

SEQUENCE LISTING

<110> Beijing Biocytogen Co., Ltd

<120> ANTI-PD-1 ANTIBODIES AND USES THEREOF

<130> 1

<160> 73

<170> PatentIn version 3.5

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<400> 1

Ser Phe Trp Met Asn
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<400> 2

Arg Val Asp Pro Tyr Asp Ser Glu Thr His Tyr Asn Gln Lys Phe Lys
1 5 10 15

Asp

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

Ala

<210> 5
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<400> 5

Trp Ala Ser Thr Arg Glu Ser
1 5

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<400> 6

Gln Gln Tyr Tyr Ser Asn Pro Tyr Thr
1 5

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<400> 7

Asn Phe Gly Met Ser
1 5

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Thr	Ile	Ser	Ser	Gly	Ser	Ser	Tyr	Ser	Tyr	Tyr	Ser	Asp	Ser	Val	Lys
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Gly

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Gly	Glu	Ser	Arg	Phe	Ala	Tyr
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Arg	Ser	Asn	Lys	Ser	Leu	Leu	Tyr	Glu	Asp	Gly	Gln	Thr	Tyr	Leu	Asn
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Leu	Met	Ser	Thr	Arg	Ala	Ser
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<400> 12

Gln Gln Leu Ile Glu Tyr Pro Leu Thr
1 5

<210> 13

<211> 5

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Asn Phe Gly Met Ser
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<400> 14

Thr Leu Ser Ser Gly Ser Ser Tyr Thr Tyr Tyr Ser Asp Ser Val Lys
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Gly

<210> 15

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<400> 15

Gly Glu Ser Arg Phe Ala Tyr
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<210> 16

<211> 16

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<400> 16

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

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<400> 17

Leu Met Ser Thr Arg Ala Ser
1 5

<210> 18
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<400> 18

Gln Gln Leu Ile Glu Tyr Pro Leu Thr
1 5

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<400> 19

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

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<400> 20

Asp Pro Tyr Asp Ser Glu
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<210> 21
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<400> 21

Gln Phe Gly Phe Ser Trp Leu Ala Tyr
1 5

<210> 22
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<400> 22

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

Ala

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<400> 23

Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 24
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<400> 24

Gln Gln Tyr Tyr Ser Asn Pro Tyr Thr
1 5

<210> 25
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<400> 25

Gly Phe Pro Phe Ser Asn Phe Gly Met Ser
1 5 10

<210> 26

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<400> 26

Ser Ser Gly Ser Ser Tyr
1 5

<210> 27

<211> 7

<212> PRT

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<400> 27

Gly Glu Ser Arg Phe Ala Tyr
1 5

<210> 28

<211> 16

<212> PRT

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<400> 28

Arg Ser Asn Lys Ser Leu Leu Tyr Glu Asp Gly Gln Thr Tyr Leu Asn
1 5 10 15

<210> 29

<211> 7

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<400> 29

Leu Met Ser Thr Arg Ala Ser
1 5

<210> 30
<211> 9
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<400> 30

Gln Gln Leu Ile Glu Tyr Pro Leu Thr
1 5

<210> 31
<211> 10
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<213> Artificial Sequence

