SEQUENCE LISTING

<110> MASSACHUSETTS INSTITUTE OF TECHNOLOGY

<120> SYSTEMS, METHODS, AND COMPOSITIONS FOR SITE-SPECIFIC GENETIC ENGINEERING USING PROGRAMMABLE ADDITION VIA SITE-SPECIFIC TARGETING ELEMENTS (PASTE)

<130> 720766: 083474-016PC

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<150> 63/222,550
<151> 2021-07-16

<160> 431

<170> PatentIn version 3.5

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<210> 78
<211> 38
<212> DNA
<213> Artificial Sequence

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

<220>
<223> pseudo-attP

<400> 78
ccccaactgg ggtaaccttt gagttctctc agttgggg 38

<210> 79
<211> 194
<212> DNA
<213> Artificial Sequence

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

<220>

<223> Albumin-pegRNA-SERPIN

<400> 79
gactgaaact tcacagaata gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcttgg gatagttatg aattcaatct 120

tcaaccctat ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcctctg 180

tgaagtttca gtca 194

<210> 80
<211> 189
<212> DNA
<213> Artificial Sequence

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

<220>
<223> Albumin-pegRNA-CPS1

<400> 80
gactgaaact tcacagaata gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcttgg gatagttatg aattcaatct 120

tcaaccctat ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcctctg 180

tgaagtttc 189

<210> 81
<211> 177
<212> DNA
<213> Artificial Sequence

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

<220>
<223> 34bp lox71 pegRNA

<400> 81
ggcccagact gagcacgtga gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctgga ggaagcaggg cttcctttcc 120

tctgccatca taccgttcgt atagcataca ttatacgaag ttatcgtgct cagtctg 177

<210> 82
<211> 177
<212> DNA
<213> Artificial Sequence

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

<220>
<223> 34bp lox66 pegRNA

<400> 82
ggcccagact gagcacgtga gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctgga ggaagcaggg cttcctttcc 120

tctgccatca ataacttcgt atagcataca ttatacgaac ggtacgtgct cagtctg 177

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

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

<220>
<223> gRNA2

<400> 83
ggcccagact gagcacgtga 20

<210> 84
<211> 184
<212> DNA
<213> Artificial Sequence

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

<400> 84
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ctgagctgcg 180

agaa 184

<210> 85
<211> 179
<212> DNA
<213> Artificial Sequence

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

<400> 85
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgagt cggtgcgacg agcgcggcga 120

tatcatcatc catggcacaa ttaacatctc aatcaaggta aatgcttgag ctgcgagaa 179

<210> 86
<211> 179
<212> DNA
<213> Artificial Sequence

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

<400> 86
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgagt cggtgcgacg agcgcggcga 120

tatcatcatc catggagcat ttaccttgat tgagatgtta attgtgtgag ctgcgagaa 179

<210> 87
<211> 182
<212> DNA
<213> Artificial Sequence

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

<400> 87

gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgagt cggtgcgacg agcgcggcga 120

tatcatcatc catggcaggt ttttgacgaa agtgatccag atgatccagt gagctgcgag 180

aa 182

<210> 88
<211> 182
<212> DNA
<213> Artificial Sequence

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

<400> 88
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgagt cggtgcgacg agcgcggcga 120

tatcatcatc catggctgga tcatctggat cactttcgtc aaaaacctgt gagctgcgag 180

aa 182

<210> 89
<211> 96
<212> DNA
<213> Artificial Sequence

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

<400> 89
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgc 96

<210> 90
<211> 164
<212> DNA
<213> Artificial Sequence

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

<400> 90
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcatat catcatccat ggtaccgttc 120

gtatagcata cattatacga agttattgag ctgcgagaat agcc 164

<210> 91
<211> 172
<212> DNA
<213> Artificial Sequence

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

<400> 91
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggtaccg ttcgtatagc atacattata cgaagttatt gagctgcgag aa 172

<210> 92
<211> 189
<212> DNA
<213> Artificial Sequence

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

<400> 92
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctcga cgacgagcgc ggcgatatca 120

tcatccatgg ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcctgag 180

ctgcgagaa 189

<210> 93
<211> 181
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

<400> 93
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgagc gcggcgatat catcatccat 120

ggccggatga tcctgacgac ggagaccgcc gtcgtcgaca agccggcctg agctgcgaga 180

a 181

<210> 94
<211> 178
<212> DNA
<213> Artificial Sequence

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

<400> 94
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgccgcg gcgatatcat catccatggc 120

cggatgatcc tgacgacgga gaccgccgtc gtcgacaagc cggcctgagc tgcgagaa 178

<210> 95
<211> 175
<212> DNA
<213> Artificial Sequence

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

<400> 95
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcggcg atatcatcat ccatggccgg 120

atgatcctga cgacggagac cgccgtcgtc gacaagccgg cctgagctgc gagaa 175

<210> 96
<211> 171
<212> DNA
<213> Artificial Sequence

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

<400> 96
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcatat catcatccat ggccggatga 120

tcctgacgac ggagaccgcc gtcgtcgaca agccggcctg agctgcgaga a 171

<210> 97
<211> 194
<212> DNA
<213> Artificial Sequence

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

<400> 97
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctcga cgacgagcgc ggcgatatca 120

tcatccatgg ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcctgag 180

ctgcgagaat agcc 194

<210> 98
<211> 189
<212> DNA
<213> Artificial Sequence

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

<400> 98
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ctgagctgcg 180

agaatagcc 189

<210> 99
<211> 176
<212> DNA
<213> Artificial Sequence

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

<400> 99
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcatat catcatccat ggccggatga 120

tcctgacgac ggagaccgcc gtcgtcgaca agccggcctg agctgcgaga atagcc 176

<210> 100
<211> 194
<212> DNA
<213> Artificial Sequence

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

<400> 100
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcctgc ccatccgcgg cggcacgggg 120

gtcgcagtcg ccatgccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc 180

ccgggcggcg gaga 194

<210> 101
<211> 189
<212> DNA
<213> Artificial Sequence

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

<400> 101
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgccatc cgcggcggca cgggggtcgc 120

agtcgccatg ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcccggg 180

cggcggaga 189

<210> 102
<211> 184
<212> DNA
<213> Artificial Sequence

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

<400> 102
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatgccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ccgggcggcg 180

gaga 184

<210> 103
<211> 179
<212> DNA
<213> Artificial Sequence

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

<400> 103
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcggca cgggggtcgc agtcgccatg 120

ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcccggg cggcggaga 179

<210> 104
<211> 174
<212> DNA
<213> Artificial Sequence

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

<400> 104
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgggg gtcgcagtcg ccatgccgga 120

tgatcctgac gacggagacc gccgtcgtcg acaagccggc ccgggcggcg gaga 174

<210> 105
<211> 199
<212> DNA
<213> Artificial Sequence

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

<400> 105
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcctgc ccatccgcgg cggcacgggg 120

gtcgcagtcg ccatgccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc 180

ccgggcggcg gagacagcg 199

<210> 106
<211> 194
<212> DNA
<213> Artificial Sequence

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

<400> 106
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgccatc cgcggcggca cgggggtcgc 120

agtcgccatg ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcccggg 180

cggcggagac agcg 194

<210> 107
<211> 189
<212> DNA
<213> Artificial Sequence

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

polynucleotide

<400> 107
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatgccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ccgggcggcg 180

gagacagcg 189

<210> 108
<211> 184
<212> DNA
<213> Artificial Sequence

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

<400> 108
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcggca cgggggtcgc agtcgccatg 120

ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcccggg cggcggagac 180

agcg 184

<210> 109
<211> 179
<212> DNA
<213> Artificial Sequence

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

<400> 109
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgggg gtcgcagtcg ccatgccgga 120

tgatcctgac gacggagacc gccgtcgtcg acaagccggc ccgggcggcg gagacagcg 179

<210> 110
<211> 96
<212> DNA

<213> Artificial Sequence

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

<400> 110
gcgtggtggg gccgccagcg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgc 96

<210> 111
<211> 180
<212> DNA
<213> Artificial Sequence

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

<400> 111
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggggatg atcctgacga cggagaccgc cgtcgtcgac aagccggtga gctgcgagaa 180

<210> 112
<211> 178
<212> DNA
<213> Artificial Sequence

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

<400> 112
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catgggatga tcctgacgac ggagaccgcc gtcgtcgaca agccgtgagc tgcgagaa 178

<210> 113
<211> 176
<212> DNA
<213> Artificial Sequence

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

<400> 113
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggatgat cctgacgacg gagaccgccg tcgtcgacaa gcctgagctg cgagaa 176

<210> 114
<211> 174
<212> DNA
<213> Artificial Sequence

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

<400> 114
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggtgatc ctgacgacgg agaccgccgt cgtcgacaag ctgagctgcg agaa 174

<210> 115
<211> 182
<212> DNA
<213> Artificial Sequence

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

<400> 115
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatgcggat gatcctgacg acggagaccg ccgtcgtcga caagccggcc gggcggcgga 180

ga 182

<210> 116
<211> 180
<212> DNA

<213> Artificial Sequence

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

<400> 116
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatgggatg atcctgacga cggagaccgc cgtcgtcgac aagccggcgg gcggcggaga 180

<210> 117
<211> 178
<212> DNA
<213> Artificial Sequence

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

<400> 117
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatggatga tcctgacgac ggagaccgcc gtcgtcgaca agccgcgggc ggcggaga 178

<210> 118
<211> 176
<212> DNA
<213> Artificial Sequence

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

<400> 118
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatgatgat cctgacgacg gagaccgccg tcgtcgacaa gcccgggcgg cggaga 176

<210> 119
<211> 189
<212> DNA

<213> Artificial Sequence

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

<400> 119
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgccccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ctcctccagg 180

caatacgcg 189

<210> 120
<211> 184
<212> DNA
<213> Artificial Sequence

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

<400> 120
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgccccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ctcctccagg 180

caat 184

<210> 121
<211> 182
<212> DNA
<213> Artificial Sequence

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

<400> 121
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgcccggat gatcctgacg acggagaccg ccgtcgtcga caagccggct cctccaggca 180

at 182

<210> 122
<211> 180
<212> DNA
<213> Artificial Sequence

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

<400> 122
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgccggatg atcctgacga cggagaccgc cgtcgtcgac aagccggtcc tccaggcaat 180

<210> 123
<211> 178
<212> DNA
<213> Artificial Sequence

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

<400> 123
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgccgatga tcctgacgac ggagaccgcc gtcgtcgaca agccgtcctc caggcaat 178

<210> 124
<211> 176
<212> DNA
<213> Artificial Sequence

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

<400> 124
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgccatgat cctgacgacg gagaccgccg tcgtcgacaa gcctcctcca ggcaat 176

<210> 125
<211> 97
<212> DNA
<213> Artificial Sequence

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

<400> 125
gagccgagca cgaggggata cgttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgc 97

