

SEQUENCE LISTING

<110> COURIER THERAPEUTICS, INC.

<120> BISPECIFIC FUSION PROTEIN USING ORTHOPOXVIRUS MAJOR HISTOCOMPATIBILITY COMPLEX (MHC) CLASS I-LIKE PROTEIN (OMCP) AND TUMOR-SPECIFIC LIGANDS

<130> P23518W000

<140>

<141>

<150> 62/807,190

<151> 2019-02-18

<160> 38

<170> PatentIn version 3.5

<210> 1

<211> 152

<212> PRT

<213> Orthopoxvirus sp.

<400> 1

His	Lys	Leu	Ala	Phe	Asn	Phe	Asn	Leu	Glu	Ile	Asn	Gly	Ser	Asp	Thr
1				5					10					15	

His	Ser	Thr	Val	Asp	Val	Tyr	Leu	Asp	Asp	Ser	Gln	Ile	Ile	Thr	Phe
			20					25					30		

Asp	Gly	Lys	Asp	Ile	Arg	Pro	Thr	Ile	Pro	Phe	Met	Ile	Gly	Asp	Glu
		35					40					45			

Ile	Phe	Leu	Pro	Phe	Tyr	Lys	Asn	Val	Phe	Ser	Glu	Phe	Phe	Ser	Leu
	50					55					60				

Phe	Arg	Arg	Val	Pro	Thr	Ser	Thr	Pro	Tyr	Glu	Asp	Leu	Thr	Tyr	Phe
65					70					75					80

Tyr	Glu	Cys	Asp	Tyr	Thr	Asp	Asn	Lys	Ser	Thr	Phe	Asp	Gln	Phe	Tyr
			85						90					95	

Leu	Tyr	Asn	Gly	Glu	Glu	Tyr	Thr	Val	Lys	Thr	Gln	Glu	Ala	Thr	Asn
			100					105					110		

Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu Lys Lys Trp Phe
115 120 125

Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu Val Arg Lys Met
130 135 140

Glu Asp Ser Lys Arg Asn Thr Gly
145 150

<210> 2

<211> 150

<212> PRT

<213> Orthopoxvirus sp.

<400> 2

Gly His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn Gly Ser Asp
1 5 10 15

Thr His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln Ile Ile Thr
20 25 30

Phe Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met Ile Gly Asp
35 40 45

Glu Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu Phe Phe Ser
50 55 60

Leu Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp Leu Thr Tyr
65 70 75 80

Phe Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe Asp Gln Phe
85 90 95

Tyr Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln Glu Ala Thr
100 105 110

Asn Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu Lys Lys Trp
115 120 125

Phe Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu Val Arg Lys
130 135 140

Met Glu Asp Ser Lys Arg
145 150

<210> 3
<211> 150
<212> PRT
<213> Orthopoxvirus sp.

<400> 3
His Lys Leu Val His Tyr Phe Asn Leu Lys Ile Asn Gly Ser Asp Ile
1 5 10 15

Thr Asn Thr Ala Asp Ile Leu Leu Asp Asn Tyr Pro Ile Met Thr Phe
20 25 30

Asp Gly Lys Asp Ile Tyr Pro Ser Ile Ala Phe Met Val Gly Asn Lys
35 40 45

Leu Phe Leu Asp Leu Tyr Lys Asn Ile Phe Val Glu Phe Phe Arg Leu
50 55 60

Phe Arg Val Ser Val Ser Ser Gln Tyr Glu Glu Leu Glu Tyr Tyr Tyr
65 70 75 80

Ser Cys Asp Tyr Thr Asn Asn Arg Pro Thr Ile Lys Gln His Tyr Phe
85 90 95

Tyr Asn Gly Glu Glu Tyr Thr Glu Ile Asp Arg Ser Lys Lys Ala Thr
100 105 110

Asn Lys Asn Ser Trp Leu Ile Thr Ser Gly Phe Arg Leu Gln Lys Trp
115 120 125

Phe Asp Ser Glu Asp Cys Ile Ile Tyr Leu Arg Ser Leu Val Arg Arg
130 135 140

Met Glu Asp Ser Asn Lys
145 150

<210> 4
<211> 108
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 4

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

Thr Ala Arg Ile Pro Cys Gly Gly Asp Asp Ile Glu Thr Lys Ser Val
20 25 30

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

Asp Asp Asp Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Phe Gly Ser
50 55 60

