SEQUENCE LISTING

<110> GENERATION BIO CO.

<120> NON-VIRAL DNA VECTORS AND USES THEREOF FOR EXPRESSING PHENYLALANINE HYDROXYLASE (PAH) THERAPEUTICS

<130> 131698-05720

<140>
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<150> 62/817,771
<151> 2019-03-13

<150> 62/857,514
<151> 2019-06-05

<160> 190

<170> PatentIn version 3.5

<210> 1
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<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gagcgcgcag ctgcctgcag g 141

<210> 2
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

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gggcgacctt tggtcgcccg gcctcagtga gcgagcgagc gcgcagagag ggagtggcca 120

actccatcac taggggttcc t 141

<210> 3
<211> 130
<212> DNA
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccgggcgacc aaaggtcgcc cgacgcccgg gcggcctcag tgagcgagcg agcgcgcagc 120

tgcctgcagg 130

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<211> 130
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ggtcgcccgg cctcagtgag cgagcgagcg cgcagagagg gagtggccaa ctccatcact 120

aggggttcct 130

<210> 5
<211> 143
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 5
ttgcccactc cctctctgcg cgctcgctcg ctcggtgggg cctgcggacc aaaggtccgc 60

agacggcaga ggtctcctct gccggcccca ccgagcgagc gacgcgcgca gagagggagt 120

gggcaactcc atcactaggg taa 143

<210> 6
<211> 144
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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agacggacgt gggtttccac gtccggcccc accgagcgag cgagtgcgca tagagggagt 120

ggccaactcc atcactagag gtat 144

<210> 7
<211> 127
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gccaact 127

<210> 8
<211> 166
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gacaggggg agagtgccac actctcaagc aaggggttt tgtaag 166

<210> 9

<211> 144
<212> DNA
<213> Artificial Sequence

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polynucleotide

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gggcaactcc atcactaggg gtat 144

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<211> 143
<212> DNA
<213> Artificial Sequence

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polynucleotide

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ggcagaggag acctctgccg tctgcggacc tttggtccgc aggccccacc gagcgagcga 120

gcgcgcagag agggagtggg caa 143

<210> 11
<211> 144
<212> DNA
<213> Artificial Sequence

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polynucleotide

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ggacgtggaa acccacgtcc gtctggcgac ctttggtcgc caggccccac cgagcgagcg 120

agtgcgcata gagggagtgg ccaa 144

<210> 12
<211> 127
<212> DNA

<213> Artificial Sequence

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polynucleotide

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ccagactgcc ggcctctggc cggcagggcc gagtgagtga gcgagcgcgc atagagggag 120

tggccaa 127

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<211> 166
<212> DNA
<213> Artificial Sequence

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polynucleotide

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gctggctcgt ttgggggggt ggcagctcaa agagctgcca gacgacggcc ctctggccgt 120

cgccccccca aacgagccag cgagcgagcg aacgcgacag ggggga 166

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polynucleotide

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gcgcgcatta gagggagtgg gcaa 144

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<211> 120
<212> DNA
<213> Artificial Sequence

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polynucleotide

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cgcacgcccg ggtttcccgg gcggcctcag tgagcgagcg agcgcgcagc tgcctgcagg 120

<210> 16
<211> 122
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccgacgcccg ggctttgccc gggcggcctc agtgagcgag cgagcgcgca gctgcctgca 120

gg 122

<210> 17
<211> 129
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccgggcgacc aaaggtcgcc cgacgcccgg gcgcctcagt gagcgagcga gcgcgcagct 120

gcctgcagg 129

<210> 18
<211> 101
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ctttgcctca gtgagcgagc gagcgcgcag ctgcctgcag g 101

<210> 19
<211> 139
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gcgcgcagct gcctgcagg 139

<210> 20
<211> 137
<212> DNA
<213> Artificial Sequence

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gcgcagctgc ctgcagg 137

<210> 21
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polynucleotide

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gcagctgcct gcagg 135

<210> 22
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<212> DNA
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polynucleotide

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ccgggcaaag cccgacgccc gggctttgcc cgggcggcct cagtgagcga gcgagcgcgc 120

agctgcctgc agg 133

<210> 23
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<212> DNA
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polynucleotide

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ccgggcgacc aaaggtcgcc cgacgcccgg gtttcccggg cggcctcagt gagcgagcga 120

gcgcgcagct gcctgcagg 139

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polynucleotide

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gcgcagctgc ctgcagg 137

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polynucleotide

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gcagctgcct gcagg 135

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<211> 133
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polynucleotide

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agctgcctgc agg 133

<210> 27
<211> 131
<212> DNA
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polynucleotide

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ctgcctgcag g 131

<210> 28
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<212> DNA
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polynucleotide

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gcctgcagg 129

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

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ctgcagg 127

<210> 30
<211> 122
<212> DNA
<213> Artificial Sequence

<220>
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polynucleotide

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gg 122

<210> 31
<211> 130

<212> DNA
<213> Artificial Sequence

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polynucleotide

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ccgggcgacc aaaggtcgcc cgacgcccgg gcggcctcag tgagcgagcg agcgcgcagc 120

tgcctgcagg 130

<210> 32
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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cctcagtgag cgagcgagcg cgcagagagg gagtggccaa ctccatcact aggggttcct 120

<210> 33
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<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
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ct 122

<210> 34
<211> 122
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ggcctcagtg agcgagcgag cgcgcagaga gggagtggcc aactccatca ctaggggttc 120

ct 122

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<212> DNA
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ggggttcct 129

<210> 36
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<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gcgcagagag ggagtggcca actccatcac taggggttcc t 101

<210> 37
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<212> DNA
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tccatcacta ggggttcct 139

<210> 38
<211> 137
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polynucleotide

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catcactagg ggttcct 137

<210> 39
<211> 135
<212> DNA
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tcactagggg ttcct 135

<210> 40
<211> 133
<212> DNA
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actaggggtt cct 133

<210> 41
<211> 139
<212> DNA
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polynucleotide

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gcgacctttg gtcgcccggc ctcagtgagc gagcgagcgc gcagagaggg agtggccaac 120

tccatcacta ggggttcct 139

<210> 42
<211> 137
<212> DNA
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polynucleotide

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cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccggaaaccg ggcgtcgggc 60

gacctttggt cgcccggcct cagtgagcga gcgagcgcgc agagagggag tggccaactc 120

catcactagg ggttcct 137

<210> 43
<211> 135
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 43
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tcactagggg ttcct 135

<210> 44
<211> 133
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 44
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actaggggtt cct 133

<210> 45
<211> 131
<212> DNA
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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<211> 129
<212> DNA
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ggggttcct 129

<210> 47
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<212> DNA
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polynucleotide

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ggttcct 127

<210> 48
<211> 122
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccgggcgacc aaaggtcgcc cgacggcctc agtgagcgag cgagcgcgca gctgcctgca 120

gg 122

<210> 49
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 49
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<210> 50
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 50
atcgaaccat cg 12

<210> 51
<211> 12
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 51
atcgaacgat cg 12

<210> 52
<211> 165
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 52
aggaacccct agtgatggag ttggccactc cctctctgcg cgctcgctcg ctcactgagg 60

ccgcccgggc aaagcccggg cgtcgggcga cctttggtcg cccggcctca gtgagcgagc 120

gagcgcgcag agagggagtg gccaactcca tcactagggg ttcct 165

<210> 53
<211> 140
<212> DNA
<213> Artificial Sequence

<220>
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polynucleotide

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cgcagagaga tcactagggg 140

<210> 54
<211> 91
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 54
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tcgcccggcc tcagtgagcg agcgagcgcg c 91

<210> 55
<211> 91
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

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<212> DNA
<213> Artificial Sequence

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polynucleotide

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ggaacaattg cttttacaga tgcacatatc gaggtggaca tcacttacgc tgagtacttc 180

gaaatgtccg ttcggttggc agaagctatg aaacgatatg ggctgaatac aaatcacaga 240

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atgggcattt cgcagcctac cgtggtgttc gtttccaaaa aggggttgca aaaaattttg 420

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accgggaaaa cgctgggcgt taatcaaaga ggcgaactgt gtgtgagagg tcctatgatt 1200

atgtccggtt atgtaaacaa tccggaagcg accaacgcct tgattgacaa ggatggatgg 1260

ctacattctg gagacatagc ttactgggac gaagacgaac acttcttcat cgttgaccgc 1320

ctgaagtctc tgattaagta caaaggctat caggtggctc ccgctgaatt ggaatccatc 1380

ttgctccaac accccaacat cttcgacgca ggtgtcgcag gtcttcccga cgatgacgcc 1440

ggtgaacttc ccgccgccgt tgttgttttg gagcacggaa agacgatgac ggaaaaagag 1500

atcgtggatt acgtcgccag tcaagtaaca accgcgaaaa agttgcgcgg aggagttgtg 1560

tttgtggacg aagtaccgaa aggtcttacc ggaaaactcg acgcaagaaa aatcagagag 1620

atcctcataa aggccaagaa gggcggaaag atcgccgtgt aa 1662

<210> 57
<211> 453
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Any amino acid

