

SEQUENCE LISTING

<110> JOUNCE THERAPEUTICS, INC.

<120> ANTIBODIES TO PD-1 AND USES THEREOF

<130> 01140-0006-00PCT

<150> US 62/416,602

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<160> 406

<170> PatentIn version 3.5

<210> 1

<211> 288

<212> PRT

<213> Homo sapiens

<400> 1

Met Gln Ile Pro Gln Ala Pro Trp Pro Val Val Trp Ala Val Leu Gln
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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

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<212> PRT

<213> Mus musculus

<400> 2

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

Arg Ser Leu Thr Phe Tyr Pro Ala Trp Leu Thr Val Ser Glu Gly Ala
35 40 45

Asn Ala Thr Phe Thr Cys Ser Leu Ser Asn Trp Ser Glu Asp Leu Met
50 55 60

Leu Asn Trp Asn Arg Leu Ser Pro Ser Asn Gln Thr Glu Lys Gln Ala
65 70 75 80

Ala Phe Cys Asn Gly Leu Ser Gln Pro Val Gln Asp Ala Arg Phe Gln
85 90 95

Ile Ile Gln Leu Pro Asn Arg His Asp Phe His Met Asn Ile Leu Asp
100 105 110

Thr Arg Arg Asn Asp Ser Gly Ile Tyr Leu Cys Gly Ala Ile Ser Leu
115 120 125

His Pro Lys Ala Lys Ile Glu Glu Ser Pro Gly Ala Glu Leu Val Val
130 135 140

Thr Glu Arg Ile Leu Glu Thr Ser Thr Arg Tyr Pro Ser Pro Ser Pro
145 150 155 160

Lys Pro Glu Gly Arg Phe Gln Gly Met Val Ile Gly Ile Met Ser Ala
165 170 175

Leu Val Gly Ile Pro Val Leu Leu Leu Leu Ala Trp Ala Leu Ala Val
180 185 190

Phe Cys Ser Thr Ser Met Ser Glu Ala Arg Gly Ala Gly Ser Lys Asp

195

200

205

Asp Thr Leu Lys Glu Glu Pro Ser Ala Ala Pro Val Pro Ser Val Ala
 210 215 220

Tyr Glu Glu Leu Asp Phe Gln Gly Arg Glu Lys Thr Pro Glu Leu Pro
 225 230 235 240

Thr Ala Cys Val His Thr Glu Tyr Ala Thr Ile Val Phe Thr Glu Gly
 245 250 255

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

<210> 3
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 <213> Macaca fascicularis

<400> 3

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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

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr 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 Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

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<400> 5

Tyr Thr Phe Thr Ser Tyr Tyr Met His
1 5

<210> 6
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<400> 6

Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 7
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<213> Homo sapiens

<400> 7

Ala Arg Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr
1 5 10

<210> 8
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<213> Homo sapiens

<400> 8

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 9
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<213> Homo sapiens

<400> 9

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 10
<211> 7
<212> PRT
<213> Homo sapiens

<400> 10

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 11
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<213> Homo sapiens

<400> 11

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 12
<211> 118
<212> PRT
<213> Homo sapiens

<400> 12

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Asp Gln Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ala Tyr 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 Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
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<210> 13

<211> 9

<212> PRT

<213> Homo sapiens

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Tyr Thr Phe Asp Gln Tyr Tyr Met His
1 5

<210> 14

<211> 17

<212> PRT

<213> Homo sapiens

<400> 14

Ile Ile Asn Pro Ser Gly Gly Ser Thr Ala Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 15

<211> 11

<212> PRT

<213> Homo sapiens

<400> 15

Ala Arg Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr
1 5 10

<210> 16

<211> 107

<212> PRT

<213> Homo sapiens

<400> 16

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro

85

90

95

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

<210> 17
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<400> 17

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 18
<211> 7
<212> PRT
<213> Homo sapiens

<400> 18

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 19
<211> 9
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<213> Homo sapiens

<400> 19

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 20
<211> 118
<212> PRT
<213> Homo sapiens

<400> 20

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Pro Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Glu Gly Gly Ser Thr Ala Tyr 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 Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 21
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<212> PRT
<213> Homo sapiens

<400> 21

Tyr Thr Phe Pro Ser Tyr Tyr Met His
1 5

<210> 22
<211> 17
<212> PRT
<213> Homo sapiens

<400> 22

Ile Ile Asn Pro Glu Gly Gly Ser Thr Ala Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 23
<211> 11
<212> PRT
<213> Homo sapiens

<400> 23

Ala Arg Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr
1 5 10

<210> 24
<211> 107
<212> PRT
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<400> 24

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 25
<211> 11
<212> PRT
<213> Homo sapiens

<400> 25

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 26
<211> 7
<212> PRT
<213> Homo sapiens

<400> 26

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 27
<211> 9
<212> PRT
<213> Homo sapiens

<400> 27

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 28
<211> 118
<212> PRT
<213> Homo sapiens

<400> 28

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ser Asp Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

35

40

45

Gly Ile Ile Asn Pro Ser Gly Gly Val Thr Ala Tyr 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 Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser
 115

<210> 29
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 29

Tyr Thr Phe Ser Asp Tyr Tyr Met His
 1 5

<210> 30
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 30

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

Gly

<210> 31

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

<400> 31

Ala Arg Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr
1 5 10

<210> 32
<211> 107
<212> PRT
<213> Homo sapiens

<400> 32

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 33
<211> 11
<212> PRT
<213> Homo sapiens

<400> 33

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 34

<211> 7

<212> PRT

<213> Homo sapiens

<400> 34

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 35

<211> 9

<212> PRT

<213> Homo sapiens

<400> 35

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 36

<211> 118

<212> PRT

<213> Homo sapiens

<400> 36

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Glu Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Val Thr Ala Tyr 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 Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 37
<211> 9
<212> PRT
<213> Homo sapiens

<400> 37

Tyr Thr Phe Glu Ser Tyr Tyr Met His
1 5

<210> 38
<211> 17
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<400> 38

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

Gly

<210> 39
<211> 11
<212> PRT
<213> Homo sapiens

<400> 39

Ala Arg Gly Gly Thr Tyr Tyr Asp Tyr Thr Tyr
1 5 10

<210> 40
<211> 107
<212> PRT
<213> Homo sapiens

<400> 40

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 41
<211> 11
<212> PRT
<213> Homo sapiens

<400> 41

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 42
<211> 7
<212> PRT
<213> Homo sapiens

<400> 42

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 43
<211> 9
<212> PRT
<213> Homo sapiens

<400> 43

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 44
<211> 119
<212> PRT
<213> Homo sapiens

<400> 44

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Asp Ala Gly Ser Thr Ala Tyr 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 Asp Gln Gly His Tyr Tyr Gly Met Gly Val Trp Gly Gln Gly
 100 105 110

Thr Thr Val Thr Val Ser Ser
 115

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 <212> PRT
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<400> 45

Tyr Thr Phe Thr Ser Tyr Tyr Met His
 1 5

<210> 46
 <211> 17
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<400> 46

Ile Ile Asn Pro Asp Ala Gly Ser Thr Ala Tyr Ala Gln Lys Phe Gln
 1 5 10 15

Gly

<210> 47
 <211> 12
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 <213> Homo sapiens

<400> 47

Ala Arg Asp Gln Gly His Tyr Tyr Gly Met Gly Val
 1 5 10

<210> 48
 <211> 107

<212> PRT
<213> Homo sapiens

<400> 48

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Asn Ser Tyr Pro Pro
85 90 95

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

<210> 49
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<400> 49

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 50
<211> 7
<212> PRT
<213> Homo sapiens

<400> 50

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 51
<211> 9
<212> PRT
<213> Homo sapiens

<400> 51

Gln Gln His Asn Ser Tyr Pro Pro Thr
1 5

<210> 52
<211> 119
<212> PRT
<213> Homo sapiens

<400> 52

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Gly Glu Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Glu Gly Ser Thr Gly Tyr 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 Asp Gln Gly His Tyr Tyr Gly Met Gly Val Trp Gly Gln Gly
100 105 110

Thr Thr Val Thr Val Ser Ser
115

<210> 53
<211> 9
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<213> Homo sapiens

<400> 53

Tyr Thr Phe Gly Glu Tyr Tyr Met His
1 5

<210> 54
<211> 17
<212> PRT
<213> Homo sapiens

<400> 54

Ile Ile Asn Pro Ser Glu Gly Ser Thr Gly Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 55
<211> 12
<212> PRT
<213> Homo sapiens

<400> 55

Ala Arg Asp Gln Gly His Tyr Tyr Gly Met Gly Val
1 5 10

<210> 56
<211> 107
<212> PRT
<213> Homo sapiens

<400> 56

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

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

<210> 57
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 <213> Homo sapiens

<400> 57

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala	1	5	10
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<210> 58
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<400> 58

Glu Ala Ser Ser Leu Glu Ser	1	5
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<210> 59

<211> 9
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<400> 59

Gln Gln His Asn Ser Tyr Pro Pro Thr
1 5

<210> 60
<211> 119
<212> PRT
<213> Homo sapiens

<400> 60

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ser Asp Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Ala Gly Ser Thr Gly Tyr 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 Asp Gln Gly His Tyr Tyr Gly Met Gly Val Trp Gly Gln Gly
100 105 110

Thr Thr Val Thr Val Ser Ser
115

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Tyr Thr Phe Ser Asp Tyr Tyr Met His
1 5

