCCATTAAAAACAAGGATTGAAACTGCGAGAGTGTTATGG	
		CGACGATCAAAAGCGAAA spacer length: 104 repeater length: 37	
20931	894754	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGCCTCAATAGCTACTATCCGCGACCATATGAA
		spacer length: 34 repeater length: 37	
20932	894826	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTCCC GTTCCGGCATGGATACGGGATGAGCTTAATT
		spacer length: 37 repeater length: 37	
20933	894901	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGAACTACGCGGCGGCGGTTACGAAATCCCGATG
		spacer length: 35 repeater length: 37	
20934	894974	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAATTATAAAGTTAACAGCGTTAACTTTATAAT
		spacer length: 33 repeater length: 37	
20935	895045	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGACAAGTCAGTTATCCAGGCAAGCAGAAAAC TCCG
		spacer length: 36 repeater length: 37	
20936	895119	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCAGGGGCGGTGAAAGGAGCAACCGGGGCAAATC
		spacer length: 34 repeater length: 37	
20937	895191	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTAGAAGCGAAATAGACAAGCTCAGGGACGGTT
		spacer length: 33 repeater length: 37	
20938	895262	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCAAGAAGTTGGAAAAGAAAATTTGAATATGGG
		spacer length: 34 repeater length: 37	
20939	895334	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTGAATCCCTGATACTTTTGAGCTCTTTTTTCATGG
		spacer length: 37 repeater length: 37	
20940	895409	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATCTGTAGTCATTTTAGATATACCTCGCAAACAT
		spacer length: 34 repeater length: 37	
20941	895481	ATTCGCGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGTCTGAGGGCATGAGGTAGTGGGTGTCTTCTC
20942			
20943			
20944	crispr	12	

20945	3314776	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGCTATAACTTTTTTCAGGGAAATCCTTTTGAAAA
		spacer length: 34 repeater length: 37	
20946	3314848	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTATTTTACGGGTTCCACATGAACATGGATAGTA
		spacer length: 34 repeater length: 37	
20947	3314920	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCAAAATTTGTAAACAGCGTTAACATAATATTCA
		spacer length: 34 repeater length: 37	
20948	3314992	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGCAAGGGCTTAAAGGTGATCTTGTATGGTAG
		spacer length: 33 repeater length: 37	
20949	3315063	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CCGCATATGGCTCTCTAAGATACAAGCATATTCC
		spacer length: 34 repeater length: 37	
20950	3315135	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTATCATGCTGACACACCAAGAGCCCCGCAAACCG
		spacer length: 35 repeater length: 37	
20951	3315208	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGCAGTGTCTGTTATTTCTGTACCTACATAAATGG
		spacer length: 34 repeater length: 37	
20952	3315280	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACAGACCCATCTGGGCGAATAGAATCAACCTTGAAT
		spacer length: 36 repeater length: 37	
20953	3315354	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TATTGATGGTGTGGCGTATATCCCAGGGGTAGACGC
		spacer length: 36 repeater length: 37	
20954	3315428	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TGCACACATTTTCAAAGACACCATGAATCAAGTGA
		spacer length: 35 repeater length: 37	
20955	3315501	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAATAATGCCCTAAAAGTATATATACTTTTAAG
		spacer length: 33 repeater length: 37	
20956	3315572	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAATGACCTTGATGATTTTGAACAGGCAGCGATCT
		spacer length: 35 repeater length: 37	
20957	3315645	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TAATCTCCTTACACTTCCAACCATCACCAGGGACG
		spacer length: 35 repeater length: 37	
20958	3315718	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GCTTTAGCTGTAACATGGATTCCAGGTGTTTCTGAAT
		spacer length: 37 repeater length: 37	
20959	3315793	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GACAGGTCTTTGACTTCGTGTTTCATATTAGCAT
		spacer length: 34 repeater length: 37	
20960	3315865	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACAAGAGTATTCCACCGAGGATAACCCCAAGATCT
		spacer length: 35 repeater length: 37	
20961	3315938	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCAGGTACGTAGTCCGTGAATTCCTTAGCTTCA
		spacer length: 33 repeater length: 37	
20962	3316009	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAAGCTGCAGGTTATCCCCAGAGACTTCTATCAA
		spacer length: 34 repeater length: 37	
20963	3316081	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTATTTCTGAAGTTCTAAGCTGGAACCACTGGA
		spacer length: 34 repeater length: 37	
20964	3316153	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCATCCCGTTTTTCAAACCTCCCTGCCGGATTCTGAAC
		spacer length: 36 repeater length: 37	
20965	3316227	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACCTTAATCTTCCAGTTGATGATGATGTTCTTA
		spacer length: 33 repeater length: 37	
20966	3316298	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTATCTCAGAAACCACAGAATTCAGCACAATTTCA
		spacer length: 36 repeater length: 37	
20967	3316372	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATAGAACGCGCACAGGAGGCTGAAAAACGTGGA
		spacer length: 33 repeater length: 37	
20968	3316443	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTAGTTTTACAGTGTGGCCGTTGAATGTGATTGTT
		spacer length: 35 repeater length: 37	
20969	3316516	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTGAGACTCATTATAAAACCCAAATGCGAATTT
		spacer length: 34 repeater length: 37	
20970	3316588	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCAAATCCATTATATTGTGATTTACGAGATA
		spacer length: 32 repeater length: 37	
20971	3316658	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAAATTCATCTTATTTTCTTCTTTGTGTAGTAAGT
		spacer length: 36 repeater length: 37	
20972	3316732	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCACCAGTTCTTCAACTACTCCGGAACCTTGAT
		spacer length: 34 repeater length: 37	
20973	3316804	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GTGCAACAACCTGATGCGTATGAAGAAGGTTATAAAG
		spacer length: 36 repeater length: 37	
20974	3316878	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACATGAATATCCTGAGTCATAAATCCAATTTTTT
		spacer length: 34 repeater length: 37	
20975	3316950	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CAACTCTAGCGTTTGCGCCTGGGTAGTTTCTGTTA
		spacer length: 35 repeater length: 37	
20976	3317023	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATGCTAAAATTGATGACGACAGAACTTATACTCAA
		spacer length: 35 repeater length: 37	
20977	3317096	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTTTTACACCGTTCAGCCAGTGGTCTTCTACAGG
		spacer length: 34 repeater length: 37	
20978	3317168	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGGTGTGGGGGTATTGGTAAGTGCCTCCTAAAAAA
		spacer length: 35 repeater length: 37	
20979	3317241	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AGTTCCATGGGCAATATTTCTAATCCGGTTTCTTC
		spacer length: 35 repeater length: 37	
20980	3317314	ATTCTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACTCATTCGCTTTCTGTTCAAAAACTCTTTCTT

spacer length: 34 repeater length: 37
 20981 3317386 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGAGAAAGATTCTCGTTCATAGTCCAGAAGT
 spacer length: 32 repeater length: 37
 20982 3317456 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGCAGAGCATATAGACCGTTACGGCGTGAATTTGG
 spacer length: 35 repeater length: 37
 20983 3317529 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTACAGGATCCTAAAATCGACTCTGCTGATACCGGT
 spacer length: 36 repeater length: 37
 20984 3317603 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTTTTCGAATTGGAGATTCTACGCTTTTCCTTTTT
 spacer length: 36 repeater length: 37
 20985 3317677 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTACCCAATGAAAAAATAGTCCATATCGGATTTAGA
 spacer length: 36 repeater length: 37
 20986 3317751 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGTACATCATCGACAATAGAACTATAAAGCCAG
 spacer length: 34 repeater length: 37
 20987 3317823 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCATGTTTCTAAGCCCGCATTTTTTCGCATAGAA
 spacer length: 33 repeater length: 37
 20988 3317894 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAACAGGTGCAGCCGTTAAACGTGCTTTCAAAGA
 spacer length: 36 repeater length: 37
 20989 3317968 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAATGGGCAATAATCCGGCCAGCAAGGCTCAGAT
 spacer length: 35 repeater length: 37
 20990 3318041 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTCGGTTCAAAGTGCAACCCGGACGAAGAAG
 spacer length: 33 repeater length: 37
 20991 3318112 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATATCAATCTCAAAGTGACCTTTGTTTCCTGTGG
 spacer length: 35 repeater length: 37
 20992 3318185 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATATGTTGACTGCGTATACTTACTTGCTAAGAT
 spacer length: 34 repeater length: 37
 20993 3318257 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTGGATTGGCTTAATTCCCTTCTCTGCATGAAGAA
 spacer length: 36 repeater length: 37
 20994 3318331 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTAAGAAGAGAGGCTTGAAAGAAGTTGAGT
 spacer length: 32 repeater length: 37
 20995 3318401 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAACTGTCTGGTTAACAATGTCTATATAAGAAT
 spacer length: 34 repeater length: 37
 20996 3318473 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTGCCCTCTTGACTCAGAAGGAAGCAAAAGAAC
 spacer length: 34 repeater length: 37
 20997 3318545 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATTAAAAAATAGTATAAATAGTAAGTCGGTTGAAG
 spacer length: 36 repeater length: 37
 20998 3318619 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAACTGTCTGGTTAACAATGTCTATATAAGAAT
 spacer length: 34 repeater length: 37
 20999 3318691 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTGCCCTCTTGACTCAGAAGGAAGCAAAAGAAC
 spacer length: 34 repeater length: 37
 21000 3318763 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATTAAAAAATAGTATAAATAGTAAGTCGGTTGAAG
 spacer length: 36 repeater length: 37
 21001 3318837 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAAAAATTTCTTCTCCTTTGCAGCGTACCATTT
 spacer length: 35 repeater length: 37
 21002 3318910 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACCTGTTTCATTTATAAGCCTCTCTGTCTTTTAATT
 spacer length: 36 repeater length: 37
 21003 3318984 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAAGGAAAACATCCGTGAGCCTGTACGGATACCCT
 spacer length: 36 repeater length: 37
 21004 3319058 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCATTTCGTGGCCACCCCTCCAGGGTTTGAAGC
 spacer length: 34 repeater length: 37
 21005 3319130 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAAAAACTTGATGAGATTATTAACCCCAGCCCAGC
 spacer length: 37 repeater length: 37
 21006 3319205 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGTCCTTGTTTGGATTGTGAAGCCTTGAAGTA
 spacer length: 34 repeater length: 37
 21007 3319277 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGAAAATCTAAACGATGAATCTAATACACTTC
 spacer length: 33 repeater length: 37
 21008 3319348 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAGAAAGTATGACGGCACAGCAGGTATAATTAA
 spacer length: 34 repeater length: 37
 21009 3319420 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTATCTCCTTTTAATTAGCGTTGTTATCATTCGTTT
 spacer length: 37 repeater length: 37
 21010 3319495 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTATATATTAATGGAATAAATGAGTCGAGTGGTA
 spacer length: 36 repeater length: 37
 21011 3319569 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCGTTATCGATTATACTGACCGTGATAATTTAC
 spacer length: 33 repeater length: 37
 21012 3319640 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCCTGCATTTCTGATCGTATTTTGTAAAAGAATAG
 spacer length: 36 repeater length: 37
 21013 3319714 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCTGAGTCCCTAAACTTTTTTAAATTTCTTCTAAAA
 21014
 21015
 21016 crispr 13
 21017 458416 CTTATAGAAAATGCTAAGGATCATATCTTTCACTCCATTC
 TTTTCTATATTTTGTTCATTCCCCGTTATACACTCTGCAATGGACCCTGAGTACATAACTCCTTTAATAGCCCTTGCAGTTCCCC

CTTATAGCTCAATTACATACAGTAAAAGAGCTGGAAGACTGTGGAATTGTAGACTACTGATACAG spacer length: 151
repeater length: 40

21018 458608 CTTATAGAAAATGCTAAGGATCATATCTTTCACTCCATTC
TTTTCTTTATTTTGTTCATTCCCCGTTATACCCGCTCTATCGGGCCCGGAGCATATAGCCCCTTATAGCCTGGTAGTTTTCCCGT
AGTAGCTCAATTACATACAGTAAAATAACTTGAAGACGGTAGATGTGTAGGTGATTTCTACAG spacer length: 149
repeater length: 40

21019 458798 CTTATAGAAAATGCTAAGGATCATATCTTTCACTCCATTC
TCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCCGCACTGGAAGCAGTGGATTGACAGGTCCTGTTTTTT
TGGCTGGGACTCGGCTTTTTCCCTGTTGAATTCGACTGTATGTCTTTCTTCAATAGAAAGAGC

21020
21021
21022 crispr 14
21023 1135779 TTTGCTCTCTCAAGAGGACTAATTGACATATTTATGAATC
AGCCGTGAATCAAACGTGGAAGGCATCGAGTACAAACCCACATGCTCTCCATCCCAGTTTCCTTCTCGGGAGGACGGTGTCTTTTT
CGCTCG spacer length: 92 repeater length: 40

21024 1135912 TTTGCTCTCTCAAGAGGACTAATTGACATATTTATGAATC
AGCCGTGAATCAAACGTGGAAGGCATCGAGTACAAACCCACATGCTCTCCATCCCAGTTTCCTTCTCGGGAGTACGGTGTCTTTTT
CGCTCG spacer length: 92 repeater length: 40

21025 1136045 TTTGCTCTCTCAAGAGGACTAATTGACATATTTATGAATC
CCCACATGCTCTCCATATTGTGTCTGAGGGGCATGAGGTAGTGGGTGTCTTCTCCTGCGCCGCACTGGAAGCAGTGGATTGACAGG
TCCTGT

21026
21027
21028 GCA_000970265.1_ASM97026v1_genomic.fna(findCrispr):
21029 START REPEAT
SPACER

21030 crispr 1
21031 2208534 AGATGGAGCAAATTAAGGAC
AGATTGAAACCTGATTCCGTAATAAACTTCATTAACGCGTAAATATGTAAAATGGAGCAAATTAAGGACAGATTAAACCTGATCC
AGAAATCTACTTCGTTGACGCGTAAGCTTC spacer length: 116 repeater length: 20

21032 2208671 AGATGGAGCAAATTAAGGAC GGCTTGAAAACCGATCCAGAAATCTACTTCGTTGAGGCTTAACTGC spacer
length: 47 repeater length: 20

21033 2208739 AGATGGAGCAAATTAAGGAC
AGATTGAAACCTGACCCATAATAAACTTCATTGGCGCGTAAAGCTGAAAAATGGAGCAAATTCAGGACAGATTAAACCTGATCCT
TCAGGACAGATTAAACCTGATCCCGTAATAAACTTCATTGACGCGTAAGCTTC spacer length: 140 repeater
length: 20

21034 2208900 AGATGGAGCAAATTAAGGAC GGCTTGAAAACCGATCCAGAAATCTACTTCATTGAGGCTTAACTGC spacer
length: 47 repeater length: 20

21035 2208968 AGATGGAGCAAATTAAGGAC AATACGGTTGTACTGGTCCTACATATTATTTCAGTAGTCCTCTTGAGC

21036
21037
21038 crispr 2
21039 2430980 TAAGGATTTCAAAAAAGGAT TTCTGATTAAGGATTTCTGA spacer length: 20 repeater length:
20

21040 2431021 TAAGGATTTCAAAAAAGGAT
TTCTGAATAAAGATTTCTGGATAAAGATTTCTGGATAAAGATTTCTGGATAAAGATTTCTGGATAAAGATTTCTGGATAAAGATTT
CTGA spacer length: 90 repeater length: 20

21041 2431132 TAAGGATTTCAAAAAAGGAT
CCAGAAAAATGTAACCTACCAATCAGATGTAGCAATGACGCTCAACAATTTAGGAATCTTGCTTCAAAATATGGGGCGCATAGAAGA
GGCG

21042
21043
21044 crispr 3
21045 3252562 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCG spacer length: 20 repeater
length: 21

21046 3252604 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCG spacer length: 20 repeater
length: 21

21047 3252646 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCGTCTCTGTTGGCG spacer length: 32
repeater length: 21

21048 3252700 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCGTCTCTGTTGGCG spacer length: 32
repeater length: 21

21049 3252754 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCG spacer length: 20 repeater
length: 21

21050 3252796 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCGTCTCTGTTGGCGTCTCTGTTGGCG spacer
length: 44 repeater length: 21

21051 3252862 CTCTGTTGGCGTCTCTTTCTC TGTTGATACCTCTGTTGGCGTCTCTGTTGGCG spacer length: 32
repeater length: 21

21052 3252916 CTCTGTTGGCGTCTCTTTCTC GAATCAACTGTATTACAGCATGTTTTACTGCTT

21053
21054
21055 crispr 4

21056 3995335 ACGATACTTAAAAAACGATACT
TAAAAAACGTTGATTTAAAAAACGATACTTAAAAAACGGTGTCTTAAAAAACGATACTTAAAAAACGGTGTCTTAAAAAACGATA
CTTAAAAAACGGTGTCTTAAAA spacer length: 108 repeater length: 22

21057 3995466 ACGATACTTAAAAAACGATACT TAAAAAACGGTGTCTTAAAA spacer length: 20 repeater
length: 22

21058 3995509 ACGATACTTAAAAAACGATACT ACGGTAGAGTTAGGCGCGGA

21059

21060

21061 crispr 5

21062 2664581 TACATTTTCCCTTTTTTACCTT
ACATTTTCCTATTTTTTACCTTACATTTTCCTATTTTTTACCTTACATTTTCCTATTTTTTACC spacer length: 64
repeater length: 22

21063 2664668 TACATTTTCCCTTTTTTACCTT ACATTTTCCTATTTATTACC spacer length: 20 repeater
length: 22

21064 2664711 TACATTTTCCCTTTTTTACCTT AATAATGATGTCAGGCGTAT

21065

21066

21067 crispr 6

21068 2662121 GAATTCATAGTATTCAACCAGA
AATTCATAGTATTCAACCAGAAATTCATAGTATTCAACCAGAAATTCATAGTATTCAACCA spacer length: 64
repeater length: 23

21069 2662209 GAATTCATAGTATTCAACCAGA AATTCATAGTATTCAACCA spacer length: 20 repeater
length: 23

21070 2662253 GAATTCATAGTATTCAACCAGA AAAATGTAACCTACCAATCA

21071

21072

21073 crispr 7

21074 3046392 GTTCAGCCTTGCTATATCTTTCT GTTCAGCCTGAACTTATTTTTTC spacer length: 22 repeater
length: 23

21075 3046438 GTTCAGCCTTGCTATATCTTTCT TTTAGCCTTGCTATATTTTTTC spacer length: 22 repeater
length: 23

21076 3046484 GTTCAGCCTTGCTATATCTTTCT GCGAAAAACAGGTACGAAAAAG

21077

21078

21079 crispr 8

21080 4072599 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21081 4072647 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21082 4072695 TCTTCACAGTTTTTATTTTCTGTA
GTTTCGGCTTCTGTTGCAGCGTCTTCACAGTCGTTCTTTGCTGTAGTTTCGGCTTCTGTTACAGC spacer length: 65
repeater length: 24

21083 4072785 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21084 4072833 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21085 4072881 TCTTCACAGTTTTTATTTTCTGTA GTTTCGGCTTCTGTTACAGC spacer length: 20 repeater
length: 24

21086 4072926 TCTTCACAGTTTTTATTTTCTGTA GTTTCGGCTTCTGTTACAGC spacer length: 20 repeater
length: 24

21087 4072971 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21088 4073019 TCTTCACAGTTTTTATTTTCTGTA GTTTCGGCTTCTGTTACAGC spacer length: 20 repeater
length: 24

21089 4073064 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21090 4073112 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21091 4073160 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGCTTCTATTGCAGC spacer length: 20 repeater
length: 24

21092 4073205 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGCTTCTGTTGCAGC spacer length: 20 repeater
length: 24

21093 4073250 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21094 4073298 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGCTTCTGTTGCAGC spacer length: 20 repeater
length: 24

21095 4073343 TCTTCACAGTTTTTATTTTCTGTA GTTTCTGGCGCTTCTGTTGCAGC spacer length: 23 repeater
length: 24

21096 4073391 TCTTCACAGTTTTTATTTTCTGTA ATCTTCGAGATGTTCTATAAAAA

21097

21098

21099 crispr 9
 21100 2824116 TTGAGTAAGATTTTTCAACTCAGA
 AATTCAGGTGGAAGCGAGGTTAGTAGATTGTAACATATGTTGAGCTGAGTAAGATTTTTCAATTCGGAAATTTTCAGTTGACAACG
 AAATCAGTTGATTTCCAGATATGTCTA spacer length: 113 repeater length: 24
 21101 2824254 TTGAGTAAGATTTTTCAACTCAGA GATGTCAGGTGGCAGTGAAGTCAATCGATTGTTAGATATCTTAA spacer
 length: 44 repeater length: 24
 21102 2824323 TTGAGTAAGATTTTTCAACTCAGA GATTTTCAGGCGGCAGTGAAGTCAATCGATTGTTAGATATCTTAA spacer
 length: 44 repeater length: 24
 21103 2824392 TTGAGTAAGATTTTTCAACTCAGA GATTTTCAGGCGGCAGTGAAGTCAATCGATTGTAGGATATGTTGA spacer
 length: 44 repeater length: 24
 21104 2824461 TTGAGTAAGATTTTTCAACTCAGA TTCAGCATGTTTTACTGCTTCTAATTAGGCAGCAATACTGTGAA
 21105
 21106
 21107 crispr 10
 21108 2521336 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCCATAAAAACCAATACACCTCTCAACACCTGATCC
 spacer length: 47 repeater length: 25
 21109 2521409 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTGTTTCTCTATGTTTTATCAATTTTAGTATAATA
 spacer length: 46 repeater length: 25
 21110 2521481 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCTTTTAACTACAGGATCAAGCTCAAGATAATCTTTT
 spacer length: 48 repeater length: 25
 21111 2521555 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCAGAAATAGACATTTATGTAGACGGAATAAAATAT
 spacer length: 47 repeater length: 25
 21112 2521628 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTATGGACTCGGAGGGTGGCATAGATGCCCAGAGGATA
 spacer length: 49 repeater length: 25
 21113 2521703 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCGGAAACAATGGGATGGAAATATAGAAGGGATCT
 spacer length: 46 repeater length: 25
 21114 2521775 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATAAGAATTACCCATATCAGAAGAATGGAAACCTATTTT
 spacer length: 49 repeater length: 25
 21115 2521850 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCCGCGTGTTATCGGTACAGTCACACTGGAGGGCACG
 spacer length: 49 repeater length: 25
 21116 2521925 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCCGGAATATATTCAGCCTCAACTGTCTTTATCAGAT
 spacer length: 48 repeater length: 25
 21117 2521999 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCCGGGGAGGTAAGCGTTAACAGAGTGTATACGGTA
 spacer length: 47 repeater length: 25
 21118 2522072 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATAAAAGAGTGGGATTTCGCATGTACAAACCCAGAAT
 spacer length: 46 repeater length: 25
 21119 2522144 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTTTGCCCACTGGGAACGCTGATGTACTCCCTCTTT
 spacer length: 47 repeater length: 25
 21120 2522217 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTTAGCCAGATAAGCCCGGATAGTAGTAGGTTTTTTA
 spacer length: 48 repeater length: 25
 21121 2522291 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTGTACTATTTTCAGTTTGGAAGGTGGATTATGAATA
 spacer length: 47 repeater length: 25
 21122 2522364 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATATGAAAACGGTGATATCAAATATACTTCAGAA
 spacer length: 44 repeater length: 25
 21123 2522434 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTACTACCCTGCTACAATTATTACATAACAACGTCATACT
 spacer length: 50 repeater length: 25
 21124 2522510 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATCCGAAATACGGAACGTTCTTTATGTCGGAATCGA
 spacer length: 46 repeater length: 25
 21125 2522582 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATATGTATGCACAAGGGGCGATACAGGCATACAAAC
 spacer length: 46 repeater length: 25
 21126 2522654 GTTTC AATCCTTGTTTTAGTGGATC
 TTGCTCGCGAATTTGGTTGTCAAAGGTCCTCGAATATAGTTACTTTACCGTG spacer length: 51 repeater
 length: 25
 21127 2522731 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATATGGAGATGAGAAAATGACTAAAACCGAAGATGTA
 spacer length: 47 repeater length: 25
 21128 2522804 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATTTGTATATATACGTTGTGTTATGTGTATACAC
 spacer length: 44 repeater length: 25
 21129 2522874 GTTTC AATCCTTGTTTTAGTGGATC
 TTGCTCGCGAATAAAACAATGAGTGATACGTCCACTCAATCACTCAATGAAA spacer length: 52 repeater
 length: 25
 21130 2522952 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATGACGTTTTTTTTCAAATAACGATGATGTGAGGT
 spacer length: 47 repeater length: 25
 21131 2523025 GTTTC AATCCTTGTTTTAGTGGATC TTGCTCGCGAATATATGAGAACGTAACCAGGAAATGGGTGAGATCG
 spacer length: 46 repeater length: 25
 21132 2523097 GTTTC AATCCTTGTTTTAGTGGATC AGGAGGGACGCTCAACAATCTCGGAACCTTGCTTAAAAATATGGGG
 21133
 21134
 21135 crispr 11
 21136 1444520 CTATCAATTTGATAGATTTTGATAGA AATTTGATTGATTTTGATAGATATTGATAGTTTCTTGCCTATATTTCTT
 spacer length: 49 repeater length: 26
 21137 1444596 CTATCAATTTGATAGATTTTGATAGA

TACTGATAGTTCTAAATAATAGTCCTCAATATCAACACTACCTATTGACAGTGTAAAAATTAGTTATCTTTTCATTTT
spacer length: 78 repeater length: 26

1444701 CTATCAATTTGATAGATTTTGATAGA
ACTGTATTCAGCATGTTTTACTGCTTCTAATTAGGCAGCAATACTGTGAAAAATTAAGTTTAGATTAAAATTAAGTTT

crispr 12

1326851 GCCGAACCACTTTTACACTCGTGCCCT
GGAAATCTACGAGAAGGTTTTGGGGTCAGAACACCCTGACGTTGCAGCTTCTCTCAATAATTTAGCAGGACTCTACGAGTCCCAGG
GCAAATATTCTGA spacer length: 99 repeater length: 26

1326977 GCCGAACCACTTTTACACTCGTGCCCT
GGAAATCCACGAGAAGGTTTTGGGGTCAGAACACCCTTACGTAGCAACTTCTCTTAATAGTTTAGCAGGACTCTACGTACACCAGG
GCAAATATTCTGA spacer length: 99 repeater length: 26

1327103 GCCGAACCACTTTTACACTCGTGCCCT
GGAAATCCACGAGAAGGTTTTGGGGTCGGAACACCCTTACGTAGCAGCTTCTCTCAATAATTTAGCAAACCTTTACGTACACCAGG
GCAAATATTCTGA spacer length: 99 repeater length: 26

1327229 GCCGAACCACTTTTACACTCGTGCCCT
GGAAATCCACGAGAAGGTTTTGGGGTCGGAACACCCTTACGTAGCAACTTCTCTTAATAGTTTAGCAGGACTCTACGTACACCAGG
GCAAATATTCTGA spacer length: 99 repeater length: 26

1327355 GCCGAACCACTTTTACACTCGTGCCCT
AGAAATCCACGAGAAGGTTTTGGGGTCGGAACACCCTGACGTTGCAGCTTCTCTTAATAATTTAGCAGGACTCTACGTACACCAGG
GCAAATATTCTGA spacer length: 99 repeater length: 26

1327481 GCCGAACCACTTTTACACTCGTGCCCT
GGAAATCCACGAGAAGGTTTTGGGGTCAGAACACCCTCTCGTAGCAACTTCTCTTAATAATTTAGCAGACCTTTACGTACACCAGG
GCAAATATTCTGA spacer length: 99 repeater length: 26

1327607 GCCGAACCACTTTTACACTCGTGCCCT
GCCAGTTCTTTACGTTTTCGTTCCTGAATAATCTTTGCTTTATATTCCAGATCTAAATATGGATATAAAGGCCCGAAAAATGGAA
CCAAAATTAAGT

crispr 13

2060504 CAGGGCAAGCTTATACTGTTCTTCTGC
CTCTTCCGGCCGCCCCATTTGTTTAAAGGAGATTTCCGTAATTGTAGTGAGTAGCTACATCATTTGGGTCAGTTT spacer
length: 74 repeater length: 27

2060606 CAGGGCAAGCTTATACTGTTCTTCTGC
TTCTTCCAGCCGCCCCATTTGTTTAAAGGAAAATTCGTAATTGTAGTGAGTAGCTACATGTTTTGGGTCAGTTT spacer
length: 74 repeater length: 27

2060708 CAGGGCAAGCTTATACTGTTCTTCTGC
CTCTTCCGGCCGCCCCATTTCTAAAAGGAGATTTCCGTAATTGTAGTGAGTAGCTACATGTTTTGGGTCAGTTT spacer
length: 74 repeater length: 27

2060810 CAGGGCAAGCTTATACTGTTCTTCTGC
CTCTTCCGGCCGCCCCATTTGAGAAAGGAGATTTCCGTAATTATGTGAGTGTTTACATGTTTTGGGTCAGTTT spacer
length: 74 repeater length: 27

2060912 CAGGGCAAGCTTATACTGTTCTTCTGC
AAAACGGTGTCTTAAAAAACGATACTTAAAAAACGGTGATTTAAAAAACGATACTTAAAAAACGGTGTCTTAAA

crispr 14

2824321 AGTTGAGTAAGATTTTTCAACTCAGAGA TTTCAGGCGGCAGTGAAGTCAATCGATTGTTAGATATCTT spacer
length: 40 repeater length: 28

2824390 AGTTGAGTAAGATTTTTCAACTCAGAGA TTTCAGGCGGCAGTGAAGTCAATCGATTGTAGGATATGTT spacer
length: 40 repeater length: 28

2824459 AGTTGAGTAAGATTTTTCAACTCAGAGA TAACCTACCAATCTTACGTAGGAGCGACGCTCAACAATTT

crispr 15

2602526 TCAACCCGAAGGGAACATACGTATATGT
TACGAACACTAACAGCAACACTGTCTCTGTGATTAACACAGTTACAAACAAAGTTACAGCCACAGTTAATGTTGGAGAGTATCCTG
CTGGAATTGCA spacer length: 97 repeater length: 28

2602652 TCAACCCGAAGGGAACATACGTATATGT
GACTAATATTAACAGCAATACTGTCTCTGTAATTAACACAGTTACAAACACTGTTATAGCCACAGTTAATGTTGGAGAGTATCCTG
CTGGAATTGCA spacer length: 97 repeater length: 28

2602778 TCAACCCGAAGGGAACATACGTATATGT
TAAAGCGGATACGGTTGTACTGGTCCACATATTATTACGTAGTCCTCTTGAGCGCAGCGAAAAGGACAGCGTACTCCCAGGCGC
AATTCGGGCGT

crispr 16

3841833 TAATCTGTAAAAATGGAGCAAATTCAGGAC AGCTTGAAAACAGCCCGCAATATACTTCATTGGCGC spacer
length: 38 repeater length: 29

3841901 TAATCTGTAAAAATGGAGCAAATTCAGGAC GGTGAAAACAGTCCCGTAATATACTTCATTGGCGC spacer

length: 38 repeater length: 29
21174 3841969 TAATCTGTAAAAATGGAGCAAATTCAGGAC TGTTTTTCAACTGGATAACGAAAGACATTTTTTGCAAAA
21175
21176
21177 crispr 17
21178 3286924 AAAAGATATGTGTGCATTTGATGGTTATCCTA
ATTATAAAAAATATATAAAAAGATTTGGGTCTTGGAATAATGCAGTTGATGCCGTTTTTAATAATGAAGAAGATTTAGCGATAAAG
AGGGAGATAGAAAAGAGATTTTTTAAATTGCGGAATTGCGGAGATTTCAAGAGACAAATAATAGACTACCATTCC spacer
length: 159 repeater length: 32
21179 3287116 AAAAGATATGTGTGCATTTGATGGTTATCCTA
GTGTTTACAGGTACTACAAAAGATTTGGATCTTGGAATAACGCTATAAAGGAAATTTAATGCCAGAAAGAGATTTTTTAATTATG
GAATTGCGGAGATTTCAAGAGGAAAAATGGTAGACTACCGTTCC spacer length: 129 repeater length: 32
21180 3287278 AAAAGATATGTGTGCATTTGATGGTTATCCTA
TATATTTTGTGGAATCCGGAGAAGTACATAGATTTAAACTCTTCGGTTTTCCACCTGTTTTAAAAATTTGAGACTTAACCCCGATT
TAAAATGCCATGATTTAAATTACTGGAATCTACTTTCTTGATC
21181
21182
21183 crispr 18
21184 2096684 AATATGAACATTTGAAATCTGAAAACCTTTAA CATGAACATTTTAAATATGAAAACCTT spacer length:
27 repeater length: 32
21185 2096744 AATATGAACATTTGAAATCTGAAAACCTTTAA TATGAACATTTTAAATATGAAAACCTT spacer length:
27 repeater length: 32
21186 2096804 AATATGAACATTTGAAATCTGAAAACCTTTAA GGTACGAAAAAGCACTCGAAATGTACG
21187
21188
21189 crispr 19
21190 2985348 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA
CCTTATTATCTTTCCTGCGAAAAGATTCTATATAATTGTCCT spacer length: 41 repeater length: 36
21191 2985426 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA
CTTTTTGTGATTATTGGCACGATTAATCCTCCTGATTCA spacer length: 41 repeater length: 36
21192 2985504 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTCATCGCCTGTGTTGTCATCAACAACGTCGTCAT
spacer length: 35 repeater length: 36
21193 2985576 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA
CTTCATCTATTGTCAAAGGATATTCTCCCGTTTCTTTTGTTT spacer length: 42 repeater length: 36
21194 2985655 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTCCAACCAAAGAGCAACTTCGTTACGTTCAACCTT
spacer length: 36 repeater length: 36
21195 2985728 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTCGAAAATCCACTCTTGGTGGGGTTCGTTTCTCTTA
spacer length: 37 repeater length: 36
21196 2985802 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTTTTTTTCGCAAAGCCAGAACCAACAAGCCTGACCG
spacer length: 37 repeater length: 36
21197 2985876 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTATCTGCGCCGTCTGTTAGCATTTTAGCGACTGT
spacer length: 35 repeater length: 36
21198 2985948 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CATTCTATACTTTCTTCGAAAAATCCATATATTAAC
spacer length: 36 repeater length: 36
21199 2986021 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA
AACAGCTTCCAGCAAAACAAGGATTGAAAAACAGGAACCCAGTCTTCTGGATTTTCTCTCCTAT spacer length: 65
repeater length: 36
21200 2986123 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CAAGAAGTCTGTGGATCTTTATCGAGTTGGGATTCCGG
spacer length: 38 repeater length: 36
21201 2986198 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTTTCCTCTTTTTGCACAATTTCCCTAGCGTCTGTGAA
spacer length: 38 repeater length: 36
21202 2986273 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CCTTGTCGAATCACCGCTTTAGCTTTCTCGATACC
spacer length: 35 repeater length: 36
21203 2986345 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CATTCTCCGTTGTATCGCTACAACGGTCGAAGCTAT
spacer length: 36 repeater length: 36
21204 2986418 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA CTGCAGTCAACCCGAATGGTCATTGCTGTTCCAAAT
spacer length: 36 repeater length: 36
21205 2986491 GTTGAAAAACAGCTTCCAGCAAAACAAGGATTGAAA TCTATAAAAATGTCAAAATCGCCTACGAATCAACTG
21206
21207
21208 crispr 20
21209 720213 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT
CTGCTACGAATCAACTGTATTACGATGCTTTACTGCTTCTAATTAAGCTGTAAAGACAGGTGTCTAACGGGGAACGACCAAAATC
CAGGAAAAATATTGGAGGGAAT spacer length: 108 repeater length: 37
21210 720359 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT
TTGCTACGAATCAACTGTATTACGATGTTTTACTGCTTCTAATTAAGCTGTAAAGACAGGTGTCTAACGGGGAACGACCAAAATCC
AGGAAAAAGATTGGAGGGAAT spacer length: 107 repeater length: 37
21211 720504 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT
TTGCTACGAATCAACTGTATTACGATGTTTTACTGCTTCTAATTAAGCTGTAAAAACAGGTGTATAAACGGGGAACGACCAAAAT
TCAGGAAAAATATTGGAGGGAAT spacer length: 109 repeater length: 37
21212 720651 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT

CGCCTACGAATCAACTGTATTTCAGCATGTTTTTACAGCTTCTAATTAAGCTGTAAGACAGGTGCATAACGGGAAACGACCAAAATCC
 AGGAAAAATATTGGAGGGAAC spacer length: 107 repeater length: 37

21213 720796 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT
 CGCCTACGAATCAACTGTATTTCAGCATGTTTTTACTGCTTCTAATTAAGCTGTAAGACAGGTGCATAACGGGAAACGACCAAAATCC
 AGGAAAAATATTGGAGGGAAC spacer length: 107 repeater length: 37

21214 720941 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT
 CGCCTACGAATCAACTGTATTTCAGCATGTTTTTACTGCTTCTAATTAAGCTGTAAGACAGGTGCATAACGGGAAACGACCAAAATCC
 AGGAAAAATATTGGAGGGAAC spacer length: 107 repeater length: 37

21215 721086 ATATGATCTTCGAGATGTTCTATAAAAAATGTCAAAAT
 CGTTGCAGCTTCTCTCAATAATTTAGCAGGACTCTACGTACACCAGGTAAAAAACCTCAAAGCTAAAGAATTATTTGTTTCGATCAA
 TAAACATTATGGAGAAATCCA

21216
 21217
 21218 crispr 21

21219 2980927 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGCAGGAACAGCTCCACTAACTATACAATTCA
 spacer length: 33 repeater length: 37

21220 2980998 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGGAAATAATCATCAGGGATAAATACTCAAAGAATT
 spacer length: 36 repeater length: 37

21221 2981072 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGATCTTGCCGGGAATAAAAGGTTAAGCTCTTCAC
 spacer length: 36 repeater length: 37

21222 2981146 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC
 ATAGTATTCTTGCACTGCCTGGGATAGTAGACTCTATCGAA spacer length: 41 repeater length: 37

21223 2981225 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGTCGTTTCTTTTTTCATCTTCGGTATAAGTTCC
 spacer length: 34 repeater length: 37

21224 2981297 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CCCACCCGGTAGTTGCATCGCACGCATCAATCAC
 spacer length: 34 repeater length: 37

21225 2981369 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGTTACGGTAGAGTTAGGCGCGGATCTTTTAACGG
 spacer length: 36 repeater length: 37

21226 2981443 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AATTCAATGATTGAAGATGGATGGGTGGACTGAATG
 spacer length: 36 repeater length: 37

21227 2981517 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ACTCAGCAAGTCTCTATAGAGAGAGAGAGATATTTTT
 spacer length: 36 repeater length: 37

21228 2981591 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATCGCATTGATCTTTGTACTCTCGTCAGGTGTT
 spacer length: 35 repeater length: 37

21229 2981664 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCCCCCGTTTCGTGAATATGAGCCCGTTTCGA
 spacer length: 33 repeater length: 37

21230 2981735 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CATTTCCAGCACCAAGAGTAAATGGTCTGATAAC
 spacer length: 34 repeater length: 37

21231 2981807 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTGTCCTGATCAGTCTCAGCCTTCCGAGCAG
 spacer length: 33 repeater length: 37

21232 2981878 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GGCCACTGTTAGATTTCAGTACTAATTAATCCAAG
 spacer length: 34 repeater length: 37

21233 2981950 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTCTGTGTAAAGACTCTTTTCGTTTTTGCAAGATAT
 spacer length: 35 repeater length: 37

21234 2982023 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAGCAATGAGTACATAATAAGAGTACAAGCAGGG
 spacer length: 35 repeater length: 37

21235 2982096 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGAATAAGGATGTACTGTCTCCAGATTACATCCCA
 spacer length: 36 repeater length: 37

21236 2982170 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC GTTTCATATCCTGATACTTTGATCTGTCCGGTTT
 spacer length: 34 repeater length: 37

21237 2982242 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTGGTTCCATTTTGTAGTGATACCCGAATGTGAG
 spacer length: 35 repeater length: 37

21238 2982315 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCAAACCTTACAGCATGGCTCCGGAATCAAAGAAG
 spacer length: 35 repeater length: 37

21239 2982388 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAATTCTCCGAGCGTCATTGATTTTGGATTTTTTAA
 spacer length: 36 repeater length: 37

21240 2982462 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATGCGAATTTTCGGGTTCTGAAATCAAGCGACTCGA
 spacer length: 36 repeater length: 37

21241 2982536 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCCTCCAATTACCTATATTCTTCAGGAAGCC
 spacer length: 32 repeater length: 37

21242 2982606 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGAAAACATGCCAACAGCCGAAGATAACGCACAC
 spacer length: 34 repeater length: 37

21243 2982678 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AGACAACATCCCTGCCATTCAATACAGTATTTCTAA
 spacer length: 36 repeater length: 37

21244 2982752 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTA AAAACGA ACTTGCCCGCGCTCATGATCTCAT
 spacer length: 35 repeater length: 37

21245 2982825 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC AAAACAAGATAAGTCGTCAATTTTCATGAACGGAA
 spacer length: 34 repeater length: 37

21246 2982897 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGCAACCGGCCCCGGATCAGGATCTTAAGCCGGTTGA
 spacer length: 36 repeater length: 37

21247 2982971 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGGATCAAAAATGAGAGGGGAGTACATTATTTGC

spacer length: 35 repeater length: 37
 21248 2983044 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGGGATCGGTACATCAAACCTTAACGGGATTTTT
 spacer length: 35 repeater length: 37
 21249 2983117 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGGGATCGGTACATCAAACCTTAACGGGATTTTTTC
 spacer length: 36 repeater length: 37
 21250 2983191 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCAATTTTCGTTTTTTCTAATGTCTGCCATTTTTTACA
 spacer length: 36 repeater length: 37
 21251 2983265 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TGGAAATGTTGGCAGGATGGATTGAATGTGTTTT
 spacer length: 34 repeater length: 37
 21252 2983337 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TAATATTAGTTCTTATAATAATGTACATCAATGTTG
 spacer length: 36 repeater length: 37
 21253 2983411 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TCCTGATATTCCCCTGTGCGAATCTCCCACTTTCC
 spacer length: 35 repeater length: 37
 21254 2983484 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTACTGTATATGCTACTGCAGATACACGTATATA
 spacer length: 35 repeater length: 37
 21255 2983557 ATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAAC CGTAGCAACTTCTCTTAATAGTTTAGCAGGACTCT
 21256
 21257
 21258 crispr 22
 21259 3273503 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AAATATGTGGTAGATAGTTTATACTGTTATTATG
 spacer length: 34 repeater length: 37
 21260 3273575 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTTATAATACTGTATGTGAGAGTCCCGAGGTTCC
 spacer length: 34 repeater length: 37
 21261 3273647 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT GATGTTATGGCGGACCCTGATATGGAGATCCGGATTA
 spacer length: 37 repeater length: 37
 21262 3273722 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT ACGCTGTAGGTGCAATAGTAGGAAAATCATCAGGGT
 spacer length: 36 repeater length: 37
 21263 3273796 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AGGGCACC GAACCGTCGAAGTTCCCCGAGTACGAA
 spacer length: 35 repeater length: 37
 21264 3273869 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTGTCCAAACAACTTTATACAGTTGAGCTTGAGA
 spacer length: 35 repeater length: 37
 21265 3273942 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CAGGCGCATGGAAAGGGCTGGTTGGAGCACTATGT
 spacer length: 35 repeater length: 37
 21266 3274015 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AGCCTCCACTGGTTTCAGTGAGCGCGCGATGGGTG
 spacer length: 35 repeater length: 37
 21267 3274088 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT TTTTAAAGACCGTGAAACCTGACATCTATTTTCG
 spacer length: 33 repeater length: 37
 21268 3274159 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CGAGGTATTCTTTAGCTGGAACCACTTCCAGCTTTGT
 spacer length: 37 repeater length: 37
 21269 3274234 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTCCTTTTGAATTTCCGGAACCTCCTAGATGCTACC
 spacer length: 35 repeater length: 37
 21270 3274307 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT TTGCTACAATCACGGGTACATATTTTTTCAAATAAT
 spacer length: 35 repeater length: 37
 21271 3274380 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT ATTGCATTTCGATGGAATAATAGGATAATTGATAAA
 spacer length: 35 repeater length: 37
 21272 3274453 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTCCTTTTGAATTTCCGGAACCTCCTAGATGCTACC
 spacer length: 35 repeater length: 37
 21273 3274526 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AATATAACCAATTGGGCTAAACGCGAAAACGGGGAAA
 spacer length: 36 repeater length: 37
 21274 3274600 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AATATTGCTAAGTTCCGAGACACACACACAAGCA
 spacer length: 34 repeater length: 37
 21275 3274672 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT GCTGTACAGGTTGTCAGGTTGCAGCCGAGTACA
 spacer length: 33 repeater length: 37
 21276 3274743 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CATAGGTGATATCTGCCGTAAAACCAACTGGTTCTA
 spacer length: 36 repeater length: 37
 21277 3274817 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT TTTAATGAATACAACGAAGAAGACATTGAGACA
 spacer length: 33 repeater length: 37
 21278 3274888 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTACATGGTATTTGCATACGGTCTTTGCATGGATGGG
 spacer length: 37 repeater length: 37
 21279 3274963 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT TTTTCCTTCTTGCTTTTGTGTAGCAGGAGGGATA
 spacer length: 35 repeater length: 37
 21280 3275036 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT ATATGACGATCATTACACATCACACAACACTCTT
 spacer length: 34 repeater length: 37
 21281 3275108 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT GACGCACTCTTAAAAATGATTGCCATCTTTGGGAGT
 spacer length: 36 repeater length: 37
 21282 3275182 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT AAAAACATTTAAAAGAACTATCAGAGGCTGAATTT
 spacer length: 35 repeater length: 37
 21283 3275255 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT TCTTTTCTCTCAGTTCCTTCACGTGTGAATCTC
 spacer length: 33 repeater length: 37
 21284 3275326 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT ATGGGCTGTACATAAAATCAATACTCTTGAGAAGAT
 spacer length: 37 repeater length: 37

21285 3275401 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CATCTCATTGGTGATCGAGGTTCTCTAGCTACTTT
 spacer length: 36 repeater length: 37
 21286 3275475 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CATACAAGGTACGGGTCATTTTCGTCCTGCTCATCAA
 spacer length: 36 repeater length: 37
 21287 3275549 GTTCTAATCCTTGTTATAATGGAACTCGCATCGGAAT CTGCTTCTAATTAGGCAGCAATACTGTGAAAAATTA
 21288
 21289
 21290 crispr 23
 21291 2705053 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AACAGATCTGTCTGAATTTAAATCTACTGAGCCGAA
 spacer length: 37 repeater length: 37
 21292 2705128 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 TGGAAAAAGCCGAAGAACTGGTCGAGCTAGGACCAAAGTTTCAATCCTTGTTTTGCTGGAAGATGTTTTTCAACTGCTGCTACTAT
 GCCGGTTTGTATCATGGATGAAGGCTATAA spacer length: 116 repeater length: 37
 21293 2705282 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGGATAACGAAAGACATTTTGC AAAACAAAAG
 spacer length: 34 repeater length: 37
 21294 2705354 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATATATATCAGCAAAGATAAGAGATGCTTCCCAATAC
 spacer length: 37 repeater length: 37
 21295 2705429 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTGATGTGGTTGTCTATACCGCAAAAATTATAATC
 spacer length: 36 repeater length: 37
 21296 2705503 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 GTTTTTTAGCGATTGCTCGAACTCAAATGGAGTAGCTGTTTCAATCCTTGTTTTGCTGGAAGATGTTTTTCAACTCAGATATGTTT
 GGGGTATCGGGTCATCGTAAAAA spacer length: 109 repeater length: 37
 21297 2705650 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CCGGAAATATCCAATAGTAAAATAGTATGGGCAGCAC
 spacer length: 37 repeater length: 37
 21298 2705725 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TAGAGGAAGGTGAGTAAAATGATAATTGAAGAAA
 spacer length: 35 repeater length: 37
 21299 2705798 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TACAAGAGCTTGAATACGGTAACTATCCGTTATCCTTA
 spacer length: 38 repeater length: 37
 21300 2705874 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTGGATGTCCGCGATGGTCTGGTGGCGGGTTTGGTG
 spacer length: 37 repeater length: 37
 21301 2705949 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTTCCAGAAGAAAAAATAGGTTAAGCGAATAA
 spacer length: 34 repeater length: 37
 21302 2706021 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGAATGTGCAGCTATCGAAAATATCATTGATAACAA
 spacer length: 37 repeater length: 37
 21303 2706096 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTTAAACAGACTCGACGCAGGAGAGACTTCTCT
 spacer length: 35 repeater length: 37
 21304 2706169 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTATAATGCAAGAGCTTATTCTGTCGTACAAAACA
 spacer length: 36 repeater length: 37
 21305 2706243 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGCGGAGGAAATACGACACAGATCACAGAGATTAT
 spacer length: 36 repeater length: 37
 21306 2706317 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTATCCGAACACCTAAGCTGCAAACACTGAT
 spacer length: 32 repeater length: 37
 21307 2706387 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GGTGGTACGATAGCTTGTCCGGTATGTGGTGGTA
 spacer length: 34 repeater length: 37
 21308 2706459 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGGAAAATAAAAGGGCGTCTGATTATGGTGTGG
 spacer length: 35 repeater length: 37
 21309 2706532 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACTTTACAGGAAGACATGAGGCAATAAACGTTTTTG
 spacer length: 36 repeater length: 37
 21310 2706606 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTTAAAAAATACAAAAAGAACGCGCAAGAAGATCT
 spacer length: 38 repeater length: 37
 21311 2706682 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TAAGGAAGGGTTTAAAGGAAGCTGGTGAATCTCTCA
 spacer length: 35 repeater length: 37
 21312 2706755 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 AGCTTTGGTCTCACAGTGAGGGATCCAGAGGATAAGTTGC spacer length: 40 repeater length: 37
 21313 2706833 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTCCTATTCCGCTTACATCATGGATGAAAAATA
 spacer length: 34 repeater length: 37
 21314 2706905 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTGATGACTGGGAAATATGGATGCAAATCATCCAAA
 spacer length: 37 repeater length: 37
 21315 2706980 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CATCTGAAGACGGAAATTGTATCTTAACAATAAAAG
 spacer length: 36 repeater length: 37
 21316 2707054 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CGGAGATTCTAAAGCTGGAAAATCTATGGAAGATTT
 spacer length: 36 repeater length: 37
 21317 2707128 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATCGGATGGGGTTGGAAGGACTGTAAGATTGTAA
 spacer length: 35 repeater length: 37
 21318 2707201 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTTGCCATGGATGAAGAAGCCTTCTACCAAAAAAT
 spacer length: 35 repeater length: 37
 21319 2707274 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAGTGAAAGAGTGCGCATTCTGTGGAGCAGAGAT
 spacer length: 35 repeater length: 37
 21320 2707347 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGAGACGAAGCAATGACTTCCGCGTTTATTGCC
 spacer length: 35 repeater length: 37
 21321 2707420 GTTTC AATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CAGTGAGGGCTATGATCCTGAGATTGATCTATTG

spacer length: 34 repeater length: 37
 21322 2707492 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATCGGGGCCATATCTTTGGATTGAGAAATAG
 spacer length: 33 repeater length: 37
 21323 2707563 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATTGAAAGGAATAACAGCATCACATTTCTGGGCTGAG
 spacer length: 37 repeater length: 37
 21324 2707638 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGATTTGCAAAAGGCAACAGATCTTCCAGAAGTAT
 spacer length: 35 repeater length: 37
 21325 2707711 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TATAAGGAGTTAGCTAATGACAAAGTTTCCAAACCAA
 spacer length: 38 repeater length: 37
 21326 2707787 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GCTGATTCTAGCTTTCCTAGAAAGATGCTTCAGG
 spacer length: 34 repeater length: 37
 21327 2707859 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 AATATCGGATAAGAGTTACTATCAATGCAAGCGGATTAGTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTAAACAGGATATACAC
 ACTGTAAAGGTGAAGGGGGTGACTT spacer length: 111 repeater length: 37
 21328 2708008 GTTTCATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTTCATACCTTAGGAACATATGATTTCTATGAAAT
 spacer length: 36 repeater length: 37
 21329 2708082 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 ATACTAATTGTGGTATTGCTCTATTATACTTGCCCAATTC spacer length: 40 repeater length: 37
 21330 2708160 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTAAAAAATCCCGGAAATTAAAGGAAGAGATGGCAACA
 spacer length: 38 repeater length: 37
 21331 2708236 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTTGAAGATTTTTGTCTTTCAAATGCGTAAAC
 spacer length: 33 repeater length: 37
 21332 2708307 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AATCTGATGGTATAGTAGTAATTTGCGGAGATTT
 spacer length: 34 repeater length: 37
 21333 2708379 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGTTCAATGAGGATACTGAGAAAACTGGGGCTATAT
 spacer length: 37 repeater length: 37
 21334 2708454 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GTGGGGCTCTTATTTCTCTTATCTCGTTTATGT
 spacer length: 33 repeater length: 37
 21335 2708525 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCTCGTCTAGAAAAGCATACGAAAATTTGTTGTG
 spacer length: 34 repeater length: 37
 21336 2708597 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTCCTCTCTTCACAAAAACAATAGTATTCTATCAC
 spacer length: 36 repeater length: 37
 21337 2708671 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGCCTATGAGCCATTGCCGCATGCAGTGGGTAAATG
 spacer length: 36 repeater length: 37
 21338 2708745 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAGAAATAATGCCCCGAGGATTGGTCTGCGGCCTTTT
 spacer length: 37 repeater length: 37
 21339 2708820 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGCCTATGAGCCATTGCCGCATGCAGTGGGTAAATG
 spacer length: 36 repeater length: 37
 21340 2708894 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AAAGCAACTGAAAGTGCTTTCAAAGATATAAAAC
 spacer length: 34 repeater length: 37
 21341 2708966 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 AATAAAGAATTTGCGAACAGGAGGATGTCGCCGATACTG spacer length: 40 repeater length: 37
 21342 2709044 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TTAAAGGCTATTAAAAACGGAACCTGGAAAGAGGG
 spacer length: 36 repeater length: 37
 21343 2709118 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CCTGAACATATGTGAAAGTGCCGTTGTTATTCTTAA
 spacer length: 35 repeater length: 37
 21344 2709191 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 AGATATGTAAAGTCGAGTGATTTAGAAAAGACGCTGAACGAAAT spacer length: 44 repeater length: 37
 21345 2709273 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CGTTAATCGGAATGCTTGAAGGGCTAAAAAGAT
 spacer length: 33 repeater length: 37
 21346 2709344 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATTTTCGTAGTACGATGCTTCAAAGCATCTCCAAA
 spacer length: 35 repeater length: 37
 21347 2709417 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC GAGAGCCACCGTGTATCCCGCATAACATAAGATGAAG
 spacer length: 37 repeater length: 37
 21348 2709492 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AGGGTAAAGCAACGATACATCTCGAACAGAACAT
 spacer length: 34 repeater length: 37
 21349 2709564 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTAACCTACCTCGACAATCTTAGTTACTTCTTTCCGGT
 spacer length: 36 repeater length: 37
 21350 2709638 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TGGGGTTTGCCAGCTGGTATCGAAATTATCGAAGT
 spacer length: 36 repeater length: 37
 21351 2709712 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC TCGAATATGTCCGGTGGATAAAAGCTAAAGATT
 spacer length: 33 repeater length: 37
 21352 2709783 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACGGAGGACAAAAATGAAAGGAGCTAGAGGTTTT
 spacer length: 34 repeater length: 37
 21353 2709855 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
 ACTAATAGTGAACCTGAAGATCCGGTGGATCCAATCCT spacer length: 39 repeater length: 37
 21354 2709932 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ATTGCAAGAACAGGAACAAGAATTAGAGGAATAAA
 spacer length: 35 repeater length: 37
 21355 2710005 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC CTCCGGTGCAGAAAGAAGTCTACCGTGACTATACGATA
 spacer length: 38 repeater length: 37
 21356 2710081 GTTTCAATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC

ATAGAAAACTATCACCCCCCTCCAAAAAACAAAACTCT spacer length: 39 repeater length: 37
21357 2710158 GTTTCATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC
CAAGCGAATCTCAAGTGGCGGAAATAATGCAAATGTTTCTGCCATTG spacer length: 47 repeater length: 37
21358 2710243 GTTTCATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC ACCGATTAAACCCAAGGGAAGAGAGCGAAGATTTAT
spacer length: 36 repeater length: 37
21359 2710317 GTTTCATCCTTGTTTTGCTGGAAGCTGTTTTTCAAC AACAACTCTCGGAACCTTGCTTAAAAATATGGGGCGC
21360
21361
21362 crispr 24
21363 123814 AGGTGATTTAGAACCTTCTGATACTTTTTTTCTATTTA
GGAGGCGTATGTTTCAGATTTTAGTTCTTGTTTTTAAATTCGCTTCTCGATCTTGTATTGTTGTTCCATTTCGTCTTGG
spacer length: 78 repeater length: 38
21364 123931 AGGTGATTTAGAACCTTCTGATACTTTTTTTCTATTTA
GGAGGCGTATGTTTCAGATTTTAGTTCTTGTTTTGAAATTCGCTTCTTGATCTTGTATTGTTGTTCCATTTCGTCTTGG
spacer length: 78 repeater length: 38
21365 124048 AGGTGATTTAGAACCTTCTGATACTTTTTTTCTATTTA
TGTTTTACTGCTTCTAATTAGGCAGCAATACTGTGAAAAATTAAGTTTAGATTAAATTAAGTTTAGATTCTATGAAG
21366
21367
21368 crispr 25
21369 4073677 TGTCACAGCCTTCTGCTGCTTTAGTTTCTGCAACTTTGT CACAGGTAGTTTCTGCAGCT spacer length:
20 repeater length: 39
21370 4073737 TGTCACAGCCTTCTGCTGCTTTAGTTTCTGCAACTTTGT
CACAGGTAGTTTCTGTTGCTTTTCCACAGCTTTCTACTGAAGTTGCTGCATTGTACAGGTAGTTTCTGCAACTTTGTACAGGTA
GTTTCTGCAGCT spacer length: 98 repeater length: 39
21371 4073875 TGTCACAGCCTTCTGCTGCTTTAGTTTCTGCAACTTTGT
AACTAACATAACAGAACCGGAAGCTAACATAACAAAACCGGAAGCTGAACTAACATAACAGAACCGGAAGCTGAACTAACATAA
CAGAACCGGAAG
21372
21373
21374 crispr 26
21375 719799 TTAAGCCAGTTCTTTACGTTTTTCGTTCCCTGAATAATCTT
AACTTTATATTCCAGATCTAAACAAAAGTATGTACATAAGAATCGTTGTTGAAATAATGTAATATGTGGAGGGAATAAACATGCTC
ATGGGATTCGA spacer length: 97 repeater length: 39
21376 719936 TTAAGCCAGTTCTTTACGTTTTTCGTTCCCTGAATAATCTT
AACTTTATATTCCAGATCTAAACGAAAGTATGTACATAAGAACCGTTGTTGAAATAATGTAATATGTGGAGGGAATAAACATGCTC
ATGGGATTCGA spacer length: 97 repeater length: 39
21377 720073 TTAAGCCAGTTCTTTACGTTTTTCGTTCCCTGAATAATCTT
TTTTCGTTCCCTGAATAATCTTTGCTTTATATTCCAGATCTAAATATGGATATAAAGGCCCGAAAAATGGAACCAAATTAAGTGC
GAAACCGTAAG
21378
21379
21380 crispr 27
21381 2763271 AAACGACCCCGAAAAATGTAATGTACCAATCTTACGTAGGA
ACGACGCTCAACAATCTCGGAACCTTGCTTAAAAATATGGGGCGCATAGAAGAGGCGAAAAAAGGTACGAAAAAGCACTCGAAAT
GAGAGAAAAACTACTCG spacer length: 103 repeater length: 40
21382 2763415 AAACGACCCCGAAAAATGTAATGTACCAATCTTACGTAGGA
GGGACGCTCAACAATCTCGGAACCTTGCTTAAAAATATGGGGCGCATAGAAGAGGCGAAAAAAGGTACGAAAAAGCACTCGAAAT
GAGAGAAAAACTACTCG spacer length: 103 repeater length: 40
21383 2763559 AAACGACCCCGAAAAATGTAATGTACCAATCTTACGTAGGA
ATCTGATTACAGTCATATATTTTGTGGAATCCGGAGAAGTACATAGATTTAACTCTTCGGTTTTCCACCTGTTTTAAAAATTTGA
GACTTAACCCCGATTTA
21384
21385
21386 crispr 28
21387 2021820 CATATTATTCAGTAGTCCTCTTGAGCGCAGCGAAAAGGAC
CTCGTGCTCCCGAAGCGAAACTCGGGCGTGACAAAAACGACACGGTAAAGCGAATACGGTTGTACTGGTCCT spacer
length: 72 repeater length: 40
21388 2021933 CATATTATTCAGTAGTCCTCTTGAGCGCAGCGAAAAGGAC
CTCGTGCTCCCGAAGCGAAACTCGGGCGTGACAAAAACGACACGGTAAAGCGGATACGGTTGTACTGGTCCT spacer
length: 72 repeater length: 40
21389 2022046 CATATTATTCAGTAGTCCTCTTGAGCGCAGCGAAAAGGAC
CTCGTGCTCCCGAAGCGAAACTCGGGCGTGACAAAAACGACACGGTAAAGCGGATACGGTTGTACTGGTCCT spacer
length: 72 repeater length: 40
21390 2022159 CATATTATTCAGTAGTCCTCTTGAGCGCAGCGAAAAGGAC
AGCGTACTCCCGAGGCGCAATTCTGGGCGTGACAAAAACGACACGGTAAAGCGAATACGGTTGTACTGGTCCT spacer
length: 72 repeater length: 40
21391 2022272 CATATTATTCAGTAGTCCTCTTGAGCGCAGCGAAAAGGAC
TTTGGGGTCAGAACACCCCTGACGTTGCAGCTTCTCTCAATAATTTAGCAGGACTCTACGTACACCAGGTAAA
21392
21393

21394 crispr 29
21395 2235441 CCTTTTCGCTTCGCTCAAGAGGACCAATTCATAAATTTCT
CTAACCTACACAACATCACCAGTTGCATTATGTCGTTTTTGTCCCGGCAGATTTGCATCTCTGCAGTTTCGCTG spacer
length: 73 repeater length: 40
21396 2235555 CCTTTTCGCTTCGCTCAAGAGGACCAATTCATAAATTTCT
CTAACCTACACAACATCACCAGTTGCATTATGTCGTTTTTGTCCCGGCAGATTTGCATCTCTGCAGTTTCGCTG spacer
length: 73 repeater length: 40
21397 2235669 CCTTTTCGCTTCGCTCAAGAGGACCAATTCATAAATTTCT
CTAACCTACAAAACGTCACCAGCTGCATTATTATTTTTTGTCCCGGCAGATTTGCGTCTCTGCAGTTTCGCTG spacer
length: 72 repeater length: 40
21398 2235782 CCTTTTCGCTTCGCTCAAGAGGACCAATTCATAAATTTCT
GCAATACTGTCTCTGTGATTAACACAGTTACAAACACTGTTATAGCCACAGTCAAGGTTGGAAAATATCCCG
21399
21400
21401 crispr 30
21402 2601686 CTAACATAACAGAACCGGAAGCTGAAGTAACAGAACCGGA AGCTGAAACTAACATAACAGAACCGGAAGCTGAA
spacer length: 34 repeater length: 40
21403 2601761 CTAACATAACAGAACCGGAAGCTGAAGTAACAGAACCGGA
AGCTGAAACTAACATAACAGAACCGGAAGCTGAAACTAACATAACAGAACCGGAAGCTAACATAACAAAACCGGAAGCTGAA
spacer length: 82 repeater length: 40
21404 2601884 CTAACATAACAGAACCGGAAGCTGAAGTAACAGAACCGGA
CATAACAGAACCGGAAGCTAACATAACAAAACCGGAAGCTGAAACTAACATAACAGAACCGGAAGCTGAAACTAACATAACA
21405
21406
21407 crispr 31
21408 1044754 CTGCTGTCAACACCCATTCCAGCAAGTGTTTGTCTTGCAG
AACCTCATTCATCAACGCACGAGCGTAAGATGCGCTTGCTTTGGGGAATATTTTCTGAGCGTCACCGTAAAGACCGACCGCTTTT
TCAAGATTTGA spacer length: 97 repeater length: 40
21409 1044892 CTGCTGTCAACACCCATTCCAGCAAGTGTTTGTCTTGCAG
AACCTCATTCATCAACGCACGAGCGTAAGATGCGCTTGCTTTGGGGAATATTTTCTGAGCGTCACCGTAAAGACCAACCGCGGTT
TCAAGATTTGG spacer length: 97 repeater length: 40
21410 1045030 CTGCTGTCAACACCCATTCCAGCAAGTGTTTGTCTTGCAG
TTTCAGATTAGGAGGCTCTCATACTAACACATTTAACGGCAGGATATATATTTTCGTTTTTCATTCCCATATGTAAGAAATGCGTCAA
TGTATTTATAA
21411
21412
21413 crispr 32
21414 3071636 GATTTTCAGATTGATTATTGATTATTATGAGATTATTGATT ATTATGAGATTATTGATTTTTGATTGATTAT
spacer length: 31 repeater length: 40
21415 3071708 GATTTTCAGATTGATTATTGATTATTATGAGATTATTGATT ATTATGAGATTATTGATTTTCAGATTGATTAT
spacer length: 31 repeater length: 40
21416 3071780 GATTTTCAGATTGATTATTGATTATTATGAGATTATTGATT GGACGCTCAACAATCTCGGAACCTTGCTTAA
21417
21418
21419 crispr 33
21420 683209 TAAGAAATCTAACAAATCTAAGAAATCTAACAAATCTAAC
AAATCTAACAAATCTAAGAAATCTAAGAAATCTAAGAAATCTAAGAAATCTAACAAATCTAACAAATCTAACAAATCTAAGAAATC
TAAGAAATCTAAGAAATCTAAGAAAT spacer length: 112 repeater length: 40
21421 683362 TAAGAAATCTAACAAATCTAAGAAATCTAACAAATCTAAC
AAATCTAAGAAATCTAAGAAATCTAAGAAATCTAAGAAATCTAAGAAATCTAACAAATCTAACAAATCTAACAAATCTAACAAATC
TAAGAAATCTAAGAAATCTAAGAAAT spacer length: 112 repeater length: 40
21422 683515 TAAGAAATCTAACAAATCTAAGAAATCTAACAAATCTAAC
AAATCTAAGAAATCTAAGAAATCTAACAAATCTAAGAAATCTAAGAAATCTAAGAAATCTAACAAATCTAACAAATCTAACAAATC
TAAGAAAT spacer length: 94 repeater length: 40
21423 683650 TAAGAAATCTAACAAATCTAAGAAATCTAACAAATCTAAC
AAATCTAACAAATCTAAGAAATCTAACAAATCTAACAAATCTAAGAAATCTAACAAATCTAAGAAATCTAACAAAT spacer
length: 76 repeater length: 40
21424 683767 TAAGAAATCTAACAAATCTAAGAAATCTAACAAATCTAAC
AAAAACGATACTTAAAAAACGGTGATTTAAAAAACGATACTTAAAAAACGGTGTCTTAAAAAACGATACTTAAAAA
21425
21426
21427 crispr 34
21428 1327080 TACACCAGGGCAAATATTCTGATGCCGAACCACTTTACAC
TCGTGCCCTGGAAATCCACGAGAAGGTTTTGGGTTCGGAACACCCTTACGTAGCAGCTTCTCTCAATAATTTAGCAAACCTTTAC
spacer length: 85 repeater length: 40
21429 1327206 TACACCAGGGCAAATATTCTGATGCCGAACCACTTTACAC
TCGTGCCCTGGAAATCCACGAGAAGGTTTTGGGTTCGGAACACCCTTACGTAGCAACTTCTCTTAATAGTTTAGCAGGACTCTAC
spacer length: 85 repeater length: 40
21430 1327332 TACACCAGGGCAAATATTCTGATGCCGAACCACTTTACAC
TCGTGCCCTAGAAATCCACGAGAAGGTTTTGGGTTCGGAACACCCTGACGTTGCAGCTTCTCTTAATAATTTAGCAGGACTCTAC
spacer length: 85 repeater length: 40

21431 1327458 TACACCAGGGCAAATATTCTGATGCCGAACCACTTTACAC
TCGTGCCCTGGAAATCCACGAGAACGTTTTGGGGTCAGAACACCCTCTCGTAGCAACTTCTCTTAATAATTTAGCAGACCTTTAC
spacer length: 85 repeater length: 40

21432 1327584 TACACCAGGGCAAATATTCTGATGCCGAACCACTTTACAC
AACACATGTTGAGGTGAGTAAGACATTTCAACTCGGAAATTTTCAGGCGGCAGCGAAGTGAGATTTCTGTTTGACAGGTCTAATAC

21433

21434

21435 crispr 35

21436 506818 TACCATCGGTTTTTTTGCTTCTGATCATCGACTACGGTACT
ACCATCGGTTTTTTGGATCCTGAGTTTTTTGGAGTCTGATCATCGACTATGGCA spacer length: 52 repeater
length: 40

21437 506911 TACCATCGGTTTTTTTGCTTCTGATCATCGACTACGGTACT
ACCATCGGTTTTTTGGATCCTGAGTTTTTTGGAGTCTGATCATCGACTACGGCA spacer length: 52 repeater
length: 40

21438 507004 TACCATCGGTTTTTTTGCTTCTGATCATCGACTACGGTACT
ATCATCGGTTTTTTTGCTTCTGGTCATCTGCTACGGTACTACCATCTGTGTTTTGTTTTTGAGCATCGACTACGGTACTATCATCGG
TTTTTTGTTTTTGAGCATCTGCTTCGGTTTGAGCATCGACTACGGCA spacer length: 133 repeater length: 40

21439 507178 TACCATCGGTTTTTTTGCTTCTGATCATCGACTACGGTACT
GTTGTACTGGTCCTACATATTATTACAGTAGTCCTCTTGAGCGCAGCGAAAAGGACAGCGTACTCCCGAGGCGCAATTCGGGCGTGA
CAAAAACGACACGGTAAAGCGAATACGGTTGTACTGGTCCTACATAT

21440

21441

21442 crispr 36

21443 1792977 TCTGGTTGCCATCTGTCTGGTTGCCATCTGTCTGGTTGCC ATCTATCTGGTTGCCATCTGTCTGGTTACCATCT
spacer length: 34 repeater length: 40

21444 1793052 TCTGGTTGCCATCTGTCTGGTTGCCATCTGTCTGGTTGCC
ATCTGTCTGGTTACCATCTGTCTGGTTACCATCTGTCTGGTTGCCATCTGTCTGGTTACCATCTGTCTGGTTGCCATCTGTCTGGT
TACCATCTGTCTGGTTGCCATCTATCTGGTTGCCATCTATCTGGTTGCCATCT spacer length: 139 repeater
length: 40

21445 1793232 TCTGGTTGCCATCTGTCTGGTTGCCATCTGTCTGGTTGCC
AATACTGTGAAAAATTAAGTTTAGATTAAAAATTAAGTTTAGATTCTATGAAGTTGCCTGTTATCAGGCAACTTCCTCTTTTCAAAA
AAAGTATCTAACTAGACCTTTTTTACTTTTACCTATTTTATAAATATTTACT

21446

21447

21448 crispr 37

21449 1441044 TGGCATGAAGATCCTGAAACTCTCAATATTATAAAACATG
CCATTTCCGATGGAATAATGATGTCAGGCGTACTGCTGTTTCAGGAACTAGCTCATTGTTGGCGTGCTGATCCTGAAACTCTTACT
CTTATGAAACAATATGCCACTATCTCTAAAGAGAATTCTGTCAAGTATACTGCTATTTCAGGAACTGGCAGGTGG spacer
length: 160 repeater length: 40

21450 1441245 TGGCATGAAGATCCTGAAACTCTCAATATTATAAAACATG
CCATTACCGATGAAAAATAATGATGTCAGGCGTATTGCTGTTTCAGGAACTTGCTCGTGG spacer length: 58
repeater length: 40

21451 1441344 TGGCATGAAGATCCTGAAACTCTCAATATTATAAAACATG
CCATTACCGATGAAGATTATTTTGTGAGAAGTACTGCTGTTTCAGGAACTTGCTCGTGG spacer length: 58
repeater length: 40

21452 1441443 TGGCATGAAGATCCTGAAACTCTCAATATTATAAAACATG
CCATTACCGATGAAAAATAATGATGTCAGGCGTATTGCTATTTCAGGAACTTGCTCGTGG spacer length: 58
repeater length: 40

21453 1441542 TGGCATGAAGATCCTGAAACTCTCAATATTATAAAACATG
TATTATCAAACAGAGGGCCACGACTGATGAAGAAGGGTATGTCCGGAGTACTGCAGTT

21454

21455

21456 crispr 38

21457 1441333 TTGCTCGTGGTTGGCATGAAGATCCTGAAACTCTCAATAT
TATAAAACATGCCATTACCGATGAAGATTATTTTGTGAGAAGTACTGCTGTTTCAGGAA spacer length: 58
repeater length: 40

21458 1441432 TTGCTCGTGGTTGGCATGAAGATCCTGAAACTCTCAATAT
TATAAAACATGCCATTACCGATGAAAAATAATGATGTCAGGCGTATTGCTATTTCAGGAA spacer length: 58
repeater length: 40

21459 1441531 TTGCTCGTGGTTGGCATGAAGATCCTGAAACTCTCAATAT
TATAAAACATGCCATTACCGATAAAAAATAATGATGTCAGGCGTATTGCTATTTCAGGAA spacer length: 58
repeater length: 40

21460 1441630 TTGCTCGTGGTTGGCATGAAGATCCTGAAACTCTCAATAT
CACCAGCTGCATTATTCATTTTTGTCCCGCTCGACGCAGGAGAGCGGTCTTTCTCGCA

21461

21462

21463 crispr 39

21464 720491 TTGGAGGGAACAGTATGATCTTCGAGATGTTCTATAAAA
ATGTCAAAATTTGCTACGAATCAACTGTATTTCAGCATGTTTTACTGCTTCTAATTAAGCTGTAAAAACAGGTGTATAAACGGGGAA
CGACCAAAATTCAGGAAAAAT spacer length: 106 repeater length: 40

21465 720638 TTGGAGGGAACAGTATGATCTTCGAGATGTTCTATAAAA

ATGTCAAAATCGCCTACGAATCAACTGTATTTCAGCATGTTTTACAGCTTCTAATTAAGCTGTAAGACAGGTGCATAACGGGAAACG
 ACCAAAATCCAGGAAAAAT spacer length: 104 repeater length: 40
 21466 720783 TTGGAGGGAAGTATGATCTTCGAGATGTTCTATAAAA
 ATGTCAAAATCGCCTACGAATCAACTGTATTTCAGCATGTTTTACTGCTTCTAATTAAGCTGTAAGACAGGTGCATAACGGGAAACG
 ACCAAAATCCAGGAAAAAT spacer length: 104 repeater length: 40
 21467 720928 TTGGAGGGAAGTATGATCTTCGAGATGTTCTATAAAA
 ATGTCAAAATCGCCTACGAATCAACTGTATTTCAGCATGTTTTACTGCTTCTAATTAAGCTGTAAGACAGGTGCATAACGGGAAACG
 ACCAAAATCCAGGAAAAAT spacer length: 104 repeater length: 40
 21468 721073 TTGGAGGGAAGTATGATCTTCGAGATGTTCTATAAAA
 CAGCATTCCTATTGCTACAAAATATTCGCGAGCAAGATCCACTAAAACAAGGATTGAAACTCGTAAAAACTGTGCATAGCCTCCTG
 ATACTGATTATGGAGTAC
 21469
 21470
 21471 crispr 40
 21472 3518544 TTTTTCAGTGTTGTGTGATAGATTCAAAGTAGAAGTTTAT
 CCAGCTCTGCAAAGGGGGTATCATTATATTAAGCTGGAATTG spacer length: 42 repeater length: 40
 21473 3518627 TTTTTCAGTGTTGTGTGATAGATTCAAAGTAGAAGTTTAT
 CCAGCTCTGCAAAGGGAGTATCATTATATTAAGCTGGAATTG spacer length: 42 repeater length: 40
 21474 3518710 TTTTTCAGTGTTGTGTGATAGATTCAAAGTAGAAGTTTAT
 AGTCGATTGTAATAGATGTTGAGGTGAGTGAGATTTTTCAAC
 21475
 21476
 21477 GCA_000970285.1_ASM97028v1_genomic.fna(findCrispr):
 21478 START REPEAT
 SPACER
 21479 crispr 1
 21480 2315881 GAAGAAGTAATAGAACCTAC AGAAGAAGTAGCAGAGCCTAC spacer length: 21 repeater
 length: 20
 21481 2315923 GAAGAAGTAATAGAACCTAC CGAAGAGGTAAACGGAACCTAC spacer length: 21 repeater
 length: 20
 21482 2315965 GAAGAAGTAATAGAACCTAC ATTGCGAAAATAGCGCTATTT
 21483
 21484
 21485 crispr 2
 21486 1653988 AACAACTCTGCAGGACTTTAC
 ACGAGTATAGGAAGACATGAGGAAGCTTTGCTTTTTTTATAACCGTTCTTTAGAGATCAATGAAAAATTGTTTGGAGAAGAGCACCC
 CTTTATTGCAACGGCACT spacer length: 104 repeater length: 21
 21487 1654114 AACAACTCTGCAGGACTTTAC
 CAAAATAAGGGAGAGTATGAAAAAGCTGAATCTCTTTACAACCGTGCTCTTGAAATCATAAGAAATTCTCTTGGAGAGGAACATCC
 CAATGTTGCTATTACTCT spacer length: 104 repeater length: 21
 21488 1654240 AACAACTCTGCAGGACTTTAC
 GTGAGCGTAGGAAGATTTCGAGGAAGCTTTACTTTTTTTATAATCATTCTTTAGAGATCAATAAAAAATTGTTTGGAGAAGAGCACCC
 CTTTATTGCAACGACACT spacer length: 104 repeater length: 21
 21489 1654366 AACAACTCTGCAGGACTTTAC
 CAAAATAAGGGAGAGTATGAAAAAGCTGAATCTCTTTACAATCGTGCTCTTGAAATCATAAGAAATTCTCTTGGAGAGGAACATCC
 CCATATTGCTGTTACTCT
 21490
 21491
 21492 crispr 3
 21493 2316649 ATTAACACGATAAAACAACAAC
 GTTATAGGCACAATTAATGTCGGAGAGCGTCCTGCTGGAATTGCAGTCGCAGGAGAAAAGGCATATGTGACTAATGCTAACAGCAA
 CACTGTCACTGT spacer length: 98 repeater length: 21
 21494 2316769 ATTAACACGATAAAACAACAAC
 ATTATAGGCACAATTAATGTTGGAAGCTATCCTACTGGAGTTGCAGTCGCAGGAGAAAAGGCATTTGTTTGTAATGCTAACAGCAA
 CACTGTCACTGT spacer length: 98 repeater length: 21
 21495 2316889 ATTAACACGATAAAACAACAAC
 ATTAACACGATAAAACAACATTATAGGCACAATTAATGTTGGAGAATATCCTGCTGCAATTTAGTAATAGGAAATGAAGCACA
 TGTGACCAATCT
 21496
 21497
 21498 crispr 4
 21499 642417 CTCTTCATCATCGTCCCATTC TTCATCAAAGTTCCATTCACTTACTTCGTTAAATCCC spacer length:
 38 repeater length: 21
 21500 642477 CTCTTCATCATCGTCCCATTC ATTTACTTCGTCAAAGTCCC spacer length: 20 repeater length:
 21
 21501 642519 CTCTTCATCATCGTCCCATTC ATTTACTTCGTCAAAGTCCC spacer length: 20 repeater length:
 21
 21502 642561 CTCTTCATCATCGTCCCATTC GTCGACGAAAACACCGGCAG
 21503
 21504
 21505 crispr 5

21506 1642366 TGCAATTCCGCTTTTGTCTCC
 TAACTCTTCATTAATTTTTAGGGTTTGGTTATACATTTTAACTGCTTCTTCGTAGTTCCCCTGATCCTGATAAATCACACCAAGCT
 GGTGCAATGTAC spacer length: 98 repeater length: 21
 21507 1642486 TGCAATTCCGCTTTTGTCTCC
 CAGCTCCTCGTCAATTTTTAGGGCTTGATTATACATTTTAACTGCTTCTTCGTAGTTCCCCTGATCCTGATAAATCATACCAAGCT
 GGCGCAATGTAC spacer length: 98 repeater length: 21
 21508 1642606 TGCAATTCCGCTTTTGTCTCC
 TGAAACCACCGGCAGCAAAGAGTCGGTTGCCCTGAGAAATTCGAGAGCAAGATCCATTTAAACAAGGATTGAAACATCTAACTCT
 AAATAGATTTTT
 21509
 21510
 21511 crispr 6
 21512 4295512 GGAACAAAACATATATGTGACGAA
 TCGCGACATCAACTGTGTCTCTGTAATTGACCCGCTATAAACAAGGTTATAGCCACGGTGCCCGTAGGATCTAATCCACTGGGCG
 TTGCAGTCACACCGGA spacer length: 102 repeater length: 23
 21513 4295638 GGAACAAAACATATATGTGACGAA
 CCGTCATAGCAACGATATTTCTGTAATTGACACTGCAACCAACGCTGTTATAGCGACTGTGAAAGTTGGATCCGGCCCTTGTGGAG
 TTACAGTAAACCAGGA spacer length: 102 repeater length: 23
 21514 4295764 GGAACAAAACATATATGTGACGAA
 CTCTCGAATAGGGCAAAAATTTCTTTTATTTGGCCAGAAATGCCTGAAACTGGCTCTTTTTTCAGAGCTAAAATTCCTTGCTGGAAA
 ATTATCAAATCCTTTA
 21515
 21516
 21517 crispr 7
 21518 2392754 TTTTAGTGGAAGCTACTTCTCGAC GCACTAAAAGAAGATTACCAAAAAGAAGCTGAAAAGGAGTTTCAATCCTT
 spacer length: 50 repeater length: 24
 21519 2392829 TTTTAGTGGAAGCTACTTCTCGAC GAGGAAGGTGATATCGTCTTTGTTGACGTATTGAAAAGGTTTCAATCCTT
 spacer length: 50 repeater length: 24
 21520 2392904 TTTTAGTGGAAGCTACTTCTCGAC GCATTATATTTGAATAACAACAATATTTCTTTAAAGAAGTTTCAATCCTT
 spacer length: 50 repeater length: 24
 21521 2392979 TTTTAGTGGAAGCTACTTCTCGAC CCATAGAGAAGAATTGCTTCGCTCGGGAGATTTTAGTTTCAATCCTT
 spacer length: 47 repeater length: 24
 21522 2393051 TTTTAGTGGAAGCTACTTCTCGAC CGTTTGAAGCAAGCGGTGCGAGCGTAAGAATGAGGGTTTCAATCCTT
 spacer length: 47 repeater length: 24
 21523 2393123 TTTTAGTGGAAGCTACTTCTCGAC TATTTTTGATAAAAACGGCATAAAAACAATCGAAGAAGTTTCAATCCTT
 spacer length: 49 repeater length: 24
 21524 2393197 TTTTAGTGGAAGCTACTTCTCGAC CAGGGAAAATAATAGAAGAAGCTATTGATATCGGAAGTTTCAATCCTT
 spacer length: 49 repeater length: 24
 21525 2393271 TTTTAGTGGAAGCTACTTCTCGAC GAACTTCTGAAATGCGGAGAAGTCCTGGTTATTTCTGTTTCAATCCTT
 spacer length: 48 repeater length: 24
 21526 2393344 TTTTAGTGGAAGCTACTTCTCGAC CTGGAAACTTATTACTTTAAACCAGACAGACATGGTTTCAATCCTT
 spacer length: 47 repeater length: 24
 21527 2393416 TTTTAGTGGAAGCTACTTCTCGAC GAAAGAAGAATCCAGAGTACAGGCTTGCCCGTTTCAAGTTTCAATCCTT
 spacer length: 49 repeater length: 24
 21528 2393490 TTTTAGTGGAAGCTACTTCTCGAC
 CTATGGTCGTAGCTGTACAGAAATGTGAACATCCACTGTAGGTTTCAATCCTT spacer length: 52 repeater
 length: 24
 21529 2393567 TTTTAGTGGAAGCTACTTCTCGAC TATGACAGAAGAAGCGGTGATAGCATCAGAGAAAATTGTTTCAATCCTT
 spacer length: 50 repeater length: 24
 21530 2393642 TTTTAGTGGAAGCTACTTCTCGAC CTAGTAGAACAGATAGCGAATAAAGCAAGAGCAAATAGTTTCAATCCTT
 spacer length: 49 repeater length: 24
 21531 2393716 TTTTAGTGGAAGCTACTTCTCGAC GAAAGAAATGAGAACCTTCCCGCTAAAAGCAGCGAGTTTCAATCCTT
 spacer length: 47 repeater length: 24
 21532 2393788 TTTTAGTGGAAGCTACTTCTCGAC
 TGGAATGCTTGATGATCAAGCGGATGCAGCTCTAAAGGAAGCAGTGGTTTCAATCCTT spacer length: 58
 repeater length: 24
 21533 2393871 TTTTAGTGGAAGCTACTTCTCGAC TTAGAAGTAGAGGATGTTTATGAGCCTCTAGAAAAGTTTCAATCCTT
 spacer length: 47 repeater length: 24
 21534 2393943 TTTTAGTGGAAGCTACTTCTCGAC AGGAATACAGAACCAACGCCAGATCCATTTGAAAAGGTTTCAATCCTT
 spacer length: 48 repeater length: 24
 21535 2394016 TTTTAGTGGAAGCTACTTCTCGAC TCCGAGAGTCTGTGACATTACATCCAGAATTTGCGAGTTTCAATCCTT
 spacer length: 48 repeater length: 24
 21536 2394089 TTTTAGTGGAAGCTACTTCTCGAC GAAAATAGCGCTATTTCTGTAATAGACACGAGTTCAAACACTGTTACA
 21537
 21538
 21539 crispr 8
 21540 4121261 GCAACATAAACATTGCCAGAAGAGTC
 AACAGCAATACCCCTCGGATAATTAATATTTCCGTTGGCGGTTCCAGAAGAACCCAGGTAATTATGAAGTTGCCACTGCTGTCAA
 ACTTCTGAATGCGATTATTATCGGTATC spacer length: 114 repeater length: 26
 21541 4121402 GCAACATAAACATTGCCAGAAGAGTC
 AACGGCAATATCGTGGGGAGAACTAAAACCTCCGTTGGCGGTTCCAGATGAACCCAGGTAATTATGAAGTTACCACTGCTATCAA

ATTTCTGAATGCGATTATTATCGGTATC spacer length: 114 repeater length: 26
 21542 4121543 GCAACATAAACATTGCCAGAAGAGTC
 AAGGGAGAGTATGAAAAAGCTGAATCTCTTTACAATCGTGCTCTTGAAATCATAAGAAATTCTCTTGAGAGGAACATCCCCATAT
 TGCTGTTACTCTAAACAATCTTGCAGGA
 21543
 21544
 21545 crispr 9
 21546 1011703 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCGTTCTTATTTCTTTTCCACAATGCCACAG
 spacer length: 33 repeater length: 37
 21547 1011774 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCTGGTCCTGGTCTGATCTTCCATCGCATCCAGTA
 spacer length: 35 repeater length: 37
 21548 1011847 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACCTCGTACACTCCCAGGAATTCGACCTCTACCAA
 spacer length: 36 repeater length: 37
 21549 1011921 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGATCAAGCCAGAAGCAAGACAGCTTCTAGCCA
 spacer length: 33 repeater length: 37
 21550 1011992 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTCAAAAACAAAAAATCTTGATGTACCATCGATG
 spacer length: 36 repeater length: 37
 21551 1012066 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CAGAGTGTCTTGAGAGAAAACGCCCTTCTCATATGAAG
 spacer length: 38 repeater length: 37
 21552 1012142 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCATGGATGTTAATATAAGCGCAAGCGTCCGCCA
 spacer length: 34 repeater length: 37
 21553 1012214 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGAACCATTCTGCCAGAACTCCGATGATTTC
 spacer length: 33 repeater length: 37
 21554 1012285 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ACAACTCGATATCTGTATCCTGATAGCGGGACCA
 spacer length: 34 repeater length: 37
 21555 1012357 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GATCATCTTAACGTATTTACGAATGTTTCAAAAA
 spacer length: 34 repeater length: 37
 21556 1012429 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAACATCATTTAAGTGAACCGAAAAGAATGGAG
 spacer length: 35 repeater length: 37
 21557 1012502 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCCTCCAATGAAATAATTGCACTTGCAAATTC
 spacer length: 33 repeater length: 37
 21558 1012573 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGCATCGATATCGACGGTAACTGCTTCTTTTTTT
 spacer length: 35 repeater length: 37
 21559 1012646 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTCTTTTTTTCACAATAACAGCATGATATATAT
 spacer length: 34 repeater length: 37
 21560 1012718 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGATTTACCATAAGATTGCAGAAAAATTGTAG
 spacer length: 33 repeater length: 37
 21561 1012789 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GCCAGCTTATGCCGAAAATAATAATATGATAGTGT
 spacer length: 35 repeater length: 37
 21562 1012862 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GGCTTTTCGTCTGTACTTTACAACGAGTATAAGGT
 spacer length: 35 repeater length: 37
 21563 1012935 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTTATAATGTGCTATCAGCCCGTTTTTTGGAAT
 spacer length: 34 repeater length: 37
 21564 1013007 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTCAACCACGCTTGACCACCTTCTTCAGATAG
 spacer length: 33 repeater length: 37
 21565 1013078 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCAATGAAGGCATGTTTCATAAATTTGAAAAG
 spacer length: 33 repeater length: 37
 21566 1013149 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCGTGAAGCCTGGTAACTGCATCAATACACAAG
 spacer length: 34 repeater length: 37
 21567 1013221 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CATGTTTTGTAAATTACTATCGAAAATGTAGTAT
 spacer length: 33 repeater length: 37
 21568 1013292 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTGGAGCAGTGTAGTCTTTTAGGTGCTCCCTTAC
 spacer length: 34 repeater length: 37
 21569 1013364 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGACAAAAACCGAAGACGTAATAAATTTAATAA
 spacer length: 33 repeater length: 37
 21570 1013435 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCTTGAGAATCCCTGAAATACTCTTAATCTGTTTCG
 spacer length: 35 repeater length: 37
 21571 1013508 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTCCGATTCTTTTTTTCACCTGGCAAATAATCGCTG
 spacer length: 35 repeater length: 37
 21572 1013581 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC GCCAACTGATGCCTATCGCTCTGGTAATTGGTGG
 spacer length: 34 repeater length: 37
 21573 1013653 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACTGGAACAGAGATGTAAAAATGTGCCTAATATCG
 spacer length: 37 repeater length: 37
 21574 1013728 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATGTTCTGCCGTGAGTATTGCCGAGAAGTCGCCAAA
 spacer length: 37 repeater length: 37
 21575 1013803 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGTCTCTTCTCATGTCTTCCTCATCTCCTCGTGT
 spacer length: 35 repeater length: 37
 21576 1013876 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGAAGGAGGAACCTTGCTTTTGCGAAGGAGTATTATG
 spacer length: 36 repeater length: 37
 21577 1013950 ATTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATAAATTGTTCTGGTAAATATCCTCACTCTT
 spacer length: 32 repeater length: 37

21578	1014020	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CATCTACGAATCTTCTGTGAAAAGTCTTCACCTG
		spacer length: 34 repeater length: 37	
21579	1014092	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATCAAATCCAAGTCACAAACCTGACCCGCCGCAT
		spacer length: 34 repeater length: 37	
21580	1014164	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCTCTTGGAGGTTCTGAGATTGAGACTAGTAAGG
		spacer length: 34 repeater length: 37	
21581	1014236	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ATTGCATTGCTCCATTTGTAGAAGAAGGTTCTTATA
		spacer length: 36 repeater length: 37	
21582	1014310	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTGTGGTACCGTCTAAACCTTTCATTGTTGAATCAC
		spacer length: 36 repeater length: 37	
21583	1014384	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTCCCCATTTCTCAGGAAGTCAGGAAGTCCATAG
		spacer length: 34 repeater length: 37	
21584	1014456	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTTTCTTTTGTGGCTTGCTGGTGTGCATTTCTA
		spacer length: 34 repeater length: 37	
21585	1014528	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	GAACAGTATTCAAGATCTCCACCAGGAGGTGAGAC
		spacer length: 35 repeater length: 37	
21586	1014601	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAAATCACTTCGTTCTGTTCTGTAAGCTTTTCCT
		spacer length: 34 repeater length: 37	
21587	1014673	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AATCATATCTATATCCACAACAACGAGGTAAATAC
		spacer length: 35 repeater length: 37	
21588	1014746	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTCATTTCTGCGTATTTCTTACGACATCTGCATACAA
		spacer length: 37 repeater length: 37	
21589	1014821	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACATCGTAAAGTTTGCTATGATTCCAACATGTCAC
		spacer length: 35 repeater length: 37	
21590	1014894	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	AAAAATAATACGCTAATGCTCCAATTGCGCCGATTCC
		spacer length: 37 repeater length: 37	
21591	1014969	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TCCCGCTATCAGTTTCGCCAGATAGTCCGAAGCCT
		spacer length: 35 repeater length: 37	
21592	1015042	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TTTTGTAATGGGCTAACATCGAACCTGGTATATTGT
		spacer length: 36 repeater length: 37	
21593	1015116	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	ACAGCGAACTTAAAGCTGTAAGTGTAAATCAAAAAG
		spacer length: 35 repeater length: 37	
21594	1015189	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CACCGGCAGCAAAGAAGTCGGTTGCCCTGAGA
		spacer length: 32 repeater length: 37	
21595	1015259	ATTTCGAGAGCAAGATCCATTAAAAACAAGGATTGAAAC	TACTGGAGGAGATACCGGAGGAGATACTGGAG
21596			
21597			
21598	crispr 10		
21599	2392891	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	GCATTATATTTGAATAACAACAATATTTCTTTAAAGA
		spacer length: 37 repeater length: 37	
21600	2392966	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CCATAGAGAAGAATTGCTTCGCTCGGGAGATTTT
		spacer length: 34 repeater length: 37	
21601	2393038	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CGTTTGAAGCAAGCGGTGCGAGCGTAAGAATGAG
		spacer length: 34 repeater length: 37	
21602	2393110	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	TATTTTTGATAAAAACGGCATAAAAACAATCGAAGA
		spacer length: 36 repeater length: 37	
21603	2393184	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CAGGGAAAAATAATAGAAGAAGCTATTGATATCGGA
		spacer length: 36 repeater length: 37	
21604	2393258	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	GAACTTCTGAAATGCGGAGAAGTCCTGGTTATTTT
		spacer length: 35 repeater length: 37	
21605	2393331	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CTGGAAAACCTTATTACTTTAAACCAGACAGACAT
		spacer length: 34 repeater length: 37	
21606	2393403	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	GAAAGAAGAATCCAGAGTACAGGCTTGCCCGTTTCA
		spacer length: 36 repeater length: 37	
21607	2393477	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CTATGGTCGTAGCTGTACAGAATGTGAACATCCACTGTA
		spacer length: 39 repeater length: 37	
21608	2393554	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	TATGACAGAAGAAGCGGTGCGATAGCATCAGAGAAAA
		spacer length: 37 repeater length: 37	
21609	2393629	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CTAGTAGAACAGATAGCGAATAAAGCAAGAGCAAAT
		spacer length: 36 repeater length: 37	
21610	2393703	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	GAAAGAAATGAGAACCTTCCCGCTAAAAGCAGCG
		spacer length: 34 repeater length: 37	
21611	2393775	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	TGGAATGCTTGATGATCAAGCGGATGCAGCTCTAAAGGAAGCAGT
		spacer length: 45 repeater length: 37	
21612	2393858	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	TTAGAAGTAGAGGATGTTTATGAGCCTCTAGAAA
		spacer length: 34 repeater length: 37	
21613	2393930	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	AGGAATACAGAACCAACGCCAGATCCATTTGAAAA
		spacer length: 35 repeater length: 37	
21614	2394003	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	TCCGAGAGTCTGTGACATTACATCCAGAATTTGCG
		spacer length: 35 repeater length: 37	
21615	2394076	GTTTCAATCCTTATTTTAGTGGAAGCTACTTCTCGAC	CAGGAAAATTAAATTGACCGTTACCGGTTCCAAAA

21616
21617
21618 crispr 11
21619 2400559 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CTAAAATCAAACCTACTAAGCTTAATTCATTTTCC
spacer length: 36 repeater length: 37
21620 2400633 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CCTTTTTAGAGGAAGTGCTCGCCTTTAGATAATAC
spacer length: 35 repeater length: 37
21621 2400706 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TAGAACCATTGGCTTCCCGGTGTTAAAAATGAAAA
spacer length: 36 repeater length: 37
21622 2400780 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AATTGTCTCCGGTCTGGAGAGGACAGCACTTTG
spacer length: 34 repeater length: 37
21623 2400852 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TGGAACCCATTCTACGAAATCAACTGGTTGATTT
spacer length: 34 repeater length: 37
21624 2400924 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ATTCCTGCAATGCTTGAAAAATTCGATGTAGAAA
spacer length: 34 repeater length: 37
21625 2400996 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TAGAGTCCTGCGAGGCATTATGGAGATCCCCCATCA
spacer length: 36 repeater length: 37
21626 2401070 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TTTTCATACTCTCCCCAACAGGGACCGAAACGAG
spacer length: 35 repeater length: 37
21627 2401143 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TAAATAGTTATGGCGCAGAATTGGTTTAGCCGGGG
spacer length: 36 repeater length: 37
21628 2401217 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT
GTTCTCATGTGATACCCCTCTGGGTTATCGCCGTCATCGATCAAACAA spacer length: 47 repeater length: 37
21629 2401302 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TATTACTATTAATTGTAATAGTAAGTAAAAAC
spacer length: 32 repeater length: 37
21630 2401372 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TTTTTCTAATTCTACATTTTCTATTTTCCATTTGG
spacer length: 36 repeater length: 37
21631 2401446 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ACTGCATTCTTTTTCATATCCCTGAGCATTGCA
spacer length: 33 repeater length: 37
21632 2401517 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TTCACTTGCTTTTCGGGTCCACCTTTGCCCTTTGT
spacer length: 35 repeater length: 37
21633 2401590 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CACTTCTGCTTGCTTTTGCTTTTGTGGAGTGGACCCG
spacer length: 37 repeater length: 37
21634 2401665 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AACGCATATCTTCAGAAAATGATTACTCTTAGAGAT
spacer length: 36 repeater length: 37
21635 2401739 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AACTTGCAGTCATGGACAGGTTTTGGGTATGGGGCT
spacer length: 36 repeater length: 37
21636 2401813 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CTTTTCATTTTTACTCAGTGGGTGTTTTCATCTCACT
spacer length: 38 repeater length: 37
21637 2401889 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AGGTACTCATTAATTGCCCTTGTAACACTCTGGAC
spacer length: 34 repeater length: 37
21638 2401961 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CTGGACCTGGGCGCGCCAATCTCCTAAGGAT spacer
length: 31 repeater length: 37
21639 2402030 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TCATTTAGATTTTTCTTGAAAATTTGTGTATTTCTCG
spacer length: 37 repeater length: 37
21640 2402105 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ATGCCGAGATATACAACCCTTGCCGGACTTTGAGAAA
spacer length: 37 repeater length: 37
21641 2402180 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT GAAGACCTATTTTTTCTATTTGGGACTTATGT
spacer length: 33 repeater length: 37
21642 2402251 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CATAATATATTTTCTAGCTTTTATGCGACACTTA
spacer length: 32 repeater length: 37
21643 2402321 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AATTCAATCTTTTCTATTAGTAGATGTGGATGCAGAA
spacer length: 37 repeater length: 37
21644 2402396 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TTGCCAAAAAAGACATATGGGGTGAACCTCTCC
spacer length: 34 repeater length: 37
21645 2402468 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CAATTGAAATGTGATTTCCAGATGTTGATGCATTT
spacer length: 35 repeater length: 37
21646 2402541 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CTCTTCCTGTAGTGTATCAAAATCTAATCCAA
spacer length: 33 repeater length: 37
21647 2402612 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TCGGAAAACAGACAGTCTGCACTCTCGCGAGTGAA
spacer length: 35 repeater length: 37
21648 2402685 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CTGAGGTCGAACTATCGGTCTACTCAAACTGTCT
spacer length: 35 repeater length: 37
21649 2402758 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TGCAAATGCCGCGGCCATTACTCCAGGCACTACAG
spacer length: 35 repeater length: 37
21650 2402831 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TCCGTTTCAGGTGCGACTTTAGAAAGAACAGATAAA
spacer length: 36 repeater length: 37
21651 2402905 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CGGTGTAGTAGTAGACTACTACACTGGATCACCTG
spacer length: 35 repeater length: 37
21652 2402978 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT GTGGATTTTCGTATAGAATCCTACGATGTAGCAGAA
spacer length: 35 repeater length: 37

21653 2403051 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AATATTTAATCTTTATCTTTGGTTGCATATTCAC
spacer length: 34 repeater length: 37
21654 2403123 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CAATCAGAGAACGCTTAAAATTCAAACATCGAG
spacer length: 34 repeater length: 37
21655 2403195 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CCTGACTCTCAGCAATTCGGCAACTGAATCAGGA
spacer length: 34 repeater length: 37
21656 2403267 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ACCAATGTTGACGGCATGAAAGCAATGATTGTCA
spacer length: 34 repeater length: 37
21657 2403339 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT TCCACCGATTACTAGGGCGATTGGCATTAGTTGA
spacer length: 34 repeater length: 37
21658 2403411 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ATTGAATTTCTTTTGGGGTCAAATACTTCATTT
spacer length: 33 repeater length: 37
21659 2403482 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CCACGAGGCAGCCGTCTCATTCAAATGATGGAA
spacer length: 34 repeater length: 37
21660 2403554 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT ATCTTGTTACAGTTTACGATACTGTAATTGCAGGT
spacer length: 35 repeater length: 37
21661 2403627 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT AACGTATGCAACTGAAGATATGAATATCATACTA
spacer length: 34 repeater length: 37
21662 2403699 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT CGCGGGCAACTGTTTCAATGAAGTTTGTAAGAAAAT
spacer length: 36 repeater length: 37
21663 2403773 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCTCGAAT GTCCCACTCTTCATCATCCCCTTCTTCATCATCCCA
21664
21665
21666 crispr 12
21667 4006905 AGATACTGGAGGAGATACTGGAGGAGACACCGGAGGAGA CACCGGAGGAGATACTGGAGGAGATACCGGAG
spacer length: 32 repeater length: 39
21668 4006977 AGATACTGGAGGAGATACTGGAGGAGACACCGGAGGAGA CACCGGAGGAGATACTGGAG spacer length:
20 repeater length: 39
21669 4007037 AGATACTGGAGGAGATACTGGAGGAGACACCGGAGGAGA GGAGGAGATACTGGAGGAGA
21670
21671
21672 GCA_000970305.1_ASM97030v1_genomic.fna(findCrispr):
21673 START REPEAT
SPACER
21674 crispr 1
21675 1217020 AAAGACATAAGGTTAAATGT TATTTTGCATGAGAGTGCAC spacer length: 20 repeater length:
20
21676 1217061 AAAGACATAAGGTTAAATGT TATTTTGCATGGGAGTGCAC spacer length: 20 repeater length:
20
21677 1217102 AAAGACATAAGGTTAAATGT ATGAAAAAGAATAAGAAACG
21678
21679
21680 crispr 2
21681 3852055 CGGGTGACGGAACGCGGGAA
GTGAAACTTCTTTGTTTCATAAAATTAATCCGCTTGAGCGAGCGAAGTGAGCGAAACGGAACCGTCTCCCAGACGGGAC
spacer length: 79 repeater length: 20
21682 3852155 CGGGTGACGGAACGCGGGAA
GTGAAACTTCTTTGTTTCATAAAATTAATCCGCTTGAGCGAGCGAAGTGAGCGAAACGGAACCGTCTCCCAGACGGGACTCGGGTG
ACGGAAC spacer length: 93 repeater length: 20
21683 3852269 CGGGTGACGGAACGCGGGAA
ACCTGATTTTACAGATTAAATAATTGATAATAAAAAATATAATAAACTTGAAAAGTGCTTTATATAAGGACAAGATATCACTATTTT
TGGAGAA
21684
21685
21686 crispr 3
21687 513880 GACGGAACACTCAAATGGTC
GTACACTGCTGAAAATAGCATTGTTCGGTTACCAGCAATAGGGGCAGACGGAACCATCTACATAGGAAGCTTTGATAATAAACTAT
ATGCCTTGAACTCT spacer length: 99 repeater length: 20
21688 514000 GACGGAACACTCAAATGGTC
ATACACCACCGGAGGCACTATTGCCGATTACCAGCGATTGCAGTGGATGGTGTTCATATATGTAGGAAGTTATGATAAAAAAGTGT
CTGCCCTAAATCC spacer length: 99 repeater length: 20
21689 514120 GACGGAACACTCAAATGGTC
TGAAAAAGAATAAGAAACGGAATAAAAAAGGAATAAAAAAGGGAATAAAGTAAAGAAATCGAAACTCAGGAAAGAACTTTATGAAAG
CACTTGATTCAA
21690
21691
21692 crispr 4
21693 2046196 CTCAGGATAAATCCGGTGAGA CTCAGAGTAACTCCAGTAAA spacer length: 20 repeater
length: 21
21694 2046238 CTCAGGATAAATCCGGTGAGA CTCAGAGTAACTCCAGTGAA spacer length: 20 repeater
length: 21

21695 2046280 CTCAGGATAAATCCGGTGAGA GACAGGACTTAGGTTTCAGT
21696
21697
21698 crispr 5
21699 3888458 GTTGGGTAAAGGTATAAGGAA GTTAGGTTAAGGTATAAGGA spacer length: 20 repeater
length: 21
21700 3888500 GTTGGGTAAAGGTATAAGGAA GTTAGGTTAAAGTGTGAGGA spacer length: 20 repeater
length: 21
21701 3888542 GTTGGGTAAAGGTATAAGGAA CTGATTTTACAGATTAAATA
21702
21703
21704 crispr 6
21705 2427827 AATATGTTGATTACAGAGAAAT CTAATCCTACTAAAATAAAG spacer length: 20 repeater
length: 22
21706 2427870 AATATGTTGATTACAGAGAAAT CTAATCCTACTAAAATAAAG spacer length: 20 repeater
length: 22
21707 2427913 AATATGTTGATTACAGAGAAAT CTAATCCTATTAACAATAAAT spacer length: 21 repeater
length: 22
21708 2427957 AATATGTTGATTACAGAGAAAT CTAATCCTATTAACAATAAAT spacer length: 21 repeater
length: 22
21709 2428001 AATATGTTGATTACAGAGAAAT TGTCTAAGAAAGGTTGGCTTA
21710
21711
21712 crispr 7
21713 818701 AACACTTCAAGTGTC AACCTTAA CGGAGAAGATAATGCAGGAACAAATACTTCAAGTTCCAACCT spacer
length: 42 repeater length: 23
21714 818767 AACACTTCAAGTGTC AACCTTAA TGGAGAAAATAATTCAGGAAT spacer length: 21 repeater
length: 23
21715 818812 AACACTTCAAGTGTC AACCTTAA TTTGCATGAGAGTGCATGAAA
21716
21717
21718 crispr 8
21719 1211711 AGACTCTTTCCCGAATCCTTTTC AAAATCCTTTTCTGAGTCCTTTCC spacer length: 24 repeater
length: 23
21720 1211759 AGACTCTTTCCCGAATCCTTTTC AAGATCCTTTTCTGAGTCCTTTCC spacer length: 24 repeater
length: 23
21721 1211807 AGACTCTTTCCCGAATCCTTTTC AAAGAATAAGAAACGGAATAAAAA
21722
21723
21724 crispr 9
21725 42152 GGTGGAAATGGTGGTAATGGCGG
TGACGCAGTTGGTGGTGGAGTCGGCGGCAATGGCGGTAATGGCGGTAACGGTGGCTCTTCCAATGGTGGAAAGCATCAGCAACAGCG
AAAAATGCACTACAAAACCTGAACTTAGCAGTTGGTGGGCTTTTCGAA spacer length: 132 repeater length: 23
21726 42308 GGTGGAAATGGTGGTAATGGCGG
TAACGCAATTGGTAGTGGAGTCGGCGGTAATGGCGGTAATGGCGGTAATGGTGGCTCTTCCAATGGCGGAAGTATCAGCAACAGCG
GAAATGCACTACAGAACCTGAACTTAGCAGTTGGTGGGATTTTCGAA spacer length: 132 repeater length: 23
21727 42464 GGTGGAAATGGTGGTAATGGCGG
AGGACTTAGGTTTCAGTGTTTTTCATTATGCTTCAGCCCTCTTGAGCGAACTACGTGAGCGAAAAGGGCCCCGTCCTCCCGAGACG
GGACTCGGGCAACAAATAAATAATGAGTTATGACTATTACC
21728
21729
21730 crispr 10
21731 816119 TTATCTATCTTTCACTTCTTTAT
TTTTCTTTTACCTATATTTTATTTATCTATATTTTATTTATCTATATTTTACTTATCTATATTTTACTTATCTATCTTTCTTTTAT
CTGTCTTTCT spacer length: 96 repeater length: 23
21732 816239 TTATCTATCTTTCACTTCTTTAT CTTTCTTTTATCTATCTTTCTTTTATCTATCTTTCTTTTATCTATATTTCA
spacer length: 51 repeater length: 23
21733 816314 TTATCTATCTTTCACTTCTTTAT AAGTAGCACAAAATTCTTTGATCAACCTTTCTTTCTAAGAAAGGTTGGGGG
21734
21735
21736 crispr 11
21737 42275 AACCTGAACTTAGCAGTTGGTGGG
CTTTCGAAAGGTGGAAATGGTGGTAATGGCGGTAACGCAATTGGTAGTGGAGTCGGCGGTAATGGCGGTAATGGCGGTAATGGTGG
CTCTTCCAATGGCGGAAGTATCAGCAACAGCGGAAATGCACTACA spacer length: 131 repeater length: 24
21738 42431 AACCTGAACTTAGCAGTTGGTGGG
ATTTTCGAAAGGTGGAAATGGTGGTAATGGCGGCGACGCAACTGGTGATGGAGTCGGAGGTAACGGCGGTGATGGTGGTAACGGCGG
CTCTTCCAATGGCGGAAGCATCAGTAACAGCGGAAATGCACTGCA spacer length: 131 repeater length: 24
21739 42587 AACCTGAACTTAGCAGTTGGTGGG
CTTTCGAAAGGTGGAGTCGGCGGTAATGGCGGTGACGCAACCGGTAGTGGAGTCGGCGGTAATGGCGGTGATGGTGGTAATGGCGG
CTCTTCCAATGGTGGAAAGCATCAGTAACAGCGGAAATGCACTACA spacer length: 131 repeater length: 24
21740 42743 AACCTGAACTTAGCAGTTGGTGGG

CTTTCGAAAAGGTGGAGTCGGCGGTAATGGCGGTGACGCAACCGGTAGTGGAGTCGGCGGTAATGGCGGTAATGGTGGTAACGGCGG
CTCTTCCAATGGCGGAACCATCGGCATCGGCGGAAATGCGCTACA spacer length: 131 repeater length: 24
21741 42899 AACCTGAACCTTAGCAGTTGGTGGG
AATCTAATCCTATTAAACAATAAATGAAATCCTGATACTAATAAATAAATATCCTCGTTACCAAGAATAAGTACATGAGTTCAGGAA
GCCCTTCTCCGAATCCATACGCTTAGATTAAAATTTATATAATT

21742
21743
21744 crispr 12
21745 3469985 CAATAACAGGAAATGGAAATTACA CAGGGAACCAGGGTAATAAA spacer length: 20 repeater
length: 24
21746 3470030 CAATAACAGGAAATGGAAATTACA CAGGGAACCAGGGTAATAAA spacer length: 20 repeater
length: 24
21747 3470075 CAATAACAGGAAATGGAAATTACA
CAGGAAATCAGGGTAATAAATCAATAACAGGAAATGGAAACTACACAGGAAACCAGGGTAATAAATCAATAACAGGAAATGGAAAC
TACACAGGAAACCAGGGTAATAAA spacer length: 110 repeater length: 24
21748 3470210 CAATAACAGGAAATGGAAATTACA
TTTTAAAAAGCTTGAGCCAAAGCCTTTTAAAGGTTAACCTCTCTCAATCTGCATGACATGTCCAGACCAGCATATCTTGAAAAAT
GCTTCTGCACTGGTGTGAGGCCTG

21749
21750
21751 crispr 13
21752 668693 CCGGAATCGGCAACATAAACATTG
CTCTTAGTGTGACAGCAATGCCTCTTGGATACTCAAATTTCCCTTCCCCACTATAACCATATGAACCCCATGTAGTAACGAATTT
ACCTTTGCTATCAAATTTCTGAATGCGATTGTT spacer length: 119 repeater length: 24
21753 668837 CCGGAATCGGCAACATAAACATTG
CCTTTAGAGTCTACAGAAACACTTTTTGGCTCTTTAAATTGTCCATTAGAACCACCGGAAGAACCTATTTGTGAGAGGTAATTGCC
GTTGCTGTCAAACCTTTTGATAGCGATTGTT spacer length: 116 repeater length: 24
21754 668978 CCGGAATCGGCAACATAAACATTG
GGAGAAGATAATACAGGAATAAACTTCAAGTGTTGAGTATGCGCTTGAAAATAAAACAGATGCTCCGGGGTTTGAAATCGTCTA
TGAGCAGTTTCCCTGCTTGCTGTGTTCCCT

21755
21756
21757 crispr 14
21758 2866929 GTCTGTATCCTCTTCATCAACAGT GTTCTCTTCATCAGTGTCTGAA spacer length: 23 repeater
length: 24
21759 2866977 GTCTGTATCCTCTTCATCAACAGT ATTCTCTTCATTAGTGTCTGAA spacer length: 23 repeater
length: 24
21760 2867025 GTCTGTATCCTCTTCATCAACAGT ATATCAGGAAACAATAGAAGATA

21761
21762
21763 crispr 15
21764 2700162 AATAAAACATTGATTAAATATTAAC TTAGTTTTACAGATTAAATAATTGA spacer length: 25
repeater length: 25
21765 2700213 AATAAAACATTGATTAAATATTAAC TCAGTTTTACAGATTAAATAATTGA spacer length: 25
repeater length: 25
21766 2700264 AATAAAACATTGATTAAATATTAAC AATCAGGGTAATGAGTCAAAGACAG

21767
21768
21769 crispr 16
21770 1589045 TCGTAGTCTCCATCGCCATCAAGGTC
AGCTGAACACGGTGCGTAATTAATTGAAGACATTCCAGCTACTCCAGATATATCCCATGCAGATTTTCCTTGTCACACTGGGCTGT
TTTTAGTCCCTGTGTTTTCATAGGCATTGACATTCATATACACACCTATTAGTAG spacer length: 141 repeater
length: 26
21771 1589213 TCGTAGTCTCCATCGCCATCAAGGTC
GGTTAAACATGGTCTTGAACGACCGCTGGAGAATCAATCAGTTCATTAGTTTTTGTTGTCCACACTGGATTGTTTTTAGTCC
CTGTGTTCTCATAACCATACGTCAAACCGTTATTTGCGCCCATCATCAA spacer length: 135 repeater
length: 26
21772 1589375 TCGTAGTCTCCATCGCCATCAAGGTC
TTACAGATTAAATAATTGATAATAAAAAATATAATAAATCTGAAAAGTGCTTTATATAAGGACAAGATATCACTATTTTTGGAGAAT
TTTTGCAAATTTTTTACTTTCTTGTTAGAGAAAATTTTACAGCCGACCAT

21773
21774
21775 crispr 17
21776 125668 TTTGTATTCCTTATTTTCAGATCTTCA GTGTTTCTCATTTCTAGACA spacer length: 20 repeater
length: 26
21777 125715 TTTGTATTCCTTATTTTCAGATCTTCA GTGTTTCTCATTTCTAGATA spacer length: 20 repeater
length: 26
21778 125762 TTTGTATTCCTTATTTTCAGATCTTCA GTGTTTCTCATTTCTAGATA spacer length: 20 repeater
length: 26
21779 125809 TTTGTATTCCTTATTTTCAGATCTTCA AAATGGAAATTACACAGGAA

21780

21781
 21782 crispr 18
 21783 2823509 ATGATAGACATAGGAGTGATAAACATA GAGATGATAGACACATAGAGGTGATAAACATAGA spacer
 length: 34 repeater length: 27
 21784 2823571 ATGATAGACATAGGAGTGATAAACATA AGATAGACATAGAGGCGATAAACATAAA spacer length: 28
 repeater length: 27
 21785 2823627 ATGATAGACATAGGAGTGATAAACATA AAATCACTGATAAATCTAAAACATTATG
 21786
 21787
 21788 crispr 19
 21789 2120259 GCACAAACTTCTTTGATCAACCTTTCT TTCTAAGAAAGGTTGGCTTACAGCTAACAAAAGT spacer
 length: 34 repeater length: 27
 21790 2120321 GCACAAACTTCTTTGATCAACCTTTCT GTCTAAGAAAGGTTGGCTTACAACATAACAAAAGT spacer
 length: 34 repeater length: 27
 21791 2120383 GCACAAACTTCTTTGATCAACCTTTCT TCGAAAGGTGGAGTCGGCGGCAATGGCGGTGGAG
 21792
 21793
 21794 crispr 20
 21795 295863 GTTTGATGGCTCCTGGCATGACTGGGAA
 AATCTGGGCGGCGAACTGTACTCTGCCCCTGCAGCCGTCTCATGGGATTCTGAACCGTATCGATGTTTTTCGCTATAGGTAAAAATAA
 GACACTGCAGCATAAGT spacer length: 103 repeater length: 28
 21796 295995 GTTTGATGGCTCCTGGCATGACTGGGAA
 GATCTGGGTGGAGAACTTACTGACGGTGTAGCTGTCTCTTCCTGGGCACCCGGTCGGTTGGACTGTTTCTCAGTTGGAAGTATCG
 GACACTGCAGCATAGGG spacer length: 103 repeater length: 28
 21797 296127 GTTTGATGGCTCCTGGCATGACTGGGAA
 ACAGCTAACAAAAGTAGCACAAAATTTCTTTGATCAACCTTTCTTTCTAAGAAAGGTTGGGGGGTAGTTTACGGCAATTAAATCTAT
 AATGGACTTAGTTGATC
 21798
 21799
 21800 crispr 21
 21801 1292211 AATAATAGTAACAATAACAGTAACAATAA CAGTAACAATAACAGTAACAATAACAGTAA spacer length:
 30 repeater length: 29
 21802 1292271 AATAATAGTAACAATAACAGTAACAATAA CAGTAACAATAACAGTAACAATAACAGTAACAATAATAGTAA
 spacer length: 42 repeater length: 29
 21803 1292343 AATAATAGTAACAATAACAGTAACAATAA TTTTATCACTTGAGCCGGAATCCGAAGTACCATCGTTTGAG
 21804
 21805
 21806 crispr 22
 21807 3469199 AGTCAATAACAGGAAAAGGAAATTACACAG
 GAAGTCAGGAAACAGTAGAAGAGAATAAATCAAAAACCTGGAAGAGGAAATTACACAAGGGCTCAGAAAATAGTAGAAGAAGAGAAT
 GAGTCAAAAACAGGAAGAGGAAATTACACAGGGACTCAAGAAATAGTAAAAGAGAATAAT spacer length: 146
 repeater length: 30
 21808 3469376 AGTCAATAACAGGAAAAGGAAATTACACAG AGATTTCAGGAAACAGCAAAAAGAAGAAAAT spacer length:
 29 repeater length: 30
 21809 3469436 AGTCAATAACAGGAAAAGGAAATTACACAG AAGGTTGGCTTACAGCTAACAAAAGTAGC
 21810
 21811
 21812 crispr 23
 21813 4012718 CTTCAAAGAAAGAATAAATTCAAAAAAAGA ATAACCTCAAAAAAAGAATA spacer length: 20
 repeater length: 30
 21814 4012769 CTTCAAAGAAAGAATAAATTCAAAAAAAGA ATAACCTCAAAGAAAGAATA spacer length: 20
 repeater length: 30
 21815 4012820 CTTCAAAGAAAGAATAAATTCAAAAAAAGA TTCAAAGAAAGAATAAATTA
 21816
 21817
 21818 crispr 24
 21819 4059117 GTCAAATGAATTTTTGCTCAAGCTTTTTTTT AAAAAGCTCACAAAAAACCAAAATT spacer length: 25
 repeater length: 30
 21820 4059173 GTCAAATGAATTTTTGCTCAAGCTTTTTTTT TAAAAGATCTCAAAAAAACCAAAATT spacer length: 25
 repeater length: 30
 21821 4059229 GTCAAATGAATTTTTGCTCAAGCTTTTTTTT AGCACAAAATTCTTTGATCAACCTT
 21822
 21823
 21824 crispr 25
 21825 200327 GTTTCATCCTTGTTTTAGTGGATCTTGCT
 CACGAATAATTACATCCTTTTCGTGTACTCCCATATATGTAATGTTTCAATCCTTGTTTTAGTGGATCCTGCTCACGAATTCTAGA
 TTAAGTCTCTGAACAATTTGCAAATGAGA spacer length: 114 repeater length: 30
 21826 200472 GTTTCATCCTTGTTTTAGTGGATCTTGCT CACGAATATGATGGAGGACTTTGTAAACATCTCTGTTCCCAGATA
 spacer length: 44 repeater length: 30
 21827 200547 GTTTCATCCTTGTTTTAGTGGATCTTGCT CACGAATAATTATGTCGTATTTTACATTTAGGAGGATTGA
 spacer length: 40 repeater length: 30

21828	200618	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 45 repeater length: 30	CACGAATATATGATATAATAGATTTGGTTGGAAAAATGGAAATGT
21829	200694	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	CACGAATAGACATACGCGCAGCCAAGCAATGTTACTCAATGG
21830	200767	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATACTGTCCCCTGCCCCGTTTCATATGATCCAGTCG
21831	200839	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATCAATGGTGGTCTATTGTGAGTGGTCTTACTTACA
21832	200911	GTTTCAATCCTTGTTTTAGTGGATCTTGCT CACGAATAGTGTAATATGAAGAATATTGAAGAAGCCGTCTTTTCAATCAGG spacer length: 51 repeater length: 30	
21833	200993	GTTTCAATCCTTGTTTTAGTGGATCTTGCT CACGAATTGAGCAGCGCAGAAGCACGTAACTAGACATTTTGTGTTTCAATCCTTGTTTTAGTGAATCTTGCTAACGAATATTGTG GTGGGAATCGGAAGAAGAATATGAGGAAC spacer length: 115 repeater length: 30	
21834	201139	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	AACGAATTGTGGAGAAGCATAGAGTTAGGAAAGTATCACCTA
21835	201212	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	AACGAATCTTTTGGGCAACTGAAGGAAACCTGAACCTGACAC
21836	201285	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	AACGAATGATCTGCCTGGGTGGGTGGAATGCTGAGGTATATG
21837	201358	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 43 repeater length: 30	CACGAATAAGGCAGGACCGGAAAGATTAGAAGCCGCATTAAAA
21838	201432	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	CACGAATATCACCCTAGATGCAGCAGCAGCAACACAGGCAC
21839	201505	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTCAAAAAGAGCATCTGCATATGGAATTCCATCCG
21840	201577	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTTTGTGACGGCGTTGGGGTTTTTGGGCAATTGG
21841	201649	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATACTACTATGGAACCTCAAAGAACTCAATGAAAAAT
21842	201721	GTTTCAATCCTTGTTTTAGTGGATCTTGCT length: 38 repeater length: 30	CACGAATTTTTTATAGTACGTTTGTTTAAACCATCGTT spacer
21843	201790	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	CACGAATATCGTGGATCAGGGGAAACAGCGCAGGAGAGAAA
21844	201863	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	CACGAATTGCAACAGGAAGCAGTACAAAAGCCTCTGGAGGTC
21845	201936	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	CACGAATAGGGACAATCTGCAACAGGCCAAAGCTCAAAGTTG
21846	202009	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 43 repeater length: 30	CACGAATTTCCCATGTTTTTGAATTGTGCTTATAGAAGGAATGA
21847	202083	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTTTCAGTTTGGGGAGCATGGATAATAATATCCTG
21848	202155	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 44 repeater length: 30	CACGAATTGCAAGTCAATGAAGTCATATCGCTCTCATCAACTCC
21849	202230	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 42 repeater length: 30	CACGAATAAAAGGAGAAGGCTGGAAGCGTACCGATGGATCAA
21850	202303	GTTTCAATCCTTGTTTTAGTGGATCTTGCT length: 39 repeater length: 30	CACGAATAATAATCCAATTTGTTAACGTCAACCGTGGGA spacer
21851	202373	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATGGTTGCGGTACACGCGAGCCTATATGGAGTGTGA
21852	202445	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTGTGATTTTTTGTGAGCAGTGGAGCCGAAACGTAAT
21853	202517	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTTGTAATGGTCGAGTGCTACCATCTGAGTTCCAG
21854	202589	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 40 repeater length: 30	CACGAATAAGTCAGGATGGTAGATTTTGACGAGTTGTTTA
21855	202660	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 43 repeater length: 30	CACGAATTAAGTTTGCTCAGGAAGTTCAGGGGGTGGTCTGATG
21856	202734	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 43 repeater length: 30	CACGAATTAGAAAAATTAAGTCCGGTATGGAACACGCTTAAAA
21857	202808	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 40 repeater length: 30	CACGAATTTCCAAGGTGTTTTCTTCTTCTCTAGCTCTTT
21858	202879	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTGGTTTCCAGGTACTCTATGAAAAACAAGTTGAA
21859	202951	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATATATAAAGTTTGTCCGTAGTATGTGGATAAAAAA
21860	203023	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 41 repeater length: 30	CACGAATTTTGAGTCTATGTCTTTTCAAGCTTTACAGATAG
21861	203095	GTTTCAATCCTTGTTTTAGTGGATCTTGCT spacer length: 40 repeater length: 30	CACGAATGAGAAAAGACTTCCAAAAAGGAGAGGATTCTG
21862	203166	GTTTCAATCCTTGTTTTAGTGGATCTTGCT	CACGAATGAGTGCATCATCGGATAGCGGAAACGGACTTACA

spacer length: 41 repeater length: 30
 21863 203238 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAGTTAAGTAACGGTGGTTTGATTCCACCTAATCTTTT
 spacer length: 44 repeater length: 30
 21864 203313 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATCGTATGTTTCTGTTTCAGAACTGTAATTTTCGTCA
 spacer length: 42 repeater length: 30
 21865 203386 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATTATGTGTGGAAGAGTGTGGATACATGGAACCTATACC
 spacer length: 43 repeater length: 30
 21866 203460 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATTGGTTTTCCATAGCAATCTTTCCTACTATTTTTTCAA
 spacer length: 42 repeater length: 30
 21867 203533 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAAGTTTAGTAATTCGCATTCCAGCTTTAATTTTA
 spacer length: 41 repeater length: 30
 21868 203605 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATCTACATGTATATAGATCCTAAAAAACCTGTAATAA
 spacer length: 43 repeater length: 30
 21869 203679 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAAGAAGCTTACCCCGATGAACCAAGCGATGAAGAC
 spacer length: 42 repeater length: 30
 21870 203752 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAATTTAAAATCCACTTCCAAGTGATCGACGGTTCCGTA
 spacer length: 45 repeater length: 30
 21871 203828 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATCAAGCTCTGGAACCTTCTGAGCTTGTTCAATCGC
 spacer length: 41 repeater length: 30
 21872 203900 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATTATTAAAAACCAGAGATAAAAGAACATCTATAG
 spacer length: 40 repeater length: 30
 21873 203971 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATTGCAAAGGATCGAATGATAGATTATTCTTGTTT
 spacer length: 40 repeater length: 30
 21874 204042 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATCTAGCCGGTTTTTCAGGAACTCTAAAAAACCATAC
 spacer length: 42 repeater length: 30
 21875 204115 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAAAAAAATGAATGAATCATACAAACAAACAGGAATT
 spacer length: 43 repeater length: 30
 21876 204189 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATGGTTGGATTAACCTCCACAAGCTTCCTAAAGCAACT
 spacer length: 43 repeater length: 30
 21877 204263 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATATCATTCGAGGAGATCAAACAAGAACTAGGTGAAA
 spacer length: 42 repeater length: 30
 21878 204336 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATTAATTCCGCAAAAGTTATTACTTGATATCAGGAAA
 spacer length: 42 repeater length: 30
 21879 204409 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATGAGAGTATGTCAAGGGTATAAGCTGTCCTGAAGAAA
 spacer length: 43 repeater length: 30
 21880 204483 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAGAGAATGTAGAAGAAACCATAGAGGAAGTCCAGC
 spacer length: 42 repeater length: 30
 21881 204556 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAAATATTGCGCCCATGTTAGCTCCATTTTTCATT
 spacer length: 40 repeater length: 30
 21882 204627 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATATATTTTTGGTTTGTGTTTCATACTCCTCCTTTTTTCT
 spacer length: 43 repeater length: 30
 21883 204701 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAACTCCCTGGTTCTTTTCCAACGACTATACATTCCACA
 spacer length: 44 repeater length: 30
 21884 204776 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAAGGCTTCTTTTGAAGTGCAGGTAATGATAACGTT
 spacer length: 42 repeater length: 30
 21885 204849 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATATGTAATTGCTGTGACCTTGTTGTGAATATCAT
 spacer length: 40 repeater length: 30
 21886 204920 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAAATACGAAATGCGGTAATTCACGCAATATATTCA
 spacer length: 42 repeater length: 30
 21887 204993 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATTTCAAAAAGAGCATCCGAGTATGGAATACCAGGTG
 spacer length: 42 repeater length: 30
 21888 205066 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATAACCTACTACACTCTAATATTATTTATTATTTT
 spacer length: 40 repeater length: 30
 21889 205137 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATATATATTATACTAAGTCCTTTTCGTTCCCTATCA
 spacer length: 42 repeater length: 30
 21890 205210 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATATTTACAGGTCAATCACTTATTAATATATTAAA
 spacer length: 40 repeater length: 30
 21891 205281 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATACGACACGAAGCTTTCATACACGTTTCCTTAAAT
 spacer length: 41 repeater length: 30
 21892 205353 GTTTC AATCCTTGTTTTAGTGGATCTTGCT CACGAATACGTCAGCAGGTGCAAACCTTGGATGCATGATA
 spacer length: 40 repeater length: 30
 21893 205424 GTTTC AATCCTTGTTTTAGTGGATCTTGCT AGAGTGCATGAAAGTACACGAGGATTTTTTCTTCAAGTAC
 21894
 21895
 21896 crispr 26
 21897 9731 AATATATGGTATGACTTTTCAGGTATGAATAT GTGGTATGACTTTTCAGGTAT spacer length: 20 repeater
 length: 31
 21898 9783 AATATATGGTATGACTTTTCAGGTATGAATAT
 GTGGTATGACTTTTCAGGTATGAATATGTGGTATGACTTTTCAGGTATGAATATGTGGTATGACTTTTCAGGTAT spacer
 length: 72 repeater length: 31
 21899 9887 AATATATGGTATGACTTTTCAGGTATGAATAT

TTTCTTTTCTTCTTCTATAGAAATTATGTATTCGTGAGCAAGATCCAATAAAACAAGGATTGAAACAAATG

21900
21901
21902
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21904
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21909

crispr 27

2791482 TAAGGGAATAAAAAAGGAATAAGAAACGGAAT AAGACAGAGCAGACAAGAGAGTA spacer length: 23
repeater length: 31
2791537 TAAGGGAATAAAAAAGGAATAAGAAACGGAAT AAGACAGAGCAGACAAGAGAGTG spacer length: 23
repeater length: 31
2791592 TAAGGGAATAAAAAAGGAATAAGAAACGGAAT AAAAGAATAAGAAACGGAATAA

crispr 28

2137937 CCAGAATCCGAACTACCATCATTTGAGCCGGA
ATCTGAGCTTCCGTCACCTTGAGCCGGAATCCGAGTTTTTATCACCTTGAGCCAGAATCCGAACTGCCATCACTTGA spacer
length: 75 repeater length: 32
2138045 CCAGAATCCGAACTACCATCATTTGAGCCGGA
GTCTGAGTTTTTATCATTTGAGCCGGAATCTGAGCTTCCGTCACCTTGAGCCAGAATCTGAACTACCATCACTTGA spacer
length: 75 repeater length: 32
2138153 CCAGAATCCGAACTACCATCATTTGAGCCGGA
TTTCAGTGTTTTTCATTATGCTTCAGCCCTCTTGAGCGAACTACGTGAGCGAAAAGGGCCCCGTCCTCCCGAGAC

21912
21913
21914
21915

crispr 29

1437924 CCGCAACCCTTTTGAAAAAAGGCTTGACCGAAAA
CCTTTTTTAAAAAACTGCTTGACCGCAACCCTTTTGAAAAAATTGCTTG spacer length: 49 repeater length:
34
1438008 CCGCAACCCTTTTGAAAAAAGGCTTGACCGAAAA CCTTTTTAAAAAACTGCTTG spacer length: 20
repeater length: 34
1438063 CCGCAACCCTTTTGAAAAAAGGCTTGACCGAAAA AAGTACACGAGGATTTTTTTC

21918
21919
21920

crispr 30

3729889 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TACAGCCTGTACAATCAGAACTAGAAGCACATTCTG
spacer length: 36 repeater length: 37
3729963 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTTTAAGTTATCTGATGGAGCTAAAGAACTGATT
spacer length: 35 repeater length: 37
3730036 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATTTAGTTCTAGAAGAAGCAATTAAAGAGGCA
spacer length: 35 repeater length: 37
3730109 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAGGTATAGGTTTCTGTACCGATTGAGTGGTAT
spacer length: 35 repeater length: 37
3730182 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGTTTTATCGTACCGTTGTCTGCTCTTTTAATCCG
spacer length: 33 repeater length: 37
3730253 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTACTTTTATTTAGTTATGTAGCGGCTGCTGCTAC
spacer length: 35 repeater length: 37
3730326 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATTGCAGCATCTTCAGTTGCAGTTGCCGAATA
spacer length: 34 repeater length: 37
3730398 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCACCTTCAATCAATTATTAAGTAGTCAATCACT
spacer length: 34 repeater length: 37
3730470 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATAACAGTTCCATATTTTGAGAATGTTGTGTGCCA
spacer length: 35 repeater length: 37
3730543 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCTCTTATAGAGTTAAACGGTGAGAGCATAGGAT
spacer length: 35 repeater length: 37
3730616 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTACTAACGGGCCTATAGAAATTCCATCAGGAA
spacer length: 33 repeater length: 37
3730687 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTCCGTAGTTGGAGATATAGTCGTATACCGTCATCGT
spacer length: 37 repeater length: 37
3730762 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTCCCTGGTGGTGATCCCCTCTGCAAATGGTTA
spacer length: 33 repeater length: 37
3730833 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTATGTGTCTGACAGTAAGTAAATGTGAAAAAAT
spacer length: 35 repeater length: 37
3730906 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCCTTCAGAACGTGGTTCTCTCGCAGAGTTTTTG
spacer length: 35 repeater length: 37
3730979 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CGGAGATGTGCATACTTCCCTCTAACGTTTTTAAT
spacer length: 35 repeater length: 37
3731052 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAAAGTATGTGGCTGGCGACGGCACAGGTGATTATG
spacer length: 36 repeater length: 37
3731126 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCCATCATCTTTTCGTACTCGTTCCCTTTTCATCTT
spacer length: 34 repeater length: 37
3731198 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGCGCATCTCTCCGGCAGTTTGAGCATCGTAA
spacer length: 34 repeater length: 37
3731270 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAACAAAGCCATTATAACCGCAACAGTAATGCCA

21940

spacer length: 34 repeater length: 37
 21941 3731342 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAGTACTGTTGAGCCACTACACTTTGAATATGAAA
 spacer length: 35 repeater length: 37
 21942 3731415 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CATACTTTCTCGGCAAAGTAGTCTATACCAGTCTT
 spacer length: 35 repeater length: 37
 21943 3731488 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCAAATATCTTTTTCTTGAATGCAAAAACCGAAA
 spacer length: 34 repeater length: 37
 21944 3731560 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATATATACAAGTTAATTACGAAGTATCTACTA
 spacer length: 34 repeater length: 37
 21945 3731632 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATTTTAGCTATCAAGTCTTTTGTTCAGATTCTCTTA
 spacer length: 36 repeater length: 37
 21946 3731706 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATTTTTCACAGGTGTCAAAAAGACGTAACA
 spacer length: 33 repeater length: 37
 21947 3731777 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACAGACTATATAAACCATAGTTATCTACCATCCA
 spacer length: 35 repeater length: 37
 21948 3731850 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCATCCTCTACTTGCTCAGTCTTTCTGCTGGTTT
 spacer length: 35 repeater length: 37
 21949 3731923 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAAATCGCAAAGGTGCATCAAGAATCAAAGG
 spacer length: 34 repeater length: 37
 21950 3731995 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAGATTCAATTTTCATATCGAAAGTTAGAGAAC
 spacer length: 33 repeater length: 37
 21951 3732066 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGAATTATTCCCTGAAGAATTCGACTATCTAGAAGGA
 spacer length: 37 repeater length: 37
 21952 3732141 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACCAACCGCCTACAAGCTCTTCAGGGAGTACCA
 spacer length: 34 repeater length: 37
 21953 3732213 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CACAAGCGAAGCAGGCAATTCAACAACCTGATTTT
 spacer length: 34 repeater length: 37
 21954 3732285 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTGATTGGGATACAACGTTAAAATTTCTTGAAA
 spacer length: 33 repeater length: 37
 21955 3732356 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAAGAAAATGAAATCAGAATAAAAGAGTTGAAG
 spacer length: 33 repeater length: 37
 21956 3732427 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AATTTTGAGCGTTCTTTTCATCACTCAACCTCTGAACA
 spacer length: 37 repeater length: 37
 21957 3732502 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATAATCATCTGACATTTTGCCTACTCCTTAAAAGA
 spacer length: 36 repeater length: 37
 21958 3732576 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAGGATAGCAGACTTGCAAGCTGTGCAAAGAATCA
 spacer length: 36 repeater length: 37
 21959 3732650 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGAAAATCAGGAAGCCGGGGGTGTATATTTCAGATG
 spacer length: 36 repeater length: 37
 21960 3732724 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTAAAAAAGCTAACGGTGCATCCAGAATAAAAGGGG
 spacer length: 36 repeater length: 37
 21961 3732798 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCCAATTAATAGCCCTCCGGTAAAACGGTTTTTGTAC
 spacer length: 36 repeater length: 37
 21962 3732872 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTTCCGAGTGGTTCGGAGCCAGGGACTTACAGGAG
 spacer length: 35 repeater length: 37
 21963 3732945 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTTTGCAGGAAAACAAAATAATTTCTCTTTTTTAT
 spacer length: 36 repeater length: 37
 21964 3733019 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTATTATCGTTGTATATATCATATGATTACGGACA
 spacer length: 35 repeater length: 37
 21965 3733092 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGGAAGAGACGGGAGCTATACATCAACAATAGGTT
 spacer length: 35 repeater length: 37
 21966 3733165 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCAAGTCTTTAGTTTGTGATTCTTACACTTAATG
 spacer length: 35 repeater length: 37
 21967 3733238 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATCACCTTCATATTATACTTATCAATTGTAGATCC
 spacer length: 35 repeater length: 37
 21968 3733311 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AGGTCTTGGAGATACTTATTTTCTGTTTCTGTAAA
 spacer length: 35 repeater length: 37
 21969 3733384 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GACAACCGTGGGCTTCTTTAATTATTGAAGGATTA
 spacer length: 35 repeater length: 37
 21970 3733457 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC ATGCTTATTATGTATTGTAAAAGGGCGAGTGCCCAAC
 spacer length: 37 repeater length: 37
 21971 3733532 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CCATATGGAACCCACTTGATATAAAAATGAAAGATCC
 spacer length: 37 repeater length: 37
 21972 3733607 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TAATGTTTTCTACTAATTCTTCCAATTGACGTCA
 spacer length: 34 repeater length: 37
 21973 3733679 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TGCGCAGGAACCTCAAAAATACTCGACGGAAACGT
 spacer length: 35 repeater length: 37
 21974 3733752 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTGAATGGAAAAATAGACTGGAAAAACTTAGCGAA
 spacer length: 35 repeater length: 37
 21975 3733825 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AACATATAGTGCTTGACAAGACCAGCAAAGGCAAAG
 spacer length: 36 repeater length: 37

21976	3733899 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TGTCTTCAGTCATGATTTATCTTCCTCGTAAGCTT
21977	3733972 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TCGAGTAGGATCTCCTCTGGATAATGCTCAGATACT
21978	3734046 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	ATCAAATAATAGCAGAATCAACAAAAGAAACACA
21979	3734118 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CAGTCTATTTTTTCATGCTCGTGCGAGAAGTGCTGA
21980	3734191 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	ACATTTTCAAGGAATATAATTTTCGGGTCTTTTTTTC
21981	3734264 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 32 repeater length: 37	CAGCTTCCAATATCTCATCATCTGTTACAAC
21982	3734334 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TTCGAATTACGGTAACTGACGCCAGCATTTCAGGC
21983	3734406 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TAGTTTTCTATCAATGGCAATATAACAGTCAACT
21984	3734478 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TCCATCGTTGTGACAACGAAATGATCAAGCTTTGT
21985	3734551 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	GATAAAGAAGGAAACACGTGCATTTTAGCATATGC
21986	3734624 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	ACTCGAATTCAACTGCACGTTCCGCATCGTAAAAA
21987	3734697 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TTCAATCGAATTTGATTCATCTGATAAGCTCTTTC
21988	3734770 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TCTGGATCTCTAAAGGTTGTAACGTCCATACCCCC
21989	3734843 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TTTTTCATAATTCCTTTGAGAATCTGCCCCGTACAC
21990	3734916 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	TCAAATGTAGTCAATAATACAATTCTTTTCGTCT
21991	3734987 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	AAAATAATAATATTACAAACGGTATGGGAATCAG
21992	3735059 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 33 repeater length: 37	GTAGAATCAATTAACTTTCAGTTCAGGGGCCTC
21993	3735130 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TAGTATAAATACATACCATATGCAGTATAAAATATA
21994	3735204 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TGGCAAGCTCTACCAGCAACAAAAATAATTAATAA
21995	3735277 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	GCGACTTAAGAAGCTCTTGCCCAATCTGGAAATTAA
21996	3735351 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTCGGTGAATATCCCAATATTGGGATTAATGCTTAT
21997	3735425 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	TTCGGTGAATATCCCAATATTGGGATTAATGCTTAT
21998	3735499 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 38 repeater length: 37	TCAGTAAATATATATCATGAATCTGCCCTGCCTGTAG
21999	3735575 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	AAATAGTAACATAAGAGGTTTGAAAACAATGAGCAA
22000	3735649 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	AGGAATCCACACCTTACAACTTCCTCCTCGATACTG
22001	3735724 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CAGAGGAATTACTACAGAAATGGGGGTGGAACCAAT
22002	3735798 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	CGGCAGGATCTTCAGCTATCATCTTAATATCTGC
22003	3735870 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	TCTCCGTCTTCAACTAGATACAGGATATTTGCTTT
22004	3735943 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	CAGGTTATGCCGTCGTCTATAGCGGTGCAATGATC
22005	3736016 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	CATTTACTTTCTAATTTAGCCTTAAATTTTCCAA
22006	3736088 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 32 repeater length: 37	TGAATCCTCTGAAAAATACAAAGTAACAGTCT
22007	3736158 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 36 repeater length: 37	CTCCTTACTTCAATTGTTTTCAATCCTTCAACAATA
22008	3736232 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 37 repeater length: 37	TGAAAATCATCCCAAGTTCTAAGGTATGACTTTCCAT
22009	3736307 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 35 repeater length: 37	ACATCCCTGCTGATCCTCTACGTACTTCAGCCAGT
22010	3736380 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC spacer length: 34 repeater length: 37	TTATAAAGAGTTATTATCTAAAGGGCAAATCAAT
22011	3736452 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC	CTATGTATCAAACAAACCTACTAGACGGTGATGT

spacer length: 34 repeater length: 37
 22012 3736524 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GTAATTCAGCTAGCATTTGTGCTAATCAACCTAACC
 spacer length: 36 repeater length: 37
 22013 3736598 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TCTTATAGTGCTGGCTCTAGGTGTCTTATGTCT
 spacer length: 33 repeater length: 37
 22014 3736669 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TATGGTCAAATAATAGAGTAACCGGTTTTGTTAG
 spacer length: 34 repeater length: 37
 22015 3736741 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC GGGGTTTTTCGTGATAACTTGCCCGGAGAAAAGCAT
 spacer length: 35 repeater length: 37
 22016 3736814 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC AAATTAAAGCTGTTCCAGTCATTGTATAACCACCA
 spacer length: 34 repeater length: 37
 22017 3736886 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC TTCGATGCTGGGCTGATGTCAGCCAGGGTTAACCCCA
 spacer length: 37 repeater length: 37
 22018 3736961 ATTCGTGAGCAAGATCCATTAAAAACAAGGATTGAAAC CTTTGATCAACCTTTCTTTCTAAGAAAGGTTGGGGG
 22019
 22020
 22021 crispr 31
 22022 271456 CGTGAGCGAAAAAGGGCCCCGTCCTCCCGAGACAGGACTT
 GGGTTTCAGTGTTTTTCATTATGCTTCAGCCCTCTTGAGCGAACT spacer length: 45 repeater length: 39
 22023 271541 CGTGAGCGAAAAAGGGCCCCGTCCTCCCGAGACAGGACTT
 AGGTTTCAGTGTTTTTCATTATGCTTCAGCCCTCTTGAGCGAACT spacer length: 45 repeater length: 39
 22024 271626 CGTGAGCGAAAAAGGGCCCCGTCCTCCCGAGACAGGACTT
 AGGTTTCAGTGTTTTTCATTATGCTTCAGCCCTCTTGAGCGAACT spacer length: 45 repeater length: 39
 22025 271711 CGTGAGCGAAAAAGGGCCCCGTCCTCCCGAGACAGGACTT
 AGGAAGTTGGGTAAAAAGTAGTTGTGTGTGGCCAATTGTAAATGT
 22026
 22027
 22028 crispr 32
 22029 2537948 TACGGTTCTCGATCAACCGTTGCGCCGGTTGATCACGCC
 GATAGGGTTTGGGGATAAGATTTCTAAATTCAAATGTCA spacer length: 39 repeater length: 39
 22030 2538027 TACGGTTCTCGATCAACCGTTGCGCCGGTTGATCACGCC
 GATAGGGTTTGGGGATAAGATTTCCAAATTCAAATGTCA spacer length: 39 repeater length: 39
 22031 2538106 TACGGTTCTCGATCAACCGTTGCGCCGGTTGATCACGCC
 AACGGAATAAAAAAGGAATAAAAAAGGGAATAAAGTAAAG
 22032
 22033
 22034 crispr 33
 22035 42588 ACCTGAACTTAGCAGTTGGTGGGCTTTCGAAAGGTGGAGT
 CGGCGGTAATGGCGGTGACGCAACCGGTAGTGGAGTCGGCGGTAATGGCGGTGATGGTGGTAATGGCGGCTCTTCCAATGGTGGA
 GCATCAGTAACAGCGGAAATGCACTACAA spacer length: 115 repeater length: 40
 22036 42744 ACCTGAACTTAGCAGTTGGTGGGCTTTCGAAAGGTGGAGT
 CGGCGGTAATGGCGGTGACGCAACCGGTAGTGGAGTCGGCGGTAATGGCGGTGATGGTGGTAACGGCGGCTCTTCCAATGGCGGAA
 CCATCGGCATCGGCGGAAATGCGCTACAA spacer length: 115 repeater length: 40
 22037 42900 ACCTGAACTTAGCAGTTGGTGGGCTTTCGAAAGGTGGAGT
 AAATAATTGATAATAAAAAATATAAACTTGAAAAGTGCTTTATATAAGGACAAGATATCACTATTTTTGGAGAATTTTTTGCAA
 TTTTTTACTTTCTTGTAGAGAAAAATTCA
 22038
 22039
 22040 crispr 34
 22041 3264035 CGGGTAATTCAGCCCTCTTGAGCGAACGAAGTGAGCGAAA AGGGCACCGTCCTCTCCCGAGACGGAAT spacer
 length: 28 repeater length: 40
 22042 3264104 CGGGTAATTCAGCCCTCTTGAGCGAACGAAGTGAGCGAAA AGGGCACCGTCCTCTCCCGAGACGGAAT spacer
 length: 26 repeater length: 40
 22043 3264171 CGGGTAATTCAGCCCTCTTGAGCGAACGAAGTGAGCGAAA TAACAATAAATGAAATCCTGATACTA
 22044
 22045
 22046 GCA_000970325.1_ASM97032v1_genomic.fna(findCrispr):
 22047 START REPEAT
 SPACER
 22048 crispr 1
 22049 1276314 CGACATAATTCTAGATTCCGA AGCTGAAGCTGGTTTTGGTA spacer length: 20 repeater
 length: 21
 22050 1276356 CGACATAATTCTAGATTCCGA AGCTGAAGCTGGTTTTGGTA spacer length: 20 repeater
 length: 21
 22051 1276398 CGACATAATTCTAGATTCCGA AACTGAAGCTGATTTTGGTA spacer length: 20 repeater
 length: 21
 22052 1276440 CGACATAATTCTAGATTCCGA AGATTCCCTCTGATACATCAC
 22053
 22054
 22055 crispr 2
 22056 1220179 AGATGTGATTTCAACAGATTCCTCTGA

CACATCATCTACAACAGGAGGAACCTTCAGAAGGTTTCATCTGATGCATCATCAACAG spacer length: 56 repeater
 length: 27
 22057 1220263 AGATGTGATTTCAACAGATTCCTCTGA
 TACATCATCTACAACAGGAGGAGCTTCAGAAGGTTTCATCTGATGCATCATCAACAG spacer length: 56 repeater
 length: 27
 22058 1220347 AGATGTGATTTCAACAGATTCCTCTGA
 CACATCATCTACAACAGGAGGAACCTTCAGCAGGTTTCATCTGATGCATCATCAACAG spacer length: 56 repeater
 length: 27
 22059 1220431 AGATGTGATTTCAACAGATTCCTCTGA
 CACATCATCTACAACAGGAGGAACCTTCAGCAGGTTTCATATGATGCATCATCACCGG spacer length: 56 repeater
 length: 27
 22060 1220515 AGATGTGATTTCAACAGATTCCTCTGA
 CACATCATCTACAACAGGAGGAACCTTCAGAAGGTTTCATCTGATGCATCCTCAACAG spacer length: 56 repeater
 length: 27
 22061 1220599 AGATGTGATTTCAACAGATTCCTCTGA
 CACATCATCTACAACAGGAGGAGCTTCAGAAGGTTTCATCTGATGCATCATCAACAG spacer length: 56 repeater
 length: 27
 22062 1220683 AGATGTGATTTCAACAGATTCCTCTGA
 TACATCACCTACAACAGGAGAACTTCAGAAGGTTTCATCTGATGCATCATCAACAG spacer length: 56 repeater
 length: 27
 22063 1220767 AGATGTGATTTCAACAGATTCCTCTGA
 AACAGGAGGAGCTTCAGAAGGTTTCATCTGATGCATCATCAACAGAAGATGTGATTT
 22064
 22065
 22066 GCA_000993805.1_ASM99380v1_genomic.fna(findCrispr):
 22067 START REPEAT
 SPACER
 22068 crispr 1
 22069 551140 CTTTCAATTCATTCCCTTTCTGATAC ATAAGGGATATAGACTAGGAAACCATATTTTCTTTGTGA spacer
 length: 39 repeater length: 25
 22070 551205 CTTTCAATTCATTCCCTTTCTGATAC CCGTGTAGTCGCGATTGTTGAACTCGCTCTTATCCTCC spacer
 length: 38 repeater length: 25
 22071 551269 CTTTCAATTCATTCCCTTTCTGATAC GTTCAGTCTGGCAAATTTTCTGTTTTACGACCTCG spacer
 length: 37 repeater length: 25
 22072 551332 CTTTCAATTCATTCCCTTTCTGATAC ACAACTGTGAACTATATAGACGCCCGGAAAACCTATA spacer
 length: 38 repeater length: 25
 22073 551396 CTTTCAATTCATTCCCTTTCTGATAC GTGCTACATCAGGTGCTTCAATCCGCTACTACGTGGAAA spacer
 length: 39 repeater length: 25
 22074 551461 CTTTCAATTCATTCCCTTTCTGATAC ACGCTACCATTATTATGACGGCTACGCTTATAATG spacer length:
 35 repeater length: 25
 22075 551522 CTTTCAATTCATTCCCTTTCTGATAC CTCCGACAACGTGTTGTGCGGGAACAGTGCCGGGCGGA spacer
 length: 37 repeater length: 25
 22076 551585 CTTTCAATTCATTCCCTTTCTGATAC TATACAAACGGCTCGACGCTGCAATCTATTTGTTTGATA spacer
 length: 39 repeater length: 25
 22077 551650 CTTTCAATTCATTCCCTTTCTGATAC GGGGGCCTTCGTGTTGTTGTTGATGCGTATCGGTTGA spacer
 length: 37 repeater length: 25
 22078 551713 CTTTCAATTCATTCCCTTTCTGATAC GGTTCTATGCTCCATTGCTACTCCGATCCCGA spacer length: 33
 repeater length: 25
 22079 551772 CTTTCAATTCATTCCCTTTCTGATAC TACTTCTCCCTCCACTCGATGTCAAGCCCCTTATTCTTCC spacer
 length: 40 repeater length: 25
 22080 551838 CTTTCAATTCATTCCCTTTCTGATAC AAGAGCAACCGAAAAGAGTACGAATTTTGGACAAAGG spacer
 length: 37 repeater length: 25
 22081 551901 CTTTCAATTCATTCCCTTTCTGATAC AAGCTCCTTACCGGATCCTCCCTAGGATACGAGAAAAC spacer
 length: 38 repeater length: 25
 22082 551965 CTTTCAATTCATTCCCTTTCTGATAC CTAAAGCCTCAAGCCCGTTGACGACCTCTTACCGCCG spacer
 length: 38 repeater length: 25
 22083 552029 CTTTCAATTCATTCCCTTTCTGATAC TAGACTTTTCATACAATTCTAACATGCACATGTCACCG spacer
 length: 38 repeater length: 25
 22084 552093 CTTTCAATTCATTCCCTTTCTGATAC ACTAAGAAACCCATCCGGGTCTTTAATGCCATGAACTC spacer
 length: 38 repeater length: 25
 22085 552157 CTTTCAATTCATTCCCTTTCTGATAC ACGCCACCTGTGGGGAGCTGTGGCTGCCGCGACCGTGG spacer
 length: 38 repeater length: 25
 22086 552221 CTTTCAATTCATTCCCTTTCTGATAC ACTTAACGCTTAAACTGTTGTTGAAAACCTCGATAGAATA spacer
 length: 39 repeater length: 25
 22087 552286 CTTTCAATTCATTCCCTTTCTGATAC CTTACCCTTAATCGTAGGTAAGTTTGGAAAACCCATAT spacer
 length: 38 repeater length: 25
 22088 552350 CTTTCAATTCATTCCCTTTCTGATAC TTTAACGCTATATAGTCTTCTAGAGAACATACATAGCTCAT spacer
 length: 41 repeater length: 25
 22089 552417 CTTTCAATTCATTCCCTTTCTGATAC GAGGTCGTAGCTCCACTGAATGTTCCCAATGTATCTTT spacer
 length: 39 repeater length: 25
 22090 552482 CTTTCAATTCATTCCCTTTCTGATAC ATGACAGATCTGTAGCCTCCACCCCCCACGTCTC spacer length:

35 repeater length: 25

22091 552543 CTTTCAATTCATTCCCTTTCTGATAC
GATATATGCAAAAATGTATATAGTATACAAAAAATTTCAATTCATTCTTTTCTGATACTTTAACAGGGGCAAAGCCACTGCCCCG
CGAACAAATAG spacer length: 97 repeater length: 25

22092 552666 CTTTCAATTCATTCCCTTTCTGATAC AACGGCTATGAAATTGCAATAACGGTAAACCCAAA spacer length:
35 repeater length: 25

22093 552727 CTTTCAATTCATTCCCTTTCTGATAC ACGCATCATCAGTGCAATACGAAAATACGTGAAT spacer length:
34 repeater length: 25

22094 552787 CTTTCAATTCATTCCCTTTCTGATAC AAACCCCCACTGTCTCTCTCCTGTTGAGCTACAATA spacer
length: 37 repeater length: 25

22095 552850 CTTTCAATTCATTCCCTTTCTGATAC AGCTACGGGTAGGGCTCGCGTGGGCTATTGCTATGCA spacer
length: 37 repeater length: 25

22096 552913 CTTTCAATTCATTCCCTTTCTGATAC AACGCTAACGCCTTCAACGTAACTGTTTGCCTGA spacer length:
35 repeater length: 25

22097 552974 CTTTCAATTCATTCCCTTTCTGATAC CAATCAGGGTATATCAATGTATACTGGTTGGGGTGAAG spacer
length: 38 repeater length: 25

22098 553038 CTTTCAATTCATTCCCTTTCTGATAC GGTTACCTACAAATATATCAGTTAACGTTA spacer length: 31
repeater length: 25

22099 553095 CTTTCAATTCATTCCCTTTCTGATAC ATACCCAAACCGCACTGTATATGTAGCTATAGTTGACC spacer
length: 38 repeater length: 25

22100 553159 CTTTCAATTCATTCCCTTTCTGATAC CTGCGACGTCCCAAAGTGGACTGGAGAAGCGTTATCC spacer
length: 37 repeater length: 25

22101 553222 CTTTCAATTCATTCCCTTTCTGATAC GCATACAATAACCTGATAAAAATGCAAGCGATA spacer length: 33
repeater length: 25

22102 553281 CTTTCAATTCATTCCCTTTCTGATAC CCAGTTACCCCGGCACTCCTACTCTTCTCCCCTTCAGC spacer
length: 39 repeater length: 25

22103 553346 CTTTCAATTCATTCCCTTTCTGATAC CTGAGCGGCGAGGCTTCGCTTCAGCCACAGCCGTTCTAT spacer
length: 39 repeater length: 25

22104 553411 CTTTCAATTCATTCCCTTTCTGATAC CTCCGACAACGTGTTGTGCGGAACAGTGCCGGGCGGA spacer
length: 37 repeater length: 25

22105 553474 CTTTCAATTCATTCCCTTTCTGATAC TATACAAACGGCTCGACGCTGCAATCTATTTGTTTGATA spacer
length: 39 repeater length: 25

22106 553539 CTTTCAATTCATTCCCTTTCTGATAC GAGGTGACGTGGATGACCGAGCCGGGACGGGTTGTC spacer length:
36 repeater length: 25

22107 553601 CTTTCAATTCATTCCCTTTCTGATAC AACCCCCACGCTAACAAAATTGCCAGACCGGAATCCC spacer
length: 37 repeater length: 25

22108 553664 CTTTCAATTCATTCCCTTTCTGATAC GAGCAAGAACGTGCACGTGCTACTCTGCGTAGGCTAGC spacer
length: 38 repeater length: 25

22109 553728 CTTTCAATTCATTCCCTTTCTGATAC TGGACGGTCTAGGACGCGTGTGGGGATTCAATAGACG spacer
length: 37 repeater length: 25

22110 553791 CTTTCAATTCATTCCCTTTCTGATAC ATAAGTGTCCGATTTGCGGAAAGGAATACAAAGAGTACAAGATTCTA
spacer length: 47 repeater length: 25

22111 553864 CTTTCAATTCATTCCCTTTCTGATAC TGGTAGCTTTAGCATTAAGAAACAAGAACCAATTACAAGAATTA spacer
length: 44 repeater length: 25

22112 553934 CTTTCAATTCATTCCCTTTCTGATAC TAATCGATTTGACAGGATGCAAGCCGTTATCGCGT spacer length:
35 repeater length: 25

22113 553995 CTTTCAATTCATTCCCTTTCTGATAC AAGGACAAGATTCCATTGGTGAAATGGGAGGAATAACA spacer
length: 38 repeater length: 25

22114 554059 CTTTCAATTCATTCCCTTTCTGATAC CAAGTACGTATCGCAGCACAGAAGAAGCGAGACGTCT spacer
length: 38 repeater length: 25

22115 554123 CTTTCAATTCATTCCCTTTCTGATAC TCGTAAATACTGCAAGTCAGCTTGCTGGGAAGCTCA spacer length:
36 repeater length: 25

22116 554185 CTTTCAATTCATTCCCTTTCTGATAC ATCCAGGCAAGCCTTGAGTTTGCAGACAGAGCGAGATT spacer
length: 37 repeater length: 25

22117 554248 CTTTCAATTCATTCCCTTTCTGATAC TGGAAGCTCGTGGATTTGTAAGCCTAGACCACGGAC spacer
length: 37 repeater length: 25

22118 554311 CTTTCAATTCATTCCCTTTCTGATAC ACTTCTAGGGGCTTGACTGTCTCGTGTTCACAGCT spacer length:
36 repeater length: 25

22119 554373 CTTTCAATTCATTCCCTTTCTGATAC GCAAACGTGGCGGCAGATTGTGCCGCCAACACTCTCCTGT spacer
length: 40 repeater length: 25

22120 554439 CTTTCAATTCATTCCCTTTCTGATAC CTTTATTTGTAGCTCTGTTTCTGTCTATGTTTGTTC spacer length:
35 repeater length: 25

22121 554500 CTTTCAATTCATTCCCTTTCTGATAC ATTTTCCAAGCTATTTTCTGTATGTTTTTTTGGTTTCATC spacer
length: 39 repeater length: 25

22122 554565 CTTTCAATTCATTCCCTTTCTGATAC GAATAGATGTGGCGATGAAGTATTCAGGAAAACGA spacer length:
35 repeater length: 25

22123 554626 CTTTCAATTCATTCCCTTTCTGATAC TTAGTAATCATGCCCTGTCCTTCATATTTGATTTTTTT spacer
length: 38 repeater length: 25

22124 554690 CTTTCAATTCATTCCCTTTCTGATAC TGCGACGTTGCCATACGTGCTTATGTCCAGGTTTTCC spacer
length: 37 repeater length: 25

22125 554753 CTTTCAATTCATTCCCTTTCTGATAC GCGTCGTGATGTCCTTGATTCAAAAGTTCTTCTCTAAT spacer

length: 38 repeater length: 25
22126 554817 CTTTCAATTCATTCCCTTTCTGATAC TTATTAGTGTACGTATAGCTATGAATGTGCCTCCGTATG spacer
length: 39 repeater length: 25
22127 554882 CTTTCAATTCATTCCCTTTCTGATAC AAGGGGTTTTTCTCTAGCCCGGGTTTTTCTCTATC spacer length:
36 repeater length: 25
22128 554944 CTTTCAATTCATTCCCTTTCTGATAC TGAGAGTCGGGCAAGCGGGAAAAACCCTGCAGGTGGAT spacer
length: 38 repeater length: 25
22129 555008 CTTTCAATTCATTCCCTTTCTGATAC CAGCCGTCGACGCCCAGGCTTCCGTTGCCGGCCGAGCCT spacer
length: 39 repeater length: 25
22130 555073 CTTTCAATTCATTCCCTTTCTGATAC CTGTTGCGGGGCTTCAAGCACCTGTTGCCTACAAC spacer length:
36 repeater length: 25
22131 555135 CTTTCAATTCATTCCCTTTCTGATAC TTCTTGAAAATGGCGTATCCTCACCCTTAAATTCC spacer length:
36 repeater length: 25
22132 555197 CTTTCAATTCATTCCCTTTCTGATAC ACAACCGGCACCTGTGAAGGGGTGATACTAGTCA spacer length:
34 repeater length: 25
22133 555257 CTTTCAATTCATTCCCTTTCTGATAC ATGTAGATGATGTAGAGTATTAGGCTTAGCGTGACG spacer length:
36 repeater length: 25
22134 555319 CTTTCAATTCATTCCCTTTCTGATAC AGCGTAAGCATTTTCGTTTGAAAACACCATTGTCATAGA spacer
length: 38 repeater length: 25
22135 555383 CTTTCAATTCATTCCCTTTCTGATAC AGGAGGGAGGGCGACTTCGCGTTTTACAAGTATA spacer length:
34 repeater length: 25
22136 555443 CTTTCAATTCATTCCCTTTCTGATAC TACGTTTGAAGAAACGTCTCGAAAGGCCCGAAGACATC spacer
length: 38 repeater length: 25
22137 555507 CTTTCAATTCATTCCCTTTCTGATAC AAAAAGGTCCCGCGGGACCTAGCGGGACCTAAAGCCAA spacer
length: 38 repeater length: 25
22138 555571 CTTTCAATTCATTCCCTTTCTGATAC GTACTTACAATGGCTTAGGAAATTAAAGTATC spacer length: 32
repeater length: 25
22139 555629 CTTTCAATTCATTCCCTTTCTGATAC CAACGCCTCCTGCTTGCTCTCTGCTGTGAGGGCCGAT spacer
length: 37 repeater length: 25
22140 555692 CTTTCAATTCATTCCCTTTCTGATAC CCCACGACCACACTGTTCAACACCTTCTCAACC spacer length: 33
repeater length: 25
22141 555751 CTTTCAATTCATTCCCTTTCTGATAC TTATTTCGGTTTTTTCTCCGGGCTTGACGTCCTGGTGTGA spacer
length: 39 repeater length: 25
22142 555816 CTTTCAATTCATTCCCTTTCTGATAC TCGGGACTTCAACGAACTCAAAGCACTCCTCTCTCCTC spacer
length: 38 repeater length: 25
22143 555880 CTTTCAATTCATTCCCTTTCTGATAC AGACGTTCTCCGCATTCCCTGGAAAGGCTAAGTGTAAAT spacer
length: 38 repeater length: 25
22144 555944 CTTTCAATTCATTCCCTTTCTGATAC ATGTCAAGTGGTTCAACGAGCCACGAGTCCCCAGCATGC spacer
length: 39 repeater length: 25
22145 556009 CTTTCAATTCATTCCCTTTCTGATAC CCCACTGGCTAGCTGTGGTGAGGGGTTGCTCGAGTTGC spacer
length: 38 repeater length: 25
22146 556073 CTTTCAATTCATTCCCTTTCTGATAC CCTGGGTAGGGGGTTTTTATGGCGCGTGTGATAGTTGT spacer
length: 38 repeater length: 25
22147 556137 CTTTCAATTCATTCCCTTTCTGATAC ACTATAGGCTGTACGTGCACCAGATTACCTGAGCTG spacer length:
36 repeater length: 25
22148 556199 CTTTCAATTCATTCCCTTTCTGATAC AGGAGGGTGGGGAGGAGGGGGAGGAATCAAGTGATGAGC spacer
length: 39 repeater length: 25
22149 556264 CTTTCAATTCATTCCCTTTCTGATAC AAGCTTCTTAGTTCTCACATCCACAACCTGGCTAGCC spacer
length: 37 repeater length: 25
22150 556327 CTTTCAATTCATTCCCTTTCTGATAC CGGAGCTATGGGTGAAGATGGCTAGCAGGGATGACGCCC spacer
length: 39 repeater length: 25
22151 556392 CTTTCAATTCATTCCCTTTCTGATAC AGCATTTTTATTGCATTTTTTTATTTCTTTTTTCATC spacer length:
36 repeater length: 25
22152 556454 CTTTCAATTCATTCCCTTTCTGATAC AATAAAAAACGCGGGCTGGCCTTTGGGCATGT spacer length: 32
repeater length: 25
22153 556512 CTTTCAATTCATTCCCTTTCTGATAC ATATATAACCAGGTGGCTACGAGTGGGGTGAAC spacer length: 32
repeater length: 25
22154 556570 CTTTCAATTCATTCCCTTTCTGATAC AGAATCTGTTCAAGTTCCTGTCGTGATTTACAAATCTCA spacer
length: 40 repeater length: 25
22155 556636 CTTTCAATTCATTCCCTTTCTGATAC TGAAGACCGAGAGGTGACCAGGAGTGGACTTCA spacer length: 33
repeater length: 25
22156 556695 CTTTCAATTCATTCCCTTTCTGATAC GCATAGAGCGTGTGCCCCGAGAGTCCAGGAACGTGG spacer
length: 37 repeater length: 25
22157 556758 CTTTCAATTCATTCCCTTTCTGATAC GTACACCACAGCTGTGATTACAACCTCTCTTTCAACTCG spacer
length: 39 repeater length: 25
22158 556823 CTTTCAATTCATTCCCTTTCTGATAC CTTTTTCAGTCACATACACCATTACAGTAATATTGCAG spacer
length: 38 repeater length: 25
22159 556887 CTTTCAATTCATTCCCTTTCTGATAC CCCGCGTCATACCCGAGAAGACGGTTATGTTTGCGGA spacer
length: 37 repeater length: 25
22160 556950 CTTTCAATTCATTCCCTTTCTGATAC CCATACTCGGCCGGCGGCATCCGTTACCTCGCGCT spacer length:
35 repeater length: 25

22161	557011 CTTTCAATTCATTCCCTTTCTGATAC	GTCCGTGACCAGGCTCCCAGGAAGCCACTCGTCC spacer length: 34 repeater length: 25
22162	557071 CTTTCAATTCATTCCCTTTCTGATAC	GTAAGAATGGTATGAACATTACTATTTTCGGCCCAGACA spacer length: 38 repeater length: 25
22163	557135 CTTTCAATTCATTCCCTTTCTGATAC	ATATAGCTAAGGGAAAAAACTATATAGCTAGCAAAATC spacer length: 38 repeater length: 25
22164	557199 CTTTCAATTCATTCCCTTTCTGATAC	ATAATCGAGGCTTTCGCAAACCAGGGTCTTGACAG spacer length: 35 repeater length: 25
22165	557260 CTTTCAATTCATTCCCTTTCTGATAC	ACCTACTATACCCTCGTATGACAGTTCTGTACACCAGT spacer length: 39 repeater length: 25
22166	557325 CTTTCAATTCATTCCCTTTCTGATAC	TAGTATGCTACCTTCTTTTTCGACATCAGTAGG spacer length: 33 repeater length: 25
22167	557384 CTTTCAATTCATTCCCTTTCTGATAC	CGGAGTTTTTCCCGCTTGCCAGACTCCCACTCCCTCA spacer length: 37 repeater length: 25
22168	557447 CTTTCAATTCATTCCCTTTCTGATAC	ACGGGCATTTAAAATCAGGAGTCGGGGGGTCATCCATC spacer length: 38 repeater length: 25
22169	557511 CTTTCAATTCATTCCCTTTCTGATAC	AAGCCCTAACC GCCGTAATAGCTTTATAATTGCTAACA spacer length: 38 repeater length: 25
22170	557575 CTTTCAATTCATTCCCTTTCTGATAC	GTGGTGGTTGTGGTTGTGTGGTTGATACTTGTATATCAT spacer length: 39 repeater length: 25
22171	557640 CTTTCAATTCATTCCCTTTCTGATAC	TATAATCAGATGCTTTACGTATTATTACAACCTCTTTC spacer length: 37 repeater length: 25
22172	557703 CTTTCAATTCATTCCCTTTCTGATAC	CTCTCAATTCATCTGTGCTCTTGAATTCAATACCGCAAAA spacer length: 40 repeater length: 25
22173	557769 CTTTCAATTCATTCCCTTTCTGATAC	GCCTTTTGTAGGAGCTTGGA AAAAGCAGTGAATGA spacer length: 37 repeater length: 25
22174	557832 CTTTCAATTCATTCCCTTTCTGATAC	TCTCGTGTTCGACGCGTGCCGGTGTGGGTTCG spacer length: 35 repeater length: 25
22175	557893 CTTTCAATTCATTCCCTTTCTGATAC	ATGTAAACAGGGACATTGATGCGACATGCTCAGAGC spacer length: 36 repeater length: 25
22176	557955 CTTTCAATTCATTCCCTTTCTGATAC	CGCCGAAGAGCCTGACTGGGAGGATGTATTTAACCACAC spacer length: 39 repeater length: 25
22177	558020 CTTTCAATTCATTCCCTTTCTGATAC	CTGTGTTGTGAAACTCGTAAGGAAACCCGTGTCAGTAT spacer length: 38 repeater length: 25
22178	558084 CTTTCAATTCATTCCCTTTCTGATAC	ACAGGTGTGCCAAAGGGGATTAGTACCTGTCTAGGGTGTCA spacer length: 41 repeater length: 25
22179	558151 CTTTCAATTCATTCCCTTTCTGATAC	TAGGGCTCCACGGGGCTACGTGTTCAAGAGCGCGACAG spacer length: 38 repeater length: 25
22180	558215 CTTTCAATTCATTCCCTTTCTGATAC	CGCATACTACTCGCTAGCTTCAACGCCTTCTCGGTTA spacer length: 37 repeater length: 25
22181	558278 CTTTCAATTCATTCCCTTTCTGATAC	CCGAGGAAGTTGTCTTCAAAGTCGTCTTCAAGGTAGACT spacer length: 39 repeater length: 25
22182	558343 CTTTCAATTCATTCCCTTTCTGATAC	GGTCGAGTCGGGCCTGGCAGACCGGACACGGCTGATAATAA spacer length: 41 repeater length: 25
22183	558410 CTTTCAATTCATTCCCTTTCTGATAC	TAATTTTATTTTTTGTCTTGTAGCGTTTCTCTCCTTT spacer length: 38 repeater length: 25
22184	558474 CTTTCAATTCATTCCCTTTCTGATAC	AGGCAATACAGGTCGCGTCGCAAGTGCTGGGACTTGA spacer length: 37 repeater length: 25
22185	558537 CTTTCAATTCATTCCCTTTCTGATAC	AAGGACGCCGTGAACGTCCTCCAGAGCCTTCTATCAG spacer length: 37 repeater length: 25
22186	558600 CTTTCAATTCATTCCCTTTCTGATAC	AGTGTGAGCCGGGGGGTGACAGAACTGTCACACTTG spacer length: 37 repeater length: 25
22187	558663 CTTTCAATTCATTCCCTTTCTGATAC	AGGGAAGCATTTTACGGTCATCCCTCCGGGCTCGGT spacer length: 38 repeater length: 25
22188	558727 CTTTCAATTCATTCCCTTTCTGATAC	TTATATTGTTGTTAGGGTCATATATATCAAGGTTATATGCAT spacer length: 42 repeater length: 25
22189	558795 CTTTCAATTCATTCCCTTTCTGATAC	ACCTTAACCTTGTTACTTGACAAC TCAAATCACCTTT spacer length: 37 repeater length: 25
22190	558858 CTTTCAATTCATTCCCTTTCTGATAC	GGAGGGAAGGGCTGTCGAGACAATCTACACTTATGCTACTA spacer length: 41 repeater length: 25
22191	558925 CTTTCAATTCATTCCCTTTCTGATAC	ATACGTATTTCCGCCTCGGCTTGGCGAAGTCTGCTTTCCGCA spacer length: 42 repeater length: 25
22192	558993 CTTTCAATTCATTCCCTTTCTGATAC	CCTTGTA AAAATATGATCACAGCTGTGGAACAC spacer length: 34 repeater length: 25
22193	559053 CTTTCAATTCATTCCCTTTCTGATAC	GTAATACCTCATAATGAGTTTATAATGAAACTTCATTA spacer length: 38 repeater length: 25
22194	559117 CTTTCAATTCATTCCCTTTCTGATAC	GTGATGTTTGCAGGAGTCCCTGCACTCGTGGTGGCG spacer length: 36 repeater length: 25
22195	559179 CTTTCAATTCATTCCCTTTCTGATAC	AATAAGAACGTGCACTTCATAGTGCCGTTCCGACGCGAGG spacer length: 40 repeater length: 25
22196	559245 CTTTCAATTCATTCCCTTTCTGATAC	TAGCTAGATGTCAACATTTGAGTGGGATGCTGTCACAT spacer

length: 38 repeater length: 25
22197 559309 CTTTCAATTCATTCCCTTTCTGATAC CCAAATCGGCTTTCCGAGACCTTTGCCAGTCAGAATAG spacer
length: 38 repeater length: 25
22198 559373 CTTTCAATTCATTCCCTTTCTGATAC AGAGACTAAGTGAAGCTGTAGGCAAAACATTCCAGTGG spacer
length: 38 repeater length: 25
22199 559437 CTTTCAATTCATTCCCTTTCTGATAC CCACACAGTGCTGTGTTTAAGATTCTAGCGTTACTGTA spacer
length: 39 repeater length: 25
22200 559502 CTTTCAATTCATTCCCTTTCTGATAC CCAATCCAAAAGCCAATATGTTGAACCCCTAATCTCCTG spacer
length: 39 repeater length: 25
22201 559567 CTTTCAATTCATTCCCTTTCTGATAC CTGGAGGGTGAAACACCGGAATCACGACAGACCCG spacer length:
36 repeater length: 25
22202 559629 CTTTCAATTCATTCCCTTTCTGATAC ACACGTGGTGGAGCACGTGGGGTATCATCCAGTTGATGC spacer
length: 39 repeater length: 25
22203 559694 CTTTCAATTCATTCCCTTTCTGATAC GTAACCCCTCCGTCGTACTCCTGAACATAGTCACGAAC spacer
length: 37 repeater length: 25
22204 559757 CTTTCAATTCATTCCCTTTCTGATAC CCGACGTCGACAGGATTTTCGTGATGAACGATGCTGAAT spacer
length: 39 repeater length: 25
22205 559822 CTTTCAATTCATTCCCTTTCTGATAC CTTGTTTTTTTGTATTGTGGGGGTGTATTTATTATTTGT
22206
22207
22208 crispr 2
22209 569862 GTATCAGAAAAGAATGAATTGAAAG GAGGAATAACTCATGCAGTGCAACCTGCACCGGTG spacer length:
35 repeater length: 25
22210 569923 GTATCAGAAAAGAATGAATTGAAAG TCCGCGAGCGTTCCCGTTGAGTCGGGGGGTGACAG spacer length:
35 repeater length: 25
22211 569984 GTATCAGAAAAGAATGAATTGAAAG TTACACCGCGATAAGTAAGACAACAGACTTTAGCACG spacer
length: 37 repeater length: 25
22212 570047 GTATCAGAAAAGAATGAATTGAAAG TTGACTACGCTCGCTTTATCGTATTAGTCCACAT spacer length:
35 repeater length: 25
22213 570108 GTATCAGAAAAGAATGAATTGAAAG CATTACCCGCTCTATACGCCTTTGGTGCTAGGTATATGGCT spacer
length: 41 repeater length: 25
22214 570175 GTATCAGAAAAGAATGAATTGAAAG AAGCGATGAGAGGTTGCCCGCGCTACGGTAGCCCGCC spacer
length: 37 repeater length: 25
22215 570238 GTATCAGAAAAGAATGAATTGAAAG TCACTCTCGATGAGTTTGCAGAGACGGCAAAGTACCA spacer
length: 37 repeater length: 25
22216 570301 GTATCAGAAAAGAATGAATTGAAAG TTCCGGTCTCCAATGTACTCGGGCCGTATGGTTCTTCA spacer
length: 38 repeater length: 25
22217 570365 GTATCAGAAAAGAATGAATTGAAAG TCCTATACATCATCTACATGGTATCGGGAAGACTAATC spacer
length: 38 repeater length: 25
22218 570429 GTATCAGAAAAGAATGAATTGAAAG TCAATGGGAATAGTCTGAGGCTGTGAAGCGGGCTCCTC spacer
length: 38 repeater length: 25
22219 570493 GTATCAGAAAAGAATGAATTGAAAG TCAATTTGCGCTCAACCACCATAAACATGTG spacer length: 32
repeater length: 25
22220 570551 GTATCAGAAAAGAATGAATTGAAAG ACGAGTAACAGTCTTGTACGACAGGACGCCCCGGGAGCCC spacer
length: 39 repeater length: 25
22221 570616 GTATCAGAAAAGAATGAATTGAAAG CTTCTTTTCGCCACGGGTACTCCCCCTTTTAATACG spacer
length: 37 repeater length: 25
22222 570679 GTATCAGAAAAGAATGAATTGAAAG CTCCCTGCTTGAGCCGGAAGTCTCGGGCAAGCCCTCG spacer
length: 38 repeater length: 25
22223 570743 GTATCAGAAAAGAATGAATTGAAAG TACTCTCCAAGGAGATACCTGAGGCATTAGAGCTGATA spacer
length: 38 repeater length: 25
22224 570807 GTATCAGAAAAGAATGAATTGAAAG CATATCAATTCAAATATCAATGACTGTAGGTCAAGTC spacer
length: 37 repeater length: 25
22225 570870 GTATCAGAAAAGAATGAATTGAAAG TCGAGCCTGATTGGTTGTTTTGGGTGTATATCACAGCT spacer
length: 38 repeater length: 25
22226 570934 GTATCAGAAAAGAATGAATTGAAAG TAATCCTCTTTTCTAATTCTCAATCCTTTATACTCGGG spacer
length: 38 repeater length: 25
22227 570998 GTATCAGAAAAGAATGAATTGAAAG TTATTTTTTTCCTATTGGAGAACACATATAGCTATAGCATA spacer
length: 40 repeater length: 25
22228 571064 GTATCAGAAAAGAATGAATTGAAAG TGTATAAGTTGTTCTTGCGTCTCATCTGTGGTTCTCAA spacer
length: 38 repeater length: 25
22229 571128 GTATCAGAAAAGAATGAATTGAAAG CTTTCCTTGAAAAACCTGACGAGTTCAGGAAGCGGG spacer length:
36 repeater length: 25
22230 571190 GTATCAGAAAAGAATGAATTGAAAG TATCGTGTGCAAGATGAGTAATATTCGCTACTCG spacer length:
36 repeater length: 25
22231 571252 GTATCAGAAAAGAATGAATTGAAAG TGGCGAAAAAGCCATGGCAAGAAAAAGCAAAAGGAAA spacer
length: 38 repeater length: 25
22232 571316 GTATCAGAAAAGAATGAATTGAAAG TTTTCACCAAACCTAAAACCGTCAAAGGGGCTTATA spacer length:
36 repeater length: 25
22233 571378 GTATCAGAAAAGAATGAATTGAAAG AACGATGGTACGAACTGGGATTACACTGGTGCTAGTGCT spacer
length: 39 repeater length: 25

22234	571443	GTATCAGAAAAGAATGAATTGAAAG	CTGCTATTTTCTCATGTTGTTCTTTTTCTAACATCTCT	spacer
		length: 38	repeater length: 25	
22235	571507	GTATCAGAAAAGAATGAATTGAAAG	AGAAAGATCACGGGGCGCACCGTTGCGCTCCGCTGCCA	spacer
		length: 38	repeater length: 25	
22236	571571	GTATCAGAAAAGAATGAATTGAAAG	AAAATTTTCCATCCATAGTATGTTGCGTCCTCGCTTTT	spacer
		length: 38	repeater length: 25	
22237	571635	GTATCAGAAAAGAATGAATTGAAAG	GGTATTGTAGCTTCGCTGCTATGGATTCAATCGCGACG	spacer
		length: 38	repeater length: 25	
22238	571699	GTATCAGAAAAGAATGAATTGAAAG	TTATTTTATCTAGAGCGGAAACTATACCTCTATACCC	spacer
		length: 38	repeater length: 25	
22239	571763	GTATCAGAAAAGAATGAATTGAAAG	ACACTGGGAGAACTACCTTGAGCGTGCCCTGAG	spacer length: 33
		repeater length: 25		
22240	571822	GTATCAGAAAAGAATGAATTGAAAG	TAAAGATAATTATGTAATTTTACCGTCATAATCAAAAC	spacer
		length: 39	repeater length: 25	
22241	571887	GTATCAGAAAAGAATGAATTGAAAG	AGAGCAATGTGCGCCGCCTCATGAGCGAGAACTCCG	spacer length:
		36	repeater length: 25	
22242	571949	GTATCAGAAAAGAATGAATTGAAAG	CGGAATTATAGACTTCAATTGCTACTATTGCAAAT	spacer length:
		35	repeater length: 25	
22243	572010	GTATCAGAAAAGAATGAATTGAAAG	CACTTTGTGACAGTCCTGTAGTCTTTTACCCGTTATTA	spacer
		length: 39	repeater length: 25	
22244	572075	GTATCAGAAAAGAATGAATTGAAAG	CGGATATAGCATGGAGCCCCTACATGACCCGCAGGCCCC	spacer
		length: 39	repeater length: 25	
22245	572140	GTATCAGAAAAGAATGAATTGAAAG	ATAATTTGCCCTTTTTACTAGTTTTATTTCCGTCATG	spacer
		length: 37	repeater length: 25	
22246	572203	GTATCAGAAAAGAATGAATTGAAAG	ACGGGAACGCTTGACAGGTCCTCCTCCCTGGTCTCTC	spacer
		length: 37	repeater length: 25	
22247	572266	GTATCAGAAAAGAATGAATTGAAAG	TTTGTTGTCATGCTTGTTTCATGATATTGTATGCAAATG	spacer
		length: 39	repeater length: 25	
22248	572331	GTATCAGAAAAGAATGAATTGAAAG	AGGTCTCCGGCAAGTGCAGCTGGGAGGAAGGCCTTAC	spacer
		length: 38	repeater length: 25	
22249	572395	GTATCAGAAAAGAATGAATTGAAAG	TGATCCACGTGAGAGTATCGCACCCGACCCGTAGT	spacer length:
		36	repeater length: 25	
22250	572457	GTATCAGAAAAGAATGAATTGAAAG	CAGCGTGAGAGGTAAACGTCATTGTACTCGTCG	spacer length: 33
		repeater length: 25		
22251	572516	GTATCAGAAAAGAATGAATTGAAAG	TTAATGCCATGCACTTTAGCCAAATGCCTTGTTAGGAC	spacer
		length: 38	repeater length: 25	
22252	572580	GTATCAGAAAAGAATGAATTGAAAG	AGGGGTGCGCAGATACATTTTAAGTTACGGAGTTTTTTA	spacer
		length: 38	repeater length: 25	
22253	572644	GTATCAGAAAAGAATGAATTGAAAG	TCGTACTTCGGCGTATACATGGCCCTGTTGCGGGTA	spacer
		length: 37	repeater length: 25	
22254	572707	GTATCAGAAAAGAATGAATTGAAAG	ACGCCCTTAAAAACCCGTTAAAAAATCTTCAACCCCCTA	spacer
		length: 39	repeater length: 25	
22255	572772	GTATCAGAAAAGAATGAATTGAAAG	AGAGCGACGGCACGGTACAACCCCTGGAGTCAATA	spacer length:
		35	repeater length: 25	
22256	572833	GTATCAGAAAAGAATGAATTGAAAG	AGATTTTGCTAGCTATATAGTTTTTTCCCTTAGCTATA	spacer
		length: 38	repeater length: 25	
22257	572897	GTATCAGAAAAGAATGAATTGAAAG	CGAACAAGCCGGCCACGAGCAGGAAGACGTCTATG	spacer length:
		35	repeater length: 25	
22258	572958	GTATCAGAAAAGAATGAATTGAAAG	CGTTGACGTGGATATTGACGCTGACTTGATTAAGTCA	spacer
		length: 37	repeater length: 25	
22259	573021	GTATCAGAAAAGAATGAATTGAAAG	TTCATCCGTTGTGTACGCTGTATATCTCCAGTATCCA	spacer
		length: 37	repeater length: 25	
22260	573084	GTATCAGAAAAGAATGAATTGAAAG	AGAAATCCCTTGGAGAGGCCTACCCGCACGTCAAAAT	spacer
		length: 37	repeater length: 25	
22261	573147	GTATCAGAAAAGAATGAATTGAAAG	ACATTGCAATAACGTATTCATAGTCGAGGCTGGGACG	spacer
		length: 38	repeater length: 25	
22262	573211	GTATCAGAAAAGAATGAATTGAAAG	AATAGCCACCGAGTGCTGGGCTAGGCGTGGCAGGTTCA	spacer
		length: 38	repeater length: 25	
22263	573275	GTATCAGAAAAGAATGAATTGAAAG	CACAGAGGAGGCTTTGATAATACAAAACCGTAATACTT	spacer
		length: 38	repeater length: 25	
22264	573339	GTATCAGAAAAGAATGAATTGAAAG	CTAATGAGAAACATATGTTATTAGCTATAGCATATTA	spacer
		length: 37	repeater length: 25	
22265	573402	GTATCAGAAAAGAATGAATTGAAAG	ATAGTAATCTCTCATTCAC TTCATGACAAACACGTTTTT	spacer
		length: 39	repeater length: 25	
22266	573467	GTATCAGAAAAGAATGAATTGAAAG	GCACCTTCTCGTTTTAACAGTTCGACGATTGTCTTACGCG	spacer
		length: 39	repeater length: 25	
22267	573532	GTATCAGAAAAGAATGAATTGAAAG	TTCCTCCCAGTGGTGATGCCCACTGGCTAGCCGTCGTGA	spacer
		length: 39	repeater length: 25	
22268	573597	GTATCAGAAAAGAATGAATTGAAAG	TCCGGCTCCGGTTCCGCCTCCGGAGCCAGGGAAAGGAGC	spacer
		length: 39	repeater length: 25	
22269	573662	GTATCAGAAAAGAATGAATTGAAAG	CGATAACGTATTCATATACTGCTTCTTCTACACTATCA	spacer


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length: 38 repeater length: 25
22270 573726 GTATCAGAAAAGAATGAATTGAAAG CGTTCTTCCCAGCTGTAGGGTGGTTCCGGCTCCCATAAT spacer
length: 39 repeater length: 25
22271 573791 GTATCAGAAAAGAATGAATTGAAAG CGAATAACTCGAAGGCATCCTTGTACTCGTACTTCTTG spacer
length: 38 repeater length: 25
22272 573855 GTATCAGAAAAGAATGAATTGAAAG ATGGTCCGAATTCTAGCTGTGGTATTCCATTTTCGTTT spacer
length: 38 repeater length: 25
22273 573919 GTATCAGAAAAGAATGAATTGAAAG ACGTGCGAGCACGCGTGCCACGTAGTCGGTTGACGGC spacer
length: 37 repeater length: 25
22274 573982 GTATCAGAAAAGAATGAATTGAAAG CAGTTCCTCCTCTTCTTCTCCCTCAATTTTGTTACGAA spacer
length: 38 repeater length: 25
22275 574046 GTATCAGAAAAGAATGAATTGAAAG AGGTAAAAATCGAGAAGAGGGAGGTGAAGAAG spacer length: 32
repeater length: 25
22276 574104 GTATCAGAAAAGAATGAATTGAAAG TTCACTATGAAC TGGTGGGGCGGCCTCGACGTTGTAG spacer
length: 38 repeater length: 25
22277 574168 GTATCAGAAAAGAATGAATTGAAAG GTAGCTCTCAGAAATTAACAAAGATATCGCGTGGCAGGAA spacer
length: 42 repeater length: 25
22278 574236 GTATCAGAAAAGAATGAATTGAAAG AGGACTATGTGTTCTTGTTCAGACGTTTTTGCTTGCA spacer
length: 37 repeater length: 25
22279 574299 GTATCAGAAAAGAATGAATTGAAAG AGCTGTCTTCTAGCCCATAGGAGGAAGTAGGTATCAG
22280
22281
22282 GCA_001006045.1_ASM100604v1_genomic.fna(findCrispr):
22283 START REPEAT
SPACER
22284 crispr 1
22285 682256 AGACTAAAA TAGGATTGAAAGAAGGTCAGGGTGAAGTACTTCGGGATACCGGACGAGGGCGTTAAAAAT spacer
length: 59 repeater length: 9
22286 682325 AGACTAAAA TAGGATTGAAAGGAGTAATAGGACACGTAAAGGGGCACCCTCATATGACGTTAAAAAT spacer
length: 57 repeater length: 9
22287 682392 AGACTAAAA TAGGATTGAAAGCGATTTCCTCCAGAGCAGAACTCACTCTCCTGAATGTGTTAAAAAT spacer
length: 56 repeater length: 9
22288 682458 AGACTAAAA TAGGATTGAAAGGTACCAATCTGGAACCAGTAGTGCTAGTCTTCTGCTGAAGTTAAAAAT spacer
length: 59 repeater length: 9
22289 682527 AGACTAAAA TAGGATTGAAAGCTATTATTTAAACAGCATTTTTTAATAATTTTAGCATGTTAAAAAT spacer
length: 57 repeater length: 9
22290 682594 AGACTAAAA TAGGATTGAAAGCGAGTTTTTCAATCTCCTCCATACTTGCCGTGGAGAAGTTAAAAAT spacer
length: 57 repeater length: 9
22291 682661 AGACTAAAA TAGGATTGAAAGCCTAACAGATAACCTACTAGTAGAAACATACGCTACAGTTAAAAAT spacer
length: 57 repeater length: 9
22292 682728 AGACTAAAA TAGGATTGAAAGATAATTGATTTTGGTGGTGCGGCATATCAATTCATACGTTAAAAAT spacer
length: 57 repeater length: 9
22293 682795 AGACTAAAA CTAAAAATAGGATTGAAAGATATTCAGTATGGCAAACCTCGGAAGAATGCTTGAAAGTT
22294
22295
22296 crispr 2
22297 365883 ATCCTATCTT AGTCTGATTTTAACATGTACTCGGCTGGGGAGGATCTGCTCAACGACTCGCCTTTC spacer
length: 56 repeater length: 10
22298 365950 ATCCTATCTT AGTCTGATTTTAACATAGCTGATGCGACATATTCGTCCCCAATCAGAGTGATCTTTC spacer
length: 57 repeater length: 10
22299 366018 ATCCTATCTT AGTCTGATTTTAAC TACGTCTTCGTTCCCTGAAAACCTCCCTCGACAGGGAGCTTTC spacer
length: 55 repeater length: 10
22300 366084 ATCCTATCTT AGTCTGATTTTAACGAACGTACCCGAGAACTTCAGCAGCCTTTAAAGATCTTTC spacer
length: 55 repeater length: 10
22301 366150 ATCCTATCTT AGTCTGATTTTAACGCTCGAGTGTGTCAACCCTTTTCATCGCAGAGTCAAGTCTTTC spacer
length: 57 repeater length: 10
22302 366218 ATCCTATCTT AGTCTGATTTTAACACTCCAGTTGGTGC GG TGGTCTCATCAGGAATCGTCGCTTTC spacer
length: 56 repeater length: 10
22303 366285 ATCCTATCTT AGTCTGATTTTAAC T CAGCTTGGTCACGAATTCGTCAAGGAACCTGAACTCCTTTC spacer
length: 56 repeater length: 10
22304 366352 ATCCTATCTT AGTCTGATTTTAAC TTTTCAGAGGCTAAAC TAAGCTTCAAGCCTGTATTGCTTTC spacer
length: 56 repeater length: 10
22305 366419 ATCCTATCTT AGTCTGATTTTAACATGTT CAGCGTCTCGTGCTTCTCCAGTGGTGTGAACGGCTTTC spacer
length: 57 repeater length: 10
22306 366487 ATCCTATCTT AAAATAGGATTGAAAGATATTCAGTATGGCAAACCTCGGAAGAATGCTTGAAAGTTAA
22307
22308
22309 crispr 3
22310 1166413 GAATCTCATAGGGAGAACGGAAA CCACGAGAGACCCGAATATATGCGTCGTTGGGATA spacer length:
35 repeater length: 23
22311 1166472 GAATCTCATAGGGAGAACGGAAA CACATCCTCGTAAGCAGAAGTCCGTAGTATATCATGTGCTC spacer

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length: 41 repeater length: 23

22312 1166537 GAATCTCATAGGGAGAACGGAAA CTTAACAACATCTGTCTATCTCTTTCACCTCGCAA spacer length: 34
repeater length: 23

22313 1166595 GAATCTCATAGGGAGAACGGAAA CAAAATCCACTCTGTCTGCACGCACTATCGTTTCCCTA spacer
length: 38 repeater length: 23

22314 1166657 GAATCTCATAGGGAGAACGGAAA CGTAATAGCACATGTGTATCTTTTTGTGTTCTCACCA spacer length:
37 repeater length: 23

22315 1166718 GAATCTCATAGGGAGAACGGAAA CTTATTATGTCCGGGTCTTCAAGCATTTCAACTGGTTCA spacer
length: 39 repeater length: 23

22316 1166781 GAATCTCATAGGGAGAACGGAAA CGCTGATGGCCACGGACATTTACTCGTTAGTGAGAGCAC spacer
length: 39 repeater length: 23

22317 1166844 GAATCTCATAGGGAGAACGGAAA CCCACGTAGCTCCACTTATTGTTCCATTATTACCATTTC spacer
length: 41 repeater length: 23

22318 1166909 GAATCTCATAGGGAGAACGGAAA AACGCTGATGGCCACGGACATTTACTCGTTAGTGAGAGCAC

22319

22320

22321 crispr 4

22322 273634 GCTCCACCTCTCCTTGTTTCTCCCTGAAC CTCCTCGATGAGCTGAAGCTTCTCAAACACCTCGTCT spacer
length: 38 repeater length: 30

22323 273703 GCTCCACCTCTCCTTGTTTCTCCCTGAAC TTGGAGGGGGATCTATCGTAATAGAGGAGCAGAACA spacer
length: 36 repeater length: 30

22324 273770 GCTCCACCTCTCCTTGTTTCTCCCTGAAC CCGACAGGGATTAAGAGAAAGTTCACCGACATTGA spacer
length: 35 repeater length: 30

22325 273836 GCTCCACCTCTCCTTGTTTCTCCCTGAAC TCCCCCATAACGTCAAAGGCAGGCTCGGTAAGAAT spacer
length: 35 repeater length: 30

22326 273902 GCTCCACCTCTCCTTGTTTCTCCCTGAAC GGGGACACGTTCCCCGTGAAGGATGTTGTGAAGAAGT spacer
length: 37 repeater length: 30

22327 273970 GCTCCACCTCTCCTTGTTTCTCCCTGAAC TCAGCAGCACGACAGAGCCGGTCTTCTCGTTCCCTCC spacer
length: 37 repeater length: 30

22328 274038 GCTCCACCTCTCCTTGTTTCTCCCTGAAC ACACTTCATATAAGCGAGATACCAGTTCTCACTATTC spacer
length: 37 repeater length: 30

22329 274106 GCTCCACCTCTCCTTGTTTCTCCCTGAAC AATGCAAAAAAGAGATAATAAAAGTCAGAACAGCTTAT spacer
length: 38 repeater length: 30

22330 274175 GCTCCACCTCTCCTTGTTTCTCCCTGAAC GATACGATGTCACGGTTTATGAGGAGCACGAGCAGA spacer
length: 36 repeater length: 30

22331 274242 GCTCCACCTCTCCTTGTTTCTCCCTGAAC CCAATGTTAATCTGATTGTCTCTCAGCGTCTCGAA spacer
length: 35 repeater length: 30

22332 274308 GCTCCACCTCTCCTTGTTTCTCCCTGAAC GCACGCGAGGTTGCACTCGTTGTACGGGAAGATGATG spacer
length: 37 repeater length: 30

22333 274376 GCTCCACCTCTCCTTGTTTCTCCCTGAAC CAGTATGGCAAACCTCGGAAGAATGCTTGAAAGTTAAA

22334

22335

22336 GCA_001027005.1_ASM102700v1_genomic.fna(findCrispr):

22337 START REPEAT

SPACER

22338 crispr 1

22339 1269177 AAAGACCCCGAAAACGTAGC
CTATCAGTCAGATGTAGCAATGACAATCAACAATTTAGGTGCCTTACTTTCTGATATGGGGCGCATTGAAGAGGCAAAACAAAAT
ACGAAAAAGCACTCGAAATAAGGCAAAACTCCTCCA spacer length: 123 repeater length: 20

22340 1269321 AAAGACCCCGAAAACGTAGC
TTATCAATCTTACGTAGGAACGACGCTCAACAATTTAGGTACCTTACTTTCTGATATGGGGCGAGTTGAAGAGGCAAAACAAAGGT
ACGAAAAAGCACTTGAAATGAGGCAAAACTCCTCCA spacer length: 123 repeater length: 20

22341 1269465 AAAGACCCCGAAAACGTAGC
CCTACATAGACTGACCAATGATGAAGTCAGTCATGTGAGATCCTCCTCAAATCATTCTCTTGAAGAGTTTCAATATTATGCGCTT
CCCAGGCAGAAACAGATGAAGATTACAAAAAGAATT

22342

22343

22344 crispr 2

22345 3346138 ACTGTTGTCTGAGGAGTTAT TTCCACTATTGTTGTCTGAGGAGTTATTTCCAC spacer length: 33
repeater length: 20

22346 3346192 ACTGTTGTCTGAGGAGTTAT
CACTACCATTTGTCTGAGGAGTTATCACTACCATTTGTCTGAGGAGTTATCACTACCATTTGTCTGAGGAGTTGTTTCCAC
spacer length: 78 repeater length: 20

22347 3346291 ACTGTTGTCTGAGGAGTTAT
TATCTAACTGGTATAAAACAATAACAGTAAATAAAACAGTTGATCAGGAAAACGAATCAGAAAGTAACAATACAGATA

22348

22349

22350 crispr 3

22351 179254 CATC
ATGGCTCAGAACAAAAGCTTGTTTACCTGTAGCTGCATCCCATATGCGTGCTTTATGGTCATTACTAGCCGTAGCGATATATTTTC
CATCAGGACTGAACACAACGTCATTCACCCAA spacer length: 118 repeater length: 4

22352 179377 CATC
ATGGCTCAGAACAAAAGCTTTACCTGTAGCTGCATCCCATATGCGTGCTGTGTTGTCCTTGCTTGCTGTAGCTATGTATTTTCCAT
CAGGGCTGAACACAACATCATTTACTGGA spacer length: 115 repeater length: 4

22353 179497 CATC
ATGGCTCAGAACAAAAATTTGTTTACCTGTAGATGCGTTCCATACGCATGATGTGTTGTCACCACTCGCTGTTACGATGTATTTTC
CATCAGGACTGAAAGCAACATTATTCACCCAA spacer length: 118 repeater length: 4

22354 179620 CATC
ACAGAAACAGAAGCAGGAAAAAATACAACAACCTCAAGAAACAGGAGAAGACATTGAGCAAGAGACTGACCTAGCTGACTCTATTTT
ACATTACAAAAGTGATATAAAATAGAAGAAAACA

22355

22356

22357 crispr 4

22358 2110371 CGTTTTTCACAAATTAAGGG AAATAATACCGTTTTTCATAAATTAAGAGGAGTAATA spacer length: 37
repeater length: 20

22359 2110429 CGTTTTTCACAAATTAAGGG GAATAATACCGTTTTTCACAAATTAATAAGAATAATA spacer length: 37
repeater length: 20

22360 2110487 CGTTTTTCACAAATTAAGGG CTACATAGACTGACCAATGATGAAGTCAGTCATGTGA

22361

22362

22363 crispr 5

22364 875108 TGTTGTTTTTCAGTCCTGATG
GAAAATATGTTGCTACGGCAAGTGATGACAAAACAGCACGTTTATGGAACGTATCTACAGGTAAACAAATTTTTGTTCTGAACCAT
ACTGGTAGGGTAAATA spacer length: 102 repeater length: 20

22365 875231 TGTTGTTTTTCAGTCCTGATG
AAAAATACATCGCAACGGCAAGTAATGACAAGACAGCACGTTTATGGAACGTATCTACAGGCAAACAAATCTTTGTTCTGAACCAT
GCTGGTCCGGTGCGTA spacer length: 102 repeater length: 20

22366 875354 TGTTGTTTTTCAGTCCTGATG
ATCTAACTGGTATAAAACAATAACAGTAAATAAAACAGTTGATCAGGAAAACGAATCAGAAAGTAACAATACAGATAGCCAAGAAA
ACATCGAAGAAGATAA

22367

22368

22369 crispr 6

22370 2051661 TTAGCTCCTTGAAGATTAGC
TCCTTGAAGGTTCACTCCTTGAAGATTAGCTCCTTGAAGGTTGCTCCTTGAAGATTAGCTTTTTGAAGATTAACGTCTTTAAGGT
AAGACCCCTGAAG spacer length: 99 repeater length: 20

22371 2051781 TTAGCTCCTTGAAGATTAGC TCCTTGAAGGTTGCTCCTTGAAGGTCCCCTACAAG spacer length: 36
repeater length: 20

22372 2051838 TTAGCTCCTTGAAGATTAGC ATGCGTTCCATAAACGTGCTGTGTTGTCATCACTCG

22373

22374

22375 crispr 7

22376 192314 TTAGTTTTTAATAAAGATAG CCGCGTATGTAGGTTACTAAT spacer length: 21 repeater length:
20

22377 192356 TTAGTTTTTAATAAAGATAG TCGTGTATGTAGGTTACTAAT spacer length: 21 repeater length:
20

22378 192398 TTAGTTTTTAATAAAGATAG AAAAAATACAACAACCTCAAGA

22379

22380

22381 crispr 8

22382 3397724 AAGATAAGTTACTATTGAAGA
TAGTTAACTATTGAAAATAACTTACTATTGAAGACAATTCACTATTGAAGACAATTCACTATA spacer length: 63
repeater length: 21

22383 3397809 AAGATAAGTTACTATTGAAGA TAGTTCATTATTGAAGATAGTTCACTATTGAAAATAACTTACTATT spacer
length: 46 repeater length: 21

22384 3397877 AAGATAAGTTACTATTGAAGA TAATTCTCAAAAAGATAATTCTCAAAGATATGGTCTATCATACTT

22385

22386

22387 crispr 9

22388 1370183 ACTACCCTGTAATGACTACCT TGTAATGACTACCTTGTAAT spacer length: 20 repeater
length: 21

22389 1370225 ACTACCCTGTAATGACTACCT TGTAATGACTACCTTGTAATAATTACCTTGTAATGACTACCTTATAAT
spacer length: 48 repeater length: 21

22390 1370295 ACTACCCTGTAATGACTACCT AACTAAATTAAATCAAGCTAAATCAAATAACTAAATTAATTAAGCT

22391

22392

22393 crispr 10

22394 432766 ATTCGATGTAGTTGAAGAGGA ATTTGATGTAGTTGAAGAGG spacer length: 20 repeater length:
21

22395 432808 ATTCGATGTAGTTGAAGAGGA ATTTGATGTAGTTGAAGAGGAATTTGATGTAGTTGAAGAGA spacer
length: 41 repeater length: 21

22396 432871 ATTCGATGTAGTTGAAGAGGA CAGAAACAGAAGCAGGAAAAAATACAACAACCTCAAGAAACA

22397
22398
22399 crispr 11
22400 3373482 TCATTTAAGATCTTTTGGAAAT TCAATTAATATCTTTTGGAA spacer length: 20 repeater
length: 21
22401 3373524 TCATTTAAGATCTTTTGGAAAT TGCCTTTACATCTTTTGGAA spacer length: 20 repeater
length: 21
22402 3373566 TCATTTAAGATCTTTTGGAAAT CAGAAACAGGAAAAAATACA
22403
22404
22405 crispr 12
22406 192234 TTTTAATAAAGATAGTCGTGT
GTGCAGGTTGCTGGTTTTAATTTTTAATAAGAAATAGTCATGTGTGTAGGTTACTGGTATTAGTTTTTAATAAAGATAGCCGCGTA
TGTAAGTTACTAATTTTAG spacer length: 105 repeater length: 21
22407 192361 TTTTAATAAAGATAGTCGTGT ATGTAGGTCACATAATTTTAG spacer length: 20 repeater length:
21
22408 192403 TTTTAATAAAGATAGTCGTGT CTAAGTGGTATAAAACAATA
22409
22410
22411 crispr 13
22412 452066 ATGTTTCATAAGTGTAATTTT TTGGTATTGATTACGATATT spacer length: 20 repeater
length: 22
22413 452109 ATGTTTCATAAGTGTAATTTT TTGTTATTGATTACGATATT spacer length: 20 repeater
length: 22
22414 452152 ATGTTTCATAAGTGTAATTTT CGTTCCATAAACGTGCTGTG
22415
22416
22417 crispr 14
22418 3703606 CAAGCCTATTGTTTTCAATCGA GAGAAACAGTTTGACTCTAATT spacer length: 22 repeater
length: 22
22419 3703651 CAAGCCTATTGTTTTCAATCGA AAGAAACAGTTTGACTCTAATT spacer length: 22 repeater
length: 22
22420 3703696 CAAGCCTATTGTTTTCAATCGA GTACATCTGAGCAAAATAACTC
22421
22422
22423 crispr 15
22424 502841 TATTTTCTGACGTGCCAGATAA
GCAACAGGCATACAATGACTTAATTAGACTCCTCACTGATCAAGACGATGAAGTGAAATCTTGGCCCGCTAAAGTTTTAATGGAT
spacer length: 85 repeater length: 22
22425 502949 TATTTTCTGACGTGCCAGATAA
GCAACAGGCATACAATGACTTAATTAGACTTATCACTGATCAAAACCGCAAAGTAAGAACATATGCCTCTTACATTCTTAAACT
spacer length: 85 repeater length: 22
22426 503057 TATTTTCTGACGTGCCAGATAA
GCAACAGGCATACAATGACTTAATTAGACTCCTCACTGATCAAAACGACGAAGTGAAAGCATGGCCCGCTAAAGTTCTAATGGAT
spacer length: 85 repeater length: 22
22427 503165 TATTTTCTGACGTGCCAGATAA
ACAACAGGCATACTATGACTTAATTAGACTTATCACTGATCAAGATCGTAATGTGAGAACGTACGCCGCTGAAACTCTTACGACT
spacer length: 85 repeater length: 22
22428 503273 TATTTTCTGACGTGCCAGATAA
GCAACAGGCATACAATGACTTAATTAGACTCCTCACTGATCAAGACGATGAAGTGAAAGTGTGGCCCGCTAAAGTTCTAATGGAT
spacer length: 85 repeater length: 22
22429 503381 TATTTTCTGACGTGCCAGATAA
AAATACAACAACTCAAGAAACAGGAGAAGACATTGAGCAAGAGACTGACCTAGCTGACTCTATTTTACATTACAAAGTGATATAA
22430
22431
22432 crispr 16
22433 3262 TCGTTCACTCAATTCGTTTATT GAAACTGTTTCATTAACCGTTCATTAAA spacer length: 29 repeater
length: 22
22434 3314 TCGTTCACTCAATTCGTTTATT AAAGTTCGTTTCATTAACCGTTCATTAAA spacer length: 29 repeater
length: 22
22435 3366 TCGTTCACTCAATTCGTTTATT AACAACTCAAGAAACAGGAGAAGACATTG
22436
22437
22438 crispr 17
22439 2416851 TGATCCCGTAATAGACTTCATT GCGCGTATCTGTAAAATGAAGCAAATTCAGGACAGCTTCAAAA spacer
length: 43 repeater length: 22
22440 2416917 TGATCCCGTAATAGACTTCATT AACGCGCATCCGTAAAATGAAGAAAATTCAGGACAACTTCAAAA spacer
length: 44 repeater length: 22
22441 2416984 TGATCCCGTAATAGACTTCATT AATAAGTCAAATTAAGCTAACTAAATTAATCAAGCTAAATCA
22442
22443

22444 crispr 18
22445 4359688 AATTTGAGGGTATGAATTTGATA ATGTTAATTTGAGGGTATGAATTTGAGGGTATGAATTTGAGGGTAT
spacer length: 46 repeater length: 23
22446 4359758 AATTTGAGGGTATGAATTTGATA
GTGTGAATTTGATAGTGTGAATTTGATAGTGTGAATTTGATAGTGTGAATTTGATAGTGTGAATTTGATAATGTTAATTTGAGGGT
ATGAATTTGAGGGTATGAATTTGAGGGTAT spacer length: 116 repeater length: 23
22447 4359898 AATTTGAGGGTATGAATTTGATA
CTAGATGTCAAGATCCACGATAACCGAGTAATTGAGCCTGCAAATAAGAAATATATTCCTATTATAGAAGAATAACGTTACAAACA
AAGCATTACATACATTTTATAGAAGAATAA
22448
22449
22450 crispr 19
22451 3324307 ACCTTTTCTTAGTAATCCTTTCT TAGTAACCTTTTCTTAGTAACCTTTTCTTAGT spacer length: 32
repeater length: 23
22452 3324363 ACCTTTTCTTAGTAATCCTTTCT TAGTAACCTTTTCTTAGTAACCTTTTCTTAGC spacer length: 32
repeater length: 23
22453 3324419 ACCTTTTCTTAGTAATCCTTTCT TCAGTCAGATGTAGCAATGACAATCAATAATT
22454
22455
22456 crispr 20
22457 3229499 AGATTCTAACTCTTATTCTAACT
CTTATTCTAACTCTTATTCTAAGATTCTAACTCTTATTCTAAGATTCTAACTCTTATTCTAAGATTCTAACTCTTATTCT
spacer length: 80 repeater length: 23
22458 3229603 AGATTCTAACTCTTATTCTAACT CTTATTCTAACTCTTATTCT spacer length: 20 repeater
length: 23
22459 3229647 AGATTCTAACTCTTATTCTAACT TTCTCAAAAAGATAATTCTC
22460
22461
22462 crispr 21
22463 793490 GGACGAGAGGAAGAGGCTATTGA
GTTTTATAATAAAGCTCTTGAAATCAAACCTGATGACTACAATTCTCTAAGAAATAAAGGTGTTTCTCTCAGTAACT
spacer length: 78 repeater length: 23
22464 793592 GGACGAGAGGAAGAGGCTATTGA
GTTTTATGATAAAGCTCTTGAAATCAAGCCTGATTACTACGGTTCTCTGAGAAATAAAGGTGTTTCTCTCAGTAACCT
spacer length: 78 repeater length: 23
22465 793694 GGACGAGAGGAAGAGGCTATTGA
TTTGTTTAATAAAGCTCTTGAAATCAAGCCTGATGACTACAATTCTCTAAGAAATAAAGGTGCTTCTCTCAGTAACT
spacer length: 78 repeater length: 23
22466 793796 GGACGAGAGGAAGAGGCTATTGA
GTTTTATAATAAAGCTCTTGAAATCAAACCTGATGACTACAATTCTCTAAGAAATAAAGGTGTTTCTCTCAGTAACT
spacer length: 78 repeater length: 23
22467 793898 GGACGAGAGGAAGAGGCTATTGA
TAAATTAAATCAAGCTAAATCAAACCTAACTAAATTAATTAAGCTAATTAATCTAAGCTACGTAAAGCTAAATTAAC
22468
22469
22470 crispr 22
22471 2356907 GGTTTGGTTTAAAGTAAGTTTTG TTTGGTTTAAAGGTGTGTTT spacer length: 20 repeater
length: 23
22472 2356951 GGTTTGGTTTAAAGTAAGTTTTG GTTTGGTTTGAAGGTGTATTTTGGTTTGGTTTAAAGTACGTTTT spacer
length: 44 repeater length: 23
22473 2357019 GGTTTGGTTTAAAGTAAGTTTTG AAACAGAAGCAGGAAAAAATACAACAACCTCAAGAAACAATAGAA
22474
22475
22476 crispr 23
22477 3521514 AAAGATAATTCTCAAAGAGATAAT TCTCAAAGAGATAATTCTCA spacer length: 20 repeater
length: 24
22478 3521559 AAAGATAATTCTCAAAGAGATAAT TCTCAAAGAGATAATTCTCA spacer length: 20 repeater
length: 24
22479 3521604 AAAGATAATTCTCAAAGAGATAAT TCTCAAAAAGATAATTCTCA spacer length: 20 repeater
length: 24
22480 3521649 AAAGATAATTCTCAAAGAGATAAT AACAGGAAAAAATACAGATA
22481
22482
22483 crispr 24
22484 725946 ATGAATTCAAAGTGAAATGAATTC GAAGTGAAATGAATTCGAAGTGAAATGAATTCGAAGTGA spacer
length: 39 repeater length: 24
22485 726010 ATGAATTCAAAGTGAAATGAATTC
AAAGTGAAATGAACTCAAAGGTAAATGAACTCAAAGGTAAATGAACTCAAAGGTAAATGAACTCAAAGGTAA spacer
length: 71 repeater length: 24
22486 726106 ATGAATTCAAAGTGAAATGAATTC
GGAAAAAATACAACAACCTCAAGAAACAGGAGAAGACATTGAGCAAGAGACTGACCTAGCTGACTCTATTTT

22487
22488
22489 crispr 25
22490 314601 GAATCTGAAAAAGATGAGATAAAA
ACTGATGAGACAGGTGAAACTGGTGAAGAGCTGAGTAGGATTAATAAAGGCGATGGAAAACTGGATTTCAGTGAAGAATTAAACGC
TGAGCGTAACGACTATCTTAAGAC spacer length: 110 repeater length: 24
22491 314736 GAATCTGAAAAAGATGAGATAAAA ACTGATGAGACAGGTGAAACTGGTGATGAGAT spacer length: 32
repeater length: 24
22492 314793 GAATCTGAAAAAGATGAGATAAAA TAAGCTAAACTAAATTAAATCAAGCTAAATCA
22493
22494
22495 crispr 26
22496 1836855 TCTAAACAAAGTATATCTGAACAA AATTTCACTAAACAAAACCTT spacer length: 20 repeater
length: 24
22497 1836900 TCTAAACAAAGTATATCTGAACAA
AACTTCACTAAACAAAATTTCCCTAAACAAGTCTTATTTAAACAAAATAACTCTAAACAGTATCTTTCTGAGCAAAATAA
spacer length: 80 repeater length: 24
22498 1837005 TCTAAACAAAGTATATCTGAACAA
CTACACTTATCCTCTCTGATAATCAATTAAGTTCGCTGCCGCCAGAAATATTAGAATTAGGTATAGATATTGAGTGGGAA
22499
22500
22501 crispr 27
22502 3220842 ATTACTTTCTATATTGATAAAGAAA CATAGAATTATTACTTTTAT spacer length: 20 repeater
length: 25
22503 3220888 ATTACTTTCTATATTGATAAAGAAA
CATAGAATTATTACTTTTATCATTACTTTTTATATTGATAAAGAGACATAGAATTATTACCTCTAT spacer length: 66
repeater length: 25
22504 3220980 ATTACTTTCTATATTGATAAAGAAA
AAAATAAGTCAAATTAAGCTAAACTAAATTAAATCAAGCTAAATCAAACCTAACTAAATTAATTAA
22505
22506
22507 crispr 28
22508 4299199 TATCCTGATGAGTTATAGGAAAACA TAAGACTGATTTAAATAGATGACTATTC spacer length: 28
repeater length: 25
22509 4299253 TATCCTGATGAGTTATAGGAAAACA GAAGACTGATTTAAATAGATGACTATTC spacer length: 28
repeater length: 25
22510 4299307 TATCCTGATGAGTTATAGGAAAACA TGGTATAAAACAATAACAGTAAATAAAA
22511
22512
22513 crispr 29
22514 167056 TTATCAGAATACGTCTATTGATAAT GTTTTATATTCACTGATAAT spacer length: 20 repeater
length: 25
22515 167102 TTATCAGAATACGTCTATTGATAAT GTTTTATATTTACTGATAAT spacer length: 20 repeater
length: 25
22516 167148 TTATCAGAATACGTCTATTGATAAT CCATAAACGTGCTGTGTTGT
22517
22518
22519 crispr 30
22520 1765164 TTGTTAGGTTTCTAGCCTCAGTTCC ATTATCCTTTTTTCCCTAGT spacer length: 20 repeater
length: 25
22521 1765210 TTGTTAGGTTTCTAGCCTCAGTTCC GTTATCCCTTAATCCCTAAGT spacer length: 21 repeater
length: 25
22522 1765257 TTGTTAGGTTTCTAGCCTCAGTTCC ATCTGAGCAAAATAACTCTAA
22523
22524
22525 crispr 31
22526 1769452 AAGAATTCAGGTTAGAATTCAGGTTAGA ATTCAGGTTAGAATTTAGGT spacer length: 20 repeater
length: 28
22527 1769501 AAGAATTCAGGTTAGAATTCAGGTTAGA
ATTCAGGTTAGAATTCAGGTTAGAATTCAGGTTAGAATTCAGGTTAGAATTTAGGT spacer length: 56 repeater
length: 28
22528 1769586 AAGAATTCAGGTTAGAATTCAGGTTAGA
ACAGAAACAGAAGCAGGAAAAAATACAACAACCTCAAGAAACAGGAGAAGACATTGA
22529
22530
22531 crispr 32
22532 2376808 GAGTTCCCCACAGGCGTGGGGATGAACC GACGTTGCCCCGCTGGATTTAGGAGCATAACT spacer length:
32 repeater length: 28
22533 2376869 GAGTTCCCCACAGGCGTGGGGATGAACC GCTGTTGACAGCAAAGACACTGGAGTAATTGA spacer length:
32 repeater length: 28
22534 2376930 GAGTTCCCCACAGGCGTGGGGATGAACC GTATTTTTGAAATTTCTACAACCTTTATTAGAC spacer length:

32 repeater length: 28

22535 2376991 GAGTTCCCCACAGGCGTGGGGATGAACC GTGATTCCGTTGAAATCTTCTTTGAGGTCATC spacer length:
32 repeater length: 28

22536 2377052 GAGTTCCCCACAGGCGTGGGGATGAACC GGCATATCTTTTATTTTGCCGTCCTAAATTGA spacer length:
32 repeater length: 28

22537 2377113 GAGTTCCCCACAGGCGTGGGGATGAACC GCTTTGAACAACCTTGTTAATGGCAGAGCCTGA spacer length:
32 repeater length: 28

22538 2377174 GAGTTCCCCACAGGCGTGGGGATGAACC GATTTTTACTGCAGTTTCTATTTCAAACGTTTC spacer length:
32 repeater length: 28

22539 2377235 GAGTTCCCCACAGGCGTGGGGATGAACC GTTACCGGTGTTAAACTGTTGTTATCGAAGA spacer length:
32 repeater length: 28

22540 2377296 GAGTTCCCCACAGGCGTGGGGATGAACC GATATTATTTTAAACATTTATTCGCATACCAC spacer length:
32 repeater length: 28

22541 2377357 GAGTTCCCCACAGGCGTGGGGATGAACC GGTGGAGAATTGTTTATAAAACGTGCATTAAA spacer length:
32 repeater length: 28

22542 2377418 GAGTTCCCCACAGGCGTGGGGATGAACC GTTAATTCTTGTATGAGTAATAAAAGATAAAT spacer length:
32 repeater length: 28

22543 2377479 GAGTTCCCCACAGGCGTGGGGATGAACC GTTGATGCATTGCTCAAAAGTTGGCCATCGAA spacer length:
32 repeater length: 28

22544 2377540 GAGTTCCCCACAGGCGTGGGGATGAACC GGTAGTGTAGACCATGACCAGGTTCTAAGTA spacer length:
32 repeater length: 28

22545 2377601 GAGTTCCCCACAGGCGTGGGGATGAACC GGCGAAATCATGAAAATAATACTTCCTTCCAA spacer length:
32 repeater length: 28

22546 2377662 GAGTTCCCCACAGGCGTGGGGATGAACC GATCGATGAGCTACGCCATCATAGAGTAAAAT spacer length:
32 repeater length: 28

22547 2377723 GAGTTCCCCACAGGCGTGGGGATGAACC GACTGCAACAGATAGGGGGACTTGCAGATCTA spacer length:
32 repeater length: 28

22548 2377784 GAGTTCCCCACAGGCGTGGGGATGAACC GTACATAGAATAAAGGAGGAGTCAAAATGACA spacer length:
32 repeater length: 28

22549 2377845 GAGTTCCCCACAGGCGTGGGGATGAACC GTTGACTGCTGAACAGAGAGAGGTTTATGAAA spacer length:
32 repeater length: 28

22550 2377906 GAGTTCCCCACAGGCGTGGGGATGAACC GCTCTAGAAATTCGGGATTTTGATATTAGTGC spacer length:
32 repeater length: 28

22551 2377967 GAGTTCCCCACAGGCGTGGGGATGAACC GCTATTTTGGAAATGTGACTGAGGAAAATGAA spacer length:
32 repeater length: 28

22552 2378028 GAGTTCCCCACAGGCGTGGGGATGAACC GTTATTTATTATAATATTAGTGGATTGGATAT spacer length:
32 repeater length: 28

22553 2378089 GAGTTCCCCACAGGCGTGGGGATGAACC TTTCTCATTTACAAGATATCTGCCATTCTCT spacer length:
32 repeater length: 28

22554 2378150 GAGTTCCCCACAGGCGTGGGGATGAACC TTTCTCATTTACAAGATATCTGCCATTCTCT spacer length:
32 repeater length: 28

22555 2378211 GAGTTCCCCACAGGCGTGGGGATGAACC GCAGTATAACCCATCTCCTCAGCAGCTGCTTT spacer length:
32 repeater length: 28

22556 2378272 GAGTTCCCCACAGGCGTGGGGATGAACC GGTACTTCACATAATGTTATACTGTTTTTTAA spacer length:
32 repeater length: 28

22557 2378333 GAGTTCCCCACAGGCGTGGGGATGAACC GTGATGAGGACACCGCGTTAGCATCTGAAAAT spacer length:
32 repeater length: 28

22558 2378394 GAGTTCCCCACAGGCGTGGGGATGAACC GAACCCCGTGAACGTTCCATCGTACTCTGATA spacer length:
32 repeater length: 28

22559 2378455 GAGTTCCCCACAGGCGTGGGGATGAACC GCAGTATCAGGGATGAATAATACATCTCTAGG spacer length:
32 repeater length: 28

22560 2378516 GAGTTCCCCACAGGCGTGGGGATGAACC GGTTTCACCGTCTGCAATATATCTGATTAC spacer length:
32 repeater length: 28

22561 2378577 GAGTTCCCCACAGGCGTGGGGATGAACC GCTTATGCAATGGCGCGTGGAAAAATAACACA spacer length:
32 repeater length: 28

22562 2378638 GAGTTCCCCACAGGCGTGGGGATGAACC GCCTAGAATCTGAATTTCAAATTGTCTTACA spacer length:
32 repeater length: 28

22563 2378699 GAGTTCCCCACAGGCGTGGGGATGAACC GATATCAGCCTCATGATTACCTGTTCTGATGA spacer length:
32 repeater length: 28

22564 2378760 GAGTTCCCCACAGGCGTGGGGATGAACC ACAACTCAAGAAACAGGAGAAGACATTGAGCA

22565

22566

22567 crispr 33

22568 217292 GGAAATCACAGAACTGAAAAATCTTACTA GACTTGACATATCTCGTAATGAATTGACTTCGTTGCCTT spacer
length: 39 repeater length: 29

22569 217361 GGAAATCACAGAACTGAAAAATCTTACTA GACTTGACATATCTCGTAATAAATTGACTTCGTTTCCTC spacer
length: 39 repeater length: 29

22570 217430 GGAAATCACAGAACTGAAAAATCTTACTA AAATTAAGCTAAACTAAATTAAATCAAGCTAAATCAAAC

22571

22572

22573 crispr 34

22574 3141419 TAAATCAAGCTAAAATAAGTCAAATTAAG CTAAAATAAGTTAACTAAG spacer length: 20
repeater length: 29

22575 3141469 TAAATCAAGCTAAAATAAGTCAAATTAAG CTAAAATAAATTAACTAAG spacer length: 20
repeater length: 29

22576 3141519 TAAATCAAGCTAAAATAAGTCAAATTAAG TCAAGATCCCACGATACCGA

22577

22578

22579 crispr 35

22580 1532342 GTTACAGTTTTTCAGTACAGTTGTCACAGCA
GTTATCTGCACAGTTGGACCCGTTACAGTTGTCACAGCAGTTATCTACACAGTTGGATC spacer length: 59
repeater length: 30

22581 1532432 GTTACAGTTTTTCAGTACAGTTGTCACAGCA
TTCTCCTTTGCAATCCTGGCCACAAACATCTGCACATTCTGCACAGCAGTTTCCTGTACAGTCTGATCCATTACAGTTTTTCAGTAC
AGTTACAGTTTTTCAGTAC spacer length: 104 repeater length: 30

22582 1532567 GTTACAGTTTTTCAGTACAGTTGTCACAGCA
CTCTCCTTTGCAATCCTGGCCACAAACATCTGCACATTCTGCACAGCAGTTTCCTGCACAGTCTGATCCATTACAGTTTTTCAGTAC
spacer length: 86 repeater length: 30

22583 1532684 GTTACAGTTTTTCAGTACAGTTGTCACAGCA
TCAGGTTAAGAATTCAGGTTAAGAATTCAGGTTTTGCCCTGAATTCGGAAAAATAAAATTAAAAAGCTGCGTTGATCATGACAAGT

22584

22585

22586 crispr 36

22587 2308854 TCTTATATTGGGTCTTATCTTATATTGGAT CTTATCTTATATTGGATCTTATCTTATATTGGATCTT spacer
length: 37 repeater length: 30

22588 2308922 TCTTATATTGGGTCTTATCTTATATTGGAT CTTATCTTATATTGGGTCTT spacer length: 20
repeater length: 30

22589 2308973 TCTTATATTGGGTCTTATCTTATATTGGAT AGTGAAGACAAATCACCACC

22590

22591

22592 crispr 37

22593 547267 AATCTGTCTATTTTCAATTTTGCTATCAATAT CTATCAAATTGATAACAATTAA spacer length: 22
repeater length: 32

22594 547322 AATCTGTCTATTTTCAATTTTGCTATCAATAT TTATCAAATTGATAACAATTAA spacer length: 22
repeater length: 32

22595 547377 AATCTGTCTATTTTCAATTTTGCTATCAATAT GATAATTCTCAAAGATATGGTC

22596

22597

22598 crispr 38

22599 2176206 GAATCAAAAAATTCAGAAGCTAATGTATCTAA
TTTGAAATATAAAACAAATAACAGTAAATGAAACAGTTGAAAGGGAAAACAAATCAGAAAGTAACGATACAGATAGCAAAGAAAATA
TCGAAAAAAA spacer length: 96 repeater length: 32

22600 2176335 GAATCAAAAAATTCAGAAGCTAATGTATCTAA
CTGGTATAAAAACAATAACAGTAAATAAAACAGTTGAAAGGGAAAACAAATCAGAAAGTAACGATACAGATAGCAAAGAAAATATCG
AAAAAAA spacer length: 93 repeater length: 32

22601 2176461 GAATCAAAAAATTCAGAAGCTAATGTATCTAA
GCGTCCTCTTGAAAGCTCATGATAGGTCACGTATTCGTGAGCAAGATCCATTAAACAAGGATTGAAACATACAGCTTTTGGGCA
TACATTC

22602

22603

22604 crispr 39

22605 3105266 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTTCTTTTTGTTTTATTTTCTCTCAATTCAGTTTGGTG
spacer length: 42 repeater length: 32

22606 3105341 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTTGTTTGGCTCTTTGTTTTCTCTGGTGCACTGAATA
spacer length: 41 repeater length: 32

22607 3105415 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTCACTTTGACCTCTTTAAATATTTTTTATTTCTAT
spacer length: 40 repeater length: 32

22608 3105488 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTTGGTTTTATCCAGATTCCACGAGAGATATTCGCCT
spacer length: 41 repeater length: 32

22609 3105562 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACCTCGACAAGCGTGAATATCGTTTTCAAAGCTTTTTGTT
spacer length: 43 repeater length: 32

22610 3105638 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACCATATTCTAGTCTCCCTATATCCTCTATAGTTC
spacer length: 38 repeater length: 32

22611 3105709 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACATTATCCATCCTCCCAGCCGTCATTGTAAAG
spacer length: 38 repeater length: 32

22612 3105780 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTTCAGTTTCCGACAGAATTTCCATCTTGGCAAAAC
spacer length: 40 repeater length: 32

22613 3105853 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACCTTCTATCTTTTTTAATAAAATTCTCCGTTGCTCATTC
spacer length: 42 repeater length: 32

22614 3105928 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTATTTACCTTTACTTATATAGACTAAAAGTATTATC
spacer length: 41 repeater length: 32

22615 3106002 GTCGAGAAAGTAGACTCCACGAAAACAAGGATT GAAACTTTAATTGTTTACGTTTACGGTAACACCTCCTTTTT

spacer length: 41 repeater length: 32
 22616 3106076 GTCGAGAAGTAGACTCCACGAAAACAAGGATT GAAACTAGCATAATCTGAATCCCATGCTATCGGTCTATA
 spacer length: 39 repeater length: 32
 22617 3106148 GTCGAGAAGTAGACTCCACGAAAACAAGGATT TAAACTAGCATAATCTGAATCCCATGCTATCGGTCTATA
 spacer length: 39 repeater length: 32
 22618 3106220 GTCGAGAAGTAGACTCCACGAAAACAAGGATT GAAACTATCTAAGATATTTCTAGATATTTTTCTTTCTCTT
 spacer length: 40 repeater length: 32
 22619 3106293 GTCGAGAAGTAGACTCCACGAAAACAAGGATT GAAACAACTTCATCTTAGTCTTTTGGTTTGCCATTTACA
 spacer length: 39 repeater length: 32
 22620 3106365 GTCGAGAAGTAGACTCCACGAAAACAAGGATT TGA CTCTTATTCTTTTGACCTGATTATGTTTCCAAACAC
 22621
 22622
 22623 crispr 40
 22624 180361 CAAAAATTTGTTTCACCTGTATATGCGTTCCATA
 AACGTGCTGTATTGTCTACTCGCCGTAGCGATGTATTTTCCATCAGGACTAAATACAACACTCTTCACCTCACCATTATACGTT
 AAAGTGCATGTTTAAAGA spacer length: 104 repeater length: 33
 22625 180499 CAAAAATTTGTTTCACCTGTATATGCGTTCCATA
 CGCATGCTGTACTGTCAAAACTCGCCGTAGCAATGTATTTTCCATCAGGACTGAATACAACATTATATACCAGACCATCATGGTTC
 AGA spacer length: 89 repeater length: 33
 22626 180622 CAAAAATTTGTTTCACCTGTATATGCGTTCCATA
 TTAAATCAAGCTAAATCAAACCTAACTAAATTAATTAAGCTAATTAATCTAAGCTACGTAAAGCTAAATTAACCTAAAGCTAAATTA
 AAT
 22627
 22628
 22629 crispr 41
 22630 4474331 TATGCTATGACCCAGAACAATATCGGAAATGCA
 CACAGTACACTGGCAGAAAGTAGAAGAAAAGGCACTAAGCTACAAGAAGGCAATAGAAGTATTTCAAAGGCCCTGAAATCACAAC
 TGTAAAAGAGTTTCCAATGGA spacer length: 107 repeater length: 33
 22631 4474472 TATGCTATGACCCAGAACAATATCGGAAATGCA
 TACAGTACACTGGCAGAAAGTGGAAAGAAAAGGCACTAAACTGCAAGAAGGCAATAGAAGCATTTCAAAAGGCCCTGAAATCACAAC
 TGTAAAAGAGTTTCCAATGGA spacer length: 107 repeater length: 33
 22632 4474613 TATGCTATGACCCAGAACAATATCGGAAATGCA
 CTAAACTAAATTAATCAAGCTAAATCAAACCTAACTAAATTAATTAAGCTAATTAATCTAAGCTACGTAAAGCTAAATTAACCTA
 AGCTAAATTAATTAACCTCA
 22633
 22634
 22635 crispr 42
 22636 1014950 GTTAAGTTACCTTATTTAAGTTACCTTAGTTAAGT
 TACCTTAGTTAAGTTACCTTATTTAAGTTACCTTATTTAAGTTACCTT spacer length: 48 repeater length: 35
 22637 1015034 GTTAAGTTACCTTATTTAAGTTACCTTAGTTAAGT TACCTTAGTCAAGTTACCTT spacer length: 20
 spacer length: 35
 22638 1015090 GTTAAGTTACCTTATTTAAGTTACCTTAGTTAAGT TTTCGAACTTGCAACAAATT
 22639
 22640
 22641 crispr 43
 22642 1532463 TCTCCTTTGCAATCCTGGCCACAAACATCTGCACA
 TTCGTACACAGCAGTTTCTGTACAGTCTGATCCATTACAGTTTTTCAGTACAGTTACAGTTTTTCAGTACAGTTTTCAGTAC
 AGTTGTCACAGCA spacer length: 99 repeater length: 35
 22643 1532598 TCTCCTTTGCAATCCTGGCCACAAACATCTGCACA
 TTCGTACACAGCAGTTTCTGTACAGTCTGATCCATTACAGTTTTTCAGTACAGTTACAGTTTTTCAGTACAGTTGTCACAGCA
 spacer length: 81 repeater length: 35
 22644 1532715 TCTCCTTTGCAATCCTGGCCACAAACATCTGCACA
 AAACAAAGTTTCGAACTTGCAACAAATTTCAAAGCTTTTTTAATAGGTAAATTCCTTTTTATATGAAAGCTTCAAGAGAATT
 22645
 22646
 22647 crispr 44
 22648 3096254 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCCAATGCAATGACTTGTGCAACATTTCCATTAG
 spacer length: 36 repeater length: 37
 22649 3096328 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AGAAGACTACTCGTGTGGAAGCATCTGTCACTAT
 spacer length: 34 repeater length: 37
 22650 3096400 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTTTCAAATCTTGCACTCTTCGGGATATTGCCA
 spacer length: 34 repeater length: 37
 22651 3096472 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAAATGAAAAGCAATGGAATACATAGTGTAATTAC
 spacer length: 36 repeater length: 37
 22652 3096546 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GATATGCGGGATTAGTTTCTTTCTTACTGATTTGTAT
 spacer length: 37 repeater length: 37
 22653 3096621 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAGATCAGATACGTTTCCGGCAGCGGTTTTTAA
 spacer length: 36 repeater length: 37
 22654 3096695 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTATACAAAAGTATTTATTTTTTAACTATATTT
 spacer length: 34 repeater length: 37
 22655 3096767 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CGCGGGAGGTCCGTTTTACCTTTCTAATTCGAGTG

spacer length: 35 repeater length: 37
 22656 3096840 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATATGATATGTCACCTATTGGAATACCCATTGTTT
 spacer length: 37 repeater length: 37
 22657 3096915 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAGTGCCTGTGAGGTACTGACTCCATATGTATC
 spacer length: 34 repeater length: 37
 22658 3096987 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAACCTACAAAAAAGGGCAAATTTTTGAATGCACTG
 spacer length: 36 repeater length: 37
 22659 3097061 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAACCATTCTTCATCACTGAATTTTACTTTGCAC
 spacer length: 35 repeater length: 37
 22660 3097134 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AATAGTATACCCTCCTATATTTCTTTAAAACGTTT
 spacer length: 35 repeater length: 37
 22661 3097207 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGACTCGACCATGATATACGATTATAACATAGA
 spacer length: 35 repeater length: 37
 22662 3097280 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTCACCGAAGAACCGCAGGCCCGTTAGGAACCC
 spacer length: 34 repeater length: 37
 22663 3097352 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCTTTCTTTGGGGCCTTGCTCTTTGGGTGCTCC
 spacer length: 33 repeater length: 37
 22664 3097423 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TGCTGCCTTCCGTAGTCGTGCAGAATGCGTTTTCCAGTGT spacer length: 40 repeater length: 37
 22665 3097501 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACCTGGGTGGTCAACCCTTCAATAATAATAATAGAT
 spacer length: 36 repeater length: 37
 22666 3097575 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CAGCAACCCCGAAAGGATTTGTGCCAACTGTTACA
 spacer length: 35 repeater length: 37
 22667 3097648 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATACATATGCTGCAAGTCCGGACGCTGCAACAGGCT
 spacer length: 36 repeater length: 37
 22668 3097722 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 CAAGTGCCATTGACGGGATAGTAGGGCAGTTTGAAAGGCT spacer length: 40 repeater length: 37
 22669 3097800 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC AAATAAATGCGCCCTATGCTGGGGAGTTCGCAA
 spacer length: 34 repeater length: 37
 22670 3097872 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 CCATAGCTTTAGAAGCAGAGTTTAAGGTTTTGAGATGTA spacer length: 39 repeater length: 37
 22671 3097949 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATTTTGAAGAGTTTCTGATCTTCATCACGGATT
 spacer length: 35 repeater length: 37
 22672 3098022 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CATATTAATTGAGGTTGTACATTTTCGGACACATGC
 spacer length: 35 repeater length: 37
 22673 3098095 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACCAAGCTTCACCATCATAAACAGCAATAACT
 spacer length: 32 repeater length: 37
 22674 3098165 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATATGTTAGTAAGCGTGTGAAACAAGGCAACGAA
 spacer length: 34 repeater length: 37
 22675 3098237 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTACATGCAATCACATGGTCTAGAGTCCATTCCCAA
 spacer length: 36 repeater length: 37
 22676 3098311 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TCTTGATGTATAAGATAAACCATTTTTTTCATAAGTTA
 spacer length: 37 repeater length: 37
 22677 3098386 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CTAGATCGGGACCTAGAAATACTATGTACGCATT
 spacer length: 34 repeater length: 37
 22678 3098458 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCTATAATCTATATGATATTTTTCTCCAGGTTCTAT
 spacer length: 37 repeater length: 37
 22679 3098533 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TATAATAATTACCATATTGACCTTTCACAAGATTG
 spacer length: 35 repeater length: 37
 22680 3098606 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC CCAGATGAGTTTTTTGAAAATATAACCCCCGTGTTTG
 spacer length: 37 repeater length: 37
 22681 3098681 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ATCGTAGACTTCAAGCTATCACATGGGATGTTGAA
 spacer length: 35 repeater length: 37
 22682 3098754 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 ATGGAATTAAACCGTTTCTGTTTCATATGAATTAGAAT spacer length: 39 repeater length: 37
 22683 3098831 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC ACATAATTACAGCTTTGTCAATTTTCGGATCCTTT
 spacer length: 35 repeater length: 37
 22684 3098904 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TAAACACCAACCACATTTTTATTACTGTATCTTT
 spacer length: 34 repeater length: 37
 22685 3098976 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTTTATAGCGTATTATATAACAATAAATAACAT
 spacer length: 34 repeater length: 37
 22686 3099048 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC
 TTGATTACATAGACCGTTGCCAACAAATAAACTATAGAATCA spacer length: 42 repeater length: 37
 22687 3099128 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTATTAATACAAATCTATTTGTTGTATTTCATCAAT
 spacer length: 35 repeater length: 37
 22688 3099201 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TACAAGCGCATTTACAGGTGCGCAAATCGATGAAGT
 spacer length: 36 repeater length: 37
 22689 3099275 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC TTGTTTCAATGTCTAACATCGTGCCTGCCCTCCGTG
 spacer length: 36 repeater length: 37
 22690 3099349 ATTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC GTGCTTGAGCCGCATAAAACCGGCTACCCTCA
 spacer length: 32 repeater length: 37

22691	3099419	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATTTAAAAGCGGAGATGGAGATTTTATTTTCAT
		spacer length: 34 repeater length: 37	
22692	3099491	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TACATACTTTTATCAAGCATTTTGTGATACGTTTTTCA
		spacer length: 35 repeater length: 37	
22693	3099564	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	GTAGGAAGTGGCGTTAAAGCCGCCACGATGTTTTAG
		spacer length: 35 repeater length: 37	
22694	3099637	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TGAATTTGAGCCTGACCTCTCCCTCCCTGGCTTC
		spacer length: 34 repeater length: 37	
22695	3099709	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TTTCTAAGACTCTTCAGGTATATGGATATAGAAAAA
		spacer length: 36 repeater length: 37	
22696	3099783	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AAGTTCTTATAGATCTTAATATTCGTGCTTGGCA
		spacer length: 34 repeater length: 37	
22697	3099855	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	CCTAATGTTTTGCCACGGACATTCAAATGGTTGG
		spacer length: 35 repeater length: 37	
22698	3099928	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	AGTTTTGCCAGTACTGCAGTCTTGAGCTCGTTAAACC
		spacer length: 37 repeater length: 37	
22699	3100003	ATTTCGTGAGCAAGATCCACTAAAACAAGGATTGAAAC	TAGACTGACCAATGATGAAGTCAGTCATGTGAGATCC
22700			
22701			
22702	crispr 45		
22703	2208753	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
		TTTGTGCCCCGATTACTTTTTTGTGTTATTTGGTAATTTTGG	spacer length: 42 repeater length: 37
22704	2208833	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATCTGATATTTCATTATAAAACAGACTCCTCTAATTT
		spacer length: 36 repeater length: 37	
22705	2208907	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTCAGAGGGTACAGCTTTCGGTTTGACTCCTTCAG
		spacer length: 35 repeater length: 37	
22706	2208980	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AGTATCTGCCTCAAACGGACAGAAAAAATTAGTAT
		spacer length: 35 repeater length: 37	
22707	2209053	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATAATAGACTCGTGCCCATACGTTCTTTATTATA
		spacer length: 34 repeater length: 37	
22708	2209125	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCATAATCTAGAATTTTGC GTTGAATATAAAGATCTA
		spacer length: 37 repeater length: 37	
22709	2209200	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTGCCTTGCCATAGGGCAGCCGTGACAGTGTCA
		spacer length: 33 repeater length: 37	
22710	2209271	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAGTGCTTCCTTTACTACATCAAGTGTATACTCTGGG
		spacer length: 37 repeater length: 37	
22711	2209346	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GCCTAGACGTAGAATCGACATCCCTTTAGAGAATA
		spacer length: 35 repeater length: 37	
22712	2209419	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAGGGCCGGTGTTGGGAAAGTCTGCATCCTGGTCT
		spacer length: 35 repeater length: 37	
22713	2209492	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ATCAGTTTCGTTTTTTTTGTTTTATTCATTACTTA
		spacer length: 34 repeater length: 37	
22714	2209564	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AATATGTGATAATGCAATTGATTGATATTGATT
		spacer length: 33 repeater length: 37	
22715	2209635	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	AAAAAGGTCGCTCGGGCTTACGATACGCATTATT
		spacer length: 34 repeater length: 37	
22716	2209707	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CAGTTAAACAATAGTTACATTTGCAGTCATGTA
		spacer length: 33 repeater length: 37	
22717	2209778	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTGGAGATGAAAAAAGGCGCATTCTGGAAC TTTGG
		spacer length: 35 repeater length: 37	
22718	2209851	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CAGTTAAACAATATCATTGATGTACTCACCGAT
		spacer length: 33 repeater length: 37	
22719	2209922	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTTATAAAATTCTATCAAATTTTTTAAGGGGAGGGT
		spacer length: 37 repeater length: 37	
22720	2209997	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	GCAATCCCAGGAAATCCAAATGTATATCTAATCT
		spacer length: 34 repeater length: 37	
22721	2210069	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTGCAAAAGAGCACTTCGTGAAACAATTAACAC
		spacer length: 35 repeater length: 37	
22722	2210142	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	ACCTTTTTTATAGATATATCCACGCTCCGCTACC
		spacer length: 33 repeater length: 37	
22723	2210213	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	
		ACAGCGGCCTTGTTGGGGCACTCCTGAAGACATTCAGAAA	spacer length: 40 repeater length: 37
22724	2210291	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CATAAGATGATCTAATTCAGATTCGAGAGACATTA
		spacer length: 35 repeater length: 37	
22725	2210364	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TTTTAATTTTTTGGAGCTGAATTACATGGCTGAACCGT
		spacer length: 37 repeater length: 37	
22726	2210439	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	CTGGTCCACCTGCGCTCCAATGTGATGTATCAAATGC
		spacer length: 37 repeater length: 37	
22727	2210514	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TCTTTATAGAAGAGATCTCAAATCCGCTGTAATCA
		spacer length: 36 repeater length: 37	
22728	2210588	GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT	TAATGTATCATGCGTAATATATAATACACAATAAA

spacer length: 35 repeater length: 37
 22729 2210661 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTGCCTCCTGGAACATCAATTCAACAGAAAGCTAGG
 spacer length: 36 repeater length: 37
 22730 2210735 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CATACTTGTTATTATAGAAGAGGTAATATAAAAAAG
 spacer length: 35 repeater length: 37
 22731 2210808 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGTTGAAGTCGTAGATTCTGGAGTCATATTTTT
 spacer length: 34 repeater length: 37
 22732 2210880 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATGTATATATTTATTATTTTCAGTGTGTTTTTATAA
 spacer length: 36 repeater length: 37
 22733 2210954 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTATCCTGTTGAGATTAGGCTAGATAGTGGAGAT
 spacer length: 36 repeater length: 37
 22734 2211028 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAATGACTGAACGAAATACAATTGAACGCAGAAAA
 spacer length: 35 repeater length: 37
 22735 2211101 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAATGAGTCGTGAAATGTGCCGGATCTCATTTTT
 spacer length: 35 repeater length: 37
 22736 2211174 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAGATCCATTCCGGCTAATCATAGCATCATTTAAG
 spacer length: 34 repeater length: 37
 22737 2211246 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CGGATGATATTAAGAATGTATCTCTTGGGGGTTTTA
 spacer length: 36 repeater length: 37
 22738 2211320 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTTGTAAATATGTTAATATATCGACAGGTATA
 spacer length: 33 repeater length: 37
 22739 2211391 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCTCGGGAATTCCATTATTTCTAAATGGTCCA
 spacer length: 33 repeater length: 37
 22740 2211462 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACGCAATCGGGCGCTGCTAGGTCGAATGTCTCGAA
 spacer length: 36 repeater length: 37
 22741 2211536 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTTGCGCGCTTCAGTCTCTCCATAGAACAGCTTT
 spacer length: 34 repeater length: 37
 22742 2211608 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTACAGATCCGGACATATCATAAGCGTTTATAAG
 spacer length: 34 repeater length: 37
 22743 2211680 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT
 CGGATGTCCTCGGAGATAATGACGCCCTGGAGGAGGACCGA spacer length: 40 repeater length: 37
 22744 2211758 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTTTGAAAAGTTTTTACTATTTAGAAGGATATTAGAA
 spacer length: 38 repeater length: 37
 22745 2211834 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TGGTTAATGGAACCCAGGTCTACCGCCGTTTACGGA
 spacer length: 37 repeater length: 37
 22746 2211909 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATGAAAAATTCTTCTCTACAAAACAGATTTATG
 spacer length: 34 repeater length: 37
 22747 2211981 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTATATTTATGTCTCAGAACTCGTACATAATAT
 spacer length: 34 repeater length: 37
 22748 2212053 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTCACAATAAGAAGCAACATAAAGCCTATTATT
 spacer length: 33 repeater length: 37
 22749 2212124 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGATACTTCCGTGAATAAAGTAATCCAATAAGGA
 spacer length: 35 repeater length: 37
 22750 2212197 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACTGAAATGTCTATATATTTCCCGGTATTCAGTT
 spacer length: 34 repeater length: 37
 22751 2212269 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ACGGTTAGATCCGATTCAATATATGGTAAATTTT
 spacer length: 34 repeater length: 37
 22752 2212341 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCTGTAATGAATATTCCCCAAGAAAGCCCAACAA
 spacer length: 34 repeater length: 37
 22753 2212413 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TATTATAGAGATATTAGAGAAATCGTGTATTCTCTTTC
 spacer length: 38 repeater length: 37
 22754 2212489 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTAGAACCGATTATAATAGTATTGTCTACTT
 spacer length: 32 repeater length: 37
 22755 2212559 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATGTCTAGATATGTATTTTTTCATCTCAGCTATTA
 spacer length: 35 repeater length: 37
 22756 2212632 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCCAACCATTTCGATTTTTTTTGATTTAGGGGGATAG
 spacer length: 36 repeater length: 37
 22757 2212706 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCTCGAAGACTGGGGACAACCTCATTACTGGATTGA
 spacer length: 35 repeater length: 37
 22758 2212779 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CTATTAGAAAACTTGCAAAAGCAGGAGACC spacer
 length: 31 repeater length: 37
 22759 2212848 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATACGTCATGATTGATTCATCTGATCTAAATACAGT
 spacer length: 36 repeater length: 37
 22760 2212922 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATAGTTATAAATACTATAGAATCATATATTCTATA
 spacer length: 36 repeater length: 37
 22761 2212996 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATTTGGAGCCCGCTTGACCGCCTTTTATACTGCCC
 spacer length: 36 repeater length: 37
 22762 2213070 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AAAATCAGCATACCCTTTCTTCCCTCTTTTGCCACA
 spacer length: 37 repeater length: 37
 22763 2213145 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAGATTAATAATACCGTGGAGAACTCCACTAATACT
 spacer length: 36 repeater length: 37

22764 2213219 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GAATGTGAACTACTAAACAATGATTTTCGAAAACATTT
spacer length: 37 repeater length: 37
22765 2213294 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATAGTTTATAGGTTTCCTGAATTTTCTCAGTTTCCTGT
spacer length: 35 repeater length: 37
22766 2213367 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AATGTAGTATAATTTATATTATGTACTAAAAT
spacer length: 32 repeater length: 37
22767 2213437 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CCAGTAATATGTATTTTTTTGTATTTATATATTT
spacer length: 33 repeater length: 37
22768 2213508 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT ATTGATTTTCCTTTGTATCATCTTTAATTTTATAC
spacer length: 34 repeater length: 37
22769 2213580 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTTACTGTATTACATAATATGCGTAACACCGTATAA
spacer length: 36 repeater length: 37
22770 2213654 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT AACATCATATTTCATCTGGGCTTGCGAGCATGAGAAT
spacer length: 37 repeater length: 37
22771 2213729 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT CAGCATCTAAAAAACGAGAATTGAAATGGTATG
spacer length: 33 repeater length: 37
22772 2213800 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TTGTCCCGCCTCTTCAAACCGTCTTAATCGGGC
spacer length: 33 repeater length: 37
22773 2213871 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT GTATTAACCTCGGTTGTTAATGAAACGCTCAGAATGT
spacer length: 36 repeater length: 37
22774 2213945 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TCACCATTTTTCTCCTTCAAATCAAATCAATTA
spacer length: 35 repeater length: 37
22775 2214018 GTTTCAATCCTTGTTTTAGTGGATCTTGCTCACGAAT TAAATCAAACCTAACTAAATTAATTAAGCTAATTA
22776
22777
22778 crispr 46
22779 2175702 ACAATAGAAAATAAATACTAAATCAAAAACAGAAACAGAAG CAGGAAAAGATACAACAACTCAAGA spacer
length: 25 repeater length: 40
22780 2175768 ACAATAGAAAATAAATACTAAATCAAAAACAGAAACAGAAG CAGGAAAAAATACAACAACTCAAAA spacer
length: 25 repeater length: 40
22781 2175834 ACAATAGAAAATAAATACTAAATCAAAAACAGAAACAGAAG CAGGAAAAAATACAACAACTCAAAA spacer
length: 25 repeater length: 40
22782 2175900 ACAATAGAAAATAAATACTAAATCAAAAACAGAAACAGAAG CAGGAAAAAATACAACAACTCAAGA spacer
length: 25 repeater length: 40
22783 2175966 ACAATAGAAAATAAATACTAAATCAAAAACAGAAACAGAAG ATACAACAACTCAAGAAACAATAGA
22784
22785
22786 crispr 47
22787 1054124 GCGTTTTCTCAAGTGCCAGATAAAAAACAGGCATGGAATG
ACTTAATTAAACTGACCAATGATGAAAACAATTATGTGAGATATAGAGCTGCCGATGCTCTTGGTTC spacer length:
67 repeater length: 40
22788 1054232 GCGTTTTCTCAAGTGCCAGATAAAAAACAGGCATGGAATG
ACTTAATTAAACTGGCCAAGGATGAAGACAGTGTGTGAGGCATAGGGCTGCCTATGCTCTTGGTTC spacer length:
67 repeater length: 40
22789 1054340 GCGTTTTCTCAAGTGCCAGATAAAAAACAGGCATGGAATG
ATAGCCAAGAAAATATCAAAGGAAATGAATCAAAAAATTCAGAAGCTAATGTATCTAATTTGAAATA
22790
22791
22792 crispr 48
22793 4465749 GGAATATTTGAAGCATCTGGAATATTTGAAGCATCTGGAG
TATTTGAAGCATCTGGAATATTTGAAGCATCTGGAATATTTGAAGCATC spacer length: 49 repeater length:
40
22794 4465839 GGAATATTTGAAGCATCTGGAATATTTGAAGCATCTGGAG TATTTGAAGCATCTGGAATATTTGAAGCATC
spacer length: 31 repeater length: 40
22795 4465911 GGAATATTTGAAGCATCTGGAATATTTGAAGCATCTGGAG TTTTACTTTCAAGGCCATATATTATTGCCAA
22796
22797
22798 GCA_001189275.1_ASM118927v1_genomic.fna(findCrispr):
22799 START REPEAT
SPACER
22800 crispr 1
22801 513336 TCAACCC TTCTTGAGATTCTAGGGCATCAAGTACAGCAACGTTGATTTGATGCTAGGAGCCACGT spacer
length: 58 repeater length: 7
22802 513402 TCAACCC TTCTTGAGATTCTAGGCCATCTATGTGGCAAACGGCACGGTCTGGGATACGCTTGTCATGT spacer
length: 62 repeater length: 7
22803 513472 TCAACCC TTCTTGAGATTCTAGCCGCCCTGCGACCGCAGGGGCTTCGGCGGGGGGTATAAAAGAGT spacer
length: 60 repeater length: 7
22804 513540 TCAACCC TTCTTGAGATTCTAGAATGCTGTATGCCGATTGCCAGTGGATAAGGCCATAGAGCTGT spacer
length: 59 repeater length: 7
22805 513607 TCAACCC TTCTTGAGATTCTAGATGAAGAGGCTGTGAGGTTTGAGAGGATGGTGGGTATTAGGT spacer
length: 57 repeater length: 7

22806 513672 TCAACCC TTCTTGAGATTCTAGATTAGAGTTGTTGGTGACAGGACTAGGCCGCTTGAGCTACAGCCGCGT
spacer length: 63 repeater length: 7

22807 513743 TCAACCC CTTGAGATTCTACCGCTGGTGTGGTTGGTTGTTGTGGGTTTTTAAGTTTTTCTTTGGTTTTTT

22808

22809

22810 crispr 2

22811 532855 TCCAATAGAGAATTGAAACA TCTCTAAGATAAACATGTCAGCAACAGCCATCCGGCATATCAAGCAT spacer
length: 47 repeater length: 20

22812 532923 TCCAATAGAGAATTGAAACA ACAGCACGACAAGCACATCGTTTATGCTTTCGTCTCATCTACGCAT spacer
length: 47 repeater length: 20

22813 532991 TCCAATAGAGAATTGAAACA AACAAAATTAATCCACATACTCCCATCAGTGCTGTAGTAGGTTTCAA

22814

22815

22816 crispr 3

22817 216871 CATCTCAAATAGAGAATTGAA AGTTCTTGAGATTCTAGAGTGGAACCTTAGGCTTAGTCAGGCCCT spacer
length: 44 repeater length: 21

22818 216937 CATCTCAAATAGAGAATTGAA AGTCTGCCCTTACGGCGTCAGCCGCCGCCGCCGCGGTGGCCACGG spacer
length: 45 repeater length: 21

22819 217004 CATCTCAAATAGAGAATTGAA AGACGCGTCAAGTAGAGCCCCAGGGCAAGCACGTAGAAACCCAGATC spacer
length: 47 repeater length: 21

22820 217073 CATCTCAAATAGAGAATTGAA AGCTCGACCAGGTGGTAGGCTACATCAACGGCCTAGCTAGGCTTGG spacer
length: 46 repeater length: 21

22821 217141 CATCTCAAATAGAGAATTGAA AGTTGCGGAATGCGTCGAGGAGGTTCTCCGCGGATATGAACGC spacer
length: 43 repeater length: 21

22822 217206 CATCTCAAATAGAGAATTGAA AGGATTAGACATATTTCAAGAACCATGCAACGCGTCGGTCGTGCTG spacer
length: 46 repeater length: 21

22823 217274 CATCTCAAATAGAGAATTGAA AGGGTCTTCCTTGTCCACCACGTCTGCAGATGTGGAGAAGGT spacer
length: 42 repeater length: 21

22824 217338 CATCTCAAATAGAGAATTGAA AGTACATGGCATTGTTGGCCCAGATCCAGACTACATGGTATCCG spacer
length: 42 repeater length: 21

22825 217402 CATCTCAAATAGAGAATTGAA AGCGTCTTTGCCCCAGGCCAGGCGGCTAGGCGGCGGCGACCGC spacer
length: 45 repeater length: 21

22826 217469 CATCTCAAATAGAGAATTGAA AGCGCTGAACCCCGTCACGTTGAATTCTTTGTCTAGAGTTACC spacer
length: 43 repeater length: 21

22827 217534 CATCTCAAATAGAGAATTGAA AGTGTAAGAGGAGGTGAGGGTTTCCGTCGTGAGGGTGCGCC spacer
length: 42 repeater length: 21

22828 217598 CATCTCAAATAGAGAATTGAA AGATTACAGTCATCAACTTCACACGCATGCGAAATACCATGT spacer
length: 42 repeater length: 21

22829 217662 CATCTCAAATAGAGAATTGAA AGCCTAGCTCTTTAACGGAGTCCAGGGGTCATGTGGCAAATGT spacer
length: 43 repeater length: 21

22830 217727 CATCTCAAATAGAGAATTGAA AGTGCGGATGTTGCCGAGGAACTGTTGCGGCGCGAAGAAGCTG spacer
length: 43 repeater length: 21

22831 217792 CATCTCAAATAGAGAATTGAA AGCCCTCGTTTCCGATGACCCGCCCGACTCCGATGAGGGCGGTGAGGCAGTTCGT
spacer length: 55 repeater length: 21

22832 217869 CATCTCAAATAGAGAATTGAA AGTTCATAGCGGCCACACAGGCGATCATAAACGAGGCCTTTGGCCCCCT
spacer length: 49 repeater length: 21

22833 217940 CATCTCAAATAGAGAATTGAA AGGCATCTTTACGGCGTCTTTACGCGCCACGCGATCAGCCTGTGG spacer
length: 45 repeater length: 21

22834 218007 CATCTCAAATAGAGAATTGAA AGGAGGCCCTTGACCATACTGGTGGCGTGCCGTGCCTCTAATCA spacer
length: 45 repeater length: 21

22835 218074 CATCTCAAATAGAGAATTGAA AGGACGTTAAGCGCGCTACACAGCGCAGAAGTGGCGATGCACCC spacer
length: 44 repeater length: 21

22836 218140 CATCTCAAATAGAGAATTGAA AGGCATAATATTGTAGCTATGGTGCGCCGCAAAGAGTCCGAAAAGGC spacer
length: 47 repeater length: 21

22837 218209 CATCTCAAATAGAGAATTGAA AGCCTCCGCATGCTGGAGCGGGAGGGGGCCGTGCGGAGGCGC spacer
length: 42 repeater length: 21

22838 218273 CATCTCAAATAGAGAATTGAA AGGCTATAGGAAACGAGCCGAGGGCAGACGAGGGGGAGTTGC spacer
length: 42 repeater length: 21

22839 218337 CATCTCAAATAGAGAATTGAA AGTGTAATAATTTAGGGGGTTCTCCCCCGCCCTGATTTTCGC spacer
length: 41 repeater length: 21

22840 218400 CATCTCAAATAGAGAATTGAA AGTCATATGTCGATAATATGCGTTGCGTAACACCGGAGTATTTT spacer
length: 44 repeater length: 21

22841 218466 CATCTCAAATAGAGAATTGAA AGAAGGGCCTCCTCCGCCGCCAGACGTATCTGTCTCGTCCAC spacer
length: 44 repeater length: 21

22842 218532 CATCTCAAATAGAGAATTGAA AGCTCGGCGCTGTACAGGGCTGTGGGGCTTTGGCAGGAGGAGCC spacer
length: 44 repeater length: 21

22843 218598 CATCTCAAATAGAGAATTGAA AGACGAGTTGCGGCGTTGTGCCGTGTGTAAGATCGATACGTTT spacer
length: 43 repeater length: 21

22844 218663 CATCTCAAATAGAGAATTGAA AGAACGACGTGATAGTCGTTGCGACGCTAAGGGGCCACAG spacer
length: 41 repeater length: 21

22845 218726 CATCTCAAATAGAGAATTGAA AGATACGAAAACGTCGCACGAGCTTCAGGGAGGGGGTAGGGG spacer

length: 42 repeater length: 21
22846 218790 CATCTCAAATAGAGAATTGAA AGCTTTCCGTCTCTCAGCACACGTGATCTGCCAACTTCTCCAGGAAGCGATCT
spacer length: 54 repeater length: 21
22847 218866 CATCTCAAATAGAGAATTGAA AGCTCAGCCTGCCCCACCGTCCACCGCCCCCCCCACCGCCGCTGT spacer
length: 45 repeater length: 21
22848 218933 CATCTCAAATAGAGAATTGAA AGAGCGGTGCTGTTAGCCACACACGTCTGCCCTACAGGTATCTGCG spacer
length: 46 repeater length: 21
22849 219001 CATCTCAAATAGAGAATTGAA AGCGCGTTCAGCACCTGCCTGAACCTCATGCCGTAGGGCCC spacer
length: 41 repeater length: 21
22850 219064 CATCTCAAATAGAGAATTGAA AGCCTGCCGCCCCCTGTCTGTCCCGAAGTTGCAGTACAC spacer length:
38 repeater length: 21
22851 219124 CATCTCAAATAGAGAATTGAA AGAAAGTGTTCACTAGATACGGAGGGGCTGTGTGGCAGTACATG spacer
length: 44 repeater length: 21
22852 219190 CATCTCAAATAGAGAATTGAA AGATTGTTGTCTGTTGCAGTGATGCCAGCAGAGGGGGTATGAGCGGT spacer
length: 46 repeater length: 21
22853 219258 CATCTCAAATAGAGAATTGAA AGGCTCAGCGCCTTGAGACAGCAGGCGCTGGTGAGGGGGCAGAGGGGG spacer
length: 48 repeater length: 21
22854 219328 CATCTCAAATAGAGAATTGAA AGCGCCAAAAACGCCGAGTCGCCAGGGAGCGCCTCGACG spacer length:
40 repeater length: 21
22855 219390 CATCTCAAATAGAGAATTGAA AGTCCACCTCCGTCTCAGGTGGCTTGAACCTCCGGCTCTTTC spacer
length: 41 repeater length: 21
22856 219453 CATCTCAAATAGAGAATTGAA AGAGGCCACTGCGTCGCCCTCGTTGTAACTCTCCACACGGTAGATGCG spacer
length: 48 repeater length: 21
22857 219523 CATCTCAAATAGAGAATTGAA AGAGTCATAAACCACGACGCCAGCCGCCGCGGCGGCAGGC spacer
length: 41 repeater length: 21
22858 219586 CATCTCAAATAGAGAATTGAA AGCGTGCCGTGGTTTCCAGACCTGCTGAACTCCTTACGCGTCGG spacer
length: 44 repeater length: 21
22859 219652 CATCTCAAATAGAGAATTGAA AGTAGCCACACCCTCACGTAGACGTAGCCTTGCTGTATG spacer length:
40 repeater length: 21
22860 219714 CATCTCAAATAGAGAATTGAA AGACTGCCATGTGGTTCGCGTAGTAGAGCTCCGAGTTTCG spacer length:
40 repeater length: 21
22861 219776 CATCTCAAATAGAGAATTGAA AGGGATTCTGTCTATCGGGATCTTGGTGAGGGAGTAGTACC spacer
length: 44 repeater length: 21
22862 219842 CATCTCAAATAGAGAATTGAA AGCTCCACCTCCTCGCAGAGCTCCCTGTGTCTCCACTCCTCCGCC spacer
length: 45 repeater length: 21
22863 219909 CATCTCAAATAGAGAATTGAA AGAATGATGAAGTCTTTGAAGAAGCCGCTCCCCCTCCTTATCTTT spacer
length: 45 repeater length: 21
22864 219976 CATCTCAAATAGAGAATTGAA AGGCGCCTTTTCTGTAAAGCGCGGCCGCCATTCTATCTGCGA spacer
length: 41 repeater length: 21
22865 220039 CATCTCAAATAGAGAATTGAA AGCGCTAGCGCGTTTAAACACGGCTGAGTCGTTGTGCCGAAGGCAC spacer
length: 47 repeater length: 21
22866 220108 CATCTCAAATAGAGAATTGAA AGAAGTTCAGCTTGCGCAAGGCCACTACATGTGAAGGCGACGCGTG spacer
length: 46 repeater length: 21
22867 220176 CATCTCAAATAGAGAATTGAA AGAAACCCTTCCGACGCGGACAGGCTGGCAAATGCTGAGTATTGA spacer
length: 45 repeater length: 21
22868 220243 CATCTCAAATAGAGAATTGAA AGTGGCCCTCTCGCCTGGCGTCCGCCCCACGCCGCGGTGCGTCTCG spacer
length: 47 repeater length: 21
22869 220312 CATCTCAAATAGAGAATTGAA AGAGCCATCGCCAGCACCTCGTCCACCTTCGTAACCGTGGTCTC spacer
length: 44 repeater length: 21
22870 220378 CATCTCAAATAGAGAATTGAA AGAGTTGAAGCGGCTCACC GCCTGTAGCCAAATCTCCTGT spacer length:
40 repeater length: 21
22871 220440 CATCTCAAATAGAGAATTGAA AGCGTTATTACGTCCTCCACAGTGCCGCCGTTTTGCCACACCTCA spacer
length: 45 repeater length: 21
22872 220507 CATCTCAAATAGAGAATTGAA GGCAGTAGTCATCAATCGGCACGAACAGGTACGCATCCGCTGG spacer
length: 43 repeater length: 21
22873 220572 CATCTCAAATAGAGAATTGAA AGCCTCTTAAACGCCGCGGCGGCTGTTTGCGCCAGCTCGGCCAG spacer
length: 44 repeater length: 21
22874 220638 CATCTCAAATAGAGAATTGAA AGCTCCCCCTGCGCTCGCACCTGACGCGCTTACCATCCTGGCGATGCCG
spacer length: 51 repeater length: 21
22875 220711 CATCTCAAATAGAGAATTGAA AGACTGAGTCCATAGACCTGCCACTCCACGTGCCAT spacer length: 37
repeater length: 21
22876 220770 CATCTCAAATAGAGAATTGAA AGGTAGGCCTCTCCACGGCTAAGCGCGTCGACTACAGCT spacer length:
39 repeater length: 21
22877 220831 CATCTCAAATAGAGAATTGAA AGAGCTAGCTAAGACGGTGGTGAACCTACATATACTTGTCCCGACGAA
spacer length: 49 repeater length: 21
22878 220902 CATCTCAAATAGAGAATTGAA AGATGACGTTGTGGCAGTACTGCCCGCCAGTACGTGGTGCTG spacer
length: 43 repeater length: 21
22879 220967 CATCTCAAATAGAGAATTGAA AGGCGAAGGCGATGGTGACGAAGGCCCTCACGTGCGTTTCGGTCA spacer
length: 45 repeater length: 21
22880 221034 CATCTCAAATAGAGAATTGAA AGCTCAGGACCGTGTAGGCCTTGGCCCCATTGGGGTACTTCACTATG spacer
length: 47 repeater length: 21

22881 221103 CATCTCAAATAGAGAATTGAA AGATAATCATAGCTCCCTAACCGACAGTGGTACCGCGTCGGCCG spacer
 length: 44 repeater length: 21
 22882 221169 CATCTCAAATAGAGAATTGAA AGGTATCCTTATGGCAATTTGCTTAGCAACCTCCGGGATTATTGC spacer
 length: 45 repeater length: 21
 22883 221236 CATCTCAAATAGAGAATTGAA AGGCACGTTCCACGCCGCTTACCACCTCAGCGGCGGCGACGTGAGG spacer
 length: 46 repeater length: 21
 22884 221304 CATCTCAAATAGAGAATTGAA AGTTTCGCACACGTCTTGTCTAGCGTTGCATTTGACAAGTTTGACGT spacer
 length: 47 repeater length: 21
 22885 221373 CATCTCAAATAGAGAATTGAA GAGAATTTGTCTAGCACGCCGCACAGCTCTCCGTGGCATTGCTAGA
 22886
 22887
 22888 crispr 4
 22889 506987 GCATCTCAAACAGAGAATTGAAAC CAGATAAGCGACAGGTAGGACGCCGCCCTGGCCTCCGTAGACG spacer
 length: 43 repeater length: 24
 22890 507055 GCATCTCAAACAGAGAATTGAAAC GCGTAGTCGTACAGGTCTGCCAGCTCCTCAAGCGTCATC spacer
 length: 39 repeater length: 24
 22891 507119 GCATCTCAAACAGAGAATTGAAAC AAGTCGAAAAACAGCTTCACGGTGCCGTAGGCAGCCATCTC spacer
 length: 41 repeater length: 24
 22892 507185 GCATCTCAAACAGAGAATTGAAAC GCCACCGCGTTTTAACTGCGGCTCGCCAAACAGCTCCCTCAGAA spacer
 length: 44 repeater length: 24
 22893 507254 GCATCTCAAACAGAGAATTGAAAC AAAACGGCGTGTGCATGAAGCGAAGACGGCGTACAACTCTCCC spacer
 length: 43 repeater length: 24
 22894 507322 GCATCTCAAACAGAGAATTGAAAC TGTGGGGCTGATCATGCTACCGTCGTAGGTCATCCCGACAA spacer
 length: 41 repeater length: 24
 22895 507388 GCATCTCAAACAGAGAATTGAAAC AATACCTCGGCTTGAAAGCGACTACGACGGTGAAGTTCTGGCC spacer
 length: 43 repeater length: 24
 22896 507456 GCATCTCAAACAGAGAATTGAAAC AGGGCGCTGGTCATGTGTTACGCATCAGCGTCAACGTGTTGG spacer
 length: 43 repeater length: 24
 22897 507524 GCATCTCAAACAGAGAATTGAAAC CCCGCCCTCGGTCACCAGGGGCCCTTGAGTCGTCGGGGATCACC spacer
 length: 43 repeater length: 24
 22898 507592 GCATCTCAAACAGAGAATTGAAAC GTTCCGTTGCCGGGCCGCCGCCGAGGCCCGCCGGTTCC spacer
 length: 40 repeater length: 24
 22899 507657 GCATCTCAAACAGAGAATTGAAAC CACGTCGCTCTCCGACAAGTCGCGCCGCCACCCCTCGGC spacer
 length: 40 repeater length: 24
 22900 507722 GCATCTCAAACAGAGAATTGAAAC ACGTGACGGCGGCTAAAGCCGCCGCCGAGGAGGAGAAGAA spacer
 length: 40 repeater length: 24
 22901 507787 GCATCTCAAACAGAGAATTGAAAC ATTAATGGCATGTCAAGCTTCGACCACCGCTACGCAACCA spacer
 length: 41 repeater length: 24
 22902 507853 GCATCTCAAACAGAGAATTGAAAC TACATACTCAACAAATTCATCGGTGGTAAACGTCTCT spacer length:
 37 repeater length: 24
 22903 507915 GCATCTCAAACAGAGAATTGAAAC CTCAGCAACTCCCTAACCCGTCCGCAACCTCCCTCGCAACA spacer
 length: 42 repeater length: 24
 22904 507982 GCATCTCAAACAGAGAATTGAAAC AGTACACCCTCATACCTGGCCAGATCGCCTCGCTGACCGAAT spacer
 length: 42 repeater length: 24
 22905 508049 GCATCTCAAACAGAGAATTGAAAC CATCTACACGACATACAGGAACAAATGCGTCACTACGG spacer
 length: 38 repeater length: 24
 22906 508112 GCATCTCAAACAGAGAATTGAAAC TAACACTGTCGCTAAACTTTACGTCGTCGGGCAATTGCCCC spacer
 length: 41 repeater length: 24
 22907 508178 GCATCTCAAACAGAGAATTGAAAC TAGTCGTCATTGCTCTGCGAGCGCCGCTCTACTTTTGCCAGCGC spacer
 length: 45 repeater length: 24
 22908 508248 GCATCTCAAACAGAGAATTGAAAC TTTGCCCCGTTGGGCGCAGGCCCCGGGGCGATGTGTATCT spacer
 length: 41 repeater length: 24
 22909 508314 GCATCTCAAACAGAGAATTGAAAC AATTAATCCACATACTCCCATCAGTGCTGTAGTAGGTTTCA
 22910
 22911
 22912 crispr 5
 22913 923994 GTAGAATCTCAAGAAGGGTTGAAAC GCTCTTGGCCGCGTGCAGGATTTTTCAATGTTATCACTA spacer
 length: 39 repeater length: 25
 22914 924059 GTAGAATCTCAAGAAGGGTTGAAAC TATTTTGAAGTGCCTATGAGCTTAACAACTCCGTCTTG spacer
 length: 39 repeater length: 25
 22915 924124 GTAGAATCTCAAGAAGGGTTGAAAC TTCCCTTTTGTAGCATCTTATTGTATCACAAATCTTATTAC spacer
 length: 42 repeater length: 25
 22916 924192 GTAGAATCTCAAGAAGGGTTGAAAC AAAAAGTCGCCTTCACTCGTGCTAGTCATCTTCGCGAAAAGATCG
 spacer length: 45 repeater length: 25
 22917 924263 GTAGAATCTCAAGAAGGGTTGAAAC TTATTAGTAGTGTTGGGCGGTTTACTGGCGGAAACAAGAGGAA spacer
 length: 43 repeater length: 25
 22918 924332 GTAGAATCTCAAGAAGGGTTGAAAC TCGCTAAGTGCGACGTACTGCTCCAACACCTCCCTCAGCTCTT spacer
 length: 43 repeater length: 25
 22919 924401 GTAGAATCTCAAGAAGGGTTGAAAC AGAAACCGTAATTACCCATGCCTCCAGGTCTTCAA spacer length:
 35 repeater length: 25
 22920 924462 GTAGAATCTCAAGAAGGGTTGAAAC CTGTTTCATAATCCTTGCGGACGGCATAGTGGAGCAA spacer


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length: 37 repeater length: 25
22921 924525 GTAGAATCTCAAGAAGGGTTGAAAC GCTACCTGCGCGTAGCGCCTCAATGTTGGGCTCGCCTGTAT spacer
length: 41 repeater length: 25
22922 924592 GTAGAATCTCAAGAAGGGTTGAAAC GAATTTGTCTAGCACGCCGCACAGCTCTCCGTGGCATTTC
22923
22924
22925 crispr 6
22926 926175 GTTTC AACCTTCTTGAGATTCTAC GCATATTT CAGCCCGCAGGCGCCTGCGGGCCGAGGGCAGAGATC spacer
length: 44 repeater length: 25
22927 926245 GTTTC AACCTTCTTGAGATTCTAC TTGCACTACGCTGTCCGTGAGGGAGATGTAGAACTTA spacer
length: 37 repeater length: 25
22928 926308 GTTTC AACCTTCTTGAGATTCTAC ACTGTCCTATTGAACGCGCTACCATTAAATGCACTTCCAAGAC spacer
length: 43 repeater length: 25
22929 926377 GTTTC AACCTTCTTGAGATTCTAC ACAGCGCTTCGGCGCATCGATACCTCGTCGACATATATGGC spacer
length: 41 repeater length: 25
22930 926444 GTTTC AACCTTCTTGAGATTCTAC CTGGGTATGCGTTGAGTGCGGTTCCGGTCATCAAACCAGTCTACA spacer
length: 44 repeater length: 25
22931 926514 GTTTC AACCTTCTTGAGATTCTAC GGCATCGACCGGCCGCTACTCAATGTTGCGAGAATAAA spacer
length: 38 repeater length: 25
22932 926578 GTTTC AACCTTCTTGAGATTCTAC TATTGAGCTGGTGCAGAAGATGAACCTCGTGGAGTGCG spacer
length: 38 repeater length: 25
22933 926642 GTTTC AACCTTCTTGAGATTCTAC CAAGAAGAGCCGCGACTACGACGACTGCTTCATGGAATGTTA spacer
length: 42 repeater length: 25
22934 926710 GTTTC AACCTTCTTGAGATTCTAC GGGCGAAGTAGTATATCGATAGGTTGTCGCCACTGCACTGCG
22935
22936
22937 GCA_001266655.1_ASM126665v1_genomic.fna(findCrispr):
22938 START REPEAT
SPACER
22939 crispr 1
22940 1083282 CTTT CAACTCTATAGGAGATTA ACTCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTG spacer
length: 61 repeater length: 4
22941 1083348 CTTT CAACTCTATAGGAGATTA ACTCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAG spacer
length: 59 repeater length: 4
22942 1083412 CTTT CAACTCTATAGGAGATTA ACACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGA spacer
length: 58 repeater length: 4
22943 1083475 CTTT CCTCGAAGGATCTCTACAAGAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA
22944
22945
22946 crispr 2
22947 1137849 GATCCTTTGAGGGTTTGAAA CAAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGTTTGTAG spacer
length: 46 repeater length: 20
22948 1137916 GATCCTTTGAGGGTTTGAAA CGCAAAGGCCCTTCCCACACTCTCCAAGGGAGTATGAAGTTTATAG spacer
length: 46 repeater length: 20
22949 1137983 GATCCTTTGAGGGTTTGAAA CCTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGTTTGTAG spacer
length: 46 repeater length: 20
22950 1138050 GATCCTTTGAGGGTTTGAAA CGCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGACTTGTAG spacer
length: 48 repeater length: 20
22951 1138119 GATCCTTTGAGGGTTTGAAA CTAAGTGAACCATGGGTATTCCCCCTCCGGGGAACTTCGACTTGTAG spacer
length: 48 repeater length: 20
22952 1138188 GATCCTTTGAGGGTTTGAAA CTCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGTTTGTAG spacer
length: 46 repeater length: 20
22953 1138255 GATCCTTTGAGGGTTTGAAA CGTGTGTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCTTGTAG spacer
length: 46 repeater length: 20
22954 1138322 GATCCTTTGAGGGTTTGAAA CTATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGTTTGTAG spacer
length: 46 repeater length: 20
22955 1138389 GATCCTTTGAGGGTTTGAAA CTCGATAGCGAACCTGATAACTTCGCTTCTATTAGTCTGTTTGTAG spacer
length: 47 repeater length: 20
22956 1138457 GATCCTTTGAGGGTTTGAAA CATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGTTTGTAG spacer
length: 47 repeater length: 20
22957 1138525 GATCCTTTGAGGGTTTGAAA CTACACGACGCGATCACACTCACATGCCCCGCTGTCGCCGTTGTTTGTAG
spacer length: 50 repeater length: 20
22958 1138596 GATCCTTTGAGGGTTTGAAA CATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGCTTGTAG spacer
length: 46 repeater length: 20
22959 1138663 GATCCTTTGAGGGTTTGAAA CCCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGTTTGTAG spacer
length: 48 repeater length: 20
22960 1138732 GATCCTTTGAGGGTTTGAAA AAGAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCAGTTTCAA
22961
22962
22963 crispr 3
22964 1136110 GTTTC AACCTTCGAAGGAT

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GTCTACAAACGACACGTCTACACCCCCCCCCCGGTCGTGAGTGTGGGAAGCGGGGATCCCATTTCAAACCTCCAAGGATGTCTAC
AAACTGGGGTCCATTGTGATGAAGATTTCCGAGAAATTGAAG spacer length: 128 repeater length: 20
22965 1136259 GTTTCAAACCTCGAAGGAT CTCTACAAACTCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 46 repeater length: 20
22966 1136326 GTTTCAAACCTCGAAGGAT CTCTACAAACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 47 repeater length: 20
22967 1136394 GTTTCAAACCTCGAAGGAT CTCTACAAACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACT
spacer length: 49 repeater length: 20
22968 1136464 GTTTCAAACCTCGAAGGAT CTCTACAAGCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTAT spacer
length: 44 repeater length: 20
22969 1136529 GTTTCAAACCTCGAAGGAT CTCCTGAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAAC

crispr 4

22972 1082323 TCAACTCCATAGG AGATTAACTGATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATACT spacer
length: 51 repeater length: 13
22974 1082388 TCAACTCCATAGG AGATTAAGTAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATTCT spacer
length: 50 repeater length: 13
22975 1082452 TCAACTCCATAGG AGATTAACAGACCCAAAACCTAAACTCCAAAAAGTCTTTGAGCAATTCT spacer
length: 50 repeater length: 13
22976 1082516 TCAACTCCATAGG AGATTAACCTTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCTCT spacer
length: 49 repeater length: 13
22977 1082579 TCAACTCCATAGG AGATTAACGCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAACT spacer
length: 49 repeater length: 13
22978 1082642 TCAACTCCATAGG AGATTAACGTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAGCT spacer
length: 54 repeater length: 13
22979 1082710 TCAACTCCATAGG AGATTAACAGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGACT spacer
length: 51 repeater length: 13
22980 1082775 TCAACTCCATAGG AGATTAACATCAAATGATGCCAAAAAGTGATCTACCTATTCTTTTCATCT spacer
length: 50 repeater length: 13
22981 1082839 TCAACTCCATAGG AGATTAACAACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATTCT spacer
length: 50 repeater length: 13
22982 1082903 TCAACTCCATAGG AGATTAACCGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCTCT spacer
length: 52 repeater length: 13
22983 1082969 TCAACTCCATAGG AGATTAACCTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAGCT spacer
length: 49 repeater length: 13
22984 1083032 TCAACTCCATAGG AGATTAACAGTTCTACGGAAAACCTATCAATCCAGATAGCAATAAAGACT spacer
length: 49 repeater length: 13
22985 1083095 TCAACTCCATAGG GAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTC

crispr 5

22988 1253631 CCTTCCAATGGTTACGTGTACGT
AGACGTATTATACGCGCTTGAAAATACATCAGTCTCTGTTATCTCAGCTAATAATGTTGTAGGTAATTTGAAAGTATGTAGCGGGA
CTCCTCCCATATACGA spacer length: 102 repeater length: 23
22990 1253757 CCTTCCAATGGTTACGTGTACGT
TG GTGGTGCTCCTTCAGATACAGTCTCTGTTATCTCAGGTAATAATGTTGTAGCTAACGTCCCTGTTGGCTTAGATCCAGTCTACG
CTCTCTACGA spacer length: 96 repeater length: 23
22991 1253877 CCTTCCAATGGTTACGTGTACGT
GCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAGGCGAAAATGGTTCGAGCTCGCTGAGGCACAACGCAAGA
CTGAGGAGGC

crispr 6

22992 1097329 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTG spacer
length: 40 repeater length: 24
22994 1097394 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTAT spacer
length: 39 repeater length: 24
22995 1097458 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTA spacer
length: 39 repeater length: 24
22996 1097522 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAG spacer
length: 38 repeater length: 24
22997 1097585 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTG spacer
length: 41 repeater length: 24
23000 1097651 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATA spacer
length: 39 repeater length: 24
23001 1097715 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTCTGATGCAAAATATTTCTGGATC spacer
length: 41 repeater length: 24
23002 1097781 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAG spacer
length: 38 repeater length: 24
23003 1097844 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAA spacer

length: 39 repeater length: 24
23004 1097908 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTCTTCTTGTGGTGGTATTACCTA spacer
length: 41 repeater length: 24
23005 1097974 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGA spacer
length: 39 repeater length: 24
23006 1098038 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCCTACATGATTGCGAAAAACAACAA spacer length:
36 repeater length: 24
23007 1098099 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCCA spacer
length: 39 repeater length: 24
23008 1098163 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACC spacer
length: 38 repeater length: 24
23009 1098226 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACTTACTCTTATTAGTTTACTAACA spacer
length: 39 repeater length: 24
23010 1098290 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTC spacer
length: 40 repeater length: 24
23011 1098355 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCT spacer
length: 40 repeater length: 24
23012 1098420 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACC spacer
length: 38 repeater length: 24
23013 1098483 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGGACTGCA spacer length:
36 repeater length: 24
23014 1098544 CTTAATCTCCTATAGAGTTGAAAG TTGGAACACTCCGTATCAATCCTTTAGACTGCAACTCCTC spacer
length: 41 repeater length: 24
23015 1098610 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACG spacer
length: 39 repeater length: 24
23016 1098674 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACCTTCCATGTAGCTCGCCCCCTC spacer
length: 43 repeater length: 24
23017 1098742 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATC spacer
length: 39 repeater length: 24
23018 1098806 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACA spacer
length: 40 repeater length: 24
23019 1098871 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCCGTGCTTCGCGCCT spacer
length: 43 repeater length: 24
23020 1098939 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCCTATCCATTCGACCACATCTCTCGGCTTCGATA spacer
length: 43 repeater length: 24
23021 1099007 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACT spacer
length: 39 repeater length: 24
23022 1099071 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGA spacer
length: 42 repeater length: 24
23023 1099138 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAAC spacer
length: 41 repeater length: 24
23024 1099204 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGC spacer
length: 37 repeater length: 24
23025 1099266 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCC spacer
length: 41 repeater length: 24
23026 1099332 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATT spacer
length: 44 repeater length: 24
23027 1099401 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGT spacer
length: 43 repeater length: 24
23028 1099469 CTTAATCTCCTATAGAGTTGAAAG ACTACGGGTCTCAAGGTAGTCGGTGTCTTCTAGTAGCT spacer
length: 39 repeater length: 24
23029 1099533 CTTAATCTCCTATAGAGTTGAAAG ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCC spacer
length: 40 repeater length: 24
23030 1099598 CTTAATCTCCTATAGAGTTGAAAG GTAAAGGGGTGTGTTTTACGTTTTGAGTGGTGTTCGTA spacer
length: 40 repeater length: 24
23031 1099663 CTTAATCTCCTATAGAGTTGAAAG CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAG spacer
length: 38 repeater length: 24
23032 1099726 CTTAATCTCCTATAGAGTTGAAAG GAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAG
23033
23034
23035 crispr 7
23036 1104343 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCA spacer
length: 39 repeater length: 24
23037 1104407 GTTAATCTTCTATAGAGTTGAAAG TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTT spacer
length: 40 repeater length: 24
23038 1104472 GTTAATCTTCTATAGAGTTGAAAG TTTGTCTGTTTCGATTGGAATAATTTACGCGTTACCATAAA spacer
length: 41 repeater length: 24
23039 1104538 GTTAATCTTCTATAGAGTTGAAAG TACCTGTATGACAATTCGCTAAAAATTTAACTATCTA spacer
length: 38 repeater length: 24
23040 1104601 GTTAATCTTCTATAGAGTTGAAAG TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTA spacer
length: 38 repeater length: 24

23041	1104664	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGG	spacer
		length: 41	repeater length: 24	
23042	1104730	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCTAGCTATATCCAAGCA	spacer
		length: 38	repeater length: 24	
23043	1104793	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATC	spacer
		length: 40	repeater length: 24	
23044	1104858	GTTAATCTTCTATAGAGTTGAAAG	CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAG	spacer
		length: 38	repeater length: 24	
23045	1104921	GTTAATCTTCTATAGAGTTGAAAG	TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATC	spacer
		length: 39	repeater length: 24	
23046	1104985	GTTAATCTTCTATAGAGTTGAAAG	AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTA	spacer
		length: 39	repeater length: 24	
23047	1105049	GTTAATCTTCTATAGAGTTGAAAG	CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCA	spacer
		length: 39	repeater length: 24	
23048	1105113	GTTAATCTTCTATAGAGTTGAAAG	TGCTCACCTCTTCAGTTTCTGCGCTTCTCCCTCACC	spacer
		length: 38	repeater length: 24	
23049	1105176	GTTAATCTTCTATAGAGTTGAAAG	TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATC	spacer
		length: 39	repeater length: 24	
23050	1105240	GTTAATCTTCTATAGAGTTGAAAG	TCTTTAGTCGCTATAATGTGCGGTAATGGTTGCTTACCA	spacer
		length: 39	repeater length: 24	
23051	1105304	GTTAATCTTCTATAGAGTTGAAAG	TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCT	spacer
		length: 45	repeater length: 24	
23052	1105374	GTTAATCTTCTATAGAGTTGAAAG	CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGG	spacer
		length: 38	repeater length: 24	
23053	1105437	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTTCTACTTCTGCTGGCATTTTTTCCACTAAA	spacer
		length: 37	repeater length: 24	
23054	1105499	GTTAATCTTCTATAGAGTTGAAAG	GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAA	spacer
		length: 40	repeater length: 24	
23055	1105564	GTTAATCTTCTATAGAGTTGAAAG	GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGA	spacer
		length: 38	repeater length: 24	
23056	1105627	GTTAATCTTCTATAGAGTTGAAAG	TAGGTAGAAGGCAGAAGGAAGTTTGTAGCTTCGATATTGGA	spacer
		length: 40	repeater length: 24	
23057	1105692	GTTAATCTTCTATAGAGTTGAAAG	CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCT	spacer
		length: 40	repeater length: 24	
23058	1105757	GTTAATCTTCTATAGAGTTGAAAG	TATATTTTCGTCGCTATATCGCCCAGAAGACGTCTGATA	spacer
		length: 38	repeater length: 24	
23059	1105820	GTTAATCTTCTATAGAGTTGAAAG	G TTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATC	spacer
		length: 39	repeater length: 24	
23060	1105884	GTTAATCTTCTATAGAGTTGAAAG	AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGA	spacer
		length: 39	repeater length: 24	
23061	1105948	GTTAATCTTCTATAGAGTTGAAAG	ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATA	spacer
		length: 38	repeater length: 24	
23062	1106011	GTTAATCTTCTATAGAGTTGAAAG	AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCT	spacer
		length: 42	repeater length: 24	
23063	1106078	GTTAATCTTCTATAGAGTTGAAAG	AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTA	spacer
		length: 38	repeater length: 24	
23064	1106141	GTTAATCTTCTATAGAGTTGAAAG	GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCA	spacer
		length: 39	repeater length: 24	
23065	1106205	GTTAATCTTCTATAGAGTTGAAAG	TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTC	spacer
		length: 39	repeater length: 24	
23066	1106269	GTTAATCTTCTATAGAGTTGAAAG	GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTT	spacer
		length: 41	repeater length: 24	
23067	1106335	GTTAATCTTCTATAGAGTTGAAAG	ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTA	spacer length: 34
		length: 34	repeater length: 24	
23068	1106394	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTATAAACCACATCATGGCTCCTAGCATCAAC	spacer length: 36
		length: 36	repeater length: 24	
23069	1106455	GTTAATCTTCTATAGAGTTGAAAG	TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAG	spacer
		length: 39	repeater length: 24	
23070	1106519	GTTAATCTTCTATAGAGTTGAAAG	CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTG	spacer
		length: 40	repeater length: 24	
23071	1106584	GTTAATCTTCTATAGAGTTGAAAG	TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTA	spacer
		length: 37	repeater length: 24	
23072	1106646	GTTAATCTTCTATAGAGTTGAAAG	GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGAT	spacer
		length: 39	repeater length: 24	
23073	1106710	GTTAATCTTCTATAGAGTTGAAAG	ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCA	spacer
		length: 39	repeater length: 24	
23074	1106774	GTTAATCTTCTATAGAGTTGAAAG	TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGAC	spacer
		length: 41	repeater length: 24	
23075	1106840	GTTAATCTTCTATAGAGTTGAAAG	CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTT	spacer
		length: 38	repeater length: 24	
23076	1106903	GTTAATCTTCTATAGAGTTGAAAG	TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAAT	spacer

length: 38 repeater length: 24
23077 1106966 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTCTGGCTTTCCCGCCAGAATCTT spacer
length: 38 repeater length: 24
23078 1107029 GTTAATCTTCTATAGAGTTGAAAG ATTTTCGCAATTCATTTTCAATTGTTTCAATTCACCTTCAAA spacer
length: 40 repeater length: 24
23079 1107094 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCCTTATCTTTTCTTCTTTTCTACTA spacer
length: 40 repeater length: 24
23080 1107159 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAGAGGATCTAATAGACGAAGGCGGAATCTTTC spacer
length: 40 repeater length: 24
23081 1107224 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGAC spacer
length: 40 repeater length: 24
23082 1107289 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTGTTTCAAGAGAATTGGCGGGGCGCTGTAAT spacer
length: 40 repeater length: 24
23083 1107354 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGG spacer
length: 38 repeater length: 24
23084 1107417 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGA spacer
length: 43 repeater length: 24
23085 1107485 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTA spacer
length: 39 repeater length: 24
23086 1107549 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCC spacer
length: 39 repeater length: 24
23087 1107613 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTG spacer
length: 39 repeater length: 24
23088 1107677 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCT spacer
length: 40 repeater length: 24
23089 1107742 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCG spacer
length: 39 repeater length: 24
23090 1107806 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTT spacer
length: 38 repeater length: 24
23091 1107869 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCAATGGATGCAGAATTAGAGAGG spacer
length: 42 repeater length: 24
23092 1107936 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTTCT spacer
length: 38 repeater length: 24
23093 1107999 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCT spacer
length: 43 repeater length: 24
23094 1108067 GTTAATCTTCTATAGAGTTGAAAG CTTCCGCGTATAACGATCCTACAACAATAATCACTGATTTTG spacer
length: 42 repeater length: 24
23095 1108134 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCA spacer
length: 38 repeater length: 24
23096 1108197 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGC spacer
length: 40 repeater length: 24
23097 1108262 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCA spacer
length: 38 repeater length: 24
23098 1108325 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACAC spacer
length: 37 repeater length: 24
23099 1108387 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTTAACTGTGCATG spacer
length: 37 repeater length: 24
23100 1108449 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCCCT spacer
length: 38 repeater length: 24
23101 1108512 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAA spacer
length: 40 repeater length: 24
23102 1108577 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTA spacer
length: 43 repeater length: 24
23103 1108645 GTTAATCTTCTATAGAGTTGAAAG AGATAACATTTTTTCTCTTGTTTAAACGTATCTACGAACCA spacer
length: 41 repeater length: 24
23104 1108711 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGCTGGCTTCATAT spacer
length: 40 repeater length: 24
23105 1108776 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCG spacer
length: 41 repeater length: 24
23106 1108842 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCC spacer
length: 40 repeater length: 24
23107 1108907 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAAGAATAATACAAAAATTTA spacer
length: 40 repeater length: 24
23108 1108972 GTTAATCTTCTATAGAGTTGAAAG TTGTCAACAGTTTCCGATAAGTCGTGAAGTTCATGTCATTTA spacer
length: 42 repeater length: 24
23109 1109039 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTTACTTACTTTTTTGAACGAC
spacer length: 50 repeater length: 24
23110 1109114 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCATTTTCTATCCC spacer
length: 39 repeater length: 24
23111 1109178 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAAC spacer length:
34 repeater length: 24

23112	1109237	GTTAATCTTCTATAGAGTTGAAAG	TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATA	spacer
		length: 40	repeater length: 24	
23113	1109302	GTTAATCTTCTATAGAGTTGAAAG	TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAA	spacer
		length: 39	repeater length: 24	
23114	1109366	GTTAATCTTCTATAGAGTTGAAAG	TCTTTCATTGGGTTCGTATAAAAAATCCTTGACCTAAGG	spacer
		length: 38	repeater length: 24	
23115	1109429	GTTAATCTTCTATAGAGTTGAAAG	CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGG	spacer
		length: 42	repeater length: 24	
23116	1109496	GTTAATCTTCTATAGAGTTGAAAG	TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACCT	spacer
		length: 39	repeater length: 24	
23117	1109560	GTTAATCTTCTATAGAGTTGAAAG	GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAA	spacer
		length: 38	repeater length: 24	
23118	1109623	GTTAATCTTCTATAGAGTTGAAAG	AGTATCATTCACTGGAAGTTGTACGGTATGAGGAGTCAT	spacer
		length: 40	repeater length: 24	
23119	1109688	GTTAATCTTCTATAGAGTTGAAAG	ATTCCACGATTTTAACTTTACAGATTCCCCATATCCT	spacer
		length: 38	repeater length: 24	
23120	1109751	GTTAATCTTCTATAGAGTTGAAAG	CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGA	spacer
		length: 39	repeater length: 24	
23121	1109815	GTTAATCTTCTATAGAGTTGAAAG	TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAG	spacer
		length: 40	repeater length: 24	
23122	1109880	GTTAATCTTCTATAGAGTTGAAAG	TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAG	spacer
		length: 38	repeater length: 24	
23123	1109943	GTTAATCTTCTATAGAGTTGAAAG	ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTA	spacer
		length: 39	repeater length: 24	
23124	1110007	GTTAATCTTCTATAGAGTTGAAAG	TAATTCCTCTTTGATCTCTCTGGATTCTTGTTTTGTTGAA	spacer
		length: 40	repeater length: 24	
23125	1110072	GTTAATCTTCTATAGAGTTGAAAG	TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAG	spacer
		length: 39	repeater length: 24	
23126	1110136	GTTAATCTTCTATAGAGTTGAAAG	CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGA	spacer
		length: 38	repeater length: 24	
23127	1110199	GTTAATCTTCTATAGAGTTGAAAG	TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTT	spacer
		length: 38	repeater length: 24	
23128	1110262	GTTAATCTTCTATAGAGTTGAAAG	AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATA	spacer
		length: 42	repeater length: 24	
23129	1110329	GTTAATCTTCTATAGAGTTGAAAG	ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAAC	spacer
		length: 38	repeater length: 24	
23130	1110392	GTTAATCTTCTATAGAGTTGAAAG	AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCA	spacer
		length: 42	repeater length: 24	
23131	1110459	GTTAATCTTCTATAGAGTTGAAAG	GCTTGTTGCTCAGCCATTGCGTAACCTCACCCCA	spacer length: 34
		length: 34	repeater length: 24	
23132	1110518	GTTAATCTTCTATAGAGTTGAAAG	TGGACACGTTGGGAAGGCCTTGCCACGCGGAACTCAG	spacer
		length: 37	repeater length: 24	
23133	1110580	GTTAATCTTCTATAGAGTTGAAAG	AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAA	spacer
		length: 41	repeater length: 24	
23134	1110646	GTTAATCTTCTATAGAGTTGAAAG	TAAAGATTGACCTTATTACTCTTGACAAATATATCCC	spacer
		length: 37	repeater length: 24	
23135	1110708	GTTAATCTTCTATAGAGTTGAAAG	AACCTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTT	spacer
		length: 39	repeater length: 24	
23136	1110772	GTTAATCTTCTATAGAGTTGAAAG	TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAA	spacer
		length: 38	repeater length: 24	
23137	1110835	GTTAATCTTCTATAGAGTTGAAAG	TATGATTTTCTCGCTATTCCACCACCTCCTTGATATACTGT	spacer
		length: 40	repeater length: 24	
23138	1110900	GTTAATCTTCTATAGAGTTGAAAG	TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATA	spacer
		length: 39	repeater length: 24	
23139	1110964	GTTAATCTTCTATAGAGTTGAAAG	ACGTTGAACCAACGTTACCCCCCGCGTCAAAGACG	spacer length: 36
		length: 36	repeater length: 24	
23140	1111025	GTTAATCTTCTATAGAGTTGAAAG	TCCACGGAGGGGTGGAGAATGAAACTATTCTGAAGGGA	spacer
		length: 37	repeater length: 24	
23141	1111087	GTTAATCTTCTATAGAGTTGAAAG	ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAG	spacer
		length: 38	repeater length: 24	
23142	1111150	GTTAATCTTCTATAGAGTTGAAAG	GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAAATG	spacer
		length: 38	repeater length: 24	
23143	1111213	GTTAATCTTCTATAGAGTTGAAAG	ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATT	spacer length: 36
		length: 36	repeater length: 24	
23144	1111274	GTTAATCTTCTATAGAGTTGAAAG	ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCA	spacer
		length: 39	repeater length: 24	
23145	1111338	GTTAATCTTCTATAGAGTTGAAAG	AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACCTT	spacer
		length: 37	repeater length: 24	
23146	1111400	GTTAATCTTCTATAGAGTTGAAAG	CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAG	spacer
		length: 39	repeater length: 24	
23147	1111464	GTTAATCTTCTATAGAGTTGAAAG	AAATTTTATAGAAGAAATATACGAATGTGTAGATAAAA	spacer

length: 37 repeater length: 24
23148 1111526 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGG spacer
length: 40 repeater length: 24
23149 1111591 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCAT spacer
length: 39 repeater length: 24
23150 1111655 GTTAATCTTCTATAGAGTTGAAAG CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGA spacer
length: 40 repeater length: 24
23151 1111720 GTTAATCTTCTATAGAGTTGAAAG AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGT spacer
length: 42 repeater length: 24
23152 1111787 GTTAATCTTCTATAGAGTTGAAAG TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACC spacer
length: 40 repeater length: 24
23153 1111852 GTTAATCTTCTATAGAGTTGAAAG GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAGTA spacer
length: 42 repeater length: 24
23154 1111919 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCG spacer
length: 39 repeater length: 24
23155 1111983 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTT spacer
length: 38 repeater length: 24
23156 1112046 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGA spacer
length: 38 repeater length: 24
23157 1112109 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTCCGTAAGGA spacer
length: 38 repeater length: 24
23158 1112172 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACC spacer
length: 39 repeater length: 24
23159 1112236 GTTAATCTTCTATAGAGTTGAAAG
AACTTCCTACTTAGACCGGAATTAGCGATCTAGGAATCGAGTTAATCTTCTATGGAGTTGAAAGAGTCTAACCCCTTCTGTCCC
TGATATTTTCTCTAT spacer length: 102 repeater length: 24
23160 1112363 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTC spacer
length: 42 repeater length: 24
23161 1112430 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGC spacer length:
36 repeater length: 24
23162 1112491 GTTAATCTTCTATAGAGTTGAAAG
CTCCGGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGAGTTAATCTTCGATAGAGTTGAAAGACAAGCCAAATGATGAAGTTAC
TACTACTAATACTACTACTA spacer length: 106 repeater length: 24
23163 1112622 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCA spacer
length: 38 repeater length: 24
23164 1112685 GTTAATCTTCTATAGAGTTGAAAG AGTGATAGAATAAAAGCTATTATTCCAACATTTTCTCT
23165
23166
23167 crispr 8
23168 1136259 GTTTCAAACCCTCGAAGGATCTCTACAAAC TCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 36 repeater length: 30
23169 1136326 GTTTCAAACCCTCGAAGGATCTCTACAAAC CTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 37 repeater length: 30
23170 1136394 GTTTCAAACCCTCGAAGGATCTCTACAAAC AATACTACGTAATATGAATAGGTACTGTGAGACGAGA
23171
23172
23173 crispr 9
23174 1710439 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 43 repeater length: 40
23175 1710523 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTTGTGAGTCCCAACGCAGAATGCAGGAGGCATTCTCAAGCTCGAGGACAGAACC
TCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 127 repeater length: 40
23176 1710691 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
TCTTGATATGTTGAGTCTTTCCGTAAATCCTCTATAGAGTTGAAAGGTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCATG
TTAATCTTCTATAGAGTTGAAAGTGCTTTGTACGTAAAATG
23177
23178
23179 GCA_001266675.1_ASM126667v1_genomic.fna(findCrispr):
23180 START REPEAT
SPACER
23181 crispr 1
23182 1083278 CTTT CAACTCTATAGGAGATTAACCTCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTG spacer
length: 61 repeater length: 4
23183 1083344 CTTT CAACTCTATAGGAGATTAACCTCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAG spacer
length: 59 repeater length: 4
23184 1083408 CTTT CAACTCTATAGGAGATTAACACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGA spacer
length: 58 repeater length: 4
23185 1083471 CTTT CCTCGAAGGATCTCTACAAGAAGGGCTATTCTGCGTACGCTTCCACCTCTGGAGGCA
23186
23187
23188 crispr 2

23189 1137845 GATCCTTTGAGGGTTTGTAAA CAAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGTTTGTAG spacer
length: 46 repeater length: 20
23190 1137912 GATCCTTTGAGGGTTTGTAAA CGCAAAGGCCCTTTCCCACACTCTCCAAGGGAGTATGAAGTTTATAG spacer
length: 46 repeater length: 20
23191 1137979 GATCCTTTGAGGGTTTGTAAA CCTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGTTTGTAG spacer
length: 46 repeater length: 20
23192 1138046 GATCCTTTGAGGGTTTGTAAA CGCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGACTTGTAG spacer
length: 48 repeater length: 20
23193 1138115 GATCCTTTGAGGGTTTGTAAA CTAAGTGAACCATGGGTATTCCCCCTCCGGGGAACTTCGACTTGTAG spacer
length: 48 repeater length: 20
23194 1138184 GATCCTTTGAGGGTTTGTAAA CTCGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGTTTGTAG spacer
length: 46 repeater length: 20
23195 1138251 GATCCTTTGAGGGTTTGTAAA CGTGTGTGTCCTCATCTTTTGATGGGGCAGCTGCTCCTCTTGTAG spacer
length: 46 repeater length: 20
23196 1138318 GATCCTTTGAGGGTTTGTAAA CTATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGTTTGTAG spacer
length: 46 repeater length: 20
23197 1138385 GATCCTTTGAGGGTTTGTAAA CTCGATAGCGAACCTGATAACTTCGCTTCTATTAGTCTGTTTGTAG spacer
length: 47 repeater length: 20
23198 1138453 GATCCTTTGAGGGTTTGTAAA CATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGTTTGTAG spacer
length: 47 repeater length: 20
23199 1138521 GATCCTTTGAGGGTTTGTAAA CTACACGACGCGATCACACTCACATGCCCGGTGTCGCCGTTGTTTGTAG
spacer length: 50 repeater length: 20
23200 1138592 GATCCTTTGAGGGTTTGTAAA CATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGCTTGTAG spacer
length: 46 repeater length: 20
23201 1138659 GATCCTTTGAGGGTTTGTAAA CCCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGTTTGTAG spacer
length: 48 repeater length: 20
23202 1138728 GATCCTTTGAGGGTTTGTAAA AAGAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCAGTTTCAA
23203
23204
23205 crispr 3
23206 1136106 GTTTCAAACCCTCGAAGGAT
GTCTACAAACGACACGCTCTACACCCCCCCCCCGGTGCTGAGTGTGGGAAGCGGGGATCCCATTTCAAACCCTCCAAGGATGTCTAC
AAACTGGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAG spacer length: 128 repeater length: 20
23207 1136255 GTTTCAAACCCTCGAAGGAT CTCTACAAACTCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 46 repeater length: 20
23208 1136322 GTTTCAAACCCTCGAAGGAT CTCTACAAACTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 47 repeater length: 20
23209 1136390 GTTTCAAACCCTCGAAGGAT CTCTACAAACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACT
spacer length: 49 repeater length: 20
23210 1136460 GTTTCAAACCCTCGAAGGAT CTCTACAAGCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTAT spacer
length: 44 repeater length: 20
23211 1136525 GTTTCAAACCCTCGAAGGAT CTCCTGAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAAC
23212
23213
23214 crispr 4
23215 1082319 TCAACTCCATAGG AGATTAAGTATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATACT spacer
length: 51 repeater length: 13
23216 1082384 TCAACTCCATAGG AGATTAAGTAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATTCT spacer
length: 50 repeater length: 13
23217 1082448 TCAACTCCATAGG AGATTAACAGACCCAAAACCTAAACTCCAAAAAGTCTTTGAGCAATTCT spacer
length: 50 repeater length: 13
23218 1082512 TCAACTCCATAGG AGATTAAGTATTTTCTAATGATTACAGGGATTTCTCAGAACCCTTCTCT spacer
length: 49 repeater length: 13
23219 1082575 TCAACTCCATAGG AGATTAACGCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAACT spacer
length: 49 repeater length: 13
23220 1082638 TCAACTCCATAGG AGATTAACGTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAGCT spacer
length: 54 repeater length: 13
23221 1082706 TCAACTCCATAGG AGATTAACAGAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGACT spacer
length: 51 repeater length: 13
23222 1082771 TCAACTCCATAGG AGATTAACATCAAATGATGCCAAAAAGTGATCTACCTATTCTTTTCATCT spacer
length: 50 repeater length: 13
23223 1082835 TCAACTCCATAGG AGATTAACAACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAATTCT spacer
length: 50 repeater length: 13
23224 1082899 TCAACTCCATAGG AGATTAACCGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCTCT spacer
length: 52 repeater length: 13
23225 1082965 TCAACTCCATAGG AGATTAAGTTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAGCT spacer
length: 49 repeater length: 13
23226 1083028 TCAACTCCATAGG AGATTAACAGTTCTACGGAAAACCTATCAATCCAGATAGCAATAAAGACT spacer
length: 49 repeater length: 13
23227 1083091 TCAACTCCATAGG GAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTC
23228

23229
23230 crispr 5
23231 1253627 CCTTCCAATGGTTACGTGTACGT
AGACGTATTATACGCGCTTGAAAATACATCAGTCTCTGTTATCTCAGCTAATAATGTTGTAGGTAATTTGAAAGTATGTAGCGGGA
CTCCTCCCATATACGA spacer length: 102 repeater length: 23
23232 1253753 CCTTCCAATGGTTACGTGTACGT
TGGTGGTGCTCCTTCAGATACAGTCTCTGTTATCTCAGGTAATAATGTTGTAGCTAACGTCCCTGTTGGCTTAGATCCAGTCTACG
CTCTCTACGA spacer length: 96 repeater length: 23
23233 1253873 CCTTCCAATGGTTACGTGTACGT
GCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAGGCGAAAATGGTCGAGCTCGCTGAGGCACAACGCAAGA
CTGAGGAGGC
23234
23235
23236 crispr 6
23237 1097325 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTG spacer
length: 40 repeater length: 24
23238 1097390 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTAT spacer
length: 39 repeater length: 24
23239 1097454 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTA spacer
length: 39 repeater length: 24
23240 1097518 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAG spacer
length: 38 repeater length: 24
23241 1097581 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTG spacer
length: 41 repeater length: 24
23242 1097647 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATA spacer
length: 39 repeater length: 24
23243 1097711 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATC spacer
length: 41 repeater length: 24
23244 1097777 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAG spacer
length: 38 repeater length: 24
23245 1097840 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTTCTTGTGCATAATAA spacer
length: 39 repeater length: 24
23246 1097904 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTA spacer
length: 41 repeater length: 24
23247 1097970 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGA spacer
length: 39 repeater length: 24
23248 1098034 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCTACATGATTGCGAAAAACAACAA spacer length:
36 repeater length: 24
23249 1098095 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCCA spacer
length: 39 repeater length: 24
23250 1098159 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACC spacer
length: 38 repeater length: 24
23251 1098222 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACTACTCTTATTAGTTTACTAACA spacer
length: 39 repeater length: 24
23252 1098286 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTC spacer
length: 40 repeater length: 24
23253 1098351 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCT spacer
length: 40 repeater length: 24
23254 1098416 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACC spacer
length: 38 repeater length: 24
23255 1098479 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGACTGCA spacer length:
36 repeater length: 24
23256 1098540 CTTAATCTCCTATAGAGTTGAAAG TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTC spacer
length: 41 repeater length: 24
23257 1098606 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCAGC spacer
length: 39 repeater length: 24
23258 1098670 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTC spacer
length: 43 repeater length: 24
23259 1098738 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATC spacer
length: 39 repeater length: 24
23260 1098802 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACA spacer
length: 40 repeater length: 24
23261 1098867 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCCGTGCTTCGCGCCT spacer
length: 43 repeater length: 24
23262 1098935 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCACATCCATTCCGACCACATCTCTCGGCTTCGATA spacer
length: 43 repeater length: 24
23263 1099003 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACT spacer
length: 39 repeater length: 24
23264 1099067 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGA spacer
length: 42 repeater length: 24
23265 1099134 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAAC spacer

length: 41 repeater length: 24

23266 1099200 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGC spacer
length: 37 repeater length: 24

23267 1099262 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCC spacer
length: 41 repeater length: 24

23268 1099328 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATT spacer
length: 44 repeater length: 24

23269 1099397 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGT spacer
length: 43 repeater length: 24

23270 1099465 CTTAATCTCCTATAGAGTTGAAAG ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCT spacer
length: 39 repeater length: 24

23271 1099529 CTTAATCTCCTATAGAGTTGAAAG ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCC spacer
length: 40 repeater length: 24

23272 1099594 CTTAATCTCCTATAGAGTTGAAAG GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGA spacer
length: 40 repeater length: 24

23273 1099659 CTTAATCTCCTATAGAGTTGAAAG CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAG spacer
length: 38 repeater length: 24

23274 1099722 CTTAATCTCCTATAGAGTTGAAAG GAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAG

23275

23276

23277 crispr 7

23278 1104339 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCA spacer
length: 39 repeater length: 24

23279 1104403 GTTAATCTTCTATAGAGTTGAAAG TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTT spacer
length: 40 repeater length: 24

23280 1104468 GTTAATCTTCTATAGAGTTGAAAG TTTGTCTGTTTCGATTGGAATAATTTTCAGCGTTACCATAAA spacer
length: 41 repeater length: 24

23281 1104534 GTTAATCTTCTATAGAGTTGAAAG TACCTGTATGACAATTCGCTAAAAATTTAACTATCTA spacer
length: 38 repeater length: 24

23282 1104597 GTTAATCTTCTATAGAGTTGAAAG TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTA spacer
length: 38 repeater length: 24

23283 1104660 GTTAATCTTCTATAGAGTTGAAAG GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGG spacer
length: 41 repeater length: 24

23284 1104726 GTTAATCTTCTATAGAGTTGAAAG GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCA spacer
length: 38 repeater length: 24

23285 1104789 GTTAATCTTCTATAGAGTTGAAAG TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATC spacer
length: 40 repeater length: 24

23286 1104854 GTTAATCTTCTATAGAGTTGAAAG CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAG spacer
length: 38 repeater length: 24

23287 1104917 GTTAATCTTCTATAGAGTTGAAAG TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATC spacer
length: 39 repeater length: 24

23288 1104981 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTA spacer
length: 39 repeater length: 24

23289 1105045 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCA spacer
length: 39 repeater length: 24

23290 1105109 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTTCAGTTTCTGCGCCTTCTCCCTCACC spacer
length: 38 repeater length: 24

23291 1105172 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATC spacer
length: 39 repeater length: 24

23292 1105236 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCA spacer
length: 39 repeater length: 24

23293 1105300 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTTCACCTTCT
spacer length: 45 repeater length: 24

23294 1105370 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGG spacer
length: 38 repeater length: 24

23295 1105433 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTTTTTTTCCACTAAA spacer
length: 37 repeater length: 24

23296 1105495 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAA spacer
length: 40 repeater length: 24

23297 1105560 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGA spacer
length: 38 repeater length: 24

23298 1105623 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGA spacer
length: 40 repeater length: 24

23299 1105688 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCT spacer
length: 40 repeater length: 24

23300 1105753 GTTAATCTTCTATAGAGTTGAAAG TATATTTGTCGCTATATCGCCCAGAAGACGTCTGATA spacer
length: 38 repeater length: 24

23301 1105816 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATC spacer
length: 39 repeater length: 24

23302 1105880 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGA spacer
length: 39 repeater length: 24

23303 1105944 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATA spacer
length: 38 repeater length: 24

23304 1106007 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCT spacer
length: 42 repeater length: 24

23305 1106074 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTA spacer
length: 38 repeater length: 24

23306 1106137 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCA spacer
length: 39 repeater length: 24

23307 1106201 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTGGTAGCTC spacer
length: 39 repeater length: 24

23308 1106265 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTT spacer
length: 41 repeater length: 24

23309 1106331 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTA spacer length:
34 repeater length: 24

23310 1106390 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAAC spacer length:
36 repeater length: 24

23311 1106451 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAG spacer
length: 39 repeater length: 24

23312 1106515 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACACCTG spacer
length: 40 repeater length: 24

23313 1106580 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTA spacer
length: 37 repeater length: 24

23314 1106642 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGAT spacer
length: 39 repeater length: 24

23315 1106706 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCA spacer
length: 39 repeater length: 24

23316 1106770 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGAC spacer
length: 41 repeater length: 24

23317 1106836 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTT spacer
length: 38 repeater length: 24

23318 1106899 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAAT spacer
length: 38 repeater length: 24

23319 1106962 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTT spacer
length: 38 repeater length: 24

23320 1107025 GTTAATCTTCTATAGAGTTGAAAG ATTTGCAATTCATTTGCAATTGTTTCAATTCACCTCAAA spacer
length: 40 repeater length: 24

23321 1107090 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCCTTATCTTTTCCTTCTTTTCTACTA spacer
length: 40 repeater length: 24

23322 1107155 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAAGAGATCTAATAGACGAAGGCGGAATCTTTC spacer
length: 40 repeater length: 24

23323 1107220 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGAC spacer
length: 40 repeater length: 24

23324 1107285 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTGTTTCAAGAGAATTGGCGGGGCGCTGTAAT spacer
length: 40 repeater length: 24

23325 1107350 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGG spacer
length: 38 repeater length: 24

23326 1107413 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGA spacer
length: 43 repeater length: 24

23327 1107481 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTA spacer
length: 39 repeater length: 24

23328 1107545 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCC spacer
length: 39 repeater length: 24

23329 1107609 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTG spacer
length: 39 repeater length: 24

23330 1107673 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCT spacer
length: 40 repeater length: 24

23331 1107738 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCG spacer
length: 39 repeater length: 24

23332 1107802 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTT spacer
length: 38 repeater length: 24

23333 1107865 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGG spacer
length: 42 repeater length: 24

23334 1107932 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTTCT spacer
length: 38 repeater length: 24

23335 1107995 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCT spacer
length: 43 repeater length: 24

23336 1108063 GTTAATCTTCTATAGAGTTGAAAG CTTGCGCGTATAACGATCCTACAACAATAATCACTGATTTTG spacer
length: 42 repeater length: 24

23337 1108130 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCA spacer
length: 38 repeater length: 24

23338 1108193 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGC spacer

length: 40 repeater length: 24
23339 1108258 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCA spacer
length: 38 repeater length: 24
23340 1108321 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACAC spacer
length: 37 repeater length: 24
23341 1108383 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTTAACTGTGCATG spacer
length: 37 repeater length: 24
23342 1108445 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCCCT spacer
length: 38 repeater length: 24
23343 1108508 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAA spacer
length: 40 repeater length: 24
23344 1108573 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTA spacer
length: 43 repeater length: 24
23345 1108641 GTTAATCTTCTATAGAGTTGAAAG AGATAACCATTTTTTCTCTTGTTTAAACGTATCTACGAACCA spacer
length: 41 repeater length: 24
23346 1108707 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGTTGCTGGCTTCATAT spacer
length: 40 repeater length: 24
23347 1108772 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCG spacer
length: 41 repeater length: 24
23348 1108838 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCC spacer
length: 40 repeater length: 24
23349 1108903 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAGAATAATACAAAATTTA spacer
length: 40 repeater length: 24
23350 1108968 GTTAATCTTCTATAGAGTTGAAAG TTGTCAACAGTTTCCGATAAGTCGTGAAGTTCATGTCATTTA spacer
length: 42 repeater length: 24
23351 1109035 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTACTTACTTTTTTGAACGAC
spacer length: 50 repeater length: 24
23352 1109110 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCATTTTCTATCCC spacer
length: 39 repeater length: 24
23353 1109174 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAAC spacer length:
34 repeater length: 24
23354 1109233 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATA spacer
length: 40 repeater length: 24
23355 1109298 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAA spacer
length: 39 repeater length: 24
23356 1109362 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGG spacer
length: 38 repeater length: 24
23357 1109425 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGG spacer
length: 42 repeater length: 24
23358 1109492 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACT spacer
length: 39 repeater length: 24
23359 1109556 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAA spacer
length: 38 repeater length: 24
23360 1109619 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCACTGGAAGTTGTACGGTATGAGGAGTCAT spacer
length: 40 repeater length: 24
23361 1109684 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACTTTACAGATTCCCCATATCCT spacer
length: 38 repeater length: 24
23362 1109747 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGA spacer
length: 39 repeater length: 24
23363 1109811 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAG spacer
length: 40 repeater length: 24
23364 1109876 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAG spacer
length: 38 repeater length: 24
23365 1109939 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTA spacer
length: 39 repeater length: 24
23366 1110003 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGTGTTTGTGAA spacer
length: 40 repeater length: 24
23367 1110068 GTTAATCTTCTATAGAGTTGAAAG TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAG spacer
length: 39 repeater length: 24
23368 1110132 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGA spacer
length: 38 repeater length: 24
23369 1110195 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTT spacer
length: 38 repeater length: 24
23370 1110258 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATA spacer
length: 42 repeater length: 24
23371 1110325 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAAC spacer
length: 38 repeater length: 24
23372 1110388 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCA spacer
length: 42 repeater length: 24
23373 1110455 GTTAATCTTCTATAGAGTTGAAAG GCTTGTTGCTCAGCCATTGCGTAACCTCACCCCA spacer length:
34 repeater length: 24

23374 1110514 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGAAGTCTAG spacer
length: 37 repeater length: 24

23375 1110576 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAA spacer
length: 41 repeater length: 24

23376 1110642 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCC spacer
length: 37 repeater length: 24

23377 1110704 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTT spacer
length: 39 repeater length: 24

23378 1110768 GTTAATCTTCTATAGAGTTGAAAG TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAA spacer
length: 38 repeater length: 24

23379 1110831 GTTAATCTTCTATAGAGTTGAAAG TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGT spacer
length: 40 repeater length: 24

23380 1110896 GTTAATCTTCTATAGAGTTGAAAG TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATA spacer
length: 39 repeater length: 24

23381 1110960 GTTAATCTTCTATAGAGTTGAAAG ACGTTGAACCAACGTTACCCCCGCCGTCAAAGACG spacer length:
36 repeater length: 24

23382 1111021 GTTAATCTTCTATAGAGTTGAAAG TCCACGGAGGGGTGGAGAATGAACTATTTCGAAGGGA spacer
length: 37 repeater length: 24

23383 1111083 GTTAATCTTCTATAGAGTTGAAAG ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAG spacer
length: 38 repeater length: 24

23384 1111146 GTTAATCTTCTATAGAGTTGAAAG GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAATG spacer
length: 38 repeater length: 24

23385 1111209 GTTAATCTTCTATAGAGTTGAAAG ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATT spacer length:
36 repeater length: 24

23386 1111270 GTTAATCTTCTATAGAGTTGAAAG ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCA spacer
length: 39 repeater length: 24

23387 1111334 GTTAATCTTCTATAGAGTTGAAAG AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAAGTT spacer
length: 37 repeater length: 24

23388 1111396 GTTAATCTTCTATAGAGTTGAAAG CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAG spacer
length: 39 repeater length: 24

23389 1111460 GTTAATCTTCTATAGAGTTGAAAG AAATTTTTAGAAAGAAATATACGAATGTGTAGATAAAA spacer
length: 37 repeater length: 24

23390 1111522 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGG spacer
length: 40 repeater length: 24

23391 1111587 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAAGTTCAT spacer
length: 39 repeater length: 24

23392 1111651 GTTAATCTTCTATAGAGTTGAAAG CTCATCAAGAGGCATTATTTTCTCATCAAACCGCCAAGA spacer
length: 40 repeater length: 24

23393 1111716 GTTAATCTTCTATAGAGTTGAAAG AAAAATTATTCTTGTGATCTGTTGCTGCTATATTGGGTGT spacer
length: 42 repeater length: 24

23394 1111783 GTTAATCTTCTATAGAGTTGAAAG TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACC spacer
length: 40 repeater length: 24

23395 1111848 GTTAATCTTCTATAGAGTTGAAAG GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAAGTA spacer
length: 42 repeater length: 24

23396 1111915 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCG spacer
length: 39 repeater length: 24

23397 1111979 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAGCTGGAGAGCAAGTAGCGACCTTTCTTT spacer
length: 38 repeater length: 24

23398 1112042 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGA spacer
length: 38 repeater length: 24

23399 1112105 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGA spacer
length: 38 repeater length: 24

23400 1112168 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACC spacer
length: 39 repeater length: 24

23401 1112232 GTTAATCTTCTATAGAGTTGAAAG
AACTTCCTACTTAGACCGGAATTAGCGATCTAGGAATCGAGTTAATCTTCTATGGAGTTGAAAGAGTCTAACCCCTTCTGTCCC
TGATATTTTCTCTAT spacer length: 102 repeater length: 24

23402 1112359 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTC spacer
length: 42 repeater length: 24

23403 1112426 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGC spacer length:
36 repeater length: 24

23404 1112487 GTTAATCTTCTATAGAGTTGAAAG
CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGAGTTAATCTTTCGATAGAGTTGAAAGACAAGCCAAATGATGAAGTTAC
TACTACTAATACTACTACTA spacer length: 106 repeater length: 24

23405 1112618 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCA spacer
length: 38 repeater length: 24

23406 1112681 GTTAATCTTCTATAGAGTTGAAAG AGTGATAGAATAAAAGCTATTATTCCAAGTATTTCTCT

23407

23408

23409 crispr 8

23410 1136255 GTTTCAAACCCCTCGAAGGATCTCTACAAAC TCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer

length: 36 repeater length: 30
23411 1136322 GTTTCAAACCCTCGAAGGATCTCTACAAAC CTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 37 repeater length: 30
23412 1136390 GTTTCAAACCCTCGAAGGATCTCTACAAAC AATACTACGTAATATGAATAGGTACTGTGAGACGAGA
23413
23414
23415 crispr 9
23416 1710435 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 43 repeater length: 40
23417 1710519 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTTGTGAGTCCCAACGCAGAATGCAGGAGGCATTCTCAAGCTCGAGGACAGAACC
TCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 127 repeater length: 40
23418 1710687 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
TCTTGATATGTTGAGTCTTCCGTTAATCCTCTATAGAGTTGAAAGGTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCATG
TTAATCTTCTATAGAGTTGAAAGTGCTTTGTACGTAAAATG
23419
23420
23421 GCA_001266695.1_ASM126669v1_genomic.fna(findCrispr):
23422 START REPEAT
SPACER
23423 crispr 1
23424 1083280 CTTT CAACTCTATAGGAGATTAACCTCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTG spacer
length: 61 repeater length: 4
23425 1083346 CTTT CAACTCTATAGGAGATTAACCTCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAG spacer
length: 59 repeater length: 4
23426 1083410 CTTT CAACTCTATAGGAGATTAACACAGTTCACAAACGGAATTGTTTGATAACTTCTTGAA spacer
length: 58 repeater length: 4
23427 1083473 CTTT CCTCGAAGGATCTCTACAAGAAGGGCTATTCTGCGTACGCTTCCACCTCTGGAGGCA
23428
23429
23430 crispr 2
23431 1137847 GATCCTTTGAGGGTTTGAAA CAAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGTTTGTAG spacer
length: 46 repeater length: 20
23432 1137914 GATCCTTTGAGGGTTTGAAA CGCAAAGGCCCTTTCCCACACTCTCCAAGGGAGTATGAAGTTTATAG spacer
length: 46 repeater length: 20
23433 1137981 GATCCTTTGAGGGTTTGAAA CCTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGTTTGTAG spacer
length: 46 repeater length: 20
23434 1138048 GATCCTTTGAGGGTTTGAAA CGCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGACTTGTAG spacer
length: 48 repeater length: 20
23435 1138117 GATCCTTTGAGGGTTTGAAA CTAAGTGAACCATGGGTATTCCCCCTCCGGGGAACTTCGACTTGTAG spacer
length: 48 repeater length: 20
23436 1138186 GATCCTTTGAGGGTTTGAAA CTCGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGTTTGTAG spacer
length: 46 repeater length: 20
23437 1138253 GATCCTTTGAGGGTTTGAAA CGTGTGTTGTCCCATCTTTTGATGGGGCAGCTGCTCCTCTTGTAG spacer
length: 46 repeater length: 20
23438 1138320 GATCCTTTGAGGGTTTGAAA CTATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGTTTGTAG spacer
length: 46 repeater length: 20
23439 1138387 GATCCTTTGAGGGTTTGAAA CTCGATAGCGAACCTGATAACTTCGCTTCTATTAGTCTGTTTGTAG spacer
length: 47 repeater length: 20
23440 1138455 GATCCTTTGAGGGTTTGAAA CATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGTTTGTAG spacer
length: 47 repeater length: 20
23441 1138523 GATCCTTTGAGGGTTTGAAA CTACACGACGCGATCACACTCATGCCCCGCTGTCGCCGTTGTTTGTAG
spacer length: 50 repeater length: 20
23442 1138594 GATCCTTTGAGGGTTTGAAA CATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGCTTGTAG spacer
length: 46 repeater length: 20
23443 1138661 GATCCTTTGAGGGTTTGAAA CCCACCTTCACCTCGCCTTACGGCCCTTTTCTTCTCAGTTTGTAG spacer
length: 48 repeater length: 20
23444 1138730 GATCCTTTGAGGGTTTGAAA AAGAAGGGCTATTCTGCGTACGCTTCCACCTCTGGAGGCAGTTTCAA
23445
23446
23447 crispr 3
23448 1136108 GTTTCAAACCCTCGAAGGAT
GTCTACAAACGACAGTCTACACCCCCCCCCGGTCGTGAGTGTGGGAAGCGGGGATCCCATTTCAAACCCTCCAAGGATGTCTAC
AAACTGGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAG spacer length: 128 repeater length: 20
23449 1136257 GTTTCAAACCCTCGAAGGAT CTCTACAAACTCCCCGTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 46 repeater length: 20
23450 1136324 GTTTCAAACCCTCGAAGGAT CTCTACAAACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 47 repeater length: 20
23451 1136392 GTTTCAAACCCTCGAAGGAT CTCTACAAACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACT
spacer length: 49 repeater length: 20
23452 1136462 GTTTCAAACCCTCGAAGGAT CTCTACAAGCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTAT spacer

length: 44 repeater length: 20
23453 1136527 GTTTCAAACCCCTCGAAGGAT CTCCTGAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAAC
23454
23455
23456 crispr 4
23457 1082321 TCAACTCCATAGG AGATTAAGTATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATACT spacer
length: 51 repeater length: 13
23458 1082386 TCAACTCCATAGG AGATTAAGTAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATTCT spacer
length: 50 repeater length: 13
23459 1082450 TCAACTCCATAGG AGATTAACAGACCCAAAACCTAAACTCCAAAAAGTCTTTGAGCAATTCT spacer
length: 50 repeater length: 13
23460 1082514 TCAACTCCATAGG AGATTAACCTTACTTCTAATGATTACAGGGATTCTCAGAACCCTTCTCT spacer
length: 49 repeater length: 13
23461 1082577 TCAACTCCATAGG AGATTAACGCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAACT spacer
length: 49 repeater length: 13
23462 1082640 TCAACTCCATAGG AGATTAACGTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAGCT spacer
length: 54 repeater length: 13
23463 1082708 TCAACTCCATAGG AGATTAACAGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGACT spacer
length: 51 repeater length: 13
23464 1082773 TCAACTCCATAGG AGATTAACATCAAATGATGCCAAAAAGTGATCTACCTATTCTTTTCATCT spacer
length: 50 repeater length: 13
23465 1082837 TCAACTCCATAGG AGATTAACAACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATTCT spacer
length: 50 repeater length: 13
23466 1082901 TCAACTCCATAGG AGATTAACCGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCTCT spacer
length: 52 repeater length: 13
23467 1082967 TCAACTCCATAGG AGATTAACCTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAGCT spacer
length: 49 repeater length: 13
23468 1083030 TCAACTCCATAGG AGATTAACAGTTCTACGGAAACTATCAATCCAGATAGCAATAAAGACT spacer
length: 49 repeater length: 13
23469 1083093 TCAACTCCATAGG GAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTC
23470
23471
23472 crispr 5
23473 1253629 CCTTCCAATGGTTACGTGTACGT
AGACGTATTATACGCGCTTGGAATAACATCAGTCTCTGTTATCTCAGCTAATAATGTTGTAGGTAATTTGAAAGTATGTAGCGGGA
CTCTCCCATATACGA spacer length: 102 repeater length: 23
23474 1253755 CCTTCCAATGGTTACGTGTACGT
TGGTGGTGCTCCTTCAGATACAGTCTCTGTTATCTCAGGTAATAATGTTGTAGCTAACGTCCCTGTTGGCTTAGATCCAGTCTACG
CTCTCTACGA spacer length: 96 repeater length: 23
23475 1253875 CCTTCCAATGGTTACGTGTACGT
GCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAGGCGAAAATGGTTCGAGCTCGCTGAGGCACAACGCAAGA
CTGAGGAGGC
23476
23477
23478 crispr 6
23479 1097327 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTG spacer
length: 40 repeater length: 24
23480 1097392 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTAT spacer
length: 39 repeater length: 24
23481 1097456 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTA spacer
length: 39 repeater length: 24
23482 1097520 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAG spacer
length: 38 repeater length: 24
23483 1097583 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTG spacer
length: 41 repeater length: 24
23484 1097649 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATA spacer
length: 39 repeater length: 24
23485 1097713 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTTCGTATGCAAAATATTTCTGGATC spacer
length: 41 repeater length: 24
23486 1097779 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAG spacer
length: 38 repeater length: 24
23487 1097842 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24
23488 1097906 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTCTTCTTGTGGTGGTATTACCTA spacer
length: 41 repeater length: 24
23489 1097972 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGA spacer
length: 39 repeater length: 24
23490 1098036 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCTACATGATTGCGAAAAACAACAA spacer length:
36 repeater length: 24
23491 1098097 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCCA spacer
length: 39 repeater length: 24

23492	1098161	CTTAATCTCCTATAGAGTTGAAAG	TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACC	spacer
		length: 38	repeater length: 24	
23493	1098224	CTTAATCTCCTATAGAGTTGAAAG	TTTTCTTTCTCATACATTACTCTTATTAGTTTACTAACA	spacer
		length: 39	repeater length: 24	
23494	1098288	CTTAATCTCCTATAGAGTTGAAAG	CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTC	spacer
		length: 40	repeater length: 24	
23495	1098353	CTTAATCTCCTATAGAGTTGAAAG	TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCT	spacer
		length: 40	repeater length: 24	
23496	1098418	CTTAATCTCCTATAGAGTTGAAAG	ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACC	spacer
		length: 38	repeater length: 24	
23497	1098481	CTTAATCTCCTATAGAGTTGAAAG	ACTAGGCAAACGATACTGAGACACAGCGGGACTGCA	spacer length: 36
		length: 36	repeater length: 24	
23498	1098542	CTTAATCTCCTATAGAGTTGAAAG	TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTC	spacer
		length: 41	repeater length: 24	
23499	1098608	CTTAATCTCCTATAGAGTTGAAAG	AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACG	spacer
		length: 39	repeater length: 24	
23500	1098672	CTTAATCTCCTATAGAGTTGAAAG	TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTC	spacer
		length: 43	repeater length: 24	
23501	1098740	CTTAATCTCCTATAGAGTTGAAAG	CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATC	spacer
		length: 39	repeater length: 24	
23502	1098804	CTTAATCTCCTATAGAGTTGAAAG	AAATGGGACGATGAGGGTGTTCAACAGATACAACACCACA	spacer
		length: 40	repeater length: 24	
23503	1098869	CTTAATCTCCTATAGAGTTGAAAG	ATTATATATAATATATGAATAATAGCCCCGTGCTTCGCGCCT	spacer
		length: 43	repeater length: 24	
23504	1098937	CTTAATCTCCTATAGAGTTGAAAG	TCTTTTGCACATATCCATTCCGACCACATCTCTCGGCTTCGATA	spacer
		length: 43	repeater length: 24	
23505	1099005	CTTAATCTCCTATAGAGTTGAAAG	TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACT	spacer
		length: 39	repeater length: 24	
23506	1099069	CTTAATCTCCTATAGAGTTGAAAG	TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGA	spacer
		length: 42	repeater length: 24	
23507	1099136	CTTAATCTCCTATAGAGTTGAAAG	ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAAC	spacer
		length: 41	repeater length: 24	
23508	1099202	CTTAATCTCCTATAGAGTTGAAAG	CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGC	spacer
		length: 37	repeater length: 24	
23509	1099264	CTTAATCTCCTATAGAGTTGAAAG	TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCC	spacer
		length: 41	repeater length: 24	
23510	1099330	CTTAATCTCCTATAGAGTTGAAAG	TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATT	spacer
		length: 44	repeater length: 24	
23511	1099399	CTTAATCTCCTATAGAGTTGAAAG	AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGT	spacer
		length: 43	repeater length: 24	
23512	1099467	CTTAATCTCCTATAGAGTTGAAAG	ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCT	spacer
		length: 39	repeater length: 24	
23513	1099531	CTTAATCTCCTATAGAGTTGAAAG	ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCC	spacer
		length: 40	repeater length: 24	
23514	1099596	CTTAATCTCCTATAGAGTTGAAAG	GTAAAGGGGTTGTGTTTTACGTTTTGAGTGGTGTTCACGA	spacer
		length: 40	repeater length: 24	
23515	1099661	CTTAATCTCCTATAGAGTTGAAAG	CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAG	spacer
		length: 38	repeater length: 24	
23516	1099724	CTTAATCTCCTATAGAGTTGAAAG	GAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAG	
23517				
23518				
23519	crispr 7			
23520	1104341	GTTAATCTTCTATAGAGTTGAAAG	TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCA	spacer
		length: 39	repeater length: 24	
23521	1104405	GTTAATCTTCTATAGAGTTGAAAG	TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTT	spacer
		length: 40	repeater length: 24	
23522	1104470	GTTAATCTTCTATAGAGTTGAAAG	TTTGTCTGTTTCGATTGGAATAATTCAGCGTTACCATAAA	spacer
		length: 41	repeater length: 24	
23523	1104536	GTTAATCTTCTATAGAGTTGAAAG	TACCTGTATGACAATTCGCTAAAAATTTAACTATCTA	spacer
		length: 38	repeater length: 24	
23524	1104599	GTTAATCTTCTATAGAGTTGAAAG	TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTA	spacer
		length: 38	repeater length: 24	
23525	1104662	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGG	spacer
		length: 41	repeater length: 24	
23526	1104728	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCA	spacer
		length: 38	repeater length: 24	
23527	1104791	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATC	spacer
		length: 40	repeater length: 24	
23528	1104856	GTTAATCTTCTATAGAGTTGAAAG	CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAG	spacer
		length: 38	repeater length: 24	
23529	1104919	GTTAATCTTCTATAGAGTTGAAAG	TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATC	spacer

length: 39 repeater length: 24

23530 1104983 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTA spacer
length: 39 repeater length: 24

23531 1105047 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCA spacer
length: 39 repeater length: 24

23532 1105111 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTTCAGTTTCTGCGCCTTCTCCCTCACC spacer
length: 38 repeater length: 24

23533 1105174 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATC spacer
length: 39 repeater length: 24

23534 1105238 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCA spacer
length: 39 repeater length: 24

23535 1105302 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCT
spacer length: 45 repeater length: 24

23536 1105372 GTTAATCTTCTATAGAGTTGAAAG CTTTTTGTCAACCTAGAAAGCCTTGTTGCGAAATATGG spacer
length: 38 repeater length: 24

23537 1105435 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTMTTTCCTACTAAA spacer
length: 37 repeater length: 24

23538 1105497 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAA spacer
length: 40 repeater length: 24

23539 1105562 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGA spacer
length: 38 repeater length: 24

23540 1105625 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGA spacer
length: 40 repeater length: 24

23541 1105690 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCT spacer
length: 40 repeater length: 24

23542 1105755 GTTAATCTTCTATAGAGTTGAAAG TATATTTCTGTCGCTATATCGCCCAGAAGACGTCTGATA spacer
length: 38 repeater length: 24

23543 1105818 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATC spacer
length: 39 repeater length: 24

23544 1105882 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGA spacer
length: 39 repeater length: 24

23545 1105946 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTGTGTCATAATA spacer
length: 38 repeater length: 24

23546 1106009 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCT spacer
length: 42 repeater length: 24

23547 1106076 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTA spacer
length: 38 repeater length: 24

23548 1106139 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCA spacer
length: 39 repeater length: 24

23549 1106203 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTC spacer
length: 39 repeater length: 24

23550 1106267 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTT spacer
length: 41 repeater length: 24

23551 1106333 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTA spacer length:
34 repeater length: 24

23552 1106392 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAAC spacer length:
36 repeater length: 24

23553 1106453 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAATGGTGGTAG spacer
length: 39 repeater length: 24

23554 1106517 GTTAATCTTCTATAGAGTTGAAAG CCAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTG spacer
length: 40 repeater length: 24

23555 1106582 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTA spacer
length: 37 repeater length: 24

23556 1106644 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGAT spacer
length: 39 repeater length: 24

23557 1106708 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCA spacer
length: 39 repeater length: 24

23558 1106772 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGAC spacer
length: 41 repeater length: 24

23559 1106838 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTT spacer
length: 38 repeater length: 24

23560 1106901 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAAT spacer
length: 38 repeater length: 24

23561 1106964 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTT spacer
length: 38 repeater length: 24

23562 1107027 GTTAATCTTCTATAGAGTTGAAAG ATTTGCGCAATTCATTTGCAATTGTTTCAATTCACTTCAAA spacer
length: 40 repeater length: 24

23563 1107092 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTTCCTTATCTTTTCTTCTTTTCACTA spacer
length: 40 repeater length: 24

23564 1107157 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAAGAGATCTAATAGACGAAGGCGGAATCTTTC spacer
length: 40 repeater length: 24

23565 1107222 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGAC spacer
length: 40 repeater length: 24
23566 1107287 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTTTCGAAGAGAATTGGCGGGGCGCTGTAAT spacer
length: 40 repeater length: 24
23567 1107352 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGG spacer
length: 38 repeater length: 24
23568 1107415 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGA spacer
length: 43 repeater length: 24
23569 1107483 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTA spacer
length: 39 repeater length: 24
23570 1107547 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCC spacer
length: 39 repeater length: 24
23571 1107611 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTG spacer
length: 39 repeater length: 24
23572 1107675 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCT spacer
length: 40 repeater length: 24
23573 1107740 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCG spacer
length: 39 repeater length: 24
23574 1107804 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTT spacer
length: 38 repeater length: 24
23575 1107867 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCATGGATGCAGAATTAGAGAGG spacer
length: 42 repeater length: 24
23576 1107934 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTCT spacer
length: 38 repeater length: 24
23577 1107997 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCT spacer
length: 43 repeater length: 24
23578 1108065 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTG spacer
length: 42 repeater length: 24
23579 1108132 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCA spacer
length: 38 repeater length: 24
23580 1108195 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGC spacer
length: 40 repeater length: 24
23581 1108260 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCA spacer
length: 38 repeater length: 24
23582 1108323 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACAC spacer
length: 37 repeater length: 24
23583 1108385 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTAACTGTGCATG spacer
length: 37 repeater length: 24
23584 1108447 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCCCT spacer
length: 38 repeater length: 24
23585 1108510 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAA spacer
length: 40 repeater length: 24
23586 1108575 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTA spacer
length: 43 repeater length: 24
23587 1108643 GTTAATCTTCTATAGAGTTGAAAG AGATAACATTTTTTCTCTTGTTTAAACGTATCTACGAACCA spacer
length: 41 repeater length: 24
23588 1108709 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGCTGGCTTCATAT spacer
length: 40 repeater length: 24
23589 1108774 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCG spacer
length: 41 repeater length: 24
23590 1108840 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCC spacer
length: 40 repeater length: 24
23591 1108905 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACC AAAAGAATAATACAAAAATTTA spacer
length: 40 repeater length: 24
23592 1108970 GTTAATCTTCTATAGAGTTGAAAG TTGTCAACAGTTTCCGATAAGTCGTGAAGTTCATGTCATTTA spacer
length: 42 repeater length: 24
23593 1109037 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTTACTTACTTTTTTGAACGAC
spacer length: 50 repeater length: 24
23594 1109112 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGATTCATTTTCTATCCC spacer
length: 39 repeater length: 24
23595 1109176 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAAC spacer length:
34 repeater length: 24
23596 1109235 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATA spacer
length: 40 repeater length: 24
23597 1109300 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAA spacer
length: 39 repeater length: 24
23598 1109364 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGG spacer
length: 38 repeater length: 24
23599 1109427 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGG spacer
length: 42 repeater length: 24
23600 1109494 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACT spacer

length: 39 repeater length: 24
23601 1109558 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGAACTACTCGAGAAAGAGAAAAGAAAA spacer
length: 38 repeater length: 24
23602 1109621 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCACTGGAAGTTGTACGGTATGAGGAGTCAT spacer
length: 40 repeater length: 24
23603 1109686 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAAACCTTTACAGATTCCCCATATCCT spacer
length: 38 repeater length: 24
23604 1109749 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGA spacer
length: 39 repeater length: 24
23605 1109813 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAG spacer
length: 40 repeater length: 24
23606 1109878 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAG spacer
length: 38 repeater length: 24
23607 1109941 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTA spacer
length: 39 repeater length: 24
23608 1110005 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGTGTTTGTGAA spacer
length: 40 repeater length: 24
23609 1110070 GTTAATCTTCTATAGAGTTGAAAG TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAG spacer
length: 39 repeater length: 24
23610 1110134 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGAACCTTACTCAAAGCCCTCAAAGACGA spacer
length: 38 repeater length: 24
23611 1110197 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTT spacer
length: 38 repeater length: 24
23612 1110260 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATA spacer
length: 42 repeater length: 24
23613 1110327 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAAC spacer
length: 38 repeater length: 24
23614 1110390 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCA spacer
length: 42 repeater length: 24
23615 1110457 GTTAATCTTCTATAGAGTTGAAAG GCTTGTTGCTCAGCCATTGCGTAACCTCACCCCA spacer length:
34 repeater length: 24
23616 1110516 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGAACCTCAG spacer
length: 37 repeater length: 24
23617 1110578 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAA spacer
length: 41 repeater length: 24
23618 1110644 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCC spacer
length: 37 repeater length: 24
23619 1110706 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTT spacer
length: 39 repeater length: 24
23620 1110770 GTTAATCTTCTATAGAGTTGAAAG TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAA spacer
length: 38 repeater length: 24
23621 1110833 GTTAATCTTCTATAGAGTTGAAAG TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGT spacer
length: 40 repeater length: 24
23622 1110898 GTTAATCTTCTATAGAGTTGAAAG TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATA spacer
length: 39 repeater length: 24
23623 1110962 GTTAATCTTCTATAGAGTTGAAAG ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACG spacer length:
36 repeater length: 24
23624 1111023 GTTAATCTTCTATAGAGTTGAAAG TCCACGGAGGGGTGGAGAATGAAACTATTCTGAAGGGA spacer
length: 37 repeater length: 24
23625 1111085 GTTAATCTTCTATAGAGTTGAAAG ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAG spacer
length: 38 repeater length: 24
23626 1111148 GTTAATCTTCTATAGAGTTGAAAG GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAATG spacer
length: 38 repeater length: 24
23627 1111211 GTTAATCTTCTATAGAGTTGAAAG ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATT spacer length:
36 repeater length: 24
23628 1111272 GTTAATCTTCTATAGAGTTGAAAG ACGGTACGCCGTCGCCGACGCGGGGGATACCCTGTATCA spacer
length: 39 repeater length: 24
23629 1111336 GTTAATCTTCTATAGAGTTGAAAG AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACTT spacer
length: 37 repeater length: 24
23630 1111398 GTTAATCTTCTATAGAGTTGAAAG CGTGACCCCGCTCGTGCGGTCACGGCATGCTAGGAGGAG spacer
length: 39 repeater length: 24
23631 1111462 GTTAATCTTCTATAGAGTTGAAAG AAATTTTGTAGAAGAAATATACGAATGTGTAGATAAAA spacer
length: 37 repeater length: 24
23632 1111524 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGG spacer
length: 40 repeater length: 24
23633 1111589 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCAT spacer
length: 39 repeater length: 24
23634 1111653 GTTAATCTTCTATAGAGTTGAAAG CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGA spacer
length: 40 repeater length: 24
23635 1111718 GTTAATCTTCTATAGAGTTGAAAG AAAAATTATTCTTGTGATCTGTTGCTGCTATATTGGGTGT spacer
length: 42 repeater length: 24

23636 1111785 GTTAATCTTCTATAGAGTTGAAAG TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACC spacer
length: 40 repeater length: 24

23637 1111850 GTTAATCTTCTATAGAGTTGAAAG GTAGATTATCAATCTTACCCAACGGTCCAAAGGAACTAAGTA spacer
length: 42 repeater length: 24

23638 1111917 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCG spacer
length: 39 repeater length: 24

23639 1111981 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTT spacer
length: 38 repeater length: 24

23640 1112044 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGA spacer
length: 38 repeater length: 24

23641 1112107 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTCGGTAAGGA spacer
length: 38 repeater length: 24

23642 1112170 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACC spacer
length: 39 repeater length: 24

23643 1112234 GTTAATCTTCTATAGAGTTGAAAG
AACTTCCTACTTAGACCGCGAATTAGCGATCTAGGAATCGAGTTAATCTTCTATGGAGTTGAAAGAGTCTAACCCCTTCTGTCCC
TGATATTTTCTCTAT spacer length: 102 repeater length: 24

23644 1112361 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTC spacer
length: 42 repeater length: 24

23645 1112428 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGC spacer length:
36 repeater length: 24

23646 1112489 GTTAATCTTCTATAGAGTTGAAAG
CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGAGTTAATCTTCGATAGAGTTGAAAGACAAGCCAAATGATGAAGTTAC
TACTACTAATACTACTACTA spacer length: 106 repeater length: 24

23647 1112620 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCA spacer
length: 38 repeater length: 24

23648 1112683 GTTAATCTTCTATAGAGTTGAAAG AGTGATAGAATAAAAGCTATTATTCCAACATTTTCTCT

23649

23650

23651 crispr 8

23652 1136257 GTTTCAAACCCCTCGAAGGATCTCTACAAAC TCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 36 repeater length: 30

23653 1136324 GTTTCAAACCCCTCGAAGGATCTCTACAAAC CTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 37 repeater length: 30

23654 1136392 GTTTCAAACCCCTCGAAGGATCTCTACAAAC AATACTACGTAATATGAATAGGTACTGTGAGACGAGA

23655

23656

23657 crispr 9

23658 1710437 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 43 repeater length: 40

23659 1710521 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTTGTGAGTCCCAACGCAGAATGCAGGAGGCATTCTCAAGCTCGAGGACAGAACC
TCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 127 repeater length: 40

23660 1710689 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
TCTTGATATGTTGAGTCTTTCCGTTAATCCTCTATAGAGTTGAAAGGTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCATG
TTAATCTTCTATAGAGTTGAAAGTGCTTTGTACGTAAAATG

23661

23662

23663 GCA_001266715.1_ASM126671v1_genomic.fna(findCrispr):

23664 START REPEAT
SPACER

23665 crispr 1

23666 1083282 CTTT CAACTCTATAGGAGATTAACCTCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTG spacer
length: 61 repeater length: 4

23667 1083348 CTTT CAACTCTATAGGAGATTAACCTCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAG spacer
length: 59 repeater length: 4

23668 1083412 CTTT CAACTCTATAGGAGATTAACACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGA spacer
length: 58 repeater length: 4

23669 1083475 CTTT CCTCGAAGGATCTCTACAAGAAGGGCTATTCTGCGTACGCTTCCACCTCTGGAGGCA

23670

23671

23672 crispr 2

23673 1137849 GATCCTTTGAGGGTTTGAAA CAAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGTTTGTAG spacer
length: 46 repeater length: 20

