

SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.

<120> Human Antibodies to PD-1

<130> A0028W001

<140> To be assigned

<141> Filed herewith

<150> 61/930,576

<151> 2014-01-23

<150> 62/014,181

<151> 2014-06-19

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acagactccg tgaagggccg gttcacccgtc tccagagaca attccaagaa cacactgtct 240
ctgcaaataga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcag 300
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Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35          40          45
Ser Gly Ile Ser Asp Thr Gly Gly Asn Thr Tyr Tyr Thr Asp Ser Val
 50          55          60
Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Ser
65          70          75          80
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gggacagccc ctaagttcct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagtg gctgtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
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35 40 45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Cys Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
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Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
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Ile Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys

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ccagggaagg ggctggagtg ggtctcagtt atttatagcg gtggtttcac atactacaca 180
gactccgtga agggccgatt caccatctcc agacacaatt ccaagaacac gctgtatctt 240
caaatgaaca gcttgagagc tgaggacacg gccgtgtatt actgtgagag gtattactat 300
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20 25 30
Tyr Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Val Ile Tyr Ser Gly Gly Phe Thr Tyr Tyr Thr Asp Ser Val Lys
50 55 60
Gly Arg Phe Thr Ile Ser Arg His Asn Ser Lys Asn Thr Leu Tyr Leu
65 70 75 80
Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95
Arg Tyr Tyr Tyr Asp Thr Ser Asp Tyr Trp Thr Phe Phe Asp Tyr Trp
100 105 110
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 ggccaggctc ccaggctcct catctatggg gcatccacca gggccactgg tatcccagcc 180
 aggttcagtg gcagtgggtc tgggacagag ttcactctca ccatcagtag cctgcagtct 240
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 20 25 30
 Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
 35 40 45
 Tyr Gly Ala Ser Thr Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Ser
 65 70 75 80
 Gly Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Asn Asn Trp Pro Leu
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Asn
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Gln Gln Tyr Asn Asn Trp Pro Leu Thr
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ccaggaaggg ggctggagtg ggtctcagtt atttatagcg gtggtttcac atactacaca 180
gactccgtga agggccgatt caccatctcc agacacaatt ccaagaacac gctgtatctt 240
caaataaaca gcctgagagc tgaggacacg gccgtgtatt actgtgagag gtattactat 300
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tcctca 366

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

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aggttcagtg	gcagtgggtc	tgggacagag	ttcactctca	ccatcagtag	cctgcagctc	240
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Glu	Arg	Ala	Thr	Leu	Ser	Cys	Arg	Ala	Ser	Gln	Ser	Val	Ser	Ser	Asn
		20						25				30			
Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Arg	Leu	Leu	Ile
		35					40					45			
Tyr	Gly	Ala	Ser	Thr	Arg	Ala	Thr	Gly	Ile	Pro	Ala	Arg	Phe	Ser	Gly
	50					55					60				
Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Ser
65					70					75				80	
Gly	Asp	Phe	Ala	Val	Tyr	Tyr	Cys	Gln	Gln	Tyr	Asn	Asn	Trp	Pro	Leu
				85					90					95	
Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Asn					
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18

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 tcagactccg tgaagggccg attcaccatc tccagagcca attccaagaa cacgctgtat 240
 ctgcaaataga acagcctgag agccgaggac acggctgttt attactgtgc gagaccggga 300
 cactggaact acttctttga atactggggc caggaacccc tggtcaccgt ctcctca 357

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 Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Val Ile Trp Tyr Asp Gly Ser Asn Ile Tyr Tyr Ser Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Ala 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 Pro Gly His Trp Asn Tyr Phe Phe Glu Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ser
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<400> 51
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Gly Phe Thr Phe Ser Ser Tyr Gly
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Ile Trp Tyr Asp Gly Ser Asn Ile
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<212> DNA

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<223> Synthetic

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Ala Arg Pro Gly His Trp Asn Tyr Phe Phe Glu Tyr
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 gggaaagccc ctaagctcct gatctatact gcatccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240
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 caagggacac aactggagat taaa 324

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 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
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 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Asn Asn Tyr
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 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu 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 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
 Leu Thr Phe Gly Gln Gly Thr Gln Leu Glu Ile Lys
 100 105

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Gln Ser Ile Asn Asn Tyr
1 5

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actgcatcc

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Thr Ala Ser
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caacagagtt acagtacccc tccgctcacc

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Gln Gln Ser Tyr Ser Thr Pro Pro Leu Thr
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acaggaaaag gtctggagtg ggtctcagct attggtagtg ctggtgacac atactatcca 180
gactccgtga agggccgatt caccatctcc agagaaaatg ccaagaactc cttgtatctt 240
caaatgaaca gcctgagagt cggggacacg gctgtgtatt actgtacaag agatatccat 300
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Ser Leu Arg Leu Ser Cys Gly Ala Ser Gly Phe Thr Phe Arg Asn Tyr
          20          25          30
Asp Met His Trp Val Arg Gln Ile Thr Gly Lys Gly Leu Glu Trp Val
          35          40          45
Ser Ala Ile Gly Ser Ala Gly Asp Thr Tyr Tyr Pro Asp Ser Val Lys
          50          55          60
Gly Arg Phe Thr Ile Ser Arg Glu Asn Ala Lys Asn Ser Leu Tyr Leu
65          70          75          80
Gln Met Asn Ser Leu Arg Val Gly Asp Thr Ala Val Tyr Tyr Cys Thr
          85          90          95
Arg Asp Ile His Cys Ser Ser Thr Arg Cys Tyr Gly Met Asp Val Trp
          100          105          110
Gly Gln Gly Thr Thr Val Thr Val Ser Ser
          115          120
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24

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Gly Phe Thr Phe Arg Asn Tyr Asp

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<400> 69
attggtagtg ctggtgacac a 21

<210> 70
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 70
Ile Gly Ser Ala Gly Asp Thr
1 5

<210> 71
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 71
acaagagata tccattgtag tagtaccagg tgctacggta tggacgtc 48

<210> 72
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
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<400> 72
Thr Arg Asp Ile His Cys Ser Ser Thr Arg Cys Tyr Gly Met Asp Val
1 5 10 15

<210> 73
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 73
gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
atcacttgcc gggcaagtca gagcattagc aactatttaa 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> 74
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 74
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 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 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> 75
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 75
cagagcatta gcaactat 18

<210> 76
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
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<400> 76
Gln Ser Ile Ser Asn Tyr
1 5

<210> 77
<211> 9

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 77
gctgcatcc

9

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

<220>
<223> Synthetic

<400> 78
Ala Ala Ser
1

<210> 79
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 79
caacagagtt acagtacccc tccgatcacc

30

<210> 80
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
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<400> 80
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 81
<211> 390
<212> DNA
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<220>
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<400> 81
gaggtgcagc tgggtggagtc tggggggaggc ttggtaaagc ctgggggggtc ccttcgactc 60
tcctgtgcag cctctggatt caaattcagt aatgaatgga tgagctgggt cgcgcaggct 120
ccagggaagg ggctggagtg ggttgccgt attaaaagca aaactgatgg tgggacaaca 180
gactacgctg caccctgaa aggcagattc accatctcaa gagatgattc aaaaaatacg 240

ctgtatctgc aaatgaacag cctgaaaacc gaggacacag ccgtgtatta ctgtaccaca 300
 gatcaagatt ttggagtggt ttattatacc ggggctgact actacggtat ggacgtctgg 360
 ggccaaggga ccatggtcac cgtctcctca 390