<210> 62
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Ile Ile Asn Pro Ser Ala Gly Ser Thr Gly Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 63
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<400> 63

Ala Arg Asp Gln Gly His Tyr Tyr Gly Met Gly Val
1 5 10

<210> 64
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<400> 64

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Asn Ser Tyr Pro Pro
85 90 95

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

<210> 65
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Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 66
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<400> 66

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 67
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Gln Gln His Asn Ser Tyr Pro Pro Thr
1 5

<210> 68
<211> 116
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<213> Homo sapiens

<400> 68

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Asn Ser Tyr
20 25 30

Tyr Met Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asp Pro Ser Lys Gly Ser Thr Ala Tyr 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 His Glu Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
100 105 110

Thr Val Ser Ser
115

<210> 69
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<400> 69

Tyr Thr Phe Asn Ser Tyr Tyr Met Ser
1 5

<210> 70
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<400> 70

Ile Ile Asp Pro Ser Lys Gly Ser Thr Ala Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 71
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<213> Homo sapiens

<400> 71

Ala Arg His Glu Tyr Gly Met Asp Val
1 5

<210> 72
<211> 107
<212> PRT
<213> Homo sapiens

<400> 72

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly

50

55

60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
 85 90 95

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

<210> 73
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<400> 73

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
 1 5 10

<210> 74
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 <213> Homo sapiens

<400> 74

Glu Ala Ser Ser Leu Glu Ser
 1 5

<210> 75
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<400> 75

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
 1 5

<210> 76
 <211> 116

<212> PRT
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<400> 76

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr His Tyr
20 25 30

Tyr Met Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Met Ile Asn Pro Glu Gly Gly Ser Thr Ala Tyr 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 His Glu Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
100 105 110

Thr Val Ser Ser
115

<210> 77
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<400> 77

Tyr Thr Phe Thr His Tyr Tyr Met Ser
1 5

<210> 78
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<212> PRT
<213> Homo sapiens

<400> 78

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

Gly

<210> 79
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<400> 79

Ala	Arg	His	Glu	Tyr	Gly	Met	Asp	Val
1			5					

<210> 80
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<212> PRT
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<400> 80

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

Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Ser	Ile	Ser	Ser	Trp
			20					25					30		

Leu	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
		35					40					45			

Tyr	Glu	Ala	Ser	Ser	Leu	Glu	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55					60				

Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75					80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 81
<211> 11
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<213> Homo sapiens

<400> 81

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 82
<211> 7
<212> PRT
<213> Homo sapiens

<400> 82

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 83
<211> 9
<212> PRT
<213> Homo sapiens

<400> 83

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 84
<211> 116
<212> PRT
<213> Homo sapiens

<400> 84

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

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

<210> 85
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 <213> Homo sapiens

<400> 85

Tyr Thr Phe Asp Ser Tyr Tyr Met Ser
1 5

<210> 86
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 86

Met Ile Asn Pro Ser Val Gly Ser Thr Ala Tyr Ala Gln Lys Phe Gln

1 5 10 15

Gly

<210> 87
<211> 9
<212> PRT
<213> Homo sapiens

<400> 87

Ala Arg His Glu Tyr Gly Met Asp Val
1 5

<210> 88
<211> 107
<212> PRT
<213> Homo sapiens

<400> 88

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys

100

105

<210> 89
<211> 11
<212> PRT
<213> Homo sapiens

<400> 89

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 90
<211> 7
<212> PRT
<213> Homo sapiens

<400> 90

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 91
<211> 9
<212> PRT
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<400> 91

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 92
<211> 116
<212> PRT
<213> Homo sapiens

<400> 92

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ala Ser Tyr
20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Phe Pro Gly Gly Gly Ser Thr Ser Tyr 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 His Glu Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
100 105 110

Thr Val Ser Ser
115

<210> 93
<211> 9
<212> PRT
<213> Homo sapiens

<400> 93

Tyr Thr Phe Ala Ser Tyr Ala Met Ser
1 5

<210> 94
<211> 17
<212> PRT
<213> Homo sapiens

<400> 94

Ile Ile Phe Pro Gly Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 95
<211> 9
<212> PRT
<213> Homo sapiens

<400> 95

Ala Arg His Glu Tyr Gly Met Asp Val
1 5

<210> 96
<211> 107
<212> PRT
<213> Homo sapiens

<400> 96

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 97
<211> 11
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<213> Homo sapiens

<400> 97

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 98

<211> 7

<212> PRT

<213> Homo sapiens

<400> 98

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 99

<211> 9

<212> PRT

<213> Homo sapiens

<400> 99

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 100

<211> 116

<212> PRT

<213> Homo sapiens

<400> 100

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ala Ser Tyr
20 25 30

Tyr Met Gly Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ala Gly Gly Ser Thr Ala Tyr 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 His Glu Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
100 105 110

Thr Val Ser Ser
115

<210> 101
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<400> 101

Tyr Thr Phe Ala Ser Tyr Tyr Met Gly
1 5

<210> 102
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<212> PRT
<213> Homo sapiens

<400> 102

Ile Ile Asn Pro Ala Gly Gly Ser Thr Ala Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 103
<211> 9
<212> PRT
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<400> 103

Ala Arg His Glu Tyr Gly Met Asp Val
1 5

<210> 104

<211> 107

<212> PRT

<213> Homo sapiens

<400> 104

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 105

<211> 11

<212> PRT

<213> Homo sapiens

<400> 105

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 106
<211> 7
<212> PRT
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<400> 106

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 107
<211> 9
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<213> Homo sapiens

<400> 107

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 108
<211> 119
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<213> Homo sapiens

<400> 108

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Gly Gly Gly Ser Thr Ser Tyr 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 Asp Gln Gly His Tyr Tyr Gly Met Gly Val Trp Gly Gln Gly
100 105 110

Thr Thr Val Thr Val Ser Ser
115

<210> 109
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<400> 109

Tyr Thr Phe Thr Ser Tyr Tyr Met His
1 5

<210> 110
<211> 17
<212> PRT
<213> Homo sapiens

<400> 110

Ile Ile Asn Pro Gly Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 111
<211> 12
<212> PRT
<213> Homo sapiens

<400> 111

Ala Arg Asp Gln Gly His Tyr Tyr Gly Met Gly Val
1 5 10

<210> 112
<211> 107
<212> PRT
<213> Homo sapiens

<400> 112

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Asn Ser Tyr Pro Pro
85 90 95

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

<210> 113
<211> 11
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<400> 113

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 114
<211> 7
<212> PRT
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<400> 114

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 115

<211> 9

<212> PRT

<213> Homo sapiens

<400> 115

Gln Gln His Asn Ser Tyr Pro Pro Thr
1 5

<210> 116

<211> 116

<212> PRT

<213> Homo sapiens

<400> 116

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr 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 His Glu Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val

100

105

110

Thr Val Ser Ser
115

<210> 117
<211> 9
<212> PRT
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<400> 117

Tyr Thr Phe Thr Ser Tyr Tyr Met Ser
1 5

<210> 118
<211> 17
<212> PRT
<213> Homo sapiens

<400> 118

Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 119
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<213> Homo sapiens

<400> 119

Ala Arg His Glu Tyr Gly Met Asp Val
1 5

<210> 120
<211> 107
<212> PRT
<213> Homo sapiens

<400> 120

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Glu Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Phe Pro Pro
85 90 95

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

<210> 121
<211> 11
<212> PRT
<213> Homo sapiens

<400> 121

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 122
<211> 7
<212> PRT
<213> Homo sapiens

<400> 122

Glu Ala Ser Ser Leu Glu Ser
1 5

<210> 123
<211> 9
<212> PRT
<213> Homo sapiens

<400> 123

Gln Gln Tyr Asn Ser Phe Pro Pro Thr
1 5

<210> 124
<211> 116
<212> PRT
<213> Homo sapiens

<400> 124

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser His Tyr
20 25 30

Leu Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Ser Gly Lys 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 125
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<400> 125

Phe Thr Phe Ser His Tyr Leu Met Ser
1 5

<210> 126
<211> 17
<212> PRT
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<400> 126

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

Gly

<210> 127
<211> 9
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<213> Homo sapiens

<400> 127

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 128
<211> 107
<212> PRT
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<400> 128

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp

20

25

30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

<210> 129
<211> 11
<212> PRT
<213> Homo sapiens

<400> 129

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

<210> 130
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<400> 130

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 131
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<213> Homo sapiens

<400> 131

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 132

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<212> PRT

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<400> 132

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gln Tyr
20 25 30

Leu Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Gly Gly Ser Gly Ala 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 133

<211> 9

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<400> 133

Phe Thr Phe Ser Gln Tyr Leu Met Ser
1 5

<210> 134

<211> 17

<212> PRT

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<400> 134

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

Gly

<210> 135

<211> 9

<212> PRT

<213> Homo sapiens

<400> 135

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 136

<211> 107

<212> PRT

<213> Homo sapiens

<400> 136

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

<210> 137
<211> 11
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<400> 137

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

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Ala Ala Ser Ser Leu Gln Ser
1 5

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<400> 139

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 140
<211> 116
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<400> 140

Glu Val Gln Leu Leu 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 Arg Ser Tyr
20 25 30

Met Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Ser Gly Arg Asp 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 141
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<400> 141

Phe Thr Phe Arg Ser Tyr Met Met Ser
1 5

<210> 142
<211> 17
<212> PRT
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<400> 142

