

Fig. 1

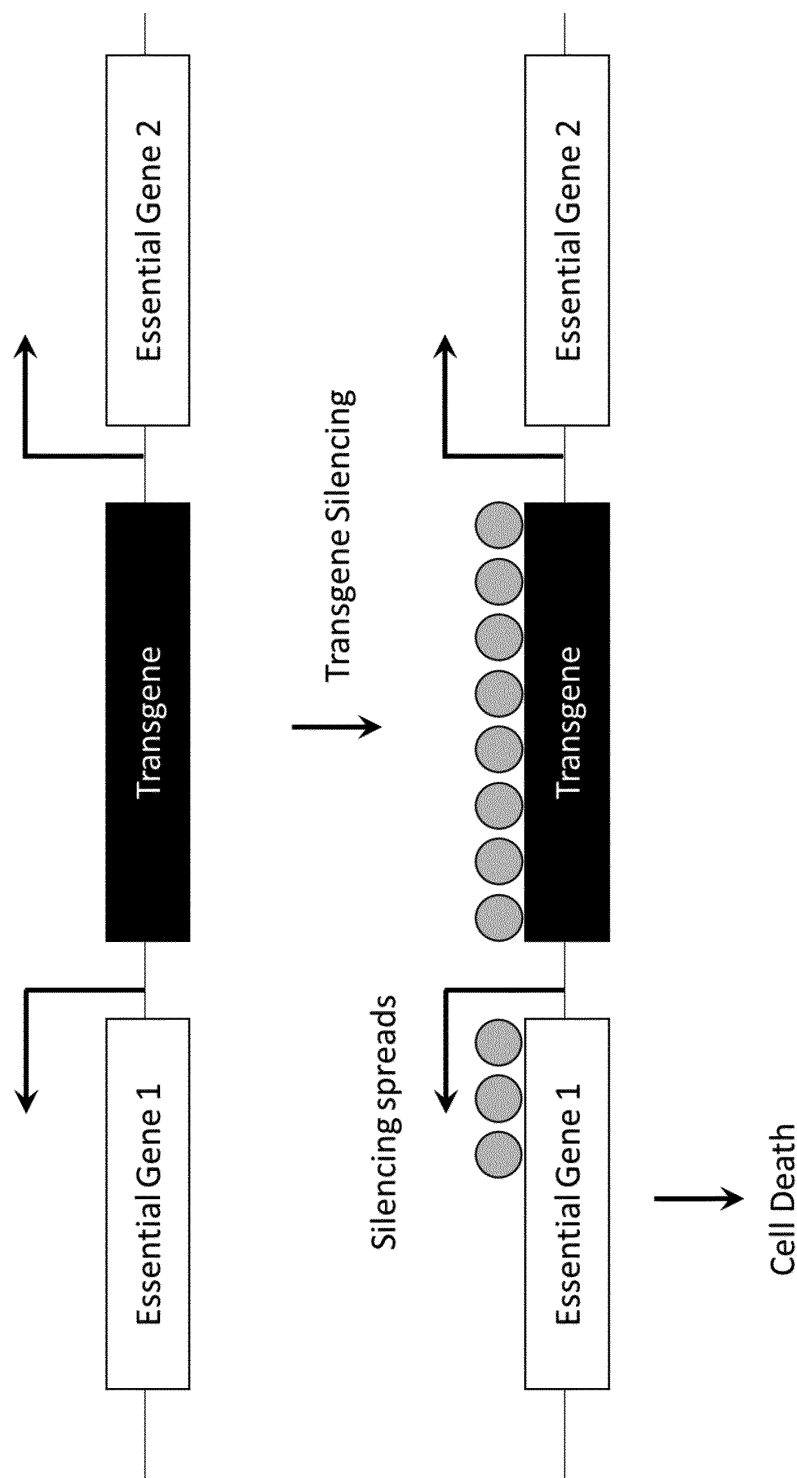


Fig. 2

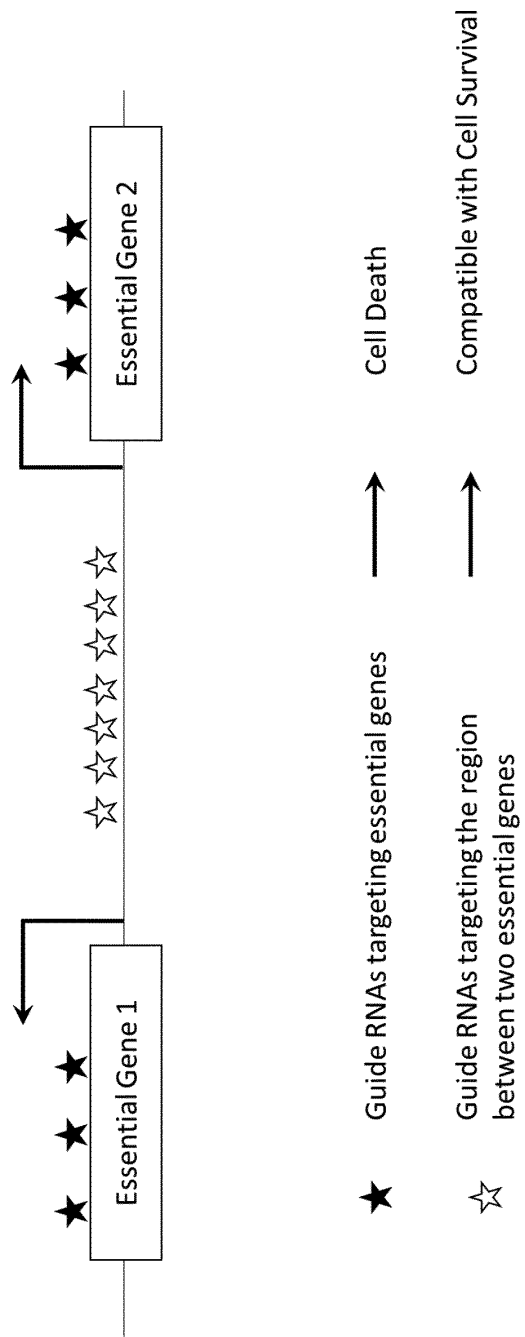


Fig. 3

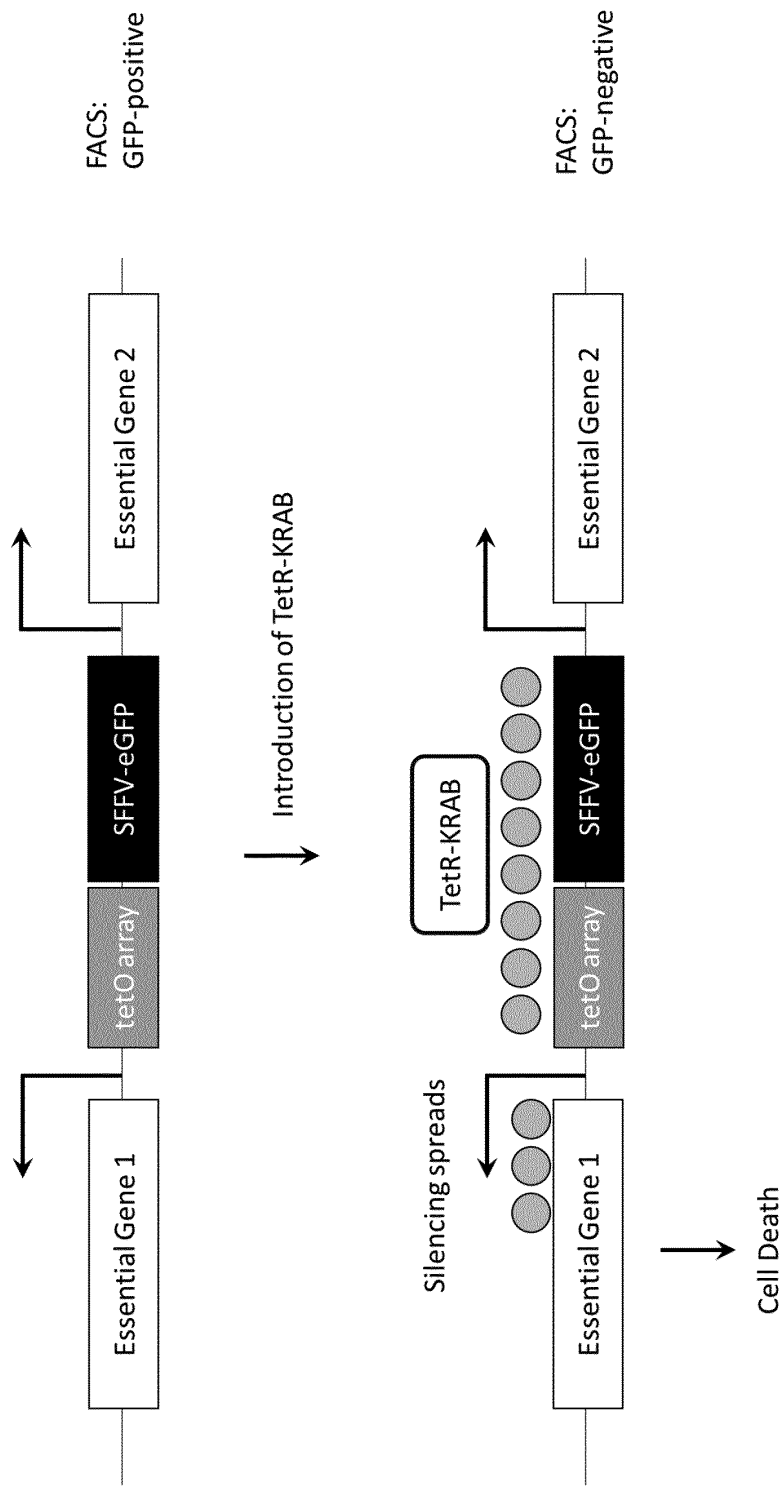


Fig. 4

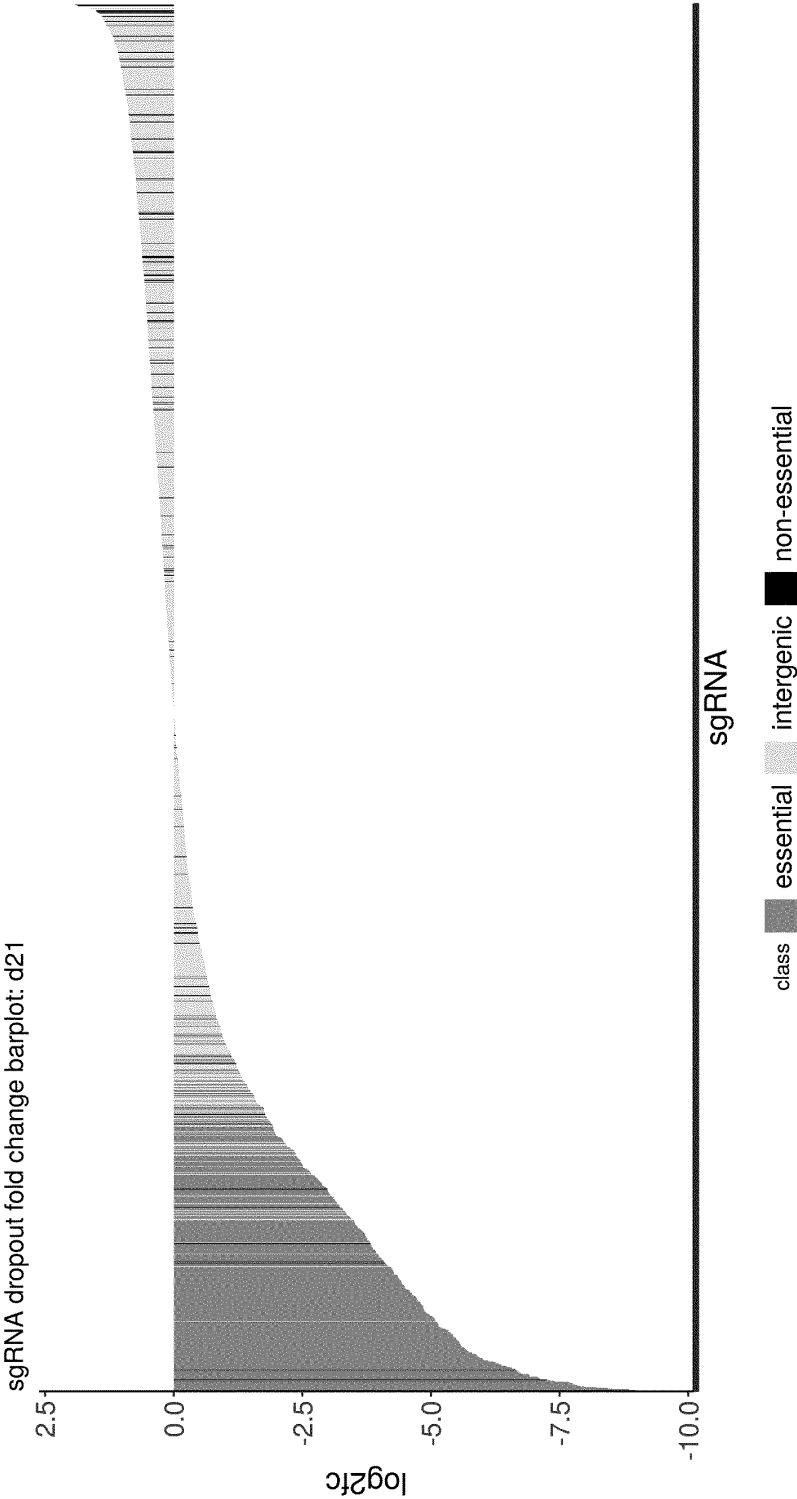


Fig. 5

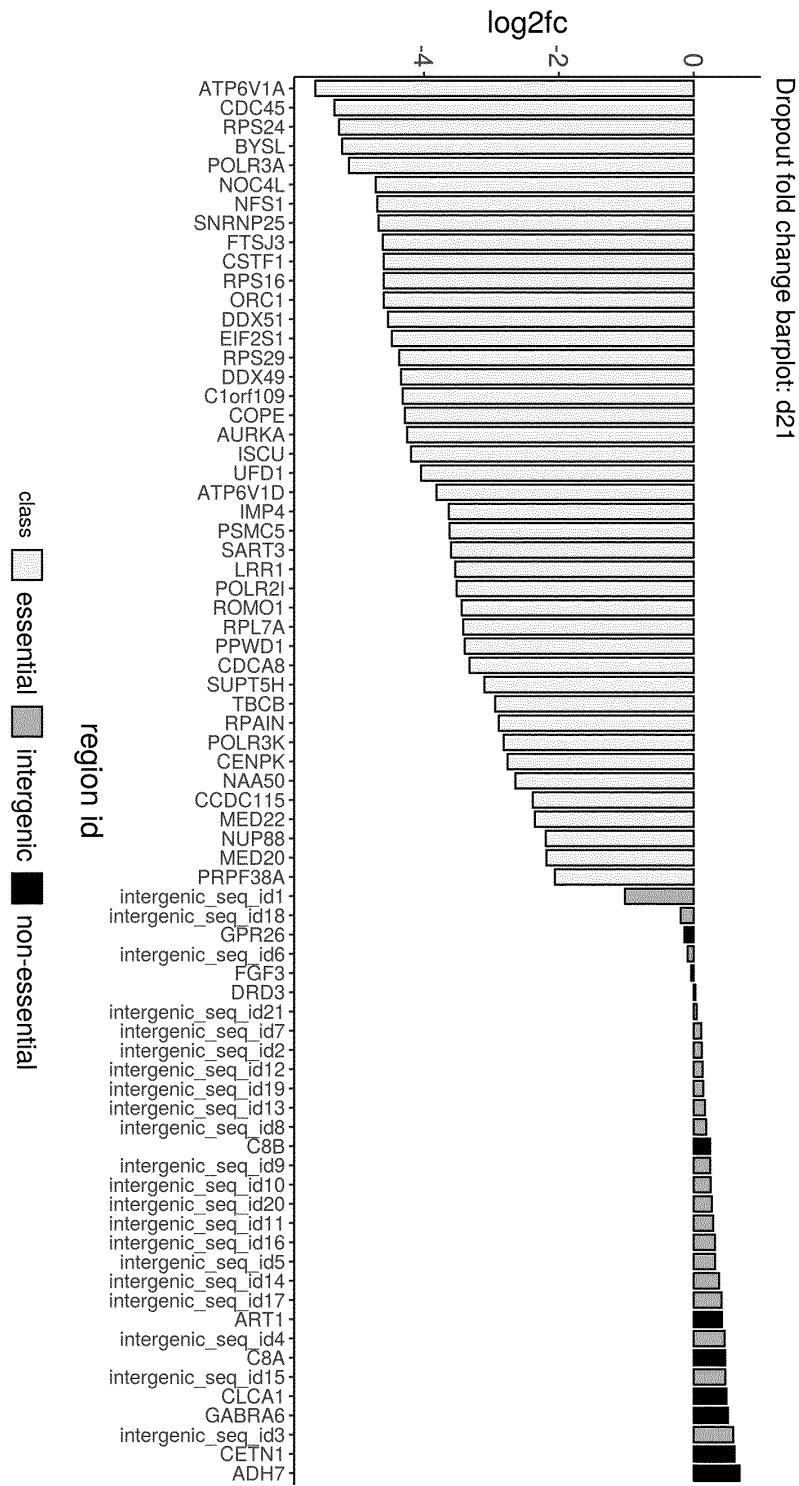


Fig. 6

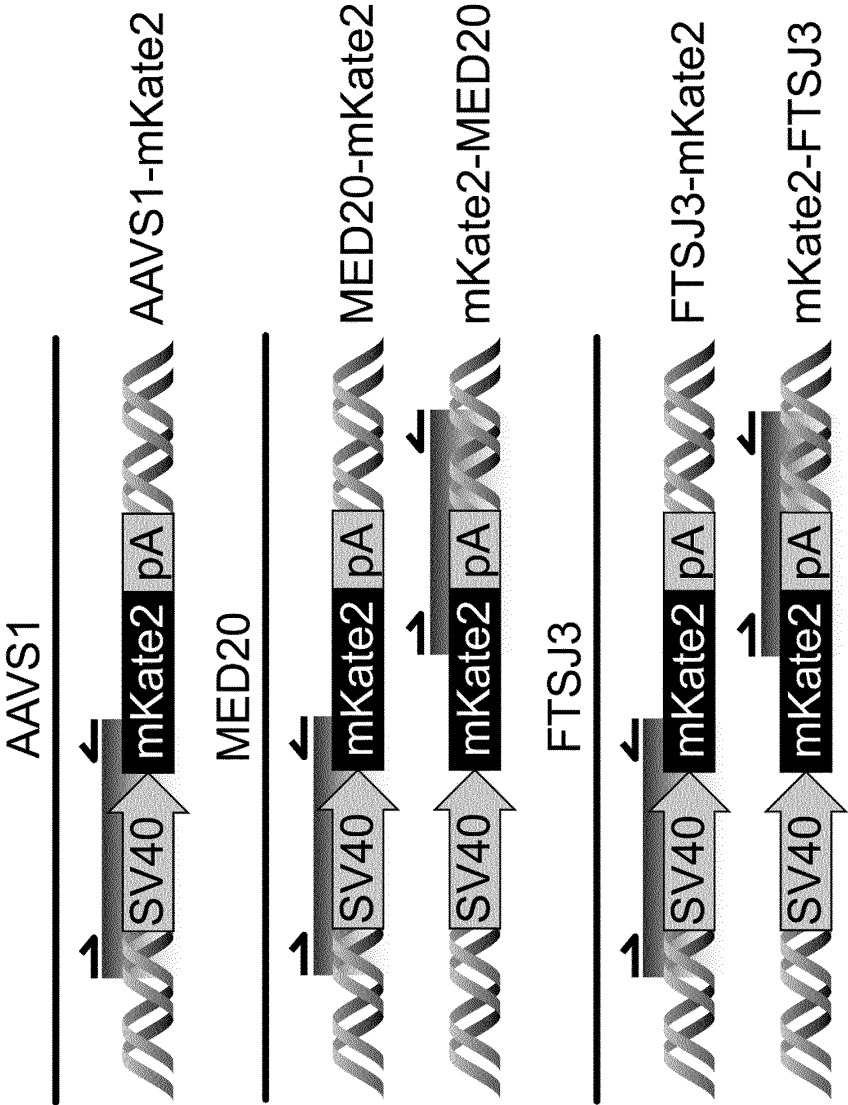


Fig. 7

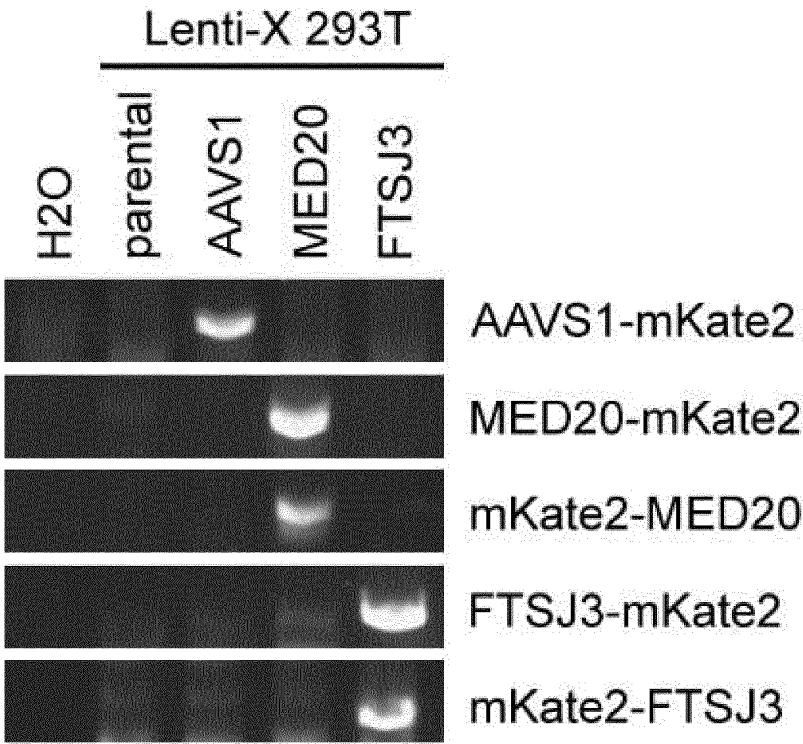


Fig. 8

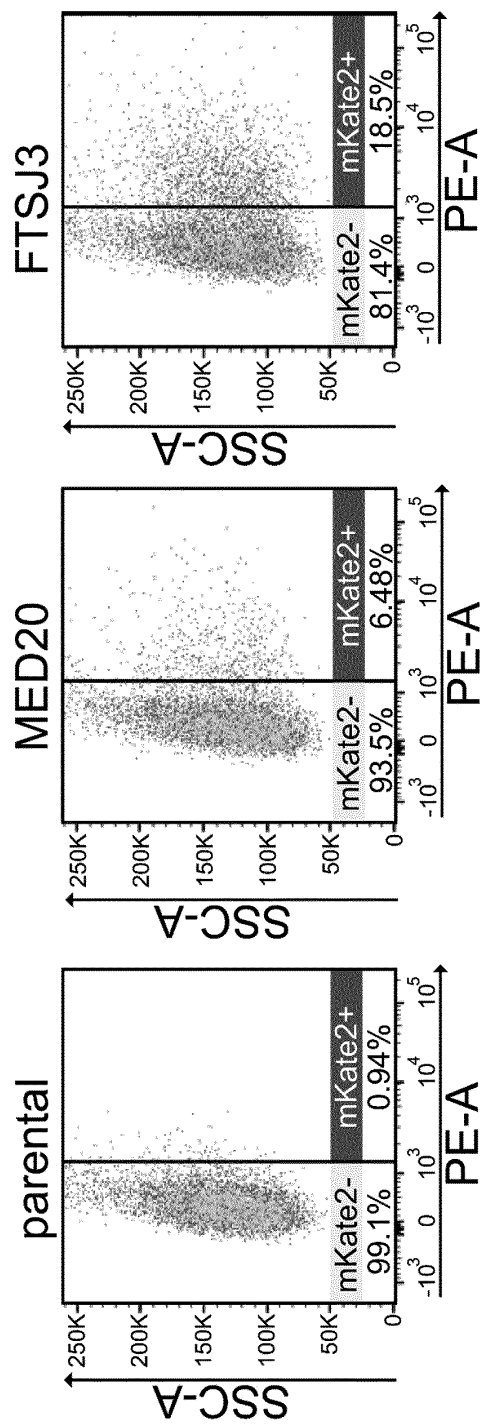


Fig. 9

SEQ ID NO:1

AAGTGCTGCCCCGGCGCTCCGGAAGCGATTTCATCGGGCCGCGAGCGCCCTCCC

SEQ ID NO:2

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TCTCGCGATCTCCGAGGCCGCATACATATTACCCACAAT

SEQ ID NO:3

TGGCGCGCTGCGATGACGTGCGCGGCACGCCTGCGACTCGGGCTCCGCGCAAAAGATGGGGTTGGGTACGGCGCGTAGA
GATGACGTCGGGTTCTACGCGCAGTGGTGACGTCACGGGAGCGCC

SEQ ID NO:4

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TCGGACGCTGACAGAAGACTGCGCCGCTGCTTTGGGATTGGTAGCTGAGTTTGTGTGCGG

SEQ ID NO:5

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CGATAGGCGACGCGGGGAGCGGAAGCCCTTTACAC