<400> 31

Gly Phe Thr Phe Asn Asn Phe Gly Met Ser
1 5 10

<210> 32
<211> 6
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<400> 32

Ser Ser Gly Ser Ser Tyr
1 5

<210> 33
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<400> 33

Gly Glu Ser Arg Phe Ala Tyr
1 5

<210> 34
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<400> 34

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

<210> 35

<211> 7

<212> PRT

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<400> 35

Leu Met Ser Thr Arg Ala Ser
1 5

<210> 36

<211> 9

<212> PRT

<213> Artificial Sequence

<400> 36

Gln Gln Leu Ile Glu Tyr Pro Leu Thr
1 5

<210> 37

<211> 288

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<213> Human

<400> 37

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

Leu Gly Trp Arg Pro Gly Trp Phe Leu Asp Ser Pro Asp Arg Pro Trp
20 25 30

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

Asn Ala Thr Phe Thr Cys Ser Phe Ser Asn Thr Ser Glu Ser Phe Val
50 55 60

Leu Asn Trp Tyr Arg Met Ser Pro Ser Asn Gln Thr Asp Lys Leu Ala
65 70 75 80

Ala Phe Pro Glu Asp Arg Ser Gln Pro Gly Gln Asp Cys Arg Phe Arg
85 90 95

Val Thr Gln Leu Pro Asn Gly Arg Asp Phe His Met Ser Val Val Arg
100 105 110

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

Ala Pro Lys Ala Gln Ile Lys Glu Ser Leu Arg Ala Glu Leu Arg Val
130 135 140

Thr Glu Arg Arg Ala Glu Val Pro Thr Ala His Pro Ser Pro Ser Pro
145 150 155 160

Arg Pro Ala Gly Gln Phe Gln Thr Leu Val Val Gly Val Val Gly Gly
165 170 175

Leu Leu Gly Ser Leu Val Leu Leu Val Trp Val Leu Ala Val Ile Cys
180 185 190

Ser Arg Ala Ala Arg Gly Thr Ile Gly Ala Arg Arg Thr Gly Gln Pro
195 200 205

Leu Lys Glu Asp Pro Ser Ala Val Pro Val Phe Ser Val Asp Tyr Gly
210 215 220

Glu Leu Asp Phe Gln Trp Arg Glu Lys Thr Pro Glu Pro Pro Val Pro
225 230 235 240

Cys Val Pro Glu Gln Thr Glu Tyr Ala Thr Ile Val Phe Pro Ser Gly
245 250 255

Met Gly Thr Ser Ser Pro Ala Arg Arg Gly Ser Ala Asp Gly Pro Arg

260

265

270

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

<210> 38
 <211> 288
 <212> PRT
 <213> Mouse

<400> 38

Met Trp Val Arg 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 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
260 265 270

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

<210> 39
<211> 288
<212> PRT
<213> Monkey

<400> 39

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

Leu Gly Trp Arg Pro Gly Trp Phe Leu Glu Ser Pro Asp Arg Pro Trp
20 25 30

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

Asn Ala Thr Phe Thr Cys Ser Phe Ser Asn Ala 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 Arg 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 Ala 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 Gln Gly Thr Ile Glu 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 Ala Pro

225 230 235 240

Cys Val Pro Glu Gln Thr Glu Tyr Ala Thr Ile Val Phe Pro Ser Gly
245 250 255

Leu Gly Thr Ser Ser Pro Ala Arg Arg Gly Ser Ala Asp Gly Pro Arg
260 265 270

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

<210> 40
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<213> Artificial Sequence

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Met Trp Val Arg 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 Pro Asn Gly 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 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
260 265 270

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

<210> 41

<211> 288

<212> PRT

<213> Dog

<400> 41

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> 42
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 <212> PRT
 <213> Artificial Sequence

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

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

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

Ala Thr Leu Ser Ser Gly Ser Ser Tyr Thr Tyr Tyr Ser Asp Ser 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 Met Tyr Tyr Cys
85 90 95

Thr Arg Gly Glu Ser Arg Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ala
115

<210> 43
<211> 116
<212> PRT
<213> Artificial Sequence

<400> 43

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

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

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

Ala Thr Leu Ser Ser Gly Ser Ser Tyr Thr Tyr Tyr Ser Asp Ser 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 Met Tyr Tyr Cys
85 90 95

Thr Arg Gly Glu Ser Arg Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ala
115

<210> 44
<211> 116
<212> PRT
<213> Artificial Sequence

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

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

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

Ala Thr Leu Ser Ser Gly Ser Ser Tyr Thr Tyr Tyr Ser Asp Ser 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 Met Tyr Tyr Cys
85 90 95

Thr Arg Gly Glu Ser Arg Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ala
115

<210> 45
<211> 112
<212> PRT
<213> Artificial Sequence

<400> 45

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

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

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

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

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

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

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

<210> 46

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<212> PRT

<213> Artificial Sequence

<400> 46

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

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

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

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

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

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

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

<210> 47
<211> 112
<212> PRT
<213> Artificial Sequence

<400> 47

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

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

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

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

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

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

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

<210> 48
<211> 112
<212> PRT
<213> Artificial Sequence

<400> 48

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

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

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

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

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

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln Gln Leu
85 90 95

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

<210> 49

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 49

Glu 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 Thr Ser Gly Tyr Thr Phe Thr Ser Phe
20 25 30

Trp Met Asn Trp Val Arg Leu Ala Pro Gly Ala Gly Leu Asp Trp Ile
35 40 45

Gly Arg Val Asp Pro Tyr Asp Ser Glu Thr His Tyr Asn Gln Lys Phe

50

55

60

Lys Asp Arg Val Ile Leu Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ala Gly Asp Ile Ala Val Tyr Tyr Cys
85 90 95

Ala Thr Gln Phe Gly Phe Ser Trp Leu Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

<210> 50

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 50

Glu 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 Phe
20 25 30

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

Gly Arg Val Asp Pro Tyr Asp Ser Glu Thr His Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Ile Leu Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ala Gly Asp Ile Ala Val Tyr Tyr Cys
85 90 95

Ala Thr Gln Phe Gly Phe Ser Trp Leu Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

<210> 51
<211> 118
<212> PRT
<213> Artificial Sequence

<400> 51

Glu 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 Phe
20 25 30

Trp Met Asn Trp Val Lys Leu Ala Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45

Gly Arg Val Asp Pro Tyr Asp Ser Glu Thr His Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Arg Ala Ile Leu Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ala Gly Asp Ile Ala Val Tyr Tyr Cys
85 90 95

Ala Thr Gln Phe Gly Phe Ser Trp Leu Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

<210> 52
<211> 113
<212> PRT

<213> Artificial Sequence

<400> 52

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

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

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

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

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

Lys

<210> 53

<211> 113

<212> PRT

<213> Artificial Sequence

<400> 53

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

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

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

Ser 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 Asn Asn Val Gln Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln Gln
85 90 95

