SEQUENCE LISTING

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<120> Prostate Neoantigens and their uses

<130> JBI6160WOPCT2

<140> To be assigned
<141> 2020-01-09

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<400> 121

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1 5 10 15

Glu

<210> 122
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<400> 122
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<211> 17
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<213> Homo sapiens

<400> 123

Gly Lys Thr Glu Asp Leu Gly Cys Arg Tyr Lys Leu Phe Ser Arg Val
1 5 10 15

Pro

<210> 124
<211> 51
<212> DNA
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<400> 124
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<210> 125
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<400> 125

Met Asn His His Gln Gln Gln Gln Gln Gln Lys Ala
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<210> 126
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<212> DNA
<213> Homo sapiens

<400> 126
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<210> 127
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<212> PRT
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<400> 127

His Gly Leu Val Asp Glu Gln Gln Glu Val Arg Thr Ile Ser Ala Leu
1 5 10 15

Ala

<210> 128
<211> 51
<212> DNA
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<400> 128
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<210> 129
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<400> 129

Val Cys Arg His Gly Asp Arg Cys Phe Arg Leu His Asn Lys Pro Thr
1 5 10 15

Phe

<210> 130
<211> 51
<212> DNA
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<400> 130
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<210> 131
<211> 17
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<400> 131

Ser Cys Thr Thr Pro Gln Cys Lys Cys Leu Leu Ala Lys Cys Cys Val
1 5 10 15

Asp

<210> 132
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<400> 132
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<210> 133
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<213> Homo sapiens

<400> 133

Ser Ile Leu Ser Lys Gln Val Gln His Lys Pro Lys Thr Gly Arg Ser
1 5 10 15

Leu

<210> 134
<211> 51
<212> DNA
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<400> 134
tccatattat ctaaacaggt tcaacataaa ccaaaaactg gtcgaagttt a 51

<210> 135
<211> 17
<212> PRT

<213> Homo sapiens

<400> 135

Gln Arg Ile Gly Ser Gly Ser Phe Ala Thr Val Tyr Lys Gly Lys Trp
1 5 10 15

His

<210> 136
<211> 51
<212> DNA
<213> Homo sapiens

<400> 136
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<210> 137
<211> 17
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<213> Homo sapiens

<400> 137

Gly Asp Phe Gly Leu Ala Thr Val Glu Ser Arg Trp Ser Gly Ser His
1 5 10 15

Gln

<210> 138
<211> 51
<212> DNA
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<400> 138
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<210> 139
<211> 17
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<400> 139

Gln Ala Asn Leu Arg His Leu Cys Cys Ile Cys Gly Asn Ser Phe Arg

1 5 10 15

Ala

<210> 140
<211> 51
<212> DNA
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<400> 140
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<210> 141
<211> 17
<212> PRT
<213> Homo sapiens

<400> 141

Gln Ala Asn Leu Arg His Leu Cys His Ile Cys Gly Asn Ser Phe Arg
1 5 10 15

Ala

<210> 142
<211> 51
<212> DNA
<213> Homo sapiens

<400> 142
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<210> 143
<211> 17
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<213> Homo sapiens

<400> 143

Asp Arg Cys Leu Lys Lys Val Ser Lys Gly Val Glu Gln Phe Glu Asp
1 5 10 15

Ile

<210> 144
<211> 51
<212> DNA
<213> Homo sapiens

<400> 144
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<210> 145
<211> 17
<212> PRT
<213> Homo sapiens

<400> 145

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1 5 10 15

Ile

<210> 146
<211> 51
<212> DNA
<213> Homo sapiens

<400> 146
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<211> 17
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<400> 147

Gln Lys Phe Asp Glu Ala Leu Arg Lys Ser Trp Thr Thr Lys Val Asn
1 5 10 15

Trp

<210> 148
<211> 51
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<213> Homo sapiens

<400> 148
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<210> 149
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<400> 149

Trp Val Lys Pro Ile Ile Ile Gly Cys His Ala Tyr Gly Asp Gln Tyr
1 5 10 15

Arg

<210> 150
<211> 51
<212> DNA
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<400> 150
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<210> 151
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<213> Homo sapiens

<400> 151

Trp Val Lys Pro Ile Ile Ile Gly Gly His Ala Tyr Gly Asp Gln Tyr
1 5 10 15

Arg

<210> 152
<211> 51
<212> DNA
<213> Homo sapiens

<400> 152
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<210> 153
<211> 17
<212> PRT
<213> Homo sapiens

<400> 153

Trp Val Lys Pro Ile Ile Ile Gly His His Ala Tyr Gly Asp Gln Tyr
1 5 10 15

Arg

<210> 154
<211> 51
<212> DNA
<213> Homo sapiens

<400> 154
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<210> 155
<211> 17
<212> PRT
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<400> 155

Tyr Lys Leu Val Val Val Gly Ala Asp Gly Val Gly Lys Ser Ala Leu
1 5 10 15

Thr

<210> 156
<211> 51
<212> DNA
<213> Homo sapiens

<400> 156
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<210> 157
<211> 17
<212> PRT
<213> Homo sapiens

<400> 157

Tyr Lys Leu Val Val Val Gly Ala Arg Gly Val Gly Lys Ser Ala Leu
1 5 10 15

Thr

<210> 158
<211> 51
<212> DNA
<213> Homo sapiens

<400> 158
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<210> 159
<211> 17
<212> PRT
<213> Homo sapiens

<400> 159

Leu Asp Ile Leu Asp Thr Ala Gly Lys Glu Glu Tyr Ser Ala Met Arg
1 5 10 15

Asp

<210> 160
<211> 51
<212> DNA
<213> Homo sapiens

<400> 160
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<210> 161
<211> 17
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<213> Homo sapiens

<400> 161

Leu Asp Ile Leu Asp Thr Ala Gly Leu Glu Glu Tyr Ser Ala Met Arg
1 5 10 15

Asp

<210> 162
<211> 51
<212> DNA
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<400> 162
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<210> 163
<211> 17
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<213> Homo sapiens

<400> 163

Leu Asp Ile Leu Asp Thr Ala Gly Arg Glu Glu Tyr Ser Ala Met Arg
1 5 10 15

Asp

<210> 164
<211> 51
<212> DNA
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<210> 165
<211> 17
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<400> 165

Glu Gly Trp Leu His Lys Arg Gly Lys Tyr Ile Lys Thr Trp Arg Pro
1 5 10 15

Arg

<210> 166
<211> 51
<212> DNA
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<400> 166
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<210> 167
<211> 17
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<213> Homo sapiens

<400> 167

Ile Ala Arg Glu Leu His Gln Phe Ala Phe Asp Leu Leu Ile Lys Ser
1 5 10 15

His

<210> 168
<211> 51
<212> DNA
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<400> 168
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<210> 169
<211> 17
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<213> Homo sapiens

<400> 169

Ile Ala Arg Glu Leu His Gln Phe Gly Phe Asp Leu Leu Ile Lys Ser
1 5 10 15

His

<210> 170
<211> 51
<212> DNA
<213> Homo sapiens

<400> 170
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<210> 171
<211> 17
<212> PRT
<213> Homo sapiens

<400> 171

Gln Pro Asp Ser Phe Ala Ala Leu His Ser Ser Leu Asn Glu Leu Gly
1 5 10 15

Glu

<210> 172
<211> 51
<212> DNA
<213> Homo sapiens

<400> 172
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<210> 173
<211> 17
<212> PRT
<213> Homo sapiens

<400> 173

Gln Met Ala Val Ile Gln Tyr Ser Leu Met Gly Leu Met Val Phe Ala
1 5 10 15

Met

<210> 174
<211> 51
<212> DNA
<213> Homo sapiens

<400> 174
cagatggctg tcattcagta ctccttgatg gggctcatgg tgtttgccat g 51

<210> 175
<211> 17
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<400> 175

Gln Met Ala Val Ile Gln Tyr Ser Phe Met Gly Leu Met Val Phe Ala
1 5 10 15

Met

<210> 176
<211> 51
<212> DNA
<213> Homo sapiens

<400> 176
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<210> 177
<211> 68
<212> PRT
<213> Homo sapiens

<400> 177

Gln Asn Leu Gln Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro
1 5 10 15

Gly Arg Arg Arg Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser
20 25 30

Val Ala Pro Ala Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro
35 40 45

Pro Gly Gly Ala Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr
50 55 60

Ser Ala Phe Thr
65

<210> 178
<211> 204

<212> DNA
<213> Homo sapiens

<400> 178
cagaacctgc agaatggagg ggggagcagg tcttcagcca cactgccggg gcggcggcgg 60

cggcggtggc tgcggcggcg gcggcagcca atatcagtag ctcctgcggg gccccctcgc 120

cgaccaaacc aaaaaccaaa cccacctggc ggtgcgaggt gtgtgattat gagaccaacg 180

tggccaggaa cctccgcatt caca 204

<210> 179
<211> 33
<212> PRT
<213> Homo sapiens

<400> 179

Gln Asn Leu Gln Asn Gly Gly Gly Gly Ala Gly Leu Gln Pro His Cys
1 5 10 15

Arg Gly Gly Gly Gly Gly Gly Gly Cys Gly Gly Gly Gly Ser Gln Tyr
20 25 30

Gln

<210> 180
<211> 102
<212> DNA
<213> Homo sapiens

<400> 180
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ggcggcggtg gctgcggcgg cggcggcagc caatatcagt ag 102

<210> 181
<211> 10
<212> PRT
<213> Homo sapiens

<400> 181

Asn Gln Glu Lys Glu Ala Glu Lys Asn Tyr
1 5 10

<210> 182
<211> 33
<212> DNA
<213> Homo sapiens

<400> 182
aaccaagaga aagaggcaga aaaaaactat tga 33

<210> 183
<211> 40
<212> PRT
<213> Homo sapiens

<400> 183

Asp Ala Ala Val Ser Pro Arg Gly Leu Gln His Arg Gln Gly Arg Gly
1 5 10 15

Asn Leu Gly Trp Trp Gln Ser Pro Leu Arg Lys Val Arg Val Pro Lys
20 25 30

Arg Arg Met Val Tyr His Pro Ser
35 40

<210> 184
<211> 123
<212> DNA
<213> Homo sapiens

<400> 184
gatgctgctg tcagtcccag ggggctgcag cacaggcagg ggagagggaa tctggggtgg 60

tggcagtctc ccctgagaaa agtgagagtc cccaaaagga ggatggttta tcatcccagt 120

tga 123

<210> 185
<211> 33
<212> PRT
<213> Homo sapiens

<400> 185

Phe Val Val Ser Val Val Lys Lys Asn Arg Thr Cys Pro Phe Arg Leu
1 5 10 15

Phe Val Arg Arg Met Leu Gln Phe Thr Gly Asn Lys Val Leu Asp Arg
            20   25   30

Pro

<210> 186
<211> 102
<212> DNA
<213> Homo sapiens

<400> 186
tttgtcgttt ctgttgtgaa aaaaaacagg acttgcccct ttcgtctatt tgtcagacga 60

atgttacaat ttactggcaa taaagttttg gatagacctt aa   102

<210> 187
<211> 9
<212> PRT
<213> Homo sapiens

<400> 187

Arg Ser Arg Arg Ser Ala Ile Lys Arg
1   5

<210> 188
<211> 32
<212> DNA
<213> Homo sapiens

<400> 188
agaagcagaa gatcggctat aaaaagataa tg   32

<210> 189
<211> 24
<212> PRT
<213> Homo sapiens

<400> 189

Ser Ile Ile Val Gln Glu Arg Glu Arg Ala Glu Arg Arg Val Arg Arg
1   5   10   15

Gly Gln Val Met Glu Ile Val Asp
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<210> 190
<211> 75
<212> DNA
<213> Homo sapiens

<400> 190
agtataattg tacaagagag agagagagca gagagaaggg tcagaagagg ccaagtgatg 60

gaaatagtgg attaa 75

<210> 191
<211> 34
<212> PRT
<213> Homo sapiens

<400> 191

Asn Asn Leu Val Thr Glu Lys Lys His Arg Asn Val Gln Cys His Asp
1 5 10 15

Ala Val Glu Glu Asn Gly Gln Ser Ser Phe Ile Thr Ser Pro Ile Leu
20 25 30

His Ser

<210> 192
<211> 107
<212> DNA
<213> Homo sapiens

<400> 192
aataacttgg tcacagaaaa aaaacacaga aatgtgcaat gtcatgatgc agttgaggaa 60

aatggccaat catcctttat tacatcgcca atattacaca gctgaaa 107

<210> 193
<211> 48
<212> PRT
<213> Homo sapiens

<400> 193

His Pro Gln Arg Lys Arg Arg Gly Val Pro Pro Ser Pro Pro Leu Ala
1 5 10 15

Leu Gly Pro Arg Met Gln Leu Cys Thr Gln Leu Ala Arg Phe Phe Pro
20 25 30

Ile Thr Pro Pro Val Trp His Ile Leu Gly Pro Gln Arg His Thr Pro
35 40 45

<210> 194
<211> 149
<212> DNA
<213> Homo sapiens

<400> 194
cacccacaga ggaaaaggcg gggggtccct ccgagcccac ccctggctct cggccccagg 60

atgcaactgt gcacccagct tgccagattt ttccccatta cacccccagt gtggcatatc 120

cttggtcccc agaggcacac cccttgatc 149

<210> 195
<211> 31
<212> PRT
<213> Homo sapiens

<400> 195

Ala Ser Arg His His Leu Trp Gly Ala Thr Ala Gly Thr Pro Ala Pro
1 5 10 15

Pro Pro Val Pro Thr Cys Ser Pro Arg Thr Leu Arg Cys Leu Pro
20 25 30

<210> 196
<211> 98
<212> DNA
<213> Homo sapiens

<400> 196
gccagccggc accatctgtg gggggcaaca gcgggcaccc ccgcaccacc ccccgtgccc 60

acctgttcac ccaggaccct gcgatgcctc ccctgacc 98

<210> 197
<211> 13
<212> PRT
<213> Homo sapiens

<400> 197

Gly Pro Gly Glu Ala Gly Gly Pro Ser Pro Gln Gly Gly
1 5 10

<210> 198
<211> 44
<212> DNA
<213> Homo sapiens

<400> 198
gggcctgggg aggctggggg cccctcaccc caaggcgggt gagc 44

<210> 199
<211> 19
<212> PRT
<213> Homo sapiens

<400> 199

Gly Gly Gly Pro Ser Gly Ser Gly Glu Ala Pro Thr Ser Pro Ser Ala
1 5 10 15

Leu Arg Thr

<210> 200
<211> 62
<212> DNA
<213> Homo sapiens

<400> 200
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aa 62

<210> 201
<211> 23
<212> PRT
<213> Homo sapiens

<400> 201

Gly Asn Pro Asp Val Pro Pro Pro Val Leu Phe Lys Ala Asp Gln Ser
1 5 10 15

Glu Ser Ser Leu Ser Ser Gly
20

<210> 202
<211> 72
<212> DNA
<213> Homo sapiens

<400> 202
ggaaatccag atgtcccacc ccccgtcctc ttcaaggcag atcagagcga gagttctttg 60

tcaagtgggt ag 72

<210> 203
<211> 10
<212> PRT
<213> Homo sapiens

<400> 203

Ala Phe Cys Tyr Cys Gly Glu Lys Val Pro
1 5 10

<210> 204
<211> 35
<212> DNA
<213> Homo sapiens

<400> 204
gctttttgtt actgtgggga aaaagttcct tagga 35

<210> 205
<211> 16
<212> PRT
<213> Homo sapiens

<400> 205

Thr Leu His Pro Asp Ser Gly Asn Gly Cys Tyr Leu Arg Arg Gln Lys
1 5 10 15

<210> 206
<211> 50
<212> DNA
<213> Homo sapiens

<400> 206
acgctgcacc cggactccgg caacggctgc tacttgcgcc gccagaagcg 50

<210> 207
<211> 16
<212> PRT
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<400> 207

Leu His Pro Asp Ser Gly Asn Met Tyr Gly Cys Tyr Leu Arg Arg Gln
1 5 10 15

<210> 208
<211> 53
<212> DNA
<213> Homo sapiens

<400> 208
acgctgcacc cggactccgg caacatgtac ggctgctact tgcgccgcca gaa 53

<210> 209
<211> 17
<212> PRT
<213> Homo sapiens

<400> 209

Leu His Pro Asp Ser Gly Asn Met Cys Cys Tyr Leu Arg Arg Gln Lys
1 5 10 15

Arg

<210> 210
<211> 51
<212> DNA
<213> Homo sapiens

<400> 210
ctgcacccgg actccggcaa catgtgctgc tacttgcgcc gccagaagcg c 51

<210> 211
<211> 16
<212> PRT
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<400> 211

Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser Ala
1 5 10 15

<210> 212
<211> 48
<212> DNA
<213> Homo sapiens

<400> 212
tgcggggcct ctgcctgtga tgtctccctc attgctatgg acagtgct 48

<210> 213
<211> 16
<212> PRT
<213> Homo sapiens

<400> 213

Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe Ser Glu Ser Lys
1 5 10 15

<210> 214
<211> 48
<212> DNA
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<400> 214
accgaataca accagaaatt acaagtgaat caatttagtg aatccaaa 48

<210> 215
<211> 24
<212> PRT
<213> Homo sapiens

<400> 215

Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser Glu Glu Asn Glu Tyr Leu
1 5 10 15

Pro Arg Pro Glu Trp Gln Leu Gln
20

<210> 216
<211> 72
<212> DNA
<213> Homo sapiens

<400> 216
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tggcagctcc ag 72

<210> 217
<211> 16
<212> PRT
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<400> 217

Gly Leu Val Ser Phe Gly Glu His Phe Cys Leu Pro Cys Ala Leu Cys
1 5 10 15

<210> 218
<211> 50
<212> DNA
<213> Homo sapiens

<400> 218
gggctggtgt ccttcgggga gcacttttgt ctgccctgcg ccctctgcca 50

<210> 219
<211> 16
<212> PRT
<213> Homo sapiens

<400> 219

Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu Ser Val Val Ser Glu
1 5 10 15

<210> 220
<211> 48
<212> DNA
<213> Homo sapiens

<400> 220
aacagcaaga tggctttgaa ctcagaagcc ttatcagttg tgagtgag 48

<210> 221
<211> 14
<212> PRT
<213> Homo sapiens

<400> 221

Cys Glu Glu Arg Gly Ala Ala Gly Ser Leu Ile Ser Cys Glu
1 5 10

<210> 222
<211> 42
<212> DNA
<213> Homo sapiens

<400> 222
tgtgaggagc gcggcgcggc aggaagcctt atcagttgtg ag 42

<210> 223
<211> 69
<212> PRT
<213> Homo sapiens

<400> 223

Leu Trp Phe Gln Ser Ser Glu Leu Ser Pro Thr Gly Ala Pro Trp Pro
1 5 10 15

Ser Arg Arg Pro Thr Trp Arg Gly Thr Thr Val Ser Pro Arg Thr Ala
20 25 30

Thr Ser Ser Ala Arg Thr Cys Cys Gly Thr Lys Trp Pro Ser Ser Gln
35 40 45

Glu Ala Ala Leu Gly Leu Gly Ser Gly Leu Leu Arg Phe Ser Cys Gly
50 55 60

Thr Ala Ala Ile Arg
65

<210> 224
<211> 207
<212> DNA
<213> Homo sapiens

<400> 224
ctgtggttcc agagcagtga gctgtccccg acgggagcgc catggcccag ccgccgcccg 60

acgtggaggg ggacgactgt ctccccgcgt accgccacct cttctgcccg gacctgctgc 120

gggacaaagt ggccttcatc acaggaggcg gctctgggat tgggttccgg attgctgaga 180

ttttcatgcg gcacggctgc catacgg 207

<210> 225
<211> 70
<212> PRT
<213> Homo sapiens

<400> 225

Trp Gly Met Glu Leu Ala Ala Ser Arg Arg Phe Ser Trp Asp His His
1 5 10 15

Ser Ala Gly Gly Pro Pro Arg Val Pro Ser Val Arg Ser Gly Ala Ala
20 25 30

Gln Val Gln Pro Lys Asp Pro Leu Pro Leu Arg Thr Leu Ala Gly Cys
35 40 45

Leu Ala Arg Thr Ala His Leu Arg Pro Gly Ala Glu Ser Leu Pro Gln
50 55 60

Pro Gln Leu His Cys Thr
65 70

<210> 226
<211> 210
<212> DNA
<213> Homo sapiens

<400> 226
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ccgcccagag tgccaagcgt ccgatccggc gccgcccaag tgcagcccaa ggacccgctc 120

ccgctccgca ccctggcagg ctgcctagcc aggactgcgc acctgcgccc tggggcggag 180

tccttacccc aaccccagct tcactgcaca 210

<210> 227
<211> 28
<212> PRT
<213> Homo sapiens

<400> 227

Lys Glu Gln Ile Leu Ala Val Ala Ser Leu Val Ser Ser Gln Ser Ile
1 5 10 15

His Pro Ser Trp Gly Gln Ser Pro Leu Ser Arg Ile
20 25

<210> 228
<211> 84
<212> DNA
<213> Homo sapiens

<400> 228
aaggaacaga ttttagctgt ggccagtctc gtttcctctc agtccatcca cccttcatgg 60

ggccagagcc ctctctccag aatc 84

<210> 229
<211> 14
<212> PRT
<213> Homo sapiens

<400> 229

Leu Glu Leu Glu Leu Ser Glu Gly Val Cys Phe Arg Leu Arg
1 5 10

<210> 230
<211> 42
<212> DNA
<213> Homo sapiens

<400> 230
ctggagctgg agctgtcgga aggagtctgc ttcagattaa ga 42

<210> 231
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<212> PRT
<213> Homo sapiens

<400> 231

Gln Gln Leu Arg Ile Phe Cys Ala Ala Met Ala Ser Asn Glu Asp Phe
1 5 10 15

Ser

<210> 232
<211> 52
<212> DNA

<213> Homo sapiens

<400> 232
cagcagctaa ggatattttg tgcagccatg gcctccaacg aagatttctc ca 52

<210> 233
<211> 31
<212> PRT
<213> Homo sapiens

<400> 233

Asp Gly Phe Ser Gly Ser Leu Phe Ala Val Val Thr Arg Arg Cys Tyr
1 5 10 15

Phe Leu Lys Trp Arg Thr Ile Phe Pro Gln Ser Leu Met Trp Leu
20 25 30

<210> 234
<211> 93
<212> DNA
<213> Homo sapiens

<400> 234
gacgggttta gcggcagcct cttcgcagtt gtcaccagac gctgttactt cctaaaatgg 60

cggacaatct tcccacagag tttgatgtgg tta 93

<210> 235
<211> 16
<212> PRT
<213> Homo sapiens

<400> 235

Lys Met His Phe Ser Leu Lys Glu His Pro Pro Pro Pro Cys Pro Pro
1 5 10 15

<210> 236
<211> 48
<212> DNA
<213> Homo sapiens

<400> 236
aaaatgcact tctccctcaa ggagcaccca ccgccccctt gcccgcct 48

<210> 237

<211> 31
<212> PRT
<213> Homo sapiens

<400> 237

Asp Leu Arg Arg Val Ala Thr Tyr Cys Ala Pro Leu Pro Ser Ser Trp
1 5 10 15

Arg Pro Gly Thr Gly Thr Thr Ile Pro Pro Arg Met Arg Ser Cys
20 25 30

<210> 238
<211> 93
<212> DNA
<213> Homo sapiens

<400> 238
gatctgcgcc gggtcgccac atactgcgct cctttaccct catcgtggag gcctgggact 60

gggacaacga taccaccccg aatgaggagc tgc 93

<210> 239
<211> 48
<212> PRT
<213> Homo sapiens

<400> 239

Leu Gln Glu Arg Met Glu Leu Leu Ala Cys Gly Ala Glu Arg Gly Ala
1 5 10 15

Gly Gly Trp Gly Gly Gly Gly Gly Gly Gly Gly Gly Asp Arg Arg Gly
20 25 30

Gly Gly Gly Ser Ala Pro Ala Leu Ala Asp Phe Ala Gly Gly Arg Gly
35 40 45

<210> 240
<211> 144
<212> DNA
<213> Homo sapiens

<400> 240
ttgcaggagc ggatggagtt gcttgcctgc ggagccgagc gcggggccgg cggctggggg 60

ggaggcggtg gcggcggcgg cggcgaccga agaggaggag gaggaagcgc gccagctctt 120

gcagactttg caggcggccg aggg 144

<210> 241
<211> 47
<212> PRT
<213> Homo sapiens

<400> 241

Leu Thr Phe Leu Asp Phe Ile Gln Val Thr Leu Arg Val Met Ser Gly
1 5 10 15

Ser Gln Met Glu Asn Gly Ser Ser Tyr Phe Phe Lys Pro Phe Ser Trp
20 25 30

Gly Leu Gly Val Gly Leu Ser Ala Trp Leu Cys Val Met Leu Thr
35 40 45

<210> 242
<211> 141
<212> DNA
<213> Homo sapiens

<400> 242
ctgacgtttt tagatttcat ccaggtaacg ttgagagtaa tgtcaggatc tcaaatggaa 60

aacggaagtt cctatttttt caagcccttt tcatggggtc tgggggtggg actctcggcc 120

tggctgtgtg taatgttaac t 141

<210> 243
<211> 51
<212> PRT
<213> Homo sapiens

<400> 243

Phe Met Ile Gly Glu Leu Val Gly Glu Leu Cys Cys Gln Leu Thr Phe
1 5 10 15

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

Leu Arg Phe Asn Pro Ser Phe Gln Glu Val Cys Ile Tyr Gln Asp Thr
35 40 45

Asp Leu Met
    50

<210> 244
<211> 153
<212> DNA
<213> Homo sapiens

<400> 244
ttcatgattg gagaacttgt aggtgagttg tgttgccaac tcactttccg tttacctttc 60

ctcgagagtc tttgtcaagc tgtagttaca caggctttga ggtttaaccc atcttttcag 120

gaagtttgta tttatcaaga cactgatctc atg 153

<210> 245
<211> 16
<212> PRT
<213> Homo sapiens

<400> 245

Val Ala Met Met Val Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu
1   5   10   15

<210> 246
<211> 48
<212> DNA
<213> Homo sapiens

<400> 246
gttgctatga tggttcctga tagacaggtt cattatgact ttggattg 48

<210> 247
<211> 24
<212> PRT
<213> Homo sapiens

<400> 247

Trp Cys Pro Leu Asp Leu Arg Leu Gly Ser Thr Gly Cys Leu Thr Cys
1   5   10   15

Arg His His Gln Thr Ser His Glu
            20

<210> 248
<211> 72
<212> DNA
<213> Homo sapiens

<400> 248
tggtgtccgc tggatcttag actcggttcc actggatgtc tcacatgcag acatcatcaa 60

acgtcacatg ag 72

<210> 249
<211> 25
<212> PRT
<213> Homo sapiens

<400> 249

Val Val Gly Arg Arg His Glu Thr Ala Pro Gln Pro Leu Leu Val Pro
1 5 10 15

Asp Arg Ala Gly Gly Glu Gly Gly Ala
20 25

<210> 250
<211> 75
<212> DNA
<213> Homo sapiens

<400> 250
gtcgtgggaa ggcgtcatga aacagctcct caacccctgc tggtgcccga ccgagctggt 60

ggtgaagggg gagca 75

<210> 251
<211> 17
<212> PRT
<213> Homo sapiens

<400> 251

Asp Tyr Trp Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu
1 5 10 15

Cys

<210> 252
<211> 51
<212> DNA
<213> Homo sapiens

<400> 252
gactactggg ctcaaaagga gaagatcagc atccccagaa cacacctgtg t 51

<210> 253
<211> 18
<212> PRT
<213> Homo sapiens

<400> 253

Asp Tyr Trp Ala Gln Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro
1 5 10 15

Ser Cys

<210> 254
<211> 54
<212> DNA
<213> Homo sapiens

<400> 254
gactactggg ctcaaaagga gaagggatca tcttcattcc tgcgaccatc ctgt 54

<210> 255
<211> 14
<212> PRT
<213> Homo sapiens

<400> 255

Leu Val Leu Gly Val Leu Ser Gly His Ser Gly Ser Arg Leu
1 5 10

<210> 256
<211> 42
<212> DNA
<213> Homo sapiens

<400> 256
cttgtacttg gtgtattgag cgggcacagt ggctcacgcc ta 42

<210> 257
<211> 25
<212> PRT
<213> Homo sapiens

<400> 257

Pro Val Pro Thr Ala Thr Pro Gly Val Arg Ser Val Thr Ser Pro Gln
1 5 10 15

Gly Leu Gly Leu Phe Leu Lys Phe Ile
20 25

<210> 258
<211> 75
<212> DNA
<213> Homo sapiens

<400> 258
cctgtcccaa ctgctacacc tggggtaaga tcagtgacta gtccccaggg gctgggcctt 60

ttccttaagt ttatt 75

<210> 259
<211> 28
<212> PRT
<213> Homo sapiens

<400> 259

Lys Glu Asn Asp Val Arg Glu Val Cys Asp Val Tyr Leu Gln Met Gln
1 5 10 15

Ile Phe Phe His Phe Lys Phe Arg Ser Tyr Phe His
20 25

<210> 260
<211> 84
<212> DNA
<213> Homo sapiens

<400> 260
aaggaaaatg atgtccgtga ggtctgtgat gtgtatttac aaatgcagat cttcttccat 60

tttaagttca gaagttactt tcat 84

<210> 261

<211> 90
<212> PRT
<213> Homo sapiens

<400> 261

Val Pro Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro
1 5 10 15

Gly Ile His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys Asp Pro
20 25 30

Ala Arg His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly Gln Val
35 40 45

Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln Pro Gln
50 55 60

Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro
65 70 75 80

Arg Leu His Thr Val Lys Met Trp Arg Ala
85 90

<210> 262
<211> 270
<212> DNA
<213> Homo sapiens

<400> 262
gtgcccttcc gggagctcaa gaaccagaga acagcacaag gggctcctgg gatccaccac 60

gcggcttccc ccgttgctgc caacctctgc gacccggcga gacacgcaca gcacacacgc 120

atcccctgcg gcgctggcca agtgcgtgct ggccgaggtc ccgaagcagg tggtggagta 180

ctacagccac agaggcctgc ccccgagaag cctgggtgtc cctgccggag aggccagccc 240

aggctgcaca ccgtgaagat gtggagggcg 270

<210> 263
<211> 22
<212> PRT
<213> Homo sapiens

<400> 263

Phe Ala Arg Lys Met Leu Glu Lys Val His Arg Gln His Leu Gln Leu
1   5   10   15

Ser His Asn Ser Gln Glu
            20

<210> 264
<211> 66
<212> DNA
<213> Homo sapiens

<400> 264
tttgctagaa aaatgctgga gaaggtacac agacaacacc tacagctttc ccacaatagc   60

caggaa   66

<210> 265
<211> 11
<212> PRT
<213> Homo sapiens

<400> 265

Lys Arg Ser Phe Ala Val Thr Glu Arg Ile Ile
1   5   10

<210> 266
<211> 33
<212> DNA
<213> Homo sapiens

<400> 266
aagagaagtt ttgctgtcac ggagaggatc atc   33

<210> 267
<211> 17
<212> PRT
<213> Homo sapiens

<400> 267

Met Phe Leu Arg Lys Glu Gln Gln Val Gly Pro His Ser Phe Ser Met
1   5   10   15

Leu

<210> 268
<211> 51
<212> DNA
<213> Homo sapiens

<400> 268
atgttcctta gaaaggagca gcaggtgggt ccccacagct tttctatgct t 51

<210> 269
<211> 14
<212> PRT
<213> Homo sapiens

<400> 269

Val Leu Arg Phe Leu Asp Leu Lys Val Arg Tyr Leu His Ser
1 5 10

<210> 270
<211> 42
<212> DNA
<213> Homo sapiens

<400> 270
gtgctgcgct ttctggactt aaaggtgaga tacctgcact ct 42

<210> 271
<211> 32
<212> PRT
<213> Homo sapiens

<400> 271

Gly Asn Thr Thr Leu Gln Gln Leu Gly Glu Ala Ser Gln Ala Pro Ser
1 5 10 15

Gly Ser Leu Ile Pro Leu Arg Leu Pro Leu Leu Trp Glu Val Arg Gly
20 25 30

<210> 272
<211> 96
<212> DNA
<213> Homo sapiens

<400> 272
ggcaacacca ccctccagca gctgggtgag gcctcccagg cgccctcagg ctccctcatc 60

cctctgaggc tgcctctgct ctgggaagtg aggggc 96

<210> 273
<211> 25
<212> PRT
<213> Homo sapiens

<400> 273

Gly Leu Asn Leu Asn Thr Asp Arg Pro Gly Gly Tyr Ser Tyr Ser Ile
1 5 10 15

Trp Trp Lys Asn Asn Ala Lys Asn Arg
20 25

<210> 274
<211> 75
<212> DNA
<213> Homo sapiens

<400> 274
ggactgaact taaatactga tagaccaggt ggttacagct attcaatttg gtggaaaaac 60

aatgccaaga acaga 75

<210> 275
<211> 27
<212> PRT
<213> Homo sapiens

<400> 275

Trp Lys Phe Glu Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val
1 5 10 15

His Ala Arg Pro Arg His Trp Lys Thr Asp Arg
20 25

<210> 276
<211> 81
<212> DNA
<213> Homo sapiens

<400> 276
tggaaattcg agatgagcta cacggtgggt ggcccgcctc cccatgttca tgctagaccc 60

aggcattgga aaactgatag a 81

<210> 277
<211> 22
<212> PRT
<213> Homo sapiens

<400> 277

Gln Trp Gln His Tyr His Arg Ser Gly Glu Ala Ala Gly Thr Pro Leu
1 5 10 15

Trp Arg Pro Thr Arg Asn
20

<210> 278
<211> 66
<212> DNA
<213> Homo sapiens

<400> 278
cagtggcagc actaccaccg gtcaggtgag gccgcaggga ctcccctctg gagacccaca 60

agaaac 66

<210> 279
<211> 29
<212> PRT
<213> Homo sapiens

<400> 279

Lys Val Leu Asn Glu Ile Asp Ala Val Val Thr Val Pro Pro Ser Leu
1 5 10 15

Ser Thr Ser Gln Ile Pro Gln Gly Cys Cys Ile Ile Leu
20 25

<210> 280
<211> 87
<212> DNA
<213> Homo sapiens

<400> 280
aaggtcctca acgagatcga tgcggtagtt accgtccctc cctccctgtc tacctcccag 60

ataccgcagg gctgctgcat catattg 87

<210> 281
<211> 18
<212> PRT
<213> Homo sapiens

<400> 281

Ala Asn Leu Lys Gly Thr Leu Gln Val Arg Ser Gly Gln Ala Val Ser
1 5 10 15

Pro Arg

<210> 282
<211> 54
<212> DNA
<213> Homo sapiens

<400> 282
gccaatctga aaggcaccct gcaggtgagg agtgggcagg cagtgagtcc acgc 54

<210> 283
<211> 70
<212> PRT
<213> Homo sapiens

<400> 283

Leu Gln Ala Ala Ala Ser Gly Gln Gly Lys Gln Gly Val Pro Cys Pro
1 5 10 15

Trp Gly Cys Cys Ala Tyr Ala Glu Ser Pro Arg Ala Leu Ile Ser Gly
20 25 30

Asp Ala Pro Ser Gln Val Glu Arg Glu Val Pro Gly Pro Cys Leu Asn
35 40 45

Thr His Ser Leu Ser His Arg Ser Pro Gln Leu Pro Gly Leu Pro His
50 55 60

Pro Lys Gln Pro Ser Val
65 70

<210> 284
<211> 210
<212> DNA
<213> Homo sapiens

<400> 284
ctccaggcgg ctgcctcggg ccaaggcaag cagggcgtcc cttgtccctg gggttgctgt 60

gcctacgctg agagtccccg ggccctgatt tcgggagatg ctccatcaca ggtggagcgg 120

gaggtgccgg gcccctgcct caacacgcat tctctctccc acagatcccc acagctccca 180

ggccttccac accccaagca gccttctgtt 210

<210> 285
<211> 9
<212> PRT
<213> Homo sapiens

<400> 285

Lys Ile Gln Asn Lys Asn Cys Pro Asp
1 5

<210> 286
<211> 27
<212> DNA
<213> Homo sapiens

<400> 286
aaaattcaga ataaaaattg tccagac 27

<210> 287
<211> 37
<212> PRT
<213> Homo sapiens

<400> 287

Gly Glu Val Glu Leu Ser Glu Gly Gly Glu Gly Gln Arg His Leu Ala
1 5 10 15

Phe Pro Trp Ala Cys Ser Gly Pro Gly Trp Arg Gly Val Cys Cys Ala
20 25 30

Ala Val Glu Pro Ala
35

<210> 288
<211> 111
<212> DNA
<213> Homo sapiens

<400> 288
ggcgaggtgg agctctcaga gggcggtgag ggccagcggc accttgcatt tccctgggcc 60

tgctctgggc cgggctggag aggggtgtgc tgtgctgctg tggagcctgc t 111

<210> 289
<211> 9
<212> PRT
<213> Homo sapiens

<400> 289

Ile Glu Met Lys Lys Leu Leu Lys Ser
1 5

<210> 290
<211> 27
<212> DNA
<213> Homo sapiens

<400> 290
attgaaatga aaaaactgtt aaaaagt 27

<210> 291
<211> 70
<212> PRT
<213> Homo sapiens

<400> 291

Lys Met Arg Ala Ile Gln Ala Glu Gly Gly His Gly Gln Ala Cys Cys
1 5 10 15

Gly Gly Ala Trp Gly Trp Ala Pro Gly Asp Gly Gly Pro Gln Gly Met
20 25 30

Leu Thr His Thr Leu Pro Thr Leu Gly Phe Gln Ser Ala Trp Thr Trp
35 40 45

Arg Arg Glu Asp Ala Asp Arg Ala Trp Arg Thr Pro Lys Ala Cys Ala
50 55 60

Ser Arg Arg Trp Ser Ile
65 70

<210> 292
<211> 210
<212> DNA
<213> Homo sapiens

<400> 292
aagatgcggg ccatccaggc cgagggtggg cacgggcagg cctgctgtgg aggggcctgg 60

ggatgggcac cgggggacgg gggcccccag gggatgctca cgcatactct gcccaccctg 120

ggcttccaga gcgcctggac atggagaaga gaagatgcag acagagcctg gaggactccg 180

aaagcctgcg catcaaggag gtggagcata 210

<210> 293
<211> 74
<212> PRT
<213> Homo sapiens

<400> 293

Leu Leu Glu Pro Phe Arg Arg Gly Glu Pro Gly Pro Arg Gly Leu Leu
1 5 10 15

Ser Gly Ser Ser Arg Gly Gly Glu Gly Pro Gly Arg Ser Ile Glu Ala
20 25 30

Ala Pro Ala Thr Pro Leu Pro Cys Cys Arg Lys Asn Pro Cys Arg Pro
35 40 45

Gln Pro Ser Arg Phe Leu Pro Pro Arg Val Leu Leu Val Ile Ile Leu
50 55 60

Pro Lys Leu Asp Cys Pro Lys Leu Gly Phe
65 70

<210> 294
<211> 222
<212> DNA
<213> Homo sapiens

<400> 294
ctgctggagc ccttccgccg cggtgagccc gggccccgcg ggctgctctc gggaagttcc 60

cgcggagggg aggggcctgg ccgttcgatc gaggctgcac ccgccacacc tttgccctgt 120

tgccgcaaga acccttgtcg gccccagcct tccagatttt tgcctcctag ggtattgtta 180

gtgatcattc ttcccaaact ggattgtcca aaacttgggt tc 222

<210> 295
<211> 65
<212> PRT
<213> Homo sapiens

<400> 295

Pro Ser Gly Arg Arg Thr Lys Arg Leu Val Thr Leu Arg Ser Gly Cys
1 5 10 15

Ala Ile Gln Cys Trp His Pro Arg Ala Gly Pro Val Pro Ser Ala Leu
20 25 30

Pro His Thr Glu Arg Pro Pro Arg Leu Val Arg Gly Ala Ala Asp Pro
35 40 45

Arg Thr Val Thr Leu Gly Arg Ser Pro Ala Val Met Pro Arg Ala Pro
50 55 60

Ala
65

<210> 296
<211> 195
<212> DNA
<213> Homo sapiens

<400> 296
ccctcggggc ggagaaccaa acggttagtt accctgcgtt ctggctgcgc catacaatgc 60

tggcatcctc gtgccggccc agttccctca gcgcttcctc acacagagag gcccccaagg 120

cttgtcaggg gagcagcaga tcccaggaca gtgaccctgg gacggagccc tgcagtcatg 180

cctcgggccc ctgcg 195

<210> 297

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

<400> 297

Cys His Leu Phe Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr
1 5 10 15

Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys
20 25 30

Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg
35 40 45

Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro
50 55 60

Ser Leu His Leu His Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly
65 70 75 80

Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro Ser Arg Gly
85 90 95

<210> 298
<211> 285
<212> DNA
<213> Homo sapiens

<400> 298
tgccacctct tcctgcagcc ccaggttggc acccccccc cccacactgc cagtgctcga 60

gcccccagtg gtccacccca ccctcatgaa agttgccctg cagggcgaag acctgcgaga 120

gctgcgcaga catgtgcacg ccgacagcac ggacttcctg gctgtgaaga ggctggtaca 180

gcgcgtgttc ccagcctgca cctgcacctg caccaggccg ccctcggagc aggaaggggc 240

cgtgggtggg gagaggcctg tgcccaagta ccccccctcaa gaggc 285

<210> 299
<211> 45
<212> PRT
<213> Homo sapiens

<400> 299

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Lys Glu Leu Lys Leu Glu Gln Gln Val Gly Gly Gln Gly Leu Arg Gly
1               5                   10                  15

Val Gly Gln Gly Val Arg Gly Gly Phe Val Thr Leu Thr Thr His Thr
            20                  25                  30

Pro Phe Pro Ser Gln Glu Ala Ala Glu Arg Glu Ser Lys
        35                  40                  45
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<210> 300
<211> 135
<212> DNA
<213> Homo sapiens

<400> 300

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aaggagctca agctggagca gcaggtgggt gggcagggct tgagaggggt gggccaaggg       60

gtgcgtggcg gcttcgtgac cctcactacc catacccgt tcccctccca ggaagctgca      120

gagcgggagt ctaaa                                                      135
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<210> 301
<211> 175
<212> PRT
<213> Homo sapiens

<400> 301

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Gly Glu Ile Ser Gln Glu Glu Val Pro Pro Ser Arg His Leu Gly Val
1               5                   10                  15

Ser Trp Gly Ala Gly Val Trp Ala Gly Leu Thr Leu Gly Ala Ser Ala
            20                  25                  30

Pro Pro Asn Ser Ser Phe Pro Ser Gly Ala Glu Leu Gln Pro Val Val
        35                  40                  45

Cys Cys Ile Arg Ser Asp Thr Arg Gln Pro Arg Pro Pro Asp Phe Pro
    50                  55                  60

Gln His Arg Gly Asp Pro Arg Leu Pro Gln Leu Ser Leu Gly Ala Glu
65                  70                  75                  80
```

```
Asn Gln Thr Val Ser Tyr Pro Ala Phe Trp Leu Arg His Thr Met Leu
                85                  90                  95

Ala Ser Ser Cys Arg Pro Ser Ser Leu Ser Ala Ser Ser His Arg Glu
            100                 105                 110

Ala Pro Lys Ala Cys Gln Gly Ser Ser Arg Ser Gln Asp Ser Asp Pro
        115                 120                 125

Gly Thr Glu Pro Cys Ser His Ala Ser Gly Pro Cys Val Thr Ser Thr
    130                 135                 140