<210> 126
<211> 167
<212> DNA
<213> Artificial Sequence

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

<400> 126
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcggcg atatcatcat ccatggatga 120

tcctgacgac ggagaccgcc gtcgtcgaca agcctgagct gcgagaa 167

<210> 127
<211> 162
<212> DNA
<213> Artificial Sequence

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

<400> 127
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctatc atcatccatg gatgatcctg 120

acgacggaga ccgccgtcgt cgacaagcct gagctgcgag aa 162

<210> 128
<211> 157
<212> DNA
<213> Artificial Sequence

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

<400> 128
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctcat ccatggatga tcctgacgac 120

ggagaccgcc gtcgtcgaca agcctgagct gcgagaa 157

<210> 129
<211> 163
<212> DNA
<213> Artificial Sequence

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

<400> 129
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcggcg atatcatcat ccatggatga 120

tcctgacgac ggagaccgcc gtcgtcgaca agcctgagct gcg 163

<210> 130
<211> 158
<212> DNA
<213> Artificial Sequence

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

<400> 130
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctatc atcatccatg gatgatcctg 120

acgacggaga ccgccgtcgt cgacaagcct gagctgcg 158

<210> 131
<211> 153
<212> DNA
<213> Artificial Sequence

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

<400> 131
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctcat ccatggatga tcctgacgac 120

ggagaccgcc gtcgtcgaca agcctgagct gcg 153

<210> 132
<211> 167
<212> DNA
<213> Artificial Sequence

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

<400> 132
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgccggg ggtcgcagtc gccatgatga 120

tcctgacgac ggagaccgcc gtcgtcgaca agcccgggcg gcggaga 167

<210> 133
<211> 162
<212> DNA
<213> Artificial Sequence

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

<400> 133
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgtcg cagtcgccat gatgatcctg 120

acgacggaga ccgccgtcgt cgacaagccc gggcggcgga ga 162

<210> 134
<211> 157
<212> DNA
<213> Artificial Sequence

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

<400> 134
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcagtc gccatgatga tcctgacgac 120

ggagaccgcc gtcgtcgaca agcccgggcg gcggaga 157

<210> 135
<211> 163
<212> DNA
<213> Artificial Sequence

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

<400> 135
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgccggg ggtcgcagtc gccatgatga 120

tcctgacgac ggagaccgcc gtcgtcgaca agcccgggcg gcg 163

<210> 136
<211> 158
<212> DNA
<213> Artificial Sequence

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

<400> 136
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgtcg cagtcgccat gatgatcctg 120

acgacggaga ccgccgtcgt cgacaagccc gggcggcg 158

<210> 137
<211> 153
<212> DNA
<213> Artificial Sequence

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

<400> 137
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcagtc gccatgatga tcctgacgac 120

ggagaccgcc gtcgtcgaca agcccgggcg gcg 153

<210> 138
<211> 180
<212> DNA
<213> Artificial Sequence

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

<400> 138
gagaagcggc gtccggggct agttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgctct ttgtccagag tcacagccat 120

accggatgat cctgacgacg gagaccgccg tcgtcgacaa gccggccccc cggacgccgc 180

<210> 139
<211> 179
<212> DNA
<213> Artificial Sequence

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

<400> 139
gggcacgggg ccatgtacaa gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcggcg tcggcagccc gatcccgttg 120

ccggatgatc ctgacgacgg agaccgccgt cgtcgacaag ccggcctaca tggccccgt 179

<210> 140
<211> 185
<212> DNA
<213> Artificial Sequence

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

<400> 140
gtgtcaggtg gggcggggct agttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgcgct ggctcctccc ctggcaccat 120

accggatgat cctgacgacg gagaccgccg tcgtcgacaa gccggccccc cgccccacct 180

gacac 185

<210> 141
<211> 184
<212> DNA
<213> Artificial Sequence

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

<400> 141
gagtgggtca gacgagcagg agttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgcgat ggagggctgc atgggggagg 120

agtcgccgga tgatcctgac gacggagacc gccgtcgtcg acaagccggc ctgctcgtct 180

gacc 184

<210> 142
<211> 97
<212> DNA
<213> Artificial Sequence

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

<400> 142
gcagccaccc gctctcggcc cgttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgc 97

<210> 143
<211> 97
<212> DNA
<213> Artificial Sequence

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

<400> 143
gtgtagtcag gccgctcacc cgttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgc 97

<210> 144
<211> 97
<212> DNA
<213> Artificial Sequence

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

<400> 144
gctgacaagt ctacggaacc tgttttagag ctagaaatag caagttaaaa taaggctagt 60

ccgttatcaa cttgaaaaag tggcaccgag tcggtgc 97

<210> 145
<211> 96
<212> DNA
<213> Artificial Sequence

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

<400> 145
gctcctccag cgccttgacc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgc 96

<210> 146
<211> 20
<212> DNA

<213> Artificial Sequence

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

<400> 146
gctattctcg cagctcacca 20

<210> 147
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 147
agaagcggcg tccggggcta 20

<210> 148
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 148
gggcacgggg ccatgtacaa 20

<210> 149
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 149
gcgtattgcc tggaggatgg 20

<210> 150
<211> 20

<212> DNA
<213> Artificial Sequence

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

<400> 150
tgtcaggtgg ggcggggcta 20

<210> 151
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 151
agtgggtcag acgagcagga 20

<210> 152
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 152
gctgtctccg ccgcccgcca 20

<210> 153
<211> 96
<212> DNA
<213> Artificial Sequence

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

<400> 153
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgc 96

<210> 154
<211> 184
<212> DNA
<213> Artificial Sequence

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

<220>
<221> modified_base
<222> (148)..(149)
<223> CG, GC, AT, TA, GG, TT, GA, AG, CC, TC, CT, AA, TG, GT, CA,
or AC

<400> 154
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggccgga tgatcctgac gacggagnnc gccgtcgtcg acaagccggc ctgagctgcg 180

agaa 184

<210> 155
<211> 183
<212> DNA
<213> Artificial Sequence

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

<400> 155
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catgccggat gatcctgacg acggagaccg ccgtcgtcga caagccggcc tgagctgcga 180

gaa 183

<210> 156
<211> 183
<212> DNA
<213> Artificial Sequence

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

<400> 156
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catgccggat gatcctgacg acggagagcg ccgtcgtcga caagccggcc tgagctgcga 180

gaa 183

<210> 157
<211> 189
<212> DNA
<213> Artificial Sequence

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

<400> 157
gcgtattgcc tggaggatgg gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgaac cacgcggcga atgccggcgt 120

ccgccccgga tgatcctgac gacggagtcc gccgtcgtcg acaagccggc ctcctccagg 180

caatacgcg 189

<210> 158
<211> 189
<212> DNA
<213> Artificial Sequence

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

<400> 158
gctgtctccg ccgcccgcca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgcgg cggcacgggg gtcgcagtcg 120

ccatgccgga tgatcctgac gacggagctc gccgtcgtcg acaagccggc ccgggcggcg 180

gagacagcg 189

<210> 159
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 159
gtcacctcca atgactaggg 20

<210> 160
<211> 20
<212> DNA
<213> Artificial Sequence

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

<400> 160
gggcaaccac aaacccacga 20

<210> 161
<211> 194
<212> DNA
<213> Artificial Sequence

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

<400> 161
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggctatg ccggatgatc ctgacgacgg agtccgccgt cgtcgacaag ccggccctag 180

ctgagctgcg agaa 194

<210> 162
<211> 189
<212> DNA
<213> Artificial Sequence

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

<400> 162
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggtgccg gatgatcctg acgacggagt ccgccgtcgt cgacaagccg gccctatgag 180

ctgcgagaa 189

<210> 163
<211> 184
<212> DNA
<213> Artificial Sequence

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

<400> 163
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggccgga tgatcctgac gacggagtcc gccgtcgtcg acaagccggc ctgagctgcg 180

agaa 184

<210> 164
<211> 179
<212> DNA
<213> Artificial Sequence

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

<400> 164
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggggatg atcctgacga cggagtccgc cgtcgtcgac aagccgtgag ctgcgagaa 179

<210> 165

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

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

<400> 165
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggtgatc ctgacgacgg agtccgccgt cgtcgacaag ctgagctgcg agaa 174

<210> 166
<211> 169
<212> DNA
<213> Artificial Sequence

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

<400> 166
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggatcct gacgacggag tccgccgtcg tcgacatgag ctgcgagaa 169

<210> 167
<211> 164
<212> DNA
<213> Artificial Sequence

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

<400> 167
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggcctga cgacggagtc cgccgtcgtc gtgagctgcg agaa 164

<210> 168

<211> 159
<212> DNA
<213> Artificial Sequence

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

<400> 168
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggtgacg acggagtccg ccgtcgtgag ctgcgagaa 159

<210> 169
<211> 154
<212> DNA
<213> Artificial Sequence

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

<400> 169
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggacgac ggagtccgcc gtgagctgcg agaa 154

<210> 170
<211> 149
<212> DNA
<213> Artificial Sequence

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

<400> 170
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catgggacgg agtccgtgag ctgcgagaa 149

<210> 171

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

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

<400> 171
gctattctcg cagctcacca gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggcggag ttgagctgcg agaa 144

<210> 172
<211> 182
<212> DNA
<213> Artificial Sequence

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

<400> 172
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctcga cgacgagcgc ggcgatatca 120

tcatccatgg taccgttcgt atagcataca ttatacgaag ttattgagct gcgagaatag 180

cc 182

<210> 173
<211> 177
<212> DNA
<213> Artificial Sequence

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

<400> 173
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgacg agcgcggcga tatcatcatc 120

catggtaccg ttcgtatagc atacattata cgaagttatt gagctgcgag aatagcc 177

<210> 174
<211> 177
<212> DNA
<213> Artificial Sequence

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

<400> 174
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgctcga cgacgagcgc ggcgatatca 120

tcatccatgg taccgttcgt atagcataca ttatacgaag ttattgagct gcgagaa 177

<210> 175
<211> 159
<212> DNA
<213> Artificial Sequence

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

<400> 175
gaagccggcc ttgcacatgc gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgcatat catcatccat ggtaccgttc 120

gtatagcata cattatacga agttattgag ctgcgagaa 159

<210> 176
<211> 96
<212> DNA
<213> Artificial Sequence

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

<400> 176
ccccacgatg gaggggaaga gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgc 96

<210> 177

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

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

<400> 177
ccttctcctg gagccgcgac gttttagagc tagaaatagc aagttaaaat aaggctagtc 60

cgttatcaac ttgaaaaagt ggcaccgagt cggtgc 96

<210> 178
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 178
gtggtttgtc tggtcaacca ccgcggtctc agtggtgtac ggtacaaacc ca 52

<210> 179
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 179
tgggtttgta ccgtacacca ctgagaccgc ggtggttgac cagacaaacc ac 52

<210> 180
<211> 52
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<213> Artificial Sequence

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

<400> 180
gtggtttgtc tggtcaacca ccgcgcgctc agtggtgtac ggtacaaacc ca 52

<210> 181
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 181
tgggtttgta ccgtacacca ctgagcgcgc ggtggttgac cagacaaacc ac 52

<210> 182
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 182
gtggtttgtc tggtcaacca ccgcggcctc agtggtgtac ggtacaaacc ca 52

<210> 183
<211> 52
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 183
tgggtttgta ccgtacacca ctgaggccgc ggtggttgac cagacaaacc ac 52

<210> 184
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<212> DNA
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<220>
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oligonucleotide

<400> 184

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<210> 185
<211> 52
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oligonucleotide

<400> 185
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<210> 186
<211> 52
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<220>
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oligonucleotide

<400> 186
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<210> 187
<211> 52
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 187
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<210> 188
<211> 52
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 188
gtggtttgtc tggtcaacca ccgcgggctc agtggtgtac ggtacaaacc ca 52

<210> 189
<211> 52
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 189
tgggtttgta ccgtacacca ctgagcccgc ggtggttgac cagacaaacc ac 52

<210> 190
<211> 52
<212> DNA
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oligonucleotide

<400> 190
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<210> 191
<211> 52
<212> DNA
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<220>
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oligonucleotide

<400> 191
tgggtttgta ccgtacacca ctgagaacgc ggtggttgac cagacaaacc ac 52

<210> 192
<211> 52
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 192
gtggtttgtc tggtcaacca ccgcggactc agtggtgtac ggtacaaacc ca 52

<210> 193
<211> 52
<212> DNA
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<220>
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oligonucleotide