23674 1137916 GATCCTTTGAGGGTTTGAAA CGCAAAGGCCTTTCCCACACTCTCCAAGGGAGTATGAAGTTTATAG spacer
length: 46 repeater length: 20

23675 1137983 GATCCTTTGAGGGTTTGAAA CCTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGTTTGTAG spacer
length: 46 repeater length: 20

23676 1138050 GATCCTTTGAGGGTTTGAAA CGCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGACTTGTAG spacer
length: 48 repeater length: 20

23677 1138119 GATCCTTTGAGGGTTTGAAA CTAAGTGAACCATGGGTATTTCCCTCCGGGGAACTTCGACTTGTAG spacer

length: 48 repeater length: 20
23678 1138188 GATCCTTTGAGGGTTTGAAA CTCGGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGTTTGTAG spacer
length: 46 repeater length: 20
23679 1138255 GATCCTTTGAGGGTTTGAAA CGTGTGTGTCCTCATCTTTTGATGGGGCAGCTGCTCCTCTTTGTAG spacer
length: 46 repeater length: 20
23680 1138322 GATCCTTTGAGGGTTTGAAA CTATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGTTTGTAG spacer
length: 46 repeater length: 20
23681 1138389 GATCCTTTGAGGGTTTGAAA CTCGATAGCGAACCTGATAACTTCGCTTCTATTAGTCTGTTTGTAG spacer
length: 47 repeater length: 20
23682 1138457 GATCCTTTGAGGGTTTGAAA CATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGTTTGTAG spacer
length: 47 repeater length: 20
23683 1138525 GATCCTTTGAGGGTTTGAAA CTACACGACGCGATCACACTCACATGCCCGCGTGTGCGCGTTGTTTGTAG
spacer length: 50 repeater length: 20
23684 1138596 GATCCTTTGAGGGTTTGAAA CATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGCTTGTAG spacer
length: 46 repeater length: 20
23685 1138663 GATCCTTTGAGGGTTTGAAA CCCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGTTTGTAG spacer
length: 48 repeater length: 20
23686 1138732 GATCCTTTGAGGGTTTGAAA AAGAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCAGTTTCAA
23687
23688
23689 crispr 3
23690 1136110 GTTTCAAACCCTCGAAGGAT
GTCTACAAACGACACGCTCTACACCCCCCCCCCGTCTGAGTGTGGGAAGCGGGGATCCCATTTCAAACCCTCCAAGGATGTCTAC
AAACTGGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAG spacer length: 128 repeater length: 20
23691 1136259 GTTTCAAACCCTCGAAGGAT CTCTACAAACTCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 46 repeater length: 20
23692 1136326 GTTTCAAACCCTCGAAGGAT CTCTACAAACCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 47 repeater length: 20
23693 1136394 GTTTCAAACCCTCGAAGGAT CTCTACAAACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACT
spacer length: 49 repeater length: 20
23694 1136464 GTTTCAAACCCTCGAAGGAT CTCTACAAGCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTAT spacer
length: 44 repeater length: 20
23695 1136529 GTTTCAAACCCTCGAAGGAT CTCCTGAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAAC
23696
23697
23698 crispr 4
23699 1082323 TCAACTCCATAGG AGATTAAGTATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATACT spacer
length: 51 repeater length: 13
23700 1082388 TCAACTCCATAGG AGATTAAGTAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATTCT spacer
length: 50 repeater length: 13
23701 1082452 TCAACTCCATAGG AGATTAACAGACCCAAAACCTAAACTCCAAAAGTCTTTGAGCAATTCT spacer
length: 50 repeater length: 13
23702 1082516 TCAACTCCATAGG AGATTAACCTTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCTCT spacer
length: 49 repeater length: 13
23703 1082579 TCAACTCCATAGG AGATTAACGCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAACT spacer
length: 49 repeater length: 13
23704 1082642 TCAACTCCATAGG AGATTAACGTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAGCT spacer
length: 54 repeater length: 13
23705 1082710 TCAACTCCATAGG AGATTAACAGAAGAAAAAGTATACCTGAAAAGAAGATTGAATTTTTAGACT spacer
length: 51 repeater length: 13
23706 1082775 TCAACTCCATAGG AGATTAACATCAAATGATGCCAAAAGTGATCTACCTATTCTTTTCATCT spacer
length: 50 repeater length: 13
23707 1082839 TCAACTCCATAGG AGATTAACAACATGATAAGGCTTTACTTAGAAAGTTAGAGAAAAAATTCT spacer
length: 50 repeater length: 13
23708 1082903 TCAACTCCATAGG AGATTAACCGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCTCT spacer
length: 52 repeater length: 13
23709 1082969 TCAACTCCATAGG AGATTAACCTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAGCT spacer
length: 49 repeater length: 13
23710 1083032 TCAACTCCATAGG AGATTAACAGTTCTACGGAAAACCTATCAATCCAGATAGCAATAAAGACT spacer
length: 49 repeater length: 13
23711 1083095 TCAACTCCATAGG GAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTC
23712
23713
23714 crispr 5
23715 1253631 CCTTCCAATGGTTACGTGTACGT
AGACGTATTATACGCGCTTGGAAATACATCAGTCTCTGTTATCTCAGCTAATAATGTTGTAGGTAATTTGAAAGTATGTAGCGGGA
CTCCTCCCATATACGA spacer length: 102 repeater length: 23
23716 1253757 CCTTCCAATGGTTACGTGTACGT
TGGTGGTGCTCCTTCAGATACAGTCTCTGTTATCTCAGGTAATAATGTTGTAGCTAACGTCCCTGTTGGCTTAGATCCAGTCTACG
CTCTCTACGA spacer length: 96 repeater length: 23
23717 1253877 CCTTCCAATGGTTACGTGTACGT

GCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAGGCGAAAATGGTCGAGCTCGCTGAGGCACAACGCAAGA
CTGAGGAGGC

23718
23719
23720 crispr 6
23721 1097329 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTG spacer
length: 40 repeater length: 24
23722 1097394 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTAT spacer
length: 39 repeater length: 24
23723 1097458 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTA spacer
length: 39 repeater length: 24
23724 1097522 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAG spacer
length: 38 repeater length: 24
23725 1097585 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACCTCTCGTTTCCAAACACCTCGTTTG spacer
length: 41 repeater length: 24
23726 1097651 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATA spacer
length: 39 repeater length: 24
23727 1097715 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTCGTATGCAAAATATTTCTGGATC spacer
length: 41 repeater length: 24
23728 1097781 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAG spacer
length: 38 repeater length: 24
23729 1097844 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAA spacer
length: 39 repeater length: 24
23730 1097908 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTA spacer
length: 41 repeater length: 24
23731 1097974 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGA spacer
length: 39 repeater length: 24
23732 1098038 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCCCTACATGATTGCGAAAAACAACAA spacer length:
36 repeater length: 24
23733 1098099 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCCA spacer
length: 39 repeater length: 24
23734 1098163 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACC spacer
length: 38 repeater length: 24
23735 1098226 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACATTACTCTTATTAGTTTACTAACA spacer
length: 39 repeater length: 24
23736 1098290 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTC spacer
length: 40 repeater length: 24
23737 1098355 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCT spacer
length: 40 repeater length: 24
23738 1098420 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACC spacer
length: 38 repeater length: 24
23739 1098483 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGGACTGCA spacer length:
36 repeater length: 24
23740 1098544 CTTAATCTCCTATAGAGTTGAAAG TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTC spacer
length: 41 repeater length: 24
23741 1098610 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACG spacer
length: 39 repeater length: 24
23742 1098674 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTC spacer
length: 43 repeater length: 24
23743 1098742 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATC spacer
length: 39 repeater length: 24
23744 1098806 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATACAACACCACA spacer
length: 40 repeater length: 24
23745 1098871 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCCGTGCTTCGCGCCT spacer
length: 43 repeater length: 24
23746 1098939 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCACATATCCATTCCGACCACATCTCTCGGCTTCGATA spacer
length: 43 repeater length: 24
23747 1099007 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACT spacer
length: 39 repeater length: 24
23748 1099071 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGA spacer
length: 42 repeater length: 24
23749 1099138 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAAC spacer
length: 41 repeater length: 24
23750 1099204 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGC spacer
length: 37 repeater length: 24
23751 1099266 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCC spacer
length: 41 repeater length: 24
23752 1099332 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATT spacer
length: 44 repeater length: 24
23753 1099401 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGT spacer
length: 43 repeater length: 24

23754	1099469	CTTAATCTCCTATAGAGTTGAAAG	ACTACGGGTCTCAAGGTAGTCGGTGTCTTCTAGTAGCT	spacer
	length:	39	repeater length:	24
23755	1099533	CTTAATCTCCTATAGAGTTGAAAG	ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCC	spacer
	length:	40	repeater length:	24
23756	1099598	CTTAATCTCCTATAGAGTTGAAAG	GTAAAGGGGTGTGTTTTACGTTTTGAGTGGTGTTCACGA	spacer
	length:	40	repeater length:	24
23757	1099663	CTTAATCTCCTATAGAGTTGAAAG	CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAG	spacer
	length:	38	repeater length:	24
23758	1099726	CTTAATCTCCTATAGAGTTGAAAG	GAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAG	
23759				
23760				
23761	crispr 7			
23762	1104343	GTTAATCTTCTATAGAGTTGAAAG	TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCA	spacer
	length:	39	repeater length:	24
23763	1104407	GTTAATCTTCTATAGAGTTGAAAG	TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTT	spacer
	length:	40	repeater length:	24
23764	1104472	GTTAATCTTCTATAGAGTTGAAAG	TTTGTCTGTTTCGATTGGAATAATTTTCAGCGTTACCATAAA	spacer
	length:	41	repeater length:	24
23765	1104538	GTTAATCTTCTATAGAGTTGAAAG	TACCTGTATGACAATTCGCTAAAAATTTAACTATCTA	spacer
	length:	38	repeater length:	24
23766	1104601	GTTAATCTTCTATAGAGTTGAAAG	TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTA	spacer
	length:	38	repeater length:	24
23767	1104664	GTTAATCTTCTATAGAGTTGAAAG	GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGG	spacer
	length:	41	repeater length:	24
23768	1104730	GTTAATCTTCTATAGAGTTGAAAG	GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCA	spacer
	length:	38	repeater length:	24
23769	1104793	GTTAATCTTCTATAGAGTTGAAAG	TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATC	spacer
	length:	40	repeater length:	24
23770	1104858	GTTAATCTTCTATAGAGTTGAAAG	CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAG	spacer
	length:	38	repeater length:	24
23771	1104921	GTTAATCTTCTATAGAGTTGAAAG	TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATC	spacer
	length:	39	repeater length:	24
23772	1104985	GTTAATCTTCTATAGAGTTGAAAG	AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTA	spacer
	length:	39	repeater length:	24
23773	1105049	GTTAATCTTCTATAGAGTTGAAAG	CCTATAACCTAATAGCATAATATTTACTATGTCCCTCCA	spacer
	length:	39	repeater length:	24
23774	1105113	GTTAATCTTCTATAGAGTTGAAAG	TGCTCACCTCTTCAGTTTCTGCGCCTTCTCCCTCACC	spacer
	length:	38	repeater length:	24
23775	1105176	GTTAATCTTCTATAGAGTTGAAAG	TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATC	spacer
	length:	39	repeater length:	24
23776	1105240	GTTAATCTTCTATAGAGTTGAAAG	TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCA	spacer
	length:	39	repeater length:	24
23777	1105304	GTTAATCTTCTATAGAGTTGAAAG	TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCT	spacer
	length:	45	repeater length:	24
23778	1105374	GTTAATCTTCTATAGAGTTGAAAG	CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGG	spacer
	length:	38	repeater length:	24
23779	1105437	GTTAATCTTCTATAGAGTTGAAAG	ATTGCTTCTACTTCTGCTGGCATTTTTTTTCCACTAAA	spacer
	length:	37	repeater length:	24
23780	1105499	GTTAATCTTCTATAGAGTTGAAAG	GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAA	spacer
	length:	40	repeater length:	24
23781	1105564	GTTAATCTTCTATAGAGTTGAAAG	GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGA	spacer
	length:	38	repeater length:	24
23782	1105627	GTTAATCTTCTATAGAGTTGAAAG	TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGA	spacer
	length:	40	repeater length:	24
23783	1105692	GTTAATCTTCTATAGAGTTGAAAG	CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCT	spacer
	length:	40	repeater length:	24
23784	1105757	GTTAATCTTCTATAGAGTTGAAAG	TATATTTGTCGCTATATCGCCCAGAAGACGTCTGATA	spacer
	length:	38	repeater length:	24
23785	1105820	GTTAATCTTCTATAGAGTTGAAAG	GTTACAGAGTAAACTGTATAAGAGTGAGGTAACAAATC	spacer
	length:	39	repeater length:	24
23786	1105884	GTTAATCTTCTATAGAGTTGAAAG	AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGA	spacer
	length:	39	repeater length:	24
23787	1105948	GTTAATCTTCTATAGAGTTGAAAG	ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATA	spacer
	length:	38	repeater length:	24
23788	1106011	GTTAATCTTCTATAGAGTTGAAAG	AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCT	spacer
	length:	42	repeater length:	24
23789	1106078	GTTAATCTTCTATAGAGTTGAAAG	AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTA	spacer
	length:	38	repeater length:	24
23790	1106141	GTTAATCTTCTATAGAGTTGAAAG	GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCA	spacer
	length:	39	repeater length:	24
23791	1106205	GTTAATCTTCTATAGAGTTGAAAG	TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTC	spacer

length: 39 repeater length: 24

23792 1106269 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTT spacer
length: 41 repeater length: 24

23793 1106335 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTA spacer length:
34 repeater length: 24

23794 1106394 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAAC spacer length:
36 repeater length: 24

23795 1106455 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAG spacer
length: 39 repeater length: 24

23796 1106519 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTG spacer
length: 40 repeater length: 24

23797 1106584 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTA spacer
length: 37 repeater length: 24

23798 1106646 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGAT spacer
length: 39 repeater length: 24

23799 1106710 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCA spacer
length: 39 repeater length: 24

23800 1106774 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGAC spacer
length: 41 repeater length: 24

23801 1106840 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTTCCTTTTTCTTTGTAATCTTCTATTCTT spacer
length: 38 repeater length: 24

23802 1106903 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAAT spacer
length: 38 repeater length: 24

23803 1106966 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTCTGGCTTTCCCGCCAGAATCTT spacer
length: 38 repeater length: 24

23804 1107029 GTTAATCTTCTATAGAGTTGAAAG ATTTTCGCAATTCATTTTCAATTCAATTCACTTCAAA spacer
length: 40 repeater length: 24

23805 1107094 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCTTCTTTCTTTCTTTCTTTCTTTCACTA spacer
length: 40 repeater length: 24

23806 1107159 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAAGAGATCTAATAGACGAAGGCGGAATCTTTC spacer
length: 40 repeater length: 24

23807 1107224 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGAC spacer
length: 40 repeater length: 24

23808 1107289 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTGTTTTCGAAGAGAATTGGCGGGGCGCTGTAAT spacer
length: 40 repeater length: 24

23809 1107354 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGG spacer
length: 38 repeater length: 24

23810 1107417 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCCGTTTGA spacer
length: 43 repeater length: 24

23811 1107485 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTA spacer
length: 39 repeater length: 24

23812 1107549 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCC spacer
length: 39 repeater length: 24

23813 1107613 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTG spacer
length: 39 repeater length: 24

23814 1107677 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCT spacer
length: 40 repeater length: 24

23815 1107742 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCG spacer
length: 39 repeater length: 24

23816 1107806 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTT spacer
length: 38 repeater length: 24

23817 1107869 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAAATCCAGCTTGTCATGGATGCAGAATTAGAGAGG spacer
length: 42 repeater length: 24

23818 1107936 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTTCT spacer
length: 38 repeater length: 24

23819 1107999 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCT spacer
length: 43 repeater length: 24

23820 1108067 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTG spacer
length: 42 repeater length: 24

23821 1108134 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCA spacer
length: 38 repeater length: 24

23822 1108197 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGC spacer
length: 40 repeater length: 24

23823 1108262 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCA spacer
length: 38 repeater length: 24

23824 1108325 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACAC spacer
length: 37 repeater length: 24

23825 1108387 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTAACTGTGCATG spacer
length: 37 repeater length: 24

23826 1108449 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCCCT spacer
length: 38 repeater length: 24

23827 1108512 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTTAA spacer
length: 40 repeater length: 24

23828 1108577 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTA spacer
length: 43 repeater length: 24

23829 1108645 GTTAATCTTCTATAGAGTTGAAAG AGATAACCATTTTTTCTCTTGTTTAAACGTATCTACGAACCA spacer
length: 41 repeater length: 24

23830 1108711 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGCTGGCTTCATAT spacer
length: 40 repeater length: 24

23831 1108776 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCG spacer
length: 41 repeater length: 24

23832 1108842 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCC spacer
length: 40 repeater length: 24

23833 1108907 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACCAAAGAATAATACAAAAATTTA spacer
length: 40 repeater length: 24

23834 1108972 GTTAATCTTCTATAGAGTTGAAAG TTGTCAACAGTTTCCGATAAGTCGTGAAGTTCATGTCATTTA spacer
length: 42 repeater length: 24

23835 1109039 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTTACTTACTTTTTTGAACGAC
spacer length: 50 repeater length: 24

23836 1109114 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCA TTTTCTATCCC spacer
length: 39 repeater length: 24

23837 1109178 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAAC spacer length:
34 repeater length: 24

23838 1109237 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATA spacer
length: 40 repeater length: 24

23839 1109302 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAA spacer
length: 39 repeater length: 24

23840 1109366 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGG spacer
length: 38 repeater length: 24

23841 1109429 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGG spacer
length: 42 repeater length: 24

23842 1109496 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACCT spacer
length: 39 repeater length: 24

23843 1109560 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGA ACTACTCGAGAAAGAGAAAAGAAAA spacer
length: 38 repeater length: 24

23844 1109623 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCAGTGGAAAGTTGTACGGTATGAGGAGTCAT spacer
length: 40 repeater length: 24

23845 1109688 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACCTTTACAGATTCCCCATATCCT spacer
length: 38 repeater length: 24

23846 1109751 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGA spacer
length: 39 repeater length: 24

23847 1109815 GTTAATCTTCTATAGAGTTGAAAG TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAG spacer
length: 40 repeater length: 24

23848 1109880 GTTAATCTTCTATAGAGTTGAAAG TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAG spacer
length: 38 repeater length: 24

23849 1109943 GTTAATCTTCTATAGAGTTGAAAG ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTA spacer
length: 39 repeater length: 24

23850 1110007 GTTAATCTTCTATAGAGTTGAAAG TAATTCCTCTTTGATCTCTCTGGATTCTTGT TTTTGTGAA spacer
length: 40 repeater length: 24

23851 1110072 GTTAATCTTCTATAGAGTTGAAAG TTATTTGAGTTTCTCATATATCTCCACGTTATGTCAG spacer
length: 39 repeater length: 24

23852 1110136 GTTAATCTTCTATAGAGTTGAAAG CTCTCGTTAAGGA ACTTACTCAAAGCCCTCAAAGACGA spacer
length: 38 repeater length: 24

23853 1110199 GTTAATCTTCTATAGAGTTGAAAG TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTT spacer
length: 38 repeater length: 24

23854 1110262 GTTAATCTTCTATAGAGTTGAAAG AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATA spacer
length: 42 repeater length: 24

23855 1110329 GTTAATCTTCTATAGAGTTGAAAG ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAAC spacer
length: 38 repeater length: 24

23856 1110392 GTTAATCTTCTATAGAGTTGAAAG AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCA spacer
length: 42 repeater length: 24

23857 1110459 GTTAATCTTCTATAGAGTTGAAAG GCTTGTTGCTCAGCCATTGCGTAACCTCACCCCA spacer length:
34 repeater length: 24

23858 1110518 GTTAATCTTCTATAGAGTTGAAAG TGGACACGTTGGGAAGGCCTTGCCACGCGGA ACTCAG spacer
length: 37 repeater length: 24

23859 1110580 GTTAATCTTCTATAGAGTTGAAAG AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAA spacer
length: 41 repeater length: 24

23860 1110646 GTTAATCTTCTATAGAGTTGAAAG TAAAGATTGACCTTATTACTCTTGACAAATATATCCC spacer
length: 37 repeater length: 24

23861 1110708 GTTAATCTTCTATAGAGTTGAAAG AACTTTGAAGTCAGAGTTTCTGCTTCTTTTATTACTTT spacer
length: 39 repeater length: 24

23862 1110772 GTTAATCTTCTATAGAGTTGAAAG TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAA spacer

length: 38 repeater length: 24
23863 1110835 GTTAATCTTCTATAGAGTTGAAAG TATGATTTTCTCGCTATTACCACCTCCTTGATATACTGT spacer
length: 40 repeater length: 24
23864 1110900 GTTAATCTTCTATAGAGTTGAAAG TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATA spacer
length: 39 repeater length: 24
23865 1110964 GTTAATCTTCTATAGAGTTGAAAG ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACG spacer length:
36 repeater length: 24
23866 1111025 GTTAATCTTCTATAGAGTTGAAAG TCCACGGAGGGGTGGAGAATGAACTATTCTGAAGGGA spacer
length: 37 repeater length: 24
23867 1111087 GTTAATCTTCTATAGAGTTGAAAG ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAG spacer
length: 38 repeater length: 24
23868 1111150 GTTAATCTTCTATAGAGTTGAAAG GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAATG spacer
length: 38 repeater length: 24
23869 1111213 GTTAATCTTCTATAGAGTTGAAAG ATATCGTTATCCGCGGTCAATTCTCACGTGAGTGATT spacer length:
36 repeater length: 24
23870 1111274 GTTAATCTTCTATAGAGTTGAAAG ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCA spacer
length: 39 repeater length: 24
23871 1111338 GTTAATCTTCTATAGAGTTGAAAG AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACTT spacer
length: 37 repeater length: 24
23872 1111400 GTTAATCTTCTATAGAGTTGAAAG CGTGACCCCGCTCGTGCGGTACGGCATGCTAGGAGGAG spacer
length: 39 repeater length: 24
23873 1111464 GTTAATCTTCTATAGAGTTGAAAG AAATTTTGTAGAAGAAATATACGAATGTGTAGATAAAA spacer
length: 37 repeater length: 24
23874 1111526 GTTAATCTTCTATAGAGTTGAAAG TTTCTTTGTTTCACGATCACTAACTCTAAGATATAATCGGG spacer
length: 40 repeater length: 24
23875 1111591 GTTAATCTTCTATAGAGTTGAAAG CAATAAAATCGTGATCAAAACGTTTTTGAATGAACTCAT spacer
length: 39 repeater length: 24
23876 1111655 GTTAATCTTCTATAGAGTTGAAAG CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGA spacer
length: 40 repeater length: 24
23877 1111720 GTTAATCTTCTATAGAGTTGAAAG AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGT spacer
length: 42 repeater length: 24
23878 1111787 GTTAATCTTCTATAGAGTTGAAAG TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACC spacer
length: 40 repeater length: 24
23879 1111852 GTTAATCTTCTATAGAGTTGAAAG GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTA spacer
length: 42 repeater length: 24
23880 1111919 GTTAATCTTCTATAGAGTTGAAAG TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCG spacer
length: 39 repeater length: 24
23881 1111983 GTTAATCTTCTATAGAGTTGAAAG GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTT spacer
length: 38 repeater length: 24
23882 1112046 GTTAATCTTCTATAGAGTTGAAAG TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGA spacer
length: 38 repeater length: 24
23883 1112109 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGA spacer
length: 38 repeater length: 24
23884 1112172 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTCAATTTAGTGGAACC spacer
length: 39 repeater length: 24
23885 1112236 GTTAATCTTCTATAGAGTTGAAAG
AACTTCTACTTAGACGCGAATTAGCGATCTAGGAATCGAGTTAATCTTCTATGGAGTTGAAAGAGTCTAACCCCTTCTGTCCC
TGATATTTTCTCTAT spacer length: 102 repeater length: 24
23886 1112363 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCAAGGTATCGTGAGAACCATAGTC spacer
length: 42 repeater length: 24
23887 1112430 GTTAATCTTCTATAGAGTTGAAAG AAAATTTCGACGAGAAAATACAGAGAATCGCGAAGGC spacer length:
36 repeater length: 24
23888 1112491 GTTAATCTTCTATAGAGTTGAAAG
CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGAGTTAATCTTCGATAGAGTTGAAAGACAAGCCAAATGATGAAGTTAC
TACTACTAATACTACTACTA spacer length: 106 repeater length: 24
23889 1112622 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCA spacer
length: 38 repeater length: 24
23890 1112685 GTTAATCTTCTATAGAGTTGAAAG AGTGATAGAATAAAAGCTATTATTCCAACCTATTTCTCT
23891
23892
23893 crispr 8
23894 1136259 GTTTCAAACCCCTCGAAGGATCTCTACAAAC TCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 36 repeater length: 30
23895 1136326 GTTTCAAACCCCTCGAAGGATCTCTACAAAC CTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 37 repeater length: 30
23896 1136394 GTTTCAAACCCCTCGAAGGATCTCTACAAAC AATACTACGTAATATGAATAGGTACTGTGAGACGAGA
23897
23898
23899 crispr 9
23900 1710439 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 43 repeater length: 40

23901 1710523 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTTGTGAGTCCCAACGCAGAATGCAGGAGGCATTCTCAAGCTCGAGGACAGAACC
TCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 127 repeater length: 40
23902 1710691 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
TCTTGATATGTTGAGTCTTTCCGTAAATCCTCTATAGAGTTGAAAGGTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCATG
TTAATCTTCTATAGAGTTGAAAGTGCTTTGTACGTAAAATG
23903
23904
23905 GCA_001266735.1_ASM126673v1_genomic.fna(findCrispr):
23906 START REPEAT
SPACER
23907 crispr 1
23908 1083282 CTTT CAACTCTATAGGAGATTAACCTCCACTCGGTGCCGTGAAAGTTTTGACAAGACTCATGTTTG spacer
length: 61 repeater length: 4
23909 1083348 CTTT CAACTCTATAGGAGATTAACCTCAATAATTGACGAGCAAGATTTAGTGATTCCAGACGAG spacer
length: 59 repeater length: 4
23910 1083412 CTTT CAACTCTATAGGAGATTAACACAGTTCACAAACGGAATTGTTTGATAACTTCTTGGA spacer
length: 58 repeater length: 4
23911 1083475 CTTT CCTCGAAGGATCTCTACAAGAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCA
23912
23913
23914 crispr 2
23915 1137849 GATCCTTTGAGGGTTTGAAA CAAATAGTACTGACTTGATACGGCTAGGTGATAATAGCGTTTGTAG spacer
length: 46 repeater length: 20
23916 1137916 GATCCTTTGAGGGTTTGAAA CGCAAAGGCCCTTTCCCACACTCTCCAAGGGAGTATGAAGTTTATAG spacer
length: 46 repeater length: 20
23917 1137983 GATCCTTTGAGGGTTTGAAA CCTTACGTCTTGAAAGTACTCGATTATCAATTTAACAGGTTTGTAG spacer
length: 46 repeater length: 20
23918 1138050 GATCCTTTGAGGGTTTGAAA CGCGTCAATTCTCTAAAAAGAAAAGGCTAGCGTGAAGGGGACTTGTAG spacer
length: 48 repeater length: 20
23919 1138119 GATCCTTTGAGGGTTTGAAA CTAAGTGAACCATGGGTATTCCCCCTCCGGGGAACTTCGACTTGTAG spacer
length: 48 repeater length: 20
23920 1138188 GATCCTTTGAGGGTTTGAAA CTCGAAAGAACATATACATCCTCCCCGTGGTTCCCGGGTTTGTAG spacer
length: 46 repeater length: 20
23921 1138255 GATCCTTTGAGGGTTTGAAA CGTGTTTGTCCCCATCTTTTGATGGGGCAGCTGCTCCTCTTGTAG spacer
length: 46 repeater length: 20
23922 1138322 GATCCTTTGAGGGTTTGAAA CTATACTTTGGAAAATCAGTATATCTCTTGTATCTTCTGTTTGTAG spacer
length: 46 repeater length: 20
23923 1138389 GATCCTTTGAGGGTTTGAAA CTCGATAGCGAACCTGATAACTTCGCTTCTATTAGTCTGTTTGTAG spacer
length: 47 repeater length: 20
23924 1138457 GATCCTTTGAGGGTTTGAAA CATAGACGTATCGACCCGCCGTATAGCATCAAGAAGATAGTTTGTAG spacer
length: 47 repeater length: 20
23925 1138525 GATCCTTTGAGGGTTTGAAA CTACACGACGCGATCACACTCACATGCCCCGCGTGTGCGCGTTGTTTGTAG
spacer length: 50 repeater length: 20
23926 1138596 GATCCTTTGAGGGTTTGAAA CATAACTCTATACGCTCTCACACGGCTGAGGTCGAGGAGCTTGTAG spacer
length: 46 repeater length: 20
23927 1138663 GATCCTTTGAGGGTTTGAAA CCCACCTTCACCCTCGCCTTACGGCCCTTTTCCTTCCTCAGTTTGTAG spacer
length: 48 repeater length: 20
23928 1138732 GATCCTTTGAGGGTTTGAAA AAGAAGGGCTATTCTGCGTACGCTTCCCACCTCTGGAGGCAGTTTCAA
23929
23930
23931 crispr 3
23932 1136110 GTTTCAAACCCTCGAAGGAT
GTCTACAAACGACAGTCTACACCCCCCCCCCGTCTGAGTGTGGGAAGCGGGGATCCCATTTCAAACCCTCCAAGGATGTCTAC
AAACTGGGGTCCATTGTGATGAAGATTTTCGGAGAAATTGAAG spacer length: 128 repeater length: 20
23933 1136259 GTTTCAAACCCTCGAAGGAT CTCTACAAACTCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 46 repeater length: 20
23934 1136326 GTTTCAAACCCTCGAAGGAT CTCTACAAACCCTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 47 repeater length: 20
23935 1136394 GTTTCAAACCCTCGAAGGAT CTCTACAAACACATCATAGCCATGTCACCGAACGGAACCTCTGAGGTACT
spacer length: 49 repeater length: 20
23936 1136464 GTTTCAAACCCTCGAAGGAT CTCTACAAGCATTCAACTAGTGGCGTCTCCTGAAGGGCAACTAT spacer
length: 44 repeater length: 20
23937 1136529 GTTTCAAACCCTCGAAGGAT CTCCTGAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAAC
23938
23939
23940 crispr 4
23941 1082323 TCAACTCCATAGG AGATTAAGTATTTTGACACGGCCTATCAAAATGTAATAAAAACGCATACT spacer
length: 51 repeater length: 13
23942 1082388 TCAACTCCATAGG AGATTAAGTAATAGGTATAATATTGGGCATTCTCGCCCTAGTTCAATTCT spacer
length: 50 repeater length: 13

23943 1082452 TCAACTCCATAGG AGATTAACAGACCCAAAACCTAAAACTCCAAAAGTCTTTGAGCAATTCT spacer
 length: 50 repeater length: 13
 23944 1082516 TCAACTCCATAGG AGATTAACCTTACTTCTAATGATTACAGGGATTTCTCAGAACCCTTCTCT spacer
 length: 49 repeater length: 13
 23945 1082579 TCAACTCCATAGG AGATTAACGCTGAAATTGGCAGAGGTAAGGAAGCTAATCGAGTCGAACT spacer
 length: 49 repeater length: 13
 23946 1082642 TCAACTCCATAGG AGATTAACGTGAGGATTCACCGAATCCTGCCTTAGACGATACCGAGCAGAAGCT spacer
 length: 54 repeater length: 13
 23947 1082710 TCAACTCCATAGG AGATTAACAGAAGAAAAAGTATACTTGAAAAGAAGATTGAATTTTTAGACT spacer
 length: 51 repeater length: 13
 23948 1082775 TCAACTCCATAGG AGATTAACATCAAATGATGCCAAAAGTGATCTACCTATTCTTTTCATCT spacer
 length: 50 repeater length: 13
 23949 1082839 TCAACTCCATAGG AGATTAACAACATGATAAGGCTTTACTTAGAAAAGTTAGAGAAAAAATTCT spacer
 length: 50 repeater length: 13
 23950 1082903 TCAACTCCATAGG AGATTAACCGTGATTCATTAAGGTTATCATAATGAATTGGAAAACAGTCTCT spacer
 length: 52 repeater length: 13
 23951 1082969 TCAACTCCATAGG AGATTAACCTTCAAAAAATGGTCAAGGTGATAGAGAGTCAGTTATTAGCT spacer
 length: 49 repeater length: 13
 23952 1083032 TCAACTCCATAGG AGATTAACAGTTCTACGGAAAACCTATCAATCCAGATAGCAATAAAGACT spacer
 length: 49 repeater length: 13
 23953 1083095 TCAACTCCATAGG GAAGCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTC
 23954
 23955
 23956 crispr 5
 23957 1253631 CCTTCCAATGGTTACGTGTACGT
 AGACGTATTATACGCGCTTGAAAATACATCAGTCTCTGTTATCTCAGCTAATAATGTTGTAGGTAATTTGAAAGTATGTAGCGGGA
 CTCCTCCCATATACGA spacer length: 102 repeater length: 23
 23958 1253757 CCTTCCAATGGTTACGTGTACGT
 TGGTGGTGCTCCTTCAGATACAGTCTCTGTTATCTCAGGTAATAATGTTGTAGCTAACGTCCCTGTTGGCTTAGATCCAGTCTACG
 CTCTCTACGA spacer length: 96 repeater length: 23
 23959 1253877 CCTTCCAATGGTTACGTGTACGT
 GCTCGAGGACAGAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAGGCGAAAATGGTTCGAGCTCGCTGAGGCACAACGCAAGA
 CTGAGGAGGC
 23960
 23961
 23962 crispr 6
 23963 1097329 CTTAATCTCCTATAGAGTTGAAAG AAGGCGAAATGCAGAAGATGTAGTAGCAAAGACAGCTGTG spacer
 length: 40 repeater length: 24
 23964 1097394 CTTAATCTCCTATAGAGTTGAAAG CAACTCTCATGATTATAATCCCTCCATTTTAAATGTAT spacer
 length: 39 repeater length: 24
 23965 1097458 CTTAATCTCCTATAGAGTTGAAAG AAGTTTACTTCAGTTAATGAGCAAGTCAGCGCAGTGCTA spacer
 length: 39 repeater length: 24
 23966 1097522 CTTAATCTCCTATAGAGTTGAAAG TTATATTTACGGGTAAGACGGCGTTAACGAAGCGTTAG spacer
 length: 38 repeater length: 24
 23967 1097585 CTTAATCTCCTATAGAGTTGAAAG AGTTTAAACGTTACAACTCTCGTTTCCAAACACCTCGTTTG spacer
 length: 41 repeater length: 24
 23968 1097651 CTTAATCTCCTATAGAGTTGAAAG AAAACGAGACCTTTGGCTAAATAAACCGCACCATAGATA spacer
 length: 39 repeater length: 24
 23969 1097715 CTTAATCTCCTATAGAGTTGAAAG CTATGAAATTGTCGCATTCGTATGCAAAATATTTCTGGATC spacer
 length: 41 repeater length: 24
 23970 1097781 CTTAATCTCCTATAGAGTTGAAAG TACATATCCTTCAATTGTGATCTAGCGTATGCTGGTAG spacer
 length: 38 repeater length: 24
 23971 1097844 CTTAATCTCCTATAGAGTTGAAAG ATTTGGATTTTGATAATTTTCTTTTCTTTGTCATAATAA spacer
 length: 39 repeater length: 24
 23972 1097908 CTTAATCTCCTATAGAGTTGAAAG TATAGTTAAGTCATTTTTTCTTCTTGTGGTGGTATTACCTA spacer
 length: 41 repeater length: 24
 23973 1097974 CTTAATCTCCTATAGAGTTGAAAG TACCAATTTCTGCTAATAACGTGAACGTACTCTCGCTGA spacer
 length: 39 repeater length: 24
 23974 1098038 CTTAATCTCCTATAGAGTTGAAAG TAACTTATCCCTACATGATTGCGAAAAACAACAA spacer length:
 36 repeater length: 24
 23975 1098099 CTTAATCTCCTATAGAGTTGAAAG TGTTTTTAAGGACCTGGAGGCAGTCCGCCATTTACCCCA spacer
 length: 39 repeater length: 24
 23976 1098163 CTTAATCTCCTATAGAGTTGAAAG TGAGAACAGCTGTCTTCACTGCTGACCATCGAGCGACC spacer
 length: 38 repeater length: 24
 23977 1098226 CTTAATCTCCTATAGAGTTGAAAG TTTTCTTTCTCATACATTACTCTTATTAGTTTACTAACA spacer
 length: 39 repeater length: 24
 23978 1098290 CTTAATCTCCTATAGAGTTGAAAG CTTCTTGTTCTTCTCTCTGCTTTACGCCTTCTTGTTCTTC spacer
 length: 40 repeater length: 24
 23979 1098355 CTTAATCTCCTATAGAGTTGAAAG TCTGTACGTGGGTCAATAAATGTCACAATCGCGTACTTCT spacer
 length: 40 repeater length: 24
 23980 1098420 CTTAATCTCCTATAGAGTTGAAAG ATAATAATCAACGAGGCAAACCTCCATGTTCTACAAACC spacer

length: 38 repeater length: 24

23981 1098483 CTTAATCTCCTATAGAGTTGAAAG ACTAGGCAAACGATACTGAGACACAGCGGGACTGCA spacer length: 36 repeater length: 24

23982 1098544 CTTAATCTCCTATAGAGTTGAAAG TTGGAAACACTCCGTATCAATCCTTTAGACTGCAACTCCTC spacer length: 41 repeater length: 24

23983 1098610 CTTAATCTCCTATAGAGTTGAAAG AACATTAGTGTAAGCCTGCAGCGTTTGCTGGAAGCACG spacer length: 39 repeater length: 24

23984 1098674 CTTAATCTCCTATAGAGTTGAAAG TCTCGTCCTTAAATTTCAAACTTCCATGTAGCTCGCCCCCTC spacer length: 43 repeater length: 24

23985 1098742 CTTAATCTCCTATAGAGTTGAAAG CTTATGTACACACCACCTGAGCTAAGGAGTGTCTTAATC spacer length: 39 repeater length: 24

23986 1098806 CTTAATCTCCTATAGAGTTGAAAG AAATGGGACGATGAGGGTGTTCACAGATAACAACACCACA spacer length: 40 repeater length: 24

23987 1098871 CTTAATCTCCTATAGAGTTGAAAG ATTATATATAATATATGAATAATAGCCCCCGTGCTTCGCGCCT spacer length: 43 repeater length: 24

23988 1098939 CTTAATCTCCTATAGAGTTGAAAG TCTTTTGCACATCCATTCCGACCACATCTCTCGGCTTCGATA spacer length: 43 repeater length: 24

23989 1099007 CTTAATCTCCTATAGAGTTGAAAG TTGACGACGTGCTTACTCTTCTTTCCAGTTCTTGTTACT spacer length: 39 repeater length: 24

23990 1099071 CTTAATCTCCTATAGAGTTGAAAG TTATCGATAAAATCGTAAACGATTTGTTGCCTTATTACGTGA spacer length: 42 repeater length: 24

23991 1099138 CTTAATCTCCTATAGAGTTGAAAG ACACCTCTACTAACTTTACCAAAGCCTATCATAGTCCCAAC spacer length: 41 repeater length: 24

23992 1099204 CTTAATCTCCTATAGAGTTGAAAG CCTTTATTCTTGCTATTAGATCGAATAAATCGCTCGC spacer length: 37 repeater length: 24

23993 1099266 CTTAATCTCCTATAGAGTTGAAAG TAAGTGGACACTATTGATCACCTCAGGGCTAGATATATGCC spacer length: 41 repeater length: 24

23994 1099332 CTTAATCTCCTATAGAGTTGAAAG TCATTGAAATACTCAGCAACTGTATCCCTTAACTCTTCCTTATT spacer length: 44 repeater length: 24

23995 1099401 CTTAATCTCCTATAGAGTTGAAAG AGTATACCTGGGAGTGCTGATGTAGATGCGTCACCGACCACGT spacer length: 43 repeater length: 24

23996 1099469 CTTAATCTCCTATAGAGTTGAAAG ACTACGGGTCTCAAGGTAGTCGGTGTTCTTCTAGTAGCT spacer length: 39 repeater length: 24

23997 1099533 CTTAATCTCCTATAGAGTTGAAAG ATCGTACTTTGCGCTGTACCTTATGAACAGTGGAATGTCC spacer length: 40 repeater length: 24

23998 1099598 CTTAATCTCCTATAGAGTTGAAAG GTAAAGGGGTGTGTTTTACGTTTTGAGTGGTGTTCACGA spacer length: 40 repeater length: 24

23999 1099663 CTTAATCTCCTATAGAGTTGAAAG CTAAACATATATGAGTTCATTTTTTCCGACTTTCCTAG spacer length: 38 repeater length: 24

24000 1099726 CTTAATCTCCTATAGAGTTGAAAG GAACCTCTAAACTCGAAGACACAACCTCCAAGCTCGAG

24001

24002

24003 crispr 7

24004 1104343 GTTAATCTTCTATAGAGTTGAAAG TCTCAATCTGTAGGCCAAGCCACTATTATCATAACTCCA spacer length: 39 repeater length: 24

24005 1104407 GTTAATCTTCTATAGAGTTGAAAG TGAATGCAAGCCTGTCGTACATTACTATTCTACCTTGTTT spacer length: 40 repeater length: 24

24006 1104472 GTTAATCTTCTATAGAGTTGAAAG TTTGTCTGTTTCGATTGGAATAATTTACGCGTTACCATAAA spacer length: 41 repeater length: 24

24007 1104538 GTTAATCTTCTATAGAGTTGAAAG TACCTGTATGACAATTCGCTAAAAATTTAACTATCTA spacer length: 38 repeater length: 24

24008 1104601 GTTAATCTTCTATAGAGTTGAAAG TCATTTCCATTTCTTTCAATTTATCAACTATTAACCTA spacer length: 38 repeater length: 24

24009 1104664 GTTAATCTTCTATAGAGTTGAAAG GAGGAAAAGAAGGCTAACGCATTAAAGGCGTGGCATTTAGG spacer length: 41 repeater length: 24

24010 1104730 GTTAATCTTCTATAGAGTTGAAAG GACCCATATTTAGGAGTTATGTCAGCTATATCCAAGCA spacer length: 38 repeater length: 24

24011 1104793 GTTAATCTTCTATAGAGTTGAAAG TCTTGATTTCCATGTCTATCCCCTGCGCATATCTCATATC spacer length: 40 repeater length: 24

24012 1104858 GTTAATCTTCTATAGAGTTGAAAG CATGAGCTGTCCCTCCGATAAGATCATATTTGATGCAG spacer length: 38 repeater length: 24

24013 1104921 GTTAATCTTCTATAGAGTTGAAAG TGAAATAACCGCCGACATCCAACGCTGGAAATTTATATC spacer length: 39 repeater length: 24

24014 1104985 GTTAATCTTCTATAGAGTTGAAAG AATCTTAAACCGCAACCTTTTATAAAATCTTCAACTGTA spacer length: 39 repeater length: 24

24015 1105049 GTTAATCTTCTATAGAGTTGAAAG CCTATAACCTAATAGCATAATTTTACTATGTCCCTCCA spacer length: 39 repeater length: 24

24016 1105113 GTTAATCTTCTATAGAGTTGAAAG TGCTCACCTCTTCAGTTTCTGCGCTTCTCCCTCACC spacer length: 38 repeater length: 24

24017 1105176 GTTAATCTTCTATAGAGTTGAAAG TTGATATTTGAGTGCCTGCGCAAATTCCTCAAACAAATC spacer length: 39 repeater length: 24

24018 1105240 GTTAATCTTCTATAGAGTTGAAAG TCTTTAGTCGCTATAATGTCGGGTAATGGTTGCTTACCA spacer
length: 39 repeater length: 24

24019 1105304 GTTAATCTTCTATAGAGTTGAAAG TCTGATTCTGATACCTCCTCTTCGCTCCCTTCTTGTTACCTTCT
spacer length: 45 repeater length: 24

24020 1105374 GTTAATCTTCTATAGAGTTGAAAG CTTTTTTGCAACCTAGAAAGCCTTGTTGCGAAATATGG spacer
length: 38 repeater length: 24

24021 1105437 GTTAATCTTCTATAGAGTTGAAAG ATTGCTTCTACTTCTGCTGGCATTFFFFFFTCCACTAAA spacer
length: 37 repeater length: 24

24022 1105499 GTTAATCTTCTATAGAGTTGAAAG GCAATATTGGATAGGATTCATATCATCCAAGTTGCAATAA spacer
length: 40 repeater length: 24

24023 1105564 GTTAATCTTCTATAGAGTTGAAAG GCAATCATTGCGAAAATAACGGGGCATAAACGCCTGGA spacer
length: 38 repeater length: 24

24024 1105627 GTTAATCTTCTATAGAGTTGAAAG TAGGTAGAAGGCAGAAGGAAGTTTTAGCTTCGATATTGGA spacer
length: 40 repeater length: 24

24025 1105692 GTTAATCTTCTATAGAGTTGAAAG CGTTTCTCTAATCTCGCCAACCTAGTTGCGAAATATGGCT spacer
length: 40 repeater length: 24

24026 1105757 GTTAATCTTCTATAGAGTTGAAAG TATATTTTCGTCGCTATATCGCCCAGAAGACGTCTGATA spacer
length: 38 repeater length: 24

24027 1105820 GTTAATCTTCTATAGAGTTGAAAG GTTCACGAGTAAACTGTATAAGAGTGAGGTAACAAATC spacer
length: 39 repeater length: 24

24028 1105884 GTTAATCTTCTATAGAGTTGAAAG AAAGTGAAAGTGATGCTGGAGGTGAGGGACAGACTGGGA spacer
length: 39 repeater length: 24

24029 1105948 GTTAATCTTCTATAGAGTTGAAAG ATTTGGATCTTGAGAATTTTCTTTTCTTTGTCATAATA spacer
length: 38 repeater length: 24

24030 1106011 GTTAATCTTCTATAGAGTTGAAAG AAGGCGTATAACAAAACGGCGTATGTCATATGTTCTGCTTCT spacer
length: 42 repeater length: 24

24031 1106078 GTTAATCTTCTATAGAGTTGAAAG AGAGAGGGCTTCACTTACAAGTAAATCAGCACACCTTA spacer
length: 38 repeater length: 24

24032 1106141 GTTAATCTTCTATAGAGTTGAAAG GAGAAGTACCCGGGCGTATCCAGGCTAAGCCAGTTATCA spacer
length: 39 repeater length: 24

24033 1106205 GTTAATCTTCTATAGAGTTGAAAG TTTGCCATGGAAGAAGCGAAATGTCAGTGTTGGTAGCTC spacer
length: 39 repeater length: 24

24034 1106269 GTTAATCTTCTATAGAGTTGAAAG GAATAGTAAGTAAATCATCACCTGCAATTATCGTGTATTTT spacer
length: 41 repeater length: 24

24035 1106335 GTTAATCTTCTATAGAGTTGAAAG ATATAACGAAAGAGCGTTCACAAAAGCGTTAGTA spacer length:
34 repeater length: 24

24036 1106394 GTTAATCTTCTATAGAGTTGAAAG ATTGCTATAAACCACATCATGGCTCCTAGCATCAAC spacer length:
36 repeater length: 24

24037 1106455 GTTAATCTTCTATAGAGTTGAAAG TACAATCTTATCAACTATGTCTTCCAAAAATGGTGGTAG spacer
length: 39 repeater length: 24

24038 1106519 GTTAATCTTCTATAGAGTTGAAAG CCAAAAATCGAATTCAAGGACCAAAACGTAAAACCACCTG spacer
length: 40 repeater length: 24

24039 1106584 GTTAATCTTCTATAGAGTTGAAAG TATGATGTTCTCATTGTATTTGTTGAGATCATGTTTA spacer
length: 37 repeater length: 24

24040 1106646 GTTAATCTTCTATAGAGTTGAAAG GACACGGCTTTGTAAACAGAGAACCCAGGCAGAACAGAT spacer
length: 39 repeater length: 24

24041 1106710 GTTAATCTTCTATAGAGTTGAAAG ATACCGGTGTCCATACAGCCAATACCCCCAACACCGCCA spacer
length: 39 repeater length: 24

24042 1106774 GTTAATCTTCTATAGAGTTGAAAG TAATTATATAAGCCGAATTGATGTAAATAAGACAAGATGAC spacer
length: 41 repeater length: 24

24043 1106840 GTTAATCTTCTATAGAGTTGAAAG CTTGTTTTTGTCTTTTTTCTTTGTAATCTTCTATTCTT spacer
length: 38 repeater length: 24

24044 1106903 GTTAATCTTCTATAGAGTTGAAAG TCATGAATCAGTTTGAAAGAAGAGAAGATTGGTTAAAT spacer
length: 38 repeater length: 24

24045 1106966 GTTAATCTTCTATAGAGTTGAAAG GGTTTTGTCTCTTTTTTCTGGCTTTCCCGCCAGAATCTT spacer
length: 38 repeater length: 24

24046 1107029 GTTAATCTTCTATAGAGTTGAAAG ATTTTCGCAATTCATTTTCAATTGTTTCAATTCACCTCAAA spacer
length: 40 repeater length: 24

24047 1107094 GTTAATCTTCTATAGAGTTGAAAG CTTTCTTCTTCTATTCTTCTTTTCTTTCTTTTCACTA spacer
length: 40 repeater length: 24

24048 1107159 GTTAATCTTCTATAGAGTTGAAAG CTTATTTTCAAGAGATCTAATAGACGAAGGCGGAATCTTTC spacer
length: 40 repeater length: 24

24049 1107224 GTTAATCTTCTATAGAGTTGAAAG CTGGCATTACCCAGGCTTGGCGACACACCAGAAGACAGAC spacer
length: 40 repeater length: 24

24050 1107289 GTTAATCTTCTATAGAGTTGAAAG GTTTTTGTTGTTTTCGAAGAGAATTGGCGGGGCGCTGTAAT spacer
length: 40 repeater length: 24

24051 1107354 GTTAATCTTCTATAGAGTTGAAAG GTGGGAACAGCGGTGCTATTCATGACCCCTCGCCCAGG spacer
length: 38 repeater length: 24

24052 1107417 GTTAATCTTCTATAGAGTTGAAAG AGACTTTATTTCCAGATTTTTCTATATTTATCATTCGGTTTGA spacer
length: 43 repeater length: 24

24053 1107485 GTTAATCTTCTATAGAGTTGAAAG GAGCACTCTGGGGGATACCCCCCGACCCCTACTGCTA spacer

length: 39 repeater length: 24

24054 1107549 GTTAATCTTCTATAGAGTTGAAAG TGAGACCGGGACACCGCCGAAATTAAATCCGGCAACGCC spacer
length: 39 repeater length: 24

24055 1107613 GTTAATCTTCTATAGAGTTGAAAG TCTTCTTTGTCCATCTGTATATCCCAATCACGCCATCTG spacer
length: 39 repeater length: 24

24056 1107677 GTTAATCTTCTATAGAGTTGAAAG ACTACATATGACGCCGTGGATTGCAGATCTGCTATATTCT spacer
length: 40 repeater length: 24

24057 1107742 GTTAATCTTCTATAGAGTTGAAAG TCCTCTATCACGTCATCTATAGCCACACACTTTTGAGCG spacer
length: 39 repeater length: 24

24058 1107806 GTTAATCTTCTATAGAGTTGAAAG ATGGATAAAGACGAATTGAAAGAAATTATTAAGAATTT spacer
length: 38 repeater length: 24

24059 1107869 GTTAATCTTCTATAGAGTTGAAAG TACTTTTAATCCAGCTTGTCAATGGATGCAGAATTAGAGAGG spacer
length: 42 repeater length: 24

24060 1107936 GTTAATCTTCTATAGAGTTGAAAG CGTGGGGCTCGCTCTAACTTGTAACGACACATGTTTCCT spacer
length: 38 repeater length: 24

24061 1107999 GTTAATCTTCTATAGAGTTGAAAG CCTGAGCTAAGGAGTGTCTTAATCTTATCGAAGTCGTCTGGCT spacer
length: 43 repeater length: 24

24062 1108067 GTTAATCTTCTATAGAGTTGAAAG CTTCGCCGTATAACGATCCTACAACAATAATCACTGATTTTG spacer
length: 42 repeater length: 24

24063 1108134 GTTAATCTTCTATAGAGTTGAAAG GTAATGAAAGTAATGTCTTTTCTCATACGAAAAGACCA spacer
length: 38 repeater length: 24

24064 1108197 GTTAATCTTCTATAGAGTTGAAAG AGATGATGCACTGGCAGAGGCGACAAGAGAAAAACCAGGC spacer
length: 40 repeater length: 24

24065 1108262 GTTAATCTTCTATAGAGTTGAAAG CAATGAATTCAGAAAACAGCTGTTTCATCCTGGTTCTCA spacer
length: 38 repeater length: 24

24066 1108325 GTTAATCTTCTATAGAGTTGAAAG ACAAGGACGTTTTTCGTGATCCAGGTGAGCGAATACAC spacer
length: 37 repeater length: 24

24067 1108387 GTTAATCTTCTATAGAGTTGAAAG AGCAATAATTTAATTGCACTATTTTTAACTGTGCATG spacer
length: 37 repeater length: 24

24068 1108449 GTTAATCTTCTATAGAGTTGAAAG TTCACTGTCTACACATAAGTATAAGGGGCTTCGCCCCCT spacer
length: 38 repeater length: 24

24069 1108512 GTTAATCTTCTATAGAGTTGAAAG CATAATTCGTTTCTGTATTTGGCGTCAAATTTATTTTTAA spacer
length: 40 repeater length: 24

24070 1108577 GTTAATCTTCTATAGAGTTGAAAG ATTTGAAATAAGACAAATCAGTGCAGAAGAGGCAAGGAACTA spacer
length: 43 repeater length: 24

24071 1108645 GTTAATCTTCTATAGAGTTGAAAG AGATAACCATTTTTTCTCTTGTTTAAACGTATCTACGAACCA spacer
length: 41 repeater length: 24

24072 1108711 GTTAATCTTCTATAGAGTTGAAAG ACCCCGCCAATCAGTGC GTTGTGCTGGCTTCATAT spacer
length: 40 repeater length: 24

24073 1108776 GTTAATCTTCTATAGAGTTGAAAG TATATATTATATTATGAATTATACCACACACTTCTTTTTTCG spacer
length: 41 repeater length: 24

24074 1108842 GTTAATCTTCTATAGAGTTGAAAG AGAAACGAATTGTTAGTTTACTTATCACGCCTTCATTCCC spacer
length: 40 repeater length: 24

24075 1108907 GTTAATCTTCTATAGAGTTGAAAG ATATCCACCCTTCTCACC AAAAGAATAATACAAAAATTTA spacer
length: 40 repeater length: 24

24076 1108972 GTTAATCTTCTATAGAGTTGAAAG TTGTCAACAGTTTCCGATAAGTCGTGAAGTTCATGTCATTTA spacer
length: 42 repeater length: 24

24077 1109039 GTTAATCTTCTATAGAGTTGAAAG ATTCTAGCTCGAATTCTGTATCTGAAATTTTACTTACTTTTTTGAACGAC
spacer length: 50 repeater length: 24

24078 1109114 GTTAATCTTCTATAGAGTTGAAAG ATTATTACTACTATATCATCCGGATTCATTTTCTATCCC spacer
length: 39 repeater length: 24

24079 1109178 GTTAATCTTCTATAGAGTTGAAAG CTTATTTCTTCGCGGTTTATAATGGACCCGGAAC spacer length:
34 repeater length: 24

24080 1109237 GTTAATCTTCTATAGAGTTGAAAG TATCTTCCTGACGTAGATGATGCAGTCCAAACAATAGATA spacer
length: 40 repeater length: 24

24081 1109302 GTTAATCTTCTATAGAGTTGAAAG TGTACCAAGCCTGGATGGGTAGACCAGGACCGTGATCAA spacer
length: 39 repeater length: 24

24082 1109366 GTTAATCTTCTATAGAGTTGAAAG TCTTTCATTGGGTTCGTATAAAAATCCTTGACCTAAGG spacer
length: 38 repeater length: 24

24083 1109429 GTTAATCTTCTATAGAGTTGAAAG CAGACAATACGATCGAGTAGGGGACTGTGTGTAAAAATGAGG spacer
length: 42 repeater length: 24

24084 1109496 GTTAATCTTCTATAGAGTTGAAAG TGTACACTTCCTTCTTCTTAGGCAAGGTTATTTTAACCT spacer
length: 39 repeater length: 24

24085 1109560 GTTAATCTTCTATAGAGTTGAAAG GGCGGGTGAAAGA ACTACTCGAGAAAGAGAAAAGAAAA spacer
length: 38 repeater length: 24

24086 1109623 GTTAATCTTCTATAGAGTTGAAAG AGTATCATTCAGTGGAAGTTGTACGGTATGAGGAGTCAT spacer
length: 40 repeater length: 24

24087 1109688 GTTAATCTTCTATAGAGTTGAAAG ATTCCACGATTTTAACTTTTACAGATTCCCCATATCCT spacer
length: 38 repeater length: 24

24088 1109751 GTTAATCTTCTATAGAGTTGAAAG CCTAGATCACGGGGCCAATCCAAACGTGAAAGATCTAGA spacer
length: 39 repeater length: 24

24089	1109815	GTTAATCTTCTATAGAGTTGAAAG	TCAAAGGTTGCTGAGGACTGTTATAGGGATGCACTCTCAG	spacer
		length: 40	repeater length: 24	
24090	1109880	GTTAATCTTCTATAGAGTTGAAAG	TTGATCGTTAAAAAGTAACGTAAGACGTTTCACAAGAG	spacer
		length: 38	repeater length: 24	
24091	1109943	GTTAATCTTCTATAGAGTTGAAAG	ATATTGATTATGAAGACTTTAAGAAAGATACCAATTCTA	spacer
		length: 39	repeater length: 24	
24092	1110007	GTTAATCTTCTATAGAGTTGAAAG	TAATTCCTCTTTGATCTCTCTGGATTCTTGTTTTGTTGAA	spacer
		length: 40	repeater length: 24	
24093	1110072	GTTAATCTTCTATAGAGTTGAAAG	TTATTTTCGAGTTTCTCATATATCTCCACGTTATGTCAG	spacer
		length: 39	repeater length: 24	
24094	1110136	GTTAATCTTCTATAGAGTTGAAAG	CTCTCGTTAAGGAACCTACTCAAAGCCCTCAAAGACGA	spacer
		length: 38	repeater length: 24	
24095	1110199	GTTAATCTTCTATAGAGTTGAAAG	TTCAACTCCACGATTGATTTGATAATTATCAAGGCTTT	spacer
		length: 38	repeater length: 24	
24096	1110262	GTTAATCTTCTATAGAGTTGAAAG	AATGAGAGAGTCAGGCCGAGGCCCTCATTACATCTATCATA	spacer
		length: 42	repeater length: 24	
24097	1110329	GTTAATCTTCTATAGAGTTGAAAG	ATAAACCAGCGTTTCCCTACAAGTATGAGGCAAAGAAC	spacer
		length: 38	repeater length: 24	
24098	1110392	GTTAATCTTCTATAGAGTTGAAAG	AGGAATGAAGTGAGTTGTCCGGGTGGTACACCAGTCAAGTCA	spacer
		length: 42	repeater length: 24	
24099	1110459	GTTAATCTTCTATAGAGTTGAAAG	GCTTGTTGCTCAGCCATTGCGTAACCTCACCCCA	spacer length: 34
		length: 34	repeater length: 24	
24100	1110518	GTTAATCTTCTATAGAGTTGAAAG	TGGACACGTTGGGAAGGCCTTGCCACGCGGAACTCAG	spacer
		length: 37	repeater length: 24	
24101	1110580	GTTAATCTTCTATAGAGTTGAAAG	AGAGACTGGACCATAAAAGGAGTTCCTAAAGCGGGTAATAA	spacer
		length: 41	repeater length: 24	
24102	1110646	GTTAATCTTCTATAGAGTTGAAAG	TAAAGATTGACCTTATTACTCTTGACAAATATATCCC	spacer
		length: 37	repeater length: 24	
24103	1110708	GTTAATCTTCTATAGAGTTGAAAG	AACTTTGAAGTCAGAGTTTTCTGCTTCTTTTATTACTTT	spacer
		length: 39	repeater length: 24	
24104	1110772	GTTAATCTTCTATAGAGTTGAAAG	TACATTACCTTGATTATCCATTGTTGCGTTTAGCTGAA	spacer
		length: 38	repeater length: 24	
24105	1110835	GTTAATCTTCTATAGAGTTGAAAG	TATGATTTTCTCGCTATTCACCACCTCCTTGATATACTGT	spacer
		length: 40	repeater length: 24	
24106	1110900	GTTAATCTTCTATAGAGTTGAAAG	TCCATATAGAGATTTCTAATAATCAATTGGGGATAGATA	spacer
		length: 39	repeater length: 24	
24107	1110964	GTTAATCTTCTATAGAGTTGAAAG	ACGTTGAACCAACGTTACCCCCCGCCGTCAAAGACG	spacer length: 36
		length: 36	repeater length: 24	
24108	1111025	GTTAATCTTCTATAGAGTTGAAAG	TCCACGGAGGGGTGGAGAATGAAACTATTCTGAAGGGA	spacer
		length: 37	repeater length: 24	
24109	1111087	GTTAATCTTCTATAGAGTTGAAAG	ATGAGATCTACCTCGAAAATACGAAGGCAGACGTTGAG	spacer
		length: 38	repeater length: 24	
24110	1111150	GTTAATCTTCTATAGAGTTGAAAG	GAAAATCTCAAAGACTTGTTAATCCCATCAAAAAAATG	spacer
		length: 38	repeater length: 24	
24111	1111213	GTTAATCTTCTATAGAGTTGAAAG	ATATCGTTATCCGCGGTCATTCTCACGTGAGTGATT	spacer length: 36
		length: 36	repeater length: 24	
24112	1111274	GTTAATCTTCTATAGAGTTGAAAG	ACGGTACGCCGTCGCCGACGCGGGGATACCCTGTATCA	spacer
		length: 39	repeater length: 24	
24113	1111338	GTTAATCTTCTATAGAGTTGAAAG	AATAGTCTGCGTGGAAGTAAGTGACCTTCACGAACCTT	spacer
		length: 37	repeater length: 24	
24114	1111400	GTTAATCTTCTATAGAGTTGAAAG	CGTGACCCCGCTCGTGCGGTACGGCATGCTAGGAGGAG	spacer
		length: 39	repeater length: 24	
24115	1111464	GTTAATCTTCTATAGAGTTGAAAG	AAATTTTGTAGAAGAAATATACGAATGTGTAGATAAAA	spacer
		length: 37	repeater length: 24	
24116	1111526	GTTAATCTTCTATAGAGTTGAAAG	TTTCTTTGTTACGATCACTAACTCTAAGATATAATCGGG	spacer
		length: 40	repeater length: 24	
24117	1111591	GTTAATCTTCTATAGAGTTGAAAG	CAATAAAATCGTGATCAAAACGTTTTTGAATGAACATCAT	spacer
		length: 39	repeater length: 24	
24118	1111655	GTTAATCTTCTATAGAGTTGAAAG	CTCATCAAGAGGCATTATTTTCTCATCAAAACCGCCAAGA	spacer
		length: 40	repeater length: 24	
24119	1111720	GTTAATCTTCTATAGAGTTGAAAG	AAAAATTATTCTTGTGGATCTGTTGCTGCTATATTGGGTGT	spacer
		length: 42	repeater length: 24	
24120	1111787	GTTAATCTTCTATAGAGTTGAAAG	TTAGTAAGTCCCCTAGGGCATGATCCCAGAAATAACCACC	spacer
		length: 40	repeater length: 24	
24121	1111852	GTTAATCTTCTATAGAGTTGAAAG	GTAGATTATCAATCTTACCCAACGGTCCAAAGGAAGTAAGTA	spacer
		length: 42	repeater length: 24	
24122	1111919	GTTAATCTTCTATAGAGTTGAAAG	TTTATCCTTAGGTATCTCATAGAGACTGGTTTAGCTTCG	spacer
		length: 39	repeater length: 24	
24123	1111983	GTTAATCTTCTATAGAGTTGAAAG	GCTATCAAAAGCTGGAGAGCAAGTAGCGACCTTTCTTT	spacer
		length: 38	repeater length: 24	
24124	1112046	GTTAATCTTCTATAGAGTTGAAAG	TAATCGGTTAAACCGCTTTTGAAAGGAAAATAGAATGA	spacer

length: 38 repeater length: 24
24125 1112109 GTTAATCTTCTATAGAGTTGAAAG ATCCAAATCATTAGAATTAACGATAATTTTCGGTAAGGA spacer
length: 38 repeater length: 24
24126 1112172 GTTAATCTTCTATAGAGTTGAAAG TACTGGAATCCGTATATAATTGATTTCATTTAGTGGAACC spacer
length: 39 repeater length: 24
24127 1112236 GTTAATCTTCTATAGAGTTGAAAG
AACTTCCTACTTAGACCGCGAATTAGCGATCTAGGAATCGAGTTAATCTTCTATGGAGTTGAAAGAGTCTAACCCCTTCTGTCCC
TGATATTTTCTCTAT spacer length: 102 repeater length: 24
24128 1112363 GTTAATCTTCTATAGAGTTGAAAG TTCTCAATTAGTCCACCCCAAGGTATCGTGAGAACCATAGTC spacer
length: 42 repeater length: 24
24129 1112430 GTTAATCTTCTATAGAGTTGAAAG AAAATTCGACGAGAAAATACAGAGAATCGCGAAGGC spacer length:
36 repeater length: 24
24130 1112491 GTTAATCTTCTATAGAGTTGAAAG
CTCCGCGAATTCTCTAAGTTTCGGAATAGCGTTGCCCTGAGTTAATCTTCGATAGAGTTGAAAGACAAGCCAAATGATGAAGTTAC
TACTACTAATACTACTACTA spacer length: 106 repeater length: 24
24131 1112622 GTTAATCTTCTATAGAGTTGAAAG TTGCCATCGCCTCAACTACTGCCAGACCAAATGTCTCA spacer
length: 38 repeater length: 24
24132 1112685 GTTAATCTTCTATAGAGTTGAAAG AGTGATAGAATAAAAGCTATTATTCCAACATTTTCTCT
24133
24134
24135 crispr 8
24136 1136259 GTTTCAAACCCTCGAAGGATCTCTACAAAC TCCCCTGTTACGACTGAACCAATACTTGATTGCACG spacer
length: 36 repeater length: 30
24137 1136326 GTTTCAAACCCTCGAAGGATCTCTACAAAC CTCTACACACTAAGAGTAGCTGAGACCATAAAAACCA spacer
length: 37 repeater length: 30
24138 1136394 GTTTCAAACCCTCGAAGGATCTCTACAAAC AATACTACGTAATATGAATAGGTACTGTGAGACGAGA
24139
24140
24141 crispr 9
24142 1710439 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 43 repeater length: 40
24143 1710523 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
CCTCTAAACTCGAGGAGAAGATGGCAGAGCTTGTGAGTCCCAACGCAGAATGCAGGAGGCATTCTCAAGCTCGAGGACAGAACC
TCTAAACTCGAGGAGAAGATGGCAGAGCTCGCGGAAGCGCA spacer length: 127 repeater length: 40
24144 1710691 CGCAAGACTCAAGAAGCCCTCCTGAAGCTCGAGGACAGAA
TCTTGATATGTTGAGTCTTTCCGTTAATCCTCTATAGAGTTGAAAGGTAGGTGTGAAAATCACTATAGTCATCATACAGCCTCATG
TTAATCTTCTATAGAGTTGAAAGTGCTTTGTACGTAAATG
24145
24146
24147 GCA_001282785.1_halo7_genomic.fna(findCrispr):
24148 START REPEAT
SPACER
24149 crispr 1
24150 2472037 GTCGCCGTTGCCGTCGGTGTTG GCGTCGGCGTCGCCGTTGCCGTCGGCGTTGGTGTTGG spacer length:
37 repeater length: 22
24151 2472097 GTCGCCGTTGCCGTCGGTGTTG GTGTTTGTGTCGCCGTTGCCGTCGGCGTTGGCGTCGG spacer length:
37 repeater length: 22
24152 2472157 GTCGCCGTTGCCGTCGGTGTTG TGCGGGGACGGCCACCCGCAGCGTCAGTAGTCGCCCA
24153
24154
24155 crispr 2
24156 2811454 GCCACCCGCGGCGTCAGTAAGTC GCTGCGGGGACGGTCACCCGCGGCGTCAGTAGTCGCTGCGGGAAC spacer
length: 45 repeater length: 23
24157 2811523 GCCACCCGCGGCGTCAGTAAGTC GCTGCGGGGACGGCCACCCGCAGCGTCAGTAGTCGCTGCGGGAAC spacer
length: 45 repeater length: 23
24158 2811592 GCCACCCGCGGCGTCAGTAAGTC TGCGGGGACGGCCACCCGCAGCGTCAGTAGTCGCCAGCCGGGAC
24159
24160
24161 crispr 3
24162 675054 GGAGCGTGTTGCCGTGACTGTGTGA CGACAATTCCGGCTCGCGAGCGGCGAACGATGCTATGTCGTTTCGCT
spacer length: 46 repeater length: 25
24163 675126 GGAGCGTGTTGCCGTGACTGTGTGA TGACTGATTACGGCTCGCGAGCGGCGAACGACGCTATGTTGTTTCGCT
spacer length: 47 repeater length: 25
24164 675199 GGAGCGTGTTGCCGTGACTGTGTGA GCGGGGACGGCCACCCGCAGCGTCAGTAGTCGCCAGCCGGGACTGC
24165
24166
24167 crispr 4
24168 1038091 CCGTTCGCGGTCGGGGCTGTCTGTCTCG ACTTCAACGCGCTCTCTTGT spacer length: 21 repeater
length: 27
24169 1038140 CCGTTCGCGGTCGGGGCTGTCTGTCTCG ACTTCAACACAGTCTCTTGT spacer length: 20 repeater
length: 27

24170 1038188 CCGTTCGCGGTTCGGGCTGTCTGTCTCG ACTTCAACGCGCGTCTCTTG
 24171
 24172
 24173 GCA_001304615.2_ASM130461v2_genomic.fna(findCrispr):
 24174 START REPEAT
 SPACER
 24175 crispr 1
 24176 2646996 ACTATGATGCCCTGTATGAT
 GGGCGACGATTCAATGAACGAGACCATGATACCCTGTATGATGGGTAACGATTCAATGAACGAAACTATGATGATGCACTGTTGTA
 TGATGCCCTGTATGATTGAAGATCATAACGGACAATGC spacer length: 123 repeater length: 20
 24177 2647140 ACTATGATGCCCTGTATGAT
 AGGCAACGATTCAATGAACGAGACCATGATGTACTGTATGATGTGCGCCGATTCAATGAACGAAACTATGATGATGCACTGTTGTA
 TGATGCCCTGTATGATGAAAGATCATAACGGACAATGC spacer length: 123 repeater length: 20
 24178 2647284 ACTATGATGCCCTGTATGAT
 TTGTGGTAATTTTGCGCAGGAGTCTTTAGTCTGTACTTATCCACATTTCGCAGTAAAACAGTTCCATGAATTGTACTATCAAACCTTA
 ACATACCTGCTGCTATTTTTATATAAACAGAATTATT
 24179
 24180
 24181 crispr 2
 24182 1964976 CTTACACACTGGAGCTTCTT CACAGACTTCTTCTTCTGGA spacer length: 20 repeater
 length: 21
 24183 1965018 CTTACACACTGGAGCTTCTT CTACTTCCTCAGTGTCTTCACATACTGGGGTTTCTTCTACCTCTTCAGTG
 spacer length: 50 repeater length: 21
 24184 1965090 CTTACACACTGGAGCTTCTT CACAGACTTCTTCTTCTGGA spacer length: 20 repeater
 length: 21
 24185 1965132 CTTACACACTGGAGCTTCTT CTACTTCCTCAGTGTCTTCACATACTGGGGTTTCTTCTACCTCTTCAGTG
 spacer length: 50 repeater length: 21
 24186 1965204 CTTACACACTGGAGCTTCTT GGTGGGGAGCTCTTTAGTTGAAGGTGATTTTCGGACTCCATGTAGGTATA
 24187
 24188
 24189 crispr 3
 24190 575146 TCTTTAGTTGAAGGTGATTC GGAAAATCAAGTTTGGGGAG spacer length: 20 repeater length:
 21
 24191 575188 TCTTTAGTTGAAGGTGATTC GGAAAATCAAGTTTGGGGAG spacer length: 20 repeater length:
 21
 24192 575230 TCTTTAGTTGAAGGTGATTC GGAAAATCAAAGTTGGGGAG spacer length: 20 repeater length:
 21
 24193 575272 TCTTTAGTTGAAGGTGATTC GGAAAATCAAGTTTGGGGAG spacer length: 20 repeater length:
 21
 24194 575314 TCTTTAGTTGAAGGTGATTC GGAAAATCAAGTTTGGGGAG spacer length: 20 repeater length:
 21
 24195 575356 TCTTTAGTTGAAGGTGATTC GGAATATCAAGTTTGGGGAG spacer length: 20 repeater length:
 21
 24196 575398 TCTTTAGTTGAAGGTGATTC GGAAAATCAAGTTTGGGGAG spacer length: 20 repeater length:
 21
 24197 575440 TCTTTAGTTGAAGGTGATTC TGAAGGTGATTTTCGGACTCC
 24198
 24199
 24200 crispr 4
 24201 1522849 TAAGTTTCGAATATTCAAAGATTACAAAG
 TTCTTCCAGGCAGAATGCTTCAAATTCTTCTACTGCTTCTAAATAAGCTGTGAAGAAATGGGTTCTGCAGGGGAGATGAGTTATAA
 ACCCAATTGCATAACCGGGATGTAACGTAGGACGAACAAAATAGAGAAAGGAGTGAGGGATTGAAATGATC spacer
 length: 157 repeater length: 29
 24202 1523036 TAAGTTTCGAATATTCAAAGATTACAAAG
 ATCTTCCAGGCAGAAGTTTTCAAATTCTTCTACTGCTTCTAAATAGGATGTAACGTAGGACGAACAAAATAGAGAAAGGAGTGAGG
 GATTGAAATGATC spacer length: 99 repeater length: 29
 24203 1523165 TAAGTTTCGAATATTCAAAGATTACAAAG
 ATCTTCCAGGCAGAAGTTTTCAAATTCTTCTACTGCTTCTAAATAGGATGTAACGTAGGACGAACAAAATAGAGAAAGGAGTGAGG
 GATTGAAATGATC spacer length: 99 repeater length: 29
 24204 1523294 TAAGTTTCGAATATTCAAAGATTACAAAG
 ATTCGGAATATCAAGGTTGGGGAGCTCTTTAGTTGAAGGTGATTTTCGGAATCAAGGTTGGGGAGCTCTTTAGTTGAAGGTGAT
 TTCGGACTCCATG
 24205
 24206
 24207 crispr 5
 24208 2810496 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATAGATTTACATTTCGGTATTATCTGTTATGTTCA
 spacer length: 34 repeater length: 37
 24209 2810568 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC TACGTGGTTCAAATATTTTCAGAAATGACGATCTCG
 spacer length: 35 repeater length: 37
 24210 2810641 ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC CACTTTCCATAGCGATACCAACAACCTATACCGCCTT
 spacer length: 36 repeater length: 37

24211	2810715	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CTGTGATGGCTGCCGATGGAATCGGGGAAAATG
		spacer length: 33 repeater length: 37	
24212	2810786	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TATACTGTATATCTGTATCCAACGTATATAAAG
		spacer length: 33 repeater length: 37	
24213	2810857	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CCGCCTAAATGACAGATAGCAGTACCTCGAATTTCC
		spacer length: 36 repeater length: 37	
24214	2810931	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATTATAGCACCATCACCCACATTATTCGCAAA
		spacer length: 35 repeater length: 37	
24215	2811004	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCAAAGAATATAAAGTTATTCTTAGAGTCTATAT
		spacer length: 35 repeater length: 37	
24216	2811077	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	GTTTTTGATCCTGTAAATCTCTTCGCCGCTCAATCT
		spacer length: 36 repeater length: 37	
24217	2811151	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AGTCTGGAAGTTATCCAGCTTCAAAAAACGATTTTA
		spacer length: 36 repeater length: 37	
24218	2811225	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ACATCTTTGATACTGGGCTCGACTTCCTGGACTGCT
		spacer length: 36 repeater length: 37	
24219	2811299	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCGATTGAATATACGGTGGGCACTTGGTAGTA
		spacer length: 34 repeater length: 37	
24220	2811371	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATCCGGGGATCCTCTACTTTTCGGACCAGGGCATCTG
		spacer length: 36 repeater length: 37	
24221	2811445	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATAAACCCAAAGTCTATCTCTCCAACGTCAATGCT
		spacer length: 35 repeater length: 37	
24222	2811518	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCAGATGAAGAAATTGAAATTAATACTAAGTACCA
		spacer length: 36 repeater length: 37	
24223	2811592	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	ATTCTGCAATGTATTTTGATACAGCCGGTCTTAT
		spacer length: 34 repeater length: 37	
24224	2811664	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTGACATGCAGAAAGCATGCCCTCTGATTTTCGTAA
		spacer length: 36 repeater length: 37	
24225	2811738	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AATATGTAAATATTAAATAGTCCAATGTGCTAAA
		spacer length: 35 repeater length: 37	
24226	2811811	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	CTAATCGCCCTACAAACCTGCAATGTATAGTTAA
		spacer length: 34 repeater length: 37	
24227	2811883	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TATCCCATCCGTTCCCAGCCATCAGCCTATAGAGC
		spacer length: 35 repeater length: 37	
24228	2811956	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TTCCAATAAGGGCTTTTACAGTTCGGACAAACTCT
		spacer length: 35 repeater length: 37	
24229	2812029	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TCTTTTCCAAATGGGGCACACGACGACCAGACCGACG
		spacer length: 37 repeater length: 37	
24230	2812104	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TATACGATTAGTACGTATATACTGTAAAGGAGATG
		spacer length: 35 repeater length: 37	
24231	2812177	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	TAGAAGCTTGCGAACTGTGCGAAATCTGTATCTTCG
		spacer length: 36 repeater length: 37	
24232	2812251	ATTCTGAATGCAAGATCCACTAAAACAAGGATTGAAAC	AAAATTTTCCGTTATTTGGCTAGAAAAAGCCTGAGA
24233			
24234			
24235	crispr 6		
24236	675869	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CCTCTGGAAATCTCCGACCCACATATCACGGTCT
		spacer length: 34 repeater length: 37	
24237	675941	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTCATACACAAAATACTTCTTTCTTTGTATTCTGT
		spacer length: 36 repeater length: 37	
24238	676015	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TATACTTTGCGTGCATAGTATGTATTGTACACGGG
		spacer length: 35 repeater length: 37	
24239	676088	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	CTATAGCCTAGTTATAGCAAAACAACATTTTATA
		spacer length: 34 repeater length: 37	
24240	676160	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCAATGCTATCCTGCCTCATTGCAGGATAGCGA
		spacer length: 34 repeater length: 37	
24241	676232	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCTGGGCTTGGGACAAATCTATAATGGGGATATT
		spacer length: 35 repeater length: 37	
24242	676305	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TGCGAAAGGTGCGTCCGGTACGACTACCGTAATA
		spacer length: 34 repeater length: 37	
24243	676377	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GATTGTAGAAGACATGAAAGAAAATGGGTGGTGTG
		spacer length: 35 repeater length: 37	
24244	676450	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAAATGCTACCAACATGTACCCCGGAAGATTGGTG
		spacer length: 35 repeater length: 37	
24245	676523	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	GAGAAAACGGTATTTCAGCTAGCCAATGAAAGTA
		spacer length: 33 repeater length: 37	
24246	676594	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TATTTACTATATCCCCTTCGCCGATAGGGCCGGTA
		spacer length: 35 repeater length: 37	
24247	676667	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	AAGGGTGTACACGGAGTGC GCGCCCTTATCAAGTTT
		spacer length: 36 repeater length: 37	
24248	676741	GTTTCAATCCTTGTTTTAATGGATCTTGCTCTCGAAT	TCATTTACATGATTCCCAACAAGACATTGAAGTCCT

spacer length: 36 repeater length: 37
 24249 676815 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GATCTTTTCTCATTGTACATTAGAAATGGTACA
 spacer length: 33 repeater length: 37
 24250 676886 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ACAGCCGTCACCTTTTGTACCAAATCCTTATGAGA
 spacer length: 34 repeater length: 37
 24251 676958 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GTCTGTAACGATTCTAGAGCATCTGAGAGCGAT
 spacer length: 34 repeater length: 37
 24252 677030 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AGGCTGTAGAGGAATAAATGAACTACTGGAACCAC
 spacer length: 35 repeater length: 37
 24253 677103 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TGGGTGGGGCATATGCAGAATGTTATGCCAGATTAA
 spacer length: 36 repeater length: 37
 24254 677177 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT GGAATCATGGCACTATTGTTGGTGGGGTCACTAAA
 spacer length: 35 repeater length: 37
 24255 677250 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTGTCATTGAGTACGCGCTCAACATACTCAATA
 spacer length: 33 repeater length: 37
 24256 677321 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TGGTCGGCGTTCTCACCTTTTCGATGCTATGATCTTC
 spacer length: 36 repeater length: 37
 24257 677395 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CCGGACAGGTCCCTTTTAATTTGTGAGAGTGACATT
 spacer length: 36 repeater length: 37
 24258 677469 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TCTGTAATGGTCCCGCGATAGGTATAATTGACGTA
 spacer length: 35 repeater length: 37
 24259 677542 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CAGTTAATCAGCAGGGGAAACAGAGTCTCTCGTAT
 spacer length: 36 repeater length: 37
 24260 677616 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTGAGCCGTATAACGAGTACCTGAGCCCAGGATACT
 spacer length: 36 repeater length: 37
 24261 677690 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AAAAAGAACTTTATTGAATATATCGAAAAGCCAT
 spacer length: 35 repeater length: 37
 24262 677763 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CAGGAAATACGGGGTGATCACATGTCCGAAATA
 spacer length: 33 repeater length: 37
 24263 677834 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTGACAAAATATGACAAACGCACCTTGCAACTTTCA
 spacer length: 35 repeater length: 37
 24264 677907 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TCTTAACTAACTGCTGATAGCGGAAAAATCTATTA
 spacer length: 35 repeater length: 37
 24265 677980 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT ACGATACTTATGACATGTCAGATATAGAGGTTTACG
 spacer length: 36 repeater length: 37
 24266 678054 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTTTCCTTTTTAGTTTGGTTATACGAAATATAAC
 spacer length: 34 repeater length: 37
 24267 678126 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AAGTCTGTAAAGTCTTTTTTCCCATCAGTTAATTCA
 spacer length: 36 repeater length: 37
 24268 678200 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTTTACGACTTCCCCGCCGTCCCTAGTGGACTGA
 spacer length: 35 repeater length: 37
 24269 678273 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT TTGTAAGTTACAAGGGAGATATAATAGCATGAAA
 spacer length: 34 repeater length: 37
 24270 678345 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AATTATGGATCATTTCTTGTAAGCTTCGTGTTTC
 spacer length: 35 repeater length: 37
 24271 678418 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT CTAACAATTTCTTGATAGCTCCGAGGTCCGAGAT
 spacer length: 35 repeater length: 37
 24272 678491 GTTTCATCCTTGTTTTAATGGATCTTGCTCTCGAAT AAAATTTTCCTTTATTTGGCTAGAAAAAGCCTGAG
 24273
 24274
 24275 crispr 7
 24276 2059431 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT GATGAAACAGGGGAACTTTAAATCCCGCTTCGAA
 spacer length: 34 repeater length: 37
 24277 2059503 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TAATGTATCTTGCAATTCTACAAGTTCCTCCCATCC
 spacer length: 35 repeater length: 37
 24278 2059576 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT AAGTGCCGCCTGATACATACCATGACCGGCAATAA
 spacer length: 35 repeater length: 37
 24279 2059649 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT ATTGAAATACTCTAGCATTATTTGAGCTTGTTTGT
 spacer length: 35 repeater length: 37
 24280 2059722 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT AAGATATATAGATGTACGAACTGTGGGAGGATTTTTT
 spacer length: 37 repeater length: 37
 24281 2059797 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TCGATTAGGGAAGTTGGAACAAGCAAAATATAATCA
 spacer length: 36 repeater length: 37
 24282 2059871 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT GTGACGAAGCCGACCAGAGAGAAGCGACCCTACTTT
 spacer length: 36 repeater length: 37
 24283 2059945 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TGTACATTATGGTTGCCTATCCACCGACCCACAT
 spacer length: 34 repeater length: 37
 24284 2060017 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TACATGGAGAAAATAAAGGGCAGCCGTATGTAGTGA
 spacer length: 36 repeater length: 37
 24285 2060091 GTTTCATCCTTGTTTTAGTGGATCTTGCAATTCGAAT TTCGCTACACAGTCCCGTTTCTTCGTCAATGCTT
 spacer length: 34 repeater length: 37

24286	2060163	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGGACACTGTATTACCAGGTGACAAGTTCAAACG
		spacer length: 35	repeater length: 37
24287	2060236	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GAGGCCATAAGGTCCCGATAATAACGATTACAACC
		spacer length: 35	repeater length: 37
24288	2060309	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATGATTCTAAATCTCACACAACACATAGCAACCG
		spacer length: 35	repeater length: 37
24289	2060382	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TATTCATGCCTACGAACATGACAACCCTATACGCT
		spacer length: 35	repeater length: 37
24290	2060455	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAAAGCTAAAACTTAGTGAAGAAAAACGAAATGT
		spacer length: 35	repeater length: 37
24291	2060528	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCGTGGATTATTTTTTCTCGGGTTCAATCACTT
		spacer length: 34	repeater length: 37
24292	2060600	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAAAATGACCGATGGGAAGAAGTCAAAACATCGGCT
		spacer length: 37	repeater length: 37
24293	2060675	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTTTGCGAATGATGATCACTCAAAACAGTATGAGC
		spacer length: 35	repeater length: 37
24294	2060748	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGAGAACTATTCTAAATTTCTGAGAATCACGGGA
		spacer length: 34	repeater length: 37
24295	2060820	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ACCGCCACTGAGCAAATAGGACATACCCTGATAGAA
		spacer length: 36	repeater length: 37
24296	2060894	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATCATGGGGTCGGCTAGGAATGCTTCTTTTCTGA
		spacer length: 34	repeater length: 37
24297	2060966	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CATGCTAACTTTCAGCTTGAACGGGCAGAACATT
		spacer length: 34	repeater length: 37
24298	2061038	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTATAATCCTCTATGGTCACAAGATCCCCTATT
		spacer length: 34	repeater length: 37
24299	2061110	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CATTCAATCACTGTTTTAATGCGTACAATACAATCG
		spacer length: 36	repeater length: 37
24300	2061184	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTGGATAATATCGCGGAGTCTGTGAAAAAAGCA
		spacer length: 33	repeater length: 37
24301	2061255	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATGAACATCGGGACCGGATATACACTTTTTGCAAGC
		spacer length: 37	repeater length: 37
24302	2061330	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCAATAAACTCGTACTGTTTAGAGTTGGATAAGA
		spacer length: 34	repeater length: 37
24303	2061402	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CATTCCATCCCCGACGGCAATACCTGCATTATAA
		spacer length: 35	repeater length: 37
24304	2061475	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCTCTTCGTATCCTACAAGTGAAGCATATTTATC
		spacer length: 34	repeater length: 37
24305	2061547	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTATGCCTGGGAACCATTGAAATTAATTTATCCC
		spacer length: 34	repeater length: 37
24306	2061619	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTTCGGGGTGCTGCTCGGCTGCTGCAATACCATTGA
		spacer length: 37	repeater length: 37
24307	2061694	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GCAACACAGGTTAATGCAATTTTGAAAGCTTGTCTA
		spacer length: 36	repeater length: 37
24308	2061768	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAATCAACGACTAGATTACCTTTATTTATGGTACT
		spacer length: 35	repeater length: 37
24309	2061841	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGGTGCTATATGGCATGATGCCCCCTGCCGGAGGAT
		spacer length: 36	repeater length: 37
24310	2061915	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGATTGGTTGGAGAGGAAGATTAAGAAGGTGTT
		spacer length: 33	repeater length: 37
24311	2061986	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGATCTTCCGCTTCAGGTTGTAGATACAGAAAAGGGA
		spacer length: 37	repeater length: 37
24312	2062061	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGCTCTTTGGGGAATGCGCCCTCCAAAGGGTCTAC
		spacer length: 35	repeater length: 37
24313	2062134	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCTTCTCAAAGATTACAAAATTATTACATCTGATA
		spacer length: 35	repeater length: 37
24314	2062207	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAGCCGAGTATTATAATCATCGTTCTTATTAAGTGC
		spacer length: 36	repeater length: 37
24315	2062281	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCCATTTCGTCCCGAGCTGGAAACGTGCACAGCATC
		spacer length: 36	repeater length: 37
24316	2062355	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTAAAAATGGGTTATTCGTTTTTCAAGTCTTCAATGTG
		spacer length: 36	repeater length: 37
24317	2062429	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CACGAAATATCTTCTTGAAGAAAAGGAACACATAA
		spacer length: 35	repeater length: 37
24318	2062502	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTGCATCCTTCTTTTTTCTGCTGGGCTTGGACAGATTT
		spacer length: 36	repeater length: 37
24319	2062576	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAGGCATACCAATCTGGGAAGGCTACGCAATGGGC
		spacer length: 35	repeater length: 37
24320	2062649	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATGCCTTCGGGAGATTATGCCGTTGCAAACATCTGT
		spacer length: 36	repeater length: 37
24321	2062723	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GCAGCGAAAGCAAAATTATCTGATTATTTTTTTTT

spacer length: 35 repeater length: 37
 24322 2062796 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCCTTGTTTTATGTGCCTTCTGACGGGCTTACAAAA
 spacer length: 35 repeater length: 37
 24323 2062869 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATTGCCTTCCGGCAATCCTAACATCCTCCCTCTAA
 spacer length: 35 repeater length: 37
 24324 2062942 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCCTGTATGCGGATTTTGAATCAGACGACTTTATGA
 spacer length: 36 repeater length: 37
 24325 2063016 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GGGGTACTCGGCTGCACATCCTGAAATTGAGCAGT
 spacer length: 35 repeater length: 37
 24326 2063089 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGGCTGCATACCTTTAAAAAATTTAGTCCCAACCG
 spacer length: 36 repeater length: 37
 24327 2063163 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCTATCAGGTCGTCTTCATGCCAGCGAGTCGCC
 spacer length: 33 repeater length: 37
 24328 2063234 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGCTGTAGGCACGATTGAGTATCAAACGTAGGCA
 spacer length: 35 repeater length: 37
 24329 2063307 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAAAGTTATATCTTGAAAATATCACGAGCGAGAGAG
 spacer length: 36 repeater length: 37
 24330 2063381 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CCTGGATTGAGGCCTCATTCCTGGAGTTTCGCAT
 spacer length: 34 repeater length: 37
 24331 2063453 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATTCAAATCGCTAACATTATTTCAGGAAAATGATG
 spacer length: 34 repeater length: 37
 24332 2063525 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TAGTGCGCTTATCCCGCCTGTAGCTGCGTCAACTGA
 spacer length: 36 repeater length: 37
 24333 2063599 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GCGGATAGGCTCATCTGAGCGTATTTTTGCAATGC
 spacer length: 35 repeater length: 37
 24334 2063672 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CACTCGACAGGGCGACTGAAATCGCAATAAACTA
 spacer length: 35 repeater length: 37
 24335 2063745 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTGGATCAGGTACAACCTGCGAAGCTGCAAGACTG
 spacer length: 35 repeater length: 37
 24336 2063818 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGAACATCCAAGACTGTCCAGATTTAATAATGAC
 spacer length: 34 repeater length: 37
 24337 2063890 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AATGCAGATAGTTATGCAGATGCAGACCCTGCAACA
 spacer length: 36 repeater length: 37
 24338 2063964 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTTTGAGCAGAAAAACGGATTTACCTTAATGTTT
 spacer length: 34 repeater length: 37
 24339 2064036 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAGGAAAGACACTTGCCTATCAGACTTGGATTTGTA
 spacer length: 36 repeater length: 37
 24340 2064110 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTCCCAAATCTGCCGAGATGCTGTAGACTCTTATC
 spacer length: 35 repeater length: 37
 24341 2064183 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CGGGGCTTCTCGTTTCAGGACTCTTTCACAATTTCAA
 spacer length: 37 repeater length: 37
 24342 2064258 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTTCTTTTTGTTACCTTATCCGGTAAAATCGTTAT
 spacer length: 35 repeater length: 37
 24343 2064331 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CGGAATTGAATGTATTAAGTCTGAAGGGCGTTCGG
 spacer length: 36 repeater length: 37
 24344 2064405 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGTATCTCAAAATTACTTGC GTTCATTTCGAAAA
 spacer length: 34 repeater length: 37
 24345 2064477 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGCACCGTATAGACTTAGTTCAGGTCTTGAACCTA
 spacer length: 35 repeater length: 37
 24346 2064550 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GCGAGAAAGAAGTAGTTTCGACAATCGAAAATAAA
 spacer length: 35 repeater length: 37
 24347 2064623 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTAGAGAGTCGTATCAGGGAGTTATAGAGCGACTTA
 spacer length: 36 repeater length: 37
 24348 2064697 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCGCATTC CAATGCTGGCGTAAGGAGTGCTCTTAA
 spacer length: 35 repeater length: 37
 24349 2064770 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTTCCAGAGTACCGGAATCTTTGAGTTTGT CAGG
 spacer length: 34 repeater length: 37
 24350 2064842 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TACAAGGAATTGGTACAGTAGTACCGGAATGAG
 spacer length: 33 repeater length: 37
 24351 2064913 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGGAATCGCAAGAAAGCAAAATACCAGAACAAGG
 spacer length: 34 repeater length: 37
 24352 2064985 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTCCTGTACTCCAAGCGGCTGTAGAAGTTGCAAAA
 spacer length: 35 repeater length: 37
 24353 2065058 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCAGAAGT GCGCTCAGTTGCGACCTGAACAATGGTT
 spacer length: 36 repeater length: 37
 24354 2065132 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTCGCCGGTTGTGGTCGAGAGAAGCCGTTCTTTA
 spacer length: 34 repeater length: 37
 24355 2065204 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCTAATCAGTCCTTAGAGGGTTGCCCTGATCCA
 spacer length: 33 repeater length: 37
 24356 2065275 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTATTATAACAGGCGACTCCCTTAGAAAATCTAAT
 spacer length: 35 repeater length: 37

24357 2065348 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT GATTTT TATAAAACACTACTGTATTAATTCCG
spacer length: 33 repeater length: 37

24358 2065419 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TTCGCC AACAAACACGGGGATGTTGTTGACT spacer
length: 31 repeater length: 37

24359 2065488 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CTGTGGGATTTCTCGCTTTCCCGTTTTGAGAAAGC
spacer length: 36 repeater length: 37

24360 2065562 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TTGTATATATACCTTCTACTTATCCTAAAAATTAA
spacer length: 36 repeater length: 37

24361 2065636 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CATCAAGGATTAAGGGGGCAGGGAGGTCAAAGCCG
spacer length: 35 repeater length: 37

24362 2065709 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT CAGTGGATAGCAACACATCAGCCGTCAGACTTCT
spacer length: 34 repeater length: 37

24363 2065781 GTTTC AATCCTTGTTTTAGTGGATCTTGCATTTCGAAT TGCGCAGGAGTCTTTAGTCTGTACTTATCCACAT

24364

24365

24366 crispr 8

24367 1285762 TCATTTGGATCCTCCTCATTTGGATTCTCCTCATTTGGAT
TCTCCTCATTTGGATTCTCCTCATTTGGATTCTCCTCATTTGGATTCTCCTCATTTGGATTCTC spacer length: 64
repeater length: 40

24368 1285867 TCATTTGGATCCTCCTCATTTGGATTCTCCTCATTTGGAT
TCTCCTCATTTGGATTCTCCTCATTTGGATTCTCCTCATTTGGATTCTCCTCATTTGGATTCTCCTCATTTGGATTCTCCTCATTT
GGATTCTC spacer length: 94 repeater length: 40

24369 1286002 TCATTTGGATCCTCCTCATTTGGATTCTCCTCATTTGGAT
TTGGCTAGAAAAGCCTGAGATTAGCCCTATATTAAACTAAATTTCTTGTTGGGATATTATCAAACCCTTTATAAATACAAGAAA
AACCTCTT

24370

24371

24372 GCA_001402855.1_ASM140285v1_genomic.fna(findCrispr):

24373 START REPEAT SPACER

24374 crispr 1

24375 1522559 AGACCTTTGAGGGA TTGAAACGATAAAGAATAAGCCAGGCTCGCGGGGGAAACATTACGTTAAAAAT spacer
length: 53 repeater length: 14

24376 1522627 AGACCTTTGAGGGA TTGAAACTTATCCATGTTAAGCTTTCCGAGTCCTTGGTATAATCGTTAAAAAT spacer
length: 52 repeater length: 14

24377 1522694 AGACCTTTGAGGGA TTGAAACGCTTTATTTTAGCCGTGGTTTTTGAAGGACTTATATTGTTAAAAAT spacer
length: 52 repeater length: 14

24378 1522761 AGACCTTTGAGGGA TTGAAACGAAAAAGCAGGAGGGCCGCAACCAATAACTCTTTTATGTGTTAAAAAT spacer
length: 54 repeater length: 14

24379 1522830 AGACCTTTGAGGGA TTGAAACCATTGTGTATTTTTTAGGGAGTAGTTTGATAAGTTCGGTTAAAAAT spacer
length: 52 repeater length: 14

24380 1522897 AGACCTTTGAGGGA TTGAAACTCCATAGAAAGACCAGGACGAGAGGCAGGGGGAGAAGGTTAAAAAT spacer
length: 52 repeater length: 14

24381 1522964 AGACCTTTGAGGGA TTGAAACTCGTGACCATTATTTCTAATGTGCCAGATCCATTTAGTTAAAAAT spacer
length: 51 repeater length: 14

24382 1523030 AGACCTTTGAGGGA TTGAAACAGCTGTAGCAGGTGTTACATTGCCAGCCCCTAAAGTAGTTAAAAAT spacer
length: 52 repeater length: 14

24383 1523097 AGACCTTTGAGGGA TTGAAACCAATTACAGATTTTCGCTCAATTATTCCTTTACGGTTAAAAAT spacer
length: 50 repeater length: 14

24384 1523162 AGACCTTTGAGGGA TTGAAACGCAAGAAAAAATTAGAAATGATATAATTTAAAGGTTGTTAAAAAT spacer
length: 51 repeater length: 14

24385 1523228 AGACCTTTGAGGGA TTGAAACATTCTCTTGTGTATGCACTCATTGTTCTTCTCAATATACTATAGTTAAAAAT
spacer length: 59 repeater length: 14

24386 1523302 AGACCTTTGAGGGA TTGAAACAGTTTTAAACCGGACAGCAGGGCCGGGCTTTACGCTGGTTAAAAAT spacer
length: 52 repeater length: 14

24387 1523369 AGACCTTTGAGGGA TTGAAACTTGTAAGGGCCCCGGCTTCTATCGCCCATTTCCCATGTTAAAAAT spacer
length: 51 repeater length: 14

24388 1523435 AGACCTTTGAGGGA GAGGGATTGAAACCTATACACTTGAATTGTAGCGTCTGAATCGCCTGTAA

24389

24390

24391 crispr 2

24392 2368911 TACAGTTTTACGGCTTCTTC
ATAGTTGCCCTGCCTCTGATGAATCATTCCAAGCTGGTGCAGTGTTGATGCAATTCGGCTTTTGTTCCCGAGCTCTTCTGCAATTT
TCAGGGACTGGTT spacer length: 99 repeater length: 20

24393 2369031 TACAGTTTTACGGCTTCTTC
ATAGTTGCCCTGATCCTGATGAATCGTTCCAAGATTGTGCAGTGTGTGTGCAATTCGGCTTTTGTTCCCGAGCTCTTCTGCAATTT
TCAGGGACTGGTT spacer length: 99 repeater length: 20

24394 2369151 TACAGTTTTACGGCTTCTTC
TTGAAACTCACTATTTATCAGGTATTACGCGGAAGCTGTATTACAGTTAAATCAGACCTTTGAGGGATTGAAACACGTAGAACGC
ACCGAAATAATTT

24395

24396
24397 crispr 3
24398 1974588 GGAACAAAAATATCAGGAATAA AGATATTAGAACAGAAATATC spacer length: 21 repeater
length: 22
24399 1974632 GGAACAAAAATATCAGGAATAA GGATATTAGAACAGAAATATCAGGAACAAAAATATC spacer length:
36 repeater length: 22
24400 1974691 GGAACAAAAATATCAGGAATAA AAACCTATACACTTGAATTGTAGCGTCTGAATCGCC
24401
24402
24403 crispr 4
24404 2934913 GTTATAGGCACAATTAATGTTGG
AGAGCATCCTTCTGGAATTGCAGTCGCAGGAACAAATGCATATGTGGTCAATATCAACAGCAATACTGTCACTGTGATTAATACGA
TAAACAACAA spacer length: 96 repeater length: 23
24405 2935033 GTTATAGGCACAATTAATGTTGG
GAAGAATCCTGCTGGAATTGCGTTGCAGGAACAAATGCATATGTGACCAATGCTAACAGCAACACTGTAAGTGAATTAACACGA
TAAACAACAA spacer length: 96 repeater length: 23
24406 2935153 GTTATAGGCACAATTAATGTTGG
AACTCACTATTTATCAGGTATTCAGCGGAAGCTGTATTACAGTTAAAATCAGACCTTTGAGGGATTGAAACACGTAGAACGCACCG
AAATAATTTT
24407
24408
24409 crispr 5
24410 2247449 GGATCAAGCTGAATGGCTTTATCA
TAGGCATCTATTGCTTCATCATACTTACCTAAACTATAGAGAGCGCTTCCTTTATTATTCCAAGCAAATGAATTGCT spacer
length: 77 repeater length: 24
24411 2247551 GGATCAAGCTGAATGGCTTTATCA
AAGGCATTTATTGCTTCATCATACTTAAAGCTATCGAGAGTGCATCCTTTGTTATCCCAAGCAATTGAATTGTT spacer
length: 77 repeater length: 24
24412 2247653 GGATCAAGCTGAATGGCTTTATCA
TTAGGAACAAAGCTTAATTTAAAAGAAAATAATTTAAAAATTTTCAGCAGAAAGTATTGTTTTAACTTAAAAAAG
24413
24414
24415 crispr 6
24416 2264390 TCTTATCTACATTCTTATCTACAG CTGTATCATCTGTAGTTTTATCTGTA spacer length: 26
repeater length: 24
24417 2264441 TCTTATCTACATTCTTATCTACAG TTGTATCATCTGTAGTTTTGTCATCTGTAGTTTTGTCTACA spacer
length: 41 repeater length: 24
24418 2264507 TCTTATCTACATTCTTATCTACAG GGTAAATTTTGTGCAGGAGTTTTTAGTCTGTACTTATCCAA
24419
24420
24421 crispr 7
24422 1517073 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTATGTATCGCCCAATATCTTTCTATTTTCTCTTTATCC
spacer length: 40 repeater length: 30
24423 1517144 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTTTCAGGCTCGATTCTAAAGCCTACGGCACTA spacer
length: 34 repeater length: 30
24424 1517209 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAAAGTAAACAGTATCAGATTGGATCTGCAAAAATAG spacer
length: 38 repeater length: 30
24425 1517278 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAAAGAAGAAATCGAATCAAGAGCGAAAGAGCTT spacer
length: 36 repeater length: 30
24426 1517345 GTTAAAATCAGACCTTAGAGGGATTGAAAC TGCACTCTTACGTTCAAGAGCCGTTCAACCAGATCAAGA
spacer length: 39 repeater length: 30
24427 1517415 GTTAAAATCAGACCTTAGAGGGATTGAAAC CCGTGCAGCTTATCCAGACAATTATGAACTGTGCGAAA spacer
length: 38 repeater length: 30
24428 1517484 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATCAGGCACGATTTCCCTATATCCTGAATAAATCATA spacer
length: 37 repeater length: 30
24429 1517552 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCCTTAACAAGCTGTCTTGCCCTGGTCTTTTGATCCT spacer
length: 37 repeater length: 30
24430 1517620 GTTAAAATCAGACCTTAGAGGGATTGAAAC AATTCTTTTAAACATTGGAAAAAGTAAACTCGGAT spacer
length: 35 repeater length: 30
24431 1517686 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATAGTTCCTTAAGGCACAGTCCCTCCGGGCTTAA spacer
length: 34 repeater length: 30
24432 1517751 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTCGTTGAAAGGATCTGAGAAAAGAGAATATCCGC spacer
length: 35 repeater length: 30
24433 1517817 GTTAAAATCAGACCTTAGAGGGATTGAAAC GCCTTTGTCATAGCTCTTAAAGCTCGTATTCAGC spacer
length: 35 repeater length: 30
24434 1517883 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTCGTTGAAAGGATCCGAAAAGGAGAATATCCGCG spacer
length: 36 repeater length: 30
24435 1517950 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAGTCCCGTACCCTGGAAGAGTGACGTAGAACTT spacer
length: 35 repeater length: 30
24436 1518016 GTTAAAATCAGACCTTAGAGGGATTGAAAC CAAACCCGAGATGCCGGAACACCTGTATTTTTTTTCA spacer
length: 36 repeater length: 30

24437	1518083	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTGAGCGTTGCGAAGAATACTATCACATCGACTA	spacer
		length: 35	repeater length: 30	
24438	1518149	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TGAGTACAAACAAGTTTTACCTGATCTTCCTCTTTGAG	spacer
		length: 38	repeater length: 30	
24439	1518218	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATGCTAACATGTAAAAAATATTTCCCATCAATGCA	spacer
		length: 35	repeater length: 30	
24440	1518284	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CCCTTAATCACATCTGAAGTTGCAACCCTGGCAATG	spacer
		length: 36	repeater length: 30	
24441	1518351	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTGCAGAAGAAGTGAAGCACCAGGATAATGAT	spacer
		length: 33	repeater length: 30	
24442	1518415	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAATTAACCTGGAAGATCGTTAGAAGCTGCCATTACCT	spacer
		length: 37	repeater length: 30	
24443	1518483	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAACACCTGGACCTTCCTGACGGATCCGTCAGGT	spacer
		length: 34	repeater length: 30	
24444	1518548	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTCTTCCGGCTTCGCATCGGTGTCAACTTTCAAAC	spacer
		length: 36	repeater length: 30	
24445	1518615	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATCAAGACAAACATCAGCAGGACATTAATAACCTGT	spacer
		length: 36	repeater length: 30	
24446	1518682	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGATGTCTTTCAATGTTTTTTACGCGCTGGATGAG	spacer
		length: 35	repeater length: 30	
24447	1518748	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCTAACACGACAAAAGAGCTCATAGAACAGGCAG	spacer
		length: 36	repeater length: 30	
24448	1518815	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATAATATGTATTTATCAAAAGGCAGATCCAGAATGGA	spacer
		length: 37	repeater length: 30	
24449	1518883	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATTAATGTATGTAAAGCACTAGCCGGGCAGTTAA	spacer
		length: 35	repeater length: 30	
24450	1518949	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AATCGACCCTGAATGGTCCTGTATTTGAGTAGCA	spacer
		length: 34	repeater length: 30	
24451	1519014	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCAGAGCGGCTTCTACTGCATTTTTCAGGTTCTTG	spacer
		length: 36	repeater length: 30	
24452	1519081	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTTGTATCTCTACGTTATCAGCCGTCCCATCACAAAC	spacer
		length: 37	repeater length: 30	
24453	1519149	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTAAACATGCTCGTTTTTGGGTTGTGCCATATCAGA	spacer
		length: 37	repeater length: 30	
24454	1519217	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCGTCATTCTAGGCTCAACTACGAGTTGAGCTTTTTG	spacer
		length: 37	repeater length: 30	
24455	1519285	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCAAATATAAGGCAGATATTTTCTAGACTCGATTT	spacer
		length: 35	repeater length: 30	
24456	1519351	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTAAAAGCTGCTCAGGAAATTGGATTATCCGAG	spacer
		length: 35	repeater length: 30	
24457	1519417	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGCAGACTCGTTGCGTTGTACTCAGTCTGAGCGG	spacer
		length: 35	repeater length: 30	
24458	1519483	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCATTACACGGGTGATCCAGACTTCGTTGTCTGT	spacer
		length: 35	repeater length: 30	
24459	1519549	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTCTCTAAGTCTTGCGTACAAGACTTTATCGGTGAT	spacer
		length: 37	repeater length: 30	
24460	1519617	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTAGAGCGAGCTTTTAAGAGGGATTCTGCGAAGCGT	spacer
		length: 36	repeater length: 30	
24461	1519684	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTATTCTTGTGTGTTTCTTATGGGTTCCGATTACTG	spacer
		length: 37	repeater length: 30	
24462	1519752	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTTTCTTCATAATTACTCAACCTCTTATGATGTTGT	spacer
		length: 37	repeater length: 30	
24463	1519820	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TAGTTCTCAATGAAAATGGAATAGGCGTGAACCTTA	spacer
		length: 36	repeater length: 30	
24464	1519887	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGAAAAAGAAAATGTGATGCTGAATAACGCGCA	spacer
		length: 33	repeater length: 30	
24465	1519951	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTAATACTGAAAAGTGGGATGTGCCTGGAGCTAT	spacer
		length: 35	repeater length: 30	
24466	1520017	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATAAAGTACAGAAACGAAAAATATTAAAGAAGCTT	spacer
		length: 35	repeater length: 30	
24467	1520083	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAAGAGCAAACGATGCAGGGTCTAAACAAGGCTC	spacer
		length: 34	repeater length: 30	
24468	1520148	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTCACAGATTCTGAGAAGGACGAAATTATAAAAAT	spacer
		length: 35	repeater length: 30	
24469	1520214	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCATACTTCGCGGCTGCATGAATCCCTTTAAGCCT	spacer
		length: 36	repeater length: 30	
24470	1520281	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTACAGGGCTTAACACTGTCGTTTTTTTACAAGAAAT	spacer
		length: 37	repeater length: 30	
24471	1520349	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CCTGGAAACGCGGAATTTCTTTTGGGTCAATATA	spacer
		length: 35	repeater length: 30	
24472	1520415	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CATTGAGCTCCTGAATCAATGGAGTGCCTGCAACCA	spacer

length: 36 repeater length: 30
24473 1520482 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCAATTAGCCCGTTCTCGTTAATCAGCCCGTCCGCA spacer
length: 36 repeater length: 30
24474 1520549 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTGGTTTTAGACAAGATCTTAGACGTGATGATCTCAG spacer
length: 37 repeater length: 30
24475 1520617 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGTCCACGTTGTTCCGGCCCCAATCGTCCCAGTCATGT
spacer length: 39 repeater length: 30
24476 1520687 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCATGTCCGTTGTTTCTTATGTGCCAGATCCATT spacer
length: 34 repeater length: 30
24477 1520752 GTTAAAATCAGACCTTAGAGGGATTGAAAC CAAAATACACACAGTACGACGAAAAAATCAGAACT spacer
length: 35 repeater length: 30
24478 1520818 GTTAAAATCAGACCTTAGAGGGATTGAAAC GATCAAGAGTGCAGCATCCTCTATTCTCTCAGCCT spacer
length: 35 repeater length: 30
24479 1520884 GTTAAAATCAGACCTTAGAGGGATTGAAAC CATACTAGACCTACAATGAAAATGTAGAGGGGGCC spacer
length: 35 repeater length: 30
24480 1520950 GTTAAAATCAGACCTTAGAGGGATTGAAAC TAAGGATAGGTGTATCAAGCTGGATTTGTTTATCTATT spacer
length: 38 repeater length: 30
24481 1521019 GTTAAAATCAGACCTTAGAGGGATTGAAAC GGATGTAATTGATAGTATTACAGGCAGGAGAAAA spacer
length: 33 repeater length: 30
24482 1521083 GTTAAAATCAGACCTTAGAGGGATTGAAAC GGTTTTAATTCCTGCCATCGGATCACCTTTAAGCTG spacer
length: 36 repeater length: 30
24483 1521150 GTTAAAATCAGACCTTAGAGGGATTGAAAC AAATTCCAGCGTGAAAGATGAATACGGCAATACAG spacer
length: 35 repeater length: 30
24484 1521216 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGGTTCGTCCCTCCGAACGGGATCATTACAACATA spacer
length: 35 repeater length: 30
24485 1521282 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTTTCTGCGCTCCGTCCTGCGTACTGCAGGCAGATAT spacer
length: 37 repeater length: 30
24486 1521350 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCAATGCAAATAGGCACATGGCAAGCCCGCCTAGA spacer
length: 35 repeater length: 30
24487 1521416 GTTAAAATCAGACCTTAGAGGGATTGAAAC GACAGTTCTTGAAGACCCATCAATCGTTGCGGTAAC spacer
length: 36 repeater length: 30
24488 1521483 GTTAAAATCAGACCTTAGAGGGATTGAAAC AGAATGATAACCACTACAAGCACCAACAGTCCGAG spacer
length: 35 repeater length: 30
24489 1521549 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTAAATGAGATCTGCTCTAACAACTAAAATAAT spacer
length: 36 repeater length: 30
24490 1521616 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTTAAAGAGTGATCTTAAACCCCTTACAGATCAT spacer
length: 34 repeater length: 30
24491 1521681 GTTAAAATCAGACCTTAGAGGGATTGAAAC GATGATAGAAGGGAAGATGAAATGCGGAATCGCCG spacer
length: 35 repeater length: 30
24492 1521747 GTTAAAATCAGACCTTAGAGGGATTGAAAC AGGACTTCGAGGGAGGTATCTGCTGCGTTGACGAAGT spacer
length: 37 repeater length: 30
24493 1521815 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTATATGCTTTTTTCGAAAAGAGAGAGCGTAGACCA spacer
length: 35 repeater length: 30
24494 1521881 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTCCTATAATCTGCGTGGATGAGGAAACAGGAAGA spacer
length: 35 repeater length: 30
24495 1521947 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTTTTTCCCAGCTTCGATTACTTCAGGTTTAAGCGG spacer
length: 36 repeater length: 30
24496 1522014 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTTCATGGGAGCACTCGAGAAGGCAGTCCGA spacer
length: 33 repeater length: 30
24497 1522078 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTAGTGATTGCTCCTTATCGCCTTCGCTTCTGCAAG spacer
length: 37 repeater length: 30
24498 1522146 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATGCCCCATAGATCACATCAGAAGCTTTGTAAGTCTGCT
spacer length: 39 repeater length: 30
24499 1522216 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACTGTTATTAGTGACGGTACTACAATTGAAGGAT spacer
length: 34 repeater length: 30
24500 1522281 GTTAAAATCAGACCTTAGAGGGATTGAAAC GAAGAATTGAACGCAATTCTTGAGAAAGCTAAGAAAT spacer
length: 37 repeater length: 30
24501 1522349 GTTAAAATCAGACCTTAGAGGGATTGAAAC CATTTTCATGCATTTTATACTTGTTTGAGCCTGTCAA spacer
length: 35 repeater length: 30
24502 1522415 GTTAAAATCAGACCTTAGAGGGATTGAAAC CACTTGAATTGTAGCGTCTGAATCGCCTGTAAAA
24503
24504
24505 crispr 8
24506 2202772 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ACAACAAGAATCAGGTGATAGTGAATGGTGTATACG
spacer length: 36 repeater length: 37
24507 2202846 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TCGAAGCTTTCAGAAAAGACAAACGCGGGAACTT
spacer length: 35 repeater length: 37
24508 2202919 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC ATATTAATGGCGACCGAAGCAATCAGAGAACTAT
spacer length: 34 repeater length: 37
24509 2202991 ATTCGAATGCAAGATCCACTAAAACAAGGATTGAAAC TTTCTTGCATGTATCACCCGTCCCAGTGAAGATT
spacer length: 35 repeater length: 37

24510	2203064	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CACAATACATGATACTCCACAAAAATGGGGTAATG
	spacer length:	35	repeater length: 37
24511	2203137	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TGGTAGTGCTCAATTCCAGCCCTGAGCCATTCGTT
	spacer length:	35	repeater length: 37
24512	2203210	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TTCTTATATTTGTCGTCCTTTATTTTTTACAGGGACA
	spacer length:	36	repeater length: 37
24513	2203284	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ATATCTTCTTTGTATCCATTGGCAAGACATCAAGCC
	spacer length:	36	repeater length: 37
24514	2203358	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CACTGAAGAATCCAAGCGGGAAGGTAATTTCAACCA
	spacer length:	36	repeater length: 37
24515	2203432	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TGCTGCGGTTCTTATACCGTTCCTCCGCTTGCATAAT
	spacer length:	37	repeater length: 37
24516	2203507	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	ATGGCTCGTATAGATAACCTTCCAGCAGTTCCTTT
	spacer length:	35	repeater length: 37
24517	2203580	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CAATTTGGACAAGAAGCTTACCTGTTTCTCGTTAGA
	spacer length:	35	repeater length: 37
24518	2203653	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCTCCTGGGAGTGCAGAGGGCACAGCGGAAGACC
	spacer length:	35	repeater length: 37
24519	2203726	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TTTCCTTTTTTTCATCTCTTCGTACTCATCCAATACT
	spacer length:	35	repeater length: 37
24520	2203799	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CGCCTATGTACAGCTGAGCGTTTCGTACCGGATACT
	spacer length:	35	repeater length: 37
24521	2203872	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CTTTCAAGGACAATCGACTGCACCCGCGTACAATAT
	spacer length:	36	repeater length: 37
24522	2203946	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TATACCTTCTCCACAGTTGCGTTCTTTTTTGTCTGA
	spacer length:	36	repeater length: 37
24523	2204020	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	AGTCGGGGAGTTTCAGTTATAAGCCTGATTAAATTAA
	spacer length:	36	repeater length: 37
24524	2204094	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CGTTAGATCAAACGAAAAAATAAAATCAAAATG
	spacer length:	33	repeater length: 37
24525	2204165	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TAGTCATACCATCCTCGACCATGTCCGGTGAGAA
	spacer length:	34	repeater length: 37
24526	2204237	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CGGGTGAAAGACCTATCAGGGATGAAGTGAAGAATTC
	spacer length:	37	repeater length: 37
24527	2204312	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	AATTCTACAAACGTTTCGTGATCCTCGGCATTTACG
	spacer length:	36	repeater length: 37
24528	2204386	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TTACAAGTGAGTGGTTAGGCAATCCCATCTACA
	spacer length:	33	repeater length: 37
24529	2204457	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCTTTCGTCTCAGGTCTCTTTCAGGGTGGGGAAA
	spacer length:	34	repeater length: 37
24530	2204529	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TCTTTCGTCTCAGGTCTCTTTCAGGGTGGGGAAA
	spacer length:	34	repeater length: 37
24531	2204601	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	TGGATGTGGGGATAACCGTTTAGCATGGGTAGGCG
	spacer length:	35	repeater length: 37
24532	2204674	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	CGTTTAAAGACTCCTGCCCCGCTCCTGTTGTCTTCG
	spacer length:	36	repeater length: 37
24533	2204748	ATTCTGAATGCAAGATCCACTAAAAACAAGGATTGAAAC	AGGTATTTCAGCGGAAGCTGTATTACAGTTAAATCA
24534			
24535			
24536	crispr 9		
24537	906101	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	ACCCCGGAAGCCGAACGCGAAAAAGGGATGAAAT
	spacer length:	34	repeater length: 37
24538	906173	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	AGTATCAAAATTAACCTACAGGCGGCTTTTAGATG
	spacer length:	35	repeater length: 37
24539	906246	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	AACATCCTGCTTATTATTTTATCATGAGTAAGT
	spacer length:	33	repeater length: 37
24540	906317	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	AACTTGGCTAAAAATAAGTTAACTAGTGGAGTA
	spacer length:	33	repeater length: 37
24541	906388	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	ATAATAAGGGTATCCTCCACCTCTTCGCAATGGT
	spacer length:	34	repeater length: 37
24542	906460	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	TACTTTGATTCTTGCAAAACCGTAATACCTGTCTGC
	spacer length:	36	repeater length: 37
24543	906534	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	GGGGAATAATCCGAGTCATAGATAGCACACTGATGGTAA
	spacer length:	39	repeater length: 37
24544	906611	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	GAAGAGAAAAACAATAACAGTAACCTAACTAATAA
	spacer length:	35	repeater length: 37
24545	906684	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	AAAGTGTAATATGTGCAACGTAACGAAGTAGAAA
	spacer length:	35	repeater length: 37
24546	906757	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	ATTAACACCTCCTCGCGCCCGTCCGGGTGAATTC
	spacer length:	34	repeater length: 37
24547	906829	GTTTCAATCCTTGTTTTAATGGATCTTGCATTGCAAT	CTGTGCGTATTTCATCAGCCTTTTTTAACTTCTTT

spacer length: 34 repeater length: 37
 24548 906901 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AATGTCAGAGAAGAGCTTACCCTGGCATATAGGAG
 spacer length: 35 repeater length: 37
 24549 906974 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GCGTTATAATAGGGGATCTTGTGACCAGAGAGGA
 spacer length: 34 repeater length: 37
 24550 907046 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCCACGCGAAACATGGAGAAAGATCGCGAAATACT
 spacer length: 35 repeater length: 37
 24551 907119 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CAAAAGAAGAAATCGAAGTCGAGAACGCTGTAATAG
 spacer length: 36 repeater length: 37
 24552 907193 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAATTACCAATAAGTAACCAAACCTTGTAACCG
 spacer length: 33 repeater length: 37
 24553 907264 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TATATCGAAAAGCCATATAACTAAATGTTGTAAGTT
 spacer length: 36 repeater length: 37
 24554 907338 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AGAAGAGGCTGCGCAGTTCCAATCAGGATACGA
 spacer length: 33 repeater length: 37
 24555 907409 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAAAGAAATGATTCTAAACTTGACCCAACATGTA
 spacer length: 34 repeater length: 37
 24556 907481 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GAATGCTACAAAACCAAAGATTCTCCAATAGTGAGAA
 spacer length: 38 repeater length: 37
 24557 907557 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTTCTTCGGGCAGATCGGGGAGCCAGAAGAAGAGG
 spacer length: 35 repeater length: 37
 24558 907630 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACCTGATACAGAAGGAGCTATAGACAGCGGCGATTTT
 spacer length: 37 repeater length: 37
 24559 907705 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TGTATATTTACTATATCCCCTTCGCCGACTTTAG
 spacer length: 34 repeater length: 37
 24560 907777 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TATAACCACGATCAAATTAAGAAAATGATTGTAT
 spacer length: 34 repeater length: 37
 24561 907849 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AACAAAAAGCTCAACTCGTCGTTGAGCCTAGAATGA
 spacer length: 36 repeater length: 37
 24562 907923 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CTTATATCGTGTACTGTGCGAATTCAGTCGAATCG
 spacer length: 35 repeater length: 37
 24563 907996 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT GGCTATGAGATCGAGGTCTCAAGAAATATAGTTA
 spacer length: 34 repeater length: 37
 24564 908068 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT CCTGACACTTGGAGGGATGACGGCGGCGGGTGT
 spacer length: 34 repeater length: 37
 24565 908140 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT ACGAAGTGACAACCTTCCTCGTGATTGAAAATTGGG
 spacer length: 35 repeater length: 37
 24566 908213 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TGCTCTAATAAACATAATTGGTAAAACAGGTATGG
 spacer length: 35 repeater length: 37
 24567 908286 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TATAGTATTGGCTACTATAGTATATTGCACTTAG
 spacer length: 34 repeater length: 37
 24568 908358 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT TTTGTGAGGTATGAGAATTGTAGAGAGTATAAAAA
 spacer length: 35 repeater length: 37
 24569 908431 GTTTCATCCTTGTTTTAATGGATCTTGCATTCTGAAT AAATTTTCTCTATTTGGCTAGAAAAAGCCTGAG
 24570
 24571
 24572 crispr 10
 24573 365893 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
 GTGAAGAAATAGGTTCTGCAAGGTAGATGAGTTATAAACCAACTGCAGAACCCGGGGTATAACGGGGGACGAACAAAATAGAGAAA
 GGAGTGAGGGATTGAAATGATCATAAATTTTGAGTATTCAAAGATTGTACAGTTCTTCCA spacer length: 146
 repeater length: 40
 24574 366080 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
 GTAGAGAAATAGGTTATGCAGGATAGATGGGTTATAAACCCAACTGCATAGCTCAGGGGATAACGGGGACGAACAAAATAGAGAAA
 GGAGTGAGGGATTGAAATGATCATAAATTTTGAGTATTCAAAGATTACAAAGATCTTCCA spacer length: 146
 repeater length: 40
 24575 366267 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
 TTGGCTAGAAAAAGCCTGAGATTACTACTATATTAAACTAAATTTCTTGTTGGGATATTATCAAACCTTTTATAAATACAAGAAA
 AACAGCGTTTTTTTAGAGGTTTGGAAATATCTCAGTATACGCCTTTCTTTTTATTAACTT
 24576
 24577
 24578 GCA_001412615.1_ASM141261v1_genomic.fna (findCrispr):
 24579 START REPEAT
 SPACER
 24580 crispr 1
 24581 1340093 AATCATAA CAAATAGAACTGAAAGACCGCTCCCCGCCCCCTACGCAGATTTCTCGATTAGCTCGCCACGC
 spacer length: 63 repeater length: 8
 24582 1340165 AATCATAA CAAATAGAACTGAAAGACTTCACCGCTGTCTCTCACTTCAACCTCTGACAGTAGATG spacer
 length: 57 repeater length: 8
 24583 1340231 AATCATAA CAAATAGAACTGAAAGCTCCACGTAGAGCTTCTTTACTAAGAACGACTTCCCGGCCCGTCT
 spacer length: 61 repeater length: 8
 24584 1340301 AATCATAA CAAATAGAACTGAAAGACCTTAACGACGCGAAAACCATGCCTGAACACCTTATCGGATAC spacer

length: 60 repeater length: 8
24585 1340370 AATCATAA CAAATAGAACTGAAAGTATCTCCCTTCCTTGATGTACTCTAACATTTTTTCGCTAATGGT spacer
length: 60 repeater length: 8
24586 1340439 AATCATAA CAAATAGAACTGAAAGCTGTCAAACCTCAGTGCCTCTGGTCTAGCAAAAACGCTAGCCT spacer
length: 60 repeater length: 8
24587 1340508 AATCATAA CAAATAGAACTGAAAGTACTCGCCGTCCAAGTCCTTGATGAACGCCACTGAGTCCAGGT spacer
length: 59 repeater length: 8
24588 1340576 AATCATAA AGAGAATTGTAAGCTTAGCAACATCATCACCACAACCTACATCTATGTGGTGGAGAACA
24589
24590
24591 crispr 2
24592 307914 TTACAATTCTCTTTTGAGTTATGC TTGACGCGTATGTTGGTGAAGTCCACCTCGCGGCACGAGAACCACG
spacer length: 46 repeater length: 24
24593 307985 TTACAATTCTCTTTTGAGTTATGC ATGCCGATGGTGCGTACGGCACGCTGAGCGCATGCTACGTGACAC spacer
length: 45 repeater length: 24
24594 308055 TTACAATTCTCTTTTGAGTTATGC CGGTACTTTGCGAATATCCTGCCGGCTATTAGCGCGGCGCGT spacer
length: 42 repeater length: 24
24595 308122 TTACAATTCTCTTTTGAGTTATGC TCCCGGGCCTGAAACCGTGGCCGGGCGCCCTGCCTGTGCTGAG spacer
length: 43 repeater length: 24
24596 308190 TTACAATTCTCTTTTGAGTTATGC GTGCCCCGTGTTCTAGCGTCTAGCCACACATTTCTTCGG spacer
length: 39 repeater length: 24
24597 308254 TTACAATTCTCTTTTGAGTTATGC ATACTTGGCTACGGCTGTTAGGTCTAGACTCTGTGCCCCGCTCTGTTA
spacer length: 47 repeater length: 24
24598 308326 TTACAATTCTCTTTTGAGTTATGC ATACGTCGATGAGATAGAGATACCCGGCGGCACGTCAACATCGAC spacer
length: 45 repeater length: 24
24599 308396 TTACAATTCTCTTTTGAGTTATGC ACCCGGGGGCATTGTTTGCAGCGAGAAATCCAGAACTCTATAGAG
spacer length: 47 repeater length: 24
24600 308468 TTACAATTCTCTTTTGAGTTATGC CAACGAGCAGACTGGCACCCCTCAGCGCAGTGGCTTTCATAGTCTACAT
spacer length: 48 repeater length: 24
24601 308541 TTACAATTCTCTTTTGAGTTATGC CTCCGCCAGCCGCCCGAGGCAGCGAGGTATGTTAGCG spacer
length: 38 repeater length: 24
24602 308604 TTACAATTCTCTTTTGAGTTATGC ACAGACCAAAGACAAGTACCAGTACAACGTAGACCCCATGAC spacer
length: 42 repeater length: 24
24603 308671 TTACAATTCTCTTTTGAGTTATGC CGAAGTATATCCACTTCATAGACACGGAGACCGGAGAGAAATTCA spacer
length: 45 repeater length: 24
24604 308741 TTACAATTCTCTTTTGAGTTATGC GTGAGCAGGGAGCTCAGCGTCACGGGAGCACACTATCTCGACACA spacer
length: 45 repeater length: 24
24605 308811 TTACAATTCTCTTTTGAGTTATGC ACTGCATAGAGGCGTGCGACAAGGACTGTGCAGAAGAACACA spacer
length: 42 repeater length: 24
24606 308878 TTACAATTCTCTTTTGAGTTATGC CCGCATAAGGAACGTGGCTCCCTATGCTGCGAAGGCTGCTAGG spacer
length: 43 repeater length: 24
24607 308946 TTACAATTCTCTTTTGAGTTATGC CAGTATTTTACTTGGCTTAAAGAAGCATTAGAAGAGAGAAAGA spacer
length: 43 repeater length: 24
24608 309014 TTACAATTCTCTTTTGAGTTATGC TTGTTATCTTTAGGTGTATGTTGTGGCCGGGCTCTAGGACCATGC spacer
length: 45 repeater length: 24
24609 309084 TTACAATTCTCTTTTGAGTTATGC TGGTGCAGGCCGTGGCTGCTAGCTTGTGCTGGCTTGTCTTTAG spacer
length: 45 repeater length: 24
24610 309154 TTACAATTCTCTTTTGAGTTATGC TAGAGAAGGCTGTATCAGACATAGCCCCTTCTGCGCCGCCAC spacer
length: 43 repeater length: 24
24611 309222 TTACAATTCTCTTTTGAGTTATGC AGCATAGATCTTGGCGTCGTGTAGTGGCGCCGCGAGCTTCAA spacer
length: 42 repeater length: 24
24612 309289 TTACAATTCTCTTTTGAGTTATGC ATATACATCATCGACACGGCTAAGCCCCGCTACAACGAGA spacer
length: 41 repeater length: 24
24613 309355 TTACAATTCTCTTTTGAGTTATGC AAGAAGATGGTCTACTACCTCGGTAGGCGCTACGGGGTGTGTCAGT
spacer length: 46 repeater length: 24
24614 309426 TTACAATTCTCTTTTGAGTTATGC CATTTCTTAGAGACGCACAAGTTTGCAATAGCGAAGTAAC spacer
length: 40 repeater length: 24
24615 309491 TTACAATTCTCTTTTGAGTTATGC AGAAACAAGACAGTGTGCTGGAAGTACGTGGATTGCAATGGAGTCAT
spacer length: 47 repeater length: 24
24616 309563 TTACAATTCTCTTTTGAGTTATGC ACCACACATTGCCTCCTCTGGCATTATTTCTAGCAGGGTGC spacer
length: 42 repeater length: 24
24617 309630 TTACAATTCTCTTTTGAGTTATGC CGCTATCGTGATGCCGCCGTCCATGGCCTTCTGGCTATTATCCG spacer
length: 45 repeater length: 24
24618 309700 TTACAATTCTCTTTTGAGTTATGC CTCGCGCGCGCCATGGGCTTCGCGCTGGCCGGCGGCACGCTGCTAG
spacer length: 46 repeater length: 24
24619 309771 TTACAATTCTCTTTTGAGTTATGC CAGCCGAGCAGGCCAGGTCATGCAGGCAGTCAGGCGGGCGCAGA spacer
length: 45 repeater length: 24
24620 309841 TTACAATTCTCTTTTGAGTTATGC CCGCCCATGAAGCCCACGCCGGCCATCGGCGCCAGGCTGGGCGGGAA
spacer length: 47 repeater length: 24
24621 309913 TTACAATTCTCTTTTGAGTTATGC CTCGCGGTAGGCTCGTATGCCCCAGCGGGCGATGAAGTAGCCGA spacer
length: 44 repeater length: 24

24622 309982 TTACAATTCTCTTTTGAGTTATGC ACATGAGAGTACTGCCAAGCTTGTGAGCGAGTTGTTAGGAATCG spacer
 length: 44 repeater length: 24
 24623 310051 TTACAATTCTCTTTTGAGTTATGC AACCGAAATGCTTACAGTTGCATGGATAGTCCCGGCATCCGTTAT spacer
 length: 45 repeater length: 24
 24624 310121 TTACAATTCTCTTTTGAGTTATGC TTGTGGCCCCCTTTCAGCATCCATACCAGCAGCTCCTCAA spacer
 length: 40 repeater length: 24
 24625 310186 TTACAATTCTCTTTTGAGTTATGC ATATCCCTTTGGAGGATTAACCTCCGGCAGAAATAGGATAGGAAAAA
 spacer length: 46 repeater length: 24
 24626 310257 TTACAATTCTCTTTTGAGTTATGC GGCTCCGGGATGTCTGGGCTAAGGCTGCTGAGCGGTTGG spacer
 length: 39 repeater length: 24
 24627 310321 TTACAATTCTCTTTTGAGTTATGC ATGCTGAATTCGGATAGATTACAGCACTCATGACTTGTGCAGAATCT
 spacer length: 46 repeater length: 24
 24628 310392 TTACAATTCTCTTTTGAGTTATGC ATAGTCGGGGCAGCTAACCAAACCATTTCTACCTCACTTTAAA spacer
 length: 43 repeater length: 24
 24629 310460 TTACAATTCTCTTTTGAGTTATGC AGGTGTATGTCCCCGGTGGCACTAGCACATCGACCGGTAACACA spacer
 length: 44 repeater length: 24
 24630 310529 TTACAATTCTCTTTTGAGTTATGC CGCATCGGTCTCCGCCGAATAGCGGCGGACGCGGTAATGCTAT spacer
 length: 44 repeater length: 24
 24631 310598 TTACAATTCTCTTTTGAGTTATGC CGGTATCATGTGTCTCATCGAACCATACACGTACGGTGCCAC spacer
 length: 42 repeater length: 24
 24632 310665 TTACAATTCTCTTTTGAGTTATGC AAGAACCCCAACCTGCTGGCCTTCATCCCAGCGCTGCCCCGA spacer
 length: 43 repeater length: 24
 24633 310733 TTACAATTCTCTTTTGAGTTATGC GGGCCTTCACCCAGGGGGTTCCCCGGCCCCGGCTACTCCC spacer
 length: 39 repeater length: 24
 24634 310797 TTACAATTCTCTTTTGAGTTATGC GCAGAGTCACTCATTGAGAGCGCTACTGCTGGCGAGGAGA spacer
 length: 40 repeater length: 24
 24635 310862 TTACAATTCTCTTTTGAGTTATGC CGGTGGATGCTAGCCCGCTGGTCTGCTATCTCTCGGATGAAGAT spacer
 length: 44 repeater length: 24
 24636 310931 TTACAATTCTCTTTTGAGTTATGC CATGGCTCCCACTCCCGCTGCGCCGTCTGAGCGTGTTTA spacer
 length: 39 repeater length: 24
 24637 310995 TTACAATTCTCTTTTGAGTTATGC ACACCGATTAGATGCTTGCAGAAGAAGCACTTAGCCAG spacer
 length: 38 repeater length: 24
 24638 311058 TTACAATTCTCTTTTGAGTTATGC CTTTATGCTGTCGAGCTCTATCGCCTCATCCGCTACCGTGTTGCTG
 spacer length: 46 repeater length: 24
 24639 311129 TTACAATTCTCTTTTGAGTTATGC AGGAATGCAGCCATGAGCACTCGGCCCGGGGACCTTGCACTCC spacer
 length: 44 repeater length: 24
 24640 311198 TTACAATTCTCTTTTGAGTTATGC CAAAACCACCACCTCCATAAACCTTGCATACGCTCTGGCGAGACGA
 spacer length: 46 repeater length: 24
 24641 311269 TTACAATTCTCTTTTGAGTTATGC TTCTCTCGGTAGAGTCACCTGGTCTACTTCTGCTTCTAGGGTCCT spacer
 length: 45 repeater length: 24
 24642 311339 TTACAATTCTCTTTTGAGTTATGC ATTAGGTAGCCCGGAGCCGGGAGAAACCAATGGCTGCTGTAGAAT
 24643
 24644
 24645 crispr 3
 24646 1335355 CTTTCAGTTCTATTTGTTATGATTC CTAGTAACTGAAGTCGGGTACGAGGAGGCACAAATGATACGTG spacer
 length: 43 repeater length: 25
 24647 1335424 CTTTCAGTTCTATTTGTTATGATTC ATGGTGATGTTGAGGAAGCTAAGGCACTCCTAGAAGCCATAG spacer
 length: 42 repeater length: 25
 24648 1335492 CTTTCAGTTCTATTTGTTATGATTC CTTGCGGAGTTGGCGCTCCTCACGCCCGAGGAGCCCCCTATTCA
 spacer length: 44 repeater length: 25
 24649 1335562 CTTTCAGTTCTATTTGTTATGATTC AGAATATGTAAGTACACCATTTGTCAGGACTACAGAGTCA spacer
 length: 40 repeater length: 25
 24650 1335628 CTTTCAGTTCTATTTGTTATGATTC
 TTGAAGGCAGCTAGTGATTGGTGGCTATCCAACGTATTAACGAAAACGTTG spacer length: 51 repeater
 length: 25
 24651 1335705 CTTTCAGTTCTATTTGTTATGATTC CACCGGCGGCTAAGAGGGAGCAGCCCAAGGAAGAGGCTAAAG spacer
 length: 42 repeater length: 25
 24652 1335773 CTTTCAGTTCTATTTGTTATGATTC GTGGAATGTATGGTTCCTGTTGGGTCTAGTGGTGTAGGATT
 24653
 24654
 24655 crispr 4
 24656 286178 GCATAACTCAAAAAGAGAATTGTAAG TCTCTGCTACATGAAGCTCTACAAGGTAGTCAAGGTGCTCGACGACGC
 spacer length: 48 repeater length: 25
 24657 286252 GCATAACTCAAAAAGAGAATTGTAAG GCGTCGGATGGTATGTCGAGGACGGCAGGGCCTATGGCCACG spacer
 length: 42 repeater length: 25
 24658 286320 GCATAACTCAAAAAGAGAATTGTAAG GTGCTACTCCGGGCCACCCGAGCTCCTAGGGAAGAGCGTG spacer
 length: 41 repeater length: 25
 24659 286387 GCATAACTCAAAAAGAGAATTGTAAG CATACCGGGCAAGTGGAAGGGCTACCTTCGCCCTCATGGCCGC spacer
 length: 43 repeater length: 25
 24660 286456 GCATAACTCAAAAAGAGAATTGTAAG TGTATGACTCTTCGCCCAGTCGAGCGCCCCCACCTCCTCGA spacer
 length: 41 repeater length: 25

24661	286523	GCATAACTCAAAAAGAGAATTGTAAG	AGACCATGCCTGGACTGGGACGGCCGGCCTGCCAAGCCGGCG	spacer
		length: 42	repeater length: 25	
24662	286591	GCATAACTCAAAAAGAGAATTGTAAG	ACCAGGGCCGCGGGTTTGTTCAGCGGTATGGATACCCACG	spacer
		length: 39	repeater length: 25	
24663	286656	GCATAACTCAAAAAGAGAATTGTAAG	TTCTCGAAGTGCCACTCTATCAGCGCATCCCTTACACGCTGTA	spacer
		length: 43	repeater length: 25	
24664	286725	GCATAACTCAAAAAGAGAATTGTAAG	AAAGTATAGAAGCGTACCCCCGCTGCGCCCCCGCCTGGGCATA	spacer
		length: 43	repeater length: 25	
24665	286794	GCATAACTCAAAAAGAGAATTGTAAG	ATAGCCACGGCGGGCTCGGGCTCGACGTACCATCTCACCTTAT	spacer
		length: 44	repeater length: 25	
24666	286864	GCATAACTCAAAAAGAGAATTGTAAG	CAAAGAAGCTAGCGGAGATAGAGGAGCTTCTGGAGCGCT	spacer
		length: 39	repeater length: 25	
24667	286929	GCATAACTCAAAAAGAGAATTGTAAG	TCCCGGTACTCCACACGTACTATGTAGCGCATTAGTCCTCC	spacer
		length: 41	repeater length: 25	
24668	286996	GCATAACTCAAAAAGAGAATTGTAAG	CATGTGCGTGCGCCTTGGACCGGGCCCTCGGCGGGCC	spacer
		length: 37	repeater length: 25	
24669	287059	GCATAACTCAAAAAGAGAATTGTAAG	CAC TTGTAGCCGAGCAACAAGGATCACTAGATTTATATACG	spacer
		length: 41	repeater length: 25	
24670	287126	GCATAACTCAAAAAGAGAATTGTAAG	CTACTGCGGAGGAAGGAGAATCAAAGAGATACTCGAGGAATA	spacer
		length: 42	repeater length: 25	
24671	287194	GCATAACTCAAAAAGAGAATTGTAAG	CTCACGGCGAAGCGGCCACTCAAACGCCGAAGATACCTA	spacer
		length: 40	repeater length: 25	
24672	287260	GCATAACTCAAAAAGAGAATTGTAAG	TGGCATCCACGGCAAGCCACCGCCCGGTGATGGGAAGG	spacer
		length: 38	repeater length: 25	
24673	287324	GCATAACTCAAAAAGAGAATTGTAAG	ATAGTTACTGTGACGGGTATACTTACTGTATCTATCTGCT	spacer
		length: 40	repeater length: 25	
24674	287390	GCATAACTCAAAAAGAGAATTGTAAG	TAGCGAGTAGGATGAGGATAAGAGAGTTCAAGATCATGC	spacer
		length: 39	repeater length: 25	
24675	287455	GCATAACTCAAAAAGAGAATTGTAAG	CGGTAGCATTGCCCCGTGTCTCTCTCCACTCTCTATATACT	spacer
		length: 42	repeater length: 25	
24676	287523	GCATAACTCAAAAAGAGAATTGTAAG	CTTCAATACATTACACTCAGCCTTGTCTCCAGTGTGTTTTAG	spacer
		length: 42	repeater length: 25	
24677	287591	GCATAACTCAAAAAGAGAATTGTAAG	GGCGTCGAGCCCTCACGAATGCAACAACCTCTCTCGCG	spacer
		length: 37	repeater length: 25	
24678	287654	GCATAACTCAAAAAGAGAATTGTAAG	GTTTTCCGGGCTGATGTATGGCTAGTTTTATCCTGCCT	spacer
		length: 38	repeater length: 25	
24679	287718	GCATAACTCAAAAAGAGAATTGTAAG	AGACTATATCGTACGCGTTGTGGCCGTCCTGTTCCCG	spacer
		length: 37	repeater length: 25	
24680	287781	GCATAACTCAAAAAGAGAATTGTAAG	CTCATACTCGCTCCTTATCTCCACGCTCATGTCTCTCCCCG	spacer
		length: 42	repeater length: 25	
24681	287849	GCATAACTCAAAAAGAGAATTGTAAG	TTGAAGGAGTTAATGGCTGATATATGGGCGTTCTTCGGTAAGT	spacer
		length: 43	repeater length: 25	
24682	287918	GCATAACTCAAAAAGAGAATTGTAAG	GCAGGTGCTGGGATATCGTGGTGAACGGGCCGAGTGCGTCTA	spacer
		length: 43	repeater length: 25	
24683	287987	GCATAACTCAAAAAGAGAATTGTAAG	AGCTGTTGATAGAGCTGCGGATATATTAAACAGTTTGAATA	spacer
		length: 41	repeater length: 25	
24684	288054	GCATAACTCAAAAAGAGAATTGTAAG	TCATTAGCTCGCCGCGGCACTTATGCCAGCATACGTGGCCC	spacer
		length: 41	repeater length: 25	
24685	288121	GCATAACTCAAAAAGAGAATTGTAAG	TACTCCCCAGGGAGGTTCTCGACGCGGAGCTCAAGGTC	spacer
		length: 38	repeater length: 25	
24686	288185	GCATAACTCAAAAAGAGAATTGTAAG	AGTCAGTCTTAATCATACCAAATGAGGGCACTGTCAGC	spacer
		length: 38	repeater length: 25	
24687	288249	GCATAACTCAAAAAGAGAATTGTAAG	GTCGTTTGGCATGATTAAGACTGACTGGGTGGAGGTGAGGCT	spacer
		length: 42	repeater length: 25	
24688	288317	GCATAACTCAAAAAGAGAATTGTAAG	GGAAGGGGCCGGCTATCTGCTTGGTCTCCTTCACTACGTCGTCG	spacer
		length: 44	repeater length: 25	
24689	288387	GCATAACTCAAAAAGAGAATTGTAAG	ACTCCTCGTGACCATGAACGCGAAGACATCGGCCATGAGGG	spacer
		length: 41	repeater length: 25	
24690	288454	GCATAACTCAAAAAGAGAATTGTAAG	CGCTTATCCAGCGCCGGCAGCATGACCTCGGCCCTTCCGTAG	spacer
		length: 42	repeater length: 25	
24691	288522	GCATAACTCAAAAAGAGAATTGTAAG	CGAGGTATGCGAGGATGCGGATCTTGGTCGGGAGTAGGCGT	spacer
		length: 41	repeater length: 25	
24692	288589	GCATAACTCAAAAAGAGAATTGTAAG	GGATCTGCATCGCGAGGGCAGTATAAGGCTTCTAGGAGTAG	spacer
		length: 41	repeater length: 25	
24693	288656	GCATAACTCAAAAAGAGAATTGTAAG	TGAAGCTTATGGTGCCGCTAGTGTCTATCGTGAAGTCC	spacer
		length: 38	repeater length: 25	
24694	288720	GCATAACTCAAAAAGAGAATTGTAAG	AAGGCCAGTGCGGCGTGGCGCGGTGTGAGGCTGGGCAGCGG	spacer
		length: 41	repeater length: 25	
24695	288787	GCATAACTCAAAAAGAGAATTGTAAG	AAGGAGTGTCCCCGAAAGTGAGCAAGTGCCTAAAGTCCTAGC	spacer
		length: 43	repeater length: 25	
24696	288856	GCATAACTCAAAAAGAGAATTGTAAG	TGGCATCTCCAAGGCTGGACTTATCGCGCAGTCTTCAAGCCT	spacer

length: 42 repeater length: 25
24697 288924 GCATAACTCAAAAAGAGAATTGTAAG ATTCTAAATTTTTATGTGGGTTATGCTGGCCCAGCGCCAG spacer
length: 40 repeater length: 25
24698 288990 GCATAACTCAAAAAGAGAATTGTAAG ACGCACC GCCTTATCGTGA ACTCTAGATCCTCCACA spacer length:
36 repeater length: 25
24699 289052 GCATAACTCAAAAAGAGAATTGTAAG TGTGCGGCTGTTGCGGCAGCGATAGTCTTTGTAGCGTACCA spacer
length: 42 repeater length: 25
24700 289120 GCATAACTCAAAAAGAGAATTGTAAG CTATGTGGTTGACTGCTATCCTGATGAAGTGTAGT spacer length:
35 repeater length: 25
24701 289181 GCATAACTCAAAAAGAGAATTGTAAG TAGAGGGGTGACAGCGTCCGTGACTGAGTATGTCTGTATA spacer
length: 40 repeater length: 25
24702 289247 GCATAACTCAAAAAGAGAATTGTAAG ATTTTAGTTTATGCGTTCAGTGGCAAGAGGGAGTAAGCTAATA spacer
length: 43 repeater length: 25
24703 289316 GCATAACTCAAAAAGAGAATTGTAAG CTCTTCGGCAGTATTCTGCGCTCGAGCAGCCCCGCCTCTGCCA spacer
length: 43 repeater length: 25
24704 289385 GCATAACTCAAAAAGAGAATTGTAAG GATGGGACATGGTACACGCTGGCAAGCGAGGAAGTGCAGGTAG spacer
length: 43 repeater length: 25
24705 289454 GCATAACTCAAAAAGAGAATTGTAAG TTGCTGAGGGTTATCGGAATCTGCGTCGTGCCGCTGATGCTCGT spacer
length: 44 repeater length: 25
24706 289524 GCATAACTCAAAAAGAGAATTGTAAG ACCGCCAGGATGGCCACGTCCACGACCAGGCTGCTGGCCGCTCCC
spacer length: 45 repeater length: 25
24707 289595 GCATAACTCAAAAAGAGAATTGTAAG GTACCGCTCTTGCTGCCCTGTATGGTGTAGCCCAGTGGC spacer
length: 39 repeater length: 25
24708 289660 GCATAACTCAAAAAGAGAATTGTAAG GTGTGGAATGTATGGTTCCCTGTTGGGTCTAGTGGTGTA
24709
24710
24711 GCA_001433455.1_ASM143345v1_genomic.fna (findCrispr):
24712 START REPEAT
SPACER
24713 crispr 1
24714 624042 AATTCTCTT GGAGTCTTATTGGA ACTTGAACAATAGCTCATTGTCTTTTTCAATATCTTCAATGATTT spacer
length: 59 repeater length: 9
24715 624111 AATTCTCTT GGAGTCTTATTGGA ACTTTCTAAAGATTGATCACATACCAGACCAAACAGTAAGCTTT spacer
length: 58 repeater length: 9
24716 624179 AATTCTCTT GGAGTCTTATTGGA ATCGCACAGCGCATATGTAATTACTCGATTACACACTTT spacer
length: 54 repeater length: 9
24717 624243 AATTCTCTT GGAGTCTTATTGGA AGCTTCCGTTTTGTT CAGCGCTAATGTGCCTTCATGTGCTTT spacer
length: 57 repeater length: 9
24718 624310 AATTCTCTT GGAGTCTTATTGGA ACAGCCCGCCAAGAGGAGAAAGATTAGGAAGAGGGAAGCTTT spacer
length: 57 repeater length: 9
24719 624377 AATTCTCTT GGAGTCTTATTGGA AAGGACAAAGCCGTAAACGTCTATGACATGCTCCAAGGCTTT spacer
length: 56 repeater length: 9
24720 624443 AATTCTCTT GGAGTCTTATTGGA AGCTGCTGAGGGACTGCAGGTATCAAAAAGCACTCATGTGCTTT spacer
length: 58 repeater length: 9
24721 624511 AATTCTCTT GGAGTCTTATTGGA AAATGCAATTCAGAACCCAGCAAATTCGACATATATGTGCTTT spacer
length: 57 repeater length: 9
24722 624578 AATTCTCTT AGAGAATTGAAAGCTTCTTATCACCGTTGTAGTGCTCCAAAATCTCTTCCCAGTTCC
24723
24724
24725 crispr 2
24726 2052078 CAGAA GCTCATAGTTGAATGGAACTAGTACATAGTTGAGGAACAGAATAGCGGAATAGTAATCATGGTT
spacer length: 65 repeater length: 5
24727 2052149 CAGAA GCTCATAGTTGAATGGAAACAGCAGCAATGCACTCTGGCATATCATTCGAAGATGCCCTGTT spacer
length: 62 repeater length: 5
24728 2052217 CAGAA GCTCATAGTTGAATGGAACTCCTAAATGTTTTAAACATTTATTAGCCGTGTCTTCTCTGTT spacer
length: 63 repeater length: 5
24729 2052286 CAGAA GCTCATAGTTGAATGGAACTAGTGCTGCTGTTATTCCGTGGCCTGTTCCAACATCCCAAACAGTT
spacer length: 66 repeater length: 5
24730 2052358 CAGAA CATAGTTGAATGGAACTACTGTAACTGTTTTTAGTGTTATAAAAAGTTCTTTTCCGTTTCAGAA
24731
24732
24733 crispr 3
24734 1301659 TTCCAATAAGACTCTAAGAGAATTG AAATAACAATTCAAACAGCAAAGAACGCTACGCAGGTGGTGA spacer
length: 42 repeater length: 25
24735 1301727 TTCCAATAAGACTCTAAGAGAATTG AAATTATAAATAAGTGAGGGTCCAGGCTTAGCAATCACATGAAAA
spacer length: 45 repeater length: 25
24736 1301798 TTCCAATAAGACTCTAAGAGAATTG AAATGTGAACGTTGTATCATCAATTGAGAAGCCTGAGCC spacer
length: 39 repeater length: 25
24737 1301863 TTCCAATAAGACTCTAAGAGAATTG AAATAGGGTATTGTGCGGAAGATGGGGCGATGTTTCAGCC spacer
length: 40 repeater length: 25
24738 1301929 TTCCAATAAGACTCTAAGAGAATTG AAATATTGGGTTGAATGAACCAGTTCTGTTTCGTTGGGACGTGG spacer

length: 43 repeater length: 25
24739 1301998 TTCCAATAAGACTCTAAGAGAATTG AAATAGCTCAAGAGGGGGTGTATCTGATGGGATTAACAAA spacer
length: 41 repeater length: 25
24740 1302065 TTCCAATAAGACTCTAAGAGAATTG AAATCAAGTTTTGTAGCTCCTGCTCCTGCTTAATGCCTAACTT spacer
length: 43 repeater length: 25
24741 1302134 TTCCAATAAGACTCTAAGAGAATTG AAATTAATACATCTTTATTGTAGTTTGTGAACTTCCAGGAA spacer
length: 41 repeater length: 25
24742 1302201 TTCCAATAAGACTCTAAGAGAATTG AAATCTGGCTCCTTGTTCGAATAGAGCCAAGCCGCTCCTGCAA spacer
length: 43 repeater length: 25
24743 1302270 TTCCAATAAGACTCTAAGAGAATTG AAATGAGTTTTGCATTACACTCACTTCTACAGCGAGGAGT spacer
length: 41 repeater length: 25
24744 1302337 TTCCAATAAGACTCTAAGAGAATTG AAATGTGCTGTGTTGGTAAATCCAAGCTTTACTTCGCCCT spacer
length: 40 repeater length: 25
24745 1302403 TTCCAATAAGACTCTAAGAGAATTG AAATCAAAGACCTCCTCGGGTGTGCGAGTATCCCCGTTTAT spacer
length: 41 repeater length: 25
24746 1302470 TTCCAATAAGACTCTAAGAGAATTG AAATAGGCTTATGAGGTTCTACAAGGAATTAAGGGAGATTGA spacer
length: 42 repeater length: 25
24747 1302538 TTCCAATAAGACTCTAAGAGAATTG AAATCGAGGATCACTATCTAAAAGCTCGGTGCTCAGATTG spacer
length: 40 repeater length: 25
24748 1302604 TTCCAATAAGACTCTAAGAGAATTG AAATGAGATTAAGGAGATTTTGGAAAGAACACAAGACTGGGATCCAGA
spacer length: 48 repeater length: 25
24749 1302678 TTCCAATAAGACTCTAAGAGAATTG AAATATTTCAAAGCTCTTTGCTTCCATTCTTCTTTCCCTC spacer
length: 42 repeater length: 25
24750 1302746 TTCCAATAAGACTCTAAGAGAATTG
AAATGTCGTGTTTGTCTCACGAAAAAGAACCGCAGCCTCGTAGTAGGAGG spacer length: 51 repeater
length: 25
24751 1302823 TTCCAATAAGACTCTAAGAGAATTG AAATAAGAAAAGCCCCAAAGAATTATTGCCCGTAGAACCAGAG spacer
length: 42 repeater length: 25
24752 1302891 TTCCAATAAGACTCTAAGAGAATTG AAATGAGGAAGAAGAGAAAAGTAAAGAAGAAAAACCGCCAGAGACAG
spacer length: 47 repeater length: 25
24753 1302964 TTCCAATAAGACTCTAAGAGAATTG AAATAGCTTGCGGGCTTTTCTTGCAACATCAACAATACGCTT spacer
length: 42 repeater length: 25
24754 1303032 TTCCAATAAGACTCTAAGAGAATTG AAATATGAAAATTGCTTTGTAAATCAGCCGTTGGAGGGAATA spacer
length: 42 repeater length: 25
24755 1303100 TTCCAATAAGACTCTAAGAGAATTG AAATCGATTACTATCACGAGCTGATGATGCAATACGAAGAC spacer
length: 41 repeater length: 25
24756 1303167 TTCCAATAAGACTCTAAGAGAATTG AAATTTTCAGTCATTATGAGGACTTCCTTGAGTGGGCGCTCG spacer
length: 42 repeater length: 25
24757 1303235 TTCCAATAAGACTCTAAGAGAATTG AAATAGAGTCTCAAAGAACATCTCAAATGCTGAATTATATGA spacer
length: 42 repeater length: 25
24758 1303303 TTCCAATAAGACTCTAAGAGAATTG CTTCTTATCACCGTTGTAGTGCTCCAAAATCTCTTCCCAGTT
24759
24760
24761 crispr 4
24762 1751606 CTTTCAATTCTCTTAGAGTCTTATTGGAAC AATTACGAACGGAGTTCTTTATGTTGGTGGTGTTC spacer
length: 37 repeater length: 30
24763 1751674 CTTTCAATTCTCTTAGAGTCTTATTGGAAC ATGACGGCGGGCGGCATTTTCACCCACCTATGTTAA spacer
length: 36 repeater length: 30
24764 1751741 CTTTCAATTCTCTTAGAGTCTTATTGGAAC CCAGTACAGCGTGGGACAGCTTCGGGTAATCCACTT spacer
length: 36 repeater length: 30
24765 1751808 CTTTCAATTCTCTTAGAGTCTTATTGGAAC TTGAAAATAGAGTAAAGGAAATATTAGACGAACTGAAAAAGA
spacer length: 42 repeater length: 30
24766 1751881 CTTTCAATTCTCTTAGAGTCTTATTGGAAC AAAAGTAACTGAGGATGAAGCATTGCGTTGTCTTC spacer
length: 35 repeater length: 30
24767 1751947 CTTTCAATTCTCTTAGAGTCTTATTGGAAC TCTTATTGGTGTGACAGTCAAATGGCTTGTTCTCGAA spacer
length: 37 repeater length: 30
24768 1752015 CTTTCAATTCTCTTAGAGTCTTATTGGAAC TTGGTGCTGACATATTAGCATTAACGCAAAAGTAGC spacer
length: 37 repeater length: 30
24769 1752083 CTTTCAATTCTCTTAGAGTCTTATTGGAAC GCCAAAGCCCGCAGAAGTGAAGAAGAAGAGAAAGAAG spacer
length: 37 repeater length: 30
24770 1752151 CTTTCAATTCTCTTAGAGTCTTATTGGAAC GGGATTTTGCCTTATTTCCCCCAGTAAAAGTATAAGA
24771
24772
24773 crispr 5
24774 682580 TCTTTCAATTCTCTTGGAGTCTTATTGGAA GCTTATCTTGCTGTGAAAAGTGAAGTTGTGAACA spacer
length: 34 repeater length: 30
24775 682645 TCTTTCAATTCTCTTGGAGTCTTATTGGAA
AATCAGCTCGCTCTTTCTGACTTTCTGAGCGATTAACTTTCAATTCTCTTGGAGTCTTATTGGAAATTAAGCTTGACGTTGAGGC
GCTTCCGCCGAAAGA spacer length: 101 repeater length: 30
24776 682777 TCTTTCAATTCTCTTGGAGTCTTATTGGAA ATTCCTTTTTTAATTTTGAATTTTACGTATATG spacer
length: 35 repeater length: 30

24777 682843 TCTTTCAATTCTCTTGGAGTCTTATTGGAA AGCAAGAATAAACAGTGCTATCGACGGCGCAGCTT
24778
24779
24780 crispr 6
24781 624371 GCTTTCAATTCTCTTGGAGTCTTATTGGAAA
GGACAAAGCCGTAAACGTCTATGACATGCTCCAAGGCTTTCAATTCTCTTGGAGTCTTATTGGAAGCTGCTGAGGGACTGCAGGTA
TCAAAAAGCACTCATG spacer length: 102 repeater length: 31
24782 624505 GCTTTCAATTCTCTTGGAGTCTTATTGGAAA
ATGCAATTTCAGAAGCCAGCAAAATTCGACATATATGTGCTTTCAATTCTCTTGGAGTCTTATTGGAAGAATCCAGCAAGAATAAACA
GTGCTATCGACGGCGC spacer length: 102 repeater length: 31
24783 624639 GCTTTCAATTCTCTTGGAGTCTTATTGGAAA
AACTGTTTTTAGTGTTATAAAAAGTTCTTTTCCGTTTCAGAAGCTCATAGTTGAATGGAAACAAAATTTCTAGGATCTCTGGATCT
TGTTCTCTTCATTAG
24784
24785
24786 GCA_001458655.1_Mb9_genomic.fna(findCrispr):
24787 START REPEAT
SPACER
24788 crispr 1
24789 45515 TGTT
GGTGAATGTACAGTTCGTCACAGTTAAACCTGCCCCATGATTATTTTCGATGGCACCACCATAACGAGTTGCGGTG spacer
length: 76 repeater length: 4
24790 45596 TGTT
GGTGAATGTACAGTTCGTCACAGTTAAATCTGCACCATTATCATTGTGGATGGCACCACCCTGTCCGCGGTATTGTTGGTGAATG
TACTGTTAATCACAGTTAAACCCGCACTGTTATAATTGTAGATGGTACCAAACCTGCGGTG spacer length: 148
repeater length: 4
24791 45749 TGTT
GGTGAATGTACAGTTCGTCACAGTTAAACTTTTTCCAAGATCATTGTAGATCGCACTACCCCGAGTTGCGGTGTTGTTGGTGAATG
TACTGTTTGTACAGTTAAACTTGCACCTCTTATTGTAGATGGCACCACCACCATGAATCGAGGTG spacer length: 151
repeater length: 4
24792 45905 TGTT
CCAAAATGGTCTGATTTTTAGTAGGGCCGAAATTTGCCCTATTTTGCCTAATATTTACTATTATTTCTCCAATAATATACATAAATT
TGTCGTTCCCCGGTTAGCCAATTCTTTTATATGGGACAACGAGTTAAGATTTGAGTTTTTTCAT
24793
24794
24795 crispr 2
24796 45512 TGTT
GTTGGTGAATGTACAGTTCGTCACAGTTAAACCTGCCCCATGATTATTTTCGATGGCACCACCATAACGAGTTGCG spacer
length: 76 repeater length: 4
24797 45593 TGTT
GTTGGTGAATGTACAGTTCGTCACAGTTAAATCTGCACCATTATCATTGTGGATGGCACCACCCTGTCCGCGGTATTGTTGGTGA
ATGTACTGTTAATCACAGTTAAACCCGCACTGTTATAATTGTAGATGGTACCAAACCTGCG spacer length: 148
repeater length: 4
24798 45746 TGTT
GTTGGTGAATGTACAGTTCGTCACAGTTAAACTTTTTCCAAGATCATTGTAGATCGCACTACCCCGAGTTGCGGTGTTGTTGGTGA
ATGTACTGTTTGTACAGTTAAACTTGCACCTCTTATTGTAGATGGCACCACCACCATGAATCGAG spacer length: 151
repeater length: 4
24799 45902 TGTT
CTAAAATAGTCTGATTTTTAGCCAGGCACGAAATTTTCGTCTATTTGGCCTAATTCATCCTATTCTTTACTCTTTTCATGGTACTTAA
TTGTCGGTGTTTAAATTAGGGGTTTCTTTTATATGGTAAGACGACATTCTCTAATGAATTTTTATA
24800
24801
24802 crispr 3
24803 1778855 ACGAACACAACCAACAAAAAA CAGAAAAATTCATAAAAAAA spacer length: 20 repeater
length: 21
24804 1778897 ACGAACACAACCAACAAAAAA CAGAAAAATTCATAAAAAAA spacer length: 20 repeater
length: 21
24805 1778939 ACGAACACAACCAACAAAAAA CAGAAAAATTCATAGAAAAA spacer length: 20 repeater
length: 21
24806 1778981 ACGAACACAACCAACAAAAAA TGATTTTAGCCCTGAGAAGG
24807
24808
24809 crispr 4
24810 50505 TATTGTAGATGGCCCCACCAT CACCAGAAGCGGTGTTATTTTTTAGTGTACTGTTTGTACAGTTAACTTCCA
spacer length: 53 repeater length: 21
24811 50580 TATTGTAGATGGCCCCACCAT CACCATAGGCGTAGTTATTTGTGAATGTACTGTTTGTACAGTTAACTTCCA
spacer length: 53 repeater length: 21
24812 50655 TATTGTAGATGGCCCCACCAT TAAATGCATTTGTGGATTCTTATACTACTATAGGAGAAAATTTAAAAATAGCT
24813
24814
24815 crispr 5

24816 142938 TTTCCCTTTTATTTGTTCTTC
 AATTTTCTTTCAATTGCGCCTCAGTCTTTCCCTTATTTGTTCTTCAATTTTTTATCGATTTTCAGCCTGAA spacer
 length: 74 repeater length: 21
 24817 143034 TTTCCCTTTTATTTGTTCTTC GACTTCTTTTTTCGATTTTCAGCCTGAA spacer length: 26 repeater
 length: 21
 24818 143082 TTTCCCTTTTATTTGTTCTTC TGATTTTAGCCATCCATCCATTCGTT
 24819
 24820
 24821 crispr 6
 24822 45591 GGTGTTGTTGGTGAATGTACAGTTC
 GTCACAGTTAAATCTGCACCATTATCATTGTGGATGGCACCACCAGTGTCCGCGGTATTGTTGGTGAATGTACTGTTAATCACAGT
 TAAACCCGCACTGTTATAATTGTAGATGGTACCAAACCTG spacer length: 127 repeater length: 25
 24823 45744 GGTGTTGTTGGTGAATGTACAGTTC
 GTCACAGTTAAACTTTTTCCAAGATCATTGTAGATCGCACTACCCCGAGTTGCGGTGTTGTTGGTGAATGTACTGTTTGTACAGT
 TAAACTTGCACTCTTATTGTAGATGGCACCACCACCATGAATCG spacer length: 130 repeater length: 25
 24824 45900 GGTGTTGTTGGTGAATGTACAGTTC
 TTTACTGTAAAAATCCACTTTTAAACTCATTGTAGATGGCACCACCACCATAACGAGCATAAGCTCCATCATAAGTTG
 spacer length: 79 repeater length: 25
 24825 46005 GGTGTTGTTGGTGAATGTACAGTTC
 GGGCCGAAATTTGCCCTATTTTGCCTAATATTTACTATTATTTCTCCAATAATATACATAAATTTGTCGTTCCCCGGTT
 24826
 24827
 24828 crispr 7
 24829 465075 TTTCAATCCTAAAAATAGTCTGATTTTAGC AGGCCTTAGAGTCCGCTCAGAAAATCAGCAAAACAG spacer
 length: 36 repeater length: 29
 24830 465141 TTTCAATCCTAAAAATAGTCTGATTTTAGC TTGTATAAATCATCAGCTGTTACATACTGATGTGA spacer
 length: 35 repeater length: 29
 24831 465206 TTTCAATCCTAAAAATAGTCTGATTTTAGC CCCATATTAAATAGGGCCTGTGTCATGTTTCA spacer
 length: 36 repeater length: 29
 24832 465272 TTTCAATCCTAAAAATAGTCTGATTTTAGC AGTTATTATTTACAGTCTGCTGATCCAACCTCCTTGA spacer
 length: 38 repeater length: 29
 24833 465340 TTTCAATCCTAAAAATAGTCTGATTTTAGC GAAAGGTACCTCATGTTTGCAGACACCTCAATCACC spacer
 length: 36 repeater length: 29
 24834 465406 TTTCAATCCTAAAAATAGTCTGATTTTAGC TGGAGATAAAGCGTTACTTAAAGCCGCTAAAATCCA spacer
 length: 36 repeater length: 29
 24835 465472 TTTCAATCCTAAAAATAGTCTGATTTTAGC CATCCATCCATTCGTTGAAGCCTTTCTGTTTATGTAA spacer
 length: 37 repeater length: 29
 24836 465539 TTTCAATCCTAAAAATAGTCTGATTTTAGC CATTCGGATTCAATGCTATTTACCAGGGCGAGCCAC spacer
 length: 36 repeater length: 29
 24837 465605 TTTCAATCCTAAAAATAGTCTGATTTTAGC TTTGTTTTTGCCTGTGTAAGTCAAGTAGATGAGTGC spacer
 length: 36 repeater length: 29
 24838 465671 TTTCAATCCTAAAAATAGTCTGATTTTAGC TTTGCACGTAATAAGATTTAATAGTGTATTTACTCC spacer
 length: 36 repeater length: 29
 24839 465737 TTTCAATCCTAAAAATAGTCTGATTTTAGC TGGTACTATCACCTCTTCAGCTGACCAGGCCAGTGT spacer
 length: 36 repeater length: 29
 24840 465803 TTTCAATCCTAAAAATAGTCTGATTTTAGC GTTAAATGAACCCAACTGTATAGTACTGATTCCTC spacer
 length: 35 repeater length: 29
 24841 465868 TTTCAATCCTAAAAATAGTCTGATTTTAGC GCCCGTAAAGGTATAAGAACTTACAGGGGCTGTAC spacer
 length: 35 repeater length: 29
 24842 465933 TTTCAATCCTAAAAATAGTCTGATTTTAGC TCCCATAATCGGAGGTGTTAATTCCTAATTGTTTAAAGGCT spacer
 length: 40 repeater length: 29
 24843 466003 TTTCAATCCTAAAAATAGTCTGATTTTAGC CGTGTTCCTAACCCCTTCATAAGCAATGATACATTGA spacer
 length: 36 repeater length: 29
 24844 466069 TTTCAATCCTAAAAATAGTCTGATTTTAGC CGAAACTTCGCAACAGAAATACAAAGAATCGAAAAA spacer
 length: 36 repeater length: 29
 24845 466135 TTTCAATCCTAAAAATAGTCTGATTTTAGC CCTGTTGTGTAACACTGCCTTTAACAACAGTTTGC spacer
 length: 37 repeater length: 29
 24846 466202 TTTCAATCCTAAAAATAGTCTGATTTTAGC GAATATAATCTACTTTAGAGTTCAAGTCGTCAAATAA spacer
 length: 37 repeater length: 29
 24847 466269 TTTCAATCCTAAAAATAGTCTGATTTTAGC AAATTAAAAGTAACAGGCGATATACATCCCGAACTC spacer
 length: 36 repeater length: 29
 24848 466335 TTTCAATCCTAAAAATAGTCTGATTTTAGC GAGTTATTGAAATTTGCAGATGAACACTTACATGAC spacer
 length: 36 repeater length: 29
 24849 466401 TTTCAATCCTAAAAATAGTCTGATTTTAGC CTTAGTTGAAGGGCCATTCTGGATTATCCATATCACC spacer
 length: 37 repeater length: 29
 24850 466468 TTTCAATCCTAAAAATAGTCTGATTTTAGC CTTTTTTAGGAGGTAAATATTATGGCATTACCTGAA spacer
 length: 36 repeater length: 29
 24851 466534 TTTCAATCCTAAAAATAGTCTGATTTTAGC TCCCCTTAACTTATCAGCAGACATTCTAAGAAGGT spacer
 length: 35 repeater length: 29
 24852 466599 TTTCAATCCTAAAAATAGTCTGATTTTAGC CTATGCCCTGGCAGAAACAGATCCATATTATTTAGA spacer
 length: 36 repeater length: 29

24853 466665 TTTCAATCCTAAAAATAGTCTGATTTTACG TATAATCAGTATACTCGATATAATTCAACAGATACA spacer
length: 36 repeater length: 29

24854 466731 TTTCAATCCTAAAAATAGTCTGATTTTACG TCCACACCAGAGATAACATGACCCATCATAGTCTTAC spacer
length: 37 repeater length: 29

24855 466798 TTTCAATCCTAAAAATAGTCTGATTTTACG TATCAAATTCAATAGATTTAAACCAATACAAATAAAA spacer
length: 37 repeater length: 29

24856 466865 TTTCAATCCTAAAAATAGTCTGATTTTACG TTTAAAGCCTCCTTAGTTTCCGGGACCTGGGCATATT spacer
length: 37 repeater length: 29

24857 466932 TTTCAATCCTAAAAATAGTCTGATTTTACG CACTGGCCATGTATTTAAACAAAGAAGGTTATCCT spacer
length: 36 repeater length: 29

24858 466998 TTTCAATCCTAAAAATAGTCTGATTTTACG TGTGTAACCTCTGGGCTGTCAAATAAGCGTCTCTTTT spacer
length: 38 repeater length: 29

24859 467066 TTTCAATCCTAAAAATAGTCTGATTTTACG ACTGACCTTCCTGTACATTGTCTGGGTTCTGTCTGGTTC spacer
length: 37 repeater length: 29

24860 467133 TTTCAATCCTAAAAATAGTCTGATTTTACG TTAAGCTCTTGAATTATTAACCTATTAGCCCCCCTTT spacer
length: 38 repeater length: 29

24861 467201 TTTCAATCCTAAAAATAGTCTGATTTTACG TCAGTCATTTCCGTGCCACCTCTTCATGCCACATT spacer
length: 36 repeater length: 29

24862 467267 TTTCAATCCTAAAAATAGTCTGATTTTACG ATTAACCCACGAAACCAAAGAGTGGCCCCAATGGG spacer
length: 35 repeater length: 29

24863 467332 TTTCAATCCTAAAAATAGTCTGATTTTACG CATCCATTATGGTTTGGGGGTTATCATCTGTTTCAA spacer
length: 36 repeater length: 29

24864 467398 TTTCAATCCTAAAAATAGTCTGATTTTACG CACAGAACCCTCCTCCTTTATAATGTCATCTTTGCC spacer
length: 37 repeater length: 29

24865 467465 TTTCAATCCTAAAAATAGTCTGATTTTACG CTTGGACGGAGTTTTATATCCTGAATTAAGAAATGAA spacer
length: 37 repeater length: 29

24866 467532 TTTCAATCCTAAAAATAGTCTGATTTTACG CCCAGATGAACCTTTCTATTTGTACCTAACTAACACC spacer
length: 37 repeater length: 29

24867 467599 TTTCAATCCTAAAAATAGTCTGATTTTACG
CTACTAATGGGGCCTTTGCACATGAGTTTTTCACAGGCATTTTAAATGACCCTTAACAGATTTTACGCTACTAATGGGGCCTTTGCA
CTGGAAACATTCCTTTT spacer length: 103 repeater length: 29

24868 467732 TTTCAATCCTAAAAATAGTCTGATTTTACG CATCAAGAGGGGATGCCTATTGAAATTTCAAAGATTA spacer
length: 37 repeater length: 29

24869 467799 TTTCAATCCTAAAAATAGTCTGATTTTACG CCCAGCCCTCCACGAAACATGGTTTTTCTTTCTCTAT spacer
length: 37 repeater length: 29

24870 467866 TTTCAATCCTAAAAATAGTCTGATTTTACG CACAGATTTCAAGATACCCTTAGCTTCGCTTATCTTC spacer
length: 37 repeater length: 29

24871 467933 TTTCAATCCTAAAAATAGTCTGATTTTACG CCCGCAATCAAATCTATGAATAATTACTTTAATCTGATTGAT
spacer length: 42 repeater length: 29

24872 468005 TTTCAATCCTAAAAATAGTCTGATTTTACG CCTGTAAACTGGTTGCAGGTATTTTGTGTTGATTTTA spacer
length: 37 repeater length: 29

24873 468072 TTTCAATCCTAAAAATAGTCTGATTTTACG CTTTTCTTGCGTACGTAGAAAGCGTTCCTGTAAATTTG spacer
length: 37 repeater length: 29

24874 468139 TTTCAATCCTAAAAATAGTCTGATTTTACG CAAAAATCAACCTTTTTTAATTTTTTAACTAACAAT spacer
length: 37 repeater length: 29

24875 468206 TTTCAATCCTAAAAATAGTCTGATTTTACG CTGATAAAGATGTCTAAACTGTTTTTGACTCGGAAC spacer
length: 37 repeater length: 29

24876 468273 TTTCAATCCTAAAAATAGTCTGATTTTACG CAGGAGTCATGAAGGGCTAGATGAAACGGGTAAGTT spacer
length: 37 repeater length: 29

24877 468340 TTTCAATCCTAAAAATAGTCTGATTTTACG CGTTCACCACCAGATGTAACCATCATATGCCATTTTC spacer
length: 37 repeater length: 29

24878 468407 TTTCAATCCTAAAAATAGTCTGATTTTACG TTTAATGTGGGACTATTATAGTTTTTTTTTTATTTTGT spacer
length: 37 repeater length: 29

24879 468474 TTTCAATCCTAAAAATAGTCTGATTTTACG CAAAAAACATCTTGCATACTAATATCAGAACAGCACT spacer
length: 38 repeater length: 29

24880 468542 TTTCAATCCTAAAAATAGTCTGATTTTACG CAAAAAAAAGTGGGGAACATACCCAATTAAAAATAT spacer
length: 36 repeater length: 29

24881 468608 TTTCAATCCTAAAAATAGTCTGATTTTACG CCATGAACACCTCCCTTTCAATCTCCTTTAATTCTGC spacer
length: 37 repeater length: 29

24882 468675 TTTCAATCCTAAAAATAGTCTGATTTTACG CCTATTGGAACATCCTTGAAAAGGTCATCCAATACCG spacer
length: 37 repeater length: 29

24883 468742 TTTCAATCCTAAAAATAGTCTGATTTTACG CATAATAAAAAAAGAATAAAAGGGTAAAAAATAGT spacer
length: 37 repeater length: 29

24884 468809 TTTCAATCCTAAAAATAGTCTGATTTTACG CGATTTTAAGATTTCTAATTTTGAGAATTTGAATTT spacer
length: 36 repeater length: 29

24885 468875 TTTCAATCCTAAAAATAGTCTGATTTTACG CTTCTTAAAGGAGGTAATCTTCCCAAATTCACCCTTTT spacer
length: 39 repeater length: 29

24886 468944 TTTCAATCCTAAAAATAGTCTGATTTTACG AAATTGGAACCGCGATTACTTCCACTTCAAATCCAA spacer
length: 37 repeater length: 29

24887 469011 TTTCAATCCTAAAAATAGTCTGATTTTACG CGAAATAGAAGAATCACCCGACGATCCCTTTAAA spacer
length: 37 repeater length: 29

24888	469078	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CACCGTTTACCCGCTAAAATGTTAAGGGTGCATTAC	spacer
		length: 37 repeater length: 29		
24889	469145	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTATGGTCACTACAAATAAAATTATAAACATTGTTG	spacer
		length: 37 repeater length: 29		
24890	469212	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGGAACAGCTTCATGGATTATGTTTTCAACATC	spacer
		length: 35 repeater length: 29		
24891	469277	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCTCTGCATTCTTCACCACAGTAGGTAGAACCAGTA	spacer
		length: 37 repeater length: 29		
24892	469344	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAATCAACTCGTTATCTGTTTTAAGGTCAAAACCTA	spacer
		length: 37 repeater length: 29		
24893	469411	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGAACTAATTTGCACCAATCTTAAGTGTGAACATAA	spacer
		length: 37 repeater length: 29		
24894	469478	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATTAAGGGGTCCAAATTCACAAGTTTCACTTACATGA	spacer
		length: 38 repeater length: 29		
24895	469546	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTATTCAAAGAAAAACGCAAATTAAAGAAACAACTCA	spacer
		length: 37 repeater length: 29		
24896	469613	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CAAGAATACCTTTCAATACCTCTTTAGAATTCTTCTC	spacer
		length: 37 repeater length: 29		
24897	469680	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGAACTAATATGCACTAATCATAACTGTGAAGGCAA	spacer
		length: 37 repeater length: 29		
24898	469747	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCTATATCCTGTTTGAGTGTGGCCATGCCTTTTTTA	spacer
		length: 37 repeater length: 29		
24899	469814	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCATCCTTAGTGATTAATCCATCATGTTGGATCTCA	spacer
		length: 37 repeater length: 29		
24900	469881	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGAGAAGGCCAGTGATCCTAATGAGTTCTTGAATA	spacer
		length: 37 repeater length: 29		
24901	469948	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCTCACGAAACTAAAACTGTCGATGGATCCACTAG	spacer
		length: 37 repeater length: 29		
24902	470015	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTAATTTTCTCATAGCATTGTAGAGCTGATCATGAC	spacer
		length: 37 repeater length: 29		
24903	470082	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CACTGCATTAATGCCCAATATAAAGACACCTACCAAT	spacer
		length: 37 repeater length: 29		
24904	470149	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTACTCTAACCGAACAAAGCATTTCAGCCAAAATTA	spacer
		length: 37 repeater length: 29		
24905	470216	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTGTTTAGGGCCTCCTTATCTGATAATTTTTATCA	spacer
		length: 36 repeater length: 29		
24906	470282	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATAGTCCCACATTAAACACCCATGACCTGGGAGAAGT	spacer
		length: 38 repeater length: 29		
24907	470350	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGGTTCGAGTGCATAGCAGTTCGCATGTTGTGTTA	spacer
		length: 37 repeater length: 29		
24908	470417	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCCGCTGCAACTAAAATTAAACCTGTAGTTAGTCC	spacer
		length: 36 repeater length: 29		
24909	470483	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTACAATGTAAGTGATGTTGTAGAAGCAACATCAAA	spacer
		length: 37 repeater length: 29		
24910	470550	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCGAAGGGAGGCGTACCTCTACGACTCTGAAGACAC	spacer
		length: 37 repeater length: 29		
24911	470617	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCCGTTTAAACAAGTCTCTTTTACTGTTTATTCTGC	spacer
		length: 36 repeater length: 29		
24912	470683	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGTCAAAGAAATACGAAACTCACCAGTAGTCCTAAAC	spacer
		length: 37 repeater length: 29		
24913	470750	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGCTCTTCCGGACGTATGTGTCCTCGGAGATTTTC	spacer
		length: 36 repeater length: 29		
24914	470816	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTACTGCCAGAACAGTGTGGCCTTCGGACACACCA	spacer
		length: 36 repeater length: 29		
24915	470882	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGTGATTCTAAGTATTTCTTTTGGTTGCATTACTTC	spacer
		length: 37 repeater length: 29		
24916	470949	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGCTTGTTCAATTTTCCATCATATCCCCCCTTAAGTT	spacer
		length: 37 repeater length: 29		
24917	471016	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGCCCGGTACATGGTAACTTCAATGTTCAACTGTACC	spacer
		length: 37 repeater length: 29		
24918	471083	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCCACAGTCACATTTACGTCAACACATTCATCGTC	spacer
		length: 37 repeater length: 29		
24919	471150	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGACGGTTACAAGTTAGACCGTGATACTTTACAATTCC	spacer
		length: 38 repeater length: 29		
24920	471218	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CAACTTTATAGTTTCCCCATTGAAATTACTTTTAAGA	spacer
		length: 37 repeater length: 29		
24921	471285	TTTCAATCCTAAAAATAGTCTGATTTTAGC	AAGACCATAAATTTACCAGTTTCACATCTGATTAAT	spacer
		length: 36 repeater length: 29		
24922	471351	TTTCAATCCTAAAAATAGTCTGATTTTAGC	GACAAAGCAAAAAAGCCACAAAAGAATGACAACCCC	spacer
		length: 36 repeater length: 29		
24923	471417	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATAAGAAAAAGATATAAAACACTGAGACTAAAAAGG	spacer

	length: 37	repeater length: 29	
24924	471484	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTCTACCTCGACAGCCACCCACCCCTAACCAATTCTG spacer
	length: 37	repeater length: 29	
24925	471551	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAAAACTAGCTGACTAATCACAGATTCTATCATTTCC spacer
	length: 37	repeater length: 29	
24926	471618	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTGTCCCTCACTGCCATCACATAAATTGTCTAGAGGT spacer
	length: 36	repeater length: 29	
24927	471684	TTTCAATCCTAAAAATAGTCTGATTTTACG	CCAGCTTCTAAAAGCATGAATCCTTTATTAGATTACT spacer
	length: 37	repeater length: 29	
24928	471751	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTAAGGTTAGGGTCCTTCCATTCTCCCTGGATGGTA spacer
	length: 37	repeater length: 29	
24929	471818	TTTCAATCCTAAAAATAGTCTGATTTTACG	CATCTCTGTCCGACCAAGACAAACCCCTTCAGCTCCA spacer
	length: 37	repeater length: 29	
24930	471885	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTATTACCCTGGATGAAATTCTTCAGAGCGTGGCTGG spacer
	length: 37	repeater length: 29	
24931	471952	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTCGTATCGATGCTGTTGAAGCAGGTACTGTTGCTGA spacer
	length: 37	repeater length: 29	
24932	472019	TTTCAATCCTAAAAATAGTCTGATTTTACG	CCAAAGTAAGGGAAGCACACCCAAGACTGTGAATGT spacer
	length: 36	repeater length: 29	
24933	472085	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAGACTATGAAACCACACCGGAAGCAATAGCAACAAT spacer
	length: 37	repeater length: 29	
24934	472152	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGAATTGGAAACCTTAGAAGGTTTATTGTCTTTTATG spacer
	length: 37	repeater length: 29	
24935	472219	TTTCAATCCTAAAAATAGTCTGATTTTACG	CCTGGGGGTCTTTTAGTTGTTTTATATATTCTCCGT spacer
	length: 36	repeater length: 29	
24936	472285	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGTATAATGACTTTACATGAGAGAGTTGATGAAATTA spacer
	length: 37	repeater length: 29	
24937	472352	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGAAATATCTCACCATCTACAGTACGTATGTATAAGT spacer
	length: 37	repeater length: 29	
24938	472419	TTTCAATCCTAAAAATAGTCTGATTTTACG	ATATTACTGTAGAATACGATTATACTAAATATACAC spacer
	length: 36	repeater length: 29	
24939	472485	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTCTATATGTTTCGCCGGGTCCGCCCCATGATACTGTA spacer
	length: 37	repeater length: 29	
24940	472552	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAAATATGAATTATCATATTCTTTTAATAATAAATCT spacer
	length: 37	repeater length: 29	
24941	472619	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAGGAAAAAGGATATGATCTAGATTGTAATGAATT spacer
	length: 35	repeater length: 29	
24942	472684	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAATAGAACCTGACTGGGCGTTTATTCGCCTTTCGTAT spacer
	length: 38	repeater length: 29	
24943	472752	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAGTCCGTCAAGCTCATTTTCGTAGCTGAAATTTACTA spacer
	length: 37	repeater length: 29	
24944	472819	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGCTAAGAAAGTATTAGATGCGTTAAATTCAAAGAGG spacer
	length: 38	repeater length: 29	
24945	472887	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTTCAAAGAGAATACCCAGGGATTTCGTATACACCTA spacer
	length: 36	repeater length: 29	
24946	472953	TTTCAATCCTAAAAATAGTCTGATTTTACG	CCTGCCTGTTTACCAGATACTTTAATCTTTTCTTCAA spacer
	length: 37	repeater length: 29	
24947	473020	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTTACATGACCATTTGAATGATTGGCAAGAAGCAC spacer
	length: 35	repeater length: 29	
24948	473085	TTTCAATCCTAAAAATAGTCTGATTTTACG	CAAATATAAACCCAAAAGATGTATCATTTATATCTGC spacer
	length: 37	repeater length: 29	
24949	473152	TTTCAATCCTAAAAATAGTCTGATTTTACG	CCAGTCTGCGCCCTACGGAACATAGCTGCTTCAGTGA spacer
	length: 37	repeater length: 29	
24950	473219	TTTCAATCCTAAAAATAGTCTGATTTTACG	CACCTTCCATGACATAATCCGGAGAATTAAAGACTTC spacer
	length: 37	repeater length: 29	
24951	473286	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGGGATAGACCTGACTACCTCATAGACCCTAATATA spacer
	length: 36	repeater length: 29	
24952	473352	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGTTAATCCATTTATTTCATTTTATCGCCTGCTAATAT spacer
	length: 37	repeater length: 29	
24953	473419	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTAAAACCCTTAAAGATGTGGCCGCATCACCATTTCAG spacer
	length: 37	repeater length: 29	
24954	473486	TTTCAATCCTAAAAATAGTCTGATTTTACG	CCCATAGCGGTCTGCAAAGCGGTCTGCAATTTGTAA spacer
	length: 36	repeater length: 29	
24955	473552	TTTCAATCCTAAAAATAGTCTGATTTTACG	CTTATTTTAAAAAATGGGTTTAGAAAAGAATCTCAT spacer
	length: 37	repeater length: 29	
24956	473619	TTTCAATCCTAAAAATAGTCTGATTTTACG	CATAGATACAACAAATCATTAGAACAGAAAAAATTAT spacer
	length: 37	repeater length: 29	
24957	473686	TTTCAATCCTAAAAATAGTCTGATTTTACG	CATCTTGAGGGTGCAAACCTTAGAGGTGCAATCTTG spacer
	length: 37	repeater length: 29	
24958	473753	TTTCAATCCTAAAAATAGTCTGATTTTACG	CGAGGTATGGTAATATATCTGAAAGCAAATCAAAG spacer
	length: 36	repeater length: 29	

24959	473819	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTCTTTTAGGGATGTGAGCATCTTTGGAGGGTATGG	spacer
		length: 37 repeater length: 29		
24960	473886	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTAAAAGGGCCCGTGAACATGTTAATGCACTGTTGC	spacer
		length: 37 repeater length: 29		
24961	473953	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAAACCTTAAATCTAAAGATGACAATGCACAGTTT	spacer
		length: 36 repeater length: 29		
24962	474019	TTTCAATCCTAAAAATAGTCTGATTTTAGC	AGGGCCCCCTCTCTCCCGGGGAAAGTAATGTCTAAT	spacer
		length: 35 repeater length: 29		
24963	474084	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGAGGAATACTGCGTATTGTTGCCATGACATATGTTT	spacer
		length: 37 repeater length: 29		
24964	474151	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCGGCACTGGTTTTCCAGGATATTCTTCTTATTGAT	spacer
		length: 36 repeater length: 29		
24965	474217	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGTGACTGTCCTTGATATCAACAGATAATTTCTCGA	spacer
		length: 36 repeater length: 29		
24966	474283	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGTCCATCCATTTTTTTCGAATTTATTCAATTCTTCAA	spacer
		length: 37 repeater length: 29		
24967	474350	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCAGAACTCCACGAACTAGCACACGTCAAAGCACCA	spacer
		length: 36 repeater length: 29		
24968	474416	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTAATGAAGTCTAAAACCTTCATAAACATACTGAAGC	spacer
		length: 37 repeater length: 29		
24969	474483	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGTAAACCGTAGCGTGTGTAGTAATCCCCATCTTTTA	spacer
		length: 38 repeater length: 29		
24970	474551	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATGGAAGTCATCAAGACACCTAAAGGGAAAAGCTG	spacer
		length: 36 repeater length: 29		
24971	474617	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCATCTCAGTCATAAAATACCACCAACTAGTTAAA	spacer
		length: 36 repeater length: 29		
24972	474683	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGAGCATAGCAGGTTTACCAACGACTTCAGTGTAGG	spacer
		length: 37 repeater length: 29		
24973	474750	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTTCACTCCAATCCAACCGGTACCGGCTTTGTCTGG	spacer
		length: 36 repeater length: 29		
24974	474816	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTGTTAAACTCAAATCTGGAGAATTACAGTTACCTC	spacer
		length: 37 repeater length: 29		
24975	474883	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGCCCAGGTTTCCATTATAGAGGTACATGTAGCCATG	spacer
		length: 37 repeater length: 29		
24976	474950	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAGTATCTGCAACCCCATAGGAGGTGATTTGGTA	spacer
		length: 36 repeater length: 29		
24977	475016	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATTACAGTATGACGTTTACACTTGGATTTTTTGAAA	spacer
		length: 37 repeater length: 29		
24978	475083	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTAAATCAAAGCAGCATCCTTACAATCTGAATTAAA	spacer
		length: 38 repeater length: 29		
24979	475151	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATATCTAAAAGAAAACCTCAATTAAATGCCACGGTG	spacer
		length: 37 repeater length: 29		
24980	475218	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAGAAACCAATATGTAGATAATTATCATAGTGTA	spacer
		length: 35 repeater length: 29		
24981	475283	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTTGGCTCACCCGGTGGGAGCATGAAGGCCAGGTAA	spacer
		length: 37 repeater length: 29		
24982	475350	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTTAACCACATTTCATGGTGTGAGGTTGTTTTTCTTC	spacer
		length: 38 repeater length: 29		
24983	475418	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCTATTTTCAGATGCCATTTTTTTATTTTCCCCCTTTT	spacer
		length: 36 repeater length: 29		
24984	475484	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTGAAGGATTTATGAAGGCAGAATCACCAATAAGTCA	spacer
		length: 37 repeater length: 29		
24985	475551	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CACGTCGAAGACTTGATCAATGAGAACATGGATGTTT	spacer
		length: 37 repeater length: 29		
24986	475618	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CAGCCTGGACCAGTTCCGAGTCCTGAACCCGAAACA	spacer
		length: 37 repeater length: 29		
24987	475685	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CATTTTTTACCGTAAAGATAAATTTCCGCTTTATCGA	spacer
		length: 37 repeater length: 29		
24988	475752	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTTTTCTGCCAGACATCATCATCAGTGATTTTAACTG	spacer
		length: 37 repeater length: 29		
24989	475819	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CGACCACCAGTCTAAAAGGATATATCACCGGGAGTGT	spacer
		length: 37 repeater length: 29		
24990	475886	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTCGTGTTCCTCATCCGTCCATTTTCCCTTAAACGT	spacer
		length: 37 repeater length: 29		
24991	475953	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTAAACCATAACGAACGAGTAACCTTTACAGTTACCCA	spacer
		length: 38 repeater length: 29		
24992	476021	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CTACTTAACCGAAATCTACGAAAACGAAGGAGATAA	spacer
		length: 36 repeater length: 29		
24993	476087	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CCATTTCATAAGGATATATTACTTCTTCCCCACAGTA	spacer
		length: 36 repeater length: 29		
24994	476153	TTTCAATCCTAAAAATAGTCTGATTTTAGC	CACATCCTTGAAGTCAGCATTAATAAAGTGAAATACT	spacer

length: 37 repeater length: 29
24995 476220 TTTCAATCCTAAAAATAGTCTGATTTTACG CTAGGCGATTTGGTACACACCTCTAAGGGGGGATTG spacer
length: 36 repeater length: 29
24996 476286 TTTCAATCCTAAAAATAGTCTGATTTTACG CCCGGCAGTGGCTACACCACCGGCACCGGTGAAGGA spacer
length: 36 repeater length: 29
24997 476352 TTTCAATCCTAAAAATAGTCTGATTTTACG CGATTAAGGCTTCAATGAATGTGCTGTTTATTGAAGAC spacer
length: 38 repeater length: 29
24998 476420 TTTCAATCCTAAAAATAGTCTGATTTTACG CACCTTTATCTGTTTCTAGGATGTTGCGTGGTCTAAGTAT spacer
length: 38 repeater length: 29
24999 476488 TTTCAATCCTAAAAATAGTCTGATTTTACG TTAAAAGAAATGGAAGCGGAGTCGGGGGTGTGGTTTG spacer
length: 37 repeater length: 29
25000 476555 TTTCAATCCTAAAAATAGTCTGATTTTACG CGCTTCCGTCTTTGCGAAGTTTAGCAGTGAAAGTAAC spacer
length: 37 repeater length: 29
25001 476622 TTTCAATCCTAAAAATAGTCTGATTTTACG CCTGGACAATAACAATCAATTTGAAATTATATCAAACA spacer
length: 38 repeater length: 29
25002 476690 TTTCAATCCTAAAAATAGTCTGATTTTACG CCTTCCGTCTTTGCGAAGTTTAGCAGTGAAAGTAAC spacer
length: 36 repeater length: 29
25003 476756 TTTCAATCCTAAAAATAGTCTGATTTTACG CATTTATATTTTTGCTTACTGGGAGTCCCAATAATAA spacer
length: 37 repeater length: 29
25004 476823 TTTCAATCCTAAAAATAGTCTGATTTTACG CTGAAATGAAAAATTACTCCATAACTGGAGTTGTTGAA spacer
length: 38 repeater length: 29
25005 476891 TTTCAATCCTAAAAATAGTCTGATTTTACG CGCAGATCATTGACAAATGGGCTTACAAGATAGCACA spacer
length: 37 repeater length: 29
25006 476958 TTTCAATCCTAAAAATAGTCTGATTTTACG TTTTCAAGACCACCAAATAAGGCATTCCAGATGTAT spacer
length: 36 repeater length: 29
25007 477024 TTTCAATCCTAAAAATAGTCTGATTTTACG CATTATTATGGTGCAAAGAATAAGGGAGAATGAATTG spacer
length: 37 repeater length: 29
25008 477091 TTTCAATCCTAAAAATAGTCTGATTTTACG AAAACATCAGACACTTCTCATGTTTTCTGTGTTGATTA spacer
length: 37 repeater length: 29
25009 477158 TTTCAATCCTAAAAATAGTCTGATTTTACG CTAGGTTAATGCGTCGAACCTTTTAGCATGGTTTTG spacer
length: 36 repeater length: 29
25010 477224 TTTCAATCCTAAAAATAGTCTGATTTTACG CGGTTTCATATTTCACTGTGATGATTTTGTGGTTTC spacer
length: 37 repeater length: 29
25011 477291 TTTCAATCCTAAAAATAGTCTGATTTTACG CCGGGTATAATGCATGGTAAGGATTTTCAATCAAGTTC spacer
length: 37 repeater length: 29
25012 477358 TTTCAATCCTAAAAATAGTCTGATTTTACG CGTAGTAGCGTGGATTGTACTCTACCCAACCTAGTATG spacer
length: 37 repeater length: 29
25013 477425 TTTCAATCCTAAAAATAGTCTGATTTTACG CTTACATACTCATTTCCAAGAATACCCATTATTTTCTA spacer
length: 37 repeater length: 29
25014 477492 TTTCAATCCTAAAAATAGTCTGATTTTACG TCTTTTGATTTTGCTTTGTGGTGTTCCTACAT spacer
length: 35 repeater length: 29
25015 477557 TTTCAATCCTAAAAATAGTCTGATTTTACG TTCTATAAAAAATATTTTAATATTTTAATATAATTAA spacer
length: 36 repeater length: 29
25016 477623 TTTCAATCCTAAAAATAGTCTGATTTTACG CAAATCCAGACCAACACTCTTTAATATATGATTTATT spacer
length: 37 repeater length: 29
25017 477690 TTTCAATCCTAAAAATAGTCTGATTTTACG CTTGTTAGAATCACATATAAACTATTAAGTACTT spacer
length: 36 repeater length: 29
25018 477756 TTTCAATCCTAAAAATAGTCTGATTTTACG CGGTGCTAGTGTGTAGTAATCCTCAATGTCAAATCT spacer
length: 37 repeater length: 29
25019 477823 TTTCAATCCTAAAAATAGTCTGATTTTACG CACAGCATCATCAAGACTATTGATTTCTTTTGCCATC spacer
length: 37 repeater length: 29
25020 477890 TTTCAATCCTAAAAATAGTCTGATTTTACG CATTTCTTGAGTAATTACCAGGATCTTATATCTTG spacer
length: 35 repeater length: 29
25021 477955 TTTCAATCCTAAAAATAGTCTGATTTTACG CCATTACCGTACCGGACCAATTACTACTTTTATGAG spacer
length: 37 repeater length: 29
25022 478022 TTTCAATCCTAAAAATAGTCTGATTTTACG ACGAAATTTTCGTCTATTTGGCCTAATTCATCCTATTC
25023
25024
25025 crispr 8
25026 888841 GTTTCATCCCAAAATGGTCTGATTTTAGT TACAACATCTATCTCCGTGGAAGGGCCTTCATGTA spacer
length: 35 repeater length: 30
25027 888907 GTTTCATCCCAAAATGGTCTGATTTTAGT GCCGTAGAAGGGGGATAATAATACATGTAAAAATC spacer
length: 35 repeater length: 30
25028 888973 GTTTCATCCCAAAATGGTCTGATTTTAGT AAAGATCAGTAGCCGAACCTTATTGGAACATTTATCCTT spacer
length: 38 repeater length: 30
25029 889042 GTTTCATCCCAAAATGGTCTGATTTTAGT TTCAGTAGGATACATGAAATTCACATCAACAGATT spacer
length: 35 repeater length: 30
25030 889108 GTTTCATCCCAAAATGGTCTGATTTTAGT GTGGTTGCTATACGGGAGTAATTCATAGCCACTGGT spacer
length: 36 repeater length: 30
25031 889175 GTTTCATCCCAAAATGGTCTGATTTTAGT GTATGAGTTTGGACACTGTGCAGGTGTATGATTAT spacer
length: 35 repeater length: 30

25032 889241 GTTTC AATCCCAAAATGGTCTGATTTTAGT ACCATTAAATTATTACAAAGCAATACCAATATGAA spacer
length: 35 repeater length: 30

25033 889307 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATCAACACTTGCATCACTAACATTTCATTTTCAGTTG spacer
length: 35 repeater length: 30

25034 889373 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGACAGTCTCGAAGAGTTAAATGCACCTGGCACTG spacer
length: 35 repeater length: 30

25035 889439 GTTTC AATCCCAAAATGGTCTGATTTTAGT TAATCCTCCGGTGTTCCTTGACTACCGTCCAACCA spacer
length: 35 repeater length: 30

25036 889505 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATTGTGCCATGCCACTCGTTGCCATGAGGAGGATT spacer
length: 35 repeater length: 30

25037 889571 GTTTC AATCCCAAAATGGTCTGATTTTAGT GAAAAAGAGTTGTTCCACATTACATCCAAATAGG spacer
length: 35 repeater length: 30

25038 889637 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGTAATGCAGTTATTTATGCAGTTATGGGGGATT spacer
length: 34 repeater length: 30

25039 889702 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCATTCTCCATTCTTATTCCCCCATTTCTTCCAAT spacer
length: 35 repeater length: 30

25040 889768 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATGTCTGAAAGTGCTATTTCCCTATGAATAGTTC spacer
length: 35 repeater length: 30

25041 889834 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTAGTGTTGCCATGCCTTTTTTTCATGAAACATGAT spacer
length: 35 repeater length: 30

25042 889900 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTTAAACTGGCCTTTGGGGTTAGTGTAAACATCTAA spacer
length: 35 repeater length: 30

25043 889966 GTTTC AATCCCAAAATGGTCTGATTTTAGT AACAAAACCATCACTCTGCAATTCTTTTCAGAATATTT spacer
length: 37 repeater length: 30

25044 890034 GTTTC AATCCCAAAATGGTCTGATTTTAGT GATATTTATCATATACTTAGCAGAAGTAGTTCAAT spacer
length: 35 repeater length: 30

25045 890100 GTTTC AATCCCAAAATGGTCTGATTTTAGT AACAAAACCATCACTCTGCAATTCTTTTCAGAATATTT spacer
length: 37 repeater length: 30

25046 890168 GTTTC AATCCCAAAATGGTCTGATTTTAGT GATATTTATCATATACTTAGCAGAAGTAGTTCAAT spacer
length: 35 repeater length: 30

25047 890234 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTATGATGCTCAGCGTTTAAGTAAAAAAGATTTAG spacer
length: 35 repeater length: 30

25048 890300 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGAACCTCCATCAGGGAAGTCATCAATTGCTTTTCT spacer
length: 35 repeater length: 30

25049 890366 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGCCTTTCTTGAGTTTTGTTTTTCACCAACTTCTC spacer
length: 35 repeater length: 30

25050 890432 GTTTC AATCCCAAAATGGTCTGATTTTAGT CATGAATCTCCATAACAAAGTCCCAGTGGATTTAA spacer
length: 35 repeater length: 30

25051 890498 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTAATAGATGGCTTGGAAGGCATAAAAAAAGTAT spacer
length: 35 repeater length: 30

25052 890564 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCTAACAGACGAAGAACTGAAAAATATTCCCTTT spacer
length: 35 repeater length: 30

25053 890630 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATAAAACTATGGAACCATTTGCTTTAGCCCTTGGAG spacer
length: 36 repeater length: 30

25054 890697 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATTTCAAGCCTACAGGCGGTGTGGTCAGGTTTGTA spacer
length: 35 repeater length: 30

25055 890763 GTTTC AATCCCAAAATGGTCTGATTTTAGT GCTGGGATTGTACGTATTCATTTTTTACACATCAG spacer
length: 35 repeater length: 30

25056 890829 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTGCTATTTCTTTTAAAAATTCCTCTGTGAATTTA spacer
length: 35 repeater length: 30

25057 890895 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTTTATTTTCGTTGCAATCACTAGTCGCATTTATCG spacer
length: 36 repeater length: 30

25058 890962 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCTTCTGGCAGCCATTTAATGGTGTTCACATT spacer
length: 34 repeater length: 30

25059 891027 GTTTC AATCCCAAAATGGTCTGATTTTAGT AAAAAATAGTCCTCTTGGTCTGAAGATAAGATCTT spacer
length: 35 repeater length: 30

25060 891093 GTTTC AATCCCAAAATGGTCTGATTTTAGT TATGAAAACGTATGATCTGCCTTTTAGACTTCAGA spacer
length: 35 repeater length: 30

25061 891159 GTTTC AATCCCAAAATGGTCTGATTTTAGT ACATTCATGCAGCTGGAACCTGCATGCCCTGAGG spacer
length: 35 repeater length: 30

25062 891225 GTTTC AATCCCAAAATGGTCTGATTTTAGT AACTTCATGTACCGCTCAAACCATTCTCTAGGAAT spacer
length: 35 repeater length: 30

25063 891291 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCTCAAATACAATGGAACCACCTTAAACAGTGTACAG spacer
length: 37 repeater length: 30

25064 891359 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCGCATCCCGAACAAGTCCTATGGCTTCGTGCGCTT spacer
length: 36 repeater length: 30

25065 891426 GTTTC AATCCCAAAATGGTCTGATTTTAGT TAAAATTACCATTACCAAGCTTCTTACCCCCAAGC spacer
length: 35 repeater length: 30

25066 891492 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGTGTTTTAGTTGTTCTCGGAGTTGGTCTTCTTCG spacer
length: 35 repeater length: 30

25067 891558 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGTGGTGGCCACAGGGGAACCCTTACATGATTATCC spacer

length: 36 repeater length: 30
25068 891625 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGAAAGCACACCTATTGAGAAATTCCTAACTCAGA spacer
length: 35 repeater length: 30
25069 891691 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTATAAAGTAAAGGTTTCTTTTTTTGTCTAATCTA spacer
length: 35 repeater length: 30
25070 891757 GTTTC AATCCCAAAATGGTCTGATTTTAGT GACAATATGATTGGTAAAGAAGATGAGGAGGATTG spacer
length: 35 repeater length: 30
25071 891823 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTTACAAATTAATGGTTTTTCCGCAAGTAATGGTA spacer
length: 35 repeater length: 30
25072 891889 GTTTC AATCCCAAAATGGTCTGATTTTAGT AGTTTAACTTCCTCATGTATTTTGTCTCTTATCCA spacer
length: 35 repeater length: 30
25073 891955 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCATAAAATATGTATTTTTTCTTTATTTTTTGTGT spacer
length: 35 repeater length: 30
25074 892021 GTTTC AATCCCAAAATGGTCTGATTTTAGT GAGTCTAAGACGAAACTGATAAGCACGTGTTGAAA spacer
length: 35 repeater length: 30
25075 892087 GTTTC AATCCCAAAATGGTCTGATTTTAGT GGCGGAGCTAGTGTTGATCCTGTCCCAACTTTCAC spacer
length: 35 repeater length: 30
25076 892153 GTTTC AATCCCAAAATGGTCTGATTTTAGT CACTACCCTACCTTGCCCTTTTATCTGATGATTGCC spacer
length: 35 repeater length: 30
25077 892219 GTTTC AATCCCAAAATGGTCTGATTTTAGT TGCCTAAAAATCTGTCTTCTAAATAAATATCTTTA spacer
length: 35 repeater length: 30
25078 892285 GTTTC AATCCCAAAATGGTCTGATTTTAGT CGCCTGGCAACCCCTCATAATAGACGAATACAAAGA spacer
length: 35 repeater length: 30
25079 892351 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTACTACGGATGGAACATCCCACAATGGTATAATCA spacer
length: 36 repeater length: 30
25080 892418 GTTTC AATCCCAAAATGGTCTGATTTTAGT GCAGACCAATAATTATTAGTAGCGATTATTATATC spacer
length: 35 repeater length: 30
25081 892484 GTTTC AATCCCAAAATGGTCTGATTTTAGT AATACAGAGCAGATGATTACACCCTTGGATTTGAA spacer
length: 35 repeater length: 30
25082 892550 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTCTTTGACTTTTGTGTGTACGTGGAAGATCCGC spacer
length: 34 repeater length: 30
25083 892615 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCTTCTGAGGATCTTAAACGTTACATTATAAAGG spacer
length: 34 repeater length: 30
25084 892680 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTATTCAGGCATAGTTTTAACATATTTTTTATGAA spacer
length: 35 repeater length: 30
25085 892746 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCCTCATAAGCGTCTGAGATGATCCGGAGGCTGTT spacer
length: 35 repeater length: 30
25086 892812 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATTTTCCTTACACTTTCTTACATATTAGCAATCT spacer
length: 35 repeater length: 30
25087 892878 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTATTTTAGATATCTAGAGAGGTGAAACCTTTCAA spacer
length: 35 repeater length: 30
25088 892944 GTTTC AATCCCAAAATGGTCTGATTTTAGT ACAACGCTGAAAGTGAACCATGCGGAGGGGATGATT spacer
length: 36 repeater length: 30
25089 893011 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATCAAAACCAAATTGAAATAGGCCCTCATGCAAAAGA spacer
length: 37 repeater length: 30
25090 893079 GTTTC AATCCCAAAATGGTCTGATTTTAGT GTGCAGTCTTCGGGTCGTGTCATCGTAGCATAATC spacer
length: 35 repeater length: 30
25091 893145 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCACTCATCTTATATCACCCTTCTCTTCGGTTT spacer
length: 35 repeater length: 30
25092 893211 GTTTC AATCCCAAAATGGTCTGATTTTAGT CCCAACCCCTTAGGTATGGGTACTGTGGGTGTTTCT spacer
length: 35 repeater length: 30
25093 893277 GTTTC AATCCCAAAATGGTCTGATTTTAGT GAACAACAAGTAATATACAGGTTCCCCACACTCA spacer
length: 34 repeater length: 30
25094 893342 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCATTCATCATTTTCTGGATATTGCTTTTCCCATC spacer
length: 35 repeater length: 30
25095 893408 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTTTAGTAGTGGTTTTCTTGGTGGTTGTCTTTTTTA spacer
length: 35 repeater length: 30
25096 893474 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTTTCACACCCACGCAAAGTTGAGGAGCAAAGCG spacer
length: 35 repeater length: 30
25097 893540 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTCCTGTATTATCATCGGGTGTGGGTGTGCGACCTT spacer
length: 35 repeater length: 30
25098 893606 GTTTC AATCCCAAAATGGTCTGATTTTAGT ATCTTTGCTGGAGATCCTGGAAGTCCAGTTTATTG spacer
length: 35 repeater length: 30
25099 893672 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCAAAAAGCCCCGGGCAGTTTCTTTGTAAGCATATT spacer
length: 37 repeater length: 30
25100 893740 GTTTC AATCCCAAAATGGTCTGATTTTAGT TCAGAACTGCCCTTCATGTTGTCAGCGTTACCTGA spacer
length: 35 repeater length: 30
25101 893806 GTTTC AATCCCAAAATGGTCTGATTTTAGT TTAACAAGTCAAGTAATGCTTTAATAGTTCCCAT spacer
length: 35 repeater length: 30
25102 893872 GTTTC AATCCCAAAATGGTCTGATTTTAGT CTCACACTCAGGGAGGAATGATAAAAGATGAAATTC spacer
length: 36 repeater length: 30

25103	893939	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGTGTGTATCCTGGAACAGTTGTGGTGGGTATTG	spacer
		length: 35	repeater length: 30	
25104	894005	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGATCGACCTATGCCCTTAATCGTTAAATACTAG	spacer
		length: 35	repeater length: 30	
25105	894071	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GCCCTCTTTTAGTATTCTGAGGAGTAATAATGGGT	spacer
		length: 36	repeater length: 30	
25106	894138	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AGGTTGGTGACCAGGACTACTTCCAAGGCCACTCC	spacer
		length: 35	repeater length: 30	
25107	894204	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ACCCTACATCTTCACAGGCTTTACGTATTACTTCTA	spacer
		length: 36	repeater length: 30	
25108	894271	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GACCATAAAACTAAAAAGATTTACCATGCCCCGTG	spacer
		length: 35	repeater length: 30	
25109	894337	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TGTCATTAACACCCCTCCTATTCTTCTTCTTCTC	spacer
		length: 37	repeater length: 30	
25110	894405	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTGAAATTTGCAGATCAACACTTACACGACAGATT	spacer
		length: 35	repeater length: 30	
25111	894471	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AATATATCGCTTTATCAGGGATAGGGGAAAATAAG	spacer
		length: 35	repeater length: 30	
25112	894537	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTTTGGAACATCCACTGCGTCTTCTGTTCAAGT	spacer
		length: 35	repeater length: 30	
25113	894603	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTGTATACAGTTAATTGTCCTGGCTTAGCAGGAGGT	spacer
		length: 36	repeater length: 30	
25114	894670	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TTAGTATTCTGAGAAATCGTCCTCTTTTAGTGTTCT	spacer
		length: 36	repeater length: 30	
25115	894737	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATTCAAGTGTTCCCTGCTTAATTGGAATATTTCTT	spacer
		length: 35	repeater length: 30	
25116	894803	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTACGGAGTCATCAATCAATAACAAGGTCAAGAACC	spacer
		length: 36	repeater length: 30	
25117	894870	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTAGTTTCTTCCGTAGTGAGGGTTTGGCTGAGGGT	spacer
		length: 35	repeater length: 30	
25118	894936	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TAATCACCATGATTACATGTACACGATTAAGATGT	spacer
		length: 35	repeater length: 30	
25119	895002	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGAGGCTCCGGCTTACCCTTTGCCTGGATCGATT	spacer
		length: 35	repeater length: 30	
25120	895068	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CACACATTAGGTAAAGTTTATAGTATAGTCTATTAA	spacer
		length: 36	repeater length: 30	
25121	895135	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCAAGATTAAAGCATAAGCGATCACTTATATAAAT	spacer
		length: 35	repeater length: 30	
25122	895201	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AGTAAAAAATATTCAGATAAACTATACGTCACTAAT	spacer
		length: 36	repeater length: 30	
25123	895268	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AACACCCCCAACTGGACGGGATTTATTATTAATCT	spacer
		length: 35	repeater length: 30	
25124	895334	GTTTCAATCCCAAAATGGTCTGATTTTAGT	ATGTGTGAAGAGGTGTAAGAGGTGATACATAAA	spacer
		length: 33	repeater length: 30	
25125	895398	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GGTTCTATGTTGAAGACAACAACGAATACGGCGTT	spacer
		length: 35	repeater length: 30	
25126	895464	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AAAGTAATTAATGACTTCTTTTTCTTCTTTGTCAT	spacer
		length: 36	repeater length: 30	
25127	895531	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AAAATTTGGTCTGGATCCTGGATGCGGACAAAGC	spacer
		length: 34	repeater length: 30	
25128	895596	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TCACACAATCGCCATTGCTGCCCCACTGGAGGGT	spacer
		length: 35	repeater length: 30	
25129	895662	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AGGACCGGGCATAACCATCATCTGCTCCCCGCATA	spacer
		length: 35	repeater length: 30	
25130	895728	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GAAGGAAACCATTGACACTAGTAAGGATGAAGGG	spacer
		length: 34	repeater length: 30	
25131	895793	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AATTGGTCAGTTAGGGGAAATCACTGATAAAATA	spacer
		length: 34	repeater length: 30	
25132	895858	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CTTACCTCAATCTCGAAGTAAACTGAATCATCGCA	spacer
		length: 36	repeater length: 30	
25133	895925	GTTTCAATCCCAAAATGGTCTGATTTTAGT	AACTGATAGGCTTAATTAATCTTTTGAACGTGATA	spacer
		length: 35	repeater length: 30	
25134	895991	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CGTTGCTATGCCACCGAGTGTGAAGTATTATTAAC	spacer
		length: 35	repeater length: 30	
25135	896057	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GCGTCTTGTTTCAACATAATCTTATTTACCTCAA	spacer
		length: 35	repeater length: 30	
25136	896123	GTTTCAATCCCAAAATGGTCTGATTTTAGT	CCACGCCATTAACGATATTAACGGTGTCAATCTCT	spacer
		length: 35	repeater length: 30	
25137	896189	GTTTCAATCCCAAAATGGTCTGATTTTAGT	TAAGATCAACAAGTTCTAAATCAAATCTGCATAGA	spacer
		length: 36	repeater length: 30	
25138	896256	GTTTCAATCCCAAAATGGTCTGATTTTAGT	GTCCACCAGTTCTCCATCTAATGTTAAATTTAGGTG	spacer

length: 36 repeater length: 30
25139 896323 GTTTC AATCCCAAAAATGGTCTGATTTTAGT CTTTATTTGGTTCAAAAACGTGTATTGAACCTTAA spacer
length: 35 repeater length: 30
25140 896389 GTTTC AATCCCAAAAATGGTCTGATTTTAGT CTGCGGAGAGTATGCCCTCATTCTTAGCCAACTCC spacer
length: 35 repeater length: 30
25141 896455 GTTTC AATCCCAAAAATGGTCTGATTTTAGT GTGGAAGGGGAAGACTACGAACTTCAAGACGCGGGCG spacer
length: 37 repeater length: 30
25142 896523 GTTTC AATCCCAAAAATGGTCTGATTTTAGT TTATATGCTTGTGATTATATACACATATGTGTAAA spacer
length: 35 repeater length: 30
25143 896589 GTTTC AATCCCAAAAATGGTCTGATTTTAGT ATAAACCCAACTTAGTGAATGCCAACCCCCACCAG spacer
length: 35 repeater length: 30
25144 896655 GTTTC AATCCCAAAAATGGTCTGATTTTAGT TGGCTGATTAATTCTTCAACGTGGTGGATGGTTGC spacer
length: 35 repeater length: 30
25145 896721 GTTTC AATCCCAAAAATGGTCTGATTTTAGT CCAATTTAACCAGATATACGAATTACTCTATAAAA spacer
length: 35 repeater length: 30
25146 896787 GTTTC AATCCCAAAAATGGTCTGATTTTAGT TGGCTGAAAAAGTACTAAAAAGAGGGTGATGTTTT spacer
length: 35 repeater length: 30
25147 896853 GTTTC AATCCCAAAAATGGTCTGATTTTAGT TGAGCATGGTTTACCATACTTTGAAATATTTGAAA spacer
length: 35 repeater length: 30
25148 896919 GTTTC AATCCCAAAAATGGTCTGATTTTAGT TTGTATTACATCCTAGAAATCATGTGTTCTTTTAA spacer
length: 35 repeater length: 30
25149 896985 GTTTC AATCCCAAAAATGGTCTGATTTTAGT CAATGCTACTGATAAAAGTGCACCTAAACTGTTT spacer
length: 35 repeater length: 30
25150 897051 GTTTC AATCCCAAAAATGGTCTGATTTTAGT CACGTGTGGGAGTCATACCATTAGGGTATTGTGTG spacer
length: 35 repeater length: 30
25151 897117 GTTTC AATCCCAAAAATGGTCTGATTTTAGT AAGCCCAAATCCCATCCATATTTGTCCTTTAATTT spacer
length: 35 repeater length: 30
25152 897183 GTTTC AATCCCAAAAATGGTCTGATTTTAGT CCTGTCCTTTGCCCATGCCGTATCGAAACCAGATT spacer
length: 35 repeater length: 30
25153 897249 GTTTC AATCCCAAAAATGGTCTGATTTTAGT AAAGTATATTTAGTGTCAAATTAACCTATGTAAAC spacer
length: 35 repeater length: 30
25154 897315 GTTTC AATCCCAAAAATGGTCTGATTTTAGT TGTGTTGTCTGTGAATGCACTGTTTGTACAGTTA
25155
25156
25157 GCA_001477655.1_ASM147765v1_genomic.fna(findCrispr):
25158 START REPEAT
SPACER
25159 crispr 1
25160 371626 GGTGCAGTTTACTTTAATGA
GACTGGTACTGTGTCAAATTTGTAATTTTACTGACAACCTCTGCTTATCGTGGAGGTGCAGTTTACTTCCAGAGTACTGGTAATGTGA
CAAATTTGTAATTTTACTAACAACACTGCAACTGGAGATGG spacer length: 126 repeater length: 20
25161 371773 GGTGCAGTTTACTTTAATGA
GACTGGTACTGTGACAAATTTGTAATTTTACTGGCAACACTGCAACCTATAAGGGTGGTGCAGTTTACTTCACTAGTACTGGTAATG
TGACAAATTTGTAATTTTACTAACAACACTGCAAATGATGATGG spacer length: 129 repeater length: 20
25162 371923 GGTGCAGTTTACTTTAATGA
AGGGTGGAAAATTTCCTTTAAATAACCTACAACCTTGCAAAAATTACTGCGACATACAGCACTTATGAGCAAACCTAAAAATATAAG
TACTATATATAAAGGTTTGCTCACTTAATATAAATAATTATTG
25163
25164
25165 crispr 2
25166 370520 TGACAA ATTGTAATTTTACTGATAACATTGCTTCAATTGGTGGTGCCATCACGATGTATTCTGGTACT spacer
length: 62 repeater length: 6
25167 370589 TGACAA ATTGTAATTTTACTGGCAACACTGCAACTGTAAATGGTGGTGCAGTTTACTTCAACAGTACTGGTAAT
spacer length: 68 repeater length: 6
25168 370664 TGACAA ATTGTAATTTTACTGGCAACACTGCAACTGTAAATGGTAGTGCTGTTTTCTTCTACAGTACTGGTAAT
spacer length: 68 repeater length: 6
25169 370739 TGACAA ATTGTAATTTTACTAACAACACTGCAAATAGAGATGGTGGTGCAGTTTACTTCAATAGCAATGGTGAA
spacer length: 68 repeater length: 6
25170 370814 TGACAA ATTGTAATTTTACTGGCAACACTGCAAATAGAGATGGTGGTGTCTGTTTACTTCAATAGCAATGGTGAA
spacer length: 68 repeater length: 6
25171 370889 TGACAA ATAATCTTTGCAATGAATTTAAAGCTGCATGGAAAAGAAATCCAGATGGAGGTCACAATCCTTGTTTT
25172
25173
25174 crispr 3
25175 22679 TTAACCTATAATTTATCTCA TTAAAGTTATCAGGTGTAAGTTTTTCTTATGCCTTTTAACTTAAAAGTCAA
spacer length: 52 repeater length: 20
25176 22752 TTAACCTATAATTTATCTCA GTTAAAGGGTGTAACTTTTCAGTTATACCTTTTAAACGAAAACCTTAT spacer
length: 46 repeater length: 20
25177 22819 TTAACCTATAATTTATCTCA TAGTGAGCCAAGTGTTCCTGTGACTCCGGAGAATCCTGTCTCTGAA
25178
25179

25180 crispr 4
 25181 1304092 TTAA TAGAATAATCTTTGCAATTTTCATATCCGATAGAAGATATGGTGCTTTTGGTGAAGTCACAATCCTTG
 spacer length: 67 repeater length: 5
 25182 1304165 TTAA TAGAATAATCTTTGCAATCAAAGGATTAGAACTGGAAATAAACACATGAATGAGTCACAATCCTTG
 spacer length: 67 repeater length: 5
 25183 1304238 TTAA TAGAATAATCTTTGCAATATGATGAATATATCGATTTAATCGATGAAGTTATATGTCACAATCCTTG
 spacer length: 67 repeater length: 5
 25184 1304311 TTAA TAGAATAATCTTTGCAATAATGAACTCCAATGGATGCAACACAATTGTATGAGTCACAATCCTTG
 spacer length: 66 repeater length: 5
 25185 1304383 TTAA TTGTTTTAATAGAATAATCTTTGCAATGGGACTTCGCATATTCAGCTGAGGAACCCGAAAAGAGT
 25186
 25187
 25188 crispr 5
 25189 46941 AGTGTTTCCTGTGACTCCGGAGAATCCTGT TCCTGAGACTCCTAGTGAACC spacer length: 21 repeater
 length: 29
 25190 46992 AGTGTTTCCTGTGACTCCGGAGAATCCTGT TCCTGAGACTCCTAGTGAGCC spacer length: 21 repeater
 length: 29
 25191 47043 AGTGTTTCCTGTGACTCCGGAGAATCCTGT ATCTTTGCAATAAATTAGCTC
 25192
 25193
 25194 crispr 6
 25195 386198 AGTACTGGTAATGTGTCAAATTGTAATTTT
 ACTGGCAACACTGCAACTGATTATGGTGGTGCAGTTTACTTCGCGGATACTGGTGAAGTGTCAAATTGTAATTTTACTGGCAGCAC
 TGTTCCTGTAGATGGTGGTGCAGTTTACTTCGA spacer length: 119 repeater length: 30
 25196 386348 AGTACTGGTAATGTGTCAAATTGTAATTTT GCTGGCAACAATGCTTCTATAGATGGTGGTACTGTTTTCTTCGA
 spacer length: 44 repeater length: 30
 25197 386423 AGTACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAACACTGCATATTATGATGGTGGTGCAGTTTACTTCGA
 spacer length: 44 repeater length: 30
 25198 386498 AGTACTGGTAATGTGTCAAATTGTAATTTT AAGGCAACTGGTGATTACGGTGTTGGTGGTGGTGCTATAAGGAT
 25199
 25200
 25201 crispr 7
 25202 386341 CTTGAGAGTACTGGTAATGTGTCAAATTGTAATTTT GCTGGCAACAATGCTTCTATAGATGGTGGTACTGTTT
 spacer length: 37 repeater length: 37
 25203 386416 CTTGAGAGTACTGGTAATGTGTCAAATTGTAATTTT ACTGGCAACACTGCATATTATGATGGTGGTGCAGTTT
 spacer length: 37 repeater length: 37
 25204 386491 CTTGAGAGTACTGGTAATGTGTCAAATTGTAATTTT ACTTCGCATATTCAGCTGAGGAACCCGAAAAGAGTC
 25205
 25206
 25207 crispr 8
 25208 1357009 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ATAAATTCACAATTTTGGAGACCTTGAAGAAGT
 spacer length: 34 repeater length: 37
 25209 1357081 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ACCTAAAAAGAAAACCATCAAGGTTTTGAAAGAGG
 spacer length: 35 repeater length: 37
 25210 1357154 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ATCAACAACGAATTATGGTCATGTTAACTAAGGG
 spacer length: 35 repeater length: 37
 25211 1357227 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT CAGAAGTTCAAAAAGCATTTAAGACAACA spacer
 length: 29 repeater length: 37
 25212 1357294 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AACAAGTATGCACATTCATTTAAACAGACAATATC
 spacer length: 35 repeater length: 37
 25213 1357367 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GATATTTGATATGATATTTAATGATAATGATAGATT
 spacer length: 36 repeater length: 37
 25214 1357441 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AAAGCATAACATCGCAGAATATCCTTTTATGATTG
 spacer length: 35 repeater length: 37
 25215 1357514 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TCATCAGCAGGAGTGTAAGCAAGACCACGCTTTA
 spacer length: 34 repeater length: 37
 25216 1357586 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT CTATACAATTACAAAAAAGGAAAAGAAGATAATT
 spacer length: 35 repeater length: 37
 25217 1357659 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GACAATCTGCCATGATGTCACCATTGCGGAAAG
 spacer length: 33 repeater length: 37
 25218 1357730 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TTCAGCAAGAAATAGTATTCATCAAAGGAAAAGAA
 spacer length: 35 repeater length: 37
 25219 1357803 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GAATGTATTAAATATCGAAAACAAAGATGCAAAGC
 spacer length: 35 repeater length: 37
 25220 1357876 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT ACAATGAGTCTATAATGTATTTTGAGTTGTCAAATA
 spacer length: 36 repeater length: 37
 25221 1357950 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT GAAGCAACATTCTAGATTCTACAGTTTCCTAGATA
 spacer length: 34 repeater length: 37
 25222 1358022 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT TTTAGAATACATATTTGAAGAAAACGGAAAACA
 spacer length: 34 repeater length: 37
 25223 1358094 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT CTTATATACTGACAAATTAAGTGAGTCAGAAGAGT

spacer length: 35 repeater length: 37
 25224 1358167 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AAAATTGGAATTAGAAATGATAATAGGCATAAAA
 spacer length: 34 repeater length: 37
 25225 1358239 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AAAAGAAATTATAAAAAATAATTAAGGAGGAAAATG
 spacer length: 35 repeater length: 37
 25226 1358312 GTCACAATCCTTGTTTTAATAGAATAACCTTTGCAAT AGGCAACTGGTGATTACGGTGTTGGTGGTGGTGCT
 25227
 25228
 25229 crispr 9
 25230 1306122 AATGTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT
 AAAACATTGGATTATCAAAACTAATCCAATGTGGATGTCACAATCCTTGTTTTAATAGAATAATCTTTGCAATAATAGAAATCTTT
 GCAAACAAGGAAGGAGTAA spacer length: 105 repeater length: 40
 25231 1306268 AATGTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT AGTTCAAACCCCTCAAGAGTTAGAAAGGGCAA
 spacer length: 32 repeater length: 40
 25232 1306341 AATGTCACAATCCTTGTTTTAATAGAATAATCTTTGCAAT CAAGGCAACTGGTGATTACGGTGTTGGTGGTG
 25233
 25234
 25235 crispr 10
 25236 490621 TTTTATTGTTTCATTTTCTGGTTTTTCTTGTTGTGTGTGTTG
 TTGTTTTCTGTTGTGTGGTTTTCTGGTATTGTTTCGT spacer length: 37 repeater length: 40
 25237 490699 TTTTATTGTTTCATTTTCTGGTTTTTCTTGTTGTGTGTGTTG
 TTGTTTTCTGTTGTGTGTTTTCTGGTATTGTTTCGT spacer length: 37 repeater length: 40
 25238 490777 TTTTATTGTTTCATTTTCTGGTTTTTCTTGTTGTGTGTGTTG
 TTGTTTTCTGTTGTGTGTTTTCTGTTGTGTGTTTTCTGTTGTGTGTTTTCTGTTGTGTGTTTTCTGGTATTGTTTCGT
 spacer length: 82 repeater length: 40
 25239 490900 TTTTATTGTTTCATTTTCTGGTTTTTCTTGTTGTGTGTGTTG
 AGGCAACTGGTGATTACGGTGTTGGTGGTGGTGCTATAAGGATGTCCTCTGGTACTGTGACAAATTGTAATTTTACTGACAA
 25240
 25241
 25242 GCA_001481595.1_ASM148159v1_genomic.fna(findCrispr):
 25243 START REPEAT
 SPACER
 25244 crispr 1
 25245 1660525 AGTTT
 CTTGTCGTTATTACAAGGCTTCCTCTTCTTGCTGGGTAAGCCTGGGGAGTAGTTTTAGTTTCTTGTCGTTATTACTTTTAGGGCTA
 CTATGGTGATAGCTACTGAAAAATAAAAAGTTT spacer length: 118 repeater length: 5
 25246 1660649 AGTTT
 CTTGTCGTTATTACAAGGAATTAAAGAAGTTAGGACTTCAGGACAATGTAGGTTTTAGTTTCTTGTCGTTATTACGCTTTAAGGTC
 GAAATCAGAGATAATGAGCATAATGTTT spacer length: 114 repeater length: 5
 25247 1660769 AGTTT CTTGTCGTTATTACA AAAATGTGCTCATCTATGTTTACCCTGTTGCACGTTT spacer length:
 53 repeater length: 5
 25248 1660828 AGTTT
 CTTGTCGTTATTACAGAGTTTGTTCCTTAATTGGCCAGCAGACTAATTTTAGTTTTAGTTTCTTGTCGTTATTACCTTCCAGTCTTC
 ATTTCTGGCTCACCCCGAGTCAGCGTTT spacer length: 114 repeater length: 5
 25249 1660948 AGTTT
 ACAGAGGAGAACACAAAAGCCATTATACGTCTAACCAAAATCGTTGATAAATTGGTAAAGTCTGTTTCAGCATTAAACGAGAGAGT
 AAGTGGACTAGAAAATACATTTCGGTCTA
 25250
 25251
 25252 crispr 2
 25253 1371259 AAGTTGAGGCAGGAGATGAATGAT ATGAGGAAGGACTTTAACAGTGAAATTAT spacer length: 29
 repeater length: 24
 25254 1371313 AAGTTGAGGCAGGAGATGAATGAT ATGAGGAAGGACTTTAACAGTGAAATTAT spacer length: 29
 repeater length: 24
 25255 1371367 AAGTTGAGGCAGGAGATGAATGAT ATGAGGAAGGACTTTAACAG spacer length: 20 repeater
 length: 24
 25256 1371412 AAGTTGAGGCAGGAGATGAATGAT ATGAGGAAGGACTTTAACAGTGAAATTAT spacer length: 29
 repeater length: 24
 25257 1371466 AAGTTGAGGCAGGAGATGAATGAT ATGAGGAAGGACTTTAACAGTGAAATTAT spacer length: 29
 repeater length: 24
 25258 1371520 AAGTTGAGGCAGGAGATGAATGAT ATATCTCAAGGAGGGCGAGGAAGTATGCG
 25259
 25260
 25261 crispr 3
 25262 1677159 GTAATAACGACAAGAACTAAAAC AGCTCTTTCGCACTGTTATTTTACAATTTACACG spacer length:
 34 repeater length: 24
 25263 1677218 GTAATAACGACAAGAACTAAAAC GCTTGTTGATTTGGGCCCATGCGAGGAGGATTA spacer length: 33
 repeater length: 24
 25264 1677276 GTAATAACGACAAGAACTAAAAC TGATATTGTATCGTTGTAGTTAGTATTGTCCAGAAGA spacer
 length: 37 repeater length: 24
 25265 1677338 GTAATAACGACAAGAACTAAAAC AAGAACTCCCGGGAGCCCTGGTGGTATGCCCGAAAT spacer length:

36 repeater length: 24

25266 1677399 GTAATAACGACAAGAACTAAAAAC ATCGTAAGAGAAGTGGGCTAGCGCTACCCTCCTCCAC spacer length: 37 repeater length: 24

25267 1677461 GTAATAACGACAAGAACTAAAAAC AGAAAATATCTCAAGGAGGGCGAGGAAGTATGCGAAA spacer length: 37 repeater length: 24

25268 1677523 GTAATAACGACAAGAACTAAAAAC TGGATGCTGAGTTAACTCCCCAGTTTACCGT spacer length: 31 repeater length: 24

25269 1677579 GTAATAACGACAAGAACTAAAAAC TTTTAGCCTGACCATTTCCTCGTTAAAAAATAAGGAA spacer length: 38 repeater length: 24

25270 1677642 GTAATAACGACAAGAACTAAAAAC TTTCACGCTCCATGACCTCAGTGAATATCTCAT spacer length: 33 repeater length: 24

25271 1677700 GTAATAACGACAAGAACTAAAAAC TCATAGGGGCTATATTCAACAATACGTTGCTCCAGT spacer length: 36 repeater length: 24

25272 1677761 GTAATAACGACAAGAACTAAAAAC GAGAAGAAGCAAAGCATAACCGCTCTACAAGGTTCTTCAGT spacer length: 41 repeater length: 24

25273 1677827 GTAATAACGACAAGAACTAAAAAC TATGTCGATCTGTCCGGTGTGCTGGTGGGCGAGCA spacer length: 35 repeater length: 24

25274 1677887 GTAATAACGACAAGAACTAAAAAC AAATAGTGGTTTCCAAGACTGTGCAAATGCTTTTTTAT spacer length: 38 repeater length: 24

25275 1677950 GTAATAACGACAAGAACTAAAAAC TTTTAGCTGTTTCTCCATTCCGTCCCACCAACTA spacer length: 34 repeater length: 24

25276 1678009 GTAATAACGACAAGAACTAAAAAC TAAAATATTTTAATGTTCCGGAGATAGATTATAAC spacer length: 35 repeater length: 24

25277 1678069 GTAATAACGACAAGAACTAAAAAC TGATATTTGGAGTGGTCGTGATTTTAATGGGAGC spacer length: 34 repeater length: 24

25278 1678128 GTAATAACGACAAGAACTAAAAAC ATTAACCTACATCGCTAACAGCTTGGTACAGCCTG spacer length: 34 repeater length: 24

25279 1678187 GTAATAACGACAAGAACTAAAAAC AACAAAAAATGAAGTTTTGGGTATGACTTTCTA spacer length: 35 repeater length: 24

25280 1678247 GTAATAACGACAAGAACTAAAAAC TAGAGGCACAATTACAGAATTTAGTAATTGATCAAA spacer length: 36 repeater length: 24

25281 1678308 GTAATAACGACAAGAACTAAAAAC TGAATTCTGCCTTTTTATATAACGCATTACTGTGAT spacer length: 36 repeater length: 24

25282 1678369 GTAATAACGACAAGAACTAAAAAC TTTGAGACGCTGAAAGACGTAGCGAAAGACTCTG spacer length: 34 repeater length: 24

25283 1678428 GTAATAACGACAAGAACTAAAAAC ATTAAAATGCTGTAGAAACACTTGACCAAATAT spacer length: 33 repeater length: 24

25284 1678486 GTAATAACGACAAGAACTAAAAAC TAAAGGGATCCTGACCTAAGGACTATCGGGCTTACTT spacer length: 37 repeater length: 24

25285 1678548 GTAATAACGACAAGAACTAAAAAC ACTATCTCAGCTATCGTCACTATCGACATCTTCA spacer length: 34 repeater length: 24

25286 1678607 GTAATAACGACAAGAACTAAAAAC CATTTTATTTATATAGCCTCGTTGTATAGCTTC spacer length: 33 repeater length: 24

25287 1678665 GTAATAACGACAAGAACTAAAAAC ACTGCTAAAGAGCGCAGGTATTGCGCAAGACTAC spacer length: 34 repeater length: 24

25288 1678724 GTAATAACGACAAGAACTAAAAAC ATAATATACGACGCTCTGGTTAGGTAAAGGTACTC spacer length: 35 repeater length: 24

25289 1678784 GTAATAACGACAAGAACTAAAAAC AAAATTTTATTCTAAAGAGATAACAGATTTGGGC spacer length: 34 repeater length: 24

25290 1678843 GTAATAACGACAAGAACTAAAAAC AGTGAATGCTTGTCTGAGCCTAGTCTGTTTAAAC spacer length: 34 repeater length: 24

25291 1678902 GTAATAACGACAAGAACTAAAAAC ACATTTGCTGGAGTTCAGAAAATATCAGTAACCA spacer length: 34 repeater length: 24

25292 1678961 GTAATAACGACAAGAACTAAAAAC AAAGTTGTTTCAGCCCCATCTTCAATAAGTGAAGG spacer length: 35 repeater length: 24

25293 1679021 GTAATAACGACAAGAACTAAAAAC AACATAAAAAACACTGCTAGTTTCTATCTGATTAA spacer length: 35 repeater length: 24

25294 1679081 GTAATAACGACAAGAACTAAAAAC ATAGATAAAATAAATAGTTAATGTTTCATAAAATC spacer length: 35 repeater length: 24

25295 1679141 GTAATAACGACAAGAACTAAAAAC AACACGTGATGATACTGACATTTGCGGGCTATTG spacer length: 35 repeater length: 24

25296 1679201 GTAATAACGACAAGAACTAAAAAC GCTGTTTATATAACTGTAATAAATTAAGAACT spacer length: 33 repeater length: 24

25297 1679259 GTAATAACGACAAGAACTAAAAAC AACTCTTGAATTGTTAAGTCTTTAATGAATGCA spacer length: 33 repeater length: 24

25298 1679317 GTAATAACGACAAGAACTAAAAAC AATGTACACCGTAGCCATTTTTTTGCACTTCTT spacer length: 33 repeater length: 24

25299 1679375 GTAATAACGACAAGAACTAAAAAC AAGAACAGCGATGTTTACAAGTCAGCACAAAGACG spacer length: 34 repeater length: 24

25300 1679434 GTAATAACGACAAGAACTAAAAAC CATTTTCTTGGTTTTATCTATTTACCGTTTTAAA spacer length: 34 repeater length: 24

25301	1679493 GTAATAACGACAAGAACTAAAAC	CTAGATTGTTAGCACCGTGCATTAGCAATAATGCGT spacer length: 36 repeater length: 24
25302	1679554 GTAATAACGACAAGAACTAAAAC	GATTGCTGATGACGATGGAATAGTTACCACAAG spacer length: 33 repeater length: 24
25303	1679612 GTAATAACGACAAGAACTAAAAC	TTTTATTTTTCACCGACAAAACGAAAAAATTGAA spacer length: 34 repeater length: 24
25304	1679671 GTAATAACGACAAGAACTAAAAC	TTAAAGAGGCAACAAAGCGAAAAATTCTATATGC spacer length: 34 repeater length: 24
25305	1679730 GTAATAACGACAAGAACTAAAAC	TTGTTGTGCTAACTGGTTTATCGCATCCCCTATT spacer length: 34 repeater length: 24
25306	1679789 GTAATAACGACAAGAACTAAAAC	TTATGTTATTTGTACAACTTCTTAGTTGCCAAT spacer length: 34 repeater length: 24
25307	1679848 GTAATAACGACAAGAACTAAAAC	TTCTTGTAGTTTCGGGAAGACATTCTCACTGGTGT spacer length: 35 repeater length: 24
25308	1679908 GTAATAACGACAAGAACTAAAAC	TAGTAGTAGTTAATACTGCTGACTGAATTTTTCTTAGT spacer length: 38 repeater length: 24
25309	1679971 GTAATAACGACAAGAACTAAAAC	TTTATTTCAAAAAGTTACACTATAAAGATGAATT spacer length: 34 repeater length: 24
25310	1680030 GTAATAACGACAAGAACTAAAAC	TTGGGTAAGATCTAGACCTTATGTTCTCTTTT spacer length: 33 repeater length: 24
25311	1680088 GTAATAACGACAAGAACTAAAAC	TTGGGATATATTGCACAGACAACTTTGTCTC spacer length: 32 repeater length: 24
25312	1680145 GTAATAACGACAAGAACTAAAAC	ATGTTAGGAATATTGTTAAAAATCCGCCTATAATTCCGA spacer length: 39 repeater length: 24
25313	1680209 GTAATAACGACAAGAACTAAAAC	ATTTTTTATGCCATACCAACCCATTTTAATCAA spacer length: 33 repeater length: 24
25314	1680267 GTAATAACGACAAGAACTAAAAC	CAGTATATGCGTGTTGATGATTTTCTGAAGACT spacer length: 33 repeater length: 24
25315	1680325 GTAATAACGACAAGAACTAAAAC	ATAGCAAAGTACGAATAATCTATATTCCTGACC spacer length: 33 repeater length: 24
25316	1680383 GTAATAACGACAAGAACTAAAAC	ATATCTCATGGTTATGTTTCTTCAGATCCAGGC spacer length: 33 repeater length: 24
25317	1680441 GTAATAACGACAAGAACTAAAAC	GCGGCAGCTACTGGGTCTAACGCCTTCCACTCGA spacer length: 34 repeater length: 24
25318	1680500 GTAATAACGACAAGAACTAAAAC	ACATAAGCCAGCTAAAGAAGACGTATCTGACTGA spacer length: 34 repeater length: 24
25319	1680559 GTAATAACGACAAGAACTAAAAC	ATTATAAGTAAGGGCTGACTTGTTGAGTAAGACTGG spacer length: 36 repeater length: 24
25320	1680620 GTAATAACGACAAGAACTAAAAC	ATGATTATGAAATTTGTACAGCAAATGTTGATGAGA spacer length: 36 repeater length: 24
25321	1680681 GTAATAACGACAAGAACTAAAAC	AATGTCTTTTTTTATATAAATTTTTTCGAGTCCTAA spacer length: 35 repeater length: 24
25322	1680741 GTAATAACGACAAGAACTAAAAC	AGGGAAAAGATCCTCTTCCTAGCTCCTTTCTCTT spacer length: 34 repeater length: 24
25323	1680800 GTAATAACGACAAGAACTAAAAC	CCTGTACAACGAAAACGGGACATTGTGGGCAATAC spacer length: 35 repeater length: 24
25324	1680860 GTAATAACGACAAGAACTAAAAC	CTCGACCTCTTCTACTACTTCTGGTGGTGCACCCA spacer length: 35 repeater length: 24
25325	1680920 GTAATAACGACAAGAACTAAAAC	TTAATTAAAGCGGCAAGCTCTCTAGCCAGGCTAGATCCCT spacer length: 40 repeater length: 24
25326	1680985 GTAATAACGACAAGAACTAAAAC	AAAACAATGTTTTAGTTTTACAGACATTATAAAAT spacer length: 35 repeater length: 24
25327	1681045 GTAATAACGACAAGAACTAAAAC	ACTTCAAGAATGGAATACATTTGTTAAAAATTTGC spacer length: 35 repeater length: 24
25328	1681105 GTAATAACGACAAGAACTAAAAC	GCCCAAGCTCAGGCTGGAAACAGTGGAAATCCG spacer length: 33 repeater length: 24
25329	1681163 GTAATAACGACAAGAACTAAAAC	ATATAACAAAGCGCATTGCTGATACGTTACACAG spacer length: 34 repeater length: 24
25330	1681222 GTAATAACGACAAGAACTAAAAC	TCCATGCCCTCGCCCCGCCTTTTCTTTTCTT spacer length: 33 repeater length: 24
25331	1681280 GTAATAACGACAAGAACTAAAAC	TTCCACATTGATGAGGTAAGCCTCTGAAAAGGTT spacer length: 34 repeater length: 24
25332	1681339 GTAATAACGACAAGAACTAAAAC	TGTGACCAAATTGAGGCAGAAGTATCCGCAGGGGA spacer length: 35 repeater length: 24
25333	1681399 GTAATAACGACAAGAACTAAAAC	ACCCCTGACTTTGTCTTAAAGATAATGAGTTCTT spacer length: 35 repeater length: 24
25334	1681459 GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAAGTTAAGACAAAAAATAAGTC spacer length: 37 repeater length: 24
25335	1681521 GTAATAACGACAAGAACTAAAAC	TTCACTGTCAAATTTGTCTAGCAGTTCTTTTGC GACT spacer length: 37 repeater length: 24
25336	1681583 GTAATAACGACAAGAACTAAAAC	ATTATACCACGCCAAAGAGATGGCGTGAGGCGAT spacer length:

	34 repeater length: 24	
25337	1681642 GTAATAACGACAAGAACTAAAAC	TATTTGAAGGCTTCCCTTAGGGCGTTCTTTAGC spacer length: 33
	repeater length: 24	
25338	1681700 GTAATAACGACAAGAACTAAAAC	GTAAATTCGGCGCCCCAGTAGAAGTCTTTCTCG spacer length:
	34 repeater length: 24	
25339	1681759 GTAATAACGACAAGAACTAAAAC	CTATGTGTTGATGAGAGCACAGCTGGGCATGGAGCGT spacer
	length: 37 repeater length: 24	
25340	1681821 GTAATAACGACAAGAACTAAAAC	AGATGTAGAGAAAACGATCGATTTAAGGCATGCG spacer length:
	34 repeater length: 24	
25341	1681880 GTAATAACGACAAGAACTAAAAC	AATAAATCAATCCTTTTTTTAAGGTCTTTCCAAG spacer length:
	34 repeater length: 24	
25342	1681939 GTAATAACGACAAGAACTAAAAC	TCAACACAAGGAAACACTTACAATTGGTATGAGTATGAA spacer
	length: 39 repeater length: 24	
25343	1682003 GTAATAACGACAAGAACTAAAAC	CACTAGACACTGCAGGGACAGATATCAAAAAC spacer length: 33
	repeater length: 24	
25344	1682061 GTAATAACGACAAGAACTAAAAC	GTGCCCCTGTCTCCTGCAGTTTTAACGCTAAATATC spacer length:
	36 repeater length: 24	
25345	1682122 GTAATAACGACAAGAACTAAAAC	ACCTATCACTTTCCTTGCGAATTCAACCAGTGTTA spacer length:
	35 repeater length: 24	
25346	1682182 GTAATAACGACAAGAACTAAAAC	CACCAGCTGTGATGACATAGTCTTTGTCCAGTAATG spacer length:
	36 repeater length: 24	
25347	1682243 GTAATAACGACAAGAACTAAAAC	TTCTTCATAAGGATGTATCTGTACCAGTTCACC spacer length: 33
	repeater length: 24	
25348	1682301 GTAATAACGACAAGAACTAAAAC	GTCTTTACAGAACTTGGGGCGAAGTAGTATCCCGC spacer length:
	35 repeater length: 24	
25349	1682361 GTAATAACGACAAGAACTAAAAC	GATGAACTCGCCTGTGTTACTTGATGTGTATAAGGA spacer length:
	36 repeater length: 24	
25350	1682422 GTAATAACGACAAGAACTAAAAC	AACTCTGAGACTGAGGTTCTTTTTGTCTCACTAGA spacer length:
	35 repeater length: 24	
25351	1682482 GTAATAACGACAAGAACTAAAAC	ATAGGCTAGAAGCTGCAAAGAGGCTGGGCTGGAA spacer length:
	34 repeater length: 24	
25352	1682541 GTAATAACGACAAGAACTAAAAC	TACTGCAAGATCTACATTATAGTTCAATGATTT spacer length: 33
	repeater length: 24	
25353	1682599 GTAATAACGACAAGAACTAAAAC	ACGAGTCTCTTTATCAATATAGTGATGTTATCTACA spacer length:
	36 repeater length: 24	
25354	1682660 GTAATAACGACAAGAACTAAAAC	TTTTTTGCTTTTAGCTTTTCGTATTCTATTAATGA spacer length:
	35 repeater length: 24	
25355	1682720 GTAATAACGACAAGAACTAAAAC	AGTGGCTTAATGTACCTTTTGGTACTGACTATCCAA spacer length:
	36 repeater length: 24	
25356	1682781 GTAATAACGACAAGAACTAAAAC	GCTGATAGATAAAGATAAAATAAAAATAGACTT spacer length: 33
	repeater length: 24	
25357	1682839 GTAATAACGACAAGAACTAAAAC	GTCTACTTTAAGTGAACCTTATTGTAATCGTATCAA spacer length:
	36 repeater length: 24	
25358	1682900 GTAATAACGACAAGAACTAAAAC	TAAGCGTCTAAATAAGTTACCGACAATTGTTA spacer length: 32
	repeater length: 24	
25359	1682957 GTAATAACGACAAGAACTAAAAC	ATTGTTGAGAGATGCTACTTATGAAGAAAATGGA spacer length:
	34 repeater length: 24	
25360	1683016 GTAATAACGACAAGAACTAAAAC	CTTCATAACTCAACAAAACAAATAAGGTATGCCACTC spacer
	length: 37 repeater length: 24	
25361	1683078 GTAATAACGACAAGAACTAAAAC	CTTAGCGTAAGAGAGCGTATATTATGCAGCGTATAT spacer length:
	36 repeater length: 24	
25362	1683139 GTAATAACGACAAGAACTAAAAC	AATTTTCAGAGTCACCTACTTGGAATTTTGTCTCT spacer length:
	36 repeater length: 24	
25363	1683200 GTAATAACGACAAGAACTAAAAC	CAAAAAC TGCCGTTTAATGCGCCACTTCTAGAACA spacer length:
	35 repeater length: 24	
25364	1683260 GTAATAACGACAAGAACTAAAAC	TTTTGAGAATAGAGTCTATGAAATCTCCTTTTAT spacer length:
	34 repeater length: 24	
25365	1683319 GTAATAACGACAAGAACTAAAAC	AGGTTCACTCACCTCGCCTCGCAAGATATTCCAA spacer length:
	35 repeater length: 24	
25366	1683379 GTAATAACGACAAGAACTAAAAC	ACAATTCTTTCTTTTTTTATAGCTGTTGTACACATTCC spacer
	length: 38 repeater length: 24	
25367	1683442 GTAATAACGACAAGAACTAAAAC	TAGTAATATCTAGCGACTTCATAATTGCTGATG spacer length:
	34 repeater length: 24	
25368	1683501 GTAATAACGACAAGAACTAAAAC	ATTATAAAATTGATGTATTATACATTTGCAGAAA spacer length:
	34 repeater length: 24	
25369	1683560 GTAATAACGACAAGAACTAAAAC	CGCTATTCTCAAGTACTCTGCGATCTCGCCCTCTGAAA spacer
	length: 38 repeater length: 24	
25370	1683623 GTAATAACGACAAGAACTAAAAC	TTCATATCGCTCTTTTGAATACTTCATCAATTCTTGT spacer
	length: 37 repeater length: 24	
25371	1683685 GTAATAACGACAAGAACTAAAAC	TTTTATATTCTGTTGTTTCAATTTTTTATATCATT spacer length: 33
	repeater length: 24	

25372 1683743 GTAATAACGACAAGAACTAAAAC ATATTATTAGGAATGACAGCCGGAGCTACTACTG spacer length:
 34 repeater length: 24
 25373 1683802 GTAATAACGACAAGAACTAAAAC TTGTACAAAAAAGCTGAATTTAAGCAAGTCGGAA spacer length:
 34 repeater length: 24
 25374 1683861 GTAATAACGACAAGAACTAAAAC ATTTAGTTTGAATATTATGAGTAATTGAGAGTTGG spacer length:
 35 repeater length: 24
 25375 1683921 GTAATAACGACAAGAACTAAAAC TTGCTACAGGAAATGGAGAAGGTGAATATCAGGGAG spacer length:
 36 repeater length: 24
 25376 1683982 GTAATAACGACAAGAACTAAAAC TTTTATCTTCAAAGAGTTGAAAAAGAGAGGGTTAGAT spacer
 length: 37 repeater length: 24
 25377 1684044 GTAATAACGACAAGAACTAAAAC
 CTTTCTTCTTCATCTTTATCGATCAAAATTAGCCTTAGCAATAACGACAAGAACTAAAACTTTATTATCAAGAGCATTAAAGTAAT
 TTTGGAAGACC spacer length: 97 repeater length: 24
 25378 1684166 GTAATAACGACAAGAACTAAAAC TAATAACTCTCCTACCTTTTCTATTTTTAGCATTTG spacer length:
 36 repeater length: 24
 25379 1684227 GTAATAACGACAAGAACTAAAAC TATTTCTGTAATCTTCTATAAGTTTTGAGTTGAATGG spacer length:
 36 repeater length: 24
 25380 1684288 GTAATAACGACAAGAACTAAAAC GTATAGTACTGGTGTATTACTTCCAGATATCCC spacer length: 33
 repeater length: 24
 25381 1684346 GTAATAACGACAAGAACTAAAAC CACTCTCTTCAATCCGATTATATCAATTTACTAC spacer length:
 34 repeater length: 24
 25382 1684405 GTAATAACGACAAGAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGA spacer length:
 36 repeater length: 24
 25383 1684466 GTAATAACGACAAGAACTAAAAC GTTGTAGTCATTCCAGTAATGACTAAGATATTGTG spacer length:
 35 repeater length: 24
 25384 1684526 GTAATAACGACAAGAACTAAAAC TGTAATACAATATTACGCTAGCAATACAACAAACAT spacer length:
 36 repeater length: 24
 25385 1684587 GTAATAACGACAAGAACTAAAAC ACACTCGCCGACTCTCTCTCATTTATTGCGAGAT spacer length:
 34 repeater length: 24
 25386 1684646 GTAATAACGACAAGAACTAAAAC GTGTTGTTTCGAGACTTCTACTGCCATTAATATTA spacer length:
 34 repeater length: 24
 25387 1684705 GTAATAACGACAAGAACTAAAAC GATTACTTTATGCTTTATTCAAATATAGAATAAAA spacer length:
 35 repeater length: 24
 25388 1684765 GTAATAACGACAAGAACTAAAAC GTTGGGTATTTAAGCTTACGCATTATATTTTTGA spacer length:
 34 repeater length: 24
 25389 1684824 GTAATAACGACAAGAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGA spacer length:
 36 repeater length: 24
 25390 1684885 GTAATAACGACAAGAACTAAAAC TAATATAGCGACCACAGAACTCTTGCTATATTT spacer length: 33
 repeater length: 24
 25391 1684943 GTAATAACGACAAGAACTAAAAC CTCTCAAGAAATTCCAAAAGTTTATCAAACCTCCT spacer length:
 34 repeater length: 24
 25392 1685002 GTAATAACGACAAGAACTAAAAC TTTCTACATTATGTACTACCGATAAAACATGTGATC spacer length:
 36 repeater length: 24
 25393 1685063 GTAATAACGACAAGAACTAAAAC TTCTCTTGTTTCAAACCACTTAAATCTTCGTTATT spacer length:
 36 repeater length: 24
 25394 1685124 GTAATAACGACAAGAACTAAAAC TTTTCATCAACATCTTGACTCCGGTATTCGACATC spacer length:
 35 repeater length: 24
 25395 1685184 GTAATAACGACAAGAACTAAAAC AGTGGTCAGGGCTAGATATCTGCCCACTACCAAC spacer length:
 34 repeater length: 24
 25396 1685243 GTAATAACGACAAGAACTAAAAC TATCAAGAAAAATAGGGCTAGCCCAATTCCAATGA spacer length:
 35 repeater length: 24
 25397 1685303 GTAATAACGACAAGAACTAAAAC TAAGTATATATCATTTGAATGAATGTTGAGAGCCA
 25398
 25399
 25400 crispr 4
 25401 1548412 GAAGAATCCCATAAGGGATTGAAAG CATATCATCATCTCTCATCATCTGCCTGCAACGTAT spacer
 length: 36 repeater length: 25
 25402 1548474 GAAGAATCCCATAAGGGATTGAAAG TCACATTCATCCCTATAGACATTTATTGAAAACGA spacer length:
 35 repeater length: 25
 25403 1548535 GAAGAATCCCATAAGGGATTGAAAG TTTGCTTTAACATAGATCGGTGAAAGCATCTCAAAGGTA spacer
 length: 40 repeater length: 25
 25404 1548601 GAAGAATCCCATAAGGGATTGAAAG ACTATAAACAGATTGCCAGATTTGTGGAGAACTTAACGAC
 25405
 25406
 25407 crispr 5
 25408 1508177 GATGAATCCCCAAAAGGGATTGAAAG
 NGTTAAGCACCATGCGACCAAAAAACCTCAACACAATTACTAGGACTTAAGGTCGCATTAAAGTTCCCCATAAAACACCTAAAATT
 TAAATACAAGGAAAGGGAAAAATAAGACAAGGGATATAAAAACAAACC spacer length: 134 repeater length:
 25
 25409 1508337 GATGAATCCCCAAAAGGGATTGAAAG CTCTGTTACAGAAATATTTGTCAAGCTCAATCTTAAA spacer
 length: 38 repeater length: 25

25410 1508401 GATGAATCCCAAAAGGGATTGAAAG AGTTTTGGGAACACTTCTCTTCCCTTTATCTGTTAGTTCAT spacer
 length: 41 repeater length: 25
 25411 1508468 GATGAATCCCAAAAGGGATTGAAAG CTCAAATCGTTTGCCTACTGTTTAAAGCTTTTAAACT spacer
 length: 38 repeater length: 25
 25412 1508532 GATGAATCCCAAAAGGGATTGAAAG AGCACCTATTTTCAGGTGCTGGCTGACTAGAACTT spacer
 length: 36 repeater length: 25
 25413 1508594 GATGAATCCCAAAAGGGATTGAAAG GGGTATAAATAAAGTATGCCAGCCTGTGCTAATGACA spacer
 length: 37 repeater length: 25
 25414 1508657 GATGAATCCCAAAAGGGATTGAAAG AGTTTATTATGTCATTGGACAGCAAGTCATACGAG spacer length:
 35 repeater length: 25
 25415 1508718 GATGAATCCCAAAAGGGATTGAAAG TTTTCTCCTTTTTTTCATAATACTTCTTTCCATATTTCCGC spacer
 length: 40 repeater length: 25
 25416 1508784 GATGAATCCCAAAAGGGATTGAAAG GCTCTGCTAACATTAGCCTCTTCTCCTGCTAGAGCT spacer
 length: 36 repeater length: 25
 25417 1508846 GATGAATCCCAAAAGGGATTGAAAG ATCTTGTCGCTTATGTGAACGTCTAGGGAGTCGATAA spacer
 length: 37 repeater length: 25
 25418 1508909 GATGAATCCCAAAAGGGATTGAAAG ATGTAAAATATCATGACACATATATTAATTTTGAAGC
 25419
 25420
 25421 crispr 6
 25422 1508401 GATGAATCCCAAAAGGGATTGAAAGAG
 TTTTGGGAACACTTCTCTTCCCTTTATCTGTTAGTTCATAGATGAATCCCAAAAGGGATTGAAAGCTCAAATCGTTTGCCTACTGT
 TTAAAGCTTTTAAACT spacer length: 103 repeater length: 27
 25423 1508532 GATGAATCCCAAAAGGGATTGAAAGAG
 CACCCTATTTTCAGGTGCTGGCTGACTAGAACTTTGATGAATCCCAAAAGGGATTGAAAGGGGTATAAATAAAGTATGCCAGCCTG
 TGCTAATGACA spacer length: 97 repeater length: 27
 25424 1508657 GATGAATCCCAAAAGGGATTGAAAGAG
 CAAGTTAGGTTTTATGTTGAAGGGGACTCTGATGAATCCCAAAAGGGATTGAAAGACGGCAATTATGGTTATATCATAATGATAAT
 GCTAAGTCGAG
 25425
 25426
 25427 crispr 7
 25428 1391760 AAATGACAGAGGAGAACACAAAAGCCATTAT TGAAGTTAGGAAGCAAACAGAGGAGAACACAAAGGC spacer
 length: 36 repeater length: 31
 25429 1391828 AAATGACAGAGGAGAACACAAAAGCCATTAT
 TGAAGTTAGGAAGCAAACAGAGGAGAACACAAAGGCTATAGCTGAATTAAGG spacer length: 52 repeater
 length: 31
 25430 1391912 AAATGACAGAGGAGAACACAAAAGCCATTAT
 TCATTTGAATGAATGTTGAGAGCCACATTTAAAAGTCCCATAAGAAATTGAA
 25431
 25432
 25433 crispr 8
 25434 1067409 TGACAGCAAAAGCAGAAGGATATGCCGACATAGAAGCAAT
 GCTATGCGCATTTGCTGAAGAAAGCAAAAATTGCAGAACTGTAGGAAAAGTAGCCACCGAATTAAAGGTAAAGAAGTTACTAT
 CTGATTTGCTACTAAAGAGGGAGAGGAGCACATATCCACATACAACAAAATAGCA spacer length: 142 repeater
 length: 40
 25435 1067592 TGACAGCAAAAGCAGAAGGATATGCCGACATAGAAGCAAT
 GCTATGCGCATTTGCNAAAGAGGGAGAGGAGCACATATCCACATACAACAAAATAGCA spacer length: 58
 repeater length: 40
 25436 1067691 TGACAGCAAAAGCAGAAGGATATGCCGACATAGAAGCAAT
 AAAATCGTTGATAAATTGGTAAAGTCTGTTTCAGCATTAACGAGAGAGTAAGTGGAC
 25437
 25438
 25439 GCA_001481635.1_ASM148163v1_genomic.fna(findCrispr):
 25440 START REPEAT
 SPACER
 25441 crispr 1
 25442 21241 TTTTAGTTTCTTGTCGTTATTAC TAAATTAGATATACGTACATGGGATTCACTAAGAAA spacer length: 36
 repeater length: 23
 25443 21301 TTTTAGTTTCTTGTCGTTATTAC CGATTGTTGTGATTGTTGTTCTTGCTTTTTAGCGTC spacer length: 36
 repeater length: 23
 25444 21361 TTTTAGTTTCTTGTCGTTATTAC CAACATAAGGACCTGGAGTGATCACGGGGAGCCCAGT spacer length:
 37 repeater length: 23
 25445 21422 TTTTAGTTTCTTGTCGTTATTAC GGGAGGGAGTTACAGTAATAATATCTACGGAACGGT spacer length: 36
 repeater length: 23
 25446 21482 TTTTAGTTTCTTGTCGTTATTAC CTTTCAATTGATGCTGGTGATGCTTGAGCTAAAATG spacer length: 36
 repeater length: 23
 25447 21542 TTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
 repeater length: 23
 25448 21601 TTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
 repeater length: 23

25449 21660 TTTTAGTTTCTTGTCGTTATTAC AAGGCTTCCTCTTCTTGCTGGGTAAGCCTGGGGAGTA spacer length: 37 repeater length: 23

25450 21721 TTTTAGTTTCTTGTCGTTATTAC TTTTAGGGCTACTATGGTGATAGCTACTGAAAATAAAAA spacer length: 39 repeater length: 23

25451 21784 TTTTAGTTTCTTGTCGTTATTAC AAGGAATTAAAGAAGTTAGGACTTCAGGACAATGTAG spacer length: 37 repeater length: 23

25452 21845 TTTTAGTTTCTTGTCGTTATTAC GCTTTAAGGTCGAAATCAGAGATAATGAGCATAAT spacer length: 35 repeater length: 23

25453 21904 TTTTAGTTTCTTGTCGTTATTAC AAAAATGTGCTCATCTATGTTTCACCCTGTTGCAC spacer length: 35 repeater length: 23

25454 21963 TTTTAGTTTCTTGTCGTTATTAC AGAGTTTGTTCCTTAATTGGCCAGCAGACTAATTTTA spacer length: 36 repeater length: 23

25455 22023 TTTTAGTTTCTTGTCGTTATTAC CTTCCAGTCTTCATTTCTGGCTCACCCCAGTCAGC spacer length: 36 repeater length: 23

25456 22083 TTTTAGTTTCTTGTCGTTATTAC ATACTTAATCCCTGCAATCGCAGGTTCAATGGTTCAAG spacer length: 38 repeater length: 23

25457 22145 TTTTAGTTTCTTGTCGTTATTAC AGCACGTAACGAAGCTCTATACTACTACGTAAAG spacer length: 35 repeater length: 23

25458 22204 TTTTAGTTTCTTGTCGTTATTAC GTTGACGAGGGCTGGCTCTTTGTGAAC TACCCTATGTTTTAGTTTCTCGTCGTTATTACTGAAAAACCCTATATTTACAGAGACAA ATGAAGAG spacer length: 94 repeater length: 23

25459 22322 TTTTAGTTTCTTGTCGTTATTAC GAATTGTGCTGATGCCGAATTATCAGGATCCCATGTTTTAGTTTCTCGTCGTTATTACAAGTCGCAATAGCTAATTCGACTAACT AATCGCT spacer length: 93 repeater length: 23

25460 22439 TTTTAGTTTCTTGTCGTTATTAC GCCATCGAGATTATAGCACCCATCAGAATAATTACGTTTTAGTTTCTTGTCATTATTACGAGAAACCCCTCTAACCTTTTTAAGAA GTCCTTTACAGTTTTAGTTTCTTGTCATTATTACTCAATTCTTCGTAATGCTCGGGTTTTATGATTATTTT spacer length: 157 repeater length: 23

25461 22620 TTTTAGTTTCTTGTCGTTATTAC AGTAACTATATACTTCCTAACGGAACAACTGTAA spacer length: 34 repeater length: 23

25462 22678 TTTTAGTTTCTTGTCGTTATTAC ACCAGTCTTATCTACATATTTTCAAAGTAATAGT spacer length: 35 repeater length: 23

25463 22737 TTTTAGTTTCTTGTCGTTATTAC AGATGAGCATGGCGTAGTATCCATAAGTGCTGATGT spacer length: 36 repeater length: 23

25464 22797 TTTTAGTTTCTTGTCGTTATTAC ACAACGAAAAAGAAAAAGCATTGAAAATAATTGAG spacer length: 35 repeater length: 23

25465 22856 TTTTAGTTTCTTGTCGTTATTAC ATTTATATACATACACTCCATTTTCCTTAAATTT spacer length: 34 repeater length: 23

25466 22914 TTTTAGTTTCTTGTCGTTATTAC TGCTGTTTCATCAGGCTCAGTATAGTACCTGCAT spacer length: 33 repeater length: 23

25467 22971 TTTTAGTTTCTTGTCGTTATTAC GTGTGTCTTACCACTCATAAAGCTCTCCCACATAC spacer length: 35 repeater length: 23

25468 23030 TTTTAGTTTCTTGTCGTTATTAC ATTGATACGATTCTTGCTGAGGCGAGAAAGTATTCTCTT spacer length: 39 repeater length: 23

25469 23093 TTTTAGTTTCTTGTCGTTATTAC ATAATTTCAATCCTGAAAAACAGCTGTTCTACTTC spacer length: 35 repeater length: 23

25470 23152 TTTTAGTTTCTTGTCGTTATTAC CTCTACTATTGCTGATACTGATTTGCCTTCATCCCTC spacer length: 37 repeater length: 23

25471 23213 TTTTAGTTTCTTGTCGTTATTAC ACTATCTTCTTCTGAGTAGTAGTGGTCGTAACGTT spacer length: 35 repeater length: 23

25472 23272 TTTTAGTTTCTTGTCGTTATTAC TTTTGTGACAGCATTTCGATAGAGGTTAAAGGTTTTTT spacer length: 36 repeater length: 23

25473 23332 TTTTAGTTTCTTGTCGTTATTAC TGGTTGTTTGGTGAAAACCTCTAGGGGGACACATTC spacer length: 36 repeater length: 23

25474 23392 TTTTAGTTTCTTGTCGTTATTAC AAAAGCTTTAGCTTTTTCAACTATCTAAGACATA spacer length: 34 repeater length: 23

25475 23450 TTTTAGTTTCTTGTCGTTATTAC TTCAATTTGTTTTCTGAAAAAATTAGTTGTAAAG spacer length: 35 repeater length: 23

25476 23509 TTTTAGTTTCTTGTCGTTATTAC ATCGTCACCACCCACGAGGGCTTTTACGAATACGAG spacer length: 36 repeater length: 23

25477 23569 TTTTAGTTTCTTGTCGTTATTAC ACATACTAATAGTCTTACTCAGCATGAGGTTGATGAAC spacer length: 38 repeater length: 23

25478 23631 TTTTAGTTTCTTGTCGTTATTAC TTCTTGCTTGCTATAGCGTTAAGCAAGTAGAAGTGC spacer length: 36 repeater length: 23

25479 23691 TTTTAGTTTCTTGTCGTTATTAC TTGGATATAGAATTGTCTCATAAAGACATTGAGACTG spacer length: 37 repeater length: 23

25480 23752 TTTTAGTTTCTTGTCGTTATTAC TCCATAAAAGGCTTTGGACAAAACTCTTTGGTG spacer length: 34 repeater length: 23

25481 23810 TTTTAGTTTCTTGTCGTTATTAC GACTTCATATAAAGATTTGAGTTGCTGTTGCTCATAT spacer length: 37 repeater length: 23

25482 23871 TTTTAGTTTCTTGTCGTTATTAC TTTAAGCCAAATTTCTTCTCAATGTCCTTTGGAATTAAT spacer length:

39 repeater length: 23
 25483 23934 TTTTAGTTTCTTGTCGTTATTAC AAGGAAATTGATGGAAGTTGCAGCAGAATTAGAGGCTGA spacer length:
 39 repeater length: 23
 25484 23997 TTTTAGTTTCTTGTCGTTATTAC TACTTACCGTTTCTTCTATCATCTCTCTATTACAG spacer length: 34
 repeater length: 23
 25485 24055 TTTTAGTTTCTTGTCGTTATTAC GATGAAGTTTATGATAAGCTCCAAACAATATATAGT spacer length: 36
 repeater length: 23
 25486 24115 TTTTAGTTTCTTGTCGTTATTAC TTGTATTGCTGATTGCCAATATATGCAATGTATC spacer length: 34
 repeater length: 23
 25487 24173 TTTTAGTTTCTTGTCGTTATTAC TCCAAAGCCTTCTAATAAAAGTGCAAAAGTCTGATGTT spacer length:
 38 repeater length: 23
 25488 24235 TTTTAGTTTCTTGTCGTTATTAC ATTGTAATGCCATTATTTACTGAAATTGAACCTG spacer length: 34
 repeater length: 23
 25489 24293 TTTTAGTTTCTTGTCGTTATTAC ATCATTCATTTTTTCTGCCCAATATAATATACGAT spacer length: 36
 repeater length: 23
 25490 24353 TTTTAGTTTCTTGTCGTTATTAC ATTGTTGACTTTTCCATCCACTTTGTGTACTG spacer length: 33
 repeater length: 23
 25491 24410 TTTTAGTTTCTTGTCGTTATTAC TATGTTACGCTCATACTATATTTCTAAAAGTAATGTA spacer length:
 37 repeater length: 23
 25492 24471 TTTTAGTTTCTTGTCGTTATTAC GTAGAAACCTCTCTGTGTCTCTTGGATTATATAGAAATT spacer length:
 39 repeater length: 23
 25493 24534 TTTTAGTTTCTTGTCGTTATTAC ACTTATTTTTTTGTCTTTATCTCACTACTCATTTTCT spacer length: 36
 repeater length: 23
 25494 24594 TTTTAGTTTCTTGTCGTTATTAC CGTGTGGAAGTTGATGGCTGATCTACAATTATTC spacer length: 34
 repeater length: 23
 25495 24652 TTTTAGTTTCTTGTCGTTATTAC TAAATGCTTCCTGCACAGCACCTAAATTGGCAAACCTTTT spacer length:
 39 repeater length: 23
 25496 24715 TTTTAGTTTCTTGTCGTTATTAC CCTAGGCTTTGCAGGTATTAATGCCTGTGAGCCA spacer length: 34
 repeater length: 23
 25497 24773 TTTTAGTTTCTTGTCGTTATTAC TATCACAACAAATACATTTTTGTATACCGCTACT spacer length: 34
 repeater length: 23
 25498 24831 TTTTAGTTTCTTGTCGTTATTAC TTTGGGTCAGAGACAAAGTTGTCAGTTTAATGACAA spacer length: 36
 repeater length: 23
 25499 24891 TTTTAGTTTCTTGTCGTTATTAC GAATTTGTATCATTTACTGGAAATCTGAAATTATTGTA spacer length:
 38 repeater length: 23
 25500 24953 TTTTAGTTTCTTGTCGTTATTAC TACTAGCTTCTTTTGCTATCTTCTCAGCCTTGTTG spacer length: 34
 repeater length: 23
 25501 25011 TTTTAGTTTCTTGTCGTTATTAC TTGTAATCCCAGTGCTCTTTGCACTTAACCCAGAGA spacer length: 36
 repeater length: 23
 25502 25071 TTTTAGTTTCTTGTCGTTATTAC TCACTTACGACATATGATGCTACTTCATGCACTGT spacer length: 35
 repeater length: 23
 25503 25130 TTTTAGTTTCTTGTCGTTATTAC AATAGATCACACTGTTTGACATTAAAGAGCACAA spacer length: 34
 repeater length: 23
 25504 25188 TTTTAGTTTCTTGTCGTTATTAC ACCTAAAAATGATAAAAAATCTAAGACTAACGTCGA spacer length: 35
 repeater length: 23
 25505 25247 TTTTAGTTTCTTGTCGTTATTAC TTGTTACTTTTAATGTAAAGAGTAAGGCTTAAATAT spacer length: 36
 repeater length: 23
 25506 25307 TTTTAGTTTCTTGTCGTTATTAC AGGTAATAGATCTTGAGGTGACGTCAATCCAAATT spacer length: 35
 repeater length: 23
 25507 25366 TTTTAGTTTCTTGTCGTTATTAC ATAATCAAGGAGGCATCTATGTTACTGGGCATTA spacer length: 34
 repeater length: 23
 25508 25424 TTTTAGTTTCTTGTCGTTATTAC AGGCCTGCCTCTTCTAGTCCTTCTTGTGCACTTAGAATT spacer length:
 39 repeater length: 23
 25509 25487 TTTTAGTTTCTTGTCGTTATTAC ATGTTTCCTTGAACAAAAGCGATATCATAAAATT spacer length: 34
 repeater length: 23
 25510 25545 TTTTAGTTTCTTGTCGTTATTAC TGTTCTACGTTAGGGTACTTTTTTATGAACTTTTCA spacer length: 36
 repeater length: 23
 25511 25605 TTTTAGTTTCTTGTCGTTATTAC AAAGAAGAGCAGAAAGTAGTAGAGGACAGAGAAGAT spacer length: 36
 repeater length: 23
 25512 25665 TTTTAGTTTCTTGTCGTTATTAC AACGGTTTAGCAATCCTCCTCGGAATATTAATGCTGTT spacer length:
 38 repeater length: 23
 25513 25727 TTTTAGTTTCTTGTCGTTATTAC TTTAATGCGTTTAATGCCTCATCGAATTTCTGCTTC spacer length: 36
 repeater length: 23
 25514 25787 TTTTAGTTTCTTGTCGTTATTAC AATGTATCTTCAGTTCCATTATTCTATTTGAACTC spacer length: 35
 repeater length: 23
 25515 25846 TTTTAGTTTCTTGTCGTTATTAC CAGCTTATTACTATGCCCTGGCAAAGATCCTCTTAGAG spacer length:
 38 repeater length: 23
 25516 25908 TTTTAGTTTCTTGTCGTTATTAC AATATCTCAAGGAGGGCGAGGAAGTATGCGAAAGGTAA
 25517
 25518
 25519 crispr 2

25520	38298 GTAATAACGACAAGAACTAAAAC	AGCTCTTTCGCACTGTTATTTTACAATTTACACG	spacer length: 34
	repeater length: 24		
25521	38357 GTAATAACGACAAGAACTAAAAC	GCTTGTGTGATTTGGGCCCATGCGAGGAGGATTA	spacer length: 33
	repeater length: 24		
25522	38415 GTAATAACGACAAGAACTAAAAC	TGATATTGTATCGTTGTAGTTAGTATTGTCCAGAAGA	spacer length: 37
	repeater length: 24		
25523	38477 GTAATAACGACAAGAACTAAAAC	AAGAACTCCCGGGAGCCCTGGTGGTATGCCCGAAAT	spacer length: 36
	repeater length: 24		
25524	38538 GTAATAACGACAAGAACTAAAAC	ATCGTAAGAGAAGTGGGCTAGCGCTACCCTCCTCCAC	spacer length: 37
	repeater length: 24		
25525	38600 GTAATAACGACAAGAACTAAAAC	AGAAAATATCTCAAGGAGGGCGAGGAAGTATGCGAAA	spacer length: 37
	repeater length: 24		
25526	38662 GTAATAACGACAAGAACTAAAAC	TGGATGCTGAGTTAACTCCCCAGTTTACCGT	spacer length: 31
	repeater length: 24		
25527	38718 GTAATAACGACAAGAACTAAAAC	TTTTAGCCTGACCATTTCCCTCGTTAAAAAATAAGGAA	spacer length: 38
	repeater length: 24		
25528	38781 GTAATAACGACAAGAACTAAAAC	TTTCACGCTCCATGACCTCAGTGAATATCTCAT	spacer length: 33
	repeater length: 24		
25529	38839 GTAATAACGACAAGAACTAAAAC	TCATAGGGGCTATATTCAACAATACGTTGCTCCAGT	spacer length: 36
	repeater length: 24		
25530	38900 GTAATAACGACAAGAACTAAAAC	GAGAAGAAGCAAAGCATACCGCTCTACAAGGTTTCCTTCAGT	spacer length: 41
	repeater length: 24		
25531	38966 GTAATAACGACAAGAACTAAAAC	TATGTCGATCTGTCCGGTGTGCTGGTGGGCGAGCA	spacer length: 35
	repeater length: 24		
25532	39026 GTAATAACGACAAGAACTAAAAC	AAATAGTGGTTTCCAAGACTGTGCAAATGCTTTTTTAT	spacer length: 38
	repeater length: 24		
25533	39089 GTAATAACGACAAGAACTAAAAC	TTTTAGCTGTTTCTCCATTCCGTCCCACCAACTA	spacer length: 34
	repeater length: 24		
25534	39148 GTAATAACGACAAGAACTAAAAC	TAAAATATTTTAATGTTCCGGAGATAGATTATAAC	spacer length: 35
	repeater length: 24		
25535	39208 GTAATAACGACAAGAACTAAAAC	TGATATTTGGAGTGGTCGTGATTTTAATGGGAGC	spacer length: 34
	repeater length: 24		
25536	39267 GTAATAACGACAAGAACTAAAAC	ATTAAC TACATCGCTAACAGCTTGGTACAGCCTG	spacer length: 34
	repeater length: 24		
25537	39326 GTAATAACGACAAGAACTAAAAC	AACAAAAAATGAAGTTTTGGGTATGACTTTCTA	spacer length: 35
	repeater length: 24		
25538	39386 GTAATAACGACAAGAACTAAAAC	TAGAGGCACAATTACAGAATTTAGTAATTGATCAAA	spacer length: 36
	repeater length: 24		
25539	39447 GTAATAACGACAAGAACTAAAAC	TGAATTCTGCCTTTTTATATAACGCATTACTGTGAT	spacer length: 36
	repeater length: 24		
25540	39508 GTAATAACGACAAGAACTAAAAC	TTTGAGACGCTGAAAGACGTAGCGAAAGACTCTG	spacer length: 34
	repeater length: 24		
25541	39567 GTAATAACGACAAGAACTAAAAC	ATTAAAATGCTGTAGAAACACTTGACCAAATAT	spacer length: 33
	repeater length: 24		
25542	39625 GTAATAACGACAAGAACTAAAAC	TAAAGGGATCCTGACCTAAGGACTATCGGGCTTACTT	spacer length: 37
	repeater length: 24		
25543	39687 GTAATAACGACAAGAACTAAAAC	ACTATCTCAGCTATCGTCACTATCGACATCTTCA	spacer length: 34
	repeater length: 24		
25544	39746 GTAATAACGACAAGAACTAAAAC	CATTTTATTTATATAGCCTCGTTGTATAGCTTC	spacer length: 33
	repeater length: 24		
25545	39804 GTAATAACGACAAGAACTAAAAC	ACTGCTAAAGAGCGCAGGTATTGCGCAAGACTAC	spacer length: 34
	repeater length: 24		
25546	39863 GTAATAACGACAAGAACTAAAAC	ATAATATACGACGCTCTGGTTAGGTAAAGGTACTC	spacer length: 35
	repeater length: 24		
25547	39923 GTAATAACGACAAGAACTAAAAC	AAAATTTTATTCTAAAGAGATAACAGATTTGGGC	spacer length: 34
	repeater length: 24		
25548	39982 GTAATAACGACAAGAACTAAAAC	AGTGAATGCTTGTCTGAGCCTAGTCTGTTTAAC	spacer length: 34
	repeater length: 24		
25549	40041 GTAATAACGACAAGAACTAAAAC	ACATTTGCTGGAGTTCAGAAAATATCAGTAACCA	spacer length: 34
	repeater length: 24		
25550	40100 GTAATAACGACAAGAACTAAAAC	AAAGTTGTTTCAGCCCCATCTTCAATAAGTGAAGG	spacer length: 35
	repeater length: 24		
25551	40160 GTAATAACGACAAGAACTAAAAC	AACATAAAAAACACTGCTAGTTTCTATCTGATTAA	spacer length: 35
	repeater length: 24		
25552	40220 GTAATAACGACAAGAACTAAAAC	ATAGATAAAATAAATAGTTAATGTTTCATAAAATC	spacer length: 35
	repeater length: 24		
25553	40280 GTAATAACGACAAGAACTAAAAC	AACAACGTGATGATACTGACATTTGCGGGCTATTG	spacer length: 35
	repeater length: 24		
25554	40340 GTAATAACGACAAGAACTAAAAC	GCTGTTCATATAACTGTAATAAATTAAGAACT	spacer length: 33
	repeater length: 24		
25555	40398 GTAATAACGACAAGAACTAAAAC	AACTCTTGAATTGTTAAGTCTTTAATGAATGCA	spacer length: 33

	repeater length: 24	
25556	40456 GTAATAACGACAAGAACTAAAAC	AATGTACACCGTAGCCATTTTTTTTGCACCTTCTT spacer length: 33
	repeater length: 24	
25557	40514 GTAATAACGACAAGAACTAAAAC	AAGAACAGCGATGTTTACAAGTCAGCACAAAGACG spacer length: 34
	repeater length: 24	
25558	40573 GTAATAACGACAAGAACTAAAAC	CATTTTCTTGGTTTTATCTATTTACCGTTTTAAA spacer length: 34
	repeater length: 24	
25559	40632 GTAATAACGACAAGAACTAAAAC	CTAGATTGTTAGCACCGTGCATTAGCAATAATGCGT spacer length: 36
	repeater length: 24	
25560	40693 GTAATAACGACAAGAACTAAAAC	GATTGCTGATGACGATGGAATAGTTACCACAAG spacer length: 33
	repeater length: 24	
25561	40751 GTAATAACGACAAGAACTAAAAC	TTTTATTTTCACCGACAAAACGAAAAAATTGAA spacer length: 34
	repeater length: 24	
25562	40810 GTAATAACGACAAGAACTAAAAC	TTAAAGAGGCAACAAAGCGAAAAATTCTATATGC spacer length: 34
	repeater length: 24	
25563	40869 GTAATAACGACAAGAACTAAAAC	TTGTTGTGCTAACTGGTTTATCGCATCCCCTATT spacer length: 34
	repeater length: 24	
25564	40928 GTAATAACGACAAGAACTAAAAC	TTATGTTATTTGTACAACTTCTTAGTTGCCAAT spacer length: 34
	repeater length: 24	
25565	40987 GTAATAACGACAAGAACTAAAAC	TTCTTGTAGTTTCGGGAAGACATTCTCACTGGTGT spacer length: 35
	repeater length: 24	
25566	41047 GTAATAACGACAAGAACTAAAAC	TAGTAGTAGTTAATACTGCTGACTGAATTTTTCTTAGT spacer length: 38
	repeater length: 24	
25567	41110 GTAATAACGACAAGAACTAAAAC	TTTATTTCAAAAAGTTACACTATAAAGATGAATT spacer length: 34
	repeater length: 24	
25568	41169 GTAATAACGACAAGAACTAAAAC	TTGGGTAAGATCTAGACCTTATGTTCCCTCTTTC spacer length: 33
	repeater length: 24	
25569	41227 GTAATAACGACAAGAACTAAAAC	TTGGGATATATTGCACAGACAACTTTGTCTC spacer length: 32
	repeater length: 24	
25570	41284 GTAATAACGACAAGAACTAAAAC	ATGTTAGGAATATTGTTAAAAATCCGCCTATAATTCCGA spacer
	length: 39 repeater length: 24	
25571	41348 GTAATAACGACAAGAACTAAAAC	ATTTTTTATGCCATACCAACCCATTTTAATCAA spacer length: 33
	repeater length: 24	
25572	41406 GTAATAACGACAAGAACTAAAAC	CAGTATATGCGTGTTGATGATTTTCTGAAGACT spacer length: 33
	repeater length: 24	
25573	41464 GTAATAACGACAAGAACTAAAAC	ATAGCAAAGTACGAATAATCTATATTCCTGACC spacer length: 33
	repeater length: 24	
25574	41522 GTAATAACGACAAGAACTAAAAC	ATATCTCATGGTTATGTTTCTTCAGATCCAGGC spacer length: 33
	repeater length: 24	
25575	41580 GTAATAACGACAAGAACTAAAAC	GCGGCAGCTACTGGGTCTAACGCCTTCCACTCGA spacer length: 34
	repeater length: 24	
25576	41639 GTAATAACGACAAGAACTAAAAC	ACATAAGCCAGCTAAAGAAGACGTATCTGACTGA spacer length: 34
	repeater length: 24	
25577	41698 GTAATAACGACAAGAACTAAAAC	ATTATAAGTAAGGGCTGACTTGTTGAGTAAGACTGG spacer length: 36
	repeater length: 24	
25578	41759 GTAATAACGACAAGAACTAAAAC	ATGATTATGAAATTTGTACAGCAAATGTTGATGAGA spacer length: 36
	repeater length: 24	
25579	41820 GTAATAACGACAAGAACTAAAAC	AATGTCTTTTTTTATATAAATTTTTTCGAGTCCTAA spacer length: 35
	repeater length: 24	
25580	41880 GTAATAACGACAAGAACTAAAAC	AGGGAAAAGATCCTCTTCCTAGCTCCTTTCTCTT spacer length: 34
	repeater length: 24	
25581	41939 GTAATAACGACAAGAACTAAAAC	CCTGTACAACGAAAACGGGACATTGTGGGCAATAC spacer length: 35
	repeater length: 24	
25582	41999 GTAATAACGACAAGAACTAAAAC	CTCGACCTCTTCTACTACTTCTGGTGGTGCACCCA spacer length: 35
	repeater length: 24	
25583	42059 GTAATAACGACAAGAACTAAAAC	TTAATTAAAGCGGCAAGCTCTCTAGCCAGGCTAGATCCCT spacer
	length: 40 repeater length: 24	
25584	42124 GTAATAACGACAAGAACTAAAAC	AAAACAATGTTTTAGTTTTACAGACATTATAAAAT spacer length: 35
	repeater length: 24	
25585	42184 GTAATAACGACAAGAACTAAAAC	ACTTCAAGAATGGAATACATTTGTAAAAATTTGC spacer length: 35
	repeater length: 24	
25586	42244 GTAATAACGACAAGAACTAAAAC	GCCCAAGCTCAGGCTGGAAACAGTGGAAATCCG spacer length: 33
	repeater length: 24	
25587	42302 GTAATAACGACAAGAACTAAAAC	ATATAACAAAGCGCATTGCTGATACGTTACACAG spacer length: 34
	repeater length: 24	
25588	42361 GTAATAACGACAAGAACTAAAAC	TCCATGCCCTCGCCCCGCCTTTTCTTTTTCTT spacer length: 33
	repeater length: 24	
25589	42419 GTAATAACGACAAGAACTAAAAC	TTCCACATTGATGAGGTAAGCCTCTGAAAAGGTT spacer length: 34
	repeater length: 24	
25590	42478 GTAATAACGACAAGAACTAAAAC	TGTGACCAAATTGAGGCAGAAGTATCCGCAGGGGA spacer length: 35
	repeater length: 24	

25591	42538 GTAATAACGACAAGAACTAAAAC	ACCCCTGACTTTGTCTTAAAGATAATGAGTTCTT	spacer length: 35
	repeater length: 24		
25592	42598 GTAATAACGACAAGAACTAAAAC	AGAAAATGAGTAGTGAAGTTAAGACAAAAAATAAGTC	spacer length: 37
	repeater length: 24		
25593	42660 GTAATAACGACAAGAACTAAAAC	TTCAGTGTCAAATTTGTCTAGCAGTTCTTTTGC	spacer length: 37
	repeater length: 24		
25594	42722 GTAATAACGACAAGAACTAAAAC	ATTATACCACGCCAAAGAGATGGCGTGAGGCGAT	spacer length: 34
	repeater length: 24		
25595	42781 GTAATAACGACAAGAACTAAAAC	TATTTGAAGGCTTCCCTTAGGGCGTTCTTTAGC	spacer length: 33
	repeater length: 24		
25596	42839 GTAATAACGACAAGAACTAAAAC	GTAAATTCGGCGCCCCAGTAGAAGTCTTTCTCG	spacer length: 34
	repeater length: 24		
25597	42898 GTAATAACGACAAGAACTAAAAC	CTATGTGTTGATGAGAGCACAGCTGGGCATGGAGCGT	spacer length: 37
	repeater length: 24		
25598	42960 GTAATAACGACAAGAACTAAAAC	AGATGTAGAGAAAACGATCGATTTAAGGCATGCG	spacer length: 34
	repeater length: 24		
25599	43019 GTAATAACGACAAGAACTAAAAC	AATAATCAATCCTTTTTTTAAGGTCTTTCCAAG	spacer length: 34
	repeater length: 24		
25600	43078 GTAATAACGACAAGAACTAAAAC	TCAACACAAGGAAACACTTACAATTGGTATGAGTATGAA	spacer length: 39
	repeater length: 24		
25601	43142 GTAATAACGACAAGAACTAAAAC	CACTAGACACTGCAGGGACAGATATCAAAAAC	spacer length: 33
	repeater length: 24		
25602	43200 GTAATAACGACAAGAACTAAAAC	GTGCCCCTGTCTCCTGCAGTTTTAACGCTAAATATC	spacer length: 36
	repeater length: 24		
25603	43261 GTAATAACGACAAGAACTAAAAC	ACCTATCACTTTCCTTGCGAATTCAACCAGTGTTA	spacer length: 35
	repeater length: 24		
25604	43321 GTAATAACGACAAGAACTAAAAC	CACCAGCTGTGATGACATAGTCTTTGTCCAGTAATG	spacer length: 36
	repeater length: 24		
25605	43382 GTAATAACGACAAGAACTAAAAC	TTCTTCATAAGGATGTATCTGTACCAGTTCACC	spacer length: 33
	repeater length: 24		
25606	43440 GTAATAACGACAAGAACTAAAAC	GTCTTTACAGAACTTGGGGCGAAGTAGTATCCCGC	spacer length: 35
	repeater length: 24		
25607	43500 GTAATAACGACAAGAACTAAAAC	GATGAACTCGCCTGTGTTACTTGATGTGTATAAGGA	spacer length: 36
	repeater length: 24		
25608	43561 GTAATAACGACAAGAACTAAAAC	AACTCTGAGACTGAGGTTCTTTTGTCTCACTAGA	spacer length: 35
	repeater length: 24		
25609	43621 GTAATAACGACAAGAACTAAAAC	ATAGGCTAGAAGCTGCAAAGAGGCTGGGCTGGAA	spacer length: 34
	repeater length: 24		
25610	43680 GTAATAACGACAAGAACTAAAAC	TACTGCAAGATCTACATTATAGTTCAATGATTT	spacer length: 33
	repeater length: 24		
25611	43738 GTAATAACGACAAGAACTAAAAC	ACGAGTCTCTTTATCAATATAGTGATGTTATCTACA	spacer length: 36
	repeater length: 24		
25612	43799 GTAATAACGACAAGAACTAAAAC	TTTTTTGCTTTTAGCTTTTCGTATTCTATTAATGA	spacer length: 35
	repeater length: 24		
25613	43859 GTAATAACGACAAGAACTAAAAC	AGTGGCTTAATGTACCTTTTGGTACTGACTATCCAA	spacer length: 36
	repeater length: 24		
25614	43920 GTAATAACGACAAGAACTAAAAC	GCTGATAGATAAAGATAAAATAAAAATAGACTT	spacer length: 33
	repeater length: 24		
25615	43978 GTAATAACGACAAGAACTAAAAC	GTCTACTTTAAGTGAACCTTATTGTAATCGTATCAA	spacer length: 36
	repeater length: 24		
25616	44039 GTAATAACGACAAGAACTAAAAC	TAAGCGTCTAAATAAGTTACCGACAATTGTTA	spacer length: 32
	repeater length: 24		
25617	44096 GTAATAACGACAAGAACTAAAAC	ATTGTTGAGAGATGCTACTTATGAAGAAAATGGA	spacer length: 34
	repeater length: 24		
25618	44155 GTAATAACGACAAGAACTAAAAC	CTTCATAACTCAACAAAACAAATAAGGTATGCCACTC	spacer length: 37
	repeater length: 24		
25619	44217 GTAATAACGACAAGAACTAAAAC	CTTAGCGTAAGAGAGCGTATATTATGCAGCGTATAT	spacer length: 36
	repeater length: 24		
25620	44278 GTAATAACGACAAGAACTAAAAC	AATTTTCAGAGTCACTTACTTGAAATTTTGTCTCT	spacer length: 36
	repeater length: 24		
25621	44339 GTAATAACGACAAGAACTAAAAC	CAAAAACGCCGTTTAATGCGCCACTTCTAGAACA	spacer length: 35
	repeater length: 24		
25622	44399 GTAATAACGACAAGAACTAAAAC	TTTTGAGAATAGAGTCTATGAAATCTCCTTTTAT	spacer length: 34
	repeater length: 24		
25623	44458 GTAATAACGACAAGAACTAAAAC	AGGTTCACTCACCCCTCGCCTCGCAAGATATTCCAA	spacer length: 35
	repeater length: 24		
25624	44518 GTAATAACGACAAGAACTAAAAC	ACAATTCTTTCTTTTTTTATAGCTGTTGTACACATTCC	spacer length: 38
	repeater length: 24		
25625	44581 GTAATAACGACAAGAACTAAAAC	TAGTAATATCTAGCGACTTCCATAATTGCTGATG	spacer length: 34
	repeater length: 24		
25626	44640 GTAATAACGACAAGAACTAAAAC	ATTATAAAATTGATGTATTATACATTTGCAGAAA	spacer length: 34

25627 repeater length: 24
 44699 GTAATAACGACAAGAACTAAAAAC CGCTATTCTCAAGTACTCTGCGATCTCGCCCTCTGAAA spacer length: 38
 25628 44762 GTAATAACGACAAGAACTAAAAAC TTCATATCGCTCTTTTGAATACTTCATCAATTCTTGT spacer length: 37
 25629 44824 GTAATAACGACAAGAACTAAAAAC TTTTATATTCTGTTGTTTCATTTTTTATATCATT spacer length: 33
 25630 44882 GTAATAACGACAAGAACTAAAAAC ATATTATTAGGAATGACAGCCGGAGCTACTACTG spacer length: 34
 25631 44941 GTAATAACGACAAGAACTAAAAAC TTGTACAAAAAAGCTGAATTTAAGCAAGTCGGAA spacer length: 34
 25632 45000 GTAATAACGACAAGAACTAAAAAC ATTTAGTTTGAATATTATGAGTAATTGAGAGTTGG spacer length: 35
 25633 45060 GTAATAACGACAAGAACTAAAAAC TTGCTACAGGAAATGGAGAAGGTGAATATCAGGGAG spacer length: 36
 25634 45121 GTAATAACGACAAGAACTAAAAAC TTTTATCTTCAAAGAGTTGAAAAAGAGAGGGTTAGAT spacer length: 37
 25635 45183 GTAATAACGACAAGAACTAAAAAC
 CTTTCTTCTTCATCTTTATCGATCAAAATTAGCCTTAGCAATAACGACAAGAACTAAAACTTTATTATCAAGAGCATTAAAGTAAT
 TTTGGAAGACC spacer length: 97
 25636 45305 GTAATAACGACAAGAACTAAAAAC TAATAACTCTCCTACCTTTTCTATTTTTAGCATTTG spacer length: 36
 25637 45366 GTAATAACGACAAGAACTAAAAAC TATTTTCGTAATCTTCTATAAGTTTTGAGTTGAATGG spacer length: 36
 25638 45427 GTAATAACGACAAGAACTAAAAAC GTATAGTACTGGTGTATTACTTCCAGATATCCC spacer length: 33
 25639 45485 GTAATAACGACAAGAACTAAAAAC CACTCTCTTCAATCCGATTATATCAATTTACTAC spacer length: 34
 25640 45544 GTAATAACGACAAGAACTAAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGA spacer length: 36
 25641 45605 GTAATAACGACAAGAACTAAAAAC GTTGTAGTCATTCCAGTAATGACTAAGATATTGTG spacer length: 35
 25642 45665 GTAATAACGACAAGAACTAAAAAC TGTAATACAATATTACGCTAGCAATACAACAAACAT spacer length: 36
 25643 45726 GTAATAACGACAAGAACTAAAAAC ACACTCGCCGACTCTCTCTCATTTATTGCGAGAT spacer length: 34
 25644 45785 GTAATAACGACAAGAACTAAAAAC GTGTTGTTTCGAGACTTCTACTGCCATTAATATTA spacer length: 34
 25645 45844 GTAATAACGACAAGAACTAAAAAC GATTACTTTATGCTTTATTCAAATATAGAATAAAA spacer length: 35
 25646 45904 GTAATAACGACAAGAACTAAAAAC GTTGGGTATTTAAGCTTACGCATTATATTTTTGA spacer length: 34
 25647 45963 GTAATAACGACAAGAACTAAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGA spacer length: 36
 25648 46024 GTAATAACGACAAGAACTAAAAAC TAATATAGCGACCACAGAACTCTTGCTATATTT spacer length: 33
 25649 46082 GTAATAACGACAAGAACTAAAAAC CTCTCAAGAAATTCCAAAAGTTTATCAAACCTCCT spacer length: 34
 25650 46141 GTAATAACGACAAGAACTAAAAAC TTTCTACATTATGTACTACCGATAAAACATGTGATC spacer length: 36
 25651 46202 GTAATAACGACAAGAACTAAAAAC TTCTCTTGTTTCAAACCACTTAAATCTTCGTTATT spacer length: 36
 25652 46263 GTAATAACGACAAGAACTAAAAAC TTTTCATCAACATCTTGACTCCGGTATTCGACATC spacer length: 35
 25653 46323 GTAATAACGACAAGAACTAAAAAC AGTGGTCAGGGCTAGATATCTGCCCCACTACCAAC spacer length: 34
 25654 46382 GTAATAACGACAAGAACTAAAAAC TATCAAGAAAAATAGGGCTAGCCCAATTCCAATGA spacer length: 35
 25655 46442 GTAATAACGACAAGAACTAAAAAC TAAGTATATATCATTTGAATGAATGTTGAGAGCCA
 25656
 25657
 25658 crispr 3
 25659 2149981 GAAGAATCCCATAAGGGATTGAAAG CATATCATCATCTCTCATCATCTGCCTGCAACGTAT spacer
 length: 36
 25660 2150043 GAAGAATCCCATAAGGGATTGAAAG TCACATTTCATCCCTATAGACATTTATTGAAAACGA spacer length: 35
 25661 2150104 GAAGAATCCCATAAGGGATTGAAAG TTTGCTTTAACATAGATCGGTGAAAGCATCTCAAAGGTA spacer
 length: 40
 25662 2150170 GAAGAATCCCATAAGGGATTGAAAG ATGTAAAATATCATGACACATATATTAATTTGAAGCAA
 25663
 25664

25665 crispr 4
25666 2109938 GATGAATCCCAAAAAGGGATTGAAAG CTCTGTTACAGAAATATTTGTCAAGCTCAATCTTAAA spacer
length: 38 repeater length: 25
25667 2110002 GATGAATCCCAAAAAGGGATTGAAAG AGTTTTGGGAACACTTCTCTTCCCTTTATCTGTTAGTTCAT spacer
length: 41 repeater length: 25
25668 2110069 GATGAATCCCAAAAAGGGATTGAAAG CTCAAATCGTTTGCCTACTGTTTAAAGCTTTTTAAACT spacer
length: 38 repeater length: 25
25669 2110133 GATGAATCCCAAAAAGGGATTGAAAG AGCACCTATTTTCAGGTGCTGGCTGACTAGAACTT spacer
length: 36 repeater length: 25
25670 2110195 GATGAATCCCAAAAAGGGATTGAAAG GGGTATAAATAAAGTATGCCAGCCTGTGCTAATGACA spacer
length: 37 repeater length: 25
25671 2110258 GATGAATCCCAAAAAGGGATTGAAAG AGTTTATTATGTCATTGGACAGCAAGTCATACGAG spacer length:
35 repeater length: 25
25672 2110319 GATGAATCCCAAAAAGGGATTGAAAG TTTTCTCCTTTTTTTCATAATACTTCTTTCCATATTTCCGC spacer
length: 40 repeater length: 25
25673 2110385 GATGAATCCCAAAAAGGGATTGAAAG GCTCTGCTAACATTAGCCTCTTCTCCTGCTAGAGCT spacer
length: 36 repeater length: 25
25674 2110447 GATGAATCCCAAAAAGGGATTGAAAG ATCTTGTCGCTTATGTGAACGTCTAGGGAGTCGATAA spacer
length: 37 repeater length: 25
25675 2110510 GATGAATCCCAAAAAGGGATTGAAAG ACCAAGTTAGGTTTTATGTTGAAGGGGACTCTGATGA
25676
25677
25678 GCA_001481685.1_ASM148168v1_genomic.fna(findCrispr):
25679 START REPEAT
SPACER
25680 crispr 1
25681 212439 GTCC CAATAGGGAGTGGAAAGTTGTGTTGACGATGTCGGCCCCGCTTCCTCGCAGACCTTCGTAG spacer
length: 62 repeater length: 4
25682 212506 GTCC CAATAGGGAGTGGAAAGCGGCAGTATTTTTCAGTGCCTACGTCTCGAACGCCCTGTAG spacer
length: 58 repeater length: 4
25683 212569 GTCC CAATAGGGAGTGGAAAGTATCGAAACCAAACCTTGTGCGAACTTTTCGTTCAATTTGTAG spacer
length: 60 repeater length: 4
25684 212634 GTCC CCAATAGGGAATAGAAAGTCAATAGTCTTTTCAGGTTCTGTTTCTGTTTTTGGAAAGGT
25685
25686
25687 crispr 2
25688 99641 TAGAATCCCAAT AGGGAATAGAAAGATCGACATATTCAGCAATCGTCGATAGTTTTTCGTACGATAGG spacer
length: 56 repeater length: 12
25689 99710 TAGAATCCCAAT AGGGAATAGAAAGTTCTTTATCGTTGAGCGTTCGCTTCCGAACCTATCTGAG spacer
length: 51 repeater length: 12
25690 99774 TAGAATCCCAAT AGGGAATAGAAAGTTACATTTGTCGGTAAGTACGCTATTCCGTTTTTCGACCTTAG spacer
length: 55 repeater length: 12
25691 99842 TAGAATCCCAAT AGGGAATAGAAAGACGAGGAAATCGAGTTTTCTTTCCATCATTTTCGCCTCCC spacer
length: 52 repeater length: 12
25692 99907 TAGAATCCCAAT AGGGAATAGAAAGATAGTGAACGGTAAGTCTGCGATGACGAGTATTTTCGGTT spacer
length: 53 repeater length: 12
25693 99973 TAGAATCCCAAT AGGGAATAGAAAGACGACGCTGATAGTTGATGACGACAAGTTACTGATTCAGA spacer
length: 54 repeater length: 12
25694 100040 TAGAATCCCAAT AGGGAATAGAAAGACACTCAACGAGTAACTCCTTCATCATTCCAATTATCATGT spacer
length: 54 repeater length: 12
25695 100107 TAGAATCCCAAT AGGGAATAGAAAGTGCAAATACTTTCGACTTGAGCGATTGGTTGAGCGAAAGT spacer
length: 53 repeater length: 12
25696 100173 TAGAATCCCAAT AGGGAATAGAAAGCCTGTTTTCGTTGATATTAATATATATTCTGGGGGCCAGAAA spacer
length: 54 repeater length: 12
25697 100240 TAGAATCCCAAT AGGGAATAGAAAGAATCTCCTTAAGAGAATTATAAAAAAAGAATGGAATAGAAA spacer
length: 54 repeater length: 12
25698 100307 TAGAATCCCAAT AGGGAATAGAAAGCCTATCCCCGAGTTCACGCACCCCCCTCCTGCAATCGCTCTAG spacer
length: 56 repeater length: 12
25699 100376 TAGAATCCCAAT GAGTGGAAAGGCTAGATAATATTTTCGGTCTCCCCCTTCTGGCTTCTTCACGTAGA
25700
25701
25702 crispr 3
25703 898975 TCTATTCCCTATT GGGACTCTACCATTAATGGGAAGAAAGACCGCTTGCTCGATTGAGGAATGGACT spacer
length: 54 repeater length: 13
25704 899043 TCTATTCCCTATT GGGACTCTACTTGTAAGGTACCCTATTGTTTCCTGTTGCCAAGACCCACTCT spacer
length: 52 repeater length: 13
25705 899109 TCTATTCCCTATT GGGACTCTACAGAGAAAGAAAATGGGGGAGAGTAAATGGACTAAAGTAGCCT spacer
length: 52 repeater length: 13
25706 899175 TCTATTCCCTATT GGGACTCTACTGGTCACGGCAACGGTATAGCCCTCGTAAGCGGAGGCGAGCT spacer
length: 52 repeater length: 13
25707 899241 TCTATTCCCTATT GGGACTCTACAAATGGATCGAGAATGATCCAGAAAGTTTCGAGAACTTCTACTCT spacer

length: 55 repeater length: 13
25708 899310 TCTATTCCCTATT GGGACTCTACGGGCGTCATAGTCACTCCTTCCAGCAATGGGTGAACT spacer
length: 51 repeater length: 13
25709 899375 TCTATTCCCTATT GGGACTCTACGGGTTCTGAATCCCCGCCCCGGCGCCACTCAGGTGATTATAACT spacer
length: 54 repeater length: 13
25710 899443 TCTATTCCCTATT GGGACTCTACGCGGGATGGAGTTAAGAGAAAAAATCAAATGGTTTGCATCCT spacer
length: 52 repeater length: 13
25711 899509 TCTATTCCCTATT GGGACTCTACTTTGATGCACTTGTTGAAAGGTTTGCAGAACGAGATCTTCAACT spacer
length: 54 repeater length: 13
25712 899577 TCTATTCCCTATT GGGACTCTACTAAGCTAAACGCACCGGTACGTTTATGAACGCTCTCTTCAAGCT spacer
length: 54 repeater length: 13
25713 899645 TCTATTCCCTATT GGGACTCTACGGAAGATAGGAAGTCCAAACCGAGCTTCGTTGATTCTTCT spacer
length: 51 repeater length: 13
25714 899710 TCTATTCCCTATT GGGACTCTACTCGATGCTGAGCATTTAGTCAATTTGTTGAAAATCT spacer length:
47 repeater length: 13
25715 899771 TCTATTCCCTATT TCTCTACCGTTACCCTCCTATTTAAACAATAATTCCCCATCTTTTA
25716
25717
25718 crispr 4
25719 1124291 CTTTCTATTCCCTCTTGGATCTCTAC ACTTTTGAACGAACACACAGTTGCAGAAATCCGACTCGACAG spacer
length: 42 repeater length: 26
25720 1124360 CTTTCTATTCCCTCTTGGATCTCTAC ACGAAAAGAACAAGAGAATTCTCTCTGAACTCTCGTCGA spacer
length: 39 repeater length: 26
25721 1124426 CTTTCTATTCCCTCTTGGATCTCTAC AAAGAGAGTCAATCAACGGAATTGGATGGAATGTTCTTAGAT spacer
length: 42 repeater length: 26
25722 1124495 CTTTCTATTCCCTCTTGGATCTCTAC AATTAATAGGAATGGGCCGATCTGTAATTTGCCATGAA spacer
length: 39 repeater length: 26
25723 1124561 CTTTCTATTCCCTCTTGGATCTCTAC AGGGGATTGGAAAGAAGAAGAGAAGAAGAAAAGGAAATT spacer
length: 39 repeater length: 26
25724 1124627 CTTTCTATTCCCTCTTGGATCTCTAC GCGGTCAAGTAACCGCAACGAAGTTAGCTGAACTAAGTG spacer
length: 39 repeater length: 26
25725 1124693 CTTTCTATTCCCTCTTGGATCTCTAC CGAACTAGCGATAAGTGTGAGAGCGTACAGCAGGAGCAA spacer
length: 39 repeater length: 26
25726 1124759 CTTTCTATTCCCTCTTGGATCTCTAC CTTACGATAGAATTCATTGAGATCGTCGACGACATAG spacer
length: 37 repeater length: 26
25727 1124823 CTTTCTATTCCCTCTTGGATCTCTAC CGAGTAGTATAACGTGAGGTGGGTGCGATGGAAGAGGAGA spacer
length: 40 repeater length: 26
25728 1124890 CTTTCTATTCCCTCTTGGATCTCTAC AATAGTCTTTTCAGGTTCTGTTTCTGTTTTTGGAAAGGT
25729
25730
25731 crispr 5
25732 148820 GTAGAATCCCAATAGGGAGTGGAAAG AATCTGTAGACCTGCACTTCGCCGGTCCCGTCCCAGCAAAG spacer
length: 41 repeater length: 26
25733 148888 GTAGAATCCCAATAGGGAGTGGAAAG CATGTTACTATTACTCACTCACGGTTTTTAAACATTTGCTT spacer
length: 41 repeater length: 26
25734 148956 GTAGAATCCCAATAGGGAGTGGAAAG TAATGAAGAGACTTTTACGTTGATAGGTGCGTTCTGATGTTCAA
spacer length: 45 repeater length: 26
25735 149028 GTAGAATCCCAATAGGGAGTGGAAAG CTGTCTTGGTGGCTTCAGTAAACCGAGCTTCCTCATCCTTTCC spacer
length: 43 repeater length: 26
25736 149098 GTAGAATCCCAATAGGGAGTGGAAAG AGGACGTCTTTCAGGATTTTCCTAAGTCTTCTTCACCTC spacer
length: 40 repeater length: 26
25737 149165 GTAGAATCCCAATAGGGAGTGGAAAG TTGAACTTTACCTCGATTACGTTCTCGAAATAGAGAGGCC spacer
length: 40 repeater length: 26
25738 149232 GTAGAATCCCAATAGGGAGTGGAAAG CGTAAATGGCTTCTGGCCTATCGACAGACCCGGAAGG spacer
length: 37 repeater length: 26
25739 149296 GTAGAATCCCAATAGGGAGTGGAAAG CTTTCAGTCTTCTGAAATCAAAGATACAGTCGTTCTCATT spacer
length: 43 repeater length: 26
25740 149366 GTAGAATCCCAATAGGGAGTGGAAAG TCTGTTTTCGATAGTGATGGCATAGATCGGTTTCGTACTION spacer
length: 40 repeater length: 26
25741 149433 GTAGAATCCCAATAGGGAGTGGAAAG TTCAGAACGACTCTTTTCTTCGCTTCGCTTAATGT spacer length:
35 repeater length: 26
25742 149495 GTAGAATCCCAATAGGGAGTGGAAAG
CTAATGGGTTATTCTTTATGTTTTAGGAACAGGAAGCTTCAAGGTTTCTAG spacer length: 52 repeater
length: 26
25743 149574 GTAGAATCCCAATAGGGAGTGGAAAG TAGATAATATTTCCGGTCTCCCCCTTCCTGGCTTCTTCACGTAGAGATCCAAT
25744
25745
25746 crispr 6
25747 212161 GTAGAGATCCAATAGGGAGTGGAAAGA GTGAGTAGTTTCGAGTTGAGCGAGTGGTCAAGTGAAAGTAA spacer
length: 41 repeater length: 27
25748 212230 GTAGAGATCCAATAGGGAGTGGAAAGA ATCCTTCACCTTTTGCGCGCTCACTGCCAGAGTTTT spacer

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length: 37 repeater length: 27
25749 212295 GTAGAGATCCAATAGGGAGTGGAAAGA GGGTAACACAGTTTGCTTTAGTATGCGTCTCTCTTCTTCCTCGC
spacer length: 44 repeater length: 27
25750 212367 GTAGAGATCCAATAGGGAGTGGAAAGA CAAATATGGATGTGAGGAAGTTCGTCGCAAGGAACCTAGTAGAG
25751
25752
25753 crispr 7
25754 1256306 TCTTTCCACTCCCTCTTGGATCTCTAC AAGGAAGAAGAAAATTGTTTAGGCGAATTCGTAACCCAGTTC
spacer length: 42 repeater length: 27
25755 1256376 TCTTTCCACTCCCTCTTGGATCTCTAC GAAGTTCTCTTTTTCAAAAAGCGAGGGACAGGGCGG spacer
length: 36 repeater length: 27
25756 1256440 TCTTTCCACTCCCTCTTGGATCTCTAC AATATGGATGTGAGGAAGTTCGTCGCAAGGAACCTA
25757
25758
25759 crispr 8
25760 871636 AGTAGAGATCCAAGAGGGAGTGGAAAGC
AACCTCGATTATTTTTTACGTTTTCTACGTTCTTTTTATGTAGAGATCCAAGAGGGAGTGGAAAGTTCTCTTTCTTCTTTTCCTTT
AGCTCTTCAATTAG spacer length: 100 repeater length: 28
25761 871765 AGTAGAGATCCAAGAGGGAGTGGAAAGC TTCTTCATTTCTTCCTCCTTTTCTTTCAAGCCACGTAG spacer
length: 38 repeater length: 28
25762 871832 AGTAGAGATCCAAGAGGGAGTGGAAAGC TCTTTTCAGGTTCTGTTTCTGTTTTTGGAAAGGTAGA
25763
25764
25765 GCA_001484685.1_ASM148468v1_genomic.fna(findCrispr):
25766 START REPEAT
SPACER
25767 crispr 1
25768 1525342 CGACTAC
GTTCTACGGAACCGTTGATACTAGACAAAAAGCCATATTTCCGGCATAGACAACAAATCAGCTTTCCAC spacer
length: 71 repeater length: 7
25769 1525421 CGACTAC GTTCTACGGAACCTTGATGTTCCCAATGTGCAAGGGAGGATAGTTTGGGTCTTTCCAC spacer
length: 58 repeater length: 7
25770 1525487 CGACTAC GTTCTACGGAACCTGAAAAGAAGAGCTCAAAGTACCTCGTAGTCATAGACGAAAACCTTTCCAC
spacer length: 65 repeater length: 7
25771 1525560 CGACTAC
GTTCTACGGAACCTGTAAAAACATCGTAATACAAGACCATGGATGGCATTACGTTGTCTTTCCACACGACTACGTCTTACGGAAAC
TCAATAGAAATAATGGACGACAAGTCCAGATATGTGTACAACCTTTCCAC spacer length: 135 repeater
length: 7
25772 1525703 CGACTAC GTTCTACGGAACATAGCACATGGTATCCTTCACAAACACAGAGAGATCTTTCCAC spacer
length: 56 repeater length: 7
25773 1525767 CGACTAC GTTCTACGGAACGAACGTCTAGTTTCCCAATCCCCACATCGGACAGCATGCCTTTCCAC spacer
length: 60 repeater length: 7
25774 1525835 CGACTAC CAGAAGAATTGAAAGTTCGCTAATGCCATTGCTGTCCTGTCATCATATTCTAAGTTCCAA
25775
25776
25777 crispr 2
25778 354040 TTTTGAAGTC TTATTGGAACTAAACCATTTGGCAAATTCTTTAGAGTTATATCAGTAGACTTTCAATT spacer
length: 58 repeater length: 10
25779 354109 TTTTGAAGTC TTATTGGAACTTTTTCTATGTTGATGTTTTCTAACTGTATTATGCCCCAAGTACCTTTCAATT
spacer length: 64 repeater length: 10
25780 354184 TTTTGAAGTC TTATTGGAACCGAGAAGACGGAAGTCAAGGTCATCAAGAGAGAGACACTTTCAATT spacer
length: 56 repeater length: 10
25781 354251 TTTTGAAGTC TTATTGGAACAGGGAATCCGGTGGCTTCTCGAAGGAAATCCTGCTCGACTTTCAATT spacer
length: 57 repeater length: 10
25782 354319 TTTTGAAGTC TTATTGGAACCTCTGGACACGCTGAAATCAAAGTCTCTACAACAAGAGCTTTCAATT spacer
length: 57 repeater length: 10
25783 354387 TTTTGAAGTC TTATTGGAACACAAAGGAGTCGATGGAGTGCGGTATTACTATGCAGACATCTTTCAATT
spacer length: 60 repeater length: 10
25784 354458 TTTTGAAGTC TTATTGGAACGGACAATATAGAAGAGCTCCTCAGTAGACTCGAAGAGGAAGCTTTCAATT
spacer length: 60 repeater length: 10
25785 354529 TTTTGAAGTC TTATTGGAACCTTGCTTTAATCTTGTCTCTGTGCGAAAATCCCCACTTTCAATT spacer
length: 54 repeater length: 10
25786 354594 TTTTGAAGTC TTATTGGAACAATTATTGCCAGAACACCTTCCTTCTTCCGACCGACCTTTCAATT spacer
length: 55 repeater length: 10
25787 354660 TTTTGAAGTC CAGAAGAATTGAAAGTTCGCTAATGCCATTGCTGTCCTGTCATCATATTCTAAGT
25788
25789
25790 crispr 3
25791 1129204 GTTCCAATAAGACTTCAGAAGAATTGAAAG GAAGCCTTAACGCCTTCGTACTGGACTGGTTTCCTCAAT
spacer length: 39 repeater length: 30
25792 1129274 GTTCCAATAAGACTTCAGAAGAATTGAAAG TTGGGGCCGAAACCAAAGTTGTTTGACCAACTCCAAA spacer

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length: 38 repeater length: 30
25793 1129343 GTTCCAATAAGACTTCAGAAGAATTGAAAG AAATTCGATGATACGACTACTACTCTTCGATTCTCTCAAG
spacer length: 39 repeater length: 30
25794 1129413 GTTCCAATAAGACTTCAGAAGAATTGAAAG
GTTCGAAGCCACCCATAAGCCCAAATAGACCACCTGTCACCCCAACG spacer length: 46 repeater length: 30
25795 1129490 GTTCCAATAAGACTTCAGAAGAATTGAAAG ATAAGAGCTTTGACAAGCATGCCGTTGTCAGCGAGTG spacer
length: 37 repeater length: 30
25796 1129558 GTTCCAATAAGACTTCAGAAGAATTGAAAG CTCAGAGGGGAGCGGTGAGCTTCTGGCTCAAATGGGATG spacer
length: 38 repeater length: 30
25797 1129627 GTTCCAATAAGACTTCAGAAGAATTGAAAG CATATTGCCGATATCCAATAGTCAACAATAGGCCTAC spacer
length: 37 repeater length: 30
25798 1129695 GTTCCAATAAGACTTCAGAAGAATTGAAAG TTAAATACGTTACTCTCGGTGATATCTGAGACCTCTG spacer
length: 38 repeater length: 30
25799 1129764 GTTCCAATAAGACTTCAGAAGAATTGAAAG CAATAGCCGACTTACCTATAGCCAATATCCAATATCT spacer
length: 37 repeater length: 30
25800 1129832 GTTCCAATAAGACTTCAGAAGAATTGAAAG ATGTACTTTCTTGCCTTTCCGATCGGCCCGTAATT spacer
length: 35 repeater length: 30
25801 1129898 GTTCCAATAAGACTTCAGAAGAATTGAAAG TTGCGTTCTTCACTCCGTCCTTGCTCGTTACCAAA spacer
length: 35 repeater length: 30
25802 1129964 GTTCCAATAAGACTTCAGAAGAATTGAAAG CTTGCGGGCCTTGAATTCTCACCCTACCCCATCCTA spacer
length: 37 repeater length: 30
25803 1130032 GTTCCAATAAGACTTCAGAAGAATTGAAAG GGGGTGTGTGGATAGAGAACATGGCCAGCACTGACATCA
spacer length: 39 repeater length: 30
25804 1130102 GTTCCAATAAGACTTCAGAAGAATTGAAAG GCCTTTGCATCCCCGCCATACCTGTCAATATAAACG spacer
length: 36 repeater length: 30
25805 1130169 GTTCCAATAAGACTTCAGAAGAATTGAAAG TAATCTTCTGAAACATTGTAGTCCACATCGTTCCCAA spacer
length: 37 repeater length: 30
25806 1130237 GTTCCAATAAGACTTCAGAAGAATTGAAAG GTGGGAGCACTATCAGGGCTCCCATGACAATTCCA spacer
length: 35 repeater length: 30
25807 1130303 GTTCCAATAAGACTTCAGAAGAATTGAAAG CCGGCTTCTTTTACCGCATTCTCCCGAACGAGATCTTCA
spacer length: 39 repeater length: 30
25808 1130373 GTTCCAATAAGACTTCAGAAGAATTGAAAG ACGATGACGTCATAAGGCGATTGATATACGCATACAAAA
25809
25810
25811 GCA_001488575.1_Halobacterium_hubeiense_JI20-1_genomic.fna(findCrispr):
25812 START REPEAT
SPACER
25813 crispr 1
25814 117639 CTCGACGGTTTCGCCGACTTTCTCCTCGACCGTCTC
CCCCACTGTCTCCTCGACGGTTTTCTCGACGGTCTGCTCGACGGTTTCGCCGACTTTCTCTTCGACCGTCTCGCCCACTGTCTCCT
CGACAGTCTTCTCGACGGTCT spacer length: 107 repeater length: 36
25815 117783 CTCGACGGTTTCGCCGACTTTCTCCTCGACCGTCTC ACCGACGGTTTCTTCGACGGTCT spacer length:
23 repeater length: 36
25816 117843 CTCGACGGTTTCGCCGACTTTCTCCTCGACCGTCTC ACCGACGGTTTCTTCGACGGTCT spacer length:
23 repeater length: 36
25817 117903 CTCGACGGTTTCGCCGACTTTCTCCTCGACCGTCTC ACGGTCTGCTCGACGGTTTCGCC
25818
25819
25820 GCA_001542905.1_ASM154290v1_genomic.fna(findCrispr):
25821 START REPEAT
SPACER
25822 GCA_001548675.1_ASM154867v1_genomic.fna(findCrispr):
25823 START REPEAT
SPACER
25824 crispr 1
25825 2154008 AACCTCTTCAGCAACCTCTTC CTCTTCAACAGGCCCTCAACAACCTCTTCAACAACAGGTTTCATCAA spacer
length: 47 repeater length: 21
25826 2154077 AACCTCTTCAGCAACCTCTTC CTCTTCAACAGGCCCTCAACAACCTCTTCAACAACAGGTTTCATCAA spacer
length: 47 repeater length: 21
25827 2154146 AACCTCTTCAGCAACCTCTTC CTCTTCAACAGGCCCTCAA spacer length: 20 repeater
length: 21
25828 2154188 AACCTCTTCAGCAACCTCTTC CTAACCTAAAAGAAACACTT
25829
25830
25831 crispr 2
25832 240975 CTGAAGCTGAAACTGAAGAAG TAGCCGAAGAGGCTGAAGAAGCTGAAGAAGAAGTTGAAGAA spacer
length: 41 repeater length: 21
25833 241038 CTGAAGCTGAAACTGAAGAAG TAGCCGAAGAGGCTGAAGAAGTTGAAGAAGAAGTTGAAGAA spacer
length: 41 repeater length: 21
25834 241101 CTGAAGCTGAAACTGAAGAAG ATGATGATTACATTTATGTTGACCACAGTCATGATGATGAG
25835

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25836
 25837 crispr 3
 25838 1145019 GAATCATCTAAATCCTCATCA GAATCATCATCCCAATCATCTTC spacer length: 23 repeater
 length: 21
 25839 1145064 GAATCATCTAAATCCTCATCA GAATCATCTAAATCATCTTCAGAATCATCTAAATCATCTTC spacer
 length: 41 repeater length: 21
 25840 1145127 GAATCATCTAAATCCTCATCA GAATCATCATCCCAATCATCTTC spacer length: 23 repeater
 length: 21
 25841 1145172 GAATCATCTAAATCCTCATCA GAATCATCATCCCAATCATCTTC spacer length: 23 repeater
 length: 21
 25842 1145217 GAATCATCTAAATCCTCATCA GAATCATCTAAATCATCTTC spacer length: 20 repeater
 length: 21
 25843 1145259 GAATCATCTAAATCCTCATCA GAATCATCTAAATCATCTTC spacer length: 20 repeater
 length: 21
 25844 1145301 GAATCATCTAAATCCTCATCA GAGTCATCATCCCAATCATCTTC spacer length: 23 repeater
 length: 21
 25845 1145346 GAATCATCTAAATCCTCATCA TAACCTAAAAGAAACACTTAATG
 25846
 25847
 25848 crispr 4
 25849 1859647 CAGAAACAACCTTTCTTAGGAACAG CCTTCTTAGGAACATCCCCA spacer length: 20 repeater
 length: 24
 25850 1859692 CAGAAACAACCTTTCTTAGGAACAG ATTTCTTAGGAACATCCCCA spacer length: 20 repeater
 length: 24
 25851 1859737 CAGAAACAACCTTTCTTAGGAACAG ATTTCTTAGGAACATCCCCA spacer length: 20 repeater
 length: 24
 25852 1859782 CAGAAACAACCTTTCTTAGGAACAG TGATTACATTTATGTTGACC
 25853
 25854
 25855 crispr 5
 25856 437320 AAAAAAGAATTCATAGAAAACCTCTAAC
 TTACAAAATACTTTAACAGATTGAGAATTAGACTTAAAAGTAGAACAAATTAAAATCT spacer length: 57 repeater
 length: 26
 25857 437404 AAAAAAGAATTCATAGAAAACCTCTAAC
 CTAAAAGAAACACTTAATGATGAACAATTAACCTACAAAACCTAAATGACTTCAAATCA spacer length: 57 repeater
 length: 26
 25858 437488 AAAAAAGAATTCATAGAAAACCTCTAAC
 CTAAAAGAAACACTTAATGATGAACAATTAACCTACAAAACCTAAATGACTTCAAATCA spacer length: 57 repeater
 length: 26
 25859 437572 AAAAAAGAATTCATAGAAAACCTCTAAC
 TTAGGAACATCCCCATCAGAAACAACATCATTATTAGGTTTTCCATTAGATATTTTCG
 25860
 25861
 25862 crispr 6
 25863 934830 AGTAATACTGAGTATTTAAATGAACT CAAAAAAGTAATACTTTTATATATTATTTCTTACAAAATTACTTA
 spacer length: 46 repeater length: 26
 25864 934903 AGTAATACTGAGTATTTAAATGAACT
 CAAAAAAGTAATACTTTTGGCTGTTTGGTGGTTACTGAATTTAATTTTTTGCATGTCTTAAAATTCTGGGAGGACTATTAAAA
 AATTTTTT spacer length: 93 repeater length: 26
 25865 935023 AGTAATACTGAGTATTTAAATGAACT
 ATCATAAATTTTGCATATATTGTGGAGTTAAATTCCTGAATCAAACCTCAAATGGAAATGTTAATGATTTAAATAAACAGATTCA
 TCTGCAT
 25866
 25867
 25868 crispr 7
 25869 963115 AGGAAAAAGTTGATTTGGGTTCTGATG
 ATGATTATATCTATGTTGACCACAGTCATGATGACGAGCGGTTTTGGATGATGAACTGATTTTCGCTTTTCGATGAGAAAATCGAC
 TTTGTCAGTGATGATGAAGTTGGCTCTGTTGAA spacer length: 119 repeater length: 27
 25870 963262 AGGAAAAAGTTGATTTGGGTTCTGATG TGAAAGCTGACTTTGTTGAA spacer length: 20 repeater
 length: 27
 25871 963310 AGGAAAAAGTTGATTTGGGTTCTGATG TGAAAGCTGACTTTGTTGAA spacer length: 20 repeater
 length: 27
 25872 963358 AGGAAAAAGTTGATTTGGGTTCTGATG AAAGAAACACTTAATGATGA
 25873
 25874
 25875 crispr 8
 25876 65621 CCTTCTTTCTTTTTTGAGGTCATTTATTCTAT
 CGATTTTTGTTCTAATTAGTTTGTCTTTTTGTGTTGTTTGTGTTTTTTCGTGTTATTTGTTTGTCTTTTTCTGTTATTGTATAG
 TTTAATA spacer length: 93 repeater length: 32
 25877 65747 CCTTCTTTCTTTTTTGAGGTCATTTATTCTAT
 CGATTTTTGTTCTAATTAGTTTGTCTTTTTGTGTTATTTGTTTGTCTTTTTCTGTTATTGTTTGTGTTAATA spacer

length: 72 repeater length: 32
25878 65852 CCTTCTTTCTTTTTTGAGGTCATTTATTCTAT
TTATGTTGACCACAGTCATGATGATGAGCATGTTTTAGATGATGAAGAACCTGTAGAACAGGAATTTAATGA

25879
25880
25881 crispr 9
25882 255210 TTCTGGAGTCGCAGCAAGGATAAATCTGATGA
GGAAGAAGAGGAAGATGATGAAGATTTAGATGATGATGAAGAAGAAGAGGTTGTTGAAGAGAAGAAATCTCG spacer
length: 72 repeater length: 32
25883 255315 TTCTGGAGTCGCAGCAAGGATAAATCTGATGA
GGAAGAAGAGGAAGATGATGAAGATTTAGATGATGATGAAGAAGAAGAGGTTGTTGAAGAGAAGAAATCTCA spacer
length: 72 repeater length: 32
25884 255420 TTCTGGAGTCGCAGCAAGGATAAATCTGATGA
CCTAAAAGAAACATTAACCGACCCAGAACTAGACTTAAAACTAGATCAATTCAAAAACAAAAAAGATTCTTT

25885
25886
25887 crispr 10
25888 1069337 AATCTGTCCAAACTGTAAAGAAGAAAATGAGTT
AGGAAATAAATTTTGCATATCCTGCGGTGCTAACTTACAGAATGTAAATTTAAATGAAAATCATAAATTTA spacer
length: 71 repeater length: 33
25889 1069442 AATCTGTCCAAACTGTAAAGAAGAAAATGAGTT
AGGAAATAAATTTTGCATATCCTGCGGTGCTAACTTGCAGAATGTAGGTTTAAATGAAAATCATAAATTTA spacer
length: 71 repeater length: 33
25890 1069547 AATCTGTCCAAACTGTAAAGAAGAAAATGAGTT
GAATCATCTAAATCATCTTCAGAGTCATCATCCCAATCATCAGAATCATCTAAATCATCAGGACCTGCAAT

25891
25892
25893 crispr 11
25894 575745 GGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTA
CTGCTAGCGAACAGGCTGGTGCTGTTTATGTGAGTGGTGATAATGGTGTGTTTCCAATTCTAGTTTTGTGAATAGCAGTGCTAGA
CATGAGGGTGGTGCTGTTTATTTGAAAGGTGATAA spacer length: 121 repeater length: 34
25895 575901 GGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTA
GTTCTACTAGTTATGAAGGCGGTGCCGTTTTATTTGTATAGTCAAAA spacer length: 46 repeater length: 34
25896 575982 GGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTA
GTGCTAAAAAGGATGGCGGTGCCGTTTTTTTTGAAGGGAAAAAATGCTGCTCTATCTAATTGCAGTTTTGTGAATAGTAGTTCAACT
AGTCATGAAGGCGGTGCTGTTTTTTGGAGTAGTGCAGA spacer length: 124 repeater length: 34
25897 576141 GGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTA
TCCTCTTCAACAGGTTCTGCATCAGGAAGACGAGAACCACAATTTGAACAGAATTTTGCTTCTTTTACATCTTTTCCACAATCTGG
ACAAATAACCATTTTTTAACACCATATATTAATTTATTA

25898
25899
25900 crispr 12
25901 575899 ATGGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTAGT
TCTACTAGTTATGAAGGCGGTGCCGTTTTATTTGTATAGTCAA spacer length: 42 repeater length: 38
25902 575980 ATGGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTAGT
GCTAAAAAGGATGGCGGTGCCGTTTTTTTTGAAGGGAAAAAATGCTGCTCTATCTAATTGCAGTTTTGTGAATAGTAGTTCAACTAG
TCATGAAGGCGGTGCTGTTTTTTGGAGTAGTGCA spacer length: 120 repeater length: 38
25903 576139 ATGGTGTTGTTTCCAATTGTAGTTTTGTGAATAGTAGT
CATCAGAAACAACATCATTTATAGGTTTTCCATTAGATATTTCTGGGACCTGACTTCCTAATTTTCTAGAAATCAGAACTTTACTC
TTTTGTTCTTCTTTTTGTTTTTCCCTATCTAAAA

25904
25905
25906 crispr 13
25907 1752784 ATGCTCATGCTCATGGTCATGATGGTGGTCATGAGAATG
CTCATGCTCGTGATCATGATGATGCTCATGCTCATGGTCATGATGATGCTCATGCTCATGGTCATGATGCTCATGCTCATGGT
CATGATGATGCTCATGCTCATGGTCATGAT spacer length: 116 repeater length: 39
25908 1752940 ATGCTCATGCTCATGGTCATGATGGTGGTCATGAGAATG CTCATGCTCGTGATCATGAT spacer length:
20 repeater length: 39
25909 1753000 ATGCTCATGCTCATGGTCATGATGGTGGTCATGAGAATG AACAGGTTCTGCATCAGGAA

25910
25911
25912 GCA_001552015.1_ASM155201v1_genomic.fna(findCrispr):
25913 START REPEAT
SPACER
25914 crispr 1
25915 457834 GCTGTATTAGTAACTGTTGA
TGTAAGTAACTGTAGTATAAACTGTGGAAGTAGATGTTGATGTTGTTGTAAGTAACTGTTGTATA spacer
length: 75 repeater length: 20
25916 457930 GCTGTATTAGTAACTGTTGA CGTAGAAGTTAATGTTGAAGTAACTACTTTAGTAACTATTGCAAC spacer
length: 45 repeater length: 20
25917 457996 GCTGTATTAGTAACTGTTGA GGTAACAGTAGCTGTAGCTGTTGAGGCAACATTTGTTATGACAGT

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25918
25919
25920 GCA_001560115.1_GG12_C01_11_genomic.fna(findCrispr):
25921 START      REPEAT
SPACER
25922 GCA_001560135.1_GG12_C01_13_genomic.fna(findCrispr):
25923 START      REPEAT
SPACER
25924 crispr 1
25925 21212 TTTTAGTTTCTTGTCGTTATTAC TAAATTAGATATACGTACATGGGATTCACTAAGAAA spacer length: 36
repeater length: 23
25926 21272 TTTTAGTTTCTTGTCGTTATTAC CGATTGTTGTGATTGTTGTTCTTGCTTTTTAGCGTC spacer length: 36
repeater length: 23
25927 21332 TTTTAGTTTCTTGTCGTTATTAC CAACATAAGGACCTGGAGTGATCACGGGGAGCCCAGT spacer length:
37 repeater length: 23
25928 21393 TTTTAGTTTCTTGTCGTTATTAC GGGAGGGAGTTACAGTAATAATATCTACGGAACGGT spacer length: 36
repeater length: 23
25929 21453 TTTTAGTTTCTTGTCGTTATTAC CTTTCAATTGATGCTGGTGATGCTTGAGCTAAAATG spacer length: 36
repeater length: 23
25930 21513 TTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
repeater length: 23
25931 21572 TTTTAGTTTCTTGTCGTTATTAC TAGTACTATCTTTATATTCCTATATTTTCCTCCTA spacer length: 35
repeater length: 23
25932 21631 TTTTAGTTTCTTGTCGTTATTAC AAGGCTTCCTCTTCTTGCTGGGTAAGCCTGGGGAGTA spacer length:
37 repeater length: 23
25933 21692 TTTTAGTTTCTTGTCGTTATTAC TTTTAGGGCTACTATGGTGATAGCTACTGAAAATAAAAA spacer length:
39 repeater length: 23
25934 21755 TTTTAGTTTCTTGTCGTTATTAC AAGGAATTAAAGAAGTTAGGACTTCAGGACAATGTAG spacer length:
37 repeater length: 23
25935 21816 TTTTAGTTTCTTGTCGTTATTAC GCTTTAAGGTCGAAATCAGAGATAATGAGCATAAT spacer length: 35
repeater length: 23
25936 21875 TTTTAGTTTCTTGTCGTTATTAC AAAAATGTGCTCATCTATGTTTCACCCTGTTGCAC spacer length: 35
repeater length: 23
25937 21934 TTTTAGTTTCTTGTCGTTATTAC AGAGTTTGTTCTTAATTGGCCAGCAGACTAATTTTA spacer length: 36
repeater length: 23
25938 21994 TTTTAGTTTCTTGTCGTTATTAC CTTCCAGTCTTCATTTCTGGCTCACCCCCAGTCAGC spacer length: 36
repeater length: 23
25939 22054 TTTTAGTTTCTTGTCGTTATTAC ATACTTAATCCCTGCAATCGCAGGTTCAATGGTTCAAG spacer length:
38 repeater length: 23
25940 22116 TTTTAGTTTCTTGTCGTTATTAC AGCACGTAACGAAGCTCTATACTACTACGTAAAG spacer length: 35
repeater length: 23
25941 22175 TTTTAGTTTCTTGTCGTTATTAC
GTTGACGAGGGCTGGCTCTTTGTGAACTACCCATGTTTTAGTTTCTCGTCGTTATTACTGAAAAACCCTATATTTACAGAGACAA
ATGAAGAG spacer length: 94 repeater length: 23
25942 22293 TTTTAGTTTCTTGTCGTTATTAC
GAATTGTGCTGATGCCGAATTATCAGGATCCCATGTTTTAGTTTCTCGTCGTTATTACAAGTCGCAATAGCTAATTCGACTAACT
AATCGCT spacer length: 93 repeater length: 23
25943 22410 TTTTAGTTTCTTGTCGTTATTAC
GCCATCGAGATTATAGCACCCATCAGAATAATTACGTTTTAGTTTCTTGTCATTATTACGAGAAACCCCTCTAACCTTTTTAAGAA
GTCCTTTACAGTTTTAGTTTCTTGTCATTATTACTCAATTCTTCGTAATGCTCGGGTTTTATGATTATTTT spacer
length: 157 repeater length: 23
25944 22591 TTTTAGTTTCTTGTCGTTATTAC AGTAACTATATACTTCCTAACGGAACAACTGTAA spacer length: 34
repeater length: 23
25945 22649 TTTTAGTTTCTTGTCGTTATTAC ACCAGTCTTATCTACATATTTTCAAAAGTAATAGT spacer length: 35
repeater length: 23
25946 22708 TTTTAGTTTCTTGTCGTTATTAC AGATGAGCATGGCGTAGTATCCATAAGTGCTGATGT spacer length: 36
repeater length: 23
25947 22768 TTTTAGTTTCTTGTCGTTATTAC ACAACGAAAAAGAAAAAGCATTGAAAATAATTGAG spacer length: 35
repeater length: 23
25948 22827 TTTTAGTTTCTTGTCGTTATTAC ATTTATATACATACTCCATTTTCCTTAAATTT spacer length: 34
repeater length: 23
25949 22885 TTTTAGTTTCTTGTCGTTATTAC TGCTGTTTCATCAGGCTCAGTATAGTACCTGCAT spacer length: 33
repeater length: 23
25950 22942 TTTTAGTTTCTTGTCGTTATTAC GTGTGTCTTACCACCTATAAAGCTCTCCCACATAC spacer length: 35
repeater length: 23
25951 23001 TTTTAGTTTCTTGTCGTTATTAC ATTGATACGATTCTTGCTGAGGCGAGAAAGTATTCTCTT spacer length:
39 repeater length: 23
25952 23064 TTTTAGTTTCTTGTCGTTATTAC ATAATTTCAATCCTGAAAAACAGCTGTTCTACTTC spacer length: 35
repeater length: 23
25953 23123 TTTTAGTTTCTTGTCGTTATTAC CTCTACTATTGCTGATACTGATTTGCCTTCATCCCTC spacer length:
37 repeater length: 23

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25954	23184	TTTGTAGTTTCTTGTGCGTTATTAC	ACTATCTTCTTCTGAGTAGTAGTGGTCGTAACGTT	spacer length: 35
		repeater length: 23		
25955	23243	TTTGTAGTTTCTTGTGCGTTATTAC	TTTTTGACAGCATTTCGATAGAGGTTAAAGGTTTTTTT	spacer length: 36
		repeater length: 23		
25956	23303	TTTGTAGTTTCTTGTGCGTTATTAC	TGGTTGTTTGGTGAAAACCTCTAGGGGGACACATTC	spacer length: 36
		repeater length: 23		
25957	23363	TTTGTAGTTTCTTGTGCGTTATTAC	AAAAGCTTTAGCTTTTTTCAACTATCTAAGACATA	spacer length: 34
		repeater length: 23		
25958	23421	TTTGTAGTTTCTTGTGCGTTATTAC	TTCAATTTGTTTTCTCGAAAAAATTAGTTGTAAAG	spacer length: 35
		repeater length: 23		
25959	23480	TTTGTAGTTTCTTGTGCGTTATTAC	ATCGTCACCACCCACGAGGGCTTTTACGAATACGAG	spacer length: 36
		repeater length: 23		
25960	23540	TTTGTAGTTTCTTGTGCGTTATTAC	ACATACTAATAGTCTTACTCAGCATGAGGTTGATGAAC	spacer length: 38
		repeater length: 23		
25961	23602	TTTGTAGTTTCTTGTGCGTTATTAC	TTCTTGCTTGCTATAGCGTTAAGCAAGTAGAAGTGC	spacer length: 36
		repeater length: 23		
25962	23662	TTTGTAGTTTCTTGTGCGTTATTAC	TTGGATATAGAATTGTCTCATAAAGACATTGAGACTG	spacer length: 37
		repeater length: 23		
25963	23723	TTTGTAGTTTCTTGTGCGTTATTAC	TCCATAAAAGGCTTTGGACAAAACCTCTTGGTG	spacer length: 34
		repeater length: 23		
25964	23781	TTTGTAGTTTCTTGTGCGTTATTAC	GACTTCATATAAAGATTTGAGTTGCTGTTGCTCATAT	spacer length: 37
		repeater length: 23		
25965	23842	TTTGTAGTTTCTTGTGCGTTATTAC	TTTAAGCCAAATTTCTTCTCAATGTCTTTGGAATTAAT	spacer length: 39
		repeater length: 23		
25966	23905	TTTGTAGTTTCTTGTGCGTTATTAC	AAGGAAATTGATGGAAGTTGCAGCAGAATTAGAGGCTGA	spacer length: 39
		repeater length: 23		
25967	23968	TTTGTAGTTTCTTGTGCGTTATTAC	TACTTACCGTTTCTTCTATCATCTCTCTATTTCAG	spacer length: 34
		repeater length: 23		
25968	24026	TTTGTAGTTTCTTGTGCGTTATTAC	GATGAAGTTTATGATAAGCTCCAAACAATATATAGT	spacer length: 36
		repeater length: 23		
25969	24086	TTTGTAGTTTCTTGTGCGTTATTAC	TTGTATTGCTGATTGCCAATATATGCAATGTATC	spacer length: 34
		repeater length: 23		
25970	24144	TTTGTAGTTTCTTGTGCGTTATTAC	TCCAAAGCCTTCTAATAAAAGTGCAAAGTCTGATGTT	spacer length: 38
		repeater length: 23		
25971	24206	TTTGTAGTTTCTTGTGCGTTATTAC	ATTGTAATGCCATTATTTACTGAAATTGAACCTG	spacer length: 34
		repeater length: 23		
25972	24264	TTTGTAGTTTCTTGTGCGTTATTAC	ATCATTCATTTTTCTGCCCCAATATAATATACGAT	spacer length: 36
		repeater length: 23		
25973	24324	TTTGTAGTTTCTTGTGCGTTATTAC	ATTGTTGACTTTTCCATCCACTTTGTGTACTG	spacer length: 33
		repeater length: 23		
25974	24381	TTTGTAGTTTCTTGTGCGTTATTAC	TATGTTACGCTCATACTATATTTCTAAAAGTAATGTA	spacer length: 37
		repeater length: 23		
25975	24442	TTTGTAGTTTCTTGTGCGTTATTAC	GTAGAAACCTCTCTGTGTCTCTTGGATTATATAGAAATT	spacer length: 39
		repeater length: 23		
25976	24505	TTTGTAGTTTCTTGTGCGTTATTAC	ACTTATTTTTTGTCTTTATCTCACTACTCATTTTCT	spacer length: 36
		repeater length: 23		
25977	24565	TTTGTAGTTTCTTGTGCGTTATTAC	CGTGTGGAAGTTGATGGCTGATCTACAATTATTC	spacer length: 34
		repeater length: 23		
25978	24623	TTTGTAGTTTCTTGTGCGTTATTAC	TAAATGCTTCCTGCACAGCACCTAAATTGGCAAACCTTTT	spacer length: 39
		repeater length: 23		
25979	24686	TTTGTAGTTTCTTGTGCGTTATTAC	CCTAGGCTTTGCAGGTATTAATGCCTGTGAGCCA	spacer length: 34
		repeater length: 23		
25980	24744	TTTGTAGTTTCTTGTGCGTTATTAC	TATCACAACAAATACATTTTTGTATACCGCTACT	spacer length: 34
		repeater length: 23		
25981	24802	TTTGTAGTTTCTTGTGCGTTATTAC	TTTGGGTCAGAGACAAAGTTGTCAGTTTAATGACAA	spacer length: 36
		repeater length: 23		
25982	24862	TTTGTAGTTTCTTGTGCGTTATTAC	GAATTTGTATCATTTACTGGAAATCTGAAATTATTGTA	spacer length: 38
		repeater length: 23		
25983	24924	TTTGTAGTTTCTTGTGCGTTATTAC	TACTAGCTTCTTTGCTATCTTCTCAGCCTTGTTG	spacer length: 34
		repeater length: 23		
25984	24982	TTTGTAGTTTCTTGTGCGTTATTAC	TTGTAATCCCAGTGCTCTTTGCACTTAACCCAGAGA	spacer length: 36
		repeater length: 23		
25985	25042	TTTGTAGTTTCTTGTGCGTTATTAC	TCACTTACGACATATGATGCTACTTCATGCACTGT	spacer length: 35
		repeater length: 23		
25986	25101	TTTGTAGTTTCTTGTGCGTTATTAC	AATAGATCACACTGTTTGACATTAAAGAGCACAA	spacer length: 34
		repeater length: 23		
25987	25159	TTTGTAGTTTCTTGTGCGTTATTAC	ACCTAAAAATGATAAAAAATCTAAGACTAACGTCGA	spacer length: 35
		repeater length: 23		
25988	25218	TTTGTAGTTTCTTGTGCGTTATTAC	TTGTTACTTTTAATGTAAAGAGTAAGGCTTAAATAT	spacer length: 36
		repeater length: 23		
25989	25278	TTTGTAGTTTCTTGTGCGTTATTAC	AGGTAATAGATCTTGAGGTGACGTCAATCCAAATT	spacer length: 35

25990 repeater length: 23
 25337 TTTTAGTTTCTTGTCGTTATTAC ATAATCAAGGAGGCATCTATGTTACTGGGCATTA spacer length: 34
 25991 repeater length: 23
 25395 TTTTAGTTTCTTGTCGTTATTAC AGGCCTGCCTCTTCTAGTCCTTCTTGTGCACTTAGAATT spacer length: 39
 25992 repeater length: 23
 25458 TTTTAGTTTCTTGTCGTTATTAC ATGTTTCCTTGAACAAAAGCGATATCATAAAATT spacer length: 34
 25993 repeater length: 23
 25516 TTTTAGTTTCTTGTCGTTATTAC TGTTCTACGTTAGGGTACTTTTTTATGAACTTTTCA spacer length: 36
 25994 repeater length: 23
 25576 TTTTAGTTTCTTGTCGTTATTAC AAAGAAGAGCAGAAAGTAGTAGAGGACAGAGAAGAT spacer length: 36
 25995 repeater length: 23
 25636 TTTTAGTTTCTTGTCGTTATTAC AACGGTTTAGCAATCCTCCTCGGAATATTAATGCTGTT spacer length: 38
 25996 repeater length: 23
 25698 TTTTAGTTTCTTGTCGTTATTAC TTTAATGCGTTTAATGCCTCATCGAATTTCTGCTTC spacer length: 36
 25997 repeater length: 23
 25758 TTTTAGTTTCTTGTCGTTATTAC AATGTATCTTCAGTTCCATTATTCTATTTGAACTC spacer length: 35
 25998 repeater length: 23
 25817 TTTTAGTTTCTTGTCGTTATTAC CAGCTTATTACTATGCCCTGGCAAAGATCCTCTTAGAG spacer length: 38
 25999 repeater length: 23
 25879 TTTTAGTTTCTTGTCGTTATTAC AATATCTCAAGGAGGGCGAGGAAGTATGCGAAAGGTAA
 26000
 26001
 26002 crispr 2
 26003 38269 GTAATAACGACAAGAACTAAAAC AGCTCTTTCGCACTGTTATTTTACAATTTACACG spacer length: 34
 26004 repeater length: 24
 38328 GTAATAACGACAAGAACTAAAAC GCTTGTTGATTTGGGCCCATGCGAGGAGGATTA spacer length: 33
 26005 repeater length: 24
 38386 GTAATAACGACAAGAACTAAAAC TGATATTGTATCGTTGTAGTTAGTATTGTCCAGAAGA spacer length: 37
 26006 repeater length: 24
 38448 GTAATAACGACAAGAACTAAAAC AAGAACTCCCGGGAGCCCTGGTGGTATGCCCCGAAAT spacer length: 36
 26007 repeater length: 24
 38509 GTAATAACGACAAGAACTAAAAC ATCGTAAGAGAAGTGGGCTAGCGCTACCCTCCTCCAC spacer length: 37
 26008 repeater length: 24
 38571 GTAATAACGACAAGAACTAAAAC AGAAAATATCTCAAGGAGGGCGAGGAAGTATGCGAAA spacer length: 37
 26009 repeater length: 24
 38633 GTAATAACGACAAGAACTAAAAC TGGATGCTGAGTTAACTCCCCAGTTTACCGT spacer length: 31
 26010 repeater length: 24
 38689 GTAATAACGACAAGAACTAAAAC TTTTAGCCTGACCATTTCCCTCGTTAAAAAATAAGGAA spacer length: 38
 26011 repeater length: 24
 38752 GTAATAACGACAAGAACTAAAAC TTTCACGCTCCATGACCTCAGTGAATATCTCAT spacer length: 33
 26012 repeater length: 24
 38810 GTAATAACGACAAGAACTAAAAC TCATAGGGGCTATATTCAACAATACGTTGCTCCAGT spacer length: 36
 26013 repeater length: 24
 38871 GTAATAACGACAAGAACTAAAAC GAGAAGAAGCAAAGCATAACCGCTCTACAAGGTTTCCTTCAGT spacer length: 41
 26014 repeater length: 24
 38937 GTAATAACGACAAGAACTAAAAC TATGTCGATCTGTCCGGTGTGCTGGTGGGCGAGCA spacer length: 35
 26015 repeater length: 24
 38997 GTAATAACGACAAGAACTAAAAC AAATAGTGGTTTCCAAGACTGTGCAAATGCTTTTTTAT spacer length: 38
 26016 repeater length: 24
 39060 GTAATAACGACAAGAACTAAAAC TTTTAGCTGTTTCTCCATTCCGTCCCACCAACTA spacer length: 34
 26017 repeater length: 24
 39119 GTAATAACGACAAGAACTAAAAC TAAAATATTTTAAATGTTCCGGAGATAGATTATAAC spacer length: 35
 26018 repeater length: 24
 39179 GTAATAACGACAAGAACTAAAAC TGATATTTGGAGTGGTCGTGATTTTAATGGGAGC spacer length: 34
 26019 repeater length: 24
 39238 GTAATAACGACAAGAACTAAAAC ATTAAC TACATCGCTAACAGCTTGGTACAGCCTG spacer length: 34
 26020 repeater length: 24
 39297 GTAATAACGACAAGAACTAAAAC AACAAAAAATGAAGTTTTGGGTATGACTTTCTA spacer length: 35
 26021 repeater length: 24
 39357 GTAATAACGACAAGAACTAAAAC TAGAGGCACAATTACAGAATTTAGTAATTGATCAAA spacer length: 36
 26022 repeater length: 24
 39418 GTAATAACGACAAGAACTAAAAC TGAATTCTGCCTTTTTATATAACGCATTACTGTGAT spacer length: 36
 26023 repeater length: 24
 39479 GTAATAACGACAAGAACTAAAAC TTTGAGACGCTGAAAGACGTAGCGAAAGACTCTG spacer length: 34
 26024 repeater length: 24
 39538 GTAATAACGACAAGAACTAAAAC ATTAAAATGCTGTAGAAACACTTGACCAAATAT spacer length: 33
 26025 repeater length: 24
 39596 GTAATAACGACAAGAACTAAAAC TAAAGGGATCCTGACCTAAGGACTATCGGGCTTACTT spacer length: 37
 26026 repeater length: 24
 39658 GTAATAACGACAAGAACTAAAAC ACTATCTCAGCTATCGTCACTATCGACATCTTCA spacer length: 34
 26027 repeater length: 24