Val Ser Ser Pro Gly Leu Leu Pro Gln Arg Leu Leu Pro Leu Ala Leu
145                 150                 155                 160

Thr Gly Leu Pro Val Glu Glu Asp Gly Phe Glu His Ala Gly Ala
                165                 170                 175
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<210> 302
<211> 525
<212> DNA
<213> Homo sapiens

<400> 302

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ggagaaatca gccaggaaga ggtgcctccc tcccgccacc tgggcgtctc atggggtgct       60

ggggtgtggg cgggcctcac cctcggggcc tctgcacccc ctaactctag cttcccctca      120

ggtgctgagc tacagccagt tgtgtgctgc attaggagtg acacaagaca gccccgaccc      180

cccgactttc ctcagcacag gggagatcca cgccttcctc agctctccct cggggcggag      240

aaccaaacgg ttagttaccc tgcgttctgg ctgcgccata caatgctggc atcctcgtgc      300

cggcccagtt ccctcagcgc ttcctcacac agagaggccc ccaaggcttg tcaggggagc      360

agcagatccc aggacagtga ccctgggacg gagccctgca gtcatgcctc gggcccctgc      420

gtaacctcca ctgtctccag cccaggtctc cttcctcaga ggctattgcc tctcgctctg      480

actgggctcc ctgtggagga agatggtttc gagcacgcgg gagcc                      525
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<210> 303
<211> 56
<212> PRT
<213> Homo sapiens

<400> 303

Asp Cys Met Leu Ser Glu Glu Gly Gly Gln Ala Arg Arg Gly Gly Ser
1 5 10 15

Leu Cys Ser Leu Ala Ala His Thr Ile Ala Ser Ala Ala Arg Gly Arg
20 25 30

Phe Leu Ser Arg Leu Ser Asn Phe Cys Ala Val Val Lys Ala Ser Arg
35 40 45

Gly Ala Pro Ser Cys Thr Trp Glu
50 55

<210> 304
<211> 168
<212> DNA
<213> Homo sapiens

<400> 304
gactgcatgc tcagcgagga aggtgggcag gcgcggcggg gtggatccct ctgctcctta 60

gctgcccaca ccattgcctc ggcagcccga ggtcgcttcc tctccaggct ctccaatttc 120

tgtgccgtag ttaaagcgag caggggcgcc ccttcctgca cctgggag 168

<210> 305
<211> 43
<212> PRT
<213> Homo sapiens

<400> 305

Glu Ala Phe Gln Arg Ala Ala Gly Glu Gly Gly Pro Gly Arg Gly Gly
1 5 10 15

Ala Arg Arg Gly Ala Arg Val Leu Gln Ser Pro Phe Cys Arg Ala Gly
20 25 30

Ala Gly Glu Trp Leu Gly His Gln Ser Leu Arg
35 40

<210> 306
<211> 129

<212> DNA
<213> Homo sapiens

<400> 306
gaggccttcc agagggccgc tggtgagggc ggcccgggcc gcggtggggc acggcgcggt 60

gccagggtgt tgcagagccc cttttgcagg gcaggagctg gggagtggtt aggacatcag 120

tccctcagg 129

<210> 307
<211> 35
<212> PRT
<213> Homo sapiens

<400> 307

Pro Glu Pro Arg Arg Leu Ser Pro Gly Glu Pro Arg Gly Arg Pro Arg
1 5 10 15

Lys Gly Trp Gly Ile Trp Gly Leu Cys Gly Ala Arg Val Gly Pro Lys
20 25 30

Ala Trp Arg
35

<210> 308
<211> 105
<212> DNA
<213> Homo sapiens

<400> 308
cctgagccca ggagactgag cccaggtgag cccaggggggc gaccccggaa gggctggggg 60

atctggggtt tgtgtggagc gcgggtgggg cccaaggctt ggcgg 105

<210> 309
<211> 61
<212> PRT
<213> Homo sapiens

<400> 309

Val Pro Phe Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg
1 5 10 15

Gln Gly Arg Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser

```
            20                  25                  30

Gln Ala Arg Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu
        35                  40                  45

Gly Asp Pro Gly Leu Phe Pro Pro Val Lys Ser Ser Ile
    50                  55                  60
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<210> 310
<211> 183
<212> DNA
<213> Homo sapiens

<400> 310

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gtgcccttcc gggagctcaa gaacgtgagt gtcctggagg ggctccgtca aggccggctt       60

gggggtccct gttcatgtca ctgcccaaga ccttcccagg ccaggctcac gccagtggat      120

gtggcaggtc ccttcttgtg tctgggggat cctgggctgt tccccccagt caagagcagt      180

atc                                                                    183
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<210> 311
<211> 98
<212> PRT
<213> Homo sapiens

<400> 311

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Phe Val Ser Leu Thr Ala Ile Gln Met Ala Ser Ser Ala Thr Pro Trp
1               5                   10                  15

Gly Arg Trp Pro Val Ala Thr Pro Thr Ala Ala Cys Pro Arg Arg Arg
            20                  25                  30

Pro Ser Ser Leu Pro Thr Gly Gly Asp Ser Ala Ser Lys Lys Pro Ile
        35                  40                  45

Ser Arg Arg Ala Pro Trp Gln Pro Trp Ala Cys Pro Gly Arg Ser Val
    50                  55                  60

Asn Ser Ala Ala Pro Arg Ala Trp Cys Pro Pro Ala Thr Thr Pro Arg
65                  70                  75                  80
```

```
Thr Gln Ser Pro Ser Arg Asp Leu Arg Pro Arg Cys Leu Ser Ser Trp
                85                  90                  95

Ser Ser
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<210> 312
<211> 294
<212> DNA
<213> Homo sapiens

<400> 312
tttgtgagcc tgactgccat ccagatggca tcgtcggcca ctccctgggg gaggtggcct 60

gtggctacgc cgacggctgc ctgtcccagg aggaggccgt cctcgctgcc tactggaggg 120

gacagtgcat caaagaagcc catctcccgc cgggcgccat ggcagccgtg ggcttgtcct 180

gggaggagtg taaacagcgc tgccccccgg gcgtggtgcc cgcctgccac aactccaagg 240

acacagtcac catctcggga cctcaggccc cggtgtttga gttcgtggag cagc 294

<210> 313
<211> 109
<212> PRT
<213> Homo sapiens

<400> 313

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Pro Val Ala Ile Lys Pro Gly Thr Gly Pro Pro Asn Asn Ser Ser Ile
1               5                  10                  15

His Gly Gly Ser Lys Arg Ser Glu Asn Ser Tyr Cys Arg Asp Leu Arg
            20                  25                  30

Gly Gln Leu Arg Ala Ile Cys Cys Ser Ser Tyr Ser His Asp Arg His
        35                  40                  45

Thr Thr Glu Glu Arg Gly Ser Arg Gly Arg His Val Trp Arg Ile Arg
    50                  55                  60

Arg Leu His Thr Ser Gly Leu Pro Cys Cys Cys His Ser Gly Pro His
65                  70                  75                  80

Pro Arg Arg Leu Pro Asp Ile Leu Arg Leu Val Thr Ser Thr Lys Thr
```

85 90 95

Asp His Thr Asn Thr Thr Glu Gly Thr Leu Asp Tyr Leu
100 105

<210> 314
<211> 327
<212> DNA
<213> Homo sapiens

<400> 314
ccagttgcca ttaaacctgg tacagggccg cccaataact ccagtataca cggtggctcc 60

aaacgttcag agaattccta ctgccgggat ctacggggcc agttacgtgc catttgctgc 120

tccagctaca gccacgatcg ccacactaca gaagaacgcg gcagccgcgg ccgccatgta 180

tggaggatac gcaggctaca tacctcaggc cttccctgct gctgccattc aggtccccat 240

ccccgacgtc taccagacat actgaggctg gtgaccagca cgaagacaga ccacacaaac 300

accactgaag gaacgcttga ctattta 327

<210> 315
<211> 40
<212> PRT
<213> Homo sapiens

<400> 315

Lys Trp Asn Lys Asn Trp Thr Ala Thr Leu Gly Ala Leu Thr Ile Arg
1 5 10 15

Gly His Lys Leu Leu Cys His Leu Pro His Leu Leu Ser Ser Val Gln
20 25 30

Gln Thr Cys Arg Ser Ser Ser Arg
35 40

<210> 316
<211> 120
<212> DNA
<213> Homo sapiens

<400> 316
aagtggaaca agaactggac agccacactc ggggctctta caatcagggg tcataagctg 60

ctatgtcacc tacctcacct tctcagctct gtccagcaaa cctgcagaag tagttctaga 120

<210> 317
<211> 50
<212> PRT
<213> Homo sapiens

<400> 317

Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr
1 5 10 15

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

Asp Pro Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala
35 40 45

Ala Val
50

<210> 318
<211> 150
<212> DNA
<213> Homo sapiens

<400> 318
ttcaagaagt tcgacggccc ttgtggtgag cgcggcggcg ggcgcacggc tcgagctctg 60

tgggcgcgcg gcgacagcgt cctgactcct gccctcgacc cccagacccc tgtcagggcg 120

ccctccctga cccgagccgc agctgccgtg 150

<210> 319
<211> 52
<212> PRT
<213> Homo sapiens

<400> 319

Glu Asn Ala Ser Leu Val Phe Thr Gly Ser Asn Ser Pro Ile Pro Ala
1 5 10 15

Cys Glu Leu Ser Ser His Pro Ala His Gly Ile Ser Pro Trp Ile Pro
20 25 30

Ser Pro Gly Asn Glu His Phe His Gly Ile Lys Lys Gln Val Lys Ala
        35   40   45

Ile Lys Val Glu
    50

<210> 320
<211> 156
<212> DNA
<213> Homo sapiens

<400> 320
gaaaatgcca gcctagtgtt tacaggatcc aacagcccca taccagcctg cgaactgagt 60

agtcacccag ctcatggtat cagtccttgg ataccctcac ctggaaatga acatttccat 120

ggcataaaga agcaagtaaa ggcaataaaa gtagaa 156

<210> 321
<211> 55
<212> PRT
<213> Homo sapiens

<400> 321

Arg Leu Thr Gln Arg Leu Val Gln Gly Trp Thr Pro Met Glu Asn Arg
1   5   10   15

Trp Cys Gly Arg Arg Ala Gly Gly Gln Pro Ala Ser Ser Ser Thr Arg
            20   25   30

Trp Thr Thr Cys Arg Ala Ala Cys Leu Leu Thr Lys Trp Thr Ala Gly
        35   40   45

Arg Ser Gln Thr Ser Ile Gly
    50   55

<210> 322
<211> 165
<212> DNA
<213> Homo sapiens

<400> 322
cggctgacgc aacggctggt ccagggctgg accccaatgg agaacaggtg gtgtggcagg 60

cgagcgggtg ggcagcccgc atcatccagc acgagatgga ccacctgcag ggctgcctgt 120

ttattgacaa aatggacagc aggacgttca caaacgtcta ttgga 165

<210> 323
<211> 32
<212> PRT
<213> Homo sapiens

<400> 323

Glu Asn Ser Gly Asn Ala Ser Arg Trp Leu His Val Pro Ser Ser Ser
1 5 10 15

Asp Asp Trp Leu Gly Trp Lys Lys Ser Ser Ala Ile Thr Ser Asn Ser
20 25 30

<210> 324
<211> 96
<212> DNA
<213> Homo sapiens

<400> 324
gaaaattcag gcaacgcctc gcgttggctg catgtaccaa gtagttcaga cgattggctc 60

ggatggaaaa aatcttctgc aattacttcc aattcc 96

<210> 325
<211> 59
<212> PRT
<213> Homo sapiens

<400> 325

Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg
1 5 10 15

Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val
20 25 30

Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro
35 40 45

Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp
50 55

<210> 326
<211> 177
<212> DNA
<213> Homo sapiens

<400> 326
ggcatggagt gcaccctggg gcaggtgggt gccccgtccc ctcggaggga ggaggacggt 60

tggcgtgggg gccacagccg attcaaggct gatgtaccag caccgcaggg accctgctgg 120

ggtggccaac ctggctctgc cccctcctca gctcctcctg aacagtcatt attagat 177

<210> 327
<211> 110
<212> PRT
<213> Homo sapiens

<400> 327

Lys Gly Ser Val Glu Arg Arg Ser Val Ser Leu Gly His Pro Ala Glu
1 5 10 15

Gly Trp Ala Trp Ala Glu Arg Ser Leu Gln Pro Gly Met Thr Thr Ala
20 25 30

Asn Thr Gly Cys Leu Ser Phe His His Arg Gly Cys Leu Leu Pro Val
35 40 45

Leu Pro Lys Leu His Cys Gly Leu Gly Gly Leu Pro Leu Val Arg Ala
50 55 60

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

Lys Gly Leu Leu Thr Val Ala Ser Ala Val Ile Ala Val Leu Trp Gly
85 90 95

Arg Pro Ser Glu Val Thr Gly Glu Asn Glu Ala Gln His Asp
100 105 110

<210> 328
<211> 330
<212> DNA
<213> Homo sapiens

<400> 328
aaagggagtg tggagaggcg ctcggtgagc ctggggcatc ctgctgaggg ttgggcatgg 60

gcagagagga gcctccagcc aggcatgacc acagccaaca caggctgcct ctcattccac 120

cacagagggt gcctcctccc tgttttgccc aaattacact gtgggctagg tggactacct 180

cttgtcagag ctaaagaaat caagcgagtg cagagggcag gggagagttc gctgcctgtg 240

aagggccttc tcaccgtcgc ttcggctgtc atcgcagtcc tgtggggtag gccaagcgag 300

gtcacaggag aaaatgaggc tcagcatgat 330

<210> 329
<211> 75
<212> PRT
<213> Homo sapiens

<400> 329

Phe Gly Leu Thr Thr Leu Ala Gly Arg Ser Ser His Gly Thr Ser Gly
1 5 10 15

Leu Arg Ala Ala Thr His Thr Lys Ser Gly Asp Gly Gly Gln Gly Ala
20 25 30

Ala Arg Gln Cys Glu Lys Leu Leu Glu Leu Ala Arg Ala Thr Arg Pro
35 40 45

Trp Gly Arg Ser Thr Ser Ala Ser Ser Arg Trp Thr His Arg Gly Tyr
50 55 60

Met Cys Pro Pro Arg Cys Ala Val Ala Cys Trp
65 70 75

<210> 330
<211> 225
<212> DNA
<213> Homo sapiens

<400> 330
tttggcctca ccacacttgc aggtagaagc tcccacggga cctcaggact gagggcagcc 60

acacacacca agtctgggga cggtggccag ggggctgcca ggcagtgtga gaagctcctg 120

gagctggccc gggctaccag accctggggg aggagtacgt cagcatcatc caggtggacc 180

catcgcggat acatgtgccc tcctcgctgc gccgtggcgt gctgg 225

<210> 331
<211> 29
<212> PRT
<213> Homo sapiens

<400> 331

Ile Ile Asp Ser Asp Lys Ile Met Ala Val Cys Met Gly Cys Leu Leu
1 5 10 15

Thr Arg His Val Gln Cys Gln Ala Met Glu Met Gln Gln
20 25

<210> 332
<211> 87
<212> DNA
<213> Homo sapiens

<400> 332
attattgaca gcgacaagat aatggcagtg tgcatggggt gcctgctcac acgtcatgtg 60

caatgccagg ccatggagat gcaacag 87

<210> 333
<211> 49
<212> PRT
<213> Homo sapiens

<400> 333

Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln Asp
1 5 10 15

Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg Asn
20 25 30

Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala
35 40 45

Cys

<210> 334
<211> 147
<212> DNA
<213> Homo sapiens

<400> 334
gatggccact cctacacatc caaggtgaat tgtttactcc ttcaagatgg gttccatggc 60

tgtgtgagca tcaccggggc agctggaaga agaaacctga gcatcttcct gttcttgatg 120

ctgtgcaaat tggagttcca tgcttgt 147

<210> 335
<211> 70
<212> PRT
<213> Homo sapiens

<400> 335

Leu Leu Asn Ala Glu Asp Tyr Arg Cys Ala Ile His Ser Lys Glu Ile
1 5 10 15

Tyr Leu Leu Ser Pro Ser Pro His Gln Ala Met Asp Lys Phe Ser Leu
20 25 30

Cys Cys Ile Asn Cys Asn Leu Cys Leu His Val Phe Leu Leu Leu Leu
35 40 45

Phe Phe Gln Asn Lys Asp Val Trp Leu Ile Ser Asn Ile Ile Leu Leu
50 55 60

Trp Ile Tyr Gly Gly Ile
65 70

<210> 336
<211> 210
<212> DNA
<213> Homo sapiens

<400> 336
ctactaaatg cagaagatta ccggtgtgcc attcattcaa aagagattta tcttctttcc 60

ccctcccccc accaggcaat ggacaagttt tctctctgct gcatcaactg caatctatgt 120

ttacatgtat tccttttact actatttttt caaaacaaag atgtatggct tatttcaaac 180

atcattttac tttggatata tggcggtatt 210

<210> 337
<211> 33
<212> PRT
<213> Homo sapiens

<400> 337

Thr Gly Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln Ser Leu Pro
1 5 10 15

Ser Thr Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu Ile Thr Glu
20 25 30

Leu

<210> 338
<211> 99
<212> DNA
<213> Homo sapiens

<400> 338
acaggggga aaagcacctg ctcggctcct ggccctcagt ctctcccctc cactccattc 60

tccacctacc cacagtgggt cattctgatc accgaactg 99

<210> 339
<211> 28
<212> PRT
<213> Homo sapiens

<400> 339

Val Glu Thr Leu Glu Asn Ala Asn Ser Phe Ser Ser Gly Ile Gln Pro
1 5 10 15

Leu Leu Cys Ser Leu Ile Gly Leu Glu Asn Pro Thr
20 25

<210> 340
<211> 84
<212> DNA
<213> Homo sapiens

<400> 340

gtggagaccc tggagaatgc caacagcttc tccagcggga tccagccact cctctgttcc 60

ctgattggcc tggagaatcc cacc 84

<210> 341
<211> 38
<212> PRT
<213> Homo sapiens

<400> 341

Ala Gly Ala Gly Thr Ile Ser Glu Gly Ser Val Leu His Gly Gln Arg
1 5 10 15

Leu Glu Cys Asp Ala Arg Arg Phe Phe Gly Cys Gly Thr Thr Ile Leu
20 25 30

Ala Glu Trp Glu His His
35

<210> 342
<211> 114
<212> DNA
<213> Homo sapiens

<400> 342
gctggggctg gaacaatttc cgaaggtagt gttctccatg gtcagaggct ggagtgtgat 60

gccagacgtt tttttgggtg tgggactaca atactggcag agtgggagca ccat 114

<210> 343
<211> 17
<212> PRT
<213> Homo sapiens

<400> 343

Gly Val Pro Gly Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn Thr
1 5 10 15

Phe

<210> 344
<211> 51
<212> DNA

<213> Homo sapiens

<400> 344
ggagttccag gagattcaac caggagagca gtgaggagaa tgaatacctt c 51

<210> 345
<211> 20
<212> PRT
<213> Homo sapiens

<400> 345

His Val Val Gly Tyr Gly His Leu Asp Thr Ser Gly Ser Ser Ser Ser
1 5 10 15

Ser Ser Trp Pro
20

<210> 346
<211> 60
<212> DNA
<213> Homo sapiens

<400> 346
cacgtggtgg gctatggcca ccttgatact tccgggtcat cctcctcctc ctcctggccc 60

<210> 347
<211> 64
<212> PRT
<213> Homo sapiens

<400> 347

Trp Thr Pro Ile Pro Val Leu Thr Arg Trp Pro Leu Pro His Pro Pro
1 5 10 15

Pro Trp Arg Arg Ala Thr Ser Cys Arg Met Ala Arg Ser Ser Pro Ser
20 25 30

Ala Thr Ser Gly Ser Ser Val Arg Arg Arg Cys Ser Ser Leu Pro Ser
35 40 45

Trp Val Trp Asn Leu Ala Ala Ser Thr Arg Pro Arg Ser Thr Pro Ser
50 55 60

<210> 348
<211> 196
<212> DNA
<213> Homo sapiens

<400> 348
tggacgccca tcccggtgct cacgagatgg ccactaccac atcctcctcc ctggagaaga 60

gctacaagct gccggatggc caggtcatca ccatcagcaa caagcggttc cagtgtccgg 120

aggcgctgtt ccagccttcc ttcctgggta tggaatcttg cggcatccac gagaccacgt 180

tcaactccat catgaa 196

<210> 349
<211> 16
<212> PRT
<213> Homo sapiens

<400> 349

Ser Leu Tyr His Arg Glu Lys Gln Leu Ile Ala Met Asp Ser Ala Ile
1 5 10 15

<210> 350
<211> 48
<212> DNA
<213> Homo sapiens

<400> 350
tccctctacc accgggagaa gcagctcatt gctatggaca gtgctatc 48

<210> 351
<211> 43
<212> PRT
<213> Homo sapiens

<400> 351

Leu His Pro Gln Arg Glu Thr Phe Thr Pro Arg Trp Ser Gly Ala Asn
1 5 10 15

Tyr Trp Lys Leu Ala Phe Pro Val Gly Ala Glu Gly Thr Phe Pro Ala
20 25 30

Ala Ala Thr Gln Arg Gly Val Val Arg Pro Ala
35 40

<210> 352
<211> 131
<212> DNA
<213> Homo sapiens

<400> 352
cttcatcctc agagggaaac attcactccc cggtggtcgg gcgcgaatta ctggaaattg 60

gcttttcccg ttggggccga aggtaccttc cctgcggcgg cgactcagcg gggtgtcgtt 120

cggccggcgt g 131

<210> 353
<211> 35
<212> PRT
<213> Homo sapiens

<400> 353

Asn Ser Lys Met Ala Leu Asn Ser Leu Asn Ser Ile Asp Asp Ala Gln
1 5 10 15

Leu Thr Arg Ile Ala Pro Pro Arg Ser His Cys Cys Phe Trp Glu Val
20 25 30

Asn Ala Pro
35

<210> 354
<211> 105
<212> DNA
<213> Homo sapiens

<400> 354
aacagcaaga tggctttgaa ctcattaaac tccattgatg atgcacagtt gacaagaatt 60

gcccctccaa gatctcattg ctgtttctgg gaagtaaacg ctcct 105

<210> 355
<211> 50
<212> PRT
<213> Homo sapiens

<400> 355

Met Ala Gly Gly Val Leu Arg Arg Leu Leu Cys Arg Glu Pro Asp Arg
1 5 10 15

Asp Gly Asp Lys Gly Ala Ser Arg Glu Glu Thr Val Val Pro Leu His
            20   25   30

Ile Gly Asp Pro Val Val Leu Pro Gly Ile Gly Gln Cys Tyr Ser Ala
        35   40   45

Leu Phe
    50

<210> 356
<211> 151
<212> DNA
<213> Homo sapiens

<400> 356
atggctggag gagtccttcg gcggctgttg tgtcgggagc ctgatcgcga tggggacaaa 60

ggcgcaagtc gagaggaaac tgttgtgcct cttcatattg gcgatcctgt tgtgctccct 120

ggcattgggc agtgttacag tgcactcttc t   151

<210> 357
<211> 39
<212> PRT
<213> Homo sapiens

<400> 357

Asp Asp Arg Asn Thr Phe Asp Ile Val Trp Trp Cys Pro Met Ser Arg
1   5   10   15

Leu Arg Leu Ala Leu Thr Val Pro Pro Ser Thr Thr Thr Thr Cys Val
            20   25   30

Thr Val Pro Ala Trp Ala Ala
        35

<210> 358
<211> 120
<212> DNA
<213> Homo sapiens

<400> 358
gatgacagaa acactttcga catagtgtgg tggtgcccta tgagccgcct gaggttggct 60

ctgactgtac caccatccac tacaactaca tgtgtaacag ttcctgcatg ggcggcatga 120

<210> 359
<211> 17
<212> PRT
<213> Homo sapiens

<400> 359

Val Gln Pro Ile Ala Arg Glu Leu Tyr Gln Phe Thr Phe Asp Leu Leu
1 5 10 15

Ile

<210> 360
<211> 51
<212> DNA
<213> Homo sapiens

<400> 360
gtgcagccta ttgcgagaga gctgcatcag ttcacttttg acctgctaat c 51

<210> 361
<211> 17
<212> PRT
<213> Homo sapiens

<400> 361

Gln Met Ala Val Ile Gln Tyr Ser Cys Met Gly Leu Met Val Phe Ala
1 5 10 15

Met

<210> 362
<211> 51
<212> DNA
<213> Homo sapiens

<400> 362
cagatggctg tcattcagta ctcctgcatg gggctcatgg tgtttgccat g 51

<210> 363

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

<400> 363

Pro Lys Ser Glu Val Arg Ala Lys Cys Lys Phe Ser Ile Leu Asn Ala
1 5 10 15

Lys

<210> 364
<211> 50
<212> DNA
<213> Homo sapiens

<400> 364
caaagagtga agttcgggca aaattcaaat gctccatcct gaatgccaag 50

<210> 365
<211> 17
<212> PRT
<213> Homo sapiens

<400> 365

Met Met Ala Glu Ile Ile Ser Val His Val Pro Lys Ile Leu Ser Gly
1 5 10 15

Lys

<210> 366
<211> 51
<212> DNA
<213> Homo sapiens

<400> 366
atgatggcag agatcatctc tgtgcacgtg cccaagatcc tttctgggaa a 51

<210> 367
<211> 17
<212> PRT
<213> Homo sapiens

<400> 367

Leu His Pro Asp Ser Gly Asn Met Val Glu Asn Gly Cys Tyr Leu Arg
1 5 10 15

Arg

<210> 368
<211> 51
<212> DNA
<213> Homo sapiens

<400> 368
ctgcacccgg actccggcaa catggtcgag aacggctgct acttgcgccg c 51

<210> 369
<211> 17
<212> PRT
<213> Homo sapiens

<400> 369

Cys Tyr Leu Arg Arg Gln Lys Arg Leu Lys Cys Glu Lys Gln Pro Gly
1 5 10 15

Ala

<210> 370
<211> 51
<212> DNA
<213> Homo sapiens

<400> 370
tgctacttgc gccgccagaa gcgcttgaag tgcgagaagc agccgggggc c 51

<210> 371
<211> 17
<212> PRT
<213> Homo sapiens

<400> 371

Met Phe Glu Asn Gly Cys Tyr Leu Gly Arg Gln Lys Arg Phe Lys Cys
1 5 10 15

Glu

<210> 372
<211> 51
<212> DNA
<213> Homo sapiens

<400> 372
atgttcgaga acggctgcta cttgggccgc cagaagcgct tcaagtgcga g 51

<210> 373
<211> 16
<212> PRT
<213> Homo sapiens

<400> 373

Asp Ser Ser Gly Asn Leu Leu Glu Arg Asn Ser Phe Glu Val Arg Val
1 5 10 15

<210> 374
<211> 48
<212> DNA
<213> Homo sapiens

<400> 374
gactccagtg gtaatctact ggaacggaac agctttgagg tgcgtgtt 48

<210> 375
<211> 61
<212> PRT
<213> Homo sapiens

<400> 375

Val Phe Phe Lys Arg Ala Ala Glu Gly Phe Phe Arg Met Asn Lys Leu
1 5 10 15

Lys Glu Ser Ser Asp Thr Asn Pro Lys Pro Tyr Cys Met Ala Ala Pro
20 25 30

Met Gly Leu Thr Glu Asn Asn Arg Asn Arg Lys Lys Ser Tyr Arg Glu
35 40 45

Thr Asn Leu Lys Ala Val Ser Trp Pro Leu Asn His Thr

50 55 60

<210> 376
<211> 183
<212> DNA
<213> Homo sapiens

<400> 376
gtcttcttca aaagagccgc tgaaggattt ttcagaatga acaaattaaa agaatcatca 60

gacactaacc ccaagccata ctgcatggca gcaccaatgg gactgacaga aaacaacaga 120

aataggaaga aatcctacag agaaacaaac ttgaaagctg tctcatggcc tttgaatcat 180

act 183

<210> 377
<211> 15
<212> PRT
<213> Homo sapiens

<400> 377

Leu Thr Phe Leu Asp Phe Ile Gln Val Thr Leu Arg Val Met Ser
1 5 10 15

<210> 378
<211> 15
<212> PRT
<213> Homo sapiens

<400> 378

Val Thr Leu Arg Val Met Ser Gly Ser Gln Met Glu Asn Gly Ser
1 5 10 15

<210> 379
<211> 24
<212> PRT
<213> Homo sapiens

<400> 379

Tyr Glu Ala Gly Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn Cys
1 5 10 15

Lys His Leu Lys Met Thr Arg Pro
20

<210> 380
<211> 72
<212> DNA
<213> Homo sapiens

<400> 380
tatgaagcag ggatgactct gggagaaaaa ttccgggttg gcaattgcaa gcatctcaaa 60

atgaccagac cc 72

<210> 381
<211> 28
<212> PRT
<213> Homo sapiens

<400> 381

Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu Phe
1 5 10 15

Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe
20 25

<210> 382
<211> 84
<212> DNA
<213> Homo sapiens

<400> 382
tatgaagcag ggatgactct gggaggtaag atacttttct ttctcttcct cctccttcct 60

ctctcccccct tctccctcat tttc 84

<210> 383
<211> 16
<212> PRT
<213> Homo sapiens

<400> 383

Gly Tyr Leu Arg Met Gln Gly Leu Met Ala Gln Arg Leu Leu Leu Arg
1 5 10 15

<210> 384
<211> 48
<212> DNA

<213> Homo sapiens

<400> 384
gggtacctga ggatgcaggg actcatggct cagcgacttc ttctgagg 48

<210> 385
<211> 48
<212> PRT
<213> Homo sapiens

<400> 385

Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln Asp
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Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg Asn
20 25 30

Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala
35 40 45

<210> 386
<211> 144
<212> DNA
<213> Homo sapiens

<400> 386
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tgtgtgagca tcaccggggc agctggaaga agaaacctga gcatcttcct gttcttgatg 120

ctgtgcaaat tggagttcca tgct 144

<210> 387
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<212> PRT
<213> Homo sapiens

<400> 387

Ser Thr Arg Arg Ala Val Arg Arg Met
1 5

<210> 388
<211> 9
<212> PRT
<213> Homo sapiens

<400> 388

Arg Ala Val Arg Arg Met Asn Thr Phe
1   5

<210> 389
<211> 9
<212> PRT
<213> Homo sapiens

<400> 389

Ile Pro Val Leu Thr Arg Trp Pro Leu
1   5

<210> 390
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<212> PRT
<213> Homo sapiens

<400> 390

Gln Leu Ile Ala Met Asp Ser Ala Ile
1   5

<210> 391
<211> 9
<212> PRT
<213> Homo sapiens

<400> 391

Phe Pro Val Gly Ala Glu Gly Thr Phe
1   5

<210> 392
<211> 9
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<213> Homo sapiens

<400> 392

Asn Ser Lys Met Ala Leu Asn Ser Leu
1   5

<210> 393
<211> 9

<212> PRT
<213> Homo sapiens

<400> 393

Gly Val Leu Arg Arg Leu Leu Cys Arg
1   5

<210> 394
<211> 9
<212> PRT
<213> Homo sapiens

<400> 394

Cys Pro Met Ser Arg Leu Arg Leu Ala
1   5

<210> 395
<211> 9
<212> PRT
<213> Homo sapiens

<400> 395

Tyr Gln Phe Thr Phe Asp Leu Leu Ile
1   5

<210> 396
<211> 9
<212> PRT
<213> Homo sapiens

<400> 396

Ile Gln Tyr Ser Cys Met Gly Leu Met
1   5

<210> 397
<211> 9
<212> PRT
<213> Homo sapiens

<400> 397

Arg Ala Lys Cys Lys Phe Ser Ile Leu
1   5

<210> 398
<211> 9
<212> PRT
<213> Homo sapiens

<400> 398

His Val Pro Lys Ile Leu Ser Gly Lys
1 5

<210> 399
<211> 9
<212> PRT
<213> Homo sapiens

<400> 399

Asn Met Val Glu Asn Gly Cys Tyr Leu
1 5

<210> 400
<211> 9
<212> PRT
<213> Homo sapiens

<400> 400

Tyr Leu Arg Arg Gln Lys Arg Leu Lys
1 5

<210> 401
<211> 9
<212> PRT
<213> Homo sapiens

<400> 401

Cys Tyr Leu Gly Arg Gln Lys Arg Phe
1 5

<210> 402
<211> 9
<212> PRT
<213> Homo sapiens

<400> 402

Leu Leu Glu Arg Asn Ser Phe Glu Val
1 5

<210> 403
<211> 9
<212> PRT
<213> Homo sapiens

<400> 403

Tyr Cys Met Ala Ala Pro Met Gly Leu
1   5

<210> 404
<211> 9
<212> PRT
<213> Homo sapiens

<400> 404

Phe Phe Lys Arg Ala Ala Glu Gly Phe
1   5

<210> 405
<211> 9
<212> PRT
<213> Homo sapiens

<400> 405

Arg Val Gly Asn Cys Lys His Leu Lys
1   5

<210> 406
<211> 9
<212> PRT
<213> Homo sapiens

<400> 406

Phe Leu Phe Leu Leu Leu Pro Leu Ser
1   5

<210> 407
<211> 9
<212> PRT
<213> Homo sapiens

<400> 407

Leu Met Ala Gln Arg Leu Leu Leu Arg
1   5

<210> 408
<211> 9
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<213> Homo sapiens

<400> 408

Ile Val Trp Trp Cys Pro Met Ser Arg
1   5

<210> 409
<211> 9
<212> PRT
<213> Homo sapiens

<400> 409

Cys Thr Glu Leu Lys Leu Ser Asp Tyr
1   5

<210> 410
<211> 9
<212> PRT
<213> Homo sapiens

<400> 410

Asn Leu Val Pro Met Val Ala Thr Val
1   5

<210> 411
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<213> Homo sapiens

<400> 411

Leu Ile Tyr Arg Arg Arg Leu Met Lys
1   5

<210> 412
<211> 9
<212> PRT
<213> Homo sapiens

<400> 412

Leu Tyr Ser Ala Cys Phe Trp Trp Leu
1 5

<210> 413
<211> 9
<212> PRT
<213> Homo sapiens

<400> 413

Asn Pro Lys Ala Ser Leu Leu Ser Leu
1 5

<210> 414
<211> 9
<212> PRT
<213> Homo sapiens

<400> 414

Glu Leu Arg Ser Arg Tyr Trp Ala Ile
1 5

<210> 415
<211> 15
<212> PRT
<213> Homo sapiens

<400> 415

Ser Gln Met Glu Asn Gly Ser Ser Tyr Phe Phe Lys Pro Phe Ser
1 5 10 15

<210> 416
<211> 9
<212> PRT
<213> Homo sapiens

<400> 416

Ile Val Thr Asp Phe Ser Val Ile Lys
1 5

<210> 417
<211> 15
<212> PRT

<213> Homo sapiens

<400> 417

Tyr Phe Phe Lys Pro Phe Ser Trp Gly Leu Gly Val Gly Leu Ser
1 5 10 15

<210> 418
<211> 15
<212> PRT
<213> Homo sapiens

<400> 418

Phe Met Ile Gly Glu Leu Val Gly Glu Leu Cys Cys Gln Leu Thr
1 5 10 15

<210> 419
<211> 15
<212> PRT
<213> Homo sapiens

<400> 419

Glu Leu Cys Cys Gln Leu Thr Phe Arg Leu Pro Phe Leu Glu Ser
1 5 10 15

<210> 420
<211> 15
<212> PRT
<213> Homo sapiens

<400> 420

Arg Leu Pro Phe Leu Glu Ser Leu Cys Gln Ala Val Val Thr Gln
1 5 10 15

<210> 421
<211> 9
<212> PRT
<213> Homo sapiens

<400> 421

Lys Leu Ser Arg Ala Leu Arg Tyr Tyr
1 5

<210> 422

<211> 9
<212> PRT
<213> Homo sapiens

<400> 422

Met Val Phe Glu Leu Ala Asn Ser Ile
1 5

<210> 423
<211> 9
<212> PRT
<213> Homo sapiens

<400> 423

Ile Leu Phe Gln Asn Ile Asp Gly Lys
1 5

<210> 424
<211> 9
<212> PRT
<213> Homo sapiens

<400> 424

Lys Ile Val Ile Ala Arg Tyr Gly Lys
1 5

<210> 425
<211> 9
<212> PRT
<213> Homo sapiens

<400> 425

Phe Leu Leu Glu Leu Leu Ser Asp Ser
1 5

<210> 426
<211> 10
<212> PRT
<213> Homo sapiens

<400> 426

Val Thr Phe Leu Lys Pro Cys Phe Leu Leu
1 5 10

<210> 427
<211> 8
<212> PRT
<213> Homo sapiens

<400> 427

Thr Asp Ile Val Lys Gln Ser Val
1   5

<210> 428
<211> 10
<212> PRT
<213> Homo sapiens

<400> 428

Ser Pro Ala Phe Pro Lys Pro Val Arg Pro
1   5   10

<210> 429
<211> 12
<212> PRT
<213> Homo sapiens

<400> 429

Ser Tyr Phe Ser Leu Thr Asn Ile Phe Asn Phe Val
1   5   10

<210> 430
<211> 12
<212> PRT
<213> Homo sapiens

<400> 430

Glu Phe Ser Pro Glu Thr Cys Ala Phe Arg Leu Ser
1   5   10

<210> 431
<211> 9
<212> PRT
<213> Homo sapiens

<400> 431

Phe Leu Ser Arg Ala Leu Arg Ala Leu

1 5

<210> 432
<211> 8
<212> PRT
<213> Homo sapiens

<400> 432

Lys Lys Asp Leu Glu Leu Ile Leu
1 5

<210> 433
<211> 8
<212> PRT
<213> Homo sapiens

<400> 433

Lys Leu Gln Lys Asn Cys Leu Leu
1 5

<210> 434
<211> 9
<212> PRT
<213> Homo sapiens

<400> 434

Ser Ala Leu Ser Gly Asn Ser Trp Val
1 5

<210> 435
<211> 7
<212> PRT
<213> Homo sapiens

<400> 435

Thr Val Arg Ala Ile Leu Leu
1 5

<210> 436
<211> 10
<212> PRT
<213> Homo sapiens

<400> 436

Gly Ser Leu His Phe His Glu Val Leu Lys
1   5   10

<210> 437
<211> 75
<212> PRT
<213> Homo sapiens

<400> 437

His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr Asp
1   5   10   15

Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser
            20   25   30

Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp
        35   40   45

Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro
    50   55   60

Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln
65   70   75

<210> 438
<211> 40
<212> PRT
<213> Homo sapiens

<400> 438

Trp Thr Asp Ile Val Lys Gln Ser Val Ser Thr Asn Cys Ile Ser Ile
1   5   10   15

Lys Lys Gly Ser Tyr Thr Lys Leu Phe Ser Leu Val Phe Leu Ile Phe
            20   25   30

Cys Trp Pro Leu Ile Ile Gln Leu
        35   40

<210> 439
<211> 144

<212> PRT
<213> Homo sapiens

<400> 439

Arg Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile Tyr Arg Leu Cys
1   5   10   15

Cys Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala Arg Ser Pro Ala
            20   25   30

Phe Pro Lys Pro Val Arg Pro Leu Pro Ala Pro Ile Thr Arg Ile Thr
        35   40   45

Pro Gln Leu Gly Gly Gln Ser Asp Ser Ser Gln Pro Leu Leu Thr Thr
    50   55   60

Gly Arg Pro Gln Gly Trp Gln Asp Gln Ala Leu Arg His Thr Gln Gln
65   70   75   80

Ala Ser Pro Ala Ser Cys Ala Thr Ile Thr Ile Pro Ile His Ser Ala
                85   90   95

Ala Leu Gly Asp His Ser Gly Asp Pro Gly Pro Ala Trp Asp Thr Cys
            100   105   110

Pro Pro Leu Pro Leu Thr Thr Leu Ile Pro Arg Ala Pro Pro Pro Tyr
        115   120   125

Gly Asp Ser Thr Ala Arg Ser Trp Pro Ser Arg Cys Gly Pro Leu Gly
    130   135   140

<210> 440
<211> 36
<212> PRT
<213> Homo sapiens

<400> 440

Leu Arg Tyr Gly Ala Leu Cys Asn Val Ser Arg Ile Ser Tyr Phe Ser
1   5   10   15

Leu Thr Asn Ile Phe Asn Phe Val Ile Lys Ser Leu Thr Ala Ile Phe

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            20                  25                  30

Thr Val Lys Phe
        35


<210>  441
<211>  295
<212>  PRT
<213>  Homo sapiens

<400>  441

Arg Lys Glu Arg Asn Ile Arg Lys Ser Glu Ser Thr Leu Arg Leu Ser
1               5                  10                  15


Pro Phe Pro Thr Pro Ala Pro Ser Gly Ala Pro Ala Ala Ala Gln Gly
            20                  25                  30


Lys Val Val Arg Val Pro Gly Pro Ala Gly Gly Leu Val Pro Arg Asp
        35                  40                  45


Ala Gly Ala Arg Leu Leu Pro Pro Ala Gly Gly Pro Gly Gly Gly Ala
    50                  55                  60


Ala Ala Gly Glu Gly Arg Ala Gly Arg Gly Arg Phe Pro Ser Ile Thr
65                  70                  75                  80


Glu Pro Arg Pro Arg Asp Leu Pro Pro Arg Val Ala Thr Gly Arg Arg
                85                  90                  95


Ala Gly Gly Arg Arg Lys Gly Ala Gly Gln Gly Val Arg Thr Arg Pro
            100                 105                 110


Leu Pro Ala Ser Trp Pro Gly Gly Arg Gly Pro Phe Arg Lys Gly Pro
        115                 120                 125


Arg Arg Leu Pro Leu Gly Ser Gly Pro Pro Ala Ala Gly Val Gln Arg
    130                 135                 140


Leu Arg Cys Ser His Leu Ser Arg Gly Pro Arg Arg Arg Arg Gly Arg
145                 150                 155                 160
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Val Cys Gly Arg Ala Cys Val Ser Pro Pro Leu Pro Pro Arg Pro Pro
                165                 170                 175

Pro Val Gly Leu Ser Ala Glu Asn Leu Ser Trp Leu Ser Ser Gly Leu
            180                 185                 190

Pro Arg Ala Cys Ser Trp Arg Glu Phe Ser Pro Glu Thr Cys Ala Phe
        195                 200                 205

Arg Leu Ser Gly Leu Asp Ser Lys Leu Ser Ala Arg Val Glu Arg Asp
    210                 215                 220

Leu Gly Ala Leu Arg Ala Pro Gly Ser Arg Ala Ala Gln Gly Gly Gly
225                 230                 235                 240

Arg Val Arg Gly Ser Arg Ser Glu Trp Lys Thr Arg Pro Trp Arg Pro
                245                 250                 255

Pro Pro Ala Trp Pro Leu Thr Arg Ala Gly Gly Pro Leu Pro Lys Asn
            260                 265                 270

Pro Phe Leu Glu Ser Cys Ser Glu Thr Ala Gln Arg Arg Arg Val Phe
        275                 280                 285

Ser Phe Ser Thr Pro Leu Ser
    290                 295
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<210> 442
<211> 67
<212> PRT
<213> Homo sapiens

<400> 442

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Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu Val Phe
1               5                   10                  15

Leu Gln Glu Ile Gln Ile Cys Cys His Val Ser Cys Leu Cys Cys Ile
            20                  25                  30

Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu Phe Leu
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```
        35                  40                  45

Ser Arg Ala Leu Arg Ala Leu His Val Leu Trp Asn Gly Phe Gln Leu
    50                  55                  60

His Cys Gln
65
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<210> 443
<211> 82
<212> PRT
<213> Homo sapiens