<400> 193
tgggtttgta ccgtacacca ctgagtccgc ggtggttgac cagacaaacc ac 52

<210> 194
<211> 52
<212> DNA
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oligonucleotide

<400> 194
gtggtttgtc tggtcaacca ccgcgagctc agtggtgtac ggtacaaacc ca 52

<210> 195
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 195
tgggtttgta ccgtacacca ctgagctcgc ggtggttgac cagacaaacc ac 52

<210> 196
<211> 52
<212> DNA
<213> Artificial Sequence

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

oligonucleotide

<400> 196
gtggtttgtc tggtcaacca ccgcgccctc agtggtgtac ggtacaaacc ca 52

<210> 197
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 197
tgggtttgta ccgtacacca ctgagggcgc ggtggttgac cagacaaacc ac 52

<210> 198
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 198
gtggtttgtc tggtcaacca ccgcgtcctc agtggtgtac ggtacaaacc ca 52

<210> 199
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 199
tgggtttgta ccgtacacca ctgaggacgc ggtggttgac cagacaaacc ac 52

<210> 200
<211> 52
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 200
gtggtttgtc tggtcaacca ccgcgctctc agtggtgtac ggtacaaacc ca 52

<210> 201
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 201
tgggtttgta ccgtacacca ctgagagcgc ggtggttgac cagacaaacc ac 52

<210> 202
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 202
gtggtttgtc tggtcaacca ccgcgaactc agtggtgtac ggtacaaacc ca 52

<210> 203
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 203
tgggtttgta ccgtacacca ctgagttcgc ggtggttgac cagacaaacc ac 52

<210> 204
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 204
gtggtttgtc tggtcaacca ccgcgcactc agtggtgtac ggtacaaacc ca 52

<210> 205
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 205
tgggtttgta ccgtacacca ctgagtgcgc ggtggttgac cagacaaacc ac 52

<210> 206
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 206
gtggtttgtc tggtcaacca ccgcgacctc agtggtgtac ggtacaaacc ca 52

<210> 207
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 207
tgggtttgta ccgtacacca ctgaggtcgc ggtggttgac cagacaaacc ac 52

<210> 208
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 208
gtggtttgtc tggtcaacca ccgcgtgctc agtggtgtac ggtacaaacc ca 52

<210> 209
<211> 52
<212> DNA
<213> Artificial Sequence

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

<400> 209
tgggtttgta ccgtacacca ctgagcacgc ggtggttgac cagacaaacc ac 52

<210> 210
<211> 46
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 210
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<210> 211
<211> 46
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 211
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<210> 212
<211> 46
<212> DNA

<213> Artificial Sequence

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

<400> 212
ggccggcttg tcgacgacgg cgaactccgt cgtcaggatc atccgg 46

<210> 213
<211> 46
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 213
ccggatgatc ctgacgacgg agttcgccgt cgtcgacaag ccggcc 46

<210> 214
<211> 46
<212> DNA
<213> Artificial Sequence

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

<400> 214
ggccggcttg tcgacgacgg cggactccgt cgtcaggatc atccgg 46

<210> 215
<211> 46
<212> DNA
<213> Artificial Sequence

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

<400> 215
ccggatgatc ctgacgacgg agtccgccgt cgtcgacaag ccggcc 46

<210> 216
<211> 46

<212> DNA
<213> Artificial Sequence

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

<400> 216
ggccggcttg tcgacgacgg cgcactccgt cgtcaggatc atccgg 46

<210> 217
<211> 46
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 217
ccggatgatc ctgacgacgg agtgcgccgt cgtcgacaag ccggcc 46

<210> 218
<211> 46
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<213> Artificial Sequence

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

<400> 218
ggccggcttg tcgacgacgg cgtactccgt cgtcaggatc atccgg 46

<210> 219
<211> 46
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<220>
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oligonucleotide

<400> 219
ccggatgatc ctgacgacgg agtacgccgt cgtcgacaag ccggcc 46

<210> 220

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

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

<400> 220
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<210> 221
<211> 46
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<213> Artificial Sequence

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

<400> 221
ccggatgatc ctgacgacgg agctcgccgt cgtcgacaag ccggcc 46

<210> 222
<211> 46
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<213> Artificial Sequence

<220>
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oligonucleotide

<400> 222
ggccggcttg tcgacgacgg cgggctccgt cgtcaggatc atccgg 46

<210> 223
<211> 46
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<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 223
ccggatgatc ctgacgacgg agcccgccgt cgtcgacaag ccggcc 46

<210> 224
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<220>
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oligonucleotide

<400> 224
ggccggcttg tcgacgacgg cgcgctccgt cgtcaggatc atccgg 46

<210> 225
<211> 46
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<220>
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oligonucleotide

<400> 225
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<210> 226
<211> 46
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<220>
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oligonucleotide

<400> 226
ggccggcttg tcgacgacgg cgtgctccgt cgtcaggatc atccgg 46

<210> 227
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<220>
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oligonucleotide

<400> 227
ccggatgatc ctgacgacgg agcacgccgt cgtcgacaag ccggcc 46

<210> 228
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<213> Artificial Sequence

<220>
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oligonucleotide

<400> 228
ggccggcttg tcgacgacgg cgacctccgt cgtcaggatc atccgg 46

<210> 229
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<220>
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oligonucleotide

<400> 229
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<210> 230
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<220>
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oligonucleotide

<400> 230
ggccggcttg tcgacgacgg cggcctccgt cgtcaggatc atccgg 46

<210> 231
<211> 46
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<220>
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oligonucleotide

<400> 231
ccggatgatc ctgacgacgg aggccgccgt cgtcgacaag ccggcc 46

<210> 232
<211> 46
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<213> Artificial Sequence

<220>
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oligonucleotide

<400> 232
ggccggcttg tcgacgacgg cgccctccgt cgtcaggatc atccgg 46

<210> 233
<211> 46
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<220>
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oligonucleotide

<400> 233
ccggatgatc ctgacgacgg agggcgccgt cgtcgacaag ccggcc 46

<210> 234
<211> 46
<212> DNA
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<220>
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oligonucleotide

<400> 234
ggccggcttg tcgacgacgg cgtcctccgt cgtcaggatc atccgg 46

<210> 235
<211> 46
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<220>
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oligonucleotide

<400> 235

ccggatgatc ctgacgacgg aggacgccgt cgtcgacaag ccggcc 46

<210> 236
<211> 46
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oligonucleotide

<400> 236
ggccggcttg tcgacgacgg cgatctccgt cgtcaggatc atccgg 46

<210> 237
<211> 46
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oligonucleotide

<400> 237
ccggatgatc ctgacgacgg agatcgccgt cgtcgacaag ccggcc 46

<210> 238
<211> 46
<212> DNA
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oligonucleotide

<400> 238
ggccggcttg tcgacgacgg cgctctccgt cgtcaggatc atccgg 46

<210> 239
<211> 46
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 239
ccggatgatc ctgacgacgg agagcgccgt cgtcgacaag ccggcc 46

<210> 240
<211> 46
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<213> Artificial Sequence

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

<400> 240
ggccggcttg tcgacgacgg cgttctccgt cgtcaggatc atccgg 46

<210> 241
<211> 46
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<220>
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oligonucleotide

<400> 241
ccggatgatc ctgacgacgg agaacgccgt cgtcgacaag ccggcc 46

<210> 242
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<220>
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oligonucleotide

<400> 242
ggcttgtcga cgacggcggt ctccgtcgtc aggatcat 38

<210> 243
<211> 38
<212> DNA
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oligonucleotide

<400> 243
atgatcctga cgacggagac cgccgtcgtc gacaagcc 38

<210> 244
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oligonucleotide

<400> 244
ggcttgtcga cgacggcgaa ctccgtcgtc aggatcat 38

<210> 245
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oligonucleotide

<400> 245
atgatcctga cgacggagtt cgccgtcgtc gacaagcc 38

<210> 246
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oligonucleotide

<400> 246
ggcttgtcga cgacggcgga ctccgtcgtc aggatcat 38

<210> 247
<211> 38
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic

oligonucleotide

<400> 247
atgatcctga cgacggagtc cgccgtcgtc gacaagcc 38

<210> 248
<211> 38
<212> DNA
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<220>
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oligonucleotide

<400> 248
ggcttgtcga cgacggcgca ctccgtcgtc aggatcat 38

<210> 249
<211> 38
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<220>
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oligonucleotide

<400> 249
atgatcctga cgacggagtg cgccgtcgtc gacaagcc 38

<210> 250
<211> 38
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<220>
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oligonucleotide

<400> 250
ggcttgtcga cgacggcgta ctccgtcgtc aggatcat 38

<210> 251
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oligonucleotide

<400> 251
atgatcctga cgacggagta cgccgtcgtc gacaagcc 38

<210> 252
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oligonucleotide

<400> 252
ggcttgtcga cgacggcgag ctccgtcgtc aggatcat 38

<210> 253
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oligonucleotide

<400> 253
atgatcctga cgacggagct cgccgtcgtc gacaagcc 38

<210> 254
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oligonucleotide

<400> 254
ggcttgtcga cgacggcggg ctccgtcgtc aggatcat 38

<210> 255
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oligonucleotide

<400> 255
atgatcctga cgacggagcc cgccgtcgtc gacaagcc 38

<210> 256
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oligonucleotide

<400> 256
ggcttgtcga cgacggcgcg ctccgtcgtc aggatcat 38

<210> 257
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oligonucleotide

<400> 257
atgatcctga cgacggagcg cgccgtcgtc gacaagcc 38

<210> 258
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oligonucleotide

<400> 258
ggcttgtcga cgacggcgtg ctccgtcgtc aggatcat 38

<210> 259
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oligonucleotide

<400> 259
atgatcctga cgacggagca cgccgtcgtc gacaagcc 38

<210> 260
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oligonucleotide

<400> 260
ggcttgtcga cgacggcgac ctccgtcgtc aggatcat 38

<210> 261
<211> 38
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oligonucleotide

<400> 261
atgatcctga cgacggaggt cgccgtcgtc gacaagcc 38

<210> 262
<211> 38
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oligonucleotide

<400> 262
ggcttgtcga cgacggcggc ctccgtcgtc aggatcat 38

<210> 263
<211> 38
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oligonucleotide

<400> 263
atgatcctga cgacggaggc cgccgtcgtc gacaagcc 38

<210> 264
<211> 38
<212> DNA
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<220>
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oligonucleotide

<400> 264
ggcttgtcga cgacggcgcc ctccgtcgtc aggatcat 38

<210> 265
<211> 38
<212> DNA
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oligonucleotide

<400> 265
atgatcctga cgacggaggg cgccgtcgtc gacaagcc 38

<210> 266
<211> 38
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 266
ggcttgtcga cgacggcgtc ctccgtcgtc aggatcat 38

<210> 267
<211> 38

<212> DNA
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<210> 273
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<400> 286

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<210> 311
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<210> 318
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primer

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primer

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oligonucleotide

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oligonucleotide

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oligonucleotide

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oligonucleotide

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<210> 370
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oligonucleotide

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oligonucleotide

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oligonucleotide

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tctattctcc cagctcccca 20

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oligonucleotide

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polypeptide

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Ser Val Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys
        35                  40                  45

Lys Phe Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn
    50                  55                  60

Leu Ile Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr
65                  70                  75                  80

Arg Leu Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg
                85                  90                  95

Ile Cys Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp
            100                 105                 110

Asp Ser Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp
        115                 120                 125

Lys Lys His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val
    130                 135                 140

Ala Tyr His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu
145                 150                 155                 160

Val Asp Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu
                165                 170                 175

Ala His Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu
            180                 185                 190

Asn Pro Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln
        195                 200                 205

Thr Tyr Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val
    210                 215                 220
```

