

SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.

<120> Human Antibodies to PD-L1

<130> A0029W001

<140> To be assigned

<141> Filed herewith

<150> 61/930,582

<151> 2014-01-23

<150> 62/089,549

<151> 2014-12-09

<160> 353

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ccagggaagg ggctggagtg ggtggccaac ataaaccaag atggaactga gaaatactat 180
gtggactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctactgtat 240
ctgcaaataa acagcctgag agccggggac acggctgtgt attactgtgc gaatacgtat 300
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Arg Phe
20          25          30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35          40          45
Ala Asn Ile Asn Gln Asp Gly Thr Glu Lys Tyr Tyr Val Asp 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
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Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Gly	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
				85					90					95	
Ala	Asn	Thr	Tyr	Tyr	Asp	Phe	Trp	Ser	Gly	His	Phe	Asp	Tyr	Trp	Gly
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Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser							
		115					120								

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 Ile Asn Gln Asp Gly Thr Glu Lys
 1 5

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gggaaagccc	ctaagctcct	gatctataag	gcgtctagtt	tagaaagtgg	ggtcccatca	180
aggttcagcg	gcagtggatc	tgggacagaa	ttcactctca	ccatcagcag	cctgcagcct	240
gatgattttg	caacttatta	ctgccaacag	tatcatagtt	attcgtacac	ttttggccag	300
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Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Ser	Ile	Ser	Asn	Trp
		20						25				30			
Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	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	Ser	Ser	Leu	Gln	Pro
65				70					75					80	
Asp	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	His	Ser	Tyr	Ser	Tyr
			85					90						95	
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<400> 14
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<400> 16
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ccaggcaagg ggctggagtg ggtggcagct ttatgggtctg atggaagtaa taaatactat 180
gcagactccg tgaaggggtcg agtcaccatc tccagagaca attccaagaa cacactgtat 240
ctgcaaatga acagcctgag agccgaggac acggctgtct attactgtgc gagagggaga 300
ggagcccccg gtattccgat ttttgggtac tggggccagg gaaccctggt caccgtctcc 360
tca 363

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

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 <400> 19
 ggattcacct tcagtaactt tggc 24

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 <220>
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 <400> 20
 Gly Phe Thr Phe Ser Asn Phe Gly
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 <400> 21
 ttatggtctg atggaagtaa taaa 24

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<400> 24
 Ala Arg Gly Arg Gly Ala Pro Gly Ile Pro Ile Phe Gly Tyr
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 atcaattgcc gggcaagtca gggcattaga aatgatttag gctggtatca gcagaaacca 120
 gggaaagccc ctaagcgct gatctatact gcatccagtt tgcaaagtgg ggtcccatca 180
 agattcagcg gcagtggatc tgggacagaa ttcaactctca caatcagcag cctacagcct 240
 gaagattttg caacttatta ctgtctacaa cataatagtt accctctcac attcggcgga 300
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 Asp Arg Val Thr Ile Thr Cys Arg Ala 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 Thr 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
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 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Val Ala Ile Lys
 100 105

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 cagggcatta gaaatgat 18

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 Gln Gly Ile Arg Asn Asp
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 <400> 30
 Thr Ala Ser
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 <210> 31
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 <400> 31
 ctacaacata atagttaccc tctcaca 27

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<400> 32

Leu Gln His Asn Ser Tyr Pro Leu Thr
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<210> 33

<211> 390

<212> DNA

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ccaggggaagg ggctggagtg gggtggccgt attaaaagga aaactgatgg tgggacaaca 180
gactacgctg caccctgtaa aggcagattc accatctcaa gagatgattc aaaaaatacg 240
ctgcatctgc aaatgaacag cctgaaaacc gaggacacag ccgtgtatta ctgtaccaca 300
gatgatattg tagttgtacc agctgttatg aggggaatact acttcggtat ggacgtctgg 360
ggccaaggga ccacggtcac cgtctcctca 390

<210> 34

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<400> 34

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

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<400> 40

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Phe	Gly	Met	Asp	Val											
			20												

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gggaaagccc	ctaagcgcc	gatctatgct	gcatccagtt	tgcaaagtgg	gggtcccatca	180
aggttcagcg	gcagtggatc	tgggacagaa	ttcaactctca	caatcagcag	cctgcagcct	240
gaagattttg	caacttatta	ctgtctacag	cataataatt	accgtacac	ttttggccag	300
gggaccaagc	tggagatcaa	a				321

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<211> 107

<212> PRT

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<220>

<223> Synthetic

<400> 42

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Asp	Arg	Val	Thr	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	Asn	Tyr	Pro	Tyr
				85					90					95	
Thr	Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile	Lys					
			100					105							

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<213> Artificial Sequence

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<223> Synthetic

<400> 43

cagggcatta gaaatgat

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<211> 6

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<223> Synthetic

<400> 44

Gln Gly Ile Arg Asn Asp

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<210> 45

<211> 9

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 45

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<210> 46

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Ala Ala Ser

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<210> 47

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 47

ctacagcata ataattaccc gtacact

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<210> 48

<211> 9

<212> PRT

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<400> 48

Leu Gln His Asn Asn Tyr Pro Tyr Thr
1 5

<210> 49

<211> 363

<212> DNA

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cctggacaag gacttgagtg gatgggatgg atcaacccta acagtggcac caaaaagtat 180
gcacacaagt ttcagggcag ggtcaccatg accagggaca cgtccatcga cacagcctac 240
atgattttga gcagtctgat atccgacgac acggccgtgt attactgtgc gagagatgag 300
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tca 363

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

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<212> DNA

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<223> Synthetic

<400> 51
 ggatactcct tcaccggcta ctat 24

<210> 52
 <211> 8
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<400> 52
 Gly Tyr Ser Phe Thr Gly Tyr Tyr
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<210> 53
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<400> 53
 atcaacccta acagtggcac caaa 24

<210> 54
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<400> 54
 Ile Asn Pro Asn Ser Gly Thr Lys
 1 5

<210> 55
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<400> 55
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<210> 56
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<400> 56
 Ala Arg Asp Glu Asp Trp Asn Phe Gly Ser Trp Phe Asp Ser
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<210> 57
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<400> 57
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 tctgggggtcc cagacagatt cagtggcagt ggggcaggga cagatttcac actgaaaatc 240
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 atcaccttcg gccaaggga acgactggag attaaa 336

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

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<400> 60
Gln Thr Leu Val His Gly Asp Gly Asn Thr Tyr
1 5 10

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<400> 61
aaggtttct

9

<210> 62
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Lys Val Ser
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atgcaagcta cacattttcc gatcacc

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Met Gln Ala Thr His Phe Pro Ile Thr
1 5

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 tcctgcaagg cttctggata caccttcacc ggctactata tacattgggt gcgacaggcc 120
 cctggacacg ggcttgagtg gatgggatgg ctcaacccta atactggtac cacaaagtat 180
 atacagaact ttcagggcag ggtcacccatg accagggaca cgtccagcag cacagcctac 240
 atggagctga ccaggctgag atctgacgac acggccgtgt attactgtgc gagagatgag 300
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 tca 363

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<400> 66
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 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly His Gly Leu Glu Trp Met
 35 40 45
 Gly Trp Leu Asn Pro Asn Thr Gly Thr Thr Lys Tyr Ile Gln Asn Phe
 50 55 60
 Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Thr Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Glu Asp Trp Asn Tyr Gly Ser Trp Phe Asp Thr Trp Gly
 100 105 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 67
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 67
 ggatacacct tcaccggcta ctat 24

<210> 68
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 68

Gly Tyr Thr Phe Thr Gly Tyr Tyr
1 5

<210> 69

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 69

ctcaacccta atactggtac caca

24

<210> 70

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 70

Leu Asn Pro Asn Thr Gly Thr Thr
1 5

<210> 71

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 71

gcgagagatg aggactggaa ttatgggagc tggttcgaca cc

42

<210> 72

<211> 14

<212> PRT

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<400> 72

Ala Arg Asp Glu Asp Trp Asn Tyr Gly Ser Trp Phe Asp Thr
1 5 10

<210> 73

<211> 336

<212> DNA
<213> Artificial Sequence

<220>
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<400> 73
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cttcagcaga ggccaggcca gcctccaaga ctcttaattt ataagatttc taaccgattc 180
tctggggtcc cagacagatt cagtggcagt ggggcaggga cagatttcac gctgaaaatc 240
agcagggtgg aagctgagga tgtcggggtt tattactgca tgcaagctac acattttccg 300
atcaccttcg gccaaaggac acgactggag attaga 336

