

SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.
 Coppi, Alida
 Mason, Peter
 Olson, William

<120> HUMAN ANTIBODIES TO S. AUREUS HEMOLYSIN
 A TOXIN

<130> 10268W001

<150> 62/441,786

<151> 2017-01-03

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ccaggcaagg ggctggagtg ggtggcagtt atatgggatg atggaagaaa aaaatattat 180
gcagactccg tgaagggccg attcaccgtc tccagagaca actccaagaa cacgctatat 240
ctagaaatta acagcctaag ggtcgaggac acggctgtgt attactgtgc gagagaaggt 300
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Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Phe Ser Asp Tyr
  20          25          30
Gly Met Gln Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
  35          40          45
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Ala	Val	Ile	Trp	Asp	Asp	Gly	Arg	Lys	Lys	Tyr	Tyr	Ala	Asp	Ser	Val
	50					55					60				
Lys	Gly	Arg	Phe	Thr	Val	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr
65					70				75					80	
Leu	Glu	Ile	Asn	Ser	Leu	Arg	Val	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85					90					95		
Ala	Arg	Glu	Gly	Ser	Ser	Ser	Ser	Gly	Arg	Tyr	Phe	Leu	Tyr	Gly	Met
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Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser			
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Ile Trp Asp Asp Gly Arg Lys Lys
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Ala Arg Glu Gly Ser Ser Ser Ser Gly Arg Tyr Phe Leu Tyr Gly Met
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Asp Val

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gggaaagccc ccaagctcct gatctctgtg gcatccagtt tgcagagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg gaatttatta ctgtcaacag agttacaata cccctccgtg gacgttcggc 300
caagggacca aggtggaaat caaa 324

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Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Arg	Ile	Ser	Ser	Tyr
			20					25				30			
Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Leu	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
		35					40					45			
Ser	Val	Ala	Ser	Ser	Leu	Gln	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55				60					
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75				80	
Glu	Asp	Phe	Gly	Ile	Tyr	Tyr	Cys	Gln	Gln	Ser	Tyr	Asn	Thr	Pro	Pro
				85					90					95	
Trp	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys				
			100					105							

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18

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<400> 13

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9

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Gln Gln Ser Tyr Asn Thr Pro Pro Trp Thr
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ccaggcaagg ggctggagtg ggtggcagtt atatgggatg atggaagaaa aaaatattat 180
gcagactccg tgaagggccg attcaccgtc tccagagaca actccaagaa cacgctatat 240
ctagaaatta acagcctaag ggtcgaggac acggctgtgt attactgtgc gagagaaggt 300
agtagttcgt ccggacgcta tttcttgtag ggaatggacg tctgggggtca agggaccacg 360
gtcaccgtct cctcagcctc caccaagggc ccacgcgtct tccccctggc accctcctcc 420
aagagcacct ctggggggcac agcggccctg ggctgcctgg tcaaggacta cttccccgaa 480

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ccggtgacgg tgtcgtggaa ctcaggcgcc ctgaccagcg gcgtgcacac cttcccggct 540
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ttgggcaccc agacctacat ctgcaacgtg aatcacaaagc ccagcaacac caaggtggac 660
aagaaagtgt agcccaaatc ttgtgacaaa actcacacat gcccaccgtg cccagcacct 720
gaactcctgg ggggaccgtc agtcttcctc ttcccccaa aaccaagga caccctcatg 780
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<210> 18

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Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Phe Ser Asp Tyr
      20             25             30
Gly Met Gln Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35             40             45
Ala Val Ile Trp Asp Asp Gly Arg Lys Lys Tyr Tyr Ala Asp Ser Val
      50             55             60
Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65             70             75             80
Leu Glu Ile Asn Ser Leu Arg Val Glu Asp Thr Ala Val Tyr Tyr Cys
      85             90             95
Ala Arg Glu Gly Ser Ser Ser Ser Gly Arg Tyr Phe Leu Tyr Gly Met
      100            105            110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
      115            120            125
Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
      130            135            140
Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
145            150            155            160
Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
      165            170            175
Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
      180            185            190
Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
      195            200            205
Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu
210            215            220
Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro

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225					230					235				240	
Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys
				245					250					255	
Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val
			260					265					270		
Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp
		275					280				285				
Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr
	290				295					300					
Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp
305				310					315					320	
Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu
			325					330						335	
Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg
			340				345						350		
Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys
	355					360					365				
Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp
	370					375				380					
Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys
385				390					395					400	
Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser
			405					410						415	
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser
		420					425				430				
Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser
	435					440					445				
Leu	Ser	Leu	Ser	Pro	Gly	Lys									
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<400> 19

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gggaaagccc ccaagctcct gatctctgtg gcatccagtt tgcagagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg gaatttatta ctgtcaacag agttacaata cccctccgtg gacgttcggc 300
caagggacca aggtggaaat caaacgaact gtggctgcac catctgtctt catcttcccg 360
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc 420
tatcccagag aggccaaagt acagtggaag gtggataacg ccctccaatc gggtaactcc 480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcacctcg 540
acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtggttag 648

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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Arg Ile Ser Ser Tyr
20 25 30
Leu Asn Trp Tyr Gln Gln Lys Leu Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Ser Val Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Gly Ile Tyr Tyr Cys Gln Gln Ser Tyr Asn Thr Pro Pro
85 90 95
Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
100 105 110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
130 135 140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145 150 155 160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
165 170 175
Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
180 185 190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
195 200 205
Ser Phe Asn Arg Gly Glu Cys
210 215

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

<220>
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<400> 21
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cagtcccat cgagaggcct tgagtggctg ggaaggacat actacaggtc caagtggttt 180
aatgattacg tagaatctgt gaaaagtcga ataagtttca acccagacac atccaagaac 240
cagttctccc tgcagctgaa ctctgtgact cccgaggaca cggctgtgta ttattgcgca 300
cgttcgtact atgatttttg gagtgggttat tctgagaata actactactt ctacggtatg 360
gacgtctggg gccaaaggac cacggtcacc gtctcctca 399

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<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 22
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Thr Leu Ser Leu Thr Cys Ala Ile Ser Gly Asp Ser Val Ala Ser Asn
20 25 30
Asn Ala Ala Trp Asn Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu
35 40 45
Trp Leu Gly Arg Thr Tyr Tyr Arg Ser Lys Trp Phe Asn Asp Tyr Val
50 55 60
Glu Ser Val Lys Ser Arg Ile Ser Phe Asn Pro Asp Thr Ser Lys Asn
65 70 75 80
Gln Phe Ser Leu Gln Leu Asn Ser Val Thr Pro Glu Asp Thr Ala Val
85 90 95
Tyr Tyr Cys Ala Arg Ser Tyr Tyr Asp Phe Trp Ser Gly Tyr Ser Glu
100 105 110
Asn Asn Tyr Tyr Phe Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr
115 120 125
Val Thr Val Ser Ser
130

<210> 23
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 23
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<212> PRT
<213> Artificial Sequence

<220>
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<400> 24
Gly Asp Ser Val Ala Ser Asn Asn Ala Ala
1 5 10

<210> 25

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

<220>
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<400> 25
acatactaca ggtccaagtg gtttaat 27

<210> 26
<211> 9
<212> PRT
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<220>
<223> Synthetic

<400> 26
Thr Tyr Tyr Arg Ser Lys Trp Phe Asn
1 5

<210> 27
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
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<400> 27
gcacgttcgt actatgattt ttggagtggg tattctgaga ataactacta cttctacggg 60
atggacgtc 69

<210> 28
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 28
Ala Arg Ser Tyr Tyr Asp Phe Trp Ser Gly Tyr Ser Glu Asn Asn Tyr
1 5 10 15
Tyr Phe Tyr Gly Met Asp Val
20

<210> 29
<211> 321
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 29

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atcacttgcc ggacaagtca gggcattaga aatgatttag gctgggtatca gcagaaacca 120
gggaaaagccc ctaagcgctt gatctatgct gcatccagtt tacaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacaa cataatattt accctccgac gttcggccaa 300
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<211> 107

<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 30

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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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Asp Arg Val Ser Ile Thr Cys Arg Thr Ser Gln Gly Ile Arg Asn Asp
 20           25           30
Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Arg Leu Ile
 35           40           45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50           55           60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65           70           75           80
Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Ile Tyr Pro Pro
 85           90           95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100           105
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<210> 31

<211> 18

<212> DNA

<213> Artificial Sequence

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<400> 31

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18

<210> 32

<211> 6

<212> PRT

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<400> 32

Gln Gly Ile Arg Asn Asp
1 5

<210> 33

<211> 9

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 33

gctgcatcc

9

<210> 34

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<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 34

Ala Ala Ser
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<210> 35

<211> 27

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 35

ctacaacata atatttaccc tccgacg

27

<210> 36

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 36

Leu Gln His Asn Ile Tyr Pro Pro Thr
1 5

<210> 37
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 <212> DNA
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 cagtccccat cgagaggcct tgagtggctg ggaaggacat actacaggtc caagtggttt 180
 aatgattacg tagaatctgt gaaaagtcga ataagtttca acccagacac atccaagaac 240
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 cgttcgtact atgatttttg gagtgggttat tctgagaata actactactt ctacgggtatg 360
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 gtcttcccc tggcacctc ctccaagagc acctctgggg gcacagcggc cctgggctgc 480
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 aagcccagca acaccaaggt ggacaagaaa gttgagccca aatcttgtga caaaactcac 720
 acatgcccac cgtgcccagc acctgaactc ctggggggac cgtcagtcct cctcttcccc 780
 ccaaaaccca aggacacctt catgatctcc cggacccctg aggtcacatg cgtgggtggtg 840
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 cataatgccat agacaaagcc gcgggaggag cagtacaaca gcacgtaccg tgtggtcagc 960
 gtcctcaccg tcctgcacca ggactggctg aatggcaagg agtacaagtg caaggtctcc 1020
 aacaaagccc tcccagcccc catcgagaaa accatctcca aagccaaagg gcagccccga 1080
 gaaccacagg tgtacacctt gccccatcc cgggatgagc tgaccaagaa ccaggtcagc 1140
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 gggcagccgg agaacaacta caagaccacg cctcccgtgc tggactccga cggctccttc 1260
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 ccgggtaaat ga 1392

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 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 38
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 20 25 30
 Asn Ala Ala Trp Asn Trp Ile Arg Gln Ser Pro Ser Arg Gly Leu Glu
 35 40 45
 Trp Leu Gly Arg Thr Tyr Tyr Arg Ser Lys Trp Phe Asn Asp Tyr Val
 50 55 60
 Glu Ser Val Lys Ser Arg Ile Ser Phe Asn Pro Asp Thr Ser Lys Asn
 65 70 75 80

<210> 39
<211> 645
<212> DNA
<213> Artificial Sequence

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<223> Synthetic

<400> 39

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gggaaagccc ctaagcgctt gatctatgct gcatccagtt tacaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacaa cataatattt accctccgac gttcggccaa 300
gggaccaagg tggaaatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggtg gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645
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<210> 40

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 40

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 1           5           10          15
Asp Arg Val Ser Ile Thr Cys Arg Thr Ser Gln Gly Ile Arg Asn Asp
          20          25          30
Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Arg Leu Ile
          35          40          45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
          50          55          60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65          70          75          80
Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Ile Tyr Pro Pro
          85          90          95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
          100         105         110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
          115         120         125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
          130         135         140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145         150         155         160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
          165         170         175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
          180         185         190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
          195         200         205
Phe Asn Arg Gly Glu Cys
210
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<210> 41
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 41
gaggtgcagc tggtggagtc tggggggaggc ttggtacagc ctggagggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttact agttatgaaa tgaattgggt ccgccaggct 120
ccagggaagg gcctggagtg gatttcatac attagtagtg gtggtgatac caaatactac 180
gcagactctg tgagggggccg attcaccatc tccagagaca acgccaagaa ctcactatat 240
ctgcaaatac acagcctgag agccgaggac acggctcttt attactgtgc gagagatgtc 300
ctcaattggg tctttgatta ttggggccgg ggaaccctgg tcaccgtctc ctca 354