<400> 443

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Ser Ile Asn Lys Ala Thr Ile Thr Gly Lys Lys Asp Leu Glu Leu Ile
1               5                   10                  15

Leu His Val Ser Arg Lys Lys Pro Phe Leu Pro Arg Val Asn Ile Thr
            20                  25                  30

Pro Thr Pro Ile Ser Cys Cys Asn Leu Lys Met Leu Lys Lys Phe Phe
        35                  40                  45

Leu Leu Tyr Ile Ile Ile Ser Ile Ile Asp Leu Thr Asn Cys Leu Ser
    50                  55                  60

Cys Tyr Leu Glu His Phe Tyr Arg Phe Thr Phe Phe Thr Asp Val His
65                  70                  75                  80

Tyr Phe
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<210> 444
<211> 16
<212> PRT
<213> Homo sapiens

<400> 444

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Thr Met Pro Ala Ile Leu Lys Leu Gln Lys Asn Cys Leu Leu Ser Leu
1               5                   10                  15
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<210> 445
<211> 84
<212> PRT
<213> Homo sapiens

<400> 445

Pro Tyr Tyr Ser Ala Leu Ser Gly Asn Ser Trp Val Pro Ser Thr Leu
1   5   10   15

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

Ala Leu Asn Asp Gln Glu Ser Ile Leu Trp Pro Thr Leu Thr Ser Val
        35   40   45

Val Ser Cys Ala Leu Ser Cys Pro Ser Leu Asn Leu Pro Glu Asn Trp
    50   55   60

Leu Thr Leu Ile Thr Gly Gly Met Lys Gly Gly Lys Lys Met Lys Phe
65   70   75   80

Thr Phe Arg His

<210> 446
<211> 46
<212> PRT
<213> Homo sapiens

<400> 446

Gly Leu Arg Asn Leu Gly Asn Thr Val Arg Ala Ile Leu Leu Ser Phe
1   5   10   15

Leu Ser Lys Arg Asn Val Lys Trp Cys Trp Gly Trp Gly Lys Pro Thr
            20   25   30

Ser Leu Gly Lys Ala Cys Gly Arg Arg Ala Leu Lys Leu Phe
        35   40   45

<210> 447
<211> 22
<212> PRT

<213> Homo sapiens

<400> 447

Met Glu Ala Glu Asn Ala Gly Ser Leu His Phe His Glu Val Leu Lys
1 5 10 15

Met Gly His Val Lys Phe
20

<210> 448
<211> 225
<212> DNA
<213> Homo sapiens

<400> 448
cactacaaat taattcaaca acccatatcc ctcttctcca tcactgatag gctccataag 60

acgttcagtc agctgccctc ggtccatctc tgctcaatca ccttccagtg gggacacccg 120

cccattttct gctcaacaaa tgatatctgt gtcacggcca acttctgcat ctcggtcaca 180

ttccttaaac cgtgcttcct cctacatgag gcatctgcct cacag 225

<210> 449
<211> 120
<212> DNA
<213> Homo sapiens

<400> 449
tggactgata tagttaagca gtctgtaagt acaaactgca tttctatcaa gaaaggtagc 60

tatacaaaac tgttttcctt agtctttctt attttctgtt ggccattaat tattcagttg 120

<210> 450
<211> 432
<212> DNA
<213> Homo sapiens

<400> 450
aggaccgccc tgacacacaa tcaggacttc tctatctaca ggctctgttg caagaggggg 60

tccctctgcc acgcttccca ggccagatcc ccggctttcc cgaagccggt cagacctctt 120

cctgccccca tcaccagaat caccccccaa ctgggggggac aatctgactc gagtcaaccc 180

cttctcacta cgggaagacc tcaggggtgg caagatcaag ctcttagaca cacccagcaa 240

gccagtcctg cctcttgtgc caccatcacc attcccatcc actcagctgc ccttggtgac 300

cactccggag accctggtcc agcctgggac acctgcccgc cgctgccgct cactaccctc 360

atcccccgag ctcccccgcc gtatggagac agcactgcca ggtcctggcc ctcccgctgt 420

gggcccctcg gc 432

<210> 451
<211> 108
<212> DNA
<213> Homo sapiens

<400> 451
cttcgctatg gtgccttatg caatgtaagt agaataagtt atttcagtct aacaaatata 60

tttaattttg taattaaatc actaactgct atttttactg tgaaattt 108

<210> 452
<211> 885
<212> DNA
<213> Homo sapiens

<400> 452
cgaaaagaga gaaacatccg aaaaagtgag tccacgctgc gcctgtcccc gttccccacc 60

cccgccccgt cgggggcgcc cgcggccgcg caggggaaag ttgtccgggt ccccgggccg 120

gcgggcgggc tggtcccccg ggacgctggc gctcggctcc tgcccccggc gggcggcccg 180

gggggagggg cggcggcggg ggaggggcgc gcgggccgcg gccggttccc tagcatcacg 240

gagcctcgac cccgcgacct cccgccccgg gtcgccaccg gccggcgggc gggaggccgg 300

cggaaaggcg ccgggcaggg cgtgcgcacc cgtcccttgc ccgcgagctg gcccgggggt 360

cgcggccctt tccggaaggg gccccggcgt ctgccgctgg gctccggccc gcccgctgcg 420

ggagtgcagc ggctgcgttg ctcccacctg agccgcgggc cgaggaggcg gaggggccga 480

gtgtgcggga gggcgtgtgt ctcgcctccc cttcctcccc ggcccccgcc tgtcggcctt 540

tctgctgaga acctaagctg gttgtcaagt ggtttgcctc gggcgtgttc ctggcgcgag 600

ttcagccccg agacctgtgc gtttcggctc tcgggtttgg attcgaaact ttccgctcgg 660

gttgagcgtg acttgggtgc gctgcgggcg ccggggtcgc gggctgcgca gggcggtggg 720

cgtgtgcgcg ggagccggtc ggagtggaaa acgcgcccgt ggcggccacc tccagcctgg 780

ccgctcaccc gagcaggggg gccgctgccc aagaaccctt tcctggagag ctgctccgag 840

accgcacagc gccgccgcgt cttctccttt tccactcctc tctcc 885

<210> 453
<211> 201
<212> DNA
<213> Homo sapiens

<400> 453
tatgcttaca aggactttct ctggtgtttt ccttttttctt tagtttttct ccaagagatt 60

caaatctgct gccatgttag ctgtctttgc tgtatctgct gtagtacacg aatatgcctt 120

ggctgtttgc ttgagctttt tctatcccgt gctcttcgtg ctcttcatgt tctttggaat 180

ggctttcaac ttcattgtca a 201

<210> 454
<211> 246
<212> DNA
<213> Homo sapiens

<400> 454
tccatcaaca aagccaccat aacaggtaag aaagatctgg agcttattct tcatgtgtct 60

aggaagaaac catttctgcc aagagtcaat ataacaccaa caccaatttc atgctgcaat 120

ttgaaaatgt taaagaaatt ctttcttctc tacattatca tttctatcat tgatctcaca 180

aattgtctaa gctgttattt ggaacatttt taccgattta cgtttttttac tgatgtacat 240

tatttt 246

<210> 455
<211> 48
<212> DNA
<213> Homo sapiens

<400> 455
accatgcctg ctattttaaa gttacagaag aattgtcttc tctcctta 48

<210> 456
<211> 252
<212> DNA
<213> Homo sapiens

<400> 456
ccatactaca gcgcactgtc aggtaacagc tgggttccca gcaccctgga aagtgacccg 60

tttggctatg tttttagccc cttagcaaca cggccagctc tcaatgacca agagtccatc 120

ttgtggccga ccctgacttc tgtggtttcc tgtgctctat cctgcccatc tcttaactta 180

cctgagaatt ggctcactct catcacaggt ggaatgaaag ggggaaaaaa aatgaaattc 240

acattcagac ac 252

<210> 457
<211> 138
<212> DNA
<213> Homo sapiens

<400> 457
ggccttcgaa acctgggaaa cacggtgaga gctattctcc tatctttcct ctctaaaagg 60

aatgtgaaat ggtgctgggg gtggggaaaa cccacgagct tggggaaggc atgtggaagg 120

agagctctga agctcttc 138

<210> 458
<211> 66
<212> DNA
<213> Homo sapiens

<400> 458
atggaagcgg agaacgcggg cagtttgcat tttcatgaag tgctcaaaat gggacatgtg 60

aaattc 66

<210> 459
<211> 81
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 459
tggaagttcg agatgagcta caccgtcggc ggacctccac ctcatgttca tgccagacct 60

cggcactgga aaaccgacag a 81

<210> 460
<211> 84
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 460
tatgaggccg gcatgacact cggcggcaag atcctgttct tcctgttcct gctgctccct 60

ctgagcccct tcagcctgat cttc 84

<210> 461
<211> 147
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 461
gatggccaca gctacaccag caaagtgaac tgcctcctgc tgcaggatgg cttccacggc 60

tgtgtgtcta ttactggcgc cgctggcaga cggaacctga gcatctttct gtttctgatg 120

ctgtgcaagc tcgagttcca cgcctgc 147

<210> 462
<211> 99
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 462
acaggcggca agtccacatg ttctgcccct ggacctcaga gcctgcctag cacacccttc 60

agcacatacc ctcagtgggt catcctgatc accgaactc 99

<210> 463
<211> 42
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 463
gtgctgagat tcctggacct gaaagtgcgc tacctgcaca gc 42

<210> 464
<211> 54
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 464
gactattggg ctcaaaaaga gaagggcagc agcagcttcc tgcggcctag ctgt 54

<210> 465
<211> 183
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 465
gtccccttca gagagctgaa gaacgtttcc gtgctggaag gcctgagaca gggcagactt 60

ggcggccctt gtagctgtca ctgccccaga cctagtcagg ccagactgac acctgtggat 120

gtggccggac ctttcctgtg tctgggagat cctggcctgt ttccacctgt gaagtccagc 180

atc 183

<210> 466
<211> 177
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 466
ggcatggaat gcaccctggg acaagtggga gccccatctc ctagaagaga agaggatggc 60

tggcgcggag gccactctag attcaaagct gatgtgcccg ctcctcaggg cccttgttgg 120

ggaggacaac ctggatctgc cccatcttct gccccacctg aacagtccct gctggat 177

<210> 467
<211> 96
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 467
ggcaacacaa ccctccagca actgggagaa gcctctcagg ctcctagcgg ctctctgatc 60

cctctcagac tgcctctcct gtgggaagtt cggggc 96

<210> 468
<211> 129
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 468
gaggctttcc aaagagctgc tggcgaaggc ggacctggta gaggtggtgc tagaagaggt 60

gctagggtgc tgcagagccc attctgtaga gcaggcgcag gcgaatggct gggccatcag 120

agtctgaga 129

<210> 469
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 469
gattattggg cccagaaaga aaagatcagc atccccagaa cacacctgtg c 51

<210> 470
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 470
gtggccatga tggtgcccga tagacaggtc cactacgact ttggactg 48

<210> 471
<211> 270
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 471
gtgcccttcc gggaactgaa gaaccagaga acagctcagg gcgctcctgg aatccaccat 60

gctgcttctc cagtggccgc caacctgtgt gatcctgcca gacatgccca gcacaccagg 120

attccttgtg gcgctggaca agtgcgcgct ggaagaggac ctgaagcagg cggaggtgtt 180

ctgcaacctc aaagacccgc tcctgagaag cctggctgcc cttgcagaag aggacagcct 240

agactgcaca ccgtgaaaat gtggcgagcc 270

<210> 472
<211> 33
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 472
aagagaagct ttgccgtgac cgagcggatc atc 33

<210> 473
<211> 150
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 473
ttcaagaagt tcgacggccc ttgcggagaa agaggcggag gcagaacagc tagagccctt 60

tgggctagag gcgacagcgt tctgacacca gctctggacc ctcagacacc tgttagggcc 120

cctagcctga caagagctgc cgccgctgtg 150

<210> 474
<211> 42
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 474
ctggtgctgg gagtgctgtc tggacactct ggcagcagac tg 42

<210> 475
<211> 66
<212> DNA

<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 475
cagtggcagc actatcacag atctggcgaa gccgccggaa cacccctttg gaggccaaca 60

agaaac 66

<210> 476
<211> 285
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 476
tgccacttgt ttctgcagcc ccaagtgggc acacctcctc cacatacagc ctctgctaga 60

gcacctagcg gccctccaca tcctcacgaa tcttgtcctg ccggaagaag gcctgccaga 120

gccgctcaaa catgtgccag acgacagcac ggactgcctg gatgtgaaga ggctggaaca 180

gccagagtgc ctagcctgca cctccatctg catcaggctg ctcttggagc cggaagaggt 240

agaggatggg gcgaagcttg tgctcaggtg ccaccttcta gaggc 285

<210> 477
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 477
aagatccaga acaagaactg ccccgac 27

<210> 478
<211> 225
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 478
cactacaagc tgatccagca gccaatcagc ctgttcagca tcaccgaccg gctgcacaag 60

acattcagcc agctgccaag cgtgcacctg tgctccatca ccttccagtg gggacaccct 120

cctatctttt gctccaccaa cgacatctgc gtgaccgcca acttctgtat cagcgtgacc 180

ttcctgaagc cttgctttct gctgcacgag gccagcgcct ctcag 225

<210> 479
<211> 432
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 479
cgaaccgctc tgacacacaa ccaggacttc agcatctaca gactgtgttg caagcggggc 60

tccctgtgcc atgcaagcca agctagaagc cccgcctttc ctaaacctgt gcgacctctg 120

ccagctccaa tcaccagaat tacccctcag ctcggcggcc agagcgattc atctcaacct 180

ctgctgacca ccggcagacc tcaaggctgg caagaccaag ctctgagaca cacccagcag 240

gctagccctg cctcttgtgc caccatcaca atccccatcc actctgccgc tctgggcgat 300

cattctggcg atcctggacc agcctgggac acatgtcctc cactgccact cacaacactg 360

atccctaggg ctcctccacc ttacggcgat tctaccgcta gaagctggcc cagcagatgt 420

ggaccactcg ga 432

<210> 480
<211> 201
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 480
tacgcctaca aggacttcct gtggtgcttc cccttctctc tggtgttcct gcaagagatc 60

cagatctgct gtcatgtgtc ctgcctgtgc tgcatctgct gtagcaccag aatctgcctg 120

ggctgtctgc tggaactgtt cctgagcaga gccctgagag cactgcacgt gctgtggaac 180

ggattccagc tgcactgcca g 201

<210> 481

<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 481
acaatgcccg ccatcctgaa gctgcagaag aattgcctcc taagcctg 48

<210> 482
<211> 72
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 482
tacgaagccg ggatgaccct gggcgagaag ttcagagtgg gcaactgcaa gcacctgaag 60

atgacccggc ct 72

<210> 483
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 483
ggcgtgccag gcgatagcac tcggagagcc gtcagacgga tgaacacctt t 51

<210> 484
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 484
tgtggcgcct ctgcctgtga cgtgtccctg atcgctatgg actccgcc 48

<210> 485
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 485
agcctgtacc accgggaaaa gcagctcatt gccatggaca gcgccatc 48

<210> 486
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 486
accgagtaca accagaaact gcaagtgaac cagttcagcg agagcaag 48

<210> 487
<211> 72
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 487
accgagatca gctgctgcac cctgagcagc gaggaaaacg agtacctgcc tagacctgag 60

tggcagctgc ag 72

<210> 488
<211> 42
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 488
tgcgaagaga gaggcgccgc aggatctctg atctcctgcg aa 42

<210> 489
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 489
aacagcaaga tggccctgaa tagcgaggcc ctgtctgtgg tgtctgaa 48

<210> 490
<211> 210
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 490
tggggcatgg aactggccgc cagcagaaga ttcagctggg atcatcatag cgcaggcggc 60

ccacctagag tgccatctgt tagaagcgga gctgcccagg tgcagcctaa agatcctctg 120

ccactgagaa cactggccgg ctgccttgct agaacagccc atcttagacc tggcgccgag 180

tctctgcctc agccacaact gcactgtacc 210

<210> 491
<211> 60
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 491
catgtcgtcg gctacggcca cctggataca agcggaagca gctctagctc cagctggcct 60

<210> 492
<211> 105
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 492
aactcaaaaa tggctctgaa cagcctgaac tccatcgacg acgcccagct gacaagaatc 60

gcccctccta gatctcactg ctgcttttgg gaagtgaacg cccca 105

<210> 493
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 493
aagatgcact ttagcctgaa agaacaccct ccaccacctt gtcctcca 48

<210> 494
<211> 207
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 494
ctgtggttcc agtccagcga gctgtctcct actggtgccc cttggccatc tagacgccct 60

acttggagag gcaccaccgt gtcaccaaga accgccacaa gcagcgccag aacctgttgt 120

ggcacaaagt ggccctccag ccaagaagcc gctctcggac ttggaagcgg actgctgagg 180

ttctcttgtg gaaccgccgc cattcgg 207

<210> 495
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 495
atcgctagag agctgcacca gttcgccttc gacctgctga tcaagagcca c 51

<210> 496
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 496
cagcctgatt cttttgccgc actgcacagc tccctgaacg agctgggaga g 51

<210> 497
<211> 51
<212> DNA

<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 497
ttcgtgcaag gcaaggattg gggcctcaaa aagtttatcc gcagagactt c 51

<210> 498
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 498
tttgtgcagg gcaaagactg gggcgtgaag aagttcatcc ggcgggactt c 51

<210> 499
<211> 204
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 499
cagaacctgc agaacggcgg aggctctaga agctctgcta cacttcctgg caggcggcgg 60

agaagatggc tgagaagaag gcggcagcct atctctgtgg ctcctgctgg acctcctaga 120

cggcccaacc agaagcctaa tcctcctggc ggagccagat gcgtgatcat gaggcctaca 180

tggcctggca ccagcgcctt cacc 204

<210> 500
<211> 81
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 500
tggaagttcg agatgagcta caccgttggc ggccctccac cacatgttca cgccagacct 60

agacactgga aaaccgacag a 81

<210> 501
<211> 84
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 501
tacgaggccg gcatgacact cggaggcaag atcctgttct tcctgttcct gctgctccct 60

ctgagcccct tcagcctgat cttt 84

<210> 502
<211> 15
<212> PRT
<213> Homo sapiens

<400> 502

Cys Gln Ala Val Val Thr Gln Ala Leu Arg Phe Asn Pro Ser Phe
1 5 10 15

<210> 503
<211> 99
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 503
acaggcggca agagcacatg ttctgcccct ggacctcagt ctctgcccag cacacccttc 60

agcacatacc ctcagtgggt catcctgatc accgagctg 99

<210> 504
<211> 42
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 504
gtgctgcggt tcctggatct caaagtgcgc tacctgcaca gc 42

<210> 505
<211> 54

<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 505
gattattggg cccagaaaga aaagggcagc agcagcttcc tgcggcctag ctgt 54

<210> 506
<211> 183
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 506
gtgcccttcc gggaactgaa gaacgtgtcc gttctggaag gcctgaggca gggcagactt 60

ggcggacctt gtagctgcca ctgtcctaga ccaagccagg ccagactgac ccctgtggat 120

gtggctggcc catttctgtg tctgggcgac cctggactgt tccctccagt gaagtctagc 180

atc 183

<210> 507
<211> 177
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 507
ggcatggaat gtacactggg ccaagtggga gccccatctc ctagaagaga agaggatggc 60

tggcgcggag gccactctag attcaaagct gatgtgcccg ctcctcaggg cccttgttgg 120

ggaggacaac ctggatctgc cccatcttct gccccacctg aacagagcct gctggat 177

<210> 508
<211> 96
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 508

ggcaacacca cactgcaaca gctgggagaa gcctctcagg ccccaagcgg ttctctgatc 60

cctctcagac tgcccctcct gtgggaagtg cggggc 96

<210> 509
<211> 129
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 509
gaggctttcc agagagcagc tggcgaaggc ggacctggca gaggtggtgc tagaagaggt 60

gctagagtgc tgcagagccc attctgtaga gctggcgctg gcgaatggct gggccaccaa 120

tctcttaga 129

<210> 510
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 510
gactattggg ctcaaaaaga gaagatcagc atccccagaa cacacctgtg c 51

<210> 511
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 511
gtggccatga tggtgcccga cagacaggtg cactacgact tcggcctg 48

<210> 512
<211> 270
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 512
gtgcccttca gagagctgaa aaaccagaga acagcccagg gcgctcctgg aatccatcat 60

gctgcttctc cagtggccgc caatctgtgc gatcctgcca gacatgccca gcataccagg 120

attccttgtg gcgctggaca agtgcgcgct ggaagaggac ctgaagctgg tggcggagtt 180

ctgcagcctc aaagacctgc tcctgagaag cctggctgcc cctgtagaag aggacagcct 240

agactgcaca ccgtgaagat gtggcgggcc 270

<210> 513
<211> 33
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 513
aagagaagct tcgccgtgac cgagcggatc atc 33

<210> 514
<211> 150
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 514
tttaagaagt ttgacggccc ctgcggcgag agaggcggag gaagaactgc aagagccctt 60

tgggccagag gcgactctgt tctgacacca gctctggacc ctcagacacc tgttagggcc 120

cctagcctga caagagctgc cgctgctgtt 150

<210> 515
<211> 42
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 515
ctggtgctgg gcgtgctgtc tggccactct ggaagcagac tg 42

<210> 516

<211> 66
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 516
caatggcagc actaccacag atctggcgaa gccgctggaa ccccactttg gaggcctacc 60

agaaac 66

<210> 517
<211> 285
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 517
tgccacttgt ttctccagcc acaagtgggc acccctccac ctcatacagc ctctgctaga 60

gcacctagcg gcccacctca tcctcacgaa tcttgtcctg ccggaagaag gcctgccaga 120

gccgctcaaa catgtgccag acgacagcac ggactgcccg gatgtgaaga agccggaaca 180

gccagagtgc ctagcctgca ccttcatctg catcaggccg ctcttggagc cggaagaggt 240

agaggatggg gagaagcttg tgcccaggtg ccaccttcta gaggc 285

<210> 518
<211> 15
<212> PRT
<213> Homo sapiens

<400> 518

Leu Arg Phe Asn Pro Ser Phe Gln Glu Val Cys Ile Tyr Gln Asp
1 5 10 15

<210> 519
<211> 225
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 519

cactacaagc tgatccagca gccaatcagc ctgttctcca tcaccgaccg gctgcacaag 60

acattcagcc agctgccttc cgtgcatctg tgcagcatca ccttccagtg gggacaccct 120

cctatctttt gctccaccaa cgacatctgc gtgaccgcca acttctgtat cagcgtgacc 180

ttcctgaagc cttgctttct gctgcacgag gcctccgcca gccag 225

<210> 520
<211> 432
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 520
cggaccgctc tgacccacaa ccaggacttc agcatctacc ggctgtgctg caagaggggc 60

tctctgtgtc atgctagcca ggctagaagc cccgcctttc ctaagcctgt cagacctctg 120

cctgctccta tcaccagaat caccctcag ctcggcggcc agtctgattc atctcagcca 180

ctgctgacca ccggcagacc tcaaggatgg caagaccagg ctctgagaca cacacagcag 240

gctagcccag cctcttgcgc caccatcaca ataccaatac attctgccgc tctgggcgat 300

cacagcggag atcctggacc tgcctgggat acttgtcctc ctctgcccct aactacactg 360

atccctaggg ctcctccacc ttacggcgat agcacagcca gatcctggcc tagcagatgt 420

ggccctctgg gc 432

<210> 521
<211> 201
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 521
tacgcctaca aggacttcct gtggtgcttc cccttctctc tggtgttcct gcaagaaatc 60

cagatctgct gtcacgtgtc ctgcctgtgc tgtatctgct gtagcacccg gatctgtctg 120

ggctgtctgc tggaactgtt cctgagcaga gccctgagag cactgcacgt gctgtggaac 180

ggattccagc tgcactgcca g 201

<210> 522
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 522
accatgcctg ccattctgaa gctgcagaag aattgtcttc taagcctg 48

<210> 523
<211> 72
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 523
tatgaggctg gaatgaccct gggcgagaag ttcagagtgg gcaactgcaa gcacctgaag 60

atgacccggc ct 72

<210> 524
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 524
ggagtgcctg gcgattctac tagaagggcc gtgcggcgga tgaacacctt t 51

<210> 525
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 525
tgtggcgcat ctgcctgcga cgtgtccctg atcgctatgg atagcgcc 48

<210> 526
<211> 11
<212> PRT

<213> Homo sapiens

<400> 526

Glu Val Cys Ile Tyr Gln Asp Thr Asp Leu Met
1 5 10

<210> 527
<211> 15
<212> PRT
<213> Homo sapiens

<400> 527

Trp Cys Pro Leu Asp Leu Arg Leu Gly Ser Thr Gly Cys Leu Thr
1 5 10 15

<210> 528
<211> 72
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 528
accgagatca gctgctgcac cctgagcagc gaggaaaacg agtacctgcc tagacctgaa 60

tggcagctgc ag 72

<210> 529
<211> 42
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 529
tgcgaggaaa gaggcgcagc cggatctctg atctcttgcg ag 42

<210> 530
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 530
aacagcaaga tggccctgaa tagcgaggcc ctgtctgtgg tgtccgag 48

<210> 531
<211> 210
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 531
tggggaatgg aactggccgc tagcaggcgg tttagctggg atcatcattc tgccggcgga 60

cctccaagag tgccaagcgt tagaagcgga gcagcccagg tccagcctaa agatccactg 120

ccactgagaa cactggccgg ctgccttgcc agaacagctc atcttagacc tggcgccgaa 180

agcctgcctc aacctcagct gcattgcaca 210

<210> 532
<211> 60
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 532
cacgttgtcg gctatggcca cctggataca agcggctcct ctagcagtag ctcctggcct 60

<210> 533
<211> 105
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 533
aattctaaga tggctctcaa cagcctgaac tccatcgacg acgcccagct gacaagaatc 60

gcccctccaa gaagccactg ttgcttttgg gaagtgaacg cccct 105

<210> 534
<211> 48
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 534
aagatgcact tctcactgaa agagcacccg ccaccgccgt gcccaccg 48

<210> 535
<211> 207
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 535
ctgtggttcc agtccagcga actgtctcct actggcgctc catggccaag cagaaggcct 60

acttggagag gcaccaccgt gtctccaaga accgctacaa gcagcgccag aacctgttgc 120

ggcacaaaat ggccctccag ccaagaagct gccctcggac ttggaagcgg actgctgaga 180

ttcagctgtg gcacagccgc catcaga 207

<210> 536
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 536
atcgccagag aactgcacca gttcgccttc gacctgctga tcaagagcca c 51

<210> 537
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 537
cagcctgaca gctttgctgc cctgcatagc tccctgaatg agctgggcga a 51

<210> 538
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

<400> 538
tttgtgcagg gtaaagattg gggcctcaaa aagtttatca gacgggactt c 51

<210> 539
<211> 51
<212> DNA
<213> Artificial sequence

<220>
<223> Codon-optimized polynucleotide

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Gly Arg Arg Arg Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser

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Val Ala Pro Ala Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro
        35                  40                  45

Pro Gly Gly Ala Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr
    50                  55                  60

Ser Ala Phe Thr Lys Arg Ser Phe Ala Val Thr Glu Arg Ile Ile Asp
65                  70                  75                  80

Tyr Trp Ala Gln Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser
                85                  90                  95

Cys Asp Tyr Trp Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His
            100                 105                 110

Leu Cys Leu Val Leu Gly Val Leu Ser Gly His Ser Gly Ser Arg Leu
        115                 120                 125

Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu Phe
    130                 135                 140

Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Thr Glu Ile Ser
145                 150                 155                 160

Cys Cys Thr Leu Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu
                165                 170                 175

Trp Gln Leu Gln Val Pro Phe Arg Glu Leu Lys Asn Val Ser Val Leu
            180                 185                 190

Glu Gly Leu Arg Gln Gly Arg Leu Gly Gly Pro Cys Ser Cys His Cys
        195                 200                 205

Pro Arg Pro Ser Gln Ala Arg Leu Thr Pro Val Asp Val Ala Gly Pro
    210                 215                 220

Phe Leu Cys Leu Gly Asp Pro Gly Leu Phe Pro Pro Val Lys Ser Ser
225                 230                 235                 240
```

```
Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln Ser Leu
                245                 250                 255

Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu Ile Thr
            260                 265                 270

Glu Leu Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro
        275                 280                 285

Arg Arg Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala
    290                 295                 300

Asp Val Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser
305                 310                 315                 320

Ala Pro Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Trp Lys Phe
                325                 330                 335

Glu Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg
            340                 345                 350

Pro Arg His Trp Lys Thr Asp Arg Asp Gly His Ser Tyr Thr Ser Lys
        355                 360                 365

Val Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile
    370                 375                 380

Thr Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met
385                 390                 395                 400

Leu Cys Lys Leu Glu Phe His Ala Cys Lys Ile Gln Asn Lys Asn Cys
                405                 410                 415

Pro Asp Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly
            420                 425                 430

Arg Thr Ala Arg Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro
        435                 440                 445
```

```
Ala Leu Asp Pro Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala
    450                 455                 460

Ala Ala Ala Val His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe
465                 470                 475                 480

Ser Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val
                485                 490                 495

His Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys
            500                 505                 510

Ser Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr
        515                 520                 525

Phe Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Cys
    530                 535                 540

His Leu Phe Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala
545                 550                 555                 560

Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro
                565                 570                 575

Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln
            580                 585                 590

His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser
        595                 600                 605

Leu His Leu His Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg
    610                 615                 620

Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro Ser Arg Gly Val Leu
625                 630                 635                 640

Arg Phe Leu Asp Leu Lys Val Arg Tyr Leu His Ser Gln Trp Gln His
                645                 650                 655
```

```
Tyr His Arg Ser Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr
            660                 665                 670

Arg Asn Val Pro Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly
        675                 680                 685

Ala Pro Gly Ile His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys
    690                 695                 700

Asp Pro Ala Arg His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly
705                 710                 715                 720

Gln Val Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln
                725                 730                 735

Pro Gln Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly
            740                 745                 750

Gln Pro Arg Leu His Thr Val Lys Met Trp Arg Ala Val Ala Met Met
        755                 760                 765

Val Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu Gly Val Pro Gly
    770                 775                 780

Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn Thr Phe Tyr Glu Ala
785                 790                 795                 800

Gly Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu
                805                 810                 815

Lys Met Thr Arg Pro Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu
            820                 825                 830

Ser Val Val Ser Glu Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile
        835                 840                 845

Ala Met Asp Ser Ala Phe Val Gln Gly Lys Asp Trp Gly Val Lys Lys
    850                 855                 860

Phe Ile Arg Arg Asp Phe Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe
```

```
865                 870                 875                 880

Pro Phe Ser Leu Val Phe Leu Gln Glu Ile Gln Ile Cys Cys His Val
                885                 890                 895

Ser Cys Leu Cys Cys Ile Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys
            900                 905                 910

Leu Leu Glu Leu Phe Leu Ser Arg Ala Leu Arg Ala Leu His Val Leu
        915                 920                 925

Trp Asn Gly Phe Gln Leu His Cys Gln Thr Glu Tyr Asn Gln Lys Leu
    930                 935                 940

Gln Val Asn Gln Phe Ser Glu Ser Lys Ser Leu Tyr His Arg Glu Lys
945                 950                 955                 960

Gln Leu Ile Ala Met Asp Ser Ala Ile Cys Glu Glu Arg Gly Ala Ala
                965                 970                 975

Gly Ser Leu Ile Ser Cys Glu Thr Met Pro Ala Ile Leu Lys Leu Gln
            980                 985                 990

Lys Asn Cys Leu Leu Ser Leu Arg  Thr Ala Leu Thr His  Asn Gln Asp
        995                 1000                1005

Phe Ser  Ile Tyr Arg Leu Cys  Cys Lys Arg Gly Ser  Leu Cys His
    1010                1015                1020

Ala Ser  Gln Ala Arg Ser Pro  Ala Phe Pro Lys Pro  Val Arg Pro
    1025                1030                1035

Leu Pro  Ala Pro Ile Thr Arg  Ile Thr Pro Gln Leu  Gly Gly Gln
    1040                1045                1050

Ser Asp  Ser Ser Gln Pro Leu  Leu Thr Thr Gly Arg  Pro Gln Gly
    1055                1060                1065

Trp Gln  Asp Gln Ala Leu Arg  His Thr Gln Gln Ala  Ser Pro Ala
    1070                1075                1080
```

```
Ser Cys  Ala Thr Ile Thr Ile  Pro Ile His Ser Ala  Ala Leu Gly
    1085                1090                1095

Asp His  Ser Gly Asp Pro Gly  Pro Ala Trp Asp Thr  Cys Pro Pro
    1100                1105                1110

Leu Pro  Leu Thr Thr Leu Ile  Pro Arg Ala Pro Pro  Pro Tyr Gly
    1115                1120                1125

Asp Ser  Thr Ala Arg Ser Trp  Pro Ser Arg Cys Gly  Pro Leu Gly
    1130                1135                1140

Gly Asn  Thr Thr Leu Gln Gln  Leu Gly Glu Ala Ser  Gln Ala Pro
    1145                1150                1155

Ser Gly  Ser Leu Ile Pro Leu  Arg Leu Pro Leu Leu  Trp Glu Val
    1160                1165                1170

Arg Gly  Gln Pro Asp Ser Phe  Ala Ala Leu His Ser  Ser Leu Asn
    1175                1180                1185

Glu Leu  Gly Glu Ile Ala Arg  Glu Leu His Gln Phe  Ala Phe Asp
    1190                1195                1200

Leu Leu  Ile Lys Ser His Phe  Val Gln Gly Lys Asp  Trp Gly Leu
    1205                1210                1215

Lys Lys  Phe Ile Arg Arg Asp  Phe Trp Gly Met Glu  Leu Ala Ala
    1220                1225                1230

Ser Arg  Arg Phe Ser Trp Asp  His His Ser Ala Gly  Gly Pro Pro
    1235                1240                1245

Arg Val  Pro Ser Val Arg Ser  Gly Ala Ala Gln Val  Gln Pro Lys
    1250                1255                1260

Asp Pro  Leu Pro Leu Arg Thr  Leu Ala Gly Cys Leu  Ala Arg Thr
    1265                1270                1275
```

```
Ala His  Leu Arg Pro Gly Ala  Glu Ser Leu Pro Gln  Pro Gln Leu
    1280                1285                1290

His Cys  Thr Leu Trp Phe Gln  Ser Ser Glu Leu Ser  Pro Thr Gly
    1295                1300                1305

Ala Pro  Trp Pro Ser Arg Arg  Pro Thr Trp Arg Gly  Thr Thr Val
    1310                1315                1320

Ser Pro  Arg Thr Ala Thr Ser  Ser Ala Arg Thr Cys  Cys Gly Thr
    1325                1330                1335

Lys Trp  Pro Ser Ser Gln Glu  Ala Ala Leu Gly Leu  Gly Ser Gly
    1340                1345                1350

Leu Leu  Arg Phe Ser Cys Gly  Thr Ala Ala Ile Arg  Lys Met His
    1355                1360                1365

Phe Ser  Leu Lys Glu His Pro  Pro Pro Pro Cys Pro  Pro Glu Ala
    1370                1375                1380

Phe Gln  Arg Ala Ala Gly Glu  Gly Gly Pro Gly Arg  Gly Gly Ala
    1385                1390                1395

Arg Arg  Gly Ala Arg Val Leu  Gln Ser Pro Phe Cys  Arg Ala Gly
    1400                1405                1410

Ala Gly  Glu Trp Leu Gly His  Gln Ser Leu Arg His  Val Val Gly
    1415                1420                1425

Tyr Gly  His Leu Asp Thr Ser  Gly Ser Ser Ser Ser  Ser Ser Trp
    1430                1435                1440

Pro Asn  Ser Lys Met Ala Leu  Asn Ser Leu Asn Ser  Ile Asp Asp
    1445                1450                1455

Ala Gln  Leu Thr Arg Ile Ala  Pro Pro Arg Ser His  Cys Cys Phe
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Trp Glu Val Asn Ala Pro
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35 40 45

Pro Gly Gly Ala Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr
50 55 60

Ser Ala Phe Thr Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro
65 70 75 80

Ser Pro Arg Arg Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe
85 90 95

Lys Ala Asp Val Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro
100 105 110

Gly Ser Ala Pro Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp
115 120 125

Tyr Trp Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys
130 135 140

Trp Lys Phe Glu Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val
145 150 155 160

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His Ala Arg Pro Arg His Trp Lys Thr Asp Arg Asp Tyr Trp Ala Gln
                165                 170                 175

Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe
            180                 185                 190

Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg
        195                 200                 205

Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg
    210                 215                 220

Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro
225                 230                 235                 240

Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Thr Glu Ile Ser Cys Cys
                245                 250                 255

Thr Leu Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln
            260                 265                 270

Leu Gln Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe
        275                 280                 285

Leu Phe Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Leu Val
    290                 295                 300

Leu Gly Val Leu Ser Gly His Ser Gly Ser Arg Leu Lys Arg Ser Phe
305                 310                 315                 320

Ala Val Thr Glu Arg Ile Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala
                325                 330                 335

Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln
            340                 345                 350

Trp Val Ile Leu Ile Thr Glu Leu Asp Gly His Ser Tyr Thr Ser Lys
        355                 360                 365

Val Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile
```

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    370                 375                 380

Thr Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met
385                 390                 395                 400

Leu Cys Lys Leu Glu Phe His Ala Cys Gln Trp Gln His Tyr His Arg
                405                 410                 415

Ser Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Val
            420                 425                 430

Ala Met Met Val Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu Lys
        435                 440                 445

Ile Gln Asn Lys Asn Cys Pro Asp Val Leu Arg Phe Leu Asp Leu Lys
    450                 455                 460

Val Arg Tyr Leu His Ser Val Pro Phe Arg Glu Leu Lys Asn Gln Arg
465                 470                 475                 480

Thr Ala Gln Gly Ala Pro Gly Ile His His Ala Ala Ser Pro Val Ala
                485                 490                 495

Ala Asn Leu Cys Asp Pro Ala Arg His Ala Gln His Thr Arg Ile Pro
            500                 505                 510

Cys Gly Ala Gly Gln Val Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly
        515                 520                 525

Gly Val Leu Gln Pro Gln Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro
    530                 535                 540

Cys Arg Arg Gly Gln Pro Arg Leu His Thr Val Lys Met Trp Arg Ala
545                 550                 555                 560

Cys His Leu Phe Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr
                565                 570                 575

Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys
            580                 585                 590
```

```
Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg
        595                 600                 605

Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro
    610                 615                 620

Ser Leu His Leu His Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly
625                 630                 635                 640

Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro Ser Arg Gly His
                645                 650                 655

Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr Asp Arg
            660                 665                 670

Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser Ile
        675                 680                 685

Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp Ile
    690                 695                 700

Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro Cys
705                 710                 715                 720

Phe Leu Leu His Glu Ala Ser Ala Ser Gln Phe Lys Lys Phe Asp Gly
                725                 730                 735

Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg Ala Leu Trp Ala
            740                 745                 750

Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro Gln Thr Pro Val
        755                 760                 765

Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val Gly Val Pro Gly
    770                 775                 780

Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn Thr Phe Cys Gly Ala
785                 790                 795                 800
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Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser Ala Cys Glu Glu
                805                 810                 815

Arg Gly Ala Ala Gly Ser Leu Ile Ser Cys Glu Ser Leu Tyr His Arg
            820                 825                 830

Glu Lys Gln Leu Ile Ala Met Asp Ser Ala Ile Phe Val Gln Gly Lys
        835                 840                 845

Asp Trp Gly Val Lys Lys Phe Ile Arg Arg Asp Phe Thr Met Pro Ala
    850                 855                 860

Ile Leu Lys Leu Gln Lys Asn Cys Leu Leu Ser Leu Asn Ser Lys Met
865                 870                 875                 880

Ala Leu Asn Ser Glu Ala Leu Ser Val Val Ser Glu Tyr Glu Ala Gly
                885                 890                 895

Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys
            900                 905                 910

Met Thr Arg Pro Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe
        915                 920                 925

Ser Glu Ser Lys Arg Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile
    930                 935                 940

Tyr Arg Leu Cys Cys Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala
945                 950                 955                 960

Arg Ser Pro Ala Phe Pro Lys Pro Val Arg Pro Leu Pro Ala Pro Ile
                965                 970                 975

Thr Arg Ile Thr Pro Gln Leu Gly Gly Gln Ser Asp Ser Ser Gln Pro
            980                 985                 990

Leu Leu Thr Thr Gly Arg Pro Gln  Gly Trp Gln Asp Gln  Ala Leu Arg
        995                 1000                1005
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```
His Thr  Gln Gln Ala Ser Pro  Ala Ser Cys Ala Thr  Ile Thr Ile
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Pro Ile  His Ser Ala Ala Leu  Gly Asp His Ser Gly  Asp Pro Gly
    1025                1030                1035

Pro Ala  Trp Asp Thr Cys Pro  Pro Leu Pro Leu Thr  Thr Leu Ile
    1040                1045                1050

Pro Arg  Ala Pro Pro Pro Tyr  Gly Asp Ser Thr Ala  Arg Ser Trp
    1055                1060                1065

Pro Ser  Arg Cys Gly Pro Leu  Gly Tyr Ala Tyr Lys  Asp Phe Leu
    1070                1075                1080

Trp Cys  Phe Pro Phe Ser Leu  Val Phe Leu Gln Glu  Ile Gln Ile
    1085                1090                1095

Cys Cys  His Val Ser Cys Leu  Cys Cys Ile Cys Cys  Ser Thr Arg
    1100                1105                1110

Ile Cys  Leu Gly Cys Leu Leu  Glu Leu Phe Leu Ser  Arg Ala Leu
    1115                1120                1125

Arg Ala  Leu His Val Leu Trp  Asn Gly Phe Gln Leu  His Cys Gln
    1130                1135                1140

Gly Asn  Thr Thr Leu Gln Gln  Leu Gly Glu Ala Ser  Gln Ala Pro
    1145                1150                1155

Ser Gly  Ser Leu Ile Pro Leu  Arg Leu Pro Leu Leu  Trp Glu Val
    1160                1165                1170

Arg Gly  Asn Ser Lys Met Ala  Leu Asn Ser Leu Asn  Ser Ile Asp
    1175                1180                1185

Asp Ala  Gln Leu Thr Arg Ile  Ala Pro Pro Arg Ser  His Cys Cys
    1190                1195                1200

Phe Trp  Glu Val Asn Ala Pro  Phe Val Gln Gly Lys  Asp Trp Gly
```

```
    1205                1210                1215

Leu Lys  Lys Phe Ile Arg Arg  Asp Phe Glu Ala Phe  Gln Arg Ala
    1220                1225                1230

Ala Gly  Glu Gly Gly Pro Gly  Arg Gly Gly Ala Arg  Arg Gly Ala
    1235                1240                1245

Arg Val  Leu Gln Ser Pro Phe  Cys Arg Ala Gly Ala  Gly Glu Trp
    1250                1255                1260

Leu Gly  His Gln Ser Leu Arg  Trp Gly Met Glu Leu  Ala Ala Ser
    1265                1270                1275

Arg Arg  Phe Ser Trp Asp His  His Ser Ala Gly Gly  Pro Pro Arg
    1280                1285                1290

Val Pro  Ser Val Arg Ser Gly  Ala Ala Gln Val Gln  Pro Lys Asp
    1295                1300                1305

Pro Leu  Pro Leu Arg Thr Leu  Ala Gly Cys Leu Ala  Arg Thr Ala
    1310                1315                1320

His Leu  Arg Pro Gly Ala Glu  Ser Leu Pro Gln Pro  Gln Leu His
    1325                1330                1335

Cys Thr  Ile Ala Arg Glu Leu  His Gln Phe Ala Phe  Asp Leu Leu
    1340                1345                1350

Ile Lys  Ser His Lys Met His  Phe Ser Leu Lys Glu  His Pro Pro
    1355                1360                1365

Pro Pro  Cys Pro Pro His Val  Val Gly Tyr Gly His  Leu Asp Thr
    1370                1375                1380

Ser Gly  Ser Ser Ser Ser Ser  Ser Trp Pro Gln Pro  Asp Ser Phe
    1385                1390                1395

Ala Ala  Leu His Ser Ser Leu  Asn Glu Leu Gly Glu  Leu Trp Phe
    1400                1405                1410
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Gln Ser Ser Glu Leu Ser Pro Thr Gly Ala Pro Trp Pro Ser Arg
    1415   1420   1425

Arg Pro Thr Trp Arg Gly Thr Thr Val Ser Pro Arg Thr Ala Thr
    1430   1435   1440

Ser Ser Ala Arg Thr Cys Cys Gly Thr Lys Trp Pro Ser Ser Gln
    1445   1450   1455

Glu Ala Ala Leu Gly Leu Gly Ser Gly Leu Leu Arg Phe Ser Cys
    1460   1465   1470

Gly Thr Ala Ala Ile Arg
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cggcccaacc agaagcctaa tcctcctggc ggagccagat gcgtgatcat gaggcctaca 180

tggcctggca ccagcgcctt taccggcatg gaatgtacac tgggccaagt gggagcccca 240

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cccgctcctc agggcccttg ttggggagga caacctggat ctgccccatc ttctgcccca 360

cctgaacaga gcctgctgga tgactattgg gctcaaaaag agaagatcag catccccaga 420

acacacctgt gctggaagtt cgagatgagc tacaccgttg gcggccctcc accacatgtt 480

cacgccagac ctagacactg gaaaaccgac agagattatt gggcccagaa agaaaagggc 540

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ctggaaggcc tgaggcaggg cagacttggc ggaccttgta gctgccactg tcctagacca 660

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tctctgccca gcacaccctt cagcacatac cctcagtggg tcatcctgat caccgagctg 1080

gatggccaca gctacaccag caaagtgaac tgcctcctgc tgcaggatgg cttccacggc 1140

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gccagagtgc ctagcctgca ccttcatctg catcaggccg ctcttggagc cggaagaggt 1920

agaggatggg gagaagcttg tgcccaggtg ccaccttcta gaggccacta caagctgatc 1980

cagcagccaa tcagcctgtt ctccatcacc gaccggctgc acaagacatt cagccagctg 2040

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accaacgaca tctgcgtgac cgccaacttc tgtatcagcg tgaccttcct gaagccttgc 2160

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gctctggacc ctcagacacc tgttagggcc cctagcctga caagagctgc cgctgctgtt 2340

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cactgccagg gcaacaccac actgcaacag ctgggagaag cctctcaggc cccaagcggt 3480

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<213> Homo sapiens

<400> 545
cgcgacttcg ccgcc 15

<210> 546
<211> 84
<212> DNA
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<223> T cell enhancer

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ctgaccagat cttctcaggc cgtg 84

<210> 547
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<213> Artificial seqeunce

<220>
<223> Tag seqeunce

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<212> PRT
<213> Homo sapiens

<400> 548

Ile Lys Ser Leu Thr Ala Ile Phe Thr Val Lys Phe
1 5 10

<210> 549
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> T cell enhancer

<400> 549

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1 5 10 15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val
20 25

<210> 550
<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 550

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1 5 10 15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gln Asn Leu Gln
20 25 30

Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
35 40 45