Ala Ile Ser Gly Ser Gly Arg Asp Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 143
<211> 9
<212> PRT
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<400> 143

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 144
<211> 107
<212> PRT
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<400> 144

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

<210>	145
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<400> 145

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

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<210> 146
<211> 7
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<400> 146

Ala Ala Ser Ser Leu Gln Ser
1 5

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Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

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<210> 148
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<213> Homo sapiens
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<400> 148

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gln Tyr
20 25 30

Met Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Gly Ile Ser Gly Ser Gly Gly Glu 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 149
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Phe Thr Phe Ser Gln Tyr Met Met Ser
1 5

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<400> 150

Gly Ile Ser Gly Ser Gly Gly Glu Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 151
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<400> 151

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

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<400> 152

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

<210> 153
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Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

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Ala Ala Ser Ser Leu Gln Ser
1 5

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<400> 155

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

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<400> 156

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

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

20

25

30

Leu Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Ser Gly Ser 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

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Phe Thr Phe Ser Ser Tyr Leu Met Ser
1 5

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<400> 158

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

Gly

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<400> 159

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 160
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<400> 160

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

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<400> 161

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

<210> 162
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<400> 162

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 163
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<400> 163

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 164
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<400> 164

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser His Tyr
20 25 30

Leu Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Gln 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

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<400> 165

Phe Thr Phe Ser His Tyr Leu Met Ser
1 5

<210> 166
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<400> 166

Ala Ile Ser Gly Ser Gly Gly Gln Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 167
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<213> Homo sapiens

<400> 167

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 168

<211> 107

<212> PRT

<213> Homo sapiens

<400> 168

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Val Ser Ala Ser Val Gly
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

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<213> Homo sapiens

<400> 169

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

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<400> 170

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 171
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<400> 171

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 172
<211> 116
<212> PRT
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<400> 172

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gln Tyr
20 25 30

Ser Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Gly Gly Gly Gln 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 Tyr

65

70

75

80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

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<400> 173

Phe Thr Phe Ser Gln Tyr Ser Met Ser
1 5

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<400> 174

Ala Ile Ser Gly Gly Gly Gly Gln Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

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<210> 175
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<400> 175

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 176
<211> 107
<212> PRT
<213> Homo sapiens

<400> 176

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

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<400> 177

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

<210> 178
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<212> PRT
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<400> 178

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 179
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<400> 179

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 180
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<212> PRT
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<400> 180

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Leu Tyr
20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly Ser Gly Gly Gln 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

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<400> 181

Phe Thr Phe Ser Leu Tyr Ala Met Ser
1 5

<210> 182
<211> 17
<212> PRT
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<400> 182

Ala Ile Ser Gly Ser Gly Gly Gln Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 183
<211> 9
<212> PRT
<213> Homo sapiens

<400> 183

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 184
<211> 107
<212> PRT
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<400> 184

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp
85 90 95

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

<210> 185

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<213> Homo sapiens

<400> 185

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

<210> 186

<211> 7

<212> PRT

<213> Homo sapiens

<400> 186

Ala Ala Ser Ser Leu Gln Ser

1 5

<210> 187
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<400> 187

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 188
<211> 121
<212> PRT
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<400> 188

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Gly Glu Tyr
20 25 30

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

Gly Leu Ile Ile Pro Ile Phe Gly Thr Ala Gln Tyr Ala Gln Lys Phe
50 55 60

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

Arg Gly Thr Leu Val Thr Val Ser Ser

115

120

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<400> 189

Gly Thr Phe Gly Glu Tyr Ala Ile Ser
1 5

<210> 190
<211> 17
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<400> 190

Leu Ile Ile Pro Ile Phe Gly Thr Ala Gln Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 191
<211> 14
<212> PRT
<213> Homo sapiens

<400> 191

Ala Arg Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu
1 5 10

<210> 192
<211> 113
<212> PRT
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<400> 192

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Ser Tyr Ser Leu Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile
100 105 110

Lys

<210> 193
<211> 17
<212> PRT
<213> Homo sapiens

<400> 193

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu
1 5 10 15

Ala

<210> 194
<211> 7
<212> PRT
<213> Homo sapiens

<400> 194

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 195
<211> 9
<212> PRT
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<400> 195

Gln Gln Ser Tyr Ser Leu Pro Phe Thr
1 5

<210> 196
<211> 121
<212> PRT
<213> Homo sapiens

<400> 196

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

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

Gly Leu Ile Ile Pro Ala Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

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

Arg Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 197
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<400> 197

Gly Thr Phe Ser Ser Tyr Ala Ile Ser
1 5

<210> 198
<211> 17
<212> PRT
<213> Homo sapiens

<400> 198

Leu Ile Ile Pro Ala Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 199
<211> 14
<212> PRT
<213> Homo sapiens

<400> 199

Ala Arg Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu
1 5 10

<210> 200
<211> 113
<212> PRT
<213> Homo sapiens

<400> 200

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

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

Lys

<210> 201
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 <213> Homo sapiens

<400> 201

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu	5	10	15
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Ala

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<400> 202

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 203

<211> 9

<212> PRT

<213> Homo sapiens

<400> 203

Gln Gln Ser Tyr Ser Leu Pro Phe Thr
1 5

<210> 204

<211> 121

<212> PRT

<213> Homo sapiens

<400> 204

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

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

Gly Val Ile Ile Pro Ile Phe Gly Glu Ala Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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 Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu Trp Gly

100

105

110

Arg Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 205
<211> 9
<212> PRT
<213> Homo sapiens

<400> 205

Gly Thr Phe Ser Ser Tyr Ala Ile Ser
1 5

<210> 206
<211> 17
<212> PRT
<213> Homo sapiens

<400> 206

Val Ile Ile Pro Ile Phe Gly Glu Ala Asn Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 207
<211> 14
<212> PRT
<213> Homo sapiens

<400> 207

Ala Arg Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu
1 5 10

<210> 208
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<212> PRT
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<400> 208

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Ser Tyr Ser Leu Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile
100 105 110

Lys

<210> 209

<211> 17

<212> PRT

<213> Homo sapiens

<400> 209

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu
1 5 10 15

Ala

<210> 210

<211> 7

<212> PRT
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<400> 210

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 211
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<400> 211

Gln Gln Ser Tyr Ser Leu Pro Phe Thr
1 5

<210> 212
<211> 121
<212> PRT
<213> Homo sapiens

<400> 212

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Gly Ser Tyr
20 25 30

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

Gly Val Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

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

Arg Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 213
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<400> 213

Gly Thr Phe Gly Ser Tyr Ala Ile Ser
1 5

<210> 214
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Val Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 215
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<400> 215

Ala Arg Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu
1 5 10

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<211> 113
<212> PRT
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<400> 216

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Ser Tyr Ser Leu Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile
100 105 110

Lys

<210> 217

<211> 17

<212> PRT

<213> Homo sapiens

<400> 217

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu
1 5 10 15

Ala

<210> 218
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<213> Homo sapiens

<400> 218

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 219
<211> 9
<212> PRT
<213> Homo sapiens

<400> 219

Gln Gln Ser Tyr Ser Leu Pro Phe Thr
1 5

<210> 220
<211> 121
<212> PRT
<213> Homo sapiens

<400> 220

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Gln Tyr
20 25 30

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

Gly Val Ile Ile Pro Ser Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

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

Arg Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 221
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<400> 221

Gly Thr Phe Ser Gln Tyr Ala Ile Ser
1 5

<210> 222
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<212> PRT
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<400> 222

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

Gly

<210> 223
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Ala Arg Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu
1 5 10

<210> 224
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<212> PRT

<213> Homo sapiens

<400> 224

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Ser Tyr Ser Leu Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile
100 105 110

Lys

<210> 225

<211> 17

<212> PRT

<213> Homo sapiens

<400> 225

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu
1 5 10 15

Ala

<210> 226
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<400> 226

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 227
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<400> 227

Gln Gln Ser Tyr Ser Leu Pro Phe Thr
1 5

<210> 228
<211> 121
<212> PRT
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<400> 228

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Gly Glu Tyr
20 25 30

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

Gly Leu Ile Ile Pro Ile Phe Gly Thr Ala Gln Tyr Ala Gln Lys Phe
50 55 60

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

Arg Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 229
<211> 9
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<400> 229

Gly Thr Phe Gly Glu Tyr Ala Ile Ser
1 5

<210> 230
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<213> Homo sapiens

<400> 230

Leu Ile Ile Pro Ile Phe Gly Thr Ala Gln Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 231
<211> 14
<212> PRT
<213> Homo sapiens

<400> 231

Ala Arg Gly Ala Ser Asp Gly Glu Thr Gly Arg Leu Asp Leu
1 5 10

<210> 232
<211> 113
<212> PRT
<213> Homo sapiens

<400> 232

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Ser Tyr Ser Leu Pro Phe Thr Phe Gly Gly Gly Thr Lys Val Glu Ile
100 105 110

Lys

<210> 233
<211> 17
<212> PRT
<213> Homo sapiens

<400> 233

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu
1 5 10 15

Ala

<210> 234
<211> 7
<212> PRT
<213> Homo sapiens

<400> 234

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 235
<211> 9
<212> PRT
<213> Homo sapiens