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

Asp Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Asp Asn Asn Asp Glu
85 90 95

Trp Val Phe Gly Gly Gly Thr Gln Leu Thr Val Leu
100 105

<210> 5

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 5

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val 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

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

Ala Phe Ile Arg Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Arg Phe Gly Tyr Tyr Leu Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 6

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 6

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

Ser Ile Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn
20 25 30

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

Ile Tyr Tyr Asp Asp Leu Leu Pro Ser Gly Val Ser Asp Arg Phe Ser
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Phe Leu Ala Ile Ser Gly Leu Gln
65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu
85 90 95

Asn Gly Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

<210> 7

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 7

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

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

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

Ala Phe Ile Arg Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Arg Gly Leu Gly Asp Gly Thr Tyr Phe Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 8

<211> 241

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 8

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

Thr Ala Arg Ile Pro Cys Gly Gly Asp Asp Ile Glu Thr Lys Ser Val
20 25 30

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

Asp Asp Asp Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Phe Gly Ser
50 55 60

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

Asp Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Asp Asn Asn Asp Glu
85 90 95

Trp Val Phe Gly Gly Gly Thr Gln Leu Thr Val Leu Gly Gly Gly Gly
100 105 110

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Val
115 120 125

Glu Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser
130 135 140

Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Gly Met His Trp Val
145 150 155 160

Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Phe Ile Arg Tyr
165 170 175

Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr
180 185 190

Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser
195 200 205

Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Arg Phe
210 215 220

Gly Tyr Tyr Leu Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
225 230 235 240

Ser

<210> 9

<211> 241

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 9

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Val 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

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

Ala Phe Ile Arg Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

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

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

Ala Lys Asp Arg Phe Gly Tyr Tyr Leu Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
115 120 125

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

Val Ala Pro Gly Glu Thr Ala Arg Ile Pro Cys Gly Gly Asp Asp Ile
145 150 155 160

Glu Thr Lys Ser Val His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro
165 170 175

Val Leu Val Ile Tyr Asp Asp Asp Arg Pro Ser Gly Ile Pro Glu
180 185 190

Arg Phe Phe Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Ser Ile Ser
195 200 205

Arg Val Glu Ala Gly Asp Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp
210 215 220

Asp Asn Asn Asp Glu Trp Val Phe Gly Gly Gly Thr Gln Leu Thr Val
225 230 235 240

Leu

<210> 10

<211> 246

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 10

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

Ser Ile Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn
20 25 30

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

Ile Tyr Tyr Asp Asp Leu Leu Pro Ser Gly Val Ser Asp Arg Phe Ser
50 55 60

Gly Ser Lys Ser Gly Thr Ser Ala Phe Leu Ala Ile Ser Gly Leu Gln
65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp Ser Leu
85 90 95

Asn Gly Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gly
100 105 110

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln
115 120 125

Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly Ser Leu Arg
130 135 140

Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Gly Met His
145 150 155 160

Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Phe Ile
165 170 175

Arg Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg
180 185 190

Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met
195 200 205

Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp
210 215 220

Arg Gly Leu Gly Asp Gly Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
225 230 235 240