```
Asp Ala Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu
225                 230                 235                 240

Glu Asn Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe
                245                 250                 255

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

Asn Phe Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr
        275                 280                 285

Tyr Asp Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr
    290                 295                 300

Ala Asp Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu
305                 310                 315                 320

Ser Asp Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser
                325                 330                 335

Ala Ser Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu
            340                 345                 350

Leu Lys Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile
        355                 360                 365

Phe Phe Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly
    370                 375                 380

Ala Ser Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys
385                 390                 395                 400

Met Asp Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu
                405                 410                 415

Leu Arg Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile
```

```
            420                 425                 430

His Leu Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr
        435                 440                 445

Pro Phe Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe
    450                 455                 460

Arg Ile Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe
465                 470                 475                 480

Ala Trp Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe
                485                 490                 495

Glu Glu Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg
            500                 505                 510

Met Thr Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys
        515                 520                 525

His Ser Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys
    530                 535                 540

Val Lys Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly
545                 550                 555                 560

Glu Gln Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys
                565                 570                 575

Val Thr Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys
            580                 585                 590

Phe Asp Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser
        595                 600                 605

Leu Gly Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe
    610                 615                 620
```

```
Leu Asp Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr
625                 630                 635                 640

Leu Thr Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr
                645                 650                 655

Tyr Ala His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg
            660                 665                 670

Arg Tyr Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile
        675                 680                 685

Arg Asp Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp
    690                 695                 700

Gly Phe Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu
705                 710                 715                 720

Thr Phe Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp
                725                 730                 735

Ser Leu His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys
            740                 745                 750

Lys Gly Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val
        755                 760                 765

Met Gly Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu
    770                 775                 780

Asn Gln Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys
785                 790                 795                 800

Arg Ile Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu
                805                 810                 815

His Pro Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr
            820                 825                 830
```

```
Tyr Leu Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile
        835                 840                 845

Asn Arg Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe
    850                 855                 860

Leu Lys Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys
865                 870                 875                 880

Asn Arg Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys
                885                 890                 895

Met Lys Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln
            900                 905                 910

Arg Lys Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu
        915                 920                 925

Leu Asp Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln
    930                 935                 940

Ile Thr Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys
945                 950                 955                 960

Tyr Asp Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu
                965                 970                 975

Lys Ser Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys
            980                 985                 990

Val Arg Glu Ile Asn Asn Tyr His  His Ala His Asp Ala  Tyr Leu Asn
        995                 1000                1005

Ala Val  Val Gly Thr Ala Leu  Ile Lys Lys Tyr Pro  Lys Leu Glu
    1010                1015                1020

Ser Glu  Phe Val Tyr Gly Asp  Tyr Lys Val Tyr Asp  Val Arg Lys
    1025                1030                1035
```

```
Met Ile  Ala Lys Ser Glu Gln  Glu Ile Gly Lys Ala  Thr Ala Lys
    1040                1045                1050

Tyr Phe  Phe Tyr Ser Asn Ile  Met Asn Phe Phe Lys  Thr Glu Ile
    1055                1060                1065

Thr Leu  Ala Asn Gly Glu Ile  Arg Lys Arg Pro Leu  Ile Glu Thr
    1070                1075                1080

Asn Gly  Glu Thr Gly Glu Ile  Val Trp Asp Lys Gly  Arg Asp Phe
    1085                1090                1095

Ala Thr  Val Arg Lys Val Leu  Ser Met Pro Gln Val  Asn Ile Val
    1100                1105                1110

Lys Lys  Thr Glu Val Gln Thr  Gly Gly Phe Ser Lys  Glu Ser Ile
    1115                1120                1125

Leu Pro  Lys Arg Asn Ser Asp  Lys Leu Ile Ala Arg  Lys Lys Asp
    1130                1135                1140

Trp Asp  Pro Lys Lys Tyr Gly  Gly Phe Asp Ser Pro  Thr Val Ala
    1145                1150                1155

Tyr Ser  Val Leu Val Val Ala  Lys Val Glu Lys Gly  Lys Ser Lys
    1160                1165                1170

Lys Leu  Lys Ser Val Lys Glu  Leu Leu Gly Ile Thr  Ile Met Glu
    1175                1180                1185

Arg Ser  Ser Phe Glu Lys Asn  Pro Ile Asp Phe Leu  Glu Ala Lys
    1190                1195                1200

Gly Tyr  Lys Glu Val Lys Lys  Asp Leu Ile Ile Lys  Leu Pro Lys
    1205                1210                1215

Tyr Ser  Leu Phe Glu Leu Glu  Asn Gly Arg Lys Arg  Met Leu Ala
```

```
    1220                1225                1230

Ser Ala  Gly Glu Leu Gln Lys  Gly Asn Glu Leu Ala  Leu Pro Ser
    1235                1240                1245

Lys Tyr  Val Asn Phe Leu Tyr  Leu Ala Ser His Tyr  Glu Lys Leu
    1250                1255                1260

Lys Gly  Ser Pro Glu Asp Asn  Glu Gln Lys Gln Leu  Phe Val Glu
    1265                1270                1275

Gln His  Lys His Tyr Leu Asp  Glu Ile Ile Glu Gln  Ile Ser Glu
    1280                1285                1290

Phe Ser  Lys Arg Val Ile Leu  Ala Asp Ala Asn Leu  Asp Lys Val
    1295                1300                1305

Leu Ser  Ala Tyr Asn Lys His  Arg Asp Lys Pro Ile  Arg Glu Gln
    1310                1315                1320

Ala Glu  Asn Ile Ile His Leu  Phe Thr Leu Thr Asn  Leu Gly Ala
    1325                1330                1335

Pro Ala  Ala Phe Lys Tyr Phe  Asp Thr Thr Ile Asp  Arg Lys Arg
    1340                1345                1350

Tyr Thr  Ser Thr Lys Glu Val  Leu Asp Ala Thr Leu  Ile His Gln
    1355                1360                1365

Ser Ile  Thr Gly Leu Tyr Glu  Thr Arg Ile Asp Leu  Ser Gln Leu
    1370                1375                1380

Gly Gly  Asp Ser Gly Gly Ser  Ser Gly Gly Ser Ser  Gly Ser Glu
    1385                1390                1395

Thr Pro  Gly Thr Ser Glu Ser  Ala Thr Pro Glu Ser  Ser Gly Ser
    1400                1405                1410
```

```
Glu Thr  Pro Gly Thr Ser Glu  Ser Ala Thr Pro Glu  Ser Ser Gly
    1415                1420                1425

Ser Glu  Thr Pro Gly Thr Ser  Glu Ser Ala Thr Pro  Glu Ser Ser
    1430                1435                1440

Gly Gly  Ser Ser Gly Gly Ser  Ser Thr Leu Asn Ile  Glu Asp Glu
    1445                1450                1455

Tyr Arg  Leu His Glu Thr Ser  Lys Glu Pro Asp Val  Ser Leu Gly
    1460                1465                1470

Ser Thr  Trp Leu Ser Asp Phe  Pro Gln Ala Trp Ala  Glu Thr Gly
    1475                1480                1485

Gly Met  Gly Leu Ala Val Arg  Gln Ala Pro Leu Ile  Ile Pro Leu
    1490                1495                1500

Lys Ala  Thr Ser Thr Pro Val  Ser Ile Lys Gln Tyr  Pro Met Ser
    1505                1510                1515

Gln Glu  Ala Arg Leu Gly Ile  Lys Pro His Ile Gln  Arg Leu Leu
    1520                1525                1530

Asp Gln  Gly Ile Leu Val Pro  Cys Gln Ser Pro Trp  Asn Thr Pro
    1535                1540                1545

Leu Leu  Pro Val Lys Lys Pro  Gly Thr Asn Asp Tyr  Arg Pro Val
    1550                1555                1560

Gln Asp  Leu Arg Glu Val Asn  Lys Arg Val Glu Asp  Ile His Pro
    1565                1570                1575

Thr Val  Pro Asn Pro Tyr Asn  Leu Leu Ser Gly Pro  Pro Pro Ser
    1580                1585                1590

His Gln  Trp Tyr Thr Val Leu  Asp Leu Lys Asp Ala  Phe Phe Cys
    1595                1600                1605
```

```
Leu Arg  Leu His Pro Thr Ser  Gln Pro Leu Phe Ala  Phe Glu Trp
    1610                1615                1620

Arg Asp  Pro Glu Met Gly Ile  Ser Gly Gln Leu Thr  Trp Thr Arg
    1625                1630                1635

Leu Pro  Gln Gly Phe Lys Asn  Ser Pro Thr Leu Phe  Asn Glu Ala
    1640                1645                1650

Leu His  Arg Asp Leu Ala Asp  Phe Arg Ile Gln His  Pro Asp Leu
    1655                1660                1665

Ile Leu  Leu Gln Tyr Val Asp  Asp Leu Leu Leu Ala  Ala Thr Ser
    1670                1675                1680

Glu Leu  Asp Cys Gln Gln Gly  Thr Arg Ala Leu Leu  Gln Thr Leu
    1685                1690                1695

Gly Asn  Leu Gly Tyr Arg Ala  Ser Ala Lys Lys Ala  Gln Ile Cys
    1700                1705                1710

Gln Lys  Gln Val Lys Tyr Leu  Gly Tyr Leu Leu Lys  Glu Gly Gln
    1715                1720                1725

Arg Trp  Leu Thr Glu Ala Arg  Lys Glu Thr Val Met  Gly Gln Pro
    1730                1735                1740

Thr Pro  Lys Thr Pro Arg Gln  Leu Arg Glu Phe Leu  Gly Lys Ala
    1745                1750                1755

Gly Phe  Cys Arg Leu Phe Ile  Pro Gly Phe Ala Glu  Met Ala Ala
    1760                1765                1770

Pro Leu  Tyr Pro Leu Thr Lys  Pro Gly Thr Leu Phe  Asn Trp Gly
    1775                1780                1785

Pro Asp  Gln Gln Lys Ala Tyr  Gln Glu Ile Lys Gln  Ala Leu Leu
    1790                1795                1800
```

```
Thr Ala  Pro Ala Leu Gly Leu  Pro Asp Leu Thr Lys  Pro Phe Glu
    1805                1810                1815

Leu Phe  Val Asp Glu Lys Gln  Gly Tyr Ala Lys Gly  Val Leu Thr
    1820                1825                1830

Gln Lys  Leu Gly Pro Trp Arg  Arg Pro Val Ala Tyr  Leu Ser Lys
    1835                1840                1845

Lys Leu  Asp Pro Val Ala Ala  Gly Trp Pro Pro Cys  Leu Arg Met
    1850                1855                1860

Val Ala  Ala Ile Ala Val Leu  Thr Lys Asp Ala Gly  Lys Leu Thr
    1865                1870                1875

Met Gly  Gln Pro Leu Val Ile  Leu Ala Pro His Ala  Val Glu Ala
    1880                1885                1890

Leu Val  Lys Gln Pro Pro Asp  Arg Trp Leu Ser Asn  Ala Arg Met
    1895                1900                1905

Thr His  Tyr Gln Ala Leu Leu  Leu Asp Thr Asp Arg  Val Gln Phe
    1910                1915                1920

Gly Pro  Val Val Ala Leu Asn  Pro Ala Thr Leu Leu  Pro Leu Pro
    1925                1930                1935

Glu Glu  Gly Leu Gln His Asn  Cys Leu Asp Gly Thr  Gly Gly Gly
    1940                1945                1950

Gly Val  Thr Val Lys Phe Lys  Tyr Lys Gly Glu Glu  Leu Glu Val
    1955                1960                1965

Asp Ile  Ser Lys Ile Lys Lys  Val Trp Arg Val Gly  Lys Met Ile
    1970                1975                1980