<400> 57
Xaa Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ala Phe Ser Ser Tyr
20 25 30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Val Ile Trp Phe Asp Gly Thr Lys Lys Tyr Tyr Thr Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Thr Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Asp Arg Gly Ile Gly Ala Arg Arg Gly Pro Tyr Tyr Met Asp
100 105 110

Val Trp Gly Lys Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys
115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
130 135 140

Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
165 170 175

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Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
            180                 185                 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
        195                 200                 205

Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro
    210                 215                 220

Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
225                 230                 235                 240

Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
                245                 250                 255

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
            260                 265                 270

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
        275                 280                 285

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
    290                 295                 300

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
305                 310                 315                 320

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
                325                 330                 335

Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
            340                 345                 350

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
        355                 360                 365

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
    370                 375                 380

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
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385 390 395 400

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
405 410 415

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
420 425 430

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
435 440 445

Ser Leu Ser Pro Gly
450

<210> 58
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 58
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Leu
85 90 95

```
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
            100                 105                 110


Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
        115                 120                 125


Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
    130                 135                 140


Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145                 150                 155                 160


Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
                165                 170                 175


Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
            180                 185                 190


Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
        195                 200                 205


Phe Asn Arg Gly Glu Cys
    210


<210> 59
<211> 1310
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polynucleotide

<400> 59
ggagccgaga gtaattcata caaaaggagg gatcgccttc gcaaggggag agcccaggga       60

ccgtccctaa attctcacag acccaaatcc ctgtagccgc cccacgacag cgcgaggagc      120

atgcgctcag ggctgagcgc ggggagagca gagcacacaa gctcatagac cctggtcgtg      180

gggggggagga ccggggagct ggcgcggggc aaactgggaa agcggtgtcg tgtgctggct      240

ccgccctctt cccgagggtg ggggagaacg gtatataagt gcggcagtcg ccttggacgt      300

tctttttcgc aacgggtttg ccgtcagaac gcaggtgagg ggcgggtgtg gcttccgcgg      360
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gccgccgagc tggaggtcct gctccgagcg ggccgggccc cgctgtcgtc ggcggggatt 420

agctgcgagc attcccgctt cgagttgcgg gcggcgcggg aggcagagtg cgaggcctag 480

cggcaacccc gtagcctcgc ctcgtgtccg gcttgaggcc tagcgtggtg tccgcgccgc 540

cgccgcgtgc tactccggcc gcactctggt ctttttttt tttgttgttg ttgccctgct 600

gccttcgatt gccgttcagc aataggggct aacaaaggga gggtgcgggg cttgctcgcc 660

cggagcccgg agaggtcatg gttggggagg aatggaggga caggagtggc ggctggggcc 720

cgcccgcctt cggagcacat gtccgacgcc acctggatgg ggcgaggcct ggggtttttc 780

ccgaagcaac caggctgggg ttagcgtgcc gaggccatgt ggccccagca cccggcacga 840

tctggcttgg cggcgccgcg ttgccctgcc tccctaacta gggtgaggcc atcccgtccg 900

gcaccagttg cgtgcgtgga aagatggccg ctcccgggcc ctgttgcaag gagctcaaaa 960

tggaggacgc ggcagcccgg tggagcgggc gggtgagtca cccacacaaa ggaagagggc 1020

ctggtccctc accggctgct gcttcctgtg accccgtggt cctatcggcc gcaatagtca 1080

cctcgggctt ttgagcacgg ctagtcgcgg cgggggggagg ggatgtaatg gcgttggagt 1140

ttgttcacat ttggtgggtg gagactagtc aggccagcct ggcgctggaa gtcatttttg 1200

gaatttgtcc ccttgagttt tgagcggagc taattctcgg gcttcttagc ggttcaaagg 1260

tatcttttaa acccttttt aggtgttgtg aaaaccaccg ctaattcaaa 1310

<210> 60
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 60
gcgcgctcgc tcgctc 16

<210> 61
<211> 6
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 61
ggttga 6

<210> 62
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 62
agtt 4

<210> 63
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 63
ggttgg 6

<210> 64
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 64
agttgg 6

<210> 65
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

oligonucleotide

<400> 65
agttga 6

<210> 66
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 66
rrttrr 6

<210> 67
<211> 581
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 67
gagcatctta ccgccattta ttcccatatt tgttctgttt ttcttgattt gggtatacat 60

ttaaatgtta ataaaacaaa atggtggggc aatcatttac atttttaggg atatgtaatt 120

actagttcag gtgtattgcc acaagacaaa catgttaaga aactttcccg ttatttacgc 180

tctgttcctg ttaatcaacc tctggattac aaaatttgtg aaagattgac tgatattctt 240

aactatgttg ctccttttac gctgtgtgga tatgctgctt tatagcctct gtatctagct 300

attgcttccc gtacggcttt cgttttctcc tccttgtata aatcctggtt gctgtctctt 360

ttagaggagt tgtggcccgt tgtccgtcaa cgtggcgtgg tgtgctctgt gtttgctgac 420

gcaaccccca ctggctgggg cattgccacc acctgtcaac tcctttctgg gactttcgct 480

ttccccctcc cgatcgccac ggcagaactc atcgccgcct gccttgcccg ctgctggaca 540

ggggctaggt tgctgggcac tgataattcc gtggtgttgt c 581

<210> 68
<211> 225
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 68
tgtgccttct agttgccagc catctgttgt ttgcccctcc cccgtgcctt ccttgaccct 60

ggaaggtgcc actcccactg tcctttccta ataaaatgag gaaattgcat cgcattgtct 120

gagtaggtgt cattctattc tgggggggtgg ggtggggcag gacagcaagg gggaggattg 180

ggaagacaat agcaggcatg ctggggatgc ggtgggctct atggc 225

<210> 69
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 69
actgaggc 8

<210> 70
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 70
gcctcagt 8

<210> 71
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 71
gagcgagcga gcgcgc 16

<210> 72
<211> 1923
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 72
tcaatattgg ccattagcca tattattcat tggttatata gcataaatca atattggcta 60

ttggccattg catacgttgt atctatatca taatatgtac atttatattg gctcatgtcc 120

aatatgaccg ccatgttggc attgattatt gactagttat taatagtaat caattacggg 180