Thr Val Thr Val Ser Ser
245

<210> 11
<211> 246
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 11

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

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

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

Ala Phe Ile Arg Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60

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

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

Ala Lys Asp Arg Gly Leu Gly Asp Gly Thr Tyr Phe Asp Tyr Trp Gly
 100 105 110

Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125

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

Ser Val Ser Gly Ser Pro Gly Gln Ser Ile Thr Ile Ser Cys Ser Gly
145 150 155 160

Ser Ser Ser Asn Ile Gly Asn Asn Ala Val Asn Trp Tyr Gln Gln Leu
 165 170 175

Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Tyr Asp Asp Leu Leu Pro
180 185 190

Ser Gly Val Ser Asp Arg Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala
195 200 205

Phe Leu Ala Ile Ser Gly Leu Gln Ser Glu Asp Glu Ala Asp Tyr Tyr
210 215 220

Cys Ala Ala Trp Asp Asp Ser Leu Asn Gly Pro Val Phe Gly Gly Gly
225 230 235 240

Thr Lys Leu Thr Val Leu
245

<210> 12

<211> 111

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 12

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala
100 105 110

<210> 13

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 13

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

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

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

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

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

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

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

Thr Leu Val Thr Val Ser Ala
115

<210> 14

<211> 245

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 14

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala
245

<210> 15
<211> 412
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 15
Asp Ile Leu Leu Thr Gln Ser Pro Val Ile Leu Ser Val Ser Pro Gly
1 5 10 15

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
245 250 255

Gly Gly Gly Ser His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn
260 265 270

Gly Ser Asp Thr His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln
275 280 285

Ile Ile Thr Phe Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met
290 295 300

Ile Gly Asp Glu Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu
305 310 315 320

Phe Phe Ser Leu Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp
325 330 335

Leu Thr Tyr Phe Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe
340 345 350

Asp Gln Phe Tyr Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln
355 360 365

Glu Ala Thr Asn Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu
370 375 380

Lys Lys Trp Phe Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu
385 390 395 400

Val Arg Lys Met Glu Asp Ser Lys Arg Asn Thr Gly
405 410

<210> 16

<211> 501

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 16

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala Gly Gly Gly Gly Ser Asp Ile Lys Leu Gln Gln
245 250 255

Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Met Ser Cys
260 265 270

Lys Thr Ser Gly Tyr Thr Phe Thr Arg Tyr Thr Met His Trp Val Lys
275 280 285

Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly Tyr Ile Asn Pro Ser
290 295 300

Arg Gly Tyr Thr Asn Tyr Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu
305 310 315 320

Thr Thr Asp Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu
325 330 335

Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Tyr Tyr Asp Asp
340 345 350

His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser
355 360 365

Ser Val Glu Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
370 375 380

Gly Val Asp Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile Met Ser Ala
385 390 395 400

Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val
405 410 415

Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg
420 425 430

Trp Ile Tyr Asp Thr Ser Lys Val Ala Ser Gly Val Pro Tyr Arg Phe
435 440 445

Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met
450 455 460

Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn
465 470 475 480

Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys His His His
485 490 495

His His His His His
500

<210> 17

<211> 243

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 17

Asp Ile Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
1 5 10 15

Ser Val Lys Met Ser Cys Lys Thr Ser Gly Tyr Thr Phe Thr Arg Tyr
20 25 30

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

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

Lys Asp Lys Ala Thr Leu Thr Thr 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 Arg Tyr Tyr Asp Asp His Tyr Cys Leu Asp Tyr Trp Gly Gln Gly
100 105 110

Thr Thr Leu Thr Val Ser Ser Val Glu Gly Gly Ser Gly Gly Ser Gly
115 120 125

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

Pro Ala Ile Met Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys
145 150 155 160

Arg Ala Ser Ser Ser Val Ser Tyr Met Asn Trp Tyr Gln Gln Lys Ser
165 170 175

Gly Thr Ser Pro Lys Arg Trp Ile Tyr Asp Thr Ser Lys Val Ala Ser
180 185 190

Gly Val Pro Tyr Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser
195 200 205

Leu Thr Ile Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys
210 215 220

Gln Gln Trp Ser Ser Asn Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu
225 230 235 240