Ser Phe  Thr Tyr Asp Asp Asn  Gly Lys Thr Gly Arg  Gly Ala Val
```

```
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Ser Glu  Lys Asp Ala Pro Lys  Glu Leu Leu Gln Met  Leu Glu Lys
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Ser Gly  Lys Lys Ser Gly Gly  Ser Lys Arg Thr Ala  Asp Gly Ser
    2015                2020                2025

Glu Phe  Glu Pro Lys Lys Lys  Arg Lys Val Gly Gly  Gly Gly Ser
    2030                2035                2040

Pro Lys  Lys Lys Arg Lys Val  Tyr Pro Tyr Asp Val  Pro Asp Tyr
    2045                2050                2055

Ala Gly  Ser Arg Ala Leu Val  Val Ile Arg Leu Ser  Arg Val Thr
    2060                2065                2070

Asp Ala  Thr Thr Ser Pro Glu  Arg Gln Leu Glu Ser  Cys Gln Gln
    2075                2080                2085

Leu Cys  Ala Gln Arg Gly Trp  Asp Val Val Gly Val  Ala Glu Asp
    2090                2095                2100

Leu Asp  Val Ser Gly Ala Val  Asp Pro Phe Asp Arg  Lys Arg Arg
    2105                2110                2115

Pro Asn  Leu Ala Arg Trp Leu  Ala Phe Glu Glu Gln  Pro Phe Asp
    2120                2125                2130

Val Ile  Val Ala Tyr Arg Val  Asp Arg Leu Thr Arg  Ser Ile Arg
    2135                2140                2145

His Leu  Gln Gln Leu Val His  Trp Ala Glu Asp His  Lys Lys Leu
    2150                2155                2160

Val Val  Ser Ala Thr Glu Ala  His Phe Asp Thr Thr  Thr Pro Phe
    2165                2170                2175
```

```
Ala Ala  Val Val Ile Ala Leu  Met Gly Thr Val Ala  Gln Met Glu
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Leu Glu  Ala Ile Lys Glu Arg  Asn Arg Ser Ala Ala  His Phe Asn
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Ile Arg  Ala Gly Lys Tyr Arg  Gly Ser Leu Pro Pro  Trp Gly Tyr
    2210                2215                2220

Leu Pro  Thr Arg Val Asp Gly  Glu Trp Arg Leu Val  Pro Asp Pro
    2225                2230                2235

Val Gln  Arg Glu Arg Ile Leu  Glu Val Tyr His Arg  Val Val Asp
    2240                2245                2250

Asn His  Glu Pro Leu His Leu  Val Ala His Asp Leu  Asn Arg Arg
    2255                2260                2265

Gly Val  Leu Ser Pro Lys Asp  Tyr Phe Ala Gln Leu  Gln Gly Arg
    2270                2275                2280

Glu Pro  Gln Gly Arg Glu Trp  Ser Ala Thr Ala Leu  Lys Arg Ser
    2285                2290                2295

Met Ile  Ser Glu Ala Met Leu  Gly Tyr Ala Thr Leu  Asn Gly Lys
    2300                2305                2310

Thr Val  Arg Asp Asp Asp Gly  Ala Pro Leu Val Arg  Ala Glu Pro
    2315                2320                2325

Ile Leu  Thr Arg Glu Gln Leu  Glu Ala Leu Arg Ala  Glu Leu Val
    2330                2335                2340

Lys Thr  Ser Arg Ala Lys Pro  Ala Val Ser Thr Pro  Ser Leu Leu
    2345                2350                2355

Leu Arg  Val Leu Phe Cys Ala  Val Cys Gly Glu Pro  Ala Tyr Lys
    2360                2365                2370
```

```
Phe Ala  Gly Gly Gly Arg Lys  His Pro Arg Tyr Arg  Cys Arg Ser
    2375                2380                2385

Met Gly  Phe Pro Lys His Cys  Gly Asn Gly Thr Val  Ala Met Ala
    2390                2395                2400

Glu Trp  Asp Ala Phe Cys Glu  Glu Gln Val Leu Asp  Leu Leu Gly
    2405                2410                2415

Asp Ala  Glu Arg Leu Glu Lys  Val Trp Val Ala Gly  Ser Asp Ser
    2420                2425                2430

Ala Val  Glu Leu Ala Glu Val  Asn Ala Glu Leu Val  Asp Leu Thr
    2435                2440                2445

Ser Leu  Ile Gly Ser Pro Ala  Tyr Arg Ala Gly Ser  Pro Gln Arg
    2450                2455                2460

Glu Ala  Leu Asp Ala Arg Ile  Ala Ala Leu Ala Ala  Arg Gln Glu
    2465                2470                2475

Glu Leu  Glu Gly Leu Glu Ala  Arg Pro Ser Gly Trp  Glu Trp Arg
    2480                2485                2490

Glu Thr  Gly Gln Arg Phe Gly  Asp Trp Trp Arg Glu  Gln Asp Thr
    2495                2500                2505

Ala Ala  Lys Asn Thr Trp Leu  Arg Ser Met Asn Val  Arg Leu Thr
    2510                2515                2520

Phe Asp  Val Arg Gly Gly Leu  Thr Arg Thr Ile Asp  Phe Gly Asp
    2525                2530                2535

Leu Gln  Glu Tyr Glu Gln His  Leu Arg Leu Gly Ser  Val Val Glu
    2540                2545                2550

Arg Leu  His Thr Gly Met Ser
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tgccagtccc cctggaacac gcccctgcta cccgttaaga aaccagggac taatgattat 4680

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cccaaccctt acaacctctt gagcgggccc ccaccgtccc accagtggta cactgtgctt 4800

gatttaaagg atgccttttt ctgcctgaga ctccacccca ccagtcagcc tctcttcgcc 4860

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gctcttctaa ctgccccagc cctggggttg ccagatttga ctaagccctt tgaactcttt 5460

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gagcggctgg aaaaagtgtg ggtggcagga tctgactccg ctgtggagct ggcagaagtc 7320

aatgccgagc tcgtggatct gacttccctc atcggatctc ctgcatatag agctgggtcc 7380

ccacagagag aagctctgga cgcacgaatt gctgcactcg ctgctagaca ggaggaactg 7440

gagggcctgg aggccaggcc ctctggatgg gagtggcgag aaaccggaca gaggtttggg 7500

gattggtgga gggagcagga caccgcagcc aagaacacat ggctgagatc catgaatgtc 7560

cggctcacat tcgacgtgcg cggtggcctg actcgaacca tcgattttgg cgacctgcag 7620

gagtatgaac agcacctgag actggggtcc gtggtcgaaa gactgcacac tgggatgtcc 7680

<210> 378
<211> 1367
<212> PRT
<213> Artificial Sequence

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

<400> 378
Asp Lys Lys Tyr Ser Ile Gly Leu Asp Ile Gly Thr Asn Ser Val Gly
1 5 10 15

Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe Lys
20 25 30

Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile Gly
35 40 45

Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu Lys
50 55 60

Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys Tyr
65 70 75 80

Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser Phe
85 90 95

Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys His
100 105 110

```
Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr His
        115                 120                 125

Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp Ser
    130                 135                 140

Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His Met
145                 150                 155                 160

Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro Asp
                165                 170                 175

Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr Asn
            180                 185                 190

Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala Lys
        195                 200                 205

Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn Leu
    210                 215                 220

Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn Leu
225                 230                 235                 240

Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe Asp
                245                 250                 255

Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp Asp
            260                 265                 270

Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp Leu
        275                 280                 285

Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp Ile
    290                 295                 300

Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser Met
305                 310                 315                 320
```

```
Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys Ala
                325                 330                 335

Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe Asp
            340                 345                 350

Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser Gln
        355                 360                 365

Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp Gly
    370                 375                 380

Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg Lys
385                 390                 395                 400

Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu Gly
                405                 410                 415

Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe Leu
            420                 425                 430

Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile Pro
        435                 440                 445

Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp Met
    450                 455                 460

Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu Val
465                 470                 475                 480

Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr Asn
                485                 490                 495

Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser Leu
            500                 505                 510

Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys Tyr
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        515                 520                 525

Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln Lys
    530                 535                 540

Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr Val
545                 550                 555                 560

Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp Ser
                565                 570                 575

Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly Thr
            580                 585                 590

Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp Asn
        595                 600                 605

Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr Leu
    610                 615                 620

Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala His
625                 630                 635                 640

Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr Thr
                645                 650                 655

Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp Lys
            660                 665                 670

Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe Ala
        675                 680                 685

Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe Lys
    690                 695                 700

Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu His
705                 710                 715                 720
```

```
Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly Ile
                725                 730                 735

Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly Arg
            740                 745                 750

His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln Thr
        755                 760                 765

Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile Glu
    770                 775                 780

Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro Val
785                 790                 795                 800

Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu Gln
                805                 810                 815

Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg Leu
            820                 825                 830

Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys Asp
        835                 840                 845

Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg Gly
    850                 855                 860

Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys Asn
865                 870                 875                 880

Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys Phe
                885                 890                 895

Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp Lys
            900                 905                 910

Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr Lys
        915                 920                 925
```

```
His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp Glu
    930                 935                 940

Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser Lys
945                 950                 955                 960

Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg Glu
                965                 970                 975

Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val Val
            980                 985                 990

Gly Thr Ala Leu Ile Lys Lys Tyr  Pro Lys Leu Glu Ser  Glu Phe Val
        995                 1000                1005

Tyr Gly  Asp Tyr Lys Val Tyr  Asp Val Arg Lys Met  Ile Ala Lys
    1010                1015                1020

Ser Glu  Gln Glu Ile Gly Lys  Ala Thr Ala Lys Tyr  Phe Phe Tyr
    1025                1030                1035

Ser Asn  Ile Met Asn Phe Phe  Lys Thr Glu Ile Thr  Leu Ala Asn
    1040                1045                1050

Gly Glu  Ile Arg Lys Arg Pro  Leu Ile Glu Thr Asn  Gly Glu Thr
    1055                1060                1065

Gly Glu  Ile Val Trp Asp Lys  Gly Arg Asp Phe Ala  Thr Val Arg
    1070                1075                1080

Lys Val  Leu Ser Met Pro Gln  Val Asn Ile Val Lys  Lys Thr Glu
    1085                1090                1095

Val Gln  Thr Gly Gly Phe Ser  Lys Glu Ser Ile Leu  Pro Lys Arg
    1100                1105                1110

Asn Ser  Asp Lys Leu Ile Ala  Arg Lys Lys Asp Trp  Asp Pro Lys
    1115                1120                1125
```

```
Lys Tyr  Gly Gly Phe Asp Ser  Pro Thr Val Ala Tyr  Ser Val Leu
    1130                1135                1140

Val Val  Ala Lys Val Glu Lys  Gly Lys Ser Lys Lys  Leu Lys Ser
    1145                1150                1155

Val Lys  Glu Leu Leu Gly Ile  Thr Ile Met Glu Arg  Ser Ser Phe
    1160                1165                1170

Glu Lys  Asn Pro Ile Asp Phe  Leu Glu Ala Lys Gly  Tyr Lys Glu
    1175                1180                1185

Val Lys  Lys Asp Leu Ile Ile  Lys Leu Pro Lys Tyr  Ser Leu Phe
    1190                1195                1200

Glu Leu  Glu Asn Gly Arg Lys  Arg Met Leu Ala Ser  Ala Gly Glu
    1205                1210                1215

Leu Gln  Lys Gly Asn Glu Leu  Ala Leu Pro Ser Lys  Tyr Val Asn
    1220                1225                1230

Phe Leu  Tyr Leu Ala Ser His  Tyr Glu Lys Leu Lys  Gly Ser Pro
    1235                1240                1245

Glu Asp  Asn Glu Gln Lys Gln  Leu Phe Val Glu Gln  His Lys His
    1250                1255                1260

Tyr Leu  Asp Glu Ile Ile Glu  Gln Ile Ser Glu Phe  Ser Lys Arg
    1265                1270                1275

Val Ile  Leu Ala Asp Ala Asn  Leu Asp Lys Val Leu  Ser Ala Tyr
    1280                1285                1290

Asn Lys  His Arg Asp Lys Pro  Ile Arg Glu Gln Ala  Glu Asn Ile
    1295                1300                1305

Ile His  Leu Phe Thr Leu Thr  Asn Leu Gly Ala Pro  Ala Ala Phe
```