gtcattagtt catagcccat atatggagtt ccgcgttaca taacttacgg taaatggccc 240

gcctggctga ccgcccaacg acccccgccc attgacgtca ataatgacgt atgttcccat 300

agtaacgcca atagggactt tccattgacg tcaatgggtg gagtatttac ggtaaactgc 360

ccacttggca gtacatcaag tgtatcatat gccaagtccg ccccctattg acgtcaatga 420

cggtaaatgg cccgcctggc attatgccca gtacatgacc ttacgggact ttcctacttg 480

gcagtacatc tacgtattag tcatcgctat taccatggtc gaggtgagcc ccacgttctg 540

cttcactctc cccatctccc ccccctcccc acccccaatt ttgtatttat ttatttttta 600

attattttgt gcagcgatgg gggcgggggg gggggggggg cgcgcgccag gcggggcggg 660

gcggggcgag gggcggggcg gggcgaggcg gagaggtgcg gcggcagcca atcagagcgg 720

cgcgctccga aagtttcctt ttatggcgag gcggcggcgg cggcggccct ataaaaagcg 780

aagcgcgcgg cgggcgggag tcgctgcgac gctgccttcg ccccgtgccc cgctccgccg 840

ccgcctcgcg ccgcccgccc cggctctgac tgaccgcgtt actcccacag gtgagcgggc 900

gggacggccc ttctcctccg ggctgtaatt agcgcttggt ttaatgacgg cttgtttctt 960

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ggctcggggg gtgcgtgcgt gtgtgtgtgc gtggggagcg ccgcgtgcgg cccgcgctgc 1080

ccggcggctg tgagcgctgc gggcgcggcg cggggctttg tgcgctccgc agtgtgcgcg 1140

aggggagcgc ggccgggggc ggtgccccgc ggtgcggggg gggctgcgag gggaacaaag 1200

gctgcgtgcg gggtgtgtgc gtgggggggt gagcaggggg tgtgggcgcg gcggtcgggc 1260

tgtaaccccc ccctgcaccc ccctccccga gttgctgagc acggcccggc ttcgggtgcg 1320

gggctccgta cggggcgtgg cgcggggctc gccgtgccgg gcgggggggtg gcggcaggtg 1380

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taatcgtgcg agagggcgca gggacttcct ttgtcccaaa tctgtgcgga gccgaaatct 1560

gggaggcgcc gccgcacccc ctctagcggg cgcggggcga agcggtgcgg cgccggcagg 1620

aaggaaatgg gcggggaggg ccttcgtgcg tcgccgcgcc gccgtcccct tctccctctc 1680

cagcctcggg gctgtccgcg gggggacggc tgccttcggg ggggacgggg cagggcgggg 1740

ttcggcttct ggcgtgtgac cggcggctct agagcctctg ctaaccatgt tttagccttc 1800

ttctttttcc tacagctcct gggcaacgtg ctggttattg tgctgtctca tcatttgtcg 1860

acagaattcc tcgaagatcc gaaggggttc aagcttggca ttccggtact gttggtaaag 1920

cca 1923

<210> 73
<211> 1272
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 73
aggctcagag gcacacagga gtttctgggc tcaccctgcc cccttccaac ccctcagttc 60

ccatcctcca gcagctgttt gtgtgctgcc tctgaagtcc acactgaaca aacttcagcc 120

tactcatgtc cctaaaatgg gcaaacattg caagcagcaa acagcaaaca cacagccctc 180

cctgcctgct gaccttggag ctggggcaga ggtcagagac ctctctgggc ccatgccacc 240

tccaacatcc actcgacccc ttggaatttc ggtggagagg agcagaggtt gtcctggcgt 300

ggtttaggta gtgtgagagg gtccgggttc aaaaccactt gctgggtggg gagtcgtcag 360

taagtggcta tgccccgacc ccgaagcctg tttccccatc tgtacaatgg aaatgataaa 420

gacgcccatc tgatagggtt tttgtggcaa ataaacattt ggtttttttg ttttgttttg 480

ttttgttttt tgagatggag gtttgctctg tcgcccaggc tggagtgcag tgacacaatc 540

tcatctcacc acaaccttcc cctgcctcag cctcccaagt agctgggatt acaagcatgt 600

gccaccacac ctggctaatt ttctattttt agtagagacg ggtttctcca tgttggtcag 660

cctcagcctc ccaagtaact gggattacag gcctgtgcca ccacacccgg ctaatttttt 720

ctatttttga cagggacggg gtttcaccat gttggtcagg ctggtctaga ggtaccggat 780

cttgctacca gtggaacagc cactaaggat tctgcagtga gagcagaggg ccagctaagt 840

ggtactctcc cagagactgt ctgactcacg ccacccccctc caccttggac acaggacgct 900

gtggtttctg agccaggtac aatgactcct ttcggtaagt gcagtggaag ctgtacactg 960

cccaggcaaa gcgtccgggc agcgtaggcg ggcgactcag atcccagcca gtggacttag 1020

cccctgtttg ctcctccgat aactggggtg accttggtta atattcacca gcagcctccc 1080

ccgttgcccc tctggatcca ctgcttaaat acggacgagg acagggccct gtctcctcag 1140

cttcaggcac caccactgac ctgggacagt gaatccggac tctaaggtaa atataaaatt 1200

tttaagtgta taatgtgtta aactactgat tctaattgtt tctctctttt agattccaac 1260

ctttggaact ga 1272

<210> 74
<211> 1177
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 74
ggctcagagg ctcagaggca cacaggagtt tctgggctca ccctgccccc ttccaacccc 60

tcagttccca tcctccagca gctgtttgtg tgctgcctct gaagtccaca ctgaacaaac 120

ttcagcctac tcatgtccct aaaatgggca aacattgcaa gcagcaaaca gcaaacacac 180

agccctccct gcctgctgac cttggagctg gggcagaggt cagagacctc tctgggccca 240

tgccacctcc aacatccact cgacccctg gaatttcggt ggagaggagc agaggttgtc 300

ctggcgtggt ttaggtagtg tgagagggtc cgggttcaaa accacttgct gggtggggag 360

tcgtcagtaa gtggctatgc cccgaccccg aagcctgttt ccccatctgt acaatggaaa 420

tgataaagac gcccatctga tagggttttt gtggcaaata aacatttggt ttttttgttt 480

tgttttgttt tgtttttga gatggaggtt tgctctgtcg cccaggctgg agtgcagtga 540

cacaatctca tctcaccaca accttcccct gcctcagcct cccaagtagc tgggattaca 600

agcatgtgcc accacacctg gctaattttc tatttttagt agagacgggt ttctccatgt 660

tggtcagcct cagcctccca agtaactggg attacaggcc tgtgccacca cacccggcta 720

atttttttcta tttttgacag ggacggggtt tcaccatgtt ggtcaggctg gtctagaggt 780

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gctaagtggt actctcccag agactgtctg actcacgcca ccccctccac cttggacaca 900

ggacgctgtg gtttctgagc caggtacaat gactcctttc ggtaagtgca gtggaagctg 960

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tcctcagctt caggcaccac cactgacctg ggacagt 1177

<210> 75
<211> 547
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 75
ccctaaaatg ggcaaacatt gcaagcagca aacagcaaac acacagccct ccctgcctgc 60

tgaccttgga gctggggcag aggtcagaga cctctctggg cccatgccac ctccaacatc 120

cactcgaccc cttggaattt ttcggtggag aggagcagag gttgtcctgg cgtggtttag 180

gtagtgtgag aggggaatga ctcctttcgg taagtgcagt ggaagctgta cactgcccag 240

gcaaagcgtc cgggcagcgt aggcgggcga ctcagatccc agccagtgga cttagcccct 300

gtttgctcct ccgataactg gggtgacctt ggttaatatt caccagcagc ctcccccgtt 360

gcccctctgg atccactgct taaatacgga cgaggacagg gccctgtctc ctcagcttca 420

ggcaccacca ctgacctggg acagtgaatc cggactctaa ggtaaatata aaatttttaa 480

gtgtataatg tgttaaacta ctgattctaa ttgtttctct cttttagatt ccaacctttg 540

gaactga 547

<210> 76
<211> 556
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 76
ccctaaaatg ggcaaacatt gcaagcagca aacagcaaac acacagccct ccctgcctgc 60

tgaccttgga gctggggcag aggtcagaga cctctctggg cccatgccac ctccaacatc 120

cactcgaccc cttggaattt cggtggagag gagcagaggt tgtcctggcg tggtttaggt 180

agtgtgagag gggaatgact cctttcggta agtgcagtgg aagctgtaca ctgcccaggc 240

aaagcgtccg ggcagcgtag gcgggcgact cagatcccag ccagtggact tagcccctgt 300

ttgctcctcc gataactggg gtgaccttgg ttaatattca ccagcagcct cccccgttgc 360

ccctctggat ccactgctta aatacggacg aggacactcg agggccctgt ctcctcagct 420

tcaggcacca ccactgacct gggacagtga atccggacat cgattctaag gtaaatataa 480

aatttttaag tgtataattt gttaaactac tgattctaat tgtttctctc ttttagattc 540

caacctttgg aactga 556

<210> 77
<211> 1179
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 77
ggctccggtg cccgtcagtg ggcagagcgc acatcgccca cagtccccga gaagttgggg 60

ggaggggtcg gcaattgaac cggtgcctag agaaggtggc gcggggtaaa ctgggaaagt 120

gatgtcgtgt actggctccg cctttttccc gagggtgggg gagaaccgta tataagtgca 180

gtagtcgccg tgaacgttct ttttcgcaac gggtttgccg ccagaacaca ggtaagtgcc 240

gtgtgtggtt cccgcgggcc tggcctcttt acgggttatg gcccttgcgt gccttgaatt 300

acttccacct ggctgcagta cgtgattctt gatcccgagc ttcgggttgg aagtgggtgg 360

gagagttcga ggccttgcgc ttaaggagcc ccttcgcctc gtgcttgagt tgaggcctgg 420

cctgggcgct ggggccgccg cgtgcgaatc tggtggcacc ttcgcgcctg tctcgctgct 480

ttcgataagt ctctagccat ttaaaatttt tgatgacctg ctgcgacgct ttttttctgg 540

caagatagtc ttgtaaatgc gggccaagat ctgcacactg gtatttcggt ttttggggcc 600

gcgggcggcg acggggcccg tgcgtcccag cgcacatgtt cggcgaggcg gggcctgcga 660

gcgcggccac cgagaatcgg acgggggtag tctcaagctg gccggcctgc tctggtgcct 720

ggtctcgcgc cgccgtgtat cgccccgccc tgggcggcaa ggctggcccg gtcggcacca 780