<210> 82
 <211> 130
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 82
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Lys Phe Ser Asn Glu
 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 Ser 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 Tyr Leu Gln Met Asn Ser Leu Lys Thr Glu Asp Thr Ala Val Tyr
 85 90 95
 Tyr Cys Thr Thr Asp Gln Asp Phe Trp Ser Gly Tyr Tyr Thr Gly Ala
 100 105 110
 Asp Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Met Val Thr Val
 115 120 125
 Ser Ser
 130

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

<220>
 <223> Synthetic

<400> 83
 ggattcaaatt tcagtaatga atgg 24

<210> 84
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 84
 Gly Phe Lys Phe Ser Asn Glu Trp
 1 5

<210> 85
 <211> 30

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 85
 attaaaagca aaactgatgg tgggacaaca 30

 <210> 86
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 86
 Ile Lys Ser Lys Thr Asp Gly Gly Thr Thr
 1 5 10

 <210> 87
 <211> 63
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 87
 accacagatc aagatttttg gagtgggtat tataaccgggg ctgactacta cggtatggac 60
 gtc 63

 <210> 88
 <211> 21
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 88
 Thr Thr Asp Gln Asp Phe Trp Ser Gly Tyr Tyr Thr Gly Ala Asp Tyr
 1 5 10 15
 Tyr Gly Met Asp Val
 20

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

 <220>
 <223> Synthetic

 <400> 89
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60

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atcacttgcc gggcaagtca gagcattagc agctatttta 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

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

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<220>
<223> Synthetic

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<400> 90
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

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<210> 91
<211> 18
<212> DNA
<213> Artificial Sequence

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<220>
<223> Synthetic

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<400> 91
cagagcatta gcagctat                                     18

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

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<220>
<223> Synthetic

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

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<210> 93
<211> 9
<212> DNA
<213> Artificial Sequence

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<220>
<223> Synthetic

<400> 93
gctgcatcc

9

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

<220>
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<400> 94
Ala Ala Ser
1

<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> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 97
cagatgcagc tccaacagtg gggcgcagga ctattgaagc cttcggagac cctgtccctc 60
acctgcgttg tctatgggtg gtccctcaat ggatactatt ggagctggat ccgccagtcc 120
cccgggaagg ggctggagt gattggggaa atcgatcata gtggaagcac caactacaac 180
ccgtccctca agaatcgagt caccatgtca gtagacacgt ctaagattca gttctccctg 240
aaactgacct ctgtgaccgt cgcggacacg gctgtgtatt actgtgagag agaaggatta 300
ttaccctttg actattgggg ccagggaacc ctggtcaccg tctcctca 348

<210> 98
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 98
 Gln Met Gln Leu Gln Gln Trp Gly Ala Gly Leu Leu Lys Pro Ser Glu
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Val Val Tyr Gly Gly Ser Leu Asn Gly Tyr
 20 25 30
 Tyr Trp Ser Trp Ile Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45
 Gly Glu Ile Asp His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
 50 55 60
 Asn Arg Val Thr Met Ser Val Asp Thr Ser Lys Ile Gln Phe Ser Leu
 65 70 75 80
 Lys Leu Thr Ser Val Thr Val Ala Asp Thr Ala Val Tyr Tyr Cys Ala
 85 90 95
 Arg Glu Gly Leu Leu Pro Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

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

<220>
 <223> Synthetic

<400> 99
 ggtgggtccc tcaatggata ctat

24

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

<220>
 <223> Synthetic

<400> 100
 Gly Gly Ser Leu Asn Gly Tyr Tyr
 1 5

<210> 101
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 101
atcgatcata gtggaagcac c 21

<210> 102
<211> 7
<212> PRT
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<220>
<223> Synthetic

<400> 102
Ile Asp His Ser Gly Ser Thr
1 5

<210> 103
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 103
gcgagagaag gattattacc ctttgactat 30

<210> 104
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 104
Ala Arg Glu Gly Leu Leu Pro Phe Asp Tyr
1 5 10

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

<220>
<223> Synthetic

<400> 105
gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagtcacc 60
ctctcctgca gggccagtc gagtggttac agcaactact tagcctggta ccagcagaat 120
cctggccagg ctcccaggct cctcatctat gctgcatcca acagggccac tggcatcca 180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
cctgaagatt ttgcggtgta ttactgtcat cagtatgcta cctcaccttg gacgttcggc 300
caagggacca aggtggaaat caaa 324

<210> 106
<211> 108

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 106
Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15
Glu Arg Val Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Tyr Ser Asn
20 25 30
Tyr Leu Ala Trp Tyr Gln Gln Asn Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45
Ile Tyr Ala Ala Ser Asn 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 Ser Arg Leu Glu
65 70 75 80
Pro Glu Asp Phe Ala Val Tyr Tyr Cys His Gln Tyr Ala Thr Ser Pro
85 90 95
Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 107
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 107
cagagtgttt acagcaacta c

21

<210> 108
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 108
Gln Ser Val Tyr Ser Asn Tyr
1 5

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

<220>
<223> Synthetic

<400> 109
gctgcatcc

9

<210> 110

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

<220>
<223> Synthetic

<400> 110
Ala Ala Ser
1

<210> 111
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 111
catcagtatg ctacctcacc ttggacg

27

<210> 112
<211> 9
<212> PRT
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<220>
<223> Synthetic

<400> 112
His Gln Tyr Ala Thr Ser Pro Trp Thr
1 5

<210> 113
<211> 369
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 113
cagctgcagc tgcaggagtc gggcccagat ctggtgaagc cttcggatac cctgtccctc 60
acctgcaactg tctctgatga ctccatcagc agtactactt actactgggc ctggatccgc 120
cagccccagc ggaaggggct ggaatggatt ggcagtatgt cttataatgg gaacaactac 180
tacaaccogt ccctcaagag tcgagtcgcc atatccgcag gcacgtccca gaaacagttc 240
tccctgaaac tgacctctgt gactgccgca gacacggctg tttatcactg tgcgagacat 300
cttgatata acggcaactg gtaccctttt gacttctggg gccagggaat tctggtcacc 360
gtctcctct 369

<210> 114
<211> 123
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 114

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

<210> 115

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 115

gatgactcca tcagcagtac tacttactac

30

<210> 116

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 116

Asp	Asp	Ser	Ile	Ser	Ser	Thr	Thr	Tyr	Tyr
1				5				10	

<210> 117

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 117

atgtccttata atgggaacaa c

21

<210> 118

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 118

Met Ser Tyr Asn Gly Asn Asn
1 5

<210> 119

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 119

gcgagacatc ttgatataa cggcaactgg taccctttg acttc

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<210> 120

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 120

Ala Arg His Leu Gly Tyr Asn Gly Asn Trp Tyr Pro Phe Asp Phe
1 5 10 15

<210> 121

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 121

gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccaggaga aagagccacc 60
ctctcctgca gggccagtca gagggttagt agtagttatt tagcctggta ccagcagaaa 120
cctggccagg ctcccaggct cctcatctat ggtgcatcca gcaggaccac tggcatccca 180
gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gtcaccttg gacgttcggc 300
caagggacca agtggaat caaa 324

<210> 122

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 122

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

<210> 123
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 123
 cagagtgtta gtagtagtta t

21

<210> 124
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 124
 Gln Ser Val Ser Ser Ser Tyr
 1 5

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

<220>
 <223> Synthetic

<400> 125
 ggtgcatcc

9

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

<220>
 <223> Synthetic

<400> 126
Gly Ala Ser
1

<210> 127
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 127
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27