Glu Leu Lys

<210> 18

<211> 420

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 18

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
245 250 255

Gly Gly Gly Ser His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn
260 265 270

Gly Ser Asp Thr His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln
275 280 285

Ile Ile Thr Phe Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met
290 295 300

Ile Gly Asp Glu Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu
305 310 315 320

Phe Phe Ser Leu Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp
325 330 335

Leu Thr Tyr Phe Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe
340 345 350

Asp Gln Phe Tyr Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln
355 360 365

Glu Ala Thr Asn Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu
370 375 380

Lys Lys Trp Phe Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu
385 390 395 400

Val Arg Lys Met Glu Asp Ser Lys Arg Asn Thr Gly His His His His
405 410 415

His His His His
420

<210> 19

<211> 504

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 19

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gln Val Gln Leu Val Glu
245 250 255

Ser Gly Gly Gly Leu Val Lys Pro Gly Gly Ser Leu Arg Leu Ser Cys
260 265 270

Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Gly Met His Trp Val Arg
275 280 285

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Phe Ile Arg Tyr Asp
290 295 300

Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
305 310 315 320

Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu
325 330 335

Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Arg Gly Leu
340 345 350

Gly Asp Gly Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr
355 360 365

Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
370 375 380

Gly Ser Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro
385 390 395 400

Gly Gln Ser Ile Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly
405 410 415

Asn Asn Ala Val Asn Trp Tyr Gln Gln Leu Pro Gly Lys Ala Pro Lys
420 425 430

Leu Leu Ile Tyr Tyr Asp Asp Leu Leu Pro Ser Gly Val Ser Asp Arg
435 440 445

Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Phe Leu Ala Ile Ser Gly
450 455 460

Leu Gln Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Asp
465 470 475 480

Ser Leu Asn Gly Pro Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
485 490 495

His His His His His His His
500

<210> 20
<211> 499
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 20

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala Gly Gly Gly Gly Ser Glu Val Gln Leu Val Glu
245 250 255

Ser Gly Gly Gly Val Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
260 265 270

Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Gly Met His Trp Val Arg
275 280 285

Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Phe Ile Arg Tyr Asp
290 295 300

Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile
305 310 315 320

Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu
325 330 335

Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Arg Phe Gly
340 345 350

Tyr Tyr Leu Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
355 360 365

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln
370 375 380

Pro Val Leu Thr Gln Pro Ser Ser Val Ser Val Ala Pro Gly Glu Thr
385 390 395 400

Ala Arg Ile Pro Cys Gly Gly Asp Asp Ile Glu Thr Lys Ser Val His
405 410 415

Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr Asp
420 425 430

Asp Asp Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Phe Gly Ser Asn
435 440 445

Ser Gly Asn Thr Ala Thr Leu Ser Ile Ser Arg Val Glu Ala Gly Asp
450 455 460

Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Asp Asn Asn Asp Glu Trp
465 470 475 480

Val Phe Gly Gly Gly Thr Gln Leu Thr Val Leu His His His His His
485 490 495

His His His

<210> 21

<211> 232

<212> PRT

<213> Homo sapiens

<400> 21

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 22

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 22

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 23

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 23

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Thr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 24
<211> 232
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 24
Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Ala Leu Tyr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 25

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 25

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Trp Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Thr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 26

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 26

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 27

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 27

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Val
180 185 190

Ser Phe Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 28

<211> 234

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 28

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Trp Val
35 40 45

Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
50 55 60

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
65 70 75 80

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
85 90 95

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
100 105 110

Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Phe
115 120 125

Arg Pro Glu Val His Leu Leu Pro Pro Ser Arg Glu Glu Met Thr Lys
130 135 140

Asn Gln Val Ser Leu Thr Cys Leu Ala Arg Gly Phe Tyr Pro Lys Asp
145 150 155 160

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
165 170 175

Thr Thr Pro Ser Arg Gln Glu Pro Ser Gln Gly Thr Thr Thr Phe Ala
180 185 190

Val Thr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
195 200 205

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
210 215 220

Gln Lys Thr Ile Ser Leu Ser Pro Gly Lys
225 230

<210> 29

<211> 235

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 29

Glu Pro Lys Ser Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

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

Leu Asn Glu Leu Val Thr Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
145 150 155 160

