SEQUENCE LISTING

<110> CRISPR THERAPEUTICS AG

<120> COMPOSITIONS AND METHODS FOR GENOMIC EDITING BY INSERTION OF DONOR POLYNUCLEOTIDES

<130> AC2461 PCT S3

<140> PCT/IB2019/00833
<141> 2019-06-28

<150> US 62/691,573
<151> 2018-06-28

<160> 110

<170> PatentIn version 3.5

<210> 1
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<212> DNA
<213> Homo sapiens

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<221> misc_feature
<223> Human glucose-6-phosphatase catalytic subunit (G6PC) mRNA nucleic acid sequence

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agtcaacaca ttacctccag gtgaattacc aagactccca ggactggttc atcttggtgt 180

ccgtgatcgc agacctcagg aatgccttct acgtcctctt ccccatctgg ttccatcttc 240

aggaagctgt gggcattaaa ctcctttggg tagctgtgat tggagactgg ctcaacctcg 300

tctttaagtg gattctcttt ggacagcgtc catactggtg ggttttggat actgactact 360

acagcaacac ttccgtgccc ctgataaagc agttccctgt aacctgtgag actggaccag 420

ggagcccctc tggccatgcc atgggcacag caggtgtata ctacgtgatg gtcacatcta 480

ctctttccat ctttcaggga aagataaagc cgacctacag atttcggtgc ttgaatgtca 540

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cccatgtgtg actccagcct gccctcagca cagactcttt cagatggagg tgccatatca 1380

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gcccattttg aggccagagg tgctgtcagc tcaggtggtc ctcttttaca atcctaatca 1560

tattgggtaa tgtttttgaa aagctaatga agctattgag aaagacctgt tgctagaagt 1620

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aggctgccta aggaggagtt tttagtatgt ggcgtatcat gcaagtgcta tgccaagcca 1860

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atgttcatcg tatttccttg gatttctgaa tggctgcagt gacccagata ttgcactagg 2040

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cagaaatggt tttgatctgt ctgaactgaa ccctactgct taggcatagc cccatccttg 4020

ataatctatt tgctcccaag gaccaagtcc aagatcctta caagaaaggt ctgccagaaa 4080

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<210> 2
<211> 357
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
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His Tyr Leu Gln Val Asn Tyr Gln Asp Ser Gln Asp Trp Phe Ile Leu
20 25 30

Val Ser Val Ile Ala Asp Leu Arg Asn Ala Phe Tyr Val Leu Phe Pro
35 40 45

Ile Trp Phe His Leu Gln Glu Ala Val Gly Ile Lys Leu Leu Trp Val
50 55 60

Ala Val Ile Gly Asp Trp Leu Asn Leu Val Phe Lys Trp Ile Leu Phe
65 70 75 80

Gly Gln Arg Pro Tyr Trp Trp Val Leu Asp Thr Asp Tyr Tyr Ser Asn
85 90 95

Thr Ser Val Pro Leu Ile Lys Gln Phe Pro Val Thr Cys Glu Thr Gly
100 105 110

Pro Gly Ser Pro Ser Gly His Ala Met Gly Thr Ala Gly Val Tyr Tyr
115 120 125

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Val Met Val Thr Ser Thr Leu Ser Ile Phe Gln Gly Lys Ile Lys Pro
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Thr Tyr Arg Phe Arg Cys Leu Asn Val Ile Leu Trp Leu Gly Phe Trp
145                 150                 155                 160

Ala Val Gln Leu Asn Val Cys Leu Ser Arg Ile Tyr Leu Ala Ala His
                165                 170                 175

Phe Pro His Gln Val Val Ala Gly Val Leu Ser Gly Ile Ala Val Ala
            180                 185                 190

Glu Thr Phe Ser His Ile His Ser Ile Tyr Asn Ala Ser Leu Lys Lys
        195                 200                 205

Tyr Phe Leu Ile Thr Phe Phe Leu Phe Ser Phe Ala Ile Gly Phe Tyr
    210                 215                 220

Leu Leu Leu Lys Gly Leu Gly Val Asp Leu Leu Trp Thr Leu Glu Lys
225                 230                 235                 240

Ala Gln Arg Trp Cys Glu Gln Pro Glu Trp Val His Ile Asp Thr Thr
                245                 250                 255