26027	39717 GTAATAACGACAAGAACTAAAAC	CATTTTATTTATATAGCCTCGTTGTATAGCTTC	spacer length: 33 repeater length: 24
26028	39775 GTAATAACGACAAGAACTAAAAC	ACTGCTAAAGAGCGCAGGTATTGCGCAAGACTAC	spacer length: 34 repeater length: 24
26029	39834 GTAATAACGACAAGAACTAAAAC	ATAATATACGACGCTCTGGTTAGGTAAAGGTACTC	spacer length: 35 repeater length: 24
26030	39894 GTAATAACGACAAGAACTAAAAC	AAAATTTTCATTCTAAAGAGATAACAGATTTGGGC	spacer length: 34 repeater length: 24
26031	39953 GTAATAACGACAAGAACTAAAAC	AGTGAATGCTTGTCTGAGCCTAGTCTGTTTAAC	spacer length: 34 repeater length: 24
26032	40012 GTAATAACGACAAGAACTAAAAC	ACATTTGCTGGAGTTCAGAAAATATCAGTAACCA	spacer length: 34 repeater length: 24
26033	40071 GTAATAACGACAAGAACTAAAAC	AAAGTTGTTTCAGCCCCATCTTCAATAAGTGAAGG	spacer length: 35 repeater length: 24
26034	40131 GTAATAACGACAAGAACTAAAAC	AACATAAAAAACACTGCTAGTTTCTATCTGATTAA	spacer length: 35 repeater length: 24
26035	40191 GTAATAACGACAAGAACTAAAAC	ATAGATAAAATAAATAGTTAATGTTTCATAAAATC	spacer length: 35 repeater length: 24
26036	40251 GTAATAACGACAAGAACTAAAAC	AACAACGTGATGATACTGACATTTGCGGGCTATTG	spacer length: 35 repeater length: 24
26037	40311 GTAATAACGACAAGAACTAAAAC	GCTGTTCATATAACTGTAATAAATTAAGAACT	spacer length: 33 repeater length: 24
26038	40369 GTAATAACGACAAGAACTAAAAC	AACTCTTGAATTGTTAAGTCTTTAATGAATGCA	spacer length: 33 repeater length: 24
26039	40427 GTAATAACGACAAGAACTAAAAC	AATGTACACCGTAGCCATTTTTTTGCACTTCTT	spacer length: 33 repeater length: 24
26040	40485 GTAATAACGACAAGAACTAAAAC	AAGAACAGCGATGTTTACAAGTCAGCACAAGACG	spacer length: 34 repeater length: 24
26041	40544 GTAATAACGACAAGAACTAAAAC	CATTTTCTTGGTTTTATCTATTTACCGTTTTAAA	spacer length: 34 repeater length: 24
26042	40603 GTAATAACGACAAGAACTAAAAC	CTAGATTGTTAGCACCGTGCATTAGCAATAATGCGT	spacer length: 36 repeater length: 24
26043	40664 GTAATAACGACAAGAACTAAAAC	GATTGCTGATGACGATGGAATAGTTACCACAAG	spacer length: 33 repeater length: 24
26044	40722 GTAATAACGACAAGAACTAAAAC	TTTTATTTTCCCGACAAAACGAAAAAATTGAA	spacer length: 34 repeater length: 24
26045	40781 GTAATAACGACAAGAACTAAAAC	TTAAAGAGGCAACAAAGCGAAAAATTCTATATGC	spacer length: 34 repeater length: 24
26046	40840 GTAATAACGACAAGAACTAAAAC	TTGTTGTGCTAACTGGTTTATCGCATCCCCTATT	spacer length: 34 repeater length: 24
26047	40899 GTAATAACGACAAGAACTAAAAC	TTATGTTATTTGTACAACTTCTTAGTTGCCAAT	spacer length: 34 repeater length: 24
26048	40958 GTAATAACGACAAGAACTAAAAC	TTCTTGTAGTTTCGGAAGACATTCTCACTGGTGT	spacer length: 35 repeater length: 24
26049	41018 GTAATAACGACAAGAACTAAAAC	TAGTAGTAGTTAATACTGCTGACTGAATTTTTCTTAGT	spacer length: 38 repeater length: 24
26050	41081 GTAATAACGACAAGAACTAAAAC	TTTATTTCAAAAAGTTACACTATAAAGATGAATT	spacer length: 34 repeater length: 24
26051	41140 GTAATAACGACAAGAACTAAAAC	TTGGGTAAGATCTAGACCTTATGTTCTCTTTC	spacer length: 33 repeater length: 24
26052	41198 GTAATAACGACAAGAACTAAAAC	TTGGGATATATTGCACAGACAACTTTGTCTC	spacer length: 32 repeater length: 24
26053	41255 GTAATAACGACAAGAACTAAAAC	ATGTTAGGAATATTGTTAAAAATCCGCCTATAATTCCGA	spacer length: 39 repeater length: 24
26054	41319 GTAATAACGACAAGAACTAAAAC	ATTTTTTATGCCATACCAACCCATTTTAATCAA	spacer length: 33 repeater length: 24
26055	41377 GTAATAACGACAAGAACTAAAAC	CAGTATATGCGTGTTGATGATTTTCTGAAGACT	spacer length: 33 repeater length: 24
26056	41435 GTAATAACGACAAGAACTAAAAC	ATAGCAAAGTACGAATAATCTATATTCCTGACC	spacer length: 33 repeater length: 24
26057	41493 GTAATAACGACAAGAACTAAAAC	ATATCTCATGGTTATGTTTCTTCAGATCCAGGC	spacer length: 33 repeater length: 24
26058	41551 GTAATAACGACAAGAACTAAAAC	GCGGCAGCTACTGGGTCTAACGCCTTCCACTCGA	spacer length: 34 repeater length: 24
26059	41610 GTAATAACGACAAGAACTAAAAC	ACATAAGCCAGCTAAAGAAGACGTATCTGACTGA	spacer length: 34 repeater length: 24
26060	41669 GTAATAACGACAAGAACTAAAAC	ATTATAAGTAAGGGCTGACTTGTTGAGTAAGACTGG	spacer length: 36 repeater length: 24
26061	41730 GTAATAACGACAAGAACTAAAAC	ATGATTATGAAATTTGTACAGCAAATGTTGATGAGA	spacer length: 36 repeater length: 24
26062	41791 GTAATAACGACAAGAACTAAAAC	AATGTCTTTTTTTATATAAATTTTTTCGAGTCCTAA	spacer length: 35

	repeater length: 24	
26063	41851 GTAATAACGACAAGAACTAAAAAC	AGGGAAAAGATCCTCTTCCTAGCTCCTTTCTCTT spacer length: 34
	repeater length: 24	
26064	41910 GTAATAACGACAAGAACTAAAAAC	CCTGTACAACGAAAACGGGACATTGTGGGCAATAC spacer length: 35
	repeater length: 24	
26065	41970 GTAATAACGACAAGAACTAAAAAC	CTCGACCTCTTCTACTACTTCTGGTGGTGCACCCA spacer length: 35
	repeater length: 24	
26066	42030 GTAATAACGACAAGAACTAAAAAC	TTAATTAAAGCGGCAAGCTCTCTAGCCAGGCTAGATCCCT spacer
	length: 40 repeater length: 24	
26067	42095 GTAATAACGACAAGAACTAAAAAC	AAAACAATGTTTTAGTTTTACAGACATTATAAAAT spacer length: 35
	repeater length: 24	
26068	42155 GTAATAACGACAAGAACTAAAAAC	ACTTCAAGAATGGAATACATTTGTAAAAATTTGC spacer length: 35
	repeater length: 24	
26069	42215 GTAATAACGACAAGAACTAAAAAC	GCCCAAGCTCAGGCTGGAAACAGTGGAAATCCG spacer length: 33
	repeater length: 24	
26070	42273 GTAATAACGACAAGAACTAAAAAC	ATATAACAAAGCGCATTGCTGATACGTTACACAG spacer length: 34
	repeater length: 24	
26071	42332 GTAATAACGACAAGAACTAAAAAC	TCCATGCCCTCGCCCCGCCTTTTCTTTTTCTT spacer length: 33
	repeater length: 24	
26072	42390 GTAATAACGACAAGAACTAAAAAC	TTCCACATTGATGAGGTAAGCCTCTGAAAAGGTT spacer length: 34
	repeater length: 24	
26073	42449 GTAATAACGACAAGAACTAAAAAC	TGTGACCAAATTGAGGCAGAAGTATCCGCAGGGGA spacer length: 35
	repeater length: 24	
26074	42509 GTAATAACGACAAGAACTAAAAAC	ACCCCTGACTTTGTCTTAAAGATAATGAGTTCTT spacer length: 35
	repeater length: 24	
26075	42569 GTAATAACGACAAGAACTAAAAAC	AGAAAATGAGTAGTGAAGTTAAGACAAAAAATAAGTC spacer length:
	37 repeater length: 24	
26076	42631 GTAATAACGACAAGAACTAAAAAC	TTCCTGTCAAATTTGTCTAGCAGTTCTTTTGCCT spacer length:
	37 repeater length: 24	
26077	42693 GTAATAACGACAAGAACTAAAAAC	ATTATACCACGCCAAAGAGATGGCGTGAGGCGAT spacer length: 34
	repeater length: 24	
26078	42752 GTAATAACGACAAGAACTAAAAAC	TATTTGAAGGCTTCCCTTAGGGCGTTCTTTAGC spacer length: 33
	repeater length: 24	
26079	42810 GTAATAACGACAAGAACTAAAAAC	GTAAATTCGGCGCCCCAGTAGAAGTCTTTCTCG spacer length: 34
	repeater length: 24	
26080	42869 GTAATAACGACAAGAACTAAAAAC	CTATGTGTTGATGAGAGCACAGCTGGGCATGGAGCGT spacer length:
	37 repeater length: 24	
26081	42931 GTAATAACGACAAGAACTAAAAAC	AGATGTAGAGAAAACGATCGATTTAAGGCATGCG spacer length: 34
	repeater length: 24	
26082	42990 GTAATAACGACAAGAACTAAAAAC	AATAAATCAATCCTTTTTTTAAGGTCTTTCCAAG spacer length: 34
	repeater length: 24	
26083	43049 GTAATAACGACAAGAACTAAAAAC	TCAACACAAGGAAACACTTACAATTGGTATGAGTATGAA spacer
	length: 39 repeater length: 24	
26084	43113 GTAATAACGACAAGAACTAAAAAC	CACTAGACACTGCAGGGACAGATATCAAAAAC spacer length: 33
	repeater length: 24	
26085	43171 GTAATAACGACAAGAACTAAAAAC	GTGCCCCTGTCTCTGCAGTTTTAACGCTAAATATC spacer length:
	36 repeater length: 24	
26086	43232 GTAATAACGACAAGAACTAAAAAC	ACCTATCACTTTCCTTGCGAATTCAACCAGTGTTA spacer length: 35
	repeater length: 24	
26087	43292 GTAATAACGACAAGAACTAAAAAC	CACCAGCTGTGATGACATAGTCTTTGTCCAGTAATG spacer length:
	36 repeater length: 24	
26088	43353 GTAATAACGACAAGAACTAAAAAC	TTCTTCATAAGGATGTATCTGTACCAGTTCACC spacer length: 33
	repeater length: 24	
26089	43411 GTAATAACGACAAGAACTAAAAAC	GTCTTTACAGAACTTGGGGCGAAGTAGTATCCCGC spacer length: 35
	repeater length: 24	
26090	43471 GTAATAACGACAAGAACTAAAAAC	GATGAACTCGCCTGTGTTACTTGATGTGTATAAGGA spacer length:
	36 repeater length: 24	
26091	43532 GTAATAACGACAAGAACTAAAAAC	AACTCTGAGACTGAGGTTCTTTTTGTCTCACTAGA spacer length: 35
	repeater length: 24	
26092	43592 GTAATAACGACAAGAACTAAAAAC	ATAGGCTAGAAGCTGCAAAGAGGCTGGGCTGGAA spacer length: 34
	repeater length: 24	
26093	43651 GTAATAACGACAAGAACTAAAAAC	TACTGCAAGATCTACATTATAGTTCAATGATTT spacer length: 33
	repeater length: 24	
26094	43709 GTAATAACGACAAGAACTAAAAAC	ACGAGTCTCTTTATCAATATAGTGATGTTATCTACA spacer length:
	36 repeater length: 24	
26095	43770 GTAATAACGACAAGAACTAAAAAC	TTTTTTGCTTTTAGCTTTTCGTATTCTATTAATGA spacer length: 35
	repeater length: 24	
26096	43830 GTAATAACGACAAGAACTAAAAAC	AGTGGCTTAATGTACCTTTTGGTACTGACTATCCAA spacer length:
	36 repeater length: 24	
26097	43891 GTAATAACGACAAGAACTAAAAAC	GCTGATAGATAAAGATAAAATAAAAATAGACTT spacer length: 33
	repeater length: 24	

26098 43949 GTAATAACGACAAGAACTAAAAC GTCTACTTTTAAGTGAACCTTTATTGTAATCGTATCAA spacer length: 36 repeater length: 24

26099 44010 GTAATAACGACAAGAACTAAAAC TAAGCGTCTAAATAAGTTACCGACAATTGTTA spacer length: 32 repeater length: 24

26100 44067 GTAATAACGACAAGAACTAAAAC ATTGTTGAGAGATGCTACTTATGAAGAAAATGGA spacer length: 34 repeater length: 24

26101 44126 GTAATAACGACAAGAACTAAAAC CTTCATAACTCAACAAAACAAATAAGGTATGCCACTC spacer length: 37 repeater length: 24

26102 44188 GTAATAACGACAAGAACTAAAAC CTTAGCGTAAGAGAGCGTATATTATGCAGCGTATAT spacer length: 36 repeater length: 24

26103 44249 GTAATAACGACAAGAACTAAAAC AATTTTCAGAGTCACTTACTTGGAAATTTTGTCTCT spacer length: 36 repeater length: 24

26104 44310 GTAATAACGACAAGAACTAAAAC CAAAACTGCCGTTTAATGCGCCACTTCTAGAACA spacer length: 35 repeater length: 24

26105 44370 GTAATAACGACAAGAACTAAAAC TTTTGAGAATAGAGTCTATGAAATCTCCTTTTAT spacer length: 34 repeater length: 24

26106 44429 GTAATAACGACAAGAACTAAAAC AGGTTCACTCACCTCGCCTCGCAAGATATTCCAA spacer length: 35 repeater length: 24

26107 44489 GTAATAACGACAAGAACTAAAAC ACAATTCCTTTCTTTTTTTATAGCTGTTGTACACATTCC spacer length: 38 repeater length: 24

26108 44552 GTAATAACGACAAGAACTAAAAC TAGTAATATCTAGCGACTTCCATAATTGCTGATG spacer length: 34 repeater length: 24

26109 44611 GTAATAACGACAAGAACTAAAAC ATTATAAAATTGATGTATTATACATTTGCAGAAA spacer length: 34 repeater length: 24

26110 44670 GTAATAACGACAAGAACTAAAAC CGCTATTCTCAAGTACTCTGCGATCTCGCCCTCTGAAA spacer length: 38 repeater length: 24

26111 44733 GTAATAACGACAAGAACTAAAAC TTCATATCGCTCTTTTGAATACTTCATCAATTCTTGT spacer length: 37 repeater length: 24

26112 44795 GTAATAACGACAAGAACTAAAAC TTTTATATTCTGTTGTTTCAATTTTTATATCATT spacer length: 33 repeater length: 24

26113 44853 GTAATAACGACAAGAACTAAAAC ATATTATTAGGAATGACAGCCGAGCTACTACTG spacer length: 34 repeater length: 24

26114 44912 GTAATAACGACAAGAACTAAAAC TTGTACAAAAAGCTGAATTTAAGCAAGTCGGAA spacer length: 34 repeater length: 24

26115 44971 GTAATAACGACAAGAACTAAAAC ATTTAGTTTGAATATTATGAGTAATTGAGAGTTGG spacer length: 35 repeater length: 24

26116 45031 GTAATAACGACAAGAACTAAAAC TTGCTACAGGAAATGGAGAAGGTGAATATCAGGGAG spacer length: 36 repeater length: 24

26117 45092 GTAATAACGACAAGAACTAAAAC TTTTATCTTCAAAGAGTTGAAAAAGAGAGGGTTAGAT spacer length: 37 repeater length: 24

26118 45154 GTAATAACGACAAGAACTAAAAC CTTTCTTCTTCATCTTTATCGATCAAAATTAGCCTTAGCAATAACGACAAGAACTAAAACCTTTATTATCAAGAGCATTAAGTAAT TTTGGAAGACC spacer length: 97 repeater length: 24

26119 45276 GTAATAACGACAAGAACTAAAAC TAATAACTCTCCTACCTTTTCTATTTTTTAGCATTTG spacer length: 36 repeater length: 24

26120 45337 GTAATAACGACAAGAACTAAAAC TATTTTCGTAATCTTCTATAAGTTTTGAGTTGAATGG spacer length: 36 repeater length: 24

26121 45398 GTAATAACGACAAGAACTAAAAC GTATAGTACTGGTGTATTACTTCCAGATATCCC spacer length: 33 repeater length: 24

26122 45456 GTAATAACGACAAGAACTAAAAC CACTCTCTTCAATCCGATTATATCAATTTACTAC spacer length: 34 repeater length: 24

26123 45515 GTAATAACGACAAGAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGA spacer length: 36 repeater length: 24

26124 45576 GTAATAACGACAAGAACTAAAAC GTTGTAGTCATTCCAGTAATGACTAAGATATTGTG spacer length: 35 repeater length: 24

26125 45636 GTAATAACGACAAGAACTAAAAC TGTAATACAATATTACGCTAGCAATACAACAAACAT spacer length: 36 repeater length: 24

26126 45697 GTAATAACGACAAGAACTAAAAC ACACTCGCCGACTCTCTCTCATTTATTGCGAGAT spacer length: 34 repeater length: 24

26127 45756 GTAATAACGACAAGAACTAAAAC GTGTTGTTTCGAGACTTCTACTGCCATTAATATTA spacer length: 34 repeater length: 24

26128 45815 GTAATAACGACAAGAACTAAAAC GATTACTTTATGCTTTATTCAAATATAGAATAAAA spacer length: 35 repeater length: 24

26129 45875 GTAATAACGACAAGAACTAAAAC GTTGGGTATTTAAGCTTACGCATTATATTTTTGA spacer length: 34 repeater length: 24

26130 45934 GTAATAACGACAAGAACTAAAAC GATTACTGCAGTGATGATGAAATATCGTGCTAATGA spacer length: 36 repeater length: 24

26131 45995 GTAATAACGACAAGAACTAAAAC TAATATAGCGACCACAGAAGCTTGCTATATTT spacer length: 33 repeater length: 24

26132 46053 GTAATAACGACAAGAACTAAAAC CTCTCAAGAAATTCCAAAAGTTTATCAAACCTCCT spacer length: 34 repeater length: 24

26133 46112 GTAATAACGACAAGAACTAAAAC TTTCTACATTATGTACTACCGATAAAACATGTGATC spacer length: 36 repeater length: 24
 26134 46173 GTAATAACGACAAGAACTAAAAC TTCTCTTGGTTCAAACCCTTAAATCTTCGTTATT spacer length: 36 repeater length: 24
 26135 46234 GTAATAACGACAAGAACTAAAAC TTTTCATCAACATCTTGACTCCGGTATTCGACATC spacer length: 35 repeater length: 24
 26136 46294 GTAATAACGACAAGAACTAAAAC AGTGGTCAGGGCTAGATATCTGCCCACTACCAAC spacer length: 34 repeater length: 24
 26137 46353 GTAATAACGACAAGAACTAAAAC TATCAAGAAAAATAGGGCTAGCCCAATTCCAATGA spacer length: 35 repeater length: 24
 26138 46413 GTAATAACGACAAGAACTAAAAC CATGTAAAATATCATGACACATATATTAATTTTGA
 26139
 26140
 26141 GCA_001563245.1_ASM156324v1_genomic.fna(findCrispr):
 26142 START REPEAT
 26143 SPACER
 26143 crispr 1
 26144 943038 ATGAATTAAAAATTTTAAAAA TGAAAAAAGTTAATAATTTA spacer length: 20 repeater length: 20
 26145 943079 ATGAATTAAAAATTTTAAAAA TAAAAAAGTTAATAATCTA spacer length: 20 repeater length: 20
 26146 943120 ATGAATTAAAAATTTTAAAAA TAAAAATCTTAAAAATAGTA
 26147
 26148
 26149 crispr 2
 26150 1507791 ATGGTGGTGCTGTTTATTGG
 TATGGTGATAATGGTAATTTAAGTGCTTGTTCCTTTTGCCAATAACCATGCAAAGTAT spacer length: 57 repeater length: 20
 26151 1507869 ATGGTGGTGCTGTTTATTGG
 TATGGTGCTAATGGTAAGTTAAGTGCTTGTTCCTTTTGTTAATAACCATGCTAATGATTAT spacer length: 60 repeater length: 20
 26152 1507950 ATGGTGGTGCTGTTTATTGG
 AATAAAATGATTTATTTCTATTTAAAAATTATCTATTTAATTGGAAGTATTAAATAGCTA
 26153
 26154
 26155 crispr 3
 26156 598541 CTAATTTTTCTTTTTTATTT ATAAGATTTTTATTATTTTCG spacer length: 20 repeater length: 20
 26157 598582 CTAATTTTTCTTTTTTATTT ATAAGATTTTTATTATTTTCT spacer length: 21 repeater length: 20
 26158 598624 CTAATTTTTCTTTTTTATTT AAAAATCTTAAAAATAGTAAA
 26159
 26160
 26161 crispr 4
 26162 514194 CTTGGTATGGTGCTAATGGT
 ACTTTAAAAGATTGTTCTTTTGCCAATAACCATGTTAATGCGTATTATGGTGGTGCTGTT spacer length: 60 repeater length: 20
 26163 514275 CTTGGTATGGTGCTAATGGT
 TTTTAAAGTGATTGTTCTTTTGTTAATAACCATGCTAATGATGATGATGGTGGTGCTGTT spacer length: 60 repeater length: 20
 26164 514356 CTTGGTATGGTGCTAATGGT
 CCAATAGATAGCACCACCATATTTTGCATGGTTATTAACAAAAGAACAGTTGCTTATATT
 26165
 26166
 26167 crispr 5
 26168 2003555 GTTCTGGTGGTTCTGGTTCT CATGCTTCTAGTTCTGGTTCTTCATCTTCTGGTGGTTCT spacer length: 39 repeater length: 20
 26169 2003615 GTTCTGGTGGTTCTGGTTCT AATGCTTCTAGTTCTGGTGGTTCT spacer length: 24 repeater length: 20
 26170 2003660 GTTCTGGTGGTTCTGGTTCT ATAAAATGATTTATTTCTATTTAA
 26171
 26172
 26173 crispr 6
 26174 335239 TATTTTATAATTTTTTTTATA TAGTTTTTTTTATATAATCTT spacer length: 20 repeater length: 20
 26175 335280 TATTTTATAATTTTTTTTATA TAGTTTTTTTTATATAATATT spacer length: 20 repeater length: 20
 26176 335321 TATTTTATAATTTTTTTTATA AAAATCTTAAAAATAGTAAA
 26177
 26178
 26179 crispr 7
 26180 1798636 TCCTCATCAACTAAATCAAA GCCATCAACAGAATCAACAACCCCATCTTC spacer length: 30 repeater length: 20
 26181 1798687 TCCTCATCAACTAAATCAAA ATCATCACTAGAATCAACAACCCCATCTTC spacer length: 30 repeater length: 20
 26182 1798738 TCCTCATCAACTAAATCAAA AAATCAGGAATTTAAAAAAGAAAATAAAA

26183
26184
26185 crispr 8
26186 437625 TGTTGCGCCTTGCTGCTCTTA
GAGGTATTAGTGATGAGGATGTTTTAGAAAGATATTGCTAGAAATGATCCCTCTTGGC spacer length: 57 repeater
length: 20
26187 437703 TGTTGCGCCTTGCTGCTCTTA
AAGGTATTAGTGATGAGGTGGTTTTAGCGGATATTGCTAAAAAGGATGACTGGAGTA spacer length: 57 repeater
length: 20
26188 437781 TGTTGCGCCTTGCTGCTCTTA CTATATTTTAGTAAATAGCTAGTAATGTCTAGATACTTAAATTATAAGTTTAAATAT
26189
26190
26191 crispr 9
26192 792915 TTAAAAATGTATTAATATAGA GAAATAATTATTAACTTATT spacer length: 21 repeater length:
20
26193 792957 TTAAAAATGTATTAATATAGA GAAATAATTATTAACTTAT spacer length: 20 repeater length: 20
26194 792998 TTAAAAATGTATTAATATAGA CAATAGATAGCACCACCATA
26195
26196
26197 crispr 10
26198 693962 TTTATTTTATCTTTTTTTTAG ATAATTTTTTTTACTTGTTTA spacer length: 20 repeater length: 20
26199 694003 TTTATTTTATCTTTTTTTTAG CTAATTTTTTTTACTTGTTTA spacer length: 20 repeater length: 20
26200 694044 TTTATTTTATCTTTTTTTTAG TAAAATGATTTATTTCTATT
26201
26202
26203 crispr 11
26204 342853 TTTTAAATATTTAAAAATGAG TTTCTTCTTTTTTGATTATT spacer length: 20 repeater length: 20
26205 342894 TTTTAAATATTTAAAAATGAG
TTTCTTCTTTTTTGATTATTTTTTTTAAATATTTAAAAATAAGTTTGATTATTTAAATTAT spacer length: 61
repeater length: 20
26206 342976 TTTTAAATATTTAAAAATGAG
AAATCTTAAAAATAGTAAAAAGTAAATAAAAAAAGGCACCTTAAGCTCATGTTAAGTGCC
26207
26208
26209 crispr 12
26210 590207 TTTTTTTATTAAATACTTTT TATGTTTTTAAGTTTAAAGGGAATT spacer length: 25 repeater
length: 20
26211 590253 TTTTTTTATTAAATACTTTT TATGTTTTTAAGTTTAAAGGGA spacer length: 22 repeater
length: 20
26212 590296 TTTTTTTATTAAATACTTTT AGAGGGTAATAAAATGAAAAAT
26213
26214
26215 crispr 13
26216 434600 AAAATATAATATTATTTAATT AATTTTAATTTTCAATTCAA spacer length: 20 repeater length:
21
26217 434642 AAAATATAATATTATTTAATT TAATTAATTTTAATTTTCAATTCAA spacer length: 25 repeater
length: 21
26218 434689 AAAATATAATATTATTTAATT AACATATTTAAAAATAAAGCAATAT
26219
26220
26221 crispr 14
26222 1607611 AATAAATGAAATTAATGAAAA
ATATAATAAATGAAATTAGTAAAAATATAATAAATGAAATTAGTAAAAATATAATAAATGAAATTAGTAAAAATA spacer
length: 75 repeater length: 21
26223 1607708 AATAAATGAAATTAATGAAAA TATAATAAATGAAATTAGTAAAAATA spacer length: 26 repeater
length: 21
26224 1607756 AATAAATGAAATTAATGAAAA AATAAAATATATTTAAATAAAAAGGAT
26225
26226
26227 crispr 15
26228 1060687 ACTAAGTATAAACAAGATAAA TAATAGCTAATAAACACCTAA spacer length: 21 repeater
length: 21
26229 1060730 ACTAAGTATAAACAAGATAAA TATAGCTAATAAACACCTAA spacer length: 20 repeater
length: 21
26230 1060772 ACTAAGTATAAACAAGATAAA AAAATATGATAAATTTTAAA
26231
26232
26233 crispr 16
26234 1399471 ATTTAATTTCAATATTACAAT TTAAAATACTAAAATAAAACCTTAAAA spacer length: 27 repeater
length: 21
26235 1399520 ATTTAATTTCAATATTACAAT CGAGAATACTAAAATAAAACCTTAAAATATT spacer length: 34

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repeater length: 21
26236 1399576 ATTTAATTTCAATATTACAAT ATCAGGAATTTAAAAAAGAAAATAAAAAAGTAA
26237
26238
26239 crispr 17
26240 1764608 CCTATGAAAATAAAGATAAAA ATAAAGAAAATAAAGAAAAT spacer length: 20 repeater
length: 21
26241 1764650 CCTATGAAAATAAAGATAAAA ATAAAGAAAATAAAGATAAT spacer length: 20 repeater
length: 21
26242 1764692 CCTATGAAAATAAAGATAAAA AGAGATAACACGAGTTCCTA
26243
26244
26245 crispr 18
26246 1066047 GAAGAATTTATAAAACTAGAA
CCATTAACACTAACACTACTAGAATGTATAGCTCCACCAGGAGAATTAGGACCACTGGT spacer length: 59
repeater length: 21
26247 1066128 GAAGAATTTATAAAACTAGAA
CCATTAACACTAACACTACCAGAATGTATAGCTCCACCAGGAGAATTAGGACCACTGGT spacer length: 59
repeater length: 21
26248 1066209 GAAGAATTTATAAAACTAGAA
TCATTAACACTAACACTAGCACTAGAATGTATAACTCCACCACACGAATTATTACCATTAGT spacer length: 62
repeater length: 21
26249 1066293 GAAGAATTTATAAAACTAGAA
TTAATAACACTAACACTACCAGAATCTATAGCTCCACCATGAGAAATACTACCCTTAGT spacer length: 59
repeater length: 21
26250 1066374 GAAGAATTTATAAAACTAGAA
CCATAAACACTAACACTAGTATAAGAAAATATAGCTCCACCACGGGAATTATTACGCTTAGT spacer length: 62
repeater length: 21
26251 1066458 GAAGAATTTATAAAACTAGAA
CCATAAACACTAACACTATCACCAGAATTTATAGCTCCACCACGAGACCAATCAGCATTAGT spacer length: 62
repeater length: 21
26252 1066542 GAAGAATTTATAAAACTAGAA
CCATAAACACTAACACTACCACCATAATATATAGCTCCACCATGAGAACTAGAACCATTGGT spacer length: 62
repeater length: 21
26253 1066626 GAAGAATTTATAAAACTAGAA
CCATTAACACTACCCTACCACCAGAATATATAGCTCCACCAGCAGAAGTAGGACCATTAGT spacer length: 62
repeater length: 21
26254 1066710 GAAGAATTTATAAAACTAGAA
TTAATAACGTTAGTACTCTTACCAGAATATATAACTCCACCATGAGAAAAATTACTCTTAGT spacer length: 62
repeater length: 21
26255 1066794 GAAGAATTTATAAAACTAGAA
GATAATTATTAATCTAAATATGTTAAATTATTAGGAGCTATTTTATGAAAGATAAAGTAAGA
26256
26257
26258 crispr 19
26259 1137501 TAATATTAAATTAAAAAATAA TCTAATATTATATTAAAAAATAAC spacer length: 24 repeater
length: 21
26260 1137547 TAATATTAAATTAAAAAATAA TCTAATTTTAAATTAAAAAATAAC spacer length: 24 repeater
length: 21
26261 1137593 TAATATTAAATTAAAAAATAA TATATTATTAGTTTTTTTAAATGA
26262
26263
26264 crispr 20
26265 1621292 TAATTAGCTTTATTTATAAAT CTAGTAAAAATTATTAAATC spacer length: 20 repeater
length: 21
26266 1621334 TAATTAGCTTTATTTATAAAT CTAGTAAAAATTATTAAATC spacer length: 20 repeater
length: 21
26267 1621376 TAATTAGCTTTATTTATAAAT CTAGTAAAACTATTAAATC spacer length: 20 repeater
length: 21
26268 1621418 TAATTAGCTTTATTTATAAAT AAATATATTTAAATATATTG
26269
26270
26271 crispr 21
26272 750140 TATTAATCAGGTTTTTTAGAAT CTTTTCTTTGATAATTTAGT spacer length: 20 repeater length:
21
26273 750182 TATTAATCAGGTTTTTTAGAAT CTTTTATTTGATAATTTAGT spacer length: 20 repeater length:
21
26274 750224 TATTAATCAGGTTTTTTAGAAT CATCTACTTAAAATAATAAC
26275
26276
26277 crispr 22

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26278 2061128 TTAAATTTATTTTTTAATTAT ATTATTTATAAATAGATGATAAAT spacer length: 24 repeater
 length: 21
 26279 2061174 TTAAATTTATTTTTTAATTAT TTTATTTATAAATAGATGATAAAT spacer length: 24 repeater
 length: 21
 26280 2061220 TTAAATTTATTTTTTAATTAT TTTATTTATAAATAGATGATAAAT spacer length: 24 repeater
 length: 21
 26281 2061266 TTAAATTTATTTTTTAATTAT TAAAGTATTAAAAATTAGATTCTT
 26282
 26283
 26284 crispr 23
 26285 1854281 TTAATTAAAAAATAGATATT AAATATATGAATGTTTAAAA spacer length: 20 repeater
 length: 21
 26286 1854323 TTAATTAAAAAATAGATATT GAATATATGAATGTTTAAAA spacer length: 20 repeater
 length: 21
 26287 1854365 TTAATTAAAAAATAGATATT GAATATATGAATGTTTAAAA spacer length: 20 repeater
 length: 21
 26288 1854407 TTAATTAAAAAATAGATATT AATAAACTTAATTAAAAGTT
 26289
 26290
 26291 crispr 24
 26292 897693 TTAATTATTTAAATAATTATT CAATAGATATTTAAATCCTAACA spacer length: 24 repeater
 length: 21
 26293 897739 TTAATTATTTAAATAATTATT TAATAGATATTTAAATCTTAATAATT spacer length: 27 repeater
 length: 21
 26294 897788 TTAATTATTTAAATAATTATT ATAGATAGCACCACCATATTTTGCATG
 26295
 26296
 26297 crispr 25
 26298 626172 TTTAGCTATTTTAAATAGTAT TATCATGATTTTTTAATAAA spacer length: 20 repeater length:
 21
 26299 626214 TTTAGCTATTTTAAATAGTAT TAGCATGATTTTTTAATAAA spacer length: 20 repeater length:
 21
 26300 626256 TTTAGCTATTTTAAATAGTAT AAATAATAGAATTAAATACA
 26301
 26302
 26303 crispr 26
 26304 328085 TTTTTATTTAATTCTATTTT ACTATTTCTATTTTTATTAG spacer length: 20 repeater length:
 21
 26305 328127 TTTTTATTTAATTCTATTTT TCTATTTCTGTTTTTATTAG spacer length: 20 repeater length:
 21
 26306 328169 TTTTTATTTAATTCTATTTT AACACTACCACCATAATATA
 26307
 26308
 26309 crispr 27
 26310 1616891 AAAAATTACATTTTAAGTAAAA AAAAAAATATATTTAAAT spacer length: 20 repeater
 length: 22
 26311 1616934 AAAAATTACATTTTAAGTAAAA AAAAAAATATATATTTAAAT spacer length: 23 repeater
 length: 22
 26312 1616980 AAAAATTACATTTTAAGTAAAA CCATTAGAACCCTCCCAATAGAT
 26313
 26314
 26315 crispr 28
 26316 1645752 AAAAGTAAATAAAGATTAAAAA TCTTAAAAACAGTAAAAAAA spacer length: 20 repeater
 length: 22
 26317 1645795 AAAAGTAAATAAAGATTAAAAA TCTTAAAAACAGTAAAAAAA spacer length: 23 repeater
 length: 22
 26318 1645841 AAAAGTAAATAAAGATTAAAAA AAGTTTAAAAAATAAATCCAA
 26319
 26320
 26321 crispr 29
 26322 795261 ATTTAAGATAAAATTTTTATATT TGTATAAATAAAGGTATGAATGATTTAAATACTGATT spacer length:
 37 repeater length: 22
 26323 795321 ATTTAAGATAAAATTTTTATATT TGTATAAATAAGGGTATGAATGATTTAAATACTGATT spacer length:
 37 repeater length: 22
 26324 795381 ATTTAAGATAAAATTTTTATATT AGTGAAGGTTAAGTAAAAAAGTAAAAGAATAGAAAT
 26325
 26326
 26327 crispr 30
 26328 526717 TAAAAAGTTTTATTTTAAAAAA AGGCCTATTTTTAATAAAATAGT spacer length: 23 repeater
 length: 22
 26329 526763 TAAAAAGTTTTATTTTAAAAAA AGATTTATTTTTAATAAAATAGT spacer length: 23 repeater

length: 22
26330 526809 TAAAAAGTTTTATTTTAAAAAA CCTTTTAAAAGTTTAAAAGAATA
26331
26332
26333 crispr 31
26334 1104367 TATTTTCTATAATTTTAATAGA TTAAAAAATAAAAAATTAA spacer length: 21 repeater
length: 22
26335 1104411 TATTTTCTATAATTTTAATAGA TTAAAAAATAAAAAATTAA spacer length: 20 repeater
length: 22
26336 1104454 TATTTTCTATAATTTTAATAGA AATGATTTATTTCTATTTAA
26337
26338
26339 crispr 32
26340 921905 TTTAATTTCTTAAATTTTTATA TCTTTAAATATTGTTTCAATATTATAAATC spacer length: 30
repeater length: 22
26341 921958 TTTAATTTCTTAAATTTTTATA TCTTTAAATATTGTTTCAATATTATAAATT spacer length: 30
repeater length: 22
26342 922011 TTTAATTTCTTAAATTTTTATA TCTTAAAAATAGTAAAAAAGTAAATAAAAA
26343
26344
26345 crispr 33
26346 1192216 TTTTAAATGAATATAATAAAA AAAATAGTTCATAAAGGAATTAATTTTAATATTAA spacer length:
36 repeater length: 22
26347 1192275 TTTTAAATGAATATAATAAAA AAATAGTCCCATAAACGGAATTAGTTTTAATATTAA spacer length:
36 repeater length: 22
26348 1192334 TTTTAAATGAATATAATAAAA CTTTCTAAAAGTTTAAAAAAAATAAATCCAAGTTTT
26349
26350
26351 crispr 34
26352 844938 TTTTTTTAATTTTATATTAAAT CAAGTTTAATTTTATTTTTTTTAAG spacer length: 25 repeater
length: 22
26353 844986 TTTTTTTAATTTTATATTAAAT GAGATTTAATTTTATTTTTTTTAAG spacer length: 26 repeater
length: 22
26354 845035 TTTTTTTAATTTTATATTAAAT GGGTAATAAAATGAAAAATTAAAAAT
26355
26356
26357 crispr 35
26358 878274 AAATACCATTCTTAACTTATTAA ATTTTTAAAAATTCAATAGA spacer length: 20 repeater
length: 23
26359 878318 AAATACCATTCTTAACTTATTAA GTTTTTAAAAATTCAATAGA spacer length: 20 repeater
length: 23
26360 878362 AAATACCATTCTTAACTTATTAA GAAATTAACTAACTTTTA
26361
26362
26363 crispr 36
26364 714987 AAGTTTCTTTTTTAAAGTTAAT TTGATTTAAAAAGGATTAAT spacer length: 20 repeater
length: 23
26365 715031 AAGTTTCTTTTTTAAAGTTAAT TAGATTTAAAAAGGATTAAT spacer length: 20 repeater
length: 23
26366 715075 AAGTTTCTTTTTTAAAGTTAAT TAGATTTAAAAAGGATTAAT spacer length: 20 repeater
length: 23
26367 715119 AAGTTTCTTTTTTAAAGTTAAT AAATAGAAATTAACTAAAC
26368
26369
26370 crispr 37
26371 266926 AATAAATTATAGTTTTAAATATG CAGGTTATTTAATTATTATTA spacer length: 20 repeater
length: 23
26372 266970 AATAAATTATAGTTTTAAATATG TAGGTTATTTAATTATTATTATTA spacer length: 23 repeater
length: 23
26373 267017 AATAAATTATAGTTTTAAATATG ATATTTAAAAATAAAGCAATATT
26374
26375
26376 crispr 38
26377 1253020 AATATTTAAAAAGAATAATTAAA AAAAATATAAAAAAGAAAGA spacer length: 20 repeater
length: 23
26378 1253064 AATATTTAAAAAGAATAATTAAA AAAAATATAAAAAAGAAAGC spacer length: 20 repeater
length: 23
26379 1253108 AATATTTAAAAAGAATAATTAAA AAAATATATTTAAATAAAAG
26380
26381
26382 crispr 39

26383 209733 ATTAGGTTTTAACTAAATTTTAA AATTTTATTGATTGATGTATAGTT spacer length: 28
repeater length: 23

26384 209785 ATTAGGTTTTAACTAAATTTTAA GATTTTCAGTTGTTTTATAATAGTT spacer length: 24 repeater
length: 23

26385 209833 ATTAGGTTTTAACTAAATTTTAA TAAAATTAACAATAAACTTAATTA

26386

26387

26388 crispr 40

26389 427338 TAAAAATAGGTATTGTTTATTCA TAAATAAATGGATTTCTACT spacer length: 20 repeater
length: 23

26390 427382 TAAAAATAGGTATTGTTTATTCA TAAATAAATGGATTTCTATT spacer length: 20 repeater
length: 23

26391 427426 TAAAAATAGGTATTGTTTATTCA ATATGATAAATTTTAAAAAA

26392

26393

26394 crispr 41

26395 192 TAATTATTATTATTATTATTATT ATTATTATTATTATTATTATT spacer length: 22 repeater
length: 23

26396 238 TAATTATTATTATTATTATTATT ATTATTATTATTATTATTATT spacer length: 22 repeater
length: 23

26397 284 TAATTATTATTATTATTATTATT ATTATTTATTATTATTATT spacer length: 20 repeater length: 23

26398 328 TAATTATTATTATTATTATTATT ATTAATAATTTTAAATTA

26399

26400

26401 crispr 42

26402 1821008 TAATTTAAAAATAAATAATAATT CTCACCTAACTTTTCAAATTAT spacer length: 23 repeater
length: 23

26403 1821055 TAATTTAAAAATAAATAATAATT TCCACATAAAATTTTAAATCACA spacer length: 23 repeater
length: 23

26404 1821102 TAATTTAAAAATAAATAATAATT AGGAATTTAAAAAAGAAAATAA

26405

26406

26407 crispr 43

26408 97 TATTAATTATTATTATTATTATT
TTTATTATTATTATTCTTATTATTATTAATTTTTATTATTATTATTATTATTATTATTATTATTATTATT spacer length:
68 repeater length: 23

26409 189 TATTAATTATTATTATTATTATT ATTATTATTATTATTATTATT spacer length: 22 repeater
length: 23

26410 235 TATTAATTATTATTATTATTATT ATTATTATTATTATTATTATT spacer length: 22 repeater
length: 23

26411 281 TATTAATTATTATTATTATTATT ATTATTTATTATTATTATT spacer length: 20 repeater length: 23

26412 325 TATTAATTATTATTATTATTATT GATAACACGAGTTCCTATTT

26413

26414

26415 crispr 44

26416 1501804 TCTATACTAATAATAAAGAACTA GCTTTACCAATAAAGAACTA spacer length: 20 repeater
length: 23

26417 1501848 TCTATACTAATAATAAAGAACTA GCTTTACCAATAAAGAACTA spacer length: 20 repeater
length: 23

26418 1501892 TCTATACTAATAATAAAGAACTA TCTTTTACCATAAAGAACTA spacer length: 20 repeater
length: 23

26419 1501936 TCTATACTAATAATAAAGAACTA ATTAATTTTATAATAATCTA

26420

26421

26422 crispr 45

26423 902963 TTAAAAATTATAAAATTTAATAT TTAATATAAATTTTAATTTAATTCCTTT spacer length: 28
repeater length: 23

26424 903015 TTAAAAATTATAAAATTTAATAT TTAATATAAATTTTAATTTTGTCTTTT spacer length: 30
repeater length: 23

26425 903069 TTAAAAATTATAAAATTTAATAT AATTATTAATCTAAATATGTTAAATTATTA

26426

26427

26428 crispr 46

26429 1079766 TTATTATAATTTTCTTTTATTAA ACATAATTCAATATTATTAAATTCTAAATAA spacer length: 31
repeater length: 23

26430 1079821 TTATTATAATTTTCTTTTATTAA GCAGAATATTTTAGATTATATCAATCAAATAA spacer length: 32
repeater length: 23

26431 1079877 TTATTATAATTTTCTTTTATTAA AATTAGCCTAATTTAGTTTTTAAATATTAAT

26432

26433

26434 crispr 47

26435 926919 TTTTAAATTAAATTAATTTTAAA TATTTCTTTTAGTAATAAAC spacer length: 20 repeater
 length: 23
 26436 926963 TTTTAAATTAAATTAATTTTAAA TATTTCTTTTGGTAATAAAC spacer length: 20 repeater
 length: 23
 26437 927007 TTTTAAATTAAATTAATTTTAAA TTCAAGAATCTCCTCAATAT
 26438
 26439
 26440 crispr 48
 26441 1397435 AAAAAATAGAAAAAGAATAATAAA TTATGATAAATTTTAAAAAATAGG spacer length: 24 repeater
 length: 24
 26442 1397484 AAAAAATAGAAAAAGAATAATAAA ATATGATAAATTTTAAAAAATAGG spacer length: 24 repeater
 length: 24
 26443 1397533 AAAAAATAGAAAAAGAATAATAAA TTCTATATTTTAGTAAATAGCTAG
 26444
 26445
 26446 crispr 49
 26447 1228989 AAATAAAATTAACCTTAATAAAAAAT CCAAATAAAAAAAAAAACCCCTCT spacer length: 25
 repeater length: 24
 26448 1229039 AAATAAAATTAACCTTAATAAAAAAT CCAAATAAAAAAAAAACCCCTCT spacer length: 20 repeater
 length: 24
 26449 1229084 AAATAAAATTAACCTTAATAAAAAAT ATAAGAAAAATAATAAATAA
 26450
 26451
 26452 crispr 50
 26453 66715 AGATAGCTATTTTTATATTATTAG TTTTTTAAATGAAAAAATT spacer length: 20 repeater
 length: 24
 26454 66760 AGATAGCTATTTTTATATTATTAG TTTTTACTAGTTTTTTAAATGAAAAAATT spacer length: 30
 repeater length: 24
 26455 66815 AGATAGCTATTTTTATATTATTAG TTTTTTAGAATAAAAAAATT spacer length: 20 repeater
 length: 24
 26456 66860 AGATAGCTATTTTTATATTATTAG TTTTTTAGAATAAAAAAATT spacer length: 20 repeater
 length: 24
 26457 66905 AGATAGCTATTTTTATATTATTAG TTATTAGTTTTTTAAATGA
 26458
 26459
 26460 crispr 51
 26461 758694 ATATTAATATAAGCTAATTTATAT CTATGAGATAATTATTATTT spacer length: 20 repeater
 length: 24
 26462 758739 ATATTAATATAAGCTAATTTATAT TTATAAGCTAATTATTATTT spacer length: 20 repeater
 length: 24
 26463 758784 ATATTAATATAAGCTAATTTATAT TTATGAGATAATTATTATTT spacer length: 20 repeater
 length: 24
 26464 758829 ATATTAATATAAGCTAATTTATAT TTATAAGCTAATTATTATTT spacer length: 20 repeater
 length: 24
 26465 758874 ATATTAATATAAGCTAATTTATAT TTATAAGCTAATTATTATTT spacer length: 20 repeater
 length: 24
 26466 758919 ATATTAATATAAGCTAATTTATAT AAAACCAACAATAAAATTAA
 26467
 26468
 26469 crispr 52
 26470 1020465 ATATTATAAAATTTAATTTTAATT AGCCTAATTTAGTTTTTAAA spacer length: 20 repeater
 length: 24
 26471 1020510 ATATTATAAAATTTAATTTTAATT AGCCTAATTTAGTTTTTAAA spacer length: 20 repeater
 length: 24
 26472 1020555 ATATTATAAAATTTAATTTTAATT ACCCTAATTTAGTTTTTAAA spacer length: 20 repeater
 length: 24
 26473 1020600 ATATTATAAAATTTAATTTTAATT AGCCTAATTTAGTTTTTAAA spacer length: 20 repeater
 length: 24
 26474 1020645 ATATTATAAAATTTAATTTTAATT ATATTTAAATATATTGATAT
 26475
 26476
 26477 crispr 53
 26478 410128 GTAAAAAAGTAAAAGAATAGAAA TAATTA AAAAATGAAAATTA spacer length: 20 repeater
 length: 24
 26479 410173 GTAAAAAAGTAAAAGAATAGAAA TAATTA AAAAAGTGAAGGTTA spacer length: 20 repeater
 length: 24
 26480 410218 GTAAAAAAGTAAAAGAATAGAAA TAATTA AAAAAGTGAAGGTTA spacer length: 20 repeater
 length: 24
 26481 410263 GTAAAAAAGTAAAAGAATAGAAA TACTTAAATAATAACTAAT
 26482
 26483

26484 crispr 54
26485 502189 TAAATTATTAATTATAATATAATA CAATATAATACTAGATGTAACT spacer length: 23 repeater
length: 24
26486 502237 TAAATTATTAATTATAATATAATA
CAATATAATACTAGATGTAACTGTAAATTATTAATTATAATATACTAATAAATCTTAACT spacer length: 61
repeater length: 24
26487 502323 TAAATTATTAATTATAATATAATA
GTATTAAAAATTAGATTCTTTAATAATTAGTTCATTTTCATTGATTAATTTAAATTTATCA
26488
26489
26490 crispr 55
26491 969957 TCTTTATCTACTAAAATCATTTTT TCTAAAATCACTCATTTTATT spacer length: 21 repeater
length: 24
26492 970003 TCTTTATCTACTAAAATCATTTTT CTAAAATCACTCATTTTATT spacer length: 20 repeater
length: 24
26493 970048 TCTTTATCTACTAAAATCATTTTT CTAAAATTACTCATTTTATT spacer length: 20 repeater
length: 24
26494 970093 TCTTTATCTACTAAAATCATTTTT TTTAGTTTTTAAAATATTAA
26495
26496
26497 crispr 56
26498 249998 TTGTTTTTAATAATTTTAATGAGT AGTTTTTTTTTTTTTAATGTTTTAAGTTT spacer length: 28
repeater length: 24
26499 250051 TTGTTTTTAATAATTTTAATGAGT AGTTTTTTTTTTTTTAATGTTTTAAGTTT spacer length: 25 repeater
length: 24
26500 250101 TTGTTTTTAATAATTTTAATGAGT GTGGTTTTTTTATGGAATAATCATTT
26501
26502
26503 crispr 57
26504 1827528 AAAATAAAATAAAAAATTAATAAAA ATAGAAATTAAAATAAAATAGAAAT spacer length: 25
repeater length: 25
26505 1827579 AAAATAAAATAAAAAATTAATAAAA GTAAAAATTAAAATAAAATAGAAAT spacer length: 25
repeater length: 25
26506 1827630 AAAATAAAATAAAAAATTAATAAAA TTCCCAATAGATAGCACCACCATAT
26507
26508
26509 crispr 58
26510 1176552 ATAAAAAATAGCTAAAAATAAGAAA TCAAGAAATTAAAAAAGAA spacer length: 20 repeater
length: 25
26511 1176598 ATAAAAAATAGCTAAAAATAAGAAA TCAAGAAATTAAAGAAAATAA spacer length: 21 repeater
length: 25
26512 1176645 ATAAAAAATAGCTAAAAATAAGAAA TAGCACCACCATATTTTGCAT
26513
26514
26515 crispr 59
26516 790823 ATTAAAATAGAAATTTTTTATATAT GATTAAAACAGTTAAAATAGTTAG spacer length: 25
repeater length: 25
26517 790874 ATTAAAATAGAAATTTTTTATATAT GATTAAAACAGTTAAAATAGTAAAATAGTTAA spacer length:
34 repeater length: 25
26518 790934 ATTAAAATAGAAATTTTTTATATAT ATAGAATTAAATACAACTAATCAAATAATTTAT
26519
26520
26521 crispr 60
26522 1693874 ATTATATATAATAAAAAAATATAT TTAAGTTAAAATATATTTTCTAGAATAATCAAC spacer length:
33 repeater length: 25
26523 1693933 ATTATATATAATAAAAAAATATAT TTAAGTTAAAATATATTTTCTAGAATAATCAAT spacer length:
33 repeater length: 25
26524 1693992 ATTATATATAATAAAAAAATATAT AAAATAATTAAAATATAATTTAAATATGTATA
26525
26526
26527 crispr 61
26528 682591 GAGTTATTTTAGTTGGTTTTTATTT CTTTATGATTTTTTGTTCCTT spacer length: 20 repeater
length: 25
26529 682637 GAGTTATTTTAGTTGGTTTTTATTT ATTTATTTATTTATTTATGATTTTTTGTTCCTT spacer length: 32
repeater length: 25
26530 682695 GAGTTATTTTAGTTGGTTTTTATTT TACCACCATAATATATAGCTCCACCATGAGAA
26531
26532
26533 crispr 62
26534 1951238 TATTATTTTACTTTTTATCCTTCT AATTATACCTTAATAGGATT spacer length: 20 repeater
length: 25

26535 1951284 TATTATTTTTACTTTTTATCCTTCT AATTATACCTTAATAGGATT spacer length: 20 repeater
 length: 25
 26536 1951330 TATTATTTTTACTTTTTATCCTTCT AATTATACCTTAATAGAATT spacer length: 20 repeater
 length: 25
 26537 1951376 TATTATTTTTACTTTTTATCCTTCT AATTATACCTTAATAGGATT spacer length: 20 repeater
 length: 25
 26538 1951422 TATTATTTTTACTTTTTATCCTTCT AATTATACCTTAATAGGATT spacer length: 20 repeater
 length: 25
 26539 1951468 TATTATTTTTACTTTTTATCCTTCT AATTATACCTTAATAGAATT spacer length: 20 repeater
 length: 25
 26540 1951514 TATTATTTTTACTTTTTATCCTTCT AATTATACCTTAATAGGATT spacer length: 20 repeater
 length: 25
 26541 1951560 TATTATTTTTACTTTTTATCCTTCT TAGAACCTTCCCAATAGATA
 26542
 26543
 26544 crispr 63
 26545 807941 TTTAGTATTTATATATTTTTTTATTT TAGTATTTATATACTTTCTA spacer length: 20 repeater
 length: 25
 26546 807987 TTTAGTATTTATATATTTTTTTATTT CAGTATTTATATACTTTCTA spacer length: 20 repeater
 length: 25
 26547 808033 TTTAGTATTTATATATTTTTTTATTT CAGTATTTATATACTTTTTTA spacer length: 20 repeater
 length: 25
 26548 808079 TTTAGTATTTATATATTTTTTTATTT AAGAACTAACCTTTATTAAA
 26549
 26550
 26551 crispr 64
 26552 2158244 TTTTTTTTAAATTTTTCTTATTTAA TTTACGAAATCCTCGTCTGTTTTACTTTA spacer length: 30
 repeater length: 25
 26553 2158300 TTTTTTTTAAATTTTTCTTATTTAA CTTATGAAATCCTAGTCTGTTTTACTTTA spacer length: 30
 repeater length: 25
 26554 2158356 TTTTTTTTAAATTTTTCTTATTTAA TTAAAAAATAAATCCAAGTTTTTAAGTT
 26555
 26556
 26557 crispr 65
 26558 379371 AATAATATTAATTTTTATTTTTTAATT AGGTGTTTTTTAATAATTTCG spacer length: 20 repeater
 length: 26
 26559 379418 AATAATATTAATTTTTATTTTTTAATT AGGTGTTTTTTAATAATTTG spacer length: 20 repeater
 length: 26
 26560 379465 AATAATATTAATTTTTATTTTTTAATT AGGTAAAGTAAAAAAGTAA
 26561
 26562
 26563 crispr 66
 26564 932229 AATTAATTGTAAAAATAATTAATAAAA CCAACAATAAAATTAATTAATAATTA spacer length: 31
 repeater length: 26
 26565 932287 AATTAATTGTAAAAATAATTAATAAAA CCAACAATAAAATTAATTA spacer length: 20 repeater
 length: 26
 26566 932334 AATTAATTGTAAAAATAATTAATAAAA AAAAAGTAAATAAAAAAAG
 26567
 26568
 26569 crispr 67
 26570 1510861 GAACTTAAACTAATCAAATATAGATA GCTATAAAAAATAATAACTAA spacer length: 21 repeater
 length: 26
 26571 1510909 GAACTTAAACTAATCAAATATAGATA GCTATAAAAAATAATAACTAA spacer length: 20 repeater
 length: 26
 26572 1510956 GAACTTAAACTAATCAAATATAGATA TTAAATAAAAGGATATTAT
 26573
 26574
 26575 crispr 68
 26576 1188263 TCTTTTTCTTCAACTTCTAAAATTGC CCTATTATCCTCACTAATCCAACATTGCCTTTATT spacer
 length: 36 repeater length: 26
 26577 1188326 TCTTTTTCTTCAACTTCTAAAATTGC AGCATTATCCTCACTAATCCAACATTGCCTTTATT spacer
 length: 36 repeater length: 26
 26578 1188389 TCTTTTTCTTCAACTTCTAAAATTGC TAAAAGTTTAAAAGAATAAAAAACTTTCTAAAAGTT
 26579
 26580
 26581 crispr 69
 26582 917642 AAATTATTAGATAAAATTCTCCCCATTA TATGAATCTTCACTATAATT spacer length: 20 repeater
 length: 27
 26583 917690 AAATTATTAGATAAAATTCTCCCCATTA TAGTAATCTTCACTATAATT spacer length: 20 repeater
 length: 27
 26584 917738 AAATTATTAGATAAAATTCTCCCCATTA AAGTTAATTAGATTTAAAAA

26585
26586
26587 crispr 70
26588 1274436 ATGCTAATAAAATATTAGTCCTAAATG TTAATAAAATATTTATCTTA spacer length: 20 repeater
length: 27
26589 1274484 ATGCTAATAAAATATTAGTCCTAAATG CTAATAAAATATTTATCTTA spacer length: 20 repeater
length: 27
26590 1274532 ATGCTAATAAAATATTAGTCCTAAATG TTATTTCTATTTAAAATTAT
26591
26592
26593 crispr 71
26594 371884 TAAAAATAAAGCAATATTTAAAAATAA ACATATTAAATAAAACACAT spacer length: 20 repeater
length: 27
26595 371932 TAAAAATAAAGCAATATTTAAAAATAA ACATATTAAATAAAACATAT spacer length: 20 repeater
length: 27
26596 371980 TAAAAATAAAGCAATATTTAAAAATAA ACATATTAAATAAAACATAT spacer length: 20 repeater
length: 27
26597 372028 TAAAAATAAAGCAATATTTAAAAATAA AAATAGTAAAAAAGTAAATA
26598
26599
26600 crispr 72
26601 753428 TAATGATAAAATTTTAGTTTTAAAAAG ATGAGTGGTTTTTTAATTTTAAAA spacer length: 24
repeater length: 27
26602 753480 TAATGATAAAATTTTAGTTTTAAAAAG TTGAGTGGTTTTTTAATTTTAAAA spacer length: 24
repeater length: 27
26603 753532 TAATGATAAAATTTTAGTTTTAAAAAG AAAAGTTTAAAAAAAATAAATCCA
26604
26605
26606 crispr 73
26607 596096 TTTCTATTTTAAAGATAATCTTTTTAA
ATATTACTAATTTCTATTTTTTAAGATATTTTTTAAATATTACTAATTTCTAT spacer length: 53 repeater
length: 27
26608 596177 TTTCTATTTTAAAGATAATCTTTTTAA
ATATTATTAATTTCTATTTTTTAAGATATTTTTTAAATATTACTAATTTCTAT spacer length: 53 repeater
length: 27
26609 596258 TTTCTATTTTAAAGATAATCTTTTTAA
TCAGGAATTTAAAAAAGAAAAATAAAAAAGTAATAAAAGAATTATCTTACCCT
26610
26611
26612 crispr 74
26613 735281 TAAAAATTATAAATAGTTAATTTAAAGT AACTAAAAATTATAATTCATTAATTTAAAGTAA spacer length:
33 repeater length: 28
26614 735343 TAAAAATTATAAATAGTTAATTTAAAGT GATTAAAAATTATAATTCATTAATTTAAAGTAA spacer length:
33 repeater length: 28
26615 735405 TAAAAATTATAAATAGTTAATTTAAAGT AAATTAACTAACTTTTAAAAAAGATAATGAA
26616
26617
26618 crispr 75
26619 188908 TTTTTTAAATATTTTTATTCAAATTTTT ATAAGCATATATTTTAAATA spacer length: 21 repeater
length: 28
26620 188958 TTTTTTAAATATTTTTATTCAAATTTTT ATAAGCATATATTTTAAATA spacer length: 21 repeater
length: 28
26621 189008 TTTTTTAAATATTTTTATTCAAATTTTT ATAAGCATATATTTTAAAT spacer length: 20 repeater
length: 28
26622 189057 TTTTTTAAATATTTTTATTCAAATTTTT ATAAGAAAAATAATAAATAA
26623
26624
26625 crispr 76
26626 676938 TTTTATATATTTATCTTTGTACTTTTTTA GATTTTTTTAGTTTTTTACT spacer length: 20 repeater
length: 29
26627 676988 TTTTATATATTTATCTTTGTACTTTTTTA GATTTTTTTAGCTTTTTTATT spacer length: 20 repeater
length: 29
26628 677038 TTTTATATATTTATCTTTGTACTTTTTTA GATTTTTTTAGTTTTTTATT spacer length: 20 repeater
length: 29
26629 677088 TTTTATATATTTATCTTTGTACTTTTTTA AAAATAAAGCAATATTTAAA
26630
26631
26632 crispr 77
26633 463459 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAATCCTGAACTATTAATAATCTTGTTGTTTCTT spacer
length: 35 repeater length: 30
26634 463525 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAGAAAACAAAGTTTATGAAGTAGAAATGAATGCTT spacer

length: 36 repeater length: 30

26635 463592 ATTTCAATCCCAAAATGGTCTTATTTTAAT CACCACACCCAACAAAAAGGTTGTGGAGGA spacer length: 31 repeater length: 30

26636 463654 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTAATCTTTGTTTTGGAAAACAATTCAAAAAAT spacer length: 34 repeater length: 30

26637 463719 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTAAGCTTTAGTCAACCTAATTATGATAGTAGTGAATTTCAATCCCAAAATTGTCTTATTTTAATTTGGCAGAATTTCTTATTG ATAAAGCTATTGATG spacer length: 101 repeater length: 30

26638 463851 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTCATTTAATTTTCCATATACTTTTCTTTGAATG spacer length: 36 repeater length: 30

26639 463918 ATTTCAATCCCAAAATGGTCTTATTTTAAT TACCAAGAATGATAGGATTGAAGACTAGATGTTA spacer length: 34 repeater length: 30

26640 463983 ATTTCAATCCCAAAATGGTCTTATTTTAAT CCTTAAGTCCAATATTGGTATTAAGTGTGACAT spacer length: 35 repeater length: 30

26641 464049 ATTTCAATCCCAAAATGGTCTTATTTTAAT CACTAGAATGATCCACCAAGAAAATTTGCAAATC spacer length: 35 repeater length: 30

26642 464115 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGCCTACAGCTAATTGGATACATATTCCTCTAGTA spacer length: 37 repeater length: 30

26643 464183 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAGAACTTTCCTTGATAGTGAACTCGTGATGCACTATTTCAATCTCAAATGGTCTTATTTTAATATTTATCCTCTGAAGAGTCT AGATTATTATCTAGCT spacer length: 102 repeater length: 30

26644 464316 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGAAATGACAAACAGGTACTGGGGAATAGTTAGTA spacer length: 36 repeater length: 30

26645 464383 ATTTCAATCCCAAAATGGTCTTATTTTAAT GCAGCTGCACATAGACACAAAGGTGGATATGAACA spacer length: 35 repeater length: 30

26646 464449 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGCCATTACCATAAACAAGCTAATAAATATAGTA spacer length: 35 repeater length: 30

26647 464515 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATAACCTACCACTAAAACCTTTTAATAGTATCAATGA spacer length: 35 repeater length: 30

26648 464581 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATTCTTGAATAAATTATATGATAAATATAAGAACT spacer length: 35 repeater length: 30

26649 464647 ATTTCAATCCCAAAATGGTCTTATTTTAAT CATATCCCCATTAAAAGAAGTGTTATCGTAGCTC spacer length: 34 repeater length: 30

26650 464712 ATTTCAATCCCAAAATGGTCTTATTTTAAT TGAGTATTGCTAGCTCTTATTATTCCATTTTTTCT spacer length: 35 repeater length: 30

26651 464778 ATTTCAATCCCAAAATGGTCTTATTTTAAT AGAGGAAATAGCTATTATATTTGAAAAATATAATC spacer length: 35 repeater length: 30

26652 464844 ATTTCAATCCCAAAATGGTCTTATTTTAAT GATACTTAAGTCCTCTATACTACCAGCATTCTGTT spacer length: 35 repeater length: 30

26653 464910 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAAATATTTAAATGACAATATTCTCAATACTGTTG spacer length: 35 repeater length: 30

26654 464976 ATTTCAATCCCAAAATGGTCTTATTTTAAT GCTTCAGCTGTCGCCGATAAGGGTATAATTGCTAA spacer length: 35 repeater length: 30

26655 465042 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTCGTTTATATGTTATTAATAACTCAAATAGTAGTG spacer length: 36 repeater length: 30

26656 465109 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAGTTCACAGAACACAATCAATAACTAGTCCTGGTT spacer length: 36 repeater length: 30

26657 465176 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAGACAATGAGGGTGATCCTATGGGTGTTTCATCGTT spacer length: 36 repeater length: 30

26658 465243 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTAATCCATGTATCCGCTATTGTTATTAGGTCTAT spacer length: 35 repeater length: 30

26659 465309 ATTTCAATCCCAAAATGGTCTTATTTTAAT CTGAGGAAGGTAATATGTTAGCAAAGCTAATGACAA spacer length: 36 repeater length: 30

26660 465376 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTGCAGTGGGTGTGCTCATTGTCAAGTAAAG spacer length: 34 repeater length: 30

26661 465441 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGACGCAGATTATGTTATAATTGACGACCCATATT spacer length: 36 repeater length: 30

26662 465508 ATTTCAATCCCAAAATGGTCTTATTTTAAT TATTATGCTTACCCACAAAATCAATTAACATGTCTT spacer length: 36 repeater length: 30

26663 465575 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCTTGATTGCTTGCTAAAAATCATAAGGTTCTATCATTTCAATCCCAATGGTCTTATTTTAATGAGTATTAATTTATCAAATTAT TCACTAAAGAAGA spacer length: 99 repeater length: 30

26664 465705 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTATTAATCCTCCAAATATACTGCTAATTCATAAA spacer length: 36 repeater length: 30

26665 465772 ATTTCAATCCCAAAATGGTCTTATTTTAAT ATGTGGTATGAATTCCCAAAACCCCATCATGTCCT spacer length: 35 repeater length: 30

26666 465838 ATTTCAATCCCAAAATGGTCTTATTTTAAT CAGCAACCTTAGTAGCACTATTAGCCTTAACAGTAA spacer length: 36 repeater length: 30

26667 465905 ATTTCAATCCCAAAATGGTCTTATTTTAAT ACGGACATAATCATCAGCTACAATCTTAGTAAAAT spacer length: 35 repeater length: 30

26668 465971 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTAGCAAGTAACCTTTCTAATTCTTTTCTCTT spacer length: 36 repeater length: 30

length: 35 repeater length: 30
26669 466037 ATTTCAATCCCAAAATGGTCTTATTTTAAT AATTAGAGATTAGTAATGCTGAGGAACTTTGACT spacer
length: 35 repeater length: 30
26670 466103 ATTTCAATCCCAAAATGGTCTTATTTTAAT TAATTTGAAGCATGGGGGTGCTTTATTAACAGATA spacer
length: 35 repeater length: 30
26671 466169 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCTCACAAGTAATTTCTCCTTCTTTAACACTCT spacer
length: 33 repeater length: 30
26672 466233 ATTTCAATCCCAAAATGGTCTTATTTTAAT CCTGTTTAGCTATAGATTTAACATAGTTTTTAATAA spacer
length: 36 repeater length: 30
26673 466300 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTGCATTAGTTGTTATTGTTGAAGTGTCTTAT spacer
length: 34 repeater length: 30
26674 466365 ATTTCAATCCCAAAATGGTCTTATTTTAAT AATATACTCATCATTCAACATTATACCCGTATCAA spacer
length: 35 repeater length: 30
26675 466431 ATTTCAATCCCAAAATGGTCTTATTTTAAT GAGGAAC TTGAATTTGAGAAGTTGAAAGAAGAAAC spacer
length: 35 repeater length: 30
26676 466497 ATTTCAATCCCAAAATGGTCTTATTTTAAT TTTTATGGTTGATTCTTTTATGTTTATATTTTTTCT spacer
length: 36 repeater length: 30
26677 466564 ATTTCAATCCCAAAATGGTCTTATTTTAAT TCAAATACGTACTAAATATTAGTTATATACATTAC spacer
length: 35 repeater length: 30
26678 466630 ATTTCAATCCCAAAATGGTCTTATTTTAAT AAAAAGTAAATAAAAAAAGGCACCTTAAGCTCATG
26679
26680
26681 crispr 78
26682 233761 TGTTTAAATAGGAAATATGGGTTTTTTTATT ATTTAAATGGGAAATGTGAGTTTTTTA spacer length: 27
repeater length: 30
26683 233819 TGTTTAAATAGGAAATATGGGTTTTTTTATT ATTTAAATGGGGAATGTGAGTTTTTTTT spacer length: 28
repeater length: 30
26684 233878 TGTTTAAATAGGAAATATGGGTTTTTTTATT TTTAAATAAAAGGATATTATTAAAGAAT
26685
26686
26687 crispr 79
26688 51908 TTTAAAAATATTAAAAATACTATTGATAAT GATTAATCTAAATATGTTAA spacer length: 20 repeater
length: 30
26689 51959 TTTAAAAATATTAAAAATACTATTGATAAT TATTAATCTAAATATGTTAA spacer length: 20 repeater
length: 30
26690 52010 TTTAAAAATATTAAAAATACTATTGATAAT GCTTTTTTAAATTTTTTAGCT
26691
26692
26693 crispr 80
26694 929307 ATAGCCTTTAATAAATTTATAAAATTAAATAA CCATATAAAATTTAGTTTTA spacer length: 20
repeater length: 32
26695 929360 ATAGCCTTTAATAAATTTATAAAATTAAATAA TCATATAAAATTTAGTTTTA spacer length: 20
repeater length: 32
26696 929413 ATAGCCTTTAATAAATTTATAAAATTAAATAA AATAAACTTAATTAAAAGTT
26697
26698
26699 crispr 81
26700 1029725 TAAAAGTTTAAAAGAATAAAAAACCTTCTAAAAG CTTAAAAAATAATAAACCTC spacer length: 21
repeater length: 34
26701 1029781 TAAAAGTTTAAAAGAATAAAAAACCTTCTAAAAG CTTAAAAAATAATAAACCTT spacer length: 21
repeater length: 34
26702 1029837 TAAAAGTTTAAAAGAATAAAAAACCTTCTAAAAG TCAATATATATTTTTTCTATT
26703
26704
26705 crispr 82
26706 742509 TTTAAGTGCTTGTTCTTTTACTAATAACCATGCT
GGTGAGCATGGTGGTGCTATCAGTTTGTCTGGTGAAAATTGTA spacer length: 43 repeater length: 34
26707 742587 TTTAAGTGCTTGTTCTTTTACTAATAACCATGCT
AATGGGTTTGGTGGTGCTGTTAATTTGGGTAATAGTTATAATGTTTTAAAAGATTGTTCTTTTGTTAATAATAGAGCTGATCGATT
TGGTGGTGCTGTTGCTTGGGATGGTGACTATGGTC spacer length: 121 repeater length: 34
26708 742743 TTTAAGTGCTTGTTCTTTTACTAATAACCATGCT
TTAAAAAATTAATATACTGATTAAAAAATAATATAAAAAATTATTAAAAAATTAATATACTGATTAAAAAATAATATAAAA
ATTATTAAAAAATTAATATACTGATTAAAAA
26709
26710
26711 crispr 83
26712 1718944 CCACTAGAACTACCACCACCAGAAGAACCAGAAGA GCCACTATCTGAAGAAGAACC spacer length: 21
repeater length: 35
26713 1719001 CCACTAGAACTACCACCACCAGAAGAACCAGAAGA AGAACCAGAAGAGCCGCTATCTGAAGAAGAACC spacer
length: 33 repeater length: 35
26714 1719070 CCACTAGAACTACCACCACCAGAAGAACCAGAAGA AAATTAAAATAAAATTAAATAATGTAGAGAAAT

26715
 26716
 26717 crispr 84
 26718 438131 ATACTTAGTTAAAAATATTCTCAAAATATGATTTTTTC CTTTTAGATGATTATTCAT spacer length: 20
 repeater length: 36
 26719 438188 ATACTTAGTTAAAAATATTCTCAAAATATGATTTTTTC CTTTTAGATGATTATTTGT spacer length: 20
 repeater length: 36
 26720 438245 ATACTTAGTTAAAAATATTCTCAAAATATGATTTTTTC ATATAATTAGGTTAAAAAGA
 26721
 26722
 26723 crispr 85
 26724 818610 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCACCTTTATCATAGATTTTAAAAAACTATTTTT
 spacer length: 35 repeater length: 37
 26725 818683 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC ATTCTTAATATTTAAAGTATAAACATTAGAATAAC
 spacer length: 35 repeater length: 37
 26726 818756 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC CTTACTACCCTTATAATTCCACATATGACCTGTA
 spacer length: 34 repeater length: 37
 26727 818828 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC AACATTGTTAAGACTTTTAACTAAACATCTTTTTT
 spacer length: 35 repeater length: 37
 26728 818901 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC AGGCTAACCTAAAAATAGCTTTCAAACGTACATC
 spacer length: 35 repeater length: 37
 26729 818974 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC GTAAGAACTTTACCAATTTTGTTAAACCTTATA
 spacer length: 34 repeater length: 37
 26730 819046 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCCACCCAACACTAACTAAAAAATTAACCTTCTA
 spacer length: 34 repeater length: 37
 26731 819118 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTTAGATAATGATTCTGAAAATCTTGGTGTGAAGA
 spacer length: 35 repeater length: 37
 26732 819191 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTGTGTTTGGTTTTGTTTATTACTTTTTCTTTTTTC
 spacer length: 37 repeater length: 37
 26733 819266 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TTAAATTTGGCTCCGCGTATTCAAATTATGCCTC
 spacer length: 35 repeater length: 37
 26734 819339 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TGATATGAATCTAAAAAATTATTTCTTCTTCTACC
 spacer length: 36 repeater length: 37
 26735 819413 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC ACAGTAATCCTGATTCTCTAAATTACTGAATTCTC
 spacer length: 35 repeater length: 37
 26736 819486 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCATAATAGGTCCTATCAAATGAATATGTAACCC
 spacer length: 35 repeater length: 37
 26737 819559 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC ACTTGTTATACATAATATCACTTAAATTTTTAA
 spacer length: 34 repeater length: 37
 26738 819631 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCTGGTCTCCAGCCGATTTTCGTAAATGTATTAG
 spacer length: 34 repeater length: 37
 26739 819703 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC GTTCTGAACTTCTGTAAATTCATAAGCTAAATC
 spacer length: 36 repeater length: 37
 26740 819777 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC TCTTCATTTTTATTATTAATTCCTCTAAATTCTTC
 spacer length: 35 repeater length: 37
 26741 819850 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC CGTCCATTTCATTAATAATAAAATACTGGTAAATA
 spacer length: 35 repeater length: 37
 26742 819923 ATTGCAGGATTTATTCCAATAAAATAAGGATTGCGAC GAAAATAAAAAAGTAATAAAAGAATTATCTTACCC
 26743
 26744
 26745 crispr 86
 26746 1066374 GAAGAATTTATAAAACTAGAACCATAAACACTAACACTA
 GTATAAGAAAAATATAGCTCCACCACGGGAATTATTACGCTTAGT spacer length: 44 repeater length: 39
 26747 1066458 GAAGAATTTATAAAACTAGAACCATAAACACTAACACTA
 TCACCAGAATTTATAGCTCCACCACGAGACCAATCAGCATTAGT spacer length: 44 repeater length: 39
 26748 1066542 GAAGAATTTATAAAACTAGAACCATAAACACTAACACTA
 TTTGAATGATTTAGATGAACAATCAAGACTATGACACTGGAATA
 26749
 26750
 26751 crispr 87
 26752 437183 TTAGTGATGAGGTGGTTTTGGCGGATATTGCTAAGAATG
 ATTCCGATGATAATATTCGCGTATTGCTATTGAGGGC spacer length: 38 repeater length: 39
 26753 437261 TTAGTGATGAGGTGGTTTTGGCGGATATTGCTAAGAATG
 CTTCTTATGAAGATGTTTCGCGTATTGCTGTTAGAGGA spacer length: 38 repeater length: 39
 26754 437339 TTAGTGATGAGGTGGTTTTGGCGGATATTGCTAAGAATG TTTTTTCACCTTTAATAGCTTTAACAAGGTTTTGTGGC
 26755
 26756
 26757 crispr 88
 26758 228066 GTTCTTTTGTCAATAACCATGCAGGTGATGGTGGTGGTGC
 TGTTATTTGGTGGGGTACTAATAGTAATTTAAAGGGT spacer length: 37 repeater length: 40
 26759 228144 GTTCTTTTGTCAATAACCATGCAGGTGATGGTGGTGGTGC

TGTTAAGTGGTATGGTGATAATGGTACTTTTAAAGGGT spacer length: 37 repeater length: 40
 228222 GTTCTTTTGTCAATAACCATGCAGGTGATGGTGGTGGTGC TATAAATAGTGCCTTTAAAATTATGATATTCAAATCA
 26761
 26762
 26763 crispr 89
 26764 1049623 TAAAAAACCATTAGAACCTTCCCAATAGATAGCACCACCA
 CTATTACCAGCATGATTATTAACAAAAGAACAAACAC spacer length: 37 repeater length: 40
 26765 1049701 TAAAAAACCATTAGAACCTTCCCAATAGATAGCACCACCA
 TCATAAGTAGCAGAGTTATTAGCAAAAGAACAAACAC spacer length: 37 repeater length: 40
 26766 1049779 TAAAAAACCATTAGAACCTTCCCAATAGATAGCACCACCA ATATGTATAATTAATTATTAATCTTAAAGCTAATTTA
 26767
 26768
 26769 GCA_001571385.1_ASM157138v1_genomic.fna(findCrispr):
 26770 START REPEAT
 SPACER
 26771 crispr 1
 26772 857196 CTTACACGGCAACACCGCGA
 TCTACGGCGGCGGGGCATACTTTGAGGACAGTGCGAACGCCACGCTCACCGACGCCA spacer length: 57 repeater
 length: 20
 26773 857274 CTTACACGGCAACACCGCGA
 TCTACGGCGGCGGGGCATACTTTGAGGACTGTGCGAACGCCACGCTCACCGACGCCA spacer length: 57 repeater
 length: 20
 26774 857352 CTTACACGGCAACACCGCGA ACGTGCTTTCGCTCCGTATTGAGTCTTAGCAGACTCAAAAATCCTATCGAGATTGAA
 26775
 26776
 26777 crispr 2
 26778 1962409 TAAATTCGTGAGACCGACACCAC TAGCCAGTCCCCCGCCGACACCGA spacer length: 24 repeater
 length: 23
 26779 1962457 TAAATTCGTGAGACCGACACCAC CGCCTAGGCCCCCAACAACACCGA spacer length: 24 repeater
 length: 23
 26780 1962505 TAAATTCGTGAGACCGACACCAC AAACGTGCTTTCGCTCCGTATTGA
 26781
 26782
 26783 crispr 3
 26784 856647 CACCTTCACCAACAACACCGCGGC
 GACCTACGGCGGCGGGGCAGATTTCTATACCACATCTGACACCGTGCTCACCGGCA spacer length: 56 repeater
 length: 24
 26785 856728 CACCTTCACCAACAACACCGCGGC
 AAACCTCCGGCGGCGGGGCAAACCTTCTATACCACGTCTGACACCGTGCTCACCGACG spacer length: 56 repeater
 length: 24
 26786 856809 CACCTTCACCAACAACACCGCGGC
 CTTTCGCTCCGTATTGAGTCTTAGCAGACTCAAAAATCCTATCGAGATTGAAACCT
 26787
 26788
 26789 crispr 4
 26790 857061 CGGCGGCGGGGCATACTTTGAGGAC
 TGTGCGAATGCCGCGCTCACCGGCACACGTTCCCTCGGCAACACCGCGACCTACTACGGCGGCGGGACGTACTTCGGGTGGTGCGA
 GGAACCCACGCTCGCCGACGCCATCTTACC GGCAACACCGCGATCT spacer length: 133 repeater length: 25
 26791 857220 CGGCGGCGGGGCATACTTTGAGGAC
 AGTGCGAACGCCACGCTCACC GACGCCACCTTACC GGCAACACCGCGATCT spacer length: 52 repeater
 length: 25
 26792 857298 CGGCGGCGGGGCATACTTTGAGGAC CGTGCTTTCGCTCCGTATTGAGTCTTAGCAGACTCAAAAATCCTATCGAGAT
 26793
 26794
 26795 crispr 5
 26796 2292547 GGTTTCATCCCCACGCGAGTGGGGAACAC ATTGGCGCTATCACC GCCCACTCCATAGACGC spacer length:
 32 repeater length: 28
 26797 2292608 GGTTTCATCCCCACGCGAGTGGGGAACAC TCACCAAGTAATCTCAGAATGCGTCTATGGTG spacer length:
 32 repeater length: 28
 26798 2292669 GGTTTCATCCCCACGCGAGTGGGGAACAC TCGCGGTGATGCGCCCCCGCAAGCTGATCCAT spacer length:
 32 repeater length: 28
 26799 2292730 GGTTTCATCCCCACGCGAGTGGGGAACAC GCCGTCCGTCCATGGCTGTTCTCCCGGTGCAT spacer length:
 32 repeater length: 28
 26800 2292791 GGTTTCATCCCCACGCGAGTGGGGAACAC GCAGCGCGGCAACTCCTGATCCGTGCGCTCAG spacer length:
 32 repeater length: 28
 26801 2292852 GGTTTCATCCCCACGCGAGTGGGGAACAC CTCGGCATTTCGCGGCGCTGGCGAAGCGGCTG spacer length:
 32 repeater length: 28
 26802 2292913 GGTTTCATCCCCACGCGAGTGGGGAACAC AGCGCGAAGGCGATGCACGGAGAGAAATGCAA spacer length:
 32 repeater length: 28
 26803 2292974 GGTTTCATCCCCACGCGAGTGGGGAACAC CTCCCGGTCTCCCTCCTGGTGATCCTGGC spacer length:
 32 repeater length: 28

26804	2293035 GGTTCATCCCCACGCGAGTGGGGAACAC	ACGTTCTGCGTGAAGAAGGACGATGAACTGCT	spacer length:
	32 repeater length: 28		
26805	2293096 GGTTCATCCCCACGCGAGTGGGGAACAC	CCCCGATCCCCGGGGACTCCCCCGAGGCGTCAT	spacer
	length: 33 repeater length: 28		
26806	2293158 GGTTCATCCCCACGCGAGTGGGGAACAC	GTGCCGACCGTCAGCCCCATAGGGAGGATACC	spacer length:
	32 repeater length: 28		
26807	2293219 GGTTCATCCCCACGCGAGTGGGGAACAC	GACCGCTTCGTCATTGAGAAGAATGTCGTTCT	spacer length:
	32 repeater length: 28		
26808	2293280 GGTTCATCCCCACGCGAGTGGGGAACAC	GACCGCTTCGTCATTGAGAAGAATGTCGTTCT	spacer length:
	32 repeater length: 28		
26809	2293341 GGTTCATCCCCACGCGAGTGGGGAACAC	CCAGGAATTTCTTTCTGAGAATCATGGACAA	spacer length:
	32 repeater length: 28		
26810	2293402 GGTTCATCCCCACGCGAGTGGGGAACAC	GAATAGCTGGGTGGCGCATCTAGGTGCTACAA	spacer length:
	32 repeater length: 28		
26811	2293463 GGTTCATCCCCACGCGAGTGGGGAACAC	TTAATGCGGTGGTCTGGAAAAATCACTATCGT	spacer length:
	32 repeater length: 28		
26812	2293524 GGTTCATCCCCACGCGAGTGGGGAACAC	CATCGACCTCCAGATATTTCCACCACACCCCT	spacer length:
	32 repeater length: 28		
26813	2293585 GGTTCATCCCCACGCGAGTGGGGAACAC	CACACCCAGCACAAAGGGAATGGGGGGGTATA	spacer length:
	32 repeater length: 28		
26814	2293646 GGTTCATCCCCACGCGAGTGGGGAACAC	CTCAAGGTCCGCAACCTGACCGCGCTCCGGGG	spacer length:
	32 repeater length: 28		
26815	2293707 GGTTCATCCCCACGCGAGTGGGGAACAC	CTGGACGGGGGCGAGTTCACCGTCAAGGGGAA	spacer length:
	32 repeater length: 28		
26816	2293768 GGTTCATCCCCACGCGAGTGGGGAACAC	ACCTCGACCAGATCGCGGACCCGGCATAACGAT	spacer length:
	32 repeater length: 28		
26817	2293829 GGTTCATCCCCACGCGAGTGGGGAACAC	TAAGGTGGGAGCCTTAGCGAGCCAGTTCTTCT	spacer length:
	32 repeater length: 28		
26818	2293890 GGTTCATCCCCACGCGAGTGGGGAACAC	TCACTGAGGAGGAGTTCGCGGGCGTTGACGAC	spacer length:
	32 repeater length: 28		
26819	2293951 GGTTCATCCCCACGCGAGTGGGGAACAC	TCTGCCGCTGGAGCGACGCGTACGTCCGGGAC	spacer length:
	32 repeater length: 28		
26820	2294012 GGTTCATCCCCACGCGAGTGGGGAACAC	TGTGTGCGGGTGTGGGCGATGATCGCCGCTTC	spacer length:
	32 repeater length: 28		
26821	2294073 GGTTCATCCCCACGCGAGTGGGGAACAC	TTCGGCGGCGATCAGGTCCGGGTGCAGGTCCT	spacer length:
	32 repeater length: 28		
26822	2294134 GGTTCATCCCCACGCGAGTGGGGAACAC	TTCTCCATGATGAACCGATAGAGGGGGTCGCT	spacer length:
	32 repeater length: 28		
26823	2294195 GGTTCATCCCCACGCGAGTGGGGAACAC	TAGTGTCTGCTCCTCTGCCTCTACCCCTCGTCC	spacer length:
	32 repeater length: 28		
26824	2294256 GGTTCATCCCCACGCGAGTGGGGAACAC	TGCTCCAGTGCCGGTGCCACCTGATCGCCACG	spacer length:
	32 repeater length: 28		
26825	2294317 GGTTCATCCCCACGCGAGTGGGGAACAC	CTCCAGCCACTCCCGCAGGGTCCGGCCGGTCT	spacer length:
	32 repeater length: 28		
26826	2294378 GGTTCATCCCCACGCGAGTGGGGAACAC	GAATGCGCCGACGTGGTGCACCTCCCCCTTCT	spacer length:
	32 repeater length: 28		
26827	2294439 GGTTCATCCCCACGCGAGTGGGGAACAC	GCAGGTCGTCGACGAACCTAACCTCTAACTAT	spacer length:
	32 repeater length: 28		
26828	2294500 GGTTCATCCCCACGCGAGTGGGGAACAC	CCCTTCAGGGACCACTCGACATTCCAGCGGGC	spacer length:
	32 repeater length: 28		
26829	2294561 GGTTCATCCCCACGCGAGTGGGGAACAC	TTCGTGAAGGAGCCCGGGGAGGTCTGGAAAAAA	spacer
	length: 33 repeater length: 28		
26830	2294623 GGTTCATCCCCACGCGAGTGGGGAACAC	TCAGTGGCAGTGGCGCACACCTGATCCCCTCT	spacer length:
	32 repeater length: 28		
26831	2294684 GGTTCATCCCCACGCGAGTGGGGAACAC	GGTGGCTTCGGCGGTCTTGGTGTCCCGGGCGA	spacer length:
	32 repeater length: 28		
26832	2294745 GGTTCATCCCCACGCGAGTGGGGAACAC	TCAGGTCCCTCGATCCGGTAGCCGTTGGCATA	spacer length:
	32 repeater length: 28		
26833	2294806 GGTTCATCCCCACGCGAGTGGGGAACAC	CGGCCACCGACGCCGAGAAGGCACAGGCGAGG	spacer length:
	32 repeater length: 28		
26834	2294867 GGTTCATCCCCACGCGAGTGGGGAACAC	GGCTTGTCGCCCTCTCCCTCTGTTTTTCGGTAC	spacer length:
	32 repeater length: 28		
26835	2294928 GGTTCATCCCCACGCGAGTGGGGAACAC	GCTCCGGGGGGCCCGGCCGGGAAGAGCCGGAC	spacer length:
	32 repeater length: 28		
26836	2294989 GGTTCATCCCCACGCGAGTGGGGAACAC	CAGACCGCCGTGTGCAGGGTCGAGTACTGATC	spacer length:
	32 repeater length: 28		
26837	2295050 GGTTCATCCCCACGCGAGTGGGGAACAC	TCGATATCGATCTGCTCGAACCAGGTGCTCGAC	spacer length:
	32 repeater length: 28		
26838	2295111 GGTTCATCCCCACGCGAGTGGGGAACAC	CACGGCTGCAGGATCAGAAGAGGGGATGATCA	spacer length:
	32 repeater length: 28		
26839	2295172 GGTTCATCCCCACGCGAGTGGGGAACAC	ATGCCCGAAGACATCGATGACCAGAGCCGGGC	spacer length:

	32 repeater length: 28		
26840	2295233 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCCTCGAAAACAGCCGGGCAGATATCGAGGAC	spacer length:
	32 repeater length: 28		
26841	2295294 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGCGGGTTCGGTGAACCTCGGGAACCTACGAGAG	spacer length:
	32 repeater length: 28		
26842	2295355 GGTTTCATCCCCACGCGAGTGGGGAACAC	AGGATCCGCACACGCGTGCAGAGGGGGAGGGG	spacer length:
	32 repeater length: 28		
26843	2295416 GGTTTCATCCCCACGCGAGTGGGGAACAC	GCAGGTATGCAAGCGCCTTCAAGACCCCGGTG	spacer length:
	32 repeater length: 28		
26844	2295477 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCTCTTGGTGCGGGTAAAAAAGAGAATTAAAT	spacer length:
	32 repeater length: 28		
26845	2295538 GGTTTCATCCCCACGCGAGTGGGGAACAC	GTTTTTCATTGCTGTAAATGGCCGTCTCAATT	spacer length:
	32 repeater length: 28		
26846	2295599 GGTTTCATCCCCACGCGAGTGGGGAACAC	ATCTGCAAGCGCTGTTGAAAATGCCTCTGTTC	spacer length:
	32 repeater length: 28		
26847	2295660 GGTTTCATCCCCACGCGAGTGGGGAACAC	ATTATCCCAATCGTATTTATTTCCGGCGTAAT	spacer length:
	32 repeater length: 28		
26848	2295721 GGTTTCATCCCCACGCGAGTGGGGAACAC	ATGAGTTACTCGACATCGTCGCTCACCTCTCT	spacer length:
	32 repeater length: 28		
26849	2295782 GGTTTCATCCCCACGCGAGTGGGGAACAC	GAATTGAGGAAAAAGAAGAAGAAGACGTGTC	spacer length:
	32 repeater length: 28		
26850	2295843 GGTTTCATCCCCACGCGAGTGGGGAACAC	CATCGACCTGTGACCATGTGTCGCGCCGAAT	spacer length:
	32 repeater length: 28		
26851	2295904 GGTTTCATCCCCACGCGAGTGGGGAACAC	ATGAAAGGAATGGAATGACGGTGCCTGTATC	spacer length:
	32 repeater length: 28		
26852	2295965 GGTTTCATCCCCACGCGAGTGGGGAACAC	CCGGAAATAACAGACCCGGCAGCGAGGTCAT	spacer length:
	32 repeater length: 28		
26853	2296026 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGTGCCTCCCGGCCCGGTGCGCCTGGAGGAC	spacer length:
	32 repeater length: 28		
26854	2296087 GGTTTCATCCCCACGCGAGTGGGGAACAC	ACCCGACAACACTTGCATTGAGGACCCCCGG	spacer length:
	32 repeater length: 28		
26855	2296148 GGTTTCATCCCCACGCGAGTGGGGAACAC	TTGCCCGCGCCCCCTCCCTCGGCCCGTCTACC	spacer length:
	32 repeater length: 28		
26856	2296209 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCTTCTTCTTCTTTTTCTCAATTCCAAACGC	spacer length:
	32 repeater length: 28		
26857	2296270 GGTTTCATCCCCACGCGAGTGGGGAACAC	ATTGACCTCGAAAAACAGAAACGGGATGATTG	spacer length:
	32 repeater length: 28		
26858	2296331 GGTTTCATCCCCACGCGAGTGGGGAACAC	CAGTGGAGTAAGTCCTTCCGTTCTTGCGTTCT	spacer length:
	32 repeater length: 28		
26859	2296392 GGTTTCATCCCCACGCGAGTGGGGAACAC	GACACCGGCGGCAGTCTTACGTATGTCTCCGC	spacer length:
	32 repeater length: 28		
26860	2296453 GGTTTCATCCCCACGCGAGTGGGGAACAC	GACACCGAGAAAATCGATGTGGTGGCGCACGC	spacer length:
	32 repeater length: 28		
26861	2296514 GGTTTCATCCCCACGCGAGTGGGGAACAC	TAGAAGAGATGCTGCAAGAGGCAGAGATTGCC	spacer length:
	32 repeater length: 28		
26862	2296575 GGTTTCATCCCCACGCGAGTGGGGAACAC	CTCAGGGTAGAGACGACGGGCGCCGTGAAGTC	spacer length:
	32 repeater length: 28		
26863	2296636 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCCTGTAATTTACGCTAAATCCAACGGTAAAT	spacer length:
	32 repeater length: 28		
26864	2296697 GGTTTCATCCCCACGCGAGTGGGGAACAC	TTGCTCTGACGTATAAAGGGCTGTTTCCGGTT	spacer length:
	32 repeater length: 28		
26865	2296758 GGTTTCATCCCCACGCGAGTGGGGAACAC	AAATCTGTTTTACCGAGTTTTGCAGCCGAAAA	spacer length:
	32 repeater length: 28		
26866	2296819 GGTTTCATCCCCACGCGAGTGGGGAACAC	CGGCTCCACAACGCGTGACGGATAAGGAGACT	spacer length:
	32 repeater length: 28		
26867	2296880 GGTTTCATCCCCACGCGAGTGGGGAACAC	GTTTACGCCGCCGACTCGCCACACCCACCAA	spacer length:
	32 repeater length: 28		
26868	2296941 GGTTTCATCCCCACGCGAGTGGGGAACAC	CCTACCGTTAGCGTCTGGTCGCCTATCTGCAC	spacer length:
	32 repeater length: 28		
26869	2297002 GGTTTCATCCCCACGCGAGTGGGGAACAC	AAGACCGCAGCGTTCTACCCTCAGGCTCAGGA	spacer length:
	32 repeater length: 28		
26870	2297063 GGTTTCATCCCCACGCGAGTGGGGAACAC	TGTGGGATCGTCGATGGAAAACGAGGCGATTA	spacer length:
	32 repeater length: 28		
26871	2297124 GGTTTCATCCCCACGCGAGTGGGGAACAC	CCACCCAACGCCCTGAACACAATCTCGTCGTT	spacer length:
	32 repeater length: 28		
26872	2297185 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCCCTGGATCTCGTCGATCAGATCGTCCATGT	spacer length:
	32 repeater length: 28		
26873	2297246 GGTTTCATCCCCACGCGAGTGGGGAACAC	GCAGGGTTTCCGGGCCTCTCGGCTCCTGGTCG	spacer length:
	32 repeater length: 28		
26874	2297307 GGTTTCATCCCCACGCGAGTGGGGAACAC	TTGCAAATCTCGACGCCGGAATATCGCAACG	spacer length:
	32 repeater length: 28		

26875	2297368 GGTTCATCCCCACGCGAGTGGGGAACAC	TTATCGTATATCGTCTCTGGCGTGGACGCGCC	spacer length:
	32 repeater length: 28		
26876	2297429 GGTTCATCCCCACGCGAGTGGGGAACAC	CGACCCCTGAGGGGCACGATGCGTGCCTCGGA	spacer length:
	32 repeater length: 28		
26877	2297490 GGTTCATCCCCACGCGAGTGGGGAACAC	TTTCTATCTCAGAGGTTAAAGCGGATTTGTACT	spacer
	length: 33 repeater length: 28		
26878	2297552 GGTTCATCCCCACGCGAGTGGGGAACAC	CCCTACCAACGGACACGATGGTTTTTTGACAC	spacer length:
	32 repeater length: 28		
26879	2297613 GGTTCATCCCCACGCGAGTGGGGAACAC	CACCTTCCAGTGCCCCATGGCGTGCGCCACCA	spacer length:
	32 repeater length: 28		
26880	2297674 GGTTCATCCCCACGCGAGTGGGGAACAC	GGGTCGTTGAGCCGCACGAATCCGGATATCCT	spacer length:
	32 repeater length: 28		
26881	2297735 GGTTCATCCCCACGCGAGTGGGGAACAC	ACCTCATGACTGTGAGTGCATCCTCCCGGGAC	spacer length:
	32 repeater length: 28		
26882	2297796 GGTTCATCCCCACGCGAGTGGGGAACAC	TCAGATCCATCCCCAGAAAAAGAGGAGGGAAT	spacer length:
	32 repeater length: 28		
26883	2297857 GGTTCATCCCCACGCGAGTGGGGAACAC	TCATACAGGTCATCAATGACCTCAGAAAGTCT	spacer length:
	32 repeater length: 28		
26884	2297918 GGTTCATCCCCACGCGAGTGGGGAACAC	AGTGCGTTCCACGCGGTAACCTCGTCGCCGAT	spacer length:
	32 repeater length: 28		
26885	2297979 GGTTCATCCCCACGCGAGTGGGGAACAC	GGGCCGTAAATATCGCCTTGTCGTGCCCAGGC	spacer length:
	32 repeater length: 28		
26886	2298040 GGTTCATCCCCACGCGAGTGGGGAACAC	GAGCCGGAGGCTATCTAAAAAACCAGAACTGT	spacer length:
	32 repeater length: 28		
26887	2298101 GGTTCATCCCCACGCGAGTGGGGAACAC	CCGATGCCCATTGCCCCAATGCCGGACTCGGC	spacer length:
	32 repeater length: 28		
26888	2298162 GGTTCATCCCCACGCGAGTGGGGAACAC	TGCTAAACGGCGTTCTCCAGATATCGTATCTC	spacer length:
	32 repeater length: 28		
26889	2298223 GGTTCATCCCCACGCGAGTGGGGAACAC	TATCTGCGTCACAGTGTTCATCAATGTC	spacer length:
	32 repeater length: 28		
26890	2298284 GGTTCATCCCCACGCGAGTGGGGAACAC	GACCGAGTTCTGGGCCTCAGATGGTGCGGTCG	spacer length:
	32 repeater length: 28		
26891	2298345 GGTTCATCCCCACGCGAGTGGGGAACAC	AATCGGTGAACATCAAGGACGTTGGCGGGGTA	spacer length:
	32 repeater length: 28		
26892	2298406 GGTTCATCCCCACGCGAGTGGGGAACAC	TGCCCCACAAGTTCGTTGTAACAGTCGAATA	spacer length:
	32 repeater length: 28		
26893	2298467 GGTTCATCCCCACGCGAGTGGGGAACAC	ATACCACCGTGAAAAGAATTGGGACATGCTAA	spacer length:
	32 repeater length: 28		
26894	2298528 GGTTCATCCCCACGCGAGTGGGGAACAC	TTGCCGTGCAGTCTGATTTTTGACTTGGCAGT	spacer length:
	32 repeater length: 28		
26895	2298589 GGTTCATCCCCACGCGAGTGGGGAACAC	TTTTCTGAAACTGCCTAAACGTTTTTAACCGC	spacer length:
	32 repeater length: 28		
26896	2298650 GGTTCATCCCCACGCGAGTGGGGAACAC	CTCAGAGAGGTTAAATGAGGAAACAATAGCGT	spacer length:
	32 repeater length: 28		
26897	2298711 GGTTCATCCCCACGCGAGTGGGGAACAC	ACCTCGATCGCCCTGCAGGGACACTACTCTGA	spacer length:
	32 repeater length: 28		
26898	2298772 GGTTCATCCCCACGCGAGTGGGGAACAC	TTCAGATATCGGTTCTGAAGTTTCGATTCAAC	spacer length:
	32 repeater length: 28		
26899	2298833 GGTTCATCCCCACGCGAGTGGGGAACAC	ACAGGGTTTTTCAGGCACCGGGTGGATGCATCT	spacer length:
	32 repeater length: 28		
26900	2298894 GGTTCATCCCCACGCGAGTGGGGAACAC	TCGGAAGAGTCGGCCGATGCAATCATGAACGC	spacer length:
	32 repeater length: 28		
26901	2298955 GGTTCATCCCCACGCGAGTGGGGAACAC	TTTGAACACACCTTCACTCCGTCGGTTGAATT	spacer length:
	32 repeater length: 28		
26902	2299016 GGTTCATCCCCACGCGAGTGGGGAACAC	GTTGTATTTCGTTCCGGTAGCCTGTTTTCTCTA	spacer length:
	32 repeater length: 28		
26903	2299077 GGTTCATCCCCACGCGAGTGGGGAACAC	CTCTGCAGGGTCGATGGCGAGACCGCGTATGC	spacer length:
	32 repeater length: 28		
26904	2299138 GGTTCATCCCCACGCGAGTGGGGAACAC	GCCTCCTTCAAGATGAACAGGCCGTCTTTCGC	spacer length:
	32 repeater length: 28		
26905	2299199 GGTTCATCCCCACGCGAGTGGGGAACAC	CTCCCGTCTTGTCGTCTTACCATGGGTCTTTT	spacer length:
	32 repeater length: 28		
26906	2299260 GGTTCATCCCCACGCGAGTGGGGAACAC	CCTCTCGATTGCCTGTGCACGCTGCGGATAGT	spacer length:
	32 repeater length: 28		
26907	2299321 GGTTCATCCCCACGCGAGTGGGGAACAC	GCCCTCCGGAAGAAGCAGGCTCTGCCTCGTCA	spacer length:
	32 repeater length: 28		
26908	2299382 GGTTCATCCCCACGCGAGTGGGGAACAC	GTCTGCTGCGAGGGGGGTAAACCGCTATCGTG	spacer length:
	32 repeater length: 28		
26909	2299443 GGTTCATCCCCACGCGAGTGGGGAACAC	CACAACCCCTCGGCGTCGAAGCCCTCGTGAT	spacer length:
	32 repeater length: 28		
26910	2299504 GGTTCATCCCCACGCGAGTGGGGAACAC	CGATGCTGGTTCTCTCTGGTGTGTTTCGGATG	spacer length:

	32 repeater length: 28		
26911	2299565 GGTTTCATCCCCACGCGAGTGGGGAACAC	TAGAATGGATGCAAAAGGAGTTTCTCGGACCG	spacer length:
	32 repeater length: 28		
26912	2299626 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGCAACATGTTCCGGCCCCAGACTCAGACTCA	spacer length:
	32 repeater length: 28		
26913	2299687 GGTTTCATCCCCACGCGAGTGGGGAACAC	TTATACAGCGCTGCAACCTGGACAGCACTAAC	spacer length:
	32 repeater length: 28		
26914	2299748 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCGGACGCCACGGCCCTTTGCCCGGTGGATCT	spacer length:
	32 repeater length: 28		
26915	2299809 GGTTTCATCCCCACGCGAGTGGGGAACAC	GTTTCGGACGGGCGCGCAGGGTGCACGCACGC	spacer length:
	32 repeater length: 28		
26916	2299870 GGTTTCATCCCCACGCGAGTGGGGAACAC	TTCTGGCGGGTCTCGTTGCGGGACTGACGGAT	spacer length:
	32 repeater length: 28		
26917	2299931 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGCTGCGACTACCCCGGCGCGGGGTAACGCGT	spacer length:
	32 repeater length: 28		
26918	2299992 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGGGTTGGAATGTGTCCCAGTCCAGACTCTGG	spacer length:
	32 repeater length: 28		
26919	2300053 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCCTGAGCGACGGCCTTCTGGTACGCCACTCC	spacer length:
	32 repeater length: 28		
26920	2300114 GGTTTCATCCCCACGCGAGTGGGGAACAC	AGTTCGTTCCACGCGGTAACCTCCGTCGCCGAT	spacer length:
	32 repeater length: 28		
26921	2300175 GGTTTCATCCCCACGCGAGTGGGGAACAC	TTGAGGGCTGGAACGGCTCAGCCTGGGCAGCG	spacer length:
	32 repeater length: 28		
26922	2300236 GGTTTCATCCCCACGCGAGTGGGGAACAC	CGCTCTACAACCTGTTAAGGGACGATGATGAT	spacer length:
	32 repeater length: 28		
26923	2300297 GGTTTCATCCCCACGCGAGTGGGGAACAC	TCGCCCCGGGCGGATCGCAAGACCTCCCCAGGT	spacer length:
	32 repeater length: 28		
26924	2300358 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGACCAGGTTATGTGTATTGAGCATTTCAGG	spacer length:
	32 repeater length: 28		
26925	2300419 GGTTTCATCCCCACGCGAGTGGGGAACAC	CTTTCTCGAGCTGGGTGATGGCACGGTCCCGC	spacer length:
	32 repeater length: 28		
26926	2300480 GGTTTCATCCCCACGCGAGTGGGGAACAC	GGCCCCCAACAACACCGAATAAAATTGTGAGA	
26927			
26928			
26929	crispr 6		
26930	1249968 GGTTTCATCCCCACGCGTGTGGGGAACAC	CTGTTTCTGCTGCAGAGAGGCGGCGAGGGGGG	spacer length:
	32 repeater length: 28		
26931	1250029 GGTTTCATCCCCACGCGTGTGGGGAACAC	TGATCGCGAGTTGATGATCCGAGGCAAACGCA	spacer length:
	32 repeater length: 28		
26932	1250090 GGTTTCATCCCCACGCGTGTGGGGAACAC	GCCAGTAAAAGGGTTGTGCGGGGTGCTCTCAC	spacer length:
	32 repeater length: 28		
26933	1250151 GGTTTCATCCCCACGCGTGTGGGGAACAC	AGCCTGGTAACTCTTGCCCCGGCGTCAGGAGA	spacer length:
	32 repeater length: 28		
26934	1250212 GGTTTCATCCCCACGCGTGTGGGGAACAC	AGAAATTCGACAGTGCCGGGGAGTTCCACGAT	spacer length:
	32 repeater length: 28		
26935	1250273 GGTTTCATCCCCACGCGTGTGGGGAACAC	CGATGGGGTTCGGCCTACTCGACTGTTTCGATCA	spacer length:
	32 repeater length: 28		
26936	1250334 GGTTTCATCCCCACGCGTGTGGGGAACAC	CGAATCGATGCGTTTTCTGCACCGATATTCTC	spacer length:
	32 repeater length: 28		
26937	1250395 GGTTTCATCCCCACGCGTGTGGGGAACAC	CGAATCGATGCGTTTTCTGCACCGATATTCTC	spacer length:
	32 repeater length: 28		
26938	1250456 GGTTTCATCCCCACGCGTGTGGGGAACAC	AAGAAGCTGCGGCCGACCCGCGTCGGCGGCCT	spacer length:
	32 repeater length: 28		
26939	1250517 GGTTTCATCCCCACGCGTGTGGGGAACAC	TAAGTATCAGAATCTCTTACTTTAATCATATA	spacer length:
	32 repeater length: 28		
26940	1250578 GGTTTCATCCCCACGCGTGTGGGGAACAC	TTTGCAGAAAACAATTATCGCGTGTCTTGCT	spacer length:
	32 repeater length: 28		
26941	1250639 GGTTTCATCCCCACGCGTGTGGGGAACAC	CTCTCGTTCGTGACTCCCCGAAAAACTGCTA	spacer length:
	32 repeater length: 28		
26942	1250700 GGTTTCATCCCCACGCGTGTGGGGAACAC	GGGCTACGGGGTTGTTCGATTTCTGATCCGCC	spacer length:
	32 repeater length: 28		
26943	1250761 GGTTTCATCCCCACGCGTGTGGGGAACAC	CGGAGCGAGGGCGACTTTTTGCCGACCCTCGC	spacer length:
	32 repeater length: 28		
26944	1250822 GGTTTCATCCCCACGCGTGTGGGGAACAC	CGCCGCCGACGCCCCCGCATACGACGAGATTG	spacer length:
	32 repeater length: 28		
26945	1250883 GGTTTCATCCCCACGCGTGTGGGGAACAC	TGTAGTCGTAACCCCGCCACCGTTGGCGATC	spacer length:
	32 repeater length: 28		
26946	1250944 GGTTTCATCCCCACGCGTGTGGGGAACAC	ATTTCGTTCCAGGATGGTATATCGATCGTTGA	spacer length:
	32 repeater length: 28		
26947	1251005 GGTTTCATCCCCACGCGTGTGGGGAACAC	GAGATAGGATCTTGTTTTTTCGGGTTTGTGTTGA	spacer length:
	32 repeater length: 28		

26948	1251066	GGTTCATCCCCACGCGTGTGGGGAACAC	ATGAATAGCGAGTCTGTAAGGCAGGTACCCCA	spacer length:
		32 repeater length: 28		
26949	1251127	GGTTCATCCCCACGCGTGTGGGGAACAC	GCAACAAACAATATCGGACTCGGGTTTATCGG	spacer length:
		32 repeater length: 28		
26950	1251188	GGTTCATCCCCACGCGTGTGGGGAACAC	ACGGGCCATCCTGGAGCAGACCCCCTGAATCC	spacer length:
		32 repeater length: 28		
26951	1251249	GGTTCATCCCCACGCGTGTGGGGAACAC	ACTAAAAAACCCGATAGACAATGGCTGGCGAC	spacer length:
		32 repeater length: 28		
26952	1251310	GGTTCATCCCCACGCGTGTGGGGAACAC	TTTCTGGTTCCGTCGCGGTGCGCCTGTTCTGA	spacer
		length: 33 repeater length: 28		
26953	1251372	GGTTCATCCCCACGCGTGTGGGGAACAC	CCATCGCCGCATGCCACGCCCGGTGCGGCCT	spacer length:
		32 repeater length: 28		
26954	1251433	GGTTCATCCCCACGCGTGTGGGGAACAC	ACCGTCCGGGCGCTCGGCCATGCGATCAGCGC	spacer length:
		32 repeater length: 28		
26955	1251494	GGTTCATCCCCACGCGTGTGGGGAACAC	TACCGGCACCACGGCCGCGAGACCGCGTACAC	spacer length:
		32 repeater length: 28		
26956	1251555	GGTTCATCCCCACGCGTGTGGGGAACAC	TCCTCCGGGGGGATGCTCTCGGTCTCCTGGTT	spacer length:
		32 repeater length: 28		
26957	1251616	GGTTCATCCCCACGCGTGTGGGGAACAC	GCGCGTCCACCTGGAACGGCTCGATGGAGGAT	spacer length:
		32 repeater length: 28		
26958	1251677	GGTTCATCCCCACGCGTGTGGGGAACAC	CGGGGCGGAGAATCTGAGGGTTGCGATTGCAT	spacer length:
		32 repeater length: 28		
26959	1251738	GGTTCATCCCCACGCGTGTGGGGAACAC	CGCGAGAAAATTGAGACTCTAAACTCGGTAAT	spacer length:
		32 repeater length: 28		
26960	1251799	GGTTCATCCCCACGCGTGTGGGGAACAC	TATTACTACCGGCGCAGTGGCCGCGCTTGTGT	spacer length:
		32 repeater length: 28		
26961	1251860	GGTTCATCCCCACGCGTGTGGGGAACAC	GAAAACCACCGAGGTAACAGTTGGAGGAGAAT	spacer length:
		32 repeater length: 28		
26962	1251921	GGTTCATCCCCACGCGTGTGGGGAACAC	GCAGACAAAGGAATTCGCTACAACCTACGGGG	spacer length:
		32 repeater length: 28		
26963	1251982	GGTTCATCCCCACGCGTGTGGGGAACAC	CAAAGGCGATGAAATCCTCGAAGGAGATGGAC	spacer length:
		32 repeater length: 28		
26964	1252043	GGTTCATCCCCACGCGTGTGGGGAACAC	TCGATAATGAGAACGGATGTTGAATTATATGG	spacer length:
		32 repeater length: 28		
26965	1252104	GGTTCATCCCCACGCGTGTGGGGAACAC	ATTTGTAGTATTATCGATTTTCTCGATTGCCT	spacer length:
		32 repeater length: 28		
26966	1252165	GGTTCATCCCCACGCGTGTGGGGAACAC	GATCCCCTGGTATGGTCCGAATTTGCAAAGT	spacer length:
		32 repeater length: 28		
26967	1252226	GGTTCATCCCCACGCGTGTGGGGAACAC	CACGCGAGGCATTGATGCTATTTAAACAATTG	spacer length:
		32 repeater length: 28		
26968	1252287	GGTTCATCCCCACGCGTGTGGGGAACAC	GTCGCTTAGAGTAATCAAGTCCTTATAGGTCA	spacer length:
		32 repeater length: 28		
26969	1252348	GGTTCATCCCCACGCGTGTGGGGAACAC	ACCACCGAAACGAATACCAGATAGCACGCGCG	spacer length:
		32 repeater length: 28		
26970	1252409	GGTTCATCCCCACGCGTGTGGGGAACAC	CCGAATAAACCTAAGAACGTCGTCAGAAATGC	spacer length:
		32 repeater length: 28		
26971	1252470	GGTTCATCCCCACGCGTGTGGGGAACAC	CCGGAATAGCAGACCCTGCAGCGCAGCTCAT	spacer length:
		32 repeater length: 28		
26972	1252531	GGTTCATCCCCACGCGTGTGGGGAACAC	CGTAGTCGAAAGCGGAAGGAACTACCGACCG	spacer length:
		32 repeater length: 28		
26973	1252592	GGTTCATCCCCACGCGTGTGGGGAACAC	TTGTTCTCGAACGCGGTGCGCGACTCGGCTTC	spacer length:
		32 repeater length: 28		
26974	1252653	GGTTCATCCCCACGCGTGTGGGGAACAC	ATGCCGATTTGGCCGACGATTTTCTGATATAT	spacer length:
		32 repeater length: 28		
26975	1252714	GGTTCATCCCCACGCGTGTGGGGAACAC	CTACGGGTGTTGTGAAAATCTGGTGGGAAAAT	spacer length:
		32 repeater length: 28		
26976	1252775	GGTTCATCCCCACGCGTGTGGGGAACAC	CTCGAAATTGTTGAACACGGCGTCCACGCGCT	spacer length:
		32 repeater length: 28		
26977	1252836	GGTTCATCCCCACGCGTGTGGGGAACAC	CACACCCACCAACATTCAGGACACGTCTGCCG	spacer length:
		32 repeater length: 28		
26978	1252897	GGTTCATCCCCACGCGTGTGGGGAACAC	CCCATCAGAGAGCAGCGAATCCATCAGGAAAT	spacer length:
		32 repeater length: 28		
26979	1252958	GGTTCATCCCCACGCGTGTGGGGAACAC	GAAACGGCGGACCAATCAGACTTATGAAAGCG	spacer length:
		32 repeater length: 28		
26980	1253019	GGTTCATCCCCACGCGTGTGGGGAACAC	CTCGGGCAAGACAGACGATCCCAAATATTTAC	spacer length:
		32 repeater length: 28		
26981	1253080	GGTTCATCCCCACGCGTGTGGGGAACAC	GCGGTAGAGGTCAGAAATGGTGTAGGCGATCT	spacer length:
		32 repeater length: 28		
26982	1253141	GGTTCATCCCCACGCGTGTGGGGAACAC	CATAGCGCCAACGCTCATGCGTGCCTGTATT	spacer length:
		32 repeater length: 28		
26983	1253202	GGTTCATCCCCACGCGTGTGGGGAACAC	GTAACCTCGGCGCCGGTGATCTGGTCGGACA	spacer length:

31 repeater length: 28
 26984 1253262 GGTTTCATCCCCACGCGTGTGGGGAACAC AACACCGTGGCAGTGGGCGGGACACGAATGAC spacer length:
 32 repeater length: 28
 26985 1253323 GGTTTCATCCCCACGCGTGTGGGGAACAC TTCGGCGCCACCTCCGCCACCATGGGCATGAT spacer length:
 32 repeater length: 28
 26986 1253384 GGTTTCATCCCCACGCGTGTGGGGAACAC GACCGCGGGCCTCGATGTCTACTCCGGCAAGG spacer length:
 32 repeater length: 28
 26987 1253445 GGTTTCATCCCCACGCGTGTGGGGAACAC TCCGTCGATGCGCTCGACGTAGCCGTCAGACT spacer length:
 32 repeater length: 28
 26988 1253506 GGTTTCATCCCCACGCGTGTGGGGAACAC GATACGCTCGGATACCTGCAAACCTCTATAGT spacer length:
 32 repeater length: 28
 26989 1253567 GGTTTCATCCCCACGCGTGTGGGGAACAC GTGATCGGGTGACTCATGTCCTTCCGGTACAC spacer length:
 32 repeater length: 28
 26990 1253628 GGTTTCATCCCCACGCGTGTGGGGAACAC GCTCCGTATTGAGTCTTAGCAGACTCAAAAAAT
 26991
 26992
 26993 crispr 7
 26994 1452379 GTCGCACCCTTCACGGGTGCGTGGATTGAAAC TAAGATCGGCCCCCTCCGGTCTGGACGATGATC spacer
 length: 33 repeater length: 32
 26995 1452445 GTCGCACCCTTCACGGGTGCGTGGATTGAAAC GTGAAGGGCGATTGGCAGATCACCGCGAAGAC spacer
 length: 32 repeater length: 32
 26996 1452510 GTCGCACCCTTCACGGGTGCGTGGATTGAAAC CGCTCCGTATTGAGTCTTAGCAGACTCAAAAA
 26997
 26998
 26999 crispr 8
 27000 1439594 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC CATGATGCACACCAAATCCCTGATGGGACTAC spacer
 length: 32 repeater length: 32
 27001 1439659 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TCACCGCCCCCTTTCGCAACGGCGGGCGGATGCGG spacer
 length: 33 repeater length: 32
 27002 1439725 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC ATTGATGAAGTACGCACCGCCGCGGTCAGAGTT
 27003
 27004
 27005 crispr 9
 27006 1439793 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GTCTCGACAGACCCGACCTACACCGCAGCCTCGCT spacer
 length: 35 repeater length: 32
 27007 1439861 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC
 ACAA AACTACGATCGCCATCCCTGTAGAGGGGTGGTTTCAATCCACGCACCCGCGAAGGGTGAGACGGGGAACCGGGGCGGGGCC
 TGGTGGCCCGAGG spacer length: 99 repeater length: 32
 27008 1439993 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TGTCTTCATCTCCGCTCCCTCCACCCAACGCCC spacer
 length: 33 repeater length: 32
 27009 1440059 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GTATCTGGGAATTTGAGTGCGGTTAAATTTACA spacer
 length: 33 repeater length: 32
 27010 1440125 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GGTCTCGGCCGTGTTTGT TACTGGGTCGATGATT spacer
 length: 34 repeater length: 32
 27011 1440192 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC CGTGCCCCAGACGAGATTAAGGCTCGCGTCTTCTA spacer
 length: 35 repeater length: 32
 27012 1440260 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC CCTGCGCTTCGTGTTTTGGGGCCTGCGGAAACT spacer
 length: 33 repeater length: 32
 27013 1440326 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC CATTTGGTCCTTCTGAACGCGGAGGTTAGCCATT spacer
 length: 34 repeater length: 32
 27014 1440393 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TTTACCAGTCTATGCTCCTCTAGGTTTCTCTGTC spacer
 length: 33 repeater length: 32
 27015 1440459 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC ACCCTAAGATTTTGGGTCTGTCTGGCAAGCGAGT spacer
 length: 34 repeater length: 32
 27016 1440526 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GAGGTATGATCATGAGGTCGCGCGCGCTCACCG spacer
 length: 35 repeater length: 32
 27017 1440594 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TTGTACAGGTGCAGAGTATACGAGTCGAATCCA spacer
 length: 33 repeater length: 32
 27018 1440660 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC ATGAGTAACGCAGAAGCCGCGGCGTGGATTAAAG spacer
 length: 34 repeater length: 32
 27019 1440727 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TTCGTTCTGAATATCTCCTACCCCAGGATACTGCG spacer
 length: 35 repeater length: 32
 27020 1440795 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GAGGATATCTACTATCGCCCGCTGCTTAAACT spacer
 length: 32 repeater length: 32
 27021 1440860 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GGTGTTGTTTAACCATTCCTTTGTTCTTTTTGT spacer
 length: 33 repeater length: 32
 27022 1440926 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC GATCTGAGAGAATCATCCTGAAAAGCATTCGGA spacer
 length: 33 repeater length: 32
 27023 1440992 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TCGCCGTTTGGGTTCGGTAACGCTGTGCCTGA spacer
 length: 32 repeater length: 32
 27024 1441057 GTTTC AATCCACGCACCCGCGAAGGGTGCGAC TAAATGAGCACACCACCCGCGAGCCGAGATTACT spacer

length: 34 repeater length: 32
27025 1441124 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GGTCTCAGCGGTATTTGTAAGTGGGTCGATAATA spacer
length: 34 repeater length: 32
27026 1441191 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GTCGTGTATGCCTGGTGTGACCGCTGGCTCGAC spacer
length: 33 repeater length: 32
27027 1441257 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GCCCCAGACGAGATTAAGGCTCGCGTCTTCTA spacer
length: 32 repeater length: 32
27028 1441322 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CACAGGGACGGGAGGTTCTGTTTCTCGACCGACA spacer
length: 34 repeater length: 32
27029 1441389 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ATAATCTGAGATTAATTAGCGAGGCAGAATAAA spacer
length: 33 repeater length: 32
27030 1441455 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CGGCTGTATAACCGTGCAATCGGAGATCCCTCTC spacer
length: 34 repeater length: 32
27031 1441522 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CGCATGACCGTTGGCGCTATGATCGACATTGA spacer
length: 32 repeater length: 32
27032 1441587 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GGCCCCGCGCCCAATGTGGCATGGTACTCTGCTC spacer
length: 35 repeater length: 32
27033 1441655 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC TTGCCTGGCGCACCATTAACATGGATCTCGTT spacer
length: 32 repeater length: 32
27034 1441720 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CTGCAGTAACGTCTCTGCCAGTAGGATGTTTAAG spacer
length: 34 repeater length: 32
27035 1441787 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC AAAGTCCCACTTTTTTCGGCAGTCTTCTTCATTTTC spacer
length: 34 repeater length: 32
27036 1441854 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ATCGATTTTATCTTTTCTGGCATGTCCGCTCCTC spacer
length: 34 repeater length: 32
27037 1441921 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC TCAGTGCCAGGGCGCGCGCACGGTTCCCGTTC spacer
length: 32 repeater length: 32
27038 1441986 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC TCCTGCACCGCTGCGAGGCTCTCGGCACCACCGA spacer
length: 34 repeater length: 32
27039 1442053 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CTCGTATCCACCGAGGGGTACTACACCAACCTGA spacer
length: 34 repeater length: 32
27040 1442120 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CCTGAAGGGGGTCTTCAACGCAGATTACGCCCT spacer
length: 33 repeater length: 32
27041 1442186 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ATCCAGAATGCGAGCAAGCCGAGGAAGCAGAGA spacer
length: 33 repeater length: 32
27042 1442252 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ATAGGGGGAAAGTGTACCGAGTGTACCGGGCTCA spacer
length: 34 repeater length: 32
27043 1442319 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GATCCGGTCCCTCACATCATCCCGCTGTGAGCGAG spacer
length: 35 repeater length: 32
27044 1442387 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CCGGGCGAAGGTGACGAATCTGGAGGCCATGCA spacer
length: 33 repeater length: 32
27045 1442453 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GAGGCCGCCCCAGCGGTGAACCTTATCTCGATCC spacer
length: 34 repeater length: 32
27046 1442520 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC TCTTCGAGGACCGTGATCTGCAGATCCATGCCCC spacer
length: 34 repeater length: 32
27047 1442587 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ACATCGTCGTCGTGTGATCATTGACTGCGAGA spacer
length: 33 repeater length: 32
27048 1442653 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GGTAGACAGGCAACGTCGAGCCGCGCTTGAAT spacer
length: 32 repeater length: 32
27049 1442718 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC TACGGATCAACAGGGCCGACAAGGCCCTCCTTGA spacer
length: 34 repeater length: 32
27050 1442785 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CGGGGGGTGACATGTGACCGCTGCGAGAGGGGCA spacer
length: 34 repeater length: 32
27051 1442852 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ACTGTCCGTAGAGAGGGCGTTGATCTGAAGGTTAC spacer
length: 35 repeater length: 32
27052 1442920 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GGCCAGAGTACGCGGCCCGCACCCGGCGCGCGGT spacer
length: 34 repeater length: 32
27053 1442987 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GGGCGGATGACCGACGAAACAGTTGATCCTCTCCCGG
spacer length: 37 repeater length: 32
27054 1443057 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CTGGCATTCCTCGCGGCATTTACGAGGATTTCA spacer
length: 33 repeater length: 32
27055 1443123 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC GATATAGTCCCACACTGCAGAGTCGGGCCAGTCT spacer
length: 34 repeater length: 32
27056 1443190 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CTTCCAGGGGTGTCATCGGCGTGCTGTGGACAC spacer
length: 33 repeater length: 32
27057 1443256 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC ACCAAAAATCCGAATGCCTCTTCTGCCGCCACGCC spacer
length: 35 repeater length: 32
27058 1443324 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CCTGCGGATTTTCGAGCATGTTCTCGATTTTCCGCA spacer
length: 35 repeater length: 32
27059 1443392 GTTTCAATCCACGCACCCGTGAAGGGTGCGAC CCCC CGCATGCAAGCCGAGAGACTATAGTCTC spacer
length: 33 repeater length: 32

27060 1443458 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC ATGTTAAATACCTTGCCTTCGAGCGCCCCCTGT spacer
 length: 34 repeater length: 32
 27061 1443525 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GAGGAGGTCGCCTAAAAAATGACGGATACAGAC spacer
 length: 33 repeater length: 32
 27062 1443591 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC CCGAGATCCCGGTGCGTTCTGCTGTCATCAGTC spacer
 length: 33 repeater length: 32
 27063 1443657 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GGTCCAGAAAGACGATTGGGAATGGGGCATGTG spacer
 length: 33 repeater length: 32
 27064 1443723 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GCGGGGTGGCGCTGATGGCAGTCTCAAAGATCT spacer
 length: 33 repeater length: 32
 27065 1443789 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC AGGGCTCGCTCCCCGATGCGGGCCGCAGAGCACT spacer
 length: 34 repeater length: 32
 27066 1443856 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC TCTGGATGCTGCGGATTTCGATTTCATCTCGTC spacer
 length: 33 repeater length: 32
 27067 1443922 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC CGTTCAGCATCGGGGCGAAAAGCCCGTCTCCGTC spacer
 length: 34 repeater length: 32
 27068 1443989 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC GATCCAGTTCCAGAACCGGACCGTTGTATCGACG spacer
 length: 34 repeater length: 32
 27069 1444056 GTTTC AATCCACGCACCCGTGAAGGGTGCGAC CGGCCGACGTGCTTCTCCCTTGACGCGGTGTT
 27070
 27071
 27072 crispr 10
 27073 2200985 ACGCACC GCCGCCGTACGATGTTGCCGTGTTGTTTCG
 TGAAGGTCGTGCCCCGCCAGGGCGGCACTGGAGGAACCGGTGAAGTACGCACCGCCGCCGTGTTGTTTGCCGTGTTGTTTCGCAAAAG
 GCCGTGTCTGTCAAGGTGGCACC GGCGGACCTGTCAAG spacer length: 125 repeater length: 36
 27074 2201147 ACGCACC GCCGCCGTACGATGTTGCCGTGTTGTTTCG
 CAAAGGCCGTGTCTGTCAAGGTGGCATTGTCTGGAGGTCTGGAAG spacer length: 44 repeater length: 36
 27075 2201228 ACGCACC GCCGCCGTACGATGTTGCCGTGTTGTTTCG
 TCTAGATCAATGTCATGCCCGCAATAAATAGATGTGCATAGGAT
 27076
 27077
 27078 crispr 11
 27079 1418774 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CAGGCGGTCTGTC AAGTCGCTCCGTGTCAAGGCGGG
 spacer length: 35 repeater length: 37
 27080 1418847 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AAGTACGGGCAGAACCCCGCACAGATCTTCTGTG
 spacer length: 34 repeater length: 37
 27081 1418919 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC ACCTCCTCGTCGGAGGTGTCTGGGGCGCAGGCCGT
 spacer length: 34 repeater length: 37
 27082 1418991 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GACGCTATACGGGGGGGTATGGTTCTCGCGCTC
 spacer length: 32 repeater length: 37
 27083 1419061 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GGTGCGAGCGTGACCGGACGACCGGAGCGATCAC
 spacer length: 34 repeater length: 37
 27084 1419133 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CAGATCACAGTATCGGGGCCGATCACGAACCCA
 spacer length: 33 repeater length: 37
 27085 1419204 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CAGGATCTTGGCCGTGGTCACTGCATTGCTCGCGA
 spacer length: 35 repeater length: 37
 27086 1419277 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AGATTCTCAGCCCCGCGACGGGAAAGCCCACCGG
 spacer length: 35 repeater length: 37
 27087 1419350 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC ATCTCGTAGGTCTGCCAGGTGCCCGCCTGCGCGATT
 spacer length: 36 repeater length: 37
 27088 1419424 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TAGGTACCAATACATTGCATGGTTCTCAGTCCTG
 spacer length: 34 repeater length: 37
 27089 1419496 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TATATTCCCGCGCTCATGCACGCAGATGTAA spacer
 length: 31 repeater length: 37
 27090 1419565 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC CCGGCAGAGTTCCCCTGCTCGGTGATAGAAGTCT
 spacer length: 34 repeater length: 37
 27091 1419637 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AGGCCGAGACCCCGGCGGGTGTCTGTGCGAAGGCG
 spacer length: 35 repeater length: 37
 27092 1419710 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TGCCGAAGAACGGATGTACATCCATATCAGTAT
 spacer length: 33 repeater length: 37
 27093 1419781 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TTCCCGGCCCTCGTCGGTCTCGTAGACGACGCGGTTG
 spacer length: 36 repeater length: 37
 27094 1419855 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GCATGCGCGCAGGTTCTACAGTTGACCTCTGGCAAC
 spacer length: 36 repeater length: 37
 27095 1419929 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC TGATCCCCGGTCGGGCCTTACCCTCCCCTCAGT
 spacer length: 34 repeater length: 37
 27096 1420001 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GACATGGTGGACGCCGCCCGATATGGGAAAAAGG
 spacer length: 35 repeater length: 37
 27097 1420074 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC AGTATTGCGTAGACTCGCCCCTCGATTGCGAAGGTG
 spacer length: 36 repeater length: 37
 27098 1420148 GTCGCAGCTGAAAAGAAAACCCGATAGGGATTGAAAC GTCGGCATGACGGTCCGGATCGACCCCGCGGTCCG

spacer length: 35 repeater length: 37
 27099 1420221 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CACCCCCGCGGTCAGGGTGTACTGGTCAGAGGTG
 spacer length: 34 repeater length: 37
 27100 1420293 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ACAGTCTGGGAAGGGTTCGTGATCATGGTGGTGT
 spacer length: 34 repeater length: 37
 27101 1420365 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GCGAGCCTCGCCGAGGTAGACGTTACGCTTGCACT
 spacer length: 35 repeater length: 37
 27102 1420438 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TTTGTTCTCAGATACTTTGCAAATTCGGACCATACCA
 spacer length: 37 repeater length: 37
 27103 1420513 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GGAGTTCGCTGACCCCATCGAGAAGAGGGAGCCGA
 spacer length: 35 repeater length: 37
 27104 1420586 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ACGAGGGTCTCCTCGGCAACGCTCTCCGGGGTCG
 spacer length: 34 repeater length: 37
 27105 1420658 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TGTGCGGCATGCACGCCCGGAGCGAGTAGATCTG
 spacer length: 36 repeater length: 37
 27106 1420732 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TTTCGTCCAATCGTATGGTACTGGGACGTGGACCT
 spacer length: 35 repeater length: 37
 27107 1420805 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TCGTTAGGTGTATGGCAACGATTCTTGAAAGA
 spacer length: 33 repeater length: 37
 27108 1420876 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GTATGGTGGGGGATACAACGCGCCGGTTGTGACT
 spacer length: 34 repeater length: 37
 27109 1420948 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ATTGAGAGTGATGTTGGCGATCCGCTCATGCTCCAG
 spacer length: 36 repeater length: 37
 27110 1421022 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC ACGAGTCGGCCCGTAGCAGGGCAATACGCAATAGCCG
 spacer length: 37 repeater length: 37
 27111 1421097 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CTCCGATCCAACCTCTGGACGTCGTGAAACGCAT
 spacer length: 33 repeater length: 37
 27112 1421168 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC GGCTACAAGGGGAATTGATCATGCAGATTGTTAGC
 spacer length: 35 repeater length: 37
 27113 1421241 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC TATCACCTCGCCGAGGCCCTGACCAGTTTCATC
 spacer length: 33 repeater length: 37
 27114 1421312 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC CCGCAGGAGGAAAGGAACCGGCAGATGTAGTAGCCG
 spacer length: 36 repeater length: 37
 27115 1421386 GTCGCAGCTGAAAAAGAAAACCCGATAGGGATTGAAAC AACACCGAATAAAATTGTGAGACCGACACCACCGCC
 27116
 27117
 27118 crispr 12
 27119 2205418 TGCCGTGTTGTTTCGTGAAGGTGGTGTCCGTCAGGGCGGCA
 TCGGCGGAATTGATGAAGTACGCACCGCCGCCGTCAGAGT spacer length: 40 repeater length: 40
 27120 2205499 TGCCGTGTTGTTTCGTGAAGGTGGTGTCCGTCAGGGCGGCA
 CTGGCGGAACGTGCGAAGACCGCACCGCCGCCGTCATTGT spacer length: 40 repeater length: 40
 27121 2205580 TGCCGTGTTGTTTCGTGAAGGTGGTGTCCGTCAGGGCGGCA
 TCGGCGGAATTGATGAAGTACGCACCGCCGCCGTCAGAGT spacer length: 40 repeater length: 40
 27122 2205661 TGCCGTGTTGTTTCGTGAAGGTGGTGTCCGTCAGGGCGGCA
 CTGGCGGAACGTGCGAAGACCGCACCGCCGCCGTCATTGT spacer length: 40 repeater length: 40
 27123 2205742 TGCCGTGTTGTTTCGTGAAGGTGGTGTCCGTCAGGGCGGCA
 TCGGCGGAATTGATGAAGTACGCACCGCCGCCGTCAGAGT spacer length: 40 repeater length: 40
 27124 2205823 TGCCGTGTTGTTTCGTGAAGGTGGTGTCCGTCAGGGCGGCA
 GGTCTCAACGCCCTGGCTGAGTCGCACCCCTTCACGGGTG
 27125
 27126
 27127 GCA_001577775.1_ASM157777v1_genomic.fna(findCrispr):
 27128 START REPEAT
 SPACER
 27129 crispr 1
 27130 1570552 TTCCGTAGAACTGAATAGTG TGGAAAGGAGAACGGGAGAGGTTCCCTAAGCCCTTGAGAAAGTATCCTGCG
 spacer length: 50 repeater length: 20
 27131 1570623 TTCCGTAGAACTGAATAGTG TGGAAAGAACACAGCAGTAGCACTAACCCCAGGAACAAACACCAAG spacer
 length: 46 repeater length: 20
 27132 1570690 TTCCGTAGAACTGAATAGTG TGGAAAGTGAGTATTATCTTGCTGGAAAGAACATTGAGGGCTATCAGGG
 spacer length: 49 repeater length: 20
 27133 1570760 TTCCGTAGAACTGAATAGTG TGGAAAGATTGGGATGGTAGTGATGTTGCTCTTGATCCTTTGG spacer
 length: 44 repeater length: 20
 27134 1570825 TTCCGTAGAACTGAATAGTG TGGAAAGATTATCAACACTTTGCCACTAGCTCTTAGCACAAAGCCTG spacer
 length: 47 repeater length: 20
 27135 1570893 TTCCGTAGAACTGAATAGTG TGGAAAGGGTTTCAATTGTCTCCATAACCTCCTCCTCAGCTCTCG spacer
 length: 45 repeater length: 20
 27136 1570959 TTCCGTAGAACTGAATAGTG TGGAAAGTAATATTGAACACGCTTGTTCTCAAGCCATAAGTG spacer
 length: 42 repeater length: 20
 27137 1571022 TTCCGTAGAACTGAATAGTG TGGAAAGAAAAAGACCGATATACCAGAAAATACCAATAAGAATTCTG spacer
 length: 46 repeater length: 20

27138 1571089 TTCCGTAGAACTGAATAGTG TGGAAAGTGGAAACAATTCTACCCACATTCAATTCTTCCGCCTAAACTG
 spacer length: 49 repeater length: 20
 27139 1571159 TTCCGTAGAACTGAATAGTG
 TGGAAAGTAGTCATAGACGAAGGCGGGACAATACTGTTCTCAAGACAGTGGAGATG spacer length: 56 repeater
 length: 20
 27140 1571236 TTCCGTAGAACTGAATAGTG TGGAAAGTGTATGCTATTTTGATCTCCTCGTTGTCAATGGCCCG spacer
 length: 44 repeater length: 20
 27141 1571301 TTCCGTAGAACTGAATAGTG TGGAAAGAGTCGAGCCCGAGAGTGTGGAAGAGGCCAAAGCTCTTTAGCAG
 spacer length: 49 repeater length: 20
 27142 1571371 TTCCGTAGAACTGAATAGTG TGGAAAGCGTTATTATCCTCCTTAGTCCGCTTGAGAATTGTAAG spacer
 length: 45 repeater length: 20
 27143 1571437 TTCCGTAGAACTGAATAGTG TGGAAAGATTGTTGGCGGTTTTTGGTGGACACTATTTTGGCGTG spacer
 length: 44 repeater length: 20
 27144 1571502 TTCCGTAGAACTGAATAGTG TGGAAAGTACGCTTTTCGGCTCAAGTATCAACCTTTCTACTTTCTCTCG spacer
 length: 48 repeater length: 20
 27145 1571571 TTCCGTAGAACTGAATAGTG TGGAAAGGAAATCGCTTGACGCTTTTGTGCAACTCTCCATAGTG spacer
 length: 45 repeater length: 20
 27146 1571637 TTCCGTAGAACTGAATAGTG TGGAAAGCTTTCCGGGAATTCGCCTACCATTTTTTCTTCCAGTGCCTCCG
 spacer length: 51 repeater length: 20
 27147 1571709 TTCCGTAGAACTGAATAGTG TGGAAAGACGGAAACAAGTGGGTAAAGCCGAATAACTATGAGGGTGTAAAGGGAG
 spacer length: 54 repeater length: 20
 27148 1571784 TTCCGTAGAACTGAATAGTG TGGAAAGTTTTCACTAATCCTCCATGAGCTTCTCAAAAAGCAACTTTCCGG
 spacer length: 51 repeater length: 20
 27149 1571856 TTCCGTAGAACTGAATAGTG AGATAACTGCACATGATACAAAACCTATAACAAAGCCAGGTTCATAAGA
 27150
 27151
 27152 crispr 2
 27153 1224495 CTTTCCACACTATTTAGTTCTACGGAAAC GTCATGGCGATCACCTGCCCTATCATGCCTACAACC spacer
 length: 38 repeater length: 29
 27154 1224563 CTTTCCACACTATTTAGTTCTACGGAAAC GCGAGAACGACGTGGTTCGAGTTCCTAAGGAAGATT spacer
 length: 35 repeater length: 29
 27155 1224628 CTTTCCACACTATTTAGTTCTACGGAAAC
 GGGATGAGAGAGCAGGCAGAGAAGGAAAAGCTCGCACAACTCCAGCAGGTGC spacer length: 52 repeater
 length: 29
 27156 1224710 CTTTCCACACTATTTAGTTCTACGGAAAC TTATTGCAAGGAATGCTGAAGAGGCAGCCAGAATTGCT spacer
 length: 38 repeater length: 29
 27157 1224778 CTTTCCACACTATTTAGTTCTACGGAAAC TTGAAATCGACGAAACAGCAAACCCCTTGTGCATGC spacer
 length: 36 repeater length: 29
 27158 1224844 CTTTCCACACTATTTAGTTCTACGGAAAC CTACAGGATACACATTATTCTCTCTCTCCCCAGTCG spacer
 length: 35 repeater length: 29
 27159 1224909 CTTTCCACACTATTTAGTTCTACGGAAAC TGACAAGAAGGCGATGAAAATCCTCAAGAAGCTCTGCAGGTTCT
 spacer length: 44 repeater length: 29
 27160 1224983 CTTTCCACACTATTTAGTTCTACGGAAAC TTAGATACCTAGACAAGTGGTGGGCCGTCGTGAAAA spacer
 length: 36 repeater length: 29
 27161 1225049 CTTTCCACACTATTTAGTTCTACGGAAAC CACTTGTTATTGTCTCTCCCGATAGAACCGTCGTTCTCT spacer
 length: 38 repeater length: 29
 27162 1225117 CTTTCCACACTATTTAGTTCTACGGAAAC GTGGATCCTCTCAAGAGGCCTGGGTTCTCGGCTATGC spacer
 length: 37 repeater length: 29
 27163 1225184 CTTTCCACACTATTTAGTTCTACGGAAAC TGGCAAAAACGATTGAAATAACACCCACAAAAGCA spacer
 length: 35 repeater length: 29
 27164 1225249 CTTTCCACACTATTTAGTTCTACGGAAAC TTATCAAAATGGACGGCGAAGGGAAGATTAAGCACG spacer
 length: 36 repeater length: 29
 27165 1225315 CTTTCCACACTATTTAGTTCTACGGAAAC ATATAGATGCTGTTGCGAGAACGGTCTTCACAGTGG spacer
 length: 36 repeater length: 29
 27166 1225381 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAGCAACGACAGCATAACAGGTGCTCAGCCAAGC spacer
 length: 36 repeater length: 29
 27167 1225447 CTTTCCACACTATTTAGTTCTACGGAAAC AGAAGTTTCTAGAAGAAATAGAAGAGCATGTGAAT spacer
 length: 35 repeater length: 29
 27168 1225512 CTTTCCACACTATTTAGTTCTACGGAAAC ACGCAACACAACACTTCAATTACAGTCACCGCATGG spacer
 length: 36 repeater length: 29
 27169 1225578 CTTTCCACACTATTTAGTTCTACGGAAAC
 GAGTACTTCGAGGAGGAAGGGCAGGCCAGGAGCAGGTGGAGGAAGCCCGTGGAGAAGAG spacer length: 60
 repeater length: 29
 27170 1225668 CTTTCCACACTATTTAGTTCTACGGAAAC TTATTCAAGTTAAGGTAGTGCCCCAGGATCTCA spacer
 length: 32 repeater length: 29
 27171 1225730 CTTTCCACACTATTTAGTTCTACGGAAAC AACGTGAGATATCAAGCAGGTGGCAATACGTCAATTGCGATATAC
 spacer length: 45 repeater length: 29
 27172 1225805 CTTTCCACACTATTTAGTTCTACGGAAAC AAAGAGATACTGTTCTTAGCATTGAAGCAAATTTTGAATAAGTTC
 27173
 27174
 27175 crispr 3

27176 1706465 GTTTCCGTAGAACTAAATAGTGTGGAAAG TACAGATGTGAAGGAGAGACAGTATGAGTTGAATACTCTC
 spacer length: 40 repeater length: 29
 27177 1706535 GTTTCCGTAGAACTAAATAGTGTGGAAAG TCGATGAGGTCTTCACCAAGCTCGGAAGGCCCATCAACA spacer
 length: 39 repeater length: 29
 27178 1706604 GTTTCCGTAGAACTAAATAGTGTGGAAAG CTAGAAGTCACGTTGTTCGCCAGTAGGGGGAACTCGCCCTTCTCG
 spacer length: 45 repeater length: 29
 27179 1706679 GTTTCCGTAGAACTAAATAGTGTGGAAAG AAGATCCCCGGCGTCCCAGAAGATATCTCTGAGGCGATCAGGTTTC
 spacer length: 46 repeater length: 29
 27180 1706755 GTTTCCGTAGAACTAAATAGTGTGGAAAG ATTACATCATTGGCGATGTACTTCTTGAACCTCTCG spacer
 length: 36 repeater length: 29
 27181 1706821 GTTTCCGTAGAACTAAATAGTGTGGAAAG TAGATCCGCAAGACAGGCAGAACAGTGGGCCATCACT spacer
 length: 37 repeater length: 29
 27182 1706888 GTTTCCGTAGAACTAAATAGTGTGGAAAG
 CTGACCTGTTTCCTGAATAGAGCCTGTAAACACCTAGCTTTTCGTGGTA spacer length: 49 repeater length:
 29
 27183 1706967 GTTTCCGTAGAACTAAATAGTGTGGAAAG AGGAAGCTGTCAAAGTCCTCGAAGTACTCAACAACCTTCTCGGCCA
 spacer length: 46 repeater length: 29
 27184 1707043 GTTTCCGTAGAACTAAATAGTGTGGAAAG GGTGTGATGAGCCTGAGACGGTAGTATCCATCGCCCAGGCTGG
 spacer length: 43 repeater length: 29
 27185 1707116 GTTTCCGTAGAACTAAATAGTGTGGAAAG GCGATGAGCCCAGGTTTTATGTCCTTATCGTCAAATGCC spacer
 length: 39 repeater length: 29
 27186 1707185 GTTTCCGTAGAACTAAATAGTGTGGAAAG
 ATAAGGCGTGTTCAACGATGTATTGCTCAGTCTGGCCCTCGCCTCGTTCTCG spacer length: 54 repeater
 length: 29
 27187 1707269 GTTTCCGTAGAACTAAATAGTGTGGAAAG CTTCTTCACGTAGTAGTCTGAGTACACTGTGTTCGTATGC
 spacer length: 40 repeater length: 29
 27188 1707339 GTTTCCGTAGAACTAAATAGTGTGGAAAG ATGCCCTAGCGTATTCGGAAGCCGTTTCTTCCGATA spacer
 length: 36 repeater length: 29
 27189 1707405 GTTTCCGTAGAACTAAATAGTGTGGAAAG TTTTCCATTACCTTGATCAGGAATGCTTCCTTTC spacer
 length: 36 repeater length: 29
 27190 1707471 GTTTCCGTAGAACTAAATAGTGTGGAAAG ACGAACTCATCAAAGACCCTATCTTCATCGCCATAGTAC spacer
 length: 39 repeater length: 29
 27191 1707540 GTTTCCGTAGAACTAAATAGTGTGGAAAG AAGTCTTGTAACATATCAGAAGGTCAAAAGTACGAATTTTCATTA
 spacer length: 44 repeater length: 29
 27192 1707614 GTTTCCGTAGAACTAAATAGTGTGGAAAG TTAAATCCTACCATACTTCCTCATTATCTCTATAAGCTTGTCTT
 27193
 27194
 27195 crispr 4
 27196 714046 TTTCAATTCTCTTTTAGTCTTATTGGAAC CACAGCGTCCAGGCAACTAAAAACGTGAACAACATCAATGT
 spacer length: 41 repeater length: 29
 27197 714117 TTTCAATTCTCTTTTAGTCTTATTGGAAC TATAAACGCGCCTAACATCCCTGTGCGACTTGTCGCTGTA spacer
 length: 40 repeater length: 29
 27198 714187 TTTCAATTCTCTTTTAGTCTTATTGGAAC TCCCTTGAGGTACTAATCTCAAAGCCTCGTCAGGGCT spacer
 length: 38 repeater length: 29
 27199 714255 TTTCAATTCTCTTTTAGTCTTATTGGAAC TGTTCTGTTTAGAATTGCTCGTTCAACGACGTATAAT spacer
 length: 37 repeater length: 29
 27200 714322 TTTCAATTCTCTTTTAGTCTTATTGGAAC GCCTTGCTTAAGTCCCTCGCCTCCTTCCCGAGCCTGA spacer
 length: 37 repeater length: 29
 27201 714389 TTTCAATTCTCTTTTAGTCTTATTGGAAC AGGCGTTCGACTTTGACTACCGCTTCTACATCCGCG spacer
 length: 36 repeater length: 29
 27202 714455 TTTCAATTCTCTTTTAGTCTTATTGGAAC CAGTTCAAATGATTATTGAATATGAAGCCTTTGCATC spacer
 length: 37 repeater length: 29
 27203 714522 TTTCAATTCTCTTTTAGTCTTATTGGAAC AAGAAAGAGATACTGTTCTTAGCATTGAAGCAAATTT
 27204
 27205
 27206 crispr 5
 27207 1673062 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAGGAGGAGGGAGCTCTTCGATGAGTACAGCGTGATCT spacer
 length: 38 repeater length: 30
 27208 1673131 CTTTCAATTCTATTTTAGTCTTATTGGAAC
 TGGCGTCTTCAGCTGGCAGTATGACGTCACGGGTGACTTTCAATTCTATTTTTTAGTCTTATTGGAACAGATGTTCCGTTGGGGTC
 ATATGTTATTGTGGTGT spacer length: 103 repeater length: 30
 27209 1673265 CTTTCAATTCTATTTTAGTCTTATTGGAAC CAAAATACTTGCAGTCACTACACGTGTACTTTTTTC spacer
 length: 35 repeater length: 30
 27210 1673331 CTTTCAATTCTATTTTAGTCTTATTGGAAC GCATGTTATGGTCAATGGGAATAGCGGCGGTGGCGGGCC
 spacer length: 39 repeater length: 30
 27211 1673401 CTTTCAATTCTATTTTAGTCTTATTGGAAC TAGTTCCTTCCTTCTTTATGATGTAGAACTTGTTTCG spacer
 length: 36 repeater length: 30
 27212 1673468 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCCTACTTGTAGAGCCGTCGCTCTAAGATGATCTCC spacer
 length: 36 repeater length: 30
 27213 1673535 CTTTCAATTCTATTTTAGTCTTATTGGAAC GGCCTAGAGAAAGTAGACTTCGTGGAGATGATGTA spacer
 length: 35 repeater length: 30

27214	1673601	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTCGTTTGCAGACCTAACGAGCCTTGCGACCTCCCC	spacer
	length:	36	repeater length:	30
27215	1673668	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TCGACGAAGCCAGAAGAGGCTGTTGTCGCTTCTTTT	spacer
	length:	36	repeater length:	30
27216	1673735	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GGGCACCGGTGGGGGACAATAGCGCCCAACCCACCG	spacer
	length:	37	repeater length:	30
27217	1673803	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CCGGTGAAGCTTGACGTCTACGTCGACGGCAGGCTCG	spacer
	length:	37	repeater length:	30
27218	1673871	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGTAGTTGAAGATGAAGATGTTGATCGCGTCTATCTT	spacer
	length:	37	repeater length:	30
27219	1673939	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTCGCTCCCGACTCGGTGGACACGGTGAACGACAT	spacer
	length:	35	repeater length:	30
27220	1674005	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CGATGCCCGCCCCGCGTGGTTCGAGGTTACAGATGAGGGCA	spacer
	length:	39	repeater length:	30
27221	1674075	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AAAGCAAATATATCCGGAAGCATCACTGAGTTCAA	spacer
	length:	35	repeater length:	30
27222	1674141	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CCATCCGCCTCTGGGATCTTGACGGACTGAAGAACG	spacer
	length:	36	repeater length:	30
27223	1674208	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TATGCTCTGGACCTACTTGGCGAGGTTCAAGGGTTT	spacer
	length:	36	repeater length:	30
27224	1674275	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CATCTCACGTTCAAGTGTGAGCGGGACGGCCCTTATTACC	spacer
	length:	40	repeater length:	30
27225	1674346	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTGCTTGGGTACTCCTCTGGCCTCATCTGAGCTTT	spacer
	length:	36	repeater length:	30
27226	1674413	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CGCAGAAAAGCGCTATGGTACCAATAGAGAGATTC	spacer
	length:	35	repeater length:	30
27227	1674479	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGATGAGGGCCACCTTCTCCGCGATCTTCTCCGCC	spacer
	length:	35	repeater length:	30
27228	1674545	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TGGGAATGGGTGAGAGTGAATTGATCAATAAGATT	spacer
	length:	35	repeater length:	30
27229	1674611	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GATGCAGGGATATGACGAGAAGTGGGCGAGAGCGTA	spacer
	length:	36	repeater length:	30
27230	1674678	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CGCTAAGGCACATACTAACTGAATTGCCCCGCGAG	spacer
	length:	35	repeater length:	30
27231	1674744	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CAAACCTCACGACAGCCCTCTCTAGCTTCAAGAGCC	spacer
	length:	36	repeater length:	30
27232	1674811	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTTCTCTGCCATTCTGCGGGTTATTGGGTACTCATA	spacer
	length:	36	repeater length:	30
27233	1674878	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTACTTGACCTACGTGGAGGATAGCGGCGGATTGGGT	spacer
	length:	37	repeater length:	30
27234	1674946	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CTGGAGGGCGTGGTAGAGGACGCTGTCTACTCCTC	spacer
	length:	36	repeater length:	30
27235	1675013	CTTTCAATTCTATTTTAGTCTTATTGGAAC	AGCGAACCCGCAGAAATACTTCGTCTTCGTAGACCT	spacer
	length:	36	repeater length:	30
27236	1675080	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GTGTTTCGTCGCCGTTGACTCCAGGACTAAGGAGCCC	spacer
	length:	36	repeater length:	30
27237	1675147	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GCTGTAGCTAGACCAGTCGCCGATGTCGCCGTCGCT	spacer
	length:	36	repeater length:	30
27238	1675214	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CCAGTATAACCGCGTTATATGCTAGGGACTATGTTG	spacer
	length:	36	repeater length:	30
27239	1675281	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GAGGATCCTAGTTAGGGCATAACATTGAGAGCGAAAG	spacer
	length:	36	repeater length:	30
27240	1675348	CTTTCAATTCTATTTTAGTCTTATTGGAAC	ATCACTGAACAACCTCCACCCGTGAACCTAGCGCTGA	spacer
	length:	35	repeater length:	30
27241	1675414	CTTTCAATTCTATTTTAGTCTTATTGGAAC	ACAACGTTCAAGTACAGGGCAAGATCCTCAGCCGT	spacer
	length:	35	repeater length:	30
27242	1675480	CTTTCAATTCTATTTTAGTCTTATTGGAAC	GTGAGCAGGAGAAAGATGAACGTGACTATGAAGACTG	spacer
	length:	37	repeater length:	30
27243	1675548	CTTTCAATTCTATTTTAGTCTTATTGGAAC	TCCTGGAGTAGGCGACTTGCTTGAGACTCCTATAA	spacer
	length:	35	repeater length:	30
27244	1675614	CTTTCAATTCTATTTTAGTCTTATTGGAAC	CGATTTTTCTCTCATTTTCGTCTAAACTCTTTTAAAG	
27245				
27246				
27247	crispr 6			
27248	1251396	GTTCCAATAAGACTAAAAGAGAATTGAAAG	ACAAGAACATAGAAGCTGTAGCGCGGTTTGGCCAA	spacer
	length:	35	repeater length:	30
27249	1251462	GTTCCAATAAGACTAAAAGAGAATTGAAAG	CCCGTGCTCAGGGCCCTGGGCGTGGAGGACGTGAA	spacer
	length:	35	repeater length:	30
27250	1251528	GTTCCAATAAGACTAAAAGAGAATTGAAAG	CATCGACGATTCTGAGGACTAACGCTATCGTTACCG	spacer
	length:	36	repeater length:	30
27251	1251595	GTTCCAATAAGACTAAAAGAGAATTGAAAG	ATCATGGCTAAAGTTGCCTTTTAGCTCGGGGATTAG	spacer

length: 36 repeater length: 30
27252 1251662 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGGGCATTATTGGTACCGCACCGACAAGATCCAGTTC spacer
length: 37 repeater length: 30
27253 1251730 GTTCCAATAAGACTAAAAGAGAATTGAAAG GTGTTGGTTCTGACAAGTCCAGTTGAGTCAAAACG spacer
length: 35 repeater length: 30
27254 1251796 GTTCCAATAAGACTAAAAGAGAATTGAAAG GTGGGTTTCCTGACCACATCCTCTGGGTCAAAACCCC spacer
length: 36 repeater length: 30
27255 1251863 GTTCCAATAAGACTAAAAGAGAATTGAAAG TTAGTCGTGTCCACCGAGTCGGGAGCGTAGAAGAGG spacer
length: 36 repeater length: 30
27256 1251930 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACGCTCAACGTGTTCTGCTTCACCCTGATACTTTGCA spacer
length: 37 repeater length: 30
27257 1251998 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACACCTTCTTCATCTCGGCATCGCTCATTCTCCTCGCG spacer
length: 38 repeater length: 30
27258 1252067 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGACTCTTTCCAGCCAGTTGTGAATCCCTTCTCGAA spacer
length: 36 repeater length: 30
27259 1252134 GTTCCAATAAGACTAAAAGAGAATTGAAAG GGATTTCCCCGACCCGGGGTCCCCTGTCAGGGTAAT spacer
length: 36 repeater length: 30
27260 1252201 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCTTCAGCTCCAACGGAGTTATAGGCTCTGAATCGTA spacer
length: 37 repeater length: 30
27261 1252269 GTTCCAATAAGACTAAAAGAGAATTGAAAG ATGGATAGATTGCCCAAATGGGTGTAATAGTGTGTAAGAACG
spacer length: 43 repeater length: 30
27262 1252343 GTTCCAATAAGACTAAAAGAGAATTGAAAG GGTGCAGCACTACTTCAAGAAGATGTTTCCCGCTCCT spacer
length: 37 repeater length: 30
27263 1252411 GTTCCAATAAGACTAAAAGAGAATTGAAAG TTATCATGCATCTCAAAGCAAATCCAGAAATGTGGAG spacer
length: 37 repeater length: 30
27264 1252479 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCTTGTCTTAGCTCTCTTAGCACTTCATAGAGCTT spacer
length: 35 repeater length: 30
27265 1252545 GTTCCAATAAGACTAAAAGAGAATTGAAAG GTGGTTTTACTGGCAAATAGTGGTTCCTTGGCCAC spacer
length: 35 repeater length: 30
27266 1252611 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACCAGACTGCGGGATTTAGGACGGCAACAATACCA spacer
length: 35 repeater length: 30
27267 1252677 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCATATAAGGGTTGGGTGTTGAGGATGTCAAGGATG spacer
length: 36 repeater length: 30
27268 1252744 GTTCCAATAAGACTAAAAGAGAATTGAAAG CGTCGCGGGGTCAGAAAGGGCTTTTAGCGAGGGCTTGC spacer
length: 38 repeater length: 30
27269 1252813 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACCTATCAAGAACACGCCTCATCTCCTCCGCTCCC spacer
length: 36 repeater length: 30
27270 1252880 GTTCCAATAAGACTAAAAGAGAATTGAAAG TCACGAGCTTTCTATCTCCCTGCGTCGTAATGTCTCG spacer
length: 37 repeater length: 30
27271 1252948 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGAGGCTCTTCCTGCAAGTGGTCCCTCCCTCAGTA spacer
length: 35 repeater length: 30
27272 1253014 GTTCCAATAAGACTAAAAGAGAATTGAAAG ACGTATCCCCACACCTCGCCGGCAATCGCTTCTATA spacer
length: 36 repeater length: 30
27273 1253081 GTTCCAATAAGACTAAAAGAGAATTGAAAG TGTCAAAAATCACCTGGCCCTCCGTCACGGCTTCCT spacer
length: 36 repeater length: 30
27274 1253148 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGGGTTCGTAGTGGCCGAAGTGTGCCATTCTGTCTG spacer
length: 35 repeater length: 30
27275 1253214 GTTCCAATAAGACTAAAAGAGAATTGAAAG TATATGGACAAAACGGTCTTAACAGAAAACAATATAAG spacer
length: 38 repeater length: 30
27276 1253283 GTTCCAATAAGACTAAAAGAGAATTGAAAG GAGGGCAAGGAGTACACCATAGAGTCCCGCAACCTCA spacer
length: 37 repeater length: 30
27277 1253351 GTTCCAATAAGACTAAAAGAGAATTGAAAG CTCTTGTCATACCAGATGCCGTTTGCTGGGTCAATT spacer
length: 36 repeater length: 30
27278 1253418 GTTCCAATAAGACTAAAAGAGAATTGAAAG AGAATCTTCTTCGCCTGCATTTCTCCAGGACTTTGTTGGTGG
spacer length: 43 repeater length: 30
27279 1253492 GTTCCAATAAGACTAAAAGAGAATTGAAAG CAAGAAAAACTACGATACCATAACGGACGATGAGT spacer
length: 35 repeater length: 30
27280 1253558 GTTCCAATAAGACTAAAAGAGAATTGAAAG AAGTTTTTACTCGTTTCCCCCTATACTATTCTTAG
27281
27282
27283 crispr 7
27284 498126 GTTCCAATAAGACTAGAAGAGAATTGAAAA AGGTGATCCCACATCCAATTATATACGTTGATGAACA spacer
length: 37 repeater length: 30
27285 498194 GTTCCAATAAGACTAGAAGAGAATTGAAAA CAAGCCACTTCAGATCCCTGTAGAGCTCACATCTGA spacer
length: 36 repeater length: 30
27286 498261 GTTCCAATAAGACTAGAAGAGAATTGAAAA GTCCTCTATCGCGTCGGGGTCAGGTAGCCGTTCT spacer
length: 35 repeater length: 30
27287 498327 GTTCCAATAAGACTAGAAGAGAATTGAAAA TGGGCGGTGTTGTAGAGCTGGAGGACTATGTGGAAC spacer
length: 36 repeater length: 30
27288 498394 GTTCCAATAAGACTAGAAGAGAATTGAAAA TTTTGGTTTTGTTTCGTTTAATACTCTCTTCTAGGGG
27289

27290
 27291 GCA_001647085.1_ASM164708v1_genomic.fna(findCrispr):
 27292 START REPEAT
 SPACER
 27293 crispr 1
 27294 147822 GACTCTAGGAGAATTGA AAGAGGGTGGGCCAAATTGGGCCATAGTGGGCCGTTTAAGCGTTGCAATA spacer
 length: 50 repeater length: 17
 27295 147890 GACTCTAGGAGAATTGA AAGCTTTGAGCTTTTAGTGTTCTCAGGAATAAGACTAACCGTTGCAATA spacer
 length: 49 repeater length: 17
 27296 147957 GACTCTAGGAGAATTGA AAGAAATATCTAAGCTTAATACAGCTCCCGGTTGAGTGGGTGCAATA spacer
 length: 48 repeater length: 17
 27297 148023 GACTCTAGGAGAATTGA AAGTCGCTGTCTTGGTCATCATCTATATAATGAAAGTAGTGTTGCAATA spacer
 length: 49 repeater length: 17
 27298 148090 GACTCTAGGAGAATTGA AAGATGCAGTATTTGATGCTATCGAGCCGACAATCGCAAGTTGCAATA spacer
 length: 48 repeater length: 17
 27299 148156 GACTCTAGGAGAATTGA AAGCTTCAGAGCCGTCCACATACACATGAACGCTCTTATAGTTGCAATA spacer
 length: 49 repeater length: 17
 27300 148223 GACTCTAGGAGAATTGA AAGGTTGATGGGTACGTCAAAGAAATTGAAAATTTAACTCCTGTTGCAATA spacer
 length: 51 repeater length: 17
 27301 148292 GACTCTAGGAGAATTGA AAGTTCAAGGACGAATATATCTTCAAGTTCACCAGCTATACGTTGCAATA spacer
 length: 50 repeater length: 17
 27302 148360 GACTCTAGGAGAATTGA AAGATATCCACCCGTATCACCTCCGTTCTTTTTTCTTCCGTTGCAATA spacer
 length: 49 repeater length: 17
 27303 148427 GACTCTAGGAGAATTGA AAGAAGGATGACCCAATATCAAATTTTAAGTTTGCTGAAAGTTGCAATA spacer
 length: 49 repeater length: 17
 27304 148494 GACTCTAGGAGAATTGA AAGAGTGGTCTGAAGGTCATGTTAGGTATAAGAACGTTCCGTTGCAATA spacer
 length: 48 repeater length: 17
 27305 148560 GACTCTAGGAGAATTGA AAGAAGTCTGGAAGAATTCCTGCCAAGCCTCCTTTATACTGTTGCAATA spacer
 length: 49 repeater length: 17
 27306 148627 GACTCTAGGAGAATTGA AAGCCGAAGCGCTTTTCAGGGAATACCCAGGTCGCAGACGGTTGCAATA spacer
 length: 49 repeater length: 17
 27307 148694 GACTCTAGGAGAATTGA AAGACTGGTAAATGAATGTACACTTCTACTTTGTTTCCCTCCGTTGCAATA spacer
 length: 49 repeater length: 17
 27308 148761 GACTCTAGGAGAATTGA AAGTAGTCCATTTGTTTGTATATTGTCCTCATTTCTTCGTGTTGCAATA spacer
 length: 49 repeater length: 17
 27309 148828 GACTCTAGGAGAATTGA AAGTTCTGAAGGACAGCCAAGGCAATGAAGTCTGGAGCGATGTTGCAATA spacer
 length: 50 repeater length: 17
 27310 148896 GACTCTAGGAGAATTGA GAAAGGCAGTAATATAAAGTATCCGCTACCCTTACCAATTTGCGGTTGCA
 27311
 27312
 27313 crispr 2
 27314 1926601 GTAGG ACAGAAATTGTGTGGAAACCGCAGTAACAATACCACTAAAACCTACCCGCTGGAAAATGTTTC spacer
 length: 61 repeater length: 5
 27315 1926668 GTAGG
 ACAGAAATTGTGTGGAAACCGTATTCCTTGGCGATATACTTGATGGTGAGGAGATGTTTCAGTAGGACAGAATTGTGTGGAAACTAA
 GGGGATGGCTGAGCTTCATATGGCAATGGTCCAGTTTC spacer length: 124 repeater length: 5
 27316 1926798 GTAGG ACAGAAATTGTGTGGAAACCGCCTGTGGTGAGTGGTATAGATACTGGACTGAAGAAGGTTTC spacer
 length: 61 repeater length: 5
 27317 1926865 GTAGG ACAGAAATTGTGTGGAAACCTGAACATTCTCATTCTGGTCCTGCGGTCGTACACTGGTTTC spacer
 length: 60 repeater length: 5
 27318 1926931 GTAGG GACTCTAGGAGAATTGAAAGGCAGTAATATAAAGTATCCGCTACCCTTACCAATTTGCGG
 27319
 27320
 27321 crispr 3
 27322 1383233 TTCAATTCTCCTAGAGTCTTATTGCAA TGGACGAGTTTGCGCTTAATAAGTCGAAATTCATTAATG spacer
 length: 39 repeater length: 27
 27323 1383300 TTCAATTCTCCTAGAGTCTTATTGCAA CTTAAGCCAGAGGGTTTTCCGGTTAAGCGGTTTCGTCTTTG spacer
 length: 40 repeater length: 27
 27324 1383368 TTCAATTCTCCTAGAGTCTTATTGCAA
 CCAGGGGTAACATATTCATGACGTAGAGACCGCTGTGAATTGGACGGTTTCAATTCTCCTAGATTCTTATTGCAACTTGGTATTGGC
 GGGCTCATTGGGAGCTCCCATCACCAAG spacer length: 114 repeater length: 27
 27325 1383510 TTCAATTCTCCTAGAGTCTTATTGCAA CTACGCTTTATATATTGCTCATAAATTGCACTTCGATG spacer
 length: 39 repeater length: 27
 27326 1383577 TTCAATTCTCCTAGAGTCTTATTGCAA CATTGTAAGTTTCGCAACAGGAGTGGGTATTGCACTCTG spacer
 length: 39 repeater length: 27
 27327 1383644 TTCAATTCTCCTAGAGTCTTATTGCAA
 CCGGTTTTCTTTTTTCATTGATGAGGTCCAGAACCCTTTGTTTCAATTATCCTAGAGTCTTATTGCAACCTTAGATTGTTGAACCTTC
 CCAAGAACCCGAAAGATTAAG spacer length: 107 repeater length: 27
 27328 1383779 TTCAATTCTCCTAGAGTCTTATTGCAA
 CTATAAGAGCGTTCATGTGCAACCTTAGATTGTTGAACCTTCCCAAGAGCCCGAAAGATTAAG spacer length: 63
 repeater length: 27

27329 1383870 TTCAATTCTCCTAGAGTCTTATTGCAA CACACCGGAGGTCCAGACGTCCTTACGTACAAAGTCTAG spacer
length: 39 repeater length: 27
27330 1383937 TTCAATTCTCCTAGAGTCTTATTGCAA CCTCCTACAGTATTTTGTAGGGACATTTCGAACGGCGGAG spacer
length: 40 repeater length: 27
27331 1384005 TTCAATTCTCCTAGAGTCTTATTGCAA CGTCGACCACGCAATATAAGGCGCTGTAAAAGAAT spacer
length: 35 repeater length: 27
27332 1384068 TTCAATTCTCCTAGAGTCTTATTGCAA CGATACAAACCCGAGCGCGACTTATATTAGTATAGG spacer
length: 36 repeater length: 27
27333 1384132 TTCAATTCTCCTAGAGTCTTATTGCAA CACTGGCAGTCTCGACGCGAGCTATCTCACAAGCAGACTG spacer
length: 40 repeater length: 27
27334 1384200 TTCAATTCTCCTAGAGTCTTATTGCAA CCATTCGTCGTTGTTATTGTATAGTTACTAATGTCGATG spacer
length: 39 repeater length: 27
27335 1384267 TTCAATTCTCCTAGAGTCTTATTGCAA CTGCTGTTGTACTATGCAGCAGAAAACAGCGTAACAATG spacer
length: 39 repeater length: 27
27336 1384334 TTCAATTCTCCTAGAGTCTTATTGCAA CCTAATGTGTCGATTATCTGGTTTGCGATTTTGTGTCATG spacer
length: 38 repeater length: 27
27337 1384400 TTCAATTCTCCTAGAGTCTTATTGCAA CACGGCAACGCGGTTTTGACTTTTTTCGATGATTTTGAG spacer
length: 38 repeater length: 27
27338 1384466 TTCAATTCTCCTAGAGTCTTATTGCAA CCCGTCAAAGTTCGGCGACCTCATCTACTACAAGGTCAG spacer
length: 39 repeater length: 27
27339 1384533 TTCAATTCTCCTAGAGTCTTATTGCAA CCCAGTTCCAAAGCCTAGCCAGAAGCCATCCTTACATG spacer
length: 38 repeater length: 27
27340 1384599 TTCAATTCTCCTAGAGTCTTATTGCAA CGCCATGAATCCCATTGCTCCCATAAAGCTCGCAACTGG spacer
length: 39 repeater length: 27
27341 1384666 TTCAATTCTCCTAGAGTCTTATTGCAA GGCGGCTTTTTCTTTTTCTGCCTAACAAAAGATTATGA
27342
27343
27344 crispr 4
27345 1845174 GTTGCAATAAGACTCTAGGAGAATTGAAAA TATCGTTGGTATATTGCTCGTATTGCGGGGTCAGTG spacer
length: 36 repeater length: 30
27346 1845241 GTTGCAATAAGACTCTAGGAGAATTGAAAA CCACCACCACGTTGCATAAGCCAGCGCCTCCTTTTC spacer
length: 36 repeater length: 30
27347 1845308 GTTGCAATAAGACTCTAGGAGAATTGAAAA TATCAGTTGACGCTACAAGCGACCAGGTGTTCCCAC spacer
length: 36 repeater length: 30
27348 1845375 GTTGCAATAAGACTCTAGGAGAATTGAAAA GTGGCGAGATTAGTGATGGACCACATGAGCTTAGCG spacer
length: 36 repeater length: 30
27349 1845442 GTTGCAATAAGACTCTAGGAGAATTGAAAA CTCCTACTGCAATTTTCACATCAAGCGCGTAACCG spacer
length: 35 repeater length: 30
27350 1845508 GTTGCAATAAGACTCTAGGAGAATTGAAAA TTACTGCCCTATCAAGTCCGTAACCTAGAGGATGCC spacer
length: 36 repeater length: 30
27351 1845575 GTTGCAATAAGACTCTAGGAGAATTGAAAA TGCATCTTCGACCTCCTCAATGACTTCGCTCACGCT spacer
length: 36 repeater length: 30
27352 1845642 GTTGCAATAAGACTCTAGGAGAATTGAAAA ACGGAAGAAGAGAGAAGATACTTCAAAGGGCTTGCA spacer
length: 36 repeater length: 30
27353 1845709 GTTGCAATAAGACTCTAGGAGAATTGAAAA TAAAGTATCCGCTACCCTTACCAATTTGCGGTTGCA
27354
27355
27356 GCA_001719125.1_ASM171912v1_genomic.fna(findCrispr):
27357 START REPEAT
SPACER
27358 crispr 1
27359 2667464 ATGT
TTTAGTTTCTTGTCGTTAGTACAAAGAGCTAGCCAGGACAGATAAGAAGCTACTTATAACGTTTTAGTTTCTTGTCGTTAGTACAT
TTTCTCAGGGGATATTCTACGTTATTTGTT spacer length: 116 repeater length: 4
27360 2667585 ATGT
TTTAGTTTCTTGTCGTTAGTACGATATTTACGTTATGCAATACACAATTTTGAGAAAGTTTTAGTTTCTTGTCGTTAGTACAAGG
GGTTAACAGCTTAATGGAGTTCTATTATGAGTTTTAGTTTCTTGTCGTTAGTACTAGGGTTTTACATAGGAAGGCTTCCAAAAGGC
spacer length: 172 repeater length: 4
27361 2667762 ATGT
TTTAGTTTCTTGTCGTTAGTACACTAAAAGCAATAATTTACCAGTTTTTGTAATAATTTGAGTTTTAGTTTCTTGTCGTTAGTAC
ATTGTTGTATTTATTTGTCACTGGCAACCCA spacer length: 117 repeater length: 4
27362 2667884 ATGT
ACAAGAACTAAACTCAAACCTCTCGGTGAAGAGGACATGGAATGCAGGGTACTAACGACAAGAACTAAACGTGCCGGTAGTG
CCGGTGCCGGTGGTAGTGGTGGGTACTAACG
27363
27364
27365 crispr 2
27366 14330 CTTTCAATCCCGTTAAGGAT GCATCAAATGTGTGAAGCACAAATCGATCCCCAAATCCAGGAAT spacer
length: 44 repeater length: 20
27367 14395 CTTTCAATCCCGTTAAGGAT ACATCTCGTGTCTTAGCCAATTTGTACAACAAATAACAAAGTG spacer
length: 44 repeater length: 20

27368 14460 CTTTCAATCCCGTTAAGGAT ACATCTTGAGCAGACACAGGAATAGCATGGGTTGGAACAATTTA spacer
length: 44 repeater length: 20

27369 14525 CTTTCAATCCCGTTAAGGAT GCATCGAGGAAGATAAGGACACTGATCCTCGTAACTGATGGCA spacer
length: 43 repeater length: 20

27370 14589 CTTTCAATCCCGTTAAGGAT GCATCGGAACCGTATAAGGAATACATACATAGGGCATGGGGGA spacer
length: 43 repeater length: 20

27371 14653 CTTTCAATCCCGTTAAGGAT GCATCAGGTGGTGAGACATTCTTTTACCTAAATCAAACCTATA spacer length:
42 repeater length: 20

27372 14716 CTTTCAATCCCGTTAAGGAT GCATCAGATCCACCTAGCGTTACTAAGTTTACGGAAAGAGAG spacer length:
42 repeater length: 20

27373 14779 CTTTCAATCCCGTTAAGGAT GCATCGGGATCTTTGATGTAATTTACGGTCTATCGTTCCTAG spacer length:
42 repeater length: 20

27374 14842 CTTTCAATCCCGTTAAGGAT GCATCGTGAACCTGGGATTACTAAAGTGGGAAAATGAGGATAAGC spacer
length: 44 repeater length: 20

27375 14907 CTTTCAATCCCGTTAAGGAT GCATCAAGCCACAATATTATGCTTTAGCAAAAATACAAGTACAT spacer
length: 44 repeater length: 20

27376 14972 CTTTCAATCCCGTTAAGGAT GCATCGTCTATTATATGTCACTGATTACCAATGTTAAAATTG spacer length:
42 repeater length: 20

27377 15035 CTTTCAATCCCGTTAAGGAT GCATCTCATATAAGCTGTATGATTGCCATACAATTTTGTAAG spacer length:
42 repeater length: 20

27378 15098 CTTTCAATCCCGTTAAGGAT GCATCAGTAAACAAACATTTGCTCTAGTTCAGCAGAGCACACAGT spacer
length: 45 repeater length: 20

27379 15164 CTTTCAATCCCGTTAAGGAT GCATCCATACCGAATGGGGCACAGAGTCACAATGTTGCTTATG spacer
length: 43 repeater length: 20

27380 15228 CTTTCAATCCCGTTAAGGAT GCATCAAAAAATCAATTTCTATAGTATAAAGATTTTAGAAGAAA spacer
length: 44 repeater length: 20

27381 15293 CTTTCAATCCCGTTAAGGAT GCATCAAAAAATATGATATAAACTTTTTATACAAAAGATTTCTAT spacer
length: 46 repeater length: 20

27382 15360 CTTTCAATCCCGTTAAGGAT GCATCCAGTCTCAAACCACACAAACCCAAATTAAACAAAAATCC spacer
length: 44 repeater length: 20

27383 15425 CTTTCAATCCCGTTAAGGAT GCATCTTGATGAGAGCAGACCCAGTAACAGCTATGAATTCTTTTT spacer
length: 45 repeater length: 20

27384 15491 CTTTCAATCCCGTTAAGGAT GCATCTTTTTTTTATACGCAGATGTTAATAAACTGAAAATAGTTT spacer
length: 44 repeater length: 20

27385 15556 CTTTCAATCCCGTTAAGGAT GCATCGTTTGGATGCTGGGTCTGCACCGTAGTCAAGAACGAT spacer length:
42 repeater length: 20

27386 15619 CTTTCAATCCCGTTAAGGAT GCATCAGTAAACAAACATTTGCTCTAGTTCAGCAGAGCACACAGT spacer
length: 45 repeater length: 20

27387 15685 CTTTCAATCCCGTTAAGGAT GCATCCATACCGAATGGGGCACAGAGTCACAATGTTGCTTATG spacer
length: 43 repeater length: 20

27388 15749 CTTTCAATCCCGTTAAGGAT GCATCAAAAAATCAATTTCTATAGTATAAAGATTTTAGAAGAAA spacer
length: 44 repeater length: 20

27389 15814 CTTTCAATCCCGTTAAGGAT GCATCAAAAAATATGATATAAACTTTTTATACAAAAGATTTCTAT spacer
length: 46 repeater length: 20

27390 15881 CTTTCAATCCCGTTAAGGAT GCATCCAGTCTCAAACCACACAAACCCAAATTAAACAAAAATCC spacer
length: 45 repeater length: 20

27391 15947 CTTTCAATCCCGTTAAGGAT GCATCTTGATGAGAGCAGACCCAGTAACAGCTATGAATTCTTTTT spacer
length: 45 repeater length: 20

27392 16013 CTTTCAATCCCGTTAAGGAT GCATCTTTTTTTTATACGCAGATGTTAATAAACTGAAAATAGTTT spacer
length: 44 repeater length: 20

27393 16078 CTTTCAATCCCGTTAAGGAT GCATCGTTTGGATGCTGGGTCTGCACCGTAGTCAAGAACGAT spacer length:
42 repeater length: 20

27394 16141 CTTTCAATCCCGTTAAGGAT GCATCTATAAAAGGTTTATTAATATACGTTTTTCATAATTTCTT spacer
length: 43 repeater length: 20

27395 16205 CTTTCAATCCCGTTAAGGAT GCATCAGGGTGGCTAATGAGAGATGGTGAACTGTTGAGAT spacer length:
41 repeater length: 20

27396 16267 CTTTCAATCCCGTTAAGGAT GCATCCGGACATACTAATAGCGCTTAGCCAAGAACCTTTAACA spacer
length: 43 repeater length: 20

27397 16331 CTTTCAATCCCGTTAAGGAT GCATCTTGCAGAGTTCACAGGTCACAAGTTAACTAAAAGA spacer length:
40 repeater length: 20

27398 16392 CTTTCAATCCCGTTAAGGAT GCATCAGTAAACAAATGTGTTGGTCTACAACTTAATGTCAGAGA spacer
length: 46 repeater length: 20

27399 16459 CTTTCAATCCCGTTAAGGAT GCATCAAATCACTATTTTTTAGACCTATGTTTTTACAAAATTATA spacer
length: 45 repeater length: 20

27400 16525 CTTTCAATCCCGTTAAGGAT GCATCACAAAGAGAGCTATGAGCTTGGCTGTGACTGTCATG spacer length:
41 repeater length: 20

27401 16587 CTTTCAATCCCGTTAAGGAT GCATCATATTCTCTTCTAACACTTCATAGTCTTCTAATGTGTT spacer
length: 43 repeater length: 20

27402 16651 CTTTCAATCCCGTTAAGGAT GCATCCATCCCTATTAACATTAAGGATCCCAGAGGATGGG spacer length:
40 repeater length: 20

27403 16712 CTTTCAATCCCGTTAAGGAT GCATCAAAAGGCTAGTAGTTAAAGATGAGCTCAACGTTTACG spacer length:

42 repeater length: 20

27404 16775 CTTTCAATCCCGTTAAGGAT GCATCTGTGATGAATATTATTCGTTATGAGCCCCTAGATTTTA spacer
length: 43 repeater length: 20

27405 16839 CTTTCAATCCCGTTAAGGAT GCATCACTATTTTTCTCTTGATGTGCCCCCTAAATTTTGTGAAC spacer
length: 44 repeater length: 20

27406 16904 CTTTCAATCCCGTTAAGGAT GCATCAATATCTCACTGATCTTATACTTTATCATTCCAATCT spacer length:
42 repeater length: 20

27407 16967 CTTTCAATCCCGTTAAGGAT GCATCTGCGAGATAAGGAAAGGAGTCCAGCAATCGAATCAA spacer length:
41 repeater length: 20

27408 17029 CTTTCAATCCCGTTAAGGAT GCATCTAAAGATTATTACCTTATTATAAGGGTGAAACAAATG spacer length:
42 repeater length: 20

27409 17092 CTTTCAATCCCGTTAAGGAT GCATCTTAAAGTCAGTGATTGGTAATAGGAAAATTATTGGACATT spacer
length: 45 repeater length: 20

27410 17158 CTTTCAATCCCGTTAAGGAT GCATCAAGAGGATAGCTGAGAAGTTTAAAGAGAAATATGGAG spacer length:
42 repeater length: 20

27411 17221 CTTTCAATCCCGTTAAGGAT GCATCGTTGAGAGTAAGACCTAGGGAAGGGTTTGATATATTTGCTC spacer
length: 46 repeater length: 20

27412 17288 CTTTCAATCCCGTTAAGGAT GCATCTAAAAGGTGCGGATAAGGGTAAAAAGTACGTATTAG spacer length:
41 repeater length: 20

27413 17350 CTTTCAATCCCGTTAAGGAT GCATCCTAGCGTTGAAACGTAACATCACTAGGAGCGAGCTTAT spacer
length: 43 repeater length: 20

27414 17414 CTTTCAATCCCGTTAAGGAT GCATCAAAAACTAATTTTTTCGATTTTTTCAAAAAGGCTTA spacer length:
41 repeater length: 20

27415 17476 CTTTCAATCCCGTTAAGGAT GCATCGTTACTCACGACATGGTCTTTTCGGCAATAAAGAGATTA spacer
length: 44 repeater length: 20

27416 17541 CTTTCAATCCCGTTAAGGAT GCATCAAACCTATGGAAAATTAACCCCTTAACTTCAAGATG spacer length:
42 repeater length: 20

27417 17604 CTTTCAATCCCGTTAAGGAT GCATCCCAGATACATCGCCAGAAGGTACACCGAACTGTTATA spacer
length: 43 repeater length: 20

27418 17668 CTTTCAATCCCGTTAAGGAT GCATCTGATTTCTTGTGATCTTATGCGAAATCTTGCGAAATC spacer length:
42 repeater length: 20

27419 17731 CTTTCAATCCCGTTAAGGAT GCATCAAAGAACCTGCAGGAACCTGGCACGGGATAAAAAATA spacer
length: 43 repeater length: 20

27420 17795 CTTTCAATCCCGTTAAGGAT GCATCATCAAGGTAAACCCTCAGACTATATAGTGACTCCTTCCC spacer
length: 44 repeater length: 20

27421 17860 CTTTCAATCCCGTTAAGGAT GCATCTTGTTTACTCCCCAGTGACACTTAATAAAAAAAGG spacer length:
41 repeater length: 20

27422 17922 CTTTCAATCCCGTTAAGGAT GCATCCTAATATAATCTAGATCTTTGCCCTCCATTTTATAATA spacer
length: 43 repeater length: 20

27423 17986 CTTTCAATCCCGTTAAGGAT GCATCGCTGGGCCAACGACAGAAGCTACATCTTTCATTGCATTA spacer
length: 44 repeater length: 20

27424 18051 CTTTCAATCCCGTTAAGGAT GCATCATATTCAAAGTGCGTATACTTATAAACTCTCTGACATTT spacer
length: 44 repeater length: 20

27425 18116 CTTTCAATCCCGTTAAGGAT GCATCCTTCTATAAACTGTTGAATTTCTCTTTTGTCCCAATA spacer
length: 43 repeater length: 20

27426 18180 CTTTCAATCCCGTTAAGGAT GCATCATATCATTCAGCGGATCAAATGGGAAATCATATCCACGTA spacer
length: 46 repeater length: 20

27427 18247 CTTTCAATCCCGTTAAGGAT AAAGACGTAACTTTTCCCCGTTTTTCTCATGAAGTTTACGAGAAAC

27428

27429

27430 crispr 3

27431 2634609 GCATCCCATAAGGGATTGAAAG TAGCCCACGCGAAAAATATCATATCGATAAAATCTCCCAAGA spacer
length: 42 repeater length: 22

27432 2634674 GCATCCCATAAGGGATTGAAAG AAATAATAGTTTTCAAATTTCTGTGGCGTCCACAAGTCCACAGA spacer
length: 44 repeater length: 22

27433 2634741 GCATCCCATAAGGGATTGAAAG ATTTCTTTTCATGTATGAAATACACTGTGGGTCATTGATTGA spacer
length: 41 repeater length: 22

27434 2634805 GCATCCCATAAGGGATTGAAAG AAATTTACATTATTTTGTAACTCTATTACAGACACAAAAATGA spacer
length: 42 repeater length: 22

27435 2634870 GCATCCCATAAGGGATTGAAAG ACCCATTAAGCCAATACGGATATAATAGTAACATAGGGTTGTGA spacer
length: 44 repeater length: 22

27436 2634937 GCATCCCATAAGGGATTGAAAG GAAGTTTTTATTTGATTATATATATCTTTCCAGCTCGTCATGGA spacer
length: 44 repeater length: 22

27437 2635004 GCATCCCATAAGGGATTGAAAG AAATTTCCCGATAAACTCATCATACCTAAATAGTAAAAACGA spacer
length: 42 repeater length: 22

27438 2635069 GCATCCCATAAGGGATTGAAAG CTCACTATATAAAAAATAATTTTAGCAAAAGATTTTCTGAGA spacer
length: 41 repeater length: 22

27439 2635133 GCATCCCATAAGGGATTGAAAG TTTAGAAATTGCATTTCCTATCACCATTGTTGTAATGGA spacer length:
38 repeater length: 22

27440 2635194 GCATCCCATAAGGGATTGAAAG TATTTTTTGGTATTGGCAGTTATCGTTAGAAAGTAAGGA spacer
length: 39 repeater length: 22

27441	2635256	GCATCCCATAAGGGATTGAAAG	GGTTC AACAGTCTACCCAGTTTGAATCTTTAGCCTACACAACGA spacer
	length:	44	repeater length: 22
27442	2635323	GCATCCCATAAGGGATTGAAAG	TTGATGAAATTGTATATTAGTAAATACAACTCTGTCCCAGA spacer
	length:	42	repeater length: 22
27443	2635388	GCATCCCATAAGGGATTGAAAG	TACGCTTTTTTCGATCTCGTTCCTTTATTTTCGTCCAACTTGA spacer
	length:	41	repeater length: 22
27444	2635452	GCATCCCATAAGGGATTGAAAG	TTTGGATATGATTTTCGCCGAAACCCATAACTTGTTTAACTGA spacer
	length:	42	repeater length: 22
27445	2635517	GCATCCCATAAGGGATTGAAAG	CTCACCTTGTAATACATACACTTCTTGAAGTCAGTAAAAGA spacer
	length:	41	repeater length: 22
27446	2635581	GCATCCCATAAGGGATTGAAAG	TTATCGATTTGTTAATCGGCTTAATGGTCGCAGGTCTCGTAGA spacer
	length:	43	repeater length: 22
27447	2635647	GCATCCCATAAGGGATTGAAAG	TGTTTGTGAAAATCTTTACAGCAATTTCAAAGTAAGACTCGA spacer
	length:	43	repeater length: 22
27448	2635713	GCATCCCATAAGGGATTGAAAG	CTTTTCACTAAAATTTTTTAGTTTATAAATGTCTTTACGGA spacer
	length:	41	repeater length: 22
27449	2635777	GCATCCCATAAGGGATTGAAAG	TCTTTCACGATAAAAAGTCTACAATAGAATTGCTGGAAATGA spacer
	length:	41	repeater length: 22
27450	2635841	GCATCCCATAAGGGATTGAAAG	AACCCACCTATTACTATAGGGGTTTTATCTGGTTTACTCGA spacer
	length:	41	repeater length: 22
27451	2635905	GCATCCCATAAGGGATTGAAAG	AAATAATAACAGTATTATTCCCATAACCATGCCTGCTCCGAGA spacer
	length:	43	repeater length: 22
27452	2635971	GCATCCCATAAGGGATTGAAAG	AAATCAGCTACAATCCAGAAATGTATTCCAATTTTTTACGGA spacer
	length:	42	repeater length: 22
27453	2636036	GCATCCCATAAGGGATTGAAAG	TCGGGTACCCAGATCTCACGGTTTTTTTATCTTGAGGCATGA spacer
	length:	41	repeater length: 22
27454	2636100	GCATCCCATAAGGGATTGAAAG	ATAAAGATATTTAGAAAAAGGGAAATAGAAGAAATAGAAAGA spacer
	length:	42	repeater length: 22
27455	2636165	GCATCCCATAAGGGATTGAAAG	CTATTAAATTTGTAAACCTTTACTGGATTACTGTGCGAAGGA spacer
	length:	42	repeater length: 22
27456	2636230	GCATCCCATAAGGGATTGAAAG	CAGTTCATAGTTTCTAAGATTTTCTTTTTGTAAATCTCTTAGA spacer
	length:	42	repeater length: 22
27457	2636295	GCATCCCATAAGGGATTGAAAG	GCTGGTATTAGCCTTAAGTCACTATTAATTACATTCAAGA spacer
	length:	40	repeater length: 22
27458	2636358	GCATCCCATAAGGGATTGAAAG	ATATGTAGCCTTTCCAATAGCTCGTCTATGTGCCCTCAGGA spacer
	length:	42	repeater length: 22
27459	2636423	GCATCCCATAAGGGATTGAAAG	ATATCAAAAACCTTAAGTCTGTTTCACTATCCTTTATAACGAAGCATCCCATAAGGGGTTGAAAGACCGTTTCCAGTATTTCTGA
			GATAATATCGCCCTTCATTGA spacer length: 107 repeater length: 22
27460	2636553	GCATCCCATAAGGGATTGAAAG	TAAATTCACCGAGTTATTGCATCTTTCGCGTCTGGGCTTTGA spacer
	length:	42	repeater length: 22
27461	2636618	GCATCCCATAAGGGATTGAAAG	TCTTCAGCCTTTGCAATAATAAGCATATTTTGGTCTTCGTGA spacer
	length:	42	repeater length: 22
27462	2636683	GCATCCCATAAGGGATTGAAAG	TTACCGTTCCTCAAGTGCCACAAGTAGTACACTGCATCAGA spacer
	length:	41	repeater length: 22
27463	2636747	GCATCCCATAAGGGATTGAAAG	GTCCTACTTTGGTTATATTGTTTTTATGCATATACCTATGA spacer
	length:	41	repeater length: 22
27464	2636811	GCATCCCATAAGGGATTGAAAG	ATAAGAAATACAAAGACTACACGCCGGA CTCTACGAGA spacer
	length:	39	repeater length: 22
27465	2636873	GCATCCCATAAGGGATTGAAAG	ATTGGAAATTTTTCTCTTATCGGTTTTTGGTATCGTCATTGA spacer
	length:	41	repeater length: 22
27466	2636937	GCATCCCATAAGGGATTGAAAG	TAATCTCCTGCTATCGCCCTATTCATTGTAACGGTATCGCGA spacer
	length:	42	repeater length: 22
27467	2637002	GCATCCCATAAGGGATTGAAAG	GGTAAATAGTCGTAGCGAGTCGTTTTCTCGTAAGTAAATGA spacer
	length:	41	repeater length: 22
27468	2637066	GCATCCCATAAGGGATTGAAAG	AATTACTTCAGCTATATCTTCAGCTACGTTAAAAATACTAGA spacer
	length:	42	repeater length: 22
27469	2637131	GCATCCCATAAGGGATTGAAAG	TCAATTTTCCAACTTTGAATTTTGCAAACCGCAAAGTCTTGA spacer
	length:	43	repeater length: 22
27470	2637197	GCATCCCATAAGGGATTGAAAG	TAAGTGTTC AATAAGGGAGTACTGAAATTAGAACTGGAGTGA spacer
	length:	42	repeater length: 22
27471	2637262	GCATCCCATAAGGGATTGAAAG	ATTTTGTCACTTTGCACATTTAGATTAAAGTTGTCGAACAGA spacer
	length:	42	repeater length: 22
27472	2637327	GCATCCCATAAGGGATTGAAAG	TAACGGTTAGCGAGATACAGTAGATTATTAATCTCATTCTCGGA spacer
	length:	44	repeater length: 22
27473	2637394	GCATCCCATAAGGGATTGAAAG	ACGTAAC TTTTCCCCGTTTTTCTCATGAAGTTTACGAGAACTCGA spacer
	length:	46	repeater length: 22
27474	2637463	GCATCCCATAAGGGATTGAAAG	GTTTTTAAAATTTTGT TTTTGAAAAATTATGTCCCATATCTGA spacer
	length:	42	repeater length: 22
27475	2637528	GCATCCCATAAGGGATTGAAAG	GTTAAGAAATTTACTAAATAATCGCCACACATGTTTTCTGTGA spacer
	length:	43	repeater length: 22

27476 2637594 GCATCCCATAGGGATTGAAAG GTATTTTATTCGCTACATGTACTTAAAAATTGTATTTTGA spacer
 length: 41 repeater length: 22
 27477 2637658 GCATCCCATAGGGATTGAAAG AACTTATAGACCTTCACTAGATTACTATGTAATTCACGCCCGA spacer
 length: 43 repeater length: 22
 27478 2637724 GCATCCCATAGGGATTGAAAG TTATCTCCCTCTTTTCCACCCTCAAATTTATCGAACTTTGA spacer
 length: 41 repeater length: 22
 27479 2637788 GCATCCCATAGGGATTGAAAG ATGATTTGTTGAACATGTCCATAATTTGTCGTTTAAGA spacer
 length: 40 repeater length: 22
 27480 2637851 GCATCCCATAGGGATTGAAAG ATTTCCAAAAGTTCTGATTTCTCAACATGATAATTTGAGATAAGA spacer
 length: 45 repeater length: 22
 27481 2637919 GCATCCCATAGGGATTGAAAG ATTTTGATTAATGTTAATTCGCCAGGTGATGGATTATAAAGA spacer
 length: 43 repeater length: 22
 27482 2637985 GCATCCCATAGGGATTGAAAG ATTAATATAAGTATACATATAGTCACCCTGAGCAGAATTGA spacer
 length: 41 repeater length: 22
 27483 2638049 GCATCCCATAGGGATTGAAAG GTTTATTTATTAACCCCTATGCCTTATCTTTTCTTCCCCT
 27484
 27485
 27486 crispr 4
 27487 2650011 ATCTTTCAATCCCGTTTGGGATGC ATCATGTTGAAGAAAGCCTTACTAAATGACGAATTTATTAT spacer
 length: 41 repeater length: 24
 27488 2650077 ATCTTTCAATCCCGTTTGGGATGC TTCCACAACATATCACTGTGGAACAACAACCATGGACA spacer
 length: 39 repeater length: 24
 27489 2650141 ATCTTTCAATCCCGTTTGGGATGC ATATACCTCTGTCTAAAGATGATGTATATTGGATTACTT
 27490
 27491
 27492 crispr 5
 27493 67 GTACTAACGACAAGAACTAAAAAC TTAGGAGCCACTGTTCCAGAACCACCTGAGCCAGAG spacer length: 36
 repeater length: 24
 27494 128 GTACTAACGACAAGAACTAAAAAC TCACAATAAAACACATTTTCCTTACCAGCTACAG spacer length: 34
 repeater length: 24
 27495 187 GTACTAACGACAAGAACTAAAAAC GTTATAATAGTTGTTACATCCAAAAAATGAATAA spacer length: 34
 repeater length: 24
 27496 246 GTACTAACGACAAGAACTAAAAAC GGAGGAAGTGCTAAGCTGTTGAAGTTCTGGGTCTTCA spacer length: 37
 repeater length: 24
 27497 308 GTACTAACGACAAGAACTAAAAAC TTAGTAAAAAATTCTACATTTGATGTAAACATTTT spacer length: 35
 repeater length: 24
 27498 368 GTACTAACGACAAGAACTAAAAAC TGCGTAAAGATTTCCACCAACTTCATTACCA spacer length: 30
 repeater length: 24
 27499 423 GTACTAACGACAAGAACTAAAAAC TTATGTCTTCAACTCCCCTTATTATAGGAGAAA spacer length: 33
 repeater length: 24
 27500 481 GTACTAACGACAAGAACTAAAAAC TGCAGACGTCTGTAGTTTACAGTATAATAATATAGA spacer length: 37
 repeater length: 24
 27501 543 GTACTAACGACAAGAACTAAAAAC TTGAACAGTAAGCCTTATCAAACGGCATATCCAGA spacer length: 35
 repeater length: 24
 27502 603 GTACTAACGACAAGAACTAAAAAC CTGTAGTTGTTTCCCGTATTGGTAAATAGGAGAAA spacer length: 35
 repeater length: 24
 27503 663 GTACTAACGACAAGAACTAAAAAC TCAAACCTCTCGGTGAAGAGGACATGGAATGCAG spacer length: 34
 repeater length: 24
 27504 722 GTACTAACGACAAGAACTAAAAAC GTGCCGGTAGTGCCGGTGCCGGTGGTAGTGGTG spacer length: 33
 repeater length: 24
 27505 780 GTACTAACGACAAGAACTAAAAAC TTTCCACCATTAAGCGTATATGATGTGCCGTTAAGCGTT spacer length:
 39 repeater length: 24
 27506 844 GTACTAACGACAAGAACTAAAAAC CCGAAGTGTAGACAGTCTGAGTAAGATTTCCA spacer length: 32
 repeater length: 24
 27507 901 GTACTAACGACAAGAACTAAAAAC CCCTGAGTTCAGTTTGAGTCTGGTTTGGTAAGGTA spacer length: 35
 repeater length: 24
 27508 961 GTACTAACGACAAGAACTAAAAAC ATATGGCTATTTTATAGAGCTACAATTTCAACTGTT spacer length: 35
 repeater length: 24
 27509 1021 GTACTAACGACAAGAACTAAAAAC ATTTTCGAAATGCCTTAAGCCCTAACTCGATTT spacer length: 33
 repeater length: 24
 27510 1079 GTACTAACGACAAGAACTAAAAAC AGAAATTTTAATGTGGGGGGGTGTATTTACCGCGA spacer length: 35
 repeater length: 24
 27511 1139 GTACTAACGACAAGAACTAAAAAC GAAAATCCCAGAAATTTTGATCCGCTTTTAGACTT spacer length: 35
 repeater length: 24
 27512 1199 GTACTAACGACAAGAACTAAAAAC TACAGGCTAGCATGCCCAATCATCTACCTTCAG spacer length: 33
 repeater length: 24
 27513 1257 GTACTAACGACAAGAACTAAAAAC TAGCTCCAATTTGGTAATTCTACAGACCAGTTGA spacer length: 34
 repeater length: 24
 27514 1316 GTACTAACGACAAGAACTAAAAAC AGAGATCGACAAAGACATTAGGGAACCTAATGA spacer length: 33
 repeater length: 24
 27515 1374 GTACTAACGACAAGAACTAAAAAC ATAAAAATTTCCACAAGAGAAAGCTGAAAAAAG spacer length: 33

repeater length: 24
 27516 1432 GTACTAACGACAAGAAACTAAAAAC AATAACTCTGGTACTGGTATCAGTAATTCTAATCCATA spacer length: 38
 repeater length: 24
 27517 1495 GTACTAACGACAAGAAACTAAAAAC TTACATGGTATTGGGTAGGTACAGTTTGGGACAGA spacer length: 35
 repeater length: 24
 27518 1555 GTACTAACGACAAGAAACTAAAAAC AATCTTGTTCATTAACGCGAGAGCTTCCTCTTT spacer length: 35
 repeater length: 24
 27519 1615 GTACTAACGACAAGAAACTAAAAAC TGTACATAGAGAGATGGGGCGATTTTGTTAGAAG spacer length: 34
 repeater length: 24
 27520 1674 GTACTAACGACAAGAAACTAAAAAC CTAGTAACCTTCTGGTATTCATATAATAATGGAATAT spacer length: 37
 repeater length: 24
 27521 1736 GTACTAACGACAAGAAACTAAAAAC TATCTACAAATCGTGTGTTTAACGATCTCAAAA spacer length: 34
 repeater length: 24
 27522 1795 GTACTAACGACAAGAAACTAAAAAC AATCCAAATGATATTATTTCAGATGAAATTAATTG spacer length: 34
 repeater length: 24
 27523 1854 GTACTAACGACAAGAAACTAAAAAC ATAAACGTAATTGAATGGGACGGCGTATCGGACA spacer length: 34
 repeater length: 24
 27524 1913 GTACTAACGACAAGAAACTAAAAAC GCATCAGAAAGGACTTCTGGTTTGTAGTGGGATATTATG spacer length: 37
 repeater length: 24
 27525 1975 GTACTAACGACAAGAAACTAAAAAC CCGACACTGTATCGCTCTCCGTGGACTGACCCAC spacer length: 34
 repeater length: 24
 27526 2034 GTACTAACGACAAGAAACTAAAAAC GTTAACCCGTTAGATACTAGTGGAAACATTAAGG spacer length: 34
 repeater length: 24
 27527 2093 GTACTAACGACAAGAAACTAAAAAC TGGTCGCTACCCGCATAGACCTTCCAGGCAGC spacer length: 32
 repeater length: 24
 27528 2150 GTACTAACGACAAGAAACTAAAAAC ATGAAAGATGTTACCATGTGGGATAATCATACC spacer length: 33
 repeater length: 24
 27529 2208 GTACTAACGACAAGAAACTAAAAAC ATCTCTAGTTTCCAAAGTAATAAAGGGTTATCAG spacer length: 35
 repeater length: 24
 27530 2268 GTACTAACGACAAGAAACTAAAAAC ATGAGAGATGGAAGATTGATGATAATTCCAATAAA spacer length: 35
 repeater length: 24
 27531 2328 GTACTAACGACAAGAAACTAAAAAC AATACTCATATGATTAAGATAACCGGGTGGTATAT spacer length: 36
 repeater length: 24
 27532 2389 GTACTAACGACAAGAAACTAAAAAC TCCATCCCCTAAATTCTGCGTTTTGTTTCTTTACT spacer length: 35
 repeater length: 24
 27533 2449 GTACTAACGACAAGAAACTAAAAAC AAAATGAATCTATCAATAATATATGGTTTTCTCCAA spacer length: 36
 repeater length: 24
 27534 2510 GTACTAACGACAAGAAACTAAAAAC TCGCCAAGCATCGATGGTTACGTCGTATTTTACAA spacer length: 35
 repeater length: 24
 27535 2570 GTACTAACGACAAGAAACTAAAAAC AATTAGTGCGGTAGATTTAAGGGTTAACGTATTGC spacer length: 35
 repeater length: 24
 27536 2630 GTACTAACGACAAGAAACTAAAAAC AACACAACCACATTGAACTATAACTATACAAA spacer length: 33
 repeater length: 24
 27537 2688 GTACTAACGACAAGAAACTAAAAAC TCTTTTTTCATTATTTTTTGCTCTGGTATAGACGTCT spacer length: 35
 repeater length: 24
 27538 2748 GTACTAACGACAAGAAACTAAAAAC TAAGACTTATCACGCCAGTAACAAATATCCGCTTA spacer length: 35
 repeater length: 24
 27539 2808 GTACTAACGACAAGAAACTAAAAAC CCTTATTTACCCAGTAAACATAGAGTCCACTA spacer length: 32
 repeater length: 24
 27540 2865 GTACTAACGACAAGAAACTAAAAAC GAGTATCTAAGGGGGTCAAGATAGGATATATTA spacer length: 34
 repeater length: 24
 27541 2924 GTACTAACGACAAGAAACTAAAAAC TCACGATGAGAACCGAGGGAAAAAAGGCATAT spacer length: 32
 repeater length: 24
 27542 2981 GTACTAACGACAAGAAACTAAAAAC TATTTCTGAAATCACTGGCAACTACATCAGCGA spacer length: 33
 repeater length: 24
 27543 3039 GTACTAACGACAAGAAACTAAAAAC TTTATGTTTTTTGAACCTCCGGATCATCAAAATCGATAATCT spacer length: 41
 repeater length: 24
 27544 3105 GTACTAACGACAAGAAACTAAAAAC GCCATTGAGTCAAGTTAGAGACATAGTTGCTACA spacer length: 34
 repeater length: 24
 27545 3164 GTACTAACGACAAGAAACTAAAAAC ATGTGAAAAAAGGGAGACAGCGAAAAAGATAATA spacer length: 34
 repeater length: 24
 27546 3223 GTACTAACGACAAGAAACTAAAAAC TGGCTTAGGGACTTAATATATCCATGTGGTTCCGTTCCAAA spacer length: 41
 repeater length: 24
 27547 3289 GTACTAACGACAAGAAACTAAAAAC CTCTCATCTCAGCAAATAATGCCACTTTCAACAGGG spacer length: 36
 repeater length: 24
 27548 3350 GTACTAACGACAAGAAACTAAAAAC CTAACACCCCCACCACCAAAAAACCCCGGTAAG spacer length: 33
 repeater length: 24
 27549 3408 GTACTAACGACAAGAAACTAAAAAC ATCGAGAGGAATAAGCGGATATTTGTTACTGGCGTGATA spacer length: 39
 repeater length: 24
 27550 3472 GTACTAACGACAAGAAACTAAAAAC TCCATGGGTTGTCCTAGCATTTTCGTAATCCTC spacer length: 32
 repeater length: 24

27551 3529 GTACTAACGACAAGAACTAAAAAC ACACTACACAATAGATATCGCTGATCGTGAAATGC spacer length: 35
 repeater length: 24
 27552 3589 GTACTAACGACAAGAACTAAAAAC TAGTTGCTGCTCTAATTTCTTAAGCCTTAGTT spacer length: 32
 repeater length: 24
 27553 3646 GTACTAACGACAAGAACTAAAAAC TTCTGGATCGCTTGGACTGCTGTGGTAGTAGTCTG spacer length: 35
 repeater length: 24
 27554 3706 GTACTAACGACAAGAACTAAAAAC ATTGCTTGCCAGATCGTTGAGCAAAGGTGATGATG spacer length: 35
 repeater length: 24
 27555 3766 GTACTAACGACAAGAACTAAAAAC TAGCGCATATTCCAGTTGCTTGTAGATTCTTAAAT spacer length: 35
 repeater length: 24
 27556 3826 GTACTAACGACAAGAACTAAAAAC GCCAATTCTCTGTTGGTAGCATCTCCTAGTGTAAGT spacer length:
 37 repeater length: 24
 27557 3888 GTACTAACGACAAGAACTAAAAAC AGTGGAATCCAGGCTACAACCAATATATTAGTGT spacer length: 34
 repeater length: 24
 27558 3947 GTACTAACGACAAGAACTAAAAAC ACTTGACTGATGCAGTACCCCAGTAATCGCCTCAT spacer length:
 37 repeater length: 24
 27559 4009 GTACTAACGACAAGAACTAAAAAC CTAAATCCAAACATCTCTGAAAGCTTATCGGTAA spacer length: 34
 repeater length: 24
 27560 4068 GTACTAACGACAAGAACTAAAAAC TAAAAACGACACGATGGTAGTGCAAACGGTTGAG spacer length: 34
 repeater length: 24
 27561 4127 GTACTAACGACAAGAACTAAAAAC ATAATGAGGGCTGGCGCTGCGCGGTTTGAAGTGAAG spacer length: 36
 repeater length: 24
 27562 4188 GTACTAACGACAAGAACTAAAAAC GCTCCTAGGGACTATTGGAGGGGCATTTATCTTAAG spacer length: 36
 repeater length: 24
 27563 4249 GTACTAACGACAAGAACTAAAAAC GAGGAGGGTAGGTTTGTGGGATGGCGATATCTT spacer length: 33
 repeater length: 24
 27564 4307 GTACTAACGACAAGAACTAAAAAC TTGTTCTCCCCATCTGACACTGTACCTTTCAGA spacer length: 33
 repeater length: 24
 27565 4365 GTACTAACGACAAGAACTAAAAAC CAAAATCCTAATTCTTTTCAAATTCCAGCTGGT spacer length: 33
 repeater length: 24
 27566 4423 GTACTAACGACAAGAACTAAAAAC ACCTTAATATTATTAGTTTGGTAAATGATCTCT spacer length: 33
 repeater length: 24
 27567 4481 GTACTAACGACAAGAACTAAAAAC TGGCTTTTCCAATACCCCCACAACAATATCAT spacer length: 35
 repeater length: 24
 27568 4541 GTACTAACGACAAGAACTAAAAAC ACGAGTATGTCTGCATAAAAAACAAACAAAGGTATTT spacer length:
 37 repeater length: 24
 27569 4603 GTACTAACGACAAGAACTAAAAAC ATTACTCACAATTGGTGTAGTTATAATTATCCTAT spacer length: 35
 repeater length: 24
 27570 4663 GTACTAACGACAAGAACTAAAAAC TGTTTTAATTTAGGATTTATTGGTGAATATGCAAT spacer length: 35
 repeater length: 24
 27571 4723 GTACTAACGACAAGAACTAAAAAC TTTCAACGTATTTGTATCCAAAATCTTGTTGACG spacer length: 34
 repeater length: 24
 27572 4782 GTACTAACGACAAGAACTAAAAAC ATGAAAATGAGATACGCCGTCTTAGATCAAAACAA spacer length: 35
 repeater length: 24
 27573 4842 GTACTAACGACAAGAACTAAAAAC ATTAGCCGTAAAGCATTTACAAGGACAAACACAA spacer length: 34
 repeater length: 24
 27574 4901 GTACTAACGACAAGAACTAAAAAC TGGTAACCCAATTATGAAATTGCCCCATACCAAT spacer length: 36
 repeater length: 24
 27575 4962 GTACTAACGACAAGAACTAAAAAC GCAAGCTGCCGAGTACCAGGTTGTCTCCAGGCTAGGCTTGT spacer
 length: 42 repeater length: 24
 27576 5029 GTACTAACGACAAGAACTAAAAAC GTGGTTACAGCAGCTTTCCAGTGTTATCTTGTACCAATATAT spacer
 length: 43 repeater length: 24
 27577 5097 GTACTAACGACAAGAACTAAAAAC ATTTTCAGGGTTCTCTCCTAGCTCGATCCACGCTT spacer length: 34
 repeater length: 24
 27578 5156 GTACTAACGACAAGAACTAAAAAC ATAGCAGAAGGTGGTATGTTAAACATAGTAGCAG spacer length: 34
 repeater length: 24
 27579 5215 GTACTAACGACAAGAACTAAAAAC TACTTGCCGTTAAGCCTGAAAACACTGCCATTGAT spacer length: 35
 repeater length: 24
 27580 5275 GTACTAACGACAAGAACTAAAAAC TTTGACGCTCCTGCAGGACTTCGATTCGAGATAG spacer length: 34
 repeater length: 24
 27581 5334 GTACTAACGACAAGAACTAAAAAC GTTTCGTATGAATATACTTTGTTATCGATAGGAT
 27582
 27583
 27584 crispr 6
 27585 2651049 CTTTCAATCCCGTATGGGATGCATC TTCTCTCTCGTTTTTTTCTCCCTGTGCCGTTAATGGA spacer
 length: 37 repeater length: 25
 27586 2651112 CTTTCAATCCCGTATGGGATGCATC AATTGTGTAAAATCAAAGTTAGATTTGAAGGGGGTGTAG spacer
 length: 40 repeater length: 25
 27587 2651178 CTTTCAATCCCGTATGGGATGCATC CATGGCGATAAATATGAGACCAATTCCTTACCATTTTG spacer
 length: 40 repeater length: 25
 27588 2651244 CTTTCAATCCCGTATGGGATGCATC ATTCGCAAATAGATATCTCGGTAACAACGAATCA spacer length:

34 repeater length: 25

27589 2651304 CTTTCAATCCCGTATGGGATGCATC TATGGGATATCCCATTGTTTATGCGAATAAGCGAGAAAT spacer
length: 39 repeater length: 25

27590 2651369 CTTTCAATCCCGTATGGGATGCATC TTGAAGATTGTAAGAGATTAACAAACGGCTGGAAATATAT spacer
length: 40 repeater length: 25

27591 2651435 CTTTCAATCCCGTATGGGATGCATC CTTAGGCGTACCTAATGGAGCACAAAGTAGCCATATTCTT spacer
length: 40 repeater length: 25

27592 2651501 CTTTCAATCCCGTATGGGATGCATC GAAATATATTGTAAGTATATTTTCAGATAAAGAAATTTGCA spacer
length: 40 repeater length: 25

27593 2651567 CTTTCAATCCCGTATGGGATGCATC TTTTACTGGGGAGTAAAATACAAAAATACGAGGAGTGTGC spacer
length: 41 repeater length: 25

27594 2651634 CTTTCAATCCCGTATGGGATGCATC AAAAAACATCATCGACTATATCTCTTACAATTTGATT spacer
length: 37 repeater length: 25

27595 2651697 CTTTCAATCCCGTATGGGATGCATC ACTATTGAAGCTACTGTTGGTAGAGTTGCAGAAATCC spacer
length: 37 repeater length: 25

27596 2651760 CTTTCAATCCCGTATGGGATGCATC ATTAAGAAGTTTTGAGAATATTATCGATAGGCTTATTG spacer
length: 38 repeater length: 25

27597 2651824 CTTTCAATCCCGTATGGGATGCATC TTGAACCAAAAATTAAATTTTCTCTCTCTCATCTC spacer length:
35 repeater length: 25

27598 2651885 CTTTCAATCCCGTATGGGATGCATC TACTAGAGTGTGTTAGTTTTTACTTAGAGGTGGAAAAA spacer
length: 38 repeater length: 25

27599 2651949 CTTTCAATCCCGTATGGGATGCATC AAGAAACAACCTGAGGTAATCAGTGTAGCTGAGGTTCTGCTA spacer
length: 43 repeater length: 25

27600 2652018 CTTTCAATCCCGTATGGGATGCATC AGACGAGATAGTGAAGTTAAAGCCAATAAAGGTATACTAC spacer
length: 40 repeater length: 25

27601 2652084 CTTTCAATCCCGTATGGGATGCATC AATAATCGTCACCGACATCCACCCCTACTACGGGCTAA spacer
length: 38 repeater length: 25

27602 2652148 CTTTCAATCCCGTATGGGATGCATC TTGAACCAAAAACGGGCGAGATACTGAGAGAGA spacer length:
33 repeater length: 25

27603 2652207 CTTTCAATCCCGTATGGGATGCATC ACCACCTAATTATTGCGTCTTTCGCGTCTGGGCTCTTC spacer
length: 38 repeater length: 25

27604 2652271 CTTTCAATCCCGTATGGGATGCATC CACTCATTTCTCTACGCCTCGGCTAATATATCGTTCTATTTT spacer
length: 42 repeater length: 25

27605 2652339 CTTTCAATCCCGTATGGGATGCATC AATGTTGGCAGCAAGACCAATAAGTTTTGAGGAATT spacer
length: 36 repeater length: 25

27606 2652401 CTTTCAATCCCGTATGGGATGCATC TTGATAGAGACGTATTTCAAAAAATACCCAGGGCAAG spacer
length: 37 repeater length: 25

27607 2652464 CTTTCAATCCCGTATGGGATGCATC GCATATTTTACAAAATCTGGTAAAGAAATGAAATATTGTAA spacer
length: 41 repeater length: 25

27608 2652531 CTTTCAATCCCGTATGGGATGCATC ATAAGGCAAGTAGGGAAGAAGTACCAAGCATATCTTT spacer
length: 37 repeater length: 25

27609 2652594 CTTTCAATCCCGTATGGGATGCATC CAGATAGAGCCTTTCAACCCAGATGTCTCATCTCTTTTCCCT spacer
length: 42 repeater length: 25

27610 2652662 CTTTCAATCCCGTATGGGATGCATC TAAATCTGGGGGGCTACTGATTTTCATGGCTTGTACTAACGA

27611

27612

27613 crispr 7

27614 2639138 GACGCATCCCATAAGGGATTGAAAG TAAAGTGAAATATTAGAAACACTAATTGGAATTAATAGATTTT spacer
length: 43 repeater length: 25

27615 2639207 GACGCATCCCATAAGGGATTGAAAG GTTTTGTGTGAAAAGCTTATCTTTATTGAAAATTAT spacer
length: 36 repeater length: 25

27616 2639269 GACGCATCCCATAAGGGATTGAAAG ACTGTATATAGTACGTTACCCGTAGCTTGTGTTTGAGATA spacer
length: 40 repeater length: 25

27617 2639335 GACGCATCCCATAAGGGATTGAAAG ATGTTTTGTAGTTTAAGAAATGGAACCTAGGTACTCTCG spacer
length: 39 repeater length: 25

27618 2639400 GACGCATCCCATAAGGGATTGAAAG GTAACTTTTCCCCGTTTTTCTCATGAAGTTTACGAGAAA

27619

27620

27621 crispr 8

27622 2658195 GATGCATCCCATACGGGATTGAAAG ATATTCCGGATGAAAAGGCATATGAAAAGTTAAAGGCGA spacer
length: 39 repeater length: 25

27623 2658260 GATGCATCCCATACGGGATTGAAAG AATCATAAAAAGCATTGATTTTGGCGCGTTAGCGCTT spacer
length: 38 repeater length: 25

27624 2658324 GATGCATCCCATACGGGATTGAAAG AACTCAAAATCGCTGTATATCCCTCGCCGGCTCTATGAG spacer
length: 39 repeater length: 25

27625 2658389 GATGCATCCCATACGGGATTGAAAG CATTACTAGTTTTCTCCATGTTAACGTCCACCACATC spacer
length: 37 repeater length: 25

27626 2658452 GATGCATCCCATACGGGATTGAAAG TTTTATACAATATTGTTAAGAAACATACCAATACTT spacer
length: 37 repeater length: 25

27627 2658515 GATGCATCCCATACGGGATTGAAAG
TATTAAACCAACGACTCCTTACGAATAGAGAGATAGAGATGCATCTCATACGGGATTGAAAGTGTGCTGTGATATTTGTATCAGTA

AGCAATTTATCTAACAAAC spacer length: 104 repeater length: 25
 27628 2658645 GATGCATCCCATACGGGATTGAAAG GTCAATAGCTCACCCCATATAACAGCTCATAATA spacer length: 34 repeater length: 25
 27629 2658705 GATGCATCCCATACGGGATTGAAAG GCTTTTGGATATTGCTTTTGGACTTCCTGTAACAGTGAAAT spacer length: 41 repeater length: 25
 27630 2658772 GATGCATCCCATACGGGATTGAAAG AAAATCTTCACCCCTTCCATGAGATGGATATAGAGCAAT spacer length: 39 repeater length: 25
 27631 2658837 GATGCATCCCATACGGGATTGAAAG GGTACAACCTGGGTTTCATTTCCCCAGTGTCTTCTGGCT spacer length: 37 repeater length: 25
 27632 2658900 GATGCATCCCATACGGGATTGAAAG AATCTACAGTTTTTATCGCTGTGTGTACAATTATTTCTAA spacer length: 40 repeater length: 25
 27633 2658966 GATGCATCCCATACGGGATTGAAAG TGAAAAAATTTCACTTTGGAAACCGTCTTGATATATTAT spacer length: 39 repeater length: 25
 27634 2659031 GATGCATCCCATACGGGATTGAAAG TTACTTAATTTCGAATGTTCCATAATTCACAAAGACTTTA spacer length: 39 repeater length: 25
 27635 2659096 GATGCATCCCATACGGGATTGAAAG AAATAAGCATGACCTTTTATCGTGCCAAACATATAATCA spacer length: 39 repeater length: 25
 27636 2659161 GATGCATCCCATACGGGATTGAAAG AGAATCACTAGGAGAAGGAGTAAGTAAAGGAGTAGTAAAAG spacer length: 41 repeater length: 25
 27637 2659228 GATGCATCCCATACGGGATTGAAAG GACCAACAATCAATGCCAAGTTTGGCATATCATAGCCA spacer length: 38 repeater length: 25
 27638 2659292 GATGCATCCCATACGGGATTGAAAG ACTGTGGCATATGTTAACCTAGCCACAATGACTAAAA spacer length: 37 repeater length: 25
 27639 2659355 GATGCATCCCATACGGGATTGAAAG AATGACCCTGATAATGGTATATGGAGTTTAGGTTTTTACA spacer length: 40 repeater length: 25
 27640 2659421 GATGCATCCCATACGGGATTGAAAG TTACTTAATTTCGAATGTTCCATAATTCACAAAGACTTTA spacer length: 39 repeater length: 25
 27641 2659486 GATGCATCCCATACGGGATTGAAAG AAATAAGCATGACCTTTTATCGTGCCAAACATATAATCA spacer length: 39 repeater length: 25
 27642 2659551 GATGCATCCCATACGGGATTGAAAG AAAAGTAAACTAATTGGGGGCTAATAATAGGCGTAGTA spacer length: 39 repeater length: 25
 27643 2659616 GATGCATCCCATACGGGATTGAAAG CTGTTATCGAGATATAATGATATTCTCCCATTCTGTA spacer length: 37 repeater length: 25
 27644 2659679 GATGCATCCCATACGGGATTGAAAG ATAATGTCTTTATTTGAACTACAGAGGAATGGATGTCT spacer length: 38 repeater length: 25
 27645 2659743 GATGCATCCCATACGGGATTGAAAG TACAATTTCCAGCACGTGAGACATACCCACTATGTCTA spacer length: 38 repeater length: 25
 27646 2659807 GATGCATCCCATACGGGATTGAAAG TAATTTTTATAATTTTCATCAGCAGTAACACGATAAA spacer length: 36 repeater length: 25
 27647 2659869 GATGCATCCCATACGGGATTGAAAG ATGTCTCATCGTCGGCAGACAGTGCTCTATTCATCTCA spacer length: 38 repeater length: 25
 27648 2659933 GATGCATCCCATACGGGATTGAAAG ATCAGTGGCTTCAGTCTTCTCTTATAATTCTCATACC spacer length: 37 repeater length: 25
 27649 2659996 GATGCATCCCATACGGGATTGAAAG TATGTAAAATTTAGGGAAAATACCTAGAGGTCCAGTAAGA spacer length: 40 repeater length: 25
 27650 2660062 GATGCATCCCATACGGGATTGAAAG AGTATATGTTCAACAGCTGAGAGACATTAACATTTTGC spacer length: 38 repeater length: 25
 27651 2660126 GATGCATCCCATACGGGATTGAAAG AATTAATATATCTTCTGCGAGAGTTAGAGCCATTTTT spacer length: 37 repeater length: 25
 27652 2660189 GATGCATCCCATACGGGATTGAAAG TTGAACAGTAAGCCTTATCAAACGGCATATCCAGATG
 27653
 27654
 27655 crispr 9
 27656 2662075 GATGCATCCCCAACGGGATTGAAAG CTGTGATGTTTCTCATGTTATATATGTCCAGCTTCCATTC spacer length: 40 repeater length: 25
 27657 2662141 GATGCATCCCCAACGGGATTGAAAG TTATTTCCCTAAAATTTGGATGTGCCTACTGGTATG spacer length: 35 repeater length: 25
 27658 2662202 GATGCATCCCCAACGGGATTGAAAG AGACATCCCCCTTTCTTTCCCTAACCACTCTGGCTTAAA spacer length: 39 repeater length: 25
 27659 2662267 GATGCATCCCCAACGGGATTGAAAG ATTGCTAACCAGTACTCATCTGTTCTTTTCTTTTCCCG spacer length: 40 repeater length: 25
 27660 2662333 GATGCATCCCCAACGGGATTGAAAG CTCTACTATTTGATTTGCGATGTTTCATAGCGTCGTTTTCA spacer length: 40 repeater length: 25
 27661 2662399 GATGCATCCCCAACGGGATTGAAAG ATTGAGAAGACCCTGAGGAGCCAGAAGTTTGGATGCATCC
 27662
 27663
 27664 crispr 10
 27665 2671420 TGTTTTAGTTTCTTGTCTGTTAGTACTA
 AGTAATTTCCCCGCGACACAAAACGTAAGTATGTTTTAGTTTCTTGTCTGTTAGTACAATTTAGCCCGTTGAGAATAGTGTTCGGA
 TGTTGGGTTTTAGTTTCTTGTCTGTTAGTACAACATTACTAGGTTTGGAAACATGTATTTCTAT spacer length: 149
 repeater length: 27

27666 2671597 TGTTTTAGTTTCTTGTGCTTAGTACTA
 GGTTACCAAAAGCGTTACCTCCTCCAGTCTGGATGTTTTAGTTTCTTGTGCTTAGTACGAATGCCCGTACCCGTCGCGGTTGGAAT
 TATAA spacer length: 91 repeater length: 27
 27667 2671716 TGTTTTAGTTTCTTGTGCTTAGTACTA
 CCCCTTTGCTATCTCTTTTACCTGTGTGCGCCGATGCATCCCATAGGGATTGAAAGTGATTCTGTTAAATCGGGGAATTTAACGCG
 TTCAA
 27668
 27669
 27670 crispr 11
 27671 2673034 TTAGTTTTAGTTTCTTGTGCTTAGTACAT
 TATGAATCACCACCTCACGAACAAGACCCCTTATGTTTTAGTTTCTTGTGCTTAGTACCTTGCGTAGAGCAAGTATATATAATAAGGA
 TATTTGTTTTAGTTTCTTGTGCTTAGTACGAGGTATTGGTGGTGTCCAGGGGCTAAGATT spacer length: 147
 repeater length: 29
 27672 2673211 TTAGTTTTAGTTTCTTGTGCTTAGTACAT
 CTCAAGTATGAGGATTACGAATTACTAGGTGAGTGTGTTTTAGTTTCTTGTGCTTAGTACTTCTCATCTCCTTTAGTATTTCTTCCAT
 ATCT spacer length: 90 repeater length: 29
 27673 2673331 TTAGTTTTAGTTTCTTGTGCTTAGTACAT
 ATATTGTTGTAGTATGTCTAACGCCCTTTAAGATGCATCCCATAGGGATTGAAAGCCTAGACTTCCTACTGCCACTAAATATACCG
 TAAC
 27674
 27675
 27676 GCA_001742785.1_ASM174278v1_genomic.fna(findCrispr):
 27677 START REPEAT
 SPACER
 27678 crispr 1
 27679 1279609 GAAAAACAACGGCAGTATAGAATGCTGGGG
 GAATAATGACTACGGCCAGTCCGCAGGCTACACCGGAACCGACGCATCGGCGGTATCGGCGGGAGGGTGGCACACCTGCGCCC
 spacer length: 83 repeater length: 30
 27680 1279723 GAAAAACAACGGCAGTATAGAATGCTGGGG
 GGATAGTGACTTCAGCCAGTCCGCAAACCTACACAGGAACCGACGCAGCAGCGGTATCGGCGGGAATGTACCACACATGCGCCC
 spacer length: 83 repeater length: 30
 27681 1279837 GAAAAACAACGGCAGTATAGAATGCTGGGG
 GATAATTACTACGGCCAGTCCGCAAACCTACGCCGGACTTTTACCGAGCAATTTTTATACAAACCTTACGAACAATACAATCTC
 27682
 27683
 27684 crispr 2
 27685 794469 CGTCGATCTTCCCACCCAGAGTTTCGCCCATGG TGTCGATCTTTCGCGCGAGA spacer length: 20
 repeater length: 33
 27686 794523 CGTCGATCTTCCCACCCAGAGTTTCGCCCATGG
 TGTCGAATCTTGCCGCCATATGGTTTCGCCCATGGTGTCTNATCTTGCCGCGCGAGA spacer length: 53 repeater
 length: 33
 27687 794610 CGTCGATCTTCCCACCCAGAGTTTCGCCCATGG
 ATTACTACGGCCAGTCCGCAAACCTACGCCGGACTTTTACCGAGCAATTTTTAT
 27688
 27689
 27690 crispr 3
 27691 1058821 AAGTCCGTGTCGTTGTGCGCCGTCGAAGTCCGCCGA
 CGTCAGCCCGCGGCGTACGAGCCACATCCGTTATTATGCCCTGGGATGTAAACCCTCCTGCGCCGTTGTTAAAGAAGACCTCCA
 CTTGTCCGGCATAATCCCCGACCAG spacer length: 111 repeater length: 35
 27692 1058968 AAGTCCGTGTCGTTGTGCGCCGTCGAAGTCCGCCGA
 TGTAACCCCCATGCATAAAAGCCGACATCGTCCACCCATACAGGGGACGCAAAGCCCCCGTTCCGTTATTTAAAAAGAGATCTA
 TCTGTCCGTCATAATCCCCCACAAG spacer length: 111 repeater length: 35
 27693 1059115 AAGTCCGTGTCGTTGTGCGCCGTCGAAGTCCGCCGA
 ACTACGGCCAGTCCGCAAACCTACGCCGGACTTTTACCGAGCAATTTTTATACAAACCTTACGAACAATACAATCTCAGGCTGCGCT
 TACGGGATAAAACTCGAAGGCATGG
 27694
 27695
 27696 crispr 4
 27697 850904 CGCCTTGTTCTGCTTGCCGTCAGTGCATGTTTCCGTTGG
 TGGGCATGCTGCGCATGGTCCGCGCAGTCAACTCCTGTC spacer length: 40 repeater length: 40
 27698 850985 CGCCTTGTTCTGCTTGCCGTCAGTGCATGTTTCCGTTGG
 TGGACATGCTGCGCATGGTCCGCGCAGTCAACCCCTGTC spacer length: 40 repeater length: 40
 27699 851066 CGCCTTGTTCTGCTTGCCGTCAGTGCATGTTTCCGTTGG
 GCCAGTCCGCAAACCTACGCCGGACTTTTACCGAGCAATTT
 27700
 27701
 27702 GCA_001761425.1_ASM176142v1_genomic.fna(findCrispr):
 27703 START REPEAT
 SPACER
 27704 crispr 1
 27705 798759 GTTCTAATACTTCTAAAGTTCAATTGAAAG TGTTTTAGAACCTTTAGACAATGCTACATGGATAT spacer

length: 35 repeater length: 30
27706 798825 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TAGGCAAGAAATGGGTGGAAACGGTCGTAATTTAC spacer
length: 35 repeater length: 30
27707 798891 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TTATCATCGTGACAAGCATTCTGGAGATTTCGCGT spacer
length: 35 repeater length: 30
27708 798957 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TGATGTCAAGGTAAGGGAAAGTAGCCATGGAGACA spacer
length: 35 repeater length: 30
27709 799023 GTTCTAATACTTCTAAAAGTTCAATTGAAAG GCCTGAATCATTCCGCAACGGCCTCCTTAACACGTC spacer
length: 36 repeater length: 30
27710 799090 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CTAGTCGGATCTCCCTCTTCTCCAAAGTCAGGCCT spacer
length: 35 repeater length: 30
27711 799156 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CATGAGCTGGGAAGGCGGACGCAGCCGTATTTCGGC spacer
length: 35 repeater length: 30
27712 799222 GTTCTAATACTTCTAAAAGTTCAATTGAAAG AGCAGTATCAGCAGCTAAAAAACTGAACGAACAGC spacer
length: 36 repeater length: 30
27713 799289 GTTCTAATACTTCTAAAAGTTCAATTGAAAG AGGCCTTAGCTCAGATGGCAGCTCATCCTGACCTC spacer
length: 35 repeater length: 30
27714 799355 GTTCTAATACTTCTAAAAGTTCAATTGAAAG ACCTGATCCGTTGTATTCCAGAGCGTTGTAGAATT spacer
length: 35 repeater length: 30
27715 799421 GTTCTAATACTTCTAAAAGTTCAATTGAAAG ATTTTCAGGTTTTTCAGGGTTCTCAGCTCTTGTACCT spacer
length: 35 repeater length: 30
27716 799487 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CGGTTAGCGGTCGAGGAAGTGAAGAGCCCAGTGTG spacer
length: 36 repeater length: 30
27717 799554 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TTATCTTCTTCGATGAGGCGAAGACGATTTTCTCA spacer
length: 35 repeater length: 30
27718 799620 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TTGATAGCGATGAGGATGATGGAAGGTTTCAACCA spacer
length: 35 repeater length: 30
27719 799686 GTTCTAATACTTCTAAAAGTTCAATTGAAAG AGTCACGGGCCTCAGCCATCGCATGCTTCCCATAGT spacer
length: 36 repeater length: 30
27720 799753 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TAATTTTATCAGTACCTGCTTCAGCAATAGCAGCA spacer
length: 35 repeater length: 30
27721 799819 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CCACCTGAGAACTCATACCGTGAAGTGTGAGAGTCC spacer
length: 36 repeater length: 30
27722 799886 GTTCTAATACTTCTAAAAGTTCAATTGAAAG GCCCGATCGGCATAGTGATCTGGAGCTACCTGCTCT spacer
length: 37 repeater length: 30
27723 799954 GTTCTAATACTTCTAAAAGTTCAATTGAAAG GACTGGATCAGCCAGTAGTCCGAGGATGCTGTATG spacer
length: 35 repeater length: 30
27724 800020 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TCAAGCTCCGGCCATTTCCCTTATCCTTCTGTGCA spacer
length: 35 repeater length: 30
27725 800086 GTTCTAATACTTCTAAAAGTTCAATTGAAAG TCGTTGAAAAAGATTGAAGAAGGCGAATTCTTTCCC spacer
length: 36 repeater length: 30
27726 800153 GTTCTAATACTTCTAAAAGTTCAATTGAAAG CATATTTTGGGTTATATGGCGCTATATCAGTTGTTT
27727
27728
27729 GCA_001767315.1_ASM176731v1_genomic.fna(findCrispr):
27730 START REPEAT
SPACER
27731 crispr 1
27732 1568087 GTTCAAATCCCTCCCGGCCCCG
CTTCTGCGACGAACGTAGGTGAGGAGCGATGCGGCCAGGAGGATTTGAATCCTGGAAGAGGAGCGACCGCCGGGAGCGAGTCTTCC
TTC spacer length: 89 repeater length: 21
27733 1568198 GTTCAAATCCCTCCCGGCCCCG
TGAACCGCCGAACGCCAGTGAGGCGGTGAACGGCGAGGGATTTGAATTAAAGAAACGCGAGCGGAGCGAGCGTTTACGT
spacer length: 81 repeater length: 21
27734 1568301 GTTCAAATCCCTCCCGGCCCCG
TGTTTTCTGCGAACGAAGTGAGCAGAAAACCGGCTGCGGTTTTGAACCCAGGAAACCGAGCGAGCGAAGCGAGTGAGGTTTGCCT
T spacer length: 87 repeater length: 21
27735 1568410 GTTCAAATCCCTCCCGGCCCCG
TGTTTTCCGGCGAACGAAGTGAGCAGAAAACCGGCTGCGGTTTTGAACGAGGCCGAGGTTCTGCCACCGGCAGGTTCTCGGACGT
spacer length: 85 repeater length: 21
27736 1568517 GTTCAAATCCCTCCCGGCCCCG
ACGAGGAAAGCAGCGAGGACGGGGACGACGACCCGACGGGCACTGAGTCGACCACTGAACTGACGGCGACGGAGCCCACAGCAAC
27737
27738
27739 crispr 2
27740 107232 GTCCGGGTGCGAGAATTGAACC
CGATGGCGAGACTCGCTGCTGCTCGTCTCGCGTGATTCAATTCTCGCCTTCCGGTTTTTCCACTCCTCGCTTTGCTCGTCGGGAAA
spacer length: 86 repeater length: 22
27741 107341 GTCCGGGTGCGAGAATTGAACC
GAATGTAGGCGTGCTCGCTCGCATTCGCTCGCTGTGCGCGCCTTCCAGGGTTCAATTCTCTCCCAGGACGCTCTCACCCTCACGC
ACTCGCCCGGCTCCTGACGAGCACGGGCTCGTGTATTGTTTCGCGAAAGAA spacer length: 137 repeater

length: 22
27742 107501 GTCCGGGTGCGAGAATTGAACC
AGACGAGGAAAAGCAGCGAGGACGGGGACGACGACCCGACGGGCACTGAGTCGACCACTGAACTGACGGCGACGGAGCCCACAGCAA
CCGAATCGACCGACACAAACGTAAACCAGAACGAGACGGTCGACTAGTCTC

27743
27744
27745 crispr 3
27746 550707 TGCGCGGGACAGGATTCGAACC
AAAGGAAGACTCGCTCGTACCTCGCTCGTCTTCCAGGGCTCGAACCTGTCTCTGCTCGTTCACTTCGGGCAGCGGAGCTGCCCTTCG
TTCA spacer length: 90 repeater length: 22

27747 550820 TGCGCGGGACAGGATTCGAACC
ACGGTCGGAGCAAAGCTCCTCCCTGCTTCGAATCCGTGCCTGCTCGTTCGCTCGCTACGCTCGCTCACTGCTCACGGGTCGTTCTCCT
CCCCGTTTCGCCACCCGAGGTCTCACTTCGTTTCGACCTCGCA spacer length: 127 repeater length: 22

27748 550970 TGCGCGGGACAGGATTCGAACC
TGAAGACGAGGAAAAGCAGCGAGGACGGGGACGACGACCCGACGGGCACTGAGTCGACCACTGAACTGACGGCGACGGAGCCCACAG
CAACCGAATCGACCGACACAAACGTAAACCAGAACGAGACG

27749
27750
27751 crispr 4
27752 324904 GTGCGCTGGCGGGGATTTGAACC
AGACCTTCACAGCCGATAGCGGTCTTTTTCCCCAAGTTTTTTCGAGGGGCTGCGGAGCAGCCCCCTCGGAAAAAGTGGGGCTCACGGG
TCGTCCCTCCCCGTTCGCCGTATCGAGGCGCTCGCTCAGCTCGCGCCTCGC spacer length: 137 repeater
length: 23

27753 325065 GTGCGCTGGCGGGGATTTGAACC
GAAATCAGCCGTGCTCGTCCGCTGCGCGCGCCTGATAGGGTTCAAATCCCAGCCGCATTCATCACCCGAGTTCACGGCTCGCGAC
ACAGCAAGCTGGTTCGCTCGCCGGTGAACGTTTCTGAGA spacer length: 124 repeater length: 23

27754 325213 GTGCGCTGGCGGGGATTTGAACC
GAGGACGGGGACGACGACCCGACGGGCACTGAGTCGACCACTGAACTGACGGCGACGGAGCCCACAGCAACCGAATCGACCGACAC
AAACGTAAACCAGAACGAGACGGTCGACTAGTCTCGGC

27755
27756
27757 crispr 5
27758 843117 CGACAGCGATGAGGACGCTGAAGA CGAGGAAAGCATCGAGGACG spacer length: 20 repeater
length: 24
27759 843162 CGACAGCGATGAGGACGCTGAAGA CGAGGAAAGCATCGAGGACG spacer length: 20 repeater
length: 24
27760 843207 CGACAGCGATGAGGACGCTGAAGA TGAGGAAAGCAGCGAGGACG spacer length: 20 repeater
length: 24
27761 843252 CGACAGCGATGAGGACGCTGAAGA TGAGGAAAGCAGCGAGGACG spacer length: 20 repeater
length: 24
27762 843297 CGACAGCGATGAGGACGCTGAAGA GAAAGCAGCGAGGACGGGGA

27763
27764
27765 crispr 6
27766 1568197 GGTTCAAATCCCTCCCGGCCCGTG
AACCGCCGAACGCCAGTGAGGCGTGTGAACGGCGAGGGATTTGAATTAAAGAAACGCGAGCGGAGCGAGCGTTTCACG
spacer length: 78 repeater length: 24

27767 1568300 GGTTCAAATCCCTCCCGGCCCGTG
TTTTCTGCGAACGAAAGTGAGCAGAAAACCGGCTGCGGTTTTGAACCCAGGAAACCGAGCGAGCGAAGCGAGTGAGGTTTTCGCT
spacer length: 84 repeater length: 24

27768 1568409 GGTTCAAATCCCTCCCGGCCCGTG
CTGAAGACGAGGAAAAGCAGCGAGGACGGGGACGACGACCCGACGGGCACTGAGTCGACCACTGAACTGACGGCGACGGAGCCCA

27769
27770
27771 GCA_001870125.1_ASM187012v1_genomic.fna(findCrispr):
27772 START REPEAT
SPACER

27773 crispr 1
27774 2658543 AGCAAGACTAACACTATTAT
TGGTACGATTGATGTGGGTGCTCCTGCGCGTATTTTGAATTTAACCCCGGAAATGAAAATCTGTATGTTGCTAATGGAGATGCCA
TAGACCATCCAGTAAACTCCGTAGTGAAAGTGATAGA spacer length: 123 repeater length: 20

27775 2658687 AGCAAGACTAACACTATTAT
AGATACAATAGAAAACGCAAGTAGTCTACCTACAGATATCGAATACAACCCTTCAAACGAAAATATGTACGTAGCTAATAGAGGAA
CAAACCTCTATAACAGTGATTGA spacer length: 108 repeater length: 20

27776 2658816 AGCAAGACTAACACTATTAT
GGTGGAACACAGCAGGTTTCAGGAAACAACCAAAATACACAAAGTCAAATAACACGGGTAATAACGCAGCAGCCCAACAATAATC
TTTTTTTATCACAAAAAAAATA

27777
27778
27779 crispr 2
27780 508140 CCACCGCCACTGCTGCGACC ATAGCCACCGCCACCGCCACCGTAGCC spacer length: 27 repeater

length: 20
27781 508188 CCACCGCCACTGCTGCGACC GTAGCTGCTGCGACCATAGCCACCACC spacer length: 27 repeater
length: 20
27782 508236 CCACCGCCACTGCTGCGACC GTAGCTGCTGCGACCATAGCCACCACC spacer length: 27 repeater
length: 20
27783 508284 CCACCGCCACTGCTGCGACC GTCAAAATAACACGGGTAATAACGCAG
27784
27785
27786 crispr 3
27787 221514 ATAACCTTGTTAGTATCGCTGT
TTATCACAACCTACCTTACCACTTCCATCGGAGTTGGAAATGGAGGTAACATAGATATCACCATTACTTGGGTTGTAAACGAGATTT
TGCAGATTGTCTCCAGTCTCAACAGTGTT spacer length: 115 repeater length: 22
27788 221652 ATAACCTTGTTAGTATCGCTGT
CTATTACAGATATATCCCCTGATTTCGGAGTTGGCCACATAGATATCACCATTACTTACGCTGTATTCTAAAGCATTAGGACTACTT
CCTACTTGTTATTGTGCT spacer length: 103 repeater length: 22
27789 221778 ATAACCTTGTTAGTATCGCTGT
GGTCAGTCACAAACCTCTAACCAAAATGCACAATGTGTATCCGGTGGAAATGTAGCCGATTTCGTGTAATAATACTAGCACTCAAAA
CCAAGCAAACACAGGTA
27790
27791
27792 crispr 4
27793 501870 TGTCATTGTCATCATTATCATC GTCATTGTCTTTGTCTCTTGCATCC spacer length: 25 repeater
length: 22
27794 501918 TGTCATTGTCATCATTATCATC GTCATTGTCTTTGTCTCTTGCATCT spacer length: 25 repeater
length: 22
27795 501966 TGTCATTGTCATCATTATCATC GGTCAGTCACAAACCTCTAACCAAA
27796
27797
27798 crispr 5
27799 654592 CCCAAAGGCGTAGCAGTGGATGC
CTCAGGCTATGTGTACGTAGCTGACGATGCAAAGCATCGCATTTCAGAAATCTGATACAAATGGAAATTTTAGAAAAGAATGGGGAG
AAGAAGGCTCTGACAAAGCGGAGTTCAAGTT spacer length: 117 repeater length: 23
27800 654733 CCCAAAGGCGTAGCAGTGGATGC
TTCAGGCTTTGTATATGTAGCTGATGATGGCAACTGCCC GCGTTCAAAAGTTTGACACCAACGGCAACTTCATCAGTGA CTGGGG
CGCAAAGGCTCTGACAAAGCGGAGTTCAAGTT spacer length: 118 repeater length: 23
27801 654875 CCCAAAGGCGTAGCAGTGGATGC
GCAACACAGCAGGTTTCAGGAAACAACCAAAATACACAAAGTCAAATAACACGGGTAATAACGCAGCAGCCCAACAATAATCTTTT
TTTATCACAAAAAAAATAGTACTTCTCTGTTA
27802
27803
27804 crispr 6
27805 1255244 GCCTGTTACGACAAGGCCATTGAAA
TTAATCCTGAATACGATTTAGCATATTATAACAAAGGTATAGTACTATCTGTGACAGGAAATAATCAAGAGGCCAT spacer
length: 76 repeater length: 25
27806 1255346 GCCTGTTACGACAAGGCCATTGAAA
TTAATCCTCAGTACGCAGACGCCTACAACAATAAGGGACTATCTTTGTATTACCTTGGAAATAATCAAGAGGCCAT spacer
length: 76 repeater length: 25
27807 1255448 GCCTGTTACGACAAGGCCATTGAAA
TTCAAACAATGCGGGAAAGACTTCTTTTCCAAAGATTTCTTCCTCTCAAGAAAATGTCTATGTAGCGTGGAATATT
27808
27809
27810 crispr 7
27811 1523902 TGATAACGACAGTAGCAGTAGCAGTAG CAGAAATGACGATGACGATG spacer length: 20 repeater
length: 27
27812 1523950 TGATAACGACAGTAGCAGTAGCAGTAG CAGAAATGACGATGACGATG spacer length: 20 repeater
length: 27
27813 1523998 TGATAACGACAGTAGCAGTAGCAGTAG CAGTAGCAGAAATGACGATGACGATG spacer length: 26
repeater length: 27
27814 1524052 TGATAACGACAGTAGCAGTAGCAGTAG CTCTAACCAAAATGCTCAATGTGTAT
27815
27816
27817 crispr 8
27818 1744872 GTTTTAATCGAACTATTATAGGATTGAAAT CAGAAAATCGTCAACTATACCAATAATGACCAATCAG spacer
length: 37 repeater length: 30
27819 1744940 GTTTTAATCGAACTATTATAGGATTGAAAT AGTGTGGAGTCAAGTGGAGAGCCAAGTGTGGGACCA spacer
length: 36 repeater length: 30
27820 1745007 GTTTTAATCGAACTATTATAGGATTGAAAT CTGGTAAAGATGCAATCGTATCATGTGATAACGAGA
27821
27822
27823 crispr 9
27824 1080996 TCTGCAAACCAGGGTATAGCCAATCACAATC

CTCTAACCAATTTGCCGGATGTGTTTCTGGTGGCGATGTAAATGAATCATGTAATAATCTTAACATACAAAGTCAGGAAAACATCG
GTAGTAACGCTGCAGCACAAAGCAGGAGGTAATGGAAAATACAGCGGTAA spacer length: 135 repeater
length: 32

1081164 TCTGCAAACCAGGGTATAGGCCAATCACAATC
TTCCAACCAAAGAAGCCAGTGTGTAGCCGGCGGTGACGTAGACGAATCATGCAACAATATCAGTGTGCAAGACCAATTCAATGAAG
GAAGCAATGCAGTAGCACAAAGATGGTGGTAATGGAAAATACAGCGGTAA spacer length: 135 repeater
length: 32

1081332 TCTGCAAACCAGGGTATAGGCCAATCACAATC
CTCTAACCAAAGAAGCCAGTGTGTTTTCAGGTGGAGATGTAAGCGACTCTTGCAACAACCTAAGTGTTCAAAGTCAGGTAAATACTG
GCAGTAACGCTGCAGCACAAAGATGGTGGTAATGGAAAGGGTAGTGGCAA spacer length: 135 repeater
length: 32

1081500 TCTGCAAACCAGGGTATAGGCCAATCACAATC
CTCTAACCAAAGAAGCCAATGTGTAGCCGGCGGTAGTTTACACAACCTCTTGTAACAATCTTAGCTTCCAAAATCAAGAAAACACCG
GTGGTAACGCTGCAGCACAAAGTGGTAGTGGTGGCAA spacer length: 123 repeater length: 32

1081656 TCTGCAAACCAGGGTATAGGCCAATCACAATC
GTTGTGAAAGTCAAGATAGTGGTAGCAGCGGCGATCTGAACTGCAGTGATATTGGAGGCACAAATGTTGCAGTTGGAAACAATGAT
CCAAATAACCTTGATGCTGATGGTGGTATAGGCT

crispr 10
2759799 TAGATACTTGTGTTGTGTTTGGTTGGCTTGTG CAAGTTGTTGATTAGCTTGTTCCTAGCTGTTGTTGTGTTTCG
spacer length: 41 repeater length: 33
2759874 TAGATACTTGTGTTGTGTTTGGTTGGCTTGTG CAAGTTGTTGATTAGCTTGTTCCTAGCTGTTGTTGTGTTTCG
spacer length: 41 repeater length: 33
2759949 TAGATACTTGTGTTGTGTTTGGTTGGCTTGTG TAAGTTGTTGTTGTGTTTCG spacer length: 20
repeater length: 33

2760003 TAGATACTTGTGTTGTGTTTGGTTGGCTTGTG TATGTAAGTACGACGAGAA

crispr 11
892799 GCAAAGGTGGAAACAGCGCCAACCAAGGTATCGGTCA
ATCACAATCATCTAACC AAAACAGCGGTGTAGTTTCTGGCGGTAATACTGCCAATTCAGGTAACAACCAAATACACAAAGTCAAA
CAAACACAGGTAACAACGCAGCTGCTCAGAGTGGTGGTAGT spacer length: 127 repeater length: 37
892964 GCAAAGGTGGAAACAGCGCCAACCAAGGTATCGGTCA
ATCACAATCATCTAACC AAAACAGCGGTGTAGTTTCTGGCGGTAATACTGCCAATTCAGGTAACAACCAAATACACAAAGTCAAA
CAAACACAGGTAACAACGCAGCTGCTCAGAGTGGTGGTAGT spacer length: 127 repeater length: 37
893129 GCAAAGGTGGAAACAGCGCCAACCAAGGTATCGGTCA
GTCACAAACCTCTAACC AAAATGCACAATGTGTATCCGGTGGAAAGCACAGCCAACTCTTGTAACAATACAAGCAATCAAAACCAAG
CAAATAGCGGAAGCAATGCAGTAGGTCAACAAGGCGGAAGTGGCAAAGGC spacer length: 136 repeater
length: 37

893303 GCAAAGGTGGAAACAGCGCCAACCAAGGTATCGGTCA
GTCACAAACCTCTAACC AAAATGCACAATGTGTATCCGGTGGAAATGTAGCCGATTCTGTGTAATAATACTAGCACTCAAAACCAAG
CAAACACAGGTAACAACGCAGCTGCTCAGAGTGGTGGTAGT spacer length: 127 repeater length: 37
893468 GCAAAGGTGGAAACAGCGCCAACCAAGGTATCGGTCA
GAGCGATAGAGTTCTATGACAAGGCCCTGGCTGTTGATCCTCAAACGTGGACGCATTATTTAACATGGCCAATGTTTTAAGAGAA
ATGGACAACAGTACCGGAGCCATCGAGTATTATGAGCGGGT

crispr 12
1112161 ATGCACTTTACAGCAAAGGTAATGTTTTAAGAGATATGG
ACAACAATGTAGGAGCTATACAATTCTATGACAAGGCCCTGGCTGTTGACCCTTCAAACGAG spacer length: 62
repeater length: 39

1112263 ATGCACTTTACAGCAAAGGTAATGTTTTAAGAGATATGG
GTAACAATACAGGAGCTATACAATTCTATGACAAGGCCCTGGCTGTTGATCCTCAAAACACG spacer length: 62
repeater length: 39

1112365 ATGCACTTTACAGCAAAGGTAATGTTTTAAGAGATATGG
CAAACCTCTAACC AAAATGCACAATGTGTAGCAGGTGGTTCGTTGAGCAATTCGTGTAGTAA

crispr 13
2842839 AACAGCGCCAACCAAGGTATAGGTCAATCACAATCCTCTA
CTCAGAACAGCGGTGTAGTTTCTGGCGGCAATACAGCAGGTTCAAGGAAACAACCAAATACACAAACCCAGAATAATACTGGAAGT
AATGCAGTTGGACAACAAGGCGGCAGTGGCGGCAGTGGTAGCGGTGGTGG spacer length: 136 repeater
length: 40

2843016 AACAGCGCCAACCAAGGTATAGGTCAATCACAATCCTCTA
ACCAAAAACAGCGGCTAGTTTCTGGTGGCAACACTTCTGGTTCAGGAAACAACCAAATACACAAAGTCAAACAAACACTGGTAAT
AACGCAGCAGCTCAAAGCGGTGGCGGTGGTAGCGGAAGCGGCGGCGG spacer length: 133 repeater length: 40

2843190 AACAGCGCCAACCAAGGTATAGGTCAATCACAATCCTCTA
ACCAAAAACAGCGGCTAGTTTCTGGTGGAAATACCAACGATTCTGGAAACAACCAAATACACAAAGTCAAACAAACACTGGAAGT
AATGCAGTCGGACAACAAGGCGGCAGTGGCGGCAGTGGTAGCGGTGGTGG spacer length: 136 repeater
length: 40

27856 2843367 AACAGCGCCAACCAAGGTATAGGTCAATCACAATCCTCTA
GGTCAATTTAAGAAACCAAGTAGGCCTGGATATTGATGATAATGACAATGTCTATGTAGTAGATGCAGGAAATAGCAGAATTCAAAA
ATTTAGCCCCGCTGGCACATATATTGATTCATGGGGATCGAAAGGTTCTG

27857
27858
27859 crispr 14
27860 1673080 AAGGAAATTTCTTGCATAAGTGGGGATCAATGGGAACAGA
AGATGGGCAATTTATGCATCCACATAGTGTGGTTTTAGATTCTTTGAGAATGTTTATGTTACTGATATGGCTAACTTCAATGTAC
AAAAGTTTGACAAC spacer length: 100 repeater length: 40

27861 1673221 AAGGAAATTTCTTGCATAAGTGGGGATCAATGGGAACAGA
TGATGGTCAATTCAAAGCCCCAGAAGGAATAGCAGTGGATTCTCACGATAATTTATATGTTACTGACACAGATAACAATAATGTAC
AAAAGTTTGACAGC spacer length: 100 repeater length: 40

27862 1673362 AAGGAAATTTCTTGCATAAGTGGGGATCAATGGGAACAGA
AAGCTAATATTACAGTTGGAAGCAATGATCCAAACGGCTTTGACGGTGACAATGATGGCATAGGTTGTGAAAGTCAAGATAGTGGT
AGCAGCGGCGATCT

27863
27864
27865 crispr 15
27866 906187 ACAGGAATTATTGTTATCTTCTCCGGCCTCACACTCTGAG
TTTTGTTTGACACTTGTACTGTATTACCCTGCTTGTGCATAATCATCATCATCATCACTACTACCACCGCCTTGTCTGCTTAT
GCTAATGTTAT spacer length: 97 repeater length: 40

27867 906325 ACAGGAATTATTGTTATCTTCTCCGGCCTCACACTCTGAG
TTTTGTTTGACACTTGTACTGTATTACCTTGACCGCCACTACTACCACCGCCTTGTCTGCTTATGCTAATGTTAT spacer
length: 76 repeater length: 40

27868 906442 ACAGGAATTATTGTTATCTTCTCCGGCCTCACACTCTGAG
ACCAAAATGCACAATGTGTATCCGGTGGAATGTAGCCGATTCTGTGTAATAATACTAGCACTCAAAACCAAGCAAA

27869
27870
27871 crispr 16
27872 197976 ATCTCCCAAGCCATCCCCATCACTATCTTTTTGATCTGGA
TTGAATTTAACGTACAAATTGTCTTTTGTGTCTACTGCTCCATCATTATCCGAATCGGTAAAGTCCGAGTCGCAGG spacer
length: 76 repeater length: 40

27873 198093 ATCTCCCAAGCCATCCCCATCACTATCTTTTTGATCTGGA
TTAGGTATGGCAAAGCAATTATCATTGACTCTGGTACACCATCATTGTGAGCATCAACTTGATCTGGATCGCAGG spacer
length: 76 repeater length: 40

27874 198210 ATCTCCCAAGCCATCCCCATCACTATCTTTTTGATCTGGA
ACCAAAATGCACAATGTGTAGCAGGTGGTTCGTTGAGCAATTCGTGTAGTAACACTAGTACTCAAAACCAAGCAAA

27875
27876
27877 crispr 17
27878 530063 ATGATCCAAACGGCTTTGACGGTGACAATGATGGCATAGG
TTGTGAAGCTGAGGATCTTGACAACAATAATGGTGGTGACTTAGACTGTGAAGATATTGATGAAAGAACTTCCTAGTTGGAAC
spacer length: 85 repeater length: 40

27879 530189 ATGATCCAAACGGCTTTGACGGTGACAATGATGGCATAGG
TTGTGAAGCTGAGGATCTTGACAACAATAATGGTGGTGACTTAGACTGTGAAGATATTGATGAAAGAACTTCCTAGTTGGAAGC
spacer length: 85 repeater length: 40

27880 530315 ATGATCCAAACGGCTTTGACGGTGACAATGATGGCATAGG
TTGTGAAGCTGAGGATCTTGACAACAATAATGGTGGTGACTTAGACTGTGCAGATATCCAAGAAGCTAATATTACAGTTGGAAGC
spacer length: 85 repeater length: 40

27881 530441 ATGATCCAAACGGCTTTGACGGTGACAATGATGGCATAGG
TTGTGAAGCTGAGGATCTTGACAACAATAATGGTGGTGACTTAGACTGTGCAGATATCCAAGAAGCTAATATTACAGTTGGAAGC
spacer length: 85 repeater length: 40

27882 530567 ATGATCCAAACGGCTTTGACGGTGACAATGATGGCATAGG
ACCAAAATGCACAATGTGTATCTGGTAAAGATGCAATCGTATCATGTGATAACGAGAGCTTCCAAAATCAAGTAAACAGTGGCAA

27883
27884
27885 crispr 18
27886 2383920 ATTGTGATTGGCCTATACCCTGGTTTGCAGAGTTACCACC
GCTACCACTACCGCCTTGTGTGCAGCTGCGTTGTTTCCTGTGTTAGTTTGAAGTTGAGTGTAGTTACTGCAAGAATTACTCA
ATGAACCACCTGCCACACATTGTGCATTTTGGTTAGAG spacer length: 124 repeater length: 40

27887 2384085 ATTGTGATTGGCCTATACCCTGGTTTGCAGAGTTACCACC
GCTACCACTACCGCCTTGTGTGACCTACTGCGTTACTTCCACTATTTGCTTGGGTTTGAAGTACTCGTATTGTTACATGAATCAGCTA
CACTACCGCCTGATACACATTGTGCATTTTGGTTAGAG spacer length: 124 repeater length: 40

27888 2384250 ATTGTGATTGGCCTATACCCTGGTTTGCAGAGTTACCACC
GCTACCACTACCGCCTTGTGTGACCTACTGCGTTACTACCGGTATTGTTCTGGGTCTGTGATTTTGGTTGTTTCCAGAGTTATTTG
TATTGCCGCCAGACACTACACCACTGTTTTGGTTGGAA spacer length: 124 repeater length: 40

27889 2384415 ATTGTGATTGGCCTATACCCTGGTTTGCAGAGTTACCACC
GCTACCACTACCGCCTTGTGTGCAGCTGCGTTGTTTCCTGTGTTAGTTTGAAGTTGATTGTTTGAATTGTTTCCAGAATTGGTGG
TATTACCGCCGGATGCGACACCACTGTTTTGGTTGGAA spacer length: 124 repeater length: 40

27890 2384580 ATTGTGATTGGCCTATACCCTGGTTTGCAGAGTTACCACC
GAAACAACCAAAATACACAAAGTCAAAATAACACGGGTAATAACGCAGCAGCCCAACAATAATCTTTTTTTATCACAAAAAAATA

GTACTTCTCTGTTATAATGATTCATGTTAGAGTTCAAA

27891
27892
27893 crispr 19
27894 227877 CAAGTAACGATAGTGGCCAAACATTTGGTGATGTAGTAAA
TCTTTCAAACAATACTGGATTTTCTGAACATCCTCAAATGGCAGTTAAGGGAAAGAATGTTTACATAATTTGGGCAGATGACACCT
CACTCAATCGAGATATTTATTTTATC spacer length: 112 repeater length: 40
27895 228030 CAAGTAACGATAGTGGCCAAACATTTGGTGATGTAGTAAA
TCTTTCAAACAATACAGCCGATTCATATAATCAAGAGATTTCTGTATCGGGTAACAATGTATACGTTGTATGGCAAGATGCTCAAA
AATTTACACAAGGTAATAGTAGTATTTTCATTTATC spacer length: 121 repeater length: 40
27896 228192 CAAGTAACGATAGTGGCCAAACATTTGGTGATGTAGTAAA
AAGACTTCTTTTCCAAAGATTTCTTCTCTCAAGAAAATGTCTATGTAGCGTGGAATATTGATAGCAATGATAGATCAATTGTGGG
AGCAAACAACATGGAAGATGGAATCTTTTTTGTTA
27897
27898
27899 crispr 20
27900 2383742 CCTATACCCTGGTTTGCAGAGTTACCACCGCTACCACTAC
CACTGCCACTGCCAGTACCAGTACCGCCTAGTTGGGCTAGTGCGTTACTTCCGCTATTTACTTGGTTTTGGAAGTTTTTCATTATTA
CAAGATACTATAGCATCCTTACCGGATACACATTGTGCATTTTGGTTAGAGGATTGTGATTG spacer length: 148
repeater length: 40
27901 2383931 CCTATACCCTGGTTTGCAGAGTTACCACCGCTACCACTAC
CGCCTTGTTGTGCAGCTGCGTTGTTTCTGTGTTAGTTTGACTTTGAGTGTTAGTGTTACTGCAAGAATTACTCAATGAACCACCT
GCCACACATTGTGCATTTTGGTTAGAGGATTGTGATTG spacer length: 124 repeater length: 40
27902 2384096 CCTATACCCTGGTTTGCAGAGTTACCACCGCTACCACTAC
CGCCTTGTTGACCTACTGCGTTACTTCCACTATTTGCTTGGGTTTGAGTACTCGTATTGTTACATGAATCAGCTACACTACCGCCT
GATACACATTGTGCATTTTGGTTAGAGGATTGTGATTG spacer length: 124 repeater length: 40
27903 2384261 CCTATACCCTGGTTTGCAGAGTTACCACCGCTACCACTAC
CGCCTTGTTGACCTACTGCGTTACTACCGTATTGTTCTGGGCTGTGTATTTTGGTTGTTTCCAGAGTTATTTGTATTGCCGCCA
GACACTACACCACTGTTTTGGTTGGAAGATTGTGATTG spacer length: 124 repeater length: 40
27904 2384426 CCTATACCCTGGTTTGCAGAGTTACCACCGCTACCACTAC
CGCCTTGTTGTGCAGCTGCGTTGTTTCTGTGTTAGTTTGACTTTGATTGTTTGAATTGTTTCCAGAATTGGTGGTATTACCGCCG
GATGCGACACCACTGTTTTGGTTGGAAGATTGTGATTG spacer length: 124 repeater length: 40
27905 2384591 CCTATACCCTGGTTTGCAGAGTTACCACCGCTACCACTAC
GTTTCAGGAAAACAACCAAAATACACAAAGTCAAAATAACACGGGTAATAACGCAGCAGCCCAACAATAATCTTTTTTTTATCACAAAA
AAAATAGTACTTCTCTGTTATAATGATTCATGTTAGAG
27906
27907
27908 crispr 21
27909 99812 CGCGTTGTTACCAGAATTCTCTTGGTTTTGAAGGCTTATG
TTGTTGCAAGAGTTACCCAAAGCTACCACCTGCTACACATTGTGAGTTTTGACGAGAGGATTGTGATTGACCTATTCCCTTGATTGGA
GCGATTACCGTCGTCATCATCATCTCCACCATTCTGAGCTG spacer length: 130 repeater length: 40
27910 99983 CGCGTTGTTACCAGAATTCTCTTGGTTTTGAAGGCTTATG
TTGTTGCAAGAGTCGTTTGTATCACCGCCTGAAACACATTGTGAGTTTTGACGAGAGGATTGTGATTGACCTATTCCCTTGATTGGA
GCGATTACCGTCGTCATCATCATCTCCACCATTCTGAGCTG spacer length: 130 repeater length: 40
27911 100154 CGCGTTGTTACCAGAATTCTCTTGGTTTTGAAGGCTTATG
TATCATGTGATAACGAGAGCTTCCAAAATCAAGTAAACAGTGGCAACAACGCCTTGGGTCAACAATAAACATCCTTTATTTTTTTT
GTCTGCTAGTCTATAGCATTTTTTTCAAGATTTCTATTTTTTTTTC
27912
27913
27914 crispr 22
27915 1110210 GATCGAGTCTCCCGATTTTGTGTTGCATCTGCTTCCACAAA
GTAGACGTTTCTAGTAGAAGTGTCAAAATCTATAGCAACAGGTGAGCTAGAATTAGTAGGAATTTCCATTCTGTAATTGTATTTG
TGGAT spacer length: 91 repeater length: 40
27916 1110342 GATCGAGTCTCCCGATTTTGTGTTGCATCTGCTTCCACAAA
GTACACTTCATCACCCCCAGAACCCATTGTTAAATCTGTCAAGTTTGCTCCGCTTGTTTCTATCTCCATTCTGTAATTGTATTTG
TGGAT spacer length: 91 repeater length: 40
27917 1110474 GATCGAGTCTCCCGATTTTGTGTTGCATCTGCTTCCACAAA
GCGGCGTAGTTTCTGGTGGCAACACAGCAGGTTTCAGGAAACAACCAAAATACACAAAGTCAAAATAACACGGGTAATAACGCAGCA
GCCCCA
27918
27919
27920 crispr 23
27921 1081335 GCAAACCAGGGTATAGGCCAATCACAATCCTCTAACC AAA
GAAGCCAGTGTTTTCAGGTGGAGATGTAAGCGACTCTTGCAACAACCTAAGTGTTCAAAGTCAGGTAAATACTGGCAGTAACGCT
GCAGCACAAGATGGTGGTAATGGAAAGGGTAGTGGCAATTC spacer length: 127 repeater length: 40
27922 1081503 GCAAACCAGGGTATAGGCCAATCACAATCCTCTAACC AAA
GAAGCCAATGTGTAGCCGGCGGTAGTTTGTAGACAACCTTGTAACAATCTTAGCTTCCAAAATCAAGAAAACACCGGTGGTAACGCT
GCAGCACAAGCTGGTAGTGGTGGCAATTC spacer length: 115 repeater length: 40
27923 1081659 GCAAACCAGGGTATAGGCCAATCACAATCCTCTAACC AAA
CACAATGTGTATCTGGTAAAGATGCAATCGTATCATGTGATAACGAGAGCTTCCAAAATCAAGTAAACAGTGGCAACAACGCCTTG
GGTCAACAATAAACATCCTTTATTTTTTTT

27924
27925
27926 crispr 24
27927 893135 GTGGAAACAGCGCCAACCAAGGTATCGGTTCAGTCACAAAC
CTCTAACCAAAATGCACAATGTGTATCCGGTGGAAAGCACAGCCAACCTCTTGTAAACAATACAAGCAATCAAACCAAGCAAATAGCG
GAAGCAATGCAGTAGGTCAACAAGGCGGAAGTGGCAAAGGCAGCAAA spacer length: 133 repeater length: 40
27928 893309 GTGGAAACAGCGCCAACCAAGGTATCGGTTCAGTCACAAAC
CTCTAACCAAAATGCACAATGTGTATCCGGTGGAAATGTAGCCGATTTCGTGTAATAATACTAGCACTCAAACCAAGCAAACACAG
GTAACAACGCAGCTGCTCAGAGTGGTGGTAGTGGCAAA spacer length: 124 repeater length: 40
27929 893474 GTGGAAACAGCGCCAACCAAGGTATCGGTTCAGTCACAAAC
CTCAATGTGTATCTGGTGCAGATGCCATAGTATCTTGCAACAACGTTGCTTTCCAAGAACAAGTCAACAGTGGAAAGTAATGTTTTA
GCACAATTCGGTTTGGATGATGAAGAAGATGCTCAAAC
27930
27931
27932 GCA_001886955.1_ASM188695v1_genomic.fna(findCrispr):
27933 START REPEAT
SPACER
27934 crispr 1
27935 1659183 GTTCAAATCCCTCCCGGCCCCG
TGAAATCTCCGAGCGAAGCGAGGAGTACGAACGGCGAGGGATTTGAACTAGAGAAACGCGAGCGGAGCGAGCGTTTCACGT
spacer length: 81 repeater length: 21
27936 1659286 GTTCAAATCCCTCCCGGCCCCG
TGTTTTCTCGGAACGAAGTGAGCAGAAAACCGGCTGCGGTTTTGAAACCAGGAAACCGAGCGAGCGAATGCGAGCGAGGTTTGCG
TT spacer length: 88 repeater length: 21
27937 1659396 GTTCAAATCCCTCCCGGCCCCG
CTTCTGCGACGAACGTAGGTGAGGAGCGAAGCGGCCAGGAGGATTTGAATCAGGGAGGAGCTTTGCTCCGACCGT spacer
length: 75 repeater length: 21
27938 1659493 GTTCAAATCCCTCCCGGCCCCG
GGGGAGGAAGCCGAAGACACGGACGAAGCCGAAGAGACGACCGACGAGACGGCGGACACGGGGGAGGAAGCCGAA
27939
27940
27941 crispr 2
27942 445648 ATGGGTCGGGGCGGATTTCGAAC
CGAAATCACTTCGCTCGCAAGCTCGTCTGTGATAGGGCTCGAATCCGCTGCCCAATTTACGACCGCGATCTCATCGCAGCGACACA
GCACGCTGGTTCGCTGCGAAGTGAGAATCGCTGAA spacer length: 120 repeater length: 22
27943 445791 ATGGGTCGGGGCGGATTTCGAAC
GACGCGAAACTCGCTCCCGTCGGTTCGCTCGTTTTCTTCTTATTCGAATCCGTCCGACCGCGCCACAGCCGGCGCTCGAAACGTGAGCG
CCGGCAAAA spacer length: 95 repeater length: 22
27944 445909 ATGGGTCGGGGCGGATTTCGAAC
CAAGCGCCAGGCCGTCGATGAGCACGGCGCGCCGTTTTAGACGAACCTGTGAGGGATTGAAGGTCCGGCTCTGGGCACTATTTAG
ATAAGCCGA
27945
27946
27947 crispr 3
27948 109141 GTCCGGGTGCGAGAATTGAACC
CGATGGCGAGACTCGCTGCTGCTCGTCTCGCTGATTCAATTCTCGCCTTCCGGTTTTTCCACTCCTCGCTTTGCTCGTCGGGAAA
spacer length: 86 repeater length: 22
27949 109250 GTCCGGGTGCGAGAATTGAACC
GAATGTAGGCGTGCTCGCTCGCAATTCGCTCGCTGTGCGCGCCTTCCAGGGTTCAATTCTCTCCAGGACGCTCTACCGCTCACGC
ACTCGCCCGGCTCCTGACGGAGCACGGGCTCGTGTATTGTTTCGCGAAAGAA spacer length: 137 repeater
length: 22
27950 109410 GTCCGGGTGCGAGAATTGAACC
GACGACCGACGAGCCAGAAGACACGGACGAGGAGTCCGACACCGAAACTCCCGAAAGCGAGACGGAAACGACGCCGATCGAGCGCA
AGACCGGCCCGGCCGAGGACCAGGAACAACCGCTGACCGAGCACATCGAGG
27951
27952
27953 crispr 4
27954 313242 TGCGCTGGCGGGGATTTGAACC
AGACCTTCACAGCCGATAGCGGTCTTTTCCCCAAGTTTTTTCGAGGGGCTGCGGAGCAGCCCCCTCGGAAAAAGTGGGGCTCACGGG
TCGTCCCTCCCCGTTCGCCGTATCGAGGCGCTCGCTCAGCTCGCGCCTCGCT spacer length: 138 repeater
length: 22
27955 313403 TGCGCTGGCGGGGATTTGAACC
ACGGTCACTTCGCTGCGCTCGTTCCCTGATTCAAATCCCAGCCGCATTACGACCGCAAATCGAACCAGCGACACCTGCGGGTGC
CTCGGTGTCGATGTAATTGAGAA spacer length: 109 repeater length: 22
27956 313535 TGCGCTGGCGGGGATTTGAACC
ACGGTCACTTCGCTGCGCTCGTTCCCTGATTCAAATCCCAGCCGCATTTACGACCGCGATTCTACCTCTCGCGACACAGCAAGCTG
GTCGCTCGAGGGTAGAAGTCAATGAGAA spacer length: 114 repeater length: 22
27957 313672 TGCGCTGGCGGGGATTTGAACC
GGAGGAAGCCGAAGACACGGACGAAGCCGAAGAGACGACCGACGAGACGGCGGACACGGGGGAGGAAGCCGAAGACACGGACGAAG
CCGAAGAGACGACCGACGAGCCAGAAGA
27958

27959
27960 crispr 5
27961 1201311 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAACGCCTCGACATGGAGATGGCTGACCACATTG spacer
length: 34 repeater length: 30
27962 1201376 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCGTTCCTCGATGCGGACGCACGCGGAGCGAGGA spacer
length: 35 repeater length: 30
27963 1201442 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGGCCCAACTGACCGAGGAGTTCCAACAGGAATTGC spacer
length: 36 repeater length: 30
27964 1201509 GTTTCAGACGAACCTGTGAGGGATTGAAGC GTCGCCTGTGAGCGGTTCTGGCGGCGCTGCGC spacer
length: 33 repeater length: 30
27965 1201573 GTTTCAGACGAACCTGTGAGGGATTGAAGC TATTGTCGGACTGTCGGACAGCGCAGTATTGCCG spacer
length: 34 repeater length: 30
27966 1201638 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACGGTGGGGGACCGCGCGTAGTGTACGACCC spacer
length: 32 repeater length: 30
27967 1201701 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCCAGGTCGGTTGCCGCGCCGTCGATGGTCAACT spacer
length: 34 repeater length: 30
27968 1201766 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAGGGATGCAAAGTCTGGGACATTGGTGGCTGTG spacer
length: 34 repeater length: 30
27969 1201831 GTTTCAGACGAACCTGTGAGGGATTGAAGC TGGCATGGGCCCAGATAAGAGAGGTTATCTCGAT spacer
length: 34 repeater length: 30
27970 1201896 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACGCCGGCGAGGGCTGCAAGCGTGCCGGTCGATGCC spacer
length: 36 repeater length: 30
27971 1201963 GTTTCAGACGAACCTGTGAGGGATTGAAGC TCGCTCACCTCGATCATGATTAGACCTCGCCCTCG spacer
length: 35 repeater length: 30
27972 1202029 GTTTCAGACGAACCTGTGAGGGATTGAAGC AAACCCAGCGACTTGCAGGACTGGCGGTTAGACCAG spacer
length: 36 repeater length: 30
27973 1202096 GTTTCAGACGAACCTGTGAGGGATTGAAGC TCGCAGGTGATCAAGCACATCGAGGGAGCTTCGGTCCG spacer
length: 38 repeater length: 30
27974 1202165 GTTTCAGACGAACCTGTGAGGGATTGAAGC GGATCGAGAAATTACCATTACCTGGACGAACAACG spacer
length: 35 repeater length: 30
27975 1202231 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGCAAGAAGCCAAGTTTGACGACATCACAACCGAA spacer
length: 35 repeater length: 30
27976 1202297 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCACGGGAAAACGTGAATCCGGTTATTACCTATGAG spacer
length: 36 repeater length: 30
27977 1202364 GTTTCAGACGAACCTGTGAGGGATTGAAGC CTTTCGACGCCCCGGGCTGAAAGGTCTTGCGTAGCACA spacer
length: 36 repeater length: 30
27978 1202431 GTTTCAGACGAACCTGTGAGGGATTGAAGC AAAGGCGACCGCGAGAACCCTCCAGAAGCCGTTG spacer
length: 34 repeater length: 30
27979 1202496 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACCCGAGGACCTGCTTCGCGGAGACGCGATGAAGGCC spacer
length: 37 repeater length: 30
27980 1202564 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACTTCCTCTGCATAGCACTCATAACAGAGTGGAGG spacer
length: 35 repeater length: 30
27981 1202630 GTTTCAGACGAACCTGTGAGGGATTGAAGC TTTCCGCGCTCGAAGACGGGCCGAAGAATCCA spacer
length: 32 repeater length: 30
27982 1202693 GTTTCAGACGAACCTGTGAGGGATTGAAGC AATCTCGAAATCACGGTTGCCAACCCCGAGTTCCCCG spacer
length: 37 repeater length: 30
27983 1202761 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAGCAAAACGGCATCGTGACCTTCGAGCTTGATCG spacer
length: 35 repeater length: 30
27984 1202827 GTTTCAGACGAACCTGTGAGGGATTGAAGC GAGCAAAACGGCATCGTGACCTTCGAGCTTGATCG spacer
length: 35 repeater length: 30
27985 1202893 GTTTCAGACGAACCTGTGAGGGATTGAAGC AAGATGCACCCCTGGCTCCCGGGGATCTCCGCCG spacer
length: 34 repeater length: 30
27986 1202958 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCTCGGACGGATGAACGATTACCTCTCGGTGATC spacer
length: 34 repeater length: 30
27987 1203023 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGACTCATGCAAGCGGTGCGTGCAGTCATGAAATAG spacer
length: 36 repeater length: 30
27988 1203090 GTTTCAGACGAACCTGTGAGGGATTGAAGC AGCCCGGGGAGGTAAATCGAGCGGACGAAATACCC spacer
length: 35 repeater length: 30
27989 1203156 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACATTGCGGCCACAACATGCCTTGATCGTCTCGCT spacer
length: 35 repeater length: 30
27990 1203222 GTTTCAGACGAACCTGTGAGGGATTGAAGC GCCATCTTCGTTGATCGAGTCCAATGATGCCTG spacer
length: 33 repeater length: 30
27991 1203286 GTTTCAGACGAACCTGTGAGGGATTGAAGC ATCACCGAAGAAGAGTGGCAGGCGATGGAAGACCG spacer
length: 35 repeater length: 30
27992 1203352 GTTTCAGACGAACCTGTGAGGGATTGAAGC CTCCACGGGAGCAGGTTGTGATGATCGGAAT spacer
length: 32 repeater length: 30
27993 1203415 GTTTCAGACGAACCTGTGAGGGATTGAAGC CTCCAGAAAGCGTAAATGCATCTGTTAATGGATCT spacer
length: 35 repeater length: 30
27994 1203481 GTTTCAGACGAACCTGTGAGGGATTGAAGC ACTCGGTAAAGCCCTCGCGTTGACAGCGGCCCGT spacer
length: 35 repeater length: 30
27995 1203547 GTTTCAGACGAACCTGTGAGGGATTGAAGC GTTAATATCCGTGGGGCCAATGATGACATGAATAC spacer

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length: 35 repeater length: 30
27996 1203613 GTTTCAGACGAACCTGTGAGGGATTGAAGC TGC GGAAAAGACACCGGACAGGTAAACAATCACA spacer
length: 34 repeater length: 30
27997 1203678 GTTTCAGACGAACCTGTGAGGGATTGAAGC TGC GGAAAAGACACCGGACAGGTAAACAATCACA spacer
length: 34 repeater length: 30
27998 1203743 GTTTCAGACGAACCTGTGAGGGATTGAAGC GGGAGGAAGCCGAAGACACGGACGAAGCCGAAGA
27999
28000
28001 crispr 6
28002 2011997 GAAGAGACGACCGACGAGCCAGAAGACACGGACGA
AGCTGAAGAGACGAAAAGACGAGACGGCGGACACGGGGGAGGAAGCCGAAGACACGGACGAAGCTGAAGAGACGAAAGACGAGACGG
CGGACACGGGGGAGGAAGCCGAAGACACGGACGAAGC spacer length: 123 repeater length: 35
28003 2012156 GAAGAGACGACCGACGAGCCAGAAGACACGGACGA
AGCTGAAGAGACGAAAAGACGAGACGGCGGACACGGGGGAGGAAGCCGAAGACACGGACGAAGCCGAAGAGACGACCGACGAGACGG
CGGACACGGGGGAGGAAGCCGAAGACACGGACGAAGC spacer length: 123 repeater length: 35
28004 2012315 GAAGAGACGACCGACGAGCCAGAAGACACGGACGA
GAGTCCGACACCGAAACTCCCCGAAAGCGAGACGGAAACGACGCCGATCGAGCGCAAGACCGGCCCGCCGAGGACCAGGAACAACC
GCTGACCGAGCACATCGAGGAGATGGTCAAGCGGGTC

28005
28006
28007 GCA_001889405.1_ASM188940v1_genomic.fna(findCrispr):
28008 START REPEAT
SPACER
28009 GCA_002078355.1_ASM207835v1_genomic.fna(findCrispr):
28010 START REPEAT
SPACER
28011 crispr 1
28012 915263 TTTCAATCCTATTAAGGTTTCGATTTTA
TCTTCATTAGTTTTATGAAAATGGTAGAAACCTTTGTCTTTCAATCCTAATAAGGTTCTATTATATCTATCCATAAAATGCCGTT
CGGGTTTACATTTCCCTG spacer length: 104 repeater length: 27
28013 915395 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTAGCGGTGTTAGTTTTCTTTATATCTAATATT spacer
length: 38 repeater length: 27
28014 915461 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTGCTACCCCCAACTTTATCATCCCCTGCATAAAA spacer
length: 38 repeater length: 27
28015 915527 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTCTTGGCATGCCCCAATTTTGAGAGCATTGTTCAT spacer
length: 38 repeater length: 27
28016 915593 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAGTATCCTTACTATACCTGCCACTGTGCCACTACATT spacer
length: 40 repeater length: 27
28017 915661 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAGGGTAGCACAACCGCCTTAAGGCAGCTTGAATGGG spacer
length: 39 repeater length: 27
28018 915728 TTTCAATCCTATTAAGGTTTCGATTTTA ATGCATTAGGGGGAGCAGCTGCCTTAGTAATTGGTAGCA spacer
length: 39 repeater length: 27
28019 915795 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAAATTCACAAAGTTTATATAAGTCTCAAAAATTA spacer
length: 37 repeater length: 27
28020 915860 TTTCAATCCTATTAAGGTTTCGATTTTA ATGCTGCTACTGCTATAATGCCTAAGGCAAAAGCAACTTA spacer
length: 40 repeater length: 27
28021 915928 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAATTATTTTCCAAGCCCTCAAGATCCCTTTGACCG spacer
length: 38 repeater length: 27
28022 915994 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTTTTACCACCCTTTTTTATTTTTTTGTTTTAT spacer
length: 37 repeater length: 27
28023 916059 TTTCAATCCTATTAAGGTTTCGATTTTA ATGTATTACCTTGAAATTGCATAAGCTATTCCGATTAT spacer
length: 38 repeater length: 27
28024 916125 TTTCAATCCTATTAAGGTTTCGATTTTA ATCACTGGACAGCGAGGAGGAGACCTGCGATGGGATGA spacer
length: 39 repeater length: 27
28025 916192 TTTCAATCCTATTAAGGTTTCGATTTTA ATCATACCTCTTAGAAATAACAGGGTAGTACAGAAGG spacer
length: 38 repeater length: 27
28026 916258 TTTCAATCCTATTAAGGTTTCGATTTTA ATTACGAAGGGGAAGAATGTTCTGGGGTGTGCATGTTAT spacer
length: 39 repeater length: 27
28027 916325 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATATCAGGTAAATACCGTCCATTATTTTCTCAAAT spacer
length: 39 repeater length: 27
28028 916392 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTGATAAAAAAATATTGCATTAAAGATGCGGATTTAA spacer
length: 39 repeater length: 27
28029 916459 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGGAAAAAATCAGAAAGAATGCCAGGGTCTTTAAA spacer
length: 37 repeater length: 27
28030 916524 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCGGTGATAAAAAATGAAGTCTGAATTTGAAATAAGG spacer
length: 39 repeater length: 27
28031 916591 TTTCAATCCTATTAAGGTTTCGATTTTA ATGATGTATCTGATGACTGTTATGATGCGCAGAGCGAT spacer
length: 38 repeater length: 27
28032 916657 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTTTATCATGAGGAGACAATGCAGTAATAAAGAAT spacer
length: 38 repeater length: 27
28033 916723 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAAAAGTGTTGACAATCCACGACCTTTAGGAATGA spacer

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length: 37 repeater length: 27
28034 916788 TTTCAATCCTATTAAGGTTTCGATTTTA ATCATTTTCAACACGTGTTGTTACATCATGACCAAAAC spacer
length: 38 repeater length: 27
28035 916854 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCATATCGATAACTCAATCATTAAGTACCTATGAT spacer
length: 37 repeater length: 27
28036 916919 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCCACTGTGAAGTAATGGTTTACCCATCCTAATGT spacer
length: 37 repeater length: 27
28037 916984 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAATGAGATAAACACAGTAATTGCAACATTCAGCTAT spacer
length: 39 repeater length: 27
28038 917051 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTCTGTTCATTGACTGCCAATATTCGTCTTTAAG spacer
length: 38 repeater length: 27
28039 917117 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTCCAGTCATACGTAAATGCAGAAGAATCAGGATCTGA spacer
length: 40 repeater length: 27
28040 917185 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAGATACTGCTTTTGTCCAGGATATGATGATACTA spacer
length: 37 repeater length: 27
28041 917250 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAAGAATTGGAATATATAAGCGAACATATTAAGCAGC spacer
length: 39 repeater length: 27
28042 917317 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAGAATATGGATAATACTGAATTTATAAATTGTGTA spacer
length: 38 repeater length: 27
28043 917383 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTTAGTGTCTGTGTTAACCTGAAGTTGCTTAAAGCCA spacer
length: 39 repeater length: 27
28044 917450 TTTCAATCCTATTAAGGTTTCGATTTTA ATGCTATTTTTTCTATCTGTTTCTTTATGTCTGCAGT spacer
length: 37 repeater length: 27
28045 917515 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCGATTGCAACGGTACAATTATCATATCATCATTTCCC spacer
length: 39 repeater length: 27
28046 917582 TTTCAATCCTATTAAGGTTTCGATTTTA ATGACAAATAATATCGCCAATGCGACAAGTCCGGCTAT spacer
length: 38 repeater length: 27
28047 917648 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTTCATTATCAATAATTCCTTTAGATTTTCAGTGTA spacer
length: 38 repeater length: 27
28048 917714 TTTCAATCCTATTAAGGTTTCGATTTTA ATAATTAAAAAGTTAAAAGTGAGCCTAACATAGCACT spacer
length: 38 repeater length: 27
28049 917780 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATATCCGTCACTACCTGATTATGTTCTACCGGTTT spacer
length: 38 repeater length: 27
28050 917846 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAAATATTCTTTTCTATCTGACATTTTGGCACCTTA spacer
length: 39 repeater length: 27
28051 917913 TTTCAATCCTATTAAGGTTTCGATTTTA ATATATTATTTGTCTGAAAAGAGTAAGTTTCTTATCA spacer
length: 38 repeater length: 27
28052 917979 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTAATGAAGAATACAGACCATGCATTGTTTAAGGT spacer
length: 38 repeater length: 27
28053 918045 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCAATGGAGGTGAGAAATTGAAATTTTGCTATATAA spacer
length: 38 repeater length: 27
28054 918111 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCGCCAACGGAACCGCAACATTCTCATCAATATCAA spacer
length: 38 repeater length: 27
28055 918177 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATTCTCAGAATCCATTTCTCCTCACCTTATTCTTA spacer
length: 38 repeater length: 27
28056 918243 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTTGTATGTAAAATCTATATGATGCCCATTTATAAT spacer
length: 38 repeater length: 27
28057 918309 TTTCAATCCTATTAAGGTTTCGATTTTA ATAGTTTTTGCACATTTCACTATCGCTTCTTAATTCCA spacer
length: 38 repeater length: 27
28058 918375 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTATATTCTGATGAGCTGGATTTCAATACTAATTTAGA spacer
length: 40 repeater length: 27
28059 918443 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTGCCATCCCCTTCATTTCTGCGAATTTATCTATCT spacer
length: 39 repeater length: 27
28060 918510 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTCTTCATCCGGTTCATACACTGTTGATTTGACGG spacer
length: 37 repeater length: 27
28061 918575 TTTCAATCCTATTAAGGTTTCGATTTTA ATGCAGATGTTACTTCCGGCTGGCCTGCTCTGGATAA spacer
length: 37 repeater length: 27
28062 918640 TTTCAATCCTATTAAGGTTTCGATTTTA ATGTAATAGCTGCAGCAAATCCTATAAATTCAATATTT spacer
length: 38 repeater length: 27
28063 918706 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTATTAGGATTCGTATTTCTTTTCAAATTTAAAAA spacer
length: 38 repeater length: 27
28064 918772 TTTCAATCCTATTAAGGTTTCGATTTTA ATCATTCCTATATCCCCCGTAAAATTATAGTTTATATATGT spacer
length: 40 repeater length: 27
28065 918840 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAAGACACAGCTTAGAAAAATACACATCCATGGCTT spacer
length: 38 repeater length: 27
28066 918906 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTGCATGGTTGCCTAGTATTGCCAGATAACATCA spacer
length: 38 repeater length: 27
28067 918972 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGGGTGCCCATCTTCATATATATCGTATAATATTT spacer
length: 37 repeater length: 27
28068 919037 TTTCAATCCTATTAAGGTTTCGATTTTA ATATGTATATGCGGGCAAGAAGGGCAAAGAGAAAGCTC spacer
length: 39 repeater length: 27

28069 919104 TTTCAATCCTATTAAGGTTTCGATTTTA ATGTACAGAGGATACTCGATCGGCTTATATTCATAAGA spacer
length: 38 repeater length: 27

28070 919170 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCTGCATCTGTAGGATTGTGGCTTGCACTTATTGT spacer
length: 37 repeater length: 27

28071 919235 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAAAATGCAGGCCTTATAACATAATCTCCGAAATCA spacer
length: 38 repeater length: 27

28072 919301 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAAACTATGATTGTAATATAGATAGATCCGGAACAGC spacer
length: 39 repeater length: 27

28073 919368 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATAGACTGCCCCGAACCCGCTGAATGACATTGATAT spacer
length: 38 repeater length: 27

28074 919434 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAAATACATAGCTTCCATCTTCGGATTTATAGATGA spacer
length: 38 repeater length: 27

28075 919500 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAGTTTGATAATGAAGTAATGGCCCTAATTATATCC spacer
length: 38 repeater length: 27

28076 919566 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTCTGCTTTTCCTTTCTTCCTGGACTTTCTACAAT spacer
length: 37 repeater length: 27

28077 919631 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATATTCAATTTAACATATTGCATAAAGTTTATATGC spacer
length: 39 repeater length: 27

28078 919698 TTTCAATCCTATTAAGGTTTCGATTTTA ATACTGTAAACCCTAAACGTAAACCCGTTAACCTATACA spacer
length: 40 repeater length: 27

28079 919766 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAGGATGTAGCACCTGATACTGCACTCCCGTTTAGG spacer
length: 38 repeater length: 27

28080 919832 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTGTCTAGCAAACGGTGCAACCGGATCTGCAAACAT spacer
length: 37 repeater length: 27

28081 919897 TTTCAATCCTATTAAGGTTTCGATTTTA ATACATCAACGATTATGTAATACCATATGTCAACAAATAC spacer
length: 40 repeater length: 27

28082 919965 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAGATGTAGAACCTGATGCCAATTGCGAATTAGAAG spacer
length: 38 repeater length: 27

28083 920031 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGGATATGTTGAAACATACCCTTAAAGCGTGTATC spacer
length: 37 repeater length: 27

28084 920096 TTTCAATCCTATTAAGGTTTCGATTTTA ATCATACCCTACTGGGTAGACATAGCCTGGGCGCATTAT spacer
length: 39 repeater length: 27

28085 920163 TTTCAATCCTATTAAGGTTTCGATTTTA ATGGTCCTGTTCTCCTTGTGGTTGTCATCGGAGTATCATT spacer
length: 40 repeater length: 27

28086 920231 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTATAAATAATCCTAATAAAGAAGCTACCGTTTTAA spacer
length: 38 repeater length: 27

28087 920297 TTTCAATCCTATTAAGGTTTCGATTTTA ATGTGCAGTCGCAACAATGTTCCAGAGCTTCGGATTCTC spacer
length: 39 repeater length: 27

28088 920364 TTTCAATCCTATTAAGGTTTCGATTTTA ATGACTTGCTCTTTGTCTGATTCTCGGCTTTCTGAATA spacer
length: 38 repeater length: 27

28089 920430 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCAATAATTCCACAACAGATAATCGTGGACAGGATAAT spacer
length: 40 repeater length: 27

28090 920498 TTTCAATCCTATTAAGGTTTCGATTTTA ATGGGTTATGGACTGCTGATATTGTAAGGGTATATCCTG spacer
length: 39 repeater length: 27

28091 920565 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATAGTCACTGCCACCCAGCACTGATGAAGAAAATTG spacer
length: 39 repeater length: 27

28092 920632 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGCAGTCGCAACAATGTTCCAGAGCTTCGGATTCTC spacer
length: 38 repeater length: 27

28093 920698 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATTGAATAATTTGTTGAAGCAGAAAATGATGTTGTA spacer
length: 39 repeater length: 27

28094 920765 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAGTTAAAGATAAAATTGATACAGGAAAATTAATATTA spacer
length: 39 repeater length: 27

28095 920832 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTACTATTGCAAAAAATATTACATCCGGTGTAAAA spacer
length: 38 repeater length: 27

28096 920898 TTTCAATCCTATTAAGGTTTCGATTTTA ATATCCAATGATTATTATAGATACTACTAATCAATTTA spacer
length: 38 repeater length: 27

28097 920964 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAGAGATCAAGAGGAAATATAAAGAGTCAAGGAAAA spacer
length: 38 repeater length: 27

28098 921030 TTTCAATCCTATTAAGGTTTCGATTTTA ATATGTTTCATCTTATGATATCACACATAGCCATACT spacer
length: 37 repeater length: 27

28099 921095 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTGTTATTTTCTCTCTCATTTTATCATCTTATTTTTG spacer
length: 39 repeater length: 27

28100 921162 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCTCTCTCATCTCTGTTGTTTGTGTTTTGTTTTTCCA spacer
length: 39 repeater length: 27

28101 921229 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTGGATTTTCATGAGTATAGACAGCTATATATTCAATAT spacer
length: 40 repeater length: 27

28102 921297 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAGAGATTATCGCCCTTGTGCTATGGATTATTGAGA spacer
length: 38 repeater length: 27

28103 921363 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCAATTTAGACCATAACAAGAGATGTTGAATTTA spacer
length: 38 repeater length: 27

28104 921429 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAACTTCAGGAATCTCTGTTGCCAGGAAAGAGGCAGAA spacer

length: 40 repeater length: 27
28105 921497 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTATATCCAAAAGCAAATATAAAGGTGTATTATG spacer
length: 37 repeater length: 27
28106 921562 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAATATTATTTCGCTTGAGCTATTGAGAGCATATGGA spacer
length: 38 repeater length: 27
28107 921628 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTTCTTTTTAAATCATCTTTTTTCCTTTTTTAAATCATA spacer
length: 39 repeater length: 27
28108 921695 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTTATCATCCAAGTTTGGATGGCTTCTCCGTGTATG spacer
length: 39 repeater length: 27
28109 921762 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCAAGAAAATAGCATACATAAACCCATACGATGTAATA spacer
length: 40 repeater length: 27
28110 921830 TTTCAATCCTATTAAGGTTTCGATTTTA ATGATACGCCACCTGATATGTATTTTCCGACATTTCCAAA spacer
length: 40 repeater length: 27
28111 921898 TTTCAATCCTATTAAGGTTTCGATTTTA ATATTTCTTAATTTTCGTCATTAGGTAATACCAATTGACT spacer
length: 39 repeater length: 27
28112 921965 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATTTAAAAATGTCCTGAAACTTGAAGATGCCATAGAA spacer
length: 40 repeater length: 27
28113 922033 TTTCAATCCTATTAAGGTTTCGATTTTA ATCATATATAACCTGTCCTATGCATATTTGCATATCTAA spacer
length: 39 repeater length: 27
28114 922100 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCACGGTAAGGTTGTAATTTGAAATAGATGTGGCAAG spacer
length: 39 repeater length: 27
28115 922167 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAGTGCTGTCATTATTCTCCGGCATTCTTGGATCCAT spacer
length: 39 repeater length: 27
28116 922234 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAGGAAGTCCAGAAGGATATTTTAACAGCTTATGAAC spacer
length: 39 repeater length: 27
28117 922301 TTTCAATCCTATTAAGGTTTCGATTTTA ATCTGTATATTCCCATGCGTACCCGCAATGAGTACACCG spacer
length: 39 repeater length: 27
28118 922368 TTTCAATCCTATTAAGGTTTCGATTTTA ATTACAAGACCTTATAAGTATGTCCTGGAAAGGTACAA spacer
length: 38 repeater length: 27
28119 922434 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCATTGCCTGTCCTAAATCTGTAAAGGCTGTTATAAA spacer
length: 39 repeater length: 27
28120 922501 TTTCAATCCTATTAAGGTTTCGATTTTA ATAGTAGTGAACCCCGAAAGCCCTAATTCCGTTATAATT spacer
length: 39 repeater length: 27
28121 922568 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCCTATACGGAAGTTTCCACCTTTCCCAACTACAACA spacer
length: 40 repeater length: 27
28122 922636 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTAATAACAGTAAGGTCTCCGGGTGCTTCAAATTT spacer
length: 38 repeater length: 27
28123 922702 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGTATAGTGGACAAAATGCAACTCATACAGTTACAAT spacer
length: 39 repeater length: 27
28124 922769 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATTCTTTTCAGTGAAGTTTTTGAGCATTTAATTGAAG spacer
length: 39 repeater length: 27
28125 922836 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAACGTGGAACCACCAAATTTAGTAGAAATAACTA spacer
length: 37 repeater length: 27
28126 922901 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGGATAAATACCAACTACGATGAGCCAGACCTGGAC spacer
length: 38 repeater length: 27
28127 922967 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCAGGTGCGAGTACTGCAGTGTTGTGCGATGTTGA spacer
length: 37 repeater length: 27
28128 923032 TTTCAATCCTATTAAGGTTTCGATTTTA ATCCATATAATGGCATATCGGGCAATTCGTGTAAAACT spacer
length: 38 repeater length: 27
28129 923098 TTTCAATCCTATTAAGGTTTCGATTTTA ATTATAATTTATCATGGTCTTTTTTGATAAATTTCTT spacer
length: 37 repeater length: 27
28130 923163 TTTCAATCCTATTAAGGTTTCGATTTTA ATCGCAATAAGCCGACCGAAAGCCGCATTTACGAAG spacer
length: 38 repeater length: 27
28131 923229 TTTCAATCCTATTAAGGTTTCGATTTTA ATAAGTAATAATATTAATATTGTCTTAAAGTCTTAAAAA spacer
length: 39 repeater length: 27
28132 923296 TTTCAATCCTATTAAGGTTTCGATTTTA ATGAGTAATTACTCTACTCTGTGGGTACATTTGCAATCTG spacer
length: 40 repeater length: 27
28133 923364 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAATAATTCTTTTTTAAAAAGGACTATAACGGAAAAATG spacer
length: 40 repeater length: 27
28134 923432 TTTCAATCCTATTAAGGTTTCGATTTTA ATGATATAATGAAACCGACAACAGCCGAAAGCGTAGAGG spacer
length: 39 repeater length: 27
28135 923499 TTTCAATCCTATTAAGGTTTCGATTTTA ATTCATCACAGACCCTTGTAATCTCTGAGATAAACTC spacer
length: 37 repeater length: 27
28136 923564 TTTCAATCCTATTAAGGTTTCGATTTTA ATTGATGATTGCAGGGGCGACAACCCCTGGGTAATAAC spacer
length: 39 repeater length: 27
28137 923631 TTTCAATCCTATTAAGGTTTCGATTTTA ATTTTGAAGTCCTCGGATACAGTCGGTGTTCATACCAGTA spacer
length: 41 repeater length: 27
28138 923700 TTTCAATCCTATTAAGGTTTCGATTTTA ATACAGCAGAAATATCAGGCGGTACAGGCCCATATAA spacer
length: 37 repeater length: 27
28139 923765 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAGATGTCTTCAATGCAACAATTTAGGAGGAAC spacer
length: 36 repeater length: 27

28140 923829 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAGATAACCAGTGGTTCAGCATCGGCAATTGATTGTT spacer
 length: 39 repeater length: 27
 28141 923896 TTTCAATCCTATTAAGGTTTCGATTTTA ATTAGAAGTACAGAAGCGGCATGTAAATCAGCAATGA spacer
 length: 37 repeater length: 27
 28142 923961 TTTCAATCCTATTAAGGTTTCGATTTTA ATCAAATGGCCAGAACATCCAGGGAATGGATATAAAA spacer
 length: 37 repeater length: 27
 28143 924026 TTTCAATCCTATTAAGGTTTCGATTTTA ATGATAATTTACCTCAAAGGTGGTTGGCCCTGAAGTAGAA spacer
 length: 41 repeater length: 27
 28144 924095 TTTCAATCCTATTAAGGTTTCGATTTTA ATGCAATATAAAAAATCTGCTATGATATCAGTTTTCTCCCTA spacer
 length: 41 repeater length: 27
 28145 924164 TTTCAATCCTATTAAGGTTTCGATTTTA CTTCCATCTTCGGATTTATAGATGACTTTCAATCCTATTAA
 28146
 28147
 28148 crispr 2
 28149 915394 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTTAGCGGTGTTAGTTTTCTTTTATATCTAATAT spacer
 length: 35 repeater length: 30
 28150 915460 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTGCTACCCCCAACTTTATCATCCCCTGCATAAA spacer
 length: 35 repeater length: 30
 28151 915526 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTCTTGGCATGCCCAATTTTGAGAGCATTGTCA spacer
 length: 35 repeater length: 30
 28152 915592 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGTATCCTTACTATACCTGCCACTGTGCCACTACAT spacer
 length: 37 repeater length: 30
 28153 915660 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGGGTAGCACAACCGCCTTAAGGCAGCTTGAATGG spacer
 length: 36 repeater length: 30
 28154 915727 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCATTAGGGGGAGCAGCTGCCTTAGTAATTGGTAGC spacer
 length: 36 repeater length: 30
 28155 915794 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAAATTCACAAAGTTTATATAAGTCTCAAAAATT spacer
 length: 34 repeater length: 30
 28156 915859 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCTGCTACTGCTATAATGCCTAAGGCAAAAGCAACTT spacer
 length: 37 repeater length: 30
 28157 915927 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAATTATTTTCCAAGCCCTCAAGATCCCTTTGACC spacer
 length: 35 repeater length: 30
 28158 915993 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTTTTACCACCACCTTTTTTATTTTTTTGTTTTA spacer
 length: 34 repeater length: 30
 28159 916058 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GTATTACCTTGAAATTGCATAAGCTATTCCGATTA spacer
 length: 35 repeater length: 30
 28160 916124 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CACTGGACAGCGAGGAGGAGGACCTGCGATGGGATG spacer
 length: 36 repeater length: 30
 28161 916191 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CATACCTCTTAGAAATAACAGGGTAGTACAGAAG spacer
 length: 35 repeater length: 30
 28162 916257 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TACGAAGGGGAAGAATGTTCTGGGGTGTGCATGTTA spacer
 length: 36 repeater length: 30
 28163 916324 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATATCAGGTAAAATACCGTCCATTATTTTCTCAAA spacer
 length: 36 repeater length: 30
 28164 916391 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTGATAAAAAAATATTGCATTAAAGATGCGGATTTA spacer
 length: 36 repeater length: 30
 28165 916458 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGGAAAAAATCAGAAAGAATGCCAGGGTCTTTAA spacer
 length: 34 repeater length: 30
 28166 916523 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCGGTGATAAAAAAATGAAGTCTGAATTTGAAATAAG spacer
 length: 36 repeater length: 30
 28167 916590 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GATGTATCTGATGACTGTTATGATGCGCAGAGCGA spacer
 length: 35 repeater length: 30
 28168 916656 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTTTATCATGAGGAGACAATGCAGTAATAAAGAA spacer
 length: 35 repeater length: 30
 28169 916722 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAAAAGTGTGACAATCCACGACCTTTAGGAATG spacer
 length: 34 repeater length: 30
 28170 916787 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CATTTTCAACACGTGTTGTTACATCATGACCAAAA spacer
 length: 35 repeater length: 30
 28171 916853 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCATATCGATAACTCAATCATTAAGTACCTATGA spacer
 length: 34 repeater length: 30
 28172 916918 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCCACTGTGAAGTAATGGTTTACCCATCCTAATG spacer
 length: 34 repeater length: 30
 28173 916983 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAATGAGATAAACACAGTAATTGCAACATTGAGCTA spacer
 length: 36 repeater length: 30
 28174 917050 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTCCTGTTTCATTGACTGCCAATATTGCTCTTTAA spacer
 length: 35 repeater length: 30
 28175 917116 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTCCAGTCATACGTAAATGCAGAAGAATCAGGATCTG spacer
 length: 37 repeater length: 30
 28176 917184 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAGATACTGCTTTTGTCCAGGATATGATGATACT spacer
 length: 34 repeater length: 30
 28177 917249 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAGAATTGGAATATATAAGCGAACATATTAAGCAG spacer

length: 36 repeater length: 30
28178 917316 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGAATATGGATAATACTGAATTTATAAATTGTGT spacer
length: 35 repeater length: 30
28179 917382 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTTAGTGCTGTGTAACTGAAGTTGCTTAAAGCC spacer
length: 36 repeater length: 30
28180 917449 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCTATTTTTCTCTATCTGTTCTTTATGTCTGCAG spacer
length: 34 repeater length: 30
28181 917514 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCGATTGCAACGGTACAATTATCATATCATCATTCC spacer
length: 36 repeater length: 30
28182 917581 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GACAAATAATATCGCCAATGCGACAAGTCCGGCTA spacer
length: 35 repeater length: 30
28183 917647 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CTTCAATTATCAATAATTCCTTTAGATTTTCAGTGT spacer
length: 35 repeater length: 30
28184 917713 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AATTAAAAAAGTTAAAAGTGAGCCTAACATAGCAC spacer
length: 35 repeater length: 30
28185 917779 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATATCCGTCACCTGATTATGTTCTACCGGTT spacer
length: 35 repeater length: 30
28186 917845 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAAATATTCTTTTCTATCTGACATTTTGGCCACCTT spacer
length: 36 repeater length: 30
28187 917912 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATATTATTTGTCGTGAAAAGAGTAAGTTTCTTATC spacer
length: 35 repeater length: 30
28188 917978 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTAATGAAGAATACAGACCATGCATTGTTTAAGG spacer
length: 35 repeater length: 30
28189 918044 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCAATGGAGGTGAGAAATTGAAATTTTGCTATATA spacer
length: 35 repeater length: 30
28190 918110 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCGCCAACGGAACCGCAACATTCTCATCAATATCA spacer
length: 35 repeater length: 30
28191 918176 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATTCTCAGAATCCATTTCTCCTCACCTTATTCTT spacer
length: 35 repeater length: 30
28192 918242 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTTGTATGTAAAATCTATATGATGCCATTATAA spacer
length: 35 repeater length: 30
28193 918308 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AGTTTTTGCACATTTCACTATCGCTTCTTAATTCC spacer
length: 35 repeater length: 30
28194 918374 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTATATTCTGATGAGCTGGATTTCAATACTAATTTAG spacer
length: 37 repeater length: 30
28195 918442 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTGCCATCCCCTTCATTTCTGCGAATTTATCTATC spacer
length: 36 repeater length: 30
28196 918509 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTCTTCATCCGGTTCATACACTGTTGATTTGACG spacer
length: 34 repeater length: 30
28197 918574 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCAGATGTTACTTCCGGCTGGCCTGCTCTGGATA spacer
length: 34 repeater length: 30
28198 918639 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GTAATAGCTGCAGCAAATCCTATAAATTCAATATT spacer
length: 35 repeater length: 30
28199 918705 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTATTAGGATTCGTATTTCTTTTCAAATTTAAAA spacer
length: 35 repeater length: 30
28200 918771 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CATTCTATATCCCCGTAAAATTATAGTTTATATATG spacer
length: 37 repeater length: 30
28201 918839 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAAGACACAGCTTAGAAAAATACACATCCATGGCT spacer
length: 35 repeater length: 30
28202 918905 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATTGCATGGTTGCCTAGTATTGCCAGATAACATC spacer
length: 35 repeater length: 30
28203 918971 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGGGTCGCCATCTTCATATATATCGTATAATATT spacer
length: 34 repeater length: 30
28204 919036 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ATGTATATGCGGGCAAGAAGGGCAAAAGAGAAAGCT spacer
length: 36 repeater length: 30
28205 919103 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GTACAGAGGATACTCGATCGGCTTATATTCATAAG spacer
length: 35 repeater length: 30
28206 919169 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCTGCATCTGTAGGATTGTGGCTTGCACTTATTG spacer
length: 34 repeater length: 30
28207 919234 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAATGCAGGCCTTATAACATAATCTCCGAAATC spacer
length: 35 repeater length: 30
28208 919300 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAACTATGATTGTAATATAGATAGATCCGGAACAG spacer
length: 36 repeater length: 30
28209 919367 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATAGACTGCCCGAACCCGCTGAATGACATTGATA spacer
length: 35 repeater length: 30
28210 919433 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAAATACATAGCTTCCATCTTCGATTTTATAGATG spacer
length: 35 repeater length: 30
28211 919499 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGTTTGATAATGAAGTAATGGCCCTAATTATATC spacer
length: 35 repeater length: 30
28212 919565 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTCGTCTTTCTTTTCTTCTTCTGGACTTTCTACAA spacer
length: 34 repeater length: 30

28213	919630	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATATTCAATTTAACATATTGCATAAAGTTTATATG	spacer
		length: 36	repeater length: 30	
28214	919697	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ACTGTAAACCCTAAACGTAAACCCGTTAACCCCTATAC	spacer
		length: 37	repeater length: 30	
28215	919765	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GAGGATGTAGCACCTGATACTGCACTCCCGTTTATAG	spacer
		length: 35	repeater length: 30	
28216	919831	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TTGTCAGCAAACGGTGCAACCGGATCTGCAAACA	spacer
		length: 34	repeater length: 30	
28217	919896	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ACATCAACGATTATGTAATACCATATGTCAACAAATA	spacer
		length: 37	repeater length: 30	
28218	919964	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAGATGTAGAACCTGATGCCAATTGCGAATTAGAA	spacer
		length: 35	repeater length: 30	
28219	920030	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TGGATATGTTGAAACATAACCCTTAAAGCGTGTAT	spacer
		length: 34	repeater length: 30	
28220	920095	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CATACCCTACTGGGTAGACATAGCCTGGGCGCATT	spacer
		length: 36	repeater length: 30	
28221	920162	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GGTCCTGTTCTCCTTGTGGTTGTCATCGGAGTATCAT	spacer
		length: 37	repeater length: 30	
28222	920230	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTATAAATAATCCTAATAAAGAAGCTACCGTTTTTA	spacer
		length: 35	repeater length: 30	
28223	920296	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GTGCAGTCGCAACAATGTTCCAGAGCTTCGGATTCT	spacer
		length: 36	repeater length: 30	
28224	920363	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GACTTGCTCTTTGTCTGATTCTCGGCTTTCTGAAT	spacer
		length: 35	repeater length: 30	
28225	920429	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCAATAATTCCACAACAGATAATCGTGGACAGGATAA	spacer
		length: 37	repeater length: 30	
28226	920497	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GGGTTATGGACTGCTGATATTGTAAGGGTATATCCT	spacer
		length: 36	repeater length: 30	
28227	920564	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATAGTCACTGCCACCCAGCACTGATGAAGAAAATT	spacer
		length: 36	repeater length: 30	
28228	920631	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TGCAGTCGCAACAATGTTCCAGAGCTTCGGATTCT	spacer
		length: 35	repeater length: 30	
28229	920697	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATTGAATAATTTGTTGAAGCAGAAAATGATGTTGT	spacer
		length: 36	repeater length: 30	
28230	920764	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TAGTTAAAGATAAATTGATACAGGAAAATTAATATT	spacer
		length: 36	repeater length: 30	
28231	920831	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTACTATTGCAAAAAATATTACATCCGGTGTTAAA	spacer
		length: 35	repeater length: 30	
28232	920897	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATCCAATGATTATTATAGATACTACTAATCAATTT	spacer
		length: 35	repeater length: 30	
28233	920963	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAGAGATCAAGAGGAAATATAAAGAGTCAAGGAAA	spacer
		length: 35	repeater length: 30	
28234	921029	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATGTTTCATCTTATGATATCACACATAGCCATAC	spacer
		length: 34	repeater length: 30	
28235	921094	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTGTTATTTTCTCTCTCATTTTATCATCTTATTTTT	spacer
		length: 36	repeater length: 30	
28236	921161	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TCTCTCTCATCTCTGTTGTTTGTGTTTTGTTTTTCC	spacer
		length: 36	repeater length: 30	
28237	921228	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTGGATTTTCATGAGTATAGACAGCTATATATTCAATA	spacer
		length: 37	repeater length: 30	
28238	921296	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CAGAGATTATCGCCCTTGTGCTATGGATTATTGAG	spacer
		length: 35	repeater length: 30	
28239	921362	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCAATTTAGACCATAACAACAAGAGATGTTGAATTT	spacer
		length: 35	repeater length: 30	
28240	921428	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	AAACTTCAGGAATCTCTGTTGCCAGGAAAGAGGCAGA	spacer
		length: 37	repeater length: 30	
28241	921496	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTATATCCAAAAGCAAATATAAAGGTGTATTAT	spacer
		length: 34	repeater length: 30	
28242	921561	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GAATATTATTTCGCTTGAGCTATTGAGAGCATATGG	spacer
		length: 35	repeater length: 30	
28243	921627	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CTTCTTTTAAATCATCTTTTTCCTTTTTTAAATCAT	spacer
		length: 36	repeater length: 30	
28244	921694	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTTATCATCCAAGTTTGGATGGCTTCTCCGTGTAT	spacer
		length: 36	repeater length: 30	
28245	921761	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	CCAAGAAAATAGCATACATAAACCATACGATGTAAT	spacer
		length: 37	repeater length: 30	
28246	921829	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	GATACGCCACCTGATATGTATTTCCGACATTTCCAA	spacer
		length: 37	repeater length: 30	
28247	921897	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	ATTTCTTAATTTTCGTCATTAGGTAATACCAATTGAC	spacer
		length: 36	repeater length: 30	
28248	921964	CTTTC AATCCTATTAAGGTTTCGATTTTAAAT	TATTTAAAAATGTCCTGAAACTTGAAGATGCCATAGA	spacer

length: 37 repeater length: 30
28249 922032 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CATATATAACCTGTCCTATGCATATTTGCATATCTA spacer
length: 36 repeater length: 30
28250 922099 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCACGGTAAGGTTGTAATTTGAAATAGATGTGGCAA spacer
length: 36 repeater length: 30
28251 922166 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGTGCTGTCATTATTCTCCGGCATTCTTGATCCA spacer
length: 36 repeater length: 30
28252 922233 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGGAAGTCCAGAAGGATATTTTAACAGCTTATGAA spacer
length: 36 repeater length: 30
28253 922300 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CTGTATATTCCCATGCGTACCCGCAATGAGTACACC spacer
length: 36 repeater length: 30
28254 922367 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TACAAGACCTTATAAGTATGTCCTGGAAAGGTACA spacer
length: 35 repeater length: 30
28255 922433 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCATTGCCTGTCTAAATCTGTAAAGGCTGTTATAA spacer
length: 36 repeater length: 30
28256 922500 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AGTAGTGAACCCCGAAAGCCCTAATTCCGTTATAAT spacer
length: 36 repeater length: 30
28257 922567 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCCTATACGGAAGTTTCCCACCTTTCCCAACTACAAC spacer
length: 37 repeater length: 30
28258 922635 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTAATAACAGTAAGGTCTCCGGGTGCTTCAAATT spacer
length: 35 repeater length: 30
28259 922701 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGTATAGTGGACAAAATGCAACTCATACAGTTACAA spacer
length: 36 repeater length: 30
28260 922768 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATTCTTTCAGTGAAGTTTTTGAGCATTTAATTGAA spacer
length: 36 repeater length: 30
28261 922835 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAACGTGGAACCACCAAATTTAGTAGAAATAACT spacer
length: 34 repeater length: 30
28262 922900 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGGATAAATACCAACTACGATGAGCCAGACCTGGA spacer
length: 35 repeater length: 30
28263 922966 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCAGGTGCGAGTACTGCAGTGTGTGCGATGTTG spacer
length: 34 repeater length: 30
28264 923031 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCATATAATGGCATATCGGGCAATTCGTGTAAAAC spacer
length: 35 repeater length: 30
28265 923097 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TATAATTTATCATGGTCTTTTTTGATAAATTTCT spacer
length: 34 repeater length: 30
28266 923162 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CGCAATAAGCCGACCGGAAAGCCGCATTTACGAA spacer
length: 35 repeater length: 30
28267 923228 CTTTCAATCCTATTAAGGTTTCGATTTTAAT AAGTAATAATATTAATATTGTCTTAAAGTCTTAAAA spacer
length: 36 repeater length: 30
28268 923295 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GAGTAATTACTCTACTCTGTGGGTACATTTGCAATCT spacer
length: 37 repeater length: 30
28269 923363 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAATAATTCTTTTTTAAAAAGGACTATAACGGAAAAAT spacer
length: 37 repeater length: 30
28270 923431 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GATATAATGAAACCGACAACAGCCGAAAGCGTAGAG spacer
length: 36 repeater length: 30
28271 923498 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TCATCACAGACCCTTGTAATCTCTGAGATAAACT spacer
length: 34 repeater length: 30
28272 923563 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TGATGATTGCAGGGGCGACAACCCCCTGGGTAATAA spacer
length: 36 repeater length: 30
28273 923630 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TTTGAAGTCCTCGGATACAGTCGGTGTTCATACCAGT spacer
length: 38 repeater length: 30
28274 923699 CTTTCAATCCTATTAAGGTTTCGATTTTAAT ACAGCAGAAATATCAGGCGGTACAGGCCATATA spacer
length: 34 repeater length: 30
28275 923764 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGATGTCTTCAATGCAACAATTTTCAAGGAGGAA spacer
length: 33 repeater length: 30
28276 923828 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAGATAACCAGTGGTTCAGCATCGGCAATTGATTGT spacer
length: 36 repeater length: 30
28277 923895 CTTTCAATCCTATTAAGGTTTCGATTTTAAT TAGAAGTACAGAAGCGGCATGTAAATCAGCAATG spacer
length: 34 repeater length: 30
28278 923960 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CAAATGGCCAGAACATCCAGGGAATGGATATAAA spacer
length: 34 repeater length: 30
28279 924025 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GATAATTTACCTCAAAGGTGGTTGGCCCTGAAGTAGA spacer
length: 38 repeater length: 30
28280 924094 CTTTCAATCCTATTAAGGTTTCGATTTTAAT GCAATATAAAAAATCTGCTATGATATCAGTTTTCTCCCT spacer
length: 38 repeater length: 30
28281 924163 CTTTCAATCCTATTAAGGTTTCGATTTTAAT CCTAATATCCTTAATTTTACAATGTTTATAAGTATTTCT
28282
28283
28284 crispr 3
28285 939163 GTATCAATTCCCTTAAGGATATATTTCTAAC GATACCCTAATGGGTGTATTGGACGGTTCGCAGA spacer
length: 34 repeater length: 31

28286 939229 GTATCAATTCCCTTTAAGGATATATTTCTAAC TTTTGTAAATCATACAAATATACCGGATATAACAA spacer
length: 35 repeater length: 31
28287 939296 GTATCAATTCCCTTTAAGGATATATTTCTAAC AAAATATAAGAAGAACTTCAACCCTACTAATAA spacer
length: 34 repeater length: 31
28288 939362 GTATCAATTCCCTTTAAGGATATATTTCTAAC TCTTTGGTAATTTCCAGTTCAGTGTGCCGGTTATT spacer
length: 36 repeater length: 31
28289 939430 GTATCAATTCCCTTTAAGGATATATTTCTAAC
TGGTGTGTTGAAGAATATATTTCTAACTGGTGTGTTGAAGAATATATATGGATAGGGAACATT spacer length: 61
repeater length: 31
28290 939523 GTATCAATTCCCTTTAAGGATATATTTCTAAC TAACGCAGGAGTTTACGGGCTTACTGTGGATGTAT spacer
length: 35 repeater length: 31
28291 939590 GTATCAATTCCCTTTAAGGATATATTTCTAAC CAGGTTCAATATCGCAAGCAAGCAATCCCGATATAG spacer
length: 36 repeater length: 31
28292 939658 GTATCAATTCCCTTTAAGGATATATTTCTAAC ACATAAAGAGTTAATAAAAGAATATTGTATAAAAG spacer
length: 35 repeater length: 31
28293 939725 GTATCAATTCCCTTTAAGGATATATTTCTAAC TATGTCGGCACTTCTGTTCTTAGTATCAATATTAA spacer
length: 35 repeater length: 31
28294 939792 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTATATTTTCGCATGTATTCCCGTTTTTTCATTTT spacer
length: 35 repeater length: 31
28295 939859 GTATCAATTCCCTTTAAGGATATATTTCTAAC TGAAGCAAGAAAATGAAAATCTGTTTGGGAAATCA spacer
length: 35 repeater length: 31
28296 939926 GTATCAATTCCCTTTAAGGATATATTTCTAAC AACATGATTTAACATGCCTTAAACTCAAATAA spacer
length: 34 repeater length: 31
28297 939992 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATATGGCTTTCTCCCTTGGTCCTTGCTGGAAG spacer
length: 34 repeater length: 31
28298 940058 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATTATACAGAACGGGACAACAAACGGGGGTACTT spacer
length: 35 repeater length: 31
28299 940125 GTATCAATTCCCTTTAAGGATATATTTCTAAC CGTTTAGCGGATTGGCGGAAAATCGCTAAGTGGTG spacer
length: 35 repeater length: 31
28300 940192 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTTTTCACTTTCTTAATTGGGGGATTTTCCGGGTA spacer
length: 35 repeater length: 31
28301 940259 GTATCAATTCCCTTTAAGGATATATTTCTAAC CCATTGCGAGGCTTAGAATAGGGTTATTAGGCATTG spacer
length: 36 repeater length: 31
28302 940327 GTATCAATTCCCTTTAAGGATATATTTCTAAC AACCGGGAGGTGCGATCGATTTGCCAATATCCATA spacer
length: 35 repeater length: 31
28303 940394 GTATCAATTCCCTTTAAGGATATATTTCTAAC TCCCTGTTCCACCACCGGGAAGGGTAGGATTAATTG spacer
length: 36 repeater length: 31
28304 940462 GTATCAATTCCCTTTAAGGATATATTTCTAAC TTGATAGAATTCCCCGTGAGAACTCATAAGCTCCT spacer
length: 36 repeater length: 31
28305 940530 GTATCAATTCCCTTTAAGGATATATTTCTAAC AAAGCTGAAGGAGGGATTGCCTCTTCGGTGTACG spacer
length: 34 repeater length: 31
28306 940596 GTATCAATTCCCTTTAAGGATATATTTCTAAC TATAAGCGCTAAATCATCATCGCATAAATGGTATTT spacer
length: 36 repeater length: 31
28307 940664 GTATCAATTCCCTTTAAGGATATATTTCTAAC CATACCTTTAACTTGCATTGCGTCTAAAACACTTT spacer
length: 35 repeater length: 31
28308 940731 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTACCAGTGCCACCGGTAAGAGATGATTTGAATGTA spacer
length: 36 repeater length: 31
28309 940799 GTATCAATTCCCTTTAAGGATATATTTCTAAC AAAATGATGAGAAGTAATATATCAAATGGAAATGTA spacer
length: 36 repeater length: 31
28310 940867 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATACGATCGCAAATTACCAGGGCGATATAATCC spacer
length: 34 repeater length: 31
28311 940933 GTATCAATTCCCTTTAAGGATATATTTCTAAC CTGGTTGAAAGATAATGGTGCATCCTTTTTCTACATA spacer
length: 37 repeater length: 31
28312 941002 GTATCAATTCCCTTTAAGGATATATTTCTAAC TGAGTTATTGCCTGGGATGCATCCTCCCGAATCATT spacer
length: 36 repeater length: 31
28313 941070 GTATCAATTCCCTTTAAGGATATATTTCTAAC TCGATTGGCACATAAACAACCCTTTCTTTCTGGCCT spacer
length: 36 repeater length: 31
28314 941138 GTATCAATTCCCTTTAAGGATATATTTCTAAC AATTTAGAAGTTATATTTAAGTATATTTTTATTTAA
28315
28316
28317 GCA_002116695.1_ASM211669v1_genomic.fna(findCrispr):
28318 START REPEAT
SPACER
28319 crispr 1
28320 20587 TCTTTC AATTCCATAATGGATTAATCTTAGAAAATGCGTTAAAGTCGTTTCTCGAACAGTATAAA spacer
length: 59 repeater length: 6
28321 20653 TCTTTC
AATTCCATAATGGATTAATCATAGCAATAAAAAATTAGATATAGATTTTTGCTAAAAATACTTTCAATTCCATAATGGATTAATCAC
TTTGATGGTACACATTTCCAGTAGAGCTGAG spacer length: 118 repeater length: 6
28322 20778 TCTTTC AATTCCATAATGGATTAATCAGTCCTTCCCTCTGTCTGCCTTCTTCAAGTGATTTAA spacer
length: 57 repeater length: 6

28323 20842 TCTTTC
AATTCCATAATGGATTAATCTTGATTATTTTGTCTAAGAAGAGAATTTTAATCATCAATTTCTGCTTTCAATTCCATAATGGATTAA
TCTAACGGATATGCAACAGTCGATATTAACGGTACTATT spacer length: 125 repeater length: 6

28324 20974 TCTTTC
AATTCCATAATGGATTAATCGCAAACACTACACGAATTAATATCCAATTTTCAAACACTGAACCTTTCAATTCCATAATGGATTAATCTAT
GAAGGGTGCCGTTTACCTGAGTAAAGGCTTAATC spacer length: 120 repeater length: 6

28325 21101 TCTTTC
AGGAGCACATAGCTGAGTACAATAATGTTGCTATGAAGGCTAAAGAAGAAGGGCATGTAGACGTAGAGAAGATGTTATGCGCTTAT
GCAGAGCAAGAAAAAGACATTGCAGAGACTACTA

28326

28327

28328 crispr 2

28329 20463 AATT CCATAATGGATTAATCAGATTATTCAAAAGTATGAGTCGCTTTGCCCTGGAGTAACTTT spacer
length: 59 repeater length: 4

28330 20527 AATT
CCATAATGGATTAATCATAATATAGTATAATTTTATGGGACATAGGATAAATGGAATCTTTCAATTCCATAATGGATTAATCTTAG
AAAAATGCGTTAAAGTCGTTTCTCGAACAGTATAAAATCTTT spacer length: 127 repeater length: 4

28331 20659 AATT CCATAATGGATTAATCATAGCAATAAAAAATTAGATATAGATTTTTGCTAAAAATACTTT spacer
length: 59 repeater length: 4

28332 20723 AATT AGGAAGATGAGGAGCACATAGCTGAGTACAATAATGTTGCTATGAAGGCTAAAGAAGAA

28333

28334

28335 crispr 3

28336 11158 CTTTCAATTCCATAGTGGATTAATC AAAATATCAAGTTGTTGTTTTGATTCATAATGCTAAAT spacer
length: 38 repeater length: 25

28337 11222 CTTTCAATTCCATAGTGGATTAATC
AAATTTTGATGGCTACACACAATAAGCGCATTTGACTTTCAATTCCATAATGGATTAATCCTTAATCTGCCAGACTATGTCATCG
CAGTAATTAATGCT spacer length: 100 repeater length: 25

28338 11348 CTTTCAATTCCATAGTGGATTAATC AATAGAAGAAAGAGAATAGCAATCTCCATAAGATATATAA spacer
length: 40 repeater length: 25

28339 11414 CTTTCAATTCCATAGTGGATTAATC
TCAGTACGACGCTATCATCGCATCGTTACCAGTAAATTTGTATCACTTTCAATTCTATAGTGGATTAATCATTATCCCCGAAAAAA
AGAGCAATTGCCTTTTAGAA spacer length: 105 repeater length: 25

28340 11545 CTTTCAATTCCATAGTGGATTAATC TGGGTACAATTTTTCATATAGTCTTTGAAAATATAGT spacer
length: 38 repeater length: 25

28341 11609 CTTTCAATTCCATAGTGGATTAATC TCACCTTTATGATTTCTATCCTTCCATACTATGATATG spacer length:
37 repeater length: 25

28342 11672 CTTTCAATTCCATAGTGGATTAATC ACCATAAGAGACAACCTAAGAAAAAACAATAATTTCTGCCAT spacer
length: 42 repeater length: 25

28343 11740 CTTTCAATTCCATAGTGGATTAATC CTTCTTTTAACTCTTCCTTATATACTATACTTACC spacer length:
37 repeater length: 25

28344 11803 CTTTCAATTCCATAGTGGATTAATC ACATGGAAGGGATATAGATGTCTGAGAATTCTATAGAAA spacer
length: 39 repeater length: 25

28345 11868 CTTTCAATTCCATAGTGGATTAATC AAGAACATATTCAGAAATTCAATTAAGTGTAGAAAATC spacer
length: 38 repeater length: 25

28346 11932 CTTTCAATTCCATAGTGGATTAATC ATAAACTTGTAATCTAAGGATAAGGATTTAAGCTGTTC spacer
length: 39 repeater length: 25

28347 11997 CTTTCAATTCCATAGTGGATTAATC CAAAACAAACAATAGAACATAGAATTCATATTCTATATA spacer
length: 39 repeater length: 25

28348 12062 CTTTCAATTCCATAGTGGATTAATC GTAACCATGATCCAAGTAGCTTCCTTAGAATATAAAGT spacer
length: 38 repeater length: 25

28349 12126 CTTTCAATTCCATAGTGGATTAATC GATCCCTGACTAGTTGAACTACCAGTTGTTGGATTGATAG spacer
length: 40 repeater length: 25

28350 12192 CTTTCAATTCCATAGTGGATTAATC TTTTCTTGTTTTTGTAAATTTTCATTTTATTTATTTCAA spacer
length: 38 repeater length: 25

28351 12256 CTTTCAATTCCATAGTGGATTAATC GCTTTGTGTTTTTTTCTGTGCCCCGCTTTGTTTTTCGAT spacer
length: 38 repeater length: 25

28352 12320 CTTTCAATTCCATAGTGGATTAATC CTTGAAGACTTCAGGATTACCTTCAAACCAATAACT spacer length:
36 repeater length: 25

28353 12382 CTTTCAATTCCATAGTGGATTAATC CGCCATACTTGGGCTCGATGAAACGGAGCCAGTAGGCATT spacer
length: 40 repeater length: 25

28354 12448 CTTTCAATTCCATAGTGGATTAATC GAGTTCAAAACAGTTAGTGTGCGCAATATGACTATTAG spacer
length: 38 repeater length: 25

28355 12512 CTTTCAATTCCATAGTGGATTAATC ATCATTTTTTTTAATAGTTATATTTGTGGGAATTTGGTATT spacer
length: 40 repeater length: 25

28356 12578 CTTTCAATTCCATAGTGGATTAATC GCTTTGTGTTTTTTTCTGTGCCCCGCTTTGTTTTTCGAT spacer
length: 38 repeater length: 25

28357 12642 CTTTCAATTCCATAGTGGATTAATC CTTGAAGACTTCAGGATTACCTTCAAACCAATAACT spacer length:
36 repeater length: 25

28358 12704 CTTTCAATTCCATAGTGGATTAATC CGCCATACTTGGGCTCGATGAAACGGAGCCAGTAGGCATT spacer
length: 40 repeater length: 25

28359	12770 CTTTCAATTCCATAGTGGATTAATC	GAGTTCAAAACAGTTAGTGTCTGGCAATATGACTATTAG spacer
	length: 38 repeater length: 25	
28360	12834 CTTTCAATTCCATAGTGGATTAATC	ATCATTTTTTTTAATAGTTATATTTGTGGGAATTTGGTATT spacer
	length: 40 repeater length: 25	
28361	12900 CTTTCAATTCCATAGTGGATTAATC	TAGAAGTCATGCAAAGAAGAATGGTATAGGTGGTGTAGC spacer
	length: 39 repeater length: 25	
28362	12965 CTTTCAATTCCATAGTGGATTAATC	AAAGTACACAACATGGGGATATAGTGGACTAGACCATAG spacer
	length: 39 repeater length: 25	
28363	13030 CTTTCAATTCCATAGTGGATTAATC	CCTTCTTGTAAGAATTTAAGGATTTTCATTCATACT spacer length:
	35 repeater length: 25	
28364	13091 CTTTCAATTCCATAGTGGATTAATC	AAAATCTAAAACCATATAAAGATTGCAAGATTGTTATATT spacer
	length: 40 repeater length: 25	
28365	13157 CTTTCAATTCCATAGTGGATTAATC	AAATAAGATCATTATTAAATCAACTAGAAAAAGAAAATG spacer
	length: 39 repeater length: 25	
28366	13222 CTTTCAATTCCATAGTGGATTAATC	CAACAATAATTGTCTGAAATATATAGAAACCTATTAAAAA spacer
	length: 39 repeater length: 25	
28367	13287 CTTTCAATTCCATAGTGGATTAATC	GCATTTTCAGGGTCTCGTAGTAGGAGGAACGAAGGCATAC spacer
	length: 39 repeater length: 25	
28368	13352 CTTTCAATTCCATAGTGGATTAATC	CGCCAGGAATGTTTCCTAGCGGGAGTTATTTATACCTAA spacer
	length: 39 repeater length: 25	
28369	13417 CTTTCAATTCCATAGTGGATTAATC	CTTTAACAAGCCCTTCATACCTTTGTACATAATTCCAACAT spacer
	length: 41 repeater length: 25	
28370	13484 CTTTCAATTCCATAGTGGATTAATC	ATTCCTTCGATAGAGAAAGTATAAACACTATGTTCAAGCG spacer
	length: 40 repeater length: 25	
28371	13550 CTTTCAATTCCATAGTGGATTAATC	TTGAACCTTCTTG TAGAGATTATTATCGCTTTCTTAGAATA spacer
	length: 41 repeater length: 25	
28372	13617 CTTTCAATTCCATAGTGGATTAATC	ATTCCAAATCCGTCAATAAAATTCCTCAGGATGAAATT spacer
	length: 39 repeater length: 25	
28373	13682 CTTTCAATTCCATAGTGGATTAATC	AGGCACTGGTCAGCCTGCAGTAGAAGGACAACCTGTAAAC spacer
	length: 40 repeater length: 25	
28374	13748 CTTTCAATTCCATAGTGGATTAATC	AGTCTCATCGCAATCTGTAAGAAATTATCTCAATTCAT spacer
	length: 38 repeater length: 25	
28375	13812 CTTTCAATTCCATAGTGGATTAATC	ATACAATCTCAACAGCTGTACTGTCAACATTTCCAGTCATA spacer
	length: 41 repeater length: 25	
28376	13879 CTTTCAATTCCATAGTGGATTAATC	ACGACATTAAAAACGTAATAACACTATTAGCAGACAGCG spacer
	length: 39 repeater length: 25	
28377	13944 CTTTCAATTCCATAGTGGATTAATC	GAAACATGACATTGAAACTGCTGAATACGGTCTTGATGAA spacer
	length: 40 repeater length: 25	
28378	14010 CTTTCAATTCCATAGTGGATTAATC	TCAGGAAGTCTATGTACACATTACGCTGACATAC spacer length: 34
	repeater length: 25	
28379	14070 CTTTCAATTCCATAGTGGATTAATC	AGAAGAAGGTTGTAAAGAAGAAGTAGTATGTTGTAAATA spacer
	length: 39 repeater length: 25	
28380	14135 CTTTCAATTCCATAGTGGATTAATC	AAGTTTTTCGGTTAATTATAGATAACGCTACGTAAGTTT spacer
	length: 39 repeater length: 25	
28381	14200 CTTTCAATTCCATAGTGGATTAATC	TGCAATGAAGAATGTGTTTAGTTCGTCCATCAACCAGTCCA spacer
	length: 41 repeater length: 25	
28382	14267 CTTTCAATTCCATAGTGGATTAATC	ATTTTATTAATCTCTTCTACAAAATACAGACAAACA spacer length:
	36 repeater length: 25	
28383	14329 CTTTCAATTCCATAGTGGATTAATC	ACAAGTAGAGTGGATATTCCACTCAATTTTTATCAG spacer length:
	36 repeater length: 25	
28384	14391 CTTTCAATTCCATAGTGGATTAATC	AATGAACAATATAAATTTCTCTCATACGAATTAACTA spacer
	length: 38 repeater length: 25	
28385	14455 CTTTCAATTCCATAGTGGATTAATC	TCTTGGTCTTTTGATGAAAATTGAAGTTTTAGAAAGA spacer length:
	37 repeater length: 25	
28386	14518 CTTTCAATTCCATAGTGGATTAATC	AGATTGGTTTTTTCCAGGACTAAGAGACATAATACATAT spacer
	length: 39 repeater length: 25	
28387	14583 CTTTCAATTCCATAGTGGATTAATC	GAATTTACAACCTGCAAAAATTCCGTATCAACTTCTTCAGT spacer
	length: 41 repeater length: 25	
28388	14650 CTTTCAATTCCATAGTGGATTAATC	AGTTTTGTAGTTTTCTAATTATATCTAATGCATTCTGAT spacer
	length: 39 repeater length: 25	
28389	14715 CTTTCAATTCCATAGTGGATTAATC	ACGCAAAAAACGAAACAAATTCAAAGTCCTTATTAATTG spacer
	length: 39 repeater length: 25	
28390	14780 CTTTCAATTCCATAGTGGATTAATC	CTGGAAAATTGTAATTTCTCGCGCTGAAATTTCATTTAGAT spacer
	length: 40 repeater length: 25	
28391	14846 CTTTCAATTCCATAGTGGATTAATC	AAAGCAATACATTACCCTTCATTTCTGGAATATCATTTAT spacer
	length: 40 repeater length: 25	
28392	14912 CTTTCAATTCCATAGTGGATTAATC	ATGATGATTGCGACAGCTGTACCGTTTTTCATATATTAA spacer
	length: 39 repeater length: 25	
28393	14977 CTTTCAATTCCATAGTGGATTAATC	CTTAATTCCTAAACTCTTTTTCTCTTGGGTGGAAAAA spacer
	length: 38 repeater length: 25	
28394	15041 CTTTCAATTCCATAGTGGATTAATC	AAGAAGGGCATGTAGACGTAGAGAAGATGTTATGCGCT

28395
28396
28397 crispr 4
28398 44350 GATTAATCCATTATGGAATTGAAAG AGTAGTATGTAGTAACTGCCCTCTTTAGTTGTCACTTT spacer
length: 38 repeater length: 25
28399 44414 GATTAATCCATTATGGAATTGAAAG CTATTTTCCTCATACGCCGAAGCATTATTATAAATGTTC spacer
length: 38 repeater length: 25
28400 44478 GATTAATCCATTATGGAATTGAAAG ATTGTTATTGTATTCACTCTTTCCTGTTCTTCTTCAA spacer
length: 38 repeater length: 25
28401 44542 GATTAATCCATTATGGAATTGAAAG TTATCATAAAGACTATAACAATCGTTCTTTCTTAACC spacer length:
37 repeater length: 25
28402 44605 GATTAATCCATTATGGAATTGAAAG AGAATAGATTTAATTTGATTATCTGGAATTCCTAATTTT spacer
length: 39 repeater length: 25
28403 44670 GATTAATCCATTATGGAATTGAAAG TACACCACCAGGGCAGTTGAATGGACAGAAACATTGGA spacer
length: 38 repeater length: 25
28404 44734 GATTAATCCATTATGGAATTGAAAG TTGTCAGAGCTTCTGACCCGCTCCTTAATTTCAAG spacer length:
35 repeater length: 25
28405 44795 GATTAATCCATTATGGAATTGAAAG GATAAACAACGAGGAGACGATTAGGGCATATTATCTTTTTC spacer
length: 40 repeater length: 25
28406 44861 GATTAATCCATTATGGAATTGAAAG TATTACCGCTATTGCTCCAGCATACTGATCTACGAGACCC spacer
length: 40 repeater length: 25
28407 44927 GATTAATCCATTATGGAATTGAAAG CGAAAAGCGTGAATTTTCCGGGCGGGAAGTATTGTAGGT spacer
length: 39 repeater length: 25
28408 44992 GATTAATCCATTATGGAATTGAAAG TATACCTCTCTAGTTGTTTCGCCATATTGTTGCAGTATTACA spacer
length: 41 repeater length: 25
28409 45059 GATTAATCCATTATGGAATTGAAAG TCTATCTTCCCTCCAGTAATATTTTCTATATCACTAA spacer length:
37 repeater length: 25
28410 45122 GATTAATCCATTATGGAATTGAAAG TTCGTTACGTTCAACATCTGTTGCATCTGTTGAACTA spacer length:
37 repeater length: 25
28411 45185 GATTAATCCATTATGGAATTGAAAG ATGCTATCATGTCTCTATATCAAGCGGGATTGATAGCATT spacer
length: 41 repeater length: 25
28412 45252 GATTAATCCATTATGGAATTGAAAG TTGGTAACCACTACATGTACAAAATATCGTATACAACC spacer
length: 38 repeater length: 25
28413 45316 GATTAATCCATTATGGAATTGAAAG TTAATTTCTGCCTTCCTTTTCAATTCACCCACAA spacer length:
37 repeater length: 25
28414 45379 GATTAATCCATTATGGAATTGAAAG TTATCTTACCCAACATCAAAGAGAGTATTATTGACGAG spacer
length: 38 repeater length: 25
28415 45443 GATTAATCCATTATGGAATTGAAAG TTACTACAAACCATTAGCCCCGAAGTGGGGGAATGGTA spacer
length: 38 repeater length: 25
28416 45507 GATTAATCCATTATGGAATTGAAAG TGCAATTGTGGTTTAGGTTGAGAGGATTGAGAGGA spacer length:
35 repeater length: 25
28417 45568 GATTAATCCATTATGGAATTGAAAG ATTTGAATAGTTTTCTTAATTTCTAAATTTTCTAAAA spacer length:
37 repeater length: 25
28418 45631 GATTAATCCATTATGGAATTGAAAG TGTGATAATGTTAGTAACAGCGTCTAAACTGAAGGAT spacer
length: 38 repeater length: 25
28419 45695 GATTAATCCATTATGGAATTGAAAG TGAAAAGTTGTGAGAATAGTTGTGAGACATTATACCTTA spacer
length: 39 repeater length: 25
28420 45760 GATTAATCCATTATGGAATTGAAAG GTAAATTTTCCTAAACTCCACAAGACTTACAATTTTCA spacer
length: 38 repeater length: 25
28421 45824 GATTAATCCATTATGGAATTGAAAG GCAATTATTGTTACAAAAGATGATCATTATCCGTATTGGTT spacer
length: 41 repeater length: 25
28422 45891 GATTAATCCATTATGGAATTGAAAG ATAGTTAAATTAATAATGTTTTTTTTTAACTCGCGGGATA spacer
length: 39 repeater length: 25
28423 45956 GATTAATCCATTATGGAATTGAAAG CAATGCCGAAAAAATTAGCCCATACTCTCCCCACTCTCTAT spacer
length: 42 repeater length: 25
28424 46024 GATTAATCCATTATGGAATTGAAAG TACTTGAGTAGATCCCGTCTACTCATTGTGAAGGCGAAA spacer
length: 39 repeater length: 25
28425 46089 GATTAATCCATTATGGAATTGAAAG AACTTGCTTGCTACTACCTACTTATAAAATTTCTTTCA spacer
length: 38 repeater length: 25
28426 46153 GATTAATCCATTATGGAATTGAAAG ATTAAAAGACGGACGGTTCCGAATACATTTTGAAACG spacer length:
37 repeater length: 25
28427 46216 GATTAATCCATTATGGAATTGAAAG AATAATCAATGCCCCATTCCAAACCTTTATGTGGATA spacer length:
37 repeater length: 25
28428 46279 GATTAATCCATTATGGAATTGAAAG AGTTTTACATTAGTTTTTCTTGGTCTTTTGATGAAAA spacer
length: 38 repeater length: 25
28429 46343 GATTAATCCATTATGGAATTGAAAG TTATTTCTTCTTGTTTAGGTTCTTCTTGTGTCTTAGGTT spacer
length: 39 repeater length: 25
28430 46408 GATTAATCCATTATGGAATTGAAAG TTTACATGTGATATACATATGTTACTTAGCGATGACGA spacer
length: 38 repeater length: 25
28431 46472 GATTAATCCATTATGGAATTGAAAG GTGTGAAAGAAGCCAAACTCCCCCATGTAGTCCACAAGAT spacer
length: 40 repeater length: 25

