

SEQUENCE LISTING

<110> Biond Biologics Ltd.

<120> METHODS AND COMPOSITIONS FOR DECREASING SOLUBLE IMMUNE RECEPTOR

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<150> 62/643334

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<160> 56

<170> PatentIn version 3.5

<210> 1

<211> 220

<212> PRT

<213> Homo sapiens

<400> 1

Met Leu Arg Leu Leu Leu Ala Leu Asn Leu Phe Pro Ser Ile Gln Val
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Thr Gly Asn Lys Ile Leu Val Lys Gln Ser Pro Met Leu Val Ala Tyr
20 25 30

Asp Asn Ala Val Asn Leu Ser Cys Lys Tyr Ser Tyr Asn Leu Phe Ser
35 40 45

Arg Glu Phe Arg Ala Ser Leu His Lys Gly Leu Asp Ser Ala Val Glu
50 55 60

Val Cys Val Val Tyr Gly Asn Tyr Ser Gln Gln Leu Gln Val Tyr Ser
65 70 75 80

Lys Thr Gly Phe Asn Cys Asp Gly Lys Leu Gly Asn Glu Ser Val Thr
85 90 95

Phe Tyr Leu Gln Asn Leu Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys
100 105 110

Lys Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser
115 120 125

Asn Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro
130 135 140

Leu Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val Gly
145 150 155 160

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

Phe Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met
180 185 190

Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro
195 200 205

Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser
210 215 220

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<400> 2

Asn Lys Ile Leu Val Lys Gln Ser Pro Met Leu Val Ala Tyr Asp Asn
1 5 10 15

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

Phe Arg Ala Ser Leu His Lys Gly Leu Asp Ser Ala Val Glu Val Cys
35 40 45

Val Val Tyr Gly Asn Tyr Ser Gln Gln Leu Gln Val Tyr Ser Lys Thr
50 55 60

Gly Phe Asn Cys Asp Gly Lys Leu Gly Asn Glu Ser Val Thr Phe Tyr

65		70		75		80									
Leu	Gln	Asn	Leu	Tyr	Val	Asn	Gln	Thr	Asp	Ile	Tyr	Phe	Cys	Lys	Ile
			85						90					95	
Glu	Val	Met	Tyr	Pro	Pro	Pro	Tyr	Leu	Asp	Asn	Glu	Lys	Ser	Asn	Gly
			100					105					110		
Thr	Ile	Ile	His	Val	Lys	Gly	Lys	His	Leu	Cys	Pro	Ser	Pro	Leu	Phe
		115					120					125			
Pro	Gly	Pro	Ser	Lys	Pro	Phe	Trp	Val	Leu	Val	Val	Val	Gly	Gly	Val
	130					135					140				
Leu	Ala	Cys	Tyr	Ser	Leu	Leu	Val	Thr	Val	Ala	Phe	Ile	Ile	Phe	Trp
145					150					155					160
Val	Arg	Ser	Lys	Arg	Ser	Arg	Leu	Leu	His	Ser	Asp	Tyr	Met	Asn	Met
			165						170					175	
Thr	Pro	Arg	Arg	Pro	Gly	Pro	Thr	Arg	Lys	His	Tyr	Gln	Pro	Tyr	Ala
		180						185					190		
Pro	Pro	Arg	Asp	Phe	Ala	Ala	Tyr	Arg	Ser						
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aagtattcct acaatctctt ctcaaggag ttccgggcat cccttcacaa aggactggat	180
agtgctgtgg aagtctgtgt tgtatatggg aattactccc agcagcttca ggtttactca	240
aaaacgggggt tcaactgtga tgggaaattg ggcaatgaat cagtgacatt ctacctcag	300
aatttgatg ttaaccaaac agatatttac ttctgcaaaa ttgaagttat gtatcctcct	360
ccttacctag acaatgagaa gagcaatgga accattatcc atgtgaaagg gaaacacctt	420

tgtccaagtc ccctatttcc cggaccttct aagccctttt ggggtgctggt ggtggttggt	480
ggagtcctgg cttgctatag cttgctagta acagtggcct ttattatttt ctgggtgagg	540
agtaagagga gcaggctcct gcacagtgcac tacatgaaca tgactccccg ccgccccggg	600
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tga	663

