

SEQUENCE LISTING

<110> Eucure (Beijing) Biopharma Co., Ltd
Beijing Biocytogen Co., Ltd

<120> ANTI-CD40 ANTIBODIES AND USES THEREOF

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<170> PatentIn version 3.5

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Asp Tyr Tyr Met Tyr

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Tyr Ile Ser Tyr Gly Gly Asp Ser Thr Phe Tyr Pro Asp Thr Val Arg

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Gly

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Pro Ala Pro Ser Ala His Ser Tyr Tyr Leu Asp Tyr

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Arg Ala Ser Gln Asp Ile Ser Asn Tyr Leu Asn

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Tyr Tyr Thr Ser Arg Leu His Ser

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Gln Gln Gly Lys Thr Leu Pro Phe Thr

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Ser Tyr Tyr Ile Tyr

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Gly Ile Asn Pro Arg Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe Lys

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Ser

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His Gly Asn Gly Val Tyr

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Arg Ser Ser Gln Ser Leu Leu His Ser Asn Gly Asn Thr Tyr Leu His
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Gln Val Ser Asn Arg Phe Ser
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Ser Gln Thr Thr His Val Pro Trp Thr
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Ser Gly Tyr Trp Asn

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Phe Ile Ser Tyr Ser Gly Ser Thr Tyr Tyr Thr Pro Ser Leu Lys Ser

1 5 10 15

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Phe Arg Arg Tyr Asp Asp Gly Val Asp Tyr

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Arg Ala Ser His Glu Ile Ser Gly Tyr Leu Ser

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Ala Ala Ser Thr Leu Ala Ser

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Leu Gln Tyr Ser Ser Tyr Pro Trp Thr

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Gly Phe Thr Phe Ser Asp Tyr Tyr Met Tyr

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Ser Tyr Gly Gly Asp Ser

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Tyr Thr Ser Arg Leu His Ser

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Gly Tyr Thr Phe Ile Ser Tyr Tyr Ile Tyr

1 5 10

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Asn Pro Arg Asn Gly Gly

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Gly Asp Ser Val Ser Ser Gly Tyr Trp Asn

1 5 10

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Ser Tyr Ser Gly Ser

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Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr

1 5 10 15

Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu

20 25 30

Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val

35 40 45

Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu

50 55 60

Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His

65 70 75 80

Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr

85 90 95

Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr

100 105 110

Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly

115 120 125

Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu

130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys

145 150 155 160

Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln
165 170 175

Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu
180 185 190

Arg Ala Leu Val Val Ile Pro Ile Ile Phe Gly Ile Leu Phe Ala Ile
195 200 205

Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Thr Asn
210 215 220

Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Pro Asp
225 230 235 240

Asp Leu Pro Gly Ser Asn Thr Ala Ala Pro Val Gln Glu Thr Leu His
245 250 255

Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile Ser
260 265 270

Val Gln Glu Arg Gln

275

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<400> 27

Met Val Ser Leu Pro Arg Leu Cys Ala Leu Trp Gly Cys Leu Leu Thr

1 5 10 15

Ala Val His Leu Gly Gln Cys Val Thr Cys Ser Asp Lys Gln Tyr Leu

20 25 30

His Asp Gly Gln Cys Cys Asp Leu Cys Gln Pro Gly Ser Arg Leu Thr

35 40 45

Ser His Cys Thr Ala Leu Glu Lys Thr Gln Cys His Pro Cys Asp Ser

50 55 60

Gly Glu Phe Ser Ala Gln Trp Asn Arg Glu Ile Arg Cys His Gln His

65 70 75 80

Arg His Cys Glu Pro Asn Gln Gly Leu Arg Val Lys Lys Glu Gly Thr

85 90 95

Ala Glu Ser Asp Thr Val Cys Thr Cys Lys Glu Gly Gln His Cys Thr
100 105 110

Ser Lys Asp Cys Glu Ala Cys Ala Gln His Thr Pro Cys Ile Pro Gly
115 120 125

Phe Gly Val Met Glu Met Ala Thr Glu Thr Thr Asp Thr Val Cys His
130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Gln Ser Ser Leu Phe Glu Lys
145 150 155 160

