SEQUENCE LISTING

<110> GENERATION BIO CO.

<120> NON-VIRAL DNA VECTORS AND USES THEREOF FOR EXPRESSING FVIII THERAPEUTICS

<130> 131698-06020

<140> PCT/US2020/022738
<141> 2020-03-13

<150> 62/856,432
<151> 2019-06-03

<150> 62/817,904
<151> 2019-03-13

<160> 398

<170> PatentIn version 3.5

<210> 1
<211> 141
<212> DNA
<213> Artificial Sequence

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

<400> 1
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ccgggcgacc aaaggtcgcc cgacgcccgg gctttgcccg ggcggcctca gtgagcgagc 120

gagcgcgcag ctgcctgcag g 141

<210> 2
<211> 141
<212> DNA
<213> Artificial Sequence

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

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cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccgggcaaag cccgggcgtc 60

gggcgacctt tggtcgcccg gcctcagtga gcgagcgagc gcgcagagag ggagtggcca 120

actccatcac taggggttcc t 141

<210> 3
<211> 130
<212> DNA
<213> Artificial Sequence

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

<400> 3
aggaacccct agtgatggag ttggccactc cctctctgcg cgctcgctcg ctcactgagg 60

ccgggcgacc aaaggtcgcc cgacgcccgg gcggcctcag tgagcgagcg agcgcgcagc 120

tgcctgcagg 130

<210> 4
<211> 130
<212> DNA
<213> Artificial Sequence

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

<400> 4
cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccgggcgtcg ggcgaccttt 60

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

<400> 6
ttggccactc cctctatgcg cactcgctcg ctcggtgggg cctggcgacc aaaggtcgcc 60

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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gtcgtctggc agctctttga gctgccaccc ccccaaacga gccagcgagc gagcgaacgc 120

gacaggggg agagtgccac actctcaagc aaggggttt tgtaag 166

<210> 9

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

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

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cagacggcag aggtctcctc tgccggcccc accgagcgag cgagcgcgca tagagggagt 120

gggcaactcc atcactaggg gtat 144

<210> 10
<211> 143
<212> DNA
<213> Artificial Sequence

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

<400> 10
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ggcagaggag acctctgccg tctgcggacc tttggtccgc aggccccacc gagcgagcga 120

gcgcgcagag agggagtggg caa 143

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

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

<400> 11
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ggacgtggaa acccacgtcc gtctggcgac ctttggtcgc caggccccac cgagcgagcg 120

agtgcgcata gagggagtgg ccaa 144

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

<213> Artificial Sequence

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

<400> 12
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ccagactgcc ggcctctggc cggcagggcc gagtgagtga gcgagcgcgc atagagggag 120

tggccaa 127

<210> 13
<211> 166
<212> DNA
<213> Artificial Sequence

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

<400> 13
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gctggctcgt ttgggggggt ggcagctcaa agagctgcca gacgacggcc ctctggccgt 120

cgccccccca aacgagccag cgagcgagcg aacgcgacag ggggga 166

<210> 14
<211> 144
<212> DNA
<213> Artificial Sequence

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

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ggcagaggag acctctgccg tctgcggacc tttggtccgc aggccccacc gagcgagcga 120

gcgcgcatta gagggagtgg gcaa 144

<210> 15
<211> 120
<212> DNA
<213> Artificial Sequence

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

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cgcacgcccg ggtttcccgg gcggcctcag tgagcgagcg agcgcgcagc tgcctgcagg 120

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

<220>
<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

<220>
<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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ccgggcgaca aagtcgcccg acgcccgggc tttgcccggg cggcctcagt gagcgagcga 120

gcgcgcagct gcctgcagg 139

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

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

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ccgggcgaaa atcgcccgac gcccgggctt tgcccgggcg gcctcagtga gcgagcgagc 120

gcgcagctgc ctgcagg 137

<210> 21
<211> 135
<212> DNA
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polynucleotide

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ccgggcgaaa cgcccgacgc ccgggctttg cccgggcggc ctcagtgagc gagcgagcgc 120

gcagctgcct gcagg 135

<210> 22
<211> 133
<212> DNA
<213> Artificial Sequence

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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

<210> 24
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<212> DNA
<213> Artificial Sequence

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polynucleotide

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ccgggcgacc aaaggtcgcc cgacgcccgg tttccgggcg gcctcagtga gcgagcgagc 120

gcgcagctgc ctgcagg 137

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

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polynucleotide

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gcagctgcct gcagg 135

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

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polynucleotide

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agctgcctgc agg 133

<210> 27
<211> 131
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 27
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ccgggcgacc aaaggtcgcc cgacgccttt ggcggcctca gtgagcgagc gagcgcgcag 120

ctgcctgcag g 131

<210> 28
<211> 129
<212> DNA
<213> Artificial Sequence

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

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gcctgcagg 129

<210> 29
<211> 127
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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ccgggcgacc aaaggtcgcc cgacgtttcg gcctcagtga gcgagcgagc gcgcagctgc 120

ctgcagg 127

<210> 30
<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> 31
<211> 130

<212> DNA
<213> Artificial Sequence

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

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ccgggcgacc aaaggtcgcc cgacgcccgg gcggcctcag tgagcgagcg agcgcgcagc 120

tgcctgcagg 130

<210> 32
<211> 120
<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
<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