<400> 235

Gln Gln Ser Tyr Ser Leu Pro Phe Thr
1 5

<210> 236
<211> 122
<212> PRT
<213> Homo sapiens

<400> 236

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Gly Ser Ser
20 25 30

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

Gly Gly Ile Ile Pro Leu Phe Gly Thr Ala Ala Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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	Asp	Gly	Pro	Gly	Tyr	Ser	Ser	Ser	Trp	Tyr	Leu	Asp	Val	Trp
			100				105						110		

Gly	Gln	Gly	Thr	Met	Val	Thr	Val	Ser	Ser
	115						120		

<210> 237
 <211> 9
 <212> PRT
 <213> Homo sapiens
 <400> 237

Gly	Thr	Phe	Gly	Ser	Ser	Ala	Ile	Ser
1				5				

<210> 238
 <211> 17
 <212> PRT
 <213> Homo sapiens
 <400> 238

Gly	Ile	Ile	Pro	Leu	Phe	Gly	Thr	Ala	Ala	Tyr	Ala	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 239
 <211> 15
 <212> PRT
 <213> Homo sapiens
 <400> 239

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

<210> 240
<211> 107
<212> PRT
<213> Homo sapiens

<400> 240

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Gly Tyr Ala Leu Pro Ile
85 90 95

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

<210> 241
<211> 11
<212> PRT
<213> Homo sapiens

<400> 241

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
1 5 10

<210> 242
<211> 7

<212> PRT
<213> Homo sapiens

<400> 242

Asp Ala Ser Asn Arg Ala Thr
1 5

<210> 243
<211> 9
<212> PRT
<213> Homo sapiens

<400> 243

Gln Gln Gly Tyr Ala Leu Pro Ile Thr
1 5

<210> 244
<211> 122
<212> PRT
<213> Homo sapiens

<400> 244

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Glu Tyr
20 25 30

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

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Val Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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 Asp Gly Pro Gly Tyr Ser Ser Ser Trp Tyr Leu Asp Val Trp
100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 245
<211> 9
<212> PRT
<213> Homo sapiens

<400> 245

Gly Thr Phe Ser Glu Tyr Ala Ile Ser
1 5

<210> 246
<211> 17
<212> PRT
<213> Homo sapiens

<400> 246

Gly Ile Ile Pro Ile Phe Gly Thr Ala Val Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 247
<211> 15
<212> PRT
<213> Homo sapiens

<400> 247

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

<210> 248
<211> 107
<212> PRT
<213> Homo sapiens

<400> 248

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Gly Tyr Ala Leu Pro Ile
85 90 95

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

<210> 249

<211> 11

<212> PRT

<213> Homo sapiens

<400> 249

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
1 5 10

<210> 250

<211> 7

<212> PRT

<213> Homo sapiens

<400> 250

Asp Ala Ser Asn Arg Ala Thr

1 5

<210> 251
<211> 9
<212> PRT
<213> Homo sapiens

<400> 251

Gln Gln Gly Tyr Ala Leu Pro Ile Thr
1 5

<210> 252
<211> 122
<212> PRT
<213> Homo sapiens

<400> 252

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

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

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Val Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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 Asp Gly Pro Gly Tyr Ser Ser Ser Trp Tyr Leu Asp Val Trp
100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser

115

120

<210> 253
<211> 9
<212> PRT
<213> Homo sapiens

<400> 253

Gly Thr Phe Ser Ser Tyr Ala Ile Ser
1 5

<210> 254
<211> 17
<212> PRT
<213> Homo sapiens

<400> 254

Gly Ile Ile Pro Ile Phe Gly Thr Ala Val Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 255
<211> 15
<212> PRT
<213> Homo sapiens

<400> 255

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

<210> 256
<211> 107
<212> PRT
<213> Homo sapiens

<400> 256

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Gly Tyr Ala Leu Pro Ile
85 90 95

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

<210> 257
<211> 11
<212> PRT
<213> Homo sapiens

<400> 257

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
1 5 10

<210> 258
<211> 7
<212> PRT
<213> Homo sapiens

<400> 258

Asp Ala Ser Asn Arg Ala Thr
1 5

<210> 259
<211> 9
<212> PRT

<213> Homo sapiens

<400> 259

Gln Gln Gly Tyr Ala Leu Pro Ile Thr
1 5

<210> 260

<211> 122

<212> PRT

<213> Homo sapiens

<400> 260

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Ser
20 25 30

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

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Thr Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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 Asp Gly Pro Gly Tyr Ser Ser Ser Trp Tyr Leu Asp Val Trp
100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 261

<211> 9

<212> PRT

<213> Homo sapiens

<400> 261

Gly Thr Phe Ser Ser Ser Val Ile Ser
1 5

<210> 262

<211> 17

<212> PRT

<213> Homo sapiens

<400> 262

Gly Ile Ile Pro Ile Phe Gly Thr Ala Thr Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 263

<211> 15

<212> PRT

<213> Homo sapiens

<400> 263

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

<210> 264

<211> 107

<212> PRT

<213> Homo sapiens

<400> 264

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile

35

40

45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
 50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Gly Tyr Ala Leu Pro Ile
 85 90 95

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

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

<400> 265

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
 1 5 10

<210> 266
 <211> 7
 <212> PRT
 <213> Homo sapiens

<400> 266

Asp Ala Ser Asn Arg Ala Thr
 1 5

<210> 267
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 267

Gln Gln Gly Tyr Ala Leu Pro Ile Thr
 1 5

<210> 268
<211> 122
<212> PRT
<213> Homo sapiens

<400> 268

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Asp Ser Tyr
20 25 30

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

Gly Gly Ile Ile Pro Gly Phe Gly Val Ala Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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 Asp Gly Pro Gly Tyr Ser Ser Ser Trp Tyr Leu Asp Val Trp
100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 269
<211> 9
<212> PRT
<213> Homo sapiens

<400> 269

Gly Thr Phe Asp Ser Tyr Val Ile Ser
1 5

<210> 270
<211> 17
<212> PRT
<213> Homo sapiens

<400> 270

Gly Ile Ile Pro Gly Phe Gly Val Ala Asn Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 271
<211> 15
<212> PRT
<213> Homo sapiens

<400> 271

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

<210> 272
<211> 107
<212> PRT
<213> Homo sapiens

<400> 272

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Gly Tyr Ala Leu Pro Ile
85 90 95

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

<210> 273
<211> 11
<212> PRT
<213> Homo sapiens

<400> 273

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
1 5 10

<210> 274
<211> 7
<212> PRT
<213> Homo sapiens

<400> 274

Asp Ala Ser Asn Arg Ala Thr
1 5

<210> 275
<211> 9
<212> PRT
<213> Homo sapiens

<400> 275

Gln Gln Gly Tyr Ala Leu Pro Ile Thr
1 5

<210> 276
<211> 116
<212> PRT
<213> Homo sapiens

<400> 276

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Gly 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 Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Val Tyr Tyr Gly Met Pro Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 277

<211> 9

<212> PRT

<213> Homo sapiens

<400> 277

Phe Thr Phe Ser Ser Tyr Ala Met Ser
1 5

<210> 278

<211> 17

<212> PRT

<213> Homo sapiens

<400> 278

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

Gly

<210> 279

<211> 9

<212> PRT

<213> Homo sapiens

<400> 279

Ala Lys Val Tyr Tyr Gly Met Pro Tyr
1 5

<210> 280

<211> 107

<212> PRT

<213> Homo sapiens

<400> 280

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Asp Ser Trp
20 25 30

Leu Ala 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 Ala Ser Asp Val Pro Trp

85

90

95

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

<210> 281
<211> 11
<212> PRT
<213> Homo sapiens

<400> 281

Arg Ala Ser Gln Gly Ile Asp Ser Trp Leu Ala
1 5 10

<210> 282
<211> 7
<212> PRT
<213> Homo sapiens

<400> 282

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 283
<211> 9
<212> PRT
<213> Homo sapiens

<400> 283

Gln Gln Ala Ser Asp Val Pro Trp Thr
1 5

<210> 284
<211> 122
<212> PRT
<213> Homo sapiens

<400> 284

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

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

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Ser Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala 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 Asp Gly Pro Gly Tyr Ser Ser Ser Trp Tyr Leu Asp Val Trp
100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser
115 120

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

<400> 285

Gly Thr Phe Ser Ser Tyr Ala Ile Ser
1 5

<210> 286
<211> 17
<212> PRT
<213> Homo sapiens

<400> 286

Gly Ile Ile Pro Ile Phe Gly Thr Ala Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 287
<211> 15
<212> PRT
<213> Homo sapiens

<400> 287

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

<210> 288
<211> 107
<212> PRT
<213> Homo sapiens

<400> 288

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

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Gly Tyr Ala Leu Pro Ile
85 90 95

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

<210> 289
<211> 11
<212> PRT
<213> Homo sapiens

<400> 289

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
1 5 10

<210> 290
<211> 7
<212> PRT
<213> Homo sapiens

<400> 290

Asp Ala Ser Asn Arg Ala Thr
1 5

<210> 291
<211> 9
<212> PRT
<213> Homo sapiens

<400> 291

Gln Gln Gly Tyr Ala Leu Pro Ile Thr
1 5

<210> 292
<211> 122
<212> PRT
<213> Homo sapiens

<400> 292

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

35

40

45

Gly Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr 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 Ala Gly Gly Tyr Ser Tyr Ser Trp Gly Gly Ser Asn Ile Trp
 100 105 110

Gly Gln Gly Thr Met Val Thr Val Ser Ser
 115 120

<210> 293
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 293

Tyr Thr Phe Thr Ser Tyr Tyr Met His
 1 5

<210> 294
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 294

Ile Ile Asn Pro Ser Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
 1 5 10 15