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

Lys

<210> 54
<211> 113
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<213> Artificial Sequence

<400> 54

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

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

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

Ser 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 Asn Asn Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln Gln
85 90 95

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

Lys

<210> 55
<211> 116
<212> PRT
<213> Artificial Sequence

<400> 55

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

Ser Leu Lys Leu Ser Cys Val Ala Ser Gly Phe Pro Phe Ser Asn Phe
20 25 30

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

Ala Thr Ile Ser Ser Gly Ser Ser Tyr Ser Tyr Tyr Ser Asp Ser Val
50 55 60

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

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

Ala Arg Gly Glu Ser Arg Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ala

115

<210> 56
<211> 112
<212> PRT
<213> Artificial Sequence

<400> 56

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

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

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

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

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

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

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

<210> 57
<211> 116
<212> PRT
<213> Artificial Sequence

<400> 57

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

Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Phe

20

25

30

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

Ala Thr Leu Ser Ser Gly Ser Ser Tyr Thr Tyr Tyr Ser Asp Ser 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 Lys Ser Glu Asp Thr Ala Met Tyr Tyr Cys
 85 90 95

Thr Arg Gly Glu Ser Arg Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110

Thr Val Ser Ala
 115

<210> 58

<211> 112

<212> PRT

<213> Artificial Sequence

<400> 58

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

Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu Tyr Lys
 20 25 30

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

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

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

Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln Gln Leu
85 90 95

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

<210> 59
<211> 118
<212> PRT
<213> Artificial Sequence

<400> 59

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

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

Trp Met Asn Trp Val Lys Leu Arg Pro Glu Gln Gly Leu Glu Trp Ile
35 40 45

Gly Arg Val Asp Pro Tyr Asp Ser Glu Thr His Tyr Asn Gln Lys Phe
50 55 60

Lys Asp Lys Ala Ile Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80

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

Ala Thr Gln Phe Gly Phe Ser Trp Leu Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

<210> 60
<211> 113
<212> PRT
<213> Artificial Sequence

<400> 60

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

Glu Lys Val Thr Leu Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
20 25 30

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

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

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

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

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

Lys

<210> 61
<211> 358
<212> PRT
<213> Panda

<400> 61

Met Gly Ala Pro Arg Ala 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 Glu Arg Pro Trp
20 25 30

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

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

Leu Asn Trp Tyr Arg Met Ser Pro Arg Asn Gln Thr Asp Lys Leu Ala
65 70 75 80

Ala Phe Gln Glu Asp Arg Ile Gln Pro Gly Pro Asp Arg Arg Phe His
85 90 95

Val Thr Arg Leu Pro Asn Gly Arg Asp Phe His Met Ser Ile Val Ala
100 105 110

Thr Gln Leu Ser Asp Ser Gly Thr 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 Thr Val
130 135 140

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

Arg Ile Thr Asn Gln Leu Gln Gly Leu Val Ile Gly Ile Thr Ser Val
165 170 175

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

Ala Phe Pro Arg Ala Thr Arg Gly Thr Cys Ala Cys Gly Ser Glu Asp
195 200 205

Ala Pro Leu Val Ser Phe Leu Pro Phe Ala Ala Pro Gly Trp Pro Arg

210

215

220

Ser Ser Pro Val Pro Glu Phe Glu Gln Arg Asp Thr Arg Pro Trp Glu
 225 230 235 240

Gly Ala Trp Ser Thr Gly Pro Ala Leu Ala Leu Leu Trp Pro His Val
 245 250 255

Arg Thr Arg Ala Ser Val Pro Leu Pro Val Cys His Pro Glu Thr Thr
 260 265 270

Asp Ala Ser Leu Leu Leu Ser Leu Lys Lys Glu Gly Pro Ser Ala Ala
 275 280 285

Pro Val Phe Thr Val Asp Tyr Gly Glu Leu Asp Phe Gln Trp Arg Glu
 290 295 300

Lys Thr Pro Glu Pro Ser Ala Pro Cys Ala Pro Glu Gln Thr Glu Tyr
 305 310 315 320

Ala Thr Ile Val Phe Pro Ser Arg Pro Gly Ser Pro Gly Arg Arg Ala
 325 330 335

Ser Ala His Ser Pro Gln Gly Pro Gln Pro Leu Ser Pro Glu Asp Gly
 340 345 350

Pro Cys Pro Trp Pro Leu
 355

<210> 62

<211> 278

<212> PRT

<213> Feline

<400> 62

Met Gly Thr Pro Arg Ala 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 Tyr Arg Pro Trp
20 25 30