<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

<210> 35
<211> 129
<212> DNA
<213> Artificial Sequence

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polynucleotide

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gtcgcccggc ctcagtgagc gagcgagcgc gcagagaggg agtggccaac tccatcacta 120

ggggttcct 129

<210> 36
<211> 101
<212> DNA
<213> Artificial Sequence

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

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gcgcagagag ggagtggcca actccatcac taggggttcc t 101

<210> 37
<211> 139
<212> DNA
<213> Artificial Sequence

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

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gggcgacttt gtcgcccggc ctcagtgagc gagcgagcgc gcagagaggg agtggccaac 120

tccatcacta ggggttcct 139

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

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

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gggcgatttt cgcccggcct cagtgagcga gcgagcgcgc agagagggag tggccaactc 120

catcactagg ggttcct 137

<210> 39
<211> 135
<212> DNA
<213> Artificial Sequence

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

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gggcgtttcg cccggcctca gtgagcgagc gagcgcgcag agagggagtg gccaactcca 120

tcactagggg ttcct 135

<210> 40
<211> 133
<212> DNA
<213> Artificial Sequence

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

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gggctttgcc cggcctcagt gagcgagcga gcgcgcagag agggagtggc caactccatc 120

actaggggtt cct 133

<210> 41
<211> 139
<212> DNA
<213> Artificial Sequence

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

<400> 41
cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccgggaaacc cgggcgtcgg 60

gcgacctttg gtcgcccggc ctcagtgagc gagcgagcgc gcagagaggg agtggccaac 120

tccatcacta ggggttcct 139

<210> 42
<211> 137
<212> DNA
<213> Artificial Sequence

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

<400> 42
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
cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccgaaacggg cgtcgggcga 60

cctttggtcg cccggcctca gtgagcgagc gagcgcgcag agagggagtg gccaactcca 120

tcactagggg ttcct 135

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

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

<400> 44
cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccaaagggcg tcgggcgacc 60

tttggtcgcc cggcctcagt gagcgagcga gcgcgcagag agggagtggc caactccatc 120

actaggggtt cct 133

<210> 45
<211> 131
<212> DNA
<213> Artificial Sequence

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

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<210> 46
<211> 129
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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gtcgcccggc ctcagtgagc gagcgagcgc gcagagaggg agtggccaac tccatcacta 120

ggggttcct 129

<210> 47
<211> 127
<212> DNA
<213> Artificial Sequence

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

<400> 47
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cgcccggcct cagtgagcga gcgagcgcgc agagagggag tggccaactc catcactagg 120

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
cgatcgttcg at 12

<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

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

<400> 53
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cgggcaaagc ccgggcgtcg ggcgaccttt ggtcgcccgg cctcagtgag cgagcgagcg 120

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

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

<400> 55
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ccgggcggcc tcagtgagcg agcgagcgcg c 91

<210> 56
<211> 1662
<212> DNA
<213> Artificial Sequence

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polynucleotide

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gaagatggaa ccgctggaga gcaactgcat aaggctatga agagatacgc cctggttcct 120

ggaacaattg cttttacaga tgcacatatc gaggtggaca tcacttacgc tgagtacttc 180

gaaatgtccg ttcggttggc agaagctatg aaacgatatg ggctgaatac aaatcacaga 240

atcgtcgtat gcagtgaaaa ctctcttcaa ttctttatgc cggtgttggg cgcgttattt 300

atcggagttg cagttgcgcc cgcgaacgac atttataatg aacgtgaatt gctcaacagt 360

atgggcattt cgcagcctac cgtggtgttc gtttccaaaa aggggttgca aaaaattttg 420

aacgtgcaaa aaaagctccc aatcatccaa aaaattatta tcatggattc taaaacggat 480

taccagggat ttcagtcgat gtacacgttc gtcacatctc atctacctcc cggttttaat 540

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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

<210> 191
<211> 399
<212> DNA
<213> Artificial Sequence

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

<400> 191
cgggggaggc tgctggtgaa tattaaccaa ggtcacccca gttatcggag gagcaaacag 60

gggctaagtc cacacgcgtg gtaccgtctg tctgcacatt tcgtagagcg agtgttccga 120

tactctaatc tccctaggca aggttcatat ttgtgtaggt tacttattct ccttttgttg 180

actaagtcaa taatcagaat cagcaggttt ggagtcagct tggcagggat cagcagcctg 240

ggttggaagg agggggtata aaagcccctt caccaggaga agccgtcaca cagatccaca 300

agctcctgaa gaggtaaggg tttaagggat ggttggttgg tggggtatta atgtttaatt 360

acctggagca cctgcctgaa atcacttttt ttcaggttg 399

<210> 192
<211> 14359
<212> DNA
<213> Artificial Sequence

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

<400> 192
gacgcgccct gtagcggcgc attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc 60