<210> 42
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 42
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Thr Ser Tyr
20 25 30
Glu Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45
Ser Tyr Ile Ser Ser Gly Gly Asp Thr Lys Tyr Tyr Ala Asp Ser Val
50 55 60
Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg Asp Val Leu Asn Trp Val Phe Asp Tyr Trp Gly Arg Gly Thr
100 105 110
Leu Val Thr Val Ser Ser
115

<210> 43
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 43

ggattcacct ttactagtta tgaa

24

<210> 44

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 44

Gly Phe Thr Phe Thr Ser Tyr Glu

1

5

<210> 45

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 45

attagtagtg gtggtgatac caaa

24

<210> 46

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 46

Ile Ser Ser Gly Gly Asp Thr Lys

1

5

<210> 47

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 47

gcgagagatg tcctcaattg ggtctttgat tat

33

<210> 48

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 48

Ala Arg Asp Val Leu Asn Trp Val Phe Asp Tyr

1

5

10

<210> 49

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 49

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atcacttgcc gggcaagtca gagcattgga aaatatattaa attggtatcg gcagagtcca 120
gggaaagccc ctaaactcct aatctatgca acatccagtt tgcaaagtgg ggtcccatca 180
agtttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag ggtttcagaa cccattcac tttcggccct 300
gggaccaaag tggatatcaa a 321

<210> 50

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 50

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Lys Tyr
20 25 30
Leu Asn Trp Tyr Arg Gln Ser Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Ala Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Ser Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Gly Phe Arg Thr Pro Phe
85 90 95
Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 51

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 51

cagagcattg gaaaatat

18

<210> 52

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 52

Gln Ser Ile Gly Lys Tyr

1

5

<210> 53

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 53

gcaacatcc

9

<210> 54

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 54

Ala Thr Ser

1

<210> 55

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 55

caacagggtt tcagaacccc attcact

27

<210> 56
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 56
Gln Gln Gly Phe Arg Thr Pro Phe Thr
1 5

<210> 57
<211> 1347
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 57
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ccagggaagg gcctggagtg gatttcatac attagtagtg gtggtgatac caaatactac 180
gcagactctg tgagggggccg attcaccatc tccagagaca acgccaagaa ctcactatat 240
ctgcaaatga acagcctgag agccgaggac acggctcttt attactgtgc gagagatgtc 300
ctcaattggg tctttgatta ttggggccgg ggaaccctgg tcaccgtctc ctcagcctcc 360
accaagggcc catcggctctt ccccctggca ccctcctcca agagcacctc tgggggcaca 420
gcggccctgg gctgcctggt caaggactac ttccccgaac cggtgacggt gtcgtggaac 480
tcaggcgcgc tgaccagcgg cgtgcacacc ttcccggtg tcctacagtc ctcaggactc 540
tactccctca gcagcgtggt gaccgtgccc tccagcagct tgggcaccca gacctacatc 600
tgcaacgtga atcacaagcc cagcaacacc aaggtggaca agaaagtga gcccaaattc 660
tgtgacaaaa ctacacatg cccaccgtgc ccagcacctg aactcctggg gggaccgtca 720
gtcttcctct tcccccaaa acccaaggac accctcatga tctcccggac ccctgaggct 780
acatgcgtgg tgggtggacgt gagccacgaa gaccctgagg tcaagttcaa ctggtacgtg 840
gacggcgtgg aggtgcataa tgccaagaca aagccgcggg aggagcagta caacagcacg 900
taccgtgtgg tcagcgtcct caccgtcctg caccaggact ggctgaatgg caaggagtac 960
aagtgcagg tctccaacaa agccctcca gccccatcg agaaaaccat ctccaaagcc 1020
aaagggcagc cccgagaacc acaggtgtac accctgcccc catcccggga tgagctgacc 1080
aagaaccagg tcagcctgac ctgcctggtc aaaggcttct atcccagcga catcgccgtg 1140
gagtgggaga gcaatgggca gccggagaac aactacaaga ccacgcctcc cgtgctggac 1200
tccgacggct ctttcttct ctacagcaag ctcaccgtgg acaagagcag gtggcagcag 1260
gggaacgtct tctcatgctc cgtgatgcat gaggctctgc acaaccacta cacgcagaag 1320
tccctctccc tgtctccggg taaatga 1347

<210> 58
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 58

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
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Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Thr	Ser	Tyr		
			20					25						30			
Glu	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Ile		
		35					40					45					
Ser	Tyr	Ile	Ser	Ser	Gly	Gly	Asp	Thr	Lys	Tyr	Tyr	Ala	Asp	Ser	Val		
	50				55						60						
Arg	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Ser	Leu	Tyr		
65					70				75						80		
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Leu	Tyr	Tyr	Cys		
				85					90						95		
Ala	Arg	Asp	Val	Leu	Asn	Trp	Val	Phe	Asp	Tyr	Trp	Gly	Arg	Gly	Thr		
			100					105					110				
Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro		
		115					120					125					
Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly		
	130					135					140						
Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn		
145					150					155					160		
Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln		
				165					170					175			
Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser		
			180					185					190				
Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser		
		195				200					205						
Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr		
	210					215					220						
His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser		
225					230					235					240		
Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg		
				245					250					255			
Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro		
			260					265					270				
Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala		
		275					280					285					
Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val		
	290					295					300						
Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr		
305					310					315					320		
Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr		
				325					330					335			
Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu		
			340					345					350				
Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys		
		355					360						365				
Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser		
	370					375					380						
Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp		
385					390					395					400		
Ser	Asp	Gly	Ser	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser			
				405				410					415				

Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala
			420					425					430		
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys
		435					440					445			

<210> 59
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 59
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 atcacttgcc gggcaagtca gagcattgga aaatatattaa attggtatcg gcagagtcca 120
 gggaaagccc ctaaactcct aatctatgca acatccagtt tgcaaagtgg ggtcccatca 180
 agtttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag ggtttcagaa cccattcac tttcggccct 300
 gggaccaaag tggatatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
 tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
 cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
 ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
 ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645

<210> 60
 <211> 214
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 60
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Gly Lys Tyr
 20 25 30
 Leu Asn Trp Tyr Arg Gln Ser Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ala Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Ser Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Gly Phe Arg Thr Pro Phe
 85 90 95
 Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys Arg Thr Val Ala Ala
 100 105 110
 Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
 115 120 125
 Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
 130 135 140

Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln
145				150						155					160
Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser
				165					170					175	
Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys	Val	Tyr
			180					185					190		
Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys	Ser
		195					200					205			
Phe	Asn	Arg	Gly	Glu	Cys										
	210														

<210> 61
 <211> 363
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 61
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 tcctgtgcag cctctggatt caccttcaat aattatgaaa tgaactgggt ccgccaggct 120
 ccaggaagg ggctggagtg ggtatcattc attagtagta gtggtagtac catagactac 180
 gcagtctctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctcactgtat 240
 ctgcaaatga acagcctgag acccggggac acggctgttt attactgtgc gagagcccg 300
 ctagacttct attattacgg tatggacgtc tggggccaag ggaccacggt caccgtctcc 360
 tca 363

<210> 62
 <211> 121
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 62
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Tyr
 20 25 30
 Glu Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Phe Ile Ser Ser Ser Gly Ser Thr Ile Asp Tyr Ala Val Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Pro Gly Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Ala Arg Leu Asp Phe Tyr Tyr Tyr Gly Met Asp Val Trp Gly
 100 105 110
 Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 63
ggattcacct tcaataatta tgaa

24

<210> 64
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 64
Gly Phe Thr Phe Asn Asn Tyr Glu
1 5

<210> 65
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 65
attagtagta gtggtagtag cata

24

<210> 66
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 66
Ile Ser Ser Ser Gly Ser Thr Ile
1 5

<210> 67
<211> 42
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 67

gcgagagccc ggctagactt ctattattac ggtatggacg tc

42

<210> 68

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 68

Ala Arg Ala Arg Leu Asp Phe Tyr Tyr Tyr Gly Met Asp Val

1

5

10

<210> 69

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 69

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atcacttgtc gggcgagtca gggcattagc aattatttag cctggtttca gcagaagcca 120
gggaaagccc ctaagtccct gatctatgct acatccactt tgcaaagtgg ggtcccatca 180
aagttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
gaagattttg caacgtatta ctgccaacag tataatagtt tcccgctcac tttcggcgga 300
gggaccaagg tggagatcaa a 321

<210> 70

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 70

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr
20 25 30
Leu Ala Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Ser Leu Ile
35 40 45
Tyr Ala Thr Ser Thr Leu Gln Ser Gly Val Pro Ser Lys Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro

65					70					75					80
Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Asn	Ser	Phe	Pro	Leu
				85					90					95	
Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys					
			100					105							

<210> 71
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 71
 cagggcatta gcaattat 18

<210> 72
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 72
 Gln Gly Ile Ser Asn Tyr
 1 5

<210> 73
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 73
 gctacatcc 9

<210> 74
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 74
 Ala Thr Ser
 1

<210> 75
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 75
caacagtata atagtttccc gctcact

27

<210> 76
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 76
Gln Gln Tyr Asn Ser Phe Pro Leu Thr
1 5

<210> 77
<211> 1356
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 77
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ccagggaagg ggctggagtg ggtatcattc attagtagta gtggtagtac catagactac 180
gcagtctctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctactgtat 240
ctgcaaatga acagcctgag acccggggac acggctgttt attactgtgc gagagcccgg 300
ctagacttct attattacgg tatggacgtc tggggccaag ggaccacggg caccgtctcc 360
tcagcctcca ccaagggccc atcgggtcttc cccctggcac cctcctccaa gagcacctct 420
gggggacacag cggccctggg ctgcctgggtc aaggactact tccccgaacc ggtgacgggtg 480
tcgtggaact caggcgccct gaccagcggc gtgcacacct tcccggctgt cctacagtcc 540
tcaggactct actccctcag cagcgtgggt accgtgccct ccagcagctt gggcacccag 600
acctacatct gcaacgtgaa tcacaagccc agcaacacca aggtggacaa gaaagttgag 660
cccaaattct gtgacaaaac tcacacatgc ccaccgtgcc cagcacctga actcctgggg 720
ggaccgtcag tcttctctct cccccaaaa cccaaggaca ccctcatgat ctcccgacc 780
cctgagggtca catgcgtggg ggtggacgtg agccacgaag accctgaggt caagttcaac 840
tggtacgtgg acggcgtgga ggtgcataat gccaaagaca agccgcggga ggagcagtac 900
aacagcacgt accgtgtggg cagcgtcctc accgtcctgc accaggactg gctgaatggc 960
aaggagtaca agtgcaaggc ctccaacaaa gccctcccag ccccatcga gaaaaccatc 1020
tccaaagcca aagggcagcc ccgagaacca caggtgtaca ccctgcccc atcccgggat 1080
gagctgacca agaaccaggc cagcctgacc tgcctgggtc aaggcttcta tcccagcgac 1140
atcgccgtgg agtgggagag caatgggcag ccggagaaca actacaagac cagcctccc 1200

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gtgctggact ccgacggctc cttcttcctc tacagcaagc tcaccgtgga caagagcagg 1260
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<220>
<223> Synthetic

				325					330					335					
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			340					345						350					
Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser				
		355					360					365							
Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu				
	370					375					380								
Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro				
385					390				395					400					
Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val				
			405					410					415						
Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met				
			420					425					430						
His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser				
		435					440					445							
Pro	Gly	Lys																	
	450																		

<210> 79
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 79
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 gggaaagccc ctaagtccct gatctatgct acatccactt tgcaaagtgg ggtcccatca 180
 aagttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
 gaagattttg caacgtatta ctgccaacag tataatagtt tcccgtcac tttcggcgga 300
 gggaccaagg tggagatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcga 360
 tctgatgagc agttgaaatc tgggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
 cccagagagg ccaaagtaca gtggaagggtg gataacgccc tccaatcggg taactcccag 480
 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
 ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
 ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gtttag 645