gttgcgtgag cggaaagatg gccgcttccc ggccctgctg cagggagctc aaaatggagg 840

acgcggcgct cgggagagcg ggcgggtgag tcacccacac aaaggaaaag ggcctttccg 900

tcctcagccg tcgcttcatg tgactccacg gagtaccggg cgccgtccag gcacctcgat 960

tagttctcga gcttttggag tacgtcgtct ttaggttggg gggaggggtt ttatgcgatg 1020

gagtttcccc acactgagtg ggtggagact gaagttaggc cagcttggca cttgatgtaa 1080

ttctccttgg aatttgccct ttttgagttt ggatcttggt tcattctcaa gcctcagaca 1140

gtggttcaaa gtttttttct tccatttcag gtgtcgtga 1179

<210> 78
<211> 141
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 78
aataaacgat aacgccgttg gtggcgtgag gcatgtaaaa ggttacatca ttatcttgtt 60

cgccatccgg ttggtataaa tagacgttca tgttggtttt tgtttcagtt gcaagttggc 120

tgcggcgcgc gcagcacctt t 141

<210> 79
<211> 317
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 79
ggtgtggaaa gtccccaggc tccccagcag gcagaagtat gcaaagcatg catctcaatt 60

agtcagcaac caggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca 120

tgcatctcaa ttagtcagca accatagtcc cgcccctaac tccgcccatc ccgcccctaa 180

ctccgcccag ttccgcccat tctccgcccc atggctgact aatttttttt atttatgcag 240

aggccgaggc cgcctcggcc tctgagctat tccagaagta gtgaggaggc ttttttggag 300

gcctaggctt ttgcaaa 317

<210> 80
<211> 241
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 80
gagggcctat ttcccatgat tccttcatat ttgcatatac gatacaaggc tgttagagag 60

ataattggaa ttaatttgac tgtaaacaca aagatattag tacaaaatac gtgacgtaga 120

aagtaataat ttcttgggta gtttgcagtt ttaaaattat gttttaaaat ggactatcat 180

atgcttaccg taacttgaaa gtatttcgat ttcttggctt tatatatctt gtggaaagga 240

c 241

<210> 81
<211> 215
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 81
gaacgctgac gtcatcaacc cgctccaagg aatcgcgggc ccagtgtcac taggcgggaa 60

cacccagcgc gcgtgcgccc tggcaggaag atggctgtga gggacagggg agtggcgccc 120

tgcaatattt gcatgtcgct atgtgttctg ggaaatcacc ataaacgtga aatgtctttg 180

gatttgggaa tcgtataaga actgtatgag accac 215

<210> 82
<211> 546
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 82
ccctaaaatg ggcaaacatt gcaagcagca aacagcaaac acacagccct ccctgcctgc 60

tgaccttgga gctggggcag aggtcagaga cctctctggg cccatgccac ctccaacatc 120

cactcgaccc cttggaattt ttcggtggag aggagcagag gttgtcctgg cgtggtttag 180

gtagtgtgag aggggaatga ctcctttcgg taagtgcagt ggaagctgta cactgcccag 240

gcaaagcgtc cgggcagcgt aggcgggcga ctcagatccc agccagtgga cttagcccct 300

gtttgctcct ccgataactg gggtgacctt ggttaatatt caccagcagc ctcccccgtt 360

gcccctctgg atccactgct taaatacgga cgaggacagg gccctgtctc ctcagcttca 420

ggcaccacca ctgacctggg acagtgaatc cggactctaa ggtaaatata aaatttttaa 480

gtgtataatg tgttaaacta ctgattctaa ttgtttctct cttttagatt ccaacctttg 540

gaactg 546

<210> 83
<211> 576
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 83
tagtaatcaa ttacggggtc attagttcat agcccatata tggagttccg cgttacataa 60

cttacggtaa atggcccgcc tggctgaccg cccaacgacc cccgcccatt gacgtcaata 120

atgacgtatg ttcccatagt aacgccaata gggactttcc attgacgtca atgggtggag 180

tatttacggt aaactgccca cttggcagta catcaagtgt atcatatgcc aagtacgccc 240

cctattgacg tcaatgacgg taaatggccc gcctggcatt atgcccagta catgacctta 300

tgggactttc ctacttggca gtacatctac gtattagtca tcgctattac catggtgatg 360

cggttttggc agtacatcaa tgggcgtgga tagcggtttg actcacgggg atttccaagt 420

ctccacccca ttgacgtcaa tgggagtttg ttttggcacc aaaatcaacg ggactttcca 480

aaatgtcgta acaactccgc cccattgacg caaatgggcg gtaggcgtgt acggtgggag 540

gtctatataa gcagagctgg tttagtgaac cgtcag 576

<210> 84
<211> 150
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 84
ataaacgata acgccgttgg tggcgtgagg catgtaaaag gttacatcat tatcttgttc 60

gccatccggt tggtataaat agacgttcat gttggttttt gtttcagttg caagttggct 120

gcggcgcgcg cagcaccttt gcggccatct 150

<210> 85
<211> 1313
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 85
ggagccgaga gtaattcata caaaaggagg gatcgccttc gcaaggggag agcccaggga 60

ccgtccctaa attctcacag acccaaatcc ctgtagccgc cccacgacag cgcgaggagc 120

atgcgcccag ggctgagcgc gggtagatca gagcacacaa gctcacagtc cccggcggtg 180

gggggagggg cgcgctgagc gggggccagg gagctggcgc ggggcaaact gggaaagtgg 240

tgtcgtgtgc tggctccgcc ctcttcccga gggtggggga gaacggtata taagtgcggt 300

agtcgccttg gacgttcttt ttcgcaacgg gtttgccgtc agaacgcagg tgagtggcgg 360

gtgtggcttc cgcgggcccc ggagctggag ccctgctctg agcgggccgg gctgatatgc 420

gagtgtcgtc cgcagggttt agctgtgagc attcccactt cgagtggcgg gcggtgcggg 480

ggtgagagtg cgaggcctag cggcaacccc gtagcctcgc ctcgtgtccg gcttgaggcc 540

tagcgtggtg tccgccgccg cgtgccactc cggccgcact atgcgttttt tgtccttgct 600

gccctcgatt gccttccagc agcatgggct aacaaaggga gggtgtgggg ctcactctta 660

aggagcccat gaagcttacg ttggatagga atggaagggc aggaggggcg actggggccc 720

gcccgccttc ggagcacatg tccgacgcca cctggatggg gcgaggcctg tggctttccg 780

aagcaatcgg gcgtgagttt agcctacctg ggccatgtgg ccctagcact gggcacggtc 840

tggcctggcg gtgccgcgtt cccttgcctc ccaacaaggg tgaggccgtc ccgcccggca 900

ccagttgctt gcgcggaaag atggccgctc ccggggccct gttgcaagga gctcaaaatg 960

gaggacgcgg cagcccggtg gagcgggcgg gtgagtcacc cacacaaagg aagagggcct 1020

tgcccctcgc cggccgctgc ttcctgtgac cccgtggtct atcggccgca tagtcacctc 1080

gggcttctct tgagcaccgc tcgtcgcggc ggggggaggg gatctaatgg cgttggagtt 1140

tgttcacatt tggtgggtgg agactagtca ggccagcctg gcgctggaag tcattcttgg 1200

aatttgcccc tttgagtttg gagcgaggct aattctcaag cctcttagcg gttcaaaggt 1260

attttctaaa cccgtttcca ggtgttgtga aagccaccgc taattcaaag caa 1313

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

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 86
taagatacat tgatgagttt ggacaaacca caactagaat gcagtgaaaa aaatgcttta 60

tttgtgaaat ttgtgatgct attgctttat ttgtaaccat tataagctgc aataaacaag 120

ttaacaacaa caattgcatt cattttatgt ttcaggttca gggggaggtg tgggaggttt 180

tttaaagcaa gtaaaacctc tacaaatgtg gta 213

<210> 87
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 87
Pro Lys Lys Lys Arg Lys Val
1 5

<210> 88
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 88
Met Asp Trp Thr Trp Arg Ile Leu Phe Leu Val Ala Ala Ala Thr Gly
1 5 10 15

Ala His Ser

<210> 89
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 89
Met Leu Pro Ser Gln Leu Ile Gly Phe Leu Leu Leu Trp Val Pro Ala
1 5 10 15

Ser Arg Gly

<210> 90
<211> 7

<212> PRT
<213> Simian virus 40

<400> 90
Pro Lys Lys Lys Arg Lys Val
1 5

<210> 91
<211> 21
<212> DNA
<213> Simian virus 40

<400> 91
cccaagaaga agaggaaggt g 21

<210> 92
<211> 16
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:
Nucleoplasmin bipartite NLS sequence

<400> 92
Lys Arg Pro Ala Ala Thr Lys Lys Ala Gly Gln Ala Lys Lys Lys Lys
1 5 10 15

<210> 93
<211> 9
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:
C-myc NLS sequence

<400> 93
Pro Ala Ala Lys Arg Val Lys Leu Asp
1 5

<210> 94
<211> 11
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:
C-myc NLS sequence

<400> 94
Arg Gln Arg Arg Asn Glu Leu Lys Arg Ser Pro
1   5   10

<210> 95
<211> 38
<212> PRT
<213> Homo sapiens

<400> 95
Asn Gln Ser Ser Asn Phe Gly Pro Met Lys Gly Gly Asn Phe Gly Gly
1   5   10   15

Arg Ser Ser Gly Pro Tyr Gly Gly Gly Gly Gln Tyr Phe Ala Lys Pro
            20   25   30

Arg Asn Gln Gly Gly Tyr
        35

<210> 96
<211> 42
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:
      IBB domain from importin-alpha sequence

<400> 96
Arg Met Arg Ile Glx Phe Lys Asn Lys Gly Lys Asp Thr Ala Glu Leu
1   5   10   15

Arg Arg Arg Arg Val Glu Val Ser Val Glu Leu Arg Lys Ala Lys Lys
            20   25   30