```
Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
    50                  55                  60

Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
65                  70                  75                  80

Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
                85                  90                  95

Lys Arg Ser Phe Ala Val Thr Glu Arg Ile Ile Asp Tyr Trp Ala Gln
            100                 105                 110

Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser Cys Asp Tyr Trp
        115                 120                 125

Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys Leu Val
    130                 135                 140

Leu Gly Val Leu Ser Gly His Ser Gly Ser Arg Leu Tyr Glu Ala Gly
145                 150                 155                 160

Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu Leu Pro
                165                 170                 175

Leu Ser Pro Phe Ser Leu Ile Phe Thr Glu Ile Ser Cys Cys Thr Leu
            180                 185                 190

Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln
        195                 200                 205

Val Pro Phe Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg
    210                 215                 220

Gln Gly Arg Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser
225                 230                 235                 240

Gln Ala Arg Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu
                245                 250                 255
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```
Gly Asp Pro Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Thr Gly Gly
            260                 265                 270

Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro
        275                 280                 285

Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu Ile Thr Glu Leu Gly Met
    290                 295                 300

Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg Glu Glu
305                 310                 315                 320

Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val Pro Ala
                325                 330                 335

Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro Ser Ser
            340                 345                 350

Ala Pro Pro Glu Gln Ser Leu Leu Asp Trp Lys Phe Glu Met Ser Tyr
        355                 360                 365

Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro Arg His Trp
    370                 375                 380

Lys Thr Asp Arg Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu
385                 390                 395                 400

Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala
                405                 410                 415

Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu
            420                 425                 430

Glu Phe His Ala Cys Lys Ile Gln Asn Lys Asn Cys Pro Asp Phe Lys
        435                 440                 445

Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg
    450                 455                 460

Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro
```

```
465                 470                 475                 480

Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
                485                 490                 495

His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr Asp
            500                 505                 510

Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser
        515                 520                 525

Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp
    530                 535                 540

Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro
545                 550                 555                 560

Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Cys His Leu Phe Leu
                565                 570                 575

Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser Ala Arg Ala
            580                 585                 590

Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala Gly Arg Arg
        595                 600                 605

Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His Gly Leu Pro
    610                 615                 620

Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu His Leu His
625                 630                 635                 640

Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg Gly Trp Gly Glu
                645                 650                 655

Ala Cys Ala Gln Val Pro Pro Ser Arg Gly Val Leu Arg Phe Leu Asp
            660                 665                 670

Leu Lys Val Arg Tyr Leu His Ser Gln Trp Gln His Tyr His Arg Ser
        675                 680                 685
```

```
Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Val Pro
    690                 695                 700

Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro Gly Ile
705                 710                 715                 720

His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys Asp Pro Ala Arg
                725                 730                 735

His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly Gln Val Arg Ala
            740                 745                 750

Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln Pro Gln Arg Pro
        755                 760                 765

Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro Arg Leu
    770                 775                 780

His Thr Val Lys Met Trp Arg Ala Val Ala Met Met Val Pro Asp Arg
785                 790                 795                 800

Gln Val His Tyr Asp Phe Gly Leu Gly Val Pro Gly Asp Ser Thr Arg
                805                 810                 815

Arg Ala Val Arg Arg Met Asn Thr Phe Tyr Glu Ala Gly Met Thr Leu
            820                 825                 830

Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg
        835                 840                 845

Pro Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu Ser Val Val Ser
    850                 855                 860

Glu Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser
865                 870                 875                 880

Ala Phe Val Gln Gly Lys Asp Trp Gly Val Lys Lys Phe Ile Arg Arg
                885                 890                 895
```

```
Asp Phe Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu
            900                 905                 910

Val Phe Leu Gln Glu Ile Gln Ile Cys Cys His Val Ser Cys Leu Cys
        915                 920                 925

Cys Ile Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu
    930                 935                 940

Phe Leu Ser Arg Ala Leu Arg Ala Leu His Val Leu Trp Asn Gly Phe
945                 950                 955                 960

Gln Leu His Cys Gln Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln
                965                 970                 975

Phe Ser Glu Ser Lys Ser Leu Tyr His Arg Glu Lys Gln Leu Ile Ala
            980                 985                 990

Met Asp Ser Ala Ile Cys Glu Glu  Arg Gly Ala Ala Gly  Ser Leu Ile
        995                 1000                1005

Ser Cys  Glu Thr Met Pro Ala  Ile Leu Lys Leu Gln  Lys Asn Cys
    1010                1015                1020

Leu Leu  Ser Leu Arg Thr Ala  Leu Thr His Asn Gln  Asp Phe Ser
    1025                1030                1035

Ile Tyr  Arg Leu Cys Cys Lys  Arg Gly Ser Leu Cys  His Ala Ser
    1040                1045                1050

Gln Ala  Arg Ser Pro Ala Phe  Pro Lys Pro Val Arg  Pro Leu Pro
    1055                1060                1065

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

Ser Ser  Gln Pro Leu Leu Thr  Thr Gly Arg Pro Gln  Gly Trp Gln
    1085                1090                1095
```

```
Asp Gln  Ala Leu Arg His Thr  Gln Gln Ala Ser Pro  Ala Ser Cys
    1100                 1105                 1110

Ala Thr  Ile Thr Ile Pro Ile  His Ser Ala Ala Leu  Gly Asp His
    1115                 1120                 1125

Ser Gly  Asp Pro Gly Pro Ala  Trp Asp Thr Cys Pro  Pro Leu Pro
    1130                 1135                 1140

Leu Thr  Thr Leu Ile Pro Arg  Ala Pro Pro Pro Tyr  Gly Asp Ser
    1145                 1150                 1155

Thr Ala  Arg Ser Trp Pro Ser  Arg Cys Gly Pro Leu  Gly Gly Asn
    1160                 1165                 1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                 1180                 1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                 1195                 1200

Gln Pro  Asp Ser Phe Ala Ala  Leu His Ser Ser Leu  Asn Glu Leu
    1205                 1210                 1215

Gly Glu  Ile Ala Arg Glu Leu  His Gln Phe Ala Phe  Asp Leu Leu
    1220                 1225                 1230

Ile Lys  Ser His Phe Val Gln  Gly Lys Asp Trp Gly  Leu Lys Lys
    1235                 1240                 1245

Phe Ile  Arg Arg Asp Phe Trp  Gly Met Glu Leu Ala  Ala Ser Arg
    1250                 1255                 1260

Arg Phe  Ser Trp Asp His His  Ser Ala Gly Gly Pro  Pro Arg Val
    1265                 1270                 1275

Pro Ser  Val Arg Ser Gly Ala  Ala Gln Val Gln Pro  Lys Asp Pro
    1280                 1285                 1290

Leu Pro  Leu Arg Thr Leu Ala  Gly Cys Leu Ala Arg  Thr Ala His
```

```
    1295                1300                1305

Leu Arg  Pro Gly Ala Glu Ser  Leu Pro Gln Pro Gln  Leu His Cys
    1310                1315                1320

Thr Leu  Trp Phe Gln Ser Ser  Glu Leu Ser Pro Thr  Gly Ala Pro
    1325                1330                1335

Trp Pro  Ser Arg Arg Pro Thr  Trp Arg Gly Thr Thr  Val Ser Pro
    1340                1345                1350

Arg Thr  Ala Thr Ser Ser Ala  Arg Thr Cys Cys Gly  Thr Lys Trp
    1355                1360                1365

Pro Ser  Ser Gln Glu Ala Ala  Leu Gly Leu Gly Ser  Gly Leu Leu
    1370                1375                1380

Arg Phe  Ser Cys Gly Thr Ala  Ala Ile Arg Lys Met  His Phe Ser
    1385                1390                1395

Leu Lys  Glu His Pro Pro Pro  Pro Cys Pro Pro Glu  Ala Phe Gln
    1400                1405                1410

Arg Ala  Ala Gly Glu Gly Gly  Pro Gly Arg Gly Gly  Ala Arg Arg
    1415                1420                1425

Gly Ala  Arg Val Leu Gln Ser  Pro Phe Cys Arg Ala  Gly Ala Gly
    1430                1435                1440

Glu Trp  Leu Gly His Gln Ser  Leu Arg His Val Val  Gly Tyr Gly
    1445                1450                1455

His Leu  Asp Thr Ser Gly Ser  Ser Ser Ser Ser Ser  Trp Pro Asn
    1460                1465                1470

Ser Lys  Met Ala Leu Asn Ser  Leu Asn Ser Ile Asp  Asp Ala Gln
    1475                1480                1485

Leu Thr  Arg Ile Ala Pro Pro  Arg Ser His Cys Cys  Phe Trp Glu
    1490                1495                1500
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Val Asn Ala Pro
    1505

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<211> 5703
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 551

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Ala Thr Cys Cys Ala Thr Ala Thr Cys Ala Thr Ala Ala Thr Ala Thr
            20   25   30

Gly Thr Ala Cys Ala Thr Thr Thr Ala Thr Ala Thr Thr Gly Gly Cys
        35   40   45

Thr Cys Ala Thr Gly Thr Cys Cys Ala Ala Cys Ala Thr Thr Ala Cys
    50   55   60

Cys Gly Cys Cys Ala Thr Gly Thr Thr Gly Ala Cys Ala Thr Thr Gly
65   70   75   80

Ala Thr Thr Ala Thr Thr Gly Ala Cys Thr Ala Gly Thr Thr Ala Thr
                85   90   95

Thr Ala Ala Thr Ala Gly Thr Ala Ala Thr Cys Ala Ala Thr Thr Ala
            100   105   110

Cys Gly Gly Gly Gly Thr Cys Ala Thr Thr Ala Gly Thr Thr Cys Ala
        115   120   125

Thr Ala Gly Cys Cys Cys Ala Thr Ala Thr Ala Thr Gly Gly Ala Gly
    130   135   140

Thr Thr Cys Cys Gly Cys Gly Thr Thr Ala Cys Ala Thr Ala Ala Cys

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145                 150                 155                 160

Thr Thr Ala Cys Gly Gly Thr Ala Ala Ala Thr Gly Gly Cys Cys Cys
                165                 170                 175

Gly Cys Cys Thr Gly Gly Cys Thr Gly Ala Cys Cys Gly Cys Cys Cys
            180                 185                 190

Ala Ala Cys Gly Ala Cys Cys Cys Cys Cys Gly Cys Cys Cys Ala Thr
        195                 200                 205

Thr Gly Ala Cys Gly Thr Cys Ala Ala Thr Ala Ala Thr Gly Ala Cys
    210                 215                 220

Gly Thr Ala Thr Gly Thr Thr Cys Cys Cys Ala Thr Ala Gly Thr Ala
225                 230                 235                 240

Ala Cys Gly Cys Cys Ala Ala Thr Ala Gly Gly Gly Ala Cys Thr Thr
                245                 250                 255

Thr Cys Cys Ala Thr Thr Gly Ala Cys Gly Thr Cys Ala Ala Thr Gly
            260                 265                 270

Gly Gly Thr Gly Gly Ala Gly Thr Ala Thr Thr Thr Ala Cys Gly Gly
        275                 280                 285

Thr Ala Ala Ala Cys Thr Gly Cys Cys Cys Ala Cys Thr Thr Gly Gly
    290                 295                 300

Cys Ala Gly Thr Ala Cys Ala Thr Cys Ala Ala Gly Thr Gly Thr Ala
305                 310                 315                 320

Thr Cys Ala Thr Ala Thr Gly Cys Cys Ala Ala Gly Thr Ala Cys Gly
                325                 330                 335

Cys Cys Cys Cys Cys Thr Ala Thr Thr Gly Ala Cys Gly Thr Cys Ala
            340                 345                 350

Ala Thr Gly Ala Cys Gly Gly Thr Ala Ala Ala Thr Gly Gly Cys Cys
        355                 360                 365
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Cys Gly Cys Cys Thr Gly Gly Cys Ala Thr Thr Ala Thr Gly Cys Cys
    370                 375                 380

Cys Ala Gly Thr Ala Cys Ala Thr Gly Ala Cys Cys Thr Thr Ala Thr
385                 390                 395                 400

Gly Gly Gly Ala Cys Thr Thr Thr Cys Cys Thr Ala Cys Thr Thr Gly
                405                 410                 415

Gly Cys Ala Gly Thr Ala Cys Ala Thr Cys Thr Ala Cys Gly Thr Ala
            420                 425                 430

Thr Thr Ala Gly Thr Cys Ala Thr Cys Gly Cys Thr Ala Thr Thr Ala
        435                 440                 445

Cys Cys Ala Thr Gly Gly Thr Gly Ala Thr Gly Cys Gly Gly Thr Thr
    450                 455                 460

Thr Thr Gly Gly Cys Ala Gly Thr Ala Cys Ala Thr Cys Ala Ala Thr
465                 470                 475                 480

Gly Gly Gly Cys Gly Thr Gly Gly Ala Thr Ala Gly Cys Gly Gly Thr
                485                 490                 495

Thr Thr Gly Ala Cys Thr Cys Ala Cys Gly Gly Gly Gly Ala Thr Thr
            500                 505                 510

Thr Cys Cys Ala Ala Gly Thr Cys Thr Cys Cys Ala Cys Cys Cys Cys
        515                 520                 525

Ala Thr Thr Gly Ala Cys Gly Thr Cys Ala Ala Thr Gly Gly Gly Ala
    530                 535                 540

Gly Thr Thr Thr Gly Thr Thr Thr Thr Gly Gly Cys Ala Cys Cys Ala
545                 550                 555                 560

Ala Ala Ala Thr Cys Ala Ala Cys Gly Gly Gly Ala Cys Thr Thr Thr
                565                 570                 575
```

```
Cys Cys Ala Ala Ala Ala Thr Gly Thr Cys Gly Thr Ala Ala Cys Ala
            580                 585                 590

Ala Cys Thr Cys Cys Gly Cys Cys Cys Cys Ala Thr Thr Gly Ala Cys
        595                 600                 605

Gly Cys Ala Ala Ala Thr Gly Gly Gly Cys Gly Gly Thr Ala Gly Gly
    610                 615                 620

Cys Gly Thr Gly Thr Ala Cys Gly Gly Thr Gly Gly Gly Ala Gly Gly
625                 630                 635                 640

Thr Cys Thr Ala Thr Ala Thr Ala Ala Gly Cys Ala Gly Ala Gly Cys
                645                 650                 655

Thr Cys Thr Cys Cys Cys Thr Ala Thr Cys Ala Gly Thr Gly Ala Thr
            660                 665                 670

Ala Gly Ala Gly Ala Thr Cys Thr Cys Cys Cys Thr Ala Thr Cys Ala
        675                 680                 685

Gly Thr Gly Ala Thr Ala Gly Ala Gly Ala Thr Cys Gly Thr Cys Gly
    690                 695                 700

Ala Cys Gly Ala Gly Cys Thr Cys Gly Thr Thr Thr Ala Gly Thr Gly
705                 710                 715                 720

Ala Ala Cys Cys Gly Thr Cys Ala Gly Ala Thr Cys Gly Cys Cys Thr
                725                 730                 735

Gly Gly Ala Gly Ala Cys Gly Cys Cys Ala Thr Cys Cys Ala Cys Gly
            740                 745                 750

Cys Thr Gly Thr Thr Thr Thr Gly Ala Cys Cys Thr Cys Cys Ala Thr
        755                 760                 765

Ala Gly Ala Ala Gly Ala Cys Ala Cys Cys Gly Gly Gly Ala Cys Cys
    770                 775                 780
```

```
Gly Ala Thr Cys Cys Ala Gly Cys Cys Thr Cys Cys Gly Cys Gly Gly
785                 790                 795                 800


Cys Cys Gly Gly Gly Ala Ala Cys Gly Gly Thr Gly Cys Ala Thr Thr
                805                 810                 815


Gly Gly Ala Ala Cys Gly Cys Gly Gly Ala Thr Thr Cys Cys Cys Cys
            820                 825                 830


Gly Thr Gly Cys Cys Ala Ala Gly Ala Gly Thr Gly Ala Gly Ala Thr
        835                 840                 845


Cys Thr Thr Cys Cys Gly Thr Thr Thr Ala Thr Cys Thr Ala Gly Gly
    850                 855                 860


Thr Ala Cys Cys Ala Gly Ala Thr Ala Thr Cys Ala Gly Ala Ala Thr
865                 870                 875                 880


Thr Cys Gly Gly Ala Thr Cys Cys Cys Gly Cys Gly Ala Cys Thr Thr
                885                 890                 895


Cys Gly Cys Cys Gly Cys Cys Ala Thr Gly Gly Gly Cys Cys Ala Gly
            900                 905                 910


Ala Ala Ala Gly Ala Gly Cys Ala Gly Ala Thr Cys Cys Ala Cys Ala
        915                 920                 925


Cys Ala Cys Thr Gly Cys Ala Gly Ala Ala Ala Ala Ala Cys Ala Gly
    930                 935                 940


Cys Gly Ala Gly Cys Gly Gly Ala Thr Gly Ala Gly Cys Ala Ala Gly
945                 950                 955                 960


Cys Ala Gly Cys Thr Gly Ala Cys Cys Ala Gly Ala Thr Cys Thr Thr
                965                 970                 975


Cys Thr Cys Ala Gly Gly Cys Cys Gly Thr Gly Cys Ala Gly Ala Ala
            980                 985                 990


Cys Cys Thr Gly Cys Ala Gly Ala  Ala Cys Gly Gly Cys  Gly Gly Ala
```

995 1000 1005

Gly Gly Cys Thr Cys Thr Ala Gly Ala Ala Gly Cys Thr Cys Thr
1010 1015 1020

Gly Cys Thr Ala Cys Ala Cys Thr Thr Cys Cys Thr Gly Gly Cys
1025 1030 1035

Ala Gly Gly Cys Gly Gly Cys Gly Gly Ala Gly Ala Ala Gly Ala
1040 1045 1050

Thr Gly Gly Cys Thr Gly Ala Gly Ala Ala Gly Ala Ala Gly Gly
1055 1060 1065

Cys Gly Gly Cys Ala Gly Cys Cys Thr Ala Thr Cys Thr Cys Thr
1070 1075 1080

Gly Thr Gly Gly Cys Thr Cys Cys Thr Gly Cys Thr Gly Gly Ala
1085 1090 1095

Cys Cys Thr Cys Cys Thr Ala Gly Ala Cys Gly Gly Cys Cys Cys
1100 1105 1110

Ala Ala Cys Cys Ala Gly Ala Ala Gly Cys Cys Thr Ala Ala Thr
1115 1120 1125

Cys Cys Thr Cys Cys Thr Gly Gly Cys Gly Gly Ala Gly Cys Cys
1130 1135 1140

Ala Gly Ala Thr Gly Cys Gly Thr Gly Ala Thr Cys Ala Thr Gly
1145 1150 1155

Ala Gly Gly Cys Cys Thr Ala Cys Ala Thr Gly Gly Cys Cys Thr
1160 1165 1170

Gly Gly Cys Ala Cys Cys Ala Gly Cys Gly Cys Cys Thr Thr Cys
1175 1180 1185

Ala Cys Cys Ala Ala Gly Ala Gly Ala Ala Gly Cys Thr Thr Thr
1190 1195 1200

```
Gly Cys  Cys Gly Thr Gly Ala  Cys Cys Gly Ala Gly  Cys Gly Gly
    1205                 1210                 1215

Ala Thr  Cys Ala Thr Cys Gly  Ala Cys Thr Ala Thr  Thr Gly Gly
    1220                 1225                 1230

Gly Cys  Thr Cys Ala Ala Ala  Ala Ala Gly Ala Gly  Ala Ala Gly
    1235                 1240                 1245

Gly Gly  Cys Ala Gly Cys Ala  Gly Cys Ala Gly Cys  Thr Thr Cys
    1250                 1255                 1260

Cys Thr  Gly Cys Gly Gly Cys  Cys Thr Ala Gly Cys  Thr Gly Thr
    1265                 1270                 1275

Gly Ala  Thr Thr Ala Thr Thr  Gly Gly Gly Cys Cys  Cys Ala Gly
    1280                 1285                 1290

Ala Ala  Ala Gly Ala Ala Ala  Ala Gly Ala Thr Cys  Ala Gly Cys
    1295                 1300                 1305

Ala Thr  Cys Cys Cys Cys Ala  Gly Ala Ala Cys Ala  Cys Ala Cys
    1310                 1315                 1320

Cys Thr  Gly Thr Gly Cys Cys  Thr Gly Gly Thr Gly  Cys Thr Gly
    1325                 1330                 1335

Gly Gly  Ala Gly Thr Gly Cys  Thr Gly Thr Cys Thr  Gly Gly Ala
    1340                 1345                 1350

Cys Ala  Cys Thr Cys Thr Gly  Gly Cys Ala Gly Cys  Ala Gly Ala
    1355                 1360                 1365

Cys Thr  Gly Thr Ala Thr Gly  Ala Gly Gly Cys Cys  Gly Gly Cys
    1370                 1375                 1380

Ala Thr  Gly Ala Cys Ala Cys  Thr Cys Gly Gly Cys  Gly Gly Cys
    1385                 1390                 1395
```

```
Ala Ala  Gly Ala Thr Cys Cys  Thr Gly Thr Thr Cys  Thr Thr Cys
    1400                1405                1410

Cys Thr  Gly Thr Thr Cys Cys  Thr Gly Cys Thr Gly  Cys Thr Cys
    1415                1420                1425

Cys Cys  Thr Cys Thr Gly Ala  Gly Cys Cys Cys Cys  Thr Thr Cys
    1430                1435                1440

Ala Gly  Cys Cys Thr Gly Ala  Thr Cys Thr Thr Cys  Ala Cys Cys
    1445                1450                1455

Gly Ala  Gly Ala Thr Cys Ala  Gly Cys Thr Gly Cys  Thr Gly Cys
    1460                1465                1470

Ala Cys  Cys Cys Thr Gly Ala  Gly Cys Ala Gly Cys  Gly Ala Gly
    1475                1480                1485

Gly Ala  Ala Ala Ala Cys Gly  Ala Gly Thr Ala Cys  Cys Thr Gly
    1490                1495                1500

Cys Cys  Thr Ala Gly Ala Cys  Cys Thr Gly Ala Gly  Thr Gly Gly
    1505                1510                1515

Cys Ala  Gly Cys Thr Gly Cys  Ala Gly Gly Thr Cys  Cys Cys Cys
    1520                1525                1530

Thr Thr  Cys Ala Gly Ala Gly  Ala Gly Cys Thr Gly  Ala Ala Gly
    1535                1540                1545

Ala Ala  Cys Gly Thr Thr Thr  Cys Cys Gly Thr Gly  Cys Thr Gly
    1550                1555                1560

Gly Ala  Ala Gly Gly Cys Cys  Thr Gly Ala Gly Ala  Cys Ala Gly
    1565                1570                1575

Gly Gly  Cys Ala Gly Ala Cys  Thr Thr Gly Gly Cys  Gly Gly Cys
    1580                1585                1590
```

```
Cys Cys  Thr Thr Gly Thr Ala  Gly Cys Thr Gly Thr  Cys Ala Cys
    1595                1600                1605

Thr Gly  Cys Cys Cys Cys Ala  Gly Ala Cys Cys Thr  Ala Gly Thr
    1610                1615                1620

Cys Ala  Gly Gly Cys Cys Ala  Gly Ala Cys Thr Gly  Ala Cys Ala
    1625                1630                1635

Cys Cys  Thr Gly Thr Gly Gly  Ala Thr Gly Thr Gly  Gly Cys Cys
    1640                1645                1650

Gly Gly  Ala Cys Cys Thr Thr  Thr Cys Cys Thr Gly  Thr Gly Thr
    1655                1660                1665

Cys Thr  Gly Gly Gly Ala Gly  Ala Thr Cys Cys Thr  Gly Gly Cys
    1670                1675                1680

Cys Thr  Gly Thr Thr Thr Cys  Cys Ala Cys Cys Thr  Gly Thr Gly
    1685                1690                1695

Ala Ala  Gly Thr Cys Cys Ala  Gly Cys Ala Thr Cys  Ala Cys Ala
    1700                1705                1710

Gly Gly  Cys Gly Gly Cys Ala  Ala Gly Thr Cys Cys  Ala Cys Ala
    1715                1720                1725

Thr Gly  Thr Thr Cys Thr Gly  Cys Cys Cys Cys Thr  Gly Gly Ala
    1730                1735                1740

Cys Cys  Thr Cys Ala Gly Ala  Gly Cys Cys Thr Gly  Cys Cys Thr
    1745                1750                1755

Ala Gly  Cys Ala Cys Ala Cys  Cys Cys Thr Thr Cys  Ala Gly Cys
    1760                1765                1770

Ala Cys  Ala Thr Ala Cys Cys  Cys Thr Cys Ala Gly  Thr Gly Gly
    1775                1780                1785

Gly Thr  Cys Ala Thr Cys Cys  Thr Gly Ala Thr Cys  Ala Cys Cys
```

```
    1790                1795                1800

Gly Ala  Ala Cys Thr Cys Gly  Gly Cys Ala Thr Gly  Gly Ala Ala
    1805                1810                1815

Thr Gly  Cys Ala Cys Cys Cys  Thr Gly Gly Gly Ala  Cys Ala Ala
    1820                1825                1830

Gly Thr  Gly Gly Gly Ala Gly  Cys Cys Cys Cys Ala  Thr Cys Thr
    1835                1840                1845

Cys Cys  Thr Ala Gly Ala Ala  Gly Ala Gly Ala Ala  Gly Ala Gly
    1850                1855                1860

Gly Ala  Thr Gly Gly Cys Thr  Gly Gly Cys Gly Cys  Gly Gly Ala
    1865                1870                1875

Gly Gly  Cys Cys Ala Cys Thr  Cys Thr Ala Gly Ala  Thr Thr Cys
    1880                1885                1890

Ala Ala  Ala Gly Cys Thr Gly  Ala Thr Gly Thr Gly  Cys Cys Cys
    1895                1900                1905

Gly Cys  Thr Cys Cys Thr Cys  Ala Gly Gly Gly Cys  Cys Cys Thr
    1910                1915                1920

Thr Gly  Thr Thr Gly Gly Gly  Gly Ala Gly Gly Ala  Cys Ala Ala
    1925                1930                1935

Cys Cys  Thr Gly Gly Ala Thr  Cys Thr Gly Cys Cys  Cys Cys Ala
    1940                1945                1950

Thr Cys  Thr Thr Cys Thr Gly  Cys Cys Cys Cys Ala  Cys Cys Thr
    1955                1960                1965

Gly Ala  Ala Cys Ala Gly Thr  Cys Cys Cys Thr Gly  Cys Thr Gly
    1970                1975                1980

Gly Ala  Thr Thr Gly Gly Ala  Ala Gly Thr Thr Cys  Gly Ala Gly
    1985                1990                1995
```

```
Ala Thr  Gly Ala Gly Cys Thr  Ala Cys Ala Cys Cys  Gly Thr Cys
    2000                2005                2010

Gly Gly  Cys Gly Gly Ala Cys  Cys Thr Cys Cys Ala  Cys Cys Thr
    2015                2020                2025

Cys Ala  Thr Gly Thr Thr Cys  Ala Thr Gly Cys Cys  Ala Gly Ala
    2030                2035                2040

Cys Cys  Thr Cys Gly Gly Cys  Ala Cys Thr Gly Gly  Ala Ala Ala
    2045                2050                2055

Ala Cys  Cys Gly Ala Cys Ala  Gly Ala Gly Ala Thr  Gly Gly Cys
    2060                2065                2070

Cys Ala  Cys Ala Gly Cys Thr  Ala Cys Ala Cys Cys  Ala Gly Cys
    2075                2080                2085

Ala Ala  Ala Gly Thr Gly Ala  Ala Cys Thr Gly Cys  Cys Thr Cys
    2090                2095                2100

Cys Thr  Gly Cys Thr Gly Cys  Ala Gly Gly Ala Thr  Gly Gly Cys
    2105                2110                2115

Thr Thr  Cys Cys Ala Cys Gly  Gly Cys Thr Gly Thr  Gly Thr Gly
    2120                2125                2130

Thr Cys  Thr Ala Thr Thr Ala  Cys Thr Gly Gly Cys  Gly Cys Cys
    2135                2140                2145

Gly Cys  Thr Gly Gly Cys Ala  Gly Ala Cys Gly Gly  Ala Ala Cys
    2150                2155                2160

Cys Thr  Gly Ala Gly Cys Ala  Thr Cys Thr Thr Thr  Cys Thr Gly
    2165                2170                2175

Thr Thr  Thr Cys Thr Gly Ala  Thr Gly Cys Thr Gly  Thr Gly Cys
    2180                2185                2190
```

```
Ala Ala  Gly Cys Thr Cys Gly  Ala Gly Thr Thr Cys  Cys Ala Cys
    2195                2200                2205

Gly Cys  Cys Thr Gly Cys Ala  Ala Gly Ala Thr Cys  Cys Ala Gly
    2210                2215                2220

Ala Ala  Cys Ala Ala Gly Ala  Ala Cys Thr Gly Cys  Cys Cys Cys
    2225                2230                2235

Gly Ala  Cys Thr Thr Cys Ala  Ala Gly Ala Ala Gly  Thr Thr Cys
    2240                2245                2250

Gly Ala  Cys Gly Gly Cys Cys  Cys Thr Thr Gly Cys  Gly Gly Ala
    2255                2260                2265

Gly Ala  Ala Ala Gly Ala Gly  Gly Cys Gly Gly Ala  Gly Gly Cys
    2270                2275                2280

Ala Gly  Ala Ala Cys Ala Gly  Cys Thr Ala Gly Ala  Gly Cys Cys
    2285                2290                2295

Cys Thr  Thr Thr Gly Gly Gly  Cys Thr Ala Gly Ala  Gly Gly Cys
    2300                2305                2310

Gly Ala  Cys Ala Gly Cys Gly  Thr Thr Cys Thr Gly  Ala Cys Ala
    2315                2320                2325

Cys Cys  Ala Gly Cys Thr Cys  Thr Gly Gly Ala Cys  Cys Cys Thr
    2330                2335                2340

Cys Ala  Gly Ala Cys Ala Cys  Cys Thr Gly Thr Thr  Ala Gly Gly
    2345                2350                2355

Gly Cys  Cys Cys Cys Thr Ala  Gly Cys Cys Thr Gly  Ala Cys Ala
    2360                2365                2370

Ala Gly  Ala Gly Cys Thr Gly  Cys Cys Gly Cys Cys  Gly Cys Thr
    2375                2380                2385
```

```
Gly Thr  Gly Cys Ala Cys Thr  Ala Cys Ala Ala Gly  Cys Thr Gly
    2390                 2395                 2400

Ala Thr  Cys Cys Ala Gly Cys  Ala Gly Cys Cys Ala  Ala Thr Cys
    2405                 2410                 2415

Ala Gly  Cys Cys Thr Gly Thr  Thr Cys Ala Gly Cys  Ala Thr Cys
    2420                 2425                 2430

Ala Cys  Cys Gly Ala Cys Cys  Gly Gly Cys Thr Gly  Cys Ala Cys
    2435                 2440                 2445

Ala Ala  Gly Ala Cys Ala Thr  Thr Cys Ala Gly Cys  Cys Ala Gly
    2450                 2455                 2460

Cys Thr  Gly Cys Cys Ala Ala  Gly Cys Gly Thr Gly  Cys Ala Cys
    2465                 2470                 2475

Cys Thr  Gly Thr Gly Cys Thr  Cys Cys Ala Thr Cys  Ala Cys Cys
    2480                 2485                 2490

Thr Thr  Cys Cys Ala Gly Thr  Gly Gly Gly Gly Ala  Cys Ala Cys
    2495                 2500                 2505

Cys Cys  Thr Cys Cys Thr Ala  Thr Cys Thr Thr Thr  Thr Gly Cys
    2510                 2515                 2520

Thr Cys  Cys Ala Cys Cys Ala  Ala Cys Gly Ala Cys  Ala Thr Cys
    2525                 2530                 2535

Thr Gly  Cys Gly Thr Gly Ala  Cys Cys Gly Cys Cys  Ala Ala Cys
    2540                 2545                 2550

Thr Thr  Cys Thr Gly Thr Ala  Thr Cys Ala Gly Cys  Gly Thr Gly
    2555                 2560                 2565

Ala Cys  Cys Thr Thr Cys Cys  Thr Gly Ala Ala Gly  Cys Cys Thr
    2570                 2575                 2580

Thr Gly  Cys Thr Thr Thr Cys  Thr Gly Cys Thr Gly  Cys Ala Cys
```

```
    2585                2590                2595

Gly Ala  Gly Gly Cys Cys Ala  Gly Cys Gly Cys Cys  Thr Cys Thr
    2600                2605                2610

Cys Ala  Gly Thr Gly Cys Cys  Ala Cys Thr Thr Gly  Thr Thr Thr
    2615                2620                2625

Cys Thr  Gly Cys Ala Gly Cys  Cys Cys Cys Ala Ala  Gly Thr Gly
    2630                2635                2640

Gly Gly  Cys Ala Cys Ala Cys  Cys Thr Cys Cys Thr  Cys Cys Ala
    2645                2650                2655

Cys Ala  Thr Ala Cys Ala Gly  Cys Cys Thr Cys Thr  Gly Cys Thr
    2660                2665                2670

Ala Gly  Ala Gly Cys Ala Cys  Cys Thr Ala Gly Cys  Gly Gly Cys
    2675                2680                2685

Cys Cys  Thr Cys Cys Ala Cys  Ala Thr Cys Cys Thr  Cys Ala Cys
    2690                2695                2700

Gly Ala  Ala Thr Cys Thr Thr  Gly Thr Cys Cys Thr  Gly Cys Cys
    2705                2710                2715

Gly Gly  Ala Ala Gly Ala Ala  Gly Gly Cys Cys Thr  Gly Cys Cys
    2720                2725                2730

Ala Gly  Ala Gly Cys Cys Gly  Cys Thr Cys Ala Ala  Ala Cys Ala
    2735                2740                2745

Thr Gly  Thr Gly Cys Cys Ala  Gly Ala Cys Gly Ala  Cys Ala Gly
    2750                2755                2760

Cys Ala  Cys Gly Gly Ala Cys  Thr Gly Cys Cys Thr  Gly Gly Ala
    2765                2770                2775

Thr Gly  Thr Gly Ala Ala Gly  Ala Gly Gly Cys Thr  Gly Gly Ala
    2780                2785                2790
```

```
Ala Cys  Ala Gly Cys Cys Ala  Gly Ala Gly Thr Gly  Cys Cys Thr
    2795                2800                2805

Ala Gly  Cys Cys Thr Gly Cys  Ala Cys Cys Thr Cys  Cys Ala Thr
    2810                2815                2820

Cys Thr  Gly Cys Ala Thr Cys  Ala Gly Gly Cys Thr  Gly Cys Thr
    2825                2830                2835

Cys Thr  Thr Gly Gly Ala Gly  Cys Cys Gly Gly Ala  Ala Gly Ala
    2840                2845                2850

Gly Gly  Thr Ala Gly Ala Gly  Gly Ala Thr Gly Gly  Gly Gly Cys
    2855                2860                2865

Gly Ala  Ala Gly Cys Thr Thr  Gly Thr Gly Cys Thr  Cys Ala Gly
    2870                2875                2880

Gly Thr  Gly Cys Cys Ala Cys  Cys Thr Thr Cys Thr  Ala Gly Ala
    2885                2890                2895

Gly Gly  Cys Gly Thr Gly Cys  Thr Gly Ala Gly Ala  Thr Thr Cys
    2900                2905                2910

Cys Thr  Gly Gly Ala Cys Cys  Thr Gly Ala Ala Ala  Gly Thr Gly
    2915                2920                2925

Cys Gly  Cys Thr Ala Cys Cys  Thr Gly Cys Ala Cys  Ala Gly Cys
    2930                2935                2940

Cys Ala  Gly Thr Gly Gly Cys  Ala Gly Cys Ala Cys  Thr Ala Thr
    2945                2950                2955

Cys Ala  Cys Ala Gly Ala Thr  Cys Thr Gly Gly Cys  Gly Ala Ala
    2960                2965                2970

Gly Cys  Cys Gly Cys Cys Gly  Gly Ala Ala Cys Ala  Cys Cys Cys
    2975                2980                2985
```

```
Cys Thr  Thr Thr Gly Gly Ala  Gly Gly Cys Cys Ala  Ala Cys Ala
    2990                2995                3000

Ala Gly  Ala Ala Ala Cys Gly  Thr Gly Cys Cys Cys  Thr Thr Cys
    3005                3010                3015

Cys Gly  Gly Gly Ala Ala Cys  Thr Gly Ala Ala Gly  Ala Ala Cys
    3020                3025                3030

Cys Ala  Gly Ala Gly Ala Ala  Cys Ala Gly Cys Thr  Cys Ala Gly
    3035                3040                3045

Gly Gly  Cys Gly Cys Thr Cys  Cys Thr Gly Gly Ala  Ala Thr Cys
    3050                3055                3060

Cys Ala  Cys Cys Ala Thr Gly  Cys Thr Gly Cys Thr  Thr Cys Thr
    3065                3070                3075

Cys Cys  Ala Gly Thr Gly Gly  Cys Cys Gly Cys Cys  Ala Ala Cys
    3080                3085                3090

Cys Thr  Gly Thr Gly Thr Gly  Ala Thr Cys Cys Thr  Gly Cys Cys
    3095                3100                3105

Ala Gly  Ala Cys Ala Thr Gly  Cys Cys Cys Ala Gly  Cys Ala Cys
    3110                3115                3120

Ala Cys  Cys Ala Gly Gly Ala  Thr Thr Cys Cys Thr  Thr Gly Thr
    3125                3130                3135

Gly Gly  Cys Gly Cys Thr Gly  Gly Ala Cys Ala Ala  Gly Thr Gly
    3140                3145                3150

Cys Gly  Cys Gly Cys Thr Gly  Gly Ala Ala Gly Ala  Gly Gly Ala
    3155                3160                3165

Cys Cys  Thr Gly Ala Ala Gly  Cys Ala Gly Gly Cys  Gly Gly Ala
    3170                3175                3180
```

```
Gly Gly  Thr Gly Thr Thr Cys  Thr Gly Cys Ala Ala  Cys Cys Thr
    3185                3190                3195

Cys Ala  Ala Ala Gly Ala Cys  Cys Cys Gly Cys Thr  Cys Cys Thr
    3200                3205                3210

Gly Ala  Gly Ala Ala Gly Cys  Cys Thr Gly Gly Cys  Thr Gly Cys
    3215                3220                3225

Cys Cys  Thr Thr Gly Cys Ala  Gly Ala Ala Gly Ala  Gly Gly Ala
    3230                3235                3240

Cys Ala  Gly Cys Cys Thr Ala  Gly Ala Cys Thr Gly  Cys Ala Cys
    3245                3250                3255

Ala Cys  Cys Gly Thr Gly Ala  Ala Ala Ala Thr Gly  Thr Gly Gly
    3260                3265                3270

Cys Gly  Ala Gly Cys Cys Gly  Thr Gly Gly Cys Cys  Ala Thr Gly
    3275                3280                3285

Ala Thr  Gly Gly Thr Gly Cys  Cys Cys Gly Ala Thr  Ala Gly Ala
    3290                3295                3300

Cys Ala  Gly Gly Thr Cys Cys  Ala Cys Thr Ala Cys  Gly Ala Cys
    3305                3310                3315

Thr Thr  Thr Gly Gly Ala Cys  Thr Gly Gly Gly Cys  Gly Thr Gly
    3320                3325                3330

Cys Cys  Ala Gly Gly Cys Gly  Ala Thr Ala Gly Cys  Ala Cys Thr
    3335                3340                3345

Cys Gly  Gly Ala Gly Ala Gly  Cys Cys Gly Thr Cys  Ala Gly Ala
    3350                3355                3360

Cys Gly  Gly Ala Thr Gly Ala  Ala Cys Ala Cys Cys  Thr Thr Thr
    3365                3370                3375

Thr Ala  Cys Gly Ala Ala Gly  Cys Cys Gly Gly Gly  Ala Thr Gly
```

```
    3380                3385                3390

Ala Cys  Cys Cys Thr Gly Gly  Gly Cys Gly Ala Gly  Ala Ala Gly
    3395                3400                3405

Thr Thr  Cys Ala Gly Ala Gly  Thr Gly Gly Gly Cys  Ala Ala Cys
    3410                3415                3420

Thr Gly  Cys Ala Ala Gly Cys  Ala Cys Cys Thr Gly  Ala Ala Gly
    3425                3430                3435