<210> 128
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 128
Gln Gln Tyr Gly Ser Ser Pro Trp Thr
1 5

<210> 129
<211> 366
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 129
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tcctgtaaag cctctggatt cacctttgat gattatgcc a tgcactgggt ccgacaaact 120
ccagggaagg ccttgagtg ggtctcgggt attaatgga gtggtataa cataggctat 180
gcggactctg tgaagggccg attcaccatc tccaaggacg acgccaagaa ctccctgtat 240
ctgcaaatga acagtctgag acctgaggac acggccttat attactgtac aaaagatata 300
agtataactg gaaccctcga tgcttttgat gtctggggcc aagggacaat ggtcaccgctc 360
tcttca 366

<210> 130
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 130
Glu Val Gln Val Val Glu Ser Gly Gly Gly Leu Val Glu Pro Gly Arg
1 5 10 15
Ser Leu Arg Leu Ser Cys Lys Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20 25 30

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

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

<220>
 <223> Synthetic

<400> 131
 ggattcacct ttgatgatta tgcc

24

<210> 132
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 132
 Gly Phe Thr Phe Asp Asp Tyr Ala
 1 5

<210> 133
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 133
 attaattgga gtggaataa cata

24

<210> 134
 <211> 8
 <212> PRT
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<220>
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<400> 134
 Ile Asn Trp Ser Gly Asn Asn Ile

1

5

<210> 135

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 135

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<210> 136

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 136

Thr	Lys	Asp	Ile	Ser	Ile	Thr	Gly	Thr	Leu	Asp	Ala	Phe	Asp	Val
1				5					10					15

<210> 137

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 137

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gggatagccc	ctaaactcct	gatctattct	gcatccagtt	tacaaagtgg	gggcccatca	180
aggttcagag	gcagtggatc	tgggacagac	ttcactctca	ccatcggcag	cctgcagcct	240
gaagattttg	caacttacta	ttgtcaacag	gtcacagtt	tcccgctcac	tttcggcgga	300
gggaccaagg	tgagatcaa	a				321

<210> 138

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 138

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

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

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<220>
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<210> 140
 <211> 6
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 <213> Artificial Sequence

<220>
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<400> 140
 Gln Gly Ile Ser Asn Trp
 1 5

<210> 141
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<220>
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<400> 141
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<210> 142
 <211> 3
 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 142
 Ser Ala Ser
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<210> 143
 <211> 27

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 143
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27

<210> 144
 <211> 9
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<400> 144
 Gln Gln Ala His Ser Phe Pro Leu Thr
 1 5

<210> 145
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 ccaggcaagg ggctggagtg ggtggcaatt atatgggtctg atggagatag tgaatataat 180
 ctagactccg taaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240
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 gaccttgagg atatctgggg ccaagggaca atggtcaccg tctcttca 348

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<220>
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 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
 Ala Ile Ile Trp Ser Asp Gly Asp Ser Glu Tyr Asn Leu 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 Val Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Asp Arg Asp Leu Glu Asp Ile Trp Gly Gln Gly Thr Met Val
100 105 110
Thr Val Ser Ser
115

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<220>
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<400> 147
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24

<210> 148
<211> 8
<212> PRT
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<220>
<223> Synthetic

<400> 148
Gly Phe Thr Phe Ser Ser Tyr Gly
1 5

<210> 149
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 149
atatggtctg atggagatag tgaa

24

<210> 150
<211> 8
<212> PRT
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<220>
<223> Synthetic

<400> 150
Ile Trp Ser Asp Gly Asp Ser Glu
1 5

<210> 151
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
 <223> Synthetic

<400> 151
 gcgagagatc gagaccttga ggatatc 27

<210> 152
 <211> 9
 <212> PRT
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<220>
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<400> 152
 Ala Arg Asp Arg Asp Leu Glu Asp Ile
 1 5

<210> 153
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<220>
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 gggaaagccc ctaagcgctt gatctatgct gcatccaatt tgcaaagtgg ggtcccatca 180
 aggttcagcg gcagtggatc tgggacagag ttcaactctca caatcagcag cctgcagcct 240
 gaagattttg caacttatta ctgtctacag cataatagtt atccgctcac tttcggcgga 300
 gggaccaagg ttgagatcaa a 321

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 <212> PRT
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<220>
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<400> 154
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 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 Asn 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 Leu
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 155
<211> 18
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<220>
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<400> 155
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18

<210> 156
<211> 6
<212> PRT
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<220>
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<400> 156
Gln Gly Ile Arg Asn Asp
1 5

<210> 157
<211> 9
<212> DNA
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<220>
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<400> 157
gctgcatcc

9

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

<210> 159
<211> 27
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<400> 159
ctacagcata atagttatcc gctcact

27

<210> 160
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 <400> 160
 Leu Gln His Asn Ser Tyr Pro Leu Thr
 1 5

<210> 161
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 <212> DNA
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<220>
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 ccaggaagg gactggagt ggtctcaggt attagtgggt gcggtcgtga cacatacttc 180
 gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa tacgttgtat 240
 ctacagatga acagcctgaa aggcgaggac acggccgtat attactgtgt gaagtgggga 300
 aatatttact ttgactactg gggccaggga accctgggtca ccgtctcatc a 351

<210> 162
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

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

<210> 163
 <211> 24

<212> DNA
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 <220>
 <223> Synthetic

 <400> 163
 ggattcacct ttagtaattt tggc 24

 <210> 164
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 <212> PRT
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 <220>
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 <400> 164
 Gly Phe Thr Phe Ser Asn Phe Gly
 1 5

 <210> 165
 <211> 24
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 <220>
 <223> Synthetic

 <400> 165
 attagtggtg gcggtcgtga caca 24

 <210> 166
 <211> 8
 <212> PRT
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 <220>
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 <400> 166
 Ile Ser Gly Gly Gly Arg Asp Thr
 1 5

 <210> 167
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 167
 gtgaagtggg gaaatattta ctttgactac 30

 <210> 168
 <211> 10

<212> PRT
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<220>
<223> Synthetic

<400> 168
Val Lys Trp Gly Asn Ile Tyr Phe Asp Tyr
1 5 10

<210> 169
<211> 321
<212> DNA
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<220>
<223> Synthetic

<400> 169
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gggaaagccc ctaacctcct gatctatgct gcgtccagtt tacatgggtgg ggtcccatca 180
aggttcagtg gcagcggctc tgggacagat ttcactctca ccatcagaac tcttcaacct 240
gaagattttg caacttacta ctgtcaacag agttccaata cccattcac tttcggccct 300
gggaccgtag tggatttcag a 321

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

<220>
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<400> 170
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Ser Ile Thr Ile Thr Cys Arg Ala Ser Leu Ser Ile Asn Thr Phe
20 25 30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Asn Leu Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu His Gly Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Arg Thr Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Asn Thr Pro Phe
85 90 95
Thr Phe Gly Pro Gly Thr Val Val Asp Phe Arg
100 105

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

<220>
<223> Synthetic

<400> 171
ctgtccatta acaccttt 18

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

<220>
<223> Synthetic

<400> 172
Leu Ser Ile Asn Thr Phe
1 5

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

<220>
<223> Synthetic

<400> 173
gctgcgtcc 9

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

<220>
<223> Synthetic

<400> 174
Ala Ala Ser
1

<210> 175
<211> 27
<212> DNA
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<220>
<223> Synthetic

<400> 175
caacagagtt ccaatacccc attcact 27

<210> 176
<211> 9
<212> PRT
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<220>
<223> Synthetic