<210> 80
 <211> 214
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 80
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 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr
 20 25 30
 Leu Ala Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Ser Leu Ile

			20					25					30				
Ala	Met	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ser	Gly	Ile	Ser	Trp	Asn	Ser	Asp	Asp	Ile	Asp	Tyr	Thr	Asp	Ser	Val		
	50				55					60							
Lys	Gly	Arg	Phe	Thr	Val	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Ser	Leu	Tyr		
65					70				75						80		
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Asp	Asp	Thr	Ala	Phe	Tyr	Tyr	Cys		
			85					90					95				
Val	Arg	Gln	Arg	Val	Arg	Gly	Tyr	Tyr	Tyr	Phe	Gly	Met	Asp	Val	Trp		
		100					105						110				
Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser								
	115						120										

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

<220>
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<400> 83
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24

<210> 84
 <211> 8
 <212> PRT
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<220>
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<400> 84
 Gly Phe Thr Phe Asp Asp Tyr Ala
 1 5

<210> 85
 <211> 24
 <212> DNA
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<220>
 <223> Synthetic

<400> 85
 attagttgga atagtgatga cata

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<210> 86
 <211> 8
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<220>

<223> Synthetic

<400> 86

Ile Ser Trp Asn Ser Asp Asp Ile

1

5

<210> 87

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 87

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45

<210> 88

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 88

Val Arg Gln Arg Val Arg Gly Tyr Tyr Tyr Phe Gly Met Asp Val

1

5

10

15

<210> 89

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 89

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gggaaagccc ctatgtccct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aagttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
gaggattttg caacttatta ctgccaacaa tataatagtt acccattcac tttcggccct 300
gggaccaaag tggatatcaa a 321

<210> 90

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 90

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
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Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Gly	Ile	Ser	Asn	Tyr
		20						25				30			
Leu	Ala	Trp	Phe	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Met	Ser	Leu	Ile
	35					40					45				
Tyr	Ala	Ala	Ser	Ser	Leu	Gln	Ser	Gly	Val	Pro	Ser	Lys	Phe	Ser	Gly
	50				55				60						
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65				70				75						80	
Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Asn	Ser	Tyr	Pro	Phe
			85					90					95		
Thr	Phe	Gly	Pro	Gly	Thr	Lys	Val	Asp	Ile	Lys					
		100						105							

<210> 91

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 91

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18

<210> 92

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 92

Gln	Gly	Ile	Ser	Asn	Tyr
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<210> 93

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 93

gctgcatcc

9

<210> 94
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 94
Ala Ala Ser
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<210> 95
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 95
caacaatata atagttaccc attcact

27

<210> 96
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 96
Gln Gln Tyr Asn Ser Tyr Pro Phe Thr
1 5

<210> 97
<211> 1359
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 97
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ccagggaagg gcctggaatg ggtctcaggt attagttgga atagtgatga catagactat 180
acggactctg tgaagggccg cttcacccgtc tccagagaca acgccaagaa ctccctgtat 240
ctgcaaatga acagtctgag agctgacgac acggccttct attattgtgt aagacaacgc 300
gtccgaggct attactatct cggtatggac gtctggggcc aagggaccac ggtcaccgtc 360
tcctcagcct ccaccaaggg cccatcggtc ttccccctgg caccctcctc caagagcacc 420

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tctgggggca cagcggccct gggctgcctg gtcaaggact acttccccga accggtgacg 480
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tcctcaggac tctactccct cagcagcgtg gtgaccgtgc cctccagcag cttgggcacc 600
cagacctaca tctgcaacgt gaatcacaa cccagcaaca ccaaggtgga caagaaagtt 660
gagcccaa at cttgtgacaa aactcacaca tgcccaccgt gccagcacc tgaactcctg 720
gggggaccgt cagtcttctt cttcccccca aaaccaagg acaccctcat gatctcccgg 780
accctgagg tcacatgcgt ggtggtggac gtgagccacg aagaccctga ggtcaagttc 840
aactggtacg tggacggcgt ggaggtgcat aatgccaaga caaagccgcg ggaggagcag 900
tacaacagca cgtaccgtgt ggtcagcgtc ctcaccgtcc tgcaccagga ctggctgaat 960
ggcaaggagt acaagtgcaa ggtctccaac aaagccctcc cagcccccat cgagaaaacc 1020
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gatgagctga ccaagaacca ggtcagcctg acctgcctgg tcaaaggctt ctatcccagc 1140
gacatcgccg tggagtggga gagcaatggg cagccggaga acaactacaa gaccacgcct 1200
cccgtgctgg actccgacgg ctccttcttc ctctacagca agctcaccgt ggacaagagc 1260
aggtggcagc aggggaacgt cttctcatgc tccgtgatgc atgaggctct gcacaaccac 1320
tacacgcaga agtccctctc cctgtctccg ggtaaata 1359

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<210> 98

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 98

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 20             25             30
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35             40             45
Ser Gly Ile Ser Trp Asn Ser Asp Asp Ile Asp Tyr Thr Asp Ser Val
 50             55             60
Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
 65             70             75             80
Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr Ala Phe Tyr Tyr Cys
 85             90             95
Val Arg Gln Arg Val Arg Gly Tyr Tyr Tyr Phe Gly Met Asp Val Trp
 100            105            110
Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
 115            120            125
Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr
 130            135            140
Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
 145            150            155            160
Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
 165            170            175
Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
 180            185            190
Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
 195            200            205
His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser
 210            215            220

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Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu
225					230					235					240
Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu
				245					250					255	
Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser
			260					265					270		
His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu
		275					280					285			
Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr
	290					295					300				
Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn
305					310					315					320
Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro
				325					330					335	
Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln
			340					345					350		
Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val
		355					360					365			
Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val
	370					375					380				
Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro
385					390					395					400
Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr
				405					410					415	
Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val
			420					425					430		
Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu
		435				440						445			
Ser	Pro	Gly	Lys												
		450													

<210> 99

<211> 645

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 99

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gggaaagccc	ctatgtccct	gatctatgct	gcatccagtt	tgcaaagtgg	ggtcccatca	180
aagttcagcg	gcagtggatc	tgggacagat	ttcactctca	ccatcagcag	cctgcagcct	240
gaggattttg	caacttatta	ctgccaacaa	tataatagtt	accatttcac	tttcggccct	300
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tctgatgagc	agttgaaatc	tgggaactgcc	tctgttgtgt	gcctgctgaa	taacttctat	420
cccagagagg	ccaaagtaca	gtggaagggtg	gataacgccc	tccaatcggg	taactccag	480
gagagtgtca	cagagcagga	cagcaaggac	agcacctaca	gcctcagcag	caccctgacg	540
ctgagcaaa	cagactacga	gaaacacaaa	gtctacgcct	gcgaagtcac	ccatcagggc	600
ctgagctcgc	ccgtcacaaa	gagcttcaac	aggggagagt	gtttag		645

<210> 100

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

<220>
<223> Synthetic

<400> 100
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr
20 25 30
Leu Ala Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Met Ser Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Lys Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Pro Phe
85 90 95
Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys Arg Thr Val Ala Ala
100 105 110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205
Phe Asn Arg Gly Glu Cys
210

<210> 101
<211> 366
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 101
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atgtgcactg tctccggagg ctccatcaat aattactact ggagctggat ccggcagccc 120
ccagggaagg gactggaatg gattggatat atttataacg gtgggatcac caagtacaac 180
ccctccctca agagtcgagt caccatatca gtggacacgt ccaagagcca gatctccctg 240
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tcctca 366

<210> 102
 <211> 122
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 102
 Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1 5 10 15
 Thr Leu Ser Leu Met Cys Thr Val Ser Gly Gly Ser Ile Asn Asn Tyr
 20 25 30
 Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45
 Gly Tyr Ile Tyr Asn Gly Gly Ile Thr Lys Tyr Asn Pro Ser Leu Lys
 50 55 60
 Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Ser Gln Ile Ser Leu
 65 70 75 80
 Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Phe Tyr Tyr Cys Thr
 85 90 95
 Lys Glu Gln Leu Glu Arg Arg Glu Gly His Ile Trp Phe Asp Pro Trp
 100 105 110
 Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 103
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 103
 ggaggctcca tcaataatta ctac

24

<210> 104
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 104
 Gly Gly Ser Ile Asn Asn Tyr Tyr
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<210> 105
 <211> 21

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 105
atttataacg gtgggatcac c

21

<210> 106
<211> 7
<212> PRT
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<220>
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<400> 106
Ile Tyr Asn Gly Gly Ile Thr
1 5

<210> 107
<211> 48
<212> DNA
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<220>
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<400> 107
actaaggaac aactggaacg acgagagggg cacatctggt tcgacccc

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<210> 108
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
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<400> 108
Thr Lys Glu Gln Leu Glu Arg Arg Glu Gly His Ile Trp Phe Asp Pro
1 5 10 15

<210> 109
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 109
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atcacttgcc gggcaagtca gaccattaac aactatntaa attggtatca ccagaaacca 120
gggaaagccc ctaaactcct gatctatggg acatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagaa ttcgctctca ccatcagcag tctgcaacct 240
gaagattttg caacctacta ctgtcaacag agttccagta ccccgtagac ttttggccag 300
gggaccaagc tggagatcaa a 321

<210> 110
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 110
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Thr Ile Asn Asn Tyr
20 25 30
Leu Asn Trp Tyr His Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Gly Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Glu Phe Ala Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Ser Thr Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 111
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 111
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<210> 112
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
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<400> 112
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1

5

<210> 113
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
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<400> 113
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9

<210> 114
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 114
Gly Thr Ser
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<210> 115
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 115
caacagagtt ccagtacccc gtacact

27

<210> 116
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 116
Gln Gln Ser Ser Ser Thr Pro Tyr Thr
1 5

<210> 117
<211> 1359
<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 117

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gagcccaaat cttgtgacaa aactcacaca tgcccaccgt gcccagcacc tgaactcctg 720
gggggaccgt cagtcttctt cttcccccca aaaccaagg acaccctcat gatctcccgg 780
acccctgagg tcacatgcgt ggtggtggac gtgagccacg aagaccctga ggtcaagttc 840
aactggtacg tggacggcgt ggaggtgcat aatgccaaga caaagccgcg ggaggagcag 900
tacaacagca cgtaccgtgt ggtcagcgtc ctcaccgtcc tgcaccagga ctggctgaat 960
ggcaaggagt acaagtgcaa ggtctccaac aaagccctcc cagcccccat cgagaaaacc 1020
atctccaaag ccaaagggca gccccgagaa ccacaggtgt acaccctgcc cccatcccgg 1080
gatgagctga ccaagaacca ggtcagcctg acctgcctgg tcaaaggctt ctatcccagc 1140
gacatcgccg tggagtggga gagcaatggg cagccggaga acaactacaa gaccacgcct 1200
cccgtgctgg actccgacgg ctccttcttc ctctacagca agctcaccgt ggacaagagc 1260
aggtggcagc aggggaacgt cttctcatgc tccgtgatgc atgaggctct gcacaaccac 1320
tacacgcaga agtccctctc cctgtctccg ggtaaata 1359
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<210> 118

<211> 452

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 118

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Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
1          5          10         15
Thr Leu Ser Leu Met Cys Thr Val Ser Gly Gly Ser Ile Asn Asn Tyr
20          25          30
Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35          40          45
Gly Tyr Ile Tyr Asn Gly Gly Ile Thr Lys Tyr Asn Pro Ser Leu Lys
50          55          60
Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Ser Gln Ile Ser Leu
65          70          75          80
Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Phe Tyr Tyr Cys Thr
85          90          95
Lys Glu Gln Leu Glu Arg Arg Glu Gly His Ile Trp Phe Asp Pro Trp
100         105         110
Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
```



```

gacatccaga tgaccagtc tccttcctcc ctgtctgcgt ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gaccattaac aactatttaa attggtatca ccagaaacca 120
gggaaagccc ctaaactcct gatctatggg acatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagaa ttcgctctca ccatcagcag tctgcaacct 240
gaagattttg caacctacta ctgtcaacag agttccagta ccccgctacac ttttggccag 300
gggaccaagc tggagatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645

```

<210> 120

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 120