Pro Phe Ala Ser Leu Leu Lys Asn Leu Gly Thr Leu Phe Gly Leu Gly
            260                 265                 270

Leu Ala Leu Asn Ser Ser Met Tyr Arg Glu Ser Cys Lys Gly Lys Leu
        275                 280                 285

Ser Lys Trp Leu Pro Phe Arg Leu Ser Ser Ile Val Ala Ser Leu Val
    290                 295                 300

Leu Leu His Val Phe Asp Ser Leu Lys Pro Pro Ser Gln Val Glu Leu
305                 310                 315                 320

Val Phe Tyr Val Leu Ser Phe Cys Lys Ser Ala Val Val Pro Leu Ala
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Ser Val Ser Val Ile Pro Tyr Cys Leu Ala Gln Val Leu Gly Gln Pro
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His Lys Lys Ser Leu
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<213> Artificial Sequence

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<223> Synthetic: CH32-CTX1 sgRNA

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guccguuauc aacuugaaaa aguggcaccg agucggugcu sususu 106

<210> 4
<211> 106
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34-CTX1 sgRNA

<400> 4
usgsgsacag cguccauacu gguguuuuag agcuagaaau agcaaguuaa aauaaggcua 60

guccguuauc aacuugaaaa aguggcaccg agucggugcu sususu 106

<210> 5
<211> 106
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36-CTX1 sgRNA

<400> 5
gsusasucca aaacccacca guaguuuuag agcuagaaau agcaaguuaa aauaaggcua 60

guccguuauc aacuugaaaa aguggcaccg agucggugcu sususu 106

<210> 6
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32 sgRNA

<400> 6
ucuuuggaca gcguccauac guuuuagagc uagaaauagc aaguuaaaau aaggcuaguc 60

cguuaucaac uugaaaaagu ggcaccgagu cggugcuuuu   100

<210> 7
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34 sgRNA

<400> 7
uggacagcgu ccauacuggu guuuuagagc uagaaauagc aaguuaaaau aaggcuaguc 60

cguuaucaac uugaaaaagu ggcaccgagu cggugcuuuu   100

<210> 8
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36 sgRNA

<400> 8
guauccaaaa cccaccagua guuuuagagc uagaaauagc aaguuaaaau aaggcuaguc 60

cguuaucaac uugaaaaagu ggcaccgagu cggugcuuuu   100

<210> 9
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32_75-0 Antisense

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agggcactgt ccaaagagaa tcctatggaa aaacagaaca agtttctggg gttactgaat 60

gaatgctttt gccca   75

<210> 10
<211> 75
<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic: CH32_75-0 Sense

<400> 10
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tttggacagt gccct 75

<210> 11
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32_100-0 AntiSense

<400> 11
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gaatgctttt gcccaaagcc tacaccttca agaagagtgt 100

<210> 12
<211> 100
<212> DNA
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<223> Synthetic: CH32_100-0 Sense

<400> 12
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tgttctgttt ttccatagga ttctctttgg acagtgccct 100

<210> 13
<211> 125
<212> DNA
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<220>
<223> Synthetic: CH32_125-0 AntiSense

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tgttg 125

<210> 14
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<212> DNA
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<223> Synthetic: CH32_125-0 Sense

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cattcattca gtaaccccag aaacttgttc tgtttttcca taggattctc tttggacagt 120

gccct 125

<210> 15
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
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<400> 15
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<210> 16
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32_25-0 Sense

<400> 16
taggattctc tttggacagt gccct 25

<210> 17
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32_50-0 AntiSense

<400> 17
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<210> 18

<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32_50-0 Sense

<400> 18
cccagaaact tgttctgttt ttccatagga ttctctttgg acagtgccct 50

<210> 19
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
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<400> 19
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<210> 20
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH32_50-0 Sense

<400> 20
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<210> 21
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH32_55-0 AntiSense

<400> 21
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<210> 22
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH32_55-0 Sense

<400> 22
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<210> 23
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH32_60-0 AntiSense

<400> 23
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<210> 24
<211> 60
<212> DNA
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<210> 25
<211> 65
<212> DNA
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<223> Synthetic: CH32_65-0 AntiSense