SEQ ID NO:6

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CCACCCCCCCCCGGCGCGCCAGTGGCTGGGCGGCCTCGCTGGGGCGGGCCGCAGTTCTGCGCGTGCGCGCTTGGCCTCC

SEQ ID NO:7

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SEQ ID NO:8

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SEQ ID NO:9

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GGGAGTCCAGCTCCGGAACCCGGGAGCTCTTTAGTGGGAGGGGCGGCGCTGATGGCGCTTCTGGCCTCCGAATGCTAGG
GGGCGCTGTGATCGCCGGGCGGCCTCTTGGGCGCTGGGAGTCCACCGCGCA

Fig. 9 (continued)

SEQ ID NO:10

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CTCCCTAAGAACC CGGAAGTGGTGAGCCAAACGGCCAGCCAGACCTGTGGCAGTCCCAGCCCCAGGGTGCTCTCCGCGGT
CGGCCATTTATCGGTGAAGCAACAGCCCCCTTGACGTCAAGCTTGACGCATTGGAGATAAAGTCCAAGGAGGTGAAC TAAC
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SEQ ID NO:11

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CACC AAGGGAAGCCAAATCACCATTATTTCTGAAGCCCAAGGGGGCGGGACGAGAAGTCAACATAATGGTGGTGCTGCTG