Ser Asp Ile Ala Val Glu Trp Leu Gln Gly Ser Gln Glu Leu Pro Arg
165 170 175

Glu Lys Tyr Leu Thr Trp Ala Pro Val Leu Asp Ser Asp Gly Ser Phe
180 185 190

Phe Leu Tyr Ser Ile Leu Arg Val Ala Ala Glu Asp Trp Lys Lys Gly
195 200 205

Asp Thr Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr
210 215 220

Thr Gln Lys Ser Leu Asp Arg Ser Pro Gly Lys
225 230 235

<210> 30

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 30

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Ser Pro Pro Ser Arg Asp Glu Leu Thr
130 135 140

Lys Asn Gln Val Ser Leu Arg Cys His Val Lys Gly Phe Tyr Pro Ser
145 150 155 160

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Thr Lys Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 31

<211> 399

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 31

His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn Gly Ser Asp Thr
1 5 10 15

His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln Ile Ile Thr Phe
20 25 30

Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met Ile Gly Asp Glu
35 40 45

Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu Phe Phe Ser Leu
50 55 60

Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp Leu Thr Tyr Phe
65 70 75 80

Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe Asp Gln Phe Tyr
85 90 95

Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln Glu Ala Thr Asn
100 105 110

Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu Lys Lys Trp Phe
115 120 125

Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu Val Arg Lys Met
130 135 140

Glu Asp Ser Lys Arg Asn Thr Gly Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Gly Ser Gly Gly Gly Gly Ser Glu Pro Lys Ser Cys Asp Lys Thr His
165 170 175

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
180 185 190

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
195 200 205

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
210 215 220

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
225 230 235 240

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
245 250 255

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
260 265 270

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
275 280 285

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
290 295 300

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Tyr Cys Leu
305 310 315 320

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
325 330 335

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
340 345 350

Asp Gly Ser Phe Ala Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
355 360 365

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
370 375 380

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
385 390 395

<210> 32

<211> 492

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 32

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

Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn
20 25 30

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

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

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

Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr
85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
115 120 125

Gln Leu Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu
130 135 140

Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val
145 150 155 160

His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val
165 170 175

Ile Trp Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg
180 185 190

Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met
195 200 205

Asn Ser Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala
210 215 220

Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu
225 230 235 240

Val Thr Val Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
245 250 255

Gly Gly Gly Ser Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro
260 265 270

Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe
275 280 285

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
290 295 300

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
305 310 315 320

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
325 330 335

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
340 345 350

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
355 360 365

Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
370 375 380

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
385 390 395 400

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
405 410 415

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
420 425 430

Glu Asn Asn Tyr Lys Thr Trp Pro Pro Val Leu Asp Ser Asp Gly Ser
435 440 445

Phe Phe Leu Thr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
450 455 460

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
465 470 475 480

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
485 490

<210> 33
<211> 659

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 33

His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn Gly Ser Asp Thr
1 5 10 15

His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln Ile Ile Thr Phe
20 25 30

Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met Ile Gly Asp Glu
35 40 45

Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu Phe Phe Ser Leu
50 55 60

Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp Leu Thr Tyr Phe
65 70 75 80

Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe Asp Gln Phe Tyr
85 90 95

Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln Glu Ala Thr Asn
100 105 110

Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu Lys Lys Trp Phe
115 120 125

Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu Val Arg Lys Met
130 135 140

Glu Asp Ser Lys Arg Asn Thr Gly Gly Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Gly Ser Gly Gly Gly Gly Ser Glu Pro Lys Ser Cys Asp Lys Thr His
165 170 175