<400> 25
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gaatg 65

<210> 26
<211> 65
<212> DNA
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<220>
<223> Synthetic: CH32_65-0 Sense

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gccct 65

<210> 27
<211> 70
<212> DNA
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<220>
<223> Synthetic: CH32_70-0 AntiSense

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gaatgctttt 70

<210> 28
<211> 70
<212> DNA
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<223> Synthetic: CH32_70-0 Sense

<400> 28
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acagtgccct 70

<210> 29
<211> 54
<212> DNA
<213> Artificial Sequence

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<223> Synthetic: Enhanced CH34_54-0 (C) AntiSense

<400> 29
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<210> 30
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH34_54-0 (C) Sense

<400> 30
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<210> 31
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH34_59-0 AntiSense

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<210> 32
<211> 59
<212> DNA
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<223> Synthetic: Enhanced CH34_59-0 Sense

<400> 32
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<210> 33
<211> 64
<212> DNA
<213> Artificial Sequence

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<223> Synthetic: Enhanced CH34_64-0 AntiSense

<400> 33
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gaat 64

<210> 34
<211> 64
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH34_64-0 Sense

<400> 34
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tact 64

<210> 35

<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34_69-0 AntiSense

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gaatgaatg 69

<210> 36
<211> 69
<212> DNA
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<223> Synthetic: CH34_69-0 Sense

<400> 36
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gcccttact 69

<210> 37
<211> 74
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34_74-0 AntiSense

<400> 37
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gaatgaatgc tttt 74

<210> 38
<211> 74
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34_74-0 Sense

<400> 38
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acagtgccct tact 74

<210> 39
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH36_53-0 AntiSense

<400> 39
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<210> 40
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH36_53-0 Sense

<400> 40
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<210> 41
<211> 58
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH36_58-0 AntiSense

<400> 41
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<210> 42
<211> 58
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH36_58-0 Sense

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<210> 43
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH36_63-0 AntiSense

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aat 63

<210> 44
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Enhanced CH36_63-0 Sense

<400> 44
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tac 63

<210> 45
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36_68-0 AntiSense

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aatgaatg 68

<210> 46
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36_68-0 Sense

<400> 46
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gcccttac 68

<210> 47
<211> 73
<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic: CH36_73-0 AntiSense

<400> 47
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aatgaatgct ttt 73

<210> 48
<211> 73
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36_73-0 Sense

<400> 48
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acagtgccct tac 73

<210> 49
<211> 5
<212> DNA
<213> Artificial Sequence

<220>
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<221> misc_feature
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<400> 49
ytnay 5

<210> 50
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<220>
<223> Synthetic: branch point sequence

<400> 50
tattaac 7

<210> 51
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<220>
<223> Synthetic: branch point sequence

<400> 51
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<210> 52
<211> 7
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<220>
<223> Synthetic: branch point sequence

<400> 52
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<210> 53
<211> 9
<212> DNA
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<223> Synthetic: polypyrimidine tract

<400> 53
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<210> 54
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<213> Artificial Sequence

<220>
<223> Synthetic: polypyrimidine tract

<400> 54
tttttttctt ttt 13

<210> 55
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: polypyrimidine tract

<400> 55
cttcttctct tcttcc 16

<210> 56
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic: SV40 nuclear localization signal (NLS)

<400> 56

Pro Lys Lys Lys Arg Lys Val
1 5

<210> 57
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic: SV40 nuclear localization signal (NLS)

<400> 57

Pro Lys Lys Lys Arg Arg Val
1 5

<210> 58
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic: nucleoplasmin nuclear localization signal (NLS)

<400> 58

Lys Arg Pro Ala Ala Thr Lys Lys Ala Gly Gln Ala Lys Lys Lys Lys
1 5 10 15

<210> 59
<211> 24
<212> DNA
<213> S. pyogenes

<220>
<221> misc_feature
<223> S. pyogenes target sequence and PAM

<220>
<221> misc_feature
<222> (1)..(22)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (20)..(21)
<223> n may or may not be present