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

Asn Ala Thr Phe Val Cys His Leu Pro Asp Val Pro Glu Ser Phe Val
50 55 60

Leu Asn Trp Tyr Arg Val Ser Pro Arg Asn Gln Thr Asp Lys Leu Ala
65 70 75 80

Ala Phe Gln Glu Asn His Thr Glu Pro Gly Lys Asp Arg Arg Phe Arg
85 90 95

Val Thr Arg Leu Pro Ser Gly Gln Asp Phe His Thr Thr Ile Leu Ala
100 105 110

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

Pro Pro Asn Thr Gln Ile Tyr Glu Ser Pro Arg Ala Glu Leu Thr Val
130 135 140

Lys Glu Arg Val Leu Glu Pro Pro Thr Glu Ser Pro Ser Pro Pro Pro
145 150 155 160

Arg Leu Thr Gly Gln Gly Gln Gly Leu Val Val 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

Ala Phe Pro Arg Ala Thr Arg Gly Ala Cys Ala Cys Gly Ser Glu Asp
195 200 205

Glu Pro Leu Lys Glu Gly Pro Ser Ala Ala Pro Val Phe Thr Val 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

Ser Arg Pro Gly Ser Pro Gly Pro Leu Pro Leu Arg Pro Glu Asp Gly
260 265 270

Pro Cys Pro Trp Pro Leu
275

<210> 63
<211> 468
<212> PRT
<213> Canis lupus familiaris

<400> 63

Met Glu Ser Val Phe Cys Trp Val Phe Leu Val Val Ile Leu Lys Gly
1 5 10 15

Val Gln Gly Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Lys
20 25 30

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

Ser Ser Tyr Tyr Met His Trp Ile Arg Gln Ala Pro Gly Lys Gly Leu
50 55 60

Gln Arg Val Ala His Ile Arg Gly Asp Gly Arg Thr Thr His Tyr Ala
65 70 75 80

Asp Ala Met Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
85 90 95

Thr Leu Tyr Leu Gln Met Asn Ser Leu Thr Val Glu Asp Thr Ala Ile

100

105

110

Tyr Tyr Cys Val Lys Asp Ile Tyr Tyr Gly Val Gly Asp Tyr Trp Gly
 115 120 125

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

Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr Val
 145 150 155 160

Ala Leu Ala Cys Leu Val Ser Gly Tyr Phe Pro Glu Pro Val Thr Val
 165 170 175

Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser
 180 185 190

Val Leu Gln Ser Ser Gly Leu His Ser Leu Ser Ser Met Val Thr Val
 195 200 205

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Val His
 210 215 220

Pro Ala Ser Asn Thr Lys Val Asp Lys Pro Val Phe Asn Glu Cys Arg
 225 230 235 240

Cys Thr Asp Thr Pro Pro Cys Pro Val Pro Glu Pro Leu Gly Gly Pro
 245 250 255

Ser Val Leu Ile Phe Pro Pro Lys Pro Lys Asp Ile Leu Arg Ile Thr
 260 265 270

Arg Thr Pro Glu Val Thr Cys Val Val Leu Asp Leu Gly Arg Glu Asp
 275 280 285

Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val His Thr
 290 295 300

Ala Lys Thr Gln Ser Arg Glu Gln Gln Phe Asn Gly Thr Tyr Arg Val
305 310 315 320

Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly Lys Glu
325 330 335

Phe Lys Cys Arg Val Asn His Ile Asp Leu Pro Ser Pro Ile Glu Arg
340 345 350

Thr Ile Ser Lys Ala Arg Gly Arg Ala His Lys Pro Ser Val Tyr Val
355 360 365

Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val Ser Ile
370 375 380

Thr Cys Leu Ile Lys Asp Phe Tyr Pro Pro Asp Ile Asp Val Glu Trp
385 390 395 400

Gln Ser Asn Gly Gln Gln Glu Pro Glu Arg Lys His Arg Met Thr Pro
405 410 415

Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu Ser
420 425 430

Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Pro Phe Thr Cys Ala Val
435 440 445

Met His Glu Thr Leu Gln Asn His Tyr Thr Asp Leu Ser Leu Ser His
450 455 460

Ser Pro Gly Lys
465

<210> 64
<211> 473
<212> PRT
<213> Canis lupus familiaris

<400> 64

Met Glu Ser Val Leu Phe Trp Val Phe Leu Val Thr Ile Leu Lys Gly
1 5 10 15

Val Gln Gly Glu Val Arg Leu Val Glu Ser Gly Gly Thr Leu Val Lys
20 25 30

Pro Gly Gly Ser Leu Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe
35 40 45

Arg Arg Tyr Ser Met Asp Trp Val Arg Gln Ala Pro Gly Lys Ser Leu
50 55 60

Gln Trp Val Ala Gly Ile Asn Gly Asp Gly Thr Gly Thr Ser Tyr Ser
65 70 75 80

Gln Thr Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
85 90 95

Thr Leu Tyr Leu Gln Ile Asn Ser Leu Arg Ala Glu Asp Ser Ala Val
100 105 110

Tyr Tyr Cys Ala Lys Ser Trp Ser Arg Asn Gly Asp Leu Asp Tyr Trp
115 120 125

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

Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr
145 150 155 160

Val Ala Leu Ala Cys Leu Val Ser Gly Tyr Phe Pro Glu Pro Val Thr
165 170 175

Val Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro
180 185 190

Ser Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Met Val Thr
195 200 205

Val Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Ala
210 215 220

His Pro Ala Ser Lys Thr Lys Val Asp Lys Pro Val Pro Lys Arg Glu
225 230 235 240

Asn Gly Arg Val Pro Arg Pro Pro Asp Cys Pro Lys Cys Pro Ala Pro
245 250 255

Glu Met Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Pro Lys
260 265 270

Asp Thr Leu Leu Ile Ala Arg Thr Pro Glu Val Thr Cys Val Val Val
275 280 285

Asp Leu Asp Pro Glu Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp
290 295 300