28432 46538 GATTAATCCATTATGGAATTGAAAG TTATAATTGCAGCGATGCTCTCTCCCATTTTGTGACA spacer length:
 37 repeater length: 25
 28433 46601 GATTAATCCATTATGGAATTGAAAG TTTCGGCGACGCCTTCGGAGATATTTACTATTTACTAG spacer
 length: 38 repeater length: 25
 28434 46665 GATTAATCCATTATGGAATTGAAAG AAACCTCCAAATGGGGCCAAACCAACATAAACTCTGCA spacer
 length: 39 repeater length: 25
 28435 46730 GATTAATCCATTATGGAATTGAAAG AAATCAATTCCCTTATCCCAAGTTTTTTTGCTCTGTCA spacer length:
 37 repeater length: 25
 28436 46793 GATTAATCCATTATGGAATTGAAAG AAAAGTCATCACTTTAGATTACGGAAAAGAAAAATCT spacer
 length: 38 repeater length: 25
 28437 46857 GATTAATCCATTATGGAATTGAAAG AACACTCAAATCGGCCCAAACCTCTGCAATTTTTTATTT spacer
 length: 38 repeater length: 25
 28438 46921 GATTAATCCATTATGGAATTGAAAG AGTTACAGACGATATTCCAGGCATTATATAATCATTTATA spacer
 length: 40 repeater length: 25
 28439 46987 GATTAATCCATTATGGAATTGAAAG ATCTTATCAAGTAAATCTTTAGATATCGGATTAACTTTT spacer
 length: 39 repeater length: 25
 28440 47052 GATTAATCCATTATGGAATTGAAAG TCTTCCTCAAGTGCATTGCAGTTGCGAGATCATTTATT spacer
 length: 39 repeater length: 25
 28441 47117 GATTAATCCATTATGGAATTGAAAG CATCTTTAGCTATCTCTCTGTAAATTTTGATGTATCA spacer
 length: 38 repeater length: 25
 28442 47181 GATTAATCCATTATGGAATTGAAAG ATATCATAGATTGCTTCTTTAGTTTCTATACTATGTTTC spacer
 length: 39 repeater length: 25
 28443 47246 GATTAATCCATTATGGAATTGAAAG GATAGAAATGAGGCATGGAGTGAGGTTGAGAAATATTAC spacer
 length: 39 repeater length: 25
 28444 47311 GATTAATCCATTATGGAATTGAAAG TTTGTATCTATATAGCGTAATATCAGTTCTCCTTTTCG spacer length:
 37 repeater length: 25
 28445 47374 GATTAATCCATTATGGAATTGAAAG TTTTAAAAAGTGTTATAAAAAATATGAAAACGTCTTGATC spacer
 length: 42 repeater length: 25
 28446 47442 GATTAATCCATTATGGAATTGAAAG TTAATAACTTCAATGAATTTGTTAAAGAAA spacer length: 30
 repeater length: 25
 28447 47498 GATTAATCCATTATGGAATTGAAAG TAAAAATCTATTAGATCGGACATAATTTACCATTATGCG spacer
 length: 39 repeater length: 25
 28448 47563 GATTAATCCATTATGGAATTGAAAG AATGTTAAAGATAAACAAATGGTAGAAGAACTACGAT spacer
 length: 38 repeater length: 25
 28449 47627 GATTAATCCATTATGGAATTGAAAG GTTCCAAATATTTCTTTTCCTGCTAAGATTAGATATT spacer length:
 37 repeater length: 25
 28450 47690 GATTAATCCATTATGGAATTGAAAG TTAGCAAGATTTTTTAATACTAAATCATGTAATTCTATTC spacer
 length: 40 repeater length: 25
 28451 47756 GATTAATCCATTATGGAATTGAAAG ATGCAATGTACTTATTTTGTGTTGGAATAATCAAATTTTTG spacer
 length: 40 repeater length: 25
 28452 47822 GATTAATCCATTATGGAATTGAAAG TTAGTATCATAAAAAACACATTAGCACCAACTTTACCT spacer
 length: 38 repeater length: 25
 28453 47886 GATTAATCCATTATGGAATTGAAAG TGATAATTTTTCATTTTGAAGTTTATTATATAATTTTCC spacer
 length: 39 repeater length: 25
 28454 47951 GATTAATCCATTATGGAATTGAAAG TTCTCGCCATGGCGGGATAAATGAGAAAAAGGGTTGAT
 28455
 28456
 28457 crispr 5
 28458 53295 GATTAATCCTGTAGGGAATTGAAAG TTATAATTTCCCTGAACATCGGACTTGCATACTCTCGTT spacer
 length: 39 repeater length: 25
 28459 53360 GATTAATCCTGTAGGGAATTGAAAG CATAAACTTCCGATGCTCCACCAAGACTTTTGATAG spacer length:
 36 repeater length: 25
 28460 53422 GATTAATCCTGTAGGGAATTGAAAG TTCATAAAAACGCATGGAGGATTGGGTTCTACGTACCTTAT spacer
 length: 41 repeater length: 25
 28461 53489 GATTAATCCTGTAGGGAATTGAAAG CAGACTTCGATTGGCATCCAAATCTAGAAAACGGCTTGTA spacer
 length: 40 repeater length: 25
 28462 53555 GATTAATCCTGTAGGGAATTGAAAG TCTTTTTTAGTCTACGTTTATATTTTCCCTCTTTGTCTT spacer
 length: 40 repeater length: 25
 28463 53621 GATTAATCCTGTAGGGAATTGAAAG ATCAAAATAAGATTGAACCTAGCGGAGAGCTGTGCTACGG spacer
 length: 40 repeater length: 25
 28464 53687 GATTAATCCTGTAGGGAATTGAAAG AGCACAAGTATTTAAATCTTTCTTTCTAGTTTACACTTT spacer
 length: 40 repeater length: 25
 28465 53753 GATTAATCCTGTAGGGAATTGAAAG GCTAAATTACCGAATACAACTCTGGAACATAACTTGAT spacer
 length: 40 repeater length: 25
 28466 53819 GATTAATCCTGTAGGGAATTGAAAG CAGAGTATTCTCATTCGTAACCTTTTGCATACTTCAAAA spacer
 length: 38 repeater length: 25
 28467 53883 GATTAATCCTGTAGGGAATTGAAAG GCCATTTTCCCACCCGATTAGTTTTGAGTGAAAGGATT spacer
 length: 39 repeater length: 25
 28468 53948 GATTAATCCTGTAGGGAATTGAAAG GATTTCGTAAGATACAATAATCAACAATTTATTTTT spacer length:
 36 repeater length: 25
 28469 54010 GATTAATCCTGTAGGGAATTGAAAG TTGTAGTTATCGATACTGTAAAAACCACCTTTTACGGTTGT spacer

length: 41 repeater length: 25
28470 54077 GATTAATCCTGTAGGGAATTGAAAG TAGTCTCTTTAATAAAGAGGCTGGAAGAGGGAAAGGTTTC spacer
length: 39 repeater length: 25
28471 54142 GATTAATCCTGTAGGGAATTGAAAG GACTTCTTCCCAACGGTTATCAACACAGAAAGTTA spacer length:
35 repeater length: 25
28472 54203 GATTAATCCTGTAGGGAATTGAAAG TGTGCCTTAAGCTCGATGGAATTGATCAGTTTACGATATG spacer
length: 40 repeater length: 25
28473 54269 GATTAATCCTGTAGGGAATTGAAAG CTGCTTGAGATAAAAGTGTTGACAGTTCCTTCATCTTCA spacer
length: 39 repeater length: 25
28474 54334 GATTAATCCTGTAGGGAATTGAAAG TACTTATGTCCTCAGCTTCCTCACTGTTCTCTTCATCT spacer
length: 38 repeater length: 25
28475 54398 GATTAATCCTGTAGGGAATTGAAAG TGGACAGACTGCCTTCCCCCGCATCCCAAATATTTTCACA spacer
length: 40 repeater length: 25
28476 54464 GATTAATCCTGTAGGGAATTGAAAG AAAGCAGAAAGTAAAGAAGGAGAATCGAAAGAAAATAAATC spacer
length: 41 repeater length: 25
28477 54531 GATTAATCCTGTAGGGAATTGAAAG ATTAGGCATTCTCATTTTTCTTAGCCATTTTTCTGCC spacer length:
37 repeater length: 25
28478 54594 GATTAATCCTGTAGGGAATTGAAAG ATTTATTATAACTTCTTGGAGAGATATATTTGGG spacer length: 34
repeater length: 25
28479 54654 GATTAATCCTGTAGGGAATTGAAAG GGTAATATAATTCCAGCTTCAGGTAGTATGTCAATTTTC spacer
length: 38 repeater length: 25
28480 54718 GATTAATCCTGTAGGGAATTGAAAG AATACTGCAACAACCTCAAGCAGCAATCAATTCAATTATTA spacer
length: 40 repeater length: 25
28481 54784 GATTAATCCTGTAGGGAATTGAAAG ACAACAGTATTTATATCATCACGGGTAAACCAATT spacer length:
35 repeater length: 25
28482 54845 GATTAATCCTGTAGGGAATTGAAAG TTTTATGTTCTCTAGTTGGAGATCAGGCTCCTCAATCC spacer
length: 38 repeater length: 25
28483 54909 GATTAATCCTGTAGGGAATTGAAAG CTTTTTATATGTTCTTTAAAAATCTTCAAATAAGCTTT spacer
length: 38 repeater length: 25
28484 54973 GATTAATCCTGTAGGGAATTGAAAG GAATACACCAACGGAAGTACCTGTTAATGTTTTTTGA spacer length:
37 repeater length: 25
28485 55036 GATTAATCCTGTAGGGAATTGAAAG TCCTCCCAAACCTTTCTTGTAATAGATATCCTCACACTCA spacer
length: 39 repeater length: 25
28486 55101 GATTAATCCTGTAGGGAATTGAAAG TGATAGTGCTACATTATTTAAATTCATTATATGCTT spacer
length: 38 repeater length: 25
28487 55165 GATTAATCCTGTAGGGAATTGAAAG ATTAGAAACAATTATGAGTCAGTACGGCGTAACAAATACA spacer
length: 40 repeater length: 25
28488 55231 GATTAATCCTGTAGGGAATTGAAAG TTAACCTTCTACTATAAAAAGAACATACATCTCTCCATGGT spacer
length: 40 repeater length: 25
28489 55297 GATTAATCCTGTAGGGAATTGAAAG TTTGACATCACATCATCATCGAAGAAGACTGCTTTGA spacer length:
37 repeater length: 25
28490 55360 GATTAATCCTGTAGGGAATTGAAAG ATTAAATCAATTAAATCATCAGAATAAACTAAGTTCT spacer length:
37 repeater length: 25
28491 55423 GATTAATCCTGTAGGGAATTGAAAG TCATAAAGAGGAGCACTAACGCGAGCAGTAACAATCATCTT spacer
length: 41 repeater length: 25
28492 55490 GATTAATCCTGTAGGGAATTGAAAG CCAACTTTATTGGGATACAGTTAGAGCAGGTCTAAGAAAACCT spacer
length: 43 repeater length: 25
28493 55559 GATTAATCCTGTAGGGAATTGAAAG TTAACCTCAATTTCTGTAACGACTTGACAGCTTTTTATA spacer
length: 39 repeater length: 25
28494 55624 GATTAATCCTGTAGGGAATTGAAAG AGTAGCTTCGGCAGTAGACAGAGACTTTAAAGCTATATTA spacer
length: 40 repeater length: 25
28495 55690 GATTAATCCTGTAGGGAATTGAAAG TTTTCTAAGTTAGAACATATAATTATGTACTCTCCCCAG spacer
length: 39 repeater length: 25
28496 55755 GATTAATCCTGTAGGGAATTGAAAG GTTTTACTTGCCATGTCTTATCATCCTTTAAAAATGA spacer length:
37 repeater length: 25
28497 55818 GATTAATCCTGTAGGGAATTGAAAG TAGTAAACCATTTTTGTAGTGGATAAGATAATTTTCT spacer length:
37 repeater length: 25
28498 55881 GATTAATCCTGTAGGGAATTGAAAG TATTCAGTTTGATTGTACTGTGGCGAATGGTGAGGAAT spacer
length: 38 repeater length: 25
28499 55945 GATTAATCCTGTAGGGAATTGAAAG TACAGTATATCAGCTATCAATGAACATCTGCTTGATCA spacer
length: 39 repeater length: 25
28500 56010 GATTAATCCTGTAGGGAATTGAAAG ATGAATATATTAACAAACAAAGTAAATTTGTTTATC spacer
length: 39 repeater length: 25
28501 56075 GATTAATCCTGTAGGGAATTGAAAG AATTACATTGACTGCGATTTGTTAGAATCTAGAAG spacer length:
35 repeater length: 25
28502 56136 GATTAATCCTGTAGGGAATTGAAAG TAACGAAAAATGTTATTACTTGGCAAAAACGGGAATTT spacer
length: 39 repeater length: 25
28503 56201 GATTAATCCTGTAGGGAATTGAAAG CCCTTTCTGTTTTCTTCATTTCTTTTACCAACTCTTGA spacer
length: 39 repeater length: 25
28504 56266 GATTAATCCTGTAGGGAATTGAAAG ATAAAGACATTTATGAGTTTTATGCTAATCGAATTAA spacer length:
37 repeater length: 25

28505 56329 GATTAATCCTGTAGGGAATTGAAAG TGAGATAAAATTCATACTTTTTGAGAGAAGTGTCCAATTCA spacer
length: 41 repeater length: 25

28506 56396 GATTAATCCTGTAGGGAATTGAAAG CTAAACTACTTATAATCTTAGGTAACTCTTAGTG spacer length:
35 repeater length: 25

28507 56457 GATTAATCCTGTAGGGAATTGAAAG GCAATACCCTGGCGATAGACTAATTTACGAATTGCAAGAA spacer
length: 40 repeater length: 25

28508 56523 GATTAATCCTGTAGGGAATTGAAAG TTTTCTGCCTTTTTATTTGTCTCAAATTCAACCATTTTC spacer
length: 39 repeater length: 25

28509 56588 GATTAATCCTGTAGGGAATTGAAAG TTAGTAATGTTTACACTTTGTATACCACTTAAAGTAACT spacer
length: 39 repeater length: 25

28510 56653 GATTAATCCTGTAGGGAATTGAAAG ATTCCATATTTTGATTCAATACATATATCAGCATCCTTG spacer
length: 39 repeater length: 25

28511 56718 GATTAATCCTGTAGGGAATTGAAAG
ATCTTGTTCAACTGTATTCCATTAAATATTTTCGAGAAAAGATTAATCTTGTAGGGAATTGAAAGTTTCTGTTTCATATAGGAATTC
TTCTATCTGACCTTTTA spacer length: 103 repeater length: 25

28512 56847 GATTAATCCTGTAGGGAATTGAAAG ATAGAATACCCACATTTTTTTAAACATTTTCTAGACTT spacer
length: 39 repeater length: 25

28513 56912 GATTAATCCTGTAGGGAATTGAAAG ATATATTTTCGACTTGATTAATCAGAATATTTAAATGT spacer
length: 38 repeater length: 25

28514 56976 GATTAATCCTGTAGGGAATTGAAAG CGGAGGATGTAAGAAACGTCCTATGCCACCTATAAGAGATG spacer
length: 41 repeater length: 25

28515 57043 GATTAATCCTGTAGGGAATTGAAAG TATACCAGTCAATAGTACTTTAACATTAAGTAATTTCA spacer
length: 38 repeater length: 25

28516 57107 GATTAATCCTGTAGGGAATTGAAAG ACAATCAACTTCAATTTTGGATTCTCATCATGATATTT spacer
length: 38 repeater length: 25

28517 57171 GATTAATCCTGTAGGGAATTGAAAG ACCTTTTAGATTTTCTCAAAGCTAAGTACAAATTAATGA spacer
length: 39 repeater length: 25

28518 57236 GATTAATCCTGTAGGGAATTGAAAG TAGATAACATACTTAAAAATAGATATTTTTATGACCCGAAAA spacer
length: 42 repeater length: 25

28519 57304 GATTAATCCTGTAGGGAATTGAAAG TGTTGTCTTTGCCATTGTTTGAAGTTAGTTTACCCT spacer length:
37 repeater length: 25

28520 57367 GATTAATCCTGTAGGGAATTGAAAG TGTTCTCCGCTACTTGTATTTGCAATATATTGATTTGG spacer
length: 38 repeater length: 25

28521 57431 GATTAATCCTGTAGGGAATTGAAAG GATTTATTCTTCTCTTTTTTGTGCTGACCAAACCTTACCATAG spacer
length: 42 repeater length: 25

28522 57499 GATTAATCCTGTAGGGAATTGAAAG TTTTCACTCATTTAACTCATCCTCCTCAATCTTTTCT spacer length:
37 repeater length: 25

28523 57562 GATTAATCCTGTAGGGAATTGAAAG
TTGAAATAAATGGAATGTTAGGTAGTGTGTGTATCATTTGAAAACCTTAACGCTTATTTTATGAACAGTTCTGATTAAGAGAAGAAC
CTCAATTTTCAGATAATCCACAACTAAATGTTAGGTATAAGAAATGTCAGCACT spacer length: 141 repeater
length: 25

28524 57729 GATTAATCCTGTAGGGAATTGAAAG TCTTTATCAACTCTCATCTTATTGTCAGTCAGTCAGAGAA spacer
length: 40 repeater length: 25

28525 57795 GATTAATCCTGTAGGGAATTGAAAG CTTACTACTAGTATAGGTTTTTCTTCTTTCTTATTTATT spacer
length: 39 repeater length: 25

28526 57860 GATTAATCCTGTAGGGAATTGAAAG ATATAATTTATGTCTATAGTATCACTGCCGTTCCCCCA spacer
length: 38 repeater length: 25

28527 57924 GATTAATCCTGTAGGGAATTGAAAG TTTTTTTGTGTTTTCATTTTCTTTTCACCCCTATT spacer length:
36 repeater length: 25

28528 57986 GATTAATCCTGTAGGGAATTGAAAG AGTCCATTCAAGTTCGAAGGATCCGCCACGGCTAGACAAATA spacer
length: 41 repeater length: 25

28529 58053 GATTAATCCTGTAGGGAATTGAAAG TTGCTAGTAATAATGTACTATACATATTTATAGGTAA spacer length:
37 repeater length: 25

28530 58116 GATTAATCCTGTAGGGAATTGAAAG GAAACCCGTGCGTGATCATTTGGGTTGGGGGCTATCAACC spacer
length: 40 repeater length: 25

28531 58182 GATTAATCCTGTAGGGAATTGAAAG CTTGAAGCTACATCAGGAAACCATCCATTAGCCCAAATCCT spacer
length: 42 repeater length: 25

28532 58250 GATTAATCCTGTAGGGAATTGAAAG AAGAGATCCTAAAGTCTTTTATAAAACAAAGTTAGTT spacer length:
37 repeater length: 25

28533 58313 GATTAATCCTGTAGGGAATTGAAAG TTGGTCAATGTTAATTCATATTGTTAAGGTAATAAGCAG spacer
length: 39 repeater length: 25

28534 58378 GATTAATCCTGTAGGGAATTGAAAG TATAGGACTATTCTCACCAGCTTTGCTTATTATTAATAA spacer
length: 39 repeater length: 25

28535 58443 GATTAATCCTGTAGGGAATTGAAAG ATTTGAACGCCATCTAATATTTCCGTTCTATAAGTATC spacer
length: 38 repeater length: 25

28536 58507 GATTAATCCTGTAGGGAATTGAAAG CTTCAACGTCCTGATTAAAATACGTGTTAATGAA spacer length: 34
repeater length: 25

28537 58567 GATTAATCCTGTAGGGAATTGAAAG TCACCCTCTTTTGCTTTTATTTCTACTCTGTTTCATC spacer length:
36 repeater length: 25

28538 58629 GATTAATCCTGTAGGGAATTGAAAG TTTTGCTATATTTAGATTCTGATTTTAGTATCTCTAAAG spacer
length: 39 repeater length: 25

28539 58694 GATTAATCCTGTAGGGAATTGAAAG TCTATTTTTTAATAATCCTTCATATATCATATTGTCAC spacer length: 37 repeater length: 25
 28540 58757 GATTAATCCTGTAGGGAATTGAAAG TTAATTATGATTGAAATATATTTAAAGCTTTAGTTCA spacer length: 38 repeater length: 25
 28541 58821 GATTAATCCTGTAGGGAATTGAAAG GACAGAACGTAACCTCCTAACGGGGAACAAATTAAGAGCT spacer length: 40 repeater length: 25
 28542 58887 GATTAATCCTGTAGGGAATTGAAAG CACTTAGATGGCGTTAGTTGGAAATAGATGGTGAGAGAAA spacer length: 40 repeater length: 25
 28543 58953 GATTAATCCTGTAGGGAATTGAAAG TACAATAATACTGATTAAAAATATACTCAAAATCAAAA spacer length: 38 repeater length: 25
 28544 59017 GATTAATCCTGTAGGGAATTGAAAG TACAAAATGAAAATATGAATTTGATAAGTATTCCAATT spacer length: 38 repeater length: 25
 28545 59081 GATTAATCCTGTAGGGAATTGAAAG CAGGCTTACCACCTTATAAAATAAGCTCTCATTTAGTG spacer length: 38 repeater length: 25
 28546 59145 GATTAATCCTGTAGGGAATTGAAAG CCATATCATCATTGAACTTCACTCTTCTACCGTAATA spacer length: 37 repeater length: 25
 28547 59208 GATTAATCCTGTAGGGAATTGAAAG TTATAGTTCACATTAGCCCTAAGTGTATACGCAAAAACA spacer length: 39 repeater length: 25
 28548 59273 GATTAATCCTGTAGGGAATTGAAAG TTTTGTATCCACTTTAATGCAACTGACAGTAAAAGAATTGATTAATCTTATAGGGAATTGAAAGCTACATTATATTTTTCCAGTA ATTTATAAATTGTAATACC spacer length: 105 repeater length: 25
 28549 59404 GATTAATCCTGTAGGGAATTGAAAG ATTTTATGAAAATGATATTTGTCTAACAAATATTGTTG spacer length: 38 repeater length: 25
 28550 59468 GATTAATCCTGTAGGGAATTGAAAG CCTTCAAGAGTCTCATAATTCTTAAATAAGATCAATCT spacer length: 38 repeater length: 25
 28551 59532 GATTAATCCTGTAGGGAATTGAAAG TAAGATATGCAAAGGAATATCATGAAATAGAGTATTCTA spacer length: 39 repeater length: 25
 28552 59597 GATTAATCCTGTAGGGAATTGAAAG TATATAATTCGTTTATTGATAAAGCAATTAAATATATGG spacer length: 39 repeater length: 25
 28553 59662 GATTAATCCTGTAGGGAATTGAAAG TTTGAATGCAATTTGTAAAAAATTGAATTATCTTTAA spacer length: 38 repeater length: 25
 28554 59726 GATTAATCCTGTAGGGAATTGAAAG CACTCATTTAACTCATCCTCCTCAATCTTTCCTTGATT
 28555
 28556
 28557 crispr 6
 28558 48079 TGATTAATCCACTATGGAATTGAAAG ATCAAGAGCTCAATTTTTCTTTTATAGAGATATTGATC spacer length: 38 repeater length: 26
 28559 48144 TGATTAATCCACTATGGAATTGAAAG TTGTATTTTATTATCTTCTCGTGAATAAATGTTTTTGTGTCTC spacer length: 43 repeater length: 26
 28560 48214 TGATTAATCCACTATGGAATTGAAAG TACCATTTGCCAAATGCTAGCTTGCTTGTAAGTATTGATTAATCTC
 28561
 28562
 28563 crispr 7
 28564 547249 AGCTGAGTACAATAATGTTGCTATGAAGGCTAAAGAAGAA GGGCATGTAGACGTAGAGAAGATGTTATGCGCTTATGCAGAGCAAGAAAAGACATTGCAACAACCTTCACAAAAGTTTTAGCTAT GTTGAAGGATTTTGCTAAGGAGGAAGATGAGGAGCACA spacer length: 124 repeater length: 40
 28565 547414 AGCTGAGTACAATAATGTTGCTATGAAGGCTAAAGAAGAA GGATACGTCGATATAGAAACAATGCTCTGTGCCTATGCAGACCAAGAGAAAGGAATAGCTGAAACATCTGCTAGAGTTTTAGCTAT GTTGAAGGATTTTGCTAAGGAGGAAGATGAGGAGCACA spacer length: 124 repeater length: 40
 28566 547579 AGCTGAGTACAATAATGTTGCTATGAAGGCTAAAGAAGAA TAGAGAAGATGTTATGCGCTTATGCAGAGCAAGAAAAGACATTGCAGAGACTACTAAGAAAGTAATTAGAAACCTATAAGCTATA TTTAATTTTTTGATTACCTATTTTACGCTTAGTATAGT
 28567
 28568
 28569 GCA_002156705.1_ASM215670v1_genomic.fna(findCrispr):
 28570 START REPEAT
 28571 SPACER
 28572 crispr 1
 28573 1702795 TCGCCGACGGATTGCTCGAC CGTCTCCTGGACGGTTTCTTCGACGGACTGTTTCGACGGT spacer length: 39 repeater length: 20
 28574 1702855 TCGCCGACGGATTGCTCGAC CGTCTCCTGGACGGTTTCTTCGACGGACTGTTTCGACGGTCTCCTGGACCGTCTCTTCGACCG ACTTCTCGACGGTTTCTTGAACAGATTGCTCGACCGTTTCCCCGACCGTCGCTTCGACGGATTGTTTCGACCGT spacer length: 159 repeater length: 20
 28575 1703035 TCGCCGACGGATTGCTCGAC AGACGGCGAGAAAGTCCCCGAGAAAGCGGACAAGAAGCCCCACGCCTAGAGTCACTCGAGTCGAGTGATTTCGGGACACGGACCGCT TCGTCACTGACCGACGCCGATTTTTCGAACCCTCTCCAGCCACCCGACCTCACGTCGATGGGGCGCTCGAGGT
 28576
 28577 crispr 2
 28578 1482256 ACGACAAAAAAGCCGACGAGA AAGCAGACGACCACGAATAC spacer length: 20 repeater

length: 21
28579 1482298 ACGACAAAAAGCCGACGAGA AAGCAGACAACCACGAATAC spacer length: 20 repeater
length: 21
28580 1482340 ACGACAAAAAGCCGACGAGA ACGGCGAGAAAGTCCCCGAG
28581
28582
28583 crispr 3
28584 244093 GGTTCAAATCCGGTCCCGCGCA
TGGTTCTGCGGCGAGCAATTTTCGCGAGCCGAGGTTCTGCATCGACCGGATTTGAATCAGGGAGCACTTCGTTGCGACCG
spacer length: 80 repeater length: 22
28585 244196 GGTTCAAATCCGGTCCCGCGCA
CTGAGGAGCGAAGCGACGACGGAGCAGGAGCGGATTTGAGGTAGAGAAGGCGTGCGCAGCGAAGTGAGCACGTCTTCGCG
spacer length: 80 repeater length: 22
28586 244299 GGTTCAAATCCGGTCCCGCGCA
TTGCTGTGCGGAGCAAACCTCGCGAGCGAGAGCAATCCCCACCGAGTGAATCAGGGAGCACTTCGTTGCGACCG spacer
length: 74 repeater length: 22
28587 244396 GGTTCAAATCCGGTCCCGCGCA
GGCGAGAAAGTCCCCGAGAAAGCGGACAAGAAGCCCCACGCCTAGAGTCACTCGAGTCGAGTGATTTCGGGACAC
28588
28589
28590 crispr 4
28591 976423 GGTTCGATTCTCGCACCCGGAC
TTTTTCACGACGACCGCAGGGAGGAGTGAAAAAGCCGGAAGGCGAGATCGAACCACGCGAGACGAACGAAGTGAGTCTCGCAGTC
spacer length: 85 repeater length: 22
28592 976531 GGTTCGATTCTCGCACCCGGAC
TTTTTCACGACGAACGGACGTGAGGAGCGAAAAGCCCCGACCGAAAATCGAATCAGGGAGTGAAGTGAGCGAAGCGAACGGAACGAC
CG spacer length: 88 repeater length: 22
28593 976642 GGTTCGATTCTCGCACCCGGAC
GCGAGAAAGTCCCCGAGAAAGCGGACAAGAAGCCCCACGCCTAGAGTCACTCGAGTCGAGTGATTTCGGGACACGGACCGCTTCGTC
AC
28594
28595
28596 crispr 5
28597 244193 CGTGGTTCAAATCCGGTCCCGCGCA
CTGAGGAGCGAAGCGACGACGGAGCAGGAGCGGATTTGAGGTAGAGAAGGCGTGCGCAGCGAAGTGAGCACGTCTTC spacer
length: 77 repeater length: 25
28598 244296 CGTGGTTCAAATCCGGTCCCGCGCA
TTGCTGTGCGGAGCAAACCTCGCGAGCGAGAGCAATCCCCACCGAGTGAATCAGGGAGCACTTCGTTGCGA spacer
length: 71 repeater length: 25
28599 244393 CGTGGTTCAAATCCGGTCCCGCGCA
ACGCGAAGCCGGTTCGGATCAGGGAGGTGCAACGCTCCGACCGTGGTTCGAGCCGGTCTGAGCCGTCTCAA
28600
28601
28602 crispr 6
28603 3678642 GACGACCTCATCGGCGACGACGACGAT ACAACCAGAGACGATGAAGGACTGATGGGGGACGACGA spacer
length: 38 repeater length: 27
28604 3678708 GACGACCTCATCGGCGACGACGACGAT GAAGGACTGATGGGGGACGACGA spacer length: 23
repeater length: 27
28605 3678759 GACGACCTCATCGGCGACGACGACGAT CACGCTGGCCCCGGGTGCCGATGC
28606
28607
28608 crispr 7
28609 1811440 GCCAGCACACGCTGGCCCCGGGTGCCGA CAACGAGAGCAATCAGGGGC spacer length: 20 repeater
length: 27
28610 1811488 GCCAGCACACGCTGGCCCCGGGTGCCGA CAACGAGAGCGATCAGGGGC spacer length: 20 repeater
length: 27
28611 1811536 GCCAGCACACGCTGGCCCCGGGTGCCGA CAACGAGAGCGATCAGGGGC spacer length: 20 repeater
length: 27
28612 1811584 GCCAGCACACGCTGGCCCCGGGTGCCGA GTGCAACGCTCCGACCGTGG
28613
28614
28615 crispr 8
28616 475844 TCTGGCGCGAACAGCCCGTGAGCGGCAGGTCCCAACGCGA
AGCCGGTTCGGATCAGGGAGGTGCAACGCTCCGACCGTGGTTCGAGCCGGTCTGAGCTGGA spacer length: 61
repeater length: 40
28617 475946 TCTGGCGCGAACAGCCCGTGAGCGGCAGGTCCCAACGCGA
AGCCGGTTCGGATCAGGGAGGTGCAACGCTCCGACCGTGGTTCGAGCCGGTCTGAGCCGGA spacer length: 61
repeater length: 40
28618 476048 TCTGGCGCGAACAGCCCGTGAGCGGCAGGTCCCAACGCGA
ACAGGAACCGCAGTTACGTTTCGTCACCGTTCGCCCCGTGAGTGTGTCGCGCCGTCAGGTCC
28619

28620
28621 GCA_002156965.1_ASM215696v1_genomic.fna(findCrispr):
28622 START REPEAT
SPACER
28623 crispr 1
28624 1004036 CACCTCTCAAATCCGCACCT TCCAAACTTGCAAGTATCAAATCC spacer length: 24 repeater
length: 20
28625 1004081 CACCTCTCAAATCCGCACCT CTCAAATTCGCACCACTCAAATCTAAACCTGTCAATTTT spacer length:
39 repeater length: 20
28626 1004141 CACCTCTCAAATCCGCACCT AGAGAAAAGCAGCAAAAAGACGATAACCTCGTTTGCAA
28627
28628
28629 crispr 2
28630 806160 CCAGTTGGACCAGTTGCACC
TTTGTACCTTTGTCTCCAGGAGGGCCAGTAACTCCTTTGTACCTTTGTCTCCTTTGTCTCCAGTGATACCTTTTTGTCCAGAAA
GTCCTTTGTCTCCAGAAAAGTCCTCTATCACCAGTGGAACCTTTGTC spacer length: 132 repeater length: 20
28631 806313 CCAGTTGGACCAGTTGCACC
TTTGTACCTTTGTCTCCAGTTGGACCAGTTTTACCTTTGTACCTTTGTCTCCAGAGGGACCAGATTGACCTTTGTC
spacer length: 78 repeater length: 20
28632 806412 CCAGTTGGACCAGTTGCACC
AAGCAGCTCCAAAGAGAAAAGCAGCAAAAAGACGATAACCTCGTTTGCAAATTAACAATCGTCATATAGACGACGAAT
28633
28634
28635 crispr 3
28636 511995 CATTGTTGATTTTCATTTTAAA TCCCACATAGCGTAAGCTAT spacer length: 20 repeater length:
21
28637 512037 CATTGTTGATTTTCATTTTAAA TCACACATAGCGTAAGCTAT spacer length: 20 repeater length:
21
28638 512079 CATTGTTGATTTTCATTTTAAA TCACACATAGCGTAAGCTAT spacer length: 20 repeater length:
21
28639 512121 CATTGTTGATTTTCATTTTAAA AGAAAAGCAGCAAAAAGACG
28640
28641
28642 crispr 4
28643 445067 GCTAAAAAAGTAACAAAAAAA GTTACAGCCAAAAAACCAC spacer length: 20 repeater length:
21
28644 445109 GCTAAAAAAGTAACAAAAAAA GTTACAGCCAAAAAACCGC spacer length: 20 repeater length:
21
28645 445151 GCTAAAAAAGTAACAAAAAAA ACGCAAAGCAGCTCCAAAGA
28646
28647
28648 crispr 5
28649 1045777 GGTCTGTTGGGTTGGTTCTGGT
TCAGGTTCTGGTTCAGGTTCTGGTTCAGGTTCTGGTTCAGGTTCTGGTTCAGGTTCTGGTTCAGGTTCTGGTTCAGGTTCTGGTTC
AGGTTCTGGTTCAGGTTCTGGTTCAGGTTCTGGTTC spacer length: 116 repeater length: 21
28650 1045915 GGTCTGTTGGGTTGGTTCTGGT GTTGGTTCGGTGTGGTTCGGTGTGGTTCGGGTT spacer length:
38 repeater length: 21
28651 1045975 GGTCTGTTGGGTTGGTTCTGGT GCAGCTCCAAAGAGAAAAGCAGCAAAAAGACGATAACC
28652
28653
28654 crispr 6
28655 805503 CCTTGTGGACCTTGTGGACCTTT TTCTCCAGAGGGACCAGTAGTTCACGTTACCTTGTGT spacer
length: 39 repeater length: 23
28656 805566 CCTTGTGGACCTTGTGGACCTTT
GTCTCCAGGAGGACCAGATGCACCAGTATTTTCCTTTTTCTCCAATTGGGCCAAGAGGACCTTTGTCACCCTTTTCACCTTGAGGTC
CAGGACTCCAGTTAATCCTTTAGCACCAGCTGG spacer length: 120 repeater length: 23
28657 805710 CCTTGTGGACCTTGTGGACCTTT
GGGGATACTTGGACTGCTGCTACTACAACAAATGTAGGTACCACTAACATGCGCGGAGTCTCAATGAGTGATGCAAGTAACGGTGT
AGCTGTTGGCAGTTCAGGAACAATAGTATTTGCA
28658
28659
28660 crispr 7
28661 1003517 TCAAATTCGCACCACTCAAATTC
GCAAGTTTCAAATTCGCAAGTTTCAAATTCGCACCACTCAAATCTGCATCTTTCAAATTTGCACCTATCAAACCTTGACCTTCCAA
TTCCGCACCTCTCAAATCCACACCTTCCAATTCGCACCTCTCAAATTCGCATCTTTCAAATCCACACCT spacer
length: 156 repeater length: 23
28662 1003697 TCAAATTCGCACCACTCAAATTC ACACCTCTAAAATCCAAACCATTCAAATTCAAATCTTTCAAATCCAAACCT
spacer length: 51 repeater length: 23
28663 1003772 TCAAATTCGCACCACTCAAATTC GCATTGTTGATTTGAAATTTAGTCTTTAACAAATTTGATCTTTGAATCATT
28664
28665

28666 crispr 8
 28667 980516 GAGAATATCAAAAATCGTTAGAGTGT
 ATTGAAAAGATACTGTCAAATAATTTGAATGATGTTGATGCTTGGGCTACAAAAGCTGATGCACTACGCAATATT spacer
 length: 75 repeater length: 26
 28668 980618 GAGAATATCAAAAATCGTTAGAGTGT
 TTCGACAAGGCACTGACAATAGATAAAAAATAATTCAACTCATAAGACTGAAAATTTATCTGTGAGTACAAGAAAATTTGTTTTAAT
 TACTAAAGGAAATGTTTTACAAGAACTT spacer length: 114 repeater length: 26
 28669 980759 GAGAATATCAAAAATCGTTAGAGTGT
 ACTAAAACCTAAATCTGTCAATTCGCGCATCTATCAAATTCGCACCACTCAAATCCGTAAAGGACAATTTTCGCACCTCTCAAACCTCG
 CACCTTCCAATTCGCGCACCTCTCAATTC
 28670
 28671
 28672 crispr 9
 28673 213528 TTCCAAGACGATGACGGCTGTCCTGA
 TGACGTATTTTCTGAAATTATTATTTATGATTCTGATTATGATGGTATCTTAGATAATGTAGACAAATGCATTTTCATTACCTGAAA
 CTTTTAACAA spacer length: 96 repeater length: 26
 28674 213651 TTCCAAGACGATGACGGCTGTCCTGA
 CTTTGTTCACAAACTGATTCTGATTATGATTCTATTCTTGATGTCTTTGATAGTTGTAAATATGCAGTAGAACTTACAACGG
 spacer length: 84 repeater length: 26
 28675 213762 TTCCAAGACGATGACGGCTGTCCTGA
 GCAGCAAAAAGACGATAACCTCGTTTGCAAATTAACAATCGTCATATAGACGACGAATTGTTTTTCATTTTTCTAATTCATTTAG
 28676
 28677
 28678 crispr 10
 28679 547078 ACTTGGACTGCTGCTACTACAACAAATGT
 AGGTACCAATTACATGCGCGGAGTCTCAATGAGTGATGCAAGTAACGGTGTAGCTGTTGGACATACAGGAACCATAGTATACACTA
 GTGATGGTGGGGA spacer length: 99 repeater length: 29
 28680 547207 ACTTGGACTGCTGCTACTACAACAAATGT
 GGCTGGCACTCACATGGAAGGAGTCTCAATGAGTGATGCAAACAACGGTGTAGCTGTTGGTCATTTAGGACAAATAGTATACACTA
 GTGATGGTGGGGA spacer length: 99 repeater length: 29
 28681 547336 ACTTGGACTGCTGCTACTACAACAAATGT
 AGGTACCACTAACATGTACGGAGTCTCAATGGGTGATGCAAACAACGGTGTAGCTGTTGGTGATTTCAGGACAAATAGTATACACTA
 GTGATGGCGGTGA spacer length: 99 repeater length: 29
 28682 547465 ACTTGGACTGCTGCTACTACAACAAATGT
 AGGTACCAATTACATGCGCGGAGTCTCAATGAGTGATGCAAGTAACGGTGTAGCTGTTGGCAGATCAGGACAAATAGTATACACTA
 GTGATGGCGGTGA spacer length: 99 repeater length: 29
 28683 547594 ACTTGGACTGCTGCTACTACAACAAATGT
 AGGTGCCACTCACCTGTACGGAGTATCAATGGGTGATGCAAACAACGGTGTAGCTGTTGGTGATTTCAGGACAAATAGTATACACTA
 GTGATGGTGGGGA spacer length: 99 repeater length: 29
 28684 547723 ACTTGGACTGCTGCTACTACAACAAATGT
 GGCTGGCACTCACATGCGCGGAGTCTCAATGAGTGATGCAAGTAACGGTGTAGCTGTTGGTGGAACCTCAAATAGTATACACTAGTG
 ATGGTGGGGA spacer length: 96 repeater length: 29
 28685 547849 ACTTGGACTGCTGCTACTACAACAAATGT
 TATGATCAACAATTCTCAAATGATTCTGATGGCGATGGAATTATAGACAATCTTGACCTTTGTCCTAATTCCTGAAAATTATAA
 TCGATTCTTA
 28686
 28687
 28688 crispr 11
 28689 804668 AAAGCAGCTCCAAAGAGAAAAGCAGCAGCAAAA CGCAAAGCAGCTCCAAAGAG spacer length: 20
 repeater length: 33
 28690 804722 AAAGCAGCTCCAAAGAGAAAAGCAGCAGCAAAA CGCAAAGCAGCTCCAAAGAGAAAAGTGCAGCAAA spacer
 length: 35 repeater length: 33
 28691 804791 AAAGCAGCTCCAAAGAGAAAAGCAGCAGCAAAA CGCAAAGCAGCTCCAAAGAGAAAAGTGCAGCAAA spacer
 length: 35 repeater length: 33
 28692 804860 AAAGCAGCTCCAAAGAGAAAAGCAGCAGCAAAA CGCAAAGCAGCTCCAAAGAG spacer length: 20
 repeater length: 33
 28693 804914 AAAGCAGCTCCAAAGAGAAAAGCAGCAGCAAAA CGCAAAGCAGCTCCAAAGAGAAAAGCAGCAACTAG spacer
 length: 35 repeater length: 33
 28694 804983 AAAGCAGCTCCAAAGAGAAAAGCAGCAGCAAAA CCAAAGAGAAAAGCAGCAAAAAGACGATAACCTCG
 28695
 28696
 28697 GCA_002197185.1_ASM219718v1_genomic.fna(findCrispr):
 28698 START REPEAT
 SPACER
 28699 crispr 1
 28700 389955 CTTTCAATTCTCCTAAAGTCTTATTG CAACCTCCGGAACGTCTCCATGGCTTTGAGTGCCAGCCAC spacer
 length: 41 repeater length: 26
 28701 390023 CTTTCAATTCTCCTAAAGTCTTATTG CAACCTGCATTTTAGACATCCGTTTCATTTTGTCCCG spacer
 length: 36 repeater length: 26
 28702 390086 CTTTCAATTCTCCTAAAGTCTTATTG CAACCTCCTCCCAGTCCTGCTTCGTGAGCTCGCTTCCGAA spacer
 length: 40 repeater length: 26

28703 390153 CTTTCAATTCTCCTAAAGTCTTATTG CAACGGCTAGGTGGTCTGCTGCTGGGCCTGTTTGCTTTC spacer
length: 39 repeater length: 26
28704 390219 CTTTCAATTCTCCTAAAGTCTTATTG CAACTAGTCCCTTGGGAGCAGGTGGAGCTCGTGAACCCC spacer
length: 39 repeater length: 26
28705 390285 CTTTCAATTCTCCTAAAGTCTTATTG CAACTTCAGCTCGAAGGTGGGGAATGGGCGCTCTCGTTCCT spacer
length: 41 repeater length: 26
28706 390353 CTTTCAATTCTCCTAAAGTCTTATTG CAACCGGTAAATATCTATTATATCTATGTCCACTTTAC spacer
length: 39 repeater length: 26
28707 390419 CTTTCAATTCTCCTAAAGTCTTATTG CAACCCGAACAAAAGGAGGAGGTGAAGTGATTGGAAGAT spacer
length: 39 repeater length: 26
28708 390485 CTTTCAATTCTCCTAAAGTCTTATTG CAACCCCTGGTCTCGAGAAGGCCAAAACCTTTGAGCAC spacer
length: 39 repeater length: 26
28709 390551 CTTTCAATTCTCCTAAAGTCTTATTG CAACAGCTATAGCTTTGGGCCTTATGAGGGGCACAGCTTT spacer
length: 40 repeater length: 26
28710 390618 CTTTCAATTCTCCTAAAGTCTTATTG CAACGAGAATTCTGATACCCTCAGTTTAGAGAATGTGTT spacer
length: 39 repeater length: 26
28711 390684 CTTTCAATTCTCCTAAAGTCTTATTG CAACCTCGAGCGGGCTGCGGAGGATCATGCGCCACCCCC spacer
length: 40 repeater length: 26
28712 390751 CTTTCAATTCTCCTAAAGTCTTATTG CAACTTACAAGCCGTCGGATTTAACCGCACTTGCGATTTT spacer
length: 40 repeater length: 26
28713 390818 CTTTCAATTCTCCTAAAGTCTTATTG CAACTGTTAAATAGGCCCTCCCCAGGCCACGCCGAGACG spacer
length: 39 repeater length: 26
28714 390884 CTTTCAATTCTCCTAAAGTCTTATTG CAACGTGAGTGTTAAAGCCGTACGTCCTCTTGCAATAT spacer
length: 38 repeater length: 26
28715 390949 CTTTCAATTCTCCTAAAGTCTTATTG CAACTTTGATTTTCGGCTTTTTCACGGGGGAGGGGTCGCTCTG spacer
length: 41 repeater length: 26
28716 391017 CTTTCAATTCTCCTAAAGTCTTATTG CAACCCGAAGATTGAGGTCGTCCACTATCACATCAAATGG spacer
length: 40 repeater length: 26
28717 391084 CTTTCAATTCTCCTAAAGTCTTATTG CAACGGCCTGGTGGCGAATGAGAACGGCCTCTGGTTTGT spacer
length: 39 repeater length: 26
28718 391150 CTTTCAATTCTCCTAAAGTCTTATTG CAACGTGAGAGATTCAATCAAAGAAAAGCTTAGGCGTATA spacer
length: 40 repeater length: 26
28719 391217 CTTTCAATTCTCCTAAAGTCTTATTG CAACCTTTTGGCGACGTTGAGCGTTTCAGTAGTTCCGGTT spacer
length: 40 repeater length: 26
28720 391284 CTTTCAATTCTCCTAAAGTCTTATTG CAACTAGGAAGGGAGCGGACTTAAGGTTTTACGACGATG spacer
length: 39 repeater length: 26
28721 391350 CTTTCAATTCTCCTAAAGTCTTATTG CAACTATTCGCTTTCGCAAACATGATGATTGTGTAATCTGA spacer
length: 41 repeater length: 26
28722 391418 CTTTCAATTCTCCTAAAGTCTTATTG CAACTTTACGTGGTTCCAGGTCATGGGCGTTGGTTCTGAG spacer
length: 40 repeater length: 26
28723 391485 CTTTCAATTCTCCTAAAGTCTTATTG CAACTGAATAAGTGATAATTCCGTGATTCCCTAATGAGAA spacer
length: 39 repeater length: 26
28724 391551 CTTTCAATTCTCCTAAAGTCTTATTG CAACTAGCCGTTTCAGAGCATTAACCGGAACGTTGAACTCC spacer
length: 40 repeater length: 26
28725 391618 CTTTCAATTCTCCTAAAGTCTTATTG CCCGACGTCTCGAACGTCACTATTCTCGTCCCGCTCACTT
28726
28727
28728 crispr 2
28729 1098375 CCTTTCAATTCTCCTAAAGTCTTATTGCAACC GTCTACGTGAGCGGTGTTGCTCCTGAGGCGAACAT spacer
length: 35 repeater length: 32
28730 1098443 CCTTTCAATTCTCCTAAAGTCTTATTGCAACC GGGGCGATGCTCGCGACGATTTTCTCGACGATT spacer
length: 33 repeater length: 32
28731 1098509 CCTTTCAATTCTCCTAAAGTCTTATTGCAACC TCTCGAACGTCACTATTCTCGTCCCGCTCACTT
28732
28733
28734 GCA_002201895.1_ASM220189v1_genomic.fna(findCrispr):
28735 START REPEAT
SPACER
28736 GCA_002214165.1_ASM221416v1_genomic.fna(findCrispr):
28737 START REPEAT
SPACER
28738 GCA_002214365.1_ASM221436v1_genomic.fna(findCrispr):
28739 START REPEAT
SPACER
28740 crispr 1
28741 529498 GTTTCGGTAGAACGGTATCGTGTGGAAAG GTTTTCAAAGTTTATAAACTTTTCGATCTTTGGCAAGA spacer
length: 38 repeater length: 29
28742 529566 GTTTCGGTAGAACGGTATCGTGTGGAAAG TAGTCCCCTATCGAGATTATGTCCGCCCTCTTGACGAG spacer
length: 38 repeater length: 29
28743 529634 GTTTCGGTAGAACGGTATCGTGTGGAAAG
GTGGAAATACCGCAGTGGTCGATAGATTTAGTTTTTGGCTTTCCACAC spacer length: 48 repeater length: 29

28744 529712 GTTTCCTAGAACGGTATCGTGTGGAAAG CTCATCACCTCAATACTCAACAACCTTACCATCAACCTG spacer
length: 39 repeater length: 29
28745 529781 GTTTCCTAGAACGGTATCGTGTGGAAAG CCGCTTTTCCCGTTGATCCGTTCCATTACGTCGAAA spacer
length: 36 repeater length: 29
28746 529847 GTTTCCTAGAACGGTATCGTGTGGAAAG ATGAGCTCATCTATCCGCTCTTCATATATCAGATCTA spacer
length: 37 repeater length: 29
28747 529914 GTTTCCTAGAACGGTATCGTGTGGAAAG GAATAGTCAACAAATTACCACCGTTATAGGAGAAAA spacer
length: 36 repeater length: 29
28748 529980 GTTTCCTAGAACGGTATCGTGTGGAAAG CGAGATAAAAACCTCCAAACACATGCTTGAATGTCAC spacer
length: 37 repeater length: 29
28749 530047 GTTTCCTAGAACGGTATCGTGTGGAAAG GGGTCCCGGGTAATCATATATATATGGCCCGGGTA spacer
length: 35 repeater length: 29
28750 530112 GTTTCCTAGAACGGTATCGTGTGGAAAG ACCACGACCCCCCAGCGAGGCGGGGGTCGTACGTGGCC spacer
length: 39 repeater length: 29
28751 530181 GTTTCCTAGAACGGTATCGTGTGGAAAG TTAATTCTTCCCGTTCCTGCATTTGCGAGTACCGCCGGA spacer
length: 40 repeater length: 29
28752 530251 GTTTCCTAGAACGGTATCGTGTGGAAAG TGCGATACCGATATACCCTTTCAATCAACTGTA spacer
length: 33 repeater length: 29
28753 530314 GTTTCCTAGAACGGTATCGTGTGGAAAG ACTTCGTCTGGGACGGGAGTAATCCCGTTCCCA spacer
length: 34 repeater length: 29
28754 530378 GTTTCCTAGAACGGTATCGTGTGGAAAG TCTCCTCCCCCAATCGCAGCAGTTTACGAGATCCCA spacer
length: 37 repeater length: 29
28755 530445 GTTTCCTAGAACGGTATCGTGTGGAAAG ATCAGCTCGCACTTAGGGGTCCTTCGGGCAACAACGT
28756
28757
28758 crispr 2
28759 1567625 CTTTCAATTCTCCTCGAGTCTTATTGCAAC CCGTCCAGAGGGCCGTTAATTACTGGCTAAACTCACA spacer
length: 37 repeater length: 30
28760 1567693 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCGAGGCTAAAGGACTACCTCGAGGAGCACAAGGACG spacer
length: 37 repeater length: 30
28761 1567761 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GCGGCATCAGGGGGCTACGTGCTGATTGAGCTGAAC spacer
length: 36 repeater length: 30
28762 1567828 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCACCTCAGAATAATTTTATCTCAGAATAATTTTATCCC
spacer length: 39 repeater length: 30
28763 1567898 CTTTCAATTCTCCTCGAGTCTTATTGCAAC AGTTCCGATTTCCGCGTTCATGAGGTTAAGACCGCCA spacer
length: 37 repeater length: 30
28764 1567966 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GGAATCAGCTCGCACTTAGGGGTCCTTCGGGCAACAA
28765
28766
28767 GCA_002214385.1_ASM221438v1_genomic.fna(findCrispr):
28768 START REPEAT
SPACER
28769 crispr 1
28770 157260 GTTTCATTCTCCTAAAGTCTTATTGCAAC CTTTCTCATCTACAACCAAACGAACAACATCACCGT spacer
length: 36 repeater length: 30
28771 157327 GTTTCATTCTCCTAAAGTCTTATTGCAAC TTGCCGTCCACGAAGACTTTGGCATTGACTGTTAG spacer
length: 35 repeater length: 30
28772 157393 GTTTCATTCTCCTAAAGTCTTATTGCAAC TACTTCAACAGCACGACGGGCTACCCGAGGCTCACTA spacer
length: 37 repeater length: 30
28773 157461 GTTTCATTCTCCTAAAGTCTTATTGCAAC CGTTACCGTCCACAAGCACCTTTGCGTTCACAGTCAA spacer
length: 37 repeater length: 30
28774 157529 GTTTCATTCTCCTAAAGTCTTATTGCAAC GGCTTTTTCTTCGTTTCGTCCAACAAGAGAATAAGAA
28775
28776
28777 GCA_002214465.1_ASM221446v1_genomic.fna(findCrispr):
28778 START REPEAT
SPACER
28779 crispr 1
28780 407187 ATTCTCCTAGAGTCTTATTG CAACCCCTTCTTGATGCTCCCTACGATGAGTCAACCCGCCCTTTC spacer
length: 45 repeater length: 20
28781 407253 ATTCTCCTAGAGTCTTATTG CAACCCGGCCAAGGTTTTGGTCGCGTTGTCGGAGAACGTCGCTTTC spacer
length: 46 repeater length: 20
28782 407320 ATTCTCCTAGAGTCTTATTG CAACAAAGACGATTTGGATAACGCAACCGTCACTAAAATTTCTTTC spacer
length: 46 repeater length: 20
28783 407387 ATTCTCCTAGAGTCTTATTG CAACGCTGAGAAGTACATACTTGATAAGATACTTGATGTTCTTTC spacer
length: 45 repeater length: 20
28784 407453 ATTCTCCTAGAGTCTTATTG CAACCTGGATTGTACTTCACTGTAACCTTTCTTTCCCGCTTCCTTTC spacer
length: 46 repeater length: 20
28785 407520 ATTCTCCTAGAGTCTTATTG CAACTCTACATCGTCGTTCCGCCCAACAAGGCGCTTTATTTGACTTTC spacer
length: 49 repeater length: 20
28786 407590 ATTCTCCTAGAGTCTTATTG CAACACGCCCGCGACAAGAAAGGTCTGACTAACATTTACCTTTC spacer


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length: 44 repeater length: 20
28787 407655 ATTCTCCTAGAGTCTTATTG CAACGCTCGCCTGGATCGAGCCAGTCACCCAATTCCAGAACCTTTC spacer
length: 46 repeater length: 20
28788 407722 ATTCTCCTAGAGTCTTATTG CAACCCTGAATCAAAGTTCAAGTATTACTCCGATGAAGTTTCTTTC spacer
length: 46 repeater length: 20
28789 407789 ATTCTCCTAGAGTCTTATTG CAACGTGGCTGAACATTGCGCCCATCTTCCCGACCATCAACCCTTTC spacer
length: 47 repeater length: 20
28790 407857 ATTCTCCTAGAGTCTTATTG CAACAAACCTTATTAGATGAACATCTGATAAGCAACTGATAACTTTC spacer
length: 47 repeater length: 20
28791 407925 ATTCTCCTAGAGTCTTATTG CAACCCGTTACAGGGGGTAGTTTATTTTTACTAGGAAAACCTTTC spacer
length: 45 repeater length: 20
28792 407991 ATTCTCCTAGAGTCTTATTG CAACCTACCTCGCTTTCTACATAGAGGCCGAGGACTTTAGCTTTC spacer
length: 45 repeater length: 20
28793 408057 ATTCTCCTAGAGTCTTATTG CAACCAGGACAATGACTTCAAGAACCTCGTCAGCGTCATCGCTTTC spacer
length: 46 repeater length: 20
28794 408124 ATTCTCCTAGAGTCTTATTG CAACCCCGCATCGTCGAAAAGCAGATAACCGACCCTAAGACCTTTC spacer
length: 46 repeater length: 20
28795 408191 ATTCTCCTAGAGTCTTATTG CAACATCCAGACCATTACATCCAGAATTTAAGAGTGCGCATCTTTC spacer
length: 46 repeater length: 20
28796 408258 ATTCTCCTAGAGTCTTATTG CAACGTCAAAGTGACAGGGAGCGCGTTAACGTTGCCATAACTTTC spacer
length: 46 repeater length: 20
28797 408325 ATTCTCCTAGAGTCTTATTG CAACTCATCGAGAGACCCGGGTATCGTTTGAAGTAGCGTCTTTC spacer
length: 44 repeater length: 20
28798 408390 ATTCTCCTAGAGTCTTATTG CAACGGCGGCGCTCATAGGGCACCACCCAGGGTCTTATATTCGCTTTC spacer
length: 48 repeater length: 20
28799 408459 ATTCTCCTAGAGTCTTATTG AGCAAGAAGCGCTTAGGCTGGGCGCGCCAACATATGTCGGTTGCAATA
28800
28801
28802 crispr 2
28803 1133614 CTTTCAATTCTCCAGAGTCTTATTGCAAC CTACGTATCAAACAGCACGACAGTTGACAACCTACT spacer
length: 35 repeater length: 30
28804 1133680 CTTTCAATTCTCCAGAGTCTTATTGCAAC ACCTCGTAAGCCACGTCCTCACGATTTACTTCAACA spacer
length: 36 repeater length: 30
28805 1133747 CTTTCAATTCTCCAGAGTCTTATTGCAAC AGCGCTTAGGCTGGGCGCGCCAACATATGTCGGTTG
28806
28807
28808 crispr 3
28809 859421 GTTGCAATAAGACTCCAGGAGAATTGAAAA TTCGTCGTCGACATCTCTGAAGACCTGCTCGATGA spacer
length: 35 repeater length: 30
28810 859487 GTTGCAATAAGACTCCAGGAGAATTGAAAA GCGGTCTTGGTCGCGGTGCGGACTTGCGCAACTGATAG spacer
length: 37 repeater length: 30
28811 859555 GTTGCAATAAGACTCCAGGAGAATTGAAAA GGCTTTAGGTTTCATCGTGACAGTCTTGCTTTTTCAT spacer
length: 35 repeater length: 30
28812 859621 GTTGCAATAAGACTCCAGGAGAATTGAAAA GGCTTTTGCCCTTTTTTGCCATTAAATTGTTAGA
28813
28814
28815 GCA_002214485.1_ASM221448v1_genomic.fna(findCrispr):
28816 START REPEAT
SPACER
28817 crispr 1
28818 1564431 CTTTCAATTCTCTTAGAGTCTTATTGCAAC AGCCACACGCCCGCTGCCTGACCATTCCATCGAACA spacer
length: 36 repeater length: 30
28819 1564498 CTTTCAATTCTCTTAGAGTCTTATTGCAAC GAAAGCGTAAAGCTCAGGGTGGGATTGAGTATCTC spacer
length: 35 repeater length: 30
28820 1564564 CTTTCAATTCTCTTAGAGTCTTATTGCAAC GGCTTTTCTCCATTCGCCCTACAAGACAATAAG
28821
28822
28823 GCA_002214505.1_ASM221450v1_genomic.fna(findCrispr):
28824 START REPEAT
SPACER
28825 crispr 1
28826 1584846 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC
TTGGGAGCAGTTGTGAAAGGAGTAGTAAAGGCTAAGGGAGACGAGCCCAAGCAGCCCA spacer length: 58
repeater length: 29
28827 1584934 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GTAAATATGGTGATGCTTTGTGGAAAGGGAAAAGGTAAAGTG
spacer length: 43 repeater length: 29
28828 1585007 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TTCCCTATTGACTTCTCTAACTTCCCGATTTCTCCGTTA
spacer length: 40 repeater length: 29
28829 1585077 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC
TACGGCCTCAATTTTGGCAGGAGTAGGTTATGCCCTCTCCTTTGGAGCTAACGCC spacer length: 55 repeater
length: 29

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28830 1585162 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TGAGTAGTGAATAATTCTTCGCCAGGGGGTGTGTGACGGGGA
 spacer length: 43 repeater length: 29
 28831 1585235 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GGTGAAAACATACGAAAACCTGGTTCATGCTCGAACTCAC spacer
 length: 39 repeater length: 29
 28832 1585304 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC
 GACCAGGACCTCGCGGCAGGAGCAACCATATACGTCTACGTTTACGACTCCG spacer length: 52 repeater
 length: 29
 28833 1585386 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC CCAATAACGATAAATTCAGATGGTGATGTTGTGGTAAAT spacer
 length: 39 repeater length: 29
 28834 1585455 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC
 GTTTCCATCGCGTTGTAAGTGTATCCGAACAGGGATTTTCATGCTTTCA spacer length: 48 repeater length: 29
 28835 1585533 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC
 CAAAGAAGTACTTGCTGAAATACTCTCGTCGATTATGGAAGAAACATGTCCAGAATTCAGC spacer length: 61
 repeater length: 29
 28836 1585624 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC GATTGTATACAAAAATTCACGAAATTTTGGTCCGGGGGCGGGGA
 spacer length: 44 repeater length: 29
 28837 1585698 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC TCTTTGTTGTGGCGGACATCACAGTATTGTTTTTCATCAACTGCG
 spacer length: 44 repeater length: 29
 28838 1585772 GTTTCCAAAGCTTAAGCTGGTTCTGAAAC CTTTTTCGCCCCTTTTGGCGAATAAAATAATGTTCTCCCTCCTT
 28839
 28840
 28841 crispr 2
 28842 1574054 GTTTCCAAAGCTTATGCTGGTTCTGAAAC ATAAATGAGAAGGTGGTCGAGTTCACGGTTAGCGTTGATGTCGGAG
 spacer length: 46 repeater length: 29
 28843 1574130 GTTTCCAAAGCTTATGCTGGTTCTGAAAC
 CCATTAGGCGGCAAAAGAGCGAAGGCCCTATCAGTACTGGCTGACAT spacer length: 47 repeater length: 29
 28844 1574207 GTTTCCAAAGCTTATGCTGGTTCTGAAAC TTTTGATAATCTTGAAGGTGAATCCAATAGCACACACCCTACA
 spacer length: 44 repeater length: 29
 28845 1574281 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CTTACCGTTATGCTCCACGTAAATCTTGTAATCGTGAACCTAGG
 spacer length: 45 repeater length: 29
 28846 1574356 GTTTCCAAAGCTTATGCTGGTTCTGAAAC
 ACCGCTGCGAACTACAACATAAGAGCCAAAAACAAAGACATCAGGGCAGCGTTGA spacer length: 55 repeater
 length: 29
 28847 1574441 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CTGGTAGTTCGCTAGATTTTCGAGTACATTAAAGATGTTGTGG
 spacer length: 43 repeater length: 29
 28848 1574514 GTTTCCAAAGCTTATGCTGGTTCTGAAAC GAAGCCGTTTGTGGAGATAGAGGTCGTTGGCCTTGAGACCA
 spacer length: 41 repeater length: 29
 28849 1574585 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CAGAATCAAGCACCTGCCAGTCAAGAAGTTCAGGAAAGTTCTCA
 spacer length: 44 repeater length: 29
 28850 1574659 GTTTCCAAAGCTTATGCTGGTTCTGAAAC
 GGAAACACCATAATAGCTAGAAACAAGGACATCCGAGCGTTCCTTAGGCACATAAGCT spacer length: 58
 repeater length: 29
 28851 1574747 GTTTCCAAAGCTTATGCTGGTTCTGAAAC
 TTTGGAGGTGATATGAGATGTGCAAGTACATGCTGATTGGAAAACAAGT spacer length: 49 repeater length:
 29
 28852 1574826 GTTTCCAAAGCTTATGCTGGTTCTGAAAC GATTGAGATGGAGGCAGGAACAGGGTACCCTTGTATGAGCA
 spacer length: 41 repeater length: 29
 28853 1574897 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CTTTGATCGGAGGTGAAGGATATGGAAGAGGTGTATGTTGGA
 spacer length: 42 repeater length: 29
 28854 1574969 GTTTCCAAAGCTTATGCTGGTTCTGAAAC CTTTTTCGCTCCTTTTGGCGAATAAAATAACGATCTTCCTCC
 28855
 28856
 28857 crispr 3
 28858 1733089 GTTTCCGTAGAACATGGTTGTGTGGAAAG TACTTTTTTTTGCCACTTATCATTTTGGATTTAGTGGCGACA
 spacer length: 41 repeater length: 29
 28859 1733160 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACAGAGAATGCAATCTTCATTCGCCTGCTGGATAA spacer
 length: 35 repeater length: 29
 28860 1733225 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAATGCCCTCCAGCCCCAGTGCAGGATTGAATACT spacer
 length: 36 repeater length: 29
 28861 1733291 GTTTCCGTAGAACATGGTTGTGTGGAAAG GACCGAACGGCTGGCTGGGGGGAAGTTTCTGAACTA spacer
 length: 37 repeater length: 29
 28862 1733358 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCATTTCCAGCACTGCCTCTCCGTCTTGGCTCCTAAA spacer
 length: 37 repeater length: 29
 28863 1733425 GTTTCCGTAGAACATGGTTGTGTGGAAAG TATATGTTGTTGTCGTTGTTCTTTTCTGGGGTGGTA spacer
 length: 36 repeater length: 29
 28864 1733491 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTCAATACAATACAATACAATAAATAATGATAAT spacer
 length: 35 repeater length: 29
 28865 1733556 GTTTCCGTAGAACATGGTTGTGTGGAAAG TCAGCACTACCACTATCCGCCGCAAGCCAAGTCGTG spacer
 length: 36 repeater length: 29
 28866 1733622 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACAAATATTTCGGGAATGGCGGGGCACATTATACCGG spacer
 length: 37 repeater length: 29

28867 1733689 GTTTCCGTAGAACATGGTTGTGTGGAAAG AGAGCCTGCAAAATCATAGCTTCCGTATAGTCCTGAA spacer
length: 37 repeater length: 29
28868 1733756 GTTTCCGTAGAACATGGTTGTGTGGAAAG AGAGTCATTGGCATCACCTCGCAGGAATCTTCTA spacer
length: 35 repeater length: 29
28869 1733821 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCGTGAAACTTCGCCAGTGGCTCGATCACTCGCGCCT spacer
length: 37 repeater length: 29
28870 1733888 GTTTCCGTAGAACATGGTTGTGTGGAAAG AACTCATCGAGGAGCGCATCTTCCACCGCCTCCTTTA spacer
length: 37 repeater length: 29
28871 1733955 GTTTCCGTAGAACATGGTTGTGTGGAAAG ATTCTCAATGGTTCTGAGCTGATTCTCCCTGAC spacer
length: 33 repeater length: 29
28872 1734018 GTTTCCGTAGAACATGGTTGTGTGGAAAG GGGCTCTCCCTTGGTGAAATCATAGAAGTTGCACTA spacer
length: 36 repeater length: 29
28873 1734084 GTTTCCGTAGAACATGGTTGTGTGGAAAG TTTTCAGAAACATCGGCTTCAAAAAAACATTATATA spacer
length: 37 repeater length: 29
28874 1734151 GTTTCCGTAGAACATGGTTGTGTGGAAAG GACATGCTTGACCCTTACATGCCTCAAATGTAA spacer
length: 33 repeater length: 29
28875 1734214 GTTTCCGTAGAACATGGTTGTGTGGAAAG TGAGAGCACTACTTGGATAGCGGCCGACAACGGGGA spacer
length: 36 repeater length: 29
28876 1734280 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCTCATTCTGCCAGACCTCGCGGTAGGCATCAACT spacer
length: 35 repeater length: 29
28877 1734345 GTTTCCGTAGAACATGGTTGTGTGGAAAG CACAGACCGACGCGGTTTCAAGAGTACCTCAACTGG spacer
length: 35 repeater length: 29
28878 1734410 GTTTCCGTAGAACATGGTTGTGTGGAAAG TAGCACTCATGCCAAAAGAGTTGCCAACTACCTT spacer
length: 35 repeater length: 29
28879 1734475 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACGACCTTAGACCCTGGAGGATCTCATCCCAGGATGA spacer
length: 37 repeater length: 29
28880 1734542 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTGGATAATGGTTTCTGATTTCTAATCTTTTTTC spacer
length: 34 repeater length: 29
28881 1734606 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGTGTCCACCTGCTCCAGTCTCGGATTGAACACCT spacer
length: 37 repeater length: 29
28882 1734673 GTTTCCGTAGAACATGGTTGTGTGGAAAG
TGGTCATACACTATCAGAGAGTCCTTTAGGTCAGGTGTCTATGTCGGACACAACCTATCCAAAGCATGGTTGTGTGGAAAGACTTAT
ATAGTATGAATATAT spacer length: 101 repeater length: 29
28883 1734804 GTTTCCGTAGAACATGGTTGTGTGGAAAG AACTGCACAAAAACCGGTATTCTGGGACGTGTTCTTTT spacer
length: 38 repeater length: 29
28884 1734872 GTTTCCGTAGAACATGGTTGTGTGGAAAG TGGTCATACACTATCACTGGTATGCCAGTTCACT spacer
length: 35 repeater length: 29
28885 1734937 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTGCTCACTCCTCCTCGGAGCGAGCATTATAATGGG spacer
length: 36 repeater length: 29
28886 1735003 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACGTCCTGAACAAGTGTGAGCATTGATGTATAATTGTG spacer
length: 38 repeater length: 29
28887 1735071 GTTTCCGTAGAACATGGTTGTGTGGAAAG TGTCTAAGGTCCTTCGTCATAATATGACGCCAGGA spacer
length: 35 repeater length: 29
28888 1735136 GTTTCCGTAGAACATGGTTGTGTGGAAAG CAGGTGATCTGGCTGTTTTTTGGGGCTGCCTTTGCTATTTTCG
spacer length: 42 repeater length: 29
28889 1735208 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGAATAGCCTCCCGAATGCTCGTCCGCAACCAGCGTCC spacer
length: 39 repeater length: 29
28890 1735277 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGATAGCCTTTGCATCACGTAATGCCTTTCTGAACT spacer
length: 37 repeater length: 29
28891 1735344 GTTTCCGTAGAACATGGTTGTGTGGAAAG CTCAGAGAGTCCTTTGGAAATCCTGCTGCCCCGAGG spacer
length: 35 repeater length: 29
28892 1735409 GTTTCCGTAGAACATGGTTGTGTGGAAAG ACTAGACCGTCGACGGTGGAAACTTTCAAAAAGCGC spacer
length: 36 repeater length: 29
28893 1735475 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGAAGGTTGAGTTTTACGATGAGCAGGGACAGCTTTTG spacer
length: 39 repeater length: 29
28894 1735544 GTTTCCGTAGAACATGGTTGTGTGGAAAG TTGATGTCCTCACCGATCGAAGTTGCGGGGGATCCTAGG spacer
length: 39 repeater length: 29
28895 1735613 GTTTCCGTAGAACATGGTTGTGTGGAAAG AAGTCGCCGTCCCCGAAAACCTGGGCGGTCTTCAAAGGAA spacer
length: 39 repeater length: 29
28896 1735682 GTTTCCGTAGAACATGGTTGTGTGGAAAG TTGCCCCGTGATGCTGTCCTCCCAAGCCCCTACACACTG spacer
length: 39 repeater length: 29
28897 1735751 GTTTCCGTAGAACATGGTTGTGTGGAAAG TACCTGCTTTCTGCCCTTTTACCCAGCCAGACTACC spacer
length: 36 repeater length: 29
28898 1735817 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCATAAGCTAGATAGCCCATAGAGGAGTATTCCAAC spacer
length: 36 repeater length: 29
28899 1735883 GTTTCCGTAGAACATGGTTGTGTGGAAAG GCTGTGATAACTACCGTGTCCCCCGTCACGTTGTAA spacer
length: 36 repeater length: 29
28900 1735949 GTTTCCGTAGAACATGGTTGTGTGGAAAG GGGTCTTCGTGAATGTGTGCTCTTGAGACCGTTGC
28901
28902
28903 crispr 4

28904	1726662	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GCACAATCCTGTTGTAGAGCTTCCTTCCAAGTTCAA	spacer
		length: 36	repeater length: 29	
28905	1726728	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TGCTTATCACAAAAACAACGCCGGGAGGTGGTGAGG	spacer
		length: 36	repeater length: 29	
28906	1726794	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGCGTTAGCGTCGCGGTGGGCGGCTCGGAGGTCTTT	spacer
		length: 36	repeater length: 29	
28907	1726860	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGTGGGACGTGTGCCGTTTTTAGGTCACGTTACCA	spacer
		length: 35	repeater length: 29	
28908	1726925	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGTGGAAGACTACCCCATCACAGCCGAGCAAGCGTACGA	spacer
		length: 39	repeater length: 29	
28909	1726994	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GAGCAAAAAAATTATTGCTACCCCTGCAAATAGGC	spacer
		length: 35	repeater length: 29	
28910	1727059	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGGCCCTTCAGCTTGAAGCTCGGCCTCGTAGAGGTTCC	spacer
		length: 37	repeater length: 29	
28911	1727126	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TCTAATTTCCATGGTCAACTGAACACAACCAATGA	spacer
		length: 35	repeater length: 29	
28912	1727191	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGACTGACCAGGAAACCGAGGACCCTGGCCCTGTCC	spacer
		length: 36	repeater length: 29	
28913	1727257	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGAACTCGGATATCCAGAGAGTGGCTACATCTTCAC	spacer
		length: 36	repeater length: 29	
28914	1727323	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCGGAATGAAGGTTGAAGAACTGGGATTGAAGTTTG	spacer
		length: 36	repeater length: 29	
28915	1727389	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCCTGCTTCCGACCGGAGGCGCTTTCGCAGCGGGTTTCAT	spacer
		length: 40	repeater length: 29	
28916	1727459	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TTGAGCAACCCCCCAACACATCAACAGCCTTATCCGGGTG	spacer
		length: 41	repeater length: 29	
28917	1727530	GTTTCCGTAGGACATAGTTGTGTGGAAAG	ATGCTGGAGAGAAGAGACAAAAGAATCGGAGAATTC	spacer
		length: 36	repeater length: 29	
28918	1727596	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CGACCTCCCTTATGTGGACTCTCCAGGCCGTGGAT	spacer
		length: 35	repeater length: 29	
28919	1727661	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GCGGAGTACTTATCTGCGGCCCTGTACGAAAAAAGTCCCC	spacer
		length: 40	repeater length: 29	
28920	1727731	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGGATTGGGGCTGGCAGAACTACGCGGAGCTCATCGAG	spacer
		length: 38	repeater length: 29	
28921	1727799	GTTTCCGTAGGACATAGTTGTGTGGAAAG	ACAGGGTACGCAACGAAAGCAAGCAGGTGCCTGTT	spacer
		length: 35	repeater length: 29	
28922	1727864	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AACAACCGTTCATTTTGTCCCGGTGGACTGAACG	spacer
		length: 34	repeater length: 29	
28923	1727928	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CACCCCTCACCTTCCGCAGCTGGATTTTTAGGGGTTCT	spacer
		length: 38	repeater length: 29	
28924	1727996	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AAGAAGATGCAGGTGGTAGCCAATGAGGTTCCAAAGAG	spacer
		length: 38	repeater length: 29	
28925	1728064	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TCGTGCCTAGCGTGTCTGGCTGGTCAGGGTCAGG	spacer
		length: 35	repeater length: 29	
28926	1728129	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CAGCGTCAGGATCAGCAGTATATTTAGCTGAAAGC	spacer
		length: 35	repeater length: 29	
28927	1728194	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AAGTAACGTGTCAGACACTAGGCACACAATAGGCACACA	spacer
		length: 38	repeater length: 29	
28928	1728262	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCCCCAGTTTCCACAATAATGGCCAAAAGGGCCCA	spacer
		length: 35	repeater length: 29	
28929	1728327	GTTTCCGTAGGACATAGTTGTGTGGAAAG	GTGCCCTGGCAGTAGGGGCGGGCACGGGTCGGGCTACAGAT	spacer
		length: 41	repeater length: 29	
28930	1728398	GTTTCCGTAGGACATAGTTGTGTGGAAAG	ATAGGCCGAGACGACTTCCGAATTCTGGACACGCG	spacer
		length: 35	repeater length: 29	
28931	1728463	GTTTCCGTAGGACATAGTTGTGTGGAAAG	CCAGCATCAGTACAATGTACATCGCCAGGACAAAGC	spacer
		length: 36	repeater length: 29	
28932	1728529	GTTTCCGTAGGACATAGTTGTGTGGAAAG	AGGCGCTTGACGACGCCTTAACGCCCGATGAGGAGAAGATAAA	spacer
		length: 43	repeater length: 29	
28933	1728602	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TTTAACACGCTTTTGCCGGGGATTGTCAACACCGGGG	spacer
		length: 38	repeater length: 29	
28934	1728670	GTTTCCGTAGGACATAGTTGTGTGGAAAG	TTTTTCGCCCCCTTTTGGCGAATAAAATAATGTTCTCCC	
28935				
28936				
28937	crispr 5			
28938	1500605	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	AACTCCTTCTCGAACTCCTCGGGAGTGTAGAAGTA	spacer
		length: 35	repeater length: 30	
28939	1500671	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	AGGCAGCTGAACCTGGATCTCGTTGGGGAGTACTCGA	spacer
		length: 37	repeater length: 30	
28940	1500739	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ACGGCAGAGCATCGAGGCCCTCAACCAGAAAATA	spacer
		length: 34	repeater length: 30	
28941	1500804	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TCGTCGGTGCCGGCCTTGTCTATAAGGAGCCTTGGCATC	spacer

	length: 38	repeater length: 30	
28942	1500873	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTGAGTCGCTGACTATCTGAGTTTGGCCCTCAATCC spacer
	length: 37	repeater length: 30	
28943	1500941	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TGCTGACGTCATCAGTATCCAACCTCTGCATTCTCCCCC spacer
	length: 38	repeater length: 30	
28944	1501010	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTCATTTTATTGACCTCCATTTCGTGCCGACCTCCC spacer
	length: 35	repeater length: 30	
28945	1501076	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGCCTTATCCACGCCACCATGCCTGTATAAATCCTT spacer
	length: 36	repeater length: 30	
28946	1501143	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GAGCTTAGACAGAATGAGAACGGGGAGTGGGAAATAA spacer
	length: 37	repeater length: 30	
28947	1501211	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CCGCTTTGAGCACGCCGTCAACGTAGAGCTTCACCT spacer
	length: 36	repeater length: 30	
28948	1501278	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GGCCTCTACAACCAGCTGCTCCAAGAGCACTACGAG spacer
	length: 36	repeater length: 30	
28949	1501345	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GGGGCACTACGCTATGTGGGACAAAGTGCTAGAGAGAGT
	spacer length: 39	repeater length: 30	
28950	1501415	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ATTTTTGCCCTCGACATCGGAAAAACGCTCTCTCT spacer
	length: 35	repeater length: 30	
28951	1501481	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CATTAAATGGCATTAAATATAACGGATGAGTATCGG spacer
	length: 35	repeater length: 30	
28952	1501547	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ACGGCCTCGGGTGGACTGGAGACGGCCTATAAGCTCA spacer
	length: 37	repeater length: 30	
28953	1501615	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TATCCAGGGCCGGCTCGACCTGGAAGGAGGGAGGCA spacer
	length: 36	repeater length: 30	
28954	1501682	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ACTTGTA CTATATCGTCCAAGACTGAATACACTTCC spacer
	length: 36	repeater length: 30	
28955	1501749	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CAACGACTAAAGGCCAATTGAGGGTCATTGTTGAGAGA spacer
	length: 38	repeater length: 30	
28956	1501818	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTCCAGAGGAGCTTGGAGAGGTCGTCCACAGTCTTGG spacer
	length: 37	repeater length: 30	
28957	1501886	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GGCAGTACATTTTCTGAAACCAAATCCCCTTCTCGG spacer
	length: 36	repeater length: 30	
28958	1501953	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TGGCATGTCCCGCGTGTATAGATAAGCCAATAATCC spacer
	length: 37	repeater length: 30	
28959	1502021	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CTTCCGCATACTTGCTCTTGAACGCTTCGTATATCGA spacer
	length: 37	repeater length: 30	
28960	1502089	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTTCTGTCCCGCCGTAGACCATGCTCGCCCCGAAG spacer
	length: 35	repeater length: 30	
28961	1502155	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	AAAACCCCAAGCTCTTTAGCCTTCTCCTCGACCTT spacer
	length: 35	repeater length: 30	
28962	1502221	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGGTAGCCTATGAGGCCCTTAAAAGCGCCTACGGG spacer
	length: 35	repeater length: 30	
28963	1502287	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTTGGTTTTGGCCTTATTGGTGCTCGGCTCGCTTTTG spacer
	length: 37	repeater length: 30	
28964	1502355	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	ATCCCTGGGCCTTCCAAGCGTATCGACCACAATCG spacer
	length: 35	repeater length: 30	
28965	1502421	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	GAAAGGTAGTTTCTCCCGAGTCGGGCAAGTACTACC spacer
	length: 36	repeater length: 30	
28966	1502488	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CAGTGAGCATTTCCGAGGGTTCAGGATTCACGCTCT spacer
	length: 36	repeater length: 30	
28967	1502555	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGCAACGTCACCGAGGGCGACTATTACGCCTTCTGGT spacer
	length: 37	repeater length: 30	
28968	1502623	CTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTTCGCTCCTTTTGGCGAATAAAATAACGATCTTCC
28969			
28970			
28971	crispr 6		
28972	1651981	GTTGCAATAAGACTCTGGGAGAATTGAAAG	CCGGCCACGGGATACCCTGCGCTACCACCTTGCAGG spacer
	length: 36	repeater length: 30	
28973	1652048	GTTGCAATAAGACTCTGGGAGAATTGAAAG	ACGCTGATGGAGCGCCTGCGCGAGCTGGGCTACGAGA spacer
	length: 37	repeater length: 30	
28974	1652116	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TACATTAAAGATTTAGTTAGCGTTACGGTATCCTCT spacer
	length: 36	repeater length: 30	
28975	1652183	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TCTGTTGCATGATGTTTCATCATCATGGGCATCATCAT spacer
	length: 37	repeater length: 30	
28976	1652251	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TTCTTATAAACTTCAACCGGCTTAGCCGGTGCATCA spacer
	length: 36	repeater length: 30	
28977	1652318	GTTGCAATAAGACTCTGGGAGAATTGAAAG	CAACATGGCCGACATCATCAGAGAGGCCCTCCTGTG spacer
	length: 36	repeater length: 30	
28978	1652385	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TTGGATGGGAGTGATCGATGGAGAGAGTGATGAGGA spacer
	length: 36	repeater length: 30	

28979	1652452	GTTGCAATAAGACTCTGGGAGAATTGAAAG	GATTTTCAGAAACGACTTTGTGTTTCCGCTGGACAA	spacer
	length:	35	repeater length:	30
28980	1652518	GTTGCAATAAGACTCTGGGAGAATTGAAAG	GGTACTGGTTAGCAGGCACTGCAACAGTGTAGGTAT	spacer
	length:	36	repeater length:	30
28981	1652585	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TAGGGAATTCTCAGAAATCTATGAGTACTATGAGCAG	spacer
	length:	37	repeater length:	30
28982	1652653	GTTGCAATAAGACTCTGGGAGAATTGAAAG	GCATAGGGGTTGTCTGGCTGTGCGGTTTCTGTTC	spacer
	length:	36	repeater length:	30
28983	1652720	GTTGCAATAAGACTCTGGGAGAATTGAAAG	GAGCTCAGATAGGGGGACAGGCGGGGGTACGGATA	spacer
	length:	35	repeater length:	30
28984	1652786	GTTGCAATAAGACTCTGGGAGAATTGAAAG	CCTCATAGCTATAACCGGCTTATCCGGCGCCTCCT	spacer
	length:	35	repeater length:	30
28985	1652852	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TCGGTGGACAGACGAACAGCGGAAAAAGCTATTTTG	spacer
	length:	36	repeater length:	30
28986	1652919	GTTGCAATAAGACTCTGGGAGAATTGAAAG	AAAGGTGATATTCGAGAAACGGAATGGAAACGTGAG	spacer
	length:	37	repeater length:	30
28987	1652987	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TAAGTTCTGGGAGCTGAGTTAGGGTCTTCTTGCCGT	spacer
	length:	36	repeater length:	30
28988	1653054	GTTGCAATAAGACTCTGGGAGAATTGAAAG	GGAGGGGGAGCGATGAGGAGGTTAGGCATTTTAGTCC	spacer
	length:	37	repeater length:	30
28989	1653122	GTTGCAATAAGACTCTGGGAGAATTGAAAG	GTGTTGAGGAACTTGACTGGCAGGGAAGCGTAGAA	spacer
	length:	35	repeater length:	30
28990	1653188	GTTGCAATAAGACTCTGGGAGAATTGAAAG	AGCGGTAGTTACTTAAGTTACATTCAGAGCTG	spacer
	length:	32	repeater length:	30
28991	1653251	GTTGCAATAAGACTCTGGGAGAATTGAAAG	ACGAGCAGATGCAGCAACTCGTCCAGTTCAGTACGACG	spacer
	length:	39	repeater length:	30
28992	1653321	GTTGCAATAAGACTCTGGGAGAATTGAAAG	AAGCTGCTAGGTATCTCAGCACTGTAGGTAGTGCTGT	spacer
	length:	37	repeater length:	30
28993	1653389	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TCAAGCTGCTCCGCTACCTCGCCAGGATGATCATCATCC	spacer
	length:	39	repeater length:	30
28994	1653459	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TTTGTTCCTTGGCTCTGATAAAGCGCTTTAATTTTCG	spacer
	length:	35	repeater length:	30
28995	1653525	GTTGCAATAAGACTCTGGGAGAATTGAAAG	CCTCGGGGACAGGGTAAGCATAATATAGACGGGCA	spacer
	length:	35	repeater length:	30
28996	1653591	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TTGTAGTACTCATCATAGCCGGCGTAGGGGTTGTTGAAG	spacer
	length:	39	repeater length:	30
28997	1653661	GTTGCAATAAGACTCTGGGAGAATTGAAAG	TAGGGTCTTCGTGAATGTGTCGTCTTGAGACCGTTGCA	
28998				
28999				
29000	crispr 7			
29001	1129451	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGAACCCCCGTGGTGGTGGACGACTGACAGGG	spacer
	length:	32	repeater length:	30
29002	1129514	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	GCCATCCAAGGGCGGGTCGTTCCGGTTCTCATAAAT	spacer
	length:	36	repeater length:	30
29003	1129581	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	CTGTTTTTCGGCTTCGGCATAGCATTGGCGTTCTTC	spacer
	length:	35	repeater length:	30
29004	1129647	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	GCGTGCCGAAGTTTTGTGCGCCAGGATCCCCCTGCCT	spacer
	length:	36	repeater length:	30
29005	1129714	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTCACCTCCTCACAGCAATGCAATCCTCCCAACGT	spacer
	length:	36	repeater length:	30
29006	1129781	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	CCTGATGTAGTTGGCTGCGACGCTCTCCATTCTCTCTGGG	spacer
	length:	41	repeater length:	30
29007	1129853	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	GAGCAGCGCAAGAGGAGAAGGACCATCATGAAGCCC	spacer
	length:	36	repeater length:	30
29008	1129920	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	AGGTTTCCCTGGACTGCCCCACCCAGGACGAGA	spacer
	length:	33	repeater length:	30
29009	1129984	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	GTGGTGAGGTTGGCGTTTACTCTTAGCGACCTGT	spacer
	length:	34	repeater length:	30
29010	1130049	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	AAGGTGCCCCGATCCATATGCATATCAAGTCAAACAG	spacer
	length:	36	repeater length:	30
29011	1130116	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTTTATTACATTTTTTACCACAAAAGATAAATTCCAA	spacer
	length:	37	repeater length:	30
29012	1130184	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	CGACCGCCCCGACGGGAAGACAGCTTAAGAAGATCTT	spacer
	length:	37	repeater length:	30
29013	1130252	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	CTAAACTCAATACGAGCAGAGTTCAAGGCAAAGCTC	spacer
	length:	36	repeater length:	30
29014	1130319	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	AGAAGATACCACCGCAACCCCAACGCTCCCAAATACT	spacer
	length:	37	repeater length:	30
29015	1130387	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	TATCAACATAAACTGGGATAAGGCCATGAAGACCC	spacer
	length:	35	repeater length:	30
29016	1130453	GTTTCAATTCTCCTAGAGTCTTATTGCAAC	TTACTACATCCTCACCCACGAGTGCGAGGGGAAATT	spacer

length: 36 repeater length: 30
29017 1130520 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ATTTACGTCAATCGCAAACCGGCACCGTCAAAATG spacer
length: 36 repeater length: 30
29018 1130587 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ATTTTAGTCCTTATAATGTTTGTCTGGGGGTGATT spacer
length: 36 repeater length: 30
29019 1130654 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GCATCATTTTCAGTGTCTTTGTCTATAACTTCATAT spacer
length: 35 repeater length: 30
29020 1130720 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AAAGAACAGTACTCTCGTGTGGCGGGTAAAGTCTTA spacer
length: 36 repeater length: 30
29021 1130787 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AACCTCAACCTGTCCGGAATCTCCTCCGGAGTTATCG spacer
length: 37 repeater length: 30
29022 1130855 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CGAATATAGTTCCGGCAAAGAACA CTTTTTGTTCCT spacer
length: 36 repeater length: 30
29023 1130922 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TTGAAGTATATTGTGTTTCCAGCAACACTATACT spacer
length: 34 repeater length: 30
29024 1130987 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GGGCGTCCAAGTGTCTTCATTAGTATCGTCGTCAGTC spacer
length: 37 repeater length: 30
29025 1131055 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CGACATGGCTGGACTGGCGCAACTGGTACGACGTGA spacer
length: 36 repeater length: 30
29026 1131122 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GAACTCCGATGGCATT TTTAGTCAAAGAGATGAATAG spacer
length: 36 repeater length: 30
29027 1131189 GTTTC AATTCTCCTAGAGTCTTATTGCAAC ATACCAAAGCCGGAAGCGATACCTCCATCAGTCCAA spacer
length: 37 repeater length: 30
29028 1131257 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GTTGAAGAATCCGGAGGTGGGGGTATGTTCTGGGAG spacer
length: 36 repeater length: 30
29029 1131324 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AGAAGAACTGGAGGAGATTCTTTCCCGTCTGGACGGG spacer
length: 37 repeater length: 30
29030 1131392 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CCTTGTCGAGGGTCAGCTGGACAGTAACGCTCTTG spacer
length: 35 repeater length: 30
29031 1131458 GTTTC AATTCTCCTAGAGTCTTATTGCAAC AAGAAGCTGAGCGTTATTGACGCCTCGGTAAAGCAA spacer
length: 36 repeater length: 30
29032 1131525 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CACCGCGAAGGGGACCGGGGATCGGAGAGGTTTCACCG spacer
length: 38 repeater length: 30
29033 1131594 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GAGACTATGATCACGTAATCATCCGATACATCTGA spacer
length: 36 repeater length: 30
29034 1131661 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GTACAGATAGCCCGAGATAGTGTACGCACCTTCT spacer
length: 35 repeater length: 30
29035 1131727 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TCTGGAGAACATAAGGCATAGACCCACTAAAGTCA spacer
length: 35 repeater length: 30
29036 1131793 GTTTC AATTCTCCTAGAGTCTTATTGCAAC CGGACGCATACGGCCTACTCGACATGGCCGAGCGA spacer
length: 35 repeater length: 30
29037 1131859 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TCCACCCTTTGGCCTTTGCCCCGTGAGTGAGGAGATA spacer
length: 37 repeater length: 30
29038 1131927 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GGTCCGGCTTCGGCATCAGTTACCACCCGAGAATAAA spacer
length: 36 repeater length: 30
29039 1131994 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TTATACGCGATAGCGGGGACGATTAGCCTTAACC spacer
length: 34 repeater length: 30
29040 1132059 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GAACATGGATCGGGCCATAAACAAGCTTTTGGCCC spacer
length: 35 repeater length: 30
29041 1132125 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TTTTGATTCTTTTCGGGAGCTATTCTTTTCATAAGCTA spacer
length: 37 repeater length: 30
29042 1132193 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GAAGAAAAGAAAATACACAAAATGACCCATAAGAAAAGA
spacer length: 40 repeater length: 30
29043 1132264 GTTTC AATTCTCCTAGAGTCTTATTGCAAC TGGAGGGAAGGGACAAGGGTCCTGGATCCAGTCGATA spacer
length: 37 repeater length: 30
29044 1132332 GTTTC AATTCTCCTAGAGTCTTATTGCAAC GGAAGGGACAAGGGTCCTGGATCCAGTCGATACGTTT
29045
29046
29047 GCA_002214525.1_ASM221452v1_genomic.fna(findCrispr):
29048 START REPEAT
SPACER
29049 crispr 1
29050 649253 AGACTCTAA GAGAAATTGAAACTGGCTAAGGTTTCAAATATTGGTAATCCCCACGCTTCGGTTCCAAT spacer
length: 58 repeater length: 9
29051 649321 AGACTCTAA GAGAAATTGAAAGGACGTAAATGTTTTTTGTATCCAACCTGCCGAGTCTATGTTCCAAT spacer
length: 58 repeater length: 9
29052 649389 AGACTCTAA GAGAAATTGAAAGCTGTTTTTAAATCTATCCGTTACGGCGCATTTTTGTTC CAAT spacer
length: 55 repeater length: 9
29053 649454 AGACTCTAA GAGAAATTGAAAGGGCTGTTTCATTGGTGTTCGGGATTGTTTCATTATTGTAGTTCCAAT spacer
length: 57 repeater length: 9
29054 649521 AGACTCTAA GAGAAATTGAAAGGAAGATAGGGGGTGGAAAGAGATGAGGGATTGGGATGTTCCAAT spacer

length: 56 repeater length: 9
29055 649587 AGACTCTAA GAGAATTGAAAGATCACTATGGGGCCACGAGGGTGTGAGGCCAGCGGTTCCAAT spacer
length: 57 repeater length: 9
29056 649654 AGACTCTAA GAGAATTGAAAGTCTGGAAGGATTGGAGAGCGGGGCTGGTCGATTAAGGTTCCAGT spacer
length: 56 repeater length: 9
29057 649720 AGACTCTAA GAGAATTGAAAGTTAGAAGCTTCTTATCAAGCTTAAACGCCGGTTCAGTGTTCCAAT spacer
length: 57 repeater length: 9
29058 649787 AGACTCTAA AGAGAATTGAAAGTTGACACGTCAAAGACGTATAACACTTACTTGAGCGTTCCAATA
29059
29060
29061 crispr 2
29062 668387 GTTCCAATAAGACTC CAAGAGAATTGAAAGAAAAGCCACCCCTGAAGCACCAGGGGTTTGGGGG spacer
length: 49 repeater length: 15
29063 668452 GTTCCAATAAGACTC CAAGAGAATTGAAAGTGAGCCGGGCGTGGATGTGCCCTGAATTCTCCGCCG spacer
length: 53 repeater length: 15
29064 668521 GTTCCAATAAGACTC CAAGAGAATTGAAAGATCATTAAGGTCTACGATGCCTCGACGTATGAGGAT spacer
length: 51 repeater length: 15
29065 668588 GTTCCAATAAGACTC CAAGAGAATTGAAAGGTGCGATGTAAACGATAGCGTTAAGGTCAACTCCTGA spacer
length: 51 repeater length: 15
29066 668655 GTTCCAATAAGACTC CAAGAGAATTGAAAGCCTGCTCGGGAGGGTCAAGCATGTAACAGTTCACC spacer
length: 50 repeater length: 15
29067 668721 GTTCCAATAAGACTC CAAGAGAATTGAAAGTAACTTCTTCTTCAATTTGGGGCTTAATTGAACCC spacer
length: 51 repeater length: 15
29068 668788 GTTCCAATAAGACTC CAAGAGAATTGAAAGTCGTTTACATAGACCGCGGTATGGTAGTGTTTACC spacer
length: 50 repeater length: 15
29069 668854 GTTCCAATAAGACTC CAAGAGAATTGAAAGAAAGAGCGTAAAACTTTAATAACAGTGCTTTACAG spacer
length: 51 repeater length: 15
29070 668921 GTTCCAATAAGACTC CAAGAGAATTGAAAGTTCTTAATATCGATTGTGATGTTATAGAGCAGGGTG spacer
length: 51 repeater length: 15
29071 668988 GTTCCAATAAGACTC CAAGAGAATTGAAAGTGCTATCACCACCTGAACTATTGAGACTATAATAAGG spacer
length: 52 repeater length: 15
29072 669056 GTTCCAATAAGACTC CAAGAGAATTGAAAGTTTTTATCTCTCTTCTACACGACAACTATATAAACA spacer
length: 53 repeater length: 15
29073 669125 GTTCCAATAAGACTC CAAGAGAATTGAAAGATCGCAACACCGTTTAACATGTTGTGGTGAAAGTGC spacer
length: 51 repeater length: 15
29074 669192 GTTCCAATAAGACTC CAAGAGAATTGAAAGTTGACACGTCAAAGACGTATAACACTTACTTGAG spacer
length: 49 repeater length: 15
29075 669257 GTTCCAATAAGACTC CAAGAGAATTGAAAGGTAGGCCTCCTCCCGGTGGATGGGCCTCGGGGTATTT spacer
length: 52 repeater length: 15
29076 669325 GTTCCAATAAGACTC TTGAAAGGTAGGCCTCCTCCCGGTGGATGGGCCTCGGGGTATTTAGTTCCAA
29077
29078
29079 crispr 3
29080 593674 CTTTCAATTCTCCTGGAGTCTTATTGGAAC AAGATGGAGAAAAGGGTTGAGGTTGTGTTGAAGAAA spacer
length: 36 repeater length: 30
29081 593741 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CCCACTACTATTTCTCTCCCCCTCTCTTTTGAAA spacer
length: 35 repeater length: 30
29082 593807 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTCCTTGATAAGACCGGCCGGTCTCTATGTTCA spacer
length: 35 repeater length: 30
29083 593873 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CGTGGCTACTAATGTAATCACGGCGATGGCGGTCCG spacer
length: 36 repeater length: 30
29084 593940 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CTATTATGCTTTTGTAACCTCTTAATTTTCTTTTGT spacer
length: 36 repeater length: 30
29085 594007 CTTTCAATTCTCCTGGAGTCTTATTGGAAC ATGAGCCACGCGACCATCATTATGAGCACGGCCGTCA spacer
length: 37 repeater length: 30
29086 594075 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTTTACGACGCTATATGTGATAATCAGCACACACTTT spacer
length: 37 repeater length: 30
29087 594143 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GGTGGGGACGATGAAGATTAACGTCACCTGGAAAGCTC spacer
length: 38 repeater length: 30
29088 594212 CTTTCAATTCTCCTGGAGTCTTATTGGAAC ACTTTCGGGGGAGGCTAATATAAGCAAACTTAGATA spacer
length: 37 repeater length: 30
29089 594280 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTTTATCAACCGGGTCGGGTCGAGGCAAAAATTCCC spacer
length: 36 repeater length: 30
29090 594347 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GTGATGGCAAACTCCTTAAAGACGGCGCCTCCCC spacer
length: 35 repeater length: 30
29091 594413 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTAACCACTCCTGAATGTCTCAGGTATGTATTGAA spacer
length: 35 repeater length: 30
29092 594479 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TAGACTTAGAGAAGATTAGAAATATCCATCCACGGT spacer
length: 36 repeater length: 30
29093 594546 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CTTAGCCCTCTTTGTTGGGGCATATCCTAACTCCTTTTG spacer
length: 39 repeater length: 30

29094 594616 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CCGAGCTAATGGAGGTGATGAGGTTGTGAAGAGGAA spacer
 length: 36 repeater length: 30
 29095 594683 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GGGGGCATTAAATCCCCCGTGTACCCTCTCCCCCGG spacer
 length: 35 repeater length: 30
 29096 594749 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TGTTAATCCTCCGTTTCCCCAACCGAAAGGGTACGA spacer
 length: 36 repeater length: 30
 29097 594816 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GGGCTTTCGTCCAGGACTACTCACCCCCGCACGGGCTT spacer
 length: 38 repeater length: 30
 29098 594885 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CACGTTTCAGTGCAGAAAGCGGAGGAGAACAAGCCA spacer
 length: 36 repeater length: 30
 29099 594952 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CTGAGATAGAACGTGAGCAGGGCCACGCCCCCACC spacer
 length: 35 repeater length: 30
 29100 595018 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TTATACCCGGACAGGCCGCCCTTCTCGATGTATATTT spacer
 length: 37 repeater length: 30
 29101 595086 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CCACCATGGCCAGCAGGGGAATGACTACGGCGAACA spacer
 length: 36 repeater length: 30
 29102 595153 CTTTCAATTCTCCTGGAGTCTTATTGGAAC CATATTCTTCTCCGAAAACCTTCAGCCCCCAATCATC spacer
 length: 36 repeater length: 30
 29103 595220 CTTTCAATTCTCCTGGAGTCTTATTGGAAC GTTGCGTTAGTTGGCTGAAGATAATGGACCCTATCAT spacer
 length: 37 repeater length: 30
 29104 595288 CTTTCAATTCTCCTGGAGTCTTATTGGAAC TATGGTCTCTGCCACAAGAGCCCTGTTTCAGTTCCAAT
 29105
 29106
 29107 crispr 4
 29108 593471 CTTTCAATTCTCTTGGAGTCTTATTGGAAC TCATTGAGCTTCTTATTTCTTTGTAGGCTTTAAGGG spacer
 length: 36 repeater length: 30
 29109 593538 CTTTCAATTCTCTTGGAGTCTTATTGGAAC ATGGAGGAAATGGCGTTATTCGGGGACGGAACCTTT spacer
 length: 36 repeater length: 30
 29110 593605 CTTTCAATTCTCTTGGAGTCTTATTGGAAC GTATTCTAAATAAACTGTAATTCCCTTGTGTTCCAA
 29111
 29112
 29113 crispr 5
 29114 1238940 GTTCCAATAAGACTCCAGGAGAATTGAAAGT TTTCTTTCTCTTTCCGAATCCGAACATCACGATCAC spacer
 length: 36 repeater length: 31
 29115 1239008 GTTCCAATAAGACTCCAGGAGAATTGAAAGT ATGCTTAAGACCTCCCCACTGCTCCAGCTCCCACCA spacer
 length: 37 repeater length: 31
 29116 1239077 GTTCCAATAAGACTCCAGGAGAATTGAAAGT CGTCAAAGACGTATAACACTTACTTGAGCGTTCCAAT
 29117
 29118
 29119 GCA_002214545.1_ASM221454v1_genomic.fna(findCrispr):
 29120 START REPEAT
 SPACER
 29121 crispr 1
 29122 684435 TCAATTCTCCT
 AGAGTCTTATTGCGGGGGGACGTTCCGTTCCCCACCCCCTCGAACTTAAACGCATGAAACACCTAGGAATTCCCCTAGAGTCTTAT
 TGCAACTGGGGCATCGAACCCAGCCCGTTACAGCTCCTCGGCGT spacer length: 130 repeater length: 11
 29123 684577 TCAATTCTCCT AGAGTCTTATTGGAACGAACAGCCTTTTTCTCAACCACGCGGCCGACGATAGTCT spacer
 length: 55 repeater length: 11
 29124 684644 TCAATTCTCCT AGAGTCTTATTGGAACCGCCGCATGTCTCGGGAGTTGTGCGCTGATTCTACCT spacer
 length: 54 repeater length: 11
 29125 684710 TCAATTCTCCT AGAGTCTTATTGGAACCTGAATTTGGGGTTTTTGAAGTTTGTACGAGAACCTAAAATACT
 spacer length: 60 repeater length: 11
 29126 684782 TCAATTCTCCT AGAGTCTTATTGGAACAGCAATCACCGCTAAAGTGCATAAACCGGCGTGGTTATCT spacer
 length: 56 repeater length: 11
 29127 684850 TCAATTCTCCT AGAGTCTTATTGGAACGGGAGCGCATGATTGAAAAGAAACCGCTAATAGCACCTGCT spacer
 length: 57 repeater length: 11
 29128 684919 TCAATTCTCCT AGAGTCTTATTGGAACGCGGTGGCTAGGCTCATGCATTGGGTCTAGTGAAAACCT spacer
 length: 55 repeater length: 11
 29129 684986 TCAATTCTCCT AGAGTCTTATTGGAACGGAACATGAACCTTGAAGAATGCCGAGAGTGGTTGACT spacer
 length: 54 repeater length: 11
 29130 685052 TCAATTCTCCT AGAGTCTTATTGGAACCTCACGTTTCGAGGTTACTGTGACGATTGTGGGGTTTCT spacer
 length: 54 repeater length: 11
 29131 685118 TCAATTCTCCT AGAGTCTTATTGGAACGCTTTTTCTGCTCATCGGTGGTCTAACGAGAATTCTACT spacer
 length: 54 repeater length: 11
 29132 685184 TCAATTCTCCT AGTCTTATTGGAACAGTTATCATTTCAATGGTATAACCATACAAAGACTTGACTT
 29133
 29134
 29135 crispr 2
 29136 684575 TTTCAATTCTCCTAGAGTCTTATTGGAAC GAACAGCCTTTTTCTCAACCACGCGGCCGACGATAGT spacer
 length: 37 repeater length: 29
 29137 684642 TTTCAATTCTCCTAGAGTCTTATTGGAAC CGCCGCATGTCTCGGGAGTTGTGCGCTGATTCTAC spacer

length: 36 repeater length: 29
29138 684708 TTTCAATTCTCCTAGAGTCTTATTGGAAC CTGAATTTGGGGTTTTTGAAGTTTGTACGAGAACCTAAAATA
spacer length: 42 repeater length: 29
29139 684780 TTTCAATTCTCCTAGAGTCTTATTGGAAC AGCAATCACCGCTAAAGTGCATAAACCGGCGTGGTTAT spacer
length: 38 repeater length: 29
29140 684848 TTTCAATTCTCCTAGAGTCTTATTGGAAC GGGAGCGCATGATTGAAAAGAAACCGCTAATAGCACCTG spacer
length: 39 repeater length: 29
29141 684917 TTTCAATTCTCCTAGAGTCTTATTGGAAC GCGGTGGCTAGGCTCATGCACTTGGGTCTAGTGAAAA spacer
length: 37 repeater length: 29
29142 684984 TTTCAATTCTCCTAGAGTCTTATTGGAAC GGAACATGAACCTTGAAGAATGCCGAGAGTGGTTGA spacer
length: 36 repeater length: 29
29143 685050 TTTCAATTCTCCTAGAGTCTTATTGGAAC TTCACGTTTCGAGGTTACTGTGACGATTGTGGGGTTC spacer
length: 36 repeater length: 29
29144 685116 TTTCAATTCTCCTAGAGTCTTATTGGAAC GCTTTTCTGCTCATCGGTGGTCTAACGAGAATTCTA spacer
length: 36 repeater length: 29
29145 685182 TTTCAATTCTCCTAGAGTCTTATTGGAAC AGTTATCATTTCAATGGTATACCATACAAAGACTTGA spacer
length: 37 repeater length: 29
29146 685249 TTTCAATTCTCCTAGAGTCTTATTGGAAC TCATTTCAATGGTATACCATACAAAGACTTGACTTTC
29147
29148
29149 crispr 3
29150 1555586 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AACTATCCTGCTGAGGACTATACAGACCACCCAAAG spacer
length: 36 repeater length: 30
29151 1555653 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GCGACGATTAGACGGCTCATGATTTCAACATTCGCC spacer
length: 36 repeater length: 30
29152 1555720 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATGGAAAAGAATACACAAAGCTTGTGTTTGGTGAAG spacer
length: 36 repeater length: 30
29153 1555787 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATGGCTGGCGGAGAAAGTGTGAGCTTGTTAGTGTT spacer
length: 36 repeater length: 30
29154 1555854 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CACTTTTACAGCGAAGAGCTTTCGCCAGCCGATCTA spacer
length: 36 repeater length: 30
29155 1555921 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCGAAGGGCAGGGATGCTCTTCTTATCGCCAAGGTC spacer
length: 36 repeater length: 30
29156 1555988 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAGCTTGAGAAAATCGAAGAAGCGATAGAAGAGCTAC spacer
length: 37 repeater length: 30
29157 1556056 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTTCTCCTAACCTTAGTCTTCTCCTCCTGACCA spacer
length: 36 repeater length: 30
29158 1556123 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TTTTCTCTGCCATTATCTGGAGTTGTTTTTTAACC spacer
length: 35 repeater length: 30
29159 1556189 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTGTCGAGGAAGTAGGCGATTTTAACCTCGTTCGGA spacer
length: 36 repeater length: 30
29160 1556256 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCGAGCAACACGTCATACCTGCCGTTAAGTATCTCCTTA
spacer length: 39 repeater length: 30
29161 1556326 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CAGCCGCTGTTTCCTCGTTCATTCTCTCCAGCCG spacer
length: 34 repeater length: 30
29162 1556391 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGTTCAGTCACTGAACAGGGGCTAAATCCAGTAGA spacer
length: 35 repeater length: 30
29163 1556457 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CAGAGACACGGAGAAGGACTTTAATGGCGCTCATC spacer
length: 35 repeater length: 30
29164 1556523 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AAATTTGCTATGGGTGTTTTATTGAAGCTGAAAGTTA spacer
length: 37 repeater length: 30
29165 1556591 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GTAAACTACCTTATATAGCCTTCCCAGAACCGCCACCA spacer
length: 38 repeater length: 30
29166 1556660 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TCGAGGAGCTGAACGGCAAATAGACGTGACGCTG spacer
length: 35 repeater length: 30
29167 1556726 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCACATCAAGGAGGGAACCGCACCGGGGACACCTAA spacer
length: 36 repeater length: 30
29168 1556793 CTTTCAATTCTCCTAGAGTCTTATTGCAAC TGTGGAGGGCTTCTATAACGTCGCCCTTGATTTTG spacer
length: 35 repeater length: 30
29169 1556859 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ACTGAAAAAGGTAGATGGAAAAGGCTTTTTGTAAATTA spacer
length: 37 repeater length: 30
29170 1556927 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CCTCCGTTAGCGCACTTCTCCTTAAAAAGTTTTCG spacer
length: 35 repeater length: 30
29171 1556993 CTTTCAATTCTCCTAGAGTCTTATTGCAAC AGTGTTAGCATCAGCACCGAGGACGTGGGGAGGTT spacer
length: 35 repeater length: 30
29172 1557059 CTTTCAATTCTCCTAGAGTCTTATTGCAAC GAGCGAGGTTTGCCTCTGGTTTCCAGTGTTTGTCT spacer
length: 36 repeater length: 30
29173 1557126 CTTTCAATTCTCCTAGAGTCTTATTGCAAC CTCAACACCGCTACAGCTCCAGTGACGTGGGACATA spacer
length: 36 repeater length: 30
29174 1557193 CTTTCAATTCTCCTAGAGTCTTATTGCAAC ATCATTTCAATGGTATACCATACAAAGACTTGACTT
29175

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29176
29177 GCA_002214565.1_ASM221456v1_genomic.fna(findCrispr):
29178 START          REPEAT
29179 SPACER
29179 crispr 1
29180 272959 ACACAATAC TGTTCTACGGAACTCAAGGAAATGTATGAACATTTAGCAGAGAAGATTTGGCAGGATACTTTC
29181 spacer length: 64 repeater length: 9
29181 273033 ACACAATAC TGTTCTACGGAAACCGTGTTCGAAGTCGAAAATTACCCGCTCGCAAGCCTAGAAAAGTTTC
29182 spacer length: 61 repeater length: 9
29182 273104 ACACAATAC TGTTCTACGGAAACATTAGTGAAGACCTACCGGAAAGTAACCGGTAGGCGTGAAGTTTC spacer
29183 length: 59 repeater length: 9
29183 273173 ACACAATAC TGTTCTACGGAACTTCATTCCCGCCGGCAAATACCGGTACCCGAGGAATCTCCTCAAGTTTC
29184 spacer length: 63 repeater length: 9
29184 273246 ACACAATAC TGTTCTACGGAAACCATCTCCAAACCTCCTTTTTCGTTTTATAAAAGGAAAGAAACAAGTTTC
29185 spacer length: 62 repeater length: 9
29185 273318 ACACAATAC TGTTCTACGGAAACACGCCCCGATACCGAGCCGGAATACCGAGGAGAACCCGGAGTTTC spacer
29186 length: 60 repeater length: 9
29186 273388 ACACAATAC TGTTCTACGGAACTTAAGGGTTTGGTCAGAATGGATAATTTGGCCGAAGTTGTTATTCAAGTTTC
29187 spacer length: 66 repeater length: 9
29187 273464 ACACAATAC TGTTCTACGGAAACAGGGCTCTGAGGAGGCTGGTTTCTTGTGGCGTGCGGTGTTTGTTC spacer
29188 length: 60 repeater length: 9
29188 273534 ACACAATAC GGAGAATTGAAAGATATTTCCATGCCTTTATTTGGGCGTCCATACTCGTTGCAATAAGAC
29189
29190
29191 crispr 2
29192 465077 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAGGCTCCGAAGCCTGACCGAGGCGCCAGGTCACCA spacer
29193 length: 36 repeater length: 30
29193 465144 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGAAGATCAACGTGGTCTACGATCCGTCGTTCTAC spacer
29194 length: 36 repeater length: 30
29194 465211 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTATCGTATCGTGTCTAACAGGGGCGTATTCGTGCG spacer
29195 length: 36 repeater length: 30
29195 465278 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCGAACTTTGCCCCCTCTCGGGAGCCTCACACGGC spacer
29196 length: 35 repeater length: 30
29196 465344 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGGTAAATGGGCGAAAGCGGATAAAAGGGACGTTGG spacer
29197 length: 37 repeater length: 30
29197 465412 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGTCGTTTACCCGGCGATAAAGTGAGAGGTGGGTTA spacer
29198 length: 37 repeater length: 30
29198 465480 GTTGCAATAAGACTCTAGGAGAATTGAAAG TACGTGCCAAAGCTCGAAAAGCCCAAGTGGCCAAG spacer
29199 length: 35 repeater length: 30
29199 465546 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAATGAGCCTGTTTGATGAGACCCTGACGAGTTGC
29200
29201
29202 crispr 3
29203 273096 AAGTTTCCACACAATACTGTTCTACGGAAAC ATTAGTGAAGACCTACCGGAAAGTAACCGGTAGGCGT spacer
29204 length: 37 repeater length: 31
29204 273165 AAGTTTCCACACAATACTGTTCTACGGAAAC TTCATTCCCGCCGGCAAATACCGGTACCCGAGGAATCTCCT
29205 spacer length: 41 repeater length: 31
29205 273238 AAGTTTCCACACAATACTGTTCTACGGAAAC CATCTCCAAACCTCCTTTTTCGTTTTATAAAAGGAAAGAAA
29206 spacer length: 40 repeater length: 31
29206 273310 AAGTTTCCACACAATACTGTTCTACGGAAAC
29207 CACGCCCCGATACCGAGCCGGAATACCGAGGAGAACCCGGAGTTTCCACACAATACTGTTCTACGGAACTTAAGGGTTTGGTCAG
29208 AATGGATAATTTGGCCGAAGTTGTTATT spacer length: 114 repeater length: 31
29207 273456 AAGTTTCCACACAATACTGTTCTACGGAAAC
29208 AGGGCTCTGAGGAGGCTGGTTTCTTGTGGCGTGCGGTGTTTGTTCACACAATACTGTTCTACGGAACTTTGGGAGGAGATACA
29209 AGAAAGGAGGTACATGTGATGAGGAGGT
29210
29210 GCA_002214605.1_ASM221460v1_genomic.fna(findCrispr):
29211 START          REPEAT
29212 SPACER
29212 crispr 1
29213 150701 CTTTCAATTCT CTTCTAGTCATATTGGAACGTTTAATGCGAGGTATGCTAAATTATCGAGATATCA spacer
29214 length: 55 repeater length: 11
29214 150768 CTTTCAATTCT CTTCTAGTCTTATTGGAACAAGCAGTAGGGGCAGCGATACTTACCCCAAGCCGTCATT spacer
29215 length: 58 repeater length: 11
29215 150838 CTTTCAATTCT CTTCTAGTCTTATTGGAACCTCAAACCTCCGATCGACGTTAAAGCATTCGTTGAGA spacer
29216 length: 56 repeater length: 11
29216 150906 CTTTCAATTCT CTTCTAGTCTTATTGGAACATGGTGAACGACGACAGGGCGTTCAAGGCAGGCTACCG spacer
29217 length: 57 repeater length: 11
29217 150975 CTTTCAATTCT CTTCTAGTCTTATTGGAACCAAACCTTTGTTAATACCCTGAAGAACAACCTTCTTAG spacer
29218 length: 55 repeater length: 11

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29218 151042 CTTTCAATTCT CTTCTAGTCTTATTGGAACCTGGGGACTGCAGCAGGAGCTGGATGTTTTGCC spacer
 length: 52 repeater length: 11
 29219 151106 CTTTCAATTCT CTTCTAGTCTTATTGGAACCTGAGATGGGAAATGTTGACGTGTCGATTATAGAAG spacer
 length: 54 repeater length: 11
 29220 151172 CTTTCAATTCT CTTCTAGTCTTATTGGAACGTGCTCGCCGCAATAATAGCCGTCGCCGCAGTCTCG spacer
 length: 55 repeater length: 11
 29221 151239 CTTTCAATTCT CTTCTAGTCTTATTGGAACAGCGTAAGGGTGGAGGTCTGGCTGAACAACACGAAAC spacer
 length: 56 repeater length: 11
 29222 151307 CTTTCAATTCT CTTCTAGTCTTATTGGAACCTGGCGCCCGGCCGAGCTGGGCCCCGTCCGGAATGAAGC spacer
 length: 56 repeater length: 11
 29223 151375 CTTTCAATTCT GTGGAAACAAAATTTCTTGAATGACTTTTATCGAGTGCTCTGCCCCCTCTATCCCT
 29224
 29225
 29226 crispr 2
 29227 1830155 CTTTCCACACTATTTAGTTCTACGGAAAC
 GGAAACGAGGTGGCAGGAAGGGGACGAAACAGCAATAGACGAGTTCC spacer length: 47 repeater length: 29
 29228 1830232 CTTTCCACACTATTTAGTTCTACGGAAAC GGAAACAAACAGTTGATCGCGGAGGCGCTGAGGAGCGGTTGGAAGG
 spacer length: 46 repeater length: 29
 29229 1830308 CTTTCCACACTATTTAGTTCTACGGAAAC CGGCTTATGCCTACTCTCCCCAAGTCCCCTTTGC spacer
 length: 35 repeater length: 29
 29230 1830373 CTTTCCACACTATTTAGTTCTACGGAAAC GGCCATCGAGGCGAAGATAAAGGCCAAGCAGGAGG spacer
 length: 35 repeater length: 29
 29231 1830438 CTTTCCACACTATTTAGTTCTACGGAAAC
 GAGAACGAGATATGGAATTGCGGTGTTATGGGCGGCAATCCCGACAAAAG spacer length: 50 repeater
 length: 29
 29232 1830518 CTTTCCACACTATTTAGTTCTACGGAAAC AGGTAGTTCTCGACAGTCTTCTCTGCACCCACGAGC spacer
 length: 36 repeater length: 29
 29233 1830584 CTTTCCACACTATTTAGTTCTACGGAAAC CAGGGTGTGCAATACTCCCGAGGGTCGTTGTTCCAGTGT
 spacer length: 40 repeater length: 29
 29234 1830654 CTTTCCACACTATTTAGTTCTACGGAAAC ACACGCCAACATTTGCTAGGATACTGCAGGAGGGGTTCTTGG
 spacer length: 42 repeater length: 29
 29235 1830726 CTTTCCACACTATTTAGTTCTACGGAAAC CTGAGACTGTGGGGTCTGCATACGCTTCCACGTCC spacer
 length: 35 repeater length: 29
 29236 1830791 CTTTCCACACTATTTAGTTCTACGGAAAC CCTTTAATTCGCCACCTCATCTTTACTTGCAAACCTT spacer
 length: 37 repeater length: 29
 29237 1830858 CTTTCCACACTATTTAGTTCTACGGAAAC GAAACTGGCAAACCTATTTCGGATTACTTATTACTACGAT spacer
 length: 39 repeater length: 29
 29238 1830927 CTTTCCACACTATTTAGTTCTACGGAAAC ATAATCTTCAAAGACGGCGACTACGTGATTGCAAAGAACGG
 spacer length: 41 repeater length: 29
 29239 1830998 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAACAAGGAGTGGTACTAGAGTTCTGGACAAACA spacer
 length: 36 repeater length: 29
 29240 1831064 CTTTCCACACTATTTAGTTCTACGGAAAC GAGGTTTCGCAAATGGGTCAACAGACGTAACATTC spacer
 length: 34 repeater length: 29
 29241 1831128 CTTTCCACACTATTTAGTTCTACGGAAAC TAGTCACCAAATCACATACAAGATATATGAGGACGGGGTAGA
 spacer length: 42 repeater length: 29
 29242 1831200 CTTTCCACACTATTTAGTTCTACGGAAAC CAGAACTGCACGACTGGGCCGACAAAACCTTCATCGAGA spacer
 length: 39 repeater length: 29
 29243 1831269 CTTTCCACACTATTTAGTTCTACGGAAAC
 CTACGGAAACGAAATAGAGAAGACTTAGAAACAACAAAGACAGTAGGGATG spacer length: 51 repeater
 length: 29
 29244 1831350 CTTTCCACACTATTTAGTTCTACGGAAAC TTGCTCTCGCTCTTGTATGTCTCTGGGTGCGATGTTG spacer
 length: 36 repeater length: 29
 29245 1831416 CTTTCCACACTATTTAGTTCTACGGAAAC AGTTTACGGCCGCAAGTGTTGAGGCGAGGAGGGAA spacer
 length: 35 repeater length: 29
 29246 1831481 CTTTCCACACTATTTAGTTCTACGGAAAC AAACCTGGCAAAAACAACAATGAGATCAAGAGGCTAA spacer
 length: 36 repeater length: 29
 29247 1831547 CTTTCCACACTATTTAGTTCTACGGAAAC ACGATAGGAGCTTAGGCTTAGCAACCTACCTTTACGGCCTAAGA
 spacer length: 44 repeater length: 29
 29248 1831621 CTTTCCACACTATTTAGTTCTACGGAAAC GTGAGCGATTTAGAGGCTGAGCTACACAAGTACGAACT spacer
 length: 38 repeater length: 29
 29249 1831689 CTTTCCACACTATTTAGTTCTACGGAAAC ACAGTTAGCTGAGTCCCAACATCTGCAATTTTTCCAAACCC
 spacer length: 41 repeater length: 29
 29250 1831760 CTTTCCACACTATTTAGTTCTACGGAAAC ATGGGTGTGGAGGACGTGCTTAGTTATTTGGAGAAGAGAAAGGAAG
 spacer length: 46 repeater length: 29
 29251 1831836 CTTTCCACACTATTTAGTTCTACGGAAAC ATGGTGGAACGTGAGCGCTAAAATCCTATCTCGCCA spacer
 length: 37 repeater length: 29
 29252 1831903 CTTTCCACACTATTTAGTTCTACGGAAAC AAACGGCGCACCCCCAAAGAAAAGGGAAAGGGCTAAAAAG
 spacer length: 40 repeater length: 29
 29253 1831973 CTTTCCACACTATTTAGTTCTACGGAAAC GTCGCTCTCAGATACTCAATTGACCTTACTAGGGACTCAC
 spacer length: 40 repeater length: 29
 29254 1832043 CTTTCCACACTATTTAGTTCTACGGAAAC GATCCATCAAATGTGTCACCAAAATCAGTTTCCGTAGAAC

29255
 29256
 29257 crispr 3
 29258 1598355 GTTCCAATAAGACTAAAAGAGAATTGAAA TTCGTTCTGAAGAAGTCTTGGAGGCTGCCAAACAA spacer
 length: 35 repeater length: 29
 29259 1598420 GTTCCAATAAGACTAAAAGAGAATTGAAA TTGTTGATCTCATAATCAACTTTGATCTCAATCCTTG spacer
 length: 37 repeater length: 29
 29260 1598487 GTTCCAATAAGACTAAAAGAGAATTGAAA TTTATGATCTCAAGGGCTGTTGCTTGTGGATTTGAT spacer
 length: 36 repeater length: 29
 29261 1598553 GTTCCAATAAGACTAAAAGAGAATTGAAA TGGGGACCACTGACTTATTGGCGTGGTAACTAATATATC spacer
 length: 39 repeater length: 29
 29262 1598622 GTTCCAATAAGACTAAAAGAGAATTGAAA TACTATTATCAGGAATTCTTCAAGCATGTGTCTTAGG spacer
 length: 37 repeater length: 29
 29263 1598689 GTTCCAATAAGACTAAAAGAGAATTGAAA TTACAATGTATCCATTATCCTTTCCAAAACCTTGG spacer
 length: 36 repeater length: 29
 29264 1598755 GTTCCAATAAGACTAAAAGAGAATTGAAA TGCAGTCTTTCTGCACCACCTCGTCAATGTGCTGAA spacer
 length: 36 repeater length: 29
 29265 1598821 GTTCCAATAAGACTAAAAGAGAATTGAAA TGAAATACAAGCGCTACACAGTAACATTCTACGCATAC spacer
 length: 38 repeater length: 29
 29266 1598889 GTTCCAATAAGACTAAAAGAGAATTGAAA TTGGCTTCCTCTTTAAAGCGAGAAGTTAGGACACCGTCA spacer
 length: 39 repeater length: 29
 29267 1598958 GTTCCAATAAGACTAAAAGAGAATTGAAA ATGAAATCAGCTACCTCTCCAGGAACATAAGGCTAAAC
 29268
 29269
 29270 crispr 4
 29271 173047 GTTTCCGTAGAACTCAATAGTGTGGAAAC ATCGCCTTCTTGGCACCTCCTTGATCCATCCTGGG spacer
 length: 36 repeater length: 29
 29272 173113 GTTTCCGTAGAACTCAATAGTGTGGAAAC TCAATAAGCCAGCCTATGGCTCCTCCAACGAGTTTTTC spacer
 length: 37 repeater length: 29
 29273 173180 GTTTCCGTAGAACTCAATAGTGTGGAAAC ATGGCCTTGACAACGATATCCCCAATGCGGGGAAAG spacer
 length: 37 repeater length: 29
 29274 173247 GTTTCCGTAGAACTCAATAGTGTGGAAAC ACTACAAACTTGCTCAATCCATGACTCCTTGCAAATT spacer
 length: 37 repeater length: 29
 29275 173314 GTTTCCGTAGAACTCAATAGTGTGGAAAC GAAAATCCACTCTTTCGACAGTTCGTCTTTTCAACAACTCC
 spacer length: 42 repeater length: 29
 29276 173386 GTTTCCGTAGAACTCAATAGTGTGGAAAC TGTATGAAATCAGCTACCTCTCCAGGAACATAAGGCTAAAC
 29277
 29278
 29279 crispr 5
 29280 173671 GTTTCCGTAGAACTCAATAGTGTGGAAAG TTTTTCTGGGTGGGTCTTAACGTAGGTGGTTACTTGGGGTAGTA
 spacer length: 44 repeater length: 29
 29281 173745 GTTTCCGTAGAACTCAATAGTGTGGAAAG TGGATCCTCCTAAAGCGCCATTCGGCCATCCTGCTGGCCCTTCTGA
 spacer length: 46 repeater length: 29
 29282 173821 GTTTCCGTAGAACTCAATAGTGTGGAAAG AAGGCTTTCTGGAGTGATGGCCCGCTGTTCTGCCTGTCCTTTGTTTG
 spacer length: 47 repeater length: 29
 29283 173898 GTTTCCGTAGAACTCAATAGTGTGGAAAG AACTAACTTCCTGCTCCTCAAATCCCAATTTTATA spacer
 length: 36 repeater length: 29
 29284 173964 GTTTCCGTAGAACTCAATAGTGTGGAAAG GTCAAGTTGCGGACGATCTTGGCGTGGGCCCTGTCGAGGGCCTCGAA
 spacer length: 47 repeater length: 29
 29285 174041 GTTTCCGTAGAACTCAATAGTGTGGAAAG CCAATTTTGTCTCGATTTCGCATCAAATAGTCGTAAGAAAACCTGTTAC
 29286
 29287
 29288 crispr 6
 29289 174107 GTTTCCGTAGAACTGAATAGTGTGGAAAG ATTATCTTCTGTACCAACTGCTCTGCGTTTTCAACA spacer
 length: 36 repeater length: 29
 29290 174173 GTTTCCGTAGAACTGAATAGTGTGGAAAG CCGATGCTCTTTATTCCGCTCTCCTTGATTCCCCCTAT spacer
 length: 38 repeater length: 29
 29291 174241 GTTTCCGTAGAACTGAATAGTGTGGAAAG TCCATATTTGATCTTGGCGATCCTACTCCTGATATTCGGAGCCAT
 spacer length: 45 repeater length: 29
 29292 174316 GTTTCCGTAGAACTGAATAGTGTGGAAAG ATAACTTTGGCCCTAACCTTCTCGGGGTCAAACCTTCAATTCTCT
 29293
 29294
 29295 crispr 7
 29296 1633977 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTATTGGAACCTGAAGTTCTTCCAGCTTCATCTTCTCGACTTCGA
 spacer length: 45 repeater length: 30
 29297 1634053 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCACCTCCTCAGAATTGCTATTATTCTCCCCACAAT spacer
 length: 37 repeater length: 30
 29298 1634121 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCACAGGCGTCCAGAAGACTACTGCGACCTTCTCC spacer
 length: 35 repeater length: 30
 29299 1634187 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTTTGGCTTTGTTGCGACTAATACTCTCTTCTAAG
 29300

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29301
29302 crispr 8
29303 986357 CTTTCAATTCTCTTCTAGTCTTATTGTAAC CGACAGTCAAGAGAGACAGTTTGGGCTGTACATCTTG spacer
length: 37 repeater length: 30
29304 986425 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GCCCACTATCTAATCCAATGTCCCTCAAGCTCCGTG spacer
length: 36 repeater length: 30
29305 986492 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GCAGGCTCTACTGGGCCGAGCCATCGATTTACATC spacer
length: 35 repeater length: 30
29306 986558 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GATAAGAACCTAATTATCGTCGGTGGTTGGGTCAGCAAC spacer
length: 39 repeater length: 30
29307 986628 CTTTCAATTCTCTTCTAGTCTTATTGTAAC GAGTATGTATTGAGAATCGGTATGTTCAAACCTCCC spacer
length: 35 repeater length: 30
29308 986694 CTTTCAATTCTCTTCTAGTCTTATTGTAAC AGAAGCCCGGTGGGAACGGTCTTATTGTTCTCCCA spacer
length: 35 repeater length: 30
29309 986760 CTTTCAATTCTCTTCTAGTCTTATTGTAAC TTTGGCTTTGTTGCGACTAATACTCTCTTCTAAGAG
29310
29311
29312 GCA_002215405.1_ASM221540v1_genomic.fna(findCrispr):
29313 START REPEAT
SPACER
29314 crispr 1
29315 1715388 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 25
29316 1715454 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length:
35 repeater length: 25
29317 1715515 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 25
29318 1715577 CTTTCAATCCCTTATGGGATTCTTC TATTTATTATTCCCTTATCCTAAATTTGACGTTCTT
29319
29320
29321 crispr 2
29322 1755048 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
length: 37 repeater length: 25
29323 1755111 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
length: 36 repeater length: 25
29324 1755173 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
length: 40 repeater length: 25
29325 1755239 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
35 repeater length: 25
29326 1755300 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
length: 37 repeater length: 25
29327 1755363 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
length: 36 repeater length: 25
29328 1755425 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
length: 38 repeater length: 25
29329 1755489 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
length: 41 repeater length: 25
29330 1755556 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
length: 38 repeater length: 25
29331 1755620 CTTTCAATCCCTTTTGGGATTCATC TGTTTTTATATCCCTTGCTTATTTTTCCCTTTCCTTG
29332
29333
29334 GCA_002215445.1_ASM221544v1_genomic.fna(findCrispr):
29335 START REPEAT
SPACER
29336 crispr 1
29337 1698177 GTAATAACGACAAGAACTAAAA CAAAGGAGATTGACACCCCGTAATGTTCTACTATGTGAA spacer
length: 40 repeater length: 23
29338 1698241 GTAATAACGACAAGAACTAAAA CGAAGTCTTTCTTCAATGTCGAGGACTGTGCACGTA spacer length:
36 repeater length: 23
29339 1698301 GTAATAACGACAAGAACTAAAA CAAAGTACTGACTACAAGGCAATTGTTGAAGTACT spacer length:
36 repeater length: 23
29340 1698361 GTAATAACGACAAGAACTAAAA CTTAGTGACCGAAAAAGATAGAGAGATTTTTGACA spacer length:
35 repeater length: 23
29341 1698420 GTAATAACGACAAGAACTAAAA CCATATTCATCAAACTTCAAGACTACCTATAC spacer length: 33
repeater length: 23
29342 1698477 GTAATAACGACAAGAACTAAAA CATCTGTTATATCAACAATCTCTCTATCTTTTTTCAG spacer length:
36 repeater length: 23
29343 1698537 GTAATAACGACAAGAACTAAAA CGTAAATCATATTGAGTATTTTGTGTTATGCGATTTATGT spacer
length: 40 repeater length: 23
29344 1698601 GTAATAACGACAAGAACTAAAA CGTTGAAAAGAAGAGAGTTCTACTTATTCTACTTA spacer length:

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35 repeater length: 23

29345 1698660 GTAATAACGACAAGAACTAAAA CATGCGTCCTGGTTAGGTAGATTATAGTCCCTCCT spacer length: 35 repeater length: 23

29346 1698719 GTAATAACGACAAGAACTAAAA CTAATTAGATTTTAAAGCGTTATATGCTACGCTCC spacer length: 35 repeater length: 23

29347 1698778 GTAATAACGACAAGAACTAAAA CTGTCCAATTCTTGTAAGAATTCTTTCTGACTTTGGG spacer length: 37 repeater length: 23

29348 1698839 GTAATAACGACAAGAACTAAAA CATTGATGAGGCAAGGGATCAAGGTGAGCTAAACGT spacer length: 36 repeater length: 23

29349 1698899 GTAATAACGACAAGAACTAAAA CAGAAGGTAATTGAAATAGGAGGAGGTAACGGGTATT spacer length: 37 repeater length: 23

29350 1698960 GTAATAACGACAAGAACTAAAA CTTCAACAACCCTGCCAGTATAAGACCTATCAAACGT spacer length: 38 repeater length: 23

29351 1699022 GTAATAACGACAAGAACTAAAA CCTATAAAATTTTGCAAAGGTTGGTGAGGAGAAG spacer length: 35 repeater length: 23

29352 1699081 GTAATAACGACAAGAACTAAAA CTTGCTACAAAGTTCCCCATGTGTTTGTAGGGGTAA spacer length: 36 repeater length: 23

29353 1699141 GTAATAACGACAAGAACTAAAA CCCTTACTGTATTGTATGGTATATCAGCTTCTTCAC spacer length: 36 repeater length: 23

29354 1699201 GTAATAACGACAAGAACTAAAA CTGTCCCATTTACTACATCAAATTGGAAAATGTTAT spacer length: 36 repeater length: 23

29355 1699261 GTAATAACGACAAGAACTAAAA CATTAATATAGCACCACTCCTAAAAGAGTAATTGAAA spacer length: 38 repeater length: 23

29356 1699323 GTAATAACGACAAGAACTAAAA CACTTATGTTTATGAGTATTACGCGATGAAAGTTTGGG spacer length: 38 repeater length: 23

29357 1699385 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTT spacer length: 36 repeater length: 23

29358 1699445 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length: 36 repeater length: 23

29359 1699505 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTCAGGAAACA spacer length: 34 repeater length: 23

29360 1699563 GTAATAACGACAAGAACTAAAA CAATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer length: 39 repeater length: 23

29361 1699626 GTAATAACGACAAGAACTAAAA CTAATGCCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34 repeater length: 23

29362 1699684 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length: 35 repeater length: 23

29363 1699743 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTAAAAGTAACA spacer length: 36 repeater length: 23

29364 1699803 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length: 35 repeater length: 23

29365 1699862 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34 repeater length: 23

29366 1699920 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length: 35 repeater length: 23

29367 1699979 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length: 36 repeater length: 23

29368 1700039 GTAATAACGACAAGAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34 repeater length: 23

29369 1700097 GTAATAACGACAAGAACTAAAA CTACAATAATTTTCAGATTTCCAGTAAATGATACAAATT spacer length: 38 repeater length: 23

29370 1700159 GTAATAACGACAAGAACTAAAA CTTGTCATTAACTGACAACCTTGTCTCTGACCCAA spacer length: 36 repeater length: 23

29371 1700219 GTAATAACGACAAGAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34 repeater length: 23

29372 1700277 GTAATAACGACAAGAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34 repeater length: 23

29373 1700335 GTAATAACGACAAGAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer length: 39 repeater length: 23

29374 1700398 GTAATAACGACAAGAACTAAAA CGAATAATTGTAGATCAGCCATCAACTCCACAC spacer length: 34 repeater length: 23

29375 1700456 GTAATAACGACAAGAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length: 36 repeater length: 23

29376 1700516 GTAATAACGACAAGAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer length: 39 repeater length: 23

29377 1700579 GTAATAACGACAAGAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length: 37 repeater length: 23

29378 1700640 GTAATAACGACAAGAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33 repeater length: 23

29379 1700697 GTAATAACGACAAGAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length: 36 repeater length: 23

29380 1700757 GTAATAACGACAAGAACTAAAA CCAGGTTCAATTTTCAGTAAATAATGGCATTACAA spacer length: 34
repeater length: 23

29381 1700815 GTAATAACGACAAGAACTAAAA CAACATCAGACTTTTGCCTTTTATTAGAAGGCTTTGG spacer
length: 38 repeater length: 23

29382 1700877 GTAATAACGACAAGAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34
repeater length: 23

29383 1700935 GTAATAACGACAAGAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length:
36 repeater length: 23

29384 1700995 GTAATAACGACAAGAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34
repeater length: 23

29385 1701053 GTAATAACGACAAGAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTTCT spacer
length: 39 repeater length: 23

29386 1701116 GTAATAACGACAAGAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
length: 39 repeater length: 23

29387 1701179 GTAATAACGACAAGAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length:
37 repeater length: 23

29388 1701240 GTAATAACGACAAGAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34
repeater length: 23

29389 1701298 GTAATAACGACAAGAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length:
37 repeater length: 23

29390 1701359 GTAATAACGACAAGAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length:
36 repeater length: 23

29391 1701419 GTAATAACGACAAGAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer
length: 38 repeater length: 23

29392 1701481 GTAATAACGACAAGAACTAAAA CCTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGA spacer length:
36 repeater length: 23

29393 1701541 GTAATAACGACAAGAACTAAAA ACTTTACAATAATTTTTTCAGGAAAACAAATTGA spacer length:
35 repeater length: 23

29394 1701600 GTAATAACGACAAGAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34
repeater length: 23

29395 1701658 GTAATAACGACAAGAACTAAAA CGAATGTGTCCCCCTAGAGTTTTTACCAAACAACC spacer length:
36 repeater length: 23

29396 1701718 GTAATAACGACAAGAACTAAAA CAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length:
36 repeater length: 23

29397 1701778 GTAATAACGACAAGAACTAAAA CAACGTTACGACCCTACTACTCAGAAGAAGATAG spacer length:
35 repeater length: 23

29398 1701837 GTAATAACGACAAGAACTAAAA CGAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGA spacer length:
37 repeater length: 23

29399 1701898 GTAATAACGACAAGAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length:
35 repeater length: 23

29400 1701957 GTAATAACGACAAGAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer
length: 39 repeater length: 23

29401 1702020 GTAATAACGACAAGAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length:
35 repeater length: 23

29402 1702079 GTAATAACGACAAGAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33
repeater length: 23

29403 1702136 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34
repeater length: 23

29404 1702194 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTTCGTTG spacer length:
35 repeater length: 23

29405 1702253 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length:
36 repeater length: 23

29406 1702313 GTAATAACGACAAGAACTAAAA CACTATTACTTTTGAAAATATGTAGATAAGACTGG spacer length:
35 repeater length: 23

29407 1702372 GTAATAACGACAAGAACTAAAA CTTACAGTTGTTCCGTTAGGAAGTATATAGTTAC spacer length: 34
repeater length: 23

29408 1702430 GTAATAACGACAAGAACTAAAA
CAAAATAATCATAAAAACCGAGCATTACGAAGAATTGAGTAATAATGACAAGAACTAAAACTGTAAAGGACTTCTTAAAAAGGTT
AGAGGGGTTTCTCGTAATAATGACAAGAACTAAAAACGTAATTATTTCTGATGGGTGCTATAATCTCGATGG spacer
length: 157 repeater length: 23

29409 1702611 GTAATAACGACAAGAACTAAAA
CAGCGATTAGTTTAGTCGAATTAGCTATTGCGACTTGTAAATAACGACGAGAACTAAAACATGGGATCCTGATAATTCGGCATCAG
CACAATT spacer length: 93 repeater length: 23

29410 1702728 GTAATAACGACAAGAACTAAAA
CCTCTTCATTTGTCTCGTGAAATATAGGGTTTTTTCAGTAATAACGACGAGAACTAAAACATAGGGTAGTTCACAAAGAGCCAGCC
CTCGTCAA spacer length: 94 repeater length: 23

29411 1702846 GTAATAACGACAAGAACTAAAA CCTTTACGTAGTAGTTATAGAGCTTCGTTACGTGC spacer length:
35 repeater length: 23

29412 1702905 GTAATAACGACAAGAACTAAAA CCTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTA spacer
length: 38 repeater length: 23

29413 1702967 GTAATAACGACAAGAACTAAAA CGCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAA spacer length:

36 repeater length: 23
 29414 1703027 GTAATAACGACAAGAACTAAAA CTAAAATTAGTCTGCTGGCCAATTAAGAACAACTC spacer length:
 36 repeater length: 23
 29415 1703087 GTAATAACGACAAGAACTAAAA CGTGCAACAGGGTGAAACATAGATGAGCACATTTT spacer length:
 35 repeater length: 23
 29416 1703146 GTAATAACGACAAGAACTAAAA CATTATGCTCATTATCTCTGATTTTCGACCTTAAAG spacer length:
 35 repeater length: 23
 29417 1703205 GTAATAACGACAAGAACTAAAA CCTACATTGTCCTGAAGTCCTAACTTCTTTAATTCCT spacer length:
 37 repeater length: 23
 29418 1703266 GTAATAACGACAAGAACTAAAA CTTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAA spacer
 length: 39 repeater length: 23
 29419 1703329 GTAATAACGACAAGAACTAAAA CTACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCT spacer length:
 37 repeater length: 23
 29420 1703390 GTAATAACGACAAGAACTAAAA CTAGGAGGAAAATATAGGAATATAAAGATAGTACT spacer length:
 35 repeater length: 23
 29421 1703449 GTAATAACGACAAGAACTAAAA CCATTTTAGCTCAAGCATCACCAGCATCAATTGAAA spacer length:
 36 repeater length: 23
 29422 1703509 GTAATAACGACAAGAACTAAAA CACCGTTCGCTAGATATTATTACTGTAACCTCCCTCC spacer length:
 36 repeater length: 23
 29423 1703569 GTAATAACGACAAGAACTAAAA CACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTT spacer length:
 37 repeater length: 23
 29424 1703630 GTAATAACGACAAGAACTAAAA CGACGCTAAAAAGCAAGAACAACAATCACAACAATC spacer length:
 36 repeater length: 23
 29425 1703690 GTAATAACGACAAGAACTAAAA CTTTCTTAGTGAATCCCATGTACGTATATCTAATTT spacer length:
 36 repeater length: 23
 29426 1703750 GTAATAACGACAAGAACTAAAA TACAGTTGTTCCGTTAGGAAGTATATAGTTACTGTA
 29427
 29428
 29429 crispr 2
 29430 1676207 GTTTTAGTTTCTTGTCGTTATTAC ATCATTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length:
 35 repeater length: 24
 29431 1676267 GTTTTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length:
 34 repeater length: 24
 29432 1676326 GTTTTAGTTTCTTGTCGTTATTAC TGATGTGCAATACCGGAGTCAAGATGTTGATGAAA spacer length:
 35 repeater length: 24
 29433 1676386 GTTTTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length:
 36 repeater length: 24
 29434 1676447 GTTTTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length:
 36 repeater length: 24
 29435 1676508 GTTTTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length:
 34 repeater length: 24
 29436 1676567 GTTTTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33
 repeater length: 24
 29437 1676625 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
 36 repeater length: 24
 29438 1676686 GTTTTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length:
 34 repeater length: 24
 29439 1676745 GTTTTAGTTTCTTGTCGTTATTAC TTTTTATTCTATATTTGAATAAAGCATAAAGTAAT spacer length:
 35 repeater length: 24
 29440 1676805 GTTTTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACA spacer length:
 34 repeater length: 24
 29441 1676864 GTTTTAGTTTCTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length:
 34 repeater length: 24
 29442 1676923 GTTTTAGTTTCTTGTCGTTATTAC TATGTTTGTGTATTGCTAGCGTAATATTGTATTAC spacer length:
 36 repeater length: 24
 29443 1676984 GTTTTAGTTTCTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length:
 35 repeater length: 24
 29444 1677044 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
 36 repeater length: 24
 29445 1677105 GTTTTAGTTTCTTGTCGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGT spacer length:
 34 repeater length: 24
 29446 1677164 GTTTTAGTTTCTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33
 repeater length: 24
 29447 1677222 GTTTTAGTTTCTTGTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length:
 36 repeater length: 24
 29448 1677283 GTTTTAGTTTCTTGTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length:
 36 repeater length: 24
 29449 1677344 GTTTTAGTTTCTTGTCGTTATTAC
 CGGTCTCCAAAATTACTTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA
 TGAAGAAGAAA spacer length: 97 repeater length: 24
 29450 1677466 GTTTTAGTTTCTTGTCGTTATTAC TATCTAACCTCTCTTTTTCACTCTTTGAAGATAAA spacer

length: 37 repeater length: 24

29451 1677528 GTTTtagtttcttgTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length: 36 repeater length: 24

29452 1677589 GTTTtagtttcttgTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAA spacer length: 35 repeater length: 24

29453 1677649 GTTTtagtttcttgTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACA spacer length: 34 repeater length: 24

29454 1677708 GTTTtagtttcttgTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTTAATAATA spacer length: 34 repeater length: 24

29455 1677767 GTTTtagtttcttgTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33 repeater length: 24

29456 1677825 GTTTtagtttcttgTCGTTATTAC AACAGAATTGATGAAGTATTCAAAAGAGCGATATGA spacer length: 37 repeater length: 24

29457 1677887 GTTTtagtttcttgTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer length: 38 repeater length: 24

29458 1677950 GTTTtagtttcttgTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length: 34 repeater length: 24

29459 1678009 GTTTtagtttcttgTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length: 34 repeater length: 24

29460 1678068 GTTTtagtttcttgTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTG spacer length: 38 repeater length: 24

29461 1678131 GTTTtagtttcttgTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length: 35 repeater length: 24

29462 1678191 GTTTtagtttcttgTCGTTATTAC AATAAAAGGAGATTTTCATAGACTCTATTCTCAAA spacer length: 34 repeater length: 24

29463 1678250 GTTTtagtttcttgTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAAACGGCAGTTTTT spacer length: 35 repeater length: 24

29464 1678310 GTTTtagtttcttgTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGAAGTCTGAAAAT spacer length: 36 repeater length: 24

29465 1678371 GTTTtagtttcttgTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length: 36 repeater length: 24

29466 1678432 GTTTtagtttcttgTCGTTATTAC AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAA spacer length: 37 repeater length: 24

29467 1678494 GTTTtagtttcttgTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length: 34 repeater length: 24

29468 1678553 GTTTtagtttcttgTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTT spacer length: 32 repeater length: 24

29469 1678610 GTTTtagtttcttgTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length: 36 repeater length: 24

29470 1678671 GTTTtagtttcttgTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33 repeater length: 24

29471 1678729 GTTTtagtttcttgTCGTTATTAC ATTGGATAGTCAGTACCAAAGGTACATTAAGCCAC spacer length: 36 repeater length: 24

29472 1678790 GTTTtagtttcttgTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length: 35 repeater length: 24

29473 1678850 GTTTtagtttcttgTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length: 36 repeater length: 24

29474 1678911 GTTTtagtttcttgTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGCAGT spacer length: 33 repeater length: 24

29475 1678969 GTTTtagtttcttgTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTA spacer length: 34 repeater length: 24

29476 1679028 GTTTtagtttcttgTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGT spacer length: 35 repeater length: 24

29477 1679088 GTTTtagtttcttgTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCAT spacer length: 36 repeater length: 24

29478 1679149 GTTTtagtttcttgTCGTTATTAC TGCGGGATACTACTTCGCCCAAGTTCTGTAAAGA spacer length: 35 repeater length: 24

29479 1679209 GTTTtagtttcttgTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGA spacer length: 33 repeater length: 24

29480 1679267 GTTTtagtttcttgTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length: 36 repeater length: 24

29481 1679328 GTTTtagtttcttgTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGG spacer length: 35 repeater length: 24

29482 1679388 GTTTtagtttcttgTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length: 36 repeater length: 24

29483 1679449 GTTTtagtttcttgTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGT spacer length: 33 repeater length: 24

29484 1679507 GTTTtagtttcttgTCGTTATTAC CTTCACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer length: 39 repeater length: 24

29485 1679571 GTTTtagtttcttgTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTAT spacer length: 34 repeater length: 24

29486 1679630 GTTTGTAGTTTCTTGTCTGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length: 34 repeater length: 24

29487 1679689 GTTTGTAGTTTCTTGTCTGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATA spacer length: 37 repeater length: 24

29488 1679751 GTTTGTAGTTTCTTGTCTGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length: 34 repeater length: 24

29489 1679810 GTTTGTAGTTTCTTGTCTGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAAT spacer length: 33 repeater length: 24

29490 1679868 GTTTGTAGTTTCTTGTCTGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length: 34 repeater length: 24

29491 1679927 GTTTGTAGTTTCTTGTCTGTTATTAC AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGA spacer length: 37 repeater length: 24

29492 1679989 GTTTGTAGTTTCTTGTCTGTTATTAC TGACTTATTTTTTTGTCTTAACCTTCACTACTCATTTTC spacer length: 37 repeater length: 24

29493 1680051 GTTTGTAGTTTCTTGTCTGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length: 35 repeater length: 24

29494 1680111 GTTTGTAGTTTCTTGTCTGTTATTAC TTCCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length: 35 repeater length: 24

29495 1680171 GTTTGTAGTTTCTTGTCTGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length: 34 repeater length: 24

29496 1680230 GTTTGTAGTTTCTTGTCTGTTATTAC AAAGAAAAAGAAAAGGCGGGGGCGAGGGCATGG spacer length: 33 repeater length: 24

29497 1680288 GTTTGTAGTTTCTTGTCTGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length: 34 repeater length: 24

29498 1680347 GTTTGTAGTTTCTTGTCTGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33 repeater length: 24

29499 1680405 GTTTGTAGTTTCTTGTCTGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length: 35 repeater length: 24

29500 1680465 GTTTGTAGTTTCTTGTCTGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length: 35 repeater length: 24

29501 1680525 GTTTGTAGTTTCTTGTCTGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer length: 40 repeater length: 24

29502 1680590 GTTTGTAGTTTCTTGTCTGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCTGA spacer length: 35 repeater length: 24

29503 1680650 GTTTGTAGTTTCTTGTCTGTTATTAC TGTATTGCCACAAATGTCCCCTTTTCGTTGTACAG spacer length: 35 repeater length: 24

29504 1680710 GTTTGTAGTTTCTTGTCTGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length: 34 repeater length: 24

29505 1680769 GTTTGTAGTTTCTTGTCTGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAAGACAT spacer length: 35 repeater length: 24

29506 1680829 GTTTGTAGTTTCTTGTCTGTTATTAC TTCTCATCAACATTTGCTGTACAAATTTTATAATCA spacer length: 36 repeater length: 24

29507 1680890 GTTTGTAGTTTCTTGTCTGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA spacer length: 36 repeater length: 24

29508 1680951 GTTTGTAGTTTCTTGTCTGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG spacer length: 34 repeater length: 24

29509 1681010 GTTTGTAGTTTCTTGTCTGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCG spacer length: 34 repeater length: 24

29510 1681069 GTTTGTAGTTTCTTGTCTGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATA spacer length: 33 repeater length: 24

29511 1681127 GTTTGTAGTTTCTTGTCTGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTA spacer length: 33 repeater length: 24

29512 1681185 GTTTGTAGTTTCTTGTCTGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACT spacer length: 33 repeater length: 24

29513 1681243 GTTTGTAGTTTCTTGTCTGTTATTAC TTTGATTAAAATGGGTGGTATGGCATAAAAAA spacer length: 33 repeater length: 24

29514 1681301 GTTTGTAGTTTCTTGTCTGTTATTAC ATCGGAATTATAGGCGGATTTTTTAACAATATTCCTAACA spacer length: 39 repeater length: 24

29515 1681365 GTTTGTAGTTTCTTGTCTGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCA spacer length: 32 repeater length: 24

29516 1681422 GTTTGTAGTTTCTTGTCTGTTATTAC AGAAAGAGGAACATAAGGTCTAGATCTTACCCA spacer length: 33 repeater length: 24

29517 1681480 GTTTGTAGTTTCTTGTCTGTTATTAC TAATTCATCTTTATAGTGTAACTTTTTGAAATAA spacer length: 34 repeater length: 24

29518 1681539 GTTTGTAGTTTCTTGTCTGTTATTAC AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACT spacer length: 38 repeater length: 24

29519 1681602 GTTTGTAGTTTCTTGTCTGTTATTAC TACACCAGTGAGAATGTCTTCCCGAACTACAAGA spacer length: 35 repeater length: 24

29520 1681662 GTTTGTAGTTTCTTGTCTGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATA spacer length: 34 repeater length: 24

29521 1681721 GTTTGTAGTTTCTTGTCTGTTATTAC GAATAGGGGATGCGATAAACAGTTAGCACACA spacer length: 34 repeater length: 24

34 repeater length: 24

29522 1681780 GTTT TAGTTT CTTGTCGTTATTAC GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTA spacer length: 34 repeater length: 24

29523 1681839 GTTT TAGTTT CTTGTCGTTATTAC ATTCAATTTTTTTTCGTTTTGTCGGTGAATAA spacer length: 34 repeater length: 24

29524 1681898 GTTT TAGTTT CTTGTCGTTATTAC GCTTGTGGTAAC TATCCATCGTCATCAGCAAT spacer length: 33 repeater length: 24

29525 1681956 GTTT TAGTTT CTTGTCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTA spacer length: 36 repeater length: 24

29526 1682017 GTTT TAGTTT CTTGTCGTTATTAC GTTTAAAACGGTAAATAGATAAAACCAAGAAAAT spacer length: 34 repeater length: 24

29527 1682076 GTTT TAGTTT CTTGTCGTTATTAC ACGTCTTGTGCTGACTTGTAACATCGCTGTTCT spacer length: 34 repeater length: 24

29528 1682135 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGTACAT spacer length: 33 repeater length: 24

29529 1682193 GTTT TAGTTT CTTGTCGTTATTAC ATGCATTCAATAAGACTTAACAATTCAAGAGT spacer length: 33 repeater length: 24

29530 1682251 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAG spacer length: 33 repeater length: 24

29531 1682309 GTTT TAGTTT CTTGTCGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT spacer length: 35 repeater length: 24

29532 1682369 GTTT TAGTTT CTTGTCGTTATTAC AGATTTTATGAAACATTAAC TATTTTATCTA spacer length: 35 repeater length: 24

29533 1682429 GTTT TAGTTT CTTGTCGTTATTAC ATTAATCAGATAGAACTAGCAGTGT TTTTATGT spacer length: 35 repeater length: 24

29534 1682489 GTTT TAGTTT CTTGTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACTT spacer length: 35 repeater length: 24

29535 1682549 GTTT TAGTTT CTTGTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATG spacer length: 34 repeater length: 24

29536 1682608 GTTT TAGTTT CTTGTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTAC spacer length: 34 repeater length: 24

29537 1682667 GTTT TAGTTT CTTGTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTT spacer length: 34 repeater length: 24

29538 1682726 GTTT TAGTTT CTTGTCGTTATTAC AGAGTACCTTTACCTAACCAGAGCGTCGTATATTA spacer length: 35 repeater length: 24

29539 1682786 GTTT TAGTTT CTTGTCGTTATTAC TG TAGTCTTGC GCAATACCTGCGCTCTTTAGCAG spacer length: 34 repeater length: 24

29540 1682845 GTTT TAGTTT CTTGTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAAT spacer length: 33 repeater length: 24

29541 1682903 GTTT TAGTTT CTTGTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAG spacer length: 34 repeater length: 24

29542 1682962 GTTT TAGTTT CTTGTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT spacer length: 37 repeater length: 24

29543 1683024 GTTT TAGTTT CTTGTCGTTATTAC TATATTTGGTCAAGTGT TTTCTACAGCATTTTAA spacer length: 33 repeater length: 24

29544 1683082 GTTT TAGTTT CTTGTCGTTATTAC GCAGAGTCTTTGCTACGTCTTT CAGCGTCTCAA spacer length: 34 repeater length: 24

29545 1683141 GTTT TAGTTT CTTGTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC spacer length: 36 repeater length: 24

29546 1683202 GTTT TAGTTT CTTGTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT spacer length: 36 repeater length: 24

29547 1683263 GTTT TAGTTT CTTGTCGTTATTAC GTAGAAAGTCATAACCCAAAAC TTTT TTTTGT spacer length: 35 repeater length: 24

29548 1683323 GTTT TAGTTT CTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA spacer length: 34 repeater length: 24

29549 1683382 GTTT TAGTTT CTTGTCGTTATTAC AGCTCCCATTTAAATCAGGACCACTCCAATATC spacer length: 34 repeater length: 24

29550 1683441 GTTT TAGTTT CTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTTAAATATTTT spacer length: 35 repeater length: 24

29551 1683501 GTTT TAGTTT CTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA spacer length: 34 repeater length: 24

29552 1683560 GTTT TAGTTT CTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGGAACCACTATT spacer length: 38 repeater length: 24

29553 1683623 GTTT TAGTTT CTTGTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length: 35 repeater length: 24

29554 1683683 GTTT TAGTTT CTTGTCGTTATTAC AACTGAAGGAACCTTGTAGAGCGGTATGCTTTGCTTCTTCT spacer length: 41 repeater length: 24

29555 1683749 GTTT TAGTTT CTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length: 36 repeater length: 24

29556 1683810 GTTT TAGTTT CTTGTCGTTATTAC AATGAGATATTCAGTGAGGTCATGGAGCGTGAA spacer length: 33 repeater length: 24

29557	1683868	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTCCTTATTTTTTAAGGAGGGAAATGGTCAGGCTAAA	spacer
		length: 38	repeater length: 24	
29558	1683931	GTTTGTAGTTTCTTGTGCGTTATTAC	TACGGTAAACTGGGGAGTTAACTCAGCATCC	spacer length: 31
		repeater length: 24		
29559	1683987	GTTTGTAGTTTCTTGTGCGTTATTAC	CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC	spacer
		length: 37	repeater length: 24	
29560	1684049	GTTTGTAGTTTCTTGTGCGTTATTAC	AACTTGTTATCAATAAAAAGCTTCTCGATATTTTGT	spacer length:
		36	repeater length: 24	
29561	1684110	GTTTGTAGTTTCTTGTGCGTTATTAC	ACTTACTTTTTTTCAGCACTCTCTTGACTCA	spacer length: 30
		repeater length: 24		
29562	1684165	GTTTGTAGTTTCTTGTGCGTTATTAC	GAGGAAGGGCCTAACGTTGCAAGGCATAGGGCTAAT	spacer length:
		36	repeater length: 24	
29563	1684226	GTTTGTAGTTTCTTGTGCGTTATTAC	TCTTTTTGATAGATTAGGCTCAGCAGGGTCGTTATGA	spacer
		length: 37	repeater length: 24	
29564	1684288	GTTTGTAGTTTCTTGTGCGTTATTAC	ACTTCATTCCCTCTTAACCTGTAGTTTCCTCAA	spacer length: 33
		repeater length: 24		
29565	1684346	GTTTGTAGTTTCTTGTGCGTTATTAC	GGAGCCGGGACCCCATGGGTAGCGCTTATACTGC	spacer length:
		34	repeater length: 24	
29566	1684405	GTTTGTAGTTTCTTGTGCGTTATTAC	TCTATCAGTATGAAGTCATATTTTTCTCTGAAGTTCTC	spacer
		length: 38	repeater length: 24	
29567	1684468	GTTTGTAGTTTCTTGTGCGTTATTAC	ACTATATGGCGTAACTAGTTCTAGATAGTTTATCCCCA	spacer
		length: 38	repeater length: 24	
29568	1684531	GTTTGTAGTTTCTTGTGCGTTATTAC	GGGAGTTTATTCAATTTTTCTAACGAGAGTAGA	spacer length: 33
		repeater length: 24		
29569	1684589	GTTTGTAGTTTCTTGTGCGTTATTAC	TGGAGAATGCTTACTATATTCCTTATCCGCTTTT	spacer length:
		35	repeater length: 24	
29570	1684649	GTTTGTAGTTTCTTGTGCGTTATTAC	GGTAACGACTTGTGTATTTCCGTAAACTGGGGAG	spacer length:
		35	repeater length: 24	
29571	1684709	GTTTGTAGTTTCTTGTGCGTTATTAC	TGTAGTGGACTTAGGGACAATAATTGCGTTGGCAACA	spacer
		length: 37	repeater length: 24	
29572	1684771	GTTTGTAGTTTCTTGTGCGTTATTAC	AATTCAAACTGTGCATTTCGTTATTTTTCACGGAT	spacer length:
		35	repeater length: 24	
29573	1684831	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTGACAAGCTCTTCTTAGTTAGCGAGAACTC	spacer length: 33
		repeater length: 24		
29574	1684889	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGGTAGGCAGTATCGCCGCCTATCGTTATGTGA	spacer length:
		34	repeater length: 24	
29575	1684948	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTCAAACCGTTAACTCCCCAGTTTAATCATGAT	spacer length:
		35	repeater length: 24	
29576	1685008	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTCCCGTCCCGTCGGTGAGTTGATTATCACTCCT	spacer length:
		36	repeater length: 24	
29577	1685069	GTTTGTAGTTTCTTGTGCGTTATTAC	ACGGGAGGGAAATAGTCAGGAGGACTCCCCTCACTC	spacer length:
		36	repeater length: 24	
29578	1685130	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAAACCCCATTTCTGAATGAAATGAAAGCGAGA	spacer length:
		34	repeater length: 24	
29579	1685189	GTTTGTAGTTTCTTGTGCGTTATTAC	TTAAAGTATAGTAAAGTATAAGGCGGGGTCAGCTCG	spacer length:
		36	repeater length: 24	
29580	1685250	GTTTGTAGTTTCTTGTGCGTTATTAC	TAGTCATGAAGTCGTAAAGTATTGTTAAGTATTCCT	spacer length:
		36	repeater length: 24	
29581	1685311	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTCCAGAGGTGGTGAAAAAGGGGCTTAGTCTCAA	spacer length:
		35	repeater length: 24	
29582	1685371	GTTTGTAGTTTCTTGTGCGTTATTAC	GATGCCAGTCCTCGAGTTCCTCAGCTTCGTTTGTGTC	spacer length:
		35	repeater length: 24	
29583	1685431	GTTTGTAGTTTCTTGTGCGTTATTAC	TCGCTTTCGGCTCAAAGCGAAACCCTATGGGGTTTTT	spacer
		length: 37	repeater length: 24	
29584	1685493	GTTTGTAGTTTCTTGTGCGTTATTAC	AGTGTAACCGTGACTACGGGTTCGGCTACCGGAA	spacer length:
		34	repeater length: 24	
29585	1685552	GTTTGTAGTTTCTTGTGCGTTATTAC	GGTTTTCGATTGGCCTTACTGGCGGTTCTATAT	spacer length: 33
		repeater length: 24		
29586	1685610	GTTTGTAGTTTCTTGTGCGTTATTAC	ATAAAGTCCTTTTTTCGTCGTAAATACGTCCTT	spacer length: 33
		repeater length: 24		
29587	1685668	GTTTGTAGTTTCTTGTGCGTTATTAC	TTCCCCGACACCGCCCAATCCCTCGGTAGTATAA	spacer length:
		34	repeater length: 24	
29588	1685727	GTTTGTAGTTTCTTGTGCGTTATTAC	GAGTAAAGTCCATAAATAAACCCCGTAACTTACC	spacer length:
		34	repeater length: 24	
29589	1685786	GTTTGTAGTTTCTTGTGCGTTATTAC	TGTAACATTTTAAAATAGAATGATGAGAGAATGA	
29590				
29591				
29592	crispr 3			
29593	1814132	CTTTCAATCCCTTATGGGATTCTTC	CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA	spacer
		length: 40	repeater length: 25	
29594	1814198	CTTTCAATCCCTTATGGGATTCTTC	CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG	spacer length:

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35 repeater length: 25
29595 1814259 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 25
29596 1814321 CTTTCAATCCCTTATGGGATTCTTC TATTTATTATTCCCTTATCCTAAATTTGACGTTCTT
29597
29598
29599 crispr 4
29600 1853794 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
length: 37 repeater length: 25
29601 1853857 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
length: 36 repeater length: 25
29602 1853919 CTTTCAATCCCTTTTGGGATTCATC TGC GGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
length: 40 repeater length: 25
29603 1853985 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
35 repeater length: 25
29604 1854046 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
length: 37 repeater length: 25
29605 1854109 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
length: 36 repeater length: 25
29606 1854171 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
length: 38 repeater length: 25
29607 1854235 CTTTCAATCCCTTTTGGGATTCATC TATGAACTAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
length: 41 repeater length: 25
29608 1854302 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
length: 38 repeater length: 25
29609 1854366 CTTTCAATCCCTTTTGGGATTCATC TGTTTTTATATCCCTTGTCTTATTTTTCCCTTTCTTG
29610
29611
29612 GCA_002215485.1_ASM221548v1_genomic.fna(findCrispr):
29613 START REPEAT
SPACER
29614 crispr 1
29615 1714292 GTAATAACGACAAGAAACTAAAA CAAAGGAGATTGACACCCCGTAATGTTCTACTATGTGAA spacer
length: 40 repeater length: 23
29616 1714356 GTAATAACGACAAGAAACTAAAA CGAAGTCTTTCTTCAATGTCGAGGACTGTGCACGTA spacer length:
36 repeater length: 23
29617 1714416 GTAATAACGACAAGAAACTAAAA CAAAGTGA CTGACTACAAGGCAATTGTTGAAGTACT spacer length:
36 repeater length: 23
29618 1714476 GTAATAACGACAAGAAACTAAAA CTTAGTGACCGAAAAAGATAGAGAGATTTTTGACA spacer length:
35 repeater length: 23
29619 1714535 GTAATAACGACAAGAAACTAAAA CCATATTCATCAAACTTCAAGACTACCTATAC spacer length: 33
repeater length: 23
29620 1714592 GTAATAACGACAAGAAACTAAAA CATCTGTTATATCAACAATCTCTCTATCTTTTTTCAG spacer length:
36 repeater length: 23
29621 1714652 GTAATAACGACAAGAAACTAAAA CGTAAATCATATTGAGTATTTTGTGTTATGCGATTTATGT spacer
length: 40 repeater length: 23
29622 1714716 GTAATAACGACAAGAAACTAAAA CGTTGAAAAGAAGAGAGTTCTACTTATTCTACTTA spacer length:
35 repeater length: 23
29623 1714775 GTAATAACGACAAGAAACTAAAA CATGCGTCCTGGTTAGGTAGATTATAGTCCCTCCT spacer length:
35 repeater length: 23
29624 1714834 GTAATAACGACAAGAAACTAAAA CTAATTAGATTTTAAAGCGTTATATGCTACGCTCC spacer length:
35 repeater length: 23
29625 1714893 GTAATAACGACAAGAAACTAAAA CTGTCCAATTCTTGTAAGAATTCTTTCTGACTTTGGG spacer length:
37 repeater length: 23
29626 1714954 GTAATAACGACAAGAAACTAAAA CATTGATGAGGCAAGGGATCAAGGTGAGCTAAACGT spacer length:
36 repeater length: 23
29627 1715014 GTAATAACGACAAGAAACTAAAA CAGAAGGTAATTGAAATAGGAGGAGGTAACGGGTATT spacer length:
37 repeater length: 23
29628 1715075 GTAATAACGACAAGAAACTAAAA CTTCAACAACCCTGCCAGTATAAGACCTATCAAAACGT spacer
length: 38 repeater length: 23
29629 1715137 GTAATAACGACAAGAAACTAAAA CCTATAAAATTTTGCAAAAGGTTGGTGAGGAGAAG spacer length:
35 repeater length: 23
29630 1715196 GTAATAACGACAAGAAACTAAAA CTTGCTACAAAGTTCCCCATGTGTTTGTAGGGGTAA spacer length:
36 repeater length: 23
29631 1715256 GTAATAACGACAAGAAACTAAAA CCCTTACTGTATTGTATGGTATATCAGCTTCTTCAC spacer length:
36 repeater length: 23
29632 1715316 GTAATAACGACAAGAAACTAAAA CTGTCCCATTTACTACATCAAATTGGAAAATGTTAT spacer length:
36 repeater length: 23
29633 1715376 GTAATAACGACAAGAAACTAAAA CATTAATATAGCACCCACCTCTAAAAGAGTAATTGAAA spacer
length: 38 repeater length: 23
29634 1715438 GTAATAACGACAAGAAACTAAAA CACTTATGTTTATGAGTATTACGCGATGAAAGTTTGGG spacer

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length: 38 repeater length: 23

29635 1715500 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTT spacer length: 36 repeater length: 23

29636 1715560 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length: 36 repeater length: 23

29637 1715620 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTCAGGAAACA spacer length: 34 repeater length: 23

29638 1715678 GTAATAACGACAAGAACTAAAA CAATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer length: 39 repeater length: 23

29639 1715741 GTAATAACGACAAGAACTAAAA CTAATGCCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34 repeater length: 23

29640 1715799 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length: 35 repeater length: 23

29641 1715858 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTAAAAGTAACA spacer length: 36 repeater length: 23

29642 1715918 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length: 35 repeater length: 23

29643 1715977 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34 repeater length: 23

29644 1716035 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length: 35 repeater length: 23

29645 1716094 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length: 36 repeater length: 23

29646 1716154 GTAATAACGACAAGAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34 repeater length: 23

29647 1716212 GTAATAACGACAAGAACTAAAA CTACAATAATTTTCCAGTAAATGATACAAATT spacer length: 38 repeater length: 23

29648 1716274 GTAATAACGACAAGAACTAAAA CTTGTCATTAACTGACAACCTTGTCTCTGACCCAA spacer length: 36 repeater length: 23

29649 1716334 GTAATAACGACAAGAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34 repeater length: 23

29650 1716392 GTAATAACGACAAGAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34 repeater length: 23

29651 1716450 GTAATAACGACAAGAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer length: 39 repeater length: 23

29652 1716513 GTAATAACGACAAGAACTAAAA CGAATAATTGTAGATCAGCCATCAACTTCCACAC spacer length: 34 repeater length: 23

29653 1716571 GTAATAACGACAAGAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length: 36 repeater length: 23

29654 1716631 GTAATAACGACAAGAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer length: 39 repeater length: 23

29655 1716694 GTAATAACGACAAGAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length: 37 repeater length: 23

29656 1716755 GTAATAACGACAAGAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33 repeater length: 23

29657 1716812 GTAATAACGACAAGAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length: 36 repeater length: 23

29658 1716872 GTAATAACGACAAGAACTAAAA CCAGGTTCAATTTTCAGTAAATAATGGCATTACAA spacer length: 34 repeater length: 23

29659 1716930 GTAATAACGACAAGAACTAAAA CAACATCAGACTTTTGCACTTTTATTAGAAGGCTTTGG spacer length: 38 repeater length: 23

29660 1716992 GTAATAACGACAAGAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34 repeater length: 23

29661 1717050 GTAATAACGACAAGAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length: 36 repeater length: 23

29662 1717110 GTAATAACGACAAGAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34 repeater length: 23

29663 1717168 GTAATAACGACAAGAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTTCCT spacer length: 39 repeater length: 23

29664 1717231 GTAATAACGACAAGAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer length: 39 repeater length: 23

29665 1717294 GTAATAACGACAAGAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length: 37 repeater length: 23

29666 1717355 GTAATAACGACAAGAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34 repeater length: 23

29667 1717413 GTAATAACGACAAGAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length: 37 repeater length: 23

29668 1717474 GTAATAACGACAAGAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length: 36 repeater length: 23

29669 1717534 GTAATAACGACAAGAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer length: 38 repeater length: 23

29670 1717596 GTAATAACGACAAGAACTAAAA CCTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGA spacer length: 36 repeater length: 23

29671 1717656 GTAATAACGACAAGAACTAAAA ACTTTACAATAATTTTTTTCAGGAAAACAAATTGA spacer length: 35 repeater length: 23

29672 1717715 GTAATAACGACAAGAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34 repeater length: 23

29673 1717773 GTAATAACGACAAGAACTAAAA CGAATGTGTCCCCCTAGAGGTTTTACCAAACAACC spacer length: 36 repeater length: 23

29674 1717833 GTAATAACGACAAGAACTAAAA CAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length: 36 repeater length: 23

29675 1717893 GTAATAACGACAAGAACTAAAA CAACGTTACGACCCTACTACTCAGAAGAAGATAG spacer length: 35 repeater length: 23

29676 1717952 GTAATAACGACAAGAACTAAAA CGAGGGATGAAGGC AAATCAGTATCAGCAATAGTAGA spacer length: 37 repeater length: 23

29677 1718013 GTAATAACGACAAGAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length: 35 repeater length: 23

29678 1718072 GTAATAACGACAAGAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer length: 39 repeater length: 23

29679 1718135 GTAATAACGACAAGAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length: 35 repeater length: 23

29680 1718194 GTAATAACGACAAGAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33 repeater length: 23

29681 1718251 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34 repeater length: 23

29682 1718309 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTTCGTTG spacer length: 35 repeater length: 23

29683 1718368 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length: 36 repeater length: 23

29684 1718428 GTAATAACGACAAGAACTAAAA CACTATTACTTTTGAAAATATGTAGATAAGACTGG spacer length: 35 repeater length: 23

29685 1718487 GTAATAACGACAAGAACTAAAA CTTACAGTTGTTCCGTTAGGAAGTATATAGTTAC spacer length: 34 repeater length: 23

29686 1718545 GTAATAACGACAAGAACTAAAA CAAAATAATCATAAAACCCGAGCATTACGAAGAATTGAGTAATAATGACAAGAACTAAACTGTAAAGGACTTCTTAAAAAGGTT AGAGGGGTTTCTCGTAATAATGACAAGAACTAAAACGTAATTATTCTGATGGGTGCTATAATCTCGATGG spacer length: 157 repeater length: 23

29687 1718726 GTAATAACGACAAGAACTAAAA CAGCGATTAGTTTAGTCAATTAGCTATTGCGACTTGTAATAACGACGAGAACTAAAACATGGGATCCTGATAATTCGGCATCAG CACAATT spacer length: 93 repeater length: 23

29688 1718843 GTAATAACGACAAGAACTAAAA CCTCTTCATTTGTCTCGTGAATATAGGGTTTTTCAGTAATAACGACGAGAACTAAAACATAGGGTAGTTCACAAAGAGCCAGCC CTCGTCAA spacer length: 94 repeater length: 23

29689 1718961 GTAATAACGACAAGAACTAAAA CCTTTACGTAGTAGTTATAGAGCTTCGTTACGTGC spacer length: 35 repeater length: 23

29690 1719020 GTAATAACGACAAGAACTAAAA CCTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTA spacer length: 38 repeater length: 23

29691 1719082 GTAATAACGACAAGAACTAAAA CGCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAA spacer length: 36 repeater length: 23

29692 1719142 GTAATAACGACAAGAACTAAAA CTAAAATTAGTCTGCTGGCCAATTAAGAACAACCTC spacer length: 36 repeater length: 23

29693 1719202 GTAATAACGACAAGAACTAAAA CGTGCAACAGGGTGAAACATAGATGAGCACATTTT spacer length: 35 repeater length: 23

29694 1719261 GTAATAACGACAAGAACTAAAA CATTATGCTCATTATCTCTGATTTTCGACCTTAAAG spacer length: 35 repeater length: 23

29695 1719320 GTAATAACGACAAGAACTAAAA CCTACATTGTCCTGAAGTCCTAATTCTTTAATTCTCCT spacer length: 37 repeater length: 23

29696 1719381 GTAATAACGACAAGAACTAAAA CTTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAA spacer length: 39 repeater length: 23

29697 1719444 GTAATAACGACAAGAACTAAAA CTACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCT spacer length: 37 repeater length: 23

29698 1719505 GTAATAACGACAAGAACTAAAA CTAGGAGGAAAATATAGGAATATAAAGATAGTACT spacer length: 35 repeater length: 23

29699 1719564 GTAATAACGACAAGAACTAAAA CCATTTTAGCTCAAGCATCACCAGCATCAATTGAAA spacer length: 36 repeater length: 23

29700 1719624 GTAATAACGACAAGAACTAAAA CACCGTTCGGTAGATATTATTACTGTAACCTCCCTCC spacer length: 36 repeater length: 23

29701 1719684 GTAATAACGACAAGAACTAAAA CACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTT spacer length: 37 repeater length: 23

29702 1719745 GTAATAACGACAAGAACTAAAA CGACGCTAAAAGCAAGAACAACATCACAACAATC spacer length: 36 repeater length: 23

29703 1719805 GTAATAACGACAAGAACTAAAA CTTTCTTAGTGAATCCCATGTACGTATATCTAATTT spacer length: 36 repeater length: 23

36 repeater length: 23

29704 1719865 GTAATAACGACAAGAACTAAAA TACAGTTGTTCCGTTAGGAAGTATATAGTTACTGTA

29705

29706

29707 crispr 2

29708 1692322 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length:
35 repeater length: 24

29709 1692382 GTTTGTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length:
34 repeater length: 24

29710 1692441 GTTTGTAGTTTCTTGTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAA spacer length:
35 repeater length: 24

29711 1692501 GTTTGTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length:
36 repeater length: 24

29712 1692562 GTTTGTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length:
36 repeater length: 24

29713 1692623 GTTTGTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length:
34 repeater length: 24

29714 1692682 GTTTGTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33
repeater length: 24

29715 1692740 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
36 repeater length: 24

29716 1692801 GTTTGTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length:
34 repeater length: 24

29717 1692860 GTTTGTAGTTTCTTGTCGTTATTAC TTTTATTCTATATTTGAATAAAGCATAAAGTAAT spacer length:
35 repeater length: 24

29718 1692920 GTTTGTAGTTTCTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACAACA spacer length:
34 repeater length: 24

29719 1692979 GTTTGTAGTTTCTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length:
34 repeater length: 24

29720 1693038 GTTTGTAGTTTCTTGTCGTTATTAC TATGTTTGTTGTATTGCTAGCGTAATATTGTATTAC spacer length:
36 repeater length: 24

29721 1693099 GTTTGTAGTTTCTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length:
35 repeater length: 24

29722 1693159 GTTTGTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
36 repeater length: 24

29723 1693220 GTTTGTAGTTTCTTGTCGTTATTAC TGTAGTAAATTGATATAATCGGATTGAAGAGAGT spacer length:
34 repeater length: 24

29724 1693279 GTTTGTAGTTTCTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33
repeater length: 24

29725 1693337 GTTTGTAGTTTCTTGTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length:
36 repeater length: 24

29726 1693398 GTTTGTAGTTTCTTGTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length:
36 repeater length: 24

29727 1693459 GTTTGTAGTTTCTTGTCGTTATTAC
CGGTCTTCCAAAATTACTTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA
TGAAGAAGAAA spacer length: 97 repeater length: 24

29728 1693581 GTTTGTAGTTTCTTGTCGTTATTAC TATCTAACCCCTCTCTTTTCAACTCTTTGAAGATAAA spacer
length: 37 repeater length: 24

29729 1693643 GTTTGTAGTTTCTTGTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length:
36 repeater length: 24

29730 1693704 GTTTGTAGTTTCTTGTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAA spacer length:
35 repeater length: 24

29731 1693764 GTTTGTAGTTTCTTGTCGTTATTAC ATTCCGACTTGCTTAAATTGAGCTTTTTTGTACA spacer length:
34 repeater length: 24

29732 1693823 GTTTGTAGTTTCTTGTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTTAATAATA spacer length:
34 repeater length: 24

29733 1693882 GTTTGTAGTTTCTTGTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33
repeater length: 24

29734 1693940 GTTTGTAGTTTCTTGTCGTTATTAC AACAGAATTGATGAAGTATTCAAAGAGCGATATGA spacer
length: 37 repeater length: 24

29735 1694002 GTTTGTAGTTTCTTGTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer
length: 38 repeater length: 24

29736 1694065 GTTTGTAGTTTCTTGTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length:
34 repeater length: 24

29737 1694124 GTTTGTAGTTTCTTGTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length:
34 repeater length: 24

29738 1694183 GTTTGTAGTTTCTTGTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTG spacer
length: 38 repeater length: 24

29739 1694246 GTTTGTAGTTTCTTGTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length:
35 repeater length: 24

29740 1694306 GTTTGTAGTTTCTTGTCGTTATTAC AATAAAAGGAGATTTTCATAGACTCTATTCTCAAA spacer length:

34 repeater length: 24

29741 1694365 GTTT TAGTTT CTTGTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTTT spacer length: 35 repeater length: 24

29742 1694425 GTTT TAGTTT CTTGTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGACTCTGAAAAT spacer length: 36 repeater length: 24

29743 1694486 GTTT TAGTTT CTTGTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length: 36 repeater length: 24

29744 1694547 GTTT TAGTTT CTTGTCGTTATTAC AGAGTGGCATAACCTTATTTGTTTTGTTGAGTTATGAA spacer length: 37 repeater length: 24

29745 1694609 GTTT TAGTTT CTTGTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length: 34 repeater length: 24

29746 1694668 GTTT TAGTTT CTTGTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTT spacer length: 32 repeater length: 24

29747 1694725 GTTT TAGTTT CTTGTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length: 36 repeater length: 24

29748 1694786 GTTT TAGTTT CTTGTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33 repeater length: 24

29749 1694844 GTTT TAGTTT CTTGTCGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCAC spacer length: 36 repeater length: 24

29750 1694905 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length: 35 repeater length: 24

29751 1694965 GTTT TAGTTT CTTGTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length: 36 repeater length: 24

29752 1695026 GTTT TAGTTT CTTGTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGCAGT spacer length: 33 repeater length: 24

29753 1695084 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTA spacer length: 34 repeater length: 24

29754 1695143 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGT spacer length: 35 repeater length: 24

29755 1695203 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCAT spacer length: 36 repeater length: 24

29756 1695264 GTTT TAGTTT CTTGTCGTTATTAC TGCGGGATACTACTTCGCCCCAAGTTCTGTAAAGA spacer length: 35 repeater length: 24

29757 1695324 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAC TGGTACAGATACATCCTTATGAAGA spacer length: 33 repeater length: 24

29758 1695382 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length: 36 repeater length: 24

29759 1695443 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGG spacer length: 35 repeater length: 24

29760 1695503 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length: 36 repeater length: 24

29761 1695564 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGTATATCTGTCCCTGCAGTGTCTAGT spacer length: 33 repeater length: 24

29762 1695622 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer length: 39 repeater length: 24

29763 1695686 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTAT spacer length: 34 repeater length: 24

29764 1695745 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length: 34 repeater length: 24

29765 1695804 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATA spacer length: 37 repeater length: 24

29766 1695866 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length: 34 repeater length: 24

29767 1695925 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAAT spacer length: 33 repeater length: 24

29768 1695983 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length: 34 repeater length: 24

29769 1696042 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGA spacer length: 37 repeater length: 24

29770 1696104 GTTT TAGTTT CTTGTCGTTATTAC TGA CT TATTTTTTGTCTTAACTTCACTACTCATTTTC spacer length: 37 repeater length: 24

29771 1696166 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length: 35 repeater length: 24

29772 1696226 GTTT TAGTTT CTTGTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length: 35 repeater length: 24

29773 1696286 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length: 34 repeater length: 24

29774 1696345 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGG spacer length: 33 repeater length: 24

29775 1696403 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length: 34 repeater length: 24

29776 1696462 GTTTGTAGTTTCTTGTGCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33
repeater length: 24

29777 1696520 GTTTGTAGTTTCTTGTGCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length:
35 repeater length: 24

29778 1696580 GTTTGTAGTTTCTTGTGCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length:
35 repeater length: 24

29779 1696640 GTTTGTAGTTTCTTGTGCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer
length: 40 repeater length: 24

29780 1696705 GTTTGTAGTTTCTTGTGCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCTGA spacer length:
35 repeater length: 24

29781 1696765 GTTTGTAGTTTCTTGTGCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTTCGTTGTACAG spacer length:
35 repeater length: 24

29782 1696825 GTTTGTAGTTTCTTGTGCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length:
34 repeater length: 24

29783 1696884 GTTTGTAGTTTCTTGTGCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAAGACAT spacer length:
35 repeater length: 24

29784 1696944 GTTTGTAGTTTCTTGTGCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTTTATAATCA spacer length:
36 repeater length: 24

29785 1697005 GTTTGTAGTTTCTTGTGCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA spacer length:
36 repeater length: 24

29786 1697066 GTTTGTAGTTTCTTGTGCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG spacer length:
34 repeater length: 24

29787 1697125 GTTTGTAGTTTCTTGTGCGTTATTAC ATCGAGTGGAAGGCGTTAGACCCAGTAGCTGCCG spacer length:
34 repeater length: 24

29788 1697184 GTTTGTAGTTTCTTGTGCGTTATTAC AGCCTGGATCTGAAGAAACATAACCATGAGATA spacer length: 33
repeater length: 24

29789 1697242 GTTTGTAGTTTCTTGTGCGTTATTAC AGGTCAGGAATATAGATTATTCGTACTTTGCTA spacer length: 33
repeater length: 24

29790 1697300 GTTTGTAGTTTCTTGTGCGTTATTAC AAGTCTTCAGAAAATCATCAACACGCATATACT spacer length: 33
repeater length: 24

29791 1697358 GTTTGTAGTTTCTTGTGCGTTATTAC TTTGATTAAAAATGGGTTGGTATGGCATAAAAAA spacer length: 33
repeater length: 24

29792 1697416 GTTTGTAGTTTCTTGTGCGTTATTAC ATCGGAATTATAGGCGGATTTTTTAACAATATTCCTAACA spacer
length: 39 repeater length: 24

29793 1697480 GTTTGTAGTTTCTTGTGCGTTATTAC GGAGACAAAGTTTGTCTGTGCAATATATCCCA spacer length: 32
repeater length: 24

29794 1697537 GTTTGTAGTTTCTTGTGCGTTATTAC AGAAAGAGGAACATAAGGTCTAGATCTTACCCA spacer length: 33
repeater length: 24

29795 1697595 GTTTGTAGTTTCTTGTGCGTTATTAC TAATTCATCTTTATAGTGTAACTTTTTGAAATAA spacer length:
34 repeater length: 24

29796 1697654 GTTTGTAGTTTCTTGTGCGTTATTAC AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACT spacer
length: 38 repeater length: 24

29797 1697717 GTTTGTAGTTTCTTGTGCGTTATTAC TACACCAGTGAGAATGTCTTCCCGAACTACAAGA spacer length:
35 repeater length: 24

29798 1697777 GTTTGTAGTTTCTTGTGCGTTATTAC AATTGGCAACTAAGAAGTTTGTACAAATAACATA spacer length:
34 repeater length: 24

29799 1697836 GTTTGTAGTTTCTTGTGCGTTATTAC GAATAGGGGATGCGATAAACCAGTTAGCACACA spacer length:
34 repeater length: 24

29800 1697895 GTTTGTAGTTTCTTGTGCGTTATTAC GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTA spacer length:
34 repeater length: 24

29801 1697954 GTTTGTAGTTTCTTGTGCGTTATTAC ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAA spacer length:
34 repeater length: 24

29802 1698013 GTTTGTAGTTTCTTGTGCGTTATTAC GCTTGTGGTAACTATTCCATCGTCATCAGCAAT spacer length: 33
repeater length: 24

29803 1698071 GTTTGTAGTTTCTTGTGCGTTATTAC AACGCATTATTGCTAATGCACGGTGCTAACAATCTA spacer length:
36 repeater length: 24

29804 1698132 GTTTGTAGTTTCTTGTGCGTTATTAC GTTTAAAACGGTAAATAGATAAAACCAAGAAAAT spacer length:
34 repeater length: 24

29805 1698191 GTTTGTAGTTTCTTGTGCGTTATTAC ACGTCTTGTGCTGACTTGTAACATCGCTGTTCT spacer length:
34 repeater length: 24

29806 1698250 GTTTGTAGTTTCTTGTGCGTTATTAC AAAGAAGTGCAAAAAAATGGCTACGGTGTACAT spacer length: 33
repeater length: 24

29807 1698308 GTTTGTAGTTTCTTGTGCGTTATTAC ATGCATTCAATTAAAGACTTAACAATTCAAGAGT spacer length: 33
repeater length: 24

29808 1698366 GTTTGTAGTTTCTTGTGCGTTATTAC AAGTTTCTTAATTTATTACAGTTATATGAACAG spacer length: 33
repeater length: 24

29809 1698424 GTTTGTAGTTTCTTGTGCGTTATTAC ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT spacer length:
35 repeater length: 24

29810 1698484 GTTTGTAGTTTCTTGTGCGTTATTAC AGATTTTATGAAACATTAATACTATTTATTTTATCTA spacer length:
35 repeater length: 24

29811 1698544 GTTTGTAGTTTCTTGTGCGTTATTAC ATTAATCAGATAGAACTAGCAGTGTTTTTTATGT spacer length:

35 repeater length: 24

29812 1698604 GTTT TAGTTT CTTGTCGTTATTAC ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT spacer length: 35
35 repeater length: 24

29813 1698664 GTTT TAGTTT CTTGTCGTTATTAC TTGGTTACTGATATTTTCTGAACTCCAGCAAATG spacer length: 34
34 repeater length: 24

29814 1698723 GTTT TAGTTT CTTGTCGTTATTAC CGTTAAACAGACTAGGCTCAGGACAAGCATTAC spacer length: 34
34 repeater length: 24

29815 1698782 GTTT TAGTTT CTTGTCGTTATTAC AGCCCAAATCTGTTATCTCTTTAGAAATGAAATTT spacer length: 34
34 repeater length: 24

29816 1698841 GTTT TAGTTT CTTGTCGTTATTAC AGAGTACCTTTACCTAACCAGAGCGTCGTATATTA spacer length: 35
35 repeater length: 24

29817 1698901 GTTT TAGTTT CTTGTCGTTATTAC TG TAGTCTTGCGCAATACCTGCGCTCTTTAGCAG spacer length: 34
34 repeater length: 24

29818 1698960 GTTT TAGTTT CTTGTCGTTATTAC AGAAGCTATACAACGAGGCTATATAAATAAAAT spacer length: 33
repeater length: 24

29819 1699018 GTTT TAGTTT CTTGTCGTTATTAC GTGAAGATGTCGATAGTGACGATAGCTGAGATAG spacer length: 34
34 repeater length: 24

29820 1699077 GTTT TAGTTT CTTGTCGTTATTAC AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT spacer length: 37
length: 37 repeater length: 24

29821 1699139 GTTT TAGTTT CTTGTCGTTATTAC TATATTTGGTCAAGTGTCTTCTACAGCATTTTAA spacer length: 33
repeater length: 24

29822 1699197 GTTT TAGTTT CTTGTCGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAA spacer length: 34
34 repeater length: 24

29823 1699256 GTTT TAGTTT CTTGTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC spacer length: 36
36 repeater length: 24

29824 1699317 GTTT TAGTTT CTTGTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT spacer length: 36
36 repeater length: 24

29825 1699378 GTTT TAGTTT CTTGTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGT spacer length: 35
35 repeater length: 24

29826 1699438 GTTT TAGTTT CTTGTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA spacer length: 34
34 repeater length: 24

29827 1699497 GTTT TAGTTT CTTGTCGTTATTAC AGCTCCCATTAATAATCACGACCACTCCAAATATC spacer length: 34
34 repeater length: 24

29828 1699556 GTTT TAGTTT CTTGTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAATAATTTTT spacer length: 35
35 repeater length: 24

29829 1699616 GTTT TAGTTT CTTGTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA spacer length: 34
34 repeater length: 24

29830 1699675 GTTT TAGTTT CTTGTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGGAACCACTATT spacer length: 38
length: 38 repeater length: 24

29831 1699738 GTTT TAGTTT CTTGTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length: 35
35 repeater length: 24

29832 1699798 GTTT TAGTTT CTTGTCGTTATTAC AACTGAAGGAACCTTG TAGAGCGGTATGCTTTGCTTCTTCT spacer length: 41
length: 41 repeater length: 24

29833 1699864 GTTT TAGTTT CTTGTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length: 36
36 repeater length: 24

29834 1699925 GTTT TAGTTT CTTGTCGTTATTAC AATGAGATATTCAGTGGAGCGTGAA spacer length: 33
repeater length: 24

29835 1699983 GTTT TAGTTT CTTGTCGTTATTAC TTTCTTATTTTTTTAACGAGGAAATGGTCAGGCTAAA spacer length: 38
length: 38 repeater length: 24

29836 1700046 GTTT TAGTTT CTTGTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCC spacer length: 31
repeater length: 24

29837 1700102 GTTT TAGTTT CTTGTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC spacer length: 37
length: 37 repeater length: 24

29838 1700164 GTTT TAGTTT CTTGTCGTTATTAC AACTTGTTATCAATAAAAAGCTTCTCGATATTTTGT spacer length: 36
36 repeater length: 24

29839 1700225 GTTT TAGTTT CTTGTCGTTATTAC ACTTACTTTTTTTCAGCACTCTCTTGACTCA spacer length: 30
repeater length: 24

29840 1700280 GTTT TAGTTT CTTGTCGTTATTAC GAGGAAGGGCCTAACGTTGCAAGGCATAGGGCTAAT spacer length: 36
36 repeater length: 24

29841 1700341 GTTT TAGTTT CTTGTCGTTATTAC TCTTTTTGATAGATTAGGCTCAGCAGGTCGTTATGA spacer length: 37
length: 37 repeater length: 24

29842 1700403 GTTT TAGTTT CTTGTCGTTATTAC ACTTCATTCCCTCTTAACCTGTAGTTTCTCATA spacer length: 33
repeater length: 24

29843 1700461 GTTT TAGTTT CTTGTCGTTATTAC GGAGCCGGGACCCCATGGGTAGCGCTTATACTGC spacer length: 34
34 repeater length: 24

29844 1700520 GTTT TAGTTT CTTGTCGTTATTAC TCTATCAGTATGAAGTCATATTTTTCTCTGAAGTTCTC spacer length: 38
length: 38 repeater length: 24

29845 1700583 GTTT TAGTTT CTTGTCGTTATTAC ACTATATGGCGTAACTAGTTCTAGATAGTTTATCCCCA spacer length: 38
length: 38 repeater length: 24

29846 1700646 GTTT TAGTTT CTTGTCGTTATTAC GGGAGTTTATTCAATTTTTCTAACGAGAGTAGA spacer length: 33
repeater length: 24

29847 1700704 GTTTGTAGTTTCTTGTCGTTATTAC TGGAGAATGCTTACTATATTCCTTATCCGCTTTT spacer length:
 35 repeater length: 24
 29848 1700764 GTTTGTAGTTTCTTGTCGTTATTAC GGTAACGACTTGTGTATTTCCGTTAAACTGGGGAG spacer length:
 35 repeater length: 24
 29849 1700824 GTTTGTAGTTTCTTGTCGTTATTAC TG TAGTGGACTTAGGGACAATAATTGCGTTGGCAACA spacer
 length: 37 repeater length: 24
 29850 1700886 GTTTGTAGTTTCTTGTCGTTATTAC AATTCAAACTGTGCATTCGTTATTTTTCACGGAT spacer length:
 35 repeater length: 24
 29851 1700946 GTTTGTAGTTTCTTGTCGTTATTAC TTTGACAAGCTCTTCTTAGTTAGCGAGAACTC spacer length: 33
 repeater length: 24
 29852 1701004 GTTTGTAGTTTCTTGTCGTTATTAC AAGGTAGGCAGTATCGCCGCCTATCGTTATGTGA spacer length:
 34 repeater length: 24
 29853 1701063 GTTTGTAGTTTCTTGTCGTTATTAC TTTCAAACCGTTAAACTCCCCAGTTTAATCATGAT spacer length:
 35 repeater length: 24
 29854 1701123 GTTTGTAGTTTCTTGTCGTTATTAC TTTCCCGTCCCCGTCGGTGAGTTGATTATCACTCCT spacer length:
 36 repeater length: 24
 29855 1701184 GTTTGTAGTTTCTTGTCGTTATTAC ACGGGAGGGAAATAGTCAGGAGGACTCCCTCACTC spacer length:
 36 repeater length: 24
 29856 1701245 GTTTGTAGTTTCTTGTCGTTATTAC AAAAACCCCATCTGAATGAAATGAAAGCGAGA spacer length:
 34 repeater length: 24
 29857 1701304 GTTTGTAGTTTCTTGTCGTTATTAC TTAAAGTATAGTAAAGTATAAGGCGGGGTCAGCTCG spacer length:
 36 repeater length: 24
 29858 1701365 GTTTGTAGTTTCTTGTCGTTATTAC TAGTCATGAAGTCGTAAAGTATTGTTAAGTATTCCT spacer length:
 36 repeater length: 24
 29859 1701426 GTTTGTAGTTTCTTGTCGTTATTAC TTTCCAGAGGTGGTGAAAAAGGGGCTTAGTCTCAA spacer length:
 35 repeater length: 24
 29860 1701486 GTTTGTAGTTTCTTGTCGTTATTAC GATGCCAGTCCTCGAGTTCCTCAGCTTCGTTTGTC spacer length:
 35 repeater length: 24
 29861 1701546 GTTTGTAGTTTCTTGTCGTTATTAC TCGCTTTCGGCTCAAAGCGAAACCCTATGGGGTTTTT spacer
 length: 37 repeater length: 24
 29862 1701608 GTTTGTAGTTTCTTGTCGTTATTAC AGTGTAACCGTGACTACGGGTTCGGCTACCGGAA spacer length:
 34 repeater length: 24
 29863 1701667 GTTTGTAGTTTCTTGTCGTTATTAC GGTTTTCGATTGGCCTTACTGGCGGTTCTATAT spacer length: 33
 repeater length: 24
 29864 1701725 GTTTGTAGTTTCTTGTCGTTATTAC ATAAAGTCCTTTTTTCGTCGTAAATACGTCCTT spacer length: 33
 repeater length: 24
 29865 1701783 GTTTGTAGTTTCTTGTCGTTATTAC TTCCCCGACACCGCCCAATCCCTCGGTAGTATAA spacer length:
 34 repeater length: 24
 29866 1701842 GTTTGTAGTTTCTTGTCGTTATTAC GAGTAAAGTCCATAAATAAACCCCGTAACTTACC spacer length:
 34 repeater length: 24
 29867 1701901 GTTTGTAGTTTCTTGTCGTTATTAC TGTAAC TATTTAAAATAGAATGATGAGAGAATGA
 29868
 29869
 29870 crispr 3
 29871 1830505 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
 length: 40 repeater length: 25
 29872 1830571 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length:
 35 repeater length: 25
 29873 1830632 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
 length: 36 repeater length: 25
 29874 1830694 CTTTCAATCCCTTATGGGATTCTTC TATTTATTATTCCTTATCCTAAATTTGACGTTCTT
 29875
 29876
 29877 crispr 4
 29878 1870165 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
 length: 37 repeater length: 25
 29879 1870228 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
 length: 36 repeater length: 25
 29880 1870290 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
 length: 40 repeater length: 25
 29881 1870356 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
 35 repeater length: 25
 29882 1870417 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
 length: 37 repeater length: 25
 29883 1870480 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
 length: 36 repeater length: 25
 29884 1870542 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
 length: 38 repeater length: 25
 29885 1870606 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
 length: 41 repeater length: 25
 29886 1870673 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer

length: 38 repeater length: 25

1870737 CTTTCAATCCCTTTTGGGATTCATC TGTTTTTATATCCCTTGTCTTATTTTTCCCTTTCCTTG

GCA_002215525.1_ASM221552v1_genomic.fna(findCrispr):

START REPEAT

SPACER

crispr 1

1665896 GTAATAACGACAAGAACTAAAA CCACTGCCGTTTCGACGAGGCCAGCAACTTCTCTAGGA spacer

length: 39 repeater length: 23

1665959 GTAATAACGACAAGAACTAAAA CAAAGGAGATTGACACCCCGTAATGTTCTACTATGTGAA spacer

length: 40 repeater length: 23

1666023 GTAATAACGACAAGAACTAAAA CGAAGTCTTTCTTCAATGTCGAGGACTGTGCACGTA spacer length:

36 repeater length: 23

1666083 GTAATAACGACAAGAACTAAAA CAAAGTGACTGACTACAAGCAATTGTTGAAGTACT spacer length:

36 repeater length: 23

1666143 GTAATAACGACAAGAACTAAAA CTTAGTGACCGAAAAAGATAGAGAGATTTTTGACA spacer length:

35 repeater length: 23

1666202 GTAATAACGACAAGAACTAAAA CCATATTCATCAAACTTCAAGACTACCTATAC spacer length: 33

repeater length: 23

1666259 GTAATAACGACAAGAACTAAAA CATCTGTTATATCAACAATCTCTCTATCTTTTTTCAG spacer length:

36 repeater length: 23

1666319 GTAATAACGACAAGAACTAAAA CGTAAAATCATATTGAGTATTTTGTGTTATGCGATTTATGT spacer

length: 40 repeater length: 23

1666383 GTAATAACGACAAGAACTAAAA CGTTGAAAAGAAGAGAGTTCTACTTATTCTACTTA spacer length:

35 repeater length: 23

1666442 GTAATAACGACAAGAACTAAAA CATGCGTCCTGGTTAGGTAGATTATAGTCCCTCCT spacer length:

35 repeater length: 23

1666501 GTAATAACGACAAGAACTAAAA CTAATTAGATTTTAAAGCGTTATATGCTACGCTCC spacer length:

35 repeater length: 23

1666560 GTAATAACGACAAGAACTAAAA CTGTCCAATTCTTGTAAGAATTCTTTCTGACTTTGGG spacer length:

37 repeater length: 23

1666621 GTAATAACGACAAGAACTAAAA CATTGATGAGGCAAGGGATCAAGGTGAGCTAAACGT spacer length:

36 repeater length: 23

1666681 GTAATAACGACAAGAACTAAAA CAGAAGGTAATTGAAATAGGAGGAGGTAACGGGTATT spacer length:

37 repeater length: 23

1666742 GTAATAACGACAAGAACTAAAA CTTCAACAACCCTGCCAGTATAAGACCTATCAAAACGT spacer

length: 38 repeater length: 23

1666804 GTAATAACGACAAGAACTAAAA CCTATAAAATTTTGCAAAGGTTGGTGAGGAGAAG spacer length:

35 repeater length: 23

1666863 GTAATAACGACAAGAACTAAAA CTTGCTACAAAGTTCCCATGTGTTTGTAGGGGTAA spacer length:

36 repeater length: 23

1666923 GTAATAACGACAAGAACTAAAA CCCTTACTGTATTGTATGGTATATCAGCTTCTTCAC spacer length:

36 repeater length: 23

1666983 GTAATAACGACAAGAACTAAAA CTGTCCCATTACTACTACATCAAATTGGAAAATGTTAT spacer length:

36 repeater length: 23

1667043 GTAATAACGACAAGAACTAAAA CATTAATATAGCACCACTCCTAAAAGAGTAATTGAAA spacer

length: 38 repeater length: 23

1667105 GTAATAACGACAAGAACTAAAA CACTTATGTTTATGAGTATTACGCGATGAAAGTTTGGG spacer

length: 38 repeater length: 23

1667167 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTT spacer length:

36 repeater length: 23

1667227 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length:

36 repeater length: 23

1667287 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTCAGGAAACA spacer length: 34

repeater length: 23

1667345 GTAATAACGACAAGAACTAAAA CAATTCCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer

length: 39 repeater length: 23

1667408 GTAATAACGACAAGAACTAAAA CTAATGCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34

repeater length: 23

1667466 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length:

35 repeater length: 23

1667525 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTTAAAGTAACA spacer length:

36 repeater length: 23

1667585 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length:

35 repeater length: 23

1667644 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34

repeater length: 23

1667702 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length:

35 repeater length: 23

1667761 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length:

36 repeater length: 23

29925 1667821 GTAATAACGACAAGAAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34
repeater length: 23

29926 1667879 GTAATAACGACAAGAAACTAAAA CTACAATAATTTTCAGATTTCCAGTAAATGATACAAATT spacer
length: 38 repeater length: 23

29927 1667941 GTAATAACGACAAGAAACTAAAA CTTGTCATTAAACTGACAACCTTTGTCTCTGACCCAA spacer length:
36 repeater length: 23

29928 1668001 GTAATAACGACAAGAAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34
repeater length: 23

29929 1668059 GTAATAACGACAAGAAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34
repeater length: 23

29930 1668117 GTAATAACGACAAGAAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer
length: 39 repeater length: 23

29931 1668180 GTAATAACGACAAGAAACTAAAA CGAATAATTGTAGATCAGCCATCAACTTCCACAC spacer length: 34
repeater length: 23

29932 1668238 GTAATAACGACAAGAAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length:
36 repeater length: 23

29933 1668298 GTAATAACGACAAGAAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer
length: 39 repeater length: 23

29934 1668361 GTAATAACGACAAGAAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length:
37 repeater length: 23

29935 1668422 GTAATAACGACAAGAAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33
repeater length: 23

29936 1668479 GTAATAACGACAAGAAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length:
36 repeater length: 23

29937 1668539 GTAATAACGACAAGAAACTAAAA CCAGGTTCAATTTTCAGTAAATAATGGCATTACAA spacer length: 34
repeater length: 23

29938 1668597 GTAATAACGACAAGAAACTAAAA CAACATCAGACTTTTGCACCTTTTATTAGAAGGCTTTGG spacer
length: 38 repeater length: 23

29939 1668659 GTAATAACGACAAGAAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34
repeater length: 23

29940 1668717 GTAATAACGACAAGAAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length:
36 repeater length: 23

29941 1668777 GTAATAACGACAAGAAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34
repeater length: 23

29942 1668835 GTAATAACGACAAGAAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTTCCT spacer
length: 39 repeater length: 23

29943 1668898 GTAATAACGACAAGAAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
length: 39 repeater length: 23

29944 1668961 GTAATAACGACAAGAAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length:
37 repeater length: 23

29945 1669022 GTAATAACGACAAGAAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34
repeater length: 23

29946 1669080 GTAATAACGACAAGAAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length:
37 repeater length: 23

29947 1669141 GTAATAACGACAAGAAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length:
36 repeater length: 23

29948 1669201 GTAATAACGACAAGAAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer
length: 38 repeater length: 23

29949 1669263 GTAATAACGACAAGAAACTAAAA CCTCGTATTCGTAAAAGCCCTCGTGGGTGGTGACGA spacer length:
36 repeater length: 23

29950 1669323 GTAATAACGACAAGAAACTAAAA ACTTTACAATAATTTTTTCAGGAAAACAAATTGA spacer length:
35 repeater length: 23

29951 1669382 GTAATAACGACAAGAAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34
repeater length: 23

29952 1669440 GTAATAACGACAAGAAACTAAAA CGAATGTGTCCCCCTAGAGGTTTTACCAAACAACC spacer length:
36 repeater length: 23

29953 1669500 GTAATAACGACAAGAAACTAAAA CAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length:
36 repeater length: 23

29954 1669560 GTAATAACGACAAGAAACTAAAA CAACGTTACGACCACTACTACTCAGAAGAAGATAG spacer length:
35 repeater length: 23

29955 1669619 GTAATAACGACAAGAAACTAAAA CGAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGA spacer length:
37 repeater length: 23

29956 1669680 GTAATAACGACAAGAAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length:
35 repeater length: 23

29957 1669739 GTAATAACGACAAGAAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer
length: 39 repeater length: 23

29958 1669802 GTAATAACGACAAGAAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length:
35 repeater length: 23

29959 1669861 GTAATAACGACAAGAAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33
repeater length: 23

29960 1669918 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34
 repeater length: 23
 29961 1669976 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTTCGTTG spacer length:
 35 repeater length: 23
 29962 1670035 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length:
 36 repeater length: 23
 29963 1670095 GTAATAACGACAAGAACTAAAA CACTATTACTTTTGAAAATATGTAGATAAGACTGG spacer length:
 35 repeater length: 23
 29964 1670154 GTAATAACGACAAGAACTAAAA CTTACAGTTGTTCCGTTAGGAAGTATATAGTTAC spacer length: 34
 repeater length: 23
 29965 1670212 GTAATAACGACAAGAACTAAAA
 CAAAATAATCATAAAAACCCGAGCATTACGAAGAATTGAGTAATAATGACAAGAACTAAAACTGTAAAGGACTTCTTAAAAAGGTT
 AGAGGGGTTTCTCGTAATAATGACAAGAACTAAAAACGTAATTATTCTGATGGGTGCTATAATCTCGATGG spacer
 length: 157 repeater length: 23
 29966 1670393 GTAATAACGACAAGAACTAAAA
 CAGCGATTAGTTTAGTCGAATTAGCTATTGCGACTTGTAATAACGACGAGAACTAAAACATGGGATCCTGATAATTCGGCATCAG
 CACAATT spacer length: 93 repeater length: 23
 29967 1670510 GTAATAACGACAAGAACTAAAA
 CCTCTTCATTGTCTCGTGAATATAGGGTTTTTTCAGTAATAACGACGAGAACTAAAACATAGGGTAGTTCACAAAGAGCCAGCC
 CTCGTCAA spacer length: 94 repeater length: 23
 29968 1670628 GTAATAACGACAAGAACTAAAA CCTTTACGTAGTAGTTATAGAGCTTCGTTACGTGC spacer length:
 35 repeater length: 23
 29969 1670687 GTAATAACGACAAGAACTAAAA CCTTGAACCATTGAACCTGCGATTGCAGGGATTAAGTA spacer
 length: 38 repeater length: 23
 29970 1670749 GTAATAACGACAAGAACTAAAA CGCTGACTGGGGGTGAGCCAGAAATGAAGACTGGAA spacer length:
 36 repeater length: 23
 29971 1670809 GTAATAACGACAAGAACTAAAA CTAAAATTAGTCTGCTGGCCAATTAAGAACAACCTC spacer length:
 36 repeater length: 23
 29972 1670869 GTAATAACGACAAGAACTAAAA CGTGCAACAGGGTGAAACATAGATGAGCACATTTT spacer length:
 35 repeater length: 23
 29973 1670928 GTAATAACGACAAGAACTAAAA CATTATGCTCATTATCTCTGATTTTCGACCTTAAAG spacer length:
 35 repeater length: 23
 29974 1670987 GTAATAACGACAAGAACTAAAA CCTACATTGTCCTGAAGTCCTAACTTCTTTAATTTCCT spacer length:
 37 repeater length: 23
 29975 1671048 GTAATAACGACAAGAACTAAAA CTTTTTATTTTCAGTAGCTATCACCATAGTAGCCCTAAA spacer
 length: 39 repeater length: 23
 29976 1671111 GTAATAACGACAAGAACTAAAA CTACTCCCCAGGCTTACCCAGCAAGAAGAGGAAGCCT spacer length:
 37 repeater length: 23
 29977 1671172 GTAATAACGACAAGAACTAAAA CTAGGAGGAAAATATAGGAATATAAAGATAGTACT spacer length:
 35 repeater length: 23
 29978 1671231 GTAATAACGACAAGAACTAAAA CCATTTTAGCTCAAGCATCACCAGCATCAATTGAAA spacer length:
 36 repeater length: 23
 29979 1671291 GTAATAACGACAAGAACTAAAA CACCGTTCCGTAGATATTATTACTGTAACCTCCCTCC spacer length:
 36 repeater length: 23
 29980 1671351 GTAATAACGACAAGAACTAAAA CACTGGGCTCCCCGTGATCACTCCAGGTCCTTATGTT spacer length:
 37 repeater length: 23
 29981 1671412 GTAATAACGACAAGAACTAAAA CGACGCTAAAAAGCAAGAACAACAATCACAACAATC spacer length:
 36 repeater length: 23
 29982 1671472 GTAATAACGACAAGAACTAAAA CTTTCTTAGTGAATCCCATGTACGTATATCTAATTT spacer length:
 36 repeater length: 23
 29983 1671532 GTAATAACGACAAGAACTAAAA TACAGTTGTTCCGTTAGGAAGTATATAGTTACTGTA
 29984
 29985
 29986 crispr 2
 29987 1644946 GTTTTAGTTTCTTGTCGTTATTAC ATCATTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length:
 35 repeater length: 24
 29988 1645006 GTTTTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length:
 34 repeater length: 24
 29989 1645065 GTTTTAGTTTCTTGTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAA spacer length:
 35 repeater length: 24
 29990 1645125 GTTTTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length:
 36 repeater length: 24
 29991 1645186 GTTTTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length:
 36 repeater length: 24
 29992 1645247 GTTTTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length:
 34 repeater length: 24
 29993 1645306 GTTTTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33
 repeater length: 24
 29994 1645364 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:
 36 repeater length: 24
 29995 1645425 GTTTTAGTTTCTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length:

34 repeater length: 24

29996 1645484 GTTTtagtttcttgTCGTTATTAC TTTTtattctatatttGAATAAAGCATAAAGTAAT spacer length:
35 repeater length: 24

29997 1645544 GTTTtagtttcttgTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACACA spacer length:
34 repeater length: 24

29998 1645603 GTTTtagtttcttgTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length:
34 repeater length: 24

29999 1645662 GTTTtagtttcttgTCGTTATTAC TATGTTTGTTGTATTGCTAGCGTAATATTGTATTAC spacer length:
36 repeater length: 24

30000 1645723 GTTTtagtttcttgTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length:
35 repeater length: 24

30001 1645783 GTTTtagtttcttgTCGTTATTAC ATCATTAGCACGATATTCATCATCACTGCAGTAAT spacer length:
36 repeater length: 24

30002 1645844 GTTTtagtttcttgTCGTTATTAC TGtagTAAATTGATATAATCGGATTGAAGAGAGT spacer length:
34 repeater length: 24

30003 1645903 GTTTtagtttcttgTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33
repeater length: 24

30004 1645961 GTTTtagtttcttgTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length:
36 repeater length: 24

30005 1646022 GTTTtagtttcttgTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length:
36 repeater length: 24

30006 1646083 GTTTtagtttcttgTCGTTATTAC
CGGTCTCCAAAATTACTTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA
TGAAGAAGAAA spacer length: 97 repeater length: 24

30007 1646205 GTTTtagtttcttgTCGTTATTAC TATCTAACCCCTCTCTTTTCAACTCTTTGAAGATAAA spacer
length: 37 repeater length: 24

30008 1646267 GTTTtagtttcttgTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length:
36 repeater length: 24

30009 1646328 GTTTtagtttcttgTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAAATAAA spacer length:
35 repeater length: 24

30010 1646388 GTTTtagtttcttgTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACA spacer length:
34 repeater length: 24

30011 1646447 GTTTtagtttcttgTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCCCTAATAATA spacer length:
34 repeater length: 24

30012 1646506 GTTTtagtttcttgTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33
repeater length: 24

30013 1646564 GTTTtagtttcttgTCGTTATTAC AACAGAATTGATGAAGTATTCAAAAGAGCGATATGA spacer
length: 37 repeater length: 24

30014 1646626 GTTTtagtttcttgTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer
length: 38 repeater length: 24

30015 1646689 GTTTtagtttcttgTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length:
34 repeater length: 24

30016 1646748 GTTTtagtttcttgTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length:
34 repeater length: 24

30017 1646807 GTTTtagtttcttgTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAGAAAGAATTG spacer
length: 38 repeater length: 24

30018 1646870 GTTTtagtttcttgTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length:
35 repeater length: 24

30019 1646930 GTTTtagtttcttgTCGTTATTAC AATAAAAGGAGATTCATAGACTCTATTCTCAA spacer length:
34 repeater length: 24

30020 1646989 GTTTtagtttcttgTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTT spacer length:
35 repeater length: 24

30021 1647049 GTTTtagtttcttgTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGACTCTGAAAAT spacer length:
36 repeater length: 24

30022 1647110 GTTTtagtttcttgTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length:
36 repeater length: 24

30023 1647171 GTTTtagtttcttgTCGTTATTAC AGAGTGGCATACCTTATTTGTTTTGTTGAGTTATGAA spacer
length: 37 repeater length: 24

30024 1647233 GTTTtagtttcttgTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length:
34 repeater length: 24

30025 1647292 GTTTtagtttcttgTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTT spacer length: 32
repeater length: 24

30026 1647349 GTTTtagtttcttgTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length:
36 repeater length: 24

30027 1647410 GTTTtagtttcttgTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33
repeater length: 24

30028 1647468 GTTTtagtttcttgTCGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCAC spacer length:
36 repeater length: 24

30029 1647529 GTTTtagtttcttgTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length:
35 repeater length: 24

30030 1647589 GTTTtagtttcttgTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length:

36 repeater length: 24

30031 1647650 GTTT TAGTTT CTTGTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGCAGT spacer length: 33
repeater length: 24

30032 1647708 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTA spacer length:
34 repeater length: 24

30033 1647767 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAAGAACCTCAGTCTCAGAGT spacer length:
35 repeater length: 24

30034 1647827 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCAT spacer length:
36 repeater length: 24

30035 1647888 GTTT TAGTTT CTTGTCGTTATTAC TGC GGGATACTACTTCGCCCCAAGTTCTGTAAAGA spacer length:
35 repeater length: 24

30036 1647948 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGA spacer length: 33
repeater length: 24

30037 1648006 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length:
36 repeater length: 24

30038 1648067 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTTCGCAAGGAAAGTGATAGG spacer length:
35 repeater length: 24

30039 1648127 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length:
36 repeater length: 24

30040 1648188 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGT spacer length: 33
repeater length: 24

30041 1648246 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer
length: 39 repeater length: 24

30042 1648310 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTAT spacer length:
34 repeater length: 24

30043 1648369 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length:
34 repeater length: 24

30044 1648428 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATA spacer
length: 37 repeater length: 24

30045 1648490 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length:
34 repeater length: 24

30046 1648549 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAAT spacer length: 33
repeater length: 24

30047 1648607 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length:
34 repeater length: 24

30048 1648666 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAAGAACTGCTAGACAAATTTGACAGTGA spacer
length: 37 repeater length: 24

30049 1648728 GTTT TAGTTT CTTGTCGTTATTAC TGA CTTATTTTTTGTCTTA ACTTCACTACTCATTTTC spacer
length: 37 repeater length: 24

30050 1648790 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length:
35 repeater length: 24

30051 1648850 GTTT TAGTTT CTTGTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length:
35 repeater length: 24

30052 1648910 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length:
34 repeater length: 24

30053 1648969 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAAGGCGGGGCGAGGGCATGG spacer length: 33
repeater length: 24

30054 1649027 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length:
34 repeater length: 24

30055 1649086 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33
repeater length: 24

30056 1649144 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length:
35 repeater length: 24

30057 1649204 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length:
35 repeater length: 24

30058 1649264 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer
length: 40 repeater length: 24

30059 1649329 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGA spacer length:
35 repeater length: 24

30060 1649389 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAG spacer length:
35 repeater length: 24

30061 1649449 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length:
34 repeater length: 24

30062 1649508 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAGACAT spacer length:
35 repeater length: 24

30063 1649568 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTTCATAATCA spacer length:
36 repeater length: 24

30064 1649629 GTTT TAGTTT CTTGTCGTTATTAC ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA spacer length:
36 repeater length: 24

30065 1649690 GTTT TAGTTT CTTGTCGTTATTAC CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG spacer length:
34 repeater length: 24

30066	1649749 GTTTGTAGTTTCTTGTCTGTTATTAC	ATCGAGTGGGAAGGCGTTAGACCCAGTAGCTGCCG	spacer length: 34 repeater length: 24
30067	1649808 GTTTGTAGTTTCTTGTCTGTTATTAC	AGCCTGGATCTGAAGAAACATAACCATGAGATA	spacer length: 33 repeater length: 24
30068	1649866 GTTTGTAGTTTCTTGTCTGTTATTAC	AGGTCAGGAATATAGATTATTCGTACTTTGCTA	spacer length: 33 repeater length: 24
30069	1649924 GTTTGTAGTTTCTTGTCTGTTATTAC	AAGTCTTCAGAAAATCATCAACACGCATATACT	spacer length: 33 repeater length: 24
30070	1649982 GTTTGTAGTTTCTTGTCTGTTATTAC	TTTGATTAAAATGGGTTGGTATGGCATAAAAAA	spacer length: 33 repeater length: 24
30071	1650040 GTTTGTAGTTTCTTGTCTGTTATTAC	ATCGGAATTATAGGCGGATTTTTAACAATATTCCTAACA	spacer length: 39 repeater length: 24
30072	1650104 GTTTGTAGTTTCTTGTCTGTTATTAC	GGAGACAAAGTTTGTCTGTGCAATATATCCCA	spacer length: 32 repeater length: 24
30073	1650161 GTTTGTAGTTTCTTGTCTGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCA	spacer length: 33 repeater length: 24
30074	1650219 GTTTGTAGTTTCTTGTCTGTTATTAC	TAATTCATCTTTATAGTGTAACTTTTTGAAATAA	spacer length: 34 repeater length: 24
30075	1650278 GTTTGTAGTTTCTTGTCTGTTATTAC	AACTAAGAAAAATTCAGTCAGCAGTATTAATACTACTACT	spacer length: 38 repeater length: 24
30076	1650341 GTTTGTAGTTTCTTGTCTGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAACTACAAGA	spacer length: 35 repeater length: 24
30077	1650401 GTTTGTAGTTTCTTGTCTGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATA	spacer length: 34 repeater length: 24
30078	1650460 GTTTGTAGTTTCTTGTCTGTTATTAC	GAATAGGGGATGCGATAAACCCAGTTAGCACACA	spacer length: 34 repeater length: 24
30079	1650519 GTTTGTAGTTTCTTGTCTGTTATTAC	GGCATATAGAATTTTTTCGCTTTGTTGCCTCTTTA	spacer length: 34 repeater length: 24
30080	1650578 GTTTGTAGTTTCTTGTCTGTTATTAC	ATTCAATTTTTTTTCGTTTTGTCTGGTGAAAATAAA	spacer length: 34 repeater length: 24
30081	1650637 GTTTGTAGTTTCTTGTCTGTTATTAC	GCTTGTGGTAACATTCCATCGTCATCAGCAAT	spacer length: 33 repeater length: 24
30082	1650695 GTTTGTAGTTTCTTGTCTGTTATTAC	AACGCATTATTGCTAATGCACGGTGCTAACAACTCTA	spacer length: 36 repeater length: 24
30083	1650756 GTTTGTAGTTTCTTGTCTGTTATTAC	GTTTAAAACGGTAAATAGATAAAACCAAGAAAAT	spacer length: 34 repeater length: 24
30084	1650815 GTTTGTAGTTTCTTGTCTGTTATTAC	ACGTCTTGTGCTGACTTGTAACATCGCTGTTCT	spacer length: 34 repeater length: 24
30085	1650874 GTTTGTAGTTTCTTGTCTGTTATTAC	AAAGAAGTGCAAAAAAATGGCTACGGTGACAT	spacer length: 33 repeater length: 24
30086	1650932 GTTTGTAGTTTCTTGTCTGTTATTAC	ATGCATTCAATTAAGACTTAACAATTCAAGAGT	spacer length: 33 repeater length: 24
30087	1650990 GTTTGTAGTTTCTTGTCTGTTATTAC	AAGTTTCTTAATTTATTACAGTTATATGAACAG	spacer length: 33 repeater length: 24
30088	1651048 GTTTGTAGTTTCTTGTCTGTTATTAC	ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT	spacer length: 35 repeater length: 24
30089	1651108 GTTTGTAGTTTCTTGTCTGTTATTAC	AGATTTTATGAAACATTAACATTTTATTTTATCTA	spacer length: 35 repeater length: 24
30090	1651168 GTTTGTAGTTTCTTGTCTGTTATTAC	ATTAATCAGATAGAACTAGCAGTGTTTTTTATGT	spacer length: 35 repeater length: 24
30091	1651228 GTTTGTAGTTTCTTGTCTGTTATTAC	ACCTTCACTTATTGAAGATGGGGCTGAAACAACTT	spacer length: 35 repeater length: 24
30092	1651288 GTTTGTAGTTTCTTGTCTGTTATTAC	TTGGTTACTGATATTTTCTGAACTCCAGCAAATG	spacer length: 34 repeater length: 24
30093	1651347 GTTTGTAGTTTCTTGTCTGTTATTAC	CGTTAAACAGACTAGGCTCAGGACAAGCATTAC	spacer length: 34 repeater length: 24
30094	1651406 GTTTGTAGTTTCTTGTCTGTTATTAC	AGCCCAAATCTGTTATCTCTTTAGAATGAAATTT	spacer length: 34 repeater length: 24
30095	1651465 GTTTGTAGTTTCTTGTCTGTTATTAC	AGAGTACCTTTACCTAACCAGAGCGTCGTATATTA	spacer length: 35 repeater length: 24
30096	1651525 GTTTGTAGTTTCTTGTCTGTTATTAC	TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAG	spacer length: 34 repeater length: 24
30097	1651584 GTTTGTAGTTTCTTGTCTGTTATTAC	AGAAGCTATACAACGAGGCTATATAAATAAAAT	spacer length: 33 repeater length: 24
30098	1651642 GTTTGTAGTTTCTTGTCTGTTATTAC	GTGAAGATGTCGATAGTGACGATAGCTGAGATAG	spacer length: 34 repeater length: 24
30099	1651701 GTTTGTAGTTTCTTGTCTGTTATTAC	AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT	spacer length: 37 repeater length: 24
30100	1651763 GTTTGTAGTTTCTTGTCTGTTATTAC	TATATTTGGTCAAGTGTCTTCTACAGCATTTTAA	spacer length: 33 repeater length: 24
30101	1651821 GTTTGTAGTTTCTTGTCTGTTATTAC	GCAGAGTCTTTTCGCTACGTCTTTCAGCGTCTCAA	spacer length: 34 repeater length: 24

34 repeater length: 24

30102 1651880 GTTTtagtttcttgTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC spacer length: 36 repeater length: 24

30103 1651941 GTTTtagtttcttgTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT spacer length: 36 repeater length: 24

30104 1652002 GTTTtagtttcttgTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGT spacer length: 35 repeater length: 24

30105 1652062 GTTTtagtttcttgTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA spacer length: 34 repeater length: 24

30106 1652121 GTTTtagtttcttgTCGTTATTAC AGCTCCCATTTAAATCACGACCACTCCAAATATC spacer length: 34 repeater length: 24

30107 1652180 GTTTtagtttcttgTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAAATATTTT spacer length: 35 repeater length: 24

30108 1652240 GTTTtagtttcttgTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA spacer length: 34 repeater length: 24

30109 1652299 GTTTtagtttcttgTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGAAACCACTATT spacer length: 38 repeater length: 24

30110 1652362 GTTTtagtttcttgTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length: 35 repeater length: 24

30111 1652422 GTTTtagtttcttgTCGTTATTAC AACTGAAGGAACCTTGTAAGCGGTATGCTTTGCTTCTTCT spacer length: 41 repeater length: 24

30112 1652488 GTTTtagtttcttgTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length: 36 repeater length: 24

30113 1652549 GTTTtagtttcttgTCGTTATTAC AATGAGATATTCAGTGGGTCATGGAGCGTGAA spacer length: 33 repeater length: 24

30114 1652607 GTTTtagtttcttgTCGTTATTAC TTTCTTATTTTTTAAGGAGGAAATGGTCAGGCTAAA spacer length: 38 repeater length: 24

30115 1652670 GTTTtagtttcttgTCGTTATTAC TACGGTAAACTGGGGAGTTAACTCAGCATCC spacer length: 31 repeater length: 24

30116 1652726 GTTTtagtttcttgTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC spacer length: 37 repeater length: 24

30117 1652788 GTTTtagtttcttgTCGTTATTAC TAGTCATGAAGTCGTAAAGTATTGTTAAGTATTCCT spacer length: 36 repeater length: 24

30118 1652849 GTTTtagtttcttgTCGTTATTAC TTTCCAGAGGTGGTGAAAAAGGGGCTTAGTCTCAA spacer length: 35 repeater length: 24

30119 1652909 GTTTtagtttcttgTCGTTATTAC GATGCCAGTCCTCGAGTTCCTCAGCTTCGTTTGTC spacer length: 35 repeater length: 24

30120 1652969 GTTTtagtttcttgTCGTTATTAC TCGCTTTCGGCTCAAAGCGAAACCCTATGGGGTTTTT spacer length: 37 repeater length: 24

30121 1653031 GTTTtagtttcttgTCGTTATTAC AGTGTAACCGTGACTACGGGTTCGGCTACCGGAA spacer length: 34 repeater length: 24

30122 1653090 GTTTtagtttcttgTCGTTATTAC GGTTTTTCGATTGGCCTTACTGGCGGTTCTATAT spacer length: 33 repeater length: 24

30123 1653148 GTTTtagtttcttgTCGTTATTAC ATAAAGTCCTTTTTTCGTCGTAAATACGTCCTT spacer length: 33 repeater length: 24

30124 1653206 GTTTtagtttcttgTCGTTATTAC TTCCCCGACACCGCCCAATCCCTCGGTAGTATAA spacer length: 34 repeater length: 24

30125 1653265 GTTTtagtttcttgTCGTTATTAC GAGTAAAGTCCATAAATAAACCCCGTAACCTACC spacer length: 34 repeater length: 24

30126 1653324 GTTTtagtttcttgTCGTTATTAC TGTTCCATATATTAACATAAGCTATGAAATATAT spacer length: 35 repeater length: 24

30127 1653384 GTTTtagtttcttgTCGTTATTAC CTGGAGCTTCAATTTGTTACCAACCTTTTCCATGT spacer length: 35 repeater length: 24

30128 1653444 GTTTtagtttcttgTCGTTATTAC TTCACTTCGCTTTTGACGTAATTAAATTTTGTGAGT spacer length: 36 repeater length: 24

30129 1653505 GTTTtagtttcttgTCGTTATTAC TGTAACATTTTAAATAGAATGATGAGAGAATGACA

30130

30131

30132 crispr 3

30133 1781914 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer length: 40 repeater length: 25

30134 1781980 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length: 35 repeater length: 25

30135 1782041 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer length: 36 repeater length: 25

30136 1782103 CTTTCAATCCCTTATGGGATTCTTC TATTTATTATTCCTTATCCTAAATTTGACGTTCTT

30137

30138

30139 crispr 4

30140 1821574 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer length: 37 repeater length: 25

30141 1821637 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
length: 36 repeater length: 25

30142 1821699 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
length: 40 repeater length: 25

30143 1821765 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
35 repeater length: 25

30144 1821826 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
length: 37 repeater length: 25

30145 1821889 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
length: 36 repeater length: 25

30146 1821951 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
length: 38 repeater length: 25

30147 1822015 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTC CCAAAC spacer
length: 41 repeater length: 25

30148 1822082 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
length: 38 repeater length: 25

30149 1822146 CTTTCAATCCCTTTTGGGATTCATC TGTTTTTATATCCCTTGTCTTATTTTTCCCTTTCCTTG

30150

30151

30152 GCA_002215565.1_ASM221556v1_genomic.fna(findCrispr):

30153 START REPEAT
SPACER

30154 crispr 1

30155 1670965 GTAATAACGACAAGAACTAAAA CATCTTCTCTGTCCTCTACTACTTTCTGCTCTTCTT spacer length:
36 repeater length: 23

30156 1671025 GTAATAACGACAAGAACTAAAA CTGAAAAGTTCATAAAAAAGTACCCTAACGTAGAAC spacer length:
36 repeater length: 23

30157 1671085 GTAATAACGACAAGAACTAAAA CAATTTTATGATATCGCTTTTGTTC AAGGAAACA spacer length: 34
repeater length: 23

30158 1671143 GTAATAACGACAAGAACTAAAA CAATTCTAAGTGCACAAGAAGGACTAGAAGAGGCAGGCC spacer
length: 39 repeater length: 23

30159 1671206 GTAATAACGACAAGAACTAAAA CTAATGCCCAGTAACATAGATGCCTCCTTGATTA spacer length: 34
repeater length: 23

30160 1671264 GTAATAACGACAAGAACTAAAA CAATTTGGATTGACGTCACCTCAAGATCTATTACC spacer length:
35 repeater length: 23

30161 1671323 GTAATAACGACAAGAACTAAAA CATATTTAAGCCTTACTCTTTACATTAAAAGTAACA spacer length:
36 repeater length: 23

30162 1671383 GTAATAACGACAAGAACTAAAA CTCGACGTTAGTCTTAGATTTTTATCATTTTTAGG spacer length:
35 repeater length: 23

30163 1671442 GTAATAACGACAAGAACTAAAA CTTGTGCTCTTTAATGTCAAACAGTGTGATCTAT spacer length: 34
repeater length: 23

30164 1671500 GTAATAACGACAAGAACTAAAA CACAGTGCATGAAGTAGCATCATATGTCGTAAGTG spacer length:
35 repeater length: 23

30165 1671559 GTAATAACGACAAGAACTAAAA CTCTCTGGGTAAAGTGCAAAGAGCACTGGGATTACA spacer length:
36 repeater length: 23

30166 1671619 GTAATAACGACAAGAACTAAAA CCAACAAGGCTGAGAAGATAGCAAAGAAGCTAGT spacer length: 34
repeater length: 23

30167 1671677 GTAATAACGACAAGAACTAAAA CTACAATAATTTT CAGATTTCCAGTAAATGATACAAATT spacer
length: 38 repeater length: 23

30168 1671739 GTAATAACGACAAGAACTAAAA CTTGTCATTAAACTGACAAC TTTGTCTCTGACCCAA spacer length:
36 repeater length: 23

30169 1671799 GTAATAACGACAAGAACTAAAA CAGTAGCGGTATACAAAAATGTATTTGTTGTGAT spacer length: 34
repeater length: 23

30170 1671857 GTAATAACGACAAGAACTAAAA CTGGCTCACAGGCATTAATACCTGCAAAGCCTAG spacer length: 34
repeater length: 23

30171 1671915 GTAATAACGACAAGAACTAAAA CAAAAGTTTGCCAATTTAGGTGCTGTGCAGGAAGCATTT spacer
length: 39 repeater length: 23

30172 1671978 GTAATAACGACAAGAACTAAAA CGAATAATTGTAGATCAGCCATCAACTTCCACAC spacer length: 34
repeater length: 23

30173 1672036 GTAATAACGACAAGAACTAAAA CAGAAAATGAGTAGTGAGATAAAGACAAAAAATAAG spacer length:
36 repeater length: 23

30174 1672096 GTAATAACGACAAGAACTAAAA CAATTTCTATATAATCCAAGAGACACAGAGAGGTTTCTA spacer
length: 39 repeater length: 23

30175 1672159 GTAATAACGACAAGAACTAAAA CTACATTACTTTTAGAAATATAGTATGAGCGTAACAT spacer length:
37 repeater length: 23

30176 1672220 GTAATAACGACAAGAACTAAAA CCAGTACACAAAGTGGATAGGAAAAGTCAACAA spacer length: 33
repeater length: 23

30177 1672277 GTAATAACGACAAGAACTAAAA CATCGTATATTATATTGGGGCAGAAAAAATGAATGA spacer length:
36 repeater length: 23

30178 1672337 GTAATAACGACAAGAACTAAAA CCAGGTTCAATTTT CAGTAAATAATGGCATTACAA spacer length: 34
repeater length: 23

30179 1672395 GTAATAACGACAAGAACTAAAA CAACATCAGACTTTTGCACCTTTTATTAGAAGGCTTTGG spacer
length: 38 repeater length: 23

30180 1672457 GTAATAACGACAAGAACTAAAA CGATACATTGCATATATTGGCAATCAGCAATACA spacer length: 34
repeater length: 23

30181 1672515 GTAATAACGACAAGAACTAAAA CACTATATATTGTTTGGAGCTTATCATAAACTTCAT spacer length:
36 repeater length: 23

30182 1672575 GTAATAACGACAAGAACTAAAA CCTGAATAGAGAGATGATAGAAGAAACGGTAAGT spacer length: 34
repeater length: 23

30183 1672633 GTAATAACGACAAGAACTAAAA CTCAGCCTCTAATTCTGCTGCAACTTCCATCAATTTTCCT spacer
length: 39 repeater length: 23

30184 1672696 GTAATAACGACAAGAACTAAAA CATTAATTCCAAAGGACATTGAGAAGAAATTTGGCTTAA spacer
length: 39 repeater length: 23

30185 1672759 GTAATAACGACAAGAACTAAAA CATATGAGCAACAGCAACTCAAATCTTTATATGAAGT spacer length:
37 repeater length: 23

30186 1672820 GTAATAACGACAAGAACTAAAA CCACCAAAGAGTTTTTGTCCAAAGCCTTTTATGG spacer length: 34
repeater length: 23

30187 1672878 GTAATAACGACAAGAACTAAAA CCAGTCTCAATGTCTTTATGAGACAATTCTATATCCA spacer length:
37 repeater length: 23

30188 1672939 GTAATAACGACAAGAACTAAAA CGCACTTCTACTTGCTTAACGCTATAGCAAGCAAGA spacer length:
36 repeater length: 23

30189 1672999 GTAATAACGACAAGAACTAAAA CGTTCATCAACCTCATGCTGAGTAAGACTATTAGTATG spacer
length: 38 repeater length: 23

30190 1673061 GTAATAACGACAAGAACTAAAA CCTCGTATTTCGTAAAAGCCCTCGTGGGTGGTGACGA spacer length:
36 repeater length: 23

30191 1673121 GTAATAACGACAAGAACTAAAA ACTTTACAACATAATTTTTTCAGGAAAACAAATTGA spacer length:
35 repeater length: 23

30192 1673180 GTAATAACGACAAGAACTAAAA CTATGTCTTAGATAGTTGAAAAAGCTAAAGCTTT spacer length: 34
repeater length: 23

30193 1673238 GTAATAACGACAAGAACTAAAA CGAATGTGTCCCCCTAGAGTTTTACCAAACAACC spacer length:
36 repeater length: 23

30194 1673298 GTAATAACGACAAGAACTAAAA CAAAAAACCTTTAACCTCTATCGAATGCTGTCAAAA spacer length:
36 repeater length: 23

30195 1673358 GTAATAACGACAAGAACTAAAA CAACGTTACGACCCTACTACTCAGAAGAAGATAG spacer length:
35 repeater length: 23

30196 1673417 GTAATAACGACAAGAACTAAAA CGAGGGATGAAGGCAAATCAGTATCAGCAATAGTAGA spacer length:
37 repeater length: 23

30197 1673478 GTAATAACGACAAGAACTAAAA CGAAGTAGAACAGCTGTTTTTCAGGATTGAAATTA spacer length:
35 repeater length: 23

30198 1673537 GTAATAACGACAAGAACTAAAA CAAGAGAATACTTTCTCGCCTCAGCAAGAATCGTATCAA spacer
length: 39 repeater length: 23

30199 1673600 GTAATAACGACAAGAACTAAAA CGTATGTGGGAGAGCTTTATGAGTGGTAAGACACA spacer length:
35 repeater length: 23

30200 1673659 GTAATAACGACAAGAACTAAAA CATGCAGGTACTATACTGAGCCTGATGAACAGC spacer length: 33
repeater length: 23

30201 1673716 GTAATAACGACAAGAACTAAAA CAAATTTAAGGAAAATGGAGTGTATGTATATAAA spacer length: 34
repeater length: 23

30202 1673774 GTAATAACGACAAGAACTAAAA CCTCAATTATTTTCAATGCTTTTTCTTTTCGTTG spacer length:
35 repeater length: 23

30203 1673833 GTAATAACGACAAGAACTAAAA CACATCAGCACTTATGGATACTACGCCATGCTCATC spacer length:
36 repeater length: 23

30204 1673893 GTAATAACGACAAGAACTAAAA CACTATTACTTTTGAAAATATGTAGATAAGACTGG spacer length:
35 repeater length: 23

30205 1673952 GTAATAACGACAAGAACTAAAA TGGATTGACGTCACCTCAAGATCTATTACCTGTAA

30206

30207

30208 crispr 2

30209 1650672 GTTTTAGTTTCTTGTCGTTATTAC ATCATTTGGAATTGGGCTAGCCCTATTTTTCTTGAT spacer length:
35 repeater length: 24

30210 1650732 GTTTTAGTTTCTTGTCGTTATTAC AGTTGGTAGTGGGCAGATATCTAGCCCTGACCAC spacer length:
34 repeater length: 24

30211 1650791 GTTTTAGTTTCTTGTCGTTATTAC TGATGTCGAATACCGGAGTCAAGATGTTGATGAAA spacer length:
35 repeater length: 24

30212 1650851 GTTTTAGTTTCTTGTCGTTATTAC AAATAACGAAGATTTAAGTGGTTTTGAACCAAGAGA spacer length:
36 repeater length: 24

30213 1650912 GTTTTAGTTTCTTGTCGTTATTAC TGATCACATGTTTTATCGGTAGTACATAATGTAGAA spacer length:
36 repeater length: 24

30214 1650973 GTTTTAGTTTCTTGTCGTTATTAC GAGGAGTTTGATAAACTTTTGAATTTCTTGAGA spacer length:
34 repeater length: 24

30215 1651032 GTTTTAGTTTCTTGTCGTTATTAC GAAATATAGCAAGAGTTCTGTGGTCGCTATATT spacer length: 33
repeater length: 24

30216 1651090 GTTTTAGTTTCTTGTCGTTATTAC ATCATTAGCACGATATTTTCATCATCACTGCAGTAAT spacer length:

36 repeater length: 24

30217 1651151 GTTT TAGTTT CTTGTCGTTATTAC CTCAAAAATATAATGCGTAAGCTTAAATACCCAA spacer length: 34 repeater length: 24

30218 1651210 GTTT TAGTTT CTTGTCGTTATTAC TTTT TATTCTATATTTGAATAAAGCATAAAGTAAT spacer length: 35 repeater length: 24

30219 1651270 GTTT TAGTTT CTTGTCGTTATTAC CTAATATTAATGGCAGTAGAAGTCTCGAACACA spacer length: 34 repeater length: 24

30220 1651329 GTTT TAGTTT CTTGTCGTTATTAC TATCTCGCAATAAATGAGAGAGAGTCGGCGAGTG spacer length: 34 repeater length: 24

30221 1651388 GTTT TAGTTT CTTGTCGTTATTAC TATGTTTGTTGTATTGCTAGCGTAATATTGTATTAC spacer length: 36 repeater length: 24

30222 1651449 GTTT TAGTTT CTTGTCGTTATTAC ACACAATATCTTAGTCATTACTGGAATGACTACAA spacer length: 35 repeater length: 24

30223 1651509 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAGCACGATATTT CATCATCACTGCAGTAAT spacer length: 36 repeater length: 24

30224 1651570 GTTT TAGTTT CTTGTCGTTATTAC TG TAGTAAATTGATATAATCGGATTGAAGAGAGT spacer length: 34 repeater length: 24

30225 1651629 GTTT TAGTTT CTTGTCGTTATTAC AGGGATATCTGGAAGTAATACACCAGTACTATA spacer length: 33 repeater length: 24

30226 1651687 GTTT TAGTTT CTTGTCGTTATTAC GCCATTCAACTCAAACTTATAGAAGATTACGAAAT spacer length: 36 repeater length: 24

30227 1651748 GTTT TAGTTT CTTGTCGTTATTAC CCAAATGCTAAAAATAGAAAAGGTAGGAGAGTTATT spacer length: 36 repeater length: 24

30228 1651809 GTTT TAGTTT CTTGTCGTTATTAC CGGTCTTCCAAAAATTA CTTAATGCTCTTGATAATAAAGTTTTAGTTTCTTGTCGTTATTGCTAAGGCTAATTTTGATCGATAAAGA TGAAGAAGAAA spacer length: 97 repeater length: 24

30229 1651931 GTTT TAGTTT CTTGTCGTTATTAC TATCTAACCCTCTCTTTT TCAACTCTTTGAAGATAAA spacer length: 37 repeater length: 24

30230 1651993 GTTT TAGTTT CTTGTCGTTATTAC CCTCCCTGATATTCACCTTCTCCATTTCTGTAGCA spacer length: 36 repeater length: 24

30231 1652054 GTTT TAGTTT CTTGTCGTTATTAC ACCAACTCTCAATTACTCATAATATTCAA ACTAAA spacer length: 35 repeater length: 24

30232 1652114 GTTT TAGTTT CTTGTCGTTATTAC ATTCCGACTTGCTTAAATTCAGCTTTTTTGTACA spacer length: 34 repeater length: 24

30233 1652173 GTTT TAGTTT CTTGTCGTTATTAC ACAGTAGTAGCTCCGGCTGTCATTCTTAATAATA spacer length: 34 repeater length: 24

30234 1652232 GTTT TAGTTT CTTGTCGTTATTAC AAATGATATAAAAAATGAACAACAGAATATAAA spacer length: 33 repeater length: 24

30235 1652290 GTTT TAGTTT CTTGTCGTTATTAC AACAAGAATTGATGAAGTATTC AAAAGAGCGATATGA spacer length: 37 repeater length: 24

30236 1652352 GTTT TAGTTT CTTGTCGTTATTAC CTTTCAGAGGGCGAGATCGCAGAGTACTTGAGAATAGC spacer length: 38 repeater length: 24

30237 1652415 GTTT TAGTTT CTTGTCGTTATTAC ATTTCTGCAAATGTATAATACATCAATTTTATAA spacer length: 34 repeater length: 24

30238 1652474 GTTT TAGTTT CTTGTCGTTATTAC GCATCAGCAATTATGGAAGTCGCTAGATATTACT spacer length: 34 repeater length: 24

30239 1652533 GTTT TAGTTT CTTGTCGTTATTAC AGGAATGTGTACAACAGCTATAAAAAAAGAAAG AATTG spacer length: 38 repeater length: 24

30240 1652596 GTTT TAGTTT CTTGTCGTTATTAC TTTGGAATATCTTGCGAGGCGAGGGTGAGTGAACC spacer length: 35 repeater length: 24

30241 1652656 GTTT TAGTTT CTTGTCGTTATTAC AATAAAAGGAGATTT CATAGACTCTATTCTCAA spacer length: 34 repeater length: 24

30242 1652715 GTTT TAGTTT CTTGTCGTTATTAC TTGTTCTAGAAGTGGCGCATTAACGGCAGTTTTT spacer length: 35 repeater length: 24

30243 1652775 GTTT TAGTTT CTTGTCGTTATTAC GAGAGACAAAATTTCCAAGTAAGTGACTCTGAAAAT spacer length: 36 repeater length: 24

30244 1652836 GTTT TAGTTT CTTGTCGTTATTAC AATATACGCTGCATAATATACGCTCTCTTACGCTAA spacer length: 36 repeater length: 24

30245 1652897 GTTT TAGTTT CTTGTCGTTATTAC AGAGTGGCATACTTATTTGTTTTGTTGAGTTATGAA spacer length: 37 repeater length: 24

30246 1652959 GTTT TAGTTT CTTGTCGTTATTAC TTCCATTTTCTTCATAAGTAGCATCTCTCAACAA spacer length: 34 repeater length: 24

30247 1653018 GTTT TAGTTT CTTGTCGTTATTAC ATAACAATTGTCGGTAACTTATTTAGACGCTT spacer length: 32 repeater length: 24

30248 1653075 GTTT TAGTTT CTTGTCGTTATTAC TTTGATACGATTACAATAAAGTTCACTTAAAGTAGA spacer length: 36 repeater length: 24

30249 1653136 GTTT TAGTTT CTTGTCGTTATTAC AAAGTCTATTTTTATTTTATCTTTATCTATCAG spacer length: 33 repeater length: 24

30250 1653194 GTTT TAGTTT CTTGTCGTTATTAC ATTGGATAGTCAGTACCAAAAGGTACATTAAGCCAC spacer length: 36 repeater length: 24

30251 1653255 GTTT TAGTTT CTTGTCGTTATTAC ATCATTAATAGAATACGAAAAGCTAAAAGCAAAAA spacer length:

35 repeater length: 24

30252 1653315 GTTT TAGTTT CTTGTCGTTATTAC ATGTAGATAACATCACTATATTGATAAAGAGACTCG spacer length: 36 repeater length: 24

30253 1653376 GTTT TAGTTT CTTGTCGTTATTAC AAAATCATTGAACTATAATGTAGATCTTGCAGT spacer length: 33 repeater length: 24

30254 1653434 GTTT TAGTTT CTTGTCGTTATTAC TTTCCAGCCCAGCCTCTTTGCAGCTTCTAGCCTA spacer length: 34 repeater length: 24

30255 1653493 GTTT TAGTTT CTTGTCGTTATTAC ATCTAGTGAGACAAAAGAACCTCAGTCTCAGAGT spacer length: 35 repeater length: 24

30256 1653553 GTTT TAGTTT CTTGTCGTTATTAC TTCCTTATACACATCAAGTAACACAGGCGAGTTCAT spacer length: 36 repeater length: 24

30257 1653614 GTTT TAGTTT CTTGTCGTTATTAC TGC GGGATACTACTTCGCCCCAAGTTCTGTAAAGA spacer length: 35 repeater length: 24

30258 1653674 GTTT TAGTTT CTTGTCGTTATTAC TGGTGAAGTGGTACAGATACATCCTTATGAAGA spacer length: 33 repeater length: 24

30259 1653732 GTTT TAGTTT CTTGTCGTTATTAC CCATTACTGGACAAAGACTATGTCATCACAGCTGGT spacer length: 36 repeater length: 24

30260 1653793 GTTT TAGTTT CTTGTCGTTATTAC TTAACACTGGTTGAATTCGCAAGGAAAGTGATAGG spacer length: 35 repeater length: 24

30261 1653853 GTTT TAGTTT CTTGTCGTTATTAC AGATATTTAGCGTTAAACTGCAGGAGACAGGGGCA spacer length: 36 repeater length: 24

30262 1653914 GTTT TAGTTT CTTGTCGTTATTAC AAGTTTTTGATATCTGTCCCTGCAGTGTCTAGT spacer length: 33 repeater length: 24

30263 1653972 GTTT TAGTTT CTTGTCGTTATTAC CTTCATACTCATACCAATTGTAAGTGTTCCTTGTGTTG spacer length: 39 repeater length: 24

30264 1654036 GTTT TAGTTT CTTGTCGTTATTAC TCTTGGAAGACCTTAAAAAAGGATTGATTTAT spacer length: 34 repeater length: 24

30265 1654095 GTTT TAGTTT CTTGTCGTTATTAC TCGCATGCCTTAAATCGATCGTTTTCTCTACATC spacer length: 34 repeater length: 24

30266 1654154 GTTT TAGTTT CTTGTCGTTATTAC TACGCTCCATGCCCAGCTGTGCTCTCATCAACACATA spacer length: 37 repeater length: 24

30267 1654216 GTTT TAGTTT CTTGTCGTTATTAC GCGAGAAAGACTTCTACTGGGGCGCCGAATTTAA spacer length: 34 repeater length: 24

30268 1654275 GTTT TAGTTT CTTGTCGTTATTAC ATCGCTGAGATCCTAGCGACTTTCTACCTGCCCGA spacer length: 35 repeater length: 24

30269 1654335 GTTT TAGTTT CTTGTCGTTATTAC CGCTAAAGAACGCCCTAAGGGAAGCCTTCAAAT spacer length: 33 repeater length: 24

30270 1654393 GTTT TAGTTT CTTGTCGTTATTAC TATCGCCTCACGCCATCTCTTTGGCGTGGTATAA spacer length: 34 repeater length: 24

30271 1654452 GTTT TAGTTT CTTGTCGTTATTAC AAGTCGCAAAGAAGCTGCTAGACAAATTTGACAGTGA spacer length: 37 repeater length: 24

30272 1654514 GTTT TAGTTT CTTGTCGTTATTAC TGACTTATTTTTTGTCTTAACTTCACTACTCATTTTC spacer length: 37 repeater length: 24

30273 1654576 GTTT TAGTTT CTTGTCGTTATTAC AAAGAACTCATTATCTTTAAGGACAAAGTCAGGGG spacer length: 35 repeater length: 24

30274 1654636 GTTT TAGTTT CTTGTCGTTATTAC TTCCCTGCGGATACTTCTGCCTCAATTTGGTCAC spacer length: 35 repeater length: 24

30275 1654696 GTTT TAGTTT CTTGTCGTTATTAC AAACCTTTTCAGAGGCTTACCTCATCAATGTGGA spacer length: 34 repeater length: 24

30276 1654755 GTTT TAGTTT CTTGTCGTTATTAC AAAGAAAAAGAAAGGCGGGGCGAGGGCATGG spacer length: 33 repeater length: 24

30277 1654813 GTTT TAGTTT CTTGTCGTTATTAC TCTGTGTAACGTATCAGCAATGCGCTTTGTTATA spacer length: 34 repeater length: 24

30278 1654872 GTTT TAGTTT CTTGTCGTTATTAC GCGGATTTCCACTGTTTCCAGCCTGAGCTTGGG spacer length: 33 repeater length: 24

30279 1654930 GTTT TAGTTT CTTGTCGTTATTAC AGCAAATTTTTTAACAAATGTATTCCATTCTTGAAG spacer length: 35 repeater length: 24

30280 1654990 GTTT TAGTTT CTTGTCGTTATTAC AATTTTATAATGTCTGTAAACTAAAACATTGTTT spacer length: 35 repeater length: 24

30281 1655050 GTTT TAGTTT CTTGTCGTTATTAC AAGGGATCTAGCCTGGCTAGAGAGCTTGCCGCTTTAATTA spacer length: 40 repeater length: 24

30282 1655115 GTTT TAGTTT CTTGTCGTTATTAC ATGGGTGCACCACCAGAAGTAGTAGAAGAGGTCGA spacer length: 35 repeater length: 24

30283 1655175 GTTT TAGTTT CTTGTCGTTATTAC TGTATTGCCACAAATGTCCCGTTTTCGTTGTACAG spacer length: 35 repeater length: 24

30284 1655235 GTTT TAGTTT CTTGTCGTTATTAC CAAGAGAAAGGAGCTAGGAAGAGGATCTTTTCCC spacer length: 34 repeater length: 24

30285 1655294 GTTT TAGTTT CTTGTCGTTATTAC ATTAGGACTCGAAAAATTTATATAAAAAAAGACAT spacer length: 35 repeater length: 24

30286 1655354 GTTT TAGTTT CTTGTCGTTATTAC TTCTCATCAACATTTGCTGTACAAATTTATAATCA spacer length: 36 repeater length: 24

30287	1655415	GTTTGTAGTTTCTTGTGCGTTATTAC	ACCAGTCTTACTCAACAAGTCAGCCCTTACTTATAA	spacer length: 36
		repeater length: 24		
30288	1655476	GTTTGTAGTTTCTTGTGCGTTATTAC	CTCAGTCAGATACGTCTTCTTTAGCTGGCTTATG	spacer length: 34
		repeater length: 24		
30289	1655535	GTTTGTAGTTTCTTGTGCGTTATTAC	ATCGAGTGGAAAGGCGTTAGACCCAGTAGCTGCCG	spacer length: 34
		repeater length: 24		
30290	1655594	GTTTGTAGTTTCTTGTGCGTTATTAC	AGCCTGGATCTGAAGAAACATAACCATGAGATA	spacer length: 33
		repeater length: 24		
30291	1655652	GTTTGTAGTTTCTTGTGCGTTATTAC	AGGTCAGGAATATAGATTATTCGTACTTTGCTA	spacer length: 33
		repeater length: 24		
30292	1655710	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTCTTCAGAAAATCATCAACACGCATATACT	spacer length: 33
		repeater length: 24		
30293	1655768	GTTTGTAGTTTCTTGTGCGTTATTAC	TTTGATTAAAATGGGTTGGTATGGCATAAAAAA	spacer length: 33
		repeater length: 24		
30294	1655826	GTTTGTAGTTTCTTGTGCGTTATTAC	ATCGGAATTATAGGCGGATTTTTAACAAATATTCCTAACA	spacer length: 39
		repeater length: 24		
30295	1655890	GTTTGTAGTTTCTTGTGCGTTATTAC	GGAGACAAAGTTTGTCTGTGCAATATATCCCA	spacer length: 32
		repeater length: 24		
30296	1655947	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAAGAGGAACATAAGGTCTAGATCTTACCCA	spacer length: 33
		repeater length: 24		
30297	1656005	GTTTGTAGTTTCTTGTGCGTTATTAC	TAATTCATCTTTATAGTGTAACTTTTTGAAATAA	spacer length: 34
		repeater length: 24		
30298	1656064	GTTTGTAGTTTCTTGTGCGTTATTAC	AACATAAGAAAAATTCAGTCAGCAGTATTAATACTACTACT	spacer length: 38
		repeater length: 24		
30299	1656127	GTTTGTAGTTTCTTGTGCGTTATTAC	TACACCAGTGAGAATGTCTTCCCGAACTACAAGA	spacer length: 35
		repeater length: 24		
30300	1656187	GTTTGTAGTTTCTTGTGCGTTATTAC	AATTGGCAACTAAGAAGTTTGTACAAATAACATA	spacer length: 34
		repeater length: 24		
30301	1656246	GTTTGTAGTTTCTTGTGCGTTATTAC	GAATAGGGGATGCGATAAACAGTTAGCACAAACA	spacer length: 34
		repeater length: 24		
30302	1656305	GTTTGTAGTTTCTTGTGCGTTATTAC	GGCATATAGAATTTTTCGCTTTGTTGCCTCTTTA	spacer length: 34
		repeater length: 24		
30303	1656364	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTCAATTTTTTTTCGTTTTGTGCGTGAAAATAAA	spacer length: 34
		repeater length: 24		
30304	1656423	GTTTGTAGTTTCTTGTGCGTTATTAC	GCTTGTGGTAACATATCCATCGTCATCAGCAAT	spacer length: 33
		repeater length: 24		
30305	1656481	GTTTGTAGTTTCTTGTGCGTTATTAC	AACGCATTATTGCTAATGCACGGTGCTAACAAATCTA	spacer length: 36
		repeater length: 24		
30306	1656542	GTTTGTAGTTTCTTGTGCGTTATTAC	GTTTAAAACGGTAAATAGATAAAACCAAGAAAAT	spacer length: 34
		repeater length: 24		
30307	1656601	GTTTGTAGTTTCTTGTGCGTTATTAC	ACGTCTTGTGCTGACTTGTAACATCGCTGTTCT	spacer length: 34
		repeater length: 24		
30308	1656660	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGAAGTGCAAAAAAATGGCTACGGTGTACAT	spacer length: 33
		repeater length: 24		
30309	1656718	GTTTGTAGTTTCTTGTGCGTTATTAC	ATGCATTCAATTAAAGACTTAACAATTCAAGAGT	spacer length: 33
		repeater length: 24		
30310	1656776	GTTTGTAGTTTCTTGTGCGTTATTAC	AAGTTTCTTAATTTATTACAGTTATATGAACAG	spacer length: 33
		repeater length: 24		
30311	1656834	GTTTGTAGTTTCTTGTGCGTTATTAC	ACAATAGCCCGCAAATGTCAGTATCATCACGTTGT	spacer length: 35
		repeater length: 24		
30312	1656894	GTTTGTAGTTTCTTGTGCGTTATTAC	AGATTTTATGAAACATTAATACTATTTATTTTATCTA	spacer length: 35
		repeater length: 24		
30313	1656954	GTTTGTAGTTTCTTGTGCGTTATTAC	ATTAATCAGATAGAACTAGCAGTGTTTTTTATGT	spacer length: 35
		repeater length: 24		
30314	1657014	GTTTGTAGTTTCTTGTGCGTTATTAC	ACCTTCACTTATTGAAGATGGGGCTGAAACAACCTT	spacer length: 35
		repeater length: 24		
30315	1657074	GTTTGTAGTTTCTTGTGCGTTATTAC	TTGGTTACTGATATTTTCTGAACTCCAGCAAATG	spacer length: 34
		repeater length: 24		
30316	1657133	GTTTGTAGTTTCTTGTGCGTTATTAC	CGTTAAACAGACTAGGCTCAGGACAAGCATTAC	spacer length: 34
		repeater length: 24		
30317	1657192	GTTTGTAGTTTCTTGTGCGTTATTAC	AGCCCAAATCTGTTATCTCTTTAGAATGAAATTT	spacer length: 34
		repeater length: 24		
30318	1657251	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAGTACCTTTACCTAACAGAGCGTCGTATATTA	spacer length: 35
		repeater length: 24		
30319	1657311	GTTTGTAGTTTCTTGTGCGTTATTAC	TGTAGTCTTGCGCAATACCTGCGCTCTTTAGCAG	spacer length: 34
		repeater length: 24		
30320	1657370	GTTTGTAGTTTCTTGTGCGTTATTAC	AGAAGCTATACAACGAGGCTATATAAATAAAAT	spacer length: 33
		repeater length: 24		
30321	1657428	GTTTGTAGTTTCTTGTGCGTTATTAC	GTGAAGATGTCGATAGTGACGATAGCTGAGATAG	spacer length: 34
		repeater length: 24		
30322	1657487	GTTTGTAGTTTCTTGTGCGTTATTAC	AAAGTAAGCCCGATAGTCCTTAGGTCAGGATCCCTTT	spacer length: 34

length: 37 repeater length: 24

30323 1657549 GTTTtagtttcttgTCGTTATTAC TATATTTGGTCAAGTGTTCACAGCATTTTAA spacer length: 33
repeater length: 24

30324 1657607 GTTTtagtttcttgTCGTTATTAC GCAGAGTCTTTCGCTACGTCTTTCAGCGTCTCAA spacer length:
34 repeater length: 24

30325 1657666 GTTTtagtttcttgTCGTTATTAC GATCACAGTAATGCGTTATATAAAAAGGCAGAATTC spacer length:
36 repeater length: 24

30326 1657727 GTTTtagtttcttgTCGTTATTAC CTTTGATCAATTACTAAATTCTGTAATTGTGCCTCT spacer length:
36 repeater length: 24

30327 1657788 GTTTtagtttcttgTCGTTATTAC GTAGAAAGTCATAACCCAAAACCTTCATTTTTTTGT spacer length:
35 repeater length: 24

30328 1657848 GTTTtagtttcttgTCGTTATTAC ACAGGCTGTACCAAGCTGTTAGCGATGTAGTTAA spacer length:
34 repeater length: 24

30329 1657907 GTTTtagtttcttgTCGTTATTAC AGCTCCCATTTAAATCACGACCACTCCAAATATC spacer length:
34 repeater length: 24

30330 1657966 GTTTtagtttcttgTCGTTATTAC AGTTATAATCTATCTCCGGAACATTAAATATTTT spacer length:
35 repeater length: 24

30331 1658026 GTTTtagtttcttgTCGTTATTAC ATAGTTGGTGGGACGGAATGGAGAAACAGCTAAA spacer length:
34 repeater length: 24

30332 1658085 GTTTtagtttcttgTCGTTATTAC TATAAAAAAGCATTTGCACAGTCTTGGAACCACTATT spacer
length: 38 repeater length: 24

30333 1658148 GTTTtagtttcttgTCGTTATTAC ATGCTCGCCCACCAGCACACCGGACAGATCGACAT spacer length:
35 repeater length: 24

30334 1658208 GTTTtagtttcttgTCGTTATTAC AACTGAAGGAACCTTGTAAGCGGTATGCTTTGCTTCTTCT spacer
length: 41 repeater length: 24

30335 1658274 GTTTtagtttcttgTCGTTATTAC AACTGGAGCAACGTATTGTTGAATATAGCCCCTATG spacer length:
36 repeater length: 24

30336 1658335 GTTTtagtttcttgTCGTTATTAC AATGAGATATTCAGTGGGTCATGGAGCGTGAA spacer length: 33
repeater length: 24

30337 1658393 GTTTtagtttcttgTCGTTATTAC TTTCTTATTTTTTAACGAGGGAATGGTCAGGCTAAA spacer
length: 38 repeater length: 24

30338 1658456 GTTTtagtttcttgTCGTTATTAC TACGGTAAACTGGGAGTTAACTCAGCATCC spacer length: 31
repeater length: 24

30339 1658512 GTTTtagtttcttgTCGTTATTAC CTTTCGCATACTTCCTCGCCCTCCTTGAGATATTTTC spacer
length: 37 repeater length: 24

30340 1658574 GTTTtagtttcttgTCGTTATTAC TAAGCCTTACTCTTTACATTTAAAGTAACAAGTAATA

30341

30342

30343 crispr 3

30344 1786265 CTTTCAATCCCTTATGGGATTCTTC CTACCTTTTGAGATGCTTTCACCGATCTATGTTAAAGCAA spacer
length: 40 repeater length: 25

30345 1786331 CTTTCAATCCCTTATGGGATTCTTC CTCGTTTTCAATAAATGTCTATAGGGATGAATGTG spacer length:
35 repeater length: 25

30346 1786392 CTTTCAATCCCTTATGGGATTCTTC GATACGTTGCAGGCAGATGATGAGAGATGATGATAT spacer
length: 36 repeater length: 25

30347 1786454 CTTTCAATCCCTTATGGGATTCTTC TTAAACTGACAACCTTGTCTCTGACCCAAAGTAATA

30348

30349

30350 crispr 4

30351 1825925 CTTTCAATCCCTTTTGGGATTCATC ATTATCGACTCCCTAGACGTTACATAAGCGACAAGA spacer
length: 37 repeater length: 25

30352 1825988 CTTTCAATCCCTTTTGGGATTCATC TAGCTCTAGCAGGAGAAGAGGCTAATGTTAGCAGAG spacer
length: 36 repeater length: 25

30353 1826050 CTTTCAATCCCTTTTGGGATTCATC TGCGGAAATATGGAAAGAAGTATTATGAAAAAGGAGAAA spacer
length: 40 repeater length: 25

30354 1826116 CTTTCAATCCCTTTTGGGATTCATC TCTCGTATGACTTGCTGTCCAATGACATAATAAAC spacer length:
35 repeater length: 25

30355 1826177 CTTTCAATCCCTTTTGGGATTCATC CTGTCATTAGCACAGGCTGGCATACTTTATTTATACC spacer
length: 37 repeater length: 25

30356 1826240 CTTTCAATCCCTTTTGGGATTCATC AAAGTTCTAGTCAGCCAGCACCTGAAAATAGGGTGC spacer
length: 36 repeater length: 25

30357 1826302 CTTTCAATCCCTTTTGGGATTCATC GAGTTTAAAAAGCTTTAAACAGTACGCAAACGATTTGA spacer
length: 38 repeater length: 25

30358 1826366 CTTTCAATCCCTTTTGGGATTCATC TATGAAC TAACAGATAAAGGGAAGAGAAGTGTTCCTCCAAAAC spacer
length: 41 repeater length: 25

30359 1826433 CTTTCAATCCCTTTTGGGATTCATC CTTTAAGATTGAGCTTGACAAATATTTCTGTGAACAGA spacer
length: 38 repeater length: 25

30360 1826497 CTTTCAATCCCTTTTGGGATTCATC ACAGGCATTAATACCTGCAAAGCCTAGGGTAATAACGA

30361

30362

30363 GCA_002356395.1_ASM235639v1_genomic.fna(findCrispr):

30364 START REPEAT
SPACER

30365 crispr 1

30366 1251732 TACACTTGAAATGAATGTCTC AAAAAATCGAGATCAATTAATACTAAG spacer length: 27 repeater length: 21

30367 1251781 TACACTTGAAATGAATGTCTC TCTTACAGGTCACCAGAATCATGGCCAGA spacer length: 29 repeater length: 21

30368 1251832 TACACTTGAAATGAATGTCTC TAACATGGCGGATTTTTTCTTTATTTGGC

30369

30370

30371 crispr 2

30372 637756 TGGTGATGGTATTGTTACAGAT
AGTATTATTATCTGATCCAAGTAGGTAGATCCCCCTCGTAGCTGTTGCTGGTGATAGTATTGTTACAAATAATATTACATGATCCAT
CATATAGGCCGATTCCATAGCCGTTG spacer length: 112 repeater length: 22

30373 637891 TGGTGATGGTATTGTTACAGAT GGTGTTATTACCTGATCCACTATGTAGGTAGATTCCCTCCTCGCCGTTG
spacer length: 49 repeater length: 22

30374 637963 TGGTGATGGTATTGTTACAGAT GGTGTTATTACCTGATCCACTATGTAGGTAGATTCCCTCCTCGCCGTTG
spacer length: 49 repeater length: 22

30375 638035 TGGTGATGGTATTGTTACAGAT GCATCCATCAGAAAAAGACCACTAACCCCTGCAGCCTCCCACCGTACATT

30376

30377

30378 crispr 3

30379 1605156 GAGATTAATCTTGGGGAGATCCGGAATA TCCTTTCTCAGGAATTTTCAT spacer length: 20 repeater length: 28

30380 1605205 GAGATTAATCTTGGGGAGATCCGGAATA TTCTTTCTCAGGAATTTTCAT spacer length: 20 repeater length: 28

30381 1605254 GAGATTAATCTTGGGGAGATCCGGAATA TTCTTTCTCAGGAATTTTCAT spacer length: 20 repeater length: 28

30382 1605303 GAGATTAATCTTGGGGAGATCCGGAATA CCCACTGAATCAGAGAAATG

30383

30384

30385 crispr 4

30386 541381 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCGTAAGCGACCTATACATAAAAAAACTTCTTCTCATAG spacer length: 39 repeater length: 30

30387 541451 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTGGGAAATCGGTGAGTGTGGAGCAGAGATAAAAG spacer length: 36 repeater length: 30

30388 541518 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTATTTAGTGAATTAAATACTACACTAAATAATA spacer length: 35 repeater length: 30

30389 541584 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTGTTGGGGCGATACAATCGTAGATTCTGGAATG spacer length: 35 repeater length: 30

30390 541650 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCAGGGCACGGATGAAGCAGGCCCTCTCCACCCTT spacer length: 35 repeater length: 30

30391 541716 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGCCTGTACATCTCGTTTCCTATCCGTATCATTTTC spacer length: 35 repeater length: 30

30392 541782 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTCTTGGTTCTGGTGTTTTTGCAGGTCAAAATCGA spacer length: 36 repeater length: 30

30393 541849 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGAATCCAGCGTGGAGTAATGAATATGGCTATATC spacer length: 36 repeater length: 30

30394 541916 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCATCCTGTTTATCCTTTATCTTTATTTTGCTAAT spacer length: 35 repeater length: 30

30395 541982 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACACACAAAAAAGGAAAAAGAAAGAAAAAGAAAA spacer length: 35 repeater length: 30

30396 542048 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTCCTCCTTGATACCATTATCATATTCAAGCTCC spacer length: 35 repeater length: 30

30397 542114 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGCATGACACTCAAAAAGGACAGCAACAACTCCG spacer length: 36 repeater length: 30

30398 542181 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGTTGAATGTGATGGTGAGTATAGTGTAGAGACTG spacer length: 36 repeater length: 30

30399 542248 ATTTCAATCCCATTTTGGTCTGATTTTAAC GTECTCAAAGAACACAACGTCACCGAGGCCATGTA spacer length: 35 repeater length: 30

30400 542314 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGGCCTATTTTGAGTGGTGATTGGTGTTTATTAAT spacer length: 36 repeater length: 30

30401 542381 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCCTTCCCTCCCTTTTCAGGAGTTCCTCAAATAGTTG spacer length: 36 repeater length: 30

30402 542448 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCACTATCTTCACATAGCAGGGTGTGGTGACTTTT spacer length: 35 repeater length: 30

30403 542514 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTCTAACTTTGTCTCAAACTTATTGGAGGAATCA spacer length: 35 repeater length: 30

30404 542580 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCATATTCCTGCAGAAACATGAGAACCCACCCCTCG spacer length: 36 repeater length: 30

30405 542647 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATGACCCAGGAGTCTGTCCTGAGAACAGCGCTG spacer length: 36 repeater length: 30

	length: 35	repeater length: 30	
30406	542713	ATTTC AATCCCATTTTGGTCTGATTTTAAC	CTGGGGTCCAGGTCGTCCTCGTCGCAGGGTCCTG spacer
	length: 34	repeater length: 30	
30407	542778	ATTTC AATCCCATTTTGGTCTGATTTTAAC	TTTTCTAGGGCGGGTTTGACTTTTATTGAGTACCC spacer
	length: 35	repeater length: 30	
30408	542844	ATTTC AATCCCATTTTGGTCTGATTTTAAC	GCCTCACAGAAGAAGAGGCGGATGAAATAAGCGAG spacer
	length: 35	repeater length: 30	
30409	542910	ATTTC AATCCCATTTTGGTCTGATTTTAAC	TGATTATGAGATTGATTTTTTTGAAGTCTTTGTGTG spacer
	length: 35	repeater length: 30	
30410	542976	ATTTC AATCCCATTTTGGTCTGATTTTAAC	ACGTATATACTTCCTGAACCCATCAATTTTAATAC spacer
	length: 35	repeater length: 30	
30411	543042	ATTTC AATCCCATTTTGGTCTGATTTTAAC	CCACCGCCACACTGTTGATCTTCACATTATC spacer length: 31
	repeater length: 30		
30412	543104	ATTTC AATCCCATTTTGGTCTGATTTTAAC	AAGCCTCACCCGTAAGATCACTCTTCAGGAACCC spacer
	length: 34	repeater length: 30	
30413	543169	ATTTC AATCCCATTTTGGTCTGATTTTAAC	TGTCGTAGTGATTTTTTCGTGTCATGTGTTCTATT spacer
	length: 34	repeater length: 30	
30414	543234	ATTTC AATCCCATTTTGGTCTGATTTTAAC	CAGGTAGAGGTAGTAGGGTTTGTCTGGTGGTTCTTT spacer
	length: 36	repeater length: 30	
30415	543301	ATTTC AATCCCATTTTGGTCTGATTTTAAC	TTCCTTGTTCTTTGCCGGGGCTGGGTCTTGTTTT spacer
	length: 35	repeater length: 30	
30416	543367	ATTTC AATCCCATTTTGGTCTGATTTTAAC	CATCATAAGGGACTTGCAGGAGCGTATCAGCAGTTA spacer
	length: 36	repeater length: 30	
30417	543434	ATTTC AATCCCATTTTGGTCTGATTTTAAC	TTATTTTGTTTTTAGGCTAAATACTTGCTGAAAATG
30418			
30419			
30420	crispr 5		
30421	966689	ATTTC CATACTATTCAGTCTATTTTAAAGC	AATTCTGGTGGCTCCAGGAACCTCCAAGTACTCAACG spacer
	length: 36	repeater length: 30	
30422	966756	ATTTC CATACTATTCAGTCTATTTTAAAGC	ACTGCTTGCATACATACTTATGTAGCTACTACTAT spacer
	length: 35	repeater length: 30	
30423	966822	ATTTC CATACTATTCAGTCTATTTTAAAGC	TATATTGCCCTGTGCTTCCAGTCATCGATATTCACC spacer
	length: 36	repeater length: 30	
30424	966889	ATTTC CATACTATTCAGTCTATTTTAAAGC	TCTTTTTTCTATGTTTCTTTTTTCTGATTATTTCCAC spacer
	length: 37	repeater length: 30	
30425	966957	ATTTC CATACTATTCAGTCTATTTTAAAGC	TGTCTTGTTCTCAGCATTCCATTGAGCATCCGTTGGTG spacer
	length: 38	repeater length: 30	
30426	967026	ATTTC CATACTATTCAGTCTATTTTAAAGC	ATTGATGACAGGGTGGTGTCAAGTTTATCAAGTTTA spacer
	length: 36	repeater length: 30	
30427	967093	ATTTC CATACTATTCAGTCTATTTTAAAGC	CCACATTCGACGCCGGAACAGCAGGCACTATGACC spacer
	length: 35	repeater length: 30	
30428	967159	ATTTC CATACTATTCAGTCTATTTTAAAGC	CGGGGTGTCTCTGTCTTCCTGTTTCTGCTGAAGA spacer
	length: 36	repeater length: 30	
30429	967226	ATTTC CATACTATTCAGTCTATTTTAAAGC	AGAACCCGGCACACCCAATTCATGAATAACCTCTTC spacer
	length: 36	repeater length: 30	
30430	967293	ATTTC CATACTATTCAGTCTATTTTAAAGC	CTGATCCCCTTGAAGAGGGGAGAAAATGAAATTGAAGA spacer
	length: 38	repeater length: 30	
30431	967362	ATTTC CATACTATTCAGTCTATTTTAAAGC	GGGCCTTGAATGCATTGTATTCTGTGTCAGGGTCAT spacer
	length: 36	repeater length: 30	
30432	967429	ATTTC CATACTATTCAGTCTATTTTAAAGC	TCTACGAGGAAGTCGCCCACCCATCACGATCATT spacer
	length: 35	repeater length: 30	
30433	967495	ATTTC CATACTATTCAGTCTATTTTAAAGC	CGCCATCAGATGGCTCCTCCTGGAATCCCGTGAGGGC spacer
	length: 37	repeater length: 30	
30434	967563	ATTTC CATACTATTCAGTCTATTTTAAAGC	TCGCCCACGATGATCCAAAAGGGAAGCCCGCGCAATCA spacer
	length: 39	repeater length: 30	
30435	967633	ATTTC CATACTATTCAGTCTATTTTAAAGC	GTGACTGCCCCGAGAGCAGACCACGAGACTCCGC spacer
	length: 35	repeater length: 30	
30436	967699	ATTTC CATACTATTCAGTCTATTTTAAAGC	CCATTCAGATGAATATAGCGATGAAGAGCTGAATAGG spacer
	length: 37	repeater length: 30	
30437	967767	ATTTC CATACTATTCAGTCTATTTTAAAGC	GAAGCTGACGAATTCTATTACATAGCAATTAGGCGCA spacer
	length: 37	repeater length: 30	
30438	967835	ATTTC CATACTATTCAGTCTATTTTAAAGC	CCCATTTTCTCTATCTCCATTCTTTTACCTCTTCA spacer
	length: 36	repeater length: 30	
30439	967902	ATTTC CATACTATTCAGTCTATTTTAAAGC	TTGACTATTATCTCTCCCTTGGCCCTGAGAGGAGTA spacer
	length: 37	repeater length: 30	
30440	967970	ATTTC CATACTATTCAGTCTATTTTAAAGC	CCTCATGAGGACCTGCTACGAGGCAGGGCGCAGGGCCT spacer
	length: 38	repeater length: 30	
30441	968039	ATTTC CATACTATTCAGTCTATTTTAAAGC	GCTTCTACGTCATCAACTACTACATCCTGCAGCAGT spacer
	length: 36	repeater length: 30	
30442	968106	ATTTC CATACTATTCAGTCTATTTTAAAGC	ACGTAAAGGTATAGGCGGTCGTCATCGACCACCCTT spacer
	length: 36	repeater length: 30	

30443	968173	ATTTCCATACTATTTCAGTCTATTTTAAAGC	AGGAACTCCTGAAAGGGAGAGAAGGATACGTTGAAC	spacer
		length: 36	repeater length: 30	
30444	968240	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CTCCGAGAAACAGGCCAGGTCATCACACGGGAGTAC	spacer
		length: 36	repeater length: 30	
30445	968307	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TCTTCTATCTGCGCTGACAGGAGGTCAGCGAGT	spacer
		length: 33	repeater length: 30	
30446	968371	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CATAGTACCCTGCGATCTGCCCCGCGCGGAACGCGG	spacer
		length: 36	repeater length: 30	
30447	968438	ATTTCCATACTATTTCAGTCTATTTTAAAGC	AGACAAGCCTACAAGCCAAACTCCACCAGAACGTC	spacer
		length: 36	repeater length: 30	
30448	968505	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GGGTCTTCCCCAACCTGATTGTACTGGCTGATCGCC	spacer
		length: 36	repeater length: 30	
30449	968572	ATTTCCATACTATTTCAGTCTATTTTAAAGC	ATGATCTGCTTTGTTGAAGACATGTTTCACGTTAC	spacer
		length: 36	repeater length: 30	
30450	968639	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GATCACTGATATGCATGGAGTTACAAGGACTGGACTC	spacer
		length: 37	repeater length: 30	
30451	968707	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CCGATGACCCACTACCACTCCGTGAATGGTATACCG	spacer
		length: 36	repeater length: 30	
30452	968774	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CAGCCTGACAGCAAACGACAAACCAATGAACTGTCA	spacer
		length: 36	repeater length: 30	
30453	968841	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CTAACGCTACGCGGTAGAGATCTACCGCGTAATCT	spacer
		length: 35	repeater length: 30	
30454	968907	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TCAACAAGGTTTGAACCTATATCCTTGATGTAGGA	spacer
		length: 35	repeater length: 30	
30455	968973	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GGAATATGGCCTGTTTGAGGAAGGGTTTATGTGGAAT	spacer
		length: 37	repeater length: 30	
30456	969041	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TTATGGGGTGACATATTGAGTTTTATTGACAGG	spacer
		length: 33	repeater length: 30	
30457	969105	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CATTTTGAGGGTGTCAGGTTTTCCCTTTCCACCCTC	spacer
		length: 36	repeater length: 30	
30458	969172	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GCAACAGAGATAACATTTGACGGAGAGGCCATCCC	spacer
		length: 35	repeater length: 30	
30459	969238	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CCTCTTCGTTGAAGGTGATGGTGATCCTATCACCTT	spacer
		length: 36	repeater length: 30	
30460	969305	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CCTATACTCATCTGAATACCCTCTTTCGATTAGGTAC	spacer
		length: 37	repeater length: 30	
30461	969373	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TAAACAAAAATAACAATAAAACATAAAACAAACAC	spacer
		length: 37	repeater length: 30	
30462	969441	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GGGCTTTACACATTGGAGATGACGAAGATATAGAAA	spacer
		length: 36	repeater length: 30	
30463	969508	ATTTCCATACTATTTCAGTCTATTTTAAAGC	ACAATAAACCAAATAAAGCTTTAAGCAACCTTAAAGCC	spacer
		length: 38	repeater length: 30	
30464	969577	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TTTTCCCAAAAAACGCCCCGAAATAGCTTATTCATC	spacer
		length: 36	repeater length: 30	
30465	969644	ATTTCCATACTATTTCAGTCTATTTTAAAGC	ACTCTTCATGTGTAATATCATTACGCTTGAGGAGT	spacer
		length: 35	repeater length: 30	
30466	969710	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GAAATAGCAATTAGAATACAAAATGCCCGACTATTA	spacer
		length: 36	repeater length: 30	
30467	969777	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TACAATTTTAACATATCCACAAAATAGTACCC	spacer
		length: 32	repeater length: 30	
30468	969840	ATTTCCATACTATTTCAGTCTATTTTAAAGC	AAAACACCCTTGACAACATAAAAAGGGGGAGATA	spacer
		length: 34	repeater length: 30	
30469	969905	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CGGGCGGAACGGGTTTTGTAAACGTTGAAAATGAT	spacer
		length: 36	repeater length: 30	
30470	969972	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GTGGTATTTATGGATATTATTGAACAGATGAATGAT	spacer
		length: 36	repeater length: 30	
30471	970039	ATTTCCATACTATTTCAGTCTATTTTAAAGC	AATTGCTTATTCTCCTGGATATTCGTTATATCAATAT	spacer
		length: 37	repeater length: 30	
30472	970107	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TATGAACCGGCATTGGATCAGACCGTTTAGCGTGG	spacer
		length: 35	repeater length: 30	
30473	970173	ATTTCCATACTATTTCAGTCTATTTTAAAGC	AATGACCGTCTTGACGATATTAAACGCCTAATCGACGA	spacer
		length: 38	repeater length: 30	
30474	970242	ATTTCCATACTATTTCAGTCTATTTTAAAGC	TCTACAAGTGTGACATTCTCACACTTGAGGAATATA	spacer
		length: 36	repeater length: 30	
30475	970309	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CCACTGAACAATTCTAATTCTACTTCTTTACAACCC	spacer
		length: 36	repeater length: 30	
30476	970376	ATTTCCATACTATTTCAGTCTATTTTAAAGC	CCGGGGGAGGGTACTGACGGTCCGCAGGAGTATAGAT	spacer
		length: 37	repeater length: 30	
30477	970444	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GAAGTAAGACCTCCACAACCAAGCCCCATTTTCA	spacer
		length: 35	repeater length: 30	
30478	970510	ATTTCCATACTATTTCAGTCTATTTTAAAGC	GCCTTAAACCACCATTGGAGACTGCCCCGTGAACTC	spacer

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length: 35 repeater length: 30
30479 970576 ATTTCCATACTATTTCAGTCTATTTTAAAGC TGTAAGTGTACCCATCCGCTGTGAGTGACCTGTACTC spacer
length: 37 repeater length: 30
30480 970644 ATTTCCATACTATTTCAGTCTATTTTAAAGC CCGCAGATCCCCGGGGCTCTGAGACTTTTCAGTGA spacer
length: 35 repeater length: 30
30481 970710 ATTTCCATACTATTTCAGTCTATTTTAAAGC CTGTATGACCTAGCCCTTCAGAGAGCTAGGCGTAAGG spacer
length: 37 repeater length: 30
30482 970778 ATTTCCATACTATTTCAGTCTATTTTAAAGC TAGTATGGAAATCCCTAACTTCGGTATATCTGTAT spacer
length: 35 repeater length: 30
30483 970844 ATTTCCATACTATTTCAGTCTATTTTAAAGC AATATTCATGAAGTTCATAAAAATTTTGAAACGGTGC spacer
length: 37 repeater length: 30
30484 970912 ATTTCCATACTATTTCAGTCTATTTTAAAGC GAGGAACATGCGTGAGATAAGGGAACATGTGAGAGA spacer
length: 36 repeater length: 30
30485 970979 ATTTCCATACTATTTCAGTCTATTTTAAAGC CCAATATGGACTGATATCTGCCCTCTAATTGTGAAA spacer
length: 36 repeater length: 30
30486 971046 ATTTCCATACTATTTCAGTCTATTTTAAAGC CCCCACCCATAACTGCACCCAGGACGAACCAGTCGA spacer
length: 37 repeater length: 30
30487 971114 ATTTCCATACTATTTCAGTCTATTTTAAAGC TATGATGTGACATGCAAACCTGAATGCGTCACTCAAG spacer
length: 37 repeater length: 30
30488 971182 ATTTCCATACTATTTCAGTCTATTTTAAAGC GGGACTGACACGGTAGCTGATTACAGGACAATCT spacer
length: 34 repeater length: 30
30489 971247 ATTTCCATACTATTTCAGTCTATTTTAAAGC GAGTCCAATTAGGAACACTATATGAAACTGTGATT spacer
length: 35 repeater length: 30
30490 971313 ATTTCCATACTATTTCAGTCTATTTTAAAGC ATTCATTCGAAACCACAAAGAACCCTCCCCATCA spacer
length: 34 repeater length: 30
30491 971378 ATTTCCATACTATTTCAGTCTATTTTAAAGC ACAACACTGTCCCTGCACTTAACTCAGACCGGAAAA spacer
length: 36 repeater length: 30
30492 971445 ATTTCCATACTATTTCAGTCTATTTTAAAGC TCCATCAGAAAAAGACCACTAACCCTGCAGCCTCCC
30493
30494
30495 GCA_002761295.1_ASM276129v1_genomic.fna(findCrispr):
30496 START REPEAT
SPACER
30497 crispr 1
30498 1476832 CGTATCCGTTCAATCGGACCTT ATAACGTATCCGTTCAATCGGGCCTTTA spacer length: 28
repeater length: 22
30499 1476883 CGTATCCGTTCAATCGGACCTT TAGCGTATCCGTTCAATCGGGCCTTTAGCGTATCCGTTCAATCGGGCCTTTA
spacer length: 52 repeater length: 22
30500 1476958 CGTATCCGTTCAATCGGACCTT ATTGGAATCTGAGTCACTAAAATAAACACCCTTATTTTTTCTTATGATAGTA
30501
30502
30503 crispr 2
30504 1710769 TGAAACGGTATTATTTTGAATA TTACTGGAATCTGAGTCACTCAAATATATACCACGATATGAATTAT spacer
length: 46 repeater length: 22
30505 1710838 TGAAACGGTATTATTTTGAATA TTACTGGAATCTGAGTCACTCAAATATATACCATTATAATTAC spacer
length: 43 repeater length: 22
30506 1710904 TGAAACGGTATTATTTTGAATA GAATTTTGACAGCACAACTTTCACCCTTTTTTGTCCAAAAGAA
30507
30508
30509 crispr 3
30510 1376209 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTCCTTTTTTGCTAGAAATCCTGCTACTGTACCAA
spacer length: 34 repeater length: 37
30511 1376281 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTCCTTTTTTGCTAGAAATCCTGCTACTGTACCAA
spacer length: 34 repeater length: 37
30512 1376353 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
ACCATGCTTAAACTAACCTTAGACCATGCTTAAGACCATGCTTAGA spacer length: 46 repeater length: 37
30513 1376437 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GCGTCAGGAGATCGAGGGGAAGCAAGAACAGATTA
spacer length: 35 repeater length: 37
30514 1376510 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATTGTTATTAACAAATATCTGTTGATACTCA spacer
length: 31 repeater length: 37
30515 1376579 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
CTTGTCGGACTTCATCCTTATATGATTTGTAACCTTGATAA spacer length: 40 repeater length: 37
30516 1376657 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTTGTGTTGTGGCAAAAATCGCGATCCCATACTCA
spacer length: 37 repeater length: 37
30517 1376732 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
CTTGTCGGACTTCATCCTTATATGATTTGTAACCTTGATAA spacer length: 40 repeater length: 37
30518 1376810 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GGTATATTACCCTTTGCAAGAACTGGAGAACCTT
spacer length: 35 repeater length: 37
30519 1376883 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATAGAGAACCATGAGTGAAATGTGTATAGTATGCG
spacer length: 35 repeater length: 37
30520 1376956 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GAGACGGAGAGATGCACACATGGGAAGAACACAA

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spacer length: 34 repeater length: 37
 30521 1377028 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TCCATGTAATTGCTGAAGGTTCTGAAGCAATTA
 spacer length: 33 repeater length: 37
 30522 1377099 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CACTTGTGCCTCGTATCAGAAATGATGTGGCATTCT
 spacer length: 36 repeater length: 37
 30523 1377173 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CAACACACCCATTCCAGACAAGATGTAGAAAGCAAG
 spacer length: 36 repeater length: 37
 30524 1377247 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
 ATTAATACGCTCTTCCATTGTGCGCTGAATATTGATGTTTCAATCCTTGTTTTAGTGGACATTGAATTTTGACACTGAGCCACCACC
 TGATGTATTGAGAGTCTGA spacer length: 105 repeater length: 37
 30525 1377390 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AAGATACAACAGGTATTGGAGACATAACCATAATAA
 spacer length: 35 repeater length: 37
 30526 1377463 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
 TTGTCGTTGTATATTACATGCAAGAGTTAGCCTGGAGAATTCGG spacer length: 44 repeater length: 37
 30527 1377545 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CAGAACCGTCAGCATCAACGACAGTCATGAACAC
 spacer length: 34 repeater length: 37
 30528 1377617 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
 TCAAGAGCAAGATAATACAGTTCGTTCTTGCCCTACCCGA spacer length: 39 repeater length: 37
 30529 1377694 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTCGAGCTCCTCATGTGCGATCCGCTTAAACGACAG
 spacer length: 36 repeater length: 37
 30530 1377768 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTTAGAATTGCCTGCTCACATACTGCCGATATAT
 spacer length: 35 repeater length: 37
 30531 1377841 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CTTATGTCCTAATTTTCTACCAGACATTACATGA
 spacer length: 34 repeater length: 37
 30532 1377913 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTGAACGTGGATTTTCTTGGACAGTCACCGTTTA
 spacer length: 34 repeater length: 37
 30533 1377985 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATGATGTGGATATATCAGAAGATATGGAGGACCTTA
 spacer length: 36 repeater length: 37
 30534 1378059 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GGTATATTACCCTTTGCAAGAACTGGAGAACCTT
 spacer length: 35 repeater length: 37
 30535 1378132 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATAGAGAACCATGAGTGAAATGTGTATAGTATGCG
 spacer length: 35 repeater length: 37
 30536 1378205 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TGAAGCAAGACGTTCAAAACAATTGGAGAGA spacer
 length: 31 repeater length: 37
 30537 1378274 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CCGTTATACCCTCAACAAAAGGTGTAGATGCATAT
 spacer length: 36 repeater length: 37
 30538 1378348 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATGTTGATGGTGAACCATATTATTTAACTATTGAAG
 spacer length: 36 repeater length: 37
 30539 1378422 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TAGATGAGTTACAACCCTTCCATGGCAACGCAAACCT
 spacer length: 36 repeater length: 37
 30540 1378496 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AATTTTATAACTTTAAGCTTATAGCACCGACACTATA
 spacer length: 37 repeater length: 37
 30541 1378571 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CAACATAAAGAACGGCAAACCAAGTATTATAAGATA
 spacer length: 36 repeater length: 37
 30542 1378645 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ACAGCTGTGGCAACATCGGAGGCCTTCTTCTGTGTAT
 spacer length: 37 repeater length: 37
 30543 1378720 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GAACCCGCATCCGTCATATACGGCTACAAAATCG
 spacer length: 34 repeater length: 37
 30544 1378792 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GCGTCCCTTGCTCCCTCGGCGAAGGAAACAAAAGATT
 spacer length: 37 repeater length: 37
 30545 1378867 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC
 TGAGTTGCTTGTTGAGCAAGTATATCCATATTGCTTCGACTATGC spacer length: 45 repeater length: 37
 30546 1378950 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AAGAAAGAATCCTTGAACCTACAAGTACAAAGAGG
 spacer length: 34 repeater length: 37
 30547 1379022 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTGCCGCATTGCGTGACAGCCATAACAAAATAAATA
 spacer length: 37 repeater length: 37
 30548 1379097 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC TTTGCCAGTTTGTCAATGAAGCAAAGGAATTCT
 spacer length: 34 repeater length: 37
 30549 1379169 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GAAATCCTGTAAGGCTGTTTGTAATCTGTATAGAT
 spacer length: 35 repeater length: 37
 30550 1379242 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC GGATTTAACTGTTTTTCATGCGATCCAACGATGTT
 spacer length: 34 repeater length: 37
 30551 1379314 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATGAATCGTGGAAGTTCTACACAGCATCTGATGAA
 spacer length: 35 repeater length: 37
 30552 1379387 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC AAAGGTTATGACAGAAGCCACCAGCCCAGAGGAAC
 spacer length: 35 repeater length: 37
 30553 1379460 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC CATATCCTACAGCCGCCGACCGGCCGCTACGGACA
 spacer length: 36 repeater length: 37
 30554 1379534 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATAGATGCAAAATCTATTTTCAACTTCAAAGCCCCTG
 spacer length: 37 repeater length: 37
 30555 1379609 GTTTCAATCCTTGTTTTAGTGGATATTGAATTTTGAC ATTGGTAATAGGAACAAGGTATATATATGTTGCAGAC

spacer length: 37 repeater length: 37
 30556 1379684 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC TGTCATTCAATCCGATTGATGCATACCACTGGATC
 spacer length: 35 repeater length: 37
 30557 1379757 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC ATCATTCCAGTACCGTCAGTTATCTCGGTGCTCTG
 spacer length: 35 repeater length: 37
 30558 1379830 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC GCTTAATTCCATGTTTTAATAGTATAATTCCATGT
 spacer length: 35 repeater length: 37
 30559 1379903 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC GATTGAAACCAAAAACCCTTGCAGATTATGTAATGG
 spacer length: 36 repeater length: 37
 30560 1379977 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC GCCTGTATCCGAAATTCCTGAGTGTATATGTCAAA
 spacer length: 35 repeater length: 37
 30561 1380050 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC TGGAGCCACTTCTTCTTCCAGTAAATCAGGATCCTCT
 spacer length: 37 repeater length: 37
 30562 1380125 GTTTC AATCCTTGT TTTAGTGGATATTGAATTTTGAC TTTTGTCCAAAAGAAGCCCTAATATCCCTCCTTTTC
 30563
 30564
 30565 GCA_002787055.1_ASM278705v1_genomic.fna(findCrispr):
 30566 START REPEAT
 SPACER
 30567 crispr 1
 30568 1163129 GTGTTGTCTGTGAATCCTAGGTTTTCTG AGAGGATCTTAGTTGGGGTGCAGC spacer length: 25
 repeater length: 28
 30569 1163183 GTGTTGTCTGTGAATCCTAGGTTTTCTG
 TTAGTCGCTTGGTTGCTGTCCTTGCGGTGTTGTCTAGTAAAGCCGAGGTTCTCTGAGAGTGTCTTGGTTGCTGTCCTTGC
 spacer length: 79 repeater length: 28
 30570 1163291 GTGTTGTCTGTGAATCCTAGGTTTTCTG AGAGGATCTTAGTTGGGGTGCAGC spacer length: 25
 repeater length: 28
 30571 1163345 GTGTTGTCTGTGAATCCTAGGTTTTCTG
 TTAGTCGCTTGGTTGCTGTCCTTGCGGTGTTGTCTAGTAAAGCCGAGGTTCTCTGAGAGTGTCTTGGTTGCTGTCCTTGC
 spacer length: 79 repeater length: 28
 30572 1163453 GTGTTGTCTGTGAATCCTAGGTTTTCTG AGAGGATCTTAGTTGGGGTGCAGC spacer length: 25
 repeater length: 28
 30573 1163507 GTGTTGTCTGTGAATCCTAGGTTTTCTG TCAAAGTCGTTCTTATAGTGTCTTT
 30574
 30575
 30576 crispr 2
 30577 1163590 GAGGGTCTTAGTTGGAGTTTTTACTATGGTGTCTTTGAAG
 CCAAGTTTTTCTGACAATAGCACTAGTTTTGTTTTATTCGTTGAGTGTCTTTGAGGCCAAGTTTTTCGG spacer
 length: 73 repeater length: 40
 30578 1163704 GAGGGTCTTAGTTGGAGTTTTTACTATGGTGTCTTTGAAG
 CCAAGTTTTTCGGAGAGGGTCTTACTTTGTGTTTTTCCTGCAATGTCTTTGAGGCCAAGTTTTTCGG spacer length:
 67 repeater length: 40
 30579 1163812 GAGGGTCTTAGTTGGAGTTTTTACTATGGTGTCTTTGAAG
 GTGTCTTTGAAGCCAAGTTTTTCGGAGAGAGATTTTGTCAAAGTCGTTCTTATAGTGTCTTTGAAAC
 30580
 30581
 30582 GCA_002788215.1_ASM278821v1_genomic.fna(findCrispr):
 30583 START REPEAT
 SPACER
 30584 crispr 1
 30585 1532832 GAGTAATGACTCAGTAATTAC TTCTGACGAAGACGGCGACC spacer length: 20 repeater
 length: 21
 30586 1532874 GAGTAATGACTCAGTAATTAC TCCCGACGAAGACGGCGACC spacer length: 20 repeater
 length: 21
 30587 1532916 GAGTAATGACTCAGTAATTAC TCCCAGCCACAAAACAATTG
 30588
 30589
 30590 crispr 2
 30591 1320977 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC AGTCTGGGAGTGGCTGATTCAAGGCACGAAGGGAA spacer
 length: 35 repeater length: 30
 30592 1321043 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC CGGGAGAGAAGTCTTGAGCGCATTGAGCAATGTTC spacer
 length: 36 repeater length: 30
 30593 1321110 GCTTCAACCGCACAAAGCGTTCGTCTGAAAC GGTGAATCGCCACACTGCGTCGGGATAGGTCGTCAG
 30594
 30595
 30596 crispr 3
 30597 1305778 GCTTCAACCTCACGAGAGTTCGTCTGAAAC CTAAGCACGAGATCGTTGCTGTGCGATCTTATTTTT spacer
 length: 36 repeater length: 30
 30598 1305845 GCTTCAACCTCACGAGAGTTCGTCTGAAAC AACAGAGAACCATCACTTCCAAGCTGGTGCGG spacer
 length: 32 repeater length: 30
 30599 1305908 GCTTCAACCTCACGAGAGTTCGTCTGAAAC TGGTAGCATGAGTGATAGAGACAACGACGGAGATG spacer

	length: 35	repeater length: 30	
30600	1305974	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATCCGAATACCGATCAGGCCGCTGTTCCATAATT spacer
	length: 35	repeater length: 30	
30601	1306040	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGTGCATCACTGAGTCAAAGATGCGGTGGCAAC spacer
	length: 34	repeater length: 30	
30602	1306105	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATCCGAATACCGATCAGGCCGCTGTTCCATAATT spacer
	length: 35	repeater length: 30	
30603	1306171	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTTTTTGGGTATCTGAGGCCGCTATGGAAGGCTCT spacer
	length: 35	repeater length: 30	
30604	1306237	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AACAACCAGAGCCGCCGATCAGGAGAGATCGACTG spacer
	length: 36	repeater length: 30	
30605	1306304	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AAGCACTCACCGCTATATCGATTACCTGCACAGCC spacer
	length: 35	repeater length: 30	
30606	1306370	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGCTATTAACAGCCGTATAGAAGTAGGGTAAAC spacer
	length: 33	repeater length: 30	
30607	1306434	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGGGCTTCAGCCAGCCGCCGTGCAATGGGGCGGT spacer
	length: 34	repeater length: 30	
30608	1306499	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GAAGAACTGGATGCCACCATTCTCGACGAGCGTC spacer
	length: 34	repeater length: 30	
30609	1306564	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AGTTCGGAATCTCGCAACAATCGTCGTTCTGGCAA spacer
	length: 35	repeater length: 30	
30610	1306630	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACCATTGACCCCGACGAAGGCCGACCGACGAG spacer
	length: 32	repeater length: 30	
30611	1306693	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATAGGTCCAAAACCGGCCACTGACCTACCACC spacer
	length: 33	repeater length: 30	
30612	1306757	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATATTGTAGACACCGTACTCAGCGGCCATGGAC spacer
	length: 34	repeater length: 30	
30613	1306822	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGCATACCCTATCCTGCGCGTGGCTCGCCTCA spacer
	length: 33	repeater length: 30	
30614	1306886	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAGCGTGTTCCTGGTTCCAGTAGTTAGACAACCA spacer
	length: 34	repeater length: 30	
30615	1306951	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGCCCAGATCCCAGACGAGCCAGCCATTCCCGA spacer
	length: 34	repeater length: 30	
30616	1307016	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGGAAATACCAATACGCGCGTATCGCAACGTGCAC spacer
	length: 35	repeater length: 30	
30617	1307082	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AATCCAAATGGCCGAGCATTTTGGTGAGTTTGAGCA spacer
	length: 36	repeater length: 30	
30618	1307149	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGGTCTGAAGGATGCTCACCGCGCCCCGATCCCGGT spacer
	length: 35	repeater length: 30	
30619	1307215	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TAGAGTTAGCCCCATCGAAAACCGCAGTCATTTGT spacer
	length: 35	repeater length: 30	
30620	1307281	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CTGTCTGGCTATCTCCGCGGGTGGGCCCAAAGCGA spacer
	length: 34	repeater length: 30	
30621	1307346	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTAGTCGTCAATTCCGGCAGTGTTGATTTAGAATT spacer
	length: 36	repeater length: 30	
30622	1307413	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AACCCTTAAGTCAAGCCGACCCGTTGATCTAGTT spacer
	length: 34	repeater length: 30	
30623	1307478	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GCCGCTGGAATCGGGATTCTGGTCGGATGAGTCGC spacer
	length: 34	repeater length: 30	
30624	1307543	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATGATCTAGATCCATCTACCTCACGGGAGTTCGTC spacer
	length: 36	repeater length: 30	
30625	1307610	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TAGTCCGAATGGCCGAGCATTTTGGTGAGTTTGAGGC spacer
	length: 37	repeater length: 30	
30626	1307678	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGGGGGCATGCTTCGGCCATATGGACGCACTCCT spacer
	length: 34	repeater length: 30	
30627	1307743	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACCGGTGACTGGGTCTCCTCATCAGGTTTGTAGTA spacer
	length: 35	repeater length: 30	
30628	1307809	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GACCGACTGGCAAACTATCGACGGAGGGTCGA spacer
	length: 33	repeater length: 30	
30629	1307873	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGTCGAGATCGTCAGCTCGTGGATGACTGCCGTAT spacer
	length: 36	repeater length: 30	
30630	1307940	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CACCGACAACCCAGTGACCTCTAATCCATCTCCAT spacer
	length: 35	repeater length: 30	
30631	1308006	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGTCGTCGCGGTTCTCCAGGAGGTCGGTCCAACGTGT spacer
	length: 36	repeater length: 30	
30632	1308073	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCCTGTGGACACACATTGGCCACCGACCTCCACC spacer
	length: 34	repeater length: 30	
30633	1308138	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGGAACCATAACGATCACTGAGGAGCCGTATGAG spacer
	length: 35	repeater length: 30	
30634	1308204	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGCAGGTCGCAGCGTTTCGCGGAGGCGGGCCAAT spacer
	length: 34	repeater length: 30	

30635	1308269	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTTCGGTGATGGGCGACGTCGACGGCGCGATGAA	spacer
		length: 34 repeater length: 30		
30636	1308334	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGCAGCTCTCCGACGAGTCGTCGCCGGTTTCCAC	spacer
		length: 35 repeater length: 30		
30637	1308400	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGAACTGCCCCCTCGTAGATCCCCCTCGTTGGTGA	spacer
		length: 34 repeater length: 30		
30638	1308465	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACGTATCCGACTGTTTCGACTTCGACGAGTTGCCCTT	spacer
		length: 36 repeater length: 30		
30639	1308532	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TATCTTCGACGGGTGGACCGACTACACTAAGGACT	spacer
		length: 35 repeater length: 30		
30640	1308598	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTTTGACCTTCGAGAAAACACCGGTGACTGTATCG	spacer
		length: 35 repeater length: 30		
30641	1308664	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAACTTCGCCGCCGCCACCGGAGTGTCTGTACGGT	spacer
		length: 36 repeater length: 30		
30642	1308731	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTTACTTTCCCCCCCATTCTCTCCCCACCC	spacer
		length: 33 repeater length: 30		
30643	1308795	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTGGCTGGTACGTGTAAATCGCCTTCGTGCGAT	spacer
		length: 33 repeater length: 30		
30644	1308859	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CTGTTGCGGGGCGTCTTCGAGTAGCAACACACCGC	spacer
		length: 35 repeater length: 30		
30645	1308925	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CACCCTAGATCACACAGCGGCCAGTGTGCGTCCAC	spacer
		length: 35 repeater length: 30		
30646	1308991	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGTTGTGAAACCCCGCGGAAAGCACACGCAGGAAGC	spacer
		length: 37 repeater length: 30		
30647	1309059	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGCGATAGAAGATGCCCCCGGTAGGTTGATCAG	spacer
		length: 35 repeater length: 30		
30648	1309125	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TAAGTCAAGCCGAGCCTTTGTTTGAGTTGCAATGT	spacer
		length: 35 repeater length: 30		
30649	1309191	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCACCCACGCCGTCGAGAGTGAGTAGCCGCCGAAGT	spacer
		length: 36 repeater length: 30		
30650	1309258	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTTTCGAGTCCTTTTGTCCCTGAAATAGTCGAAGT	spacer
		length: 36 repeater length: 30		
30651	1309325	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GCTATGCCAGTCGTCGGGGTCGGACCAGGAGATCG	spacer
		length: 35 repeater length: 30		
30652	1309391	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGTTTCGTTATCGGGTCGGTCCTCGTCGAAAAGCG	spacer
		length: 35 repeater length: 30		
30653	1309457	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGACTGGCTGCTGGTGGTGCATCCTCTGATACC	spacer
		length: 34 repeater length: 30		
30654	1309522	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCGGTGGGAGCTGCGAAGTTGGCGGCTTTGTTCA	spacer
		length: 34 repeater length: 30		
30655	1309587	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTCTGTCGTGGTTCGAATTCGACGACGGAACGACCA	spacer
		length: 36 repeater length: 30		
30656	1309654	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTGTACTCGCTAACAAAATCGCCGCTCGGAGGCC	spacer
		length: 34 repeater length: 30		
30657	1309719	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGTCGCCACGGTGGATGAGTTCTTTGCGACTCAACA	spacer
		length: 36 repeater length: 30		
30658	1309786	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATGCCGGGAGATGACCCATCGGGGGACACCTC	spacer
		length: 33 repeater length: 30		
30659	1309850	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGACATTGCCGGGTGGTATGAGATCGGACAGCGGT	spacer
		length: 35 repeater length: 30		
30660	1309916	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GGTTACTACTGAAGGTATCAACCCAGTGTGTAACT	spacer
		length: 36 repeater length: 30		
30661	1309983	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GACGACGCGATGGCCTTGTGGTTGCCATTGAACG	spacer
		length: 34 repeater length: 30		
30662	1310048	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGGAGTGGTCGTCGGGGCCTCTGACGTTGGTAA	spacer
		length: 34 repeater length: 30		
30663	1310113	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAGTCTTCGCACACTGGCGCTGGATAATCCCATTC	spacer
		length: 35 repeater length: 30		
30664	1310179	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATTGACCTGCGCTGGACTGACATCTCGGTAGTCCA	spacer
		length: 36 repeater length: 30		
30665	1310246	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGGTGGGCGTACTCGCAACGGTGTGGGTCATGG	spacer
		length: 34 repeater length: 30		
30666	1310311	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CAAATTACGATGGAGGGCAACGGCCTCGATTCCGA	spacer
		length: 35 repeater length: 30		
30667	1310377	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTTATTACGCCACGACGAAGGACGTCGATGGAC	spacer
		length: 34 repeater length: 30		
30668	1310442	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCCAATCCATGGCTGCGGAACACGGTGTCTGTAACA	spacer
		length: 36 repeater length: 30		
30669	1310509	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TACGGTGTCTGGGACGCGCTGATCGAGTCGAA	spacer
		length: 33 repeater length: 30		
30670	1310573	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GTGCCCTCTCCGCGCGATATGTCGTAAGTGAAAT	spacer

	length: 34	repeater length: 30	
30671	1310638	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CATCAACGTGAACAATAGCACAGTCGGACGCTGCGG spacer
	length: 36	repeater length: 30	
30672	1310705	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ATGTAAGACGGCCGAAAACCACGTCCCGACAGTT spacer
	length: 34	repeater length: 30	
30673	1310770	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CCTCGGTCCCTCAAAGGGATACCCTCGGTTACCAC spacer
	length: 35	repeater length: 30	
30674	1310836	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AATTGGTCGGGACTATGCTCCTACTGATATGTT spacer
	length: 33	repeater length: 30	
30675	1310900	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TTGAGGAGATTCTGACTGGATCGTAGCCAGATAGGC spacer
	length: 35	repeater length: 30	
30676	1310966	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	CGGTGTGCCAGTATCCCGATGTTCTCTTCAGATT spacer
	length: 34	repeater length: 30	
30677	1311031	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TGATGTAATAATCAGTTTCAGTATCAATAACAAC spacer
	length: 34	repeater length: 30	
30678	1311096	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GAGGCAATTTACCGAAGAGGTTGGTATCGATT spacer
	length: 33	repeater length: 30	
30679	1311160	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	AAGAGAACACACGAATGGCGATGACTCGGCTGA spacer
	length: 33	repeater length: 30	
30680	1311224	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ACGCGCTCAAGAAGTACGTCCCGCAACTCTGTGGC spacer
	length: 35	repeater length: 30	
30681	1311290	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	GAACGTCGTCTTGCCCCGATCCCTTCGGGCCGTAGG spacer
	length: 35	repeater length: 30	
30682	1311356	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	TCGGAATCCCTACGATGATCCAGTAGAGGAAAG spacer
	length: 33	repeater length: 30	
30683	1311420	GCTTCAACCTCACGAGAGTTCGTCTGAAAC	ATCCCTACGATGATCCAGTAGAGGAAAGTGCTT
30684			
30685			
30686	crispr 4		
30687	1474449	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	CTCCGAGCTTCGGACTGCGATATGACCCGCGTT spacer
	length: 33	repeater length: 30	
30688	1474513	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	TAAGTTACCGTCAACGAGATAATCAATGATATGA spacer
	length: 34	repeater length: 30	
30689	1474578	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	CGCTTCCTGCGGGGTTTCACGACGGGTCGCTGGT spacer
	length: 34	repeater length: 30	
30690	1474643	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GTGAACAAAGCCGCCAACTACGCAACCATCAGTG spacer
	length: 34	repeater length: 30	
30691	1474708	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	AGATTCCGATGGTGATGGCACAAGTGCGTAAT spacer
	length: 33	repeater length: 30	
30692	1474772	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GAATAATAGACACTAACAGCAAGGTCCACCGTCT spacer
	length: 34	repeater length: 30	
30693	1474837	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	ACCGGGAGTTTGTGGTACTTCGCGGGGCCGTGCC spacer
	length: 35	repeater length: 30	
30694	1474903	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GGTGAGTGTTGCGTCCGTGGTAGCGTTACCCAAT spacer
	length: 34	repeater length: 30	
30695	1474968	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	CATCGCACCGTCGACGTCGCCATCACCGCAATCG spacer
	length: 35	repeater length: 30	
30696	1475034	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	CTGCATGATATCGTCAAACCGAGTGACGTACCGACG spacer
	length: 36	repeater length: 30	
30697	1475101	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	TGCAATGGGTTGCCGGCGACGTCGGCTGCATCCC spacer
	length: 34	repeater length: 30	
30698	1475166	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GGACCACCGCGTTGCGACGTCGGCGTCCGTCGTC spacer
	length: 34	repeater length: 30	
30699	1475231	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GGTCGAATTGGAGTCATTTGCCACTCGGTAGAAA spacer
	length: 34	repeater length: 30	
30700	1475296	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GATCATTACCAAGACTGGGAAAAGGCCCTGAT spacer
	length: 32	repeater length: 30	
30701	1475359	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GTCCATTGCTACATAACTACCAACGGGCTACCAC spacer
	length: 34	repeater length: 30	
30702	1475424	GTTTCAGACCAACCCTCGTGGGGTCGGAGG	GGTCGATCAGATGGAGATCGGCGTTTTGTCTGGAG
30703			
30704			
30705	crispr 5		
30706	2597028	GTTTCAGACGAACTCTCGTGAGGTTGAAGC	AAGCGGTCGCTCCACCGTAGGGCTTCGTCATCT spacer
	length: 33	repeater length: 30	
30707	2597092	GTTTCAGACGAACTCTCGTGAGGTTGAAGC	ATCGCAAAGGATGATGGCGACTTGACTGCCTTCG spacer
	length: 34	repeater length: 30	
30708	2597157	GTTTCAGACGAACTCTCGTGAGGTTGAAGC	AGCTCACGACCGACCAGGAGGACGTCACGCTGG spacer
	length: 33	repeater length: 30	
30709	2597221	GTTTCAGACGAACTCTCGTGAGGTTGAAGC	CCCGAGCGCACGGAGGGCTCGACGTCTTCGGCCAG spacer
	length: 35	repeater length: 30	

30710 2597287 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TGCCGGTACCCCGCCGCGGCGTTTCGCGACGTC spacer
length: 32 repeater length: 30
30711 2597350 GTTTCAGACGAACTCTCGTGAGGTTGAAGC AATCAGTCCGGCGAAACGGCTGAAACGAGCGAG spacer
length: 33 repeater length: 30
30712 2597414 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GTGACTGCGCCGTTGGCGGGGAGCGATGCGCCGAT spacer
length: 35 repeater length: 30
30713 2597480 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GTCGCGTGGTCGTCGCGTACGTGGCGTTCTGAACCG spacer
length: 35 repeater length: 30
30714 2597546 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TGGGGGCAGTATCCTGGGCGCTCCGTAAAGAGGC spacer
length: 34 repeater length: 30
30715 2597611 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TACGGAGTCCGAGACACGGTCACCGACGCACTGG spacer
length: 34 repeater length: 30
30716 2597676 GTTTCAGACGAACTCTCGTGAGGTTGAAGC AAACCTCTAACTCGGAGATTTGCAAATCTACAGTC spacer
length: 34 repeater length: 30
30717 2597741 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GATCAGTCATCTATCCCTCTGCATGGTGTGCGGTG spacer
length: 34 repeater length: 30
30718 2597806 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CGACGTGATCCCGGTCGAGGCCGAGAGCGAGGAG spacer
length: 34 repeater length: 30
30719 2597871 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CGATTGCTCGTCTGCTCCTCGGGGTGTGGCATCC spacer
length: 34 repeater length: 30
30720 2597936 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GGAGATAGTAGCACCTCCTAAGTGGCTTCTGTAC spacer
length: 34 repeater length: 30
30721 2598001 GTTTCAGACGAACTCTCGTGAGGTTGAAGC TACAGTAAGCTGATGCAGTACACCCACGCCGAGT spacer
length: 34 repeater length: 30
30722 2598066 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CTCTCAATCGTCGGGTCGCTCCCGTCGGTCCC spacer
length: 32 repeater length: 30
30723 2598129 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GGCCCTCGATCTACACGTCGGTGCTGTTTCGACGA spacer
length: 35 repeater length: 30
30724 2598195 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CGTGGGCACGTCACCGAAGCTGAGACAGTCCCGAAA spacer
length: 36 repeater length: 30
30725 2598262 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GTTTCGGAGCGGTGAATGTCACAGATACTGAATCAT spacer
length: 36 repeater length: 30
30726 2598329 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GCGTGGTGGACCGGCCGGGCGAGTTCAGCGATTGATACG
spacer length: 39 repeater length: 30
30727 2598399 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GATTGAACCGAGATATCGCCAAACGCATTGTTCGAC spacer
length: 35 repeater length: 30
30728 2598465 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GACTCCGGGACAGCCGTTGTCTGGAGATGATAATGG spacer
length: 35 repeater length: 30
30729 2598531 GTTTCAGACGAACTCTCGTGAGGTTGAAGC GGCGACCGCTCGAAATCGAAGTCGGTCGCGGTCCG spacer
length: 35 repeater length: 30
30730 2598597 GTTTCAGACGAACTCTCGTGAGGTTGAAGC CCACAAAACAATTGTGGAGCAAGCTGCGTTTCAGA
30731
30732
30733 GCA_002813085.1_ASM281308v1_genomic.fna(findCrispr):
30734 START REPEAT
SPACER
30735 crispr 1
30736 854054 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGCCTAAACGAAATATCAGATGAAGAATATGG
spacer length: 34 repeater length: 37
30737 854126 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACCAGTATATGTCTATTACAACGACATAGACGGA
spacer length: 34 repeater length: 37
30738 854198 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GAATCACATCTCGATGCAGATAATGACCTGAAAA
spacer length: 34 repeater length: 37
30739 854270 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TATGCAGTTAATAATGAAGTTACATACGGATTGC
spacer length: 34 repeater length: 37
30740 854342 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT
GATATGCCCTTTAAAAAAGTTACATATGGAAGAAAGTCACAATCCTTATTTTACTAGATGGTTTTCTGCAATATAGCTACATTGTTA
TAAACTGGTCTTTTAAAGGT spacer length: 105 repeater length: 37
30741 854485 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TATTATTTATGAACAAGAAAAAATAAACAAGGAA
spacer length: 34 repeater length: 37
30742 854557 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGGTGTTTAAAATGGAGAAAATAAAATTTATTA
spacer length: 34 repeater length: 37
30743 854629 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTATAGATGAAATAAATGAATTAAAGGAAATTTGA
spacer length: 36 repeater length: 37
30744 854703 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGGACGAACAAATTTTTAATGTTAATGGTTTTT
spacer length: 33 repeater length: 37
30745 854774 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TCTTCAAAATGGAAGAAGGAGAGAATTAAAGCAT
spacer length: 34 repeater length: 37
30746 854846 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CCCAAAAAAGGACGAATACGGCGTTTACGAATCAA
spacer length: 35 repeater length: 37
30747 854919 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GGTAATGTGTATCAGTACTTGAAAAATCAGTATTTT

spacer length: 36 repeater length: 37
 30748 854993 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAAGAGACACTATTAATAGATATATTTTATCTACA
 spacer length: 34 repeater length: 37
 30749 855065 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACGGATAATTGAGGTGATAATAAATGTTAATAAG
 spacer length: 34 repeater length: 37
 30750 855137 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATATTTGAATTACTCGTAATATGCATTACCGAG
 spacer length: 34 repeater length: 37
 30751 855209 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAATCAATGTTAAAATACAGAAAAACCTAAAAT
 spacer length: 34 repeater length: 37
 30752 855281 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TAGACCAAAGGGGGTTTAAACACCCCCAAAAAGGT
 spacer length: 35 repeater length: 37
 30753 855354 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GGTAAAATGTAAAATTATCGTATTTGAACAAGTA
 spacer length: 34 repeater length: 37
 30754 855426 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GGAGTAGAAAAATGTATAAATATCAAGAAAAA
 spacer length: 33 repeater length: 37
 30755 855497 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGAGTTAATTTGCAAGTTTTTAAAGCAAAGGAATGT
 spacer length: 35 repeater length: 37
 30756 855570 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CAAAACTGAAGAAGCAATTGAGTTTTTAGCAAAAA
 spacer length: 36 repeater length: 37
 30757 855644 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATAAGTTGTTAAATAATTGATTGACTTATGAA
 spacer length: 33 repeater length: 37
 30758 855715 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGGGTAGGTATACAGTTGTTGATGGTGGTAATGAA
 spacer length: 36 repeater length: 37
 30759 855789 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACTTTTAAGGCGACTGATGAATTTTTAGCTAATGT
 spacer length: 35 repeater length: 37
 30760 855862 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTTAACACTAATAGCATTTTAATTGATGTCTTAAA
 spacer length: 35 repeater length: 37
 30761 855935 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CTAGACGTGCAAGAATTTATGAAAGGAAAAATA
 spacer length: 33 repeater length: 37
 30762 856006 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAACGGACTATCTTTGCAAGATTTCAATTGTAAGG
 spacer length: 36 repeater length: 37
 30763 856080 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CTTCATAAAATGTATCGGTGTCTATATAAATAATAG
 spacer length: 36 repeater length: 37
 30764 856154 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CTAAAACATTAGAGAGAAGCTGTAACATTATTACA
 spacer length: 35 repeater length: 37
 30765 856227 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATCGAAGACCCCGTGTCTAAAACATTACAAAGAAG
 spacer length: 35 repeater length: 37
 30766 856300 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTTTGGTGTGTGAACAACCTGGAAAAAAGAAGA
 spacer length: 34 repeater length: 37
 30767 856372 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGTACGAAGTGGATTTATCATTAACAAAAAATT
 spacer length: 34 repeater length: 37
 30768 856444 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATGTATTCCAAAAAAGAATTAAAGACTGTGAATAC
 spacer length: 35 repeater length: 37
 30769 856517 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CGAAAAAACAACAAAGACCTCGACCCCGTGTCAAA
 spacer length: 36 repeater length: 37
 30770 856591 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TCTTTCCAAGATTATCATAACGAAGAAGAAGATG
 spacer length: 34 repeater length: 37
 30771 856663 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATCATAATGCGGAAATGGAGGAATTATATATTGAT
 spacer length: 35 repeater length: 37
 30772 856736 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGATTGAGACCATGATACATGGTCTCTAAATCTA
 spacer length: 35 repeater length: 37
 30773 856809 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TCATCACAAGAGTGATTGATATAGACCAAGAAATAT
 spacer length: 36 repeater length: 37
 30774 856883 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATCTACGCAGGAATATTTAAAGGACAAGAAG spacer
 length: 32 repeater length: 37
 30775 856953 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTATGACTGTTATTATAATCAGTCCGTTTTTAAAA
 spacer length: 36 repeater length: 37
 30776 857027 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ACACAAAACGGGGTATATTTCAATTGTTATGTTGTA
 spacer length: 36 repeater length: 37
 30777 857101 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TCAATATAGAGAAATTTAAAGTAAAGACAATAGA
 spacer length: 34 repeater length: 37
 30778 857173 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TAAAAAAGCTATCAATTAATTGATAGCAAAATAT
 spacer length: 35 repeater length: 37
 30779 857246 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTTCCAACCAATCGCTTCATTACTCCCCCATTGCCA
 spacer length: 37 repeater length: 37
 30780 857321 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATAAGGAGAGATTATATGGCAATTATAGTTAATA
 spacer length: 35 repeater length: 37
 30781 857394 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTAGACACCGTGTCTAAAACATTACAATATGCAT
 spacer length: 35 repeater length: 37
 30782 857467 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATAAAAAATACTAAACAAAAGTACAAACAGTAGA
 spacer length: 36 repeater length: 37

30783	857541	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CTGCGTAAAGATAAGGATTTAAAGTACTTAAAAA
	spacer length: 35	repeater length: 37	
30784	857614	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATATTATATATCATCCGATAGATATTTCTAGCTTTA
	spacer length: 36	repeater length: 37	
30785	857688	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CAATATAGTAACTATTGGTCCAATAAAGACTGTTC
	spacer length: 35	repeater length: 37	
30786	857761	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	GAAAAATTATGGATTTAATATTATTAATCA spacer
	length: 32	repeater length: 37	
30787	857831	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATCGGAAGGTAAAAGCTAATCCAATTATATTTCC
	spacer length: 34	repeater length: 37	
30788	857903	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATATAAACAGGTTATATTACAGAAAGAGGATAAGCAA
	spacer length: 37	repeater length: 37	
30789	857978	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACGGGTGATAACATGAATGTATGGAAGGGAACAA
	spacer length: 34	repeater length: 37	
30790	858050	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATTATAACGGGTTTGTAGTAATTAATACTAAGATA
	spacer length: 35	repeater length: 37	
30791	858123	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AACTTATAACTTATTAAATACTAATGATTTTAT
	spacer length: 33	repeater length: 37	
30792	858194	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AATATTAATGGTTTTTTTTGAGCTAATAAGTATTTGC
	spacer length: 36	repeater length: 37	
30793	858268	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAAGTTACGATTTGCTAAGCACCAAAGAATATTTAA
	spacer length: 36	repeater length: 37	
30794	858342	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAATAAACGGATTAATTATAACAAAAAAGTATAC
	spacer length: 35	repeater length: 37	
30795	858415	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CGCAAATGGAAGTATACATCAAAATGGGTATGTA
	spacer length: 34	repeater length: 37	
30796	858487	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACACACGACGACACATGTTTTAATGGACTTATAC
	spacer length: 34	repeater length: 37	
30797	858559	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CTCAGTCACTATAAAAGAATAATGTACGGGGAAGA
	spacer length: 35	repeater length: 37	
30798	858632	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AAAAGACAACAAAAGAAGACAACAAAAGCTATCAA
	spacer length: 35	repeater length: 37	
30799	858705	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CAATAAGTAATAAAATAAATTTAAAAAGCGAAAG
	spacer length: 34	repeater length: 37	
30800	858777	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATAAATGAAGGTAGAAATTTTAGTTTATAGGCAA
	spacer length: 34	repeater length: 37	
30801	858849	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACTATCAGGTTAAGGCCAATAGAACTATTATAAA
	spacer length: 34	repeater length: 37	
30802	858921	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATATAAGCAACAAAGAATAAAAAAAGAAGACAAG
	spacer length: 34	repeater length: 37	
30803	858993	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATATTTAACCCCTACAGGATTTAAATTTTAAATCT
	spacer length: 34	repeater length: 37	
30804	859065	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACTTAAATATAATCAATATATCAAAGTAAAGTAT
	spacer length: 34	repeater length: 37	
30805	859137	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATCACCAGCATCAGCAAAAGGATATTTAACAGG
	spacer length: 33	repeater length: 37	
30806	859208	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACAGAAAGGGGATTTGATGATATTATTGATATTA
	spacer length: 34	repeater length: 37	
30807	859280	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	CGGACAAGGGGGTTTATAAAATATGTACGTGTTACA
	spacer length: 37	repeater length: 37	
30808	859355	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TCTCTCTCCAAACAGATTGTGGGGCAGTTAAACT
	spacer length: 34	repeater length: 37	
30809	859427	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TTAGCTAATGTCAATTATGTTGAGTATGAAGGAT
	spacer length: 34	repeater length: 37	
30810	859499	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATATAGTAGCAAAAAAAGATTTATACAGTTC spacer
	length: 32	repeater length: 37	
30811	859569	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	AGGGGCAAGGAGGATGATATTATATATCATCCAC
	spacer length: 34	repeater length: 37	
30812	859641	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATTATAGCGCTTTTAATGGTAATTTAAAGATT
	spacer length: 33	repeater length: 37	
30813	859712	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TCAAGGTGTTAAATGGAATTTAACTTTTAGGA
	spacer length: 34	repeater length: 37	
30814	859784	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATTAAGCACTAAGGACTTTTATAGATGGCAAAGAA
	spacer length: 34	repeater length: 37	
30815	859856	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TGTTAGTAGATGATAACTGTTTATGCTTGGATGAT
	spacer length: 35	repeater length: 37	
30816	859929	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ACAAGTAAGTGACAAGGAGGAGGATTATTATTATC
	spacer length: 35	repeater length: 37	
30817	860002	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	TTATGCCTGATGGGAGCGTAATATTATGAAAAAA
	spacer length: 35	repeater length: 37	
30818	860075	GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT	ATAGACAAAACATACAGAAAAAAGAGGATAAAA

spacer length: 33 repeater length: 37
 30819 860146 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAATATCAACGACTTTTACAAAATGCACAAAT
 spacer length: 33 repeater length: 37
 30820 860217 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGAGTTGGAATTAGGGCTACAAGGTCAAAGTGGT
 spacer length: 34 repeater length: 37
 30821 860289 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CATGCCACACACATAATACGAAATTTTGGAGAGAA
 spacer length: 35 repeater length: 37
 30822 860362 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GATGATATTGATAAAGCGATGCAAATATACAAAGAAA
 spacer length: 37 repeater length: 37
 30823 860437 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TTATTAATGGGAATCAGGTTATAGCTAAAAAAAT
 spacer length: 35 repeater length: 37
 30824 860510 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAGGTTAGGGAATATATTCATAGTAAGGATAAAACA
 spacer length: 36 repeater length: 37
 30825 860584 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATGGGGTGTTCAGTTATGAGTTGCAAATACAATAA
 spacer length: 35 repeater length: 37
 30826 860657 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT GGAAGAAACACTGTAAAAAGGGATAATGTTAATAC
 spacer length: 35 repeater length: 37
 30827 860730 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT TGATTACATGAATGTTGAGATAATCGTATA spacer
 length: 30 repeater length: 37
 30828 860798 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATGGAAGAAGATGGTTACGAACCACAGAAA spacer
 length: 31 repeater length: 37
 30829 860867 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AAAGAAAAATCATATATTAATACATCAGGGACAA
 spacer length: 35 repeater length: 37
 30830 860940 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTTGAGATAATTGTTTTTAGACAAAATAAAAG
 spacer length: 33 repeater length: 37
 30831 861011 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATTGACAAAATTATGGAAGGTCAAAGTGGTGGTT
 spacer length: 34 repeater length: 37
 30832 861083 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATGACAACTATCATAAATAATGCATTTAGCACA
 spacer length: 33 repeater length: 37
 30833 861154 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CCAGATGCTACATATTTTAACATGTATGTTGGAG
 spacer length: 34 repeater length: 37
 30834 861226 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGATTTAAAAACATTAAAAAATGTATTAAAGTAT
 spacer length: 36 repeater length: 37
 30835 861300 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATAATTCATTAGACATGAACTTATTATTCTATCA
 spacer length: 36 repeater length: 37
 30836 861374 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AATGAATTGTGGACTCAATATGGGCAGTATATGCC
 spacer length: 35 repeater length: 37
 30837 861447 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT AGTATTCACAAATTCTTACAAAGGACACAAATTAA
 spacer length: 35 repeater length: 37
 30838 861520 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAGGTTAGATGCAATTCCAGAGTTAAATGATGATTAT
 spacer length: 38 repeater length: 37
 30839 861596 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT ATAAATGCTGGGACTATATGTATAACATTAGAC
 spacer length: 33 repeater length: 37
 30840 861667 GTCACAATCCTTATTTTAGTAGATGGTTTTCTGCAAT CGAAAATTTCTCAAAATTTCACTTTTTTATGCA
 30841
 30842
 30843 GCA_002813655.1_ASM281365v1_genomic.fna(findCrispr):
 30844 START REPEAT
 SPACER
 30845 crispr 1
 30846 436002 GGTGGAGCAATCTACAACACC
 GCAACCATGACCCTAACCGATAGCCTGATCCACAACAACCTAGCTGGTGACGCTGGTGCAGGTGGTTACCACGTAATCATTGGAGG
 TACCGGTGGTTTCAGGTGGTAA spacer length: 107 repeater length: 21
 30847 436131 GGTGGAGCAATCTACAACACC
 GGAActACAACCATAACCGACTCCCAAATCAACGAAAACACCGCTGGAGATGGTGGTAGTGGAGCTGATGGAAGTGATGGATTATT
 AAGTAATGGTTACACCGGACACAATGGAGGCGTTGGTGGTTC spacer length: 128 repeater length: 21
 30848 436281 GGTGGAGCAATCTACAACACC
 CTGAAGCTAAAGAGTGGTTGAGGAAAAGGCTGAAGAAGTGAAAGAGAAAGCTGCTGAAGTCAAAGAAGCTGCTGAGGAAAAAGCC
 GAAGAAGTTAAGGAAAAAGCTGCTGAAGCCAAGAAAAAGCC
 30849
 30850
 30851 crispr 2
 30852 414180 GGTGGGGACCCTCGGAGTAAAAA ATGACATGGTGGGGACCCTCGAAGTCGAATTCA spacer length: 33
 repeater length: 23
 30853 414237 GGTGGGGACCCTCGGAGTAAAAA TGATACGGTGGGGACCCTCGAAGTCGAATTCA spacer length: 32
 repeater length: 23
 30854 414293 GGTGGGGACCCTCGGAGTAAAAA GTAGGGCCGAAATTTGCCCTATTTTGCCCAAT
 30855
 30856
 30857 crispr 3
 30858 1762771 GCTGAAGAAGTGAAAGATAAAGCT ACTGAAGCCAAAACCAAAGCCACCGAGGTTAAGAAAGCGGTTGAGGAAAA

spacer length: 50 repeater length: 24
 30859 1762846 GCTGAAGAAGTGAAAGATAAAGCT ACTGAAGCCAAAACCAAAGCCACCGAGGTTAAGAAAGCTGCTGAAGAAAA
 spacer length: 50 repeater length: 24
 30860 1762921 GCTGAAGAAGTGAAAGATAAAGCT
 TCCGAAGCTAAAGAAGCAGTAGAAGAGAAAAGCTGAGGAAGTTAAGGAAAAAGCTGCTGAAGCTAAAGAAGTGGTTGAGGAAAA
 spacer length: 83 repeater length: 24
 30861 1763029 GCTGAAGAAGTGAAAGATAAAGCT
 AGGGCCGAAATTTGCCCTATTTTGCCCAATATTTAATATTATTTCCCCATTTTTATACATAAATTTGTCGTTCCGTGATTTGT
 30862
 30863
 30864 crispr 4
 30865 2361836 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTATGTGTGGTGTGCTATTTCCACGGCGTAAGCA spacer
 length: 35 repeater length: 30
 30866 2361902 ATTTCAATCCCAAAATGGTCTGATTTTAGT TTGCAACTGCTTCCGGGTCGTCATTGTCTGCTAGT spacer
 length: 35 repeater length: 30
 30867 2361968 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTTACCAGTTCCCGGATGAGCCGGTGGACTGTTGC spacer
 length: 35 repeater length: 30
 30868 2362034 ATTTCAATCCCAAAATGGTCTGATTTTAGT GATTTCAATTTCTTCATCATATAGTGAATTATCTAT spacer
 length: 36 repeater length: 30
 30869 2362101 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTTTTGCTGTTATTGATTTCTGGAGGGTTTAATTT spacer
 length: 35 repeater length: 30
 30870 2362167 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTACATAAGTTTCCCTTTGATTGTTACATCGTAA spacer
 length: 34 repeater length: 30
 30871 2362232 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTGGGCAGATTCCCTGTCTTAAATTTTGTGTTGTGTA spacer
 length: 36 repeater length: 30
 30872 2362299 ATTTCAATCCCAAAATGGTCTGATTTTAGT TGATAATGCTCCAGCTATTTCTTTCTGCATGATCT spacer
 length: 35 repeater length: 30
 30873 2362365 ATTTCAATCCCAAAATGGTCTGATTTTAGT TTTTAATCATGATTGCCTGTACTTCTTCATTGTGT spacer
 length: 35 repeater length: 30
 30874 2362431 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTAGTGTTCATGGTTTTGATATATTGTCAAAGTAGC spacer
 length: 36 repeater length: 30
 30875 2362498 ATTTCAATCCCAAAATGGTCTGATTTTAGT GAATAATATAGGTCCTAATTATGCAAATAGCCATA spacer
 length: 35 repeater length: 30
 30876 2362564 ATTTCAATCCCAAAATGGTCTGATTTTAGT
 CATTTTTTCACCATGATTACATTATCATTAATTCCTATTTTCGATCCCAAAATGGTCTGATTTTAGTGTAAATCGTATACCATTATA
 ACTTCTTAATCGTTGC spacer length: 102 repeater length: 30
 30877 2362697 ATTTCAATCCCAAAATGGTCTGATTTTAGT GCATTAAGTGTATTGCACCACTTTAAAGAATACCAA spacer
 length: 36 repeater length: 30
 30878 2362764 ATTTCAATCCCAAAATGGTCTGATTTTAGT AGTGCATGGAGGTTAGAAAAAGATGACTAATTATA spacer
 length: 36 repeater length: 30
 30879 2362831 ATTTCAATCCCAAAATGGTCTGATTTTAGT TGGGGCTGTGCCAGTGGACATTTCAAAGTTTGTT spacer
 length: 34 repeater length: 30
 30880 2362896 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTTGTGTTGGAGGTTAGTATTTTACAAAAAGGAG spacer
 length: 34 repeater length: 30
 30881 2362961 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTTAAAAAAGGAAACGGAGATGATAATATTCCTAAT spacer
 length: 36 repeater length: 30
 30882 2363028 ATTTCAATCCCAAAATGGTCTGATTTTAGT TCCGATGGTTCATTGACTTCTCAGGATACTTCCG spacer
 length: 34 repeater length: 30
 30883 2363093 ATTTCAATCCCAAAATGGTCTGATTTTAGT ACAACGTGTAGAATTACTTTGTATCCTCCATTAACT spacer
 length: 36 repeater length: 30
 30884 2363160 ATTTCAATCCCAAAATGGTCTGATTTTAGT TAATATAACTGGAAGAGATTATGTTGGAGGAATTG spacer
 length: 35 repeater length: 30
 30885 2363226 ATTTCAATCCCAAAATGGTCTGATTTTAGT CCCACTACCTTCTAAAGTAGTTAAAGATTATAAAA spacer
 length: 35 repeater length: 30
 30886 2363292 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTGCAGAAGCTGCAGCATACTTAGTAAGTTCTTATT spacer
 length: 36 repeater length: 30
 30887 2363359 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTAGTATAAAGATTTAGACCCACACCAGACAGACC spacer
 length: 36 repeater length: 30
 30888 2363426 ATTTCAATCCCAAAATGGTCTGATTTTAGT CTCTTTTGATGTAAACTTAGTAATAATAAATG spacer
 length: 35 repeater length: 30
 30889 2363492 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTATCTTTTCAGTGACGTTACACACTATGCGATTAC spacer
 length: 36 repeater length: 30
 30890 2363559 ATTTCAATCCCAAAATGGTCTGATTTTAGT TGTGTTAAACCTGATAGAATCATTTTAGGGGGTG spacer
 length: 35 repeater length: 30
 30891 2363625 ATTTCAATCCCAAAATGGTCTGATTTTAGT GCTCACTTTCTCAGTGAACATTATGACCTTCTTAA spacer
 length: 35 repeater length: 30
 30892 2363691 ATTTCAATCCCAAAATGGTCTGATTTTAGT GTGACAAGCTCCCAAGTAGCTAACCGGGGTGTGTG spacer
 length: 35 repeater length: 30
 30893 2363757 ATTTCAATCCCAAAATGGTCTGATTTTAGT ATGTTAAAGATGCAATAAGTGACGAAGGCTTCAAAC spacer
 length: 36 repeater length: 30
 30894 2363824 ATTTCAATCCCAAAATGGTCTGATTTTAGT ACGGATAATCTAACAACATATCGTATTACAACACCCA spacer

	length: 37	repeater length: 30	
30895	2363892	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAGGCTTGGAAGATGATAAATCATAAAATTAGA spacer
	length: 35	repeater length: 30	
30896	2363958	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTAGATCGTGTTCGAGCCATGCTGTGATGACAAGCG spacer
	length: 37	repeater length: 30	
30897	2364026	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTGTGGATTACTCTAACTACCACACAGTATTAATG spacer
	length: 35	repeater length: 30	
30898	2364092	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TAACCCGAAGAGATTAAGTCTTAAACGGTTTGATT spacer
	length: 35	repeater length: 30	
30899	2364158	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CGGCGGTATTCGCCCCGCTGATGTGGAGACTGGCA spacer
	length: 35	repeater length: 30	
30900	2364224	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TAAGCACCCCTACCCTATAATGTGTTTAATAGTGT spacer
	length: 35	repeater length: 30	
30901	2364290	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GTCTGAGGATCTTGACCTATAATATATTATAATGG spacer
	length: 35	repeater length: 30	
30902	2364356	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTACTGAACTCTTTTTATCAATTTTCAATCTTTTT spacer
	length: 35	repeater length: 30	
30903	2364422	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTTAGAGGTAGGTACTAAAGTTAAAATTACTA spacer
	length: 35	repeater length: 30	
30904	2364488	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AATGAAAGTAGAGGTATGATAACATGACATGTATC spacer
	length: 35	repeater length: 30	
30905	2364554	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGTAATTAACAACAGACCGTACTCCATGTTCTGATG spacer
	length: 36	repeater length: 30	
30906	2364621	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTTAACCCCTACGTATTCCTTTTTATCTGTTTTCTTT spacer
	length: 37	repeater length: 30	
30907	2364689	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AGTTACATGAGGGATTCCTCGATGCACATCTCCAA spacer
	length: 36	repeater length: 30	
30908	2364756	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CAATATAAAGAGCAAAAAGCTTTTAACAAGAAAGTA spacer
	length: 36	repeater length: 30	
30909	2364823	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TATTCAAATATCCAAGACTGGTGTTCCTAGTTGT spacer
	length: 35	repeater length: 30	
30910	2364889	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTCATTAGTTTTTCAATATCAGGTGAAGGTTGAAC spacer
	length: 35	repeater length: 30	
30911	2364955	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCGTACACGACAGCAGCCCCGAGAAAATAATAGCA spacer
	length: 35	repeater length: 30	
30912	2365021	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCAGAGCTAGGGAATACAAGGCGATGGGTGAACTA spacer
	length: 35	repeater length: 30	
30913	2365087	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATGAATGTGTTTTAAGACCTTCGAGGTTGAAGTG spacer
	length: 35	repeater length: 30	
30914	2365153	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCTGCGTAACCAGGAGAACCTTAACGCCACTGAGA spacer
	length: 35	repeater length: 30	
30915	2365219	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ACATGAAAAAACAATTAAAATTAATACATATCTA spacer
	length: 35	repeater length: 30	
30916	2365285	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTACTCCTTATCCACATAACAAAACACCTAAAAC spacer
	length: 36	repeater length: 30	
30917	2365352	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CAGTGGAGGGGAAGTAGTAGTACAAAAGTAACTC spacer
	length: 35	repeater length: 30	
30918	2365418	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAGGATTGTGGATGTAAATTAGAAGTTTTCATTA spacer
	length: 35	repeater length: 30	
30919	2365484	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGATACTGCAACTGGACTTCCAATTACCCCAAATG spacer
	length: 35	repeater length: 30	
30920	2365550	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GCATATCCGTTCCCGCGTTCCTACATTCTACTTT spacer
	length: 35	repeater length: 30	
30921	2365616	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GGGGTGAAAGGATGTCTTATGAAGTATGTCAGATAT spacer
	length: 36	repeater length: 30	
30922	2365683	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CACAATAAAACAGTCGTGTTTTCTCATAGTCCGT spacer
	length: 35	repeater length: 30	
30923	2365749	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTATTTCTGTTTTTGTCTGCCTTAGTTCCAT spacer
	length: 34	repeater length: 30	
30924	2365814	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAAACAGGGTTGGGAGAATATGAAATTGTGACCTG spacer
	length: 35	repeater length: 30	
30925	2365880	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCACAGCAGCCCAGGACAAAACCTCATGCCAAAA spacer
	length: 34	repeater length: 30	
30926	2365945	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GACGTTTATAGCAACTGCTTCGTCCACTCCTAGTT spacer
	length: 35	repeater length: 30	
30927	2366011	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGTCTTAGCGTTTTGTCCAGGGAATACAATTGCAT spacer
	length: 35	repeater length: 30	
30928	2366077	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAGTGAAGGGTGTGAATTTACAGAAGAATTTAGTA spacer
	length: 35	repeater length: 30	
30929	2366143	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTGATTTATGTTTCAAGAGTATGAGGGGGTGCTAT spacer
	length: 36	repeater length: 30	

30930	2366210	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTAATTAACAGCTTTGTTGGTTGGCTTACTGAATG	spacer
	length:	35	repeater length:	30
30931	2366276	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTATTATCGCCTTTTTTAGTGTAAGTCATAAT	spacer
	length:	35	repeater length:	30
30932	2366342	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTATTAATCCAAATATAATTATCCCTATGTCTTT	spacer
	length:	34	repeater length:	30
30933	2366407	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CCATCATTTGTAACCACATAATATTTCCCATATACC	spacer
	length:	36	repeater length:	30
30934	2366474	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AGGAACAAAATAAAGCCTTCTTCAAACAACGTGGA	spacer
	length:	35	repeater length:	30
30935	2366540	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCCTTATATACTGGAACAATATTTCCCTGGATGAA	spacer
	length:	35	repeater length:	30
30936	2366606	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGATCTATTAGATCACTTATTGTTGTGCCGTTTTT	spacer
	length:	35	repeater length:	30
30937	2366672	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCCTCAATCTCTAAGAGAATTTCTTCTGTCTCTT	spacer
	length:	34	repeater length:	30
30938	2366737	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTAATAAGAACCCGCTTTAATGACTTTAAACAAT	spacer
	length:	35	repeater length:	30
30939	2366803	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TATGGTTTTTTTCCCCTGACTTTCACTGCTTAGTATG	spacer
	length:	36	repeater length:	30
30940	2366870	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATCCCTTCGGATTCTAAGAAATTGATATCGGATAA	spacer
	length:	35	repeater length:	30
30941	2366936	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTTGGCATGTTTTGGGCTATTGTACCAATCAGCCA	spacer
	length:	36	repeater length:	30
30942	2367003	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTATGAAGACATGATGACCGTTGCCAACAACTA	spacer
	length:	35	repeater length:	30
30943	2367069	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTGACCATGTTTGCTGTCTTTAATAATATAATTAT	spacer
	length:	35	repeater length:	30
30944	2367135	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTTTTCAACCCAATAGTCTTTCATTGACACATCAT	spacer
	length:	35	repeater length:	30
30945	2367201	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTATTCCCCCTCTAATAATTCTATTAATTCCATT	spacer
	length:	35	repeater length:	30
30946	2367267	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GGGCTAATTTGTTTCCTTGAAGGGCATAATCACAGA	spacer
	length:	35	repeater length:	30
30947	2367333	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCGCATTAGGCGAACCCACAGAACACACCGAAACAA	spacer
	length:	36	repeater length:	30
30948	2367400	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CGACCTTGAAAGTGAAGGAATCACACAAGGGGAAGG	spacer
	length:	36	repeater length:	30
30949	2367467	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTATTAATGCCATTACTTGAACACATAGACAATAA	spacer
	length:	35	repeater length:	30
30950	2367533	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TCATTAAGGTGTCAAGGTCCCATTCTCTGGGACTTT	spacer
	length:	35	repeater length:	30
30951	2367599	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AATATTGCTGCTAGTCACACGTGTTGACACATTGT	spacer
	length:	35	repeater length:	30
30952	2367665	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTATTGCATTTTTACTATAATACAGAGGTGAACAC	spacer
	length:	35	repeater length:	30
30953	2367731	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TGGGGTGTGTTTGTGGGGTTTATGCTGTTTTTTATT	spacer
	length:	36	repeater length:	30
30954	2367798	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GAAGACACACCCTCATGGGAACGGCAAACAATCAC	spacer
	length:	35	repeater length:	30
30955	2367864	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTCGTTACTATTGTATTCTTTTTTATCGAGTTTAA	spacer
	length:	35	repeater length:	30
30956	2367930	ATTTCAATCCCAAAATGGTCTGATTTTAGT	TTTAAGGAGCTTATAAAAGAATACAAAGACATCAT	spacer
	length:	35	repeater length:	30
30957	2367996	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CAGGGAGTTTTTGAAGTGTACGGCCTTTCCGTATCT	spacer
	length:	36	repeater length:	30
30958	2368063	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GAATAAAGCAAGTAAAAGGTTACATTAAATGTTAA	spacer
	length:	36	repeater length:	30
30959	2368130	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATAGAGATGTTACCATGTTGGTTGTGGACTTGACG	spacer
	length:	35	repeater length:	30
30960	2368196	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AAACATTGAATAAAACATCCTTGAGGGGATAAACC	spacer
	length:	36	repeater length:	30
30961	2368263	ATTTCAATCCCAAAATGGTCTGATTTTAGT	GCATTAGCGTAATAATCATCAAAGTAGCATATTT	spacer
	length:	35	repeater length:	30
30962	2368329	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATTTAAAGTGTCAATATCCATTAGTTCTATCAATGG	spacer
	length:	36	repeater length:	30
30963	2368396	ATTTCAATCCCAAAATGGTCTGATTTTAGT	CTCCCTGGCTTACCGGGTTATATTTCTACTTTTG	spacer
	length:	34	repeater length:	30
30964	2368461	ATTTCAATCCCAAAATGGTCTGATTTTAGT	ATCTAACCGTTCCACACTGCCCTCTGGGTAGAACTCA	spacer
	length:	37	repeater length:	30
30965	2368529	ATTTCAATCCCAAAATGGTCTGATTTTAGT	AGGGCCGAAATTTGCCCTATTTTGCCCAATATTTAAT	

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30966
30967
30968 GCA_002813675.1_ASM281367v1_genomic.fna(findCrispr):
30969 START          REPEAT
          SPACER
30970 crispr 1
30971 60169 AGCTTTATCTTTCACTTCTTCAGCTTTTTC TTCAGCAGCTTTCTTAACCTCGGTGGCTTTGGTTTTGGCTTCAG
spacer length: 44 repeater length: 30
30972 60244 AGCTTTATCTTTCACTTCTTCAGCTTTTTC CTCAACCGCTTTCTTAACCTCGGTGGCTTTGGTTTTGGCTTCAG
spacer length: 44 repeater length: 30
30973 60319 AGCTTTATCTTTCACTTCTTCAGCTTTTTC TTTGTTTTAATATAACACCCAATGAACATAAGCTTTAAATAGA
30974
30975
30976 crispr 2
30977 2002110 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TCAGCATCCAAGCCACTGCCAGATCCGTCAACGGT spacer
length: 35 repeater length: 30
30978 2002176 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CCAATACCCTTCTCAGACGTGACGATAAACAACCCCT spacer
length: 38 repeater length: 30
30979 2002245 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTGTATGTTGCTGTATTTGAAGAAGATGTGCATCC spacer
length: 35 repeater length: 30
30980 2002311 GCTTTAAAAATAGACTCAATAGTCTGGAAAT GGGGTTGATAGTATTCCGGATTTATGTACGGTAAGCA spacer
length: 37 repeater length: 30
30981 2002379 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TCTTCTTTTCCTCACATTTTCAGTAGCACCACCAC spacer
length: 35 repeater length: 30
30982 2002445 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TCCGGGGCCATCCTCCATCTGGTAGGCGTTCTATTG spacer
length: 36 repeater length: 30
30983 2002512 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CCTTGTTCTTGTCTTCTTCTCTCCATAATAACCTG spacer
length: 36 repeater length: 30
30984 2002579 GCTTTAAAAATAGACTCAATAGTCTGGAAAT AAAAAGTGGGAGAGAAATAGCCCAAAGGCACATTCT spacer
length: 37 repeater length: 30
30985 2002647 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ACCTTTGGAACCGCACCTATACTGGTGGATGTTGCAG spacer
length: 37 repeater length: 30
30986 2002715 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATTGGTATAGGGTAAACTGGTTATTTATGGTGGTC spacer
length: 35 repeater length: 30
30987 2002781 GCTTTAAAAATAGACTCAATAGTCTGGAAAT AAAAATTAGCAGAAGAAGTCGCAAGACAAAAAGAAG spacer
length: 36 repeater length: 30
30988 2002848 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ACACTCCAGGGGCCAACATTTCCAAAGATGTCATCA spacer
length: 36 repeater length: 30
30989 2002915 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TAGGTGAACCTCTAACTCTCCACCCATCATACTGTACC spacer
length: 37 repeater length: 30
30990 2002983 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTGTGTAGTCACAATACAGTTTAAATCCTTTATCTT spacer
length: 36 repeater length: 30
30991 2003050 GCTTTAAAAATAGACTCAATAGTCTGGAAAT GGAAAAAGAGGTCTGTGTATTGTGTGTGTGCTTTGAT spacer
length: 37 repeater length: 30
30992 2003118 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CTCCTTCATCTGTTGAAACCATGATCGAGGTAGATC spacer
length: 36 repeater length: 30
30993 2003185 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CCGGTGTAAATACAACGTACAGGTAAAGGGTCATCTA spacer
length: 37 repeater length: 30
30994 2003253 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CGCCCACCATAGCCCCCAGGGGGTTTACCTATCGCCA spacer
length: 37 repeater length: 30
30995 2003321 GCTTTAAAAATAGACTCAATAGTCTGGAAAT GAATATTAAGATTGTTTGAAATTAAAACTCTTAATTTG spacer
length: 38 repeater length: 30
30996 2003390 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTAATAGAATGGGGGTGAATTGATTAATGGTTTACG spacer
length: 36 repeater length: 30
30997 2003457 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CTAGATATTGTATATTTGCGTCTTGTTTTAACATAAAATAA
spacer length: 41 repeater length: 30
30998 2003529 GCTTTAAAAATAGACTCAATAGTCTGGAAAT AGAGTGGAGGGGTAAAGTGTCAATTACCAACGCAAGCA spacer
length: 36 repeater length: 30
30999 2003596 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATCGCAAGCCTCCTAAACTCGGTTTAATAGTTAAAG spacer
length: 36 repeater length: 30
31000 2003663 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CCTACTAAGGGTTCTCAGCAGAATGTTGCTTCTTCT spacer
length: 36 repeater length: 30
31001 2003730 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATGACATTGAATAAGAGATAAAAATCTCTAAATTTA spacer
length: 36 repeater length: 30
31002 2003797 GCTTTAAAAATAGACTCAATAGTCTGGAAAT AAGTAATACTTTTTCTAGAAATTCATGAAATCCTTGA spacer
length: 37 repeater length: 30
31003 2003865 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTCATTTGCCGCTCCAGCATCCGGGCCAACCGAAGA spacer
length: 36 repeater length: 30
31004 2003932 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATTTTATTTAAAGTCTCTTTGTTATGATCAAAAATA spacer
length: 36 repeater length: 30
31005 2003999 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATTCATGCTACTGCCAGGAAGTCTCCTTAACCTTCT spacer

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	length: 36	repeater length: 30	
31006	2004066	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACCGATATTGTGGTTCATGGACAACAAAACAAGACGCA spacer
	length: 38	repeater length: 30	
31007	2004135	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTTGATTTTAAACACACTATGAGCCACCTGTAAAGGA spacer
	length: 36	repeater length: 30	
31008	2004202	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATGTCTTCATCTGCCATGGGTAGGAGTGAAATATCC spacer
	length: 36	repeater length: 30	
31009	2004269	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACTAAAACCTCAGGAAGTGCACCAATAAGTTCATCT spacer
	length: 36	repeater length: 30	
31010	2004336	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGGACTATGTCCCCTACTTCTACCGCACGATATGGG spacer
	length: 36	repeater length: 30	
31011	2004403	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GTAAGAAGATAATAAGGTATGTGCCTCCTGGAGAAG spacer
	length: 36	repeater length: 30	
31012	2004470	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACATAGTCCTGGTCAATCTCCATTCCCAGTACAAAG spacer
	length: 36	repeater length: 30	
31013	2004537	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCACAGGGCAATCCGTTTCTCGGATGCACCACCCT spacer
	length: 36	repeater length: 30	
31014	2004604	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCCCTTCTAGTATCCCGAACCCGTACACCCTGCCA spacer
	length: 35	repeater length: 30	
31015	2004670	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTGGTTAGATCGTTCTCATGGAGATAGTGTGCGGGG spacer
	length: 37	repeater length: 30	
31016	2004738	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATGGAATCTTCCTTTTAAACCCTGCTCCAGGTAAGTG spacer
	length: 36	repeater length: 30	
31017	2004805	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGATAAATGATGAATCCTTTGTATTACAGTGCTAGTCA spacer
	length: 37	repeater length: 30	
31018	2004873	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GCTATAAAAAAAGCTAATCCTGATAATGCTAATACTT spacer
	length: 37	repeater length: 30	
31019	2004941	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CAGGGAAAGGATGAATCATTAGAGGATAAAATTAG spacer
	length: 35	repeater length: 30	
31020	2005007	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TACGCCCTCCGCTTTCAACGTTCACTTCCAATACTGTT spacer
	length: 37	repeater length: 30	
31021	2005075	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GGAGTAACCCTCCCAGACAATGCCCTCGTTGTTGGTG spacer
	length: 37	repeater length: 30	
31022	2005143	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CATAGCCGGTGGGCGCATTATGAACGGATAGTTTA spacer
	length: 35	repeater length: 30	
31023	2005209	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTGTTGATGAGCCATAGGGGTTCAACCAGGTTTCCC spacer
	length: 36	repeater length: 30	
31024	2005276	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCGAATGAGGTTGGATATGTTTTGAGGTTTACAAC spacer
	length: 35	repeater length: 30	
31025	2005342	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AAATCATTAGTTCCTCTCCCCGCTCCAATAAACA spacer
	length: 35	repeater length: 30	
31026	2005408	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATCGTAGTCCTTTGTATTTGAAAGCCATAACAGTAG spacer
	length: 36	repeater length: 30	
31027	2005475	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ATAATTCAATTAACCCAATAAGGTGACTAAATGAAA spacer
	length: 36	repeater length: 30	
31028	2005542	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	GGGGTAGCGTCAATCATGGAATCAAAGATAGCCT spacer
	length: 34	repeater length: 30	
31029	2005607	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGTCTTCGAATGCTTTTGTCACTGTCTGCCGGTTCT spacer
	length: 36	repeater length: 30	
31030	2005674	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CAAACCAAAGTACAAATAACATACAATGGAGAACCA spacer
	length: 36	repeater length: 30	
31031	2005741	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTTTTAAAAGCATTACATGACAAAACAGTAACGA spacer
	length: 34	repeater length: 30	
31032	2005806	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTGGTATGTGAGTGGTGTGATTGATTTTTGAAAGTG spacer
	length: 36	repeater length: 30	
31033	2005873	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AGTTTTGGGCTGTCCATGACTTCCATCCGAGCCTCT spacer
	length: 36	repeater length: 30	
31034	2005940	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	ACACCATACATGTTGAAGAAGTACAAGCGGTTATGA spacer
	length: 36	repeater length: 30	
31035	2006007	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CAAGATGAAATAAAAGCCTTAAAGAAACCATAGGG spacer
	length: 36	repeater length: 30	
31036	2006074	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TCACAGTATTTGTCATTAAGGAAATCACAATAATC spacer
	length: 35	repeater length: 30	
31037	2006140	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TTCACTCTAACCAGGGGGGGTTCAAACACTTCAATCA spacer
	length: 37	repeater length: 30	
31038	2006208	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	CTGTAAAGGGTGTGTTGCAATTGCGAACGCATAATTC spacer
	length: 36	repeater length: 30	
31039	2006275	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	AAATATGATGCAACAACCTATGTTTCAGCTTGGAGG spacer
	length: 35	repeater length: 30	
31040	2006341	GCTTTAAAAATAGACTCAATAGTCTGGAAAT	TGTTTCTTTTTCGTTCCCATTTCTTCTAAATCATTCTCGCTTTAAAAATAGACTCAATATTCTGGAAATAGATGGCATTGGGGGTGTT