Cys Tyr Pro Trp Thr Ser Cys Glu Asp Lys Asn Leu Glu Val Leu Gln
165 170 175

Lys Gly Thr Ser Gln Thr Asn Val Ile Cys Gly Leu Lys Ser Arg Met
180 185 190

Arg Ala Leu Leu Val Ile Pro Val Val Met Gly Ile Leu Ile Thr Ile
195 200 205

Phe Gly Val Phe Leu Tyr Ile Lys Lys Val Val Lys Lys Pro Lys Asp
210 215 220

Asn Glu Ile Leu Pro Pro Ala Ala Arg Arg Gln Asp Pro Gln Glu Met
225 230 235 240

Glu Asp Tyr Pro Gly His Asn Thr Ala Ala Pro Val Gln Glu Thr Leu
245 250 255

His Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile
260 265 270

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

Val

<210> 28

<211> 278

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<213> Monkey

<400> 28

Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
1 5 10 15

Ala Val Tyr Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
 20 25 30

Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
 35 40 45

Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Ser Glu
 50 55 60

Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr Arg Cys His Gln His
65 70 75 80

Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
 85 90 95

Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Leu His Cys Met
 100 105 110

Ser Glu Ser Cys Glu Ser Cys Val Pro His Arg Ser Cys Leu Pro Gly
 115 120 125

Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu

130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys

145 150 155 160

Cys Arg Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln

165 170 175

Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Gln

180 185 190

Arg Ala Leu Val Val Ile Pro Ile Cys Leu Gly Ile Leu Phe Val Ile

195 200 205

Leu Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Asn

210 215 220

Asp Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Leu

225 230 235 240

Asp Asp Leu Pro Gly Ser Asn Pro Ala Ala Pro Val Gln Glu Thr Leu

245 250 255

His Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile
260 265 270

Ser Val Gln Glu Arg Gln
275

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<213> Artificial Sequence

<400> 29

Met Val Ser Leu Pro Arg Leu Cys Ala Leu Trp Gly Cys Leu Leu Thr
1 5 10 15

Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
20 25 30

Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
35 40 45

Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
50 55 60

Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
65 70 75 80

Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
 85 90 95

Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
 100 105 110

Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
 115 120 125

Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
 130 135 140

Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
145 150 155 160

Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln
 165 170 175

Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu

180 185 190

Arg Ala Leu Leu Val Ile Pro Val Val Met Gly Ile Leu Ile Thr Ile

195 200 205

Phe Gly Val Phe Leu Tyr Ile Lys Lys Val Val Lys Lys Pro Lys Asp

210 215 220

Asn Glu Ile Leu Pro Pro Ala Ala Arg Arg Gln Asp Pro Gln Glu Met

225 230 235 240

Glu Asp Tyr Pro Gly His Asn Thr Ala Ala Pro Val Gln Glu Thr Leu

245 250 255

His Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile

260 265 270

Ser Val Gln Glu Arg Gln Val Thr Asp Ser Ile Ala Leu Arg Pro Leu

275 280 285

Val

<210> 30

<211> 121

<212> PRT

<213> Artificial Sequence

<400> 30

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

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

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

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

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

Ala Arg Pro Ala Pro Ser Ala His Ser Tyr Tyr Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Leu Thr Val Ser Ser
115 120

<210> 31

<211> 121

<212> PRT

<213> Artificial Sequence

<400> 31

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

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

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

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

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

Ala Arg Pro Ala Pro Ser Ala His Ser Tyr Tyr Leu Asp Tyr Trp Gly
 100 105 110

Gln Gly Thr Leu Leu Thr Val Ser Ser
 115 120

<210> 32

<211> 121

<212> PRT

<213> Artificial Sequence

<400> 32

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

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

Tyr Met Tyr Trp Val Arg Gln Ala Pro Glu Lys Arg Leu Glu Trp Val

35 40 45

Ala Tyr Ile Ser Tyr Gly Gly Asp Ser Thr Phe Tyr Pro Asp Thr Val

50 55 60

Arg Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ala Leu Tyr

65 70 75 80

Leu Gln Met Ser Arg Leu Lys Ala Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Ala Arg Pro Ala Pro Ser Ala His Ser Tyr Tyr Leu Asp Tyr Trp Gly