<400> 59
nnnnnnnnnn nnnnnnnnnn nnrg 24

<210> 60
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic: 6xHis

<400> 60

His His His His His His
1 5

<210> 61
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA5 sgRNA

<400> 61
agcccgcuuu cuucucccgc guuuuagagc uagaaauagc aaguuaaaau aaggcuaguc 60

cguuaucaac uugaaaaagu ggcaccgagu cggugcuuuu 100

<210> 62
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_25-0_F

<400> 62
gagaagaagt attaactttt tttct 25

<210> 63
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_50-0_F

<400> 63
tggaagaaga gaagaagctg ggtattaacg catttttttc tttttaattc 50

<210> 64
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_75-0_F

<400> 64
tggaagaaga gaagaagctg ggaatgtgtc agtaaggcat gtattaacgc aaatgaattt 60

ttttcttttt aattc 75

<210> 65
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_100-0_F

<400> 65
tggaagaaga gaagaagctg ggaatgtgtc agtaaggcat gagccaccgc gccagccatg 60

caaatctatt aacgcaaatg aatttttttc tttttaattc 100

<210> 66
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_25-0_R

<400> 66

agaaaaaaag ttaatacttc ttctc 25

<210> 67
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_50-0_R

<400> 67
gaattaaaaa gaaaaaaatg cgttaatacc cagcttcttc tcttcttcca 50

<210> 68
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_75-0_R

<400> 68
gaattaaaaa gaaaaaaatt catttgcgtt aatacatgcc ttactgacac attcccagct 60

tcttctcttc ttcca 75

<210> 69
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_100-0_R

<400> 69
gaattaaaaa gaaaaaaatt catttgcgtt aatagatttg catggctggc gcggtggctc 60

atgccttact gacacattcc cagcttcttc tcttcttcca 100

<210> 70
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42 sgRNA

<400> 70
gucagucuca cagguuacag guuuuagagc uagaaauagc aaguuaaaau aaggcuaguc 60

cguuaucaac uugaaaaagu ggcaccgagu cggugcuuuu 100

<210> 71
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_25-0_F

<400> 71
aacctgtgag actggaccag gtaag 25

<210> 72
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_25-0_R

<400> 72
cttacctggt ccagtctcac aggtt 25

<210> 73
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_50-0_F

<400> 73
aacctgtgag actggaccag gtaagactca cacttgcgaa accggcccag 50

<210> 74
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_50-0_R

<400> 74
ctgggccggt ttcgcaagtg tgagtcttac ctggtccagt ctcacaggtt 50

<210> 75
<211> 75
<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic: CH42_75-0_F

<400> 75
aacctgtgag actggaccag gtaagcgacg cgcatttctc acacggcagg actcacactt 60

gcgaaaccgg cccag 75

<210> 76
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_75-0_R

<400> 76
ctgggccggt ttcgcaagtg tgagtcctgc cgtgtgagaa atgcgcgtcg cttacctggt 60

ccagtctcac aggtt 75

<210> 77
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_100-0_F

<400> 77
aacctgtgag actggaccag gtaagcgacg cgcatttctc acacggcagg gagggccaca 60

cgcgtttgtt tctcaactca cacttgcgaa accggcccag 100

<210> 78
<211> 100
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_100-0_R

<400> 78
ctgggccggt ttcgcaagtg tgagttgaga aacaaacgcg tgtggccctc cctgccgtgt 60

gagaaatgcg cgtcgcttac ctggtccagt ctcacaggtt 100

<210> 79

<211> 125
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_125-0_F

<400> 79
aacctgtgag actggaccag gtaagcgacg cgcatttctc acacggcagg gagggccaca 60

cgcgtttgtt tctcacacga tgggcagggc gacacatgtt actcacactt gcgaaaccgg 120

cccag 125

<210> 80
<211> 125
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42_125-0_R

<400> 80
ctgggccggt ttcgcaagtg tgagtaacat gtgtcgccct gcccatcgtg tgagaaacaa 60

acgcgtgtgg ccctccctgc cgtgtgagaa atgcgcgtcg cttacctggt ccagtctcac 120

aggtt 125

<210> 81
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32 sgRNA spacer

<400> 81
ucuuuggaca gcguccauac 20

<210> 82
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32 target gene(PAM)

<400> 82
tctttggaca gcgtccatac tgg 23

<210> 83
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34 sgRNA spacer

<400> 83
uggacagcgu ccauacuggu 20

<210> 84
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34 target gene(PAM)