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<400> 4

Phe	Trp	Val	Leu	Val	Val	Val	Gly	Gly	Val	Leu	Ala	Cys	Tyr	Ser	Leu
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Leu	Val	Thr	Val	Ala	Phe	Ile	Ile	Phe	Trp	Val
		20					25			

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<400> 5

Met	Leu	Arg	Leu	Leu	Leu	Ala	Leu	Asn	Leu	Phe	Pro	Ser	Ile	Gln	Val
1			5					10						15	

Thr	Gly	Asn	Lys	Ile	Leu	Val	Lys	Gln	Ser	Pro	Met	Leu	Val	Ala	Tyr
		20					25					30			

Asp	Asn	Ala	Val	Asn	Leu	Ser	Cys	Lys	Tyr	Ser	Tyr	Asn	Leu	Phe	Ser
		35					40					45			

Arg	Glu	Phe	Arg	Ala	Ser	Leu	His	Lys	Gly	Leu	Asp	Ser	Ala	Val	Glu
	50					55					60				

Val	Cys	Val	Val	Tyr	Gly	Asn	Tyr	Ser	Gln	Gln	Leu	Gln	Val	Tyr	Ser
65					70				75					80	

Lys Thr Gly Phe Asn Cys Asp Gly Lys Leu Gly Asn Glu Ser Val Thr
85 90 95

Phe Tyr Leu Gln Asn Leu Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys
100 105 110

Lys Ile Glu Val Met Tyr Pro Pro Tyr Leu Asp Asn Glu Lys Ser
115 120 125

Asn Gly Thr Ile Ile His Val Lys Gly Glu Glu
130 135

<210> 6
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Asn Lys Ile Leu Val Lys Gln Ser Pro Met Leu Val Ala Tyr Asp Asn
1 5 10 15

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

Phe Arg Ala Ser Leu His Lys Gly Leu Asp Ser Ala Val Glu Val Cys
35 40 45

Val Val Tyr Gly Asn Tyr Ser Gln Gln Leu Gln Val Tyr Ser Lys Thr
50 55 60

Gly Phe Asn Cys Asp Gly Lys Leu Gly Asn Glu Ser Val Thr Phe Tyr
65 70 75 80

Leu Gln Asn Leu Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys Lys Ile
85 90 95

Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly
100 105 110

Thr Ile Ile His Val Lys Gly Glu Glu
115 120

<210> 7
<211> 538
<212> DNA
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aagtattcct acaatctctt ctcaagggag ttccgggcat cccttcacaa aggactggat 180
agtgtgtgtg aagtctgtgt tgtatatggg aattactccc agcagcttca ggtttactca 240
aaaacggggg tcaactgtga tgggaaattg ggcaatgaat cagtgcatt ctacctccag 300
aatttgatg ttaaccaa acagatatttac ttctgcaaaa ttgaagttat gtatcctcct 360
ccttacctag acaatgagaa gagcaatgga accattatcc atgtgaaagg tgaggagtaa 420
gaggagcagg ctctgcaca gtgactacat gaacatgact ccccgccgcc ccggggccac 480
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Met Leu Val Ala Tyr Asp Asn Ala Val Asn Leu Ser Cys Lys Tyr Ser
1 5 10 15
Tyr Asn Leu Phe Ser Arg Glu Phe Arg Ala Ser Leu His Lys Gly Leu
20 25 30
Asp Ser Ala Val Glu Val Cys Val Val Tyr Gly Asn Tyr Ser Gln Gln
35 40 45
Leu Gln Val Tyr Ser Lys Thr Gly Phe Asn Cys Asp Gly Lys Leu Gly
50 55 60
Asn Glu Ser Val Thr Phe Tyr Leu Gln Asn Leu Tyr Val Asn Gln Thr
65 70 75 80
Asp Ile Tyr Phe Cys Lys Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu

85

90

95

Asp Asn Glu Lys Ser Asn Gly Thr Ile Ile His Val Lys Gly
 100 105 110

<210> 9
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Gly Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro Ser Lys Pro
 1 5 10 15

<210> 10
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 <213> Homo sapiens

<400> 10

His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro
 1 5 10 15

Ser Lys Pro

<210> 11
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<400> 11
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8

<210> 12
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<220>
 <223> Synthetic