1310 1315 1320

Lys Tyr Phe Asp Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr
1325 1330 1335

Lys Glu Val Leu Asp Ala Thr Leu Ile His Gln Ser Ile Thr Gly
1340 1345 1350

Leu Tyr Glu Thr Arg Ile Asp Leu Ser Gln Leu Gly Gly Asp
1355 1360 1365

<210> 379
<211> 576
<212> PRT
<213> Artificial Sequence

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

<400> 379
Leu Asn Ile Glu Asp Glu Tyr Arg Leu His Glu Thr Ser Lys Glu Pro
1 5 10 15

Asp Val Ser Leu Gly Ser Thr Trp Leu Ser Asp Phe Pro Gln Ala Trp
20 25 30

Ala Glu Thr Gly Gly Met Gly Leu Ala Val Arg Gln Ala Pro Leu Ile
35 40 45

Ile Pro Leu Lys Ala Thr Ser Thr Pro Val Ser Ile Lys Gln Tyr Pro
50 55 60

Met Ser Gln Glu Ala Arg Leu Gly Ile Lys Pro His Ile Gln Arg Leu
65 70 75 80

Leu Asp Gln Gly Ile Leu Val Pro Cys Gln Ser Pro Trp Asn Thr Pro
85 90 95

Leu Leu Pro Val Lys Lys Pro Gly Thr Asn Asp Tyr Arg Pro Val Gln
100 105 110

```
Asp Leu Arg Glu Val Asn Lys Arg Val Glu Asp Ile His Pro Thr Val
        115                 120                 125

Pro Asn Pro Tyr Asn Leu Leu Ser Gly Pro Pro Pro Ser His Gln Trp
    130                 135                 140

Tyr Thr Val Leu Asp Leu Lys Asp Ala Phe Phe Cys Leu Arg Leu His
145                 150                 155                 160

Pro Thr Ser Gln Pro Leu Phe Ala Phe Glu Trp Arg Asp Pro Glu Met
                165                 170                 175

Gly Ile Ser Gly Gln Leu Thr Trp Thr Arg Leu Pro Gln Gly Phe Lys
            180                 185                 190

Asn Ser Pro Thr Leu Phe Asn Glu Ala Leu His Arg Asp Leu Ala Asp
        195                 200                 205

Phe Arg Ile Gln His Pro Asp Leu Ile Leu Leu Gln Tyr Val Asp Asp
    210                 215                 220

Leu Leu Leu Ala Ala Thr Ser Glu Leu Asp Cys Gln Gln Gly Thr Arg
225                 230                 235                 240

Ala Leu Leu Gln Thr Leu Gly Asn Leu Gly Tyr Arg Ala Ser Ala Lys
                245                 250                 255

Lys Ala Gln Ile Cys Gln Lys Gln Val Lys Tyr Leu Gly Tyr Leu Leu
            260                 265                 270

Lys Glu Gly Gln Arg Trp Leu Thr Glu Ala Arg Lys Glu Thr Val Met
        275                 280                 285

Gly Gln Pro Thr Pro Lys Thr Pro Arg Gln Leu Arg Glu Phe Leu Gly
    290                 295                 300

Lys Ala Gly Phe Cys Arg Leu Phe Ile Pro Gly Phe Ala Glu Met Ala
```

```
305                 310                 315                 320

Ala Pro Leu Tyr Pro Leu Thr Lys Pro Gly Thr Leu Phe Asn Trp Gly
                325                 330                 335

Pro Asp Gln Gln Lys Ala Tyr Gln Glu Ile Lys Gln Ala Leu Leu Thr
            340                 345                 350

Ala Pro Ala Leu Gly Leu Pro Asp Leu Thr Lys Pro Phe Glu Leu Phe
        355                 360                 365

Val Asp Glu Lys Gln Gly Tyr Ala Lys Gly Val Leu Thr Gln Lys Leu
    370                 375                 380

Gly Pro Trp Arg Arg Pro Val Ala Tyr Leu Ser Lys Lys Leu Asp Pro
385                 390                 395                 400

Val Ala Ala Gly Trp Pro Pro Cys Leu Arg Met Val Ala Ala Ile Ala
                405                 410                 415

Val Leu Thr Lys Asp Ala Gly Lys Leu Thr Met Gly Gln Pro Leu Val
            420                 425                 430

Ile Leu Ala Pro His Ala Val Glu Ala Leu Val Lys Gln Pro Pro Asp
        435                 440                 445

Arg Trp Leu Ser Asn Ala Arg Met Thr His Tyr Gln Ala Leu Leu Leu
    450                 455                 460

Asp Thr Asp Arg Val Gln Phe Gly Pro Val Val Ala Leu Asn Pro Ala
465                 470                 475                 480

Thr Leu Leu Pro Leu Pro Glu Glu Gly Leu Gln His Asn Cys Leu Asp
                485                 490                 495

Gly Thr Gly Gly Gly Gly Val Thr Val Lys Phe Lys Tyr Lys Gly Glu
            500                 505                 510
```

Glu Leu Glu Val Asp Ile Ser Lys Ile Lys Lys Val Trp Arg Val Gly
        515   520   525

Lys Met Ile Ser Phe Thr Tyr Asp Asp Asn Gly Lys Thr Gly Arg Gly
    530   535   540

Ala Val Ser Glu Lys Asp Ala Pro Lys Glu Leu Leu Gln Met Leu Glu
545   550   555   560

Lys Ser Gly Lys Lys Ser Gly Gly Ser Lys Arg Thr Ala Asp Gly Ser
                565   570   575

<210> 380
<211> 500
<212> PRT
<213> Artificial Sequence

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

<400> 380
Ser Arg Ala Leu Val Val Ile Arg Leu Ser Arg Val Thr Asp Ala Thr
1   5   10   15

Thr Ser Pro Glu Arg Gln Leu Glu Ser Cys Gln Gln Leu Cys Ala Gln
            20   25   30

Arg Gly Trp Asp Val Val Gly Val Ala Glu Asp Leu Asp Val Ser Gly
        35   40   45

Ala Val Asp Pro Phe Asp Arg Lys Arg Arg Pro Asn Leu Ala Arg Trp
    50   55   60

Leu Ala Phe Glu Glu Gln Pro Phe Asp Val Ile Val Ala Tyr Arg Val
65   70   75   80

Asp Arg Leu Thr Arg Ser Ile Arg His Leu Gln Gln Leu Val His Trp
                85   90   95