GAGTGTGGGGGTGTCCA spacer length: 103 repeater length: 30

31041 2006475 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TGTCTGTCTGTAATTTTTCACCCTGCTTTTGTCTCT spacer
length: 35 repeater length: 30
31042 2006541 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTGTGTAAAATAAATAGATTGAAATTGAATAAATT spacer
length: 35 repeater length: 30
31043 2006607 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TCAGCATAGCGACCAAGTACGGGGCGCTATTAATGG spacer
length: 36 repeater length: 30
31044 2006674 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATGTCTTTGCCTTGTTGTTTTTGTGTGCTTTCTAG spacer
length: 35 repeater length: 30
31045 2006740 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATTTAGGCCTTGGCCTTGGTAGTGGAGTTGTTGAAG spacer
length: 36 repeater length: 30
31046 2006807 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CCAAACACCAGTTATACCTGCGGCCCTCAAGTG spacer
length: 35 repeater length: 30
31047 2006873 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTCAGTGACATGTTTAAACAGATTCAAGAAAACCCT spacer
length: 36 repeater length: 30
31048 2006940 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CTAAAAGATCATTAAGGATAGATCATAGTATTCATG spacer
length: 36 repeater length: 30
31049 2007007 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTTCATCATATTTGTCAATGAAATATTCGTGAATAA spacer
length: 36 repeater length: 30
31050 2007074 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TGATCCGAGTGGGAACGGAACATACTCAAGACCG spacer
length: 35 repeater length: 30
31051 2007140 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CGCATGAACTCTATTTCCACCTTCATGATTTGGAA spacer
length: 35 repeater length: 30
31052 2007206 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TGGAAATAAGATTTTAATCAATAGGTGATAAAATGA spacer
length: 36 repeater length: 30
31053 2007273 GCTTTAAAAATAGACTCAATAGTCTGGAAAT CTCCTTAACTCCTCCTTATCCCATTGAAATTCAAG spacer
length: 35 repeater length: 30
31054 2007339 GCTTTAAAAATAGACTCAATAGTCTGGAAAT AATATTATGGTGACATGATATCACCAACATAATTTA spacer
length: 36 repeater length: 30
31055 2007406 GCTTTAAAAATAGACTCAATAGTCTGGAAAT ATTCCAAGTAAATTCAAGGCCCACTAATCTTTAA spacer
length: 35 repeater length: 30
31056 2007472 GCTTTAAAAATAGACTCAATAGTCTGGAAAT TTGTTTTAATATAACACCCAATGAACATAAGCTTT

GCA_002813695.1_ASM281369v1_genomic.fna(findCrispr):

START REPEAT
SPACER

crispr 1

31062 2047603 ACTGTTTGTACAGTTAACTTCCA TTATTGTAGATGGCCCCACCATCACCATAGGCGTAGTTATTTGTGAATG
spacer length: 49 repeater length: 25
31063 2047678 ACTGTTTGTACAGTTAACTTCCA TTATTGTAGATGGCACCACCATAACCAATATGCTGTGTTGTCTGTGAATG
spacer length: 49 repeater length: 25
31064 2047753 ACTGTTTGTACAGTTAACTTCCA ACAAATATGTTAAAAGAAATAGCTTTGGAATATCTTCACATAATTATA

crispr 2

31068 427110 ACTAAATCAGACCATTTTGGGATTGAAAC GGGGCCACTGAGTATGCAAGGAGCCTGGGTGTTACC spacer
length: 36 repeater length: 30
31069 427177 ACTAAATCAGACCATTTTGGGATTGAAAC TCATAGAAGATTTGAATTATATTTGTCAGCCCTGA spacer
length: 35 repeater length: 30
31070 427243 ACTAAATCAGACCATTTTGGGATTGAAAC CTGGCCACTTCGGAGTTTATCGACCTTTAATATT spacer
length: 35 repeater length: 30
31071 427309 ACTAAATCAGACCATTTTGGGATTGAAAC TATATCTGCCATTGATGATCTCCCCTGGCTCAAAG spacer
length: 35 repeater length: 30
31072 427375 ACTAAATCAGACCATTTTGGGATTGAAAC TGTCCCCAAGACTGAAATATTTACCATCTAACCAC spacer
length: 35 repeater length: 30
31073 427441 ACTAAATCAGACCATTTTGGGATTGAAAC CACTGTGACAAATTACAGTCAGGCGGAAATGACAGA spacer
length: 36 repeater length: 30
31074 427508 ACTAAATCAGACCATTTTGGGATTGAAAC CCCTTTGACACGATCAATTATATCCAGGTGCACCT spacer
length: 35 repeater length: 30
31075 427574 ACTAAATCAGACCATTTTGGGATTGAAAC AATATTTTACAGGACATTATGGAGAATATAATTA spacer
length: 35 repeater length: 30
31076 427640 ACTAAATCAGACCATTTTGGGATTGAAAC GAAAATATGGAACAATACCTCTACAAATGCAGCTGC spacer
length: 36 repeater length: 30
31077 427707 ACTAAATCAGACCATTTTGGGATTGAAAC TAATGTTTAATTTATGGGATGTTTTGAAGTCTTTG spacer
length: 35 repeater length: 30
31078 427773 ACTAAATCAGACCATTTTGGGATTGAAAC GATGATGTGTGGGATCCGGATTGTACCTCGATCAC spacer
length: 35 repeater length: 30
31079 427839 ACTAAATCAGACCATTTTGGGATTGAAAC ACTACATACATACCATCCGTTTTCAAATTTAAGGT spacer
length: 35 repeater length: 30
31080 427905 ACTAAATCAGACCATTTTGGGATTGAAAC TCTAACTTGTCTGCATCAAGACCACTGCCAGGGCC spacer

length: 35 repeater length: 30
31081 427971 ACTAAAAATCAGACCATTTTGGGATTGAAAC TATAATATTCTCACAGAAAACCAGTATGATGTTGA spacer
length: 35 repeater length: 30
31082 428037 ACTAAAAATCAGACCATTTTGGGATTGAAAC TTTTCAGTAGTAGTATAGTAGTATAGTAGTAGAATA spacer
length: 35 repeater length: 30
31083 428103 ACTAAAAATCAGACCATTTTGGGATTGAAAC TAACAAAAATCACCTTACACTAACTAAGACATTTAA spacer
length: 36 repeater length: 30
31084 428170 ACTAAAAATCAGACCATTTTGGGATTGAAAC GTGGCTATTACAAAAGTGCAATGCATAGAGTGGA spacer
length: 34 repeater length: 30
31085 428235 ACTAAAAATCAGACCATTTTGGGATTGAAAC GATGGTTTTTCAGTGCCCTTGGATATAGTTTCAGTG spacer
length: 35 repeater length: 30
31086 428301 ACTAAAAATCAGACCATTTTGGGATTGAAAC TTGCACTGGAAACCTTTTATTTCCGTGCGTATAAT spacer
length: 35 repeater length: 30
31087 428367 ACTAAAAATCAGACCATTTTGGGATTGAAAC CACAATTAAAAGGTATGATTGAGAAGAGGATTTTTG spacer
length: 36 repeater length: 30
31088 428434 ACTAAAAATCAGACCATTTTGGGATTGAAAC ACTGTTGCAGAAAATGCAACTAGTGCAATATTGCA spacer
length: 36 repeater length: 30
31089 428501 ACTAAAAATCAGACCATTTTGGGATTGAAAC GTTGGGGCTGTTACATCTGTTTTAATTAGTGTTG spacer
length: 34 repeater length: 30
31090 428566 ACTAAAAATCAGACCATTTTGGGATTGAAAC TTTATTGTGATATTTGCAGTTTTAACTGAAATTAT spacer
length: 35 repeater length: 30
31091 428632 ACTAAAAATCAGACCATTTTGGGATTGAAAC TCAACAAC TGCCGGTTAGCAATGGAACATGCCCC spacer
length: 35 repeater length: 30
31092 428698 ACTAAAAATCAGACCATTTTGGGATTGAAAC AGATTAAGGAAATTGGATGATTA AAAAGTGGAGG spacer
length: 34 repeater length: 30
31093 428763 ACTAAAAATCAGACCATTTTGGGATTGAAAC TGGAACCTTCAAATGTGGCGGTCACGTATGGGTAA spacer
length: 35 repeater length: 30
31094 428829 ACTAAAAATCAGACCATTTTGGGATTGAAAC AATGGTACAAGTGAAC TAATAAATGAAAGTCTTGT spacer
length: 35 repeater length: 30
31095 428895 ACTAAAAATCAGACCATTTTGGGATTGAAAC TACCTCTTTAAATGTAGTTACTGTCTGAATTGCTG spacer
length: 35 repeater length: 30
31096 428961 ACTAAAAATCAGACCATTTTGGGATTGAAAC TACAAACAACCACTCATAACAACATTAGTGTAATC spacer
length: 35 repeater length: 30
31097 429027 ACTAAAAATCAGACCATTTTGGGATTGAAAC GTCACATACCTAGGACATTACCTTAAATGCAGATAA spacer
length: 36 repeater length: 30
31098 429094 ACTAAAAATCAGACCATTTTGGGATTGAAAC TTTTCAGTTATCGTTAGGGGGCTAATAGGTTTCTA spacer
length: 35 repeater length: 30
31099 429160 ACTAAAAATCAGACCATTTTGGGATTGAAAC CGCTGATGGTGATGACGACAGTGCAACCGTAGCAA spacer
length: 35 repeater length: 30
31100 429226 ACTAAAAATCAGACCATTTTGGGATTGAAAC CTGAAAACAGTGTAATTC CCTATCATTAAAGTTAAA spacer
length: 35 repeater length: 30
31101 429292 ACTAAAAATCAGACCATTTTGGGATTGAAAC CTGTATAGGGGTAATGGAAAAACGGAAGGATGAT spacer
length: 35 repeater length: 30
31102 429358 ACTAAAAATCAGACCATTTTGGGATTGAAAC TATCTCTGCTGCAACATGGCAACCACCACCGCTGA spacer
length: 35 repeater length: 30
31103 429424 ACTAAAAATCAGACCATTTTGGGATTGAAAC TACTTCATCATACCCGCAGCATCAAATACTGTATTA spacer
length: 36 repeater length: 30
31104 429491 ACTAAAAATCAGACCATTTTGGGATTGAAAC ATGGTTCAATGAAGTTTAATTTGAAAGCTGATTTT spacer
length: 35 repeater length: 30
31105 429557 ACTAAAAATCAGACCATTTTGGGATTGAAAC ATCGTAGTAGAATAAATTTAATCAATTTTTAATGGA spacer
length: 36 repeater length: 30
31106 429624 ACTAAAAATCAGACCATTTTGGGATTGAAAC TACACTGATGAATAGGGTGTGCTGACACGATAAG spacer
length: 34 repeater length: 30
31107 429689 ACTAAAAATCAGACCATTTTGGGATTGAAAC TTCAATATCACCAATATATTATATTGTGTTGATGAT spacer
length: 36 repeater length: 30
31108 429756 ACTAAAAATCAGACCATTTTGGGATTGAAAC GGACTTTACCGGCTGCATCTACTGGGACAGTGGTT spacer
length: 35 repeater length: 30
31109 429822 ACTAAAAATCAGACCATTTTGGGATTGAAAC ATGTATGGTGAAGAATTAGGATGGATGAAAATCAC spacer
length: 35 repeater length: 30
31110 429888 ACTAAAAATCAGACCATTTTGGGATTGAAAC ACGCTTAGCCATACTCATTCGCTTATGCCTCCTG spacer
length: 34 repeater length: 30
31111 429953 ACTAAAAATCAGACCATTTTGGGATTGAAAC CTAAAAAAGATTAAAATTGTTGTTGTAATCAATAG spacer
length: 35 repeater length: 30
31112 430019 ACTAAAAATCAGACCATTTTGGGATTGAAAC GGATAACCAGGCCCCCTTAAC TTTTGTATTTTGA spacer
length: 35 repeater length: 30
31113 430085 ACTAAAAATCAGACCATTTTGGGATTGAAAC CATACATGCATACCTCGAAAACATAATCACAAACA spacer
length: 35 repeater length: 30
31114 430151 ACTAAAAATCAGACCATTTTGGGATTGAAAC CCTCATTACTCTGATTGAAAAACTTCCCTTATCCT spacer
length: 35 repeater length: 30
31115 430217 ACTAAAAATCAGACCATTTTGGGATTGAAAC TAATTTAATGCCTTACAACATTTTAACGGACAATCA spacer
length: 36 repeater length: 30

31116	430284	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TGTTGAAACTAAGCCAGAACGAAATAGATTTTTGTG	spacer
		length: 36	repeater length: 30	
31117	430351	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTACAACCCCCTAACAGTAACAACATTATTTAT	spacer
		length: 35	repeater length: 30	
31118	430417	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TATACTGACATTAGTTACACGAGGATGGCAGGAG	spacer
		length: 34	repeater length: 30	
31119	430482	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TACAGAGGACCCTTATGTGACAGTGGAATATGG	spacer
		length: 34	repeater length: 30	
31120	430547	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCGTCATAACAAGCATAGAGGTTGTAATCCTTCCCT	spacer
		length: 36	repeater length: 30	
31121	430614	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AAATAAAATACTTTGCTTATTGTTTTTAATTTATTC	spacer
		length: 35	repeater length: 30	
31122	430680	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GACCTGGCGAATGAACTATTAGAAGAATTACAAGA	spacer
		length: 35	repeater length: 30	
31123	430746	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CGTTCTACACGTTTTAACTAAGTCCCCGTGGGGTT	spacer
		length: 36	repeater length: 30	
31124	430813	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTAGTAAAACAAACCCTCCAGCTAAGCCAACCA	spacer
		length: 34	repeater length: 30	
31125	430878	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCTTTCTTTTATTAAAATAATGGAAGGGGTCG	spacer
		length: 34	repeater length: 30	
31126	430943	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GTGGGGTTAACTAGCCTTTGGAGTAAGTGTTACAT	spacer
		length: 36	repeater length: 30	
31127	431010	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ATGGTTACGCTCCAAACTATACACCACTAGATATG	spacer
		length: 36	repeater length: 30	
31128	431077	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ATTAAACTCAATAAAAAAGAACACAATAGTACCAA	spacer
		length: 35	repeater length: 30	
31129	431143	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AACATTGCACCGGTCCTGCTTCCATCTGTGGGGA	spacer
		length: 35	repeater length: 30	
31130	431209	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTTTCTCCAAGGGCAAATAGTCCTCCGGCGGTCCA	spacer
		length: 35	repeater length: 30	
31131	431275	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AAATCCTCATAGCATAATGATATTTTATTATCAAT	spacer
		length: 35	repeater length: 30	
31132	431341	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTGTTTTTATATAATTTATTTTTCTTTGATTTTAA	spacer
		length: 36	repeater length: 30	
31133	431408	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GTTAGAAAATCCCGGAAACCTAAAAAGAAATAGGA	spacer
		length: 35	repeater length: 30	
31134	431474	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ATACTAAGGCCATCTTTGTCAATATTCATCAATGG	spacer
		length: 35	repeater length: 30	
31135	431540	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTATTTATGATGTCATTGTTTGAAATCATCAACCG	spacer
		length: 35	repeater length: 30	
31136	431606	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GCCAGGATATAATAATCACTGCTAATAATTATTGGT	spacer
		length: 36	repeater length: 30	
31137	431673	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TGGAGAACCTGTCTGAAGTACAGGAACAGTATGTTG	spacer
		length: 35	repeater length: 30	
31138	431739	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTGCATTTTCCCACGCTGCAGCGGTGTTATGGGCG	spacer
		length: 35	repeater length: 30	
31139	431805	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTAATATCACCTCAAAAAAGAGTTTAAATAAATAA	spacer
		length: 35	repeater length: 30	
31140	431871	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCAGAATGGGCCTTCTTCTTCTTGTATTGTGGCCA	spacer
		length: 35	repeater length: 30	
31141	431937	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AACAATGCAAAATATGAAGGCGTGACATGGACGG	spacer
		length: 34	repeater length: 30	
31142	432002	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AGTGAAAGTTGGGACAGGATCAACACTAGCTCCGCC	spacer
		length: 36	repeater length: 30	
31143	432069	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GTTTATACATGGCCTCATAAGTATCCGCATCACCA	spacer
		length: 35	repeater length: 30	
31144	432135	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TGAGAAAGGCCGTGGCCCTATCTATCCAAAGCTCCG	spacer
		length: 36	repeater length: 30	
31145	432202	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTTCTTCATCTTCCATCTCATTAGCAAAAAATGT	spacer
		length: 34	repeater length: 30	
31146	432267	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TACTTATACAACTTCCTTTACTTCCAGGAAGATCA	spacer
		length: 36	repeater length: 30	
31147	432334	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GTACAAACCATGCAACCGTATAATTCATAAAAAAA	spacer
		length: 35	repeater length: 30	
31148	432400	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTGTAGATGGGAACATACCCATCTAGGAGTATTG	spacer
		length: 34	repeater length: 30	
31149	432465	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AGTGCTATGAGTACGGTATCACCAGGCCACATGCT	spacer
		length: 35	repeater length: 30	
31150	432531	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AGTAATATTAGAAGAAAAGCTCCTTGCGAATTTG	spacer
		length: 34	repeater length: 30	
31151	432596	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GGGAGATGAAAATAAATCTGAAACCATCAAGAAA	spacer

length: 35 repeater length: 30
31152 432662 ACTAAATCAGACCATTGTTGGGATTGAAAC GATGTAGATCCATCTACAGTTTTTAATTCGTGAG spacer
length: 35 repeater length: 30
31153 432728 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCGTGGAACCAACCAGGCGGTCAATGAGGGTAATG spacer
length: 36 repeater length: 30
31154 432795 ACTAAATCAGACCATTGTTGGGATTGAAAC TATTTACAGGGAATACTATGTTTAGTTATTTCTTC spacer
length: 35 repeater length: 30
31155 432861 ACTAAATCAGACCATTGTTGGGATTGAAAC GAACATCAAACTACCATCAAGCAGAGTTAGATACT spacer
length: 36 repeater length: 30
31156 432928 ACTAAATCAGACCATTGTTGGGATTGAAAC ACGTATATACTGACACCTATAATGACAGACCGAGG spacer
length: 35 repeater length: 30
31157 432994 ACTAAATCAGACCATTGTTGGGATTGAAAC AAAGTAGAAGTATTAACATCAGTTGGACTCAAACT spacer
length: 35 repeater length: 30
31158 433060 ACTAAATCAGACCATTGTTGGGATTGAAAC TGACTACCCCATAGTATCATATAATGGTTTGTTAA spacer
length: 36 repeater length: 30
31159 433127 ACTAAATCAGACCATTGTTGGGATTGAAAC AGAATATTTGGGGAACTCAAGATATGGCATATT spacer
length: 35 repeater length: 30
31160 433193 ACTAAATCAGACCATTGTTGGGATTGAAAC AGAGGACGCTATTTCAAAATATTTATTAGCAGTACAA spacer
length: 37 repeater length: 30
31161 433261 ACTAAATCAGACCATTGTTGGGATTGAAAC ACATAATAATAACGTTGGGAGATAAAAGGAACAAG spacer
length: 35 repeater length: 30
31162 433327 ACTAAATCAGACCATTGTTGGGATTGAAAC TGGGGATAAACCCCAACTCTTTTTGAGGTGAGAA spacer
length: 35 repeater length: 30
31163 433393 ACTAAATCAGACCATTGTTGGGATTGAAAC AAGAACAAGGCATGGAAGAAGGATTTAAAGATGCT spacer
length: 35 repeater length: 30
31164 433459 ACTAAATCAGACCATTGTTGGGATTGAAAC TGATTGGCTCTACAGTGATGGGTCTGCTAGTATT spacer
length: 35 repeater length: 30
31165 433525 ACTAAATCAGACCATTGTTGGGATTGAAAC AAAGAACTGTCAGCTTCTATGGCTGCAGCTAGACG spacer
length: 35 repeater length: 30
31166 433591 ACTAAATCAGACCATTGTTGGGATTGAAAC TTGGCTGATTTAAGCCCTGATGGGATGCGTAACTA spacer
length: 35 repeater length: 30
31167 433657 ACTAAATCAGACCATTGTTGGGATTGAAAC ACTTCAAGGGAGAAAATATTGTGACGACGAAGCAA spacer
length: 35 repeater length: 30
31168 433723 ACTAAATCAGACCATTGTTGGGATTGAAAC TACGTTTTTTCAACCGTTACACCATATTTGAAC spacer
length: 34 repeater length: 30
31169 433788 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCGCTTATTATCTGATTATAATCTATGTAAGTGA spacer
length: 35 repeater length: 30
31170 433854 ACTAAATCAGACCATTGTTGGGATTGAAAC TAAATATACATGGTGATTAAATGGGACAAATAAAA spacer
length: 35 repeater length: 30
31171 433920 ACTAAATCAGACCATTGTTGGGATTGAAAC TCTTAATCACCTCTTATTTTTCATCTTTAGGTCTG spacer
length: 35 repeater length: 30
31172 433986 ACTAAATCAGACCATTGTTGGGATTGAAAC TTTAGTGACAATATCATTGTAATAAGGCCATCCG spacer
length: 36 repeater length: 30
31173 434053 ACTAAATCAGACCATTGTTGGGATTGAAAC AATGATGATGATGCGGAACTTTTAAGTTTATCAA spacer
length: 34 repeater length: 30
31174 434118 ACTAAATCAGACCATTGTTGGGATTGAAAC GATGATAATCCAGTGGAAGAAGGTAAAGGAGTACC spacer
length: 35 repeater length: 30
31175 434184 ACTAAATCAGACCATTGTTGGGATTGAAAC TGATGTATTGGGCTTAATGCTTCAATGTTTCCTTT spacer
length: 35 repeater length: 30
31176 434250 ACTAAATCAGACCATTGTTGGGATTGAAAC GAAAACCTATAAGTCACGTTTGTTAAAAGTTATTCC spacer
length: 36 repeater length: 30
31177 434317 ACTAAATCAGACCATTGTTGGGATTGAAAC CTTTACTCACCTCTACACCTGCTAAGGTCCTAACA spacer
length: 35 repeater length: 30
31178 434383 ACTAAATCAGACCATTGTTGGGATTGAAAC GAAATACTAGGAATACTAAAAAATAAAAAAGTGT spacer
length: 35 repeater length: 30
31179 434449 ACTAAATCAGACCATTGTTGGGATTGAAAC AACGTCATCTGGTTTTAAGACTTTTGCTTTATCGG spacer
length: 35 repeater length: 30
31180 434515 ACTAAATCAGACCATTGTTGGGATTGAAAC TATACAACATACCCTGTATCTGGATCGGTTACGGT spacer
length: 35 repeater length: 30
31181 434581 ACTAAATCAGACCATTGTTGGGATTGAAAC CCCATAAACCATGTTATGAGGTTAATGCGGCCTTCA spacer
length: 36 repeater length: 30
31182 434648 ACTAAATCAGACCATTGTTGGGATTGAAAC TACCTTACACAGATCTATGAAAACGATGGGGACAA spacer
length: 35 repeater length: 30
31183 434714 ACTAAATCAGACCATTGTTGGGATTGAAAC GTCATGAAGGTCTGATAGGTTAATCCGAGTAGGAAT spacer
length: 36 repeater length: 30
31184 434781 ACTAAATCAGACCATTGTTGGGATTGAAAC CACATGGTCCTCATAGTAAATCTGGTAAGATATTGC spacer
length: 36 repeater length: 30
31185 434848 ACTAAATCAGACCATTGTTGGGATTGAAAC TTGATGGAAGTGGTAGGCCATGCTATGTATTATATG spacer
length: 36 repeater length: 30
31186 434915 ACTAAATCAGACCATTGTTGGGATTGAAAC TTCTTTGTTTGAGTTGGTGATTTACATCCTACTT spacer
length: 35 repeater length: 30

31187	434981	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AAAAGCAAACGTAAAGTAGACTTCTCATTTAAAGC	spacer
		length: 35	repeater length: 30	
31188	435047	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTACATGAGATTAGTAAAGATAAAGAAGAAGAGG	spacer
		length: 35	repeater length: 30	
31189	435113	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCGTTATCCTTGGAAACCGGTGAACATTGGATAGG	spacer
		length: 35	repeater length: 30	
31190	435179	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACTCAATCCTTGTTTTCGTAATTGATAGGCAACAC	spacer
		length: 35	repeater length: 30	
31191	435245	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GAACTTGATGATATTAAGTTGGCAATCACCAGGAGC	spacer
		length: 36	repeater length: 30	
31192	435312	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTCGGATCAAGATCTTCAACTTTTCAAAAAATGAT	spacer
		length: 35	repeater length: 30	
31193	435378	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCATGAATGTTATGTTACTTTAGTAAGAAAGTGA	spacer
		length: 35	repeater length: 30	
31194	435444	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCATGAGTTGACCTGTCTTCTGGTTCATAATCAA	spacer
		length: 35	repeater length: 30	
31195	435510	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTGCTTATCATGGGGAAGGTAGTGGGCTGTTTCT	spacer
		length: 34	repeater length: 30	
31196	435575	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTCATTAGCTATGCAGAACTTGATGATATTTTCTA	spacer
		length: 35	repeater length: 30	
31197	435641	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GAACCCGAACCACTACGTGCAGAAAATACAACAGT	spacer
		length: 35	repeater length: 30	
31198	435707	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ATCAGATTATGATTGATAATATTAGTCAGACTGTGG	spacer
		length: 36	repeater length: 30	
31199	435774	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCATTACTCTAAAAAATCTACTAGTGAACCAAAA	spacer
		length: 35	repeater length: 30	
31200	435840	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCTTAAAAGTTTGTGTATTTGTGTAAGGGATTATAA	spacer
		length: 36	repeater length: 30	
31201	435907	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCAACCCATCATCTTGATGGACCACGAGGAAACA	spacer
		length: 34	repeater length: 30	
31202	435972	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTGTGTTTTGTGTGTTTGTCTGTGTCAGTTGTGT	spacer
		length: 35	repeater length: 30	
31203	436038	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TGAAATACACCACCTTGGGGGGTGTGTGGGGTTTTC	spacer
		length: 36	repeater length: 30	
31204	436105	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AAACAACCTCAATACTCTAAAGTGATACAAAATGAAA	spacer
		length: 36	repeater length: 30	
31205	436172	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACCGTTATTATGTCCGGGGCCGTCCCGGTCCGCAT	spacer
		length: 35	repeater length: 30	
31206	436238	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GCCGTACATACGGATAGTTGGGATGTTGATAGTA	spacer
		length: 34	repeater length: 30	
31207	436303	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ACATTTATTAGGTATTTAATTGTCCTCTCCTTCGTC	spacer
		length: 36	repeater length: 30	
31208	436370	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCTGGAAGTCATGGCAGAAGCAGGAAGAATCCAGT	spacer
		length: 35	repeater length: 30	
31209	436436	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCTTCATGGATGGGTGAATGTTCTGGGAAGTGTTC	spacer
		length: 35	repeater length: 30	
31210	436502	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GGCAATATCATCTCAATCTTCAGATAAGCATCAGT	spacer
		length: 36	repeater length: 30	
31211	436569	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTTAGTCACAATATCATTTTGAAGTAACGCCATCCG	spacer
		length: 36	repeater length: 30	
31212	436636	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CCTATCACCATCCAGAGGTGCTCTGTCCCTGTGTT	spacer
		length: 36	repeater length: 30	
31213	436703	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TAGATCTGAAATTTAAAGGAGGCATCTAATTGGTTA	spacer
		length: 36	repeater length: 30	
31214	436770	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CAAGAATTATCGTCATTGATGGTAGTGGATTATCAT	spacer
		length: 36	repeater length: 30	
31215	436837	ACTAAAAATCAGACCATTTTGGGATTGAAAC	AGACGGAACAACAACATTAGGCGAAGCCAAAGAA	spacer
		length: 34	repeater length: 30	
31216	436902	ACTAAAAATCAGACCATTTTGGGATTGAAAC	ATATATGAGTCGGTCTTTTCTGTGGAGTCCTGATG	spacer
		length: 35	repeater length: 30	
31217	436968	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TTGTCACAGGTCCGGAGGTATACATTATGCGCTGA	spacer
		length: 35	repeater length: 30	
31218	437034	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GCTAGCTAATTTGGAAGGTAAAGAGTTCTTTGTGA	spacer
		length: 35	repeater length: 30	
31219	437100	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GGGTTGTTTCGTTGGCTGTTAGTAAGAATCTGCTG	spacer
		length: 35	repeater length: 30	
31220	437166	ACTAAAAATCAGACCATTTTGGGATTGAAAC	GTTCCAGGTTGTCTTCGAGGGTATCATAGTCAATC	spacer
		length: 35	repeater length: 30	
31221	437232	ACTAAAAATCAGACCATTTTGGGATTGAAAC	CTGGCTATGACTCTGATGAAAGGAAAGTATTCTACA	spacer
		length: 36	repeater length: 30	
31222	437299	ACTAAAAATCAGACCATTTTGGGATTGAAAC	TCTGGGATGTTGGACAGGTCTTAACACTGGTAAAA	spacer

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length: 35 repeater length: 30
31223 437365 ACTAAAATCAGACCATTTTGGGATTGAAAC GTGCAAACGTTAAATCACAGCTCGAAACTATCCTC spacer
length: 35 repeater length: 30
31224 437431 ACTAAAATCAGACCATTTTGGGATTGAAAC CCTTTATCAGTGATTTAGCTACGGAAAATTTAGAT spacer
length: 35 repeater length: 30
31225 437497 ACTAAAATCAGACCATTTTGGGATTGAAAC ACGATGGTTTTTCAGTGCCCTTGGATATAGTTTCAG
31226
31227
31228 crispr 3
31229 1026861 AGCTTTATCTTTCACCTTCTTCAGCTTTTTTC TTCAGCAGCTTTCTTAACCTCGGTGGCTTTGGTTTTGGCTTCAG
spacer length: 44 repeater length: 30
31230 1026936 AGCTTTATCTTTCACCTTCTTCAGCTTTTTTC CTCAACCGCTTTCTTAACCTCGGTGGCTTTGGTTTTGGCTTCAG
spacer length: 44 repeater length: 30
31231 1027011 AGCTTTATCTTTCACCTTCTTCAGCTTTTTTC TATGTTAAAAGAAATAGCTTTGGAATATCTTCACATAATTATAG
31232
31233
31234 GCA_002906215.1_ASM290621v1_genomic.fna(findCrispr):
31235 START REPEAT
SPACER
31236 crispr 1
31237 136814 ATGACACCATCACTTCCACT GGAGCATAAAGTCTATGTTAATATGGTTAATACAGGCTTAA spacer length:
41 repeater length: 20
31238 136876 ATGACACCATCACTTCCACT GGAGCATTATATAGTTAGAT spacer length: 20 repeater length: 20
31239 136917 ATGACACCATCACTTCCACT CAAACCTACCAGATTCTATC
31240
31241
31242 crispr 2
31243 796011 TGGAGATTTTATAGTGGGAGGAGA
TGGTGATAATACACTGACTGGAGGCAATGATACACTATATGGAGGAGAGGGTAATGATAGTACTT spacer length: 65
repeater length: 24
31244 796101 TGGAGATTTTATAGTGGGAGGAGA
CGGTGATAACATAACTGGAGGCAATGATACACTAGATGGAGGAAGTGGCAATGATATACTTT spacer length: 62
repeater length: 24
31245 796188 TGGAGATTTTATAGTGGGAGGAGA
AGTAAGATAAAGAGCATCTTGCAGATGTATTTGTCTGAATAGAAGTTATTGAACTGATACTA
31246
31247
31248 crispr 3
31249 158924 GTTTGAATCGAACTATAGTAGGATTGAAAT ATCAGCTGGTTCATTTACTTCTGAAAGTCTATATGCA spacer
length: 37 repeater length: 30
31250 158992 GTTTGAATCGAACTATAGTAGGATTGAAAT CTATTCTGATGAAGAAGGGTGATAAATTATATATTC spacer
length: 36 repeater length: 30
31251 159059 GTTTGAATCGAACTATAGTAGGATTGAAAT TTATTTTTATTGCTGTTATCTTGTTTCATGCTTGCTT spacer
length: 36 repeater length: 30
31252 159126 GTTTGAATCGAACTATAGTAGGATTGAAAT TAATGAAAAGGCACTAATGTTGACATTTGTACAGATC spacer
length: 37 repeater length: 30
31253 159194 GTTTGAATCGAACTATAGTAGGATTGAAAT GGATGAGGTTATATACTATAACATGTTAGATTGTGT spacer
length: 36 repeater length: 30
31254 159261 GTTTGAATCGAACTATAGTAGGATTGAAAT AAGATGAGGGTGAATTTAAAGAGATAAAGAGTGGCAA spacer
length: 37 repeater length: 30
31255 159329 GTTTGAATCGAACTATAGTAGGATTGAAAT ACAGTACAGCAATTCTCATGTCCAAGTACAGGCAACA spacer
length: 36 repeater length: 30
31256 159396 GTTTGAATCGAACTATAGTAGGATTGAAAT TTTGCAGAAGAGATAGCAAAGAGAGCAGAAGGCATG spacer
length: 36 repeater length: 30
31257 159463 GTTTGAATCGAACTATAGTAGGATTGAAAT TCCAAAATAATCTCGTACGCTGTCTTCGACGTCGTTA spacer
length: 37 repeater length: 30
31258 159531 GTTTGAATCGAACTATAGTAGGATTGAAAT TGAACATAATGTAATTTTCTATGCCTTTTAGAGGCCT spacer
length: 37 repeater length: 30
31259 159599 GTTTGAATCGAACTATAGTAGGATTGAAAT ATGGTCTTACATTCCTTAATTCCTCTATGCTTAT spacer
length: 35 repeater length: 30
31260 159665 GTTTGAATCGAACTATAGTAGGATTGAAAT CCTAAATACTTAAACAAGTAGTGTATTACAAAGTTATTA spacer
length: 39 repeater length: 30
31261 159735 GTTTGAATCGAACTATAGTAGGATTGAAAT AGTGCAGGGGGTAACATGGAATAACAAGAATAAAAT spacer
length: 36 repeater length: 30
31262 159802 GTTTGAATCGAACTATAGTAGGATTGAAAT CAGGCATGGATATTTTTATGGTCATGAGTTGCTCTA spacer
length: 36 repeater length: 30
31263 159869 GTTTGAATCGAACTATAGTAGGATTGAAAT GGGCCTGAACTACCCAAAAACCTATTTCTACAAAAA spacer
length: 37 repeater length: 30
31264 159937 GTTTGAATCGAACTATAGTAGGATTGAAAT AAGTAATAGCAAGTGTATTACCTCAGTTTACTAGATAG
spacer length: 40 repeater length: 30
31265 160008 GTTTGAATCGAACTATAGTAGGATTGAAAT TGTTTATTATAAGGTATGTATTCCCTACTTGAAGGT spacer

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length: 36 repeater length: 30
31266 160075 GTTTGAATCGAACTATAGTAGGATTGAAAT CAAGGCTATTAAATACTTGGGATGTCATTTCTCAATT spacer
length: 37 repeater length: 30
31267 160143 GTTTGAATCGAACTATAGTAGGATTGAAAT CCCAAAAATACCCTTTTTTTTGCACATGCATATAAT spacer
length: 35 repeater length: 30
31268 160209 GTTTGAATCGAACTATAGTAGGATTGAAAT TTAATTGCTAAATAAGTATTTGCAGATACAAATAAA spacer
length: 36 repeater length: 30
31269 160276 GTTTGAATCGAACTATAGTAGGATTGAAAT ATGTAAGAACAGGAAGGCTCAAGAAAAGTATCAAAG spacer
length: 36 repeater length: 30
31270 160343 GTTTGAATCGAACTATAGTAGGATTGAAAT TTAATATCATCAGGCTTACTGAATCCTACTACTCAA spacer
length: 36 repeater length: 30
31271 160410 GTTTGAATCGAACTATAGTAGGATTGAAAT TGTGTATCCTGATAATGAGGTATTTGAGGAAGCCTCT spacer
length: 37 repeater length: 30
31272 160478 GTTTGAATCGAACTATAGTAGGATTGAAAT GAAGATAACAGCATCAAGTAACCTAGATTTCATTCTTA spacer
length: 37 repeater length: 30
31273 160546 GTTTGAATCGAACTATAGTAGGATTGAAAT ATGCAAGAGATAATAAATGAATCCATGGATAGAATGG spacer
length: 37 repeater length: 30
31274 160614 GTTTGAATCGAACTATAGTAGGATTGAAAT TAGATATTGATACTGCTAAGGTTTATGAGTTTGAT spacer
length: 35 repeater length: 30
31275 160680 GTTTGAATCGAACTATAGTAGGATTGAAAT CATTTATACATACTGTTGCCTCTACCCCTTATCAT spacer
length: 36 repeater length: 30
31276 160747 GTTTGAATCGAACTATAGTAGGATTGAAAT ATTACTCATGAAATTAGAGAAGCAAGTATTTTCATGA spacer
length: 36 repeater length: 30
31277 160814 GTTTGAATCGAACTATAGTAGGATTGAAAT AAGAGAGAGTTCATAGTTCATAGCAGGCATTTAAAA spacer
length: 36 repeater length: 30
31278 160881 GTTTGAATCGAACTATAGTAGGATTGAAAT CTTGATAAGGCTATTAATCCTTTTGCCATTAAGTTG spacer
length: 36 repeater length: 30
31279 160948 GTTTGAATCGAACTATAGTAGGATTGAAAT AATACATAGGTTATAGGCAATCTGTTAGTGATTTAG spacer
length: 36 repeater length: 30
31280 161015 GTTTGAATCGAACTATAGTAGGATTGAAAT GAAGCACTAGTAACACTTGCATTATGTAGGGTTTCT spacer
length: 36 repeater length: 30
31281 161082 GTTTGAATCGAACTATAGTAGGATTGAAAT TTTGGACATGTATACTGAGGATGGTTTTTTAAGTTCAT spacer
length: 38 repeater length: 30
31282 161151 GTTTGAATCGAACTATAGTAGGATTGAAAT TACAATAAAGCACTATTTTCAAGTGTTTGATAGCCC spacer
length: 36 repeater length: 30
31283 161218 GTTTGAATCGAACTATAGTAGGATTGAAAT AGATGTTAAGGATGCAATAATAATTGGGGTGATCTG spacer
length: 36 repeater length: 30
31284 161285 GTTTGAATCGAACTATAGTAGGATTGAAAT TCAATAGCGGTGTATTACCAAACACAAGCACACCC spacer
length: 35 repeater length: 30
31285 161351 GTTTGAATCGAACTATAGTAGGATTGAAAT GAGAGGGTTCATCAGACTTTACATATACACTTATC spacer
length: 35 repeater length: 30
31286 161417 GTTTGAATCGAACTATAGTAGGATTGAAAT TAATGTCGATAATAAGCATTTTGGAAATATAACTG spacer
length: 35 repeater length: 30
31287 161483 GTTTGAATCGAACTATAGTAGGATTGAAAT AAATTGAGATTAAATAGTATATGTTTGTGTTTGTTC spacer
length: 37 repeater length: 30
31288 161551 GTTTGAATCGAACTATAGTAGGATTGAAAT TCATTATTGCTAATGTGACCCAGCCAAAGAAATCTTT spacer
length: 37 repeater length: 30
31289 161619 GTTTGAATCGAACTATAGTAGGATTGAAAT GAATTATTGTCGTCGATCCACGTATTACAGAGTTC spacer
length: 35 repeater length: 30
31290 161685 GTTTGAATCGAACTATAGTAGGATTGAAAT CCATTTATCACATATTGAATTATCTCGTTCTCCTCA spacer
length: 36 repeater length: 30
31291 161752 GTTTGAATCGAACTATAGTAGGATTGAAAT TCGTTCCTTTATGTTACCCTCGCTATCAATAAATAA spacer
length: 35 repeater length: 30
31292 161818 GTTTGAATCGAACTATAGTAGGATTGAAAT TTCTTTGTTTATGTACTGTAAGTGATTTTGGTTTA spacer
length: 36 repeater length: 30
31293 161885 GTTTGAATCGAACTATAGTAGGATTGAAAT GCTTATACATTCTTAATAGCTCGCTGACTTCTGCAC spacer
length: 36 repeater length: 30
31294 161952 GTTTGAATCGAACTATAGTAGGATTGAAAT TGGCTTGCAATCGTATACGCAAAGTTACCAAGATTCT spacer
length: 37 repeater length: 30
31295 162020 GTTTGAATCGAACTATAGTAGGATTGAAAT AAGCCAATAAGGATAATATCAGATCAACGCAGTATAAAT spacer
length: 39 repeater length: 30
31296 162090 GTTTGAATCGAACTATAGTAGGATTGAAAT GACATACAACCTTGACGCGGGCAATTACGCACTTATA spacer
length: 36 repeater length: 30
31297 162157 GTTTGAATCGAACTATAGTAGGATTGAAAT GAATTATCGTCGACGAACCCTACATTACAATATTC spacer
length: 35 repeater length: 30
31298 162223 GTTTGAATCGAACTATAGTAGGATTGAAAT GAGCTAACTTACTTATCGTTACACTTGCATTACCTAT spacer
length: 37 repeater length: 30
31299 162291 GTTTGAATCGAACTATAGTAGGATTGAAAT TTAGTTCATAATATAGTCATTGAATCCCTTTCTATT spacer
length: 37 repeater length: 30
31300 162359 GTTTGAATCGAACTATAGTAGGATTGAAAT TCTTTGCCACCTCTTCCGCAAAGGGTAAGAACTGACT spacer
length: 37 repeater length: 30

31301	162427	GTTTGAATCGAACTATAGTAGGATTGAAAT	CTCAGCTAGCAGATGGAGTAGTAATATCATCAAAAAT	spacer
		length: 37	repeater length: 30	
31302	162495	GTTTGAATCGAACTATAGTAGGATTGAAAT	TAGCTATAAAGAATCTCTCGTAACTCTGATTCGTTA	spacer
		length: 36	repeater length: 30	
31303	162562	GTTTGAATCGAACTATAGTAGGATTGAAAT	TGGTGTACTTCTCTTGCAAATAATAAAGGTTATAAACT	spacer
		length: 38	repeater length: 30	
31304	162631	GTTTGAATCGAACTATAGTAGGATTGAAAT	TGATAATACCAATTTCTACAAGTTTAGTATCAAGG	spacer
		length: 35	repeater length: 30	
31305	162697	GTTTGAATCGAACTATAGTAGGATTGAAAT	TCTTTGATTATCTCACTCTCACTGTCAACGAATAAT	spacer
		length: 36	repeater length: 30	
31306	162764	GTTTGAATCGAACTATAGTAGGATTGAAAT	TTCGACGTAATCACATTTATTAAAGCGTTGGGAGATGAA	spacer
		length: 39	repeater length: 30	
31307	162834	GTTTGAATCGAACTATAGTAGGATTGAAAT	AACTTACCGTACAACTGTTTCAGCAATAATTTATAA	spacer
		length: 36	repeater length: 30	
31308	162901	GTTTGAATCGAACTATAGTAGGATTGAAAT	TCGAAAAGGCAGTTGCAAAGAAGGAGAAGTTTAT	spacer
		length: 35	repeater length: 30	
31309	162967	GTTTGAATCGAACTATAGTAGGATTGAAAT	AAGAAGAAAGATTTAAATCCAAGCCTTCAACCTCAAG	spacer
		length: 37	repeater length: 30	
31310	163035	GTTTGAATCGAACTATAGTAGGATTGAAAT	ACTTCTCGGGGTACTTTCTGCAAAGAAATTATAT	spacer
		length: 35	repeater length: 30	
31311	163101	GTTTGAATCGAACTATAGTAGGATTGAAAT	TGTTCTGCCAACCATTCACACTTCAACACTTCAAC	spacer
		length: 36	repeater length: 30	
31312	163168	GTTTGAATCGAACTATAGTAGGATTGAAAT	TAGAGGTATTATAACCAAAGACGAGTTTTCTGAATTG	spacer
		length: 37	repeater length: 30	
31313	163236	GTTTGAATCGAACTATAGTAGGATTGAAAT	CTCTCTTACGAGTTGTCCAACTTACCGTACAGAC	spacer
		length: 35	repeater length: 30	
31314	163302	GTTTGAATCGAACTATAGTAGGATTGAAAT	AGGACAGCGTAAAGGACCTTTTTGGCTGGGTCAC	spacer
		length: 34	repeater length: 30	
31315	163367	GTTTGAATCGAACTATAGTAGGATTGAAAT	TAGTGATGGGAGTGAACTATGAACAACGAGTCTA	spacer
		length: 35	repeater length: 30	
31316	163433	GTTTGAATCGAACTATAGTAGGATTGAAAT	TTTTTCCCAATTCCCTCGATCGATGTTTTATAAAAGT	spacer
		length: 36	repeater length: 30	
31317	163500	GTTTGAATCGAACTATAGTAGGATTGAAAT	CAATGATTTAACCCTGATCTCGATGTTGACTTACGAT	spacer
		length: 38	repeater length: 30	
31318	163569	GTTTGAATCGAACTATAGTAGGATTGAAAT	AGTTGTATACATGAAGGTTGTAAAGCTGAGGTAAT	spacer
		length: 35	repeater length: 30	
31319	163635	GTTTGAATCGAACTATAGTAGGATTGAAAT	CAGTAAGAGCCTTAACCTACTTCATTCAACTTAACAATT	spacer
		length: 38	repeater length: 30	
31320	163704	GTTTGAATCGAACTATAGTAGGATTGAAAT	ATAGTTAATTTAAAGATAATATCTACAATCATAAA	spacer
		length: 35	repeater length: 30	
31321	163770	GTTTGAATCGAACTATAGTAGGATTGAAAT	TTGCCTTATATGCCTTAATGTATTCATCCTTATCCAAT	spacer
		length: 38	repeater length: 30	
31322	163839	GTTTGAATCGAACTATAGTAGGATTGAAAT	CTGTATGAGTCTAACTCAAGTTTAATTGCATCAATG	spacer
		length: 36	repeater length: 30	
31323	163906	GTTTGAATCGAACTATAGTAGGATTGAAAT	TCTTGCAGTAAATTCGTGTTTAGATTTTACAGTATA	spacer
		length: 36	repeater length: 30	
31324	163973	GTTTGAATCGAACTATAGTAGGATTGAAAT	ATATTTCAACATCTCTGTAACAATACTCAACTAACT	spacer
		length: 36	repeater length: 30	
31325	164040	GTTTGAATCGAACTATAGTAGGATTGAAAT	TGTAAATCTAGTAGTATTTGTATATGTCTTTCATCA	spacer
		length: 36	repeater length: 30	
31326	164107	GTTTGAATCGAACTATAGTAGGATTGAAAT	TAGAATCTATCTAGAAATGTAAGATCAAATATTATC	spacer
		length: 36	repeater length: 30	
31327	164174	GTTTGAATCGAACTATAGTAGGATTGAAAT	CTTACTTCATATCTGCCTTCTACTTGCCACCTATCT	spacer
		length: 36	repeater length: 30	
31328	164241	GTTTGAATCGAACTATAGTAGGATTGAAAT	ACAAGAGTTGACTTACGTCGTATGTATCGTATTGGTG	spacer
		length: 37	repeater length: 30	
31329	164309	GTTTGAATCGAACTATAGTAGGATTGAAAT	TGAAATATTATGAAGGTCATATTTAGAATACAGAA	spacer
		length: 35	repeater length: 30	
31330	164375	GTTTGAATCGAACTATAGTAGGATTGAAAT	ATTTTACGAATAAAATTTATAACGGCTTTATCGAAG	spacer
		length: 36	repeater length: 30	
31331	164442	GTTTGAATCGAACTATAGTAGGATTGAAAT	TCGATAAGTGATTTAGTGCGTTTTGCTGTAAGAG	spacer
		length: 34	repeater length: 30	
31332	164507	GTTTGAATCGAACTATAGTAGGATTGAAAT	TCGAATGATATAACTTTAAAGTCGGTTGCTCCGTATT	spacer
		length: 37	repeater length: 30	
31333	164575	GTTTGAATCGAACTATAGTAGGATTGAAAT	CTGATCTACCTCTCACAAGATATGAGCATGACAAGGAA	spacer
		length: 38	repeater length: 30	
31334	164644	GTTTGAATCGAACTATAGTAGGATTGAAAT	TCTTGTTGCTTCTTCTTTACAGCACTCCAGAAATA	spacer
		length: 35	repeater length: 30	
31335	164710	GTTTGAATCGAACTATAGTAGGATTGAAAT	CTAAGAAATCAGCAAATTCAGAAATTCTGGTACACA	spacer
		length: 36	repeater length: 30	
31336	164777	GTTTGAATCGAACTATAGTAGGATTGAAAT	AAATTTAAACACACTAAAAACAGATTTTCAGTTCAT	spacer

length: 35 repeater length: 30
31337 164843 GTTGAATCGAACTATAGTAGGATTGAAAT TAAACAAAATAAAGAAGAACAAGCAAAACAAA spacer
length: 36 repeater length: 30
31338 164910 GTTGAATCGAACTATAGTAGGATTGAAAT CTATTTCACATCTCTATAACAATATGTAAC TAAG spacer
length: 35 repeater length: 30
31339 164976 GTTGAATCGAACTATAGTAGGATTGAAAT AATTTGAAAGAGTTGAAAAAGTGCGTGCGGTTTAA spacer
length: 36 repeater length: 30
31340 165043 GTTGAATCGAACTATAGTAGGATTGAAAT GTTTTGATAACTGTTAGGGCAATCCATGTGTTCAA spacer
length: 35 repeater length: 30
31341 165109 GTTGAATCGAACTATAGTAGGATTGAAAT CATACCTAGATGCAGTATATAATGCCAATATCTGC spacer
length: 35 repeater length: 30
31342 165175 GTTGAATCGAACTATAGTAGGATTGAAAT TCCTCTAGTAACATTACCTTATATTCTTTTACTCTTT spacer
length: 37 repeater length: 30
31343 165243 GTTGAATCGAACTATAGTAGGATTGAAAT ATAAGTTAACTGAGATAATAGAGAAAGAGATGCTTG spacer
length: 36 repeater length: 30
31344 165310 GTTGAATCGAACTATAGTAGGATTGAAAT AGTGAAATAAGTAATAAGTGGGTAAGAAGGCTATCA spacer
length: 36 repeater length: 30
31345 165377 GTTGAATCGAACTATAGTAGGATTGAAAT GATTTAAATAGACCTGCATCTAATGATGCAGTTCTA spacer
length: 36 repeater length: 30
31346 165444 GTTGAATCGAACTATAGTAGGATTGAAAT ATACTTGTGATTTATAGGCTCAAGTGTAGATATAGAT spacer
length: 37 repeater length: 30
31347 165512 GTTGAATCGAACTATAGTAGGATTGAAAT CAAGATTTATATAACCCATAATTCTATACTATGGC spacer
length: 35 repeater length: 30
31348 165578 GTTGAATCGAACTATAGTAGGATTGAAAT
TGTTGCTGGTAAGACTAAGGCAAAAGTAAGTATTAAGTTTGAATCGAACTATAGTAGGATTGAAAGAACTGAACCTGAAAGGCAA
GCATTCATTGAAAAA spacer length: 101 repeater length: 30
31349 165710 GTTGAATCGAACTATAGTAGGATTGAAAT
GATTCTATCAGATGGTTACCTTTATTGTAAAGCATCTTAACATCCCTTTTCATTTAGAGTAGTAATGTAGGCGAAGTATTTAGGTT
TTCCCTTATATGG
31350
31351
31352 crispr 4
31353 783675 AAAGTTTGAATCGAACTATAGTAGGATTGAAAG ATGTCCTAGCGTCAAATATGCGTAACGTAAAA spacer
length: 32 repeater length: 33
31354 783741 AAAGTTTGAATCGAACTATAGTAGGATTGAAAG
AGCGGATGCATGCCCCGAATAATATGAATCCCTATTGTTTGAATCGAACTATAGTAGGATTGAAAGATACAATTTCCATGTTCTCT
GAAAAGGATCGATG spacer length: 100 repeater length: 33
31355 783875 AAAGTTTGAATCGAACTATAGTAGGATTGAAAG
CCTGAAAGGCAAGCATTCATTGAAAAATGTTTGAATCGAACTATAGTAGGATTGAAATGAGCAGTAAGATAAAGAGCATCTTGCAG
ATGTATTTGTCTGA
31356
31357
31358 crispr 5
31359 620359 TCTATAGCCTTATCAAAGCATGCTATAGCCTCCTCAAACC
TCTTCATCTCAAGTAATACAACACCTTTGTTGTACCATGCCTTTGCATTCCCCCAATCCAT spacer length: 61
repeater length: 40
31360 620461 TCTATAGCCTTATCAAAGCATGCTATAGCCTCCTCAAACC
TTCTAGCCCATATAAAGCAAACCTTTAAGGTTCCATACCATGCTATCCCTCCCATCCAT spacer length: 61
repeater length: 40
31361 620563 TCTATAGCCTTATCAAAGCATGCTATAGCCTCCTCAAACC
TCTCTCATATGTTAACAGAACTCTACATTAACAACCATACTTAATCTCTACAATTGTTAAAC
31362
31363
31364 GCA_002952775.1_ASM295277v1_genomic.fna(findCrispr):
31365 START REPEAT
SPACER
31366 crispr 1
31367 1321803 TTTATAAACGAACGGCGACA
GATGAAACAGATGAAATAGATGAAGGGGAGTTGGGACAACTGGCACTCTATCGTTTCTGCTAACACTCGAAAACCGGAGTGTGTC
TG spacer length: 88 repeater length: 20
31368 1321912 TTTATAAACGAACGGCGACA
GATGAAACACCTGAAACAGATGAAATAGATGAAATGGTAGTTGGGACACCTGGCACGATATCGTTTCTGCTAACACATGAAAACCG
GAGTGTCTG spacer length: 95 repeater length: 20
31369 1322028 TTTATAAACGAACGGCGACA
AACAGATCTCCGACGAGAGCGCCCGGCGAGGGCGAGGTGCAGAAGTCAAAAAAACAGACAACACCTATTTGTGAGTAGTCGG
CGATAAATG
31370
31371
31372 crispr 2
31373 3279250 GTCCGGGTGCGAGAATCGAACC
ACAGTCGATCGCTTCTTCTCGGTTGCTCGGAAGACTGCGCTCTCCCTGATTCGATCTCGCCTTCCGGCTTTCTTCGTCACCTTC

GTTCCTCAGAA spacer length: 97 repeater length: 22
 31374 3279370 GTCCGGGTGCGAGAATCGAACC
 GGAGCCAGACGGTTCGGCCTCGCTTCGCTCGGCCGCTGCGACTGGCAGGGTGCTATCTCGCCTTCCGGCTTTCTTCGTCACTTCGTT
 CCTCAGAA spacer length: 94 repeater length: 22
 31375 3279487 GTCCGGGTGCGAGAATCGAACC
 GGAGCCAGACGGTTCGGCCTCGCTTCGCTGCGCTCAACTGCGCGGGCTGCCTCTTCCAAGGCCCGATTCTCTTCAAGTGGGACCTTC
 GACTCCTCACATTTCGTTTCGTCTCAGAA spacer length: 114 repeater length: 22
 31376 3279624 GTCCGGGTGCGAGAATCGAACC
 AGATCTCCGACGAGAGCGCCCGCGGAGGGCGAGGTGCAGAAGTCAAAAAAACAGACAACACCTATTTGTGAGTAGTCGGCGA
 TAAATGCAGTATGCGTTCTCGATTTCGAA
 31377
 31378
 31379 crispr 3
 31380 3184287 TCGTCGAAGTCGCCGTCGAGTGGG TCGTCATCCCCGTCGCCGGC spacer length: 20 repeater
 length: 24
 31381 3184332 TCGTCGAAGTCGCCGTCGAGTGGG TCGTCATCCTCGTCGCCGGC spacer length: 20 repeater
 length: 24
 31382 3184377 TCGTCGAAGTCGCCGTCGAGTGGG TCTCCGACGAGAGCGCCCGG
 31383
 31384
 31385 crispr 4
 31386 570101 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AGTGATGGATACCTATATGTTGGGGATGCTTTAGGG
 spacer length: 36 repeater length: 37
 31387 570175 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GGATCCGATCGTCGTCTCTGAGTCGATCAATCATTG
 spacer length: 36 repeater length: 37
 31388 570249 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GGCTCGACAGCTTCGATCACTCGCATCCCTCCCGA
 spacer length: 35 repeater length: 37
 31389 570322 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ATCGTTGAGGTCTTCGTTCATCCGGGTCGTACTGGTG
 spacer length: 36 repeater length: 37
 31390 570396 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GGTGCTTGCGGCCGGCGGCTTCGCGGCCACCATCG
 spacer length: 35 repeater length: 37
 31391 570469 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AATGTGTGGGTTCCCGCTCTCTGAAACTCGAGAAC
 spacer length: 36 repeater length: 37
 31392 570543 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TATGCGATTTGGTGTGCTGTCTCAAAAATCGCTGG
 spacer length: 35 repeater length: 37
 31393 570616 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TCGCCGTCCGACGCATCTTCGGTGTGGTCACTGT
 spacer length: 34 repeater length: 37
 31394 570688 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TCGACCGCGTCTCGAGGAGTCGATCGAGGTCTC
 spacer length: 34 repeater length: 37
 31395 570760 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AGCGAGTCGTTCGATCGCGTCCGAGTCGATACTCG
 spacer length: 34 repeater length: 37
 31396 570832 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AAGAGCCGCGAGAGCGATCGCGAGGATCGCGA spacer
 length: 32 repeater length: 37
 31397 570902 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ATCTCGAGCTCGACCGAGTCCGTTGTTACGTCCTCGTC
 spacer length: 38 repeater length: 37
 31398 570978 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AGCTCTCTTTGCCTCCGGAGACCATCTCCCGTCT
 spacer length: 34 repeater length: 37
 31399 571050 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GTCGCAATCCTGACGTCGGTACTTCCACACTCGGG
 spacer length: 35 repeater length: 37
 31400 571123 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC CCGATGGCTCAATTCTTAAACAGTCGATCCGAA
 spacer length: 34 repeater length: 37
 31401 571195 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GATCGAGGATGTCCAAGTGACCGGACTCGGCAGC
 spacer length: 34 repeater length: 37
 31402 571267 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AATTTGACCTCCTCTCCGTCGATATCGACCGGGA
 spacer length: 34 repeater length: 37
 31403 571339 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AAAGCGAGCGTCTCCGGACCATCTCCCCGTCTCGG
 spacer length: 35 repeater length: 37
 31404 571412 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TGATCGAGGAAGTTCGAGTACACAGGCGCCCGAC
 spacer length: 34 repeater length: 37
 31405 571484 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC CGCGACTTCGACGCCGAGATGGAGGCCGCCGAA
 spacer length: 33 repeater length: 37
 31406 571555 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC AGAGTAGCGGAAAATATTGCCGTTTGTCCACGCT
 spacer length: 34 repeater length: 37
 31407 571627 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ATCTCGATGAGTGCAAACGAATCGACGATCGACC
 spacer length: 34 repeater length: 37
 31408 571699 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC ACCTGGAGATCGTCGACGGCGAGGCGTTCGAGC
 spacer length: 33 repeater length: 37
 31409 571770 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC GTTTACACGGGGACTTATACTTACGGGGTCGCGACA
 spacer length: 36 repeater length: 37
 31410 571844 GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC TCTTCGATGTACTGCTCGTACACGTTAACCG spacer
 length: 31 repeater length: 37

31411	571913	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	CGATCATCGAGCCGTTCAATGATACGGCACCGTCA
	spacer length: 35	repeater length: 37	
31412	571986	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	ATCGGCGTCCGGCGGTTTCGCGTTTTTCGGGCGAAC
	spacer length: 35	repeater length: 37	
31413	572059	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	GCTTTGTCTCTGAGACTGGGCAGTTCACGATCG
	spacer length: 33	repeater length: 37	
31414	572130	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	ACGTATCACGAGCGGATCTATTTCGGAGCTGTGGGGC
	spacer length: 36	repeater length: 37	
31415	572204	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	CTCCAGCCGGTCGCTTTCCGAGCTGTAAAACCGG
	spacer length: 34	repeater length: 37	
31416	572276	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	AGCATGAGGCTATCACGCCGCGCGAAGATACAGAAG
	spacer length: 36	repeater length: 37	
31417	572350	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	TGCTGACCTGATCGCCACGGAAGGCAACACCGGCC
	spacer length: 35	repeater length: 37	
31418	572423	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	CGAGAGTGAACGATCTGCGCGTCGAGATCGCTGT
	spacer length: 34	repeater length: 37	
31419	572495	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	CGATCGCGATCGGCCTCGGATGGGTGTAACCGGTCG
	spacer length: 36	repeater length: 37	
31420	572569	GTCGCAGGAGTCAGAAAACCCGAACCGGGATTGAAAC	TGTTGAGGAGACGGTCGAGGATGCTAACCCCGACGA
31421			
31422			
31423	crispr 5		
31424	557647	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	GTTTCAACTCTCGACGTGAACGTCCAACCCCTCGCCG
	spacer length: 37	repeater length: 37	
31425	557722	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCTCGAGTGAGGAGACGCCGACCTCGACCTCGACG
	spacer length: 35	repeater length: 37	
31426	557795	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CTTACACCCTAACGGCCTGTTTCTCAAGGAGTTAG
	spacer length: 36	repeater length: 37	
31427	557869	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CGGGGATAACCTCACCCACTCGATCGGGACACGC
	spacer length: 35	repeater length: 37	
31428	557942	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	AAGATGCCGTTGCCGCGTCCACTGGCGGCGGCTGG
	spacer length: 35	repeater length: 37	
31429	558015	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCACGAACCCGACGACGATCTCGGAGCGATCCTTT
	spacer length: 35	repeater length: 37	
31430	558088	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	ACGTCCCGGATCAAACGGGAGACTCGACTTATC
	spacer length: 33	repeater length: 37	
31431	558159	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCGACTCTCCCGGAGCCGACGACGTCACTCCGAT
	spacer length: 35	repeater length: 37	
31432	558232	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	GGGACGTCGGATCCGACGGTCGTCGTCGAGCCGATC
	spacer length: 36	repeater length: 37	
31433	558306	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	TCAATACCGAGAGTCCGACGTATCCACCAAAGA
	spacer length: 33	repeater length: 37	
31434	558377	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	ACGAGCCTCCGGCTCGTTCGGGCAACAGCAGCCG
	spacer length: 34	repeater length: 37	
31435	558449	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	TTTAGCTAAGACGGTACGACTCGACACAAACGCG
	spacer length: 34	repeater length: 37	
31436	558521	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	ACGACTGACGAAGACCAGGAGCGAGCGCGCA spacer
	length: 31	repeater length: 37	
31437	558590	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	GACAAGTCGGACCCGTGGAATAAGCGATGTAC
	spacer length: 33	repeater length: 37	
31438	558661	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	TATGCGGGATCGACTCTCGCCGGACGCGGACGTGCG
	spacer length: 35	repeater length: 37	
31439	558734	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	TGGTCCGCATCACCGCGCGTTTCGAGGCCGCCGTGA
	spacer length: 35	repeater length: 37	
31440	558807	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CAAAACAAGGGATTTATCCGAGACAAAGACGACGA
	spacer length: 35	repeater length: 37	
31441	558880	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	ACCCCGCAGAGGTACGTGCCTTCCGCGCGGCTGC
	spacer length: 34	repeater length: 37	
31442	558952	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCAGCTGCGGCGGAGGTCTGTCGGCCCGACGAACAG
	spacer length: 36	repeater length: 37	
31443	559026	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	TTCGGGGTCGTTTGTGTGCTCGAGCGAAAGTTCG
	spacer length: 34	repeater length: 37	
31444	559098	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCAATCAACCCCGTTTCAGGGGTCTGTTTCTTCCGT
	spacer length: 35	repeater length: 37	
31445	559171	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCGGCTGAGAACCGGATTCGAGGGACGCTGCAAGAG
	spacer length: 36	repeater length: 37	
31446	559245	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	TCTTTGTTGTCTCTCGATCTGCGGGAGCATCAGCGG
	spacer length: 35	repeater length: 37	
31447	559318	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	CCGACTCGCTCCCGGCTCGGACCGAGACCGATCCG
	spacer length: 36	repeater length: 37	
31448	559392	GTTTCAATCCCGTGCTGGGTTTTCTCCCTGCTGCGAC	ATCAGTGGATGTTGTGCACTGCTCGGGCTGTGTTT

spacer length: 35 repeater length: 37
 31449 559465 GTTTCATATCCCGTGTGGGTTTTCTCCCTGCTGCGAC TCGATCGTGTTCAGTGTCTCCCCGAACCTCTCGACGC
 spacer length: 37 repeater length: 37
 31450 559540 GTTTCATATCCCGTGTGGGTTTTCTCCCTGCTGCGAC GTCAAAATCCGTCTAGAGAGGCAATAAATCTTGTTCC
 31451
 31452
 31453 GCA_003009795.1_ASM300979v1_genomic.fna(findCrispr):
 31454 START REPEAT
 SPACER
 31455 crispr 1
 31456 383745 TGTTAGTGTAGGTAGTCAGGGCTGGACTTATTCG
 GGTCAATCTAGCTCTTCTCTGAGTGTGCTGCGGGTCTTAACAGTGATTATGTGTATAGTGGTTTTGGATTTAGTGAAAATGAGGT
 GCATCAGATTA spacer length: 97 repeater length: 34
 31457 383877 TGTTAGTGTAGGTAGTCAGGGCTGGACTTATTCG
 AGCAATACTGGCCCTGTGCGTGGTGTGCTGCGGGTGTCAACGGTGATTATGTGTACAGTGCCGCTGATGAGGAGGTTTCATCAGAT
 CA spacer length: 88 repeater length: 34
 31458 384000 TGTTAGTGTAGGTAGTCAGGGCTGGACTTATTCG
 TTGATTTGGAAGATGTTGCTGTGGGCCCCAACGGCAATTATGTATATTGTTGTTCTTCGGACGATAATGATGTCCATCAGATTAGT
 GT
 31459
 31460
 31461 GCA_003058365.1_ASM305836v1_genomic.fna(findCrispr):
 31462 START REPEAT
 SPACER
 31463 crispr 1
 31464 556866 ACCCCTTGTGGGGTT GAAGCAGGTCCCGCGATGGCTGAAGCTGGCGGCGATCGCGTTTCAGACG spacer
 length: 49 repeater length: 15
 31465 556931 ACCCCTTGTGGGGTT GAAGCGACGCCGACGAACGCGAGAAAATCGCAGAGGCCGCGTTTCAGACG spacer
 length: 50 repeater length: 15
 31466 556997 ACCCCTTGTGGGGTT GAAGCAATGCCTCAATGACCTAGGGACCGACGGCGTGAGGGGTTTCAGACG spacer
 length: 52 repeater length: 15
 31467 557065 ACCCCTTGTGGGGTT
 GAAGCGCTATCCATCGATTCAAGGTCTTTAGTCATAACCATAGTTTCAGACGGACTCCTTGTGGGGTTGAAGCGGCTTTACGTCCG
 ACGAAAATCGAACC GCCGAACGAGTTTCAGACG spacer length: 118 repeater length: 15
 31468 557199 ACCCCTTGTGGGGTT GAAGCGGGTCCGGTGCCGCCGCTGGCGTGGCAACGCTCGTTTCAGACG spacer
 length: 49 repeater length: 15
 31469 557264 ACCCCTTGTGGGGTT GAAGCCGTCTCGGGATCGGGGTGCGGCCGGTGACCTGGTTTCAGACG spacer
 length: 48 repeater length: 15
 31470 557328 ACCCCTTGTGGGGTT GAAGCACCGCCTGAGATTCTTGCCCGCTCAGGTCGTCGTGATGTTTCAGACG spacer
 length: 52 repeater length: 15
 31471 557396 ACCCCTTGTGGGGTT GAAGCGAGGTCGGGGAGACCTACTCCGCGAGCAATCTGACGGGTTTCAGACG spacer
 length: 52 repeater length: 15
 31472 557464 ACCCCTTGTGGGGTT GAAGCACCGAGTCTCGGCCGGTCGAGACGATGACCGTGCGGTTTCAGACG spacer
 length: 50 repeater length: 15
 31473 557530 ACCCCTTGTGGGGTT GAAGCGTCACGGGTGACCAGTGATGTCGTGGACTGTTGTCGTTTCAGACG spacer
 length: 50 repeater length: 15
 31474 557596 ACCCCTTGTGGGGTT GAAGCCCTCTTTGGGATCTTTTTCCGTAAAAGACCCATAAGTTTCAGACG spacer
 length: 50 repeater length: 15
 31475 557662 ACCCCTTGTGGGGTT GAAGCCGAATCAGGTCGAGCAGGCTGTGGTACAGTTCGCGGTTTCAGACG spacer
 length: 50 repeater length: 15
 31476 557728 ACCCCTTGTGGGGTT GAAGCATAACTGAACACCCGTAGGAAAACCTACGGTAAAAGTTTCAGACG spacer
 length: 50 repeater length: 15
 31477 557794 ACCCCTTGTGGGGTT GAAGCGCAGGAGACGATCGCCGAGCCTACCACGCACTGCGTTTCAGACG spacer
 length: 50 repeater length: 15
 31478 557860 ACCCCTTGTGGGGTT TGGTGGATGCGTTGGATGCGTGTCAAAGACACGCGAACACGGAACCGAGC
 31479
 31480
 31481 crispr 2
 31482 2601488 GATGGCGAGACTCTCTTCGT
 GGTACTCCCGGGCGTCGTACTCGCCGAGCGCCCGGGCGACTAGCCCGAGGTTACCGAGACTGGTTGCCTCGCCTTGTCGGTCTGCCC
 AACTCTCGCG spacer length: 96 repeater length: 20
 31483 2601605 GATGGCGAGACTCTCTTCGT
 AGTACTCCCGGGCGTCGTCTGCTCGCCGAGTTTCTTGGCGACCACCCCGAGGTTGTTGAGACTGGTTGCCTCGCCTTGTCGGTCTG
 CCCAGTTCTCGCG spacer length: 99 repeater length: 20
 31484 2601725 GATGGCGAGACTCTCTTCGT
 GGTACTCCCGGGCGTCCTCGTACTCGCCGAGCGCTCGGGCGACCAGCCCAAGGTTGTTGAGACTGACTGCCTCGCCTTGTCGGTCTG
 CCCAGTTCTCGCG spacer length: 99 repeater length: 20
 31485 2601845 GATGGCGAGACTCTCTTCGT
 GGTACTCCCGGGCGTCGTGAGCTCGCCGAGCGCTCGGGCGACCAGCCCAAGGTTACCGAGACTGGCTGCCTCGCCTTGTCGGTCTG
 CCCAGTTCTCGCG spacer length: 99 repeater length: 20
 31486 2601965 GATGGCGAGACTCTCTTCGT

AGTACTCCCGGGCGTCGTCGAGCTCGCCGAGCGCTCCGGCGACCAGCCCAAGGTTGTTGAGACTGGCTGCCTCGCCTTGTCGGTGC
 CCCAGCTCTCGCG spacer length: 99 repeater length: 20
 31487 2602085 GATGGCGAGACTCTCTTCGT
 ATGCGTTGGATGCGTGTCAAAGACACGCGAACACGGAACCGAGCGGTGGGGTGGTGGATGCGTTGGATGCGTGTCAAAGACACGCG
 AACACGGAACCGA
 31488
 31489
 31490 crispr 3
 31491 2068848 CGACCTCAGGCGTCTCCTCGG ACTCGTCGTCTTCGGGCGTC spacer length: 20 repeater
 length: 21
 31492 2068890 CGACCTCAGGCGTCTCCTCGG ACTCGTTGTCGTCGGGCGTC spacer length: 20 repeater
 length: 21
 31493 2068932 CGACCTCAGGCGTCTCCTCGG ACTCGTTGTCGTCGGGCGTC spacer length: 20 repeater
 length: 21
 31494 2068974 CGACCTCAGGCGTCTCCTCGG TCGGCGAGGAGTACACCCCA
 31495
 31496
 31497 crispr 4
 31498 675517 GTTCAAATCTCCCCCTCGGCGT
 TTTGTCGAGATTTGAGCCCAGGAAGACACAGCCCGCGCAGCGAACGGAGTGAGCAGGACTGTCTTCCTCC spacer
 length: 70 repeater length: 22
 31499 675610 GTTCAAATCTCCCCCTCGGCGT
 TTCGTCGAGATTCGAACGAGGGAATCGAGCCCCGCGAGATTCGCGTGGTTCAAATCTCCTCCTCGGCGTTTTGTCGAGATTCGAAC
 GAGGGAATCGAGCCCCGCGAGATTCGCGT spacer length: 115 repeater length: 22
 31500 675748 GTTCAAATCTCCCCCTCGGCGT
 GGTCCAGCGTTTCGCTCCCGTTCTCGGCGTCGAAGGCGTACAGATTGTCGTCCCAGGACCCGACGTACACCACCCCGTTTCGACACCG
 TCGGCGAGGAGTACACCCCATCCCCCGTC
 31501
 31502
 31503 crispr 5
 31504 1263314 TCCGCCCTCCCCGATTTGAACACCG
 GAAGACGACTCCGCTCGCTCCGCTCGCGGATTGCGACTTCCGAGCACGAAATCGGCTCGGCTCGGATTTGCGTCGCAA spacer
 length: 77 repeater length: 25
 31505 1263417 TCCGCCCTCCCCGATTTGAACACCG
 TGAGACGTTCCGGGCGTGCGGCGCGACGCGCCGTTCCGGGACTGCGACTCACGAGCTCAAATCGTGTGCGGTGTCCCTCACGGTCA
 ACACCGTTCGCTATCGCTCACGGATATTGTAGTTCA spacer length: 122 repeater length: 25
 31506 1263565 TCCGCCCTCCCCGATTTGAACACCG
 ATCCCCCGTCGACGCGTTCCAGATCTCCTCGCCGGGTTCCCTCGGGCGCGTCACTCGCGGCCGCGCGCCGACGGGGTCAAGCGCCC
 CGAGCGGGCCCACTGCCACCACCGGCACGCACAGCA
 31507
 31508
 31509 crispr 6
 31510 1361928 GTCTCTTCGACCTGCTCGCTCACC GTCTTCGACCGTCTCTCCGAC spacer length: 21 repeater
 length: 26
 31511 1361976 GTCTCTTCGACCTGCTCGCTCACC GTCTTCGACCGTCTCTCCGAC spacer length: 21 repeater
 length: 26
 31512 1362024 GTCTCTTCGACCTGCTCGCTCACC GTAGTACACCCCATCCCCCGT
 31513
 31514
 31515 crispr 7
 31516 743816 GCGAACACGGAAACGAGCGGTGGGGTGGTGGATGCG TTGGAAGCGTGTCAAAGACA spacer length: 20
 repeater length: 36
 31517 743873 GCGAACACGGAAACGAGCGGTGGGGTGGTGGATGCG TTGGAAGCGTGTCAAAGACA spacer length: 20
 repeater length: 36
 31518 743930 GCGAACACGGAAACGAGCGGTGGGGTGGTGGATGCG
 TTGGAAGCGTGTCAAAGACACGCGAACACGGAACGAGCGGTGGGGTGGTTCGATTTCGTTGGAAGCGTGTCAAAGACA spacer
 length: 77 repeater length: 36
 31519 744044 GCGAACACGGAAACGAGCGGTGGGGTGGTGGATGCG
 TCCCCCGTCGACGCGTTCCAGATCTCCTCGCCGGGTTCTCGGGCGCGTCACTCGCGGCCGCCGCGCCGACGGGGTC
 31520
 31521
 31522 crispr 8
 31523 432949 CAGACCCGACGTACACCACCCCGTTTCGACACCGTCGGCGA
 GGAGTCCACATCATTTCCCGTCGATGCGGTCCAGCGTTTCGCTCCCGTTCTCGGCGTCGAACGCGTACAGGTTGTAGTCG
 spacer length: 79 repeater length: 40
 31524 433069 CAGACCCGACGTACACCACCCCGTTTCGACACCGTCGGCGA
 AGAGTCCACCCAATGCCCCGTCGATGCGGTCCAGCGTTTCGCTCCCGTTTTTCGGCGTCGAACGCGTACAGACTGCCGGCG
 spacer length: 79 repeater length: 40
 31525 433189 CAGACCCGACGTACACCACCCCGTTTCGACACCGTCGGCGA
 CATGCGAGTGTCTGGTTTCAGACGGACCCCTTGTGGGGTTGAAGCTGTCTCGCTCACGTCCCGGCGTCGGGTTGAAGT
 31526

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31527
31528 crispr 9
31529 2601700 CTTGTCGGTCGCCCAGTTCTCGCGTGATGGCGAGACTCTC
TTCTGTTGTTACTCCCGGGCGTCTCTCGTACTCGCCGAGCGCTCGGGCGACCAGCCCAAGGTTGTTGAGACTGACTGCCTCG
spacer length: 79 repeater length: 40
31530 2601820 CTTGTCGGTCGCCCAGTTCTCGCGTGATGGCGAGACTCTC
TTCTGTTGTTACTCCCGGGCGTCTCTGAGCTCGCCGAGCGCTCGGGCGACCAGCCCAAGGTTACCGAGACTGGCTGCCTCG
spacer length: 79 repeater length: 40
31531 2601940 CTTGTCGGTCGCCCAGTTCTCGCGTGATGGCGAGACTCTC
TCCAGATCTCCTCGCCGGGTTCCTCGGGCGCGTCACTCGCGGCCGCCGCGCCGACGGGGTCAAGCGCCCCGAGCGGGCC
31532
31533
31534 crispr 10
31535 433559 GTACACCACCCCGTTTCGACACCGTCGGCGAGGAGTACACC
CGATCCCCCGTCGACGCGGTCCAGCGTTTCGCTTCCGTTCTCGGCGTCGAAGGCGGTACAGATTGTGGTCCCAAGACCCGA
spacer length: 79 repeater length: 40
31536 433679 GTACACCACCCCGTTTCGACACCGTCGGCGAGGAGTACACC
CGATCCCCCGTCGACGCGGTCCAGCGTTTCGCTTCCGTTCTCGGCGTCGAAGGCGTACAGATTGTCTGTCCTCCAGGACCCGA
spacer length: 79 repeater length: 40
31537 433799 GTACACCACCCCGTTTCGACACCGTCGGCGAGGAGTACACC
CCCGGGTCATCCAGTCGGGATCGAACCAGGACATCTTCCACCCGATGTGGATGACGTACGCGACCAGCGCGCCAGACC
31538
31539
31540 GCA_003201675.1_ASM320167v1_genomic.fna(findCrispr):
31541 START REPEAT
SPACER
31542 crispr 1
31543 384882 GTTTCAAACCCCTCTAAGGAAC CCTACAAACACCCGAGAAGAAGGAGAGGAGAGATTATGAGTCAA spacer
length: 45 repeater length: 21
31544 384949 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTCTTCAGGATGTCTACTACGAGCTCTACGTCATCG spacer
length: 44 repeater length: 21
31545 385015 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCCGTGTCTCTGTAGAGAGTATTCTACTTTCTCAGGCG spacer
length: 45 repeater length: 21
31546 385082 GTTTCAAACCCCTCTAAGGAAC
CCTACAAACCCAGGAGGAACCGAAACCGTGTCTGGTAACCGTATGAGGCTTCAAACCCCTCTAAGGAACCCCTACAAACTCGTTGTGCG
CTGTTTCTATTGTGAGGGCTAGGCAGAT spacer length: 114 repeater length: 21
31547 385218 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTTCGTGGACCAGAACGGAACCACTACGTTTCTAGA spacer
length: 44 repeater length: 21
31548 385284 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTGAAGGTCATCACCAGGAAGCAGGCCTTTGAACTG spacer
length: 45 repeater length: 21
31549 385351 GTTTCAAACCCCTCTAAGGAAC TCTACAAACTCAGTTGTGAGACCTTCCTTGAGTAGTAGATAGCT spacer
length: 44 repeater length: 21
31550 385417 GTTTCAAACCCCTCTAAGGAAC TCTACAAACCGGACACCTTGTTGTAGACAAGCTTACAGGAGAGCAT spacer
length: 46 repeater length: 21
31551 385485 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTCAGGGTTTCAGGGAGCAGGGAAGACAACCTTATGCG spacer
length: 46 repeater length: 21
31552 385553 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTCACTCTCTTGTAGAAAATCAATTTTCTTTTGTTC spacer
length: 45 repeater length: 21
31553 385620 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCGATATTGGGCGTTTCTACTTCTGCTATTACTTCC spacer
length: 44 repeater length: 21
31554 385686 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTTAAGCATGCTAATGACCTCGGAAGGGGAGGATCT spacer
length: 45 repeater length: 21
31555 385753 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTCTGATAAGTGCCGGGAAATCGGTGCTGAAGGACT spacer
length: 44 repeater length: 21
31556 385819 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTCTTTTCTGCCGATTAGCTAAATTGCTAGTTTCTC spacer
length: 46 repeater length: 21
31557 385887 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTGATAACTCGGCATCAACAACCTCCTCATACTTTGA spacer
length: 45 repeater length: 21
31558 385954 GTTTCAAACCCCTCTAAGGAAC CCTACAAACGCTATTTCCTCAGGGTTTTTCAGCTTTTAAGATCCTTTGT spacer
length: 47 repeater length: 21
31559 386023 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTGAAAATCTTAGTTGTGCGATGGTGTAGACGGAGTGG spacer
length: 45 repeater length: 21
31560 386090 GTTTCAAACCCCTCTAAGGAAC CCTACAAACGAGATATTTAAATCTTTCTACCCCTTTCTCTCTCCC spacer
length: 46 repeater length: 21
31561 386158 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTGGAACAGCTGTACACAGGGAAGTCCCTCACCTGGA spacer
length: 45 repeater length: 21
31562 386225 GTTTCAAACCCCTCTAAGGAAC CCTACAAACATTTTCTTTCTTAGCGGTAAGTCTTGCGTGACAAAC spacer
length: 45 repeater length: 21
31563 386292 GTTTCAAACCCCTCTAAGGAAC CCTACAAACGAAAACAGAGGAAAATACGTGGGTGAGGTGGAGAGA spacer
length: 45 repeater length: 21
31564 386359 GTTTCAAACCCCTCTAAGGAAC CCTACAAACACACTGTGTCTCTCTTGCCCCATTCCCGTTCTGCG spacer

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length: 46 repeater length: 21
31565 386427 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTAAGAGATTTCAATAAGACGGTTATCGGTCTTATTC spacer
length: 45 repeater length: 21
31566 386494 GTTTCAAACCCCTCTAAGGAAC CCTACAAACATAACCCTGTAGACCTATCATCGTTCTGGAGTTCA spacer
length: 44 repeater length: 21
31567 386560 GTTTCAAACCCCTCTAAGGAAC CCTACAAACAGTTCCATGGGGTTCAAAGTGGTATATATCCACTTCCCCA
spacer length: 49 repeater length: 21
31568 386631 GTTTCAAACCCCTCTAAGGAAC CCTACAAACGGATCCACATAGAAAAGCGTTGGAAGAGGCAATG spacer
length: 43 repeater length: 21
31569 386696 GTTTCAAACCCCTCTAAGGAAC CCTACAAACAAGTAAGCATGGGTTTACTGTTGAACGCTATACTC spacer
length: 44 repeater length: 21
31570 386762 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCAATCAAGTAGAATATCTTATACGAGAATTTAATATTC spacer
length: 47 repeater length: 21
31571 386831 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTGAGGATCCTCCTGGCTGCCCTATCTGTGCTCA spacer
length: 43 repeater length: 21
31572 386896 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTATGTATTTCTAAATTACTCCGTGTGAATTCCCACG spacer
length: 46 repeater length: 21
31573 386964 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTCAACGTCTGAAACCGCTTATAGATGCTGGACTAT spacer
length: 44 repeater length: 21
31574 387030 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTTCAAAGCAGATGAAGAACTACGTCTTTGTAAAGA spacer
length: 46 repeater length: 21
31575 387098 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTCCTTTTTCTATTTCTTCTCTTTTCTTTCTATTTCTC spacer
length: 47 repeater length: 21
31576 387167 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTTCCATTGCCATGATGTAAATTCATCAAATGGTGGGA spacer
length: 46 repeater length: 21
31577 387235 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTATTTAACAGGTGGTAATACAGTTTCTCAAATTTT spacer
length: 44 repeater length: 21
31578 387301 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTTCCACAAAATATTACGGCTCAACAAGGAAATTTT spacer
length: 44 repeater length: 21
31579 387367 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTGAATCTCTCCCGCTGAAAAGAAGCAATCGAAAACA spacer
length: 46 repeater length: 21
31580 387435 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTCTTCACCAATAACCGTTTATCATGCTCAGAATAC spacer
length: 44 repeater length: 21
31581 387501 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCGAATATTACATCGCTCCTCCGTGCCGTATATCC spacer
length: 43 repeater length: 21
31582 387566 GTTTCAAACCCCTCTAAGGAAC CCTACAAACAAGGTGACAATAAGGTAATGGATAGTACAGTGATAGCT spacer
length: 47 repeater length: 21
31583 387635 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTTCTCTACCACCTCCCTTACCGTATCATAGTACG spacer
length: 45 repeater length: 21
31584 387702 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCTTCTATGTGCGGAGAGACATAGGAGACTCTCTCGCG spacer
length: 46 repeater length: 21
31585 387770 GTTTCAAACCCCTCTAAGGAAC CCTACAAACAATATATCGAAATGCCTGATGATTTGATTGCATTTG spacer
length: 45 repeater length: 21
31586 387837 GTTTCAAACCCCTCTAAGGAAC CCTACAAACGCCTTATCTACTTTCTCACCTGACTGCTTCAACTTCT spacer
length: 46 repeater length: 21
31587 387905 GTTTCAAACCCCTCTAAGGAAC CCTACAAACCATAGGATATGGTGGTAAAGGTGGTGGTGCCAGCACCA spacer
length: 47 repeater length: 21
31588 387974 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTGAACGCCACAATCACATATGAGACCTACGATCAGCAC spacer
length: 47 repeater length: 21
31589 388043 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTACCAGAGAGTTTCTCGCTGACATTCGTGACTGCT spacer
length: 44 repeater length: 21
31590 388109 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTTAAACCCCTGAGACCATAGCACGTTTTAAGATCCT spacer
length: 46 repeater length: 21
31591 388177 GTTTCAAACCCCTCTAAGGAAC CCTACAAACACGTCCAAGGAAATCTCGGCACGTGGGGTGCCGGTG spacer
length: 45 repeater length: 21
31592 388244 GTTTCAAACCCCTCTAAGGAAC CCTACAAACTTTTTATGAAAATCCTTGTAGTAGATGGAATAGACGGAGTGG
spacer length: 51 repeater length: 21
31593 388317 GTTTCAAACCCCTCTAAGGAAC CCTACAAACGGGAACCCGAGACTCTATTATGAGCGGGAAGTTCCCCAC spacer
length: 48 repeater length: 21
31594 388387 GTTTCAAACCCCTCTAAGGAAC CCTACAAACATCGTTTCGTAAACTATTTTTATAGTTTCTTTCTGAAC spacer
length: 47 repeater length: 21
31595 388456 GTTTCAAACCCCTCTAAGGAAC CCTACAAACAGAATCCACGCTTTTTAGTTGTGAAGCAAAAATCTACC spacer
length: 47 repeater length: 21
31596 388525 GTTTCAAACCCCTCTAAGGAAC AAACCTTCGTGGACCAGAACGGAACCACTACGTTTCTAGACGTTTCAA
31597
31598
31599 crispr 2
31600 2504564 CTTTCAATTCCTTTTGGGATGCAAC TCAGAACAACAATCAACAGATGAAAGGGACTGACGCAAAAA spacer
length: 41 repeater length: 25
31601 2504631 CTTTCAATTCCTTTTGGGATGCAAC GGGTTAAGGTATCAGGTTTCGCAGATCTTATATGTGAAA spacer
length: 39 repeater length: 25

31602	2504696	CTTTCAATTCCTTTTGGGATGCAAC	TAAATTTTTTTTCAACTTTCATTCTAGCGATATGTAAT spacer
		length: 37	repeater length: 25
31603	2504759	CTTTCAATTCCTTTTGGGATGCAAC	TATGTCTCCTCTCCTACAACAATGTACAACAGAACCATA spacer
		length: 39	repeater length: 25
31604	2504824	CTTTCAATTCCTTTTGGGATGCAAC	CCTACCTTTGCCGGTATTCCTAGAGTATGCAGAGG spacer length:
		35	repeater length: 25
31605	2504885	CTTTCAATTCCTTTTGGGATGCAAC	TGGAAAAACCAAATCTGTGGTATACGTATTTGATAA spacer
		length: 37	repeater length: 25
31606	2504948	CTTTCAATTCCTTTTGGGATGCAAC	ATACTTTTCTTACTAAAGAGGAAAATCATCTTGTATTTTGAC spacer
		length: 42	repeater length: 25
31607	2505016	CTTTCAATTCCTTTTGGGATGCAAC	CCTTCTGGGGAATGGGGTATAGTGTACGGGTGCCTTAC spacer
		length: 39	repeater length: 25
31608	2505081	CTTTCAATTCCTTTTGGGATGCAAC	ACAATTAAGAAATTAGGAGGAAAATGGATTGGAAGTCAA spacer
		length: 39	repeater length: 25
31609	2505146	CTTTCAATTCCTTTTGGGATGCAAC	ATGCATATATTTTCATCTCTACATCTAAAATATGCTA spacer
		length: 36	repeater length: 25
31610	2505208	CTTTCAATTCCTTTTGGGATGCAAC	ACAAGACGATTAGCAGAATATCGATCCATAAAGGGAAC spacer
		length: 38	repeater length: 25
31611	2505272	CTTTCAATTCCTTTTGGGATGCAAC	GTACTACAGATAAATAAGTACCACCTAAAGGACGGGT spacer
		length: 37	repeater length: 25
31612	2505335	CTTTCAATTCCTTTTGGGATGCAAC	ATGTAAATTCTGTGGTTATGAAACAGAGGACGAGGCA spacer
		length: 37	repeater length: 25
31613	2505398	CTTTCAATTCCTTTTGGGATGCAAC	GAGGAATCCGAAGAGGACGATGAAGAATGAGATGCATCAAAC spacer
		length: 42	repeater length: 25
31614	2505466	CTTTCAATTCCTTTTGGGATGCAAC	CCTACCTTTGCCGGTATTCCTAGAGTATGCAGAGG spacer length:
		35	repeater length: 25
31615	2505527	CTTTCAATTCCTTTTGGGATGCAAC	CTGAAACAAGTCAGAAAGAAAGAATATTTGAATGCTA spacer
		length: 37	repeater length: 25
31616	2505590	CTTTCAATTCCTTTTGGGATGCAAC	TTAATCATAATTACATGATATGTGAAAACCTGGATT spacer length:
		35	repeater length: 25
31617	2505651	CTTTCAATTCCTTTTGGGATGCAAC	TCTTATCATACCCAAATGCCAGATATGGTGAGTATGGTGA spacer
		length: 40	repeater length: 25
31618	2505717	CTTTCAATTCCTTTTGGGATGCAAC	TTAAGGAAATAATGCAATACAGCGTTGTCTGTGTAA spacer
		length: 36	repeater length: 25
31619	2505779	CTTTCAATTCCTTTTGGGATGCAAC	GTTGAGGGTCTGAAGAAGACCCTCGAGGACCTGGGCT spacer
		length: 37	repeater length: 25
31620	2505842	CTTTCAATTCCTTTTGGGATGCAAC	AATTGTGGAAAAATGGAGAGATGTGTGTAGTTTATCT spacer
		length: 37	repeater length: 25
31621	2505905	CTTTCAATTCCTTTTGGGATGCAAC	ATTTACCCAACAACATTAGAGAAATAATAATGAAGAATA spacer
		length: 39	repeater length: 25
31622	2505970	CTTTCAATTCCTTTTGGGATGCAAC	GGAAGGGGGTGAGAAGAATGAACAGGGAGCTGCTTAA spacer
		length: 37	repeater length: 25
31623	2506033	CTTTCAATTCCTTTTGGGATGCAAC	GTTATTTCTGTCTGCTTTCTACCCAACTAAAACGTTGT spacer
		length: 39	repeater length: 25
31624	2506098	CTTTCAATTCCTTTTGGGATGCAAC	AGGGGGCATATACCCCTAATAATATGACACAGGAAT spacer
		length: 37	repeater length: 25
31625	2506161	CTTTCAATTCCTTTTGGGATGCAAC	TCTATAAGGATCCGCAAGACGCAGAAATGCTATATAGCAATA spacer
		length: 42	repeater length: 25
31626	2506229	CTTTCAATTCCTTTTGGGATGCAAC	CTCGCTGGGTTCAGGTCAGAGACTTATGATCTAAAAAG spacer
		length: 38	repeater length: 25
31627	2506293	CTTTCAATTCCTTTTGGGATGCAAC	ATCAATATGAGATAAAGATAGCTAGGGTGAAAGAATGAAT spacer
		length: 40	repeater length: 25
31628	2506359	CTTTCAATTCCTTTTGGGATGCAAC	CATGGACAAAAGAAATAGTACACCCGTTCTATCTCAAC spacer
		length: 38	repeater length: 25
31629	2506423	CTTTCAATTCCTTTTGGGATGCAAC	CATGAAATTACTAAACAAGGATAAAGCAAAGATCATATACATA spacer
		length: 43	repeater length: 25
31630	2506492	CTTTCAATTCCTTTTGGGATGCAAC	GAATGACGTCAACCTGGCGTAAATATCCGTCATTTTGTA spacer
		length: 40	repeater length: 25
31631	2506558	CTTTCAATTCCTTTTGGGATGCAAC	CCCCGACTATCTGATGCCCCGTGCGGAAGTTATTA spacer length:
		35	repeater length: 25
31632	2506619	CTTTCAATTCCTTTTGGGATGCAAC	CACGTGGGGAAAACGCATGCCCTGGTAGTGGATATAATAT spacer
		length: 40	repeater length: 25
31633	2506685	CTTTCAATTCCTTTTGGGATGCAAC	CTTATTCAATTGCGGAAATTATTATGTTGGGGTTGATG spacer
		length: 38	repeater length: 25
31634	2506749	CTTTCAATTCCTTTTGGGATGCAAC	GTTGGTTGAGGCTCAGTGTATGACGGAGAGATTATCT spacer
		length: 37	repeater length: 25
31635	2506812	CTTTCAATTCCTTTTGGGATGCAAC	TCATGATATGATACTCCTATACACAAAAAATGGGAATA spacer
		length: 39	repeater length: 25
31636	2506877	CTTTCAATTCCTTTTGGGATGCAAC	GGGCCTAGTAGCCTCCCCGCTAGGTTGGCCCTTACCTAG spacer
		length: 39	repeater length: 25
31637	2506942	CTTTCAATTCCTTTTGGGATGCAAC	CCATTATACGATGGCGAGGAGTGGTTTGAAACAATAG spacer

length: 37 repeater length: 25
31638 2507005 CTTTCAATTCCTTTTGGGATGCAAC TACCTGAGCCGTAGAACCCTTGGATCGCTGTATTTCAGG spacer
length: 38 repeater length: 25
31639 2507069 CTTTCAATTCCTTTTGGGATGCAAC AAAGATGCTTTACAATCTCAACATAATCAGTGCTA spacer length:
35 repeater length: 25
31640 2507130 CTTTCAATTCCTTTTGGGATGCAAC GGGGGTACAAAATGAAGGTTACTAGTAAAGGCGAGCTCA spacer
length: 39 repeater length: 25
31641 2507195 CTTTCAATTCCTTTTGGGATGCAAC CGGCGAGGGTGGTGGCAAGGGTGGTGGCGAACACGT spacer
length: 36 repeater length: 25
31642 2507257 CTTTCAATTCCTTTTGGGATGCAAC CTGGGTATACCCTCCGAAGTGGTGGACTTCTATCAGGG spacer
length: 38 repeater length: 25
31643 2507321 CTTTCAATTCCTTTTGGGATGCAAC CGATGTAACCTTTCTCAAGAACGCTAACGATGAAATTG spacer
length: 38 repeater length: 25
31644 2507385 CTTTCAATTCCTTTTGGGATGCAAC AAAAATAACTTAGATCAGAGGTTTTTAAATCTTATGG spacer
length: 37 repeater length: 25
31645 2507448 CTTTCAATTCCTTTTGGGATGCAAC ACTCGACAATTTTCGCAACCTTTCTAGCGTCACGTGGCGA spacer
length: 40 repeater length: 25
31646 2507514 CTTTCAATTCCTTTTGGGATGCAAC AATGATCTTTACTGCACCTCGTGACCATGCGTATTTAA spacer
length: 38 repeater length: 25
31647 2507578 CTTTCAATTCCTTTTGGGATGCAAC GGCATTGCCGACCCCAAGCTTGCGGGGGCCGTCCTGG spacer
length: 37 repeater length: 25
31648 2507641 CTTTCAATTCCTTTTGGGATGCAAC AGAAAACGAGAGTAGTCGTACGGGGAGGCATTTTTTCT spacer
length: 37 repeater length: 25
31649 2507704 CTTTCAATTCCTTTTGGGATGCAAC ATGAACGAGTGAAGATAAAGAACATAACACGTATCATAAT spacer
length: 40 repeater length: 25
31650 2507770 CTTTCAATTCCTTTTGGGATGCAAC TCCCACCGTATTTACCGGTGGGAAGCTAATGTAGATG spacer
length: 37 repeater length: 25
31651 2507833 CTTTCAATTCCTTTTGGGATGCAAC ATAATTTGCTCTTTGTTTGTGCCGAGCGCGCATTTGA spacer
length: 37 repeater length: 25
31652 2507896 CTTTCAATTCCTTTTGGGATGCAAC AGTGACGGAAACGTCATGCCCGCTCCCGGAGAGAAA spacer
length: 37 repeater length: 25
31653 2507959 CTTTCAATTCCTTTTGGGATGCAAC CTGCAATCTCGAAGTGACCGCTCTCGGGCATATAC spacer length:
35 repeater length: 25
31654 2508020 CTTTCAATTCCTTTTGGGATGCAAC AAAGGAGATGGGCAAGTTAAAGTTTTCTTTTTTATATT spacer
length: 37 repeater length: 25
31655 2508083 CTTTCAATTCCTTTTGGGATGCAAC GTCCTTACGCTGACAGATGGGTCAAAGGGAAGAGAAAG spacer
length: 38 repeater length: 25
31656 2508147 CTTTCAATTCCTTTTGGGATGCAAC TCGTGGACCAGAACGGAACCACTACGTTTCTAGACGTT
31657
31658
31659 crispr 3
31660 2530041 GTTGCATCCCCAAAAAGGAATTGAAAG TTCTTGATGTTTCTCGAGAAGGTTTAAAGTAATTCAGC spacer
length: 38 repeater length: 26
31661 2530106 GTTGCATCCCCAAAAAGGAATTGAAAG GTCACGTCGCCGACAGTACGTGCTATGTTCTGCCCTC spacer
length: 37 repeater length: 26
31662 2530170 GTTGCATCCCCAAAAAGGAATTGAAAG AACGCTTGGGGTTTGTGCCATTTTTCTTCACTATA spacer
length: 35 repeater length: 26
31663 2530232 GTTGCATCCCCAAAAAGGAATTGAAAG TCAACATCAACGATGACGGGGCTAGTCTAGGGGGCT spacer
length: 36 repeater length: 26
31664 2530295 GTTGCATCCCCAAAAAGGAATTGAAAG TGTGTCATCAAACCTTCTTCAGCATCGCTAGAGCGAG spacer
length: 36 repeater length: 26
31665 2530358 GTTGCATCCCCAAAAAGGAATTGAAAG TTATGAATATTACTGAAATGCCATAACTTCCCGAACCC spacer
length: 38 repeater length: 26
31666 2530423 GTTGCATCCCCAAAAAGGAATTGAAAG ATAGTATACCTGGAAGAGAACCTCATCAAGCAATTG spacer
length: 36 repeater length: 26
31667 2530486 GTTGCATCCCCAAAAAGGAATTGAAAG TCAAATACGCAGAGGCTATGATGCAGAAGGCATCTGG spacer
length: 37 repeater length: 26
31668 2530550 GTTGCATCCCCAAAAAGGAATTGAAAG CGTACTATTGCTACTACCTCATCTCTGTTTTTTTTCTA spacer
length: 37 repeater length: 26
31669 2530614 GTTGCATCCCCAAAAAGGAATTGAAAG CTTTTCTTCTGTGTCTGTAAGTTTCATTTTCTCACCG spacer
length: 37 repeater length: 26
31670 2530678 GTTGCATCCCCAAAAAGGAATTGAAAG GATTATCGATTTAATTTGCTTATTAAATGGTTTATA spacer
length: 36 repeater length: 26
31671 2530741 GTTGCATCCCCAAAAAGGAATTGAAAG CAACTGCGACTTGGATACGGAAGAAACAGCATACCCG spacer
length: 37 repeater length: 26
31672 2530805 GTTGCATCCCCAAAAAGGAATTGAAAG TTATATAAATTTACATTTTCAATAATAAGTTGTTG spacer
length: 35 repeater length: 26
31673 2530867 GTTGCATCCCCAAAAAGGAATTGAAAG ATAACGATAAAAATGAACCTGTTGATGCTTACATTCA spacer
length: 37 repeater length: 26
31674 2530931 GTTGCATCCCCAAAAAGGAATTGAAAG GATGTACAAGAACGTTGTACGACCTCATCAATCTCTT spacer
length: 37 repeater length: 26

31675	2530995	GTTGCATCCCCAAAAAGGAATTGAAAG	TTGTTGAACTTCTTTTTGCATTTTTTAACCCCGGAAAA	spacer
		length: 37	repeater length: 26	
31676	2531059	GTTGCATCCCCAAAAAGGAATTGAAAG	GATTCAAAATGGATCCTGAGGAGGTAGAACTTCTCGATGCG	spacer
		length: 41	repeater length: 26	
31677	2531127	GTTGCATCCCCAAAAAGGAATTGAAAG	TTATCTACGCTCAGAGCCCAAAGATAGGTCACCAACG	spacer
		length: 37	repeater length: 26	
31678	2531191	GTTGCATCCCCAAAAAGGAATTGAAAG	CAATAATGGGCTTTACAAC TTCATCGAGCTCCACGAA	spacer
		length: 37	repeater length: 26	
31679	2531255	GTTGCATCCCCAAAAAGGAATTGAAAG	TAGGCCTGGGTCTGGTCGGTGCTGTCATCGTAGTGGCCTA	spacer
		length: 40	repeater length: 26	
31680	2531322	GTTGCATCCCCAAAAAGGAATTGAAAG	CCACCTTTGCCTTTCCACCTTCTCATTTCTCATCTCA	spacer
		length: 38	repeater length: 26	
31681	2531387	GTTGCATCCCCAAAAAGGAATTGAAAG	CATTTCTCATCTCATCAAGAAGAGGCTGTATCGCCATA	spacer
		length: 38	repeater length: 26	
31682	2531452	GTTGCATCCCCAAAAAGGAATTGAAAG	ATTGACTACGTAGCAATTTTCCCGGTACAAACGAAGCC	spacer
		length: 38	repeater length: 26	
31683	2531517	GTTGCATCCCCAAAAAGGAATTGAAAG	TACTCCTTTTGCATTTTTTGACACTCCTCATATAAA	spacer
		length: 36	repeater length: 26	
31684	2531580	GTTGCATCCCCAAAAAGGAATTGAAAG	AAGAAGGCGACCCTCCCGAACCTCCTGAACCTCCGGCA	spacer
		length: 38	repeater length: 26	
31685	2531645	GTTGCATCCCCAAAAAGGAATTGAAAG	TGCAAAAACGTCGTTTTTCGTCCCAATGTCCGTTGTTACT	spacer
		length: 39	repeater length: 26	
31686	2531711	GTTGCATCCCCAAAAAGGAATTGAAAG	TCCGGGAGGAGCGGTGACAATAAAAGGTCTTCGATAA	spacer
		length: 37	repeater length: 26	
31687	2531775	GTTGCATCCCCAAAAAGGAATTGAAAG	CTTTATTCCTGTCTGTAGCAGACTATCGATCTTGTTG	spacer
		length: 37	repeater length: 26	
31688	2531839	GTTGCATCCCCAAAAAGGAATTGAAAG	ATCTTTTCCTGCAGACATTTCTATCTTTAACAGTTCAG	spacer
		length: 38	repeater length: 26	
31689	2531904	GTTGCATCCCCAAAAAGGAATTGAAAG	ACCTTTGACCTAATAATAATGTGTAACATAACATCTTTA	spacer
		length: 39	repeater length: 26	
31690	2531970	GTTGCATCCCCAAAAAGGAATTGAAAG	TTCAAACAATACTGCACACTGTTAAGATTGTTATATAG	spacer
		length: 38	repeater length: 26	
31691	2532035	GTTGCATCCCCAAAAAGGAATTGAAAG	GTATTAAC TTAATACCGATTATGGTTCAATACACAGTT	spacer
		length: 38	repeater length: 26	
31692	2532100	GTTGCATCCCCAAAAAGGAATTGAAAG	GAAGAACTCCACTGGCCTGAAGAACTCCAGAAGAAC	spacer
		length: 36	repeater length: 26	
31693	2532163	GTTGCATCCCCAAAAAGGAATTGAAAG	GCTGTTAGTATTAAGCGATTGGTGGGTTTCTCCCCGG	spacer
		length: 37	repeater length: 26	
31694	2532227	GTTGCATCCCCAAAAAGGAATTGAAAG	TGTATTATTTCTGCATTTCCACCGTTGCAGATGCTGA	spacer
		length: 38	repeater length: 26	
31695	2532292	GTTGCATCCCCAAAAAGGAATTGAAAG	ATATTGAACTTCGCGTACTTCCTAAACTTCTTCGCGTCCTTG	spacer
		length: 42	repeater length: 26	
31696	2532361	GTTGCATCCCCAAAAAGGAATTGAAAG	ATTGCCATCGTTCCACTACTTTCAGTGTAGCAATACTT	spacer
		length: 38	repeater length: 26	
31697	2532426	GTTGCATCCCCAAAAAGGAATTGAAAG	GGGACTTCACTAGCAACCATATGACGAATCCATGTGTTCC	spacer
		length: 40	repeater length: 26	
31698	2532493	GTTGCATCCCCAAAAAGGAATTGAAAG	TGATGTTTCTAGACAGCTTTACTCCCCACCCAATCTCC	spacer
		length: 38	repeater length: 26	
31699	2532558	GTTGCATCCCCAAAAAGGAATTGAAAG	AATACACATAATCTTCATCGAAACTTGGATATACATAT	spacer
		length: 38	repeater length: 26	
31700	2532623	GTTGCATCCCCAAAAAGGAATTGAAAG	GATTCATTATTAACAAGAGCGAACACGTTCTTCTGGTTAC	spacer
		length: 40	repeater length: 26	
31701	2532690	GTTGCATCCCCAAAAAGGAATTGAAAG	GAAAAGGGGTTCTCCGCTGGGCTAACGTCAAACCCCG	spacer
		length: 37	repeater length: 26	
31702	2532754	GTTGCATCCCCAAAAAGGAATTGAAAG	TCGTTGTTCCGGGCACAAATTGAAAGGTATTGAAAAA	spacer
		length: 37	repeater length: 26	
31703	2532818	GTTGCATCCCCAAAAAGGAATTGAAAG	TCTTCAGTCCAAC TAAACACAGCTTGGGCTTATCG	spacer
		length: 36	repeater length: 26	
31704	2532881	GTTGCATCCCCAAAAAGGAATTGAAAG	TGGTTCATCTTGACCATCCCTCAAGTTGGACTAACGTA	spacer
		length: 38	repeater length: 26	
31705	2532946	GTTGCATCCCCAAAAAGGAATTGAAAG	GTATTACTTAGGGCCACCAAACCACTCCGATTTTTCCG	spacer
		length: 39	repeater length: 26	
31706	2533012	GTTGCATCCCCAAAAAGGAATTGAAAG	GGATATGGGGCGGGAGGAAACGGTGGAAACACAAATTCA	spacer
		length: 39	repeater length: 26	
31707	2533078	GTTGCATCCCCAAAAAGGAATTGAAAG	AAAATGCTCCCGTCCGCTAACACGGCCCCTGCAA	spacer length:
		34	repeater length: 26	
31708	2533139	GTTGCATCCCCAAAAAGGAATTGAAAG	TTTTTTAAGGGGAGAGTGGCTAACGACCACCCTCCCC	spacer
		length: 37	repeater length: 26	
31709	2533203	GTTGCATCCCCAAAAAGGAATTGAAAG	ATTTATTTTCTTATATGTTATATCACCGTCTCCCCCT	
31710				
31711				

31712	crispr 4	
31713	501010 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TATTCGACCAGTATATACCCAACCTAGGGCAAGGAT spacer
	length: 36 repeater length: 30	
31714	501077 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACCGAGTACCACATCTTGGCCTCGGAGATCTCCCTGA spacer
	length: 37 repeater length: 30	
31715	501145 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAAAACGAAAAGGAGTCGATTAACGTAAGGTTTCCGT spacer
	length: 37 repeater length: 30	
31716	501213 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGACTAAGGAGAGGAGCGTGGAGGAAGTGGCCAAAGAG spacer
	length: 39 repeater length: 30	
31717	501283 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTACATCTCTCAAAGGGTGAACGACTTGGCCTCC spacer
	length: 35 repeater length: 30	
31718	501349 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTGTGAAAAAAGAAATGGGAGACGAACGAATATATAGA spacer
	length: 38 repeater length: 30	
31719	501418 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAAACAGACTCGGAAGGTATGATGAGAAGACCATCAAAG spacer
	length: 39 repeater length: 30	
31720	501488 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGTCGAGAACAAAGAAATTAAGATGTTTCAATTGCTTC spacer
	length: 38 repeater length: 30	
31721	501557 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGAGAGGATAATACGGGTGAATAAGGAGACGCAA spacer
	length: 36 repeater length: 30	
31722	501624 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGCATAGAATAGTAGAAATTCACAGACGTGAAAAC spacer
	length: 36 repeater length: 30	
31723	501691 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAAAACGACGACGTCATAAACTAAAGTAATACT spacer
	length: 34 repeater length: 30	
31724	501756 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGCCAGGGTGGGCTAAATCAAGGCTTAGGGACGA spacer
	length: 35 repeater length: 30	
31725	501822 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGATTTCTGAAGTATGGTACATTAGGAGCTATAGGAG spacer
	length: 37 repeater length: 30	
31726	501890 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCTCACTGGTTTAGCCGTTTATCCGGAGTGGAAAG spacer
	length: 35 repeater length: 30	
31727	501956 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTCGTGTGTAATCGTGATGAAATCACTTGCCCCG spacer
	length: 35 repeater length: 30	
31728	502022 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGAGTTTGTGATTCTCTGCCATCGCACTCACCCCA spacer
	length: 36 repeater length: 30	
31729	502089 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTTCCACCACCATTGTTATTATTGTTTCCACCACCA spacer
	length: 36 repeater length: 30	
31730	502156 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCGTCATACAAAGGCGGAAGAGTTGAGGCGTTCA spacer
	length: 34 repeater length: 30	
31731	502221 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGAATTGAGTAGATTCGATTAGTTCGTCTATCTTC spacer
	length: 35 repeater length: 30	
31732	502287 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGGCTTACCAATTTCAATTATTACCCATTTTTTTTAC spacer
	length: 37 repeater length: 30	
31733	502355 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTCTTCCATAAAAAACAATTGGATAAGCAACCCTAA spacer
	length: 35 repeater length: 30	
31734	502421 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAGGACAACCCGTGCTGACAGAAGAAGACCCAATC spacer
	length: 35 repeater length: 30	
31735	502487 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTAAAAAGAGTAAAAGTGAGCAGTATGAAAGTACT spacer
	length: 35 repeater length: 30	
31736	502553 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GATAAATCACTTCTTCAGTAAGAGAACGGTAAAAGAG spacer
	length: 37 repeater length: 30	
31737	502621 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTACATCTAATTTTCCATATGCTGAGTCGAATTCAT spacer
	length: 36 repeater length: 30	
31738	502688 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGAAC TCCGTCCTATGCCTTTTCTTGGTAATTCTTA spacer
	length: 38 repeater length: 30	
31739	502757 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTGTATCAACAATCACAGGGAGAGGAGCGAAGTTATC spacer
	length: 37 repeater length: 30	
31740	502825 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTTCCGGTCACGTTT CAGATAGACCGAACTGTTGTAGA spacer
	length: 37 repeater length: 30	
31741	502893 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GCCTTCTTCGCCTCCATTCTCAACTTCTTGCTCTG spacer
	length: 35 repeater length: 30	
31742	502959 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGTAAGCGGATATTCAGCAAATATTGGTTGGGTTT spacer
	length: 35 repeater length: 30	
31743	503025 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTGAGAGCAATAGAGATAGCACTGAAGATTCATAA spacer
	length: 35 repeater length: 30	
31744	503091 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGACGAAAAGCAGAGAGATCAGGTACTTTCCGACT spacer
	length: 36 repeater length: 30	
31745	503158 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTACACCCACTGCCACGATAATGAGGAACAGGACG spacer
	length: 35 repeater length: 30	
31746	503224 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGGAGAAATGGGAACAGATAGCGAAACAACATGAAGAA spacer
	length: 38 repeater length: 30	
31747	503293 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GGGAGAAAGTAAAGGAGATAAAATTAGGGAGTTCCT spacer
	length: 36 repeater length: 30	

31748	503360	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGGTTTCAACTGTCTGAACAATCCTGTGCCTTTGG	spacer
		length: 35	repeater length: 30	
31749	503426	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAGTACCGCTGATGTTGGTTGGTGCTGGGGCAAGA	spacer
		length: 35	repeater length: 30	
31750	503492	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGTAAAAACCGTCAATAAACAATCTTCCTAAACTC	spacer
		length: 36	repeater length: 30	
31751	503559	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGGCGAGGTTGAAGGTATAGTAATAGGAACGGGGT	spacer
		length: 36	repeater length: 30	
31752	503626	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTCGTGAAATAGTCTTCTATTCTTTTCCCACGTA	spacer
		length: 36	repeater length: 30	
31753	503693	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCAACGCACTGGGTCAAGGCTTCAATGACGTCAAG	spacer
		length: 35	repeater length: 30	
31754	503759	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTCGTATACATCAAAGTGACGGGAGACCACGAAGAA	spacer
		length: 36	repeater length: 30	
31755	503826	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAACAGTTTTGTATACTTTCATGAAGATTTTTTGAAA	spacer
		length: 37	repeater length: 30	
31756	503894	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CACTGAATATGTTGACGCTCAATGCGTTCAGGGAGAT	spacer
		length: 37	repeater length: 30	
31757	503962	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCCTCCAGATAAAGTAGTATTTGATGAGCAAAGAGCG	spacer
		length: 37	repeater length: 30	
31758	504030	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GACAAGGAGCCTCGAAAGACTCTTCGCTGGTATGG	spacer
		length: 35	repeater length: 30	
31759	504096	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGAGGTTGATCAAGTAATGTCAATCTTTAGCAGTC	spacer
		length: 36	repeater length: 30	
31760	504163	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TATTTGAAAGCACATGCTCCAAAACCTCCCGCTTCC	spacer
		length: 35	repeater length: 30	
31761	504229	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCGCACCGAAACTTCCCATAAGACCTCTCGCAGCTCC	spacer
		length: 37	repeater length: 30	
31762	504297	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAAGTTTCCTATATGTCTTAGACAGACTCGGTTG	spacer
		length: 34	repeater length: 30	
31763	504362	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACAAAATGTAGTATTTAGGATCATTATCGCGAGAGCAAG	spacer
		length: 39	repeater length: 30	
31764	504432	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTTTCTGAATCCATCTAGCCATGTACCCACCTCATTAG	spacer
		length: 38	repeater length: 30	
31765	504501	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAATACGGCGTAATCAAGACCTTCACTGTGACC	spacer
		length: 33	repeater length: 30	
31766	504565	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACTCTGACTTTGAACTCATCTGGAGTTCAAGGTAAAG	spacer
		length: 37	repeater length: 30	
31767	504633	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGAGTTCAATGGCTCTGTAGGCTACAGGATAAGT	spacer
		length: 34	repeater length: 30	
31768	504698	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTGACCCAATGAGCAATTACAACAGGTTTTTCGAAAAG	spacer
		length: 38	repeater length: 30	
31769	504767	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTAAGCCCAGAAGACAGAGATATGAAAATGAAGGAA	spacer
		length: 36	repeater length: 30	
31770	504834	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CAAAC TAGAATAAAGAATTGGGAAACAATTTATGAGT	spacer
		length: 37	repeater length: 30	
31771	504902	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTAAACTCCATGCCTCTGATAACGCGTTTTTCAAT	spacer
		length: 35	repeater length: 30	
31772	504968	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGGTCTATTTATCTAGAATGTCGAAAGAAGGGATA	spacer
		length: 35	repeater length: 30	
31773	505034	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGAACTCCGCCTTACCATGTCCTCCACCGCCTTCC	spacer
		length: 37	repeater length: 30	
31774	505102	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAGCCCTGGATAACGATCACATATTCGGTGCTATT	spacer
		length: 35	repeater length: 30	
31775	505168	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGGAGGTGGACACGCTGGACGACCCGTCGGTCCTAA	spacer
		length: 37	repeater length: 30	
31776	505236	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TACTCACCTAACACTTTCATGGTCAAATCTCGGTG	spacer
		length: 35	repeater length: 30	
31777	505302	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ACAATCGAAGTAATTGGTTCTCAGTTGCCTATAAT	spacer
		length: 35	repeater length: 30	
31778	505368	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATCTTCACCGTATAGCCGTTCTCGTAATGTATTTCA	spacer
		length: 36	repeater length: 30	
31779	505435	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GAAGTCATTGGAGACGGTCTAAGAAAGGAATTAATG	spacer
		length: 36	repeater length: 30	
31780	505502	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TGTCCCTTCCCTAGCCATAGTCGTTAAGTGTAATTC	spacer
		length: 36	repeater length: 30	
31781	505569	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGTGGGCCAGGGGTACAACCTCTTCGTGGGCCTTAT	spacer
		length: 36	repeater length: 30	
31782	505636	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAGACCAGTCTCAGCCAATTTGGAAAGGTATACT	spacer
		length: 34	repeater length: 30	
31783	505701	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAGATAGGGCAGGGTATCTTCCCCCATGGAAGGACA	spacer

length: 36 repeater length: 30
31784 505768 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GATGGATTTTTGTAAGAGTTTATTATTGCTGCAA spacer
length: 34 repeater length: 30
31785 505833 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTAATTTAGGAGGACCTGCGTGGTCACAGTGAAGGTC spacer
length: 37 repeater length: 30
31786 505901 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGAGCTTCAGACAAATGACTAGAAAATCTGATAA spacer
length: 35 repeater length: 30
31787 505967 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CGGTAAACGGTAGACAAAATCCACACTGGGCCATAAC spacer
length: 37 repeater length: 30
31788 506035 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTTTCAACACCGTTTTAAATACTATTGAAAATATAT spacer
length: 36 repeater length: 30
31789 506102 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GAGGGCTGGAGTAAGGTTTACGACGGGTCTGAGGAC spacer
length: 36 repeater length: 30
31790 506169 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGAAGAAGCTTTTGACGAAGCTGGACCTCTACTGTA spacer
length: 36 repeater length: 30
31791 506236 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGCTCGAAGAATTGCTCAAACAACAAAGCGAAGAAGT spacer
length: 37 repeater length: 30
31792 506304 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTCTAATTTTATTCTTTGCTTTTATTTTATTATTTTCT spacer
length: 38 repeater length: 30
31793 506373 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTCGCATTGGAAGAGCTGGAAGAGAAACGAACCGTGG spacer
length: 37 repeater length: 30
31794 506441 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTCTCTAACCTTAGAACAGATAGACCTGGATAACGGA spacer
length: 37 repeater length: 30
31795 506509 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAGCACTCGCATTCCTGGAGCCACTGGTGTTATT spacer
length: 35 repeater length: 30
31796 506575 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCCACTGTGCGTATTGTATAGCGTTGTAAATATCA spacer
length: 36 repeater length: 30
31797 506642 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATGGTGCAGCATCCTCGCTTTGCTATGTAGATCT spacer
length: 34 repeater length: 30
31798 506707 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTATCAGAAGGTGGATCAGAATTCATTTGATTAATTA spacer
length: 37 repeater length: 30
31799 506775 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATCTCCTGCACTGACAATACTTTGCCCTCCTCGAGT spacer
length: 36 repeater length: 30
31800 506842 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTGACAGTAGCGTTGGATTTGGAACAGAGGAGAT spacer
length: 36 repeater length: 30
31801 506909 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAAATGTAAACAGTACTAGGAATTTTAGGGAATAGA spacer
length: 36 repeater length: 30
31802 506976 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TGTTAATAGGGTCTGGAAAGAATGGCAAATCAACAT spacer
length: 36 repeater length: 30
31803 507043 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AATACGTAAGGAAGTTCGTCGCTCTAAAATGGCAGAG spacer
length: 38 repeater length: 30
31804 507112 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTCTGATGTTAATCCACAGTCACCCTCTCCTGGACC spacer
length: 36 repeater length: 30
31805 507179 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CACTCCTCCTCGCTCATCCACTGACACGGCATCT spacer
length: 34 repeater length: 30
31806 507244 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACTTCGTGATGAGTAACTTCCAATTGGACGTACTGT spacer
length: 37 repeater length: 30
31807 507312 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACTTTTCCCCGGTTCCCCCGGTTAGCGAGTAAAT spacer
length: 36 repeater length: 30
31808 507379 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAGACTAGCGAAGCTTCACTGGTGTACGGGTGGGC spacer
length: 36 repeater length: 30
31809 507446 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAGAACCGBAACGTGATGTATGCGACCTGGGGGAC spacer
length: 35 repeater length: 30
31810 507512 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGGCCTGAGAAGTCTGGAAGGGGACGTGACATAT spacer
length: 35 repeater length: 30
31811 507578 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCTTAGATATATTGAAACTGATTTTAGTCATCTTCGAT spacer
length: 39 repeater length: 30
31812 507648 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCCCCCTCACGGAAGAAGCTACCATAGTGAGGTTCCGGC spacer
length: 39 repeater length: 30
31813 507718 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TATCAAGGAGCTAGCACGTACTGGAACGTCTCTGTGA spacer
length: 37 repeater length: 30
31814 507786 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCTTTACGCCTTCCGTTATTTTTTCCACTTTTCT spacer
length: 34 repeater length: 30
31815 507851 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AGGGAGACTCAGGCGAAAGTGATGAGTATCCTTTTCG spacer
length: 36 repeater length: 30
31816 507918 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TGGATTCCGCAATACGGAATATGGAACAACTAATTT spacer
length: 35 repeater length: 30
31817 507984 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCTAGATTAGACCTCGTTACCTGCCACAGTAGATAC spacer
length: 36 repeater length: 30
31818 508051 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTCTTCTCCGTGTGTGTGGACGCCCTCGGGCTGAAA spacer
length: 36 repeater length: 30

31819	508118	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAAAAGAGGACTTCTGGTTAAGTGGATATGCAA spacer
		length: 34 repeater length: 30	
31820	508183	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTGGATCAATCTTTCTGCCAATTAAGTATATGT spacer
		length: 34 repeater length: 30	
31821	508248	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GAATAGAAGTCCCTCTCTGTGGCTAACCTCACCTCG spacer
		length: 36 repeater length: 30	
31822	508315	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCGAGAACTGGCGTATAGATTGGGTCAGACTTTCAAT spacer
		length: 37 repeater length: 30	
31823	508383	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GCTGAAAGTACCTTCGTTTCAGTTCCTCGAAATTG spacer
		length: 35 repeater length: 30	
31824	508449	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CATCGCTTGGTTCCTCTTCAACGTCCTCCACATTA spacer
		length: 35 repeater length: 30	
31825	508515	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GAGGAGATTTCGCTTGGCCCACTTCCGCTACGACGA spacer
		length: 36 repeater length: 30	
31826	508582	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTCTCAATACTCTCAAACGGTCTGATACTAATACCG spacer
		length: 36 repeater length: 30	
31827	508649	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TAGCACTCGCATTCCTTGGAGCCACTGGTGTATTG spacer
		length: 36 repeater length: 30	
31828	508716	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGATAAACTAACTATCTTTAATTTTCGCACTAAAAAAG spacer
		length: 37 repeater length: 30	
31829	508784	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGAATCAGTGATAATCCTTGTAGATGGTTTAGGAAAA spacer
		length: 37 repeater length: 30	
31830	508852	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AAGAACCGBAACGTGATGTATGCGACCTGGAGGACACA spacer
		length: 38 repeater length: 30	
31831	508921	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCAATAAGGGCAGGTATCTCTACTTGGTCATCCCA spacer
		length: 35 repeater length: 30	
31832	508987	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGGAACTGGAACAGAGATGGATGTCTGGAGGTAGCGT spacer
		length: 36 repeater length: 30	
31833	509054	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CGACAATGAGATAAAATATAATGTGCTAGATGGGACG spacer
		length: 37 repeater length: 30	
31834	509122	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCTCCAGGTACTTTTCGGGTCTGTAAGTCTTACT spacer
		length: 34 repeater length: 30	
31835	509187	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GCAACGCTAGGTATAGGGTGGTGGTTAGGAAGTACAT spacer
		length: 37 repeater length: 30	
31836	509255	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATCTTGTAATAATTAACACTTAGAAATATCGAAGAAA spacer
		length: 36 repeater length: 30	
31837	509322	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATATATATTCATGAGGATTATAGCCAAATTGTGAAAC spacer
		length: 37 repeater length: 30	
31838	509390	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGTCCATAGGCTCTAAGCACACGTCTTCGTTGTAAA spacer
		length: 36 repeater length: 30	
31839	509457	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCTCTTTTACAGTTATTTTCAGCCTTACCACTTTTCGG spacer
		length: 37 repeater length: 30	
31840	509525	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CCATACTGGAGCACTTTCTTTCTTTAGTTTTCTCT spacer
		length: 36 repeater length: 30	
31841	509592	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AATATAAGGTATTATATCCAAACGTGACGATAGCT spacer
		length: 35 repeater length: 30	
31842	509658	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCCATAATGCTTGCATTCCCTCCGATTAATTTTGAT spacer
		length: 35 repeater length: 30	
31843	509724	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTTTATGCGGAAGACGCATATCAGTCTATATACAGCCA spacer
		length: 38 repeater length: 30	
31844	509793	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AATAAGTGAATAGAAGTAATTATCAGTTTGTGGCA spacer
		length: 35 repeater length: 30	
31845	509859	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	CTGTCGGTAGTAGTGCTCCTCTGCCGGGCGCGGCG spacer
		length: 35 repeater length: 30	
31846	509925	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TACACTTCAAGCAATTGGTGTGAATACATATCCTT spacer
		length: 35 repeater length: 30	
31847	509991	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TTTCAAATTAAATTCCATAGATGAAATCTATAGGTGT spacer
		length: 37 repeater length: 30	
31848	510059	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AGTTTTCCCAACTCGCTTTCATCGGTGAGTCCCACTT spacer
		length: 37 repeater length: 30	
31849	510127	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGGAGATGAAAGTAGATGAAAAGAAAGTACAAAACCT spacer
		length: 37 repeater length: 30	
31850	510195	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCATTCAAAATCAACATATTCAACAAATCCTGGACCC spacer
		length: 37 repeater length: 30	
31851	510263	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	AATCAAGAGTTTGAGCGTTTTGATTACCGATAAGG spacer
		length: 35 repeater length: 30	
31852	510329	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	ATGCTGGGACGGAGATGAACGCGAGCATCCGCTCTAG spacer
		length: 37 repeater length: 30	
31853	510397	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	TCCGCCTCCTCCACCTGTTGCTACTGATTCCTCGACG spacer
		length: 37 repeater length: 30	
31854	510465	GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC	GAAAAAGTTAAGTCTCATAGACTGCTAGAGTGGAG spacer

length: 35 repeater length: 30
31855 510531 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CGGACAAGTATATCCTTAATATAAATGTTACATATT spacer
length: 36 repeater length: 30
31856 510598 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACACATATCACCGACCACATTTTCGTAGGATTGCTAAT spacer
length: 37 repeater length: 30
31857 510666 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACCTTCGCACCCTCAGATACTATGGCGTGGAATAATAG spacer
length: 37 repeater length: 30
31858 510734 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCAAAAAGATGATAATTCATTTGCAAAAATATGGGAA spacer
length: 37 repeater length: 30
31859 510802 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTGACTCTCTGAGAAGGCACAACTAGCACTAGGG spacer
length: 35 repeater length: 30
31860 510868 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACTGGAAACTAAACTGGAAGAGGATGTGAATAAA spacer
length: 36 repeater length: 30
31861 510935 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACGGTATATCAGCAAGTGTCTTATTTGAGACTTC spacer
length: 36 repeater length: 30
31862 511002 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAACTCCACATTATATATCTTCCGGGGAACAGGAG spacer
length: 36 repeater length: 30
31863 511069 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACATCTAGCTTTTCGGTCATCGTACGAAATACCTCCC spacer
length: 38 repeater length: 30
31864 511138 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACCGTGCTTAGCCTTACCCTTCTTCTTTATCTCCA spacer
length: 37 repeater length: 30
31865 511206 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GCAATCAATGGGTTCGAGAACTGTAAGAGTATGCC spacer
length: 36 repeater length: 30
31866 511273 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACGTAAATGATGAGATATTCGAAAAGGAAGTCGAA spacer
length: 36 repeater length: 30
31867 511340 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TAGCCCAATAGTGTCCGTCCACATTCCGGACAGGTG spacer
length: 36 repeater length: 30
31868 511407 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATGTAATGTGGGAATTCGATCTTGCTAGATTCCC spacer
length: 34 repeater length: 30
31869 511472 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GACATGGGGGATGAAGAATGATAGAGAAGAAAAAG spacer
length: 35 repeater length: 30
31870 511538 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATAGAAAGAACTCCTTTCTATGAATATGCAATACA spacer
length: 35 repeater length: 30
31871 511604 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATCCCAATCTTCAACTCTACTACTAATGATACGATA spacer
length: 36 repeater length: 30
31872 511671 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC AAGAAAGATTTTCGACGAGTTCGGTGCTGAGCCGTT spacer
length: 35 repeater length: 30
31873 511737 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTGCAGAAATACATACTCATAGTAAGGAGATCTACCC spacer
length: 37 repeater length: 30
31874 511805 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC GTGAGACTGACTTACAATATCGACGTGTGAAGATA spacer
length: 36 repeater length: 30
31875 511872 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TTTTACAATAAACTTCCCGGTTTGCTCGGAAGAAAT spacer
length: 36 repeater length: 30
31876 511939 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ATTTCTTGCAAACACTAGGGCTAAACAACAGTGAA spacer
length: 35 repeater length: 30
31877 512005 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACATGATCGAATTCAGGTCTCCGAGGGTCATAAAC spacer
length: 35 repeater length: 30
31878 512071 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCACCGATTGTGAGAGTATAACCAGAGGCTATCTCCA spacer
length: 37 repeater length: 30
31879 512139 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCGACGTATCCAGAGTGGAAGAGAAAATCACGAAGTG spacer
length: 38 repeater length: 30
31880 512208 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TCGGGTAACTCATCTAAACTCCGCACCTGTGCCTTTCC spacer
length: 38 repeater length: 30
31881 512277 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACTGCAGCTTCAACTTATTCCCTACCTTTTCCGTA spacer
length: 36 repeater length: 30
31882 512344 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CCGACGTATCCAGAGTGGAAGAGAAAATCACGAAGTG spacer
length: 38 repeater length: 30
31883 512413 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC CTTTCGACGATACTTCTACCGAGGCATTCTGGGG spacer
length: 34 repeater length: 30
31884 512478 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACGAGATCGTTGCAGTTGATTATTTGGAAGAGA spacer
length: 34 repeater length: 30
31885 512543 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC TACTTCTCATACACCTCATTCTTAACCCTGATA spacer
length: 33 repeater length: 30
31886 512607 GTTTGTAGGGTTCCTTAGAGGGTTTGAAAC ACCAGAACGGAACCACTACGTTTCTAGACGTTT
31887
31888

31889 GCA_003201765.1_ASM320176v1_genomic.fna(findCrispr):

31890 START REPEAT

SPACER

31891 crispr 1

31892 2161099 ATCCAGAAAGGAATTGAAAG CATCCTTCTAACGTTTCGCAGAAATTGACTAGTATGTTA spacer length:

39 repeater length: 20

31893 2161159 ATCCAGAAAGGAATTGAAAG
ATGATATAATCTTCACCGTAATCAAACCTCTGACAATACTTGTATATCCAGAAAGGGATTGAAAGTAAGTATTACTCTTGAACCAG
AAATAAATAGAAAAAATATGTTA spacer length: 110 repeater length: 20
31894 2161290 ATCCAGAAAGGAATTGAAAG TTAAATACAAATAAATGGTATGATACTGGTGAAAATACAGTTA spacer
length: 43 repeater length: 20
31895 2161354 ATCCAGAAAGGAATTGAAAG CCGAGTAACTTTCTTTGTAGAAATAGATACTCTTTGTATGTTA spacer
length: 43 repeater length: 20
31896 2161418 ATCCAGAAAGGAATTGAAAG GAGAAATTTCCGCTTGATGCTGAAATTATTCCTGGTAAGTGTTA spacer
length: 44 repeater length: 20
31897 2161483 ATCCAGAAAGGAATTGAAAG AAAATATATATTTTTCTCTAAATTTCTGAATACGAATTCTTGTTA spacer
length: 44 repeater length: 20
31898 2161548 ATCCAGAAAGGAATTGAAAG GTAAATAGTGGCGGTACAGTGTACCGGGTTCTGCATTAGTTA spacer
length: 43 repeater length: 20
31899 2161612 ATCCAGAAAGGAATTGAAAG TATATCGCCAACCTCATATCCATTATTTCTAGCGTTTGTTA spacer
length: 42 repeater length: 20
31900 2161675 ATCCAGAAAGGAATTGAAAG TGCTACTAGTCTTGCTCTCGTTCTCGTTATTGCTCTCTTCTGTTA spacer
length: 45 repeater length: 20
31901 2161741 ATCCAGAAAGGAATTGAAAG ATTACTCAATTTAAACATAACTAAGTACATACTATTTGGTTA spacer
length: 42 repeater length: 20
31902 2161804 ATCCAGAAAGGAATTGAAAG AGGTCAAACGGATATGTCCTATCAAGTTGTGGCTTAAGTTA spacer
length: 41 repeater length: 20
31903 2161866 ATCCAGAAAGGAATTGAAAG ATTGCACGAGATTCTCCTATCGTCAGTGGTTGATTACTGTTA spacer
length: 42 repeater length: 20
31904 2161929 ATCCAGAAAGGAATTGAAAG TTATTATCTATAGCATCACTAAGCTTATTCAAGTACCATTA spacer
length: 41 repeater length: 20
31905 2161991 ATCCAGAAAGGAATTGAAAG TATCTATACTCATTCGCATTAGGCTGTAAGTTATTTGCTGTTA spacer
length: 43 repeater length: 20
31906 2162055 ATCCAGAAAGGAATTGAAAG ATCTGATATCCTAGCACTTAGTTGCCTCAATCATAGCACGTTA spacer
length: 43 repeater length: 20
31907 2162119 ATCCAGAAAGGAATTGAAAG AAAAGTGGTAAAAGTCTAATTAAATAATCTTTGATATTTGAGTTA spacer
length: 45 repeater length: 20
31908 2162185 ATCCAGAAAGGAATTGAAAG TTAGTAAGTGAATTTACTTTTGAACTACATTTGAATCGGTTA spacer
length: 43 repeater length: 20
31909 2162249 ATCCAGAAAGGAATTGAAAG AAAAATTGAGAAAAATAGTTCATAAAAAAATAAAATATGTTA spacer
length: 43 repeater length: 20
31910 2162313 ATCCAGAAAGGAATTGAAAG TATTTGATCTAATTCGAATTCACCTCATTTTCTTCCCAAGTTG spacer
length: 43 repeater length: 20
31911 2162377 ATCCAGAAAGGAATTGAAAG CATATAGCAACACATCCATCTTCATCACTTGAATTCTTTGTTG spacer
length: 43 repeater length: 20
31912 2162441 ATCCAGAAAGGAATTGAAAG TTAGTTAACTTTAATGGCACTGGCACTAACACATCGACCGTTG spacer
length: 43 repeater length: 20
31913 2162505 ATCCAGAAAGGAATTGAAAG TGTACTGGTACATTTAACAGCTGAACTAATTCTTTTAGTTG spacer
length: 41 repeater length: 20
31914 2162567 ATCCAGAAAGGAATTGAAAG AATTTCTTCACTTTTAATACTTCAAGCAATTGTTGTACAGGGTTG spacer
length: 45 repeater length: 20
31915 2162633 ATCCAGAAAGGAATTGAAAG TCGTCTGGTTCGCTTTTCATATGCCAGTCATATGTCTCTGTTG spacer
length: 43 repeater length: 20
31916 2162697 ATCCAGAAAGGAATTGAAAG GGTAATGGACCTGGTACTATCTTAATTCCACTTTTAGTGTGGTTG spacer
length: 45 repeater length: 20
31917 2162763 ATCCAGAAAGGAATTGAAAG ATGCTGGATTAGCATTATTCGCTAGTGATATTTGTGATGGTTG spacer
length: 43 repeater length: 20
31918 2162827 ATCCAGAAAGGAATTGAAAG TCGTCTACCCTTTTCTGTATTTGCCATCCGTCATCTATCAGTTG spacer
length: 44 repeater length: 20
31919 2162892 ATCCAGAAAGGAATTGAAAG ACTTAAAGTTAATGGCATTATATAGTGACGCTTACTTTACGTAAC

31920

31921

31922 crispr 2

31923 2172646 CTTTC AATTCCTTTCTGGATACATCCTGAGAATCCTGCAATAGTAGGAAAATGGCAAGTATGGT spacer
length: 59 repeater length: 5

31924 2172711 CTTTC AATTCCTTTCTGGATGCAACAATATATTAGATTTGGTGATATTTATTTAGAGGAGTTAA spacer
length: 59 repeater length: 5

31925 2172776 CTTTC

AATTCCTTTCTGGATGCAACGCTTTTGATACAGAAGCCTGGATAAATCAAACCTGATAATCTTTCAATTCCTTTTGGATGCAACGC
AAGAAAACAGTACAAATAGGTCAATTCTGAAGTAGAGA spacer length: 123 repeater length: 5

31926 2172905 CTTTC AATTCCTTTCTGGATGCAACGAAAGGCTAATAACAGATGAGTTTTCTTTTATTTATA spacer
length: 57 repeater length: 5

31927 2172968 CTTTC AAGAAACATTAATCACTCTAGGAAAAGTAATAGTAGAACCATTATCGTACCAACCAA

31928

31929

31930 crispr 3

31931 2217353 GTTTT AGTTTCTTTGAGTTGTTACATGCCAAGACATTGCTCAACAATATTTGAGCACT spacer length:
53 repeater length: 5

31932 2217412 GTTTT AGTTTCTTTGAGTTGTTACAAATTAAAGTATCATAATCACTAGATATCTAAACCA spacer length:
55 repeater length: 5

31933 2217473 GTTTT AGTTTCTTTGAGTTGTTACAATTTTCGATATATCTCTGTAAATTATGCAATCGA spacer length:
54 repeater length: 5

31934 2217533 GTTTT AGTTTCTTTGAGTTGTTACGCAATGTACAGTTACATGATAGAGGAAAATACTC spacer length:
53 repeater length: 5

31935 2217592 GTTTT AAAGAACTAAACTCTGAGAATTGCTTTATAGCAAAGCGAATCCCAGTAACA

31936

31937

31938 crispr 4

31939 2207012 TTAATCTATTATAGAATTGAAAG GTATCCGGACAAGATGTCCAAGTGAGTAGCTGGTCAGACCT spacer
length: 41 repeater length: 23

31940 2207077 TTAATCTATTATAGAATTGAAAG TATTTAGTGTATTTTTTACACAAAAGATATATTTTCTGCA spacer
length: 41 repeater length: 23

31941 2207142 TTAATCTATTATAGAATTGAAAG ACTTTAAGTCAAAATATGAGAAATAATCAAATTCAGATG spacer
length: 40 repeater length: 23

31942 2207206 TTAATCTATTATAGAATTGAAAG CAAAATACAAGTAGTTCTTCATCTACAAAATCATCTAAT spacer
length: 39 repeater length: 23

31943 2207269 TTAATCTATTATAGAATTGAAAG TTCTTAATGGCTTCTCCAATATCTCATTTCGTCTAAGCT spacer
length: 39 repeater length: 23

31944 2207332 TTAATCTATTATAGAATTGAAAG ATATAAAAGCCTCTGTGACAGGTAATGTAAATGCAACCA spacer
length: 39 repeater length: 23

31945 2207395 TTAATCTATTATAGAATTGAAAG AATCATTCACATCTTCATCTGTCAATGCAATTCAGGCATG spacer
length: 41 repeater length: 23

31946 2207460 TTAATCTATTATAGAATTGAAAG ATAATATATAGATATATTATATCTTAGATATGTCATCCAATT spacer
length: 42 repeater length: 23

31947 2207526 TTAATCTATTATAGAATTGAAAG TTTATGTATACGTATTTCTAACTCATTCTTTTCATTTAAT spacer
length: 40 repeater length: 23

31948 2207590 TTAATCTATTATAGAATTGAAAG TATATTTTTCCGAGAGAAAGCACTGCCAGAACGCCTTCT spacer
length: 39 repeater length: 23

31949 2207653 TTAATCTATTATAGAATTGAAAG ATTATTCGGCATTAGCCAGTTATTACCAACAATTATCGCA spacer
length: 40 repeater length: 23

31950 2207717 TTAATCTATTATAGAATTGAAAG CTTCTAGCGCCATTAATTTCTGAATCTCTTGCCATGCTA spacer
length: 39 repeater length: 23

31951 2207780 TTAATCTATTATAGAATTGAAAG CATCAAACTTAAATAATAAACTACTGGTTTGCCCAATTCAT spacer
length: 42 repeater length: 23

31952 2207846 TTAATCTATTATAGAATTGAAAG TTTTGAATGAAGAAATATGCTACAATCAGGGGAGTTAACTT spacer
length: 41 repeater length: 23

31953 2207911 TTAATCTATTATAGAATTGAAAG AATATGTGCAATATTGATATTTGATTTATATAATGCAACA spacer
length: 40 repeater length: 23

31954 2207975 TTAATCTATTATAGAATTGAAAG TTCATTATTTTGCCCAAGTCCAGTACTTTCTATCTGGAAT spacer
length: 40 repeater length: 23

31955 2208039 TTAATCTATTATAGAATTGAAAG ATATTGCACTCTAAAGTATTTAAACCTTACTATTGGGCT spacer
length: 39 repeater length: 23

31956 2208102 TTAATCTATTATAGAATTGAAAG TCTACATTACTTCTATTGCCAAGTTGTGCGAATGCTTTGT spacer
length: 40 repeater length: 23

31957 2208166 TTAATCTATTATAGAATTGAAAG ATTGCAATTGCAAAGAGCAATGCACCAAACACAGCAATAT spacer
length: 40 repeater length: 23

31958 2208230 TTAATCTATTATAGAATTGAAAG ATTTTACATCTTTGATTTGAGAAACAGTGAGTTGATAGGA spacer
length: 40 repeater length: 23

31959 2208294 TTAATCTATTATAGAATTGAAAG TTATGATGTCTAATTCCTTTTCTAAAATGTTTTTATCAA spacer
length: 40 repeater length: 23

31960 2208358 TTAATCTATTATAGAATTGAAAG ATTATCAAGACCTAAGTTAAAATCTGCATAAATTAAAAA spacer
length: 39 repeater length: 23

31961 2208421 TTAATCTATTATAGAATTGAAAG TATTTTTCTACAAATGCCATTTGTACAGAATTTAATGA spacer
length: 38 repeater length: 23

31962 2208483 TTAATCTATTATAGAATTGAAAG TACTCCACCTTTACATTTATTGTCTCTCTAGATTCAACTTT spacer
length: 41 repeater length: 23

31963 2208548 TTAATCTATTATAGAATTGAAAG CATGAAGAGAAACCCAAAGCTGAAGAGAAAAATCTTCAGATT spacer
length: 43 repeater length: 23

31964 2208615 TTAATCTATTATAGAATTGAAAG ATAGCTTGTCTACGGGGTCCATAATGGATAATAAAAAAT spacer
length: 38 repeater length: 23

31965 2208677 TTAATCTATTATAGAATTGAAAG CTTTTTATAGGCTAACTCAAAAAACAATACACACTTTCTTTT spacer
length: 42 repeater length: 23

31966 2208743 TTAATCTATTATAGAATTGAAAG ATAAAGGGGCCTTACCTTGTTTTAGGTTTGATTGACTTG spacer
length: 39 repeater length: 23

31967 2208806 TTAATCTATTATAGAATTGAAAG AACTTAGTGTAAAGAGGTAGAGTAGATTTTCATGACTGA spacer
length: 38 repeater length: 23

31968 2208868 TTAATCTATTATAGAATTGAAAG CTACACGCCGACAACAATGCTAGGCGCGCTAATCGATGC spacer

length: 39 repeater length: 23
31969 2208931 TTAATCTATTATAGAAATTGAAAG TTAGGTATTGCAAAGCTATCAGTGT CAGTATACCAAACCT spacer
length: 40 repeater length: 23
31970 2208995 TTAATCTATTATAGAAATTGAAAG AGTTCTATTGCTATTATGAAGAGCACTAGAACTACTAGAGTA spacer
length: 42 repeater length: 23
31971 2209061 TTAATCTATTATAGAAATTGAAAG ACTTAAATGTAATTATTCTCACTGTACTTCACCCCCTTC spacer
length: 39 repeater length: 23
31972 2209124 TTAATCTATTATAGAAATTGAAAG CGATTAAGTCAATTATTAATACTGATTCTATTGAGTTTGCC spacer
length: 41 repeater length: 23
31973 2209189 TTAATCTATTATAGAAATTGAAAG TTAAAAATACTTTAAGCTATACTTTAAGCGAATTAAAAAT spacer
length: 39 repeater length: 23
31974 2209252 TTAATCTATTATAGAAATTGAAAG TCGTAACGCCATTGGACATTGACGATAAAACGATAACTG spacer
length: 39 repeater length: 23
31975 2209315 TTAATCTATTATAGAAATTGAAAG CCAACACTTTTTTTCAGATGATACAGAATTACAATATATGTTTG spacer
length: 43 repeater length: 23
31976 2209382 TTAATCTATTATAGAAATTGAAAG GTCTAAGCATTCTTCGATATCGTCCATACTTATGTCTCTG spacer
length: 41 repeater length: 23
31977 2209447 TTAATCTATTATAGAAATTGAAAG TATCTTCTGATACCATTCTTCATCAGGGGATACTTTGTGT spacer
length: 40 repeater length: 23
31978 2209511 TTAATCTATTATAGAAATTGAAAG TGTATTCTTTTGAATTTCAAACCTATATAAATTTAACTCATA spacer
length: 41 repeater length: 23
31979 2209576 TTAATCTATTATAGAAATTGAAAG CTTTTATTTGGGGCAGGTAGCGGGGGATCTACAGATTATG spacer
length: 40 repeater length: 23
31980 2209640 TTAATCTATTATAGAAATTGAAAG AATTCTTAGCATTAATTATTGCTAACGCCATCTCATT spacer length:
37 repeater length: 23
31981 2209701 TTAATCTATTATAGAAATTGAAAG GTCTCCATATTATCGCCTCATTTTCCTAGAACTCTATTA spacer
length: 39 repeater length: 23
31982 2209764 TTAATCTATTATAGAAATTGAAAG CGCGGTGGTAGGCTCTTTCTGAGTGCATCCATTGCTGGG spacer
length: 39 repeater length: 23
31983 2209827 TTAATCTATTATAGAAATTGAAAG ACATTTGGTAATGTTGTAAGCACATCTATAGCCACTGATT spacer
length: 40 repeater length: 23
31984 2209891 TTAATCTATTATAGAAATTGAAAG ATGTATTTCCAAAGAAATTAGAAATATATGAAAATCCCCTA spacer
length: 41 repeater length: 23
31985 2209956 TTAATCTATTATAGAAATTGAAAG ATATTATATATTAAACAACCTACTAGCTTACTAACTATTATACT spacer
length: 44 repeater length: 23
31986 2210024 TTAATCTATTATAGAAATTGAAAG TCAATTTCTTTAATAATCAATCTCAGCACTTTATCATCTTCAT spacer
length: 43 repeater length: 23
31987 2210091 TTAATCTATTATAGAAATTGAAAG CAGTAACGAATAAGTCTATCAGTTTATTCCTATAATTAACCCTA spacer
length: 44 repeater length: 23
31988 2210159 TTAATCTATTATAGAAATTGAAAG ACTATGCACTGCCACACACCCCTCATCAAATTGAGATAAATCAT spacer
length: 44 repeater length: 23
31989 2210227 TTAATCTATTATAGAAATTGAAAG TTATGACTATTTGTCACAAAAAGTGGAGAGTCTGAACTATT spacer
length: 41 repeater length: 23
31990 2210292 TTAATCTATTATAGAAATTGAAAG AATAAGAGCAAATCTGTATTACTAAGCAAAGAAGATGAAG spacer
length: 40 repeater length: 23
31991 2210356 TTAATCTATTATAGAAATTGAAAG TCAGTCCTTTGCATAATATTTTCATCATTAACTCTCAAATTA spacer
length: 41 repeater length: 23
31992 2210421 TTAATCTATTATAGAAATTGAAAG TAAGGCTTATGCAATCCATTTATCCATTTGGTTATAA spacer length:
37 repeater length: 23
31993 2210482 TTAATCTATTATAGAAATTGAAAG GAAAATAGTATTATAGGCGTCTATGCAGATTATGATATA spacer
length: 39 repeater length: 23
31994 2210545 TTAATCTATTATAGAAATTGAAAG TGGCTAGCCAGTAGGGACTTTATATCGTCAAAAGCAAG spacer
length: 38 repeater length: 23
31995 2210607 TTAATCTATTATAGAAATTGAAAG TGTATTCTTTTGAATTTCAAACCTATATAAATTTAACTCATA spacer
length: 41 repeater length: 23
31996 2210672 TTAATCTATTATAGAAATTGAAAG ACTATCTAAAGAAACAGATTCCAAAGGTAATTTGTAAGA spacer
length: 39 repeater length: 23
31997 2210735 TTAATCTATTATAGAAATTGAAAG AATTTTTTAAACCCCCAACCCGCATGCCGTGTAGAATTAA spacer
length: 40 repeater length: 23
31998 2210799 TTAATCTATTATAGAAATTGAAAG GGTTTGGCTGAAGGAGCCATAACAATGGGGGGTATTCAT spacer
length: 39 repeater length: 23
31999 2210862 TTAATCTATTATAGAAATTGAAAG CATTATTATATATCCATAATAGTAATAACTCTATAATTTCTT spacer
length: 42 repeater length: 23
32000 2210928 TTAATCTATTATAGAAATTGAAAG CAACTATATGCTAAATATCCAGTGTTATCATTAACTCTTAG spacer
length: 41 repeater length: 23
32001 2210993 TTAATCTATTATAGAAATTGAAAG TTTACATTACCTGTAAGTGTGCCCTAATATAAGAATTGA spacer
length: 40 repeater length: 23
32002 2211057 TTAATCTATTATAGAAATTGAAAG TCTACGAAAAAGTAGAAATGAAAACCTCGTTTAGTTTCTA spacer
length: 40 repeater length: 23
32003 2211121 TTAATCTATTATAGAAATTGAAAG GTTGAAATTACATTAAGAGTCGGCACTCCAGAAAAAATTA spacer
length: 40 repeater length: 23

32004	2211185	TTAATCTATTATAGAAATTGAAAG	TTTTTTTCCACCAAGAATTCAGTTGTTTGTCACTGTTTTT	spacer
	length:	39	repeater length:	23
32005	2211248	TTAATCTATTATAGAAATTGAAAG	AATGCTTGAGCGTTCAAGTGCTTAAACGCTTGAGCACTTG	spacer
	length:	40	repeater length:	23
32006	2211312	TTAATCTATTATAGAAATTGAAAG	AATCCTATTTTTGATATTTTATTAATTTTGATAGCTTTTA	spacer
	length:	40	repeater length:	23
32007	2211376	TTAATCTATTATAGAAATTGAAAG	ACCTTTTTTACAGTATTACCTACCATCAATGCTTTTAGTTT	spacer
	length:	41	repeater length:	23
32008	2211441	TTAATCTATTATAGAAATTGAAAG	CTAAGTTAATTCTTTTTTCTCTTCTTATTTGTTATTTTTTC	spacer
	length:	40	repeater length:	23
32009	2211505	TTAATCTATTATAGAAATTGAAAG	ACTACGCTGGATCATCTGATAGGTCCAGTCGGAGAGTAC	spacer
	length:	39	repeater length:	23
32010	2211568	TTAATCTATTATAGAAATTGAAAG	AGGTTTAGTGCATCCAAAGGCGTCAAATATTATATCTTA	spacer
	length:	39	repeater length:	23
32011	2211631	TTAATCTATTATAGAAATTGAAAG	ATTAGTTATCAATTCTATCCAGTTGTTTCATGGAATTCCT	spacer
	length:	39	repeater length:	23
32012	2211694	TTAATCTATTATAGAAATTGAAAG	GTGCTAAGTTCAATATTTAACTGTGCATCTGTTGTTTCCTT	spacer
	length:	40	repeater length:	23
32013	2211758	TTAATCTATTATAGAAATTGAAAG	TAAAGCTAAAGCGTCATCAAAGTCTGGAATCTCTGG	spacer
	length:	42	repeater length:	23
32014	2211824	TTAATCTATTATAGAAATTGAAAG	ACAAATGTCACATTTTTCAATTTTTCTCACCCAAAAGCAT	spacer
	length:	40	repeater length:	23
32015	2211888	TTAATCTATTATAGAAATTGAAAG	ACTATATTTTCAGAAATTGAAGATATATTATTTAAGCAT	spacer
	length:	38	repeater length:	23
32016	2211950	TTAATCTATTATAGAAATTGAAAG	TGTACAAGGTGTAGTTATGAGGAAATCGCGAGAACGATG	spacer
	length:	39	repeater length:	23
32017	2212013	TTAATCTATTATAGAAATTGAAAG	TTTAGTTTGCTTTTTTATAATAATTTCTTCACGTTCTTTTTT	spacer
	length:	40	repeater length:	23
32018	2212077	TTAATCTATTATAGAAATTGAAAG	TAGTGACCCGAAGTGAAACCTGCCGTCTTCAATTTATTGT	spacer
	length:	40	repeater length:	23
32019	2212141	TTAATCTATTATAGAAATTGAAAG	ACGTAAGAGATTCCACTATATTCATTATCATCATAATAAT	spacer
	length:	40	repeater length:	23
32020	2212205	TTAATCTATTATAGAAATTGAAAG	TTCTCTATTTCTTCACATTTAAAATCATAACCTATTTTCAT	spacer
	length:	40	repeater length:	23
32021	2212269	TTAATCTATTATAGAAATTGAAAG	TTTATTATGATATAACTATCATAATCTTCTGCAATATCAC	spacer
	length:	41	repeater length:	23
32022	2212334	TTAATCTATTATAGAAATTGAAAG	TGATATTCAAAACCTCTGTGTTCCCCAGGGTCTAAGTTCTA	spacer
	length:	40	repeater length:	23
32023	2212398	TTAATCTATTATAGAAATTGAAAG	CATATTGCATTCTTTCTGCTCTTCTGAAAAAATGATT	spacer
	length:	38	repeater length:	23
32024	2212460	TTAATCTATTATAGAAATTGAAAG	TTTGTCTAAACCAACTGATTTCGGTTGGTAATTTAAATAAA	spacer
	length:	40	repeater length:	23
32025	2212524	TTAATCTATTATAGAAATTGAAAG	ACGTATCCATTTGAAAATTCTGCCATAATAAGTCCATCTT	spacer
	length:	40	repeater length:	23
32026	2212588	TTAATCTATTATAGAAATTGAAAG	TTTCAAAGACTAACTAGTGGCATGTGGAATACCGCAGTTTT	spacer
	length:	41	repeater length:	23
32027	2212653	TTAATCTATTATAGAAATTGAAAG	TCTTCAATTTGTGCCGGTAAGAAAAAGATAGATTCAACAC	spacer
	length:	40	repeater length:	23
32028	2212717	TTAATCTATTATAGAAATTGAAAG	TGTAATTGGATCGATTTGTCCATTACTTATTGTAGT	spacer length:
	length:	36	repeater length:	23
32029	2212777	TTAATCTATTATAGAAATTGAAAG	TTAAATGAATAAGTATGGCAAGAAGAAAAAATTACATTT	spacer
	length:	40	repeater length:	23
32030	2212841	TTAATCTATTATAGAAATTGAAAG	GATTGCGAACTTATTATTTGTTCACTAACGTCTATCATTACTGG	spacer
	length:	44	repeater length:	23
32031	2212909	TTAATCTATTATAGAAATTGAAAG	AGCCCTTTTGGGTTTGGGAAAACACAATTCCACTAGCCTC	spacer
	length:	40	repeater length:	23
32032	2212973	TTAATCTATTATAGAAATTGAAAG	AAAGTAATAGTAGAACCATTTATCGTACCAACCAACAACAC	
32033				
32034				
32035	crispr 5			
32036	2263948	CTGTGATCCATTAAATCACTATTT	ATACGTTACATATCTTCGTTCGAATGTGATCTCCGTTATTAATCCTTTAACAAATCAAGTGATTGCAAATATATCAGTAGGTAATT	
			CTCCATCTACATTT	spacer length: 101
			repeater length:	24
32037	2264074	CTGTGATCCATTAAATCACTATTT	GTATGTGACAGGATTTGGTTTCAGTGAGGTCTCCGTTATTAATTTCTTCAACAAATCAAGTAATTACTAATATATCACTAGGTGGTT	
			CAACTAGTTTTCCAATTTACTGTGATCCATACAATCACTACTATTTATATTTTCCAATTT	spacer length: 146
			repeater length:	24
32038	2264245	CTGTGATCCATTAAATCACTATTT	CAGAAGAAACATTAATTATACGAGGAAGTACAATACTGCTATCATTCCTAACCCACTCAGAAACCGTACCATTAGGATAAACAAATC	
			GTAAGTAGATCATATGGAATATAATAAGGTATTATGTATATTTCTCAAACCAATTATTG	
32039				

32040

32041 crispr 6

32042 2186341 CTTTCAATTCTATAGTAGATTAAC TTCTGTGGTTTTTAAACCGCGGTAGTAATTTTATCACAA spacer
length: 38 repeater length: 24

32043 2186404 CTTTCAATTCTATAGTAGATTAAC AATAAGATTGCAAGCGTTCCTATCGCTTGTAAGTATCAA spacer
length: 40 repeater length: 24

32044 2186469 CTTTCAATTCTATAGTAGATTAAC ATGAAGAAATATAATGTAAAGTATATGAAGGAATTA spacer length:
36 repeater length: 24

32045 2186530 CTTTCAATTCTATAGTAGATTAAC AGGCCAGTTATACTTCCCGGTAACTCGATTCACGTAGGTA spacer
length: 40 repeater length: 24

32046 2186595 CTTTCAATTCTATAGTAGATTAAC CTTCCAGGCGAAATTGCATATGCAATAAAACAATCAATT spacer
length: 39 repeater length: 24

32047 2186659 CTTTCAATTCTATAGTAGATTAAC AGCCGAGCATCAAATCTGGAGAGTTCTTGTTGAAAGTT spacer
length: 38 repeater length: 24

32048 2186722 CTTTCAATTCTATAGTAGATTAAC AAATATCCAAGAGAAAGAGGAAGAATCTGAAGATGAAAAT spacer
length: 40 repeater length: 24

32049 2186787 CTTTCAATTCTATAGTAGATTAAC ATTCCTCTTTTGTACTTGTAAGTATTAGCCAACTGTAAG spacer
length: 41 repeater length: 24

32050 2186853 CTTTCAATTCTATAGTAGATTAAC ATAATTAGTATAACAAAATCTTTCTGACTTACCATATTT spacer
length: 39 repeater length: 24

32051 2186917 CTTTCAATTCTATAGTAGATTAAC GCGATGAAGATCAATGCATCGCCTGGTGCGAAAGGATAT spacer
length: 39 repeater length: 24

32052 2186981 CTTTCAATTCTATAGTAGATTAAC AAGATGATAAAGCACGGCAAGAAGAAAACAACGATTTACCTG spacer
length: 42 repeater length: 24

32053 2187048 CTTTCAATTCTATAGTAGATTAAC ATGAGTATGTATTCCTAGGCTCATACTATCACCTTGT spacer
length: 37 repeater length: 24

32054 2187110 CTTTCAATTCTATAGTAGATTAAC TACCTTTTACCAGACCTAGTAATGCTAAAGTAATTGAGCC spacer
length: 40 repeater length: 24

32055 2187175 CTTTCAATTCTATAGTAGATTAAC TTCTCGACCCATCCTCTTATTATGTATATCCTCAGCC spacer
length: 37 repeater length: 24

32056 2187237 CTTTCAATTCTATAGTAGATTAAC CTTCACAAAGGTAAGGGATATGTGGAACCTTGGTGTT spacer
length: 37 repeater length: 24

32057 2187299 CTTTCAATTCTATAGTAGATTAAC TGTACCTGCTGGACATACTTTGCAAAGCCATTTATGGCAG spacer
length: 40 repeater length: 24

32058 2187364 CTTTCAATTCTATAGTAGATTAAC TTTGTAATACAATATTTTCATGTCATCAAAATTCAATCC spacer
length: 38 repeater length: 24

32059 2187427 CTTTCAATTCTATAGTAGATTAAC ATTATAACGCCGTTGCACAAGCAGAGCAAGATCTCAATG spacer
length: 39 repeater length: 24

32060 2187491 CTTTCAATTCTATAGTAGATTAAC
CAATTGCGGTGCTATACAGCCTTCCCATGACGTTCCCGACTTTTAAATTCTATAGTAGATTAACGTATGTAGATAAGCAATCCTCAA
CGCAGAGATAATAAT spacer length: 101 repeater length: 24

32061 2187617 CTTTCAATTCTATAGTAGATTAAC TAAATCTACTTCTAGAAGTGACCAAAGGGCGGATTAAA spacer
length: 40 repeater length: 24

32062 2187682 CTTTCAATTCTATAGTAGATTAAC AGTGCTGGTGCTACTGTTTTTAGTGCGTTCACACGGTCA spacer
length: 39 repeater length: 24

32063 2187746 CTTTCAATTCTATAGTAGATTAAC GGCAAGTACGTTCCATATGGTACATCATTTTCTGTTTCTA spacer
length: 40 repeater length: 24

32064 2187811 CTTTCAATTCTATAGTAGATTAAC AAAATTATAAAGCCTGGCATATGCTGTAACAAAACCTTGCTA spacer
length: 41 repeater length: 24

32065 2187877 CTTTCAATTCTATAGTAGATTAAC TAGAAATTCTAGAACTGATAAAGGAAAAGGAAGATACTTCC spacer
length: 42 repeater length: 24

32066 2187944 CTTTCAATTCTATAGTAGATTAAC ATACTAGATATGCAAAGGAGCTCAGATAACAGAGT spacer length:
36 repeater length: 24

32067 2188005 CTTTCAATTCTATAGTAGATTAAC ATTTAGTGGCTCAGGCTTTTCAAAGCTTTTCAAGAATA spacer
length: 38 repeater length: 24

32068 2188068 CTTTCAATTCTATAGTAGATTAAC TTTCAAGTTCTTCCTTATTATATTCAAAGCCGGCCTT spacer
length: 37 repeater length: 24

32069 2188130 CTTTCAATTCTATAGTAGATTAAC TAGTTCATTAAAAAGTGTCTCAGATTGTTTTTTCACATG spacer
length: 39 repeater length: 24

32070 2188194 CTTTCAATTCTATAGTAGATTAAC CGTAAACTGTTGCGGGTCCGGTTGCCCATGCATAGATGTTA spacer
length: 41 repeater length: 24

32071 2188260 CTTTCAATTCTATAGTAGATTAAC TGGAACCAATTTGTAAATTTACTCTTAGAAGTGTATCAAA spacer
length: 40 repeater length: 24

32072 2188325 CTTTCAATTCTATAGTAGATTAAC TTGGCGCTAGTTGATTCCTTAGCGTTTTTGTGTTTTAGTGTT spacer
length: 42 repeater length: 24

32073 2188392 CTTTCAATTCTATAGTAGATTAAC GTTTAATGAATCACATTTCGATAACAAAATCGATAAGCAA spacer
length: 39 repeater length: 24

32074 2188456 CTTTCAATTCTATAGTAGATTAAC TAAACCATTTATTAATTATCCGATAGCATGGGATATTTT spacer
length: 39 repeater length: 24

32075 2188520 CTTTCAATTCTATAGTAGATTAAC GATACAAACATCACTAACTCAATAATTAAAGTCTCTATCA spacer
length: 40 repeater length: 24

32076	2188585	CTTTCAATTCTATAGTAGATTAAC	GAATTACAGTGGTAAGATTACAGTCTTACAGAAAAACCTT	spacer
	length:	40	repeater length:	24
32077	2188650	CTTTCAATTCTATAGTAGATTAAC	TGTTAATGTTTTGAATAGTGAAATCAATGCAAAGTTAG	spacer
	length:	39	repeater length:	24
32078	2188714	CTTTCAATTCTATAGTAGATTAAC	CCTGTGATATCAAATAGAGCAACCCAATTCTCAATGTATT	spacer
	length:	40	repeater length:	24
32079	2188779	CTTTCAATTCTATAGTAGATTAAC	GGGCAAAATGTCTCATGTATACAGAATAAGTCATTTGGG	spacer
	length:	39	repeater length:	24
32080	2188843	CTTTCAATTCTATAGTAGATTAAC	AGCAGAATTTAACTACTTTAACTCACAGTGGTGTAAATG	spacer
	length:	38	repeater length:	24
32081	2188906	CTTTCAATTCTATAGTAGATTAAC	ATACACCAGATTTGATTGACAAGTATCTCAAACTATCTA	spacer
	length:	40	repeater length:	24
32082	2188971	CTTTCAATTCTATAGTAGATTAAC	GTTGTGATAATTGAATTTGTTGTGAACTACATCCTTGAA	spacer
	length:	39	repeater length:	24
32083	2189035	CTTTCAATTCTATAGTAGATTAAC	GAGAAAAAATTGAATTTGATGTGGACGGTATGAAAGTAT	spacer
	length:	40	repeater length:	24
32084	2189100	CTTTCAATTCTATAGTAGATTAAC	TACAATTTAGAATATAAAGTCGGAGAACAGAGAATTGT	spacer
	length:	38	repeater length:	24
32085	2189163	CTTTCAATTCTATAGTAGATTAAC	ACGGGTCGGGGAACACAGCGGACTTAGTCCGCGATCGGG	spacer
	length:	39	repeater length:	24
32086	2189227	CTTTCAATTCTATAGTAGATTAAC	GAACAGATGGGCCAGTTTTATAATTTTCGCGTTATATC	spacer
	length:	39	repeater length:	24
32087	2189291	CTTTCAATTCTATAGTAGATTAAC	CATCATTCAACAATGACATATTGATTATAGCGTTAATT	spacer
	length:	38	repeater length:	24
32088	2189354	CTTTCAATTCTATAGTAGATTAAC	TGATTCTAATTGTGTTGGATTCCAAATTTGAGTTTTTTAATAG	spacer
	length:	43	repeater length:	24
32089	2189422	CTTTCAATTCTATAGTAGATTAAC	AAGACCGCGTTCAAAATTTTCTAAGTATAAGTCCATTCTCTAA	spacer
	length:	42	repeater length:	24
32090	2189489	CTTTCAATTCTATAGTAGATTAAC	GCGGATAGAAGTCAGGGAGGATAAAGATAGAAATAGAAAGC	spacer
	length:	41	repeater length:	24
32091	2189555	CTTTCAATTCTATAGTAGATTAAC	TTGCCACTGGTGTCCCATCTACCAACTTAGTTTTTCAAAA	spacer
	length:	39	repeater length:	24
32092	2189619	CTTTCAATTCTATAGTAGATTAAC	CTAAAAGTTTTGAAGGAGCATGGCTTCGACGCGAAAATAC	spacer
	length:	40	repeater length:	24
32093	2189684	CTTTCAATTCTATAGTAGATTAAC	TTAACAGGATATCCGATCCACTCTGATTCTATTATGTAAT	spacer
	length:	40	repeater length:	24
32094	2189749	CTTTCAATTCTATAGTAGATTAAC	TGTTTATCTGAAGTATGACAGAGAAGGCATGGTAATGA	spacer
	length:	38	repeater length:	24
32095	2189812	CTTTCAATTCTATAGTAGATTAAC	TTGATATTGTTGTAGATTTTGTGTAACTGCTGGGCGTAA	spacer
	length:	40	repeater length:	24
32096	2189877	CTTTCAATTCTATAGTAGATTAAC	CCCACTGTAGAAACGACATACTAAAAATTTTGAAAGAAC	spacer
	length:	39	repeater length:	24
32097	2189941	CTTTCAATTCTATAGTAGATTAAC	AAAAATAGAATGCCTTTAGGGTGAAACCCCGCCTGGGGT	spacer
	length:	39	repeater length:	24
32098	2190005	CTTTCAATTCTATAGTAGATTAAC	TTCTTTCTAGAGGTCACCTCATCTAACTATGATAATAT	spacer
	length:	38	repeater length:	24
32099	2190068	CTTTCAATTCTATAGTAGATTAAC	AATTTTTGCTCTCCCTTTTCAATATATGCATTAAATATT	spacer
	length:	40	repeater length:	24
32100	2190133	CTTTCAATTCTATAGTAGATTAAC	AATAAATTAAGTGTATATTTATCTCCCCCGCGGTAA	spacer
	length:	37	repeater length:	24
32101	2190195	CTTTCAATTCTATAGTAGATTAAC	ATAGTAACGATATAAACACTTACCACAGACCCCATTTT	spacer
	length:	38	repeater length:	24
32102	2190258	CTTTCAATTCTATAGTAGATTAAC	ATAATGTATGTGATGATGGAAGCAGTAAATCATTGTT	spacer
	length:	38	repeater length:	24
32103	2190321	CTTTCAATTCTATAGTAGATTAAC	TTTCCTTGATAAATATTGATGAAGGTAGAACATTAATT	spacer
	length:	38	repeater length:	24
32104	2190384	CTTTCAATTCTATAGTAGATTAAC	CGTATTGGCTTGGAAGGCAATCCTATTCGCTACTAAGT	spacer
	length:	39	repeater length:	24
32105	2190448	CTTTCAATTCTATAGTAGATTAAC	GGCAATTTTATCTTTTTTCTCGAATATCCCAGCAAATAAT	spacer
	length:	40	repeater length:	24
32106	2190513	CTTTCAATTCTATAGTAGATTAAC	ACAGTTTGTAACGTAGGTCCTGTATAAAGTGGAGCTT	spacer
	length:	37	repeater length:	24
32107	2190575	CTTTCAATTCTATAGTAGATTAAC	ATGAAGCTGATTCATTTATTCCAATGAGGGCAGAAAAA	spacer
	length:	38	repeater length:	24
32108	2190638	CTTTCAATTCTATAGTAGATTAAC	ATTTTAGCATTTGCTAAGTCTTCCTTAGGTGCTAAGTTTTC	spacer
	length:	41	repeater length:	24
32109	2190704	CTTTCAATTCTATAGTAGATTAAC	CTGAAAATAGTTGCAGGCATACTCCCACAAACAATTGAA	spacer
	length:	39	repeater length:	24
32110	2190768	CTTTCAATTCTATAGTAGATTAAC	AAAGTGACATAGAAAGTGAGTCAAAAACAAATCAAATGACTCA	spacer
	length:	44	repeater length:	24
32111	2190837	CTTTCAATTCTATAGTAGATTAAC	AAAACAAGGTGACGTGATTTTAGACCCTTTCGCGGGG	spacer

length: 37 repeater length: 24
32112 2190899 CTTTCAATTCTATAGTAGATTAAC GGGACATCATGACTACCCATACTACCATATGCCATAACAA spacer
length: 40 repeater length: 24
32113 2190964 CTTTCAATTCTATAGTAGATTAAC CACTAGATTTTGGAGCTTTTCAACAAGCTTGAAATTTATGCC spacer
length: 42 repeater length: 24
32114 2191031 CTTTCAATTCTATAGTAGATTAAC CTTATTTTCCTAGAAAGTCACCAGTAGTAAATATGACAATAT spacer
length: 40 repeater length: 24
32115 2191096 CTTTCAATTCTATAGTAGATTAAC AAGGCTATCTTTTTTAGCACAAGTCTAGAAGACATCTTTTT spacer
length: 40 repeater length: 24
32116 2191161 CTTTCAATTCTATAGTAGATTAAC TATTTAAAGCCGGAAGATGGAAAACCAGATCATATCTA spacer
length: 38 repeater length: 24
32117 2191224 CTTTCAATTCTATAGTAGATTAAC ATACGAGTAGGGCGTTGCGTTTATTACTACTGAAGTCA spacer
length: 38 repeater length: 24
32118 2191287 CTTTCAATTCTATAGTAGATTAAC GGAACGATTGCGATAATTGCGTTCCCCTATGTGAGAGGCTGT spacer
length: 42 repeater length: 24
32119 2191354 CTTTCAATTCTATAGTAGATTAAC ATCCACAGTCTTTATTGGCATTCAATTAATGCAGTACAGA spacer
length: 39 repeater length: 24
32120 2191418 CTTTCAATTCTATAGTAGATTAAC TAATATTACTCTAAATGCATATCCCATTATGAATAAGCTAA spacer
length: 41 repeater length: 24
32121 2191484 CTTTCAATTCTATAGTAGATTAAC AAGGTGAGGTGAAAAAGAATGTTCCCAATTAAGATAGGAA spacer
length: 40 repeater length: 24
32122 2191549 CTTTCAATTCTATAGTAGATTAAC TCAGTTCTGGAAAACTAAGTAGACAAGACTAGATAAGAGCTT spacer
length: 43 repeater length: 24
32123 2191617 CTTTCAATTCTATAGTAGATTAAC GAAGAGGAAGTTGAAGTAGTAGGTGGTGTATTATGATTG spacer
length: 40 repeater length: 24
32124 2191682 CTTTCAATTCTATAGTAGATTAAC TAAACAAAGGCTCTATGATCCCTCACCAGGCGGATTAAATG spacer
length: 41 repeater length: 24
32125 2191748 CTTTCAATTCTATAGTAGATTAAC TTAATAGCCCCACCAACGCTTAATATAGTCACTAGTAGTAT spacer
length: 41 repeater length: 24
32126 2191814 CTTTCAATTCTATAGTAGATTAAC AGGAGCATGTTGCTGAGTACAATAATGTTGCAATGAAGGCT
32127
32128
32129 crispr 7
32130 2236461 GTAACAACTCAAAGAACTAAAAC GCTCTAGCTCCCCATAGGGAACCTTTAGGCTTATCG spacer length:
36 repeater length: 24
32131 2236522 GTAACAACTCAAAGAACTAAAAC TATAAACTTTGGCTGTACTGACGAGATAAAGAATT spacer length:
35 repeater length: 24
32132 2236582 GTAACAACTCAAAGAACTAAAAC AAATTCAATTTTTACATGTTTCGCATGCTACTATA spacer length:
34 repeater length: 24
32133 2236641 GTAACAACTCAAAGAACTAAAAC ATATTTGTAATCCAGGTGGGGTTGGGTGCGCTTTGAG spacer length:
36 repeater length: 24
32134 2236702 GTAACAACTCAAAGAACTAAAAC TATAAAGTGTTAAAAGTCTGTATTCCACATTCCA spacer length:
35 repeater length: 24
32135 2236762 GTAACAACTCAAAGAACTAAAAC AGATTATCTGAACCATTTATAGGCATAAATCCTTC spacer length:
35 repeater length: 24
32136 2236822 GTAACAACTCAAAGAACTAAAAC GTTCTAGTTCAAAAAGGTTAGGTTTTGCTTCTGGTA spacer length:
36 repeater length: 24
32137 2236883 GTAACAACTCAAAGAACTAAAAC TTATCAAACCTCGTCGATAGTTAGCACTGTGCGCT spacer length:
34 repeater length: 24
32138 2236942 GTAACAACTCAAAGAACTAAAAC TATAAGCTCTTTCTCAATCTTTTCTGTTCTTCTT spacer length:
34 repeater length: 24
32139 2237001 GTAACAACTCAAAGAACTAAAAC AACGGGCTGCTAAGAAATGCCATAAGCAAATCATTA spacer length:
36 repeater length: 24
32140 2237062 GTAACAACTCAAAGAACTAAAAC GTACATCTAGTTTTGTTACGCCTAGTAAAAGTGG spacer length:
34 repeater length: 24
32141 2237121 GTAACAACTCAAAGAACTAAAAC TGGGCTCGTAGTTTGCCTGTTAATGATCGTCATATCAG spacer
length: 38 repeater length: 24
32142 2237184 GTAACAACTCAAAGAACTAAAAC TCTGAGAATTGCTTTATAGCAAAGCGAATCCC spacer length: 32
repeater length: 24
32143 2237241 GTAACAACTCAAAGAACTAAAAC TTCTCAGATAAGCTGGGGGATCTGCTGGAAAGA spacer length: 33
repeater length: 24
32144 2237299 GTAACAACTCAAAGAACTAAAAC ATCATCGTAAACATCGTAAGTATTATGTACACT spacer length: 33
repeater length: 24
32145 2237357 GTAACAACTCAAAGAACTAAAAC CTAACAGTTCCGTAGTTCTCATAGTTCTTATAGTT spacer length:
35 repeater length: 24
32146 2237417 GTAACAACTCAAAGAACTAAAAC ACACAATCTGTTTACATAAATGTCCTAAGAATGCCAAA spacer
length: 38 repeater length: 24
32147 2237480 GTAACAACTCAAAGAACTAAAAC ATGGGAGAACACCAGATTTTGTATTATGCTAGG spacer length:
34 repeater length: 24
32148 2237539 GTAACAACTCAAAGAACTAAAAC AATTCTACCATTATTCCTGTGTATAAGCCATCGAAA spacer length:
36 repeater length: 24

32149 2237600 GTAACAACTCAAAGAACTAAAAC ATAATATTTTGTATGCAAACTCTAGTATCTCTTTAA spacer length: 35 repeater length: 24

32150 2237660 GTAACAACTCAAAGAACTAAAAC AACTGCATATCCTTTACTTTCCAAAACCTCTCTTAG spacer length: 36 repeater length: 24

32151 2237721 GTAACAACTCAAAGAACTAAAAC TGCAAGTACTTTATCTCTCTAGGTTTCCTGCTACAA spacer length: 35 repeater length: 24

32152 2237781 GTAACAACTCAAAGAACTAAAAC TATAAAAATTATGGGAAAAAAGGGATTGACTTTT spacer length: 34 repeater length: 24

32153 2237840 GTAACAACTCAAAGAACTAAAAC TAGTCTTACACTCAACCTAAAATTCTGAAGATAAT spacer length: 35 repeater length: 24

32154 2237900 GTAACAACTCAAAGAACTAAAAC AACATTAATTATACGAGGAAGTACAATACTGCTAT

32155

32156

32157 crispr 8

32158 2196508 GTTAATCTACTATAGAATTGAAAG TTTGGTAGGCGACTATAACAGTCTTTTGGCGAATACC spacer length: 37 repeater length: 24

32159 2196570 GTTAATCTACTATAGAATTGAAAG AAAAGGAGGTCTTCAGTGGCAAAAATATTATCAAAATGG spacer length: 39 repeater length: 24

32160 2196634 GTTAATCTACTATAGAATTGAAAG CCAAGATTCTGTATTACAATTTTATCGGAACAAACAAA spacer length: 38 repeater length: 24

32161 2196697 GTTAATCTACTATAGAATTGAAAG AATAGCCTCTATAATTTTCTCATTTAGTTTATCTCCATGAGTATTAA spacer length: 47 repeater length: 24

32162 2196769 GTTAATCTACTATAGAATTGAAAG GTAAGTAGAAATACAAGTAATTCCTCTCCAGAAATAATTG spacer length: 40 repeater length: 24

32163 2196834 GTTAATCTACTATAGAATTGAAAG TTCCAAACAATATAAATATCTCCATTTTCTTTAAG spacer length: 35 repeater length: 24

32164 2196894 GTTAATCTACTATAGAATTGAAAG TTTCTATTATCATAATACTCTTCAATTTCTCGTGATG spacer length: 37 repeater length: 24

32165 2196956 GTTAATCTACTATAGAATTGAAAG ATATTACTTAGTGAGATTGAAACTCAATTTGCACTAGAGAT spacer length: 41 repeater length: 24

32166 2197022 GTTAATCTACTATAGAATTGAAAG TTATATTCTGTCAAGCCGTGGCGGTTCAATTCGAATTGA spacer length: 38 repeater length: 24

32167 2197085 GTTAATCTACTATAGAATTGAAAG TTGGTCTTTTTTCAACATCTACTAACATTATTTTTCTA spacer length: 38 repeater length: 24

32168 2197148 GTTAATCTACTATAGAATTGAAAG TCTAAATTTTCAATAAAAGATCCCAATGGTATTAACATTAAT spacer length: 42 repeater length: 24

32169 2197215 GTTAATCTACTATAGAATTGAAAG CTAAAAAATCAATACTTTAAATACTCGCATGCCACAATT spacer length: 39 repeater length: 24

32170 2197279 GTTAATCTACTATAGAATTGAAAG ACTTTATATAATGTAAAAAGTATTGCGGAAAATATTATACAA spacer length: 42 repeater length: 24

32171 2197346 GTTAATCTACTATAGAATTGAAAG TTTTCTTTATCTACATCACCGATTACACGCTGGTTCA spacer length: 37 repeater length: 24

32172 2197408 GTTAATCTACTATAGAATTGAAAG TCATATATCAATATTTTATAAATTATCATTTATAAATA spacer length: 38 repeater length: 24

32173 2197471 GTTAATCTACTATAGAATTGAAAG TAATCTAAATATATCCTAACAACTGAGGTTCTGAG spacer length: 37 repeater length: 24

32174 2197533 GTTAATCTACTATAGAATTGAAAG AAAGACAGAAAATCAAAGATAATGGATATTGTAATATTGCAC spacer length: 42 repeater length: 24

32175 2197600 GTTAATCTACTATAGAATTGAAAG TTTGGAGGATAATATAATGCAAATCCCCAATATAGATATACATAAT spacer length: 46 repeater length: 24

32176 2197671 GTTAATCTACTATAGAATTGAAAG GCTGAGTACAATAATGTTGCAATGAAGGCTAAAGAAGAAGGACATG

32177

32178

32179 crispr 9

32180 2217040 GTTTtagTTTCTTTTTGTTGCTAC TTCTTTTTCCTCCATTTTCCCATCACCAACA spacer length: 31 repeater length: 24

32181 2217096 GTTTtagTTTCTTTTTGTTGCTAC CGCCTGCCGATTCTCTCAGCAGCCTTTAGTGCTTTTGTGAGCCTTGGTA spacer length: 48 repeater length: 24

32182 2217169 GTTTtagTTTCTTTTTGTTGCTAC GATGTAGAGAAGATGTTATGCGCATATGCCGAACAAGAAAAAGACATT

32183

32184

32185 crispr 10

32186 2180078 CTTTCAATTCCTTTCTGGATACTAC TAATCTTAGTGATGTAAAATCGGTGATGAGTAAAGACG spacer length: 38 repeater length: 25

32187 2180142 CTTTCAATTCCTTTCTGGATACTAC ACAGACTTATTGAGTTATATCAACTGTACGGCTATGAA spacer length: 38 repeater length: 25

32188 2180206 CTTTCAATTCCTTTCTGGATACTAC ATAGATTAACAAAATGAGCAAATAATTCTACCTGATTT spacer length: 38 repeater length: 25

32189 2180270 CTTTCAATTCCTTTCTGGATACTAC ATATGCTGATATACTATGGATATTTTACTATTGAGCGATT spacer length: 40 repeater length: 25

32190 2180336 CTTTCAATTCCTTTCTGGATACTAC TATTACTTCTGTTTTTTCAGTGTATTCTAGTGTAAGCTAA spacer length: 38 repeater length: 25

length: 40 repeater length: 25

32191 2180402 CTTTCAATTCCTTTCTGGATACTAC AGTGGGGACAAGTGCATAGTGGCGGGGTGTTGCCGTGCG spacer
length: 39 repeater length: 25

32192 2180467 CTTTCAATTCCTTTCTGGATACTAC TTTATGTTAATGGAAATACTCCAACCTTCAGATTATTATA spacer
length: 39 repeater length: 25

32193 2180532 CTTTCAATTCCTTTCTGGATACTAC ATATGAGTTGATCCAGAGAGTTTACGATAAGACAAAAA spacer
length: 38 repeater length: 25

32194 2180596 CTTTCAATTCCTTTCTGGATACTAC GCACTGGAGCCGATTACTTATTGGGTCTATCGAGTGTCA spacer
length: 39 repeater length: 25

32195 2180661 CTTTCAATTCCTTTCTGGATACTAC GTGGATCGGATTAAGTAGTGAAGAGTGGGAGATAGCCC spacer
length: 38 repeater length: 25

32196 2180725 CTTTCAATTCCTTTCTGGATACTAC AAAGAAAAATTCGATGACAATATAGCATTGTTATTGTC spacer
length: 38 repeater length: 25

32197 2180789 CTTTCAATTCCTTTCTGGATACTAC GAGAATATAAAATTAACCTTGCTACGCTTACTTTTCATTT spacer
length: 38 repeater length: 25

32198 2180853 CTTTCAATTCCTTTCTGGATACTAC TAGTAATTATAATAATTATTGGCTATCTTCATGGAAAA spacer
length: 38 repeater length: 25

32199 2180917 CTTTCAATTCCTTTCTGGATACTAC CGGAGATTGATTTGAGTGATGTTAGGTTACTTATTA spacer
length: 36 repeater length: 25

32200 2180979 CTTTCAATTCCTTTCTGGATACTAC AAGGCGTTTGTTTTAGAATAATAATGAAGATGATATAATAAA spacer
length: 42 repeater length: 25

32201 2181047 CTTTCAATTCCTTTCTGGATACTAC TCTGAAGATATCAACGATTCTTCATGCATACAGTATCT spacer
length: 38 repeater length: 25

32202 2181111 CTTTCAATTCCTTTCTGGATACTAC AAGAAGGACATGTAGATGTAGAGAAGATGTTATGCGCA

32203

32204

32205 crispr 11

32206 2172711 CTTTCAATTCCTTTCTGGATGCAAC AATATATTAGATTTGGTGATATTTATTTAGAGGAGTTAA spacer
length: 39 repeater length: 25

32207 2172776 CTTTCAATTCCTTTCTGGATGCAAC
GCTTTTGATACAGAAGCCTGGATAAACTCAAACCTGATAATCTTTCAATTCCTTTTTGGATGCAACGCAAGAAAACAGTACAAATAGG
TCAATTCGAAGTAGAGA spacer length: 103 repeater length: 25

32208 2172905 CTTTCAATTCCTTTCTGGATGCAAC GAAAGGCTAATAACAGATGAGTTTTCTTTTCATTTATA spacer
length: 37 repeater length: 25

32209 2172968 CTTTCAATTCCTTTCTGGATGCAAC AAAATCGTTTTTAAAAGTGGATGCGTGTAGTGTCAAG

32210

32211

32212 crispr 12

32213 2226772 TGTTTTAGTTTCTTTGAGTTGTTAC
ATTCTCCAGACTTTTTTTTACTGCTTGGAGAAATGGTTTTAGTTTCTTTGAGTTGTTACACGACATAATAGAATTTAATGGAAATGA
AACAAAAGTTTTAGTTTCTTTGAGTTGTTACAACACCAGCCTTTTCAAATTCATTAACGATTTGT spacer length: 151
repeater length: 25

32214 2226949 TGTTTTAGTTTCTTTGAGTTGTTAC
CTGGAATCGGAGGAGGAAAGTGAAGGATTGACTGGTTTTAGTTTCTTTGAGTTGTTACGTCAGTACGTAGTTTTTCTCTTTTTCCG
TTCTCAGTTTTAGTTTCTTTGAGTTGTTACAGACAGAGAAGAGGGAAAATTGGAAAACGCATAT spacer length: 151
repeater length: 25

32215 2227126 TGTTTTAGTTTCTTTGAGTTGTTAC GATACCAAATGCAGTGATACCTTTTCCTTTAAACA spacer length:
35 repeater length: 25

32216 2227187 TGTTTTAGTTTCTTTGAGTTGTTAC TTGATTTTTTCAAAGATGTAAACACGGAAGTTTCA

32217

32218

32219 crispr 13

32220 346906 ACATACCTTTCAACAGAAGAAACATTAATCACTCTAGG
AAAAGTAATAGTAGAACCATTTATCGTACCAACCAACAACACGCCAGTAGGATAAACAATAGTGACAAAATACTGCAAGATATAAC
TTGGCACTATAACTCCAGGGGAAATAATATGCATAATCATTGAAGAATTAAG spacer length: 138 repeater
length: 38

32221 347083 ACATACCTTTCAACAGAAGAAACATTAATCACTCTAGG
GAGCGAAATACTGCTATCATTCCTAACCCACTCAGAAACCGTACCATTAGGATAAACAATAGTGACAAAATACTGCAACATATAAC
TTGGCCTTATGATGCCGGAAGAGACAATATGCATAATCATTGAAGAATTAAG spacer length: 138 repeater
length: 38

32222 347260 ACATACCTTTCAACAGAAGAAACATTAATCACTCTAGG
AGATGTTATGCGCATATGCCGAACAAGAAAAAGACATTGCAGATACTACTAAGAAGGTAATTAGAACTTGTAAGCTTCATTATTT
TTTTGTATTACCTATTTTAATCTAGTATAGTTTTTATATTGCCTTATCTTTT

32223

32224

32225 crispr 14

32226 347072 AAGAATTAAGGACATACCTTTCAACAGAAGAAACATTAAT
CACTCTAGGGAGCGAAATACTGCTATCATTCCTAACCCACTCAGAAACCGTACCATTAGGATAAACAATAGTGACAAAATACTGCA
ACATATAACTTGGCCTTATGATGCCGGAAGAGACAATATGCATAATCATT spacer length: 136 repeater
length: 40

32227 347249 AAGAATTAAGGACATACCTTTCAACAGAAGAAACATTAAT

CACTCTAGGAAAAAGTAATAGTAGAACCATTTATCGTACCAACCAACAACACGCCAGTAGGATAAACAATCGTAACTAGATATTGCA
 AAACATACTTAGGCCTTATAACGCTAGGAGAAACAATCTGAACAACCATA spacer length: 136 repeater
 length: 40
 32228 347426 AAGAATTAAGGACATACCTTTCAACAGAAGAAACATTAAT
 TAGAGAAGATGTTATGCGCATATGCCGAACAAGAAAAAGACATTGCAGATACTACTAAGAAGGTAATTAGAACTTGTAAGCTTCA
 TTATTTTTTTGTATTACCTATTTTAATCTAGTATAGTTTTTATATTGCCT
 32229
 32230
 32231 crispr 15
 32232 531825 GCTGAGTACAATAATGTTGCAATGAAGGCTAAAGAAGAAG
 GACATGTAGATGTAGAGAAGATGTTATGCGCATATGCCGAACAAGAAAAAGACATTGCAACTACATCTGCTAGAGTTTTAGCAATG
 TTGAAAGATTTTGCTAAGGAGGAGGATGAGGAGCATGT spacer length: 124 repeater length: 40
 32233 531990 GCTGAGTACAATAATGTTGCAATGAAGGCTAAAGAAGAAG
 GACATATCGATATTGAATCAATGCTTTGTGCATACGCAGAACAGGAAAAAGCATAGCTAAAGAGTCTGCTAGAGTTTTAGCAATG
 TTGAAAGATTTTGCTAAGGAGGAGGATGAGGAGCATGT spacer length: 124 repeater length: 40
 32234 532155 GCTGAGTACAATAATGTTGCAATGAAGGCTAAAGAAGAAG
 ACGAGGAAGTACAATACTGCTATCATTCCCTAACCCACTCAGAAACCGTACCATTAGGATAAACAATCGTAACTAGATCATATGGAA
 TATAATAAGGTATTATGTATATTTCCCTCAAACCAATTA
 32235
 32236
 32237 GCA_003201835.1_ASM320183v1_genomic.fna(findCrispr):
 32238 START REPEAT
 SPACER
 32239 crispr 1
 32240 213676 CTTTCAACTCTATGGAAGATTAAC ACATACCTACTGTTTCTGTCTGATAGAACGCATATGT spacer
 length: 38 repeater length: 24
 32241 213739 CTTTCAACTCTATGGAAGATTAAC ATACAGAAGAATCTTAGAGCAATTTCTTCACCTATAAGAA spacer
 length: 40 repeater length: 24
 32242 213804 CTTTCAACTCTATGGAAGATTAAC GGAAACTTTTGGCGGAGTTTGTCTCCACTGGATTAGATA spacer
 length: 39 repeater length: 24
 32243 213868 CTTTCAACTCTATGGAAGATTAAC TGCTAGCGTCTTGGCCTTACATTTTAGGAGCGATAGCAA spacer
 length: 39 repeater length: 24
 32244 213932 CTTTCAACTCTATGGAAGATTAAC CATTGGGTTTGTGCTTTAGTGGGAGGAATCGTCGAGTA spacer
 length: 39 repeater length: 24
 32245 213996 CTTTCAACTCTATGGAAGATTAAC AAATGTACTTAGTAACAATAGTATACCAATCATGCCCAG spacer
 length: 39 repeater length: 24
 32246 214060 CTTTCAACTCTATGGAAGATTAAC CGATATTATCAAGGTAACATATACAGTATGGGGAAATG spacer
 length: 38 repeater length: 24
 32247 214123 CTTTCAACTCTATGGAAGATTAAC AGACGTTTGTACGTCTTCAGCATACTTAGCCATAATGT spacer
 length: 39 repeater length: 24
 32248 214187 CTTTCAACTCTATGGAAGATTAAC AATAATCCAGATAGCTCAACTTGCGGGATTTGGGAAGTT spacer
 length: 39 repeater length: 24
 32249 214251 CTTTCAACTCTATGGAAGATTAAC AAAAACCTTGAGGAGTAAAGGCATAGTAATAAGTGATAGA spacer
 length: 40 repeater length: 24
 32250 214316 CTTTCAACTCTATGGAAGATTAAC TAGAGGTGAACCTGTGGATTTTAGTAAGAATATTATTG spacer
 length: 38 repeater length: 24
 32251 214379 CTTTCAACTCTATGGAAGATTAAC CAATTTAAAGGGTTTGACCACGCGTACTTAGACTCACA spacer
 length: 38 repeater length: 24
 32252 214442 CTTTCAACTCTATGGAAGATTAAC CAAAAGAGGTTGGTTGGAAATATTTTCAACAATAAT spacer length:
 37 repeater length: 24
 32253 214504 CTTTCAACTCTATGGAAGATTAAC AAAGAAATATTTAAAAACCCCAATATTTCTCAGAGAA spacer
 length: 38 repeater length: 24
 32254 214567 CTTTCAACTCTATGGAAGATTAAC ATTTTCAGATGGTGAACCTGTCAGTTAATTTTAAACAATTTT spacer
 length: 40 repeater length: 24
 32255 214632 CTTTCAACTCTATGGAAGATTAAC AGAACACATAAGGATATTCTTAGACTCAAATGCAGACAG spacer
 length: 39 repeater length: 24
 32256 214696 CTTTCAACTCTATGGAAGATTAAC TAACGTTTTCAATGCATAGCTATTAATTATTTTGTAAAT spacer
 length: 39 repeater length: 24
 32257 214760 CTTTCAACTCTATGGAAGATTAAC CAACTTCACCTGGGATACGTGAAAGAGACGAGACGA spacer length:
 36 repeater length: 24
 32258 214821 CTTTCAACTCTATGGAAGATTAAC ACGTACCAGCGGATGGTCGGAACCTCCTGAACTCGTAAAGT spacer
 length: 40 repeater length: 24
 32259 214886 CTTTCAACTCTATGGAAGATTAAC GCGTCGACCATGTCAACGCCACGCCACGCTCATT spacer length:
 36 repeater length: 24
 32260 214947 CTTTCAACTCTATGGAAGATTAAC ATTATTATTTTAAAATCAGGGTTGAAATTGCAAACTCAA spacer
 length: 39 repeater length: 24
 32261 215011 CTTTCAACTCTATGGAAGATTAAC TCATAGATAATATTGACACTTATAAAAAGAAAAGTGCAGTA spacer
 length: 40 repeater length: 24
 32262 215076 CTTTCAACTCTATGGAAGATTAAC TGTACTGCTCCAGTCACAACGTTGACTATTGCGTTTAAAT spacer
 length: 39 repeater length: 24
 32263 215140 CTTTCAACTCTATGGAAGATTAAC GGTTCCTCTTTAACAGAACCTAACGGTGTCTTCTTAGGT spacer

length: 38 repeater length: 24
32264 215203 CTTTCAACTCTATGGAAGATTAAC AGGTTTTGAGTTTTTAGAGTCTGGCGATAAGCCAGAAAT spacer
length: 39 repeater length: 24
32265 215267 CTTTCAACTCTATGGAAGATTAAC TCGAAAAGTTAATTGAGAAGGTAAATTCGAGTAAGAA spacer length:
37 repeater length: 24
32266 215329 CTTTCAACTCTATGGAAGATTAAC ATGGTGGAGCAGAATACGACTTTAGACTAGAATATA spacer length:
36 repeater length: 24
32267 215390 CTTTCAACTCTATGGAAGATTAAC TTCCATGTTAGCCTATAGGTATTCTGTTGATGGTACTTTTA spacer
length: 41 repeater length: 24
32268 215456 CTTTCAACTCTATGGAAGATTAAC CTTATACTCAAACCGACAGAAACAGCATTAAATTACTACC spacer
length: 39 repeater length: 24
32269 215520 CTTTCAACTCTATGGAAGATTAAC
AAATGGCTCAAAAAAAGCTCCCGAGTTTAGTGTAAGAACTTTCAACTCTATAGAAGATTAACAGCTGTAAAGTAAAAGCTGCAAAAG
TGAAGAGTTAG spacer length: 97 repeater length: 24
32270 215642 CTTTCAACTCTATGGAAGATTAAC ACATTTTCTACTGCGTCAGCACCGACACCTAACGGTTTT spacer
length: 39 repeater length: 24
32271 215706 CTTTCAACTCTATGGAAGATTAAC TAGGTTTCAGCACTTTAGGGTATTCTTTTCTCAGCGACG spacer
length: 39 repeater length: 24
32272 215770 CTTTCAACTCTATGGAAGATTAAC TTAAAAATCGGGGTTTCTTATATGGATAAAGTGAAA spacer length:
36 repeater length: 24
32273 215831 CTTTCAACTCTATGGAAGATTAAC AAATCATCAGTCGGCGGTTCTAGATAAGCGTTAGTAAACCAT spacer
length: 42 repeater length: 24
32274 215898 CTTTCAACTCTATGGAAGATTAAC ACGGAGTGGATTATACGTTTATGCTTTATGACGTTGATGAT spacer
length: 41 repeater length: 24
32275 215964 CTTTCAACTCTATGGAAGATTAAC GATTTGTAATTGATGTAGCTTATTTACAGTAGTAAGG spacer length:
37 repeater length: 24
32276 216026 CTTTCAACTCTATGGAAGATTAAC GTTTTTTTGGCTATTGATGGAGACGATGATATAAATTGAA spacer
length: 40 repeater length: 24
32277 216091 CTTTCAACTCTATGGAAGATTAAC AGACTTTATGAATGATAAGCTCAAGATCCTGGACAAACTT spacer
length: 40 repeater length: 24
32278 216156 CTTTCAACTCTATGGAAGATTAAC ACAATATACAGCACAGTTTACAATGTAAAGTCTTATT spacer length:
37 repeater length: 24
32279 216218 CTTTCAACTCTATGGAAGATTAAC CCAGCATTTCTTCTACCTGAACGCTGCTACTGGCGTA spacer length:
37 repeater length: 24
32280 216280 CTTTCAACTCTATGGAAGATTAAC AGCGGGAAAAGCAAAGCAGCTTAGAAAGGAGCAAAGAAA spacer
length: 39 repeater length: 24
32281 216344 CTTTCAACTCTATGGAAGATTAAC CCGTACTAATCGTGGTTTATATAATATCATTCTTTCTATCGT spacer
length: 42 repeater length: 24
32282 216411 CTTTCAACTCTATGGAAGATTAAC ACTTGCCTAACTTCATTCTAATTCTTCTAATTCTA spacer length:
35 repeater length: 24
32283 216471 CTTTCAACTCTATGGAAGATTAAC TATTCTATGGATGGAGAAATATAATGAAATGGATG spacer length:
35 repeater length: 24
32284 216531 CTTTCAACTCTATGGAAGATTAAC CCATTAAGTATAAGCTTATTATCATTATTACTAACT spacer length:
36 repeater length: 24
32285 216592 CTTTCAACTCTATGGAAGATTAAC AAAAGGCTAATAAAATGGGGATTGTAGAGCTGAAGGTA spacer
length: 40 repeater length: 24
32286 216657 CTTTCAACTCTATGGAAGATTAAC GGTTGAGGCTAGTGAGGTTCTTCGTAGGTGCACCAACT spacer
length: 38 repeater length: 24
32287 216720 CTTTCAACTCTATGGAAGATTAAC GTAATTTTCCAAGTGTTTTACCAGGAAATCCAATCCACA spacer
length: 39 repeater length: 24
32288 216784 CTTTCAACTCTATGGAAGATTAAC ATGTTCTCATTATCGTTGGGTGGAATGTAATGAAGCCGT spacer
length: 39 repeater length: 24
32289 216848 CTTTCAACTCTATGGAAGATTAAC GAATATAAATCAAATGACAAAATAATTCAAAGGTATAA spacer
length: 39 repeater length: 24
32290 216912 CTTTCAACTCTATGGAAGATTAAC AGTCATGTATCTCAAAAATGTCGAGTCCTCTCTGGTAACA spacer
length: 40 repeater length: 24
32291 216977 CTTTCAACTCTATGGAAGATTAAC TGTAATTATAGTAATAGCATGTGGTGCATGAGACTTC spacer
length: 38 repeater length: 24
32292 217040 CTTTCAACTCTATGGAAGATTAAC TCCACTGTTGAACCACATCCCCAGAACACTTCGATA spacer length:
36 repeater length: 24
32293 217101 CTTTCAACTCTATGGAAGATTAAC GCTCTACTAAAAATGTGTTATTGTATTCAATATCCT
32294
32295
32296 crispr 2
32297 2183494 GTTAATCTTCCATAGAGTTGAAAG GTTCTCGAACTGTATCCTCTCAACGTCGCTAGCAAACAT spacer
length: 39 repeater length: 24
32298 2183558 GTTAATCTTCCATAGAGTTGAAAG TTTGACATAAAACTTTTTTATATTTAAACGTTTTAACGGCG spacer
length: 41 repeater length: 24
32299 2183624 GTTAATCTTCCATAGAGTTGAAAG TATAGTACTATTAGACCTATATGCCATGGAAAACGGGT spacer
length: 38 repeater length: 24
32300 2183687 GTTAATCTTCCATAGAGTTGAAAG AGTACTAGTAGCTCAGGAGGACCCTAAGTATAATATTC spacer

length: 38 repeater length: 24
32301 2183750 GTTAATCTTCCATAGAGTTGAAAG CTCCAGACAACACCAAGTAGTAAGGCGTGAACATGCTCA spacer
length: 39 repeater length: 24
32302 2183814 GTTAATCTTCCATAGAGTTGAAAG AGTGCTGTCCCGCAGCGTCATAAATCACCTTGTTCCCG spacer
length: 38 repeater length: 24
32303 2183877 GTTAATCTTCCATAGAGTTGAAAG ATTAATACAAAACCAGCTTTTTTATAAATTGTATTTGTATAA spacer
length: 42 repeater length: 24
32304 2183944 GTTAATCTTCCATAGAGTTGAAAG TTGACTGAGGGACATACTGTAACCTCAGCGTTTGCACCTT spacer
length: 39 repeater length: 24
32305 2184008 GTTAATCTTCCATAGAGTTGAAAG GACTGCAATTGAGCTCCACAGCCCGCCTGGATGGTAGCA spacer
length: 39 repeater length: 24
32306 2184072 GTTAATCTTCCATAGAGTTGAAAG TAACCATTACGATGTATAGCTGATCGCTACATTGGCCT spacer
length: 39 repeater length: 24
32307 2184136 GTTAATCTTCCATAGAGTTGAAAG CAACACTGTGCAAGATATTGCAAAAAAGTTCAACTGC spacer
length: 37 repeater length: 24
32308 2184198 GTTAATCTTCCATAGAGTTGAAAG TTTCCTCAAATCGCTCTTATTCCCTTCTCCCTTCCATT spacer
length: 39 repeater length: 24
32309 2184262 GTTAATCTTCCATAGAGTTGAAAG AACGTCGTTTGAGACGCTGACGGTGCCGTGTTGTTATT spacer
length: 38 repeater length: 24
32310 2184325 GTTAATCTTCCATAGAGTTGAAAG CAGCCTTTTCCCTAAATTTCTTTTCTGTTTTTATTATA spacer
length: 38 repeater length: 24
32311 2184388 GTTAATCTTCCATAGAGTTGAAAG AAAATATGAATGAGTAGAATTGAATTTTCTCTTATTATA spacer
length: 39 repeater length: 24
32312 2184452 GTTAATCTTCCATAGAGTTGAAAG AATTCGGGCTTTGCGCCTGGCCCCTTTTCTAACTCTC spacer
length: 38 repeater length: 24
32313 2184515 GTTAATCTTCCATAGAGTTGAAAG CATCAACGTTAATGTTATGTGACTCGGCGTACTCTAGCAC spacer
length: 40 repeater length: 24
32314 2184580 GTTAATCTTCCATAGAGTTGAAAG ATACATTCTTCAGGAGTAACGGTAATATTAAGAACTTCT spacer
length: 39 repeater length: 24
32315 2184644 GTTAATCTTCCATAGAGTTGAAAG TGGGTCTTATTTTTCATTATTTTTTGTCTTATAAGCTT
32316
32317
32318 crispr 3
32319 2532393 CTTTCAATTCCTTCTTGGATGAAAC AAAAGGTCTAATTCAAAGAAAGAGCGTAAAGGATATCATAA spacer
length: 41 repeater length: 25
32320 2532460 CTTTCAATTCCTTCTTGGATGAAAC ATTGTAATGGGTTTAGCCCAAGCATGTAAAGTCAAAATT spacer
length: 40 repeater length: 25
32321 2532526 CTTTCAATTCCTTCTTGGATGAAAC TTATGAGTTTAAGAGAGACGCCATAAGGAAGCTAATGGAAAAAT
spacer length: 44 repeater length: 25
32322 2532596 CTTTCAATTCCTTCTTGGATGAAAC AATGAATAAGTATGTGACAAACGGGTTCAGCCCAGTATGAT spacer
length: 42 repeater length: 25
32323 2532664 CTTTCAATTCCTTCTTGGATGAAAC ATACTATACGTATCGTATGACGACGGGTTTGAAAAAGACT spacer
length: 40 repeater length: 25
32324 2532730 CTTTCAATTCCTTCTTGGATGAAAC ACATGATGAATATGAACCGTTTGCAAGCGCTAAATTAGAAA spacer
length: 41 repeater length: 25
32325 2532797 CTTTCAATTCCTTCTTGGATGAAAC CTGAGGTTATTGTCTTAAACTTAATGATTTTGATAAGATA spacer
length: 41 repeater length: 25
32326 2532864 CTTTCAATTCCTTCTTGGATGAAAC TTCTTCTCCTCCGACATGTCTCATTACCTCTCATATTTAAC spacer
length: 42 repeater length: 25
32327 2532932 CTTTCAATTCCTTCTTGGATGAAAC CTGTTTATTTCTTTTAATTCCAATAGATTTTTTGTACTGAT spacer
length: 41 repeater length: 25
32328 2532999 CTTTCAATTCCTTCTTGGATGAAAC CATTTAAATATTAGTTAGGTCTTAATGTAACATGATAAAC spacer
length: 40 repeater length: 25
32329 2533065 CTTTCAATTCCTTCTTGGATGAAAC AAGTGATGGCAAGGGAAGGCACAAAAATGATGAGTATTG spacer
length: 39 repeater length: 25
32330 2533130 CTTTCAATTCCTTCTTGGATGAAAC CTTATATCATTCGGCTGTTCTCTGGGGTCTATAGAAAAA spacer
length: 40 repeater length: 25
32331 2533196 CTTTCAATTCCTTCTTGGATGAAAC TACAATACGGTTCATTACCAGACGCGTTAATAAAATC spacer
length: 37 repeater length: 25
32332 2533259 CTTTCAATTCCTTCTTGGATGAAAC TCAAAATAAGTCAAATTTAGATCAACAATTAAATCAAATTT spacer
length: 41 repeater length: 25
32333 2533326 CTTTCAATTCCTTCTTGGATGAAAC TAAATCAAGGGGGAAATATGGTTGAGTTTAACAAAGCG spacer
length: 39 repeater length: 25
32334 2533391 CTTTCAATTCCTTCTTGGATGAAAC ATATCGATTTGTACATAAGAATTTTGAATTTT spacer length:
35 repeater length: 25
32335 2533452 CTTTCAATTCCTTCTTGGATGAAAC GTCCCTAAGTGAATTACTTAGGGACATAGTGTGTAATATA spacer
length: 41 repeater length: 25
32336 2533519 CTTTCAATTCCTTCTTGGATGAAAC TTCCCAAAGAATGCCAATGGGTGGCGGAGCTGGAAAAAT spacer
length: 40 repeater length: 25
32337 2533585 CTTTCAATTCCTTCTTGGATGAAAC ATAAATTCATTAACCTACCGTAACCGTTGGGCAATATATAACTG spacer
length: 43 repeater length: 25

32338	2533654	CTTTCAATTCCTTCTTGGATGAAAC	CTTAAAGAAATTGCAAATTGGGTTGGGGCAAGATCATTTA	spacer
	length: 40	repeater length: 25		
32339	2533720	CTTTCAATTCCTTCTTGGATGAAAC	ATAATGACATACTAGTAATAGTGTACCCAAGTCTGCATGATA	spacer
	length: 42	repeater length: 25		
32340	2533788	CTTTCAATTCCTTCTTGGATGAAAC	CTACTGAGCTCGAAAGTTTTGGGTGTGCCTCTGGGGTCTA	spacer
	length: 40	repeater length: 25		
32341	2533854	CTTTCAATTCCTTCTTGGATGAAAC	AGTAAGGACTTACAGTGC GGAAACCGGGAAACCGGTGG	spacer
	length: 38	repeater length: 25		
32342	2533918	CTTTCAATTCCTTCTTGGATGAAAC	TTGCTACCTTCATTTGTGAGCCACCTCAACGACAATTATT	spacer
	length: 40	repeater length: 25		
32343	2533984	CTTTCAATTCCTTCTTGGATGAAAC	AGGAGGACTATAAACGCACTATATATTGACGTTGTAATGA	spacer
	length: 40	repeater length: 25		
32344	2534050	CTTTCAATTCCTTCTTGGATGAAAC	ACAAAAAGGGATGGAGGTTTTTTTACAACCTCCTAAAAAAG	spacer
	length: 41	repeater length: 25		
32345	2534117	CTTTCAATTCCTTCTTGGATGAAAC	TCTTCTGCTTCCATAAAAATCATATCCAGCAAAAAGTTTTTC	spacer
	length: 40	repeater length: 25		
32346	2534183	CTTTCAATTCCTTCTTGGATGAAAC	AGAAAAATTAAAGATAAAAATTAGCTAAAGAATAATAAA	spacer
	length: 38	repeater length: 25		
32347	2534247	CTTTCAATTCCTTCTTGGATGAAAC	CTATTTAGTGTCACAATGCAACGACTGGTGTGCAGTTACAA	spacer
	length: 41	repeater length: 25		
32348	2534314	CTTTCAATTCCTTCTTGGATGAAAC	AAGAAATAATTTTACAGTTGTGAGAAAAATTAAGCATAAA	spacer
	length: 40	repeater length: 25		
32349	2534380	CTTTCAATTCCTTCTTGGATGAAAC	AAGGATACGAACGACAAAACAGATCCAGCTATAACAAACG	spacer
	length: 40	repeater length: 25		
32350	2534446	CTTTCAATTCCTTCTTGGATGAAAC	ACAACAACGACTTGAAGCAATTAGGTGACAACGATGATGAGTA	spacer
	length: 43	repeater length: 25		
32351	2534515	CTTTCAATTCCTTCTTGGATGAAAC	AAAAAATCGACGATCGTTTGGAAACCTGCCCCTATAGA	spacer
	length: 39	repeater length: 25		
32352	2534580	CTTTCAATTCCTTCTTGGATGAAAC	ATGAAATAAAATTACGAGAGTGAGAAATTTGATAAAGAG	spacer
	length: 39	repeater length: 25		
32353	2534645	CTTTCAATTCCTTCTTGGATGAAAC	CTCAACTAAATAATAATAAAAGTAATACACTTCAAATGAACA	spacer
	length: 42	repeater length: 25		
32354	2534713	CTTTCAATTCCTTCTTGGATGAAAC	ACAGCCGAACAGCAAATCTAGAGAATAACGAGACGGTAA	spacer
	length: 39	repeater length: 25		
32355	2534778	CTTTCAATTCCTTCTTGGATGAAAC	CCAAAAATAGAACCGAAAATGATAATGAAAACAATGAAAGAAT	spacer
	length: 43	repeater length: 25		
32356	2534847	CTTTCAATTCCTTCTTGGATGAAAC	CTATCTGGATTGATTTTCGGTTCTTATAGAAATTAGACCTTTTTG	spacer
	length: 44	repeater length: 25		
32357	2534917	CTTTCAATTCCTTCTTGGATGAAAC	TAGTAACGAGGCACCAACTACTAAGACTTCAGGAAC	spacer
	length: 36	repeater length: 25		
32358	2534979	CTTTCAATTCCTTCTTGGATGAAAC	TTTAGTCATTATATTACTACTTTTACTTTAACGTAACGTAAA	spacer
	length: 42	repeater length: 25		
32359	2535047	CTTTCAATTCCTTCTTGGATGAAAC	ACAAAAAATGTAATTAAGTATATGCGTAAAAATAGAAGAAAA	spacer
	length: 42	repeater length: 25		
32360	2535115	CTTTCAATTCCTTCTTGGATGAAAC	AATAGAATTCCTTGTATTTTTATTTTTTTCGTTTTTTTTA	spacer
	length: 39	repeater length: 25		
32361	2535180	CTTTCAATTCCTTCTTGGATGAAAC	CTTTCAAAGTTTGTATTTGCGAAAATAGAATTAAAAATTTT	spacer
	length: 41	repeater length: 25		
32362	2535247	CTTTCAATTCCTTCTTGGATGAAAC	TTGATAAAGTATACTGCAAAGGTCTACATAATAATCATACAA	spacer
	length: 42	repeater length: 25		
32363	2535315	CTTTCAATTCCTTCTTGGATGAAAC	ACTGTTGCGTTAGAAATTTTGCAAATGAATTGGAATATAC	spacer
	length: 41	repeater length: 25		
32364	2535382	CTTTCAATTCCTTCTTGGATGAAAC	GCGGTTTTTTCGGCTAATAATCTGCCAAACGTCTACAAAT	spacer
	length: 39	repeater length: 25		
32365	2535447	CTTTCAATTCCTTCTTGGATGAAAC	TTAGAACGTAAGGGCGGAAAAGCTCCACTCATTGCAATCCAA	spacer
	length: 42	repeater length: 25		
32366	2535515	CTTTCAATTCCTTCTTGGATGAAAC	TCTGCAATATCGACAGTTGTCTATAGCAATATTTTCGTGA	spacer
	length: 40	repeater length: 25		
32367	2535581	CTTTCAATTCCTTCTTGGATGAAAC	AAAAGGGTTAGTGGACATCGATAAAGATAAAGCAAATAG	spacer
	length: 39	repeater length: 25		
32368	2535646	CTTTCAATTCCTTCTTGGATGAAAC	GAACATTAGTAATAAAATATGAACCAAATTCAACATTATATA	spacer
	length: 42	repeater length: 25		
32369	2535714	CTTTCAATTCCTTCTTGGATGAAAC	CATTTTTATCGATAATAATAACAATAAAGTATATTGCTA	spacer
	length: 38	repeater length: 25		
32370	2535778	CTTTCAATTCCTTCTTGGATGAAAC	TCTACTAAAAATGTGTTATTGTATTCAATATCCTTCTA	
32371				
32372				
32373	crispr 4			
32374	2379287	CTTTCAATTCCTTTTTGGATGAAAC	GACTAGCAAATGCAGGAGGGAAATACGACGAAAGACAAT	spacer
	length: 40	repeater length: 25		
32375	2379353	CTTTCAATTCCTTTTTGGATGAAAC	AGGGGGATATATTACTCCCCCATACCAATGATGTTTAAAG	spacer

length: 40 repeater length: 25
32376 2379419 CTTTCAATTCCTTTTTGGATGAAAC GAGGCTAGGAAGGTCATGTCGTATCACCTACAAGTCGCGAA spacer
length: 41 repeater length: 25
32377 2379486 CTTTCAATTCCTTTTTGGATGAAAC GTTTGTATTCTGACACCCATTTTTCCCGTTAAACT spacer
length: 36 repeater length: 25
32378 2379548 CTTTCAATTCCTTTTTGGATGAAAC ATTATAAAATTCCAGAAGATGAATAGTAGACCGTCAAAG spacer
length: 39 repeater length: 25
32379 2379613 CTTTCAATTCCTTTTTGGATGAAAC TAGGCCTTTGAGGTCTGCTTTGCTTATTTTCATGATTATTTAA spacer
length: 42 repeater length: 25
32380 2379681 CTTTCAATTCCTTTTTGGATGAAAC CCGTATCATTATATACGTCAGTTAGAAACTCAAATGAATT spacer
length: 40 repeater length: 25
32381 2379747 CTTTCAATTCCTTTTTGGATGAAAC TCACCTCTTGGGTGGATAGAAGGAGCAATCACAGGCGCAATTTTC
spacer length: 44 repeater length: 25
32382 2379817 CTTTCAATTCCTTTTTGGATGAAAC AAACATATATTTCTCCATCAGTTGTTATAATGTAATAAAT spacer
length: 39 repeater length: 25
32383 2379882 CTTTCAATTCCTTTTTGGATGAAAC AATAATAATCCGCGTAGATGCTTAGATCTCGGGCTAAATC spacer
length: 40 repeater length: 25
32384 2379948 CTTTCAATTCCTTTTTGGATGAAAC TTGACCGATGAAGATAAAGCGAAGTTCAGGGAGAAATTAA spacer
length: 40 repeater length: 25
32385 2380014 CTTTCAATTCCTTTTTGGATGAAAC ATATCTTTTATATTACAATTCATAATAACAAAATCTCAAT spacer
length: 40 repeater length: 25
32386 2380080 CTTTCAATTCCTTTTTGGATGAAAC TTTGAGCTAATTTTATCGAATTCTCAAGTTTTGCTTGTCC spacer
length: 40 repeater length: 25
32387 2380146 CTTTCAATTCCTTTTTGGATGAAAC AGTGCAAATTTAATTTCTAGTTTGGTATTAAGCAGTTTTTT spacer
length: 41 repeater length: 25
32388 2380213 CTTTCAATTCCTTTTTGGATGAAAC ACTACAACATAATCAAAATCCAATTCTTCTAAATAAT spacer
length: 37 repeater length: 25
32389 2380276 CTTTCAATTCCTTTTTGGATGAAAC ATTTTGTAATAATAGATATTATTTTATCTTTATTTTCAATA spacer
length: 40 repeater length: 25
32390 2380342 CTTTCAATTCCTTTTTGGATGAAAC CGTAGTAAAGATTAAAGGGTTCGGGCTCGGTAAAGC spacer
length: 36 repeater length: 25
32391 2380404 CTTTCAATTCCTTTTTGGATGAAAC ACATACGGAATTACCCGACGTTGGTGACACGATAGTAGAAA spacer
length: 41 repeater length: 25
32392 2380471 CTTTCAATTCCTTTTTGGATGAAAC ATATCTTTTATATTACAATTCATAATAACAAAATCTCAAT spacer
length: 40 repeater length: 25
32393 2380537 CTTTCAATTCCTTTTTGGATGAAAC TTTGAGCTAATTTTATCGAATTCTCAAGTTTTGCTTGTCC spacer
length: 40 repeater length: 25
32394 2380603 CTTTCAATTCCTTTTTGGATGAAAC AGTGCAAATTTAATTTCTAGTTTGGTATTAAGCAGTTTTTT spacer
length: 41 repeater length: 25
32395 2380670 CTTTCAATTCCTTTTTGGATGAAAC ACTACAACATAATCAAAATCCAATTCTTCTAAATAAT spacer
length: 37 repeater length: 25
32396 2380733 CTTTCAATTCCTTTTTGGATGAAAC ATTTTGTAATAATAGATATTATTTTATCTTTATTTTCAATA spacer
length: 40 repeater length: 25
32397 2380799 CTTTCAATTCCTTTTTGGATGAAAC CGTAGTAAAGATTAAAGGGTTCGGGCTCGGTAAAGC spacer
length: 36 repeater length: 25
32398 2380861 CTTTCAATTCCTTTTTGGATGAAAC ACATACGGAATTACCCGACGTTGGTGACACGATAGTAGAAA spacer
length: 41 repeater length: 25
32399 2380928 CTTTCAATTCCTTTTTGGATGAAAC ATATCTTTTATATTACAATTCATAATAACAAAATCTCAAT spacer
length: 40 repeater length: 25
32400 2380994 CTTTCAATTCCTTTTTGGATGAAAC TTTGAGCTAATTTTATCGAATTCTCAAGTTTTGCTTGTCC spacer
length: 40 repeater length: 25
32401 2381060 CTTTCAATTCCTTTTTGGATGAAAC AGTGCAAATTTAATTTCTAGTTTGGTATTAAGCAGTTTTTT spacer
length: 41 repeater length: 25
32402 2381127 CTTTCAATTCCTTTTTGGATGAAAC ACTACAACATAATCAAAATCCAATTCTTCTAAATAAT spacer
length: 37 repeater length: 25
32403 2381190 CTTTCAATTCCTTTTTGGATGAAAC ATTTTGTAATAATAGATATTATTTTATCTTTATTTTCAATA spacer
length: 40 repeater length: 25
32404 2381256 CTTTCAATTCCTTTTTGGATGAAAC CGTAGTAAAGATTAAAGGGTTCGGGCTCGGTAAAGC spacer
length: 36 repeater length: 25
32405 2381318 CTTTCAATTCCTTTTTGGATGAAAC TTCTAATCATTTTTTATAGTTCAAACTTTCTCTTG
32406
32407
32408 crispr 5
32409 2335232 GTTTCATCCAAAAAGGAATTGAAAG AGAAAAAATACAAAATCTAGAGAAAATAGCAAATGAAGAG spacer
length: 41 repeater length: 25
32410 2335299 GTTTCATCCAAAAAGGAATTGAAAG GCAGAAGCCTTACTGCAGATACACAGGGCTTCCTTATCCTA spacer
length: 41 repeater length: 25
32411 2335366 GTTTCATCCAAAAAGGAATTGAAAG ATTATCTTCACTTATAAAAGTCAAAACACAACCGTATAAT spacer
length: 40 repeater length: 25
32412 2335432 GTTTCATCCAAAAAGGAATTGAAAG TTTTCCGCATCCTTTGTGCTAATAATATAATTTTGTAACA spacer
length: 40 repeater length: 25

32413	2335498	GTTTCATCCAAAAAGGAATTGAAAG	TTAATTATATAATTATGTTTCTACCCGCGGTTTTATTTTT	spacer
	length:	40	repeater length:	25
32414	2335564	GTTTCATCCAAAAAGGAATTGAAAG	TCAACGGAGATATAGTTTTTTTTCTTCTTTCAATTCGCG	spacer
	length:	39	repeater length:	25
32415	2335629	GTTTCATCCAAAAAGGAATTGAAAG	ACTCATAACAACAAACGCAATTTTGACGAAGTTATAC	spacer
	length:	37	repeater length:	25
32416	2335692	GTTTCATCCAAAAAGGAATTGAAAG	GACTGGAGGGTACTATTCCGCCTATAGCGCTTGGAGAT	spacer
	length:	38	repeater length:	25
32417	2335756	GTTTCATCCAAAAAGGAATTGAAAG	TCTATTTTCAAATATATGTGCGTCCCGATATTAATACGG	spacer
	length:	40	repeater length:	25
32418	2335822	GTTTCATCCAAAAAGGAATTGAAAG	TAACTCGGTAGGATAACTAAGTTAAGTCCGTCCTTTG	spacer
	length:	37	repeater length:	25
32419	2335885	GTTTCATCCAAAAAGGAATTGAAAG	CCCTTTAGGGGGATGTTTCCTTAATTAAATAATTGGAGAA	spacer
	length:	40	repeater length:	25
32420	2335951	GTTTCATCCAAAAAGGAATTGAAAG	ATGAATAGCCCTTCCATCGGTTTTGCAAGCATCTCATACCTT	spacer
	length:	42	repeater length:	25
32421	2336019	GTTTCATCCAAAAAGGAATTGAAAG	TAATTATCAACTTCATTTATATGTATTTTTCAATATATTA	spacer
	length:	40	repeater length:	25
32422	2336085	GTTTCATCCAAAAAGGAATTGAAAG	TATTAAGAAGAAAAGCTATAAATGCTGAATGAAGATGAAATTA	spacer
	length:	43	repeater length:	25
32423	2336154	GTTTCATCCAAAAAGGAATTGAAAG	TTTATTTGGGGTTTTTCCCTTTGGGTATGATTGTTTG	spacer
	length:	38	repeater length:	25
32424	2336218	GTTTCATCCAAAAAGGAATTGAAAG	ATTACATTCTTTTCACCATGCCTTATGAAGCCTCA	spacer length:
	length:	35	repeater length:	25
32425	2336279	GTTTCATCCAAAAAGGAATTGAAAG	AAAAGATGTAGTTGAATATGAAATAAATCCTTTAATTTTAG	spacer
	length:	41	repeater length:	25
32426	2336346	GTTTCATCCAAAAAGGAATTGAAAG	TTCTGCTCCTCATAAACTTAGCCAATTTATCATCATAACCG	spacer
	length:	42	repeater length:	25
32427	2336414	GTTTCATCCAAAAAGGAATTGAAAG	TAATAAAATATAGTCTACTTCACTATACATTAAT	spacer length:
	length:	34	repeater length:	25
32428	2336474	GTTTCATCCAAAAAGGAATTGAAAG	AAATTGCGTATTTCCTCTTCTAAAACAAATCACAAAACAA	spacer
	length:	39	repeater length:	25
32429	2336539	GTTTCATCCAAAAAGGAATTGAAAG	AAATATTCACAGTCTAGTATTAGCATCAGGTGGAAATCA	spacer
	length:	40	repeater length:	25
32430	2336605	GTTTCATCCAAAAAGGAATTGAAAG	GCATAAGGGGGAATCTGTATAGCCCAATTATGAGAAAT	spacer
	length:	38	repeater length:	25
32431	2336669	GTTTCATCCAAAAAGGAATTGAAAG	AACATTAGAAAAAACGGATATCTTTTAATGGTGAATAAA	spacer
	length:	40	repeater length:	25
32432	2336735	GTTTCATCCAAAAAGGAATTGAAAG	GTTGTATGGTGAAATATTTGACGAGTTGTCACAAAATTC	spacer
	length:	40	repeater length:	25
32433	2336801	GTTTCATCCAAAAAGGAATTGAAAG	TTAATTATATAATTATGTTTCTACCCGCGGTTTTA	spacer length:
	length:	35	repeater length:	25
32434	2336862	GTTTCATCCAAAAAGGAATTGAAAG	ATGAAAGAATCATTATGAGTGATATAGACCCAATTATTGTTA	spacer
	length:	42	repeater length:	25
32435	2336930	GTTTCATCCAAAAAGGAATTGAAAG	ATAGAAATATCAACAACATACGGCAATGCCACAGTACTT	spacer
	length:	39	repeater length:	25
32436	2336995	GTTTCATCCAAAAAGGAATTGAAAG	AAAAAAGTTGTTAAATGAAGTAGACCTATTTGCTATAAATA	spacer
	length:	41	repeater length:	25
32437	2337062	GTTTCATCCAAAAAGGAATTGAAAG	AGTACCTCTAGAATATTTACAATTTACTCCTAATATATCGG	spacer
	length:	41	repeater length:	25
32438	2337129	GTTTCATCCAAAAAGGAATTGAAAG	TTAAAATTGATAAGAAACGATACAATTGAGATATTCAATA	spacer
	length:	40	repeater length:	25
32439	2337195	GTTTCATCCAAAAAGGAATTGAAAG	AAATATTTTGTGAATATGAATAATATAATATCAACCATTCA	spacer
	length:	41	repeater length:	25
32440	2337262	GTTTCATCCAAAAAGGAATTGAAAG	TCGGGTTTAACATCGTCAGTAGCATAAGGGCATAACCGAGTT	spacer
	length:	41	repeater length:	25
32441	2337329	GTTTCATCCAAAAAGGAATTGAAAG	CCGAAACATAACTATCTAATGCATACAAGAACTGATTTA	spacer
	length:	39	repeater length:	25
32442	2337394	GTTTCATCCAAAAAGGAATTGAAAG	TGCTTACCGAAGAGAAATGTTGTTATGTCAAAACCCTGGAA	spacer
	length:	41	repeater length:	25
32443	2337461	GTTTCATCCAAAAAGGAATTGAAAG	TTCTCTTTCCGCCTTTCAACAGAAGATTAATGATGTGA	spacer
	length:	39	repeater length:	25
32444	2337526	GTTTCATCCAAAAAGGAATTGAAAG	ATCTGTATTGCGATCTCAATCGCCCTCATTAATATATTAT	spacer
	length:	40	repeater length:	25
32445	2337592	GTTTCATCCAAAAAGGAATTGAAAG	TCTATTAGCTCATCAAGCTTTGTTTTAACGTAATCCCTTAT	spacer
	length:	41	repeater length:	25
32446	2337659	GTTTCATCCAAAAAGGAATTGAAAG	GCTCTAAAGTCTTCAAATGCCAGCACTTCTTTCCGAAGCTC	spacer
	length:	41	repeater length:	25
32447	2337726	GTTTCATCCAAAAAGGAATTGAAAG	ATATATACAAATTACTGGCACTAGGAGCGATAGAGACCA	spacer
	length:	39	repeater length:	25
32448	2337791	GTTTCATCCAAAAAGGAATTGAAAG	CTTAATAGTGTTTCGTGCTAACATTAATGATAGTAGGAC	spacer

length: 38 repeater length: 25
32449 2337855 GTTTCATCCAAAAAGGAATTGAAAG CTTCCCAACACTGTCATAGTATTTGGGGAGACAAAGACATAC spacer
length: 42 repeater length: 25
32450 2337923 GTTTCATCCAAAAAGGAATTGAAAG ATATACCATATGAGGACATTAGGGCAACTAATAAAGAGGAAA spacer
length: 42 repeater length: 25
32451 2337991 GTTTCATCCAAAAAGGAATTGAAAG AAATCGGTCTCCTCGTAGTAAGTAGGGTAATCAGCGTTCACCAGGTAA
spacer length: 48 repeater length: 25
32452 2338065 GTTTCATCCAAAAAGGAATTGAAAG ATTTCGTTTTTGGCTAACTGCTTTAGTGTCTTCTATATG spacer
length: 37 repeater length: 25
32453 2338128 GTTTCATCCAAAAAGGAATTGAAAG CTGTTTATAAAAGATGTCTATAAGGACTTACCGATCCTTCA spacer
length: 41 repeater length: 25
32454 2338195 GTTTCATCCAAAAAGGAATTGAAAG AACTTTACATCTGCGGTGAAGTAATCTCCACCAGTTAGCCG spacer
length: 41 repeater length: 25
32455 2338262 GTTTCATCCAAAAAGGAATTGAAAG TTCCGCTCTGAGCAGGATCGAGATGTTAGCGACAAATGA spacer
length: 39 repeater length: 25
32456 2338327 GTTTCATCCAAAAAGGAATTGAAAG TCTTCTGTTACATACTTTATGACGTAGTTGAGGCTAAGCCC spacer
length: 41 repeater length: 25
32457 2338394 GTTTCATCCAAAAAGGAATTGAAAG TTCAACTCCAGAAAAGTGTAGGAGAAAACGGTTGCAT spacer
length: 37 repeater length: 25
32458 2338457 GTTTCATCCAAAAAGGAATTGAAAG TAGACTTTACACGTACCGTCCTTAAGCTTCATTACAATTCT spacer
length: 41 repeater length: 25
32459 2338524 GTTTCATCCAAAAAGGAATTGAAAG TGAAAAAAGAAGATTAACTTTTTTCAGGTGTCAAATCTATA spacer
length: 42 repeater length: 25
32460 2338592 GTTTCATCCAAAAAGGAATTGAAAG TTCTTTATTTATCTCCTTATAATACCCTCCCCTAATTAATT spacer
length: 41 repeater length: 25
32461 2338659 GTTTCATCCAAAAAGGAATTGAAAG ACAAACCTGTATCACAGTATGGACAGGATAGAACAGTGATA spacer
length: 41 repeater length: 25
32462 2338726 GTTTCATCCAAAAAGGAATTGAAAG AGTGCAGACCTAAGTGC GTTCATGATAGCAACAGTTAC spacer
length: 38 repeater length: 25
32463 2338790 GTTTCATCCAAAAAGGAATTGAAAG TCAAATATTGCATCCCAATTTATGAATGACGCTTATTCATT spacer
length: 41 repeater length: 25
32464 2338857 GTTTCATCCAAAAAGGAATTGAAAG CCCTGAACTAAGATATTGTTGAATTATTTCCAAAAGTACTTG spacer
length: 43 repeater length: 25
32465 2338926 GTTTCATCCAAAAAGGAATTGAAAG CTGTTTTTAAACATCATAAATCTCTTTCTCGATTGTAATCA spacer
length: 41 repeater length: 25
32466 2338993 GTTTCATCCAAAAAGGAATTGAAAG TTTAATCTAGACGACTTTTACGAAAACAACCTCAGGAAAAA spacer
length: 41 repeater length: 25
32467 2339060 GTTTCATCCAAAAAGGAATTGAAAG GATTTATATTCTGATTTATATATTCTGAACAATAAACTTAT
32468
32469
32470 crispr 6
32471 2390451 ATTTGTAGAAATCCTTAGAGGACTTGAAAC CTCACAATATAACATATGTCAAAACTCATATTTAAA spacer
length: 36 repeater length: 30
32472 2390518 ATTTGTAGAAATCCTTAGAGGACTTGAAAC TCGCGTCGCCGTTAGGGTGAAAACATGGCTAAAGTAAAG
spacer length: 39 repeater length: 30
32473 2390588 ATTTGTAGAAATCCTTAGAGGACTTGAAAC AAGAGGCGGAAGAAATGAAATATGAACAATTAATAACAA
spacer length: 39 repeater length: 30
32474 2390658 ATTTGTAGAAATCCTTAGAGGACTTGAAAC CAAGATAACGGAATAGACGTAGAACC GTTCATGAGT spacer
length: 36 repeater length: 30
32475 2390725 ATTTGTAGAAATCCTTAGAGGACTTGAAAC CTTTTTTTAGAAAAAATTCACCAAACTTGATGCT spacer
length: 35 repeater length: 30
32476 2390791 ATTTGTAGAAATCCTTAGAGGACTTGAAAC AAATTTGTTTCACAACCGTCATAAAAATCGTCAAG spacer
length: 35 repeater length: 30
32477 2390857 ATTTGTAGAAATCCTTAGAGGACTTGAAAC ATCACTAAGCTTTAGTTCTTGTAATACATCTTCAATA spacer
length: 37 repeater length: 30
32478 2390925 ATTTGTAGAAATCCTTAGAGGACTTGAAAC GATTCTACTTAAAAAATCTTCAAATTCTCCTAATA spacer
length: 35 repeater length: 30
32479 2390991 ATTTGTAGAAATCCTTAGAGGACTTGAAAC GGAATACCGTTTACAATTTTGACTATATCTGAAAA spacer
length: 35 repeater length: 30
32480 2391057 ATTTGTAGAAATCCTTAGAGGACTTGAAAC ACAAATCTATTTTCGACCATAATCTTATTTTTATTT spacer
length: 36 repeater length: 30
32481 2391124 ATTTGTAGAAATCCTTAGAGGACTTGAAAC CACCTGCGAGCTTGTAATCGTAGGAATGATGTCGA spacer
length: 36 repeater length: 30
32482 2391191 ATTTGTAGAAATCCTTAGAGGACTTGAAAC TCAACGTGACCTGGCGACGTATTATATCCCGCATAA spacer
length: 36 repeater length: 30
32483 2391258 ATTTGTAGAAATCCTTAGAGGACTTGAAAC TAATGATAATAATGACAAGTAGAGGGTGAGAGAATGAGC
spacer length: 39 repeater length: 30
32484 2391328 ATTTGTAGAAATCCTTAGAGGACTTGAAAC TAGTATGACGTTGGAAGACGTGTTCTACTGGATT spacer
length: 34 repeater length: 30
32485 2391393 ATTTGTAGAAATCCTTAGAGGACTTGAAAC CGACTTTAAGAACGGTACAAAACGCTAATGTTGT spacer
length: 35 repeater length: 30

32486	2391459	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AAAAGAGAAAAAGAAAAATAAAAAGAGAAATGA	spacer
		length: 33	repeater length: 30	
32487	2391523	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AAATATAGAATAAATATTCCATTAAGATAATAA	spacer
		length: 33	repeater length: 30	
32488	2391587	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AACGTATATAAAAGCTTTTGCTTTTATTTCAATTT	spacer
		length: 35	repeater length: 30	
32489	2391653	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AATATTGTAAATAAGTACTTATTAAGATATAATAA	spacer
		length: 37	repeater length: 30	
32490	2391721	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TATAGTTATGCAATATAGAAGTTATAATTTAATAA	spacer
		length: 35	repeater length: 30	
32491	2391787	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CAAATATAGCAATAATATTTTTTCGGCATTTCATATCAC	spacer
		length: 38	repeater length: 30	
32492	2391856	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GAAAATATGGATATCCACTTTCATGCCCTATGCGG	spacer
		length: 35	repeater length: 30	
32493	2391922	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CCGCTGTAGCAACTGAGTTTCCGCTGAGAAGGAGGG	spacer
		length: 36	repeater length: 30	
32494	2391989	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CCCAACCCATAGGGAACCAAGGTATTTTCGATCAG	spacer
		length: 34	repeater length: 30	
32495	2392054	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACGAGTTCGGTAGTGAGAAGAGATGGGTGGTCTC	spacer
		length: 34	repeater length: 30	
32496	2392119	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CGTCACCAGGTGTAGTCGATAAAATTTACCAACAACG	spacer
		length: 38	repeater length: 30	
32497	2392188	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CATCTGCACAAAACAATTATGAATGTCAATAAAAA	spacer
		length: 35	repeater length: 30	
32498	2392254	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GAATATTCAATATATCATGTTCCACCATGCCAAAAA	spacer
		length: 35	repeater length: 30	
32499	2392320	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CCTCATTCGTATCCATTTTAATTGACACACTATA	spacer
		length: 34	repeater length: 30	
32500	2392385	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TAGAAATCAATAGCTTCATCTATGTCCTGGATTGG	spacer
		length: 35	repeater length: 30	
32501	2392451	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TCAACATCATTCACGGTGACTCCAACATGAGCCTAT	spacer
		length: 36	repeater length: 30	
32502	2392518	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACGAAATGCTACGGTACCTAATAAGGAAGGAGTACGA	spacer
		length: 37	repeater length: 30	
32503	2392586	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TCGCGTTATCGCTCCAACCTCTACCTCTTCAATAAGGA	spacer
		length: 37	repeater length: 30	
32504	2392654	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTGATGATGATGTTTTGCCTAACAAAATTCCTACGAA	spacer
		length: 37	repeater length: 30	
32505	2392722	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTTTTTCTCGTGTTCTATCGTAACGTTTTGTTCCA	spacer
		length: 36	repeater length: 30	
32506	2392789	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TATCTATTTTCGATCTTTTTTCCTTACATCTCTTGTTTC	spacer
		length: 37	repeater length: 30	
32507	2392857	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTAACACAGGGAAAGAGTAGAATCAAATTAATTCAA	spacer
		length: 36	repeater length: 30	
32508	2392924	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ATATAATCTGTTGGTCTTAATCCTTCATTTTCGTAAA	spacer
		length: 37	repeater length: 30	
32509	2392992	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ACTATGAAC TATTCTTCAATTAGGAATGTGGCAGATG	spacer
		length: 37	repeater length: 30	
32510	2393060	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTAGAGATAGTATAAACATCGATTGTATCCAAAATC	spacer
		length: 36	repeater length: 30	
32511	2393127	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTTTCATTAGGAGAAAGAGCTTCTGTAGAGAGAGA	spacer
		length: 36	repeater length: 30	
32512	2393194	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTAATTCCTTTTTTTCATAAAAAATATTTTTATA	spacer
		length: 34	repeater length: 30	
32513	2393259	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TAAAAGAACAATTGGAAAAC TTTTGATAGATTCA	spacer
		length: 35	repeater length: 30	
32514	2393325	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AAC TAGAGA ACCATGAGAGTTGTAACATTTAAAGCAGAAGAA	spacer
		length: 42	repeater length: 30	
32515	2393398	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	CAAATAGTTTCAGTCTGGATACAAAAAGTTTTTAA	spacer
		length: 36	repeater length: 30	
32516	2393465	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	ATTTTTTTACGCAATTTACAGAAAATGATAGA	spacer
		length: 32	repeater length: 30	
32517	2393528	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	GTTAGCTAAATGCTAAGCAAATTCTCTGGATTGAA	spacer
		length: 35	repeater length: 30	
32518	2393594	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTTTTTATACACATTTTTTATCAGTTTGTAAAT	spacer
		length: 33	repeater length: 30	
32519	2393658	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	AGTTAGTGCAAAGGATAGGAAGAGTAATGAGACCA	spacer
		length: 35	repeater length: 30	
32520	2393724	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TTTCCATCAGCAGCAAATGTAATAACTGGTTGTATATA	spacer
		length: 38	repeater length: 30	
32521	2393793	ATTTGTAGAAATCCTTAGAGGACTTGAAAC	TATCCTAATTCCTGTAATGTCTTCAGATTCTTCATCATA	

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spacer length: 39 repeater length: 30
32522 2393863 ATTTGTAGAAATCCTTAGAGGACTTGAAAC TTACCCGACGTTGGTGACACGATAGTAGAAAACTTTCAA
32523
32524
32525 crispr 7
32526 2386695 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GGGTATAGGAATTCCTATGCTATCCTTCTTAGTAGGGTCA
spacer length: 40 repeater length: 30
32527 2386766 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TTTC ACTAGTCACTTTCTAGTTTGACGTTCTCTGTT spacer
length: 36 repeater length: 30
32528 2386833 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AATATTACAAAAGTGATAAAAAATATGCAGAAAAA spacer
length: 35 repeater length: 30
32529 2386899 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GAAATGAAGTAGACCACGTTATTCCATTCCACATCAAA spacer
length: 38 repeater length: 30
32530 2386968 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ACCGCTTTGTAGCGTTATGTAGCCCGACACTTGAATT spacer
length: 37 repeater length: 30
32531 2387036 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TATAATATTTTCAGAACTTTTAGAATCATACAATT spacer
length: 35 repeater length: 30
32532 2387102 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AATGTTTTTTTGTTGCTTTTCAAATTATTTCTTG spacer
length: 34 repeater length: 30
32533 2387167 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCGAGAATGTGAAGATATGGAACCTTTCTTTTTTAA spacer
length: 35 repeater length: 30
32534 2387233 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCCTTAGTAATGCCCTTTATCCAATTAAGACAGGAA spacer
length: 36 repeater length: 30
32535 2387300 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TCTTATAATTATTATGCTTTTCCTCCTTTAGACGG spacer
length: 35 repeater length: 30
32536 2387366 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AAAATCCAGTAAGACGCGTCTTCTAAACTGAGAACA spacer
length: 37 repeater length: 30
32537 2387434 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GAAACACGGTGAGTAAAGAACTATTTGAATGTT spacer
length: 35 repeater length: 30
32538 2387500 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCGCCTTACTGGTTTTTGGAGTATTACACTGAAGTGT spacer
length: 37 repeater length: 30
32539 2387568 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TGTGTGTAGGCATAAACTGTTATCCAAAAAAGGAA spacer
length: 35 repeater length: 30
32540 2387634 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ATGCGGGATATCGTACAATACCAGGCAGGGTTG spacer
length: 33 repeater length: 30
32541 2387698 GTTTC AAGTCCTCTAAGGATTTCTACAAAT GGAGTCATAGAGAGCGACCAGAGCGAGACAATAAGA spacer
length: 36 repeater length: 30
32542 2387765 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ACGATTACGTGCCTCGTCCAGGTAGGCGTTAACGCG spacer
length: 36 repeater length: 30
32543 2387832 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ATAATACTAGTATTTTTTTCTAATTAGTTTGGTATAG spacer
length: 37 repeater length: 30
32544 2387900 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CAACACCATAAACTTTCCTAGCCAATTTTTGAGCA spacer
length: 35 repeater length: 30
32545 2387966 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ATTAATGGAAAAAGCAAAACAAGAAGGAGAAGTTTAT spacer
length: 37 repeater length: 30
32546 2388034 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCTATTATTTCCAGTTTGGTACATGAGCTATATTTTC spacer
length: 37 repeater length: 30
32547 2388102 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TTAAGACCGCGTTTTTCAAATGCAAGAAGTACTTGG spacer
length: 36 repeater length: 30
32548 2388169 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AAATGCAGTCTTCATTTTCTATCACGTCGATACCT spacer
length: 35 repeater length: 30
32549 2388235 GTTTC AAGTCCTCTAAGGATTTCTACAAAT ACAGATTTGTTAATACTGTTTCCATCAACGCGGTA spacer
length: 35 repeater length: 30
32550 2388301 GTTTC AAGTCCTCTAAGGATTTCTACAAAT CCATTTCGCTTTCACTAAAATTGATCTTGTTTCAAGATCTTCT
spacer length: 42 repeater length: 30
32551 2388374 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AGAAATGGATTAAGAGATGCATATAGCGGTGTCAGAA spacer
length: 37 repeater length: 30
32552 2388442 GTTTC AAGTCCTCTAAGGATTTCTACAAAT TTCTCATTTTTTGCACAAATTACGCAAGATGACAGA spacer
length: 36 repeater length: 30
32553 2388509 GTTTC AAGTCCTCTAAGGATTTCTACAAAT AATAAGTATGTGACAAACGGGTTTCAGCCCGAGTATG
32554
32555
32556 GCA_003268005.1_ASM326800v1_genomic.fna(findCrispr):
32557 START REPEAT
SPACER
32558 crispr 1
32559 154546 AAAACTCCAAAACACTCCAA CAAAAAACTCCAAAATACTCCAATA spacer length: 25 repeater
length: 20
32560 154592 AAAACTCCAAAACACTCCAA CAAAAAACTCCAAAATACTCCAATA spacer length: 25 repeater
length: 20
32561 154638 AAAACTCCAAAACACTCCAA

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CAAAAAATCCAAAAATACTCCAATAAAAAATATCAAAAAATACTCCAATAAAAAATATCAAAAAATATATAATAAAAAACTCCAAAAAT
 ATATAATA spacer length: 94 repeater length: 20
 32562 154753 AAAAATCCAAAAACTCCAA
 ACCAAAAACAACCGTACATACAAAAACAAAAAAAATAAAAAAACCAAAACGTATATACAAAACCCAAAAAACTAAAAAACCCCTT
 AACTTATA
 32563
 32564
 32565 crispr 2
 32566 695359 ATTGTATTGTTTAATGTATT GATCGTGTTATCTTGTTGTTT spacer length: 21 repeater length:
 20
 32567 695401 ATTGTATTGTTTAATGTATT TATCGTGTTTTCTTGTTGTTT spacer length: 21 repeater length:
 20
 32568 695443 ATTGTATTGTTTAATGTATT TTTGAACCTGTGTAGGCCTTA
 32569
 32570
 32571 crispr 3
 32572 405815 TGGTGGAGCAATTGACAATA
 GTGGTAGTACTTTAACCGTGACCGGCACACAATTTACAGGCAACAACGCAAATAATAATGGTGGAGCAATCTACAACCTACCATGCT
 ACTTTAACCGTGAACAACACACAATTCACGGGTAACCACGCAATGG spacer length: 132 repeater length: 20
 32573 405968 TGGTGGAGCAATTGACAATA
 GTGGTGGTATCTTAACCGTGACCGACACACAATTTACCAAAAACAACGCATCATATT spacer length: 57 repeater
 length: 20
 32574 406046 TGGTGGAGCAATTGACAATA AACTAGAACAAACAGAAACACCAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCA
 32575
 32576
 32577 crispr 4
 32578 728083 TTTG
 TCCTGTTGCTGTGTTTTGTGTGAGGTTGGTGTGTTTATGTGAAGAGTACCCTCCCAGTTGTATATTGCACCTCCAACCTCCATCTT
 CA spacer length: 88 repeater length: 4
 32579 728176 TTTG
 TCCTGTTGCTGTGTTTTGTGTGAGGTTGGATTGTGTTATGTTAAGAGTACCACGATTGTTGTGTATTGCACCTCCATATCCATTTT
 GTCCTTGCTGTTGCGTTGTTTTGTGTGAGGTTGGATTGTGTTATGTTAAGATTACCAGTGTGTATATTGCACCTCCAACCTCCT
 TCT spacer length: 175 repeater length: 4
 32580 728356 TTTG
 TCCTGTTGCTGTGTTTTGTGTGAGGTTGGATTTCGGTTATGGTAAGATTACCCCCATAGTCGTTGAATATTGCACCTCCAACCTCCAT
 ATTGTCCTGTTACGTTGTTTTGTGTGAGGTTGGAGTCTGTTATGGTAAGAGTACCACCATTGTTGTATATTGCACCTCCATATCCA
 TTG spacer length: 175 repeater length: 4
 32581 728536 TTTG
 CAACGCAACAGGACAAAACCTATGGAGTTGGAGGAGCAATATACAACGCATATGGTAATCTTAACATAACACAATCCAACCTCAACA
 ATAACACTGCAACAGGACAAACAGATGGATATGGAGGTGCAATATATAACGCATATGGTAATTTAAACATTGACAATTCAATACTT
 GAA
 32582
 32583
 32584 crispr 5
 32585 384355 ACAGTACACTCTACAACAACA
 ATGCATCCATTTTTGGAGGAGCAATATACAACGACCAATATGGAAATATAATCATAACCAATACCACACTTCACAACAACACCGCA
 AGCGAGGGAGGAGCAATATATAACAACGAGGGAACCTACAATCATAACA spacer length: 134 repeater length:
 21
 32586 384511 ACAGTACACTCTACAACAACA CCGCAGGCGAGGGAGGAGCAATATATAACAAAGAGGGAACCTACAATCATAACA
 spacer length: 53 repeater length: 21
 32587 384586 ACAGTACACTCTACAACAACA CAAAAACAACCGTACATACAAAAACAAAAAAAATAAAAAAACCAAAACGTA
 32588
 32589
 32590 crispr 6
 32591 1411304 GAGTTGTTTATGGTAAGAGTAC
 CACTATTGTAGTTGTATATTGCACCCCCCTCGCCCAATATTTTGTCTGTTGCTGTGTTTTGTGTGAGGTT spacer
 length: 70 repeater length: 22
 32592 1411397 GAGTTGTTTATGGTAAGAGTAC
 AACGATTGAAGTTGTATATTGCACCCCCATGTCTCCATTTTGTCTGTTGCGTTGTTGTGTGTGAGGTT spacer
 length: 70 repeater length: 22
 32593 1411490 GAGTTGTTTATGGTAAGAGTAC
 ATATTATGATGAGGAATAAAGATGGAAAAAAAATACTTGAAACGATACATGGATGATGACTTAGAAAGAT
 32594
 32595
 32596 crispr 7
 32597 386853 GATGGACGTGGAGGTGTAATAT
 TCAACACTGGTAATCTTAACATAACAGACTCCAATCTCACAGACAACACTGCAACAGGACAAAATGGATATGGAGGTGCAATATAC
 AACGATAATGGTTATTCTCTTAGCATAACAGGCTCCAAGTTAACAACAACAAGGTAACAGGACAAACATA spacer
 length: 157 repeater length: 22
 32598 387033 GATGGACGTGGAGGTGTAATAT
 ACAACAATGGTGGTACTTTTAGCATAACAGGTTCCAACATCACAGACAACACTGCAACAGGACAAAATAG spacer

length: 70 repeater length: 22
32599 387126 GATGGACGTGGAGGTGTAATAT
GAACCTGTGTAGGCCTTAGCCTCAAAATCTATTATTATCGGTTTTGTGCGTTTGACCGTGCTCCGCCAAG

32600
32601
32602 crispr 8
32603 705589 ATTGATGTATATTGCTCCACCAT
TAATATTTGCAGAGTTATTGAATATTAAGCAATCATAGATTTTCATTATCATTAT spacer length: 54 repeater
length: 23
32604 705667 ATTGATGTATATTGCTCCACCAT
TAATATTTGCAGAGTTATTGAATATTAAGCAATCATAGATTTTCATTATCATTATCATTGATGTATATTGCTCCTCCCTCTTCTTTA
GCAGTATTGTTTTCAATGGTACATCCAATAATTTTCATTGTTTTTTT spacer length: 132 repeater length: 23
32605 705823 ATTGATGTATATTGCTCCACCAT
ACAAACAGAAACACCAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCACCAAAAGAAGAAGCTCCAGCTGAAAGTACCGGTGAAG
TAAAAACATTTATTGATTTGATAAGATCTGAAAAATTACTTTAAAC

32606
32607
32608 crispr 9
32609 385271 TATATATAACAATGGAAATTTAA
GCATCAGAGATTCCACACTAGAAAACAACCAAGCAACAGAAACAGAAAGAGGAGACATTGGAAATGCTCTTGCTAAGGGAGGAG
spacer length: 84 repeater length: 23
32610 385379 TATATATAACAATGGAAATTTAA
GCATCAGAGATTCTACACTAAGAAACAACCAAGCAACAGCAACAGTAGCAGCGGTAGTAGCAATAGGAGGCTCTGGAAATGCTTAT
AGTTATGGTGGAG spacer length: 99 repeater length: 23
32611 385502 TATATATAACAATGGAAATTTAA
TAGAACAAACAGAAACACCAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCACCAAAAGAAGAAGCTCCAGCTGAAAGTACCGGT
GAAGTAAAAACAT

32612
32613
32614 crispr 10
32615 2028402 TTACACTTGCAATATACCTCTCA TACTAAAAATTTTCCACATACTTTTTG spacer length: 27
repeater length: 23
32616 2028453 TTACACTTGCAATATACCTCTCA CTATTTGATTTTTTAAACGACTTAAACG spacer length: 28
repeater length: 23
32617 2028505 TTACACTTGCAATATACCTCTCA GAAACACCAAAAGAAGAACTAAAGAAG

32618
32619
32620 crispr 11
32621 1696412 AAAGAACAAGAATTAAAAGCAAAA GCCGAAGCTGAAAAAGCAAACTTGAAGCCAAAAACAAGA spacer
length: 41 repeater length: 24
32622 1696478 AAAGAACAAGAATTAAAAGCAAAA GCCGAAGCTGAAAAAGCAAAAGCTGAAGCTAAAAACAAGA spacer
length: 41 repeater length: 24
32623 1696544 AAAGAACAAGAATTAAAAGCAAAA AACCAACCGTACATACAAAAACAAAAAAAATAAAAAACCA

32624
32625
32626 crispr 12
32627 212604 TGTACTGTTGTTGATGGTTAGATTACC
ATACATGTCGTTGTATATTGCTCCTCCACAGAATTCTGCAGTGTTTTTGCTGTTTA spacer length: 56 repeater
length: 27
32628 212688 TGTACTGTTGTTGATGGTTAGATTACC CCTGTTGTATACTGCTCCTCCACAATATGCCTTGTTGTTGTTA
spacer length: 44 repeater length: 27
32629 212760 TGTACTGTTGTTGATGGTTAGATTACC GATGCTGAAAAAGCAAAAGCTGAAACAATAATAGAAAAAGCAAA

32630
32631
32632 crispr 13
32633 2639438 TTTTTGTGGGTACGTTTTGGAATTGTGT
ACCCTGTATTGTATGTTAATCAGGTTGGTGTGTAACCTGAAGAATAGGTGACTTGAATATTAATAAATTGATGTTTTATTGTGAGA
ACAATTGTGTATTGTGGGTACAAAATTTAATAGGATGCTG spacer length: 126 repeater length: 28
32634 2639593 TTTTTGTGGGTACGTTTTGGAATTGTGT
GCCTATGTATTGTATGTTAGTCAGGTTGGTGTGTAACCTGAAGAATAGGTGACTTGAATATTAATAAATTGATGTTTTATTGTGAG
AACAATTGTGTATTGTGGGTACAAAATTTAATAGGATGCTG spacer length: 127 repeater length: 28
32635 2639749 TTTTTGTGGGTACGTTTTGGAATTGTGT
TGTAGGCCTTAGCCTCAAAATCTATTATTATCGGTTTTGTGCGTTTGACCGTGCTCCGCCAAGTTACCATATTTAATTTGTTCTTT
GAACTTCTACTACTAACTTTATACCCATTACTATAAAAACG

32636
32637
32638 crispr 14
32639 381440 CATAACCAACAGTACACTAAACAACAACA
ACGCAGAATATGGAGGAGCAATATACAACACCAACTTAGGAATTATAA spacer length: 48 repeater length: 29
32640 381518 CATAACCAACAGTACACTAAACAACAACA
CTGCAACAGGACAAGAATATTATGCAGGGGAGGAGCAATATGTACTTGGCATGCAACTGCAA spacer length: 63

repeater length: 29
32641 381611 CATAACCAACAGTACACTAAACAACAACA
GAAACACCAAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCACCAAAAAGAAGAAGCTCCAGCT

32642
32643
32644 crispr 15
32645 1047851 GGTAATCTTAACATAACACAATCCAACCTCA
CACAAAACAAGGCAACAGGACAAAACCTATGGAGTTGGAGGAGCAATATACAACGCATA spacer length: 58
repeater length: 31
32646 1047941 GGTAATCTTAACATAACACAATCCAACCTCA
AACAAAACAACGCAACAGGACAAAACATGGATATGGAGGAGCAATATACAACAG spacer length: 55 repeater
length: 31
32647 1048028 GGTAATCTTAACATAACACAATCCAACCTCA
CACAAAACAACGCAACAGGACAAAACCTATGGAGTTGGAGGAGCAATATACAACGCATA spacer length: 58
repeater length: 31
32648 1048118 GGTAATCTTAACATAACACAATCCAACCTCA
ACAAACAGAAACACCAAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCACCAAAAAGAA

32649
32650
32651 crispr 16
32652 1048385 TCCAACCTCACACAAAACACAGCAACAGGACAA
GGACAATATGGATATGGAGGTGCAATATACAACAATGGTACTCTTAACATAACACAATCCAACCTCACACAAAACAACGCAACCGG
ACAAAAATATGGATATGGAGGTGCAATATACAACAATGGTACTCTTAACATAACACA spacer length: 143
repeater length: 33
32653 1048562 TCCAACCTCACACAAAACACAGCAACAGGACAA
AACAAATGGACATGGAGGTGCAATATACAACGGTGGTAGTGGTACTCTTAACATAACACAATCCAACCTCACACACAACAACGCAAC
AGGACAAAACAATGGACATGGAGGTGCAATATACAACAACGGTGGTAATCTTACCATAACACA spacer length: 149
repeater length: 33
32654 1048745 TCCAACCTCACACAAAACACAGCAACAGGACAA
GAAACACCAAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCACCAAAAAGAAGAAGCTCCAGCTGAAAGTACCGGTGAAGTAAAAAC
ATTTATTGATTTGATAAGATCTGAAAAATTACTTTAAACGTAAAGGAGAACTTTATTTCATGTC

32655
32656
32657 crispr 17
32658 2367122 AGTACCACCATATGCGTTGTATATTGCACCTCCA
ACTCCCTCTAGTTGTCCTGTTGCGGTGTTTTGTGTGAGGTTGGATTGTGTTATGTTAA spacer length: 58
repeater length: 34
32659 2367215 AGTACCACCATATGCGTTGTATATTGCACCTCCA
TCTCCATCTCCATATTCTTGTCTGTTGCGGTGTTTTGTGTGAGGTTGGATTGTGTTATGTTAA spacer length: 64
repeater length: 34
32660 2367314 AGTACCACCATATGCGTTGTATATTGCACCTCCA
ATAAGAAATGTTGTGATTTAAATCAGCAAATATATAATAATGGAAAATTAAGATTAAAACAAAA

32661
32662
32663 crispr 18
32664 620876 ATGAATATGTCAGATATGATGTCTGGTATGAACATG TCTGGAATGAACTTCTCTGGAATGAACATGTCCGG
spacer length: 35 repeater length: 36
32665 620948 ATGAATATGTCAGATATGATGTCTGGTATGAACATG AGTGGTATGAACTTCTCTGG spacer length: 20
repeater length: 36
32666 621005 ATGAATATGTCAGATATGATGTCTGGTATGAACATG CACTAGAACAAACAGAAACA

32667
32668
32669 crispr 19
32670 248198 ATCGGCATTGGGTAATTGGGACACATCAAAAGTTAAA
TATATGGTTGATATGTTTAGTGGTTGTGAGTCTTTTGGTGGATG spacer length: 43 repeater length: 37
32671 248279 ATCGGCATTGGGTAATTGGGACACATCAAAAGTTAAA
AATATGGATGATATGTTTAGTGGTTGTGAGTCTTTTGGTGGATG spacer length: 43 repeater length: 37
32672 248360 ATCGGCATTGGGTAATTGGGACACATCAAAAGTTAAA
AAAAGCTGAAACAATAATAGAAAAAGCAAAAGAAGAAACCAA

32673
32674
32675 crispr 20
32676 694966 TTGTTTAGGTTTTGATTTTCTTTTGTGAGTGTTTTTAT
CGTGTTATTTTGTGTTTTATGGTATCGTTTAGTGTTTTAATGGTGTTTTCTTGTTGTTTTATTGT spacer length: 66
repeater length: 38
32677 695071 TTGTTTAGGTTTTGATTTTCTTTTGTGAGTGTTTTTAT
TGTGTTATTTTGTGTTTTATGGTATCATTTAGTGTTTTAATGGTGTTTTCTTGTTGTTTTATTGTGTTGTTTAGGTTTTTTATTG
T spacer length: 87 repeater length: 38
32678 695197 TTGTTTAGGTTTTGATTTTCTTTTGTGAGTGTTTTTAT
ATGTTGTGATTTAAATCAGCAAATATATAATAATGGAAAATTAAGATTAAAACAAAAAAGCAATAGTGGAAGCAATATGTCAAAA
C

32679
32680
32681 crispr 21
32682 2742630 ATCTGAAGAGGAAGAATCTGAAGAGGAAGAATCTGAAGA
AGAGGAATCTGAAGAGGAAGAATCTGAAGAAGAGGAATCTGAAGAAGAGG spacer length: 50 repeater
length: 39
32683 2742720 ATCTGAAGAGGAAGAATCTGAAGAGGAAGAATCTGAAGA AGAGGAATTTGAAGAAGAGG spacer length:
20 repeater length: 39
32684 2742780 ATCTGAAGAGGAAGAATCTGAAGAGGAAGAATCTGAAGA AGAAGAAGCTAAAGAAGCAC
32685
32686
32687 crispr 22
32688 1599190 TAACAACAATTATAACAACAATTATAAGAATAATTATAA CAACAATTATAACAACAATT spacer length:
20 repeater length: 39
32689 1599250 TAACAACAATTATAACAACAATTATAAGAATAATTATAA
GAATAATTATAACAACAATTATAACAACAATTATAACAACAATTATAACAACAATTATAACAACAATTATAACA
ACAATTATAACAACAATTATAACAACAATTATAACAACAATTATAACAACAATT spacer length: 140 repeater
length: 39
32690 1599430 TAACAACAATTATAACAACAATTATAAGAATAATTATAA
AACTAAAGAAGAAGCTAAAGAAGCACCAAAAGAAGAAGCTCCAGCTGAAAGTACCGGTGAAGTAAAAACATTTATTGATTTGATAA
GATCTGAAAAATTACTTTAAACGTAAAGGAGAACTTTATTCATGTCTAATGAGA
32691
32692
32693 crispr 23
32694 608065 ATTATGATGATTCTGAAGATGATTACATAGATGATATGGA
CGATTACGAAGACTATGAGGAAATGGATGATTCTGAG spacer length: 37 repeater length: 40
32695 608143 ATTATGATGATTCTGAAGATGATTACATAGATGATATGGA
CGATTACGAAGACTATGAGGAAATGGATGATTACGAA spacer length: 37 repeater length: 40
32696 608221 ATTATGATGATTCTGAAGATGATTACATAGATGATATGGA GAGCAATATATTCTACGGGAATTGTGAACAGTACATG
32697
32698
32699 crispr 24
32700 741125 CGTATATACACACAAACCAAAAACAACCGTACATACAAA ACAAAAAAATAAAAAACCAAAA spacer
length: 24 repeater length: 40
32701 741190 CGTATATACACACAAACCAAAAACAACCGTACATACAAA ACAAAAAAATAAAAAACCAAAA spacer
length: 25 repeater length: 40
32702 741256 CGTATATACACACAAACCAAAAACAACCGTACATACAAA ACAAAAAAATAAAAAACCAAAA spacer
length: 24 repeater length: 40
32703 741321 CGTATATACACACAAACCAAAAACAACCGTACATACAAA ATATGATACCAGGTATGAATATGT
32704
32705
32706 crispr 25
32707 429790 GTGTCTTGTAGTTGTTTGTGGTGTGTTTGTAGGTTTTGTA
TTGTTTTGTTTGGTTCTGGTTTTCTTTGTGAGTGTTTGTATGGTGTGTTTGTGTTTTATTGTGTTGTTTAGTGTTTTTAT
spacer length: 85 repeater length: 40
32708 429916 GTGTCTTGTAGTTGTTTGTGGTGTGTTTGTAGGTTTTGTA
TAGTTTTGTTTGGTTCTGGTTTTCTTTGTGAGTGTTTGTATGGTGTGTTCTGTTGTTTTATTGTGTTGTTTAGTGTTTTTAT
spacer length: 85 repeater length: 40
32709 430042 GTGTCTTGTAGTTGTTTGTGGTGTGTTTGTAGGTTTTGTA
CATACAAAAACAAAAAATAAAAAACCAAAACGTATATACAAAACCAAAAACTAAAAACCTTAACCTTATAAAAAATT
32710
32711
32712 crispr 26
32713 727644 GTGTTTTGTGTGAGGTTGGAGTGTGTTATGTTAAGAGTAC
CACCGTTGTATATTGCACCTCCATATCCATCATATGTTTGTCTGTGTC spacer length: 49 repeater length:
40
32714 727734 GTGTTTTGTGTGAGGTTGGAGTGTGTTATGTTAAGAGTAC
CATTGTTGTATATTGCACCTCCAATTCCATATCCATCTTGTCTGTGTCCTGTGTC spacer length: 55 repeater
length: 40
32715 727830 GTGTTTTGTGTGAGGTTGGAGTGTGTTATGTTAAGAGTAC
TTTTGTGCGTTTGACCGTGCTCCGCCAAGTTACCATATTTAATTGTTCTTTGAA
32716
32717
32718 crispr 27
32719 1696834 TTCATTCACACAACAACTAAGACAACAAAACAAAATACAA
ACAGGAACACTAGAACAAACAGAAACACCAGAAAAAGAAACAAAACAGAAACACCAAAACCAGAAACAAAAGAAGCACCAAAAGC
AGAAGCAGAACCCAGCACCAGCAGGAC spacer length: 112 repeater length: 40
32720 1696987 TTCATTCACACAACAACTAAGACAACAAAACAAAATACAA
ACAGGAACACTAGAACAAACAGAAACACCAGAAAAAGAAACAAAACAGAAACACCAAAAGAAGAACTAAAGAAGCACCAAAAGC
AGAAGCAGAACCCAGCACCAGCAGGAC spacer length: 112 repeater length: 40
32721 1697140 TTCATTCACACAACAACTAAGACAACAAAACAAAATACAA

AAACAAAAAAAAATAAAAAACCAAAAACGTATATACAAAACCCAAAAAACTAAAAAACCCCTTAACCTTATAAAAAATTATATAATC
CAAAAAAATCATGTACATACAAAAA

32722

32723

32724 crispr 28

32725 208314 TTGTTTATGTTATAAAAAAGTGGTAACTACAGGATTTGAAC

CTGTGTAGGCCTTAGCCTCAAAATCATTATTATTATCGGTTTTGTGCGTTTGACCGTGCTCCGCCAAGTTACCATATTAATAAATT
TGTTTTTGGTTTTTTTTTCTACATCTTTT spacer length: 115 repeater length: 40

32726 208470 TTGTTTATGTTATAAAAAAGTGGTAACTACAGGATTTGAAC

CTGTGTAGGCCTTAGCCTCAAAATCATTATTATTATCGGTTTTGTGCGTTTGACCGTGCTCCGCCAAGTTACCATATTAATAAATTTG
TTTTTGGTTTTTTTTTCTACATCTTTT spacer length: 113 repeater length: 40

32727 208624 TTGTTTATGTTATAAAAAAGTGGTAACTACAGGATTTGAAC

ACAAACAGAAACACCAAAAAGAAGAACTAAAGAAGAAGCTAAAGAAGCACCAAAAAGAAGAAGCTCCAGCTGAAAGTACCGGTGAAG
TAAAAACATTTATTGATTTGATAAGAT

32728

32729

32730 GCA_003431325.1_ASM343132v1_genomic.fna(findCrispr):

32731 START REPEAT

SPACER

32732 crispr 1

32733 236086 TATGGAGGCGTTGAGGCCCT TCACAGCGGAGCTTAGTGACT spacer length: 21 repeater length:
20

32734 236128 TATGGAGGCGTTGAGGCCCT

TCACCTCAGAGGCCACCGTTGAGCCCTCGCTCTGCACCTGCGAGCTCAGGGTGCTCACCGCGCTGCTTATCTCTGACT
spacer length: 78 repeater length: 20

32735 236227 TATGGAGGCGTTGAGGCCCT

GTATGAGCGAGGCCACCTGCGACTCAGCTGAGGCTATCTCGCTGTTTATGGCCTGCGTGTTACCGACACTATGCCAG

32736

32737

32738 GCA_003491285.1_ASM349128v1_genomic.fna(findCrispr):

32739 START REPEAT

SPACER

32740 crispr 1

32741 1238870 GATGGTACTATTTTATGTGGGAA

GTTATGATGGTAATTTGTATGCTTTGAATCCAGATGGAACACTTAAATGGAGTTATACTGCCGGTACTCGAATATATGGTTCACCC
GCAATCGCTGA spacer length: 97 repeater length: 22

32742 1238990 GATGGTACTATTTTATGTGGGAA

GTTATGACAAAAAGATTTACGCATTAAATCCTGATGGATCACTTAAATGGACTTATACTGCTGGAAGTTATGTGTATTATGCACAA
CCCGCAATCGCTGA spacer length: 100 repeater length: 22

32743 1239113 GATGGTACTATTTTATGTGGGAA

CTTATGATGGTAATGTGTATGCTCTGAATCCTGATGGAACGGTTAAATGGAGTTATACTGCTGGTACTCGAATATATGGTTCAGTA
TCAATAGGTGC spacer length: 97 repeater length: 22

32744 1239233 GATGGTACTATTTTATGTGGGAA

AAAATTAAAACATGTTATATTATTAATAAATAATATTAGTAATAAACATAAAATCCACAGTTTTTTTATATTTATAGAATATTAATT
GATATGGTGAT

32745

32746

32747 crispr 2

32748 476699 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAGATAAGCTATTCATACTGAAAGAAAGAAGTG spacer
length: 34 repeater length: 30

32749 476764 GTTAAAAATCAGACTATTTTAGGATTGAAAT TACAAAGCACGTAGAATTGAAAAAGACACAATATC spacer
length: 35 repeater length: 30

32750 476830 GTTAAAAATCAGACTATTTTAGGATTGAAAT GGATTTGTCTGTGGTTGATGGAGACGTGATCACTA spacer
length: 35 repeater length: 30

32751 476896 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTATGGGCAACTAAAGATCAAGATGACAACCTGGAT spacer
length: 35 repeater length: 30

32752 476962 GTTAAAAATCAGACTATTTTAGGATTGAAAT GCAGTCACCAGATCAAGAGCATAATATATAAAATTA spacer
length: 36 repeater length: 30

32753 477029 GTTAAAAATCAGACTATTTTAGGATTGAAAT GTACTTAGGCTGCAACTACACCTTGCTGTGCGAAGT spacer
length: 35 repeater length: 30

32754 477095 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTGGTAAGGCTGCATTTCATAGCAGCGGTGGGTAT spacer
length: 34 repeater length: 30

32755 477160 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTATTTTACAAAGACTTGAAAAAGCAGGGCTGGATA spacer
length: 37 repeater length: 30

32756 477228 GTTAAAAATCAGACTATTTTAGGATTGAAAT CGAAATCTTTGATTAAAGGAGGAATTTGTGATGGTA spacer
length: 36 repeater length: 30

32757 477295 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTACAACCTATGGGATTGGAGTAAAAGTGTAGCAAC spacer
length: 36 repeater length: 30

32758 477362 GTTAAAAATCAGACTATTTTAGGATTGAAAT GTATTATTTTATAAATTATTTCAAACAGAATACTC spacer
length: 35 repeater length: 30

32759 477428 GTTAAAAATCAGACTATTTTAGGATTGAAAT TCATAATAAAGAATTAATTCTTCATAATGTTTAA spacer

length: 34 repeater length: 30
32760 477493 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATTGTTGAAGAATAAATAATTTTTTAGTATTTTATT spacer
length: 35 repeater length: 30
32761 477559 GTTAAAAATCAGACTATTTTAGGATTGAAAT TATATCGGGAAAGAGGAGAAGGTTAAATATTGTTTT spacer
length: 36 repeater length: 30
32762 477626 GTTAAAAATCAGACTATTTTAGGATTGAAAT TATTAGTTGCCTCCTTCAGCGTCTATTAATTTCG spacer
length: 33 repeater length: 30
32763 477690 GTTAAAAATCAGACTATTTTAGGATTGAAAT AAAATATGATTGGCTATCACTACACATCGCATTC spacer
length: 34 repeater length: 30
32764 477755 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATACCGTTACGTCACATTCCTGCCCTACGAAGTCC spacer
length: 35 repeater length: 30
32765 477821 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAAAATAAAAAGAAAAAGGTGTTAAAAAGTGGA spacer
length: 35 repeater length: 30
32766 477887 GTTAAAAATCAGACTATTTTAGGATTGAAAT CCGTGTAACGGCTAATTGTCACAGCGTTAATTG spacer
length: 34 repeater length: 30
32767 477952 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATGCACTTATCAGGTAATAATATGATCCGATTGGA spacer
length: 35 repeater length: 30
32768 478018 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATGCCTTTGTAGAGGGTGTGGGTGGAAGTGTAT spacer
length: 34 repeater length: 30
32769 478083 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATGTTCAAATCAAGAGTTTGGTCTAACGAATTCA spacer
length: 34 repeater length: 30
32770 478148 GTTAAAAATCAGACTATTTTAGGATTGAAAT AGCTTGTAATATTAGATGCTGTGTCTAACCAAGTGC spacer
length: 35 repeater length: 30
32771 478214 GTTAAAAATCAGACTATTTTAGGATTGAAAT GCTGAGTTTGTAGATGTACATAATTTTCATCAACA spacer
length: 34 repeater length: 30
32772 478279 GTTAAAAATCAGACTATTTTAGGATTGAAAT GCATTGCAAATAGTAAAGTGTATGTGTACCAAATC spacer
length: 35 repeater length: 30
32773 478345 GTTAAAAATCAGACTATTTTAGGATTGAAAT TAGAACAAGCATACCCGCACCTATCGTCCGACA spacer
length: 33 repeater length: 30
32774 478409 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATGGTAGTCATGTTATTGTAAGAATAGAGCAGGAAG spacer
length: 36 repeater length: 30
32775 478476 GTTAAAAATCAGACTATTTTAGGATTGAAAT TATACTAGTAAGAGGGAGATACTGGAAATATAAGTT spacer
length: 36 repeater length: 30
32776 478543 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATTGGAAAGTGATAGTAGTAACCGGGCCGTGGCCCA spacer
length: 36 repeater length: 30
32777 478610 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTGTGATAATCACATGCATATCCATAAATGATGTG spacer
length: 35 repeater length: 30
32778 478676 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTAATTATAATCTATTGTTAACAAGCCAACCACAA spacer
length: 35 repeater length: 30
32779 478742 GTTAAAAATCAGACTATTTTAGGATTGAAAT GATTGTTAAAAAGTTTTGCAGCATATCTAGGAAAAG spacer
length: 36 repeater length: 30
32780 478809 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAATCGGGGGAATAGTAGGATCTATCAGGAGAGT spacer
length: 36 repeater length: 30
32781 478876 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATGCACGTGTGGGTATACGGTTTTTGTGGAGTCAT spacer
length: 35 repeater length: 30
32782 478942 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACCAGCATTTTTTCTTTTGCTTCATCCTTCTTTTT spacer
length: 36 repeater length: 30
32783 479009 GTTAAAAATCAGACTATTTTAGGATTGAAAT AAAAGAAGCAGAAAAAATACGGAAAAACCTAACCT spacer
length: 35 repeater length: 30
32784 479075 GTTAAAAATCAGACTATTTTAGGATTGAAAT AATTTAAGGAGATACTCATATAATTCAGGGGAATA spacer
length: 35 repeater length: 30
32785 479141 GTTAAAAATCAGACTATTTTAGGATTGAAAT TAACCTCACAGGAATTAAAGGTGCAAGTACAGTTA spacer
length: 36 repeater length: 30
32786 479208 GTTAAAAATCAGACTATTTTAGGATTGAAAT TGATGGGCGTGGTTACTTCCTGACAAGGACAAGTGT spacer
length: 36 repeater length: 30
32787 479275 GTTAAAAATCAGACTATTTTAGGATTGAAAT CAGACAAC TGCTAATCCTTTGAGGAAGACTGCATAA spacer
length: 36 repeater length: 30
32788 479342 GTTAAAAATCAGACTATTTTAGGATTGAAAT CGTCTATGATTAATACGTTTGGGATTTTCTTTTTG spacer
length: 35 repeater length: 30
32789 479408 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTGTAAGTATCGGCCAGATCAAACTATCACAAA spacer
length: 35 repeater length: 30
32790 479474 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACGGTATAGGATGGTGGTCTTCATGCACAAGTGTT spacer
length: 35 repeater length: 30
32791 479540 GTTAAAAATCAGACTATTTTAGGATTGAAAT TGAAAAAAGTTGGAGCTAAAAAATAAACTTCAT spacer
length: 35 repeater length: 30
32792 479606 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAACAAGCACGATGGAGGTTGGCGGTCTTGAAAT spacer
length: 35 repeater length: 30
32793 479672 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTTAGTCTCTGTATCGTAGCGGTAGAATATCAGT spacer
length: 34 repeater length: 30
32794 479737 GTTAAAAATCAGACTATTTTAGGATTGAAAT GATTAACACTCACTCTCATTTTTTTACATAAAATGGA spacer
length: 36 repeater length: 30

32795 479804 GTTAAAAATCAGACTATTTTAGGATTGAAAT CAGAAATATTTATAAAAAAGTTTAGTAAGTTTCAT spacer
length: 35 repeater length: 30

32796 479870 GTTAAAAATCAGACTATTTTAGGATTGAAAT GGTAAAAAGAGGCGTTTAGTAATCATGAGTTCAG spacer
length: 34 repeater length: 30

32797 479935 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTTATAAATCATCGGCAGGAGGTGATGTTGCTTA spacer
length: 34 repeater length: 30

32798 480000 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTTTGGTTGTAAGACACTGACAGCATTACGAA spacer
length: 32 repeater length: 30

32799 480063 GTTAAAAATCAGACTATTTTAGGATTGAAAT ATAGTTTTGGTGGTGATTTGGCGTAGGTTTTTTAGT spacer
length: 36 repeater length: 30

32800 480130 GTTAAAAATCAGACTATTTTAGGATTGAAAT GCGGTATTTTAGTGAATTGAATGAGGCAGGGTTTTT spacer
length: 36 repeater length: 30

32801 480197 GTTAAAAATCAGACTATTTTAGGATTGAAAT AGTAATCATATAAATTATATTATTACAGTAAATAAGA spacer
length: 37 repeater length: 30

32802 480265 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTTGTATTAGAGACAGATAATTTGGTTTTAGAGCG spacer
length: 35 repeater length: 30

32803 480331 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACAATAATCGTATCTGGTCAGGGAAATCGAAGACT spacer
length: 36 repeater length: 30

32804 480398 GTTAAAAATCAGACTATTTTAGGATTGAAAT GTTTTATGCTAGTTAATTTATCATAAACCGTTCTA spacer
length: 35 repeater length: 30

32805 480464 GTTAAAAATCAGACTATTTTAGGATTGAAAT GTCTTTTTCTTTTACTATTGTTTTTTCATATTCTT spacer
length: 35 repeater length: 30

32806 480530 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTCAGTAATGCATATAAAGCTTTTACTTTGCTTTC spacer
length: 35 repeater length: 30

32807 480596 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTTATTCCTTCAGCAAGAAATCTAAATCTGTAAAT spacer
length: 36 repeater length: 30

32808 480663 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACAATATTCTTTTCTTAAATTATTTATTGAACCAA spacer
length: 35 repeater length: 30

32809 480729 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTAACACTGAAATATAGATTATCAAATTACT spacer
length: 32 repeater length: 30

32810 480792 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACCGATAGAATTCTTATTTTACTACTAGTAAAC spacer
length: 34 repeater length: 30

32811 480857 GTTAAAAATCAGACTATTTTAGGATTGAAAT TATTATAATCTATAAATATTTTAACGCGTCCATG spacer
length: 34 repeater length: 30

32812 480922 GTTAAAAATCAGACTATTTTAGGATTGAAAT CTGAGGTAACAGCTAAAAAAGTGAGAAAGGTGAATGAT spacer
length: 38 repeater length: 30

32813 480991 GTTAAAAATCAGACTATTTTAGGATTGAAAT TGTTTATATGAGACATGGTAAAGGAACAGCGGCTT spacer
length: 35 repeater length: 30

32814 481057 GTTAAAAATCAGACTATTTTAGGATTGAAAT AAAACAATGTGCCAATGAAGAATCGCCTAAATATA spacer
length: 35 repeater length: 30

32815 481123 GTTAAAAATCAGACTATTTTAGGATTGAAAT GTAAAAAAGAGTACGTTTTCTTCGAGGATGATAT spacer
length: 35 repeater length: 30

32816 481189 GTTAAAAATCAGACTATTTTAGGATTGAAAT TGCTAACGCCTCAACAGCATCCATAAAAGTATTAGG spacer
length: 36 repeater length: 30

32817 481256 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACCAGTGTAGGGCTAGCATGTTTATAAAGAAATATA spacer
length: 36 repeater length: 30

32818 481323 GTTAAAAATCAGACTATTTTAGGATTGAAAT AGATGTGCTCGTTGCTGGAAATGGTATGCAAGGC spacer
length: 34 repeater length: 30

32819 481388 GTTAAAAATCAGACTATTTTAGGATTGAAAT GCAAATACGTATAGTACACCCATACGGTTCGATACA spacer
length: 36 repeater length: 30

32820 481455 GTTAAAAATCAGACTATTTTAGGATTGAAAT TGGAATGAGCTTTGGGGTAAGAGTTTGATTGATA spacer
length: 34 repeater length: 30

32821 481520 GTTAAAAATCAGACTATTTTAGGATTGAAAT TTCCTTTTATTTTGGTTTAAACGTTTATATCGTAGG spacer
length: 36 repeater length: 30

32822 481587 GTTAAAAATCAGACTATTTTAGGATTGAAAT GAAGGGGTCAAAGGGACAGTTAACCGACAGGTATA spacer
length: 35 repeater length: 30

32823 481653 GTTAAAAATCAGACTATTTTAGGATTGAAAT AGTTCTAATGCTTTTCCTTTAACTATTTTTCAT spacer
length: 35 repeater length: 30

32824 481719 GTTAAAAATCAGACTATTTTAGGATTGAAAT ACATGTTATATTATTAATAAATAATATTAGTAATA

32825

32826

32827 crispr 3

32828 540111 CCATTCTGTTTATTGTAATTAGCAGATGAATCCCAAATTT GTGCAGAACTTCCAGTAGAATAAAT spacer
length: 25 repeater length: 40

32829 540177 CCATTCTGTTTATTGTAATTAGCAGATGAATCCCAAATTT TTGCAGTGCTCCCAATAGAATAAAT spacer
length: 25 repeater length: 40

32830 540243 CCATTCTGTTTATTGTAATTAGCAGATGAATCCCAAATTT TATTAATAAATAATATTAGTAATAA

32831

32832

32833 GCA_003491305.1_ASM349130v1_genomic.fna(findCrispr):

32834 START REPEAT

SPACER

32835 crispr 1

32836 51218 AAAGAGGCTGCTGAAGAAAA
GGCTGAAGAAATCAAAGAAAAAGTCGCTGAAGCCGAAGAATCTGCTGAAGAAAAAGCTGAAGAAGCCAAAGAGAAGGCAGCTGAAA
T spacer length: 87 repeater length: 20

32837 51326 AAAGAGGCTGCTGAAGAAAA GGCTGAAGATGCAAAAGAAAAGGTAGAGGAAATTAAAGAAAAGGCAGCTGAAGC
spacer length: 54 repeater length: 20

32838 51401 AAAGAGGCTGCTGAAGAAAA TTGAAATATATATGAATTAACCTAATCAAAGGTATTGTCACTAAAATCA

32839

32840

32841 crispr 2

32842 1469664 CAGCACACTCACCAACAACAC
GGCAACAGATTATGGTGGAGCTATCGACAATGAATATGGAACATAACCAAGTATCATACTACCAACAACAATGCAACAT
ACGGCGGAGCTATCGACAACCTACCATTGGAACGGTGAACCTAACCA spacer length: 131 repeater length: 21

32843 1469817 CAGCACACTCACCAACAACAC CGCAACATACGGCGGAGCTATCGACAACCTACCGTGGAACGGGGAACCTTAATA
spacer length: 53 repeater length: 21

32844 1469892 CAGCACACTCACCAACAACAC GCAGAGGAAGCCAAAGAGAAGGCAGCTGAAATTAAAGAAGCAGCCAAAGAGAA

32845

32846

32847 crispr 3

32848 1437826 TGGAAGTTTAACTGTGACAAACAGT GCATTCGCAGACAACACCGCATATTGGTATGGTGGGGCCATCTACAATA
spacer length: 49 repeater length: 25

32849 1437901 TGGAAGTTTAACTGTGACAAACAGT ACACATAAAAAATAACTACGCCTTTGGTGTGGTGGGGCCATCTACAATA
spacer length: 49 repeater length: 25

32850 1437976 TGGAAGTTTAACTGTGACAAACAGT TATATATGAATTAACCTAATCAAAGGTATTGTCACTAAAATCAG

32851

32852

32853 crispr 4

32854 1047254 GCCAAAATCAGACTATTTTAGGATTGAAAT
ATATAGATGATATAATCGATGATGCGACCCAGACATGCAAAAATCAGACTATTTTAGGATTGAAATCGATTTTCATGAGTGCAGGG
TATGGGTTTTTGTAA spacer length: 103 repeater length: 30

32855 1047388 GCCAAAATCAGACTATTTTAGGATTGAAAT ATCTATCTTCTTCTGGAGTGCGGTGGGTGTGAACT spacer
length: 35 repeater length: 30

32856 1047454 GCCAAAATCAGACTATTTTAGGATTGAAAT GTCACCCACTTGGTAACAATACCTATTCTCATAA spacer
length: 34 repeater length: 30

32857 1047519 GCCAAAATCAGACTATTTTAGGATTGAAAT TACTACATCATAGCGGGGTGTTCCCCCTGGTATGG spacer
length: 35 repeater length: 30

32858 1047585 GCCAAAATCAGACTATTTTAGGATTGAAAT CAAATCCACCAAACGGATAGACTACGAACTCATC spacer
length: 34 repeater length: 30

32859 1047650 GCCAAAATCAGACTATTTTAGGATTGAAAT GCAAAGTGCAGCGGGAGATCGACCAGAAAAGCAT spacer
length: 34 repeater length: 30

32860 1047715 GCCAAAATCAGACTATTTTAGGATTGAAAT CGGGCAAGGTCATCGGTCAACTTCCGGATCAGGT spacer
length: 34 repeater length: 30

32861 1047780 GCCAAAATCAGACTATTTTAGGATTGAAAT CATGATGCTTATGGGAACGAGTTAGGATACATTAA spacer
length: 35 repeater length: 30

32862 1047846 GCCAAAATCAGACTATTTTAGGATTGAAAT CTATCACAATAGGGAGGGGTCAAGCCGCCCTAAGT spacer
length: 35 repeater length: 30

32863 1047912 GCCAAAATCAGACTATTTTAGGATTGAAAT TCATTTGTTCTTATCTTGAATGGGCCGTTGGTGGC spacer
length: 35 repeater length: 30

32864 1047978 GCCAAAATCAGACTATTTTAGGATTGAAAT ATATAAATGATATAATCCATGATGCCACCCAGACA spacer
length: 36 repeater length: 30

32865 1048045 GCCAAAATCAGACTATTTTAGGATTGAAAT GAAACTATTATATTCTTTATGAAGACCTCCCACA spacer
length: 35 repeater length: 30

32866 1048111 GCCAAAATCAGACTATTTTAGGATTGAAAT GCAACTGTGGGCCTTGCTGCAACAATCTCAGAGTA spacer
length: 35 repeater length: 30

32867 1048177 GCCAAAATCAGACTATTTTAGGATTGAAAT GTAGACCTCACGGACTGGCTCCACTCTGAATGAGA spacer
length: 35 repeater length: 30

32868 1048243 GCCAAAATCAGACTATTTTAGGATTGAAAT ATATGGGGGGGTAAAAAGTTTTAATTATTCAACAT spacer
length: 35 repeater length: 30

32869 1048309 GCCAAAATCAGACTATTTTAGGATTGAAAT GTATCTACAGCTTTAGTTTTAATTGCTGAGGAATGG spacer
length: 36 repeater length: 30

32870 1048376 GCCAAAATCAGACTATTTTAGGATTGAAAT GGAGAATGGACATGCCTTGTGTGTGATGCCGATT spacer
length: 34 repeater length: 30

32871 1048441 GCCAAAATCAGACTATTTTAGGATTGAAAT TTAAGTGGCGACATGATAACTGATTTACTCGTAGT spacer
length: 35 repeater length: 30

32872 1048507 GCCAAAATCAGACTATTTTAGGATTGAAAT CACTTTTACCTGCTGTGTAAACTTCTCAGTATAA spacer
length: 35 repeater length: 30

32873 1048573 GCCAAAATCAGACTATTTTAGGATTGAAAT TTTAGCACTGAAACTGGCCATGTGGGTGACTAAT spacer
length: 34 repeater length: 30

32874 1048638 GCCAAAATCAGACTATTTTAGGATTGAAAT GAACCTCAGAACTTGGCAAAGACTAATCCATTGAA spacer
length: 35 repeater length: 30

32875	1048704	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGCATACTCGAAAAACACAACACACAACAACCAC	spacer
		length: 35	repeater length: 30	
32876	1048770	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAGAACCCTTAAAAACGCTCGGTGGGCTTATGAA	spacer
		length: 34	repeater length: 30	
32877	1048835	GCCAAAATCAGACTATTTTAGGATTGAAAT	CCCATGGGGAACAGCCGAACCGTTCTGTGGGA	spacer
		length: 33	repeater length: 30	
32878	1048899	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAAGTTATAATAATAATAGATTTATTTGGATTGTC	spacer
		length: 35	repeater length: 30	
32879	1048965	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTTAAAATAGAGGGGAATTATTAGCTAAATTAG	spacer
		length: 34	repeater length: 30	
32880	1049030	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATGGCAGGGTGGAAAAAGGCACAAACCGGAAAAG	spacer
		length: 34	repeater length: 30	
32881	1049095	GCCAAAATCAGACTATTTTAGGATTGAAAT	TATATCCTCCTAAACAGTCAAAGCCAAAGTAACC	spacer
		length: 34	repeater length: 30	
32882	1049160	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCATGGATTAAAGGATGATAATCTGGGTTTAATT	spacer
		length: 35	repeater length: 30	
32883	1049226	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTTGGAAGTAAAAGGTTTTATGTTTCAACTAAG	spacer
		length: 34	repeater length: 30	
32884	1049291	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACTTAATTCAATATCAGCTGTGGTTGTGTGTACTC	spacer
		length: 35	repeater length: 30	
32885	1049357	GCCAAAATCAGACTATTTTAGGATTGAAAT	GCCTATATTGGATGACCTGGGTAAGCCAACCTGGTAA	spacer
		length: 36	repeater length: 30	
32886	1049424	GCCAAAATCAGACTATTTTAGGATTGAAAT	CGTTATCAGCGTTAACAAAAAATTCATATTAGTTT	spacer
		length: 36	repeater length: 30	
32887	1049491	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTGTAACACTAATGAGGATAGGGAGAAGCATATCT	spacer
		length: 35	repeater length: 30	
32888	1049557	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAAAGATGTGATAAAAAATCATAGAGGATCACGG	spacer
		length: 34	repeater length: 30	
32889	1049622	GCCAAAATCAGACTATTTTAGGATTGAAAT	GCAACCATACTGGCTTCAAAGTTGTTGGATAAGGA	spacer
		length: 35	repeater length: 30	
32890	1049688	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAATGTAATAAGCATTACAGGGCAGGATGTTTCCG	spacer
		length: 35	repeater length: 30	
32891	1049754	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAATCCCAAAGATGGGTTTCATGTTTATAACGCC	spacer
		length: 34	repeater length: 30	
32892	1049819	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAGGTAACGCTGACAACATGAAGGACAATTAAT	spacer
		length: 35	repeater length: 30	
32893	1049885	GCCAAAATCAGACTATTTTAGGATTGAAAT	CAGATGAGGACAACATAACCATCTACGGCACAGTG	spacer
		length: 35	repeater length: 30	
32894	1049951	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTCATCCATACTTACGGTTGATGAAGGAGAAGG	spacer
		length: 34	repeater length: 30	
32895	1050016	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTGTAGTAGAGTTGTAGAATAACTGATCCAGGTTT	spacer
		length: 35	repeater length: 30	
32896	1050082	GCCAAAATCAGACTATTTTAGGATTGAAAT	TATAATAATTAAACTAGTAAAAGTCTTTCTGAAAC	spacer
		length: 36	repeater length: 30	
32897	1050149	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTCTTCCTTACCCTCAGTGACTTTGATTATATAC	spacer
		length: 35	repeater length: 30	
32898	1050215	GCCAAAATCAGACTATTTTAGGATTGAAAT	TGAACAAGGCGGTATGGCTACTGCAATGCCAGCATTGT	spacer
		length: 39	repeater length: 30	
32899	1050285	GCCAAAATCAGACTATTTTAGGATTGAAAT	CGACTAATGAGTTATAATGATGGCAGTGAGGACAG	spacer
		length: 35	repeater length: 30	
32900	1050351	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTAAAGATGATGGTGTGTTTTACACCTCGATCA	spacer
		length: 34	repeater length: 30	
32901	1050416	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAAAAATAATCACCTTCATAATGGTCGTTTTAAA	spacer
		length: 35	repeater length: 30	
32902	1050482	GCCAAAATCAGACTATTTTAGGATTGAAAT	TGGGAAAAGGCCACCACGTGTTTAGGGATAATGA	spacer
		length: 35	repeater length: 30	
32903	1050548	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACCACGGGCCGAATTTATGGTGCCTTATGGGAGCGT	spacer
		length: 36	repeater length: 30	
32904	1050615	GCCAAAATCAGACTATTTTAGGATTGAAAT	TACTGGAGTCAATTAAACCCTGATTTGACAATTGTT	spacer
		length: 36	repeater length: 30	
32905	1050682	GCCAAAATCAGACTATTTTAGGATTGAAAT	GGTCATCCTCATTATTATAGCCGGACAAAGTGCC	spacer
		length: 35	repeater length: 30	
32906	1050748	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAAGTGGCATTAAATGGATTATAATAGGTATAAAGT	spacer
		length: 35	repeater length: 30	
32907	1050814	GCCAAAATCAGACTATTTTAGGATTGAAAT	CCTAATATGCAGTAATACAGGTGTAGGATTCCT	spacer
		length: 33	repeater length: 30	
32908	1050878	GCCAAAATCAGACTATTTTAGGATTGAAAT	CTATAGAAGTTACCAATGCAACTGAGATAATAACC	spacer
		length: 35	repeater length: 30	
32909	1050944	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAGAGAATGAAATTGAAAGTGTGGCTTACTGG	spacer
		length: 34	repeater length: 30	
32910	1051009	GCCAAAATCAGACTATTTTAGGATTGAAAT	AGTAATATTTTAAACAATGGACACGGACACGGACACC	spacer

	length: 36	repeater length: 30	
32911	1051076	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATGATCAGTACAAAGCGAATATTGAATCAATCATA spacer
	length: 35	repeater length: 30	
32912	1051142	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATAATTGGTGTCTTGTTTGATGTTTGCCTCGGTTA spacer
	length: 35	repeater length: 30	
32913	1051208	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAAAAAGTCAAAACATTGAGGCCACCTTTAGTTG spacer
	length: 34	repeater length: 30	
32914	1051273	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTTACACAAAGAACAATATTTAGGAGCTTTGTAGAT spacer
	length: 36	repeater length: 30	
32915	1051340	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAGCTTTAAAGCTGAAGTCCACTTTCCTTTTACTTT spacer
	length: 37	repeater length: 30	
32916	1051408	GCCAAAATCAGACTATTTTAGGATTGAAAT	AACAACCTACGGGAAGGGCAGAGCACTTATTCATTCTA spacer
	length: 37	repeater length: 30	
32917	1051476	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTTGAGTTTACCAACTTTCCTGCGAAGTGTATTAT spacer
	length: 35	repeater length: 30	
32918	1051542	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCTCAGACAGTTTACTTGTGCATTTCTTCACAAGT spacer
	length: 35	repeater length: 30	
32919	1051608	GCCAAAATCAGACTATTTTAGGATTGAAAT	ACAACCCCTGGCCCTGGTTCACAGTGGGGATGGAA spacer
	length: 35	repeater length: 30	
32920	1051674	GCCAAAATCAGACTATTTTAGGATTGAAAT	GCAGTCATATCACGCATATCAGAGCGGATACGCT spacer
	length: 34	repeater length: 30	
32921	1051739	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATTAGGCTCATTCTTTGTCTAAATTCTTGTGAATG spacer
	length: 35	repeater length: 30	
32922	1051805	GCCAAAATCAGACTATTTTAGGATTGAAAT	AAAAATTTGATTCTTTGGTTATATCTAATTCCAGA spacer
	length: 35	repeater length: 30	
32923	1051871	GCCAAAATCAGACTATTTTAGGATTGAAAT	TGTTCTTTGCAGTACAAACAGCGATTCTTTTTCAC spacer
	length: 35	repeater length: 30	
32924	1051937	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTAGAAAAAGGACTCTTTGTAGCAAAGAACGATGTCA spacer
	length: 37	repeater length: 30	
32925	1052005	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATATTTTAATTTTCATCGTTGAAGAAGGAAATGGAA spacer
	length: 35	repeater length: 30	
32926	1052071	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATAATCGCAGGTAAATTATAGAGGTAATGGCCATG spacer
	length: 35	repeater length: 30	
32927	1052137	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTGCAAAGTCTGCCGCTTCTTTAGTAATGTTACAC spacer
	length: 36	repeater length: 30	
32928	1052204	GCCAAAATCAGACTATTTTAGGATTGAAAT	GTAAAAAACGGGACTAAGATTTTTTCAGTTTCTGAA spacer
	length: 35	repeater length: 30	
32929	1052270	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAGAAGGAGGATCTGCATCAGGAAGTCAACCGCT spacer
	length: 35	repeater length: 30	
32930	1052336	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTTAACTCTCCTTAAAAAACAGAAATACCGCCTA spacer
	length: 34	repeater length: 30	
32931	1052401	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCATGAAAATGTATTTTGTATTGGTGTGTCCCC spacer
	length: 34	repeater length: 30	
32932	1052466	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAGTTTATTCCTCCTTTTTTATAATATGAGCGCTAA spacer
	length: 35	repeater length: 30	
32933	1052532	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAACTGAACTTTAGGAGTTAATCACTGTTCCA spacer
	length: 34	repeater length: 30	
32934	1052597	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATCCTCAGGAGAACCCTTAGAGAGGTGAATCGGA spacer
	length: 34	repeater length: 30	
32935	1052662	GCCAAAATCAGACTATTTTAGGATTGAAAT	AGAAGGATGATGGTAGGCTTAAAAACACTAAGCGAG spacer
	length: 36	repeater length: 30	
32936	1052729	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTAAAGACTTTGCAGATTACCTGGAGAATAAGCCA spacer
	length: 35	repeater length: 30	
32937	1052795	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTCAGCAAACAGGAGTATGAATTCTTCAAATTCCA spacer
	length: 35	repeater length: 30	
32938	1052861	GCCAAAATCAGACTATTTTAGGATTGAAAT	ATACTAGACGATTTGAAAATATTTGCACAAATTTT spacer
	length: 35	repeater length: 30	
32939	1052927	GCCAAAATCAGACTATTTTAGGATTGAAAT	TCAACAGATCATTAACGGCGGGAAAGCTATTGCAC spacer
	length: 35	repeater length: 30	
32940	1052993	GCCAAAATCAGACTATTTTAGGATTGAAAT	AGTACAGGTTAATTCATCATATCGTTTTACGCCACG spacer
	length: 36	repeater length: 30	
32941	1053060	GCCAAAATCAGACTATTTTAGGATTGAAAT	GATGTCGGCGGTTTTCCAATCGTAGAGCGGATAAA spacer
	length: 35	repeater length: 30	
32942	1053126	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAATATCATTAGAGTAGAATGATATAAATCCAGGGC spacer
	length: 36	repeater length: 30	
32943	1053193	GCCAAAATCAGACTATTTTAGGATTGAAAT	TTATGAATCATTAACCCATTTTTTATTAATAGATAA spacer
	length: 35	repeater length: 30	
32944	1053259	GCCAAAATCAGACTATTTTAGGATTGAAAT	TAAATTTTCAACCAGGCCTTGATATATTTTGGGTT spacer
	length: 35	repeater length: 30	
32945	1053325	GCCAAAATCAGACTATTTTAGGATTGAAAT	CTAAGTGGGCCATAGTTACATATGCCCCACTCCCT spacer
	length: 35	repeater length: 30	

32946 1053391 GCCAAAATCAGACTATTTTAGGATTGAAAT TCCTTAATATACCATCCATTTAGATAGATATTCAA spacer
length: 35 repeater length: 30
32947 1053457 GCCAAAATCAGACTATTTTAGGATTGAAAT TCAATCTTTCAAATGTTAGGGTTGCCTAACACTTG spacer
length: 35 repeater length: 30
32948 1053523 GCCAAAATCAGACTATTTTAGGATTGAAAT GGTATACCCCATCATATTTATTATCAACTAAATTA spacer
length: 35 repeater length: 30
32949 1053589 GCCAAAATCAGACTATTTTAGGATTGAAAT TCTGCTATAACCCCTCTTGATAATTCATTCCTAAA spacer
length: 35 repeater length: 30
32950 1053655 GCCAAAATCAGACTATTTTAGGATTGAAAT CAGGTACAGGGAACATACTCGATCAACTCCCTTATA spacer
length: 36 repeater length: 30
32951 1053722 GCCAAAATCAGACTATTTTAGGATTGAAAT ACTTTCAACTAACTATTATACATATCACTTATGG spacer
length: 35 repeater length: 30
32952 1053788 GCCAAAATCAGACTATTTTAGGATTGAAAT GGTTCACCATCTGCAATGAGGTACAGTGATAGTAAA spacer
length: 36 repeater length: 30
32953 1053855 GCCAAAATCAGACTATTTTAGGATTGAAAT GGAAATGGATGTTCACTTAGATACAACCTGTTGCT spacer
length: 34 repeater length: 30
32954 1053920 GCCAAAATCAGACTATTTTAGGATTGAAAT TTTGGAGTAATATGATGGGGTGAAATCTTCTTTTAC spacer
length: 36 repeater length: 30
32955 1053987 GCCAAAATCAGACTATTTTAGGATTGAAAT
AAAAGAAGGAAGAACTAATAAAAGAACTGGCAGGGGGCCAAAATCAGACTACTTTAGGATTGAAATATCCTTCTGGGAAGGTCCAT
TAAGAAGGTCCATAC spacer length: 101 repeater length: 30
32956 1054119 GCCAAAATCAGACTATTTTAGGATTGAAAT
AAATAACACCGCTTCTGGTGATGGTGGGGCCATCTACAATAGTGGAGGTTCAACTGTGACAAACAGTACGTTACAAACAACAATG
CCTATACTTCTTACG
32957
32958
32959 GCA_003584605.1_ASM358460v1_genomic.fna(findCrispr):
32960 START REPEAT
SPACER
32961 crispr 1
32962 2562415 GAAGAAGCCGTAAAACTGTA
CAACCAGTCCCTGAAAATTGCAGAAGAGCTCGGGAACAAAAGCGGAATTGCACACACACTGCACAATCTTGGAACGATTCATCAGG
ATCAGGGCAACTA spacer length: 99 repeater length: 20
32963 2562535 GAAGAAGCCGTAAAACTGTA
CAACCAGTCCCTGAAAATTGCAGAAGAGCTCGGGAACAAAAGCGGAATTGCATCAACACTGCACCAGCTTGGAATGATTCATCAGA
GGCAGGGCAACTA spacer length: 99 repeater length: 20
32964 2562655 GAAGAAGCCGTAAAACTGTA
TTGAAACATATATTGCATTACCTTTCCGTTTTGCCGAATGCCGGTTAAAATCAGACCTTAGAGGGATTGAAACTCCGTAAAGCTCT
CCATCGAGTGCAT
32965
32966
32967 crispr 2
32968 864933 CTTACATACTGGAGCTTCTT CACAGACGTCTTTTGGAGTCTCCTCTACTTTCTTATTG spacer length:
38 repeater length: 21
32969 864993 CTTACATACTGGAGCTTCTT
CACAGACGTCTTTTGGAGTCTCCTCTACTTTCTTATTGTCTTCACATACTGGAGTTTTTTCACATACATCTTTTTGTGGA
spacer length: 80 repeater length: 21
32970 865095 CTTACATACTGGAGCTTCTT
TGAAACATTACTTGGAGATCCATTGTATAGATGTGTTTCTTAAATAGAAAGATTAAAATTATCTAAAAGAGAACTTTAA
32971
32972
32973 crispr 3
32974 3022867 TTATTCCTGATATTTTGTTC TGATATTTTGTTCCTGATATTTCTGTTCTAATATC spacer length:
36 repeater length: 22
32975 3022926 TTATTCCTGATATTTTGTTC TGATATTTCTGTTCTAATATC spacer length: 21 repeater
length: 22
32976 3022970 TTATTCCTGATATTTTGTTC ACAATTCAATTGCTTGGTATA
32977
32978
32979 crispr 4
32980 1992933 CCAACATTAATTGTGCCTATAAC
GTTGTTGTTTATCGTGTTAATTACAGTTACAGTGTGCTGTTAGCATTGGTCACATATGCATTTGTTCTGCAACCGCAATTCCAG
CAGGATTCTT spacer length: 96 repeater length: 23
32981 1993053 CCAACATTAATTGTGCCTATAAC
ATTGTTGTTTATCGTATTAATCAGGTGACAGTATTGCTGTTGATATTGACCACATATGCATTTGTTCTGCGACTGCAATTCCAG
AAGGATGCTC spacer length: 96 repeater length: 23
32982 1993173 CCAACATTAATTGTGCCTATAAC
AACATATATTGCATTACCTTTCCGTTTTGCCGAATGCCGGTTAAAATCAGACCTTAGAGGGATTGAAACTCCGTAAAGCTCTCCAT
CGAGTGCATC
32983
32984

32985 crispr 5
32986 2682904 CTGTAGATAAGAATGTAGATAAGA ATGTAGACAAAACCTACAGATGACAAAACCTACAGATGATACA spacer
length: 41 repeater length: 24
32987 2682970 CTGTAGATAAGAATGTAGATAAGA CTACAGATAAAAACCTACAGATGATACA spacer length: 26
repeater length: 24
32988 2683021 CTGTAGATAAGAATGTAGATAAGA ACATTACTTGGAGATCCATTGTATAG
32989
32990
32991 crispr 6
32992 2699762 TGATAAAGCCATTTCAGCTTGATCC
TAACAATTCAATTGCTTGGGATAACAAAGGATGCACTCTCGATAGCTTAAGTAGGTATGATGAAGCAATAAATGCCT spacer
length: 77 repeater length: 24
32993 2699864 TGATAAAGCCATTTCAGCTTGATCC
GAGCAATTCAATTGCTTGGGAATAATAAAGGAAGCGCTCTCTATAGTTTAGGTAAGTATGATGAAGCAATAGATGCCT spacer
length: 77 repeater length: 24
32994 2699966 TGATAAAGCCATTTCAGCTTGATCC
GTTATTTATCGTGTTAATTACAGTTACAGTGTGCTGTTAGCATTTGGTCACATACGCATTTGTTCTGCAAATGCAA
32995
32996
32997 crispr 7
32998 1578261 GTTAAAATCAGACCTTAGAGGGATTGAAAC AGGGTTTTTGCCTTCTGGCGTTGTTTCCAAGTTATC spacer
length: 37 repeater length: 30
32999 1578329 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTAAGGATATTTTTTGCATGTGCAATTCTAACG spacer
length: 34 repeater length: 30
33000 1578394 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACACAACACAACAGACGAACAGGCGGCGCAACTCGTA spacer
length: 37 repeater length: 30
33001 1578462 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTTCGGTGTAGATCAGGAAGACCTCTTCATCA spacer
length: 34 repeater length: 30
33002 1578527 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACTAATGAGATTATAGAAGAGACTTTCACGGATGTG spacer
length: 36 repeater length: 30
33003 1578594 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAGAAGATCCAACTTCAGTGTCTGGATTGACGAT spacer
length: 36 repeater length: 30
33004 1578661 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCCGCTACCTAGCAGACGTATTTTGTGGCTACTCAA spacer
length: 36 repeater length: 30
33005 1578728 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTGATAGAACCTGTGACTCCTGCCCTGGGTGAGCCTCT spacer
length: 38 repeater length: 30
33006 1578797 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTCGTAAATGCTTTTTTAGTTCTGGTTCTGGCA spacer
length: 34 repeater length: 30
33007 1578862 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCATATTCAACCTCTATAATATACAAGGCACACAA spacer
length: 35 repeater length: 30
33008 1578928 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTTTTAGGTTTGGGTGTATTTTCAGGCATATGA spacer
length: 34 repeater length: 30
33009 1578993 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTAATTTCCAGTAGGGCTTCCACGTCGTAACGA spacer
length: 34 repeater length: 30
33010 1579058 GTTAAAATCAGACCTTAGAGGGATTGAAAC GATATCGGTTTCATCAATTTTCGATTGAAGTGTG spacer
length: 34 repeater length: 30
33011 1579123 GTTAAAATCAGACCTTAGAGGGATTGAAAC TCACTTATAGAGTAACTTATAGAGTATGATAGGGAAAA spacer
length: 38 repeater length: 30
33012 1579192 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTTTCTTAACGCCTTGAATATAGTCAACAGCCGCCT spacer
length: 36 repeater length: 30
33013 1579259 GTTAAAATCAGACCTTAGAGGGATTGAAAC AAAGTACAGAGTACAGACTGGTGTATAATGAAAA spacer
length: 35 repeater length: 30
33014 1579325 GTTAAAATCAGACCTTAGAGGGATTGAAAC CATTTATAGCAGGATTTATAGCAGGAGATATCTGCAT spacer
length: 37 repeater length: 30
33015 1579393 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTTCTTCTCTTCAACTGTTCTTTGCATCATTTT spacer
length: 35 repeater length: 30
33016 1579459 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAAGCAAGCCATTTACCTTTAAGTTCGTGAAGAT spacer
length: 35 repeater length: 30
33017 1579525 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATGCTCTATAAGATCCACCATGCTCCCCTTCACCTCA spacer
length: 37 repeater length: 30
33018 1579593 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTCTAGTTTATGCTCACTATGATATTTTATGTCTGAAA
spacer length: 39 repeater length: 30
33019 1579663 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTTCTAGTTTATGCTCACTATGATATTTTAT spacer
length: 31 repeater length: 30
33020 1579725 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTCATCTATTTTACACTGTATTTTAGGATCTCTT spacer
length: 36 repeater length: 30
33021 1579792 GTTAAAATCAGACCTTAGAGGGATTGAAAC CTCGGATGAAACTCCCGCCCGGATTTCGAACCGAGGTTTCTA
spacer length: 41 repeater length: 30
33022 1579864 GTTAAAATCAGACCTTAGAGGGATTGAAAC TACACTGACTGATACTAAATTTGTGAGGCTTGCCC spacer
length: 35 repeater length: 30
33023 1579930 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATAAGTCTCGGAAGGTCGAAGTCTTCTGAGAT spacer

	length: 36	repeater length: 30	
33024	1579997	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCTCTAAGTATAGCATCCCTCCTAGAAAGGCTTCTA spacer
	length: 35	repeater length: 30	
33025	1580063	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CGATAAGAGGAGAAAGACTTGATACAGAATATAA spacer
	length: 34	repeater length: 30	
33026	1580128	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGCATTGATATGATAGCACCTGCCCCTGAAAACCT spacer
	length: 35	repeater length: 30	
33027	1580194	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACCCTTAAACCGCCTCAAATAACCGACGTATAT spacer
	length: 34	repeater length: 30	
33028	1580259	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTCGAAAAGCGTGTGATAAGCCTCTCTGATGCAAA spacer
	length: 35	repeater length: 30	
33029	1580325	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGTTGTAAATTTTGCAGGATTCCAAATGGGTTTTAC spacer
	length: 36	repeater length: 30	
33030	1580392	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTAAAATGATATTACTGGAGCTAATGACTATAGG spacer
	length: 35	repeater length: 30	
33031	1580458	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTGTAATCGCTATTAATCGCTATCCTGCAATGAG spacer
	length: 34	repeater length: 30	
33032	1580523	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGTTACGATAGTATTGAGTATCTGGATTCCGTT spacer
	length: 35	repeater length: 30	
33033	1580589	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGAAACACCATATTTCGCAAGCAAGACCGCCAAA spacer
	length: 34	repeater length: 30	
33034	1580654	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTAATTGTAGTGCCTGAATTTAGTTTTATGGGATTT spacer
	length: 36	repeater length: 30	
33035	1580721	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGACTACATTAACTGTGGAGAATGCACAATCAG spacer
	length: 35	repeater length: 30	
33036	1580787	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGTTACACAGGGTTTGAAGGCTGTCCTGGATGAGC spacer
	length: 35	repeater length: 30	
33037	1580853	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATAATACTCTCAATCGAAACATGATATCCATAAGCA spacer
	length: 36	repeater length: 30	
33038	1580920	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAATGAAGATTTGGTCGGTATCGTAAAAGCGGAA spacer
	length: 34	repeater length: 30	
33039	1580985	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCTCCGATGATCGCCATGCAGTTTGCCCCTTCGACAG spacer
	length: 37	repeater length: 30	
33040	1581053	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTCAGATAAGCCAGGCTATTAAAGCAGAAAACG spacer
	length: 35	repeater length: 30	
33041	1581119	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTATACGGGTACCCGGCTACGAAATGGAGCAAT spacer
	length: 35	repeater length: 30	
33042	1581185	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTTTTCAAGGTCTTCATTTCTTCCGGGATTGAAT spacer
	length: 35	repeater length: 30	
33043	1581251	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTATCTCCTCCTGTGCCTTTTAGTCGCTTTGTGAG spacer
	length: 37	repeater length: 30	
33044	1581319	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTATTCAGCCCCCAGAGGCAAAAGGCTAAGGGAA spacer
	length: 35	repeater length: 30	
33045	1581385	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTCGTTGAAAGGATCAGAGCATAGGGAATACCCG spacer
	length: 34	repeater length: 30	
33046	1581450	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTTATACGGGTACCCGGCTACGAAATGGAGCAAT spacer
	length: 35	repeater length: 30	
33047	1581516	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATAATTTTCACGGGAACACATGATTATTATAAAA spacer
	length: 35	repeater length: 30	
33048	1581582	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CTCGTTGAAAGGATCAGAGCATAGGGAATACCCGC spacer
	length: 35	repeater length: 30	
33049	1581648	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTGATATTACTTTTGTCCATGACCTGTACGGCTC spacer
	length: 35	repeater length: 30	
33050	1581714	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCTGACATACTATGTCATGCTCTACGGTGGAGACGT spacer
	length: 36	repeater length: 30	
33051	1581781	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGTCAATAATATATTTTCCTTCTTCATTCGGTTTAAG spacer
	length: 37	repeater length: 30	
33052	1581849	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCCGCAGCCGATACACCTGGTACTTATATCGTGTACT spacer
	length: 37	repeater length: 30	
33053	1581917	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTGTCTCAACCTCTTATAACTCAGTACATAGTATT spacer
	length: 36	repeater length: 30	
33054	1581984	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACATCCCCGGTGATCAACGTCCCGCTATTCAACCG spacer
	length: 35	repeater length: 30	
33055	1582050	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATCCACAATCCAACCAATAGAAGCACAAACATTAAAA spacer
	length: 37	repeater length: 30	
33056	1582118	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAAAC TGATCAATAATTTCTACTCGCTTTGTGATT spacer
	length: 35	repeater length: 30	
33057	1582184	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTTGTACAAGGCGTTATTATCATTTTCTGTGATGTTT spacer
	length: 37	repeater length: 30	
33058	1582252	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AGGTTCTTTGATAGTTCTTCGTCTGCCCCTCCAAG spacer
	length: 35	repeater length: 30	

33059	1582318	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GATAAAATATGGAACATCTTGATTCTCATATGAT	spacer
	length:	35	repeater length:	30
33060	1582384	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATGAGAGCCAGCGCTCCTACTATCAAAGTCGCAGGC	spacer
	length:	36	repeater length:	30
33061	1582451	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTATATAATCCGTAATCGTTCCACGGTAAGCATAATTAGCAT	
	spacer length:	42	repeater length:	30
33062	1582524	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACCGGTTATTTTAACGTCTTTTATTTCTACCGTTGCT	spacer
	length:	37	repeater length:	30
33063	1582592	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATGCAACGGTTCAGAGTCCAAATGTGCACATATTT	spacer
	length:	36	repeater length:	30
33064	1582659	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCAAGACCGTTTCCAGTTGCCTGGATCGTCGTATTAT	spacer
	length:	37	repeater length:	30
33065	1582727	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAAGCAATATGCACAACGTTTCGACATATTTTCAGCC	spacer
	length:	35	repeater length:	30
33066	1582793	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTTCCCCATTGTAGATCTGTCCAAGCCCAGCAAA	spacer
	length:	35	repeater length:	30
33067	1582859	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGCTATCAGATGAGTTTAGGGAGTTTCATGAAATG	spacer
	length:	35	repeater length:	30
33068	1582925	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TGAAATACCTTTCCAGGGCAGCCTGTCGTTTTCTA	spacer
	length:	35	repeater length:	30
33069	1582991	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTTATGCCCTCGCTGTAAAACTGCTAAATGGAAC	spacer
	length:	36	repeater length:	30
33070	1583058	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGATTAGGAGCCCATACTCTTATTATTGCGTCTCT	spacer
	length:	35	repeater length:	30
33071	1583124	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAGGATGAGAGGGAGGAAGGGGCAATAAAAAGAGAG	spacer
	length:	36	repeater length:	30
33072	1583191	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ATTAGCACGCGGGTGATCCAAATCTCGTTATCAG	spacer
	length:	34	repeater length:	30
33073	1583256	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GAGTTCTCAGGGTCCACTAAATTACCGTTCTCGTCAAC	spacer
	length:	38	repeater length:	30
33074	1583325	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGTGTAGGCGTTTAGTATCTGACGACAATCGGGGAT	spacer
	length:	37	repeater length:	30
33075	1583393	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTTTCCATCACCTTTTTTCTGCCCTAAACATAATCC	spacer
	length:	37	repeater length:	30
33076	1583461	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAATTAGACCCTGATTTTCCTCGACATGGTTAAGGCGAA	spacer
	length:	38	repeater length:	30
33077	1583530	GTTAAAATCAGACCTTAGAGGGATTGAAAC	ACGATCTGTGAAGGGCTTGTGAGGCTTTCCAATGCGT	spacer
	length:	37	repeater length:	30
33078	1583598	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCCTACCGTCCGAGCATAAAAACTAGTTAAAAAAT	spacer
	length:	35	repeater length:	30
33079	1583664	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCTTTAGCGGATCTGATAGAGGCAGCGCAAGCCCGGAA	spacer
	length:	38	repeater length:	30
33080	1583733	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AACATTAGACAATATAGCTGATTCTGTGAAGAAGTCC	spacer
	length:	37	repeater length:	30
33081	1583801	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAAGCCGATGAAGGCACAAATTATAGGTCTGTAGC	spacer
	length:	35	repeater length:	30
33082	1583867	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TATTTTCAGGCAGGCCCGTTATACGGACTTCAATAT	spacer
	length:	35	repeater length:	30
33083	1583933	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCAATTTCTCTTGTTATGAGTTTCGTCTGATACATAC	spacer
	length:	37	repeater length:	30
33084	1584001	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTAAATCCAGAAAATGTATACGGCGGCGGTGAGTG	spacer
	length:	35	repeater length:	30
33085	1584067	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCTGCTAGACCTCCCGGACTTATTGCCGTAAAGT	spacer
	length:	34	repeater length:	30
33086	1584132	GTTAAAATCAGACCTTAGAGGGATTGAAAC	AAGTACCAAAGGCCTCGAAGCCTAAGAAGCCAACA	spacer
	length:	35	repeater length:	30
33087	1584198	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTCCCTCCGGGCTTAAGCCCGTCGGAACGATTAAA	spacer
	length:	36	repeater length:	30
33088	1584265	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GCGTGATCTACCAGCAGGAACCAACCGAGCCG	spacer
	length:	32	repeater length:	30
33089	1584328	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGGATACATGGAGAAAGATCGCGAAATACTTCGAGA	spacer
	length:	36	repeater length:	30
33090	1584395	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GGAAAGCGCATTGAGTCGGCAAGTGTGCAAAGAC	spacer
	length:	34	repeater length:	30
33091	1584460	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TTGATCTGGATTCTGCGATATCAGAAGGCGATTTTACG	spacer
	length:	38	repeater length:	30
33092	1584529	GTTAAAATCAGACCTTAGAGGGATTGAAAC	GTAGTAAACTAACGCTTTTCTAATAATTCTTTTTACT	spacer
	length:	37	repeater length:	30
33093	1584597	GTTAAAATCAGACCTTAGAGGGATTGAAAC	CCAGATATTGCAATTTCTGCAACATAAGTATCATAAA	spacer
	length:	37	repeater length:	30
33094	1584665	GTTAAAATCAGACCTTAGAGGGATTGAAAC	TCCAAGTCCTGGTTATCGAAGCATACGGACATTT	spacer

length: 34 repeater length: 30
33095 1584730 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATGGGACCGGAGGGGACGTTTTAGACTGGATAGGA spacer
length: 35 repeater length: 30
33096 1584796 GTTAAAATCAGACCTTAGAGGGATTGAAAC AAGGACTTCGAGATGCCTGTGGAGATCCTGGAAGA spacer
length: 35 repeater length: 30
33097 1584862 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATGTTCTCTGTGGTCTTATTATCCTGGTCTGGATT spacer
length: 35 repeater length: 30
33098 1584928 GTTAAAATCAGACCTTAGAGGGATTGAAAC CCGCTTGTTATATGCGAACTCCAGGAATGAGGCCT spacer
length: 36 repeater length: 30
33099 1584995 GTTAAAATCAGACCTTAGAGGGATTGAAAC ACAAAGAGGAGATCGAATCAAGAGCCAATGAGCTTG spacer
length: 37 repeater length: 30
33100 1585063 GTTAAAATCAGACCTTAGAGGGATTGAAAC AAATCAAAAAGGATGTGGACATTAAAACCGAGAAC spacer
length: 35 repeater length: 30
33101 1585129 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTTTACATGGTACTTGATGAGATTCTCAGGGAGAA spacer
length: 35 repeater length: 30
33102 1585195 GTTAAAATCAGACCTTAGAGGGATTGAAAC ATTTCTCAACTCCAATGAGGTCGGCTTTTGTGGCAA spacer
length: 36 repeater length: 30
33103 1585262 GTTAAAATCAGACCTTAGAGGGATTGAAAC GTGTAACCCTAGTGTAACCATAGAGGGGGTTACAC spacer
length: 35 repeater length: 30
33104 1585328 GTTAAAATCAGACCTTAGAGGGATTGAAAC TTAATGTAGGCACAGGCGACAATTTAGGATTATCAA spacer
length: 36 repeater length: 30
33105 1585395 GTTAAAATCAGACCTTAGAGGGATTGAAAC AGGATACTGCAGATCGAGCGAAAAAGTATGTATTA spacer
length: 35 repeater length: 30
33106 1585461 GTTAAAATCAGACCTTAGAGGGATTGAAAC GGGTTCGTAAAAGGATCAAAAGTAGGTGTAAAGGTAA spacer
length: 37 repeater length: 30
33107 1585529 GTTAAAATCAGACCTTAGAGGGATTGAAAC GCAGATGATACATCTGTAAATAAGAATGTAGATAAAA
33108
33109
33110 crispr 8
33111 1585660 GTTAAAATCAGACCTTTGAGGGATTGAAAC GATAAAGAATAAGCCAGGCTCGCGGGGAAACATTCA spacer
length: 37 repeater length: 30
33112 1585728 GTTAAAATCAGACCTTTGAGGGATTGAAAC TTATCCATGTTAAGCTTTCCGAGTCCTTGGTATAAT spacer
length: 36 repeater length: 30
33113 1585795 GTTAAAATCAGACCTTTGAGGGATTGAAAC GCTTTATTTTAGCCGTGGTTTTTGAAGGACTTATAT spacer
length: 36 repeater length: 30
33114 1585862 GTTAAAATCAGACCTTTGAGGGATTGAAAC TAAATTGAACCATTGACCACACAGGAAAAGAAAATCC spacer
length: 37 repeater length: 30
33115 1585930 GTTAAAATCAGACCTTTGAGGGATTGAAAC ATATTTTTCATAGATCGCATTTGCTTAGTTATTAT spacer
length: 35 repeater length: 30
33116 1585996 GTTAAAATCAGACCTTTGAGGGATTGAAAC AAAAATATAATTAGTACAGTTCAGCCCCACTGCT spacer
length: 34 repeater length: 30
33117 1586061 GTTAAAATCAGACCTTTGAGGGATTGAAAC CTCTTCGATGTACTTTAAACTTTAAGCTCCAAATCT spacer
length: 37 repeater length: 30
33118 1586129 GTTAAAATCAGACCTTTGAGGGATTGAAAC TCAGTTCAGAACTCTTATTTTTACGGGGAAGATA spacer
length: 34 repeater length: 30
33119 1586194 GTTAAAATCAGACCTTTGAGGGATTGAAAC TTGCATTACCTTTCCGTTTTGCCGAATGCCGGTT
33120
33121
33122 crispr 9
33123 959233 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT AAATTAGGACAAGAACGAGCTAGAAAAGATGGAAAA
spacer length: 36 repeater length: 37
33124 959307 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ACTCAGAAAATGGGTGGAATGCGAGCACGTCCTCA
spacer length: 36 repeater length: 37
33125 959381 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATGAGTATGCTCCTGATTCCACGGGGGCAGCAGCAT
spacer length: 36 repeater length: 37
33126 959455 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTTGTTATATCCATTCTCAGTACTCCATTTAGCTT
spacer length: 35 repeater length: 37
33127 959528 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATTTCCGTTGATGGTGCTTCTCCCTGGTCAAAAAAAG
spacer length: 37 repeater length: 37
33128 959603 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATGGTGAAGATAGCTTAAGAGGCTCCGATTACTGC
spacer length: 35 repeater length: 37
33129 959676 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT CTGGGAGTTTTAATACCAGTGAAAGCATAGGAAGCA
spacer length: 36 repeater length: 37
33130 959750 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTACTATACAGATCCTTTTACCTTCGGGAAAAACA
spacer length: 35 repeater length: 37
33131 959823 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TCATAGCCTTATAAAATCACGTCTTATAAAAGTC
spacer length: 34 repeater length: 37
33132 959895 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT TTTATCATGTCTTCTCTTTGAAATTCATCCATCT
spacer length: 34 repeater length: 37
33133 959967 GTTTCATCCTTGTTTTAATGGATCTTGCATTGCAAT ATAGTATTGAGAAAATGCTTTGTGGTGGACCATGAC
spacer length: 36 repeater length: 37

33134	960041	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ATTCAAAATCTTTTCGACTGCTTCGGGATGCGCT
	spacer	length: 34	repeater length: 37
33135	960113	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AGTGGCTGAAATTTAGTTTCCACTTTGACTTTATAA
	spacer	length: 36	repeater length: 37
33136	960187	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	TCCAATCCTAGTGAAATACATTGACGGACCGGAT
	spacer	length: 34	repeater length: 37
33137	960259	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ATGCAACGCTCCAAACATCCCCGGTAATCTCCTA
	spacer	length: 35	repeater length: 37
33138	960332	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AGTGTTACGGTCCTTTCTCCAGTCGCTGGAAACG
	spacer	length: 34	repeater length: 37
33139	960404	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AAGGCACTTCACGTGAGAAGCCTATAGAGATCCTC
	spacer	length: 35	repeater length: 37
33140	960477	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ATATGTATTCTCTTTTTGACTTTTCGGAAGCTGCTC
	spacer	length: 36	repeater length: 37
33141	960551	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	TCAAAGTTCGCTAATTCTGCAGCATACTGAGCCGAA
	spacer	length: 36	repeater length: 37
33142	960625	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AGACAATGTAGCCCGTGAAGCATGGTTTGTGGAGA
	spacer	length: 35	repeater length: 37
33143	960698	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CGTGCTCCTGCTTTCTAACATGTCAGCCTATAACA
	spacer	length: 35	repeater length: 37
33144	960771	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AGAGCGACGATAATAACCAGGATTTTCGCCAAAATA
	spacer	length: 36	repeater length: 37
33145	960845	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	GTTACCGGGCTGGTATCTGTCCCGTTATTATGAGCGT
	spacer	length: 37	repeater length: 37
33146	960920	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AGGATCAGATAAATTGTATCAGTCGGCTGCATATCT
	spacer	length: 36	repeater length: 37
33147	960994	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AATAACGTCTCTGAAGAGTTTAAAACAAACACTTTC
	spacer	length: 36	repeater length: 37
33148	961068	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	TACTCATTCTAACCAAAACCAGATTAACGAAGCC
	spacer	length: 34	repeater length: 37
33149	961140	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	GAAACAATTTCGAAAGTCTATGATCTGTTTCGAGACTT
	spacer	length: 36	repeater length: 37
33150	961214	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CCAACTCAACTCTGGTATTAGGAAGTACGGAAC
	spacer	length: 33	repeater length: 37
33151	961285	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ACCGGAATAACTCTCAGATGGTTTACTCCACTTTAA
	spacer	length: 36	repeater length: 37
33152	961359	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CTGAGTTTTGCGGAAGCGTTAGGAGTGTAGGTATAG
	spacer	length: 36	repeater length: 37
33153	961433	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	GCAACCCGGAAAGAAGTAGATACCATTACATCCATG
	spacer	length: 36	repeater length: 37
33154	961507	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CGCACAAATCAGGAGCTTGAAAAAATGACATCAACA
	spacer	length: 36	repeater length: 37
33155	961581	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	TCTTCCAGGGCTGCCCTATAACCCAGAAATGTGAGT
	spacer	length: 36	repeater length: 37
33156	961655	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CGTGTATTGATCTTCATATTCCCGCTCCCTCAGTT
	spacer	length: 35	repeater length: 37
33157	961728	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AGACCTCCACGGGAGCCTGACAGGAAAGAGTACA
	spacer	length: 34	repeater length: 37
33158	961800	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ATTTACGTGCTTGTTCTAAGTCTGTTTTTGAGGC
	spacer	length: 35	repeater length: 37
33159	961873	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ACTGAATCACAGGAAAACACGCTGTAAGTGATC
	spacer	length: 34	repeater length: 37
33160	961945	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CAGCCGGACGGATCCGTCAGGAAGATCGCAGTAT
	spacer	length: 34	repeater length: 37
33161	962017	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CTTGACTTTTGCTCATGACGCTCCAATTGCTTTG
	spacer	length: 34	repeater length: 37
33162	962089	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CTCCAAGGAGGGAGGATACATAATATACCCTTCACAG
	spacer	length: 37	repeater length: 37
33163	962164	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AAATCTCCTATGTTTCGTCTTGTTATAGCTTTGCT
	spacer	length: 35	repeater length: 37
33164	962237	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ATTGAAGGAGAATTCGACCAGGATAAACTAAAG
	spacer	length: 33	repeater length: 37
33165	962308	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	CCTGTCGATCTCCTCAAACGTTTATAGAAGTTT
	spacer	length: 34	repeater length: 37
33166	962380	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	AAGAAGAATTCTGGGAATGGCATGTAGGAAAGAAGT
	spacer	length: 36	repeater length: 37
33167	962454	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	TACAACCTTACAAGGACCATTTCTCTGTTTTATATT
	spacer	length: 36	repeater length: 37
33168	962528	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	ACGTTGTTTTGCCTATGGATTTGGCAAATGTTGCCA
	spacer	length: 36	repeater length: 37
33169	962602	GTTTCAATCCTTGTTTTAATGGATCTTGCATTCTGAAT	GAAGTTGTTTTTTTTAACTACCATCTGGATCGACCCA

spacer length: 36 repeater length: 37
 33170 962676 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AAGTCAA ACCGAAA ACCGAATGAAAGCTCAGAGGAA
 spacer length: 36 repeater length: 37
 33171 962750 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT CTGTGGGCTTTAACCTGCTTACCTGAGCAATGAACAT
 spacer length: 37 repeater length: 37
 33172 962825 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TGTTAGAAACAAAAATAAGTAATCACAAGAACAGA
 spacer length: 35 repeater length: 37
 33173 962898 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AATTCTATCATTTCTGGTTAGAAAATGAGACACCTT
 spacer length: 36 repeater length: 37
 33174 962972 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AAGGTTCAATTTTAAAGAGGGTTTAGGTATAAGTC
 spacer length: 34 repeater length: 37
 33175 963044 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT GGTATATAGGACAATAGAGGTTCAATTGTTACAGAT
 spacer length: 36 repeater length: 37
 33176 963118 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AATGTCCAAGCCATGATTGACCAATATGCAGCAAAA
 spacer length: 36 repeater length: 37
 33177 963192 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT GAAAGCAGGCAAAAACATCAGATTCAAATATGAAG
 spacer length: 35 repeater length: 37
 33178 963265 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT ATTTTGGGGAATAGGGAGAAAGTGAGGTGGTATAG
 spacer length: 35 repeater length: 37
 33179 963338 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TTTTGCAAATTGTGTTTGGTGTGTGTCGAATTTA
 spacer length: 34 repeater length: 37
 33180 963410 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AAAGGGCATTTTTACAAAAGCGGAACGCTACAC
 spacer length: 34 repeater length: 37
 33181 963482 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT ATGTTTCCGAAAGCGGCAGACTTAGCCGACAAACTC
 spacer length: 36 repeater length: 37
 33182 963556 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT CCTTTTACAAGCTCTCGCGTGGAAATTGACGGTT
 spacer length: 34 repeater length: 37
 33183 963628 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AAAATAGAACTCAATCCTTCTTATCTCGAGAATC
 spacer length: 34 repeater length: 37
 33184 963700 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT CCGGGGCATATAACCAGAAAACCGGGAAGTGGA
 spacer length: 34 repeater length: 37
 33185 963772 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT CCAAAATTCATTCTCAATGACATTGACGAGCTTC
 spacer length: 34 repeater length: 37
 33186 963844 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TAGTATGTGTTATATATAATATAGTATGTCTGTT
 spacer length: 34 repeater length: 37
 33187 963916 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TCCAAAAGTGCTTTCTGCATATCATTATCAATCTGC
 spacer length: 36 repeater length: 37
 33188 963990 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TCATTTTACTACATGAAATTTAATTTTTTTTGGTAT
 spacer length: 35 repeater length: 37
 33189 964063 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT AAAAATGCCACAAGTAAGAGATCTAATTGAAATG
 spacer length: 34 repeater length: 37
 33190 964135 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TTGAGTAATGTCTGAAATCGAAATCCTCAACATGC
 spacer length: 35 repeater length: 37
 33191 964208 GTTTC AATCCTTGTTTT AATGGATCTTGCATT CGAAT TCCATTGTATAGATGTGTTTCTTAAATAGAAAGAT
 33192
 33193
 33194 crispr 10
 33195 2754439 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT TCGAAGACAACAGGAGCCGGGCAGGAGTCTTTAAAC
 spacer length: 36 repeater length: 37
 33196 2754513 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT CCGCCTACCCATGCTAAACGGTTATCCCCACATCC
 spacer length: 35 repeater length: 37
 33197 2754586 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT ATGTAGATGGGATTGCCTAACCACTCACTTGTA
 spacer length: 33 repeater length: 37
 33198 2754657 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT TCGTAAATGCCGAGGATCACGAAACGTTTGTAGAAT
 spacer length: 36 repeater length: 37
 33199 2754731 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT AGAATTCTTCAGTTCATCCCTGATAGGTCTTTCACCC
 spacer length: 37 repeater length: 37
 33200 2754806 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT GTTCTCACCGGACATGGTCGAGGATGGTATGACT
 spacer length: 34 repeater length: 37
 33201 2754878 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT CCATTTTGATTTTATTTTTTTTCGTTTGATCTAAC
 spacer length: 34 repeater length: 37
 33202 2754950 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT CTTAATTTAATCAGGCTTATAACTGAACTCCCCGAC
 spacer length: 36 repeater length: 37
 33203 2755024 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT TTCAGACAAAAAAGAACGCAACTGTGGAGAAGGTAT
 spacer length: 36 repeater length: 37
 33204 2755098 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT GATATTGTACGCGGGTGCAGTCGATTGTCCTTGAAA
 spacer length: 36 repeater length: 37
 33205 2755172 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT AAGTATCCGGTACGAACGCTCAGCTGTACATAGGC
 spacer length: 35 repeater length: 37
 33206 2755245 GTTTC AATCCTTGTTTT AGTGGATCTTGCATT CGAAT AAGTATTGGATGAGTACGAAGAGATGAAAAAGGAA
 spacer length: 35 repeater length: 37

33207	2755318	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TGGTCTTCCCGCTGTGCCCTCTGCACTCCCAGGAG
		spacer length: 35 repeater length: 37	
33208	2755391	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTCTAACGAGAAACAGGTAAGTTCTTGTCCAAATT
		spacer length: 35 repeater length: 37	
33209	2755464	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAAAGGAAGCTGCTGGAAGGTTATCTATACGAGCCA
		spacer length: 35 repeater length: 37	
33210	2755537	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AATTATGCAAGCGGAGGAACGGTATAGGAACCGCAGC
		spacer length: 37 repeater length: 37	
33211	2755612	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATGGTTGAAATTACCTTCCCGCTTGGATTCTTCAGT
		spacer length: 36 repeater length: 37	
33212	2755686	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGGCTTGATGTCTTGCCAATGGATACAAAGAAGATA
		spacer length: 36 repeater length: 37	
33213	2755760	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGCAGTCGAAAAGATTTTGAATGTCAGAGAAGAA
		spacer length: 34 repeater length: 37	
33214	2755832	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAATCGACGACAAGATTACCTTTATTTACGGTACT
		spacer length: 35 repeater length: 37	
33215	2755905	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GGATCGTCAGATGCTTTTGTGGAAAGAACTGTACG
		spacer length: 35 repeater length: 37	
33216	2755978	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GAGCTGGATGTAATTCTCATCCTGGCTGCACTACGA
		spacer length: 36 repeater length: 37	
33217	2756052	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AGTTTTATATCAGTTTTTGACGATTTTCGGGAATATCA
		spacer length: 36 repeater length: 37	
33218	2756126	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CAAGATTAAAGTTTTGTAGTAAAGCCCAAAGCCT
		spacer length: 34 repeater length: 37	
33219	2756198	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATATTAAACAGTTGACTGCCTACGCAAAGAACACT
		spacer length: 37 repeater length: 37	
33220	2756273	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GAGGTGGAAATGTCGAATGTCGAATTATGATACAC
		spacer length: 35 repeater length: 37	
33221	2756346	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CCGTCAATTTTTCAGGATCGAATGACCCATTTAT
		spacer length: 34 repeater length: 37	
33222	2756418	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCAACCGCTACCGAATTTTCGTTTTTGAATACTT
		spacer length: 34 repeater length: 37	
33223	2756490	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCCGGGGGTTGAAGGTTGGCGGCCTTCAATCTCTAC
		spacer length: 36 repeater length: 37	
33224	2756564	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTTTAATCTTGTCTTCTCTGCTCTCTCAATCTCAG
		spacer length: 35 repeater length: 37	
33225	2756637	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	
		CCAGTGTATGATAAAATGTACTGTCTGAAAGGGAAAAGC	spacer length: 39 repeater length: 37
33226	2756714	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTTTTTTCCCGTTTTTCATCGAGAGAATTCCTCAT
		spacer length: 34 repeater length: 37	
33227	2756786	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CATCAAAAAATACCTCTTGAGTAGTGCCATCTTT
		spacer length: 34 repeater length: 37	
33228	2756858	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TGGGATAAATGACGAGGTTGAGATTCAGGCAGCT
		spacer length: 34 repeater length: 37	
33229	2756930	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTAATCAACAAAAAATTGAGGGAAACAATAATGA
		spacer length: 35 repeater length: 37	
33230	2757003	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATATTTTATCTAAGAAGGCGAGAAATATTTACC
		spacer length: 33 repeater length: 37	
33231	2757074	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TTTATACCAGTTTGCAAAATCCCAGTTTCCAGCTCT
		spacer length: 36 repeater length: 37	
33232	2757148	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TAGTCAATCCCCAGGACGTCCAGGACCTCGATGAAT
		spacer length: 36 repeater length: 37	
33233	2757222	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	ATGGATATTCTTCTGTACGCTGTTCTGCTCGTTTTG
		spacer length: 36 repeater length: 37	
33234	2757296	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTGCTTAAGCTGTCTGGGAGGGTTGGGGCTGAAGAT
		spacer length: 36 repeater length: 37	
33235	2757370	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTCGTTCAAGGTTTCATCGTGGGGTAGTTGACATA
		spacer length: 34 repeater length: 37	
33236	2757442	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TCTTAATGCAGAGATGGAGAATGCTGGAGTTCTGAGTG
		spacer length: 38 repeater length: 37	
33237	2757518	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTTAATGGTTGCAGGTGGAGCTGCAGCAGGAGCA
		spacer length: 34 repeater length: 37	
33238	2757590	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	GTATAACGAGGTAATCAGGGAAAGGCTAAACAA
		spacer length: 34 repeater length: 37	
33239	2757662	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTGTCCCATAACATCTGAAAATTTTCGTACCATTTG
		spacer length: 36 repeater length: 37	
33240	2757736	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	CTGTCAATAGCTCGGCATACGGTCCTTTTCGGCAA
		spacer length: 34 repeater length: 37	
33241	2757808	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	AAATAGTACCCCAATCAATAGTCTTTTTATTGACC
		spacer length: 35 repeater length: 37	
33242	2757881	GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT	TGGTATGTCGTCATGTTCTGTCCTCAATGTCTATAG

spacer length: 36 repeater length: 37
 33243 2757955 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GATGGGGAAAGCTGCTCGGTGCTGGACTTGTGGAGC
 spacer length: 37 repeater length: 37
 33244 2758030 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GGGATGAAGAAACCACGCTCTTCGTAGATTTTCCG
 spacer length: 35 repeater length: 37
 33245 2758103 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AATTAACCTCGGATAATTTAGTTCTGAAGGGCAAAA
 spacer length: 35 repeater length: 37
 33246 2758176 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CTTTATTTGTACGGGGTGTACGGGGTATTTTGA
 spacer length: 37 repeater length: 37
 33247 2758251 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GCCGAGAACCGAGGAATAGACCTCTGTGTAATAAACA
 spacer length: 37 repeater length: 37
 33248 2758326 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGATGATTTGGATTTATAACAGGATATTTTGAGGG
 spacer length: 35 repeater length: 37
 33249 2758399 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGGCGTTGTAGATGTTTAACAGGGTCTGAATAAGT
 spacer length: 34 repeater length: 37
 33250 2758471 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TGAGAGGCTACAGGAGTTATCCTTCGAGGGAGTAAAA
 spacer length: 37 repeater length: 37
 33251 2758546 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGACTAGGATGTCAGCTGAGATATTCATCCGAGCC
 spacer length: 35 repeater length: 37
 33252 2758619 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCTTAGGTTGTACAATATACTATAACAACCTATTACTAT
 spacer length: 38 repeater length: 37
 33253 2758695 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTGAATCATTGGTGAGTTTTCAAACGGCTACCTT
 spacer length: 34 repeater length: 37
 33254 2758767 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT GTCACAGAGCGCATGATATGCCACATACGTAATCT
 spacer length: 35 repeater length: 37
 33255 2758840 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT CGGATATTATATGTGTGGATACAATCAGAAGGAAT
 spacer length: 35 repeater length: 37
 33256 2758913 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TAGGGATATCACACGTTTATTCGCGTGAGGCCGTC
 spacer length: 36 repeater length: 37
 33257 2758987 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TCCTCGCACTCATCCGACTCTGGAAAATATCCGCA
 spacer length: 37 repeater length: 37
 33258 2759060 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATCACGGAAAAAGGCAGCACAGCCGAGCGTGAAGCC
 spacer length: 36 repeater length: 37
 33259 2759134 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT ATGTTTGCAACGGCATAATCTCCGAAGGCGAATAT
 spacer length: 36 repeater length: 37
 33260 2759208 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT TTAAAAATTTAGTAAGTGAACCTTCAATAGACTCCT
 spacer length: 36 repeater length: 37
 33261 2759282 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAAAAGAACTAATTTCGGAGGAAAAGAAAATGATA
 spacer length: 34 repeater length: 37
 33262 2759354 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AGTATATCCTGTTTTTCAAAGTATGGTCATGCAG
 spacer length: 34 repeater length: 37
 33263 2759426 GTTTCAATCCTTGTTTTAGTGGATCTTGCATTCTGAAT AAATTTTCTCTATTTGGCTAGAAAAAGCCTGA
 33264
 33265
 33266 crispr 11
 33267 428910 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
 GTGAAGAAATAGGTTCTGCAGGGTAGATGAGTTATAAACCAACTGCAGAACCCGGGGTATAACGGGGGACGAACAAAATAGAGAAA
 GGAGTGAGGGATTGAAATGATCATAAAATTTTGGAGTATTCAAAGATTGTACAGTTCTTCCA spacer length: 146
 repeater length: 40
 33268 429097 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
 GTAGAGAAATAGGTTATGCAGGATAGATGGGTTATAAACCAACTGCATAGCTCAGGGGATAACGGGGACGAACAAAATAGAGAAA
 GGAGTGAGGGATTGAAATGATCATAAAATTTTGGAGTATTCAAAGATTACAAAGATCTTCCA spacer length: 146
 repeater length: 40
 33269 429284 GCAGAAGTCTTCAAATTCTTCTACTGCTTCTAAATAAGCT
 ATTTTCTTTTATTTGGCTAGAAAAAGCCTGAAATTGGTCCTATATTTAAACTAAATTTCTTGTGGGATATTATCAAACCCCTTTAT
 AAATACAAGAAATATAATGCTTTCATGGTTTTTGGCTATTATGTATATGCTATTCTACTT
 33270
 33271
 33272 GCA_003584625.1_ASM358462v1_genomic.fna(findCrispr):
 33273 START REPEAT
 SPACER
 33274 crispr 1
 33275 291088 TTGGTTATGTTGTTGTTGGA TATTGTATTATTATTTGAAGAATCGTAGAGGTAGATTCCATCCTCCCCGTT
 spacer length: 51 repeater length: 20
 33276 291160 TTGGTTATGTTGTTGTTGGA
 TATTGTATTATTTGAAGAATCGTAGAGGTAGATTCCATAATAATACATGTTGTTGATGGTGTGTTGGATATTGTATTATTTGAAG
 AATAGCAGATGTAGATTCCATCATTTCCGCT spacer length: 117 repeater length: 20
 33277 291298 TTGGTTATGTTGTTGTTGGA
 AATCAGATTATTATTTGAAGAATACCGGAGGTCGATTCCATCATAATCGTTGTTGGTTATGTTGTTGTTGTAGATTTTGTATATT
 CTGAATCTGAGAGGTCTATTCCAAGTCCGTT spacer length: 117 repeater length: 20
 33278 291436 TTGGTTATGTTGTTGTTGGA