Ala Thr  Gly Ala Cys Cys Cys  Gly Gly Cys Cys Thr  Ala Ala Cys
    3440                3445                3450

Ala Gly  Cys Ala Ala Gly Ala  Thr Gly Gly Cys Cys  Cys Thr Gly
    3455                3460                3465

Ala Ala  Thr Ala Gly Cys Gly  Ala Gly Gly Cys Cys  Cys Thr Gly
    3470                3475                3480

Thr Cys  Thr Gly Thr Gly Gly  Thr Gly Thr Cys Thr  Gly Ala Ala
    3485                3490                3495

Thr Gly  Thr Gly Gly Cys Gly  Cys Cys Thr Cys Thr  Gly Cys Cys
    3500                3505                3510

Thr Gly  Thr Gly Ala Cys Gly  Thr Gly Thr Cys Cys  Cys Thr Gly
    3515                3520                3525

Ala Thr  Cys Gly Cys Thr Ala  Thr Gly Gly Ala Cys  Thr Cys Cys
    3530                3535                3540

Gly Cys  Cys Thr Thr Thr Gly  Thr Gly Cys Ala Gly  Gly Gly Cys
    3545                3550                3555

Ala Ala  Ala Gly Ala Cys Thr  Gly Gly Gly Gly Cys  Gly Thr Gly
    3560                3565                3570

Ala Ala  Gly Ala Ala Gly Thr  Thr Cys Ala Thr Cys  Cys Gly Gly
    3575                3580                3585
```

```
Cys Gly  Gly Gly Ala Cys Thr  Thr Cys Thr Ala Cys  Gly Cys Cys
    3590                 3595                 3600

Thr Ala  Cys Ala Ala Gly Gly  Ala Cys Thr Thr Cys  Cys Thr Gly
    3605                 3610                 3615

Thr Gly  Gly Thr Gly Cys Thr  Thr Cys Cys Cys Cys  Thr Thr Cys
    3620                 3625                 3630

Thr Cys  Thr Cys Thr Gly Gly  Thr Gly Thr Thr Cys  Cys Thr Gly
    3635                 3640                 3645

Cys Ala  Ala Gly Ala Gly Ala  Thr Cys Cys Ala Gly  Ala Thr Cys
    3650                 3655                 3660

Thr Gly  Cys Thr Gly Thr Cys  Ala Thr Gly Thr Gly  Thr Cys Cys
    3665                 3670                 3675

Thr Gly  Cys Cys Thr Gly Thr  Gly Cys Thr Gly Cys  Ala Thr Cys
    3680                 3685                 3690

Thr Gly  Cys Thr Gly Thr Ala  Gly Cys Ala Cys Cys  Ala Gly Ala
    3695                 3700                 3705

Ala Thr  Cys Thr Gly Cys Cys  Thr Gly Gly Gly Cys  Thr Gly Thr
    3710                 3715                 3720

Cys Thr  Gly Cys Thr Gly Gly  Ala Ala Cys Thr Gly  Thr Thr Cys
    3725                 3730                 3735

Cys Thr  Gly Ala Gly Cys Ala  Gly Ala Gly Cys Cys  Cys Thr Gly
    3740                 3745                 3750

Ala Gly  Ala Gly Cys Ala Cys  Thr Gly Cys Ala Cys  Gly Thr Gly
    3755                 3760                 3765

Cys Thr  Gly Thr Gly Gly Ala  Ala Cys Gly Gly Ala  Thr Thr Cys
    3770                 3775                 3780
```

```
Cys Ala  Gly Cys Thr Gly Cys  Ala Cys Thr Gly Cys  Cys Ala Gly
    3785                 3790                 3795

Ala Cys  Cys Gly Ala Gly Thr  Ala Cys Ala Ala Cys  Cys Ala Gly
    3800                 3805                 3810

Ala Ala  Ala Cys Thr Gly Cys  Ala Ala Gly Thr Gly  Ala Ala Cys
    3815                 3820                 3825

Cys Ala  Gly Thr Thr Cys Ala  Gly Cys Gly Ala Gly  Ala Gly Cys
    3830                 3835                 3840

Ala Ala  Gly Ala Gly Cys Cys  Thr Gly Thr Ala Cys  Cys Ala Cys
    3845                 3850                 3855

Cys Gly  Gly Gly Ala Ala Ala  Ala Gly Cys Ala Gly  Cys Thr Cys
    3860                 3865                 3870

Ala Thr  Thr Gly Cys Cys Ala  Thr Gly Gly Ala Cys  Ala Gly Cys
    3875                 3880                 3885

Gly Cys  Cys Ala Thr Cys Thr  Gly Cys Gly Ala Ala  Gly Ala Gly
    3890                 3895                 3900

Ala Gly  Ala Gly Gly Cys Gly  Cys Cys Gly Cys Ala  Gly Gly Ala
    3905                 3910                 3915

Thr Cys  Thr Cys Thr Gly Ala  Thr Cys Thr Cys Cys  Thr Gly Cys
    3920                 3925                 3930

Gly Ala  Ala Ala Cys Ala Ala  Thr Gly Cys Cys Cys  Gly Cys Cys
    3935                 3940                 3945

Ala Thr  Cys Cys Thr Gly Ala  Ala Gly Cys Thr Gly  Cys Ala Gly
    3950                 3955                 3960

Ala Ala  Gly Ala Ala Thr Thr  Gly Cys Cys Thr Cys  Cys Thr Ala
    3965                 3970                 3975
```

```
Ala Gly  Cys Cys Thr Gly Cys  Gly Ala Ala Cys Cys  Gly Cys Thr
    3980                3985                3990

Cys Thr  Gly Ala Cys Ala Cys  Ala Cys Ala Ala Cys  Cys Ala Gly
    3995                4000                4005

Gly Ala  Cys Thr Thr Cys Ala  Gly Cys Ala Thr Cys  Thr Ala Cys
    4010                4015                4020

Ala Gly  Ala Cys Thr Gly Thr  Gly Thr Thr Gly Cys  Ala Ala Gly
    4025                4030                4035

Cys Gly  Gly Gly Gly Cys Thr  Cys Cys Cys Thr Gly  Thr Gly Cys
    4040                4045                4050

Cys Ala  Thr Gly Cys Ala Ala  Gly Cys Cys Ala Ala  Gly Cys Thr
    4055                4060                4065

Ala Gly  Ala Ala Gly Cys Cys  Cys Cys Gly Cys Cys  Thr Thr Thr
    4070                4075                4080

Cys Cys  Thr Ala Ala Ala Cys  Cys Thr Gly Thr Gly  Cys Gly Ala
    4085                4090                4095

Cys Cys  Thr Cys Thr Gly Cys  Cys Ala Gly Cys Thr  Cys Cys Ala
    4100                4105                4110

Ala Thr  Cys Ala Cys Cys Ala  Gly Ala Ala Thr Thr  Ala Cys Cys
    4115                4120                4125

Cys Cys  Thr Cys Ala Gly Cys  Thr Cys Gly Gly Cys  Gly Gly Cys
    4130                4135                4140

Cys Ala  Gly Ala Gly Cys Gly  Ala Thr Thr Cys Ala  Thr Cys Thr
    4145                4150                4155

Cys Ala  Ala Cys Cys Thr Cys  Thr Gly Cys Thr Gly  Ala Cys Cys
    4160                4165                4170

Ala Cys  Cys Gly Gly Cys Ala  Gly Ala Cys Cys Thr  Cys Ala Ala
```

```
    4175                4180                4185

Gly Gly  Cys Thr Gly Gly Cys  Ala Ala Gly Ala Cys  Cys Ala Ala
    4190                4195                4200

Gly Cys  Thr Cys Thr Gly Ala  Gly Ala Cys Ala Cys  Ala Cys Cys
    4205                4210                4215

Cys Ala  Gly Cys Ala Gly Gly  Cys Thr Ala Gly Cys  Cys Cys Thr
    4220                4225                4230

Gly Cys  Cys Thr Cys Thr Thr  Gly Thr Gly Cys Cys  Ala Cys Cys
    4235                4240                4245

Ala Thr  Cys Ala Cys Ala Ala  Thr Cys Cys Cys Cys  Ala Thr Cys
    4250                4255                4260

Cys Ala  Cys Thr Cys Thr Gly  Cys Cys Gly Cys Thr  Cys Thr Gly
    4265                4270                4275

Gly Gly  Cys Gly Ala Thr Cys  Ala Thr Thr Cys Thr  Gly Gly Cys
    4280                4285                4290

Gly Ala  Thr Cys Cys Thr Gly  Gly Ala Cys Cys Ala  Gly Cys Cys
    4295                4300                4305

Thr Gly  Gly Gly Ala Cys Ala  Cys Ala Thr Gly Thr  Cys Cys Thr
    4310                4315                4320

Cys Cys  Ala Cys Thr Gly Cys  Cys Ala Cys Thr Cys  Ala Cys Ala
    4325                4330                4335

Ala Cys  Ala Cys Thr Gly Ala  Thr Cys Cys Cys Thr  Ala Gly Gly
    4340                4345                4350

Gly Cys  Thr Cys Cys Thr Cys  Cys Ala Cys Cys Thr  Thr Ala Cys
    4355                4360                4365

Gly Gly  Cys Gly Ala Thr Thr  Cys Thr Ala Cys Cys  Gly Cys Thr
    4370                4375                4380
```

```
Ala Gly  Ala Ala Gly Cys Thr  Gly Gly Cys Cys Cys  Ala Gly Cys
    4385                 4390                 4395

Ala Gly  Ala Thr Gly Thr Gly  Gly Ala Cys Cys Ala  Cys Thr Cys
    4400                 4405                 4410

Gly Gly  Ala Gly Gly Cys Ala  Ala Cys Ala Cys Ala  Ala Cys Cys
    4415                 4420                 4425

Cys Thr  Cys Cys Ala Gly Cys  Ala Ala Cys Thr Gly  Gly Gly Ala
    4430                 4435                 4440

Gly Ala  Ala Gly Cys Cys Thr  Cys Thr Cys Ala Gly  Gly Cys Thr
    4445                 4450                 4455

Cys Cys  Thr Ala Gly Cys Gly  Gly Cys Thr Cys Thr  Cys Thr Gly
    4460                 4465                 4470

Ala Thr  Cys Cys Cys Thr Cys  Thr Cys Ala Gly Ala  Cys Thr Gly
    4475                 4480                 4485

Cys Cys  Thr Cys Thr Cys Cys  Thr Gly Thr Gly Gly  Gly Ala Ala
    4490                 4495                 4500

Gly Thr  Thr Cys Gly Gly Gly  Gly Cys Cys Ala Gly  Cys Cys Thr
    4505                 4510                 4515

Gly Ala  Thr Thr Cys Thr Thr  Thr Thr Gly Cys Cys  Gly Cys Ala
    4520                 4525                 4530

Cys Thr  Gly Cys Ala Cys Ala  Gly Cys Thr Cys Cys  Cys Thr Gly
    4535                 4540                 4545

Ala Ala  Cys Gly Ala Gly Cys  Thr Gly Gly Gly Ala  Gly Ala Gly
    4550                 4555                 4560

Ala Thr  Cys Gly Cys Thr Ala  Gly Ala Gly Ala Gly  Cys Thr Gly
    4565                 4570                 4575
```

```
Cys Ala  Cys Cys Ala Gly Thr  Thr Cys Gly Cys Cys  Thr Thr Cys
    4580                4585                4590

Gly Ala  Cys Cys Thr Gly Cys  Thr Gly Ala Thr Cys  Ala Ala Gly
    4595                4600                4605

Ala Gly  Cys Cys Ala Cys Thr  Thr Cys Gly Thr Gly  Cys Ala Ala
    4610                4615                4620

Gly Gly  Cys Ala Ala Gly Gly  Ala Thr Thr Gly Gly  Gly Gly Cys
    4625                4630                4635

Cys Thr  Cys Ala Ala Ala Ala  Ala Gly Thr Thr Thr  Ala Thr Cys
    4640                4645                4650

Cys Gly  Cys Ala Gly Ala Gly  Ala Cys Thr Thr Cys  Thr Gly Gly
    4655                4660                4665

Gly Gly  Cys Ala Thr Gly Gly  Ala Ala Cys Thr Gly  Gly Cys Cys
    4670                4675                4680

Gly Cys  Cys Ala Gly Cys Ala  Gly Ala Ala Gly Ala  Thr Thr Cys
    4685                4690                4695

Ala Gly  Cys Thr Gly Gly Gly  Ala Thr Cys Ala Thr  Cys Ala Thr
    4700                4705                4710

Ala Gly  Cys Gly Cys Ala Gly  Gly Cys Gly Gly Cys  Cys Cys Ala
    4715                4720                4725

Cys Cys  Thr Ala Gly Ala Gly  Thr Gly Cys Cys Ala  Thr Cys Thr
    4730                4735                4740

Gly Thr  Thr Ala Gly Ala Ala  Gly Cys Gly Gly Ala  Gly Cys Thr
    4745                4750                4755

Gly Cys  Cys Cys Ala Gly Gly  Thr Gly Cys Ala Gly  Cys Cys Thr
    4760                4765                4770
```

```
Ala Ala  Ala Gly Ala Thr Cys  Cys Thr Cys Thr Gly  Cys Cys Ala
    4775                4780                4785

Cys Thr  Gly Ala Gly Ala Ala  Cys Ala Cys Thr Gly  Gly Cys Cys
    4790                4795                4800

Gly Gly  Cys Thr Gly Cys Cys  Thr Thr Gly Cys Thr  Ala Gly Ala
    4805                4810                4815

Ala Cys  Ala Gly Cys Cys Cys  Ala Thr Cys Thr Thr  Ala Gly Ala
    4820                4825                4830

Cys Cys  Thr Gly Gly Cys Gly  Cys Cys Gly Ala Gly  Thr Cys Thr
    4835                4840                4845

Cys Thr  Gly Cys Cys Thr Cys  Ala Gly Cys Cys Ala  Cys Ala Ala
    4850                4855                4860

Cys Thr  Gly Cys Ala Cys Thr  Gly Thr Ala Cys Cys  Cys Thr Gly
    4865                4870                4875

Thr Gly  Gly Thr Thr Cys Cys  Ala Gly Thr Cys Cys  Ala Gly Cys
    4880                4885                4890

Gly Ala  Gly Cys Thr Gly Thr  Cys Thr Cys Cys Thr  Ala Cys Thr
    4895                4900                4905

Gly Gly  Thr Gly Cys Cys Cys  Cys Thr Thr Gly Gly  Cys Cys Ala
    4910                4915                4920

Thr Cys  Thr Ala Gly Ala Cys  Gly Cys Cys Cys Thr  Ala Cys Thr
    4925                4930                4935

Thr Gly  Gly Ala Gly Ala Gly  Gly Cys Ala Cys Cys  Ala Cys Cys
    4940                4945                4950

Gly Thr  Gly Thr Cys Ala Cys  Cys Ala Ala Gly Ala  Ala Cys Cys
    4955                4960                4965

Gly Cys  Cys Ala Cys Ala Ala  Gly Cys Ala Gly Cys  Gly Cys Cys
```

```
    4970                4975                4980

Ala Gly  Ala Ala Cys Cys Thr  Gly Thr Thr Gly Thr  Gly Gly Cys
    4985                4990                4995

Ala Cys  Ala Ala Ala Gly Thr  Gly Gly Cys Cys Cys  Thr Cys Cys
    5000                5005                5010

Ala Gly  Cys Cys Ala Ala Gly  Ala Ala Gly Cys Cys  Gly Cys Thr
    5015                5020                5025

Cys Thr  Cys Gly Gly Ala Cys  Thr Thr Gly Gly Ala  Ala Gly Cys
    5030                5035                5040

Gly Gly  Ala Cys Thr Gly Cys  Thr Gly Ala Gly Gly  Thr Thr Cys
    5045                5050                5055

Thr Cys  Thr Thr Gly Thr Gly  Gly Ala Ala Cys Cys  Gly Cys Cys
    5060                5065                5070

Gly Cys  Cys Ala Thr Thr Cys  Gly Gly Ala Ala Gly  Ala Thr Gly
    5075                5080                5085

Cys Ala  Cys Thr Thr Thr Ala  Gly Cys Cys Thr Gly  Ala Ala Ala
    5090                5095                5100

Gly Ala  Ala Cys Ala Cys Cys  Cys Thr Cys Cys Ala  Cys Cys Ala
    5105                5110                5115

Cys Cys  Thr Thr Gly Thr Cys  Cys Thr Cys Cys Ala  Gly Ala Gly
    5120                5125                5130

Gly Cys  Thr Thr Thr Cys Cys  Ala Ala Ala Gly Ala  Gly Cys Thr
    5135                5140                5145

Gly Cys  Thr Gly Gly Cys Gly  Ala Ala Gly Gly Cys  Gly Gly Ala
    5150                5155                5160

Cys Cys  Thr Gly Gly Thr Ala  Gly Ala Gly Gly Thr  Gly Gly Thr
    5165                5170                5175
```

```
Gly Cys  Thr Ala Gly Ala Ala  Gly Ala Gly Gly Thr  Gly Cys Thr
    5180                5185                5190

Ala Gly  Gly Gly Thr Gly Cys  Thr Gly Cys Ala Gly  Ala Gly Cys
    5195                5200                5205

Cys Cys  Ala Thr Thr Cys Thr  Gly Thr Ala Gly Ala  Gly Cys Ala
    5210                5215                5220

Gly Gly  Cys Gly Cys Ala Gly  Gly Cys Gly Ala Ala  Thr Gly Gly
    5225                5230                5235

Cys Thr  Gly Gly Gly Cys Cys  Ala Thr Cys Ala Gly  Ala Gly Thr
    5240                5245                5250

Cys Thr  Gly Ala Gly Ala Cys  Ala Thr Gly Thr Cys  Gly Thr Cys
    5255                5260                5265

Gly Gly  Cys Thr Ala Cys Gly  Gly Cys Cys Ala Cys  Cys Thr Gly
    5270                5275                5280

Gly Ala  Thr Ala Cys Ala Ala  Gly Cys Gly Gly Ala  Ala Gly Cys
    5285                5290                5295

Ala Gly  Cys Thr Cys Thr Ala  Gly Cys Thr Cys Cys  Ala Gly Cys
    5300                5305                5310

Thr Gly  Gly Cys Cys Thr Ala  Ala Cys Thr Cys Ala  Ala Ala Ala
    5315                5320                5325

Ala Thr  Gly Gly Cys Thr Cys  Thr Gly Ala Ala Cys  Ala Gly Cys
    5330                5335                5340

Cys Thr  Gly Ala Ala Cys Thr  Cys Cys Ala Thr Cys  Gly Ala Cys
    5345                5350                5355

Gly Ala  Cys Gly Cys Cys Cys  Ala Gly Cys Thr Gly  Ala Cys Ala
    5360                5365                5370
```

```
Ala Gly  Ala Ala Thr Cys Gly  Cys Cys Cys Cys Thr  Cys Cys Thr
    5375                5380                5385

Ala Gly  Ala Thr Cys Thr Cys  Ala Cys Thr Gly Cys  Thr Gly Cys
    5390                5395                5400

Thr Thr  Thr Thr Gly Gly Gly  Ala Ala Gly Thr Gly  Ala Ala Cys
    5405                5410                5415

Gly Cys  Cys Cys Cys Ala Ala  Gly Cys Cys Ala Thr  Cys Ala Cys
    5420                5425                5430

Cys Ala  Thr Cys Ala Cys Cys  Ala Cys Cys Ala Thr  Thr Ala Gly
    5435                5440                5445

Thr Ala  Ala Ala Gly Gly Cys  Gly Cys Gly Cys Cys  Thr Ala Gly
    5450                5455                5460

Cys Gly  Gly Cys Cys Gly Cys  Gly Ala Thr Cys Thr  Gly Cys Thr
    5465                5470                5475

Gly Thr  Gly Cys Cys Thr Thr  Cys Thr Ala Gly Thr  Thr Gly Cys
    5480                5485                5490

Cys Ala  Gly Cys Cys Ala Thr  Cys Thr Gly Thr Thr  Gly Thr Thr
    5495                5500                5505

Thr Gly  Cys Cys Cys Cys Thr  Cys Cys Cys Cys Cys  Gly Thr Gly
    5510                5515                5520

Cys Cys  Thr Thr Cys Cys Thr  Thr Gly Ala Cys Cys  Cys Thr Gly
    5525                5530                5535

Gly Ala  Ala Gly Gly Thr Gly  Cys Cys Ala Cys Thr  Cys Cys Cys
    5540                5545                5550

Ala Cys  Thr Gly Thr Cys Cys  Thr Thr Thr Cys Cys  Thr Ala Ala
    5555                5560                5565
```

```
Thr Ala  Ala Ala Ala Thr Gly  Ala Gly Gly Ala Ala  Ala Thr Thr
    5570                5575                5580


Gly Cys  Ala Thr Cys Gly Cys  Ala Thr Thr Gly Thr  Cys Thr Gly
    5585                5590                5595


Ala Gly  Thr Ala Gly Gly Thr  Gly Thr Cys Ala Thr  Thr Cys Thr
    5600                5605                5610


Ala Thr  Thr Cys Thr Gly Gly  Gly Gly Gly Gly Thr  Gly Gly Gly
    5615                5620                5625


Gly Thr  Gly Gly Gly Gly Cys  Ala Gly Gly Ala Cys  Ala Gly Cys
    5630                5635                5640


Ala Ala  Gly Gly Gly Gly Gly  Ala Gly Gly Ala Thr  Thr Gly Gly
    5645                5650                5655


Gly Ala  Ala Gly Ala Cys Ala  Ala Thr Ala Gly Cys  Ala Gly Gly
    5660                5665                5670


Cys Ala  Thr Gly Cys Thr Gly  Gly Gly Gly Ala Thr  Gly Cys Gly
    5675                5680                5685


Gly Thr  Gly Gly Gly Cys Thr  Cys Thr Ala Thr Gly  Gly Cys Cys
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Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gln Asn Leu Gln
            20                  25                  30
```

```
Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
        35                  40                  45

Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
    50                  55                  60

Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
65                  70                  75                  80

Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
                85                  90                  95

Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg
            100                 105                 110

Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val
        115                 120                 125

Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro
    130                 135                 140

Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp Tyr Trp Ala Gln
145                 150                 155                 160

Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys Trp Lys Phe Glu
                165                 170                 175

Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro
            180                 185                 190

Arg His Trp Lys Thr Asp Arg Asp Tyr Trp Ala Gln Lys Glu Lys Gly
        195                 200                 205

Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe Arg Glu Leu Lys
    210                 215                 220

Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg Leu Gly Gly Pro
225                 230                 235                 240
```

```
Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg Leu Thr Pro Val
                245                 250                 255

Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro Gly Leu Phe Pro
            260                 265                 270

Pro Val Lys Ser Ser Ile Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser
        275                 280                 285

Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln Tyr Glu
    290                 295                 300

Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu
305                 310                 315                 320

Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Leu Val Leu Gly Val Leu
                325                 330                 335

Ser Gly His Ser Gly Ser Arg Leu Lys Arg Ser Phe Ala Val Thr Glu
            340                 345                 350

Arg Ile Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln
        355                 360                 365

Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu
    370                 375                 380

Ile Thr Glu Leu Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu
385                 390                 395                 400

Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala
                405                 410                 415

Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu
            420                 425                 430

Glu Phe His Ala Cys Gln Trp Gln His Tyr His Arg Ser Gly Glu Ala
        435                 440                 445

Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Val Ala Met Met Val
```

```
    450                 455                 460

Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu Lys Ile Gln Asn Lys
465                 470                 475                 480

Asn Cys Pro Asp Val Leu Arg Phe Leu Asp Leu Lys Val Arg Tyr Leu
                485                 490                 495

His Ser Val Pro Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly
            500                 505                 510

Ala Pro Gly Ile His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys
        515                 520                 525

Asp Pro Ala Arg His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly
    530                 535                 540

Gln Val Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln
545                 550                 555                 560

Pro Gln Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly
                565                 570                 575

Gln Pro Arg Leu His Thr Val Lys Met Trp Arg Ala Cys His Leu Phe
            580                 585                 590

Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser Ala Arg
        595                 600                 605

Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala Gly Arg
    610                 615                 620

Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His Gly Leu
625                 630                 635                 640

Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu His Leu
                645                 650                 655

His Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg Gly Trp Gly
            660                 665                 670
```

```
Glu Ala Cys Ala Gln Val Pro Pro Ser Arg Gly His Tyr Lys Leu Ile
        675                 680                 685

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

Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser Ile Thr Phe Gln Trp
705                 710                 715                 720

Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp Ile Cys Val Thr Ala
                725                 730                 735

Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro Cys Phe Leu Leu His
            740                 745                 750

Glu Ala Ser Ala Ser Gln Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu
        755                 760                 765

Arg Gly Gly Gly Arg Thr Ala Arg Ala Leu Trp Ala Arg Gly Asp Ser
    770                 775                 780

Val Leu Thr Pro Ala Leu Asp Pro Gln Thr Pro Val Arg Ala Pro Ser
785                 790                 795                 800

Leu Thr Arg Ala Ala Ala Ala Val Gly Val Pro Gly Asp Ser Thr Arg
                805                 810                 815

Arg Ala Val Arg Arg Met Asn Thr Phe Cys Gly Ala Ser Ala Cys Asp
            820                 825                 830

Val Ser Leu Ile Ala Met Asp Ser Ala Cys Glu Glu Arg Gly Ala Ala
        835                 840                 845

Gly Ser Leu Ile Ser Cys Glu Ser Leu Tyr His Arg Glu Lys Gln Leu
    850                 855                 860

Ile Ala Met Asp Ser Ala Ile Phe Val Gln Gly Lys Asp Trp Gly Val
865                 870                 875                 880
```

```
Lys Lys Phe Ile Arg Arg Asp Phe Thr Met Pro Ala Ile Leu Lys Leu
                885                 890                 895

Gln Lys Asn Cys Leu Leu Ser Leu Asn Ser Lys Met Ala Leu Asn Ser
            900                 905                 910

Glu Ala Leu Ser Val Val Ser Glu Tyr Glu Ala Gly Met Thr Leu Gly
        915                 920                 925

Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg Pro
    930                 935                 940

Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe Ser Glu Ser Lys
945                 950                 955                 960

Arg Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile Tyr Arg Leu Cys
                965                 970                 975

Cys Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala Arg Ser Pro Ala
            980                 985                 990

Phe Pro Lys Pro Val Arg Pro Leu  Pro Ala Pro Ile Thr  Arg Ile Thr
        995                 1000                1005

Pro Gln  Leu Gly Gly Gln Ser  Asp Ser Ser Gln Pro  Leu Leu Thr
    1010                1015                1020

Thr Gly  Arg Pro Gln Gly Trp  Gln Asp Gln Ala Leu  Arg His Thr
    1025                1030                1035

Gln Gln  Ala Ser Pro Ala Ser  Cys Ala Thr Ile Thr  Ile Pro Ile
    1040                1045                1050

His Ser  Ala Ala Leu Gly Asp  His Ser Gly Asp Pro  Gly Pro Ala
    1055                1060                1065

Trp Asp  Thr Cys Pro Pro Leu  Pro Leu Thr Thr Leu  Ile Pro Arg
    1070                1075                1080
```

```
Ala Pro  Pro Pro Tyr Gly Asp  Ser Thr Ala Arg Ser  Trp Pro Ser
    1085                1090                1095

Arg Cys  Gly Pro Leu Gly Tyr  Ala Tyr Lys Asp Phe  Leu Trp Cys
    1100                1105                1110

Phe Pro  Phe Ser Leu Val Phe  Leu Gln Glu Ile Gln  Ile Cys Cys
    1115                1120                1125

His Val  Ser Cys Leu Cys Cys  Ile Cys Cys Ser Thr  Arg Ile Cys
    1130                1135                1140

Leu Gly  Cys Leu Leu Glu Leu  Phe Leu Ser Arg Ala  Leu Arg Ala
    1145                1150                1155

Leu His  Val Leu Trp Asn Gly  Phe Gln Leu His Cys  Gln Gly Asn
    1160                1165                1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                1180                1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                1195                1200

Asn Ser  Lys Met Ala Leu Asn  Ser Leu Asn Ser Ile  Asp Asp Ala
    1205                1210                1215

Gln Leu  Thr Arg Ile Ala Pro  Pro Arg Ser His Cys  Cys Phe Trp
    1220                1225                1230

Glu Val  Asn Ala Pro Phe Val  Gln Gly Lys Asp Trp  Gly Leu Lys
    1235                1240                1245

Lys Phe  Ile Arg Arg Asp Phe  Glu Ala Phe Gln Arg  Ala Ala Gly
    1250                1255                1260

Glu Gly  Gly Pro Gly Arg Gly  Gly Ala Arg Arg Gly  Ala Arg Val
    1265                1270                1275

Leu Gln  Ser Pro Phe Cys Arg  Ala Gly Ala Gly Glu  Trp Leu Gly
```

```
    1280                1285                1290

His Gln  Ser Leu Arg Trp Gly  Met Glu Leu Ala Ala  Ser Arg Arg
    1295                1300                1305

Phe Ser  Trp Asp His His Ser  Ala Gly Gly Pro Pro  Arg Val Pro
    1310                1315                1320

Ser Val  Arg Ser Gly Ala Ala  Gln Val Gln Pro Lys  Asp Pro Leu
    1325                1330                1335

Pro Leu  Arg Thr Leu Ala Gly  Cys Leu Ala Arg Thr  Ala His Leu
    1340                1345                1350

Arg Pro  Gly Ala Glu Ser Leu  Pro Gln Pro Gln Leu  His Cys Thr
    1355                1360                1365

Ile Ala  Arg Glu Leu His Gln  Phe Ala Phe Asp Leu  Leu Ile Lys
    1370                1375                1380

Ser His  Lys Met His Phe Ser  Leu Lys Glu His Pro  Pro Pro Pro
    1385                1390                1395

Cys Pro  Pro His Val Val Gly  Tyr Gly His Leu Asp  Thr Ser Gly
    1400                1405                1410

Ser Ser  Ser Ser Ser Ser Trp  Pro Gln Pro Asp Ser  Phe Ala Ala
    1415                1420                1425

Leu His  Ser Ser Leu Asn Glu  Leu Gly Glu Leu Trp  Phe Gln Ser
    1430                1435                1440

Ser Glu  Leu Ser Pro Thr Gly  Ala Pro Trp Pro Ser  Arg Arg Pro
    1445                1450                1455

Thr Trp  Arg Gly Thr Thr Val  Ser Pro Arg Thr Ala  Thr Ser Ser
    1460                1465                1470

Ala Arg  Thr Cys Cys Gly Thr  Lys Trp Pro Ser Ser  Gln Glu Ala
    1475                1480                1485
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Ala Ala Ile Arg
    1505

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gctgatgtgc ccgctcctca gggcccttgt tggggaggac aacctggatc tgccccatct 600

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gagtacaacc agaaactgca agtgaaccag ttcagcgaga gcaagcggac cgctctgacc 3060

cacaaccagg acttcagcat ctaccggctg tgctgcaaga ggggctctct gtgtcatgct 3120

agccaggcta gaagccccgc ctttcctaag cctgtcagac ctctgcctgc tcctatcacc 3180

agaatcaccc ctcagctcgg cggccagtct gattcatctc agccactgct gaccaccggc 3240

agacctcaag gatggcaaga ccaggctctg agacacacac agcaggctag cccagcctct 3300

tgcgccacca tcacaatacc aatacattct gccgctctgg gcgatcacag cggagatcct 3360

ggacctgcct gggatacttg tcctcctctg cccctaacta cactgatccc tagggctcct 3420

ccaccttacg gcgatagcac agccagatcc tggcctagca gatgtggccc tctgggctac 3480

gcctacaagg acttcctgtg gtgcttcccc ttctctctgg tgttcctgca agaaatccag 3540

atctgctgtc acgtgtcctg cctgtgctgt atctgctgta gcacccggat ctgtctgggc 3600

tgtctgctgg aactgttcct gagcagagcc ctgagagcac tgcacgtgct gtggaacgga 3660

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ccaagcggtt ctctgatccc tctcagactg cccctcctgt gggaagtgcg gggcaattct 3780

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ggacctggca gaggtggtgc tagaagaggt gctagagtgc tgcagagccc attctgtaga 4020

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tgccttgcca gaacagctca tcttagacct ggcgccgaaa gcctgcctca acctcagctg 4260

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aagatgcact tctcactgaa agagcacccg ccaccgccgt gcccaccgca cgttgtcggc 4380

tatggccacc tggatacaag cggctcctct agcagtagct cctggcctca gcctgacagc 4440

tttgctgccc tgcatagctc cctgaatgag ctgggcgaac tgtggttcca gtccagcgaa 4500

ctgtctccta ctggcgctcc atggccaagc agaaggccta cttggagagg caccaccgtg 4560

tctccaagaa ccgctacaag cagcgccaga acctgttgcg gcacaaaatg gccctccagc 4620

caagaagctg ccctcggact tggaagcgga ctgctgagat tcagctgtgg cacagccgcc 4680

atcagaagcc atcaccatca ccaccattag taaaggcgcg cc 4722

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<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

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Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1 5 10 15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gln Asn Leu Gln
20 25 30

Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
35 40 45

Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
50 55 60

Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
65 70 75 80

Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
85 90 95

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

Leu Ser Gly His Ser Gly Ser Arg Leu Tyr Glu Ala Gly Met Thr Leu
        115                 120                 125

Gly Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu Leu Pro Leu Ser Pro
    130                 135                 140

Phe Ser Leu Ile Phe Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser Glu
145                 150                 155                 160

Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln Val Pro Phe
                165                 170                 175

Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg
            180                 185                 190

Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg
        195                 200                 205

Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro
    210                 215                 220

Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Thr Gly Gly Lys Ser Thr
225                 230                 235                 240

Cys Ser Ala Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Phe Ser Thr
                245                 250                 255

Tyr Pro Gln Trp Val Ile Leu Ile Thr Glu Leu Gly Met Glu Cys Thr
            260                 265                 270

Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg Glu Glu Asp Gly Trp
        275                 280                 285

Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val Pro Ala Pro Gln Gly
    290                 295                 300

Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro Ser Ser Ala Pro Pro
```

```
305                 310                 315                 320

Glu Gln Ser Leu Leu Asp Asp Tyr Trp Ala Gln Lys Glu Lys Gly Ser
                325                 330                 335

Ser Ser Phe Leu Arg Pro Ser Cys Asp Tyr Trp Ala Gln Lys Glu Lys
            340                 345                 350

Ile Ser Ile Pro Arg Thr His Leu Cys Trp Lys Phe Glu Met Ser Tyr
        355                 360                 365

Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro Arg His Trp
    370                 375                 380

Lys Thr Asp Arg Gly Val Pro Gly Asp Ser Thr Arg Arg Ala Val Arg
385                 390                 395                 400

Arg Met Asn Thr Phe Tyr Glu Ala Gly Met Thr Leu Gly Glu Lys Phe
                405                 410                 415

Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg Pro Asn Ser Lys
            420                 425                 430

Met Ala Leu Asn Ser Glu Ala Leu Ser Val Val Ser Glu Cys Gly Ala
        435                 440                 445

Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser Ala Phe Val Gln
    450                 455                 460

Gly Lys Asp Trp Gly Val Lys Lys Phe Ile Arg Arg Asp Phe Tyr Ala
465                 470                 475                 480

Tyr Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu Val Phe Leu Gln
                485                 490                 495

Glu Ile Gln Ile Cys Cys His Val Ser Cys Leu Cys Cys Ile Cys Cys
            500                 505                 510

Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu Phe Leu Ser Arg
        515                 520                 525
```

```
Ala Leu Arg Ala Leu His Val Leu Trp Asn Gly Phe Gln Leu His Cys
    530                 535                 540

Gln Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe Ser Glu Ser
545                 550                 555                 560

Lys Ser Leu Tyr His Arg Glu Lys Gln Leu Ile Ala Met Asp Ser Ala
                565                 570                 575

Ile Cys Glu Glu Arg Gly Ala Ala Gly Ser Leu Ile Ser Cys Glu Thr
            580                 585                 590

Met Pro Ala Ile Leu Lys Leu Gln Lys Asn Cys Leu Leu Ser Leu Arg
        595                 600                 605

Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile Tyr Arg Leu Cys Cys
    610                 615                 620

Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala Arg Ser Pro Ala Phe
625                 630                 635                 640

Pro Lys Pro Val Arg Pro Leu Pro Ala Pro Ile Thr Arg Ile Thr Pro
                645                 650                 655

Gln Leu Gly Gly Gln Ser Asp Ser Ser Gln Pro Leu Leu Thr Thr Gly
            660                 665                 670

Arg Pro Gln Gly Trp Gln Asp Gln Ala Leu Arg His Thr Gln Gln Ala
        675                 680                 685

Ser Pro Ala Ser Cys Ala Thr Ile Thr Ile Pro Ile His Ser Ala Ala
    690                 695                 700

Leu Gly Asp His Ser Gly Asp Pro Gly Pro Ala Trp Asp Thr Cys Pro
705                 710                 715                 720

Pro Leu Pro Leu Thr Thr Leu Ile Pro Arg Ala Pro Pro Pro Tyr Gly
                725                 730                 735
```

```
Asp Ser Thr Ala Arg Ser Trp Pro Ser Arg Cys Gly Pro Leu Gly Asp
            740                 745                 750

Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln Asp Gly
        755                 760                 765

Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg Asn Leu
    770                 775                 780

Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala Cys
785                 790                 795                 800

Lys Ile Gln Asn Lys Asn Cys Pro Asp Phe Lys Lys Phe Asp Gly Pro
                805                 810                 815

Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg Ala Leu Trp Ala Arg
            820                 825                 830

Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro Gln Thr Pro Val Arg
        835                 840                 845

Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val His Tyr Lys Leu Ile
    850                 855                 860

Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr Asp Arg Leu His Lys Thr
865                 870                 875                 880

Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser Ile Thr Phe Gln Trp
                885                 890                 895

Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp Ile Cys Val Thr Ala
            900                 905                 910

Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro Cys Phe Leu Leu His
        915                 920                 925

Glu Ala Ser Ala Ser Gln Cys His Leu Phe Leu Gln Pro Gln Val Gly
    930                 935                 940
```

```
Thr Pro Pro Pro His Thr Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro
945                 950                 955                 960


His Pro His Glu Ser Cys Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala
                965                 970                 975


Gln Thr Cys Ala Arg Arg Gln His Gly Leu Pro Gly Cys Glu Glu Ala
            980                 985                 990


Gly Thr Ala Arg Val Pro Ser Leu  His Leu His Leu His  Gln Ala Ala
        995                 1000                1005


Leu Gly  Ala Gly Arg Gly Arg  Gly Trp Gly Glu Ala  Cys Ala Gln
    1010                1015                1020


Val Pro  Pro Ser Arg Gly Val  Leu Arg Phe Leu Asp  Leu Lys Val
    1025                1030                1035


Arg Tyr  Leu His Ser Gln Trp  Gln His Tyr His Arg  Ser Gly Glu
    1040                1045                1050


Ala Ala  Gly Thr Pro Leu Trp  Arg Pro Thr Arg Asn  Val Pro Phe
    1055                1060                1065


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


His His  Ala Ala Ser Pro Val  Ala Ala Asn Leu Cys  Asp Pro Ala
    1085                1090                1095


Arg His  Ala Gln His Thr Arg  Ile Pro Cys Gly Ala  Gly Gln Val
    1100                1105                1110


Arg Ala  Gly Arg Gly Pro Glu  Ala Gly Gly Gly Val  Leu Gln Pro
    1115                1120                1125


Gln Arg  Pro Ala Pro Glu Lys  Pro Gly Cys Pro Cys  Arg Arg Gly
    1130                1135                1140


Gln Pro  Arg Leu His Thr Val  Lys Met Trp Arg Ala  Val Ala Met
```

```
    1145                1150                1155

Met Val  Pro Asp Arg Gln Val  His Tyr Asp Phe Gly  Leu Gly Asn
    1160                1165                1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                1180                1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                1195                1200

Gln Pro  Asp Ser Phe Ala Ala  Leu His Ser Ser Leu  Asn Glu Leu
    1205                1210                1215

Gly Glu  Ile Ala Arg Glu Leu  His Gln Phe Ala Phe  Asp Leu Leu
    1220                1225                1230

Ile Lys  Ser His Phe Val Gln  Gly Lys Asp Trp Gly  Leu Lys Lys
    1235                1240                1245

Phe Ile  Arg Arg Asp Phe Trp  Gly Met Glu Leu Ala  Ala Ser Arg
    1250                1255                1260

Arg Phe  Ser Trp Asp His His  Ser Ala Gly Gly Pro  Pro Arg Val
    1265                1270                1275

Pro Ser  Val Arg Ser Gly Ala  Ala Gln Val Gln Pro  Lys Asp Pro
    1280                1285                1290

Leu Pro  Leu Arg Thr Leu Ala  Gly Cys Leu Ala Arg  Thr Ala His
    1295                1300                1305

Leu Arg  Pro Gly Ala Glu Ser  Leu Pro Gln Pro Gln  Leu His Cys
    1310                1315                1320

Thr Leu  Trp Phe Gln Ser Ser  Glu Leu Ser Pro Thr  Gly Ala Pro
    1325                1330                1335

Trp Pro  Ser Arg Arg Pro Thr  Trp Arg Gly Thr Thr  Val Ser Pro
    1340                1345                1350
```

```
Arg Thr  Ala Thr Ser Ser Ala  Arg Thr Cys Cys Gly  Thr Lys Trp
    1355                1360                1365

Pro Ser  Ser Gln Glu Ala Ala  Leu Gly Leu Gly Ser  Gly Leu Leu
    1370                1375                1380

Arg Phe  Ser Cys Gly Thr Ala  Ala Ile Arg Lys Met  His Phe Ser
    1385                1390                1395

Leu Lys  Glu His Pro Pro Pro  Pro Cys Pro Pro Glu  Ala Phe Gln
    1400                1405                1410

Arg Ala  Ala Gly Glu Gly Gly  Pro Gly Arg Gly Gly  Ala Arg Arg
    1415                1420                1425

Gly Ala  Arg Val Leu Gln Ser  Pro Phe Cys Arg Ala  Gly Ala Gly
    1430                1435                1440

Glu Trp  Leu Gly His Gln Ser  Leu Arg His Val Val  Gly Tyr Gly
    1445                1450                1455

His Leu  Asp Thr Ser Gly Ser  Ser Ser Ser Ser Ser  Trp Pro Asn
    1460                1465                1470

Ser Lys  Met Ala Leu Asn Ser  Leu Asn Ser Ile Asp  Asp Ala Gln
    1475                1480                1485

Leu Thr  Arg Ile Ala Pro Pro  Arg Ser His Cys Cys  Phe Trp Glu
    1490                1495                1500

Val Asn  Ala Pro
    1505
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<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 555

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
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Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gln Asn Leu Gln
20 25 30

Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
35 40 45

Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
50 55 60

Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
65 70 75 80

Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
85 90 95

Lys Arg Ser Phe Ala Val Thr Glu Arg Ile Ile Thr Glu Ile Ser Cys
100 105 110

Cys Thr Leu Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp
115 120 125

Gln Leu Gln Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe
130 135 140

Phe Leu Phe Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Asp
145 150 155 160

Tyr Trp Ala Gln Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser
165 170 175

Cys Val Pro Phe Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu
180 185 190