100 105 110

Gln Gly Thr Thr Leu Thr Val Ser Ser

115 120

<210> 33

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 33

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 Asp Ile Ser Asn Tyr

20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gly Ala Val Lys Leu Leu Ile

35 40 45

Tyr Tyr Thr Ser Arg Leu His Ser Gly Leu Pro Ser Arg Phe Ser Gly

50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro

65 70 75 80

Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Gly Lys Thr Leu Pro Phe

85 90 95

Thr Phe Ala Ser Gly Thr Lys Leu Glu Ile Lys

100 105

<210> 34

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 34

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 Asp Ile Ser Asn Tyr
 20 25 30

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

Tyr Tyr Thr Ser Arg Leu His Ser Gly Leu Pro Ser Arg Phe Ser Gly
 50 55 60

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

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

Thr Phe Ala Ser Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 35

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 35

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

1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Asn Tyr

20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gly Ala Val Lys Leu Leu Ile

35 40 45

Tyr Tyr Thr Ser Arg Leu His Ser Gly Leu Pro Ser Arg Phe Ser Gly

50 55 60

Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Gln

65 70 75 80

Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Gly Lys Thr Leu Pro Phe

85 90 95

Thr Phe Ala Ser Gly Thr Lys Leu Glu Ile Lys

100

105

<210> 36

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 36

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

1

5

10

15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Ser Asn Tyr

20

25

30

Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Val Lys Leu Leu Ile

35

40

45

Tyr Tyr Thr Ser Arg Leu His Ser Gly Leu Pro Ser Arg Phe Ser Gly

50

55

60

Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Gln

65

70

75

80

Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Gly Lys Thr Leu Pro Phe

85

90

95

Thr Phe Ala Ser Gly Thr Lys Leu Glu Ile Lys

100

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<211> 115

<212> PRT

<213> Artificial Sequence

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

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Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ile Ser Tyr

20

25

30

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

35

40

45

Gly Gly Ile Asn Pro Arg Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe

50

55

60

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

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

Ala Arg His Gly Asn Gly Val Tyr Trp Gly Gln Gly Thr Thr Val Thr
 100 105 110

Val Ser Ser
 115

<210> 38

<211> 115

<212> PRT

<213> Artificial Sequence

<400> 38

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 Ile Ser Tyr
 20 25 30

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

Gly Gly Ile Asn Pro Arg Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe
50 55 60

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

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

Ala Arg His Gly Asn Gly Val Tyr Trp Gly Gln Gly Thr Thr Val Thr
100 105 110

Val Ser Ser
115

<210> 39

<211> 115

<212> PRT

<213> Artificial Sequence

<400> 39

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 Ile Ser Tyr

20 25 30

Tyr Ile Tyr Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Gly Ile Asn Pro Arg Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe

50 55 60

Lys Ser Arg Ala Thr Leu Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr

65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg His Gly Asn Gly Val Tyr Trp Gly Gln Gly Thr Thr Val Thr

100 105 110

Val Ser Ser

115

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<213> Artificial Sequence

<400> 40

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

1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ile Ser Tyr

20 25 30

Tyr Ile Tyr Trp Val Lys Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Gly Ile Asn Pro Arg Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe

50 55 60

Lys Ser Arg Ala Thr Leu Thr Val Asp Thr Ser Ile Ser Thr Ala Tyr

65 70 75 80

Met Glu Leu Ser Arg Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg His Gly Asn Gly Val Tyr Trp Gly Gln Gly Thr Thr Leu Thr
100 105 110

Val Ser Ser
115

<210> 41
<211> 112
<212> PRT
<213> Artificial Sequence

<400> 41

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

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser
20 25 30

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

Pro Arg His Leu Ile Tyr Gln Val Ser Asn Arg Phe Ser Gly Val Pro
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 Ser Gln Thr
 85 90 95