Gly

<210> 295

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

<400> 295

Ala Arg Ala Gly Gly Tyr Ser Tyr Ser Trp Gly Gly Ser Asn Ile
1 5 10 15

<210> 296
<211> 107
<212> PRT
<213> Homo sapiens

<400> 296

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Trp
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Lys Ala Ser Ser Leu Glu Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Asp Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Asp Gly Ser Phe Pro Tyr
85 90 95

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

<210> 297
<211> 11
<212> PRT
<213> Homo sapiens

<400> 297

Arg Ala Ser Gln Ser Ile Ser Ser Trp Leu Ala
1 5 10

<210> 298

<211> 7

<212> PRT

<213> Homo sapiens

<400> 298

Lys Ala Ser Ser Leu Glu Ser
1 5

<210> 299

<211> 9

<212> PRT

<213> Homo sapiens

<400> 299

Gln Gln Asp Gly Ser Phe Pro Tyr Thr
1 5

<210> 300

<211> 126

<212> PRT

<213> Homo sapiens

<400> 300

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Gly Gly Gly Ser Thr Ser Tyr 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 Asp Pro Arg Tyr Thr Thr Leu Thr Gly Ser Tyr Tyr Tyr Gly
100 105 110

Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 301
<211> 9
<212> PRT
<213> Homo sapiens

<400> 301

Tyr Thr Phe Thr Ser Tyr Tyr Met His
1 5

<210> 302
<211> 17
<212> PRT
<213> Homo sapiens

<400> 302

Ile Ile Asn Pro Gly Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 303
<211> 19
<212> PRT
<213> Homo sapiens

<400> 303

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

Met Asp Val

<210> 304
<211> 108
<212> PRT
<213> Homo sapiens

<400> 304

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Ser Trp
20 25 30

Leu Ala 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 Ala Val Asn Phe Pro Pro
85 90 95

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

<210> 305
<211> 11
<212> PRT
<213> Homo sapiens

<400> 305

Arg Ala Ser Gln Asp Ile Ser Ser Trp Leu Ala
1 5 10

<210> 306
<211> 7
<212> PRT
<213> Homo sapiens

<400> 306

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 307
<211> 10
<212> PRT
<213> Homo sapiens

<400> 307

Gln Gln Ala Val Asn Phe Pro Pro Ile Thr
1 5 10

<210> 308
<211> 120
<212> PRT
<213> Homo sapiens

<400> 308

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Lys Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Met Thr Arg Asp Thr Ser Ile Ser Thr Ala Tyr

65		70		75		80									
Met	Glu	Leu	Ser	Arg	Leu	Arg	Ser	Asp	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
			85					90					95		

Ala	Arg	Glu	Ala	Ser	Trp	Leu	Pro	Gly	Ser	Leu	Asp	Val	Trp	Gly	Lys
			100					105					110		

Gly	Thr	Thr	Val	Thr	Val	Ser	Ser
		115				120	

<210> 309
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 309

Tyr	Thr	Phe	Thr	Gly	Tyr	Tyr	Met	His
1				5				

<210> 310
 <211> 17
 <212> PRT
 <213> Homo sapiens

<400> 310

Trp	Ile	Asn	Pro	Asn	Ser	Gly	Gly	Thr	Lys	Tyr	Ala	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 311
 <211> 13
 <212> PRT
 <213> Homo sapiens

<400> 311

Ala	Arg	Glu	Ala	Ser	Trp	Leu	Pro	Gly	Ser	Leu	Asp	Val
1				5				10				

<210> 312
<211> 113
<212> PRT
<213> Homo sapiens

<400> 312

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Val Leu Tyr Ser
20 25 30

Ser Asn Asn Lys Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
35 40 45

Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val
50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
85 90 95

Tyr Asp Asn Phe Pro Ile Thr Phe Gly Gly Gly Thr Lys Val Glu Ile
100 105 110

Lys

<210> 313
<211> 17
<212> PRT
<213> Homo sapiens

<400> 313

Lys Ser Ser Gln Ser Val Leu Tyr Ser Ser Asn Asn Lys Asn Tyr Leu
1 5 10 15

Ala

<210> 314
<211> 7
<212> PRT
<213> Homo sapiens

<400> 314

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 315
<211> 9
<212> PRT
<213> Homo sapiens

<400> 315

Gln Gln Tyr Asp Asn Phe Pro Ile Thr
1 5

<210> 316
<211> 126
<212> PRT
<213> Homo sapiens

<400> 316

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
20 25 30

Tyr Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Ile Ile Asn Pro Gly Gly Gly Ser Thr Ser Tyr 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 Asp Pro Arg Tyr Thr Thr Leu Thr Gly Ser Tyr Tyr Tyr Gly
100 105 110

Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 317
<211> 9
<212> PRT
<213> Homo sapiens

<400> 317

Tyr Thr Phe Thr Ser Tyr Tyr Met His
1 5

<210> 318
<211> 17
<212> PRT
<213> Homo sapiens

<400> 318

Ile Ile Asn Pro Gly Gly Gly Ser Thr Ser Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 319
<211> 19
<212> PRT
<213> Homo sapiens

<400> 319

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

Met Asp Val

<210> 320
<211> 108
<212> PRT
<213> Homo sapiens

<400> 320

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 Ala Asn Thr Pro Pro
85 90 95

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

<210> 321
<211> 11
<212> PRT
<213> Homo sapiens

<400> 321

Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn
1 5 10

<210> 322
<211> 7
<212> PRT
<213> Homo sapiens

<400> 322

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 323
<211> 10
<212> PRT
<213> Homo sapiens

<400> 323

Gln Gln Ser Ala Asn Thr Pro Pro Trp Thr
1 5 10

<210> 324
<211> 117
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 324

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

Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Gly Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Val Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Val Lys Ser Glu Asp Thr Ala Thr Tyr Tyr Cys
85 90 95

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 325

<211> 111

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 325

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

Asp Arg Val Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Thr Gly Gln Ala Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg His Thr Gly Val Pro Asp
50 55 60

Arg Phe Met Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn
65 70 75 80

Ser Phe Gln Thr Glu Asp Leu Gly Asp Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Leu Glu Leu Arg
100 105 110

<210> 326
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 326

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 327
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 327

Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 328
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 328

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 329
<211> 15
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 329

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

<210> 330
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 330

Tyr Ala Ser Thr Arg His Thr
1 5

<210> 331
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 331

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 332
<211> 117
<212> PRT
<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 332

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 333

<211> 111

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 333

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg His Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105 110

<210> 334
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 334

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 335
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 335

Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 336
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 336

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 337
<211> 15
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 337

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

<210> 338
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 338

Tyr Ala Ser Thr Arg His Thr
1 5

<210> 339
<211> 9

<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 339

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 340
<211> 117
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 340

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 341
<211> 111
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 341

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg Glu Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105 110

<210> 342
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 342

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 343

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 343

Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 344

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 344

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 345

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 345

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

<210> 346
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 346

Tyr Ala Ser Thr Arg Glu Thr
1 5

<210> 347
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 347

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 348
<211> 117
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 348

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 349

<211> 111

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 349

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg Gln Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105 110

<210> 350
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 350

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 351
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 351

Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 352
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 352

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 353

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 353

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

<210> 354

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 354

Tyr Ala Ser Thr Arg Gln Thr
1 5

<210> 355

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 355

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 356

<211> 117

<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 356

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Ser Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 357
<211> 111
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 357

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg His Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105 110

<210> 358
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 358

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 359
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 359

Asn Ile Asp Glu Ser Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 360

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 360

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 361

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 361

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

<210> 362

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 362

Tyr Ala Ser Thr Arg His Thr
1 5

<210> 363
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 363

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 364
<211> 117
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 364

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Ser Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 365
<211> 111
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 365

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg Glu Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105 110

<210> 366
<211> 10
<212> PRT
<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 366

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 367

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 367

Asn Ile Asp Glu Ser Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 368

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 368

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 369

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 369

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

<210> 370

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 370

Tyr Ala Ser Thr Arg Glu Thr
1 5

<210> 371

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 371

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 372

<211> 117

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 372

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Ser Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 373
<211> 111
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 373

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg Gln Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105 110

<210> 374
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 374

Gly Phe Thr Phe Ser Asp Tyr Trp Met Asp
1 5 10

<210> 375
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 375

Asn Ile Asp Glu Ser Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val Lys
1 5 10 15

Gly

<210> 376
<211> 8
<212> PRT
<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 376

Trp Gly Arg Phe Gly Phe Asp Ser
1 5

<210> 377

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 377

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

<210> 378

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 378

Tyr Ala Ser Thr Arg Gln Thr
1 5

<210> 379

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Humanized antibody

<400> 379

His His His Tyr Asn Ala Pro Pro Thr
1 5

<210> 380
<211> 447
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 380

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

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
20 25 30

Trp Met Asp Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Val Trp Val
35 40 45

Ser Asn Ile Asp Glu Asp Gly Ser Ile Thr Glu Tyr Ser Pro Phe Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 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

Thr Arg Trp Gly Arg Phe Gly Phe Asp Ser Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly 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 Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
210 215 220