Arg Gln Gly Arg Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro
195 200 205

```
Ser Gln Ala Arg Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys
    210                 215                 220

Leu Gly Asp Pro Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Thr Gly
225                 230                 235                 240

Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln Ser Leu Pro Ser Thr
                245                 250                 255

Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu Ile Thr Glu Leu Gly
            260                 265                 270

Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg Glu
        275                 280                 285

Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val Pro
    290                 295                 300

Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro Ser
305                 310                 315                 320

Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp Tyr Trp Ala Gln Lys
                325                 330                 335

Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys Leu Val Leu Gly Val
            340                 345                 350

Leu Ser Gly His Ser Gly Ser Arg Leu Trp Lys Phe Glu Met Ser Tyr
        355                 360                 365

Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro Arg His Trp
    370                 375                 380

Lys Thr Asp Arg Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu
385                 390                 395                 400

Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala
                405                 410                 415
```

```
Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu
            420                 425                 430

Glu Phe His Ala Cys Lys Ile Gln Asn Lys Asn Cys Pro Asp Phe Lys
        435                 440                 445

Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg
    450                 455                 460

Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro
465                 470                 475                 480

Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
                485                 490                 495

His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr Asp
            500                 505                 510

Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser
        515                 520                 525

Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp
    530                 535                 540

Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro
545                 550                 555                 560

Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Cys His Leu Phe Leu
                565                 570                 575

Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser Ala Arg Ala
            580                 585                 590

Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala Gly Arg Arg
        595                 600                 605

Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His Gly Leu Pro
    610                 615                 620
```

```
Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu His Leu His
625                 630                 635                 640

Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg Gly Trp Gly Glu
                645                 650                 655

Ala Cys Ala Gln Val Pro Pro Ser Arg Gly Val Leu Arg Phe Leu Asp
            660                 665                 670

Leu Lys Val Arg Tyr Leu His Ser Gln Trp Gln His Tyr His Arg Ser
        675                 680                 685

Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Val Pro
    690                 695                 700

Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro Gly Ile
705                 710                 715                 720

His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys Asp Pro Ala Arg
                725                 730                 735

His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly Gln Val Arg Ala
            740                 745                 750

Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln Pro Gln Arg Pro
        755                 760                 765

Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro Arg Leu
    770                 775                 780

His Thr Val Lys Met Trp Arg Ala Val Ala Met Met Val Pro Asp Arg
785                 790                 795                 800

Gln Val His Tyr Asp Phe Gly Leu Gly Val Pro Gly Asp Ser Thr Arg
                805                 810                 815

Arg Ala Val Arg Arg Met Asn Thr Phe Tyr Glu Ala Gly Met Thr Leu
            820                 825                 830

Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg
```

```
        835                 840                 845

Pro Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu Ser Val Val Ser
    850                 855                 860

Glu Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser
865                 870                 875                 880

Ala Phe Val Gln Gly Lys Asp Trp Gly Val Lys Lys Phe Ile Arg Arg
                885                 890                 895

Asp Phe Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu
            900                 905                 910

Val Phe Leu Gln Glu Ile Gln Ile Cys Cys His Val Ser Cys Leu Cys
        915                 920                 925

Cys Ile Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu
    930                 935                 940

Phe Leu Ser Arg Ala Leu Arg Ala Leu His Val Leu Trp Asn Gly Phe
945                 950                 955                 960

Gln Leu His Cys Gln Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln
                965                 970                 975

Phe Ser Glu Ser Lys Ser Leu Tyr His Arg Glu Lys Gln Leu Ile Ala
            980                 985                 990

Met Asp Ser Ala Ile Cys Glu Glu  Arg Gly Ala Ala Gly  Ser Leu Ile
        995                 1000                1005

Ser Cys  Glu Thr Met Pro Ala  Ile Leu Lys Leu Gln  Lys Asn Cys
    1010                1015                1020

Leu Leu  Ser Leu Arg Thr Ala  Leu Thr His Asn Gln  Asp Phe Ser
    1025                1030                1035

Ile Tyr  Arg Leu Cys Cys Lys  Arg Gly Ser Leu Cys  His Ala Ser
    1040                1045                1050
```

```
Gln Ala  Arg Ser Pro Ala Phe  Pro Lys Pro Val Arg  Pro Leu Pro
    1055                1060                1065

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

Ser Ser  Gln Pro Leu Leu Thr  Thr Gly Arg Pro Gln  Gly Trp Gln
    1085                1090                1095

Asp Gln  Ala Leu Arg His Thr  Gln Gln Ala Ser Pro  Ala Ser Cys
    1100                1105                1110

Ala Thr  Ile Thr Ile Pro Ile  His Ser Ala Ala Leu  Gly Asp His
    1115                1120                1125

Ser Gly  Asp Pro Gly Pro Ala  Trp Asp Thr Cys Pro  Pro Leu Pro
    1130                1135                1140

Leu Thr  Thr Leu Ile Pro Arg  Ala Pro Pro Pro Tyr  Gly Asp Ser
    1145                1150                1155

Thr Ala  Arg Ser Trp Pro Ser  Arg Cys Gly Pro Leu  Gly Gly Asn
    1160                1165                1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                1180                1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                1195                1200

Gln Pro  Asp Ser Phe Ala Ala  Leu His Ser Ser Leu  Asn Glu Leu
    1205                1210                1215

Gly Glu  Ile Ala Arg Glu Leu  His Gln Phe Ala Phe  Asp Leu Leu
    1220                1225                1230

Ile Lys  Ser His Phe Val Gln  Gly Lys Asp Trp Gly  Leu Lys Lys
    1235                1240                1245
```

```
Phe Ile  Arg Arg Asp Phe Trp  Gly Met Glu Leu Ala  Ala Ser Arg
    1250                1255                1260

Arg Phe  Ser Trp Asp His His  Ser Ala Gly Gly Pro  Pro Arg Val
    1265                1270                1275

Pro Ser  Val Arg Ser Gly Ala  Ala Gln Val Gln Pro  Lys Asp Pro
    1280                1285                1290

Leu Pro  Leu Arg Thr Leu Ala  Gly Cys Leu Ala Arg  Thr Ala His
    1295                1300                1305

Leu Arg  Pro Gly Ala Glu Ser  Leu Pro Gln Pro Gln  Leu His Cys
    1310                1315                1320

Thr Leu  Trp Phe Gln Ser Ser  Glu Leu Ser Pro Thr  Gly Ala Pro
    1325                1330                1335

Trp Pro  Ser Arg Arg Pro Thr  Trp Arg Gly Thr Thr  Val Ser Pro
    1340                1345                1350

Arg Thr  Ala Thr Ser Ser Ala  Arg Thr Cys Cys Gly  Thr Lys Trp
    1355                1360                1365

Pro Ser  Ser Gln Glu Ala Ala  Leu Gly Leu Gly Ser  Gly Leu Leu
    1370                1375                1380

Arg Phe  Ser Cys Gly Thr Ala  Ala Ile Arg Lys Met  His Phe Ser
    1385                1390                1395

Leu Lys  Glu His Pro Pro Pro  Pro Cys Pro Pro Glu  Ala Phe Gln
    1400                1405                1410

Arg Ala  Ala Gly Glu Gly Gly  Pro Gly Arg Gly Gly  Ala Arg Arg
    1415                1420                1425

Gly Ala  Arg Val Leu Gln Ser  Pro Phe Cys Arg Ala  Gly Ala Gly
    1430                1435                1440
```

Glu Trp Leu Gly His Gln Ser Leu Arg His Val Val Gly Tyr Gly
    1445   1450   1455

His Leu Asp Thr Ser Gly Ser Ser Ser Ser Ser Ser Trp Pro Asn
    1460   1465   1470

Ser Lys Met Ala Leu Asn Ser Leu Asn Ser Ile Asp Asp Ala Gln
    1475   1480   1485

Leu Thr Arg Ile Ala Pro Pro Arg Ser His Cys Cys Phe Trp Glu
    1490   1495   1500

Val Asn Ala Pro
    1505

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<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 556

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1   5   10   15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gln Asn Leu Gln
            20   25   30

Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
        35   40   45

Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
    50   55   60

Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
65   70   75   80

Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
                85   90   95

```
Lys Arg Ser Phe Ala Val Thr Glu Arg Ile Ile Asp Tyr Trp Ala Gln
            100                 105                 110

Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe
        115                 120                 125

Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg
    130                 135                 140

Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg
145                 150                 155                 160

Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro
                165                 170                 175

Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Leu Val Leu Gly Val Leu
            180                 185                 190

Ser Gly His Ser Gly Ser Arg Leu Tyr Glu Ala Gly Met Thr Leu Gly
        195                 200                 205

Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu Leu Pro Leu Ser Pro Phe
    210                 215                 220

Ser Leu Ile Phe Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser Glu Glu
225                 230                 235                 240

Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln Thr Gly Gly Lys
                245                 250                 255

Ser Thr Cys Ser Ala Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Phe
            260                 265                 270

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

Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg Glu Glu Asp
    290                 295                 300
```

```
Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val Pro Ala Pro
305                 310                 315                 320

Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro Ser Ser Ala
                325                 330                 335

Pro Pro Glu Gln Ser Leu Leu Asp Asp Tyr Trp Ala Gln Lys Glu Lys
            340                 345                 350

Ile Ser Ile Pro Arg Thr His Leu Cys Trp Lys Phe Glu Met Ser Tyr
        355                 360                 365

Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro Arg His Trp
    370                 375                 380

Lys Thr Asp Arg Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu
385                 390                 395                 400

Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala
                405                 410                 415

Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu
            420                 425                 430

Glu Phe His Ala Cys Lys Ile Gln Asn Lys Asn Cys Pro Asp Phe Lys
        435                 440                 445

Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg
    450                 455                 460

Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro
465                 470                 475                 480

Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
                485                 490                 495

His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr Asp
            500                 505                 510

Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His Leu Cys Ser
```

```
        515                 520                 525

Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser Thr Asn Asp
    530                 535                 540

Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe Leu Lys Pro
545                 550                 555                 560

Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Cys His Leu Phe Leu
                565                 570                 575

Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser Ala Arg Ala
            580                 585                 590

Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala Gly Arg Arg
        595                 600                 605

Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His Gly Leu Pro
    610                 615                 620

Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu His Leu His
625                 630                 635                 640

Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg Gly Trp Gly Glu
                645                 650                 655

Ala Cys Ala Gln Val Pro Pro Ser Arg Gly Val Leu Arg Phe Leu Asp
            660                 665                 670

Leu Lys Val Arg Tyr Leu His Ser Gln Trp Gln His Tyr His Arg Ser
        675                 680                 685

Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Val Pro
    690                 695                 700

Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro Gly Ile
705                 710                 715                 720

His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys Asp Pro Ala Arg
                725                 730                 735
```

```
His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly Gln Val Arg Ala
            740                 745                 750

Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln Pro Gln Arg Pro
        755                 760                 765

Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro Arg Leu
    770                 775                 780

His Thr Val Lys Met Trp Arg Ala Val Ala Met Met Val Pro Asp Arg
785                 790                 795                 800

Gln Val His Tyr Asp Phe Gly Leu Gly Val Pro Gly Asp Ser Thr Arg
                805                 810                 815

Arg Ala Val Arg Arg Met Asn Thr Phe Tyr Glu Ala Gly Met Thr Leu
            820                 825                 830

Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg
        835                 840                 845

Pro Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu Ser Val Val Ser
    850                 855                 860

Glu Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser
865                 870                 875                 880

Ala Phe Val Gln Gly Lys Asp Trp Gly Val Lys Lys Phe Ile Arg Arg
                885                 890                 895

Asp Phe Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu
            900                 905                 910

Val Phe Leu Gln Glu Ile Gln Ile Cys Cys His Val Ser Cys Leu Cys
        915                 920                 925

Cys Ile Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu
    930                 935                 940
```

```
Phe Leu Ser Arg Ala Leu Arg Ala Leu His Val Leu Trp Asn Gly Phe
945                 950                 955                 960


Gln Leu His Cys Gln Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln
                965                 970                 975


Phe Ser Glu Ser Lys Ser Leu Tyr His Arg Glu Lys Gln Leu Ile Ala
            980                 985                 990


Met Asp Ser Ala Ile Cys Glu Glu  Arg Gly Ala Ala Gly  Ser Leu Ile
        995                 1000                1005


Ser Cys  Glu Thr Met Pro Ala  Ile Leu Lys Leu Gln  Lys Asn Cys
    1010                1015                1020


Leu Leu  Ser Leu Arg Thr Ala  Leu Thr His Asn Gln  Asp Phe Ser
    1025                1030                1035


Ile Tyr  Arg Leu Cys Cys Lys  Arg Gly Ser Leu Cys  His Ala Ser
    1040                1045                1050


Gln Ala  Arg Ser Pro Ala Phe  Pro Lys Pro Val Arg  Pro Leu Pro
    1055                1060                1065


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


Ser Ser  Gln Pro Leu Leu Thr  Thr Gly Arg Pro Gln  Gly Trp Gln
    1085                1090                1095


Asp Gln  Ala Leu Arg His Thr  Gln Gln Ala Ser Pro  Ala Ser Cys
    1100                1105                1110


Ala Thr  Ile Thr Ile Pro Ile  His Ser Ala Ala Leu  Gly Asp His
    1115                1120                1125


Ser Gly  Asp Pro Gly Pro Ala  Trp Asp Thr Cys Pro  Pro Leu Pro
    1130                1135                1140
```

```
Leu Thr  Thr Leu Ile Pro Arg  Ala Pro Pro Pro Tyr  Gly Asp Ser
    1145                1150                1155

Thr Ala  Arg Ser Trp Pro Ser  Arg Cys Gly Pro Leu  Gly Gly Asn
    1160                1165                1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                1180                1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                1195                1200

Gln Pro  Asp Ser Phe Ala Ala  Leu His Ser Ser Leu  Asn Glu Leu
    1205                1210                1215

Gly Glu  Ile Ala Arg Glu Leu  His Gln Phe Ala Phe  Asp Leu Leu
    1220                1225                1230

Ile Lys  Ser His Phe Val Gln  Gly Lys Asp Trp Gly  Leu Lys Lys
    1235                1240                1245

Phe Ile  Arg Arg Asp Phe Trp  Gly Met Glu Leu Ala  Ala Ser Arg
    1250                1255                1260

Arg Phe  Ser Trp Asp His His  Ser Ala Gly Gly Pro  Pro Arg Val
    1265                1270                1275

Pro Ser  Val Arg Ser Gly Ala  Ala Gln Val Gln Pro  Lys Asp Pro
    1280                1285                1290

Leu Pro  Leu Arg Thr Leu Ala  Gly Cys Leu Ala Arg  Thr Ala His
    1295                1300                1305

Leu Arg  Pro Gly Ala Glu Ser  Leu Pro Gln Pro Gln  Leu His Cys
    1310                1315                1320

Thr Leu  Trp Phe Gln Ser Ser  Glu Leu Ser Pro Thr  Gly Ala Pro
    1325                1330                1335

Trp Pro  Ser Arg Arg Pro Thr  Trp Arg Gly Thr Thr  Val Ser Pro
```

```
    1340                1345                1350

Arg Thr  Ala Thr Ser Ser Ala  Arg Thr Cys Cys Gly  Thr Lys Trp
    1355                1360                1365

Pro Ser  Ser Gln Glu Ala Ala  Leu Gly Leu Gly Ser  Gly Leu Leu
    1370                1375                1380

Arg Phe  Ser Cys Gly Thr Ala  Ala Ile Arg Lys Met  His Phe Ser
    1385                1390                1395

Leu Lys  Glu His Pro Pro Pro  Pro Cys Pro Pro Glu  Ala Phe Gln
    1400                1405                1410

Arg Ala  Ala Gly Glu Gly Gly  Pro Gly Arg Gly Gly  Ala Arg Arg
    1415                1420                1425

Gly Ala  Arg Val Leu Gln Ser  Pro Phe Cys Arg Ala  Gly Ala Gly
    1430                1435                1440

Glu Trp  Leu Gly His Gln Ser  Leu Arg His Val Val  Gly Tyr Gly
    1445                1450                1455

His Leu  Asp Thr Ser Gly Ser  Ser Ser Ser Ser Ser  Trp Pro Asn
    1460                1465                1470

Ser Lys  Met Ala Leu Asn Ser  Leu Asn Ser Ile Asp  Asp Ala Gln
    1475                1480                1485

Leu Thr  Arg Ile Ala Pro Pro  Arg Ser His Cys Cys  Phe Trp Glu
    1490                1495                1500

Val Asn  Ala Pro
    1505
```

<210> 557
<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>

<223> Heterologous polypeptide

<400> 557

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Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1               5                   10                  15


Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gln Asn Leu Gln
            20                  25                  30


Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
        35                  40                  45


Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
    50                  55                  60


Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
65                  70                  75                  80


Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
                85                  90                  95


Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg
            100                 105                 110


Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val
        115                 120                 125


Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro
    130                 135                 140


Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp Tyr Trp Ala Gln
145                 150                 155                 160


Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys Trp Lys Phe Glu
                165                 170                 175


Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro
            180                 185                 190


Arg His Trp Lys Thr Asp Arg Asp Tyr Trp Ala Gln Lys Glu Lys Gly
```

```
        195                 200                 205

Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe Arg Glu Leu Lys
    210                 215                 220

Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg Leu Gly Gly Pro
225                 230                 235                 240

Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg Leu Thr Pro Val
                245                 250                 255

Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro Gly Leu Phe Pro
            260                 265                 270

Pro Val Lys Ser Ser Ile Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser
        275                 280                 285

Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln Tyr Glu
    290                 295                 300

Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu
305                 310                 315                 320

Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Leu Val Leu Gly Val Leu
                325                 330                 335

Ser Gly His Ser Gly Ser Arg Leu Lys Arg Ser Phe Ala Val Thr Glu
            340                 345                 350

Arg Ile Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln
        355                 360                 365

Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu
    370                 375                 380

Ile Thr Glu Leu Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu
385                 390                 395                 400

Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala
                405                 410                 415
```

```
Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu
            420                 425                 430

Glu Phe His Ala Cys Cys His Leu Phe Leu Gln Pro Gln Val Gly Thr
        435                 440                 445

Pro Pro Pro His Thr Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His
    450                 455                 460

Pro His Glu Ser Cys Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln
465                 470                 475                 480

Thr Cys Ala Arg Arg Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly
                485                 490                 495

Thr Ala Arg Val Pro Ser Leu His Leu His Leu His Gln Ala Ala Leu
            500                 505                 510

Gly Ala Gly Arg Gly Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro
        515                 520                 525

Pro Ser Arg Gly His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe
    530                 535                 540

Ser Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val
545                 550                 555                 560

His Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys
                565                 570                 575

Ser Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr
            580                 585                 590

Phe Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Val
        595                 600                 605

Ala Met Met Val Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu Lys
    610                 615                 620
```

```
Ile Gln Asn Lys Asn Cys Pro Asp Val Leu Arg Phe Leu Asp Leu Lys
625                 630                 635                 640

Val Arg Tyr Leu His Ser Val Pro Phe Arg Glu Leu Lys Asn Gln Arg
                645                 650                 655

Thr Ala Gln Gly Ala Pro Gly Ile His His Ala Ala Ser Pro Val Ala
            660                 665                 670

Ala Asn Leu Cys Asp Pro Ala Arg His Ala Gln His Thr Arg Ile Pro
        675                 680                 685

Cys Gly Ala Gly Gln Val Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly
    690                 695                 700

Gly Val Leu Gln Pro Gln Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro
705                 710                 715                 720

Cys Arg Arg Gly Gln Pro Arg Leu His Thr Val Lys Met Trp Arg Ala
                725                 730                 735

Gln Trp Gln His Tyr His Arg Ser Gly Glu Ala Ala Gly Thr Pro Leu
            740                 745                 750

Trp Arg Pro Thr Arg Asn Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu
        755                 760                 765

Arg Gly Gly Gly Arg Thr Ala Arg Ala Leu Trp Ala Arg Gly Asp Ser
    770                 775                 780

Val Leu Thr Pro Ala Leu Asp Pro Gln Thr Pro Val Arg Ala Pro Ser
785                 790                 795                 800

Leu Thr Arg Ala Ala Ala Ala Val Gly Val Pro Gly Asp Ser Thr Arg
                805                 810                 815

Arg Ala Val Arg Arg Met Asn Thr Phe Cys Gly Ala Ser Ala Cys Asp
            820                 825                 830
```

```
Val Ser Leu Ile Ala Met Asp Ser Ala Cys Glu Glu Arg Gly Ala Ala
        835                 840                 845


Gly Ser Leu Ile Ser Cys Glu Ser Leu Tyr His Arg Glu Lys Gln Leu
    850                 855                 860


Ile Ala Met Asp Ser Ala Ile Phe Val Gln Gly Lys Asp Trp Gly Val
865                 870                 875                 880


Lys Lys Phe Ile Arg Arg Asp Phe Thr Met Pro Ala Ile Leu Lys Leu
                885                 890                 895


Gln Lys Asn Cys Leu Leu Ser Leu Asn Ser Lys Met Ala Leu Asn Ser
            900                 905                 910


Glu Ala Leu Ser Val Val Ser Glu Tyr Glu Ala Gly Met Thr Leu Gly
        915                 920                 925


Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg Pro
    930                 935                 940


Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe Ser Glu Ser Lys
945                 950                 955                 960


Arg Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile Tyr Arg Leu Cys
                965                 970                 975


Cys Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala Arg Ser Pro Ala
            980                 985                 990


Phe Pro Lys Pro Val Arg Pro Leu  Pro Ala Pro Ile Thr  Arg Ile Thr
        995                 1000                1005


Pro Gln  Leu Gly Gly Gln Ser  Asp Ser Ser Gln Pro  Leu Leu Thr
    1010                1015                1020


Thr Gly  Arg Pro Gln Gly Trp  Gln Asp Gln Ala Leu  Arg His Thr
    1025                1030                1035


Gln Gln  Ala Ser Pro Ala Ser  Cys Ala Thr Ile Thr  Ile Pro Ile
```

```
    1040                1045                1050

His Ser  Ala Ala Leu Gly Asp  His Ser Gly Asp Pro  Gly Pro Ala
    1055                1060                1065

Trp Asp  Thr Cys Pro Pro Leu  Pro Leu Thr Thr Leu  Ile Pro Arg
    1070                1075                1080

Ala Pro  Pro Pro Tyr Gly Asp  Ser Thr Ala Arg Ser  Trp Pro Ser
    1085                1090                1095

Arg Cys  Gly Pro Leu Gly Tyr  Ala Tyr Lys Asp Phe  Leu Trp Cys
    1100                1105                1110

Phe Pro  Phe Ser Leu Val Phe  Leu Gln Glu Ile Gln  Ile Cys Cys
    1115                1120                1125

His Val  Ser Cys Leu Cys Cys  Ile Cys Cys Ser Thr  Arg Ile Cys
    1130                1135                1140

Leu Gly  Cys Leu Leu Glu Leu  Phe Leu Ser Arg Ala  Leu Arg Ala
    1145                1150                1155

Leu His  Val Leu Trp Asn Gly  Phe Gln Leu His Cys  Gln Gly Asn
    1160                1165                1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                1180                1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                1195                1200

Asn Ser  Lys Met Ala Leu Asn  Ser Leu Asn Ser Ile  Asp Asp Ala
    1205                1210                1215

Gln Leu  Thr Arg Ile Ala Pro  Pro Arg Ser His Cys  Cys Phe Trp
    1220                1225                1230

Glu Val  Asn Ala Pro Phe Val  Gln Gly Lys Asp Trp  Gly Leu Lys
    1235                1240                1245
```

```
Lys Phe  Ile Arg Arg Asp Phe  Glu Ala Phe Gln Arg  Ala Ala Gly
    1250                1255                1260

Glu Gly  Gly Pro Gly Arg Gly  Gly Ala Arg Arg Gly  Ala Arg Val
    1265                1270                1275

Leu Gln  Ser Pro Phe Cys Arg  Ala Gly Ala Gly Glu  Trp Leu Gly
    1280                1285                1290

His Gln  Ser Leu Arg Trp Gly  Met Glu Leu Ala Ala  Ser Arg Arg
    1295                1300                1305

Phe Ser  Trp Asp His His Ser  Ala Gly Gly Pro Pro  Arg Val Pro
    1310                1315                1320

Ser Val  Arg Ser Gly Ala Ala  Gln Val Gln Pro Lys  Asp Pro Leu
    1325                1330                1335

Pro Leu  Arg Thr Leu Ala Gly  Cys Leu Ala Arg Thr  Ala His Leu
    1340                1345                1350

Arg Pro  Gly Ala Glu Ser Leu  Pro Gln Pro Gln Leu  His Cys Thr
    1355                1360                1365

Ile Ala  Arg Glu Leu His Gln  Phe Ala Phe Asp Leu  Leu Ile Lys
    1370                1375                1380

Ser His  Lys Met His Phe Ser  Leu Lys Glu His Pro  Pro Pro Pro
    1385                1390                1395

Cys Pro  Pro His Val Val Gly  Tyr Gly His Leu Asp  Thr Ser Gly
    1400                1405                1410

Ser Ser  Ser Ser Ser Ser Trp  Pro Gln Pro Asp Ser  Phe Ala Ala
    1415                1420                1425

Leu His  Ser Ser Leu Asn Glu  Leu Gly Glu Leu Trp  Phe Gln Ser
    1430                1435                1440
```

Ser Glu Leu Ser Pro Thr Gly Ala Pro Trp Pro Ser Arg Arg Pro
    1445   1450   1455

Thr Trp Arg Gly Thr Thr Val Ser Pro Arg Thr Ala Thr Ser Ser
    1460   1465   1470

Ala Arg Thr Cys Cys Gly Thr Lys Trp Pro Ser Ser Gln Glu Ala
    1475   1480   1485

Ala Leu Gly Leu Gly Ser Gly Leu Leu Arg Phe Ser Cys Gly Thr
    1490   1495   1500

Ala Ala Ile Arg
    1505

<210> 558
<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 558

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1   5   10   15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Asp Gly His Ser
            20   25   30

Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly
        35   40   45

Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe
    50   55   60

Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala Cys Gln Trp Gln
65   70   75   80

His Tyr His Arg Ser Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro
                85   90   95

```
Thr Arg Asn Val Ala Met Met Val Pro Asp Arg Gln Val His Tyr Asp
            100                 105                 110

Phe Gly Leu Val Leu Arg Phe Leu Asp Leu Lys Val Arg Tyr Leu His
        115                 120                 125

Ser Lys Ile Gln Asn Lys Asn Cys Pro Asp Val Pro Phe Arg Glu Leu
    130                 135                 140

Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro Gly Ile His His Ala Ala
145                 150                 155                 160

Ser Pro Val Ala Ala Asn Leu Cys Asp Pro Ala Arg His Ala Gln His
                165                 170                 175

Thr Arg Ile Pro Cys Gly Ala Gly Gln Val Arg Ala Gly Arg Gly Pro
            180                 185                 190

Glu Ala Gly Gly Gly Val Leu Gln Pro Gln Arg Pro Ala Pro Glu Lys
        195                 200                 205

Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro Arg Leu His Thr Val Lys
    210                 215                 220

Met Trp Arg Ala Cys His Leu Phe Leu Gln Pro Gln Val Gly Thr Pro
225                 230                 235                 240

Pro Pro His Thr Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro
                245                 250                 255

His Glu Ser Cys Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr
            260                 265                 270

Cys Ala Arg Arg Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr
        275                 280                 285

Ala Arg Val Pro Ser Leu His Leu His Leu His Gln Ala Ala Leu Gly
    290                 295                 300
```

```
Ala Gly Arg Gly Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro
305                 310                 315                 320

Ser Arg Gly His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser
                325                 330                 335

Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His
            340                 345                 350

Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser
        355                 360                 365

Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe
    370                 375                 380

Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Phe Lys
385                 390                 395                 400

Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg
                405                 410                 415

Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro
            420                 425                 430

Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
        435                 440                 445

Gln Asn Leu Gln Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro
    450                 455                 460

Gly Arg Arg Arg Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser
465                 470                 475                 480

Val Ala Pro Ala Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro
                485                 490                 495

Pro Gly Gly Ala Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr
            500                 505                 510
```

```
Ser Ala Phe Thr Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro
        515                 520                 525

Ser Pro Arg Arg Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe
    530                 535                 540

Lys Ala Asp Val Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro
545                 550                 555                 560

Gly Ser Ala Pro Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp
                565                 570                 575

Tyr Trp Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys
            580                 585                 590

Trp Lys Phe Glu Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val
        595                 600                 605

His Ala Arg Pro Arg His Trp Lys Thr Asp Arg Asp Tyr Trp Ala Gln
    610                 615                 620

Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe
625                 630                 635                 640

Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg
                645                 650                 655

Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg
            660                 665                 670

Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro
        675                 680                 685

Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Thr Glu Ile Ser Cys Cys
    690                 695                 700

Thr Leu Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln
705                 710                 715                 720

Leu Gln Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe
```

```
                725                 730                 735

Leu Phe Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Leu Val
            740                 745                 750

Leu Gly Val Leu Ser Gly His Ser Gly Ser Arg Leu Lys Arg Ser Phe
        755                 760                 765

Ala Val Thr Glu Arg Ile Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala
    770                 775                 780

Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln
785                 790                 795                 800

Trp Val Ile Leu Ile Thr Glu Leu Gly Val Pro Gly Asp Ser Thr Arg
                805                 810                 815

Arg Ala Val Arg Arg Met Asn Thr Phe Cys Gly Ala Ser Ala Cys Asp
            820                 825                 830

Val Ser Leu Ile Ala Met Asp Ser Ala Cys Glu Glu Arg Gly Ala Ala
        835                 840                 845

Gly Ser Leu Ile Ser Cys Glu Ser Leu Tyr His Arg Glu Lys Gln Leu
    850                 855                 860

Ile Ala Met Asp Ser Ala Ile Phe Val Gln Gly Lys Asp Trp Gly Val
865                 870                 875                 880

Lys Lys Phe Ile Arg Arg Asp Phe Thr Met Pro Ala Ile Leu Lys Leu
                885                 890                 895

Gln Lys Asn Cys Leu Leu Ser Leu Asn Ser Lys Met Ala Leu Asn Ser
            900                 905                 910

Glu Ala Leu Ser Val Val Ser Glu Tyr Glu Ala Gly Met Thr Leu Gly
        915                 920                 925

Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg Pro
    930                 935                 940
```

```
Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe Ser Glu Ser Lys
945                 950                 955                 960


Arg Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile Tyr Arg Leu Cys
                965                 970                 975


Cys Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala Arg Ser Pro Ala
            980                 985                 990


Phe Pro Lys Pro Val Arg Pro Leu  Pro Ala Pro Ile Thr  Arg Ile Thr
        995                 1000                1005


Pro Gln  Leu Gly Gly Gln Ser  Asp Ser Ser Gln Pro  Leu Leu Thr
    1010                1015                1020


Thr Gly  Arg Pro Gln Gly Trp  Gln Asp Gln Ala Leu  Arg His Thr
    1025                1030                1035


Gln Gln  Ala Ser Pro Ala Ser  Cys Ala Thr Ile Thr  Ile Pro Ile
    1040                1045                1050


His Ser  Ala Ala Leu Gly Asp  His Ser Gly Asp Pro  Gly Pro Ala
    1055                1060                1065


Trp Asp  Thr Cys Pro Pro Leu  Pro Leu Thr Thr Leu  Ile Pro Arg
    1070                1075                1080


Ala Pro  Pro Pro Tyr Gly Asp  Ser Thr Ala Arg Ser  Trp Pro Ser
    1085                1090                1095


Arg Cys  Gly Pro Leu Gly Tyr  Ala Tyr Lys Asp Phe  Leu Trp Cys
    1100                1105                1110


Phe Pro  Phe Ser Leu Val Phe  Leu Gln Glu Ile Gln  Ile Cys Cys
    1115                1120                1125


His Val  Ser Cys Leu Cys Cys  Ile Cys Cys Ser Thr  Arg Ile Cys
    1130                1135                1140
```

```
Leu Gly  Cys Leu Leu Glu Leu  Phe Leu Ser Arg Ala  Leu Arg Ala
    1145                1150                1155

Leu His  Val Leu Trp Asn Gly  Phe Gln Leu His Cys  Gln Gly Asn
    1160                1165                1170

Thr Thr  Leu Gln Gln Leu Gly  Glu Ala Ser Gln Ala  Pro Ser Gly
    1175                1180                1185

Ser Leu  Ile Pro Leu Arg Leu  Pro Leu Leu Trp Glu  Val Arg Gly
    1190                1195                1200

Asn Ser  Lys Met Ala Leu Asn  Ser Leu Asn Ser Ile  Asp Asp Ala
    1205                1210                1215

Gln Leu  Thr Arg Ile Ala Pro  Pro Arg Ser His Cys  Cys Phe Trp
    1220                1225                1230

Glu Val  Asn Ala Pro Phe Val  Gln Gly Lys Asp Trp  Gly Leu Lys
    1235                1240                1245

Lys Phe  Ile Arg Arg Asp Phe  Glu Ala Phe Gln Arg  Ala Ala Gly
    1250                1255                1260

Glu Gly  Gly Pro Gly Arg Gly  Gly Ala Arg Arg Gly  Ala Arg Val
    1265                1270                1275

Leu Gln  Ser Pro Phe Cys Arg  Ala Gly Ala Gly Glu  Trp Leu Gly
    1280                1285                1290

His Gln  Ser Leu Arg Trp Gly  Met Glu Leu Ala Ala  Ser Arg Arg
    1295                1300                1305

Phe Ser  Trp Asp His His Ser  Ala Gly Gly Pro Pro  Arg Val Pro
    1310                1315                1320

Ser Val  Arg Ser Gly Ala Ala  Gln Val Gln Pro Lys  Asp Pro Leu
    1325                1330                1335
```

```
Pro Leu  Arg Thr Leu Ala Gly  Cys Leu Ala Arg Thr  Ala His Leu
    1340                1345                1350


Arg Pro  Gly Ala Glu Ser Leu  Pro Gln Pro Gln Leu  His Cys Thr
    1355                1360                1365


Ile Ala  Arg Glu Leu His Gln  Phe Ala Phe Asp Leu  Leu Ile Lys
    1370                1375                1380


Ser His  Lys Met His Phe Ser  Leu Lys Glu His Pro  Pro Pro Pro
    1385                1390                1395


Cys Pro  Pro His Val Val Gly  Tyr Gly His Leu Asp  Thr Ser Gly
    1400                1405                1410


Ser Ser  Ser Ser Ser Ser Trp  Pro Gln Pro Asp Ser  Phe Ala Ala
    1415                1420                1425


Leu His  Ser Ser Leu Asn Glu  Leu Gly Glu Leu Trp  Phe Gln Ser
    1430                1435                1440


Ser Glu  Leu Ser Pro Thr Gly  Ala Pro Trp Pro Ser  Arg Arg Pro
    1445                1450                1455


Thr Trp  Arg Gly Thr Thr Val  Ser Pro Arg Thr Ala  Thr Ser Ser
    1460                1465                1470


Ala Arg  Thr Cys Cys Gly Thr  Lys Trp Pro Ser Ser  Gln Glu Ala
    1475                1480                1485


Ala Leu  Gly Leu Gly Ser Gly  Leu Leu Arg Phe Ser  Cys Gly Thr
    1490                1495                1500


Ala Ala  Ile Arg
    1505
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<210> 559
<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 559

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1   5   10   15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gly Asn Thr Thr
            20   25   30

Leu Gln Gln Leu Gly Glu Ala Ser Gln Ala Pro Ser Gly Ser Leu Ile
        35   40   45

Pro Leu Arg Leu Pro Leu Leu Trp Glu Val Arg Gly Asn Ser Lys Met
    50   55   60

Ala Leu Asn Ser Leu Asn Ser Ile Asp Asp Ala Gln Leu Thr Arg Ile
65   70   75   80

Ala Pro Pro Arg Ser His Cys Cys Phe Trp Glu Val Asn Ala Pro Phe
                85   90   95

Val Gln Gly Lys Asp Trp Gly Leu Lys Lys Phe Ile Arg Arg Asp Phe
            100   105   110

Glu Ala Phe Gln Arg Ala Ala Gly Glu Gly Gly Pro Gly Arg Gly Gly
        115   120   125

Ala Arg Arg Gly Ala Arg Val Leu Gln Ser Pro Phe Cys Arg Ala Gly
    130   135   140

Ala Gly Glu Trp Leu Gly His Gln Ser Leu Arg Trp Gly Met Glu Leu
145   150   155   160

Ala Ala Ser Arg Arg Phe Ser Trp Asp His His Ser Ala Gly Gly Pro
                165   170   175