gctacacttg ccagcgccct agcgcccgct cctttcgctt tcttcccttc ctttctcgcc 120

acgttcgccg gctttccccg tcaagctcta aatcgggggc tccctttagg gttccgattt 180

agtgctttac ggcacctcga ccccaaaaaa cttgattagg gtgatggttc acgtagtggg 240

ccatcgccct gatagacggt ttttcgccct ttgacgttgg agtccacgtt ctttaatagt 300

ggactcttgt tccaaactgg aacaacactc aaccctatct cggtctattc ttttgattta 360

taagggattt tgccgatttc ggcctattgg ttaaaaaatg agctgattta acaaaaattt 420

aacgcgaatt ttaacaaaat attaacgttt acaatttcag gtggcacttt tcggggaaat 480

gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta tccgctcatg 540

agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat gagtattcaa 600

catttccgtg tcgcccttat tccctttttt gcggcatttt gccttcctgt ttttgctcac 660

ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg agtgggttac 720

atcgaactgg atctcaacag cggtaagatc cttgagagtt ttcgccccga agaacgtttt 780

ccaatgatga gcacttttaa agttctgcta tgtggcgcgg tattatcccg tattgacgcc 840

gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggt tgagtactca 900

ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg cagtgctgcc 960

ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg aggaccgaag 1020

gagctaaccg ctttttgca caacatgggg gatcatgtaa ctcgccttga tcgttgggaa 1080

ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg 1140

gcaacaacgt tgcgcaaact attaactggc gaactactta ctctagcttc ccggcaacaa 1200

ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc ggcccttccg 1260

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caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc actgattaag 1440

cattggtaac tgtcagacca agtttactca tatatacttt agattgattt aaaacttcat 1500

ttttaattta aaaggatcta ggtgaagatc ctttttgata atctcatgac caaaatccct 1560

taacgtgagt tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa aggatcttct 1620

tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca 1680

gcggtggttt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt aactggcttc 1740

agcagagcgc agataccaaa tactgtcctt ctagtgtagc cgtagttagg ccaccacttc 1800

aagaactctg tagcaccgcc tacatacctc gctctgctaa tcctgttacc agtggctgct 1860

gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt accggataag 1920

gcgcagcggt cgggctgaac gggggggttcg tgcacacagc ccagcttgga gcgaacgacc 1980

tacaccgaac tgagatacct acagcgtgag cattgagaaa gcgccacgct tcccgaaggg 2040

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ttatcccctg attctgtgga taaccgtatt accgcctttg agtgagctga taccgctcgc 2340

cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg aagcggaaga gcgcctgatg 2400

cggtattttc tccttacgca tctgtgcggt atttcacacc gcagaccagc cgcgtaacct 2460

ggcaaaatcg gttacggttg agtaataaat ggatgccctg cgtaagcggg tgtgggcgga 2520

caataaagtc ttaaactgaa caaaatagat ctaaactatg acaataaagt cttaaactag 2580

acagaatagt tgtaaactga aatcagtcca gttatgctgt gaaaaagcat actggacttt 2640

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gcgagatcat agatatagat ctcactacgc ggctgctcaa acctgggcag aacgtaagcc 3060

gcgagagcgc caacaaccgc ttcttggtcg aaggcagcaa gcgcgatgaa tgtcttacta 3120

cggagcaagt tcccgaggta atcggagtcc ggctgatgtt gggagtaggt ggctacgtct 3180

ccgaactcac gaccgaaaag atcaagagca gcccgcatgg atttgacttg gtcagggccg 3240

agcctacatg tgcgaatgat gcccatactt gagccaccta actttgtttt agggcgactg 3300

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tcgacccacg gcgtaacgcg cttgctgctt ggatgcccga ggcatagact gtacaaaaaa 3420

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cacggatctg ccctggcttc aggagatcgg aagacctcgg ccgtcgcggc gcttgccggt 3780

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gttcgcccag gactctagct atagttctag tggttggcta cgtatactcc ggaatattaa 3900

tagatcatgg agataattaa aatgataacc atctcgcaaa taaataagta ttttactgtt 3960

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cgggcgacct ttggtcgccc ggcctcagtg agcgagcgag cgcgcagaga gggagtggcc 4260

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caaacagcaa acacacagcc ctccctgcct gctgaccttg gagctggggc agaggtcaga 4560

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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
            20   25   30

Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
        35   40   45

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
    50   55   60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65   70   75   80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
                85   90   95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
            100   105   110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
        115   120   125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
    130   135   140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145   150   155   160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
                165   170   175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180   185   190

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Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300

Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
305                 310                 315                 320

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
        355                 360                 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400
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Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605
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Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
        755                 760                 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp
    770                 775                 780

Ile Glu Lys Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys
785                 790                 795                 800

Ile Gln Asn Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser
                805                 810                 815

Pro Thr Pro His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr
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            820                 825                 830

Glu Thr Phe Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn
        835                 840                 845

Ser Leu Ser Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly
    850                 855                 860

Asp Met Val Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu
865                 870                 875                 880

Lys Leu Gly Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys
                885                 890                 895

Val Ser Ser Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn
            900                 905                 910

Leu Ala Ala Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met
        915                 920                 925

Pro Val His Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys
    930                 935                 940

Ser Ser Pro Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu
945                 950                 955                 960

Asn Asn Asp Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu
                965                 970                 975

Ser Ser Trp Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe
            980                 985                 990

Lys Gly Lys Arg Ala His Gly Pro  Ala Leu Leu Thr Lys  Asp Asn Ala
        995                 1000                1005

Leu Phe  Lys Val Ser Ile Ser  Leu Leu Lys Thr Asn  Lys Thr Ser
    1010                1015                1020