```

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1           5           10           15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Thr Ile Asn Asn Tyr
20          25          30
Leu Asn Trp Tyr His Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35          40          45
Tyr Gly Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50          55          60
Ser Gly Ser Gly Thr Glu Phe Ala Leu Thr Ile Ser Ser Leu Gln Pro
65          70          75          80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Ser Thr Pro Tyr
85          90          95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala
100         105         110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115         120         125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130         135         140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145         150         155         160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165         170         175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180         185         190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195         200         205
Phe Asn Arg Gly Glu Cys
210

```

<210> 121

<211> 354

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 121

```
gaggtgcagc tgggtggagtc tggggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt agatacgaca tgcactgggt ccgccaagtt 120
acaggaaaag gtctggagtg ggtctcagtt attggtactg ctggtgacac ttactatcca 180
gactccgtga agggccgatt caccatctcc agagaaaatg ccaagaactc cttgtctctt 240
caaatgaaca gcctgagagc cggggacacg gctgtgtatt actgtacaag atcctataac 300
tggaactttc cttttggcta ctggggccag ggaaccctgg tcaccgtctc ctca      354
```

<210> 122

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 122

```
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1          5          10          15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20          25          30
Asp Met His Trp Val Arg Gln Val Thr Gly Lys Gly Leu Glu Trp Val
35          40          45
Ser Val Ile Gly Thr Ala Gly Asp Thr Tyr Tyr Pro Asp Ser Val Lys
50          55          60
Gly Arg Phe Thr Ile Ser Arg Glu Asn Ala Lys Asn Ser Leu Ser Leu
65          70          75          80
Gln Met Asn Ser Leu Arg Ala Gly Asp Thr Ala Val Tyr Tyr Cys Thr
85          90          95
Arg Ser Tyr Asn Trp Asn Phe Pro Phe Gly Tyr Trp Gly Gln Gly Thr
100         105         110
Leu Val Thr Val Ser Ser
115
```

<210> 123

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 123

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ggattcacct tcagtagata cgac
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24

<210> 124

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 124

Gly Phe Thr Phe Ser Arg Tyr Asp
1 5

<210> 125

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 125

attggtactg ctggtgacac t

21

<210> 126

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 126

Ile Gly Thr Ala Gly Asp Thr
1 5

<210> 127

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 127

acaagatcct ataactggaa ctttccttt ggctac

36

<210> 128

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 128

Thr Arg Ser Tyr Asn Trp Asn Phe Pro Phe Gly Tyr
1 5 10

<210> 129
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 129
gacatccaga tgaccagtc tccttcacc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtc gagtattagt agctggttgg cctggtatca gcagaaacca 120
gggaaagccc ctagactcct gatctatgag gcgtctagtt tagaaactgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240
gatgattttg caacttatta ctgccaacag tataatcgtt atccgtggac gttcggccaa 300
gggaccaagg tggaaatcaa a 321

<210> 130
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 130
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile
35 40 45
Tyr Glu Ala Ser Ser Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Arg Tyr Pro Trp
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 131
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 131

cagagtatta gtagctgg

18

<210> 132

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 132

Gln Ser Ile Ser Ser Trp

1

5

<210> 133

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 133

gaggcgtct

9

<210> 134

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 134

Glu Ala Ser

1

<210> 135

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 135

caacagtata atcgttatcc gtggacg

27

<210> 136

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 136

Gln Gln Tyr Asn Arg Tyr Pro Trp Thr

1

5

<210> 137

<211> 1347

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 137

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gaggtgcagc  tgggtggagtc  tggggggaggc  ttggtacagc  ctgggggggtc  cctgagactc  60
tcctgtgcag  cctctggatt  caccttcagt  agatacgaca  tgcactgggt  ccgccaagtt  120
acaggaaaag  gtctggagtg  ggtctcagtt  attggtactg  ctggtgacac  ttactatcca  180
gactccgtga  agggccgatt  caccatctcc  agagaaaatg  ccaagaactc  cttgtctctt  240
caaatgaaca  gcctgagagc  cggggacacg  gctgtgtatt  actgtacaag  atcctataac  300
tggaactttc  cttttggcta  ctggggccag  ggaaccctgg  tcaccgtctc  ctcagcctcc  360
accaagggcc  catcggctct  ccccctggca  ccctcctcca  agagcacctc  tgggggcaca  420
gcggccctgg  gctgcctggt  caaggactac  ttccccgaac  cggtgacggt  gtcgtggaac  480
tcaggcgccc  tgaccagcgg  cgtgcacacc  ttcccggtg  tcctacagtc  ctcaggactc  540
tactccctca  gcagcgtggt  gaccgtgccc  tccagcagct  tgggcaccca  gacctacatc  600
tgcaacgtga  atcacaagcc  cagcaacacc  aaggtggaca  agaaagttga  gcccaaattc  660
tgtgacaaaa  ctcacacatg  cccaccgtgc  ccagcacctg  aactcctggg  gggaccgtca  720
gtcttcctct  tcccccaaaa  acccaaggac  accctcatga  tctcccgga  ccctgaggtc  780
acatgcgtgg  tgggtggacgt  gagccacgaa  gaccctgagg  tcaagttcaa  ctggtacgtg  840
gacggcgtgg  aggtgcataa  tgccaagaca  aagccgcggg  aggagcagta  caacagcacg  900
taccgtgtgg  tcagcgtcct  caccgtcctg  caccaggact  ggctgaatgg  caaggagtac  960
aagtgcagg  tctccaacaa  agccctccca  gccccatcg  agaaaacat  ctccaaagcc  1020
aaagggcagc  cccgagaacc  acaggtgtac  accctgcccc  catcccggga  tgagctgacc  1080
aagaaccagg  tcagcctgac  ctgcctggtc  aaaggcttct  atcccagcga  catcgccgtg  1140
gagtgggaga  gcaatgggca  gccggagaac  aactacaaga  ccacgcctcc  cgtgctggac  1200
tccgacggct  ctttcttct  ctacagcaag  ctcaccgtgg  acaagagcag  gtggcagcag  1260
gggaacgtct  tctcatgctc  cgtgatgcat  gaggctctgc  acaaccacta  cacgcagaag  1320
tccctctccc  tgtctccggg  taaatga  1347
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<210> 138

<211> 448

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 138

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

1

5

10

15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr

			20				25				30					
Asp	Met	His	Trp	Val	Arg	Gln	Val	Thr	Gly	Lys	Gly	Leu	Glu	Trp	Val	
			35				40				45					
Ser	Val	Ile	Gly	Thr	Ala	Gly	Asp	Thr	Tyr	Tyr	Pro	Asp	Ser	Val	Lys	
			50				55				60					
Gly	Arg	Phe	Thr	Ile	Ser	Arg	Glu	Asn	Ala	Lys	Asn	Ser	Leu	Ser	Leu	
65					70				75				80			
Gln	Met	Asn	Ser	Leu	Arg	Ala	Gly	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Thr	
			85				90				95					
Arg	Ser	Tyr	Asn	Trp	Asn	Phe	Pro	Phe	Gly	Tyr	Trp	Gly	Gln	Gly	Thr	
			100				105				110					
Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	
			115				120				125					
Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	
			130				135				140					
Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	
145					150				155				160			
Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	
			165				170				175					
Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	
			180				185				190					
Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	
			195				200				205					
Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	
			210				215				220					
His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	
225					230				235				240			
Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	
			245				250				255					
Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	
			260				265				270					
Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	
			275				280				285					
Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	
			290				295				300					
Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	
305					310				315				320			
Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	
			325				330				335					
Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	
			340				345				350					
Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	
			355				360				365					
Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	
			370				375				380					
Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	
385					390				395				400			
Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	
			405				410				415					
Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	
			420				425				430					
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys	
			435				440				445					

<210> 139
<211> 645
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 139
gacatccaga tgacccagtc tccttccacc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggccagtc gagtattagt agctggttgg cctgggtatca gcagaaacca 120
gggaaagccc ctagactcct gatctatgag gcgtctagtt tagaaactgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcagcag cctgcagcct 240
gatgattttg caacttatta ctgccaacag tataatcggt atccgtggac gttcggccaa 300
gggaccaagg tggaaatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645

<210> 140
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 140
Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Arg Leu Leu Ile
35 40 45
Tyr Glu Ala Ser Ser Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Arg Tyr Pro Trp
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100 105 110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 143

ggattcacct ttagcagctc tgcc

24

<210> 144

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 144

Gly Phe Thr Phe Ser Ser Ser Ala
1 5

<210> 145

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 145

cttaatgttg gtgctgatag caca

24

<210> 146

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 146

Leu Asn Val Gly Ala Asp Ser Thr
1 5

<210> 147

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 147

gcgaaagatt ggggggggat tccatattac tactactact acggtatgga cgtc 54

<210> 148

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 148

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

<210> 149

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 149

gacatccagt tgaccagtc tccatccttc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgct gggccagtc gggcattagc agttatttag cctggtatca gcaaaaacca 120
gggaaagccc ctaacctcct gatctatact gcatccactt tgcaaagtgg ggtcccatcg 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtcaacag cttaatagtt acccgctcac tttcggcgga 300
gggaccaagg tggagatcaa a 321

<210> 150

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 150

Asp Ile Gln Leu Thr Gln Ser Pro Ser Phe Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Trp Ala Ser Gln Gly Ile Ser Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Asn Leu Leu Ile
35 40 45
Tyr Thr Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Leu Asn Ser Tyr Pro Leu
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

<210> 151
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 151
cagggcatta gcagttat 18

<210> 152
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 152
Gln Gly Ile Ser Ser Tyr
1 5

<210> 153
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 153
actgcatcc 9

<210> 154
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 154
Thr Ala Ser
1

<210> 155
<211> 27

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 155
caacagctta atagttaccc gctcact

27

<210> 156
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 156
Gln Gln Leu Asn Ser Tyr Pro Leu Thr
1 5

<210> 157
<211> 1368
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 157
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tcctgtgcag cctctggatt caccttttagc agctctgcc tgagctgggt ccgccaggct 120
ccagggaagg gactggagtg ggtctcaact cttaatgttg gtgctgatag cacattctac 180
gcaggctccg tgagggggccg gttcaccatc tccagagaca attccaagaa cacgctgttt 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagattgg 300
gggggggattc catattacta ctactactac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctcagcctc caccaagggc ccacggtct tccccctggc accctcctcc 420
aagagcacct ctggggggcac agcggccctg ggctgcctgg tcaaggacta cttccccgaa 480
ccggtgacgg tgtcgtggaa ctcaggcgcc ctgaccagcg gcgtgcacac cttcccggct 540
gtcctacagt cctcaggact ctactccctc agcagcgtgg tgaccgtgcc ctccagcagc 600
ttggggcaccc agacctacat ctgcaacgtg aatcacaagc ccagcaacac caaggtggac 660
aagaaaagttg agcccaaadc ttgtgacaaa actcacacat gcccaccgtg cccagcacct 720
gaactcctgg ggggaccgtc agtcttcctc ttcccccaa aaccaagga caccctcatg 780
atctcccga cccctgaggt cacatgcgtg gtggtggacg tgagccacga agaccctgag 840
gtcaagttca actggtacgt ggacggcgtg gaggtgcata atgccaagac aaagccgcgg 900
gaggagcagt acaacagcac gtaccgtgtg gtcagcgtcc tcaccgtcct gcaccaggac 960
tggctgaatg gcaaggagta caagtgcagg gtctccaaca aagccctccc agccccatc 1020
gagaaaacca tctccaaagc caaagggcag ccccgagaac cacaggtgta caccctgccc 1080
ccatcccggg atgagctgac caagaaccag gtcagcctga cctgcctggg caaaggcttc 1140
tatcccagcg acatcgccgt ggagtgggag agcaatgggc agccggagaa caactacaag 1200
accacgcctc ccgtgctgga ctccgacggc tccttcttcc tctacagcaa gtcaccgtg 1260
gacaagagca ggtggcagca ggggaacgtc ttctcatgct ccgtgatgca tgaggctctg 1320
cacaaccact acacgcagaa gtccctctcc ctgtctccgg gtaaatga 1368

<210> 158
 <211> 455
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 158
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Ser
 20 25 30
 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Thr Leu Asn Val Gly Ala Asp Ser Thr Phe Tyr Ala Gly Ser Val
 50 55 60
 Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Phe
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Asp Trp Gly Gly Ile Pro Tyr Tyr Tyr Tyr Tyr Gly Met
 100 105 110
 Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
 115 120 125
 Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
 130 135 140
 Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
 145 150 155 160
 Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
 165 170 175
 Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
 180 185 190
 Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
 195 200 205
 Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu
 210 215 220
 Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 225 230 235 240
 Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 245 250 255
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 260 265 270
 Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
 275 280 285
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 290 295 300
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 305 310 315 320
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
 325 330 335
 Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 340 345 350

Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys
		355					360					365			
Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp
	370					375					380				
Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys
385					390				395						400
Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser
				405					410					415	
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser
			420				425					430			
Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser
		435					440					445			
Leu	Ser	Leu	Ser	Pro	Gly	Lys									
	450					455									

<210> 159

<211> 645

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 159

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gacatccagt tgaccagtc tccatccttc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgct gggccagtc gggcattagc agttatttag cctggtatca gcaaaaacca 120
gggaaagccc ctaacctcct gatctatact gcatccactt tgcaaagtgg ggtcccatcg 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtcaacag cttaatagtt acccgctcac tttcggcgga 300
gggaccaagg tggagatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645

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<210> 160

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 160

Asp	Ile	Gln	Leu	Thr	Gln	Ser	Pro	Ser	Phe	Leu	Ser	Ala	Ser	Val	Gly
1				5				10					15		
Asp	Arg	Val	Thr	Ile	Thr	Cys	Trp	Ala	Ser	Gln	Gly	Ile	Ser	Ser	Tyr
			20				25					30			
Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Asn	Leu	Leu	Ile
	35					40				45					
Tyr	Thr	Ala	Ser	Thr	Leu	Gln	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50				55					60					

Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75					80
Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Leu	Asn	Ser	Tyr	Pro	Leu
				85					90					95	
Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val	Ala	Ala
			100					105					110		
Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser	Gly
		115					120					125			
Thr	Ala	Ser	Val	Val	Cys	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu	Ala	
	130					135				140					
Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln
145					150					155					160
Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser
				165					170					175	
Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys	Val	Tyr
			180					185					190		
Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys	Ser
		195					200					205			
Phe	Asn	Arg	Gly	Glu	Cys										
			210												

<210> 161
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 161
 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagt ggttatttct ggggctggat ccggcagacc 120
 ccagggaagg gactggaatg gattggatat atcttttaca gtgggagcac ccactataat 180
 cctccttca agagtcgagt caccatgtca gtagacacgt ccaagaacca gttcgccctg 240
 aagctgaggt ctgtgaccgc cgcagacacg gccaaatatt actgttcgag acagagggaa 300
 tactatggtt cgggaaatta tcgctacttc ggtatggacg tctggggcca agggaccacg 360
 gtcaccgtct cctca 375

<210> 162
 <211> 125
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 162
 Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Gly Tyr
 20 25 30
 Phe Trp Gly Trp Ile Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45

Gly	Tyr	Ile	Phe	Tyr	Ser	Gly	Ser	Thr	His	Tyr	Asn	Pro	Ser	Phe	Lys
50						55					60				
Ser	Arg	Val	Thr	Met	Ser	Val	Asp	Thr	Ser	Lys	Asn	Gln	Phe	Ala	Leu
65					70					75					80
Lys	Leu	Arg	Ser	Val	Thr	Ala	Ala	Asp	Thr	Ala	Lys	Tyr	Tyr	Cys	Ser
			85					90						95	
Arg	Gln	Arg	Glu	Tyr	Tyr	Gly	Ser	Gly	Asn	Tyr	Arg	Tyr	Phe	Gly	Met
			100					105					110		
Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser			
		115					120					125			

<210> 163
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 163
 ggtggctcca tcagtggta tttc

24

<210> 164
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 164
 Gly Gly Ser Ile Ser Gly Tyr Phe
 1 5

<210> 165
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 165
 atcttttaca gtgggagcac c

21

<210> 166
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 166
Ile Phe Tyr Ser Gly Ser Thr
1 5

<210> 167
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 167
tcgagacaga gggaatacta tggttcggga aattatcgct acttcggtat ggacgtc 57

<210> 168
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 168
Ser Arg Gln Arg Glu Tyr Tyr Gly Ser Gly Asn Tyr Arg Tyr Phe Gly
1 5 10 15
Met Asp Val

<210> 169
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 169
gccatccaga tgacccagtc tccatcctcc ctgtctgcat ctgttggaga gagagtcacc 60
atcacttgcc gggcaagtca ggacattaga gatgatttag gctggtatca gcagagacca 120
gggaaagccc ctaacctcct gatttatgct gcatctagtt tacacagtgg tgtcccatca 180
agattcagcg gcagtgggtc tggcacagat ttcactctca ccatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacaa gactacaatt acccgtggac gttcggccaa 300
gggaccaagg tggaaatcaa a 321

<210> 170
<211> 107
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 170

Ala	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
1				5				10				15			
Glu	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Asp	Ile	Arg	Asp	Asp
			20					25				30			
Leu	Gly	Trp	Tyr	Gln	Gln	Arg	Pro	Gly	Lys	Ala	Pro	Asn	Leu	Leu	Ile
	35						40					45			
Tyr	Ala	Ala	Ser	Ser	Leu	His	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55				60					
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75				80	
Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Leu	Gln	Asp	Tyr	Asn	Tyr	Pro	Trp
				85					90					95	
Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys					
			100					105							

<210> 171

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 171

caggacatta gagatgat

18

<210> 172

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 172

Gln	Asp	Ile	Arg	Asp	Asp
1				5	

<210> 173

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 173

gctgcatct

9

<210> 174
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 174
Ala Ala Ser
1

<210> 175
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 175
ctacaagact acaattaccc gtggacg

27

<210> 176
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 176
Leu Gln Asp Tyr Asn Tyr Pro Trp Thr
1 5

<210> 177
<211> 1368
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 177
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt ggttatttct ggggctggat ccggcagacc 120
ccagggaagg gactggaatg gattggatat atcttttaca gtgggagcac ccactataat 180
ccctccttca agagtcgagt caccatgtca gtagacacgt ccaagaacca gttcgccctg 240
aagctgaggt ctgtgaccgc cgagacacg gccaaatatt actgttcgag acagagggaa 300
tactatgggt cgaggaaatta tcgctacttc ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctcagcctc caccaagggc ccacggtct tccccctggc accctcctcc 420
aagagcacct ctggggggcac agcggccctg ggctgcctgg tcaaggacta cttccccgaa 480

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ccggtgacgg tgtcgtggaa ctcaggcgcc ctgaccagcg gcgtgcacac cttcccggct 540
gtcctacagt cctcaggact ctactccctc agcagcgtgg tgaccgtgcc ctccagcagc 600
ttgggcaccc agacctacat ctgcaacgtg aatcacaaagc ccagcaacac caaggtggac 660
aagaaagtgt agcccaaadc ttgtgacaaa actcacacat gcccaccgtg cccagcacct 720
gaactcctgg ggggaccgtc agtcttcttc ttcccccaa aaccaagga caccctcatg 780
atctcccggg cccctgaggt cacatgcgtg gtggtggacg tgagccacga agaccctgag 840
gtcaagttca actggtacgt ggacggcgtg gaggtgcata atgccaagac aaagccgcgg 900
gaggagcagt acaacagcac gtaccgtgtg gtcagcgtcc tcaccgtcct gcaccaggac 960
tggctgaatg gcaaggagta caagtgaag gtctccaaca aagccctccc agccccatc 1020
gagaaaacca tctccaaagc caaagggcag ccccgagaac cacaggtgta caccctgccc 1080
ccatcccggg atgagctgac caagaaccag gtcagcctga cctgcctggt caaaggcttc 1140
tatcccagcg acatcgccgt ggagtgggag agcaatgggc agccggagaa caactacaag 1200
accacgcctc ccgtgctgga ctccgacggc tccttcttcc tctacagcaa gctcaccgtg 1260
gacaagagca ggtggcagca ggggaacgtc ttctcatgct ccgtgatgca tgaggctctg 1320
cacaaccact acacgcagaa gtccctctcc ctgtctccgg gtaaataga 1368

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<210> 178

<211> 455

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 178

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Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
1           5           10          15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Gly Tyr
20          25          30
Phe Trp Gly Trp Ile Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp Ile
35          40          45
Gly Tyr Ile Phe Tyr Ser Gly Ser Thr His Tyr Asn Pro Ser Phe Lys
50          55          60
Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ala Leu
65          70          75          80
Lys Leu Arg Ser Val Thr Ala Ala Asp Thr Ala Lys Tyr Tyr Cys Ser
85          90          95
Arg Gln Arg Glu Tyr Tyr Gly Ser Gly Asn Tyr Arg Tyr Phe Gly Met
100         105         110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
115         120         125
Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
130         135         140
Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
145         150         155         160
Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
165         170         175
Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
180         185         190
Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
195         200         205
Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu
210         215         220
Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro

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225					230					235				240	
Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys
				245					250					255	
Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val
			260					265					270		
Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp
		275					280				285				
Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr
	290				295					300					
Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp
305				310					315					320	
Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu
			325					330						335	
Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg
			340				345						350		
Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys
	355					360					365				
Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp
	370					375				380					
Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys
385				390					395					400	
Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser
			405					410						415	
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser
		420					425				430				
Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser
	435					440					445				
Leu	Ser	Leu	Ser	Pro	Gly	Lys									
	450				455										

<210> 179

<211> 645

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 179

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atcacttgcc gggcaagtca ggacattaga gatgatttag gctggtatca gcagagacca 120
gggaaagccc ctaacctcct gatttatgct gcatctagtt tacacagtgg tgtcccatca 180
agattcagcg gcagtgggtc tggcacagat ttcactctca ccatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacaa gactacaatt acccgtggac gttcggccaa 300
gggaccaagg tggaaatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggtg gataacgccc tccaatcggg taactccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gtttag 645

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<210> 180

<211> 214

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 180
Ala Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Glu Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Arg Asp Asp
20 25 30
Leu Gly Trp Tyr Gln Gln Arg Pro Gly Lys Ala Pro Asn Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Asp Tyr Asn Tyr Pro Trp
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100 105 110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205
Phe Asn Arg Gly Glu Cys
210

<210> 181
<211> 378
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 181
gaggtgcagc tgggtggagtc tggggggaggc ttggtccagc ctgggggggtc cctgagactc 60
tcctgtggag cctctggatt cacctttagt tactattgga tgacctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtggccaac ataaatcaag atggaagtga gaaattctat 180
gtggactctg tgagggggccg attcaccatc tccagagaca acgcgaagaa gtcactgtat 240
cttcaaatga acagtctgag agccgaggac acggctgtgt attattgtgc gagagacgga 300
tattgtagta gtatcggctg ttataacctc tacggcatgg acgtctgggg ccaagggacc 360
acggtcaccg tctcctca 378

<210> 182
 <211> 126
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 182
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Gly Ala Ser Gly Phe Thr Phe Ser Tyr Tyr
 20 25 30
 Trp Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Asn Ile Asn Gln Asp Gly Ser Glu Lys Phe Tyr Val Asp Ser Val
 50 55 60
 Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Lys Ser Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Gly Tyr Cys Ser Ser Ile Gly Cys Tyr Asn Leu Tyr Gly
 100 105 110
 Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

<210> 183
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 183
 ggattcacct ttagttacta ttgg

24

<210> 184
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 184
 Gly Phe Thr Phe Ser Tyr Tyr Trp
 1 5

<210> 185
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<213> Artificial Sequence

<220>

<223> Synthetic

<400> 185

ataaatcaag atggaagtga gaaa

24

<210> 186

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 186

Ile Asn Gln Asp Gly Ser Glu Lys

1

5

<210> 187

<211> 57

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 187

gcgagagacg gatattgtag tagtatcggc tggtataacc tctacggcat ggacgtc

57

<210> 188

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 188

Ala Arg Asp Gly Tyr Cys Ser Ser Ile Gly Cys Tyr Asn Leu Tyr Gly

1

5

10

15

Met Asp Val

<210> 189

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 189
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atcacttgcc gggcaagtca gaacattaac aagtatttaa attggtatca gcagaaacca 120
gggcaagccc ctaagctcct gatctatact acatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttattc ctgtcaacag agttacaatt ccccgctcac tttcggcgga 300
gggaccaagg tggagatcaa a 321

<210> 190
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 190
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Lys Tyr
20 25 30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Thr Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Ser Cys Gln Gln Ser Tyr Asn Ser Pro Leu
85 90 95
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

<210> 191
<211> 18
<212> DNA
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<220>
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<400> 191
cagaacatta acaagtat 18

<210> 192
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<220>
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<400> 192

Gln Asn Ile Asn Lys Tyr
1 5

<210> 193
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<212> DNA
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<400> 193
actacatcc

9

<210> 194
<211> 3
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<213> Artificial Sequence

<220>
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<400> 194
Thr Thr Ser
1

<210> 195
<211> 27
<212> DNA
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<220>