<400> 176
 Gln Gln Ser Ser Asn Thr Pro Phe Thr
 1 5

<210> 177
 <211> 363
 <212> DNA
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<220>
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 tcctgtgcag cctctggatt cacttttgat gactatggca tgagttgggt cgcgccaagtt 120
 ccaggggaagg ggctggagtg ggtctcaggt attagttgga atgatggtaa gacagtttat 180
 gcagagtctg tgaagggccg attcatcatc tccagagaca acgccaagaa ctccctgtat 240
 ctggaaatga atagtctgag agccgaggac acggccttat attactgtgc gagagattgg 300
 cagtacttga tagagcggta ctttgactac tggggccagg gaaccctggt caccgtctcc 360
 tca 363

<210> 178
 <211> 121
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 178
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 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 Ser Trp Val Arg Gln Val Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Gly Ile Ser Trp Asn Asp Gly Lys Thr Val Tyr Ala Glu Ser Val
 50 55 60
 Lys Gly Arg Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
 65 70 75 80
 Leu Glu Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Trp Gln Tyr Leu Ile Glu Arg Tyr Phe Asp Tyr Trp Gly
 100 105 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

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

<220>
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<400> 179

ggattcactt ttgatgacta tggc

24

<210> 180

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 180

Gly Phe Thr Phe Asp Asp Tyr Gly
1 5

<210> 181

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 181

attagttgga atgatggtaa gaca

24

<210> 182

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 182

Ile Ser Trp Asn Asp Gly Lys Thr
1 5

<210> 183

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 183

gcgagagatt ggcagtactt gatagagcgg tactttgact ac

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<210> 184

<211> 14

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<220>

<223> Synthetic

<400> 184

Ala Arg Asp Trp Gln Tyr Leu Ile Glu Arg Tyr Phe Asp Tyr
 1 5 10

<210> 185
 <211> 324
 <212> DNA
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<220>
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<400> 185
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 ttgtcatgta gagcaagtca gtcagtctct agctcttata tcgcctggta ccagcagaag 120
 cccgggacagg cccctagact gctgatctac ggggcaagtt ccagggccac cggaatcccc 180
 gaccgggttca gtggaagcgg aagcggaacc gattttactt tgacgatttc tagactggag 240
 ccagaggatt tcgccgttta ctattgtcaa cagtacggaa gcagcccgtg gacgtttggc 300
 cagggcacga aggtagaaat caag 324

<210> 186
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 186
 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 Val Ser Ser
 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 Ser Arg Leu Glu
 65 70 75 80
 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
 85 90 95
 Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 187
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 187
 cagtcagtct ctagctctta t

21

<210> 188
 <211> 7
 <212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 188

Gln Ser Val Ser Ser Ser Tyr
1 5

<210> 189

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 189

ggggcaagt

9

<210> 190

<211> 3

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 190

Gly Ala Ser
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<210> 191

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 191

caacagtacg gaagcagccc gtggacg

27

<210> 192

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<213> Artificial Sequence

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<223> Synthetic

<400> 192

Gln Gln Tyr Gly Ser Ser Pro Trp Thr
1 5

<210> 193

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

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 <223> Synthetic

 <400> 193
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 tcctgtacag cctctggatt cacctttgat gattatggca tgagctgggt cgcgccaagct 120
 ccagggaagg ggctggagtg gatctctggt attgggttga ctgggtggtcg gtcaagttat 180
 gcagactctg tgagggggccg attcaccatc tccagagaca acgccaagaa ttccctgtat 240
 ctgcaaatga acagtctggg agccgaggac acggccttgt attattgtgc aagagatcgg 300
 cagtggctgg tgcagtggta ctttgactac tggggccagg gaaccctggt caccgtctcc 360
 tca 363

<210> 194
 <211> 121
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 194
 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 Thr Ala Ser Gly Phe Thr Phe Asp Asp Tyr
 20 25 30
 Gly Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Ile
 35 40 45
 Ser Gly Ile Gly Trp Thr Gly Gly Arg Ser Ser 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 Gly Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Arg Asp Arg Gln Trp Leu Val Gln Trp Tyr Phe Asp Tyr Trp Gly
 100 105 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 195
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 195
 ggattcacct ttgatgatta tggc 24

<210> 196
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 <212> PRT
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<220>
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 <400> 196
 Gly Phe Thr Phe Asp Asp Tyr Gly
 1 5

<210> 197
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 197
 attggttgga ctggtggtcg gtca

24

<210> 198
 <211> 8
 <212> PRT
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<220>
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<400> 198
 Ile Gly Trp Thr Gly Gly Arg Ser
 1 5

<210> 199
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 199
 gcaagagatc ggcagtggct ggtgcagtgg tactttgact ac

42

<210> 200
 <211> 14
 <212> PRT
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<220>
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<400> 200
 Ala Arg Asp Arg Gln Trp Leu Val Gln Trp Tyr Phe Asp Tyr
 1 5 10

<210> 201
 <211> 324
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 201

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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
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<210> 202

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 202

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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
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<210> 203

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 203

cagagcatta gcagctat 18

<210> 204

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 204

Gln Ser Ile Ser Ser Tyr

1

5

<210> 205
<211> 9
<212> DNA
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<220>
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<400> 205
gctgcatcc

9

<210> 206
<211> 3
<212> PRT
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<400> 206
Ala Ala Ser
1

<210> 207
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 207
caacagagtt acagtacccc tccgatcacc

30

<210> 208
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 208
Gln Gln Ser Tyr Ser Thr Pro Pro Ile Thr
1 5 10

<210> 209
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
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<400> 209
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tcctgtgcag cctctggatt cacttttgat gactatggca tgagttgggt ccgccaactt 120
ccaggggaagg gcctggagtg ggtcgcaggt attagttgga atgatggtaa gacagtttat 180
gcagagtctg tgaagggccg attcatcatc tccagagaca acgccaagaa ctccctgcat 240
ctggagatga acagtctgag agccgaggac acggccttat attactgtgc gcgagattgg 300
caatacttaa tagatcgta ctttgacttc tggggtcagg gaaccctggt caccgtctcc 360
tca 363

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

<220>
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<400> 210
Glu Val Gln Leu Val Glu Ser Gly Gly Arg 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 Ser Trp Val Arg Gln Leu Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Gly Ile Ser Trp Asn Asp Gly Lys Thr Val Tyr Ala Glu Ser Val
50 55 60
Lys Gly Arg Phe Ile Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu His
65 70 75 80
Leu Glu Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Leu Tyr Tyr Cys
85 90 95
Ala Arg Asp Trp Gln Tyr Leu Ile Asp Arg Tyr Phe Asp Phe Trp Gly
100 105 110
Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

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

<220>
<223> Synthetic

<400> 211
ggattcactt ttgatgacta tggc 24

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

<220>
<223> Synthetic

<400> 212
Gly Phe Thr Phe Asp Asp Tyr Gly
1 5

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

<220>
<223> Synthetic

<400> 213
attagttgga atgatggtaa gaca 24

<210> 214
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 214
Ile Ser Trp Asn Asp Gly Lys Thr
1 5

<210> 215
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 215
gcgcgagatt ggcaatactt aatagatcgt tactttgact tc 42

<210> 216
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 216
Ala Arg Asp Trp Gln Tyr Leu Ile Asp Arg Tyr Phe Asp Phe
1 5 10

<210> 217
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 217
gaagtgcagc tgggtggagtc tgggggaggc ttggtgcagc ctggcgggtc cctgagactc 60