Pro Arg Val Pro Ser Val Arg Ser Gly Ala Ala Gln Val Gln Pro Lys
            180   185   190

```
Asp Pro Leu Pro Leu Arg Thr Leu Ala Gly Cys Leu Ala Arg Thr Ala
        195                 200                 205

His Leu Arg Pro Gly Ala Glu Ser Leu Pro Gln Pro Gln Leu His Cys
    210                 215                 220

Thr Ile Ala Arg Glu Leu His Gln Phe Ala Phe Asp Leu Leu Ile Lys
225                 230                 235                 240

Ser His Lys Met His Phe Ser Leu Lys Glu His Pro Pro Pro Pro Cys
                245                 250                 255

Pro Pro His Val Val Gly Tyr Gly His Leu Asp Thr Ser Gly Ser Ser
            260                 265                 270

Ser Ser Ser Ser Trp Pro Gln Pro Asp Ser Phe Ala Ala Leu His Ser
        275                 280                 285

Ser Leu Asn Glu Leu Gly Glu Leu Trp Phe Gln Ser Ser Glu Leu Ser
    290                 295                 300

Pro Thr Gly Ala Pro Trp Pro Ser Arg Arg Pro Thr Trp Arg Gly Thr
305                 310                 315                 320

Thr Val Ser Pro Arg Thr Ala Thr Ser Ser Ala Arg Thr Cys Cys Gly
                325                 330                 335

Thr Lys Trp Pro Ser Ser Gln Glu Ala Ala Leu Gly Leu Gly Ser Gly
            340                 345                 350

Leu Leu Arg Phe Ser Cys Gly Thr Ala Ala Ile Arg Asp Gly His Ser
        355                 360                 365

Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly
    370                 375                 380

Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe
385                 390                 395                 400

Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala Cys Gln Trp Gln
```

```
                405                 410                 415

His Tyr His Arg Ser Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro
            420                 425                 430

Thr Arg Asn Val Ala Met Met Val Pro Asp Arg Gln Val His Tyr Asp
        435                 440                 445

Phe Gly Leu Lys Ile Gln Asn Lys Asn Cys Pro Asp Val Leu Arg Phe
    450                 455                 460

Leu Asp Leu Lys Val Arg Tyr Leu His Ser Val Pro Phe Arg Glu Leu
465                 470                 475                 480

Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro Gly Ile His His Ala Ala
                485                 490                 495

Ser Pro Val Ala Ala Asn Leu Cys Asp Pro Ala Arg His Ala Gln His
            500                 505                 510

Thr Arg Ile Pro Cys Gly Ala Gly Gln Val Arg Ala Gly Arg Gly Pro
        515                 520                 525

Glu Ala Gly Gly Gly Val Leu Gln Pro Gln Arg Pro Ala Pro Glu Lys
    530                 535                 540

Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro Arg Leu His Thr Val Lys
545                 550                 555                 560

Met Trp Arg Ala Cys His Leu Phe Leu Gln Pro Gln Val Gly Thr Pro
                565                 570                 575

Pro Pro His Thr Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro
            580                 585                 590

His Glu Ser Cys Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr
        595                 600                 605

Cys Ala Arg Arg Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr
    610                 615                 620
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```
Ala Arg Val Pro Ser Leu His Leu His Leu His Gln Ala Ala Leu Gly
625                 630                 635                 640

Ala Gly Arg Gly Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro
                645                 650                 655

Ser Arg Gly His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser
            660                 665                 670

Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His
        675                 680                 685

Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser
    690                 695                 700

Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe
705                 710                 715                 720

Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Phe Lys
                725                 730                 735

Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg
            740                 745                 750

Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro
        755                 760                 765

Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
    770                 775                 780

Gly Val Pro Gly Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn Thr
785                 790                 795                 800

Phe Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile Ala Met Asp Ser
                805                 810                 815

Ala Thr Glu Tyr Asn Gln Lys Leu Gln Val Asn Gln Phe Ser Glu Ser
            820                 825                 830
```

```
Lys Tyr Glu Ala Gly Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn
        835                 840                 845

Cys Lys His Leu Lys Met Thr Arg Pro Thr Met Pro Ala Ile Leu Lys
    850                 855                 860

Leu Gln Lys Asn Cys Leu Leu Ser Leu Asn Ser Lys Met Ala Leu Asn
865                 870                 875                 880

Ser Glu Ala Leu Ser Val Val Ser Glu Cys Glu Glu Arg Gly Ala Ala
                885                 890                 895

Gly Ser Leu Ile Ser Cys Glu Ser Leu Tyr His Arg Glu Lys Gln Leu
            900                 905                 910

Ile Ala Met Asp Ser Ala Ile Phe Val Gln Gly Lys Asp Trp Gly Val
        915                 920                 925

Lys Lys Phe Ile Arg Arg Asp Phe Arg Thr Ala Leu Thr His Asn Gln
    930                 935                 940

Asp Phe Ser Ile Tyr Arg Leu Cys Cys Lys Arg Gly Ser Leu Cys His
945                 950                 955                 960

Ala Ser Gln Ala Arg Ser Pro Ala Phe Pro Lys Pro Val Arg Pro Leu
                965                 970                 975

Pro Ala Pro Ile Thr Arg Ile Thr Pro Gln Leu Gly Gly Gln Ser Asp
            980                 985                 990

Ser Ser Gln Pro Leu Leu Thr Thr  Gly Arg Pro Gln Gly  Trp Gln Asp
        995                 1000                1005

Gln Ala  Leu Arg His Thr Gln  Gln Ala Ser Pro Ala  Ser Cys Ala
    1010                1015                1020

Thr Ile  Thr Ile Pro Ile His  Ser Ala Ala Leu Gly  Asp His Ser
    1025                1030                1035
```

```
Gly Asp  Pro Gly Pro Ala Trp  Asp Thr Cys Pro Pro  Leu Pro Leu
    1040                1045                1050

Thr Thr  Leu Ile Pro Arg Ala  Pro Pro Pro Tyr Gly  Asp Ser Thr
    1055                1060                1065

Ala Arg  Ser Trp Pro Ser Arg  Cys Gly Pro Leu Gly  Tyr Ala Tyr
    1070                1075                1080

Lys Asp  Phe Leu Trp Cys Phe  Pro Phe Ser Leu Val  Phe Leu Gln
    1085                1090                1095

Glu Ile  Gln Ile Cys Cys His  Val Ser Cys Leu Cys  Cys Ile Cys
    1100                1105                1110

Cys Ser  Thr Arg Ile Cys Leu  Gly Cys Leu Leu Glu  Leu Phe Leu
    1115                1120                1125

Ser Arg  Ala Leu Arg Ala Leu  His Val Leu Trp Asn  Gly Phe Gln
    1130                1135                1140

Leu His  Cys Gln Gln Asn Leu  Gln Asn Gly Gly Gly  Ser Arg Ser
    1145                1150                1155

Ser Ala  Thr Leu Pro Gly Arg  Arg Arg Arg Arg Trp  Leu Arg Arg
    1160                1165                1170

Arg Arg  Gln Pro Ile Ser Val  Ala Pro Ala Gly Pro  Pro Arg Arg
    1175                1180                1185

Pro Asn  Gln Lys Pro Asn Pro  Pro Gly Gly Ala Arg  Cys Val Ile
    1190                1195                1200

Met Arg  Pro Thr Trp Pro Gly  Thr Ser Ala Phe Thr  Gly Met Glu
    1205                1210                1215

Cys Thr  Leu Gly Gln Val Gly  Ala Pro Ser Pro Arg  Arg Glu Glu
    1220                1225                1230

Asp Gly  Trp Arg Gly Gly His  Ser Arg Phe Lys Ala  Asp Val Pro
```

```
    1235                1240                1245

Ala Pro  Gln Gly Pro Cys Trp  Gly Gly Gln Pro Gly  Ser Ala Pro
    1250                1255                1260

Ser Ser  Ala Pro Pro Glu Gln  Ser Leu Leu Asp Asp  Tyr Trp Ala
    1265                1270                1275

Gln Lys  Glu Lys Ile Ser Ile  Pro Arg Thr His Leu  Cys Trp Lys
    1280                1285                1290

Phe Glu  Met Ser Tyr Thr Val  Gly Gly Pro Pro Pro  His Val His
    1295                1300                1305

Ala Arg  Pro Arg His Trp Lys  Thr Asp Arg Asp Tyr  Trp Ala Gln
    1310                1315                1320

Lys Glu  Lys Gly Ser Ser Ser  Phe Leu Arg Pro Ser  Cys Val Pro
    1325                1330                1335

Phe Arg  Glu Leu Lys Asn Val  Ser Val Leu Glu Gly  Leu Arg Gln
    1340                1345                1350

Gly Arg  Leu Gly Gly Pro Cys  Ser Cys His Cys Pro  Arg Pro Ser
    1355                1360                1365

Gln Ala  Arg Leu Thr Pro Val  Asp Val Ala Gly Pro  Phe Leu Cys
    1370                1375                1380

Leu Gly  Asp Pro Gly Leu Phe  Pro Pro Val Lys Ser  Ser Ile Thr
    1385                1390                1395

Glu Ile  Ser Cys Cys Thr Leu  Ser Ser Glu Glu Asn  Glu Tyr Leu
    1400                1405                1410

Pro Arg  Pro Glu Trp Gln Leu  Gln Tyr Glu Ala Gly  Met Thr Leu
    1415                1420                1425

Gly Gly  Lys Ile Leu Phe Phe  Leu Phe Leu Leu Leu  Pro Leu Ser
    1430                1435                1440
```

```
Pro Phe  Ser Leu Ile Phe Leu  Val Leu Gly Val Leu  Ser Gly His
    1445                1450                1455


Ser Gly  Ser Arg Leu Lys Arg  Ser Phe Ala Val Thr  Glu Arg Ile
    1460                1465                1470


Ile Thr  Gly Gly Lys Ser Thr  Cys Ser Ala Pro Gly  Pro Gln Ser
    1475                1480                1485


Leu Pro  Ser Thr Pro Phe Ser  Thr Tyr Pro Gln Trp  Val Ile Leu
    1490                1495                1500


Ile Thr  Glu Leu
    1505


<210>  560
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<212>  PRT
<213>  Homo sapiens

<400>  560

Trp Lys Phe Glu Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His
1               5                   10                  15


<210>  561
<211>  15
<212>  PRT
<213>  Homo sapiens

<400>  561

Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro Arg His Trp
1               5                   10                  15


<210>  562
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  562

Pro Pro His Val His Ala Arg Pro Arg His Trp Lys Thr Asp
1               5                   10
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<210> 563
<211> 15
<212> PRT
<213> Homo sapiens

<400> 563

Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu
1   5   10   15

<210> 564
<211> 15
<212> PRT
<213> Homo sapiens

<400> 564

Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu Leu Pro Leu Ser Pro
1   5   10   15

<210> 565
<211> 16
<212> PRT
<213> Homo sapiens

<400> 565

Phe Phe Leu Phe Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe
1   5   10   15

<210> 566
<211> 15
<212> PRT
<213> Homo sapiens

<400> 566

Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln
1   5   10   15

<210> 567
<211> 15
<212> PRT
<213> Homo sapiens

<400> 567

Val Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser
1   5   10   15

<210> 568
<211> 15
<212> PRT
<213> Homo sapiens

<400> 568

Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg
1   5   10   15

<210> 569
<211> 15
<212> PRT
<213> Homo sapiens

<400> 569

Thr Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu
1   5   10   15

<210> 570
<211> 15
<212> PRT
<213> Homo sapiens

<400> 570

Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His
1   5   10   15

<210> 571
<211> 13
<212> PRT
<213> Homo sapiens

<400> 571

Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala Cys
1   5   10

<210> 572
<211> 15
<212> PRT
<213> Homo sapiens

<400> 572

Thr Gly Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln Ser Leu
1 5 10 15

<210> 573
<211> 15
<212> PRT
<213> Homo sapiens

<400> 573

Ala Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr
1 5 10 15

<210> 574
<211> 15
<212> PRT
<213> Homo sapiens

<400> 574

Ser Thr Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu Ile Thr
1 5 10 15

<210> 575
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<213> Homo sapiens

<400> 575

Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg Arg Arg Trp
1 5 10 15

<210> 576
<211> 15
<212> PRT
<213> Homo sapiens

<400> 576

Asp Tyr Trp Ala Gln Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg
1 5 10 15

<210> 577
<211> 14
<212> PRT

<213> Homo sapiens

<400> 577

Gln Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser Cys
1   5   10

<210> 578
<211> 15
<212> PRT
<213> Homo sapiens

<400> 578

Val Pro Phe Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu
1   5   10   15

<210> 579
<211> 15
<212> PRT
<213> Homo sapiens

<400> 579

Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg Leu Gly Gly Pro
1   5   10   15

<210> 580
<211> 15
<212> PRT
<213> Homo sapiens

<400> 580

Gln Gly Arg Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro
1   5   10   15

<210> 581
<211> 15
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<213> Homo sapiens

<400> 581

Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg Leu Thr Pro Val
1   5   10   15

<210> 582

<211> 15
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<213> Homo sapiens

<400> 582

Gln Ala Arg Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys
1 5 10 15

<210> 583
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<212> PRT
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<400> 583

Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro Gly Leu Phe Pro
1 5 10 15

<210> 584
<211> 13
<212> PRT
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<400> 584

Gly Asp Pro Gly Leu Phe Pro Pro Val Lys Ser Ser Ile
1 5 10

<210> 585
<211> 15
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<400> 585

Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg
1 5 10 15

<210> 586
<211> 15
<212> PRT
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<400> 586

Val Gly Ala Pro Ser Pro Arg Arg Glu Glu Asp Gly Trp Arg Gly
1 5 10 15

<210> 587
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<213> Homo sapiens

<400> 587

Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp
1   5   10   15

<210> 588
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<400> 588

His Ser Arg Phe Lys Ala Asp Val Pro Ala Pro Gln Gly Pro Cys
1   5   10   15

<210> 589
<211> 15
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<400> 589

Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala
1   5   10   15

<210> 590
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<212> PRT
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<400> 590

Gly Gly Gln Pro Gly Ser Ala Pro Ser Ser Ala Pro Pro Glu Gln
1   5   10   15

<210> 591
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<400> 591

Gly Ser Ala Pro Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp

1 5 10 15

<210> 592
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<400> 592

Gly Asn Thr Thr Leu Gln Gln Leu Gly Glu Ala Ser Gln Ala Pro
1 5 10 15

<210> 593
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<212> PRT
<213> Homo sapiens

<400> 593

Gly Glu Ala Ser Gln Ala Pro Ser Gly Ser Leu Ile Pro Leu Arg
1 5 10 15

<210> 594
<211> 16
<212> PRT
<213> Homo sapiens

<400> 594

Gly Ser Leu Ile Pro Leu Arg Leu Pro Leu Leu Trp Glu Val Arg Gly
1 5 10 15

<210> 595
<211> 15
<212> PRT
<213> Homo sapiens

<400> 595

Glu Ala Phe Gln Arg Ala Ala Gly Glu Gly Gly Pro Gly Arg Gly
1 5 10 15

<210> 596
<211> 15
<212> PRT
<213> Homo sapiens

<400> 596

Glu Gly Gly Pro Gly Arg Gly Gly Ala Arg Arg Gly Ala Arg Val
1   5   10   15

<210> 597
<211> 15
<212> PRT
<213> Homo sapiens

<400> 597

Ala Arg Arg Gly Ala Arg Val Leu Gln Ser Pro Phe Cys Arg Ala
1   5   10   15

<210> 598
<211> 15
<212> PRT
<213> Homo sapiens

<400> 598

Gln Ser Pro Phe Cys Arg Ala Gly Ala Gly Glu Trp Leu Gly His
1   5   10   15

<210> 599
<211> 15
<212> PRT
<213> Homo sapiens

<400> 599

Cys Arg Ala Gly Ala Gly Glu Trp Leu Gly His Gln Ser Leu Arg
1   5   10   15

<210> 600
<211> 15
<212> PRT
<213> Homo sapiens

<400> 600

Asp Tyr Trp Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His
1   5   10   15

<210> 601
<211> 13
<212> PRT
<213> Homo sapiens

<400> 601

Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys
1 5 10

<210> 602
<211> 15
<212> PRT
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<400> 602

Val Ala Met Met Val Pro Asp Arg Gln Val His Tyr Asp Phe Gly
1 5 10 15

<210> 603
<211> 13
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<400> 603

Val Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu Arg
1 5 10

<210> 604
<211> 15
<212> PRT
<213> Homo sapiens

<400> 604

Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg
1 5 10 15

<210> 605
<211> 15
<212> PRT
<213> Homo sapiens

<400> 605

Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg Ala Leu Trp Ala Arg
1 5 10 15

<210> 606
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<212> PRT
<213> Homo sapiens

<400> 606

Ala Arg Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala
1   5   10   15

<210> 607
<211> 15
<212> PRT
<213> Homo sapiens

<400> 607

Asp Ser Val Leu Thr Pro Ala Leu Asp Pro Gln Thr Pro Val Arg
1   5   10   15

<210> 608
<211> 15
<212> PRT
<213> Homo sapiens

<400> 608

Asp Pro Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala
1   5   10   15

<210> 609
<211> 14
<212> PRT
<213> Homo sapiens

<400> 609

Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
1   5   10

<210> 610
<211> 15
<212> PRT
<213> Homo sapiens

<400> 610

Gly Arg Arg Arg Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile
1   5   10   15

<210> 611
<211> 15
<212> PRT
<213> Homo sapiens

<400> 611

Gly Val Pro Gly Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn
1 5 10 15

<210> 612
<211> 13
<212> PRT
<213> Homo sapiens

<400> 612

Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn Thr Phe
1 5 10

<210> 613
<211> 15
<212> PRT
<213> Homo sapiens

<400> 613

Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala Gly Pro Pro
1 5 10 15

<210> 614
<211> 15
<212> PRT
<213> Homo sapiens

<400> 614

Val Ala Pro Ala Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn
1 5 10 15

<210> 615
<211> 15
<212> PRT
<213> Homo sapiens

<400> 615

Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser Glu Glu Asn Glu Tyr
1 5 10 15

<210> 616
<211> 16
<212> PRT
<213> Homo sapiens

<400> 616

Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln
1   5   10   15

<210> 617
<211> 15
<212> PRT
<213> Homo sapiens

<400> 617

Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala Arg Cys Val
1   5   10   15

<210> 618
<211> 15
<212> PRT
<213> Homo sapiens

<400> 618

Pro Gly Gly Ala Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly
1   5   10   15

<210> 619
<211> 15
<212> PRT
<213> Homo sapiens

<400> 619

His Val Val Gly Tyr Gly His Leu Asp Thr Ser Gly Ser Ser Ser
1   5   10   15

<210> 620
<211> 16
<212> PRT
<213> Homo sapiens

<400> 620

Tyr Gly His Leu Asp Thr Ser Gly Ser Ser Ser Ser Ser Ser Trp Pro
1 5 10 15

<210> 621
<211> 12
<212> PRT
<213> Homo sapiens

<400> 621

Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
1 5 10

<210> 622
<211> 32363
<212> DNA
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<223> GAd20

<400> 622
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cgaggcgggg cgggtgacgt aggacgcgcg agtagggttg ggaggtgtgg cggaagtgtg 120

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Asp Ser Thr Arg Arg Ala Val Arg Arg Met Asn Thr Phe Tyr Glu Ala
35 40 45

Gly Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu
50 55 60

Lys Met Thr Arg Pro Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu
65 70 75 80

Ser Val Val Ser Glu Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile
85 90 95

Ala Met Asp Ser Ala Phe Val Gln Gly Lys Asp Trp Gly Val Lys Lys
100 105 110

Phe Ile Arg Arg Asp Phe Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe
115 120 125

Pro Phe Ser Leu Val Phe Leu Gln Glu Ile Gln Ile Cys Cys His Val
130 135 140

Ser Cys Leu Cys Cys Ile Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys
145 150 155 160

Leu Leu Glu Leu Phe Leu Ser Arg Ala Leu Arg Ala Leu His Val Leu
165 170 175

Trp Asn Gly Phe Gln Leu His Cys Gln Thr Glu Tyr Asn Gln Lys Leu
180 185 190

Gln Val Asn Gln Phe Ser Glu Ser Lys Ser Leu Tyr His Arg Glu Lys
195 200 205

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

Lys Asn Cys Leu Leu Ser Leu Arg Thr Ala Leu Thr His Asn Gln Asp
                245                 250                 255

Phe Ser Ile Tyr Arg Leu Cys Cys Lys Arg Gly Ser Leu Cys His Ala
            260                 265                 270

Ser Gln Ala Arg Ser Pro Ala Phe Pro Lys Pro Val Arg Pro Leu Pro
        275                 280                 285

Ala Pro Ile Thr Arg Ile Thr Pro Gln Leu Gly Gly Gln Ser Asp Ser
    290                 295                 300

Ser Gln Pro Leu Leu Thr Thr Gly Arg Pro Gln Gly Trp Gln Asp Gln
305                 310                 315                 320

Ala Leu Arg His Thr Gln Gln Ala Ser Pro Ala Ser Cys Ala Thr Ile
                325                 330                 335

Thr Ile Pro Ile His Ser Ala Ala Leu Gly Asp His Ser Gly Asp Pro
            340                 345                 350

Gly Pro Ala Trp Asp Thr Cys Pro Pro Leu Pro Leu Thr Thr Leu Ile
        355                 360                 365

Pro Arg Ala Pro Pro Pro Tyr Gly Asp Ser Thr Ala Arg Ser Trp Pro
    370                 375                 380

Ser Arg Cys Gly Pro Leu Gly Gly Asn Thr Thr Leu Gln Gln Leu Gly
385                 390                 395                 400

Glu Ala Ser Gln Ala Pro Ser Gly Ser Leu Ile Pro Leu Arg Leu Pro
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Leu Leu Trp Glu Val Arg Gly Gln Pro Asp Ser Phe Ala Ala Leu His
            420                 425                 430

Ser Ser Leu Asn Glu Leu Gly Glu Ile Ala Arg Glu Leu His Gln Phe
        435                 440                 445

Ala Phe Asp Leu Leu Ile Lys Ser His Phe Val Gln Gly Lys Asp Trp
    450                 455                 460

Gly Leu Lys Lys Phe Ile Arg Arg Asp Phe Trp Gly Met Glu Leu Ala
465                 470                 475                 480

Ala Ser Arg Arg Phe Ser Trp Asp His His Ser Ala Gly Gly Pro Pro
                485                 490                 495

Arg Val Pro Ser Val Arg Ser Gly Ala Ala Gln Val Gln Pro Lys Asp
            500                 505                 510

Pro Leu Pro Leu Arg Thr Leu Ala Gly Cys Leu Ala Arg Thr Ala His
        515                 520                 525

Leu Arg Pro Gly Ala Glu Ser Leu Pro Gln Pro Gln Leu His Cys Thr
    530                 535                 540

Leu Trp Phe Gln Ser Ser Glu Leu Ser Pro Thr Gly Ala Pro Trp Pro
545                 550                 555                 560

Ser Arg Arg Pro Thr Trp Arg Gly Thr Thr Val Ser Pro Arg Thr Ala
                565                 570                 575

Thr Ser Ser Ala Arg Thr Cys Cys Gly Thr Lys Trp Pro Ser Ser Gln
            580                 585                 590

Glu Ala Ala Leu Gly Leu Gly Ser Gly Leu Leu Arg Phe Ser Cys Gly
        595                 600                 605

Thr Ala Ala Ile Arg Lys Met His Phe Ser Leu Lys Glu His Pro Pro
    610                 615                 620

Pro Pro Cys Pro Pro Glu Ala Phe Gln Arg Ala Ala Gly Glu Gly Gly
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625 630 635 640

Pro Gly Arg Gly Gly Ala Arg Arg Gly Ala Arg Val Leu Gln Ser Pro
645 650 655

Phe Cys Arg Ala Gly Ala Gly Glu Trp Leu Gly His Gln Ser Leu Arg
660 665 670

His Val Val Gly Tyr Gly His Leu Asp Thr Ser Gly Ser Ser Ser Ser
675 680 685

Ser Ser Trp Pro Asn Ser Lys Met Ala Leu Asn Ser Leu Asn Ser Ile
690 695 700

Asp Asp Ala Gln Leu Thr Arg Ile Ala Pro Pro Arg Ser His Cys Cys
705 710 715 720

Phe Trp Glu Val Asn Ala Pro Asp Gly His Ser Tyr Thr Ser Lys Val
725 730 735

Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr
740 745 750

Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu
755 760 765

Cys Lys Leu Glu Phe His Ala Cys Lys Ile Gln Asn Lys Asn Cys Pro
770 775 780

Asp Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg
785 790 795 800

Thr Ala Arg Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala
805 810 815

Leu Asp Pro Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala
820 825 830

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

```
Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His
    850                 855                 860

Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser
865                 870                 875                 880

Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe
                885                 890                 895

Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Cys His
            900                 905                 910

Leu Phe Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser
        915                 920                 925

Ala Arg Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala
    930                 935                 940

Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His
945                 950                 955                 960

Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu
                965                 970                 975

His Leu His Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg Gly
            980                 985                 990

Trp Gly Glu Ala Cys Ala Gln Val  Pro Pro Ser Arg Gly  Val Leu Arg
        995                 1000                1005

Phe Leu  Asp Leu Lys Val Arg  Tyr Leu His Ser Gln  Trp Gln His
    1010                1015                1020

Tyr His  Arg Ser Gly Glu Ala  Ala Gly Thr Pro Leu  Trp Arg Pro
    1025                1030                1035

Thr Arg  Asn Val Pro Phe Arg  Glu Leu Lys Asn Gln  Arg Thr Ala
    1040                1045                1050
```

```
Gln Gly  Ala Pro Gly Ile His  His Ala Ala Ser Pro  Val Ala Ala
    1055                1060                1065

Asn Leu  Cys Asp Pro Ala Arg  His Ala Gln His Thr  Arg Ile Pro
    1070                1075                1080

Cys Gly  Ala Gly Gln Val Arg  Ala Gly Arg Gly Pro  Glu Ala Gly
    1085                1090                1095

Gly Gly  Val Leu Gln Pro Gln  Arg Pro Ala Pro Glu  Lys Pro Gly
    1100                1105                1110

Cys Pro  Cys Arg Arg Gly Gln  Pro Arg Leu His Thr  Val Lys Met
    1115                1120                1125

Trp Arg  Ala Val Ala Met Met  Val Pro Asp Arg Gln  Val His Tyr
    1130                1135                1140

Asp Phe  Gly Leu Gln Asn Leu  Gln Asn Gly Gly Gly  Ser Arg Ser
    1145                1150                1155

Ser Ala  Thr Leu Pro Gly Arg  Arg Arg Arg Arg Trp  Leu Arg Arg
    1160                1165                1170

Arg Arg  Gln Pro Ile Ser Val  Ala Pro Ala Gly Pro  Pro Arg Arg
    1175                1180                1185

Pro Asn  Gln Lys Pro Asn Pro  Pro Gly Gly Ala Arg  Cys Val Ile
    1190                1195                1200

Met Arg  Pro Thr Trp Pro Gly  Thr Ser Ala Phe Thr  Lys Arg Ser
    1205                1210                1215

Phe Ala  Val Thr Glu Arg Ile  Ile Leu Val Leu Gly  Val Leu Ser
    1220                1225                1230

Gly His  Ser Gly Ser Arg Leu  Tyr Glu Ala Gly Met  Thr Leu Gly
    1235                1240                1245
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Gly Lys  Ile Leu Phe Phe Leu  Phe Leu Leu Leu Pro  Leu Ser Pro
    1250                 1255                 1260

Phe Ser  Leu Ile Phe Thr Glu  Ile Ser Cys Cys Thr  Leu Ser Ser
    1265                 1270                 1275

Glu Glu  Asn Glu Tyr Leu Pro  Arg Pro Glu Trp Gln  Leu Gln Val
    1280                 1285                 1290

Pro Phe  Arg Glu Leu Lys Asn  Val Ser Val Leu Glu  Gly Leu Arg
    1295                 1300                 1305

Gln Gly  Arg Leu Gly Gly Pro  Cys Ser Cys His Cys  Pro Arg Pro
    1310                 1315                 1320

Ser Gln  Ala Arg Leu Thr Pro  Val Asp Val Ala Gly  Pro Phe Leu
    1325                 1330                 1335

Cys Leu  Gly Asp Pro Gly Leu  Phe Pro Pro Val Lys  Ser Ser Ile
    1340                 1345                 1350

Thr Gly  Gly Lys Ser Thr Cys  Ser Ala Pro Gly Pro  Gln Ser Leu
    1355                 1360                 1365

Pro Ser  Thr Pro Phe Ser Thr  Tyr Pro Gln Trp Val  Ile Leu Ile
    1370                 1375                 1380

Thr Glu  Leu Gly Met Glu Cys  Thr Leu Gly Gln Val  Gly Ala Pro
    1385                 1390                 1395

Ser Pro  Arg Arg Glu Glu Asp  Gly Trp Arg Gly Gly  His Ser Arg
    1400                 1405                 1410

Phe Lys  Ala Asp Val Pro Ala  Pro Gln Gly Pro Cys  Trp Gly Gly
    1415                 1420                 1425

Gln Pro  Gly Ser Ala Pro Ser  Ser Ala Pro Pro Glu  Gln Ser Leu
    1430                 1435                 1440

Leu Asp  Asp Tyr Trp Ala Gln  Lys Glu Lys Gly Ser  Ser Ser Phe
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```
    1445                1450                1455

Leu Arg  Pro Ser Cys Asp Tyr  Trp Ala Gln Lys Glu  Lys Ile Ser
    1460                1465                1470

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

Pro Leu Arg Leu Pro Leu Leu Trp Glu Val Arg Gly Gln Pro Asp Ser
    50                  55                  60

Phe Ala Ala Leu His Ser Ser Leu Asn Glu Leu Gly Glu Ile Ala Arg
65                  70                  75                  80

Glu Leu His Gln Phe Ala Phe Asp Leu Leu Ile Lys Ser His Phe Val
                85                  90                  95
```

```
Gln Gly Lys Asp Trp Gly Leu Lys Lys Phe Ile Arg Arg Asp Phe Trp
            100                 105                 110

Gly Met Glu Leu Ala Ala Ser Arg Arg Phe Ser Trp Asp His His Ser
        115                 120                 125

Ala Gly Gly Pro Pro Arg Val Pro Ser Val Arg Ser Gly Ala Ala Gln
    130                 135                 140

Val Gln Pro Lys Asp Pro Leu Pro Leu Arg Thr Leu Ala Gly Cys Leu
145                 150                 155                 160

Ala Arg Thr Ala His Leu Arg Pro Gly Ala Glu Ser Leu Pro Gln Pro
                165                 170                 175

Gln Leu His Cys Thr Leu Trp Phe Gln Ser Ser Glu Leu Ser Pro Thr
            180                 185                 190

Gly Ala Pro Trp Pro Ser Arg Arg Pro Thr Trp Arg Gly Thr Thr Val
        195                 200                 205

Ser Pro Arg Thr Ala Thr Ser Ser Ala Arg Thr Cys Cys Gly Thr Lys
    210                 215                 220

Trp Pro Ser Ser Gln Glu Ala Ala Leu Gly Leu Gly Ser Gly Leu Leu
225                 230                 235                 240

Arg Phe Ser Cys Gly Thr Ala Ala Ile Arg Lys Met His Phe Ser Leu
                245                 250                 255

Lys Glu His Pro Pro Pro Pro Cys Pro Pro Glu Ala Phe Gln Arg Ala
            260                 265                 270

Ala Gly Glu Gly Gly Pro Gly Arg Gly Gly Ala Arg Arg Gly Ala Arg
        275                 280                 285

Val Leu Gln Ser Pro Phe Cys Arg Ala Gly Ala Gly Glu Trp Leu Gly
    290                 295                 300

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

Gly Ser Ser Ser Ser Ser Ser Trp Pro Asn Ser Lys Met Ala Leu Asn
                325                 330                 335

Ser Leu Asn Ser Ile Asp Asp Ala Gln Leu Thr Arg Ile Ala Pro Pro
            340                 345                 350

Arg Ser His Cys Cys Phe Trp Glu Val Asn Ala Pro Gly Val Pro Gly
        355                 360                 365

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

Gly Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu
385                 390                 395                 400

Lys Met Thr Arg Pro Asn Ser Lys Met Ala Leu Asn Ser Glu Ala Leu
                405                 410                 415

Ser Val Val Ser Glu Cys Gly Ala Ser Ala Cys Asp Val Ser Leu Ile
            420                 425                 430

Ala Met Asp Ser Ala Phe Val Gln Gly Lys Asp Trp Gly Val Lys Lys
        435                 440                 445

Phe Ile Arg Arg Asp Phe Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe
    450                 455                 460

Pro Phe Ser Leu Val Phe Leu Gln Glu Ile Gln Ile Cys Cys His Val
465                 470                 475                 480

Ser Cys Leu Cys Cys Ile Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys
                485                 490                 495

Leu Leu Glu Leu Phe Leu Ser Arg Ala Leu Arg Ala Leu His Val Leu
            500                 505                 510

Trp Asn Gly Phe Gln Leu His Cys Gln Thr Glu Tyr Asn Gln Lys Leu
        515                 520                 525
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Gln Val Asn Gln Phe Ser Glu Ser Lys Ser Leu Tyr His Arg Glu Lys
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Gln Leu Ile Ala Met Asp Ser Ala Ile Cys Glu Glu Arg Gly Ala Ala
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Gly Ser Leu Ile Ser Cys Glu Thr Met Pro Ala Ile Leu Lys Leu Gln
                565                 570                 575

Lys Asn Cys Leu Leu Ser Leu Arg Thr Ala Leu Thr His Asn Gln Asp
            580                 585                 590

Phe Ser Ile Tyr Arg Leu Cys Cys Lys Arg Gly Ser Leu Cys His Ala
        595                 600                 605

Ser Gln Ala Arg Ser Pro Ala Phe Pro Lys Pro Val Arg Pro Leu Pro
    610                 615                 620

Ala Pro Ile Thr Arg Ile Thr Pro Gln Leu Gly Gly Gln Ser Asp Ser
625                 630                 635                 640

Ser Gln Pro Leu Leu Thr Thr Gly Arg Pro Gln Gly Trp Gln Asp Gln
                645                 650                 655

Ala Leu Arg His Thr Gln Gln Ala Ser Pro Ala Ser Cys Ala Thr Ile
            660                 665                 670

Thr Ile Pro Ile His Ser Ala Ala Leu Gly Asp His Ser Gly Asp Pro
        675                 680                 685

Gly Pro Ala Trp Asp Thr Cys Pro Pro Leu Pro Leu Thr Thr Leu Ile
    690                 695                 700

Pro Arg Ala Pro Pro Pro Tyr Gly Asp Ser Thr Ala Arg Ser Trp Pro
705                 710                 715                 720

Ser Arg Cys Gly Pro Leu Gly Asp Gly His Ser Tyr Thr Ser Lys Val
                725                 730                 735
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```
Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr
            740                 745                 750

Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu
        755                 760                 765

Cys Lys Leu Glu Phe His Ala Cys Lys Ile Gln Asn Lys Asn Cys Pro
    770                 775                 780

Asp Phe Lys Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg
785                 790                 795                 800

Thr Ala Arg Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala
                805                 810                 815

Leu Asp Pro Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala
            820                 825                 830

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

Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His
    850                 855                 860

Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser
865                 870                 875                 880

Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe
                885                 890                 895

Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Cys His
            900                 905                 910

Leu Phe Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser
        915                 920                 925

Ala Arg Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala
    930                 935                 940
```

```
Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His
945                 950                 955                 960


Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu
                965                 970                 975


His Leu His Leu His Gln Ala Ala Leu Gly Ala Gly Arg Gly Arg Gly
            980                 985                 990


Trp Gly Glu Ala Cys Ala Gln Val  Pro Pro Ser Arg Gly  Val Leu Arg
        995                 1000                1005


Phe Leu  Asp Leu Lys Val Arg  Tyr Leu His Ser Gln  Trp Gln His
    1010                1015                1020


Tyr His  Arg Ser Gly Glu Ala  Ala Gly Thr Pro Leu  Trp Arg Pro
    1025                1030                1035


Thr Arg  Asn Val Pro Phe Arg  Glu Leu Lys Asn Gln  Arg Thr Ala
    1040                1045                1050


Gln Gly  Ala Pro Gly Ile His  His Ala Ala Ser Pro  Val Ala Ala
    1055                1060                1065


Asn Leu  Cys Asp Pro Ala Arg  His Ala Gln His Thr  Arg Ile Pro
    1070                1075                1080


Cys Gly  Ala Gly Gln Val Arg  Ala Gly Arg Gly Pro  Glu Ala Gly
    1085                1090                1095


Gly Gly  Val Leu Gln Pro Gln  Arg Pro Ala Pro Glu  Lys Pro Gly
    1100                1105                1110


Cys Pro  Cys Arg Arg Gly Gln  Pro Arg Leu His Thr  Val Lys Met
    1115                1120                1125


Trp Arg  Ala Val Ala Met Met  Val Pro Asp Arg Gln  Val His Tyr
    1130                1135                1140


Asp Phe  Gly Leu Gln Asn Leu  Gln Asn Gly Gly Gly  Ser Arg Ser
```

```
    1145                1150                1155

Ser Ala  Thr Leu Pro Gly Arg  Arg Arg Arg Arg Trp  Leu Arg Arg
    1160                1165                1170

Arg Arg  Gln Pro Ile Ser Val  Ala Pro Ala Gly Pro  Pro Arg Arg
    1175                1180                1185

Pro Asn  Gln Lys Pro Asn Pro  Pro Gly Gly Ala Arg  Cys Val Ile
    1190                1195                1200

Met Arg  Pro Thr Trp Pro Gly  Thr Ser Ala Phe Thr  Lys Arg Ser
    1205                1210                1215

Phe Ala  Val Thr Glu Arg Ile  Ile Thr Glu Ile Ser  Cys Cys Thr
    1220                1225                1230

Leu Ser  Ser Glu Glu Asn Glu  Tyr Leu Pro Arg Pro  Glu Trp Gln
    1235                1240                1245

Leu Gln  Tyr Glu Ala Gly Met  Thr Leu Gly Gly Lys  Ile Leu Phe
    1250                1255                1260

Phe Leu  Phe Leu Leu Leu Pro  Leu Ser Pro Phe Ser  Leu Ile Phe
    1265                1270                1275

Asp Tyr  Trp Ala Gln Lys Glu  Lys Gly Ser Ser Ser  Phe Leu Arg
    1280                1285                1290

Pro Ser  Cys Val Pro Phe Arg  Glu Leu Lys Asn Val  Ser Val Leu
    1295                1300                1305

Glu Gly  Leu Arg Gln Gly Arg  Leu Gly Gly Pro Cys  Ser Cys His
    1310                1315                1320

Cys Pro  Arg Pro Ser Gln Ala  Arg Leu Thr Pro Val  Asp Val Ala
    1325                1330                1335

Gly Pro  Phe Leu Cys Leu Gly  Asp Pro Gly Leu Phe  Pro Pro Val
    1340                1345                1350
```

```
Lys Ser  Ser Ile Thr Gly Gly  Lys Ser Thr Cys Ser  Ala Pro Gly
    1355                1360                1365

Pro Gln  Ser Leu Pro Ser Thr  Pro Phe Ser Thr Tyr  Pro Gln Trp
    1370                1375                1380

Val Ile  Leu Ile Thr Glu Leu  Gly Met Glu Cys Thr  Leu Gly Gln
    1385                1390                1395

Val Gly  Ala Pro Ser Pro Arg  Arg Glu Glu Asp Gly  Trp Arg Gly
    1400                1405                1410

Gly His  Ser Arg Phe Lys Ala  Asp Val Pro Ala Pro  Gln Gly Pro
    1415                1420                1425

Cys Trp  Gly Gly Gln Pro Gly  Ser Ala Pro Ser Ser  Ala Pro Pro
    1430                1435                1440

Glu Gln  Ser Leu Leu Asp Asp  Tyr Trp Ala Gln Lys  Glu Lys Ile
    1445                1450                1455

Ser Ile  Pro Arg Thr His Leu  Cys Leu Val Leu Gly  Val Leu Ser
    1460                1465                1470

Gly His  Ser Gly Ser Arg Leu  Trp Lys Phe Glu Met  Ser Tyr Thr
    1475                1480                1485

Val Gly  Gly Pro Pro Pro His  Val His Ala Arg Pro  Arg His Trp
    1490                1495                1500

Lys Thr  Asp Arg
    1505
```

<210> 625
<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 625

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1 5 10 15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Gly Asn Thr Thr
20 25 30

Leu Gln Gln Leu Gly Glu Ala Ser Gln Ala Pro Ser Gly Ser Leu Ile
35 40 45

Pro Leu Arg Leu Pro Leu Leu Trp Glu Val Arg Gly Asn Ser Lys Met
50 55 60

Ala Leu Asn Ser Leu Asn Ser Ile Asp Asp Ala Gln Leu Thr Arg Ile
65 70 75 80

Ala Pro Pro Arg Ser His Cys Cys Phe Trp Glu Val Asn Ala Pro Phe
85 90 95

Val Gln Gly Lys Asp Trp Gly Leu Lys Lys Phe Ile Arg Arg Asp Phe
100 105 110

Glu Ala Phe Gln Arg Ala Ala Gly Glu Gly Gly Pro Gly Arg Gly Gly
115 120 125

Ala Arg Arg Gly Ala Arg Val Leu Gln Ser Pro Phe Cys Arg Ala Gly
130 135 140

Ala Gly Glu Trp Leu Gly His Gln Ser Leu Arg Trp Gly Met Glu Leu
145 150 155 160

Ala Ala Ser Arg Arg Phe Ser Trp Asp His His Ser Ala Gly Gly Pro
165 170 175

Pro Arg Val Pro Ser Val Arg Ser Gly Ala Ala Gln Val Gln Pro Lys
180 185 190

Asp Pro Leu Pro Leu Arg Thr Leu Ala Gly Cys Leu Ala Arg Thr Ala
195 200 205

```
His Leu Arg Pro Gly Ala Glu Ser Leu Pro Gln Pro Gln Leu His Cys
    210                 215                 220

Thr Ile Ala Arg Glu Leu His Gln Phe Ala Phe Asp Leu Leu Ile Lys
225                 230                 235                 240

Ser His Lys Met His Phe Ser Leu Lys Glu His Pro Pro Pro Pro Cys
                245                 250                 255

Pro Pro His Val Val Gly Tyr Gly His Leu Asp Thr Ser Gly Ser Ser
            260                 265                 270

Ser Ser Ser Ser Trp Pro Gln Pro Asp Ser Phe Ala Ala Leu His Ser
        275                 280                 285

Ser Leu Asn Glu Leu Gly Glu Leu Trp Phe Gln Ser Ser Glu Leu Ser
    290                 295                 300

Pro Thr Gly Ala Pro Trp Pro Ser Arg Arg Pro Thr Trp Arg Gly Thr
305                 310                 315                 320

Thr Val Ser Pro Arg Thr Ala Thr Ser Ser Ala Arg Thr Cys Cys Gly
                325                 330                 335

Thr Lys Trp Pro Ser Ser Gln Glu Ala Ala Leu Gly Leu Gly Ser Gly
            340                 345                 350

Leu Leu Arg Phe Ser Cys Gly Thr Ala Ala Ile Arg Gln Asn Leu Gln
        355                 360                 365

Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro Gly Arg Arg Arg
    370                 375                 380

Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser Val Ala Pro Ala
385                 390                 395                 400

Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro Pro Gly Gly Ala
                405                 410                 415
```

```
Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr Ser Ala Phe Thr
            420                 425                 430

Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro Ser Pro Arg Arg
        435                 440                 445

Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe Lys Ala Asp Val
    450                 455                 460

Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro Gly Ser Ala Pro
465                 470                 475                 480

Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp Tyr Trp Ala Gln
                485                 490                 495

Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys Trp Lys Phe Glu
            500                 505                 510

Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val His Ala Arg Pro
        515                 520                 525

Arg His Trp Lys Thr Asp Arg Asp Tyr Trp Ala Gln Lys Glu Lys Gly
    530                 535                 540

Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe Arg Glu Leu Lys
545                 550                 555                 560

Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg Leu Gly Gly Pro
                565                 570                 575

Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg Leu Thr Pro Val
            580                 585                 590

Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro Gly Leu Phe Pro
        595                 600                 605

Pro Val Lys Ser Ser Ile Thr Glu Ile Ser Cys Cys Thr Leu Ser Ser
    610                 615                 620
```

```
Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln Leu Gln Tyr Glu
625                 630                 635                 640

Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe Leu Phe Leu Leu
                645                 650                 655

Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Leu Val Leu Gly Val Leu
            660                 665                 670

Ser Gly His Ser Gly Ser Arg Leu Lys Arg Ser Phe Ala Val Thr Glu
        675                 680                 685

Arg Ile Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala Pro Gly Pro Gln
    690                 695                 700

Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln Trp Val Ile Leu
705                 710                 715                 720

Ile Thr Glu Leu Asp Gly His Ser Tyr Thr Ser Lys Val Asn Cys Leu
                725                 730                 735

Leu Leu Gln Asp Gly Phe His Gly Cys Val Ser Ile Thr Gly Ala Ala
            740                 745                 750

Gly Arg Arg Asn Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu
        755                 760                 765

Glu Phe His Ala Cys Gln Trp Gln His Tyr His Arg Ser Gly Glu Ala
    770                 775                 780

Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Val Ala Met Met Val
785                 790                 795                 800

Pro Asp Arg Gln Val His Tyr Asp Phe Gly Leu Val Leu Arg Phe Leu
                805                 810                 815

Asp Leu Lys Val Arg Tyr Leu His Ser Lys Ile Gln Asn Lys Asn Cys
            820                 825                 830

Pro Asp Val Pro Phe Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly
```

```
        835                 840                 845

Ala Pro Gly Ile His His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys
    850                 855                 860

Asp Pro Ala Arg His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly
865                 870                 875                 880

Gln Val Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln
                885                 890                 895

Pro Gln Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly
            900                 905                 910

Gln Pro Arg Leu His Thr Val Lys Met Trp Arg Ala Cys His Leu Phe
        915                 920                 925

Leu Gln Pro Gln Val Gly Thr Pro Pro Pro His Thr Ala Ser Ala Arg
    930                 935                 940

Ala Pro Ser Gly Pro Pro His Pro His Glu Ser Cys Pro Ala Gly Arg
945                 950                 955                 960

Arg Pro Ala Arg Ala Ala Gln Thr Cys Ala Arg Arg Gln His Gly Leu
                965                 970                 975

Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val Pro Ser Leu His Leu
            980                 985                 990

His Leu His Gln Ala Ala Leu Gly  Ala Gly Arg Gly Arg  Gly Trp Gly
        995                 1000                1005

Glu Ala  Cys Ala Gln Val Pro  Pro Ser Arg Gly His  Tyr Lys Leu
    1010                1015                1020

Ile Gln  Gln Pro Ile Ser Leu  Phe Ser Ile Thr Asp  Arg Leu His
    1025                1030                1035

Lys Thr  Phe Ser Gln Leu Pro  Ser Val His Leu Cys  Ser Ile Thr
    1040                1045                1050
```

```
Phe Gln  Trp Gly His Pro Pro  Ile Phe Cys Ser Thr  Asn Asp Ile
    1055                1060                1065

Cys Val  Thr Ala Asn Phe Cys  Ile Ser Val Thr Phe  Leu Lys Pro
    1070                1075                1080

Cys Phe  Leu Leu His Glu Ala  Ser Ala Ser Gln Phe  Lys Lys Phe
    1085                1090                1095

Asp Gly  Pro Cys Gly Glu Arg  Gly Gly Gly Arg Thr  Ala Arg Ala
    1100                1105                1110

Leu Trp  Ala Arg Gly Asp Ser  Val Leu Thr Pro Ala  Leu Asp Pro
    1115                1120                1125

Gln Thr  Pro Val Arg Ala Pro  Ser Leu Thr Arg Ala  Ala Ala Ala
    1130                1135                1140

Val Gly  Val Pro Gly Asp Ser  Thr Arg Arg Ala Val  Arg Arg Met
    1145                1150                1155

Asn Thr  Phe Cys Gly Ala Ser  Ala Cys Asp Val Ser  Leu Ile Ala
    1160                1165                1170

Met Asp  Ser Ala Cys Glu Glu  Arg Gly Ala Ala Gly  Ser Leu Ile
    1175                1180                1185

Ser Cys  Glu Ser Leu Tyr His  Arg Glu Lys Gln Leu  Ile Ala Met
    1190                1195                1200

Asp Ser  Ala Ile Phe Val Gln  Gly Lys Asp Trp Gly  Val Lys Lys
    1205                1210                1215

Phe Ile  Arg Arg Asp Phe Thr  Met Pro Ala Ile Leu  Lys Leu Gln
    1220                1225                1230

Lys Asn  Cys Leu Leu Ser Leu  Asn Ser Lys Met Ala  Leu Asn Ser
    1235                1240                1245
```

```
Glu Ala  Leu Ser Val Val Ser  Glu Tyr Glu Ala Gly  Met Thr Leu
    1250                1255                1260

Gly Glu  Lys Phe Arg Val Gly  Asn Cys Lys His Leu  Lys Met Thr
    1265                1270                1275

Arg Pro  Thr Glu Tyr Asn Gln  Lys Leu Gln Val Asn  Gln Phe Ser
    1280                1285                1290

Glu Ser  Lys Arg Thr Ala Leu  Thr His Asn Gln Asp  Phe Ser Ile
    1295                1300                1305

Tyr Arg  Leu Cys Cys Lys Arg  Gly Ser Leu Cys His  Ala Ser Gln
    1310                1315                1320

Ala Arg  Ser Pro Ala Phe Pro  Lys Pro Val Arg Pro  Leu Pro Ala
    1325                1330                1335

Pro Ile  Thr Arg Ile Thr Pro  Gln Leu Gly Gly Gln  Ser Asp Ser
    1340                1345                1350

Ser Gln  Pro Leu Leu Thr Thr  Gly Arg Pro Gln Gly  Trp Gln Asp
    1355                1360                1365

Gln Ala  Leu Arg His Thr Gln  Gln Ala Ser Pro Ala  Ser Cys Ala
    1370                1375                1380

Thr Ile  Thr Ile Pro Ile His  Ser Ala Ala Leu Gly  Asp His Ser
    1385                1390                1395

Gly Asp  Pro Gly Pro Ala Trp  Asp Thr Cys Pro Pro  Leu Pro Leu
    1400                1405                1410

Thr Thr  Leu Ile Pro Arg Ala  Pro Pro Pro Tyr Gly  Asp Ser Thr
    1415                1420                1425

Ala Arg  Ser Trp Pro Ser Arg  Cys Gly Pro Leu Gly  Tyr Ala Tyr
    1430                1435                1440
```

```
Lys Asp  Phe Leu Trp Cys Phe  Pro Phe Ser Leu Val  Phe Leu Gln
    1445                1450                1455


Glu Ile  Gln Ile Cys Cys His  Val Ser Cys Leu Cys  Cys Ile Cys
    1460                1465                1470


Cys Ser  Thr Arg Ile Cys Leu  Gly Cys Leu Leu Glu  Leu Phe Leu
    1475                1480                1485


Ser Arg  Ala Leu Arg Ala Leu  His Val Leu Trp Asn  Gly Phe Gln
    1490                1495                1500