<210> 74
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 74
Asp Ile Val Met Thr Gln Thr Pro Leu Ser Ser Pro Val Thr Leu Gly
1 5 10 15
Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Pro Ser Leu Val His Ser
20 25 30
Asp Gly Asn Thr Tyr Leu Ser Trp Leu Gln Gln Arg Pro Gly Gln Pro
35 40 45
Pro Arg Leu Leu Ile Tyr Lys Ile Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ala Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln Ala
85 90 95
Thr His Phe Pro Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Arg
100 105 110

<210> 75
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 75
ccaagcctcg tacacagtga tggaaacacc tac 33

<210> 76
<211> 11
<212> PRT
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<220>
<223> Synthetic

<400> 76

Pro Ser Leu Val His Ser Asp Gly Asn Thr Tyr
1 5 10

<210> 77
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 77
aagatttct

9

<210> 78
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 78
Lys Ile Ser
1

<210> 79
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 79
atgcaagcta cacattttcc gatcacc

27

<210> 80
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
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<400> 80
Met Gln Ala Thr His Phe Pro Ile Thr
1 5

<210> 81
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 81
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tcctgtgcag cctctggatt cacttttgat gattatggca tgacctgggt ccgccaagct 120
ccagggaggg gcctggaatg ggtctctggt attcattggc atggtaaacg cacaggttat 180
gcagactctg tgaaggggccg attcaccata tccagagaca acgccaagaa atccctgtat 240
ctgcaaatac acagtctgaa aggcgaggac acggccttgt atcattgtgt gaggggggga 300
atgagtacag gggactgggt cgacccctgg ggccagggaa ccctgggtcat cgtctcctca 360

<210> 82
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 82
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Arg Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30
Gly Met Thr Trp Val Arg Gln Ala Pro Gly Arg Gly Leu Glu Trp Val
35 40 45
Ser Gly Ile His Trp His Gly Lys Arg Thr Gly Tyr Ala Asp Ser Val
50 55 60
Lys 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 Lys Gly Glu Asp Thr Ala Leu Tyr His Cys
85 90 95
Val Arg Gly Gly Met Ser Thr Gly Asp Trp Phe Asp Pro Trp Gly Gln
100 105 110
Gly Thr Leu Val Ile Val Ser Ser
115 120

<210> 83
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 83
ggattcactt ttgatgatta tggc 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 Gly
1 5

<210> 85
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 85
attcattggc atggtaaacg caca

24

<210> 86
<211> 8
<212> PRT
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<220>
<223> Synthetic

<400> 86
Ile His Trp His Gly Lys Arg Thr
1 5

<210> 87
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 87
gtgagggggg gaatgagtac aggggactgg ttcgacccc

39

<210> 88
<211> 13
<212> PRT
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<220>
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<400> 88
Val Arg Gly Gly Met Ser Thr Gly Asp Trp Phe Asp Pro
1 5 10

<210> 89
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 89

gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctctaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattaac agttatttaa attggtatca gcagaaacca 120
 gggaaagccc ctaaactcct gatctatgtt gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagaa ttcactctca ccatcagcaa tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 90
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 90
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Leu Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Asn 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 Val 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 Asn 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> 91
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 91
 cagagcatta acagttat 18

<210> 92
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 92
 Gln Ser Ile Asn Ser Tyr
 1 5

<210> 93
 <211> 9
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 93

gttgcattcc

9

<210> 94

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 94

Val Ala Ser

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<210> 95

<211> 30

<212> DNA

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<220>

<223> Synthetic

<400> 95

caacagagtt acagtacccc tccgatcacc

30

<210> 96

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 96

Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr

1

5

10

<210> 97

<211> 360

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 97

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tcctgtgcag cctctggatt cacctttgat gattatggca tgacctgggt ccgccaagtt 120
ccagggaagg ggctggagtg ggtctctggt attcattgga gtggtagaag cacagggtat 180
gcagactctg tgaaggggcg attcaccatc tccagagaca acgccaagaa ctccctgtat 240
ctgcaaataa acagtctgag agccgaggac acggccttgt attactgtgc gaggggggga 300

atgagtacgg gggactgggtt cgaccctgg gccagggaa ccctgggtcac cgtctcctca 360

<210> 98
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 98
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Arg Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30
Gly Met Thr Trp Val Arg Gln Val Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Gly Ile His Trp Ser Gly Arg Ser Thr Gly Tyr Ala Asp 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 Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg Gly Gly Met Ser Thr Gly Asp Trp Phe Asp Pro Trp Gly Gln
100 105 110
Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 99
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 99
ggattcacct ttgatgatta tggc

24

<210> 100
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 100
Gly Phe Thr Phe Asp Asp Tyr Gly
1 5

<210> 101
<211> 24
<212> DNA
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<220>
 <223> Synthetic

<400> 101
 attcattgga gtggtagaag caca 24

<210> 102
 <211> 8
 <212> PRT
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<220>
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<400> 102
 Ile His Trp Ser Gly Arg Ser Thr
 1 5

<210> 103
 <211> 39
 <212> DNA
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<220>
 <223> Synthetic

<400> 103
 gcgagggggg gaatgagtac gggggactgg ttcgacccc 39

<210> 104
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 104
 Ala Arg Gly Gly Met Ser Thr Gly Asp Trp Phe Asp Pro
 1 5 10

<210> 105
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 105
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
 gggaaagccc ctaagctcct gatctatggt gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 106
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 106
 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 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 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> 107
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 107
 cagagcatta gcagctat

18

<210> 108
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 108
 Gln Ser Ile Ser Ser Tyr
 1 5

<210> 109
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 109
 gttgcatcc

9

<210> 110
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 110
Val Ala Ser
1

<210> 111
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 111
caacagagtt acagtacccc tccgatcacc 30

<210> 112
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 112
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 113
<211> 345
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 113
gaggtgcagt tgggtggagtc tggaggaggc ttggtccagc ctgggggggtc cctaagactc 60
tcctgtgcag cctctggggt caccgtcggg agtaactaca tgaactgggt ccgtcaggct 120
ccagggaagg gactggagtg ggtctcagtt atttatagtg gtggtagtag atactacgca 180
gattccgtga agggccgatt caccatctcc agactcactt ccaagaacac actgtatctt 240
caaatgagca gcctgagacc tgaggacacg gccgtgtatt attgtgagag agggattagg 300
ggtctggacg tctggggcca agggaccacg gtcaccgtct cttca 345

<210> 114
<211> 115
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 114

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

<210> 115

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 115

gggttcaccg tcggtagtaa ctac

24

<210> 116

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 116

Gly	Phe	Thr	Val	Gly	Ser	Asn	Tyr		
1				5					

<210> 117

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 117

atttatagtg gtggtagtag a

21

<210> 118

<211> 7

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 118
 Ile Tyr Ser Gly Gly Ser Thr
 1 5

<210> 119
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 119
 gcgagaggga ttaggggtct ggacgtc

27

<210> 120
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 120
 Ala Arg Gly Ile Arg Gly Leu Asp Val
 1 5

<210> 121
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 121
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcaagtca gaccattaac atctatttaa attggtatca gcagaaacca 120
 gggagagccc ctaggctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaccag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 122
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 122
 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 Ile Tyr
 20 25 30
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Arg Ala Pro Arg 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 His 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> 123
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 123
 cagaccatta acatctat

18

<210> 124
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 124
 Gln Thr Ile Asn Ile Tyr
 1 5

<210> 125
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 125
 gctgcatcc

9

<210> 126
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 126
Ala Ala Ser
1

<210> 127
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 127
caccagagtt acagtacccc tccgatcacc 30