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tcctgtgcag cctctggatt cacctttgat gattatgcc a tgcactgggt cgggcaagct 120
ccaggggaagg gcctggagtg ggtctcaggt attgggttga gtagtggtag cataggctat 180
gcggaactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctccttgtat 240
ctgcaaattgg acagtctgag acctgaggac tcagccttat attactgtgc aaaagcctat 300
acatttatga ttaccctcta ctttgactac tggggccagg gaaccctggt caccgtctcc 360
tca 363

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<210> 218
<211> 121
<212> PRT
<213> Artificial Sequence

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<220>
<223> Synthetic

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<400> 218
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1      5      10      15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
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 Gly Trp Ser Ser Gly Ser 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 Asp Ser Leu Arg Pro Glu Asp Ser Ala Leu Tyr Tyr Cys
85      90      95
Ala Lys Ala Tyr Thr Phe Met Ile Thr Leu 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> 219
<211> 24
<212> DNA
<213> Artificial Sequence

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<220>
<223> Synthetic

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<400> 219
ggattcacct ttgatgatta tgcc 24

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

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<220>
<223> Synthetic

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<400> 220
Gly Phe Thr Phe Asp Asp Tyr Ala
1      5

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<210> 221

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

 <220>
 <223> Synthetic

 <400> 221
 attggttgga gtagtggtag cata 24

 <210> 222
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 222
 Ile Gly Trp Ser Ser Gly Ser Ile
 1 5

 <210> 223
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 223
 gcaaaagcct atacatttat gattaccctc tacttttgact ac 42

 <210> 224
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 224
 Ala Lys Ala Tyr Thr Phe Met Ile Thr Leu Tyr Phe Asp Tyr
 1 5 10

 <210> 225
 <211> 363
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 225
 gaagtgcagc tgggtggagtc tgggggaggc ttggtacagc ctggcaggct cctgagactc 60
 tcctgtgcag cctctggatt cacctttgat gattatgaca tgcactgggt ccggcaagct 120
 ccagggaagg gcctggagtg ggtgtcaggg agtggttgga ataggggtag tttaggctat 180

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gcggtattctg tgaagggccg attcaccatc tccagagaca acgccaagaa gtccctgtat 240
ctgcaaataga acagtgtgag agttgaggac acggccttgt attactgtgc aaaaggcttt 300
gtagtggat cagctgctta ctttgactac tggggccagg gaaccctggt caccgtctcc 360
tca 363

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<210> 226
<211> 121
<212> PRT
<213> Artificial Sequence

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<220>
<223> Synthetic

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<400> 226
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
1      5      10
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asp Asp Tyr
20      25      30
Asp Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35      40      45
Ser Gly Ser Gly Trp Asn Arg Gly Ser Leu 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 Val Arg Val Glu Asp Thr Ala Leu Tyr Tyr Cys
85      90      95
Ala Lys Gly Phe Val Val Val Ser Ala Ala 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> 227
<211> 24
<212> DNA
<213> Artificial Sequence

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<220>
<223> Synthetic

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<400> 227
ggattcacct ttgatgatta tgac 24

```

```

<210> 228
<211> 8
<212> PRT
<213> Artificial Sequence

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<220>
<223> Synthetic

```

```

<400> 228
Gly Phe Thr Phe Asp Asp Tyr Asp
1      5

```

```

<210> 229
<211> 24
<212> DNA

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<213> Artificial Sequence

<220>

<223> Synthetic

<400> 229

agtgggttggga ataggggtag tttta

24

<210> 230

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 230

Ser Gly Trp Asn Arg Gly Ser Leu

1

5

<210> 231

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 231

gcaaaaggct ttgtagtggt atcagctgct tacttttgact ac

42

<210> 232

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 232

Ala Lys Gly Phe Val Val Val Ser Ala Ala Tyr Phe Asp Tyr

1

5

10

<210> 233

<211> 363

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 233

cagggtgcagc tgggtgcagtc tggggctgag gtgaagaggc ctgggtcctc ggtgaaggtc 60
tcctgcaagg tatctggagt caccttcagg aattttgcta tcatctgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagga atcatccctt tctttagtgc agcaaattac 180
gcacagagct tccagggcag agtcacgatt accccggacg aatccacgag cacagccttc 240
atggagctgg ccagtctgag atctgaggac acggccgttt attattgtgc gagagagggg 300

gaacgtggac acacctatgg gtttgactac tggggccagg gaaccctggt caccgtctcc 360
tca 363

<210> 234
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 234
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Arg Pro Gly Ser
1 5 10 15
Ser Val Lys Val Ser Cys Lys Val Ser Gly Val Thr Phe Arg Asn Phe
20 25 30
Ala Ile Ile Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Gly Ile Ile Pro Phe Phe Ser Ala Ala Asn Tyr Ala Gln Ser Phe
50 55 60
Gln Gly Arg Val Thr Ile Thr Pro Asp Glu Ser Thr Ser Thr Ala Phe
65 70 75 80
Met Glu Leu Ala Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Glu Gly Glu Arg Gly His Thr Tyr Gly Phe Asp Tyr Trp Gly
100 105 110
Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

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

<220>
<223> Synthetic

<400> 235
ggagtcacct tcaggaattt tgct 24

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

<220>
<223> Synthetic

<400> 236
Gly Val Thr Phe Arg Asn Phe Ala
1 5

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

<220>
 <223> Synthetic

 <400> 237
 atcatccctt tcttttagtgc agca 24

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

 <220>
 <223> Synthetic

 <400> 238
 Ile Ile Pro Phe Phe Ser Ala Ala
 1 5

 <210> 239
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 239
 gcgagagagg gggaacgtgg acacacctat gggtttgact ac 42

 <210> 240
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 240
 Ala Arg Glu Gly Glu Arg Gly His Thr Tyr Gly Phe Asp Tyr
 1 5 10

 <210> 241
 <211> 363
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 241
 gaagtgcagc tgggtggagtc tggggggaggc ttggtacagt ctggcaggtc cctgagactc 60
 tcctgtgcag cctctggatt cacctttgat gattatgcca tgcactgggt ccgacaacct 120
 ccagggaagg gcctggaatg ggtctcaggt attaactgga atagaggtag gacaggctat 180
 gcggaactctg tgaagggccg attcaccatc tccagagaca acgccaagaa ctccctgtat 240
 ctgcaaatga acgatctgag agttgaggat acggccttgt attactgtgc aaaagccgaa 300
 cagtggctgg acgagggata ctttgactac tggggccagg gaaccctggt caccgtctcc 360
 tca 363

<210> 242
 <211> 121
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 242
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Ser 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 Met His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Gly Ile Asn Trp Asn Arg Gly Arg 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 Asp Leu Arg Val Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95
 Ala Lys Ala Glu Gln Trp Leu Asp Glu Gly Tyr Phe Asp Tyr Trp Gly
 100 105 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

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

<220>
 <223> Synthetic

<400> 243
 ggattcacct ttgatgatta tgcc

24

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

<220>
 <223> Synthetic

<400> 244
 Gly Phe Thr Phe Asp Asp Tyr Ala
 1 5

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

<220>
 <223> Synthetic

<400> 245
attaactgga atagaggtag gaca 24

<210> 246
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 246
Ile Asn Trp Asn Arg Gly Arg Thr
1 5

<210> 247
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 247
gcaaaagccg aacagtggct ggacgagggga tactttgact ac 42

<210> 248
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 248
Ala Lys Ala Glu Gln Trp Leu Asp Glu Gly Tyr Phe Asp Tyr
1 5 10