Asn Asn  Ser Ala Thr Asn Arg  Lys Thr His Ile Asp  Gly Pro Ser
    1025                1030                1035
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Leu Leu  Ile Glu Asn Ser Pro  Ser Val Trp Gln Asn  Ile Leu Glu
    1040                1045                1050

Ser Asp  Thr Glu Phe Lys Lys  Val Thr Pro Leu Ile  His Asp Arg
    1055                1060                1065

Met Leu  Met Asp Lys Asn Ala  Thr Ala Leu Arg Leu  Asn His Met
    1070                1075                1080

Ser Asn  Lys Thr Thr Ser Ser  Lys Asn Met Glu Met  Val Gln Gln
    1085                1090                1095

Lys Lys  Glu Gly Pro Ile Pro  Pro Asp Ala Gln Asn  Pro Asp Met
    1100                1105                1110

Ser Phe  Phe Lys Met Leu Phe  Leu Pro Glu Ser Ala  Arg Trp Ile
    1115                1120                1125

Gln Arg  Thr His Gly Lys Asn  Ser Leu Asn Ser Gly  Gln Gly Pro
    1130                1135                1140

Ser Pro  Lys Gln Leu Val Ser  Leu Gly Pro Glu Lys  Ser Val Glu
    1145                1150                1155

Gly Gln  Asn Phe Leu Ser Glu  Lys Asn Lys Val Val  Val Gly Lys
    1160                1165                1170

Gly Glu  Phe Thr Lys Asp Val  Gly Leu Lys Glu Met  Val Phe Pro
    1175                1180                1185

Ser Ser  Arg Asn Leu Phe Leu  Thr Asn Leu Asp Asn  Leu His Glu
    1190                1195                1200

Asn Asn  Thr His Asn Gln Glu  Lys Lys Ile Gln Glu  Glu Ile Glu
    1205                1210                1215

Lys Lys  Glu Thr Leu Ile Gln  Glu Asn Val Val Leu  Pro Gln Ile
    1220                1225                1230
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His Thr  Val Thr Gly Thr Lys  Asn Phe Met Lys Asn  Leu Phe Leu
    1235                1240                1245

Leu Ser  Thr Arg Gln Asn Val  Glu Gly Ser Tyr Asp  Gly Ala Tyr
    1250                1255                1260

Ala Pro  Val Leu Gln Asp Phe  Arg Ser Leu Asn Asp  Ser Thr Asn
    1265                1270                1275

Arg Thr  Lys Lys His Thr Ala  His Phe Ser Lys Lys  Gly Glu Glu
    1280                1285                1290

Glu Asn  Leu Glu Gly Leu Gly  Asn Gln Thr Lys Gln  Ile Val Glu
    1295                1300                1305

Lys Tyr  Ala Cys Thr Thr Arg  Ile Ser Pro Asn Thr  Ser Gln Gln
    1310                1315                1320

Asn Phe  Val Thr Gln Arg Ser  Lys Arg Ala Leu Lys  Gln Phe Arg
    1325                1330                1335

Leu Pro  Leu Glu Glu Thr Glu  Leu Glu Lys Arg Ile  Ile Val Asp
    1340                1345                1350

Asp Thr  Ser Thr Gln Trp Ser  Lys Asn Met Lys His  Leu Thr Pro
    1355                1360                1365

Ser Thr  Leu Thr Gln Ile Asp  Tyr Asn Glu Lys Glu  Lys Gly Ala
    1370                1375                1380

Ile Thr  Gln Ser Pro Leu Ser  Asp Cys Leu Thr Arg  Ser His Ser
    1385                1390                1395

Ile Pro  Gln Ala Asn Arg Ser  Pro Leu Pro Ile Ala  Lys Val Ser
    1400                1405                1410

Ser Phe  Pro Ser Ile Arg Pro  Ile Tyr Leu Thr Arg  Val Leu Phe
    1415                1420                1425
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Gln Asp  Asn Ser Ser His Leu  Pro Ala Ala Ser Tyr  Arg Lys Lys
    1430                 1435                 1440

Asp Ser  Gly Val Gln Glu Ser  Ser His Phe Leu Gln  Gly Ala Lys
    1445                 1450                 1455

Lys Asn  Asn Leu Ser Leu Ala  Ile Leu Thr Leu Glu  Met Thr Gly
    1460                 1465                 1470

Asp Gln  Arg Glu Val Gly Ser  Leu Gly Thr Ser Ala  Thr Asn Ser
    1475                 1480                 1485

Val Thr  Tyr Lys Lys Val Glu  Asn Thr Val Leu Pro  Lys Pro Asp
    1490                 1495                 1500

Leu Pro  Lys Thr Ser Gly Lys  Val Glu Leu Leu Pro  Lys Val His
    1505                 1510                 1515

Ile Tyr  Gln Lys Asp Leu Phe  Pro Thr Glu Thr Ser  Asn Gly Ser
    1520                 1525                 1530

Pro Gly  His Leu Asp Leu Val  Glu Gly Ser Leu Leu  Gln Gly Thr
    1535                 1540                 1545

Glu Gly  Ala Ile Lys Trp Asn  Glu Ala Asn Arg Pro  Gly Lys Val
    1550                 1555                 1560