<210> 128
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 128
His Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 129
<211> 345
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 129
gaggaacggt tgggtggagtc tggaggagac ttggtccagc ctgggggggtc cctgagactc 60
tctgtgtcag cctctggcat caccgtcggg actaattata tgaactgggt ccgccaggct 120
ccagggaagg gactggagtg ggtctcagtt atttctagcg gtggtataac acactacgca 180
gactccgtga agggccgatt cattatgtcc agacaaactt ccaaaaacac gctgtatctt 240
cagatgaata gcttggaac tgaggacacg gccgtatatt attgtgagag ggggatcaga 300
ggtttggacg tctggggcca agggaccatg gtcaccgtct cctca 345

<210> 130
<211> 115
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 130
Glu Glu Arg 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 Ile Thr Val Gly Thr Asn
20 25 30

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

<210> 131
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 131
 ggcatcaccg tcggtactaa ttat

24

<210> 132
 <211> 8
 <212> PRT
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<220>
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<400> 132
 Gly Ile Thr Val Gly Thr Asn Tyr
 1 5

<210> 133
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 133
 atttctagcg gtggaatac a

21

<210> 134
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 134
 Ile Ser Ser Gly Gly Asn Thr

1

5

<210> 135

<211> 27

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 135

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27

<210> 136

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 136

Ala Arg Gly Ile Arg Gly Leu Asp Val

1

5

<210> 137

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 137

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 atcacttgcc gggcaagtca gagcatgagc agctatttaa attggtatca gcagaaacca 120
 gggagagccc ctaagctcct gatctttgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 138

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 138

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 Met Ser Ser Tyr
 20 25 30
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Arg Ala Pro Lys Leu Leu Ile
 35 40 45
 Phe 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								

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<220>
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<400> 139
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<210> 140
 <211> 6
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<400> 140
 Gln Ser Met Ser Ser Tyr
 1 5

<210> 141
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<220>
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<400> 141
 gctgcatcc 9

<210> 142
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 142
 Ala Ala Ser
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<210> 143
 <211> 30

<212> DNA
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 <220>
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 <400> 143
 caacagagtt acagtacccc tccgatcacc 30

 <210> 144
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 <220>
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 <400> 144
 Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 1 5 10

 <210> 145
 <211> 354
 <212> DNA
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 <400> 145
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 tcttgcaagg cttctggagg catcttcagc agtttacta tcagttgggt gcgacaggcc 120
 cctggacaag ggcttgaatg gatgggagag atcatccctg tctttggtac agtaaaactac 180
 gcacagaagt tccaggacag agtcatatatt accgcgagac aatctacgac tacagcctac 240
 atggagctga gcagcctgaa atctggggac acggccgtat atttctgtgc gcgaaattgg 300
 ggattaggct ctttttatat ctggggccaa gggacaatgg tcaccgtctc ttca 354

 <210> 146
 <211> 118
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 146
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Met Pro Gly Ser
 1 5 10 15
 Ser Val Arg Val Ser Cys Lys Ala Ser Gly Gly Ile Phe Ser Ser Ser
 20 25 30
 Thr Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Glu Ile Ile Pro Val Phe Gly Thr Val Asn Tyr Ala Gln Lys Phe
 50 55 60
 Gln Asp Arg Val Ile Phe Thr Ala Asp Glu Ser Thr Thr Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Lys Ser Gly Asp Thr Ala Val Tyr Phe Cys
 85 90 95

Ala Arg Asn Trp Gly Leu Gly Ser Phe Tyr Ile Trp Gly Gln Gly Thr
100 105 110
Met Val Thr Val Ser Ser
115

<210> 147
<211> 24
<212> DNA
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<220>
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<400> 147
ggaggcatct tcagcagttc tact

24

<210> 148
<211> 8
<212> PRT
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<220>
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<400> 148
Gly Gly Ile Phe Ser Ser Ser Thr
1 5

<210> 149
<211> 24
<212> DNA
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<220>
<223> Synthetic

<400> 149
atcatccctg tctttggtac agta

24

<210> 150
<211> 8
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<220>
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<400> 150
Ile Ile Pro Val Phe Gly Thr Val
1 5

<210> 151
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
 <223> Synthetic

<400> 151
 gcgcgaaatt ggggattagg ctctttttat atc 33

<210> 152
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 152
 Ala Arg Asn Trp Gly Leu Gly Ser Phe Tyr Ile
 1 5 10

<210> 153
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 153
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 ctctcctgca gggccagtca gagttttaac ttcaactact tagcctggta ccagcagaaa 120
 cctggccagg ctcccagact cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacagggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcaa caggctggag 240
 cctgaagatt ttggagtgtt ttattgtcag cagtatgaaa gcgcaccttg gacgttcggc 300
 caagggacca aggtggaaat caaa 324

<210> 154
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 154
 Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
 1 5 10 15
 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Phe Asn Phe Asn
 20 25 30
 Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 35 40 45
 Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 50 55 60
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Arg Leu Glu
 65 70 75 80
 Pro Glu Asp Phe Gly Val Phe Tyr Cys Gln Gln Tyr Glu Ser Ala Pro
 85 90 95
 Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 155
<211> 21
<212> DNA
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<220>
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<400> 155
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21

<210> 156
<211> 7
<212> PRT
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<220>
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<400> 156
Gln Ser Phe Asn Phe Asn Tyr
1 5

<210> 157
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 157
ggtgcatcc

9

<210> 158
<211> 3
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<220>
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<400> 158
Gly Ala Ser
1

<210> 159
<211> 27
<212> DNA
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<220>
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<400> 159
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27

<210> 160
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 <400> 160
 Gln Gln Tyr Glu Ser Ala Pro Trp Thr
 1 5

<210> 161
 <211> 345
 <212> DNA
 <213> Artificial Sequence

<220>
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 ccagggaagg gcctggagtg ggtctcaggc attagttgga gtaataataa cataggctat 180
 ggggactctg tgaagggccg attcaccatc tccagagaca acgcaaaaaa ctccctgtat 240
 ctacaaatga acagtctgag acctgaggac acggcctttt attactgtgc aaaatctgga 300
 atctttgact cctggggcca gggaaccctg gtcaccgtct cctca 345

<210> 162
 <211> 115
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 162
 Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val His Pro Gly Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Pro Phe Asp Glu Tyr
 20 25 30
 Ala Met His Trp Val Arg Gln Val Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Gly Ile Ser Trp Ser Asn Asn Ile Gly Tyr Ala Asp 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 Glu Asp Thr Ala Phe Tyr Tyr Cys
 85 90 95
 Ala Lys Ser Gly Ile Phe Asp Ser Trp Gly Gln Gly Thr Leu Val Thr
 100 105 110
 Val Ser Ser
 115

<210> 163
 <211> 24

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 163
 ggtttcccct ttgatgagta tgcc 24

 <210> 164
 <211> 8
 <212> PRT
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 <220>
 <223> Synthetic

 <400> 164
 Gly Phe Pro Phe Asp Glu Tyr Ala
 1 5

 <210> 165
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 165
 attagttgga gtaataataa cata 24

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

 <220>
 <223> Synthetic

 <400> 166
 Ile Ser Trp Ser Asn Asn Asn Ile
 1 5

 <210> 167
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 167
 gcaaaatctg gaatctttga ctcc 24

 <210> 168
 <211> 8

<212> PRT
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<220>
<223> Synthetic

<400> 168
Ala Lys Ser Gly Ile Phe Asp Ser
1 5

<210> 169
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 169
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gggaagctcc tgatctatgc tgcattccagt ttgcaaagtg ggggcccatc acgggttcagt 180
ggcgggtggat ctgggacaga tttcactctc accatcagca gtctgcgacc tgaagatttt 240
gcaacttact actgtcaaca gagttactgt acccctccga tcaccttcgg ccaagggaca 300
cgactggaga ttaaa 315

<210> 170
<211> 105
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 170
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 Leu Leu Ile Tyr Ala Ala
35 40 45
Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly Gly Gly Ser
50 55 60
Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Arg Pro Glu Asp Phe
65 70 75 80
Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Cys Thr Pro Pro Ile Thr Phe
85 90 95
Gly Gln Gly Thr Arg Leu Glu Ile Lys
100 105