Gly Lys Gln Met Gln Thr Ala Lys Thr Gln Pro Arg Glu Glu Gln Phe
305 310 315 320

Asn Gly Thr Tyr Arg Val Val Ser Val Leu Pro Ile Gly His Gln Asp
325 330 335

Trp Leu Lys Gly Lys Gln Phe Thr Cys Lys Val Asn Asn Lys Ala Leu
340 345 350

Pro Ser Pro Ile Glu Arg Thr Ile Ser Lys Ala Arg Gly Gln Ala His
355 360 365

Gln Pro Ser Val Tyr Val Leu Pro Pro Ser Arg Glu Glu Leu Ser Lys
370 375 380

Asn Thr Val Ser Leu Thr Cys Leu Ile Lys Asp Phe Phe Pro Pro Asp
385 390 395 400

Ile Asp Val Glu Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Ser Lys
405 410 415

Tyr Arg Thr Thr Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu
420 425 430

Tyr Ser Lys Leu Ser Val Asp Lys Ser Arg Trp Gln Arg Gly Asp Thr
435 440 445

Phe Ile Cys Ala Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
450 455 460

Glu Ser Leu Ser His Ser Pro Gly Lys
465 470

<210> 65
<211> 248
<212> PRT
<213> Canis lupus familiaris

<400> 65

Met Arg Phe Pro Ser Gln Leu Leu Gly Leu Leu Met Leu Trp Ile Pro
1 5 10 15

Gly Ser Gly Gly Asp Ile Val Met Thr Gln Thr Pro Pro Ser Leu Ser
20 25 30

Val Ser Pro Arg Glu Pro Ala Ser Ile Ser Cys Arg Ala Ser Gln Ser
35 40 45

Leu Leu His Ser Asn Gly Asn Thr Tyr Leu Asn Trp Phe Arg Gln Lys
50 55 60

Pro Gly Gln Ser Pro Glu Gly Leu Ile Tyr Lys Val Ser Asn Arg Phe
65 70 75 80

Thr Gly Val Ser Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe

85

90

95

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

Cys Gly Gln Gly Thr Gln Leu Pro Pro Thr Pro Ser Leu Trp Leu Thr
 115 120 125

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Asn Asp Ala Gln Pro
 130 135 140

Ala Val Tyr Leu Phe Gln Pro Ser Pro Asp Gln Leu His Thr Gly Ser
 145 150 155 160

Ala Ser Val Val Cys Leu Leu Asn Ser Phe Tyr Pro Lys Asp Ile Asn
 165 170 175

Val Lys Trp Lys Val Asp Gly Val Ile Gln Asp Thr Gly Ile Gln Glu
 180 185 190

Ser Val Thr Glu Gln Asp Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
 195 200 205

Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser His Glu Leu Tyr Ser Cys
 210 215 220

Glu Ile Thr His Lys Ser Leu Pro Ser Thr Leu Ile Lys Ser Phe Gln
 225 230 235 240

Arg Ser Glu Cys Gln Arg Val Asp
 245

<210> 66

<211> 335

<212> PRT

<213> Felis catus

<400> 66

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

Thr Thr Ser Gly Ala Thr Val Ala Leu Ala Cys Leu Val Leu Gly Tyr
20 25 30

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

Gly Val His Thr Phe Pro Ala Val Leu Gln Ala Ser Gly Leu Tyr Ser
50 55 60

Leu Ser Ser Met Val Thr Val Pro Ser Ser Arg Trp Leu Ser Asp Thr
65 70 75 80

Phe Thr Cys Asn Val Ala His Pro Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Thr Val Arg Lys Thr Asp His Pro Pro Gly Pro Lys Pro Cys Asp Cys
100 105 110