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
180 185 190

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
195 200 205

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
210 215 220

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
225 230 235 240

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
245 250 255

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
260 265 270

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
275 280 285

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
290 295 300

Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
305 310 315 320

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
325 330 335

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
340 345 350

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
355 360 365

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
370 375 380

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly
385 390 395 400

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
405 410 415

Leu Leu Thr Gln Ser Pro Val Ile Leu Ser Val Ser Pro Gly Glu Arg
420 425 430

Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn Ile His
435 440 445

Trp Tyr Gln Gln Arg Thr Asn Gly Ser Pro Arg Leu Leu Ile Lys Tyr
450 455 460

Ala Ser Glu Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly Ser Gly
465 470 475 480

Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Ser Glu Asp
485 490 495

Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe
500 505 510

Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly Gly Gly
515 520 525

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu
530 535 540

Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu Ser Ile
545 550 555 560

Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val His Trp
565 570 575

Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile Trp
580 585 590

Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg Leu Ser
595 600 605

Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met Asn Ser
610 615 620

Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala Leu Thr
625 630 635 640

Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
645 650 655

Val Ser Ala

<210> 34

<211> 659

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 34

His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn Gly Ser Asp Thr
1 5 10 15

His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln Ile Ile Thr Phe
20 25 30

Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met Ile Gly Asp Glu
35 40 45

Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu Phe Phe Ser Leu
50 55 60

Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp Leu Thr Tyr Phe
65 70 75 80

Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe Asp Gln Phe Tyr
85 90 95

Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln Glu Ala Thr Asn
100 105 110

Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu Lys Lys Trp Phe
115 120 125

Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu Val Arg Lys Met
130 135 140

Glu Asp Ser Lys Arg Asn Thr Gly Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Gly Ser Gly Gly Gly Gly Ser Asp Ile Leu Leu Thr Gln Ser Pro Val
165 170 175

Ile Leu Ser Val Ser Pro Gly Glu Arg Val Ser Phe Ser Cys Arg Ala
180 185 190

Ser Gln Ser Ile Gly Thr Asn Ile His Trp Tyr Gln Gln Arg Thr Asn
195 200 205

Gly Ser Pro Arg Leu Leu Ile Lys Tyr Ala Ser Glu Ser Ile Ser Gly
210 215 220

Ile Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
225 230 235 240

Ser Ile Asn Ser Val Glu Ser Glu Asp Ile Ala Asp Tyr Tyr Cys Gln
245 250 255

Gln Asn Asn Asn Trp Pro Thr Thr Phe Gly Ala Gly Thr Lys Leu Glu
260 265 270

Leu Lys Arg Thr Val Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
275 280 285

Gly Gly Gly Gly Ser Gln Val Gln Leu Lys Gln Ser Gly Pro Gly Leu
290 295 300

Val Gln Pro Ser Gln Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe
305 310 315 320