<210> 171
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 171
cagagcatta gcagctat 18

<210> 172
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 172
Gln Ser Ile Ser Ser Tyr
1 5

<210> 173
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 173
gctgcatcc 9

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

<220>
<223> Synthetic

<400> 174
Ala Ala Ser
1

<210> 175
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 175
caacagagtt actgtacccc tccgatcacc 30

<210> 176
<211> 10
<212> PRT
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<220>
<223> Synthetic

<400> 176
 Gln Gln Ser Tyr Cys Thr Pro Pro Ile Thr
 1 5 10

<210> 177
 <211> 354
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 177
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 tcctgtgcag cctctggatt caccttcagt agttatggca tgcactgggt ccgccaggct 120
 ccaggcaagg gactggagtg ggtgacactt atatcatatg agggaaggaa taaatactat 180
 gcagactccg tgaagggccg attcaccatt tccagagaca attccaagaa cacgctgtat 240
 ctgcaaataga acagcctgag agctgaggac acggctgtat attactgtgc gaaagatagg 300
 accctttacg gtatggacgt ctgggggcaa ggaaccacgg tcaccgtctc ctca 354

<210> 178
 <211> 118
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 178
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Thr Leu Ile Ser Tyr Glu Gly Arg Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Asp Arg Thr Leu Tyr Gly Met Asp Val Trp Gly Gln Gly Thr
 100 105 110
 Thr Val Thr Val Ser Ser
 115

<210> 179
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 179
 ggattcacct tcagtagtta tggc

<210> 180
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 180
 Gly Phe Thr Phe Ser Ser Tyr Gly
 1 5

<210> 181
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 181
 atatcatatg aggaaggaa taaa

24

<210> 182
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 182
 Ile Ser Tyr Glu Gly Arg Asn Lys
 1 5

<210> 183
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 183
 gcgaaagata ggacccttta cggtatggac gtc

33

<210> 184
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 184
 Ala Lys Asp Arg Thr Leu Tyr Gly Met Asp Val

1

5

10

<210> 185

<211> 363

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 185

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acctgcacct tctctgggtt ctcaactcagc actaatagaa tgtgtgtgac ctggatccgt 120
cagccccccag ggaaggccct ggagtggctt gcgcgcattg attgggatgg tgttaaatac 180
tacaacacat ctctgaagac caggctcacc atctccaagg acacctcaa aaaccaggtg 240
gtccttacaa tgaccaacat ggaccctgtg gacacagcca ctttttactg tgcacggtcg 300
acttcgttga ctttttacta ctttgactac tggggccagg gaaccctggt caccgtctcc 360
tca                                     363

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<210> 186

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 186

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

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<210> 187

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 187

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30

<210> 188

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

<220>
<223> Synthetic

<400> 188
Gly Phe Ser Leu Ser Thr Asn Arg Met Cys
1 5 10

<210> 189
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 189
attgattggg atggtgttaa a 21

<210> 190
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 190
Ile Asp Trp Asp Gly Val Lys
1 5

<210> 191
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 191
gcacggtcga cttcgttgac tttttactac ttgactac 39

<210> 192
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 192
Ala Arg Ser Thr Ser Leu Thr Phe Tyr Tyr Phe Asp Tyr
1 5 10

<210> 193
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 193
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 atcacttgcc gggcaagtca gagcattagc agctatttaa attggtatca gcagaaacca 120
 gggaaagccc ctaagctcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttacta ctgtcaacag agttacagta cccctccgat caccttcggc 300
 caagggacac gactggagat taaa 324

<210> 194
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 194
 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> 195
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 195
 cagagcatta gcagctat 18

<210> 196
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 196

Gln Ser Ile Ser Ser Tyr
1 5

<210> 197

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 197

gctgcatcc

9

<210> 198

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 198

Ala Ala Ser
1

<210> 199

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 199

caacagagtt acagtacccc tccgatcacc

30

<210> 200

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 200

Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 201

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 201

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ccaggggaagg gactggagtg ggtctcagtt atttatagcg gtggtaacac attctacgca 180
gactccgtga agggccgatt caccatctcc agacacactt ccaagaacac gctgtatctt 240
caaatgaaca gcctgacagc agaggacacg gccgtatatt actgtgcgcg aggattgggg 300
ggtatggacg tctggggcca agggaccacg gtcaccgtct cctca 345
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<210> 202

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 202

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Glu Phe Thr Val Gly Thr Asn
          20          25          30
His Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
          35          40          45
Ser Val Ile Tyr Ser Gly Gly Asn Thr Phe Tyr Ala Asp Ser Val Lys
          50          55          60
Gly Arg Phe Thr Ile Ser Arg His Thr Ser Lys Asn Thr Leu Tyr Leu
65          70          75          80
Gln Met Asn Ser Leu Thr Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
          85          90          95
Arg Gly Leu Gly Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr
          100          105          110
Val Ser Ser
          115
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<210> 203

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 203

gagttcaccg tcggtaccaa ccac

24

<210> 204

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 204

Glu Phe Thr Val Gly Thr Asn His
1 5

<210> 205
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 205
atztatagcg gtggtaacac a 21

<210> 206
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

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

<210> 207
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 207
gcgcgaggat tgggggtat ggacgtc 27

<210> 208
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 208
Ala Arg Gly Leu Gly Gly Met Asp Val
1 5

<210> 209
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 209
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atcacttgcc gggcgagtca ggtcattagc aattatttag cctgggtatca gcagaaacca 120
gggaaagtgc ctaggctcct gatctatgct gcatccactt tgcaatcagg ggtcccatct 180
cgtttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
gaagatgttg caacttatta ctgtcaaaaag tataacagtg cccctcggac gttcggccaa 300
gggaccaagg tggaatcaa 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
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Val Ile Ser Asn Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Arg Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Thr 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 Val Ala Thr Tyr Tyr Cys Gln Lys Tyr Asn Ser Ala Pro Arg
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

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

<220>
<223> Synthetic

<400> 211
caggtcatta gcaattat 18

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

<220>
<223> Synthetic

<400> 212
Gln Val Ile Ser Asn Tyr
1 5

<210> 213

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

<220>
<223> Synthetic

<400> 213
gctgcatcc

9

<210> 214
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 214
Ala Ala Ser
1

<210> 215
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 215
caaaagtata acagtgcccc tcggacg

27

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

<220>
<223> Synthetic

<400> 216
Gln Lys Tyr Asn Ser Ala Pro Arg Thr
1 5

<210> 217
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 217
gaggtgcagc tgggtggagtc tgggggaggc ttggtccagc ggggggagtc cctgagactt 60
tactgtgcag cctctggatt cacctttagt aaatattgga tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtggccaac ataaaggag atggaagtga gaaatactat 180

gtggactctg tgaagggccg gttcaccatc tccagagaca acgccaagaa ctactatat 240
 ctacaaatga acagcctgag agccgaggac acggctgttt attactgtgc gagagattat 300
 tggggatcag gctactactt tgacttctgg ggccaggga ccttggtcac cgtctcctca 360

<210> 218
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 218
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Arg Gly Glu
 1 5 10 15
 Ser Leu Arg Leu Tyr Cys Ala Ala Ser Gly Phe Thr Phe Ser Lys Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Asn Ile Lys Gly Asp Gly Ser Glu Lys Tyr Tyr Val Asp 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 Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Tyr Trp Gly Ser Gly Tyr Tyr Phe Asp Phe Trp Gly Gln
 100 105 110
 Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 219
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 219
 ggattcacct ttagtaaata ttgg

24

<210> 220
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 220
 Gly Phe Thr Phe Ser Lys Tyr Trp
 1 5