<210> 249
<211> 363
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 249
gaggtgcagc tgggtggagtc tggggggaggc ttggtgcagc gggggggggtc cctgagactc 60
tcctgtgcag cctctggatt cagctttagc agctatgcca tgaactgggt ccgccaggct 120
ccagggaagg ggctggagtg ggtctcaact attagtata gtggtggtag tacatactac 180
gcagactccg tgaagggccg gttcaccatt tccagagaca attccaagaa cacgctgtct 240
ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatcag 300
ggtgggagtt acccctacta ctttcactac tgggggccagg gaaccctggc caccgtctcc 360
tca 363

<210> 250

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

 <220>
 <223> Synthetic

 <400> 250
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Arg Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Ser Ser Tyr
 20 25 30
 Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Thr Ile Ser Asp Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Ser
 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 Gln Gly Gly Ser Tyr Pro Tyr Tyr Phe His Tyr Trp Gly
 100 105 110
 Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 251
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 251
 ggattcagct ttagcagcta tgcc

24

<210> 252
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 252
 Gly Phe Ser Phe Ser Ser Tyr Ala
 1 5

<210> 253
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 253

attagtgata gtggtggtag taca

24

<210> 254

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 254

Ile Ser Asp Ser Gly Gly Ser Thr

1

5

<210> 255

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 255

gcgaaagatc aggggtgggag ttaccctac tactttcact ac

42

<210> 256

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 256

Ala Lys Asp Gln Gly Gly Ser Tyr Pro Tyr Tyr Phe His Tyr

1

5

10

<210> 257

<211> 363

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 257

gaagtgcagc tgggtggagtc tggggggaggc ttggtacagc ctggcaggct cctgagactc 60
tcctgtgcag cctctggatt cacctttgag gattatgcc tgcactgggt ccggcaagct 120
ccagggaagg gcctggagtg ggtctcaggt attggttga gtaatgtaaa gataggctat 180
gcggactctg tgaagggccg attcaccatc tccagagaca atgtcaggaa ctccctatat 240
ctgcaaataa acagtctgag aactgaggac acggccttct attactgtgt aaaagcctat 300
acatctatgc ttaccctcta ctttgactat tgggggccagg gaaccctgggt caccgtctcc 360
tca 363

<210> 258

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 258

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

<210> 259

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 259

ggattcacct ttgaggatta tgcc

24

<210> 260

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 260

Gly	Phe	Thr	Phe	Glu	Asp	Tyr	Ala
1				5			

<210> 261

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 261

attggttgga gtaatgtaaa gata

24

<210> 262
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 262
Ile Gly Trp Ser Asn Val Lys Ile
1 5

<210> 263
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 263
gtaaaagcct atacatctat gcttaccctc tacttttgact at 42

<210> 264
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 264
Val Lys Ala Tyr Thr Ser Met Leu Thr Leu Tyr Phe Asp Tyr
1 5 10

<210> 265
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 265
caggtgcagc tgggtgcagtc tggggctgag gtgaagaggc ctggggcctc agtgaagggtt 60
tcctgcaagg catctggata caccttcacc agcttctata tgtactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggaata atcaacccta gtgatggtag cacaagcaac 180
gcacagaagt tccagggcag agtcaccatg accagggaca cgtccacgag tacagtctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagacgggtg 300
gctgggggata tttttgatat ctgggggcaa gggacaatgg tcaccgtctc ttca 354

<210> 266
<211> 118
<212> PRT
<213> Artificial Sequence

<220>

<400>	266
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Arg Pro Gly Ala	
1	5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Phe	
	20 25 30
Tyr Met Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met	
	35 40 45
Gly Ile Ile Asn Pro Ser Asp Gly Ser Thr Ser Asn Ala Gln Lys Phe	
	50 55 60
Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr	
65	70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys	
	85 90 95
Ala Arg Arg Val Ala Gly Asp Ile Phe Asp Ile Trp Gly Gln Gly Thr	
	100 105 110
Met Val Thr Val Ser Ser	
	115

<220>
<223> Synthetic

24

<220>
<223> Synthetic

<220>
<223> Synthetic

24

66

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 270

Ile Asn Pro Ser Asp Gly Ser Thr
1 5

<210> 271

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 271

gcgagacggg tggctgggga tatttttgat atc 33

<210> 272

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 272

Ala Arg Arg Val Ala Gly Asp Ile Phe Asp Ile
1 5 10

<210> 273

<211> 357

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 273

caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt agttaccact ggaactggat ccggcagagt 120
ccagggaagg gactggaatg gattggatat atctattata ttgggagcac cgactataat 180
ccctccctcg agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
aagctgagtt ctgtgaccgc tgcggacacg gccgtgtatt actgtgagag agtccccgtg 300
ggagctacag gggcttctga tgtctggggc caagggacaa tggtcaccgt ctcttca 357

<210> 274

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 274

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

<210> 275
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 275
 ggtggctcca tcagtagtta ccac

24

<210> 276
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 276
 Gly Gly Ser Ile Ser Ser Tyr His
 1 5

<210> 277
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 277
 atctattata ttgggagcac c

21

<210> 278
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 278

Ile Tyr Tyr Ile Gly Ser Thr
1 5

<210> 279

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 279

gcgagagtcc ccgtgggagc tacaggggct tctgatgtc 39

<210> 280

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 280

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

<210> 281

<211> 363

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 281

gaggtgcagc tgggtggagtc tgggggaagt gtggttcgac ctgggggggtc cctgagactc 60
tctgtgtag tctctggatt cacctttgag gattatgggt tgagctgggt ccgccaaatt 120
ccagggaaag gactggagtg ggtctctggt attagtggga ctggtggtaa cacaggttat 180
gcagactctg tgaagggccg cttcaccatc tccagagaca acgccaagaa ctccctgtat 240
ctgcaaatga acagtctgag agccgaagac acggccctgt atcactgtac gagagatcga 300
cagtggctga tgcagtggta ttttgactat tggggccagg gaaccctggt caccgtctcc 360
tca 363

<210> 282

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 282

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

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

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

<220>
 <223> Synthetic

<400> 283
 ggattcacct ttgaggatta tggt

24

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

<220>
 <223> Synthetic

<400> 284
 Gly Phe Thr Phe Glu Asp Tyr Gly
 1 5

<210> 285
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 285
 attagttgga ctggtggtaa caca

24

<210> 286
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 286
 Ile Ser Trp Thr Gly Gly Asn Thr
 1 5

<210> 287
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 287
 acgagagatc gacagtggct gatgcagtgg tatttttgact at 42

<210> 288
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 288
 Thr Arg Asp Arg Gln Trp Leu Met Gln Trp Tyr Phe Asp Tyr
 1 5 10

<210> 289
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 289
 caggtgcagc tgggtggagtc tggggggaggc gtggtccagc ctgggaggtc cctgagactc 60
 tctgtttcag cctctggatt caccttcagt gcctatgcc a tgcactgggt ccgccaggct 120
 ccaggcaagg ggctggaatg ggtggcagct atctcatatg gtggaagtga taaatactat 180
 gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctatat 240
 ctgcaaatga acagcctgag aactgacgac acggctgtgt attactgtgc gaaatccgct 300
 cactggaact tcttctttga ctactggggc caggggaaccc tggtcactgt ctctca 357

<210> 290
 <211> 119
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 290
 Gln 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 Ser Ala Ser Gly Phe Thr Phe Ser Ala Tyr
 20 25 30
 Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val

35 40 45
 Ala Ala Ile Ser Tyr Gly Gly Ser Asp 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 Thr Asp Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Ala Lys Ser Ala His Trp Asn Phe Phe Phe Asp Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ser
 115