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<400> 195
caacagagtt acaattcccc gtcact

27

<210> 196
<211> 9
<212> PRT
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<220>
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<400> 196
Gln Gln Ser Tyr Asn Ser Pro Leu Thr
1 5

<210> 197
<211> 1371

<212> DNA
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<220>
<223> Synthetic

<400> 197
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tcctgtggag cctctggatt caccttttagt tactattgga tgacctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtggccaac ataaatcaag atggaagtga gaaattctat 180
gtggactctg tgagggggccg attcaccatc tccagagaca acgcgaagaa gtcactgtat 240
cttcaaataga acagtctgag agccgaggac acggctgtgt attattgtgc gagagacgga 300
tattgtagta gtatcggctg ttataacctc tacggcatgg acgtctgggg ccaagggacc 360
acggtcaccg tctcctcagc ctccaccaag ggcccatcgg tcttccccct ggcaccctcc 420
tccaagagca cctctggggg cacagcggcc ctgggctgcc tgggtcaagga ctacttcccc 480
gaaccggtga cgggtgtcgtg gaactcaggc gccctgacca gcggcgtgca caccttcccc 540
gctgtcctac agtcctcagg actctactcc ctacgcagcg tgggtgaccgt gccctccagc 600
agcttgggca cccagaccta catctgcaac gtgaatcaca agcccagcaa caccaagggtg 660
gacaagaaag ttgagcccaa atcttgtgac aaaactcaca catgcccacc gtgcccagca 720
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atgatctccc ggaccctga ggtcacatgc gtggtggtgg acgtgagcca cgaagaccct 840
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cgggaggagc agtacaacag cacgtaccgt gtggtcagcg tcctcaccgt cctgcaccag 960
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aagaccagc ctcccgtgct ggactccgac ggctccttct tcctctacag caagctcacc 1260
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<211> 456
<212> PRT
<213> Artificial Sequence

<220>
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<400> 198
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Ser Leu Arg Leu Ser Cys Gly Ala Ser Gly Phe Thr Phe Ser Tyr Tyr
20 25 30
Trp Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Asn Ile Asn Gln Asp Gly Ser Glu Lys Phe Tyr Val Asp Ser Val
50 55 60
Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Lys Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Asp Gly Tyr Cys Ser Ser Ile Gly Cys Tyr Asn Leu Tyr Gly
100 105 110

Met	Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Ala	Ser	
		115					120					125				
Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	
	130					135					140					
Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	
145				150						155					160	
Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	
				165					170					175		
His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Gly	Leu	Tyr	Ser	Leu	Ser		
			180				185					190				
Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	
		195					200					205				
Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	
	210					215					220					
Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	
225				230						235					240	
Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	
				245					250					255		
Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	
			260				265						270			
Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	
		275					280					285				
Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	
	290					295					300					
Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	
305				310						315					320	
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	
				325					330					335		
Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	
			340					345					350			
Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	
		355					360					365				
Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	
	370					375					380					
Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	
385				390						395					400	
Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	
				405					410					415		
Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	
			420				425						430			
Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	
		435					440					445				
Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys									
	450					455										

<210> 199

<211> 645

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 199

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gggcaagccc ctaagctcct gatctatact acatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttattc ctgtcaacag agttacaatt ccccgctcac tttcggcgga 300
gggaccaagg tggagatcaa acgaactgtg gctgcacat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttag 645
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<210> 200

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 200

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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Lys Tyr
 20           25           30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Lys Leu Leu Ile
 35           40           45
Tyr Thr Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50           55           60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65           70           75           80
Glu Asp Phe Ala Thr Tyr Ser Cys Gln Gln Ser Tyr Asn Ser Pro Leu
 85           90           95
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100          105          110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115          120          125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130          135          140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145          150          155          160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165          170          175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180          185          190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195          200          205
Phe Asn Arg Gly Glu Cys
210
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<210> 201

<211> 375

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 201
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ccaggaagg ggctagagtg ggtctcagct atttcttata gtggtgacag cacatactac 180
gcagactccg tgcagggccg gttcaccata tctagagaca attccaagaa tacgctgtat 240
ctgcaaatac acagtctgag agccgaggac acggccttat atcactgtgc gaaagataat 300
gggtatagtg ggacctacta ctactactac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctca 375

<210> 202
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 202
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Tyr
20 25 30
Asp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Tyr Ser Gly Asp Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60
Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr His Cys
85 90 95
Ala Lys Asp Asn Gly Tyr Ser Gly Thr Tyr Tyr Tyr Tyr Tyr Gly Met
100 105 110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 203
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 203
ggattcacct ttagcagata tgac

<210> 204

<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 204
Gly Phe Thr Phe Ser Arg Tyr Asp
1 5

<210> 205
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 205
atttcttata gtggtgacag caca

24

<210> 206
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 206
Ile Ser Tyr Ser Gly Asp Ser Thr
1 5

<210> 207
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 207
gcgaaagata atgggtatag tgggacctac tactactact acggtatgga cgtc

54

<210> 208
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 208

Ala Lys Asp Asn Gly Tyr Ser Gly Thr Tyr Tyr Tyr Tyr Tyr Gly Met
1 5 10 15
Asp Val

<210> 209

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 209

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atcacttgtc gggcgagtc gggcattagc aattacttag cctggtttca gcagaaacca 120
gggaaagccc ctaagttcct gatttatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aagttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
gaagattttg caacttatta ctgccaacaa tataatagtt acccgtacac ttttggccag 300
gggaccaagc tggagatcaa a 321

<210> 210

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 210

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr
20 25 30
Leu Ala Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Phe Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Lys Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 211

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 211

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18

<210> 212

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 212

Gln Gly Ile Ser Asn Tyr

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5

<210> 213

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 213

gctgcatcc

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<210> 214

<211> 3

<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 214

Ala Ala Ser

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<210> 215

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 215

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<210> 216
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
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<400> 216
Gln Gln Tyr Asn Ser Tyr Pro Tyr Thr
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<210> 217
<211> 1368
<212> DNA
<213> Artificial Sequence

<220>
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<400> 217
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ccagggaagg ggctagagtg ggtctcagct atttcttata gtggtgacag cacatactac 180
gcagactccg tgcagggccg gttcaccata tctagagaca attccaagaa tacgctgtat 240
ctgcaaatga acagtctgag agccgaggac acggccttat atcactgtgc gaaagataat 300
gggtatagtg ggacctacta ctactactac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctcagcctc caccaagggc ccatcggtct tccccctggc accctcctcc 420
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ccggtgacgg tgtcgtggaa ctcaggcgcc ctgaccagcg gcgtgcacac cttcccggct 540
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gaactcctgg ggggaccgtc agtcttctc ttcccccaa aaccaagga caccctcatg 780
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<210> 218
<211> 455
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 218

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			20					25					30			
Asp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	
		35					40					45				
Ser	Ala	Ile	Ser	Tyr	Ser	Gly	Asp	Ser	Thr	Tyr	Tyr	Ala	Asp	Ser	Val	
	50					55					60					
Gln	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr	
65					70				75						80	
Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Leu	Tyr	His	Cys	
			85						90					95		
Ala	Lys	Asp	Asn	Gly	Tyr	Ser	Gly	Thr	Tyr	Tyr	Tyr	Tyr	Tyr	Gly	Met	
			100					105						110		
Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	
		115					120						125			
Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	
	130					135						140				
Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	
145					150					155					160	
Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	
				165					170					175		
Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	
			180					185						190		
Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	
		195					200						205			
Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	
	210					215					220					
Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	
225					230					235					240	
Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	
			245						250					255		
Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	
			260					265						270		
Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	
		275					280						285			
Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	
	290				295						300					
Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	
305					310					315					320	
Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	
			325						330					335		
Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	
			340					345						350		
Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	
		355					360					365				
Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	
	370					375					380					
Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	
385					390					395					400	
Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	
				405					410					415		
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	

			420					425					430				
Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser		
		435					440					445					
Leu	Ser	Leu	Ser	Pro	Gly	Lys											
	450					455											

<210> 219
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 219
 gacatccaga tgaccagtc tccatcctca ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgct gggcgagtc gggcattagc aattacttag cctggtttca gcagaaacca 120
 gggaaagccc ctaagttcct gatttatgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aagttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
 gaagattttg caacttatta ctgccaacaa tataatagtt acccgtagac ttttggccag 300
 gggaccaagc tggagatcaa acgaactgtg gctgcacat ctgtcttcat cttcccacca 360
 tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
 cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
 ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
 ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gtttag 645

<210> 220
 <211> 214
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 220
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Tyr
 20 25 30
 Leu Ala Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Phe Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Lys Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala
 100 105 110
 Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
 115 120 125
 Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala

130		135		140
Lys Val Gln Trp	Lys Val Asp Asn Ala Leu	Gln Ser Gly Asn Ser Gln		
145	150	155	160	
Glu Ser Val Thr	Glu Gln Asp Ser Lys Asp	Ser Thr Tyr Ser Leu Ser		
	165	170	175	
Ser Thr Leu Thr	Leu Ser Lys Ala Asp Tyr	Glu Lys His Lys Val Tyr		
	180	185	190	
Ala Cys Glu Val Thr	His Gln Gly Leu Ser Ser	Pro Val Thr Lys Ser		
	195	200	205	
Phe Asn Arg Gly	Glu Cys			
210				

<210> 221
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 221
 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtgg ctccatcagt gggttacttct ggggctgggt ccggcagccc 120
 ccaggaagg gactggaatg gattggatat atcttttaca gtgggagtac caattacaac 180
 ccctccctca agagtcgaat caccttgtca gttgacacgt ccaagaacca gttctccctg 240
 aaactgagct ctgtgaccgc cgcagacacg gccatatatt actgtgagag acacagggaa 300
 tactatgggt cgggaaatta tcggtactac gctttggacg tctggggcca agggaccacg 360
 gtcaccgtct cctca 375

<210> 222
 <211> 125
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 222
 Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Gly Tyr
 20 25 30
 Phe Trp Gly Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45
 Gly Tyr Ile Phe Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60
 Ser Arg Ile Thr Leu Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
 65 70 75 80
 Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys Ala
 85 90 95
 Arg His Arg Glu Tyr Tyr Gly Ser Gly Asn Tyr Arg Tyr Tyr Ala Leu
 100 105 110
 Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser

115

120

125

<210> 223
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 223
ggtggctcca tcagtgggta cttc

24

<210> 224
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 224
Gly Gly Ser Ile Ser Gly Tyr Phe
1 5

<210> 225
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 225
atcttttaca gtgggagtac c

21

<210> 226
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 226
Ile Phe Tyr Ser Gly Ser Thr
1 5

<210> 227
<211> 57
<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 227

gcgagacaca gggaatacta tggttcggga aattatcggg actacgcttt ggacgtc 57

<210> 228

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 228

Ala	Arg	His	Arg	Glu	Tyr	Tyr	Gly	Ser	Gly	Asn	Tyr	Arg	Tyr	Tyr	Ala
1				5					10					15	
Leu	Asp	Val													

<210> 229

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 229

gccatccaga	tgaccagtc	tccatcctcc	ctgtctgcgt	ctgtaggaga	cagagtcacc	60
atcacttgcc	gggcaagtca	gggcattaga	gatgatttag	gctgggtatca	gcagaaacca	120
gggaaagccc	ctaagctcct	gatctatgct	gcatccagtt	tacaaagtgg	gggtcccatca	180
aggttcagcg	gcagtggatc	tggcacagat	ttcactctca	ccatcagcag	cctgcagcct	240
gaagattttg	caacttatta	ctgtctacaa	gattataatt	tcccgttgac	gttcggccaa	300
gggaccaagg	tggaatcaa	a				321

<210> 230

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 230

Ala	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
1				5					10					15	
Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Gly	Ile	Arg	Asp	Asp
			20					25					30		
Leu	Gly	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
		35					40					45			

Tyr	Ala	Ala	Ser	Ser	Leu	Gln	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55					60				
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75					80
Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Leu	Gln	Asp	Tyr	Asn	Phe	Pro	Leu
				85					90					95	
Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys					
			100					105							

<210> 231
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 231
 cagggcatta gagatgat 18

<210> 232
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 232
 Gln Gly Ile Arg Asp Asp
 1 5

<210> 233
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 233
 gctgcatcc 9

<210> 234
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 234

Ala Ala Ser
1

<210> 235
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 235
ctacaagatt ataatttccc gttgacg

27

<210> 236
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 236
Leu Gln Asp Tyr Asn Phe Pro Leu Thr
1 5

<210> 237
<211> 1368
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 237
caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt gggttacttct ggggctgggt ccggcagccc 120
ccagggaagg gactggaatg gattggatat atcttttaca gtgggagtac caattacaac 180
ccctccctca agagtcgaat caccttgtca gttgacacgt ccaagaacca gttctccctg 240
aaactgagct ctgtgaccgc cgcagacacg gccatatatt actgtgagag acacagggaa 300
tactatgggt cgggaaatta tcggtactac gctttggacg tctggggcca agggaccacg 360
gtcaccgtct cctcagcctc caccaagggc ccatcggtct tccccctggc accctcctcc 420
aagagcacct ctggggggcac agcggccctg ggctgcctgg tcaaggacta cttccccgaa 480
ccggtgacgg tgtcgtggaa ctcaggcgcc ctgaccagcg gcgtgcacac cttcccggct 540
gtcctacagt cctcaggact ctactccctc agcagcgtgg tgaccgtgcc ctccagcagc 600
ttgggcaccc agacctacat ctgcaacgtg aatcacaaag ccagcaaacac caaggtggac 660
aagaaagtgt agcccaaatt ttgtgacaaa actcacacat gccaccgtg cccagcacct 720
gaactcctgg ggggaccgtc agtcttcctc ttcccccaa aaccaaggga caccctcatg 780
atctcccggg cccctgaggt cacatgcgtg gtggtggacg tgagccacga agaccctgag 840
gtcaagtcca actggtacgt ggacggcgtg gaggtgcata atgccaagac aaagccgcgg 900
gaggagcagt acaacagcac gtaccgtgtg gtcagcgtcc tcaccgtcct gcaccaggac 960
tggctgaatg gcaaggagta caagtgaag gtctccaaca aagccctccc agccccatc 1020

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gagaaaacca tctccaaagc caaagggcag ccccgagaac cacaggtgta caccctgccc 1080
ccatccccggg atgagctgac caagaaccag gtcagcctga cctgcctggg caaaggcttc 1140
tatcccagcg acatcgccgt ggagtgggag agcaatgggc agccggagaa caactacaag 1200
accacgcctc ccgtgctgga ctccgacggc tccttcttcc tctacagcaa gctcaccgtg 1260
gacaagagca ggtggcagca ggggaacgtc ttctcatgct ccgtgatgca tgaggctctg 1320
cacaaccact acacgcagaa gtccctctcc ctgtctccgg gtaaata 1368

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<210> 238

<211> 455

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 238

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Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
 1           5           10          15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Gly Tyr
          20          25          30
Phe Trp Gly Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
          35          40          45
Gly Tyr Ile Phe Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
          50          55          60
Ser Arg Ile Thr Leu Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65          70          75          80
Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Ile Tyr Tyr Cys Ala
          85          90          95
Arg His Arg Glu Tyr Tyr Gly Ser Gly Asn Tyr Arg Tyr Tyr Ala Leu
          100         105         110
Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr
          115         120         125
Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
          130         135         140
Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
145         150         155         160
Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
          165         170         175
Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
          180         185         190
Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
          195         200         205
Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu
          210         215         220
Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
225         230         235         240
Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
          245         250         255
Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
          260         265         270
Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
          275         280         285
Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
          290         295         300

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Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp
305					310					315					320
Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu
				325					330					335	
Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg
			340					345					350		
Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys
		355					360					365			
Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp
	370					375					380				
Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys
385					390					395					400
Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser
				405					410					415	
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser
			420				425						430		
Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser
		435					440					445			
Leu	Ser	Leu	Ser	Pro	Gly	Lys									
	450					455									

<210> 239

<211> 645

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 239

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gccatccaga tgaccagtc tccatcctcc ctgtctgcgt ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gggcattaga gatgatttag gctggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tacaaagtgg ggtcccatca 180
agggtcagcg gcagtggatc tggcacagat ttcactctca ccatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacaa gattataatt tcccgttgac gttcggccaa 300
gggaccaagg tggaaatcaa acgaactgtg gctgcaccat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gtttag 645

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<210> 240

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 240

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Arg Asp Asp
 20 25 30
 Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Asp Tyr Asn Phe Pro Leu
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
 100 105 110
 Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
 115 120 125
 Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
 130 135 140
 Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
 145 150 155 160
 Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
 165 170 175
 Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
 180 185 190
 Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
 195 200 205
 Phe Asn Arg Gly Glu Cys
 210

<210> 241
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 241
 gaggtgcagc tgggtggagtc tgggggagac ttggtacagc ctggagggtc cctgagactc 60
 tcctgtgcag cctctggatt caccttcagt agttttgaga tgaactgggt ccgccaggct 120
 ccagggaagg ggctggagtg ggtttcatac attagtagta gtggtagcac catttattat 180
 gcagactctg tgaaggaccg attcaccgtc tccagagaca aagacaagaa ttcactgtat 240
 ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagggagc 300
 tggaaccaac ctactttga ctactggggc cagggaaccc tggtcaccgt ctcctca 357

<210> 242
 <211> 119
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 242
 Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Gln Pro Gly Gly

1		5		10		15
Ser	Leu	Arg	Leu	Ser	Cys	Ala
			20			25
Glu	Met	Asn	Trp	Val	Arg	Gln
		35			40	
Ser	Tyr	Ile	Ser	Ser	Ser	Gly
	50				55	
Lys	Asp	Arg	Phe	Thr	Val	Ser
65				70		75
Leu	Gln	Met	Asn	Ser	Leu	Arg
			85			90
Ala	Arg	Gly	Ser	Trp	Asn	Gln
		100			105	
Thr	Leu	Val	Thr	Val	Ser	Ser
		115				

<210> 243
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 243
 ggattcacct tcagtagttt tgag

24

<210> 244
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 244
 Gly Phe Thr Phe Ser Ser Phe Glu
 1 5

<210> 245
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 245
 attagtagta gtgtagcac catt

24

<210> 246
 <211> 8

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 246
Ile Ser Ser Ser Gly Ser Thr Ile
1 5

<210> 247
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 247
gcgagaggga gctggaacca accttacttt gactac 36

<210> 248
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 248
Ala Arg Gly Ser Trp Asn Gln Pro Tyr Phe Asp Tyr
1 5 10

<210> 249
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 249
gacatccaga tgaccagtc tccttcacc ctgtctgcat ctgtcggaga cagagtcacc 60
atcacttgcc gggccagtca gagtattagt agctggttgg cctggtatca gctgaaacca 120
gggaaagccc ctaaggtcct gatctataag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcaacag cctgcagcct 240
gatgattttg caacttatta ctgtcaacag tataatagtt ggactttcgg ccaagggacc 300
aaggtggaaa tcaaa 315

<210> 250
<211> 105
<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 250

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Thr	Leu	Ser	Ala	Ser	Val	Gly
1				5					10					15	
Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Ser	Ile	Ser	Ser	Trp
		20						25					30		
Leu	Ala	Trp	Tyr	Gln	Leu	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Val	Leu	Ile
		35					40					45			
Tyr	Lys	Ala	Ser	Ser	Leu	Glu	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55					60				
Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Thr	Ile	Asn	Ser	Leu	Gln	Pro
65					70					75					80
Asp	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Asn	Ser	Trp	Thr	Phe
				85					90					95	
Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys							
			100					105							

<210> 251

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 251

cagagtatta gtagctgg

18

<210> 252

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 252

Gln	Ser	Ile	Ser	Ser	Trp
1				5	

<210> 253

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 253
aaggcgtct

9

<210> 254
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 254
Lys Ala Ser
1

<210> 255
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 255
caacagtata atagttggac t

21

<210> 256
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 256
Gln Gln Tyr Asn Ser Trp Thr
1 5

<210> 257
<211> 1350
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 257
gaggtgcagc tggaggagtc tgggggagac ttggtacagc ctggagggtc cctgagactc 60
tcctgtgcag cctctggatt caccttcagt agttttgaga tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtttcatac attagtagta gtggtagcac catttattat 180
gcagactctg tgaaggaccg attcaccgtc tccagagaca aagacaagaa ttcactgtat 240
ctgcaaatga acagcctgag agccgaggac acggctgtgt attactgtgc gagagggagc 300

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tggaccaaac cttactttga ctactggggc cagggaaccc tggtcaccgt ctctcagcc 360
tccaccaagg gcccacggt cttccccctg gcaccctcct ccaagagcac ctctgggggc 420
acagcggccc tgggctgcct ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg 480
aactcaggcg ccctgaccag cggcgtgcac accttccccg ctgtcctaca gtcctcagga 540
ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac 600
atctgcaacg tgaatcacia gcccagcaac accaaggtgg acaagaaagt tgagcccaaa 660
tcttgtgaca aaactcacac atgcccaccg tgcccagcac ctgaactcct ggggggaccg 720
tcagtcttcc tcttcccccc aaaacccaag gacaccctca tgatctcccg gacccttgag 780
gtcacatgcg tgggtgggtga cgtgagccac gaagaccctg aggtcaagtt caactggtac 840
gtggacggcg tggaggtgca taatgccaag acaaagccgc gggaggagca gtacaacagc 900
acgtaccgtg tggtcagcgt cctcaccgtc ctgcaccagg actggctgaa tggcaaggag 960
tacaagtgca aggtctccaa caaagccctc ccagccccc a tcgagaaaac catctccaaa 1020
gccaaagggc agccccgaga accacagggtg tacaccctgc ccccatcccg ggatgagctg 1080
accaagaacc aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc 1140
gtggagtggg agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg 1200
gactccgacg gctccttctt cctctacagc aagctcaccg tggacaagag caggtggcag 1260
caggggaacg tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag 1320
aagtcctctt ccctgtctcc gggtaaatga 1350

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<210> 258

<211> 449

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 258

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Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Gln Pro Gly Gly
 1          5          10          15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Phe
 20          25          30
Glu Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35          40          45
Ser Tyr Ile Ser Ser Ser Gly Ser Thr Ile Tyr Tyr Ala Asp Ser Val
 50          55          60
Lys Asp Arg Phe Thr Val Ser Arg Asp Lys Asp Lys Asn Ser Leu Tyr
 65          70          75          80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85          90          95
Ala Arg Gly Ser Trp Asn Gln Pro Tyr Phe Asp Tyr Trp Gly Gln Gly
100          105          110
Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
115          120          125
Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu
130          135          140
Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
145          150          155          160
Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
165          170          175
Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
180          185          190
Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
195          200          205