<400> 12

Gly Tyr Thr Leu Thr Asn Tyr
 1 5

<210> 13
<211> 6
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<220>
<223> Synthetic

<400> 13

Asn Thr Tyr Thr Gly Lys
1 5

<210> 14
<211> 9
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<220>
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<400> 14

Gly Asp Ala Asn Gln Gln Phe Ala Tyr
1 5

<210> 15
<211> 11
<212> PRT
<213> Artificial

<220>
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<400> 15

Lys Ala Ser Gln Asp Ile Asn Ser Tyr Leu Ser
1 5 10

<210> 16
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<220>
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<400> 16

Arg Ala Asn Arg Leu Val Asp
1 5

<210> 17
<211> 9
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<220>
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<400> 17

Leu Gln Tyr Asp Glu Phe Pro Pro Thr
1 5

<210> 18
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<220>
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<400> 18

Gly Tyr Thr Phe Thr Ser Tyr
1 5

<210> 19
<211> 6
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<213> Artificial

<220>
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<400> 19

Tyr Pro Gly Asp Gly Asp
1 5

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<212> PRT
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<220>
<223> Synthetic

<400> 20

Asn Tyr Arg Tyr Ser Ser Phe Gly Tyr
1 5

<210> 21

<211> 17

<212> PRT

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<400> 21

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

Thr

<210> 22

<211> 7

<212> PRT

<213> Artificial

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<400> 22

Trp Ala Ser Thr Arg Glu Ser
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<210> 23

<211> 9

<212> PRT

<213> Artificial

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<400> 23

Gln Ser Asp Tyr Ser Tyr Pro Leu Thr
1 5

<210> 24

<211> 7

<212> PRT
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<220>
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<400> 24

Gly Tyr Thr Phe Thr Asp Tyr
1 5

<210> 25
<211> 6
<212> PRT
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<220>
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<400> 25

Asn Pro Asn Tyr Asp Ser
1 5

<210> 26
<211> 12
<212> PRT
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<400> 26

Ser Ser Pro Tyr Tyr Asp Ser Asn His Phe Asp Tyr
1 5 10

<210> 27
<211> 10
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 27

Ser Ala Arg Ser Ser Ile Asn Tyr Met His
1 5 10

<210> 28
<211> 7
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 28

Asp Thr Ser Lys Leu Ala Ser
1 5

<210> 29
<211> 9
<212> PRT
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<220>
<223> Synthetic

<400> 29

His Gln Arg Asn Ser Tyr Pro Phe Thr
1 5

<210> 30
<211> 10
<212> PRT
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<220>
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<400> 30

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

<210> 31
<211> 17
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<400> 31

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

Gly

<210> 32
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<220>
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<400> 32

Ile His Trp Pro Tyr Tyr Phe Asp Ser
1 5

<210> 33
<211> 10
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 33

Arg Ala Ser Ser Ser Val Ser Tyr Met Asn
1 5 10

<210> 34
<211> 7
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 34

Ala Thr Ser Asp Leu Ala Ser
1 5

<210> 35
<211> 9
<212> PRT
<213> Artificial

<220>

<223> Synthetic

<400> 35

Gln Gln Trp Ser Ser His Pro Pro Thr
1 5

<210> 36

<211> 15

<212> PRT

<213> Artificial

<220>

<223> Synthetic

<400> 36

Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro Ser
1 5 10 15

<210> 37

<211> 134

<212> PRT

<213> Artificial

<220>

<223> Synthetic

<400> 37

Asn Lys Ile Leu Val Lys Gln Ser Pro Met Leu Val Ala Tyr Asp Asn
1 5 10 15

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

Phe Arg Ala Ser Leu His Lys Gly Leu Asp Ser Ala Val Glu Val Cys
35 40 45

Val Val Tyr Gly Asn Tyr Ser Gln Gln Leu Gln Val Tyr Ser Lys Thr
50 55 60

Gly Phe Asn Cys Asp Gly Lys Leu Gly Asn Glu Ser Val Thr Phe Tyr
65 70 75 80

Leu Gln Asn Leu Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys Lys Ile
85 90 95

Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly
100 105 110

Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe
115 120 125

Pro Gly Pro Ser Lys Pro
130

<210> 38
<211> 27
<212> DNA
<213> Artificial

<220>
<223> Synthetic

<400> 38
atgctgaggc tgctcttggc tctcaac 27

<210> 39
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<212> DNA
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<220>
<223> Synthetic