Ala Glu Asp His Lys Lys Leu Val Val Ser Ala Thr Glu Ala His Phe

```
            100                 105                 110

Asp Thr Thr Thr Pro Phe Ala Ala Val Val Ile Ala Leu Met Gly Thr
        115                 120                 125

Val Ala Gln Met Glu Leu Glu Ala Ile Lys Glu Arg Asn Arg Ser Ala
    130                 135                 140

Ala His Phe Asn Ile Arg Ala Gly Lys Tyr Arg Gly Ser Leu Pro Pro
145                 150                 155                 160

Trp Gly Tyr Leu Pro Thr Arg Val Asp Gly Glu Trp Arg Leu Val Pro
                165                 170                 175

Asp Pro Val Gln Arg Glu Arg Ile Leu Glu Val Tyr His Arg Val Val
            180                 185                 190

Asp Asn His Glu Pro Leu His Leu Val Ala His Asp Leu Asn Arg Arg
        195                 200                 205

Gly Val Leu Ser Pro Lys Asp Tyr Phe Ala Gln Leu Gln Gly Arg Glu
    210                 215                 220

Pro Gln Gly Arg Glu Trp Ser Ala Thr Ala Leu Lys Arg Ser Met Ile
225                 230                 235                 240

Ser Glu Ala Met Leu Gly Tyr Ala Thr Leu Asn Gly Lys Thr Val Arg
                245                 250                 255

Asp Asp Asp Gly Ala Pro Leu Val Arg Ala Glu Pro Ile Leu Thr Arg
            260                 265                 270

Glu Gln Leu Glu Ala Leu Arg Ala Glu Leu Val Lys Thr Ser Arg Ala
        275                 280                 285

Lys Pro Ala Val Ser Thr Pro Ser Leu Leu Leu Arg Val Leu Phe Cys
    290                 295                 300
```

```
Ala Val Cys Gly Glu Pro Ala Tyr Lys Phe Ala Gly Gly Gly Arg Lys
305                 310                 315                 320

His Pro Arg Tyr Arg Cys Arg Ser Met Gly Phe Pro Lys His Cys Gly
                325                 330                 335

Asn Gly Thr Val Ala Met Ala Glu Trp Asp Ala Phe Cys Glu Glu Gln
            340                 345                 350

Val Leu Asp Leu Leu Gly Asp Ala Glu Arg Leu Glu Lys Val Trp Val
        355                 360                 365

Ala Gly Ser Asp Ser Ala Val Glu Leu Ala Glu Val Asn Ala Glu Leu
    370                 375                 380

Val Asp Leu Thr Ser Leu Ile Gly Ser Pro Ala Tyr Arg Ala Gly Ser
385                 390                 395                 400

Pro Gln Arg Glu Ala Leu Asp Ala Arg Ile Ala Ala Leu Ala Ala Arg
                405                 410                 415

Gln Glu Glu Leu Glu Gly Leu Glu Ala Arg Pro Ser Gly Trp Glu Trp
            420                 425                 430

Arg Glu Thr Gly Gln Arg Phe Gly Asp Trp Trp Arg Glu Gln Asp Thr
        435                 440                 445

Ala Ala Lys Asn Thr Trp Leu Arg Ser Met Asn Val Arg Leu Thr Phe
    450                 455                 460

Asp Val Arg Gly Gly Leu Thr Arg Thr Ile Asp Phe Gly Asp Leu Gln
465                 470                 475                 480

Glu Tyr Glu Gln His Leu Arg Leu Gly Ser Val Val Glu Arg Leu His
                485                 490                 495

Thr Gly Met Ser
            500
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<210> 381
<211> 11344
<212> DNA
<213> Artificial Sequence

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

<400> 381
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gactctcagt acaatctgct ctgatgccgc atagttaagc cagtatctgc tccctgcttg 120

tgtgttggag gtcgctgagt agtgcgcgag caaaatttaa gctacaacaa ggcaaggctt 180

gaccgacaat tgcatgaaga atctgcttag ggttaggcgt tttgcgctgc ttcgcgatgt 240

acgggccaga tatacgcgtt gacattgatt attgactagt tattaatagt aatcaattac 300

ggggtcatta gttcatagcc catatatgga gttccgcgtt acataactta cggtaaatgg 360

cccgcctggc tgaccgccca acgacccccg cccattgacg tcaataatga cgtatgttcc 420

catagtaacg ccaataggga ctttccattg acgtcaatgg gtggagtatt tacggtaaac 480

tgcccacttg gcagtacatc aagtgtatca tatgccaagt acgccccta ttgacgtcaa 540

tgacggtaaa tggcccgcct ggcattatgc ccagtacatg accttatggg actttcctac 600

ttggcagtac atctacgtat tagtcatcgc tattaccatg gtgatgcggt tttggcagta 660

catcaatggg cgtggatagc ggtttgactc acggggattt ccaagtctcc accccattga 720

cgtcaatggg agtttgtttt ggcaccaaaa tcaacgggac tttccaaaat gtcgtaacaa 780

ctccgcccca ttgacgcaaa tgggcggtag gcgtgtacgg tgggaggtct atataagcag 840

agctggttta gtgaaccgtc agatccgcta gagatccgcg gccgctaata cgactcacta 900

tagggagagc cgccaccatg aaacggacag ccgacggaag cgagttcgag tcaccaaaga 960

agaagcggaa agtcgacaag aagtacagca tcggcctgga catcggcacc aactctgtgg 1020

gctgggccgt gatcaccgac gagtacaagg tgcccagcaa gaaattcaag gtgctgggca 1080

acaccgaccg gcacagcatc aagaagaacc tgatcggagc cctgctgttc gacagcggcg 1140

aaacagccga ggccacccgg ctgaagagaa ccgccagaag aagatacacc agacggaaga 1200

accggatctg ctatctgcaa gagatcttca gcaacgagat ggccaaggtg gacgacagct 1260

tcttccacag actggaagag tccttcctgg tggaagagga taagaagcac gagcggcacc 1320

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<210> 385
<211> 2367
<212> DNA
<213> Artificial Sequence

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

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taagggcgac acggaaatgt tgaatactca tactcttcct ttttcaatat tattgaagca 180

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aagagggcct atttcccatg attccttcat atttgcatat acgatacaag gctgttagag 420

agataattag aattaatttg actgtaaaca caaagatatt agtacaaaat acgtgacgta 480

gaaagtaata atttcttggg tagtttgcag ttttaaaatt atgttttaaa atggactatc 540

atatgcttac cgtaacttga aagtatttcg atttcttggc tttatatatc ttgtggaaag 600

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ataataccgc gccacatagc agaactttaa aagtgctcat cattggaaaa cgttcttcgg 2340

ggcgaaaact ctcaaggatc ttaccgc 2367

<210> 386
<211> 2280
<212> DNA
<213> Artificial Sequence

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

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ggcttcattc agctccggtt cccaacgatc aaggcgagtt acatgatccc ccatgttgtg 180

caaaaaagcg gttagctcct tcggtcctcc gatcgttgtc agaagtaagt tggccgcagt 240

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atgcttttct gtgactggtg agtactcaac caagtcattc tgagaatagt gtatgcggcg 360

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ttatcagggt tattgtctca tgagcggata catatttgaa tgtatttaga aaaataaaca 720

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gaacgaaaac tcacgttaag ggattttggt catgagatta tcaaaaagga tcttcaccta 1980

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<211> 6386

<212> DNA
<213> Artificial Sequence

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

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cagctatgac catgaggcgc gccggattcg acattgatta ttgactagtt attaatagta 180

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<211> 6317
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<223> Description of Artificial Sequence: Synthetic
polynucleotide

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atgccatccg taagatgctt ttctgtgact ggtgagtact caaccaagtc attctgagaa 6180

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cggccagtga gcgcgcgtaa tacgactcac tatagggcga attgggtacc gggcccccc 7260

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tgaacgcgca gccgcc 7336

<210> 395
<211> 969
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

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aagccgctag cggtggtttg tctggtcaac caccgcggtc tcagtggtgt acggtacaaa 180

cccagctacc ggtcgccacc atgcccgcca tgaagatcga gtgccgcatc accggcaccc 240

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gcggcgtgct gcacgtgagc ttcagctacc gctacgaggc cggccgcgtg atcggcgact 540

tcaaggtggt gggcaccggc ttccccgagg acagcgtgat cttcaccgac aagatcatcc 600

gcagcaacgc caccgtggag cacctgcacc ccatgggcga taacgtgctg gtgggcagct 660

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tccgccgcgt ggaggagctg cacagcaaca ccgagctggg catcgtggag taccagcacg 840

ccttcaagac ccccatcgcc ttcgccagat ctcgagctcg atgagtttgg acaaaccaca 900

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gtgggcccg 969

<210> 396
<211> 4769
<212> DNA
<213> Artificial Sequence

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

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aaccgcccag tctagctatc gccatgtaag cccactgcaa gctacctgct ttctctttgc 180

gcttgcgttt tcccttgtcc agatagccca gtagctgaca ttcatccggg gtcagcaccg 240

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aactcagaag tgaaacgccg tagcgccgat ggtagtgtgg ggtctcccca tgcgagagta 480

gggaactgcc aggcatcaaa taaaacgaaa ggctcagtcg aaagactggg cctttcgttt 540

tatctgttgt ttgtcggtga acgctctcct gagtaggaca aatccgccgg gagcggattt 600

gaacgttgcg aagcaacggc ccggagggtg gcgggcagga cgcccgccat aaactgccag 660

gcatcaaatt aagcagaagg ccatcctgac ggatggcctt tttgcgtttc tacaaactct 720

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gcgcaaggaa cgcccgtcgt ggccagccac gatagccgcg ctgcctcgtc ttgcagttca 4560

ttcagggcac cggacaggtc ggtcttgaca aaaagaaccg ggcgcccctg cgctgacagc 4620

cggaacacgg cggcatcaga gcagccgatt gtctgttgtg cccagtcata gccgaatagc 4680

ctctccaccc aagcggccgg agaacctgcg tgcaatccat cttgttcaat catgcgaaac 4740

gatcctcatc ctgtctcttg atcagagct 4769

<210> 397
<211> 797
<212> DNA
<213> Artificial Sequence

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

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ggccacgagt tcgagatcga gggcgagggc gagggccgcc cctacgaggg cacccagacc 180

gccaagctga aggtgaccaa gggtggcccc ctgcccttcg cctgggacat cctgtccct 240

cagttcatgt acggctccaa ggcctacgtg aagcaccccg ccgacatccc cgactacttg 300

aagctgtcct tccccgaggg cttcaagtgg gagcgcgtga tgaacttcga ggacggcggc 360

gtggtgaccg tgacccagga ctcctccctg caggacggcg agttcatcta caaggtgaag 420

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aggctgaagc tgaaggacgg cggccactac gacgctgagg tcaagaccac ctacaaggcc 600

aagaagcccg tgcagctgcc cggcgcctac aacgtcaaca tcaagttgga catcacctcc 660

cacaacgagg actacaccat cgtggaacag tacgaacgcg ccgagggccg ccactccacc 720

ggcggcatgg acgagctgta caagggtggt ttgtctggtc aaccaccgcg agctcagtgg 780

tgtacggtac aaaccca 797

<210> 398
<211> 815
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polynucleotide

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cacaagttca gtgtacgggg agagggcgag ggcgacgcta cgaatgggaa attgactttg 180

aaatttattt gcaccacggg caaattgccg gtcccgtggc caactttggt tacgaccttg 240

acctatggcg ttcagtgttt ctcacggtac ccagaccaca tgaaacagca tgacttttt 300

aagtcagcga tgccggaggg atatgtgcaa gaacggacta tctcatttaa agatgatggc 360

acatataaga caagagcgga agtcaaattc gaaggggaca ccctcgtcaa tcgaatagaa 420

ctcaagggaa tagacttcaa agaagatggt aatatactgg ggcacaaact cgaatacaat 480

ttcaacagtc ataacgtcta catcactgcc gacaaacaaa aaaatgggat caaagcgaac 540

ttcaaaatcc gacataatgt cgaggatggg agcgtccaac tggcagacca ttaccagcaa 600

aatactccaa taggtgatgg tccagtgctt ttgccagata atcattatct tagctatcag 660

agcaagttga gtaaggatcc gaatgaaaag cgagatcaca tggtcttgct ggagtttgtt 720

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ccaccgcgga ctcagtggtg tacggtacaa accca 815

<210> 399
<211> 1660
<212> DNA
<213> Artificial Sequence

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

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actgtcaact tcggggacac cgaagaggcc aagaaacaga tcaacgatta cgtggagaag 660

ggtactcaag ggaaaattgt ggatttggtc aaggagcttg acagagacac agtttttgct 720

ctggtgaatt acatcttctt taaaggcaaa tgggagagac cctttgaagt caaggacacc 780

gaggaagagg acttccacgt ggaccaggtg accaccgtga aggtgcctat gatgaagcgt 840

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tacctgggca atgccaccgc catcttcttc ctgcctgatg aggggaaact acagcacctg 960

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gtcaaccacc gcggtctcag tggtgtacgg tacaaaccca 1660

<210> 400
<211> 4906

<212> DNA
<213> Artificial Sequence

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

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ttcaaagtgg tgaggacact gaagactggt tttggcttta ccaatgtgac tgcacaccaa 180

aaatggaaat tttcaagacc tggcatcagg ctcctttctg tcaaggcaca gacagcacac 240

attgtcctgg aagatggaac taagatgaaa ggttactcct ttggccatcc atcctctgtt 300

gctggtgaag tggtttttaa tactggcctg ggagggtacc cagaagctat tactgaccct 360

gcctacaaag gacagattct cacaatggcc aaccctatta ttgggaatgg tggagctcct 420