<210> 221
 <211> 24
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 221

ataaagggag atggaagtga gaaa

24

<210> 222

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 222

Ile Lys Gly Asp Gly Ser Glu Lys

1

5

<210> 223

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 223

gcgagagatt attggggatc aggcctactac tttgacttc

39

<210> 224

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 224

Ala Arg Asp Tyr Trp Gly Ser Gly Tyr Tyr Phe Asp Phe

1

5

10

<210> 225

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 225

gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gaacattaac aactatttaa attggtatca gcagaaacca 120
gggaaagccc ctaaactcct gatctatgct gcatccagtt tccaaaatgc ggtcccatca 180
agggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
gaagattttg caacttacta ctgtcaacag agttacaata ccccgctcac tttcggcggg 300

gggaccaagg tggagatcaa a

321

<210> 226

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 226

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	Asn	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	Phe	Gln	Asn	Ala	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	Asn	Thr	Pro	Leu
				85					90					95	
Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys					
			100					105							

<210> 227

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 227

cagaacatta acaactat

18

<210> 228

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 228

Gln	Asn	Ile	Asn	Asn	Tyr
1			5		

<210> 229

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 229

gctgcatcc

9

<210> 230

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 230

Ala Ala Ser

1

<210> 231

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 231

caacagagtt acaataccccc gctcact

27

<210> 232

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 232

Gln Gln Ser Tyr Asn Thr Pro Leu Thr

1

5

<210> 233

<211> 390

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 233

gaggtgcagc tgggtggagtc tggggggaggc ttggtccagt ctgggggggtc cctgagactc 60
tcctgtgcag cctctggatt caccttttagt agctattgga tgagctgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtggccaac ataaagcaag atggaagtga gaaatactat 180
gtggactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctactgtat 240
ctgcaaataga acagcctgag agccgatgac acggctgtgt attactgtgc gagagatgat 300
attgtagtag taccagctcc tatgggatat tactactact acttcggtat ggacgtctgg 360
ggccaaggga ccacggtcac cgtctcctca 390

<210> 234

<211> 130

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 234
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ser Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Asn Ile Lys Gln Asp Gly Ser Glu Lys Tyr Tyr Val Asp 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 Ala Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Asp Ile Val Val Val Pro Ala Pro Met Gly Tyr Tyr Tyr
 100 105 110
 Tyr Tyr Phe Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
 115 120 125
 Ser Ser
 130

<210> 235
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 235
 ggattcacct ttagtagcta ttgg

24

<210> 236
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 236
 Gly Phe Thr Phe Ser Ser Tyr Trp
 1 5

<210> 237
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 237
ataaagcaag atggaagtga gaaa 24

<210> 238
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 238
Ile Lys Gln Asp Gly Ser Glu Lys
1 5

<210> 239
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 239
gcgagagatg atattgtagt agtaccagct cctatgggat attactacta ctacttcggt 60
atggacgct 69

<210> 240
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 240
Ala Arg Asp Asp Ile Val Val Val Pro Ala Pro Met Gly Tyr Tyr Tyr
1 5 10 15
Tyr Tyr Phe Gly Met Asp Val
20

<210> 241
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 241
gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gggcattaga aatgatttag gctggatatca gcagaaacca 120
gggaaagccc ctaagcgct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
gaagattttg caacttatta ctgtctacag cataatagtt acccgtagac ttttggccag 300
gggaccaagc tggagatcaa a 321

<210> 242
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 242
 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 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 Ser Tyr Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 243
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 243
 cagggcatta gaaatgat

18

<210> 244
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 244
 Gln Gly Ile Arg Asn Asp
 1 5

<210> 245
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 245
 gctgcatcc

9

<210> 246
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 246
Ala Ala Ser
1

<210> 247
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 247
ctacagcata atagttaccc gtacact

27

<210> 248
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 248
Leu Gln His Asn Ser Tyr Pro Tyr Thr
1 5

<210> 249
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 249
gaagtgcagc tgggtggagtc tggggggaggc ttggttcagc ctggcaggtc cctgagactc 60
tcctgtgcag cctctggatt cacctttgat gattttgcca tgcactgggt ccgacaagct 120
ccagggaagg gcctggagtg ggtctcaggt attagttgga ctggtggtaa catggactat 180
gcgaactctg tgaagggccg attcaccatc tccagagagg acgccaagaa ttccctgtat 240
ctgcaaatga acagtctgag agctgcggac acggccttgt attactgtgt aaaagatata 300
agggggatag tggctacggg gggggccttt gatatctggg gccgaggac aatggtcacc 360
gtctcttca 369

<210> 250
<211> 123
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 250

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

<210> 251

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 251

ggattcacct ttgatgattt tgcc

24

<210> 252

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 252

Gly	Phe	Thr	Phe	Asp	Asp	Phe	Ala
1				5			

<210> 253

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 253

attagttgga ctggtggtaa catg

24

<210> 254

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

<220>
 <223> Synthetic

<400> 254
 Ile Ser Trp Thr Gly Gly Asn Met
 1 5

<210> 255
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 255
 gtaaaagata taaggggat agtggctacg gggggggcct ttgatata 48

<210> 256
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 256
 Val Lys Asp Ile Arg Gly Ile Val Ala Thr Gly Gly Ala Phe Asp Ile
 1 5 10 15

<210> 257
 <211> 321
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 257
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atctcttgcc gggcaagtca gaccattagc acttatttaa attggtttca gcagaaacca 120
 gggaaagccc ctaagtcct gatctatgtt gtgtccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
 gaagattttg caacttatta ctgtcaacag agttacagta cccattcac tttcggccct 300
 gggaccaaaag tgatatcaa a 321

<210> 258
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 258
 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 Ser Cys Arg Ala Ser Gln Thr Ile Ser Thr Tyr
 20 25 30
 Leu Asn Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Val Val 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 Phe
 85 90 95
 Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
 100 105

<210> 259
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 259
 cagaccatta gcacttat 18

<210> 260
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 260
 Gln Thr Ile Ser Thr Tyr
 1 5

<210> 261
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 261
 gttgtgtcc 9

<210> 262
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 262

Val Val Ser

1

<210> 263

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 263

caacagagtt acagtacccc attcact

27

<210> 264

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 264

Gln Gln Ser Tyr Ser Thr Pro Phe Thr

1

5

<210> 265

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 265

gaggtgcagc tgggtggagtc tggaggaggc ttggtccagc cggggggggtc cctgagactc 60
tcctgtgcag cctctggatt caccgtcggc accaactaca tgaactgggt ccgccaggct 120
ccagggaagg gactggagtg gatctcagtt atttatagcg gtggtagcac attctacgca 180
gactccgtga agggccgatt caccatctcc agacagactt cccagaacac gctgtatctt 240
caaatgaaca gcctgagacc tgaggacacg gccgtatatt actgtgagag aggtatacgt 300
ggttttgata tctggggcca agggacaatg gtcaccgtct cttca 345

<210> 266

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 266

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 Val Gly Thr Asn

Ile Tyr Ser Gly Gly Ser Thr
1 5

<210> 271
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 271
gcgagaggta tacgtgggtt tgatatc

27

<210> 272
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 272
Ala Arg Gly Ile Arg Gly Phe Asp Ile
1 5

<210> 273
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 273
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc agctatttaa attggatatca 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 taaa 324

<210> 274
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 274
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> 275
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 275
 cagagcatta gcagctat 18

<210> 276
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 276
 Gln Ser Ile Ser Ser Tyr
 1 5

<210> 277
 <211> 9
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 277
 gctgcatcc 9

<210> 278
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 278
 Ala Ala Ser
 1

<210> 279

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

<220>
 <223> Synthetic

<400> 279
 caacagagtt acagtacccc tccgatcacc

30

<210> 280
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 280
 Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
 1 5 10

<210> 281
 <211> 345
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 281
 gaggtgcagc tgggtggagtc tggaggaggc ttggtccagc cggggggggtc cctgagactc 60
 tcctgtgcag cctctggggt taccatcagt accaactaca tgaactgggt ccgccaggct 120
 ccaggggaagg ggctggagtg ggtcgcagtt atttatagca gtggttccac atactatatc 180
 gactccgtga agggccgatt caccatctcc agactcactt ccaagaacac ggtgtatctt 240
 caaatgagca gcctgaattc tgaagacacg gccgtgtatt actgtgagag ggggatcagg 300
 ggttttgata ttggtggcca agggacaatg gtcaccgtct cttca 345