Pro Lys Cys Pro Pro Pro Glu Met Leu Gly Gly Pro Ser Ile Phe Ile
115 120 125

Phe Pro Pro Lys Pro Lys Asp Thr Leu Ser Ile Ser Arg Thr Pro Glu
130 135 140

Val Thr Cys Leu Val Val Asp Leu Gly Pro Asp Asp Ser Asp Val Gln
145 150 155 160

Ile Thr Trp Phe Val Asp Asn Thr Gln Val Tyr Thr Ala Lys Thr Ser
165 170 175

Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu
180 185 190

Pro Ile Leu His Gln Asp Trp Leu Lys Gly Lys Glu Phe Lys Cys Lys
195 200 205

Val Asn Ser Lys Ser Leu Pro Ser Pro Ile Glu Arg Thr Ile Ser Lys
210 215 220

Ala Lys Gly Gln Pro His Glu Pro Gln Val Tyr Val Leu Pro Pro Ala
225 230 235 240

Gln Glu Glu Leu Ser Arg Asn Lys Val Ser Val Thr Cys Leu Ile Lys
245 250 255

Ser Phe His Pro Pro Asp Ile Ala Val Glu Trp Glu Ile Thr Gly Gln
260 265 270

Pro Glu Pro Glu Asn Asn Tyr Arg Thr Thr Pro Pro Gln Leu Asp Ser
275 280 285

Asp Gly Thr Tyr Phe Val Tyr Ser Lys Leu Ser Val Asp Arg Ser His
290 295 300

Trp Gln Arg Gly Asn Thr Tyr Thr Cys Ser Val Ser His Glu Ala Leu
305 310 315 320

His Ser His His Thr Gln Lys Ser Leu Thr Gln Ser Pro Gly Lys
325 330 335

<210> 67
<211> 242
<212> PRT
<213> Felis catus

<400> 67

Met Arg Phe Pro Ala Gln Leu Leu Gly Leu Ile Met Leu Trp Ile Pro
1 5 10 15

Gly Ser Ser Gly Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Ser
20 25 30

Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ala Ser Gln Ser

35

40

45

Leu Leu Tyr Ser Asp Gly Asn Thr Tyr Leu Asn Trp Tyr Leu Gln Lys
 50 55 60

Pro Gly Gln Ser Pro Arg Arg Leu Ile Tyr Leu Val Ser Asn Arg Asp
 65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

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

Cys Gly Gln Gly Leu Gln His Pro Leu Thr Phe Gly Pro Gly Thr Lys
 115 120 125

Leu Glu Ile Lys Arg Ser Asp Ala Gln Pro Ser Val Phe Leu Phe Gln
 130 135 140

Pro Ser Leu Asp Glu Leu His Thr Gly Ser Ala Ser Ile Val Cys Ile
 145 150 155 160

Leu Asn Asp Phe Tyr Pro Lys Glu Val Asn Val Lys Trp Lys Val Asp
 165 170 175

Gly Val Val Gln Asn Lys Gly Ile Gln Glu Ser Thr Thr Glu Gln Asn
 180 185 190

Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Met Ser Ser
 195 200 205

Thr Glu Tyr Gln Ser His Glu Lys Phe Ser Cys Glu Val Thr His Lys
 210 215 220

Ser Leu Ala Ser Thr Leu Val Lys Ser Phe Asn Arg Ser Glu Cys Gln
 225 230 235 240

Arg Glu

<210> 68
<211> 474
<212> PRT
<213> Canis lupus familiaris

<400> 68

Met Glu Ser Val Leu Tyr Trp Val Phe Leu Val Ala Ile Leu Lys Gly
1 5 10 15

Val Gln Gly Asp Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Lys
20 25 30

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

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

Gln Trp Val Ala Thr Ile Arg Tyr Asp Gly Ser Asp Ile Tyr Tyr Ala
65 70 75 80

Asp Ala Val Lys Gly Arg Phe Ser Ile Ser Arg Asp Asn Ala Lys Asn
85 90 95

Thr Val Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
100 105 110

Tyr Tyr Cys Ala Lys Ala Pro Pro Tyr Asp Ser Tyr His Tyr Gly Met
115 120 125

Asp Tyr Trp Gly Pro Gly Thr Ser Leu Phe Val Ser Ser Ala Ser Thr
130 135 140

Thr Ala Pro Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Gln Ser
145 150 155 160

Gly Ser Thr Val Ala Leu Ala Cys Leu Val Ser Gly Tyr Ile Pro Glu
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Val Ser Leu Thr Ser Gly Val His
180 185 190

Thr Phe Pro Ser Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
195 200 205

Met Val Thr Val Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys
210 215 220

Asn Val Ala His Pro Ala Thr Asn Thr Lys Val Asp Lys Pro Val Ala
225 230 235 240

Lys Glu Cys Glu Cys Lys Cys Asn Cys Asn Asn Cys Pro Cys Pro Gly
245 250 255

Cys Gly Leu Leu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Pro
260 265 270

Lys Asp Ile Leu Val Thr Ala Arg Thr Pro Thr Val Thr Cys Val Val
275 280 285

Val Asp Leu Asp Pro Glu Asn Pro Glu Val Gln Ile Ser Trp Phe Val
290 295 300

Asp Ser Lys Gln Val Gln Thr Ala Asn Thr Gln Pro Arg Glu Glu Gln
305 310 315 320

Ser Asn Gly Thr Tyr Arg Val Val Ser Val Leu Pro Ile Gly His Gln
325 330 335

Asp Trp Leu Ser Gly Lys Gln Phe Lys Cys Lys Val Asn Asn Lys Ala
340 345 350

Leu Pro Ser Pro Ile Glu Glu Ile Ile Ser Lys Thr Pro Gly Gln Ala
355 360 365

His Gln Pro Asn Val Tyr Val Leu Pro Pro Ser Arg Asp Glu Met Ser
370 375 380

Lys Asn Thr Val Thr Leu Thr Cys Leu Val Lys Asp Phe Phe Pro Pro
385 390 395 400

Glu Ile Asp Val Glu Trp Gln Ser Asn Gly Gln Gln Glu Pro Glu Ser
405 410 415

Lys Tyr Arg Met Thr Pro Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe
420 425 430