Pro Phe  Leu Arg Val Ala Thr  Glu Ser Ser Ala Lys  Thr Pro Ser
    1565                 1570                 1575

Lys Leu  Leu Asp Pro Leu Ala  Trp Asp Asn His Tyr  Gly Thr Gln
    1580                 1585                 1590

Ile Pro  Lys Glu Glu Trp Lys  Ser Gln Glu Lys Ser  Pro Glu Lys
    1595                 1600                 1605

Thr Ala  Phe Lys Lys Lys Asp  Thr Ile Leu Ser Leu  Asn Ala Cys
    1610                 1615                 1620

Glu Ser  Asn His Ala Ile Ala  Ala Ile Asn Glu Gly  Gln Asn Lys
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    1625                1630                1635

Pro Glu  Ile Glu Val Thr Trp  Ala Lys Gln Gly Arg  Thr Glu Arg
    1640                1645                1650

Leu Cys  Ser Gln Asn Pro Pro  Val Leu Lys Arg His  Gln Arg Glu
    1655                1660                1665

Ile Thr  Arg Thr Thr Leu Gln  Ser Asp Gln Glu Glu  Ile Asp Tyr
    1670                1675                1680

Asp Asp  Thr Ile Ser Val Glu  Met Lys Lys Glu Asp  Phe Asp Ile
    1685                1690                1695

Tyr Asp  Glu Asp Glu Asn Gln  Ser Pro Arg Ser Phe  Gln Lys Lys
    1700                1705                1710

Thr Arg  His Tyr Phe Ile Ala  Ala Val Glu Arg Leu  Trp Asp Tyr
    1715                1720                1725

Gly Met  Ser Ser Ser Pro His  Val Leu Arg Asn Arg  Ala Gln Ser
    1730                1735                1740

Gly Ser  Val Pro Gln Phe Lys  Lys Val Val Phe Gln  Glu Phe Thr
    1745                1750                1755

Asp Gly  Ser Phe Thr Gln Pro  Leu Tyr Arg Gly Glu  Leu Asn Glu
    1760                1765                1770

His Leu  Gly Leu Leu Gly Pro  Tyr Ile Arg Ala Glu  Val Glu Asp
    1775                1780                1785

Asn Ile  Met Val Thr Phe Arg  Asn Gln Ala Ser Arg  Pro Tyr Ser
    1790                1795                1800

Phe Tyr  Ser Ser Leu Ile Ser  Tyr Glu Glu Asp Gln  Arg Gln Gly
    1805                1810                1815

Ala Glu  Pro Arg Lys Asn Phe  Val Lys Pro Asn Glu  Thr Lys Thr
    1820                1825                1830
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Tyr Phe  Trp Lys Val Gln His  His Met Ala Pro Thr  Lys Asp Glu
    1835                1840                1845

Phe Asp  Cys Lys Ala Trp Ala  Tyr Phe Ser Asp Val  Asp Leu Glu
    1850                1855                1860

Lys Asp  Val His Ser Gly Leu  Ile Gly Pro Leu Leu  Val Cys His
    1865                1870                1875

Thr Asn  Thr Leu Asn Pro Ala  His Gly Arg Gln Val  Thr Val Gln
    1880                1885                1890

Glu Phe  Ala Leu Phe Phe Thr  Ile Phe Asp Glu Thr  Lys Ser Trp
    1895                1900                1905

Tyr Phe  Thr Glu Asn Met Glu  Arg Asn Cys Arg Ala  Pro Cys Asn
    1910                1915                1920

Ile Gln  Met Glu Asp Pro Thr  Phe Lys Glu Asn Tyr  Arg Phe His
    1925                1930                1935

Ala Ile  Asn Gly Tyr Ile Met  Asp Thr Leu Pro Gly  Leu Val Met
    1940                1945                1950

Ala Gln  Asp Gln Arg Ile Arg  Trp Tyr Leu Leu Ser  Met Gly Ser
    1955                1960                1965

Asn Glu  Asn Ile His Ser Ile  His Phe Ser Gly His  Val Phe Thr
    1970                1975                1980

Val Arg  Lys Lys Glu Glu Tyr  Lys Met Ala Leu Tyr  Asn Leu Tyr
    1985                1990                1995

Pro Gly  Val Phe Glu Thr Val  Glu Met Leu Pro Ser  Lys Ala Gly
    2000                2005                2010

Ile Trp  Arg Val Glu Cys Leu  Ile Gly Glu His Leu  His Ala Gly
    2015                2020                2025
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Met Ser  Thr Leu Phe Leu Val  Tyr Ser Asn Lys Cys  Gln Thr Pro
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Leu Gly  Met Ala Ser Gly His  Ile Arg Asp Phe Gln  Ile Thr Ala
    2045                2050                2055

Ser Gly  Gln Tyr Gly Gln Trp  Ala Pro Lys Leu Ala  Arg Leu His
    2060                2065                2070

Tyr Ser  Gly Ser Ile Asn Ala  Trp Ser Thr Lys Glu  Pro Phe Ser
    2075                2080                2085

Trp Ile  Lys Val Asp Leu Leu  Ala Pro Met Ile Ile  His Gly Ile
    2090                2095                2100

Lys Thr  Gln Gly Ala Arg Gln  Lys Phe Ser Ser Leu  Tyr Ile Ser
    2105                2110                2115