Asp Glu Gln Ile Leu Lys Arg Arg Asn Val
        35   40

<210> 97
<211> 8
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:

Myoma T protein sequence

<400> 97
Val Ser Arg Lys Arg Pro Arg Pro
1 5

<210> 98
<211> 8
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:
Myoma T protein sequence

<400> 98
Pro Pro Lys Lys Ala Arg Glu Asp
1 5

<210> 99
<211> 8
<212> PRT
<213> Homo sapiens

<400> 99
Pro Gln Pro Lys Lys Lys Pro Leu
1 5

<210> 100
<211> 12
<212> PRT
<213> Mus musculus

<400> 100
Ser Ala Leu Ile Lys Lys Lys Lys Lys Met Ala Pro
1 5 10

<210> 101
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 101
gcgcgctcgc tcgctcactg aggccgcccg ggaaacccgg gcgtgcgcct cagtgagcga 60

gcgagcgcgc 70

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

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 102
gcgcgctcgc tcgctcactg aggcgcacgc ccgggtttcc cgggcggcct cagtgagcga 60

gcgagcgcgc 70

<210> 103
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 103
gcgcgctcgc tcgctcactg aggccgtcgg gcgacctttg gtcgcccggc ctcagtgagc 60

gagcgagcgc gc 72

<210> 104
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 104
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacggc ctcagtgagc 60

gagcgagcgc gc 72

<210> 105
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 105
gcgcgctcgc tcgctcactg aggccgcccg ggcaaagccc gggcgtcggc ctcagtgagc 60

gagcgagcgc gc 72

<210> 106
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 106
gcgcgctcgc tcgctcactg aggccgacgc ccgggctttg cccgggcggc ctcagtgagc 60

gagcgagcgc gc 72

<210> 107
<211> 83
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 107
gcgcgctcgc tcgctcactg aggccgcccg ggcaaagccc gggcgtcggg ctttgcccgg 60

cctcagtgag cgagcgagcg cgc 83

<210> 108
<211> 83
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 108
gcgcgctcgc tcgctcactg aggccgggca aagcccgacg cccgggcttt gcccgggcgg 60

cctcagtgag cgagcgagcg cgc 83

<210> 109
<211> 77
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 109
gcgcgctcgc tcgctcactg aggccgaaac gtcgggcgac ctttggtcgc ccggcctcag 60

tgagcgagcg agcgcgc 77

<210> 110
<211> 77
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 110
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgtt tcggcctcag 60

tgagcgagcg agcgcgc 77

<210> 111
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 111
gcgcgctcgc tcgctcactg aggcaaagcc tcagtgagcg agcgagcgcg c 51

<210> 112
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 112
gcgcgctcgc tcgctcactg aggctttgcc tcagtgagcg agcgagcgcg c 51

<210> 113
<211> 80
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 113
gcgcgctcgc tcgctcactg aggccgcccg ggcgtcgggc gacctttggt cgcccggcct 60

cagtgagcga gcgagcgcgc 80

<210> 114
<211> 80
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 114
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc cgggcggcct 60

cagtgagcga gcgagcgcgc 80

<210> 115
<211> 79
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 115
gcgcgctcgc tcgctcactg aggcgcccgg gcgtcgggcg acctttggtc gcccggcctc 60

agtgagcgag cgagcgcgc 79

<210> 116
<211> 79
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 116
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc cgggcgcctc 60

agtgagcgag cgagcgcgc 79

<210> 117
<211> 5
<212> PRT
<213> Influenza virus

<400> 117
Asp Arg Leu Arg Arg
1 5

<210> 118
<211> 7
<212> PRT
<213> Influenza virus

<400> 118
Pro Lys Gln Lys Lys Arg Lys
1 5

<210> 119
<211> 10
<212> PRT
<213> Hepatitis delta virus

<400> 119
Arg Lys Leu Lys Lys Lys Ile Lys Lys Leu
1 5 10

<210> 120
<211> 10
<212> PRT
<213> Mus musculus

<400> 120
Arg Glu Lys Lys Lys Phe Leu Lys Arg Arg
1 5 10

<210> 121

<211> 20
<212> PRT
<213> Homo sapiens

<400> 121
Lys Arg Lys Gly Asp Glu Val Asp Gly Val Asp Glu Val Ala Lys Lys
1   5   10   15

Lys Ser Lys Lys
            20

<210> 122
<211> 17
<212> PRT
<213> Homo sapiens

<400> 122
Arg Lys Cys Leu Gln Ala Gly Met Asn Leu Glu Ala Arg Lys Thr Lys
1   5   10   15

Lys

<210> 123
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 123
gtttaaac   8

<210> 124
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide

<400> 124
ttaattaa   8

<210> 125
<211> 141
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 125
aataaacgat aacgccgttg gtggcgtgag gcatgtaaaa ggttacatca ttatcttgtt 60

cgccatccgg ttggtataaa tagacgttca tgttggtttt tgtttcagtt gcaagttggc 120

tgcggcgcgc gcagcacctt t 141

<210> 126
<211> 317
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 126
ggtgtggaaa gtccccaggc tccccagcag gcagaagtat gcaaagcatg catctcaatt 60

agtcagcaac caggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca 120

tgcatctcaa ttagtcagca accatagtcc cgcccctaac tccgcccatc ccgcccctaa 180

ctccgcccag ttccgcccat tctccgcccc atggctgact aatttttttt atttatgcag 240

aggccgaggc cgcctcggcc tctgagctat tccagaagta gtgaggaggc ttttttggag 300

gcctaggctt ttgcaaa 317

<210> 127
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 127
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacggc ctcagtgagc 60

gagcgagcgc gc 72

<210> 128
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 128
gagacagaca cactcctgct atgggtactg ctgctctggg ttccaggttc cactggtgac 60

<210> 129
<211> 1260
<212> DNA
<213> Adeno-associated virus - 2

<400> 129
atggagctgg tcgggtggct cgtggacaag gggattacct cggagaagca gtggatccag 60

gaggaccagg cctcatacat ctccttcaat gcggcctcca actcgcggtc ccaaatcaag 120

gctgccttgg acaatgcggg aaagattatg agcctgacta aaaccgcccc cgactacctg 180

gtgggccagc agcccgtgga ggacatttcc agcaatcgga tttataaaat tttggaacta 240

aacgggtacg atccccaata tgcggcttcc gtctttctgg gatgggccac gaaaaagttc 300

ggcaagagga acaccatctg gctgtttggg cctgcaacta ccgggaagac caacatcgcg 360

gaggccatag cccacactgt gcccttctac gggtgcgtaa actggaccaa tgagaacttt 420

cccttcaacg actgtgtcga caagatggtg atctggtggg aggaggggaa gatgaccgcc 480

aaggtcgtgg agtcggccaa agccattctc ggaggaagca aggtgcgcgt ggaccagaaa 540

tgcaagtcct cggcccagat agacccgact cccgtgatcg tcacctccaa caccaacatg 600

tgcgccgtga ttgacgggaa ctcaacgacc ttcgaacacc agcagccgtt gcaagaccgg 660

atgttcaaat ttgaactcac ccgccgtctg gatcatgact ttgggaaggt caccaagcag 720

gaagtcaaag actttttccg gtgggcaaag gatcacgtgg ttgaggtgga gcatgaattc 780

tacgtcaaaa agggtggagc caagaaaaga cccgccccca gtgacgcaga tataagtgag 840

cccaaacggg tgcgcgagtc agttgcgcag ccatcgacgt cagacgcgga agcttcgatc 900

aactacgcag acaggtacca aaacaaatgt tctcgtcacg tgggcatgaa tctgatgctg 960

tttccctgca gacaatgcga gagaatgaat cagaattcaa atatctgctt cactcacgga 1020

cagaaagact gtttagagtg ctttcccgtg tcagaatctc aacccgtttc tgtcgtcaaa 1080

aaggcgtatc agaaactgtg ctacattcat catatcatgg gaaaggtgcc agacgcttgc 1140

actgcctgcg atctggtcaa tgtggatttg gatgactgca tctttgaaca ataaatgatt 1200

taaatcaggt atggctgccg atggttatct tccagattgg ctcgaggaca ctctctctga 1260

<210> 130
<211> 1932
<212> DNA
<213> Adeno-associated virus - 2

<400> 130
atgccggggt tttacgagat tgtgattaag gtccccagcg accttgacga gcatctgccc 60

ggcatttctg acagctttgt gaactgggtg gccgagaagg aatgggagtt gccgccagat 120

tctgacatgg atctgaatct gattgagcag gcacccctga ccgtggccga gaagctgcag 180

cgcgactttc tgacggaatg gcgccgtgtg agtaaggccc cggaggccct tttctttgtg 240

caatttgaga agggagagag ctacttccac atgcacgtgc tcgtggaaac caccggggtg 300

aaatccatgg ttttgggacg tttcctgagt cagattcgcg aaaaactgat tcagagaatt 360

taccgcggga tcgagccgac tttgccaaac tggttcgcgg tcacaaagac cagaaatggc 420

gccggaggcg ggaacaaggt ggtggatgag tgctacatcc ccaattactt gctccccaaa 480