Leu His  Cys Gln
    1505
```

<210> 626
<211> 1507
<212> PRT
<213> Artificial seqeunce

<220>
<223> Heterologous polypeptide

<400> 626

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Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1               5                   10                  15


Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Asp Gly His Ser
            20                  25                  30


Tyr Thr Ser Lys Val Asn Cys Leu Leu Leu Gln Asp Gly Phe His Gly
        35                  40                  45


Cys Val Ser Ile Thr Gly Ala Ala Gly Arg Arg Asn Leu Ser Ile Phe
    50                  55                  60


Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala Cys Val Pro Phe
65                  70                  75                  80


Arg Glu Leu Lys Asn Gln Arg Thr Ala Gln Gly Ala Pro Gly Ile His
                85                  90                  95
```

```
His Ala Ala Ser Pro Val Ala Ala Asn Leu Cys Asp Pro Ala Arg His
            100                 105                 110

Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly Gln Val Arg Ala Gly
        115                 120                 125

Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln Pro Gln Arg Pro Ala
    130                 135                 140

Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly Gln Pro Arg Leu His
145                 150                 155                 160

Thr Val Lys Met Trp Arg Ala Gln Trp Gln His Tyr His Arg Ser Gly
                165                 170                 175

Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn Lys Ile Gln
            180                 185                 190

Asn Lys Asn Cys Pro Asp Val Ala Met Met Val Pro Asp Arg Gln Val
        195                 200                 205

His Tyr Asp Phe Gly Leu Val Leu Arg Phe Leu Asp Leu Lys Val Arg
    210                 215                 220

Tyr Leu His Ser Cys His Leu Phe Leu Gln Pro Gln Val Gly Thr Pro
225                 230                 235                 240

Pro Pro His Thr Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro
                245                 250                 255

His Glu Ser Cys Pro Ala Gly Arg Arg Pro Ala Arg Ala Ala Gln Thr
            260                 265                 270

Cys Ala Arg Arg Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr
        275                 280                 285

Ala Arg Val Pro Ser Leu His Leu His Leu His Gln Ala Ala Leu Gly
    290                 295                 300
```

```
Ala Gly Arg Gly Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro
305                 310                 315                 320

Ser Arg Gly His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser
                325                 330                 335

Ile Thr Asp Arg Leu His Lys Thr Phe Ser Gln Leu Pro Ser Val His
            340                 345                 350

Leu Cys Ser Ile Thr Phe Gln Trp Gly His Pro Pro Ile Phe Cys Ser
        355                 360                 365

Thr Asn Asp Ile Cys Val Thr Ala Asn Phe Cys Ile Ser Val Thr Phe
    370                 375                 380

Leu Lys Pro Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln Phe Lys
385                 390                 395                 400

Lys Phe Asp Gly Pro Cys Gly Glu Arg Gly Gly Gly Arg Thr Ala Arg
                405                 410                 415

Ala Leu Trp Ala Arg Gly Asp Ser Val Leu Thr Pro Ala Leu Asp Pro
            420                 425                 430

Gln Thr Pro Val Arg Ala Pro Ser Leu Thr Arg Ala Ala Ala Ala Val
        435                 440                 445

Gln Asn Leu Gln Asn Gly Gly Gly Ser Arg Ser Ser Ala Thr Leu Pro
    450                 455                 460

Gly Arg Arg Arg Arg Arg Trp Leu Arg Arg Arg Arg Gln Pro Ile Ser
465                 470                 475                 480

Val Ala Pro Ala Gly Pro Pro Arg Arg Pro Asn Gln Lys Pro Asn Pro
                485                 490                 495

Pro Gly Gly Ala Arg Cys Val Ile Met Arg Pro Thr Trp Pro Gly Thr
            500                 505                 510

Ser Ala Phe Thr Gly Met Glu Cys Thr Leu Gly Gln Val Gly Ala Pro
```

```
        515                 520                 525

Ser Pro Arg Arg Glu Glu Asp Gly Trp Arg Gly Gly His Ser Arg Phe
    530                 535                 540

Lys Ala Asp Val Pro Ala Pro Gln Gly Pro Cys Trp Gly Gly Gln Pro
545                 550                 555                 560

Gly Ser Ala Pro Ser Ser Ala Pro Pro Glu Gln Ser Leu Leu Asp Asp
                565                 570                 575

Tyr Trp Ala Gln Lys Glu Lys Ile Ser Ile Pro Arg Thr His Leu Cys
            580                 585                 590

Trp Lys Phe Glu Met Ser Tyr Thr Val Gly Gly Pro Pro Pro His Val
        595                 600                 605

His Ala Arg Pro Arg His Trp Lys Thr Asp Arg Asp Tyr Trp Ala Gln
    610                 615                 620

Lys Glu Lys Gly Ser Ser Ser Phe Leu Arg Pro Ser Cys Val Pro Phe
625                 630                 635                 640

Arg Glu Leu Lys Asn Val Ser Val Leu Glu Gly Leu Arg Gln Gly Arg
                645                 650                 655

Leu Gly Gly Pro Cys Ser Cys His Cys Pro Arg Pro Ser Gln Ala Arg
            660                 665                 670

Leu Thr Pro Val Asp Val Ala Gly Pro Phe Leu Cys Leu Gly Asp Pro
        675                 680                 685

Gly Leu Phe Pro Pro Val Lys Ser Ser Ile Thr Glu Ile Ser Cys Cys
    690                 695                 700

Thr Leu Ser Ser Glu Glu Asn Glu Tyr Leu Pro Arg Pro Glu Trp Gln
705                 710                 715                 720

Leu Gln Tyr Glu Ala Gly Met Thr Leu Gly Gly Lys Ile Leu Phe Phe
                725                 730                 735
```

```
Leu Phe Leu Leu Leu Pro Leu Ser Pro Phe Ser Leu Ile Phe Leu Val
            740                 745                 750

Leu Gly Val Leu Ser Gly His Ser Gly Ser Arg Leu Lys Arg Ser Phe
        755                 760                 765

Ala Val Thr Glu Arg Ile Ile Thr Gly Gly Lys Ser Thr Cys Ser Ala
    770                 775                 780

Pro Gly Pro Gln Ser Leu Pro Ser Thr Pro Phe Ser Thr Tyr Pro Gln
785                 790                 795                 800

Trp Val Ile Leu Ile Thr Glu Leu Gly Asn Thr Thr Leu Gln Gln Leu
                805                 810                 815

Gly Glu Ala Ser Gln Ala Pro Ser Gly Ser Leu Ile Pro Leu Arg Leu
            820                 825                 830

Pro Leu Leu Trp Glu Val Arg Gly Asn Ser Lys Met Ala Leu Asn Ser
        835                 840                 845

Leu Asn Ser Ile Asp Asp Ala Gln Leu Thr Arg Ile Ala Pro Pro Arg
    850                 855                 860

Ser His Cys Cys Phe Trp Glu Val Asn Ala Pro Phe Val Gln Gly Lys
865                 870                 875                 880

Asp Trp Gly Leu Lys Lys Phe Ile Arg Arg Asp Phe Glu Ala Phe Gln
                885                 890                 895

Arg Ala Ala Gly Glu Gly Gly Pro Gly Arg Gly Gly Ala Arg Arg Gly
            900                 905                 910

Ala Arg Val Leu Gln Ser Pro Phe Cys Arg Ala Gly Ala Gly Glu Trp
        915                 920                 925

Leu Gly His Gln Ser Leu Arg Trp Gly Met Glu Leu Ala Ala Ser Arg
    930                 935                 940
```

```
Arg Phe Ser Trp Asp His His Ser Ala Gly Gly Pro Pro Arg Val Pro
945                 950                 955                 960


Ser Val Arg Ser Gly Ala Ala Gln Val Gln Pro Lys Asp Pro Leu Pro
                965                 970                 975


Leu Arg Thr Leu Ala Gly Cys Leu Ala Arg Thr Ala His Leu Arg Pro
            980                 985                 990


Gly Ala Glu Ser Leu Pro Gln Pro  Gln Leu His Cys Thr  Ile Ala Arg
        995                 1000                1005


Glu Leu  His Gln Phe Ala Phe  Asp Leu Leu Ile Lys  Ser His Lys
    1010                1015                1020


Met His  Phe Ser Leu Lys Glu  His Pro Pro Pro Pro  Cys Pro Pro
    1025                1030                1035


His Val  Val Gly Tyr Gly His  Leu Asp Thr Ser Gly  Ser Ser Ser
    1040                1045                1050


Ser Ser  Ser Trp Pro Gln Pro  Asp Ser Phe Ala Ala  Leu His Ser
    1055                1060                1065


Ser Leu  Asn Glu Leu Gly Glu  Leu Trp Phe Gln Ser  Ser Glu Leu
    1070                1075                1080


Ser Pro  Thr Gly Ala Pro Trp  Pro Ser Arg Arg Pro  Thr Trp Arg
    1085                1090                1095


Gly Thr  Thr Val Ser Pro Arg  Thr Ala Thr Ser Ser  Ala Arg Thr
    1100                1105                1110


Cys Cys  Gly Thr Lys Trp Pro  Ser Ser Gln Glu Ala  Ala Leu Gly
    1115                1120                1125


Leu Gly  Ser Gly Leu Leu Arg  Phe Ser Cys Gly Thr  Ala Ala Ile
    1130                1135                1140
```

```
Arg Gly  Val Pro Gly Asp Ser  Thr Arg Arg Ala Val  Arg Arg Met
    1145                1150                1155

Asn Thr  Phe Cys Gly Ala Ser  Ala Cys Asp Val Ser  Leu Ile Ala
    1160                1165                1170

Met Asp  Ser Ala Cys Glu Glu  Arg Gly Ala Ala Gly  Ser Leu Ile
    1175                1180                1185

Ser Cys  Glu Ser Leu Tyr His  Arg Glu Lys Gln Leu  Ile Ala Met
    1190                1195                1200

Asp Ser  Ala Ile Phe Val Gln  Gly Lys Asp Trp Gly  Val Lys Lys
    1205                1210                1215

Phe Ile  Arg Arg Asp Phe Tyr  Glu Ala Gly Met Thr  Leu Gly Glu
    1220                1225                1230

Lys Phe  Arg Val Gly Asn Cys  Lys His Leu Lys Met  Thr Arg Pro
    1235                1240                1245

Thr Met  Pro Ala Ile Leu Lys  Leu Gln Lys Asn Cys  Leu Leu Ser
    1250                1255                1260

Leu Asn  Ser Lys Met Ala Leu  Asn Ser Glu Ala Leu  Ser Val Val
    1265                1270                1275

Ser Glu  Thr Glu Tyr Asn Gln  Lys Leu Gln Val Asn  Gln Phe Ser
    1280                1285                1290

Glu Ser  Lys Arg Thr Ala Leu  Thr His Asn Gln Asp  Phe Ser Ile
    1295                1300                1305

Tyr Arg  Leu Cys Cys Lys Arg  Gly Ser Leu Cys His  Ala Ser Gln
    1310                1315                1320

Ala Arg  Ser Pro Ala Phe Pro  Lys Pro Val Arg Pro  Leu Pro Ala
    1325                1330                1335

Pro Ile  Thr Arg Ile Thr Pro  Gln Leu Gly Gly Gln  Ser Asp Ser
```

1340 1345 1350

Ser Gln Pro Leu Leu Thr Thr Gly Arg Pro Gln Gly Trp Gln Asp
1355 1360 1365

Gln Ala Leu Arg His Thr Gln Gln Ala Ser Pro Ala Ser Cys Ala
1370 1375 1380

Thr Ile Thr Ile Pro Ile His Ser Ala Ala Leu Gly Asp His Ser
1385 1390 1395

Gly Asp Pro Gly Pro Ala Trp Asp Thr Cys Pro Pro Leu Pro Leu
1400 1405 1410

Thr Thr Leu Ile Pro Arg Ala Pro Pro Pro Tyr Gly Asp Ser Thr
1415 1420 1425

Ala Arg Ser Trp Pro Ser Arg Cys Gly Pro Leu Gly Tyr Ala Tyr
1430 1435 1440

Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu Val Phe Leu Gln
1445 1450 1455

Glu Ile Gln Ile Cys Cys His Val Ser Cys Leu Cys Cys Ile Cys
1460 1465 1470

Cys Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu Phe Leu
1475 1480 1485

Ser Arg Ala Leu Arg Ala Leu His Val Leu Trp Asn Gly Phe Gln
1490 1495 1500

Leu His Cys Gln
1505

<210> 627
<211> 7
<212> PRT
<213> Artificial seqeunce

<220>

<223> protein tag

<400> 627

Ser His His His His His His
1 5

<210> 628
<211> 845
<212> DNA
<213> Artificial sequence

<220>
<223> Promoter

<400> 628
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ttaccgccat gttgacattg attattgact agttattaat agtaatcaat tacggggtca 120

ttagttcata gcccatatat ggagttccgc gttacataac ttacggtaaa tggcccgcct 180

ggctgaccgc ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt tcccatagta 240

acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta aactgcccac 300

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1   5   10   15

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Ala Arg His Ala Gln His Thr Arg Ile Pro Cys Gly Ala Gly Gln
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<400> 636

Ile Pro Cys Gly Ala Gly Gln Val Arg Ala Gly Arg Gly Pro Glu
1   5   10   15

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<400> 637

Arg Ala Gly Arg Gly Pro Glu Ala Gly Gly Gly Val Leu Gln Pro
1   5   10   15

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<400> 638

Gly Gly Gly Val Leu Gln Pro Gln Arg Pro Ala Pro Glu Lys Pro
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Arg Pro Ala Pro Glu Lys Pro Gly Cys Pro Cys Arg Arg Gly Gln
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Arg Gly Gln Pro Arg Leu His Thr Val Lys Met Trp Arg Ala
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Val Gly Thr Pro Pro Pro His Thr Ala Ser Ala Arg Ala Pro Ser
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Ala Ser Ala Arg Ala Pro Ser Gly Pro Pro His Pro His Glu Ser
1   5   10   15

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Pro Pro His Pro His Glu Ser Cys Pro Ala Gly Arg Arg Pro Ala
1   5   10   15

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

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Ala Ala Gln Thr Cys Ala Arg Arg Gln His Gly Leu Pro Gly Cys
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Gln His Gly Leu Pro Gly Cys Glu Glu Ala Gly Thr Ala Arg Val
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Glu Ala Gly Thr Ala Arg Val Pro Ser Leu His Leu His Leu His
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Arg Gly Trp Gly Glu Ala Cys Ala Gln Val Pro Pro Ser Arg Gly
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His Tyr Lys Leu Ile Gln Gln Pro Ile Ser Leu Phe Ser Ile Thr
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<400> 661

Cys Phe Leu Leu His Glu Ala Ser Ala Ser Gln
1 5 10

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Arg Thr Ala Leu Thr His Asn Gln Asp Phe Ser Ile Tyr Arg Leu
1 5 10 15

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<400> 663

Asp Phe Ser Ile Tyr Arg Leu Cys Cys Lys Arg Gly Ser Leu Cys
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Cys Lys Arg Gly Ser Leu Cys His Ala Ser Gln Ala Arg Ser Pro
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Ala Ser Gln Ala Arg Ser Pro Ala Phe Pro Lys Pro Val Arg Pro
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<400> 666

Phe Pro Lys Pro Val Arg Pro Leu Pro Ala Pro Ile Thr Arg Ile
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Pro Ala Pro Ile Thr Arg Ile Thr Pro Gln Leu Gly Gly Gln Ser
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Ser Ser Gln Pro Leu Leu Thr Thr Gly Arg Pro Gln Gly Trp Gln
1   5   10   15

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<400> 670

Gly Arg Pro Gln Gly Trp Gln Asp Gln Ala Leu Arg His Thr Gln
1   5   10   15

<210> 671
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<400> 671

Gln Ala Leu Arg His Thr Gln Gln Ala Ser Pro Ala Ser Cys Ala

1 5 10 15

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Ala Ser Pro Ala Ser Cys Ala Thr Ile Thr Ile Pro Ile His Ser
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Ile Thr Ile Pro Ile His Ser Ala Ala Leu Gly Asp His Ser Gly
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Ala Leu Gly Asp His Ser Gly Asp Pro Gly Pro Ala Trp Asp Thr
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Pro Gly Pro Ala Trp Asp Thr Cys Pro Pro Leu Pro Leu Thr Thr
1 5 10 15

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<400> 676

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Ile Pro Arg Ala Pro Pro Pro Tyr Gly Asp Ser Thr Ala Arg Ser
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<400> 678

Gly Asp Ser Thr Ala Arg Ser Trp Pro Ser Arg Cys Gly Pro Leu Gly
1 5 10 15

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<400> 679

Tyr Ala Tyr Lys Asp Phe Leu Trp Cys Phe Pro Phe Ser Leu Val
1 5 10 15

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<400> 680

Cys Phe Pro Phe Ser Leu Val Phe Leu Gln Glu Ile Gln Ile Cys
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1 5 10 15

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His Val Ser Cys Leu Cys Cys Ile Cys Cys Ser Thr Arg Ile Cys
1 5 10 15

<210> 683
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Cys Cys Ser Thr Arg Ile Cys Leu Gly Cys Leu Leu Glu Leu Phe
1 5 10 15

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Gly Cys Leu Leu Glu Leu Phe Leu Ser Arg Ala Leu Arg Ala Leu
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Val Leu Trp Asn Gly Phe Gln Leu His Cys Gln
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Tyr Glu Ala Gly Met Thr Leu Gly Glu Lys Phe Arg Val Gly Asn
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Glu Lys Phe Arg Val Gly Asn Cys Lys His Leu Lys Met Thr Arg Pro
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Ser Ala Gly Gly Pro Pro Arg Val Pro Ser Val Arg Ser Gly Ala
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Pro Ser Val Arg Ser Gly Ala Ala Gln Val Gln Pro Lys Asp Pro
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Gln Val Gln Pro Lys Asp Pro Leu Pro Leu Arg Thr Leu Ala Gly
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Pro Leu Arg Thr Leu Ala Gly Cys Leu Ala Arg Thr Ala His Leu
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<400> 695

Leu Ala Arg Thr Ala His Leu Arg Pro Gly Ala Glu Ser Leu Pro
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Pro Gly Ala Glu Ser Leu Pro Gln Pro Gln Leu His Cys Thr
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Glu Ala Ala Leu Gly Leu Gly Ser Gly Leu Leu Arg Phe Ser Cys
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<213> Homo sapiens

<400> 710

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<400> 711

Gly Glu Ala Ala Gly Thr Pro Leu Trp Arg Pro Thr Arg Asn
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<210> 712
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<400> 712

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Pro Lys Leu Asp Cys Pro Lys Leu Gly Phe
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Pro Ala Val Met Pro Arg Ala Pro Ala
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Arg Pro Arg Cys Leu Ser Ser Trp Ser Ser
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Gly Pro Pro Asn Asn Ser Ser Ile His Gly Gly Ser Lys Arg Ser
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Gly Gln Leu Arg Ala Ile Cys Cys Ser Ser Tyr Ser His Asp Arg
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1   5   10   15

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1   5   10   15

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1               5                   10                  15


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Arg Leu Thr Gln Arg Leu Val Gln Gly Trp Thr Pro Met Glu Asn
1 5 10 15

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<400> 818

Gly Trp Thr Pro Met Glu Asn Arg Trp Cys Gly Arg Arg Ala Gly
1 5 10 15

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<400> 819

Trp Cys Gly Arg Arg Ala Gly Gly Gln Pro Ala Ser Ser Ser Thr
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<400> 820

Gln Pro Ala Ser Ser Ser Thr Arg Trp Thr Thr Cys Arg Ala Ala
1 5 10 15

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<400> 821

Trp Thr Thr Cys Arg Ala Ala Cys Leu Leu Thr Lys Trp Thr Ala
1 5 10 15

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<400> 822

Leu Leu Thr Lys Trp Thr Ala Gly Arg Ser Gln Thr Ser Ile Gly
1 5 10 15

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<400> 823

Glu Asn Ser Gly Asn Ala Ser Arg Trp Leu His Val Pro Ser Ser
1   5   10   15

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<400> 824

Trp Leu His Val Pro Ser Ser Ser Asp Asp Trp Leu Gly Trp Lys
1   5   10   15

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<400> 825

Asp Asp Trp Leu Gly Trp Lys Lys Ser Ser Ala Ile Thr Ser Asn Ser
1   5   10   15

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<400> 826

Lys Gly Ser Val Glu Arg Arg Ser Val Ser Leu Gly His Pro Ala
1   5   10   15

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<400> 827

Val Ser Leu Gly His Pro Ala Glu Gly Trp Ala Trp Ala Glu Arg

1 5 10 15

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<400> 828

Gly Trp Ala Trp Ala Glu Arg Ser Leu Gln Pro Gly Met Thr Thr
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<400> 829

Leu Gln Pro Gly Met Thr Thr Ala Asn Thr Gly Cys Leu Ser Phe
1 5 10 15

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Asn Thr Gly Cys Leu Ser Phe His His Arg Gly Cys Leu Leu Pro
1 5 10 15

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<400> 831

His Arg Gly Cys Leu Leu Pro Val Leu Pro Lys Leu His Cys Gly
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<400> 832

Leu Pro Lys Leu His Cys Gly Leu Gly Gly Leu Pro Leu Val Arg
1 5 10 15

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<400> 833

Gly Gly Leu Pro Leu Val Arg Ala Lys Glu Ile Lys Arg Val Gln
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<400> 834

Lys Glu Ile Lys Arg Val Gln Arg Ala Gly Glu Ser Ser Leu Pro
1 5 10 15

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<400> 835

Ala Gly Glu Ser Ser Leu Pro Val Lys Gly Leu Leu Thr Val Ala
1 5 10 15

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<400> 836

Lys Gly Leu Leu Thr Val Ala Ser Ala Val Ile Ala Val Leu Trp
1 5 10 15

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<400> 837

Ala Val Ile Ala Val Leu Trp Gly Arg Pro Ser Glu Val Thr Gly
1   5   10   15

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<400> 838

Arg Pro Ser Glu Val Thr Gly Glu Asn Glu Ala Gln His Asp
1   5   10

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<400> 839

Phe Gly Leu Thr Thr Leu Ala Gly Arg Ser Ser His Gly Thr Ser
1   5   10   15

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<400> 840

Arg Ser Ser His Gly Thr Ser Gly Leu Arg Ala Ala Thr His Thr
1   5   10   15

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<400> 841

Leu Arg Ala Ala Thr His Thr Lys Ser Gly Asp Gly Gly Gln Gly
1   5   10   15

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<400> 842

Ser Gly Asp Gly Gly Gln Gly Ala Ala Arg Gln Cys Glu Lys Leu
1   5   10   15

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<400> 843

Ala Arg Gln Cys Glu Lys Leu Leu Glu Leu Ala Arg Ala Thr Arg
1   5   10   15

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<400> 844

Glu Leu Ala Arg Ala Thr Arg Pro Trp Gly Arg Ser Thr Ser Ala
1   5   10   15

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<400> 845

Trp Gly Arg Ser Thr Ser Ala Ser Ser Arg Trp Thr His Arg Gly
1   5   10   15

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<400> 846

Ser Arg Trp Thr His Arg Gly Tyr Met Cys Pro Pro Arg Cys Ala
1   5   10   15

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<400> 847

Met Cys Pro Pro Arg Cys Ala Val Ala Cys Trp
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<400> 848

Ile Ile Asp Ser Asp Lys Ile Met Ala Val Cys Met Gly Cys Leu
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<400> 849

Asp Lys Ile Met Ala Val Cys Met Gly Cys Leu Leu Thr Arg His
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Ala Val Cys Met Gly Cys Leu Leu Thr Arg His Val Gln Cys Gln
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<400> 851

Gly Cys Leu Leu Thr Arg His Val Gln Cys Gln Ala Met Glu Met
1 5 10 15

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<400> 852

Thr Arg His Val Gln Cys Gln Ala Met Glu Met Gln Gln
1   5   10

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<400> 853

Leu Ser Ile Phe Leu Phe Leu Met Leu Cys Lys Leu Glu Phe His Ala
1   5   10   15

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<400> 854

Leu Leu Asn Ala Glu Asp Tyr Arg Cys Ala Ile His Ser Lys Glu
1   5   10   15

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<400> 855

Cys Ala Ile His Ser Lys Glu Ile Tyr Leu Leu Ser Pro Ser Pro
1   5   10   15

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<400> 856

Tyr Leu Leu Ser Pro Ser Pro His Gln Ala Met Asp Lys Phe Ser
1   5   10   15

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<213> Homo sapiens

<400> 857

Gln Ala Met Asp Lys Phe Ser Leu Cys Cys Ile Asn Cys Asn Leu
1   5   10   15

<210> 858
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<400> 858

Cys Cys Ile Asn Cys Asn Leu Cys Leu His Val Phe Leu Leu Leu
1   5   10   15

<210> 859
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<400> 859

Leu His Val Phe Leu Leu Leu Leu Phe Phe Gln Asn Lys Asp Val
1   5   10   15

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<400> 860

Phe Phe Gln Asn Lys Asp Val Trp Leu Ile Ser Asn Ile Ile Leu
1   5   10   15

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<400> 861

Leu Ile Ser Asn Ile Ile Leu Leu Trp Ile Tyr Gly Gly Ile
1 5 10

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<400> 862

Val Glu Thr Leu Glu Asn Ala Asn Ser Phe Ser Ser Gly Ile Gln
1 5 10 15

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<400> 863

Ser Phe Ser Ser Gly Ile Gln Pro Leu Leu Cys Ser Leu Ile Gly
1 5 10 15

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<400> 864

Leu Leu Cys Ser Leu Ile Gly Leu Glu Asn Pro Thr
1 5 10

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<400> 865

Ala Gly Ala Gly Thr Ile Ser Glu Gly Ser Val Leu His Gly Gln
1 5 10 15

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<400> 866

Gly Ser Val Leu His Gly Gln Arg Leu Glu Cys Asp Ala Arg Arg
1 5 10 15

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<400> 867

Leu Glu Cys Asp Ala Arg Arg Phe Phe Gly Cys Gly Thr Thr Ile
1 5 10 15

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<400> 868

Phe Gly Cys Gly Thr Thr Ile Leu Ala Glu Trp Glu His His
1 5 10

<210> 869
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<400> 869

Lys Glu Gln Ile Leu Ala Val Ala Ser Leu Val Ser Ser Gln Ser
1 5 10 15

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<400> 870

Ser Leu Val Ser Ser Gln Ser Ile His Pro Ser Trp Gly Gln Ser
1 5 10 15

<210> 871

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<400> 871

His Pro Ser Trp Gly Gln Ser Pro Leu Ser Arg Ile
1 5 10

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Gln Gln Leu Arg Ile Phe Cys Ala Ala Met Ala Ser Asn Glu Asp
1 5 10 15

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<400> 873

Ala Met Ala Ser Asn Glu Asp Phe Ser
1 5

<210> 874
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<400> 874

Asp Gly Phe Ser Gly Ser Leu Phe Ala Val Val Thr Arg Arg Cys
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<400> 875

Ala Val Val Thr Arg Arg Cys Tyr Phe Leu Lys Trp Arg Thr Ile
1 5 10 15

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<400> 876

Phe Leu Lys Trp Arg Thr Ile Phe Pro Gln Ser Leu Met Trp Leu
1   5   10   15

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<400> 877

Asp Leu Arg Arg Val Ala Thr Tyr Cys Ala Pro Leu Pro Ser Ser
1   5   10   15

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<400> 878

Cys Ala Pro Leu Pro Ser Ser Trp Arg Pro Gly Thr Gly Thr Thr
1   5   10   15

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<400> 879

Arg Pro Gly Thr Gly Thr Thr Ile Pro Pro Arg Met Arg Ser Cys
1   5   10   15

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<400> 880

Leu Gln Glu Arg Met Glu Leu Leu Ala Cys Gly Ala Glu Arg Gly

1 5 10 15

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<400> 881

Ala Cys Gly Ala Glu Arg Gly Ala Gly Gly Trp Gly Gly Gly Gly
1 5 10 15

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<400> 882

Gly Gly Trp Gly Gly Gly Gly Gly Gly Gly Gly Gly Asp Arg Arg
1 5 10 15

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<400> 883

Gly Gly Gly Gly Asp Arg Arg Gly Gly Gly Gly Ser Ala Pro Ala
1 5 10 15

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<400> 884

Gly Gly Gly Ser Ala Pro Ala Leu Ala Asp Phe Ala Gly Gly Arg Gly
1 5 10 15

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<400> 885

Trp Thr Asp Ile Val Lys Gln Ser Val Ser Thr Asn Cys Ile Ser
1 5 10 15

<210> 886
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<400> 886

Val Ser Thr Asn Cys Ile Ser Ile Lys Lys Gly Ser Tyr Thr Lys
1 5 10 15

<210> 887
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<400> 887

Lys Lys Gly Ser Tyr Thr Lys Leu Phe Ser Leu Val Phe Leu Ile
1 5 10 15

<210> 888
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<400> 888

Phe Ser Leu Val Phe Leu Ile Phe Cys Trp Pro Leu Ile Ile Gln Leu
1 5 10 15

<210> 889
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<400> 889

Leu Arg Tyr Gly Ala Leu Cys Asn Val Ser Arg Ile Ser Tyr Phe
1 5 10 15

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<400> 890

Val Ser Arg Ile Ser Tyr Phe Ser Leu Thr Asn Ile Phe Asn Phe
1 5 10 15

<210> 891
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<400> 891

Leu Thr Asn Ile Phe Asn Phe Val Ile Lys Ser Leu Thr Ala Ile
1 5 10 15

<210> 892
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<400> 892

Arg Lys Glu Arg Asn Ile Arg Lys Ser Glu Ser Thr Leu Arg Leu
1 5 10 15

<210> 893
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<400> 893

Ser Glu Ser Thr Leu Arg Leu Ser Pro Phe Pro Thr Pro Ala Pro
1 5 10 15

<210> 894
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<400> 894

Pro Phe Pro Thr Pro Ala Pro Ser Gly Ala Pro Ala Ala Ala Gln
1 5 10 15

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<400> 895

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

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<400> 896

Lys Val Val Arg Val Pro Gly Pro Ala Gly Gly Leu Val Pro Arg
1   5   10   15

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<400> 897

Ala Gly Gly Leu Val Pro Arg Asp Ala Gly Ala Arg Leu Leu Pro
1   5   10   15

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<400> 898

Ala Gly Ala Arg Leu Leu Pro Pro Ala Gly Gly Pro Gly Gly Gly
1   5   10   15

<210> 899
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<400> 899

Ala Gly Gly Pro Gly Gly Gly Ala Ala Ala Gly Glu Gly Arg Ala
1   5   10   15

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<400> 900

Ala Ala Gly Glu Gly Arg Ala Gly Arg Gly Arg Phe Pro Ser Ile
1 5 10 15

<210> 901
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<400> 901

Arg Gly Arg Phe Pro Ser Ile Thr Glu Pro Arg Pro Arg Asp Leu
1 5 10 15

<210> 902
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<400> 902

Glu Pro Arg Pro Arg Asp Leu Pro Pro Arg Val Ala Thr Gly Arg
1 5 10 15

<210> 903
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<400> 903

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

<210> 904
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<400> 904

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

<210> 905
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<400> 905

Gly Gln Gly Val Arg Thr Arg Pro Leu Pro Ala Ser Trp Pro Gly
1   5   10   15

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<400> 906

Leu Pro Ala Ser Trp Pro Gly Gly Arg Gly Pro Phe Arg Lys Gly
1   5   10   15

<210> 907
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<400> 907

Arg Gly Pro Phe Arg Lys Gly Pro Arg Arg Leu Pro Leu Gly Ser
1   5   10   15

<210> 908
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<400> 908

Arg Arg Leu Pro Leu Gly Ser Gly Pro Pro Ala Ala Gly Val Gln
1   5   10   15

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<400> 909

Pro Pro Ala Ala Gly Val Gln Arg Leu Arg Cys Ser His Leu Ser
1 5 10 15

<210> 910
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<400> 910

Leu Arg Cys Ser His Leu Ser Arg Gly Pro Arg Arg Arg Arg Gly
1 5 10 15

<210> 911
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<400> 911

Gly Pro Arg Arg Arg Arg Gly Arg Val Cys Gly Arg Ala Cys Val
1 5 10 15

<210> 912
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<400> 912

Val Cys Gly Arg Ala Cys Val Ser Pro Pro Leu Pro Pro Arg Pro
1 5 10 15

<210> 913
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<400> 913

Pro Pro Leu Pro Pro Arg Pro Pro Pro Val Gly Leu Ser Ala Glu
1 5 10 15

<210> 914
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<400> 914

Pro Val Gly Leu Ser Ala Glu Asn Leu Ser Trp Leu Ser Ser Gly
1 5 10 15

<210> 915
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<400> 915

Leu Ser Trp Leu Ser Ser Gly Leu Pro Arg Ala Cys Ser Trp Arg
1 5 10 15

<210> 916
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<400> 916

Pro Arg Ala Cys Ser Trp Arg Glu Phe Ser Pro Glu Thr Cys Ala
1 5 10 15

<210> 917
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<400> 917

Phe Ser Pro Glu Thr Cys Ala Phe Arg Leu Ser Gly Leu Asp Ser
1 5 10 15

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<400> 918

Arg Leu Ser Gly Leu Asp Ser Lys Leu Ser Ala Arg Val Glu Arg
1 5 10 15

<210> 919
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Leu Ser Ala Arg Val Glu Arg Asp Leu Gly Ala Leu Arg Ala Pro
1 5 10 15

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<400> 920

Leu Gly Ala Leu Arg Ala Pro Gly Ser Arg Ala Ala Gln Gly Gly
1 5 10 15

<210> 921
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Ser Arg Ala Ala Gln Gly Gly Gly Arg Val Arg Gly Ser Arg Ser
1 5 10 15

<210> 922
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<400> 922

Arg Val Arg Gly Ser Arg Ser Glu Trp Lys Thr Arg Pro Trp Arg
1 5 10 15

<210> 923
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Trp Lys Thr Arg Pro Trp Arg Pro Pro Pro Ala Trp Pro Leu Thr
1 5 10 15

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Pro Pro Ala Trp Pro Leu Thr Arg Ala Gly Gly Pro Leu Pro Lys
1 5 10 15

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Ala Gly Gly Pro Leu Pro Lys Asn Pro Phe Leu Glu Ser Cys Ser
1 5 10 15

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<400> 926

Pro Phe Leu Glu Ser Cys Ser Glu Thr Ala Gln Arg Arg Arg Val
1 5 10 15

<210> 927
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<400> 927

Thr Ala Gln Arg Arg Arg Val Phe Ser Phe Ser Thr Pro Leu Ser
1 5 10 15

<210> 928
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<400> 928

Ser Ile Asn Lys Ala Thr Ile Thr Gly Lys Lys Asp Leu Glu Leu
1 5 10 15

<210> 929
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<400> 929

Gly Lys Lys Asp Leu Glu Leu Ile Leu His Val Ser Arg Lys Lys
1   5   10   15

<210> 930
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<400> 930

Leu His Val Ser Arg Lys Lys Pro Phe Leu Pro Arg Val Asn Ile
1   5   10   15

<210> 931
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<400> 931

Phe Leu Pro Arg Val Asn Ile Thr Pro Thr Pro Ile Ser Cys Cys
1   5   10   15

<210> 932
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<400> 932

Pro Thr Pro Ile Ser Cys Cys Asn Leu Lys Met Leu Lys Lys Phe
1   5   10   15

<210> 933
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<400> 933

Leu Lys Met Leu Lys Lys Phe Phe Leu Leu Tyr Ile Ile Ile Ser

1 5 10 15

<210> 934
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<400> 934

Leu Leu Tyr Ile Ile Ile Ser Ile Ile Asp Leu Thr Asn Cys Leu
1 5 10 15

<210> 935
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<400> 935

Ile Asp Leu Thr Asn Cys Leu Ser Cys Tyr Leu Glu His Phe Tyr
1 5 10 15

<210> 936
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<400> 936

Cys Tyr Leu Glu His Phe Tyr Arg Phe Thr Phe Phe Thr Asp Val
1 5 10 15

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<400> 937

Phe Thr Phe Phe Thr Asp Val His Tyr Phe
1 5 10

<210> 938
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<400> 938

Pro Tyr Tyr Ser Ala Leu Ser Gly Asn Ser Trp Val Pro Ser Thr
1   5   10   15

<210> 939
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<400> 939

Asn Ser Trp Val Pro Ser Thr Leu Glu Ser Asp Pro Phe Gly Tyr
1   5   10   15

<210> 940
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<400> 940

Glu Ser Asp Pro Phe Gly Tyr Val Phe Ser Pro Leu Ala Thr Arg
1   5   10   15

<210> 941
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<400> 941

Phe Ser Pro Leu Ala Thr Arg Pro Ala Leu Asn Asp Gln Glu Ser
1   5   10   15

<210> 942
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<400> 942

Ala Leu Asn Asp Gln Glu Ser Ile Leu Trp Pro Thr Leu Thr Ser
1   5   10   15

<210> 943
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<213> Homo sapiens

<400> 943

Leu Trp Pro Thr Leu Thr Ser Val Val Ser Cys Ala Leu Ser Cys
1   5   10   15

<210> 944
<211> 15
<212> PRT
<213> Homo sapiens

<400> 944

Val Ser Cys Ala Leu Ser Cys Pro Ser Leu Asn Leu Pro Glu Asn
1   5   10   15

<210> 945
<211> 15
<212> PRT
<213> Homo sapiens

<400> 945

Ser Leu Asn Leu Pro Glu Asn Trp Leu Thr Leu Ile Thr Gly Gly
1   5   10   15

<210> 946
<211> 15
<212> PRT
<213> Homo sapiens

<400> 946

Leu Thr Leu Ile Thr Gly Gly Met Lys Gly Gly Lys Lys Met Lys
1   5   10   15

<210> 947
<211> 12
<212> PRT
<213> Homo sapiens

<400> 947

Lys Gly Gly Lys Lys Met Lys Phe Thr Phe Arg His
1   5   10

<210> 948
<211> 15

<212> PRT
<213> Homo sapiens

<400> 948

Gly Leu Arg Asn Leu Gly Asn Thr Val Arg Ala Ile Leu Leu Ser
1   5   10   15

<210> 949
<211> 15
<212> PRT
<213> Homo sapiens

<400> 949

Val Arg Ala Ile Leu Leu Ser Phe Leu Ser Lys Arg Asn Val Lys
1   5   10   15

<210> 950
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<212> PRT
<213> Homo sapiens

<400> 950

Leu Ser Lys Arg Asn Val Lys Trp Cys Trp Gly Trp Gly Lys Pro
1   5   10   15

<210> 951
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<212> PRT
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<400> 951

Cys Trp Gly Trp Gly Lys Pro Thr Ser Leu Gly Lys Ala Cys Gly
1   5   10   15

<210> 952
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<212> PRT
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<400> 952

Ser Leu Gly Lys Ala Cys Gly Arg Arg Ala Leu Lys Leu Phe
1   5   10

<210> 953
<211> 15
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<213> Homo sapiens

<400> 953

Met Glu Ala Glu Asn Ala Gly Ser Leu His Phe His Glu Val Leu
1 5 10 15

<210> 954
<211> 14
<212> PRT
<213> Homo sapiens

<400> 954

Leu His Phe His Glu Val Leu Lys Met Gly His Val Lys Phe
1 5 10

<210> 955
<211> 15
<212> PRT
<213> Homo sapiens

<400> 955

Trp Thr Pro Ile Pro Val Leu Thr Arg Trp Pro Leu Pro His Pro
1 5 10 15

<210> 956
<211> 15
<212> PRT
<213> Homo sapiens

<400> 956

Arg Trp Pro Leu Pro His Pro Pro Pro Trp Arg Arg Ala Thr Ser
1 5 10 15

<210> 957
<211> 15
<212> PRT
<213> Homo sapiens

<400> 957

Pro Trp Arg Arg Ala Thr Ser Cys Arg Met Ala Arg Ser Ser Pro
1 5 10 15

<210> 958
<211> 15
<212> PRT
<213> Homo sapiens

<400> 958

Arg Met Ala Arg Ser Ser Pro Ser Ala Thr Ser Gly Ser Ser Val
1   5   10   15

<210> 959
<211> 15
<212> PRT
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<400> 959

Ala Thr Ser Gly Ser Ser Val Arg Arg Arg Cys Ser Ser Leu Pro
1   5   10   15

<210> 960
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<212> PRT
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<400> 960

Arg Arg Cys Ser Ser Leu Pro Ser Trp Val Trp Asn Leu Ala Ala
1   5   10   15

<210> 961
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<212> PRT
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<400> 961

Trp Val Trp Asn Leu Ala Ala Ser Thr Arg Pro Arg Ser Thr Pro Ser
1   5   10   15

<210> 962
<211> 15
<212> PRT
<213> Homo sapiens

<400> 962

Leu His Pro Gln Arg Glu Thr Phe Thr Pro Arg Trp Ser Gly Ala
1   5   10   15

<210> 963
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<212> PRT
<213> Homo sapiens

<400> 963

Thr Pro Arg Trp Ser Gly Ala Asn Tyr Trp Lys Leu Ala Phe Pro
1   5   10   15

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<212> PRT
<213> Homo sapiens

<400> 964

Tyr Trp Lys Leu Ala Phe Pro Val Gly Ala Glu Gly Thr Phe Pro
1   5   10   15

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<213> Homo sapiens

<400> 965

Gly Ala Glu Gly Thr Phe Pro Ala Ala Ala Thr Gln Arg Gly Val
1   5   10   15

<210> 966
<211> 11
<212> PRT
<213> Homo sapiens

<400> 966

Ala Ala Thr Gln Arg Gly Val Val Arg Pro Ala
1   5   10

<210> 967
<211> 15
<212> PRT
<213> Homo sapiens

<400> 967

Met Ala Gly Gly Val Leu Arg Arg Leu Leu Cys Arg Glu Pro Asp
1 5 10 15

<210> 968
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<400> 968

Leu Leu Cys Arg Glu Pro Asp Arg Asp Gly Asp Lys Gly Ala Ser
1 5 10 15

<210> 969
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<400> 969

Asp Gly Asp Lys Gly Ala Ser Arg Glu Glu Thr Val Val Pro Leu
1 5 10 15

<210> 970
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<400> 970

Glu Glu Thr Val Val Pro Leu His Ile Gly Asp Pro Val Val Leu
1 5 10 15

<210> 971
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<212> PRT
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<400> 971

Ile Gly Asp Pro Val Val Leu Pro Gly Ile Gly Gln Cys Tyr Ser
1 5 10 15

<210> 972
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<213> Homo sapiens

<400> 972

Gly Ile Gly Gln Cys Tyr Ser Ala Leu Phe
1 5 10

<210> 973
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<212> PRT
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<400> 973

Val Phe Phe Lys Arg Ala Ala Glu Gly Phe Phe Arg Met Asn Lys
1 5 10 15

<210> 974
<211> 15
<212> PRT
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<400> 974

Gly Phe Phe Arg Met Asn Lys Leu Lys Glu Ser Ser Asp Thr Asn
1 5 10 15

<210> 975
<211> 15
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<400> 975

Lys Glu Ser Ser Asp Thr Asn Pro Lys Pro Tyr Cys Met Ala Ala
1 5 10 15

<210> 976
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<400> 976

Lys Pro Tyr Cys Met Ala Ala Pro Met Gly Leu Thr Glu Asn Asn
1 5 10 15

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<400> 977

Met Gly Leu Thr Glu Asn Asn Arg Asn Arg Lys Lys Ser Tyr Arg
1 5 10 15

<210> 978
<211> 15
<212> PRT
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<400> 978

Asn Arg Lys Lys Ser Tyr Arg Glu Thr Asn Leu Lys Ala Val Ser
1 5 10 15

<210> 979
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<400> 979

Thr Asn Leu Lys Ala Val Ser Trp Pro Leu Asn His Thr
1 5 10

<210> 980
<211> 13
<212> PRT
<213> Homo sapiens

<400> 980

Gly Trp Arg Gly Val Cys Cys Ala Ala Val Glu Pro Ala
1 5 10