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SEQ ID NO:12

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SEQ ID NO:13

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SEQ ID NO:14

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Fig. 9 (continued)

SEQ ID NO:15

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SEQ ID NO:16

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SEQ ID NO:17

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Fig. 9 (continued)

SEQ ID NO:18

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GCGACGGCGGCGGCTCGCTGTGCACTCAGGCTATAGGGGCGCATTGGGGGGAAGACCTGGGCGGCGAGGAACCTTGC
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Fig. 9 (continued)

SEQ ID NO:19

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AAACTGCATATAACTCTTTGCCTCAAGGCTTTTAGACAAGCAGAGGGCCAAAACCTGCATAAAATGGAAAATCATCATCA
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CAGAGGGCCTATCTGTGGAGGACCAACAAAGGAAAACAGAGCGGAAAATATGGGCGCACATGTGCCCTCCAGTTCATGAA
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TGGTTTACCGGAATTCAAATACGTACAATTCAACATAATGAATTGAAGTGAATTTGAACACCTGCTTGCCTAAACCTAGT
CGGCTCGAGTTGTTCTGGTTCTGGATTGGTCACTAGAGTTCCAGGGGTGTGGCCAAAAGTCTGTGAGGCGGGGCGCTA
GGCAGCCTAAATCAGGCATCGGCGCGGTACGCTCGTGGCGCGCCACGCCCCACGCCGGCTCTTCCCGGGGTCTTCC
GTGCGCGTTGATATGATTGGCCGGCGAATCGTGGTTC

Fig. 9 (continued)

SEQ ID NO:20

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CCCTGTGAGGCGGAAGTGGCGGCTCTGTGGCGGAAGGGGCGGGGCTGGGAGTGTGCTGTGCGGAGCTGAAGGGAAGGC
TGCGGGAGTGTGCTTCGCGTCTCTGTAGTCGACTACCGCAGCTCTTCTTTGCATTCTGGCTCTTTAATAATCTCCCTTC
GCCCTTTCTTTAAATCAGTTCCACCCCTCCCAACACCTGTAATCTTTCTCCCTCTGGACTCCCTCCTCCCGAATCCCC
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Fig. 9 (continued)

SEQ ID NO:21

[illegible]

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C

Fig. 9 (continued)

SEQ ID NO:26: >MED20 Donor1 (TetO sites in bold, eGFP underlined, 2A-PuroR in italic)