TATTGTATTATTGGAAGAATACCAGAGGTCTATTCCATCATCTCCGTTGTTGGTTATTTTGTGTTGGAAATCATATTATTATTG
 AAGAATAGAAGAGGTAGATTCCATAATACGTGTT spacer length: 120 repeater length: 20
 33279 291577 TTGGTTATGTTGTTGTTGGA AAGTATATTATTTGAAGAATACCAGAGGTCTATTCCAAGTCCGTT spacer
 length: 45 repeater length: 20
 33280 291643 TTGGTTATGTTGTTGTTGGA
 AAGTATATTATTTGAAGAATAGCAGATGTAGATTCCATCATACTTGTGTTGGTTATTTTGTGTTGTAGATTGTATTATTTGAAG
 AATTGTTGAGGTAGATTCCATAATACGTGTT spacer length: 117 repeater length: 20
 33281 291781 TTGGTTATGTTGTTGTTGGA AAGTATATTATTTGAAGAATACCAGAGGTCTATTCCAAGTCCGTT spacer
 length: 45 repeater length: 20
 33282 291847 TTGGTTATGTTGTTGTTGGA CAGCGAGTATGGAATCTACCTCTATGGTTCCAGTAGTAGTGTGTT
 33283
 33284
 33285 crispr 2
 33286 1345194 CAACTGCTCGAGGATCCTTTAACA
 GCCCAAGGGCTGCGGCTGCTGACCCGCGGACAAGCCCTTCTTCATCCTTCAGTGTTCGATAAGTGGT spacer length:
 68 repeater length: 24
 33287 1345287 CAACTGCTCGAGGATCCTTTAACA
 GCCCAAGGGCTAAAGCTGCTGCCCCGCGGACACCGGGGTATGCATCCTTCAGTGTTCGATGAGGGGT spacer length:
 68 repeater length: 24
 33288 1345380 CAACTGCTCGAGGATCCTTTAACA
 TATGGAATCTACCTCTATGGTTCCAGTAGTAGTGTGTTGCGTGGTAATGTTGTTGAGGATTGTGGGCG
 33289
 33290
 33291 crispr 3
 33292 450722 ATCTACAACAACACTATAACCAACAACAGC TGGGATGGAATCTTCCTCGACCATTCTTCAAATAATAC spacer
 length: 38 repeater length: 30
 33293 450791 ATCTACAACAACACTATAACCAACAACAGC GATGGAATCTTCCTCTACTATTCTTCAAATAATAC spacer
 length: 35 repeater length: 30
 33294 450857 ATCTACAACAACACTATAACCAACAACAGC GGCCTGGGCTGCTGCCAAGCGGACAAGCCCTTCTT
 33295
 33296
 33297 crispr 4
 33298 1043665 ATTTCCATACTATTTAGTCTATTTCAAAGC TCAAACCATAGAGGGGGGTTTTATTTTGAAGAG spacer
 length: 34 repeater length: 30
 33299 1043730 ATTTCCATACTATTTAGTCTATTTCAAAGC TCGTCAATGGTGGTGTAACTTTTGGGGTGGGTTG spacer
 length: 36 repeater length: 30
 33300 1043797 ATTTCCATACTATTTAGTCTATTTCAAAGC TTGGATTGTGACAGTATCCCCATCCGCGGGGACGCCGC spacer
 length: 38 repeater length: 30
 33301 1043866 ATTTCCATACTATTTAGTCTATTTCAAAGC GAGAGGGGATGCAAAAAAAGAAAAGGATTTGGGTG spacer
 length: 35 repeater length: 30
 33302 1043932 ATTTCCATACTATTTAGTCTATTTCAAAGC TATTTTTTCGTTTTTTTTGATGATTCTCAGGGAGGGGA spacer
 length: 36 repeater length: 30
 33303 1043999 ATTTCCATACTATTTAGTCTATTTCAAAGC ATAGTATAGAAAAAAATTCAGCGAATACAGCGACT spacer
 length: 36 repeater length: 30
 33304 1044066 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTGAGTTCATCTCATTCAAGTATGCTTTTAATTCC spacer
 length: 36 repeater length: 30
 33305 1044133 ATTTCCATACTATTTAGTCTATTTCAAAGC CTAGGCCCAAAAAAAACACCCCCCAAAAAACA spacer
 length: 36 repeater length: 30
 33306 1044200 ATTTCCATACTATTTAGTCTATTTCAAAGC GAGAGAGGCCTGGCCCCAAAAAAACACCCATGAAAA spacer
 length: 36 repeater length: 30
 33307 1044267 ATTTCCATACTATTTAGTCTATTTCAAAGC TCAGTCTTGAGACTGAGGTGAGTTTCAGAGTAGACGA spacer
 length: 37 repeater length: 30
 33308 1044335 ATTTCCATACTATTTAGTCTATTTCAAAGC CCCTTCCCTTCTCTCCTGAATGATGATTTTCGAGAAAA spacer
 length: 37 repeater length: 30
 33309 1044403 ATTTCCATACTATTTAGTCTATTTCAAAGC CCACAAAACCCCCCAACAACACCACCAAAAAAACCCA spacer
 length: 37 repeater length: 30
 33310 1044471 ATTTCCATACTATTTAGTCTATTTCAAAGC AGAAGAAATATCAGAACTCGAAAAACAATCGGAAAAA spacer
 length: 38 repeater length: 30
 33311 1044540 ATTTCCATACTATTTAGTCTATTTCAAAGC CCTGAATCATCCAAAAACGAAAAATATATATATGA spacer
 length: 36 repeater length: 30
 33312 1044607 ATTTCCATACTATTTAGTCTATTTCAAAGC AGTCCTCGGAACTACGAGAGCGAGGATGATGAGC spacer
 length: 35 repeater length: 30
 33313 1044673 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTCGTTTCATGTTCTTTTTTACTTTTTGCCTATAT spacer
 length: 36 repeater length: 30
 33314 1044740 ATTTCCATACTATTTAGTCTATTTCAAAGC TAGCAAAATATAAAAGAAAACCAAAAATAGTAGCC spacer
 length: 35 repeater length: 30
 33315 1044806 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTTACATACTCTATTTTTAGTTTCAGTTTTTTCTTT spacer
 length: 37 repeater length: 30
 33316 1044874 ATTTCCATACTATTTAGTCTATTTCAAAGC CTCTCTTTGTGCGCATATGTGAATGAATCGGTTGAGGAA spacer
 length: 38 repeater length: 30
 33317 1044943 ATTTCCATACTATTTAGTCTATTTCAAAGC AGTATTTTTTCGGCCTGTTTAATCCTCTCTACTAAGA spacer

	length: 35	repeater length: 30	
33318	1045009	ATTTCCATACTATTTAGTCTATTTCAAAGC	CATATTGCTCAGCTGTCATTTCCCCAGCATAAATACA spacer
	length: 37	repeater length: 30	
33319	1045077	ATTTCCATACTATTTAGTCTATTTCAAAGC	AACTTAAAGTCTATTGTAAGGCAATGGAGGGGTCT spacer
	length: 35	repeater length: 30	
33320	1045143	ATTTCCATACTATTTAGTCTATTTCAAAGC	GCAGCTATGGCGAATATAAGCCAGCCAAGCATATTA spacer
	length: 36	repeater length: 30	
33321	1045210	ATTTCCATACTATTTAGTCTATTTCAAAGC	TCATCATCGAATCGCAAACCTATATATATTTCGGAGTA spacer
	length: 36	repeater length: 30	
33322	1045277	ATTTCCATACTATTTAGTCTATTTCAAAGC	CAGCTGAGGCCAGACAATATCTGAAGGGTTATTTCAAC spacer
	length: 38	repeater length: 30	
33323	1045346	ATTTCCATACTATTTAGTCTATTTCAAAGC	TTAAAAATGTTGCAAGGGAAATAAAAGAGAAAGATA spacer
	length: 36	repeater length: 30	
33324	1045413	ATTTCCATACTATTTAGTCTATTTCAAAGC	CTTCACGGTCTTGTTCAACCTTAATCTCTTGAATAGG spacer
	length: 38	repeater length: 30	
33325	1045482	ATTTCCATACTATTTAGTCTATTTCAAAGC	GCGGATATGTCCACAAACCCCTGGAACTTCTAT spacer
	length: 35	repeater length: 30	
33326	1045548	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGTGCACAGGATTGTTCTATTGTGAAACCTTGTTCT spacer
	length: 36	repeater length: 30	
33327	1045615	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGAGACCTTCGAATTGGAAACGGATGAAGAATTAG spacer
	length: 35	repeater length: 30	
33328	1045681	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGTGCACAGGATTGTTCTATTGTGAAACCTTGTTCT spacer
	length: 36	repeater length: 30	
33329	1045748	ATTTCCATACTATTTAGTCTATTTCAAAGC	GCCCATACTTGAATAACATGATACAAATGCAGCCA spacer
	length: 35	repeater length: 30	
33330	1045814	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTGCTTTGATCCGCTCTTCAACTGTAGCCTGATTT spacer
	length: 35	repeater length: 30	
33331	1045880	ATTTCCATACTATTTAGTCTATTTCAAAGC	CTTATATGTGCAGGCTAATCTGAAAGGCCTCCAA spacer
	length: 34	repeater length: 30	
33332	1045945	ATTTCCATACTATTTAGTCTATTTCAAAGC	TCTTTGACCGCTCTGTCTACGATTTTCAGGAGTTATC spacer
	length: 36	repeater length: 30	
33333	1046012	ATTTCCATACTATTTAGTCTATTTCAAAGC	AAGGAGAATGTGTACTTTGAGAGTGTCAAAAAT spacer
	length: 34	repeater length: 30	
33334	1046077	ATTTCCATACTATTTAGTCTATTTCAAAGC	CAGTTGAAGAGACCCGTGAGATTGGGAAACCAAGGCA spacer
	length: 37	repeater length: 30	
33335	1046145	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAATCTTATCAATCCACTGCGACAAGCCCTCAA spacer
	length: 35	repeater length: 30	
33336	1046211	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAAGATGATCGATGCTGTTCTGAGGAGTACTTCA spacer
	length: 36	repeater length: 30	
33337	1046278	ATTTCCATACTATTTAGTCTATTTCAAAGC	TATACCGCTTATTTCCCTCACAGTCTCAAATATTTCA spacer
	length: 37	repeater length: 30	
33338	1046346	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTTAGGCCAACGCACCGTAGAAATCACCTGCAGATC spacer
	length: 36	repeater length: 30	
33339	1046413	ATTTCCATACTATTTAGTCTATTTCAAAGC	TATCGTTCTTCACGGCTTATAGCATCCCCAATAACCT spacer
	length: 37	repeater length: 30	
33340	1046481	ATTTCCATACTATTTAGTCTATTTCAAAGC	TTGAATTGGCGTGTGGCCTCGCCTTCAAATGTTAAT spacer
	length: 36	repeater length: 30	
33341	1046548	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACGCCATCTCTTTTTATCCCCATGCTTTTTATCGA spacer
	length: 35	repeater length: 30	
33342	1046614	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTGAGGCCTTCCCCTCCATTCTCGATAGATTCAAT spacer
	length: 35	repeater length: 30	
33343	1046680	ATTTCCATACTATTTAGTCTATTTCAAAGC	CGGAATATTAATATGTATTCTGTTTCATGGGTTAC spacer
	length: 35	repeater length: 30	
33344	1046746	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGTAACCCCATCCACCATATTTCGAAACCACCACCAT spacer
	length: 37	repeater length: 30	
33345	1046814	ATTTCCATACTATTTAGTCTATTTCAAAGC	ATACCCAGTATTTTTGTTCAATTTTCCGGTTGTTTA spacer
	length: 36	repeater length: 30	
33346	1046881	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGTGATGGTCTTGGAGATCGCTATGATCTCATCAT spacer
	length: 35	repeater length: 30	
33347	1046947	ATTTCCATACTATTTAGTCTATTTCAAAGC	GGTTTCAGTGGTTTGATAGTAACAAGACCCTTATCCT spacer
	length: 37	repeater length: 30	
33348	1047015	ATTTCCATACTATTTAGTCTATTTCAAAGC	CAATACTCTGCTTAGAGCAAAGTAGAGCGGATACCG spacer
	length: 36	repeater length: 30	
33349	1047082	ATTTCCATACTATTTAGTCTATTTCAAAGC	CGCGGGGATTTGCGAAATACACTTGTTGACTTACTTGT spacer
	length: 38	repeater length: 30	
33350	1047151	ATTTCCATACTATTTAGTCTATTTCAAAGC	TTCATTATATAATTTCTTCTTCCCATTCTATAGAG spacer
	length: 36	repeater length: 30	
33351	1047218	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGCCGATATTCGCCGCTAAAGCAGCAACACCAATATA spacer
	length: 37	repeater length: 30	
33352	1047286	ATTTCCATACTATTTAGTCTATTTCAAAGC	ATTCATCCCCTCAACATGGAGGGAAAACCTTATC spacer
	length: 35	repeater length: 30	

33353	1047352	ATTTCCATACTATTTAGTCTATTTCAAAGC	CAACACCTAGAAATCATGGAAGCATGTGAAAAAGGGA	spacer
	length:	36	repeater length:	30
33354	1047419	ATTTCCATACTATTTAGTCTATTTCAAAGC	GACTTTATGTATATCAACGTACACTCCTCTTTTTT	spacer
	length:	35	repeater length:	30
33355	1047485	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGCCCGTGAAGGCACATTCTTGAGCGTTGTTTTCA	spacer
	length:	35	repeater length:	30
33356	1047551	ATTTCCATACTATTTAGTCTATTTCAAAGC	AATTGAATCCCTTCATCATACCCAGGGATCCTTAGA	spacer
	length:	36	repeater length:	30
33357	1047618	ATTTCCATACTATTTAGTCTATTTCAAAGC	CATCTGAAAGAGTTGTATGGGTATGGTGTGATCTA	spacer
	length:	35	repeater length:	30
33358	1047684	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAATCGACGCTTACAGGGTTAGCATAGTCCCCGGA	spacer
	length:	36	repeater length:	30
33359	1047751	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGTGCCGATGATAATGTCATGGCCACCTAGATTAC	spacer
	length:	36	repeater length:	30
33360	1047818	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACGGATGTTATTGACTTGAAATTCAAGATGACAGGCCT	spacer
	length:	38	repeater length:	30
33361	1047887	ATTTCCATACTATTTAGTCTATTTCAAAGC	AAGCAAAAAATGCAAAAAGAACATACAAGCACAGT	spacer
	length:	35	repeater length:	30
33362	1047953	ATTTCCATACTATTTAGTCTATTTCAAAGC	TAGACCCGGACAAACCGCGCATATTTTGAATTCGTA	spacer
	length:	36	repeater length:	30
33363	1048020	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAGTCATTGTACCAGCATCTCCAGCATCGAAGGTT	spacer
	length:	36	repeater length:	30
33364	1048087	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACTCCCTAATTATGTGAACATAGCAACCACAACCC	spacer
	length:	35	repeater length:	30
33365	1048153	ATTTCCATACTATTTAGTCTATTTCAAAGC	GCTACTGGGAAGATCGCAGAACTTGTTAAAGAGTTA	spacer
	length:	36	repeater length:	30
33366	1048220	ATTTCCATACTATTTAGTCTATTTCAAAGC	AATAACGTGTCAGCACCGAGCATTTTAATGTTAAACG	spacer
	length:	37	repeater length:	30
33367	1048288	ATTTCCATACTATTTAGTCTATTTCAAAGC	TAGATGTATCCTTCATTTTCACCGGTTGGCATTGAA	spacer
	length:	36	repeater length:	30
33368	1048355	ATTTCCATACTATTTAGTCTATTTCAAAGC	CGTTCATAAAAATGCTTTTTTGTACCTATAACCTTCAC	spacer
	length:	37	repeater length:	30
33369	1048423	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTAGGCCCTCCAATGGCATTAGTTTCATGTAACAG	spacer
	length:	35	repeater length:	30
33370	1048489	ATTTCCATACTATTTAGTCTATTTCAAAGC	TGTGACTTGCTCGAAGATTCCCCGTTACTATGGGTGC	spacer
	length:	37	repeater length:	30
33371	1048557	ATTTCCATACTATTTAGTCTATTTCAAAGC	CATCCACCAGTTTTCTGGTCCAACCAATTGAATTTA	spacer
	length:	36	repeater length:	30
33372	1048624	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACAACAAACAGAAGAAGTAAATGGCTAATACAAAGA	spacer
	length:	37	repeater length:	30
33373	1048692	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGTGAAAAGGGACTTAGAAGAACTCCCATCACCTGATA	spacer
	length:	38	repeater length:	30
33374	1048761	ATTTCCATACTATTTAGTCTATTTCAAAGC	CTGGATATCCACCCAGTACTTCATAAAATGGCCT	spacer
	length:	35	repeater length:	30
33375	1048827	ATTTCCATACTATTTAGTCTATTTCAAAGC	GGGGGATGGTTGGGATTATAAAGCTGTTAGGTTTG	spacer
	length:	35	repeater length:	30
33376	1048893	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTTGAGAAGAAGAAAAAGAATATGGGTGGGGATCCC	spacer
	length:	36	repeater length:	30
33377	1048960	ATTTCCATACTATTTAGTCTATTTCAAAGC	CCGTGTGAATGCCGTGGTTGAGGAGTTGACACAACCTT	spacer
	length:	37	repeater length:	30
33378	1049028	ATTTCCATACTATTTAGTCTATTTCAAAGC	ATTGCAGCGCATTCCTGAGGATTGGCTGGATTTTG	spacer
	length:	36	repeater length:	30
33379	1049095	ATTTCCATACTATTTAGTCTATTTCAAAGC	GGTGCTGCCCTGTCACCGGGGAATTTCTGCCCGTTT	spacer
	length:	36	repeater length:	30
33380	1049162	ATTTCCATACTATTTAGTCTATTTCAAAGC	GTAGTCAATTGCAGGGTCTTTCATATATTCTTTCCAT	spacer
	length:	37	repeater length:	30
33381	1049230	ATTTCCATACTATTTAGTCTATTTCAAAGC	AAGCCAGTTATACCATCACCAGAGATTATCAAACCA	spacer
	length:	36	repeater length:	30
33382	1049297	ATTTCCATACTATTTAGTCTATTTCAAAGC	TCTTGGATTAGCTGCTACTGCATTACAACCATTTT	spacer
	length:	35	repeater length:	30
33383	1049363	ATTTCCATACTATTTAGTCTATTTCAAAGC	TTTAGATCTGCTATTTTTTCTTGTATGTCCTCTATC	spacer
	length:	36	repeater length:	30
33384	1049430	ATTTCCATACTATTTAGTCTATTTCAAAGC	CCTTCGCAACGAGTGATGCTCCTTCCATTGGGTTT	spacer
	length:	35	repeater length:	30
33385	1049496	ATTTCCATACTATTTAGTCTATTTCAAAGC	TCGCAGGATACGATCATGAAATGGAATTACTATGG	spacer
	length:	35	repeater length:	30
33386	1049562	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACCCGCACTTCTTTCAGTTTTTCCCTAATAATCATCT	spacer
	length:	37	repeater length:	30
33387	1049630	ATTTCCATACTATTTAGTCTATTTCAAAGC	AGATTGACCACAATACGTACCATTAGCCATCATCCTC	spacer
	length:	37	repeater length:	30
33388	1049698	ATTTCCATACTATTTAGTCTATTTCAAAGC	ACGCCAAGTAGAGGAAATAAAACGCTTATCCCC	spacer

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length: 33 repeater length: 30
33389 1049762 ATTTCCATACTATTTAGTCTATTTCAAAGC CATAAAAATACACCATTCAACCTACCCTAAACACA spacer
length: 35 repeater length: 30
33390 1049828 ATTTCCATACTATTTAGTCTATTTCAAAGC AAGCTTCTAACGCTGCACAAAGCAAAGGATTGCTC spacer
length: 35 repeater length: 30
33391 1049894 ATTTCCATACTATTTAGTCTATTTCAAAGC ACGCCCCAGGAAGGCCCCACATTTCGAAATAGAGACCA spacer
length: 37 repeater length: 30
33392 1049962 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTGTGAAAGCCGTGACAGACCTTGAAACTCAGGAT spacer
length: 37 repeater length: 30
33393 1050030 ATTTCCATACTATTTAGTCTATTTCAAAGC AATATCTTGACAAAGGGACAGGAATTCACGGACCTA spacer
length: 36 repeater length: 30
33394 1050097 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTGAACCCTATTTCCACACAACCAACGAGAACAT spacer
length: 35 repeater length: 30
33395 1050163 ATTTCCATACTATTTAGTCTATTTCAAAGC GGTATTTGTCCAGCCATCGGCAGCTTCTCATACCTT spacer
length: 36 repeater length: 30
33396 1050230 ATTTCCATACTATTTAGTCTATTTCAAAGC AGAACATGCAACAATACAAAACATAAAAAGATCCA spacer
length: 35 repeater length: 30
33397 1050296 ATTTCCATACTATTTAGTCTATTTCAAAGC AAATTCATCCTTTTGTATGCTCTACGCTACCTTAGATC spacer
length: 37 repeater length: 30
33398 1050364 ATTTCCATACTATTTAGTCTATTTCAAAGC TATCAGCTTAACAAACAGGCCATGCGTCTATGATG spacer
length: 35 repeater length: 30
33399 1050430 ATTTCCATACTATTTAGTCTATTTCAAAGC TTTCATTGCTTTTCAGATACACTTGATGATACCTATT spacer
length: 36 repeater length: 30
33400 1050497 ATTTCCATACTATTTAGTCTATTTCAAAGC ACCCGTTCTTGGTTTTGTACTTCACAATTTTCGTCT spacer
length: 35 repeater length: 30
33401 1050563 ATTTCCATACTATTTAGTCTATTTCAAAGC CATACAAAGGCAACTACCATGCGAATAGCACATGGA spacer
length: 36 repeater length: 30
33402 1050630 ATTTCCATACTATTTAGTCTATTTCAAAGC TCTTTCTTGGCTTTCTCACATTCTTGATAAATGCTT spacer
length: 37 repeater length: 30
33403 1050698 ATTTCCATACTATTTAGTCTATTTCAAAGC CATAGATCTATCAGAGGATCTTAAAGAAATCGATG spacer
length: 35 repeater length: 30
33404 1050764 ATTTCCATACTATTTAGTCTATTTCAAAGC TGGAAGTGTTACGGTTGTGGGGCCCATGGTAGTACG spacer
length: 36 repeater length: 30
33405 1050831 ATTTCCATACTATTTAGTCTATTTCAAAGC AGCGTGTGGGCTGGGATTATAGCAAGTGGAAGGATG spacer
length: 36 repeater length: 30
33406 1050898 ATTTCCATACTATTTAGTCTATTTCAAAGC TAAACCGGTTTATTTTCATCCATTTTCATCTACCATCC spacer
length: 36 repeater length: 30
33407 1050965 ATTTCCATACTATTTAGTCTATTTCAAAGC CCACGTCTACGCAGGCCATATGGATGCTATTACCC spacer
length: 35 repeater length: 30
33408 1051031 ATTTCCATACTATTTAGTCTATTTCAAAGC ATGGAATCTACCTCTATGGTTCCAGTAGTAGTGTG
33409
33410
33411 GCA_003711245.1_ASM371124v1_genomic.fna(findCrispr):
33412 START REPEAT
SPACER
33413 crispr 1
33414 867691 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA
GACCCACGTTAGGAAGGCTCTGCCTATCGATCTACACTGGTAGAAATTCTGAATGAGTTTTAGACTGCGGAGTCCGTTGCCTTTGT
TATTG spacer length: 91 repeater length: 33
33415 867816 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACAAACGGTAGCCCAGGAAGGCTGGCC spacer length:
28 repeater length: 33
33416 867878 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGACGGAAGTGATAGGGTAACCGCACCT spacer
length: 30 repeater length: 33
33417 867942 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGATGCATCCGCAATGTGTGCCTGCT spacer length:
28 repeater length: 33
33418 868004 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGTACCTTGACCGCAAAAAGTGAACCG spacer
length: 29 repeater length: 33
33419 868067 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTAACATGACAGGAAATCCACCCGA spacer length:
27 repeater length: 33
33420 868128 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCCTCGGCGGCAGATGTGGAGACAGA spacer length:
28 repeater length: 33
33421 868190 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACACATCAAGCCCCTCCAGTCATCCGTC spacer
length: 29 repeater length: 33
33422 868253 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACATTAAAGGGGCAGTGCCGAACCG spacer length:
27 repeater length: 33
33423 868314 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA
GACCCACTTCACAGCCAAAAGCGTATCTTTATCTACACTAGTAGAGATTCTGAATGAGTTTTAGACCAACCAAATATGGCCCGTTG
TTGTTTGCATCTACACTAGTAGAGATTCTGAATGAGTTTTAGACCAACCAAATATGGCCCGTTGTTGTTTGTG spacer
length: 157 repeater length: 33
33424 868505 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACACTTATGACGACATTTTTAGGGCATA spacer
length: 29 repeater length: 33

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33425	868568 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCCCTGCCGCCTGAATATCTTTGCACC spacer
	length: 29 repeater length: 33	
33426	868631 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGCCGGAGGCGTGGCGGGATGGTTCC spacer length:
	28 repeater length: 33	
33427	868693 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGTTTCGCCCTCTCTCGGTTCATCA spacer length:
	27 repeater length: 33	
33428	868754 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACTCGCCTTGTCTCGAGGCGGTCCTTG spacer length:
	28 repeater length: 33	
33429	868816 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCTTCAGATCTTCAGGATCATCCTCA spacer length:
	28 repeater length: 33	
33430	868878 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGGTGACGCAGCTGACCGCCGAACGCG spacer
	length: 29 repeater length: 33	
33431	868941 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACTCTCTCCTTCATCTGGCCTGTCCGT spacer length:
	28 repeater length: 33	
33432	869003 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGAACGCCCGGAGGTCTGAAGCCGCAA spacer
	length: 29 repeater length: 33	
33433	869066 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACTGTGCGGCTCGTCGCTTTCCCGTGGT spacer
	length: 30 repeater length: 33	
33434	869130 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACTACCCCTTCCTCCGTACGTAGTCTT spacer length:
	28 repeater length: 33	
33435	869192 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCACAGCCGACTTCATCAGGAAGAGA spacer length:
	28 repeater length: 33	
33436	869254 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCCACGAAAGCCTTACGCTCCGCTTTG spacer
	length: 29 repeater length: 33	
33437	869317 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACATGCGCTCCGCGATCAACTCCATCG spacer length:
	28 repeater length: 33	
33438	869379 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCAGGCGGACATGGAAAGCGCGATAG spacer length:
	28 repeater length: 33	
33439	869441 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACACGCTGAAGATAGACGACGTGAGCTT spacer
	length: 29 repeater length: 33	
33440	869504 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACTAACCTTCCGTAAGTAACACGTTTATAT spacer
	length: 31 repeater length: 33	
33441	869569 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCGATCATCGCAGACGAGGTAGATTCA spacer
	length: 29 repeater length: 33	
33442	869632 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	AACAGTGTCTGTTACGTGTGGTATTCT spacer length:
	28 repeater length: 33	
33443	869694 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCCGGTCTGCGTCCTTGGCGAAGCTC spacer length:
	28 repeater length: 33	
33444	869756 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACAAGAAGGCCGTGGTGGTCACCGCCAC spacer
	length: 29 repeater length: 33	
33445	869819 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGCACCACGTGGGCGACCCTCATCA spacer length:
	27 repeater length: 33	
33446	869880 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACAGACGTTGAATCTCTGGCGGTTGC spacer length:
	27 repeater length: 33	
33447	869941 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCAGGTCGAACTTGAGAACGGAAGACT spacer
	length: 29 repeater length: 33	
33448	870004 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCTGCAGCGCACTGTTCCCAATTTTA spacer length:
	28 repeater length: 33	
33449	870066 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACCGCCCGAAGAAGCCCAGGAATTCTA spacer length:
	28 repeater length: 33	
33450	870128 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGTTACGGCACCGTGGGGAATATCGT spacer
	length: 29 repeater length: 33	
33451	870191 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACTCCGGTCTTGGAGTAGTGAGCCACT spacer length:
	28 repeater length: 33	
33452	870253 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGGGAGTTCGACCAGTTCATAACCTGGA spacer
	length: 30 repeater length: 33	
33453	870317 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGGAGCAGTATTAGACTTAATCGTCT spacer length:
	28 repeater length: 33	
33454	870379 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGGCGCGGCCCGCAGCTTCCTGACCG spacer length:
	28 repeater length: 33	
33455	870441 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GATGAGTTTTAGACGGGAGTTCGACCAGTTCATAACCTGGA
	spacer length: 41 repeater length: 33	
33456	870516 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	GACGGAGCAGTATTAGACTTAATCGTCT spacer length:
	28 repeater length: 33	
33457	870578 ATCTACACTAGTAGAAAATTCTGAATGAGTTT	CAGTGCCGAACCGAATCTACACTAGTAG
33458		
33459		
33460	GCA_003852095.1_ASM385209v1_genomic.fna(findCrispr):	
33461	START	REPEAT
	SPACER	
33462	crispr 1	

33463	2499117	GATAATCTACTATAGAATTGAAAG	ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
	length:	38	repeater length: 24
33464	2499180	GATAATCTACTATAGAATTGAAAG	TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAAT spacer
	length:	41	repeater length: 24
33465	2499246	GATAATCTACTATAGAATTGAAAG	CCCATTTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
	length:	38	repeater length: 24
33466	2499309	GATAATCTACTATAGAATTGAAAG	TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
	length:	40	repeater length: 24
33467	2499374	GATAATCTACTATAGAATTGAAAG	ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATA spacer
	length:	43	repeater length: 24
33468	2499442	GATAATCTACTATAGAATTGAAAG	CCCGCCCAGCCAGACTGTTTTAGCCCAAACCGGCTAAT spacer
	length:	39	repeater length: 24
33469	2499506	GATAATCTACTATAGAATTGAAAG	TCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTATT
33470			
33471			
33472	crispr 2		
33473	2091898	GATAATCTCTTATAGAATTGAAAG	TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGG spacer
	length:	37	repeater length: 24
33474	2091960	GATAATCTCTTATAGAATTGAAAG	CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTG spacer
	length:	39	repeater length: 24
33475	2092024	GATAATCTCTTATAGAATTGAAAG	TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTAT spacer
	length:	41	repeater length: 24
33476	2092090	GATAATCTCTTATAGAATTGAAAG	GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAG spacer
	length:	39	repeater length: 24
33477	2092154	GATAATCTCTTATAGAATTGAAAG	AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTC spacer
	length:	37	repeater length: 24
33478	2092216	GATAATCTCTTATAGAATTGAAAG	GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATAT spacer
	length:	38	repeater length: 24
33479	2092279	GATAATCTCTTATAGAATTGAAAG	GCAAAGAGTCCATTCAATAACACATATTTTGCACATAA spacer
	length:	38	repeater length: 24
33480	2092342	GATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGC spacer
	length:	38	repeater length: 24
33481	2092405	GATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTC spacer
	length:	38	repeater length: 24
33482	2092468	GATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTA spacer
	length:	39	repeater length: 24
33483	2092532	GATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATCTGCCTAATGCGTCAGGAGGGA spacer
	length:	38	repeater length: 24
33484	2092595	GATAATCTCTTATAGAATTGAAAG	ACCACGAGCACGACCTCAAATATAACACCGCCAAAAAT spacer
	length:	38	repeater length: 24
33485	2092658	GATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAATTTATTGA spacer
	length:	39	repeater length: 24
33486	2092722	GATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTC spacer
	length:	37	repeater length: 24
33487	2092784	GATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTAC spacer
	length:	39	repeater length: 24
33488	2092848	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAA spacer
	length:	39	repeater length: 24
33489	2092912	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATC spacer length:
	length:	36	repeater length: 24
33490	2092973	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCT spacer
	length:	37	repeater length: 24
33491	2093035	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCA spacer
	length:	38	repeater length: 24
33492	2093098	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGA spacer
	length:	37	repeater length: 24
33493	2093160	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTA spacer
	length:	37	repeater length: 24
33494	2093222	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCA spacer
	length:	40	repeater length: 24
33495	2093287	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCAT spacer
	length:	38	repeater length: 24
33496	2093350	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAA spacer
	length:	38	repeater length: 24
33497	2093413	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAG spacer length:
	length:	36	repeater length: 24
33498	2093474	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGT spacer
	length:	37	repeater length: 24
33499	2093536	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTATTTCCTGGCGG spacer
	length:	39	repeater length: 24
33500	2093600	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA spacer

length: 37 repeater length: 24

33501 2093662 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGA spacer length: 36 repeater length: 24

33502 2093723 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGAT spacer length: 39 repeater length: 24

33503 2093787 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA spacer length: 38 repeater length: 24

33504 2093850 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCCAACTA spacer length: 37 repeater length: 24

33505 2093912 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG spacer length: 39 repeater length: 24

33506 2093976 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC spacer length: 40 repeater length: 24

33507 2094041 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA spacer length: 36 repeater length: 24

33508 2094102 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCT spacer length: 38 repeater length: 24

33509 2094165 GATAATCTCTTATAGAATTGAAAG TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC spacer length: 39 repeater length: 24

33510 2094229 GATAATCTCTTATAGAATTGAAAG ACTATGGACCTACTACAGGGCCTATCTGACTTTTCTGT spacer length: 37 repeater length: 24

33511 2094291 GATAATCTCTTATAGAATTGAAAG TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG spacer length: 37 repeater length: 24

33512 2094353 GATAATCTCTTATAGAATTGAAAG GTCAAAATTGCCCAACCGAACGTTAGCAAAAATGCAGCA spacer length: 39 repeater length: 24

33513 2094417 GATAATCTCTTATAGAATTGAAAG TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA spacer length: 40 repeater length: 24

33514 2094482 GATAATCTCTTATAGAATTGAAAG GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAAC spacer length: 38 repeater length: 24

33515 2094545 GATAATCTCTTATAGAATTGAAAG GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT spacer length: 38 repeater length: 24

33516 2094608 GATAATCTCTTATAGAATTGAAAG TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTC spacer length: 39 repeater length: 24

33517 2094672 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA spacer length: 34 repeater length: 24

33518 2094731 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG spacer length: 38 repeater length: 24

33519 2094794 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAA spacer length: 35 repeater length: 24

33520 2094854 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTT spacer length: 37 repeater length: 24

33521 2094916 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATT spacer length: 37 repeater length: 24

33522 2094978 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAA spacer length: 37 repeater length: 24

33523 2095040 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACAT spacer length: 40 repeater length: 24

33524 2095105 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTG spacer length: 38 repeater length: 24

33525 2095168 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTT spacer length: 39 repeater length: 24

33526 2095232 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAA spacer length: 38 repeater length: 24

33527 2095295 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGA spacer length: 37 repeater length: 24

33528 2095357 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGT spacer length: 43 repeater length: 24

33529 2095425 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCA spacer length: 40 repeater length: 24

33530 2095490 GATAATCTCTTATAGAATTGAAAG CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTG spacer length: 37 repeater length: 24

33531 2095552 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGT spacer length: 35 repeater length: 24

33532 2095612 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTA spacer length: 38 repeater length: 24

33533 2095675 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCAGTCCGTACCGTTCTCTGTAC spacer length: 37 repeater length: 24

33534 2095737 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCT spacer length: 36 repeater length: 24

33535 2095798 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATT spacer length: 41 repeater length: 24

33536	2095864	GATAATCTCTTATAGAATTGAAAG	ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCA	spacer
		length: 38	repeater length: 24	
33537	2095927	GATAATCTCTTATAGAATTGAAAG	CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGG	spacer
		length: 39	repeater length: 24	
33538	2095991	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAAT	spacer length: 36
		length: 36	repeater length: 24	
33539	2096052	GATAATCTCTTATAGAATTGAAAG	ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC	spacer
		length: 37	repeater length: 24	
33540	2096114	GATAATCTCTTATAGAATTGAAAG	ATACCAACAGCAACAACAACTTATTCTTCGCTCATAC	spacer
		length: 38	repeater length: 24	
33541	2096177	GATAATCTCTTATAGAATTGAAAG	ACGAACACACCCCTTAAACTCTTTTTCCAACATTCAAC	spacer
		length: 39	repeater length: 24	
33542	2096241	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGA	spacer
		length: 39	repeater length: 24	
33543	2096305	GATAATCTCTTATAGAATTGAAAG	TCTTAGCGAAGTTGCAAAATATTCCGACCAAAGCTAAT	spacer
		length: 38	repeater length: 24	
33544	2096368	GATAATCTCTTATAGAATTGAAAG	TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGG	spacer
		length: 39	repeater length: 24	
33545	2096432	GATAATCTCTTATAGAATTGAAAG	GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTA	spacer
		length: 42	repeater length: 24	
33546	2096499	GATAATCTCTTATAGAATTGAAAG	ATACAGATTTTCGTTATCCATATCCTACATGACTTTC	spacer length: 36
		length: 36	repeater length: 24	
33547	2096560	GATAATCTCTTATAGAATTGAAAG	ATACATCGATCTTGTAAATTAGATATCCATTGACTGTTA	spacer
		length: 38	repeater length: 24	
33548	2096623	GATAATCTCTTATAGAATTGAAAG	ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTAT	spacer
		length: 39	repeater length: 24	
33549	2096687	GATAATCTCTTATAGAATTGAAAG	TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAAC	spacer
		length: 39	repeater length: 24	
33550	2096751	GATAATCTCTTATAGAATTGAAAG	CGTTTCTATTGCAAGGTCTGAGATTTTGGCCTGAGT	spacer
		length: 37	repeater length: 24	
33551	2096813	GATAATCTCTTATAGAATTGAAAG	GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGA	spacer
		length: 39	repeater length: 24	
33552	2096877	GATAATCTCTTATAGAATTGAAAG	ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATAT	spacer
		length: 43	repeater length: 24	
33553	2096945	GATAATCTCTTATAGAATTGAAAG	CTAAGCAGTGACTCACAGTTTAGACATTACAAGTAT	spacer
		length: 37	repeater length: 24	
33554	2097007	GATAATCTCTTATAGAATTGAAAG	TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTAT	spacer
		length: 40	repeater length: 24	
33555	2097072	GATAATCTCTTATAGAATTGAAAG	TTGAATATTGTACAAAGGAACGTTTAACCTATAATAGA	spacer
		length: 39	repeater length: 24	
33556	2097136	GATAATCTCTTATAGAATTGAAAG	CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCG	spacer length: 36
		length: 36	repeater length: 24	
33557	2097197	GATAATCTCTTATAGAATTGAAAG	AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTC	spacer
		length: 39	repeater length: 24	
33558	2097261	GATAATCTCTTATAGAATTGAAAG	ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCT	spacer
		length: 39	repeater length: 24	
33559	2097325	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGG	spacer
		length: 38	repeater length: 24	
33560	2097388	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAG	spacer
		length: 39	repeater length: 24	
33561	2097452	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTT	spacer
		length: 39	repeater length: 24	
33562	2097516	GATAATCTCTTATAGAATTGAAAG	AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGC	spacer
		length: 39	repeater length: 24	
33563	2097580	GATAATCTCTTATAGAATTGAAAG	TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACA	spacer
		length: 40	repeater length: 24	
33564	2097645	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTT	spacer
		length: 39	repeater length: 24	
33565	2097709	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTAT	spacer
		length: 38	repeater length: 24	
33566	2097772	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTG	spacer length: 36
		length: 36	repeater length: 24	
33567	2097833	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCTCTACCACGCCAAGCCAACAAC	spacer length: 36
		length: 36	repeater length: 24	
33568	2097894	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG	spacer
		length: 37	repeater length: 24	
33569	2097956	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT	spacer
		length: 40	repeater length: 24	
33570	2098021	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC	spacer
		length: 38	repeater length: 24	
33571	2098084	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG	spacer length: 36

36 repeater length: 24

33572 2098145 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA spacer
length: 38 repeater length: 24

33573 2098208 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG spacer
length: 40 repeater length: 24

33574 2098273 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA spacer
length: 38 repeater length: 24

33575 2098336 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA spacer
length: 41 repeater length: 24

33576 2098402 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA spacer length:
36 repeater length: 24

33577 2098463 GATAATCTCTTATAGAATTGAAAG TGTTCGTGTCGTTACTGTCGTAAAGCACGTCCTATTA spacer length:
36 repeater length: 24

33578 2098524 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG spacer
length: 37 repeater length: 24

33579 2098586 GATAATCTCTTATAGAATTGAAAG TCCTTGAGATGTTGATGTTTTATACGGTATTATGTGA spacer
length: 38 repeater length: 24

33580 2098649 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTGCGTTTCGCTTTTATACCT spacer
length: 37 repeater length: 24

33581 2098711 GATAATCTCTTATAGAATTGAAAG CAAATTTCCGGCGAAAATTGTACCGAATTTCCGGCATTGCTG spacer
length: 40 repeater length: 24

33582 2098776 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGT spacer
length: 39 repeater length: 24

33583 2098840 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGA spacer
length: 41 repeater length: 24

33584 2098906 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGG spacer
length: 38 repeater length: 24

33585 2098969 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAACTCCCCGGATATTATCATGTCTAA spacer
length: 38 repeater length: 24

33586 2099032 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGT spacer length:
36 repeater length: 24

33587 2099093 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC spacer
length: 38 repeater length: 24

33588 2099156 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA spacer
length: 40 repeater length: 24

33589 2099221 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG spacer
length: 37 repeater length: 24

33590 2099283 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTAT spacer
length: 38 repeater length: 24

33591 2099346 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT spacer length:
36 repeater length: 24

33592 2099407 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACT spacer
length: 39 repeater length: 24

33593 2099471 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT spacer
length: 40 repeater length: 24

33594 2099536 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACTCTGGGTAAGCCCACAATACGCA spacer
length: 39 repeater length: 24

33595 2099600 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAA spacer
length: 37 repeater length: 24

33596 2099662 GATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24

33597 2099724 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAAT spacer
length: 37 repeater length: 24

33598 2099786 GATAATCTCTTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGG

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33600

33601 crispr 3

33602 2076123 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25

33603 2076189 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25

33604 2076253 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25

33605 2076315 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25

33606 2076378 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25

33607 2076443 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25

33608 2076503 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

33609	2076567	CTTTCAATTCCTTTTAGGATTAATC	TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG	spacer
	length:	38	repeater length:	25
33610	2076631	CTTTCAATTCCTTTTAGGATTAATC	AAAATGTTTAATATTGGTGGAGTAGTTGATTCGATAATA	spacer
	length:	40	repeater length:	25
33611	2076697	CTTTCAATTCCTTTTAGGATTAATC	AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA	spacer
	length:	38	repeater length:	25
33612	2076761	CTTTCAATTCCTTTTAGGATTAATC	GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT	spacer
	length:	38	repeater length:	25
33613	2076825	CTTTCAATTCCTTTTAGGATTAATC	CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA	spacer
	length:	36	repeater length:	25
33614	2076887	CTTTCAATTCCTTTTAGGATTAATC	CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA	spacer
	length:	36	repeater length:	25
33615	2076949	CTTTCAATTCCTTTTAGGATTAATC	CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG	spacer
	length:	39	repeater length:	25
33616	2077014	CTTTCAATTCCTTTTAGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC	spacer
	length:	37	repeater length:	25
33617	2077077	CTTTCAATTCCTTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA	spacer
	length:	39	repeater length:	25
33618	2077142	CTTTCAATTCCTTTTAGGATTAATC	GAGTGAGACCATGATCATTAACACTGATATTACGGTAA	spacer
	length:	38	repeater length:	25
33619	2077206	CTTTCAATTCCTTTTAGGATTAATC	AACAAAACCTTCACCAGTGATGGAACATTTGAATGTA	spacer
	length:	36	repeater length:	25
33620	2077268	CTTTCAATTCCTTTTAGGATTAATC	AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC	spacer
	length:	39	repeater length:	25
33621	2077333	CTTTCAATTCCTTTTAGGATTAATC	ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA	spacer
	length:	41	repeater length:	25
33622	2077400	CTTTCAATTCCTTTTAGGATTAATC	GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG	spacer
	length:	37	repeater length:	25
33623	2077463	CTTTCAATTCCTTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATC	spacer length:
	length:	35	repeater length:	25
33624	2077524	CTTTCAATTCCTTTTAGGATTAATC	CATGGAAACGGGAGGAGGTGAGACAATGAAGGTTA	spacer
	length:	36	repeater length:	25
33625	2077586	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC	spacer
	length:	37	repeater length:	25
33626	2077649	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA	spacer
	length:	39	repeater length:	25
33627	2077714	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAA	spacer length:
	length:	34	repeater length:	25
33628	2077774	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA	spacer
	length:	39	repeater length:	25
33629	2077839	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC	spacer
	length:	39	repeater length:	25
33630	2077904	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT	spacer
	length:	40	repeater length:	25
33631	2077970	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT	spacer
	length:	38	repeater length:	25
33632	2078034	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA	spacer
	length:	37	repeater length:	25
33633	2078097	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACAACTGAAAAAATTA	spacer
	length:	39	repeater length:	25
33634	2078162	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAAACTTATAGCGACGAAG	spacer
	length:	37	repeater length:	25
33635	2078225	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA	spacer length:
	length:	35	repeater length:	25
33636	2078286	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC	spacer
	length:	36	repeater length:	25
33637	2078348	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC	spacer
	length:	43	repeater length:	25
33638	2078417	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT	spacer
	length:	37	repeater length:	25
33639	2078480	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC	spacer length:
	length:	35	repeater length:	25
33640	2078541	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT	spacer length:
	length:	35	repeater length:	25
33641	2078602	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT	spacer
	length:	38	repeater length:	25
33642	2078666	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC	spacer
	length:	40	repeater length:	25
33643	2078732	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTA	spacer length:
	length:	33	repeater length:	25
33644	2078791	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA	spacer

length: 38 repeater length: 25
33645 2078855 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
length: 39 repeater length: 25
33646 2078920 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
length: 39 repeater length: 25
33647 2078985 CTTTCAATTCCTTTTAGGATTAATC GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA
33648
33649
33650 crispr 4
33651 2054144 GATTAATCCCAAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCTGGCA spacer
length: 36 repeater length: 25
33652 2054206 GATTAATCCCAAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC spacer
length: 37 repeater length: 25
33653 2054269 GATTAATCCCAAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT spacer
length: 38 repeater length: 25
33654 2054333 GATTAATCCCAAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAAT spacer
length: 40 repeater length: 25
33655 2054399 GATTAATCCCAAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG spacer
length: 39 repeater length: 25
33656 2054464 GATTAATCCCAAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT spacer
length: 37 repeater length: 25
33657 2054527 GATTAATCCCAAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG spacer
length: 38 repeater length: 25
33658 2054591 GATTAATCCCAAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC spacer
length: 40 repeater length: 25
33659 2054657 GATTAATCCCAAAAAGGAATTGAAAG CAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT spacer
length: 39 repeater length: 25
33660 2054722 GATTAATCCCAAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA spacer
length: 38 repeater length: 25
33661 2054786 GATTAATCCCAAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACGTGCTGTTTGGCTCATTTGTTG spacer
length: 40 repeater length: 25
33662 2054852 GATTAATCCCAAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACA spacer
length: 37 repeater length: 25
33663 2054915 GATTAATCCCAAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
length: 37 repeater length: 25
33664 2054978 GATTAATCCCAAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT spacer
length: 39 repeater length: 25
33665 2055043 GATTAATCCCAAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
length: 38 repeater length: 25
33666 2055107 GATTAATCCCAAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
length: 43 repeater length: 25
33667 2055176 GATTAATCCCAAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC spacer
length: 36 repeater length: 25
33668 2055238 GATTAATCCCAAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
length: 38 repeater length: 25
33669 2055302 GATTAATCCCAAAAAGGAATTGAAAG GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC spacer length:
35 repeater length: 25
33670 2055363 GATTAATCCCAAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAA spacer
length: 41 repeater length: 25
33671 2055430 GATTAATCCCAAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25
33672 2055493 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTGCTAACAATA spacer
length: 37 repeater length: 25
33673 2055556 GATTAATCCCAAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAA spacer
length: 36 repeater length: 25
33674 2055618 GATTAATCCCAAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25
33675 2055678 GATTAATCCCAAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25
33676 2055739 GATTAATCCCAAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer
length: 37 repeater length: 25
33677 2055802 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length:
35 repeater length: 25
33678 2055863 GATTAATCCCAAAAAGGAATTGAAAG ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer
length: 38 repeater length: 25
33679 2055927 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer
length: 36 repeater length: 25
33680 2055989 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTATGTTACCACAATGCACCA spacer
length: 37 repeater length: 25
33681 2056052 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGA spacer
length: 38 repeater length: 25

33682 2056116 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer
length: 36 repeater length: 25

33683 2056178 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer
length: 41 repeater length: 25

33684 2056245 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTCTGGCAACCTCATTATTACGTGGGGGTGC spacer
length: 38 repeater length: 25

33685 2056309 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25

33686 2056371 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer
length: 38 repeater length: 25

33687 2056435 GATTAATCCCAAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer
length: 41 repeater length: 25

33688 2056502 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25

33689 2056567 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25

33690 2056628 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTT spacer
length: 38 repeater length: 25

33691 2056692 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25

33692 2056753 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25

33693 2056817 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25

33694 2056883 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25

33695 2056949 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTCAGCCCT spacer length:
35 repeater length: 25

33696 2057010 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25

33697 2057071 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25

33698 2057135 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25

33699 2057194 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25

33700 2057257 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25

33701 2057322 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25

33702 2057387 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25

33703 2057452 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25

33704 2057516 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25

33705 2057581 GATTAATCCCAAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25

33706 2057645 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25

33707 2057710 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25

33708 2057773 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25

33709 2057837 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25

33710 2057899 GATTAATCCCAAAAAGGAATTGAAAG TTTTTATTTAAGAACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25

33711 2057959 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25

33712 2058021 GATTAATCCCAAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25

33713 2058084 GATTAATCCCAAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25

33714 2058148 GATTAATCCCAAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCTTTTGTAAAGACATTCTC spacer
length: 39 repeater length: 25

33715 2058213 GATTAATCCCAAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25

33716 2058278 GATTAATCCCAAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25

33717 2058342 GATTAATCCCAAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGT spacer

length: 41 repeater length: 25
33718 2058409 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25
33719 2058472 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25
33720 2058533 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25
33721 2058595 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25
33722 2058656 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25
33723 2058720 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGT spacer
length: 37 repeater length: 25
33724 2058783 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25
33725 2058846 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25
33726 2058909 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25
33727 2058972 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATT spacer
length: 39 repeater length: 25
33728 2059037 GATTAATCCCAAAAGGAATTGAAAG
AAAAACTTTTCACATTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25
33729 2059168 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25
33730 2059232 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25
33731 2059294 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25
33732 2059357 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25
33733 2059423 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25
33734 2059488 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25
33735 2059550 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25
33736 2059611 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25
33737 2059672 GATTAATCCCAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAGCGACAGACGGTCTGA spacer
length: 37 repeater length: 25
33738 2059735 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25
33739 2059797 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25
33740 2059862 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTAT spacer
length: 37 repeater length: 25
33741 2059925 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25
33742 2059990 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25
33743 2060054 GATTAATCCCAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGA spacer
length: 39 repeater length: 25
33744 2060119 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
33745 2060183 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
33746 2060248 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25
33747 2060312 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
33748 2060376 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTT spacer
length: 37 repeater length: 25
33749 2060439 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
33750 2060503 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACCTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
33751 2060569 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25
33752 2060632 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:

35 repeater length: 25

33753 2060693 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer length: 38 repeater length: 25

33754 2060757 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGTCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer length: 38 repeater length: 25

33755 2060821 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length: 35 repeater length: 25

33756 2060882 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer length: 38 repeater length: 25

33757 2060946 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAAACTGACCCGTATATCCGAATTTA spacer length: 36 repeater length: 25

33758 2061008 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer length: 38 repeater length: 25

33759 2061072 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer length: 36 repeater length: 25

33760 2061134 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer length: 38 repeater length: 25

33761 2061198 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length: 35 repeater length: 25

33762 2061259 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer length: 37 repeater length: 25

33763 2061322 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACTTTTGCATACGACATAATT spacer length: 39 repeater length: 25

33764 2061387 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer length: 38 repeater length: 25

33765 2061451 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer length: 36 repeater length: 25

33766 2061513 GATTAATCCCAAAAAGGAATTGAAAG GGTATTCACTAGTAAATTCATGCTATAGTCAATTTCTTA

33767

33768

33769 crispr 5

33770 1993535 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAAC spacer length: 55 repeater length: 28

33771 1993619 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28

33772 1993745 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA

33773

33774

33775 crispr 6

33776 2355620 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39

33777 2355746 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39

33778 2355851 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT

33779

33780

33781 GCA_003852115.1_ASM385211v1_genomic.fna(findCrispr):

33782 START REPEAT
SPACER

33783 crispr 1

33784 2125971 ATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGGC spacer length: 38 repeater length: 23

33785 2126033 ATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTGG spacer length: 40 repeater length: 23

33786 2126097 ATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCACGGCACAACGGAGGCATGCAAATTATT spacer length: 42 repeater length: 23

33787 2126163 ATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTTCTTTATCCTCTAGACCGCTGTAGT spacer length: 40 repeater length: 23

33788 2126227 ATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTCA spacer length: 38 repeater length: 23

33789 2126289 ATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATATT spacer length: 39 repeater length: 23

33790 2126352 ATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAAG spacer length: 39 repeater length: 23

33791	2126415	ATAATCTCTTATAGAATTGAAAG	AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGCT	spacer
		length: 39	repeater length: 23	
33792	2126478	ATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTCT	spacer
		length: 39	repeater length: 23	
33793	2126541	ATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTAA	spacer
		length: 40	repeater length: 23	
33794	2126605	ATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGAG	spacer
		length: 39	repeater length: 23	
33795	2126668	ATAATCTCTTATAGAATTGAAAG	ACCACGAGCACGACCTCAAATATAACACCGCCAAAAATC	spacer
		length: 39	repeater length: 23	
33796	2126731	ATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGAT	spacer
		length: 40	repeater length: 23	
33797	2126795	ATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTCG	spacer
		length: 38	repeater length: 23	
33798	2126857	ATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTACC	spacer
		length: 40	repeater length: 23	
33799	2126921	ATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAAA	spacer
		length: 40	repeater length: 23	
33800	2126985	ATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATCT	spacer length:
		37	repeater length: 23	
33801	2127046	ATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCTT	spacer
		length: 38	repeater length: 23	
33802	2127108	ATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCAA	spacer
		length: 39	repeater length: 23	
33803	2127171	ATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGAA	spacer
		length: 38	repeater length: 23	
33804	2127233	ATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTAT	spacer
		length: 38	repeater length: 23	
33805	2127295	ATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCAA	spacer
		length: 41	repeater length: 23	
33806	2127360	ATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCCATCTGGTACACCATT	spacer
		length: 39	repeater length: 23	
33807	2127423	ATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAAA	spacer
		length: 39	repeater length: 23	
33808	2127486	ATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAGG	spacer length:
		37	repeater length: 23	
33809	2127547	ATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGTC	spacer
		length: 38	repeater length: 23	
33810	2127609	ATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTTCAGTCTATTCTGGCGGC	spacer
		length: 40	repeater length: 23	
33811	2127673	ATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTAA	spacer
		length: 38	repeater length: 23	
33812	2127735	ATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGAA	spacer length:
		37	repeater length: 23	
33813	2127796	ATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGATA	spacer
		length: 40	repeater length: 23	
33814	2127860	ATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGAT	spacer
		length: 39	repeater length: 23	
33815	2127923	ATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCAACTAA	spacer
		length: 38	repeater length: 23	
33816	2127985	ATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGGA	spacer
		length: 40	repeater length: 23	
33817	2128049	ATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGACT	spacer
		length: 41	repeater length: 23	
33818	2128114	ATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCAG	spacer length:
		37	repeater length: 23	
33819	2128175	ATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCTA	spacer
		length: 39	repeater length: 23	
33820	2128238	ATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCCT	spacer
		length: 40	repeater length: 23	
33821	2128302	ATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGTC	spacer
		length: 38	repeater length: 23	
33822	2128364	ATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAGC	spacer
		length: 38	repeater length: 23	
33823	2128426	ATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAAGTTAGCAAAAATGCAGCAC	spacer
		length: 40	repeater length: 23	
33824	2128490	ATAATCTCTTATAGAATTGAAAG	TCCCTTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
		length: 41	repeater length: 23	
33825	2128555	ATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAACC	spacer
		length: 39	repeater length: 23	
33826	2128618	ATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGTT	spacer

length: 39 repeater length: 23
33827 2128681 ATAATCTCTTATAGAATTGAAAG TCACTCTTTTCAGTCATCATTCTCTTTGCTGAGATTGCTCT spacer
length: 40 repeater length: 23
33828 2128745 ATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAAT spacer length:
35 repeater length: 23
33829 2128804 ATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGGC spacer
length: 39 repeater length: 23
33830 2128867 ATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAAT spacer length:
36 repeater length: 23
33831 2128927 ATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTTG spacer
length: 38 repeater length: 23
33832 2128989 ATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATTA spacer
length: 38 repeater length: 23
33833 2129051 ATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAAG spacer
length: 38 repeater length: 23
33834 2129113 ATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACATG spacer
length: 41 repeater length: 23
33835 2129178 ATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTGC spacer
length: 39 repeater length: 23
33836 2129241 ATAATCTCTTATAGAATTGAAAG AGATTGTTTTTATTAATACCAAGTAGACAATTATATATTTT spacer
length: 40 repeater length: 23
33837 2129305 ATAATCTCTTATAGAATTGAAAG CCAAACATGTCACATGTGCCGATATTGATATTTACAAA spacer
length: 39 repeater length: 23
33838 2129368 ATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGAACGCTAAGAA spacer
length: 38 repeater length: 23
33839 2129430 ATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTCGATTTTGGGAACCCTCAAGCACAGTCTGTG spacer
length: 44 repeater length: 23
33840 2129498 ATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCAT spacer
length: 41 repeater length: 23
33841 2129563 ATAATCTCTTATAGAATTGAAAG CTAAC TTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTGT spacer
length: 38 repeater length: 23
33842 2129625 ATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGTT spacer length:
36 repeater length: 23
33843 2129685 ATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTAT spacer
length: 39 repeater length: 23
33844 2129748 ATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCGCGATCCGTACCGTTCTCTGTACT spacer
length: 38 repeater length: 23
33845 2129810 ATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTCGACAGCTT spacer length:
37 repeater length: 23
33846 2129871 ATAATCTCTTATAGAATTGAAAG TTAATTTATTGTTCATCAAATCTATTTAGATACGCTAGTATTA spacer
length: 42 repeater length: 23
33847 2129937 ATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCAT spacer
length: 39 repeater length: 23
33848 2130000 ATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGGT spacer
length: 40 repeater length: 23
33849 2130064 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATA spacer length:
37 repeater length: 23
33850 2130125 ATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCCC spacer
length: 38 repeater length: 23
33851 2130187 ATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATACA spacer
length: 39 repeater length: 23
33852 2130250 ATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACCT spacer
length: 40 repeater length: 23
33853 2130314 ATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGAG spacer
length: 40 repeater length: 23
33854 2130378 ATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAATA spacer
length: 39 repeater length: 23
33855 2130441 ATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGGT spacer
length: 40 repeater length: 23
33856 2130505 ATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTAG spacer
length: 43 repeater length: 23
33857 2130572 ATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTCC spacer length:
37 repeater length: 23
33858 2130633 ATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTAT spacer
length: 39 repeater length: 23
33859 2130696 ATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTATT spacer
length: 40 repeater length: 23
33860 2130760 ATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAACG spacer
length: 40 repeater length: 23
33861 2130824 ATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGTA spacer
length: 38 repeater length: 23

33862 2130886 ATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGAT spacer
length: 40 repeater length: 23

33863 2130950 ATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATATA spacer
length: 44 repeater length: 23

33864 2131018 ATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACACAAGTATC spacer
length: 38 repeater length: 23

33865 2131080 ATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTATG spacer
length: 41 repeater length: 23

33866 2131145 ATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGAC spacer
length: 40 repeater length: 23

33867 2131209 ATAATCTCTTATAGAATTGAAAG CAATCCCATTTCGTTTTACTCACTTCTAAGAACCTCGC spacer length:
37 repeater length: 23

33868 2131270 ATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTCT spacer
length: 40 repeater length: 23

33869 2131334 ATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCTG spacer
length: 40 repeater length: 23

33870 2131398 ATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGGA spacer
length: 39 repeater length: 23

33871 2131461 ATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGACAAATTGGGTAGC spacer
length: 40 repeater length: 23

33872 2131525 ATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTTT spacer
length: 40 repeater length: 23

33873 2131589 ATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGCG spacer
length: 40 repeater length: 23

33874 2131653 ATAATCTCTTATAGAATTGAAAG TTCAAACCTAGATCTAGAAGATTTCTATCGGCATCTTTACAT spacer
length: 41 repeater length: 23

33875 2131718 ATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTTC spacer
length: 40 repeater length: 23

33876 2131782 ATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCCTGAACTCCTTCTTGAAATGGATTTATT spacer
length: 39 repeater length: 23

33877 2131845 ATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTGT spacer length:
37 repeater length: 23

33878 2131906 ATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTGT spacer
length: 38 repeater length: 23

33879 2131968 ATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACTA spacer
length: 41 repeater length: 23

33880 2132033 ATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAAATAATTCT spacer
length: 39 repeater length: 23

33881 2132096 ATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTGT spacer length:
37 repeater length: 23

33882 2132157 ATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATAT spacer
length: 39 repeater length: 23

33883 2132220 ATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTGC spacer
length: 41 repeater length: 23

33884 2132285 ATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAAT spacer
length: 39 repeater length: 23

33885 2132348 ATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCAT spacer
length: 42 repeater length: 23

33886 2132414 ATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTAA spacer length:
37 repeater length: 23

33887 2132475 ATAATCTCTTATAGAATTGAAAG TGTTCTGTCTGTTACTGTCTGTAAGCACGTCTATTAT spacer length:
37 repeater length: 23

33888 2132536 ATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAGC spacer
length: 38 repeater length: 23

33889 2132598 ATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGAA spacer
length: 39 repeater length: 23

33890 2132661 ATAATCTCTTATAGAATTGAAAG GCACAATTGCGCAACGATTTTCGGTTCGCTTTATACCTT spacer
length: 38 repeater length: 23

33891 2132723 ATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTGG spacer
length: 41 repeater length: 23

33892 2132788 ATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGTG spacer
length: 40 repeater length: 23

33893 2132852 ATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGTGAT spacer
length: 42 repeater length: 23

33894 2132918 ATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCTCAGATTCATTATGGG spacer
length: 39 repeater length: 23

33895 2132981 ATAATCTCTTATAGAATTGAAAG AAATCAAACGGAACTCCCCGGATATTATCATGTCTAAA spacer
length: 39 repeater length: 23

33896 2133044 ATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCAATTCAGTGTA spacer length:
37 repeater length: 23

33897 2133105 ATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCCT spacer

length: 39 repeater length: 23
33898 2133168 ATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAAT spacer
length: 41 repeater length: 23
33899 2133233 ATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCGT spacer
length: 38 repeater length: 23
33900 2133295 ATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTATA spacer
length: 39 repeater length: 23
33901 2133358 ATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAATA spacer length:
37 repeater length: 23
33902 2133419 ATAATCTCTTATAGAATTGAAAG CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAACATA spacer
length: 40 repeater length: 23
33903 2133483 ATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATTT spacer
length: 41 repeater length: 23
33904 2133548 ATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCAA spacer
length: 40 repeater length: 23
33905 2133612 ATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTTCCTAGATCAAC spacer
length: 38 repeater length: 23
33906 2133674 ATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTTACGTAAATGTAAAGGGG spacer
length: 38 repeater length: 23
33907 2133736 ATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAATA spacer
length: 38 repeater length: 23
33908 2133798 ATAATCTCTTATAGAATTGAAAG ATCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTA
33909
33910
33911 crispr 2
33912 2539656 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
33913 2539719 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCTCAAAT spacer
length: 41 repeater length: 24
33914 2539785 GATAATCTACTATAGAATTGAAAG CCCATTTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 24
33915 2539848 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
33916 2539913 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACCTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
33917 2539981 GATAATCTACTATAGAATTGAAAG CCCGCCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
33918 2540045 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTG
33919
33920
33921 crispr 3
33922 2110197 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
33923 2110263 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
33924 2110327 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
33925 2110389 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
33926 2110452 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
33927 2110517 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
33928 2110577 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
33929 2110641 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
33930 2110705 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAAATATTGGTGGAGTAGTTGATTTGATAATA spacer
length: 40 repeater length: 25
33931 2110771 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
33932 2110835 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
33933 2110899 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
33934 2110961 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
33935 2111023 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
33936 2111088 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25

33937	2111151	CTTTCAATTCCTTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA	spacer
		length: 39	repeater length: 25	
33938	2111216	CTTTCAATTCCTTTTAGGATTAATC	GAGTGAGACCATGATCATTAACACTGATATTACGGTAA	spacer
		length: 38	repeater length: 25	
33939	2111280	CTTTCAATTCCTTTTAGGATTAATC	AACAAAACCTTCACCAGTGATGGAACATTTGAATGTA	spacer
		length: 36	repeater length: 25	
33940	2111342	CTTTCAATTCCTTTTAGGATTAATC	AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC	spacer
		length: 39	repeater length: 25	
33941	2111407	CTTTCAATTCCTTTTAGGATTAATC	ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA	spacer
		length: 41	repeater length: 25	
33942	2111474	CTTTCAATTCCTTTTAGGATTAATC	GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG	spacer
		length: 37	repeater length: 25	
33943	2111537	CTTTCAATTCCTTTTAGGATTAATC	CCGTGATCAGATACAGTAACAGTCATGTTTTTATC	spacer length:
		35	repeater length: 25	
33944	2111598	CTTTCAATTCCTTTTAGGATTAATC	CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTA	spacer
		length: 36	repeater length: 25	
33945	2111660	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC	spacer
		length: 37	repeater length: 25	
33946	2111723	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA	spacer
		length: 39	repeater length: 25	
33947	2111788	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAA	spacer length:
		34	repeater length: 25	
33948	2111848	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA	spacer
		length: 39	repeater length: 25	
33949	2111913	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC	spacer
		length: 39	repeater length: 25	
33950	2111978	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCCGCTGCTGCTGCTAATTGGTCT	spacer
		length: 40	repeater length: 25	
33951	2112044	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT	spacer
		length: 38	repeater length: 25	
33952	2112108	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA	spacer
		length: 37	repeater length: 25	
33953	2112171	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAATTA	spacer
		length: 39	repeater length: 25	
33954	2112236	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG	spacer
		length: 37	repeater length: 25	
33955	2112299	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA	spacer length:
		35	repeater length: 25	
33956	2112360	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC	spacer
		length: 36	repeater length: 25	
33957	2112422	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC	spacer
		length: 43	repeater length: 25	
33958	2112491	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT	spacer
		length: 37	repeater length: 25	
33959	2112554	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC	spacer length:
		35	repeater length: 25	
33960	2112615	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT	spacer length:
		35	repeater length: 25	
33961	2112676	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT	spacer
		length: 38	repeater length: 25	
33962	2112740	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC	spacer
		length: 40	repeater length: 25	
33963	2112806	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTA	spacer length:
		33	repeater length: 25	
33964	2112865	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA	spacer
		length: 38	repeater length: 25	
33965	2112929	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA	spacer
		length: 39	repeater length: 25	
33966	2112994	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT	spacer
		length: 39	repeater length: 25	
33967	2113059	CTTTCAATTCCTTTTAGGATTAATC	GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA	
33968				
33969				
33970	crispr 4			
33971	2088282	GATTAATCCCAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTCGGCA	spacer
		length: 36	repeater length: 25	
33972	2088344	GATTAATCCCAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC	spacer
		length: 37	repeater length: 25	
33973	2088407	GATTAATCCCAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT	spacer
		length: 38	repeater length: 25	
33974	2088471	GATTAATCCCAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAAT	spacer

length: 40 repeater length: 25
33975 2088537 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG spacer
length: 39 repeater length: 25
33976 2088602 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT spacer
length: 37 repeater length: 25
33977 2088665 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG spacer
length: 38 repeater length: 25
33978 2088729 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC spacer
length: 40 repeater length: 25
33979 2088795 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT spacer
length: 39 repeater length: 25
33980 2088860 GATTAATCCCAAAAGGAATTGAAAG TTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA spacer
length: 38 repeater length: 25
33981 2088924 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTG spacer
length: 40 repeater length: 25
33982 2088990 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACA spacer
length: 37 repeater length: 25
33983 2089053 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
length: 37 repeater length: 25
33984 2089116 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT spacer
length: 39 repeater length: 25
33985 2089181 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
length: 38 repeater length: 25
33986 2089245 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
length: 43 repeater length: 25
33987 2089314 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC spacer
length: 36 repeater length: 25
33988 2089376 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
length: 38 repeater length: 25
33989 2089440 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTTCGCACTGGTATGTTGTATTTTGC spacer length:
35 repeater length: 25
33990 2089501 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAA spacer
length: 41 repeater length: 25
33991 2089568 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25
33992 2089631 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATA spacer
length: 37 repeater length: 25
33993 2089694 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAA spacer
length: 36 repeater length: 25
33994 2089756 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25
33995 2089816 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25
33996 2089877 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer
length: 37 repeater length: 25
33997 2089940 GATTAATCCCAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length:
35 repeater length: 25
33998 2090001 GATTAATCCCAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer
length: 38 repeater length: 25
33999 2090065 GATTAATCCCAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer
length: 36 repeater length: 25
34000 2090127 GATTAATCCCAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTATGTTACCACAATGCACCA spacer
length: 37 repeater length: 25
34001 2090190 GATTAATCCCAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGA spacer
length: 38 repeater length: 25
34002 2090254 GATTAATCCCAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer
length: 36 repeater length: 25
34003 2090316 GATTAATCCCAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer
length: 41 repeater length: 25
34004 2090383 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGC spacer
length: 38 repeater length: 25
34005 2090447 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25
34006 2090509 GATTAATCCCAAAAGGAATTGAAAG TTGAACCTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer
length: 41 repeater length: 25
34007 2090576 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25
34008 2090641 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25
34009 2090702 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTT spacer
length: 38 repeater length: 25

34010 2090766 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25

34011 2090827 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25

34012 2090891 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGATTATAATTATGGCTAT spacer
length: 40 repeater length: 25

34013 2090957 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25

34014 2091023 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTCAGCCCT spacer length:
35 repeater length: 25

34015 2091084 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25

34016 2091145 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25

34017 2091209 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25

34018 2091268 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25

34019 2091331 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25

34020 2091396 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25

34021 2091461 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25

34022 2091526 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25

34023 2091590 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25

34024 2091655 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25

34025 2091719 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25

34026 2091784 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25

34027 2091847 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25

34028 2091911 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25

34029 2091973 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25

34030 2092033 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25

34031 2092095 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25

34032 2092158 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25

34033 2092222 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTC spacer
length: 39 repeater length: 25

34034 2092287 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25

34035 2092352 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25

34036 2092416 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGT spacer
length: 41 repeater length: 25

34037 2092483 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25

34038 2092546 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25

34039 2092607 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25

34040 2092669 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25

34041 2092730 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

34042 2092794 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGT spacer
length: 37 repeater length: 25

34043 2092857 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25

34044 2092920 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25

34045 2092983 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer

length: 37 repeater length: 25

34046 2093046 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCAGAAATGATT spacer
length: 39 repeater length: 25

34047 2093111 GATTAATCCCAAAAGGAATTGAAAG
AAAACTTTTCACATTTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

34048 2093242 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

34049 2093306 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25

34050 2093368 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25

34051 2093431 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25

34052 2093497 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25

34053 2093562 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25

34054 2093624 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25

34055 2093685 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAAGTCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25

34056 2093746 GATTAATCCCAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTTAAAAGCGACAGACGGTCTGA spacer
length: 37 repeater length: 25

34057 2093809 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25

34058 2093871 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25

34059 2093936 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTAT spacer
length: 37 repeater length: 25

34060 2093999 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25

34061 2094064 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25

34062 2094128 GATTAATCCCAAAAGGAATTGAAAG TTTCTCACTGATCCACGGCTTCAGAGAAGATGTTTGGA spacer
length: 39 repeater length: 25

34063 2094193 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25

34064 2094257 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25

34065 2094322 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25

34066 2094386 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25

34067 2094450 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTT spacer
length: 37 repeater length: 25

34068 2094513 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25

34069 2094577 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACCTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25

34070 2094643 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25

34071 2094706 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25

34072 2094767 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25

34073 2094831 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25

34074 2094895 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25

34075 2094956 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25

34076 2095020 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25

34077 2095082 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25

34078 2095146 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25

34079 2095208 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25

34080 2095272 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:

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35 repeater length: 25
34081 2095333 GATTAATCCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
34082 2095396 GATTAATCCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
34083 2095461 GATTAATCCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
34084 2095525 GATTAATCCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
34085 2095587 GATTAATCCCCAAAAGGAATTGAAAG GGTATTCAAGTAAATTCATGCTATAGTCAATTTCTTA
34086
34087
34088 crispr 5
34089 2027671 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAAC spacer length: 55 repeater
length: 28
34090 2027755 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28
34091 2027881 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
34092
34093
34094 crispr 6
34095 2398142 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39
34096 2398268 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
34097 2398373 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT
34098
34099
34100 GCA_003852135.1_ASM385213v1_genomic.fna(findCrispr):
34101 START REPEAT
SPACER
34102 crispr 1
34103 2499490 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
34104 2499553 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAAT spacer
length: 41 repeater length: 24
34105 2499619 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 38 repeater length: 24
34106 2499682 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
34107 2499747 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCATCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
34108 2499815 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
34109 2499879 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTATT
34110
34111
34112 crispr 2
34113 2092271 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGG spacer
length: 37 repeater length: 24
34114 2092333 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTG spacer
length: 39 repeater length: 24
34115 2092397 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTAT spacer
length: 41 repeater length: 24
34116 2092463 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCTTTCTTTATCCTCTAGACCGCTGTAG spacer
length: 39 repeater length: 24
34117 2092527 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCAACCTGCTCCAGTACTGTTC spacer
length: 37 repeater length: 24
34118 2092589 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATAT spacer
length: 38 repeater length: 24
34119 2092652 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAA spacer
length: 38 repeater length: 24
34120 2092715 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGC spacer
length: 38 repeater length: 24

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34121	2092778	GATAATCTCTTATAGAATTGAAAG	ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTC	spacer
		length: 38	repeater length: 24	
34122	2092841	GATAATCTCTTATAGAATTGAAAG	CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTA	spacer
		length: 39	repeater length: 24	
34123	2092905	GATAATCTCTTATAGAATTGAAAG	CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGA	spacer
		length: 38	repeater length: 24	
34124	2092968	GATAATCTCTTATAGAATTGAAAG	ACCACGAGCACGACCTCAAATATAACACCGCCAAAAAT	spacer
		length: 38	repeater length: 24	
34125	2093031	GATAATCTCTTATAGAATTGAAAG	TATCTTCCAGATGTCTCAGAAACGCCTTAAAATTATTGA	spacer
		length: 39	repeater length: 24	
34126	2093095	GATAATCTCTTATAGAATTGAAAG	TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTC	spacer
		length: 37	repeater length: 24	
34127	2093157	GATAATCTCTTATAGAATTGAAAG	ACACTTAGCGACATAAAAACCGCACTGACTTACAATTAC	spacer
		length: 39	repeater length: 24	
34128	2093221	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAA	spacer
		length: 39	repeater length: 24	
34129	2093285	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATC	spacer length:
		36	repeater length: 24	
34130	2093346	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCT	spacer
		length: 37	repeater length: 24	
34131	2093408	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAAGTAGGCA	spacer
		length: 38	repeater length: 24	
34132	2093471	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGA	spacer
		length: 37	repeater length: 24	
34133	2093533	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTA	spacer
		length: 37	repeater length: 24	
34134	2093595	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCA	spacer
		length: 40	repeater length: 24	
34135	2093660	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCAT	spacer
		length: 38	repeater length: 24	
34136	2093723	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAA	spacer
		length: 38	repeater length: 24	
34137	2093786	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAG	spacer length:
		36	repeater length: 24	
34138	2093847	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGT	spacer
		length: 37	repeater length: 24	
34139	2093909	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTTCAGTCTATTCCTGGCGG	spacer
		length: 39	repeater length: 24	
34140	2093973	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA	spacer
		length: 37	repeater length: 24	
34141	2094035	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGA	spacer length:
		36	repeater length: 24	
34142	2094096	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCCGCCTCGTCAGTTTTCCACAGAT	spacer
		length: 39	repeater length: 24	
34143	2094160	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA	spacer
		length: 38	repeater length: 24	
34144	2094223	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCAACTA	spacer
		length: 37	repeater length: 24	
34145	2094285	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG	spacer
		length: 39	repeater length: 24	
34146	2094349	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC	spacer
		length: 40	repeater length: 24	
34147	2094414	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA	spacer length:
		36	repeater length: 24	
34148	2094475	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCT	spacer
		length: 38	repeater length: 24	
34149	2094538	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC	spacer
		length: 39	repeater length: 24	
34150	2094602	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGCCTATCTGACTTTCTGT	spacer
		length: 37	repeater length: 24	
34151	2094664	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG	spacer
		length: 37	repeater length: 24	
34152	2094726	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCA	spacer
		length: 39	repeater length: 24	
34153	2094790	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCAA	spacer
		length: 40	repeater length: 24	
34154	2094855	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAATTACGTTTATTACTTTTCAGTCAAC	spacer
		length: 38	repeater length: 24	
34155	2094918	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT	spacer
		length: 38	repeater length: 24	
34156	2094981	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTC	spacer

length: 39 repeater length: 24

34157 2095045 GATAATCTCTTATAGAATTGAAAG GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA spacer length: 34 repeater length: 24

34158 2095104 GATAATCTCTTATAGAATTGAAAG GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG spacer length: 38 repeater length: 24

34159 2095167 GATAATCTCTTATAGAATTGAAAG CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAA spacer length: 35 repeater length: 24

34160 2095227 GATAATCTCTTATAGAATTGAAAG AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTT spacer length: 37 repeater length: 24

34161 2095289 GATAATCTCTTATAGAATTGAAAG ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATT spacer length: 37 repeater length: 24

34162 2095351 GATAATCTCTTATAGAATTGAAAG GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAA spacer length: 37 repeater length: 24

34163 2095413 GATAATCTCTTATAGAATTGAAAG AATCACGAAAGCGATACTAAGGGCAATACAATACAAACAT spacer length: 40 repeater length: 24

34164 2095478 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTG spacer length: 38 repeater length: 24

34165 2095541 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTT spacer length: 39 repeater length: 24

34166 2095605 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAA spacer length: 38 repeater length: 24

34167 2095668 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGA spacer length: 37 repeater length: 24

34168 2095730 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGT spacer length: 43 repeater length: 24

34169 2095798 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCA spacer length: 40 repeater length: 24

34170 2095863 GATAATCTCTTATAGAATTGAAAG CTAACCTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTG spacer length: 37 repeater length: 24

34171 2095925 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGT spacer length: 35 repeater length: 24

34172 2095985 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTA spacer length: 38 repeater length: 24

34173 2096048 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTAC spacer length: 37 repeater length: 24

34174 2096110 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCT spacer length: 36 repeater length: 24

34175 2096171 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATT spacer length: 41 repeater length: 24

34176 2096237 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCA spacer length: 38 repeater length: 24

34177 2096300 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGG spacer length: 39 repeater length: 24

34178 2096364 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAAT spacer length: 36 repeater length: 24

34179 2096425 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC spacer length: 37 repeater length: 24

34180 2096487 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATAC spacer length: 38 repeater length: 24

34181 2096550 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTACACC spacer length: 39 repeater length: 24

34182 2096614 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGA spacer length: 39 repeater length: 24

34183 2096678 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAAT spacer length: 38 repeater length: 24

34184 2096741 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGG spacer length: 39 repeater length: 24

34185 2096805 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTA spacer length: 42 repeater length: 24

34186 2096872 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTC spacer length: 36 repeater length: 24

34187 2096933 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTA spacer length: 38 repeater length: 24

34188 2096996 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTAT spacer length: 39 repeater length: 24

34189 2097060 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAAC spacer length: 39 repeater length: 24

34190 2097124 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTGGCCTGAGT spacer length: 37 repeater length: 24

34191 2097186 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGA spacer length: 39 repeater length: 24

34192 2097250 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAAATGCCATAT spacer
length: 43 repeater length: 24

34193 2097318 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACAAGTAT spacer
length: 37 repeater length: 24

34194 2097380 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAAGATCTATCTGACAACACGAACTAT spacer
length: 40 repeater length: 24

34195 2097445 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGA spacer
length: 39 repeater length: 24

34196 2097509 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCG spacer length:
36 repeater length: 24

34197 2097570 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTC spacer
length: 39 repeater length: 24

34198 2097634 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCT spacer
length: 39 repeater length: 24

34199 2097698 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGG spacer
length: 38 repeater length: 24

34200 2097761 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAG spacer
length: 39 repeater length: 24

34201 2097825 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTT spacer
length: 39 repeater length: 24

34202 2097889 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGC spacer
length: 39 repeater length: 24

34203 2097953 GATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACA spacer
length: 40 repeater length: 24

34204 2098018 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTT spacer
length: 39 repeater length: 24

34205 2098082 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCCTGAACTCCTTCTTGAAATGGATTTAT spacer
length: 38 repeater length: 24

34206 2098145 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAAACTG spacer length:
36 repeater length: 24

34207 2098206 GATAATCTCTTATAGAATTGAAAG CTACTACATCATCCTCTACCACGCCAAGCCAACAAC spacer length:
36 repeater length: 24

34208 2098267 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG spacer
length: 37 repeater length: 24

34209 2098329 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT spacer
length: 40 repeater length: 24

34210 2098394 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC spacer
length: 38 repeater length: 24

34211 2098457 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG spacer length:
36 repeater length: 24

34212 2098518 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA spacer
length: 38 repeater length: 24

34213 2098581 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG spacer
length: 40 repeater length: 24

34214 2098646 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA spacer
length: 38 repeater length: 24

34215 2098709 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA spacer
length: 41 repeater length: 24

34216 2098775 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA spacer length:
36 repeater length: 24

34217 2098836 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCTGTTACTGTCTGTAAGCACGTCCTATTA spacer length:
36 repeater length: 24

34218 2098897 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG spacer
length: 37 repeater length: 24

34219 2098959 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGA spacer
length: 38 repeater length: 24

34220 2099022 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCT spacer
length: 37 repeater length: 24

34221 2099084 GATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTG spacer
length: 40 repeater length: 24

34222 2099149 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGT spacer
length: 39 repeater length: 24

34223 2099213 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGA spacer
length: 41 repeater length: 24

34224 2099279 GATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCCTCAGATTCATTATGG spacer
length: 38 repeater length: 24

34225 2099342 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGATATTATCATGTCTAA spacer
length: 38 repeater length: 24

34226 2099405 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCAATTCAGTGT spacer length:
36 repeater length: 24

34227 2099466 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC spacer

length: 38 repeater length: 24
34228 2099529 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA spacer
length: 40 repeater length: 24
34229 2099594 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG spacer
length: 37 repeater length: 24
34230 2099656 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTAT spacer
length: 38 repeater length: 24
34231 2099719 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT spacer length:
36 repeater length: 24
34232 2099780 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACT spacer
length: 39 repeater length: 24
34233 2099844 GATAATCTCTTATAGAATTGAAAG ATTTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT spacer
length: 40 repeater length: 24
34234 2099909 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCA spacer
length: 39 repeater length: 24
34235 2099973 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAA spacer
length: 37 repeater length: 24
34236 2100035 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24
34237 2100097 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAAT spacer
length: 37 repeater length: 24
34238 2100159 GATAATCTCTTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGG
34239
34240
34241 crispr 3
34242 2076496 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
34243 2076562 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
34244 2076626 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
34245 2076688 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
34246 2076751 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTCAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
34247 2076816 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
34248 2076876 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
34249 2076940 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
34250 2077004 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATA spacer
length: 40 repeater length: 25
34251 2077070 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
34252 2077134 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
34253 2077198 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
34254 2077260 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
34255 2077322 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
34256 2077387 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25
34257 2077450 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
34258 2077515 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAA spacer
length: 38 repeater length: 25
34259 2077579 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTCACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
34260 2077641 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
34261 2077706 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
34262 2077773 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
34263 2077836 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
34264 2077897 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25

34265	2077959	CTTTCAATTCCTTTTAGGATTAATC	CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC	spacer
		length: 37	repeater length: 25	
34266	2078022	CTTTCAATTCCTTTTAGGATTAATC	GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA	spacer
		length: 39	repeater length: 25	
34267	2078087	CTTTCAATTCCTTTTAGGATTAATC	AAATTCTGCAAAGGTAACACAATTGACGAGGTAA	spacer length:
		34	repeater length: 25	
34268	2078147	CTTTCAATTCCTTTTAGGATTAATC	CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA	spacer
		length: 39	repeater length: 25	
34269	2078212	CTTTCAATTCCTTTTAGGATTAATC	TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC	spacer
		length: 39	repeater length: 25	
34270	2078277	CTTTCAATTCCTTTTAGGATTAATC	GGCATAACCGCTGCTTTCCGCTGCTGCTGCTAATTGGTCT	spacer
		length: 40	repeater length: 25	
34271	2078343	CTTTCAATTCCTTTTAGGATTAATC	CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT	spacer
		length: 38	repeater length: 25	
34272	2078407	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA	spacer
		length: 37	repeater length: 25	
34273	2078470	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA	spacer
		length: 39	repeater length: 25	
34274	2078535	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG	spacer
		length: 37	repeater length: 25	
34275	2078598	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA	spacer length:
		35	repeater length: 25	
34276	2078659	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC	spacer
		length: 36	repeater length: 25	
34277	2078721	CTTTCAATTCCTTTTAGGATTAATC	GAATTCTATCAAGTATTGCCGAAGTAAATACTTCATATTTATC	spacer
		length: 43	repeater length: 25	
34278	2078790	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT	spacer
		length: 37	repeater length: 25	
34279	2078853	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC	spacer length:
		35	repeater length: 25	
34280	2078914	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT	spacer length:
		35	repeater length: 25	
34281	2078975	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT	spacer
		length: 38	repeater length: 25	
34282	2079039	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC	spacer
		length: 40	repeater length: 25	
34283	2079105	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTA	spacer length:
		33	repeater length: 25	
34284	2079164	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA	spacer
		length: 38	repeater length: 25	
34285	2079228	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA	spacer
		length: 39	repeater length: 25	
34286	2079293	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT	spacer
		length: 39	repeater length: 25	
34287	2079358	CTTTCAATTCCTTTTAGGATTAATC	GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA	
34288				
34289				
34290	crispr 4			
34291	2054517	GATTAATCCCAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTCGGCA	spacer
		length: 36	repeater length: 25	
34292	2054579	GATTAATCCCAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC	spacer
		length: 37	repeater length: 25	
34293	2054642	GATTAATCCCAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT	spacer
		length: 38	repeater length: 25	
34294	2054706	GATTAATCCCAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAAT	spacer
		length: 40	repeater length: 25	
34295	2054772	GATTAATCCCAAAAGGAATTGAAAG	GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG	spacer
		length: 39	repeater length: 25	
34296	2054837	GATTAATCCCAAAAGGAATTGAAAG	TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT	spacer
		length: 37	repeater length: 25	
34297	2054900	GATTAATCCCAAAAGGAATTGAAAG	GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG	spacer
		length: 38	repeater length: 25	
34298	2054964	GATTAATCCCAAAAGGAATTGAAAG	CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC	spacer
		length: 40	repeater length: 25	
34299	2055030	GATTAATCCCAAAAGGAATTGAAAG	CAAAATTCCAAACTTTGGGAATTTCTAGTTTCCAAATTT	spacer
		length: 39	repeater length: 25	
34300	2055095	GATTAATCCCAAAAGGAATTGAAAG	TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA	spacer
		length: 38	repeater length: 25	
34301	2055159	GATTAATCCCAAAAGGAATTGAAAG	CGCTTTCGACTGCGACAACGTGCTTTGGCTCATTTGTTG	spacer
		length: 40	repeater length: 25	
34302	2055225	GATTAATCCCAAAAGGAATTGAAAG	TTATTTCAAATACTATTATCTCCGCCATATGTTTACA	spacer

length: 37 repeater length: 25
34303 2055288 GATTAATCCCAAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
length: 37 repeater length: 25
34304 2055351 GATTAATCCCAAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTTC spacer
length: 39 repeater length: 25
34305 2055416 GATTAATCCCAAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
length: 38 repeater length: 25
34306 2055480 GATTAATCCCAAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
length: 43 repeater length: 25
34307 2055549 GATTAATCCCAAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC spacer
length: 36 repeater length: 25
34308 2055611 GATTAATCCCAAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
length: 38 repeater length: 25
34309 2055675 GATTAATCCCAAAAAGGAATTGAAAG GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC spacer length:
35 repeater length: 25
34310 2055736 GATTAATCCCAAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTTCTAGATGTACAA spacer
length: 41 repeater length: 25
34311 2055803 GATTAATCCCAAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25
34312 2055866 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTCTGTAACAAATA spacer
length: 37 repeater length: 25
34313 2055929 GATTAATCCCAAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAA spacer
length: 36 repeater length: 25
34314 2055991 GATTAATCCCAAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25
34315 2056051 GATTAATCCCAAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25
34316 2056112 GATTAATCCCAAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer
length: 37 repeater length: 25
34317 2056175 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length:
35 repeater length: 25
34318 2056236 GATTAATCCCAAAAAGGAATTGAAAG ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer
length: 38 repeater length: 25
34319 2056300 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer
length: 36 repeater length: 25
34320 2056362 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTTAGTTACCACAATGCACCA spacer
length: 37 repeater length: 25
34321 2056425 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTA spacer
length: 38 repeater length: 25
34322 2056489 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer
length: 36 repeater length: 25
34323 2056551 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer
length: 41 repeater length: 25
34324 2056618 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGC spacer
length: 38 repeater length: 25
34325 2056682 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25
34326 2056744 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer
length: 38 repeater length: 25
34327 2056808 GATTAATCCCAAAAAGGAATTGAAAG TTGAACTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer
length: 41 repeater length: 25
34328 2056875 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25
34329 2056940 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25
34330 2057001 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTTC spacer
length: 38 repeater length: 25
34331 2057065 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25
34332 2057126 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25
34333 2057190 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25
34334 2057256 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25
34335 2057322 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTTCAGCCCT spacer length:
35 repeater length: 25
34336 2057383 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25
34337 2057444 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25

34338 2057508 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25

34339 2057567 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25

34340 2057630 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25

34341 2057695 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25

34342 2057760 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25

34343 2057825 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25

34344 2057889 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25

34345 2057954 GATTAATCCCAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25

34346 2058018 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25

34347 2058083 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25

34348 2058146 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25

34349 2058210 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25

34350 2058272 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25

34351 2058332 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25

34352 2058394 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25

34353 2058457 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25

34354 2058521 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTC spacer
length: 39 repeater length: 25

34355 2058586 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25

34356 2058651 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25

34357 2058715 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGT spacer
length: 41 repeater length: 25

34358 2058782 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25

34359 2058845 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25

34360 2058906 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25

34361 2058968 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25

34362 2059029 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

34363 2059093 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGT spacer
length: 37 repeater length: 25

34364 2059156 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25

34365 2059219 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25

34366 2059282 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25

34367 2059345 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCGAAAATGATT spacer
length: 39 repeater length: 25

34368 2059410 GATTAATCCCAAAAGGAATTGAAAG
AAAAACTTTTCACATTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

34369 2059541 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

34370 2059605 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25

34371 2059667 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTTGTA spacer
length: 37 repeater length: 25

34372 2059730 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25

34373 2059796 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25
34374 2059861 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25
34375 2059923 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25
34376 2059984 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25
34377 2060045 GATTAATCCCAAAAGGAATTGAAAG TTGTTTTCACCTCCTTATTTAAAAGCGACAGACGGTCTGA spacer
length: 37 repeater length: 25
34378 2060108 GATTAATCCCAAAAGGAATTGAAAG TCATTTTACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25
34379 2060170 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25
34380 2060235 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTAT spacer
length: 37 repeater length: 25
34381 2060298 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25
34382 2060363 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25
34383 2060427 GATTAATCCCAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGA spacer
length: 39 repeater length: 25
34384 2060492 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
34385 2060556 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
34386 2060621 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25
34387 2060685 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAATACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
34388 2060749 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAATAAATCGTGGCTTT spacer
length: 37 repeater length: 25
34389 2060812 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
34390 2060876 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAATAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
34391 2060942 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25
34392 2061005 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25
34393 2061066 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25
34394 2061130 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
34395 2061194 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25
34396 2061255 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
34397 2061319 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25
34398 2061381 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
34399 2061445 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
34400 2061507 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
34401 2061571 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
34402 2061632 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
34403 2061695 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
34404 2061760 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
34405 2061824 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
34406 2061886 GATTAATCCCAAAAGGAATTGAAAG GGTATTTCAGTAAATTCATGCTATAGTCAATTTCTTA
34407
34408
34409 crispr 5
34410 1993908 TGATGAGAGAATAACTAAATTGGAGGAG

TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAC spacer length: 55 repeater length: 28

34411 1993992 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28

34412 1994118 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTTACTA

34413

34414

34415 crispr 6

34416 2355993 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39

34417 2356119 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39

34418 2356224 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT

34419

34420

34421 GCA_003852155.1_ASM385215v1_genomic.fna(findCrispr):

34422 START REPEAT
SPACER

34423 crispr 1

34424 2498116 GATAATCTACTATAGAATTGAAAG A TACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24

34425 2498179 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTA ACTCAAAT spacer
length: 41 repeater length: 24

34426 2498245 GATAATCTACTATAGAATTGAAAG CCCATTCTCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 38 repeater length: 24

34427 2498308 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24

34428 2498373 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTC ACTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24

34429 2498441 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24

34430 2498505 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTATT

34431

34432

34433 crispr 2

34434 2090897 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGG spacer
length: 37 repeater length: 24

34435 2090959 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTG spacer
length: 39 repeater length: 24

34436 2091023 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTAT spacer
length: 41 repeater length: 24

34437 2091089 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCTTTCTTTATCCTCTAGACCGCTGTAG spacer
length: 39 repeater length: 24

34438 2091153 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTT spacer
length: 37 repeater length: 24

34439 2091215 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATAT spacer
length: 38 repeater length: 24

34440 2091278 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAA spacer
length: 38 repeater length: 24

34441 2091341 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGC spacer
length: 38 repeater length: 24

34442 2091404 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTC spacer
length: 38 repeater length: 24

34443 2091467 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTA spacer
length: 39 repeater length: 24

34444 2091531 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGA spacer
length: 38 repeater length: 24

34445 2091594 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAAT spacer
length: 38 repeater length: 24

34446 2091657 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAATTTATTGA spacer
length: 39 repeater length: 24

34447 2091721 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTTATCGCTGGTAACGTC spacer
length: 37 repeater length: 24

34448 2091783 GATAATCTCTTATAGAATTGAAAG AACTTAGCGACATAAAAACCGCACTGACTTACAATTAC spacer
length: 39 repeater length: 24

34449	2091847	GATAATCTCTTATAGAATTGAAAG	CGACATACATATATATGCATTTCCGTGGGAGTGTTACAA	spacer
		length: 39	repeater length: 24	
34450	2091911	GATAATCTCTTATAGAATTGAAAG	ACATATGGTTGGTCTCCAACATTTGGTGAGTATATC	spacer length: 36
		length: 36	repeater length: 24	
34451	2091972	GATAATCTCTTATAGAATTGAAAG	GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCT	spacer
		length: 37	repeater length: 24	
34452	2092034	GATAATCTCTTATAGAATTGAAAG	ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCA	spacer
		length: 38	repeater length: 24	
34453	2092097	GATAATCTCTTATAGAATTGAAAG	AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGA	spacer
		length: 37	repeater length: 24	
34454	2092159	GATAATCTCTTATAGAATTGAAAG	CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTA	spacer
		length: 37	repeater length: 24	
34455	2092221	GATAATCTCTTATAGAATTGAAAG	TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCA	spacer
		length: 40	repeater length: 24	
34456	2092286	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTGCCATCTGGTACACCAT	spacer
		length: 38	repeater length: 24	
34457	2092349	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAA	spacer
		length: 38	repeater length: 24	
34458	2092412	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAG	spacer length: 36
		length: 36	repeater length: 24	
34459	2092473	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGT	spacer
		length: 37	repeater length: 24	
34460	2092535	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTCTATTCCTGGCGG	spacer
		length: 39	repeater length: 24	
34461	2092599	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA	spacer
		length: 37	repeater length: 24	
34462	2092661	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGA	spacer length: 36
		length: 36	repeater length: 24	
34463	2092722	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGAT	spacer
		length: 39	repeater length: 24	
34464	2092786	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA	spacer
		length: 38	repeater length: 24	
34465	2092849	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCAACTA	spacer
		length: 37	repeater length: 24	
34466	2092911	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG	spacer
		length: 39	repeater length: 24	
34467	2092975	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC	spacer
		length: 40	repeater length: 24	
34468	2093040	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA	spacer length: 36
		length: 36	repeater length: 24	
34469	2093101	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCT	spacer
		length: 38	repeater length: 24	
34470	2093164	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC	spacer
		length: 39	repeater length: 24	
34471	2093228	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGT	spacer
		length: 37	repeater length: 24	
34472	2093290	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG	spacer
		length: 37	repeater length: 24	
34473	2093352	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCA	spacer
		length: 39	repeater length: 24	
34474	2093416	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCA	spacer
		length: 40	repeater length: 24	
34475	2093481	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAAC	spacer
		length: 38	repeater length: 24	
34476	2093544	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT	spacer
		length: 38	repeater length: 24	
34477	2093607	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATCTCTTTGCTGAGATTGCTC	spacer
		length: 39	repeater length: 24	
34478	2093671	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA	spacer length: 34
		length: 34	repeater length: 24	
34479	2093730	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG	spacer
		length: 38	repeater length: 24	
34480	2093793	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAA	spacer length: 35
		length: 35	repeater length: 24	
34481	2093853	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTT	spacer
		length: 37	repeater length: 24	
34482	2093915	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATT	spacer
		length: 37	repeater length: 24	
34483	2093977	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAA	spacer
		length: 37	repeater length: 24	
34484	2094039	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACAT	spacer

length: 40 repeater length: 24
34485 2094104 GATAATCTCTTATAGAATTGAAAG CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTG spacer
length: 38 repeater length: 24
34486 2094167 GATAATCTCTTATAGAATTGAAAG AGATTGTTTTATTAATACCAAGTAGACAATTATATATTT spacer
length: 39 repeater length: 24
34487 2094231 GATAATCTCTTATAGAATTGAAAG CCAAAACATGTCACATGTGCCGATATTGATATTTACAA spacer
length: 38 repeater length: 24
34488 2094294 GATAATCTCTTATAGAATTGAAAG AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGA spacer
length: 37 repeater length: 24
34489 2094356 GATAATCTCTTATAGAATTGAAAG GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGT spacer
length: 43 repeater length: 24
34490 2094424 GATAATCTCTTATAGAATTGAAAG TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCA spacer
length: 40 repeater length: 24
34491 2094489 GATAATCTCTTATAGAATTGAAAG CTAAC TTGTAAAGTTCTGTTGTAGCTCGTTAAGTTG spacer
length: 37 repeater length: 24
34492 2094551 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGT spacer length:
35 repeater length: 24
34493 2094611 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTA spacer
length: 38 repeater length: 24
34494 2094674 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTAC spacer
length: 37 repeater length: 24
34495 2094736 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAAC TCGACAGCT spacer length:
36 repeater length: 24
34496 2094797 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATT spacer
length: 41 repeater length: 24
34497 2094863 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCA spacer
length: 38 repeater length: 24
34498 2094926 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGG spacer
length: 39 repeater length: 24
34499 2094990 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAAT spacer length:
36 repeater length: 24
34500 2095051 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC spacer
length: 37 repeater length: 24
34501 2095113 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATAC spacer
length: 38 repeater length: 24
34502 2095176 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAAAC TCTTTTTCCAACATTACCC spacer
length: 39 repeater length: 24
34503 2095240 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGA spacer
length: 39 repeater length: 24
34504 2095304 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAAT spacer
length: 38 repeater length: 24
34505 2095367 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAAAC TACTGTTATTGG spacer
length: 39 repeater length: 24
34506 2095431 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTA spacer
length: 42 repeater length: 24
34507 2095498 GATAATCTCTTATAGAATTGAAAG ATACAGATTTCTGTTATCCATATCCTACATGACTTTC spacer length:
36 repeater length: 24
34508 2095559 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTA spacer
length: 38 repeater length: 24
34509 2095622 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTAT spacer
length: 39 repeater length: 24
34510 2095686 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAAC spacer
length: 39 repeater length: 24
34511 2095750 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGT spacer
length: 37 repeater length: 24
34512 2095812 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGA spacer
length: 39 repeater length: 24
34513 2095876 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATAT spacer
length: 43 repeater length: 24
34514 2095944 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTAT spacer
length: 37 repeater length: 24
34515 2096006 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTAT spacer
length: 40 repeater length: 24
34516 2096071 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGA spacer
length: 39 repeater length: 24
34517 2096135 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCG spacer length:
36 repeater length: 24
34518 2096196 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTTC spacer
length: 39 repeater length: 24
34519 2096260 GATAATCTCTTATAGAATTGAAAG ACGATTTTCCGGTGTGAATAATGTAAATTTGCAAGTATCT spacer
length: 39 repeater length: 24

34520	2096324	GATAATCTCTTATAGAATTGAAAG	GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGG	spacer
		length: 38	repeater length: 24	
34521	2096387	GATAATCTCTTATAGAATTGAAAG	TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAG	spacer
		length: 39	repeater length: 24	
34522	2096451	GATAATCTCTTATAGAATTGAAAG	ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTT	spacer
		length: 39	repeater length: 24	
34523	2096515	GATAATCTCTTATAGAATTGAAAG	AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGC	spacer
		length: 39	repeater length: 24	
34524	2096579	GATAATCTCTTATAGAATTGAAAG	TTCAAACCTAGATCTAGAAGATTTCTATCGGCATCTTTACA	spacer
		length: 40	repeater length: 24	
34525	2096644	GATAATCTCTTATAGAATTGAAAG	ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTT	spacer
		length: 39	repeater length: 24	
34526	2096708	GATAATCTCTTATAGAATTGAAAG	GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTAT	spacer
		length: 38	repeater length: 24	
34527	2096771	GATAATCTCTTATAGAATTGAAAG	TTTCGTATAAGGACCAGAACGGCAATACCCAACTG	spacer length:
		36	repeater length: 24	
34528	2096832	GATAATCTCTTATAGAATTGAAAG	CTACTACATCATCCTCTACCACGCCAAGCCAACAAC	spacer length:
		36	repeater length: 24	
34529	2096893	GATAATCTCTTATAGAATTGAAAG	ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG	spacer
		length: 37	repeater length: 24	
34530	2096955	GATAATCTCTTATAGAATTGAAAG	ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT	spacer
		length: 40	repeater length: 24	
34531	2097020	GATAATCTCTTATAGAATTGAAAG	ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC	spacer
		length: 38	repeater length: 24	
34532	2097083	GATAATCTCTTATAGAATTGAAAG	AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG	spacer length:
		36	repeater length: 24	
34533	2097144	GATAATCTCTTATAGAATTGAAAG	ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA	spacer
		length: 38	repeater length: 24	
34534	2097207	GATAATCTCTTATAGAATTGAAAG	ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG	spacer
		length: 40	repeater length: 24	
34535	2097272	GATAATCTCTTATAGAATTGAAAG	AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA	spacer
		length: 38	repeater length: 24	
34536	2097335	GATAATCTCTTATAGAATTGAAAG	TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA	spacer
		length: 41	repeater length: 24	
34537	2097401	GATAATCTCTTATAGAATTGAAAG	CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA	spacer length:
		36	repeater length: 24	
34538	2097462	GATAATCTCTTATAGAATTGAAAG	TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTA	spacer length:
		36	repeater length: 24	
34539	2097523	GATAATCTCTTATAGAATTGAAAG	ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG	spacer
		length: 37	repeater length: 24	
34540	2097585	GATAATCTCTTATAGAATTGAAAG	TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGA	spacer
		length: 38	repeater length: 24	
34541	2097648	GATAATCTCTTATAGAATTGAAAG	GCACAATTCGCCAACGATTTTCGGTTCGCTTTATACCT	spacer
		length: 37	repeater length: 24	
34542	2097710	GATAATCTCTTATAGAATTGAAAG	CAAATTTCCGGCGAAAATTGTACCGAATTTCCGGCATTGCTG	spacer
		length: 40	repeater length: 24	
34543	2097775	GATAATCTCTTATAGAATTGAAAG	AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGT	spacer
		length: 39	repeater length: 24	
34544	2097839	GATAATCTCTTATAGAATTGAAAG	ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGA	spacer
		length: 41	repeater length: 24	
34545	2097905	GATAATCTCTTATAGAATTGAAAG	TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGG	spacer
		length: 38	repeater length: 24	
34546	2097968	GATAATCTCTTATAGAATTGAAAG	AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAA	spacer
		length: 38	repeater length: 24	
34547	2098031	GATAATCTCTTATAGAATTGAAAG	CCTCATCGTAAACATGCAATCTTGCATATTCAGTGT	spacer length:
		36	repeater length: 24	
34548	2098092	GATAATCTCTTATAGAATTGAAAG	GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC	spacer
		length: 38	repeater length: 24	
34549	2098155	GATAATCTCTTATAGAATTGAAAG	ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA	spacer
		length: 40	repeater length: 24	
34550	2098220	GATAATCTCTTATAGAATTGAAAG	GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG	spacer
		length: 37	repeater length: 24	
34551	2098282	GATAATCTCTTATAGAATTGAAAG	ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTAT	spacer
		length: 38	repeater length: 24	
34552	2098345	GATAATCTCTTATAGAATTGAAAG	AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT	spacer length:
		36	repeater length: 24	
34553	2098406	GATAATCTCTTATAGAATTGAAAG	CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAACT	spacer
		length: 39	repeater length: 24	
34554	2098470	GATAATCTCTTATAGAATTGAAAG	ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT	spacer
		length: 40	repeater length: 24	
34555	2098535	GATAATCTCTTATAGAATTGAAAG	TCAAATAAGGAACAACCTCTGGGTAAGCCACAATACGCA	spacer

length: 39 repeater length: 24
34556 2098599 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTTCCTAGATCAA spacer
length: 37 repeater length: 24
34557 2098661 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24
34558 2098723 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAAT spacer
length: 37 repeater length: 24
34559 2098785 GATAATCTCTTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGG
34560
34561
34562 crispr 3
34563 2075122 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
34564 2075188 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
34565 2075252 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
34566 2075314 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
34567 2075377 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAAACTCATTCAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
34568 2075442 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
34569 2075502 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
34570 2075566 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
34571 2075630 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATA spacer
length: 40 repeater length: 25
34572 2075696 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
34573 2075760 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
34574 2075824 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
34575 2075886 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
34576 2075948 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
34577 2076013 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25
34578 2076076 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
34579 2076141 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACTGATATTACGGTAA spacer
length: 38 repeater length: 25
34580 2076205 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
34581 2076267 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
34582 2076332 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
34583 2076399 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
34584 2076462 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
34585 2076523 CTTTCAATTCCTTTTAGGATTAATC CATGGAACGGGAGGAGGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
34586 2076585 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
34587 2076648 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
34588 2076713 CTTTCAATTCCTTTTAGGATTAATC AAATCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
34589 2076773 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
34590 2076838 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC spacer
length: 39 repeater length: 25
34591 2076903 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
34592 2076969 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25

34593	2077033	CTTTCAATTCCTTTTAGGATTAATC	ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
	length:	37	repeater length: 25
34594	2077096	CTTTCAATTCCTTTTAGGATTAATC	AAGTCACTGAATTGTTGGACGAACTAACTGAAAAATTA spacer
	length:	39	repeater length: 25
34595	2077161	CTTTCAATTCCTTTTAGGATTAATC	GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
	length:	37	repeater length: 25
34596	2077224	CTTTCAATTCCTTTTAGGATTAATC	TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
	length:	35	repeater length: 25
34597	2077285	CTTTCAATTCCTTTTAGGATTAATC	TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
	length:	36	repeater length: 25
34598	2077347	CTTTCAATTCCTTTTAGGATTAATC	GAATTCCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
	length:	43	repeater length: 25
34599	2077416	CTTTCAATTCCTTTTAGGATTAATC	TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
	length:	37	repeater length: 25
34600	2077479	CTTTCAATTCCTTTTAGGATTAATC	CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC spacer length:
	length:	35	repeater length: 25
34601	2077540	CTTTCAATTCCTTTTAGGATTAATC	CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
	length:	35	repeater length: 25
34602	2077601	CTTTCAATTCCTTTTAGGATTAATC	AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
	length:	38	repeater length: 25
34603	2077665	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
	length:	40	repeater length: 25
34604	2077731	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
	length:	33	repeater length: 25
34605	2077790	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
	length:	38	repeater length: 25
34606	2077854	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
	length:	39	repeater length: 25
34607	2077919	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
	length:	39	repeater length: 25
34608	2077984	CTTTCAATTCCTTTTAGGATTAATC	GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA
34609			
34610			
34611	crispr 4		
34612	2053143	GATTAATCCCAAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTGCGCA spacer
	length:	36	repeater length: 25
34613	2053205	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC spacer
	length:	37	repeater length: 25
34614	2053268	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT spacer
	length:	38	repeater length: 25
34615	2053332	GATTAATCCCAAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAACCTGCAAACGCAACAATTAAAT spacer
	length:	40	repeater length: 25
34616	2053398	GATTAATCCCAAAAAGGAATTGAAAG	GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG spacer
	length:	39	repeater length: 25
34617	2053463	GATTAATCCCAAAAAGGAATTGAAAG	TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT spacer
	length:	37	repeater length: 25
34618	2053526	GATTAATCCCAAAAAGGAATTGAAAG	GCTGTAATAGTCGCAATAGCAAAAAGCCGAAACAATGAG spacer
	length:	38	repeater length: 25
34619	2053590	GATTAATCCCAAAAAGGAATTGAAAG	CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC spacer
	length:	40	repeater length: 25
34620	2053656	GATTAATCCCAAAAAGGAATTGAAAG	CAAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT spacer
	length:	39	repeater length: 25
34621	2053721	GATTAATCCCAAAAAGGAATTGAAAG	TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA spacer
	length:	38	repeater length: 25
34622	2053785	GATTAATCCCAAAAAGGAATTGAAAG	CGCTTTCGACTGCGACAACGTGCTTTGGCTCATTTGTTG spacer
	length:	40	repeater length: 25
34623	2053851	GATTAATCCCAAAAAGGAATTGAAAG	TTATTTCAAATACTATTATCTCCGCCATATGTTTACA spacer
	length:	37	repeater length: 25
34624	2053914	GATTAATCCCAAAAAGGAATTGAAAG	ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
	length:	37	repeater length: 25
34625	2053977	GATTAATCCCAAAAAGGAATTGAAAG	TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT spacer
	length:	39	repeater length: 25
34626	2054042	GATTAATCCCAAAAAGGAATTGAAAG	CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
	length:	38	repeater length: 25
34627	2054106	GATTAATCCCAAAAAGGAATTGAAAG	AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
	length:	43	repeater length: 25
34628	2054175	GATTAATCCCAAAAAGGAATTGAAAG	GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC spacer
	length:	36	repeater length: 25
34629	2054237	GATTAATCCCAAAAAGGAATTGAAAG	GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
	length:	38	repeater length: 25
34630	2054301	GATTAATCCCAAAAAGGAATTGAAAG	GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC spacer length:

35 repeater length: 25

34631 2054362 GATTAATCCCAAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAA spacer
length: 41 repeater length: 25

34632 2054429 GATTAATCCCAAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25

34633 2054492 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATA spacer
length: 37 repeater length: 25

34634 2054555 GATTAATCCCAAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAATCAACTATGAA spacer
length: 36 repeater length: 25

34635 2054617 GATTAATCCCAAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25

34636 2054677 GATTAATCCCAAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25

34637 2054738 GATTAATCCCAAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer
length: 37 repeater length: 25

34638 2054801 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length:
35 repeater length: 25

34639 2054862 GATTAATCCCAAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer
length: 38 repeater length: 25

34640 2054926 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer
length: 36 repeater length: 25

34641 2054988 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTATAGTTACCACAATGCACCA spacer
length: 37 repeater length: 25

34642 2055051 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTA spacer
length: 38 repeater length: 25

34643 2055115 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer
length: 36 repeater length: 25

34644 2055177 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer
length: 41 repeater length: 25

34645 2055244 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGC spacer
length: 38 repeater length: 25

34646 2055308 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25

34647 2055370 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer
length: 38 repeater length: 25

34648 2055434 GATTAATCCCAAAAAGGAATTGAAAG TTGAACCTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer
length: 41 repeater length: 25

34649 2055501 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25

34650 2055566 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25

34651 2055627 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTT spacer
length: 38 repeater length: 25

34652 2055691 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25

34653 2055752 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25

34654 2055816 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25

34655 2055882 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25

34656 2055948 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAAGACTTTCAGCCCT spacer length:
35 repeater length: 25

34657 2056009 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25

34658 2056070 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25

34659 2056134 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25

34660 2056193 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25

34661 2056256 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25

34662 2056321 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25

34663 2056386 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTGCGCATATCTGTC spacer
length: 39 repeater length: 25

34664 2056451 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAAATGTCTG spacer
length: 38 repeater length: 25

34665 2056515 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25

34666 2056580 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25

34667 2056644 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25

34668 2056709 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25

34669 2056772 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25

34670 2056836 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25

34671 2056898 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25

34672 2056958 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25

34673 2057020 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25

34674 2057083 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25

34675 2057147 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAAGACATTCTC spacer
length: 39 repeater length: 25

34676 2057212 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAGCG spacer
length: 39 repeater length: 25

34677 2057277 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25

34678 2057341 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCGT spacer
length: 41 repeater length: 25

34679 2057408 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25

34680 2057471 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATAACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25

34681 2057532 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25

34682 2057594 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25

34683 2057655 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

34684 2057719 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTCGT spacer
length: 37 repeater length: 25

34685 2057782 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25

34686 2057845 GATTAATCCCAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25

34687 2057908 GATTAATCCCAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25

34688 2057971 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATT spacer
length: 39 repeater length: 25

34689 2058036 GATTAATCCCAAAAGGAATTGAAAG
AAAAACTTTTCACATTTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

34690 2058167 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

34691 2058231 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGCTCATA spacer
length: 36 repeater length: 25

34692 2058293 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25

34693 2058356 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTCATCT spacer
length: 40 repeater length: 25

34694 2058422 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25

34695 2058487 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25

34696 2058549 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25

34697 2058610 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25

34698 2058671 GATTAATCCCAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCGA spacer
length: 37 repeater length: 25

34699 2058734 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25

34700 2058796 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25

34701 2058861 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTAT spacer
length: 37 repeater length: 25
34702 2058924 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25
34703 2058989 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25
34704 2059053 GATTAATCCCAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGGA spacer
length: 39 repeater length: 25
34705 2059118 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
34706 2059182 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
34707 2059247 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25
34708 2059311 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
34709 2059375 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTT spacer
length: 37 repeater length: 25
34710 2059438 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
34711 2059502 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
34712 2059568 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25
34713 2059631 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25
34714 2059692 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25
34715 2059756 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
34716 2059820 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCAATTCCTTTTGGAGTAGG spacer length:
35 repeater length: 25
34717 2059881 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
34718 2059945 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25
34719 2060007 GATTAATCCCAAAAGGAATTGAAAG GTATTATCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
34720 2060071 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
34721 2060133 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
34722 2060197 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
34723 2060258 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
34724 2060321 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
34725 2060386 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
34726 2060450 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
34727 2060512 GATTAATCCCAAAAGGAATTGAAAG GGTATTCAAGTAAATTCATGCTATAGTCAATTTCTTA
34728
34729
34730 crispr 5
34731 1992534 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAC spacer length: 55 repeater
length: 28
34732 1992618 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28
34733 1992744 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
34734
34735
34736 crispr 6
34737 2354619 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39


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34738 2354745 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
34739 2354850 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT
34740
34741
34742 GCA_003852175.1_ASM385217v1_genomic.fna(findCrispr):
34743 START REPEAT
SPACER
34744 crispr 1
34745 2498116 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
34746 2498179 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACCTCAAAT spacer
length: 41 repeater length: 24
34747 2498245 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 38 repeater length: 24
34748 2498308 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
34749 2498373 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
34750 2498441 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTTCAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
34751 2498505 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTATT
34752
34753
34754 crispr 2
34755 2090897 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGG spacer
length: 37 repeater length: 24
34756 2090959 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTTCGCTG spacer
length: 39 repeater length: 24
34757 2091023 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTAT spacer
length: 41 repeater length: 24
34758 2091089 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCCTTCTTTATCCTCTAGACCGCTGTAG spacer
length: 39 repeater length: 24
34759 2091153 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTC spacer
length: 37 repeater length: 24
34760 2091215 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATAT spacer
length: 38 repeater length: 24
34761 2091278 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAA spacer
length: 38 repeater length: 24
34762 2091341 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGC spacer
length: 38 repeater length: 24
34763 2091404 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTC spacer
length: 38 repeater length: 24
34764 2091467 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTA spacer
length: 39 repeater length: 24
34765 2091531 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGA spacer
length: 38 repeater length: 24
34766 2091594 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAAT spacer
length: 38 repeater length: 24
34767 2091657 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAATTATTGA spacer
length: 39 repeater length: 24
34768 2091721 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTTATCGCTGGTAACGTC spacer
length: 37 repeater length: 24
34769 2091783 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTAC spacer
length: 39 repeater length: 24
34770 2091847 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAA spacer
length: 39 repeater length: 24
34771 2091911 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATC spacer length:
36 repeater length: 24
34772 2091972 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCT spacer
length: 37 repeater length: 24
34773 2092034 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCA spacer
length: 38 repeater length: 24
34774 2092097 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGA spacer
length: 37 repeater length: 24
34775 2092159 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTA spacer
length: 37 repeater length: 24
34776 2092221 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAAGCGTATATCCTAGTCA spacer
length: 40 repeater length: 24

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34777	2092286	GATAATCTCTTATAGAATTGAAAG	AACATATTCTGGTACGGGTTCGCCATCTGGTACACCAT	spacer
		length: 38	repeater length: 24	
34778	2092349	GATAATCTCTTATAGAATTGAAAG	TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAA	spacer
		length: 38	repeater length: 24	
34779	2092412	GATAATCTCTTATAGAATTGAAAG	AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAG	spacer length: 36
		repeater length: 24		
34780	2092473	GATAATCTCTTATAGAATTGAAAG	CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGT	spacer
		length: 37	repeater length: 24	
34781	2092535	GATAATCTCTTATAGAATTGAAAG	ACATCGCAAGCGATCTATTGTTCACTCTATTCCTGGCGG	spacer
		length: 39	repeater length: 24	
34782	2092599	GATAATCTCTTATAGAATTGAAAG	AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA	spacer
		length: 37	repeater length: 24	
34783	2092661	GATAATCTCTTATAGAATTGAAAG	CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGA	spacer length: 36
		repeater length: 24		
34784	2092722	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTTCGGCCTCGTCAGTTTTCCACAGAT	spacer
		length: 39	repeater length: 24	
34785	2092786	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA	spacer
		length: 38	repeater length: 24	
34786	2092849	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCCAACTA	spacer
		length: 37	repeater length: 24	
34787	2092911	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG	spacer
		length: 39	repeater length: 24	
34788	2092975	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC	spacer
		length: 40	repeater length: 24	
34789	2093040	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA	spacer length: 36
		repeater length: 24		
34790	2093101	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCT	spacer
		length: 38	repeater length: 24	
34791	2093164	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC	spacer
		length: 39	repeater length: 24	
34792	2093228	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGT	spacer
		length: 37	repeater length: 24	
34793	2093290	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG	spacer
		length: 37	repeater length: 24	
34794	2093352	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCA	spacer
		length: 39	repeater length: 24	
34795	2093416	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCA	spacer
		length: 40	repeater length: 24	
34796	2093481	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAAC	spacer
		length: 38	repeater length: 24	
34797	2093544	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT	spacer
		length: 38	repeater length: 24	
34798	2093607	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTC	spacer
		length: 39	repeater length: 24	
34799	2093671	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA	spacer length: 34
		repeater length: 24		
34800	2093730	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG	spacer
		length: 38	repeater length: 24	
34801	2093793	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAA	spacer length: 35
		repeater length: 24		
34802	2093853	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTT	spacer
		length: 37	repeater length: 24	
34803	2093915	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATT	spacer
		length: 37	repeater length: 24	
34804	2093977	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAA	spacer
		length: 37	repeater length: 24	
34805	2094039	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACAT	spacer
		length: 40	repeater length: 24	
34806	2094104	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTG	spacer
		length: 38	repeater length: 24	
34807	2094167	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTT	spacer
		length: 39	repeater length: 24	
34808	2094231	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAA	spacer
		length: 38	repeater length: 24	
34809	2094294	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGA	spacer
		length: 37	repeater length: 24	
34810	2094356	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTGATTTTGGGAACCCTCAAGCACAGTCTGT	spacer
		length: 43	repeater length: 24	
34811	2094424	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCA	spacer
		length: 40	repeater length: 24	
34812	2094489	GATAATCTCTTATAGAATTGAAAG	CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTG	spacer

length: 37 repeater length: 24

34813 2094551 GATAATCTCTTATAGAATTGAAAG GTTCCAGCTAAGATGTTCTTTCTGCAGTCTTTGT spacer length: 35 repeater length: 24

34814 2094611 GATAATCTCTTATAGAATTGAAAG AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTA spacer length: 38 repeater length: 24

34815 2094674 GATAATCTCTTATAGAATTGAAAG ATCCGTTCTCCGTCCCGATCCGTACCGTTCTCTGTAC spacer length: 37 repeater length: 24

34816 2094736 GATAATCTCTTATAGAATTGAAAG AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCT spacer length: 36 repeater length: 24

34817 2094797 GATAATCTCTTATAGAATTGAAAG TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATT spacer length: 41 repeater length: 24

34818 2094863 GATAATCTCTTATAGAATTGAAAG ATATTTCTTCCAATGGGTTTTCTGTATCACCTTCTTCA spacer length: 38 repeater length: 24

34819 2094926 GATAATCTCTTATAGAATTGAAAG CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGG spacer length: 39 repeater length: 24

34820 2094990 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAAT spacer length: 36 repeater length: 24

34821 2095051 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC spacer length: 37 repeater length: 24

34822 2095113 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATAC spacer length: 38 repeater length: 24

34823 2095176 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACC spacer length: 39 repeater length: 24

34824 2095240 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGA spacer length: 39 repeater length: 24

34825 2095304 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAAT spacer length: 38 repeater length: 24

34826 2095367 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGG spacer length: 39 repeater length: 24

34827 2095431 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTA spacer length: 42 repeater length: 24

34828 2095498 GATAATCTCTTATAGAATTGAAAG ATACAGATTTCTGTTATCCATATCCTACATGACTTTC spacer length: 36 repeater length: 24

34829 2095559 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTA spacer length: 38 repeater length: 24

34830 2095622 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTAT spacer length: 39 repeater length: 24

34831 2095686 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAAC spacer length: 39 repeater length: 24

34832 2095750 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGT spacer length: 37 repeater length: 24

34833 2095812 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGA spacer length: 39 repeater length: 24

34834 2095876 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATAT spacer length: 43 repeater length: 24

34835 2095944 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTAT spacer length: 37 repeater length: 24

34836 2096006 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTAT spacer length: 40 repeater length: 24

34837 2096071 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGA spacer length: 39 repeater length: 24

34838 2096135 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCTGTTTTACTCACTTCTAAGAACCTCG spacer length: 36 repeater length: 24

34839 2096196 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTTC spacer length: 39 repeater length: 24

34840 2096260 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCT spacer length: 39 repeater length: 24

34841 2096324 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTTCCACCATTGAGAGG spacer length: 38 repeater length: 24

34842 2096387 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAG spacer length: 39 repeater length: 24

34843 2096451 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAACTTCCCCGGTTCTCAATCCCGTT spacer length: 39 repeater length: 24

34844 2096515 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGC spacer length: 39 repeater length: 24

34845 2096579 GATAATCTCTTATAGAATTGAAAG TTCAAAC TAGATCTAGAAGATTTCTATCGGCATCTTTACA spacer length: 40 repeater length: 24

34846 2096644 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTT spacer length: 39 repeater length: 24

34847 2096708 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTAT spacer length: 38 repeater length: 24

34848 2096771 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTG spacer length:
36 repeater length: 24

34849 2096832 GATAATCTCTTATAGAATTGAAAG CTACTACATCATCTCTACCACGCCAAGCCAACAAC spacer length:
36 repeater length: 24

34850 2096893 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG spacer
length: 37 repeater length: 24

34851 2096955 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT spacer
length: 40 repeater length: 24

34852 2097020 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC spacer
length: 38 repeater length: 24

34853 2097083 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG spacer length:
36 repeater length: 24

34854 2097144 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA spacer
length: 38 repeater length: 24

34855 2097207 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG spacer
length: 40 repeater length: 24

34856 2097272 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA spacer
length: 38 repeater length: 24

34857 2097335 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA spacer
length: 41 repeater length: 24

34858 2097401 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA spacer length:
36 repeater length: 24

34859 2097462 GATAATCTCTTATAGAATTGAAAG TGTTCGTGTCGTTACTGTCTGTAAGCACGTCCTATTA spacer length:
36 repeater length: 24

34860 2097523 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG spacer
length: 37 repeater length: 24

34861 2097585 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGA spacer
length: 38 repeater length: 24

34862 2097648 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTGCGTTGCTTTTATACCT spacer
length: 37 repeater length: 24

34863 2097710 GATAATCTCTTATAGAATTGAAAG CAAATTTGCGCGAAAATTGTACCGAATTTGCGCATTGCTG spacer
length: 40 repeater length: 24

34864 2097775 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGT spacer
length: 39 repeater length: 24

34865 2097839 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAAATATGTTTTTGA spacer
length: 41 repeater length: 24

34866 2097905 GATAATCTCTTATAGAATTGAAAG TTCTGTTTCGAAGAAAACCCGCTCAGATTCATTATGG spacer
length: 38 repeater length: 24

34867 2097968 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAA spacer
length: 38 repeater length: 24

34868 2098031 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGT spacer length:
36 repeater length: 24

34869 2098092 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC spacer
length: 38 repeater length: 24

34870 2098155 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA spacer
length: 40 repeater length: 24

34871 2098220 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG spacer
length: 37 repeater length: 24

34872 2098282 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTAT spacer
length: 38 repeater length: 24

34873 2098345 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT spacer length:
36 repeater length: 24

34874 2098406 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAAC spacer
length: 39 repeater length: 24

34875 2098470 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT spacer
length: 40 repeater length: 24

34876 2098535 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACCTCTGGGTAAGCCCACAATACGCA spacer
length: 39 repeater length: 24

34877 2098599 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAA spacer
length: 37 repeater length: 24

34878 2098661 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24

34879 2098723 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAAT spacer
length: 37 repeater length: 24

34880 2098785 GATAATCTCTTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGG

34881

34882

34883 crispr 3

34884 2075122 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25

34885 2075188 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer

length: 38 repeater length: 25
34886 2075252 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
34887 2075314 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
34888 2075377 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
34889 2075442 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
34890 2075502 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
34891 2075566 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
34892 2075630 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATA spacer
length: 40 repeater length: 25
34893 2075696 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
34894 2075760 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
34895 2075824 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
34896 2075886 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
34897 2075948 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
34898 2076013 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25
34899 2076076 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
34900 2076141 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACTGATATTACGGTAA spacer
length: 38 repeater length: 25
34901 2076205 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
34902 2076267 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
34903 2076332 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
34904 2076399 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
34905 2076462 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
34906 2076523 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
34907 2076585 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
34908 2076648 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
34909 2076713 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
34910 2076773 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
34911 2076838 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAAC spacer
length: 39 repeater length: 25
34912 2076903 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCCGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
34913 2076969 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25
34914 2077033 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25
34915 2077096 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA spacer
length: 39 repeater length: 25
34916 2077161 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25
34917 2077224 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTACCTCTAAAGAAGA spacer length:
35 repeater length: 25
34918 2077285 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
length: 36 repeater length: 25
34919 2077347 CTTTCAATTCCTTTTAGGATTAATC GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
length: 43 repeater length: 25
34920 2077416 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
length: 37 repeater length: 25

34921 2077479 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC spacer length:
35 repeater length: 25
34922 2077540 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
35 repeater length: 25
34923 2077601 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
length: 38 repeater length: 25
34924 2077665 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
length: 40 repeater length: 25
34925 2077731 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
33 repeater length: 25
34926 2077790 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
length: 38 repeater length: 25
34927 2077854 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
length: 39 repeater length: 25
34928 2077919 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
length: 39 repeater length: 25
34929 2077984 CTTTCAATTCCTTTTAGGATTAATC GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA
34930
34931
34932 crispr 4
34933 2053143 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCA spacer
length: 36 repeater length: 25
34934 2053205 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC spacer
length: 37 repeater length: 25
34935 2053268 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT spacer
length: 38 repeater length: 25
34936 2053332 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTGCAAACGCAACAATTAAAT spacer
length: 40 repeater length: 25
34937 2053398 GATTAATCCCAAAAGGAATTGAAAG GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG spacer
length: 39 repeater length: 25
34938 2053463 GATTAATCCCAAAAGGAATTGAAAG TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT spacer
length: 37 repeater length: 25
34939 2053526 GATTAATCCCAAAAGGAATTGAAAG GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG spacer
length: 38 repeater length: 25
34940 2053590 GATTAATCCCAAAAGGAATTGAAAG CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC spacer
length: 40 repeater length: 25
34941 2053656 GATTAATCCCAAAAGGAATTGAAAG CAAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT spacer
length: 39 repeater length: 25
34942 2053721 GATTAATCCCAAAAGGAATTGAAAG TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA spacer
length: 38 repeater length: 25
34943 2053785 GATTAATCCCAAAAGGAATTGAAAG CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTG spacer
length: 40 repeater length: 25
34944 2053851 GATTAATCCCAAAAGGAATTGAAAG TTATTTCAAATACTATTATCTCCGCCATATGTTTACA spacer
length: 37 repeater length: 25
34945 2053914 GATTAATCCCAAAAGGAATTGAAAG ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT spacer
length: 37 repeater length: 25
34946 2053977 GATTAATCCCAAAAGGAATTGAAAG TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT spacer
length: 39 repeater length: 25
34947 2054042 GATTAATCCCAAAAGGAATTGAAAG CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT spacer
length: 38 repeater length: 25
34948 2054106 GATTAATCCCAAAAGGAATTGAAAG AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT spacer
length: 43 repeater length: 25
34949 2054175 GATTAATCCCAAAAGGAATTGAAAG GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC spacer
length: 36 repeater length: 25
34950 2054237 GATTAATCCCAAAAGGAATTGAAAG GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT spacer
length: 38 repeater length: 25
34951 2054301 GATTAATCCCAAAAGGAATTGAAAG GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC spacer length:
35 repeater length: 25
34952 2054362 GATTAATCCCAAAAGGAATTGAAAG AATTTGTTACACGGCTAGGATTTTTTTTCTAGATGTACAA spacer
length: 41 repeater length: 25
34953 2054429 GATTAATCCCAAAAGGAATTGAAAG TTCTAATCTTTTGCCATTACTGCATCATATCTACTA spacer
length: 37 repeater length: 25
34954 2054492 GATTAATCCCAAAAGGAATTGAAAG ATCTTTACCTTTATATAAATCTTGTTGTAACAAATA spacer
length: 37 repeater length: 25
34955 2054555 GATTAATCCCAAAAGGAATTGAAAG ACAAACGAGGAGTTTATAGTAAAATCAACTATGAA spacer
length: 36 repeater length: 25
34956 2054617 GATTAATCCCAAAAGGAATTGAAAG ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA spacer length:
34 repeater length: 25
34957 2054677 GATTAATCCCAAAAGGAATTGAAAG AACTACAACGAGGTGAGAAACGATGACTAAACGTT spacer length:
35 repeater length: 25
34958 2054738 GATTAATCCCAAAAGGAATTGAAAG TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT spacer

length: 37 repeater length: 25

34959 2054801 GATTAATCCCAAAAAGGAATTGAAAG TAGATATATGGCGATGAATTGCATTAGTCAGTGGT spacer length: 35 repeater length: 25

34960 2054862 GATTAATCCCAAAAAGGAATTGAAAG ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTT spacer length: 38 repeater length: 25

34961 2054926 GATTAATCCCAAAAAGGAATTGAAAG AAAGTTTGTCTCTTCTGTTTCGTTTTGTTGTTCTGAC spacer length: 36 repeater length: 25

34962 2054988 GATTAATCCCAAAAAGGAATTGAAAG CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCA spacer length: 37 repeater length: 25

34963 2055051 GATTAATCCCAAAAAGGAATTGAAAG CCGTATCCAGAAATAATTAACCAATCGCTTGTGTTGTGA spacer length: 38 repeater length: 25

34964 2055115 GATTAATCCCAAAAAGGAATTGAAAG AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA spacer length: 36 repeater length: 25

34965 2055177 GATTAATCCCAAAAAGGAATTGAAAG GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT spacer length: 41 repeater length: 25

34966 2055244 GATTAATCCCAAAAAGGAATTGAAAG GCATCTGTGCGCAACCTCACTTATTCACGTGGGGGTGC spacer length: 38 repeater length: 25

34967 2055308 GATTAATCCCAAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer length: 36 repeater length: 25

34968 2055370 GATTAATCCCAAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer length: 38 repeater length: 25

34969 2055434 GATTAATCCCAAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer length: 41 repeater length: 25

34970 2055501 GATTAATCCCAAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer length: 39 repeater length: 25

34971 2055566 GATTAATCCCAAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length: 35 repeater length: 25

34972 2055627 GATTAATCCCAAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCCTCTTTACGCATTTT spacer length: 38 repeater length: 25

34973 2055691 GATTAATCCCAAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length: 35 repeater length: 25

34974 2055752 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer length: 38 repeater length: 25

34975 2055816 GATTAATCCCAAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer length: 40 repeater length: 25

34976 2055882 GATTAATCCCAAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer length: 40 repeater length: 25

34977 2055948 GATTAATCCCAAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTTCAGCCCT spacer length: 35 repeater length: 25

34978 2056009 GATTAATCCCAAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length: 35 repeater length: 25

34979 2056070 GATTAATCCCAAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer length: 38 repeater length: 25

34980 2056134 GATTAATCCCAAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTC spacer length: 33 repeater length: 25

34981 2056193 GATTAATCCCAAAAAGGAATTGAAAG ATCTTTAATAAAATCCTCCTTTATTCTCATGTAATGCA spacer length: 37 repeater length: 25

34982 2056256 GATTAATCCCAAAAAGGAATTGAAAG TTATATTACGATAAAAAGTGCCAGATATGGTTGTTGGCAT spacer length: 39 repeater length: 25

34983 2056321 GATTAATCCCAAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer length: 39 repeater length: 25

34984 2056386 GATTAATCCCAAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer length: 39 repeater length: 25

34985 2056451 GATTAATCCCAAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer length: 38 repeater length: 25

34986 2056515 GATTAATCCCAAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer length: 39 repeater length: 25

34987 2056580 GATTAATCCCAAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATT spacer length: 38 repeater length: 25

34988 2056644 GATTAATCCCAAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer length: 39 repeater length: 25

34989 2056709 GATTAATCCCAAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer length: 37 repeater length: 25

34990 2056772 GATTAATCCCAAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer length: 38 repeater length: 25

34991 2056836 GATTAATCCCAAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer length: 36 repeater length: 25

34992 2056898 GATTAATCCCAAAAAGGAATTGAAAG TTTTATTTAAGAACTGATGGAAAGATCTATA spacer length: 34 repeater length: 25

34993 2056958 GATTAATCCCAAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer length: 36 repeater length: 25

34994 2057020 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25
34995 2057083 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25
34996 2057147 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTC spacer
length: 39 repeater length: 25
34997 2057212 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer
length: 39 repeater length: 25
34998 2057277 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25
34999 2057341 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCTG spacer
length: 41 repeater length: 25
35000 2057408 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25
35001 2057471 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGCCCCCATACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25
35002 2057532 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25
35003 2057594 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25
35004 2057655 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25
35005 2057719 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTCTG spacer
length: 37 repeater length: 25
35006 2057782 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGAGTTCACGCTT spacer
length: 37 repeater length: 25
35007 2057845 GATTAATCCCAAAAGGAATTGAAAG TCAAATCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25
35008 2057908 GATTAATCCCAAAAGGAATTGAAAG ATCATTTCTGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25
35009 2057971 GATTAATCCCAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCGAAAATGATT spacer
length: 39 repeater length: 25
35010 2058036 GATTAATCCCAAAAGGAATTGAAAG
AAAAACTTTTCACATTTCGACATTAAAAAATAAAATAATTTTGGATTAATCCCAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25
35011 2058167 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25
35012 2058231 GATTAATCCCAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25
35013 2058293 GATTAATCCCAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25
35014 2058356 GATTAATCCCAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25
35015 2058422 GATTAATCCCAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25
35016 2058487 GATTAATCCCAAAAGGAATTGAAAG CAGCAAGAAGTTCACCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25
35017 2058549 GATTAATCCCAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25
35018 2058610 GATTAATCCCAAAAGGAATTGAAAG ACCTTTATTTTAAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25
35019 2058671 GATTAATCCCAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCGA spacer
length: 37 repeater length: 25
35020 2058734 GATTAATCCCAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25
35021 2058796 GATTAATCCCAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25
35022 2058861 GATTAATCCCAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTAT spacer
length: 37 repeater length: 25
35023 2058924 GATTAATCCCAAAAGGAATTGAAAG TCGATTTTTTTCGAGGATGGATTGTTCATGAAAGAGC spacer
length: 39 repeater length: 25
35024 2058989 GATTAATCCCAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25
35025 2059053 GATTAATCCCAAAAGGAATTGAAAG TTTCTCAACTGATCCACGGCTTCAGAGAAGATGTTTGA spacer
length: 39 repeater length: 25
35026 2059118 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
35027 2059182 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
35028 2059247 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25

35029 2059311 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
35030 2059375 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTT spacer
length: 37 repeater length: 25
35031 2059438 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
35032 2059502 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
35033 2059568 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCCGCAACTCT spacer
length: 37 repeater length: 25
35034 2059631 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25
35035 2059692 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25
35036 2059756 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
35037 2059820 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25
35038 2059881 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
35039 2059945 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25
35040 2060007 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
35041 2060071 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
35042 2060133 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
35043 2060197 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
35044 2060258 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
35045 2060321 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
35046 2060386 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
35047 2060450 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
35048 2060512 GATTAATCCCAAAAAGGAATTGAAAG GGTATTTCAGTAAATTCATGCTATAGTCAATTTCTTA
35049
35050
35051 crispr 5
35052 1992534 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAC spacer length: 55 repeater
length: 28
35053 1992618 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 repeater length: 28
35054 1992744 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
35055
35056
35057 crispr 6
35058 2354619 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39
35059 2354745 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
35060 2354850 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT
35061
35062
35063 GCA_003852195.1_ASM385219v1_genomic.fna(findCrispr):
35064 START REPEAT
SPACER
35065 crispr 1
35066 2499490 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
35067 2499553 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAAT spacer

length: 41 repeater length: 24
35068 2499619 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 38 repeater length: 24
35069 2499682 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
35070 2499747 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACCTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
35071 2499815 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
35072 2499879 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTATT
35073
35074
35075 crispr 2
35076 2092271 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGG spacer
length: 37 repeater length: 24
35077 2092333 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTG spacer
length: 39 repeater length: 24
35078 2092397 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTTCCCACGGCACAACGGAGGCATGCAAATTAT spacer
length: 41 repeater length: 24
35079 2092463 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCTTCTTTATCCTCTAGACCGCTGTAG spacer
length: 39 repeater length: 24
35080 2092527 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTC spacer
length: 37 repeater length: 24
35081 2092589 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATAT spacer
length: 38 repeater length: 24
35082 2092652 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAA spacer
length: 38 repeater length: 24
35083 2092715 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGC spacer
length: 38 repeater length: 24
35084 2092778 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTC spacer
length: 38 repeater length: 24
35085 2092841 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTA spacer
length: 39 repeater length: 24
35086 2092905 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGA spacer
length: 38 repeater length: 24
35087 2092968 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAAT spacer
length: 38 repeater length: 24
35088 2093031 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAATTATTGA spacer
length: 39 repeater length: 24
35089 2093095 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTC spacer
length: 37 repeater length: 24
35090 2093157 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAAACCGCACTGACTTACAATTAC spacer
length: 39 repeater length: 24
35091 2093221 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAA spacer
length: 39 repeater length: 24
35092 2093285 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATC spacer length:
36 repeater length: 24
35093 2093346 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCT spacer
length: 37 repeater length: 24
35094 2093408 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCA spacer
length: 38 repeater length: 24
35095 2093471 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGA spacer
length: 37 repeater length: 24
35096 2093533 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTA spacer
length: 37 repeater length: 24
35097 2093595 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCA spacer
length: 40 repeater length: 24
35098 2093660 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTGCCATCTGGTACACCAT spacer
length: 38 repeater length: 24
35099 2093723 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAA spacer
length: 38 repeater length: 24
35100 2093786 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAG spacer length:
36 repeater length: 24
35101 2093847 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGT spacer
length: 37 repeater length: 24
35102 2093909 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTATTCTGGCGG spacer
length: 39 repeater length: 24
35103 2093973 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA spacer
length: 37 repeater length: 24
35104 2094035 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGA spacer length:
36 repeater length: 24

35105	2094096	GATAATCTCTTATAGAATTGAAAG	AATTTGAACATAATTCGGCCTCGTCAGTTTTCCACAGAT	spacer
		length: 39	repeater length: 24	
35106	2094160	GATAATCTCTTATAGAATTGAAAG	TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA	spacer
		length: 38	repeater length: 24	
35107	2094223	GATAATCTCTTATAGAATTGAAAG	TTTACTGACAACGCCATCATACTTACTAGCCCCACTA	spacer
		length: 37	repeater length: 24	
35108	2094285	GATAATCTCTTATAGAATTGAAAG	GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG	spacer
		length: 39	repeater length: 24	
35109	2094349	GATAATCTCTTATAGAATTGAAAG	TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC	spacer
		length: 40	repeater length: 24	
35110	2094414	GATAATCTCTTATAGAATTGAAAG	CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA	spacer length:
		36	repeater length: 24	
35111	2094475	GATAATCTCTTATAGAATTGAAAG	ATCTGAATTTCCCTCAGCTTCCATTGCATAATTTATTCT	spacer
		length: 38	repeater length: 24	
35112	2094538	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC	spacer
		length: 39	repeater length: 24	
35113	2094602	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGT	spacer
		length: 37	repeater length: 24	
35114	2094664	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG	spacer
		length: 37	repeater length: 24	
35115	2094726	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCA	spacer
		length: 39	repeater length: 24	
35116	2094790	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCA	spacer
		length: 40	repeater length: 24	
35117	2094855	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTTCAGTCAAC	spacer
		length: 38	repeater length: 24	
35118	2094918	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT	spacer
		length: 38	repeater length: 24	
35119	2094981	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTC	spacer
		length: 39	repeater length: 24	
35120	2095045	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA	spacer length:
		34	repeater length: 24	
35121	2095104	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG	spacer
		length: 38	repeater length: 24	
35122	2095167	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAA	spacer length:
		35	repeater length: 24	
35123	2095227	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTT	spacer
		length: 37	repeater length: 24	
35124	2095289	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATT	spacer
		length: 37	repeater length: 24	
35125	2095351	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAA	spacer
		length: 37	repeater length: 24	
35126	2095413	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACAT	spacer
		length: 40	repeater length: 24	
35127	2095478	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTG	spacer
		length: 38	repeater length: 24	
35128	2095541	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTT	spacer
		length: 39	repeater length: 24	
35129	2095605	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAA	spacer
		length: 38	repeater length: 24	
35130	2095668	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGA	spacer
		length: 37	repeater length: 24	
35131	2095730	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTTCGATTTTGGGAACCCTCAAGCACAGTCTGT	spacer
		length: 43	repeater length: 24	
35132	2095798	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCA	spacer
		length: 40	repeater length: 24	
35133	2095863	GATAATCTCTTATAGAATTGAAAG	CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTG	spacer
		length: 37	repeater length: 24	
35134	2095925	GATAATCTCTTATAGAATTGAAAG	GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGT	spacer length:
		35	repeater length: 24	
35135	2095985	GATAATCTCTTATAGAATTGAAAG	AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTA	spacer
		length: 38	repeater length: 24	
35136	2096048	GATAATCTCTTATAGAATTGAAAG	ATCCGTTCTCCGTCCCAGTCCGTACCGTTCTCTGTAC	spacer
		length: 37	repeater length: 24	
35137	2096110	GATAATCTCTTATAGAATTGAAAG	AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCT	spacer length:
		36	repeater length: 24	
35138	2096171	GATAATCTCTTATAGAATTGAAAG	TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATT	spacer
		length: 41	repeater length: 24	
35139	2096237	GATAATCTCTTATAGAATTGAAAG	ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCA	spacer
		length: 38	repeater length: 24	
35140	2096300	GATAATCTCTTATAGAATTGAAAG	CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGG	spacer

length: 39 repeater length: 24

35141 2096364 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAAT spacer length: 36 repeater length: 24

35142 2096425 GATAATCTCTTATAGAATTGAAAG ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC spacer length: 37 repeater length: 24

35143 2096487 GATAATCTCTTATAGAATTGAAAG ATACCAACAGCAACAACAACTTATTCTTCGCTCATAC spacer length: 38 repeater length: 24

35144 2096550 GATAATCTCTTATAGAATTGAAAG ACGAACACACCCCCTTAAACTCTTTTTCCAACATTACACC spacer length: 39 repeater length: 24

35145 2096614 GATAATCTCTTATAGAATTGAAAG CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGA spacer length: 39 repeater length: 24

35146 2096678 GATAATCTCTTATAGAATTGAAAG TCTTAGCGAACTTGCAAAATATTCCGACCAAAGCTAAT spacer length: 38 repeater length: 24

35147 2096741 GATAATCTCTTATAGAATTGAAAG TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGG spacer length: 39 repeater length: 24

35148 2096805 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTA spacer length: 42 repeater length: 24

35149 2096872 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTC spacer length: 36 repeater length: 24

35150 2096933 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAATTAGATATCCATTGACTGTTA spacer length: 38 repeater length: 24

35151 2096996 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTAT spacer length: 39 repeater length: 24

35152 2097060 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAAC spacer length: 39 repeater length: 24

35153 2097124 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTGGCCTGAGT spacer length: 37 repeater length: 24

35154 2097186 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGA spacer length: 39 repeater length: 24

35155 2097250 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAATGCCATAT spacer length: 43 repeater length: 24

35156 2097318 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTCACAAGTAT spacer length: 37 repeater length: 24

35157 2097380 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAGATCTATCTGACAACACGAACTAT spacer length: 40 repeater length: 24

35158 2097445 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCCTATAATAGA spacer length: 39 repeater length: 24

35159 2097509 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCG spacer length: 36 repeater length: 24

35160 2097570 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTC spacer length: 39 repeater length: 24

35161 2097634 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCT spacer length: 39 repeater length: 24

35162 2097698 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGG spacer length: 38 repeater length: 24

35163 2097761 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAG spacer length: 39 repeater length: 24

35164 2097825 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGTTCTCAATCCCGTT spacer length: 39 repeater length: 24

35165 2097889 GATAATCTCTTATAGAATTGAAAG AGTTACAATACTTTATTGTCAAAGAAGCAAGGATATGC spacer length: 39 repeater length: 24

35166 2097953 GATAATCTCTTATAGAATTGAAAG TTCAACTAGATCTAGAAGATTTCTATCGGCATCTTTACA spacer length: 40 repeater length: 24

35167 2098018 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTT spacer length: 39 repeater length: 24

35168 2098082 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTAT spacer length: 38 repeater length: 24

35169 2098145 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAACTG spacer length: 36 repeater length: 24

35170 2098206 GATAATCTCTTATAGAATTGAAAG CTA CTACATCATCTCTACCACGCCAAGCCAACAAC spacer length: 36 repeater length: 24

35171 2098267 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG spacer length: 37 repeater length: 24

35172 2098329 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT spacer length: 40 repeater length: 24

35173 2098394 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC spacer length: 38 repeater length: 24

35174 2098457 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG spacer length: 36 repeater length: 24

35175 2098518 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA spacer length: 38 repeater length: 24

35176 2098581 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG spacer
length: 40 repeater length: 24

35177 2098646 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA spacer
length: 38 repeater length: 24

35178 2098709 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA spacer
length: 41 repeater length: 24

35179 2098775 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA spacer length:
36 repeater length: 24

35180 2098836 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCGTAAAGCACGTCCTATTA spacer length:
36 repeater length: 24

35181 2098897 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG spacer
length: 37 repeater length: 24

35182 2098959 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGA spacer
length: 38 repeater length: 24

35183 2099022 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTGCGTTGCTTTATACCT spacer
length: 37 repeater length: 24

35184 2099084 GATAATCTCTTATAGAATTGAAAG CAAATTTGCGCGAAAATTGTACCGAATTTGCGCATTGCTG spacer
length: 40 repeater length: 24

35185 2099149 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTCAGAGT spacer
length: 39 repeater length: 24

35186 2099213 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAGATTACGCATGCAAATATGTTTTTGA spacer
length: 41 repeater length: 24

35187 2099279 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGG spacer
length: 38 repeater length: 24

35188 2099342 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAACTCCCCGGATATTATCATGTCTAA spacer
length: 38 repeater length: 24

35189 2099405 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGT spacer length:
36 repeater length: 24

35190 2099466 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC spacer
length: 38 repeater length: 24

35191 2099529 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA spacer
length: 40 repeater length: 24

35192 2099594 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG spacer
length: 37 repeater length: 24

35193 2099656 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTCAGAAGAATTAT spacer
length: 38 repeater length: 24

35194 2099719 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT spacer length:
36 repeater length: 24

35195 2099780 GATAATCTCTTATAGAATTGAAAG CGTTCCTAGAGCTAAACGATGCATACGCGGTGGTACAACT spacer
length: 39 repeater length: 24

35196 2099844 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT spacer
length: 40 repeater length: 24

35197 2099909 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACTCTGGGTAAGCCCACAATACGCA spacer
length: 39 repeater length: 24

35198 2099973 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAA spacer
length: 37 repeater length: 24

35199 2100035 GATAATCTCTTATAGAATTGAAAG TAACTAGATCCTTATATTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24

35200 2100097 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAAT spacer
length: 37 repeater length: 24

35201 2100159 GATAATCTCTTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGG

35202

35203

35204 crispr 3

35205 2076496 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25

35206 2076562 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25

35207 2076626 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25

35208 2076688 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25

35209 2076751 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25

35210 2076816 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25

35211 2076876 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

35212 2076940 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

35213 2077004 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAAATATTGGTGGAGTAGTTGATTTGATAATA spacer

length: 40 repeater length: 25
35214 2077070 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
35215 2077134 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
35216 2077198 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25
35217 2077260 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25
35218 2077322 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25
35219 2077387 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25
35220 2077450 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer
length: 39 repeater length: 25
35221 2077515 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACTGATATTACGGTAA spacer
length: 38 repeater length: 25
35222 2077579 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
35223 2077641 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
35224 2077706 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
35225 2077773 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
35226 2077836 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
35227 2077897 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
35228 2077959 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
35229 2078022 CTTTCAATTCCTTTTAGGATTAATC GTAGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
35230 2078087 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
35231 2078147 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
35232 2078212 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAC spacer
length: 39 repeater length: 25
35233 2078277 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
35234 2078343 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25
35235 2078407 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25
35236 2078470 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA spacer
length: 39 repeater length: 25
35237 2078535 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25
35238 2078598 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
35 repeater length: 25
35239 2078659 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
length: 36 repeater length: 25
35240 2078721 CTTTCAATTCCTTTTAGGATTAATC GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
length: 43 repeater length: 25
35241 2078790 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
length: 37 repeater length: 25
35242 2078853 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAAATGTTTGAAGC spacer length:
35 repeater length: 25
35243 2078914 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
35 repeater length: 25
35244 2078975 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
length: 38 repeater length: 25
35245 2079039 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
length: 40 repeater length: 25
35246 2079105 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
33 repeater length: 25
35247 2079164 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
length: 38 repeater length: 25
35248 2079228 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
length: 39 repeater length: 25

35249	2079293	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT	spacer
	length:	39	repeater length:	25
35250	2079358	CTTTCAATTCCTTTTAGGATTAATC	GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA	
35251				
35252				
35253	crispr 4			
35254	2054517	GATTAATCCCAAAAGGAATTGAAAG	TCACATCCCTCACAATCCATAATGAAAATGTGCGCA	spacer
	length:	36	repeater length:	25
35255	2054579	GATTAATCCCAAAAGGAATTGAAAG	ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC	spacer
	length:	37	repeater length:	25
35256	2054642	GATTAATCCCAAAAGGAATTGAAAG	ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT	spacer
	length:	38	repeater length:	25
35257	2054706	GATTAATCCCAAAAGGAATTGAAAG	TGTTTCACAAATTTCAAACCTTGCAAACGCAACAATTAAAT	spacer
	length:	40	repeater length:	25
35258	2054772	GATTAATCCCAAAAGGAATTGAAAG	GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG	spacer
	length:	39	repeater length:	25
35259	2054837	GATTAATCCCAAAAGGAATTGAAAG	TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT	spacer
	length:	37	repeater length:	25
35260	2054900	GATTAATCCCAAAAGGAATTGAAAG	GCTGTAATAGTCGCAATAGCAAAGCCGAAACAATGAG	spacer
	length:	38	repeater length:	25
35261	2054964	GATTAATCCCAAAAGGAATTGAAAG	CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC	spacer
	length:	40	repeater length:	25
35262	2055030	GATTAATCCCAAAAGGAATTGAAAG	CAAATTCCAAACCTTTGGGAATTTCTAGTTTCCAAATTT	spacer
	length:	39	repeater length:	25
35263	2055095	GATTAATCCCAAAAGGAATTGAAAG	TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA	spacer
	length:	38	repeater length:	25
35264	2055159	GATTAATCCCAAAAGGAATTGAAAG	CGCTTTCGACTGCGACAACCTGTCGTTTGGCTCATTTGTTG	spacer
	length:	40	repeater length:	25
35265	2055225	GATTAATCCCAAAAGGAATTGAAAG	TTATTTCAAATACTATTATCTCCGCCATATGTTTACA	spacer
	length:	37	repeater length:	25
35266	2055288	GATTAATCCCAAAAGGAATTGAAAG	ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT	spacer
	length:	37	repeater length:	25
35267	2055351	GATTAATCCCAAAAGGAATTGAAAG	TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT	spacer
	length:	39	repeater length:	25
35268	2055416	GATTAATCCCAAAAGGAATTGAAAG	CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAAT	spacer
	length:	38	repeater length:	25
35269	2055480	GATTAATCCCAAAAGGAATTGAAAG	AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT	spacer
	length:	43	repeater length:	25
35270	2055549	GATTAATCCCAAAAGGAATTGAAAG	GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC	spacer
	length:	36	repeater length:	25
35271	2055611	GATTAATCCCAAAAGGAATTGAAAG	GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT	spacer
	length:	38	repeater length:	25
35272	2055675	GATTAATCCCAAAAGGAATTGAAAG	GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC	spacer length:
	length:	35	repeater length:	25
35273	2055736	GATTAATCCCAAAAGGAATTGAAAG	AATTTGTTACACGGCTAGGATTTTTTTTCTTAGATGTACAA	spacer
	length:	41	repeater length:	25
35274	2055803	GATTAATCCCAAAAGGAATTGAAAG	TTCTAATCTTTTGCCCATTAAGTGCATCATATCTACTA	spacer
	length:	37	repeater length:	25
35275	2055866	GATTAATCCCAAAAGGAATTGAAAG	ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATA	spacer
	length:	37	repeater length:	25
35276	2055929	GATTAATCCCAAAAGGAATTGAAAG	ACAAAACGAGGAGTTTATAGTAAAATCAACTATGAA	spacer
	length:	36	repeater length:	25
35277	2055991	GATTAATCCCAAAAGGAATTGAAAG	ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA	spacer length:
	length:	34	repeater length:	25
35278	2056051	GATTAATCCCAAAAGGAATTGAAAG	AACTACAACGAGGTGAGAAACGATGACTAAACGTT	spacer length:
	length:	35	repeater length:	25
35279	2056112	GATTAATCCCAAAAGGAATTGAAAG	TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT	spacer
	length:	37	repeater length:	25
35280	2056175	GATTAATCCCAAAAGGAATTGAAAG	TAGATATATGGCGATGAATTGCATTAGTCAGTGGT	spacer length:
	length:	35	repeater length:	25
35281	2056236	GATTAATCCCAAAAGGAATTGAAAG	ATTTTTAACGCTATGACGCTAGCCCTCATGTTAGCTTT	spacer
	length:	38	repeater length:	25
35282	2056300	GATTAATCCCAAAAGGAATTGAAAG	AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC	spacer
	length:	36	repeater length:	25
35283	2056362	GATTAATCCCAAAAGGAATTGAAAG	CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCA	spacer
	length:	37	repeater length:	25
35284	2056425	GATTAATCCCAAAAGGAATTGAAAG	CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGA	spacer
	length:	38	repeater length:	25
35285	2056489	GATTAATCCCAAAAGGAATTGAAAG	AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA	spacer
	length:	36	repeater length:	25
35286	2056551	GATTAATCCCAAAAGGAATTGAAAG	GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT	spacer

length: 41 repeater length: 25
35287 2056618 GATTAATCCCAAAAGGAATTGAAAG GCATCTGTCGGCAACCTCACTTATTCACGTGGGGGTGC spacer
length: 38 repeater length: 25
35288 2056682 GATTAATCCCAAAAGGAATTGAAAG TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG spacer
length: 36 repeater length: 25
35289 2056744 GATTAATCCCAAAAGGAATTGAAAG TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT spacer
length: 38 repeater length: 25
35290 2056808 GATTAATCCCAAAAGGAATTGAAAG TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTT spacer
length: 41 repeater length: 25
35291 2056875 GATTAATCCCAAAAGGAATTGAAAG TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC spacer
length: 39 repeater length: 25
35292 2056940 GATTAATCCCAAAAGGAATTGAAAG CTCATTATTTTCATCATAAAGATTATCCACTGCAAT spacer length:
35 repeater length: 25
35293 2057001 GATTAATCCCAAAAGGAATTGAAAG ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTT spacer
length: 38 repeater length: 25
35294 2057065 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length:
35 repeater length: 25
35295 2057126 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer
length: 38 repeater length: 25
35296 2057190 GATTAATCCCAAAAGGAATTGAAAG TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer
length: 40 repeater length: 25
35297 2057256 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer
length: 40 repeater length: 25
35298 2057322 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTTCAGCCCT spacer length:
35 repeater length: 25
35299 2057383 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length:
35 repeater length: 25
35300 2057444 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer
length: 38 repeater length: 25
35301 2057508 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length:
33 repeater length: 25
35302 2057567 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer
length: 37 repeater length: 25
35303 2057630 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAAGTGCCAGATATGGTTGTTGGCAT spacer
length: 39 repeater length: 25
35304 2057695 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer
length: 39 repeater length: 25
35305 2057760 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer
length: 39 repeater length: 25
35306 2057825 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer
length: 38 repeater length: 25
35307 2057889 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer
length: 39 repeater length: 25
35308 2057954 GATTAATCCCAAAAGGAATTGAAAG CCCCCTGGAATGCACCATTTCTTGCAAGTAATACATT spacer
length: 38 repeater length: 25
35309 2058018 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer
length: 39 repeater length: 25
35310 2058083 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25
35311 2058146 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25
35312 2058210 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25
35313 2058272 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25
35314 2058332 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25
35315 2058394 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer
length: 37 repeater length: 25
35316 2058457 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer
length: 38 repeater length: 25
35317 2058521 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCCTTTTGTAAGACATTCTC spacer
length: 39 repeater length: 25
35318 2058586 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAGCG spacer
length: 39 repeater length: 25
35319 2058651 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer
length: 38 repeater length: 25
35320 2058715 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTTCGT spacer
length: 41 repeater length: 25
35321 2058782 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer
length: 37 repeater length: 25

35322 2058845 GATTAATCCCAAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTT spacer length:
35 repeater length: 25

35323 2058906 GATTAATCCCAAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer
length: 36 repeater length: 25

35324 2058968 GATTAATCCCAAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length:
35 repeater length: 25

35325 2059029 GATTAATCCCAAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer
length: 38 repeater length: 25

35326 2059093 GATTAATCCCAAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTTCGT spacer
length: 37 repeater length: 25

35327 2059156 GATTAATCCCAAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer
length: 37 repeater length: 25

35328 2059219 GATTAATCCCAAAAAGGAATTGAAAG TCAAACCTCATGAAGCTACTGTAATCCATTTACATAA spacer
length: 37 repeater length: 25

35329 2059282 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25

35330 2059345 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCAAAATGATT spacer
length: 39 repeater length: 25

35331 2059410 GATTAATCCCAAAAAGGAATTGAAAG
AAAAACTTTTCACATTTCGACATTAATAAATAAATAATTTTGGATTAATCCCAAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

35332 2059541 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

35333 2059605 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25

35334 2059667 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25

35335 2059730 GATTAATCCCAAAAAGGAATTGAAAG AGTATAACAATGCAATAAGTGTTGATAGCTTTCATCT spacer
length: 40 repeater length: 25

35336 2059796 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25

35337 2059861 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25

35338 2059923 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25

35339 2059984 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25

35340 2060045 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTAAGCGACAGACGGTCGA spacer
length: 37 repeater length: 25

35341 2060108 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25

35342 2060170 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25

35343 2060235 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAAATTAT spacer
length: 37 repeater length: 25

35344 2060298 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25

35345 2060363 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25

35346 2060427 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCACTGATCCACGGCTTCAGAGAAGATGTTTGGA spacer
length: 39 repeater length: 25

35347 2060492 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25

35348 2060556 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25

35349 2060621 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25

35350 2060685 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACCTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25

35351 2060749 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAATAAATCGTGGCTTT spacer
length: 37 repeater length: 25

35352 2060812 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25

35353 2060876 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25

35354 2060942 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCGCAACTCT spacer
length: 37 repeater length: 25

35355 2061005 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25

35356 2061066 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25

35357 2061130 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGTCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
35358 2061194 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25
35359 2061255 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
35360 2061319 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25
35361 2061381 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
35362 2061445 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
35363 2061507 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
35364 2061571 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
35365 2061632 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
35366 2061695 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGCATACGACATAATT spacer
length: 39 repeater length: 25
35367 2061760 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
35368 2061824 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
35369 2061886 GATTAATCCCAAAAAGGAATTGAAAG GGTATTCAGTAAATTCATGCTATAGTCAATTTCTTA
35370
35371
35372 crispr 5
35373 1993908 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAAC spacer length: 55 repeater
length: 28
35374 1993992 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAAGAGGA spacer length: 97 repeater length: 28
35375 1994118 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
35376
35377
35378 crispr 6
35379 2355993 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39
35380 2356119 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
35381 2356224 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT
35382
35383
35384 GCA_003852215.1_ASM385221v1_genomic.fna(findCrispr):
35385 START REPEAT
SPACER
35386 crispr 1
35387 2499490 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
35388 2499553 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAACTCAAAT spacer
length: 41 repeater length: 24
35389 2499619 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAGCATT spacer
length: 38 repeater length: 24
35390 2499682 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
35391 2499747 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCACCTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
35392 2499815 GATAATCTACTATAGAATTGAAAG CCCGCCAGCCAGACTGTTTTAGCCCAAACCGGCTAAT spacer
length: 39 repeater length: 24
35393 2499879 GATAATCTACTATAGAATTGAAAG TCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTATT
35394
35395
35396 crispr 2
35397 2092271 GATAATCTCTTATAGAATTGAAAG TTTGTAAAACGTATAAGTCCCGTTAATGAGAAGACGG spacer

length: 37 repeater length: 24

35398 2092333 GATAATCTCTTATAGAATTGAAAG CAACGCCAACTCCGCCAATTTCCGCATTGATGTTGCTG spacer
length: 39 repeater length: 24

35399 2092397 GATAATCTCTTATAGAATTGAAAG TCTTCAAACCTCCCACGGCACAACGGAGGCATGCAAATTAT spacer
length: 41 repeater length: 24

35400 2092463 GATAATCTCTTATAGAATTGAAAG GTAGTAAGCTTTCTTCTTTATCCTCTAGACCGCTGTAG spacer
length: 39 repeater length: 24

35401 2092527 GATAATCTCTTATAGAATTGAAAG AGCAATGTACGAACCACCACCTGCTCCAGTACTGTTC spacer
length: 37 repeater length: 24

35402 2092589 GATAATCTCTTATAGAATTGAAAG GAACTGTCGTGGTGTTCATGAAATATGGGTATGCATAT spacer
length: 38 repeater length: 24

35403 2092652 GATAATCTCTTATAGAATTGAAAG GCAAAGAGTCCATTCAATAACACATATTTTGCACATAA spacer
length: 38 repeater length: 24

35404 2092715 GATAATCTCTTATAGAATTGAAAG AACATCCTGATCTATACTACCCCTAATCTTTCTGTAGC spacer
length: 38 repeater length: 24

35405 2092778 GATAATCTCTTATAGAATTGAAAG ATCTGGATGAGCTGTTGATCGGAGACATTAGTTAGGTC spacer
length: 38 repeater length: 24

35406 2092841 GATAATCTCTTATAGAATTGAAAG CAGTCTGACTCTGAGTTGGCGAATTATTATGAGAAGCTA spacer
length: 39 repeater length: 24

35407 2092905 GATAATCTCTTATAGAATTGAAAG CTATCCCCAAATCATTCTGCCTAATGCGTCAGGAGGGA spacer
length: 38 repeater length: 24

35408 2092968 GATAATCTCTTATAGAATTGAAAG ACCACGAGCACGACCTCAAATATAACACCGCCAAAAAT spacer
length: 38 repeater length: 24

35409 2093031 GATAATCTCTTATAGAATTGAAAG TATCTTCCAGATGTCTCAGAAACGCCTTAAATTATTGA spacer
length: 39 repeater length: 24

35410 2093095 GATAATCTCTTATAGAATTGAAAG TACATTAGACCCTAGTTGGTTTATCGCTGGTAACGTC spacer
length: 37 repeater length: 24

35411 2093157 GATAATCTCTTATAGAATTGAAAG ACACTTAGCGACATAAAAACCGCACTGACTTACAATTAC spacer
length: 39 repeater length: 24

35412 2093221 GATAATCTCTTATAGAATTGAAAG CGACATACATATATATGCATTTCCGTGGGAGTGTTACAA spacer
length: 39 repeater length: 24

35413 2093285 GATAATCTCTTATAGAATTGAAAG ACATATGGTTGGTCTCCAACATTTGGTGAGTATATC spacer length:
36 repeater length: 24

35414 2093346 GATAATCTCTTATAGAATTGAAAG GCTTCTACCACGATCGTATAGTATTTCTTCCCTATCT spacer
length: 37 repeater length: 24

35415 2093408 GATAATCTCTTATAGAATTGAAAG ACTTAAGACATTAAACGTTGCCCTAGGTGAACTAGGCA spacer
length: 38 repeater length: 24

35416 2093471 GATAATCTCTTATAGAATTGAAAG AAACAAACGAGGTTAATTATTCTTAACTGTATCGTGA spacer
length: 37 repeater length: 24

35417 2093533 GATAATCTCTTATAGAATTGAAAG CCTGGGACAAGTTCTGTTGTAGCTGAGGAGAAACGTA spacer
length: 37 repeater length: 24

35418 2093595 GATAATCTCTTATAGAATTGAAAG TCTGATAGCACCAGACAAGTAAAGCGTATATCCTAGTCA spacer
length: 40 repeater length: 24

35419 2093660 GATAATCTCTTATAGAATTGAAAG AACATATTCTGGTACGGGTTCGCCATCTGGTACACCAT spacer
length: 38 repeater length: 24

35420 2093723 GATAATCTCTTATAGAATTGAAAG TTTCTGTATTTTCTCGCCCTTCTAGCTAAATTTTCTAA spacer
length: 38 repeater length: 24

35421 2093786 GATAATCTCTTATAGAATTGAAAG AGACGCTGATGATAAGCTGTCTAAGAAGGTTTCAAG spacer length:
36 repeater length: 24

35422 2093847 GATAATCTCTTATAGAATTGAAAG CATCCATTTCCGGTACACGATCCCACGTTTGTGTAGT spacer
length: 37 repeater length: 24

35423 2093909 GATAATCTCTTATAGAATTGAAAG ACATCGCAAGCGATCTATTGTTCACTATTTCCTGGCGG spacer
length: 39 repeater length: 24

35424 2093973 GATAATCTCTTATAGAATTGAAAG AACTCCTTTGCAATCCTATATCTAGTGTAGCCGTCTA spacer
length: 37 repeater length: 24

35425 2094035 GATAATCTCTTATAGAATTGAAAG CTGCTCCATCAAACGGCCCCGTGAGGGATACTATGA spacer length:
36 repeater length: 24

35426 2094096 GATAATCTCTTATAGAATTGAAAG AATTTGAACATAATTTCGGCCTCGTCAGTTTTCCACAGAT spacer
length: 39 repeater length: 24

35427 2094160 GATAATCTCTTATAGAATTGAAAG TCCCTAACTTAGGTTGGGGTAAAGAAATAGAACATAGA spacer
length: 38 repeater length: 24

35428 2094223 GATAATCTCTTATAGAATTGAAAG TTTACTGACAACGCCATCATACTTACTAGCCCCAACTA spacer
length: 37 repeater length: 24

35429 2094285 GATAATCTCTTATAGAATTGAAAG GTCCATTCTCCATTTATCTCAACCTTATCACAAATTTGG spacer
length: 39 repeater length: 24

35430 2094349 GATAATCTCTTATAGAATTGAAAG TCAGTTCTAGAAAGAATTATTAGCATTAGATCTTCTAGAC spacer
length: 40 repeater length: 24

35431 2094414 GATAATCTCTTATAGAATTGAAAG CTCTCTATCCCAGATGGAATTCCAAAGGATCAAGCA spacer length:
36 repeater length: 24

35432 2094475 GATAATCTCTTATAGAATTGAAAG ATCTGAATTTCTCAGCTTCCATTGCATAATTTATTCT spacer
length: 38 repeater length: 24

35433	2094538	GATAATCTCTTATAGAATTGAAAG	TATTTACCTTAATATTATGTATAATAGATAAGAGCTCCC	spacer
	length:	39	repeater length:	24
35434	2094602	GATAATCTCTTATAGAATTGAAAG	ACTATGGACCTACTACAGGGCCTATCTGACTTTCTGT	spacer
	length:	37	repeater length:	24
35435	2094664	GATAATCTCTTATAGAATTGAAAG	TTATTGTCAGAAAAAGAAATTATACTCCGATTAATAG	spacer
	length:	37	repeater length:	24
35436	2094726	GATAATCTCTTATAGAATTGAAAG	GTCAAAATTGCCCAACCGAACGTTAGCAAAATGCAGCA	spacer
	length:	39	repeater length:	24
35437	2094790	GATAATCTCTTATAGAATTGAAAG	TCCCTTTCAGATTTGCAATATGTTAGAGCGAGCTTCGCA	spacer
	length:	40	repeater length:	24
35438	2094855	GATAATCTCTTATAGAATTGAAAG	GCTGAATTGTAAAATTACGTTTATTACTTTCAGTCAAC	spacer
	length:	38	repeater length:	24
35439	2094918	GATAATCTCTTATAGAATTGAAAG	GTTTTATTTATAAACGGCGGGTCTAGATAAAATACAGT	spacer
	length:	38	repeater length:	24
35440	2094981	GATAATCTCTTATAGAATTGAAAG	TCACTCTTTCAGTCATCATTCTCTTTGCTGAGATTGCTC	spacer
	length:	39	repeater length:	24
35441	2095045	GATAATCTCTTATAGAATTGAAAG	GCGAAAACAATAGCAGGCGAAATAGAAGATAAAA	spacer length:
	length:	34	repeater length:	24
35442	2095104	GATAATCTCTTATAGAATTGAAAG	GCAATAGACAATATAAGGAAGAGCTTACCACCTAGAGG	spacer
	length:	38	repeater length:	24
35443	2095167	GATAATCTCTTATAGAATTGAAAG	CCTAGAGGCGTAGCGGGCTCACAAGAAAACATTAA	spacer length:
	length:	35	repeater length:	24
35444	2095227	GATAATCTCTTATAGAATTGAAAG	AATGCCTGAAGCAATAACGCCCAAGTTACATGCTCTT	spacer
	length:	37	repeater length:	24
35445	2095289	GATAATCTCTTATAGAATTGAAAG	ATCCCGCTACGGCAATCCCTACGAATAGATCGGCATT	spacer
	length:	37	repeater length:	24
35446	2095351	GATAATCTCTTATAGAATTGAAAG	GTGTATAAGCACATTAGTAGGATTAGGCACGGTACAA	spacer
	length:	37	repeater length:	24
35447	2095413	GATAATCTCTTATAGAATTGAAAG	AATCACGAAAGCGATACTAAGGGCAATACAATACAAACAT	spacer
	length:	40	repeater length:	24
35448	2095478	GATAATCTCTTATAGAATTGAAAG	CTTATTTTGGTGTCAATAATCTGTATGTTGCCGTATTG	spacer
	length:	38	repeater length:	24
35449	2095541	GATAATCTCTTATAGAATTGAAAG	AGATTGTTTTATTAATACCAAGTAGACAATTATATATTT	spacer
	length:	39	repeater length:	24
35450	2095605	GATAATCTCTTATAGAATTGAAAG	CCAAAACATGTCACATGTGCCGATATTGATATTTACAA	spacer
	length:	38	repeater length:	24
35451	2095668	GATAATCTCTTATAGAATTGAAAG	AAATCTACCGATCAACGGACGAGGGGGAACGCTAAGA	spacer
	length:	37	repeater length:	24
35452	2095730	GATAATCTCTTATAGAATTGAAAG	GGGAGTTCCCATTTCGATTTTGGGAACCTCAAGCACAGTCTGT	spacer
	length:	43	repeater length:	24
35453	2095798	GATAATCTCTTATAGAATTGAAAG	TTGTGCGCCTAGAGTTGCTACGCCTTGTTTCCACACCTCA	spacer
	length:	40	repeater length:	24
35454	2095863	GATAATCTCTTATAGAATTGAAAG	CTAACTTGTTAAAGTTCTGTTGTAGCTCGTTAAGTTG	spacer
	length:	37	repeater length:	24
35455	2095925	GATAATCTCTTATAGAATTGAAAG	GTTCCAGCTAAGATGTTCTTTCCTGCAGTCTTTGT	spacer length:
	length:	35	repeater length:	24
35456	2095985	GATAATCTCTTATAGAATTGAAAG	AACTAAGCCTTCACTAGGTGAGATAAAGAGCATAGCTA	spacer
	length:	38	repeater length:	24
35457	2096048	GATAATCTCTTATAGAATTGAAAG	ATCCGTTCTCCGTCCCCTACCGTACCGTTCTCTGTAC	spacer
	length:	37	repeater length:	24
35458	2096110	GATAATCTCTTATAGAATTGAAAG	AGCATAACTTCATCTTCTTCTACAACCTTCGACAGCT	spacer length:
	length:	36	repeater length:	24
35459	2096171	GATAATCTCTTATAGAATTGAAAG	TTAATTTATTGTCATCAAATCTATTTAGATACGCTAGTATT	spacer
	length:	41	repeater length:	24
35460	2096237	GATAATCTCTTATAGAATTGAAAG	ATATTTCTTCGAATGGGTTTTCTGTATCACCTTCTTCA	spacer
	length:	38	repeater length:	24
35461	2096300	GATAATCTCTTATAGAATTGAAAG	CATTTGTTATCAACTGTCCGGGTCCAGCGCTAGATGCGG	spacer
	length:	39	repeater length:	24
35462	2096364	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAAT	spacer length:
	length:	36	repeater length:	24
35463	2096425	GATAATCTCTTATAGAATTGAAAG	ACGTAGCCTAGACTTGCTATAACTCCGTTGTATTGCC	spacer
	length:	37	repeater length:	24
35464	2096487	GATAATCTCTTATAGAATTGAAAG	ATACCAACAGCAACAACAACTTATTCTTCGCTCATAAC	spacer
	length:	38	repeater length:	24
35465	2096550	GATAATCTCTTATAGAATTGAAAG	ACGAACACACCCCTTAAACTCTTTTTCCAACATTCACC	spacer
	length:	39	repeater length:	24
35466	2096614	GATAATCTCTTATAGAATTGAAAG	CAAAGTCAGAGCTGGACTATCGTAGACATCTATAATAGA	spacer
	length:	39	repeater length:	24
35467	2096678	GATAATCTCTTATAGAATTGAAAG	TCTTAGCGAACTTGCAAAATATCCGACCAAAGCTAAT	spacer
	length:	38	repeater length:	24
35468	2096741	GATAATCTCTTATAGAATTGAAAG	TCAGGTGAGGAAGATGGTCTCCAAACTACTGTTATTGG	spacer

length: 39 repeater length: 24

35469 2096805 GATAATCTCTTATAGAATTGAAAG GAGAGCTACAAACACGCTACCTAATAAAATTTCCAGATTGTA spacer
length: 42 repeater length: 24

35470 2096872 GATAATCTCTTATAGAATTGAAAG ATACAGATTTTCGTTATCCATATCCTACATGACTTTC spacer length:
36 repeater length: 24

35471 2096933 GATAATCTCTTATAGAATTGAAAG ATACATCGATCTTGTAAATTAGATATCCATTGACTGTTA spacer
length: 38 repeater length: 24

35472 2096996 GATAATCTCTTATAGAATTGAAAG ATGGAATAGGCTCTCAACAGCAGTATAATTGGCAAGTAT spacer
length: 39 repeater length: 24

35473 2097060 GATAATCTCTTATAGAATTGAAAG TCTACTCTTATAATTCCGTTACTTATCTTAACAGAGAAC spacer
length: 39 repeater length: 24

35474 2097124 GATAATCTCTTATAGAATTGAAAG CGTTTCTATTGCAAGGTCTGAGATTTTTGGCCTGAGT spacer
length: 37 repeater length: 24

35475 2097186 GATAATCTCTTATAGAATTGAAAG GTATTGAAACGCTTAAGGTCAGCTCTAATTCTGTACGGA spacer
length: 39 repeater length: 24

35476 2097250 GATAATCTCTTATAGAATTGAAAG ATGTTACTAAGTAAGTTTAATAATATATTATAAAAATGCCATAT spacer
length: 43 repeater length: 24

35477 2097318 GATAATCTCTTATAGAATTGAAAG CTAAGCAGTGACTCACAGTTTAGACATTACAAGTAT spacer
length: 37 repeater length: 24

35478 2097380 GATAATCTCTTATAGAATTGAAAG TTCTAAGCGTGTAAAGATCTATCTGACAACACGAACTAT spacer
length: 40 repeater length: 24

35479 2097445 GATAATCTCTTATAGAATTGAAAG TTGAATATTGTACAAAGGAACGTTTAACCTATAATAGA spacer
length: 39 repeater length: 24

35480 2097509 GATAATCTCTTATAGAATTGAAAG CAATCCCATTCGTTTTACTCACTTCTAAGAACCTCG spacer length:
36 repeater length: 24

35481 2097570 GATAATCTCTTATAGAATTGAAAG AGTCTCTGCATCATGATCCCTGCCCCAGCTAAGACGTTC spacer
length: 39 repeater length: 24

35482 2097634 GATAATCTCTTATAGAATTGAAAG ACGATTTTCGGTGTGAATAATGTAAATTTGCAAGTATCT spacer
length: 39 repeater length: 24

35483 2097698 GATAATCTCTTATAGAATTGAAAG GTCTTTATGGCCCTCTGGGTCTTCCACCATTGAGAGG spacer
length: 38 repeater length: 24

35484 2097761 GATAATCTCTTATAGAATTGAAAG TTATCCTCATTCTATCGGTGAGTGGAACAAATTGGGTAG spacer
length: 39 repeater length: 24

35485 2097825 GATAATCTCTTATAGAATTGAAAG ATCGTTATGCTGTAAACTTCCCCGGTTCTCAATCCCGTT spacer
length: 39 repeater length: 24

35486 2097889 GATAATCTCTTATAGAATTGAAAG AGTTAACAATACTTTATTGTCAAAGAAGCAAGGATATGC spacer
length: 39 repeater length: 24

35487 2097953 GATAATCTCTTATAGAATTGAAAG TTCAAAGTAGATCTAGAAGATTTCTATCGGCATCTTTACA spacer
length: 40 repeater length: 24

35488 2098018 GATAATCTCTTATAGAATTGAAAG ACGATATGAAAGTTGCCAGAGCCTTAAACAGAATTGGTT spacer
length: 39 repeater length: 24

35489 2098082 GATAATCTCTTATAGAATTGAAAG GCTTCTTGTCCTGAACTCCTTCTTGAAATGGATTTAT spacer
length: 38 repeater length: 24

35490 2098145 GATAATCTCTTATAGAATTGAAAG TTTCGTATAAGGACCAGAACGGCAATACCCAAACTG spacer length:
36 repeater length: 24

35491 2098206 GATAATCTCTTATAGAATTGAAAG CTACTACATCATCCTCTACCACGCCAAGCCAACAAC spacer length:
36 repeater length: 24

35492 2098267 GATAATCTCTTATAGAATTGAAAG ATCTAGCGTTGTCTCTGCCGTTATATATTTGAAAGTG spacer
length: 37 repeater length: 24

35493 2098329 GATAATCTCTTATAGAATTGAAAG ATCGCTGATCCAGAACCACGTGGCGAATACAGGAAGAACT spacer
length: 40 repeater length: 24

35494 2098394 GATAATCTCTTATAGAATTGAAAG ATCAAAAGTCCGCTATGGTCTAACGGTGTAATAATTC spacer
length: 38 repeater length: 24

35495 2098457 GATAATCTCTTATAGAATTGAAAG AATTGGATCCCTACGGTTGACGGATCACCGAAAGTG spacer length:
36 repeater length: 24

35496 2098518 GATAATCTCTTATAGAATTGAAAG ATCATATTTTGAATTCTCTTATACAGAAATCTTTGATA spacer
length: 38 repeater length: 24

35497 2098581 GATAATCTCTTATAGAATTGAAAG ATAGCTATATATGGAAATGTTCCAGACGCGGAATATGTTG spacer
length: 40 repeater length: 24

35498 2098646 GATAATCTCTTATAGAATTGAAAG AAGCCTACACAGGATAGGATACTCAAATTATATGAAAA spacer
length: 38 repeater length: 24

35499 2098709 GATAATCTCTTATAGAATTGAAAG TTTGCGCATTTACTTTTGTATGAGCTAGGCTATTTACATCA spacer
length: 41 repeater length: 24

35500 2098775 GATAATCTCTTATAGAATTGAAAG CTGAAATATCCTTCAAATTGATTTGCCAATAAATTA spacer length:
36 repeater length: 24

35501 2098836 GATAATCTCTTATAGAATTGAAAG TGTTCTGTCGTTACTGTCTGTAAGCACGTCCTATTA spacer length:
36 repeater length: 24

35502 2098897 GATAATCTCTTATAGAATTGAAAG ACAGTGCAGAAGTCTAATCCAAATTATTCTACTTTAG spacer
length: 37 repeater length: 24

35503 2098959 GATAATCTCTTATAGAATTGAAAG TCCTTGGAGATGTTGATGTTTTATACGGTATTATGTGA spacer
length: 38 repeater length: 24

35504 2099022 GATAATCTCTTATAGAATTGAAAG GCACAATTCGCCAACGATTTTCGGTTCGCTTTTATACCT spacer
length: 37 repeater length: 24

35505 2099084 GATAATCTCTTATAGAATTGAAAG CAAATTTTCGGCGAAAATTGTACCGAATTTTCGGCATTGCTG spacer
length: 40 repeater length: 24

35506 2099149 GATAATCTCTTATAGAATTGAAAG AAGATCATGGTATTGATATTCAAAAACATTATTTCAGAGT spacer
length: 39 repeater length: 24

35507 2099213 GATAATCTCTTATAGAATTGAAAG ATTAGAAAAGTTTAAAGATTACGCATGCAAATATGTTTTTGA spacer
length: 41 repeater length: 24

35508 2099279 GATAATCTCTTATAGAATTGAAAG TTCTGTTTTCGAAGAAAACCCGCCTCAGATTCATTATGG spacer
length: 38 repeater length: 24

35509 2099342 GATAATCTCTTATAGAATTGAAAG AAATCAAACGGAAACTCCCCGGATATTATCATGTCTAA spacer
length: 38 repeater length: 24

35510 2099405 GATAATCTCTTATAGAATTGAAAG CCTCATCGTAAACATGCAATCTTGCATATTCAGTGT spacer length:
36 repeater length: 24

35511 2099466 GATAATCTCTTATAGAATTGAAAG GCGATATATGTTATAAGAGGAGAAGGGACTTTACCCCC spacer
length: 38 repeater length: 24

35512 2099529 GATAATCTCTTATAGAATTGAAAG ATATACATCGCCGGTTTTATAGCAACTGCACAGCAACAAA spacer
length: 40 repeater length: 24

35513 2099594 GATAATCTCTTATAGAATTGAAAG GAAGTTGCAAAAATTGCCAATGTTTTTTTCAAACGCG spacer
length: 37 repeater length: 24

35514 2099656 GATAATCTCTTATAGAATTGAAAG ATTTATGATGAAAATAGGAAATTTTTTCAGAAGAATTAT spacer
length: 38 repeater length: 24

35515 2099719 GATAATCTCTTATAGAATTGAAAG AAAAGTTTAAATACCCGAAGCCACAAAGGTAAAAAT spacer length:
36 repeater length: 24

35516 2099780 GATAATCTCTTATAGAATTGAAAG CGTTCTAGAGCTAAACGATGCATACGCGGTGGTACAACT spacer
length: 39 repeater length: 24

35517 2099844 GATAATCTCTTATAGAATTGAAAG ATTCGGGGAAAACCTTATGCATTATAAGAAGAAGAGATATT spacer
length: 40 repeater length: 24

35518 2099909 GATAATCTCTTATAGAATTGAAAG TCAAATAAGGAACAACTCTGGGTAAGCCCACAATACGCA spacer
length: 39 repeater length: 24

35519 2099973 GATAATCTCTTATAGAATTGAAAG CTTAGCGTCTCAACCTGAACCAAACCTCCTAGATCAA spacer
length: 37 repeater length: 24

35520 2100035 GATAATCTCTTATAGAATTGAAAG TAAACTAGATCCTTATATTTACGTAAATGTAAAGGG spacer
length: 37 repeater length: 24

35521 2100097 GATAATCTCTTATAGAATTGAAAG TAAGGAGTAAGCTAGCACTAGCAATAGCGGTTGCAAT spacer
length: 37 repeater length: 24

35522 2100159 GATAATCTCTTATAGAATTGAAAG TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGG

35523

35524

35525 crispr 3

35526 2076496 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25

35527 2076562 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25

35528 2076626 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25

35529 2076688 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25

35530 2076751 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTTCAGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25

35531 2076816 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25

35532 2076876 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

35533 2076940 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25

35534 2077004 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAAATATTGGTGGAGTAGTTGATTTTCGATAATA spacer
length: 40 repeater length: 25

35535 2077070 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25

35536 2077134 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25

35537 2077198 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25

35538 2077260 CTTTCAATTCCTTTTAGGATTAATC CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA spacer
length: 36 repeater length: 25

35539 2077322 CTTTCAATTCCTTTTAGGATTAATC CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG spacer
length: 39 repeater length: 25

35540 2077387 CTTTCAATTCCTTTTAGGATTAATC CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC spacer
length: 37 repeater length: 25

35541 2077450 CTTTCAATTCCTTTTAGGATTAATC CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA spacer

length: 39 repeater length: 25
35542 2077515 CTTTCAATTCCTTTTAGGATTAATC GAGTGAGACCATGATCATTAACACTGATATTACGGTAA spacer
length: 38 repeater length: 25
35543 2077579 CTTTCAATTCCTTTTAGGATTAATC AACAAAACCTTACCAGTGATGGAACATTTGAATGTA spacer
length: 36 repeater length: 25
35544 2077641 CTTTCAATTCCTTTTAGGATTAATC AAACCGCAAGCAATAATGTACTTACGATAAGGGTGATAC spacer
length: 39 repeater length: 25
35545 2077706 CTTTCAATTCCTTTTAGGATTAATC ATATGATTATGAGCGATAAGAATGATGCAATATTAGATATA spacer
length: 41 repeater length: 25
35546 2077773 CTTTCAATTCCTTTTAGGATTAATC GAATATACAGAGAATAGAGAATAGAGAACAGAGAACG spacer
length: 37 repeater length: 25
35547 2077836 CTTTCAATTCCTTTTAGGATTAATC CCGTGATCAGATACAGTAACAGTCATGTTTTTATC spacer length:
35 repeater length: 25
35548 2077897 CTTTCAATTCCTTTTAGGATTAATC CATGGAAACGGGAGGAGGTGAGACAATGAAGGTTA spacer
length: 36 repeater length: 25
35549 2077959 CTTTCAATTCCTTTTAGGATTAATC CACATCTTTAGAGGCGAACTACAGGGGGTACAGCAAC spacer
length: 37 repeater length: 25
35550 2078022 CTTTCAATTCCTTTTAGGATTAATC GTAGTGTGAGTAGTGTAGTAGTAGTGGCCTGAATAAGTA spacer
length: 39 repeater length: 25
35551 2078087 CTTTCAATTCCTTTTAGGATTAATC AAATTCTGCAAAGGTAACACAATTGACGAGGTAA spacer length:
34 repeater length: 25
35552 2078147 CTTTCAATTCCTTTTAGGATTAATC CGGTTACGGGGACGTTTGGACATTTAGCAGCGCATCCCA spacer
length: 39 repeater length: 25
35553 2078212 CTTTCAATTCCTTTTAGGATTAATC TCCCTTCCTCTCTTTCCGCTTTTGCTCGCTTCGTTTAAAC spacer
length: 39 repeater length: 25
35554 2078277 CTTTCAATTCCTTTTAGGATTAATC GGCATAACCGCTGCTTTCGGCTGCTGCTGCTAATTGGTCT spacer
length: 40 repeater length: 25
35555 2078343 CTTTCAATTCCTTTTAGGATTAATC CCTTCAGCAAGTTGAAGATCTTAAGCGTTTCTTCATCT spacer
length: 38 repeater length: 25
35556 2078407 CTTTCAATTCCTTTTAGGATTAATC ACGCTGAACGACGTAAACAAGCTCGCACAGAAGAAAA spacer
length: 37 repeater length: 25
35557 2078470 CTTTCAATTCCTTTTAGGATTAATC AAGTCACTGAATTGTTGGACGAACTAACTGAAAAAATTA spacer
length: 39 repeater length: 25
35558 2078535 CTTTCAATTCCTTTTAGGATTAATC GGCATTAGAATATGGGTAAAACTTATAGCGACGAAG spacer
length: 37 repeater length: 25
35559 2078598 CTTTCAATTCCTTTTAGGATTAATC TGAAGTACTTGTTAATGTTTCACCTCTAAAGAAGA spacer length:
35 repeater length: 25
35560 2078659 CTTTCAATTCCTTTTAGGATTAATC TTTACCACCGCTCAGACTTCTTGAGATGTTTAAAC spacer
length: 36 repeater length: 25
35561 2078721 CTTTCAATTCCTTTTAGGATTAATC GAATTCTATCAAGTATTGCGGAAGTAAATACTTCATATTTATC spacer
length: 43 repeater length: 25
35562 2078790 CTTTCAATTCCTTTTAGGATTAATC TCCACTTGGCATATCTTTGGCTGAAGTTCCTTGGTGT spacer
length: 37 repeater length: 25
35563 2078853 CTTTCAATTCCTTTTAGGATTAATC CTTCAAGTTGATGAAGTTATAAAATGTTTGAAGC spacer length:
35 repeater length: 25
35564 2078914 CTTTCAATTCCTTTTAGGATTAATC CACATTAGCAAGAATCGTGCTAGCTACAGTTGGAT spacer length:
35 repeater length: 25
35565 2078975 CTTTCAATTCCTTTTAGGATTAATC AACTTGGAAGAGTTTAGTGATAAAATCATGGAAATGTT spacer
length: 38 repeater length: 25
35566 2079039 CTTTCAATTCCTTTTAGGATTAATC TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC spacer
length: 40 repeater length: 25
35567 2079105 CTTTCAATTCCTTTTAGGATTAATC GGTAATGGTCTGTATATTGTCTTTAAGTATTTA spacer length:
33 repeater length: 25
35568 2079164 CTTTCAATTCCTTTTAGGATTAATC AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA spacer
length: 38 repeater length: 25
35569 2079228 CTTTCAATTCCTTTTAGGATTAATC CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA spacer
length: 39 repeater length: 25
35570 2079293 CTTTCAATTCCTTTTAGGATTAATC ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT spacer
length: 39 repeater length: 25
35571 2079358 CTTTCAATTCCTTTTAGGATTAATC GGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAA
35572
35573
35574 crispr 4
35575 2054517 GATTAATCCCAAAAGGAATTGAAAG TCACATCCCTCACAATCCATAATGAAAATGTCGGCA spacer
length: 36 repeater length: 25
35576 2054579 GATTAATCCCAAAAGGAATTGAAAG ATTTTAGCAATGCAATAGATCAACAATTGAAAGAAAC spacer
length: 37 repeater length: 25
35577 2054642 GATTAATCCCAAAAGGAATTGAAAG ATTTTCATCTCTTGGATTGAAAATAAATGAATTTTCTT spacer
length: 38 repeater length: 25
35578 2054706 GATTAATCCCAAAAGGAATTGAAAG TGTTTCACAAATTTCAAACCTGCAAACGCAACAATTAAT spacer
length: 40 repeater length: 25

35579	2054772	GATTAATCCCAAAAAGGAATTGAAAG	GTTTTTGGTCAAATATTTGGACAACACTTACAAGAATTG	spacer
		length: 39	repeater length: 25	
35580	2054837	GATTAATCCCAAAAAGGAATTGAAAG	TAGTCAACGACAAAGTGCTTAAAACCCGTGTTATACT	spacer
		length: 37	repeater length: 25	
35581	2054900	GATTAATCCCAAAAAGGAATTGAAAG	GCTGTAATAGTCGCAATAGCAAAAGCCGAAACAATGAG	spacer
		length: 38	repeater length: 25	
35582	2054964	GATTAATCCCAAAAAGGAATTGAAAG	CAATAGAATTTTTCTTAGTTGGCATTGACAAGTATAATTC	spacer
		length: 40	repeater length: 25	
35583	2055030	GATTAATCCCAAAAAGGAATTGAAAG	CAAAATTCCAAACTTTGGGAATTTCTAGTTTCCAAATTT	spacer
		length: 39	repeater length: 25	
35584	2055095	GATTAATCCCAAAAAGGAATTGAAAG	TTTAAACGCCTTGCAATGGTAGAAACATCAGTAGAAGA	spacer
		length: 38	repeater length: 25	
35585	2055159	GATTAATCCCAAAAAGGAATTGAAAG	CGCTTTCGACTGCGACAACGTGCTGTTTGGCTCATTTGTTG	spacer
		length: 40	repeater length: 25	
35586	2055225	GATTAATCCCAAAAAGGAATTGAAAG	TTATTTCAAATACTATTATCTCCGCCATATGTTTACA	spacer
		length: 37	repeater length: 25	
35587	2055288	GATTAATCCCAAAAAGGAATTGAAAG	ATTATCTGCAATTTTAGCAACTGAGAGGGCAATAATT	spacer
		length: 37	repeater length: 25	
35588	2055351	GATTAATCCCAAAAAGGAATTGAAAG	TTTTTTCTTTAAAAGCTCTAGGCAGTTCATTTCTATTTT	spacer
		length: 39	repeater length: 25	
35589	2055416	GATTAATCCCAAAAAGGAATTGAAAG	CATGCCAAATTTGTAATCCCTAGCTTGCTGAACAAAT	spacer
		length: 38	repeater length: 25	
35590	2055480	GATTAATCCCAAAAAGGAATTGAAAG	AGTACTGATAATCTGAAGGTATTGGACTAGAACCCATGAAGTT	spacer
		length: 43	repeater length: 25	
35591	2055549	GATTAATCCCAAAAAGGAATTGAAAG	GCTTTAACTTGGTACGCACTTTACGCCATGATAAAC	spacer
		length: 36	repeater length: 25	
35592	2055611	GATTAATCCCAAAAAGGAATTGAAAG	GAATTTTGTGTTACTGCAACGCCAAGATTTTCAAATGT	spacer
		length: 38	repeater length: 25	
35593	2055675	GATTAATCCCAAAAAGGAATTGAAAG	GTTGAATTTTTGCAACTGGTATGTTGTATTTTTGC	spacer length: 35
		repeater length: 25		
35594	2055736	GATTAATCCCAAAAAGGAATTGAAAG	AATTTGTGTACACGGCTAGGATTTTTTTTCTAGATGTACAA	spacer
		length: 41	repeater length: 25	
35595	2055803	GATTAATCCCAAAAAGGAATTGAAAG	TTCTAATCTTTTGCCATTACTGCATCATATCTACTA	spacer
		length: 37	repeater length: 25	
35596	2055866	GATTAATCCCAAAAAGGAATTGAAAG	ATCTTTACCTTTATATAAATCTTGTTTCGTAACAAATA	spacer
		length: 37	repeater length: 25	
35597	2055929	GATTAATCCCAAAAAGGAATTGAAAG	ACAAAACGAGGAGTTTATAGTAAATCAACTATGAA	spacer
		length: 36	repeater length: 25	
35598	2055991	GATTAATCCCAAAAAGGAATTGAAAG	ATTATTTGAAGAGAGGGTGAGAGAAGCATGAAAA	spacer length: 34
		repeater length: 25		
35599	2056051	GATTAATCCCAAAAAGGAATTGAAAG	AACTACAACGAGGTGAGAAACGATGACTAAACGTT	spacer length: 35
		repeater length: 25		
35600	2056112	GATTAATCCCAAAAAGGAATTGAAAG	TTTAACCAGCATAACAGCATCTAAAAGAATGGGAATT	spacer
		length: 37	repeater length: 25	
35601	2056175	GATTAATCCCAAAAAGGAATTGAAAG	TAGATATATGGCGATGAATTGCATTAGTCAGTGGT	spacer length: 35
		repeater length: 25		
35602	2056236	GATTAATCCCAAAAAGGAATTGAAAG	ATTTTAAACGCTATGACGCTAGCCCTCATGTTAGCTTT	spacer
		length: 38	repeater length: 25	
35603	2056300	GATTAATCCCAAAAAGGAATTGAAAG	AAAGTTTGTCTTCTGTTTCGTTTTGTTGTTCTGAC	spacer
		length: 36	repeater length: 25	
35604	2056362	GATTAATCCCAAAAAGGAATTGAAAG	CCCCTTTTGCCGTCTTTTGTAGTTACCACAATGCACCA	spacer
		length: 37	repeater length: 25	
35605	2056425	GATTAATCCCAAAAAGGAATTGAAAG	CCGTATCCAGAAATAATTAACCAATCGCTTGTTTGTGA	spacer
		length: 38	repeater length: 25	
35606	2056489	GATTAATCCCAAAAAGGAATTGAAAG	AAATTAACGTAAAGAGGGAATTTCTCGCACCTATCA	spacer
		length: 36	repeater length: 25	
35607	2056551	GATTAATCCCAAAAAGGAATTGAAAG	GAATAAACATTGGTACTGTACTTTGTAGTACTGCATACGGT	spacer
		length: 41	repeater length: 25	
35608	2056618	GATTAATCCCAAAAAGGAATTGAAAG	GCATCTGTGCGCAACCTCACTTATTCACGTGGGGGTGC	spacer
		length: 38	repeater length: 25	
35609	2056682	GATTAATCCCAAAAAGGAATTGAAAG	TCTCTCAGAACTCCCAACAAATTTGCTATTTGTTG	spacer
		length: 36	repeater length: 25	
35610	2056744	GATTAATCCCAAAAAGGAATTGAAAG	TGCAATTTGTTGAATTGAATAACCTTTTCTAATTAGTT	spacer
		length: 38	repeater length: 25	
35611	2056808	GATTAATCCCAAAAAGGAATTGAAAG	TTGAACTTGTAGAAATTGTTTCATATGAAACAGCATAATTTT	spacer
		length: 41	repeater length: 25	
35612	2056875	GATTAATCCCAAAAAGGAATTGAAAG	TTTACAGTTAATGGAATTCCTTTTTGTGCATACAATAAC	spacer
		length: 39	repeater length: 25	
35613	2056940	GATTAATCCCAAAAAGGAATTGAAAG	CTCATTATTTTCATCATAAAGATTATCCACTGCAAT	spacer length: 35
		repeater length: 25		
35614	2057001	GATTAATCCCAAAAAGGAATTGAAAG	ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTT	spacer

length: 38 repeater length: 25

35615 2057065 GATTAATCCCAAAAGGAATTGAAAG CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC spacer length: 35 repeater length: 25

35616 2057126 GATTAATCCCAAAAGGAATTGAAAG ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA spacer length: 38 repeater length: 25

35617 2057190 GATTAATCCCAAAAGGAATTGAAAG TAAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT spacer length: 40 repeater length: 25

35618 2057256 GATTAATCCCAAAAGGAATTGAAAG ATTTTGAATGTTACGACTCTCGTCATTTTTCCACCTCTTC spacer length: 40 repeater length: 25

35619 2057322 GATTAATCCCAAAAGGAATTGAAAG GGAGTAATCTTTCCAGTCAAAGACTTTCAGCCCT spacer length: 35 repeater length: 25

35620 2057383 GATTAATCCCAAAAGGAATTGAAAG TTTATAAGCTTCAATAGAGCTTTATCTTGAGCAAT spacer length: 35 repeater length: 25

35621 2057444 GATTAATCCCAAAAGGAATTGAAAG ATAAATGGTACGTCTTCAGGCGGAAAGCCTTCCATTTG spacer length: 38 repeater length: 25

35622 2057508 GATTAATCCCAAAAGGAATTGAAAG ATATTACCTTGCTGGATAAAGTTAATGATTTCA spacer length: 33 repeater length: 25

35623 2057567 GATTAATCCCAAAAGGAATTGAAAG ATCTTTAATAAATCCTCCTTTATTCTCATGTAATGCA spacer length: 37 repeater length: 25

35624 2057630 GATTAATCCCAAAAGGAATTGAAAG TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT spacer length: 39 repeater length: 25

35625 2057695 GATTAATCCCAAAAGGAATTGAAAG CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG spacer length: 39 repeater length: 25

35626 2057760 GATTAATCCCAAAAGGAATTGAAAG GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC spacer length: 39 repeater length: 25

35627 2057825 GATTAATCCCAAAAGGAATTGAAAG CCATCCAAGCCTTGATTTGATATTCCTTTTAATGTCTG spacer length: 38 repeater length: 25

35628 2057889 GATTAATCCCAAAAGGAATTGAAAG TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTCAT spacer length: 39 repeater length: 25

35629 2057954 GATTAATCCCAAAAGGAATTGAAAG CCCCACTGGAATGCACCATTCTTGCAAGTAATACATT spacer length: 38 repeater length: 25

35630 2058018 GATTAATCCCAAAAGGAATTGAAAG ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG spacer length: 39 repeater length: 25

35631 2058083 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer length: 37 repeater length: 25

35632 2058146 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACCCCATATGAAAAACGCA spacer length: 38 repeater length: 25

35633 2058210 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTTCGTAAGGGTTAAACAAAATTATCT spacer length: 36 repeater length: 25

35634 2058272 GATTAATCCCAAAAGGAATTGAAAG TTTTTATTTAAGAACTGATGGAAAGATCTATA spacer length: 34 repeater length: 25

35635 2058332 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer length: 36 repeater length: 25

35636 2058394 GATTAATCCCAAAAGGAATTGAAAG TGATTGCGTTACGTCACCATGGGGCTATTCGTTCTGA spacer length: 37 repeater length: 25

35637 2058457 GATTAATCCCAAAAGGAATTGAAAG TTAATGTGAAGAAAATTGTTAAACGCGTTTTGCGACAT spacer length: 38 repeater length: 25

35638 2058521 GATTAATCCCAAAAGGAATTGAAAG CACTACATCTATTGTTTTTCTTTTGTAAGACATTCTC spacer length: 39 repeater length: 25

35639 2058586 GATTAATCCCAAAAGGAATTGAAAG CTGTTATTACGTCTCTAATTGCCACGGGCTTAAAAAGCG spacer length: 39 repeater length: 25

35640 2058651 GATTAATCCCAAAAGGAATTGAAAG ATCAATTTACGCCTTTTAGAAATCCAATTTCAATTATT spacer length: 38 repeater length: 25

35641 2058715 GATTAATCCCAAAAGGAATTGAAAG GAAGCAATAGCCAACCCACAAAGCTGACACTATTCATTCTG spacer length: 41 repeater length: 25

35642 2058782 GATTAATCCCAAAAGGAATTGAAAG GTATTCAAAGAGAACTGGGGGATTCAAGGTAATACC spacer length: 37 repeater length: 25

35643 2058845 GATTAATCCCAAAAGGAATTGAAAG CTCCGTAAGGCCCCCATACAGTAAAGTAGCAGTTT spacer length: 35 repeater length: 25

35644 2058906 GATTAATCCCAAAAGGAATTGAAAG ATAGAAATATAAATCTCAGCAATTCTTGATATATTG spacer length: 36 repeater length: 25

35645 2058968 GATTAATCCCAAAAGGAATTGAAAG TCCGTTATCATGTTGACTGGAAATGCGTTTAATAG spacer length: 35 repeater length: 25

35646 2059029 GATTAATCCCAAAAGGAATTGAAAG ACCCACAGCACATTGCCATATCCACTAAAATTATACTG spacer length: 38 repeater length: 25

35647 2059093 GATTAATCCCAAAAGGAATTGAAAG ATAAATATGTTAACGAATGTTGTAAATTGGTATTCTG spacer length: 37 repeater length: 25

35648 2059156 GATTAATCCCAAAAGGAATTGAAAG AAAGGAATAATAAGCATGAACCGGGGAGTTCACGCTT spacer length: 37 repeater length: 25

35649 2059219 GATTAATCCCAAAAGGAATTGAAAG TCAAACATGAAGCTACTGTAATCCATTTACATAA spacer length: 37 repeater length: 25

35650 2059282 GATTAATCCCAAAAAGGAATTGAAAG ATCATTTTCGTGAAATTTTCGCAACAAACGAAAAAAT spacer
length: 37 repeater length: 25

35651 2059345 GATTAATCCCAAAAAGGAATTGAAAG ATTATATTGATAAATTGATAAGAATGCCCCGAAAATGATT spacer
length: 39 repeater length: 25

35652 2059410 GATTAATCCCAAAAAGGAATTGAAAG
AAAAACTTTTCACATTCCGACATTAAAAAATAAAATAATTTTGGATTAAATCCCAAAAAGAAATTGAAAGAATTCGTATACCTTAGTAG
TATTATCATCAATATTGTA spacer length: 105 repeater length: 25

35653 2059541 GATTAATCCCAAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25

35654 2059605 GATTAATCCCAAAAAGGAATTGAAAG TCTACGTTGTAAATTCATATACAGCTTGGCTCATA spacer
length: 36 repeater length: 25

35655 2059667 GATTAATCCCAAAAAGGAATTGAAAG ACGTATTTAAATTTTTTGGTAGTACTTTCCTTGTGTA spacer
length: 37 repeater length: 25

35656 2059730 GATTAATCCCAAAAAGGAATTGAAAG AGTATACAACAATGCAATAAGTGTGATAGCTTTGCATCT spacer
length: 40 repeater length: 25

35657 2059796 GATTAATCCCAAAAAGGAATTGAAAG CGCTTCTCCGTCTTTTCAGTTATAATGCGTAAAAGCTTA spacer
length: 39 repeater length: 25

35658 2059861 GATTAATCCCAAAAAGGAATTGAAAG CAGCAAGAAGTTCCTCTCTACATCTTATGATTTTCG spacer
length: 36 repeater length: 25

35659 2059923 GATTAATCCCAAAAAGGAATTGAAAG CGTTTTTCGTCTGGATTATTTATTATCTCTAAGCCC spacer length:
35 repeater length: 25

35660 2059984 GATTAATCCCAAAAAGGAATTGAAAG ACCTTTATTTTAAGTCCTAGCCTCTTCCCTATCCA spacer length:
35 repeater length: 25

35661 2060045 GATTAATCCCAAAAAGGAATTGAAAG TTGTTTCACCTCCTTATTAAAAGCGACAGACGGTCTGA spacer
length: 37 repeater length: 25

35662 2060108 GATTAATCCCAAAAAGGAATTGAAAG TCATTTCACTGTGTAGAGGTTGAACACCTAATTTTT spacer
length: 36 repeater length: 25

35663 2060170 GATTAATCCCAAAAAGGAATTGAAAG CTTTGATTGTCCGCTCTCGTTCTTTTCCACACTGAAGAT spacer
length: 39 repeater length: 25

35664 2060235 GATTAATCCCAAAAAGGAATTGAAAG AGCTTTATGACACTCATTATCATATACTCAAATTAT spacer
length: 37 repeater length: 25

35665 2060298 GATTAATCCCAAAAAGGAATTGAAAG TCGATTTTTTTTCGAGGATGGATTTGTTTCATGAAAGAGC spacer
length: 39 repeater length: 25

35666 2060363 GATTAATCCCAAAAAGGAATTGAAAG CAGCTCGACGATGACGAATACAAGATGCTGTATAATGC spacer
length: 38 repeater length: 25

35667 2060427 GATTAATCCCAAAAAGGAATTGAAAG TTTCTCACTGATCCACGGCTTCAGAGAAGATGTTTGGA spacer
length: 39 repeater length: 25

35668 2060492 GATTAATCCCAAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25

35669 2060556 GATTAATCCCAAAAAGGAATTGAAAG CTCAGCAGATTTAAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25

35670 2060621 GATTAATCCCAAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAAATAATCCA spacer
length: 38 repeater length: 25

35671 2060685 GATTAATCCCAAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25

35672 2060749 GATTAATCCCAAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACTAAAATCGTGGCTTT spacer
length: 37 repeater length: 25

35673 2060812 GATTAATCCCAAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25

35674 2060876 GATTAATCCCAAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACCTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25

35675 2060942 GATTAATCCCAAAAAGGAATTGAAAG TCTAACAATGAATCTGTCTATAAAGTGCCCCGCAACTCT spacer
length: 37 repeater length: 25

35676 2061005 GATTAATCCCAAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25

35677 2061066 GATTAATCCCAAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25

35678 2061130 GATTAATCCCAAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25

35679 2061194 GATTAATCCCAAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTGGAGTAGG spacer length:
35 repeater length: 25

35680 2061255 GATTAATCCCAAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25

35681 2061319 GATTAATCCCAAAAAGGAATTGAAAG TCGTAAACTTGAAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25

35682 2061381 GATTAATCCCAAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25

35683 2061445 GATTAATCCCAAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25

35684 2061507 GATTAATCCCAAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25

35685 2061571 GATTAATCCCAAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 35686 2061632 GATTAATCCCAAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 35687 2061695 GATTAATCCCAAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTGCATACGACATAATT spacer
length: 39 35688 2061760 GATTAATCCCAAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 35689 2061824 GATTAATCCCAAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 35690 2061886 GATTAATCCCAAAAAGGAATTGAAAG GGTATTCAAGTAAATTCATGCTATAGTCAATTTCTTA
35691
35692
35693 crispr 5
35694 1993908 TGATGAGAGAATAACTAAATTGGAGGAG
TCTACGAAGAAGTTGGAGCAAGCTGTACAAGAGCTTATTGAGGCTCAGAAAAAC spacer length: 55 35695 1993992 TGATGAGAGAATAACTAAATTGGAGGAG
TCTATACAGAAATTGGTTGATGCTCAAAGAAGGGCGGAAGAAAGAATAGCGAAGCTTGAAAATGCAGTGGAGCAACTGGTTGAGGC
GCAAAAGAGGA spacer length: 97 35696 1994118 TGATGAGAGAATAACTAAATTGGAGGAG
TCAAGTCGAAGATTGCACTAGAGTCAAAAGGTATCATTTCTTTCTTTCTTCATTTCTTTAACTCTCCGACTACTTCATCAGTATT
GATTTTTACTA
35697
35698
35699 crispr 6
35700 2355993 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 35701 2356119 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39 35702 2356224 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAAGTCCATTAGTACTTCCCCCAAGGAGGTTGGAGAGAGGGAGAAAAAGAGTCGTTTGAGAGGT
35703
35704
35705 GCA_003967175.1_Sacidi_1.0_genomic.fna(findCrispr):
35706 START REPEAT
SPACER
35707 crispr 1
35708 1688612 GAAGCATCCTAGAAGGAATTGAAAG GTACAGGGTACGGCAAATGTGGATGTAACCAACGCGGTAA spacer
length: 40 35709 1688678 GAAGCATCCTAGAAGGAATTGAAAG CTGAATTTTCCGGGTTTATTACAGTTACTGATTTTATTA spacer
length: 39 35710 1688743 GAAGCATCCTAGAAGGAATTGAAAG GCCTCCTCCTGCTGTTCTCCTGTTGTACTTGCTACAG spacer
length: 38 35711 1688807 GAAGCATCCTAGAAGGAATTGAAAG TGACGAGGAACGAAACCGCGTCGGTCTACTTGAGAAA spacer
length: 38 35712 1688871 GAAGCATCCTAGAAGGAATTGAAAG TACCCTTGGGGGACCCCTAGAAAATGTGATGGCAGTC spacer
length: 38 35713 1688935 GAAGCATCCTAGAAGGAATTGAAAG TTTTACGTACCCGAGGTACGCTTCCCTCGGTACGTCAC spacer
length: 39 35714 1689000 GAAGCATCCTAGAAGGAATTGAAAG AGCCAATTTATGACGTCGACAAGCTGTCCCTCCTCACC spacer
length: 38 35715 1689064 GAAGCATCCTAGAAGGAATTGAAAG ACGTCAGCGCGAGGGGCTGGAGTTCAGCCTCGTCTACTC spacer
length: 40 35716 1689130 GAAGCATCCTAGAAGGAATTGAAAG CACTTCTCTCTCGGTTTCTTCTCTAGGGCTGGTGTGAA spacer
length: 38 35717 1689194 GAAGCATCCTAGAAGGAATTGAAAG TTACAAAATAGACAAACGAGACTTTTCCTTTCCATCTCCT spacer
length: 40 35718 1689260 GAAGCATCCTAGAAGGAATTGAAAG AGGAATCCTAGGGCAGATCGAGATATAGTAGTTAGCCT spacer
length: 38 35719 1689324 GAAGCATCCTAGAAGGAATTGAAAG AGAATATAGGGCTCGTACCCGCATCCCCAAAGCCGAA spacer
length: 37 35720 1689387 GAAGCATCCTAGAAGGAATTGAAAG TCGATTTTATTAATGCCATGCCGTCCTATAACAG spacer length:
34 35721 1689447 GAAGCATCCTAGAAGGAATTGAAAG CTTATTCTCACCTTCCTTTTCTCGCCTTCCACTTTTC spacer
length: 37 35722 1689510 GAAGCATCCTAGAAGGAATTGAAAG GCGAAGATGATCGAGCAAAACACTACCCCTTCATCGTCGCGG spacer
length: 43 35723 1689579 GAAGCATCCTAGAAGGAATTGAAAG CTTGTACTCTTCGATTGGGAGGAGGTACTCCTCC spacer length:

35 repeater length: 25

35724 1689640 GAAGCATCCTAGAAAGGAATTGAAAG CCCATTTTCCTGGGCGACAAGGGTGGGGTGAAGTACTTC spacer
length: 39 repeater length: 25

35725 1689705 GAAGCATCCTAGAAAGGAATTGAAAG AACCATCGTCGACGCGGGGTTTTGCGGACAACCTCACGA spacer
length: 38 repeater length: 25

35726 1689769 GAAGCATCCTAGAAAGGAATTGAAAG AACCCAACAACGAGTTTTCAATCGTTTTACTTAGTAAC spacer
length: 38 repeater length: 25

35727 1689833 GAAGCATCCTAGAAAGGAATTGAAAG ATCACTTCGTTTAAATTCTCCCAGTTTCTTACAATAT spacer
length: 36 repeater length: 25

35728 1689895 GAAGCATCCTAGAAAGGAATTGAAAG TTGAAGGCGAGGATGATTTCTCGCCTTCGGCGAAGTA spacer
length: 38 repeater length: 25

35729 1689959 GAAGCATCCTAGAAAGGAATTGAAAG ATTGCCCCCGCGTCTCGCTCCACCACCCCAACATACG spacer
length: 37 repeater length: 25

35730 1690022 GAAGCATCCTAGAAAGGAATTGAAAG TGCCAGGGGGCCCCGGTGTGCGAACCAGGGGCCACATAT spacer
length: 39 repeater length: 25

35731 1690087 GAAGCATCCTAGAAAGGAATTGAAAG CAAAAGGAGGGGAGGGGGAAATTTTTTCGCATGATATTCACATC spacer
length: 43 repeater length: 25

35732 1690156 GAAGCATCCTAGAAAGGAATTGAAAG TATTAAACTCCCCTTTCTTGTACCCCAAATACGTTTCTA spacer
length: 39 repeater length: 25

35733 1690221 GAAGCATCCTAGAAAGGAATTGAAAG GCAGAGTATATTTCTATGTACTCTGCCAACGTCATGA spacer
length: 37 repeater length: 25

35734 1690284 GAAGCATCCTAGAAAGGAATTGAAAG CCCTAGAGGGGAAGGGGTGCGCCAGGATCACCTCCCC spacer
length: 37 repeater length: 25

35735 1690347 GAAGCATCCTAGAAAGGAATTGAAAG ACAGACGCCCTCAGCCACACCCGCACCACCGTGCGGGT spacer
length: 38 repeater length: 25

35736 1690411 GAAGCATCCTAGAAAGGAATTGAAAG AGTCACACTTCCACCCTGAAGACGGTGAACCTGTACCCTACCTTC
spacer length: 45 repeater length: 25

35737 1690482 GAAGCATCCTAGAAAGGAATTGAAAG CGCATAAAAAACCCAAGCCAGTTCAGCGCCGCAGACGCG spacer
length: 39 repeater length: 25

35738 1690547 GAAGCATCCTAGAAAGGAATTGAAAG GCCTCCCCTTCCCCGGGGAGGCAGAGGGACGAGCAAT spacer
length: 36 repeater length: 25

35739 1690609 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTTTCGCGAATTGAAAGAACTTTTTAGGGGT spacer length:
34 repeater length: 25

35740 1690669 GAAGCATCCTAGAAAGGAATTGAAAG CTCATTTCTTTTCAAAAAAAGATATCGAAACGCTAGAAAA spacer
length: 40 repeater length: 25

35741 1690735 GAAGCATCCTAGAAAGGAATTGAAAG CGAAAACCCAAGCTAGCTCGGTGTGGCAAATACCACACCGAACCGC
spacer length: 46 repeater length: 25

35742 1690807 GAAGCATCCTAGAAAGGAATTGAAAG CTCTGACGCGGGGGTCAAGCCCCGCTCTCGCTCCACCA spacer
length: 38 repeater length: 25

35743 1690871 GAAGCATCCTAGAAAGGAATTGAAAG ATGGGGACATAGTCCCCATTGGGCATCACCACATAG spacer
length: 36 repeater length: 25

35744 1690933 GAAGCATCCTAGAAAGGAATTGAAAG TTATCTTAAGTCCCTCTCCATCTCTCTGGACGTAAATA spacer
length: 38 repeater length: 25

35745 1690997 GAAGCATCCTAGAAAGGAATTGAAAG GAACCAACCCGTCGAACCGGCGGTGAGTGGGGCACCCGC spacer
length: 39 repeater length: 25

35746 1691062 GAAGCATCCTAGAAAGGAATTGAAAG GGGGAGGAGTCGGAGGTGGGGGAGGTGGCTTTCTGC spacer
length: 36 repeater length: 25

35747 1691124 GAAGCATCCTAGAAAGGAATTGAAAG ACTTTGGCGCGACTCGGATTGGCTATACCTCCAACCATC spacer
length: 39 repeater length: 25

35748 1691189 GAAGCATCCTAGAAAGGAATTGAAAG TCCAAAAAGCGGGGGGTGGGGGGTGCTTCGCGTTGCGGG spacer
length: 39 repeater length: 25

35749 1691254 GAAGCATCCTAGAAAGGAATTGAAAG GTTCAGTTAGCGGGAGCACTATTACTCTCGCCAGCGAGA spacer
length: 39 repeater length: 25

35750 1691319 GAAGCATCCTAGAAAGGAATTGAAAG CTTCCGGCCCCGCTCCCACGCCTCATTACCCCAGGCTTCCC spacer
length: 40 repeater length: 25

35751 1691385 GAAGCATCCTAGAAAGGAATTGAAAG CGTCTTTTTTGGGCAGCCGGGGAGGGGTGAAGTACTTCG spacer
length: 38 repeater length: 25

35752 1691449 GAAGCATCCTAGAAAGGAATTGAAAG GGGTCGGGGGAGGAGACAGGGACGAGCTCCCAAACAGA spacer
length: 38 repeater length: 25

35753 1691513 GAAGCATCCTAGAAAGGAATTGAAAG GACAAGATCGTACGAAACCACCCCGCTTTTCACGGCCTC spacer
length: 39 repeater length: 25

35754 1691578 GAAGCATCCTAGAAAGGAATTGAAAG ATAGACTCGTTCTTGGGCGTGAGACGGAGTATAGAAAC spacer
length: 38 repeater length: 25

35755 1691642 GAAGCATCCTAGAAAGGAATTGAAAG TTTCAATCAGATTTGCCATTACATGAAGGTTTTAGGTGG spacer
length: 39 repeater length: 25

35756 1691707 GAAGCATCCTAGAAAGGAATTGAAAG AACCGTTGTGGCTTTACTTGGAATAATTGTTTTCGTCAT spacer
length: 39 repeater length: 25

35757 1691772 GAAGCATCCTAGAAAGGAATTGAAAG TAGTATCAGCGAGCCAATCTAGATATGGCCCATTGATCCA spacer
length: 40 repeater length: 25

35758 1691838 GAAGCATCCTAGAAAGGAATTGAAAG ACTTCATTTTCAGTTTCGGGCGGACCCCGGCCCTCGTGTT spacer
length: 40 repeater length: 25

35759 1691904 GAAGCATCCTAGAAAGGAATTGAAAG TTAACCGGCCTTTTCAGGCCGGGTGACCCGCACAAAG spacer
length: 36 repeater length: 25

35760 1691966 GAAGCATCCTAGAAAGGAATTGAAAG ACCTGGGAGGAGCGGGATGAACTGGGAGCTCGTCCCAG spacer
length: 38 repeater length: 25

35761 1692030 GAAGCATCCTAGAAAGGAATTGAAAG CCATTTTCACGTGGGAAACCTGGGGGAACGAGGCGTGGGAACG spacer
length: 42 repeater length: 25

35762 1692098 GAAGCATCCTAGAAAGGAATTGAAAG ACGGGCAGAACGCATACGCTTATGCCGAAGTACCTCAACTC spacer
length: 41 repeater length: 25

35763 1692165 GAAGCATCCTAGAAAGGAATTGAAAG AGCAAAGCTCCCTGCCGGCACCCCTTCGTTCCGAGAAACA spacer
length: 39 repeater length: 25

35764 1692230 GAAGCATCCTAGAAAGGAATTGAAAG GCCTCCCCGGGAAGGGGAGGCAGAGGCTCTATTTTGA spacer
length: 37 repeater length: 25

35765 1692293 GAAGCATCCTAGAAAGGAATTGAAAG TTCCGTCTCCCCTCCCCTTCTCGATGAAGGAAGCACCG spacer
length: 39 repeater length: 25

35766 1692358 GAAGCATCCTAGAAAGGAATTGAAAG GTCATCATAGACGAGATCCACAACATAAGCGACAGAAGT spacer
length: 39 repeater length: 25

35767 1692423 GAAGCATCCTAGAAAGGAATTGAAAG CCTAACCCACCTAACCCCTTTTTTTTTCTTCTCCCTT spacer
length: 38 repeater length: 25

35768 1692487 GAAGCATCCTAGAAAGGAATTGAAAG TTGGAGTACTTGTCTTAGTTTGTCTAAACTCTCAACATCCC spacer
length: 41 repeater length: 25

35769 1692554 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTCTCTTCCAGCCGAGAGAGGATTTTCCCCAATA spacer
length: 37 repeater length: 25

35770 1692617 GAAGCATCCTAGAAAGGAATTGAAAG TATGGGGTGTAGTCTCCGGGCTTGATTTAGTGTCTA spacer
length: 36 repeater length: 25

35771 1692679 GAAGCATCCTAGAAAGGAATTGAAAG CTGTCCAAGGGGAGAGAAGGGGATAGGGGACGGAAGAA spacer
length: 38 repeater length: 25

35772 1692743 GAAGCATCCTAGAAAGGAATTGAAAG CGAAAAGAAGGAAGAAAAGGCTCGTACTCGCACCCC spacer
length: 36 repeater length: 25

35773 1692805 GAAGCATCCTAGAAAGGAATTGAAAG GACAGGAAGGGGAAGGACGGGAAGGAAAAAGGGGTTA spacer
length: 38 repeater length: 25

35774 1692869 GAAGCATCCTAGAAAGGAATTGAAAG TTAACCTCGGCAGATTTTCCAAGACATCATCAAC spacer length:
34 repeater length: 25

35775 1692929 GAAGCATCCTAGAAAGGAATTGAAAG GACATAGGCGGCGGCAGCAGCTATGACGACGGTTCCTAC spacer
length: 39 repeater length: 25

35776 1692994 GAAGCATCCTAGAAAGGAATTGAAAG AAGACCCAACCTAATTCGGCGCCACAATGGCACCGAA spacer
length: 37 repeater length: 25

35777 1693057 GAAGCATCCTAGAAAGGAATTGAAAG AGGATGCTTCAGGGGAGGCAGAGGGGGGGGAGAAGGGAA spacer
length: 41 repeater length: 25

35778 1693124 GAAGCATCCTAGAAAGGAATTGAAAG ACTACTTGTGTTTCCACCACCGGTGCTTCCGCTCGTGTT spacer
length: 39 repeater length: 25

35779 1693189 GAAGCATCCTAGAAAGGAATTGAAAG ATACCAACATGCTACAACAAAGTTTTTATATTACCTTC spacer
length: 38 repeater length: 25

35780 1693253 GAAGCATCCTAGAAAGGAATTGAAAG AACGTCGCACAGGTGCCTCCGTACAAAGGAACCATATCT spacer
length: 39 repeater length: 25

35781 1693318 GAAGCATCCTAGAAAGGAATTGAAAG CCATCGAGGTAGTGACGGTGAACCCGACGGGAAGATGAGTCG spacer
length: 43 repeater length: 25

35782 1693387 GAAGCATCCTAGAAAGGAATTGAAAG TCCGACTCCAACGAGGAGCCGGACGAGGAGGACTCGGA spacer
length: 38 repeater length: 25

35783 1693451 GAAGCATCCTAGAAAGGAATTGAAAG CCGGAATCGTTCTCTTGGGCATGTTGTCTCAACCA spacer length:
35 repeater length: 25

35784 1693512 GAAGCATCCTAGAAAGGAATTGAAAG AGGGGTACTCCCCTGGTTCCGAGAGGGCGTACCTGGTCC spacer
length: 39 repeater length: 25

35785 1693577 GAAGCATCCTAGAAAGGAATTGAAAG ACGAGGAGGGGAAAGAGGGGAGGGAGGGCAGAGGACGGCA spacer
length: 40 repeater length: 25

35786 1693643 GAAGCATCCTAGAAAGGAATTGAAAG CTTTCATAATTTTCATCCTTCGGTTTTCTAAGCTGTTC spacer
length: 38 repeater length: 25

35787 1693707 GAAGCATCCTAGAAAGGAATTGAAAG GTTTTAGAGCGGCCTCCAGGCCGCTCTCCAGCCTCTCTA spacer
length: 39 repeater length: 25

35788 1693772 GAAGCATCCTAGAAAGGAATTGAAAG TTTGATTTCCGGATTGTAGTTGTTAATCTTGTTCT spacer length:
35 repeater length: 25

35789 1693833 GAAGCATCCTAGAAAGGAATTGAAAG ATAACCTTTCGGGTCTTATTTTCTCACGTCTTAACTTC spacer
length: 38 repeater length: 25

35790 1693897 GAAGCATCCTAGAAAGGAATTGAAAG TTCCGGTTCCCTTGGAGTAGGACTGGGCATATTGGAACAGG spacer
length: 41 repeater length: 25

35791 1693964 GAAGCATCCTAGAAAGGAATTGAAAG GAAGGGCCCCGCTCCCACCCCTCGTTTCCCCAGGCTTCCC spacer
length: 39 repeater length: 25

35792 1694029 GAAGCATCCTAGAAAGGAATTGAAAG TATCATGCTCTTTATCAACAACCTTCTTGCAACTACAGT spacer
length: 39 repeater length: 25

35793 1694094 GAAGCATCCTAGAAAGGAATTGAAAG CGTCGGAGTCCTCGTCCGAGGAGGTGGTGGGGGA spacer length:
34 repeater length: 25

35794 1694154 GAAGCATCCTAGAAAGGAATTGAAAG GTGTTTTCTGTTTTTCTCGCGTGGTTCTCAAGAAGGTC spacer

length: 38 repeater length: 25
35795 1694218 GAAGCATCCTAGAAAGGAATTGAAAG TTACACCGCGAACGGAACGGCACAGTTCAACGCGTCCGC spacer
length: 39 repeater length: 25
35796 1694283 GAAGCATCCTAGAAAGGAATTGAAAG TGTAGACCGTGTTCATGAGTATCTTTTCGACAGTA spacer length:
34 repeater length: 25
35797 1694343 GAAGCATCCTAGAAAGGAATTGAAAG CTGAACAGGGGTACCCCTGGTTCAGGGAGAACTTGTA spacer
length: 39 repeater length: 25
35798 1694408 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTCAGTCTTCCAGCCCGGATCAGTCTAGCAGGTTCCG spacer
length: 40 repeater length: 25
35799 1694474 GAAGCATCCTAGAAAGGAATTGAAAG CGGCAAGTACGGCGCCTTTTGGGTCAGCGGTCGGGCCC spacer
length: 38 repeater length: 25
35800 1694538 GAAGCATCCTAGAAAGGAATTGAAAG CGATCAACCCTCCCTGCGACACGGTCTCCCCGGAAGGT spacer
length: 38 repeater length: 25
35801 1694602 GAAGCATCCTAGAAAGGAATTGAAAG CGACCTCGGCCAATATACCGCTCCTCCGGAGTCCCC spacer
length: 36 repeater length: 25
35802 1694664 GAAGCATCCTAGAAAGGAATTGAAAG GGTTTGTGCCACTTTCCAGTTGTCGATAGTCACCCTCGA spacer
length: 40 repeater length: 25
35803 1694730 GAAGCATCCTAGAAAGGAATTGAAAG TCTGAGCATCCATCAACCCACTGACAACACTGTGCCCCA spacer
length: 39 repeater length: 25
35804 1694795 GAAGCATCCTAGAAAGGAATTGAAAG GCTCCGTCGCACTTCAAAGGGGGGAGAGAAGCATGGGAGG spacer
length: 40 repeater length: 25
35805 1694861 GAAGCATCCTAGAAAGGAATTGAAAG AGGGGAGAGATGAGGGGAAGGGGAGAAGGGAGAAGGGGTTA spacer
length: 41 repeater length: 25
35806 1694928 GAAGCATCCTAGAAAGGAATTGAAAG CTACCGTTATGCAATACGGGACGTACGGGTCTCGTCCGTG spacer
length: 40 repeater length: 25
35807 1694994 GAAGCATCCTAGAAAGGAATTGAAAG CAGGACCAGTGCGAGGAACTTAACGTAATGGGGTCAAGT spacer
length: 40 repeater length: 25
35808 1695060 GAAGCATCCTAGAAAGGAATTGAAAG GTTCATGTCTAACGTGAAATCCATTCGGAAAACTATA spacer
length: 38 repeater length: 25
35809 1695124 GAAGCATCCTAGAAAGGAATTGAAAG AAACAGATTTTCATAGACTTCGGCGGCAACGAACCGA spacer
length: 37 repeater length: 25
35810 1695187 GAAGCATCCTAGAAAGGAATTGAAAG TTTATAGCGGAATTGAGCCTTTGTTCCCAATTGCGG spacer
length: 37 repeater length: 25
35811 1695250 GAAGCATCCTAGAAAGGAATTGAAAG CGACTGGGAAATCAAATTCTTGCCATGTGTTGGCCGGAAT spacer
length: 40 repeater length: 25
35812 1695316 GAAGCATCCTAGAAAGGAATTGAAAG ATGTAAACTTTGTCAAATCATAAAACCCCATATTTTTTC spacer
length: 39 repeater length: 25
35813 1695381 GAAGCATCCTAGAAAGGAATTGAAAG TACTCCCCGTCGTAAACAACGGGGAGGTTGGGAGTG spacer
length: 36 repeater length: 25
35814 1695443 GAAGCATCCTAGAAAGGAATTGAAAG CATCCCAGCTCGGTGCCGCACCTGCGGC spacer length: 28
repeater length: 25
35815 1695497 GAAGCATCCTAGAAAGGAATTGAAAG TAACTCCCTCTCACTCTCATAGTATTCCGTGATCCGGCC spacer
length: 39 repeater length: 25
35816 1695562 GAAGCATCCTAGAAAGGAATTGAAAG ATGGGAAAGAGGAATAAATTGGTAGGCATCTCCACT spacer
length: 36 repeater length: 25
35817 1695624 GAAGCATCCTAGAAAGGAATTGAAAG AAACATATGGCGACCCTATCCTACCCTCGCCACCC spacer length:
35 repeater length: 25
35818 1695685 GAAGCATCCTAGAAAGGAATTGAAAG TCGTCCTCCGGGTCTCGTCCGAGGAGGTGGAGGAGGA spacer
length: 38 repeater length: 25
35819 1695749 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTCCCCCGCTTTTCTATAATCCTGAAACATGCA spacer
length: 38 repeater length: 25
35820 1695813 GAAGCATCCTAGAAAGGAATTGAAAG GTGATCCGGCCCCCGTCGTTGTGGAATACGTACTTGAGCC spacer
length: 40 repeater length: 25
35821 1695879 GAAGCATCCTAGAAAGGAATTGAAAG TACGGCGCGGCGAGGGTGACCACCCCCACCGCATACTTCTCT spacer
length: 43 repeater length: 25
35822 1695948 GAAGCATCCTAGAAAGGAATTGAAAG TTAAGTACGTGTGCCCCACATACACACCCGCCATCATCCT spacer
length: 40 repeater length: 25
35823 1696014 GAAGCATCCTAGAAAGGAATTGAAAG TGTTTTCAACGTCCTGCGCCGTGACTTCGCGCCACGTGT spacer
length: 39 repeater length: 25
35824 1696079 GAAGCATCCTAGAAAGGAATTGAAAG TTGTAAGTCGTATTGCGTCACCGAGTTCATCAGCACGT spacer
length: 38 repeater length: 25
35825 1696143 GAAGCATCCTAGAAAGGAATTGAAAG TTCTCGAGGACCGAGCCCGAATTTACGGGCACTTTTTTCT spacer
length: 39 repeater length: 25
35826 1696208 GAAGCATCCTAGAAAGGAATTGAAAG CGTCGGAGGGGACGAGCTCCCAAACACTCGTCCCGTCC spacer
length: 38 repeater length: 25
35827 1696272 GAAGCATCCTAGAAAGGAATTGAAAG TGGGGGGAAGGGGATAAATTGATAATTCGTCCCCCCCCGCG spacer
length: 40 repeater length: 25
35828 1696338 GAAGCATCCTAGAAAGGAATTGAAAG ACCCCGGTGTAGGTGGGAGTGGTGGGAGTGACGGT spacer length:
35 repeater length: 25
35829 1696399 GAAGCATCCTAGAAAGGAATTGAAAG TAGTCGACGTCCTCGATTCTGAACATATGGACCTTCGCCG spacer
length: 39 repeater length: 25

35830	1696464	GAAGCATCCTAGAAAGGAATTGAAAG	CGAATTCGGCAAGCGTCATCACGTAGTCGTCGAGCCAC	spacer
		length: 38	repeater length: 25	
35831	1696528	GAAGCATCCTAGAAAGGAATTGAAAG	CTGAGCTCGCGCATGGGAAGACGGATGTTGCCGTATGT	spacer
		length: 38	repeater length: 25	
35832	1696592	GAAGCATCCTAGAAAGGAATTGAAAG	TCTACCCCGGCAAATACGGCCTTTACTCCCTGTACGGGTA	spacer
		length: 40	repeater length: 25	
35833	1696658	GAAGCATCCTAGAAAGGAATTGAAAG	CTTGCACGACAGGACGAGGACCTGTGCGTCCCCGTCTTC	spacer
		length: 40	repeater length: 25	
35834	1696724	GAAGCATCCTAGAAAGGAATTGAAAG	AACAATATCAGAGACAGTATACCAAAGTCAATAATTTCTT	spacer
		length: 40	repeater length: 25	
35835	1696790	GAAGCATCCTAGAAAGGAATTGAAAG	CCGAGGTCGTACTGAGTCTCAGGAACGCAGGGGGCGCCGT	spacer
		length: 40	repeater length: 25	
35836	1696856	GAAGCATCCTAGAAAGGAATTGAAAG	ATCACAACGTCGCAACCCTCCCTCACTTCCCATGCCTTT	spacer
		length: 39	repeater length: 25	
35837	1696921	GAAGCATCCTAGAAAGGAATTGAAAG	GCACGATCCTGCCTTTGACGAAGTGATCCTTAGTTA	spacer
		length: 36	repeater length: 25	
35838	1696983	GAAGCATCCTAGAAAGGAATTGAAAG	TCCTTTTTCGACCCACCCTCCACATCCTCAGCGACCG	spacer
		length: 37	repeater length: 25	
35839	1697046	GAAGCATCCTAGAAAGGAATTGAAAG	CCTAACCCCAACCCACCTAACCCCTTTTTTCTTCTTCCCT	spacer
		length: 40	repeater length: 25	
35840	1697112	GAAGCATCCTAGAAAGGAATTGAAAG	GCTCTTCGACTTGGTCGGGGTCGATGTACCACTTACCAA	spacer
		length: 40	repeater length: 25	
35841	1697178	GAAGCATCCTAGAAAGGAATTGAAAG	TAGTTCATGCTGCAAAACCCCGAGATTTCTTCGAAACCT	spacer
		length: 40	repeater length: 25	
35842	1697244	GAAGCATCCTAGAAAGGAATTGAAAG	ACCTCCCCTGGGGAGGGAGGCAAAGGCGTTTTTTCGATCT	spacer
		length: 40	repeater length: 25	
35843	1697310	GAAGCATCCTAGAAAGGAATTGAAAG	GCTGCTTTCCACCCTGTTGGGGGTTACGTGCCCACCAAC	spacer
		length: 40	repeater length: 25	
35844	1697376	GAAGCATCCTAGAAAGGAATTGAAAG	AGGTAGGGTCCACTGACCCATATCGTATCCTCAGTCT	spacer
		length: 37	repeater length: 25	
35845	1697439	GAAGCATCCTAGAAAGGAATTGAAAG	TAGTTTATACAGGGTCTCTATATCCCCACTACTAAAAAATT	spacer
		length: 41	repeater length: 25	
35846	1697506	GAAGCATCCTAGAAAGGAATTGAAAG	TTATACCCCAGGTAAGCGTACCTGGGGTACGTCACATAC	spacer
		length: 39	repeater length: 25	
35847	1697571	GAAGCATCCTAGAAAGGAATTGAAAG	GCGACCTCGAGGGCGTCCACGTGCCCCGCGAGGCGGCG	spacer
		length: 38	repeater length: 25	
35848	1697635	GAAGCATCCTAGAAAGGAATTGAAAG	ATCATGGTCGTATTTCTCTTGCATACTTTTACATTCTT	spacer
		length: 38	repeater length: 25	
35849	1697699	GAAGCATCCTAGAAAGGAATTGAAAG	TTAAGGGGTGCTTTCCGAGCCTCCCTTTTCGAGAGGCGCT	spacer
		length: 39	repeater length: 25	
35850	1697764	GAAGCATCCTAGAAAGGAATTGAAAG	TCCAGCAGCCCGTTAAGTTCCGAGCCCGAAACGGGCGC	spacer
		length: 38	repeater length: 25	
35851	1697828	GAAGCATCCTAGAAAGGAATTGAAAG	TATCGCTGAAACGAAGCCATCGCTTATCAAGCCCTTGACTTC	spacer
		length: 42	repeater length: 25	
35852	1697896	GAAGCATCCTAGAAAGGAATTGAAAG	CAAACAGAGGAGCCGTCCCACCAATGGGAGCGGGCTCCC	spacer
		length: 39	repeater length: 25	
35853	1697961	GAAGCATCCTAGAAAGGAATTGAAAG	TCGCGGGGAGGCTAATTGCACTCTTCTCACGGTGGTATATA	spacer
		length: 41	repeater length: 25	
35854	1698028	GAAGCATCCTAGAAAGGAATTGAAAG	ACCAATTCATCGCCCTCTCCCATTCTTCACCCGTATT	spacer
		length: 39	repeater length: 25	
35855	1698093	GAAGCATCCTAGAAAGGAATTGAAAG	ACGATTGGAGCGAGGTGCCGGAAGACCTTCGCTA	spacer length: 34
		length: 34	repeater length: 25	
35856	1698153	GAAGCATCCTAGAAAGGAATTGAAAG	AACTAACTGAGGCTCTTGCTCGAGGAGCCTCAGGAT	spacer
		length: 36	repeater length: 25	
35857	1698215	GAAGCATCCTAGAAAGGAATTGAAAG	CCGGGAAGGGGAGACAAGGGTTCTGTATGGAATTCCACTT	spacer
		length: 40	repeater length: 25	
35858	1698281	GAAGCATCCTAGAAAGGAATTGAAAG	CTTTAAGGGCTTGTTCCAACCCTTCCTTCAAACGT	spacer length: 35
		length: 35	repeater length: 25	
35859	1698342	GAAGCATCCTAGAAAGGAATTGAAAG	CCCTGAGGTCTTTGATGTACGTTTTCGCTTTCTCTCCG	spacer
		length: 38	repeater length: 25	
35860	1698406	GAAGCATCCTAGAAAGGAATTGAAAG	TCTGCGGGTGCCTTTTCCTCTTGTTCTGACATTTTTCCT	spacer
		length: 39	repeater length: 25	
35861	1698471	GAAGCATCCTAGAAAGGAATTGAAAG	CCACAAGAAGGGGTGGCCTCTGGAATCTTATCGATCCGG	spacer
		length: 40	repeater length: 25	
35862	1698537	GAAGCATCCTAGAAAGGAATTGAAAG	ATTCTGGAAAAAATACGGAGGAACTACCCTCCCTGTCA	spacer
		length: 40	repeater length: 25	
35863	1698603	GAAGCATCCTAGAAAGGAATTGAAAG	ACCAGGAACGACAACCGAGTTTCCCTTAACGAGTTGGCA	spacer
		length: 39	repeater length: 25	
35864	1698668	GAAGCATCCTAGAAAGGAATTGAAAG	ACAGTCTCCAGTCCCTCTCATTAAAAAACTCGGGAAAC	spacer
		length: 39	repeater length: 25	
35865	1698733	GAAGCATCCTAGAAAGGAATTGAAAG	ATTTATACCGTATCTCCTAACAAAGATACTTTTTCAGCAAG	spacer

length: 39 repeater length: 25
35866 1698798 GAAGCATCCTAGAAAGGAATTGAAAG CGGTTACAGGTACGGGCCTTGTGGCCTCCGTCGGAGCCT spacer
length: 39 repeater length: 25
35867 1698863 GAAGCATCCTAGAAAGGAATTGAAAG TGTGGTTGTAGTCCTAGTTCATGCTGCAAAAATCCCCAGA spacer
length: 40 repeater length: 25
35868 1698929 GAAGCATCCTAGAAAGGAATTGAAAG TTCTCCCCTGCGCTCCCCCTGCCTCCTCCCTTTTTT spacer
length: 38 repeater length: 25
35869 1698993 GAAGCATCCTAGAAAGGAATTGAAAG TCAAAGCCACCCCTTCCACCTGCCGGTAGTACTCCTCGA spacer
length: 39 repeater length: 25
35870 1699058 GAAGCATCCTAGAAAGGAATTGAAAG AATGAGGGTGGTGGGAGCGGGCCCGCAGGGGAACCCG spacer
length: 37 repeater length: 25
35871 1699121 GAAGCATCCTAGAAAGGAATTGAAAG GTTGCTCCCTCTCAATATGGAGTCGTGGGTGTGAAGTT spacer
length: 38 repeater length: 25
35872 1699185 GAAGCATCCTAGAAAGGAATTGAAAG CTTATCTTGGTTCCACGTCGTGGCCCATACGACTCATA spacer
length: 38 repeater length: 25
35873 1699249 GAAGCATCCTAGAAAGGAATTGAAAG CACAGTTCACATCCCTGTTTCCAGCAGGGATTTTTACCA spacer
length: 39 repeater length: 25
35874 1699314 GAAGCATCCTAGAAAGGAATTGAAAG GAAACACCGAGAGATTGCCTTTGGAGGTGGCACCG spacer length:
35 repeater length: 25
35875 1699375 GAAGCATCCTAGAAAGGAATTGAAAG AATTCGTGAGTGAGGAACTCCAGATTTCTCACTTATCTT spacer
length: 41 repeater length: 25
35876 1699442 GAAGCATCCTAGAAAGGAATTGAAAG ATGAGGGGAGAACCATGAACGTTCAACAATTAGT spacer length:
34 repeater length: 25
35877 1699502 GAAGCATCCTAGAAAGGAATTGAAAG GGGGCGAAGCGTAAACCGACCTGTAAGGCGACATCAAC spacer
length: 38 repeater length: 25
35878 1699566 GAAGCATCCTAGAAAGGAATTGAAAG GTTTCATTCTCTTCTGCACAATATGGGGTGAAGGA spacer length:
35 repeater length: 25
35879 1699627 GAAGCATCCTAGAAAGGAATTGAAAG ACCAACACCCCGGCCGTCTTAGGGTCGGCTTCTGGGGCGG spacer
length: 40 repeater length: 25
35880 1699693 GAAGCATCCTAGAAAGGAATTGAAAG CCATATTGGAGTATTAATACGTGGGCACTTCGCTTGGT spacer
length: 38 repeater length: 25
35881 1699757 GAAGCATCCTAGAAAGGAATTGAAAG CTTCGTTTCCCCAGGCTTCCCACCGAAGGTGGGCACAGC spacer
length: 39 repeater length: 25
35882 1699822 GAAGCATCCTAGAAAGGAATTGAAAG GTTCGGAAGGAAGATGCCTAAATTGCCGCTCGAATCGAG spacer
length: 39 repeater length: 25
35883 1699887 GAAGCATCCTAGAAAGGAATTGAAAG AGGATAATGATAATTTTCGTGTGGTTGCAATCCCAATTCTG spacer
length: 39 repeater length: 25
35884 1699952 GAAGCATCCTAGAAAGGAATTGAAAG TACTCGTAACGTTGTCTGGGAGGTTCTGTCGTACCGTTCTC spacer
length: 39 repeater length: 25
35885 1700017 GAAGCATCCTAGAAAGGAATTGAAAG TTATTGATTCTGAACATATGTCCCCATTAGGAAGCTTTAT spacer
length: 38 repeater length: 25
35886 1700081 GAAGCATCCTAGAAAGGAATTGAAAG AGTACCTCTGGTGTTCAGTACAAACGCGACGTGGAGG spacer
length: 38 repeater length: 25
35887 1700145 GAAGCATCCTAGAAAGGAATTGAAAG CTGCCACTTCGTCTTGGGTGATTTTCTTCGAGGGATCG spacer
length: 38 repeater length: 25
35888 1700209 GAAGCATCCTAGAAAGGAATTGAAAG ATTCTTCCTCCTGCCGCATATGTGATTTTAAAGCATT spacer
length: 37 repeater length: 25
35889 1700272 GAAGCATCCTAGAAAGGAATTGAAAG ACTCGGTCAAAAACAAATATCCCGATTTAACTTACG spacer
length: 36 repeater length: 25
35890 1700334 GAAGCATCCTAGAAAGGAATTGAAAG AGGCAGGAAGCATATACCTATCGAACCCAACAACAAGTTT spacer
length: 40 repeater length: 25
35891 1700400 GAAGCATCCTAGAAAGGAATTGAAAG ACATTCTTCCGACGTATACGCCTACGATGACGGCCACAGC spacer
length: 40 repeater length: 25
35892 1700466 GAAGCATCCTAGAAAGGAATTGAAAG GATCTTTCTGTTCTTTCTGTTCTTTAGTGTTTGAAG spacer
length: 37 repeater length: 25
35893 1700529 GAAGCATCCTAGAAAGGAATTGAAAG AAAGGCTATTAAACACCCGGGTCTGTCTGTTAGAGCGATG spacer
length: 40 repeater length: 25
35894 1700595 GAAGCATCCTAGAAAGGAATTGAAAG ATATATTAGGCTCCATCATTCTCCCCTTCACTCCGAGT spacer
length: 38 repeater length: 25
35895 1700659 GAAGCATCCTAGAAAGGAATTGAAAG GGTGAAGTAGTAACTCCGCAACGAACCCTATTCTGT spacer
length: 39 repeater length: 25
35896 1700724 GAAGCATCCTAGAAAGGAATTGAAAG AACCCGTA CTCCAGTCTACGACAGCGCCAACCACCATCTC spacer
length: 41 repeater length: 25
35897 1700791 GAAGCATCCTAGAAAGGAATTGAAAG ACATGACTCTTATCAAGAATACTGCTGAGTTTTTCTAGCG spacer
length: 40 repeater length: 25
35898 1700857 GAAGCATCCTAGAAAGGAATTGAAAG CAACTAACGTACCATAGTTTCTCTTCTTCGACCACCTTA spacer
length: 40 repeater length: 25
35899 1700923 GAAGCATCCTAGAAAGGAATTGAAAG GATCTCGCGGATGCCGGAGACGAAGAGCGGTGACTCCA spacer
length: 38 repeater length: 25
35900 1700987 GAAGCATCCTAGAAAGGAATTGAAAG TAGGCCACATACCATAGTTTCTCTTCATTGCTCCATCGC spacer
length: 39 repeater length: 25

35901 1701052 GAAGCATCCTAGAAAGGAATTGAAAG GGGTTAACAATTACGAAAAGCCAGTACTAGACA spacer length: 33 repeater length: 25

35902 1701111 GAAGCATCCTAGAAAGGAATTGAAAG GTAGGCGAGGGGTTGCACATATTGTGCCCCCTCAC spacer length: 35 repeater length: 25

35903 1701172 GAAGCATCCTAGAAAGGAATTGAAAG GGTGGGGGGTTCGTCGACCTCCCATTTCGATGTCATTGTC spacer length: 38 repeater length: 25

35904 1701236 GAAGCATCCTAGAAAGGAATTGAAAG TACCAAATTCTGTCTGTCATTCTAACTTCGTATTTTGT spacer length: 38 repeater length: 25

35905 1701300 GAAGCATCCTAGAAAGGAATTGAAAG CCAGGAGGTCTGGTCACACTCTGCCCCGCCAGACTG spacer length: 36 repeater length: 25

35906 1701362 GAAGCATCCTAGAAAGGAATTGAAAG TTGGTCAAGTTGGTGCGGGCTATGGGGTACTCTCAAGAGA spacer length: 40 repeater length: 25

35907 1701428 GAAGCATCCTAGAAAGGAATTGAAAG TGTATGAAAGTGACGCTGACGTTCTTCGCCTTGATTT spacer length: 38 repeater length: 25

35908 1701492 GAAGCATCCTAGAAAGGAATTGAAAG GCGCGCGTCCTTGTACCCGTACAGGGAGTAAAGGC spacer length: 35 repeater length: 25

35909 1701553 GAAGCATCCTAGAAAGGAATTGAAAG TTATTGATTCTGAACATATGTCCCCATTAGGAAGCTTTAT spacer length: 38 repeater length: 25

35910 1701617 GAAGCATCCTAGAAAGGAATTGAAAG AGTACCTCTGGTGTTCAGTACAAACGCGACGTGGAGG spacer length: 38 repeater length: 25

35911 1701681 GAAGCATCCTAGAAAGGAATTGAAAG CTGCCACTTCGTCTTGGGTGATTTTCTTCGAGGGATCG spacer length: 38 repeater length: 25

35912 1701745 GAAGCATCCTAGAAAGGAATTGAAAG TAAAGGGGGAGGTTGTGTATACCACTCCTAACATATTTT spacer length: 39 repeater length: 25

35913 1701810 GAAGCATCCTAGAAAGGAATTGAAAG TCGGACGGTCCACCTTCACCGTCACAGGGCCCCGCGAACG

35914

35915

35916 crispr 2

35917 1664810 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TAGGAACGACATTTTACCACCTGAAGAAGTTAG spacer length: 34 repeater length: 30

35918 1664875 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCCTCCTCGTCATACACGTGTAGTCTCGAATACTCAG spacer length: 37 repeater length: 30

35919 1664943 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC GCTAGTTTCCTAAGTAAAGTGCTAGAATTTATTTATC spacer length: 37 repeater length: 30

35920 1665011 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CCACCGAAGTCAAACGGCACATCACCTGCATAA spacer length: 34 repeater length: 30

35921 1665076 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TGGCGAAAACCATACGAAACCCGGAACTTCGACAA spacer length: 36 repeater length: 30

35922 1665143 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TTGTACGCCGTTTATGAAGTTGCTTATCCCCTTCG spacer length: 35 repeater length: 30

35923 1665209 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TGCTTCTTCTGTGGTGTAGAAAGTCGCTGATTACGCT spacer length: 37 repeater length: 30

35924 1665277 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CAAATTTCCACCTCACAATAAGTCAACTATCCTGT spacer length: 35 repeater length: 30

35925 1665343 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCATAGAAAGTGGAACTCGGGTGAGAATGGGGGAAG spacer length: 37 repeater length: 30

35926 1665411 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC AAGAGCAGGATCGGGATGAGAAGTGGGTCGATAG spacer length: 34 repeater length: 30

35927 1665476 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCGTACGAAGTACCTCCCTTCATCATGTGAGAAGA spacer length: 35 repeater length: 30

35928 1665542 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC AGAAGTGAGCTTACCCTCCTTTACCAGCCTGATG spacer length: 34 repeater length: 30

35929 1665607 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC
ACACCGGAACCAGGCAATTGTAGTTCTGTCTGCCTACGTTTCAAGCCCTCAAGGGTAAGCTACAAACCTTCAAACACCTCCGTTG
GACCCGAAGTATAGCGGTGATCC spacer length: 109 repeater length: 30

35930 1665747 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CTTGCGAAGAAATATTATCCCCTATACGCGGAATGG spacer length: 36 repeater length: 30

35931 1665814 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC CCATGATCTCATTCTAAGAATTACCAGAAATGTCGATTTT spacer length: 40 repeater length: 30

35932 1665885 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCTGCAAGAAACACAGCATCATCGATGAAGAGAT spacer length: 34 repeater length: 30

35933 1665950 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC ATGAGAAGGCTGAGGAAGAGTGAAGCCTATCGCCT spacer length: 35 repeater length: 30

35934 1666016 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TGCTTCTTCTGTGGTGTAGAAAGTCGCTGATTACGCT spacer length: 37 repeater length: 30

35935 1666084 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TAAATTTCCACCTCACAATAAGTCAACTATCCTGT spacer length: 35 repeater length: 30

35936 1666150 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC TCATAGAAAGTGGAACTCGGGTGAGAATGGGGGAAG spacer length: 37 repeater length: 30

35937 1666218 GTTTC AAGCCCTCAAAGGTAAGCTACAAAC AAGAGCAGGATCGGGATGAGAAGTGGGTCGATAG spacer length: 34 repeater length: 30

35938 1666283 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC TCGTACGAAGTACCTCCCTTCATCATGTGAGAAGA spacer
length: 35 repeater length: 30

35939 1666349 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AGAAGTGAGCTTACCCTCCTTTACCAGCCTGATG spacer
length: 34 repeater length: 30

35940 1666414 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC
ACACCGGAACCAGGCAATTGTAGTTCTGTCTGCCTACGTTTCAAGCCCTCAAGGGTAAGCTACAAACCTTCAAACACCTCCGTTG
GACCCGAAGTATAGCGGTGATCC spacer length: 109 repeater length: 30

35941 1666554 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CTTGCGAAGAAATATTATCCCCTATACGCGGAATGG spacer
length: 36 repeater length: 30

35942 1666621 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CCATGATCTCATTCTAAGAATTACCAGAAATGTCGATTTC
spacer length: 40 repeater length: 30

35943 1666692 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC TCTGCAAGAAACACAGCATCATCGATGAAGAGAT spacer
length: 34 repeater length: 30

35944 1666757 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC ATGAGAAGGCTGAGGAAGAGTGAAGCCTATCGCCT spacer
length: 35 repeater length: 30

35945 1666823 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC TTACCTGCGTAGACGACTTCTATATCTAGCTTGCT spacer
length: 35 repeater length: 30

35946 1666889 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC ATAGCTCGCCGGTAGAACTGAGAATTTCTGCCGATA spacer
length: 36 repeater length: 30

35947 1666956 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC
AGATCGGGGAACCTACTAATTGTTTCTAAAGTCTCTTGTTTCAAGCCCTCAAGGGTAAGCTACAAACGTAACGTTCAACGTCGTCG
ACGGCGTGAGTATGT spacer length: 102 repeater length: 30

35948 1667089 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC TCGGCCGAGATCATTATCTCGGTGCGTGACTGATCCA spacer
length: 37 repeater length: 30

35949 1667157 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AAATGGTACCCCTTAGTACTGGAATACCTTCCCCA spacer
length: 35 repeater length: 30

35950 1667223 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AATAACAAGAACAAAAATTCAGCCGTAAACACCAA spacer
length: 35 repeater length: 30

35951 1667289 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC GTCGTCAATTCTTGATATTTCAACATTTTTTCCG spacer
length: 35 repeater length: 30

35952 1667355 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC TCGATTTGAGGACGGGGTTTGACGGAGAGGACATTAGC spacer
length: 38 repeater length: 30

35953 1667424 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC GGGATGCAAGGGCACCCCTTCGTGCGGGACCACTTG spacer
length: 36 repeater length: 30

35954 1667491 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CACCTGTCCAGAATGTGGACGAGTGTTGTTGGGTT spacer
length: 35 repeater length: 30

35955 1667557 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC GAGAGGTCTCCTTCCTCAAGATGCTGTACATTCGA spacer
length: 35 repeater length: 30

35956 1667623 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CGTGAACGTTCCGGGGAAGATCCAACCTCCTGAAGT spacer
length: 35 repeater length: 30

35957 1667689 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC ATGTGGATGATCCCGAATTTTACTGGACACGAAAAC spacer
length: 36 repeater length: 30

35958 1667756 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AGTAGTCGCAATTTCTGAGTATGTTACTTGCGTCT spacer
length: 35 repeater length: 30

35959 1667822 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CCGATATAATCCTTAATATAAGCAAGAAACACGAGGG spacer
length: 37 repeater length: 30

35960 1667890 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC ACACCAGGTTGGCATGCCTTTGTTGATTCTATCACTCC spacer
length: 38 repeater length: 30

35961 1667959 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AGAATTTGATTTCCCGGTCATGAGCGGTGATTCCG spacer
length: 35 repeater length: 30

35962 1668025 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CTACTCCTTGCGGAGGCGACATCGTGAAGGGTTGAGG spacer
length: 37 repeater length: 30

35963 1668093 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC GTGTTTCGTAGTGAAGTATTGGCTAAGCCAGGCTA spacer
length: 34 repeater length: 30

35964 1668158 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CCTTTTTCTGTTCTTGTGGTTCCAATTTCCCCTCC spacer
length: 35 repeater length: 30

35965 1668224 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC GGGATTGGCTTTTGGGGCATAGCGAGAAATACCAGA spacer
length: 36 repeater length: 30

35966 1668291 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AATTCCACTGCTCGAGCCTGCATCCTCGGTACATCA spacer
length: 36 repeater length: 30

35967 1668358 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC ACATTCATCATTTTCGATTTGGTTGTGGGCCACATAG spacer
length: 36 repeater length: 30

35968 1668425 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC GTCTTTCTCCCGTCGAACCCCTAGTGCATTTTTT spacer
length: 35 repeater length: 30

35969 1668491 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CTTTCGCGTTTCGTGAAAGTTCTTCTTCGCATTTTG spacer
length: 36 repeater length: 30

35970 1668558 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CACCTGTCCAGAGTGTGGACGGGTGATGCTGGGCT spacer
length: 35 repeater length: 30

35971 1668624 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC ACGATTATTTCTCCTTGCTTAAAGTATTGTATGAATG spacer
length: 37 repeater length: 30

35972 1668692 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CTGGAGTCCTCTTCGTCTTTTTCTTCGGCGGTGTA spacer

	length: 35	repeater length: 30	
35973	1668758	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGTGTGGGGTAAAGGTAGAGGGACGGGGTGAG spacer
	length: 33	repeater length: 30	
35974	1668822	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATCCACCGAAAATGCGACCCACCATCCGAGCGAATCC spacer
	length: 37	repeater length: 30	
35975	1668890	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTGACGCCCAGCACGCTGTCGATCGTGTGTTTTGGT spacer
	length: 34	repeater length: 30	
35976	1668955	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGCACTGCTCACCGTCACAATCGACTTCTCAGAGA spacer
	length: 35	repeater length: 30	
35977	1669021	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACCTTAAGCCCCATGAAGGAAGAGTGAAGGACTTTCTC spacer
	length: 38	repeater length: 30	
35978	1669090	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTAGTTTTTTCCTAGATATCGATGAGACTTCACT spacer
	length: 33	repeater length: 30	
35979	1669154	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAGTATACGCCTAAACCGATAGCCAAATTTGAAGAAT spacer
	length: 37	repeater length: 30	
35980	1669222	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGGTAGGAGCTGATGAGAATAGCTGAATGACCGAATCG spacer
	length: 38	repeater length: 30	
35981	1669291	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGTTTCACTGCAGTCAATCCTCCCAAGTTCTTTC spacer
	length: 34	repeater length: 30	
35982	1669356	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGGCTTGGAAGTGCAGAAGCGGTGTACCCAACGCAGA spacer
	length: 38	repeater length: 30	
35983	1669425	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGCCCTTCTGGTTATTATTACGATTCTGGTTACA spacer
	length: 34	repeater length: 30	
35984	1669490	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGGTATCCTCTGCCCCGAATCTATCGACAGTATAG spacer
	length: 35	repeater length: 30	
35985	1669556	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACATTCAGAAGCTCTCAGTCAGACCGGACGACGCGAA spacer
	length: 37	repeater length: 30	
35986	1669624	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGACATGAGGGTGCCCGCGAAGGTGAAGGCCGCAT spacer
	length: 36	repeater length: 30	
35987	1669691	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTGAAGTACATCGAACTGGTCTGAATTCGACTG spacer
	length: 34	repeater length: 30	
35988	1669756	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGTGGAGGAGGGCCGGGTTCTCCTCCGCTTACG spacer
	length: 35	repeater length: 30	
35989	1669822	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTCAGACAAACTGCTGAATCAGACGATGATTATTC spacer
	length: 35	repeater length: 30	
35990	1669888	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCGTTGCCACGTGGGGCCCTCACCAGACCGGCCACGTG spacer
	length: 38	repeater length: 30	
35991	1669957	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACTTGGAAGAACTTCACGCGATAGGTAACATCATAC spacer
	length: 36	repeater length: 30	
35992	1670024	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GACTCGAAGAAACACGAGTTCATCGTCTGCGAATATG spacer
	length: 37	repeater length: 30	
35993	1670092	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATAATAGCAGGAAGCCCATCGAAGGTCATGATGAGA spacer
	length: 36	repeater length: 30	
35994	1670159	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTCCTCGTACGGCAGGCTTACCTGGGGTACAGGAACG spacer
	length: 37	repeater length: 30	
35995	1670227	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATGACGTATTTACCGGGAAGGATGAGGTACTCGAC spacer
	length: 36	repeater length: 30	
35996	1670294	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCATTTCTCCCGTCTGGAGTCAGAGTCACCACCGCCT spacer
	length: 37	repeater length: 30	
35997	1670362	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AACGAGAGTACGGCAAGGAGTTCGTCTGCGACCTTT spacer
	length: 37	repeater length: 30	
35998	1670430	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAGGAAAAGGGCCGTGCTTTGTGTGAGGGGGTGGA spacer
	length: 35	repeater length: 30	
35999	1670496	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGTGGAAGGGTTGTTGCAGCTCCCTCCCGGCGTCA spacer
	length: 35	repeater length: 30	
36000	1670562	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAGTCATCAATCCGCAAAATTGGCAACTTTTCTCG spacer
	length: 36	repeater length: 30	
36001	1670629	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTTTAGCGGGTTGAAGAAGCTGTTCCGGTGGTAG spacer
	length: 34	repeater length: 30	
36002	1670694	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTATGAAGTCGTCTGGCATTTCGAATTCTGACTCCGC spacer
	length: 36	repeater length: 30	
36003	1670761	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAGCCTGGATACATATCCTCTGAAGCCTAGGCTG spacer
	length: 35	repeater length: 30	
36004	1670827	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACCCAACGGCACAGCAGTTTCGCGGATGACTATCTG spacer
	length: 35	repeater length: 30	
36005	1670893	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGCCCTCCCTATTAGCTCTTCTCCCTCTATCCCTCC spacer
	length: 37	repeater length: 30	
36006	1670961	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAAGAAGGCCAGGGGTTTCATAGAGCTAGCCCGGC spacer
	length: 36	repeater length: 30	
36007	1671028	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAGACATGACGCTGATCTCAACGGCTCCTACGGA spacer
	length: 35	repeater length: 30	

36008	1671094	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATTCACGATGGAATAGAACACACACTAACTGTAGTT	spacer
	length:	37	repeater length:	30
36009	1671162	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGTGTACCACACTTGAATGTGATAGTCCCCGTC	spacer
	length:	34	repeater length:	30
36010	1671227	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCAGGAGAAGCCGGTAGAGGACGTTATAGAAAACCTA	spacer
	length:	38	repeater length:	30
36011	1671296	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCTTCGAGTTTGGGGCAGTACTACGCCTACCTCA	spacer
	length:	34	repeater length:	30
36012	1671361	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCGGTACCCCAGGTACGTACATGCTCACGTACTCCG	spacer
	length:	36	repeater length:	30
36013	1671428	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTGGAGTACAATCAATTAACATAGTAAACTCTGTTC	spacer
	length:	36	repeater length:	30
36014	1671495	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CACCTCAGACAAAATCTATTCTCCCATTCTCTGTGTA	spacer
	length:	36	repeater length:	30
36015	1671562	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATACTAACCTTCAGGTCTAAAAAGAGAAGAAAAAGA	spacer
	length:	37	repeater length:	30
36016	1671630	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATGGCATACTCATGTCCCTGTCTGATGGCTTCATCT	spacer
	length:	38	repeater length:	30
36017	1671699	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGAAATTGAAAATAAAAGCAGGAGTTCTCCAAAGTA	spacer
	length:	36	repeater length:	30
36018	1671766	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTTTCGCATTTGTCCATGTATTCTGTCGTTGAGATCA	spacer
	length:	36	repeater length:	30
36019	1671833	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCAGAATGGCAACAGTGGGAAGAATGGTTTTGTG	spacer
	length:	35	repeater length:	30
36020	1671899	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACTGTACTCCAGATAGGGTTACTTTGAGTACACTG	spacer
	length:	35	repeater length:	30
36021	1671965	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTGGAGAGAGGACTGAAAGAGTTGGGCCACCAAGTG	spacer
	length:	36	repeater length:	30
36022	1672032	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTGTGTCCCTCGAATCCTTCCTCGAGGGACACAGTTA	spacer
	length:	37	repeater length:	30
36023	1672100	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAAAAGATGAAGAAAGGGCGTTTCGAGTTCATTCTG	spacer
	length:	36	repeater length:	30
36024	1672167	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCAAGTGCCCATTCTTGTGATAGTGAAAACGATAAG	spacer
	length:	36	repeater length:	30
36025	1672234	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGGTGCTGAAAGCCAAATGACCAGAGCTATTTTCAT	spacer
	length:	36	repeater length:	30
36026	1672301	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTCACGGCCATAGGCGTGTTCTGTGGGAGGCCTA	spacer
	length:	35	repeater length:	30
36027	1672367	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCTCAGGCAGTCGCTGTGCCAACGACACTACCA	spacer
	length:	34	repeater length:	30
36028	1672432	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTGTACTCGAAAGCCAATTTGAGGAACTTGCTCT	spacer
	length:	34	repeater length:	30
36029	1672497	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TACAAACACAGCGTACTGGGTGTCACCGACTGGGT	CGAATTTT
	spacer length:	43	repeater length:	30
36030	1672571	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACATAGCTGGCGTGACGACGCAGGTGACACAGGTCA	spacer
	length:	36	repeater length:	30
36031	1672638	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTTACGTGGGATATCAGGTTATCTTCGTGTGAC	spacer
	length:	34	repeater length:	30
36032	1672703	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TAGGTTCCCTCTATTTCATGCTTAGCTTTACATCGC	spacer
	length:	35	repeater length:	30
36033	1672769	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TACAGCCCATCCACGCTAAGGACATTGTACAAGTCG	spacer
	length:	36	repeater length:	30
36034	1672836	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATAGATATGATCGACAGATTTTACCAGCCTAGAGG	spacer
	length:	35	repeater length:	30
36035	1672902	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GCTAGTTTCCTAAGTAAAGTGCTAGAATTTATTTATC	spacer
	length:	37	repeater length:	30
36036	1672970	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTCCTGCTTCCTAACGGGGATACAGTCCGGCATT	spacer
	length:	36	repeater length:	30
36037	1673037	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACTCCTCGGAGGACGAGGAGGACTCGGAGGAGGA	spacer
	length:	34	repeater length:	30
36038	1673102	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCGTTGCCATGGGTTTCGTTTGTCTTACGCTATTAT	spacer
	length:	35	repeater length:	30
36039	1673168	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CAACGACGGTGAGGAAGAGCAGCTCGCCAGCACC	spacer
	length:	34	repeater length:	30
36040	1673233	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGTCGGCTGTTCCGCGGTGGCGTTGAGGTATGCC	spacer
	length:	36	repeater length:	30
36041	1673300	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGGAGGGGAGGGGAAGAAAAAGGGTTAGGGAAGA	spacer
	length:	35	repeater length:	30
36042	1673366	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGTTACTGACCCATCCCAGTTGCTATCGGCCAG	spacer
	length:	34	repeater length:	30
36043	1673431	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GCAGTCTTTCGCCGTTTCTCCTTCTTCTTTACATAAA	spacer

	length: 37	repeater length: 30	
36044	1673499	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CATATCCCTCGTACCCCTGTTTCGAGGGATATGATAT spacer
	length: 36	repeater length: 30	
36045	1673566	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACTAACTGAATGGTACAAAAAGGCTGGGTGCAGTTTT spacer
	length: 38	repeater length: 30	
36046	1673635	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCAGCCAGAAGGAAGAAGAGGAGAGAAGGAAGGAAA spacer
	length: 36	repeater length: 30	
36047	1673702	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACCCTGTACGTCGTCGTCATATCGGCGTCGGTCT spacer
	length: 34	repeater length: 30	
36048	1673767	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGAGACTTCATGTGCGAAAAAGCGTGACGGAACAA spacer
	length: 36	repeater length: 30	
36049	1673834	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGTGTGAGCCGGCCTGAAAGGCCGTTGAAGATATT spacer
	length: 36	repeater length: 30	
36050	1673901	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGCCGGCTGACACGCACGAAGTCTTTGTTTGAAGA spacer
	length: 37	repeater length: 30	
36051	1673969	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCCAAACAAATGTATCTAGGGTACAAGGAGGGTGAGT spacer
	length: 38	repeater length: 30	
36052	1674038	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAGTGAGAATGGCGGCTCGGTAGTGTTCGCGCAC spacer
	length: 36	repeater length: 30	
36053	1674105	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCTTCCACCCCGTGCGGGGAGCCATACAACCCTACA spacer
	length: 38	repeater length: 30	
36054	1674174	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGTTACACCGCTTCCGGGTGTGACAACACCAGGCG spacer
	length: 35	repeater length: 30	
36055	1674240	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACTTAACACCGCAGCAGATAGCCCAGTATGTCAA spacer
	length: 34	repeater length: 30	
36056	1674305	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTAAGGAACAAGTCTTAGCCCTACTCTTTGTCATG spacer
	length: 36	repeater length: 30	
36057	1674372	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACACGATAGTGGTGAAGAACGGGAAGCTACATATAGG spacer
	length: 37	repeater length: 30	
36058	1674440	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTGAGGTGATTGCGGTTTGGGCTTGGGTCGATACC spacer
	length: 35	repeater length: 30	
36059	1674506	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTTCGGCATCTCGTCGAAATTTGATGTGTTTATCC spacer
	length: 35	repeater length: 30	
36060	1674572	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTCCCATTTTTATCAACTCTTGCTGAGAGAATTGAT spacer
	length: 36	repeater length: 30	
36061	1674639	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGAGTGAGCAGAAGCAGGATTCTCAACAGGAAGA spacer
	length: 35	repeater length: 30	
36062	1674705	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGTCTTTGTACCTCTCATATACTTCATTCTTCAGT spacer
	length: 36	repeater length: 30	
36063	1674772	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTTCCACGACGAATATTTACAGACATCACGTCA spacer
	length: 35	repeater length: 30	
36064	1674838	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGTGGGAAAAGAGGAAAGTGTGAAAAAGATGAGGT spacer
	length: 35	repeater length: 30	
36065	1674904	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAGTGACGGCCATGGTGTAGATGCCCAACACCATC spacer
	length: 36	repeater length: 30	
36066	1674971	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAATTTATCTTTCTATTTGTCTGCTTATTTGTAT spacer
	length: 35	repeater length: 30	
36067	1675037	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGAACTCGGGGTCTTCACCGAGGCCACACCCATCG spacer
	length: 36	repeater length: 30	
36068	1675104	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGAGTGCATACCTGGTCCTTACGACCAGGTATAGA spacer
	length: 35	repeater length: 30	
36069	1675170	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCAGGGGCATGCTCAGGGACCCGGACACACCCCT spacer
	length: 35	repeater length: 30	
36070	1675236	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATATCCCTGCTAACACAACATACTTAGCCCCCGAAA spacer
	length: 38	repeater length: 30	
36071	1675305	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGTCTTGCGCCGTGACTTTGCGCCACATGTCCGG spacer
	length: 35	repeater length: 30	
36072	1675371	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGTGAGCATCTTTTCAATTTCCATGAGCACCTTT spacer
	length: 34	repeater length: 30	
36073	1675436	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCTTACCCGTGGGCTCGGGCCTGAGGCTCTTCGA spacer
	length: 36	repeater length: 30	
36074	1675503	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCGTCACCATCCCCACACAAACGAAGACCAAGACG spacer
	length: 35	repeater length: 30	
36075	1675569	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGTTTCGTTTCCTTGCGCCCAAACTCGCACTTGCCCC spacer
	length: 38	repeater length: 30	
36076	1675638	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACAAAAGGAGTTTAAAAAGATTACACGGGAAGAGG spacer
	length: 35	repeater length: 30	
36077	1675704	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCACGGATCCCAACGTGAAACTCTTCTCGTGGCCTAAGG spacer
	length: 39	repeater length: 30	
36078	1675774	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAAATTCAAAGCCTGGGGTCATAAGCCCCAGGGCGT spacer
	length: 36	repeater length: 30	

36079	1675841	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTTTCCCGATCCCGGTGACTTATCCCAAGCTAAA	spacer
		length: 36	repeater length: 30	
36080	1675908	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATGTCATTTCCGGCAGTTTGTGTGTGTCGGGTTTTA	spacer
		length: 37	repeater length: 30	
36081	1675976	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGTTTTTTTTACTCGTACACAATTGTATACACATGG	spacer
		length: 36	repeater length: 30	
36082	1676043	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATCGTCCTCGGAGGACGAGTCGGACTAACCCACCCAC	spacer
		length: 38	repeater length: 30	
36083	1676112	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATCGTTTCCGATAGAAGACTGCCATCACATTTT	spacer
		length: 35	repeater length: 30	
36084	1676178	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACACGAAGAGGACTCCAGTAGTGACCTTCACGACGG	spacer
		length: 36	repeater length: 30	
36085	1676245	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTTACTCGCTCTTCCAGCTCTGCTATTATTCTTTT	spacer
		length: 37	repeater length: 30	
36086	1676313	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTCTTCTTTCTTCTTCTTTCTTCCCTTCTTCTCT	spacer
		length: 36	repeater length: 30	
36087	1676380	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGATGTACTTTACCACACTGGGTGTCACCCAGTGTG	spacer
		length: 36	repeater length: 30	
36088	1676447	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CATCCCCTACTTCTCTACCACCTCCCTGACCGTATC	spacer
		length: 37	repeater length: 30	
36089	1676515	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCTCACGTCCATCGCTAGAGAGCCCCCGTGACGTT	spacer
		length: 36	repeater length: 30	
36090	1676582	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTCTTACGATCAACGTAGCATTGAACACGAACACC	spacer
		length: 35	repeater length: 30	
36091	1676648	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCGTGCAGTAGGTCGTAGATGGTTCCGTAGTTGTTGTT	spacer
		length: 38	repeater length: 30	
36092	1676717	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GCTTGCATCCTCGGTACTTGGTTCAAGTCATCTACG	spacer
		length: 36	repeater length: 30	
36093	1676784	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATTCCTGTACCTCTTTGTTTCATCTTCTCATCTTCC	spacer
		length: 37	repeater length: 30	
36094	1676852	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGGCACAGCAGATCCAGGTTTCGGACGAGTTCGCCG	spacer
		length: 37	repeater length: 30	
36095	1676920	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTATCGTCGCGGGAGAAGTGGTGCTTCCGGTGCCT	spacer
		length: 35	repeater length: 30	
36096	1676986	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACCAGCTGGGCATCTTGAAGTTCTTCTTCAACTCCTC	spacer
		length: 38	repeater length: 30	
36097	1677055	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCCGAAGGAAAAGTCCTGTGCGGCACAAGAGGCGATAGG	spacer
		length: 38	repeater length: 30	
36098	1677124	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGGCGTGGGGGGTGCTCAAGTACGACCTGCCTCCCG	spacer
		length: 36	repeater length: 30	
36099	1677191	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCACGATGGAAC TTCATTTTCAAGCACTACATC	spacer
		length: 34	repeater length: 30	
36100	1677256	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAGTAGAGGAAGACGTGAAATGGCTTACCAAGACG	spacer
		length: 36	repeater length: 30	
36101	1677323	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTGGGAGGGGAAAAGGATGCCTGAGAAGGACGAGA	spacer
		length: 35	repeater length: 30	
36102	1677389	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTTTACAGCTATTGGTGTATTCTGTGGGAGGTCTAGCC	spacer
		length: 38	repeater length: 30	
36103	1677458	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTCTCCAGGTTGACCATTTTCTCACCAAGGTAATG	spacer
		length: 36	repeater length: 30	
36104	1677525	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTTCCTACTAGAACCCTATGGCTGTACTCAGCCTC	spacer
		length: 36	repeater length: 30	
36105	1677592	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGCCACCCCCCTCGAGGGGGGAGACCCGAAAACA	spacer
		length: 34	repeater length: 30	
36106	1677657	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCAATTGGACAAAGAATTACAGGCAAATGACAT	spacer
		length: 34	repeater length: 30	
36107	1677722	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CTCACGCTCGCCCCACGCTTCTAGCGTGTGTTTGTA	spacer
		length: 37	repeater length: 30	
36108	1677790	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TATATGTGTGTCAAATGAAGTGGTAGCATGCCAAA	spacer
		length: 35	repeater length: 30	
36109	1677856	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TACTTTCTTGATAATCTCTTGAAATTCCTCAAGTG	spacer
		length: 35	repeater length: 30	
36110	1677922	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACATCCTCAACCGGCCTTTCAGGCCGGTCGATTTTG	spacer
		length: 36	repeater length: 30	
36111	1677989	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATTTTGAACGAAATCGTCTTAGAAGTCATTATT	spacer
		length: 34	repeater length: 30	
36112	1678054	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTGCGCCGCCCTCGTCGGAGGTAAGGGTGTGG	spacer
		length: 35	repeater length: 30	
36113	1678120	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TATAAGCTAGAAAGCCAAAATGCCCTGGTTGTTT	spacer
		length: 34	repeater length: 30	
36114	1678185	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCGAGGCACTAGGCACCGGCTGGTACGTCCAGGCC	spacer

	length: 35	repeater length: 30	
36115	1678251	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AGGGCGAGGATCCGAGCGAAGCTCTTCTCTCGTGAA spacer
	length: 37	repeater length: 30	
36116	1678319	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTAACACAAGTGGTGGAAATACAACCAGCGGAAACA spacer
	length: 36	repeater length: 30	
36117	1678386	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TTTTGGAATCACGTTTACCCTTATTGTGTTGTTG spacer
	length: 34	repeater length: 30	
36118	1678451	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCTATGATTTTAGCCGCTGAATGGCACGATGTTCA spacer
	length: 36	repeater length: 30	
36119	1678518	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GTGCCTCCAGTCGGGGTCTCTTCAGGAACGGGTTC spacer
	length: 36	repeater length: 30	
36120	1678585	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAGGCACCGCAAGCACCCTTCTCCCGTGACGATA spacer
	length: 35	repeater length: 30	
36121	1678651	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GAAGTACCAGTAGTGGCAGTAGCGGAAGTGGTAAC spacer
	length: 35	repeater length: 30	
36122	1678717	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGATGAAGAACTCGGTTTCGCGGATTTCGCTCGGATG spacer
	length: 37	repeater length: 30	
36123	1678785	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAAAACCTCATCCACGTTTATTTTTTCGATGTGTGGC spacer
	length: 37	repeater length: 30	
36124	1678853	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGGCACCTGTTGTGAGTGCAGTACCGTGCCATA spacer
	length: 34	repeater length: 30	
36125	1678918	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CCTTCCAGCCATAGGGAACAAAGGATCGATTCCG spacer
	length: 34	repeater length: 30	
36126	1678983	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATCCGAGCCCGTCGAAGAGACGGGCACTTCTTGATC spacer
	length: 37	repeater length: 30	
36127	1679051	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CGTGCGGAACGGACCTCTTTGCCGTGCTCTACTATC spacer
	length: 36	repeater length: 30	
36128	1679118	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGGGAGGCTAATTTATTGTTTGTAAACAGAGGTAT spacer
	length: 36	repeater length: 30	
36129	1679185	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TCACCGCGGTCTTCGTCTTGGTCTTGTTGTCGTT spacer
	length: 35	repeater length: 30	
36130	1679251	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	CAGGGAGGGTTGATCGAGTCGACCCAAACCCAAACC spacer
	length: 36	repeater length: 30	
36131	1679318	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GGAGGGAGGCGGGCAAGGGCAGAGGAGGAAGGACG spacer
	length: 35	repeater length: 30	
36132	1679384	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACGAGCGTCAATCAGATCAACCCGTCCTAGTTAC spacer
	length: 34	repeater length: 30	
36133	1679449	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATAATTACTCCATCGTACGCGGAACCATCACAA spacer
	length: 34	repeater length: 30	
36134	1679514	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATACGTTGTTCTGCCAAACGGAGACTTCGTGCATA spacer
	length: 35	repeater length: 30	
36135	1679580	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	
		GAGTTAGATAGATAGCTAGCTAGAAAAGCTAGTTTCCGTTTCAAGCTAGACCCTCAGGCAGTCTTTGCGTCAACGACACCACCTAGC	
		TAGAAAGCTAGTTTC	spacer length: 101 repeater length: 30
36136	1679712	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GATACGAAGGTATGAATAACGTTTTGGAACGTGT spacer
	length: 34	repeater length: 30	
36137	1679777	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TAAACTCGCTGTCCCGTATTTCTTTGATGGCGTTCT spacer
	length: 36	repeater length: 30	
36138	1679844	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TATACAGAAACCATCTGGTGATTCCAACACAAGGA spacer
	length: 35	repeater length: 30	
36139	1679910	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATGTATTTTCGTACCCCGTCACTTCTATTAGATTT spacer
	length: 34	repeater length: 30	
36140	1679975	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ACATACGATGAACTCGTGCTTCTTCGAGTCCAATG spacer
	length: 35	repeater length: 30	
36141	1680041	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAATTTTCGACGAGATGCCGAAGGAAGGAAGGTGA spacer
	length: 35	repeater length: 30	
36142	1680107	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGTTACCATAAATACATGTAATACAAGTAGGGTTT spacer
	length: 36	repeater length: 30	
36143	1680174	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TAGCTTGAAGGCACGCAGGTACTCCAGCTGCTT spacer
	length: 33	repeater length: 30	
36144	1680238	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AATGAGAATGAGATAGCAGAATGGTACAAGAAAG spacer
	length: 34	repeater length: 30	
36145	1680303	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATATGATAACAGTTTTCTGGTTTATACCCAGATG spacer
	length: 35	repeater length: 30	
36146	1680369	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	TGGAAGTCTCAAGAGCCTGAAGGGCGGGGGGACAG spacer
	length: 36	repeater length: 30	
36147	1680436	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	GCCATTCTAGCCATTTTCCAAAAAATACAGGGGCCA spacer
	length: 36	repeater length: 30	
36148	1680503	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	AAGGGCCTCAAATGAGTACTAAAGTGTCCCAAAATGA spacer
	length: 37	repeater length: 30	
36149	1680571	GTTTCAAGCCCTCAAAGGTAAGCTACAAAC	ATATTTAAGTCTTTTTTCATTCTAGTCTTTTA spacer

length: 35 repeater length: 30
36150 1680637 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CAGTATCGGAAAGCTGATTGTTGAACAGGGTGAAAC spacer
length: 36 repeater length: 30
36151 1680704 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC TTCCCACTGGAAATGGGAACAGTGGAGGAGTGGA spacer
length: 34 repeater length: 30
36152 1680769 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC AAGGCACGCTCGATGAGGCAGGAAGGGAGGTCTG spacer
length: 33 repeater length: 30
36153 1680833 GTTTCAAGCCCTCAAAGGTAAGCTACAAAC CCTGGGGCGGTATTTTTTCGTACAGGAAAGGCG
36154
36155
36156 crispr 3
36157 1648712 CCCTGATCCAGGTGAACTCCACGGTGAGGTACTC
CCTAATCGGACGGTCCACCTTCACCGTCACAGGGCCCGCGAACGTCACCTCCCGACTACGTGAAGCAGTACCTTGTGACCCTCTCCC
TCCCCAACGGGACCCTCTCGTCTGGATCGACCAGGACGCTGTGGCGACTATCCCG spacer length: 142 repeater
length: 34
36158 1648889 CCCTGATCCAGGTGAACTCCACGGTGAGGTACTC
GCTAGTGGGGCCCTCGACCTTCATTGTGACCGTGCCGGCCGAGCTCACTCCCGACTACGTGAAGCAGTACCTTGTGACCCTCTCCC
TCCCCAACGGGACCCTCTCGTCTGGATCGACCAGGACGCTGTGGCGACTATCCCG spacer length: 142 repeater
length: 34
36159 1649066 CCCTGATCCAGGTGAACTCCACGGTGAGGTACTC
TTCTTCCTTTCTTCTCATAAACTTTTCGTCCAGGAATTCGGCAATCTCCTCCTTCCTTGAAGTTGAGGTAGGTTGCCGCAAGAGT
TTGAGGCAAGAGGAAATATATTACCAAAAACATATTACAGTATCACGGGAGATTGC
36160
36161
36162 GCA_003990725.1_ASM399072v1_genomic.fna(findCrispr):
36163 START REPEAT
SPACER
36164 crispr 1
36165 2402618 ACTTTCTCGCCGACCGTCTC GTCTACCGTCTCCTCAACCGTCTTCTCGACCGTTTCGCCGACGGTCTCCTC
spacer length: 51 repeater length: 20
36166 2402690 ACTTTCTCGCCGACCGTCTC
GTCTACCGTCTTCTCGACCGTTTCGCCGACTGTCTCTTCGACTTTCTCGCCGACTGTCTCTTC spacer length: 63
repeater length: 20
36167 2402774 ACTTTCTCGCCGACCGTCTC
CCGGGAGTTTGGTGGTGTACCCGTCGAATCAACAGCGTACAGTTATTTCGTCCGGGTCTCTCGC
36168
36169
36170 crispr 2
36171 2402933 GTCTCGCCCACGCTCTTTTC
GACCTCCTTGCTCACCGTGTCTCGCCGACCGTCTTCTCCACCTCTTTGCTCACGGTCTCGCCCACGCTCTTCTCGACCTCTTTGCTCA
CCGTATCGCCGACCGTCTTCTCCACCTCCTTGCTCAC spacer length: 123 repeater length: 20
36172 2403077 GTCTCGCCCACGCTCTTTTC
GACCTCCTTGCTCACCGTGTACCCGACCGTCTTCTCGACTTCCTTGTTGACCGTCTCGCCCACGCTCTTCTCGACTTCCTTGTTGA
C spacer length: 87 repeater length: 20
36173 2403185 GTCTCGCCCACGCTCTTTTC
AACGGCCGGGAGTTTGGTGGTGTACCCGTCGAATCAACAGCGTACAGTTATTTCGTCCGGGTCTCGCCGCGCGCTCGCTTGTACA
T
36174
36175
36176 crispr 3
36177 141916 GAATCGGAGTCCGAGCCTGAG CCTGAGTCTGAATCGGAACCGGAACCGGAATCTGAATC spacer length:
38 repeater length: 21
36178 141976 GAATCGGAGTCCGAGCCTGAG CCTGAGTCTGAATCGGAATCGGAACCGGAATCTGAATC spacer length:
38 repeater length: 21
36179 142036 GAATCGGAGTCCGAGCCTGAG CGGAGTCGACTCCTGACTCCGAGTCATCGTCGGAGTCC
36180
36181
36182 crispr 4
36183 116746 CGGGTTCAAATCCCGCTCCGGGCGT
CCCCACGTTTCCGGGGTGAGTCGCTGTTTGCCCGGATGGTGTAGTGGCCCATCATACGACCCTGTCACGGTCGTGAC spacer
length: 77 repeater length: 25
36184 116849 CGGGTTCAAATCCCGCTCCGGGCGT
TTCTGTCACTGCCAACCGACGAGCGAAGCGAGCCGACACCGTCGGCGACGAACCTGCTCAGGGATTTGAATCTGAGGACGAGCG
AACGCAGCGAGCGAAGTCCT spacer length: 106 repeater length: 25
36185 116981 CGGGTTCAAATCCCGCTCCGGGCGT
GTTTGGTGGTGTACCCGTCGAATCAACAGCGTACAGTTATTTCGTCCGGGTCTCGCCGCGCGCTCGCTTGTACATCGCCAGCGCC
GCCTCGCGACGCTCCGAGTG
36186
36187
36188 crispr 5
36189 1419179 CGTCGATCCGAACTCAACTATTTATAAGCGAACGGC TGGGGCTTTAGTGGTGTAC spacer length: 20


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repeater length: 36
36190 1419236 CGTCGATCCGAACTCAACTATTTATAAGCGAACGGC TGGGGCTTTAGTGGTGTAC spacer length: 20
repeater length: 36
36191 1419293 CGTCGATCCGAACTCAACTATTTATAAGCGAACGGC TGGGGCTTTAGTGGTATTCA spacer length: 20
repeater length: 36
36192 1419350 CGTCGATCCGAACTCAACTATTTATAAGCGAACGGC TGGTGTACCCGTCGAATCA
36193
36194
36195 GCA_004340645.1_ASM434064v1_genomic.fna(findCrispr):
36196 START REPEAT
SPACER
36197 crispr 1
36198 770277 CCACTAAAACAA GGATTGAAACAACGATTTCCCCGAGTTTGAGGACAAGGACATAAGGTCAAAATTCAATA
spacer length: 59 repeater length: 12
36199 770349 CCACTAAAACAA GGATTGAAACTTGATCATATGTATACGTTTCACTCCGTCTTTTTTGTCAAAATTCAATA
spacer length: 59 repeater length: 12
36200 770421 CCACTAAAACAA GGATTGAAACTCAATAGAAGAAGAAGCGGTTTTAAGTGCGTTAGTGTCAAAATTCAATA
spacer length: 59 repeater length: 12
36201 770493 CCACTAAAACAA GGATTGAAACATGGATCGTTAAAATTAAGTTAAAATTCTATGCTAGTCAAAATTCAATA
spacer length: 59 repeater length: 12
36202 770565 CCACTAAAACAA GGATTGAAACGACTCATGATACACATGCACAGCACATGCACCATAATGTCAAAATTCAATA
spacer length: 61 repeater length: 12
36203 770639 CCACTAAAACAA GGATTGAAACAACAGTACCTGCCGATAGCGTTTTTAAATTAGTGCGGTCAAAATTCAATA
spacer length: 60 repeater length: 12
36204 770712 CCACTAAAACAA GGATTGAAACTTCAATGCATACATAGTTACCACTCATTGCTTAAAAGGGTCAAAATTCAATA
spacer length: 62 repeater length: 12
36205 770787 CCACTAAAACAA GGATTGAAACAAAATTCTGAATATCCGGGGCTTAATTTGTTCTTAGGTCAAAATTCAATA
spacer length: 60 repeater length: 12
36206 770860 CCACTAAAACAA GGATTGAAACTTTATGTCTCTGGTTAAAGCCCAGGACCAGGACGCCGTCAAAATTCAATA
spacer length: 59 repeater length: 12
36207 770932 CCACTAAAACAA GGATTGAAACGATTTATGGTCTAAGGTTAGTCTTAAGCATGGTCTAAGTCAAAATTCAATA
spacer length: 61 repeater length: 12
36208 771006 CCACTAAAACAA GGATTGAAACATCAACCCTTTTATCGCATAGTTGCGGTTGCTGGTCAAAATTCAATA spacer
length: 57 repeater length: 12
36209 771076 CCACTAAAACAA CCACTAAAACAAGGATTGAAACATTCCATTAACCAGGAAATAAACATACTGGAACGT
36210
36211
36212 crispr 2
36213 15272 ATTTCAATCCCTCTAAGGTCTGATTATAAC CAGTCAGGTTGCCGGAATACTGAAATTACACTCAAT spacer
length: 37 repeater length: 30
36214 15340 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATATACTCTATTATAGATGTTTTTATACATATA spacer
length: 34 repeater length: 30
36215 15405 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACCGTTCAAGACGAAACATACAAACATGATAATTG spacer
length: 35 repeater length: 30
36216 15471 ATTTCAATCCCTCTAAGGTCTGATTATAAC TGAGCCACCACAAAAACAACAAATTCAAATTATTG spacer
length: 35 repeater length: 30
36217 15537 ATTTCAATCCCTCTAAGGTCTGATTATAAC AATGAAAGTATAAAAAGAATATAAAAAACATATAAGAA spacer
length: 37 repeater length: 30
36218 15605 ATTTCAATCCCTCTAAGGTCTGATTATAAC AGGTGCAGATTGAGCAGATACAAACATAGGAACGA spacer
length: 35 repeater length: 30
36219 15671 ATTTCAATCCCTCTAAGGTCTGATTATAAC AAAAGTATGATGATGAATTCACCGCCAAAGAAGCG spacer
length: 35 repeater length: 30
36220 15737 ATTTCAATCCCTCTAAGGTCTGATTATAAC GCAATCGTCACCGAGTGATATATATTTTGATCCGTTTACGCATT
spacer length: 44 repeater length: 30
36221 15812 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACGGATCGATACACAAAGATCCGTACAACAACAAGCAGA spacer
length: 39 repeater length: 30
36222 15882 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATCCAGTCATAAATAGTTCGTTATCAGTACATGA spacer
length: 34 repeater length: 30
36223 15947 ATTTCAATCCCTCTAAGGTCTGATTATAAC AGGGACCGAAAGAATGTTCTATTATCTATGGCTGTT spacer
length: 37 repeater length: 30
36224 16015 ATTTCAATCCCTCTAAGGTCTGATTATAAC GTCAAGATGATTACGTTCTTCATGTTACCCGCTCGTT spacer
length: 38 repeater length: 30
36225 16084 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTTTGGTTACTCGTGTTACCATTACCTTTTGTGTGAAC spacer
length: 38 repeater length: 30
36226 16153 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATGATGTCTACTGATTCCATATTTTATATTGTG spacer
length: 33 repeater length: 30
36227 16217 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATCATACTCATTTTCATTCCATGTATTTTCAATCACATCAT
spacer length: 41 repeater length: 30
36228 16289 ATTTCAATCCCTCTAAGGTCTGATTATAAC CTGCTGTAGAGAACAGACCAAAAGCATTTCCAAAGA spacer
length: 36 repeater length: 30
36229 16356 ATTTCAATCCCTCTAAGGTCTGATTATAAC CTGGGTACCGTAACAAGTTCGGCTGCAACACTGA spacer

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length: 34 repeater length: 30

36230 16421 ATTTCAATCCCTCTAAGGTCTGATTATAAC GAAGACAAAGGAACGGGTACAGGACAAGATGGCATCA spacer
length: 37 repeater length: 30

36231 16489 ATTTCAATCCCTCTAAGGTCTGATTATAAC AAAATCAAGAATGGGCGCGCAAGGCTCCTATGCAG spacer
length: 35 repeater length: 30

36232 16555 ATTTCAATCCCTCTAAGGTCTGATTATAAC AGTATATAAATCGTGTACTTGCACGGTTTTATAAG spacer
length: 35 repeater length: 30

36233 16621 ATTTCAATCCCTCTAAGGTCTGATTATAAC GAAATATGACCCTCATGAAATCAAGCATGCCAAGA spacer
length: 35 repeater length: 30

36234 16687 ATTTCAATCCCTCTAAGGTCTGATTATAAC AAAAAATTATGGAAAAGTATGGAATTGATAGAGGAG spacer
length: 36 repeater length: 30

36235 16754 ATTTCAATCCCTCTAAGGTCTGATTATAAC TCCAACCTTGAACATACTTCTATAGTTCATGTTA spacer
length: 35 repeater length: 30

36236 16820 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTGAATCTCGATCATCTACAAGGAATACAGACAT spacer
length: 34 repeater length: 30

36237 16885 ATTTCAATCCCTCTAAGGTCTGATTATAAC CAAATATCGGCGGAGACACATTCACGATCCAGAATG spacer
length: 36 repeater length: 30

36238 16952 ATTTCAATCCCTCTAAGGTCTGATTATAAC
CAACGTCTCCAGTCACGGGTTGTTTTCCCGTTGCACTTTGAAGTTTGAAA spacer length: 50 repeater
length: 30

36239 17033 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACATCATTTTCAGTTACAAATGTGTTTGTGCTG spacer
length: 34 repeater length: 30

36240 17098 ATTTCAATCCCTCTAAGGTCTGATTATAAC AGCCTTTTAACTTAGACAACCTATTACTAATTAGAGACTTAAA
spacer length: 44 repeater length: 30

36241 17173 ATTTCAATCCCTCTAAGGTCTGATTATAAC TGGCACTATATCCGTCTATGAATAATCAATGTTAT spacer
length: 35 repeater length: 30

36242 17239 ATTTCAATCCCTCTAAGGTCTGATTATAAC TCACAATTAAATAAACCTTTAAAGAATAAAAGAGT spacer
length: 35 repeater length: 30

36243 17305 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATCCACGCCTACCGAATTAGAGCAAATGAATAATCA spacer
length: 36 repeater length: 30

36244 17372 ATTTCAATCCCTCTAAGGTCTGATTATAAC CCAACGGCTGCGAGACCTGCTACTAACGGGAGGGCA spacer
length: 36 repeater length: 30

36245 17439 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTTGGTTACAATGCTCCAATGAGTGTGGTAGAAGT spacer
length: 35 repeater length: 30

36246 17505 ATTTCAATCCCTCTAAGGTCTGATTATAAC AGTTAAGTTAGATTAATCTGTTTTATTAATCATTTT spacer
length: 36 repeater length: 30

36247 17572 ATTTCAATCCCTCTAAGGTCTGATTATAAC GTGCATGTGCTGTGCATGTGTATCATGAGTCTTTTAGACTC
spacer length: 41 repeater length: 30

36248 17644 ATTTCAATCCCTCTAAGGTCTGATTATAAC AAACAAACAGCGTTCACAGATCGCCCCCTCTGACGCA spacer
length: 36 repeater length: 30

36249 17711 ATTTCAATCCCTCTAAGGTCTGATTATAAC CGGTCTATCCATGATATGATTTTAGATACTTACT spacer
length: 34 repeater length: 30

36250 17776 ATTTCAATCCCTCTAAGGTCTGATTATAAC CAATATCTTCGACTTCCTCAGTTGTTAATGTAGT spacer
length: 34 repeater length: 30

36251 17841 ATTTCAATCCCTCTAAGGTCTGATTATAAC AATAGACCAAGAAGCATTCAAATACTGCAATCCT spacer
length: 35 repeater length: 30

36252 17907 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATGATGATAGATATAACTGAATCAGCACTTGTATCTA spacer
length: 37 repeater length: 30

36253 17975 ATTTCAATCCCTCTAAGGTCTGATTATAAC GATTTAAGTCATTTAGTGCTACATCCCTTAAAAAT spacer
length: 35 repeater length: 30

36254 18041 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATCTCAAATTCATGTTGTATTAAACGTATGCTCAG spacer
length: 37 repeater length: 30

36255 18109 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATGACTGCTGTAATTTCTCCAGTTTTTTTGAAAA spacer
length: 34 repeater length: 30

36256 18174 ATTTCAATCCCTCTAAGGTCTGATTATAAC AGTATGCGTTGTATGGTATTTTTGCACTGCTAGGTA spacer
length: 36 repeater length: 30

36257 18241 ATTTCAATCCCTCTAAGGTCTGATTATAAC CAATACTCATTTTGTCTCCTCCTTTTCTTCTATCTC spacer
length: 36 repeater length: 30

36258 18308 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTGGCTGACTTGTAGCGTAAGATTTACATAAGCATC spacer
length: 37 repeater length: 30

36259 18376 ATTTCAATCCCTCTAAGGTCTGATTATAAC CCGTCAAACCTCAAATTCCTGTATTGATGTACTGC spacer
length: 34 repeater length: 30

36260 18441 ATTTCAATCCCTCTAAGGTCTGATTATAAC GGCACAAATAGTTACATCTATGTACATTCAAGTACA spacer
length: 36 repeater length: 30

36261 18508 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATTTTATCCTAATTGTACTATCGTATTGTCTCAAA spacer
length: 35 repeater length: 30

36262 18574 ATTTCAATCCCTCTAAGGTCTGATTATAAC CATGTTTGTTCATCCTTTTTATTGTTTCTGTTTAT spacer
length: 36 repeater length: 30

36263 18641 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTGATACGTTATGCACATATCATTTTGAAGATGATG spacer
length: 36 repeater length: 30

36264 18708 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTATTTAGTATTGGTGACTACAATAAGGTGATAAA spacer

	length: 35 repeater length: 30	
36265	18774 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TATTTCCCTCAATACCCTCATTTCACGCATAAAGT spacer
	length: 35 repeater length: 30	
36266	18840 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AGAATTTTCAATAATGGTGCTACAGATATAGCAA spacer
	length: 34 repeater length: 30	
36267	18905 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ACGATAGTACAATTAGGATAAAATACGTTAACCTA spacer
	length: 35 repeater length: 30	
36268	18971 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AATATCAGGTACACCAGTAATAAATAAAAAATAAAAGGT spacer
	length: 39 repeater length: 30	
36269	19041 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTTTTTCGGGCATGAGTCTGATTGGGTATATTCTC spacer
	length: 35 repeater length: 30	
36270	19107 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTGTGTGTTGTCAGCAAGTTCAATTGCCCAATCAA spacer
	length: 35 repeater length: 30	
36271	19173 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TCAATGCATCGTTCGTATATCAGGAGTGAGGCATA spacer
	length: 35 repeater length: 30	
36272	19239 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TATGCATAAGGTTCTTCACACTCAAATTTCAAATTGA spacer
	length: 37 repeater length: 30	
36273	19307 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AGAGCGCCCTGCATAACCCATTGTTGAATAACTA spacer
	length: 34 repeater length: 30	
36274	19372 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATTCCTTTTCATCGCCTGCAGATATCGTAATCTATG spacer
	length: 35 repeater length: 30	
36275	19438 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ACAGCATCACGGTAGTTTTTGCCCTTCTTTGATTCC spacer
	length: 36 repeater length: 30	
36276	19505 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TAATCTTGAAGCAGTACTTGAAGAAAAGATTAGAG spacer
	length: 35 repeater length: 30	
36277	19571 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CACCTCGAGACGGAAAACAACAAGAAATATGAGCAG spacer
	length: 36 repeater length: 30	
36278	19638 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTATTTTTTGTGTCATGTTTCATACATCCTTATT spacer
	length: 34 repeater length: 30	
36279	19703 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GATTTTGCACGACAAAGCATATCGATCCTTTCTGATG spacer
	length: 37 repeater length: 30	
36280	19771 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TATAATCACCTTAAAAAGATTACTGGCCCCTATTA spacer
	length: 35 repeater length: 30	
36281	19837 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TATTCCTATGATTACAGGCTCAATGCATCATATAT spacer
	length: 35 repeater length: 30	
36282	19903 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CTGGCATTAGAAGACACCTCCACCGACATCATCTT spacer
	length: 35 repeater length: 30	
36283	19969 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TGCTCCACAAATAGAAATGCCCAGTATTGAAAGTC spacer
	length: 35 repeater length: 30	
36284	20035 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TCTGGAGTGGTTGCCCTAATGGAATTGTGGACGA spacer
	length: 35 repeater length: 30	
36285	20101 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATTCTGTACTTTATTCTGTATTTTATCCGTTATTA spacer
	length: 35 repeater length: 30	
36286	20167 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CATCATCATACTTTTTTTCATCGACATCCTCGCCG spacer
	length: 35 repeater length: 30	
36287	20233 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GACTATTATGAATGATGACGGTTCACCGTTTGGCT spacer
	length: 35 repeater length: 30	
36288	20299 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CCTGTTGATCCACAGGGGCTTGCTCTGTGGTTTT spacer
	length: 34 repeater length: 30	
36289	20364 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTTCCCTGGCTCATCGTGGTATGCAGCTCTGTTT spacer
	length: 34 repeater length: 30	
36290	20429 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CATTGCGCTTTTTTGGGGAAATACTCTACCACACAG spacer
	length: 35 repeater length: 30	
36291	20495 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CTAGGATTGCTTCCATAAGTAACCTTACCTGTTG spacer
	length: 34 repeater length: 30	
36292	20560 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATGTTCCGTGTAGTCTTCTATTTTTCCCTCCCCTG spacer
	length: 35 repeater length: 30	
36293	20626 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ACAAACGTTGTTTTAGAGTGTTTCAGTGCCAAACA spacer
	length: 34 repeater length: 30	
36294	20691 ATTTCAATCCCTCTAAGGTCTGATTATAAC	GTCTATCGTGGTATCGAAAATCTCTGGGGTAATGT spacer
	length: 35 repeater length: 30	
36295	20757 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AATTGCATAAGTACCTTTGATATGTGCTTAATTG spacer
	length: 34 repeater length: 30	
36296	20822 ATTTCAATCCCTCTAAGGTCTGATTATAAC	CCTACTGGAGTATGTCTGGAGTAGCCATTGATGAG spacer
	length: 35 repeater length: 30	
36297	20888 ATTTCAATCCCTCTAAGGTCTGATTATAAC	AGAATTGCATAAGTACCTTTGATATGTGCTTAATCG spacer
	length: 36 repeater length: 30	
36298	20955 ATTTCAATCCCTCTAAGGTCTGATTATAAC	TTAAACGTACCTCTAACTTCTTTACCACCAATAT spacer
	length: 34 repeater length: 30	
36299	21020 ATTTCAATCCCTCTAAGGTCTGATTATAAC	ATAGCCATTGTTTCATTGTACATGTATGTACATTAATG spacer
	length: 37 repeater length: 30	

36300 21088 ATTTCAATCCCTCTAAGGTCTGATTATAAC GTGTTGAGTTTGTACACCTGATAATGATACGTCA spacer
length: 35 repeater length: 30

36301 21154 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATGTGCTATATCAATGCGGAAATGTGAGCATACTA spacer
length: 35 repeater length: 30

36302 21220 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATCAGTATTGTTCCATATAAGGTATGCTTATTTG spacer
length: 35 repeater length: 30

36303 21286 ATTTCAATCCCTCTAAGGTCTGATTATAAC CTTCCATTTTCAGCAGTTGTACTAAATCCAATCTGT spacer
length: 35 repeater length: 30

36304 21352 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTTTTCAGTTCATTTATATGCTTATACATATTTAAT spacer
length: 36 repeater length: 30

36305 21419 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATAATATTATTTTTGATGAAGACAACAGAATTT spacer
length: 34 repeater length: 30

36306 21484 ATTTCAATCCCTCTAAGGTCTGATTATAAC TACCACAGATTACTTATAATACTGTGATAGTGCAT spacer
length: 36 repeater length: 30

36307 21551 ATTTCAATCCCTCTAAGGTCTGATTATAAC GTGAACCAACATGTATTATTTCCATCGTTGTGTCATCGT spacer
length: 39 repeater length: 30

36308 21621 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACATACCTGCTGGTTTCGATACTAAACGCCTTGG spacer
length: 34 repeater length: 30

36309 21686 ATTTCAATCCCTCTAAGGTCTGATTATAAC CAAAGCAACCCGAACAACCTAAGTACAACTGATTA spacer
length: 36 repeater length: 30

36310 21753 ATTTCAATCCCTCTAAGGTCTGATTATAAC GATTGCAATGTTTTAGATAGTATAAGACTAGGAA spacer
length: 34 repeater length: 30

36311 21818 ATTTCAATCCCTCTAAGGTCTGATTATAAC GGAATACGTCGTTCCATTCCAGAACGAAATAGCAT spacer
length: 35 repeater length: 30

36312 21884 ATTTCAATCCCTCTAAGGTCTGATTATAAC TGTCTGGCGTATGCAGTAACAAAAACAGCGATAA spacer
length: 34 repeater length: 30

36313 21949 ATTTCAATCCCTCTAAGGTCTGATTATAAC AAGAAAGGTTTGGTAGATAAAAAATGAAGCCGAACCTTA spacer
length: 37 repeater length: 30

36314 22017 ATTTCAATCCCTCTAAGGTCTGATTATAAC TAATTGTATCAATGCATTATCATATCGACATAAA spacer
length: 34 repeater length: 30

36315 22082 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACGTTTCTTGTAAATGTTCTAAATCCTCAAATACTG spacer
length: 35 repeater length: 30

36316 22148 ATTTCAATCCCTCTAAGGTCTGATTATAAC GATGACATGAAAGAAGGTAAGATAGAAGGTAAGAC spacer
length: 35 repeater length: 30

36317 22214 ATTTCAATCCCTCTAAGGTCTGATTATAAC TAAATCTTTTATAGTTTCCCAAAAAGAATTAAATG spacer
length: 35 repeater length: 30

36318 22280 ATTTCAATCCCTCTAAGGTCTGATTATAAC AAAAAAAGGAGGAAAGGAAATGCAACCCGGCGCGCTT spacer
length: 37 repeater length: 30

36319 22348 ATTTCAATCCCTCTAAGGTCTGATTATAAC CCTTGACAGGCATCTCGAAAGTGTGCGCTTTTGAG spacer
length: 35 repeater length: 30

36320 22414 ATTTCAATCCCTCTAAGGTCTGATTATAAC GCAGGCTGTGGATCATTAATACGCACCCACGGAA spacer
length: 34 repeater length: 30

36321 22479 ATTTCAATCCCTCTAAGGTCTGATTATAAC CGTAGATGAAATATTTATACCATCACAGGAAGTAA spacer
length: 35 repeater length: 30

36322 22545 ATTTCAATCCCTCTAAGGTCTGATTATAAC TGGTCTGTTTCATATAAATGATTGTTTGCCAAC spacer
length: 33 repeater length: 30

36323 22609 ATTTCAATCCCTCTAAGGTCTGATTATAAC ACAATAATATATCCAGCGCAGATGGATATGTGTATT spacer
length: 36 repeater length: 30

36324 22676 ATTTCAATCCCTCTAAGGTCTGATTATAAC TATCAGTGTAACAAGTATTCGAATATGAGGTGAGAGA spacer
length: 37 repeater length: 30

36325 22744 ATTTCAATCCCTCTAAGGTCTGATTATAAC TTGACAATACGCTGCCGTCAAGTTCTGCAAACTGT spacer
length: 35 repeater length: 30

36326 22810 ATTTCAATCCCTCTAAGGTCTGATTATAAC ATTGAGAAGGCTGACGTCAATGAACTCTCAAGAGTT spacer
length: 36 repeater length: 30

36327 22877 ATTTCAATCCCTCTAAGGTCTGATTATAAC AACATTCCATTAACCAGGAAATAAACATACTGGAAC

36328

36329

36330 crispr 3

36331 1631016 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
ACATATCTATGTGATAAGTTTTATGCGCATGAGGCAGGC spacer length: 39 repeater length: 37

36332 1631093 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
TTAAAAATTTGGAAACGTGGAAGGAGAAGGCACCACAGCCACACG spacer length: 45 repeater length: 37

36333 1631176 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC ATATAATGCACCGTTCGACCTTGAAAAATTAAGTTC
spacer length: 36 repeater length: 37

36334 1631250 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC AGATTACAGCACTACTACCTATGTATGGCCTAACAGGT
spacer length: 38 repeater length: 37

36335 1631326 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
TTAAGACTAAATTGGGAATGAGCAAAACGGAGGCTGCTA spacer length: 39 repeater length: 37

36336 1631403 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
ACATTAAGCGTATAGATTTGACCGTATGAGTTCAGGGTG spacer length: 39 repeater length: 37

36337 1631480 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC TTATATCCTCATGTAATGAAAAAATATGACTATCCGT

spacer length: 37 repeater length: 37
 36338 1631555 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
 AAGATACGTGCAGATGCTACTTCTGAAATGGGTGCACAGG spacer length: 40 repeater length: 37
 36339 1631633 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC TTAGCGTATATGAATTGGATGATAGTAACCAATATGTA
 spacer length: 38 repeater length: 37
 36340 1631709 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC AGAACTGAAATTAACATGAATTAATTTATATAG
 spacer length: 34 repeater length: 37
 36341 1631781 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC
 ATTTTACTTTTATCAATTAATATTGATTTAACTTAACTTA spacer length: 39 repeater length: 37
 36342 1631858 GTTACCATTCCCTTTTATCACGGGTGCTTATGTCAAC GTACTCTACCCTAGCTACTATTTTCGTCGTGTTGAAAGTA
 36343
 36344
 36345 crispr 4
 36346 1644976 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC AAAATAGATGATGACATACTCCAAGGCGGTATGCTTG
 spacer length: 37 repeater length: 37
 36347 1645051 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCAGATGCACCTGTCAGATCAAGCCCGTCACCACG
 spacer length: 35 repeater length: 37
 36348 1645124 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC TTACTATAGTATATGTCATCCCAATCCGGGCGGGCGA
 spacer length: 37 repeater length: 37
 36349 1645199 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC GCAAACCCATATGTCACGAATTTACCGTCATTTATTA
 spacer length: 37 repeater length: 37
 36350 1645274 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC AGCATGTATTGAGTGTACCGATTGTGGTACACTTTTA
 spacer length: 37 repeater length: 37
 36351 1645349 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TAGATAGCAATTCGTGGACAGTCAGTCTGTCTTTTTGGACAT spacer length: 42 repeater length: 37
 36352 1645429 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TTAATCTCATCTCTAGCTGTATAATGTCCGATTGAATC spacer length: 39 repeater length: 37
 36353 1645506 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TGTACGTTTGTTCATATTGATAAAACCTGTTTGCTACATC spacer length: 39 repeater length: 37
 36354 1645583 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TTGCCTTCATTTTCTGTTTGATTTCCTGCATGACGACT spacer length: 39 repeater length: 37
 36355 1645660 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCTGTGTGTTTCAGGTGGCCTTTCGGCATTGGCTTTT
 spacer length: 37 repeater length: 37
 36356 1645735 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CATTTGCTTGTTTGCGAATTATCATATCATCAATTT
 spacer length: 36 repeater length: 37
 36357 1645809 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC ACAACTCCTTAGTAACAACCAATGTAGACTCATC
 spacer length: 34 repeater length: 37
 36358 1645881 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC TTTGGGTCTCGGAGCCAGGGATAGTGGAGATCC
 spacer length: 35 repeater length: 37
 36359 1645954 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC ATTTGATTTTTCTCATTGTTGGCACAACTATATATAT
 spacer length: 38 repeater length: 37
 36360 1646030 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 ATAAATCAATTCTGCTCCTGTAGGGAGATCGAAATATTC spacer length: 39 repeater length: 37
 36361 1646107 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 TTTGTTCTGTTTTTCGGCTGTGTCCAGGAAAATTCACGTG spacer length: 41 repeater length: 37
 36362 1646186 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCAGTTCACCTGCGCAATATTTGAGATGAATATTG
 spacer length: 35 repeater length: 37
 36363 1646259 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC
 GCAGAGGACAGGCCAACATCTGCAAGAGTCGCAACAATTT spacer length: 40 repeater length: 37
 36364 1646337 GTTGACATAAGCACCCGTGATAAAAGGGAATGGTAAC CCAGGAAATAAACATACTGGAACGTATGTCAAATTCAT
 36365
 36366
 36367 GCA_004799665.1_ASM479966v1_genomic.fna(findCrispr):
 36368 START REPEAT
 SPACER
 36369 crispr 1
 36370 497192 ACGGCTTCTTCGGCTTTCTC
 TTCGATCGTCTCTTCTGCCTTTTCGGCGACCGTCTCCTCGGCTTTCTCTTCGACAGTCTTCTCGGCCTTCTCCGC spacer
 length: 75 repeater length: 20
 36371 497288 ACGGCTTCTTCGGCTTTCTC TTCGACAGTCTCTTCGGCTTTTCGGC spacer length: 27 repeater
 length: 20
 36372 497336 ACGGCTTCTTCGGCTTTCTC CGTGAAGTGTCTCTTCTGCCTTCTCCTC spacer length: 27 repeater
 length: 20
 36373 497384 ACGGCTTCTTCGGCTTTCTC TATCTCCCGCCCCATCTCTCCCATCTC
 36374
 36375
 36376 crispr 2
 36377 3127601 GACAGGTCACGTCTCCCGGC TGGACTACTCGCGCATAAAATCGCTCGCGGGCCGCCGT spacer length:
 38 repeater length: 20
 36378 3127660 GACAGGTCACGTCTCCCGGC TGGACTACTCGCACGTGAACGTGCTCGCGGGCCGCCGT spacer length:
 38 repeater length: 20

36379 3127719 GACAGGTCACGTCTCCCGGC GCTACTCCGCTACTATCTCCCGCCCCATCTCTCCCATC
36380
36381
36382 crispr 3
36383 551319 CGCGAACAGTCCAGCCGGGAG
ACGTAAGGTGTCGACGGCCGACACGGCCACGCGTTTATGCGTGGCCAGTCCAGCCGGGAGACGTAAGGTGTCGACGGTCGGCTGCA
AGTGCCGACCGCCCAACTGTCGACGGCCGACTCGTGAGCGCTCTCGT spacer length: 133 repeater length: 21
36384 551474 CGCGAACAGTCCAGCCGGGAG AAGCAGTGTGACGGCCGACTCGCGAGCGTTTTTAT spacer length: 36
repeater length: 21
36385 551532 CGCGAACAGTCCAGCCGGGAG TCTCCCGCCCCATCTCTCCCATCTCGTCCTCTTCGA
36386
36387
36388 crispr 4
36389 2619580 CGGTGGGGATGGGATTTGAACC
AGAGCCAGACGTGCTCACTTCGCTGCGCGGACTGGCAGGGCTCAAATCCATCGGACGAAATCAGCGCGGCGCGAAATTGCGCCGC
GCAATT spacer length: 92 repeater length: 22
36390 2619695 CGGTGGGGATGGGATTTGAACC
ACGGTTCGTTCCCGTTCACTCGCTCCGCTCGTTACCTCTCACTCCCTGATTCAAATCCCAATGCCACTGCTCTTCAGTCACGTCCG
TTCTTCAGAA spacer length: 97 repeater length: 22
36391 2619815 CGGTGGGGATGGGATTTGAACC
ACTCCGCTACTATCTCCCGCCCCATCTCTCCCATCTCGTCCTCTTCGAAGACGAACACCCGCCCCCTCGACAGCGTCGAAGTCGACC
TCAATCTCGTA
36392
36393
36394 crispr 5
36395 3030007 GGTTCGAATCCCGGCACGCCCC
TGCAGCGACCGCAGAGAGCGAACC GG CATGGCGGGATTCTAATCAGGGAGCGGGAGGTGAGCGAGCGCAGCGAGCGAACGGGAGCG
ACCG spacer length: 90 repeater length: 22
36396 3030120 GGTTCGAATCCCGGCACGCCCC
TGCAGCGCGAGACGCGAACGACGTGAGCGTCTCGGAACGGCGAGCAGAGAGGAACGACCCGCGAGCAAGGAGCGCGAGCCACAGGC
TCGCGGCACTGAACCGGAACCGGGATTTCGAGCCCTGGGAGTCGCGCGCAACGCTGTGAGCACGTCTCCCTC spacer
length: 157 repeater length: 22
36397 3030300 GGTTCGAATCCCGGCACGCCCC
TCCCGCCCCATCTCTCCCATCTCGTCCTCTTCGAAGACGAACACCCGCCCCCTCGACAGCGTCGAAGTCGACCTCAATCTCGTAGCG
GAAGCCCGTTCGGTGGACTCGAACACCGGGATAGAGACTCGTCGTCTCGCCCTTTTCGAGAAGGACCCGGC
36398
36399
36400 crispr 6
36401 81598 GAGACCTGACCTGTCGACGGCCG ACACGACTGCGCGTTCATGCGCAGTCAGTCCAGCCG spacer length: 36
repeater length: 23
36402 81658 GAGACCTGACCTGTCGACGGCCG GCTCGTGAGCAGTCTCGTCTGCGAACAGCCCAGCCG spacer length: 36
repeater length: 23
36403 81718 GAGACCTGACCTGTCGACGGCCG TCCGCTACTATCTCCCGCCCCATCTCTCCCATCTCG
36404
36405
36406 crispr 7
36407 2057480 GCTATGATCGTGTGAGTGGTCGGC GTGGTGGTGGTCCTCTGCGT spacer length: 20 repeater
length: 24
36408 2057525 GCTATGATCGTGTGAGTGGTCGGC GTGGTGGTGGTCCTCTGTGT spacer length: 20 repeater
length: 24
36409 2057570 GCTATGATCGTGTGAGTGGTCGGC GTGGTGGTGGTCCTCTGTGT spacer length: 20 repeater
length: 24
36410 2057615 GCTATGATCGTGTGAGTGGTCGGC GTGGTGGTGATCCTCTGCGT spacer length: 20 repeater
length: 24
36411 2057660 GCTATGATCGTGTGAGTGGTCGGC GCCGGTCGGTCGCGCAAAAA
36412
36413
36414 crispr 8
36415 2864707 CGAGCCGGCCGTCGACAGGTCAGGTCTCCCGGC CGGACTGTTTCGACAGCAGACTGCTC spacer length:
26 repeater length: 33
36416 2864767 CGAGCCGGCCGTCGACAGGTCAGGTCTCCCGGC TGGACTGTTACAGACGAGACTGCTC spacer length:
26 repeater length: 33
36417 2864827 CGAGCCGGCCGTCGACAGGTCAGGTCTCCCGGC TCTCCCATCTCGTCCTCTTCGAAGAC
36418
36419
36420 crispr 9
36421 2764196 CAGTCAGTCCCTCTCCCGGCTGGACTGCTCGCGCCAAAGAG CGCTCGCGAGCCGGCCGTCGAT spacer
length: 22 repeater length: 40
36422 2764259 CAGTCAGTCCCTCTCCCGGCTGGACTGCTCGCGCCAAAGAG CGCTCGCGAGTCGGCCGTCGAT spacer
length: 22 repeater length: 40
36423 2764322 CAGTCAGTCCCTCTCCCGGCTGGACTGCTCGCGCCAAAGAG CCCATCTCTCCCATCTCGTCCT

36424
36425
36426 crispr 10
36427 787088 TCGGTCGCGCAAAAAGCTGGACCAAAAACCGCTACTCCGC
TACTATCTCCCGCCCCATCTCCCCATCTCGTCTCTGCAACCACCTTTTTCCGCTCCCTCTCGCCG spacer length:
68 repeater length: 40
36428 787197 TCGGTCGCGCAAAAAGCTGGACCAAAAACCGCTACTCCGC
TACTATCTCCCGCCCCATCTCTCCCATCTCGTCTCTGCAACCACCTTTTTCCGCTCCCTCTCGCCG spacer length:
68 repeater length: 40
36429 787306 TCGGTCGCGCAAAAAGCTGGACCAAAAACCGCTACTCCGC
GCGCTCGCGAGTCGGCCGTCGATACATCAGTTCTCCATAACGCCAGCGTCTTCGAGATACTGCCGGAC
36430
36431
36432 GCA_004799685.1_ASM479968v1_genomic.fna(findCrispr):
36433 START REPEAT
SPACER
36434 GCA_005155585.1_ASM515558v1_genomic.fna(findCrispr):
36435 START REPEAT
SPACER
36436 crispr 1
36437 1258399 GGCGTACTCGTCGGAGTGGA CGTCGGCGTCGACGTAGGTGTGCTCGTCGGAGTGGATGTCGGCGTCGACGT
spacer length: 51 repeater length: 20
36438 1258471 GGCGTACTCGTCGGAGTGGA GGTCGGTGTGCTCGTCGGCGTCGACGT spacer length: 27 repeater
length: 20
36439 1258519 GGCGTACTCGTCGGAGTGGA CGAACCCGCGTCTCAGCCTCCACAAGG
36440
36441
36442 crispr 2
36443 1430145 ACTCACTCCGCTCGGTCCACA ACTCCTCGATGCGGACCGTCAGTCGCTCGTAAAA spacer length: 34
repeater length: 21
36444 1430201 ACTCACTCCGCTCGGTCCACA ACTCCTCGATGCGAACCGTCAGTCGCTCGTAAAA spacer length: 34
repeater length: 21
36445 1430257 ACTCACTCCGCTCGGTCCACA TCGGATTGCTATACTCCGAGCGGCGCGTCTCGTC
36446
36447
36448 crispr 3
36449 135955 GGTTCAACTCCCTCCCAGCCCC
CTTCTGCGACGAACCACCCGACGAGCATCGCGTAGCGGTGCGAGTCGCCCACGAGGAGCGAAGCGACTCCGGAGAGAGTTGAACTA
CGGAACGAGGGAGCGAAGCGACCGAAGTTTCGG spacer length: 119 repeater length: 22
36450 136097 GGTTCAACTCCCTCCCAGCCCC
TTTTCTGCGAACCGAGTGAGCAGTGAAAACGCTACAGGAGGTGTTGAATCAGGGAGTGAAGCGAGCGCCAGCGAGCGAAACGACC
G spacer length: 87 repeater length: 22
36451 136207 GGTTCAACTCCCTCCCAGCCCC
AGTGACGGTGGCCACCCACACACAGCGACCGGACGCTCGTCTTGACCCCCGAGAGCGGAAACGGCGAACACGCCCACGAAGTCCG
A
36452
36453
36454 crispr 4
36455 1590811 AACGGCGTCCGTTCGACCACGGT
GCCGTCCCACCTTTTTGTTTCGTCGCGCTCGCTTCGCTCGCGCTCCTTACAAAAATCTGGACCAAAAAATCGCCGCGTTACGC
spacer length: 83 repeater length: 23
36456 1590918 AACGGCGTCCGTTCGACCACGGT
ACCGTCCCACCTTTTTGTTTCGTCGCGCTCGCTTCGCTCGCGCTCCGCACAAAAATCTGGACCAAAAAACCGCCGCGTTACGC
spacer length: 83 repeater length: 23
36457 1591025 AACGGCGTCCGTTCGACCACGGT
CCCGTCGACGGTCCGGTACTGCTCGACGATCTCGCCTCTCTCCACGTGCCCCCTCTGGATCATCTCCTCCAGAAGCCACCAG
36458
36459
36460 crispr 5
36461 2009990 GTTCAAATCTCTCCCTCGGCGCTT
CTCCGACCGTCGTACTCCGAGCAGCGGTTTCATCGCGCTGCGAGGCTCGACGACGTGAACGACAGTGGAGTGATTTGAAGCAGGG
AACGAGCGTAAGCGAGTGACTGT spacer length: 109 repeater length: 24
36462 2010124 GTTCAAATCTCTCCCTCGGCGCTT
CTCCGACCGTCATACTCCGAGCGATGCGTTTCATCGCGCCGCGAGGCTCAACGACGTAAACGCCGCGGAGTGATTTGAACGAGAG
GGCGAGCGACCGGCGGGAGCGAAGTCCGCGT spacer length: 117 repeater length: 24
36463 2010266 GTTCAAATCTCTCCCTCGGCGCTT
CCCACGTTTTTTTGGTGAGATTTTTTGCCGAGCGAGCGGAGCGAGCGAGGGAAAAAGGTGCAACGGACGGTTCCGGTGGGAGGACGG
GTTTCGAGGAGTGATCGTCGCGCGGCTACCGA
36464
36465
36466 crispr 6

36467 2537795 TCGGGGACGCCGACCGACGAGTGAAGCG
 TTCGGCGGTTTTTGGTCCAGCTTTTCGAGGGAGCGGAGCGACCGAAGAAAAGGTGGCTGTGTGATTT spacer length:
 67 repeater length: 28
 36468 2537891 TCGGGGACGCCGACCGACGAGTGAAGCG
 CTCGGCGGTTTTTGGTCCAGCTTTTCGAGGGAGCGGAGCGACCGAAGAAAAGGTGGCTGTGCGATCT spacer length:
 67 repeater length: 28
 36469 2537987 TCGGGGACGCCGACCGACGAGTGAAGCG
 GTCTCAGCCTCCACAAGGCTGAAGGATGGTCCACTACCCCAACCCGGACACATCCAATCGTACTCCG
 36470
 36471
 36472 crispr 7
 36473 1581380 CAGAAAGGTCCAGGTGCGAGAATCGAACC
 TCCGAGAGACGGTCGCTCACCCCGTTTCGCGCTGCGACTCTCGTGGTTCGCTCTCTTACAACGGACCTTCGTCTCCTCGTTTTACTC
 GGAG spacer length: 90 repeater length: 29
 36474 1581500 CAGAAAGGTCCAGGTGCGAGAATCGAACC
 GGAGCAAGACGTGCTCACTTCGTTGCGCGCGCCTTGCAGGGTTCGATTCTCTTCGATGACCTTCGACGCCCACGGAGCACTCACGA
 CGCGCTCTCTGAGTGCAGTCGCTCGTGGCGTAGTTCGCG spacer length: 125 repeater length: 29
 36475 1581655 CAGAAAGGTCCAGGTGCGAGAATCGAACC
 TGGCCACCCACACACAGCGACCGGACGCTCGTCTTGCACCCCGAGAGCGGAAACGGCGAACACGCCCACGAAGTCCGACGCTTGG
 CGACCGAATACGGGTTTTTCGATCCGCGAGACCGACGCCG
 36476
 36477
 36478 crispr 8
 36479 785827 AACCTCGTCACGAGCGAAGCGAAGTGACGGTGG TGAGCCGAGCGGGGTGAGCC spacer length: 20
 repeater length: 33
 36480 785881 AACCTCGTCACGAGCGAAGCGAAGTGACGGTGG CGAGTCGAACGGAGTGAGCC spacer length: 20
 repeater length: 33
 36481 785935 AACCTCGTCACGAGCGAAGCGAAGTGACGGTGG ACACAGCGACCGGACGCTCG
 36482
 36483
 36484 crispr 9
 36485 95877 GTTCCGGTGGAAGACGGCTTCGAGGAGTAACGGTCCC
 GCGCTTTTTTGGTGCAGATTTTTTGCCGAGCGAGCGGAGCGAGCGAGGGAAAAAGGTGCAACGGAC spacer length: 64
 repeater length: 38
 36486 95980 GTTCCGGTGGAAGACGGCTTCGAGGAGTAACGGTCCC
 ACGTTTTTGGTGCAGATTTTTTGCCGAGCGAGCGGAGCGAGCGAGGGAAAAAGGTGCAACGGAC spacer length: 64
 repeater length: 38
 36487 96083 GTTCCGGTGGAAGACGGCTTCGAGGAGTAACGGTCCC
 CGCGCGAAACTGAGTGCAGCGCCGAGGACGACGCCGACGGCGACGAAGACCACCGGGCTGTTG
 36488
 36489
 36490 GCA_005222525.1_ASM522252v1_genomic.fna(findCrispr):
 36491 START REPEAT
 SPACER
 36492 crispr 1
 36493 165206 CTTTCAA CTCCATAGAAGATTAACCTGCGTAATCCTGAGCCTTCTCTACTATGTTCTTATGAT spacer
 length: 55 repeater length: 7
 36494 165269 CTTTCAA CTCCATAGAAGATTAACAGGGTCTGGTCTAATGCATCTAGGAGAGACAGGGAACCATGA spacer
 length: 59 repeater length: 7
 36495 165336 CTTTCAA CTCCATAGAAGATTAACAGGATCTAGGTTGTGCAGAAGATGGATCAAGTTACATAAG spacer
 length: 57 repeater length: 7
 36496 165401 CTTTCAA CTCCATAGAAGATTAACCTTCTCAACGACGTCGGAGATGCGATAAAGAGCAAAGTG spacer
 length: 55 repeater length: 7
 36497 165464 CTTTCAA CTCCATAGAAGATTAACCGTATAACGAAGGGTTTTGTCATTCAAGAGCTCATTCCCTT spacer
 length: 58 repeater length: 7
 36498 165530 CTTTCAA CTCCATAGAAGATTAACCTTAGATAGAAGATATGGTCAATATACAGTGGAAGA spacer
 length: 55 repeater length: 7
 36499 165593 CTTTCAA CAAAGGATCACTACAAGTCCCCTTCACGCTAGCCTTTTCTTTTATAGAGAATTGAC
 36500
 36501
 36502 crispr 2
 36503 165721 CTTTCAACTCTA TAGAAGATTAACGCAGGATCTTATTCTCCTTGAGCAATTAGGTTTCATCCTT spacer
 length: 51 repeater length: 12
 36504 165785 CTTTCAACTCTA TAGAAGATTAACATTGCCAGTAGTGGCAGTACCGTAACCGAGAAAATT spacer length:
 48 repeater length: 12
 36505 165846 CTTTCAACTCTA TAGAAGATTAACAGCAATCGGAGCAGGTGGAGGTGGGGGAGGCGGAGGTG spacer
 length: 50 repeater length: 12
 36506 165909 CTTTCAACTCTA TAGAAGATTAACCTATGTTTGTTCATTCTCCTTTACCGACAACAATTGTG spacer
 length: 51 repeater length: 12
 36507 165973 CTTTCAACTCTA TAGAAGATTAACCTACTTGTATCGTCGATTGGTTAGTTTCCTCAAACGCTA spacer
 length: 50 repeater length: 12

36508 166036 CTTTCAACTCTA TAGAAGATTAACGGTCTAATTCGGGGCATTGGGACATAAGGGTGAGGAAGA spacer
length: 51 repeater length: 12
36509 166100 CTTTCAACTCTA TAGAAGATTAACCTTTGGGGAAAATACGCTGGAGTTGATTGAGTTCTTGGA spacer
length: 50 repeater length: 12
36510 166163 CTTTCAACTCTA TAGAAGATTAACATCATGATAACATATGAGTGCTAAAGATGATCAGG spacer length:
48 repeater length: 12
36511 166224 CTTTCAACTCTA TAGAAGATTAACAGGAAGTAGCACGGGTGGAGGTGGTACAGGGACTTCG spacer length:
49 repeater length: 12
36512 166286 CTTTCAACTCTA TAGAAGATTAACCTATCACTTTCCAGTGTTTCATAATCCAGAAATTGCAATATT spacer
length: 53 repeater length: 12
36513 166352 CTTTCAACTCTA TAGAAGATTAACCTCAAACCTTAAGGTAAATCCAAATGCCCCTGACTATAGA spacer
length: 50 repeater length: 12
36514 166415 CTTTCAACTCTA ATCACTACAAGTCCCCTTCACGCTAGCCTTTTCTTTTGTAGAGAATTGACG
36515
36516
36517 crispr 3
36518 141280 GTTTCAAACCCCTCAAAGGATC ACTACAAGCTCCTCGACCTCAGCCGTGTGAGAGCGTATAGAGTTA spacer
length: 45 repeater length: 21
36519 141347 GTTTCAAACCCCTCAAAGGATC ACTACAAACAACGGCGACACGCGGGCATGTGAGTGTGATCGCGTCGTGT
spacer length: 49 repeater length: 21
36520 141418 GTTTCAAACCCCTCAAAGGATC ACTACAAACTATCTTCTTGATGCTATACGGCGGGTCGATACGTCTA spacer
length: 46 repeater length: 21
36521 141486 GTTTCAAACCCCTCAAAGGATC ACTACAAACAGACTGAATAGAAGCGAAGTTATCAGGTTGCTATCG spacer
length: 46 repeater length: 21
36522 141554 GTTTCAAACCCCTCAAAGGATC ACTACAAACAGAAGATACAAGAGATATACTGATTTTCCAAAGTAT spacer
length: 45 repeater length: 21
36523 141621 GTTTCAAACCCCTCAAAGGATC TCTACAAAGAGGAGCAGCTGCCCCATCAAAGATGGGGACAAACA spacer
length: 45 repeater length: 21
36524 141688 GTTTCAAACCCCTCAAAGGATC ACTACAAACCCGGGAACCACGGGGAGGATGTATATGTTCTTTCCG spacer
length: 45 repeater length: 21
36525 141755 GTTTCAAACCCCTCAAAGGATC ACTACAAGTCGAAGTTCCCCCGAGGGGGAATACCCATGGTTCACTT spacer
length: 47 repeater length: 21
36526 141824 GTTTCAAACCCCTCAAAGGATC ACTACAAGTCCCCTTCACGCTAGCCTTTTCTTTTGTAGAGAATTGACG spacer
length: 47 repeater length: 21
36527 141893 GTTTCAAACCCCTCAAAGGATC TCTACAAACCTGTAAATTGATAATCGAGTACTTTCAAGACGTAA spacer
length: 45 repeater length: 21
36528 141960 GTTTCAAACCCCTCAAAGGATC TCTATAAACTTCATACTCCCTTGGAGAGTGTGGGAAAGGCCTTTG spacer
length: 45 repeater length: 21
36529 142027 GTTTCAAACCCCTCAAAGGATC TCTACAAACGCTATTATCACCTAGCCGTATCAAGTCAGTACTATT spacer
length: 45 repeater length: 21
36530 142094 GTTTCAAACCCCTCAAAGGATC TAACTTTCACGATATACTCGCGTCATCCAATAACCGTATAAGTTA
36531
36532
36533 crispr 4
36534 174683 TTTCAACTCCATAGGAGATTAA CATTCAAATCGAAGAGCAGGATCTTCTCCTGCTAGAGCAACT spacer
length: 43 repeater length: 22
36535 174749 TTTCAACTCCATAGGAGATTAA GTTATTGTGAACCTCTGTTGAAGTGAATCGTACGACGAATA spacer
length: 41 repeater length: 22
36536 174813 TTTCAACTCCATAGGAGATTAA GAGTGCTCGACTCTGCTTAGTTTCTCGACTCTTTCTTCGTTG spacer
length: 42 repeater length: 22
36537 174878 TTTCAACTCCATAGGAGATTAA GTATCTAATTCTAACATTTGTACAGCATTTAGAAGAATCCT spacer
length: 42 repeater length: 22
36538 174943 TTTCAACTCCATAGGAGATTAA GAGAGGGAGAATTGGAAGCATCCCGCTCATCAAGGCAGTGT spacer
length: 41 repeater length: 22
36539 175007 TTTCAACTCCATAGGAGATTAA GCAGTCACCAAGTGGGCTGCAGATAGTAAACGTCAGTGC spacer length:
39 repeater length: 22
36540 175069 TTTCAACTCCATAGGAGATTAA GAAGAATGGGATATTGAGACCATGGCCAAGGCCTTATGTCCT spacer
length: 42 repeater length: 22
36541 175134 TTTCAACTCCATAGGAGATTAA GTCGATAGATGCAACGACATCATAAAGTATCACGTGAAAAC spacer
length: 41 repeater length: 22
36542 175198 TTTCAACTCCATAGGAGATTAA GTGCCTCCACTGAGCTCGATTACTTCAGGTAGTCCAAC spacer length:
38 repeater length: 22
36543 175259 TTTCAACTCCATAGGAGATTAA GACTGTACTTTAGTAAGACTAGGTAGGTATGATAAATTGA spacer
length: 40 repeater length: 22
36544 175322 TTTCAACTCCATAGGAGATTAA GGTTCCTGTTCAAGAAGAAAGATAACGATAAGGCGGATGTTT spacer
length: 42 repeater length: 22
36545 175387 TTTCAACTCCATAGGAGATTAA GTTCTCGTCTGAGCCTGGTTACACATCTACAGGTTACGT spacer length:
39 repeater length: 22
36546 175449 TTTCAACTCCATAGGAGATTAA
GACAATCTTCTCCCTGAGCTTATAATCATCCTCGTGAAAACCTCCATAGGAGATTAAGATCAACAACCTAGCTCAACAAAGAGCATAC
GTAAACACTAA spacer length: 97 repeater length: 22

36547 175569 TTTCAACTCCATAGGAGATTAA GACAGAACAAAATGCCCAATCTTCCTCTTTATCCTCCTTAGA spacer
length: 42 repeater length: 22
36548 175634 TTTCAACTCCATAGGAGATTAA GAGATAGATGAAGAGACAATAAATGTCTTGATCGAGAGTTT spacer
length: 41 repeater length: 22
36549 175698 TTTCAACTCCATAGGAGATTAA GAATCTCTTCCGTACGCTTGAGGGGGTCCGAGTTGCCAAGG spacer
length: 41 repeater length: 22
36550 175762 TTTCAACTCCATAGGAGATTAA TCCCCTTCACGCTAGCCTTTTCTTTTTAGAGAATTGACGCG
36551
36552
36553 crispr 5
36554 2195896 ACGTACACGTAACCATTGGAAGG
ATCGTAGAGAGCGTAGACTGGATCTAAGCCAACAGGGACGTTAGCTACAACATTATTACCTGAGATAACAGAGACTGTATCTGAAG
GAGCACCACC spacer length: 96 repeater length: 23
36555 2196016 ACGTACACGTAACCATTGGAAGG
GTCGTATATGGGAGGAGTCCCGCTACATACTTTCAAATTACCTACAACATTATTAGCTGAGATAACAGAGACTGATGTATTTCCAA
GCGCGTATAATACGTC spacer length: 102 repeater length: 23
36556 2196142 ACGTACACGTAACCATTGGAAGG
GTCGTATGCAGCCTCCCTCGCTCCAACACCAACAGACACATTACCTACAACCTTTAGTACCCGAGATAATAGACATATAATTTGAAT
GTAAGTTCGTTACATA
36557
36558
36559 crispr 6
36560 175824 CTTTCAACTCTATAGGAGATTAAG TCTAGGAAAGTCGGAAAAAATGAACTCATATATGTTTA spacer
length: 38 repeater length: 24
36561 175887 CTTTCAACTCTATAGGAGATTAAG GTCGTAAACACCACTCAAAACGTAAACACAACCCCTTTA spacer
length: 40 repeater length: 24
36562 175952 CTTTCAACTCTATAGGAGATTAAG GGGACATTCCACTGTTTCATAAGGTACAGCGCAAAGTACGA spacer
length: 40 repeater length: 24
36563 176017 CTTTCAACTCTATAGGAGATTAAG CAGCTACTAGAAGAACACCGACTACCTTGAGACCCGTAG spacer
length: 39 repeater length: 24
36564 176081 CTTTCAACTCTATAGGAGATTAAG AACATGGTGGTGACGCATCTACATCAGCACTCCCAGGTATAC spacer
length: 43 repeater length: 24
36565 176149 CTTTCAACTCTATAGGAGATTAAG TAATAAGGAAGAGTTAAGGGATACAGTTGCTGAGTATTTCAATG spacer
length: 44 repeater length: 24
36566 176218 CTTTCAACTCTATAGGAGATTAAG AGGCATATATCTAGCCCTGAGGTGATCAATAGTGTCCACTT spacer
length: 41 repeater length: 24
36567 176284 CTTTCAACTCTATAGGAGATTAAG CGCGAGCGATTTATTCGATCTAATAGCAAGAATAAAG spacer length:
37 repeater length: 24
36568 176346 CTTTCAACTCTATAGGAGATTAAG TTTTCTCACGCCCTCACTTTGAGGGCTGGATTCAAC spacer length:
36 repeater length: 24
36569 176407 CTTTCAACTCTATAGGAGATTAAG CAGAAATGGCGTTTCAGGTGGTTCAAGTGGAGGGGCAG spacer
length: 38 repeater length: 24
36570 176470 CTTTCAACTCTATAGGAGATTAAG TAGCGGAGCTCATAGACGTACATAGCAGGGAGATCTTTCC spacer
length: 40 repeater length: 24
36571 176535 CTTTCAACTCTATAGGAGATTAAG TCGCGCCTGGGCCTTATTGGGAGGTCAGCGATTTAG spacer length:
36 repeater length: 24
36572 176596 CTTTCAACTCTATAGGAGATTAAG AAGTTGAGAGGGGAGATGAGAGTTACTGAGTTGAGAGAGGG spacer
length: 40 repeater length: 24
36573 176661 CTTTCAACTCTATAGGAGATTAAG AATCCTTGCTCTTTTATAGCCTTCTTCAGTTCCTCGTA spacer
length: 38 repeater length: 24
36574 176724 CTTTCAACTCTATAGGAGATTAAG ATGTTTCATTCAAACATTTCTAAAGAATAAAAAAGGCTTC spacer
length: 39 repeater length: 24
36575 176788 CTTTCAACTCTATAGGAGATTAAG CTTTCAACCAAAACAACGAATAACGGAGTGCCTTAACG spacer
length: 38 repeater length: 24
36576 176851 CTTTCAACTCTATAGGAGATTAAG AAAAATCATTTGTCCATGAGTGGTGGCACATAGGTATGGT spacer
length: 40 repeater length: 24
36577 176916 CTTTCAACTCTATAGGAGATTAAG GTAACGTCAATGAGGTACTTGAAGTGCCTAGGGACCAG spacer
length: 38 repeater length: 24
36578 176979 CTTTCAACTCTATAGGAGATTAAG TTATTACACCCTTCTTAACATATTCTTGCAAGGTTCTGT spacer
length: 39 repeater length: 24
36579 177043 CTTTCAACTCTATAGGAGATTAAG AGGTTTAGTGAAGAGGTATGCAAGGAGTTCTCAATTTGCGAT spacer
length: 42 repeater length: 24
36580 177110 CTTTCAACTCTATAGGAGATTAAG AGGAAACTATAATTGTTGAGGAAGTTTATCCACTTTTGA spacer
length: 39 repeater length: 24
36581 177174 CTTTCAACTCTATAGGAGATTAAG AGTAGGATCCTTTCTTGTGGGGATGCTGGTTCACTTTTTG spacer
length: 40 repeater length: 24
36582 177239 CTTTCAACTCTATAGGAGATTAAG TCCAGATCTGGCCTAGCTCCATGCCTCAGCAGGACC spacer length:
36 repeater length: 24
36583 177300 CTTTCAACTCTATAGGAGATTAAG CAGAGGGATGGCCCTACCGCTCTTCGAGCAGACGTAG spacer length:
37 repeater length: 24
36584 177362 CTTTCAACTCTATAGGAGATTAAG ACAGGAAAAGGGCGTTTCTAGAGGCGCTTCTTGAGGTT spacer

length: 38 repeater length: 24
36585 177425 CTTTCAACTCTATAGGAGATTAAG CTTCCCTAGCCTCATATACGTCGGGCTCATCCTCCTC spacer length:
36 repeater length: 24
36586 177486 CTTTCAACTCTATAGGAGATTAAG GAACTACAAATATCCTAATTGGTCAATTTACCAGTAATA spacer
length: 39 repeater length: 24
36587 177550 CTTTCAACTCTATAGGAGATTAAG ATATTACAATAAAGGAATTATTTGTTTATAAAAAATCAGTA spacer
length: 41 repeater length: 24
36588 177616 CTTTCAACTCTATAGGAGATTAAG AACCTGATGACTATTACGTATACACTTCAGAGCTAA spacer length:
36 repeater length: 24
36589 177677 CTTTCAACTCTATAGGAGATTAAG TTTTCCCCGCGGAGCCTCTGACCCATGATGAAGGATC spacer length:
37 repeater length: 24
36590 177739 CTTTCAACTCTATAGGAGATTAAG AGGGGACACTGCTTTTGAGTATGACCCAGTAACGAAGTAC spacer
length: 40 repeater length: 24
36591 177804 CTTTCAACTCTATAGGAGATTAAG GGGAATATAGCAGTGGAATACCCTGGGCAGGTGTACTCTA spacer
length: 40 repeater length: 24
36592 177869 CTTTCAACTCTATAGGAGATTAAG AAAGTAATGGAGGAGATACCATTATGAAAGTTCCTTCATC spacer
length: 40 repeater length: 24
36593 177934 CTTTCAACTCTATAGGAGATTAAG CTATAAACCCCTCTAGGCGGTCCCTATGGATGATGTAGA spacer
length: 39 repeater length: 24
36594 177998 CTTTCAACTCTATAGGAGATTAAG CGTGAATTCTTAGAGAAAATAAAGCGCCCGGCGTTC spacer length:
36 repeater length: 24
36595 178059 CTTTCAACTCTATAGGAGATTAAG CATATCCAGACGCTGATTCCAAACAGCTTAGGTATTTGCT spacer
length: 40 repeater length: 24
36596 178124 CTTTCAACTCTATAGGAGATTAAG GTGAGAGATTCAAGTTAGTGTTAGAATTACAATTCACGACA spacer
length: 41 repeater length: 24
36597 178190 CTTTCAACTCTATAGGAGATTAAG AGTTCGTTTTGACGCTAAGTGGCGCTAGGCTATAGTAGT spacer
length: 39 repeater length: 24
36598 178254 CTTTCAACTCTATAGGAGATTAAG CCATCTTTAGCCGTAACTCCCCGGTTAAGGGCTCAG spacer length:
37 repeater length: 24
36599 178316 CTTTCAACTCTATAGGAGATTAAG GAGTGGGGGCAGAGATGCCTCGCTCGTTTTTCAGTG spacer length:
35 repeater length: 24
36600 178376 CTTTCAACTCTATAGGAGATTAAG TGTAAGTTTTTTCTTGGTAATTGAAAGAGGGATCAGT spacer length:
37 repeater length: 24
36601 178438 CTTTCAACTCTATAGGAGATTAAG ACTTCTATCGTCAGAACCTACGTTTATTTTAGGACGAG spacer
length: 38 repeater length: 24
36602 178501 CTTTCAACTCTATAGGAGATTAAG ACCACCACCGCAACAAACGACACAACAGCAAGAAACA spacer length:
37 repeater length: 24
36603 178563 CTTTCAACTCTATAGGAGATTAAG GAAACGCGTTACAAATACTTTTCACACCACGACTGGG spacer length:
37 repeater length: 24
36604 178625 CTTTCAACTCTATAGGAGATTAAG AACCTTGAAACCAGGATGTCCCTGAGTTCGCTGGACTTG spacer
length: 40 repeater length: 24
36605 178690 CTTTCAACTCTATAGGAGATTAAG CTTAGTGTTATCCTTCCGCCACCGTTTGTTTGTATATTTT spacer
length: 40 repeater length: 24
36606 178755 CTTTCAACTCTATAGGAGATTAAG TGATGAGACTTACTTTGTCGTTTCAGTTCTCAAGAAGCA spacer
length: 38 repeater length: 24
36607 178818 CTTTCAACTCTATAGGAGATTAAG TTATTATTTTCGCAATTGGTGGCATGATGCCTTCTAGCAAA spacer
length: 40 repeater length: 24
36608 178883 CTTTCAACTCTATAGGAGATTAAG AGATCTGCAAACCTCATATACATTATATTATGTATATAGCAAA spacer
length: 42 repeater length: 24
36609 178950 CTTTCAACTCTATAGGAGATTAAG TCTTCAATTTCTCCGAAATCTTCATCACAATGGACCCAGTT
36610
36611
36612 crispr 7
36613 184390 GTTAATCTCCTATAGAGTTGAAAG ACAATAATTTCTGAAACCCCTTATCATGTACAGT spacer length:
35 repeater length: 24
36614 184450 GTTAATCTCCTATAGAGTTGAAAG TATCTCCTTTTCACACCAACGCTCACTCCTAGATTTCGTCT spacer
length: 39 repeater length: 24
36615 184514 GTTAATCTCCTATAGAGTTGAAAG ACCCCCATCCCATCCGTGACCAGTTGAGGGGTGTCGCT spacer
length: 38 repeater length: 24
36616 184577 GTTAATCTCCTATAGAGTTGAAAG TTACTTATTATGTAAAACTTATATTTAAATTTTTCTCTA spacer
length: 40 repeater length: 24
36617 184642 GTTAATCTCCTATAGAGTTGAAAG TGGGAACTCCAGTAATTCACCAATTGATGGCTCCATT spacer length:
37 repeater length: 24
36618 184704 GTTAATCTCCTATAGAGTTGAAAG TCCGTGAGGGCTCACATAAACCTCTCAATCAACCTCC spacer length:
37 repeater length: 24
36619 184766 GTTAATCTCCTATAGAGTTGAAAG TTCTTG TGAGGCCGCCATTCTAGACATTTCTTAACCTCG spacer
length: 40 repeater length: 24
36620 184831 GTTAATCTCCTATAGAGTTGAAAG AATAGCTAACGTATTGGAACCTCTCGATAAACTACTCA spacer
length: 38 repeater length: 24
36621 184894 GTTAATCTCCTATAGAGTTGAAAG TAATAACCTCCTCTTTCCATGCACTTCCACCCTTTTCTTT spacer
length: 40 repeater length: 24

36622 184959 GTTAATCTCCTATAGAGTTGAAAG TAGTAATGAACGACAACAACCTTGTCTAACGGTAACAG spacer
length: 38 repeater length: 24

36623 185022 GTTAATCTCCTATAGAGTTGAAAG TTCATTTCAGAGATACCCTAGAGGAAGAGGTTGAGGAGG spacer
length: 38 repeater length: 24

36624 185085 GTTAATCTCCTATAGAGTTGAAAG ATAGTGTCTTTTTTCCTTAAGACCAGCTCTCCACCA spacer length:
36 repeater length: 24

36625 185146 GTTAATCTCCTATAGAGTTGAAAG AAGAAGGGGGTTTCATCTCGAGGCCCGATTTGATATTCA spacer
length: 39 repeater length: 24

36626 185210 GTTAATCTCCTATAGAGTTGAAAG AGTGCCCCACCGTACACGGTAATCGGAACAACCACTAGCC spacer
length: 40 repeater length: 24

36627 185275 GTTAATCTCCTATAGAGTTGAAAG TGGCCCCAGGTCCTGGACCTGGACCTGGAGGTAGGGG spacer length:
37 repeater length: 24

36628 185337 GTTAATCTCCTATAGAGTTGAAAG CGTCAGTAGCCCTTCCATACTGGACGTATTCGTCGTCA spacer
length: 38 repeater length: 24

36629 185400 GTTAATCTCCTATAGAGTTGAAAG GAAAGAGCTGAGACGCCAATGGGTCCCTGTCCACCCATA spacer
length: 39 repeater length: 24

36630 185464 GTTAATCTCCTATAGAGTTGAAAG TTCTCGATGATTTAGATGACCAGACCAAGGTCAAGATA spacer
length: 38 repeater length: 24

36631 185527 GTTAATCTCCTATAGAGTTGAAAG TGTCACGCGGTTTTATGCGTAATGATTTACATCGTAA spacer
length: 38 repeater length: 24

36632 185590 GTTAATCTCCTATAGAGTTGAAAG TAAGATTTCAGCGTTTCCTTTATAGGCAGCGGTTATA spacer length:
36 repeater length: 24

36633 185651 GTTAATCTCCTATAGAGTTGAAAG ACATCCGGAAGGCGTATGGAAAGATGAATTGATAAGGCATT spacer
length: 41 repeater length: 24

36634 185717 GTTAATCTCCTATAGAGTTGAAAG ACCAACATCAAGAGCGAAACCGCTATTAATTATATCAT spacer
length: 38 repeater length: 24

36635 185780 GTTAATCTCCTATAGAGTTGAAAG AGTGAAGTATCTGGAGGAACAAGTCAAGGAGTACGACCTA spacer
length: 40 repeater length: 24

36636 185845 GTTAATCTCCTATAGAGTTGAAAG AATGTCTACTTTCTTATCCCTCTCCCTCAGCCTCTTTAACT spacer
length: 41 repeater length: 24

36637 185911 GTTAATCTCCTATAGAGTTGAAAG TATTCAACCTTTATTTGAATGTCTCCATCAGAAATTCTA spacer
length: 39 repeater length: 24

36638 185975 GTTAATCTCCTATAGAGTTGAAAG AACTACTAATTCAAGAAGTGCGCCATAAGCTAGGGCTACAACCT spacer
length: 43 repeater length: 24

36639 186043 GTTAATCTCCTATAGAGTTGAAAG CTTTTAATTGTCTTAAATATTCTTTTCGCTTTTCGGGTCTA spacer
length: 39 repeater length: 24

36640 186107 GTTAATCTCCTATAGAGTTGAAAG TTTTTTGGAGGATTATTTAACGATGTAGAGAACGCAGTA spacer
length: 39 repeater length: 24

36641 186171 GTTAATCTCCTATAGAGTTGAAAG CTAATGCTGCTTCCGCTCCACATCGGCGGGTCTAAGAAA spacer
length: 40 repeater length: 24

36642 186236 GTTAATCTCCTATAGAGTTGAAAG CACGGTACCGACATACAGCTATTTTCAATGGAGCGACG spacer
length: 38 repeater length: 24

36643 186299 GTTAATCTCCTATAGAGTTGAAAG GCATTATCTTCGGCACTCAGATCCACGAAGGGGGAGTTCC spacer
length: 40 repeater length: 24

36644 186364 GTTAATCTCCTATAGAGTTGAAAG TCAACCTAGTGACCCCCGTTACGATCCCTGCAAAC spacer length:
35 repeater length: 24