<400> 39
tcaggagcga taggctgcga agtcgcg 27

<210> 40
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<212> PRT
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<220>
<223> Synthetic

<400> 40

Gly Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro Ser Lys Pro
1 5 10 15

Lys

<210> 41
<211> 117
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 41

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

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

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

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

Lys Gly Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala Tyr
65 70 75 80

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

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

Leu Val Thr Val Ser
115

<210> 42
<211> 442
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 42

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

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

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

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

Lys Gly Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala Tyr
65 70 75 80

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

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

Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro
115 120 125

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

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

Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
165 170 175

Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr
180 185 190

Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser
195 200 205

Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro
210 215 220

Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro
225 230 235 240

Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys
245 250 255

Val Val Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp
260 265 270

Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu
275 280 285

Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met
290 295 300

His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser
305 310 315 320

Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly
325 330 335

Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln
340 345 350

Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe
355 360 365

Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu
370 375 380

Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe
385 390 395 400

Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn
405 410 415

Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr
420 425 430

Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440

<210> 43
<211> 107
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 43

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

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

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

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

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

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

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

<210> 44
<211> 214
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 44

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

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

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

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

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

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

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

Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly
115 120 125

Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile
130 135 140

Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu
145 150 155 160

Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser
165 170 175

Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr
180 185 190

Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser
195 200 205

Phe Asn Arg Asn Glu Cys
210

<210> 45
<211> 118
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<213> Artificial

<220>
<223> Synthetic

<400> 45

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

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

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

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

Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Thr Thr Ala Tyr
65 70 75 80

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

Ala Arg Asn Tyr Arg Tyr Ser Ser Phe Gly Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala
115

<210> 46
<211> 454
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 46

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

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

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

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

Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Thr Thr Ala Tyr
65 70 75 80

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

Ala Arg Asn Tyr Arg Tyr Ser Ser Phe Gly Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro
115 120 125

Leu Ala Pro Gly Cys Gly Asp Thr Thr Gly Ser Ser Val Thr Leu Gly
130 135 140

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

Ser Gly Ser Leu Ser Ser Ser Val His Thr Phe Pro Ala Leu Leu Gln
165 170 175

Ser Gly Leu Tyr Thr Met Ser Ser Ser Val Thr Val Pro Ser Ser Thr
180 185 190

Trp Pro Ser Gln Thr Val Thr Cys Ser Val Ala His Pro Ala Ser Ser
195 200 205

Thr Thr Val Asp Lys Lys Leu Glu Pro Ser Gly Pro Ile Ser Thr Ile
210 215 220

Asn Pro Cys Pro Pro Cys Lys Glu Cys His Lys Cys Pro Ala Pro Asn
225 230 235 240

Leu Glu Gly Gly Pro Ser Val Phe Ile Phe Pro Pro Asn Ile Lys Asp
245 250 255

Val Leu Met Ile Ser Leu Thr Pro Lys Val Thr Cys Val Val Val Asp
260 265 270

Val Ser Glu Asp Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn
275 280 285

Val Glu Val His Thr Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn
290 295 300

Ser Thr Ile Arg Val Val Ser Thr Leu Pro Ile Gln His Gln Asp Trp
305 310 315 320

Met Ser Gly Lys Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro
325 330 335