acccagcctg agctccagtg ggcgtggact aatatggaac agtatttaag cgcctgtttg 540

aatctcacgg agcgtaaacg gttggtggcg cagcatctga cgcacgtgtc gcagacgcag 600

gagcagaaca aagagaatca gaatcccaat tctgatgcgc cggtgatcag atcaaaaact 660

tcagccaggt acatggagct ggtcgggtgg ctcgtggaca aggggattac ctcggagaag 720

cagtggatcc aggaggacca ggcctcatac atctccttca atgcggcctc caactcgcgg 780

tcccaaatca aggctgcctt ggacaatgcg ggaaagatta tgagcctgac taaaaccgcc 840

cccgactacc tggtgggcca gcagcccgtg gaggacattt ccagcaatcg gatttataaa 900

attttggaac taaacgggta cgatccccaa tatgcggctt ccgtctttct gggatgggcc 960

acgaaaaagt tcggcaagag gaacaccatc tggctgtttg ggcctgcaac taccgggaag 1020

accaacatcg cggaggccat agcccacact gtgcccttct acgggtgcgt aaactggacc 1080

aatgagaact ttcccttcaa cgactgtgtc gacaagatgg tgatctggtg ggaggagggg 1140

aagatgaccg ccaaggtcgt ggagtcggcc aaagccattc tcggaggaag caaggtgcgc 1200

gtggaccaga aatgcaagtc ctcggcccag atagacccga ctcccgtgat cgtcacctcc 1260

aacaccaaca tgtgcgccgt gattgacggg aactcaacga ccttcgaaca ccagcagccg 1320

ttgcaagacc ggatgttcaa atttgaactc acccgccgtc tggatcatga ctttgggaag 1380

gtcaccaagc aggaagtcaa agacttttc cggtgggcaa aggatcacgt ggttgaggtg 1440

gagcatgaat tctacgtcaa aaagggtgga gccaagaaaa gacccgcccc cagtgacgca 1500

gatataagtg agcccaaacg ggtgcgcgag tcagttgcgc agccatcgac gtcagacgcg 1560

gaagcttcga tcaactacgc agacaggtac caaaacaaat gttctcgtca cgtgggcatg 1620

aatctgatgc tgtttccctg cagacaatgc gagagaatga atcagaattc aaatatctgc 1680

ttcactcacg gacagaaaga ctgtttagag tgctttcccg tgtcagaatc tcaacccgtt 1740

tctgtcgtca aaaaggcgta tcagaaactg tgctacattc atcatatcat gggaaaggtg 1800

ccagacgctt gcactgcctg cgatctggtc aatgtggatt tggatgactg catctttgaa 1860

caataaatga tttaaatcag gtatggctgc cgatggttat cttccagatt ggctcgagga 1920

cactctctct ga 1932

<210> 131
<211> 1876
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 131
cgcagccacc atggcggggt tttacgagat tgtgattaag gtccccagcg accttgacgg 60

gcatctgccc ggcatttctg acagctttgt gaactgggtg gccgagaagg aatgggagtt 120

gccgccagat tctgacatgg atctgaatct gattgagcag gcacccctga ccgtggccga 180

gaagctgcag cgcgactttc tgacggaatg gcgccgtgtg agtaaggccc cggaggccct 240

tttctttgtg caatttgaga agggagagag ctacttccac atgcacgtgc tcgtggaaac 300

caccggggtg aaatccatgg ttttgggacg tttcctgagt cagattcgcg aaaaactgat 360

tcagagaatt taccgcggga tcgagccgac tttgccaaac tggttcgcgg tcacaaagac 420

cagaaatggc gccggaggcg ggaacaaggt ggtggatgag tgctacatcc ccaattactt 480

gctccccaaa acccagcctg agctccagtg ggcgtggact aatatggaac agtatttaag 540

cgcctgtttg aatctcacgg agcgtaaacg gttggtggcg cagcatctga cgcacgtgtc 600

gcagacgcag gagcagaaca aagagaatca gaatcccaat tctgatgcgc cggtgatcag 660

atcaaaaact tcagccaggt acatggagct ggtcgggtgg ctcgtggaca aggggattac 720

ctcggagaag cagtggatcc aggaggacca ggcctcatac atctccttca atgcggcctc 780

caactcgcgg tcccaaatca aggctgcctt ggacaatgcg ggaaagatta tgagcctgac 840

taaaaccgcc cccgactacc tggtgggcca gcagcccgtg gaggacattt ccagcaatcg 900

gatttataaa attttggaac taaacgggta cgatccccaa tatgcggctt ccgtctttct 960

gggatgggcc acgaaaaagt tcggcaagag gaacaccatc tggctgtttg ggcctgcaac 1020

taccgggaag accaacatcg cggaggccat agcccacact gtgcccttct acgggtgcgt 1080

aaactggacc aatgagaact ttcccttcaa cgactgtgtc gacaagatgg tgatctggtg 1140

ggaggagggg aagatgaccg ccaaggtcgt ggagtcggcc aaagccattc tcggaggaag 1200

caaggtgcgc gtggaccaga aatgcaagtc ctcggcccag atagacccga ctcccgtgat 1260

cgtcacctcc aacaccaaca tgtgcgccgt gattgacggg aactcaacga ccttcgaaca 1320

ccagcagccg ttgcaagacc ggatgttcaa atttgaactc acccgccgtc tggatcatga 1380

ctttgggaag gtcaccaagc aggaagtcaa agacttttc cggtgggcaa aggatcacgt 1440

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cagtgacgca gatataagtg agcccaaacg ggtgcgcgag tcagttgcgc agccatcgac 1560

gtcagacgcg gaagcttcga tcaactacgc agacaggtac caaaacaaat gttctcgtca 1620

cgtgggcatg aatctgatgc tgtttccctg cagacaatgc gagagaatga atcagaattc 1680

aaatatctgc ttcactcacg gacagaaaga ctgtttagag tgctttcccg tgtcagaatc 1740

tcaacccgtt tctgtcgtca aaaaggcgta tcagaaactg tgctacattc atcatatcat 1800

gggaaaggtg ccagacgctt gcactgcctg cgatctggtc aatgtggatt tggatgactg 1860

catctttgaa caataa 1876

<210> 132
<211> 1194
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 132
atggagctgg tcgggtggct cgtggacaag gggattacct cggagaagca gtggatccag 60

gaggaccagg cctcatacat ctccttcaat gcggcctcca actcgcggtc ccaaatcaag 120

gctgccttgg acaatgcggg aaagattatg agcctgacta aaaccgcccc cgactacctg 180

gtgggccagc agcccgtgga ggacatttcc agcaatcgga tttataaaat tttggaacta 240

aacgggtacg atccccaata tgcggcttcc gtctttctgg gatgggccac gaaaaagttc 300

ggcaagagga acaccatctg gctgtttggg cctgcaacta ccgggaagac caacatcgcg 360

gaggccatag cccacactgt gcccttctac gggtgcgtaa actggaccaa tgagaacttt 420

cccttcaacg actgtgtcga caagatggtg atctggtggg aggaggggaa gatgaccgcc 480

aaggtcgtgg agtcggccaa agccattctc ggaggaagca aggtgcgcgt ggaccagaaa 540

tgcaagtcct cggcccagat agacccgact cccgtgatcg tcacctccaa caccaacatg 600

tgcgccgtga ttgacgggaa ctcaacgacc ttcgaacacc agcagccgtt gcaagaccgg 660

atgttcaaat ttgaactcac ccgccgtctg gatcatgact ttgggaaggt caccaagcag 720

gaagtcaaag actttttccg gtgggcaaag gatcacgtgg ttgaggtgga gcatgaattc 780

tacgtcaaaa agggtggagc caagaaaaga cccgccccca gtgacgcaga tataagtgag 840

cccaaacggg tgcgcgagtc agttgcgcag ccatcgacgt cagacgcgga agcttcgatc 900

aactacgcag accgctacca aaacaaatgt tctcgtcacg tgggcatgaa tctgatgctg 960

tttccctgca gacaatgcga gagaatgaat cagaattcaa atatctgctt cactcacgga 1020

cagaaagact gtttagagtg ctttcccgtg tcagaatctc aacccgtttc tgtcgtcaaa 1080

aaggcgtatc agaaactgtg ctacattcat catatcatgg gaaaggtgcc agacgcttgc 1140

actgcctgcg atctggtcaa tgtggatttg gatgactgca tctttgaaca ataa 1194

<210> 133
<211> 1876

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 133
cgcagccacc atggcggggt tttacgagat tgtgattaag gtccccagcg accttgacgg 60

gcatctgccc ggcatttctg acagctttgt gaactgggtg gccgagaagg aatgggagtt 120

gccgccagat tctgacatgg atctgaatct gattgagcag gcacccctga ccgtggccga 180

gaagctgcag cgcgactttc tgacggaatg gcgccgtgtg agtaaggccc cggaggccct 240

tttctttgtg caatttgaga agggagagag ctacttccac atgcacgtgc tcgtggaaac 300

caccggggtg aaatccatgg ttttgggacg tttcctgagt cagattcgcg aaaaactgat 360

tcagagaatt taccgcggga tcgagccgac tttgccaaac tggttcgcgg tcacaaagac 420

cagaaatggc gccggaggcg ggaacaaggt ggtggatgag tgctacatcc ccaattactt 480

gctccccaaa acccagcctg agctccagtg ggcgtggact aatatggaac agtatttaag 540

cgcctgtttg aatctcacgg agcgtaaacg gttggtggcg cagcatctga cgcacgtgtc 600

gcagacgcag gagcagaaca aagagaatca gaatcccaat tctgatgcgc cggtgatcag 660

atcaaaaact tcagccaggt acatggagct ggtcgggtgg ctcgtggaca aggggattac 720

ctcggagaag cagtggatcc aggaggacca ggcctcatac atctccttca atgcggcctc 780

caactcgcgg tcccaaatca aggctgcctt ggacaatgcg ggaaagatta tgagcctgac 840

taaaaccgcc cccgactacc tggtgggcca gcagcccgtg gaggacattt ccagcaatcg 900

gatttataaa attttggaac taaacgggta cgatccccaa tatgcggctt ccgtctttct 960

gggatgggcc acgaaaaagt tcggcaagag gaacaccatc tggctgtttg ggcctgcaac 1020

taccgggaag accaacatcg cggaggccat agcccacact gtgcccttct acgggtgcgt 1080

aaactggacc aatgagaact ttcccttcaa cgactgtgtc gacaagatgg tgatctggtg 1140

ggaggagggg aagatgaccg ccaaggtcgt ggagtcggcc aaagccattc tcggaggaag 1200

caaggtgcgc gtggaccaga aatgcaagtc ctcggcccag atagacccga ctcccgtgat 1260

cgtcacctcc aacaccaaca tgtgcgccgt gattgacggg aactcaacga ccttcgaaca 1320

ccagcagccg ttgcaagacc ggatgttcaa atttgaactc acccgccgtc tggatcatga 1380

ctttgggaag gtcaccaagc aggaagtcaa agacttttc cggtgggcaa aggatcacgt 1440