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
260 265 270

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

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

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

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

<210> 381
<211> 218
<212> PRT
<213> Artificial sequence

<220>
<223> Humanized antibody

<400> 381

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

Glu Arg Ala Thr Ile Asn Cys Lys Ser Ser Gln Ser Leu Leu Ser Gly
20 25 30

Ser Phe Asn Tyr Leu Thr Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45

Lys Leu Leu Ile Phe Tyr Ala Ser Thr Arg His Thr Gly Val Pro Asp
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser
65 70 75 80

Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys His His His Tyr
85 90 95

Asn Ala Pro Pro Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys Arg
100 105 110

Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
115 120 125

Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
130 135 140

Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
145 150 155 160

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
165 170 175

Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
180 185 190

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
195 200 205

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 382
<211> 268
<212> PRT
<213> Homo sapiens

<400> 382

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

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

Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr
35 40 45

Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu
50 55 60

Asp Arg Ser Gln Pro Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu
65 70 75 80

Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg Ala Arg Arg Asn
85 90 95

Asp Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala
100 105 110

Gln Ile Lys Glu Ser Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg
115 120 125

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

Gln Phe Gln Thr Leu Val Val Gly Val Val Gly Gly Leu Leu Gly Ser
145 150 155 160

Leu Val Leu Leu Val Trp Val Leu Ala Val Ile Cys Ser Arg Ala Ala
165 170 175

Arg Gly Thr Ile Gly Ala Arg Arg Thr Gly Gln Pro Leu Lys Glu Asp
180 185 190

Pro Ser Ala Val Pro Val Phe Ser Val Asp Tyr Gly Glu Leu Asp Phe
195 200 205

Gln Trp Arg Glu Lys Thr Pro Glu Pro Pro Val Pro Cys Val Pro Glu

210

215

220

Gln Thr Glu Tyr Ala Thr Ile Val Phe Pro Ser Gly Met Gly Thr Ser
 225 230 235 240

Ser Pro Ala Arg Arg Gly Ser Ala Asp Gly Pro Arg Ser Ala Gln Pro
 245 250 255

Leu Arg Pro Glu Asp Gly His Cys Ser Trp Pro Leu
 260 265

<210> 383

<211> 268

<212> PRT

<213> Mus musculus

<400> 383

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

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

Thr Cys Ser Leu Ser Asn Trp Ser Glu Asp Leu Met Leu Asn Trp Asn
 35 40 45

Arg Leu Ser Pro Ser Asn Gln Thr Glu Lys Gln Ala Ala Phe Cys Asn
 50 55 60

Gly Leu Ser Gln Pro Val Gln Asp Ala Arg Phe Gln Ile Ile Gln Leu
 65 70 75 80

Pro Asn Arg His Asp Phe His Met Asn Ile Leu Asp Thr Arg Arg Asn
 85 90 95

Asp Ser Gly Ile Tyr Leu Cys Gly Ala Ile Ser Leu His Pro Lys Ala
 100 105 110

Lys Ile Glu Glu Ser Pro Gly Ala Glu Leu Val Val Thr Glu Arg Ile
115 120 125

Leu Glu Thr Ser Thr Arg Tyr Pro Ser Pro Ser Pro Lys Pro Glu Gly
130 135 140

Arg Phe Gln Gly Met Val Ile Gly Ile Met Ser Ala Leu Val Gly Ile
145 150 155 160

Pro Val Leu Leu Leu Leu Ala Trp Ala Leu Ala Val Phe Cys Ser Thr
165 170 175

Ser Met Ser Glu Ala Arg Gly Ala Gly Ser Lys Asp Asp Thr Leu Lys
180 185 190

Glu Glu Pro Ser Ala Ala Pro Val Pro Ser Val Ala Tyr Glu Glu Leu
195 200 205

Asp Phe Gln Gly Arg Glu Lys Thr Pro Glu Leu Pro Thr Ala Cys Val
210 215 220

His Thr Glu Tyr Ala Thr Ile Val Phe Thr Glu Gly Leu Gly Ala Ser
225 230 235 240

Ala Met Gly Arg Arg Gly Ser Ala Asp Gly Leu Gln Gly Pro Arg Pro
245 250 255

Pro Arg His Glu Asp Gly His Cys Ser Trp Pro Leu
260 265

<210> 384

<211> 268

<212> PRT

<213> *Macaca fascicularis*

<400> 384

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

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

Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr
35 40 45

Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu
50 55 60

Asp Arg Ser Gln Pro Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu
65 70 75 80

Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg Ala Arg Arg Asn
85 90 95

Asp Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala
100 105 110

Gln Ile Lys Glu Ser Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg
115 120 125

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

Gln Phe Gln Thr Leu Val Val Gly Val Val Gly Gly Leu Leu Gly Ser
145 150 155 160

Leu Val Leu Leu Val Trp Val Leu Ala Val Ile Cys Ser Arg Ala Ala
165 170 175

Arg Gly Thr Ile Gly Ala Arg Arg Thr Gly Gln Pro Leu Lys Glu Asp
180 185 190

Pro Ser Ala Val Pro Val Phe Ser Val Asp Tyr Gly Glu Leu Asp Phe
195 200 205

Gln Trp Arg Glu Lys Thr Pro Glu Pro Pro Val Pro Cys Val Pro Glu

210

215

220

Gln Thr Glu Tyr Ala Thr Ile Val Phe Pro Ser Gly Met Gly Thr Ser
 225 230 235 240

Ser Pro Ala Arg Arg Gly Ser Ala Asp Gly Pro Arg Ser Ala Gln Pro
 245 250 255

Leu Arg Pro Glu Asp Gly His Cys Ser Trp Pro Leu
 260 265

<210> 385

<211> 386

<212> PRT

<213> Artificial sequence

<220>

<223> Human PD-1 D85G ECD-Fc-His6

<400> 385

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
 1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
 20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
 35 40 45

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

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
 65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
 85 90 95

Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala Gln Ile Lys Glu Ser

100

105

110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
 115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
 130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
 145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
 165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
 180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
 195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
 210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
 225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
 245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
 260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
 275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
 290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
370 375 380

His His
385

<210> 386
<211> 386
<212> PRT
<213> Artificial sequence

<220>
<223> Human PD-1 R86L ECD-Fc-His6

<400> 386

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
35 40 45

Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Asp Leu Ser Gln Pro
50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
85 90 95

Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala Gln Ile Lys Glu Ser
100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln

260

265

270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
 275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
 290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
 305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
 325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
 340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
 355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
 370 375 380

His His
 385

<210> 387
 <211> 376
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Human PD-1 N33-Q167 ECD-Fc-His6

<400> 387

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

Asn Ala Thr Phe Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val

20

25

30

Leu Asn Trp Tyr Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala
 35 40 45

Ala Phe Pro Glu Asp Arg Ser Gln Pro Gly Gln Asp Cys Arg Phe Arg
 50 55 60

Val Thr Gln Leu Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg
 65 70 75 80

Ala Arg Arg Asn Asp Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu
 85 90 95

Ala Pro Lys Ala Gln Ile Lys Glu Ser Leu Arg Ala Glu Leu Arg Val
 100 105 110

Thr Glu Arg Arg Ala Glu Val Pro Thr Ala His Pro Ser Pro Ser Pro
 115 120 125

Arg Pro Ala Gly Gln Phe Gln Gly Gly Ser Gly Gly Asp Lys Thr His
 130 135 140

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
 145 150 155 160

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 165 170 175

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 180 185 190

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 195 200 205

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 210 215 220

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
225 230 235 240

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
245 250 255

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
260 265 270

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
275 280 285

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
290 295 300

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
305 310 315 320

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
325 330 335

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
340 345 350

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly
355 360 365

Ser Gly His His His His His His
370 375

<210> 388

<211> 386

<212> PRT

<213> Artificial sequence

<220>

<223> Human PD-1 K78A ECD-Fc-His6

<400> 388

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
35 40 45

Asn Gln Thr Asp Ala Leu Ala Ala Phe Pro Glu Asp Arg Ser Gln Pro
50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
85 90 95

Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala Gln Ile Lys Glu Ser
100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr

195

200

205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
 210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
 225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
 245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
 260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
 275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
 290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
 305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
 325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
 340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
 355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
 370 375 380

His His
 385

<210> 389
<211> 386
<212> PRT
<213> Artificial sequence

<220>
<223> Human PD-1 I126A ECD-Fc-His6

<400> 389

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
35 40 45

Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Asp Arg Ser Gln Pro
50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
85 90 95

Leu Cys Gly Ala Ala Ser Leu Ala Pro Lys Ala Gln Ile Lys Glu Ser
100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln

355

360

365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
 370 375 380

His His
 385

<210> 390

<211> 386

<212> PRT

<213> Artificial sequence

<220>

<223> Human PD-1 L128A ECD-Fc-His6

<400> 390

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
 1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
 20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
 35 40 45

Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Asp Arg Ser Gln Pro
 50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
 65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
 85 90 95

Leu Cys Gly Ala Ile Ser Ala Ala Pro Lys Ala Gln Ile Lys Glu Ser
 100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr

115

120

125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
 130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
 145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
 165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
 180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
 195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
 210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
 225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
 245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
 260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
 275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
 290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
 305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
370 375 380

His His
385

<210> 391
<211> 386
<212> PRT
<213> Artificial sequence

<220>
<223> Human PD-1 A132L ECD-Fc-His6

<400> 391

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
35 40 45

Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Asp Arg Ser Gln Pro
50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
85 90 95

Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Leu Gln Ile Lys Glu Ser
100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met

275

280

285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
 290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
 305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
 325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
 340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
 355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
 370 375 380