<210> 282
 <211> 115
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 282
 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 Ile Ser Thr Asn
 20 25 30
 Tyr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Val Ile Tyr Ser Ser Gly Ser Thr Tyr Tyr Ile Asp Ser Val Lys
 50 55 60
 Gly Arg Phe Thr Ile Ser Arg Leu Thr Ser Lys Asn Thr Val Tyr Leu
 65 70 75 80
 Gln Met Ser Ser Leu Asn Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala

		85						90				95			
Arg	Gly	Ile	Arg	Gly	Phe	Asp	Ile	Trp	Gly	Gln	Gly	Thr	Met	Val	Thr
			100					105					110		
Val	Ser	Ser													
			115												

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

<220>
 <223> Synthetic

<400> 283
 ggggtttacca tcagtaccaa ctac

24

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

<220>
 <223> Synthetic

<400> 284
 Gly Phe Thr Ile Ser Thr Asn Tyr
 1 5

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

<220>
 <223> Synthetic

<400> 285
 atttatagca gtggttcac a

21

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

<220>
 <223> Synthetic

<400> 286
 Ile Tyr Ser Ser Gly Ser Thr
 1 5

<210> 287
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 287
 gcgaggggga tcaggggttt tgatatt

27

<210> 288
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 288
 Ala Arg Gly Ile Arg Gly Phe Asp Ile
 1 5

<210> 289
 <211> 372
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 289
 gaagtgcagc tgggtggagtc ggggggaggc ttggtacagc ctggcaggtc cctgagactc 60
 tcctgtgcag cctctggatt caccattgat gatagtgcc tgcactgggt ccggcaaact 120
 ccaggaaggg gcctggagtg ggtctcaggt attagttgga aaagtggtag cataggttat 180
 gcggaactctg tgagggggccg attcaccatc tccagagaca acgccaagaa ttccctctat 240
 ctgcaaatga acagtctgag agttgaggac acggccttgt attactgtgt aaaagatata 300
 aggggcaact ggaactacgg gggaaactgg ttcgaccctt ggggccaggg aaccctggtc 360
 actgtctcct ca 372

<210> 290
 <211> 124
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 290
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Ile Asp Asp Ser
 20 25 30
 Ala Met His Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Gly Ile Ser Trp Lys Ser Gly Ser Ile Gly 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 Val Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Val Lys Asp Ile Arg Gly Asn Trp Asn Tyr Gly Gly Asn Trp Phe Asp

	100		105		110
Pro	Trp	Gly	Gln	Gly	Thr
			Leu	Val	Thr
				Val	Ser
					Ser
	115		120		

<210> 291
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 291
 ggattcacca ttgatgatag tgcc 24

<210> 292
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 292
 Gly Phe Thr Ile Asp Asp Ser Ala
 1 5

<210> 293
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 293
 attagttgga aaagtggtag cata 24

<210> 294
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 294
 Ile Ser Trp Lys Ser Gly Ser Ile
 1 5

<210> 295
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 295

gtaaaagata taaggggcaa ctggaactac ggggggaaact ggttcgaccc c 51

<210> 296

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 296

Val	Lys	Asp	Ile	Arg	Gly	Asn	Trp	Asn	Tyr	Gly	Gly	Asn	Trp	Phe	Asp
1				5					10					15	
Pro															

<210> 297

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 297

gaggtgcagc	tggtggagtc	tggaggaggc	ttggtccagc	ctgggggggtc	cctgagactc	60
tcatgtgaag	cctctggggt	caccgtcggg	gtcaaccaca	tgaactgggt	ccgccaggct	120
ccaggaagag	gtctggagtg	ggtctcagtt	atcttcagta	gtggtaggac	attctacgga	180
gactacgtga	aggggcgatt	aaccatcttc	agacaaacct	cccagaacac	ggtgtatctt	240
caaatagaata	gcctgagaag	tgaggacacg	gccatatatt	actgtgagag	agggattggc	300
ggtttggaca	tctggggccg	agggacaatg	gtcaccgtct	cttca		345

<210> 298

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 298

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

Val Ser Ser
115

<210> 299
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 299
gggttcaccg tcggtgtcaa ccac

24

<210> 300
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 300
Gly Phe Thr Val Gly Val Asn His
1 5

<210> 301
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 301
attttcagta gtggtaggac a

21

<210> 302
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 302
Ile Phe Ser Ser Gly Arg Thr
1 5

<210> 303
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 303
gcgagagggga ttggcggttt ggacatc

27

<210> 304
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 304
Ala Arg Gly Ile Gly Gly Leu Asp Ile
1 5

<210> 305
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 305
gaagtgcagc tgggtggagtc tggggggaggc ttggttcagc ctggcaggtc cctaagactc 60
tcctgtgcag cctctggatt cacctttgat gattatgcct tgcactgggt ccggcaagct 120
ccaggaaggg gcctggagtg ggtctcaggt attagttgga ctggtggtac tatagactat 180
gcggaactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctccctgtat 240
ctgcaaataga gcagtctgag aactgaggac acggccatat attactgtac aagagatatc 300
cgggggaact ggaagtacgg aggctggttc gacccttggg gccagggaac cctggtcacc 360
gtctcctca 369

<210> 306
<211> 123
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 306
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30
Ala Leu His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Gly Ile Ser Trp Thr Gly Gly Thr Ile Asp Tyr Ala Asp 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 Ser Ser Leu Arg Thr Glu Asp Thr Ala Ile Tyr Tyr Cys
85 90 95
Thr Arg Asp Ile Arg Gly Asn Trp Lys Tyr Gly Gly Trp Phe Asp Pro
100 105 110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 307
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 307
ggattcacct ttgatgatta tgcc

24

<210> 308
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 308
Gly Phe Thr Phe Asp Asp Tyr Ala
1 5

<210> 309
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 309
attagttgga ctggtggtac tata

24

<210> 310
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 310
Ile Ser Trp Thr Gly Gly Thr Ile
1 5

<210> 311
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 311

acaagagata tccgggggaa ctggaagtac ggaggctggt tgcacccc

48

<210> 312

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 312

Thr	Arg	Asp	Ile	Arg	Gly	Asn	Trp	Lys	Tyr	Gly	Gly	Trp	Phe	Asp	Pro
1				5					10					15	

<210> 313

<211> 360

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 313

caggtgcagc	tgggtgcagtc	tgggactgag	gtgaagaagc	ctggggcctc	agtgaaggtc	60
tctctgcaag	cttctggata	caccttcacc	gcctactata	tgcactgggt	gcgacaggcc	120
cctgggtcaag	gacttgactg	gatgggatgg	atcagcccta	acagtgggtt	cacaaactat	180
gcacagaagt	ttcagggcag	ggtcaccatg	accagggaca	cgtccatcaa	cacattttat	240
atggagctga	gtggactgag	atctgacgac	acggccgtat	attactgtgc	gcgagagggt	300
tctactcacc	acaattcttt	cgaccctctg	ggccagggaa	ccctgggtcac	cgtctcctca	360

<210> 314

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 314

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

<210> 315
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 315
 ggatacacct tcaccgccta ctat 24

 <210> 316
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 316
 Gly Tyr Thr Phe Thr Ala Tyr Tyr
 1 5

 <210> 317
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 317
 atcagcccta acagtggttt caca 24

 <210> 318
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 318
 Ile Ser Pro Asn Ser Gly Phe Thr
 1 5

 <210> 319
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 319
 gcgcgagagg gttctactca ccacaattct ttcgacccc 39

<210> 320
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 320
 Ala Arg Glu Gly Ser Thr His His Asn Ser Phe Asp Pro
 1 5 10

<210> 321
 <211> 342
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 321
 gaggtgcagc tgggtggagtc tggaggaggc ttggtccaac cggggggggtc cctgaggctc 60
 tcctgtgcag cctctgggtt caccgtcggg actaacttca tgaattgggt ccgccaggct 120
 ccagggaagg ggctggagtg ggtctcagcg atttatagcg gtggtaccgc taactacgca 180
 gactccgtga agggccgatt caccatttcc agagacactt ccaggaacac gctgtatctt 240
 caaatgaaca gcctgagaac tgaggacacg gccgtttatt attgtgagag aggggggggt 300
 atggacgtct ggggccaaag gaccacggtc accgtctcct ca 342