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gtcagacgcg gaagcttcga tcaactacgc agacaggtac caaaacaaat gttctcgtca 1620

cgtgggcatg aatctgatgc tgtttccctg cagacaatgc gagagaatga atcagaattc 1680

aaatatctgc ttcactcacg gacagaaaga ctgtttagag tgctttcccg tgtcagaatc 1740

tcaacccgtt tctgtcgtca aaaaggcgta tcagaaactg tgctacattc atcatatcat 1800

gggaaaggtg ccagacgctt gcactgcctg cgatctggtc aatgtggatt tggatgactg 1860

catctttgaa caataa 1876

<210> 134
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 134
ctaggccgcc cgggcaaagc ccgggcgtcg ggcgaccttt ggtcgcccgg c 51

<210> 135
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 135
ctaggactga ggccgcccgg gcaaagcccg ggcgtcgggc gacctttggt cgcccggcct 60

cagtc 65

<210> 136
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 136
ggactgaggc cgcccgggca aagcccgggc gtcgggcgac ctttggtcgc ccggcctcag 60

tcctgca 67

<210> 137
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 137
gtgcgggcga ccaaaggtcg cccgacgccc gggcgcactc a 41

<210> 138
<211> 56
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 138
ggactgaggc cgggcgacca aaggtcgccc gacgcccggg cggcctcagt cctgca 56

<210> 139
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 139
ctaggactga ggccgcccgg gcgtcgggcg acctttggtc gcccggcctc agtc 54

<210> 140
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 140
ggactgaggc cgggcgacca aaggtcgccc gacggcctca gtcctgca 48

<210> 141
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 141
ctaggactga ggccgtcggg cgacctttgg tcgcccggcc tcagtc 46

<210> 142
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 142
ggactgaggc ccgggcgacc aaaggtcgcc cgacgcccgg gctttgcccg ggcgcctcag 60

tcctgca 67

<210> 143
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 143
atacctaggc acgcgtgtta ctagttatta atagtaatca attacgg 47

<210> 144
<211> 29
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 144
atacctaggg gccgcacgcg tgttactag 29

<210> 145
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 145
atacactcag tgcctgcagg cacgtggtcc ggagatccag ac 42

<210> 146
<211> 3754
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 146
cctaggtgag cgagcgagcg cgcagagagg gagtggccaa ctccatcact aggggttcct 60

tgtagttaat gattaacccg ccatgctact tatcgcggcc gctcaatatt ggccattagc 120

catattattc attggttata tagcataaat caatattggc tattggccat tgcatacgtt 180

gtatctatat cataatatgt acatttatat tggctcatgt ccaatatgac cgccatgttg 240

gcattgatta ttgactagtt attaatagta atcaattacg gggtcattag ttcatagccc 300

atatatggag ttccgcgtta cataacttac ggtaaatggc ccgcctggct gaccgcccaa 360

cgacccccgc ccattgacgt caataatgac gtatgttccc atagtaacgc caatagggac 420

tttccattga cgtcaatggg tggagtattt acggtaaact gcccacttgg cagtacatca 480

agtgtatcat atgccaagtc cgcccccctat tgacgtcaat gacggtaaat ggcccgcctg 540

gcattatgcc cagtacatga ccttacggga ctttcctact tggcagtaca tctacgtatt 600

agtcatcgct attaccatgg tcgaggtgag ccccacgttc tgcttcactc tccccatctc 660

cccccctcc ccacccccaa ttttgtattt atttattttt taattatttt gtgcagcgat 720

gggggcgggg gggggggggg ggcgcgcgcc aggcggggcg gggcggggcg aggggcgggg 780

cggggcgagg cggagaggtg cggcggcagc caatcagagc ggcgcgctcc gaaagtttcc 840

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ggctgtcgag gcgcggcgag ccgcagccat tgccttttat ggtaatcgtg cgagagggcg 1620

cagggacttc ctttgtccca aatctgtgcg gagccgaaat ctgggaggcg ccgccgcacc 1680

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ggccttcgtg cgtcgccgcg ccgccgtccc cttctccctc tccagcctcg gggctgtccg 1800

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ctgggcaacg tgctggttat tgtgctgtct catcatttgt cgacagaatt cctcgaagat 1980

ccgaaggggt tcaagcttgg cattccggta ctgttggtaa agccagttta aacgccgcca 2040

ccatggtgag caagggcgag gagctgttca ccggggtggt gcccatcctg gtcgagctgg 2100

acggcgacgt aaacggccac aagttcagcg tgtccggcga gggcgagggc gatgccacct 2160

acggcaagct gaccctgaag ttcatctgca ccaccggcaa gctgcccgtg ccctggccca 2220

ccctcgtgac caccctgacc tacggcgtgc agtgcttcag ccgctacccc gaccacatga 2280

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tcttcaagga cgacggcaac tacaagaccc gcgccgaggt gaagttcgag ggcgacaccc 2400

tggtgaaccg catcgagctg aagggcatcg acttcaagga ggacggcaac atcctggggc 2460

acaagctgga gtacaactac aacagccaca acgtctatat catggccgac aagcagaaga 2520

acggcatcaa ggtgaacttc aagatccgcc acaacatcga ggacggcagc gtgcagctcg 2580

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actacctgag cacccagtcc gccctgagca aagaccccaa cgagaagcgc gatcacatgg 2700

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aattaattaa gagcatctta ccgccattta ttcccatatt tgttctgttt ttcttgattt 2820

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tcattctatt ctgggggggtg gggtggggca ggacagcaag ggggaggatt gggaagacaa 3540

tagcaggcat gctggggatg cggtgggctc tatggctcta gagcatggct acgtagataa 3600

gtagcatggc gggttaatca ttaactacac ctgcagcagg aacccctagt gatggagttg 3660

gccactccct ctctgcgcgc tcgctcgctc cctgcaggac tgaggccggg cgaccaaagg 3720

tcgcccgacg cccgggcggc ctcagtcctg cagg 3754

<210> 147
<211> 8418
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 147
ggcagctgcg cgctcgctcg ctcacctagg ccgcccgggc aaagcccggg cgtcgggcga 60

cctttggtcg cccggcctag gtgagcgagc gagcgcgcag agagggagtg gccaactcca 120

tcactagggg ttccttgtag ttaatgatta acccgccatg ctacttatcg cggccgctca 180

atattggcca ttagccatat tattcattgg ttatatagca taaatcaata ttggctattg 240

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attagttcat agcccatata tggagttccg cgttacataa cttacggtaa atggcccgcc 420

tggctgaccg cccaacgacc cccgcccatt gacgtcaata atgacgtatg ttcccatagt 480

aacgccaata gggactttcc attgacgtca atgggtggag tatttacggt aaactgccca 540

cttggcagta catcaagtgt atcatatgcc aagtccgccc cctattgacg tcaatgacgg 600

taaatggccc gcctggcatt atgcccagta catgacctta cgggactttc ctacttggca 660

gtacatctac gtattagtca tcgctattac catggtcgag gtgagcccca cgttctgctt 720

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gctccgaaag tttcctttta tggcgaggcg gcggcggcgg cggccctata aaaagcgaag 960

cgcgcggcgg gcgggagtcg ctgcgacgct gccttcgccc cgtgccccgc tccgccgccg 1020

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aacccccccc tgcacccccc tccccgagtt gctgagcacg gcccggcttc gggtgcgggg 1500

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polynucleotide

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polynucleotide

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<213> Mus musculus

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<213> Homo sapiens

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<212> DNA
<213> Homo sapiens

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gatccactgg ggagcaggaa atatctgtgg gcttgtgaca cggactcaag tgggctggtg 240

acccagtcag agttgtgcac atggcttagt tttcatacac agcctgggct gggggtgggg 300

tgggagaggt ctttttaaa aggaagttac tgttatagag ggtctaagat tcatccattt 360

atttggcatc tgtttaaagt agattagatc ttttaagccc atcaattata gaaagccaaa 420

tcaaaatatg ttgatgaaaa atagcaacct ttttatctcc ccttcacatg catcaagtta 480

ttgacaaact ctcccttcac tccgaaagtt ccttatgtat atttaaaaga aagcctcaga 540

gaattgctga ttcttgagtt tagtgatctg aacagaaata ccaaaattat ttcagaaatg 600

tacaactttt tacctagtac aaggcaacat ataggttgta aatgtgttta aaacaggtct 660

ttgtcttgct atggggagaa aagacatgaa tatgattagt aaagaaatga cacttttcat 720

gtgtgatttc ccctccaagg tatggttaat aagtttcact gacttagaac caggcgagag 780

acttgtggcc tgggagagct ggggaagctt cttaaatgag aaggaatttg agttggatca 840

tctattgctg gcaaagacag aagcctcact gcaagcactg catgggcaag cttggctgta 900