Ser Pro Ile Glu Arg Thr Ile Ser Lys Ile Lys Gly Leu Val Arg Ala
340 345 350

Pro Gln Val Tyr Ile Leu Pro Pro Pro Ala Glu Gln Leu Ser Arg Lys
355 360 365

Asp Val Ser Leu Thr Cys Leu Val Val Gly Phe Asn Pro Gly Asp Ile
370 375 380

Ser Val Glu Trp Thr Ser Asn Gly His Thr Glu Glu Asn Tyr Lys Asp
385 390 395 400

Thr Ala Pro Val Leu Asp Ser Asp Gly Ser Tyr Phe Ile Tyr Ser Lys
405 410 415

Leu Asn Met Lys Thr Ser Lys Trp Glu Lys Thr Asp Ser Phe Ser Cys
420 425 430

Asn Val Arg His Glu Gly Leu Lys Asn Tyr Tyr Leu Lys Lys Thr Ile
435 440 445

Ser Arg Ser Pro Gly Lys
450

<210> 47
<211> 113
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 47

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

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

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

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

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

Lys

<210> 48
<211> 220
<212> PRT
<213> Artificial

<220>

<223> Synthetic

<400> 48

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

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

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

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

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

Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser
115 120 125

Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn
130 135 140

Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu
145 150 155 160

Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp
165 170 175

Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr
180 185 190

Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr
195 200 205

Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
210 215 220

<210> 49
<211> 121
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 49

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

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

Asn Met Asp Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45

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

Met Gly Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Tyr
65 70 75 80

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

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

Gln Gly Thr Ser Leu Thr Val Ser Ser
115 120

<210> 50
<211> 445
<212> PRT
<213> Artificial

<220>

<223> Synthetic

<400> 50

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

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

Asn Met Asp Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45

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

Met Gly Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Tyr
65 70 75 80

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

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

Gln Gly Thr Ser Leu Thr Val Ser Ser Ala Lys Thr Thr Pro Pro Ser
115 120 125

Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val
130 135 140

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

Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala
165 170 175

Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro
180 185 190

Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro
195 200 205

Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly
210 215 220

Cys Lys Pro Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile
225 230 235 240

Phe Pro Pro Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys
245 250 255

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

Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln
275 280 285

Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu
290 295 300

Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg
305 310 315 320

Val Asn Ser Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys
325 330 335

Thr Lys Gly Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro
340 345 350

Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr
355 360 365

Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln
370 375 380

Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly
385 390 395 400

Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu
405 410 415

Ala Gly Asn Thr Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn
420 425 430