His His
 385

<210> 392
 <211> 386
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Human PD-1 I134A ECD-Fc-His6

<400> 392

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
 1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
 20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser

35

40

45

Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Asp Arg Ser Gln Pro
 50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
 65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
 85 90 95

Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala Gln Ala Lys Glu Ser
 100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
 115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
 130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
 145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
 165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
 180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
 195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
 210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
 225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
370 375 380

His His
385

<210> 393
<211> 390
<212> PRT
<213> Artificial sequence

<220>
<223> Human PD-1 E136A ECD-Fc-His6

<400> 393

Asp Thr Thr Gly Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe
1 5 10 15

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

Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg
35 40 45

Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Asp
50 55 60

Arg Ser Gln Pro Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro
65 70 75 80

Asn Gly Arg Asp Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp
85 90 95

Ser Gly Thr Tyr Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala Gln
100 105 110

Ile Lys Ala Ser Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala
115 120 125

Glu Val Pro Thr Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln
130 135 140

Phe Gln Thr Leu Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys
145 150 155 160

Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu
165 170 175

Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu
180 185 190

Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys

195

200

205

Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys
 210 215 220

Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu
 225 230 235 240

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
 245 250 255

Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys
 260 265 270

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

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
 290 295 300

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
 305 310 315 320

Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly
 325 330 335

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
 340 345 350

Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
 355 360 365

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly
 370 375 380

His His His His His His
 385 390

<210> 394
<211> 384
<212> PRT
<213> Artificial sequence

<220>
<223> Mouse H129P PD-1 ECD-Fc-His6

<400> 394

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

Trp Leu Thr Val Ser Glu Gly Ala Asn Ala Thr Phe Thr Cys Ser Leu
20 25 30

Ser Asn Trp Ser Glu Asp Leu Met Leu Asn Trp Asn Arg Leu Ser Pro
35 40 45

Ser Asn Gln Thr Glu Lys Gln Ala Ala Phe Cys Asn Gly Leu Ser Gln
50 55 60

Pro Val Gln Asp Ala Arg Phe Gln Ile Ile Gln Leu Pro Asn Arg His
65 70 75 80

Asp Phe His Met Asn Ile Leu Asp Thr Arg Arg Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Ser Leu Pro Pro Lys Ala Lys Ile Glu Glu
100 105 110

Ser Pro Gly Ala Glu Leu Val Val Thr Glu Arg Ile Leu Glu Thr Ser
115 120 125

Thr Arg Tyr Pro Ser Pro Ser Pro Lys Pro Glu Gly Arg Phe Gln Gly
130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser

355

360

365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His His
 370 375 380

<210> 395

<211> 287

<212> PRT

<213> Rattus norvegicus

<400> 395

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

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

Arg Pro Leu Thr Phe Ser Pro Thr Trp Leu Thr Val Ser Glu Gly Ala
 35 40 45

Asn Ala Thr Phe Thr Cys Ser Phe Ser Asn Trp Ser Glu Asp Leu Lys
 50 55 60

Leu Asn Trp Tyr Arg Leu Ser Pro Ser Asn Gln Thr Glu Lys Gln Ala
 65 70 75 80

Ala Phe Cys Asn Gly Tyr Ser Gln Pro Val Arg Asp Ala Arg Phe Gln
 85 90 95

Ile Val Gln Leu Pro Asn Gly His Asp Phe His Met Asn Ile Leu Asp
 100 105 110

Ala Arg Arg Asn Asp Ser Gly Ile Tyr Leu Cys Gly Ala Ile Ser Leu
 115 120 125

Pro Pro Lys Ala Gln Ile Lys Glu Ser Pro Gly Ala Glu Leu Val Val
 130 135 140

Thr Glu Arg Ile Leu Glu Thr Pro Thr Arg Tyr Pro Arg Pro Ser Pro
145 150 155 160

Lys Pro Glu Gly Gln Phe Gln Gly Leu Val Ile Val Ile Met Ser Val
165 170 175

Leu Val Gly Ile Pro Val Leu Leu Leu Leu Ala Trp Ala Leu Ala Ala
180 185 190

Phe Cys Ser Thr Gly Met Ser Glu Ala Arg Glu Ala Gly Arg Lys Glu
195 200 205

Asp Pro Pro Lys Glu Ala His Ala Ala Ala Pro Val Pro Ser Val Ala
210 215 220

Tyr Glu Glu Leu Asp Phe Gln Gly Arg Glu Lys Thr Pro Glu Pro Ala
225 230 235 240

Pro Cys Val His Thr Glu Tyr Ala Thr Ile Val Phe Thr Glu Gly Leu
245 250 255

Asp Ala Ser Ala Ile Gly Arg Arg Gly Ser Ala Asp Gly Pro Gln Gly
260 265 270

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

<210> 396
<211> 263
<212> PRT
<213> Rattus norvegicus

<400> 396

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

Trp Leu Thr Val Ser Glu Gly Ala Asn Ala Thr Phe Thr Cys Ser Phe
20 25 30

Ser Asn Trp Ser Glu Asp Leu Lys Leu Asn Trp Tyr Arg Leu Ser Pro
35 40 45

Ser Asn Gln Thr Glu Lys Gln Ala Ala Phe Cys Asn Gly Tyr Ser Gln
50 55 60

Pro Val Arg Asp Ala Arg Phe Gln Ile Val Gln Leu Pro Asn Gly His
65 70 75 80

Asp Phe His Met Asn Ile Leu Asp Ala Arg Arg Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Ser Leu Pro Pro Lys Ala Gln Ile Lys Glu
100 105 110

Ser Pro Gly Ala Glu Leu Val Val Thr Glu Arg Ile Leu Glu Thr Pro
115 120 125

Thr Arg Tyr Pro Arg Pro Ser Pro Lys Pro Glu Gly Gln Phe Gln Gly
130 135 140

Leu Val Ile Val Ile Met Ser Val Leu Val Gly Ile Pro Val Leu Leu
145 150 155 160

Leu Leu Ala Trp Ala Leu Ala Ala Phe Cys Ser Thr Gly Met Ser Glu
165 170 175

Ala Arg Glu Ala Gly Arg Lys Glu Asp Pro Pro Lys Glu Ala His Ala
180 185 190

Ala Ala Pro Val Pro Ser Val Ala Tyr Glu Glu Leu Asp Phe Gln Gly
195 200 205

Arg Glu Lys Thr Pro Glu Pro Ala Pro Cys Val His Thr Glu Tyr Ala
210 215 220

Thr Ile Val Phe Thr Glu Gly Leu Asp Ala Ser Ala Ile Gly Arg Arg

225 230 235 240

Gly Ser Ala Asp Gly Pro Gln Gly Pro Arg Pro Pro Arg His Glu Asp
245 250 255

Gly His Cys Ser Trp Pro Leu
260

$\langle 210 \rangle$	397
$\langle 211 \rangle$	384
$\langle 212 \rangle$	PRT
$\langle 213 \rangle$	Artificial sequence

<220>
<223> Rat P129H PD-1 ECD-Fc-His6

<400> 397

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

Trp Leu Thr Val Ser Glu Gly Ala Asn Ala Thr Phe Thr Cys Ser Phe
20 25 30

Ser Asn Trp Ser Glu Asp Leu Lys Leu Asn Trp Tyr Arg Leu Ser Pro
35 40 45

Ser Asn Gln Thr Glu Lys Gln Ala Ala Phe Cys Asn Gly Tyr Ser Gln
50 55 60

Pro Val Arg Asp Ala Arg Phe Gln Ile Val Gln Leu Pro Asn Gly His
65 70 75 80

Asp Phe His Met Asn Ile Leu Asp Ala Arg Arg Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Ser Leu His Pro Lys Ala Gln Ile Lys Glu
100 105 110

Ser Pro Gly Ala Glu Leu Val Val Thr Glu Arg Ile Leu Glu Thr Pro

115

120

125

Thr Arg Tyr Pro Arg Pro Ser Pro Lys Pro Glu Gly Gln Phe Gln Gly
 130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
 195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
 245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
 275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
355 360 365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His His
370 375 380