Thr His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
 100 105 110

<210> 42

<211> 112

<212> PRT

<213> Artificial Sequence

<400> 42

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

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser
 20 25 30

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

Pro Asn His Leu Ile Tyr Gln Val Ser Asn Arg Phe Ser Gly Val Pro
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 Phe Cys Ser Gln Thr
85 90 95

Thr His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105 110

<210> 43

<211> 112

<212> PRT

<213> Artificial Sequence

<400> 43

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

Asp Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser
20 25 30

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

Pro Asn His Leu Ile Tyr Gln Val Ser Asn Arg Phe Ser Gly Val Pro
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 Phe Cys Ser Gln Thr
85 90 95

Thr His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 44

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 44

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Asp Ser Val Ser Ser Gly
20 25 30

Tyr Trp Asn Trp Ile Arg Lys His Pro Gly Lys Lys Leu Glu Trp Ile
35 40 45

Gly Phe Ile Ser Tyr Ser Gly Ser Thr Tyr Tyr Thr Pro Ser Leu Lys
50 55 60

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

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Phe Arg Arg Tyr Asp Asp Gly Val Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 45

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 45

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

1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Asp Ser Val Ser Ser Gly

20 25 30

Tyr Trp Asn Trp Ile Arg Lys His Pro Gly Lys Lys Leu Glu Trp Ile

35 40 45

Gly Phe Ile Ser Tyr Ser Gly Ser Thr Tyr Tyr Thr Pro Ser Leu Lys

50 55 60

Ser Arg Val Thr Ile Ser Arg Asp Thr Ser Lys Asn Gln Phe Ser Leu

65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala

85 90 95

Arg Phe Arg Arg Tyr Asp Asp Gly Val Asp Tyr Trp Gly Gln Gly Thr

100 105 110

Leu Val Thr Val Ser Ser

115

<210> 46

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 46

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

1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Asp Ser Val Ser Ser Gly

20 25 30

Tyr Trp Asn Trp Ile Arg Lys His Pro Gly Lys Lys Leu Glu Tyr Met

35 40 45

Gly Phe Ile Ser Tyr Ser Gly Ser Thr Tyr Tyr Thr Pro Ser Leu Lys

50 55 60

Ser Arg Ile Thr Ile Ser Arg Asp Thr Ser Lys Asn Gln Phe Ser Leu

65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Phe Cys Ala

85 90 95

Arg Phe Arg Arg Tyr Asp Asp Gly Val Asp Tyr Trp Gly Gln Gly Thr

100 105 110

Leu Val Thr Val Ser Ser

115

<210> 47

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 47

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

1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Asp Ser Val Ser Ser Gly

20 25 30

Tyr Trp Asn Trp Ile Arg Lys Phe Pro Gly Lys Lys Leu Glu Tyr Met

35 40 45

Gly Phe Ile Ser Tyr Ser Gly Ser Thr Tyr Tyr Thr Pro Ser Leu Lys

50 55 60

Ser Arg Ile Thr Ile Ser Arg Asp Thr Ser Lys Asn Gln Phe Ser Leu

65 70 75 80

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Phe Cys Ala

85 90 95

Arg Phe Arg Arg Tyr Asp Asp Gly Val Asp Tyr Trp Gly Gln Gly Thr

100 105 110

Leu Val Thr Val Ser Ser

115

<210> 48

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 48

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

1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser His Glu Ile Ser Gly Tyr
20 25 30

Leu Ser Trp Phe Gln Gln Lys Pro Gly Gly Val Ile Lys Arg Leu Ile
35 40 45

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

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Tyr Ser Ser Tyr Pro Trp
85 90 95

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

<210> 49

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 49

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

1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser His Glu Ile Ser Gly Tyr

20 25 30

Leu Ser Trp Ile Gln Gln Lys Pro Gly Gly Thr Ile Lys Arg Leu Ile

35 40 45

Asn Ala Ala Ser Thr Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly

50 55 60

Ser Arg Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro

65 70 75 80

Glu Asp Phe Ala Asp Tyr Tyr Cys Leu Gln Tyr Ser Ser Tyr Pro Trp

85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys

100 105

<210> 50

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 50

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser His Glu Ile Ser Gly Tyr
 20 25 30