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TATCTACAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATATCCAGTTTACT**TCCCTATCAGTGATAGAGA**
ACGTATAAGCTTTAGGCGTGTACGGTGGGCGCCTATAAAAGCAGAGCTAGCTGCAGTAACGCCATTTTG
CAAGGCATGGAAAAATACCAAACCAAGAATAGAGAAGTTTCAAGTCAAGGGCGGGTACATGAAAATAGCT
AACGTTGGGCCAAACAGGATATCTGCGGTGAGCAGTTTTCGGCCCCGGCCCGGGGCCAAGAACAGATGGT
CACCGCAGTTTTCGGCCCCGGCCCGAGGCCAAGAACAGATGGTCCCCAGATATGGCCCAACCTCAGCAG
TTTCTTAAGACCCATCAGATGTTTCCAGGCTCCCCCAAGGACCTGAAATGACCCTGCGCCTTATTTGAA
TTAACCAATCAGCCTGCTTCTCGCTTCTGTTTCGCGCGCTTCTGCTTCCCGAGCTCTATAAAAGAGCTCA
CAACCCCTCACTCGGCGCGCCAGTCTCCGACTCGAGAGCGCTGCCACCATGGTGAGCAAGGGCGAGGA
GCTGTTTACCGGGGTGGTGCCCATCCTGGTTCGAGCTGGACGGCGACGTAAACGGGCCAAGTTTCAGCGT
GTCCGGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCTGAAGTTTATCTGCACCACCGGCAA
GCTGCCCGTGCCCTGGCCACCCCTCGTGACCACCCCTGACCTACGGCGTGCACTGCTTCAGCCGCTACCC
CGACCACATGAAGCAGCACGACTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCAT
CTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCGAGGGCGACACCCTGGTGAA
CCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAA
CTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGAT
CCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCCA
CGGCCCGCTGCTGCTGCCGACAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCCCAACGA
GAAGCGCGATCACATGGTCTGCTGGAGTTCTGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCT
GTACAAGGGATCCGGAGCGACTAACTTCTCCCTGCTGAAGCAGGCCGGCGATGTAGAAGAGAACCCGGG
CCCTACCGAGTACAAGCCACGGTGGCCTCGCCACCCGCGACGACGTCCCCAGGGCCGTACGCACCCCT
CGCCGCGCTTCCGGACTACCCCGCCACGCCCTGACCTCGATCCGGACCGCCACATCGAGCGGGT
CACCGAGCTTCAAGAACTCTTCTCACGCGCGTGGGGTTCGACATCGGCAAGGTGTGGTTCGCGGACGA
CGGCGCGCGCTGGCGGTCTGGACCACGCCGAGAGCGTGAAGCGGGGGCGGTGTTTCGCGGAGATCGG
CCCGCGCATGGCCGAGTTGAGCGGTTCCTGGCTGGCCGCGCAGCAACAGATGGAAGGCCCTCTGGCGCC
GCACCGGCCCAAGGAGCCCGGTGGTTCCTGGCCACCGTTCGGAGTCTCGCCCGACCAACAGGGCAAGGG
TCTGGGCAGCGCGTCTGCTCCCCGGAGTGGAGGCGGCGGAGCGCGCCGGGGTGGCCGCTTCTTGGGA
AACCTCCGCGCCCCGCAACCTCCCTTCTACGAGCGGCTCGGCTTACCGTCAACCGCGACGTTCGAGGT
GCCCCAAGGACCGCGACCTGGTGATGACCCGCAAGCCCGGTGCCTGAGGCACCCCTCGATGACGCCT
CCACTGACATCATCTGCGGATTCCCGCCCCGAGGTTTCTAAATCCAGACATTCCTGTTTGGCTGAGCAC
TCTAGGCCTACATCCATGAAGCTAGGAGAGCGACACTCAAAGACTGCACTATTGAGAGAAGCTAACGTT
AAAGGCAGTGAATATATTCGGGAGTACAGCTCCGGAACGCGTGAGCTCTTTAGTGGGAGGGGCGGCGC
TGATGGCGCTTCTGGCCTCCGAATGCTAGGGGGCGCTGTGATCGCCGGGCGGCCCTTGGGCGCTGGGA
GTCCACCGCGCAAGCGCATCCTGGCCTTTCTTCAGTCCCGACGTGCGATCCTTCCCGCAACTTTTTTCG
AGAAAAATGCCCAAATTCAGGCGGCCCGTGGGGTGGGGGTGAGGAAAAACATGCGCCCTGGCCGAT
CAGATCCTGGCTGGGAATGCGGTGCGGGCGGGGTCCGGGAGAAGCGGCGGGGTGCGGGGACAGGAGAA
GCGGAGGAAGAGTATGTGGGGCCCCGGCTGAGCCGACGGATTTTGCAGCAAGCACGGCAGCAACAGGAG
GAACCTGAGGCCGAGCATGGGACTGGGGACAAGCCCGCGGCGCGCGGGAACGCACCACGCGGCTGGGT
GAGTGTCTGGGATGAGGTCCGAGGAAGACAGTGGCCAGTAGTGGGGCGGGGTGGGCAGCTAAAAAGTGT
CTGGCAGGGGAATTGCTTCGAGTCAACAAA

Fig. 9 (continued)

SEQ ID NO:27: >MED20 Donor 2 (TetO sites in bold, eGFP underlined, 2A-PuroR in italic)

GTGGTGGCGGGCGCCTGTAGTCCCAGCTACTCGGGACTACAGGAGAATCGCTTGAACCCAAGAGGCGGA
GTGTTGCAGTGAGCCAAGATCGCTCCACTGCACTCCAGTCTGGCGACAGAGCGAGACCCCGTCTTAAAA
AAAACAAAACAAAACAAAAAAAACCTTTGCTTTCCCGCCTTCCAAGAGGAAGGGGCGCATCTCTGAG
GAAACAAGCCCCGGGGAACCCGAGCCCGGACGGCATCCTCTCATCTACACAACCCGAGGACATCTCCCT
CAGCTCCCAGAGGACGGCGGACCATGGTCAAGGTCTCTTTCCGGCCTTTCACAACCTCCAAGCCCCGCC
CCACAAAACCCCTGCAGTCCCTACCAAGTCACTCCCATGGCGTCGGGCCAGGAAGGTGGCAGAATCACA
CAGTAGAAACGCAGGGTTCCTGTCCGCCCACAGAACTCCTTCAGTTCCCCAACACAACCTTCTGTCT
CAGAAGGGACTCCGGAAATACGTAAAAACAGAGCGCCGGGTCCACGCCTTCCCCAAGGAATGGGGCGCG
TCTCGGCACCCCTCGATGACGCCTCCACTGACATCATCTGCGGATTCCCGCCCCGAGGTTTCTAAATCC
AGACATTCCCGTTTGGCTGAGCACTCTAGGCCTACATCCATGAAGCTAGGAGAGCGACACTCAAAGACT
GCACATTGAGAGAAGCTAACGTTAAAGGCAGTGAATATATTGCGGAGTACAGCTCCGGAACGCGCTAG
GCTAGCGATCCTCTAGATTTCGAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATGAAGAGTTTACT**TCCCT**
ATCAGTGATAGAGAACGTATGCAGACTTTACT**TCCCTATCAGTGATAGAGA**ACGTATAAGGAGTTTACT**TC**
CCTATCAGTGATAGAGAACGTATGACCAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATCTACAGTTTA
CTCCCTATCAGTGATAGAGAACGTATATCCAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATAAGCTTT
AGGCGTGACGGTGGGCGCCTATAAAAGCAGAGCTAGCTGCAGTAACGCCATTTTGCAGGCATGGAAA
AATACCAAACCAAGATAGAGAAGTTTCAGATCAAGGGCGGGTACATGAAAATAGCTAACGTTGGGGCAA
ACAGGATATCTGCGGTGAGCAGTTTCGGCCCCGGCCCGGGGCCAAGAACAGATGGTCACCGCAGTTTCG
GCCCCGGCCCGAGGCCAAGAACAGATGGTCCCCAGATATGGCCCAACCTCAGCAGTTTCTTAAGACCC
ATCAGATGTTTCCAGGCTCCCCAAGGACCTGAAATGACCCTGCGCCTTATTTGAATTAACCAATCAGC
CTGCTTCTCGCTTCTGTTCGCGCGCTTCTGCTTCCCGAGCTCTATAAAAGAGCTCACAAACCCCTCAGT
GGCGCGCCAGTCTCTCCGACTCGAGAGCGCTGCCACCATGGTGAGCAAGGGCGAGGAGCTGTTTCACCGGG
GTGGTGCCCATCCTGGTTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTTCAGCGTGTCCGGCGAGGGC
GAGGGCGATGCCACCTACGGCAAGCTGACCCTGAAGTTTCATCTGCACCACCGGCAAGCTGCCCGTGCCC
TGGCCACCCCTCGTGACCACCTGACCTACGGCGTGCACTGCTTCAGCCGCTACCCCGACCACATGAAG
CAGCACGACTTCTTCAAGTCCGCCATGCCCCAAGGCTACGTCCAGGAGCGCACCATCTTCTCAAGGAC
GACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTG
AAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACAGCCAC
AACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAAGATCCGCCACAACATC
GAGGACGGCAGCGTGACGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCGTGCTG
CTGCCCCGACAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAGACCCCAACGAGAAGCGCGATCAC
ATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGGACTCTCGGCATGGACGAGCTGTACAAGGATCC
GGAGCGCTAACTTCTCCCTGCTGAAGCAGGCGCGGCGATGTAGAAGAGAACCCGGGGCCCTACCGAGTAC
AAGCCACGGTGCGCCTCGCCACCCGCGACGACGTCCCCAGGGCCGTACGCACCTCGCCGCGCGGTTT
GCCGACTACCCCGCCACGCGCCACACCGTCGATCCGGACCGCCACATCGAGCGGGTACCGGAGCTGCAA
GAACTTCTCTACGCGCGTCGGGCTCGACATCGGCAAGGTGTGGGTTCGCGGACGACGGCGCCCGGTG
GCGGTCTGGACCACGCCGGAGAGCGTCAAGCGGGGGCGGTGTTTCGCGGAGATCGGCCCCGCGCATGGCC
GAGTTGAGCGGTTCCCGGCTGGCCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGACCCGGCCCAAG
GAGCCCGCGTGGTTCTTGGCCACCGTTCGGAGTCTCGCCCGACCAACAGGGCAAGGTTCTGGGCAGCGCC
GTCTGTCTCCCGGAGTGGAGGCGGCCGAGCGCGCCGGGTGCCCCGCTTCTTGGAAACCTCCGCGCCC
CGCAACCTCCCTTCTACGAGCGGCTCGGCTTACCGTCAACCGCCGACGTCGAGGTGCCGAAGGACCG
CGCACCTGGTGCATGACCCGCAAGCCCGGTGCCTGAGCGCGTGAGCTCTTTTAGTGGGAGGGGCGGCGC
TGATGGCGCTTCTGGCCTCCGAATGCTAGGGGGCGCTGTGATCGCCGGGCGGCCCTTGGGCGCTGGGA
GTCCACCGCGCAAGCGCATCCTGGCCTTTCTTCAGTCCCCACGTGCGATCCTTCCCGCAACTTTTTTCG
AGAAAAATGCCCAAATTCAGGCGGCCCGTGGGGTGGGGGGTCAAGAAAAACATGCGCCCTTGCCGAT
CAGATCCTGGCTGGGAATGCGGTGCGGGCGGGGTCCGGGAGAAGCGGCGGGGTGCGGGACAGGAGAA
GCGGAGGAAGAGTATGTGGGGCCCCGGCTGAGCCGACGATTTTGCAGCAAGCACGGCAGCAACAGGAG
GAACTCGAGGCCGAGCATGGGACTGGGGACAAGCCCGCGGCGCCGCGGGAACGCACCACGCGCTGGGT
GAGTGTCTGGGATGAGGTCCGAGGAAGACAGTGGCCAGTAGTGGGGCGGGGTGGGCAGCTAAAAAGTGT
CTGGCAGGGGAATTGCTTCGAGTCAACAAA