gaaggagaca gagctggttg ggaagacatg gggaggaagg acaaggctag atcatgaaga 960

accttgacgg cattgctccg tctaagtcat gagctgagca gggagatcct ggttggtgtt 1020

gcagaaggtt tactctgtgg ccaaaggagg gtcaggaagg atgagcattt agggcaagga 1080

gaccaccaac agccctcagg tcagggtgag gatggcctct gctaagctca aggcgtgagg 1140

atgggaagga gggaggtatt cgtaaggatg ggaaggaggg aggtattcgt gcagcatatg 1200

aggatgcaga gtcagcagaa ctg 1223

<210> 155
<211> 215
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 155
gaacgctgac gtcatcaacc cgctccaagg aatcgcgggc ccagtgtcac taggcgggaa 60

cacccagcgc gcgtgcgccc tggcaggaag atggctgtga gggacagggg agtggcgccc 120

tgcaatattt gcatgtcgct atgtgttctg ggaaatcacc ataaacgtga aatgtctttg 180

gatttgggaa tcttataagt tctgtatgag accac 215

<210> 156
<211> 141
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polynucleotide

<400> 156
cctgcaggca gctgcgcgct cgctcgctca cctaggccgc ccgggcaaag cccgggcgtc 60

gggcgacctt tggtcgcccg gcctaggtga gcgagcgagc gcgcagagag ggagtggcca 120

actccatcac taggggttcc t 141

<210> 157
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 157
gcgcgctcgc tcgctcacc 19

<210> 158
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 158
ctaggtgagc gagcgagcgc gc 22

<210> 159
<211> 75

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 159
cctgcaggac tgaggccgcc cgggcaaagc ccgggcgtcg ggcgaccttt ggtcgcccgg 60

cctcagtcct gcagg 75

<210> 160
<211> 130
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 160
aggaacccct agtgatggag ttggccactc cctctctgcg cgctcgctcg ctcactgagt 60

gcgggcgacc aaaggtcgcc cgacgcccgg gcgcactcag tgagcgagcg agcgcgcagc 120

tgcctgcagg 130

<210> 161
<211> 142
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 161
cctgcaggca gctgcgcgct cgctcgctcc ctaggactga ggccgcccgg gcgtcgggcg 60

acctttggtc gcccggcctc agtcctaggg agcgagcgag cgcgcagaga gggagtggcc 120

aactccatca ctaggggttc ct 142

<210> 162
<211> 80
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 162
gcgcgctcgc tcgctcactg agtgcgggcg accaaaggtc gcccgacgcc cgggcgcact 60

cagtgagcga gcgagcgcgc 80

<210> 163
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 163
gcgcgctcgc tcgctcactg a 21

<210> 164
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 164
gtgagcgagc gagcgcgc 18

<210> 165
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 165
gcgcgctcgc tcgctcactg aggccgcccg ggcaaagccc gggcgtcggg cgactttgtc 60

gcccggcctc agtgagcgag cgagcgcgc 89

<210> 166
<211> 89
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 166
gcgcgctcgc tcgctcactg aggccgggcg acaaagtcgc ccgacgcccg ggctttgccc 60

gggcggcctc agtgagcgag cgagcgcgc 89

<210> 167
<211> 87
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 167
gcgcgctcgc tcgctcactg aggccgcccg ggcaaagccc gggcgtcggg cgattttcgc 60

ccggcctcag tgagcgagcg agcgcgc 87

<210> 168
<211> 87
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 168
gcgcgctcgc tcgctcactg aggccgggcg aaaatcgccc gacgcccggg ctttgcccgg 60

gcggcctcag tgagcgagcg agcgcgc 87

<210> 169
<211> 85
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 169
gcgcgctcgc tcgctcactg aggccgcccg ggcaaagccc gggcgtcggg cgtttcgccc 60

ggcctcagtg agcgagcgag cgcgc 85

<210> 170
<211> 85
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 170
gcgcgctcgc tcgctcactg aggccgggcg aaacgcccga cgcccgggct ttgcccgggc 60

ggcctcagtg agcgagcgag cgcgc 85

<210> 171
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 171
gcgcgctcgc tcgctcactg aggccgcccg ggaaacccgg gcgtcgggcg acctttggtc 60

gcccggcctc agtgagcgag cgagcgcgc 89

<210> 172
<211> 89
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 172
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc cgggtttccc 60

gggcggcctc agtgagcgag cgagcgcgc 89

<210> 173
<211> 87
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 173
gcgcgctcgc tcgctcactg aggccgcccg gaaaccgggc gtcgggcgac ctttggtcgc 60

ccggcctcag tgagcgagcg agcgcgc 87

<210> 174
<211> 87
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 174
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc cggtttccgg 60

gcggcctcag tgagcgagcg agcgcgc 87

<210> 175
<211> 85
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 175
gcgcgctcgc tcgctcactg aggccgcccg aaacgggcgt cgggcgacct ttggtcgccc 60

ggcctcagtg agcgagcgag cgcgc 85

<210> 176
<211> 85
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 176
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc cgtttcgggc 60

ggcctcagtg agcgagcgag cgcgc 85

<210> 177
<211> 83
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 177
gcgcgctcgc tcgctcactg aggccgccca aagggcgtcg ggcgaccttt ggtcgcccgg 60

cctcagtgag cgagcgagcg cgc 83

<210> 178
<211> 83
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 178
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc ctttgggcgg 60

cctcagtgag cgagcgagcg cgc 83

<210> 179
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 179
gcgcgctcgc tcgctcactg aggccgccaa aggcgtcggg cgacctttgg tcgcccggcc 60

tcagtgagcg agcgagcgcg c 81

<210> 180
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 180
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc tttggcggcc 60

tcagtgagcg agcgagcgcg c 81

<210> 181
<211> 79
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 181
gcgcgctcgc tcgctcactg aggccgcaaa gcgtcgggcg acctttggtc gcccggcctc 60

agtgagcgag cgagcgcgc 79

<210> 182
<211> 79
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 182
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgct ttgcggcctc 60

agtgagcgag cgagcgcgc 79

<210> 183
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 183
ctgcgcgctc gctcgctcac tgaggccgaa acgtcgggcg acctttggtc gcccggcctc 60

agtgagcgag cgagcgcgca g 81

<210> 184
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 184
ctgcgcgctc gctcgctcac tgaggccggg cgaccaaagg tcgcccgacg tttcggcctc 60

agtgagcgag cgagcgcgca g 81

<210> 185
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 185
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacggc ctcagtgagc 60

gagcgagcgc gc 72

<210> 186
<211> 80
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 186
gcgcgctcgc tcgctcactg aggccgggcg accaaaggtc gcccgacgcc cgggcggcct 60

cagtgagcga gcgagcgcgc 80

<210> 187
<211> 79
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 187
gcgcgctcgc tcgctcactg aggcgcccgg gcgtcgggcg acctttggtc gcccggcctc 60

agtgagcgag cgagcgcgc 79

<210> 188
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 188
ggagtcaaag ttctgtttgc cctgatctgc atcgctgtgg ccgaggcc 48

<210> 189
<211> 99
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 189
attcatacca acttgaagaa aaagttcagc ctcttcatcc tggtctttct cctgttcgca 60

gtcatctgtg tttggaagaa agggagcgac tatgaggcc 99

<210> 190
<211> 588
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 190
gcccctctcc ctccccccc cctaacgtta ctggccgaag ccgcttggaa taaggccggt 60

gtgcgtttgt ctatatgtta ttttccacca tattgccgtc ttttggcaat gtgagggccc 120

ggaaacctgg ccctgtcttc ttgacgagca ttcctagggg tctttcccct ctcgccaaag 180

gaatgcaagg tctgttgaat gtcgtgaagg aagcagttcc tctggaagct tcttgaagac 240

aaacaacgtc tgtagcgacc ctttgcaggc agcggaaccc cccacctggc gacaggtgcc 300

tctgcggcca aaagccacgt gtataagata cacctgcaaa ggcggcacaa ccccagtgcc 360

acgttgtgag ttggatagtt gtggaaagag tcaaatggct ctcctcaagc gtattcaaca 420

aggggctgaa ggatgcccag aaggtacccc attgtatggg atctgatctg gggcctcggt 480

gcacatgctt tacatgtgtt tagtcgaggt taaaaaaacg tctaggcccc ccgaaccacg 540

gggacgtggt tttcctttga aaaacacgat gataatatgg ccacaacc 588