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

<220>
 <223> Synthetic

<400> 291
 ggattcacct tcagtgccta tgcc

24

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

<220>
 <223> Synthetic

<400> 292
 Gly Phe Thr Phe Ser Ala Tyr Ala
 1 5

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

<220>
 <223> Synthetic

<400> 293
 atctcatatg gtggaagtga taaa

24

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

<220>
 <223> Synthetic

<400> 294
 Ile Ser Tyr Gly Gly Ser Asp Lys
 1 5

<210> 295
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 295
 gcgaaatccg ctccactggaa cttcttcttt gactac 36

<210> 296
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 296
 Ala Lys Ser Ala His Trp Asn Phe Phe Phe Asp Tyr
 1 5 10

<210> 297
 <211> 363
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 297
 gaagtgcagc tgggtggagtc tggggggaggc ttggtacagc ctggcaggtc cctgagactc 60
 tcctgtgtag cctctggatt cgcccttcat gattatgcca tgcactgggt ccggcaagtt 120
 ccagggaagg gcctggagtg ggtctcaagt attagtggga atagtgggtg cataggctat 180
 gcggactctc tgaagggccg cttcaccatc tccagagaca acgccaagaa ctccctgtat 240
 ctgcaaataga acagtctgag agcagaggac acggccttat actactgtgc aaaaggtagt 300
 gggagctact acgtcagttg gttcgacccc tggggccagg gaaccctggt caccgtctcc 360
 tca 363

<210> 298
 <211> 121
 <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 Arg
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe Ala Leu His Asp Tyr
 20 25 30
 Ala Met His Trp Val Arg Gln Val Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Ser Ile Ser Trp Asn Ser Gly Val Ile Gly Tyr Ala Asp Ser Leu

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	Lys	Gly	Ser	Gly	Ser	Tyr	Tyr	Val	Ser	Trp	Phe	Asp	Pro	Trp	Gly
			100					105					110		
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser							
		115					120								

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

<220>
 <223> Synthetic

<400> 299
 ggattcgccc ttcattgatta tgcc 24

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

<220>
 <223> Synthetic

<400> 300
 Gly Phe Ala Leu His Asp Tyr Ala
 1 5

<210> 301
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 301
 attagttgga atagtgggtgt cata 24

<210> 302
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 302
 Ile Ser Trp Asn Ser Gly Val Ile
 1 5

<210> 303
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 303
 gcaaaaggta gtgggagcta ctacgtcagt tggttcgacc cc 42

<210> 304
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 304
 Ala Lys Gly Ser Gly Ser Tyr Tyr Val Ser Trp Phe Asp Pro
 1 5 10

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

<220>
 <223> Synthetic

<400> 305
 cagctgcagc tgcaggagtc gggcccagga ctggttcagc cttcggagac cctgtccctc 60
 acctgcactg tctctggtga ctccatcagt agtactgctt accactggga ctggatccgc 120
 cagccccccg ggaagggact ggagtggatt gggaccatca cttataatgg gaacacctac 180
 ttcaaccogt cctcaagag tcgagtcacc atatccgttg acacgtccaa gaaccagttc 240
 tccctgaagc tactctctat gaccgccgca gaaacggctg ttttttactg tgcgcgacat 300
 ctaggatata acagtgactt ctttcccttt gacttctggg gccagggaac cctggtcact 360
 gtctcctca 369

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

<220>
 <223> Synthetic

<400> 306
 Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Gln Pro Ser Glu
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Asp Ser Ile Ser Ser Thr
 20 25 30
 Ala Tyr His Trp Asp Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
 35 40 45
 Trp Ile Gly Thr Ile Thr Tyr Asn Gly Asn Thr Tyr Phe Asn Pro Ser
 50 55 60
 Leu Lys Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe

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

<210> 307
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 307
 ggtgactcca tcagtagtac tgcttaccac 30

<210> 308
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 308
 Gly Asp Ser Ile Ser Ser Thr Ala Tyr His
 1 5 10

<210> 309
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 309
 atcacttata atgggaacac c 21

<210> 310
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 310
 Ile Thr Tyr Asn Gly Asn Thr
 1 5

<210> 311
 <211> 45

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 311
 gcgcgacatc taggatataa cagtgacttc tttccctttg acttc 45

 <210> 312
 <211> 15
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 312
 Ala Arg His Leu Gly Tyr Asn Ser Asp Phe Phe Pro Phe Asp Phe
 1 5 10 15

 <210> 313
 <211> 357
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 313
 gaggtgcagc tgggtggagtc tggggggaggc ctggtacggc cggggggggtc cctgagactc 60
 tcctgtgcag cctctggatt cacctttagc acctatgcc a tggcctgggt ccgccagact 120
 ccaggaagg ggctggagg ggtctcagct attgggggta gtggtgatag tacctattat 180
 gtcgactccg tgaagggccg gttcaccatc tccagggaca actccaagag cacgcttttt 240
 ctgcaaata atagcctgag agccgaggac acggccggtt attactgtgt gaaagtcccg 300
 aattacgacg gttcttttga tatctggggc caagggacaa tggtcaccgt ctcttca 357

 <210> 314
 <211> 119
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Synthetic

 <400> 314
 Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Arg Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr
 20 25 30
 Ala Met Ala Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Gly Val
 35 40 45
 Ser Ala Ile Gly Gly Ser Gly Asp Ser Thr Tyr Tyr Val Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ser Thr Leu Phe
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

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

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

<220>
 <223> Synthetic

<400> 315
 ggattcacct ttagcaccta tgcc

24

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

<220>
 <223> Synthetic

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

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

<220>
 <223> Synthetic

<400> 317
 attgggggta gtggtgatag tacc

24

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

<220>
 <223> Synthetic

<400> 318
 Ile Gly Gly Ser Gly Asp Ser Thr
 1 5

<210> 319
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 319
 gtgaaagtcc ggaattacga cggttctttt gatatc

<210> 320
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic

<400> 320
 Val Lys Val Arg Asn Tyr Asp Gly Ser Phe Asp Ile
 1 5 10

<210> 321
 <211> 174
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hPD-1-MMH

<220>
 <223> 1-146: aa 25-170 of NP_005009.2 with C93S

<220>
 <223> 147-174: myc-myc-hexahistidine

<400> 321
 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 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 Gln Lys Leu Ile Ser Glu Glu Asp Leu Gly Gly Glu Gln
 145 150 155 160
 Lys Leu Ile Ser Glu Glu Asp Leu His His His His His
 165 170

<210> 322

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

<220>
 <223> MfPD-1-MMH

<220>
 <223> 1-146: *M.fascicularis* PD-1 with C93S

<220>
 <223> 147-174: myc-myc-hexahistidine

<400> 322
 Leu Glu Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala
 1 5 10 15
 Leu Leu Leu Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe
 20 25 30
 Ser Asn Ala 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 Arg 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 Ala
 130 135 140
 Leu Val Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Gly Gly Glu Gln
 145 150 155 160
 Lys Leu Ile Ser Glu Glu Asp Leu His His His His His
 165 170

<210> 323
 <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: mFc: aa 98-330 of P01863

<400> 323
 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

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

<220>

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

<400> 325

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	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	
385				390						395				400		
Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	
			405					410					415			
Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	

			420						425					430			
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys		
		435					440					445					

<210> 326
 <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: mFc: aa 98-330 of P01863

<400> 326

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> 327
 <211> 288
 <212> PRT
 <213> Artificial Sequence