<400> 84
tggacagcgt ccatactggt ggg 23

<210> 85
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36 sgRNA spacer

<400> 85
guauccaaaa cccaccagua 20

<210> 86
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH36 target gene (PAM)

<400> 86
gtatccaaaa cccaccagta tgg 23

<210> 87
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42 target gene (PAM)

<400> 87
gtcagtctca caggttacag ggg 23

<210> 88
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH42 sgRNA spacer

<400> 88
gucagucuca cagguuacag 20

<210> 89
<211> 106
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: Murine CH34-CTX1 sgRNA

<400> 89
usgsgsacaa cgcccguauu gguguuuuag agcuagaaau agcaaguuaa aauaaggcua 60

guccguuauc aacuugaaaa aguggcaccg agucggugcu sususu 106

<210> 90
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: WT GAA Target gene(PAM)

<400> 90
agcccgcttt cttctcccgc agg 23

<210> 91
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: WT GAA5 sgRNA spacer

<400> 91

agcccgcuuu cuucucccgc 20

<210> 92
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: Mutant (Mt) GAA target gene(PAM)

<400> 92
agcccgcttg cttctcccgc agg 23

<210> 93
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: Mt GAA sgRNA spacer

<400> 93
agcccgcuug cuucucccgc 20

<210> 94
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: Mt GAA sgRNA

<400> 94
agcccgcuug cuucucccgc guuuuagagc uagaaauagc aaguuaaaau aaggcuaguc 60

cguuaucaac uugaaaaagu ggcaccgagu cggugcuuuu 100

<210> 95
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_30 F

<400> 95
aagagaagaa gtattaactt tttttctttt 30

<210> 96

<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_35 F

<400> 96
aagaagagaa gaagtattaa ctttttttct tttta 35

<210> 97
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_40 F

<400> 97
ggaagaagag aagaagtatt aacttttttt ctttttaatt 40

<210> 98
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_45 F

<400> 98
tggaagaaga gaagaagctt attaactttt tttcttttaa ttc 43

<210> 99
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_55 F

<400> 99
tggaagaaga gaagaagctg ggtattaacg caaatttttt ttcttttaa ttc 53

<210> 100
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_60 F

<400> 100
tggaagaaga gaagaagctg ggaatgttat taacgcaaat gatttttttc tttttaattc 60

<210> 101
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_65 F

<400> 101
tggaagaaga gaagaagctg ggaatggtca gtatattaac gcaaatgttt ttttcttttt 60

aattc 65

<210> 102
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_70 F

<400> 102
tggaagaaga gaagaagctg ggaatgtgtc agtaagtatt aacgcaaatg aatttttttc 60

tttttaattc 70

<210> 103
<211> 80
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_80 F

<400> 103
tggaagaaga gaagaagctg ggaatgtgtc agtaaggcat gagccatatt aacgcaaatg 60

aatttttttc tttttaattc 80

<210> 104
<211> 85
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_85 F

<400> 104
tggaagaaga gaagaagctg ggaatgtgtc agtaaggcat gagccaccgc gtattaacgc 60

aaatgaattt ttttcttttt aattc 85

<210> 105
<211> 90
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_90 F

<400> 105
tggaagaaga gaagaagctg ggaatgtgtc agtaaggcat gagccaccgc gccagctatt 60

aacgcaaatg aatttttttc tttttaattc 90

<210> 106
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: GAA_95 F

<400> 106
tgggaagaag agaagaagct gggaatgtgt cagtaaggca tgagccaccg cgccagccat 60

gctattaacg caaatgaatt tttttctttt taattc 96

<210> 107
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH32 Mutant-CTX1 sgRNA spacer

<400> 107
ucuuuggaca gcguccauac 20

<210> 108
<211> 20
<212> RNA
<213> Artificial Sequence

<220>
<223> Synthetic: CH34 Mutant-CTX1 sgRNA spacer

<400> 108
uggacagcgu ccauacuggu 20

<210> 109
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: polypyrimidine tract

<400> 109
cttgttctgt tttttt 16

<210> 110
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic: exonic sequence

<400> 110
gattctcttt ggacagcgcc cttact 26