```

Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys
210						215					220				
Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro
225					230					235					240
Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser
				245					250					255	
Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp
			260					265					270		
Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn
		275					280					285			
Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val
290						295					300				
Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu
305					310					315					320
Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys
				325					330					335	
Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr
			340					345					350		
Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr
		355					360					365			
Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu
370						375					380				
Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu
385					390					395					400
Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys
				405					410					415	
Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu
			420					425					430		
Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly
		435					440					445			

Lys

<210> 259

<211> 639

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 259

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gacatccaga tgaccagtc tccttcacc ctgtctgcat ctgtcggaga cagagtcacc 60
atcacttgcc gggccagtc agtattagt agctggttgg cctggtatca gctgaaacca 120
gggaaagccc ctaagtcct gatctataag gcgtctagtt tagaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca ccatcaacag cctgcagcct 240
gatgatTTTT caacttatta ctgtcaacag tataatagtt ggactttcgg ccaagggacc 300
aaggtggaaa tcaaacgaac tgtggctgca ccatctgtct tcatcttccc gccatctgat 360
gagcagttga aatctggaac tgcctctgtt gtgtgcctgc tgaataactt ctatcccaga 420
gaggccaaag tacagtggaa ggtggataac gccctccaat cgggtaactc ccaggagagt 480
gtcacagagc aggacagcaa ggacagcacc tacagcctca gcagcaccct gacgctgagc 540
aaagcagact acgagaaaca caaagtctac gcctgcgaag tcacccatca gggcctgagc 600
tcgccgttca caaagagctt caacagggga gagtgttag 639

```

<210> 260
 <211> 212
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 260
 Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
 20 25 30
 Leu Ala Trp Tyr Gln Leu Lys Pro Gly Lys Ala Pro Lys Val Leu Ile
 35 40 45
 Tyr Lys Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro
 65 70 75 80
 Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Trp Thr Phe
 85 90 95
 Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser
 100 105 110
 Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala
 115 120 125
 Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
 130 135 140
 Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser
 145 150 155 160
 Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
 165 170 175
 Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys
 180 185 190
 Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
 195 200 205
 Arg Gly Glu Cys
 210

<210> 261
 <211> 360
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 261
 caggtgcagc tggtggagtc tgggggaggc ttggtcaggc ctggagggtc cctgagactc 60
 tcctgtgaag cctctggatt caccttcaat gaacactaca tgagctggat ccgccaggct 120
 ccagggaagg ggctggagtg ggttgcatc attagtagtg gtggtagtat tatttactat 180
 gcagactctg tgaagggccg attcaccata tcgagggaca gcgccaagaa ttcactgtat 240
 cttcaaatga acagcctgag acccgaggac acggccattt attactgtgc gagagagccg 300

tttgggggaa ttatcgtctt tgactactgg ggccagggca ccctggtcac cgtctcctca 360

<210> 262

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 262

Gln	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Arg	Pro	Gly	Gly		
1				5					10					15			
Ser	Leu	Arg	Leu	Ser	Cys	Glu	Ala	Ser	Gly	Phe	Thr	Phe	Asn	Glu	His		
			20					25					30				
Tyr	Met	Ser	Trp	Ile	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Phe	Ile	Ser	Ser	Gly	Gly	Ser	Ile	Ile	Tyr	Tyr	Ala	Asp	Ser	Val		
	50					55					60						
Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Ser	Ala	Lys	Asn	Ser	Leu	Tyr		
65					70					75					80		
Leu	Gln	Met	Asn	Ser	Leu	Arg	Pro	Glu	Asp	Thr	Ala	Ile	Tyr	Tyr	Cys		
			85						90					95			
Ala	Arg	Glu	Pro	Phe	Gly	Gly	Ile	Ile	Val	Phe	Asp	Tyr	Trp	Gly	Gln		
			100					105					110				
Gly	Thr	Leu	Val	Thr	Val	Ser	Ser										
		115					120										

<210> 263

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 263

ggattcacct tcaatgaaca ctac

24

<210> 264

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 264

Gly	Phe	Thr	Phe	Asn	Glu	His	Tyr		
1				5					

<210> 265
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 265
attagtagtg gtggtagtat tatt

24

<210> 266
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 266
Ile Ser Ser Gly Gly Ser Ile Ile
1 5

<210> 267
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 267
gcgagagagc cgtttggggg aattatcgtc ttgactac

39

<210> 268
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 268
Ala Arg Glu Pro Phe Gly Gly Ile Ile Val Phe Asp Tyr
1 5 10

<210> 269
<211> 324
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 269

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gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccgtca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caaggacac gactggagat taaa 324
```

<210> 270

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 270

```
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1             5             10             15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
      20             25             30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
      35             40             45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
      50             55             60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65             70             75             80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
      85             90             95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
      100             105
```

<210> 271

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 271

```
cagagcatta gcagctat 18
```

<210> 272

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 272
Gln Ser Ile Ser Ser Tyr
1 5

<210> 273
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 273
gctgcatcc

9

<210> 274
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 274
Ala Ala Ser
1

<210> 275
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 275
caacagagtt acagtacccc tccgatcacc

30

<210> 276
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 276
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 277

<211> 1353
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 277
caggtgcagc tgggtggagtc tgggggaggc ttggtcaggc ctggagggtc cctgagactc 60
tcctgtgaag cctctggatt caccttcaat gaacactaca tgagctggat ccgccaggct 120
ccagggaagg ggctggagtg ggttgcattc attagtagtg gtggtagtat tattttactat 180
gcagactctg tgaagggccg attcaccata tcgagggaca gcgccaagaa ttcactgtat 240
cttcaaatga acagcctgag acccgaggac acggccattt attactgtgc gagagagccg 300
tttgggggaa ttatcgtctt tgactactgg ggccagggca ccctggtcac cgtctcctca 360
gcctccacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg 420
ggcacagcgg ccctgggctg cctgggtcaag gactacttcc ccgaaccggt gacggtgtcg 480
tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca 540
ggactctact ccctcagcag cgtgggtgacc gtgccctcca gcagcttggg caccagacc 600
tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagaa agttgagccc 660
aaatcttggt acaaaactca cacatgcccc ccgtgcccag cacctgaact cctgggggga 720
ccgtcagtcct tcctcttccc ccaaaaaccc aaggacaccc tcatgatctc ccggaccctt 780
gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 840
tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 900
agcacgtacc gtgtggtcag cgtcctcacc gtccctgcacc aggactggct gaatggcaag 960
gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccacgcagaa aaccatctcc 1020
aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgcccccatc ccgggatgag 1080
ctgaccaaga accaggtcag cctgacctgc ctgggtcaaag gcttctatcc cagcgacatc 1140
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 1200
ctggactccg acggctcctt cttcctctac agcaagctca ccgtggacaa gagcaggtgg 1260
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg 1320
cagaagtccc tctccctgtc tccgggtaaa tga 1353

<210> 278
<211> 450
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 278
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Arg Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Glu Ala Ser Gly Phe Thr Phe Asn Glu His
20 25 30
Tyr Met Ser Trp Ile Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Phe Ile Ser Ser Gly Gly Ser Ile Ile Tyr Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ala Lys Asn Ser Leu Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Pro Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95
Ala Arg Glu Pro Phe Gly Gly Ile Ile Val Phe Asp Tyr Trp Gly Gln

<400> 279

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gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccgtca 180
aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
caagggacac gactggagat taaacgaact gtggctgcac catctgtctt catcttccc 360
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc 420
tatcccagag aggccaaagt acagtggaag gtggataacg ccctccaatc gggtaactcc 480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcaccctg 540
acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag 600
ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtggttag 648
```

<210> 280

<211> 215

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 280

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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1          5          10          15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
          20          25          30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
          35          40          45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
          50          55          60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65          70          75          80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
          85          90          95
Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Thr Val Ala
          100          105          110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
          115          120          125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
          130          135          140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145          150          155          160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
          165          170          175
Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
          180          185          190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
          195          200          205
Ser Phe Asn Arg Gly Glu Cys
210          215
```

<210> 281

<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 281
caggtgcagc tgcaggagtc gggcctagga ctggtgaaac cttcggagac cctgtccctc 60
acttgcaactg tctcgggtga ctccatcggt acttactact ggagctggat ccggcagccc 120
ccagggaagg gactggagtg gattgcgtat atttatgaca gtaggcacag caattccaat 180
ccttccctca agagtcgagt caccacatca gtagacatgt ccaagaacca gttctccctg 240
caattaaagt ctgtgaccgc tgcggacacg gccgtatatt tttgtgagag agattgggga 300
acctggaagc ccgagggtgc ttttgatatc tggggccaag ggacaatggg caccgtctct 360
tca 363

<210> 282
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 282
Gln Val Gln Leu Gln Glu Ser Gly Leu Gly Leu Val Lys Pro Ser Glu
1 5 10 15
Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Asp Ser Ile Gly Thr Tyr
20 25 30
Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45
Ala Tyr Ile Tyr Asp Ser Arg His Ser Asn Ser Asn Pro Ser Leu Lys
50 55 60
Ser Arg Val Thr Thr Ser Val Asp Met Ser Lys Asn Gln Phe Ser Leu
65 70 75 80
Gln Leu Lys Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Phe Cys Ala
85 90 95
Arg Asp Trp Gly Thr Trp Lys Pro Glu Gly Ala Phe Asp Ile Trp Gly
100 105 110
Gln Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 283
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 283
ggtgactcca tcggtactta ctac

<210> 284
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 284
Gly Asp Ser Ile Gly Thr Tyr Tyr
1 5

<210> 285
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 285
atttatgaca gtaggcacag c

21

<210> 286
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 286
Ile Tyr Asp Ser Arg His Ser
1 5

<210> 287
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 287
gcgagagatt ggggaacctg gaagcccgag ggtgcttttg atatc

45

<210> 288
<211> 15
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 288

Ala Arg Asp Trp Gly Thr Trp Lys Pro Glu Gly Ala Phe Asp Ile
1 5 10 15

<210> 289

<211> 1356

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 289

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cagggtgcagc tgcaggagtc gggcctagga ctggtgaaac cttcggagac cctgtccctc 60
acttgcactg tctcgggtga ctccatcggt acttactact ggagctggat ccggcagccc 120
ccagggaaagg gactggagtg gattgcgtat atttatgaca gtaggcacag caattccaat 180
ccttccctca agagtcgagt caccacatca gtagacatgt ccaagaacca gttctccctg 240
caattaaagt ctgtgaccgc tgcggacacg gccgtatatt tttgtgagag agattgggga 300
acctggaagc ccgagggtgc ttttgatata tggggccaag ggacaatggt caccgtctct 360
tcagcctcca ccaagggccc atcgggtctt cccctggcac cctcctccaa gagcacctct 420
ggggggcacag cggccctggg ctgcctgggt aaggactact tccccgaacc ggtgacgggtg 480
tcgtggaact caggcgccct gaccagcggc gtgcacacct tcccggctgt cctacagtcc 540
tcaggactct actccctcag cagcgtgggt accgtgccct ccagcagctt gggcacccag 600
acctacatct gcaacgtgaa tcacaagccc agcaacacca aggtggacaa gaaagttgag 660
cccaaattct gtgacaaaac tcacacatgc ccaccgtgcc cagcacctga actcctgggg 720
ggaccgtcag tcttcctctt cccccaaaaa cccaaggaca ccctcatgat ctcccggacc 780
cctgaggtca catgcgtggt ggtggacgtg agccacgaag accctgaggt caagttcaac 840
tggtacgtgg acggcgtgga ggtgcataat gccaaagaaa agccgcggga ggagcagtag 900
aacagcacgt accgtgtggt cagcgtcctc accgtcctgc accaggactg gctgaatggc 960
aaggagtaca agtgcaaggt ctccaacaaa gccctcccag ccccatcga gaaaaccatc 1020
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