Fig. 9 (continued)

SEQ ID NO:28: >FTSJ3 Donor 1 (TetO sites in bold, eGFP underlined, 2A-PuroR in italic)

TCCGGCCTCGCAACCGACCACCCCTTCTGCAGGAGAGGTACATAATGGTCGCAAAGAGCAGGCGAACCG
GGCAGAGATCGCTCGCTCGCTCGCAGACTGAGCGAATCCGGACTCACCCGTCTCCTTCGCCAAGTGATA
AAACTTGTCTCGTCGGCTCTTGCCAACTTTGCCCTTCTTGCCCATGGTGGAAAGGGGAGTATCCCTCA
ATCTGGGGAGAAAGTAGAAGTTGGGAACGTCTCTTTCCGGAGCACCAGATTCCACTTCCAGTTTCCCAC
TTCCAGTTTCCCCTTCCCGCAGCAATTCCACCCCGCGCCCTCTCCGCACACTACCTAGACCCAGAGC
CGCTTCTCCACACTTGGAACCGCACAAAGTATGCAGCTAACTACTTCCGCTTCCGCTTGCGTCCCCTGC
GTCCCTGGCTCGAGGTTTTCGCCATTTTGAGTGTGGCCCTAGATTGTTCTCAATACTCTGTCTTGGG
TTTTGTAAGTTGAAAGTTGAGACTAGGAAGGCATATACAAGAACTATAAACAGAGTTTCAATGAGGCA
ACACTGAGGAGGAGTTCTACTCCTTCCTCATCCCTTCCAAAGCACCTGAACCTAGCTAGGCTAGCGA
TCCTCTAGATTTCGAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATGAAGAGTTTACT**TCCCTATCAGTGA**
TAGAGAACGTATGCAGACTTTACT**TCCCTATCAGTGATAGAGA**ACGTATAAGGAGTTTACT**TCCCTATCAG**
TGATAGAGAACGTATGACCAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATCTACAGTTTACT**TCCCTAT**
CAGTGATAGAGAACGTATATCCAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATAAGCTTTAGGCGTGT
ACGGTGGGCGCCTATAAAAGCAGAGCTAGCTGCAGTAACGCCATTTTGCAAGGCATGAAAAATACCAA
ACCAAGAATAGAGAAGTTCAGATCAAGGGCGGGTACATGAAAATAGCTAACGTTGGGCCAAACAGGATA
TCTGCGGTGAGCAGTTTCGGCCCCGGCCCGGGGCCAAGAACAGATGGTCACCGCAGTTTCGGCCCCGGC
CCGAGGCCAAGAACAGATGGTCCCCAGATATGGCCCCAACCTCAGCAGTTTCTTAAGACCCATCAGATG
TTTCCAGGCTCCCCAAGGACCTGAAATGACCCTGCGCCTTATTTGAATTAACCAATCAGCCTGCTTCT
CGCTTCTGTTTCGCGCCTTCTGCTTCCCGAGCTCTATAAAAGAGCTCACAACCCCTCACTCGGCGCGCC
AGTCTCCGACTCGAGAGCGCTGCCACCATGGTGAGCAAGGGCGAGGAGCTGTTACCGGGGTGGTGCC
CATCCTGTGTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGA
TGCCACCTACGGCAAGCTGACCCTGAAGTTTCTGTCACCAACCGCAAGCTGCCCGTGCCCTGGCCCCAC
CCTCGTGACCACCTGACCTACGGCGTGAGTGCTTTCAGCCGCTACCCCGACCATGAAGCAGCACGA
CTTCTTCAAGTCCGCCATGCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAA
CTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCAT
CGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACCTACAACAGCCACAACGTCTA
TATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACAACATCGAGGACGG
CAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCGTGCTGCTGCCCGA
CAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCCT
GCTGGAGTTTCGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGCGAC
TAATTCTCCCTGCTGAAGCAGGCGCGCATGTAGAAGAGAACCCGGGCCCTACCGAGTACAAGCCAC
GGTCTGAGTGGAGAGCGGGCCGGGGCAGGAGCGTCCCGAGGCGTACGCACCTCGCCCGCGTTCGCCGACTA
CCCCGCCACGCGCCACACCGTTCGATCCGGACGCCACATCGAGCGGGTACCGAGCTGCAAGAATCTT
CCTCACGCGCTCGGGCTCGACATCGGCAAGGTGTGGGTGCGGACGACGGCGCCGCGCTGGCGGTCTG
GACCACGCCGAGAGCGTGAAGCGGGGGCGGTGTTGCGCGAGATCGGCCCGCGCATGGCCGAGTTGAG
CGGTTCCCGGTGGCCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGACCGGCCCAAGGAGCCCGC
GTGGTTCTGGCCACCGTTCGGAGTCTCGCCGACCAACAGGGCAAGGTCTGGGCAGCGCCGTCTGCT
CCCCGAGTGGAGGCGGCCGAGCGCGCGGGGTGCGCGCTTCTTGAAACCTCCGCGCCCCGCAACCT
CCCCCTTCTACGAGCGGCTCGGCTTACCGTCAACCGCGACGTGAGGTGCCGAAGGACCGCGACCTG
GTGCATGACCCGCAAGCCCGGTGCCTGAGCTAGAAGCCGCCCTCCCATCATGGTTCCCTTAGTGTGGT
CTCGCCGACAAACCCGCCATGTACACGGAATTCTTCTCTGCCTGGTCTTCAGGTCCCAATCCTCCGCT
TCCGCGCTTGC CGCCAAGACGGCTCGGATGCCGGCGGTCTCTGCTGAAGAGAGAAGATGGCGCTTGAC
GGACAGAGCAGGTATGGCGGGTGCAGTGGCGGCCCGGCGAGGTACGGGGCTGGGTGCGGAGCGAGCGT
GATCTGAGTGGAGAGCGGGCCGGGGCAGGAGCGTCCGGTGGGTGCGGAGGTGCCTGGACCAAGTCCATGCT
GGACGCTGCCTGCGACCGGATCTGCTGTGTGTCAGCGCCGCCCTCGGTGAGTCAGGGCAAGGTGGGAGAG
GAAGACGCGGTAGAAGCGGAGTGAAGTGAAGGAAGCGATGGGCGCGGGAATGGCCGGCCACGGGTGCA
GGAGACGGGACGCCAGTCCCTTGGCTCCGTTCCGCTGGCTCCTTCGTGAGTACTGACACCTCGGGCTTG
TAGAGCACTTACGCAAGTCAAAGCGCCCCCGTCTATATCATATCGCCTCTCGGTCTCTAAAAGTC
GTATGAGGTAGGCGCGCTCCCATCTTTTATTTTAGTCTGGGAAAATGGAGGGTCCAAGGGAGGGA
GGGATTAGAACC