<210> 322
 <211> 114
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 322
 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 Val Gly Thr Asn
 20 25 30
 Phe Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ala Ile Tyr Ser Gly Gly Thr Ala Asn Tyr Ala Asp Ser Val Lys
 50 55 60
 Gly Arg Phe Thr Ile Ser Arg Asp Thr Ser Arg Asn Thr Leu Tyr Leu
 65 70 75 80
 Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val Tyr Tyr Cys Ala
 85 90 95
 Arg Gly Gly Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
 100 105 110
 Ser Ser

<210> 323
 <211> 24
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 323

gggttcaccg tcggtactaa cttc

24

<210> 324

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 324

Gly Phe Thr Val Gly Thr Asn Phe
1 5

<210> 325

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 325

atztatagcg gtggtaccgc t

21

<210> 326

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 326

Ile Tyr Ser Gly Gly Thr Ala
1 5

<210> 327

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 327

gcgagagggg ggggtatgga cgtc

24

<210> 328

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 328

Ala Arg Gly Gly Gly Met Asp Val
1 5

<210> 329

<211> 354

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 329

cagggtccagc tgggtgcagtc tgggggctgag gtgaagaagc ctgggtcctc ggtgaaggtc 60
tcctgcaagg cttctggagg caccttcaac acctatgttc tcagctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagag atcatcccta tcttaggtgc agcaaaactac 180
gcacagaact tccagggcag agtcactttt accacggacg aatccacgaa tacagcctac 240
atggacctga gcagcctaag atctgaggac acggccgtgt attactgtgc gagagatcgg 300
acctccgggg ggttcgaccc ctgggggccag ggaaccctgg tcaactgtctc ctca 354

<210> 330

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 330

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

<210> 331

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 331
ggaggcacct tcaacaccta tggt 24

<210> 332
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 332
Gly Gly Thr Phe Asn Thr Tyr Val
1 5

<210> 333
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 333
atcatcccta tcttaggtgc agca 24

<210> 334
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 334
Ile Ile Pro Ile Leu Gly Ala Ala
1 5

<210> 335
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 335
gcgagagatc ggacctccgg ggggttcgac ccc 33

<210> 336
<211> 11
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 336

Ala Arg Asp Arg Thr Ser Gly Gly Phe Asp Pro
1 5 10

<210> 337

<211> 357

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 337

cagggttcagc tgggtgcagtc tggagctgag gtggagaagc ctggggcctc agtgaaggtc 60
tcctgcaagg cttctgggta catctttacc cactatggta tcagctgggt gcgacaggcc 120
cctggacaag gacttgagtg ggtgggctgg atcagccctt acaatgggta cacagactat 180
gcacagaaac tccagggcag agtcaccttg accacagaca catccacgac cacagcctac 240
atggagctga ggaacctgag atctgacgac acggccatgt attactgttc gagagggagg 300
ggcccttact ggtccttcga tctctggggc cgtggcaccc tggtcaccgt ctcctca 357

<210> 338

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 338

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

<210> 339

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 339

ggttacatct ttaccacta tggt

24

<210> 340

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 340

Gly Tyr Ile Phe Thr His Tyr Gly
1 5

<210> 341

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 341

atcagccctt acaatggta caca

24

<210> 342

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 342

Ile Ser Pro Tyr Asn Gly Tyr Thr
1 5

<210> 343

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 343

tcgagagggg ggggccctta ctggtccttc gatctc

36

<210> 344

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 344

Ser Arg Gly Arg Gly Pro Tyr Trp Ser Phe Asp Leu
 1 5 10

<210> 345
 <211> 249
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hPD-L1-MMH

<220>
 <223> 1-221: aa 19-239 of NP_054862.1

<220>
 <223> 222-249: myc-myc-hexahistidine tag

<400> 345
 Phe Thr Val Thr Val Pro Lys Asp Leu Tyr Val Val Glu Tyr Gly Ser
 1 5 10 15
 Asn Met Thr Ile Glu Cys Lys Phe Pro Val Glu Lys Gln Leu Asp Leu
 20 25 30
 Ala Ala Leu Ile Val Tyr Trp Glu Met Glu Asp Lys Asn Ile Ile Gln
 35 40 45
 Phe Val His Gly Glu Glu Asp Leu Lys Val Gln His Ser Ser Tyr Arg
 50 55 60
 Gln Arg Ala Arg Leu Leu Lys Asp Gln Leu Ser Leu Gly Asn Ala Ala
 65 70 75 80
 Leu Gln Ile Thr Asp Val Lys Leu Gln Asp Ala Gly Val Tyr Arg Cys
 85 90 95
 Met Ile Ser Tyr Gly Gly Ala Asp Tyr Lys Arg Ile Thr Val Lys Val
 100 105 110
 Asn Ala Pro Tyr Asn Lys Ile Asn Gln Arg Ile Leu Val Val Asp Pro
 115 120 125
 Val Thr Ser Glu His Glu Leu Thr Cys Gln Ala Glu Gly Tyr Pro Lys
 130 135 140
 Ala Glu Val Ile Trp Thr Ser Ser Asp His Gln Val Leu Ser Gly Lys
 145 150 155 160
 Thr Thr Thr Thr Asn Ser Lys Arg Glu Glu Lys Leu Phe Asn Val Thr
 165 170 175
 Ser Thr Leu Arg Ile Asn Thr Thr Thr Asn Glu Ile Phe Tyr Cys Thr
 180 185 190
 Phe Arg Arg Leu Asp Pro Glu Glu Asn His Thr Ala Glu Leu Val Ile
 195 200 205
 Pro Glu Leu Pro Leu Ala His Pro Pro Asn Glu Arg Thr Glu Gln Lys
 210 215 220
 Leu Ile Ser Glu Glu Asp Leu Gly Gly Glu Gln Lys Leu Ile Ser Glu
 225 230 235 240
 Glu Asp Leu His His His His His
 245

<210> 346
 <211> 249
 <212> PRT
 <213> Artificial Sequence

<220>

<223> MfPD-L1-MMH

<220>

<223> 1-221:MfPD-L1

<220>

<223> 222-249: myc-myc-hexahistidine tag

<400> 346

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

<210> 347

<211> 448

<212> PRT

<213> Artificial Sequence

<220>

<223> hPD-L1-hFc

<220>

<223> 1-221: aa 19-239 of NP_054862.1

<220>

<223> 222-448: aa 104-330 of P01857

<400> 347

Phe Thr Val Thr Val Pro Lys Asp Leu Tyr Val Val Glu Tyr Gly Ser

1				5					10					15		
Asn	Met	Thr	Ile	Glu	Cys	Lys	Phe	Pro	Val	Glu	Lys	Gln	Leu	Asp	Leu	
			20					25						30		
Ala	Ala	Leu	Ile	Val	Tyr	Trp	Glu	Met	Glu	Asp	Lys	Asn	Ile	Ile	Gln	
		35					40					45				
Phe	Val	His	Gly	Glu	Glu	Asp	Leu	Lys	Val	Gln	His	Ser	Ser	Tyr	Arg	
	50					55					60					
Gln	Arg	Ala	Arg	Leu	Leu	Lys	Asp	Gln	Leu	Ser	Leu	Gly	Asn	Ala	Ala	
65				70						75					80	
Leu	Gln	Ile	Thr	Asp	Val	Lys	Leu	Gln	Asp	Ala	Gly	Val	Tyr	Arg	Cys	
			85						90					95		
Met	Ile	Ser	Tyr	Gly	Gly	Ala	Asp	Tyr	Lys	Arg	Ile	Thr	Val	Lys	Val	
			100					105					110			
Asn	Ala	Pro	Tyr	Asn	Lys	Ile	Asn	Gln	Arg	Ile	Leu	Val	Val	Asp	Pro	
		115					120					125				
Val	Thr	Ser	Glu	His	Glu	Leu	Thr	Cys	Gln	Ala	Glu	Gly	Tyr	Pro	Lys	
	130					135					140					
Ala	Glu	Val	Ile	Trp	Thr	Ser	Ser	Asp	His	Gln	Val	Leu	Ser	Gly	Lys	
145				150						155					160	
Thr	Thr	Thr	Thr	Asn	Ser	Lys	Arg	Glu	Glu	Lys	Leu	Phe	Asn	Val	Thr	
			165					170						175		
Ser	Thr	Leu	Arg	Ile	Asn	Thr	Thr	Thr	Asn	Glu	Ile	Phe	Tyr	Cys	Thr	
			180					185					190			
Phe	Arg	Arg	Leu	Asp	Pro	Glu	Glu	Asn	His	Thr	Ala	Glu	Leu	Val	Ile	
	195						200					205				
Pro	Glu	Leu	Pro	Leu	Ala	His	Pro	Pro	Asn	Glu	Arg	Thr	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	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> 348