Gln Phe  Ile Ile Met Tyr Ser  Leu Asp Gly Lys Lys  Trp Gln Thr
    2120                2125                2130

Tyr Arg  Gly Asn Ser Thr Gly  Thr Leu Met Val Phe  Phe Gly Asn
    2135                2140                2145

Val Asp  Ser Ser Gly Ile Lys  His Asn Ile Phe Asn  Pro Pro Ile
    2150                2155                2160

Ile Ala  Arg Tyr Ile Arg Leu  His Pro Thr His Tyr  Ser Ile Arg
    2165                2170                2175

Ser Thr  Leu Arg Met Glu Leu  Met Gly Cys Asp Leu  Asn Ser Cys
    2180                2185                2190

Ser Met  Pro Leu Gly Met Glu  Ser Lys Ala Ile Ser  Asp Ala Gln
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Ile Thr  Ala Ser Ser Tyr Phe  Thr Asn Met Phe Ala  Thr Trp Ser
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<211> 1474
<212> PRT
<213> Artificial Sequence

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Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser
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Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg
35 40 45

Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
50 55 60

Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

```
Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
            100                 105                 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
        115                 120                 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
    130                 135                 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145                 150                 155                 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
                165                 170                 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
            180                 185                 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr
        195                 200                 205

Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
    210                 215                 220

Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp
225                 230                 235                 240

Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr
                245                 250                 255

Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val
            260                 265                 270

Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile
        275                 280                 285

Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser
    290                 295                 300
```

```
Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
305                 310                 315                 320

Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
        355                 360                 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
```

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        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735
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Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ala Thr Asn Val
        755                 760                 765

Ser Asn Asn Ser Asn Thr Ser Asn Asp Ser Asn Val Ser Pro Pro Val
    770                 775                 780

Leu Lys Arg His Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp
785                 790                 795                 800

Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys
                805                 810                 815

Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser
            820                 825                 830

Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu
        835                 840                 845

Trp Asp Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala
    850                 855                 860

Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe
865                 870                 875                 880

Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu
                885                 890                 895

His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn
            900                 905                 910

Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr
        915                 920                 925

Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro
    930                 935                 940
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Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys
945                 950                 955                 960


Val Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala
                965                 970                 975


Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly
            980                 985                 990


Leu Ile Gly Pro Leu Leu Val Cys  His Thr Asn Thr Leu  Asn Pro Ala
        995                 1000                1005


His Gly  Arg Gln Val Thr Val  Gln Glu Phe Ala Leu  Phe Phe Thr
    1010                1015                1020


Ile Phe  Asp Glu Thr Lys Ser  Trp Tyr Phe Thr Glu  Asn Met Glu
    1025                1030                1035


Arg Asn  Cys Arg Ala Pro Cys  Asn Ile Gln Met Glu  Asp Pro Thr
    1040                1045                1050


Phe Lys  Glu Asn Tyr Arg Phe  His Ala Ile Asn Gly  Tyr Ile Met
    1055                1060                1065


Asp Thr  Leu Pro Gly Leu Val  Met Ala Gln Asp Gln  Arg Ile Arg
    1070                1075                1080


Trp Tyr  Leu Leu Ser Met Gly  Ser Asn Glu Asn Ile  His Ser Ile
    1085                1090                1095


His Phe  Ser Gly His Val Phe  Thr Val Arg Lys Lys  Glu Glu Tyr
    1100                1105                1110


Lys Met  Ala Leu Tyr Asn Leu  Tyr Pro Gly Val Phe  Glu Thr Val
    1115                1120                1125


Glu Met  Leu Pro Ser Lys Ala  Gly Ile Trp Arg Val  Glu Cys Leu
    1130                1135                1140
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Ile Gly  Glu His Leu His Ala  Gly Met Ser Thr Leu  Phe Leu Val
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Tyr Ser  Asn Lys Cys Gln Thr  Pro Leu Gly Met Ala  Ser Gly His
    1160                 1165                 1170

Ile Arg  Asp Phe Gln Ile Thr  Ala Ser Gly Gln Tyr  Gly Gln Trp
    1175                 1180                 1185

Ala Pro  Lys Leu Ala Arg Leu  His Tyr Ser Gly Ser  Ile Asn Ala
    1190                 1195                 1200

Trp Ser  Thr Lys Glu Pro Phe  Ser Trp Ile Lys Val  Asp Leu Leu
    1205                 1210                 1215

Ala Pro  Met Ile Ile His Gly  Ile Lys Thr Gln Gly  Ala Arg Gln
    1220                 1225                 1230

Lys Phe  Ser Ser Leu Tyr Ile  Ser Gln Phe Ile Ile  Met Tyr Ser
    1235                 1240                 1245

Leu Asp  Gly Lys Lys Trp Gln  Thr Tyr Arg Gly Asn  Ser Thr Gly
    1250                 1255                 1260

Thr Leu  Met Val Phe Phe Gly  Asn Val Asp Ser Ser  Gly Ile Lys
    1265                 1270                 1275

His Asn  Ile Phe Asn Pro Pro  Ile Ile Ala Arg Tyr  Ile Arg Leu
    1280                 1285                 1290

His Pro  Thr His Tyr Ser Ile  Arg Ser Thr Leu Arg  Met Glu Leu
    1295                 1300                 1305