Leu Tyr Ser Lys Leu Ser Val Asp Lys Ser Arg Trp Gln Arg Gly Asp
435 440 445

Thr Phe Ile Cys Ala Val Met His Glu Ala Leu His Asn His Tyr Thr
450 455 460

Gln Ile Ser Leu Ser His Ser Pro Gly Lys
465 470

<210> 69
<211> 470
<212> PRT
<213> Canis lupus familiaris

<400> 69

Met Glu Ser Val Leu Cys Trp Val Phe Leu Val Ser Ile Leu Lys Gly
1 5 10 15

Val Gln Gly Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Lys
20 25 30

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

Ser Asp Tyr Gly Met Ser Trp Val Arg Gln Ser Pro Gly Lys Gly Leu
50 55 60

Gln Trp Val Ala Ala Val Ser Asn Arg Gly Asp Thr Tyr Tyr Ala Asp
65 70 75 80

Ala Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr
85 90 95

Leu Tyr Leu Gln Met Ser Ser Leu Lys Ala Glu Asp Thr Ala Ile Tyr
100 105 110

His Cys Val Thr Gly Val Trp Pro Arg His Tyr Tyr Gly Met Asp His
115 120 125

Trp Gly Asn Gly Thr Ser Leu Phe Val Ser Ser Ala Ser Thr Thr Ala
130 135 140

Pro Ser Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser
145 150 155 160

Thr Val Ala Leu Ala Cys Leu Val Ser Gly Tyr Phe Pro Glu Pro Val
165 170 175

Thr Val Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe
180 185 190

Pro Ser Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Thr Val
195 200 205

Thr Val Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val
210 215 220

Val His Pro Ala Ser Asn Thr Lys Val Asp Lys Pro Val Pro Lys Glu
225 230 235 240

Ser Thr Cys Lys Cys Ile Ser Pro Cys Pro Val Pro Glu Ser Leu Gly

245

250

255

Gly Pro Ser Val Phe Ile Phe Pro Pro Lys Pro Lys Asp Ile Leu Arg
 260 265 270

Ile Thr Arg Thr Pro Glu Ile Thr Cys Val Val Leu Asp Leu Gly Arg
 275 280 285

Glu Asp Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val
 290 295 300

His Thr Ala Lys Thr Gln Pro Arg Glu Gln Gln Phe Asn Ser Thr Tyr
 305 310 315 320

Arg Val Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly
 325 330 335

Lys Glu Phe Lys Cys Arg Val Asn His Ile Gly Leu Pro Ser Pro Ile
 340 345 350

Glu Arg Thr Ile Ser Lys Ala Arg Gly Gln Ala His Gln Pro Ser Val
 355 360 365

Tyr Val Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val
 370 375 380

Thr Leu Thr Cys Leu Ile Lys Asp Phe Phe Pro Pro Glu Ile Asp Val
 385 390 395 400

Glu Trp Gln Ser Asn Gly Gln Pro Glu Pro Glu Ser Lys Tyr His Thr
 405 410 415

Thr Ala Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys
 420 425 430

Leu Ser Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Thr Phe Thr Cys
 435 440 445

Ala Val Met His Glu Ala Leu Gln Asn His Tyr Thr Asp Leu Ser Leu
450 455 460

Ser His Ser Pro Gly Lys
465 470

<210> 70
<211> 110
<212> PRT
<213> Artificial Sequence

<400> 70

Arg Asn Asp Ala Gln Pro Ala Val Tyr Leu Phe Gln Pro Ser Pro Asp
1 5 10 15

Gln Leu His Thr Gly Ser Ala Ser Val Val Cys Leu Leu Asn Ser Phe
20 25 30

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Val Asp Gly Val Ile Gln
35 40 45

Asp Thr Gly Ile Gln Glu Ser Val Thr Glu Gln Asp Lys Asp Ser Thr
50 55 60

Tyr Ser Leu Ser Ser Thr Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser
65 70 75 80