36645 186424 GTTAATCTCCTATAGAGTTGAAAG GCGGTTCTCCTCCTCGTCCATAGAAATGAACGACAACCTTG spacer
length: 41 repeater length: 24

36646 186490 GTTAATCTCCTATAGAGTTGAAAG CAACAAAACATTATCGGGCGTCATAAACCGATAAGCCATATC spacer
length: 42 repeater length: 24

36647 186557 GTTAATCTCCTATAGAGTTGAAAG GGGACTAGTTCTTCTTTTCGCTTTTGGCCCGGGCGCTGTTCT spacer
length: 42 repeater length: 24

36648 186624 GTTAATCTCCTATAGAGTTGAAAG TAATCCTGTACGAACCTCACATCCCCATCTTCTTCTCCAC spacer
length: 40 repeater length: 24

36649 186689 GTTAATCTCCTATAGAGTTGAAAG TCACGTATGCGGCCCCAACCCATTCTCGTGAAGCCGCC spacer
length: 38 repeater length: 24

36650 186752 GTTAATCTCCTATAGAGTTGAAAG ACAGTGAGAAAATGATTATTGGCGTGGGACGTTACCGGGG spacer
length: 41 repeater length: 24

36651 186818 GTTAATCTCCTATAGAGTTGAAAG TTTATTTTTTTGTTATACTAAATAATTAACCTTAAATTA spacer length:
37 repeater length: 24

36652 186880 GTTAATCTCCTATAGAGTTGAAAG CCTACACTGAACGTAACCTAGTTTCACCGCTGCTTACAGCT spacer
length: 40 repeater length: 24

36653 186945 GTTAATCTCCTATAGAGTTGAAAG TCCGTAAGGGAGGGGATGAATAGCCCCCTTACAGAAACC spacer
length: 39 repeater length: 24

36654 187009 GTTAATCTCCTATAGAGTTGAAAG GCTCTAATACGTTGTCAATACTGTCTTTAGAGAAGAGC spacer
length: 38 repeater length: 24

36655 187072 GTTAATCTCCTATAGAGTTGAAAG TAACGCCATCCTTGTATCATGACTATATCATTATGGAGC spacer
length: 39 repeater length: 24

36656 187136 GTTAATCTCCTATAGAGTTGAAAG AGATGAGTGACCTAATACGTCTGATATTCGCCATGATA spacer
length: 38 repeater length: 24

36657 187199 GTTAATCTCCTATAGAGTTGAAAG TAGGATTGCGTCCTACCTGAATGCCGTAACCTTTTCAGGT spacer

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length: 39 repeater length: 24
36658 187263 GTTAATCTCCTATAGAGTTGAAAG CTCTCATGAATTTCCCCACATAGGGAGCACGTCTTAGA spacer
length: 38 repeater length: 24
36659 187326 GTTAATCTCCTATAGAGTTGAAAG AAGCCAGAATATCTTAAGATAACACCTAAGATGTTAAA spacer
length: 38 repeater length: 24
36660 187389 GTTAATCTCCTATAGAGTTGAAAG GAATACCTCTCCAATCAAAAGCCAACGTCCCCTGAG spacer length:
37 repeater length: 24
36661 187451 GTTAATCTCCTATAGAGTTGAAAG CTAGATGAGCAGTACAAGGAGGCAAGGCAAAAGATTGGTCCG spacer
length: 42 repeater length: 24
36662 187518 GTTAATCTCCTATAGAGTTGAAAG AGTTCTACCGCTAGGTGCAAAGGGGTGTAACCATCAGGGAA spacer
length: 41 repeater length: 24
36663 187584 GTTAATCTCCTATAGAGTTGAAAG CTACCCTCCCATCCACCTTTTTTCATGAGGTTGAGAG spacer length:
36 repeater length: 24
36664 187645 GTTAATCTCCTATAGAGTTGAAAG TTCTAGTAATGTGGAGCGGACATGGATTTTCATCTATTTTA spacer
length: 40 repeater length: 24
36665 187710 GTTAATCTCCTATAGAGTTGAAAG AACCCCTGACCGAACTCCCTAGCCAATTTTCATTAGATCG spacer
length: 39 repeater length: 24
36666 187774 GTTAATCTCCTATAGAGTTGAAAG TCTCTTCCTTAACCATCTTCTCGATGGCTCTTCTG spacer length:
35 repeater length: 24
36667 187834 GTTAATCTCCTATAGAGTTGAAAG ACGTGAGCGGGACGACCATCACCCCTGGGTCGTGTCCG spacer
length: 38 repeater length: 24
36668 187897 GTTAATCTCCTATAGAGTTGAAAG TGAATCATCAAACCTTTTCTCTTTGCCGTAAAGC spacer length:
35 repeater length: 24
36669 187957 GTTAATCTCCTATAGAGTTGAAAG AATGCAGGGACCGCTTTCAGTACGATTCTGCAACAGT spacer
length: 38 repeater length: 24
36670 188020 GTTAATCTCCTATAGAGTTGAAAG TGGTTAAATTCTGCATTCAATTTTTATCAAAATCTAGCATG spacer
length: 41 repeater length: 24
36671 188086 GTTAATCTCCTATAGAGTTGAAAG TTGAGATTCATGATTGCAATGACGTCACGGTCGTTTTCA spacer
length: 39 repeater length: 24
36672 188150 GTTAATCTCCTATAGAGTTGAAAG CAAGTTGAGCCAGGACCTCCTCAACTTCTTCCTCTAGGGTA spacer
length: 41 repeater length: 24
36673 188216 GTTAATCTCCTATAGAGTTGAAAG TCTCAAGAAGAAGTTAGAGTCTCAGCCAGAGACTCAGACC spacer
length: 40 repeater length: 24
36674 188281 GTTAATCTCCTATAGAGTTGAAAG TGAATCATGGAGAAGAAAATTTGAGAAAGGAAAAGCAAA spacer
length: 39 repeater length: 24
36675 188345 GTTAATCTCCTATAGAGTTGAAAG TTCAATTTCTCCGAAATCTTCATCACAATGGACCCCAGT
36676
36677
36678 crispr 8
36679 143475 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC TTGGTTTTTATGGTCTCAGCTACTCTTAGTGTGTAGA spacer
length: 37 repeater length: 30
36680 143543 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC ACGTGCAATCAAGTATTGGTTCAGTCGTAACAGGGG spacer
length: 36 repeater length: 30
36681 143610 GTTTGTAGAGATCCTTCGAGGGTTTGAAAC GTTCTGTCCTCGAGCTTCAGGAGGGCTTCTTGAGTC
36682
36683
36684 crispr 9
36685 1739039 TGCCATCTTCTCCTCGAGTTTAGAGGTTCTGTCTCGAGC
TTGAGGAATGCCTCCTGCATTCTGCGTTGGGACTCAACAAGCT spacer length: 43 repeater length: 40
36686 1739123 TGCCATCTTCTCCTCGAGTTTAGAGGTTCTGTCTCGAGC
TTCAGGAGGGCTTCTTGAGTCTTGCGTTGCGCTTCCGCGAGCT spacer length: 43 repeater length: 40
36687 1739207 TGCCATCTTCTCCTCGAGTTTAGAGGTTCTGTCTCGAGC
CTAGTTCGCCATTTTCTCCTCGAGCTTCGTCATCCCATCGGC
36688
36689
36690 GCA_005485005.1_ASM548500v1_genomic.fna(findCrispr):
36691 START REPEAT
SPACER
36692 crispr 1
36693 1896936 CCACTAAAACAA GGATTGAAACAAAATGTATTTTCCAGCATCAGTAACCATAGCAAGATTCGAGAGCAAGA
spacer length: 59 repeater length: 12
36694 1897008 CCACTAAAACAA GGATTGAAACCGGACATTGACAGAATCATATCAAAGGGCAATTTTGGGATTCGAGAGCAAGA
spacer length: 62 repeater length: 12
36695 1897083 CCACTAAAACAA GGATTGAAACATCGCGTTTCAGGTGCGAAGTTCCCATATCCTCCTTATTCGAGAGCAAGA
spacer length: 59 repeater length: 12
36696 1897155 CCACTAAAACAA GGATTGAAACATGTATAGAGTTCATATTTTTGTACCATTATTTTATTCGAGAGCAAGA
spacer length: 58 repeater length: 12
36697 1897226 CCACTAAAACAA GGATTGAAACTGGATTCCCTCCGAACGAATCAGTAGCTACAGGCAGATTCGAGAGCAAGA
spacer length: 59 repeater length: 12
36698 1897298 CCACTAAAACAA GGATTGAAACAAAATTTTGATTCCCTGGACGTTCTGAGCAGAAAATAGATTCGAGAGCAAGA
spacer length: 60 repeater length: 12

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36699 1897371 CCACTAAAACAA GGATTGAAACCAGCTACTCCTGTAAAATCGTACACCGTTGTAGAAATTCGAGAGCAAGA
spacer length: 59 repeater length: 12
36700 1897443 CCACTAAAACAA
GGATTGAAACTTGNNNNNNNNNCGTCTGGTAATACGGCATCCTGAGTGAAATAGAATTCGAGAGCAAGA spacer
length: 70 repeater length: 12
36701 1897526 CCACTAAAACAA
GGATTGAANNNNNNNNNNCTAGCTTATGCGGTCTTTCTCTCCATTCTTCAAATTCGAGAGCAAGA spacer length: 65
repeater length: 12
36702 1897604 CCACTAAAACAA GGATTGAAACTAAAATGAATGCTGCTGCAGATATGAGACAAAATGAATTCGAGAGCAAGA
spacer length: 60 repeater length: 12
36703 1897677 CCACTAAAACAA GGATTGAAACTGATCCAACCAATCACGCCCCACCGTTTTGTTGGTATTCGAGAGCAAGA
spacer length: 59 repeater length: 12
36704 1897749 CCACTAAAACAA AAACCTTCATTTTTTGTGACACTTATTGTTATATTGTCATAATTCGTGAGCATGATCCA
36705
36706
36707 crispr 2
36708 3412243 AATTACGCCTATGTAGCTGAT
AATGATGGTCTTGTGATTGTTGATATCAGTAATCCTTCTGATCCAATTCTCAAAGGACGTTATGCCGGTCTACTGGCGATGTTGC
AGTTTACGG spacer length: 95 repeater length: 21
36709 3412360 AATTACGCCTATGTAGCTGAT
TGGGGTAATGGTCTTATGATTGTTGATATAAGCAATCCATCTTCACCAGTTCTCAAAGGAAGCTACGATACTGCCGGAGATATTTA
CGGTGTCTCAATTTCCGG spacer length: 104 repeater length: 21
36710 3412486 AATTACGCCTATGTAGCTGAT
TAATTATAATTGATTAGATATATAGTTGAGCCATCATAAGTTACTTCCTGAGAGAAGCATTTTTATTTTCAAATCCTCTTTCTTTT
CGGTTAAAACTCAAAAAAC
36711
36712
36713 crispr 3
36714 1886949 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCTGATGTTTCATCGTTACCTGATGGTA
spacer length: 50 repeater length: 21
36715 1887021 ATCTCCACCTGATGTTTCATC ATTTCCAGATTGATCATCTTCACCGGATGTCTCACCGTTATCTGATGGTA
spacer length: 50 repeater length: 21
36716 1887093 ATCTCCACCTGATGTTTCATC AACCTGAACTTAATGATTATTTAATTGTAAGTCTCAGAGTATAGTTAAC
36717
36718
36719 crispr 4
36720 2715370 GCACTCTCCAAGCCAGTAATA TTGCCTAAATTTGAAGCTTCTACAAGTCTGGCAGCAGCTATGGC spacer
length: 44 repeater length: 21
36721 2715436 GCACTCTCCAAGCCAGTAATA CTGCCTAAATTTGAACCTTCTACAAGTCTGGCAGCAGCTATGGC spacer
length: 44 repeater length: 21
36722 2715502 GCACTCTCCAAGCCAGTAATA TAACAATTAACCTGAACTTAATGATTATTTAATTGTAAGTCTC
36723
36724
36725 crispr 5
36726 1708813 TTAATTATATAAACTGTAATT ATACTGGAAATTGAACAAAC spacer length: 20 repeater
length: 21
36727 1708855 TTAATTATATAAACTGTAATT ATACTGGAAATTAAATAAAC spacer length: 20 repeater
length: 21
36728 1708897 TTAATTATATAAACTGTAATT AATTATAATTGATTAGATAT
36729
36730
36731 crispr 6
36732 2682738 AGGAGCTAACCTTCAAGGAGCT GACTTTATAGAGGCTAATCTTCAAGGAGCTGACCTTC spacer length:
37 repeater length: 22
36733 2682798 AGGAGCTAACCTTCAAGGAGCT
AACCTTGAAGAGGCTAACCTTGAAGGGGCTAACCTTCGAGGAGCTAACTTCAAGGAGCTAACCTTCGAGGAGCTAACTTC
spacer length: 82 repeater length: 22
36734 2682903 AGGAGCTAACCTTCAAGGAGCT
GAAACCGATTACTCCAGGGTCACGGTGGAACCCGTCAGAATTCGAGAGCAAGATCCACTAAAACAAGGATTGAAACNNNNNN
36735
36736
36737 crispr 7
36738 123842 GTGTCATCTGTTACATTTGTAT
TGTCAGTCACGTTTGTATCAATAGTTACATTTGTATCAATAGTTACATTTGTACCATCTGTTACATTTGTACCGTCTGTTACGTT
spacer length: 85 repeater length: 22
36739 123950 GTGTCATCTGTTACATTTGTAT
CATTAGTCACATTTGTATCATTAGTCACATTTGTATCATTAGTCACATTTGTACCATCTGTTACGTTAGTGTATCTGTTACATTT
GTACCATCTGTTACGTT spacer length: 103 repeater length: 22
36740 124076 GTGTCATCTGTTACATTTGTAT
TTAACCTGAACTTAATGATTATTTAATTGTAAGTCTCAGAGTATAGTTAACGGCGCTCCTATGAGCGCCGCACGAATACCCTCTA
AAACAGGTAAACCGTTC

[illegible]

spacer length: 41 repeater length: 31
 36776 3719006 GTTTC AATCCTTGT TTTAATGGATCTTGCTC GCGAATGCAGACAATAACCTGCATCCTCGATGAAGGGGCG
 spacer length: 40 repeater length: 31
 36777 3719078 GTTTC AATCCTTGT TTTAATGGATCTTGCTC
 GCGAATCNNNNNNNNNNTAGTTGAAATGAAAGAGAAGAAGGATTTCG spacer length: 46 repeater length: 31
 36778 3719156 GTTTC AATCCTTGT TTTAATGGATCTTGCTC
 GCGAANNNNNNNNNNNGGTTTAAATTATGATCCTGAACTTGCAGCTAGTCCCG spacer length: 52 repeater
 length: 31
 36779 3719240 GTTTC AATCCTTGT TTTAATGGATCTTGCTC
 GCGAATATNNNNNNNNNNCAGAAAAGCGCTGGAAATGCGCTGAGAAACAAT spacer length: 51 repeater
 length: 31
 36780 3719323 GTTTC AATCCTTGT TTTAATGGATCTTGCTC
 GTCTTGTGATTGTTGATATAAGCAATCCTTCTTCTCCGACTCTCAAAGGAA
 36781
 36782
 36783 crispr 10
 36784 276100 GTTCGCCACATATACCTTTGTTCCATCCGGACT
 GATCGCAACTCCATAAGGAGCAATTCCTACAGGCACCGTGAAGGTAATACTGTAATTAGACGTATCGATTACGGAAGTAGTGTTAC
 TGCCGT spacer length: 92 repeater length: 33
 36785 276226 GTTCGCCACATATACCTTTGTTCCATCCGGACT
 GACTACA ACTCCAGAAGGACTGTAATCTACTGGAACACTGGCGATAACAGTGCTGGTCGTTGTGTTAATTACAGAGACACTGCTGT
 CGTTTT spacer length: 92 repeater length: 33
 36786 276352 GTTCGCCACATATACCTTTGTTCCATCCGGACT
 ATATAGTTGAGCCATCATAAGTTACTTCCTGAGAGAAGCATTTTTATTTTCAAATCCTCTTTCTTTTCGGTTAAAACTCAAAAACA
 AATCCA
 36787
 36788
 36789 crispr 11
 36790 2111924 CCTGAACTTAATAACTGACTGAGATTAACAATTA
 CTAGAAATTAATAACTGACTGAAATTAACAATTAACCTGAAATTGATGATTATTTAATTTAGCAATTA spacer length:
 68 repeater length: 34
 36791 2112027 CCTGAACTTAATAACTGACTGAGATTAACAATTA ACCTGAACTTAATGATTATTTAATTTAGCAATTA spacer
 length: 34 repeater length: 34
 36792 2112096 CCTGAACTTAATAACTGACTGAGATTAACAATTA AAGGAGCATGTCCACAGGCACCGTGGAGGTAAC
 36793
 36794
 36795 crispr 12
 36796 2102032 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT TCCTTGCACTGATCTTGATGTGATGCGATTTAT
 spacer length: 33 repeater length: 37
 36797 2102103 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT ACGTATGTAAGGGCTATCACCTAAGAGA ACTATTGG
 spacer length: 36 repeater length: 37
 36798 2102177 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT ATCTTTATAGATTTTAGCTGTTGCTATCAATTTG
 spacer length: 34 repeater length: 37
 36799 2102249 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT TGTATCGTGTAATTTCTGCAAGTTTCTGTATAGT
 spacer length: 34 repeater length: 37
 36800 2102321 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT AAATACAAATCCATTTCTAAAATTCAAATTAGGAA
 spacer length: 35 repeater length: 37
 36801 2102394 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT AGATACTGATACAATTAGAAGACAACGCAAAGAGA
 spacer length: 35 repeater length: 37
 36802 2102467 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT ATCGGTCCGGATGCTTCAGAAACAGGAGTTACCT
 spacer length: 34 repeater length: 37
 36803 2102539 GTTTC AATCCTTGT TTTTAGTGGATCTTGCTCGCGAAT TCGTACACCGTTGTAGAAATTCGAGAGCAAGATC
 36804
 36805
 36806 crispr 13
 36807 3727223 TTCGCGAGCAAGATCCATTAAAACAAGGATTGAAACTTTC
 GAAAAGTCCGGGTAAAAATTGCAGCGTTGTCCATTTCGCGAGCAAGATCCATTAAAACAAGGATTGAAACATCTGTAGTCATTTTAG
 ATATACCTCGCAAACATT spacer length: 104 repeater length: 40
 36808 3727368 TTCGCGAGCAAGATCCATTAAAACAAGGATTGAAACTTTC CAAGACGGAGATATCTGGAGAGTTGATAATGA
 spacer length: 32 repeater length: 40
 36809 3727441 TTCGCGAGCAAGATCCATTAAAACAAGGATTGAAACTTTC TGGAACCCGTCAGAATTCGAGAGCAAGATCCA
 36810
 36811
 36812 GCA_006740685.1_ASM674068v1_genomic.fna(findCrispr):
 36813 START REPEAT
 SPACER
 36814 crispr 1
 36815 8936 AAAAACACTCTCT
 GACTCTATAGGAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACATCTGATGCTGTAACAAC
 AACTCAAACAT spacer length: 97 repeater length: 13
 36816 9047 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA spacer length: 46

36817 repeater length: 13
 9107 AAAAACACTCTCT
 GACTCTATAGGAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACATCTGATGCTGTAACAAC
 AACTCAACAT spacer length: 97 repeater length: 13
 36818 9218 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA spacer length: 46
 repeater length: 13
 36819 9278 AAAAACACTCTCT
 GACTCTATAGGAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACATCTGATGCTGTAACAAC
 AACTCAACAT spacer length: 97 repeater length: 13
 36820 9389 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA spacer length: 46
 repeater length: 13
 36821 9449 AAAAACACTCTCT
 GACTCTATAGGAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACATCTGATGCTGTAACAAC
 AACTCAACAT spacer length: 97 repeater length: 13
 36822 9560 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA spacer length: 46
 repeater length: 13
 36823 9620 AAAAACACTCTCT
 GACTCTATAGGAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACATCTGATGCTGTAACAAC
 AACTCAACAT spacer length: 97 repeater length: 13
 36824 9731 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA spacer length: 46
 repeater length: 13
 36825 9791 AAAAACACTCTCT
 GACTCTATAGGAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACCTCTGATGCTGTAACAAC
 AACTCAACAT spacer length: 97 repeater length: 13
 36826 9902 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA spacer length: 46
 repeater length: 13
 36827 9962 AAAAACACTCTCT GACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATCA
 36828
 36829
 36830 crispr 2
 36831 233320 CCTTGTGGACCTTGTGGACCTTT TTCTCCAGAGGGACCTGTTGTTCTCTTTTCACCTTGGA spacer
 length: 39 repeater length: 23
 36832 233383 CCTTGTGGACCTTGTGGACCTTT
 GTCACCTGGAGGACCTGTTGCGCCTGTTTGTCTTTTTTCTCCTTGAGGACCTAACGGACCTTTGTCACCTTTTTCTCCTTGAGGAC
 CAGGAACGCCTGTTAATCCTTTTGCACCAGCTGG spacer length: 120 repeater length: 23
 36833 233527 CCTTGTGGACCTTGTGGACCTTT
 GAACATCTGACACAATTAACACTGTATTTGTTAGAGACCTATCTGACTCTATAGGAACCTCTGATGCTGTAACAACAACCTTCTGCT
 CAAACTAAAACACTCTCTGACTCTATAGGAACAT
 36834
 36835
 36836 crispr 3
 36837 6746 TAACGCCACATCTGTTGGCTCTATCAA TAGTACTGATACAGATCTGC spacer length: 20 repeater
 length: 27
 36838 6794 TAACGCCACATCTGTTGGCTCTATCAA TAGTACTGATACAGATCTGC spacer length: 20 repeater
 length: 27
 36839 6842 TAACGCCACATCTGTTGGCTCTATCAA
 TAGTACTGATACAGATCTGCTTAACGCCACATCTGTTGGCTCTGTTAACGCCACATCTGTTGGCTCTGTTAACGCCACATCTGTTG
 GCTCTGTTAACGCCACATCTGTTGGCTCTG spacer length: 116 repeater length: 27
 36840 6986 TAACGCCACATCTGTTGGCTCTATCAA TAGTACTGATACAGATCTGC spacer length: 20 repeater
 length: 27
 36841 7034 TAACGCCACATCTGTTGGCTCTATCAA
 TAGTACTGATACAGATCTGCTTAACGCCACATCTGTTGGCTCTGTTAACGCCACATCTGTTGGCTCTG spacer length:
 68 repeater length: 27
 36842 7130 TAACGCCACATCTGTTGGCTCTATCAA TAGTACTGATACAGATCTGCTTAACCTCCACATCTGTTGGCTCTG spacer
 length: 44 repeater length: 27
 36843 7202 TAACGCCACATCTGTTGGCTCTATCAA TCCACATCTGTTGGCTCTGTTAACGCCACATCTGTTGGCTCTAT
 36844
 36845
 36846 crispr 4
 36847 10070 TCAAACATAAAACACTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAACCTTCTG spacer length: 20
 repeater length: 39
 36848 10130 TCAAACATAAAACACTCTCTGACTCTATAGGAACATCTGA
 TGCTGTAACAACAACCTCAAACATCAAAAACACTCTCTGACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATTACTA
 AAACACTCTCTGACTCTATAGGAACATCTGATGCTGTAACAACAACCTTCTG spacer length: 137 repeater
 length: 39
 36849 10307 TCAAACATAAAACACTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAACCTTCTG spacer length: 20
 repeater length: 39
 36850 10367 TCAAACATAAAACACTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAACCTTCTG spacer length: 20
 repeater length: 39
 36851 10427 TCAAACATAAAACACTCTCTGACTCTATAGGAACATCTGA
 TGCTGTAACAACAACCTTCTGCTCAAACATAAAACACTCTCTGACTCTATAGGAATATCTGATACAGTTGTCACTGTAAAATCCATTA

CTAAAACTCTCTGACTCTATAGGAACATCTGATGCTGTAACAACAACCTTCTG spacer length: 140 repeater length: 39

36852 10607 TCAAACATAAACTCTCTGACTCTATAGGAACATCTGA TGCTGTAACAACAACCTTCTG spacer length: 20
repeater length: 39

36853 10667 TCAAACATAAACTCTCTGACTCTATAGGAACATCTGA CTTAACTCCACATCTGTTGG

36854

36855

36856 crispr 5

36857 766618 TCAGATACTGTGATAGAGTCAGAGAGTTGTATGGTTTGA GTGGCGGTGTTGGTAATAGT spacer length: 20
repeater length: 39

36858 766678 TCAGATACTGTGATAGAGTCAGAGAGTTGTATGGTTTGA GTGGCGGTGTTGGTTAGATC spacer length: 20
repeater length: 39

36859 766738 TCAGATACTGTGATAGAGTCAGAGAGTTGTATGGTTTGA GAGGCGGTGTTGGCAATAGT spacer length: 20
repeater length: 39

36860 766798 TCAGATACTGTGATAGAGTCAGAGAGTTGTATGGTTTGA GAGGTGGTGTGGCAATAGT spacer length: 20
repeater length: 39

36861 766858 TCAGATACTGTGATAGAGTCAGAGAGTTGTATGGTTTGA GTTATAATGGATCCTGAACC

36862

36863

36864 crispr 6

36865 981734 TCCTGAACAATTAGCAAGATTAGAACAATTAGAAAAACAA
ATCCAAGAATTAGAATCTAAACCTGAACCAGAACCTGAAGAGGAAGAAGCCA spacer length: 52 repeater
length: 40

36866 981827 TCCTGAACAATTAGCAAGATTAGAACAATTAGAAAAACAA
ATCCAAGAATTAGAATCTAAACCTGAACCAGAACCTGAAGAGGAAGAAGCCA spacer length: 52 repeater
length: 40

36867 981920 TCCTGAACAATTAGCAAGATTAGAACAATTAGAAAAACAA
ATCCAAGAATTAGAATCTAAACCAACTCCTCCAAGTCTTAGAGTTTATTACCAAAAGAATCTGCAGAAGAACTTCCACAAGAAGT
TGATTTAGCTCCGGAACCTGTTACAGAAGAACCAACTACAGAACCTGAAGAGGAAGAAGCCA spacer length: 148
repeater length: 40

36868 982109 TCCTGAACAATTAGCAAGATTAGAACAATTAGAAAAACAA
ATCCAAGAATTAGAATCTAAACCTGAACCAGAACCTGAAGAGGAAGAAGCCA spacer length: 52 repeater
length: 40

36869 982202 TCCTGAACAATTAGCAAGATTAGAACAATTAGAAAAACAA
ATCCAAGAATTAGAATCTAAACCTGAACCAGAACCTGAAGAGGAAGAAGCCA spacer length: 52 repeater
length: 40

36870 982295 TCCTGAACAATTAGCAAGATTAGAACAATTAGAAAAACAA
CTGTTATAATGGATCCTGAACCTGGTGTAGATGACATTGTAATGGATCCTGA

36871

36872

36873 GCA_008033705.1_ASM803370v1_genomic.fna(findCrispr):

36874 START REPEAT
SPACER

36875 crispr 1

36876 1565748 GCGCTCCTTGACGCGTTGAT CCCTATATCATTTGAGGTGATGTCTTGAACCTACCTTGTTTT spacer
length: 41 repeater length: 20

36877 1565810 GCGCTCCTTGACGCGTTGAT CCCTATATCATTTGAGGTGATGTCTTGAACCTATCTGGTGTT spacer
length: 41 repeater length: 20

36878 1565872 GCGCTCCTTGACGCGTTGAT TCCTCTAAGACTCCAATATATAAAATTTCTGGCCACTGGAA

36879

36880

36881 crispr 2

36882 92333 ATGATCAATCTTAAGCTTAAGA GCATCCAACATTTCTTTACCTCTACATCTACTCTTT spacer length: 36
repeater length: 22

36883 92392 ATGATCAATCTTAAGCTTAAGA GCATCCAACATTTCTTTACCTCTACATCTACTCTTT spacer length: 36
repeater length: 22

36884 92451 ATGATCAATCTTAAGCTTAAGA GCATCCAACATTTCTTTACCTCTACATCCACTCCTT spacer length: 36
repeater length: 22

36885 92510 ATGATCAATCTTAAGCTTAAGA GAAATGGGTTCATGTTTCGTAATATATAGCTATAACG

36886

36887

36888 crispr 3

36889 861802 GAGACATGCATTTCAAGTGTA
ATTTTCCCCGGCAGTCTGCTGGATGTGAAGGAGGACATGCGTTTCAAGTGTAACACTTATTTGTCCACTCAGTCGTGAATG
spacer length: 82 repeater length: 22

36890 861907 GAGACATGCATTTCAAGTGTA TGATTCCTGAAATGTTGGATATTGTAAG spacer length: 28
repeater length: 22

36891 861958 GAGACATGCATTTCAAGTGTA AAATGGGTTCATGTTTCGTAATATATAGC

36892

36893

36894 crispr 4

36895	634745	TTTCAATCCCATTTTGGTCTGATTTTAAC	AATAGAAAACAGCAACTTCAAACCCTACCCGGCAGTAAT	spacer
		length: 39	repeater length: 29	
36896	634814	TTTCAATCCCATTTTGGTCTGATTTTAAC	CTGCATGGCATGAGCCATGCGACCCTGAAGCCCCTGCA	spacer
		length: 38	repeater length: 29	
36897	634882	TTTCAATCCCATTTTGGTCTGATTTTAAC	CGTAGGCCCTTGAGGACAGGGCCTCAATTTTTTCTGCTGA	spacer
		length: 41	repeater length: 29	
36898	634953	TTTCAATCCCATTTTGGTCTGATTTTAAC	AATACAATACAAATTTGAGGTGAAACAAAATGAG	spacer
		length: 34	repeater length: 29	
36899	635017	TTTCAATCCCATTTTGGTCTGATTTTAAC	ATTACTGCATGAGATTAGCGGAGGAATCAATAAATA	spacer
		length: 36	repeater length: 29	
36900	635083	TTTCAATCCCATTTTGGTCTGATTTTAAC	TATAATACTTCTTACGGGACTCATGAACACGCACAGTA	spacer
		length: 38	repeater length: 29	
36901	635151	TTTCAATCCCATTTTGGTCTGATTTTAAC	GGCGTTTTTTTGAGAAAATACGGGTTATACGGGCTTAAAAAATA	spacer
		length: 44	repeater length: 29	
36902	635225	TTTCAATCCCATTTTGGTCTGATTTTAAC	ACTCATCAGTCATCATACACCCCTCCCATTAAGTAT	spacer
		length: 37	repeater length: 29	
36903	635292	TTTCAATCCCATTTTGGTCTGATTTTAAC	TCATAAAGCCTCTTATTATAAAAACAATTTACAATA	spacer
		length: 36	repeater length: 29	
36904	635358	TTTCAATCCCATTTTGGTCTGATTTTAAC	TAATCGCATACGAGGGGACCCGATGATTGCTGAAGA	spacer
		length: 36	repeater length: 29	
36905	635424	TTTCAATCCCATTTTGGTCTGATTTTAAC	CTGAGAAAGGGGGTTTCGAGAAAGAAGGGGAAAAGGA	spacer
		length: 37	repeater length: 29	
36906	635491	TTTCAATCCCATTTTGGTCTGATTTTAAC	ACACTTGAAGAATTCAACAAAGTCGTCCATACAATCGTAA	spacer
		length: 40	repeater length: 29	
36907	635561	TTTCAATCCCATTTTGGTCTGATTTTAAC	ATGACCCCGACGCCATCTTCGGGGTGATAGTTGACG	spacer
		length: 36	repeater length: 29	
36908	635627	TTTCAATCCCATTTTGGTCTGATTTTAAC	TTAGCGATAGTCAGAAATCTGGAAGAGATCGAAAAGA	spacer
		length: 37	repeater length: 29	
36909	635694	TTTCAATCCCATTTTGGTCTGATTTTAAC	TGTAAATACTCATCAATAAAATCCCCTAGGTGCCGA	spacer
		length: 36	repeater length: 29	
36910	635760	TTTCAATCCCATTTTGGTCTGATTTTAAC	TGTGATAATACTTTTTGTTGTGATAAGTGTAAGTAT	spacer
		length: 36	repeater length: 29	
36911	635826	TTTCAATCCCATTTTGGTCTGATTTTAAC	ACTCATCAGTCATCATACACCCCTCCCATTAAGTAT	spacer
		length: 37	repeater length: 29	
36912	635893	TTTCAATCCCATTTTGGTCTGATTTTAAC	TCATAAAGCCTCTTATTATAAAAACAATTTACAATA	spacer
		length: 36	repeater length: 29	
36913	635959	TTTCAATCCCATTTTGGTCTGATTTTAAC	TAATCGCATACGAGGGGACCCGATGATTGCTGAAGA	spacer
		length: 36	repeater length: 29	
36914	636025	TTTCAATCCCATTTTGGTCTGATTTTAAC	ATGACCAGGAAATAGTAATGTGGATCCGTTTACAAGTAT	spacer
		length: 39	repeater length: 29	
36915	636094	TTTCAATCCCATTTTGGTCTGATTTTAAC	TTGTTAAGGTTATTCCAGCCATATAATAAACAATTGA	spacer
		length: 37	repeater length: 29	
36916	636161	TTTCAATCCCATTTTGGTCTGATTTTAAC	CTATATATTCTTATAACGAACAGGAGGTGATACAAA	spacer
		length: 36	repeater length: 29	
36917	636227	TTTCAATCCCATTTTGGTCTGATTTTAAC	GCATGGTGGGTTTGTGGTGGGGTGGCCCTGTTTTTG	spacer
		length: 36	repeater length: 29	
36918	636293	TTTCAATCCCATTTTGGTCTGATTTTAAC	CATAATGGCCACATAGAGGCCCTTTCATGGGATAATG	spacer
		length: 37	repeater length: 29	
36919	636360	TTTCAATCCCATTTTGGTCTGATTTTAAC	TCGATGAATCATTAATCGAAGTCCTCGAAAACATCCTCGA	spacer
		length: 40	repeater length: 29	
36920	636430	TTTCAATCCCATTTTGGTCTGATTTTAAC	CTGGGGTCAAAGGAAGGCAGAAGGCACCTGTTGTT	spacer
		length: 35	repeater length: 29	
36921	636495	TTTCAATCCCATTTTGGTCTGATTTTAAC	AGAGCTCCGATAGTATCTCCGCTGCAACCTCCTTCGC	spacer
		length: 37	repeater length: 29	
36922	636562	TTTCAATCCCATTTTGGTCTGATTTTAAC	GCGTTTGACGCGGAGAGGAGGATTGTTGAGCATGTGAT	spacer
		length: 39	repeater length: 29	
36923	636631	TTTCAATCCCATTTTGGTCTGATTTTAAC	CAAGATACTCAAGATAATGTAAATATCATACAAGTT	spacer
		length: 37	repeater length: 29	
36924	636698	TTTCAATCCCATTTTGGTCTGATTTTAAC	CCCTTCTGTAGTGGTAGTCGGGGCATTTCGCATCGTAGT	spacer
		length: 38	repeater length: 29	
36925	636766	TTTCAATCCCATTTTGGTCTGATTTTAAC	GAACAGAAGCCATGCTCTGATGCCAGTAGAAGCTGGAGATG	spacer
		length: 41	repeater length: 29	
36926	636837	TTTCAATCCCATTTTGGTCTGATTTTAAC	TAGGTCCTCGTCAGGTAGAGATAGAATGGAGTCCC	spacer
		length: 35	repeater length: 29	
36927	636902	TTTCAATCCCATTTTGGTCTGATTTTAAC	ACAGTCACCGAAACCTGCCGCCGCTGCGGCGAGGTAC	spacer
		length: 37	repeater length: 29	
36928	636969	TTTCAATCCCATTTTGGTCTGATTTTAAC	AAGACTACAGGTAAAATTCCATCGACAGTTAAAA	spacer
		length: 34	repeater length: 29	
36929	637033	TTTCAATCCCATTTTGGTCTGATTTTAAC	TCATCCACACCCTCCATCGCTAAGGTTTCACCATCCCACAC	spacer
		length: 41	repeater length: 29	
36930	637104	TTTCAATCCCATTTTGGTCTGATTTTAAC	ATGGACACCGTATTTCATTGAGATAATAATCCTAATG	spacer

length: 36 repeater length: 29
36931 637170 TTTCAATCCCATTTTGGTCTGATTTTAAC GTAATGGTAAGGTTTATCTCCTTGATATTGTCCGATTGC spacer
length: 39 repeater length: 29
36932 637239 TTTCAATCCCATTTTGGTCTGATTTTAAC CTGACTCTGAAGCACTCAATGTCGTTGGGAATATCG spacer
length: 36 repeater length: 29
36933 637305 TTTCAATCCCATTTTGGTCTGATTTTAAC CCAGAGGGTATGAACCGACGATCCGGGCCATCATAC spacer
length: 36 repeater length: 29
36934 637371 TTTCAATCCCATTTTGGTCTGATTTTAAC TTCTTTGGTTTGGGGTTCCCTGGTCGGGGTTGTCCTG spacer
length: 37 repeater length: 29
36935 637438 TTTCAATCCCATTTTGGTCTGATTTTAAC CCACACCCTCCATCGCTAAGGTTTCACCATCCCACAC spacer
length: 37 repeater length: 29
36936 637505 TTTCAATCCCATTTTGGTCTGATTTTAAC GAAGACAAAGAAGATGAATGTCACCCCACTGACAG spacer
length: 35 repeater length: 29
36937 637570 TTTCAATCCCATTTTGGTCTGATTTTAAC GCATATGGGTCGGGACCGTAATAGCCCATGAGAA spacer
length: 34 repeater length: 29
36938 637634 TTTCAATCCCATTTTGGTCTGATTTTAAC TTTTTCACCTCTTCTTTTCTTTTCTTCTTTTTTTT spacer
length: 38 repeater length: 29
36939 637702 TTTCAATCCCATTTTGGTCTGATTTTAAC CTATTTTTTTTTTCCAACCCAGGGCCTGGGGGTGGTTTTTCG spacer
length: 39 repeater length: 29
36940 637771 TTTCAATCCCATTTTGGTCTGATTTTAAC CTGTAGTAGTGAAAGTGCCCTTCAAACCAAAGTTGT spacer
length: 37 repeater length: 29
36941 637838 TTTCAATCCCATTTTGGTCTGATTTTAAC TATGGGGCCCCGAAAATCCCCATTTACATCAGGAAA spacer
length: 36 repeater length: 29
36942 637904 TTTCAATCCCATTTTGGTCTGATTTTAAC ACAGACACAATAGCAGATTACAGGACAGTGTATAAGC spacer
length: 37 repeater length: 29
36943 637971 TTTCAATCCCATTTTGGTCTGATTTTAAC ACAGGGAGCCTATCCTCGAGGACTTCCTTGATAAGAAA spacer
length: 38 repeater length: 29
36944 638039 TTTCAATCCCATTTTGGTCTGATTTTAAC CTGTGAGGATGGTGATATTCCGGCTCTGATCGTATCT spacer
length: 36 repeater length: 29
36945 638105 TTTCAATCCCATTTTGGTCTGATTTTAAC CGGTAGGAAGAACGGGTACTGGCTCCTCCCAGGCAT spacer
length: 36 repeater length: 29
36946 638171 TTTCAATCCCATTTTGGTCTGATTTTAAC ACAAGGTTTCCCTAATGGTCTTCCCGTCTTCGTGCG spacer
length: 36 repeater length: 29
36947 638237 TTTCAATCCCATTTTGGTCTGATTTTAAC TCGTGAGGGTGAGGACGCATCCGCCAATGTTGATGC spacer
length: 36 repeater length: 29
36948 638303 TTTCAATCCCATTTTGGTCTGATTTTAAC ATGAGGACCATGAGCCGCTCTGAGCACTCGTATATG spacer
length: 36 repeater length: 29
36949 638369 TTTCAATCCCATTTTGGTCTGATTTTAAC CCGCTACAGGAAAACCGTTGAGGATCTAATAAGA spacer
length: 34 repeater length: 29
36950 638433 TTTCAATCCCATTTTGGTCTGATTTTAAC CCAACCCCTGTCAGTAACCGTAAGAGGTGAAAAATA spacer
length: 36 repeater length: 29
36951 638499 TTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTCTGGTTGTCACGGATCTTATCACCTTCGATT spacer
length: 36 repeater length: 29
36952 638565 TTTCAATCCCATTTTGGTCTGATTTTAAC TTGATCATGACCTCAACTTTGACGTTGTTGATTA spacer
length: 34 repeater length: 29
36953 638629 TTTCAATCCCATTTTGGTCTGATTTTAAC ATACTATCCATCCTTGAGGGTAGGGAGTACGTATTTG spacer
length: 37 repeater length: 29
36954 638696 TTTCAATCCCATTTTGGTCTGATTTTAAC AATTGCATCGGCGCCCGCTTCACACCACCAGAGTAC spacer
length: 36 repeater length: 29
36955 638762 TTTCAATCCCATTTTGGTCTGATTTTAAC ACGAAGTAATCGGATGCACTCTGACCCAGTAACCTG spacer
length: 36 repeater length: 29
36956 638828 TTTCAATCCCATTTTGGTCTGATTTTAAC CAAGATGACACAGGAACCAACCCTGAACTATCCA spacer
length: 35 repeater length: 29
36957 638893 TTTCAATCCCATTTTGGTCTGATTTTAAC GCGAGAGCAGTGAAGTGAAACAATTCAAAGTCTCAA spacer
length: 36 repeater length: 29
36958 638959 TTTCAATCCCATTTTGGTCTGATTTTAAC TGAAACCGGTGCTGGCCTGCCGTGTTCTGTGCTGA spacer
length: 36 repeater length: 29
36959 639025 TTTCAATCCCATTTTGGTCTGATTTTAAC CCGGTGACTGCTGATTGGGTCTGCCTAACAGTTGA spacer
length: 35 repeater length: 29
36960 639090 TTTCAATCCCATTTTGGTCTGATTTTAAC AGGAAGATCACCACCGCCATGAGCTACCAGATAAACA spacer
length: 37 repeater length: 29
36961 639157 TTTCAATCCCATTTTGGTCTGATTTTAAC TTCTTCCAGAACCCTACTTGCTCCTCATATCCATAA spacer
length: 36 repeater length: 29
36962 639223 TTTCAATCCCATTTTGGTCTGATTTTAAC GGTGGATGATTGAAGGTGCAAGCTGAAGAGTATATGT spacer
length: 37 repeater length: 29
36963 639290 TTTCAATCCCATTTTGGTCTGATTTTAAC GGGAGAAGCGGGGACTATGTGAACCTCGCAACATTCA spacer
length: 37 repeater length: 29
36964 639357 TTTCAATCCCATTTTGGTCTGATTTTAAC TTATTTGTCTCCGGAATCTCAGATGAGTACCTTGA spacer
length: 35 repeater length: 29
36965 639422 TTTCAATCCCATTTTGGTCTGATTTTAAC GGATAGTGCAACGGGGGGTTGGGCTTCCACTATCCTCG spacer
length: 38 repeater length: 29

36966 639490 TTTCAATCCCATTTTGGTCTGATTTTAAAC CAAACGCATACCTCTCAAATGACGCGCATGTGAAGCTGC spacer
length: 39 repeater length: 29
36967 639559 TTTCAATCCCATTTTGGTCTGATTTTAAAC CATCTATGAGAGGGTTAAGGATACGATGATCATTGAC spacer
length: 37 repeater length: 29
36968 639626 TTTCAATCCCATTTTGGTCTGATTTTAAAC CTTCCGTGGGAACAGGCTTAATCCTTCAATTTCCAAG spacer
length: 37 repeater length: 29
36969 639693 TTTCAATCCCATTTTGGTCTGATTTTAAAC CCGAATCCAGCGATAGCCCCGCCAATCGCCCCATTC spacer
length: 36 repeater length: 29
36970 639759 TTTCAATCCCATTTTGGTCTGATTTTAAAC CCCGGAGACAACACAGGAGCACTCGAATCATATGAA spacer
length: 36 repeater length: 29
36971 639825 TTTCAATCCCATTTTGGTCTGATTTTAAAC CCGAATCCAGCGATAGCCCCGCCAATCGCCCCATTC spacer
length: 36 repeater length: 29
36972 639891 TTTCAATCCCATTTTGGTCTGATTTTAAAC CATAAATGTTACCAGTTACTGAGGCATTTGAGACTT spacer
length: 36 repeater length: 29
36973 639957 TTTCAATCCCATTTTGGTCTGATTTTAAAC CAGTCATAGAATAAGCCAGGGCTTTACAACCCTATGCA spacer
length: 38 repeater length: 29
36974 640025 TTTCAATCCCATTTTGGTCTGATTTTAAAC GTATAGTATGAGAAGGATAAAATCCTTCAAGTAAAAAC spacer
length: 38 repeater length: 29
36975 640093 TTTCAATCCCATTTTGGTCTGATTTTAAAC CCCTTGAACCTTGACACAGCGATACTTAATGACCAG spacer
length: 35 repeater length: 29
36976 640158 TTTCAATCCCATTTTGGTCTGATTTTAAAC AGGATGACCTGAAGCAATTCATCCAGTCAGATTCAAC spacer
length: 37 repeater length: 29
36977 640225 TTTCAATCCCATTTTGGTCTGATTTTAAAC CATCGAATCTGCGGAGGAAGACGGGGTGGCTTGTGA spacer
length: 36 repeater length: 29
36978 640291 TTTCAATCCCATTTTGGTCTGATTTTAAAC ACACAGCACCCCTTGCTGGAGCAATAATTGTGCGTG
36979
36980
36981 crispr 5
36982 203922 CCTCTAAGACTCCAATATATAAAATTTCTG CTCAGTGAGAAAAAATAACCCTTAAAAAC spacer length:
29 repeater length: 30
36983 203982 CCTCTAAGACTCCAATATATAAAATTTCTG GCCACTGGAAAAAATAACCCTTAAAAAC spacer length:
29 repeater length: 30
36984 204042 CCTCTAAGACTCCAATATATAAAATTTCTG CACCTCAAAGTCAAGACACTGACTTAACC
36985
36986
36987 crispr 6
36988 1155538 GTTAAATCAGACCAAAATGGGATTGAAAT CCTCAAGGATGGCGGATGGCATCTTAATAGTCATC spacer
length: 35 repeater length: 30
36989 1155604 GTTAAATCAGACCAAAATGGGATTGAAAT AAAACAAAAACCAATAAAAACCAACAAAAACAAA spacer
length: 34 repeater length: 30
36990 1155669 GTTAAATCAGACCAAAATGGGATTGAAAT GCTAAATCTAATTAAATATTTATTGCTGTCATTT spacer
length: 34 repeater length: 30
36991 1155734 GTTAAATCAGACCAAAATGGGATTGAAAT GTTTATACTATCAATTATATCGCTGATCAATTCCT spacer
length: 35 repeater length: 30
36992 1155800 GTTAAATCAGACCAAAATGGGATTGAAAT GATGCTGATAAGAATGATGCGGATGCACTGTGGAG spacer
length: 35 repeater length: 30
36993 1155866 GTTAAATCAGACCAAAATGGGATTGAAAT ATGTATTTTATTATTGATATGTCTGTTTTTATTGCA spacer
length: 36 repeater length: 30
36994 1155933 GTTAAATCAGACCAAAATGGGATTGAAAT GGATATTGGATATTAAATGTAAATTATTCTAAAAATATT
spacer length: 39 repeater length: 30
36995 1156003 GTTAAATCAGACCAAAATGGGATTGAAAT GTTATTGTGTAGAATCTTGAGTCCCTGATCCGGTTG spacer
length: 37 repeater length: 30
36996 1156071 GTTAAATCAGACCAAAATGGGATTGAAAT GTTATTATGTTGCATTTGAAGAGTTGATACGCAAA spacer
length: 35 repeater length: 30
36997 1156137 GTTAAATCAGACCAAAATGGGATTGAAAT TGAAAATGATTTAAGAGGGTTATTTACCCGAATA spacer
length: 35 repeater length: 30
36998 1156203 GTTAAATCAGACCAAAATGGGATTGAAAT GGATCACTGTGAGGTATTTTCTCCCTCGTGATCC spacer
length: 35 repeater length: 30
36999 1156269 GTTAAATCAGACCAAAATGGGATTGAAAT ATATGAGTATGCTCCCCAGTCCTGTTCTTGCCAG spacer
length: 35 repeater length: 30
37000 1156335 GTTAAATCAGACCAAAATGGGATTGAAAT TACTTCGTATGGGAGCTCTACTTTTCTTTCTGCTG spacer
length: 35 repeater length: 30
37001 1156401 GTTAAATCAGACCAAAATGGGATTGAAAT TCAACTCAGAATACGTGGTGTGGCAAGATCATTC spacer
length: 35 repeater length: 30
37002 1156467 GTTAAATCAGACCAAAATGGGATTGAAAT GTTTATTGTTCTTTGCAGGATTTTCGGTTTGTTTTT spacer
length: 36 repeater length: 30
37003 1156534 GTTAAATCAGACCAAAATGGGATTGAAAT TGAAAAACGGGTCAGTATCGATCTCACTGCTACGAT spacer
length: 36 repeater length: 30
37004 1156601 GTTAAATCAGACCAAAATGGGATTGAAAT TAAAAACGGATTATCCTTAACGAATAACTTCTCCT spacer
length: 35 repeater length: 30
37005 1156667 GTTAAATCAGACCAAAATGGGATTGAAAT CATAGAATGCGAGTGGAGTGTCAACGAAGCCCGTG spacer

	length: 35	repeater length: 30	
37006	1156733	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AAAAAATCAATGAAAATGGTGTGCATCACCCCTTTTT spacer
	length: 37	repeater length: 30	
37007	1156801	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTCAACGGTGTCTACTATGTTGAACTCAGCAGTTT spacer
	length: 36	repeater length: 30	
37008	1156868	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TGAGGTCTTCGGTGACGACGCCGAAGCCCTCAAAATCC spacer
	length: 38	repeater length: 30	
37009	1156937	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AAAGAAGATGGGAAGTCAGGGGCACAGCCCGATTT spacer
	length: 35	repeater length: 30	
37010	1157003	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCCTGAGCAGTTTCTCCGAGACTCTGATCCTATCC spacer
	length: 35	repeater length: 30	
37011	1157069	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CAAAAACAGGAGGGTAACATCATCTCCTACCCCTA spacer
	length: 35	repeater length: 30	
37012	1157135	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CATATGATGATGAGGGCCTCAGGGAGGCCCTCCTA spacer
	length: 35	repeater length: 30	
37013	1157201	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GACTGCAGGGGGTTGTACAGGCATGTGGCTGATA spacer
	length: 35	repeater length: 30	
37014	1157267	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GATAGTCGATAAGGCGACACGTGGATTGCAGAG spacer
	length: 33	repeater length: 30	
37015	1157331	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTTTTTCAGTTGCATCCATCATGAACCACCTCGTCT spacer
	length: 35	repeater length: 30	
37016	1157397	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CAGCATCACGTGAGATGAGCAACAGCCTGATGAG spacer
	length: 34	repeater length: 30	
37017	1157462	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CACAGGCAAGGGAATACTCCAAGGTAATCAGTGAAG spacer
	length: 36	repeater length: 30	
37018	1157529	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGGACTTGCAGGAGAAGGTGAAGGATCATGTTCT spacer
	length: 34	repeater length: 30	
37019	1157594	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TAAAAGGTGATGTACGGGTACCATATGAAGAGTTG spacer
	length: 35	repeater length: 30	
37020	1157660	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GAGATTTTGAAGGTGATGAGGCCCCCGGTGGTT spacer
	length: 33	repeater length: 30	
37021	1157724	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CCTCAAATGTATCCGTCTCCTCGTCGAGGAGACGG spacer
	length: 35	repeater length: 30	
37022	1157790	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCAATTTTCGGGTTGAAACTGCTGAGTTCAACATAG spacer
	length: 36	repeater length: 30	
37023	1157857	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGGGCGATTAAGGAGACATTCACGGTTAAATCAGAG spacer
	length: 36	repeater length: 30	
37024	1157924	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGCAGGGATGCTATTATCCTAGACTGCCTAGTAA spacer
	length: 35	repeater length: 30	
37025	1157990	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TCAGCACAGGAACACGGCAGGCCAGCACCGGTTTCA spacer
	length: 36	repeater length: 30	
37026	1158057	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AGTTCAGCATATCATCAGTCTTCAAGGCGGTTCC spacer
	length: 34	repeater length: 30	
37027	1158122	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGAAACGGGTTGAGCTCGCATTCAAGGGTTCAGG spacer
	length: 34	repeater length: 30	
37028	1158187	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TATCTTTTCAGCATGTCCTTGAACGTTTCAATATTC spacer
	length: 36	repeater length: 30	
37029	1158254	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TGGTGATCTACAGCAGGAACTATACAAGGAGGT spacer
	length: 34	repeater length: 30	
37030	1158319	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTATAGGGGCTGTGTTCTCTGATTTCTCTTCAATG spacer
	length: 36	repeater length: 30	
37031	1158386	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTATTCTTTTTTCGTTTCGTTAGGGTGCATAGTTGTA spacer
	length: 36	repeater length: 30	
37032	1158453	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	ATAGGAAAGCATTATACTGGCTGCTGTGCCGCCCAT spacer
	length: 36	repeater length: 30	
37033	1158520	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TAAATCAGCTACTCTCAGGGGCACTCGCAAGGCAG spacer
	length: 35	repeater length: 30	
37034	1158586	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTAATAATCTGGATAGTGCAACGGGGGTTGGGCTTCCACTA
	spacer length: 42	repeater length: 30	
37035	1158659	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GTATTTCTGAATGAATTCGAGTATAAAGGCGTGAG spacer
	length: 35	repeater length: 30	
37036	1158725	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AACGCCTGCACGGGGCCCTGCTGATGAACCTTAACC spacer
	length: 36	repeater length: 30	
37037	1158792	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	CTGTATGTCACTGTCTTTTTATTTTCTGTTTCGAC spacer
	length: 35	repeater length: 30	
37038	1158858	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	AATCATGTTGCAGTCATGAGAATGACAACAAGTGG spacer
	length: 35	repeater length: 30	
37039	1158924	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	GGCGGAGGGAGTTTCATCACTGAGGTCCTCGCCTTC spacer
	length: 35	repeater length: 30	
37040	1158990	GTTAAAAATCAGACCAAAAATGGGATTGAAAT	TTTATTTTTTTTGGAGGTGTACCCATCAATTCCCGTC spacer
	length: 36	repeater length: 30	

37041	1159057	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTGGGGCTAACCCGAATAGCTCGCCTTTACTGTTA	spacer
		length: 35	repeater length: 30	
37042	1159123	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTTTAACAGGTTACGATGCTCTTATCTAATTT	spacer
		length: 35	repeater length: 30	
37043	1159189	GTTAAAATCAGACCAAAATGGGATTGAAAT	AACTACCCTTATAGTCATACTTCAGGGCTGGGAGGG	spacer
		length: 36	repeater length: 30	
37044	1159256	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACGGGATACCGAGGCCCTCGCAGCCAGATCAGAGA	spacer
		length: 35	repeater length: 30	
37045	1159322	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGGGGAGACTATACCCACCCCAGATGCTTAAAC	spacer
		length: 34	repeater length: 30	
37046	1159387	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAAGGGGTTCCGCCTCCTCTTCTTGGCCTCCTCCT	spacer
		length: 35	repeater length: 30	
37047	1159453	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATCTCCATCAGATGGGACCCCTGTGGGGCTCCATG	spacer
		length: 36	repeater length: 30	
37048	1159520	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTAAACCGTTCGTAAAGCTGCTATGGTCCGCATCG	spacer
		length: 36	repeater length: 30	
37049	1159587	GTTAAAATCAGACCAAAATGGGATTGAAAT	GTCGGGGTGGAGTCGGACGCCGCCAGTGACTT	spacer
		length: 34	repeater length: 30	
37050	1159652	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACTGATAGAAGAGGAGGTCAGGGATGCAGAGGAA	spacer
		length: 34	repeater length: 30	
37051	1159717	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTATGGAAAAATCATTCTCCCGCAGACCGGTGAA	spacer
		length: 35	repeater length: 30	
37052	1159783	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTCATAGTTTCTCTGATGAAATACTACGTTATTTA	spacer
		length: 35	repeater length: 30	
37053	1159849	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTGCGCTGTCGATGGGCAGTTCAATGACTGCCCA	spacer
		length: 35	repeater length: 30	
37054	1159915	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCATAGAAGAAAAAAGCCCTTGAGGGCGGTGATG	spacer
		length: 36	repeater length: 30	
37055	1159982	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACGGACACGAAGACAGACACACATTTCAATCCCAT	spacer
		length: 35	repeater length: 30	
37056	1160048	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACCTCTTCAAGAAAGAGAACAACCGCGAACCCAAA	spacer
		length: 36	repeater length: 30	
37057	1160115	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTTCCTTACACCATCCCAATCCAGGTGCTTG	spacer
		length: 35	repeater length: 30	
37058	1160181	GTTAAAATCAGACCAAAATGGGATTGAAAT	CAGCGAGGAGGCTCATGAGCTGGTATCTGCGTGCATA	spacer
		length: 37	repeater length: 30	
37059	1160249	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATCTCCTCTCCATGTCCTTGAAAACCTCTAGAGTC	spacer
		length: 36	repeater length: 30	
37060	1160316	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTCACTGTCATCCTCCGCGAGATCGGGTACACGG	spacer
		length: 35	repeater length: 30	
37061	1160382	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTCCACGCGGCCTTCTATGGTTTCTTTTTCGTAGTA	spacer
		length: 37	repeater length: 30	
37062	1160450	GTTAAAATCAGACCAAAATGGGATTGAAAT	CATCTGGAGGGTCTCCACCTTCCACAGGCTCCCCC	spacer
		length: 36	repeater length: 30	
37063	1160517	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAGTGAAGATATTGATTCACTTATTAGCTTAATT	spacer
		length: 35	repeater length: 30	
37064	1160583	GTTAAAATCAGACCAAAATGGGATTGAAAT	GATCATCTATATCCTCTCCTTCAGGTCCTCTCGGAG	spacer
		length: 36	repeater length: 30	
37065	1160650	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGTTTGTTTCATCCCCTCACACCCCCCTCTGACA	spacer
		length: 34	repeater length: 30	
37066	1160715	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTCATAGTAGACGCTTGGGGGGTTCTTGGTGATTA	spacer
		length: 36	repeater length: 30	
37067	1160782	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGGTAGAGGGCTTTGTCTGCGTATATGTCACCAAT	spacer
		length: 35	repeater length: 30	
37068	1160848	GTTAAAATCAGACCAAAATGGGATTGAAAT	AAGAGGCTGAGAAGCGCAGCGAAACCCTCCAAGCCC	spacer
		length: 36	repeater length: 30	
37069	1160915	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATGTTAGTGCGTATGACTTCGCCATCTCCCAGGCG	spacer
		length: 35	repeater length: 30	
37070	1160981	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTTCAGCACATCATCCACAGTCTTCCGGTACTTGTG	spacer
		length: 36	repeater length: 30	
37071	1161048	GTTAAAATCAGACCAAAATGGGATTGAAAT	AAAGGGGAATTTGTATGTAAATACTACCAATTTGCT	spacer
		length: 36	repeater length: 30	
37072	1161115	GTTAAAATCAGACCAAAATGGGATTGAAAT	GATCATCCACATGATACCACCCGACCACCCGAAA	spacer
		length: 35	repeater length: 30	
37073	1161181	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATGATGAGATAGCAGAAAGGAATGAGTTCTATATCA	spacer
		length: 36	repeater length: 30	
37074	1161248	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTCCAGGCCTTTTCTTGCGGGTCTGCGGGTT	spacer
		length: 35	repeater length: 30	
37075	1161314	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGAGGCTATTACTGATTTATAACCTCTCTACTTG	spacer
		length: 35	repeater length: 30	
37076	1161380	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTCTGTTTCTTCACATCCCCCATGTGACTTATA	spacer

length: 35 repeater length: 30
37077 1161446 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTGATCAGGGGAATGGGATACCACCCCACCCAGCA spacer
length: 36 repeater length: 30
37078 1161513 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTTGGTTAGTGGTATCATTTATTCCACCTCCATTTC spacer
length: 36 repeater length: 30
37079 1161580 GTTAAAATCAGACCAAAAATGGGATTGAAAT AGGATTTTCGGTTTGTGTTTTGATTATCCTTTATAT spacer
length: 35 repeater length: 30
37080 1161646 GTTAAAATCAGACCAAAAATGGGATTGAAAT GTTCACACCACCCTCCAGGAGTTCATGGAGGAGGACT spacer
length: 37 repeater length: 30
37081 1161714 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTGTCTCTTGCGAATGATTTAACGTCTTCGACGCTA spacer
length: 36 repeater length: 30
37082 1161781 GTTAAAATCAGACCAAAAATGGGATTGAAAT TAGAAATCTGCTCAAGTACTACCGCCAGAACCAACCC spacer
length: 37 repeater length: 30
37083 1161849 GTTAAAATCAGACCAAAAATGGGATTGAAAT CTTGGAAGTAGCGTTTCAGTGGAGGGGTGATG spacer
length: 33 repeater length: 30
37084 1161913 GTTAAAATCAGACCAAAAATGGGATTGAAAT CAGAATCCTCTGGATGAGTTTCTGGGCGTGGGCCT spacer
length: 35 repeater length: 30
37085 1161979 GTTAAAATCAGACCAAAAATGGGATTGAAAT AATGATGTTCTCCGCCAGGTCATCAATTCATCAG spacer
length: 34 repeater length: 30
37086 1162044 GTTAAAATCAGACCAAAAATGGGATTGAAAT
GAAAGCGCAGTGCAGAAGAAAGCCTTCGAGTACTATCGTTAAGATCAGACCAAAAATGGGATTGAAATGATCTTCCATGATCTCATA
GGCCCTGTCTTCCAGG spacer length: 102 repeater length: 30
37087 1162177 GTTAAAATCAGACCAAAAATGGGATTGAAAT CTCACAGATGTGCATGTGCAGCGCATCGAACACA spacer
length: 34 repeater length: 30
37088 1162242 GTTAAAATCAGACCAAAAATGGGATTGAAAT GCTATGTGGATGGTGAATAAGAAGAGGAGGATATG spacer
length: 35 repeater length: 30
37089 1162308 GTTAAAATCAGACCAAAAATGGGATTGAAAT AGGAGCTCTTAGACAAGCTCTACTTCCTTGACATCA spacer
length: 36 repeater length: 30
37090 1162375 GTTAAAATCAGACCAAAAATGGGATTGAAAT TAGAAATCTGCTCAAGTACTACCGCCAGAACCAAC spacer
length: 35 repeater length: 30
37091 1162441 GTTAAAATCAGACCAAAAATGGGATTGAAAT GGATGTTCTCAGGGAGAAGTATGGGGAGGGGGATG spacer
length: 35 repeater length: 30
37092 1162507 GTTAAAATCAGACCAAAAATGGGATTGAAAT CATGGGTCGTGCCATGCAGCCTCTAGGACCTGGTA spacer
length: 35 repeater length: 30
37093 1162573 GTTAAAATCAGACCAAAAATGGGATTGAAAT TCTCTTTAAGTTCTCGAGATACCTCCGGGAGGCTTC spacer
length: 36 repeater length: 30
37094 1162640 GTTAAAATCAGACCAAAAATGGGATTGAAAT GGGGGAATCTGGGCGATGCTACCTCCATGACATGAT spacer
length: 36 repeater length: 30
37095 1162707 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGCAGGAGTTCTGCAGGCCTTTCTCACAGATTACA spacer
length: 35 repeater length: 30
37096 1162773 GTTAAAATCAGACCAAAAATGGGATTGAAAT TAGGTAGCTTCCGCCTCTTTGGCATCTATTTAAATT spacer
length: 36 repeater length: 30
37097 1162840 GTTAAAATCAGACCAAAAATGGGATTGAAAT AAGTTCCTCAATTTGTATATGCACTCTTTCAAATC spacer
length: 35 repeater length: 30
37098 1162906 GTTAAAATCAGACCAAAAATGGGATTGAAAT GTTGTGTCTGGCTCTGACTGTAAGTCCGCTGGCTT spacer
length: 36 repeater length: 30
37099 1162973 GTTAAAATCAGACCAAAAATGGGATTGAAAT CTGCAGCTGCCAGTCTCTCAATCTCATCCGCATAG spacer
length: 35 repeater length: 30
37100 1163039 GTTAAAATCAGACCAAAAATGGGATTGAAAT GCGTATCTCATCGATACGGAATTGGACTTCGTCGTC spacer
length: 36 repeater length: 30
37101 1163106 GTTAAAATCAGACCAAAAATGGGATTGAAAT AGGCCAGTGAAGCCACAGAGCTGCCAACTGTGAGCA spacer
length: 36 repeater length: 30
37102 1163173 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTAAATTATCAATATAAATTCGGGCGGCTTCTCTCCT spacer
length: 37 repeater length: 30
37103 1163241 GTTAAAATCAGACCAAAAATGGGATTGAAAT GACCAAATTCTTCGTCTCCCCGCAGCGCACAGGTA spacer
length: 35 repeater length: 30
37104 1163307 GTTAAAATCAGACCAAAAATGGGATTGAAAT GTTAACTTCTACGAGGAGTCCTACCTCCTCTACACGTTAA
spacer length: 40 repeater length: 30
37105 1163378 GTTAAAATCAGACCAAAAATGGGATTGAAAT GGGGCAATTGTGGTGGTGGTTTCAGCGCTCCTAGCCG spacer
length: 37 repeater length: 30
37106 1163446 GTTAAAATCAGACCAAAAATGGGATTGAAAT ACTACGCAGACACAAAGACAATCATGTTCTCTCTGA spacer
length: 37 repeater length: 30
37107 1163514 GTTAAAATCAGACCAAAAATGGGATTGAAAT AGGAAGAAACGGCGGAGTATCATGTTATCATTGTACT spacer
length: 37 repeater length: 30
37108 1163582 GTTAAAATCAGACCAAAAATGGGATTGAAAT GCGTTATGATGCTTATGGTCGTTCTGTGTGGGTTA spacer
length: 35 repeater length: 30
37109 1163648 GTTAAAATCAGACCAAAAATGGGATTGAAAT AATGGGGACTTTGAAGTGTCTGGCCGTGTTTACCC spacer
length: 35 repeater length: 30
37110 1163714 GTTAAAATCAGACCAAAAATGGGATTGAAAT CAAAAATAATTTCAATGACGTCATAATCTTCAAAAAA spacer
length: 37 repeater length: 30
37111 1163782 GTTAAAATCAGACCAAAAATGGGATTGAAAT CAAAAATAATTTCAATGACGTCATAATCTTCAAAAAA spacer

length: 37 repeater length: 30
37112 1163850 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GTTTTTTATAAACAAAATATAATGAATGATGATCTT spacer
length: 36 repeater length: 30
37113 1163917 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GATAGTACCATATTCCTCCGCTTGA spacer
length: 36 repeater length: 30
37114 1163984 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CTGTCTTCTTCGGGTTCTGTATCTCCTCCTGGAC spacer
length: 34 repeater length: 30
37115 1164049 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACTCATATGTCGCATTAGCAGTGCGCCGAGAATA spacer
length: 34 repeater length: 30
37116 1164114 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CAGGTTTCGGCAGTTGATGTTGTGCTCTTTGTCTGTG spacer
length: 36 repeater length: 30
37117 1164181 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACATATGAAAATTATGTAAATGAACTTATAATACAA spacer
length: 36 repeater length: 30
37118 1164248 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GAGGGAATGGTTCACAGGAGGGTACACCACCATCCC spacer
length: 36 repeater length: 30
37119 1164315 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ACTGATTAGGAAGACCTCGCCATCAACCCTAACCT spacer
length: 36 repeater length: 30
37120 1164382 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTGTAGGGCGCGAGGCTGTGCCAGGCCCGCTGAG spacer
length: 35 repeater length: 30
37121 1164448 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TCCTGTTTAAATCACTAAATTTTTTATAATTATA spacer
length: 36 repeater length: 30
37122 1164515 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CATGAAGAGGAGTGAGACGATACGGTAGAGTTCCT spacer
length: 35 repeater length: 30
37123 1164581 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CATGGTGGGTGAGGGTGGCGTCCACGCCGTACCTGTA spacer
length: 37 repeater length: 30
37124 1164649 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAATTCAGCTATCCTGTCTGCAGCCCCTATTACATC
37125
37126
37127 crispr 7
37128 1722535 TAGTATTTTTTCGATTCTTGTGTTTTGTTAGG
TTATATTTTTCCATTATTTCTTTTACTTTGAGGGTATCTGTTTTGTTATTTTTTCTAGGAGTTCTTTGGTTTTTTTGGCGGATAA
TTTGTTGAGGATGTTTATGATGTTATTGATAGAATCTTGGTCTAGTT spacer length: 133 repeater length: 31
37129 1722700 TAGTATTTTTTCGATTCTTGTGTTTTGTTAGG
CAATAATATTCTTGGTCTAGTTTTATACAGTAGCATTTTGCTGATTCTTCTATTTTTT spacer length: 58
repeater length: 31
37130 1722790 TAGTATTTTTTCGATTCTTGTGTTTTGTTAGG
GGAAAAAATAACCCTTAGGTTGCTCTCAGACTCCACAAAGGCCCTGATATCATCA
37131
37132
37133 crispr 8
37134 624091 CTTAACCGCCTCCTCAGATGAGATCCCCAAACAC ACCTCAAACCTCAAGACACTG spacer length: 20
repeater length: 34
37135 624146 CTTAACCGCCTCCTCAGATGAGATCCCCAAACAC ACCTCAAACCTCAAGGCACTG spacer length: 20
repeater length: 34
37136 624201 CTTAACCGCCTCCTCAGATGAGATCCCCAAACAC CCCCTTGCTGGAGCAATAAT
37137
37138
37139 crispr 9
37140 310594 TCCACACTAACAATAACAAACACCACACTCACCAACAACA
CAGCAACCAATGTAGCGGGAGCAATATACGCAGATAATTTCTCAAACGTAAACATAACAAACACCACACTCACCAACAACACAGCA
AATAGACAAGGAGGAGCAATAATCACATATTCATC spacer length: 121 repeater length: 40
37141 310756 TCCACACTAACAATAACAAACACCACACTCACCAACAACA
CAGCAAATAGACAAGGAGGAGCAATAATCACATATTCATC spacer length: 40 repeater length: 40
37142 310837 TCCACACTAACAATAACAAACACCACACTCACCAACAACA
CAGCAAATAGACAAGGAGGAGCAATAATCACATATTCATC spacer length: 40 repeater length: 40
37143 310918 TCCACACTAACAATAACAAACACCACACTCACCAACAACA
CAGCAAATAGACAAGGAGGAGCAATAGAAGTAGTTACTAA spacer length: 40 repeater length: 40
37144 310999 TCCACACTAACAATAACAAACACCACACTCACCAACAACA
ATATATAGCTATAACGAATAAAAGAGGGGGTCATCCGGCC
37145
37146
37147 GCA_008152015.1_ASM815201v1_genomic.fna(findCrispr):
37148 START REPEAT
SPACER
37149 crispr 1
37150 82135 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CCAGCCCGCGTGATTGAGTTTAAGTATGACACGCTT spacer
length: 36 repeater length: 30
37151 82202 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TCAGAGTCCAGCCCGCTGAACTCTATTTCTCGCGG spacer
length: 36 repeater length: 30
37152 82269 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ACCGTCGTGCGCTTCCCCATTAGAACCACCGTAGT spacer
length: 35 repeater length: 30

37153 82335 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TTTTTTGACTATATGCTTTGGTGATTGCTATGCTCG spacer
length: 36 repeater length: 30

37154 82402 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GGTACATTGTGCTTTTCAGCTTGTCCAGGTTTCGAAA spacer
length: 36 repeater length: 30

37155 82469 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CAAAGCTGAAGCGGTTGAACTCGGCTTAGAAAAGGC spacer
length: 36 repeater length: 30

37156 82536 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ACAGCAGTTGGAGAAGTTCGCGGCGTGGATTTATATG spacer
length: 37 repeater length: 30

37157 82604 CTTTCAATTCTCCCAGAGTCTTATTGCAAC
TTGAGGGCGGGGACATAGAGATCCGCCCTCAAAAACACGGAGGTGGTCGGAATG spacer length: 54 repeater
length: 30

37158 82689 CTTTCAATTCTCCCAGAGTCTTATTGCAAC AGATCCGCCCTCAAAAACACGGAGGTGGTCGGAATG spacer
length: 36 repeater length: 30

37159 82756 CTTTCAATTCTCCCAGAGTCTTATTGCAAC AGATCCGCCCTCAAAAACACGGAGGTGGTCGGAATG spacer
length: 36 repeater length: 30

37160 82823 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ACGGACGGCCTCGTGCTCTTCTATGCCCCGATAGC spacer
length: 36 repeater length: 30

37161 82890 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CAAAGCTGTGGGCCATTGGGCTCGGGCCAGTCCTCA spacer
length: 36 repeater length: 30

37162 82957 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GCCTGCTTTCTCCTCTTCATCAGCTCCTCATGTAGT spacer
length: 36 repeater length: 30

37163 83024 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GATATGGCATTTCCTGCCGTCGGAGTAAGAATTATAT spacer
length: 37 repeater length: 30

37164 83092 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CCTTATCGATTAGACTCTTCATGACCTCTAGGACC spacer
length: 35 repeater length: 30

37165 83158 CTTTCAATTCTCCCAGAGTCTTATTGCAAC ATGAAGCGCCGCAAGCAGGCTTTAGGGGAGGGCGGCG spacer
length: 37 repeater length: 30

37166 83226 CTTTCAATTCTCCCAGAGTCTTATTGCAAC CATAGGTATCGCCCAGGTTACCAACCCGGCCGCTTG spacer
length: 36 repeater length: 30

37167 83293 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TCTAGATCCTTCGCTTGCGTACTGTGTATCTTTATTA spacer
length: 37 repeater length: 30

37168 83361 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GTTTGAGTTCGACTGGACATTGCTACAGGAGAAGG spacer
length: 35 repeater length: 30

37169 83427 CTTTCAATTCTCCCAGAGTCTTATTGCAAC GTTTGAGTTCGACTGGACATTGCTACAGGAGAAGG spacer
length: 35 repeater length: 30

37170 83493 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TAAGTCCAATGTAACTGCTGAACCAATGAGCAACG spacer
length: 36 repeater length: 30

37171 83560 CTTTCAATTCTCCCAGAGTCTTATTGCAAC TAGGTCTTTGTTGCCAGCGGCGTTGCCCTGGTTGCA

37172

37173

37174 crispr 2

37175 852193 GTTGCAATAAGACTCTAGGAGAATTGAAAG GAACACCACAACCTGGCGAGATCCTCGACAACGCTACA spacer
length: 37 repeater length: 30

37176 852261 GTTGCAATAAGACTCTAGGAGAATTGAAAG AATTGGCTGGGGCTGGCTGATGGCTATCATCGTCG spacer
length: 35 repeater length: 30

37177 852327 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTGACAAGTACAAGCGCTTCAAGCTGTTCTTGCA spacer
length: 37 repeater length: 30

37178 852395 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTACTACCCCTAATGCGCTTAGGTTTCGTTTTATT spacer
length: 36 repeater length: 30

37179 852462 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTTCCAAACCGTTCAACAGCAGAGTCATCACTATCAT spacer
length: 37 repeater length: 30

37180 852530 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACCTAAACTCCAACCTTGCATGTCAGGATAGATGA spacer
length: 35 repeater length: 30

37181 852596 GTTGCAATAAGACTCTAGGAGAATTGAAAG AAGCTCGTGCTGTCTGAAGCATGCACCTGTCCGGCG spacer
length: 36 repeater length: 30

37182 852663 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAGATTGGGCAACGCTCACCTTCAACCATATATCAT spacer
length: 36 repeater length: 30

37183 852730 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGGCGTTTCGAGAGTGAGTGAATAGCCATCAAAC spacer
length: 35 repeater length: 30

37184 852796 GTTGCAATAAGACTCTAGGAGAATTGAAAG GGACGACCCGAACGAGGAGCGCTACGGCGAACTGCT spacer
length: 36 repeater length: 30

37185 852863 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGCTGCCAAGCCCGCCCATAGAACAATGCCAGTCAC spacer
length: 36 repeater length: 30

37186 852930 GTTGCAATAAGACTCTAGGAGAATTGAAAG GCGATTCTCTATTGTGTAGAGCAGAATGCCGGCGTA spacer
length: 36 repeater length: 30

37187 852997 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCTCTCAATGCTTGCCTGGCTCAGGGACTACGAAG spacer
length: 35 repeater length: 30

37188 853063 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTCCCTACCGTTTCGCCTATAAGGGCCACCTTGAA spacer
length: 35 repeater length: 30

37189 853129 GTTGCAATAAGACTCTAGGAGAATTGAAAG CCCAATGCCCCAATCAGTGGGGAGATTAGGGAGCT spacer
length: 35 repeater length: 30

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37190 853195 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGTTTCGAGGTTTCGCTTTGTACATGAGGTACATC spacer
length: 35 repeater length: 30
37191 853261 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGACTCTGACTTTCTCTTTTGGGAGGCTGAGCATTAT spacer
length: 37 repeater length: 30
37192 853329 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGGCGGGCGCCACGCTTCTTTTTGGGCTTCTC spacer
length: 34 repeater length: 30
37193 853394 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCTGTATGAAGTGTGGGTGCTGATTGCCTCGGCAA spacer
length: 36 repeater length: 30
37194 853461 GTTGCAATAAGACTCTAGGAGAATTGAAAG ATGAGTTTTGCCATGTCTGAATTCTTGAATTCATC spacer
length: 35 repeater length: 30
37195 853527 GTTGCAATAAGACTCTAGGAGAATTGAAAG AATACCTGTCCGCCCAACCCCTATGATGCCTAAGTA spacer
length: 36 repeater length: 30
37196 853594 GTTGCAATAAGACTCTAGGAGAATTGAAAG CAATCTCTTTCCTAGGGGTTCAAACAGACCTTCG spacer
length: 35 repeater length: 30
37197 853660 GTTGCAATAAGACTCTAGGAGAATTGAAAG TACTACGGTGGTTCTAATGGGGAAGCGCACGACGG spacer
length: 35 repeater length: 30
37198 853726 GTTGCAATAAGACTCTAGGAGAATTGAAAG CACTCCTAGTGACCCACTCTCCAGCCACCCCTATAT spacer
length: 36 repeater length: 30
37199 853793 GTTGCAATAAGACTCTAGGAGAATTGAAAG TTCTGGCCCCCGTAGTGGAGCCTTTCATTGCTTC spacer
length: 36 repeater length: 30
37200 853860 GTTGCAATAAGACTCTAGGAGAATTGAAAG TGTTACTCGTCAGCTTCGGTGAAGTGATTCCAGTGC spacer
length: 36 repeater length: 30
37201 853927 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGTATGTTGAGGCATAATTCGTCAGTATTGGAAGCT spacer
length: 37 repeater length: 30
37202 853995 GTTGCAATAAGACTCTAGGAGAATTGAAAG AGCGGGGGGGAAGAATGAAGTTTAAACCAGTACGG spacer
length: 35 repeater length: 30
37203 854061 GTTGCAATAAGACTCTAGGAGAATTGAAAG CGCTTTAGCCGCTACGACAGTATTGTTACGCGTATC spacer
length: 36 repeater length: 30
37204 854128 GTTGCAATAAGACTCTAGGAGAATTGAAAG TCGTCTGAAGGAGGTGGTGAAAGGTGGTGTATAGG spacer
length: 35 repeater length: 30
37205 854194 GTTGCAATAAGACTCTAGGAGAATTGAAAG CTGGCTCCGTGACAACCTCCACCCTCACTACCCGCT spacer
length: 36 repeater length: 30
37206 854261 GTTGCAATAAGACTCTAGGAGAATTGAAAG ACCCGGTGGAAGTTCGAGGGGGGTGGGGGACGGAAC
37207
37208
37209 GCA_008326385.1_SulIC007_1.0_genomic.fna(findCrispr):
37210 START REPEAT
SPACER
37211 crispr 1
37212 561582 TTCAATCCC
GTTATGGGTTCAACCAGAGTCTAAAGTTGATTATCATATAGGTGCGTTTAGGAGCTTTCAGTCCC GTTATGGGTTCAACTAAATCA
CGATTATCACGATAAGTATAATATCCGATATTTTC spacer length: 120 repeater length: 9
37213 561712 TTCAATCCC GTTATGGGTTCAACAAACCTTCAAATAAAAGTAGGAAATAAAATTGTTAAATTC spacer
length: 54 repeater length: 9
37214 561776 TTCAATCCC GTTATGGGTTCAACGAATTACGTTTTTCCAGATCATTTGTTGGAAGGAAAGGTC spacer
length: 54 repeater length: 9
37215 561840 TTCAATCCC GTTATGGGTTCAACGGTGATTAGATGACCATTAATCTTTACGGCAAGCAATAC spacer
length: 53 repeater length: 9
37216 561903 TTCAATCCC GTTATGGGTTCAACAAACTGGGTCTAAAGGAAGGCGATGAAGAGAAAGAGAATAC spacer
length: 55 repeater length: 9
37217 561968 TTCAATCCC GTTATGGGTTCAACATAACCTAAAGAAGATAAATTCTGGTATCTCCTATCTTGTC spacer
length: 55 repeater length: 9
37218 562033 TTCAATCCC GTTATGGGTTCAACTGATTTTCTTTTTATGGGAATTGTCAGACTGAAAGAC spacer length:
51 repeater length: 9
37219 562094 TTCAATCCC GTTATGGGTTCAACTAGTAGTTTTTCTATCCCCGTCGGTGCGACGAGGAC spacer length:
51 repeater length: 9
37220 562155 TTCAATCCC AAGGATCACTACAAACCAAATTTAATACCTAGAGGACCTAAAACGGCATTC
37221
37222
37223 crispr 2
37224 288140 CTCGTGCTGTCTATCGAACTT
CTCGTTCAACTTCTTCAGCTCCTCCCATATCTTCTTTATTTCCCTCATGTCTATCGAACTTCTCGTTCAGTTTCACTATCT
spacer length: 83 repeater length: 21
37225 288245 CTCGTGCTGTCTATCGAACTT CTCGTTCAAGTTTCACTATCT spacer length: 20 repeater length:
21
37226 288287 CTCGTGCTGTCTATCGAACTT CTCGTTCAAGTTTCACTATCT spacer length: 20 repeater length:
21
37227 288329 CTCGTGCTGTCTATCGAACTT ATGGGTATGCTCAATTGGGC
37228
37229
37230 crispr 3

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37231 536205 TTACAAGAGGCAGTTAAGAAG
 CAAGGAGAAGCTATTGCCTCATTACAAGAAACCGTCAAGTCTCTTCAAGAAACCGTTAATAAACATACCGAGGCAATAGAGTC
 spacer length: 83 repeater length: 21
 37232 536310 TTACAAGAGGCAGTTAAGAAG CAAGGAGAAGCTATTGCCTC spacer length: 20 repeater length:
 21
 37233 536352 TTACAAGAGGCAGTTAAGAAG CAAGGAGAAGCTATTGCCTC spacer length: 20 repeater length:
 21
 37234 536394 TTACAAGAGGCAGTTAAGAAG TGTAGCCGTTCCCGATAGTG
 37235
 37236
 37237 crispr 4
 37238 507209 GTTGAACCCATAAAGGGATTGAAAG CTTATCATTGTGATTGTATAAATTGCAAGTCCGTTAGTT spacer
 length: 39 repeater length: 25
 37239 507274 GTTGAACCCATAAAGGGATTGAAAG ACTTATCATTATACGTATCCGTAGCATACTCTAAAACTCT spacer
 length: 41 repeater length: 25
 37240 507341 GTTGAACCCATAAAGGGATTGAAAG TTTATTTCTACATCCTTAAAGCCATATTTCTTCTGAA spacer
 length: 37 repeater length: 25
 37241 507404 GTTGAACCCATAAAGGGATTGAAAG CCATATCCTTGGCTGTAACCTTCACCAGGATCCCTCTTA spacer
 length: 39 repeater length: 25
 37242 507469 GTTGAACCCATAAAGGGATTGAAAG TTAGCACACCAGGCTCCTTTGAGAAACCGCTCTTCG spacer length:
 36 repeater length: 25
 37243 507531 GTTGAACCCATAAAGGGATTGAAAG AGGGACGCCTGGGAGGAAAGCCCTGTCCAGGGGGGTAACCA spacer
 length: 41 repeater length: 25
 37244 507598 GTTGAACCCATAAAGGGATTGAAAG TGATGATATAGATGAGTTCTACTACCGATGAGTTTGAAA spacer
 length: 39 repeater length: 25
 37245 507663 GTTGAACCCATAAAGGGATTGAAAG CGGTATATGCAAACCTTCTTCCTCATGTTAGAATGAT spacer length:
 36 repeater length: 25
 37246 507725 GTTGAACCCATAAAGGGATTGAAAG CCGGATAGCACTGCCTGCCGTAGAGGTTCGTAATTGAA spacer
 length: 38 repeater length: 25
 37247 507789 GTTGAACCCATAAAGGGATTGAAAG TCCTCTAGCCTTTTCTTTACATCAATCTTCTTCA spacer length:
 34 repeater length: 25
 37248 507849 GTTGAACCCATAAAGGGATTGAAAG ATATCGTAGAACAGTGATTTTTCGTTGGTCTGAGGCG spacer
 length: 37 repeater length: 25
 37249 507912 GTTGAACCCATAAAGGGATTGAAAG CTACTTTGTGCCATACGATAAGTTCATGTCATTA spacer length:
 34 repeater length: 25
 37250 507972 GTTGAACCCATAAAGGGATTGAAAG GATAAGTCTTACTATAACAGAGTTTTCCACATACGTA spacer
 length: 38 repeater length: 25
 37251 508036 GTTGAACCCATAAAGGGATTGAAAG CCACTACTATCGGATCAAATAATAAAAAAGGATCCGAAATG spacer
 length: 41 repeater length: 25
 37252 508103 GTTGAACCCATAAAGGGATTGAAAG TTTATTAATTTTATTCCGCTATATTTAGTAATTCTGTATT spacer
 length: 40 repeater length: 25
 37253 508169 GTTGAACCCATAAAGGGATTGAAAG AAATTTAATACCTAGAGGACCTAAAACGGCATTCTGTTTC
 37254
 37255
 37256 crispr 5
 37257 2037679 GTTGAACCCATAACGGGATTGAAAG TTCGTCTTCTTGAAGGGAAAAGAATATATCCTGTTA spacer
 length: 36 repeater length: 25
 37258 2037741 GTTGAACCCATAACGGGATTGAAAG GCCTCTGTTTGTCAATTGACGGAAGAGGCGTACTCCA spacer
 length: 37 repeater length: 25
 37259 2037804 GTTGAACCCATAACGGGATTGAAAG TCGACCTCAGTTCTTCAGCGGTGAGCGTGGTTAAAA spacer
 length: 36 repeater length: 25
 37260 2037866 GTTGAACCCATAACGGGATTGAAAG CACTCTCATCATGACGGGGGCGAACCCCGTCTTTTTTCA spacer
 length: 39 repeater length: 25
 37261 2037931 GTTGAACCCATAACGGGATTGAAAG CTTCAAGGCAAAGTTAACTAACGGACATGAAGTCG spacer length:
 35 repeater length: 25
 37262 2037992 GTTGAACCCATAACGGGATTGAAAG TCACACCATATCTCCCTTTACTTTTCATATACATCACT spacer
 length: 37 repeater length: 25
 37263 2038055 GTTGAACCCATAACGGGATTGAAAG TTATAAGAAGTACGGCTGACGCAGGCACCTTAACGATCT spacer
 length: 39 repeater length: 25
 37264 2038120 GTTGAACCCATAACGGGATTGAAAG CTATCCCCATAGACGCATTAGGTATACTATAATTA spacer length:
 35 repeater length: 25
 37265 2038181 GTTGAACCCATAACGGGATTGAAAG CTAGATACGGTATAACTATTTGTTGTGTACACATGTTG spacer
 length: 38 repeater length: 25
 37266 2038245 GTTGAACCCATAACGGGATTGAAAG ACAGAAAAATGGGGTAAAGAACATCATCCTAATGTAGC spacer
 length: 38 repeater length: 25
 37267 2038309 GTTGAACCCATAACGGGATTGAAAG ATTTATAGCTCGACTTTACAAATGAATTAGAACTTAATT spacer
 length: 39 repeater length: 25
 37268 2038374 GTTGAACCCATAACGGGATTGAAAG ATAGTAACGTTATTACCTTTTATCCAAGGGTATTTCCA spacer
 length: 38 repeater length: 25
 37269 2038438 GTTGAACCCATAACGGGATTGAAAG ATGTTTACGCCATTTCTTTTGAGGTTCTGGAATA spacer length:
 34 repeater length: 25

37270 2038498 GTTGAACCCATAACGGGATTGAAAG TTGCAATAATCCTGGACGGTAACCTCCGATAGATCATCCT spacer
length: 39 repeater length: 25

37271 2038563 GTTGAACCCATAACGGGATTGAAAG TACAATTATGTATCCTTTTTCTTTTATAACATTCT spacer length:
35 repeater length: 25

37272 2038624 GTTGAACCCATAACGGGATTGAAAG GTAGGCAACTCTGGTTTAATCTCTATACCAAAGCA spacer length:
35 repeater length: 25

37273 2038685 GTTGAACCCATAACGGGATTGAAAG TTAATATTCTGAATCCTTAAGTCTAATGCCTTTCTTA spacer
length: 37 repeater length: 25

37274 2038748 GTTGAACCCATAACGGGATTGAAAG TACCTAGTAAGAGTTACACCCTCCTGTTTCTGATATTTC spacer
length: 39 repeater length: 25

37275 2038813 GTTGAACCCATAACGGGATTGAAAG AAGGAAGAAGAGGAAGGTGTCCAAAACACATACGTACGT spacer
length: 39 repeater length: 25

37276 2038878 GTTGAACCCATAACGGGATTGAAAG ATCTCAACGTACTTTGCTGAAGGTAGCCCCTTAAGACTACC spacer
length: 41 repeater length: 25

37277 2038945 GTTGAACCCATAACGGGATTGAAAG CCTCGTGCTGTCTATCGAATTCTCGTCTAATTTGTTTCAGT

37278

37279

37280 crispr 6

37281 520631 CTTT CAATCCCTTTATGGGTTCAACTGCTCACCTGTACAAGCGAACGGAAGTGCAGGATG spacer length:
56 repeater length: 4

37282 520692 CTTT CAATCCCTTTATGGGTTCAACTCACTCTCGTGACTTTCCAACCTGATTGGGGGTATAC spacer
length: 58 repeater length: 4

37283 520755 CTTT
CAATCCCTTTATGGGTTCAACTTAGTCATTACGTCTACATCTCTAGTGATTTTACTATTCTTTCAATCCCTTTATGGGTTCAACAG
ACTTCCTGAAGGCACCATCATTACAAGTGAAGAAGAGT spacer length: 124 repeater length: 4

37284 520884 CTTT
AGCAAGGAGAAGCTATTGCCTCATTACAAGAGGCAGTTAAGAAGCATTCTAAAGCCCTTCTTAGGCTAATGAAGGAACAAAAGAAG
CTATCCGTGGAAATAGGTAGTTTTACTTCCAGGGCAGG

37285

37286

37287 crispr 7

37288 520117 CTTTCAATCCCTTTCTGGGTTCAACA
ATTTCTTTTCGTATGACGAGCATGGCACTCTCGAAATACTTTCAATCCCTTTATGGGTTCAACATACAAGCACGATACAAGGGTAT
ACTGTGTGGTAAGAA spacer length: 101 repeater length: 26

37289 520245 CTTTCAATCCCTTTCTGGGTTCAACA TAATTACCCAAGTCAAGGCTGACATGGATTCAAAGGTA spacer
length: 38 repeater length: 26

37290 520310 CTTTCAATCCCTTTCTGGGTTCAACA TGAAAAAGAATTGCAAGATGCTATTAACGAATTAGCG spacer
length: 37 repeater length: 26

37291 520374 CTTTCAATCCCTTTCTGGGTTCAACA GCTATTGCCTCATTACAAGAGGCAGTTAAGAAGCATT

37292

37293

37294 crispr 8

37295 477373 TTCAAACCCCTCTAAGGATCACTACAA ACAGGAGGCTGACCTGGTTCTAACGCGTAGCTCCCATAG spacer
length: 39 repeater length: 26

37296 477439 TTCAAACCCCTCTAAGGATCACTACAA ACAGTTCGGCTATCAGGTTAGGGTTGGCTCTAGCTCTTCG spacer
length: 40 repeater length: 26

37297 477506 TTCAAACCCCTCTAAGGATCACTACAA ACCCTCAACATAGAGAAAGACTAATCGGCGTAAGAAAAAG spacer
length: 40 repeater length: 26

37298 477573 TTCAAACCCCTCTAAGGATCACTACAA ACCATCCTGATCATTGACGGGACTGAAACCCGTCTTTTGG spacer
length: 40 repeater length: 26

37299 477640 TTCAAACCCCTCTAAGGATCACTACAA ACCAGAGAAGAAGAGCAAAATATAGATAATTGGAAAAGGAG spacer
length: 41 repeater length: 26

37300 477708 TTCAAACCCCTCTAAGGATCACTACAA ACATGCTTTGTATCACTATCCCTTCTGGCAACCTCTTATTG spacer
length: 41 repeater length: 26

37301 477776 TTCAAACCCCTCTAAGGATCACTACAA ACACGACACGCTATATGTAGCAGTGTTAAGTGTTAATGG spacer
length: 39 repeater length: 26

37302 477842 TTCAAACCCCTCTAAGGATCACTACAA ACTAATCTAAGTGAGGATTATCATGACAAGTATACAATG spacer
length: 39 repeater length: 26

37303 477908 TTCAAACCCCTCTAAGGATCACTACAA ACCTATGAGTATGAGCATGAACTGAAGAATTGTTTTTTG spacer
length: 39 repeater length: 26

37304 477974 TTCAAACCCCTCTAAGGATCACTACAA ACGTCTTCGGCAAGGACTCTCCCAGGTCCTCTCCTTTG spacer
length: 40 repeater length: 26

37305 478041 TTCAAACCCCTCTAAGGATCACTACAA ACTTTTTGAATTTGATGTTAACGATAGTATGTTATTATG spacer
length: 39 repeater length: 26

37306 478107 TTCAAACCCCTCTAAGGATCACTACAA ACTTTTTGAATTTGATGTTAACGATAGTATGTTATTATG spacer
length: 39 repeater length: 26

37307 478173 TTCAAACCCCTCTAAGGATCACTACAA ACCCGCCGTCGCCACCCGTTGGTGGTGGTGGAGTACCTG spacer
length: 39 repeater length: 26

37308 478239 TTCAAACCCCTCTAAGGATCACTACAA ACCGAAGAAGTCGTGAAAGAGCTTCTACAAAAAGACGAGG spacer
length: 40 repeater length: 26

37309 478306 TTCAAACCCCTCTAAGGATCACTACAA ACGAGAGTGTCTAACGGTCAGGCTAGGGAAAACGTGAAG spacer

length: 39 repeater length: 26
37310 478372 TTCAAACCTCTAAGGATCACTACAA ACGGAACGTTTACGGCTTATAGTAATAGTTTCTATATAG spacer
length: 39 repeater length: 26
37311 478438 TTCAAACCTCTAAGGATCACTACAA ACCCAGAAAGATTTATATACCTCTATGACAGAGAGGTATAG spacer
length: 41 repeater length: 26
37312 478506 TTCAAACCTCTAAGGATCACTACAA ACTTTCTTTCTGTATAATTATCCGTTATTGTATCATCAG spacer
length: 38 repeater length: 26
37313 478571 TTCAAACCTCTAAGGATCACTACAA ACATATACCCGTTAGTTTTTTCGAATTTTTCTCTTTCTTTG spacer
length: 40 repeater length: 26
37314 478638 TTCAAACCTCTAAGGATCACTACAA ACACTTTCTTCAGATTGTTTAACAATTTAAGAGAGTCACG spacer
length: 40 repeater length: 26
37315 478705 TTCAAACCTCTAAGGATCACTACAA ACAACCCGTCTTTCTGTAGTTCTTCAGCGGTGAGCGTTGTG spacer
length: 40 repeater length: 26
37316 478772 TTCAAACCTCTAAGGATCACTACAA ACTATTCCCAGGGACTCGAAGGCTTTCATGATTTGTAGG spacer
length: 39 repeater length: 26
37317 478838 TTCAAACCTCTAAGGATCACTACAA ACATGTCCCCTTTTAATGCACTCTTCTCTCGTATATCTTTGG spacer
length: 42 repeater length: 26
37318 478907 TTCAAACCTCTAAGGATCACTACAA ACTTACTGGTCTCTGAGGAGGTTTCAGCAGTCTCTAGATG spacer
length: 39 repeater length: 26
37319 478973 TTCAAACCTCTAAGGATCACTACAA ACTACCCAACCTTTCTCGATATATCTCTTTAGCCTGGGGG spacer
length: 40 repeater length: 26
37320 479040 TTCAAACCTCTAAGGATCACTACAA ACAAGAGGCAGTTAAGAAGCATTCTAAAGCCCTTCTTAGG
37321
37322
37323 crispr 9
37324 571042 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC AGGCATGGAAGGAGAACTTTAGGCAACCATGCATT spacer
length: 35 repeater length: 30
37325 571108 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC TTCCCCGTAACTGGGGAGTTTTCCGAAACCATTTC spacer
length: 36 repeater length: 30
37326 571175 GTTTGTAGCAATCCTTAGAGGGTTTGAAAC AGAAGCATTCTAAAGCCCTTCTTAGGCTAATGAAGG
37327
37328
37329 crispr 10
37330 2153086 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ATGAAGATACTTCCGAAGTGATAACGGGTAGCAACA spacer
length: 36 repeater length: 30
37331 2153153 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TAAACAGCCCCGTTTTAGTAGAGTCGCTAGCTCG spacer
length: 34 repeater length: 30
37332 2153218 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TCACATATTCGTAGCTGTCATGTAGTAAAAAATAT spacer
length: 36 repeater length: 30
37333 2153285 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC AGGCTTCTCAATTACAACAAAAGTAGAGCCGAA spacer
length: 34 repeater length: 30
37334 2153350 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC AAGAAAGCGGTATGTCGACATATACGGTAGGGACAGA spacer
length: 37 repeater length: 30
37335 2153418 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TATTTTATATCGCTGTTATACTTCCTCATAACGTT spacer
length: 35 repeater length: 30
37336 2153484 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC GAGAAGAAGACGGAATAACAGTAACGGGACTCATAA spacer
length: 36 repeater length: 30
37337 2153551 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TGCATGTAGCTACTATAATGTATTTTCCAGGGGAA spacer
length: 35 repeater length: 30
37338 2153617 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ACGCGTTGGGCAAGAACTGGTCTAATCCGTACCTA spacer
length: 35 repeater length: 30
37339 2153683 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ATTTCAAATCACTCAAGCCAGAATTGTTTGAGCTT spacer
length: 35 repeater length: 30
37340 2153749 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC TTTTTCATAATAACGTAATCTTGTCCTACTTCTG spacer
length: 35 repeater length: 30
37341 2153815 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC GAGAAGACGGCAGACTGTTGGGTAAAGTATAGGCAT spacer
length: 36 repeater length: 30
37342 2153882 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC CAGAGGACGACGTAAAGGTCAGGGACAGGGTGAGGAA spacer
length: 37 repeater length: 30
37343 2153950 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ACCTCAGGGTAGGTGAGGAAATAGCCCGCTTTAGGA spacer
length: 36 repeater length: 30
37344 2154017 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC GGACAAAACGCCTCCGAAGTTACTCCTCAAGAGTAT spacer
length: 36 repeater length: 30
37345 2154084 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC ATATTCTGTTAAATCGTTCATTAACGCGTTTATC spacer
length: 35 repeater length: 30
37346 2154150 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC AAACACCGTTGCCGGTGCTCAGTGGAATTCGTTT spacer
length: 35 repeater length: 30
37347 2154216 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC CAATGTAGCAGAAAAATATCTACGAAAGAGAATGA spacer
length: 35 repeater length: 30
37348 2154282 GTTTGTAGTGATCCTTAGAGGGTTTGAAAC AAATGAAATGAAATGAAATGAAATATATGGACTGG spacer
length: 36 repeater length: 30

37349	2154349	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGATCAACACATCTAGAACTAACTGTATAATGCTCA	spacer
	length:	36	repeater length:	30
37350	2154416	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TATATCCTTTCCCGTTGATAACGTTCTTTTCATATGGA	spacer
	length:	38	repeater length:	30
37351	2154485	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTGAATTTGAGTAGCGGGTTGAACTGTGATATATT	spacer
	length:	35	repeater length:	30
37352	2154551	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TATGAGTAACAGTCTTTCTCTTCATAGAGCTCTTGAG	spacer
	length:	37	repeater length:	30
37353	2154619	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCCTCATCTTCATGGGAATCGGTTGGAAGTTCATGG	spacer
	length:	36	repeater length:	30
37354	2154686	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ACTTGGTGTCTCTTGCTCTTGTCCTAATTCATACTGAA	spacer
	length:	38	repeater length:	30
37355	2154755	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ACATATAGCGTAAAGTTGTCATACCCGTTGTACTTG	spacer
	length:	36	repeater length:	30
37356	2154822	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AATTTGTGATTTTTACTGTTTGAGAGCCTGAAAGG	spacer
	length:	35	repeater length:	30
37357	2154888	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CAAACTCCTAACTCCTTTAGCCTTCTAACCTTTT	spacer
	length:	35	repeater length:	30
37358	2154954	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAATCTATGGCGAAACAAAAGCGAATTGAAAGATA	spacer
	length:	36	repeater length:	30
37359	2155021	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GGGGACTTGGTTCAGGAGAATCAACCCATGGCAG	spacer
	length:	34	repeater length:	30
37360	2155086	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTTTGAAAGTATTGGTAGTTTTTGGTTTTGTAAAATGG	spacer
	length:	38	repeater length:	30
37361	2155155	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAAATCCTACTGAAGAACAAAAACATTACTAAAGCA	spacer
	length:	37	repeater length:	30
37362	2155223	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAAGATTTGGCAAGACAAAAGAGACTGACATTAAGCG	spacer
	length:	37	repeater length:	30
37363	2155291	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CAGCGAGGAGGTGAAAAAATGGCTAAATCGAAAAG	spacer
	length:	35	repeater length:	30
37364	2155357	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GATTAATGGTACCTACAATAGTAGAGTACAAACAAC	spacer
	length:	36	repeater length:	30
37365	2155424	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCTTTAAGTCCGTCACATAGAAAATCTAGTTCTTCC	spacer
	length:	36	repeater length:	30
37366	2155491	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTGCCAATGGGCAATGGCAACAAGTAGTAGTAAGT	spacer
	length:	36	repeater length:	30
37367	2155558	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAAAAAAGATGAGTATTACTTCAATTCTCACTATG	spacer
	length:	35	repeater length:	30
37368	2155624	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCGCTAATTTCCATGCCATAGCGTCAGACGGGGCAT	spacer
	length:	36	repeater length:	30
37369	2155691	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGAGCCATATTGGTAAAATGTGTTCTCTCACAATCT	spacer
	length:	36	repeater length:	30
37370	2155758	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCCTCACTCATTTCCAAATATTTTTGTAAAACATAT	spacer
	length:	36	repeater length:	30
37371	2155825	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CAAAACCCCGGAGTGCTATAGGCTGTTTCCCTGAGT	spacer
	length:	36	repeater length:	30
37372	2155892	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAGTAATAGTAGTGTTGCGAGAAGATAGAGATAG	spacer
	length:	35	repeater length:	30
37373	2155958	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CAAAACTTCGATTGCCTTCGACTAAAGTCCAGTTT	spacer
	length:	35	repeater length:	30
37374	2156024	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTTTAGCAATCAGATCTCTGTGATACGTTTCTGGGA	spacer
	length:	36	repeater length:	30
37375	2156091	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ATAGTGGCGTTTTTCTTTAGCAAGCTGGAGTGATTTG	spacer
	length:	37	repeater length:	30
37376	2156159	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GTAACAGCAAACCTATTAGGAGCCTGAGCTTGCCCT	spacer
	length:	36	repeater length:	30
37377	2156226	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AAAATACAGTGCCACAATTTTTTCTCAGTAACTG	spacer
	length:	35	repeater length:	30
37378	2156292	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAGCACAAAAGAAAGGAAATTGTACTTTTTAGATGA	spacer
	length:	36	repeater length:	30
37379	2156359	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAATTAGCACTTTTCCACATGAAGTGAACACCAAG	spacer
	length:	35	repeater length:	30
37380	2156425	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GGTCATTTATCTTGAATCCTACTACGACGATATTT	spacer
	length:	35	repeater length:	30
37381	2156491	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCGCGTCGAAAATGGCTGAACTAGGCGTACCGTTAG	spacer
	length:	36	repeater length:	30
37382	2156558	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	ACATCTAGAACACCGTAACATTATTATGCGTTACG	spacer
	length:	35	repeater length:	30
37383	2156624	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAATAAATAATAAGAAAATAAGAGAGGATTTTCTA	spacer
	length:	35	repeater length:	30
37384	2156690	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAGATAGATTTCTATATATTTTAGAATAATTCGGCT	spacer

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length: 36 repeater length: 30
37385 2156757 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CCATTTAATTCCGAATAAAGAGCTGTCCACGCCATA spacer
length: 36 repeater length: 30
37386 2156824 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GATTTGGGTTTGGGTCTGAGTTGCCATCTTTTCGC spacer
length: 35 repeater length: 30
37387 2156890 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AAAGTACGCCTTCCCTAGTTTTTGTATCCATATT spacer
length: 36 repeater length: 30
37388 2156957 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GAAGGGGGACATTGGGATAACCTCATGGCTAAAGT spacer
length: 35 repeater length: 30
37389 2157023 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CACTAATAGGTGCCGGTATAGGTGCCGGTTCAGC spacer
length: 34 repeater length: 30
37390 2157088 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GTGGAAAACCACCAACATACTATCAAGGTCTGCT spacer
length: 34 repeater length: 30
37391 2157153 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ATCTTTCAATAGGTACCACTTCCTCAATATAAGTTA spacer
length: 36 repeater length: 30
37392 2157220 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCGGTACAATGTAGCTACACAATACGATGCTACTGG spacer
length: 36 repeater length: 30
37393 2157287 GTTTGTAGTGATCCTTAGAGGGTTTGAAC AATATACTCAGGTCGATTCTGTTCGGTTTGGTATAC spacer
length: 36 repeater length: 30
37394 2157354 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GGAAAGACAGATACTCGATTCACTGGCACATGCAC spacer
length: 35 repeater length: 30
37395 2157420 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CAGTTAAGAAGCATTCTAAAGCCCTTCTTAGGCTA
37396
37397
37398 GCA_008326425.1_SulIC006_1.0_genomic.fna(findCrispr):
37399 START REPEAT
SPACER
37400 crispr 1
37401 603123 AATCCC GTTATGGGTTCAACCAGAGTCCTTTATTTGAAGGACATAAATTACGTCAATAACTTT spacer
length: 57 repeater length: 6
37402 603187 AATCCC
GTTATGGGTTCAACCAGAGTCTAAAGTTGATTATCATATAGGTGCGTTTAGGAGCTTTCAGTCCC GTTATGGGTTCAACTAAATCA
CGATTATCACGATAAGTATAATATCCGATATTTCTTT spacer length: 123 repeater length: 6
37403 603317 AATCCC GTTATGGGTTCAACAAACCTTCAAATAAAAGTAGGAAATAAAATTGTAAATTCTTT spacer
length: 57 repeater length: 6
37404 603381 AATCCC GTTATGGGTTCAACGGGAAAGGATATACAATTGTAAGAATAGGTGATTATGTAATCCTTT spacer
length: 60 repeater length: 6
37405 603448 AATCCC GTTATGGGTTCAACGGTGATTAGATGACCATTAATCTTTACGGCAAGCAATACTTT spacer
length: 56 repeater length: 6
37406 603511 AATCCC TCTAAGGATCACTACAAACATCTTTAACATAGATACCAGCCTCGGTAAACATATCG
37407
37408
37409 crispr 2
37410 575649 GCAGTTAAGAAGCAAGGAGAA
GCTATTGCCTCATTACAAGAAACCGTCAAGTCTCTTCAAGAAACCGTTAATAAACATACCGAGGCAATAGAGTCGTTACAAGA
spacer length: 83 repeater length: 21
37411 575754 GCAGTTAAGAAGCAAGGAGAA GCTATTGCCTCATTACAAGA spacer length: 20 repeater length:
21
37412 575796 GCAGTTAAGAAGCAAGGAGAA GCTATTGCCTCATTACAAGA spacer length: 20 repeater length:
21
37413 575838 GCAGTTAAGAAGCAAGGAGAA ATGGGTATGCTCAATTGGGC
37414
37415
37416 crispr 3
37417 303001 GTCTATCGAACTTCTCGTTCA GTTTCATATCTCCTCGTGC spacer length: 20 repeater length:
21
37418 303043 GTCTATCGAACTTCTCGTTCA ACTTCTTCAGCTCCTCCCATATCTTCTTTATTTCTCCTCTCA spacer
length: 41 repeater length: 21
37419 303106 GTCTATCGAACTTCTCGTTCA GTTTCATATCTCCTCGTGC spacer length: 20 repeater length:
21
37420 303148 GTCTATCGAACTTCTCGTTCA ACTTCTTCAGCTCCTCCCATATCTTCTTTATTTCTCCTCTCA spacer
length: 41 repeater length: 21
37421 303211 GTCTATCGAACTTCTCGTTCA GTTTCATATCTCCTCGTGC spacer length: 20 repeater length:
21
37422 303253 GTCTATCGAACTTCTCGTTCA CTTGCTATTTCTCTCTAC
37423
37424
37425 crispr 4
37426 612334 GTTTGTAGCAATCCTTAGAGG ATTTGAAAGTCGTTTTTGTTCGTTTTTCGTATTTCTGTACCATAG spacer
length: 45 repeater length: 21
37427 612401 GTTTGTAGCAATCCTTAGAGG ATTTGAAAGGGTAAATATGAGGACGTGGTTTTTCATAGTTCTGTA spacer

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length: 44 repeater length: 21
37428 612467 GTTGTAGCAATCCTTAGAGG GTTTGAAAGGGTACGTGACAGGCAAATACCCTCGTGGGTATTTG spacer
length: 44 repeater length: 21
37429 612533 GTTGTAGCAATCCTTAGAGG GTTTGAAAGTCAGTAACAAGGAGGCTGACATCGGCATTATTTCG spacer
length: 43 repeater length: 21
37430 612598 GTTGTAGCAATCCTTAGAGG AACATCTTTAACATAGATACCAGCCTCGGTAAACATATCGTTT
37431
37432
37433 crispr 5
37434 558981 CTTTCAATCCCTTTCTGGGTTCAAC CTGGAAGTGACCCTCGAGGGAAGAGGGCTTGGCATCACAA spacer
length: 40 repeater length: 25
37435 559047 CTTTCAATCCCTTTCTGGGTTCAAC AATTTCTTTCTGTATGACAAGCATGGCACTCTCGAAAT spacer
length: 38 repeater length: 25
37436 559111 CTTTCAATCCCTTTCTGGGTTCAAC
ATACAAGCACGATACAAGGGTATACTGTGTGGTAAGAATCTTTCAATCCCTTTATGGGTTCAACATAATTACCCAAGTCAAGGCTG
ACATGGATTCAAAGGTA spacer length: 103 repeater length: 25
37437 559240 CTTTCAATCCCTTTCTGGGTTCAAC ATGAAAAAGAATTGCAAGATGCTATTAACGAATTAGCG spacer
length: 38 repeater length: 25
37438 559304 CTTTCAATCCCTTTCTGGGTTCAAC CCTCGTGCTGTCTATCGAACTTCTCGTCTAATTTGTTC
37439
37440
37441 crispr 6
37442 546521 GTTGAACCCATAAAGGGATTGAAAG ACCTAGACAAGAGCTTAGCCGTCATATATGCACTCGTCT spacer
length: 39 repeater length: 25
37443 546586 GTTGAACCCATAAAGGGATTGAAAG TGATGAGTGCAATTTCAAAAATGAGTAGAGAGGAGTA spacer
length: 37 repeater length: 25
37444 546649 GTTGAACCCATAAAGGGATTGAAAG ATAACAACGAAGTACCCAGACTTTTCAATATATTATTTA spacer
length: 39 repeater length: 25
37445 546714 GTTGAACCCATAAAGGGATTGAAAG TAATGAACTAATAACTGGAAGAGTAGGTTCTGGAAAAAC spacer
length: 40 repeater length: 25
37446 546780 GTTGAACCCATAAAGGGATTGAAAG TGTAATACCCCGTTTTTGAATGACGTCTCTACTTCCGCT spacer
length: 39 repeater length: 25
37447 546845 GTTGAACCCATAAAGGGATTGAAAG CTACTTTGTGCCATACGATAAGTTCATGTCATTA spacer length:
34 repeater length: 25
37448 546905 GTTGAACCCATAAAGGGATTGAAAG GATAAGTCTTACTATAACAGAGGTTTTCCACATACGTA spacer
length: 38 repeater length: 25
37449 546969 GTTGAACCCATAAAGGGATTGAAAG CCACTACTATCGGATCAAATAATAAAAAAGGATCCGAAATG spacer
length: 41 repeater length: 25
37450 547036 GTTGAACCCATAAAGGGATTGAAAG AGTTTGTATAACTGCTGTCTGTATATTTCTTCACT spacer length:
35 repeater length: 25
37451 547097 GTTGAACCCATAAAGGGATTGAAAG CATTACAAGAGGCAGTTAAGAAGCATTCTAAAGCC
37452
37453
37454 crispr 7
37455 2066649 GTTGAACCCATAACGGGATTGAAAG GTAGAATATGCATATGCCGTGGTTCAACTGCCACGGCAAA spacer
length: 40 repeater length: 25
37456 2066715 GTTGAACCCATAACGGGATTGAAAG AGGTATTATCACTGTCTTCCCTAACGCTAGCATCTCAA spacer
length: 38 repeater length: 25
37457 2066779 GTTGAACCCATAACGGGATTGAAAG AAACAATATAATGCCTTGTATGTATGGCAACAAATACAA spacer
length: 39 repeater length: 25
37458 2066844 GTTGAACCCATAACGGGATTGAAAG TAAAAAATAAACTTCTTAGAACGTATCCGTGCTCT spacer
length: 36 repeater length: 25
37459 2066906 GTTGAACCCATAACGGGATTGAAAG GAAAAGCGATACGTAGTGTTGTGTCAACACGCGGGTC spacer
length: 37 repeater length: 25
37460 2066969 GTTGAACCCATAACGGGATTGAAAG CAAAAATAAAAATACCAAATCTCACAATCCCATCATCTC spacer
length: 39 repeater length: 25
37461 2067034 GTTGAACCCATAACGGGATTGAAAG ATACCTAACTTAGGGCATAAGTCGTTAAGACCCGATAG spacer
length: 38 repeater length: 25
37462 2067098 GTTGAACCCATAACGGGATTGAAAG TGAAATTGTTTTAGCAACGTGGTGTAAAGTGTATGTA spacer
length: 38 repeater length: 25
37463 2067162 GTTGAACCCATAACGGGATTGAAAG TTTCCAGCTCACTCTCGAGTTGCAACGCTTTGACATAT spacer
length: 38 repeater length: 25
37464 2067226 GTTGAACCCATAACGGGATTGAAAG TTGTCATAATACTCAGGTAGCTTTTCATATTTATTGATGA spacer
length: 40 repeater length: 25
37465 2067292 GTTGAACCCATAACGGGATTGAAAG ATGTATTTGTCAAGATTTAGTTTATCTAACTTGTTTGCA spacer
length: 39 repeater length: 25
37466 2067357 GTTGAACCCATAACGGGATTGAAAG ACAGAACCGTTATTCAGGATAAAGTACTGGTCTCCACC spacer
length: 38 repeater length: 25
37467 2067421 GTTGAACCCATAACGGGATTGAAAG ATTCCATGCTACCCCTGGGTAGGGCTGTAGCACATTC spacer
length: 37 repeater length: 25
37468 2067484 GTTGAACCCATAACGGGATTGAAAG TCTGGAACCTCATTTATAGCTTCAATATCCAAATCGTTA spacer

length: 38 repeater length: 25
37469 2067548 GTTGAACCCATAACGGGATTGAAAG CTCATAGCCGGAGAACATATGATAATCATCGGTCCTCCG spacer
length: 39 repeater length: 25
37470 2067613 GTTGAACCCATAACGGGATTGAAAG TTAAATAGTTCATTTCCGACTGAATCAGTATTTGTATCCA spacer
length: 40 repeater length: 25
37471 2067679 GTTGAACCCATAACGGGATTGAAAG ATTATCAGTGTATTGGTATTCTGAATACGCTGTTAAGTT spacer
length: 38 repeater length: 25
37472 2067743 GTTGAACCCATAACGGGATTGAAAG TGTTCCAAGTACCACCAAATTCATCCATGACAATACC spacer
length: 37 repeater length: 25
37473 2067806 GTTGAACCCATAACGGGATTGAAAG ACGGTCAAGCTAGTGCCGATTCTTATCTCGCCTCCTCGGT spacer
length: 40 repeater length: 25
37474 2067872 GTTGAACCCATAACGGGATTGAAAG AGTTAGTCAATCCGAAATATATTTTTAATATTACAAA spacer
length: 37 repeater length: 25
37475 2067935 GTTGAACCCATAACGGGATTGAAAG TTAATCAGTTTGTTAATATGAAAATTAAGTAAATTATA spacer
length: 38 repeater length: 25
37476 2067999 GTTGAACCCATAACGGGATTGAAAG TGATATATTCCGACATAGAGCATTACCGTCATATTTT spacer
length: 37 repeater length: 25
37477 2068062 GTTGAACCCATAACGGGATTGAAAG GTGTGTCAAAAGATGTCATGTTTTCTTGATTTTGATTT spacer
length: 38 repeater length: 25
37478 2068126 GTTGAACCCATAACGGGATTGAAAG CGTCCAGCTCGGCTCGTGCGGGGGATAGGCGTACACCA spacer
length: 38 repeater length: 25
37479 2068190 GTTGAACCCATAACGGGATTGAAAG CAGTTTATGCGGGTAAAAGCGGTTTCCTGATATCT spacer length:
35 repeater length: 25
37480 2068251 GTTGAACCCATAACGGGATTGAAAG GATAGAAGCCTCTTCGGCTTCTATCGTGTATTTATCC spacer
length: 37 repeater length: 25
37481 2068314 GTTGAACCCATAACGGGATTGAAAG TTAGCTATACCGTATCTTTGTCTGTCGATATATT spacer length:
34 repeater length: 25
37482 2068374 GTTGAACCCATAACGGGATTGAAAG TAAGGTAGGAATACGCCTTAGCCCCCGTATCC spacer length:
33 repeater length: 25
37483 2068433 GTTGAACCCATAACGGGATTGAAAG ATACTTACTTTGATTTGGGTTTGGGTTTGGGTCGCCA spacer
length: 37 repeater length: 25
37484 2068496 GTTGAACCCATAACGGGATTGAAAG TTTTCTGACACTCATCATGACAGTGAGGGGCATGACAG spacer
length: 38 repeater length: 25
37485 2068560 GTTGAACCCATAACGGGATTGAAAG TCTCCTTCTCTCATATATTGTTTTGGATTTTACTTTTT spacer
length: 38 repeater length: 25
37486 2068624 GTTGAACCCATAACGGGATTGAAAG TTCAATGAAATAGGTCCGGTTAACGTTACCCTTGATT spacer
length: 37 repeater length: 25
37487 2068687 GTTGAACCCATAACGGGATTGAAAG TACTCTTCCAGGTATTGATCAGTTCGTTGAGTTCTTTCT spacer
length: 40 repeater length: 25
37488 2068753 GTTGAACCCATAACGGGATTGAAAG AGCTATTGCCTCATTACAAGAGGCAGTTAAGAAGCATTCT
37489
37490
37491 crispr 8
37492 559813 CTTTCAATCCCTTTATGGGTTCAACCT
TTAATGATGGTTCTAAATTATAACGATAAACTGGACTTTCAATCCCTTTATGGGTTCAACAGAAATGCAGTGTTCAACTTGAACCTA
GATATGTCACTTTCAATCCCTTTATGGGTTCAACAGCGTCTCCTCTAGCCCCCTAAAATGACTAGAGACCTTT spacer
length: 158 repeater length: 27
37493 559999 CTTTCAATCCCTTTATGGGTTCAACCT
ACTAGGATATCGGATAAAAGGTTTATGATGATAGAGCAACCTTTCAATCCCTTTATGGGTTCAACATATTTGTTACATAATTTCGAT
ATAGATTCAAGTAATGTA spacer length: 104 repeater length: 27
37494 560131 CTTTCAATCCCTTTATGGGTTCAACCT
CAAGAGGCAGTTAAGAAGCATTCTAAAGCCCTTCTTAGGCTAATGAAGGAACAAAAGAAGCTATCCGTGGAAATAGGTAGTTTTAC
TTCCAGGGCAGGAAAAGG
37495
37496
37497 crispr 9
37498 612467 GTTTGTAGCAATCCTTAGAGGGTTTGAAA GGGTACGTGACAGGCAAATACCCTCGTGGGTATTTG spacer
length: 36 repeater length: 29
37499 612533 GTTTGTAGCAATCCTTAGAGGGTTTGAAA GTCAGTAACAAGGAGGCTGACATCGGCATTATTTCG spacer
length: 35 repeater length: 29
37500 612598 GTTTGTAGCAATCCTTAGAGGGTTTGAAA AAGAAGCATTCTAAAGCCCTTCTTAGGCTAATGAA
37501
37502
37503 crispr 10
37504 515176 GTTTCAAACCCCTCTAAGGATCACTACAAAC GTTAGTCTTCTTTCAATTTTACACATTTTACGAAGT spacer
length: 37 repeater length: 30
37505 515244 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTATGGCTAGTGGAACCTTCTGAGCGTCTGAGTTGA spacer
length: 36 repeater length: 30
37506 515311 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCCTTTGTGAAGGCGGGTTGAACTTGTGTTTCAGGG spacer
length: 36 repeater length: 30
37507 515378 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATCATTCGTAGACTGAATAGACTGACAGGATTTTA spacer

length: 35 repeater length: 30
37508 515444 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCCTAACGAAGGCATGGCTTTGGCTTTACGTATG spacer
length: 35 repeater length: 30
37509 515510 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGATAGTACACCTCCTATACTTAACACACCGTCCG spacer
length: 35 repeater length: 30
37510 515576 GTTTCAAACCCCTCTAAGGATCACTACAAAC GATGTATCATGATAACCCTTATCCCGCTTTACACG spacer
length: 35 repeater length: 30
37511 515642 GTTTCAAACCCCTCTAAGGATCACTACAAAC GCAGGTGAGGAAAAATGACTTTCTTAGACCCTGATA spacer
length: 36 repeater length: 30
37512 515709 GTTTCAAACCCCTCTAAGGATCACTACAAAC TGGATTGTGAAAGAAGATGTTCTTCATACATAGGGCT spacer
length: 37 repeater length: 30
37513 515777 GTTTCAAACCCCTCTAAGGATCACTACAAAC CTTTTGAAACTACCCAAATGATGAATCCTGTATTGG spacer
length: 36 repeater length: 30
37514 515844 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTCTTAGGAAAACTCATGAAAAGCTCAGCCTACAT spacer
length: 36 repeater length: 30
37515 515911 GTTTCAAACCCCTCTAAGGATCACTACAAAC ACAAGGGCACTTCCTAGAGAGGATAGTATGCTCAT spacer
length: 35 repeater length: 30
37516 515977 GTTTCAAACCCCTCTAAGGATCACTACAAAC CGGTTTTGTCTAGTGTGTATTCCATATTGAACGACT spacer
length: 36 repeater length: 30
37517 516044 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTAACCAAGGAAGATCACTTTCTATGTTTACCCAAA spacer
length: 36 repeater length: 30
37518 516111 GTTTCAAACCCCTCTAAGGATCACTACAAAC GACTAGGACTTTGAGGTGCACTCATCTCAATAAA spacer
length: 34 repeater length: 30
37519 516176 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATGAATGTACATGAAACACTGGCGTCCTCATGA spacer
length: 34 repeater length: 30
37520 516241 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTTATCAGGACATAGGGAAGTCATTGCCCCTGTCC spacer
length: 36 repeater length: 30
37521 516308 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTGTCTTAACGATGAGGAATCCTTATCACCTACTTTT spacer
length: 37 repeater length: 30
37522 516376 GTTTCAAACCCCTCTAAGGATCACTACAAAC TAAGTAGAACATTGTATCTTGAGGTGTTACTAGCTCG spacer
length: 37 repeater length: 30
37523 516444 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGAAAGAAGGGGTATTCATAGAGCCGAGACCGT spacer
length: 33 repeater length: 30
37524 516508 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCGCAGGGCTAGTAGCTTACATGCTTAGTCCTGATT spacer
length: 36 repeater length: 30
37525 516575 GTTTCAAACCCCTCTAAGGATCACTACAAAC CATTCTTCATATTTTCGGTTGAACTTTGCCCTCTT spacer
length: 34 repeater length: 30
37526 516640 GTTTCAAACCCCTCTAAGGATCACTACAAAC TCATCACAGGAGGAGGTGCATGCTCATGCTCACCTGT spacer
length: 37 repeater length: 30
37527 516708 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCTGCAGGAAGTCGAAGCCAAAGATAGGGGACTCCT spacer
length: 36 repeater length: 30
37528 516775 GTTTCAAACCCCTCTAAGGATCACTACAAAC AGCATACCATTCTATGTTCTGATTGTTATGTGAAA spacer
length: 35 repeater length: 30
37529 516841 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGTTTTTCGAACTCACCTTTTCACCTTGTGATGAACA spacer
length: 37 repeater length: 30
37530 516909 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTAACCGGAGGGTTTCGTGTCCGCAGTCGGACACGAA spacer
length: 36 repeater length: 30
37531 516976 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCCGTAACAGCTTATCCTTCTTCTGGTACTAGTACTA spacer
length: 37 repeater length: 30
37532 517044 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGATAAACTCGATGAAATGGAAGATATGGAATTAA spacer
length: 36 repeater length: 30
37533 517111 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGGAACTGTAGATACTAACATCACCAACTCCATCA spacer
length: 36 repeater length: 30
37534 517178 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGTTTTTCGAACTCACCTTTTCACCTTGTGATGAACA spacer
length: 37 repeater length: 30
37535 517246 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTAACCGGAGGGTTTCGTGTCCGCAGTCGGACACGAA spacer
length: 36 repeater length: 30
37536 517313 GTTTCAAACCCCTCTAAGGATCACTACAAAC CCCGTAACAGCTTATCCTTCTTCTGGTACTAGTACTA spacer
length: 37 repeater length: 30
37537 517381 GTTTCAAACCCCTCTAAGGATCACTACAAAC AAGATAAACTCGATGAAATGGAAGATATGGAATTAA spacer
length: 36 repeater length: 30
37538 517448 GTTTCAAACCCCTCTAAGGATCACTACAAAC CAGGAACTGTAGATACTAACATCACCAACTCCATCA spacer
length: 36 repeater length: 30
37539 517515 GTTTCAAACCCCTCTAAGGATCACTACAAAC TAATCAGCTTTGCTACTGAATTGCCGAGCGGTGGG spacer
length: 35 repeater length: 30
37540 517581 GTTTCAAACCCCTCTAAGGATCACTACAAAC ATTTATCAGGACATAGGGAAGTCATTGCCCCTGTCC spacer
length: 36 repeater length: 30
37541 517648 GTTTCAAACCCCTCTAAGGATCACTACAAAC TTGTCTTAACGATGAGGAATCCTTATCACCTACTTTT spacer
length: 37 repeater length: 30
37542 517716 GTTTCAAACCCCTCTAAGGATCACTACAAAC TAAGTAGAACATTGTATCTTGAGGTGTTACTAGCTCG spacer
length: 37 repeater length: 30

37543	517784	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGAAAGAAGGGGTATTCATAGAGCCGAGACCGT	spacer
		length: 33	repeater length: 30	
37544	517848	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TCGCAGGGCTAGTAGCTTACATGCTTAGTCCTGATT	spacer
		length: 36	repeater length: 30	
37545	517915	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CTATATACTCTTTTCTATCCACCTGTTTAGGGTTAC	spacer
		length: 36	repeater length: 30	
37546	517982	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AATTTTGAAAAACGTCTTCTGTATGTCTGTGTACCA	spacer
		length: 36	repeater length: 30	
37547	518049	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AGGTGTCTAAAGTCCCGATACCGCTAGGCATGACAT	spacer
		length: 36	repeater length: 30	
37548	518116	GTTTCAAACCCCTCTAAGGATCACTACAAAC	GGAATCGGCTTAGCTGTAGGAGCAGGGGCATACTACT	spacer
		length: 37	repeater length: 30	
37549	518184	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CCACTCATTTCCAATTACTGTATATTTGTACTCTTGT	spacer
		length: 36	repeater length: 30	
37550	518251	GTTTCAAACCCCTCTAAGGATCACTACAAAC	TAGGAGATGTGTTAGGAGATGTAGCAGACGGGCTAAG	spacer
		length: 37	repeater length: 30	
37551	518319	GTTTCAAACCCCTCTAAGGATCACTACAAAC	AAGAGAGAGAGACAATCCTCTCTTTTGTCTTGTCAATG	spacer
		length: 38	repeater length: 30	
37552	518388	GTTTCAAACCCCTCTAAGGATCACTACAAAC	CAGTTAAGAAGCATTCTAAAGCCCTTCTTAGGCTAATG	
37553				
37554				
37555	crispr 11			
37556	2180420	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GTAGGGATGGATCCAGAGAATGGATATGTGGAAGGC	spacer
		length: 36	repeater length: 30	
37557	2180487	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTTCATTTATGCTGTGGGACTTCTTTGACAGAAAGTA	spacer
		length: 37	repeater length: 30	
37558	2180555	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGTCAATGATTTGGGGCTTCATGCCCTTGTCAA	spacer
		length: 34	repeater length: 30	
37559	2180620	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TAGTTCCCGAAAAAGGGGTACACTGTTTTCGCTTTC	spacer
		length: 36	repeater length: 30	
37560	2180687	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AAAGAGCTAAGAATAAAAGAGATTAAGCTTTTCTTG	spacer
		length: 36	repeater length: 30	
37561	2180754	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTCCGTCTTCTTCTCTAAGGATCATCAATATTTTCCC	spacer
		length: 37	repeater length: 30	
37562	2180822	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTTTTTCTCTTGTTCGCTTTTTCTATCTTCTCTT	spacer
		length: 35	repeater length: 30	
37563	2180888	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTAACATCGTTTTTCGCGGTTCCGGGCGGGCCGAT	spacer
		length: 34	repeater length: 30	
37564	2180953	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GGAAAAACGTCCACAAATTCATTCAATCCTGCAGAT	spacer
		length: 36	repeater length: 30	
37565	2181020	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AGAAGTAGGTGCAAAGTAATACCCAGCAAAGCCTG	spacer
		length: 35	repeater length: 30	
37566	2181086	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGAAAGTCAGGTAGTAGACCTGGTAAATTCTGTAT	spacer
		length: 35	repeater length: 30	
37567	2181152	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GATAGAAGTTGTAAGGTTTGTTCTCAATGACGAC	spacer
		length: 35	repeater length: 30	
37568	2181218	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AGCCATTTTCGTTATCTTATCCAGCCCGCTTATTGTA	spacer
		length: 36	repeater length: 30	
37569	2181285	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	AAGATCTTAGACGGCGAGCCCGAAAAGGCTGGAGCTC	spacer
		length: 37	repeater length: 30	
37570	2181353	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CATGGTGAATTAGATGGTTGGTAGAGAGATCATCA	spacer
		length: 35	repeater length: 30	
37571	2181419	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGTCTTCTACAATTATGTCGTTGTACTCACTTATCTCC	spacer
		length: 38	repeater length: 30	
37572	2181488	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CTAACACAAACGCCTAAGTTCCAAAACGTGTCCATTACG	
		spacer length: 39	repeater length: 30	
37573	2181558	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TTCAAAATTTGAGGGAGAAAAAAGAGAGAGATGTGA	spacer
		length: 36	repeater length: 30	
37574	2181625	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TGAAATAACTACTAGTGACATGTACCAATTACAACCTT	spacer
		length: 37	repeater length: 30	
37575	2181693	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TATATACCGAGGTCGGAAAGGGATAACGTAATTAAA	spacer
		length: 36	repeater length: 30	
37576	2181760	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GCCGAAGGCACCATCATTACAAGTGAAAAAGAGTTA	spacer
		length: 36	repeater length: 30	
37577	2181827	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	TCTTTTGTTCATGATAAACCCGACGTGCCCATTTTC	spacer
		length: 36	repeater length: 30	
37578	2181894	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CAAAGTCCTCGTTAATTTTTTTGTCTAACTCTTCC	spacer
		length: 35	repeater length: 30	
37579	2181960	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	GAATCCCTTGTCCCCTGCCTGGGCTGTTCGTCAGAA	spacer
		length: 36	repeater length: 30	
37580	2182027	GTTTGTAGTGATCCTTAGAGGGTTTGAAAC	CCGGGGTAGACACATCAAAAATCGGTATCAATGA	spacer

	length: 34	repeater length: 30	
37581	2182092	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TGTTCAAGTGCCAAAGCGGGCTCATCGTTTTCCCACCCG
	spacer length: 39	repeater length: 30	
37582	2182162	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CTTCTCTCATTACCTCATTTATATCGCATACCATACT spacer
	length: 37	repeater length: 30	
37583	2182230	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CGGGACTGGAATAATTCTAGCTAGTCAGCGAATTT spacer
	length: 35	repeater length: 30	
37584	2182296	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TGAACGCTGAAATACAAAAAAGTTAGATAAGATGC spacer
	length: 36	repeater length: 30	
37585	2182363	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	AACACTTCCCAAGCTCTCTTGTGAATGAGGATTTT spacer
	length: 36	repeater length: 30	
37586	2182430	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	GACGGGGGGAAAAGTATAGATCGTGATATAGAAATTGG spacer
	length: 38	repeater length: 30	
37587	2182499	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TCTGTCAATCAATGGGAGACAAAACCCGCACTGGGCG spacer
	length: 37	repeater length: 30	
37588	2182567	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	AGGGGGTGTCTAGAATGAGGGTCATCACGTTTAAA spacer
	length: 35	repeater length: 30	
37589	2182633	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TTCCTTGATTCCGAACACGACATCCCCGCTGATATCT spacer
	length: 37	repeater length: 30	
37590	2182701	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CGCAATATACCGGATCCTTTTAAGAAATCTAGCGA spacer
	length: 35	repeater length: 30	
37591	2182767	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TAGGTCATCCCAGTATACTTCTTCCCTCTCTTGTCC spacer
	length: 36	repeater length: 30	
37592	2182834	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TACGACAATGATATCTCCACACATATTGTCATTATC spacer
	length: 36	repeater length: 30	
37593	2182901	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	AACACCGTAAGCGGGAAAGCATATTACTCAACTAT spacer
	length: 35	repeater length: 30	
37594	2182967	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TCGATGACGCAATAGAGGAAATGGAAGAAGATCA spacer
	length: 34	repeater length: 30	
37595	2183032	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TATTGAATGAAGCACCTGTAAAAGCGTCATACGTTCCA spacer
	length: 38	repeater length: 30	
37596	2183101	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TCTTCTACGCGTTCCTGTGCTAATTTGCTATCTAC spacer
	length: 35	repeater length: 30	
37597	2183167	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CTTCATGTCCACGCGGATATAAACCCGCCTGATA spacer
	length: 36	repeater length: 30	
37598	2183234	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	GAGGGGATAAAATGGGAAAAACGTATCTCGTCAAC spacer
	length: 35	repeater length: 30	
37599	2183300	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	AAAAACTAGGGAAAAAGTTGAATGTCTTTTTAGTTG spacer
	length: 36	repeater length: 30	
37600	2183367	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	GGTAAAACGCTATAGACCCTCCGCTGACGCCACCG spacer
	length: 35	repeater length: 30	
37601	2183433	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CTACTACCATAAGAAGAAGCATCATCACGGGTGACAG spacer
	length: 37	repeater length: 30	
37602	2183501	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TCAATAAAAAATGACCCCTGTGCGGGTTCATGGGGTAT spacer
	length: 37	repeater length: 30	
37603	2183569	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TATGTCTTCTCGTTTGACAAAGGTTGGCAAACATAG spacer
	length: 36	repeater length: 30	
37604	2183636	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CTCCTTTCCATAGTGCTAGACCGTTACCCGTATAA spacer
	length: 35	repeater length: 30	
37605	2183702	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CTACTACCATAAGAAGAAGCATCATCACGGGTGACAG spacer
	length: 37	repeater length: 30	
37606	2183770	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TCAATAAAAAATGACCCCTGTGCGGGTTCATGGGGTAT spacer
	length: 37	repeater length: 30	
37607	2183838	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TATGTCTTCTCGTTTGACAAAGGTTGGCAAACATAG spacer
	length: 36	repeater length: 30	
37608	2183905	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CTCCTTTCCATAGTGCTAGACCGTTACCCGTATAA spacer
	length: 35	repeater length: 30	
37609	2183971	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CAAAGCTCTTTGTATTTGCTATTTGCTATTTGC spacer
	length: 34	repeater length: 30	
37610	2184036	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	CGGATAATGAGATAAATCAGGTGAATCTCATACAGCA spacer
	length: 37	repeater length: 30	
37611	2184104	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	GATTTCCGTGAAAACACTAAAATATATTCAACATGG spacer
	length: 36	repeater length: 30	
37612	2184171	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TCCTGCTCTTCATTAGACCTATTGTCTTCAACGTAA spacer
	length: 36	repeater length: 30	
37613	2184238	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	AGTAGTTGAGAATTGACTAGATTTCGATTAGTTTCG spacer
	length: 34	repeater length: 30	
37614	2184303	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TGTAAGTGTGGAAGATAGACCGAATCTTCTTCTAG spacer
	length: 35	repeater length: 30	
37615	2184369	GTTTGTAGTGATCCCTTAGAGGGTTTGAAC	TATCCCCGCACCTTGAATTCTGACTTCCTCGCCGC spacer
	length: 35	repeater length: 30	

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37616 2184435 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TTTTtaggggggcttacacacgttccttcctccacgt spacer
length: 37 repeater length: 30
37617 2184503 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GAGGAGTAATAGACGTAGCTTCCTTAACGGGGATCC spacer
length: 36 repeater length: 30
37618 2184570 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCATCACAATCATGTTGGAAATTAAACCACTGTTA spacer
length: 35 repeater length: 30
37619 2184636 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TATGCTATTTCTTTCTTCTCCTTCTTCTCCATCTTCT spacer
length: 37 repeater length: 30
37620 2184704 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ATAATGATACCGACAACCTAACTCGTTTAATAATAAG spacer
length: 37 repeater length: 30
37621 2184772 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CAATTTAACACGGCACAACCCATAACCATAAACCT spacer
length: 35 repeater length: 30
37622 2184838 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCTTAAGCCCTTTCTGAAATCCTCTAAGTTTGAGAAG spacer
length: 37 repeater length: 30
37623 2184906 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCACTATACGGTCAATATGGAGGATTCATAGAAAAT spacer
length: 36 repeater length: 30
37624 2184973 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ATGATACAACCTAGCGTGACCCAATCGAGCAATGGA spacer
length: 35 repeater length: 30
37625 2185039 GTTTGTAGTGATCCTTAGAGGGTTTGAAC ACAGTTTCAAACTAAAAAACTCCTCATCCTCTTC spacer
length: 35 repeater length: 30
37626 2185105 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GGAGCTGAGCTAGCGGGTACATTGAAAGTGGGGATT spacer
length: 36 repeater length: 30
37627 2185172 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TCTCGTTCCTCAACAATTCAGCCAAATCCTTAAGTT spacer
length: 36 repeater length: 30
37628 2185239 GTTTGTAGTGATCCTTAGAGGGTTTGAAC CAGTTAGCCCCTATATTCATAGCACCTTTCGTGTTAT spacer
length: 37 repeater length: 30
37629 2185307 GTTTGTAGTGATCCTTAGAGGGTTTGAAC TATATGCTTGAGAGGTACTTATACCCCTCTGAAT spacer
length: 34 repeater length: 30
37630 2185372 GTTTGTAGTGATCCTTAGAGGGTTTGAAC GAAGATACGACGTCGTGGTTACAGCCTCCTTTCA
37631
37632
37633 GCA_009217585.1_ASM921758v1_genomic.fna(findCrispr):
37634 START REPEAT
SPACER
37635 crispr 1
37636 799047 GGCGTGTCAGTCGGGGTGTC
GGTTGGCGTGTCGGTCGGAGTGTCAGTCGGGGTGTCGGTTGGCGTGTCGGTCGGAGTGTCAGTCGGGGTGTCGGT spacer
length: 75 repeater length: 20
37637 799143 GGCGTGTCAGTCGGGGTGTC
GGTCGGCGTGTCAGTTGGCGTATCGGTCGGAGTGTCGGTTGGCGTATCCGTGGGGGTATCCGT spacer length: 63
repeater length: 20
37638 799227 GGCGTGTCAGTCGGGGTGTC
TGAACCCTCGACCGACGGCTTAAGAGGCCGTCGCTCTGCCAGACTGAGCTACCGGCCAGTGC
37639
37640
37641 crispr 2
37642 305015 TATAGCGGGAGGTGGATTTGAAC
CGGAATCAGACGTGCTCGCTTCGCTGCGCGCGACTAATAGGGTACAAATCCACTCGGCGTAGATTTGCCGCTCGCGAGTTTGCTCG
CGGCAAA spacer length: 93 repeater length: 23
37643 305132 TATAGCGGGAGGTGGATTTGAAC
CGGAATCAGACGTGCTCGCTTCGCTGCGCGCGACTAATAGGGTACAAATCCACTCGGCGTAGATTTGCCGCTCGCGAGTTTGCTCG
CGGCAAA spacer length: 93 repeater length: 23
37644 305249 TATAGCGGGAGGTGGATTTGAAC
TTGGGAAGAAAATGCTCGCTCACTTCGTTTCGCTGCGCGTTCCGTCCCAGTTCAAATCCACGCTGTGCTCTCTTTCCGACGCCGA
ACTCGTCGCTTCGCTCCTCGGTTTGGCGTCGGTAAA spacer length: 122 repeater length: 23
37645 305395 TATAGCGGGAGGTGGATTTGAAC
GAACCACCGATCTACGGGTTATGAGCCCGCCGAATCTCCTGGCTATCCCATCCCCTACTATCTCGTATCGTCTCCCCCTGATTA
AGGGTTGTGATTTCGGTCGTCCTCTGTGGGTTCCCTCT
37646
37647
37648 crispr 3
37649 928705 TGTGCGAGTCGTCGATCAGTGCGA CTGAGGACTGATCGACCCAGCGAGCAATCCG spacer length: 31
repeater length: 24
37650 928761 TGTGCGAGTCGTCGATCAGTGCGA CTGAGGACTGATCGACCCAGCGAGCAATCCG spacer length: 31
repeater length: 24
37651 928817 TGTGCGAGTCGTCGATCAGTGCGA CTGAGGACTGATCGACCCAGC spacer length: 21 repeater
length: 24
37652 928863 TGTGCGAGTCGTCGATCAGTGCGA CCTCGACCGACGGCTTAAGAG
37653
37654
37655 crispr 4

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37656 305128 AAAATATAGCGGGAGGTGGATTTGAAC
CGGAATCAGACGTGCTCGCTTCGCTGCGCGGACTAATAGGGTACAAATCCACTCGGCGTAGATTTGCCGCTCGCGAGTTTGCTCG
CGG spacer length: 89 repeater length: 27

37657 305245 AAAATATAGCGGGAGGTGGATTTGAAC
TTGGGGAAGAAATGCTCGCTCACTTCGTTTCGCTGCGCGTTCCGTCCCGAGTTCAAATCCACGCTGTGCTCTCTTTCCCGACGCCGA
ACTCGTCGCTTCGCTCCTCGGTTTGGCGTTCGG spacer length: 118 repeater length: 27

37658 305391 AAAATATAGCGGGAGGTGGATTTGAAC
ACCGATCTACGGGTTATGAGCCCCGCCGAATCTCCTGGCTATCCCATCCCGCTACTATCTCGTATCGTCTCCCCCTGATTAAGGGT
TGTGATTCGGTCGTCCTCTGTGGGTTCTCTC

37659

37660

37661 crispr 5

37662 272330 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TGCCTCGTCCGGTGGCCGTCAATAAATGTCGCAAGG spacer
length: 36 repeater length: 30

37663 272397 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCCTACGACCTCGTCGGCGTCAACGGCTGGCCCG spacer
length: 34 repeater length: 30

37664 272462 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CACCCTACAACAGGTGAAATCTACCAGACAAAAG spacer
length: 34 repeater length: 30

37665 272527 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCACCCAAGCGCAAGCAACAGCTGATCGAGGACCT spacer
length: 35 repeater length: 30

37666 272593 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GCGACGGCGGCCAGTTCCGCGAGGGCGGGAAGGTC spacer
length: 35 repeater length: 30

37667 272659 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TGCGAGTGTGCGGGGAACCGACTCGGGTAGGCCA spacer
length: 35 repeater length: 30

37668 272725 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACGGTTTCGCTACCACCATCGCCACCAGCAACTGCC spacer
length: 36 repeater length: 30

37669 272792 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GACGAGTATGCCAACCGGCTCGTGAGCGGGCG spacer
length: 32 repeater length: 30

37670 272855 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TGGTAGGCGTCGTAGGTGTTCTGTGGCGAGCGTGT spacer
length: 34 repeater length: 30

37671 272920 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACTCACTGGATTATGACCCCTACAACGAGGGCGTC spacer
length: 35 repeater length: 30

37672 272986 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GGATCTCGATCGTTGTAGTATCCATAGCTGCTATAC spacer
length: 36 repeater length: 30

37673 273053 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GAAGTAACGCAACTCCAGTGAGCGCTACTGAGAGCC spacer
length: 36 repeater length: 30

37674 273120 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CCGATCACGCCCTGCCGATACTGGTAGTTCGCGAT spacer
length: 35 repeater length: 30

37675 273186 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCGTCGGCCGGCTCGTCGGCCGACGTGGACTTG spacer
length: 33 repeater length: 30

37676 273250 GTTTCAGACGGACCCCTTGTGGGATTGAAGC AGTAGGTCTAATGTCTCTCTGTCTATCAGCCCC spacer
length: 36 repeater length: 30

37677 273317 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GCTCTCCGGTGTACAGGTCAGGTCACGGTCTCCG spacer
length: 35 repeater length: 30

37678 273383 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACGGACAAGTCATCCACCCGCCAGTATCTCCCGG spacer
length: 34 repeater length: 30

37679 273448 GTTTCAGACGGACCCCTTGTGGGATTGAAGC AAATACGATCCTGCGGTGACGCTACGTCCGGGGCAG spacer
length: 36 repeater length: 30

37680 273515 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CAGATGTGGGGTCTGTGGCCACAGTCTAACATCTC spacer
length: 35 repeater length: 30

37681 273581 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CCTGATAACGGACTCTTGTAGGTCCGTTAGGTTCG spacer
length: 34 repeater length: 30

37682 273646 GTTTCAGACGGACCCCTTGTGGGATTGAAGC AAAAATGAGTGACGTAGACATTCCGGCAAATGCCG spacer
length: 35 repeater length: 30

37683 273712 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CAGCAGCGAAACGAGCCGTCCGTCTTTTGGAC spacer
length: 34 repeater length: 30

37684 273777 GTTTCAGACGGACCCCTTGTGGGATTGAAGC GTCTAGCCCAGTCTGGTCGGGGTGGTCGGCAGGATCG spacer
length: 37 repeater length: 30

37685 273845 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CACTCCTCATATGTCTGTTTCGAGCAGCGGGACGT spacer
length: 34 repeater length: 30

37686 273910 GTTTCAGACGGACCCCTTGTGGGATTGAAGC ACCGTTGCCGCCGATCGGCAGCGAGCCGGTGATGTG spacer
length: 36 repeater length: 30

37687 273977 GTTTCAGACGGACCCCTTGTGGGATTGAAGC TCAAAGCGAGCCTCGAACGCGACGACGAAGATAT spacer
length: 34 repeater length: 30

37688 274042 GTTTCAGACGGACCCCTTGTGGGATTGAAGC
TCCTCCTTGTAACCCACGGTCTTGCCGATCCATCCCGGTTTCAGATGGACCCCTTGTGGGATTGAAGCGACTGGCGTGTTGCCGTTCA
GGCCGGCGTTGATCCC spacer length: 102 repeater length: 30

37689 274175 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CTCAGCAGCAGTCAACGGCATTATATACACCTTG spacer
length: 34 repeater length: 30

37690 274240 GTTTCAGACGGACCCCTTGTGGGATTGAAGC CACCCCTTCCGGGGAGACGAGGAAACCCCGGACG spacer
length: 34 repeater length: 30

37691 274305 GTTTCAGACGGACCCTTGTGGGATTGAAGC GTCACGCTGTCTGACGATATGGCTGACCAGGTG spacer
length: 33 repeater length: 30

37692 274369 GTTTCAGACGGACCCTTGTGGGATTGAAGC CGACGGCTTAAGAGGCCGTCGCTCTGCCAGACT

37693

37694

37695 crispr 6

37696 1671305 CCTGCTGAGCAGACGGCTGCTGTGCAGCTTGCTG
AACGGGTTGCTGCTGTGCGACCGGCTGCTTGGCGATTGGCTGCTGAACGGGTGGCTGCTGTACGGCTTGCTGGGCGGTCGGTTGCT
GGGCGGCCGGCTGTTGAGCCGAT spacer length: 109 repeater length: 34

37697 1671449 CCTGCTGAGCAGACGGCTGCTGTGCAGCTTGCTG
AACGGTCGGCTGCTGTGCGGCTTGCTGGGCGGCCGGCTGCTGGGCGGCCGGTTGCTGTGCGGCCGGTTGCTGTGCGGCCGGCTGCT
GAGCGACCGGTTGCTGAGCGGCCGGCTGCTGGGCGATCGGCTGTTGAGACGAT spacer length: 139 repeater
length: 34

37698 1671623 CCTGCTGAGCAGACGGCTGCTGTGCAGCTTGCTG
CGACACGGACGGCGACGGTCTCGACGACGGCTCCGAAGTATATACGCACGAGACGGGGCCGATGTCGGCCGATACAGACCACGATG
GACTCAACGACAGTACCGAGATCGAGATCCACGGAACAGACCCACCTCGGCC

37699

37700

37701 crispr 7

37702 2937100 CGTTCGCAGCAAAACGGGCCGGAAGGGATTTGAACC
TCGCCAGACGTGCTCACTCGCTTCGTTTCGCTGTGCGCGACTGGTCTGATTCAAATCTCTCGTGTCTGTTTTCACTGCTCACTG
spacer length: 83 repeater length: 36

37703 2937220 CGTTCGCAGCAAAACGGGCCGGAAGGGATTTGAACC
TCGGTCAGAGCAAAGCTCTTCCCTGCTTCAAATCCTTCCGCGAAGCTCTCGGATTCTC spacer length: 58
repeater length: 36

37704 2937315 CGTTCGCAGCAAAACGGGCCGGAAGGGATTTGAACC
GGGTTATGAGCCCGCCGAATCTCCTGGCTATCCCATCCCGCTACTATCTCGTATCGT

37705

37706

37707 crispr 8

37708 2126707 CTGATTCTCGACGAGCGACTCGGCTGAGGAAGCGAA GCGAGTCGCTGATTGGAGAATCCGCCGAGGAGAG
spacer length: 34 repeater length: 36

37709 2126778 CTGATTCTCGACGAGCGACTCGGCTGAGGAAGCGAA GCGGGTCGCTGATTGGAGAATCCGCCGAGGAGAG
spacer length: 34 repeater length: 36

37710 2126849 CTGATTCTCGACGAGCGACTCGGCTGAGGAAGCGAA TGCTCGCCGCAGGAATAGTCCATCCTGGATTCTGA

37711

37712

37713 crispr 9

37714 1711346 GAAGTCGACGAGCTCGGGACGGATCCAGTGGTCGCCGA TACGGACGATGATGGTCTCGACGACGGTTC spacer
length: 30 repeater length: 38

37715 1711415 GAAGTCGACGAGCTCGGGACGGATCCAGTGGTCGCCGA CACGGACGAGGACGGTCTCGACGACGGTTC spacer
length: 30 repeater length: 38

37716 1711484 GAAGTCGACGAGCTCGGGACGGATCCAGTGGTCGCCGA CGGACTCGAAGTCTCGCTGGGCGCGGTACT

37717

37718

37719 crispr 10

37720 478557 TCGCTTTCGAGGACCGCTCACTTCGTTTCGCGCCCCCTCGC
TCCCTACGGACTCAATCTCTGACGATCTCGCGGGAAGAGAGGAAGACGGTCCTGCGAGACTCACCTGTTCGTCTCGCTGGCTCCC
AGGTTTGTGCTGCTCGCGTGTGCTTCGCTCCCG spacer length: 121 repeater length: 39

37721 478718 TCGCTTTCGAGGACCGCTCACTTCGTTTCGCGCCCCCTCGC
CCCCACGGACTCAATCTCTGACGATCTCGCGGGAAGAGAGGAAGACAGTCCTGCGAGACTCACTCTGTTTCGTCTCGCTGGCTCTC
AGGTTTGTGCTGCTCGCGTGTGCTTCGCTCCCG spacer length: 121 repeater length: 39

37722 478879 TCGCTTTCGAGGACCGCTCACTTCGTTTCGCGCCCCCTCGC
GTCGCTACGCTCCCGCTCGCAAAAACGAGACCCCTCGCTTCGCTCGGCGTCTCGCTTAGTCCGCGCTCGCCGTCTGTCCACCGACC
ACGTCGATCTCGCCCTCGTCGAGCTCCTGTTTCGAT

37723

37724

37725 crispr 11

37726 104369 CTCGCAAAAACGAGACCCCTCGCTTCGCTCGGCATGCCCT
TCGCTGCTCGCGTGTGCTACGCTCCCGCTCGCAAAAACGAGACCCCTCGCTTCGCTCGGCGCGCCCTTCGCTGCTCGCGTGTGCG
TACGCTCCC spacer length: 95 repeater length: 40

37727 104505 CTCGCAAAAACGAGACCCCTCGCTTCGCTCGGCATGCCCT TCGCTGCTCGCGTGTGCTACGCTCCC spacer
length: 27 repeater length: 40

37728 104573 CTCGCAAAAACGAGACCCCTCGCTTCGCTCGGCATGCCCT ACTCGGGTAGGCCAGGTTTCAGACGGA

37729

37730

37731 crispr 12

37732 1513139 GGGCTCGAATCCACTCCGTCGACGATTCCGCGGCTCGCGA
GTTTGCAGCCGAGGAATAGTCCATCCTGGATATCGAACGGAGCAAGACGGTCGCTCACTACGTTTCGCGCTGCGACTTGC
spacer length: 82 repeater length: 40

37733 1513262 GGGCTCGAATCCACTCCGTCGACGATTCCGCGGCTCGCGA

37774 531522 TTAATCAATCTTATCTGAAAGATC
CTTTCTGCCCTTTATTTTAACTTAAAAAACTAAAAAACTATTTTTTTTAAATTTTACAACCTTTTTTAAATATTTTGTATATAT
AGATTTAATACTAATGAAATTGCTTTTTTAACCTATTAAGCAATCAATTTAGCT

37775
37776
37777 crispr 6
37778 232491 TGTAAGGAAAACCTTTTTTGTTTCTTTCCTTCTTCTTTTCT GCCCTTTAATTATAAAAAATACTTATTAAAAAAAAGA
spacer length: 36 repeater length: 40
37779 232568 TGTAAGGAAAACCTTTTTTGTTTCTTTCCTTCTTCTTTTCT GCCCTTTATTAAAAAATACTTATTAAAAAAAAGA
spacer length: 34 repeater length: 40
37780 232643 TGTAAGGAAAACCTTTTTTGTTTCTTTCCTTCTTCTTTTCT TTTTCTGCCCTTTATTTTAACTTAAAAAACTAA
37781
37782
37783 GCA_009601705.1_ASM960170v1_genomic.fna(findCrispr):
37784 START REPEAT
SPACER
37785 crispr 1
37786 708882 AAGGCTATACAAGATTTGCA
AAAGGCTGTTAATGAGCATTCTGAAGCAATAAGGGGTCTTCAAATTGCCGTAAATGAAAACACGAAAGCTATACAAGATTTGCAAA
AGACAGTCGATGAGCACACAAAGGCAATACAAGAGCTACAGAAATCTGTAAACGAGCATAC spacer length: 147
repeater length: 20
37787 709050 AAGGCTATACAAGATTTGCA GAAGGCAGTTATCGAGCACTC spacer length: 21 repeater length:
20
37788 709092 AAGGCTATACAAGATTTGCA AGCGAAATTGGAGGAGAGTAC
37789
37790
37791 crispr 2
37792 937689 CTAA TCTCTTATAGAATTGAAAGCAAATTGAAAAATAATGTCTTCAATTGTGATTTGGCCTTT spacer
length: 59 repeater length: 4
37793 937753 CTAA TCTCTTATAGAATTGAAAGTTTCTAACTGTACGATTTCAATTAATTCCGTCCGAAACCT spacer
length: 58 repeater length: 4
37794 937816 CTAA TCTCTTATAGAATTGAAAGGGTCTAGGGCATCGAAGATACTGGCTATCGTGGGTACGTCT spacer
length: 60 repeater length: 4
37795 937881 CTAA ACATGATGAAAGAATAGCGAAATTGGAGGAGAGTACGAGGAAGTTGGAGCAAGCTGTACA
37796
37797
37798 crispr 3
37799 1168619 TTTAAGTCCTCTTTCGTAGC
CATCGCCTTTAGATCCTCCTTTGTAGCCATCACGCTCTTAATTTCCCTCCACAGCCCTATCCAGCCTATCAACGTCTTGCTTCGTAG
CCATCGA spacer length: 93 repeater length: 20
37800 1168733 TTTAAGTCCTCTTTCGTAGC
CATCGCCTTTAGATCCTCCTTTGTAGCCATCACGCTCTTAATTTCCCTCCACAGCCCTATCCAGCCTATCAACGTCTTGCTTCGTAG
CCATCACGCTCTTAATTTCAATTAATATCCTTTTCTAGACT spacer length: 126 repeater length: 20
37801 1168880 TTTAAGTCCTCTTTCGTAGC
CGAAATTGGAGGAGAGTACGAGGAAGTTGGAGCAAGCTGTACAAGAACTTATTGAGGCCCAAAGAGAAGTGATGAAAGATTGAGT
AAATTAGAGGAGGTAACCTATGAAGTTAGTTGAATCCCAAC
37802
37803
37804 crispr 4
37805 990840 GTTGCTCAGTGAATTAGGGTA GTACGTGCTGGTTCTGCGGTAGATCTCTGGGTCCATAATTAT spacer
length: 42 repeater length: 21
37806 990904 GTTGCTCAGTGAATTAGGGTA GTACATATGAAATTGATTTTGTAGTTGTTTCTAACACCTATTC spacer
length: 43 repeater length: 21
37807 990969 GTTGCTCAGTGAATTAGGGTA AAATTGGAGGAGAGTACGAGGAAGTTGGAGCAAGCTGTACAAG
37808
37809
37810 crispr 5
37811 779301 AGAAGCTACGTGGACAAGAAGTT
CGAGGAATTAAGAACATATACTGACAAGAAGTTTGAAGAGACTAATAAGAAAGTTGAGGACTT spacer length: 63
repeater length: 23
37812 779388 AGAAGCTACGTGGACAAGAAGTT
TGAAGAGACTAATAAGAGGTTTCGAGGAGACTAACAAGAAGTTTCGAAGATCTTAAAAGTTATGTTGATACTAAATTCGAGGAGTCGA
GAGCTTATACGATAAAAAATTTGAGGAGACTAATAAGAGGTTTCGAGGAAATGGACAAGAAGTTTGGAGACCT spacer
length: 159 repeater length: 23
37813 779571 AGAAGCTACGTGGACAAGAAGTT
AGTACGAGGAAGTTGGAGCAAGCTGTACAAGAACTTATTGAGGCCCAAAGAGAAGTGATGAAAGATTGAGTAAATTAGAGGAGGT
AACTATGAAGTTAGTTGAATCCCAACTGGCTATGCAAAATGAGATTAGAGAATTAAGAAAAGCTTTGGGGAGT
37814
37815
37816 crispr 6
37817 976732 ATAAATCCACAAAGGAATTGAAAG TTTAACGTTTCAGTGCAACACATATTTTCAGTCAGCCCTC spacer

length: 39 repeater length: 24
37818 976796 ATAAATCCACAAAGGAATTGAAAG ATTGCATTGGCAAAACTTGTGCTAGGTGTTATTCTCAACT spacer
length: 40 repeater length: 24
37819 976861 ATAAATCCACAAAGGAATTGAAAG GACTTTTTTGGCCATCACATTCTTTTGTGGGTACAGCAT spacer
length: 39 repeater length: 24
37820 976925 ATAAATCCACAAAGGAATTGAAAG ATCTGAATACTTCTAGTATTTTCTTCCAATCTCTTTATA
37821
37822
37823 crispr 7
37824 929235 CTTTCAATTCTATAAGAGATTAGC ACAGAATGAGATAGCATCGAAAATCATCCAGCTCAAAG spacer
length: 38 repeater length: 24
37825 929298 CTTTCAATTCTATAAGAGATTAGC AAAAGAACGCCAGGGAAGTGCAACTATATTCAACGAGTA spacer
length: 39 repeater length: 24
37826 929362 CTTTCAATTCTATAAGAGATTAGC CGTTTATAAATGCGTCTGAGATGATTGCGAGAACTATTG spacer
length: 39 repeater length: 24
37827 929426 CTTTCAATTCTATAAGAGATTAGC TAGGGTCAATACTGATAATATCGAGAGCTGAAATTATAC spacer
length: 39 repeater length: 24
37828 929490 CTTTCAATTCTATAAGAGATTAGC AAAATAGTGCACCTGTGCGGGGAGATTGAGTCATTGGAA spacer
length: 38 repeater length: 24
37829 929553 CTTTCAATTCTATAAGAGATTAGC CTTACCACCTTTTAGCTGTGGCCCAAGGCGTTTGATGT spacer
length: 39 repeater length: 24
37830 929617 CTTTCAATTCTATAAGAGATTAGC GAAATGAATTTTAAACACTTAGGTATGATTTTACTTATAA spacer
length: 40 repeater length: 24
37831 929682 CTTTCAATTCTATAAGAGATTAGC AGAATGGTACAATAGCATCAAAGGCAAACGATTAATGCTAA spacer
length: 41 repeater length: 24
37832 929748 CTTTCAATTCTATAAGAGATTAGC CAAAGCCTTTTCTCAGAGATTTACAACCAGCTAATTCAGA spacer
length: 40 repeater length: 24
37833 929813 CTTTCAATTCTATAAGAGATTAGC TTGCTGGAGTAATGTATATGATATGAAAGTAGAAAGTAA spacer
length: 39 repeater length: 24
37834 929877 CTTTCAATTCTATAAGAGATTAGC TAACATTTGCTTTGTAGGATTGTTTATTTGTAAGGAAG spacer
length: 39 repeater length: 24
37835 929941 CTTTCAATTCTATAAGAGATTAGC GCCGTCTGGTATTGTACAAACTGCTCCGTTAACTTATT spacer
length: 38 repeater length: 24
37836 930004 CTTTCAATTCTATAAGAGATTAGC AAGGAAGTAACGATGATCGTACAGGGTTAGACGCTTTCT spacer
length: 39 repeater length: 24
37837 930068 CTTTCAATTCTATAAGAGATTAGC AATATTGGTCAGTCTCGGAGTAATTGTAGGAGTATATC spacer
length: 38 repeater length: 24
37838 930131 CTTTCAATTCTATAAGAGATTAGC TTGTGGCGTTGTAAGCTTGGTCGGAGTCAGCATAACAT spacer
length: 38 repeater length: 24
37839 930194 CTTTCAATTCTATAAGAGATTAGC ATTACGCTCTAGCTTCAAGTCAAGATAGTAGTGTGTTTTTTG spacer
length: 43 repeater length: 24
37840 930262 CTTTCAATTCTATAAGAGATTAGC AAAGGAATTGGAAGAGAAAGTCTCAAATGAATGAGTTG spacer
length: 40 repeater length: 24
37841 930327 CTTTCAATTCTATAAGAGATTAGC GAAACAGAAAAAGAGGAGGAAACAGCGTCTGAAAATGAA spacer
length: 39 repeater length: 24
37842 930391 CTTTCAATTCTATAAGAGATTAGC TTACCAAGGTTTCGCCCTTAAGTTGCAGAGACATCTAAA spacer
length: 39 repeater length: 24
37843 930455 CTTTCAATTCTATAAGAGATTAGC ACGGCAAAAGTTCCGTTAGGACCTAGTTTATTCCATGAAACT spacer
length: 42 repeater length: 24
37844 930522 CTTTCAATTCTATAAGAGATTAGC TTGGCAATAAAGGAAATTGAAGGCCAGCTGGATAATATT spacer
length: 39 repeater length: 24
37845 930586 CTTTCAATTCTATAAGAGATTAGC GTGCCGTTTCAAGAGTTAGGAGTTGGAACAACCTCAGTTT spacer
length: 40 repeater length: 24
37846 930651 CTTTCAATTCTATAAGAGATTAGC ATAGCATCAGTATTAGATGGCATTGCTAGCACCTATCTTG spacer
length: 40 repeater length: 24
37847 930716 CTTTCAATTCTATAAGAGATTAGC CTCGCTATTCTGTGCAAAAGTGTTAGATGAGAGCAAAG spacer
length: 38 repeater length: 24
37848 930779 CTTTCAATTCTATAAGAGATTAGC ACAAGTATGGGTACCAAGCCCACAAAAGCAGTTGAAAG spacer
length: 39 repeater length: 24
37849 930843 CTTTCAATTCTATAAGAGATTAGC TTTCGACAGAACAACCTACCGACAAGTTGTGGCTTTCAA spacer
length: 38 repeater length: 24
37850 930906 CTTTCAATTCTATAAGAGATTAGC AGAATATGAAGAAACGCCATGGTTCCTTCAGCTTAGTGA spacer
length: 39 repeater length: 24
37851 930970 CTTTCAATTCTATAAGAGATTAGC CTACGTTTTGTGCGTTGCCGTTGCGGGCGTGGATGAAGCAA spacer
length: 40 repeater length: 24
37852 931035 CTTTCAATTCTATAAGAGATTAGC CGACCTCATACGTTTTCTCGTAGTACTCTAATGGCGATA spacer
length: 39 repeater length: 24
37853 931099 CTTTCAATTCTATAAGAGATTAGC AAAAAGCTAAGGGGAAGAACAGTGAAAATAATTGAGT spacer
length: 38 repeater length: 24
37854 931162 CTTTCAATTCTATAAGAGATTAGC AATATTGCACTAGGTGTGGTGAAAAATTCGCAACTG spacer length:
36 repeater length: 24

37855 931223 CTTTCAATTCTATAAGAGATTAGC GTATTGCAAATAAATGCAGTACCCAATAACGGCCTGAT spacer
length: 38 repeater length: 24
37856 931286 CTTTCAATTCTATAAGAGATTAGC AAAAATGAACCGGCAGAGAACAAGTACCCGAAGAAGAA spacer
length: 39 repeater length: 24
37857 931350 CTTTCAATTCTATAAGAGATTAGC TGGTGAATAAACCCACCTATTACGAGACCGCTGATTACC spacer
length: 40 repeater length: 24
37858 931415 CTTTCAATTCTATAAGAGATTAGC AGAGTAATTCGGCACTTGCTTTTGTCCAGCCATAAACTGAGG spacer
length: 42 repeater length: 24
37859 931482 CTTTCAATTCTATAAGAGATTAGC GTCAAGTCCTTCAGGAACAAAGATTCCAAATACTCATT spacer
length: 38 repeater length: 24
37860 931545 CTTTCAATTCTATAAGAGATTAGC AAGGCATTGTTCGTGGAATATTGGCTGGGCTCACAGGAA spacer
length: 39 repeater length: 24
37861 931609 CTTTCAATTCTATAAGAGATTAGC CTGTAGTGTGGCCATGTTTATCCCTAGTTATCGTTCTCAC spacer
length: 40 repeater length: 24
37862 931674 CTTTCAATTCTATAAGAGATTAGC CAATTTATATGCAGTGATGGGTGCAACAACGATTTTGTT spacer
length: 40 repeater length: 24
37863 931739 CTTTCAATTCTATAAGAGATTAGC GCGTATCAGTATTCGCAAAACGCAAAGAACGCACCTTCTCA spacer
length: 40 repeater length: 24
37864 931804 CTTTCAATTCTATAAGAGATTAGC GTAAATCTGGCATGGGCCTGTTGCCCACGCATATATGTTT spacer
length: 40 repeater length: 24
37865 931869 CTTTCAATTCTATAAGAGATTAGC TTAACAACTAACTAGGTTAGTAAATAGTATCTTTATCG spacer
length: 39 repeater length: 24
37866 931933 CTTTCAATTCTATAAGAGATTAGC ATATCTCTTTGAAAGATAATTTGCCGTTGTATAATCAGA spacer
length: 39 repeater length: 24
37867 931997 CTTTCAATTCTATAAGAGATTAGC CCAAAGGCCGAAGAGCAACTTGTGCGATATGCCATAA spacer length:
37 repeater length: 24
37868 932059 CTTTCAATTCTATAAGAGATTAGC CATTCACTCTCTTCTGCATAGCTTGTGACAATCCATAC spacer
length: 38 repeater length: 24
37869 932122 CTTTCAATTCTATAAGAGATTAGC TTAACGTCCTCTATATCTTGAAATTTATATATTAATAA spacer
length: 38 repeater length: 24
37870 932185 CTTTCAATTCTATAAGAGATTAGC ATCGAAAAAGATGATATAGCGAGAGAAGTTTACGAGTAT spacer
length: 39 repeater length: 24
37871 932249 CTTTCAATTCTATAAGAGATTAGC TGCCACTGGATTTACTGAAATTGGAGCTTCGATAGG spacer length:
36 repeater length: 24
37872 932310 CTTTCAATTCTATAAGAGATTAGC ACAAATTTTAGAGCAAGTTCAAGCGCGTTAGGCAGAA spacer
length: 38 repeater length: 24
37873 932373 CTTTCAATTCTATAAGAGATTAGC GTGGCATATGCGGTGGTGAATGGTGGAACAGCATCATTAC spacer
length: 40 repeater length: 24
37874 932438 CTTTCAATTCTATAAGAGATTAGC ACTTAACGTAACGAATCCCAAGTTTCTGAAAACGTAG spacer
length: 38 repeater length: 24
37875 932501 CTTTCAATTCTATAAGAGATTAGC TAAACATTAGCTACTAATATATCATTAGGTCCTACAGTGT spacer
length: 40 repeater length: 24
37876 932566 CTTTCAATTCTATAAGAGATTAGC TTCAAACAGAAAGACGTAGTCAAATGCATTGTCACGAA spacer
length: 38 repeater length: 24
37877 932629 CTTTCAATTCTATAAGAGATTAGC AATGAGAAAGAAAAGGGTTGGGGATATGACCCTAATAT spacer
length: 39 repeater length: 24
37878 932693 CTTTCAATTCTATAAGAGATTAGC TCTCCTATGTATGCCGCAAAATGATAATAGCCTCTTT spacer length:
37 repeater length: 24
37879 932755 CTTTCAATTCTATAAGAGATTAGC ACAGATAGTATGCGCCTTTATACCCTCTTTGCCACGAAA spacer
length: 39 repeater length: 24
37880 932819 CTTTCAATTCTATAAGAGATTAGC ACTTTTGAATGGTCTTGTCTGGTTTATGTGAGGATACTG spacer
length: 40 repeater length: 24
37881 932884 CTTTCAATTCTATAAGAGATTAGC ACTTCTGTTTCATGCTGGAAAGACAGTAGAAATACAGGGTA
37882
37883
37884 crispr 8
37885 938009 GCTAATCTATTATAGAATTGAAAG TTAATACCCGCTACAAGCTTATAATCATCAGTTACGATT spacer
length: 39 repeater length: 24
37886 938073 GCTAATCTATTATAGAATTGAAAG AATGCTTTAACTTCAATATCATCATCACCCACATTGAA spacer
length: 40 repeater length: 24
37887 938138 GCTAATCTATTATAGAATTGAAAG
ATTTATTATATTGCGCACGCAATCCCGCGTGAAATTGAAAGAGGCTAATCTATTATAGAATTAAAAGCTACGTAAATTGGGTCAGC
CTCTGTCAATGCCGTTGCCAGCTA spacer length: 112 repeater length: 24
37888 938275 GCTAATCTATTATAGAATTGAAAG ATTTTATAGCGTATTGCAAATACGTTGACTGTAAATCG spacer length:
37 repeater length: 24
37889 938337 GCTAATCTATTATAGAATTGAAAG GTGTCTCGTCTCTTGTATTGTTGTGTCAAGCGCCACA spacer
length: 38 repeater length: 24
37890 938400 GCTAATCTATTATAGAATTGAAAG TGGGTGGGTGTTTCTTCTGTACGTTGAATTTTCTCA spacer length:
37 repeater length: 24
37891 938462 GCTAATCTATTATAGAATTGAAAG TTTATTATGCCATACGCTATATCAAGCCAATAAGTTGTC spacer
length: 39 repeater length: 24

37892 938526 GCTAATCTATTATAGAAATTGAAAG TTGACAGACAAGATCGTTGACAATAAATTCTTCATCTTC spacer
length: 39 repeater length: 24
37893 938590 GCTAATCTATTATAGAAATTGAAAG ATTATCAGCATCATTAGGTCTGGCCCACTCCCCACCCTA spacer
length: 39 repeater length: 24
37894 938654 GCTAATCTATTATAGAAATTGAAAG GATTTAGTCTGCTCATTAGGTTCAAAGTCGTAAAAAAC spacer
length: 38 repeater length: 24
37895 938717 GCTAATCTATTATAGAAATTGAAAG AACACGCTTGTGATGAACGCATCTATTGCTGTAATTTGTGC spacer
length: 41 repeater length: 24
37896 938783 GCTAATCTATTATAGAAATTGAAAG ATTATAATCTTTGACAATTTCTTTCTCACATTCAAATCCA spacer
length: 40 repeater length: 24
37897 938848 GCTAATCTATTATAGAAATTGAAAG AAAAATGTCAACTATGGAGGAAATTATGCCAATAAAG spacer length:
37 repeater length: 24
37898 938910 GCTAATCTATTATAGAAATTGAAAG CAGCCTAACCCCAACTATCCGTTTACATTTTCTGTGCAT spacer
length: 38 repeater length: 24
37899 938973 GCTAATCTATTATAGAAATTGAAAG AACAGAAAGACGAAAACAATAATCACTAACAAAAAAGCT spacer
length: 40 repeater length: 24
37900 939038 GCTAATCTATTATAGAAATTGAAAG GTCCCTGGGGGGCCATGTAACAGAACAATCTGAAATGGAT spacer
length: 40 repeater length: 24
37901 939103 GCTAATCTATTATAGAAATTGAAAG GAATTATCGGATGAACCTGAACTATCACCAGAACCGGACCCA spacer
length: 42 repeater length: 24
37902 939170 GCTAATCTATTATAGAAATTGAAAG TTTAATGTACTACCAGCGTATGCTTTTTGAGATGTACT spacer
length: 38 repeater length: 24
37903 939233 GCTAATCTATTATAGAAATTGAAAG ACGGCAAATTACGTTTATGAAACGCATAGATATTCATTTCG spacer
length: 40 repeater length: 24
37904 939298 GCTAATCTATTATAGAAATTGAAAG TTCACCATTATTGTGTTCTCTTGCTTCTGATAACTC spacer length:
36 repeater length: 24
37905 939359 GCTAATCTATTATAGAAATTGAAAG TCAGCAGCGGCAATAAGGCAATTAATAATAGATAACTTC spacer
length: 39 repeater length: 24
37906 939423 GCTAATCTATTATAGAAATTGAAAG ATAATTTACACTAACTTTACACTAACACACACGGCG spacer length:
36 repeater length: 24
37907 939484 GCTAATCTATTATAGAAATTGAAAG GTCATCTGCAAGATTACAAAACGTAAAACAAAAAATAGC spacer
length: 39 repeater length: 24
37908 939548 GCTAATCTATTATAGAAATTGAAAG ATACTGTAGCTGATGCAGCTGTACCTGTAGCCGCACTAC spacer
length: 39 repeater length: 24
37909 939612 GCTAATCTATTATAGAAATTGAAAG TAAGTCCAGCTGGTTGAATCAATGCTGATCCACTTCC spacer length:
37 repeater length: 24
37910 939674 GCTAATCTATTATAGAAATTGAAAG TAATTTATCAACCGTCTGTTATTTTTCTGGTTTCGTGGTG spacer
length: 40 repeater length: 24
37911 939739 GCTAATCTATTATAGAAATTGAAAG ATCTAATGAATTACAGTTGGAAGGTAGAAAGCACAGGTAGC spacer
length: 41 repeater length: 24
37912 939805 GCTAATCTATTATAGAAATTGAAAG ACAGTTTGTCAATGTCGTGAAGGAGAAGTTCTGGTATTT spacer
length: 39 repeater length: 24
37913 939869 GCTAATCTATTATAGAAATTGAAAG AATTTTCAGTTTCTACGGTGTACCAAAAAGCGATATTGAC spacer
length: 40 repeater length: 24
37914 939934 GCTAATCTATTATAGAAATTGAAAG AGTAACGACTCAATGTTGTATCCAAATTCTCTCCTAATA spacer
length: 39 repeater length: 24
37915 939998 GCTAATCTATTATAGAAATTGAAAG TCGTATTTGCTGTCCCTAATCCTAACGCTATAGTACT spacer length:
37 repeater length: 24
37916 940060 GCTAATCTATTATAGAAATTGAAAG TAAAAGCATCTATTTGGAAACTCTTGCTTTAGCTAATTC spacer
length: 39 repeater length: 24
37917 940124 GCTAATCTATTATAGAAATTGAAAG AGTATCAGCTAATGTGAGTTTGTATTGTTGTTCTGCT spacer
length: 38 repeater length: 24
37918 940187 GCTAATCTATTATAGAAATTGAAAG CAGCGGTGCCTTCATTTTTCAAACCTATTCTCTTCA spacer length:
37 repeater length: 24
37919 940249 GCTAATCTATTATAGAAATTGAAAG AATGTGTCATTCCCAACGCTTACTGTAACAGATAAAT
37920
37921
37922 crispr 9
37923 953861 GTAACAACGAAAAGAACTAAAAAC CGTAGGTGCATGATTCTTCTGGGTCTAAGTAGCC spacer length: 34
repeater length: 24
37924 953920 GTAACAACGAAAAGAACTAAAAAC AAAGTATTTGCCAAAACGCGGAGCAAGTAACGA spacer length: 33
repeater length: 24
37925 953978 GTAACAACGAAAAGAACTAAAAAC TCCTTTGACCGGCTGGAATAGGTGGGTCTGCCA spacer length: 33
repeater length: 24
37926 954036 GTAACAACGAAAAGAACTAAAAAC TTGTAACCTTTGGACAGAACAGCACTTAGCCTA spacer length: 33
repeater length: 24
37927 954094 GTAACAACGAAAAGAACTAAAAAC GATGTTTCATTGTCACTCACTGAAGCTTTAAAATAA spacer length:
35 repeater length: 24
37928 954154 GTAACAACGAAAAGAACTAAAAAC AGCTATCGCTAATTTCTTACAAAAGTATGCTGAT spacer length: 34
repeater length: 24
37929 954213 GTAACAACGAAAAGAACTAAAAAC TCTTTGTTATTGGCGACTTAAATAGCGGAAACAA spacer length: 34

37930 repeater length: 24
 954272 GTAACAACGAAAAGAACTAAAAAC TTGAGCCGGCTGAGCAAAAATAATAGCGTCTT spacer length: 32
 37931 repeater length: 24
 954329 GTAACAACGAAAAGAACTAAAAAC GAACTGAGTTCCTACTCTGTGTGCTACGTTCCA spacer length: 34
 37932 repeater length: 24
 954388 GTAACAACGAAAAGAACTAAAAAC TATTGCGCGCACCTTTTTGCGGTGTCGGCTCC spacer length: 32
 37933 repeater length: 24
 954445 GTAACAACGAAAAGAACTAAAAAC AAATTTAAATATGATTTCCAAATATAAATATATT spacer length: 34
 37934 repeater length: 24
 954504 GTAACAACGAAAAGAACTAAAAAC TCTAAGAAGCTTACTATATCTTTTAGCCCAATAG spacer length: 34
 37935 repeater length: 24
 954563 GTAACAACGAAAAGAACTAAAAAC GTTAGCTAGTACAATAGATGCAGTTCCTATCGTG spacer length: 34
 37936 repeater length: 24
 954622 GTAACAACGAAAAGAACTAAAAAC TGGGGGAATGTTGGGGATCAAGGTATATTGTA spacer length: 32
 37937 repeater length: 24
 954679 GTAACAACGAAAAGAACTAAAAAC CTACCAGCAATACACGAGGCACACCATTCTCCA spacer length: 33
 37938 repeater length: 24
 954737 GTAACAACGAAAAGAACTAAAAAC ACACTCTTGCCAGCGTACATACTCTCTCTATC spacer length: 33
 37939 repeater length: 24
 954795 GTAACAACGAAAAGAACTAAAAAC GTACGCCAAATAAATGTAACCATTTTGTATGCCTTC spacer length: 36
 37940 repeater length: 24
 954856 GTAACAACGAAAAGAACTAAAAAC TATATTCCTGCATTTTCTATCCGATATTGGACA spacer length: 33
 37941 repeater length: 24
 954914 GTAACAACGAAAAGAACTAAAAAC TTACAAAGTTTTACGATGCTTACGTACAGCAGTGTGGG spacer length: 38
 37942 repeater length: 24
 954977 GTAACAACGAAAAGAACTAAAAAC ACCTCTACCTCATCATATCTACGGCCAACTTTAACA spacer length: 36
 37943 repeater length: 24
 955038 GTAACAACGAAAAGAACTAAAAAC TAATTGCACTTTCTTTAGATTTGAGTAACATTATAA spacer length: 36
 37944 repeater length: 24
 955099 GTAACAACGAAAAGAACTAAAAAC TATGAAGTAGAGATTATTCAAGGTGCAGGATAAA spacer length: 34
 37945 repeater length: 24
 955158 GTAACAACGAAAAGAACTAAAAAC TTCACCCAAGTATATAATGAGAATATAAAATATA spacer length: 34
 37946 repeater length: 24
 955217 GTAACAACGAAAAGAACTAAAAAC CTGGTGGTGGTGGATGAGCACACTTTACACG spacer length: 31
 37947 repeater length: 24
 955273 GTAACAACGAAAAGAACTAAAAAC CCAGGGCTACATAACTACACTAAGGGGGCTTAAC spacer length: 34
 37948 repeater length: 24
 955332 GTAACAACGAAAAGAACTAAAAAC GAATTTGCTATCCTATTTATTGTTGGCTTATTCT
 37949
 37950
 37951 crispr 10
 37952 967719 GTTTTAGTTTCTTTTCGTTGTTAC AATCGCTAGAGAAGTCGTGGGGAGAGTGTTATGA spacer length: 34
 37953 repeater length: 24
 967778 GTTTTAGTTTCTTTTCGTTGTTAC CACTTAATGGCAACAATAATACCAAAGCCCAAGG spacer length: 35
 37954 repeater length: 24
 967838 GTTTTAGTTTCTTTTCGTTGTTAC CTAATTTATGGGTACCATCACTTTCAATATACGCT spacer length: 35
 37955 repeater length: 24
 967898 GTTTTAGTTTCTTTTCGTTGTTAC ATTGTTAGCGGACTAGAGGCCCTTTGCGAATGCCATT spacer length: 36
 37956 repeater length: 24
 967959 GTTTTAGTTTCTTTTCGTTGTTAC ATGGAGAGGAAGAGATCATTCATCTATGAGGAGTGT spacer length: 36
 37957 repeater length: 24
 968020 GTTTTAGTTTCTTTTCGTTGTTAC ATTGAAGAACAGCTATAATAAAGAAGAACTAATAG spacer length: 35
 37958 repeater length: 24
 968080 GTTTTAGTTTCTTTTCGTTGTTAC CACAAAGCCATAATTATGTCTAAAGGCATTGGTAAAAGCACAAAC spacer length: 44
 37959 repeater length: 24
 968149 GTTTTAGTTTCTTTTCGTTGTTAC ACAACAGTATCAGGGCGAATTACCACAAGCACCA spacer length: 34
 37960 repeater length: 24
 968208 GTTTTAGTTTCTTTTCGTTGTTAC CATTCTTCATCAACAACAATAAATGTAACAATACATA spacer length: 38
 37961 repeater length: 24
 968271 GTTTTAGTTTCTTTTCGTTGTTAC TTGTCGATAGATTTGCCCCGTGCTCAGAGTTATCA spacer length: 34
 37962 repeater length: 24
 968330 GTTTTAGTTTCTTTTCGTTGTTAC
 GAATATGCCTTCTGGCGAAGACTGCTGATTGTTGAGTTTCCAGTTTCTTTTCTTTGTTACCCAGTTCGTTGTTTTAGTA
 ATGGCTAGTAATATC spacer length: 101
 37963 repeater length: 24
 968456 GTTTTAGTTTCTTTTCGTTGTTAC ATGGTGTGTTTGTATCTACAACCTTAGATAGAC spacer length: 33
 37964 repeater length: 24
 968514 GTTTTAGTTTCTTTTCGTTGTTAC TGCTTGCTCTAGCGTCTGCAGATATTGTTGATATGC spacer length: 36
 37965 repeater length: 24
 968575 GTTTTAGTTTCTTTTCGTTGTTAC TCGATAATCTTCGCATCCCAAAGCCTGTAAACC spacer length: 33
 37966 repeater length: 24
 968633 GTTTTAGTTTCTTTTCGTTGTTAC AAATAATCCCCCTCTCCCGCGAACGAAAACAA spacer length: 34

repeater length: 24
 37967 968692 GTTTATAGTTTCTTTTCGTTGTTAC AAGGCTAGTGAAGAAAAAGAGAAGAATCCATAC spacer length: 33
 repeater length: 24
 37968 968750 GTTTATAGTTTCTTTTCGTTGTTAC TGGGGCTCCGACATTCCAGCTTCGTGGAGCTGTTGTTG spacer
 length: 38 repeater length: 24
 37969 968813 GTTTATAGTTTCTTTTCGTTGTTAC AGAAGGAGGGGGAGAAAAACGTGGACAGCTCTAACAC spacer length:
 37 repeater length: 24
 37970 968875 GTTTATAGTTTCTTTTCGTTGTTAC ACGTATTTTGACATTACATTAGTTGTATCAATTG spacer length: 34
 repeater length: 24
 37971 968934 GTTTATAGTTTCTTTTCGTTGTTAC GCTAACTGAAGCTAAGGAACAGAAATGTGCTCCA spacer length: 34
 repeater length: 24
 37972 968993 GTTTATAGTTTCTTTTCGTTGTTAC CACAAGATAACATAAACAGGATGGTGAATTTTCG spacer length: 33
 repeater length: 24
 37973 969051 GTTTATAGTTTCTTTTCGTTGTTAC CTGTATCTTCTACTACCGTATCAAGTACGTGTAATA spacer length:
 36 repeater length: 24
 37974 969112 GTTTATAGTTTCTTTTCGTTGTTAC ACATAAATGACTGTGAATGCCGTGTTGATAAA spacer length: 32
 repeater length: 24
 37975 969169 GTTTATAGTTTCTTTTCGTTGTTAC AATTCAGTCTGAAAATGACTAACAGCCTGTCTCTA spacer length:
 35 repeater length: 24
 37976 969229 GTTTATAGTTTCTTTTCGTTGTTAC TTGAAAGCGAACAACAGAGCCTACAAATCTCAA spacer length: 34
 repeater length: 24
 37977 969288 GTTTATAGTTTCTTTTCGTTGTTAC ACATTTTTTATACATTTGATTCTATGTAAAGATATG spacer length:
 35 repeater length: 24
 37978 969348 GTTTATAGTTTCTTTTCGTTGTTAC CGGAAAAGAAACCATTCTTGAGAAAGAAAAAGAA spacer length: 34
 repeater length: 24
 37979 969407 GTTTATAGTTTCTTTTCGTTGTTAC CTATTACTAGGTTTCCTATTTGGCAATAGAGACTAG spacer length:
 36 repeater length: 24
 37980 969468 GTTTATAGTTTCTTTTCGTTGTTAC CACTTCCTCCTAATGCAAAACAGCAAACCTATA spacer length: 33
 repeater length: 24
 37981 969526 GTTTATAGTTTCTTTTCGTTGTTAC AATAGAAACGTTTACATGGGACATTAAAAAGATA spacer length: 34
 repeater length: 24
 37982 969585 GTTTATAGTTTCTTTTCGTTGTTAC TGTGTATAACCAAAAATAAAGAAAACGACAAAAATT spacer length:
 36 repeater length: 24
 37983 969646 GTTTATAGTTTCTTTTCGTTGTTAC GATGTTGTGGTTGAGGAAAGCGTAGCTGGCGGTG spacer length: 34
 repeater length: 24
 37984 969705 GTTTATAGTTTCTTTTCGTTGTTAC TGAATGCAGGGCAAATAACGATGGACAAGGGAG spacer length: 34
 repeater length: 24
 37985 969764 GTTTATAGTTTCTTTTCGTTGTTAC TATAGTGAGTGGGAATTACGTTGAAAGTTCCCAA spacer length:
 35 repeater length: 24
 37986 969824 GTTTATAGTTTCTTTTCGTTGTTAC TAATATTACCGCTTTCATCTTTGCCAATTGTCAC spacer length: 34
 repeater length: 24
 37987 969883 GTTTATAGTTTCTTTTCGTTGTTAC TGTAAGTGACTCAGTTTGGACTTGACTTTCCGCATTA spacer length:
 37 repeater length: 24
 37988 969945 GTTTATAGTTTCTTTTCGTTGTTAC TCCAGCCAGATGGTACCGTAGTTCCAGCAAAATTCCAA spacer
 length: 38 repeater length: 24
 37989 970008 GTTTATAGTTTCTTTTCGTTGTTAC TGAATACAAAATATGCAGACGAAACGAAAGATAT spacer length: 34
 repeater length: 24
 37990 970067 GTTTATAGTTTCTTTTCGTTGTTAC GTCTACCGCGTCGTTTACGTTCACTCAAAAAAAA spacer length: 34
 repeater length: 24
 37991 970126 GTTTATAGTTTCTTTTCGTTGTTAC GAGACAAAAGATATGGTAGTATATGTGCCATTG spacer length: 33
 repeater length: 24
 37992 970184 GTTTATAGTTTCTTTTCGTTGTTAC TACAACACTAACTCGGGCATATACAACTCAA spacer length: 34
 repeater length: 24
 37993 970243 GTTTATAGTTTCTTTTCGTTGTTAC TATAGAACAGAACAGTACGGTACGGAGAACGGAACG spacer length:
 36 repeater length: 24
 37994 970304 GTTTATAGTTTCTTTTCGTTGTTAC ACGTTTGGTTTAGCAGTTATGGTAACAAGTGGG spacer length: 33
 repeater length: 24
 37995 970362 GTTTATAGTTTCTTTTCGTTGTTAC ACTTATCTTTTAATGCCATATTACAAGCACAAAA spacer length: 34
 repeater length: 24
 37996 970421 GTTTATAGTTTCTTTTCGTTGTTAC TTATTATTGCATTTGGTGATGATGACCAATTA spacer length: 32
 repeater length: 24
 37997 970478 GTTTATAGTTTCTTTTCGTTGTTAC TTTTACGTGTTTTCTCGATGAAGGGAATTGACAA spacer length: 34
 repeater length: 24
 37998 970537 GTTTATAGTTTCTTTTCGTTGTTAC TTGAGTAACTGCTTTTGCTCTGATTTCTGGACTGT spacer length:
 36 repeater length: 24
 37999 970598 GTTTATAGTTTCTTTTCGTTGTTAC AAGCGTTAAATCCGCCAATTTATTTTCGTCTTC spacer length: 33
 repeater length: 24
 38000 970656 GTTTATAGTTTCTTTTCGTTGTTAC TATGCTAACAAGATAGGGGTACATCATTTTCAACC spacer length: 34
 repeater length: 24
 38001 970715 GTTTATAGTTTCTTTTCGTTGTTAC CTCCGGTAATTGCTTTGCCTCCGCCTCTATCTTGTC spacer length:
 37 repeater length: 24

[illegible]

length: 37 repeater length: 25
38039 986908 CTTTCAATTCCTTTGTGGATTTATC GATTCAATCATACAGAATTATAGCGGACAACTATAGAAT spacer
length: 40 repeater length: 25
38040 986974 CTTTCAATTCCTTTGTGGATTTATC CCAAAAACGATATGCGGAGTAAACACAGAAAAGCTTTTAAAA spacer
length: 42 repeater length: 25
38041 987042 CTTTCAATTCCTTTGTGGATTTATC CCTTATCTCATTTTCCAACACTAGACGTTTATCATTGTA spacer
length: 39 repeater length: 25
38042 987107 CTTTCAATTCCTTTGTGGATTTATC GGAAATATTCCTAGGTAAAATGTTGTTGATGAGA spacer length:
34 repeater length: 25
38043 987167 CTTTCAATTCCTTTGTGGATTTATC ACTGAAGTGTGAGAAGTATGTTGCATTATAGATAGTAC spacer
length: 38 repeater length: 25
38044 987231 CTTTCAATTCCTTTGTGGATTTATC CGCTCTATTTCCTATACAAGAATGGATACCATAAAAAAC spacer
length: 38 repeater length: 25
38045 987295 CTTTCAATTCCTTTGTGGATTTATC ACGTGTTCGTTAGAGACCCAATTACAAGAAATATTTA spacer
length: 38 repeater length: 25
38046 987359 CTTTCAATTCCTTTGTGGATTTATC AATAATAGATAAGGAATTTTACCTAACTAAAATGGAT spacer
length: 37 repeater length: 25
38047 987422 CTTTCAATTCCTTTGTGGATTTATC TTGCATAAATTGCGAAAATTGTGCAAAATGACAGATTAA spacer
length: 39 repeater length: 25
38048 987487 CTTTCAATTCCTTTGTGGATTTATC TTTTATTGTGTCTGGAATATTTACATTAATTTTGGGTT spacer
length: 38 repeater length: 25
38049 987551 CTTTCAATTCCTTTGTGGATTTATC TACACGAAGAACAACCTGAAAGAAGGACCAAAAGAGAA spacer
length: 38 repeater length: 25
38050 987615 CTTTCAATTCCTTTGTGGATTTATC CCGCCCTCAAGTGGATTTATGAATGGTTCTGGATAAGGAA spacer
length: 40 repeater length: 25
38051 987681 CTTTCAATTCCTTTGTGGATTTATC CACAGGCCGTAACGAACATCGTCTATCTGGTTACACTAG spacer
length: 39 repeater length: 25
38052 987746 CTTTCAATTCCTTTGTGGATTTATC ATGAGTATGGAAGAGCAATGTCATATCAATCATATCTTGT spacer
length: 40 repeater length: 25
38053 987812 CTTTCAATTCCTTTGTGGATTTATC TAATAGCGTTTAAATAAGCTGAAGTTGAAGGTGCTAAAG spacer
length: 39 repeater length: 25
38054 987877 CTTTCAATTCCTTTGTGGATTTATC CCATATCCACAACCTAGAACTCCACTAAGACGTATTCGTAT spacer
length: 41 repeater length: 25
38055 987944 CTTTCAATTCCTTTGTGGATTTATC CTTTTTTTGATAATGTAACGATGTCATTGATAAGAGATT spacer
length: 38 repeater length: 25
38056 988008 CTTTCAATTCCTTTGTGGATTTATC AAAGACTTGAAACAAGAGATGGAAAATTCTGAATCAATTA spacer
length: 40 repeater length: 25
38057 988074 CTTTCAATTCCTTTGTGGATTTATC GGAGGAGAGTACGAGGAAGTTGGAGCAAGCTGTACAAGAA
38058
38059
38060 crispr 12
38061 929037 CTTTCAATTCTATAGGAGATTAGCT TTACAGTATTTGCAATCATTAACCTAACGCACCGGAATTAGCTGAT
spacer length: 45 repeater length: 25
38062 929108 CTTTCAATTCTATAGGAGATTAGCT AAGCATAGAACTGCGCCAGTTGTATTAAGGACTTCCA spacer
length: 37 repeater length: 25
38063 929171 CTTTCAATTCTATAGGAGATTAGCT AAGCTTACTATATCTTTTAGCCCAATAGCGTAACAAC
38064
38065
38066 crispr 13
38067 996515 GATAAATCCTAAAAGGAATTGAAAG TAAATGATGAGTGCCCAGAACAAATTATACCAATTATTAGTT spacer
length: 42 repeater length: 25
38068 996583 GATAAATCCTAAAAGGAATTGAAAG TCATTGTAATAAACACCGCCGATAAACTATTATATA spacer
length: 38 repeater length: 25
38069 996647 GATAAATCCTAAAAGGAATTGAAAG TTGTATTTCATCGTACTAATATACTTCATCGTAGGTATC spacer
length: 38 repeater length: 25
38070 996711 GATAAATCCTAAAAGGAATTGAAAG CCTTCGGAATTACAGTTATATACACAAACGCCTACACTATTATC spacer
length: 44 repeater length: 25
38071 996781 GATAAATCCTAAAAGGAATTGAAAG AAGTTGTCAAAAAGGTTGCCAAACCGCAATCATTATTA spacer
length: 38 repeater length: 25
38072 996845 GATAAATCCTAAAAGGAATTGAAAG AGAATTAAAAAGACAGCAGGTGGATTTATTAAGAAGAA spacer
length: 38 repeater length: 25
38073 996909 GATAAATCCTAAAAGGAATTGAAAG ATAAAATTAGGAGGTGTGTGTGAGTCTGTCTTTATTTTG spacer
length: 39 repeater length: 25
38074 996974 GATAAATCCTAAAAGGAATTGAAAG GTAATAAACACTCCTACCCATAATTTATGGGTACCATCCT spacer
length: 41 repeater length: 25
38075 997041 GATAAATCCTAAAAGGAATTGAAAG ATACTTATATGCGAAAAGAGTGGTTCTCGGAGAGTAAGGG spacer
length: 40 repeater length: 25
38076 997107 GATAAATCCTAAAAGGAATTGAAAG TTAAGTTGGTGGACCAGCTCGTTTCCTCTGATAAACCTA spacer
length: 39 repeater length: 25
38077 997172 GATAAATCCTAAAAGGAATTGAAAG GCTATTTCAGTCCAGTTTCAATTAGAGATGTGATTATAG spacer
length: 38 repeater length: 25

38078 997236 GATAAATCCTAAAAGGAATTGAAAG ATATACTCTGTTCTCTGTATATTCATTTTTGAACGACAT spacer
length: 39 repeater length: 25

38079 997301 GATAAATCCTAAAAGGAATTGAAAG AATTATTATAAGCATATTGAGAAATTGCAGAAGGATCCA spacer
length: 39 repeater length: 25

38080 997366 GATAAATCCTAAAAGGAATTGAAAG CTGACTTGTAATGGTACCATAACGCCAACAGTTTTTCAA spacer
length: 39 repeater length: 25

38081 997431 GATAAATCCTAAAAGGAATTGAAAG AGAACGATTGTTTGACGGCCGAGTTTAACCTAACGACGAT spacer
length: 40 repeater length: 25

38082 997497 GATAAATCCTAAAAGGAATTGAAAG AGAAAATCAATGTTCAAAATCACAAAGAAAATATTTGTT spacer
length: 39 repeater length: 25

38083 997562 GATAAATCCTAAAAGGAATTGAAAG TATAACTTCCTCGATACTAATCATTCTCTTTCACCTCTT spacer
length: 39 repeater length: 25

38084 997627 GATAAATCCTAAAAGGAATTGAAAG CTTAACGCATTTAGAGGCAATGCATTAAGTAAATTAAT spacer
length: 39 repeater length: 25

38085 997692 GATAAATCCTAAAAGGAATTGAAAG ATATTGCCGAATTAGCCTTAAATATCTCATCTAGGAA spacer
length: 37 repeater length: 25

38086 997755 GATAAATCCTAAAAGGAATTGAAAG TTTGCTACCAGTTTCATCAAATTCACATAATAGTCTA spacer
length: 37 repeater length: 25

38087 997818 GATAAATCCTAAAAGGAATTGAAAG TCATACATCCTCACTTTCTTGCCGTTCAAATATATTTT spacer
length: 38 repeater length: 25

38088 997882 GATAAATCCTAAAAGGAATTGAAAG TTTGTTAGCTCTAAGTGAAGTCGCAACTTTTTAGTTTCG spacer
length: 39 repeater length: 25

38089 997947 GATAAATCCTAAAAGGAATTGAAAG GGTCTTGCACCCGATGGGAATGCTATTATTCGCTGATTC spacer
length: 40 repeater length: 25

38090 998013 GATAAATCCTAAAAGGAATTGAAAG AATCCTTATAATTATTATATTAATTATTGCCTTCG spacer length:
35 repeater length: 25

38091 998074 GATAAATCCTAAAAGGAATTGAAAG AGATAAAAACAACATCTCATTTTTTACAAAATATTAT spacer
length: 38 repeater length: 25

38092 998138 GATAAATCCTAAAAGGAATTGAAAG AAGTTGATGCTAACATTGCCAAATCCATCATCACCAGA spacer
length: 38 repeater length: 25

38093 998202 GATAAATCCTAAAAGGAATTGAAAG GAGGTACCTAACACATTTGAGGGAGTGTTTCATGTTTCAGATAGGG spacer
length: 44 repeater length: 25

38094 998272 GATAAATCCTAAAAGGAATTGAAAG AAGATTGAAAGGAATTGCGACAGTGAACTAAGGGATA spacer
length: 38 repeater length: 25

38095 998336 GATAAATCCTAAAAGGAATTGAAAG TAAATTTTTGCATAAATATTATAGTTTCTATCCATCACA spacer
length: 39 repeater length: 25

38096 998401 GATAAATCCTAAAAGGAATTGAAAG CTTATGTTTCATAATCTCAATATCTAATTCTGTCAAAT spacer
length: 37 repeater length: 25

38097 998464 GATAAATCCTAAAAGGAATTGAAAG CTTACGGGGTAACCCCGTTATATGCCCTATGGCTAGCTGAAG spacer
length: 43 repeater length: 25

38098 998533 GATAAATCCTAAAAGGAATTGAAAG TTATATATTCTAACCCCTTCTTGATAAAACCCTTGGATTG spacer
length: 39 repeater length: 25

38099 998598 GATAAATCCTAAAAGGAATTGAAAG GTACTTGTTCCCTTCAACACCCATCCGTGGGGGACCACCCA spacer
length: 41 repeater length: 25

38100 998665 GATAAATCCTAAAAGGAATTGAAAG ACATATGTCTCTACGATTGTTGATCCAAGAGTTGTGATA spacer
length: 39 repeater length: 25

38101 998730 GATAAATCCTAAAAGGAATTGAAAG
TGGACTTCCTTATGCCAATATGCCACTGTAATTAAGAAGATAAATTCTAAAAGGAATTGAAAGTACGTCTACTTCAACTAAAGAT
ATAAAAGCTTTTCGCT spacer length: 102 repeater length: 25

38102 998858 GATAAATCCTAAAAGGAATTGAAAG GCAATAATCTCAGTGTATACTCTTTCGCAAATAAGTACGCA spacer
length: 42 repeater length: 25

38103 998926 GATAAATCCTAAAAGGAATTGAAAG TAAGAATTGCCTAACAATTCGTTGCACAGCATAATCA spacer
length: 37 repeater length: 25

38104 998989 GATAAATCCTAAAAGGAATTGAAAG CACAAAATATAGCGATATATTACACACCTGTAACACTAT spacer
length: 39 repeater length: 25

38105 999054 GATAAATCCTAAAAGGAATTGAAAG GATTATCATTCATCTAACGCCGTCAACACCAAGCCCACCA spacer
length: 40 repeater length: 25

38106 999120 GATAAATCCTAAAAGGAATTGAAAG AAATAGATGCTTACTATCTCCAATGCTCTGGGGGAGATGT spacer
length: 40 repeater length: 25

38107 999186 GATAAATCCTAAAAGGAATTGAAAG TCAAACGGTGGCATCAGTTGGTGGATAACGGGTGTACCC spacer
length: 39 repeater length: 25

38108 999251 GATAAATCCTAAAAGGAATTGAAAG GGCCACCACTCCTCTCGCAAATTCAGTTATAGTTAATC spacer
length: 38 repeater length: 25

38109 999315 GATAAATCCTAAAAGGAATTGAAAG TTTTTCACAACCTACCGTATTTTCTTCGATTATAA spacer length:
35 repeater length: 25

38110 999376 GATAAATCCTAAAAGGAATTGAAAG TCGTCATACACATGGAGCCTTGCATACTCTGTGTAGTTA spacer
length: 39 repeater length: 25

38111 999441 GATAAATCCTAAAAGGAATTGAAAG CTATCTCCCTCAGCAGTAACAATGTAAAAATAGCGATA spacer
length: 38 repeater length: 25

38112 999505 GATAAATCCTAAAAGGAATTGAAAG ACGAGGAAGTTGGAGCAAGCTGTACAAGAACTTATTGA

38113

38114
38115 crispr 14
38116 974759 GATAAATCCTACAAGGAATTGAAAG ACTAGAATCATTCTATTGATATTGGAAATATTTATGTT spacer
length: 39 repeater length: 25
38117 974824 GATAAATCCTACAAGGAATTGAAAG ATAAAATTACGAAAATAATAAAGTTCCCGAAAAGC spacer length:
35 repeater length: 25
38118 974885 GATAAATCCTACAAGGAATTGAAAG ATAACTGTGTTTATGTGTTAGCGTTTTGGAATGAGGGGTA spacer
length: 40 repeater length: 25
38119 974951 GATAAATCCTACAAGGAATTGAAAG CATTCAAATCCATTTAACTTCAACACTTCCTCAACAGCA spacer
length: 39 repeater length: 25
38120 975016 GATAAATCCTACAAGGAATTGAAAG AAGCTTCTCACC GCAATCCAGCTTCTGATATCGGCAAA spacer
length: 38 repeater length: 25
38121 975080 GATAAATCCTACAAGGAATTGAAAG GTATCAGTAACATCTAGTGGTATGGTGACGTTAACGGTA spacer
length: 39 repeater length: 25
38122 975145 GATAAATCCTACAAGGAATTGAAAG TTTCAACACAAACGCTATCGCTTTATCGTTAACT spacer length:
34 repeater length: 25
38123 975205 GATAAATCCTACAAGGAATTGAAAG TTTTCTTATTCTATTTAATATTTAATATCTTTTTCTA spacer
length: 37 repeater length: 25
38124 975268 GATAAATCCTACAAGGAATTGAAAG AGAGCATAAACCGCATCATCTAAAATTTTTTGCTTTGA spacer
length: 38 repeater length: 25
38125 975332 GATAAATCCTACAAGGAATTGAAAG AACACATTGGCAGTGTTATGCTATCACCCACGTTGTCAC spacer
length: 39 repeater length: 25
38126 975397 GATAAATCCTACAAGGAATTGAAAG AAATAAGAAGTTATCCATTTGTTATTTGTATCGGA spacer length:
35 repeater length: 25
38127 975458 GATAAATCCTACAAGGAATTGAAAG ACAATATACTCAATTTCAATTTTCATGTTTTGACTTAT spacer
length: 38 repeater length: 25
38128 975522 GATAAATCCTACAAGGAATTGAAAG GCTCTTTCTCTAGCTGTTTATCTTTGCGCTTTTCAATTT spacer
length: 39 repeater length: 25
38129 975587 GATAAATCCTACAAGGAATTGAAAG CACAGTAACTGTAGCAGCAGCGCCAACTTGAATGTTTAC spacer
length: 39 repeater length: 25
38130 975652 GATAAATCCTACAAGGAATTGAAAG TAGCGTTACAGATGTTGTACCTCCAGCATTTCCACTTGT spacer
length: 39 repeater length: 25
38131 975717 GATAAATCCTACAAGGAATTGAAAG TATAACTTTAGAACTTTTTT CAGAATATGTCTGAGCACT spacer
length: 38 repeater length: 25
38132 975781 GATAAATCCTACAAGGAATTGAAAG TTTAAAATAATAATATGTCATTAGATAATTATTTA spacer length:
35 repeater length: 25
38133 975842 GATAAATCCTACAAGGAATTGAAAG TACAAAAAACTACTCTATCTTTGAGCTGAACTGCGAG spacer
length: 38 repeater length: 25
38134 975906 GATAAATCCTACAAGGAATTGAAAG TTAATTATTTCTACCGAGTCTGTTGACAAGTCCCTA spacer length:
36 repeater length: 25
38135 975968 GATAAATCCTACAAGGAATTGAAAG GTTGAGGAGATTAACGCGTTGCCTCCTATAGCGTCCCT spacer
length: 38 repeater length: 25
38136 976032 GATAAATCCTACAAGGAATTGAAAG TATGCCAGCTCTTCTCAGACTAACATTTGGAATTACTAT spacer
length: 39 repeater length: 25
38137 976097 GATAAATCCTACAAGGAATTGAAAG AGTTTGAATTTTTT CACAAAGTGATCTATATTCATTTTTTA spacer
length: 40 repeater length: 25
38138 976163 GATAAATCCTACAAGGAATTGAAAG TCCACTTCACTTACGATTAAATCTTCATTTAAAAAACGT spacer
length: 39 repeater length: 25
38139 976228 GATAAATCCTACAAGGAATTGAAAG GATGACATAATAAATATTGT CAGAAGAACTGAATACCC spacer
length: 38 repeater length: 25
38140 976292 GATAAATCCTACAAGGAATTGAAAG TTTCTTTTAGCTCTTCTACGGGTATGGATACTCGCTTAGAC spacer
length: 40 repeater length: 25
38141 976358 GATAAATCCTACAAGGAATTGAAAG AAAACATCGTCTCATCCAGATAGAAATGATTTGTAAT spacer
length: 38 repeater length: 25
38142 976422 GATAAATCCTACAAGGAATTGAAAG TCCCATACTTTCCATGACCACTGCCCCAAGATTAA spacer length:
34 repeater length: 25
38143 976482 GATAAATCCTACAAGGAATTGAAAG CTGAATACTTCTAGTATTTTCTTCCAATCTCTTT
38144
38145
38146 crispr 15
38147 937815 GCTAATCTCTTATAGAATTGAAAGG GTCTAGGGCATCGAAGATACTGGCTATCGTGGGTACGTC spacer
length: 39 repeater length: 25
38148 937880 GCTAATCTCTTATAGAATTGAAAGG CACAACAGACAATTAGCTTAGAAGTCACTGACCCTGCCA spacer
length: 39 repeater length: 25
38149 937945 GCTAATCTCTTATAGAATTGAAAGG CGGTGAATGAACATTCTGAAGCAATAAGGGGATTGCAGA
38150
38151
38152 crispr 16
38153 977053 GATAAATCCTAGAAGAAATTGAAAGAC AAAATATACGGCAGTGC GCGCTGGGTACATCACAAG spacer
length: 36 repeater length: 27
38154 977117 GATAAATCCTAGAAGAAATTGAAAGAC ATCATCCCATTTTGCTCTAGGAGATGGCATCAACCA spacer

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length: 36 repeater length: 27
38155 977181 GATAAATCCTAGAAAGAAATTGAAAGAC TAAAGCCTTATCAAGCTCACCTTCTCTTCATAAAT
38156
38157
38158 crispr 17
38159 717753 ATTGCTTCTCCTTGTTTTTTCACCTCTT
GTTGTAGCGATGTTATTGCTTCTCCGTGTCTCTTGACTTCCTCTTGTTAGCGATGTTATTGCTTCTCCGTGTCTCTTAACTTCTTGT
TGTAATGATAC spacer length: 97 repeater length: 28
38160 717879 ATTGCTTCTCCTTGTTTTTTCACCTCTT
CTTGTAAGATTTTACTGCCTCTTGTTAGCGATGTTATTGCTTCTCCATGCCTCTTGACTTCTTCTTGTAAGATTTTACTGCCTCT
TGTTAGCGATAC spacer length: 97 repeater length: 28
38161 718005 ATTGCTTCTCCTTGTTTTTTCACCTCTT
GTTGTAGCGATGTTATTGCTTCTCCGTGTCTCTTAACTTCTTGTGTAATGATAC spacer length: 55 repeater
length: 28
38162 718089 ATTGCTTCTCCTTGTTTTTTCACCTCTT
TGTTTCATGCTGGAAAGACAGTAGAAATACAGGGTAAATCCTAAAAGGAATTGAAA
38163
38164
38165 crispr 18
38166 828118 TCTATTCTTTTCGAGTGTTCTTCTAGAA TTCTCGAATGCTCCTCAACTCTTTTAGTTAGTTC spacer
length: 34 repeater length: 28
38167 828181 TCTATTCTTTTCGAGTGTTCTTCTAGAA TTTTGTAGTGCTCCTCCACCCTTTTGGCCAACTC spacer
length: 34 repeater length: 28
38168 828244 TCTATTCTTTTCGAGTGTTCTTCTAGAA
TTTTTGAGTGCTCCTCAATTCTCTTCGCTAATTCCTCCACCCTTCTGGTTAGTTC spacer length: 55 repeater
length: 28
38169 828328 TCTATTCTTTTCGAGTGTTCTTCTAGAA TTCTCGAATGCTCCTCAACTCTTTTAGTTAGTTC spacer
length: 34 repeater length: 28
38170 828391 TCTATTCTTTTCGAGTGTTCTTCTAGAA TTTTGTAGTGCTCCTCCACCCTTTTGGCCAACTC spacer
length: 34 repeater length: 28
38171 828454 TCTATTCTTTTCGAGTGTTCTTCTAGAA GTCATTCCCAACGCTTACTGTAACAGATAAATCC
38172
38173
38174 crispr 19
38175 717873 GATACAATTGCTTCTCCTTGTTTTTTCACCTCTT
CTTGTAAGATTTTACTGCCTCTTGTTAGCGATGTTATTGCTTCTCCATGCCTCTTGACTTCTTCTTGTAAGATTTTACTGCCTCT
TGTTAG spacer length: 91 repeater length: 34
38176 717999 GATACAATTGCTTCTCCTTGTTTTTTCACCTCTT
GTTGTAGCGATGTTATTGCTTCTCCGTGTCTCTTAACTTCTTGTGTA spacer length: 49 repeater length:
34
38177 718083 GATACAATTGCTTCTCCTTGTTTTTTCACCTCTT
CCTATTTATTGTTGGCTTATTCTATTGATCAATCCCGAAACGAATTGAA
38178
38179
38180 crispr 20
38181 686899 CAGAAAAACATGATGAAAGAATAGCGAAATTGGAGGA
GAGTACGAGGAAGTTGGAGCAAGCTGTACAAGAAGTTATTGAGGG spacer length: 45 repeater length: 38
38182 686983 CAGAAAAACATGATGAAAGAATAGCGAAATTGGAGGA
ATCAATACAAAAATTAGTGGATGCTCAAAGAAGGGCGAGGAAAGGATATCTAAACTTGAAAATGCGGTTGAGCAACTTATTGAGG
G spacer length: 87 repeater length: 38
38183 687109 CAGAAAAACATGATGAAAGAATAGCGAAATTGGAGGA
ACTCCACCTATCACCTAACTGTGCTAATCTCTTATAGAATTGAAAGCAAGTTCTTAGCACAGTAGCGGTAGAGAAACCATAACT
T
38184
38185
38186 crispr 21
38187 894594 CCTAATACTTAAAGCCTCATTATAGTACTCTAAAGCCTTA
TCGTAATCACCTTCTCTTTATAACAAGACCAATGTTATGTAACGTACCTGCAACATCTGGGTGATTCCCTACCATATACCTTCT
spacer length: 85 repeater length: 40
38188 894720 CCTAATACTTAAAGCCTCATTATAGTACTCTAAAGCCTTA
TCGTAATCACCTTATTTACATAGACATTTCCCAATGTTATTCAATGTGTCCGCAACTTTTGGATGATCCCTACCATATACCTTCT
spacer length: 85 repeater length: 40
38189 894846 CCTAATACTTAAAGCCTCATTATAGTACTCTAAAGCCTTA
TAGAAGTCACTGACCCTGCCAGGCTAATCTCTTATAGAATTGAAAGGAAATATTGGCATAAACCGAGACATTGTAGACTTCTGGA
38190
38191
38192 GCA_009602405.1_ASM960240v1_genomic.fna(findCrispr):
38193 START REPEAT
SPACER
38194 crispr 1
38195 2060800 TTTAAGTCCTCTTTCGTAGCCA

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TCGCCTTTAGATCCTCCTTTGTAGCCATCACGCTCTTAATTTCCCTCCACAGCCCTATCCAGCCTATCAACGTCTTGCTTCGTAGCC
ATCGA spacer length: 91 repeater length: 22
2060914 TTTAAGTCCTCTTTTCGTAGCCA
TCGCCTTTAGATCCTCCTTTGTAGCCATCACGCTCTTAATTTCCCTCCACAGCCCTATCCAGCCTATCAACGTCTTGCTTCGTAGCC
ATCACGCTCTTAATTTCAATTAATATCCTTTTCTAGACT spacer length: 124 repeater length: 22
2061061 TTTAAGTCCTCTTTTCGTAGCCA
TCTCTCTCCAAAAAGAAATTGAAAGACATTCCAGAATAATTCTTAGACTAGTTAGGAGTCAAAGAAGTTCTCAGTCGAGTTGGGT
AGTTTTACTTTCGAGGGCTGGTAAAGGGTTTGAAGGAC

crispr 2

1750866 CTTCCAATTCCTGTACGGATTTATC TATAACCTTGCGAATACTTGGGATGTGTTGATAAGAC spacer
length: 37 repeater length: 25
1750929 CTTCCAATTCCTGTACGGATTTATC CAAAGGTTGGTTCAAAGGGGCTAATAGAAGTAAAAT spacer
length: 37 repeater length: 25
1750992 CTTCCAATTCCTGTACGGATTTATC AATACAATACTAGCATGAGCAACATGTCTCAATCTAATT spacer
length: 39 repeater length: 25
1751057 CTTCCAATTCCTGTACGGATTTATC CCAATCACTTGTTTTTCTACTACTCCTTCCGCAATATT spacer
length: 39 repeater length: 25
1751122 CTTCCAATTCCTGTACGGATTTATC TATTATATGACAAGAGGTAAATAGCTTATGATATTCAAG spacer
length: 39 repeater length: 25
1751187 CTTCCAATTCCTGTACGGATTTATC CATTACATTAATCATAACCTTGTACTGCCAACTGATAT spacer
length: 38 repeater length: 25
1751251 CTTCCAATTCCTGTACGGATTTATC AGCCGTAGGGGTCGAGAATGACGATAATTCGGCGTCAT spacer
length: 38 repeater length: 25
1751315 CTTCCAATTCCTGTACGGATTTATC GTCGCGTTAAAAGCTTTTGATGATAGGATCGTTACGATT spacer
length: 39 repeater length: 25
1751380 CTTCCAATTCCTGTACGGATTTATC ATTACAACAAGAAGTTAAGAGACACGGAGAAGCAATAAC

crispr 3

1976035 AAAAGAATAGAGGAGTTGGCCAAAAG AGTTGAGGAGCATTCGAGAATTCTAGAAGAACATTC spacer
length: 36 repeater length: 26
1976098 AAAAGAATAGAGGAGTTGGCCAAAAG
GGTGAGGAATTAGCGAAGAGAATTGAGGAGCACTCAAAAATTCTAGAAGAACATTC spacer length: 57 repeater
length: 26
1976182 AAAAGAATAGAGGAGTTGGCCAAAAG
TACAACAAGAAGTTAAGAGACACGGAGAAGCAATAACATCGCTACAAGAAGAGGTGA

crispr 4

1326383 TACAAGAGGCAGTAAAATCTTTACAAGAAGA
GGTGAAAAACAAGGAGAAGCAATTGTATCATTACAACAAGAAGTTAAGAGACACGGAGAAGCAATAACATCGCTACAACAAGAGG
TGAAAAACAAGGAGAAGCAATTGTATCA spacer length: 115 repeater length: 31
1326530 TACAAGAGGCAGTAAAATCTTTACAAGAAGA
AGTCAAGAGGCATGGAGAAGCAATAGTATCATTTGCAACAAGAAGTCAAGAGGCATGGAGAAGCAATAGTATCG spacer
length: 73 repeater length: 31
1326635 TACAAGAGGCAGTAAAATCTTTACAAGAAGA
AGGAATTAGCGAAGAGAATTGAGGAGCACTCAAAAATTCTAGAAGAACACTCGAAAAGAATAGAAGAACTAAC

crispr 5

1361961 TTCGCTATTCTTTTCATCATGCTTTTTTCTGACCCTCAATAA
GTTGCTCAACCGCATTTTCAAGTTTAGATATCCTTTCCCTCCGCCCTTCTTTGAGCATCCACTAATTTTTGTATTGATTCTCTCAA
spacer length: 85 repeater length: 40
1362087 TTCGCTATTCTTTTCATCATGCTTTTTTCTGACCCTCAATAA
GTTCTTGACAGCTTGCTCCAACTTCCTCGTACTCTCCTCCAA spacer length: 43 repeater length: 40
1362171 TTCGCTATTCTTTTCATCATGCTTTTTTCTGACCCTCAATAA
AGAGACACGGAGAAGCAATAACATCGCTACAAGAAGAGGTGAA

GCA_009617975.1_ASM961797v1_genomic.fna(findCrispr):

START REPEAT
SPACER

GCA_009690625.1_ASM969062v1_genomic.fna(findCrispr):

START REPEAT
SPACER

crispr 1

2415187 GGTGTTTCGACGATGACTGACG ACAGGAACGAATCGTCGAGCTCGGGACGCTTCGCCTCC spacer length:
38 repeater length: 21
2415247 GGTGTTTCGACGATGACTGACG

ACAGGAACGAATCGTTCGAGCTCACCAGACGAGCGAAGCGAGTCTGGGGGTGTTCCAATGAGCGAACGAAGTGAGCGAATTGGAGCT
 CGCCGGAACGGCGTTCCGG spacer length: 105 repeater length: 21
 38237 2415374 GGTGTTTCGACGATGACTGACG
 GCTCGGATCGTACCGACTCCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCGTCCTCGAAGACGCGCTTGATAGACCG
 ATCGAGGATCTCAAGGCGT
 38238
 38239
 38240 crispr 2
 38241 1203412 GGTTCAAATCCCAGCCCCACCG
 CTTGTGAGGCAACGAACGTGACTGAACAGCGGTGCAACTGGGGTTGCGCCCTGCCAGTCGCAGTCCCGGAACGGCCGAGCAACGCG
 AGGCCGCGATGCCCGGAACGTCTGGCTC spacer length: 113 repeater length: 22
 38242 1203548 GGTTCAAATCCCAGCCCCACCG
 CTTGTGTGGGAACGAACGTGACCGAACAGGGGTGCAACTGGATTGTAAGTAGAGAAGGTGGAGCGTGAGCGTAGCGAACGACCACC
 TTCGCG spacer length: 92 repeater length: 22
 38243 1203663 GGTTCAAATCCCAGCCCCACCG
 TCGGATCGTACCGACTCCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCGTCCTCGAAGACGCGCTTGATAGACCGAT
 CGAGGA
 38244
 38245
 38246 crispr 3
 38247 1052656 GTTCAAATCCGGTCCCGCGCAT
 TTTGCGGCGAACAATACGTGAGCCGCAAATGCCGAATGAGGATTTGAACCTGGAAGTCACAGCCCGGAAGCCGAGCAAAGCGAG
 GCGAGCCGGAATGTCTTCCTTC spacer length: 108 repeater length: 22
 38248 1052787 GTTCAAATCCGGTCCCGCGCAT
 GAGCGAACGAAGTGAGCGAAGAGCAGGAGCGGATTTGTGGTAGACCGAGGTTCTGCGCCGAAGGCGCAGGTTCTCGGGCGT
 spacer length: 81 repeater length: 22
 38249 1052891 GTTCAAATCCGGTCCCGCGCAT
 CGGATCGTACCGACTCCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCGTCCTCGAAGACGCGCTTGATAGAC
 38250
 38251
 38252 crispr 4
 38253 642797 ACGGGCGCTGAGGGATTTGAACC
 AAATGGAGACGGTTCGCTCACTTCGTTTCGCGCTGCGACTCCCCGGGTTCAAATGCCTCAGATGGCGCATTTGCTGCTCACAGTTTGT
 TCGCAGCAAAATGC spacer length: 100 repeater length: 23
 38254 642921 ACGGGCGCTGAGGGATTTGAACC
 GAACCCAGACGTGCTTGCTCCGCTGCGCGCGACTGGCAGGGTTCAAATCCGCAGTGCCGGTTCGCTCGACGGTTCGCATCGCTCAC
 CGTCTCACTG spacer length: 96 repeater length: 23
 38255 643041 ACGGGCGCTGAGGGATTTGAACC
 GATCGTACCGACTCCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCGTCCTCGAAGACGCGCTTGATAGACCGATCGA
 GGATCTCAAG
 38256
 38257
 38258 crispr 5
 38259 1029592 CCCGTTTCGGTGGGCCTTGCTCGTC AGTGGTTGGCGGCCAGCGG spacer length: 20 repeater
 length: 24
 38260 1029637 CCCGTTTCGGTGGGCCTTGCTCGTC AGTGGTTGGCGGCCAGCGG spacer length: 20 repeater
 length: 24
 38261 1029682 CCCGTTTCGGTGGGCCTTGCTCGTC AGTGGCTGGTGGCCCGGCAG spacer length: 20 repeater
 length: 24
 38262 1029727 CCCGTTTCGGTGGGCCTTGCTCGTC ATCCTCGCTTCGCTCGGATC
 38263
 38264
 38265 crispr 6
 38266 2104952 GCTTCAACCCCAAGGGTCCGTCTGAAAC TCGTCAACTGCAATCATATGATCGAGTACTCCCGA spacer
 length: 35 repeater length: 30
 38267 2105018 GCTTCAACCCCAAGGGTCCGTCTGAAAC GTGGCTCCGGTGCAAACGATGGGATCGGTTCGGTCG spacer
 length: 35 repeater length: 30
 38268 2105084 GCTTCAACCCCAAGGGTCCGTCTGAAAC ACGGGACCATGCTATTCGATCTCGACGACCTCGACGA spacer
 length: 37 repeater length: 30
 38269 2105152 GCTTCAACCCCAAGGGTCCGTCTGAAAC AGCGACAAAAGCGGGAGTGTGACACTCGGCCCCG spacer
 length: 34 repeater length: 30
 38270 2105217 GCTTCAACCCCAAGGGTCCGTCTGAAAC CATGAACATGGTTTCGCCGTCCATATCCATACTA spacer
 length: 34 repeater length: 30
 38271 2105282 GCTTCAACCCCAAGGGTCCGTCTGAAAC CCGGGTCAGGTGTCAATAGAACAACTTGCGTGAAGT spacer
 length: 36 repeater length: 30
 38272 2105349 GCTTCAACCCCAAGGGTCCGTCTGAAAC TAAGATGTCGCCGACGAACCTCGTGGATGTCTGGGT spacer
 length: 35 repeater length: 30
 38273 2105415 GCTTCAACCCCAAGGGTCCGTCTGAAAC GACCGAACAGGTCGTCATGAGACCGCTGAAAATATCC spacer
 length: 38 repeater length: 30
 38274 2105484 GCTTCAACCCCAAGGGTCCGTCTGAAAC CGAAACCAGAGAATCTATCGGCACGGCACAAGT spacer
 length: 33 repeater length: 30

38275 2105548 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CAGTCTTGGACTCCAGTTTGTAGCGGTCTGCCAC spacer
length: 35 repeater length: 30
38276 2105614 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CTTCAGAATAATTAGATATGTGGTACTGTTGCGT spacer
length: 34 repeater length: 30
38277 2105679 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC AATGAGCCTGGGTGGCTGGGCGACGACCAACCGCC spacer
length: 35 repeater length: 30
38278 2105745 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CCGGGCCACCCTTTGTGCTGCGCTCCTCGGTG spacer
length: 34 repeater length: 30
38279 2105810 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC ATCGTTGCGAGCGATGAACGAGAGGACGTCCCAGG spacer
length: 35 repeater length: 30
38280 2105876 GCTTCAACCCCAACAAGGGTCCGTCTGAAAC CGACTCCTCACATGAAGTCCGCGATCCCCGTCTGC
38281
38282
38283 crispr 7
38284 269741 ATGCGGCGACGGGCGAGAAAGAGTGGGCCTT
CGAGACTGGCAATTGGATCACCTCGCGAATATCCAGCCCGACGGTAGCCGATGGGACTGTCTTCGTGCGGAGTGATGACTGCAACC
TCTACGCGCTG spacer length: 97 repeater length: 31
38285 269870 ATGCGGCGACGGGCGAGAAAGAGTGGGCCTT
TGAGACGGGCGCTGAGGTGAAGTCGTACCGACGGTGGTAGATGGGACTGTCTTCGTGCGGAGTGATGACTACACCCTCTATGCGC
TG spacer length: 88 repeater length: 31
38286 269990 ATGCGGCGACGGGCGAGAAAGAGTGGGCCTT
TTCGCTCGGATCGTACCGACTCCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCGTCCTCGAAGACGCGCTTGATAGA
CC
38287
38288
38289 crispr 8
38290 2265352 CGCTCACTGCGTTCGCGACCGCTCGCGCAAAAATCTGGAC
CAAAAAAACCATCCTCGCTTCGCTCGGATCGTACCGACTTCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCTCTCC
CACCTTTTCCGCTCGGGG spacer length: 105 repeater length: 40
38291 2265498 CGCTCACTGCGTTCGCGACCGCTCGCGCAAAAATCTGGAC
CAAAAAAACCATCCTCGCTTCGCTTCGGATCGTACCGACTCCTCACATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCTCTC
CCACCTTTTCCGCTCGGGG spacer length: 106 repeater length: 40
38292 2265645 CGCTCACTGCGTTCGCGACCGCTCGCGCAAAAATCTGGAC
ATGAAGTCCGCGATCCCCGTCTGCTTGCTCGTATCGTCCTCGAAGACGCGCTTGATAGACCGATCGAGGATCTCAAGGCGTTGTTT
CGTGTACTCTCTGGCACCGA
38293
38294
38295 GCA_009729015.1_ASM972901v1_genomic.fna(findCrispr):
38296 START REPEAT
SPACER
38297 crispr 1
38298 597946 ATTGCTTCTCCTTGCTTTTT
GACAGCCTCTTGAAGTGCAGTTATTGCTTCTGTATGCTTATTCACAGTCTCTTGAAGCGACTTAACAGTCTCTTGTAAGACGCAA
TTGCTTCTCCCTGTTTCTTGACAGTCTCCTGAAGTGATGC spacer length: 126 repeater length: 20
38299 598093 ATTGCTTCTCCTTGCTTTTT
AACTGCCTCTTGAGTGATGCGATCGCCTCTGTATGCTTATTAACGGTTTCCTGTAAAGATTTTACGGCTTCTTGAAGTGCAGTTA
TTGCTTCTGTGTGCTTATTACTGTTTCTTGAAGCGACTTAACAGTCTCTTGTAGAGACGC spacer length: 147
repeater length: 20
38300 598261 ATTGCTTCTCCTTGCTTTTT
GACAGCCTCCTGAAGTGATGCTATCGCCTCACTGTGTTTTATTTGACGCTTCTCTTAGCGATTTTATTTCTTGTTGTAGAGACAC
spacer length: 84 repeater length: 20
38301 598366 ATTGCTTCTCCTTGCTTTTT
ACGATTTATACTCAGATTAGTAACATAGTTATTACACTGTTAGATCTACATCAAATAATTTTCTAATATATTGCTTATATGAC
38302
38303
38304 crispr 2
38305 1540615 GCATCCCAAAAGGG ATTGAAAGAACTTTATACCCGCATCTTTGTCAATGTACACAAGTGCAGT spacer
length: 49 repeater length: 14
38306 1540679 GCATCCCAAAAGGG ATTGAAAGTATGACAGTTGACAAGAAATATAACATCGTTTTTACATATGT spacer
length: 50 repeater length: 14
38307 1540744 GCATCCCAAAAGGG ATTGAAAGAAAATCCACTTCTGTCCAAGAGATACTATGCTTATTAACGGT spacer
length: 50 repeater length: 14
38308 1540809 GCATCCCAAAAGGG ATTGAAAGATGTATGTTACGTGTTTGCCGTTGACGGACAGTACTTTGT spacer
length: 48 repeater length: 14
38309 1540872 GCATCCCAAAAGGG ATTGAAAGTAACATATTTGTCAACATAGGGTTTCGAAATCTTAATCTGT spacer
length: 49 repeater length: 14
38310 1540936 GCATCCCAAAAGGG ATTGAAAGTTTACTTATACAAAAAGAATACGAAGTGGAAATGGCTAGT spacer
length: 48 repeater length: 14
38311 1540999 GCATCCCAAAAGGG ATTGAAAGGTGTGTCACAAACAGACAACTTACTGTTATCCAACGTGGT spacer
length: 48 repeater length: 14
38312 1541062 GCATCCCAAAAGGG ATTGAAAGTAATAACTTAGAGATAAAAAATGAACTGAAGATAGAAGT spacer

length: 48 repeater length: 14
38313 1541125 GCATCCCAAAAGGG ATTGAAAGTTTTTCATCGCAATCACATTCTTCAAAAAATTCATCTAAGT spacer
length: 48 repeater length: 14
38314 1541188 GCATCCCAAAAGGG ATTGAAAGTTGATAATTATTGCGGCTATACATAAAATACTTCTAAAAGT spacer
length: 49 repeater length: 14
38315 1541252 GCATCCCAAAAGGG ATTGAAAGAAATTATTCATCAGTATAATTATTTGCATAATTTATGTATGT spacer
length: 51 repeater length: 14
38316 1541318 GCATCCCAAAAGGG ATTGAAAGCTCTCCTTCTTCACGTTTCATCAGTACGAAATTTAAACATGT spacer
length: 50 repeater length: 14
38317 1541383 GCATCCCAAAAGGG ATTGAAAGATTTACCCGCCGTCTTTAAATCCGTATTTGTATGCCTAGT spacer
length: 49 repeater length: 14
38318 1541447 GCATCCCAAAAGGG AAACGGAACAGAAGAAACATGGATAAAGGATGGTTGTGTAATAATTTTG
38319
38320
38321 crispr 3
38322 610746 GTTGAAATAAGGAAGAACTGAAAG CAGGAAGCGAAGAAAAAGAGTTTAGAAGTTCTA spacer length: 33
repeater length: 24
38323 610804 GTTGAAATAAGGAAGAACTGAAAG AAGCCCAAGTCCGAGAAATCAATGCTCAACCA spacer length: 32
repeater length: 24
38324 610861 GTTGAAATAAGGAAGAACTGAAAG TGAATACAATTATCCTACCACAAACGAATATCA spacer length: 33
repeater length: 24
38325 610919 GTTGAAATAAGGAAGAACTGAAAG CTATTCAAAGTTCTTCTAAGTTTGCCCTTTAAT spacer length: 33
repeater length: 24
38326 610977 GTTGAAATAAGGAAGAACTGAAAG GTAAAACTCCCCAGTTAACTGATAGAAATTAC spacer length: 33
repeater length: 24
38327 611035 GTTGAAATAAGGAAGAACTGAAAG ACATTTTCTCTTCTCTGCAGCACTTCTCATAT spacer length: 33
repeater length: 24
38328 611093 GTTGAAATAAGGAAGAACTGAAAG AATACGCTTCTTGTCCACATCAAAGGAGAGTAT spacer length: 33
repeater length: 24
38329 611151 GTTGAAATAAGGAAGAACTGAAAG TCAACTCAATTGGAGATGAACTGTTATCCAGGC spacer length: 33
repeater length: 24
38330 611209 GTTGAAATAAGGAAGAACTGAAAG TGCCTCTTTGCATATTCTCTTATTTGATCAAATT spacer length: 34
repeater length: 24
38331 611268 GTTGAAATAAGGAAGAACTGAAAG CTCTTTAAAGCTTCTCTTTGCTTAACTTCAGAA spacer length: 33
repeater length: 24
38332 611326 GTTGAAATAAGGAAGAACTGAAAG CCTTCCAAAAAATATCACCTTTACTTCATTAGG spacer length: 33
repeater length: 24
38333 611384 GTTGAAATAAGGAAGAACTGAAAG TCCTTGTA CTGTA CTCTCAAACGGTGTGATAGT spacer length: 33
repeater length: 24
38334 611442 GTTGAAATAAGGAAGAACTGAAAG CAAAATTGAGAAGGATGATGAATAAAAAATTATG spacer length: 34
repeater length: 24
38335 611501 GTTGAAATAAGGAAGAACTGAAAG CTGTTTACGCCAGTGTGTTAAACGACTTGATAGT spacer length: 34
repeater length: 24
38336 611560 GTTGAAATAAGGAAGAACTGAAAG ATATGTTACCGCTCTTGTGCGTGGATTCTGT spacer length: 33
repeater length: 24
38337 611618 GTTGAAATAAGGAAGAACTGAAAG TTTCGGAAACGGAAACAGTGTCTTCTACA spacer length: 29
repeater length: 24
38338 611672 GTTGAAATAAGGAAGAACTGAAAG ATTTAGCCCCCTCTGAAGGCGGGCTATAACAGTG spacer length: 33
repeater length: 24
38339 611730 GTTGAAATAAGGAAGAACTGAAAG CAGTGATCATCCAAACGAGGGGGTTGTACCTAAA spacer length: 34
repeater length: 24
38340 611789 GTTGAAATAAGGAAGAACTGAAAG TTATGTCGTCTATTAGTATTTTCTTAAGATTTT spacer length: 34
repeater length: 24
38341 611848 GTTGAAATAAGGAAGAACTGAAAG TGACAAATACTAAGATAATTCCTACATGTCTAT spacer length: 33
repeater length: 24
38342 611906 GTTGAAATAAGGAAGAACTGAAAG CTTAACTCCCGCCTCAATATATGTCGTGTTTTT spacer length: 33
repeater length: 24
38343 611964 GTTGAAATAAGGAAGAACTGAAAG TTATTCTCTGCACCACCGTTAGAGTCGTAGT spacer length: 31
repeater length: 24
38344 612020 GTTGAAATAAGGAAGAACTGAAAG TTCAACTCATTACATCGCTCTTCCTCGCGTAAGCT spacer length:
36 repeater length: 24
38345 612081 GTTGAAATAAGGAAGAACTGAAAG TTGGGTAAACGCCCTACTGTGACTTACGAATATC spacer length: 34
repeater length: 24
38346 612140 GTTGAAATAAGGAAGAACTGAAAG GAATTCGATAACCATGCTTATCTTCTTCCTTCTCA spacer length: 34
repeater length: 24
38347 612199 GTTGAAATAAGGAAGAACTGAAAG TTTATATCACCTCACTGTTGACTGATTAATTTG spacer length: 33
repeater length: 24
38348 612257 GTTGAAATAAGGAAGAACTGAAAG AATAATAAGGAGAATGAATAGGGGCTTCAACAGT spacer length: 34
repeater length: 24
38349 612316 GTTGAAATAAGGAAGAACTGAAAG CAGCGATTCTCTTTACCAAATCGATAACACGTGGG spacer length:
35 repeater length: 24

38350 612376 GTTGAATAAGGAAGAACTGAAAG TTCTCTTATGCAAATTTGTCACCAAGCACTTTC spacer length: 33
repeater length: 24
38351 612434 GTTGAATAAGGAAGAACTGAAAG TCAAACCAGACTCCTACGGCATAATAGCCTGGT spacer length: 33
repeater length: 24
38352 612492 GTTGAATAAGGAAGAACTGAAAG AGATATGTACATAACGAGAAGATATAAACATATTT spacer length:
35 repeater length: 24
38353 612552 GTTGAATAAGGAAGAACTGAAAG GTTTGTAAATGGGCGTTATAATTGTAACGTTTGC spacer length: 34
repeater length: 24
38354 612611 GTTGAATAAGGAAGAACTGAAAG ATTTCTTTTACCTCTACCTCCATCTTTTTTCCCC spacer length: 33
repeater length: 24
38355 612669 GTTGAATAAGGAAGAACTGAAAG AAAGGAGCTTATACAGCAAAAGAGCGTGGAATTC spacer length: 34
repeater length: 24
38356 612728 GTTGAATAAGGAAGAACTGAAAG TACTTTTTTGAAATACCAATCCATGAGGTATATC spacer length: 34
repeater length: 24
38357 612787 GTTGAATAAGGAAGAACTGAAAG ATTTGTGTTTTTTGAGACTTATTTTCGACTTTCATT spacer length:
36 repeater length: 24
38358 612848 GTTGAATAAGGAAGAACTGAAAG GAGACAAGAATTATGCCGAGAAGATGCTAAAGC spacer length: 33
repeater length: 24
38359 612906 GTTGAATAAGGAAGAACTGAAAG CCAAATACTTCCGCAAATTCGTCGCGTCAAAA spacer length: 33
repeater length: 24
38360 612964 GTTGAATAAGGAAGAACTGAAAG CATCTACCACAATTAAGTAATCTCCAATAATCATA spacer length:
35 repeater length: 24
38361 613024 GTTGAATAAGGAAGAACTGAAAG TTTTTCTGTCTACAACGCTACAATTACTTTCTCATC spacer length:
36 repeater length: 24
38362 613085 GTTGAATAAGGAAGAACTGAAAG TTGATAGTTTATAAGCAGTAGCTAGACCT spacer length: 29
repeater length: 24
38363 613139 GTTGAATAAGGAAGAACTGAAAG ACTTACTTCTCAAAATTCCTGGAGTATATTATC spacer length: 34
repeater length: 24
38364 613198 GTTGAATAAGGAAGAACTGAAAG AAATCATTCCACCACATGTGCACATACCCCCAAT spacer length: 34
repeater length: 24
38365 613257 GTTGAATAAGGAAGAACTGAAAG TCACTTTTTGGTGAAAAAGCCTTTTTTCTTTGA spacer length: 33
repeater length: 24
38366 613315 GTTGAATAAGGAAGAACTGAAAG CAGAAATGGTAGCACTTGGTGTAACAAATCCG spacer length: 32
repeater length: 24
38367 613372 GTTGAATAAGGAAGAACTGAAAG GGTGGTAGAGAAAACACAACCTCAGGGAAAA spacer length: 32
repeater length: 24
38368 613429 GTTGAATAAGGAAGAACTGAAAG TCAAATATTACTTTTTCTATTTCTCTTGATGGGG spacer length: 34
repeater length: 24
38369 613488 GTTGAATAAGGAAGAACTGAAAG ACTAGATAAAAGATTTGTGGAGATGTTTAAGATA spacer length: 34
repeater length: 24
38370 613547 GTTGAATAAGGAAGAACTGAAAG TGAAATCATAGTATTTATTGGGGATAAAAAATG spacer length: 33
repeater length: 24
38371 613605 GTTGAATAAGGAAGAACTGAAAG TCGTTTTTATAGTGCATTAGAAGGGATTTTGTGATA spacer length:
36 repeater length: 24
38372 613666 GTTGAATAAGGAAGAACTGAAAG CCGTCTTCTTCCCTTTATAGTTCGGTTACGAGT spacer length: 33
repeater length: 24
38373 613724 GTTGAATAAGGAAGAACTGAAAG TAAGCTGGAATTGGGGTTAGCATTCTACTATTT spacer length: 34
repeater length: 24
38374 613783 GTTGAATAAGGAAGAACTGAAAG ATTTACTGAAAGCTAGTGCAGGTGCAGGCTATGAG spacer length:
35 repeater length: 24
38375 613843 GTTGAATAAGGAAGAACTGAAAG TCTTAATCTTGTCTTTCTCTCTAGATTCAAAAC spacer length: 34
repeater length: 24
38376 613902 GTTGAATAAGGAAGAACTGAAAG ACCCAACATCTCCACTACCAGGCGGTTCTCCA spacer length: 32
repeater length: 24
38377 613959 GTTGAATAAGGAAGAACTGAAAG TTAATCATTTGGTCAAAGGCTTGATGGTTTTT spacer length: 33
repeater length: 24
38378 614017 GTTGAATAAGGAAGAACTGAAAG GCATCATGCGAAAGGGGGAATTCTGCAAGGTTCT spacer length: 34
repeater length: 24
38379 614076 GTTGAATAAGGAAGAACTGAAAG TTGCTATACACGCCTCATCCACTCCACTGTTTA spacer length: 33
repeater length: 24
38380 614134 GTTGAATAAGGAAGAACTGAAAG TTTTTCCTCTCGTGGGGTTACGCTCACTCCTAA spacer length: 33
repeater length: 24
38381 614192 GTTGAATAAGGAAGAACTGAAAG ACGGAACAGAAGAAACATGGATAAAGGATGGTT
38382
38383
38384 crispr 4
38385 1562425 AGTTGCATCCCCAAAAGGGATTGAAAGAT
TTCAACTTCATAACCGTTAAAAACACCGCTAATTTAGTTGCATCCCCAAAAGGGATTGAAAGTCAATAGCAATTGTTTCGATAACT
GCACATAAAAATA spacer length: 98 repeater length: 28
38386 1562552 AGTTGCATCCCCAAAAGGGATTGAAAGAT
AATTCTAGACCTTCAATCTTCTTATCATTGATAATTAGTTGCATCCCCAAAAGGGATTGAAAGTCATCTGACGTCTTAAATACGCTT

TTGGATATAATTTT spacer length: 100 repeater length: 28
 38387 1562681 AGTTGCATCCCCAAAAGGGATTGAAAGAT
 ATAAAGGATGGTTGTGTAATAATTTTGCCTCAGTATATTTTATATTTCAAGTTATGAGAGATATGTGTTAAATTCAACACAATTCGT
 TATAGTTCACTCAC
 38388
 38389
 38390 crispr 5
 38391 871430 TACCTTGTTAAGCTTATACTACCAAACGGAACAGAAGAA
 GAATGGATAAAATAATGGTACAATAATACAAATACCAAAAACAATATATGTAAACTCTACAAGTAGATACTATTTAAATTCTACGTA
 TAACTCGGTTATAATAAAATAAACCCATAATAATAGAACCTAATTATAAATTGCA spacer length: 140 repeater
 length: 39
 38392 871610 TACCTTGTTAAGCTTATACTACCAAACGGAACAGAAGAA
 GAATGGATAGATTCCCATTTCCGATTTAATATTGCCAAAAATAATCCAAATTAATGATACTAGATATATATTAAGCGAACAAAATAA
 TATAATAGAAATCTTGAACGTGTCGTGTTTTATGCCCCAAATACGATGTATA spacer length: 137 repeater
 length: 39
 38393 871787 TACCTTGTTAAGCTTATACTACCAAACGGAACAGAAGAA
 AGGATGGTTGTGTAATAATTTTGCCTCAGTATATTTTATATTTCAAGTTATGAGAGATATGTGTTAAATTCAACACAATTCGTTATA
 GTTCACTCACCGTTAGTTATTCACCCCTGAATACATTAAACAATATTTGATT
 38394
 38395
 38396 GCA_009729035.1_ASM972903v1_genomic.fna(findCrispr):
 38397 START REPEAT
 SPACER
 38398 crispr 1
 38399 1180933 AACT TTCAGTTCTTCCTTATTTTCGACATAATAACGATGACGTTTTCACTGGCGACGAG spacer length:
 54 repeater length: 4
 38400 1180992 AACT
 TTCAGTTCTTCCTTATTTTCGACATTTACTCAAGGATTTGCTGTATAATGCGGAGGACTTTTCAGTTCTTCCTTATTTTCGACACCTAT
 TAGCGGCATCAGTAAGTGCATCTTG spacer length: 111 repeater length: 4
 38401 1181108 AACT TTCAGTTCTTCCTTATTTTCGACGAACTGATAACAAAGGATGTACTATTTCAGTG spacer length: 53
 repeater length: 4
 38402 1181166 AACT TTCAGTTCTTCCTTATTTTCGACACGAATGGCAAAAAGAAAAGTATGTTCAAAA
 38403
 38404
 38405 crispr 2
 38406 1355040 GTCAAAAAACAAGGAGAAGC
 TATTCAATCATTGCAAGAGGCGGTGAAAAGGCAAGGTGAAGCGATTTCAGTCATTGCAAGAGAC spacer length: 63
 repeater length: 20
 38407 1355124 GTCAAAAAACAAGGAGAAGC
 AATTCAGTCACTACAAGAGACAGTCAATCGGCATACACTAGCAATAGAATCTCTTCAAGAGGCTGTTAAGTCATTGCAGGAGGC
 spacer length: 84 repeater length: 20
 38408 1355229 GTCAAAAAACAAGGAGAAGC
 AATAGAGGGATTACAAAGGGCGGTGCTTAGATTGGAGAGAGATGTTAAGAACTCTCTGTTGAGGTGGGTAGTTTTACAAATAG
 38409
 38410
 38411 GCA_009729055.1_ASM972905v1_genomic.fna(findCrispr):
 38412 START REPEAT
 SPACER
 38413 crispr 1
 38414 2623165 CTTTCAATTCCATTAAGGATTATC AGATACAATACGGTTCAAGTCGTTAAGCTTTACGTTAATG spacer
 length: 40 repeater length: 24
 38415 2623230 CTTTCAATTCCATTAAGGATTATC GTAATGCGTGCTAAAGAGAGTGAGGGGTGGAGTTTAGAGAA spacer
 length: 42 repeater length: 24
 38416 2623297 CTTTCAATTCCATTAAGGATTATC TAGTATATTATGTAACACCAAAAACGTAATAATTTAGC spacer
 length: 38 repeater length: 24
 38417 2623360 CTTTCAATTCCATTAAGGATTATC AGTTCAGCGTGACCAGCAACATAGCTAAACAACCGGAA spacer
 length: 38 repeater length: 24
 38418 2623423 CTTTCAATTCCATTAAGGATTATC CCTATCAATGTTACCTATAGGTTATACAATGTCTCGGTCTACAA spacer
 length: 44 repeater length: 24
 38419 2623492 CTTTCAATTCCATTAAGGATTATC AGTATGCTTAGCCTCAACTAAACACGCTCTGTTTTTCTC spacer
 length: 39 repeater length: 24
 38420 2623556 CTTTCAATTCCATTAAGGATTATC ATAAGCTTTCAGACAAACGAAACGCCTTCAGAAATCATTGCAG spacer
 length: 43 repeater length: 24
 38421 2623624 CTTTCAATTCCATTAAGGATTATC
 TCCCGGAATTACGTCTATGCCGAACCTTTACGTTCCCTACCTCACTTTCAATTCCATTAAGAATTATCAGGAAGTGGAGAAGGCAAA
 AGAAGAGATGTTAGCGATGGAAG spacer length: 109 repeater length: 24
 38422 2623758 CTTTCAATTCCATTAAGGATTATC CTACTGGATTACGCAACGTATGCAGCGTGGATCTTCGTTTT spacer
 length: 41 repeater length: 24
 38423 2623824 CTTTCAATTCCATTAAGGATTATC TTCTATCAGAAGTACAAAGAGGAGAGACAAAAGGCTAAG spacer
 length: 39 repeater length: 24
 38424 2623888 CTTTCAATTCCATTAAGGATTATC ATACTTCTGCAATTGGAGCCTTTTCTTCATCCCTCCATAT spacer

length: 40 repeater length: 24
38425 2623953 CTTTCAATTCCATTAAGGATTATC ATATAAATCAGCAAAATGAAAATAAAGATGGGGGTGAA spacer
length: 38 repeater length: 24
38426 2624016 CTTTCAATTCCATTAAGGATTATC AACAGGGTGTGGACGAGTAACGCTATGGTAAAAGCAGCAAC spacer
length: 41 repeater length: 24
38427 2624082 CTTTCAATTCCATTAAGGATTATC CTGGTGATATTGTTTCATTTTTCTAGGCGCGATAAAAACATCA spacer
length: 44 repeater length: 24
38428 2624151 CTTTCAATTCCATTAAGGATTATC GCGGTTACGTCATGATGTCGAAAGGTTTGTAGAACTGTTGT spacer
length: 41 repeater length: 24
38429 2624217 CTTTCAATTCCATTAAGGATTATC CTTTGATTTATTGACCCTGGAAGCCTGAGCACCTAGC spacer
length: 38 repeater length: 24
38430 2624280 CTTTCAATTCCATTAAGGATTATC TTCTAGAAAGTAAAAACAAGTAATGGTTATATATGA spacer
length: 37 repeater length: 24
38431 2624342 CTTTCAATTCCATTAAGGATTATC AATTCTATTGGTATAAAAAATAGCACTTTATCCAGACT spacer
length: 37 repeater length: 24
38432 2624404 CTTTCAATTCCATTAAGGATTATC TATTTATAAAATAGATCCTTATTTTGAACTAATA spacer length:
35 repeater length: 24
38433 2624464 CTTTCAATTCCATTAAGGATTATC GGAAATCGCAACAGAGAATAAAGAGCAAGTTCTCGAGAAGTTA spacer
length: 43 repeater length: 24
38434 2624532 CTTTCAATTCCATTAAGGATTATC ACTGGAATGACCAGTGCTGATGGTCTAATTGCTATAGTAA spacer
length: 40 repeater length: 24
38435 2624597 CTTTCAATTCCATTAAGGATTATC AAACGGATTTTCATCGCCGTCATCTCTATTTCCCAGTATC spacer
length: 40 repeater length: 24
38436 2624662 CTTTCAATTCCATTAAGGATTATC CGAAGGTATCAAGAATGTAAGCCAGGAGCACAACGCAT spacer
length: 38 repeater length: 24
38437 2624725 CTTTCAATTCCATTAAGGATTATC TTCGAAGAACATCTATTAAATGATAAGAAGGAAGTATGGGA spacer
length: 41 repeater length: 24
38438 2624791 CTTTCAATTCCATTAAGGATTATC CCGAACAACCAGAAGGTGGTATTGTCAAATGTCTACTTG spacer
length: 39 repeater length: 24
38439 2624855 CTTTCAATTCCATTAAGGATTATC TTGTGGAGGTGGTGGTGGATTACTCTTCTGTGCTTCAGGTG spacer
length: 41 repeater length: 24
38440 2624921 CTTTCAATTCCATTAAGGATTATC CAAAACTTACCTCAACCTAACCGGGCCTAGTCTGTT spacer
length: 37 repeater length: 24
38441 2624983 CTTTCAATTCCATTAAGGATTATC AAATCTTAATAGAGGATTGGGAAATTGAGCATGTTGTATAT spacer
length: 41 repeater length: 24
38442 2625049 CTTTCAATTCCATTAAGGATTATC TTATCAAACAACCTCGCGAAGTTAATTCTGAATTCTTCTTA spacer
length: 40 repeater length: 24
38443 2625114 CTTTCAATTCCATTAAGGATTATC TTTATGATAGTATTAAAAGTTTTGGCAAAAAGATTTTTTA spacer
length: 39 repeater length: 24
38444 2625178 CTTTCAATTCCATTAAGGATTATC TTTTCACTTGGAGGAAGGGAAGAGGAGCGGAAATAACGTCT spacer
length: 42 repeater length: 24
38445 2625245 CTTTCAATTCCATTAAGGATTATC ATAATAGCCAACCACATGCCCCGCATATAATTAGGAAATATC spacer
length: 42 repeater length: 24
38446 2625312 CTTTCAATTCCATTAAGGATTATC ATCCTAATCCTTTACGAGGATTAAGAGACCGTAATGAATGGCA spacer
length: 43 repeater length: 24
38447 2625380 CTTTCAATTCCATTAAGGATTATC AACGGTCCTTCACACATGTTATTAGACGCATTACGGAAAA spacer
length: 41 repeater length: 24
38448 2625446 CTTTCAATTCCATTAAGGATTATC TGGACAGAAATAGCGATAGGATTGCTGGTGGGTGCTAATTTCA spacer
length: 43 repeater length: 24
38449 2625514 CTTTCAATTCCATTAAGGATTATC TGGCATTATTCTCCCCAGCCAGTGCTTGCAACCTTACG spacer
length: 38 repeater length: 24
38450 2625577 CTTTCAATTCCATTAAGGATTATC TTATGATGTTGGTGATCTCATCGATTCTAGCAGACTTCT spacer
length: 39 repeater length: 24
38451 2625641 CTTTCAATTCCATTAAGGATTATC AAGTGAAAAAGCTATGGGATTTTTTCTATTTTTTAATCAAA spacer
length: 41 repeater length: 24
38452 2625707 CTTTCAATTCCATTAAGGATTATC TGTGACGTTTCCAATCGTATAAGAGGTATTATAATACTTCTC spacer
length: 42 repeater length: 24
38453 2625774 CTTTCAATTCCATTAAGGATTATC GAAGAGTTAGACGTTATGCATGTAGCTACTATAATGTATTTTC spacer
length: 43 repeater length: 24
38454 2625842 CTTTCAATTCCATTAAGGATTATC TAATGATTTTTTAAATATTCATCTAATGCTTTCCTTATAAGT spacer
length: 42 repeater length: 24
38455 2625909 CTTTCAATTCCATTAAGGATTATC TTAATAAGGCGACACAGAAATGAACCACGTCCCATTAGAA spacer
length: 40 repeater length: 24
38456 2625974 CTTTCAATTCCATTAAGGATTATC ACATCGATGAATTTCAAAATGTTGCCCATTTACCTTACATC spacer
length: 41 repeater length: 24
38457 2626040 CTTTCAATTCCATTAAGGATTATC AACGGCGAGACAGTTGTTTTAGCGCCGTATGACTTTCTCAG spacer
length: 41 repeater length: 24
38458 2626106 CTTTCAATTCCATTAAGGATTATC TCATTACTTATTTTCTTCATAATTCTTCAACTAATTATTT spacer
length: 40 repeater length: 24
38459 2626171 CTTTCAATTCCATTAAGGATTATC ATATCTTTTCTCCAAACGTAGGCGATCAGAGTACTGA spacer
length: 37 repeater length: 24

38460	2626233	CTTTCAATTCCATTAAGGATTATC	TAGAGCTAAAAATATCGATACCAGGATTATAAGCCTGTTC	spacer
	length:	40	repeater length:	24
38461	2626298	CTTTCAATTCCATTAAGGATTATC	TTTGTTCGCCCTCTACTTGTTCATTTTCTCCAGTTTGT	spacer
	length:	39	repeater length:	24
38462	2626362	CTTTCAATTCCATTAAGGATTATC	TAAAAAGAAAAAGCGGGCGGGCGAGAGCCCCGAAATGG	spacer
	length:	37	repeater length:	24
38463	2626424	CTTTCAATTCCATTAAGGATTATC	CTAGCATCCGGTGGAAAGAGCAAAATTAACTTCTGCAAAGGA	spacer
	length:	43	repeater length:	24
38464	2626492	CTTTCAATTCCATTAAGGATTATC	ATATCACGTATCTGAAGTATATCATCTTAGATATGGCAA	spacer
	length:	40	repeater length:	24
38465	2626557	CTTTCAATTCCATTAAGGATTATC	ATAGGGAGAAGAAACACAAAGACTATGTTGAACTCATAGA	spacer
	length:	40	repeater length:	24
38466	2626622	CTTTCAATTCCATTAAGGATTATC	AAAAC TGAAAAATCATTAACCTTAAGGTTCAATAGCA	spacer
	length:	37	repeater length:	24
38467	2626684	CTTTCAATTCCATTAAGGATTATC	GTAATCCGTTTGGCTTTAGTCTTCCAAATTTTGTATAATTTCTT	spacer
	length:	45	repeater length:	24
38468	2626754	CTTTCAATTCCATTAAGGATTATC	GAAGTCAAAAACATCATTAGGTATTATTTTATACAATAGT	spacer
	length:	40	repeater length:	24
38469	2626819	CTTTCAATTCCATTAAGGATTATC	ACAGTAATTTCTTGTATCGTAGAAAGCTGGATAAGCATA	spacer
	length:	40	repeater length:	24
38470	2626884	CTTTCAATTCCATTAAGGATTATC	AAACTCTCTCTAGCAATCTTAAGCAGTGACACAATATAA	spacer
	length:	39	repeater length:	24
38471	2626948	CTTTCAATTCCATTAAGGATTATC	TAAGTGTAGTACCTAAGCCTTGGAATCGTTTACGCTAG	spacer
	length:	39	repeater length:	24
38472	2627012	CTTTCAATTCCATTAAGGATTATC	CCTCCTTTCGGATTTCTAGACTATTTTGATAGCTGTGAAA	spacer
	length:	40	repeater length:	24
38473	2627077	CTTTCAATTCCATTAAGGATTATC	CCAGAGTGAAATATCGGATATACCTCTATACTAATGTTA	spacer
	length:	39	repeater length:	24
38474	2627141	CTTTCAATTCCATTAAGGATTATC	AAGTGTTAGAAGAGGAGATGAGAAAAAGGAAAGAGATT	spacer
	length:	39	repeater length:	24
38475	2627205	CTTTCAATTCCATTAAGGATTATC	TTAGTGATAAGATTTAACGGCAGATAATCAAATAGAAAA	spacer
	length:	39	repeater length:	24
38476	2627269	CTTTCAATTCCATTAAGGATTATC	TCTGGTTGGGTGGGACTGGCTTAGTTGGTTTGGTTGG	spacer
	length:	37	repeater length:	24
38477	2627331	CTTTCAATTCCATTAAGGATTATC	GTCAGGGTATTTAGGTTTTAGAACCCAGGCTTCTAATA	spacer
	length:	38	repeater length:	24
38478	2627394	CTTTCAATTCCATTAAGGATTATC	ATAAACTTTATGCTTTACATAAACAATAGAGCATAATATA	spacer
	length:	40	repeater length:	24
38479	2627459	CTTTCAATTCCATTAAGGATTATC	AACTTCTTCCCATGAATTACCCTCTGCTACGATATTCTTATTT	spacer
	length:	43	repeater length:	24
38480	2627527	CTTTCAATTCCATTAAGGATTATC	ATGACCCGTTATTTTCGCAATAACTGCAGGGTCTACG	spacer
	length:	37	repeater length:	24
38481	2627589	CTTTCAATTCCATTAAGGATTATC	TTACTAAAGTTGCAACTTCTAGTTCCTTCTCGTGCTT	
38482				
38483				
38484	crispr 2			
38485	2631766	CTTTCAATTCCATTATGGATTAAC	CGAGATAACCGTTACAGAGCTCATAAGCAGAATAAATT	spacer
	length:	38	repeater length:	24
38486	2631829	CTTTCAATTCCATTATGGATTAAC	CTTCTTTAATTTTCGGCCCTAAGTATATCTTCTCTAAA	spacer
	length:	37	repeater length:	24
38487	2631891	CTTTCAATTCCATTATGGATTAAC	TGAAAGTTTAGGGTTGATAAGTGTAACTCAGGGTAAGACTAGTG	spacer
	length:	44	repeater length:	24
38488	2631960	CTTTCAATTCCATTATGGATTAAC	TCTGTATATTCTCAGGTTTAATTTCTCCAGATATT	spacer length:
	length:	36	repeater length:	24
38489	2632021	CTTTCAATTCCATTATGGATTAAC	TTATGAGAAAAGGCAAACGGAATTAATGCTTCAACAATT	spacer
	length:	39	repeater length:	24
38490	2632085	CTTTCAATTCCATTATGGATTAAC	AATACGCACCGACCATCAGAGCTAAGAAGACGTCAAAGAG	spacer
	length:	40	repeater length:	24
38491	2632150	CTTTCAATTCCATTATGGATTAAC	ATTTGACTAAGTTTTTAAAGTCTATTGAGTATAAATTATTT	spacer
	length:	41	repeater length:	24
38492	2632216	CTTTCAATTCCATTATGGATTAAC	AGAAAATACGGGATGCATCTGATCCTCGCCCACCAGCACA	spacer
	length:	40	repeater length:	24
38493	2632281	CTTTCAATTCCATTATGGATTAAC	CTGAGTAGAAGTGCAAAGCATCGATGATTTCTGGAGCTCC	spacer
	length:	41	repeater length:	24
38494	2632347	CTTTCAATTCCATTATGGATTAAC	TACATCTCGCCATTACCTAACGGATGGACAATAAAT	spacer length:
	length:	36	repeater length:	24
38495	2632408	CTTTCAATTCCATTATGGATTAAC	TTTGTTGAGGTGTTCTGTAATTGGTTATACAACTTTGGA	spacer
	length:	40	repeater length:	24
38496	2632473	CTTTCAATTCCATTATGGATTAAC	TCAGACGAAGAGATAGATTACGTCCTAAGGAGTAATACTGGA	spacer
	length:	42	repeater length:	24
38497	2632540	CTTTCAATTCCATTATGGATTAAC	AAAAATATTGATCACAACCAGTGCTATTCTGGATATA	spacer

length: 38 repeater length: 24

38498 2632603 CTTTCAATTCCATTATGGATTAAC AGTGTTAAGTGCTGAAGAACTGCAAAGTCTGTTACAAC spacer
length: 38 repeater length: 24

38499 2632666 CTTTCAATTCCATTATGGATTAAC CCCTACCTGAGGGTCATAGAGTTGCTGCTACGGTATCTCGT spacer
length: 41 repeater length: 24

38500 2632732 CTTTCAATTCCATTATGGATTAAC TCTGAGGGGGGCTTAATAAACTCTTCCCCTTTTTTCT spacer
length: 38 repeater length: 24

38501 2632795 CTTTCAATTCCATTATGGATTAAC
ACTTTGCAGAAAGTCTTAGGACCCCTTGTCTGGACAGAGCGAAAACCTTTCAATTCCATTATGGGTAAACAGACTATCGGAGATTGAAG
GACAAAAGTGGAATTCTTTGCCC spacer length: 109 repeater length: 24

38502 2632929 CTTTCAATTCCATTATGGATTAAC TTTTCTTTACCGGCTATGTTGAATAGTCTATAGAGGTTTTGG spacer
length: 42 repeater length: 24

38503 2632996 CTTTCAATTCCATTATGGATTAAC ATGGAAGGAGATATAGAATATTTTCTTGAGAGAGGATATCAA spacer
length: 42 repeater length: 24

38504 2633063 CTTTCAATTCCATTATGGATTAAC
TGGAATAGAAAAATGAGTTTGGTTCGAAATGGTTTCAAATCTTTCAATTCCATTATGGGTAAACAATATACAGGCTATGGGGACA
GGATATTAGTTGTTAAATTA spacer length: 106 repeater length: 24

38505 2633194 CTTTCAATTCCATTATGGATTAAC TCTAACACTATCCACGTCAATTCGGGCATACTGAAGTAAAA spacer
length: 41 repeater length: 24

38506 2633260 CTTTCAATTCCATTATGGATTAAC ACCGATCACACCCCCCGCTCCTGAGATTGCGATAGATTTCA spacer
length: 41 repeater length: 24

38507 2633326 CTTTCAATTCCATTATGGATTAAC TGTACTAGGGCCAAGGAGTTTTCCGACATACTATATGGGGTA spacer
length: 42 repeater length: 24

38508 2633393 CTTTCAATTCCATTATGGATTAAC TTATTAAAACAAGCCCTCGCGAGGGGGTTTATTTGAAAGAG spacer
length: 42 repeater length: 24

38509 2633460 CTTTCAATTCCATTATGGATTAAC TTCATCTTCCTCAATTTCTACAGCATAACATTCCTCA spacer
length: 37 repeater length: 24

38510 2633522 CTTTCAATTCCATTATGGATTAAC GGCTCCCTGCCCCCAGAAGGGGCGAGGCTTCCTAATTTTC spacer
length: 39 repeater length: 24

38511 2633586 CTTTCAATTCCATTATGGATTAAC ATAACGATTTAACAGACGCTAAGAGGTTCTCGGAGAAT spacer
length: 39 repeater length: 24

38512 2633650 CTTTCAATTCCATTATGGATTAAC TAATTGAAAGGTGTTTCTTCATATATAGAAATTTGACGTA spacer
length: 40 repeater length: 24

38513 2633715 CTTTCAATTCCATTATGGATTAAC CCCTATAATAGAAGTAAAGCCTCTTTGACGATTGCAAAGAA spacer
length: 41 repeater length: 24

38514 2633781 CTTTCAATTCCATTATGGATTAAC TCCGAACCTCTGACTAAACTCCTTAAGCCTCAAAACCAAAA spacer
length: 41 repeater length: 24

38515 2633847 CTTTCAATTCCATTATGGATTAAC GCAGTTTACGAGTTGAAGTACACTCACCATCAGCCCGGTAAT spacer
length: 42 repeater length: 24

38516 2633914 CTTTCAATTCCATTATGGATTAAC TCCTGGAAAAGAATTGCTGAAATTTTAGGAGTAAAGAGAACA spacer
length: 42 repeater length: 24

38517 2633981 CTTTCAATTCCATTATGGATTAAC GTGATTAGTTTAGCTAGTTCTGGTTTAGGAACACGCTTGTC spacer
length: 41 repeater length: 24

38518 2634047 CTTTCAATTCCATTATGGATTAAC GTATTAAGTGAGGCTAGGAAATACGGGATGCACATAGTA spacer
length: 39 repeater length: 24

38519 2634111 CTTTCAATTCCATTATGGATTAAC TCAACCAAGGGGGTGAGCTGAATGGCTGAATCCAGAATAATG spacer
length: 42 repeater length: 24

38520 2634178 CTTTCAATTCCATTATGGATTAAC CATTAAATTGAAAACGAAAATAACGGGTTTTCGTTTATAAGAAAAA
spacer length: 46 repeater length: 24

38521 2634249 CTTTCAATTCCATTATGGATTAAC ATCTTCTTCCTGTCAACTTCCTCAACCTCGGTGTCAAACATATACACTC
spacer length: 49 repeater length: 24

38522 2634323 CTTTCAATTCCATTATGGATTAAC GAAAATCGCATGCGATTGAATCGATTGTGTTGATGATACCTG spacer
length: 42 repeater length: 24

38523 2634390 CTTTCAATTCCATTATGGATTAAC TTGCTGCAGCATGGCTATATAATGTTCCGCACTGAATAAG spacer
length: 40 repeater length: 24

38524 2634455 CTTTCAATTCCATTATGGATTAAC CAACCTATACAAATAGGGAGTTTAAGCGGATATACTA spacer
length: 37 repeater length: 24

38525 2634517 CTTTCAATTCCATTATGGATTAAC AGAAATTTTAGGGAAAGGGAGAAAATAACGACGTGAACAGAAA
spacer length: 45 repeater length: 24

38526 2634587 CTTTCAATTCCATTATGGATTAAC GTAAGGTAAAAGTACCAGCTGAAGATAAGACGTTAACCGG spacer
length: 40 repeater length: 24

38527 2634652 CTTTCAATTCCATTATGGATTAAC ATAGAGAGCGTTTACCGGGGGGTAAACGGGAAATGATAA spacer
length: 39 repeater length: 24

38528 2634716 CTTTCAATTCCATTATGGATTAAC ACCGTATTGGCAGAATGGTGAGTTAGTGGTGAACAGTA spacer
length: 38 repeater length: 24

38529 2634779 CTTTCAATTCCATTATGGATTAAC CCGCTTCCCACCAGTATGATGGTGAGTTAGAAGGGCTGTAA spacer
length: 41 repeater length: 24

38530 2634845 CTTTCAATTCCATTATGGATTAAC TTTCTTTACTTCAATTTCTTTCTTCAATTATCTCTTTAGCTA spacer
length: 41 repeater length: 24

38531 2634911 CTTTCAATTCCATTATGGATTAAC CACCCATAGGTGTGACATTGTTTAGCGGGTCTGCAAATTATA spacer
length: 42 repeater length: 24

38532 2634978 CTTTCAATTCCATTATGGATTAAC ATGTAGGTGCTGAAATTGGGGAATCAGCTGAGATGTTTAAAGCTC
spacer length: 45 repeater length: 24

38533 2635048 CTTTCAATTCCATTATGGATTAAC AATACTACGCAATATCACTTGAAGCATTAAAGTCGTTGGAA spacer
length: 41 repeater length: 24

38534 2635114 CTTTCAATTCCATTATGGATTAAC TAATACCACACGTTTCTTTTTTTCCTTTCTTTTTTCTTCT spacer
length: 41 repeater length: 24

38535 2635180 CTTTCAATTCCATTATGGATTAAC AAGTAAAGACGCTTCCGACTTCTGCCCTTACCACTCTTTA spacer
length: 40 repeater length: 24

38536 2635245 CTTTCAATTCCATTATGGATTAAC
TGACATACAAAAGTTAGCGGAAGTATGTAAAGCCTTCCAAGACTTTCAATTCCCTTATGGATTAACACAGTCCTTATCACCATGTC
CATGTCTCTCTGGTACTCTGTTTTAT spacer length: 112 repeater length: 24

38537 2635382 CTTTCAATTCCATTATGGATTAAC AAATCCATTTTATCAGCAATGAAGAAGTTTTTAGAA spacer
length: 37 repeater length: 24

38538 2635444 CTTTCAATTCCATTATGGATTAAC GGAGTAGTACACCGCAAACCTCAGGGTGTATCAGGAGGA spacer
length: 38 repeater length: 24

38539 2635507 CTTTCAATTCCATTATGGATTAAC ACACGCATATTATTAATAATCTTAAGCACTGAGTTAATG spacer
length: 39 repeater length: 24

38540 2635571 CTTTCAATTCCATTATGGATTAAC AAAATATTGATCACAACCAGTGCTATTCCCGGATATA spacer
length: 37 repeater length: 24

38541 2635633 CTTTCAATTCCATTATGGATTAAC AAGAAGCAAAGACGAATTAAATCAAATAAGTGAAGAAT spacer
length: 38 repeater length: 24

38542 2635696 CTTTCAATTCCATTATGGATTAAC AAATTCGCTGTGGATTGTAGATTATAACAACATCATCAT spacer
length: 40 repeater length: 24

38543 2635761 CTTTCAATTCCATTATGGATTAAC TTAATTGCAGGAGCTGCTGCAGTAATGATGAATGCGGTGA spacer
length: 40 repeater length: 24

38544 2635826 CTTTCAATTCCATTATGGATTAAC TTAAGCTATACCAATACAAATATGGAACACAATTATTAC spacer
length: 40 repeater length: 24

38545 2635891 CTTTCAATTCCATTATGGATTAAC AAAATCATAGCGGTGCAGAATGATAGTATCAAGAATTATCA spacer
length: 41 repeater length: 24

38546 2635957 CTTTCAATTCCATTATGGATTAAC CCCCCCCCCCGCCCTCGCCCCCGCGCTTTTCCGCCTTCA spacer
length: 41 repeater length: 24

38547 2636023 CTTTCAATTCCATTATGGATTAAC CTGGAATTGTTCTAGCTTCGTTTCCATAATGGGTCGTTG spacer
length: 41 repeater length: 24

38548 2636089 CTTTCAATTCCATTATGGATTAAC GTTGAAAGTAAAACTAGTTTCTTACTCTAAAGATGGCGAG spacer
length: 40 repeater length: 24

38549 2636154 CTTTCAATTCCATTATGGATTAAC TTTTGTTCCTACTTTAACTTCTACTAATTCTTTTATCATA spacer
length: 40 repeater length: 24

38550 2636219 CTTTCAATTCCATTATGGATTAAC TCCTAATGTAATGATCACTCTATGGGACGTGAAGTTAA spacer
length: 38 repeater length: 24

38551 2636282 CTTTCAATTCCATTATGGATTAAC CTAGTTGTTACAGAAGTTTCATTAATTATCCGGTAAACTG spacer
length: 40 repeater length: 24

38552 2636347 CTTTCAATTCCATTATGGATTAAC TTATTACTCGAATCCGGAGTTAGAGAGGCTGAGGCGTTA spacer
length: 39 repeater length: 24

38553 2636411 CTTTCAATTCCATTATGGATTAAC TCATATTCGCGAAAACACGGAAAGGAATCGGGGTGTTGAT spacer
length: 41 repeater length: 24

38554 2636477 CTTTCAATTCCATTATGGATTAAC CTTAATTCCTGCAAGGAAATAGGGATGCCGTTGTTTCTA spacer
length: 39 repeater length: 24

38555 2636541 CTTTCAATTCCATTATGGATTAAC CTAATGTTAAAGCCCCCTCTTTCGCCAACACAAGCAATATTTT spacer
length: 43 repeater length: 24

38556 2636609 CTTTCAATTCCATTATGGATTAAC ATTCCAAGTAATTCTACAGCTCTTTGTTCTCTTGTTG spacer
length: 38 repeater length: 24

38557 2636672 CTTTCAATTCCATTATGGATTAAC TCATCTCAATAGAATAAGTATTTAAAAAGGGGTAAAC spacer
length: 38 repeater length: 24

38558 2636735 CTTTCAATTCCATTATGGATTAAC ATAGGAGAAACGCTGGAGAGGGAGGGCTTTAACATATTAT spacer
length: 40 repeater length: 24

38559 2636800 CTTTCAATTCCATTATGGATTAAC GAAAGGTCCGTCACGATCGGAGGATCATCTCGTCTGCTGGAG spacer
length: 42 repeater length: 24

38560 2636867 CTTTCAATTCCATTATGGATTAAC ACAGTAATTATCACACAACCTGTCAGTTCCGGGGGCT spacer
length: 37 repeater length: 24

38561 2636929 CTTTCAATTCCATTATGGATTAAC ATTTTATGGAAGTTACTAGCGACAGTGTCAACAATAAGAAGTT spacer
length: 43 repeater length: 24

38562 2636997 CTTTCAATTCCATTATGGATTAAC AATTTTTACTGTAACACTCCATCACCCGCCGGAGAAG spacer
length: 38 repeater length: 24

38563 2637060 CTTTCAATTCCATTATGGATTAAC ATAAGGCTCTAGGAGAAGCACTCAGTGGTACAACAATT spacer
length: 38 repeater length: 24

38564 2637123 CTTTCAATTCCATTATGGATTAAC CGAAGTTAAGACAGAAGAGAATCCCAGTCCTGACTATTA spacer
length: 39 repeater length: 24

38565 2637187 CTTTCAATTCCATTATGGATTAAC TATACATAGGTCCTGGTAATCCTGCTTCAGGGACTGATTTT spacer
length: 41 repeater length: 24

38566 2637253 CTTTCAATTCCATTATGGATTAAC CTAACCCTTCAGGCTTGAAACCCGTCGACGTTTGGACTA spacer
length: 39 repeater length: 24

38567 2637317 CTTTCAATTCCATTATGGATTAAC CTAGTGATACAAGCATCTGCTCTCGCCAAGTATCTCGTTTACT spacer
length: 43 repeater length: 24
38568 2637385 CTTTCAATTCCATTATGGATTAAC CCTACCGGGGTGCTTCTTTTCTGCATGAAATCCCTTCAAG spacer
length: 40 repeater length: 24
38569 2637450 CTTTCAATTCCATTATGGATTAAC TGCTGTAGATGTATCGCGACCCTGTTAACGCTGAAATTCGT spacer
length: 41 repeater length: 24
38570 2637516 CTTTCAATTCCATTATGGATTAAC GCAGGCTTTAAATTTATGAATCCCGTTATCGTTTTATAAGCATCA
spacer length: 45 repeater length: 24
38571 2637586 CTTTCAATTCCATTATGGATTAAC CGGATCCAGGGTTAGCAACACAGTACGCTACGCTAATTAGTTACC
spacer length: 45 repeater length: 24
38572 2637656 CTTTCAATTCCATTATGGATTAAC TCTTAAAGTCCTCCCAATCAACATTTACACGAACTGG spacer
length: 37 repeater length: 24
38573 2637718 CTTTCAATTCCATTATGGATTAAC TTTTGCCTTAAACAATGAGTCTAAGCAGCCGTTTTGCTT spacer
length: 39 repeater length: 24
38574 2637782 CTTTCAATTCCATTATGGATTAAC TGGAGTGTGATCGAAGATGTCTCTTATTGGTTTATTTT spacer
length: 38 repeater length: 24
38575 2637845 CTTTCAATTCCATTATGGATTAAC ATCAAGTTGACAAGTGGTTTATAAAGATAATTTTATCAA spacer
length: 39 repeater length: 24
38576 2637909 CTTTCAATTCCATTATGGATTAAC ATAATCTACATGTCTTCTAATCCACACTTCACATACTT spacer
length: 38 repeater length: 24
38577 2637972 CTTTCAATTCCATTATGGATTAAC AAGCTGCTAAGATATTGCAGACTTCTGATCTAAGTGTACTA spacer
length: 41 repeater length: 24
38578 2638038 CTTTCAATTCCATTATGGATTAAC GAGAGCAAGCAATACCCTCTGTTGCATTTCCGTTAGATAAATTC spacer
length: 43 repeater length: 24
38579 2638106 CTTTCAATTCCATTATGGATTAAC CTCTATCATATACAACCACGAGTCCGTCATGCCATCACGTA spacer
length: 42 repeater length: 24
38580 2638173 CTTTCAATTCCATTATGGATTAAC GGCTGATTTGAAGAACTGATATTACCATTTCATGATTCT spacer
length: 38 repeater length: 24
38581 2638236 CTTTCAATTCCATTATGGATTAAC TTCATTTTCTTCCAATTCCTCATTTTCTTCTATTTTCATCT spacer
length: 40 repeater length: 24
38582 2638301 CTTTCAATTCCATTATGGATTAAC AAGATTCTTGAAGGAAATTGAAGAAAATGGCGGGATAATAA spacer
length: 41 repeater length: 24
38583 2638367 CTTTCAATTCCATTATGGATTAAC AAAAGAAACAATTGAAAAACAAAAGAAATCAGACAATAC spacer
length: 39 repeater length: 24
38584 2638431 CTTTCAATTCCATTATGGATTAAC GTCCTCTGTTATGATAGAGCTGGTCTACCAATTATTGTCTGGT spacer
length: 42 repeater length: 24
38585 2638498 CTTTCAATTCCATTATGGATTAAC AACGGTGAGGTATTGAATGGAACGTTTTTGATACAGCCCT spacer
length: 40 repeater length: 24
38586 2638563 CTTTCAATTCCATTATGGATTAAC CCTCTTCAATAACGATAATATATCCCTTCTTTTCGAGAA spacer
length: 39 repeater length: 24
38587 2638627 CTTTCAATTCCATTATGGATTAAC GGGGGGTGCAATAGGAGCGGCGTTCTTATTGACTTTTCGGT spacer
length: 40 repeater length: 24
38588 2638692 CTTTCAATTCCATTATGGATTAAC CAACTAACTCGGTAATGGCACGGTTGGTGACGGTGTA spacer
length: 37 repeater length: 24
38589 2638754 CTTTCAATTCCATTATGGATTAAC TAAGACAGACACCGCCCCAAGCACCAGTGGGACTGA spacer length:
36 repeater length: 24
38590 2638815 CTTTCAATTCCATTATGGATTAAC TTAGGTAAGTATATCGATACTGTATTTAGGCCAGGTT spacer
length: 38 repeater length: 24
38591 2638878 CTTTCAATTCCATTATGGATTAAC AAAGATAGATTGAGGTATGTTAAGATTAATGAGAATGAATTC spacer
length: 43 repeater length: 24
38592 2638946 CTTTCAATTCCATTATGGATTAAC TTGTTTTTTATACTACTTTACTTCATTTTTTCGTTTTTCTCCTTT
38593
38594
38595 crispr 3
38596 2703303 CTTTCAATTCCTTTGAGGATTCAT CTTAGGTTATATTACGCTGGCATAATCAACGTAAAAGCGA spacer
length: 40 repeater length: 24
38597 2703368 CTTTCAATTCCTTTGAGGATTCAT CTGGTATATTGTATAGTCATGGTGTATATGTAGATGGAA spacer
length: 39 repeater length: 24
38598 2703432 CTTTCAATTCCTTTGAGGATTCAT CTGTATATTGAAAAATATTATGGCAAGGTTGATGAGGTTT spacer
length: 40 repeater length: 24
38599 2703497 CTTTCAATTCCTTTGAGGATTCAT CTAATATTAGAGTGAGGTGGGGGAAAATGAAAAATGAAT spacer
length: 39 repeater length: 24
38600 2703561 CTTTCAATTCCTTTGAGGATTCAT CTCAAGGCAATATAAGTTTAGAGTGTTAATGATACTAGAT spacer
length: 40 repeater length: 24
38601 2703626 CTTTCAATTCCTTTGAGGATTCAT CATGAAGACATTTGAATGGAGTACCGCTTTTCGATATCCTAG spacer
length: 41 repeater length: 24
38602 2703692 CTTTCAATTCCTTTGAGGATTCAT CAAACGACTTCAAAGGATTTTTTCGCTAGAGCGTATAACG spacer
length: 39 repeater length: 24
38603 2703756 CTTTCAATTCCTTTGAGGATTCAT CCTAAATGCCCTAAAAGCAAGACTGTATGATTTT spacer length:
34 repeater length: 24
38604 2703815 CTTTCAATTCCTTTGAGGATTCAT CGAATAGTTTTTTTGATAGAAAATGGTGGATTGCAATAACT spacer

length: 40 repeater length: 24
38605 2703880 CTTTCAATTCCTTTGAGGATTCAT CAAAAATGGCAAGGAAGTTATTGCGTTTTAAACCTGTATCA spacer
length: 40 repeater length: 24
38606 2703945 CTTTCAATTCCTTTGAGGATTCAT CATTAGTATAGAGCCCCCGCGTTTCGGGGGAAGTGGTCT spacer
length: 39 repeater length: 24
38607 2704009 CTTTCAATTCCTTTGAGGATTCAT CGACGAAATTTACGCCATATTGAAAGACAGATCCAAATGG spacer
length: 40 repeater length: 24
38608 2704074 CTTTCAATTCCTTTGAGGATTCAT CTTTGTACACAATAAATAATGAGTTAACGATGAAAAA spacer
length: 38 repeater length: 24
38609 2704137 CTTTCAATTCCTTTGAGGATTCAT CAGAAGACGCACTTTATGAAAGAGTAATTAAGAATAAAC spacer
length: 39 repeater length: 24
38610 2704201 CTTTCAATTCCTTTGAGGATTCAT CCTGGCATATTTAACGAATAGTAGTAAGGTTGAAATTAATGTAGA
spacer length: 45 repeater length: 24
38611 2704271 CTTTCAATTCCTTTGAGGATTCAT CGTTCAACGTTTCGTTAATGCATTAAGACGATATATAAAC spacer
length: 40 repeater length: 24
38612 2704336 CTTTCAATTCCTTTGAGGATTCAT CGTATACAGCTTTTAAAAAATAAATTTTTCCCCTTCTAT spacer
length: 40 repeater length: 24
38613 2704401 CTTTCAATTCCTTTGAGGATTCAT CAGTCGTTGATGGCAAGAGCGAGATGTCTGTCATTGTTTCAA spacer
length: 42 repeater length: 24
38614 2704468 CTTTCAATTCCTTTGAGGATTCAT CGTCAAATTAATAGCATTAGGTAAAGCAACGGCTAATTTAA spacer
length: 41 repeater length: 24
38615 2704534 CTTTCAATTCCTTTGAGGATTCAT CATTATTTCCAATTAAAAAATGGTGAGCTAAAAATGG spacer
length: 38 repeater length: 24
38616 2704597 CTTTCAATTCCTTTGAGGATTCAT CCGATGGACTATGCAACAGATCTTCAAAGGATTGATTT spacer
length: 39 repeater length: 24
38617 2704661 CTTTCAATTCCTTTGAGGATTCAT CCGTTATTGAGCTCTTAGCATATCTTTTGGCGTATCATA spacer
length: 39 repeater length: 24
38618 2704725 CTTTCAATTCCTTTGAGGATTCAT CGATAACATAACGTTATTACGCTGTAAATGTTGTCAA spacer
length: 37 repeater length: 24
38619 2704787 CTTTCAATTCCTTTGAGGATTCAT CACATATTTAGCGATTTAAACGGTGACCAGAACGACATAT spacer
length: 40 repeater length: 24
38620 2704852 CTTTCAATTCCTTTGAGGATTCAT CTAACAATGAAGGCAATGGGGAAAGCAGTTTCTAATGCTA spacer
length: 40 repeater length: 24
38621 2704917 CTTTCAATTCCTTTGAGGATTCAT CGAGCAAGTAAACATGAAAGGTAGGAAAATATTGGTTCC spacer
length: 39 repeater length: 24
38622 2704981 CTTTCAATTCCTTTGAGGATTCAT CAATAGTGGATAAGCTCAAGGAATATATATTAAGACGGTAA spacer
length: 42 repeater length: 24
38623 2705048 CTTTCAATTCCTTTGAGGATTCAT CCCATCGTTAAGAAGCGGATAAACGCTGGGTGTCTTTAA spacer
length: 40 repeater length: 24
38624 2705113 CTTTCAATTCCTTTGAGGATTCAT CGTTATAGTTACGTTAGAATACGACTTCAGAAACGGAAT spacer
length: 39 repeater length: 24
38625 2705177 CTTTCAATTCCTTTGAGGATTCAT CATTACGATATTTATTAACGCAATGTTACAAAACATGGT spacer
length: 39 repeater length: 24
38626 2705241 CTTTCAATTCCTTTGAGGATTCAT CTTTATTACTATGACGAATTAAACGAAATCGCTAACGACTTCT spacer
length: 43 repeater length: 24
38627 2705309 CTTTCAATTCCTTTGAGGATTCAT CGCAAAGTAGAAAAATGGATTGGTCTGGGCGAGAGAAA spacer
length: 39 repeater length: 24
38628 2705373 CTTTCAATTCCTTTGAGGATTCAT CACTGAAGAAGTTGACGGTAGACATGGTCTTTTTTAAG spacer
length: 38 repeater length: 24
38629 2705436 CTTTCAATTCCTTTGAGGATTCAT CCTTTTTCCCCTATGGAGAGAATGTTCTCCCCCTAGAG spacer
length: 38 repeater length: 24
38630 2705499 CTTTCAATTCCTTTGAGGATTCAT CCTGGTAACGTGTACAAAATGTTATTTTTGGCGAGTCA spacer
length: 38 repeater length: 24
38631 2705562 CTTTCAATTCCTTTGAGGATTCAT CAATGTTGATGTTGGGTGAAAAAAGTGAAAATCCAAAAC spacer
length: 41 repeater length: 24
38632 2705628 CTTTCAATTCCTTTGAGGATTCAT CGTTTGATGGGCTTGTATGGTTGCCTCAGCCACCTATA spacer
length: 38 repeater length: 24
38633 2705691 CTTTCAATTCCTTTGAGGATTCAT CAATATGTCGTTAGCAATAATACCATTTTCTAAACGTTTA spacer
length: 40 repeater length: 24
38634 2705756 CTTTCAATTCCTTTGAGGATTCAT CAGTTGATGAACAATAACGAGATAAGATTAAACGCTATT spacer
length: 39 repeater length: 24
38635 2705820 CTTTCAATTCCTTTGAGGATTCAT CATAAACTAGGAAATTGTTGACAGAACTGGGGGTCAT spacer
length: 37 repeater length: 24
38636 2705882 CTTTCAATTCCTTTGAGGATTCAT CTACGCTCAACGTCTGTTACGCCAATTATATCAACATCTAA spacer
length: 41 repeater length: 24
38637 2705948 CTTTCAATTCCTTTGAGGATTCAT CTAGTTAAAGATTCTGAACTAGAAAATGTCCAAATAATAG spacer
length: 40 repeater length: 24
38638 2706013 CTTTCAATTCCTTTGAGGATTCAT ATTTTCAGGATATATTGGTAGGGTGATGGTGGTAGT spacer length:
35 repeater length: 24
38639 2706073 CTTTCAATTCCTTTGAGGATTCAT CAACTATTTAAATCTTTCTCTACACAAATGATAGAGA spacer
length: 37 repeater length: 24

38640 2706135 CTTTCAATTCCTTTGAGGATTCAT CCTTCAGAGGAGAATTTCAAGGAATTCAGGATTTTGGG spacer
length: 38 repeater length: 24

38641 2706198 CTTTCAATTCCTTTGAGGATTCAT CAAATTTATCAAAGGAGTTGAGACAATGATTAAGTTCAC spacer
length: 39 repeater length: 24

38642 2706262 CTTTCAATTCCTTTGAGGATTCAT CGGAAATCAGTAATCACGTTTATACCTTTAACACAAAATA spacer
length: 40 repeater length: 24

38643 2706327 CTTTCAATTCCTTTGAGGATTCAT CCTATTAGACTTTTTTGCAAACGCTAGGGTGTCTGTACGTA spacer
length: 41 repeater length: 24

38644 2706393 CTTTCAATTCCTTTGAGGATTCAT CATTTATCCCAATCATTACAAAAGTAAGTGACAAACT spacer
length: 38 repeater length: 24

38645 2706456 CTTTCAATTCCTTTGAGGATTCAT CATCGTTTTTCGTGCAAATCTAACCAATATTGCTGTTG spacer
length: 37 repeater length: 24

38646 2706518 CTTTCAATTCCTTTGAGGATTCAT CGAGTAATATGGGTGGTAAGATGTCGTTTGAATTTGAAT spacer
length: 39 repeater length: 24

38647 2706582 CTTTCAATTCCTTTGAGGATTCAT CAATTTGAAGCATACGTAGAAGACTACGTTATAT spacer length:
34 repeater length: 24

38648 2706641 CTTTCAATTCCTTTGAGGATTCAT CGAAGATGAACAACAACTGAAAGTAATGATAGTCAAC spacer
length: 38 repeater length: 24

38649 2706704 CTTTCAATTCCTTTGAGGATTCAT CATGACTATGCAAAAAGATGCTCAAGTTCAAATA spacer length:
35 repeater length: 24

38650 2706764 CTTTCAATTCCTTTGAGGATTCAT CGTAAAGTATCGGCTAACGTTTGGATGATGATCTTA spacer length:
36 repeater length: 24

38651 2706825 CTTTCAATTCCTTTGAGGATTCAT CTTACCTAAATATGAGAGGGAACAACCTCCTTACTACAA spacer
length: 38 repeater length: 24

38652 2706888 CTTTCAATTCCTTTGAGGATTCAT CATTTACTATAACTGGTTGTTGGGGAAGGTACTGCAGTATA spacer
length: 41 repeater length: 24

38653 2706954 CTTTCAATTCCTTTGAGGATTCAT CCAAACCTAACCCCATGTCCTTCGTTAGATCGAGTAAA spacer
length: 39 repeater length: 24

38654 2707018 CTTTCAATTCCTTTGAGGATTCAT CTATTTTCAAAAATAGGGAGCCTATACATAAAAATTCATG spacer
length: 40 repeater length: 24

38655 2707083 CTTTCAATTCCTTTGAGGATTCAT CGTTTCCCAACCATGACATCGACCCGCTGTTGTCTAGT spacer
length: 38 repeater length: 24

38656 2707146 CTTTCAATTCCTTTGAGGATTCAT CGTAGACTATTTACAGAAGAGAATAATGAAATGGTTA spacer
length: 38 repeater length: 24

38657 2707209 CTTTCAATTCCTTTGAGGATTCAT TACTAAAGTTGCAACTTCTAGTTCCTTCTCGTGCTTCA

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38660 crispr 4

38661 2685335 GATGAATCCTCAAAGGAATTGAAAG TATTTGAATGAGAAAGAGATAACGAAAGTTTTGAATT spacer
length: 37 repeater length: 25

38662 2685398 GATGAATCCTCAAAGGAATTGAAAG TATTGAGACAGAAGGAAGCGGGAGTTAAGACCCTCAAAGAGA spacer
length: 42 repeater length: 25

38663 2685466 GATGAATCCTCAAAGGAATTGAAAG TTATGGCAGATGATAACTCGTCAATTGCCTCTTCTGCAC spacer
length: 39 repeater length: 25

38664 2685531 GATGAATCCTCAAAGGAATTGAAAG GCTTTACGACGAGGGGGTTCGCCCCCTAGTACATCTGCA spacer
length: 38 repeater length: 25

38665 2685595 GATGAATCCTCAAAGGAATTGAAAG AGATCTTACCCACATCCGCCTCATGTCTAAAAGTAATATT spacer
length: 40 repeater length: 25

38666 2685661 GATGAATCCTCAAAGGAATTGAAAG TGATATGACTTTCAAAGCGACCTTCTTCCCTACCTCATTTT spacer
length: 41 repeater length: 25

38667 2685728 GATGAATCCTCAAAGGAATTGAAAG ACACAGAAAAGTAAACCGTTAGTCCCTGCACAAATAGAG spacer
length: 39 repeater length: 25

38668 2685793 GATGAATCCTCAAAGGAATTGAAAG GTATTCCCAAAGCTTATGAATTCATATTTACATTTA spacer
length: 37 repeater length: 25

38669 2685856 GATGAATCCTCAAAGGAATTGAAAG TTCCATATTTCAATGATAGAAAAATATCAATGTCAATAT spacer
length: 40 repeater length: 25

38670 2685922 GATGAATCCTCAAAGGAATTGAAAG TTCCATATTTCAATGATAGAAAAATATCAATGTCAATAT spacer
length: 40 repeater length: 25

38671 2685988 GATGAATCCTCAAAGGAATTGAAAG CACGAGCATTAATCCATGTTTTATTTAGAGCATTTAAAC spacer
length: 39 repeater length: 25

38672 2686053 GATGAATCCTCAAAGGAATTGAAAG ATAGAGGACTTAAGGAGTGGTTATGGAAGAATAATTTTA spacer
length: 39 repeater length: 25

38673 2686118 GATGAATCCTCAAAGGAATTGAAAG GGTATAAGAATAACAAAGAGCACTATACACCGCATATTCTT spacer
length: 41 repeater length: 25

38674 2686185 GATGAATCCTCAAAGGAATTGAAAG GTATGTCGTTATGAACTACGTTATTGGATTTCATCGTTA spacer
length: 38 repeater length: 25

38675 2686249 GATGAATCCTCAAAGGAATTGAAAG AAGAACAATTTTAGCATATAATCCATTATTGATTAT spacer
length: 36 repeater length: 25

38676 2686311 GATGAATCCTCAAAGGAATTGAAAG AATCCATCTAATTCGAATTCACCTGTTTTTCTTCAA spacer
length: 38 repeater length: 25

38677 2686375 GATGAATCCTCAAAGGAATTGAAAG CCATAGAGAATGTTATAATAGTTGATGATTACA spacer length:

33 repeater length: 25

38678 2686434 GATGAATCCTCAAAGGAATTGAAAG ATGATTCCCCTTTGAATGACGTCAGGAAACGTCGTAAA spacer
length: 38 repeater length: 25

38679 2686498 GATGAATCCTCAAAGGAATTGAAAG TTTTCTGAGTCTTTATAGCAATACACTCGTTT spacer length:
33 repeater length: 25

38680 2686557 GATGAATCCTCAAAGGAATTGAAAG TTAATTCCACAACCACCAATTTACACAACCACAACACCAGCCA spacer
length: 42 repeater length: 25

38681 2686625 GATGAATCCTCAAAGGAATTGAAAG AATAATTTGATTACTTTATCGTAGAACTCCTTTTCCTT spacer
length: 38 repeater length: 25

38682 2686689 GATGAATCCTCAAAGGAATTGAAAG AAAAATATCTCAATAATATTGTCAGATGGCACTTCA spacer
length: 36 repeater length: 25

38683 2686751 GATGAATCCTCAAAGGAATTGAAAG ATAATCGCATAATCCGCAATATAATAACCCATCACCA spacer
length: 37 repeater length: 25

38684 2686814 GATGAATCCTCAAAGGAATTGAAAG CTCCTTGAGGCACTGTGATATTCTCGGCTCTCGCAAAT spacer
length: 38 repeater length: 25

38685 2686878 GATGAATCCTCAAAGGAATTGAAAG CTTTCTTTTCCTTCTTCTGTTCAAGAAGCTTTATTAGGAA spacer
length: 40 repeater length: 25

38686 2686944 GATGAATCCTCAAAGGAATTGAAAG AGCTGAACTTCATCTGGAGATATTTCCAGGTCAGTGTT spacer
length: 38 repeater length: 25

38687 2687008 GATGAATCCTCAAAGGAATTGAAAG AGGTTTCTTTGTTGATACCACTTATATAATTCGTA spacer length:
35 repeater length: 25

38688 2687069 GATGAATCCTCAAAGGAATTGAAAG TTAAATATCGTTATGTTGATTTCTTCACCTAACGTCT spacer
length: 37 repeater length: 25

38689 2687132 GATGAATCCTCAAAGGAATTGAAAG ATACGACAACGTGCACCGCCATAACGTTTGACTCTCTTA spacer
length: 39 repeater length: 25

38690 2687197 GATGAATCCTCAAAGGAATTGAAAG TTAAGGGCCGTTTTCAACACGTCTATATCACGTTTAG spacer
length: 37 repeater length: 25

38691 2687260 GATGAATCCTCAAAGGAATTGAAAG AGCCAGACTAAAAAATTGAATACATCACATGCATT spacer length:
35 repeater length: 25

38692 2687321 GATGAATCCTCAAAGGAATTGAAAG TGTATTGAAGTTCCGTAACATAGTTAACAACCTTTCCGT spacer
length: 39 repeater length: 25

38693 2687386 GATGAATCCTCAAAGGAATTGAAAG GGTTAATAATAAACAACAATCGAAATATATTAGCATTAGC spacer
length: 40 repeater length: 25

38694 2687452 GATGAATCCTCAAAGGAATTGAAAG TAATAAAAAATTAGCTTTGACTTGAACTTGTACTGTT spacer
length: 38 repeater length: 25

38695 2687516 GATGAATCCTCAAAGGAATTGAAAG TCCCCGCCTTTGGCGGGGTCGATTTTTTTATTCTTGCCCT spacer
length: 38 repeater length: 25

38696 2687580 GATGAATCCTCAAAGGAATTGAAAG TTTAAAGCGTTAATAAAGTCGTTACCGATTTCTGTTTAA spacer
length: 38 repeater length: 25

38697 2687644 GATGAATCCTCAAAGGAATTGAAAG GACGTCTTCTTCTTCTAACGTTTCTTCTTCTACGTTTA spacer
length: 38 repeater length: 25

38698 2687708 GATGAATCCTCAAAGGAATTGAAAG GTACTTCCAATAGGTTCAAACGTTATGATTTCTTTGTTGTTT spacer
length: 42 repeater length: 25

38699 2687776 GATGAATCCTCAAAGGAATTGAAAG TTAATAAAATCTTTTATTTTCTTCTCATCTATTATAAAGAT spacer
length: 41 repeater length: 25

38700 2687843 GATGAATCCTCAAAGGAATTGAAAG TTTTACTAAAGTTGCAACTTCTAGTTCCTTCTCGTGCTTCA

38701

38702

38703 crispr 5

38704 925827 AAGAAACAAGGAGAAGCCATCCAGGCTTTACAAGA
AACTGTGGATAAACACACCCCAAGCCATAGTATCACTTCAAGAAGTAGTCAAAAAACAAGATGAAGCCATTCAAAGACTCCAGGAGA
CTGTAGATAAGCATACTGAGGCTATAGTATCACTTCAACAAGCAGTCCAATCTTTACAAGAACTGT spacer length:
153 repeater length: 35

38705 926016 AAGAAACAAGGAGAAGCCATCCAGGCTTTACAAGA
AACTGTGGATAAACACACCCCAAGCCATAGTATCACTTCAAGAGATTGTTAAGAAACAAGGTGAGGCTATAGAAGCTCTACAAGATG
CGGT spacer length: 90 repeater length: 35

38706 926142 AAGAAACAAGGAGAAGCCATCCAGGCTTTACAAGA
TGGGGGAAAAATGAAAAATGAATTCTTTCAATTCTTTGAGGATTCACTCAAGGCAATATAAGTTTAGAGTGTTAATGATACTAGA
TACT

38707

38708

38709 GCA_009797925.1_ASM979792v1_genomic.fna(findCrispr):

38710 START REPEAT
SPACER

38711 crispr 1

38712 1937746 CGTCAGTCATCGTCGAACACC
CCCGGAACGCCGTTCCGGCGAGCTCCAATTGCTCACTTCGTTTCGCTCATTGGAACACCGGGGAGACTCACTTCGTTTCGTTCTCCGA
GCTCAACGATTTCCTTCCTA spacer length: 105 repeater length: 21

38713 1937873 CGTCAGTCATCGTCGAACACC GGGAGGCGAAGCGTCCCGAGCTCGACGATTTCGTTCTG spacer length:
38 repeater length: 21

38714 1937933 CGTCAGTCATCGTCGAACACC CACAAGGTCAACCCCAAGGCGGGCAGCCATCCCAAGGC

38715
38716
38717 crispr 2
38718 2208642 GTTTCAGACGGACCCTTGTGG GGTGAAGGTACGTTCTCAGTTACCTCGGGTGACTCTCAAATGA spacer
length: 44 repeater length: 21
38719 2208708 GTTTCAGACGGACCCTTGTGG GGTGAAGGCCTCCTTGGATACGATGTTGACAAGCAAGGGTATAT spacer
length: 45 repeater length: 21
38720 2208775 GTTTCAGACGGACCCTTGTGG GGTGAAGGTTTGTAGTCTGCACCGGATTTTGACACCCACACTTGT spacer
length: 45 repeater length: 21
38721 2208842 GTTTCAGACGGACCCTTGTGG GGTGAAGGGGTCAGCAGAAGGTGCCAAGCAACTCAAGCACGAT spacer
length: 44 repeater length: 21
38722 2208908 GTTTCAGACGGACCCTTGTGG GGTGAAGGACTCCACGGGAGAATATACTCAAATAACTCCGGT spacer
length: 43 repeater length: 21
38723 2208973 GTTTCAGACGGACCCTTGTGG GGTGAAGGCATTCCGGGCTTCAGCGTATCTATAACCTGTTTCG spacer
length: 43 repeater length: 21
38724 2209038 GTTTCAGACGGACCCTTGTGG GGTGAAGGATGATCGGGACGAACGGCGGGGAGAGCACGAGCC spacer
length: 43 repeater length: 21
38725 2209103 GTTTCAGACGGACCCTTGTGG GGTGAAGGGTGATAGGCGAGGTTAGTCATCGGCGACCCCTCG spacer
length: 44 repeater length: 21
38726 2209169 GTTTCAGACGGACCCTTGTGG GGTGAAGGACTTGCGCTAATGGTTTTGCCAAGTTCTTCCTGCT spacer
length: 44 repeater length: 21
38727 2209235 GTTTCAGACGGACCCTTGTGG GGTGAAGGGTCGGCGGCTTTGTACCATTACCCCTCCTTTTTGAG spacer
length: 45 repeater length: 21
38728 2209302 GTTTCAGACGGACCCTTGTGG GGTGAAGGCATTGACAAACGGAGACTCCCAATCAATGTTGCTG spacer
length: 44 repeater length: 21
38729 2209368 GTTTCAGACGGACCCTTGTGG GGTGAAGGCCTTGTGGCGAGTCCGTCGTTGATGGATGCTCGCA spacer
length: 44 repeater length: 21
38730 2209434 GTTTCAGACGGACCCTTGTGG GGTGAAGGACGTAGACTTCCCGGACGTAGTACCCATCTGCCT spacer
length: 43 repeater length: 21
38731 2209499 GTTTCAGACGGACCCTTGTGG GGTGAAGGCCCGCGATCATCCATATCATCTCGGCGCTCTTG spacer
length: 43 repeater length: 21
38732 2209564 GTTTCAGACGGACCCTTGTGG GGTGAAGGTGAGCAACCGGCGCGACTAATCGCACTCAAAGCAT spacer
length: 44 repeater length: 21
38733 2209630 GTTTCAGACGGACCCTTGTGG AGTTGAAGCGTCCCTGCCTCCGCTGCTCCGGGAGACAGTGAGACC spacer
length: 45 repeater length: 21
38734 2209697 GTTTCAGACGGACCCTTGTGG AGTTGAAGCAACGACAGCGGACAGCATGAGCTACGATTTGCG spacer
length: 42 repeater length: 21
38735 2209761 GTTTCAGACGGACCCTTGTGG AGTTGAAGCAACGTGAGTTTGAGATTAGCACTGAAAGCGACGTT spacer
length: 44 repeater length: 21
38736 2209827 GTTTCAGACGGACCCTTGTGG AGTTGAAGCCAATCCTAACCCTGGCCTTGACGTTTCGACTAAG spacer
length: 44 repeater length: 21
38737 2209893 GTTTCAGACGGACCCTTGTGG AGTTGAAGCGAGACGTTGCCACGTCAAAGTACGTCTCATTTG spacer
length: 43 repeater length: 21
38738 2209958 GTTTCAGACGGACCCTTGTGG AGTTGAAGCCTGATCGGCGATCCGGGCGTCGGGAAATCCGTGGCG spacer
length: 45 repeater length: 21
38739 2210025 GTTTCAGACGGACCCTTGTGG AGTTGAAGCGCACCAACTACCGATATATTGGCCAGTTTCGGCGT spacer
length: 44 repeater length: 21
38740 2210091 GTTTCAGACGGACCCTTGTGG AGTTGAAGCGTCATCAATGAACCGGATGTAATCAGTCCCAGC spacer
length: 43 repeater length: 21
38741 2210156 GTTTCAGACGGACCCTTGTGG AGTTGAAGCGCACCGAAGGAAGCGGCCAAGAGACTTCGGAATAGA spacer
length: 45 repeater length: 21
38742 2210223 GTTTCAGACGGACCCTTGTGG AGTTGAAGCGCTATCATCCATTATATCCGTCCGGCGGTTTTTGAT spacer
length: 45 repeater length: 21
38743 2210290 GTTTCAGACGGACCCTTGTGG GGTGAAGCTATCGGATGCTTTTGTGCGCCAGGCATCACACCCTT spacer
length: 45 repeater length: 21
38744 2210357 GTTTCAGACGGACCCTTGTGG GGTGAAGCAACCGACCTTCGAGCAGTGTGCCTTCTGTGCTGGA spacer
length: 44 repeater length: 21
38745 2210423 GTTTCAGACGGACCCTTGTGG GGTGAAGCCCCACGGAAACAATCTCAGACCTGAACGATGGGCTT spacer
length: 45 repeater length: 21
38746 2210490 GTTTCAGACGGACCCTTGTGG GGTGAAGCCGCCCCGTGTAAGTGTGGGTGTAGAGGTAGCTGT spacer
length: 44 repeater length: 21
38747 2210556 GTTTCAGACGGACCCTTGTGG GGTGAAGCAAGAAAGTCCGTCTGTTGCCTGGGGACCGAACGGA spacer
length: 44 repeater length: 21
38748 2210622 GTTTCAGACGGACCCTTGTGG GGTGAAGCTGCGACATCTCTGCGAGTTTATGTCGAAAACCTCCG spacer
length: 45 repeater length: 21
38749 2210689 GTTTCAGACGGACCCTTGTGG GGTGAAGCGAGGACGGCCCGCTGGCCCTGCCACTGTTTGATT spacer
length: 43 repeater length: 21
38750 2210754 GTTTCAGACGGACCCTTGTGG CCCAAGGCCAACCAACCAAGGTCAACCCCAAGGCGGGCAGCC
38751
38752
38753 crispr 3

38754 2018427 GGTTCAATTCCCATCCGGCCCCG
CTATTGCGACGAACGGACGTGAGGAGCTATGCGGCCAAGGGAATTGAACCCTACCAGTGGCAGCCCGCGCAGCGGAGCGAGCAGGA
ACCTCTGGTTC spacer length: 97 repeater length: 22

38755 2018547 GGTTCAATTCCCATCCGGCCCCG
TAGTATTCTGTGCGGAGCATACCGCGAGCGACGAATACGCTATGATGGAATTGAATCACGGCAAACGGGCACAACGTAGTGAGCGC
GTCTGGCATC spacer length: 96 repeater length: 22

38756 2018666 GGTTCAATTCCCATCCGGCCCCG
CCACTGACGAGCAAGGTCCACCGAACGGGACCGCTGGGCCGTCATCCGGGCCGGGAGACGGGACGACTGAAACCGATCATCCGACA
AACGGGGGCCG

38757

38758

38759 crispr 4

38760 722435 CCGAACGGGACCGCTGGGCCACCA GCCACTGACGAGCAAGGCC spacer length: 20 repeater
length: 24

38761 722480 CCGAACGGGACCGCTGGGCCACCA GCCACTGACGAGCAAGGTCC spacer length: 20 repeater
length: 24

38762 722525 CCGAACGGGACCGCTGGGCCACCA GCCACTGACGAGCAAGGTCC spacer length: 20 repeater
length: 24

38763 722570 CCGAACGGGACCGCTGGGCCACCA GCCACTGACGAGCAAGGCC spacer length: 20 repeater
length: 24

38764 722615 CCGAACGGGACCGCTGGGCCACCA GGCCGTCATCCGGGCCGGGA

38765

38766

38767 crispr 5

38768 1381175 GGCAACCACCCCAAGGCCAACCAC CGCAGGACCAACCCAGAGC spacer length: 20 repeater
length: 24

38769 1381220 GGCAACCACCCCAAGGCCAACCAC CGCAGGACCAACCCAGAGC spacer length: 20 repeater
length: 24

38770 1381265 GGCAACCACCCCAAGGCCAACCAC CACAAGGTCAACCCAGAGC spacer length: 20 repeater
length: 24

38771 1381310 GGCAACCACCCCAAGGCCAACCAC AGGTCAACCCCAAGGCGGGC

38772

38773

38774 GCA_009911715.1_ASM991171v1_genomic.fna(findCrispr):

38775 START REPEAT
SPACER

38776 crispr 1

38777 564623 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC TTTCGGCAAATTATTCCCGAAAATGCACAA spacer
length: 30 repeater length: 35

38778 564689 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CATCCCATCTCTTGATCGCCTCTTCGCGTG spacer
length: 30 repeater length: 35

38779 564755 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGACTGATGGCTGACGGGCCCCGAGGACCTC spacer
length: 30 repeater length: 35

38780 564821 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC
TACCCCATGCGGTTTTACCCGCATTTCCAGATCGAGAACTCTCGTATTTACAACACTCTCAAACCTCGTGCCGGTGTAGGATTTCT
CGATAGTGA spacer length: 95 repeater length: 35

38781 564952 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ATGACGACATAGCCAAGCCTCTCCAGTCCA spacer
length: 30 repeater length: 35

38782 565018 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CACCACGATGAGCAGCGGGATGATGTTGAT spacer
length: 30 repeater length: 35

38783 565084 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ACGCCGAGTAGTCGTTGATCCTGATCGCGT spacer
length: 30 repeater length: 35

38784 565150 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AAGGTTCAGTGTGCATGGTGGTTGACTAT spacer
length: 30 repeater length: 35

38785 565216 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GCATTAGATTCCAGTGGATTGGGATGTCAT spacer
length: 30 repeater length: 35

38786 565282 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CTCACCGTTCCACGTAACGCCCTTGTAGGA spacer
length: 30 repeater length: 35

38787 565348 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CCGTTCGCCACCGCTGTCTGACAGTCTCCA spacer
length: 30 repeater length: 35

38788 565414 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AAATGACGGGCATGTATGAGAGCCTGAATG spacer
length: 30 repeater length: 35

38789 565480 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GCGTTCGTCTGGAACCTGAAGCTGAATGAA spacer
length: 30 repeater length: 35

38790 565546 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GATGTCCTGCACGTTCCCCCAGTCCTGCGAC spacer
length: 31 repeater length: 35

38791 565613 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ACGATCTCGGCGATCAGTTCGGCGTCACTC spacer
length: 30 repeater length: 35

38792 565679 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CGAACCTCTGCCGTTGTTCTGATCTCCATA spacer
length: 31 repeater length: 35

38793 565746 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CTGATGCACACCCCTAACATGCCGTTCTCG spacer

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length: 30 repeater length: 35
38794 565812 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGATGATCAATGGGAAGGAGTCCTTTCCCT spacer
length: 30 repeater length: 35
38795 565878 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AAGACATGATGGTGAAAGGATGCGTTTCGA spacer
length: 30 repeater length: 35
38796 565944 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AAAGAAGCAGAACAAAGACGGCAATCGCCG spacer
length: 30 repeater length: 35
38797 566010 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ATCATTTCTCCGACTCGGACCATCCCAGAAA spacer
length: 30 repeater length: 35
38798 566076 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ACATACATCTACTTCCACGAGATAAAGAAG spacer
length: 30 repeater length: 35
38799 566142 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AAACCAAAGAGGGGATGTTTCGTGGCTTCAT spacer
length: 30 repeater length: 35
38800 566208 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC TGAAGACAGCCTTCGACCTGAACGACGGTA spacer
length: 30 repeater length: 35
38801 566274 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CAAGCTTGTTCTGCTCTGTGGTCAAGTCAT spacer
length: 30 repeater length: 35
38802 566340 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GTGACAGGAAGGCATCGGAGTTCATCATCC spacer
length: 30 repeater length: 35
38803 566406 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ATAGAGAGGGGAGATGATTTACACATCCCC spacer
length: 30 repeater length: 35
38804 566472 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CGGCCACCGGTCCTCACGGCCGTCTTCGAA spacer
length: 30 repeater length: 35
38805 566538 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CGAAGGCGTTCGGTTTTCGTAGAACCTGATC spacer
length: 30 repeater length: 35
38806 566604 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CGCGCGCACGCGATTAAAACCAGTTATCGT spacer
length: 30 repeater length: 35
38807 566670 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AAAATGGTCGTTTTGAAGCAATGATACAGG spacer
length: 30 repeater length: 35
38808 566736 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GTGACCATCTTAACGGCGGTTCTTCGATG spacer
length: 30 repeater length: 35
38809 566802 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AGGTTATCGTAAGGATGCTCTCGAGATCGT spacer
length: 30 repeater length: 35
38810 566868 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CCACTTCCAATCTTCACACCACCAAGCGTA spacer
length: 30 repeater length: 35
38811 566934 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CAGGCCGTTTTGGATAATCCGGATTTTCTC spacer
length: 30 repeater length: 35
38812 567000 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ATGGTTCGATGTTTACCACGGTCTACAATG spacer
length: 30 repeater length: 35
38813 567066 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGTCCGGCGTGTACGTCCCCGTCCCCTCTC spacer
length: 30 repeater length: 35
38814 567132 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AGGCCGAGAGGCATCGGATCATCTTCACCG spacer
length: 30 repeater length: 35
38815 567198 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC TCGGAATCGACAGCCAGGACGCATTCCAGA spacer
length: 30 repeater length: 35
38816 567264 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AGAACACAACTGGACAAGATCTAACCGCC spacer
length: 30 repeater length: 35
38817 567330 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CTTATGAACGGCTTTTTGGATAACAACCGC spacer
length: 30 repeater length: 35
38818 567396 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GCATGTCATCGTATGCCATCTTACCTCATC spacer
length: 30 repeater length: 35
38819 567462 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CATGCGCCACGTCTCCAGATCCGTGGGCA spacer
length: 30 repeater length: 35
38820 567528 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC AACCTACCTAACCTTGTTCCGATGAAGATT spacer
length: 30 repeater length: 35
38821 567594 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC CACTATCTCGTCGCCCTCTTCATCCCTCTT spacer
length: 30 repeater length: 35
38822 567660 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC GGAATTCCTCGGTATCATCAGTCATAAGGA spacer
length: 30 repeater length: 35
38823 567726 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC ACATCTCAGAACCTCCCGACCTTGACGGTC spacer
length: 30 repeater length: 35
38824 567792 ATCGAGAACTCTCGTATTTGACAACACTCTCAAAC TATGTTGTCACGTGGAAAAAGCACTATCTC
38825
38826
38827 GCA_009914355.1_ASM991435v1_genomic.fna(findCrispr):
38828 START REPEAT
38829 SPACER
38829 crispr 1
38830 1670911 GAGAGGTCAATTTCAAGTGTA ACCATGGAGTTCATGGTACACCCTGGATG spacer length: 29
repeater length: 22
38831 1670963 GAGAGGTCAATTTCAAGTGTA AAGTGTTCAATTCATGGCAGCTTCTTGAGTT spacer length: 30

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repeater length: 22

1671016 GAGAGGTCAATTTCAAGTGTA CTAGAACTAGACCAAGATTCTATCAATAAC

crispr 2

1499320 CCCACTATATCAGGGACCTTAATAG

GGGGTAAGCTCGGCCATTAAAGGAGGGGATATGACTGTACACCCACGCCTTGAAGTCTCCACTTGCTCCTCATGAT
spacer length: 79 repeater length: 25

1499425 CCCACTATATCAGGGACCTTAATAG

AGGGTAAGCTCGGCCATTCAAAGGAGGGGATATGACTGTACACCCACACCTTAAATTCCTCCCACTTGCTCCTCATGAT
spacer length: 79 repeater length: 25

1499530 CCCACTATATCAGGGACCTTAATAG

AACTAGACCAAGATTCTATCAATAACATCATAAACATCCTCAACAAATTCGGCGAAAAAACCAGAACTCCTAGAAAA

crispr 3

604710 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTCAACAACGGCTTTATGGCCGTTGCTGAAAAAGTA spacer
length: 37 repeater length: 30

604778 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATAAATAAAGAACTTGAAAAAGCAATAGACACCATA spacer
length: 37 repeater length: 30

604846 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGACGATGAAGGCCTCACACAGACATTGCAAATCCT spacer
length: 36 repeater length: 30

604913 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAAAAAAAAAAAGAAATGGGGTGAAAGAAAATGGAAATCAA
spacer length: 41 repeater length: 30

604985 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGCATAGGTCTGGGGAAGATAGTGACGTCAAACCA spacer
length: 35 repeater length: 30

605051 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTGCAATAATAATAATGACAATAAGTCTACTGATC spacer
length: 35 repeater length: 30

605117 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCATGCATGGAGAGACCGAATCCCAGAAATAGATGAA spacer
length: 37 repeater length: 30

605185 ATTTCAATCCCATTTTGGTCTGATTTTAAC GACGTTATCATAGATTCCGGTCAGAATACTCCTCCC spacer
length: 36 repeater length: 30

605252 ATTTCAATCCCATTTTGGTCTGATTTTAAC GCATAGGTCTGGGGAAGATAGTGACGTGACACCA spacer
length: 34 repeater length: 30

605317 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTGCTAAAAACCTTAATCAAAAAAATATCAAACC spacer
length: 35 repeater length: 30

605383 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAGGGATGGGCGGAGTATCACCATAGCATCTGAA spacer
length: 35 repeater length: 30

605449 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTAGTTGAAATGGGAATGCCAGAAGAAGAAAGAAA spacer
length: 36 repeater length: 30

605516 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAAAAGAATATGGGGTGATTTGATGAAAAAACAGA spacer
length: 36 repeater length: 30

605583 ATTTCAATCCCATTTTGGTCTGATTTTAAC
TTATACTTCGCATTATACTTCGCATTATACTTCGCATTATACTTCGC spacer length: 47 repeater length: 30

605661 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTGGGCAAAAAACGCCAGGCAGTACTAGAAGAAG spacer
length: 36 repeater length: 30

605728 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATACTATAGACGATAAAGAATAGCATACCAAACG spacer
length: 35 repeater length: 30

605794 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGGAGGAGCAGGTGGAGGACCCGATCCGCTTCCTC spacer
length: 35 repeater length: 30

605860 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGAGAAGTACGCACAAGATGCGTACTTCGCCAAGTT spacer
length: 38 repeater length: 30

605929 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGAGAAGTACGCACAAGATGCGTACTTCGCCAAGTT spacer
length: 38 repeater length: 30

605998 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTATCATGTAGTTTTACCAAACATACCATTTGAGTG spacer
length: 36 repeater length: 30

606065 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGTGCGGAGGAGTATGAGGCGTACGTGAACGTTGAG spacer
length: 36 repeater length: 30

606132 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGAGTTCATCGAGAGTGAAGTACTTCCTCTCG spacer
length: 32 repeater length: 30

606195 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTCACAAGCCGTGGGAAATATGTGAACGGAAAGTA spacer
length: 36 repeater length: 30

606262 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGAGAAAGAGTCGAAATATTGGAAGACGTATTCA spacer
length: 35 repeater length: 30

606328 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCTCGCTGAATACATTGAGGAGGCGAAGAATAT spacer
length: 36 repeater length: 30

606395 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGAAGTAGCCCTCCCCGACAACTGCGAATTAATCTT spacer
length: 36 repeater length: 30

606462 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTTAATGAGTATGTAGGTAGTGTATAGTCTAC spacer
length: 35 repeater length: 30

606528 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGAACGGCATTCAGAATTATTCATTACCCTTT spacer

length: 35 repeater length: 30
38870 606594 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAGGTAAGATACGTGGTCGGAGTCACAGTGGAG spacer
length: 34 repeater length: 30
38871 606659 ATTTCAATCCCATTTTGGTCTGATTTTAAC TAGGCAAACGAAAAAGAATAATGGAAATCACAAAAG spacer
length: 36 repeater length: 30
38872 606726 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCATTTGAGCAGATAGAATTCGCGCTTATGGACCCA spacer
length: 36 repeater length: 30
38873 606793 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCTGTGGTGTCTTCTACTAGTTTTCCGCCGTGTCTG spacer
length: 36 repeater length: 30
38874 606860 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAGGCCGGGTAAAGCCACCAGAACCCCCTGGAG spacer
length: 35 repeater length: 30
38875 606926 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAGAAATATTCGCCAGGATATGCATGGAAACAA spacer
length: 33 repeater length: 30
38876 606990 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATGAGCTGGAGGAAATAGCAGGATCAGAATTAGA spacer
length: 35 repeater length: 30
38877 607056 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGTACCAAAGTCCATATAGATTATTATGGAGGTTT spacer
length: 35 repeater length: 30
38878 607122 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAAGTAATATGTCTCCAAATAGAGCAAAAGCC spacer
length: 34 repeater length: 30
38879 607187 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGATGAAAGAAGATAATTTAGAACAGGCTGAACAAGTT spacer
length: 38 repeater length: 30
38880 607256 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACACCACCCAAACCAGTCATAGAAGCCTACTTCACA spacer
length: 36 repeater length: 30
38881 607323 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCCTCCACCACACCCTCCAAGACCAGGAAGGATGG spacer
length: 35 repeater length: 30
38882 607389 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCCTGAGTGGAGCGTTCGGAGCAACCGAAGCAGA spacer
length: 35 repeater length: 30
38883 607455 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTCATAGTGACAGGCAGCGTAAAATACGTGCA spacer
length: 34 repeater length: 30
38884 607520 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTTCCTGTGGGAGGTTTCTGATTGTCTCTGAGACG spacer
length: 36 repeater length: 30
38885 607587 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCTCAGCGAAGAAGGCGGGCAATAGTAGTCAGTGG spacer
length: 36 repeater length: 30
38886 607654 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAACTTCGCTGACAACAAAATACACATACATAATA spacer
length: 35 repeater length: 30
38887 607720 ATTTCAATCCCATTTTGGTCTGATTTTAAC
TCACACTCGAACACAGGAAAACACAGGAGAAGATCAATTTCAATCCCATTTTGTCTGATTTTAATATATACTTGATTCCATA
GATATAGATATGTGG spacer length: 101 repeater length: 30
38888 607852 ATTTCAATCCCATTTTGGTCTGATTTTAAC GGATCTGAGGCGTCAGAGCCGCCAGCCGATCACCA spacer
length: 35 repeater length: 30
38889 607918 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATTCCCAAGGGAAGTGAACATTGTTGATGGCT spacer
length: 35 repeater length: 30
38890 607984 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAATTCATTACCTCCACCTTGAATAAGTCGATGCGTG spacer
length: 38 repeater length: 30
38891 608053 ATTTCAATCCCATTTTGGTCTGATTTTAAC AGACCGTCGCTGAGGCTTATGGAGACACTATATTTT spacer
length: 36 repeater length: 30
38892 608120 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATGAATAGAAATATAAGGGAAATAAGGGAATAT spacer
length: 34 repeater length: 30
38893 608185 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTGCCACCATGAAACTTCCCAATTCCCATTAGGAA spacer
length: 36 repeater length: 30
38894 608252 ATTTCAATCCCATTTTGGTCTGATTTTAAC GATGACATAATAACATTTGCATACCAATTACACAAAG spacer
length: 37 repeater length: 30
38895 608320 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTCCTGTGACTGTGAATCTAGCCCCTACATC spacer
length: 34 repeater length: 30
38896 608385 ATTTCAATCCCATTTTGGTCTGATTTTAAC TCTGTTGCGTTGTTGAAGTATCCTAGTTCATCTAT spacer
length: 35 repeater length: 30
38897 608451 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAATACAATTACCGAGTACTTGTAAGCATCTTCA spacer
length: 35 repeater length: 30
38898 608517 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAATGTTACGTCTACAATGGCACAGGAAGGTATG spacer
length: 34 repeater length: 30
38899 608582 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAGTAGCCAGTTCAATGTGAACATCACTGAATTAAAT spacer
length: 37 repeater length: 30
38900 608650 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGTGCGGAGGAGAACATTCCGCAGGGACGGATATG spacer
length: 35 repeater length: 30
38901 608716 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGTCAGGAGAATCACCATCATGGCCAGCATCCTCA spacer
length: 35 repeater length: 30
38902 608782 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTCTACTACGTCCATATGCATCACCTCTTTCCCT spacer
length: 35 repeater length: 30
38903 608848 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCGTGCCCTCCATGGAGGAAGACTGAGTCCTCT spacer
length: 33 repeater length: 30
38904 608912 ATTTCAATCCCATTTTGGTCTGATTTTAAC CGGGGGCCGGGAGGACAGCATCATCAATCTTCACT spacer

length: 35 repeater length: 30
38905 608978 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGAACATGGTGTGTAGCGTTTGGCTGAGAGTTC spacer
length: 35 repeater length: 30
38906 609044 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCCTTAAATGATTTGCTGAGTTTCCCCACTTCCTTT spacer
length: 37 repeater length: 30
38907 609112 ATTTCAATCCCATTTTGGTCTGATTTTAAC AATGCATCAGGAAACCAAAAGAAATGGGTATCATA spacer
length: 35 repeater length: 30
38908 609178 ATTTCAATCCCATTTTGGTCTGATTTTAAC ATATCTTATTATGTATATATCTTTTTTGTATTCAT spacer
length: 35 repeater length: 30
38909 609244 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTTAATCAAATTAGTGGTGCAATGGTGGATACAC spacer
length: 35 repeater length: 30
38910 609310 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAATATTGCATATTTATTATGTTTCATATAATATAAA spacer
length: 36 repeater length: 30
38911 609377 ATTTCAATCCCATTTTGGTCTGATTTTAAC CAAAGCCTTAAAAAGCACCATCCAAAAAGTCATAG spacer
length: 35 repeater length: 30
38912 609443 ATTTCAATCCCATTTTGGTCTGATTTTAAC GAAAGCACCGCTATGCACCCCGTTACGGAGAAAC spacer
length: 35 repeater length: 30
38913 609509 ATTTCAATCCCATTTTGGTCTGATTTTAAC CCAAGGGCAAACCCCTAATCAACAACGTCAAAGTT spacer
length: 35 repeater length: 30
38914 609575 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTATTTTCATTATATTTATCACCTATATTTATATAA spacer
length: 36 repeater length: 30
38915 609642 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGTAGATTACTTAAACTCCAGCAATCACCAATGT spacer
length: 35 repeater length: 30
38916 609708 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTTATGTTTCTTACATGTCTTGTTTCCTTGACTGGT spacer
length: 35 repeater length: 30
38917 609774 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTCGCCGATCCGGTAGGGTGTGTTGAAACTGCTCCCT spacer
length: 37 repeater length: 30
38918 609842 ATTTCAATCCCATTTTGGTCTGATTTTAAC AAGGCCACCCTGACGCCAGACCACCCAAACCACCA spacer
length: 35 repeater length: 30
38919 609908 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTATGTCTTGTATTTCTTCGTATTCACTGTGACT spacer
length: 35 repeater length: 30
38920 609974 ATTTCAATCCCATTTTGGTCTGATTTTAAC TGAACGGTTTAAATATAGTTTATGATGATATGGTTG spacer
length: 35 repeater length: 30
38921 610040 ATTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTGTAGAGGTGAAAATTGTAAGAAAAAGACTACAA spacer
length: 39 repeater length: 30
38922 610110 ATTTCAATCCCATTTTGGTCTGATTTTAAC TTAAAGAGTTTGTTAATTTTGTAAAAACCCGTTTG spacer
length: 36 repeater length: 30
38923 610177 ATTTCAATCCCATTTTGGTCTGATTTTAAC ACTAGACCAAGATTCTATCAATAACATCATAAACAT
38924
38925
38926 crispr 4
38927 999901 GTTTCAATCCCATTTTGGTCTGATTTTAAC GGTTATCCGGTTTCCTTCTTCGTCGTGGATGGTTGTGCG spacer
length: 39 repeater length: 30
38928 999971 GTTTCAATCCCATTTTGGTCTGATTTTAAC TGAGATGGAAAAAGCTGTAGAGAAAATCATGGATG spacer
length: 35 repeater length: 30
38929 100037 GTTTCAATCCCATTTTGGTCTGATTTTAAC CATATTACGAAAGGTGTAGAGACCTCCTACAAGAG spacer
length: 35 repeater length: 30
38930 1000103 GTTTCAATCCCATTTTGGTCTGATTTTAAC TCTACAGTTCCCGGCTATCCTATGACAAGTACATC spacer
length: 35 repeater length: 30
38931 1000169 GTTTCAATCCCATTTTGGTCTGATTTTAAC GGGTGCTTTGATCTGCCGGTTCCTGTTGTTTATCAGG spacer
length: 37 repeater length: 30
38932 1000237 GTTTCAATCCCATTTTGGTCTGATTTTAAC GTCCGGATCACCTTGTAGGTGATGGAGGGGTGCGAAA spacer
length: 36 repeater length: 30
38933 1000304 GTTTCAATCCCATTTTGGTCTGATTTTAAC CGAGTATAAAGGCGTGAAAACACGCCAATACCTCT spacer
length: 35 repeater length: 30
38934 1000370 GTTTCAATCCCATTTTGGTCTGATTTTAAC TGATACGCTGAAAAAGAGATAGGATAGAGGTGGTG spacer
length: 35 repeater length: 30
38935 1000436 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACATGCAACGCCGCTACAACCTCTTCAAGAAGGAAA spacer
length: 36 repeater length: 30
38936 1000503 GTTTCAATCCCATTTTGGTCTGATTTTAAC AGGACCATATCATATTCAGCGCTGGCGAGGAAGGT spacer
length: 35 repeater length: 30
38937 1000569 GTTTCAATCCCATTTTGGTCTGATTTTAAC CCTGCGGAGGAACTCATCATCATCACGGATATCAT spacer
length: 35 repeater length: 30
38938 1000635 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACTACACGGTTCAATGTGAACAATTGTATTCGTTTC spacer
length: 36 repeater length: 30
38939 1000702 GTTTCAATCCCATTTTGGTCTGATTTTAAC GCATTACTAAACCTATCACCATAATAATAATCATAC spacer
length: 36 repeater length: 30
38940 1000769 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACACATTAGATATGATAGAAAAGGGTAGATACTA spacer
length: 34 repeater length: 30
38941 1000834 GTTTCAATCCCATTTTGGTCTGATTTTAAC TTGTTTTTCAGCCTGTCGCATTTCAATAGCGACTAC spacer
length: 36 repeater length: 30

38942	1000901	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTGGCAGTGGTGTAGTACTATGTCACTGCTACGT spacer
	length:	34	repeater length: 30
38943	1000966	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CGAATCAATTTTACAACGTGTTCAATTTGGCAAATT spacer
	length:	35	repeater length: 30
38944	1001032	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTGGAAACAACCACATCAAAACGGTAGGTGATAGAT spacer
	length:	36	repeater length: 30
38945	1001099	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACGGAGGTGACATCAATGAAAACGAAGACGATAGAGAGG
	spacer length:	39	repeater length: 30
38946	1001169	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTGACGCGGATGAGTGTCTTCCCCGTCTGGGTTC spacer
	length:	36	repeater length: 30
38947	1001236	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTCTTTTCCGTGTCTCTTCCTTTCTGTTTCTCTCA spacer
	length:	35	repeater length: 30
38948	1001302	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGGGTCGTGAGGCCCTCCTCCAGGCCATAACT spacer
	length:	33	repeater length: 30
38949	1001366	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTCTCCTGCCCAGTATTTTCATCATGATGCACCTT spacer
	length:	34	repeater length: 30
38950	1001431	GTTTCAATCCCATTTTGGTCTGATTTTAAC	AATAAATTAATAAAAAGTAACAAAGTAACAAAGTAAC spacer
	length:	36	repeater length: 30
38951	1001498	GTTTCAATCCCATTTTGGTCTGATTTTAAC	AAGGAGGTGAAAGGGAAATGATGAAAGAGATCCT spacer
	length:	34	repeater length: 30
38952	1001563	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GATGAAAAAAACTTCCTTGAAGGTGAAAAAATG spacer
	length:	35	repeater length: 30
38953	1001629	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATTTCTACCATATCTATCACCTATTTCTGTTTTT spacer
	length:	35	repeater length: 30
38954	1001695	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATTTTTCGTTTTTCATTGATGTCACCTCCGTGCTT spacer
	length:	35	repeater length: 30
38955	1001761	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAATGAGAAGAGTTGAAGTGAGCGCCCTCCATAGG spacer
	length:	35	repeater length: 30
38956	1001827	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CATCTGCGCCTTCTCCTTCTTTTTCTCATGATGACC spacer
	length:	36	repeater length: 30
38957	1001894	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTGGCCCAGATAGTCAACATGATCCTTCAAGATG spacer
	length:	34	repeater length: 30
38958	1001959	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GGGGTGCGGTTTCGTGCAGAATTTTCGTGAACCTCCT spacer
	length:	35	repeater length: 30
38959	1002025	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAAAACAGGGAGCACAGCCATATAAACACGTTACG spacer
	length:	36	repeater length: 30
38960	1002092	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACACCGACTACCACAGCCTTCCCTTCCAAGTCACCA spacer
	length:	36	repeater length: 30
38961	1002159	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACGGTCACAGGGGGCTCCTTCACAGAGGGAACAC spacer
	length:	34	repeater length: 30
38962	1002224	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGGCCAGCCCCGCCCGCAGCGCCAGCGAAGAGG spacer
	length:	34	repeater length: 30
38963	1002289	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GATGATGCGGGCGAACAATCTGCTGAACTACTACG spacer
	length:	35	repeater length: 30
38964	1002355	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TGCTTTTAGGTGCTCTAGTATAATTTATTAACATTG spacer
	length:	36	repeater length: 30
38965	1002422	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTTGTGATGAAAAGAGTAGATGAGAAACAGAAA spacer
	length:	33	repeater length: 30
38966	1002486	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TAATATAGTGGAATTTGGAGATGAATAAAATGAAA spacer
	length:	35	repeater length: 30
38967	1002552	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTACATACCCACTACATACCCACTTAAGAATAAAAA spacer
	length:	36	repeater length: 30
38968	1002619	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CGTCTCAGGGCTGATCAGATCGCGAGGAGTATCGC spacer
	length:	35	repeater length: 30
38969	1002685	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGAAATGGGGACTACGAACCTTGTATTCTACGTCGC spacer
	length:	35	repeater length: 30
38970	1002751	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GGCCCCGTTGGAAGGCCTTCGACGCCGCTAAGAACT spacer
	length:	35	repeater length: 30
38971	1002817	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAGTTGTAAAATTGATTTGGGTACTGACCTTGATT spacer
	length:	35	repeater length: 30
38972	1002883	GTTTCAATCCCATTTTGGTCTGATTTTAAC	AATTGGTTCTGGATGCCCTTGAAAAGGATTTTA spacer
	length:	33	repeater length: 30
38973	1002947	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTTGGGGTTGGTGGGGTGAGGTTGAGCCTTATTT spacer
	length:	34	repeater length: 30
38974	1003012	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ATGTAATATTATATATATATCTTTTTTGTATATAT spacer
	length:	35	repeater length: 30
38975	1003078	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTGATCTCCTCGAGGATGTCTGTGTCTGTGTCTGTT spacer
	length:	36	repeater length: 30
38976	1003145	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TAACCCAAAGTAAGAAAATAAAAAATGTTTCAGAAT spacer
	length:	35	repeater length: 30
38977	1003211	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATGTGGTTATAACCAGCCCGTTTCCTCAAGATTCT spacer

	length: 35	repeater length: 30	
38978	1003277	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACTTGCAGGGATCATCGATGCAGTGGCCAGGCACC spacer
	length: 35	repeater length: 30	
38979	1003343	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAATCGTGTGGTGACCTTGCAAATGGTGCAAATA spacer
	length: 34	repeater length: 30	
38980	1003408	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCTCGGACGGAGATCCTCCCACTGCAGAAGATGCA spacer
	length: 35	repeater length: 30	
38981	1003474	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAGGCTTTCATCAGCCTGAATGAAGCCACCCACGGA spacer
	length: 36	repeater length: 30	
38982	1003541	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GCATCCATCAAGGGCTCCACACCAACATCTAGTATA spacer
	length: 36	repeater length: 30	
38983	1003608	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TGGACGAATCATTAAAACACGCCGTTAAGTTCGTA spacer
	length: 35	repeater length: 30	
38984	1003674	GTTTCAATCCCATTTTGGTCTGATTTTAAC	AAGCCCAACCCCCCGTTGCACTATCCAGATTATTG spacer
	length: 35	repeater length: 30	
38985	1003740	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GTGGAGCATACTCATACATGCTCCACATAAAAA spacer
	length: 33	repeater length: 30	
38986	1003804	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GGTCCAAGTGGATGAGACTGGAGCGATAGTGGAGTATGTG
	spacer length: 40	repeater length: 30	
38987	1003875	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTGTACGACAAATATGGACTATATGGGCTATAC spacer
	length: 33	repeater length: 30	
38988	1003939	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGGTCTAATTTCTCTTTCCTACTGTGGCTTCATCTG spacer
	length: 35	repeater length: 30	
38989	1004005	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TAATGCGAGGCTCACGGCTTTGACTTTGGCGTTG spacer
	length: 34	repeater length: 30	
38990	1004070	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAGCGACCCCACAATCATACTAGAACCCCGATCATGG spacer
	length: 37	repeater length: 30	
38991	1004138	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAATTTTTAGGGATACCTAAACTTATTGTGTTCA spacer
	length: 34	repeater length: 30	
38992	1004203	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACGGTTCAGTCCAGTTCTCCCCGTGACTGCATACC spacer
	length: 36	repeater length: 30	
38993	1004270	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TCGACAGTATGCTTAAGGCCCTACCCTCTGAGTACA spacer
	length: 36	repeater length: 30	
38994	1004337	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TACTGCTTCATAACTCCCCTGGCCTCAGCCGGCGT spacer
	length: 35	repeater length: 30	
38995	1004403	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTGATACGTGTGCAAAGTGTTTCATTATTTTTGTA spacer
	length: 34	repeater length: 30	
38996	1004468	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTACACATTTATATAATTCAAGTGTAGTGTAATTGG spacer
	length: 36	repeater length: 30	
38997	1004535	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCAGTTGAACATCTTAACACCCAGCTTAACCTTCA spacer
	length: 35	repeater length: 30	
38998	1004601	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GCTAACCTTTTACTCCTATCTTGTGTATCAAAAAAGT spacer
	length: 37	repeater length: 30	
38999	1004669	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TCACTGAGGGGATGTTGGGTACGCCGGTGGTTCCG spacer
	length: 35	repeater length: 30	
39000	1004735	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCTTAAATGATTTGCTGAGTTTCCCCACTTCCTTT spacer
	length: 35	repeater length: 30	
39001	1004801	GTTTCAATCCCATTTTGGTCTGATTTTAAC	ACTACTTACAGGGTCTTGTATCTGAATATGCACTAA spacer
	length: 36	repeater length: 30	
39002	1004868	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TTATGTGGGACGCTGCTGATCACCCAATAGAAGAA spacer
	length: 35	repeater length: 30	
39003	1004934	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAGCCTGCCAGGACTCGAATACCATCACACGA spacer
	length: 33	repeater length: 30	
39004	1004998	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCGGTCTCATTGGAGCGGCCGGGGCCTCACGCAG spacer
	length: 35	repeater length: 30	
39005	1005064	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CCTTAAATGATTTGCTGAGTTTCCCCACTTCCTTT spacer
	length: 35	repeater length: 30	
39006	1005130	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATCGCTGGATTCGGTACTCTTGAAATGGCGAGCA spacer
	length: 35	repeater length: 30	
39007	1005196	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TATAAATAAACCCATTTACATTATTACAAAAAAA spacer
	length: 34	repeater length: 30	
39008	1005261	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GTGAAACTGCAGCTGCAGGTGCCGCTAATATTAG spacer
	length: 35	repeater length: 30	
39009	1005327	GTTTCAATCCCATTTTGGTCTGATTTTAAC	TGTAAACGGAAAATACAGTTGTGACCGGTGATAAA spacer
	length: 35	repeater length: 30	
39010	1005393	GTTTCAATCCCATTTTGGTCTGATTTTAAC	GAAACTAGTCATAGAAGCCCCAGATGAGACGGTGA spacer
	length: 35	repeater length: 30	
39011	1005459	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CAGGTTTGATATAGATGAATTCCTTGAGTTGAA spacer
	length: 33	repeater length: 30	
39012	1005523	GTTTCAATCCCATTTTGGTCTGATTTTAAC	CTTTATGATGAATAAGCTATTTCCAGGCGTTTT spacer
	length: 33	repeater length: 30	

39013 1005587 GTTTCAATCCCATTTTGGTCTGATTTTAAC CTTTTCAAGTCTCCTTGTCCACTCACCGCCTTTTT spacer
length: 35 repeater length: 30

39014 1005653 GTTTCAATCCCATTTTGGTCTGATTTTAAC TAAATTTGTATCTACCAAAAAAATGGGTGATAAAT spacer
length: 35 repeater length: 30

39015 1005719 GTTTCAATCCCATTTTGGTCTGATTTTAAC TCTATCTACACTGCTATCTGGATGTATATACTTCCA spacer
length: 36 repeater length: 30

39016 1005786 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACGATTTTCTAGGATATTCAGTAGAGAATCAGGA spacer
length: 34 repeater length: 30

39017 1005851 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACATGATTAAATACATATCATGTATATAGTCTAATT spacer
length: 36 repeater length: 30

39018 1005918 GTTTCAATCCCATTTTGGTCTGATTTTAAC TAAAACCTTTGATACTACTGCATTTTACAGCATGGAT spacer
length: 35 repeater length: 30

39019 1005984 GTTTCAATCCCATTTTGGTCTGATTTTAAC TATGCAGTTTTACGATTAGTATTTATACCTTCACCA spacer
length: 36 repeater length: 30

39020 1006051 GTTTCAATCCCATTTTGGTCTGATTTTAAC AAAGAAATAAAGAATTTTCATGATACCACTCAATGG spacer
length: 35 repeater length: 30

39021 1006117 GTTTCAATCCCATTTTGGTCTGATTTTAAC TTTGTTTGGTGGTAAAAAACTACAACACTACAGCTA spacer
length: 35 repeater length: 30

39022 1006183 GTTTCAATCCCATTTTGGTCTGATTTTAAC TATTATTCCGAATAATTGTACTGTGTATGTCCAGC spacer
length: 35 repeater length: 30

39023 1006249 GTTTCAATCCCATTTTGGTCTGATTTTAAC GATTTTAGTAGCATACCGTCTAATGCTACTATAA spacer
length: 34 repeater length: 30

39024 1006314 GTTTCAATCCCATTTTGGTCTGATTTTAAC GTTTTCCGGTTTAACTTCTTCTAATTGGTTATTCTT spacer
length: 36 repeater length: 30

39025 1006381 GTTTCAATCCCATTTTGGTCTGATTTTAAC AAGTTGACTATATTTTGTGTACCTTTTCTATCTAA spacer
length: 35 repeater length: 30

39026 1006447 GTTTCAATCCCATTTTGGTCTGATTTTAAC ACCAAGATTCTATCAATAACATCATAAACATCCTC

39027

39028

39029 crispr 5

39030 1333296 CCTAACAAAACAAGAAATCGAAAAAATACTA
AAAAAAATAGAAGATCAGCAAAATGCTACTGTATAAACTAGACCAAGAATATTATT spacer length: 58
repeater length: 31

39031 1333386 CCTAACAAAACAAGAAATCGAAAAAATACTA
GAACTAGACCAAGATTCTATCAATAACATCATAAACATCCTCAACAAATTATCCGCCAAAAAAACCAAGAACTCCTAGAAAAAAT
AAACAAAACAGATACCTCAAAGTAAAAGAAATAATGGAAAAATATA spacer length: 133 repeater length: 31

39032 1333551 CCTAACAAAACAAGAAATCGAAAAAATACTA
AGATTCTATCAATAACATCATAAACATCCTCAACAAATTCGGCGAAAAAAACCAAGAACTCCTAGAAAAAATAAAAGAAATAATGG
AAAAATATAACCTAACAAAAGCAGAAATCGAAAAAATACTAAAAAAA

39033

39034

39035 GCA_009917665.1_ASM991766v1_genomic.fna(findCrispr):

39036 START REPEAT
SPACER

39037 crispr 1

39038 159619 AATTAAAATAAGATTTAGAATC TCTACTTTTTCTTTTTTTCAGGCATTCATGAAGGATACCTGAT spacer
length: 41 repeater length: 22

39039 159683 AATTAAAATAAGATTTAGAATC TCTACTTTTTCTTTTTTTCAGGCATTCATGATGATATCTGAT spacer
length: 40 repeater length: 22

39040 159746 AATTAAAATAAGATTTAGAATC GAAATCTTATTTATTGTGAATTTTCAAAAAAAGACGTCCT

39041

39042

39043 crispr 2

39044 390592 GAGACATGCATTTCAAGTGTA
ATTTTCCCCGGCAGTCTGCTGGATGTGAAGGAGGACATGCGTTTCAAGTGTAACACTTATTTGTCCACTCAGTCGTGAATG
spacer length: 82 repeater length: 22

39045 390697 GAGACATGCATTTCAAGTGTA TGATTCTGAAATGTTGGATATTGTAAG spacer length: 28
repeater length: 22

39046 390748 GAGACATGCATTTCAAGTGTA AATACAGTGAACCTGAACCTCAAATTCGG

39047

39048

39049 crispr 3

39050 9314 TCTTCAGGTTTCGGTGTTAAGTG ATAATCAAGCAACAGAAAATATAACCAGTA spacer length: 30
repeater length: 22

39051 9367 TCTTCAGGTTTCGGTGTTAAGTG GTAAGTTATCATCTGATCTGTTGATAACCAGTA spacer length: 33
repeater length: 22

39052 9423 TCTTCAGGTTTCGGTGTTAAGTG GAAATGTTGGATGCTCTTAAAAGTATTCTGAGG

39053

39054

39055 crispr 4

39056 1615347 AACATTGAGATAAACCATCACCAGTCAG CACATGTAGTCCTTCTTAGC spacer length: 20 repeater

length: 28

39057 1615396 AACATTCAGATAAACCATCACCAGTCAG GAATCACATGTAGTCCTTCTTAGC spacer length: 24
repeater length: 28

39058 1615449 AACATTCAGATAAACCATCACCAGTCAG TCCGTTTGACCTCATTAACCTTAC

39059

39060

39061 crispr 5

39062 1653809 GGTAAGATTTTGGCTGGTGATGGTTAT TAATCCGTTTGACCTCATTAGGGGATT spacer length: 27
repeater length: 28

39063 1653865 GGTAAGATTTTGGCTGGTGATGGTTAT GAATCCGTTTGACCTCATTAGGGGATT spacer length: 27
repeater length: 28

39064 1653921 GGTAAGATTTTGGCTGGTGATGGTTAT TATTTATTGTGAATTTTCAAAAAAAGA

39065

39066

39067 crispr 6

39068 703766 GCGCCTTACCTGGCTAGGCTATCCCGGCAG
AATAAGTTATTAGTTTTAGAAAAAGGTTTTTAAGCGCCGGGACTGGGATTTGAACCCAGGCGGAGCATGGCTCCACAAGATTTCCA
GTCT spacer length: 90 repeater length: 30

39069 703887 GCGCCTTACCTGGCTAGGCTATCCCGGCAG
AATAAGTTATTAGTTTTAGAAAAAGGTTTTTAAGCGCCGGGACTGGGATTTGAACCCAGGCGGAGAGAATCTCCACGGGATCTCAA
GTCC spacer length: 90 repeater length: 30

39070 704008 GCGCCTTACCTGGCTAGGCTATCCCGGCAG
GTATTACTTTAAACCCCTCTCTTTTTTAAATATTTCATACTTAGAATCTTTTAATTAAGATTTAAATAGAATCTCATCAAATCTCT
TTAC

39071

39072

39073 crispr 7

39074 678589 GCTTTAACTAGACGAAATCGTATGGAAAT TTTGTTCCGCATAATATATATTGTTTTTTGCTTTT spacer
length: 35 repeater length: 30

39075 678655 GCTTTAACTAGACGAAATCGTATGGAAAT GTGGTGGTTTTTTGGAGGATTAAATTATGAAAGAG spacer
length: 34 repeater length: 30

39076 678720 GCTTTAACTAGACGAAATCGTATGGAAAT CACTGCAGGGCGGGGTGTTCAAGAGGGAATGGTTTGAG spacer
length: 38 repeater length: 30

39077 678789 GCTTTAACTAGACGAAATCGTATGGAAAT GTGTCTATCTCCTCCCTCGCAACCCCGGTTAT spacer
length: 35 repeater length: 30

39078 678855 GCTTTAACTAGACGAAATCGTATGGAAAT ATTATACTGTCCCTTTCCAATTGGCTGGTGTTCCT spacer
length: 35 repeater length: 30

39079 678921 GCTTTAACTAGACGAAATCGTATGGAAAT ATGTTGAGATTGTGCTCAGGGCGGTGGATCGTGCCTC spacer
length: 37 repeater length: 30

39080 678989 GCTTTAACTAGACGAAATCGTATGGAAAT AGTGTTTATTTATGTTTTTAGTTGTTATTTTTGTTTT spacer
length: 37 repeater length: 30

39081 679057 GCTTTAACTAGACGAAATCGTATGGAAAT TTTGTGTGATTTTGTGGTTGTTTTCTTGGTCTTGT spacer
length: 36 repeater length: 30

39082 679124 GCTTTAACTAGACGAAATCGTATGGAAAT TATACATGTCTTTTTTATATTCATTTGGTATGTCAA spacer
length: 36 repeater length: 30