Fig. 9 (continued)

SEQ ID NO:29: >FTSJ3 Donor 2 (TetO sites in bold, eGFP underlined, 2A-PuroR in italic)

TCCGGCCTCGCAACCGACCACCCCTTCTGCAGGAGAGGTACATAATGGTCGCAAAGAGCAGGCGAACCG
GGCAGAGATCGCTCGCTCGCTCGCAGACTGAGCGAATCCGGACTCACCCGTCTCCTTCGCCAAGTGATA
AAACTTGTCTCGTCGGCTCTTGCCAACTTTGCCCTTCTTGCCCATGGTGGAAAGGGGAGTATCCCTCA
ATCTGGGGAGAAAGTAGAAGTTGGGAACGTCTCTTTCCGGAGCACCAGATTCCACTTCCAGTTTCCCAC
TTCCAGTTTCCCCTTCCCGCAGCAATTCCACCCCGCGCCCTCTCCGCACACTACCTAGACCCAGAGC
CGCTTCTCCACACTTGGAACCGCACAAGTATGCAGCTAACTACTTCCGCTTCCGCTTCCGCTCCCTGC
GTCCCTGGCTCGAGGTTTTCGCCATTTTGAGTGTGGCCCTAGATTGTTCTCAATACTCTGTCTTGGG
TTTTGTAAGTTGAAAGTTGAGACTAGGAAGGCATATCACAAGAACTATAAACAGAGTTTCAATGAGGCA
ACACTGAGGAGGAGTTCTACTCCTTCCTCATCCCTTCCAAAGCACCTGAACCTAGAAAGCCGCCCTC
CCATCATGGTTCCCTTAGTGTGGTCTCGCCGCACAACCCGCCCATGTACCTAGGCTAGCGATCCTCTAG
ATTCGAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATGAAGAGTTTACT**TCCCTATCAGTGATAGAGA**AC
GTATGCAGACTTTACT**TCCCTATCAGTGATAGAGA**ACGTATAAGGAGTTTACT**TCCCTATCAGTGATAGAG**
AACGTATGACCAGTTTACTTCCCTATCAGTGATAGAGAACGTATCTACAGTTTACT**TCCCTATCAGTGATA**
GAGAACGTATATCCAGTTTACT**TCCCTATCAGTGATAGAGA**ACGTATAAGCTTTAGGCGTGTACGGTGGG
CGCCTATAAAAGCAGAGCTAGCTGCAGTAACGCCATTTTGCAAGGCATGGAAAAATACCAAACCAAGAA
TAGAGAAGTTTCAGATCAAGGGCGGGTACATGAAAATAGCTAACGTTGGGCCAAACAGGATATCTGCGGT
GAGCAGTTTCGGCCCCGGCCGGGGCCAAAGAACAGATGGTCACCGCAGTTTTCGGCCCCGGCCGAGGCC
AAGAACAGATGGTCCCCAGATATGGCCCCAACCTCAGCAGTTTCTTAAGACCCATCAGATGTTTCCAGG
CTCCCCAAGGACCTGAAATGACCCTGCGCCTTATTTGAATTAACCAATCAGCCTGCTTCTCGCTCTG
TTCGCGCGCTTCTGCTTCCCGAGCTCTATAAAAGAGCTCACAAACCCCTCACTCGGCGCGCCAGTCTCC
GACTCGAGAGCGCTGCCACCATGGTGAGCAAGGGCGAGGAGCTGTTACCGGGGTGGTGCCCATCTCTGG
TCGAGCTGGACGGCGACGTAAACCGGCCACAAGTTTCAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCT
ACGGCAAGCTGACCCTGAAGTTTCATCTGCACCACCGGCAAGCTGCCCGTGCCCTGGCCCCACCTCGTGA
CCACCCTGACCTACGGCGTGCAGTGCTTCAGCCGCTACCCCGACCACATGAAGCAGCACGACTTCTTCA
AGTCCGCCATGCCCCAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGA
CCCGCGCCGAGGTGAAGTTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCA
AGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGCTATATCATGG
CCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGC
AGCTCGCCGACCACTACCAGCAGAACACCCCCATCGGCGACGGCCCCGTGCTGCTGCCCCGACAACCACT
ACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCTGCTGGAGT
TCGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGCGACTAACTTCT
CCCTGCTGAAGCAGGCCGGCGATGTAGAAGAGAACCGGGCCCTACCGAGTACAAGCCACAGGTGCGCC
TCGCCACCCGCGACGACGTCCCCAGGGCCGTACGCACCCCTCGCCCGCCGCTTCGCCGATACCCCGCCA
CGCGCCACACCGTTCGATCCGGACCGCCACATCGAGCGGGTCAACGAGCTGCAAGAACTTCTCTCACGC
GCGTGGGCTCGACATCGGCAAGGTGTGGGTTCGCGGACGACGGCGCCGCGTGGCGGTCTGGACCACGC
CGGAGAGCGTCAAGCGGGGGCGGTGTTTCGCCGAGATCGGCCCGCGCATGGCCGAGTTGAGCGGTTCCT
GGCTGGCCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGACCGGCCCAAGGAGCCCGCTGGTTCC
TGGCCACCGTTCGAGTCTCGCCCGACCAACAGGGCAAGGGTCTGGGCAGCGCCGTGCTGCTCCCCGAG
TGGAGGCGGCCGAGCGCGCCGGGTGCCCGCTTCTGGAAACCTCCGCGCCCCGCAACCTCCCTTCT
ACGAGCGGTTCGGCTTACCGTTCACCGCCGACGTTCGAGGTGCCCGAAGGACCGCGCACCTGGTGCATGA
CCCGCAAGCCCGGTGCTTGAAGTACACGGAATTCTTCTCTGCTGCTTTCAGGTCCCAATCTCCGCT
TCCGCGCTTTCGCGCCAAGACGGCTCGGATGCCGCGGTCTCTGCTGAAGAGAGAAGATGGCGCTTGAC
GGACCAGAGCAGGTATGGCGGTGTCAGTGGCGGCCGAGGTTACGGGGCTGGGTGCGGAGCGAGCGT
GATCTGAGTGGAGAGCGGGCCGGGGCAGGAGCGTCCGGTGGGTTCGGAGGTGCCTGGACCACTCCATGCT
GGACGCTGCCTGCGACCGGATCTGCTGTGTGTCAGCGCCGCCCTCGGTGAGTCAGGGCAAGGTGGGAGAG
GAAGACGCGGTAGAAGCGGAGTGAAGTGAAGGAAGCGATGGGCGCGGGAATGGCCGGCCACGGGTGCA
GGAGACGGGACGCCAGTCTTTGGCTCCGTTCCGCTGGCTCCTTCGTGAGTACTGACACCTCGGGCTTG
TAGAGCACTTACGCAGTGCAAAGCGCCCCCGTCTATATCATATCGCCTCTCGGTCTCTAAAAGTC
GTATGAGGTAGGCGCGTTCCTATCTTTTATTTTAGTCTGGGAAAATGGAGGGTTCAGGGAGGGA
GGGATTAGAACC