<210> 398

<211> 288

<212> PRT

<213> Canis lupus familiaris

<400> 398

Met Gly Ser Arg Arg Gly Pro Trp Pro Leu Val Trp Ala Val Leu Gln
1 5 10 15

Leu Gly Trp Trp Pro Gly Trp Leu Leu Asp Ser Pro Asp Arg Pro Trp
20 25 30

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

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

Leu Asn Trp Tyr Arg Leu Ser Pro Arg Asn Gln Thr Asp Lys Leu Ala
65 70 75 80

Ala Phe Gln Glu Asp Arg Ile Glu Pro Gly Arg Asp Arg Arg Phe Arg
85 90 95

Val Thr Arg Leu Pro Asn Gly Arg Asp Phe His Met Ser Ile Val Ala
100 105 110

Ala Arg Leu Asn Asp Ser Gly Ile Tyr Leu Cys Gly Ala Ile Tyr Leu
115 120 125

Pro Pro Asn Thr Gln Ile Asn Glu Ser Pro Arg Ala Glu Leu Ser Val
130 135 140

Thr Glu Arg Thr Leu Glu Pro Pro Thr Gln Ser Pro Ser Pro Pro Pro
145 150 155 160

Arg Leu Ser Gly Gln Leu Gln Gly Leu Val Ile Gly Val Thr Ser Val
165 170 175

Leu Val Gly Val Leu Leu Leu Leu Leu Leu Thr Trp Val Leu Ala Ala
180 185 190

Val Phe Pro Arg Ala Thr Arg Gly Ala Cys Val Cys Gly Ser Glu Asp
195 200 205

Glu Pro Leu Lys Glu Gly Pro Asp Ala Ala Pro Val Phe Thr Leu Asp
210 215 220

Tyr Gly Glu Leu Asp Phe Gln Trp Arg Glu Lys Thr Pro Glu Pro Pro
225 230 235 240

Ala Pro Cys Ala Pro Glu Gln Thr Glu Tyr Ala Thr Ile Val Phe Pro
245 250 255

Gly Arg Pro Ala Ser Pro Gly Arg Arg Ala Ser Ala Ser Ser Leu Gln
260 265 270

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

<210> 399

<211> 264

<212> PRT

<213> Canis lupus familiaris

<400> 399

Leu Asp Ser Pro Asp Arg Pro Trp Ser Pro Leu Thr Phe Ser Pro Ala
1 5 10 15

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

Ala Asp Ile Pro Asp Ser Phe Val Leu Asn Trp Tyr Arg Leu Ser Pro
35 40 45

Arg Asn Gln Thr Asp Lys Leu Ala Ala Phe Gln Glu Asp Arg Ile Glu
50 55 60

Pro Gly Arg Asp Arg Arg Phe Arg Val Thr Arg Leu Pro Asn Gly Arg
65 70 75 80

Asp Phe His Met Ser Ile Val Ala Ala Arg Leu Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Tyr Leu Pro Pro Asn Thr Gln Ile Asn Glu
100 105 110

Ser Pro Arg Ala Glu Leu Ser Val Thr Glu Arg Thr Leu Glu Pro Pro
115 120 125

Thr Gln Ser Pro Ser Pro Pro Pro Arg Leu Ser Gly Gln Leu Gln Gly
130 135 140

Leu Val Ile Gly Val Thr Ser Val Leu Val Gly Val Leu Leu Leu Leu
145 150 155 160

Leu Leu Thr Trp Val Leu Ala Ala Val Phe Pro Arg Ala Thr Arg Gly
165 170 175

Ala Cys Val Cys Gly Ser Glu Asp Glu Pro Leu Lys Glu Gly Pro Asp
180 185 190

Ala Ala Pro Val Phe Thr Leu Asp Tyr Gly Glu Leu Asp Phe Gln Trp
195 200 205

Arg Glu Lys Thr Pro Glu Pro Pro Ala Pro Cys Ala Pro Glu Gln Thr
210 215 220

Glu Tyr Ala Thr Ile Val Phe Pro Gly Arg Pro Ala Ser Pro Gly Arg
225 230 235 240

Arg Ala Ser Ala Ser Ser Leu Gln Gly Ala Gln Pro Pro Ser Pro Glu
245 250 255

Asp Gly Pro Gly Leu Trp Pro Pro
260

<210> 400
<211> 20
<212> PRT
<213> Homo sapiens

<400> 400

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

Asp Thr Thr Gly
20

<210> 401
<211> 384
<212> PRT
<213> Artificial sequence

<220>
<223> Human PD-1 extracellular domain (ECD)-Fc-His6

<400> 401

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 Cys 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 Gly
130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
355 360 365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His His
370 375 380

<210> 402

<211> 386

<212> PRT

<213> Artificial sequence

<220>

<223> Human PD-1 D85G/R86L ECD-Fc-His6

<400> 402

Asp Ser Pro Asp Arg Pro Trp Asn Pro Pro Thr Phe Ser Pro Ala Leu
1 5 10 15

Leu Val Val Thr Glu Gly Asp Asn Ala Thr Phe Thr Cys Ser Phe Ser
20 25 30

Asn Thr Ser Glu Ser Phe Val Leu Asn Trp Tyr Arg Met Ser Pro Ser
35 40 45

Asn Gln Thr Asp Lys Leu Ala Ala Phe Pro Glu Gly Leu Ser Gln Pro
50 55 60

Gly Gln Asp Cys Arg Phe Arg Val Thr Gln Leu Pro Asn Gly Arg Asp
65 70 75 80

Phe His Met Ser Val Val Arg Ala Arg Arg Asn Asp Ser Gly Thr Tyr
85 90 95

Leu Cys Gly Ala Ile Ser Leu Ala Pro Lys Ala Gln Ile Lys Glu Ser
100 105 110

Leu Arg Ala Glu Leu Arg Val Thr Glu Arg Arg Ala Glu Val Pro Thr
115 120 125

Ala His Pro Ser Pro Ser Pro Arg Pro Ala Gly Gln Phe Gln Thr Leu
130 135 140

Val Gly Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro
145 150 155 160

Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
165 170 175

Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
180 185 190

Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr
195 200 205

Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
210 215 220

Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
225 230 235 240

Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
245 250 255

Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
260 265 270

Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met
275 280 285

Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
290 295 300

Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
305 310 315 320

Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
325 330 335

Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val
340 345 350

Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
355 360 365

Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His
370 375 380

His His
385

<210> 403
<211> 384
<212> PRT
<213> Artificial sequence

<220>
<223> Mouse PD-1 ECD-Fc-His6

<400> 403

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

Trp Leu Thr Val Ser Glu Gly Ala Asn Ala Thr Phe Thr Cys Ser Leu
20 25 30

Ser Asn Trp Ser Glu Asp Leu Met Leu Asn Trp Asn Arg Leu Ser Pro
35 40 45

Ser Asn Gln Thr Glu Lys Gln Ala Ala Phe Cys Asn Gly Leu Ser Gln
50 55 60

Pro Val Gln Asp Ala Arg Phe Gln Ile Ile Gln Leu Pro Asn Arg His
65 70 75 80

Asp Phe His Met Asn Ile Leu Asp Thr Arg Arg Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Ser Leu His Pro Lys Ala Lys Ile Glu Glu
100 105 110

Ser Pro Gly Ala Glu Leu Val Val Thr Glu Arg Ile Leu Glu Thr Ser
115 120 125

Thr Arg Tyr Pro Ser Pro Ser Pro Lys Pro Glu Gly Arg Phe Gln Gly
130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
355 360 365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His
370 375 380

<210> 404

<211> 384

<212> PRT

<213> Artificial sequence

<220>

<223> Cynomolgus monkey PD-1 ECD-Fc-His6

<400> 404

Leu Glu Ser Pro Asp Arg Pro Trp Asn Ala 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 Gln Asp Cys Arg Phe Arg Val Thr Arg 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 Gly
130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
355 360 365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His His
370 375 380

<210> 405

<211> 384

<212> PRT

<213> Artificial sequence

<220>

<223> Rat PD-1 ECD-Fc-His6

<400> 405

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

Trp Leu Thr Val Ser Glu Gly Ala Asn Ala Thr Phe Thr Cys Ser Phe
20 25 30

Ser Asn Trp Ser Glu Asp Leu Lys Leu Asn Trp Tyr Arg Leu Ser Pro
35 40 45

Ser Asn Gln Thr Glu Lys Gln Ala Ala Phe Cys Asn Gly Tyr Ser Gln
50 55 60

Pro Val Arg Asp Ala Arg Phe Gln Ile Val Gln Leu Pro Asn Gly His
65 70 75 80

Asp Phe His Met Asn Ile Leu Asp Ala Arg Arg Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Ser Leu Pro Pro Lys Ala Gln Ile Lys Glu
100 105 110

Ser Pro Gly Ala Glu Leu Val Val Thr Glu Arg Ile Leu Glu Thr Pro
115 120 125

Thr Arg Tyr Pro Arg Pro Ser Pro Lys Pro Glu Gly Gln Phe Gln Gly
130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
355 360 365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His His
370 375 380

<210> 406
<211> 384
<212> PRT
<213> Artificial sequence

<220>
<223> Dog PD-1 ECD-Fc-His6

<400> 406

Leu Asp Ser Pro Asp Arg Pro Trp Ser Pro Leu Thr Phe Ser Pro Ala
1 5 10 15

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

Ala Asp Ile Pro Asp Ser Phe Val Leu Asn Trp Tyr Arg Leu Ser Pro
35 40 45

Arg Asn Gln Thr Asp Lys Leu Ala Ala Phe Gln Glu Asp Arg Ile Glu
50 55 60

Pro Gly Arg Asp Arg Arg Phe Arg Val Thr Arg Leu Pro Asn Gly Arg
65 70 75 80

Asp Phe His Met Ser Ile Val Ala Ala Arg Leu Asn Asp Ser Gly Ile
85 90 95

Tyr Leu Cys Gly Ala Ile Tyr Leu Pro Pro Asn Thr Gln Ile Asn Glu
100 105 110

Ser Pro Arg Ala Glu Leu Ser Val Thr Glu Arg Thr Leu Glu Pro Pro
115 120 125

Thr Gln Ser Pro Ser Pro Pro Pro Arg Leu Ser Gly Gln Leu Gln Gly
130 135 140

Gly Ser Gly Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
145 150 155 160

Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
165 170 175

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
180 185 190

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
195 200 205

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
210 215 220

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
225 230 235 240

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
245 250 255

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
260 265 270

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
275 280 285

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
290 295 300

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
305 310 315 320

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
325 330 335

Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
340 345 350

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
355 360 365

Leu Ser Leu Ser Pro Gly Lys Gly Ser Gly His His His His His His
370 375 380