<211> 454

<212> PRT
 <213> Artificial Sequence

<220>
 <223> hPD-L1-mFc

<220>
 <223> 1-221: aa 19-239 of NP_054862.1

<220>
 <223> 222-454: aa 98-330 of P01863

<400> 348
 Phe Thr Val Thr Val Pro Lys Asp Leu Tyr Val Val Glu Tyr Gly Ser
 1 5 10 15
 Asn Met Thr Ile Glu Cys Lys Phe Pro Val Glu Lys Gln Leu Asp Leu
 20 25 30
 Ala Ala Leu Ile Val Tyr Trp Glu Met Glu Asp Lys Asn Ile Ile Gln
 35 40 45
 Phe Val His Gly Glu Glu Asp Leu Lys Val Gln His Ser Ser Tyr Arg
 50 55 60
 Gln Arg Ala Arg Leu Leu Lys Asp Gln Leu Ser Leu Gly Asn Ala Ala
 65 70 75 80
 Leu Gln Ile Thr Asp Val Lys Leu Gln Asp Ala Gly Val Tyr Arg Cys
 85 90 95
 Met Ile Ser Tyr Gly Gly Ala Asp Tyr Lys Arg Ile Thr Val Lys Val
 100 105 110
 Asn Ala Pro Tyr Asn Lys Ile Asn Gln Arg Ile Leu Val Val Asp Pro
 115 120 125
 Val Thr Ser Glu His Glu Leu Thr Cys Gln Ala Glu Gly Tyr Pro Lys
 130 135 140
 Ala Glu Val Ile Trp Thr Ser Ser Asp His Gln Val Leu Ser Gly Lys
 145 150 155 160
 Thr Thr Thr Thr Asn Ser Lys Arg Glu Glu Lys Leu Phe Asn Val Thr
 165 170 175
 Ser Thr Leu Arg Ile Asn Thr Thr Thr Asn Glu Ile Phe Tyr Cys Thr
 180 185 190
 Phe Arg Arg Leu Asp Pro Glu Glu Asn His Thr Ala Glu Leu Val Ile
 195 200 205
 Pro Glu Leu Pro Leu Ala His Pro Pro Asn Glu Arg Thr Glu Pro Arg
 210 215 220
 Gly Pro Thr Ile Lys Pro Cys Pro Pro Cys Lys Cys Pro Ala Pro Asn
 225 230 235 240
 Leu Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Ile Lys Asp
 245 250 255
 Val Leu Met Ile Ser Leu Ser Pro Ile Val Thr Cys Val Val Val Asp
 260 265 270
 Val Ser Glu Asp Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn
 275 280 285
 Val Glu Val His Thr Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn
 290 295 300
 Ser Thr Leu Arg Val Val Ser Ala Leu Pro Ile Gln His Gln Asp Trp
 305 310 315 320
 Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro
 325 330 335
 Ala Pro Ile Glu Arg Thr Ile Ser Lys Pro Lys Gly Ser Val Arg Ala
 340 345 350
 Pro Gln Val Tyr Val Leu Pro Pro Pro Glu Glu Glu Met Thr Lys Lys
 355 360 365

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

<210> 349

<211> 379

<212> PRT

<213> Artificial Sequence

<220>

<223> hPD-1-mFc

<220>

<223> 1-146: aa 25-170 of NP_005009.2 with C93S

<220>

<223> 147-379: aa 98-330 of P01863

<400> 349

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

Gln	His	Gln	Asp	Trp	Met	Ser	Gly	Lys	Glu	Phe	Lys	Cys	Lys	Val	Asn	
				245					250					255		
Asn	Lys	Asp	Leu	Pro	Ala	Pro	Ile	Glu	Arg	Thr	Ile	Ser	Lys	Pro	Lys	
			260					265					270			
Gly	Ser	Val	Arg	Ala	Pro	Gln	Val	Tyr	Val	Leu	Pro	Pro	Pro	Glu	Glu	
		275					280					285				
Glu	Met	Thr	Lys	Lys	Gln	Val	Thr	Leu	Thr	Cys	Met	Val	Thr	Asp	Phe	
	290					295					300					
Met	Pro	Glu	Asp	Ile	Tyr	Val	Glu	Trp	Thr	Asn	Asn	Gly	Lys	Thr	Glu	
305					310					315					320	
Leu	Asn	Tyr	Lys	Asn	Thr	Glu	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Tyr	
				325					330					335		
Phe	Met	Tyr	Ser	Lys	Leu	Arg	Val	Glu	Lys	Lys	Asn	Trp	Val	Glu	Arg	
			340				345						350			
Asn	Ser	Tyr	Ser	Cys	Ser	Val	Val	His	Glu	Gly	Leu	His	Asn	His	His	
		355				360						365				
Thr	Thr	Lys	Ser	Phe	Ser	Arg	Thr	Pro	Gly	Lys						
	370					375										

<210> 350

<211> 373

<212> PRT

<213> Artificial Sequence

<220>

<223> hPD-1-hFc

<220>

<223> 1-146: aa 25-170 of NP_005009.2 with C93S

<220>

<223> 147-373: aa 104-330 of P01857

<400> 350

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

Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	
		195					200					205				
Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	
	210					215					220					
Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	
225					230					235					240	
Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	
			245						250					255		
Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	
		260						265					270			
Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	
	275						280					285				
Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	
	290					295				300						
Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	
305					310					315					320	
Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	
				325					330					335		
Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	
		340					345						350			
Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	
	355						360					365				
Leu	Ser	Pro	Gly	Lys												
	370															

<210> 351
 <211> 290
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hPD-L1 NP_054862.1

<400> 351

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

Val	Thr	Ser	Thr	Leu	Arg	Ile	Asn	Thr	Thr	Thr	Asn	Glu	Ile	Phe	Tyr
		195					200					205			
Cys	Thr	Phe	Arg	Arg	Leu	Asp	Pro	Glu	Glu	Asn	His	Thr	Ala	Glu	Leu
		210				215					220				
Val	Ile	Pro	Glu	Leu	Pro	Leu	Ala	His	Pro	Pro	Asn	Glu	Arg	Thr	His
225					230					235					240
Leu	Val	Ile	Leu	Gly	Ala	Ile	Leu	Leu	Cys	Leu	Gly	Val	Ala	Leu	Thr
				245					250					255	
Phe	Ile	Phe	Arg	Leu	Arg	Lys	Gly	Arg	Met	Met	Asp	Val	Lys	Lys	Cys
			260					265					270		
Gly	Ile	Gln	Asp	Thr	Asn	Ser	Lys	Lys	Gln	Ser	Asp	Thr	His	Leu	Glu
		275					280					285			
Glu	Thr														
	290														

<210> 352
 <211> 288
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hPD-1 NP_005009.2

<400> 352

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

Ser Ala Gln Pro Leu Arg Pro Glu Asp Gly His Cys Ser Trp Pro Leu
275 280 285

<210> 353

<211> 454

<212> PRT

<213> Artificial Sequence

<220>

<223> MfPD-L1-mFc

aa1-221: Mf PD-L1 (aa 19-239 of XP_005581836.1)

aa222-454: mFc tag (aa 98-330 of P01863)

<400> 353

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

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