39083 679191 GCTTTAACTAGACGAAATCGTATGGAAAT ATTTGTTTATTTGTTTTATTAATTCTTTATTCATATT spacer
length: 37 repeater length: 30

39084 679259 GCTTTAACTAGACGAAATCGTATGGAAAT ATTGTGTATTTGTCGTTGTTTACAATTAGATTCAATA spacer
length: 37 repeater length: 30

39085 679327 GCTTTAACTAGACGAAATCGTATGGAAAT TCTGTATTTTCTATAGAATAATCTTTTTTTATAAA spacer
length: 35 repeater length: 30

39086 679393 GCTTTAACTAGACGAAATCGTATGGAAAT TTATATATTTGTCAAGTTCGTTGAAATTAGGTATG spacer
length: 35 repeater length: 30

39087 679459 GCTTTAACTAGACGAAATCGTATGGAAAT ATGTTAGGCTTGTTAAGGGAGACAAAACATGTG spacer
length: 34 repeater length: 30

39088 679524 GCTTTAACTAGACGAAATCGTATGGAAAT CGGGTAAGTGGTGATAGAGATGAACATAGCGAAAGT spacer
length: 36 repeater length: 30

39089 679591 GCTTTAACTAGACGAAATCGTATGGAAAT ATAACAGTTTGTGGACTATATCCGCTGGTGTACAC spacer
length: 36 repeater length: 30

39090 679658 GCTTTAACTAGACGAAATCGTATGGAAAT TGAGACCAAGACACTCACATTCCCCAGTGGGGCCA spacer
length: 35 repeater length: 30

39091 679724 GCTTTAACTAGACGAAATCGTATGGAAAT CTTGCATTCCCCACCGCGGGGTGCATGATGACCAG spacer
length: 36 repeater length: 30

39092 679791 GCTTTAACTAGACGAAATCGTATGGAAAT ACAGGTGATCCTCCTGTGTTTGTGACTGTGAATGAT spacer
length: 36 repeater length: 30

39093 679858 GCTTTAACTAGACGAAATCGTATGGAAAT TTGGTTTCGGCTATTAGTAGGGAGGAGCGATATTATG spacer
length: 36 repeater length: 30

39094 679925 GCTTTAACTAGACGAAATCGTATGGAAAT TCTGGTTCTATGAGGCACGGGTATTGGGGACCCTTCA spacer
length: 37 repeater length: 30

39095 679993 GCTTTAACTAGACGAAATCGTATGGAAAT ACCGCCCGGGAGATGGAAGTCTTCTACGGCGGAGGCCG spacer
length: 38 repeater length: 30

39096	680062	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGTATCGCCACAGGCCCTCCCCTCGTCTGAGCC	spacer
		length: 35	repeater length: 30	
39097	680128	GCTTTAAACTAGACGAAATCGTATGGAAAT	CATCCAATCATATAATGGGAAGCTCAGGATCCAAT	spacer
		length: 35	repeater length: 30	
39098	680194	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACAGCTGCTACTCCTTCTTGTCTGTCAATATTTCA	spacer
		length: 36	repeater length: 30	
39099	680261	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTCGCAATAAGATCAGCATTCACCCGGAGGATGAT	spacer
		length: 37	repeater length: 30	
39100	680329	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATTGTATTTGATGAACTCGAAGAACGCGTCCCCAC	spacer
		length: 37	repeater length: 30	
39101	680397	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTATCTGAACAGTTTAAAGGTTCTGGGGAATA	spacer
		length: 36	repeater length: 30	
39102	680464	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTG	spacer
		length: 35	repeater length: 30	
39103	680530	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTG	spacer
		length: 35	repeater length: 30	
39104	680596	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGTGTGTGTTAGAGTCCCATCCAGGCCCTGACCC	spacer
		length: 35	repeater length: 30	
39105	680662	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGAAGAGGAGAGGTGAAAGGAATGGTAGTGAATG	spacer
		length: 36	repeater length: 30	
39106	680729	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCTCTTTGAAGACTCATACTACTTAGATAGTTTTG	spacer
		length: 36	repeater length: 30	
39107	680796	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCATGTGTGGAGATCATGAACTACGGAATGGTATA	spacer
		length: 37	repeater length: 30	
39108	680864	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACCAAGCACAAGGAGGGCATGGAAAAAATGGAT	spacer
		length: 35	repeater length: 30	
39109	680930	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACCATTCCGTAGTTTTATGTGTGGAGATCATGA	spacer
		length: 34	repeater length: 30	
39110	680995	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGACTCCACAGAGCATATCATGAACCGGGTGAGG	spacer
		length: 36	repeater length: 30	
39111	681062	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATTGTATTTGATGAACTCGAAGAACGCGTCCCCAC	spacer
		length: 37	repeater length: 30	
39112	681130	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTATCTGAACAGTTTAAAGGTTCTGGGGAATA	spacer
		length: 36	repeater length: 30	
39113	681197	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTG	spacer
		length: 35	repeater length: 30	
39114	681263	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTG	spacer
		length: 35	repeater length: 30	
39115	681329	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGTGTGTGTTAGAGTCCCATCCAGGCCCTGACCC	spacer
		length: 35	repeater length: 30	
39116	681395	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGAAGAGGAGAGGTGAAAGGAATGGTAGTGAATG	spacer
		length: 36	repeater length: 30	
39117	681462	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCTCTTTGAAGACTCATACTACTTAGATAGTTTTG	spacer
		length: 36	repeater length: 30	
39118	681529	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCATGTGTGGAGATCATGAACTACGGAATGGTATA	spacer
		length: 37	repeater length: 30	
39119	681597	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACCAAGCACAAGGAGGGCATGGAAAAAATGGAT	spacer
		length: 35	repeater length: 30	
39120	681663	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACCATTCCGTAGTTTTATGTGTGGAGATCATGA	spacer
		length: 34	repeater length: 30	
39121	681728	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGACTCCACAGAGCATATCATGAACCGGGTGAGG	spacer
		length: 36	repeater length: 30	
39122	681795	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCATTGTATTTGATGAACTCGAAGAACGCGTCCCCAC	spacer
		length: 37	repeater length: 30	
39123	681863	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTATCTGAACAGTTTAAAGGTTCTGGGGAATA	spacer
		length: 36	repeater length: 30	
39124	681930	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTG	spacer
		length: 35	repeater length: 30	
39125	681996	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGGATGGCATCGCTATCAGACTTGATTCGCTACTG	spacer
		length: 35	repeater length: 30	
39126	682062	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGTGTGTGTTAGAGTCCCATCCAGGCCCTGACCC	spacer
		length: 35	repeater length: 30	
39127	682128	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATTGAAGAGGAGAGGTGAAAGGAATGGTAGTGAATG	spacer
		length: 36	repeater length: 30	
39128	682195	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCCTCTTTGAAGACTCATACTACTTAGATAGTTTTG	spacer
		length: 36	repeater length: 30	
39129	682262	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCATGTGTGGAGATCATGAACTACGGAATGGTATA	spacer
		length: 37	repeater length: 30	
39130	682330	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAACCAAGCACAAGGAGGGCATGGAAAAAATGGAT	spacer
		length: 35	repeater length: 30	
39131	682396	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACCATTCCGTAGTTTTATGTGTGGAGATCATGA	spacer

length: 34 repeater length: 30

39132 682461 GCTTTAAACTAGACGAAATCGTATGGAAAT ATGGACTCCACAGAGCATATCATGAACCGGGTGAGG spacer
length: 36 repeater length: 30

39133 682528 GCTTTAAACTAGACGAAATCGTATGGAAAT CCAGTCCTGCTGCTCTGTGATATGCTCCTTGAACCAGT spacer
length: 38 repeater length: 30

39134 682597 GCTTTAAACTAGACGAAATCGTATGGAAAT AGGACATGAAGGATGAGGATATGGATGAGGCCCCATCA spacer
length: 38 repeater length: 30

39135 682666 GCTTTAAACTAGACGAAATCGTATGGAAAT TGATGCATACATACTTTTAAGTCTCAATGATGAGGT spacer
length: 36 repeater length: 30

39136 682733 GCTTTAAACTAGACGAAATCGTATGGAAAT ATCAGGATGGAGAATATGGGTGTGCGGTAGTACCTT spacer
length: 36 repeater length: 30

39137 682800 GCTTTAAACTAGACGAAATCGTATGGAAAT TCCCTTCAATCATCTCATTCACCTCCTATCCAGTTTC spacer
length: 37 repeater length: 30

39138 682868 GCTTTAAACTAGACGAAATCGTATGGAAAT TCTGTTGGAGTGTCTCTGTGAGGCTCCGGGTGGTTT spacer
length: 36 repeater length: 30

39139 682935 GCTTTAAACTAGACGAAATCGTATGGAAAT TGCTGCTCTGCTTCATATCCACATGATCATAGATCT spacer
length: 36 repeater length: 30

39140 683002 GCTTTAAACTAGACGAAATCGTATGGAAAT CATCCCCATCCCCTCAGGGGAGAAATTCATGGTCTCA spacer
length: 37 repeater length: 30

39141 683070 GCTTTAAACTAGACGAAATCGTATGGAAAT ATTCTAGGCGTATAATCCTATCCTCATCCTCCTCCA spacer
length: 36 repeater length: 30

39142 683137 GCTTTAAACTAGACGAAATCGTATGGAAAT TCTGGAGGTTATACGGCAGGGAAACAAGTTATGGTG spacer
length: 36 repeater length: 30

39143 683204 GCTTTAAACTAGACGAAATCGTATGGAAAT GCCTTGGCCAGGGCACTGGCCTCCCCGGCTACCG spacer
length: 34 repeater length: 30

39144 683269 GCTTTAAACTAGACGAAATCGTATGGAAAT CCCTGTATCATCTGATTCCCCAGGGCCGAACCGAACA spacer
length: 37 repeater length: 30

39145 683337 GCTTTAAACTAGACGAAATCGTATGGAAAT GCCTTGGCCAGGGCACTGGCCTCCCCGGCTACCGCC spacer
length: 36 repeater length: 30

39146 683404 GCTTTAAACTAGACGAAATCGTATGGAAAT AGAGGCCTCAGGGAGAATCTGAGCAAGGAATCAGAG spacer
length: 36 repeater length: 30

39147 683471 GCTTTAAACTAGACGAAATCGTATGGAAAT ATGGTCCCGTAGGCTTCTGGGCCTCCGTGATGTAC spacer
length: 35 repeater length: 30

39148 683537 GCTTTAAACTAGACGAAATCGTATGGAAAT AGGAGGATTTTCAAGCCTCTAAACTCCCAGGGATGCT spacer
length: 37 repeater length: 30

39149 683605 GCTTTAAACTAGACGAAATCGTATGGAAAT GCATGTGAAACTCGGGCCCCTGATACTTCTCCACGTCG spacer
length: 38 repeater length: 30

39150 683674 GCTTTAAACTAGACGAAATCGTATGGAAAT TCCGATTGACCGAACAGGAGGGTTCCGAGGAAGAA spacer
length: 35 repeater length: 30

39151 683740 GCTTTAAACTAGACGAAATCGTATGGAAAT TCTGTTGGAGTGTCTCTGTGAGGCTCCGGGTGGTTT spacer
length: 36 repeater length: 30

39152 683807 GCTTTAAACTAGACGAAATCGTATGGAAAT TGCTGCTCTGCTTCATATCCACATGATCATAGATCT spacer
length: 36 repeater length: 30

39153 683874 GCTTTAAACTAGACGAAATCGTATGGAAAT AGAGGCCTCAGGGAGAATCTGAGCAAGGAATCAGAG spacer
length: 36 repeater length: 30

39154 683941 GCTTTAAACTAGACGAAATCGTATGGAAAT ATGGTCCCGTAGGCTTCTGGGCCTCCGTGATGTAC spacer
length: 35 repeater length: 30

39155 684007 GCTTTAAACTAGACGAAATCGTATGGAAAT AGGAGGATTTTCAAGCCTCTAAACTCCCAGGGATGCT spacer
length: 37 repeater length: 30

39156 684075 GCTTTAAACTAGACGAAATCGTATGGAAAT TCGCCCGTAGGGGGCCTCCTTTATGTCTCATGGCCT spacer
length: 36 repeater length: 30

39157 684142 GCTTTAAACTAGACGAAATCGTATGGAAAT TAACACATTCTCCTCCCTCTACGATGACTTCAAAGTC spacer
length: 37 repeater length: 30

39158 684210 GCTTTAAACTAGACGAAATCGTATGGAAAT ATTGTGGCCTCTAAGGCGATTAGAAGCGCTTCCA spacer
length: 34 repeater length: 30

39159 684275 GCTTTAAACTAGACGAAATCGTATGGAAAT CTTCTGATCAACCCCACTGCAAGTGAAAGTGAGGGG spacer
length: 36 repeater length: 30

39160 684342 GCTTTAAACTAGACGAAATCGTATGGAAAT CTGGTGAGTAGGAGGGTCTGCTGGTAGAAAGGGACAT spacer
length: 37 repeater length: 30

39161 684410 GCTTTAAACTAGACGAAATCGTATGGAAAT TTGGCTTCCACCCCATATTTGCCGAGGAGTATCTGGT spacer
length: 37 repeater length: 30

39162 684478 GCTTTAAACTAGACGAAATCGTATGGAAAT CCAGTTGCTCCTGAGCCCCTGCTGGTTTCCAGTACAC spacer
length: 37 repeater length: 30

39163 684546 GCTTTAAACTAGACGAAATCGTATGGAAAT TCATCCGCACTGTACCCAGGGAGTGATTCCAATCGTT spacer
length: 37 repeater length: 30

39164 684614 GCTTTAAACTAGACGAAATCGTATGGAAAT TTGCATGCACCCTCCTGGACCCGCAGAACGGGCACACC spacer
length: 38 repeater length: 30

39165 684683 GCTTTAAACTAGACGAAATCGTATGGAAAT TTGAGCTCTTAAACAAAAAGAGGATTTTAGACAGCC spacer
length: 38 repeater length: 30

39166 684752 GCTTTAAACTAGACGAAATCGTATGGAAAT ACCGTCGACTGCAGACGCAGACGAGTCTACGATTCC spacer
length: 36 repeater length: 30

39167	684819	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACATGTCCTTGAACCCTTTCAGATCCACCTTATCC	spacer
		length: 35	repeater length: 30	
39168	684885	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCTGTCACCCCTGATCACCACCCCTCCTCTTCTTT	spacer
		length: 35	repeater length: 30	
39169	684951	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTTGAAGATGACTGGGACCTCCGGTCTCGGGTAT	spacer
		length: 36	repeater length: 30	
39170	685018	GCTTTAAACTAGACGAAATCGTATGGAAAT	GGGGATGTCACCTTGGTGGGCGCCAAAAGAACTTCCT	spacer
		length: 36	repeater length: 30	
39171	685085	GCTTTAAACTAGACGAAATCGTATGGAAAT	TAATACAAGGTAATGACACAACAGCGGATTACCGCA	spacer
		length: 36	repeater length: 30	
39172	685152	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCGAATCGTTTCTGACTCCCCGCCTCCACGATCTCGGAGTG	
		spacer length: 41	repeater length: 30	
39173	685224	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACACGCAGGGGGCTCCAGAGAGAAATCATCGACCA	spacer
		length: 36	repeater length: 30	
39174	685291	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTCCTTCAATGGCTTCGGAGTAGGCTTCAGGGTCC	spacer
		length: 35	repeater length: 30	
39175	685357	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGGTGCGAGCGTCAAATTCAGTTATACAAGCACACA	spacer
		length: 36	repeater length: 30	
39176	685424	GCTTTAAACTAGACGAAATCGTATGGAAAT	GATGACGGCACC GCGACGCCACAAGAAGTGGGATCCG	spacer
		length: 37	repeater length: 30	
39177	685492	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGAGCCTCCCTGATCTCATCCACAGGGACACCACA	spacer
		length: 35	repeater length: 30	
39178	685558	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGTAGTCGGGGTCGTTTCATGGTTCTGCCTCGCGGA	spacer
		length: 35	repeater length: 30	
39179	685624	GCTTTAAACTAGACGAAATCGTATGGAAAT	CAAGGAGGTTTCAGAGGAACGAGGCCACGCCAGAA	spacer
		length: 36	repeater length: 30	
39180	685691	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCCTGTATCATCTGATTCCCCAGGGCCGAACCGAAC	spacer
		length: 36	repeater length: 30	
39181	685758	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACTGTAGGTGTTGTTTTTAAGGGCTCTGATGACTGGT	spacer
		length: 37	repeater length: 30	
39182	685826	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGTATGAGTAACCAGGAAATATTTGAGGAACTACT	spacer
		length: 36	repeater length: 30	
39183	685893	GCTTTAAACTAGACGAAATCGTATGGAAAT	AGCGCGAGGAATTCCTCAAGACCCTTGAGGAGAGGGT	spacer
		length: 37	repeater length: 30	
39184	685961	GCTTTAAACTAGACGAAATCGTATGGAAAT	TGAGCATGTGGAATTCGGGGCCCTGGTACTTCTCCACATCA	
		spacer length: 41	repeater length: 30	
39185	686033	GCTTTAAACTAGACGAAATCGTATGGAAAT	GGTGAAATGTTCTGCAAGGCCACAGGCACCCAA	spacer
		length: 33	repeater length: 30	
39186	686097	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTACACGGATAAAGCAGACTCCATAATCGCCACAG	spacer
		length: 35	repeater length: 30	
39187	686163	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTCCTTGAGAACCTTCGCACTGCAAGGAGGGGGAT	spacer
		length: 35	repeater length: 30	
39188	686229	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACCTGCAGCAGGTGTGGGGCGGATTACTGTGGAGT	spacer
		length: 35	repeater length: 30	
39189	686295	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACATACCCTGAACTCTCACTCCCAGGGGCTATAATG	spacer
		length: 36	repeater length: 30	
39190	686362	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCTCCCAGTTACAGTCATTGATAAGCCGATTGATGAG	spacer
		length: 37	repeater length: 30	
39191	686430	GCTTTAAACTAGACGAAATCGTATGGAAAT	TACGACTCTCCCAGGGAGTAATGTGCATGGGACAAA	spacer
		length: 36	repeater length: 30	
39192	686497	GCTTTAAACTAGACGAAATCGTATGGAAAT	GAGTATCCTCCATAAGGGTAGTCTAGTTGTTTTCC	spacer
		length: 36	repeater length: 30	
39193	686564	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATCATCCAGTTTTTTAAATCTGCCAGAGCCAAGATTA	spacer
		length: 36	repeater length: 30	
39194	686631	GCTTTAAACTAGACGAAATCGTATGGAAAT	CTGGTAGAATGGGACGTGGGGTATGTAGGGGTTGAG	spacer
		length: 36	repeater length: 30	
39195	686698	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTTGTAACAATATATGACCATACATCCATCCATGTCAA	spacer
		length: 38	repeater length: 30	
39196	686767	GCTTTAAACTAGACGAAATCGTATGGAAAT	AATGATGAAGAGGTGATGAATCCTCCCCCTGAGGAT	spacer
		length: 36	repeater length: 30	
39197	686834	GCTTTAAACTAGACGAAATCGTATGGAAAT	ACGGTGAAGTGGAAGTACTGTGTATGCGCGTTGATG	spacer
		length: 37	repeater length: 30	
39198	686902	GCTTTAAACTAGACGAAATCGTATGGAAAT	ATGGGAGTGTGATATGTTGTGACTTGGAATTTGTAT	spacer
		length: 36	repeater length: 30	
39199	686969	GCTTTAAACTAGACGAAATCGTATGGAAAT	TCGTGGAGAACCATCTGTCTAAGACTTCGTTCTCAG	spacer
		length: 36	repeater length: 30	
39200	687036	GCTTTAAACTAGACGAAATCGTATGGAAAT	TTGTTATCACAGCCAATCTATGGGGCCAGTGTTGTAT	spacer
		length: 37	repeater length: 30	
39201	687104	GCTTTAAACTAGACGAAATCGTATGGAAAT	AACTAGTCTCTTTAGTATGTCAATATTACTCATCCA	spacer
		length: 36	repeater length: 30	
39202	687171	GCTTTAAACTAGACGAAATCGTATGGAAAT	CCGCCAATGTAGGGGCGCTCCCTCCAGAGGTTGAGG	spacer

length: 36 repeater length: 30
39203 687238 GCTTTAAACTAGACGAAATCGTATGGAAAT TTGTGACGGCGGATCCGGTGAGGGCGTTCTGCATAC spacer
length: 36 repeater length: 30
39204 687305 GCTTTAAACTAGACGAAATCGTATGGAAAT ACTCGTAGTCGAGTAGGTCGAGGAAATCCTGCATCA spacer
length: 36 repeater length: 30
39205 687372 GCTTTAAACTAGACGAAATCGTATGGAAAT CTACCCTCAAAGAAGATCAAGAGCAAAAATTCCCGC spacer
length: 36 repeater length: 30
39206 687439 GCTTTAAACTAGACGAAATCGTATGGAAAT CTGAACCGTCCATCCAGTCTGATGAGTTCCTCTGTA spacer
length: 36 repeater length: 30
39207 687506 GCTTTAAACTAGACGAAATCGTATGGAAAT TTTCCCTGATCTGGTTTTTCTCATAGTTTCTTTCTT spacer
length: 36 repeater length: 30
39208 687573 GCTTTAAACTAGACGAAATCGTATGGAAAT CGAAATATGAGAAAAACCCATACCAGAGAGCCTTAT spacer
length: 36 repeater length: 30
39209 687640 GCTTTAAACTAGACGAAATCGTATGGAAAT AATATAAATAAAACAAATACTTAATGTATTAGAATATA spacer
length: 37 repeater length: 30
39210 687708 GCTTTAAACTAGACGAAATCGTATGGAAAT ACTGTCCGTGGTGAGGGTGTCCGGTCTGAGGATGTTG spacer
length: 37 repeater length: 30
39211 687776 GCTTTAAACTAGACGAAATCGTATGGAAAT TTTTCGTATCGTATCAATTTTATGTTTTTATATGTG spacer
length: 36 repeater length: 30
39212 687843 GCTTTAAACTAGACGAAATCGTATGGAAAT AAGTTCGCCTTCCAGCAGTTGAAGATGGCATGGGAT spacer
length: 36 repeater length: 30
39213 687910 GCTTTAAACTAGACGAAATCGTATGGAAAT ATCACATGTAGAAGTCCTTCTTAACCCGCCTGGCCT
39214
39215
39216 crispr 8
39217 321351 GTATGATTGTCTTCACGCGATAAATACCCT CTAAATATTGTGCTGAAACCATTAGGAATAAAGCC spacer
length: 35 repeater length: 30
39218 321417 GTATGATTGTCTTCACGCGATAAATACCCT GTAAATATTGTGCTGAAACCATTAGGAATAAAGCC spacer
length: 35 repeater length: 30
39219 321483 GTATGATTGTCTTCACGCGATAAATACCCT AACTGAACCTCAAATTCGGTGAAGGAATTGCTTTA
39220
39221
39222 crispr 9
39223 1123740 GTTAAAAATCAGACCAAAAATGGGATTGAAAT CGATCCTCCTCATCTCTGGGATCCATGAGGCCGCTA spacer
length: 36 repeater length: 30
39224 1123807 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TATGAGGAGTTCAGGGAGGAGTTCAAAGACTATTTG spacer
length: 36 repeater length: 30
39225 1123874 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GATCAGCCCCAGCGTCGCTATAAACAAACATCAGAA spacer
length: 35 repeater length: 30
39226 1123940 GTTAAAAATCAGACCAAAAATGGGATTGAAAT AAGTAGGGATTATATAGGGAATGAAGTAATACAA spacer
length: 34 repeater length: 30
39227 1124005 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TCTTATGACGGTTTCTGCCCTTTTTTGGGGCATTATG spacer
length: 37 repeater length: 30
39228 1124073 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTTCTGCAAAAAAATTCACAAAAAATTTTATAGTTTA spacer
length: 37 repeater length: 30
39229 1124141 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAAATAACGACAAATACACATTAACTAATTTAAATG spacer
length: 37 repeater length: 30
39230 1124209 GTTAAAAATCAGACCAAAAATGGGATTGAAAT ATTTATTTTTTTAAGTGGGTAGGTAGTAGGTAG spacer
length: 33 repeater length: 30
39231 1124273 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TTAAATATATCATATGATTCTTTATCTTTTAAGTTA spacer
length: 36 repeater length: 30
39232 1124340 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GGTGTATGCCCTTTTCTCGTACTTTATGGATGCTATT spacer
length: 37 repeater length: 30
39233 1124408 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GGTTCATTTTTGAGAATATGTAAAATTTGTATATA spacer
length: 35 repeater length: 30
39234 1124474 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGATAAATCATGATAAATAGTAACCCGGAATTAAA spacer
length: 35 repeater length: 30
39235 1124540 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGGCTGTTCTGGCGCCTTTTTTGAGCTCCCCGCTG spacer
length: 35 repeater length: 30
39236 1124606 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAAAAATTTTGAAACCGTGCTTAACTTTTGTGAC spacer
length: 34 repeater length: 30
39237 1124671 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TCGATTAACTGCTTAATATCGTCAAGACGGTCATT spacer
length: 35 repeater length: 30
39238 1124737 GTTAAAAATCAGACCAAAAATGGGATTGAAAT GTCAGAGAATGGGGAATACCTTGTCACAGTACTG spacer
length: 34 repeater length: 30
39239 1124802 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TAGTGAGATACATCAGGACGTTCTGCAAGTGATG spacer
length: 35 repeater length: 30
39240 1124868 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TCGGGGTTCCCTCAGCCGCTTAACGTCCAGGATG spacer
length: 35 repeater length: 30
39241 1124934 GTTAAAAATCAGACCAAAAATGGGATTGAAAT TGAAGGAGCCTCACAATTACCGAGACCATGGAAAC spacer
length: 35 repeater length: 30

39242	1125000	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAACACAATAAGTTTtaggtattcctAAAAATTCT	spacer
	length:	34	repeater length:	30
39243	1125065	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTATTTTTTACAACtGTTCAATTTGGCAAATTTTG	spacer
	length:	35	repeater length:	30
39244	1125131	GTTAAAATCAGACCAAAATGGGATTGAAAT	CGATATCGCAAACCATATTcctATATTCACTATCG	spacer
	length:	35	repeater length:	30
39245	1125197	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGGTAAGAAAATAAAAAATGTTCAAAATTTGGGTC	spacer
	length:	35	repeater length:	30
39246	1125263	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATAGATATAGATATGTGGTTGGAACAACCATAA	spacer
	length:	34	repeater length:	30
39247	1125328	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCTTTCTTTCTAATTTTTTCTTCATCTATTTTGTC	spacer
	length:	35	repeater length:	30
39248	1125394	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTGAAGTTCAACCACATGAATTAACCATATTACA	spacer
	length:	34	repeater length:	30
39249	1125459	GTTAAAATCAGACCAAAATGGGATTGAAAT	GAGAGATAATATTATTGTATGAGGCCCATGGTTCCT	spacer
	length:	36	repeater length:	30
39250	1125526	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGTCTAAATCGATCTCACTACTCCTATCCTTCAAG	spacer
	length:	35	repeater length:	30
39251	1125592	GTTAAAATCAGACCAAAATGGGATTGAAAT	TTTAGGTATAAAGCCACATTTGGGTTTCCATATTGG	spacer
	length:	36	repeater length:	30
39252	1125659	GTTAAAATCAGACCAAAATGGGATTGAAAT	CGAGGCAGGCGGTGGCGACGCTGCAAGGATGCAGG	spacer
	length:	35	repeater length:	30
39253	1125725	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCAGATAAGGATTCTAAGTCCCCCTCTACATCAG	spacer
	length:	34	repeater length:	30
39254	1125790	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTTCGATGTGGCGGCTGCGACACTCGGGGCATTCA	spacer
	length:	35	repeater length:	30
39255	1125856	GTTAAAATCAGACCAAAATGGGATTGAAAT	TACACCCGATCCCCAGGGCCCATCATCTTGATAT	spacer
	length:	34	repeater length:	30
39256	1125921	GTTAAAATCAGACCAAAATGGGATTGAAAT	GTTTTGAGGTCGTGGAGGGTGTCTCCACGATCCTC	spacer
	length:	36	repeater length:	30
39257	1125988	GTTAAAATCAGACCAAAATGGGATTGAAAT	AATACAGTGTCCGCGAAGACAAGGATGCAGTGGAG	spacer
	length:	35	repeater length:	30
39258	1126054	GTTAAAATCAGACCAAAATGGGATTGAAAT	GGAGGGCCTCCGCGGTCTTCCAGTACATATTGTATTCA	spacer
	length:	38	repeater length:	30
39259	1126123	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATAAATGATTTTATGCGGTTTTGTGAACATATTA	spacer
	length:	34	repeater length:	30
39260	1126188	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGATTTTCTCTACGACTTTTCCCATCTTCATGTTTATT	spacer
	length:	38	repeater length:	30
39261	1126257	GTTAAAATCAGACCAAAATGGGATTGAAAT	AAAACGAAGTCATCGACATGCTCCGCCAGCATGTC	spacer
	length:	35	repeater length:	30
39262	1126323	GTTAAAATCAGACCAAAATGGGATTGAAAT	CCATCATGTCACCTCATGCCAAAACGTCTTTTCCA	spacer
	length:	37	repeater length:	30
39263	1126391	GTTAAAATCAGACCAAAATGGGATTGAAAT	CAGGCTCTGCATGCACCTACAGGGCATGCAGGAAG	spacer
	length:	35	repeater length:	30
39264	1126457	GTTAAAATCAGACCAAAATGGGATTGAAAT	CATGGTCGTCGGGGATGTCTCCGATGACCTCCTCCA	spacer
	length:	36	repeater length:	30
39265	1126524	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCATTTCTGGAGGTAGTGAGGACACCCTCCACGATC	spacer
	length:	37	repeater length:	30
39266	1126592	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGTCTGTCAACATGACTGCGGTGCCGTAACCTACCC	spacer
	length:	36	repeater length:	30
39267	1126659	GTTAAAATCAGACCAAAATGGGATTGAAAT	AATGGTAGATCAATCCTCATCCAGCCACATAAG	spacer
	length:	34	repeater length:	30
39268	1126724	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATTCTCTGAGTAATTGTTTTATAGCCTTCTGGAG	spacer
	length:	35	repeater length:	30
39269	1126790	GTTAAAATCAGACCAAAATGGGATTGAAAT	CCACTTCTCCTATCACCTCGAGAACTTCTC	spacer
	length:	31	repeater length:	30
39270	1126852	GTTAAAATCAGACCAAAATGGGATTGAAAT	CGAAGGAGCAGAAGAACTCCCCGACGGCCGGATG	spacer
	length:	34	repeater length:	30
39271	1126917	GTTAAAATCAGACCAAAATGGGATTGAAAT	CACCCCTTGCAGAACAAATGATACTCCTTATCAAC	spacer
	length:	35	repeater length:	30
39272	1126983	GTTAAAATCAGACCAAAATGGGATTGAAAT	CTCAGCATCAGTACTGTGGAGCCACTGGCACGCGCG	spacer
	length:	36	repeater length:	30
39273	1127050	GTTAAAATCAGACCAAAATGGGATTGAAAT	TCGATTAAATGGAGGACCTTTAAAAGAGACTCAGCCT	spacer
	length:	37	repeater length:	30
39274	1127118	GTTAAAATCAGACCAAAATGGGATTGAAAT	TATTGTAGAACTCCTCAAATCTCTTCTTCATATCAA	spacer
	length:	36	repeater length:	30
39275	1127185	GTTAAAATCAGACCAAAATGGGATTGAAAT	ATGAAAACAGATTCAAAGGAGTAATAACCGGGGAAACA	spacer
	length:	39	repeater length:	30
39276	1127255	GTTAAAATCAGACCAAAATGGGATTGAAAT	TGCCCTGGACTTCCTTAATATCGGAGCCTAGGATG	spacer
	length:	35	repeater length:	30
39277	1127321	GTTAAAATCAGACCAAAATGGGATTGAAAT	ACGCATGCGAGGTTCTCATAGATGCTGCGTGTTTC	spacer

length: 35 repeater length: 30
39278 1127387 GTTAAAATCAGACCAAAAATGGGATTGAAAT AGGAGATAAAAGGCCTCCTTGAGGAGGCCATAACAA spacer
length: 36 repeater length: 30
39279 1127454 GTTAAAATCAGACCAAAAATGGGATTGAAAT ACGTGCAGAGCTTCAGCCTAGAGTACGATA spacer length:
30 repeater length: 30
39280 1127515 GTTAAAATCAGACCAAAAATGGGATTGAAAT TCGGAGATGTATGCACACACAAAAAACTGTGCGC spacer
length: 34 repeater length: 30
39281 1127580 GTTAAAATCAGACCAAAAATGGGATTGAAAT TCGGCCTATCCAGGAGTAACCGGGTGACCTCAAT spacer
length: 34 repeater length: 30
39282 1127645 GTTAAAATCAGACCAAAAATGGGATTGAAAT TTAGGGGATGGTTTCTTGGTGGGCATGAATTATCTG spacer
length: 36 repeater length: 30
39283 1127712 GTTAAAATCAGACCAAAAATGGGATTGAAAT GCGGTTTGTGGTTTCTTGTCTGGGGAGGGGGATGTAG spacer
length: 36 repeater length: 30
39284 1127779 GTTAAAATCAGACCAAAAATGGGATTGAAAT CCTTGATGGTGGCAGGGCGGGAATGGTCTTCACAG spacer
length: 35 repeater length: 30
39285 1127845 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGTATAGGACTTACGATTTGAGGGTCTATGATGAG spacer
length: 35 repeater length: 30
39286 1127911 GTTAAAATCAGACCAAAAATGGGATTGAAAT AGGAGGTCAGTGACCTCTTCGAGAGGAAGTACTTG spacer
length: 35 repeater length: 30
39287 1127977 GTTAAAATCAGACCAAAAATGGGATTGAAAT CAGATAGTCTTTTATTTGTCGTTGAAAGCACCTACCT spacer
length: 37 repeater length: 30
39288 1128045 GTTAAAATCAGACCAAAAATGGGATTGAAAT CGTACACGTTCTTCGCTGATCGTGTCCGCGCAGCGA spacer
length: 36 repeater length: 30
39289 1128112 GTTAAAATCAGACCAAAAATGGGATTGAAAT CAGTTACACAGTGAAGGTGAAAAGACTCAATCAAACCAC
spacer length: 39 repeater length: 30
39290 1128182 GTTAAAATCAGACCAAAAATGGGATTGAAAT TGTTGAGTTGTTACATGAACGACTCGACAATTTTC spacer
length: 34 repeater length: 30
39291 1128247 GTTAAAATCAGACCAAAAATGGGATTGAAAT GACACAATATAAACCCAGCGCACAAACACCGAAAC spacer
length: 35 repeater length: 30
39292 1128313 GTTAAAATCAGACCAAAAATGGGATTGAAAT GATGCTCTTAAAAGTATTCTGAGGAAAACATCAAT
39293
39294
39295 crispr 10
39296 713718 TAGTATTTTTTCGATTTCTTGTTTTGTTAGG
TTATATTTTTCCATTATTTCTTTTACTTTGAGGGTATCTGTTTTGTTTATTTTTTCTAGGAGTTCTTTGGTTTTTTTGGCGGATAA
TTTGTTGAGGATGTTTATGATGTTATTGATAGAATCTTGGTCTAGTT spacer length: 133 repeater length: 31
39297 713883 TAGTATTTTTTCGATTTCTTGTTTTGTTAGG
CAATAATATTCTTGGTCTAGTTTTATACAGTAGCATTTTGCTGATTCTTCTATTTTTT spacer length: 58
repeater length: 31
39298 713973 TAGTATTTTTTCGATTTCTTGTTTTGTTAGG
TTTGACCTCATTAACCTTACAAACACAGGAATTTTCGTTATATTCACAGGTGCCGCGG
39299
39300
39301 crispr 11
39302 1658452 AAAGAGTAGATGTAGAGGTAAAGAAATGTTGGATGC TCTTAAGCTTAAGATTGATCAT spacer length:
22 repeater length: 36
39303 1658511 AAAGAGTAGATGTAGAGGTAAAGAAATGTTGGATGC CCTTAAGCTTAAGATTGATCAT spacer length:
22 repeater length: 36
39304 1658570 AAAGAGTAGATGTAGAGGTAAAGAAATGTTGGATGC TGAATTTTCAAAAAAAGACGTC
39305
39306
39307 crispr 12
39308 1527273 ATTGAATCCTTTTTTGTAGTGCCAGACAGGAAATCATTTT TCATTTAAAAAGATAATCCTT spacer
length: 21 repeater length: 40
39309 1527335 ATTGAATCCTTTTTTGTAGTGCCAGACAGGAAATCATTTT TCATTTAAAAAGATACTCCTT spacer
length: 21 repeater length: 40
39310 1527397 ATTGAATCCTTTTTTGTAGTGCCAGACAGGAAATCATTTT AACCTCCTCTTTTTTAAAAAT
39311
39312
39313 crispr 13
39314 1084647 TTCCGTGTATCATGGGTATATGGTTTTGCCTTAAGAGGGG AGGTGGAAAAATGGGGAACACGGA spacer
length: 24 repeater length: 40
39315 1084712 TTCCGTGTATCATGGGTATATGGTTTTGCCTTAAGAGGGG AGGTGGAAAAATGGGGAACATGGA spacer
length: 24 repeater length: 40
39316 1084777 TTCCGTGTATCATGGGTATATGGTTTTGCCTTAAGAGGGG TTAAAAAATAAATCAAGTATTACT
39317
39318
39319 GCA_010692885.1_ASM1069288v1_genomic.fna(findCrispr):
39320 START REPEAT
SPACER
39321 crispr 1

39322 697995 GGTTCGAATCCGCCCCGGGAC
TACTTTCTGCGAGCGTCAGCGAGCAGTAGTAGCCACAACGCAGATTTCGACGCCCAGAGGTCGAGAGGATTTCGAGACCTCG
spacer length: 80 repeater length: 20

39323 698096 GGTTCGAATCCGCCCCGGGAC
TACTTTCTGCGAGGAACAACGTGACGAGCGAATAGTCCGACGTGGATCCGACACCCAGAAGACGAGAGAATTTCGAGACCTCG
spacer length: 82 repeater length: 20

39324 698199 GGTTCGAATCCGCCCCGGGAC
AACCAAGTCGTTGTCAAAGGGGCAGTGCAGAGTGATGGTTTCAGACGAACCTTGTGGGATTGAAGCCCGTGTGTCCCACTC

39325

39326

39327 crispr 2

39328 1786855 TCTCCTCCCGCTCTCCAACCT
TCCCAACTTCATCTTATCCACTCTCCTCTCGCTCTCCAACCTTCCCAACTTCACCTTCTCCA spacer length: 62
repeater length: 21

39329 1786939 TCTCCTCCCGCTCTCCAACCT TCCCAAATTCATCTTCTCCA spacer length: 20 repeater
length: 21

39330 1786981 TCTCCTCCCGCTCTCCAACCT GATTGAGTCGTCAGTCATTG

39331

39332

39333 crispr 3

39334 2155167 CAGAAATGCTCCGGCAGGGATT
GTGAACCACGGTCGCGAGCAAGCTGCTCCCTAGTTCAAATCCCTTCGTACAGCAGTTCACTCGAATCGAGTTGCGCGGAGACGAAGC
TCCGCGCGTGATTCTTC spacer length: 103 repeater length: 22

39335 2155293 CAGAAATGCTCCGGCAGGGATT
GTGAACCACGGTCGCGAGCAAGCTGCTCCCTGATTCAAATCCCTCCTTCGAGATTTTCATCTCGCATAAAGTATGAGCGACACGCTGC
GCGGTGCTGCTGCGGTTTAGTACTCG spacer length: 111 repeater length: 22

39336 2155427 CAGAAATGCTCCGGCAGGGATT
CCAGAAGTGATCTCTCTTTCTCTTTCGATACAGAGTTGCACAGCGTGACTCAACCGTCTGCGAGAAGTTAGTCGTCGGCTTCGGTGC
TCGTCTTCGCCTTCTCGGCGTCACC

39337

39338

39339 crispr 4

39340 352674 GGTTCGACTCCGCCCCGAGCCCA
CTGAAATCTGCGAGCGACAGCGAGCAGGATTTTTGCGACGAGAGTGCGGATGGAACCCAGAGGACGAGCGAAGCGAAGTCCTCG
spacer length: 84 repeater length: 22

39341 352781 GGTTCGACTCCGCCCCGAGCCCA
CTGAAATCTGCGAGCGACAGCGAGCAGGATTTTTGCGACGAGAGTGCGGATGGAACCCAGAGGACGAGCGAAGCGAAGTCCTCG
spacer length: 84 repeater length: 22

39342 352888 GGTTCGACTCCGCCCCGAGCCCA
CTTCTGACGACACGCAACGACGAGCGGAGCGTGGTCGCTTGCGACCTCGGATGCGAACGGCAAAGCCGTGAGCGATAGCAAGTCGT
CCGTGGCATCTGAGTGGACGACAAGGAGTCGAATCAGGGAGCAAAGCGAACGGAGTGAGTGGAGCGACAG spacer
length: 156 repeater length: 22

39343 353067 GGTTCGACTCCGCCCCGAGCCCA
GAAACGATGTGGAACACCGTGAGACCGATTTTCAGCATCACCGAATAGGTGGCTTGAACGAACCGAGGTGTGTGCGAACGAATCGA
ACGAACTAGCGTGTGCTTGACGAATATACCAGAATCATTATGAATACACCGTACATCAAGTTTCTGATCA

39344

39345

39346 crispr 5

39347 762588 TTTCAGACGAACCCTTGTGGGATTGAAGC GGCCTTGCCGACGCTCCGGCGACCGTGCAACCC spacer
length: 34 repeater length: 29

39348 762652 TTTCAGACGAACCCTTGTGGGATTGAAGC TAGGTCATCGTCCCGCAACGCTGGCACTCGAACG spacer
length: 34 repeater length: 29

39349 762716 TTTCAGACGAACCCTTGTGGGATTGAAGC ACGTATCAGGTGGCGAACTCCCCGAACCGCACGAAT spacer
length: 36 repeater length: 29

39350 762782 TTTCAGACGAACCCTTGTGGGATTGAAGC GTCCATCCCGAGGAGAGTGCGTCGTCAGCGACGTTG spacer
length: 36 repeater length: 29

39351 762848 TTTCAGACGAACCCTTGTGGGATTGAAGC TCATTGGACACATCGATCCCGCGGCGGGTCGCCGGCA spacer
length: 37 repeater length: 29

39352 762915 TTTCAGACGAACCCTTGTGGGATTGAAGC ACAGGTTGCTTGCGACGCTCATGGTTGACGATATCAGT spacer
length: 38 repeater length: 29

39353 762983 TTTCAGACGAACCCTTGTGGGATTGAAGC GTCAGCGTGAGCACGCCGTCCACAACGGCAAGATAG spacer
length: 36 repeater length: 29

39354 763049 TTTCAGACGAACCCTTGTGGGATTGAAGC AGCGAGTGTCTGCGTTTCGTGGAACCGCGCGTAAA spacer
length: 35 repeater length: 29

39355 763114 TTTCAGACGAACCCTTGTGGGATTGAAGC AACTGCCGACGCTAAAGCGTTGGCAAGGACGATTT spacer
length: 35 repeater length: 29

39356 763179 TTTCAGACGAACCCTTGTGGGATTGAAGC GTGCAAAAACCTTCAGAAAATGCTCAAGAAGGTGCGACC spacer
length: 38 repeater length: 29

39357 763247 TTTCAGACGAACCCTTGTGGGATTGAAGC AGTTGTTTACAAGACAGTCGTCCCCAAAGGTTTCCAC spacer
length: 37 repeater length: 29

39358 763314 TTTCAGACGAACCCTTGTGGGATTGAAGC GAACGAATCATCCGGCGCGGCGTCAAGAAGTAGAA spacer

length: 36 repeater length: 29
39359 763380 TTTCAGACGAACCCTTGTGGGATTGAAGC ATCCGGGACATCAGACGTACCTCCTGCTCAGGATG spacer
length: 35 repeater length: 29
39360 763445 TTTCAGACGAACCCTTGTGGGATTGAAGC CAGTAGCTCATGGGTCGGTGATAGGGTGACAGAGT spacer
length: 35 repeater length: 29
39361 763510 TTTCAGACGAACCCTTGTGGGATTGAAGC TGCCATCGCTGCTGGTCAGGGGGCTATCCAGAAGCTC spacer
length: 37 repeater length: 29
39362 763577 TTTCAGACGAACCCTTGTGGGATTGAAGC AGTGGCGCGGGGCGAGTGAGTTTCGAGATTCGCG spacer
length: 34 repeater length: 29
39363 763641 TTTCAGACGAACCCTTGTGGGATTGAAGC AGGTGAACGGGAACGGCGAACCGCTGAAAGGCTGG spacer
length: 35 repeater length: 29
39364 763706 TTTCAGACGAACCCTTGTGGGATTGAAGC ATCGGCTCACCAACCCTTGACGACATCTTCAATCCTGA spacer
length: 38 repeater length: 29
39365 763774 TTTCAGACGAACCCTTGTGGGATTGAAGC ACGGTCACGTTGACCGCAGTCAACGACGGGACGGG spacer
length: 35 repeater length: 29
39366 763839 TTTCAGACGAACCCTTGTGGGATTGAAGC TTGAGTCTGCATCATCGATGAGTTCTGTATCAACAA spacer
length: 36 repeater length: 29
39367 763905 TTTCAGACGAACCCTTGTGGGATTGAAGC AGCTTTCTCCCAAAATCGCGCACTAGTTTAGCAT spacer
length: 35 repeater length: 29
39368 763970 TTTCAGACGAACCCTTGTGGGATTGAAGC GAATCCGTCATCTGTGATAGGCATTAGTCAAACCTC spacer
length: 36 repeater length: 29
39369 764036 TTTCAGACGAACCCTTGTGGGATTGAAGC GACCGAGATGATCAATGCGAGGTTGCCACGATATTAGA spacer
length: 38 repeater length: 29
39370 764104 TTTCAGACGAACCCTTGTGGGATTGAAGC GCGGGAGTGGCCTCGACGATAACGTGACTGCGTT spacer
length: 35 repeater length: 29
39371 764169 TTTCAGACGAACCCTTGTGGGATTGAAGC ATCCGTCGCTCTATCTGTTGCGCCGATTCCGCCAGG spacer
length: 37 repeater length: 29
39372 764236 TTTCAGACGAACCCTTGTGGGATTGAAGC ATGGAAGCCAGCGAGGCATTCCGAGATACGCCTCGTT spacer
length: 37 repeater length: 29
39373 764303 TTTCAGACGAACCCTTGTGGGATTGAAGC TCAAACCTCGCTTTTCAACAGCACCTTGATTTC spacer
length: 35 repeater length: 29
39374 764368 TTTCAGACGAACCCTTGTGGGATTGAAGC CTCAAAGCCCCGAGGTGTGTCGGGAGTTCTTAGAAC spacer
length: 37 repeater length: 29
39375 764435 TTTCAGACGAACCCTTGTGGGATTGAAGC GTCGTTGTCAAAGGGGCAGTGCAGAGTGATGGTTTCA
39376
39377
39378 crispr 6
39379 2633179 GTTACAGACGAACCCTTGTGGGGTTGAAGC CTCACCCGACGCGAGTTGCCGCGCACGGTTCCATC spacer
length: 35 repeater length: 30
39380 2633245 GTTACAGACGAACCCTTGTGGGGTTGAAGC GTTCTTTAACTCCTCGATGGCAATCAGGCCAACA spacer
length: 34 repeater length: 30
39381 2633310 GTTACAGACGAACCCTTGTGGGGTTGAAGC TGCTGGTCAATCCAAGGCTCCGAACCGCATCAC spacer
length: 34 repeater length: 30
39382 2633375 GTTACAGACGAACCCTTGTGGGGTTGAAGC AAAGATGCGGCAAACAATACTGCGAGCGACAATG spacer
length: 35 repeater length: 30
39383 2633441 GTTACAGACGAACCCTTGTGGGGTTGAAGC CTCCTCTCGACGAAGCGCCGGCGCCAGTCTACGGC spacer
length: 35 repeater length: 30
39384 2633507 GTTACAGACGAACCCTTGTGGGGTTGAAGC AACACCGTGAGACCGATTTTCAGCATCACCGAATA
39385
39386
39387 crispr 7
39388 70007 CTCCCGCGAGGAAGCGTCTGCGACCGAGCGGG
CCGAGGAGCGACTCCCGGGAGCGACGAGTGCTTTTGGTCCAGCTTTTGCCGAGGGCTGCTTCGAGCCCGCAGCGCAAAGGTGGG
CGGGTACAGAACGGCGGTCTGAAGCCGAGTAACGACGTTTGC spacer length: 129 repeater length: 32
39389 70169 CTCCCGCGAGGAAGCGTCTGCGACCGAGCGGG
CCGAGGAGCGACTCCCGGGAGCGACGAGTGCTTTTGGTCCAGCTTTTGCCGAGGGCTGCTTCGAGCCCGCAGCGCAAAGGTGGG
CGGGTACAGAACGGCGGTCTGAAGCCGAGTAACGACGTTTAC spacer length: 130 repeater length: 32
39390 70332 CTCCCGCGAGGAAGCGTCTGCGACCGAGCGGG
CATCTTATCCACTCTCCTCCCATTTCTCCAACTCGACTGCCTCGGTTGGAACCGATTTGGTATTAACTGTAGTGGGAACACCTTC
GGTGCCGTTCGGTTCTATAGAACCATGAACGCGGTTGATTGTT
39391
39392
39393 GCA_010692905.1_ASM1069290v1_genomic.fna(findCrispr):
39394 START REPEAT
SPACER
39395 crispr 1
39396 1505580 GGCCGTCGCCGTCGGTGTCTG
CCGCGGTTCCGGTCCGGTCCCGATGACGTTGACTTCGCGCCCGTCGTCGAGACCGTCGCCGTCGGTATCCGCCTCGGTCGGATTCTG
CTCGTAGCGGTTGACTTCGGGGCCGTCTTCG spacer length: 117 repeater length: 20
39397 1505718 GGCCGTCGCCGTCGGTGTCTG GCGGCGCGGGGCTCGTCTCGCGGACGTTGACCTCGGGTCCGTCTTCG spacer
length: 48 repeater length: 20

39398 1505787 GGCCGTCGCCGTCGGTGTCTG GTGACTGTCTGGGTGGTTTCGTAGCGGTTGACCTCAGCGCCGTCGTCTG spacer
length: 48 repeater length: 20

39399 1505856 GGCCGTCGCCGTCGGTGTCTG GCGGTCGTCTGGGTCCGTGCCGTGGGTGTACCTCAGCGCCGTCGTCTG spacer
length: 48 repeater length: 20

39400 1505925 GGCCGTCGCCGTCGGTGTCTG CTACAACGAACCTACCTTCCGAGCGACCGCTGTGCGTGTCTGCTCGGAC

39401

39402

39403 crispr 2

39404 373134 CGCCCGAGGCGGGATTTGAACC
GTGCCGACGTCGCTCGTTTCTCTCGCTCGTCTCGGGTTCAATCCCTTTTGGGGTATTACAGAGAATTACGGCCGCGCCGAGACGA
GACTCGGCGCTCAGCGAGTAATTCATCGAAAAGT spacer length: 120 repeater length: 22

39405 373277 CGCCCGAGGCGGGATTTGAACC
TCGGTCTGCTTTGCTCTGCTATCGCTCGCTTCTGGCTCAAATCCCACCTGCCAACGTTACAAAATTTCACTCGCTGTCTGCTC
GGCAGCAGACGCCCTCGTGGAGGAGTTGAAATCAGAGAA spacer length: 126 repeater length: 22

39406 373426 CGCCCGAGGCGGGATTTGAACC
CGCGTCACGACCGTGACAGGGTCTGATGATGGGCCACTACACCACCCGGGCTTACTGAAGTGAGTTTGCGGTACGGAGA
spacer length: 79 repeater length: 22

39407 373528 CGCCCGAGGCGGGATTTGAACC
ATCGAATTCGACCAGTCGACGTTTCATCGACGGGCAGCTTCAACCCAACAAGGGTTCGTCTGAAACCATGCCGATATCA

39408

39409

39410 crispr 3

39411 3334821 GTTCAAATCCCAGCCGACGCACTT
TCTGAACGGAACCAACGAGGAGTCGCCGACTCCGAGTTTCCGTGGAGTGAAGAAGTGCGGCCAAGAGGGATTCTGAACCCGACC
AGTCGCGCACAGCGAACGAAGTGAGCGAGCACGTCTGGGTTC spacer length: 128 repeater length: 24

39412 3334974 GTTCAAATCCCAGCCGACGCACTT
CTGCCGAACACAAACCTCCGAGAGACCTCTGTGTCTCTCGGTCTTGCGAGGCTGCGTGCGGGACGCTGAGATTTGAACTAGCGAGC
GAACGCGAGTGAGCGAGTGG spacer length: 106 repeater length: 24

39413 3335105 GTTCAAATCCCAGCCGACGCACTT
CGCATCGAATTCGACCAGTCGACGTTTCATCGACGGGCAGCTTCAACCCAACAAGGGTTCGTCTGAAACCATGCCGATATCACGGA
CACAGGCCCTCTAAAGAAAG

39414

39415

39416 crispr 4

39417 1505714 TCGAGGCCGTCGCCGTCGGTGTCTCG GCGCGCGGGGCTCGTCTCGCGGACGTTGACCTCGGGTCCGTC spacer
length: 43 repeater length: 25

39418 1505783 TCGAGGCCGTCGCCGTCGGTGTCTCG TGACTGTCTGGGTGGTTTCGTAGCGGTTGACCTCAGCGCCGTC spacer
length: 43 repeater length: 25

39419 1505852 TCGAGGCCGTCGCCGTCGGTGTCTCG GGTCTGTCTGGGTCCGTGCCGTGGGTGTACCTCAGCGCCGTC spacer
length: 43 repeater length: 25

39420 1505921 TCGAGGCCGTCGCCGTCGGTGTCTCG CCCGATCCCAGAGGGAACACGCTTTCAGGCGTGCGCCTTACC

39421

39422

39423 crispr 5

39424 456752 AGAAGCGCCAGGAGAGGGATTTGAACC
TCGGTCTGCTCCGCTCACTCCGTTTCGTTTCGTTCCCTAATTCAATTCCTCTCGGGAACGTTTACGAAAACGCCACCGCGATGCG
CCGAGACGCATCGCTCGAGTGTAGTTTTCA spacer length: 117 repeater length: 27

39425 456897 AGAAGCGCCAGGAGAGGGATTTGAACC
TCAGTCGCTTCGCTCCCTGGTTCAAATCCAACCTGAGGCGTTCTTCCGAACTCGAAGTCCGCAGCGCGACGAGACGCGCTGCTACGT
GGGTTGCGTTCGG spacer length: 99 repeater length: 27

39426 457024 AGAAGCGCCAGGAGAGGGATTTGAACC
CGGTCGTCTGACGGCGACACGTTCCAGTTGGTCTGCGCTTCAATCCCACAAGGGTTCGTCTGAAACCGTCCCGAAATCACGGGCGTAA
CGTCGCGTACGAA

39427

39428

39429 crispr 6

39430 960669 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCCGCGCACCGTGTCTGCGCTTCTCGGCAACG spacer
length: 34 repeater length: 30

39431 960734 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CATCTTCCCAAACGAGTGGGTGCGGACTGTCCAGA spacer
length: 35 repeater length: 30

39432 960800 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CATCTTCCCAAACGAGTGGGTGCGGACTGTCCAGA spacer
length: 35 repeater length: 30

39433 960866 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CACCTCCAGCACGAGATACTCGTCTTGTCTGCGC spacer
length: 35 repeater length: 30

39434 960932 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCTGGGACTCGTCTGGGTTCATGAGATGGGCGAGCAGC spacer
length: 36 repeater length: 30

39435 960999 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CCGTCGAGGCGTCGAGTTGGGGGATGTCTGACGCTT spacer
length: 36 repeater length: 30

39436 961066 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACTCGGTTTCGATGCCGTTTCGTCTGCGCCGACGC spacer
length: 33 repeater length: 30

39437 961130 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCGCCCGGTTCCGTTCTCGTTCTCCCGAGGT spacer

length: 33 repeater length: 30
39438 961194 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TTGCACGGATAGGTTTGGCGTGTGGCAGTTGACAT spacer
length: 35 repeater length: 30
39439 961260 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACGTACACCGACGTAATCATCCGACTTATGGG spacer
length: 32 repeater length: 30
39440 961323 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CGAGGCCACTCCCTGCGCCGTCCTCGGCAGAGGT spacer
length: 34 repeater length: 30
39441 961388 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGGTGTCTGTGACTATCGACACAACTCGGATGTCTG spacer
length: 35 repeater length: 30
39442 961454 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACTGTTGATGCTCGCGGTCATCTCGTAGAGCGAGT spacer
length: 35 repeater length: 30
39443 961520 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AAGATGGTCGCACGCCGCCGTACAGCTCAAAGAA spacer
length: 35 repeater length: 30
39444 961586 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GAGCTGGACCACCGCAACGACTCGGACGAGGTTG spacer
length: 34 repeater length: 30
39445 961651 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGCACGGCGTCGACCTCGATGCGGACCTGATGGA spacer
length: 34 repeater length: 30
39446 961716 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCCGTCCGCATCCTCCGACGCATCGACAAGCGAAC spacer
length: 35 repeater length: 30
39447 961782 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CTGTTGATGTTACGCATGGGATGTGCAAGTGGG spacer
length: 34 repeater length: 30
39448 961847 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TTGCCGTCCGAGGTCTCACGGTAGTACACCATTAGT spacer
length: 36 repeater length: 30
39449 961914 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AACCCTACTACATCGACGCATGACACTCACGAATC spacer
length: 35 repeater length: 30
39450 961980 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GGGCGACGACGAGGTGCGAGTCTACTCCGATGG spacer
length: 33 repeater length: 30
39451 962044 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TAGGCCCCCGTCCGTTGATGCTGATAATGTGTA spacer
length: 34 repeater length: 30
39452 962109 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TCGAAGCCGTTGGCCTCTGTGCGGCTCCCATTCGT spacer
length: 34 repeater length: 30
39453 962174 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GTCGTTCTCTAACACCGCTTTGTTTGCATCTTTAAG spacer
length: 36 repeater length: 30
39454 962241 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CAATTAGAGAGTGGCACAACGGGCATGAGGTAATTA spacer
length: 36 repeater length: 30
39455 962308 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACAATGGAAGGCTACGCAGTTAGTTCCGAAGT spacer
length: 32 repeater length: 30
39456 962371 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AACAGTCCGCACACCGCCCGCAACCTCGATTCA spacer
length: 33 repeater length: 30
39457 962435 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GTGTGCCGCGCCGAGAGCCGCGGCGTCGGTGAG spacer
length: 34 repeater length: 30
39458 962500 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGTTGACCGATAGCTCGTCTGCACTTACCGATTTGCCGT spacer
length: 39 repeater length: 30
39459 962570 GCTTCAACCCAACAAGGGTTCGTCTGAAAC ACCGACCGAACCCCCACTTCGTTGCGAGGCGGTCTGA spacer
length: 37 repeater length: 30
39460 962638 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CTTCTTGGAGATGCGGCCCCGGCGGCGTCGAGTAGT spacer
length: 36 repeater length: 30
39461 962705 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TGACGAGCATGTTGCTGACCTCGATAGAGACCGAC spacer
length: 35 repeater length: 30
39462 962771 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CGCACGAGTACTTCCCCTCTCTGTGCTGTCTGGG spacer
length: 35 repeater length: 30
39463 962837 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TCTTCGATGGTGGGGCAGCCGGGGCACTCGTAGGTGC spacer
length: 37 repeater length: 30
39464 962905 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GTGCGAAGCTGTCGTGGGGTGGTGAATGATGAGTT spacer
length: 35 repeater length: 30
39465 962971 GCTTCAACCCAACAAGGGTTCGTCTGAAAC AACAGAATCGGATAGTTGGCGAGGAATCATTGA spacer
length: 34 repeater length: 30
39466 963036 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GCCACCACCACCAGTCACCGATGCGGGGAGAGTC spacer
length: 34 repeater length: 30
39467 963101 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TCTGACGAGAGCGACCCGGTCGCGGTGACCGACGGC spacer
length: 36 repeater length: 30
39468 963168 GCTTCAACCCAACAAGGGTTCGTCTGAAAC CTTCCGGTATCATTCGCTCTGCGGTCCACACCTCGG spacer
length: 35 repeater length: 30
39469 963234 GCTTCAACCCAACAAGGGTTCGTCTGAAAC GACCGCGACGCGGCCGCCGAGCACGCGGCCGC spacer
length: 33 repeater length: 30
39470 963298 GCTTCAACCCAACAAGGGTTCGTCTGAAAC TCGAGTTGGGGGATGTCTGACGCTTGGCTTCAA
39471
39472
39473 crispr 7
39474 972994 AGCTTCAATCCCACAAGGGTTCGTCTGAAAC TTCATGGTATTACTCGGCCCGCTACACTTCGCGG spacer
length: 34 repeater length: 31

39475 973060 AGCTTCAATCCCACAAGGGTTTCGTCTGAAAC
 CATCCGTGAGGCGTGGCGAGTCGGGGAGACCGGCGAGGCTTCAATCCCACAAGGGTTTCGTCTGAAACCGACGTAGACCAAGCCCCA
 GAGGTCGCTACTCTGG spacer length: 102 repeater length: 31
 39476 973194 AGCTTCAATCCCACAAGGGTTTCGTCTGAAAC
 AGGACGCGAGCGACGAGCACCAGCGCGCTCCTGGAGGGGCTTCAATCCCACAAGGGTTTCGTCTGAAACGGTTCCGAGACGAGTGGGT
 CCATCGTCCAGTCTCG spacer length: 102 repeater length: 31
 39477 973328 AGCTTCAATCCCACAAGGGTTTCGTCTGAAAC
 ATTTCGACCAGTCGACGTTTCATCGACGGGCAGCTTCAACCCAACAAGGGTTTCGTCTGAAACCATGCCGATATCACGGACACAGGCC
 CTCTAAAGAAAGACTA
 39478
 39479
 39480 crispr 8
 39481 3237752 GCTTCAACCCCACAAGGGTTTCGTCTGAAACTCT
 TGTATAGAGCGCAATCCCATCGCTATACGGGCTTCAACCCCACAAGGGTTTCGTCTGAAACGATTGGCTTTTGGATGTTGACGACGG
 TCTCACTCC spacer length: 95 repeater length: 33
 39482 3237881 GCTTCAACCCCACAAGGGTTTCGTCTGAAACTCT
 CTTTGTCTGGTCCCTCGACGGCGAACGCGGGCAGCTTCAACCCCACAAGGGTTTCGTCTGAAACGGTTTCCGATGTACTCATTGGGA
 CCCTCCGAGCGGAT spacer length: 100 repeater length: 33
 39483 3238015 GCTTCAACCCCACAAGGGTTTCGTCTGAAACTCT
 CCCAGAGGGAACACGCTTTCCAGGCGTGCGCCTTACCCTCGGCCATCCTGGCTTACAACGCAACGTTCCCGCCTGGATAATTTAA
 GCCCTTCCTTTCCG
 39484
 39485
 39486 GCA_900012635.1_Pyrococcus_chitonophagus_genome_sequence_genomic.fna(findCrispr):
 39487 START REPEAT
 SPACER
 39488 crispr 1
 39489 1181067 TTCCACACTATTTAGTTCTACGGAAAC
 GGAAACGAGGTGGCACGAAGGGGACGAAACAGCAATAGACGAGTTCCTC spacer length: 49 repeater length:
 27
 39490 1181144 TTCCACACTATTTAGTTCTACGGAAAC GGAAACAAACAGTTGATCGCGGAGGCGCTGAGGAGCGGTTGGAAGGTC
 spacer length: 48 repeater length: 27
 39491 1181220 TTCCACACTATTTAGTTCTACGGAAAC CGGCTTATGCCTACTCTCCCCAAGTCCCCTTTGCCC spacer
 length: 37 repeater length: 27
 39492 1181285 TTCCACACTATTTAGTTCTACGGAAAC GGCCATCGAGGCGAAGATAAAGGCCAAGCAGGAGGCC spacer
 length: 37 repeater length: 27
 39493 1181350 TTCCACACTATTTAGTTCTACGGAAAC
 GAGAACGAGATATGGAATTGCGGTGTTATGGGCGGCAATCCCGACAAAAGAC spacer length: 52 repeater
 length: 27
 39494 1181430 TTCCACACTATTTAGTTCTACGGAAAC AGGTAGTTCTCGACAGTCTTCTCTGCACCCACGAGCTC spacer
 length: 38 repeater length: 27
 39495 1181496 TTCCACACTATTTAGTTCTACGGAAAC CAGGGTGTGCAATACTCCCGAGGGTCGTTGTTCCAGTGTCC
 spacer length: 42 repeater length: 27
 39496 1181566 TTCCACACTATTTAGTTCTACGGAAAC ACACGCCAACATTTGCTAGGATACTGCAGGAGGGGTTCTTGGTC
 spacer length: 44 repeater length: 27
 39497 1181638 TTCCACACTATTTAGTTCTACGGAAAC CTGAGACTGTGGGGTCTGCATACGCTTCCACGTCCAC spacer
 length: 37 repeater length: 27
 39498 1181703 TTCCACACTATTTAGTTCTACGGAAAC CCTTTAATTCCGCCACCTCATCTTTACTTGCAAACCTTGC spacer
 length: 39 repeater length: 27
 39499 1181770 TTCCACACTATTTAGTTCTACGGAAAC GAAACTGGCAAACCTATTTCGATTACTTATTACTACGATTC spacer
 length: 41 repeater length: 27
 39500 1181839 TTCCACACTATTTAGTTCTACGGAAAC ATAATCTCAAAGACGGCGACTACGTGATTGCAAAGAACGGCC
 spacer length: 43 repeater length: 27
 39501 1181910 TTCCACACTATTTAGTTCTACGGAAAC GTGAACAAGGAGTGGTACTAGAGTTCTGGACAAACATC spacer
 length: 38 repeater length: 27
 39502 1181976 TTCCACACTATTTAGTTCTACGGAAAC GAGGTTTCGCAAATGGGTCAACAGACGTAACATTCGC spacer
 length: 36 repeater length: 27
 39503 1182040 TTCCACACTATTTAGTTCTACGGAAAC TAGTCACCAAATCACATACAAGATATATGAGGACGGGGTAGAAC
 spacer length: 44 repeater length: 27
 39504 1182112 TTCCACACTATTTAGTTCTACGGAAAC CAGAACTGCACGACTGGGCCGACAAAACCTTCATCGAGAAC spacer
 length: 41 repeater length: 27
 39505 1182181 TTCCACACTATTTAGTTCTACGGAAAC
 CTACGGAAACGAAATAGAGAAGACTTAGAAACAACAAAGACAGTAGGGATGGC spacer length: 53 repeater
 length: 27
 39506 1182262 TTCCACACTATTTAGTTCTACGGAAAC TTGCTCTCGCTCTTGTATGTCTCTGGGTCGATGTTGAC spacer
 length: 38 repeater length: 27
 39507 1182328 TTCCACACTATTTAGTTCTACGGAAAC AGTTTACGGCCGCAAGTGTGAGGCGAGGAGGGAAGC spacer
 length: 37 repeater length: 27
 39508 1182393 TTCCACACTATTTAGTTCTACGGAAAC AAACCTGGCAAAAACAACATGAGATCAAGAGGCTAATC spacer
 length: 38 repeater length: 27
 39509 1182459 TTCCACACTATTTAGTTCTACGGAAAC ACGATAGGAGCTTAGGCTTAGCAACCTACCTTTACGGCCTAAGATC

spacer length: 46 repeater length: 27
 39510 1182533 TTCCACACTATTTAGTTCTACGGAAAC GTGAGCGATTTAGAGGCTGAGCTACACAAGTACGAAGTGC spacer
 length: 40 repeater length: 27
 39511 1182601 TTCCACACTATTTAGTTCTACGGAAAC ACAGTTAGCTGAGTCCCAACATCTGCAATTTTTTCCAAACCCTC
 spacer length: 43 repeater length: 27
 39512 1182672 TTCCACACTATTTAGTTCTACGGAAAC ATGGGTGTGGAGGACGTGCTTAGTTATTTGGAGAAGAGAAAGGAAGAC
 spacer length: 48 repeater length: 27
 39513 1182748 TTCCACACTATTTAGTTCTACGGAAAC ATGGTGGAAACGTGAGCGCTAAAATCCTATCTCGCCAGC spacer
 length: 39 repeater length: 27
 39514 1182815 TTCCACACTATTTAGTTCTACGGAAAC AAACGGCGCACCCCCAAAGAAAAGGGAAAGGGCTAAAAAGGC
 spacer length: 42 repeater length: 27
 39515 1182885 TTCCACACTATTTAGTTCTACGGAAAC TTGAATGACTTTTATCGAGTGCTCTGCCCCCTCTATCCCTGC
 39516
 39517
 39518 crispr 2
 39519 166967 GTTTCGGTAGAACTCAATAGTGTGGAAAC ATCGCCTTCTTGGCACCTCCTTGATCCATCCTGGG spacer
 length: 36 repeater length: 29
 39520 167033 GTTTCGGTAGAACTCAATAGTGTGGAAAC TCAATAAGCCAGCCTATGGCTCCTCCAACGAGTTTTTC spacer
 length: 37 repeater length: 29
 39521 167100 GTTTCGGTAGAACTCAATAGTGTGGAAAC ATGGCCTTGACAACGATATCCCCCAATGCGGGGAAAG spacer
 length: 37 repeater length: 29
 39522 167167 GTTTCGGTAGAACTCAATAGTGTGGAAAC ACTACAAACTTGCTCAATCCATGACTCCTTGCAAATT spacer
 length: 37 repeater length: 29
 39523 167234 GTTTCGGTAGAACTCAATAGTGTGGAAAC GAAAATCCACTCTTTTCGACAGTTCGTCTTTTCAACAACCTCC
 spacer length: 42 repeater length: 29
 39524 167306 GTTTCGGTAGAACTCAATAGTGTGGAAAC GATCCATCAAATGTGTCACCAAATCAGTTTCCGTAGAACTG
 39525
 39526
 39527 crispr 3
 39528 168027 GTTTCGGTAGAACTGAATAGTGTGGAAAG ATTATCTTCTGTACCAACTGCTCTGCGTTTTCAACA spacer
 length: 36 repeater length: 29
 39529 168093 GTTTCGGTAGAACTGAATAGTGTGGAAAG CCGATGCTCTTTATTCCGCTCTCCTTGATTCCCCCTAT spacer
 length: 38 repeater length: 29
 39530 168161 GTTTCGGTAGAACTGAATAGTGTGGAAAG TCCATATTTGATCTTGGCGATCCTACTCCTGATATTCGGAGCCAT
 spacer length: 45 repeater length: 29
 39531 168236 GTTTCGGTAGAACTGAATAGTGTGGAAAG CTCTTTAAAGCGAGAAGTTAGGACACCGTCAAGTTCCAATAAGAC
 39532
 39533
 39534 crispr 4
 39535 984691 CTTTCAATTCTATTTTAGTCTTATTGGAAC TTATTGGAACCTGAAGTTCTTCCAGCTTCATCTTCTCGACTTCGA
 spacer length: 45 repeater length: 30
 39536 984767 CTTTCAATTCTATTTTAGTCTTATTGGAAC CTCACCTCCTCAGAATTGCTATTATTCTCCACAAT spacer
 length: 37 repeater length: 30
 39537 984835 CTTTCAATTCTATTTTAGTCTTATTGGAAC AGCTATTCGCGAGCCTTGATGATACTCTTATTGCCC spacer
 length: 36 repeater length: 30
 39538 984902 CTTTCAATTCTATTTTAGTCTTATTGGAAC GAGGTATGACTTTCGCAAGAGCGCTTTCTCTCATC spacer
 length: 35 repeater length: 30
 39539 984968 CTTTCAATTCTATTTTAGTCTTATTGGAAC TCACAGGCGTCCAGAAGACTACTGCGACCTTCTCC spacer
 length: 35 repeater length: 30
 39540 985034 CTTTCAATTCTATTTTAGTCTTATTGGAAC TACAGCCCAAACGTCTCTCTTGACTGTGCGTTAC
 39541
 39542
 39543 crispr 5
 39544 144435 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AAGCAGTAGGGGCGAGGATACTTACCCCAAGCCGTCATT spacer
 length: 39 repeater length: 30
 39545 144505 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TTCAAACCTCCGATCGACGTTAAAGCATTCGTTGAGA spacer
 length: 37 repeater length: 30
 39546 144573 CTTTCAATTCTCTTCTAGTCTTATTGGAAC ATGGTGAACGACGACAGGGCGTTCAAGGCAGGCTACCG spacer
 length: 38 repeater length: 30
 39547 144642 CTTTCAATTCTCTTCTAGTCTTATTGGAAC CAACTTTGTTAATACCCTGAAGAACAACCTTCTTAG spacer
 length: 36 repeater length: 30
 39548 144709 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TTGGGGACTGCAGCAGGAGCTGGATGTTTTGCC spacer
 length: 33 repeater length: 30
 39549 144773 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TGAGATGGGAAATGTTGACGTGTCGATTATAGAAG spacer
 length: 35 repeater length: 30
 39550 144839 CTTTCAATTCTCTTCTAGTCTTATTGGAAC GTGCTCGCCGCAATAATAGCCGTCGCCGAGTCTCG spacer
 length: 36 repeater length: 30
 39551 144906 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AGCGTAAGGGTGGAGGTCTGGCTGAACAACACGAAAC spacer
 length: 37 repeater length: 30
 39552 144974 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TGGCGCCCGGCCGAGCTGGGCCCCGTCCGAATGAAGC spacer
 length: 37 repeater length: 30


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39553 145042 CTTTCAATTCTCTTCTAGTCTTATTGGAAC AAAGATAACTTTTGCCTAACCTTCTCGGGGTCAA spacer
length: 35 repeater length: 30
39554 145108 CTTTCAATTCTCTTCTAGTCTTATTGGAAC TCCTCTTTAAAGCGAGAAGTTAGGACACCGTCAAG
39555
39556
39557 crispr 6
39558 701126 GTTACAATAAGACTAGAAAGAGAATTGAAAG TTGGGAGACAATAAGACCGTTCCCACCGGGCTTC spacer
length: 35 repeater length: 30
39559 701192 GTTACAATAAGACTAGAAAGAGAATTGAAAG TGGGAGTTTGAACATACCGATTCTGAATACATACT spacer
length: 35 repeater length: 30
39560 701258 GTTACAATAAGACTAGAAAGAGAATTGAAAG TGTTGCTGACCCAACCACCGACGATAATTAGGTTCTTAT spacer
length: 39 repeater length: 30
39561 701328 GTTACAATAAGACTAGAAAGAGAATTGAAAG CGATGTAAATCGATGGCTCGGCCCAGTAGAGCCTG spacer
length: 35 repeater length: 30
39562 701394 GTTACAATAAGACTAGAAAGAGAATTGAAAG ACACGGAGCTTGAGGGACATTGGATTAGATAGTGGG spacer
length: 36 repeater length: 30
39563 701461 GTTACAATAAGACTAGAAAGAGAATTGAAAG CCAAGATGTACAGCCCAAAGTGTCTCTCTTGACTGTC spacer
length: 37 repeater length: 30
39564 701529 GTTACAATAAGACTAGAAAGAGAATTGAAAG ATGTACAGCCCAAAGTGTCTCTCTTGACTGTCGGTTA
39565
39566
39567 crispr 7
39568 949069 GTTCCAATAAGACTAAAAGAGAATTGAAAT TCGTTCTGAAGAAGTCTTGAGGCTGCCAAACAA spacer
length: 34 repeater length: 30
39569 949134 GTTCCAATAAGACTAAAAGAGAATTGAAAT TGTTGATCTCATAATCAACTTTGATCTCAATCCTTG spacer
length: 36 repeater length: 30
39570 949201 GTTCCAATAAGACTAAAAGAGAATTGAAAT TTATGATCTCAAGGGCTGTTGCTTGTGGATTTGAT spacer
length: 35 repeater length: 30
39571 949267 GTTCCAATAAGACTAAAAGAGAATTGAAAT GGGGACCACTGACTTATTGGCGTGGTAACTAATATATC spacer
length: 38 repeater length: 30
39572 949336 GTTCCAATAAGACTAAAAGAGAATTGAAAT ACTATTATCAGGAATTCTTCAAGCATGTGTCTTAGG spacer
length: 36 repeater length: 30
39573 949403 GTTCCAATAAGACTAAAAGAGAATTGAAAT TACAATGTATCCATTATCCTTTCCAAAAACCTTGG spacer
length: 35 repeater length: 30
39574 949469 GTTCCAATAAGACTAAAAGAGAATTGAAAT GCAGTCTTTCTGCACCACCTCGTCAATGTGCTGAA spacer
length: 35 repeater length: 30
39575 949535 GTTCCAATAAGACTAAAAGAGAATTGAAAT GAAATACAAGCGCTACACAGTAACATTCTACGCATAC spacer
length: 37 repeater length: 30
39576 949603 GTTCCAATAAGACTAAAAGAGAATTGAAAT CAATTTTTTGCTCGATTTCGCATCAATAGTCGTAAGAA
39577
39578
39579 crispr 8
39580 1642852 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GCTGACGTGTTGACGTGGAGCTAATTCACCTTTAT spacer
length: 34 repeater length: 30
39581 1642917 GTTCCAATAAGACTAGAAAGAGAATTGAAAG TTTATCAATGCCCCGTACTCCACGTTGGCCTGTTGG spacer
length: 36 repeater length: 30
39582 1642984 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GTTTGGGTTGATAGCGGTCTTGGAATAATTGCG spacer
length: 34 repeater length: 30
39583 1643049 GTTCCAATAAGACTAGAAAGAGAATTGAAAG TATGTGAAAGTCTCAACTACAGGTCTAACACTTAA spacer
length: 35 repeater length: 30
39584 1643115 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GAGCTTGTGGTTGTTGTTGGGGTTGGGGCCGGGGT spacer
length: 35 repeater length: 30
39585 1643181 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GAAGATGCCCTTGAACCTCAGTACCTTGCCACTCT spacer
length: 35 repeater length: 30
39586 1643247 GTTCCAATAAGACTAGAAAGAGAATTGAAAG CAGGGTTCAACGATTGATTCTGCTGATTGGAAGGC spacer
length: 35 repeater length: 30
39587 1643313 GTTCCAATAAGACTAGAAAGAGAATTGAAAG CAGTTAGATTTTCGATTGGAGGAACTATACTGATTG spacer
length: 36 repeater length: 30
39588 1643380 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GCATCCGTTGAGGACGCGGAAAGAGTCGAGGAGCTGATCG
spacer length: 40 repeater length: 30
39589 1643451 GTTCCAATAAGACTAGAAAGAGAATTGAAAG GATTTCTCTTTTCTTTGGGGTGTCATATGGTGGA spacer
length: 36 repeater length: 30
39590 1643518 GTTCCAATAAGACTAGAAAGAGAATTGAAAG AGCACACCCCGGTGTAGCGCTGGTAGATCTCGGTCA spacer
length: 36 repeater length: 30
39591 1643585 GTTCCAATAAGACTAGAAAGAGAATTGAAAG CGATTTTTCTGTGCAATTCTCCCAATATCCTCTAAAA
39592
39593
39594 GCA_900036045.1_Methanoculleus_sp_MAB1_genomic.fna(findCrispr):
39595 START REPEAT
39596 SPACER
39597 crispr 1

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39597 505673 TCCGGCATCGCGACGCTGGTGTGA
 CAGGATCTTCCCGTCCACCTGGCATCGGGCAACTGCGTCCATGTGGCTCCGCCATCGGTGACCGCCAGATGTCGTTCAAGTATTC
 GCTGTAGTCGTCGCCCTCACCTCCCATAAGTACAATACTGCC spacer length: 128 repeater length: 24
 39598 505826 TCCGGCATCGCGACGCTGGTGTGA
 TAGGCTCGCCCCGACCACCCGAACTTGCGTTACCAACTCCCAGTGTGCTCGCCGCTATCGGTGACCGCCAGGTGTCGTTCAAGTA
 GGGGTAGTCGTCGCCGTACCGTTGCAACCCCCATGAGTACAATACTGCC spacer length: 137 repeater
 length: 24
 39599 505988 TCCGGCATCGCGACGCTGGTGTGA
 TCATGATGGCAGGGGCTCAAAGTATCCCTGCTCGCTTACCATGTCTTTTTCAGACATGGCTCCATTGAAGCATCGTCACCGCGATC
 GTGATGGCGATGGTGGCCATCTTACCATGTCTGAAGAAATCCTCAACCTGA
 39600
 39601
 39602 crispr 2
 39603 2237124 TGAGCACCGATAGGTGCAGAGTGCG ACGGTTTCGCGAGAACCGGAGC spacer length: 21 repeater
 length: 25
 39604 2237171 TGAGCACCGATAGGTGCAGAGTGCG ACGGTTTCGCGAGAACCGGAGC spacer length: 21 repeater
 length: 25
 39605 2237218 TGAGCACCGATAGGTGCAGAGTGCG GTGGGCCCATGGGCCGAGC spacer length: 20 repeater
 length: 25
 39606 2237264 TGAGCACCGATAGGTGCAGAGTGCG ATGATGGCAGGGGCTCAAA
 39607
 39608
 39609 crispr 3
 39610 2679579 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
 CTGGAGTTCTCGCGACCGCTCCCCCGGGCGACATCCTGA spacer length: 40 repeater length: 36
 39611 2679656 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATTCTCTGTAAGATGCTGTGTAATCTCGTAAAGAAT
 spacer length: 36 repeater length: 36
 39612 2679729 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AAACCGTTCCTATCTTTGACTCTGATAACTATGTA
 spacer length: 36 repeater length: 36
 39613 2679802 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAAAGCGAGCGATGCTAACACCGGGGGTCGGAATA
 spacer length: 36 repeater length: 36
 39614 2679875 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC
 TATTGTAACAAGCCTTATGTGGAGTAGTGCATGTGATACT spacer length: 40 repeater length: 36
 39615 2679952 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGGGATGGTTGCTACACGCGCTACATCTCCCATA
 spacer length: 35 repeater length: 36
 39616 2680024 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTTCATTCTTTGCATCAAGAACTGTTACATAACAACC
 spacer length: 37 repeater length: 36
 39617 2680098 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TATTGCAGTGAGTATGCTTTGCTGCCCATTTCGTCACC
 spacer length: 37 repeater length: 36
 39618 2680172 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCGTTGAGGGCGTCCCGCTCCCGGGGCATCCGAGTA
 spacer length: 36 repeater length: 36
 39619 2680245 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTTTTGACATCTGGATCATGGCAGCGTATGACTG
 spacer length: 34 repeater length: 36
 39620 2680316 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCTTACAACACGCATCTCGGATGGTTCTGCCGCAAAAA
 spacer length: 38 repeater length: 36
 39621 2680391 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GTGAACGGACGAGGGGTGCACCGGGTCGGGGACGC
 spacer length: 35 repeater length: 36
 39622 2680463 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGCTCGGCAATCACTTCGTCGAGGCGGCGTTTCGGGA
 spacer length: 37 repeater length: 36
 39623 2680537 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCATTATAAAACGGTGAAACGCTGATATGCCTTGAA
 spacer length: 36 repeater length: 36
 39624 2680610 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGTTTCCAGCACCATCAGACTGTAACCCTACACCGA
 spacer length: 37 repeater length: 36
 39625 2680684 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCAAGTGGATTGGAAACATCCATAGAGGTATACA
 spacer length: 34 repeater length: 36
 39626 2680755 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTCGCATGATGATATGATTGCCTACACTGAATTTG
 spacer length: 35 repeater length: 36
 39627 2680827 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGCACCTGTTGCCCCAGGACCGGCACCTGCCCCCTC
 spacer length: 35 repeater length: 36
 39628 2680899 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCTAATGAAAGGTTTTATTTCGGTTCTCATCCAGATT
 spacer length: 37 repeater length: 36
 39629 2680973 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGTGATATTTCAATGGTAGAGGCACAGGAAATCAT
 spacer length: 36 repeater length: 36
 39630 2681046 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTATCCATTAAATTTGATTACATATGCAGCACTTATT
 spacer length: 37 repeater length: 36
 39631 2681120 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGATATCAGTCTGTGCTCCGCCAGAACGATTTG
 spacer length: 34 repeater length: 36
 39632 2681191 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCTCAATGATTTTTAATTCCAACACAATCATTTGTTGA
 spacer length: 38 repeater length: 36
 39633 2681266 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACATCGCCGCCAAGAACATCCTTACACTGTTGGAAAA
 spacer length: 37 repeater length: 36

39634	2681340 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GCGATAGGTCCCAGTCTTGTACGGGGTTCTGCCGCC
	spacer length: 36 repeater length: 36	
39635	2681413 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TTTTCGGATTCTTCTTTAACTCTTCAATCTCATCTT
	spacer length: 36 repeater length: 36	
39636	2681486 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CAAACGTCATACACATAACCGCAAATGACCAGGAAG
	spacer length: 36 repeater length: 36	
39637	2681559 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TTCTGTAACCCTTCGAGCACCCTAACCTATCTGCCTC
	spacer length: 38 repeater length: 36	
39638	2681634 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GTTTTAACCTTGAAAATTGTTAATGGATTAGCATT
	spacer length: 36 repeater length: 36	
39639	2681707 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATCGAGTATAACATCAAAGATGTCTACCTTATGGTGAA
	spacer length: 38 repeater length: 36	
39640	2681782 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGTGGAAATATACTTCTGATAAATATATAGTTGAGG
	spacer length: 36 repeater length: 36	
39641	2681855 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CAAACGTGCGACGTCGCCGGGTCCCTCTCCACCTCCGC
	spacer length: 38 repeater length: 36	
39642	2681930 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AATGATAACGGGAAAGTGTGACCTGTCTGATTC
	spacer length: 35 repeater length: 36	
39643	2682002 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGGCAGGTCTCATCCCCTCCACCGCGAGCCGGAC
	spacer length: 36 repeater length: 36	
39644	2682075 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AATTATCCACTCATAATTATGCGTGAGATAATCTT
	spacer length: 35 repeater length: 36	
39645	2682147 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TTGCCTATGTCGTACCTATCTGTATTCTGTAGGTAGG
	spacer length: 37 repeater length: 36	
39646	2682221 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AATCCGTCTGATGAGTGGAAACAATGTGTTAAGGAA
	spacer length: 36 repeater length: 36	
39647	2682294 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AGGATATCCTCATTCGTCCCAGTCCATTCCGTTGCCC
	spacer length: 37 repeater length: 36	
39648	2682368 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AAGTCTCCACACCATGAACAACCTCTATCCACACGA
	spacer length: 37 repeater length: 36	
39649	2682442 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGGGCGCACCGGGCCGTCTTCATGCGCGAGTTCGA
	spacer length: 35 repeater length: 36	
39650	2682514 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGGTATCCTCGATAGATGCGAATGTCGAGATATG
	spacer length: 35 repeater length: 36	
39651	2682586 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACCGGCCCTGAAGGCGATACTGTGTCTGATGTTTAA
	spacer length: 36 repeater length: 36	
39652	2682659 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGTCATACGGGCGAGGATGTCGGCCGGGAGATGGAT
	spacer length: 37 repeater length: 36	
39653	2682733 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GCCGCGGAGATCGAGGCGGAGATCAAGAGCCGGGCTCC
	spacer length: 38 repeater length: 36	
39654	2682808 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGGTTCCGGCCGGCGCTGATCAGGGCATATTTGGTGC
	spacer length: 37 repeater length: 36	
39655	2682882 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AACACCGCGTTTCGGCGTGGACTGGGTGGCCATCGCC
	spacer length: 36 repeater length: 36	
39656	2682955 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GTATTTTAAATGTCTTCATCCTCGCATCCTCCCTGCC
	spacer length: 37 repeater length: 36	
39657	2683029 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGTCGATGTAGAAAGTGATTGTTGACCCGGATCTGA
	spacer length: 36 repeater length: 36	
39658	2683102 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATGCGGACTCCCCCGGCGGTCTCTCGATCACGAGA
	spacer length: 36 repeater length: 36	
39659	2683175 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CTTCTATAATTATCCAAATAGGATAAGTTTTAGTC
	spacer length: 35 repeater length: 36	
39660	2683247 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GTTCTAAGGGTAACATGATTACTTCTACTGATAACCG
	spacer length: 37 repeater length: 36	
39661	2683321 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCCGGCCCGGCGGAAACGTGCCGCCAGTGCTTCGGGA
	spacer length: 37 repeater length: 36	
39662	2683395 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGCCCGCCGCACTACTGCTGGAGCACGACCGACGG
	spacer length: 35 repeater length: 36	
39663	2683467 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACACGGGGCAGGTGGCATGTCGTCGTGATGGCAGAT
	spacer length: 36 repeater length: 36	
39664	2683540 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGAAACTCTCTTCTGCTGCCATTTCGCATCTCCCG
	spacer length: 35 repeater length: 36	
39665	2683612 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GAGTGAGTCGGTATCACAATAGACGGCGGTTTCAG
	spacer length: 35 repeater length: 36	
39666	2683684 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACCCAGCCTATCAGGTCGGGGTGCTGGAAATCCTCCC
	spacer length: 37 repeater length: 36	
39667	2683758 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATGTGGGTGTTCTTCCGGCTTGATGGTCGAATCCA
	spacer length: 35 repeater length: 36	
39668	2683830 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGGCGTGTGGTGCGCCATCTTGTACCGGCGCAAAC
	spacer length: 37 repeater length: 36	
39669	2683904 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AAGGGTTGTCGTCTCCCCGACTTCGGCCAACTTCT

spacer length: 35 repeater length: 36
 39670 2683976 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GACTCGCCCCACACGTAGTGGGAAAGCCCGATGTA
 spacer length: 35 repeater length: 36
 39671 2684048 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCTTTCCGCATCGCCCGGACCAGGCTGACCAGATC
 spacer length: 35 repeater length: 36
 39672 2684120 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGGGGCGATGCGGCATACGTGCAGGGGTTCAGATG
 spacer length: 36 repeater length: 36
 39673 2684193 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TGGTTCGGGCGCTTGATCTCCCGGCCCTTGAGCGG
 spacer length: 35 repeater length: 36
 39674 2684265 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACCCACGAAAACCCTTCGATACACCAAACCTACCTCA
 spacer length: 36 repeater length: 36
 39675 2684338 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGGGGTATCCCGTAGATCTTGCCGTCCGGCCCAAGA
 spacer length: 36 repeater length: 36
 39676 2684411 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AACAAAAACGCTTACTCACCTTCTCCGGTCCTGGA
 spacer length: 35 repeater length: 36
 39677 2684483 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TGGAGCATGACGTAGGGCATCCGCTGCCATGCGTC
 spacer length: 35 repeater length: 36
 39678 2684555 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCCGAGGACGTGAGGAGCATCCGGGTGAGGTGCT
 spacer length: 35 repeater length: 36
 39679 2684627 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GTCGGACATGATGCAACTCACCCCCACACCCCG
 spacer length: 34 repeater length: 36
 39680 2684698 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CATTGCGGGTCATGTCGAGGCCGAACGGGATTTTCA
 spacer length: 36 repeater length: 36
 39681 2684771 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TACCCACCGGGATTGAGCCTTAGCCAAATCTGCAGC
 spacer length: 37 repeater length: 36
 39682 2684845 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGCTCCCCCGGGCGCATGGCCGTTATCGACGACTGGCA
 spacer length: 38 repeater length: 36
 39683 2684920 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGGCCGTGGACTGCATCGTCCCGCCCGACTCGGC
 spacer length: 35 repeater length: 36
 39684 2684992 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TACTTGGGGGGAGGCGACGATGAGTGATGATCTCATCCT
 spacer length: 39 repeater length: 36
 39685 2685068 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCGGCCGCGCATCGCACTTTCGCCACGCAAACCGCC
 spacer length: 37 repeater length: 36
 39686 2685142 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGTCTGTAAGGGTTGCCCGGCGCGTATTGAGGGGCG
 spacer length: 36 repeater length: 36
 39687 2685215 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGAGGTCATCCTCGGGGCGACGCTACCGTTGGAAA
 spacer length: 35 repeater length: 36
 39688 2685287 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TCGTCTGCGCTGCCTCTCGAGATTCGAGACTTGACG
 spacer length: 36 repeater length: 36
 39689 2685360 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGTTATTCGACGGTCTGTACAGTTGGTAGACTGTAG
 spacer length: 36 repeater length: 36
 39690 2685433 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTGCATTTCTTAAATTCATTAGTAGGAATATAACCG
 spacer length: 37 repeater length: 36
 39691 2685507 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GACGGCATCGAGCTGAAAAACCCGGCCCCGTTCAACC
 spacer length: 37 repeater length: 36
 39692 2685581 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AACCTGGAGGTGTCCGACCTCGCCACGTCTCTGA
 spacer length: 35 repeater length: 36
 39693 2685653 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TGCCATCGGTGATCGTCACCGCTGCGGAGGTGGTCGCG
 spacer length: 38 repeater length: 36
 39694 2685728 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGTTCCGGCTCCGCGACACCTCTCCCTGGGCGCCG
 spacer length: 36 repeater length: 36
 39695 2685801 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGCGAGGTGCGACGGGTGCTCAGGGATGACGGCGTGCT
 spacer length: 38 repeater length: 36
 39696 2685876 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AATAATCTGGATTTTTATCATAATCATCGAGACACCCCA
 spacer length: 39 repeater length: 36
 39697 2685952 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAGAAGGAGGTTATCAGGCTCAATGCAGAAGCATTC
 spacer length: 36 repeater length: 36
 39698 2686025 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACAAATCACAACGCGCGCTCGCTCGTAACGCTGAGTA
 spacer length: 37 repeater length: 36
 39699 2686099 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTTCTGTGCCGACCGACCGCTTCTGGGTAGCGGAC
 spacer length: 36 repeater length: 36
 39700 2686172 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CAACGTAAAGCGCTGCCTCTCGCATCTTTTTTCATC
 spacer length: 35 repeater length: 36
 39701 2686244 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TGGTTCCCGTCGAGGAGGATAAATAGATAGTAGCCT
 spacer length: 36 repeater length: 36
 39702 2686317 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGTGATACCGGAGTCGTGCGACCTATCGATAACCACC
 spacer length: 36 repeater length: 36
 39703 2686390 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CCGTTTCCGCGCAAGGCGTGTTGCCCTATTGTG
 spacer length: 35 repeater length: 36
 39704 2686462 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CGGAGAGTAAATCTGCAACTGTTTGGGCTTCTAGAAGCA
 spacer length: 39 repeater length: 36

39705	2686538 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TTAGCGGTAATACCTTTGGGCGCTTTTCCTGCCAGGT
	spacer length: 37 repeater length: 36	
39706	2686612 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CAAGGAAAGTTTACGACGTGGCATAACCCAGAATACTT
	spacer length: 38 repeater length: 36	
39707	2686687 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AAAGGGAGTGTTAACTTATTGATAAGTTGGTC
	spacer length: 33 repeater length: 36	
39708	2686757 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGACCCCCATCTGCTTGTAGTTGGTCGGTACGATGA
	spacer length: 36 repeater length: 36	
39709	2686830 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATCACCGGTGGGAAAACCTCGCAAACGGACTCACA
	spacer length: 35 repeater length: 36	
39710	2686902 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CTGGTGGACTTCGGCGAGACCCCTCATCCCCGATG
	spacer length: 36 repeater length: 36	
39711	2686975 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TACAGAATGCGATCAGGTCTCTCACGAACGGTAACTC
	spacer length: 37 repeater length: 36	
39712	2687049 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CGGAGCGATTTCATCGACACCGAACTCTTCCAGCAA
	spacer length: 35 repeater length: 36	
39713	2687121 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGGTTCGACGTATCGTAAGGTAGGATAAGCGTGGC
	spacer length: 35 repeater length: 36	
39714	2687193 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CTCTCGAGCCGACAGAGCAACCGACTGGGTGGCCGAG
	spacer length: 37 repeater length: 36	
39715	2687267 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGATCTGGTGTCTTCATTGAAATTTCTCCGTGCATCG
	spacer length: 38 repeater length: 36	
39716	2687342 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AAACTATCTTCTATCGACGCTGAACGGTTTTTCCCCC
	spacer length: 37 repeater length: 36	
39717	2687416 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TAGGGGGTTCGGTCGGCCACCCGGTCGGTTGCTCTG
	spacer length: 36 repeater length: 36	
39718	2687489 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATTGGCTATCTGGACGCAAAACGCGGGCGTCGGGTTAT
	spacer length: 38 repeater length: 36	
39719	2687564 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	
	ACAGATACCGTATCGCACCTGCATTTTGAGCCGGTTTATCC	spacer length: 41 repeater length: 36
39720	2687642 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AGCCGTCGAAAATCCTACTCCGAATGCCAGGCCAATG
	spacer length: 37 repeater length: 36	
39721	2687716 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GTCGGTGGGCGCGGAGCGAAATGATATTTTGCCTGA
	spacer length: 36 repeater length: 36	
39722	2687789 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	
	CCCGCCGAGGATTGTGTCGATATCGATGCCTCGCAGGGCC	spacer length: 40 repeater length: 36
39723	2687866 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GAGGTCGCCGCCCCCGGACCCGGCTCCCACCTGCTC
	spacer length: 36 repeater length: 36	
39724	2687939 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATGAGTAAGGCGATCGCCTGCAGGTCTCGAAACTC
	spacer length: 35 repeater length: 36	
39725	2688011 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TTCCGAAGTTTTTCGAGATTCATCTTCATTTCTCCA
	spacer length: 36 repeater length: 36	
39726	2688084 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TACTCCTCCTCGTAGTAGGGTTGTATATCGGTAATC
	spacer length: 36 repeater length: 36	
39727	2688157 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACGAGACGGACGACGAGAGCGACGATTTTCGCGATC
	spacer length: 35 repeater length: 36	
39728	2688229 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CTCGATGAGGACGAGCGGGAGAATGCGGACCTGCT
	spacer length: 35 repeater length: 36	
39729	2688301 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CACCAGACCGAGCGGATCAAGGTCATCTACTCCGGC
	spacer length: 36 repeater length: 36	
39730	2688374 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ATCCCAGGTCATGATGCGATCCTCTGGCGGCTGCTC
	spacer length: 36 repeater length: 36	
39731	2688447 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GCGAGATACTCGGCCTCGCTCTTGACAGTGGCCT
	spacer length: 34 repeater length: 36	
39732	2688518 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	AGGAGTTTATCGACCGAGGCTATCTCGTGCCGCTCC
	spacer length: 36 repeater length: 36	
39733	2688591 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CCGGGCTCGGCGCTCCTGGTCGGTCGGATAGGGGA
	spacer length: 35 repeater length: 36	
39734	2688663 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	CAGTAGTTGCGGATTTAGCGCTAATTGTCCCAGTTTG
	spacer length: 37 repeater length: 36	
39735	2688737 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TCCTCGCGTATTACATACATAAGGGGGAGGGGGGGGACA
	spacer length: 39 repeater length: 36	
39736	2688813 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	TAGCCGAGGAGGAGGCCGACCGTCCAATCAGGATCT
	spacer length: 36 repeater length: 36	
39737	2688886 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GCGAACCCGTCGCTTCCCGTGC GGCTGCGCCCTG
	spacer length: 35 repeater length: 36	
39738	2688958 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GGTGACCGGCAGATCGGCTGCGTCGCGGTACTCCC
	spacer length: 35 repeater length: 36	
39739	2689030 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	GACTGGAACAACAACCCCCCGGAGCGTCGCACA
	spacer length: 35 repeater length: 36	
39740	2689102 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC	ACGACCTCGTAGCGGCCCGGAGGGATGGATGGA

spacer length: 35 repeater length: 36
 39741 2689174 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GACGCCTGATCATAGGCGGTCTTCGCTCCATCGG
 spacer length: 34 repeater length: 36
 39742 2689245 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGATGCAGAACTGATGCAGCGATACGTCCCGGCCG
 spacer length: 36 repeater length: 36
 39743 2689318 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTGTATTGCCCGACTGGAGGCGATGGAGCGACGCGGA
 spacer length: 37 repeater length: 36
 39744 2689392 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC TTGGTCGCATTGCTCTTCTCCCGACGGGGAGAACC
 spacer length: 36 repeater length: 36
 39745 2689465 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATCAGGCTGCCGAGTTCTCGCTCTATCGTCGGGGCGT
 spacer length: 37 repeater length: 36
 39746 2689539 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GGTGACGACGGTCTGGGCCTGGAGCGCTTCGATGT
 spacer length: 35 repeater length: 36
 39747 2689611 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ATATGTATGTGGCTCGGTATCCTTTGGGTGACCG
 spacer length: 35 repeater length: 36
 39748 2689683 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC CTACTGCTCCTGATTGCGCCTAATCCGGATTACG
 spacer length: 34 repeater length: 36
 39749 2689754 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC ACCGGTGAGGTAGCCGCTTTTCAGCGGTTACCAGGATAT
 spacer length: 38 repeater length: 36
 39750 2689829 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCGACCGTGCCGGTCACGTGCCACCCGCTCCGGC
 spacer length: 34 repeater length: 36
 39751 2689900 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC AGGGAGAGTGCGATGATGCCTCGATCGGCCCACTC
 spacer length: 35 repeater length: 36
 39752 2689972 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCCCTGGTCCGATGCCCTATTATCCCGGCCCGAA
 spacer length: 35 repeater length: 36
 39753 2690044 CTTACCATGTCTGAAAAGACATGGCTCCATTGAAGC GCCTCAAAGTATCCCTGCTCGCTTACCATGTCTTT
 39754
 39755
 39756 GCA_900079115.1_SSOP1_genomic.fna (findCrispr):
 39757 START REPEAT
 SPACER
 39758 crispr 1
 39759 1393074 ATCTCTTATAGAATT GAAAGATGCCAGTATGGTATCTGCACTATACCCTTGTAAGTTGGAT spacer
 length: 46 repeater length: 15
 39760 1393136 ATCTCTTATAGAATT GAAAGGATCTACGGGATTGTGACCTATACAACATGTTTGCCCGAT spacer
 length: 46 repeater length: 15
 39761 1393198 ATCTCTTATAGAATT GAAAGATCGCTGATTTGATGAAAGAGATCTCTGATGAGATGATGTCGAT spacer
 length: 49 repeater length: 15
 39762 1393263 ATCTCTTATAGAATT GAAAGTCAGTACCGCCCGCTTTTCCTCTGTTCTGTACACCCACGAT spacer
 length: 46 repeater length: 15
 39763 1393325 ATCTCTTATAGAATT GAAAGGCATACTACTATGGCCTAGCAAAAAGCCTATCTGCAAAATTTGAT spacer
 length: 50 repeater length: 15
 39764 1393391 ATCTCTTATAGAATT GAAAGTAGCACGATTACAAAGTTGAGTTTCTGCCACGCCCCCAAGAT spacer
 length: 47 repeater length: 15
 39765 1393454 ATCTCTTATAGAATT GAAAGGTACGATACCAAGCGCCTTACCTCTTTTCCTCTAAATATGAT spacer
 length: 46 repeater length: 15
 39766 1393516 ATCTCTTATAGAATT GAAAGCAACACAGCCACGACACGCCCGGTACTTACACACAAACCGAT spacer
 length: 47 repeater length: 15
 39767 1393579 ATCTCTTATAGAATT GAAAGATCGTTATTAACGAGGCGAATGACGTGTTTACGGTATACCGAT spacer
 length: 47 repeater length: 15
 39768 1393642 ATCTCTTATAGAATT GAAAGGTTTTTCCCCTGGGCTATCCATTGCGGTGATCTCCCCGTTTACGAT spacer
 length: 49 repeater length: 15
 39769 1393707 ATCTCTTATAGAATT GAAAGTCAACTTCTCCTACAATTCTATCTTAGCATTAAGAATTGAT spacer
 length: 47 repeater length: 15
 39770 1393770 ATCTCTTATAGAATT GAAAGTTCCTCCAGCTGAAGAGTCCAGAAGACGTAAGGAGGAT spacer
 length: 48 repeater length: 15
 39771 1393834 ATCTCTTATAGAATT GAAAGAAAGATATAATTCTGCATAGATTTTCTGTGACAGAAAGAGGGGAT spacer
 length: 50 repeater length: 15
 39772 1393900 ATCTCTTATAGAATT GAAAGCATGTTTACGCCTTTAGAAGAAAGAGAATCAGTGGGCGGAT spacer
 length: 46 repeater length: 15
 39773 1393962 ATCTCTTATAGAATT GCCATTGTATCACTCCAAGAAGAGGTGAAAAAGCATTCTAAAGCTA
 39774
 39775
 39776 crispr 2
 39777 1384460 CTTTCAATTCTATAAGAGATTATC TGAGGATATACTTTAATCGGATTGTGTTAGGTGGAGAGATGT spacer
 length: 42 repeater length: 24
 39778 1384527 CTTTCAATTCTATAAGAGATTATC CCATCTACCACACCGCGGACACTGGTATAAACATGCACCG spacer
 length: 40 repeater length: 24
 39779 1384592 CTTTCAATTCTATAAGAGATTATC TCAGTCTTATTGTGCGAGGAGTAGTGGTAGGAGTGATA spacer
 length: 37 repeater length: 24
 39780 1384654 CTTTCAATTCTATAAGAGATTATC GGAAGAGACAAGACTCTACAGTACAATATGCCCCAGAT spacer

length: 38 repeater length: 24
39781 1384717 CTTTCAATTCTATAAGAGATTATC AACCGGAAGTACGAACATATGTTGCTGAGATTGTGGTCTATG spacer
length: 41 repeater length: 24
39782 1384783 CTTTCAATTCTATAAGAGATTATC TTTGTGGTACTTGTAGTTGTGATGCTGACGTTCCACTAC spacer
length: 39 repeater length: 24
39783 1384847 CTTTCAATTCTATAAGAGATTATC TCAAATCAACAAGTTACAGTAACCAACGGTACTTCAAACC spacer
length: 40 repeater length: 24
39784 1384912 CTTTCAATTCTATAAGAGATTATC TATGTTGTTGTTTGTGAGTTGTGGTCTGCTGTGTAGTT spacer
length: 39 repeater length: 24
39785 1384976 CTTTCAATTCTATAAGAGATTATC ATCCAGACGAAGTGGGGGCAATCATGCAGCCCCCCTC spacer
length: 37 repeater length: 24
39786 1385038 CTTTCAATTCTATAAGAGATTATC AAAGATAATGGATAATAACTTAACATTACAGAATTTAAT spacer
length: 39 repeater length: 24
39787 1385102 CTTTCAATTCTATAAGAGATTATC TAAACTCATGTAGCGTTAGTTGGAGCGGATCTGCACAAGT spacer
length: 40 repeater length: 24
39788 1385167 CTTTCAATTCTATAAGAGATTATC CCAGTGTTTTACTTAAACATCAGTACAAGGATCAAAAC spacer
length: 37 repeater length: 24
39789 1385229 CTTTCAATTCTATAAGAGATTATC AAGAGTTCGATCGGATTAAAGAGGAGATTGAGCAAA spacer length:
36 repeater length: 24
39790 1385290 CTTTCAATTCTATAAGAGATTATC AGTGACTCAATACCGGTCACAATATCTTCAGGTGCTCCCAT spacer
length: 41 repeater length: 24
39791 1385356 CTTTCAATTCTATAAGAGATTATC CGTCCCCATCGAATACGTAAGAGTCTGGAGGGGAATTT spacer
length: 38 repeater length: 24
39792 1385419 CTTTCAATTCTATAAGAGATTATC TAAAGGTTACGTTAGAACTAGAAAAGAATGGAAATCTGA spacer
length: 39 repeater length: 24
39793 1385483 CTTTCAATTCTATAAGAGATTATC TGGAGTTTTTCAGATATTTTGTAAAGTACGTTTCAGTT spacer length:
36 repeater length: 24
39794 1385544 CTTTCAATTCTATAAGAGATTATC AATAGGCTATGGTGTGTGGATGGACCTGTATCGTAAAT spacer
length: 38 repeater length: 24
39795 1385607 CTTTCAATTCTATAAGAGATTATC CACGCAAAAGGATAAAACAATATGGTGCGATTCTGAATGG spacer
length: 38 repeater length: 24
39796 1385670 CTTTCAATTCTATAAGAGATTATC ACAAACAGTGTGTGTTACATTATCCTTCGATTACAACGA spacer
length: 39 repeater length: 24
39797 1385734 CTTTCAATTCTATAAGAGATTATC CTTCTGTTCTGAAATTATAAAGGACATGCTGATAAAATT spacer
length: 39 repeater length: 24
39798 1385798 CTTTCAATTCTATAAGAGATTATC CTAAGTGAAGAAGACCCAATTTATATTGCAGGATTTG spacer
length: 37 repeater length: 24
39799 1385860 CTTTCAATTCTATAAGAGATTATC TGCAGAACCATTAGCTGGTACAGTAACTGTTTGCCA spacer length:
36 repeater length: 24
39800 1385921 CTTTCAATTCTATAAGAGATTATC ACCATAGTCCCTGATTTTCGGTATTCTTTACCCTGTAACCCC spacer
length: 41 repeater length: 24
39801 1385987 CTTTCAATTCTATAAGAGATTATC GCTTATCTCTCTCATGCGCCATTTCTTCTTTCCTTCTTT spacer
length: 39 repeater length: 24
39802 1386051 CTTTCAATTCTATAAGAGATTATC TATATCCCCAAAAATCTCAGACATTAGAGAGCATTTTTTG spacer
length: 39 repeater length: 24
39803 1386115 CTTTCAATTCTATAAGAGATTATC AATAGATCCAGAAAATGAATATGTCAAATTAGCTGACATT spacer
length: 40 repeater length: 24
39804 1386180 CTTTCAATTCTATAAGAGATTATC TTTATTTTCTTGCGATATTTTCATTACCGAGACTTTTGCC spacer
length: 39 repeater length: 24
39805 1386244 CTTTCAATTCTATAAGAGATTATC GTTGGCTGTTGGCTGTTGGCTGTTGTGCGTCGATGGCCC spacer
length: 39 repeater length: 24
39806 1386308 CTTTCAATTCTATAAGAGATTATC AAAGAATATCTTGACGCGTTAGCCGAATTTGACCGAA spacer
length: 37 repeater length: 24
39807 1386370 CTTTCAATTCTATAAGAGATTATC TTGCTTAGTCTTGATAAGTATACTAAAAGTTCGTTCTT spacer
length: 38 repeater length: 24
39808 1386433 CTTTCAATTCTATAAGAGATTATC TACCCAACATAAATCATAACCTCTTTGTTGCAGAATTGT spacer
length: 38 repeater length: 24
39809 1386496 CTTTCAATTCTATAAGAGATTATC AAGAAGAACCCCCAAGTTGTTACGAGATCTTGCAAAAAGC spacer
length: 40 repeater length: 24
39810 1386561 CTTTCAATTCTATAAGAGATTATC TCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGA
39811
39812
39813 crispr 3
39814 1883253 CTTTCAATTCTATAGTAGATTAGC AACACATTGCTCATATAACTACACCATTCACTATTGCCT spacer
length: 39 repeater length: 24
39815 1883317 CTTTCAATTCTATAGTAGATTAGC ACAATGTATGACTATGGATATCAATGGAGCGTCGGCTTA spacer
length: 39 repeater length: 24
39816 1883381 CTTTCAATTCTATAGTAGATTAGC CAAATAATCTAGCATTTTCTTCATAAAGTTCATTACATA spacer
length: 39 repeater length: 24
39817 1883445 CTTTCAATTCTATAGTAGATTAGC CTTAAAAGTGTGAGTTTGTGCGAGTTAGTTGAATTTTAC spacer
length: 40 repeater length: 24

39818 1883510 CTTTCAATTCTATAGTAGATTAGC GTTATTCCTAATTGTTTTTCGGAATTATTTTGAGAATGA spacer
length: 39 repeater length: 24

39819 1883574 CTTTCAATTCTATAGTAGATTAGC GCCGTACTGACTTCTCCCCTGCCAGCGAGGGTTCTCCTCA spacer
length: 40 repeater length: 24

39820 1883639 CTTTCAATTCTATAGTAGATTAGC TTCCCCACCATTATGTACCACTATTATGCTTCCATTTAT spacer
length: 39 repeater length: 24

39821 1883703 CTTTCAATTCTATAGTAGATTAGC ATGTTCTTTTTCCAGAACTGTAACATAATTTTGTTGAT spacer
length: 39 repeater length: 24

39822 1883767 CTTTCAATTCTATAGTAGATTAGC TATTTTTGCGTATTTACACGATTTATTTATTTTCGCAGAAT spacer
length: 40 repeater length: 24

39823 1883832 CTTTCAATTCTATAGTAGATTAGC AGTGATGCGTACTACGACCGTGAAAATGAGTTGAAAAA spacer
length: 38 repeater length: 24

39824 1883895 CTTTCAATTCTATAGTAGATTAGC CATCACGCAGAATAATGGTTCAGGTAACTTTTTAAG spacer length:
36 repeater length: 24

39825 1883956 CTTTCAATTCTATAGTAGATTAGC TGATTATATTCAAGGACAATATGTTGAAACGCCGATTTTA spacer
length: 40 repeater length: 24

39826 1884021 CTTTCAATTCTATAGTAGATTAGC AGATGCTATTGGAGGATTTACCAGGTTGGGTTATAATGTCAAAT
spacer length: 45 repeater length: 24

39827 1884091 CTTTCAATTCTATAGTAGATTAGC TCAGAGTTTTTTTTATTTTTTCTATTTGAAATTAAGCAC spacer
length: 38 repeater length: 24

39828 1884154 CTTTCAATTCTATAGTAGATTAGC TTGGGTGTTTTGTTTAGGTTGAAAAAGATTATCTTATTTTC spacer
length: 42 repeater length: 24

39829 1884221 CTTTCAATTCTATAGTAGATTAGC CCAACGGCTCTTACGCCCTCCTCGGCATGTACAACGGGAC spacer
length: 40 repeater length: 24

39830 1884286 CTTTCAATTCTATAGTAGATTAGC AAGATACCACAACACTTGGAGTTAATGCATTATTGAATATGGATACA
spacer length: 47 repeater length: 24

39831 1884358 CTTTCAATTCTATAGTAGATTAGC GGAAAGGCTAATGGAGACAAAAAGAAGTCTAAAAAGCA spacer
length: 38 repeater length: 24

39832 1884421 CTTTCAATTCTATAGTAGATTAGC TTCTTCAGCTTCTTCCCAACGCTATATGTGCTATTAGGTGTAA spacer
length: 43 repeater length: 24

39833 1884489 CTTTCAATTCTATAGTAGATTAGC CGGCACAGTACTACTATCTGAAAGTGTTGCATCTCCAAAT spacer
length: 40 repeater length: 24

39834 1884554 CTTTCAATTCTATAGTAGATTAGC AACACGTCCTTTTTTCATTTGTAATATCTGAACCTGGA spacer
length: 37 repeater length: 24

39835 1884616 CTTTCAATTCTATAGTAGATTAGC CCTAATATCCTCGGGTACTTATAGAACCCTCCTTCTGGT spacer
length: 39 repeater length: 24

39836 1884680 CTTTCAATTCTATAGTAGATTAGC
CTGTTAGTAAGCCCCCTTGCTACAACCTCTATAGAAGTGCGGGTTTTAAACAGCTGTTTGAGAATATAAACATGGGGTAAAAAAGCTA
CAACTCTATAGAAGTGCGG spacer length: 105 repeater length: 24

39837 1884810 CTTTCAATTCTATAGTAGATTAGC ATATTTAAAGTTTTTGCTCAACCAGTTAGGTAACAAGTATTC spacer
length: 42 repeater length: 24

39838 1884877 CTTTCAATTCTATAGTAGATTAGC AAAGCGGTTGTTTTCCAGTTCAGAACTGGAATTCTTA spacer
length: 39 repeater length: 24

39839 1884941 CTTTCAATTCTATAGTAGATTAGC GGATTTTTAAATGGAGTGAATTGATAAAATGATAAAG spacer
length: 37 repeater length: 24

39840 1885003 CTTTCAATTCTATAGTAGATTAGC TTGGTGGGGCGATGAACGGCAACGATATGTTGGACGTCA spacer
length: 39 repeater length: 24

39841 1885067 CTTTCAATTCTATAGTAGATTAGC CTGGAAAACAAATTGAAGAAAGTAAAAAATTGAAATTTTA spacer
length: 41 repeater length: 24

39842 1885133 CTTTCAATTCTATAGTAGATTAGC GATAGAGAAAAGTTTATAAAGGAGAGTGAAGATATGTATA spacer
length: 40 repeater length: 24

39843 1885198 CTTTCAATTCTATAGTAGATTAGC TCTAACACTTTATGATTTCAAGAACTTTGCAAGAAATA spacer
length: 38 repeater length: 24

39844 1885261 CTTTCAATTCTATAGTAGATTAGC TTAGCATGCGAAACAAATGAAGAATTCAGAAGAGAGTTA spacer
length: 39 repeater length: 24

39845 1885325 CTTTCAATTCTATAGTAGATTAGC AAAGAATGAGGAAAGAGGCATTGGAAGGCATTGAAGAAGGT spacer
length: 41 repeater length: 24

39846 1885391 CTTTCAATTCTATAGTAGATTAGC TGGAGATTTAATTAGATATCATCACTTCGTTCTTTCTCT spacer
length: 40 repeater length: 24

39847 1885456 CTTTCAATTCTATAGTAGATTAGC CTGTTACGCCGGTGCTGGAGGGTAAGTTAGTTGGAGAGC spacer
length: 39 repeater length: 24

39848 1885520 CTTTCAATTCTATAGTAGATTAGC TTTCCCAGACTTAGTAAAGGACATTTGGAAGGTTCTAA spacer
length: 38 repeater length: 24

39849 1885583 CTTTCAATTCTATAGTAGATTAGC ATGAAACAGAAAAAGTTAACATTTTAGACCACCAATTAA spacer
length: 39 repeater length: 24

39850 1885647 CTTTCAATTCTATAGTAGATTAGC AAGACCCCGACTTTTTTAAGGTTTACAGATCCCGCAGAAA spacer
length: 39 repeater length: 24

39851 1885711 CTTTCAATTCTATAGTAGATTAGC ATGAGGTTCTGTCGTGTAGGGATTAATCCCGTGTCTAAA spacer
length: 38 repeater length: 24

39852 1885774 CTTTCAATTCTATAGTAGATTAGC TAATTATCAATGGCAAACCGCATATAATTGGATGAGATT spacer
length: 39 repeater length: 24

39853	1885838	CTTTCAATTCTATAGTAGATTAGC	TTTACTACACATGTAATAAGTATGTTGATTATGGAATAGAA spacer
	length:	41	repeater length: 24
39854	1885904	CTTTCAATTCTATAGTAGATTAGC	TTGAACACGTGATATAGAACCAGTTGTTCTAATACGT spacer
	length:	37	repeater length: 24
39855	1885966	CTTTCAATTCTATAGTAGATTAGC	AACAATAGCAATAGCTTTGCTTATAGTCGGTGTAAATAA spacer
	length:	38	repeater length: 24
39856	1886029	CTTTCAATTCTATAGTAGATTAGC	TTGTAAAGACTAGGTAAAACCTTTGTTATCATAATAGCAGT spacer
	length:	40	repeater length: 24
39857	1886094	CTTTCAATTCTATAGTAGATTAGC	AGGAGGGGCTATACGTACGATCACGAATGTAACATTATCGTG spacer
	length:	42	repeater length: 24
39858	1886161	CTTTCAATTCTATAGTAGATTAGC	AGTATCTGGCTTTTCGACACAAAACCTTCCTTTACCAA spacer
	length:	37	repeater length: 24
39859	1886223	CTTTCAATTCTATAGTAGATTAGC	ACGACGATGCTATGTGTTGCACTGTATTTGATCACGGTTA spacer
	length:	40	repeater length: 24
39860	1886288	CTTTCAATTCTATAGTAGATTAGC	TACGGTTAAAAGTTGGCAAAAAGCTTAAATTTTTGCA spacer
	length:	37	repeater length: 24
39861	1886350	CTTTCAATTCTATAGTAGATTAGC	CTTATGAGCCTCTTTGAGATGTGTCTCTGACTTCTG spacer length:
	length:	36	repeater length: 24
39862	1886411	CTTTCAATTCTATAGTAGATTAGC	ATAAATAAACTAGGTTTGTATTTATCACCTCCAACAATTC spacer
	length:	40	repeater length: 24
39863	1886476	CTTTCAATTCTATAGTAGATTAGC	AAACGATAAAATTAGCACTATATTATAACTATGATTCTACAC spacer
	length:	41	repeater length: 24
39864	1886542	CTTTCAATTCTATAGTAGATTAGC	AACTGTAACCTGGTAGCCTTGGTCAGGTGTTACTGACAGTGTGCAT
	length:	45	repeater length: 24
39865	1886612	CTTTCAATTCTATAGTAGATTAGC	CAAAATGATATACATATAGTACCATCACCTAGCGCAAGA spacer
	length:	39	repeater length: 24
39866	1886676	CTTTCAATTCTATAGTAGATTAGC	GGATATCCAGCAATTGCAACAGGTGGGTCGGGGATATCATTG spacer
	length:	42	repeater length: 24
39867	1886743	CTTTCAATTCTATAGTAGATTAGC	TTTAACTATGACTTTTCAGAATACAACAATTCGCCAAT spacer
	length:	39	repeater length: 24
39868	1886807	CTTTCAATTCTATAGTAGATTAGC	ATGTATACAATAGATCATATGTTATATATAGAGAATGTACCAA spacer
	length:	43	repeater length: 24
39869	1886875	CTTTCAATTCTATAGTAGATTAGC	TCTTGTACAAACTCTCATAACAGTTCATTGCAAAACAGTTCA spacer
	length:	42	repeater length: 24
39870	1886942	CTTTCAATTCTATAGTAGATTAGC	TACACTGTTGCTTTCCCTAACGCTCTACATCGCGTTG spacer length:
	length:	36	repeater length: 24
39871	1887003	CTTTCAATTCTATAGTAGATTAGC	TGCAGGAGGGCGAGGAAGAATGATAAAGATGGAGGAAA spacer
	length:	38	repeater length: 24
39872	1887066	CTTTCAATTCTATAGTAGATTAGC	TTGTCCCTTCCATGGGCATTTGTCACTTTCACAAAACCT spacer
	length:	39	repeater length: 24
39873	1887130	CTTTCAATTCTATAGTAGATTAGC	ATAAAAAAAGAATTATAACTTATTCATCATTCTTTTAAAT spacer
	length:	39	repeater length: 24
39874	1887194	CTTTCAATTCTATAGTAGATTAGC	TTATAATCCCCGTGACACAGAAAGAATTTTAAATATCATAA spacer
	length:	41	repeater length: 24
39875	1887260	CTTTCAATTCTATAGTAGATTAGC	TAAACTAACAAGTAAAATTATAACTCCTAACGGAATTG spacer
	length:	38	repeater length: 24
39876	1887323	CTTTCAATTCTATAGTAGATTAGC	TGACGATTATAACACTGAACATGAGTATGCAGTAAGTGAAG spacer
	length:	41	repeater length: 24
39877	1887389	CTTTCAATTCTATAGTAGATTAGC	AGAATAATCAGTGATGAACAGTGTGAGAACTTGTTCCAAGTTT spacer
	length:	43	repeater length: 24
39878	1887457	CTTTCAATTCTATAGTAGATTAGC	ATGATGTTGAAAATGGACTAAAACCTTTTAGATGAAAAAC spacer
	length:	39	repeater length: 24
39879	1887521	CTTTCAATTCTATAGTAGATTAGC	TGAACGGAACATCTATTTTTACTCCTAACATCATTCAATC spacer
	length:	40	repeater length: 24
39880	1887586	CTTTCAATTCTATAGTAGATTAGC	AAATAATGATAAATAAGGATGAGGTGATAGTACAATGAAAT spacer
	length:	41	repeater length: 24
39881	1887652	CTTTCAATTCTATAGTAGATTAGC	AGCCCTCCAAAATCGTAAAACCTTGAATATATGAAGTTAAATTT spacer
	length:	44	repeater length: 24
39882	1887721	CTTTCAATTCTATAGTAGATTAGC	GTGCTGTAGGCTGTAGGACTGTCGAGGTAGCGTTTGAA spacer
	length:	38	repeater length: 24
39883	1887784	CTTTCAATTCTATAGTAGATTAGC	AGAGTTAATAAACATTTTGAATCCCCACGCTAACGAAAA spacer
	length:	39	repeater length: 24
39884	1887848	CTTTCAATTCTATAGTAGATTAGC	ACAAATAACGAAACGAATAAATATAATAAATTATGAAT spacer
	length:	38	repeater length: 24
39885	1887911	CTTTCAATTCTATAGTAGATTAGC	TTGGTGAACCGGTGATAATATTCGTTACGGCGTCCAATACTG spacer
	length:	42	repeater length: 24
39886	1887978	CTTTCAATTCTATAGTAGATTAGC	CCTTACCCTTCAGGAAGCTGCAGAAGATGGTGGAGTAC spacer
	length:	38	repeater length: 24
39887	1888041	CTTTCAATTCTATAGTAGATTAGC	CATCCGTTACGCTGAGCATACTAAGATCTGTCCTATTTGCCAT spacer
	length:	43	repeater length: 24
39888	1888109	CTTTCAATTCTATAGTAGATTAGC	TATGGGGGTCAGTGACACTTATTCACCGTTTCACTATT spacer

length: 38 repeater length: 24
39889 1888172 CTTTCAATTCTATAGTAGATTAGC TGGAATTTTGAATTTTTTGCACCGCTCCAATTATTATTTG spacer
length: 40 repeater length: 24
39890 1888237 CTTTCAATTCTATAGTAGATTAGC TTGTCTGTCTGGTGAAGCAGTAGTATTTCTAAGAGGCCGTC spacer
length: 40 repeater length: 24
39891 1888302 CTTTCAATTCTATAGTAGATTAGC TCTACTTCTGTCTTCTTAGCCATTGAGCTCACCTTT spacer length:
36 repeater length: 24
39892 1888363 CTTTCAATTCTATAGTAGATTAGC GTAAGAATAATTTTACAAAATCTTAGTAATTATATAGTTTATA spacer
length: 43 repeater length: 24
39893 1888431 CTTTCAATTCTATAGTAGATTAGC CCTCGCTTTAACCGAGGTGTCTCGGTGACGCTTGCTCCG spacer
length: 39 repeater length: 24
39894 1888495 CTTTCAATTCTATAGTAGATTAGC AGATTGGTGTATAGTAACAGAAAAGCAGACAACGAAAGG spacer
length: 39 repeater length: 24
39895 1888559 CTTTCAATTCTATAGTAGATTAGC ATGTTAGTTATCGGCGTTATAATGGGTATCGGAATCGGTGTA spacer
length: 42 repeater length: 24
39896 1888626 CTTTCAATTCTATAGTAGATTAGC CTATTTTTGTCAATAATTTTTTTATTTTTGCATTTTTTCGAAA spacer
length: 42 repeater length: 24
39897 1888693 CTTTCAATTCTATAGTAGATTAGC GTAATCTTATTTCTGCGGTAAATTGAGATTATAGATGGTA spacer
length: 40 repeater length: 24
39898 1888758 CTTTCAATTCTATAGTAGATTAGC ATCATTTATGCACATTTCAACTCCATTTCCAATATGAA spacer
length: 38 repeater length: 24
39899 1888821 CTTTCAATTCTATAGTAGATTAGC CCACGTTTTTTGTCTTAACTTTAATTGATTTATTAGAA spacer
length: 38 repeater length: 24
39900 1888884 CTTTCAATTCTATAGTAGATTAGC AAGGTCAATCCATTCTGGGGGCGTTAAACCCGCATCCCTG spacer
length: 40 repeater length: 24
39901 1888949 CTTTCAATTCTATAGTAGATTAGC GGCAGTGTTAGAATACTAACGGGCGAAGAAGAATGGGTTTAT spacer
length: 42 repeater length: 24
39902 1889016 CTTTCAATTCTATAGTAGATTAGC AGGTGAAAAAGCATTCTAAAGCTATTCTTAGGCTTGCTAAGA
39903
39904
39905 crispr 4
39906 1817488 GATAATCTACTATAGAATTGAAAG ATACTGCAAGCGAATTGGCGGAAAATTGGCAGCGACGT spacer
length: 38 repeater length: 24
39907 1817551 GATAATCTACTATAGAATTGAAAG TTATCTAATTTTAATAATCAAGGAAATTCATTAAGTCAAAT spacer
length: 41 repeater length: 24
39908 1817617 GATAATCTACTATAGAATTGAAAG CCCATTCATCTCTTTCTTTGCAGCTTTGTTCTAACATT spacer
length: 38 repeater length: 24
39909 1817680 GATAATCTACTATAGAATTGAAAG TGGTAAATAGCTCTGTTAGGCCAGTTATTCCATATTCTG spacer
length: 40 repeater length: 24
39910 1817745 GATAATCTACTATAGAATTGAAAG ATTTTCTAATATATCTAATTCAGTCTGCGTATCATTATGGATA spacer
length: 43 repeater length: 24
39911 1817813 GATAATCTACTATAGAATTGAAAG TTAGCCCAACAATTAAGTAAAGATCCTGAAGCAGTCA spacer
length: 37 repeater length: 24
39912 1817875 GATAATCTACTATAGAATTGAAAG TGGTATTCAGTAAATTCATGCTATAGTCAATTTCTTA
39913
39914
39915 crispr 5
39916 1343873 CTTTCAATTCCTTTTAGGATTAATC GTCTACACCTCTTGCGTCTATTATGATATCATATTTGTCA spacer
length: 40 repeater length: 25
39917 1343939 CTTTCAATTCCTTTTAGGATTAATC AAATACGTTTTCTCCATTGTCATATTGCGCATAAGTTG spacer
length: 38 repeater length: 25
39918 1344003 CTTTCAATTCCTTTTAGGATTAATC ACCAAGTGAAACTTGAATATATAACCAAAAAGATA spacer
length: 36 repeater length: 25
39919 1344065 CTTTCAATTCCTTTTAGGATTAATC GATTCTTCAATAAAGCTGGTAATATACTTTGACAGAA spacer
length: 37 repeater length: 25
39920 1344128 CTTTCAATTCCTTTTAGGATTAATC AGTAATAGAACTCATTGAGTCTCTTCCAACCCGTAC spacer
length: 39 repeater length: 25
39921 1344193 CTTTCAATTCCTTTTAGGATTAATC CGTGGTAGTGGTGGTAGTTGTTGTTGTTGTAGGC spacer length:
34 repeater length: 25
39922 1344253 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
39923 1344317 CTTTCAATTCCTTTTAGGATTAATC TAGTATAGTGTTACAGTTAAACGCTGTACCGAATAATG spacer
length: 38 repeater length: 25
39924 1344381 CTTTCAATTCCTTTTAGGATTAATC AAAATGTTTAATATTGGTGGAGTAGTTGATTTGATAATA spacer
length: 40 repeater length: 25
39925 1344447 CTTTCAATTCCTTTTAGGATTAATC AAGGGTAATAGAAAGCATGCCCATATCAGCAAGTTCTA spacer
length: 38 repeater length: 25
39926 1344511 CTTTCAATTCCTTTTAGGATTAATC GTAAAATCCCCAACGCCACATACGTTATAAGGGAAGAT spacer
length: 38 repeater length: 25
39927 1344575 CTTTCAATTCCTTTTAGGATTAATC CTAGTGTTAAAATATATTTCAAGCCTTACGATGAGA spacer
length: 36 repeater length: 25

39928	1344637	CTTTCAATTCCTTTTAGGATTAATC	CATGCATCAGTTCATCGTAGTTGAACTCAGCATGGA	spacer
	length:	36	repeater length:	25
39929	1344699	CTTTCAATTCCTTTTAGGATTAATC	CAAATCCATTTCGAGGAAGTGTTAGAAGAGGTGTATGGTG	spacer
	length:	39	repeater length:	25
39930	1344764	CTTTCAATTCCTTTTAGGATTAATC	CAGAGGGAAAAAGTTTGCAGGAGATTTCAAGTATTAC	spacer
	length:	37	repeater length:	25
39931	1344827	CTTTCAATTCCTTTTAGGATTAATC	CAATATTAAATATTAGTGATTTGGTAATAACGAAAATAA	spacer
	length:	39	repeater length:	25
39932	1344892	CTTTCAATTCCTTTTAGGATTAATC	GAGTGAGACCATGATCATTAACTGATATTACGGTAA	spacer
	length:	38	repeater length:	25
39933	1344956	CTTTCAATTCCTTTTAGGATTAATC	AACAAAACCTTACCAGTGATGGAACATTTGAATGTA	spacer
	length:	36	repeater length:	25
39934	1345018	CTTTCAATTCCTTTTAGGATTAATC	TGTTAATATTGCCGGTTCGGCTAGTGATATAGTGTGGTTC	spacer
	length:	40	repeater length:	25
39935	1345084	CTTTCAATTCCTTTTAGGATTAATC	GGTAATGGTCTGTATATTGTCTTTAAGTATTTA	spacer length:
	33	repeater length:	25	
39936	1345143	CTTTCAATTCCTTTTAGGATTAATC	AGCACTAATTGCGAGATTTGAGGATGCCATCAGAAGTA	spacer
	length:	38	repeater length:	25
39937	1345207	CTTTCAATTCCTTTTAGGATTAATC	CAAGCTAAGATTGCGAGTACAAGCGATCACTTACACAAA	spacer
	length:	39	repeater length:	25
39938	1345272	CTTTCAATTCCTTTTAGGATTAATC	ACGCCGTTTCTCTATAGTTATTGAACCATGCAATATCAT	spacer
	length:	39	repeater length:	25
39939	1345337	CTTTCAATTCCTTTTAGGATTAATC	TTATCAAGTCGAAGATTGCACTAGAGTCAAAGGTATCA	
39940				
39941				
39942	crispr 6			
39943	1345400	CTTTCAATTCCTTTTGGGATTAATC	ATAAATCCACAAAGTGGCCGTTCAAAGCAAAGAGTTTAT	spacer
	length:	39	repeater length:	25
39944	1345465	CTTTCAATTCCTTTTGGGATTAATC	TGATATTTATTTTCTCGTGAAAAGTGGAGGGCCTAGAA	spacer
	length:	38	repeater length:	25
39945	1345529	CTTTCAATTCCTTTTGGGATTAATC	ATTATATCATGGAGACCCAGGTGCTGTGACTATCA	spacer length:
	35	repeater length:	25	
39946	1345590	CTTTCAATTCCTTTTGGGATTAATC	AATTAGCCAGCGTGCCATCTGGGTAAACGTGTATTTTGGTTA	spacer
	length:	42	repeater length:	25
39947	1345658	CTTTCAATTCCTTTTGGGATTAATC	ATAATATATTTTCGTTCCAACCTACCTAATGGATTTCGG	spacer
	length:	38	repeater length:	25
39948	1345722	CTTTCAATTCCTTTTGGGATTAATC	TAATTGTCTGCCCTTGAGTTCCACTGAGAGAAACG	spacer length:
	35	repeater length:	25	
39949	1345783	CTTTCAATTCCTTTTGGGATTAATC	AAAAGACGTACAAATATACATCGCACCGAACGGACACA	spacer
	length:	38	repeater length:	25
39950	1345847	CTTTCAATTCCTTTTGGGATTAATC	GGGTGCGTGCCCCACAGGTCGCGGGTCTACCCCTTG	spacer
	length:	36	repeater length:	25
39951	1345909	CTTTCAATTCCTTTTGGGATTAATC	TTATGTCGTTATCTTCTTCGTTTTTGCTGCGTTGTT	spacer
	length:	36	repeater length:	25
39952	1345971	CTTTCAATTCCTTTTGGGATTAATC	AAAATTTGAAACAATATCGCATCTTGAATAATTA	spacer length:
	34	repeater length:	25	
39953	1346031	CTTTCAATTCCTTTTGGGATTAATC	CAAGATATATAATGGAGGTGGAAGATGAGTGGAGAAA	spacer
	length:	39	repeater length:	25
39954	1346096	CTTTCAATTCCTTTTGGGATTAATC	GGAAATTGAAAATTATGATGCCATTTGATGAATATT	spacer
	length:	36	repeater length:	25
39955	1346158	CTTTCAATTCCTTTTGGGATTAATC	GAAGATCTATTAGAACTGTTAGACAGCTATGCAATG	spacer
	length:	36	repeater length:	25
39956	1346220	CTTTCAATTCCTTTTGGGATTAATC	CTCTGCATCTTATCTAAATCGTGGTACATCTTTAGTAGT	spacer
	length:	39	repeater length:	25
39957	1346285	CTTTCAATTCCTTTTGGGATTAATC	GGAAGAATGTAAAATTGTGGAATTAGAAGATAAAA	spacer length:
	35	repeater length:	25	
39958	1346346	CTTTCAATTCCTTTTGGGATTAATC	TGTGCATCACTTACCCTAACTTCTCATAGAAG	spacer length:
	35	repeater length:	25	
39959	1346407	CTTTCAATTCCTTTTGGGATTAATC	CTTAAGACAATTGCAATTGCGCTATCTCCAGGTTTGAAATATA	spacer
	length:	43	repeater length:	25
39960	1346476	CTTTCAATTCCTTTTGGGATTAATC	ATGATGTAACATGATGGTGACAGTAGAAGAAGAAGTGT	spacer
	length:	38	repeater length:	25
39961	1346540	CTTTCAATTCCTTTTGGGATTAATC	AAGGATCTGTATAGTACAGTCACAAAGGAAGAAA	spacer length:
	34	repeater length:	25	
39962	1346600	CTTTCAATTCCTTTTGGGATTAATC	AATTAGGAAATTTGTGGATCAACTGCCAGAATCTG	spacer length:
	35	repeater length:	25	
39963	1346661	CTTTCAATTCCTTTTGGGATTAATC	CAGAAATTCTATACAATTTGACGATATCATCAA	spacer length:
	34	repeater length:	25	
39964	1346721	CTTTCAATTCCTTTTGGGATTAATC	TTTGGCAAGGAGAATTCAACATATAAAAAATGTTGCAA	spacer
	length:	38	repeater length:	25
39965	1346785	CTTTCAATTCCTTTTGGGATTAATC	AATAGAGAAATATACAAGGGGAGATCTTTATGATAAAA	spacer

length: 38 repeater length: 25
39966 1346849 CTTTCAATTCCTTTTGGGATTAATC CCAATATCGTGGACGCTGGATAGATTTGCATCCCCTGATG spacer
length: 40 repeater length: 25
39967 1346915 CTTTCAATTCCTTTTGGGATTAATC CATGAAAGAGATCTCTGATGAAATGATGTCTACTTTGA spacer
length: 38 repeater length: 25
39968 1346979 CTTTCAATTCCTTTTGGGATTAATC AAAGAAGAAATTAAAGTAAATCAACTTCAAATAGAA spacer
length: 36 repeater length: 25
39969 1347041 CTTTCAATTCCTTTTGGGATTAATC TTCATCAGTGATTTGTTGGTGAAGTATAGTTGAAAAT spacer
length: 37 repeater length: 25
39970 1347104 CTTTCAATTCCTTTTGGGATTAATC CATCTGGACTCGAGGGGCAGGGACAGAAAGCAAATCG spacer
length: 37 repeater length: 25
39971 1347167 CTTTCAATTCCTTTTGGGATTAATC GTGCGTCCGGGTCACCGATTTTGTTCATCCATATGC spacer
length: 37 repeater length: 25
39972 1347230 CTTTCAATTCCTTTTGGGATTAATC AACGCATTTATCAATAAGAACCGAGCGGTGGTGAAAA spacer
length: 37 repeater length: 25
39973 1347293 CTTTCAATTCCTTTTGGGATTAATC TTGAGCTGAAAATCAACACTACTACCAGGATATGATGT spacer
length: 38 repeater length: 25
39974 1347357 CTTTCAATTCCTTTTGGGATTAATC GAAAACTGCGCCTGGAGATTACCTAGTCGAATTTT spacer length:
35 repeater length: 25
39975 1347418 CTTTCAATTCCTTTTGGGATTAATC AAGTATGCATTTCCAGGATTTGTTACTCCACACCAGC spacer
length: 37 repeater length: 25
39976 1347481 CTTTCAATTCCTTTTGGGATTAATC CTAATGTATCACTCACATCTTTTGATATAATGATAC spacer
length: 36 repeater length: 25
39977 1347543 CTTTCAATTCCTTTTGGGATTAATC CTTGACAACTTGGCTATGGAACCTGCAACCGTAGATG spacer
length: 37 repeater length: 25
39978 1347606 CTTTCAATTCCTTTTGGGATTAATC CGAATAAAGATACGCAACGCCAAGAGGAAGACTA spacer length:
34 repeater length: 25
39979 1347666 CTTTCAATTCCTTTTGGGATTAATC AATGTCCATATGGTGGCCCCCAATTTCTCTAGAGTA spacer
length: 37 repeater length: 25
39980 1347729 CTTTCAATTCCTTTTGGGATTAATC CTCCCCTGTTCTGTCCACAATCACGATACGCCGATAA
39981
39982
39983 crispr 7
39984 1321621 GATTAATCCCAAAAAGGAATTGAAAG GCAGATATTTTCAGTAGATATTCTGCTAAGTGTTACTCCT spacer
length: 39 repeater length: 25
39985 1321686 GATTAATCCCAAAAAGGAATTGAAAG ATTTTCATATTCAATTGCTTTCTCAGTGTGCAACCTAACT spacer
length: 40 repeater length: 25
39986 1321752 GATTAATCCCAAAAAGGAATTGAAAG TTTTGTATACCTTAAATCAAATAATATTAATGCAGT spacer
length: 37 repeater length: 25
39987 1321815 GATTAATCCCAAAAAGGAATTGAAAG TTTGCAAAATTAAGCGCTTTCTCTATCAGCTCAGTTG spacer
length: 37 repeater length: 25
39988 1321878 GATTAATCCCAAAAAGGAATTGAAAG ATCTTCTGGCGCATCGCCAAGCTTAGGCAGAGCTAG spacer
length: 36 repeater length: 25
39989 1321940 GATTAATCCCAAAAAGGAATTGAAAG CCCAATCTTTCAATTGCATTTGGCAAAATCCTAGC spacer length:
35 repeater length: 25
39990 1322001 GATTAATCCCAAAAAGGAATTGAAAG ATAATGAGTATAGTTAATGAGCGCATCAAGAACAATTATA spacer
length: 40 repeater length: 25
39991 1322067 GATTAATCCCAAAAAGGAATTGAAAG ATTTATAACAAAAAATTATTGATAAAGGATGATCTCT spacer
length: 37 repeater length: 25
39992 1322130 GATTAATCCCAAAAAGGAATTGAAAG TTAGTTTGTGATCATTATTATTTTGTGATTGTTTGTC spacer
length: 38 repeater length: 25
39993 1322194 GATTAATCCCAAAAAGGAATTGAAAG TTCATTTTCGAGCAACTTCAATAGTTATTGAAGGACA spacer
length: 37 repeater length: 25
39994 1322257 GATTAATCCCAAAAAGGAATTGAAAG TTCATCTACCAAGAGGCGGTGCTTATGAGTTAGAGGTT spacer
length: 38 repeater length: 25
39995 1322321 GATTAATCCCAAAAAGGAATTGAAAG GCCTTTTCCAATAAACACCGCATTCTGTTTTAACTTAT spacer
length: 38 repeater length: 25
39996 1322385 GATTAATCCCAAAAAGGAATTGAAAG GTTATAGAACATGGCGAAATGCACAACTGCATTACC spacer
length: 37 repeater length: 25
39997 1322448 GATTAATCCCAAAAAGGAATTGAAAG TTCAATATATCATCAGGATTCATTTTTACAATTTT spacer length:
35 repeater length: 25
39998 1322509 GATTAATCCCAAAAAGGAATTGAAAG GAAGAAGAGAATAATTATCAAACCTTGCAAACAATATA spacer
length: 39 repeater length: 25
39999 1322574 GATTAATCCCAAAAAGGAATTGAAAG TAATATATTGATGCTATATGTCCAAGTTAAAAATAG spacer
length: 36 repeater length: 25
40000 1322636 GATTAATCCCAAAAAGGAATTGAAAG ATTCTGCTCACCCGCCAGAGGTACACCATTTTTCT spacer length:
35 repeater length: 25
40001 1322697 GATTAATCCCAAAAAGGAATTGAAAG AATAGGTCTTGAATCCAGACTTTTCCATTTTCATATAA spacer
length: 38 repeater length: 25
40002 1322761 GATTAATCCCAAAAAGGAATTGAAAG TACACTACTATCCTGCCTTGCTTAGATACTGCTA spacer length:
34 repeater length: 25

40003	1322821	GATTAATCCCAAAAGGAATTGAAAG	AGTGTGGAGGAAACCAACAATCGACATCAGAGG	spacer length: 35
40004	1322882	GATTAATCCCAAAAGGAATTGAAAG	AACCTTACTGGGCAGTTATATGCGTATGAACAGCTGTT	spacer length: 38
40005	1322946	GATTAATCCCAAAAGGAATTGAAAG	TTAATAGATCAAGTGCCTCTATATTCATAATATTTGC	spacer length: 36
40006	1323008	GATTAATCCCAAAAGGAATTGAAAG	ATCAATTATTGCATTTTCAATTATTGAATAATCAATTG	spacer length: 38
40007	1323072	GATTAATCCCAAAAGGAATTGAAAG	TTAACTAGATTTTCTATTGCTCTCCTTATGGCTTCACTTCT	spacer length: 41
40008	1323139	GATTAATCCCAAAAGGAATTGAAAG	CATCTTTTTCCGTCGCTTTATATCACCTATGGACTCTTC	spacer length: 39
40009	1323204	GATTAATCCCAAAAGGAATTGAAAG	ACCATACCCAATTCTAACAACGTCGTTCTTAACAAC	spacer length: 37
40010	1323267	GATTAATCCCAAAAGGAATTGAAAG	AGTAAATCAAAAAGCAAATAAGTCAGGGGTGGAGAATT	spacer length: 38
40011	1323331	GATTAATCCCAAAAGGAATTGAAAG	TAACGTTTTTGTATGTGCTTATCTTCTTCGT	spacer length: 33
40012	1323390	GATTAATCCCAAAAGGAATTGAAAG	TTGTAGTTTGAATGCGAAACCATTGCTAAGATATTGATAAT	spacer length: 42
40013	1323458	GATTAATCCCAAAAGGAATTGAAAG	CGTTATCACAGTTATATTTCTTCTTTAAATATCATA	spacer length: 37
40014	1323521	GATTAATCCCAAAAGGAATTGAAAG	TTATCCAGACATTAAGCATGTTGTCGTAGAGGTAGCT	spacer length: 37
40015	1323584	GATTAATCCCAAAAGGAATTGAAAG	TACTTTTCCATCTTGAGGTATTGCGTTTAGTTGCAC	spacer length: 36
40016	1323646	GATTAATCCCAAAAGGAATTGAAAG	TCTGTCAGTAGCACAAATAATTTGTTCTCATAAATAG	spacer length: 38
40017	1323710	GATTAATCCCAAAAGGAATTGAAAG	CGCCCATAGGACGGGATTTAGATTTCTTGTAGGATTTGTT	spacer length: 40
40018	1323776	GATTAATCCCAAAAGGAATTGAAAG	GTAAGGGGGCTATCCATCCCCGCGTGAGGCTTCCGCC	spacer length: 40
40019	1323842	GATTAATCCCAAAAGGAATTGAAAG	TGAATCGTTATGGGCTTAGTTAATCCGTAGTTAAAC	spacer length: 37
40020	1323905	GATTAATCCCAAAAGGAATTGAAAG	AACTTAAAGTTGTTATACGTCATTGGAATAACATTCAT	spacer length: 38
40021	1323969	GATTAATCCCAAAAGGAATTGAAAG	TTTACGATATTCACGTCGACAGATACCCTTACTGCTGAT	spacer length: 39
40022	1324034	GATTAATCCCAAAAGGAATTGAAAG	ATAGAATTGCATCAGACAGCTTTCATACCTCCGCATC	spacer length: 37
40023	1324097	GATTAATCCCAAAAGGAATTGAAAG	ATATCCAACGCTTGAAGTAATATTTGAATGTCAATACTT	spacer length: 39
40024	1324162	GATTAATCCCAAAAGGAATTGAAAG	ATGCATTCCACCTCTGTTTCTTCTCTTTACGCATTTT	spacer length: 38
40025	1324226	GATTAATCCCAAAAGGAATTGAAAG	CTCTATATTCTACTATCCTCCCTCTCTGCTCTGGC	spacer length: 35
40026	1324287	GATTAATCCCAAAAGGAATTGAAAG	ATCTCTGATTTCTCAGTTCTCTAATTCCGAATACTACA	spacer length: 38
40027	1324351	GATTAATCCCAAAAGGAATTGAAAG	TAAACTGCTCAAAAATGCTAGAATTATAATTATGGCTAT	spacer length: 40
40028	1324417	GATTAATCCCAAAAGGAATTGAAAG	ATAATTATTCAAGATGCGATATTGTTTCAAATTT	spacer length: 34
40029	1324477	GATTAATCCCAAAAGGAATTGAAAG	AAACAACGCAGCAAAAACGAAGAAGATAACGACATA	spacer length: 36
40030	1324539	GATTAATCCCAAAAGGAATTGAAAG	GCAAGGGGTAGACCCGCGACCTGTGGGGCACGCACC	spacer length: 36
40031	1324601	GATTAATCCCAAAAGGAATTGAAAG	ATGTGTCCGTTGCGTGCGATGTATATTTGTACGTCTTT	spacer length: 38
40032	1324665	GATTAATCCCAAAAGGAATTGAAAG	TTATATTACGATAAAAGTGCCAGATATGGTTGTTGGCAT	spacer length: 39
40033	1324730	GATTAATCCCAAAAGGAATTGAAAG	CCCACCAGAAAAAAGAAGGGTGGGGGGCAAGGGCCCCG	spacer length: 39
40034	1324795	GATTAATCCCAAAAGGAATTGAAAG	GCATATATTATTGGCTGAGGTAAGGTCGGCATATCTGTC	spacer length: 39
40035	1324860	GATTAATCCCAAAAGGAATTGAAAG	CCATCCAAGCCTTGATTTGATATTCCTTTTAAATGTCTG	spacer length: 38
40036	1324924	GATTAATCCCAAAAGGAATTGAAAG	TTCATTATCCTCAATTTTTTCTATACCCTTGTTGTTTTCAT	spacer length: 39
40037	1324989	GATTAATCCCAAAAGGAATTGAAAG	CCCCACTGGAATGCACCATTTCTTGCAAGTAATACATT	spacer length: 38
40038	1325053	GATTAATCCCAAAAGGAATTGAAAG	ATGCAGTTTGGCCTAAAGGAATATATACGTTAATGTCTG	spacer length: 38

length: 39 repeater length: 25
40039 1325118 GATTAATCCCAAAAGGAATTGAAAG CCATTATTCGGCACTGCATTTAATTGAAGCACTATAC spacer
length: 37 repeater length: 25
40040 1325181 GATTAATCCCAAAAGGAATTGAAAG AATATTTTGAATATTTGTACACCCATATGAAAAACGCA spacer
length: 38 repeater length: 25
40041 1325245 GATTAATCCCAAAAGGAATTGAAAG TATCTCTTATTCGTAAGGGTTAAACAAAATTATCT spacer
length: 36 repeater length: 25
40042 1325307 GATTAATCCCAAAAGGAATTGAAAG TATATTGATGAGTCGAAGAATCTGATGAAGAACTTCCTT spacer
length: 39 repeater length: 25
40043 1325372 GATTAATCCCAAAAGGAATTGAAAG TTTTATTTAAGAACACTGATGGAAAGATCTATA spacer length:
34 repeater length: 25
40044 1325432 GATTAATCCCAAAAGGAATTGAAAG ACCCATATTGAAGAGTTTGAGCATAAAAATGATTCT spacer
length: 36 repeater length: 25
40045 1325494 GATTAATCCCAAAAGGAATTGAAAG TTCTCAATTGCCTTTCCACGATAACCTCAATCCAGTA spacer
length: 38 repeater length: 25
40046 1325558 GATTAATCCCAAAAGGAATTGAAAG GAACGAACATGGTAAGCCCTGAGGACCTTGAAAACGAT spacer
length: 38 repeater length: 25
40047 1325622 GATTAATCCCAAAAGGAATTGAAAG CTCAGCAGATTTAACTAACGATATTAATTGTACACACT spacer
length: 39 repeater length: 25
40048 1325687 GATTAATCCCAAAAGGAATTGAAAG TTAAGTTGTTTTGCTCTATTTAAACAAAATAATCCA spacer
length: 38 repeater length: 25
40049 1325751 GATTAATCCCAAAAGGAATTGAAAG CAAGTGCAATAGCAAACACTACTACTAAATATAACATATA spacer
length: 38 repeater length: 25
40050 1325815 GATTAATCCCAAAAGGAATTGAAAG CTATATGGGGTCAGGGTGGAACATAAATCGTGGCTTT spacer
length: 37 repeater length: 25
40051 1325878 GATTAATCCCAAAAGGAATTGAAAG CTTACTTAAGCCTAATATCTCCGCAACTTCATCAATAG spacer
length: 38 repeater length: 25
40052 1325942 GATTAATCCCAAAAGGAATTGAAAG GAACTCTCTATTGCTGACGAACTAAGAGAAAATTGTTTCA spacer
length: 40 repeater length: 25
40053 1326008 GATTAATCCCAAAAGGAATTGAAAG TCTAACAATGAATCTGTCATAAAGTGCCCCGCAACTCT spacer
length: 37 repeater length: 25
40054 1326071 GATTAATCCCAAAAGGAATTGAAAG AGATTATCAATCAAGTGATAGAGATATTGCAATTT spacer length:
35 repeater length: 25
40055 1326132 GATTAATCCCAAAAGGAATTGAAAG TGTTAGATACGGCAAGGCAAAGATTACAAACAAGGATG spacer
length: 38 repeater length: 25
40056 1326196 GATTAATCCCAAAAGGAATTGAAAG AAAATGGTGCTTATCGCTATTAGGTAGTCGGCGTTGTT spacer
length: 38 repeater length: 25
40057 1326260 GATTAATCCCAAAAGGAATTGAAAG ACTACTCTTACTTTTTGCATTCTTTTTGGAGTAGG spacer length:
35 repeater length: 25
40058 1326321 GATTAATCCCAAAAGGAATTGAAAG TATTTACGTGCATAAAGAACATACCTCCAGCGCCTCCT spacer
length: 38 repeater length: 25
40059 1326385 GATTAATCCCAAAAGGAATTGAAAG TCGTAAACTTGAACTGACCCGTATATCCGAATTTA spacer
length: 36 repeater length: 25
40060 1326447 GATTAATCCCAAAAGGAATTGAAAG GTATTATTCTCATAATAGGAACCGCCCTAGTGTATGCT spacer
length: 38 repeater length: 25
40061 1326511 GATTAATCCCAAAAGGAATTGAAAG CGTGATTACATGGAACATTACTTTTCCACCGAATAT spacer
length: 36 repeater length: 25
40062 1326573 GATTAATCCCAAAAGGAATTGAAAG TTTATGTTTTTCGAGTTCTTCTGGTCTTAACATCACTCT spacer
length: 38 repeater length: 25
40063 1326637 GATTAATCCCAAAAGGAATTGAAAG GTCAGTTATACGCTACATATGAAAAGATAAATGAA spacer length:
35 repeater length: 25
40064 1326698 GATTAATCCCAAAAGGAATTGAAAG ATCTCTCTTAGTTTTGTCAAAGCTTCTGACCCGCTCC spacer
length: 37 repeater length: 25
40065 1326761 GATTAATCCCAAAAGGAATTGAAAG TCTATCTTTATTGTTACAACCTTTTGATACGACATAATT spacer
length: 39 repeater length: 25
40066 1326826 GATTAATCCCAAAAGGAATTGAAAG TCCTCTATCATCTCCTTTAAGCACTGTGTAATCTCACT spacer
length: 38 repeater length: 25
40067 1326890 GATTAATCCCAAAAGGAATTGAAAG TAATACTGCAGTAACGGTACAAGTCATTGACAGCGC spacer
length: 36 repeater length: 25
40068 1326952 GATTAATCCCAAAAGGAATTGAAAG CTAAACCATTTCAAAGGCTAACATCTTCTATGTCTT
40069
40070
40071 crispr 8
40072 1679973 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAAGAGGTGAAGAGACAAGGTGAAGCCATTGTATCACTCCAGAAGACTGTTGAAA
spacer length: 86 repeater length: 39
40073 1680099 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
GAGACATGGGGATGCGATAGTTTCACTCCAAGAGGCTGTAAAGTCCTTACAAGAAGAGGTGAAGA spacer length: 65
repeater length: 39
40074 1680204 ACAAGGTGAAGCCATTGTATCACTCCAAGAAGAGGTGAA
CTATTTTCTTTCTCCTTTCTTACTTATAAATCTTCATGACTACCCTTTACTCTTCATGCGACC

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40075
40076
40077 GCA_900079125.1_MBBA_genomic.fna(findCrispr):
40078 START          REPEAT
40079 SPACER
40079 crispr 1
40080 1617939 ATTCCATGTCACACAACAAA TTTTGCACGACACATACGTG spacer length: 20 repeater length:
40081 20
40081 1617980 ATTCCATGTCACACAACAAA TTTTGTACGACACATACGTG spacer length: 20 repeater length:
40082 20
40082 1618021 ATTCCATGTCACACAACAAA GTCCATTCCATGTCACACAA
40083
40084
40085 crispr 2
40086 648792 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CTATCGTGGCGGCGATCGTCGAGGCTTGATACGC
40086 spacer length: 34 repeater length: 37
40087 648864 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TCAAGTAGGGCCTGAATGTGAATCTTCTTATGATCAA
40087 spacer length: 37 repeater length: 37
40088 648939 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCCAGGACGATGACGGCGACGATGAGCGCGACGACT
40088 spacer length: 36 repeater length: 37
40089 649013 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGTTCATGCGCCCATCGCCCTACATATTCTTTG
40089 spacer length: 33 repeater length: 37
40090 649084 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCGGGAGGCGGGTATTATACGACACATCCGTAC
40090 spacer length: 33 repeater length: 37
40091 649155 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TAAAATCCTTCTCAAGGCGGCAGAAGACCGGCTG
40091 spacer length: 34 repeater length: 37
40092 649227 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GACTATTGACGCCACCGACCCGGAGGCCCTGAC
40092 spacer length: 35 repeater length: 37
40093 649300 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATCAGAGTCTTGACGAGATACGTGCTCTCGACGCTCT
40093 spacer length: 37 repeater length: 37
40094 649375 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CGGCATACCGGGAATACTTCGACGCACCGAGAGG
40094 spacer length: 34 repeater length: 37
40095 649447 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGGAGTGGATGATAAGGAGAGCGTTCCGCGTGATTC
40095 spacer length: 36 repeater length: 37
40096 649521 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GACAGAGGCCGAACCGCCTGATCCGACCACACTC
40096 spacer length: 34 repeater length: 37
40097 649593 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ACGCAATGATAGTATGGCATCACGCCGCCCTTT
40097 spacer length: 35 repeater length: 37
40098 649666 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TGGGGTTGATCGTCGTCGCGGTCCACTCCCGGAAGTA
40098 spacer length: 37 repeater length: 37
40099 649741 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCGTGCTCCAGCCCTTCGGCCGCACCATTACGACCG
40099 spacer length: 36 repeater length: 37
40100 649815 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGATGAAGAACCCACACCTGTATCATCACTACAAT
40100 spacer length: 36 repeater length: 37
40101 649889 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TCATTGACGTACTTGACGTACTCCGCCCAGTTCGC
40101 spacer length: 35 repeater length: 37
40102 649962 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATCCCGGAGGGCGAGATAACGTGAGCAACCCCTACCC
40102 spacer length: 37 repeater length: 37
40103 650037 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GTTAAAGGTTTTATTGACGGAATAATGGGTAAGGCACCA
40103 spacer length: 39 repeater length: 37
40104 650114 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CAGTAAATGGATATTCCCCGCAATTACGCAGAGA
40104 spacer length: 34 repeater length: 37
40105 650186 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CGAACGAGCGCGACCTTTCCGCGCTCGACGAGC
40105 spacer length: 33 repeater length: 37
40106 650257 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATCTCTGCTTGGATCTCAGGTTTTTCCAAGAGTTCA
40106 spacer length: 36 repeater length: 37
40107 650331 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCAACACCGCGATCGCTCTGCAGGGGCACTACGACG
40107 spacer length: 36 repeater length: 37
40108 650405 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CACAGTTGGACGGCACGGGGCATGTCAAGGTCGTG
40108 spacer length: 36 repeater length: 37
40109 650479 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GGTAAGCCGGGAAACGTACGATAAAGTGAAGGCAT
40109 spacer length: 35 repeater length: 37
40110 650552 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCAGGAGTACCTATTTTCGAGCGAATCCGGGTCTT
40110 spacer length: 34 repeater length: 37
40111 650624 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ATACAAATCTATTGTATCTATGCGTATCCAATGCGC
40111 spacer length: 36 repeater length: 37
40112 650698 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CCACCGGATGATAACGTATCTGAACCAGCCTCCTG
40112 spacer length: 35 repeater length: 37
40113 650771 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CGGGAGGCCGGGTGTTTCGCGGTCACGCGCTC spacer
40113 length: 32 repeater length: 37
40114 650841 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ACGAGCAGCCGCAAGAGGTCAAGTCGCACTGACAA

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	spacer length: 35	repeater length: 37	
40115	650914	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GACTCATACGGTATTTTCAGAACGATTGTGCCACTCA
	spacer length: 37	repeater length: 37	
40116	650989	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATTTTCCGGATCGTTGCAACGAACGGCATGTGGTC
	spacer length: 35	repeater length: 37	
40117	651062	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCTGGCTCTTGTCGATCTGCTCGATCGTCTTGATCC
	spacer length: 36	repeater length: 37	
40118	651136	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACGCTGACGTGGTAGATCGGGGTGTCCGCCCCGACC
	spacer length: 36	repeater length: 37	
40119	651210	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CACGGTACATCGGCGTGCCGGTCCGTCCAGGTCTTGAC
	spacer length: 38	repeater length: 37	
40120	651286	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTGGTCCCATCATCCACCTCGACCCGGGCAACC
	spacer length: 35	repeater length: 37	
40121	651359	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAAGGTAATCAACATTCCCACGCAGGGATCAACAC
	spacer length: 36	repeater length: 37	
40122	651433	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTGAGTACATCACCAACACCCCACTTCTTACCATCA
	spacer length: 36	repeater length: 37	
40123	651507	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTGAAATGCGTCAACTCGTCGAACGCAATCAGGC
	spacer length: 34	repeater length: 37	
40124	651579	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGCTTTATCGCGTTCCCGTGCTCCGGAGTACTGCC
	spacer length: 35	repeater length: 37	
40125	651652	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACCAGGCCATCCACTGCTCGTGCTCCAGGGCCGCT
	spacer length: 35	repeater length: 37	
40126	651725	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCCTGCAACCCGAGCATATCACTGTAGTACTTCG
	spacer length: 35	repeater length: 37	
40127	651798	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAAACCAGGCGACGATCTCTTTTGCCGAGTGGTTC
	spacer length: 36	repeater length: 37	
40128	651872	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATCGGGCCGACGGTCGTGAACTCGTTCTTCGCCTC
	spacer length: 35	repeater length: 37	
40129	651945	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCATCATCGGCCCCCTGCCCTCCAGGGCGTCGA
	spacer length: 35	repeater length: 37	
40130	652018	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CACGATCCGAGCCGGATCGCGTCTTCTCTTTGAC
	spacer length: 35	repeater length: 37	
40131	652091	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTTAGTTTACATCTGTAATAATCCTTTTCTTCAAACAGT
	spacer length: 39	repeater length: 37	
40132	652168	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCTCCGGCCAGGGGGGTGCTGGCGGCCACGAAGAGAC
	spacer length: 37	repeater length: 37	
40133	652243	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GCGGTTCTTGCACAAAGAAGTAGCCAGGGACCCGG
	spacer length: 37	repeater length: 37	
40134	652318	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGGACCTGCTCTCATCGATGCATGGGGCATTGGTCG
	spacer length: 36	repeater length: 37	
40135	652392	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCATTAATATAGTCATCTATTTGTATCTCACGTGG
	spacer length: 35	repeater length: 37	
40136	652465	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATCACCCCGTTCTTCCCCGGGGCACTGGGCAGGAA
	spacer length: 35	repeater length: 37	
40137	652538	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTCGGCGAGGATCTCTTCTGGCGAAACTCTCC
	spacer length: 35	repeater length: 37	
40138	652611	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGTATTTTCCCCCGAACATTGTTCCCGTGAAGC
	spacer length: 35	repeater length: 37	
40139	652684	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGCGGGCAGAACGTCGCCCACCCATCCCGCCAGGC
	spacer length: 35	repeater length: 37	
40140	652757	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCGCGTCGAACTGACAGGCGAGATACTTGTCG
	spacer length: 33	repeater length: 37	
40141	652828	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GATGAACAGCACGGACGCCACCTGGATAACGTTCCG
	spacer length: 36	repeater length: 37	
40142	652902	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATGACTCTCCTACATCATAACGCGCGGTTCTTGAA
	spacer length: 35	repeater length: 37	
40143	652975	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCAGCATCAGGCCTCCTCCTCCTCTTCGACCTCG
	spacer length: 35	repeater length: 37	
40144	653048	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GCCCCACTCAGGTTGGCCCCACCCAGGTCGGCCCCAC
	spacer length: 37	repeater length: 37	
40145	653123	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCGTAGCGCTGCGCCCCCATGATCTCTGTCCGGGC
	spacer length: 35	repeater length: 37	
40146	653196	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCTGGAAGAGCATCGAGAGTTTCGCCTGACTCAC
	spacer length: 35	repeater length: 37	
40147	653269	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGCGGGCAGATCGTCACCCACCCGTCCCGCCAGGC
	spacer length: 35	repeater length: 37	
40148	653342	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAAACCGATCCAGCCCGAACTTATCCGCAAA spacer
	length: 32	repeater length: 37	
40149	653412	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGGCAGAGGAAGTCCAGGTGGCGGGCCGGCTTCC
	spacer length: 34	repeater length: 37	

40150	653484	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGAGTCAGGGCGATCGTCATCGCACCATGCCACCACC
	spacer	length: 37	repeater length: 37
40151	653559	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGACGGCGTTTCATCGTGAGAAGCTGAAGGCCC
	spacer	length: 34	repeater length: 37
40152	653631	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAATCTGAAAATCTACCAGAAGGCCCCGGGACCTGG
	spacer	length: 36	repeater length: 37
40153	653705	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GCTCCATGACCGCATCAGCCGAGGCCCCATGCAT
	spacer	length: 34	repeater length: 37
40154	653777	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTAACCGGTATGACTGACCCATCCCCGACGCTCGG
	spacer	length: 35	repeater length: 37
40155	653850	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGGTACTCGTCTGGCTGGCGCTCGAACCTACAGAGT
	spacer	length: 36	repeater length: 37
40156	653924	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TGATTACAGATTATCGGATTGTCTGACCGACAAAA
	spacer	length: 35	repeater length: 37
40157	653997	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAATGAGCGTTACGCCGATATCCTCCCAGACATC
	spacer	length: 35	repeater length: 37
40158	654070	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AAAAAGTCGGTCCAACCTCGTCCATCGATGGGCGCA
	spacer	length: 35	repeater length: 37
40159	654143	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ATCTCGGCGTCGGTCATCTCGTCCCGAATCGCCCCG
	spacer	length: 35	repeater length: 37
40160	654216	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAAGGCGCGGCCATTCTTTCCGCAGCAGCCGACCAA
	spacer	length: 36	repeater length: 37
40161	654290	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTCTTGAGCATCCACTCCCGGGTTCGTGTGCGC
	spacer	length: 33	repeater length: 37
40162	654361	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCGTACGCGTTTCAGACCCCCGATCCCGACCGAA
	spacer	length: 34	repeater length: 37
40163	654433	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCTTCGGAGCTAGAAGCAGCCTATGTCTATACCT
	spacer	length: 34	repeater length: 37
40164	654505	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCGCGTCACCCTGAATGGATGCGAGCGCCTGGTC
	spacer	length: 35	repeater length: 37
40165	654578	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTTTCATCATCGGTCAACCGTTTTCCAGTCGC
	spacer	length: 33	repeater length: 37
40166	654649	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GAAAGGGGGATTTCGAACTTGAGTCCTGATGCGCC
	spacer	length: 35	repeater length: 37
40167	654722	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CAGAACTCGGCGAGGACCGACGGCGGCAGGTCACGG
	spacer	length: 36	repeater length: 37
40168	654796	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AGTACAGTAAACTCACTAACTCACTAAGGAAAAT
	spacer	length: 34	repeater length: 37
40169	654868	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCGCGTACGTCTCGTCGGCAGAAGGGGTCACTCTT
	spacer	length: 36	repeater length: 37
40170	654942	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCGTGTACTCCTGCACAGAGCACCTGGATTGTAT
	spacer	length: 34	repeater length: 37
40171	655014	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACGTCGATTTCAAATAACGCTGATGCTCCTCTAGA
	spacer	length: 35	repeater length: 37
40172	655087	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	AAAGTCTCCCCGACCACAATATACGCTTTGCCGTCGT
	spacer	length: 37	repeater length: 37
40173	655162	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	GAGATCCCCGCCGGTCAAGAAACCGTTCTCCAGTT
	spacer	length: 35	repeater length: 37
40174	655235	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CGAACCAGACCGTTCTCGCCGGCAGCGCGGCATCT
	spacer	length: 35	repeater length: 37
40175	655308	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCAGTCAACCCCTTCGCAGAGGCAATCGATGACT
	spacer	length: 34	repeater length: 37
40176	655380	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TAGAACTCGGTCTGGATCAGGGTCGTGCCCTCAAT
	spacer	length: 35	repeater length: 37
40177	655453	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCCAACCTACCAGGAGCAGGACGGCGGGCTGCTCAT
	spacer	length: 35	repeater length: 37
40178	655526	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CTCTACCGGGAGGCATTCCCGGCTTCGGGGAGGTC
	spacer	length: 35	repeater length: 37
40179	655599	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACTGACCAGGAGATCGCCGATCATCTCGGAGTCGC
	spacer	length: 35	repeater length: 37
40180	655672	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACATGATCCTGACCTACAACTCCGGCACAACCGTG
	spacer	length: 36	repeater length: 37
40181	655746	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAGGAGATAAAGGGGTGGCTTGCCCAGGTGCTGCC
	spacer	length: 36	repeater length: 37
40182	655820	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TCAGGGACGGGTCCAGACGTGGAACCAGATGTT
	spacer	length: 33	repeater length: 37
40183	655891	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	TTCGCCACGGTCTCCCTCCTGCAGGGCTTGTCGATC
	spacer	length: 37	repeater length: 37
40184	655966	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	ACCAGGCACCAGACCAGGAGTCCGCCTCCGATAACG
	spacer	length: 36	repeater length: 37
40185	656040	GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC	CCTCGGGTACGGCGGGTGGCGCTACGGTCAGTAT

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40186 spacer length: 34 repeater length: 37
656112 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC CAACGCCAACCGGGCTATGGTCATGGACATCCCCT
40187 spacer length: 35 repeater length: 37
656185 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC GACATCGCGGTCATAGGATCGTCCGCCATGCAGAAA
40188 spacer length: 36 repeater length: 37
656259 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC TCCGCTCCTCGATCTTCAGAGCCAGCCCCTCGAT
40189 spacer length: 35 repeater length: 37
656332 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC AGGTAGAATGTCTTGTTCGGCCCCATATGCATGC
40190 spacer length: 34 repeater length: 37
656404 GTCTCAGAGGAACATCCACGAAAACAAGGATTGAAAC ACACAAGAACGGTAGTGCGACACCGGCGACGCAC
40191
40192
40193 GCA_900083515.1_ASM90008351v1_genomic.fna(findCrispr):
40194 START REPEAT
SPACER
40195 crispr 1
40196 1560057 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CAAGAAGTGGAGGGACATGTCGCCGAGCAAAGAAA
40197 spacer length: 36 repeater length: 36
1560130 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TCTTTAACTTTTCAGGCTTCAAGTACGGGATACAAC
40198 spacer length: 36 repeater length: 36
1560203 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CACCAGTAGCATTCTTTGTTACTGTTGAAGGGAAAT
40199 spacer length: 36 repeater length: 36
1560276 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CTTCACTCAGGGAGGGGACATTAAGGTCTCTGTCC
40200 spacer length: 35 repeater length: 36
1560348 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC ACCCCAGACCTCTTCGCTTTCTTTCTGTGAGAGAT
40201 spacer length: 35 repeater length: 36
1560420 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GGCCTCAGATTCATCCAATGCCATCACCAGATCTGT
40202 spacer length: 36 repeater length: 36
1560493 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TTTCTCCACCAACCTGCAACCAGAAGGAGGAATTTG
40203 spacer length: 36 repeater length: 36
1560566 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AAGTCATTGTTATTGTTTCTATCCCAGAAACTCCTC
40204 spacer length: 36 repeater length: 36
1560639 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GTTGTTTTACCGGCTTTTGAGAAAAATCCAGACATGG
40205 spacer length: 37 repeater length: 36
1560713 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TATAGTTTTTTTTTCAAATATTTTAGTAGTAGTAG
40206 spacer length: 35 repeater length: 36
1560785 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TCATATCACTGATGACAAAATATGTCAATCGAATGA
40207 spacer length: 36 repeater length: 36
1560858 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AATGGAAATTTGATGGTGATTTTTGTTGTAAACAGTT
40208 spacer length: 37 repeater length: 36
1560932 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AAAGAGGACTATGCCAAATACTATTATCCAGTTTGCAG
40209 spacer length: 38 repeater length: 36
1561007 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC ATAAAGGAATTCTTCCTTGAAGATGGTTGGATTGTTA
40210 spacer length: 37 repeater length: 36
1561081 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GTGAATTTTCTTTTATTTTCAAGGATATCGATGTAT
40211 spacer length: 34 repeater length: 36
1561152 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GGTGCTGCACATTGAGGTATGTATGAAGACCTTG
40212 spacer length: 35 repeater length: 36
1561224 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TCTTATCATGTGAGCATCAGCCATACTGTAAGATTG
40213 spacer length: 36 repeater length: 36
1561297 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC ATAGTTGATATTTACCAAATGTAAGGGGATTGAAAAC
40214 spacer length: 37 repeater length: 36
1561371 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TTTGTAATGAAGTCATGCCATCGTATCAGGTAAG
40215 spacer length: 34 repeater length: 36
1561442 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AACATAGGGAAAACAAGCGATTCTATTGATTTATAT
40216 spacer length: 36 repeater length: 36
1561515 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TTGGGCTCTATGGAAACACTGGCACAATGCATATAA
40217 spacer length: 36 repeater length: 36
1561588 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CCGGACTAAGTACCACATACAAAGACCCAATAACCG
40218 spacer length: 36 repeater length: 36
1561661 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TAAGGAATTATCTTGAGTATTTTATCCAGATTTTCTT
40219 spacer length: 37 repeater length: 36
1561735 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CACCTCCAAGTTTTCTGGGTTGGCTCCCTTTTACT
40220 spacer length: 36 repeater length: 36
1561808 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC ATCGTGAATGATTACATACTGAATCTGTACCAGA
40221 spacer length: 36 repeater length: 36
1561881 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CCTGTATCGGCAGGATTTACTGAGGATGATACTGA
40222 spacer length: 35 repeater length: 36
1561953 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AGTTACTGGTAAGAATGTCAATGCAATCGTCAATT
40223 spacer length: 35 repeater length: 36
1562025 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TTGTTCACTCTGCCACCGTCATGTTCTGTCTCGACA

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spacer length: 36 repeater length: 36
 40224 1562098 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CCCAGTACTGAGGACGAGAACTGCACGCTCAGGGGA
 spacer length: 36 repeater length: 36
 40225 1562171 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TACGAGATTGCATAAGGTTCTGAAAGGTGTGATCA
 spacer length: 36 repeater length: 36
 40226 1562244 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AGATCTATGAACTAAATGGACTTCCGGTGCCTGATCC
 spacer length: 37 repeater length: 36
 40227 1562318 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GTTCTTCCCCTGATGAGAAAGTCAGGAGAGCTGTGGA
 spacer length: 37 repeater length: 36
 40228 1562392 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AGTATGGGATAGGGTGCACAGCCATGATATCATGC
 spacer length: 36 repeater length: 36
 40229 1562465 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CCTCCGTGGAAAGTCTTGCAAGTTTTAACGCAATCA
 spacer length: 36 repeater length: 36
 40230 1562538 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TGCCACACCAATTTCTGTGTCGTACAGATGAAATTTCTT
 spacer length: 38 repeater length: 36
 40231 1562613 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GTTACCATAAGAGCATTGACAAAGTATGGGTGCGAG
 spacer length: 35 repeater length: 36
 40232 1562685 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TTCTATAGATGAAGCATGTTTTTCAACACCATTA
 spacer length: 34 repeater length: 36
 40233 1562756 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AAGTTATCCGAGTAAGCCTGTTCCACCGTTTACAGC
 spacer length: 36 repeater length: 36
 40234 1562829 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GTGTGATACAAGTCGGAGTGCTAATGAAAATGTGGC
 spacer length: 36 repeater length: 36
 40235 1562902 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC GATCTGGAATATGAATGTTGTAACTGGAAAAGCTG
 spacer length: 36 repeater length: 36
 40236 1562975 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TTTTAAAATGAATAGTAGATATAATAGTTTTGAG
 spacer length: 35 repeater length: 36
 40237 1563047 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AATCATTCAAAAAATAAGGAGGAATTGAAGAAAT
 spacer length: 34 repeater length: 36
 40238 1563118 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AAGATAACAGTAAAGTCATTTATCCAGACTATAAA
 spacer length: 35 repeater length: 36
 40239 1563190 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CATCGACAATAAGCAACAGCCATGCGATATACACCC
 spacer length: 36 repeater length: 36
 40240 1563263 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CATTCAGAAATGCCTTTAAGGGAAACAAACATCAA
 spacer length: 36 repeater length: 36
 40241 1563336 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AATAAAGGAGTTTAAAGGCATGGATACCAGAACCATA
 spacer length: 37 repeater length: 36
 40242 1563410 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TCCTCAAAAACATACTAGACCGGGAAATGACAGAA
 spacer length: 35 repeater length: 36
 40243 1563482 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AGAAAACCTCGCAGAGGAACTCCACAGGAAGAGGAA
 spacer length: 36 repeater length: 36
 40244 1563555 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CAGATTGTGAATTCACAGCTCCACATTCAGGGCATT
 spacer length: 36 repeater length: 36
 40245 1563628 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC ACCATACTGGGCCGTTGTTACGGGATTTCTTCTG
 spacer length: 35 repeater length: 36
 40246 1563700 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AGCAGACCTGATAATAGAAAATAAAAAAATCGAACT
 spacer length: 36 repeater length: 36
 40247 1563773 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC AACACTCCTACGGAAAATAGAAGATACCTTCAATCCC
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 40248 1563847 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC ATAAAGGAGATCGAACAAACAAGGAAGGCGAAACAA
 spacer length: 36 repeater length: 36
 40249 1563920 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TCGATGGTACTGGAAGTTCAATACACAGCAAACCAAT
 spacer length: 37 repeater length: 36
 40250 1563994 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TGGACAGATGCAGATCATCCAGATCAGGGCCTAGA
 spacer length: 35 repeater length: 36
 40251 1564066 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC CAGATCTCCCATGAGTTTGTCTGACTGTTTCAGGTG
 spacer length: 35 repeater length: 36
 40252 1564138 GCTTCAATAGAGCCATGATTATTCAATCATGGAAAC TATATGACTAGTATTTGTATAAAGTTTACTTTTGC
 40253
 40254
 40255 GCA_900090055.1_C.divulgatum_PM4_genomic.fna(findCrispr):
 40256 START REPEAT
 SPACER
 40257 crispr 1
 40258 1529370 ATTGTTAGAATACCTATAAGGACTTGAAAC TGGTATCGTGGACATAGTTGTTGAAGAGGGTTATG spacer
 length: 35 repeater length: 30
 40259 1529436 ATTGTTAGAATACCTATAAGGACTTGAAAC TGGTTGCATTTATATTATCTTCGATGTAATTCTGTA spacer
 length: 36 repeater length: 30
 40260 1529503 ATTGTTAGAATACCTATAAGGACTTGAAAC CTTCATGACGATCCCTGGAGAATAGGAATTGACCTG spacer
 length: 36 repeater length: 30
 40261 1529570 ATTGTTAGAATACCTATAAGGACTTGAAAC TGGTTTTAGTATTATTTTTTAAAGGTAGTATAGA spacer

	length: 36	repeater length: 30	
40262	1529637	ATTGTTAGAATACCTATAAGGACTTGAAAC	TCAAAATTAAAAAGGTGAAATAATAATGACTATTGA spacer
	length: 36	repeater length: 30	
40263	1529704	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTAAATGACGAATTTATGACATATATAGATTTCCT spacer
	length: 36	repeater length: 30	
40264	1529771	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAATCAAATAATAAATAACACCGCTTTAACCGATAC spacer
	length: 36	repeater length: 30	
40265	1529838	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAATTTCTCCTAAATGATCTATCCTTCCTTCTACCTA spacer
	length: 37	repeater length: 30	
40266	1529906	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATTTTCCCCTGCTCTAAAGTGAGTCCTGTCTTCTT spacer
	length: 35	repeater length: 30	
40267	1529972	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTCGATATATTCAACTAATAATACAAATGTATTAAT spacer
	length: 36	repeater length: 30	
40268	1530039	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACTGAATATGAATTAGAACATTTAGACTTAATGGA spacer
	length: 35	repeater length: 30	
40269	1530105	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAGGTTTATTTTCAGTTTTATTCTAATACGGGATTA spacer
	length: 35	repeater length: 30	
40270	1530171	ATTGTTAGAATACCTATAAGGACTTGAAAC	GAGAAAAATTCTACATGCTGATTTGCATCAACCTT spacer
	length: 35	repeater length: 30	
40271	1530237	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTGAAGAACATGAAATTTAATCCTGATCTTATGA spacer
	length: 35	repeater length: 30	
40272	1530303	ATTGTTAGAATACCTATAAGGACTTGAAAC	AATAATATATATGTTGAAGATATTATTA AAAATGA spacer
	length: 35	repeater length: 30	
40273	1530369	ATTGTTAGAATACCTATAAGGACTTGAAAC	AATCGTATTTTATTGAAGGTCAAAGAAAATACGGT spacer
	length: 35	repeater length: 30	
40274	1530435	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGAAAAAATATCAAAACAAATATCCTAAAAATAA spacer
	length: 35	repeater length: 30	
40275	1530501	ATTGTTAGAATACCTATAAGGACTTGAAAC	GACGATATCATTTTCGATCAGGTAGTCAAGATATC spacer
	length: 35	repeater length: 30	
40276	1530567	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACAAAGTTCATGTGCAGAAAGGATCTGTCAGATGC spacer
	length: 35	repeater length: 30	
40277	1530633	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTGCAATTGGATACAGTGCAAGAATATGGGAAGAA spacer
	length: 36	repeater length: 30	
40278	1530700	ATTGTTAGAATACCTATAAGGACTTGAAAC	GTGATATCTATTTTGGGATGAGTGTTAGAAAGGAT spacer
	length: 35	repeater length: 30	
40279	1530766	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTATGAAATCTTATCATATGGCTATCAGCCATACT spacer
	length: 35	repeater length: 30	
40280	1530832	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAAAGCCAAAGGTGAAGAAGTGAACGTAACATTTTCG spacer
	length: 36	repeater length: 30	
40281	1530899	ATTGTTAGAATACCTATAAGGACTTGAAAC	GAGTTATAAACAAATCCGATATTGCCTATTTGGAAA spacer
	length: 36	repeater length: 30	
40282	1530966	ATTGTTAGAATACCTATAAGGACTTGAAAC	TCCTCTATATACTTGGATTCTTTGATCTTGCAGCAC spacer
	length: 36	repeater length: 30	
40283	1531033	ATTGTTAGAATACCTATAAGGACTTGAAAC	GAATATTCAGGATCTTCAAACGGTAGCTTCATCTTC spacer
	length: 36	repeater length: 30	
40284	1531100	ATTGTTAGAATACCTATAAGGACTTGAAAC	CCATATTTGGTATTTGGTGTATAGAGAAATATATT spacer
	length: 36	repeater length: 30	
40285	1531167	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAGACAATGAGCCTATTATCAAAAAGGTGAAATAATA spacer
	length: 37	repeater length: 30	
40286	1531235	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTCGATATATTCAACTAATAATACAAATATAATTAT spacer
	length: 36	repeater length: 30	
40287	1531302	ATTGTTAGAATACCTATAAGGACTTGAAAC	CGGTAATTTAGGATCAGGTAAATCCTTTAGTATT spacer
	length: 34	repeater length: 30	
40288	1531367	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAATTATATCGTTAATGTTGAATATTGGAAAAATTC spacer
	length: 36	repeater length: 30	
40289	1531434	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAAAAATTCCTAATGATAAGAATGAGATTGTGATT spacer
	length: 35	repeater length: 30	
40290	1531500	ATTGTTAGAATACCTATAAGGACTTGAAAC	CGACACTATAGGATATGCTAATAACCATAATTTAT spacer
	length: 35	repeater length: 30	
40291	1531566	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATCATCAGTAATAATTTCACAATCTACAAATAAT spacer
	length: 35	repeater length: 30	
40292	1531632	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTCAATCCTTCTTTACTGGGGCATTGGTTTCATAA spacer
	length: 37	repeater length: 30	
40293	1531700	ATTGTTAGAATACCTATAAGGACTTGAAAC	TATCTCCATGAAACAATCTTTAGTTAAGCGGGAAAA spacer
	length: 36	repeater length: 30	
40294	1531767	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAGTAGCTATGGCTTTGATATTGGCTTTAGTAGTG spacer
	length: 35	repeater length: 30	
40295	1531833	ATTGTTAGAATACCTATAAGGACTTGAAAC	TAACATCGATAACATATTCAAATGGAAATTTAATAA spacer
	length: 36	repeater length: 30	
40296	1531900	ATTGTTAGAATACCTATAAGGACTTGAAAC	CCGTTCAAGGACATTTTCGACGTAACGAAATCTAAT spacer
	length: 35	repeater length: 30	

40297	1531966	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACAAAAAAGGTAAAGGAAAGAAAATAACACGAGCCAA	spacer
	length:	37	repeater length:	30
40298	1532034	ATTGTTAGAATACCTATAAGGACTTGAAAC	CTATAACGGTGATCTTACAATAACAAATACAACAA	spacer
	length:	35	repeater length:	30
40299	1532100	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGTGTCAAAAATAAAAACGATTTAAAGAAATAT	spacer
	length:	35	repeater length:	30
40300	1532166	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATATGTTTCATAACCAATCTAATAATAATAGGATTGA	spacer
	length:	36	repeater length:	30
40301	1532233	ATTGTTAGAATACCTATAAGGACTTGAAAC	TACCTCCCCTGGATACTCCCAACCGGATATATAT	spacer
	length:	35	repeater length:	30
40302	1532299	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGGTTCCCGCTACCGCCGTTCCCTCTAATACCCCGA	spacer
	length:	36	repeater length:	30
40303	1532366	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAATGAGTGAAGAAGTAAACATGAGTGAAGAAGTTA	spacer
	length:	36	repeater length:	30
40304	1532433	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTAGAATAATAATTACCAAACCCTAAGTTTTGAACC	spacer
	length:	36	repeater length:	30
40305	1532500	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAGGTGATAAAATATGACTATGTTAGACGAATTAGTA	spacer
	length:	37	repeater length:	30
40306	1532568	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGACGAATTGGTTTTAGAAATGCAGGACGGGGAAAT	spacer
	length:	36	repeater length:	30
40307	1532635	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATATTATTATGTAACGAATTAGAATTATTACTTAC	spacer
	length:	35	repeater length:	30
40308	1532701	ATTGTTAGAATACCTATAAGGACTTGAAAC	AGACCATAAGAGATCAACTGCAAAGACAACCTCGTTA	spacer
	length:	36	repeater length:	30
40309	1532768	ATTGTTAGAATACCTATAAGGACTTGAAAC	TCCTGACCTGTAACTGAATCTCTAAGGGATAATC	spacer
	length:	35	repeater length:	30
40310	1532834	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATTACAACCTAAATCTGTATCCATAATAAATCACT	spacer
	length:	34	repeater length:	30
40311	1532899	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATTGCAGGGCTAACAGGACCCACAATGTCAGGA	spacer
	length:	34	repeater length:	30
40312	1532964	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATATACAATCCAAACAAAACAGCACAATTCCAA	spacer
	length:	35	repeater length:	30
40313	1533030	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGTACCGATTCTTCTTTAGCAAGGACCTTTCACCC	spacer
	length:	36	repeater length:	30
40314	1533097	ATTGTTAGAATACCTATAAGGACTTGAAAC	CTAATACATTCCCCCTAATAAACTGTTGCTATACAT	spacer
	length:	36	repeater length:	30
40315	1533164	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGAGTTGCTGATAGTATCCAGTGCCTGTGGGAGGGC	spacer
	length:	36	repeater length:	30
40316	1533231	ATTGTTAGAATACCTATAAGGACTTGAAAC	CATTTACAACCCGCACAGGAACGCCACTGTTCCG	spacer
	length:	34	repeater length:	30
40317	1533296	ATTGTTAGAATACCTATAAGGACTTGAAAC	TGGTTCGGCGACTGAGATGAAAAGAAAACCTCAGATCC	spacer
	length:	37	repeater length:	30
40318	1533364	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATAATCCTTCCGACAAGCGGCCCGACACAGATAAC	spacer
	length:	35	repeater length:	30
40319	1533430	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTTTTGAACAAACAAAGAAAATATACTGTGAGAT	spacer
	length:	34	repeater length:	30
40320	1533495	ATTGTTAGAATACCTATAAGGACTTGAAAC	CGATCTAACAGGGCAAGACTGGGCAATCTGGCTAT	spacer
	length:	35	repeater length:	30
40321	1533561	ATTGTTAGAATACCTATAAGGACTTGAAAC	AAAATAGATAGCCAACTAAACTTGCCAGAAACAAG	spacer
	length:	35	repeater length:	30
40322	1533627	ATTGTTAGAATACCTATAAGGACTTGAAAC	ACTCCAGAAACCTAGAAAAACCTAGAAGATTCTGG	spacer
	length:	35	repeater length:	30
40323	1533693	ATTGTTAGAATACCTATAAGGACTTGAAAC	CAATTAGGTTGTTTCCAGTACAATGATCTATGGTTA	spacer
	length:	36	repeater length:	30
40324	1533760	ATTGTTAGAATACCTATAAGGACTTGAAAC	ATGTGAAACAACTTTCTTTTTCAAAGAAACAAAAG	spacer
	length:	36	repeater length:	30
40325	1533827	ATTGTTAGAATACCTATAAGGACTTGAAAC	CAGGGAGAAAAGATTTTGGGCGAAAACCTGGACATCA	spacer
	length:	36	repeater length:	30
40326	1533894	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGAGATAATGTCCTTCAGATAATCTGTATATATA	spacer
	length:	35	repeater length:	30
40327	1533960	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGTCGGTGTGGCAGGAATCATTCTAACTGTAAGG	spacer
	length:	35	repeater length:	30
40328	1534026	ATTGTTAGAATACCTATAAGGACTTGAAAC	CCGTGTTACCTGCATCGGTGGGGTTCTGGGATGAA	spacer
	length:	35	repeater length:	30
40329	1534092	ATTGTTAGAATACCTATAAGGACTTGAAAC	AATGGTGAAATTCCGCCTGAAATATTCACAGAGAG	spacer
	length:	35	repeater length:	30
40330	1534158	ATTGTTAGAATACCTATAAGGACTTGAAAC	AGGGATATTTTATCTTGAGTGCCTGGAGACGGAAAT	spacer
	length:	36	repeater length:	30
40331	1534225	ATTGTTAGAATACCTATAAGGACTTGAAAC	TTGAATATGAATATGAGTATGCGTAGGTGTAGTAG	spacer
	length:	35	repeater length:	30
40332	1534291	ATTGTTAGAATACCTATAAGGACTTGAAAC	CTCATTCACCTTCACAGTCATTTTTTCATTACCCA	spacer

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length: 35 repeater length: 30
40333 1534357 ATTGTTAGAATACCTATAAGGACTTGAAAC TGAGGTCCATGTGCTGACCTATTCTCTCGTCGTGCT spacer
length: 36 repeater length: 30
40334 1534424 ATTGTTAGAATACCTATAAGGACTTGAAAC TAATGATTTTTCTCTAATCCTCTTCCGGTGGGA spacer
length: 34 repeater length: 30
40335 1534489 ATTGTTAGAATACCTATAAGGACTTGAAAC AACAGTATTCGCCTAAGTCATATAAAATTAATTTCTT spacer
length: 36 repeater length: 30
40336 1534556 ATTGTTAGAATACCTATAAGGACTTGAAAC GAGTGTACTCTATATTCTCTTTGAATATTAGATAA spacer
length: 36 repeater length: 30
40337 1534623 ATTGTTAGAATACCTATAAGGACTTGAAAC ACATATAATGGAACACTGAAAATGGTTCAAGTGGA spacer
length: 36 repeater length: 30
40338 1534690 ATTGTTAGAATACCTATAAGGACTTGAAAC TACAAAAACAACAAATATATACCACT spacer length: 26
repeater length: 30
40339 1534747 ATTGTTAGAATACCTATAAGGACTTGAAAC TAGTCAAATTCTTTTTTAAGTATATTTCTTAATTTT spacer
length: 36 repeater length: 30
40340 1534814 ATTGTTAGAATACCTATAAGGACTTGAAAC CCAATGATGGCAGAGATTTCTCAAAGAAATAGCGA spacer
length: 36 repeater length: 30
40341 1534881 ATTGTTAGAATACCTATAAGGACTTGAAAC GCATTTTCAGTTGAAATATAATTTAAACCAATACCAT spacer
length: 36 repeater length: 30
40342 1534948 ATTGTTAGAATACCTATAAGGACTTGAAAC AGATGTAGTTTGACATTCAACGGATTTTTTACAACCT spacer
length: 36 repeater length: 30
40343 1535015 ATTGTTAGAATACCTATAAGGACTTGAAAC TTTTGATTGACTGATTATAACCACCGGAAAGGACT spacer
length: 35 repeater length: 30
40344 1535081 ATTGTTAGAATACCTATAAGGACTTGAAAC TATCTTTAGACTCGTTATGTTATCGAGGTGTTAAAA spacer
length: 36 repeater length: 30
40345 1535148 ATTGTTAGAATACCTATAAGGACTTGAAAC TTCATTTAATAAACCTCCCAATCAGTTAATAGTTTA spacer
length: 36 repeater length: 30
40346 1535215 ATTGTTAGAATACCTATAAGGACTTGAAAC GTGGTAAAGTTCAAGCTTTAAAAAGACTTAATAAAAA spacer
length: 37 repeater length: 30
40347 1535283 ATTGTTAGAATACCTATAAGGACTTGAAAC TTTTGAGTAAATTACAATTCATAATTTTCAGCCATTG spacer
length: 36 repeater length: 30
40348 1535350 ATTGTTAGAATACCTATAAGGACTTGAAAC AGATTTCTTTTTCTGGACAGAATGTCATGTACTGT spacer
length: 35 repeater length: 30
40349 1535416 ATTGTTAGAATACCTATAAGGACTTGAAAC GTGGTTTTTTATGTTTTACAACACATTTATTGTTA
40350
40351
40352 GCA_900095815.1_SIV6_genomic.fna (findCrispr):
40353 START REPEAT
SPACER
40354 crispr 1
40355 1641528 GAGAGGTCAATTTCAAGTGTA ACCATGGAGTTCATGGTACACCCTGGATG spacer length: 29
repeater length: 22
40356 1641580 GAGAGGTCAATTTCAAGTGTA AAGTGTTTCATTCATGGCAGCTTCTTGAGTT spacer length: 30
repeater length: 22
40357 1641633 GAGAGGTCAATTTCAAGTGTA GTCTGATTTTAACGGCTTCTGAGCCAAACG
40358
40359
40360 crispr 2
40361 811045 TTATCCCCTATCCTTCCAAGGGC
CCATGCTGCCCTCCACCGTACATACTCATGTTTATCCTTCAGGGCCTTTATGAGGGGTTCAACTGCCCT spacer length:
69 repeater length: 23
40362 811138 TTATCCCCTATCCTTCCAAGGGC
AAGGGCGGCCCTCCCTCTAACATCCTCATCTTCATGTTTAAGGGTTCTGATGAGGGATTCAACCGCCCT spacer length:
69 repeater length: 23
40363 811231 TTATCCCCTATCCTTCCAAGGGC
ACCAGGAATATTTCAGTGCGCGTGAAAACGCGTGCGAGGTAGGTTTCAATCCCATTTTGGTCTGATTTTAA
40364
40365
40366 crispr 3
40367 1208310 GCAGTTGAACCTCTCATAACAGCACT
GAAAGATAATGATCCACTTGTGCGTAGAGCTGCAGCGGAGGCTCTTAGCGAGTCAGGTGACAGTCG spacer length: 66
repeater length: 26
40368 1208403 GCAGTTGAACCTCTCATAACAGCACT
GAAAGATCCAGAGGTGCGTAGTAGCGCAGCGTGGGCTCTTGTAGGGATTGGTTCACC spacer length: 57 repeater
length: 26
40369 1208487 GCAGTTGAACCTCTCATAACAGCACT
GAAAGATCCAGAGGTGCGTAGAGCGTCAGCGTGGGCTCTTGGCAGGTTAGGTGACAGTCG spacer length: 60
repeater length: 26
40370 1208574 GCAGTTGAACCTCTCATAACAGCACT
AAAAGACGACGATCTAAGTGTTTCGTAGAGCTGCAGCGTGGGCTCTTGGCAGGTTAGGTGACAGTCG spacer length: 66
repeater length: 26

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40371 1208667 GCAGTTGAACCTCTCATAACAGCACT
AAAAGACGACGATCTAAGTGTTTCGTAGAGCTGCAGCGTGGGCTCTTGGCAGGTTAGGTGACAGTCG spacer length: 66
repeater length: 26

40372 1208760 GCAGTTGAACCTCTCATAACAGCACT
GAAAGATCCAGAGGTGCGTAGAGCTGCAAAGAATGCCCTTGTCTGGGATTGGTTACC spacer length: 57 repeater
length: 26

40373 1208844 GCAGTTGAACCTCTCATAACAGCACT
GAAAGATGAAGATCCAGAGGTGCGTAGAGCTGCAGCGTGGGCTCTTGGCAGGTTAGGTGACAGTCG spacer length: 66
repeater length: 26

40374 1208937 GCAGTTGAACCTCTCATAACAGCACT
ACAGCACTAAAAGACGACGATCTAAGTGTTTCGTAGAGCTGCAAAGAAGGCTCTTGCCAAGACTCAC

40375

40376

40377 crispr 4

40378 617965 TTTCAATCCCATTTTGGTCTGATTTTAAC TGTCTTGTTTTGGAGAGGAGGGTGGGTGTGCGTGTTTC spacer
length: 37 repeater length: 29

40379 618032 TTTCAATCCCATTTTGGTCTGATTTTAAC TGTCTTGTTTTGGAGAGGAGGGTGGGTGTGCGTGTTTC spacer
length: 37 repeater length: 29

40380 618099 TTTCAATCCCATTTTGGTCTGATTTTAAC GTGGCTTCCGGAATACCGGGGAAGCCACCGTGATAA spacer
length: 36 repeater length: 29

40381 618165 TTTCAATCCCATTTTGGTCTGATTTTAAC TATCCTGCTTGATAAACCCATATCCAACATCATATA spacer
length: 36 repeater length: 29

40382 618231 TTTCAATCCCATTTTGGTCTGATTTTAAC ACTCAAAAAAACGAGGAGGAAAGAGAACGGATAAGA spacer
length: 36 repeater length: 29

40383 618297 TTTCAATCCCATTTTGGTCTGATTTTAAC CCAGAGAGCCCTGGAGGAATCCGGGGCCATCAAAAAG spacer
length: 37 repeater length: 29

40384 618364 TTTCAATCCCATTTTGGTCTGATTTTAAC CTGGTGGTGTGTGTCATCTGTATGACCTCCTCTG spacer
length: 33 repeater length: 29

40385 618427 TTTCAATCCCATTTTGGTCTGATTTTAAC CTTCTCGCAGATCCTCCTGAAGATGTCTTT spacer length:
31 repeater length: 29

40386 618488 TTTCAATCCCATTTTGGTCTGATTTTAAC GCCCTTTTGGGGGGTGGGGGGTGTGCCCCACCTAC spacer
length: 36 repeater length: 29

40387 618554 TTTCAATCCCATTTTGGTCTGATTTTAAC ACAGCCTCCCTGGTCCAGTACTCCGCCCTCCTCT spacer
length: 34 repeater length: 29

40388 618618 TTTCAATCCCATTTTGGTCTGATTTTAAC TGGTTTAGGGGCTTACGCGCCGCTTATCCTGAGTTTAG spacer
length: 38 repeater length: 29

40389 618686 TTTCAATCCCATTTTGGTCTGATTTTAAC TTTTAGGGTGATTGGAAGCCCCCATGGCCCTTGTTCTCG spacer
length: 40 repeater length: 29

40390 618756 TTTCAATCCCATTTTGGTCTGATTTTAAC TTTTGTCTTTTCGTATTCTTCTTTTGATTGTTTTTTTCAT spacer
length: 40 repeater length: 29

40391 618826 TTTCAATCCCATTTTGGTCTGATTTTAAC ATTGCCTTCGTCTCCAAGACGTCGGTTATTATCTCCT spacer
length: 37 repeater length: 29

40392 618893 TTTCAATCCCATTTTGGTCTGATTTTAAC TGAAGGACACGGACACAACCCAGTAGGGTGAAAAAAA spacer
length: 37 repeater length: 29

40393 618960 TTTCAATCCCATTTTGGTCTGATTTTAAC TGTGTGTGGAGTGTTTTTCGGATCGGGTTGTT spacer length:
32 repeater length: 29

40394 619022 TTTCAATCCCATTTTGGTCTGATTTTAAC GAACATAACAAGAAAGCAGGGAACAAAACCCCCAAAAA spacer
length: 37 repeater length: 29

40395 619089 TTTCAATCCCATTTTGGTCTGATTTTAAC GCCTGCAACCGTCCAGGATCATCAGTTTCCCAGCTGC spacer
length: 37 repeater length: 29

40396 619156 TTTCAATCCCATTTTGGTCTGATTTTAAC TGGTACAGAAGTACCACGACGGATTGGAATGGAAAAAAA spacer
length: 40 repeater length: 29

40397 619226 TTTCAATCCCATTTTGGTCTGATTTTAAC GGCTTCTGAGCCAAACGTACTTTTCTTTTGAAATCCA spacer
length: 37 repeater length: 29

40398 619293 TTTCAATCCCATTTTGGTCTGATTTTAAC CGTTTTTGCTTTTCATTTTTTATCACCTCTTTTTTTC spacer
length: 36 repeater length: 29

40399 619359 TTTCAATCCCATTTTGGTCTGATTTTAAC GAAATCGCCAACCTCCTACGCGAACACACCAAAAA spacer
length: 35 repeater length: 29

40400 619424 TTTCAATCCCATTTTGGTCTGATTTTAAC TGTTCTCATTTCTTTTACCAGTTCGGTCAGGCATTAT spacer
length: 36 repeater length: 29

40401 619490 TTTCAATCCCATTTTGGTCTGATTTTAAC GCCCTCTGGGGAGCCTTCATAGATGCACTCCCCAGA spacer
length: 36 repeater length: 29

40402 619556 TTTCAATCCCATTTTGGTCTGATTTTAAC TCATCAAGGAACCTGCAGACACTCTCCCCTTTCTCC spacer
length: 36 repeater length: 29

40403 619622 TTTCAATCCCATTTTGGTCTGATTTTAAC CGGGGGCTGTGGAGGTTAACTGCGCCCGAGAATA spacer
length: 36 repeater length: 29

40404 619688 TTTCAATCCCATTTTGGTCTGATTTTAAC ATCACCAATTTAACCTCGCCTCCATAATGCTTTC spacer
length: 34 repeater length: 29

40405 619752 TTTCAATCCCATTTTGGTCTGATTTTAAC GGGGGTTCTGTGGGGGGTTCCTGTGGGGGTTCCTG spacer
length: 36 repeater length: 29

40406 619818 TTTCAATCCCATTTTGGTCTGATTTTAAC CCATGCATGGCATATACTTATGAGTGTTCTGAGC spacer

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length: 34 repeater length: 29
40407 619882 TTTCAATCCCATTTTGGTCTGATTTTAAAC TCTTCTTTGAGACGAGCATGCGCCTAGCTCTTCTCT spacer
length: 36 repeater length: 29
40408 619948 TTTCAATCCCATTTTGGTCTGATTTTAAAC TTGAATGTTAGTTATGGTTTACTCGAAGATGGTA spacer
length: 34 repeater length: 29
40409 620012 TTTCAATCCCATTTTGGTCTGATTTTAAAC AGGTGACAGTCGAGCAGTTGAACCTCTCATAACA
40410
40411
40412 crispr 5
40413 1208089 GTAGAGCTGCAGCGGAGGCTCTTAGCGAGTCAGGTGACAG
CCGAGCAGTTGAACCCCTCATAACAGCACTGAAAGATAATGATCCACTTGTG spacer length: 52 repeater
length: 40
40414 1208182 GTAGAGCTGCAGCGGAGGCTCTTAGCGAGTCAGGTGACAG
CCGAGCAGTTGAACCCCTCATAACAGCACTGAAAGATCCAGAGGTGCGTAGAGCTGCAAAGAATGCCCTTGTAGGGATTGGTTCAC
CTGCAGTTGAACCTCTCATAACAGCACTGAAAGATAATGATCCACTTGTG spacer length: 136 repeater
length: 40
40415 1208359 GTAGAGCTGCAGCGGAGGCTCTTAGCGAGTCAGGTGACAG
TTTAAATGCATAAAAAACAGTTGGGATCAGGGGTGGGCCCTGACACCTCAGGTATGGATGCTTCAGGACTTCACAAAATTACACT
GGATACACTTGAAATTAACGTATTTTATTTACAAAATTATTACATTAAT
40416
40417
40418 GCA_900177045.1_Candidatus_Nitrosotalea_koreensis_CS_whole_genome_genomic.fna(findCris
pr):
40419 START REPEAT
SPACER
40420 crispr 1
40421 1539169 AATCATAAAAAACAATGGCGG
CAATGACAATCATAAAAAATACCAAAGTATCATTTGTACCAAATCTTACTAACTCTATAGTTATGACATCATGGAGTAGTATCAATT
ATGATGCTAATAATCTTGGTGACATTATTCTTGTAGCTGA spacer length: 126 repeater length: 20
40422 1539316 AATCATAAAAAACAATGGCGG CAATGCGAATAACCATCATGATGAGAGTGA spacer length: 30
repeater length: 20
40423 1539367 AATCATAAAAAACAATGGCGG CCAGCAAGAACAACAGAACCAGCAAGAACA
40424
40425
40426 crispr 2
40427 1549236 CTGAAACCGTTACTGCCTCTGAT TCACTAGCAACAGCAGCATCACGAAAAACAACACTG spacer length:
36 repeater length: 23
40428 1549296 CTGAAACCGTTACTGCCTCTGAT GCACTAACAACCACAGCATCAAGAAATGCAACCTTG spacer length:
36 repeater length: 23
40429 1549356 CTGAAACCGTTACTGCCTCTGAT CATCTGCAACAACAACACCATCTGCAACAACACCAG
40430
40431
40432 crispr 3
40433 268947 AACACTACAACCTACAACAACACCA GCTGCAACAACACCAACTACAACAACACCAGCTGC spacer length:
35 repeater length: 24
40434 269007 AACACTACAACCTACAACAACACCA TCTGCAACAACACCAGCTGC spacer length: 20 repeater
length: 24
40435 269052 AACACTACAACCTACAACAACACCA TATTGACTACTATAACAAAG
40436
40437
40438 crispr 4
40439 1711293 GCAAGAACAGCAGAAACAACAAGAACAGCAGAA ACAACAAGAACAACAGAACCAGCAAGAACAACAGAACC
spacer length: 38 repeater length: 33
40440 1711365 GCAAGAACAGCAGAAACAACAAGAACAGCAGAA ACAACAAGAACAGCAGAAACC spacer length: 20
repeater length: 33
40441 1711419 GCAAGAACAGCAGAAACAACAAGAACAGCAGAA ACAACAAGAACAGCAGAAACC spacer length: 20
repeater length: 33
40442 1711473 GCAAGAACAGCAGAAACAACAAGAACAGCAGAA GCAGATTCCGGAATAACCCA
40443
40444
40445 crispr 5
40446 1547766 CGCTTGCAATTGGCAGATTCCGGAATAACCCATGCTGGCAG
GTTGTTGAGTCCATCTGATACAATAGCATTAAGCGACTCTGCCAGCCCAGCCACTAGACAATTCAAATCAATAGCTGCATCTGAT
spacer length: 85 repeater length: 40
40447 1547892 CGCTTGCAATTGGCAGATTCCGGAATAACCCATGCTGGCAG
GTTGTTGAGCCCATCTGATACAATAGCATTAAGCGACTCTGCCAGCCCAGCCACTAGTCAATTCAAATCAATAGCTGCATCTGAT
spacer length: 85 repeater length: 40
40448 1548018 CGCTTGCAATTGGCAGATTCCGGAATAACCCATGCTGGCAG
GAAACAGCAACAGAACCAGAACCAGAAACAGGAACAACAACAGGAACAACAACAGAAATCAGATAATCAGAAAGGACACAGAGAT
40449
40450

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GCA_900198835.1_chr_EXT12c_genomic.fna(findCrispr):

START REPEAT

SPACER

crispr 1

814131 CTCCTAGAGTCTTATTG CAACAGATTATCAACACTAACCGAAACAACACATACAGTCGTCTTTCAAT spacer
length: 50 repeater length: 17

814199 CTCCTAGAGTCTTATTG CAACTCGGCTACTATGCCCAGGACCTGGGCTATACCTCGGGCTTTCAAT spacer
length: 49 repeater length: 17

814266 CTCCTAGAGTCTTATTG CAACGGATGAAGATGAGTGACACGACAGAAGGCCCGGAAATCCTTTCAAT spacer
length: 50 repeater length: 17

814334 CTCCTAGAGTCTTATTG CAACGGCCTGAAAGCCGAGGCAACCCTAATTAGGCTCCCGTCTTTCAAT spacer
length: 49 repeater length: 17

814401 CTCCTAGAGTCTTATTG CAACGGCGTCGGCTAATCCAATGCCTCTAATGATTTTAAATCTTTCAAT spacer
length: 49 repeater length: 17

814468 CTCCTAGAGTCTTATTG CAACGGTTGGTGAGCTAATGCCTTCTACGATTTTTCCGTTCCTTTCAAT spacer
length: 49 repeater length: 17

814535 CTCCTAGAGTCTTATTG CAACCGTCCAGCTCCTCCGCGAGCGGGATTGTTGGGAATATCTTTCAAT spacer
length: 49 repeater length: 17

814602 CTCCTAGAGTCTTATTG CAACAATATGGCCCCTCGTCTGGGTATAAACTCGCTTCTCCCTTTCAAT spacer
length: 50 repeater length: 17

814670 CTCCTAGAGTCTTATTG CAACGATTGTGATTACTTCGATATTGCAGAGACCAGGAGCTTTCAAT spacer
length: 47 repeater length: 17

814735 CTCCTAGAGTCTTATTG CAACTGATGCCACCCCTGTTGATGTCCACCCCGTCGCCGTCTTTCAAT spacer
length: 48 repeater length: 17

814801 CTCCTAGAGTCTTATTG CAACCAGAAAACGGTTACGGGATTGAAGGCCAATACTACCCTTTCAAT spacer
length: 48 repeater length: 17

814867 CTCCTAGAGTCTTATTG CAACTTCTTGAGAATTGCCATCTCCTTAGCGATTCTCTTTACTTTCAAT spacer
length: 49 repeater length: 17

814934 CTCCTAGAGTCTTATTG CAACCGGAATTCTGGGTAGCACGTCCACAAATACGTCTAACTTTCAAT spacer
length: 49 repeater length: 17

815001 CTCCTAGAGTCTTATTG CAACGCGGGAGTATAGAAAACCTCCTGGAGCGTAGACAATCAGCTTTCAAT spacer
length: 50 repeater length: 17

815069 CTCCTAGAGTCTTATTG CAACCACAGGAGAGGTTTCTACTACGTTCTCGTGGACAAGCTTTCAAT spacer
length: 49 repeater length: 17

815136 CTCCTAGAGTCTTATTG CAACCCGAAACCTTTATAAAACCTGAAATCCAACAAAATTTCTTTCAAT spacer
length: 49 repeater length: 17

815203 CTCCTAGAGTCTTATTG AAACCTGGCTGTCCCGTGGAGCGTTCTGGGGGAGTTCTGTGTTATTCTC

crispr 2

1800271 TCTTCTAGAGGTTTCG GAAACTAATAAGTTGATAAAACACCCGGTAGGGGATACGGAGATGGCCCCACGGTTTCCA
spacer length: 60 repeater length: 15

1800347 TCTTCTAGAGGTTTCG
GAAACACGAGGTGCTTGCTCGCCCAGAGAACAGGGAAATACTGAAGTACGTCTCAAGTTTCCA spacer length: 64
repeater length: 15

1800427 TCTTCTAGAGGTTTCG GAAACTTGGCTCCGCATTGAAAGCGCGGATAGAGGGGTCTTCGATTTTCTCCGTTTCCA
spacer length: 59 repeater length: 15

1800502 TCTTCTAGAGGTTTCG GAAACAGTGACTCCCTACCCCACTTTTCTTGGTACAGTTCTATTTCCGGTGTTTCCA
spacer length: 57 repeater length: 15

1800575 TCTTCTAGAGGTTTCG
GAAACGGTTTGTAAACCAATATATCTTGAGTGATTTTTCTCTTTTACTTCCAAGTTTCCA spacer length: 61
repeater length: 15

1800652 TCTTCTAGAGGTTTCG
GAAACTGGTGACGTTTCGGAATAATTGACAATGTCTTCATGAAGAGCACGGCACCCGGTGAGTTTCCA spacer length:
69 repeater length: 15

1800737 TCTTCTAGAGGTTTCG GAAACCGAACTCCTGAAGACCGGGTACGCCCTTACGAACAAGACATTGGTTTCCA
spacer length: 55 repeater length: 15

1800808 TCTTCTAGAGGTTTCG
GAAACATCTCATCCATATTGTCCGTTGAAACGGCGGACATAAAGGCTTCGTGAATGTTTCCA spacer length: 62
repeater length: 15

1800886 TCTTCTAGAGGTTTCG GAAACTTAGCGTGAACAAGACACAATTACCGAGGATTGTTGCATGTTTCCA spacer
length: 51 repeater length: 15

1800953 TCTTCTAGAGGTTTCG
GAAACCTCGACGCCACAGACTTCCCGATAAGTAAGATACTCTCCCTCGTGAACAACGTTTCCA spacer length: 63
repeater length: 15

1801032 TCTTCTAGAGGTTTCG GAAACGCAGATGGTTTTTCACGCTGACAACCTCGGCGATGGTGTTCCTTCCA spacer
length: 48 repeater length: 15

1801096 TCTTCTAGAGGTTTCG GAAACTTTGAGGAAGGAGAATTGACTGGGAACCTTCCTCAGTGTGGATTACAAGTTTCCA
spacer length: 59 repeater length: 15

1801171 TCTTCTAGAGGTTTCG GAAACGGGCTACAAAATCCACTTCGACCCACGTGGACGCGTTTCCGAACCTGTTTCCA
spacer length: 58 repeater length: 15

40487 1801245 TCTTCTAGAGGTTTCG
 GAAACCATCCGCAAGTATAATCATCTCAATTATACACATAATTTTGCCTGGTTTTTGTGTTTCCA spacer length: 66
 repeater length: 15
 40488 1801327 TCTTCTAGAGGTTTCG
 GGAAACTTGGAACACGGTGGGATGGCAGGGATTTAAGAAAAAGCCGGGACTTAGGTCGTTACCGA
 40489
 40490
 40491 crispr 3
 40492 1819229 GAACCTCTAGAAGAGTGGAAAC CCCGAAAGCCTTTCCCCGATAGTGGCACCCGTGATCTCATTTCGTTTC
 spacer length: 47 repeater length: 22
 40493 1819299 GAACCTCTAGAAGAGTGGAAAC GTCTTTGTCCCTCGGGTGGGGCGGAAATTCATCTATAAGCCACTGGTTTC
 spacer length: 50 repeater length: 22
 40494 1819372 GAACCTCTAGAAGAGTGGAAAC
 CCGTCTCTATTTCGCAACATCGGTTTTGATGCGGATTATATCTCCATCGGTTTC spacer length: 56 repeater
 length: 22
 40495 1819451 GAACCTCTAGAAGAGTGGAAAC ACACCCAATAAATTTCTCCATCTGTTGAATTTACATATTGTCCAGTTTC
 spacer length: 49 repeater length: 22
 40496 1819523 GAACCTCTAGAAGAGTGGAAAC CTTGTACTTGCTTTTCGGACTTCCTGACAAGCTCATCGAGTGGGATTATGTTTC
 spacer length: 53 repeater length: 22
 40497 1819599 GAACCTCTAGAAGAGTGGAAAC CTCGGGGCGCTCGAAGGCGGCCCTTTTCTTACGGCCGCCACCACAGTTTC
 spacer length: 51 repeater length: 22
 40498 1819673 GAACCTCTAGAAGAGTGGAAAC
 GCTCTTTGAATCATTGAAAATCACCTCTCGTACAGGGGTGCGGCTGAAGTTTC spacer length: 54 repeater
 length: 22
 40499 1819750 GAACCTCTAGAAGAGTGGAAAC ATGGGAGGAACAATCCCAGCGGGTCGGGCGGCAGTTCGCAAATCAAGTTTC
 spacer length: 51 repeater length: 22
 40500 1819824 GAACCTCTAGAAGAGTGGAAAC
 CTGGTCCGCAGCCTTTTGAGCGGCAGACCAGATTGAGGCCGCGCCCTTCGCCTGTTTC spacer length: 58
 repeater length: 22
 40501 1819905 GAACCTCTAGAAGAGTGGAAAC
 GCGGAGAAGAAAAGCAGTAGGGCAAAAATGCGGAAGAAAAGAAAGCGGTAGTGGTTTGAAAAAGAGTTTC spacer
 length: 72 repeater length: 22
 40502 1820000 GAACCTCTAGAAGAGTGGAAAC
 CTGGCACTGCCCAGAAAGTTACCCTCCTCGTCCATAACATATACTGGGAGTCCCATTACTGAATCTTTGAGTTTC spacer
 length: 74 repeater length: 22
 40503 1820097 GAACCTCTAGAAGAGTGGAAAC
 ATCCCTGATACGTGCGGCAAGTTCACGCGAAGGCCGGGCTGCAATAAGACTCTAGGAGAATTGAAAGTCGTCA
 40504
 40505
 40506 crispr 4
 40507 1363996 GTTTCAGAACTAGCGTAGCTTTGGAAAC CAGGTCTTTCTTTATCTCTTCGAGGTTTTCTTTA spacer
 length: 35 repeater length: 28
 40508 1364060 GTTTCAGAACTAGCGTAGCTTTGGAAAC
 CTTTATTACGTTTCTATCATACAGCAACACCTCCAAATAGTTTTTTCAC spacer length: 49 repeater length:
 28
 40509 1364138 GTTTCAGAACTAGCGTAGCTTTGGAAAC CCTGATACGTGCGGCAAGTTCCCAGCGAAGGCCGGGCTGCAATAAGACT
 40510
 40511
 40512 crispr 5
 40513 1498651 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG ACGCTCTTGGGTGTATTGTTGCCAGGCGTCGGG spacer
 length: 34 repeater length: 29
 40514 1498715 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG
 CGTGGCTCTCTACAAGCTCCCGGGCGAGTCTGCTCCTCTTTACGTCA spacer length: 47 repeater length: 29
 40515 1498792 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG ATAGCCCGTACTGGTTCCCTGATAAGACCTACACGTA spacer
 length: 37 repeater length: 29
 40516 1498859 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG AGTAAGTCCGCTCGCGTCGTCTATGCTGGCGATTTT spacer
 length: 36 repeater length: 29
 40517 1498925 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG TGAGATGGCACGGCAGAGGGGACTTAAGACAGTC spacer
 length: 34 repeater length: 29
 40518 1498989 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG AGGAGATGCTTGAGCGCCTTCTCGTCTCTATCGTCA spacer
 length: 37 repeater length: 29
 40519 1499056 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG TTGAGGTAACCCTTTTGGAAACGTGGGTAGGGGCT spacer
 length: 36 repeater length: 29
 40520 1499122 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG TAGTCGTGCCCGGCGTATCCTTCGGCGCAACTTTGGACGC
 spacer length: 40 repeater length: 29
 40521 1499192 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG ACGCTCAACGCGTTTAAGGTCATCGCGTCCACCATA spacer
 length: 36 repeater length: 29
 40522 1499258 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG AGGAGAACTACCCGAAGCGAACGTTACGCTAATAA spacer
 length: 36 repeater length: 29
 40523 1499324 GTTTCCTAGAACAGTGTGTTGTGTGGAAAG ACTTTGCGGTTTTTTTCTGGAGTGTGAGCTCGGGGACTTCT
 spacer length: 41 repeater length: 29

40524	1499395	GTTTCCGTAGAACAGTGTGTGTGGAAAG	GAGTCGCCCCAGCGCGGAGCGTCGAAAGGCGACCCCGC	spacer
		length: 38	repeater length: 29	
40525	1499463	GTTTCCGTAGAACAGTGTGTGTGGAAAG	CAGGCTATTCTTCTCAGCACGTCCTGAGGAGTGGAGAGACGA	
		spacer length: 42	repeater length: 29	
40526	1499535	GTTTCCGTAGAACAGTGTGTGTGGAAAG	CAGTGTCCATTCCCAGCTTCTGGAGGCCAACGTCGCGT	spacer
		length: 39	repeater length: 29	
40527	1499604	GTTTCCGTAGAACAGTGTGTGTGGAAAG	TGGAGTAGTCAGGCCATTAGTACACAAACATGAGA	spacer
		length: 35	repeater length: 29	
40528	1499669	GTTTCCGTAGAACAGTGTGTGTGGAAAG	ACTTGACGGCTCAGCAGTGGGCGGTCGCGGTTGCGTTGACGA	
		spacer length: 42	repeater length: 29	
40529	1499741	GTTTCCGTAGAACAGTGTGTGTGGAAAG	GCAACCGCCCGGCGAGGAGCTTCACTTTTTTTTCGA	spacer
		length: 35	repeater length: 29	
40530	1499806	GTTTCCGTAGAACAGTGTGTGTGGAAAG	AAAGCGGGCCGAGCGGGCCGTTTTTCACTCAGCGCCTTCT	
		spacer length: 41	repeater length: 29	
40531	1499877	GTTTCCGTAGAACAGTGTGTGTGGAAAG	CCGTTTGGCCGACGCGATAGAGGAAAAATTAAGTA	spacer
		length: 35	repeater length: 29	
40532	1499942	GTTTCCGTAGAACAGTGTGTGTGGAAAG	CCGTTTGGCCGACGCGATAGAGGAAAAATTAAGTA	spacer
		length: 35	repeater length: 29	
40533	1500007	GTTTCCGTAGAACAGTGTGTGTGGAAAG	TCATCACGGCAAAGGACAACGCTACCAGCGCGATTAACC	spacer
		length: 39	repeater length: 29	
40534	1500076	GTTTCCGTAGAACAGTGTGTGTGGAAAG	TGGAGACAACACCCTGTTCCATGGCCTGATGAATAT	spacer
		length: 36	repeater length: 29	
40535	1500142	GTTTCCGTAGAACAGTGTGTGTGGAAAG	CAATGTTCCCTCGTCGGCGTGCAGAAGTTCATGGAAA	spacer
		length: 36	repeater length: 29	
40536	1500208	GTTTCCGTAGAACAGTGTGTGTGGAAAG	ATTGGGTTGTCTTTGTTGAAGCGAACTACTCTGTAGTTT	spacer
		length: 39	repeater length: 29	
40537	1500277	GTTTCCGTAGAACAGTGTGTGTGGAAAG	AACCTTTATAAAACCTGAAATCCAACAAAATTTCTTTCA	
40538				
40539				
40540	crispr 6			
40541	1504780	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	CAAAAGGGCCGGGTTGAGTTGTGGTTATATCCCGAA	spacer
		length: 37	repeater length: 29	
40542	1504847	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	CGAAGATACTCCAAAGGAGACAATTGCCCGTAAACTG	spacer
		length: 37	repeater length: 29	
40543	1504914	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	GGGTTCATCTCGCTAATTTTGTGCGGTGGGTAGTAG	spacer
		length: 36	repeater length: 29	
40544	1504980	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	ACATAGAAGCCGAGCCAGCGCCTGTCCTTGCGCTTCGT	spacer
		length: 38	repeater length: 29	
40545	1505048	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	TGTTTCATGTCAAGTTCGATCACATAATCGCCATTTTCA	spacer
		length: 38	repeater length: 29	
40546	1505116	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	TGCGGAGGACTTGTACGCGTTGATTCCGCTTGATGATGCAA	
		spacer length: 41	repeater length: 29	
40547	1505187	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	CTTTTTCCCCGTCTTCGCTTTGCTCTTTGACGTGAATAGCCA	
		spacer length: 42	repeater length: 29	
40548	1505259	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	GCATTCTGAGAACACTATCTATGAGCTCACCTTCA	spacer
		length: 36	repeater length: 29	
40549	1505325	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	ATCCTCCTCGAGGGCGACGATGGAAAGCACTACGTC	spacer
		length: 36	repeater length: 29	
40550	1505391	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	CGTTTCTAACCTTCGGCGCGTGGTTCTGCGCGCTTTGAA	spacer
		length: 39	repeater length: 29	
40551	1505460	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	AGGAAGTGTACATCTATGAAGGTAGGCGCTGGTGGACTT	spacer
		length: 39	repeater length: 29	
40552	1505529	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	CGGGATTTGCTTACGGCGCTGGAGAGGTTGAAAGCGTC	spacer
		length: 38	repeater length: 29	
40553	1505597	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	TGTGGCCAATGATCTTTTGTGCCATTTCTGCTTCTTT	spacer
		length: 37	repeater length: 29	
40554	1505664	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	TTTAACTCCCTCTGGAAGCTTCTTCCACAGTATCTCCC	spacer
		length: 38	repeater length: 29	
40555	1505732	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	GGCTCTTCAGCAAAACCGAACCAATCAGGCGCTCCTTTTTCG	
		spacer length: 42	repeater length: 29	
40556	1505804	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	GCCTTATGCCTTCCCGGTTTCGGGCTTCGGGCATGAACG	spacer
		length: 39	repeater length: 29	
40557	1505873	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	ATGGTGATGTAGCCCTTTCCGTTGAAGCCAATGAA	spacer
		length: 35	repeater length: 29	
40558	1505938	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	CGCTTGGGCGCTGGTTTGTGAGGGTCTCATGGGTGCCTC	
		spacer length: 40	repeater length: 29	
40559	1506008	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	TCAGTGGGAGTATTGCGACTGCTTCAGCGGCTTCAGTGC	spacer
		length: 39	repeater length: 29	
40560	1506077	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	TACTTCTGAAGTCCATTCTTCTCACCCCAAGATTCCC	spacer
		length: 37	repeater length: 29	
40561	1506144	GTTTCTGTAGAACAGAGTTGTGTGGAAAG	GAAACGCTGAGATTGACTATCATGTGCAGACTACCT	spacer

length: 36 repeater length: 29
40562 1506210 GTTTCTGTAGAACAGAGTTGTGTGGAAAG GCCAGGAGCTGGAATATTTTCATGTATGGGGCCAGC spacer
length: 36 repeater length: 29
40563 1506276 GTTTCTGTAGAACAGAGTTGTGTGGAAAG AGCGGGCTGGTCTCGTTGTAAAGCATGGCCCTGTTACCGC
spacer length: 40 repeater length: 29
40564 1506346 GTTTCTGTAGAACAGAGTTGTGTGGAAAG TCGCGGTATTTTGGTTCAAGATAGCGTGGCCTATCA spacer
length: 36 repeater length: 29
40565 1506412 GTTTCTGTAGAACAGAGTTGTGTGGAAAG TGCGAACTTGCCTTTTTGTTCACAAAGGAAGGAG
40566
40567
40568 crispr 7
40569 1627126 CTTTCAATTCTCCTCGAGTCTTATTGCAAC
GGCCTTGCTGAGTTTGATAATCTACAGGCCATCATCGCTTTCAATTCTCCTAGAGTCTTATTGCAACTGACACGGTGGGCTTTAGG
GTCCATATACGTAGTTC spacer length: 102 repeater length: 30
40570 1627259 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TCACCCTCACCGTGAACGTGAAAAACGAGACAAT spacer
length: 34 repeater length: 30
40571 1627324 CTTTCAATTCTCCTCGAGTCTTATTGCAAC TGAAGTGCATTGCTTCAGGCGTGTCTTTGGCATCTA spacer
length: 36 repeater length: 30
40572 1627391 CTTTCAATTCTCCTCGAGTCTTATTGCAAC GTGAAACTCGCCCTTTCGTCCAGAGGAGAAATAAGA
40573
40574
40575 crispr 8
40576 1243869 GTTGCAATAAGACTCGAGGAGAATTGAAAG TACCAGTTGGCTACACGCTCAACAGGGGCACCCT spacer
length: 34 repeater length: 30
40577 1243934 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAGATTCTTAATCCTCCTCCCATACACCGTGGCCTTT spacer
length: 37 repeater length: 30
40578 1244002 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGAAGTCCTCGGCGGTTATGTAGAAAGCGAGGTAG spacer
length: 36 repeater length: 30
40579 1244069 GTTGCAATAAGACTCGAGGAGAATTGAAAG ATGCCCAAAGGTCTTTGGCTTCGTCCACCGCGCT spacer
length: 35 repeater length: 30
40580 1244135 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCGTCAAGGAGTCTAACAATATCCTCCAGCTTCTCAA spacer
length: 37 repeater length: 30
40581 1244203 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTATTGCTTGGGCTGAGCGTATTATTGCTGATTAG spacer
length: 36 repeater length: 30
40582 1244270 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTGAAGAAGGGACGGGAAGTTATAGAGATGATTAGG spacer
length: 36 repeater length: 30
40583 1244337 GTTGCAATAAGACTCGAGGAGAATTGAAAG TCCGCCGGTTCATTACTCCCCGCCACTCACGGACGG spacer
length: 36 repeater length: 30
40584 1244404 GTTGCAATAAGACTCGAGGAGAATTGAAAG GTGGGCATATGCCGGCCACAACGCTGGTCTTGAGTAATACTTA
spacer length: 44 repeater length: 30
40585 1244479 GTTGCAATAAGACTCGAGGAGAATTGAAAG AACGCTGTGAGTGAAAGCGACCCCAACAAGGTGTTC spacer
length: 36 repeater length: 30
40586 1244546 GTTGCAATAAGACTCGAGGAGAATTGAAAG CACCTCCTCGTCCCCCAAGAGATCCCCCAAGAGAGA spacer
length: 36 repeater length: 30
40587 1244613 GTTGCAATAAGACTCGAGGAGAATTGAAAG AAAGCGGGATAACCTCATTAACCACCGCACGCGGGAA spacer
length: 37 repeater length: 30
40588 1244681 GTTGCAATAAGACTCGAGGAGAATTGAAAG CGCTCTTCGTTATGCCTTCATCTCCCACCTGACCAA spacer
length: 36 repeater length: 30
40589 1244748 GTTGCAATAAGACTCGAGGAGAATTGAAAG AGGCCATTGCGCAGGCGCAGCAGACTCATCAGAACG spacer
length: 36 repeater length: 30
40590 1244815 GTTGCAATAAGACTCGAGGAGAATTGAAAG GCGGTTACGTGGTTTCAGGAAGCCATACCAGTTGGC spacer
length: 35 repeater length: 30
40591 1244881 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTTTTTGTGTAGTTCTGGTTGAGGAAACCGTTTCTCTG spacer
length: 38 repeater length: 30
40592 1244950 GTTGCAATAAGACTCGAGGAGAATTGAAAG GGGTGGGACGTCTACTATTACTCCTCTCGCAATCGAACA
spacer length: 39 repeater length: 30
40593 1245020 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTCTGGGTAAGGTAATCTTTTGTTCCTCGAGAAGTGTG spacer
length: 37 repeater length: 30
40594 1245088 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTTTGGACCCTCGCGAGCCTCCTCGAAGGTGCTC spacer
length: 35 repeater length: 30
40595 1245154 GTTGCAATAAGACTCGAGGAGAATTGAAAG CTTACACGGGAACCCGTAGTTTACATAGTAGAAGAGA spacer
length: 38 repeater length: 30
40596 1245223 GTTGCAATAAGACTCGAGGAGAATTGAAAG AAAGAAAACCGACGACATCACGAAAGCCGTCCGCTTAAA
spacer length: 39 repeater length: 30
40597 1245293 GTTGCAATAAGACTCGAGGAGAATTGAAAG GAGAAATCTGAGGTAATGCTAATGACCGCAGTCTTA spacer
length: 36 repeater length: 30
40598 1245360 GTTGCAATAAGACTCGAGGAGAATTGAAAG AGGTGAGTGCCGTTCTGAGAGTAAAAATTGAAAGTCA spacer
length: 37 repeater length: 30
40599 1245428 GTTGCAATAAGACTCGAGGAGAATTGAAAG CGTGAGCGTTCTGGGGGAGTTCTGTGTTATTCTCAC
40600
40601

40602 crispr 9
40603 814257 CTTTCAATTCTCCTAGAGTCTTATTGCAACGG ATGAAGATGAGTGACACGACAGAAGGCCCGGAAAT spacer
length: 35 repeater length: 32
40604 814325 CTTTCAATTCTCCTAGAGTCTTATTGCAACGG CCTGAAAGCCGAGGCAACCCTAATTAGGCTCCCG spacer
length: 34 repeater length: 32
40605 814392 CTTTCAATTCTCCTAGAGTCTTATTGCAACGG CGTCGGCTAATCCAATGCCTCTAATGATTTTAAA spacer
length: 34 repeater length: 32
40606 814459 CTTTCAATTCTCCTAGAGTCTTATTGCAACGG TGGGATGGCAGGGATTTAAGAAAAAGCCGGGACT
40607
40608
40609 GCA_900248165.1_Nitrosocaldus_cavascurensis_SCU2_chromosome_genomic.fna(findCrispr):
40610 START REPEAT
SPACER
40611 crispr 1
40612 169 CTCCAGTGGAAGTGATGGTG TCATTATCTAACTATATAAT spacer length: 20 repeater length: 20
40613 210 CTCCAGTGGAAGTGATGGTG TCATTTTAAGCCTGTATTAACCATATTAACATAGACTTTAT spacer length: 41
repeater length: 20
40614 272 CTCCAGTGGAAGTGATGGTG TTCGATTCAAACCTTGATTTGCCTAATTCTTCGATTTTATC
40615
40616
40617 crispr 2
40618 916001 TCTCCTCCCACTATAAAATCTCCA
GAAAGTATATCATTGCCACTTCCTCCATCTAGTGTATCATTGCCTCCAGTTATGTTATCACC spacer length: 62
repeater length: 24
40619 916088 TCTCCTCCCACTATAAAATCTCCA
TAAGTACTATCATTACCCTCTCCTCCATATAGTGTATCATTGCCTCCAGTCAGTGTATTATCACC spacer length: 65
repeater length: 24
40620 916178 TCTCCTCCCACTATAAAATCTCCA
CAAAGATTAGTTCAGTTCAGTTCAGTTCAGTTCCTTGAATCTTTCAATCCTACTATAGTTCGATTC
40621
40622
40623 crispr 3
40624 1548654 ATTTCAATCCTACTATAGTTCGATTCAAAC
ATTTTTCAATGAATGCTTGCCTTTTCAGTTTCAGTTTCTTTCAATCCTACTATAGTTCGATTCAAACCTTAATACTTACTTTTGCCTT
AGTCTTACCAGCAAC spacer length: 101 repeater length: 30
40625 1548786 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCCATAGTATAGAATTATGGGTTATATAAATCTT spacer
length: 35 repeater length: 30
40626 1548852 ATTTCAATCCTACTATAGTTCGATTCAAAC TATCTATATCTACACTTGAGCCTATAAATCACAAGTA spacer
length: 37 repeater length: 30
40627 1548920 ATTTCAATCCTACTATAGTTCGATTCAAAC CTAGAACTGCATCATTAGATGCAGGTCTATTTAAAT spacer
length: 36 repeater length: 30
40628 1548987 ATTTCAATCCTACTATAGTTCGATTCAAAC CTGATAGCCTTCTTACCCACTTATTACTTATTTTAC spacer
length: 36 repeater length: 30
40629 1549054 ATTTCAATCCTACTATAGTTCGATTCAAAC TCAAGCATCTCTTTCTCTATTATCTCAGTTAACTTA spacer
length: 36 repeater length: 30
40630 1549121 ATTTCAATCCTACTATAGTTCGATTCAAAC CAAAGAGTAAAAGAATATAAGGTAATGTTACTAGAGG spacer
length: 37 repeater length: 30
40631 1549189 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCAGATATTGGCATTATATACTGCATCTAGGTAT spacer
length: 35 repeater length: 30
40632 1549255 ATTTCAATCCTACTATAGTTCGATTCAAAC ATTGAACACATGGATTGCCCTAACAGTTATCAAAA spacer
length: 35 repeater length: 30
40633 1549321 ATTTCAATCCTACTATAGTTCGATTCAAAC TTTAAACCGCACGCACTTTTTTCAACTCTTTCAAAT spacer
length: 36 repeater length: 30
40634 1549388 ATTTCAATCCTACTATAGTTCGATTCAAAC ACTTAGTTACATATTGTTATAGAGATGTTGAAATA spacer
length: 35 repeater length: 30
40635 1549454 ATTTCAATCCTACTATAGTTCGATTCAAAC GTAAGTTAGAGTAAGCAATCTCAAGAAGTATATCTT spacer
length: 36 repeater length: 30
40636 1549521 ATTTCAATCCTACTATAGTTCGATTCAAAC TCTTATTACCTTTATCATCCTCTGCTTCAAGACTATCT spacer
length: 38 repeater length: 30
40637 1549590 ATTTCAATCCTACTATAGTTCGATTCAAAC CAGCATAGAACAGGTGAGCAAGAATAACATCCAGCTT spacer
length: 37 repeater length: 30
40638 1549658 ATTTCAATCCTACTATAGTTCGATTCAAAC ACCATTATTATCCTTTCTTGGCCTTAGGTACTTTT spacer
length: 35 repeater length: 30
40639 1549724 ATTTCAATCCTACTATAGTTCGATTCAAAC ACACCTCTCTGCTTTGCATTATCATCTCCTGAAC spacer
length: 35 repeater length: 30
40640 1549790 ATTTCAATCCTACTATAGTTCGATTCAAAC CTTGGTACTACATCTTTGCAGGAGGTCTGGTTGAGA spacer
length: 36 repeater length: 30
40641 1549857 ATTTCAATCCTACTATAGTTCGATTCAAAC TATTGTTTTGTTTATTTGCCTTGATATTTCCCTATTAA spacer
length: 38 repeater length: 30
40642 1549926 ATTTCAATCCTACTATAGTTCGATTCAAAC ATCACCTAATTTCTTTATAAATGAAATTGTATCTA spacer
length: 35 repeater length: 30

40643	1549992	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATTCAACCCAATTGGCACTGTAAACCTCTTTGTAT	spacer
	length:	35	repeater length:	30
40644	1550058	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGGCACTTGAAATACCCATATCTCCTAAGCTTGCC	spacer
	length:	35	repeater length:	30
40645	1550124	ATTTCAATCCTACTATAGTTCGATTCAAAC	CTACTTTATCAGATTTAGTTAGATTTGCAGTTAGA	spacer
	length:	35	repeater length:	30
40646	1550190	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGTAAGAAAATAGAAATAAAGAGAGTGAGACATATT	spacer
	length:	36	repeater length:	30
40647	1550257	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACTACCCATATCTGAAGCAATAGAGTCTTATCATA	spacer
	length:	35	repeater length:	30
40648	1550323	ATTTCAATCCTACTATAGTTCGATTCAAAC	CGACACATCGAGATATTACTTGATCTGCATAATATA	spacer
	length:	36	repeater length:	30
40649	1550390	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACATGCTATCTGCTTTCTTTGCTACCTCTTCTACGA	spacer
	length:	36	repeater length:	30
40650	1550457	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTAGGTATTGACTTAGATGCAGATGATGAAGTAGGA	spacer
	length:	36	repeater length:	30
40651	1550524	ATTTCAATCCTACTATAGTTCGATTCAAAC	AGGACTGCACCAATCATACACAATTCTAATGATGTGA	spacer
	length:	37	repeater length:	30
40652	1550592	ATTTCAATCCTACTATAGTTCGATTCAAAC	CATGATTGGTAATGGTTGGAAGATCAAAGAAATAACAA	spacer
	length:	39	repeater length:	30
40653	1550662	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGTTTATTGGGTATTGAGAATTCAGCCGGGAAATTTG	spacer
	length:	38	repeater length:	30
40654	1550731	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATCAAATATGATTCAAAGTATTAATAATGTCGTTA	spacer
	length:	35	repeater length:	30
40655	1550797	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATATAAATACATAGATAAAGAATATAAAGAAGTCGA	spacer
	length:	36	repeater length:	30
40656	1550864	ATTTCAATCCTACTATAGTTCGATTCAAAC	CACAATTGCTCTTGCGGCTATACAGCTTTCCTGT	spacer
	length:	35	repeater length:	30
40657	1550930	ATTTCAATCCTACTATAGTTCGATTCAAAC	CCTTGCCCTTGGCTATATAAATGTTACTATTTAGATA	spacer
	length:	37	repeater length:	30
40658	1550998	ATTTCAATCCTACTATAGTTCGATTCAAAC	CTTGCCCGGGCTATATAAATGTTACTATTTAGATA	spacer
	length:	36	repeater length:	30
40659	1551065	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCTACAAGCTGCTATTAAATTCGCTTTACGGCAAAT	spacer
	length:	36	repeater length:	30
40660	1551132	ATTTCAATCCTACTATAGTTCGATTCAAAC	CAACAATTTTTGTAGTATTATTTGAGGTGTAGTAAAAAT	spacer
	length:	39	repeater length:	30
40661	1551202	ATTTCAATCCTACTATAGTTCGATTCAAAC	AATATCTGTCTCTATCTCTGTCTGTACATGTTTGCA	spacer
	length:	36	repeater length:	30
40662	1551269	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATGAGAATGAGAATGAGAATGAGAATGAGAATGAG	spacer
	length:	35	repeater length:	30
40663	1551335	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTACTATTACTTGATATGCCTGCAAGTGCTTTTCT	spacer
	length:	35	repeater length:	30
40664	1551401	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCTTCTATGAACGATTTAAGTAATGATGCTGAAGGTC	spacer
	length:	37	repeater length:	30
40665	1551469	ATTTCAATCCTACTATAGTTCGATTCAAAC	TGCAAGGTCAGCCTTACCGTGCAGGCGTATTGGGATTGA	spacer
	length:	39	repeater length:	30
40666	1551539	ATTTCAATCCTACTATAGTTCGATTCAAAC	AGGATTTATAGTGTCTGGTAATACCCCTGAATTCTG	spacer
	length:	35	repeater length:	30
40667	1551605	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTAGATCGTTATTCAGAATTCAGTTTTACGATCTG	spacer
	length:	36	repeater length:	30
40668	1551672	ATTTCAATCCTACTATAGTTCGATTCAAAC	AAAGAGATAGAAGAAATAAACGCATGATACGTGTC	spacer
	length:	36	repeater length:	30
40669	1551739	ATTTCAATCCTACTATAGTTCGATTCAAAC	TATATCGTAAGCTGAGTGCAGAAGTCAGCGAGCTG	spacer
	length:	35	repeater length:	30
40670	1551805	ATTTCAATCCTACTATAGTTCGATTCAAAC	GAGCATCAAGCTAGGTAGAGGAGCAAACGAGTCGCT	spacer
	length:	36	repeater length:	30
40671	1551872	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCAACATATTAATAAATTGCAAGGGTGAGTTGGCTCA	spacer
	length:	36	repeater length:	30
40672	1551939	ATTTCAATCCTACTATAGTTCGATTCAAAC	TGTTTTGTTTTATTTGCCTTGATATTTCCCTATTTA	spacer
	length:	35	repeater length:	30
40673	1552005	ATTTCAATCCTACTATAGTTCGATTCAAAC	GATGTTAAAGATGCGATAATTGTGGGGGTGGTGTA	spacer
	length:	35	repeater length:	30
40674	1552071	ATTTCAATCCTACTATAGTTCGATTCAAAC	GAATTACAAAAGAGGTTGATTTCAAATGTTAGCGC	spacer
	length:	35	repeater length:	30
40675	1552137	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTGGTTTGCTCACTGGGAATTACCGAGTATATCTT	spacer
	length:	35	repeater length:	30
40676	1552203	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACTTTCATGTATACTATCTGTGATGTATCTGCAGAA	spacer
	length:	36	repeater length:	30
40677	1552270	ATTTCAATCCTACTATAGTTCGATTCAAAC	TGCAACCATTCCTATGATTGCACCTTTTACATCTG	spacer
	length:	35	repeater length:	30
40678	1552336	ATTTCAATCCTACTATAGTTCGATTCAAAC	CTCAATTTGAGTTCTTAGCCGGCAGTGGTGATACGAGT	spacer

length: 38 repeater length: 30
40679 1552405 ATTTCAATCCTACTATAGTTCGATTCAAAC AGAAGTTAGCGAGCTCTTAGGAATGTATAAGCCCCGT spacer
length: 36 repeater length: 30
40680 1552472 ATTTCAATCCTACTATAGTTCGATTCAAAC GGTGAGGATAGCGTGATAATTCAATATGTGATAA spacer
length: 35 repeater length: 30
40681 1552538 ATTTCAATCCTACTATAGTTCGATTCAAAC AGATAATACACCAACGACTCTCTGTGCACTTGTACAGT spacer
length: 38 repeater length: 30
40682 1552607 ATTTCAATCCTACTATAGTTCGATTCAAAC TCTCTCATTACAAATATTGCCTTGTTGATCCTGTCTCC
spacer length: 39 repeater length: 30
40683 1552677 ATTTCAATCCTACTATAGTTCGATTCAAAC CATTACTTAAATCGTTCATAGAAGAAAGCATCAAG spacer
length: 35 repeater length: 30
40684 1552743 ATTTCAATCCTACTATAGTTCGATTCAAAC AGCACTTACTGAAGTTAATGTTGATGCACTCGTAAAC spacer
length: 37 repeater length: 30
40685 1552811 ATTTCAATCCTACTATAGTTCGATTCAAAC ATGTTCCCGCATATATATTTGTATTTATCTTTAAAGT spacer
length: 37 repeater length: 30
40686 1552879 ATTTCAATCCTACTATAGTTCGATTCAAAC TAATGCACGATCGAAATCAACATATTAATAAATTGCA spacer
length: 36 repeater length: 30
40687 1552946 ATTTCAATCCTACTATAGTTCGATTCAAAC GAGGGGATCTAAAGTAAATACTGCCAAAACGGGATTAT spacer
length: 38 repeater length: 30
40688 1553015 ATTTCAATCCTACTATAGTTCGATTCAAAC TAGCGAGGTGTAGAAAATTATGGTATTTATAAGAA spacer
length: 35 repeater length: 30
40689 1553081 ATTTCAATCCTACTATAGTTCGATTCAAAC TAGTAATGCAATTAAGGGATTAGCAGAAAGGCTTTAT spacer
length: 37 repeater length: 30
40690 1553149 ATTTCAATCCTACTATAGTTCGATTCAAAC AACTTTTATAAAACATCGATCGAAGAGCTGGGAAA spacer
length: 36 repeater length: 30
40691 1553216 ATTTCAATCCTACTATAGTTCGATTCAAAC TTTGCTGTGATAGAAAACGCATCTCTCTCTTTCC spacer
length: 35 repeater length: 30
40692 1553282 ATTTCAATCCTACTATAGTTCGATTCAAAC GAGGAGCAAACGAATCGCTAAGGAACTACAAGAA spacer
length: 35 repeater length: 30
40693 1553348 ATTTCAATCCTACTATAGTTCGATTCAAAC AGGTAAGAAATATTTTAAGAATATTACCAACGAATT spacer
length: 36 repeater length: 30
40694 1553415 ATTTCAATCCTACTATAGTTCGATTCAAAC AGTGGGAGCAAGCACTTAGAGCGTACGGACTAGATGA spacer
length: 37 repeater length: 30
40695 1553483 ATTTCAATCCTACTATAGTTCGATTCAAAC GAAGTTTAGGAGAAAGTAAATAATATAGTTATAAAA spacer
length: 36 repeater length: 30
40696 1553550 ATTTCAATCCTACTATAGTTCGATTCAAAC TGTTAATGCTGTTAATTTTACAATTAGCTTTGTTTTGT spacer
length: 38 repeater length: 30
40697 1553619 ATTTCAATCCTACTATAGTTCGATTCAAAC ATATCAATGGATTCTATTAGAGCTTATGATCTTAAAT spacer
length: 37 repeater length: 30
40698 1553687 ATTTCAATCCTACTATAGTTCGATTCAAAC TGACGATATGCGTTTATAATGTCAGCAACACTAATA spacer
length: 36 repeater length: 30
40699 1553754 ATTTCAATCCTACTATAGTTCGATTCAAAC GATTCAGTAATAACAATGCCCAACAACAAGCGTTTT spacer
length: 36 repeater length: 30
40700 1553821 ATTTCAATCCTACTATAGTTCGATTCAAAC GTTTCATCCCCTAACTGCTTTATAAACGAAATCGCATCG
spacer length: 39 repeater length: 30
40701 1553891 ATTTCAATCCTACTATAGTTCGATTCAAAC TTTCATCTCCTAACGCTTTTATAAATGTAATCACATC spacer
length: 37 repeater length: 30
40702 1553959 ATTTCAATCCTACTATAGTTCGATTCAAAC CTTGCGCGTGAGGAATTAGACTTGTGTTGTGCG spacer
length: 34 repeater length: 30
40703 1554024 ATTTCAATCCTACTATAGTTCGATTCAAAC ATGCATCACAGGTCGTATACATGAAGGTTGTAAAGCT spacer
length: 37 repeater length: 30
40704 1554092 ATTTCAATCCTACTATAGTTCGATTCAAAC TGCAACAACTTCTCCTTCTTTGAGACCGCCTTCTCG spacer
length: 37 repeater length: 30
40705 1554160 ATTTCAATCCTACTATAGTTCGATTCAAAC AAGGTCAGCCCTACAGGGCAGGCGTGTGGGACTAA spacer
length: 36 repeater length: 30
40706 1554227 ATTTCAATCCTACTATAGTTCGATTCAAAC GATGAGACAGAAGATATATCTTTCAGAGTAACCTATC spacer
length: 37 repeater length: 30
40707 1554295 ATTTCAATCCTACTATAGTTCGATTCAAAC GTGTATTATTGCGATACTGATAGTTTAATTGTTAAC spacer
length: 36 repeater length: 30
40708 1554362 ATTTCAATCCTACTATAGTTCGATTCAAAC ATTTAAGTATGCTGAAGATATGCCCCGCGAGTTTATA spacer
length: 37 repeater length: 30
40709 1554430 ATTTCAATCCTACTATAGTTCGATTCAAAC AGATCATTGACGAGCAAGAGTTAATTGAGTACTTAGC spacer
length: 37 repeater length: 30
40710 1554498 ATTTCAATCCTACTATAGTTCGATTCAAAC ATAGTTAGAGAGACGATGCATAAATGTGACATATTTTA spacer
length: 38 repeater length: 30
40711 1554567 ATTTCAATCCTACTATAGTTCGATTCAAAC AAGAGTAAAGGATATAATTGATAAACGCTTACCTGAC spacer
length: 37 repeater length: 30
40712 1554635 ATTTCAATCCTACTATAGTTCGATTCAAAC TGTAGAATATTAAAACATCTACACCAAATTCACCT spacer
length: 37 repeater length: 30
40713 1554703 ATTTCAATCCTACTATAGTTCGATTCAAAC TCGCCCTTAGCTCGTTGACATACTCGCTGAACGTCT spacer
length: 36 repeater length: 30

40714	1554770	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTATTTGTGCATCAGCATAAGGGCAAAAATCTATAAA	spacer
	length:	37	repeater length:	30
40715	1554838	ATTTCAATCCTACTATAGTTCGATTCAAAC	AGTTAGAGAACTATGCAAAAATGTGAAATATATTA	spacer
	length:	36	repeater length:	30
40716	1554905	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTCTAAGAGATACATATATAGATGTTTTGACTTGTA	spacer
	length:	36	repeater length:	30
40717	1554972	ATTTCAATCCTACTATAGTTCGATTCAAAC	TTGGGGGGTAGGATGCAGACTGGCAGACAGATAGACT	spacer
	length:	37	repeater length:	30
40718	1555040	ATTTCAATCCTACTATAGTTCGATTCAAAC	AAGTACGCCAACAACTCTCTCTGCGCTTTGTACAT	spacer
	length:	35	repeater length:	30
40719	1555106	ATTTCAATCCTACTATAGTTCGATTCAAAC	AAACTTCTTTAATGAAGGATAGGAGTCTTGTGCATAT	spacer
	length:	37	repeater length:	30
40720	1555174	ATTTCAATCCTACTATAGTTCGATTCAAAC	CGATGCACTCGTAAACATGGTGCAAGAATTACAAAA	spacer
	length:	36	repeater length:	30
40721	1555241	ATTTCAATCCTACTATAGTTCGATTCAAAC	ACCAATACGATACATTCTTCTCAAATCGACCCTCG	spacer
	length:	35	repeater length:	30
40722	1555307	ATTTCAATCCTACTATAGTTCGATTCAAAC	ATATATTGTTTTATAGAGTTATAAAGTACATGTGCA	spacer
	length:	36	repeater length:	30
40723	1555374	ATTTCAATCCTACTATAGTTCGATTCAAAC	GGCAAACTAATAGTGAGTGTGATAAGAAGGGAGAA	spacer
	length:	36	repeater length:	30
40724	1555441	ATTTCAATCCTACTATAGTTCGATTCAAAC	TCCAGTCATTGTATCATTACCATTGCCTCCACCTAT	
40725				
40726				
40727	crispr	4		
40728	925858	CTTTCAATCCTACTATAGTTCGATTCAAAC	ACTTCGGTAGTGTGATAATAAAGTATGAAGAA	spacer
	length:	35	repeater length:	30
40729	925924	CTTTCAATCCTACTATAGTTCGATTCAAAC	GGAAGGCACAGACAGGCTTAGGTCTCAGATAAACC	spacer
	length:	35	repeater length:	30
40730	925990	CTTTCAATCCTACTATAGTTCGATTCAAAC	CAATTATATTAAAATTACGTTATGTTGGAAATTTG	spacer
	length:	35	repeater length:	30
40731	926056	CTTTCAATCCTACTATAGTTCGATTCAAAC	AATGCTATAGATGCAATTTGAAGTTTAGGTTACCTA	spacer
	length:	36	repeater length:	30
40732	926123	CTTTCAATCCTACTATAGTTCGATTCAAAC	TATGCTAAGATGCAAGGAATGCGATAAGATGTATAAC	spacer
	length:	37	repeater length:	30
40733	926191	CTTTCAATCCTACTATAGTTCGATTCAAAC	TAATCTTCTACATAGCCAAAACATGTATTATCTCCTCTTA	spacer
	length:	40	repeater length:	30
40734	926262	CTTTCAATCCTACTATAGTTCGATTCAAAC	TAATCTTCTACATAGCCAAAACATGTATTATCTCCTCTTA	spacer
	length:	40	repeater length:	30
40735	926333	CTTTCAATCCTACTATAGTTCGATTCAAAC	CATAAGGTGAAATATATTCACCTACAGCACCACCTA	spacer
	length:	36	repeater length:	30
40736	926400	CTTTCAATCCTACTATAGTTCGATTCAAAC	TCGCTCGTTCAATTTACGGTATAACTGTTACCGAA	spacer
	length:	35	repeater length:	30
40737	926466	CTTTCAATCCTACTATAGTTCGATTCAAAC	CTTGATTTGCCTAATTCTTCGATTTTATCGAGGAAT	spacer
	length:	36	repeater length:	30
40738	926533	CTTTCAATCCTACTATAGTTCGATTCAAAC	CATGTGCTAGAGATCTAAGTGCAAGTGTAGAATTTG	spacer
	length:	36	repeater length:	30
40739	926600	CTTTCAATCCTACTATAGTTCGATTCAAAC	TATTACTGCATGCGATGCGCATACAACTATACCCTA	spacer
	length:	37	repeater length:	30
40740	926668	CTTTCAATCCTACTATAGTTCGATTCAAAC	CAGAGAGTAGCAACACGTTATGGCATAGGTAGAGC	spacer
	length:	35	repeater length:	30
40741	926734	CTTTCAATCCTACTATAGTTCGATTCAAAC	ATAGGGGTGGTATGAAAAATGGGGTATGGTTATGCTA	spacer
	length:	37	repeater length:	30
40742	926802	CTTTCAATCCTACTATAGTTCGATTCAAAC	AATTTTGTGATGATGACTATTATATACAGTTATTCAA	spacer
	length:	38	repeater length:	30
40743	926871	CTTTCAATCCTACTATAGTTCGATTCAAAC	AGAGTTTAGCAATAGAATGTATGAAAGTAATGAAAG	spacer
	length:	36	repeater length:	30
40744	926938	CTTTCAATCCTACTATAGTTCGATTCAAAC	TCAATTGAGCACCTTCAACTGTATTGTTGAACCTG	spacer
	length:	36	repeater length:	30
40745	927005	CTTTCAATCCTACTATAGTTCGATTCAAAC	GTTACCCTCCTCTAGCACTATTACCTCATCTCCTA	spacer
	length:	36	repeater length:	30
40746	927072	CTTTCAATCCTACTATAGTTCGATTCAAAC	ATACTTCCCTTCTAATCGTTTAGGCTTATGCTCTA	spacer
	length:	35	repeater length:	30
40747	927138	CTTTCAATCCTACTATAGTTCGATTCAAAC	GCGCCACAATCACTTCTTCAACTGATTCAGCAATTTT	spacer
	length:	37	repeater length:	30
40748	927206	CTTTCAATCCTACTATAGTTCGATTCAAAC	CTTCACTTCCTGCAGAGATCAAAGAGTTCATCAAACA	spacer
	length:	37	repeater length:	30
40749	927274	CTTTCAATCCTACTATAGTTCGATTCAAAC	AATGTGCTATAATCTTTTAAAGCAATTTTATAATTG	spacer
	length:	36	repeater length:	30
40750	927341	CTTTCAATCCTACTATAGTTCGATTCAAAC	TATTAGAAAATAAAAATAAATACAAAATAATACAAACA	spacer
	length:	39	repeater length:	30
40751	927411	CTTTCAATCCTACTATAGTTCGATTCAAAC	AGAAGCGAGATAGAAAGATAGAGAAGAGGATGGTGT	spacer

length: 36 repeater length: 30
40752 927478 CTTTCAATCCTACTATAGTTCGATTCAAAC TAAGGTAGTGATAGGTATAGTAACATCATTTCATAGCA spacer
length: 37 repeater length: 30
40753 927546 CTTTCAATCCTACTATAGTTCGATTCAAAC AGCTTTGAGATAGATACCAGTAGCAGGTTCAACAG spacer
length: 35 repeater length: 30
40754 927612 CTTTCAATCCTACTATAGTTCGATTCAAAC GAGCAATTAGGTTCGCCTAATTTCGATCAAGTTGGGA spacer
length: 36 repeater length: 30
40755 927679 CTTTCAATCCTACTATAGTTCGATTCAAAC GATCGTTTTTCAAAAAAGACACCATAAATTTGTAGCG spacer
length: 36 repeater length: 30
40756 927746 CTTTCAATCCTACTATAGTTCGATTCAAAC GATAATAGAAGTCCTGAAAAGGGAGGTTTTTAGGA spacer
length: 35 repeater length: 30
40757 927812 CTTTCAATCCTACTATAGTTCGATTCAAAC CTGAGTCGTAAAGGGAGTATGAAAGGCGAACGAGA spacer
length: 35 repeater length: 30
40758 927878 CTTTCAATCCTACTATAGTTCGATTCAAAC TTCATTAGAAATTTGCGAATTGATCCTGCAAATGA spacer
length: 35 repeater length: 30
40759 927944 CTTTCAATCCTACTATAGTTCGATTCAAAC AATATTATGAACGCAATTAAGGAGGCACGATCCTATAC spacer
length: 38 repeater length: 30
40760 928013 CTTTCAATCCTACTATAGTTCGATTCAAAC GCAATATTAATTTTGCCTTGTCCCAATATGGAC spacer
length: 35 repeater length: 30
40761 928079 CTTTCAATCCTACTATAGTTCGATTCAAAC ATCCCTAACCCTCCTCATTACCTCTGCTTGTGCA spacer
length: 36 repeater length: 30
40762 928146 CTTTCAATCCTACTATAGTTCGATTCAAAC GAATAGGTAGGATTGCATCTGGGGCTGAGGCATCT spacer
length: 35 repeater length: 30
40763 928212 CTTTCAATCCTACTATAGTTCGATTCAAAC TTTGCATCGATCCTTTTCAGGAACATGGAAATTGTA spacer
length: 36 repeater length: 30
40764 928279 CTTTCAATCCTACTATAGTTCGATTCAAAC AATAGGGATTTCATATTATTCGGGGGCATGCATCCGC spacer
length: 36 repeater length: 30
40765 928346 CTTTCAATCCTACTATAGTTCGATTCAAAC TTTATTTTACGTTACGCATATTTGACGCTAGGACA spacer
length: 35 repeater length: 30
40766 928412 CTTTCAATCCTACTATAGTTCGATTCAAAC TTTTATTTGGCGACATAAAATAAAATTTTGTTCGA spacer
length: 35 repeater length: 30
40767 928478 CTTTCAATCCTACTATAGTTCGATTCAAAC GTATGAAATGGAGGAGGAAGAGCGCAACGCCTATAAC spacer
length: 37 repeater length: 30
40768 928546 CTTTCAATCCTACTATAGTTCGATTCAAAC CCTCTTTTGGAGAGGCGTAAAATACGCCTCTCTAT spacer
length: 35 repeater length: 30
40769 928612 CTTTCAATCCTACTATAGTTCGATTCAAAC GACTAAGAAAGAGATGGCATTTCAGAGAATGGTTAA spacer
length: 35 repeater length: 30
40770 928678 CTTTCAATCCTACTATAGTTCGATTCAAAC TTAATTTATTAAGATTATGCCTTATCTCTCTACTTA spacer
length: 36 repeater length: 30
40771 928745 CTTTCAATCCTACTATAGTTCGATTCAAAC CAGAGATGAAATCAGAAGCCAACTCTCAGCATTGT spacer
length: 35 repeater length: 30
40772 928811 CTTTCAATCCTACTATAGTTCGATTCAAAC CACTGTTATGTTTGAAGAACTCTGCCACATGAATA spacer
length: 35 repeater length: 30
40773 928877 CTTTCAATCCTACTATAGTTCGATTCAAAC ATGAAATGAATCTTGAGTATCTTAGAAAGGTGGTT spacer
length: 35 repeater length: 30
40774 928943 CTTTCAATCCTACTATAGTTCGATTCAAAC TACAGTTGCAGTACGGTGATGAAGTAATAGCAACCTCT spacer
length: 38 repeater length: 30
40775 929012 CTTTCAATCCTACTATAGTTCGATTCAAAC ATAGATAAAGAAATAAGATGTTATTGGTCAGATTG spacer
length: 35 repeater length: 30
40776 929078 CTTTCAATCCTACTATAGTTCGATTCAAAC TGTGCACATACTACCCATACGGGCGGTAAGGGTCTG spacer
length: 36 repeater length: 30
40777 929145 CTTTCAATCCTACTATAGTTCGATTCAAAC TATATGGATAATGAAAGAGACGCCAACTAAACCAAAC spacer
length: 38 repeater length: 30
40778 929214 CTTTCAATCCTACTATAGTTCGATTCAAAC GCTGAATCAAAGTTCTGTGAGCCTATAAGCACGTA spacer
length: 35 repeater length: 30
40779 929280 CTTTCAATCCTACTATAGTTCGATTCAAAC GCAACAGCAACAACAACAACAGATCATACAACAAGC spacer
length: 36 repeater length: 30
40780 929347 CTTTCAATCCTACTATAGTTCGATTCAAAC GATGATGATATCGTGAATGACATAATATCCGAATCT spacer
length: 36 repeater length: 30
40781 929414 CTTTCAATCCTACTATAGTTCGATTCAAAC ATGAAATCAACGACGTCGAGGACAGCGTAAAGGATTACT spacer
length: 39 repeater length: 30
40782 929484 CTTTCAATCCTACTATAGTTCGATTCAAAC CAACAACTTCTCTTTCTTTGCAACTGCCTTCTCAG spacer
length: 36 repeater length: 30
40783 929551 CTTTCAATCCTACTATAGTTCGATTCAAAC CATAAAGTTACTATATTTTCATAAGAAATGAAGATA spacer
length: 35 repeater length: 30
40784 929617 CTTTCAATCCTACTATAGTTCGATTCAAAC ATAATTGGGGTGGTTTAATGGGATACGGTTATGGA spacer
length: 35 repeater length: 30
40785 929683 CTTTCAATCCTACTATAGTTCGATTCAAAC AAAAATGCATTTACCGATTTTACGAATAAAATTTATA spacer
length: 37 repeater length: 30
40786 929751 CTTTCAATCCTACTATAGTTCGATTCAAAC CAGAGTGTCAACTTTTATTTCAGTGTACAGATGTTGC spacer
length: 37 repeater length: 30

40787	929819	CTTTCATCCTACTATAGTTCGATTCAAAC	CTTGCTGGATCAGGAGCTGCATTCTTCTGATTTACA	spacer
	length:	36	repeater length:	30
40788	929886	CTTTCATCCTACTATAGTTCGATTCAAAC	AGAGCATCAGACTAGGTAGAGGAGCAAACGAATCGCT	spacer
	length:	37	repeater length:	30
40789	929954	CTTTCATCCTACTATAGTTCGATTCAAAC	TTGACTGATTTCTTTTGCAATGAATATCTTAAACATTA	spacer
	length:	38	repeater length:	30
40790	930023	CTTTCATCCTACTATAGTTCGATTCAAAC	TCTTCTCTGCGCTTGGTGCAAACAATCTTGCAGTAC	spacer
	length:	36	repeater length:	30
40791	930090	CTTTCATCCTACTATAGTTCGATTCAAAC	GAAGAAATAAAACGTATGATACGTGTTATGGAAAAG	spacer
	length:	36	repeater length:	30
40792	930157	CTTTCATCCTACTATAGTTCGATTCAAAC	GATTAGCAGAAAGAGTATATAGCGGTATAACAAAA	spacer
	length:	35	repeater length:	30
40793	930223	CTTTCATCCTACTATAGTTCGATTCAAAC	CTCTACCTTTGAACCTTCAAGAGAATCCTTCTTTG	spacer
	length:	35	repeater length:	30
40794	930289	CTTTCATCCTACTATAGTTCGATTCAAAC	CATTGATGCAATTAAACTTGAATTAGATTCATATA	spacer
	length:	35	repeater length:	30
40795	930355	CTTTCATCCTACTATAGTTCGATTCAAAC	TGTATTATTGCGATACTGATAGTTTAAATTGTTAAT	spacer
	length:	35	repeater length:	30
40796	930421	CTTTCATCCTACTATAGTTCGATTCAAAC	CAACAACTTCTCCTTCTTTGCAACAGCCTTCTCCG	spacer
	length:	36	repeater length:	30
40797	930488	CTTTCATCCTACTATAGTTCGATTCAAAC	CATTATCAAGGTTAGTTAATATGCCAGGACACTATTT	spacer
	length:	37	repeater length:	30
40798	930556	CTTTCATCCTACTATAGTTCGATTCAAAC	TTGACTTTAAAGTACTATCGTTCGAAGGGGGCACC	spacer
	length:	35	repeater length:	30
40799	930622	CTTTCATCCTACTATAGTTCGATTCAAAC	TCTACATATTAAAAATTGCAAGGGTGAGTTAGCTCA	spacer
	length:	36	repeater length:	30
40800	930689	CTTTCATCCTACTATAGTTCGATTCAAAC	GCCAACACGAGTCGATCTTCGAAGAATGTATCGTA	spacer
	length:	35	repeater length:	30
40801	930755	CTTTCATCCTACTATAGTTCGATTCAAAC	TCTTGTTAATTATACACTGAGTGTAAGTTAAGCA	spacer
	length:	36	repeater length:	30
40802	930822	CTTTCATCCTACTATAGTTCGATTCAAAC	AGGCATGCTATCTGCTTTCTTTGCAACCTCCTCCGCAT	spacer
	length:	38	repeater length:	30
40803	930891	CTTTCATCCTACTATAGTTCGATTCAAAC	TAGCCTCATCTAGGTTGCTGGGGTATTCCCTACCTTA	spacer
	length:	37	repeater length:	30
40804	930959	CTTTCATCCTACTATAGTTCGATTCAAAC	TCAAGTTATCGAACATTTTGCTGAGGGGTAGGAAAAA	spacer
	length:	37	repeater length:	30
40805	931027	CTTTCATCCTACTATAGTTCGATTCAAAC	ATAATATTGACGATCTTGCGCGCGAGGGAATTAAG	spacer
	length:	35	repeater length:	30
40806	931093	CTTTCATCCTACTATAGTTCGATTCAAAC	ACTTGTGTGTTTTTGCTTATCTATTACTAAGTAAT	spacer
	length:	35	repeater length:	30
40807	931159	CTTTCATCCTACTATAGTTCGATTCAAAC	AGTTTTATACATAGCGGTTATGAGTTCGATGAGACA	spacer
	length:	36	repeater length:	30
40808	931226	CTTTCATCCTACTATAGTTCGATTCAAAC	TTAGTAATAGATAAGCAAAAACACACAAGTCAATGC	spacer
	length:	36	repeater length:	30
40809	931293	CTTTCATCCTACTATAGTTCGATTCAAAC	TCTACAAGCTGCTGCTAAACTCGCTATACGGCAAGT	spacer
	length:	36	repeater length:	30
40810	931360	CTTTCATCCTACTATAGTTCGATTCAAAC	TAGCTTTGTAGGAAAGATGTTATTCTTCATAACAA	spacer
	length:	35	repeater length:	30
40811	931426	CTTTCATCCTACTATAGTTCGATTCAAAC	TATACTTTTATAACAAGAGACTTGAAGCTAAAGAAA	spacer
	length:	36	repeater length:	30
40812	931493	CTTTCATCCTACTATAGTTCGATTCAAAC	TAACAACTTCTCCTTCTTTGCAACAGCTCGCTCGG	spacer
	length:	36	repeater length:	30
40813	931560	CTTTCATCCTACTATAGTTCGATTCAAAC	ATAAAAATGGTTGAGGATAGCGTGATAATTCAAGTAC	spacer
	length:	36	repeater length:	30
40814	931627	CTTTCATCCTACTATAGTTCGATTCAAAC	TAAGAGCTACAGGATCAACAACTTTGACTGCTAACAA	spacer
	length:	37	repeater length:	30
40815	931695	CTTTCATCCTACTATAGTTCGATTCAAAC	GTTCTTAACAGTTTTTAAAGTAGAACTAACAAACGCGT	spacer
	length:	38	repeater length:	30
40816	931764	CTTTCATCCTACTATAGTTCGATTCAAAC	TTGATAGTGAAGGTAACATAAAGAATGATTCTGGTA	spacer
	length:	36	repeater length:	30
40817	931831	CTTTCATCCTACTATAGTTCGATTCAAAC	GCTATATAAATGTTACTATTAAGAAATGAGGGGCC	spacer
	length:	35	repeater length:	30
40818	931897	CTTTCATCCTACTATAGTTCGATTCAAAC	ACACAACCTTAATGAAAGAGTGGTACAAATTTACAG	spacer
	length:	35	repeater length:	30
40819	931963	CTTTCATCCTACTATAGTTCGATTCAAAC	GATATAAAGAATTATTGACTAAAGTTGTAACAAAT	spacer
	length:	35	repeater length:	30
40820	932029	CTTTCATCCTACTATAGTTCGATTCAAAC	ATATTATAATAAATACAGGAACCTTAGTGCTTTTGCAG	spacer
	length:	37	repeater length:	30
40821	932097	CTTTCATCCTACTATAGTTCGATTCAAAC	CATAAAATTACTATATTTTATAAGAAATGAAAGTT	spacer
	length:	35	repeater length:	30
40822	932163	CTTTCATCCTACTATAGTTCGATTCAAAC	CAGAACTATATCTTATATCATTTTCTGTATATGCAC	spacer

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length: 36 repeater length: 30
40823 932230 CTTTCAATCCTACTATAGTTCGATTCAAAC ATTTACGGTATAACTGTTACCGAACTTTCAATCCT
40824
40825
40826 crispr 5
40827 909274 TACCCCTTTCCTCCATATAGTGTATCATTGCCTCC
TTGTATTTTATCAACACCAGGGCCTCCATCTATACTATCTCCATAAAGGTAATCATCACCATCTCCTCCCTTTAGTGTATCATCAC
CTCCAGTTAGTGTATCATTACCAACTCCTCCACCTATACCATCTCCATAAAGCCTATCA spacer length: 145
repeater length: 34
40828 909454 TACCCCTTTCCTCCATATAGTGTATCATTGCCTCC
AGTCATTGTATTGTCACCATCTTCTCCCCATATAACCATCTCCATAAAGCCTATCA spacer length: 55 repeater
length: 34
40829 909544 TACCCCTTTCCTCCATATAGTGTATCATTGCCTCC
AGTCATTGTATTGTCACCATCTCCTCCACCTATAACATCTCCCTCAAGCCAATCATCACCCTCTCCTCCATAGAGCGTATCATCAC
CTCCAGTTAGTGTATCATCACCATATGCTCCACCTATACCATCTCCAAAAAGATTATCA spacer length: 145
repeater length: 34
40830 909724 TACCCCTTTCCTCCATATAGTGTATCATTGCCTCC
AGAGATGCTGGAGTATGGAATAACAAGGGGGTTGCACTCTACAAGTTGAAGAGGTTTGAGGAGGCTATAGCATGCTTTGATAGAGC
GTTAAAGATAAAACCCGAGGGATGTGAAGGTGTGGAGGAACAAGGGCAATGCACTTGTTG
40831
40832
40833 crispr 6
40834 1093317 TTGAGGAGGCTATAGCATGCTTTGATAAAGGCTATAGAGAT
GGATGGGAGGGATAGCATGGTATGGAACCTTAAAGGGTTTGCTTTATATGGGCTAGGAAGG spacer length: 61
repeater length: 40
40835 1093419 TTGAGGAGGCTATAGCATGCTTTGATAAAGGCTATAGAGAT
GGATTGGGGGAATGCAAAGGCATGGTACAACAAAGGTGTTGTATTACTTGAGATGAAGAGG spacer length: 61
repeater length: 40
40836 1093521 TTGAGGAGGCTATAGCATGCTTTGATAAAGGCTATAGAGAT
CCCGAGGGATGTGAAGGTGTGGAGGAACAAGGGCAATGCACTTGTTGAGTTAGGGATGCTG
40837
40838
40839 crispr 7
40840 909459 TTTCCCTCCATATAGTGTATCATTGCCTCCAGTCATTGTAT
TGTCACCATCTTCTCCCCATATAACCATCTCCATAAAGCCTATCACTACC spacer length: 49 repeater length:
40
40841 909549 TTTCCCTCCATATAGTGTATCATTGCCTCCAGTCATTGTAT
TGTCACCATCTCCTCCACCTATAACATCTCCCTCAAGCCAATCATCACCCTCTCCTCCATAGAGCGTATCATCACCTCCAGTTAGT
GTATCATCACCATATGCTCCACCTATACCATCTCCAAAAAGATTATCATTACC spacer length: 139 repeater
length: 40
40842 909729 TTTCCCTCCATATAGTGTATCATTGCCTCCAGTCATTGTAT
GAGGGATGTGAAGGTGTGGAGGAACAAGGGCAATGCACTTGTTGAGTTAGGGATGCTGAACGAGGCTGTAAAGTGCTTCAACAGGG
CTATAGAGATAGATGCACGGATAGGAGGAATATAATGTATGTTGGGTAGATCA
40843
40844
40845 GCA_900696045.1_Nitrosocosmicus_franklandus_C13_genomic.fna(findCrispr):
40846 START REPEAT
SPACER
40847 crispr 1
40848 1334374 CAAGGCATAGGCCAATCACA
ATTTGCCACTCAATTAGTGTTTGTGTATCTGGCGACGGTACTCTTTTTTCTGCAACAACCTGAATGCTCAAAACCAAGTCAACA
CTGGAAATAACGCATTAGCACAAACAAGGTGGCGGTGGTAAAGGTGGCAATACTGCTAA spacer length: 144
repeater length: 20
40849 1334539 CAAGGCATAGGCCAATCACA
GAGCTCTAACCAAAATGCATTATGTGTTTCTGGAACAGGAACCTTTGTTTCTGCAACAACGTGAATGCTCAAAACCAAGTCAACA
CTGGAAATAACGCATTAGCACAAAGTGGCGGTGGTAAAGGTGGCAATACTGCTAA spacer length: 141 repeater
length: 20
40850 1334701 CAAGGCATAGGCCAATCACA
GAGCTCTAACCAAAACAGTGGTGTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACGTAAACACACAGAGTCAAACAAACA
CTGGAAATAACGCATTAGCACAAACAAGGTGGCGGTGGTAAAGGTAAAGGTGGCAACACAATTAA spacer length: 150
repeater length: 20
40851 1334872 CAAGGCATAGGCCAATCACA
GAGCTCTAACCAAAACAGTGGTGTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACGTAAACACACAGAGTCAAACAAACA
CTGGAAATAACGCAGCAGCACAAACAAGGTGGCGGTGGTAAAGGTGGCAATACTGCTAA spacer length: 144
repeater length: 20
40852 1335037 CAAGGCATAGGCCAATCACA
GCAGCAGCACAAAGACTAAATCTGAGCTTAAACTCGTCTAATTACTATTTTTTTATTTTTTATTCTGGTTCCAGTATTCATGTTCTT
TAATACCGTTTTGCTGACTCTACTCTGAGATCTATAGGCTTTTTTCTGATCTTTATAG
40853
40854
40855 crispr 2

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40856 519498 GCCCAGCCGTTAACCCAGCC
GTTACTTGGTGCTGTTTGCCATGTATGCCAAAGCGCGTTGTCTGTTTCCTCTTGCAAATACTTCCAATCTACCATCAGCGTTTTGGG
CTACTACAGGATCGCTTGTTATTATGCCACCTCGTGA spacer length: 123 repeater length: 20

40857 519642 GCCCAGCCGTTAACCCAGCC
GTTACTTGGTGCTGTTTGCCATGTATGCCAAAGCGCGTTGTCTGTTTCCTCTTGCAAATATCTCTAATCTACCATCTTTATTTTCGGC
CAACAGCGATATTGCTTGTTATCCTACCTCCCCTTGT spacer length: 123 repeater length: 20

40858 519786 GCCCAGCCGTTAACCCAGCC
ACCGTTTGGAGCTACCTGCCATGTATGCCAAACTCCATTATCTGTTTCCTCTTGCAAATACTTCCAATCTACCATCAGCGTTTTGGG
CTACTACAGGATCGCTTGTTATTATGCCACCTCGTGA spacer length: 123 repeater length: 20

40859 519930 GCCCAGCCGTTAACCCAGCC
ACCGTTTGGAGCTACCTGCCATGTATGCCAAAGCGCGTTGTCTGTTTCCTCTTGCAAATATCTCTAATCTACCATCTTTATTTTCGGC
CAACAGCGATATTGCTTGTTATCCTACCTCCCCTTGT spacer length: 123 repeater length: 20

40860 520074 GCCCAGCCGTTAACCCAGCC
ACCGTTTGGAGCTACCTGCCATGTATGCCAAACTCCATTATCTGTTTCCTCTTGCAAATACTTCCAATCTACCATCAGCGTTTTGGG
CTACTACAGGATCGCTTGTTATTATGCCACCTCGTGA spacer length: 123 repeater length: 20

40861 520218 GCCCAGCCGTTAACCCAGCC
GGTGGCGATACTACCGGCTCAGGCAACAACGTAAACACACAGAGTCAAACAAACACTGGAAATAACGCAGCAGCACAACAATAATT
TTTTTTGTTTTATTGAATCAATAATGTATTTTCCATT

40862

40863

40864 crispr 3

40865 1707235 TGGGCTGCTGCGTTATTACCAGT
ATTGTTCTGGGTTTGTGTGTTTACATTATTTCCCTGATCCAGCTGTGTTACCCCCAGAAGCTACACCACTGTTTTGGTTAGAGGTTT
GTGATTGGCCGATACTTTGGGTAGCTTGTTTACCTCCGCCACTACCCTACCACCACT spacer length: 144
repeater length: 23

40866 1707403 TGGGCTGCTGCGTTATTACCAGT
GTTTGTGTTGACTCTGGGTGTTTTGGTTATTGCCTGAGCCTGTTGTATCGCCACCAGAAGCTACACCACTGTTTTGGTTAGAGGTTT
GTGATTGGCCGATACTTTGGGTAGCTTGTTTACCTCCGCCACTACCCTACCACCACT spacer length: 144
repeater length: 23

40867 1707571 TGGGCTGCTGCGTTATTACCAGT
GACGACGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCTTCCCGTCAAATTCACAATGTGTATCCGGTGAAGATGCAAT
CGTATCTTGTGATAATGTTAGTTTCCAAATCAAGTAAATAGTGAAACAATGCATTG

40868

40869

40870 crispr 4

40871 1693860 ACAAGGACCTCCAGGACCACAAGGTGAA AAGGGTGATACTGGTGACCAAGGAC spacer length: 25
repeater length: 28

40872 1693914 ACAAGGACCTCCAGGACCACAAGGTGAA AAGGGTGATACTGGTGACCAAGGACCACAAGGACCACAAGGTG
spacer length: 43 repeater length: 28

40873 1693986 ACAAGGACCTCCAGGACCACAAGGTGAA TTAAATAAGATATCATAATTCATTCGATTATGACCAAATAGAT

40874

40875

40876 crispr 5

40877 1707353 CGATACTTTGGGTAGCTTGTTTACCTCCG
CCACTACCACTACCACCACTTTGGGCTGCTGCGTTATTACCAGTGTTTGTGTTGACTCTGGGTGTTTTGGTTATTGCCTGAGCCTGT
TGTATCGCCACCAGAAGCTACACCACTGTTTTGGTTAGAGGTTTGTGATTGG spacer length: 138 repeater
length: 29

40878 1707521 CGATACTTTGGGTAGCTTGTTTACCTCCG
CCACTACCACTACCACCACTTTGGGCTGCTGCGTTATTACCAGTGTTTGTGTTGACTCTGGGTGTTTTGGTTATTGCCTGAGCCTGT
TGTATCGCCACCAGAAGCTACACCACTGTTTTGGTTAGAGGTTTGTGATTGA spacer length: 138 repeater
length: 29

40879 1707689 CGATACTTTGGGTAGCTTGTTTACCTCCG
CAACAATAATTTTTTTTGTGTTTATTGAATCAATAATGTATTTTCCATTTTAACCCTACCGATCATCATCATATTTTCGTTGATCC
TTTGCAATACCTACTATCAAAGATGCTCTGCTAGTAGAGCTGGATCATGATT

40880

40881

40882 crispr 6

40883 69627 TTTGTCACACAGGATGGCTGGGTCTGGTT
CCAAGGCACTAATAACAAACTCATGAAGATGAAAACCTGATGGTAGCGAGATAACAAATTTTGGTCTTGAAACCAAATCTACTCC
spacer length: 84 repeater length: 29

40884 69741 TTTGTCACACAGGATGGCTGGGTCTGGTT
CCAAGGCACTAATAACAAACTCATGAAGATGAAAACCTGATGGTAGCGAGATAACAAATCCTCGCGAGTATGTGACATCCACTATGC
C spacer length: 87 repeater length: 29

40885 69858 TTTGTCACACAGGATGGCTGGGTCTGGTT
TTCTGATTGTATAGCAAAGCTTACTCGGATGAAAACGGATGGTAGCATAGTAGATTATCCTGGTATTACGAGCGCATTGTGACCC
C spacer length: 87 repeater length: 29

40886 69975 TTTGTCACACAGGATGGCTGGGTCTGGTT
CCAAGGCACTAATAACAAACTCATGAAGATGAAAACCTGATGGTAGCGAGATAACAAATCCTCGCGAGTATGTGACATCCACTATGC
C spacer length: 87 repeater length: 29

40887 70092 TTTGTCACACAGGATGGCTGGGTCTGGTT
TTCTGATTGTATAGCAAAGCTTACTCGGATGAAAACGGATGGTAGCATAGTAGATTATCCTGGTATTACGAGCGCATTGTGACCC

C spacer length: 87 repeater length: 29
40888 70209 TTTGTCACACAGGATGGCTGGGTCTGGTT
AAGACTAAATCTGAGCTTAAACTCGTCTAATTACTATTTTTTTATTTTTTATTCTGGTTCCAGTATTCATGTTCTTTAATACCGTT
T
40889
40890
40891 crispr 7
40892 784491 CAGCAGCAGCAGCAACTACAACCACAACAAC AATCACAATTTGAACAACCAATCCAGGA spacer length:
28 repeater length: 31
40893 784551 CAGCAGCAGCAGCAACTACAACCACAACAAC AATCACAATTTGAACAACCAATCCAGGATCAGCAGCAGCA
spacer length: 40 repeater length: 31
40894 784623 CAGCAGCAGCAGCAACTACAACCACAACAAC AACGCAGCAGCACAACAATAATTTTTTTTTGTTTTATTGAA
40895
40896
40897 crispr 8
40898 1187701 ATGACAAGGATGCAAAGGACAAGGATGATGATG ATGATGATGATGATGATGACAAGAATAAG spacer
length: 29 repeater length: 33
40899 1187764 ATGACAAGGATGCAAAGGACAAGGATGATGATG ATGATGATGACAAGAATAAG spacer length: 20
repeater length: 33
40900 1187818 ATGACAAGGATGCAAAGGACAAGGATGATGATG CGGCTCAGGCAACAACGTAA
40901
40902
40903 crispr 9
40904 140112 CTCCTCCAGAGCCACCTGAGCCACCTGAGCCAC CGTCACCGCCGTTACCACCA spacer length: 20
repeater length: 33
40905 140166 CTCCTCCAGAGCCACCTGAGCCACCTGAGCCAC CTGAGCCACCGTCACCGCCGTTACCACCA spacer
length: 29 repeater length: 33
40906 140229 CTCCTCCAGAGCCACCTGAGCCACCTGAGCCAC TCAAAATTCACAATGTGTATCCGGTGAAG
40907
40908
40909 crispr 10
40910 276498 GCCTTTGTCTCCCTTTTCTCCCTGTGGCCCTTG TGGTCCCTGAGTTCCAGTAT spacer length: 20
repeater length: 33
40911 276552 GCCTTTGTCTCCCTTTTCTCCCTGTGGCCCTTG AGGTCCTTGTGGTCCCTGAGTTCCAGTAT spacer
length: 29 repeater length: 33
40912 276615 GCCTTTGTCTCCCTTTTCTCCCTGTGGCCCTTG AGGTCCTTGTGGTCCCTGAGTTCCAGTAT spacer
length: 29 repeater length: 33
40913 276678 GCCTTTGTCTCCCTTTTCTCCCTGTGGCCCTTG TAGCTCAAACCAAGGAATAGGTCAATCCC
40914
40915
40916 crispr 11
40917 1334539 CAAGGCATAGGCCAATCACAGAGCTCTAACCACAAA
TGCATTATGTGTTTCTGGAACAGGAACCTTTGTTTTCCTGCAACAACGTGAATGCTCAAAACCAAGTCAACACTGGAAATAACGCAT
TAGCACAAAGTGCGGTGGTAAAGGTGGCAATACTGCTAA spacer length: 126 repeater length: 35
40918 1334701 CAAGGCATAGGCCAATCACAGAGCTCTAACCACAAA
CAGTGGTGTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACGTAAACACACAGAGTCAAACAAACACTGGAAATAACGCAT
TAGCACAAACAGGTGGCGGTGGTAAAGGTAAAGGTGGCAACACAATTAA spacer length: 135 repeater
length: 35
40919 1334872 CAAGGCATAGGCCAATCACAGAGCTCTAACCACAAA
CAGTGGTGTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACGTAAACACACAGAGTCAAACAAACACTGGAAATAACGCAG
CAGCACAAACAGGTGGCGGTGGTAAAGGTGGCAATACTGCTAA spacer length: 129 repeater length: 35
40920 1335037 CAAGGCATAGGCCAATCACAGAGCTCTAACCACAAA
CAGCAGCACAAAGACTAAATCTGAGCTTAAACTCGTCTAATTACTATTTTTTTATTTTTTATTCTGGTTCCAGTATTCATGTTCTTT
AATACCGTTTTGCTGACTCTACTCTGAGATCTATAGGCTTTTT
40921
40922
40923 crispr 12
40924 162938 TCACCTAAGGCATTACCTTCACTGTTGAAAATCATAAA
TGGGGTGCTATCTTGTGAATAGGTTGATCAGTTATTGTAATATTGCTGGC spacer length: 51 repeater
length: 38
40925 163028 TCACCTAAGGCATTACCTTCACTGTTGAAAATCATAAA
CGGGGTGCTATCTTGTGAATAGGTTGATCAGTTATTGTAATATTGCTGGC spacer length: 51 repeater
length: 38
40926 163118 TCACCTAAGGCATTACCTTCACTGTTGAAAATCATAAA
CGGGGTGCTATCTTGTGAATAGGTTGATCAGTTATTGTAATATTGCTGGC spacer length: 51 repeater
length: 38
40927 163208 TCACCTAAGGCATTACCTTCACTGTTGAAAATCATAAA
TTACTTGTTTTAAATAAGATATCATAATTCATTTCGATTATGACCAAATAGA
40928
40929
40930 crispr 13

40931 596286 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
CTGGTTATTTCCAAGGTAATATAGCGATAGACCCTTGTGTGTAAGCATCGGCATACTGAGG spacer length: 63
repeater length: 38

40932 596388 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
CTGGTTATTTCCCTGTCACAGATAGCACTATAACCCTTGTATAATAAGCAAGATCGTATTCAGG spacer length: 63
repeater length: 38

40933 596490 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
ATGATTTCCAAGGTAATATAGCGATAGACCCTTGTGTGTAAGCATCGGCATACTGAGG spacer length: 60
repeater length: 38

40934 596589 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
CTGGTTATTTCCAAGGTAATATAGCGATAGACCCTTGTGTGTAAGCATCGGCATACTGAGG spacer length: 63
repeater length: 38

40935 596691 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
CTGGTTATTTCCCTGTCACAGATAGCACTATAACCCTTGTATAATAAGCAAGATCGTATTCAGG spacer length: 63
repeater length: 38

40936 596793 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
CTGGTTATTTCCAAGGTAATATAGCGATAGACCCTTGTGTGTAAGCATCGGCATACTGAGG spacer length: 63
repeater length: 38

40937 596895 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
CTGGTTATTTCCCTGTCACAGATAGCACTATAACCCTTGTATAATAAGCAAGATCGTATTCAGG spacer length: 63
repeater length: 38

40938 596997 TTTATCTCAATGGCTTTGTCGTAGCATGCTATGGCCTC
ATGACGATAATAATAGAGGGGATAAAAGAGACAGTGAAACCAAGGTTTACAATGAAAATACAG

40939

40940

40941 crispr 14

40942 741678 ATTGTGATTGGCCGATGCCTTGAGCTGCGGAGTTGCCACT
ACCCTTTCCACTGCCATCAGATTGGAGAGCAACATTGCTGCCCTCATTCTCTTGGTTTTGGAAAGACAAATTGTTGCAAGAGGCCCT
CGATGCTACCACCTGCTACACATTGGCTGCTCTGACTGGAA spacer length: 127 repeater length: 40

40943 741846 ATTGTGATTGGCCGATGCCTTGAGCTGCGGAGTTGCCACT
ACCCTTTCCACTGCCACCATCCTGTGCTAATACGTTGCTTCCCTTCATTAACCTGGTTTTGAATGCTTAAATTATTGCAAGAGTTGC
TTACATCGCCACCTGAAACACATTGGCTTCTTTGGTTAGAG spacer length: 127 repeater length: 40

40944 742014 ATTGTGATTGGCCGATGCCTTGAGCTGCGGAGTTGCCACT
ACCCTTTCCACTGCCACCATCCTGTGCTAATACGTTATTTCCATCGTTGAATTGGTTCTGAACGCTGATATTGTTACACGATTGAT
CCACGTCGTTTGCTGCTACACATTGGCTGCTCTGACTGGAA spacer length: 127 repeater length: 40

40945 742182 ATTGTGATTGGCCGATGCCTTGAGCTGCGGAGTTGCCACT
ACCCTTTCCACTGCCACCAATTTGGCCTGCTGCATTATTTCCAAGATTTACTTGGTTTTGTATATTTAGATTATTGCATGACTCGT
TCACATCGCCACCTGAAACACATCCACCGTATTGGTTAGAG spacer length: 127 repeater length: 40

40946 742350 ATTGTGATTGGCCGATGCCTTGAGCTGCGGAGTTGCCACT
GGAAATAGAACAAAGAGCAATCATCTAACCAAGCTAGCCAGGTTTCATCAGGCGATGATTTCAGTTGCATCAGGCAACAATGTAAACG
TTCAAGCTCAAAACAATGAAGGTAACAACGCAGCAGCACAA

40947

40948

40949 crispr 15

40950 2561230 CAATGTAAACGTTCAAGCTCAAAACAATGAAGGTAACAAC
GCCTTAGCACAAAGTTCAGGCAATGGCGATGGTGACAACGAAGCTGAGCAGGAAATAGAACAAAGAGCAATCATCTAACCAAGCTAG
CCAGGTTTCATCAGGCGATGATTTCAGTTGCATCAGGCA spacer length: 124 repeater length: 40

40951 2561395 CAATGTAAACGTTCAAGCTCAAAACAATGAAGGTAACAAC
GCAGCAGCACAAAGTTCAGGCAATGGCGATGGTGACAACGAAGCTGAGCAGGAAATAGAACAAAGAGCAATCATCTAACCAAGCTAG
CCAGGTTTCATCAGGCGATGATTTCAGTTGCATCAGGCA spacer length: 124 repeater length: 40

40952 2561560 CAATGTAAACGTTCAAGCTCAAAACAATGAAGGTAACAAC
CATAATTTCATTTCGATTATGACCAAATAGATTATCTTGCCAAACAACAATACCTTATTTTCTGATGATTTCGGTCTGAGGATATACC
GAATCACCTAGATTGTCACCTTACATTTTGAATAACAAA

40953

40954

40955 crispr 16

40956 1507273 CGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCT
TCCCGTCAAAATTCACAATGTGTTTCAGGCGGTGATACCAATGACTCTTGCAACAACATAAGCCTACAGAACCAAGAGAATTCTGG
TAACAACGCAGCAGCTCAAAACGGCGGAGATGACGACGATGACG spacer length: 130 repeater length: 40

40957 1507444 CGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCT
TCCCGTCAAAATTCACAATGTGTTTCAGGCGGTGATACCAATGACTCTTGCAACAACATAAGCCTACAGAACCAAGAGAATTCTGG
TAACAACGCAGCAGCTCAAAACGGCGGAGATGACGACGATGACG spacer length: 130 repeater length: 40

40958 1507615 CGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCT
TCCCGTCAAAATTCACAATGTGTAGCAGGTGGTAGTTTGGGTAACCTCTTGCAACAACATAAGCCTACAGAACCAAGAGAATTCTGG
TAACAACGCAGCAGCTCAAAACGGCGGAGATGACGACGATGACG spacer length: 130 repeater length: 40

40959 1507786 CGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCT
TTCATCAGGCGATGATTTCAGTTGCATCAGGCAACAATGTAAACGTTCAAGCTCAAAACAATGAAGGTAACAACGCAGCAGCACAAAG
ACTAAATCTGAGCTTAAACTCGTCTAATTACTATTTTTTTTATTT

40960

40961

40962 crispr 17

40963 942768 CTTGGTTAGCAGTGTTTCCGCCTTTGCCTTTGCCGCCTCC
ACTGCCACCTTGTGAGATAATGCATTGCTTCCACTATTGTCTTGGTTTTGAGTACTTATGTTGTTACAGGAGTTAGCAGTGTTTC
CACCAGATACACATTGTGCGTTTTGGTTAGAGGTCTGGGATTGGCCGATA spacer length: 136 repeater
length: 40

40964 942945 CTTGGTTAGCAGTGTTTCCGCCTTTGCCTTTGCCGCCTCC
ACTGCCACTGCCACCTTGTGTGCAGCGGCGTTGTTGCCAGTGTTTGTGTTGACTCTGTTTGTGTTACGTTATTACCAGAGCCGGTTG
TATCGCCGCCAGAACTACAGCACTGTTTTGGTTAGAGGTCTGGGATTGGCCGATA spacer length: 142 repeater
length: 40

40965 943128 CTTGGTTAGCAGTGTTTCCGCCTTTGCCTTTGCCGCCTCC
CCATGTCTACCACGTATACATTACCTGTTTGTCAAGATCGATTCCGTGAGGTACGCCAAACTGACCGTCTTCTTTACCTCTGTCT
CCCCATTTTAAGACAAAATCACCATTATCATTAATTTTTGTATTTCGAGTGTTTTG

40966

40967

40968 crispr 18

40969 1334743 GTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACG
TAAACACACAGAGTCAAACAAACACTGGAAATAACGCATTAGCACAACAAGGTGGCGGTGGTAAAGGTAAAGGTGGCAACACAATT
AATCAAGGCATAGGCCAATCACAGAGCTCTAACCAAAACAGTGG spacer length: 130 repeater length: 40

40970 1334914 GTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACG
TAAACACACAGAGTCAAACAAACACTGGAAATAACGCAGCAGCACAACAAGGTGGCGGTGGTAAAGGTGGCAATACTGCTAACCA
GGCATAGGCCAATCACAGAGCTCTAACCAAAACAGTGG spacer length: 124 repeater length: 40

40971 1335079 GTAGTTTCTGGTGGCGATACTACCGGCTCAGGCAACAACG
TTTTTGTGTTTATTGAATCAATAATGTATTTTCCATTTTAACCCTACCGATCATCATCATATTTTCGCTTGATCCTTTGCAATACCT
ACTATCAAAGATGCTCTGCTAGTAGAGCTGGATCATGA

40972

40973

40974 crispr 19

40975 2143066 GTCTCCTGTTCCCATCGAACCCCATTTGAGGATGAAATTG
CCCTGACTGTCAAATTTTTGAACATTGTTGTTATCTGTATCAGTAACATATAGGTTATCTGATGAATCCACGGCTATTCTTCTG
AGCATTAAGTAC spacer length: 100 repeater length: 40

40976 2143207 GTCTCCTGTTCCCATCGAACCCCATTTGAGGATGAAATTG
CCCTGACTGTCAAATTTTTGAACATTAAAGTTAGCCATATCAGTCACATAGACATTTTCAGAAGAGTCCAGTGTTACACTGTGAGG
ATGCATAAACTGAC spacer length: 100 repeater length: 40

40977 2143348 GTCTCCTGTTCCCATCGAACCCCATTTGAGGATGAAATTG
ACGCAGCAGCTCAAAACGGCGGAGATGACGACGATGACGACGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCTTCCCGT
CAAAATTCACAATG

40978

40979

40980 crispr 20

40981 1447913 GTTTGAAAGATTTATTACATCTCCAAAAGTTTGACCACCA
TCGTTACTTTCGATAAATGATATACTACTATTACCTTGTGTAAGTTTTTGAGCATCCTGCCATACGACGTACACATTATCGCCTGA
TACCGAAAATCTCTTGATTATACGAATCAGCTGTAT spacer length: 121 repeater length: 40

40982 1448075 GTTTGAAAGATTTATTACATCTCCAAAAGTTTGACCACCA
TCGTTACTTTCGATAAAATAAATTTCTCGATTAAGTGAAGTGTCGTCTGCCCAAATATGTAAACATTGTTTCCGTTGACAGCCAT
TTGTGGATGTTTCAGAAAATCCCGTAT spacer length: 112 repeater length: 40

40983 1448228 GTTTGAAAGATTTATTACATCTCCAAAAGTTTGACCACCA
ACGACGGTAATAGCTCAAACCAAGGAATAGGTCAATCCCAATCTTCCCGTCAAATTCACAATGTGTATCCGGTGAAGATGCAATC
GTATCTTGTGATAATGTTAGTTTCCA

40984

40985

40986 crispr 21

40987 2706424 TGGTCTCAATCACCGTATTGGTGTCTCCGTCTATGACGGA
AACTGTATTTGAACCACCGTGTAAACACATACATGTTACCATAATCCGGGTGTATGCGACTCCTACTGGTCCACTTCCAATATCT
spacer length: 85 repeater length: 40

40988 2706550 TGGTCTCAATCACCGTATTGGTGTCTCCGTCTATGACGGA
AACTGTATTTGAACAGTGTTTGCCACATACATGTTACCATTGTCCGGGTGTATGCGAGCAATTGAGGGAAATCTCCAAGAGTG
spacer length: 85 repeater length: 40

40989 2706676 TGGTCTCAATCACCGTATTGGTGTCTCCGTCTATGACGGA
AACTGTATTTGAATTGCCATTTGCCACATACATGTTACCATTATCCGGGTGTATGCGACTCCTACTGGTCGACTTCCAATATCT
spacer length: 85 repeater length: 40

40990 2706802 TGGTCTCAATCACCGTATTGGTGTCTCCGTCTATGACGGA
ACGCAGCAGCACAACAATAATTTTTTTTGTGTTTATTGAATCAATAATGTATTTTCCATTTTAACCCTACCGATCATCATCATATT

40991

40992

40993 crispr 22

40994 942414 TTTGGTTAGAGGTCTGGGATTGGCCGATACCTTGTTAGC
AGTGTTTCCGCCTTTGCCGCCTCCACTTTGTGCAGCTGCGTTGTTACCGGTATTTTGTGTTTGTATGCTCGTGTTACTGCATG
AGTTACTCAATGAGCCGCCTGCAACACATTGTGCG spacer length: 121 repeater length: 40

40995 942576 TTTGGTTAGAGGTCTGGGATTGGCCGATACCTTGTTAGC
AGTGTTTCCGCCTTTGCCGCCTCCACTTTGTGCAGCTGCGTTGTTACCGGTATTTTGTGTTTGTAGTACTTAAGTTGTTACAGG
AGTTAGCTACATTTCCACCAGATACACATTGTGTG spacer length: 121 repeater length: 40

40996 942738 TTTGGTTAGAGGTCTGGGATTGGCCGATACCTTGTTAGC

AGTGTTTCGCCCTTTGCGCTTTGCCGCTCCACTGCCACCTTGTTGAGATAATGCATTGCTTCCACTATTGTCTTGGTTTTGAGTAC
TTATGTTGTTACAGGAGTTAGCAGTGTTTCCACCAGATACACATTGTGCG spacer length: 136 repeater
length: 40
40997 942915 TTTGGTTAGAGGTCTGGGATTGGCCGATACCTTGGTTAGC
AGTGTTTCGCCCTTTGCGCTTTGCCGCTCCACTGCCACTGCCACCTTGTTGTGCAGCGGCGTTGTTGCCAGTGTTTGTGTTGACTCT
GTTTGTGTTACGTTATTACCAGAGCCGTTGTATCGCCGCCAGAACTACAGCACTG spacer length: 142 repeater
length: 40
40998 943098 TTTGGTTAGAGGTCTGGGATTGGCCGATACCTTGGTTAGC
GAGCTTAAACTCGTCTAATTACTATTTTTTTTATTTTTTATTCTGGTTCCAGTATTCATGTTCTTTAATACCGTTTTGCTGACTCTA
CTCTGAGATCTATAGGCTTTTTTCTGATCTTTATAGAAATTGATTGTCTACCTACT

GCA_902383905.1_UHGG_MGYG-HGUT-02160_genomic.fna(findCrispr):

START REPEAT

SPACER

crispr 1

940617 TACATTCTAGTTTAGATGGATTTCTAAC TAGCAAAAAATGCAGAACTTCTTGCTAATTTCGATTTTCAT spacer
length: 39 repeater length: 28

940685 TACATTCTAGTTTAGATGGATTTCTAAC CATCCTTTGCCCCGTTTTGCATACCTGCTTACCGTTGCAT spacer
length: 39 repeater length: 28

940753 TACATTCTAGTTTAGATGGATTTCTAAC GTCATCTGTGCTGACTCTTGCATATAAACTGCAAGTCA

crispr 2

964965 AATTCTTCAGCCCACTGTTTACTGCTCTGAG

ATTTACCTTTATATTTGATCAATTTTGATGGCTGACGGTTTCCAGAGGCGGCTGCAGGTGTGCTTTCTATACGCTTCATAGGCCAT
CCAGATCTATATCTGTAGCGGAAAGTATTCTTATCAAGTCC spacer length: 127 repeater length: 31

965124 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
TTTTACCTTTATATGTGATGAGCCTCGGATCTCTGCCATGCTTCCCGTTGACCGATTCTTTCTCAATCTCTTTTCATTGACCAACCC
TGCGTGTATCGATAGTTAAAGGTACATAGCTTGAGACC spacer length: 124 repeater length: 31

965280 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
ATTTACCTTTATATTTGATCAATTTTGATGGCTGACGGTTTCCAGAGGTGGCAGGTGTGCTTTCTATACGCTTCATAGGCCATCCA
GATCTATATCTGTAGCGGAAAGTATTCTCATCAAGTCC spacer length: 124 repeater length: 31

965436 AATTCTTCAGCCCACTGTTTACTGCTCTGAG
TCTGTGCTGACTCTTGCATATAAACTGCAAGTCAGAAATCCATCATCTATAGTCAAAACCACAATATCTCCAAATTATATCTTCA
ATTTCTTGAAACAATGATTCCCTATATTGCAGTATGCTG

crispr 3

930304 GTTAGAAATCCATCTAACTAGAATGTAAAT GCGGCTCGAGCTGAACGAATCCAAAGAGATATAGT spacer
length: 35 repeater length: 31

930371 GTTAGAAATCCATCTAACTAGAATGTAAAT GAGGTAGCTGAATTAATACTACTGGGATTATTACATC spacer
length: 35 repeater length: 31

930438 GTTAGAAATCCATCTAACTAGAATGTAAAT ATTGCCTGAAGTGCATCGTTGCCATACGCATCCCT spacer
length: 35 repeater length: 31

930505 GTTAGAAATCCATCTAACTAGAATGTAAAT GTTATTAGATACACTCCCTGCGAAGGGGGTTATATC spacer
length: 36 repeater length: 31

930573 GTTAGAAATCCATCTAACTAGAATGTAAAT TTGAACAGTCGGTAGGCTTGAACACTTCAGCGGTA spacer
length: 35 repeater length: 31

930640 GTTAGAAATCCATCTAACTAGAATGTAAAT AGGACGTGTATAGGCGAAATGCCGCTTCGCGGAATG spacer
length: 36 repeater length: 31

930708 GTTAGAAATCCATCTAACTAGAATGTAAAT ATACAAAGGGACAGCATCACGTCTAAAACCATCCT spacer
length: 35 repeater length: 31

930775 GTTAGAAATCCATCTAACTAGAATGTAAAT AGAGATATAGCAGCATCAAGAGTACCACGAGCAGC spacer
length: 35 repeater length: 31

930842 GTTAGAAATCCATCTAACTAGAATGTAAAT TAACGAAACAGAGCAAGAGCGTGTGGAGCGCTATCG spacer
length: 36 repeater length: 31

930910 GTTAGAAATCCATCTAACTAGAATGTAAAT AAAGTTATCATATAGCGTCTTCACAGTTTCATAGAT spacer
length: 36 repeater length: 31

930978 GTTAGAAATCCATCTAACTAGAATGTAAAT TCTTTGAGCATGCATTGCATATACGTTTATAACTAT spacer
length: 36 repeater length: 31

931046 GTTAGAAATCCATCTAACTAGAATGTAAAT AAGTGGTACGATATAACAGCATCTAAGGAGAAACTA spacer
length: 36 repeater length: 31

931114 GTTAGAAATCCATCTAACTAGAATGTAAAT GCCTTCTTTTCCTTCAAGCTCCGCCCAATGAAAAA spacer
length: 35 repeater length: 31

931181 GTTAGAAATCCATCTAACTAGAATGTAAAT GTAGTAGCCCACGATACCTCACCATCCATACTGTT spacer
length: 35 repeater length: 31

931248 GTTAGAAATCCATCTAACTAGAATGTAAAT TATCTACTTCTCCTTCCCTTAGTCGATAATCTTCAT spacer
length: 36 repeater length: 31

931316 GTTAGAAATCCATCTAACTAGAATGTAAAT GATTATTATACAGATGGCGATAAAGGCAGAGTTA spacer
length: 34 repeater length: 31

41033	931382	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTTCGAGGCTAAATAATCCGCCTTCATTAAATGTTTC	spacer
		length: 36 repeater length: 31		
41034	931450	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTAAATAGTGATAGAGATATCTCGTATCAAACCAC	spacer
		length: 35 repeater length: 31		
41035	931517	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCCTCATAACTGAGTCCAGTGGGATCGACGGGCA	spacer
		length: 34 repeater length: 31		
41036	931583	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACACATGTAAGAAATTTTGACTATGTTCTAAAGGAA	spacer
		length: 36 repeater length: 31		
41037	931651	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCAGATATAACAGTATCGAGAGTAGAACGAGCAAT	spacer
		length: 35 repeater length: 31		
41038	931718	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTGTCAGACTGATACGGTCTGATTAAACCCTTTTC	spacer
		length: 35 repeater length: 31		
41039	931785	GTTAGAAATCCATCTAAACTAGAATGTAAAT	AGAGTGTGTTGTTTTTACAAATGAGTATCCAAAGTAC	spacer
		length: 36 repeater length: 31		
41040	931853	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GAGACCAATTTAACCCAGGACTTGTTAGAATCACCA	spacer
		length: 36 repeater length: 31		
41041	931921	GTTAGAAATCCATCTAAACTAGAATGTAAAT	AAATGCTCAGTTAAGACCCTGGCAACAGCACTTAG	spacer
		length: 35 repeater length: 31		
41042	931988	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACTCAATAGGAAGAAAAGCCGAAGAAGGAACTCCA	spacer
		length: 35 repeater length: 31		
41043	932055	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CCCGAAGTTGATCTTGTTACTGTAGTTCTACCTGCT	spacer
		length: 36 repeater length: 31		
41044	932123	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTAGGGTATCACGTCACAGATACTCATATCAACAA	spacer
		length: 35 repeater length: 31		
41045	932190	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCTGGTTGAGCGTCTGCTGATTAAAGCAGGAACCG	spacer
		length: 34 repeater length: 31		
41046	932256	GTTAGAAATCCATCTAAACTAGAATGTAAAT	AAACTGGCAGTAAACGGATTAAGCCAATTGTGAGTA	spacer
		length: 36 repeater length: 31		
41047	932324	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTAAGAACTAGATACTATTACGATTTTATTCAAAC	spacer
		length: 35 repeater length: 31		
41048	932391	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CATTGTTCCAAATAGGCACGCACTCGTCTAATGTCAG	spacer
		length: 37 repeater length: 31		
41049	932460	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GAGGAAATTAATACCCCTCTGCCAGCTAGTGACC	spacer
		length: 35 repeater length: 31		
41050	932527	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GAAGTAGGAAGCGAGCCTAAGGTTGATTATGTTGC	spacer
		length: 35 repeater length: 31		
41051	932594	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTTTAGGATATGTATTTGACATTACCAATATTTTT	spacer
		length: 35 repeater length: 31		
41052	932661	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGAGCGTGTATTACAACGGACGTGAGCTTGTTGAA	spacer
		length: 35 repeater length: 31		
41053	932728	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGCTTGAAGATATTAATGTATCTTCATTTATGTAT	spacer
		length: 35 repeater length: 31		
41054	932795	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTGGAACAAAATTAACAGGAAGCCAGTATCTCCG	spacer
		length: 35 repeater length: 31		
41055	932862	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GTGGATACTTGTTAAAAGAGACAACGTATAAGATCAA	spacer
		length: 37 repeater length: 31		
41056	932931	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGTAGAAAGCTTGATTGACGGTCACGGGCAGTTTT	spacer
		length: 35 repeater length: 31		
41057	932998	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTATACTGGAGAATTGGTCAGTTACATCAGGATAA	spacer
		length: 35 repeater length: 31		
41058	933065	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTTTTGCCCTGACAGTCAGTATACAATCAGTGGAAC	spacer
		length: 36 repeater length: 31		
41059	933133	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTTATTCTTGTCATCTCAATGTTAACGGTTGACTGGTCA	spacer
		length: 39 repeater length: 31		
41060	933204	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACCTCAAGAGGGATTTCAATCCTCACACGGATCTA	spacer
		length: 35 repeater length: 31		
41061	933271	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GGCGGTACGCTGGTGATCCTATACCCATATCGCTT	spacer
		length: 35 repeater length: 31		
41062	933338	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTGCCCATGCCAGACTCTTACCCTACCCTCAACT	spacer
		length: 35 repeater length: 31		
41063	933405	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TAATGCGAACTGTGTGACTGTTAACCCTCTTAAGCC	spacer
		length: 36 repeater length: 31		
41064	933473	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGAGTCTGTTGCTTCTTCTACATGAGCTTCAGGTA	spacer
		length: 35 repeater length: 31		
41065	933540	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CCATGGTATCAATACAGGCAACATAATCAACCTTA	spacer
		length: 35 repeater length: 31		
41066	933607	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTCGAATGAAGAATACATCTATAAGTGTGAGATGC	spacer
		length: 35 repeater length: 31		
41067	933674	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTTGACATTGATATGCCGATCCGGCGGTAATAGTC	spacer
		length: 36 repeater length: 31		
41068	933742	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTACCTCGAAATCATCAAGAACTAACTAATGGAG	spacer

	length: 35	repeater length: 31	
41069	933809	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTGTAGTACCTACATAAGAACCATCAGCAAACCTGA spacer
	length: 35	repeater length: 31	
41070	933876	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTGTTAGTATCAATGTTATCCCTAATTGCACATTAG spacer
	length: 36	repeater length: 31	
41071	933944	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TAAGCTCGGTCCGAGATTAACATTAGACGAATGCG spacer
	length: 35	repeater length: 31	
41072	934011	GTTAGAAATCCATCTAAACTAGAATGTAAAT	AAAGAAATCATACAATGGGTTTCATAGCAGTTATAAAAA spacer
	length: 38	repeater length: 31	
41073	934081	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTAAATTAGCTAGGAGGCTGGCGGGGGATGAAATCA spacer
	length: 36	repeater length: 31	
41074	934149	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACGACTCGCTAAAAAATGGAGCATGCGTCTCTGCT spacer
	length: 35	repeater length: 31	
41075	934216	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GTGGGTGGCAGGCGCTTGTATATACCACACGCATCG spacer
	length: 36	repeater length: 31	
41076	934284	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGGCATGGAACCTAGAAGTAAGGAAGTCGTGGTATAAAT spacer
	length: 38	repeater length: 31	
41077	934354	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACAATATTGTTTAAACTTACTGGACTTCCCCAGTC spacer
	length: 35	repeater length: 31	
41078	934421	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTGCTGATGGGTTACAGACCTCTCAATCGTGAAGTT spacer
	length: 36	repeater length: 31	
41079	934489	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGGGTGGCAGGCGCTTGTATATATCACACGCATCG spacer
	length: 35	repeater length: 31	
41080	934556	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTTGAGGGCTGCAAGCCCTCTTAATCTTGTCTAATA spacer
	length: 36	repeater length: 31	
41081	934624	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTTATATGGTGGTGACGGCATTGTATCCGGCCCT spacer
	length: 35	repeater length: 31	
41082	934691	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GATACGATTTCGCCATGGGTAAGTATTTGAATGAT spacer
	length: 35	repeater length: 31	
41083	934758	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTCGTTATGCGAACAAGACCAGGGTTGAACATGTCA spacer
	length: 36	repeater length: 31	
41084	934826	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TGTATAACAAGGGGTATTCCCTTAGGAACTTCCCA spacer
	length: 34	repeater length: 31	
41085	934892	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GAAAGCAACAATGAACAAACAAATATATAAAGACTA spacer
	length: 36	repeater length: 31	
41086	934960	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTACGCGATATTGCATTTCTACTGTTGTCTCAAA spacer
	length: 35	repeater length: 31	
41087	935027	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TACCAAAGTCTGCATCATTTGTATGTGTCTAGCTCA spacer
	length: 35	repeater length: 31	
41088	935094	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTTTCCTTTCATATTCCCAAGAGTCTGTTGCTTC spacer
	length: 35	repeater length: 31	
41089	935161	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TTCAAAAACTTATCATTGCTTGTCTGTAGTCTTA spacer
	length: 35	repeater length: 31	
41090	935228	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCGTCTACTCTGCCTGTAGATCCTACTGGTTTGAG spacer
	length: 35	repeater length: 31	
41091	935295	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ACACAATGGGCACAGAAATAGAAGATAATGATGTCTG spacer
	length: 36	repeater length: 31	
41092	935363	GTTAGAAATCCATCTAAACTAGAATGTAAAT	TCTAAGTGGGAATACATCGGTAGAGAGACATTAC spacer
	length: 35	repeater length: 31	
41093	935430	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCATACAGTTTACATCACTAAAGCAGAAAAACGCCT spacer
	length: 36	repeater length: 31	
41094	935498	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCGCGAACATGCGCCTAATGTCTACGCGCGTGTAG spacer
	length: 35	repeater length: 31	
41095	935565	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CCCAATATTGCGCGCGGAAGTTCGACAGGCCA spacer
	length: 35	repeater length: 31	
41096	935632	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GATTCATACGTTGTTTATCCAGCTCTACAAATGCC spacer
	length: 35	repeater length: 31	
41097	935699	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CAACCAAAGAACCTTTACATGCAACCTTAAAGAAG spacer
	length: 35	repeater length: 31	
41098	935766	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ATTTAACCAGCTGGCAGACCTCGGAATTTTGGTAA spacer
	length: 35	repeater length: 31	
41099	935833	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCATATACGGGTATCTAAATACAAGCCGCTGCATG spacer
	length: 35	repeater length: 31	
41100	935900	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CAGGGTAGCGGTGAGTGCATCATAGACGCTGAGAA spacer
	length: 35	repeater length: 31	
41101	935967	GTTAGAAATCCATCTAAACTAGAATGTAAAT	CTGACTGTCTCTAACAGCCGGTTGAGTCTATAGTA spacer
	length: 35	repeater length: 31	
41102	936034	GTTAGAAATCCATCTAAACTAGAATGTAAAT	GCTGGTGAAGCATACCAATCTAAAAACATTTACAT spacer
	length: 37	repeater length: 31	
41103	936103	GTTAGAAATCCATCTAAACTAGAATGTAAAT	ATGTCAAGATAAGAACGATAAACACCGTCCCTATCA spacer
	length: 36	repeater length: 31	

41104 936171 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TGATGCCGATCTGCGGTTACAGACGGAGTGCAGT spacer
 length: 35 repeater length: 31
 41105 936238 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTGGTGTTCCTGAGCCGGTTGTAACTGCTCCAATC spacer
 length: 36 repeater length: 31
 41106 936306 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTCTGTGAGGTGGGTGATATTCTGTGAATCGTCG spacer
 length: 34 repeater length: 31
 41107 936372 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CGAACTATGGGAATGTATGGGCGTATGATCTAGCAA spacer
 length: 36 repeater length: 31
 41108 936440 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTCAGTGCTCCTGAAATTGTGGAGGTGATCGTATT spacer
 length: 35 repeater length: 31
 41109 936507 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CAGGCTGATTACTGTCAAATAACGGTGTATTGGCGG spacer
 length: 36 repeater length: 31
 41110 936575 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ATAACAATCGTCATTGGCGCGTTTCTGGTTAACGT spacer
 length: 35 repeater length: 31
 41111 936642 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CTTGGCAGAACAACCTAAAAGATCTTACCGTGTTG spacer
 length: 34 repeater length: 31
 41112 936708 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GCACCTGGCTATAAACCTGATGAGGAATTGATAGAC spacer
 length: 36 repeater length: 31
 41113 936776 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GAAAGAAGGGGCAGTCCCCTGGATTCAATTACAAGA spacer
 length: 35 repeater length: 31
 41114 936843 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TAGGAATGGCTAACATTGCATCCGGCATTATAGACA spacer
 length: 36 repeater length: 31
 41115 936911 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ACGTTTTATACACAAGATGGAACGATTAGTTGACT spacer
 length: 36 repeater length: 31
 41116 936979 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GAAATCAATCGGCTTTTTGTGCATCCATGTTTCACT spacer
 length: 35 repeater length: 31
 41117 937046 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CAAGATCTTAATCAAAGGCCTTGGAGAAGGAGTTG spacer
 length: 35 repeater length: 31
 41118 937113 GTTAGAAATCCATCTAAACTAGAAATGTAAAT ACAAGCACCTGGTGTGACGCCCGATGTGATCAATT spacer
 length: 35 repeater length: 31
 41119 937180 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TATAACGTTGCGTACGAAGGAGCGAGATTAAAGCG spacer
 length: 35 repeater length: 31
 41120 937247 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TACATATATCGAGAGCCTTCTAATCTGGTGCTGATA spacer
 length: 36 repeater length: 31
 41121 937315 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CCAGTAACTTAAGAACTCCGCACTCTTCGAAGCTT spacer
 length: 36 repeater length: 31
 41122 937383 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTTTGAGGTGTGTTTATGCAAGTAAATAATGTTAAA spacer
 length: 36 repeater length: 31
 41123 937451 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GGCATCTTCGATCTTAAGCAAGATCTTCATACTAAA spacer
 length: 36 repeater length: 31
 41124 937519 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CACTAAGCAAGCGGCAAAAGCGTTTGACGATTTA spacer
 length: 34 repeater length: 31
 41125 937585 GTTAGAAATCCATCTAAACTAGAAATGTAAAT GGCCTCACAGAAAAGGAAATAAGAGCAGTAAGCA spacer
 length: 35 repeater length: 31
 41126 937652 GTTAGAAATCCATCTAAACTAGAAATGTAAAT CATCTTCAGAAAAAAGGGATCTTCTCAGAACATAC spacer
 length: 35 repeater length: 31
 41127 937719 GTTAGAAATCCATCTAAACTAGAAATGTAAAT TTTTACCTTTATATGTGATGAGTTGCATCGTGAA
 41128
 41129
 41130 GCA_902384015.1_UHGG_MGYG-HGUT-02164_genomic.fna (findCrispr):
 41131 START REPEAT
 SPACER
 41132 crispr 1
 41133 1391371 GACCCGGGTTCAAATCCCGG
 TCGTTGCATCTTTCATATGCGGTTGTAGTCTAGTCTGGCTAGGACTTGGGCCTTCCAAGCCTA spacer length: 63
 repeater length: 20
 41134 1391455 GACCCGGGTTCAAATCCCGG
 CAGCCGCACTATACTTTTAAAACTATTTCTAAAAAATTTATTTAAAAAATAACGTATTTTTAATATATGCGGTTGTAGTCTAG
 TCTGGCTAGGACTTGGGCCTTCCAAGCCTA spacer length: 116 repeater length: 20
 41135 1391592 GACCCGGGTTCAAATCCCGG
 ACCAAGAAAAACCAAGAAAAACAGAAGACAAACCAAGAAAAAGAGGACCAGGAAGACCAAGAAAAACCAATAAAACAGAAGACAAAC
 CAAGAAAAAGAGGACCAGGAAGACCAAGAA
 41136
 41137
 41138 crispr 2
 41139 490193 GTTTAAAAATAGACTTAATAGTATGAAAAC CGGATTTGATTAAAACGTATTACCCAATCATATATTT spacer
 length: 37 repeater length: 29
 41140 490260 GTTTAAAAATAGACTTAATAGTATGAAAAC TAGATATTTCAAATTTACAATTACCATTTAAAAAAA spacer
 length: 36 repeater length: 29
 41141 490326 GTTTAAAAATAGACTTAATAGTATGAAAAC AAGAACGTTTTGCTTCTAATTCAGAGTATAATACTTT spacer
 length: 37 repeater length: 29

41142	490393	GTTTAAATAGACTTAATAGTATGAAAAC	CCAATGAGGAAGAATATCTCGGTCTAGAAAAAGGA	spacer
		length: 35	repeater length: 29	
41143	490458	GTTTAAATAGACTTAATAGTATGAAAAC	AAGGAAATTATAATTATACTCACCAGTATGATATTA	spacer
		length: 36	repeater length: 29	
41144	490524	GTTTAAATAGACTTAATAGTATGAAAAC	CAATAGAGGAATAAAAAACAATGTCAAGTATAATAAA	spacer
		length: 36	repeater length: 29	
41145	490590	GTTTAAATAGACTTAATAGTATGAAAAC	TTGAGGTAGAAATTGATAATGAGTTCATTAATGAA	spacer
		length: 35	repeater length: 29	
41146	490655	GTTTAAATAGACTTAATAGTATGAAAAC	TATATATGGAATAATATTGAAACAGTGTTTAAATA	spacer
		length: 36	repeater length: 29	
41147	490721	GTTTAAATAGACTTAATAGTATGAAAAC	AACAAATAATATGTGTCATTATACTTATAGATTTTA	spacer
		length: 36	repeater length: 29	
41148	490787	GTTTAAATAGACTTAATAGTATGAAAAC	CTGGATAATCAATCCCTTTAAACTAGCCGGACTA	spacer
		length: 35	repeater length: 29	
41149	490852	GTTTAAATAGACTTAATAGTATGAAAAC	TTCGTAGAGGTGGTGAGTCCAACAATTTTATTTTTT	spacer
		length: 36	repeater length: 29	
41150	490918	GTTTAAATAGACTTAATAGTATGAAAAC	CATCTTCCCATTCATAGTCTTGTTTAAATTCTCCAT	spacer
		length: 36	repeater length: 29	
41151	490984	GTTTAAATAGACTTAATAGTATGAAAAC	TGATAACATTCAAAAAGATATGTGGAAAACAATCAA	spacer
		length: 36	repeater length: 29	
41152	491050	GTTTAAATAGACTTAATAGTATGAAAAC	CACTTGAAATAAAACACATAGTACAATTTCAACTG	spacer
		length: 35	repeater length: 29	
41153	491115	GTTTAAATAGACTTAATAGTATGAAAAC	AGGTCATCAATATCATATTCTTTTACAAGTGTATTT	spacer
		length: 36	repeater length: 29	
41154	491181	GTTTAAATAGACTTAATAGTATGAAAAC	TTATGAAAACAAGTGATGGAACAAATAAAACAATAA	spacer
		length: 36	repeater length: 29	
41155	491247	GTTTAAATAGACTTAATAGTATGAAAAC	GATGCTTTTAAATTAATATATTTTAATATTAATTC	spacer
		length: 35	repeater length: 29	
41156	491312	GTTTAAATAGACTTAATAGTATGAAAAC	ATAGTGAATATACAGACCCCCTTAAAAAGCCAACAAT	spacer
		length: 37	repeater length: 29	
41157	491379	GTTTAAATAGACTTAATAGTATGAAAAC	TGAAAATTGATTATAAAAAAGTAGGAGATGTATTTGA	spacer
		length: 37	repeater length: 29	
41158	491446	GTTTAAATAGACTTAATAGTATGAAAAC	TATGGAATCACGTAAAAGAGCAACGTTGGGTATC	spacer
		length: 35	repeater length: 29	
41159	491511	GTTTAAATAGACTTAATAGTATGAAAAC	TAACAAACTACTCAAAACAAAAATAACAGAAACAG	spacer
		length: 36	repeater length: 29	
41160	491577	GTTTAAATAGACTTAATAGTATGAAAAC	AAAATGGAGATAAAACAGATTATAAAATGGAACCTTAT	spacer
		length: 37	repeater length: 29	
41161	491644	GTTTAAATAGACTTAATAGTATGAAAAC	CTTAGATGCAGTAGAAATGAAAATCTGTTATACTA	spacer
		length: 35	repeater length: 29	
41162	491709	GTTTAAATAGACTTAATAGTATGAAAAC	CATCTTCTGTATTTGGTGGAGTAATATATTTTTCA	spacer
		length: 35	repeater length: 29	
41163	491774	GTTTAAATAGACTTAATAGTATGAAAAC	AACTCTTTTTCACTATTTATTCCTATTTTCAAATA	spacer
		length: 35	repeater length: 29	
41164	491839	GTTTAAATAGACTTAATAGTATGAAAAC	GGTTTATTAATTCATCTTCAATATGTTTCATGTAAT	spacer
		length: 36	repeater length: 29	
41165	491905	GTTTAAATAGACTTAATAGTATGAAAAC	TACCAATAAAATAGTCTTGATTTGTACTTTTAAGCTGG	spacer
		length: 38	repeater length: 29	
41166	491973	GTTTAAATAGACTTAATAGTATGAAAAC	AAATTATTGCTACAACAAAAGATACAATTACAATTAC	spacer
		length: 37	repeater length: 29	
41167	492040	GTTTAAATAGACTTAATAGTATGAAAAC	TTTCATTATTTTGTGTTCTTTGTGTTGTAGTGT	spacer
		length: 35	repeater length: 29	
41168	492105	GTTTAAATAGACTTAATAGTATGAAAAC	AATGGATTTTGAGCATCATTATCAGGAGTAATACTTG	spacer
		length: 37	repeater length: 29	
41169	492172	GTTTAAATAGACTTAATAGTATGAAAAC	CAAATACTATAGATTACATAATACTTTTAACAGAAAA	spacer
		length: 37	repeater length: 29	
41170	492239	GTTTAAATAGACTTAATAGTATGAAAAC	TTTGTGTTGAGGTGGAATTACTTGTGTATACATTGTAT	spacer
		length: 37	repeater length: 29	
41171	492306	GTTTAAATAGACTTAATAGTATGAAAAC	TTATTTAAATGAAAGTGATATACCTAATACAACCTC	spacer
		length: 35	repeater length: 29	
41172	492371	GTTTAAATAGACTTAATAGTATGAAAAC	GTAATGATTTCTACAGTGAAATTGAAGAATTTATA	spacer
		length: 35	repeater length: 29	
41173	492436	GTTTAAATAGACTTAATAGTATGAAAAC	TAATAGTGGACGTTTATATGTAAAGAATATTAAATT	spacer
		length: 36	repeater length: 29	
41174	492502	GTTTAAATAGACTTAATAGTATGAAAAC	CTAGACGAGGATAAAACAATTCCAAGTGATACATG	spacer
		length: 35	repeater length: 29	
41175	492567	GTTTAAATAGACTTAATAGTATGAAAAC	TAATGTTGCAAGACAAATAAAAGAAGTAATTAAGAA	spacer
		length: 36	repeater length: 29	
41176	492633	GTTTAAATAGACTTAATAGTATGAAAAC	TGATTATATTACTGAATCAGAAGCTTTTGACTACAT	spacer
		length: 36	repeater length: 29	
41177	492699	GTTTAAATAGACTTAATAGTATGAAAAC	TACTTCCTCTACTGCAACAATTCTATAAAAAAAT	spacer

length: 35 repeater length: 29
41178 492764 GTTAAAAATAGACTTAATAGTATGAAAAC TTTAATCTTCTAAAACATAAATAATCATACAAAAA spacer
length: 35 repeater length: 29
41179 492829 GTTAAAAATAGACTTAATAGTATGAAAAC GCAAATGGTGTGATACAAATAATATTCGGGAAATG spacer
length: 36 repeater length: 29
41180 492895 GTTAAAAATAGACTTAATAGTATGAAAAC CACCTATATGTACTAGAAATTTACGCCCATTTTCATAG spacer
length: 36 repeater length: 29
41181 492961 GTTAAAAATAGACTTAATAGTATGAAAAC GCAAATGGTGTGATACAAATAATATTCGGGAAATG spacer
length: 36 repeater length: 29
41182 493027 GTTAAAAATAGACTTAATAGTATGAAAAC CACCTATATGTACTAGAAATTTACGCCCATTTTCATAG spacer
length: 36 repeater length: 29
41183 493093 GTTAAAAATAGACTTAATAGTATGAAAAC CCAAACCTGGGTAGAAGCAAATACTACTGCAAACAA spacer
length: 35 repeater length: 29
41184 493158 GTTAAAAATAGACTTAATAGTATGAAAAC CATGAAAAATACATCACAAAAAATAAAACAAGTTAC spacer
length: 36 repeater length: 29
41185 493224 GTTAAAAATAGACTTAATAGTATGAAAAC TCTATTCTGTATATATTCAATTTAGGATAGAATTT spacer
length: 35 repeater length: 29
41186 493289 GTTAAAAATAGACTTAATAGTATGAAAAC TAGTTTAGTGCCCTTAGTATTTAAAGGTTTGTTCAT spacer
length: 36 repeater length: 29
41187 493355 GTTAAAAATAGACTTAATAGTATGAAAAC GAATACAACACTTTAAATACTAGAAATGACAAATA spacer
length: 35 repeater length: 29
41188 493420 GTTAAAAATAGACTTAATAGTATGAAAAC ATCTATATTGGGAAAAAGAAGGCACTTCTTTTAG spacer
length: 35 repeater length: 29
41189 493485 GTTAAAAATAGACTTAATAGTATGAAAAC TTTTATTACTTGCTGCTAAATCCCATACACGACAAT spacer
length: 37 repeater length: 29
41190 493552 GTTAAAAATAGACTTAATAGTATGAAAAC TGGATATAATATGACTGAAATAGGTCGTAATAGTAAAGCT spacer
length: 40 repeater length: 29
41191 493622 GTTAAAAATAGACTTAATAGTATGAAAAC CGGAGATATGTGCCAATTAATTCATCACCTACCTCTTCA spacer
length: 39 repeater length: 29
41192 493691 GTTAAAAATAGACTTAATAGTATGAAAAC CAAAAATTGGATGTGGACTATAAACAGCTACTTTTTTTAAA spacer
length: 39 repeater length: 29
41193 493760 GTTAAAAATAGACTTAATAGTATGAAAAC
ACAAATAAAACACTAACAGAGTATAGTATTGATAATGTTTAAAAATAGACTTAATAATATGAAAACCTTGAACACCATGAAAAGAAAT
GCCCCGTGTTTTTATTTT spacer length: 103 repeater length: 29
41194 493893 GTTAAAAATAGACTTAATAGTATGAAAAC CACTCTCACAATCCTTATGATGAATGTATCTACTT spacer
length: 35 repeater length: 29
41195 493958 GTTAAAAATAGACTTAATAGTATGAAAAC GTCTTATCATCAGAATTTTCATCAACAACATCTATT spacer
length: 36 repeater length: 29
41196 494024 GTTAAAAATAGACTTAATAGTATGAAAAC CTTATGAAGGAGAAAAAGAAGTCGAATATAAAAGACA spacer
length: 37 repeater length: 29
41197 494091 GTTAAAAATAGACTTAATAGTATGAAAAC CACTTGTAAGTGTACCACCACCAGTATAACATAATA spacer
length: 36 repeater length: 29
41198 494157 GTTAAAAATAGACTTAATAGTATGAAAAC ACCAAGAAAACAGAAGACAAACCAAGAAAAAGAGGA
41199
41200
41201 crispr 3
41202 1529537 AAAAAGAGGACCAGGAAGACCAAGAAAAAC
CAATAAAACAGAAGATAAAATAGAAGTAGAAGATACAAGTAAACATACCCTACAATTATTGAAAAACAAGAACCAACCA
spacer length: 80 repeater length: 30
41203 1529648 AAAAAGAGGACCAGGAAGACCAAGAAAAAC TAAAAAACAGAAGACAAACCAAAAGACAAACCA spacer
length: 35 repeater length: 30
41204 1529714 AAAAAGAGGACCAGGAAGACCAAGAAAAAC CAAGAAACAGAAGACAAACCA spacer length: 23
repeater length: 30
41205 1529768 AAAAAGAGGACCAGGAAGACCAAGAAAAAC CAATAAAACAGAAGACAAACCA spacer length: 23
repeater length: 30
41206 1529822 AAAAAGAGGACCAGGAAGACCAAGAAAAAC TAAGAAAACAGAAGACAAACCA
41207
41208
41209 crispr 4
41210 1091308 AATAGAATAAGATCATAATGAAATTGAAAT ACGACACAAATGAATACAGATGCAACTCAAATTACA spacer
length: 36 repeater length: 30
41211 1091375 AATAGAATAAGATCATAATGAAATTGAAAT GGAAGAGACCATAAAAAATGTATTTACGGAATATAT spacer
length: 35 repeater length: 30
41212 1091441 AATAGAATAAGATCATAATGAAATTGAAAT TTTAAGTAACTCATCTGATAATTCAGTTAATGTTA spacer
length: 35 repeater length: 30
41213 1091507 AATAGAATAAGATCATAATGAAATTGAAAT ACTAATATCAACAAACGGAATTTACAGCACTATTTGG spacer
length: 36 repeater length: 30
41214 1091574 AATAGAATAAGATCATAATGAAATTGAAAT TAAGCATTACCATTAAACAAATTTACAGTTTTCTAC spacer
length: 35 repeater length: 30
41215 1091640 AATAGAATAAGATCATAATGAAATTGAAAT AAAGAACGTTTAATGATTAATTCATCTTCAGAGTCA spacer
length: 36 repeater length: 30

41216	1091707	AATAGAATAAGATCATAATGAAATTGAAAT	TGATTTAGAAACATATCAATATCCATTGAAATAG	spacer
	length:	35	repeater length:	30
41217	1091773	AATAGAATAAGATCATAATGAAATTGAAAT	TATTTTCTAATAAATAGAGTAATGCTTCATCATTAT	spacer
	length:	36	repeater length:	30
41218	1091840	AATAGAATAAGATCATAATGAAATTGAAAT	TCAGCATCATTTTACACTAGCAACAAGGGTAGGAGT	spacer
	length:	35	repeater length:	30
41219	1091906	AATAGAATAAGATCATAATGAAATTGAAAT	AAGTAAAAAAAAAATCAAAAATAATAGAAAAAAAA	spacer
	length:	36	repeater length:	30
41220	1091973	AATAGAATAAGATCATAATGAAATTGAAAT	CTAAACTACACGTGTAGTAACAATACGTGTATCA	spacer
	length:	35	repeater length:	30
41221	1092039	AATAGAATAAGATCATAATGAAATTGAAAT	GCAATTTATCCAGACCCTGTTTCATCGTTACTTCAA	spacer
	length:	36	repeater length:	30
41222	1092106	AATAGAATAAGATCATAATGAAATTGAAAT	CACGTATATCCTGTGTCTTGTTCGGTCATAATAGAT	spacer
	length:	35	repeater length:	30
41223	1092172	AATAGAATAAGATCATAATGAAATTGAAAT	ACAGGAAATAATTTATTTAAAGTAAAAGAATTTGA	spacer
	length:	35	repeater length:	30
41224	1092238	AATAGAATAAGATCATAATGAAATTGAAAT	TATGTTGTTAATACTAATTCTTCTATTATCTTCTCAT	spacer
	length:	37	repeater length:	30
41225	1092306	AATAGAATAAGATCATAATGAAATTGAAAT	ACATCTTCAGCTTTATCTAATTTTTGAACATATCT	spacer
	length:	35	repeater length:	30
41226	1092372	AATAGAATAAGATCATAATGAAATTGAAAT	AATTGTGAAATAAAAAAGAAGATCTTTTAAACAA	spacer
	length:	35	repeater length:	30
41227	1092438	AATAGAATAAGATCATAATGAAATTGAAAT	AATTTAATTACATCAGAACTATTGATTCTGATGGT	spacer
	length:	36	repeater length:	30
41228	1092505	AATAGAATAAGATCATAATGAAATTGAAAT	AATAAGATGTAGCTGAACGTACTTCTAAACGGTT	spacer
	length:	35	repeater length:	30
41229	1092571	AATAGAATAAGATCATAATGAAATTGAAAT	AGTACTAAGAAATGATTCCTCCATTAATATAACATT	spacer
	length:	36	repeater length:	30
41230	1092638	AATAGAATAAGATCATAATGAAATTGAAAT	TTTTCTTTACGTGTAGACCAGGAGATATATCTC	spacer
	length:	34	repeater length:	30
41231	1092703	AATAGAATAAGATCATAATGAAATTGAAAT	GAACTGGTAAATTACTTTATTATGGACGTTTTAA	spacer
	length:	35	repeater length:	30
41232	1092769	AATAGAATAAGATCATAATGAAATTGAAAT	ATTGATATTGGAACAAGAGGATACACAAAATGGTCA	spacer
	length:	36	repeater length:	30
41233	1092836	AATAGAATAAGATCATAATGAAATTGAAAT	GCAAATGTATTTAAAGAACTTGTTACTAACTTAA	spacer
	length:	35	repeater length:	30
41234	1092902	AATAGAATAAGATCATAATGAAATTGAAAT	TAAGAACTATCAAGCAATCCCTTATAATAACCTTTA	spacer
	length:	36	repeater length:	30
41235	1092969	AATAGAATAAGATCATAATGAAATTGAAAT	GTTGCATCACTAGGAAGAATAGTTTGAAGTAAATT	spacer
	length:	36	repeater length:	30
41236	1093036	AATAGAATAAGATCATAATGAAATTGAAAT	TCTAGTTTAGATGATGGTTCTACTTTATCTTTACC	spacer
	length:	35	repeater length:	30
41237	1093102	AATAGAATAAGATCATAATGAAATTGAAAT	GGTTTTAATCCACGGGTGATTAGTGATGAAGAGTTT	spacer
	length:	36	repeater length:	30
41238	1093169	AATAGAATAAGATCATAATGAAATTGAAAT	ACAGGCTGGTAAAAACATTTTTGGAGGAAATAA	spacer
	length:	34	repeater length:	30
41239	1093234	AATAGAATAAGATCATAATGAAATTGAAAT	TCTACGCTTGGTCTTGATTCATGTTTATATGTAAT	spacer
	length:	35	repeater length:	30
41240	1093300	AATAGAATAAGATCATAATGAAATTGAAAT	GAAGCAAAACAAAAGGAGATACTGCAAGAATACTTA	spacer
	length:	36	repeater length:	30
41241	1093367	AATAGAATAAGATCATAATGAAATTGAAAT	AGATTATCAACGCCTAGAATTTGTTGTATATCTTT	spacer
	length:	35	repeater length:	30
41242	1093433	AATAGAATAAGATCATAATGAAATTGAAAT	ATAGAAATCATAATGTATATTTCTGAATACATTTT	spacer
	length:	35	repeater length:	30
41243	1093499	AATAGAATAAGATCATAATGAAATTGAAAT	ATTACTGAAGAAGAGATTAATAATAAATTACCTGCA	spacer
	length:	36	repeater length:	30
41244	1093566	AATAGAATAAGATCATAATGAAATTGAAAT	GATACTATTGCAATTATTATATCTTGATTATACTT	spacer
	length:	35	repeater length:	30
41245	1093632	AATAGAATAAGATCATAATGAAATTGAAAT	AAATGAATTGCACATACAACAAGAATCATAGTACAAA	spacer
	length:	37	repeater length:	30
41246	1093700	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGCATTGATTGCAATATAATTGATTGTTTTCC	spacer
	length:	34	repeater length:	30
41247	1093765	AATAGAATAAGATCATAATGAAATTGAAAT	AAAATTAATAGGTGTTGGATTATCATAAGCAATAGT	spacer
	length:	36	repeater length:	30
41248	1093832	AATAGAATAAGATCATAATGAAATTGAAAT	AATCAGTTAATAGGAGAACCTAATAATGCATAAAGA	spacer
	length:	36	repeater length:	30
41249	1093899	AATAGAATAAGATCATAATGAAATTGAAAT	CTTTCAGGCACAAGTATAGCTGTATCTACTATTTTT	spacer
	length:	36	repeater length:	30
41250	1093966	AATAGAATAAGATCATAATGAAATTGAAAT	TAGTATACACATCTTTTGGTTTTATTGGAGTTTTCC	spacer
	length:	35	repeater length:	30
41251	1094032	AATAGAATAAGATCATAATGAAATTGAAAT	AGAGTAAAAAAGAAGTATTTTTTAGTTTCTTTTTAT	spacer

length: 37 repeater length: 30
41252 1094100 AATAGAATAAGATCATAATGAAATTGAAAT ATGGTTACTGTATTACTAATCCAATCACCAACTTTAT spacer
length: 37 repeater length: 30
41253 1094168 AATAGAATAAGATCATAATGAAATTGAAAT GATATGAAATCTACACAACCTACAAAAGATATGCA spacer
length: 35 repeater length: 30
41254 1094234 AATAGAATAAGATCATAATGAAATTGAAAT TCTCTTGAAAATCCTGATAATAATACTTGATAG spacer
length: 35 repeater length: 30
41255 1094300 AATAGAATAAGATCATAATGAAATTGAAAT CGTATAAGTTATGGTACATTTAAAACAATGGCTGA spacer
length: 35 repeater length: 30
41256 1094366 AATAGAATAAGATCATAATGAAATTGAAAT GAAGCAAACCATGAAAAACCAACTGAAAGATGTAA spacer
length: 35 repeater length: 30
41257 1094432 AATAGAATAAGATCATAATGAAATTGAAAT GGTGTTAGTACAGGTATGGACGGATTACTCCATGAA spacer
length: 36 repeater length: 30
41258 1094499 AATAGAATAAGATCATAATGAAATTGAAAT ATAAAAATAACAAATGGAACAACAACAAAACAGT spacer
length: 35 repeater length: 30
41259 1094565 AATAGAATAAGATCATAATGAAATTGAAAT GTCGTTGAACAAGAAATAAGAATTATAGAAAATAA spacer
length: 35 repeater length: 30
41260 1094631 AATAGAATAAGATCATAATGAAATTGAAAT TTAACATCTACAAGGTCATGAAGAAGTTTTGTTTCA spacer
length: 36 repeater length: 30
41261 1094698 AATAGAATAAGATCATAATGAAATTGAAAT CGATACATTTTTTAAATTACTTGTATCAGTAGTAAT spacer
length: 35 repeater length: 30
41262 1094764 AATAGAATAAGATCATAATGAAATTGAAAT ACTCTTACCCGATTTAATTATGAATATCTTCAAGCA spacer
length: 36 repeater length: 30
41263 1094831 AATAGAATAAGATCATAATGAAATTGAAAT GATGTAGAAGATGAAGTTGATGAATTTCTTGAAGA spacer
length: 35 repeater length: 30
41264 1094897 AATAGAATAAGATCATAATGAAATTGAAAT GATATCTTTCATATATTATCATTTTTTATCATATTTT spacer
length: 36 repeater length: 30
41265 1094964 AATAGAATAAGATCATAATGAAATTGAAAT AAGAAAACAGAAGACAAACCAAAAGACAAACCAAAA
41266
41267
41268 crispr 5
41269 831090 CTATTCCATCATCTTTCATCTTGTGCATTGTTGTTTTCTTC
TATTTTCATCATCTATTGTGTAGTATGGTTTGTATCTATGTTATCTTTCATCTTCTGGGTATGGTATGTAGTCTGTTTTATCTTCAT
TTTCATAG spacer length: 94 repeater length: 40
41270 831225 CTATTCCATCATCTTTCATCTTGTGCATTGTTGTTTTCTTC
TATTTTCATCATCTATTGTGTAGTATGGTTTGTATCTTTCATCTTCTAGGTATGGTGTGTAGTCTGTTTTATCTTCATTTTCATAG
spacer length: 85 repeater length: 40
41271 831351 CTATTCCATCATCTTTCATCTTGTGCATTGTTGTTTTCTTC
TTTGAAATACATCATTATAGAGTTTAAATAGACTTAATTGTAAAACCAAAAAAGATGTACTAACAAAAGAAAATAAAGAGAGT
41272
41273
41274 GCA_902387285.1_UHGG_MGYG-HGUT-02456_genomic.fna(findCrispr):
41275 START REPEAT
SPACER
41276 crispr 1
41277 867743 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA
GACCCACGTTAGGAAGGCTCTGCCTATCGATCTACACTGGTAGAAATTCTGAATGAGTTTTAGACTGCGGAGTCCGTTGCCTTTGT
TATTG spacer length: 91 repeater length: 33
41278 867868 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACAAACGGTAGCCAGGAAGGCTGGCC spacer length:
28 repeater length: 33
41279 867930 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGACGGAAGTGATAGGGTAACCGCACCT spacer
length: 30 repeater length: 33
41280 867994 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGATGCATCCGCAATGTGTGCCTGCT spacer length:
28 repeater length: 33
41281 868056 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACGTACCTTGACCGCAAAAAGTGAACCG spacer
length: 29 repeater length: 33
41282 868119 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACTAACATGACAGGAAATCCACCCGA spacer length:
27 repeater length: 33
41283 868180 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCCTCGGCGGCAGATGTGGAGACAGA spacer length:
28 repeater length: 33
41284 868242 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACACATCAAGCCCCTCCAGTCATCCGTC spacer
length: 29 repeater length: 33
41285 868305 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACATTTAAAGGGGCAGTGCCGAACCG spacer length:
27 repeater length: 33
41286 868366 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA
GACCCACTTCACAGCCAAAAGCGTATCTTTATCTACACTAGTAGAGATTCTGAATGAGTTTTAGACCAACCAAATATGGCCCGTTG
TTGTTTG spacer length: 93 repeater length: 33
41287 868493 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACCAACCAAATATGGCCCGTTGTTGTTTG spacer
length: 30 repeater length: 33
41288 868557 ATCTACACTAGTAGAAATTCTGAATGAGTTTTA GACACTTATGACGACATTTTTAGGGCATA spacer
length: 29 repeater length: 33

41289	868620 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCCCTGCCGCCTGAATATCTTTGCACC spacer
	length: 29 repeater length: 33	
41290	868683 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGCCGGAGGCGTGGCGGGATGGTTCC spacer length:
	28 repeater length: 33	
41291	868745 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGTTTCGCCCTCTCTCGGTTCATCA spacer length:
	27 repeater length: 33	
41292	868806 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACTCGCCTTGTCTCGAGGCGGTCCTTG spacer length:
	28 repeater length: 33	
41293	868868 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCTTCAGATCTTCAGGATCATCCTCA spacer length:
	28 repeater length: 33	
41294	868930 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGGTGACGCAGCTGACCGCCGAACGCG spacer
	length: 29 repeater length: 33	
41295	868993 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACTCTCTCCTTCATCTGGCCTGTCCGT spacer length:
	28 repeater length: 33	
41296	869055 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGAACGCCCGGAGGTCTGAAGCCGCAA spacer
	length: 29 repeater length: 33	
41297	869118 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACTGTGCGGCTCGTCGCTTTCCCCGTGGT spacer
	length: 30 repeater length: 33	
41298	869182 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACTACCCCTTCCTCCGTACGTAGTCTT spacer length:
	28 repeater length: 33	
41299	869244 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCACAGCCGACTTCATCAGGAAGAGA spacer length:
	28 repeater length: 33	
41300	869306 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCCACGAAAGCCTTACGCTCCGCTTTG spacer
	length: 29 repeater length: 33	
41301	869369 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACATGCGCTCCGCGATCAACTCCATCG spacer length:
	28 repeater length: 33	
41302	869431 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCAGGCGGACATGGAAAGCGCGATAG spacer length:
	28 repeater length: 33	
41303	869493 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACACGCTGAAGATAGACGACGTGAGCTT spacer
	length: 29 repeater length: 33	
41304	869556 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACTAACCTTCCGTAAGTAACACGTTTATAT spacer
	length: 31 repeater length: 33	
41305	869621 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCGATCATCGCAGACGAGGTAGATTCA spacer
	length: 29 repeater length: 33	
41306	869684 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	AACAGTGTCTGTTACGTGTGGTATTCT spacer length:
	28 repeater length: 33	
41307	869746 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCCGGTCTGCGTCCTTGGCGAAGCTC spacer length:
	28 repeater length: 33	
41308	869808 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACAAGAAGGCCGTGGTGGTCACCGCCAC spacer
	length: 29 repeater length: 33	
41309	869871 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGCACCACGTGGGCGACCCTCATCA spacer length:
	27 repeater length: 33	
41310	869932 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACAGACGTTGAATCTCTGGCGGTTGC spacer length:
	27 repeater length: 33	
41311	869993 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCAGGTCGAACTTGAGAACGGAAGACT spacer
	length: 29 repeater length: 33	
41312	870056 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCTGCAGCGCACTGTTCCCAATTTTA spacer length:
	28 repeater length: 33	
41313	870118 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACCGCCCGAAGAAGCCCAGGAATTCTA spacer length:
	28 repeater length: 33	
41314	870180 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGTTACGGCACCGTGGGGAATATCGT spacer
	length: 29 repeater length: 33	
41315	870243 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACTCCGGTCTTGGAGTAGTGAGCCACT spacer length:
	28 repeater length: 33	
41316	870305 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGGGAGTTCGACCAGTTCATAACCTGGA spacer
	length: 30 repeater length: 33	
41317	870369 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGGAGCAGTATTAGACTTAATCGTCT spacer length:
	28 repeater length: 33	
41318	870431 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGGCGCGGCCCGCAGCTTCCTGACCG spacer length:
	28 repeater length: 33	
41319	870493 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GATGAGTTTTTAGACGGGAGTTCGACCAGTTCATAACCTGGA
	spacer length: 41 repeater length: 33	
41320	870568 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	GACGGAGCAGTATTAGACTTAATCGTCT spacer length:
	28 repeater length: 33	
41321	870630 ATCTACACTAGTAGAAAATTCTGAATGAGTTTTTA	CAGCTTCCTGACCGAATCTACACTAGTA
41322		
41323		
41324		