Leu Ser Trp Ile Gln Gln Lys Pro Gly Gly Thr Ile Lys Arg Leu Ile
 35 40 45

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

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

Glu Asp Phe Ala Asp Tyr Tyr Cys Leu Gln Tyr Ser Ser Tyr Pro Trp
 85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys

100

105

<210> 51

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 51

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

1

5

10

15

Asp Arg Val Thr Leu Thr Cys Arg Ala Ser His Glu Ile Ser Gly Tyr

20

25

30

Leu Ser Trp Ile Gln Gln Lys Pro Gly Gly Thr Ile Lys Arg Leu Ile

35

40

45

Asn Ala Ala Ser Thr Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly

50

55

60

Ser Arg Ser Gly Thr Glu Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro

65

70

75

80

Glu Asp Phe Ala Asp Tyr Tyr Cys Leu Gln Tyr Ser Ser Tyr Pro Trp

85

90

95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys

100

105

<210> 52

<211> 121

<212> PRT

<213> Artificial Sequence

<400> 52

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

1

5

10

15

Ser Leu Lys Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Tyr

20

25

30

Tyr Met Tyr Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val

35

40

45

Ala Tyr Ile Ser Tyr Gly Gly Asp Ser Thr Phe Tyr Pro Asp Thr Val

50

55

60

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

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

Ala Arg Pro Ala Pro Ser Ala His Ser Tyr Tyr Leu Asp Tyr Trp Gly
 100 105 110

Gln Gly Thr Thr Leu Thr Val Ser Ser
 115 120

<210> 53

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 53

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

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

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

Tyr Tyr Thr Ser Arg Leu His Ser Gly Leu Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
65 70 75 80

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

Thr Phe Ala Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 54

<211> 115

<212> PRT

<213> Artificial Sequence

<400> 54

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

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ile Ser Tyr

20 25 30

Tyr Ile Tyr Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile

35 40 45

Gly Gly Ile Asn Pro Arg Asn Gly Gly Thr Asn Phe Asn Glu Lys Phe

50 55 60

Lys Ser Lys Ala Thr 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

Thr Arg His Gly Asn Gly Val Tyr Trp Gly Gln Gly Thr Thr Leu Thr

100 105 110

Val Ser Ser

115

<210> 55

<211> 112

<212> PRT

<213> Artificial Sequence

<400> 55

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

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Leu His Ser
 20 25 30

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

Pro Asn His Leu Ile Tyr Gln Val Ser Asn Arg Phe Ser Gly Val Pro
 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 Leu Gly Val Tyr Phe Cys Ser Gln Thr
 85 90 95

Thr His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 56

<211> 118

<212> PRT

<213> Artificial Sequence

<400> 56

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

1 5 10 15

Thr Leu Ser Leu Thr Cys Ser Val Thr Gly Asp Ser Val Ser Ser Gly

20 25 30

Tyr Trp Asn Trp Ile Arg Lys Phe Pro Gly Asn Lys Leu Glu Tyr Met

35 40 45

Gly Phe Ile Ser Tyr Ser Gly Ser Thr Tyr Tyr Thr Pro Ser Leu Lys

50 55 60

Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Tyr Leu

65 70 75 80

Gln Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys Ala

85 90 95

Arg Phe Arg Arg Tyr Asp Asp Gly Val Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Thr Leu Thr Val Ser Ser
115

<210> 57

<211> 107

<212> PRT

<213> Artificial Sequence

<400> 57

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

Glu Arg Val Ser Leu Thr Cys Arg Ala Ser His Glu Ile Ser Gly Tyr
20 25 30

Leu Ser Trp Ile Gln Gln Lys Pro Asp Gly Thr Ile Lys Arg Leu Ile
35 40 45

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

Ser Arg Ser Gly Ser Glu Tyr Ser Leu Thr Ile Asn Ser Leu Glu Ser
65 70 75 80

Glu Asp Phe Ala Asp Tyr Tyr Cys Leu Gln Tyr Ser Ser Tyr Pro Trp
 85 90 95

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