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

<400>	327														
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> 328
 <211> 290
 <212> PRT
 <213> Artificial Sequence

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

<400> 328

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> 329

<211> 379

<212> PRT

<213> Artificial Sequence

<220>

<223> aa1-146: *M.fascicularis* PD-1 (with C93S change)

aa147-379: mFc tag (aa 98-330 of P01863)

<400> 329

Leu	Glu	Ser	Pro	Asp	Arg	Pro	Trp	Asn	Pro	Pro	Thr	Phe	Ser	Pro	Ala
1				5					10					15	
Leu	Leu	Leu	Val	Thr	Glu	Gly	Asp	Asn	Ala	Thr	Phe	Thr	Cys	Ser	Phe
			20					25					30		
Ser	Asn	Ala	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	Arg	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	Ala
	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> 330
 <211> 444
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> H4H7798N
 aa1-117: HCVR
 aa118-444: HC constant

<400> 330
 Glu Val Gln Leu Leu Glu Ser Gly Gly Val Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Phe
 20 25 30
 Gly Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ser Gly Ile Ser Gly Gly Gly Arg Asp Thr Tyr Phe 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 Lys Gly Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Val Lys Trp Gly Asn Ile Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu
 100 105
 Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125
 Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys
 130 135 140
 Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160
 Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 165 170 175
 Ser Gly Leu Tyr Ser Leu Ser Ser Val Thr Val Pro Ser Ser Ser
 180 185 190
 Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn
 195 200 205
 Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro
 210 215 220
 Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
 225 230 235 240
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 245 250 255
 Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
 260 265 270
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 275 280 285
 Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 290 295 300
 Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 305 310 315 320
 Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
 325 330 335
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
 340 345 350
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 355 360 365
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 370 375 380

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

<210> 331
 <211> 214
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> H4H7798N
 aa1-107: LCVR
 aa108-214: LC constant

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

<210> 332
 <211> 449
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> H4H7795N2
 aa1-122: HCVR

aa123-449: HC constant

 $\langle 400 \rangle$ 332

Glu 1	Val	Gln	Val	Val 5	Glu	Ser	Gly	Gly	Gly 10	Leu	Val	Glu	Pro	Gly 15	Arg
Ser	Leu	Arg	Leu	Ser 20	Cys	Lys	Ala	Ser	Gly 25	Phe	Thr	Phe	Asp	Asp 30	Tyr
Ala	Met	His	Trp	Val 35	Arg	Gln	Thr	Pro	Gly 40	Lys	Ala	Leu	Glu	Trp 45	Val
Ser	Gly 50	Ile	Ser	Trp	Ser	Gly 55	Asn	Asn	Ile	Gly 60	Tyr	Ala	Asp	Ser	Val
Lys 65	Gly	Arg	Phe	Thr	Ile 70	Ser	Lys	Asp	Asp	Ala 75	Lys	Asn	Ser	Leu	Tyr 80
Leu	Gln	Met	Asn	Ser 85	Leu	Arg	Pro	Glu	Asp 90	Thr	Ala	Leu	Tyr	Tyr 95	Cys
Thr	Lys	Asp	Ile	Ser 100	Ile	Thr	Gly	Thr	Leu 105	Asp	Ala	Phe	Asp	Val	Trp
Gly	Gln	Gly	Thr	Met 115	Val	Thr	Val	Ser	Ser 120	Ala	Ser	Thr	Lys	Gly	Pro
Ser	Val 130	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr	Ser	Glu	Ser	Thr
Ala 145	Ala	Leu	Gly	Cys	Leu 150	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr 160
Val	Ser	Trp	Asn	Ser 165	Gly	Ala	Leu	Thr	Ser 170	Gly	Val	His	Thr	Phe	Pro 175
Ala	Val	Leu	Gln	Ser 180	Ser	Gly	Leu	Tyr	Ser 185	Leu	Ser	Ser	Val	Val	Thr
Val	Pro	Ser	Ser	Ser 195	Leu	Gly	Thr	Lys	Thr 200	Tyr	Thr	Cys	Asn	Val	Asp
His	Lys 210	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val	Glu	Ser	Lys	Tyr
Gly 225	Pro	Pro	Cys	Pro	Pro 230	Cys	Pro	Ala	Pro	Glu	Phe	Leu	Gly	Gly	Pro 240
Ser	Val	Phe	Leu	Phe 245	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser
Arg	Thr	Pro	Glu	Val 260	Thr	Cys	Val	Val	Val 265	Asp	Val	Ser	Gln	Glu	Asp
Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn
Ala	Lys 290	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser	Thr	Tyr	Arg	Val
Val 305	Ser	Val	Leu	Thr	Val 310	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu
Tyr	Lys	Cys	Lys	Val 325	Ser	Asn	Lys	Gly	Leu	Pro	Ser	Ser	Ile	Glu	Lys
Thr	Ile	Ser	Lys	Ala 340	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr
Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr
Cys	Leu 370	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu
Ser 385	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Pro	Pro	Val	Leu	400
Asp	Ser	Asp	Gly	Ser 405	Phe	Phe	Leu	Tyr	Ser	Arg	Leu	Thr	Val	Asp	Lys
Ser	Arg	Trp	Gln	Glu 420	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu
Ala	Leu	His	Asn	His 435	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Leu	Gly

Lys

<210> 333
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> H4H7795N2
aa1-107: LCVR
aa108-214: LC constant

<400> 333
Asp Ile Gln Met Thr Gln Ser Pro Ile Ser Val Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Asn Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Gly Ile Ala Pro Lys Leu Leu Ile
35 40 45
Tyr Ser Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Arg Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Gly Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ala His Ser Phe Pro Leu
85 90 95
Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
100 105 110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125
Thr Ala Ser Val Val Cys Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205
Phe Asn Arg Gly Glu Cys
210

<210> 334
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> H4H9008P
aa1-119: HCVR
aa120-446: HC constant

<400> 334
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Arg Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Thr Tyr

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

<210> 335

<211> 215

<212> PRT

<213> Artificial Sequence

<220>

<223> H4H9008P

aa1-108: LCVR

aa109-215: LC constant

<400> 335

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

<210> 336

<211> 448

<212> PRT

<213> Artificial Sequence

<220>

<223> H4H9048P2

aa1-121: HCVR

aa122-448: HC constant

<400> 336

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

				85					90					95			
Ala	Arg	Glu	Gly	Glu	Arg	Gly	His	Thr	Tyr	Gly	Phe	Asp	Tyr	Trp	Gly		
			100					105					110				
Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	Pro	Ser		
		115					120					125					
Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr	Ser	Glu	Ser	Thr	Ala		
		130				135					140						
Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val		
145				150						155					160		
Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala		
			165						170					175			
Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val		
		180						185					190				
Pro	Ser	Ser	Ser	Leu	Gly	Thr	Lys	Thr	Tyr	Thr	Cys	Asn	Val	Asp	His		
		195					200					205					
Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val	Glu	Ser	Lys	Tyr	Gly		
	210					215					220						
Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe	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	Gln	Glu	Asp	Pro		
		260						265					270				
Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala		
	275						280					285					
Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	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	Gly	Leu	Pro	Ser	Ser	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	Gln	Glu	Glu	Met	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	Arg	Leu	Thr	Val	Asp	Lys	Ser			
			405					410					415				
Arg	Trp	Gln	Glu	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	Leu	Gly	Lys		
	435					440						445					

<210> 337

<211> 215

<212> PRT

<213> Artificial Sequence

<220>

<223> H4H9048P2

aa1-108: LCVR

aa109-215: LC constant

<400> 337

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly

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