His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys
435 440 445

<210> 51
<211> 106
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 51

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

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

His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Arg Trp Ile Tyr
35 40 45

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

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

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

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

<210> 52
<211> 213
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 52

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

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

His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Arg Trp Ile Tyr
35 40 45

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

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

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

Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala Pro
100 105 110

Thr Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly
115 120 125

Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn
130 135 140

Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn
145 150 155 160

Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser
165 170 175

Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr
180 185 190

Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe
195 200 205

Asn Arg Asn Glu Cys
210

<210> 53
<211> 118
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 53

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

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

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

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

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

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

Ala Arg Ile His Trp Pro Tyr Tyr Phe Asp Ser Trp Gly Gln Gly Thr
100 105 110

Thr Leu Thr Val Ser Ser
115

<210> 54
<211> 354
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 54

Gly Ala Cys Gly Thr Gly Ala Ala Gly Cys Thr Cys Gly Thr Gly Gly
1 5 10 15

Ala Gly Thr Cys Thr Gly Gly Gly Gly Ala Gly Gly Cys Thr Thr
20 25 30

Ala Gly Thr Gly Ala Ala Gly Cys Thr Thr Gly Gly Ala Gly Gly Gly
35 40 45

Thr Cys Cys Cys Thr Gly Ala Ala Ala Cys Thr Cys Thr Cys Cys Thr
50 55 60

Gly Thr Gly Thr Ala Gly Cys Cys Thr Cys Thr Gly Gly Ala Thr Thr
65 70 75 80

Cys Ala Cys Thr Thr Thr Cys Ala Gly Thr Ala Gly Cys Thr Ala Thr
85 90 95

Thr Ala Cys Ala Thr Gly Thr Cys Thr Thr Gly Gly Gly Thr Thr Cys
100 105 110

Gly Cys Cys Ala Gly Ala Cys Thr Cys Cys Gly Gly Ala Gly Ala Ala
115 120 125

Gly Ala Gly Gly Cys Thr Gly Gly Ala Gly Thr Gly Gly Gly Thr Cys
130 135 140

Gly Cys Gly Ala Cys Cys Ala Thr Ala Ala Gly Thr Gly Ala Thr Gly
145 150 155 160

Gly Thr Gly Gly Thr Gly Ala Thr Ala Ala Cys Ala Cys Cys Thr Ala
165 170 175

Cys Thr Ala Cys Gly Cys Ala Gly Gly Cys Ala Cys Thr Gly Thr Gly
180 185 190

Ala Cys Gly Gly Gly Cys Cys Gly Ala Thr Thr Cys Ala Cys Cys Ala
195 200 205

Thr Cys Thr Cys Cys Ala Gly Ala Gly Ala Cys Thr Thr Thr Gly Cys
210 215 220

Cys Ala Ala Gly Ala Ala Cys Ala Cys Cys Cys Thr Gly Thr Ala Cys
225 230 235 240

Cys Thr Gly Cys Ala Ala Ala Thr Gly Ala Ala Cys Ala Gly Thr Cys
245 250 255

Thr Gly Ala Cys Cys Thr Cys Thr Gly Ala Gly Gly Ala Cys Ala Cys
260 265 270

Ala Gly Cys Cys Gly Thr Gly Thr Ala Thr Thr Ala Cys Thr Gly Thr
275 280 285

Gly Cys Ala Ala Gly Ala Ala Thr Thr Cys Ala Thr Thr Gly Gly Cys
290 295 300

Cys Thr Thr Ala Cys Thr Ala Thr Thr Thr Thr Gly Ala Cys Thr Cys
305 310 315 320

Cys Thr Gly Gly Gly Gly Cys Cys Ala Ala Gly Gly Cys Ala Cys Cys
325 330 335

Ala Cys Thr Cys Thr Cys Ala Cys Ala Gly Thr Cys Thr Cys Cys Thr
340 345 350

Cys Ala

<210> 55
<211> 106
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 55

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

Glu Met Leu Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

Asn Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Lys Pro Trp Ile Tyr
35 40 45

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

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

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

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

<210> 56
<211> 318
<212> PRT
<213> Artificial

<220>
<223> Synthetic

<400> 56

Cys Ala Ala Thr Thr Thr Gly Thr Thr Cys Thr Cys Thr Cys Cys Cys
1 5 10 15

Ala Gly Thr Cys Thr Cys Cys Ala Gly Cys Ala Ala Thr Cys Cys Thr
20 25 30

Gly Thr Cys Thr Gly Cys Ala Thr Cys Thr Cys Cys Cys Gly Gly Gly
35 40 45

Gly Ala Gly Ala Thr Gly Cys Thr Cys Ala Cys Ala Ala Thr Gly Ala
50 55 60

Cys Thr Thr Gly Cys Ala Gly Gly Gly Cys Cys Ala Gly Cys Thr Cys
65 70 75 80

Ala Ala Gly Thr Gly Thr Ala Ala Gly Thr Thr Ala Thr Ala Thr Gly
85 90 95

Ala Ala Cys Thr Gly Gly Thr Ala Thr Cys Ala Gly Cys Ala Gly Ala
100 105 110

Ala Gly Cys Cys Ala Gly Gly Ala Thr Cys Thr Thr Cys Cys Cys Cys
115 120 125

Cys Ala Ala Ala Cys Cys Cys Thr Gly Gly Ala Thr Thr Thr Ala Thr
130 135 140

Gly Cys Cys Ala Cys Ala Thr Cys Cys Gly Ala Cys Cys Thr Gly Gly
145 150 155 160

Cys Thr Thr Cys Thr Gly Gly Ala Gly Thr Cys Cys Cys Thr Gly Cys
165 170 175

Thr Cys Gly Cys Thr Thr Cys Ala Gly Thr Gly Gly Cys Ala Gly Thr
180 185 190

Gly Gly Gly Thr Cys Thr Gly Gly Gly Ala Cys Cys Thr Cys Thr Thr
195 200 205

Ala Thr Thr Cys Thr Cys Thr Cys Ala Cys Ala Ala Thr Cys Ala Gly
210 215 220

Cys Ala Gly Ala Gly Thr Gly Gly Ala Gly Gly Cys Thr Gly Ala Ala
225 230 235 240

Gly Ala Thr Gly Cys Thr Gly Cys Cys Ala Cys Thr Thr Ala Thr Thr
245 250 255

Ala Cys Thr Gly Cys Cys Ala Gly Cys Ala Gly Thr Gly Gly Ala Gly
260 265 270

Thr Ala Gly Thr Cys Ala Cys Cys Cys Ala Cys Cys Cys Ala Cys Gly
275 280 285

Thr Thr Cys Gly Gly Ala Gly Gly Gly Gly Gly Gly Ala Cys Cys Ala
290 295 300

Ala Gly Cys Thr Gly Gly Ala Ala Ala Thr Ala Ala Gly Ala
305 310 315