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

Gly Leu Glu Trp Leu Gly Val Ile Trp Ser Gly Gly Asn Thr Asp Tyr
340 345 350

Asn Thr Pro Phe Thr Ser Arg Leu Ser Ile Asn Lys Asp Asn Ser Lys
355 360 365

Ser Gln Val Phe Phe Lys Met Asn Ser Leu Gln Ser Asn Asp Thr Ala
370 375 380

Ile Tyr Tyr Cys Ala Arg Ala Leu Thr Tyr Tyr Asp Tyr Glu Phe Ala
385 390 395 400

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Gly Gly Gly Gly
405 410 415

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Pro Lys Ser Cys
420 425 430

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
435 440 445

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
450 455 460

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
465 470 475 480

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
485 490 495

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
500 505 510

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
515 520 525

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
530 535 540

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
545 550 555 560

Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser
565 570 575

Leu Tyr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
580 585 590

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
595 600 605

Val Leu Asp Ser Asp Gly Ser Phe Ala Leu Tyr Ser Lys Leu Thr Val
610 615 620

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
625 630 635 640

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
645 650 655

Pro Gly Lys

<210> 35

<211> 232

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 35

Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10 15

Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
20 25 30

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
35 40 45

Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
50 55 60

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
65 70 75 80

Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
85 90 95

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala
100 105 110

Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
115 120 125

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr
130 135 140

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

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
165 170 175

Lys Thr Trp Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Thr
180 185 190

Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe
195 200 205

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
210 215 220

Ser Leu Ser Leu Ser Pro Gly Lys
225 230

<210> 36

<211> 659

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 36

His Lys Leu Ala Phe Asn Phe Asn Leu Glu Ile Asn Gly Ser Asp Thr
1 5 10 15

His Ser Thr Val Asp Val Tyr Leu Asp Asp Ser Gln Ile Ile Thr Phe
20 25 30

Asp Gly Lys Asp Ile Arg Pro Thr Ile Pro Phe Met Ile Gly Asp Glu
35 40 45

Ile Phe Leu Pro Phe Tyr Lys Asn Val Phe Ser Glu Phe Phe Ser Leu
50 55 60

Phe Arg Arg Val Pro Thr Ser Thr Pro Tyr Glu Asp Leu Thr Tyr Phe
65 70 75 80

Tyr Glu Cys Asp Tyr Thr Asp Asn Lys Ser Thr Phe Asp Gln Phe Tyr
85 90 95

Leu Tyr Asn Gly Glu Glu Tyr Thr Val Lys Thr Gln Glu Ala Thr Asn
100 105 110

Lys Asn Met Trp Leu Thr Thr Ser Glu Phe Arg Leu Lys Lys Trp Phe
115 120 125

Asp Gly Glu Asp Cys Ile Met His Leu Arg Ser Leu Val Arg Lys Met
130 135 140

Glu Asp Ser Lys Arg Asn Thr Gly Gly Gly Gly Ser Gly Gly Gly
145 150 155 160

Gly Ser Gly Gly Gly Gly Ser Glu Pro Lys Ser Cys Asp Lys Thr His
165 170 175

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
180 185 190

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
195 200 205

Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
210 215 220

Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
225 230 235 240

Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
245 250 255

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
260 265 270

Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
275 280 285

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Ser Pro
290 295 300

Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Arg Cys His
305 310 315 320

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
325 330 335

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Lys Pro Val Leu Asp Ser
340 345 350

Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
355 360 365

Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
370 375 380

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys Gly
385 390 395 400

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile
405 410 415

Leu Leu Thr Gln Ser Pro Val Ile Leu Ser Val Ser Pro Gly Glu Arg
420 425 430

Val Ser Phe Ser Cys Arg Ala Ser Gln Ser Ile Gly Thr Asn Ile His
435 440 445

Trp Tyr Gln Gln Arg Thr Asn Gly Ser Pro Arg Leu Leu Ile Lys Tyr
450 455 460

Ala Ser Glu Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly Ser Gly
465 470 475 480

Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Ser Glu Asp
485 490 495

Ile Ala Asp Tyr Tyr Cys Gln Gln Asn Asn Asn Trp Pro Thr Thr Phe
500 505 510

Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Thr Val Ala Gly Gly Gly
515 520 525

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Gln Leu
530 535 540

Lys Gln Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu Ser Ile
545 550 555 560

Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Asn Tyr Gly Val His Trp
565 570 575

Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile Trp
580 585 590

Ser Gly Gly Asn Thr Asp Tyr Asn Thr Pro Phe Thr Ser Arg Leu Ser
595 600 605

Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys Met Asn Ser
610 615 620

Leu Gln Ser Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg Ala Leu Thr
625 630 635 640

Tyr Tyr Asp Tyr Glu Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
645 650 655

Val Ser Ala

<210> 37

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 37

Gly Gly Gly Gly Ser
1 5

<210> 38

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
8xHis tag

<400> 38

His His His His His His His His
1 5