Met Gly  Cys Asp Leu Asn Ser  Cys Ser Met Pro Leu  Gly Met Glu
    1310                 1315                 1320

Ser Lys  Ala Ile Ser Asp Ala  Gln Ile Thr Ala Ser  Ser Tyr Phe
    1325                 1330                 1335

Thr Asn  Met Phe Ala Thr Trp  Ser Pro Ser Lys Ala  Arg Leu His
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```
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Leu Gln  Gly Arg Ser Asn Ala  Trp Arg Pro Gln Val  Asn Asn Pro
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Lys Glu  Trp Leu Gln Val Asp  Phe Gln Lys Thr Met  Lys Val Thr
    1370                1375                1380

Gly Val  Thr Thr Gln Gly Val  Lys Ser Leu Leu Thr  Ser Met Tyr
    1385                1390                1395

Val Lys  Glu Phe Leu Ile Ser  Ser Ser Gln Asp Gly  His Gln Trp
    1400                1405                1410

Thr Leu  Phe Phe Gln Asn Gly  Lys Val Lys Val Phe  Gln Gly Asn
    1415                1420                1425

Gln Asp  Ser Phe Thr Pro Val  Val Asn Ser Leu Asp  Pro Pro Leu
    1430                1435                1440

Leu Thr  Arg Tyr Leu Arg Ile  His Pro Gln Ser Trp  Val His Gln
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Ile Ala  Leu Arg Met Glu Val  Leu Gly Cys Glu Ala  Gln Asp Leu
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Tyr
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<210> 386
<211> 5052
<212> DNA
<213> Artificial Sequence

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

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ggtgagctgc ctgtggacgc aagatttcct cctagagtgc caaaatcttt tccattcaac 180

acctcagtcg tgtacaaaaa gactctgttt gtagaattca cggatcacct tttcaacatc 240

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<213> Artificial Sequence

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

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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
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Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
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Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
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Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
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Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly
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Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met
305                 310                 315                 320

Asp Leu Gly Gln Phe Leu Leu Ser Cys His Ile Ser Ser His Gln His
                325                 330                 335

Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro
            340                 345                 350

Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp
        355                 360                 365

Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser
    370                 375                 380

Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr
385                 390                 395                 400

Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro
                405                 410                 415

Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn
            420                 425                 430

Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met
        435                 440                 445

Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu
    450                 455                 460

Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu
465                 470                 475                 480

Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro
                485                 490                 495

His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys
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            500                 505                 510

Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe
        515                 520                 525

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
    530                 535                 540

Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
545                 550                 555                 560

Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu
                565                 570                 575

Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
            580                 585                 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
        595                 600                 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
    610                 615                 620

Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
625                 630                 635                 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
                645                 650                 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
            660                 665                 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
        675                 680                 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
    690                 695                 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
705                 710                 715                 720
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```
Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
                725                 730                 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
            740                 745                 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Pro
        755                 760                 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp
    770                 775                 780

Ile Glu Lys Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys
785                 790                 795                 800

Ile Gln Asn Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser
                805                 810                 815

Pro Thr Pro His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr
            820                 825                 830

Glu Thr Phe Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn
        835                 840                 845

Ser Leu Ser Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly
    850                 855                 860

Asp Met Val Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu
865                 870                 875                 880

Lys Leu Gly Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys
                885                 890                 895

Val Ser Ser Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn
            900                 905                 910

Leu Ala Ala Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met
        915                 920                 925
```

```
Pro Val His Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys
    930                 935                 940

Ser Ser Pro Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu
945                 950                 955                 960

Asn Asn Asp Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu
                965                 970                 975

Ser Ser Trp Gly Lys Asn Val Ser Ser Arg Glu Ile Thr Arg Thr Thr
            980                 985                 990

Leu Gln Ser Asp Gln Glu Glu Ile  Asp Tyr Asp Asp Thr  Ile Ser Val
        995                 1000                1005

Glu Met  Lys Lys Glu Asp Phe  Asp Ile Tyr Asp Glu  Asp Glu Asn
    1010                1015                1020

Gln Ser  Pro Arg Ser Phe Gln  Lys Lys Thr Arg His  Tyr Phe Ile
    1025                1030                1035

Ala Ala  Val Glu Arg Leu Trp  Asp Tyr Gly Met Ser  Ser Ser Pro
    1040                1045                1050

His Val  Leu Arg Asn Arg Ala  Gln Ser Gly Ser Val  Pro Gln Phe
    1055                1060                1065

Lys Lys  Val Val Phe Gln Glu  Phe Thr Asp Gly Ser  Phe Thr Gln
    1070                1075                1080

Pro Leu  Tyr Arg Gly Glu Leu  Asn Glu His Leu Gly  Leu Leu Gly
    1085                1090                1095

Pro Tyr  Ile Arg Ala Glu Val  Glu Asp Asn Ile Met  Val Thr Phe
    1100                1105                1110

Arg Asn  Gln Ala Ser Arg Pro  Tyr Ser Phe Tyr Ser  Ser Leu Ile
    1115                1120                1125
```

```
Ser Tyr  Glu Glu Asp Gln Arg  Gln Gly Ala Glu Pro  Arg Lys Asn
    1130                1135                1140

Phe Val  Lys Pro Asn Glu Thr  Lys Thr Tyr Phe Trp  Lys Val Gln
    1145                1150                1155