gatactactg ctctggatga actgggactt agcaaatatt tggagtctaa tggaatcaag 480

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agtttagggc aatggctaca ggaagaaaag gttcctgcaa tttatggagt ggacacaaga 600

atgctgacta aaataattcg ggataagggt accatgcttg ggaagattga atttgaaggt 660

cagcctgtgg attttgtgga tccaaataaa cagaatttga ttgctgaggt ttcaaccaag 720

gatgtcaaag tgtacggcaa aggaaacccc acaaaagtgg tagctgtaga ctgtgggatt 780

aaaaacaatg taatccgcct gctagtaaag cgaggagctg aagtgcactt agttccctgg 840

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gaaaagacac tgaaaggcct caacagtgag tccatgacag aagaaaccct gaaaagggca 2820

aaggagattg ggttctcaga taagcagatt tcaaaatgcc ttgggctcac tgaggcccag 2880

acaagggagc tgaggttaaa gaaaaacatc cacccttggg ttaaacagat tgatacactg 2940

gctgcagaat acccatcagt aacaaactat ctctatgtta cctacaatgg tcaggagcat 3000

gatgtcaatt ttgatgacca tggaatgatg gtgctaggct gtggtccata tcacattggc 3060

agcagtgtgg aatttgattg gtgtgctgtc tctagtatcc gcacactgcg tcaacttggc 3120

aagaagacgg tggtggtgaa ttgcaatcct gagactgtga gcacagactt tgatgagtgt 3180

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aaatttgttg aaggggcccg agaagtagaa atggacgctg ttggcaaaga tggaagggtt 3660

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cggaagattg caaaggcttt tgccatctct ggtccattca acgtccaatt tcttgtcaaa 3840

ggaaatgatg tcttggtgat tgagtgtaac ttgagagctt ctcgatcctt ccccttgtt 3900

tccaagactc ttggggttga cttcattgat gtggccacca aggtgatgat tggagagaat 3960

gttgatgaga aacatcttcc aacattggac catcccataa ttcctgctga ctatgttgca 4020

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agagatggca gcattgacct agtgattaac cttcccaaca acaacactaa atttgtccat 4440

gataattatg tgattcggag gacagctgtt gatagtggaa tccctctcct cactaatttt 4500

caggtgacca aacttttgc tgaagctgtg cagaaatctc gcaaggtgga ctccaagagt 4560

cttttccact acaggcagta cagtgctgga aaagcagcat aggaattcta actagagctc 4620

gctgatcagc ctcgactgtg ccttctagtt gccagccatc tgttgtttgc ccctcccccg 4680

tgccttcctt gaccctggaa ggtgccactc ccactgtcct ttcctaataa aatgaggaaa 4740

ttgcatcgca ttgtctgagt aggtgtcatt ctattctggg gggtggggtg gggcaggaca 4800

gcaaggggga ggattgggaa gagaatagca ggcatgctgg ggagcgagct cgaggtggtt 4860

tgtctggtca accaccgcgg tctcagtggt gtacggtaca aaccca 4906

<210> 401
<211> 4882
<212> DNA
<213> Artificial Sequence

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

<400> 401
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ttgggtatgc cggcggtagc gcttaccgtt cgtataatgt atgctatacg aagttatccg 120

aagccgctag cggtggtttg tctggtcaac caccgcggtc tcagtggtgt acggtacaaa 180

cccacccgag agaccatgca gaggtcgcct ctggaaaagg ccagcgttgt ctccaaactt 240

ttctttagct ggactagacc catccttcgt aaaggataca gacagcgcct ggaattgtca 300

gacatatacc aaatcccttc tgttgattct gctgacaatc tatctgaaaa attggaaaga 360

gaatgggata gagagctggc ttcaaagaaa aatcctaaac tcattaatgc ccttcggcga 420

tgtttttttct ggagatttat gttctatgga atctttttat atttagggga agtcaccaaa 480

gcagtacagc ctctcttact gggaagaatc atagcttcct atgacccgga taacaaggag 540

gaacgctcta tcgcgattta tctaggcata ggcttatgcc ttctctttat tgtgaggaca 600

ctgctcctac acccagccat ttttggcctt catcacattg gaatgcagat gagaatagct 660

atgtttagtt tgatttataa gaagacttta aagctgtcaa gccgtgttct agataaaata 720

agtattggac aacttgttag tctcctttcc aacaacctga acaaatttga tgaaggactt 780

gcattggcac atttcgtgtg gatcgctcct ttgcaagtgg cactcctcat ggggctaatc 840

tgggagttgt tacaggcgtc tgccttctgt ggacttggtt tcctgatagt ccttgccctt 900

tttcaggctg ggctagggag aatgatgatg aagtacagag atcagagagc tgggaagatc 960

agtgaaagac ttgtgattac ctcagaaatg attgaaaata tccaatctgt taaggcatac 1020

tgctgggaag aagcaatgga aaaaatgatt gaaaacttaa gacaaacaga actgaaactg 1080

actcggaagg cagcctatgt gagatacttc aatagctcag ccttcttctt ctcagggttc 1140

tttgtggtgt ttttatctgt gcttccctat gcactaatca aaggaatcat cctccggaaa 1200

atattcacca ccatctcatt ctgcattgtt ctgcgcatgg cggtcactcg gcaatttccc 1260

tgggctgtac aaacatggta tgactctctt ggagcaataa acaaaataca ggatttctta 1320

caaaagcaag aatataagac attggaatat aacttaacga ctacagaagt agtgatggag 1380

aatgtaacag ccttctggga ggagggattt ggggaattat ttgagaaagc aaaacaaaac 1440

aataacaata gaaaaacttc taatggtgat gacagcctct tcttcagtaa tttctcactt 1500

cttggtactc ctgtcctgaa agatattaat ttcaagatag aaagaggaca gttgttggcg 1560

gttgctggat ccactggagc aggcaagact tcacttctaa tggtgattat gggagaactg 1620

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gccaataaga caagaatcct ggttacaagt aagatggagc acctgaagaa ggccgataag 2040

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aagagaaaga acagtatcct gaaccccatt aattcaattc ggaagttcag tatcgttcag 2340

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atagaagaga acaaagtgcg gcagtacgat tccatccaga aactgctgaa cgagaggagc 4500

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tctgttgttt gcccctcccc cgtgccttcc ttgaccctgg aaggtgccac tcccactgtc 4740

ctttcctaat aaaatgagaa aattgcatcg cattgtctga gtaggtgtca ttctattctg 4800

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ggggatgcgg tgggctctat gg 4882

<210> 402
<211> 1594
<212> DNA
<213> Artificial Sequence

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

<400> 402
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gatctctcct tacttgtggc gacgtggagg agaaccccgg ccccatgagc atcggcctcc 120

tgtgctgtgc agccttgtct ctcctgtggg caggtccagt gaatgctggt gtcactcaga 180

ccccaaaatt ccaggtcctg aagacaggac agagcatgac actgcagtgt gcccaggata 240

tgaaccatga atacatgtcc tggtatcgac aagacccagg catggggctg aggctgattc 300

attactcagt tggtgctggt atcactgacc aaggagaagt ccccaatggc tacaatgtct 360

ccagatcaac cacagaggat ttcccgctca ggctgctgtc ggctgctccc tcccagacat 420

ctgtgtactt ctgtgccagc agttacgtcg ggaacaccgg ggagctgttt tttggagaag 480

gctctaggct gaccgtactg gaggacctga aaaacgtgtt cccacccgag gtcgctgtgt 540

ttgagccatc agaagcagag atctcccaca cccaaaaggc cacactggta tgcctggcca 600

caggcttcta ccccgaccac gtggagctga gctggtgggt gaatgggaag gaggtgcaca 660

gtggggtcag cacagacccg cagcccctca aggagcagcc cgccctcaat gactccagat 720

actgcctgag cagccgcctg agggtctcgg ccaccttctg gcagaacccc cgcaaccact 780

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gaaaggattc cagaggccgg gccaagcggt ccggatccgg agccaccaac ttcagcctgc 1080

tgaagcaggc cggcgacgtg gaggagaacc ccggccccat ggagaccctc ttgggcctgc 1140

ttatcctttg gctgcagctg caatgggtga gcagcaaaca ggaggtgacg cagattcctg 1200

cagctctgag tgtcccagaa ggagaaaact tggttctcaa ctgcagtttc actgatagcg 1260

ctatttacaa cctccagtgg tttaggcagg accctgggaa aggtctcaca tctctgttgc 1320

ttattcagtc aagtcagaga gagcaaacaa gtggaagact taatgcctcg ctggataaat 1380

catcaggacg tagtacttta tacattgcag cttctcagcc tggtgactca gccacctacc 1440

tctgtgctgt gaggcccctg tacggaggaa gctacatacc tacatttgga agaggaacca 1500

gccttattgt tcatccgtat atccagaacc ctgaccctgc gggtggtttg tctggtcaac 1560

caccgcggtc tcagtggtgt acggtacaaa ccca 1594

<210> 403
<211> 19
<212> DNA
<213> Artificial Sequence

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

<400> 403
ttgagcgggc ccccaccgt 19

<210> 404
<211> 393
<212> DNA
<213> Artificial Sequence

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

<400> 404
atgactcact atcaggcctt gcttttggac acggaccggg tccagttcgg accggtggta 60

gccctgaacc cggctacgct gctcccactg cctgaggaag ggctgcaaca caactgcctt 120

gatgggacag gtggcggtgg tgtcaccgtc aagttcaagt acaagggtga ggaacttgaa 180

gttgatatta gcaaaatcaa gaaggtttgg cgcgttggta aaatgatatc ttttacttat 240

gacgacaacg gcaagacagg tagaggggca gtgtctgaga aagacgcccc caaggagctg 300

ttgcaaatgt tggaaaagtc tgggaaaaag tctggcggct caaaaagaac cgccgacggc 360

agcgaattcg agcccaagaa gaagaggaaa gtc 393

<210> 405
<211> 11
<212> DNA
<213> Artificial Sequence

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

<400> 405
cgacgacggc g 11

<210> 406
<211> 16
<212> DNA
<213> Artificial Sequence

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

<400> 406
tttatttgtg ggcccg 16

<210> 407
<211> 15
<212> DNA
<213> Artificial Sequence

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

<400> 407
tcgagtgccg catca 15

<210> 408
<211> 17
<212> DNA
<213> Artificial Sequence

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

<400> 408
aaagtggtga ggacact 17

<210> 409
<211> 15
<212> DNA
<213> Artificial Sequence

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

probe

<400> 409
aacccacccg agaga 15

<210> 410
<211> 66
<212> DNA
<213> Artificial Sequence

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

<400> 410
ggaagcggag ctactaactt cagcctgctg aagcaggctg gcgacgtgga ggagaaccct 60

ggacct 66

<210> 411
<211> 45
<212> DNA
<213> Artificial Sequence

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

<400> 411
gggggaggag gttctggagg cggaggctcc ggaggcggag ggtca 45

<210> 412
<211> 15
<212> DNA
<213> Artificial Sequence

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

<400> 412
ggaggtggcg ggagc 15

<210> 413
<211> 15
<212> DNA
<213> Artificial Sequence

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

<400> 413
cccgcaccag cgcct 15

<210> 414
<211> 45
<212> DNA
<213> Artificial Sequence

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

<400> 414
gaggcagctg ccaaggaagc cgctgccaag gaggcggccg caaag 45

<210> 415
<211> 48
<212> DNA
<213> Artificial Sequence

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

<400> 415
agtgggagcg agacccctgg gactagcgag tcagctacac ccgaaagc 48

<210> 416
<211> 54
<212> DNA
<213> Artificial Sequence

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

<400> 416
gggggggtcag gtggatccgg cggaagtggc ggatccggtg gatctggcgg cagt 54

<210> 417
<211> 15
<212> DNA

<213> Artificial Sequence

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

<400> 417
gaagctgctg ctaag 15

<210> 418
<211> 22
<212> PRT
<213> Artificial Sequence

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

<400> 418
Gly Ser Gly Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly Asp Val
1 5 10 15

Glu Glu Asn Pro Gly Pro
20

<210> 419
<211> 15
<212> PRT
<213> Artificial Sequence

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

<400> 419
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 420
<211> 5
<212> PRT
<213> Artificial Sequence

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

<400> 420
Gly Gly Gly Gly Ser
1   5

<210> 421
<211> 5
<212> PRT
<213> Artificial Sequence

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

<400> 421
Pro Ala Pro Ala Pro
1   5

<210> 422
<211> 15
<212> PRT
<213> Artificial Sequence

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

<400> 422
Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
1   5   10   15

<210> 423
<211> 16
<212> PRT
<213> Artificial Sequence

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

<400> 423
Ser Gly Ser Glu Thr Pro Gly Thr Ser Glu Ser Ala Thr Pro Glu Ser
1   5   10   15

<210> 424
<211> 18
<212> PRT
<213> Artificial Sequence

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

<400> 424
Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
1 5 10 15

Gly Ser

<210> 425
<211> 5
<212> PRT
<213> Artificial Sequence

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

<400> 425
Glu Ala Ala Ala Lys
1 5

<210> 426
<211> 16
<212> PRT
<213> Artificial Sequence

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

<400> 426
Gly Leu Ser Gly Gln Pro Pro Arg Ser Pro Ser Ser Gly Ser Ser Gly
1 5 10 15

<210> 427
<211> 17
<212> PRT
<213> Artificial Sequence

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

<400> 427
Gly Gly Leu Ser Gly Gln Pro Pro Arg Ser Pro Ser Ser Gly Ser Ser
1   5   10   15

Gly

<210> 428
<211> 88
<212> RNA
<213> Artificial Sequence

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

<400> 428
gacgagcgcg gcgauaucau cauccauggc cggaugaucc ugacgacgga gaccgccguc 60

gucgacaagc cggccugagc ugcgagaa 88

<210> 429
<211> 20
<212> RNA
<213> Artificial Sequence

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

<400> 429
gaagccggcc uugcacaugc 20

<210> 430
<211> 95
<212> DNA
<213> Homo sapiens

<400> 430
gcgcgcccgg ctattctcgc agctcaccat ggatgatgat atcgccgcgc tcgtcgtcga 60

caacggctcc ggcatgtgca aggccggctt cgcgg 95

<210> 431
<211> 20
<212> RNA

<213> Artificial Sequence

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

<400> 431
accacucgac gcucuuaucg 20