Fig. 9 (continued)

SEQ ID NO:30: >TetR-KRAB

MARLDKSKVINSALELLNEVGIEGLTTRKLAQKLGVEQPTLYWHVKNKRALLDALAIEMLDHRHHTFCP
LEGESWQDFLRNNAKSFRCALLSHRDGAKVHLGTRPTEKQYETLENQLAFLCQQGFSLENALYALSAVG
HFTLGCVLEDQEHQVAKEERETPTTDSMPPLLRQAIELFDHQGAEP AFLFGLELIICGLEKQLKCESGS
PKKKRKVDGGGALS PQHSAVTQGSIIKNKEGMDAKSLTAWSR TLVTFKDVFVDFTREEWKLLDTAQQIV
YRNVMLENYKNLVSLGYQLTKPDVILRLKGEPPWLVEREIHQETHPDSETAFEIKSSV

SEQ ID NO:35 MED20 homology donor (Left homology arm in bold, right homology arm in italic)

GTGGTGGCGGGCGCCTGTAGTCCCAGCTACTCGGGACTACAGGAGAATCGCTTGAACCCAAGAGGCGGA
GTGTTGCAGTGAGCAAGATCGCTCCACTGCATCCAGTCTGGCGACAGAGCGAGACCCCGTCTTAAAA
AAAACAAAACAAAACAAAAAAAACCTTTGCTTTCCCGCCTTCCAAGAGGAAGGGCGCATCTCTGAG
GAAACAAGCCCCGGGAACCCGCAGCCCGGACGGCATCCTCTCATCTACACAACCCGAGGACATCTCCCT
CAGCTCCCAGAGGACGGCGGACCATGGTCAAGGTCTCTTTCCGGCCTTTCACAACTCCAAGCCCCGCC
CCACAAAACCCCTGCAGTCCTACCAAGTCACTCCCATGGCGTCCGGCCAGGAAGGTGGCAGAATCACA
CAGTAGAAACGCAGGGTTCCTGTCCGCCACAGAACTCCTTCAGTTCCCCAACACAACCTTCTGTCT
CAGAAGGGACTCCGGAATACTGTAACACAGAGCGCCGGGTCCACGCCTTCCCCAAGGAATGGGGCGCG
TCTCGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGC
AAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTA
TGCAAAGCATGCATCTCAATTAGTCAGCAACCATAGTCCC GCCCTAACTCCGCCATCCCCGCCCTAA
CTCCGCCAGTTCGCCCATTTCTCCGCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGG
CCGCCTCTGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTCAAAA
AGCTGCGATCGGCCACCATGGTGAGCGAGCTGATTAAGGAGAACATGCACATGAAGCTGTACATGGAG
GGCACCCTGAACAACCACCTTCAAGTGCACATCCGAGGGCGAAGGCAAGCCCTACGAGGGCACCCAG
ACCATGAGAATCAAGGCGGTGAGGGCGGCCCTCTCCCCTTCGCCTTCGACATCCTGGCTACCAGCTTC
ATGTACGGCAGCAAAACCTTCATCAACCACACCCAGGGCATCCCCGACTTCTTTAAGCAGTCTTCCCC
GAGGGCTTCACATGGGAGAGAGTCAACACATACGAAGACGGGGGCGTGCTGACCGCTACCCAGGACACC
AGCCTCCAGGACGGCTGCCTCATCTACAACGTCAAGATCAGAGGGGTGAAGTTCCTATCCAACGGCCCT
GTGATGCAGAAGAAAACACTCGCTGGGAGGCCTCCACCGAGACCCTGTACCCCGCTGACGGCGGCCCTG
GAAGGCAGAGCCGACATGGCCCTGAAGCTCGTGGGCGGGGGCCACCTGATCTGCAACTTGAAGACCACA
TACAGATCCAAGAAACCCGCTAAGAACCTCAAGATGCCCGGCGTCTACTATGTGGACAGAAGACTGGAA
AGAATCAAGGAGGCCGACAAAGAGACCTACGTCGAGCAGCACGAGGTGGCTGTGGCCAGATACTGCGAC
CTCCCTAGCAAACTGGGGCACAGATGAACCGGTCTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTGCC
CCTCCCCCGTGCCTTCCTTGACCCTGGAAGGTGCCACTCCCACTGTCCTTTCCCTAATAAAATGAGGAAA
TTGCATCGCATTGTCTGAGTAGGTGTCACTTATTCTGGGGGTGGGGTGGGGCAGGACAGCAAGGGGG
AGGATTGGGAAGACAAATAGCAGGCATGCTGGGGATGCGGTGGGCTCTATGCCCCTCGATGACGCCTCCA
CTGACATCATCTGCGGATTCCCCGCCCGAGGTTTCTAAATCCAGACATTCCCGTTTGGCTGAGCACTCT
AGGCCTACATCCATGAAGCTAGGAGAGCGACACTCAAAGACTGCACTATTGAGAGAAGCTAACGTTAAA
GGCAGTGAATATATTCGGGAGTACAGCTCCGGAACGCGTGAGCTCTTTTAGTGGGAGGGGCGGCGCTGA
TGGCGCTTCTGGCCTCCGAATGCTAGGGGGCGCTGTGATCGCCGGGCGGCCTCTTGGGCGCTGGGAGTC
CACCGCGCAAGCGCATCCTGGCCTTTCTTCAGTCCCCACGTGCGATCCTTCCCGGCAACTTTTTCGAGA
AAAATGCCCAAATTCAAGGCGGCCCGTGGGGTGGGGGTCAGGAAAAACATGCGCCCTGGCCGATCAG
ATCCTGGCTGGGAATGCGGTGCGGGCGGGGGTCCGGGAGAAGCGGCGGGTTCGCGGGACAGGAGAAGCG
GAGGAAGAGTATGTGGGGCCCCGGCTGAGCCGACGGATTTTGAGCAAGCACGGCAGCAACAGGAGGAA
CTCGAGGCCGAGCATGGGACTGGGGACAAGCCCGCGGCGCCGCGGGAACGCACCACGCGCTGGGTGAG
TGCTCTGGGATGAGGTCCGAGGAAGACAGTGGCCAGTAGTGGGGCGGGGTGGGCAGCTAAAAAGTGCTCG
GCAGGGGAATTGCTTCGAGTCAACAA

Fig. 9 (continued)

SEQ ID NO:36 FTSJ3 homology donor (Left homology arm in bold, right homology arm in italic)

TCCGGCCTCGCAACCGACCACCCCTTCTGCAGGAGAGGTACATAATGGTCGCAAAGAGCAGGCGAACCG
GGCAGAGATCGCTCGCTCGCTCGCAGACTGAGCGAATCCGGACTCACCCGTCTCCTTCGCCAAGTGATA
AAACTTGTCTCGTCGGCTCTTGCCAACTTTGCCCTTCTTGCCCATGGTGGAAGGGGGAGTATCCCTCA
ATCTGGGGAGAAAGTAGAAGTTGGGAACGTCTCTTTCCGGAGCACCAGATTCCACTTCCAGTTTCCCAC
TTCCAGTTTCCCACCTTCCCGCAGCAATTCCACCCCGCGCCCTCTCCGCACACTACCTAGACCCAGAGC
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Fig. 9 (continued)

SEQ ID NO:37 Cas9 expression vector (with AAVS1 sgRNA integrated)

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Fig. 9 (continued)

>SEQ ID NO:38 AAVS1 homology donor (Left homology arm in bold, right homology arm in italic, transgene cassette in capital letters, SV40 promoter in underscore, mKate2 in bold and underscore, polyadenylation signal in bold and italic).

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