His Glu Leu Tyr Ser Cys Glu Ile Thr His Lys Ser Leu Pro Ser Thr
85 90 95

Leu Ile Lys Ser Phe Gln Arg Ser Glu Cys Gln Arg Val Asp
100 105 110

<210> 71
<211> 109
<212> PRT
<213> Artificial Sequence

<400> 71

Thr Asp Ala Gln Pro Ala Val Tyr Leu Phe Gln Pro Ser Pro Asp Gln
1 5 10 15

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

Pro Lys Asp Ile Asn Val Lys Trp Lys Val Asp Gly Val Ile Gln Asp
35 40 45

Thr Gly Ile Gln Glu Ser Val Thr Glu Gln Asp Lys Asp Ser Thr Tyr
50 55 60

Ser Leu Ser Ser Thr Leu Thr Met Ser Ser Thr Glu Tyr Leu Ser His
65 70 75 80

Glu Leu Tyr Ser Cys Glu Ile Thr His Lys Ser Leu Pro Ser Thr Leu
85 90 95

Ile Lys Ser Phe Gln Arg Ser Glu Cys Gln Arg Val Asp
100 105

<210> 72
<211> 468
<212> PRT
<213> Artificial Sequence

<400> 72

Met Glu Trp Ser Trp Val Phe Leu Phe Leu Leu Ser Val Ile Ala Gly
1 5 10 15

Val Gln Ser Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Thr Ser Gly Tyr Thr Phe
35 40 45

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

Asp Trp Ile Gly Arg Val Asp Pro Tyr Asp Ser Glu Thr His Tyr Asn
65 70 75 80

Gln Lys Phe Lys Asp Arg Val Ile Leu Thr Val Asp Thr Ser Thr Ser
85 90 95

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ala Gly Asp Ile Ala Val
100 105 110

Tyr Tyr Cys Ala Thr Gln Phe Gly Phe Ser Trp Leu Ala Tyr Trp Gly
115 120 125

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

Val Phe Pro Leu Ala Pro Ser Cys Gly Ser Thr Ser Gly Ser Thr Val
145 150 155 160

Ala Leu Ala Cys Leu Val Ser Gly Tyr Phe Pro Glu Pro Val Thr Val
165 170 175

Ser Trp Asn Ser Gly Ser Leu Thr Ser Gly Val His Thr Phe Pro Ser
180 185 190

Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Thr Val Thr Val
195 200 205

Pro Ser Ser Arg Trp Pro Ser Glu Thr Phe Thr Cys Asn Val Val His
210 215 220

Pro Ala Ser Asn Thr Lys Val Asp Lys Pro Val Pro Lys Glu Ser Thr
225 230 235 240

Cys Lys Cys Ile Ser Pro Cys Pro Val Pro Glu Ser Leu Gly Gly Pro
245 250 255

Ser Val Phe Ile Phe Pro Pro Lys Pro Lys Asp Ile Leu Arg Ile Thr
260 265 270

Arg Thr Pro Glu Ile Thr Cys Val Val Leu Asp Leu Gly Arg Glu Asp
275 280 285

Pro Glu Val Gln Ile Ser Trp Phe Val Asp Gly Lys Glu Val His Thr
290 295 300

Ala Lys Thr Gln Pro Arg Glu Gln Gln Phe Asn Ser Thr Tyr Arg Val
305 310 315 320

Val Ser Val Leu Pro Ile Glu His Gln Asp Trp Leu Thr Gly Lys Glu
325 330 335

Phe Lys Cys Arg Val Asn His Ile Gly Leu Pro Ser Pro Ile Glu Arg
340 345 350

Thr Ile Ser Lys Ala Arg Gly Gln Ala His Gln Pro Ser Val Tyr Val
355 360 365

Leu Pro Pro Ser Pro Lys Glu Leu Ser Ser Ser Asp Thr Val Thr Leu
370 375 380

Thr Cys Leu Ile Lys Asp Phe Phe Pro Pro Glu Ile Asp Val Glu Trp
385 390 395 400

Gln Ser Asn Gly Gln Pro Glu Pro Glu Ser Lys Tyr His Thr Thr Ala
405 410 415

Pro Gln Leu Asp Glu Asp Gly Ser Tyr Phe Leu Tyr Ser Lys Leu Ser
420 425 430

Val Asp Lys Ser Arg Trp Gln Gln Gly Asp Thr Phe Thr Cys Ala Val
435 440 445

Met His Glu Ala Leu Gln Asn His Tyr Thr Asp Leu Ser Leu Ser His
450 455 460

Ser Pro Gly Lys
465

<210> 73
<211> 243
<212> PRT
<213> Artificial Sequence

<400> 73

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

Gly Ala Arg Cys Glu Ile Val Met Thr Gln Ser Pro Gly Ser Leu Ala
20 25 30

Gly Ser Ala Gly Glu Ser Val Ser Ile Asn Cys Lys Ser Ser Gln Ser
35 40 45

Leu Leu Tyr Ser Ser Asn Gln Lys Asn Tyr Leu Ala Trp Tyr Gln Gln
50 55 60

Lys Pro Gly Glu Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65 70 75 80

Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
85 90 95

Phe Thr Leu Thr Ile Asn Asn Leu Gln Ala Glu Asp Val Gly Val Tyr
100 105 110

Tyr Cys Gln Gln Tyr Tyr Ser Asn Pro Tyr Thr Phe Gly Gln Gly Thr
115 120 125

Lys Leu Glu Ile Lys Arg Thr Asp Ala Gln Pro Ala Val Tyr Leu Phe
130 135 140

Gln Pro Ser Pro Asp Gln Leu His Thr Gly Ser Ala Ser Val Val Cys

160

175

190

205

220

240

Val