His His  Met Ala Pro Thr Lys  Asp Glu Phe Asp Cys  Lys Ala Trp
    1160                1165                1170

Ala Tyr  Phe Ser Asp Val Asp  Leu Glu Lys Asp Val  His Ser Gly
    1175                1180                1185

Leu Ile  Gly Pro Leu Leu Val  Cys His Thr Asn Thr  Leu Asn Pro
    1190                1195                1200

Ala His  Gly Arg Gln Val Thr  Val Gln Glu Phe Ala  Leu Phe Phe
    1205                1210                1215

Thr Ile  Phe Asp Glu Thr Lys  Ser Trp Tyr Phe Thr  Glu Asn Met
    1220                1225                1230

Glu Arg  Asn Cys Arg Ala Pro  Cys Asn Ile Gln Met  Glu Asp Pro
    1235                1240                1245

Thr Phe  Lys Glu Asn Tyr Arg  Phe His Ala Ile Asn  Gly Tyr Ile
    1250                1255                1260

Met Asp  Thr Leu Pro Gly Leu  Val Met Ala Gln Asp  Gln Arg Ile
    1265                1270                1275

Arg Trp  Tyr Leu Leu Ser Met  Gly Ser Asn Glu Asn  Ile His Ser
    1280                1285                1290

Ile His  Phe Ser Gly His Val  Phe Thr Val Arg Lys  Lys Glu Glu
    1295                1300                1305

Tyr Lys  Met Ala Leu Tyr Asn  Leu Tyr Pro Gly Val  Phe Glu Thr
    1310                1315                1320

Val Glu  Met Leu Pro Ser Lys  Ala Gly Ile Trp Arg  Val Glu Cys
```

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    1325                1330                1335

Leu Ile  Gly Glu His Leu His  Ala Gly Met Ser Thr  Leu Phe Leu
    1340                1345                1350

Val Tyr  Ser Asn Lys Cys Gln  Thr Pro Leu Gly Met  Ala Ser Gly
    1355                1360                1365

His Ile  Arg Asp Phe Gln Ile  Thr Ala Ser Gly Gln  Tyr Gly Gln
    1370                1375                1380

Trp Ala  Pro Lys Leu Ala Arg  Leu His Tyr Ser Gly  Ser Ile Asn
    1385                1390                1395

Ala Trp  Ser Thr Lys Glu Pro  Phe Ser Trp Ile Lys  Val Asp Leu
    1400                1405                1410

Leu Ala  Pro Met Ile Ile His  Gly Ile Lys Thr Gln  Gly Ala Arg
    1415                1420                1425

Gln Lys  Phe Ser Ser Leu Tyr  Ile Ser Gln Phe Ile  Ile Met Tyr
    1430                1435                1440

Ser Leu  Asp Gly Lys Lys Trp  Gln Thr Tyr Arg Gly  Asn Ser Thr
    1445                1450                1455

Gly Thr  Leu Met Val Phe Phe  Gly Asn Val Asp Ser  Ser Gly Ile
    1460                1465                1470

Lys His  Asn Ile Phe Asn Pro  Pro Ile Ile Ala Arg  Tyr Ile Arg
    1475                1480                1485

Leu His  Pro Thr His Tyr Ser  Ile Arg Ser Thr Leu  Arg Met Glu
    1490                1495                1500

Leu Met  Gly Cys Asp Leu Asn  Ser Cys Ser Met Pro  Leu Gly Met
    1505                1510                1515

Glu Ser  Lys Ala Ile Ser Asp  Ala Gln Ile Thr Ala  Ser Ser Tyr
    1520                1525                1530
```

```
Phe Thr  Asn Met Phe Ala Thr  Trp Ser Pro Ser Lys  Ala Arg Leu
    1535                1540                1545


His Leu  Gln Gly Arg Ser Asn  Ala Trp Arg Pro Gln  Val Asn Asn
    1550                1555                1560


Pro Lys  Glu Trp Leu Gln Val  Asp Phe Gln Lys Thr  Met Lys Val
    1565                1570                1575


Thr Gly  Val Thr Thr Gln Gly  Val Lys Ser Leu Leu  Thr Ser Met
    1580                1585                1590


Tyr Val  Lys Glu Phe Leu Ile  Ser Ser Ser Gln Asp  Gly His Gln
    1595                1600                1605


Trp Thr  Leu Phe Phe Gln Asn  Gly Lys Val Lys Val  Phe Gln Gly
    1610                1615                1620


Asn Gln  Asp Ser Phe Thr Pro  Val Val Asn Ser Leu  Asp Pro Pro
    1625                1630                1635


Leu Leu  Thr Arg Tyr Leu Arg  Ile His Pro Gln Ser  Trp Val His
    1640                1645                1650


Gln Ile  Ala Leu Arg Met Glu  Val Leu Gly Cys Glu  Ala Gln Asp
    1655                1660                1665


Leu Tyr
    1670


<210> 398
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<212> PRT
<213> Artificial Sequence

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

<400> 398
Ser Phe Ser Gln Asn Ala Thr Asn Val Ser Asn Asn Ser Asn Thr Ser
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Asn Asp Ser Asn Val Ser Pro Pro Val Leu Lys Arg His Gln Arg
            20                  25                  30
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