

SEQUENCE LISTING

<110> PROTHENA BIOSCIENCES, INC.
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<120> ANTI-TRANSTHYRETIN ANTIBODIES

<130> 057450-516711

<150> US 62/569,436

<151> 2017-10-06

<150> US 62/598,965

<151> 2017-12-14

<160> 102

<170> PatentIn version 3.5

<210> 1

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Met	Asp	Phe	Gly	Leu	Ile	Phe	Phe	Ile	Val	Ala	Leu	Leu	Lys	Gly	Val
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Gln	Cys	Glu	Val	Lys	Leu	Leu	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro
			20					25					30		

Gly	Gly	Ser	Leu	Asn	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Asp	Phe	Ser
		35					40					45			

Arg	Phe	Trp	Met	Ser	Trp	Ala	Arg	Gln	Ala	Pro	Gly	Arg	Gly	Gln	Glu
	50					55					60				

Trp	Ile	Gly	Glu	Ile	Asn	Pro	Gly	Ser	Ser	Thr	Ile	Asn	Tyr	Thr	Pro
65					70					75					80

Ser	Leu	Lys	Asp	Lys	Phe	Ile	Ile	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Thr
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

85

90

95

Leu Phe Leu Gln Met Ser Lys Val Arg Ser Glu Asp Ser Ala Leu Tyr
 100 105 110

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

Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
 130 135

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<211> 417

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atggattttg ggctgatttt tttcattgtt gcccttttaa aaggggtcca gtgtgaggta 60

aagcttctcg agtctggagg tggcctgggt cagcctggag gatccctgaa tctctcctgt 120

gtagcctcag gattcgattt tagtagattc tggatgagtt gggctcggca ggctccaggg 180

agaggacagg aatggattgg agagattaat ccaggaagca gtacgataaa ctatacgcca 240

tctctgaagg ataaattcat catctccaga gacaacgcca aaaatacgct gttcctgcaa 300

atgagcaaag tgagatctga ggactcagcc ctttattact gtgcaagact ggggtatggt 360

aactacggat gggctctgga ctactgggggt caaggaacct cagtcaccgt ctcctca 417

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<211> 131

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<213> Artificial sequence

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Met Lys Leu Pro Val Arg Leu Leu Val Leu Met Phe Trp Ile Pro Ala
 1 5 10 15

Ser Arg Ser Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val

20

25

30

Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile
 35 40 45

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

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

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

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

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

Glu Leu Lys
 130

<210> 4
 <211> 393
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<400> 4
 atgaagttgc ctgttaggct gttggtgctg atgttctgga ttcctgcttc cagaagtgat 60
 gttttgatga cccaaactcc actctccctg cctgtcagtc ttggagatca agcctccatc 120
 tcttgcatgat ctagtcagag cattgtagat agtaatggaa acacctatattt agaatggtac 180
 ctgcagaaac caggccagtc tccaaagctc ctgatctaca aagttttccaa ccgatttttct 240
 ggggtcccag acagggttcag tggcagtgga tcagggacag atttcacact caagatcagc 300
 agagtggagg ctgaggatct gggaatttat tactgctttc aaggttcaca tgttccgctc 360
 acgttcggtg ctgggaccaa gttggagctg aaa 393

<210> 5
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<212> PRT
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<220>
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<400> 5

Gly	Phe	Asp	Phe	Ser	Arg	Phe	Trp	Met	Ser
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<210> 6
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<212> DNA
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<400> 6

ggattcgatt ttagtagatt ctggatgagt

30

<210> 7
<211> 17
<212> PRT
<213> Artificial sequence

<220>
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<400> 7

Glu	Ile	Asn	Pro	Gly	Ser	Ser	Thr	Ile	Asn	Tyr	Thr	Pro	Ser	Leu	Lys
1				5					10					15	

Asp

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gagattaatc caggaagcag tacgataaac tatacgccat ctctgaagga t

51

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Leu Gly Tyr Gly Asn Tyr Gly Trp Ala Leu Asp Tyr
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ctggggtatg gtaactacgg atgggctctg gactac

36

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<400> 11

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

<210> 12
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<212> DNA
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agatctagtc agagcattgt agatagtaat ggaaacacct atttagaa

48

<210> 13
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<400> 13

Lys Val Ser Asn Arg Phe Ser
1 5

<210> 14
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aaagtttcca accgattttc t

21

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<212> PRT
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<220>
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<400> 15

Phe Gln Gly Ser His Val Pro Leu Thr
1 5

<210> 16
<211> 27
<212> DNA
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<400> 16
tttcaagggtt cacatgttcc gctcacg

27

<210> 17

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

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<400> 17

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

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

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

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu

180

185

190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
 195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
 210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
 225 230 235 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
 245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
 260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
 275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
 290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
 305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 325 330

<210> 18
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 ggacacagcgg ccctgggctg cctgggtcaag gactacttcc ccgaaccggt gacggtgtcg 120
 tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca 180

ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg caccagacc 240
 tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc 300
 aaatcttgtg acaaaaactca cacatgcccc ccgtgcccag cacctgaact cctgggggga 360
 ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccctt 420
 gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 480
 tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 540
 agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag 600
 gagtacaagt gcaaggcttc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 660
 aaagccaaag ggcagccccg agaaccacag gtgtacacgc tgcccccatc ccgggaggag 720
 atgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc 780
 gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 840
 ctggactccg acggctcctt cttcctctat agcaagctca ccgtggacaa gagcaggtgg 900
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 cagaagagcc tctccctgtc cccgggtaaa tga 993

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<400> 19

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 1 5 10 15

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 35 40 45

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

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

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 20
<211> 327
<212> DNA
<213> Artificial sequence

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tctggaactg cctctgttgt gtgcctgctg aataacttct atcccagaga ggccaaagta 120
cagtggaagg tggataacgc cctccaatcg ggtaactccc aggagagtgt cacagagcag 180
gacagcaagg acagcaccta cagcctcagc agcaccctga cgctgagcaa agcagactac 240
gagaaacaca aagtctacgc ctgcgaagtc acccatcagg gcctgagctc gcccgtcaca 300
aagagcttca acaggggaga gtgttag 327

<210> 21
<211> 330
<212> PRT
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<220>
<223> Synthesized

<400> 21

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

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

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser

35

40

45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
 100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
 115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
 130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
 145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Val Lys Thr Lys Pro Arg Glu
 165 170 175

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

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
 195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
 210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
 225 230 235 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
 245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330

<210> 22
<211> 330
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 22

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

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

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

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

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

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
225 230 235 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

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

305		310		315		320
Gln	Lys	Ser	Leu	Ser	Leu	Ser
			325			Pro
					Gly	Lys
						330

<210> 23
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 <212> PRT
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<220>
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<400> 23

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

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

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

Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr
65					70					75					80

Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys
				85					90					95	

Arg	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys
			100					105					110		

Pro	Ala	Pro	Glu	Ala	Ala	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro
		115					120					125			

Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys
	130					135					140				

Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

145		150		155		160									
Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu
				165					170					175	
Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu
			180					185					190		
His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn
		195					200					205			
Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly
	210					215					220				
Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu
225					230					235					240
Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr
				245					250					255	
Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn
			260					265					270		
Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe
		275					280					285			
Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn
	290					295					300				
Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr
305					310					315					320
Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys						
				325					330						

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 <212> PRT
 <213> Artificial sequence

<220>
 <223> Synthesized

<400> 24

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
35 40 45

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

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

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 25

<211> 106

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 25

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

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

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

Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr

50

55

60

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

His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
85 90 95

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 26

<211> 147

<212> PRT

<213> Homo sapiens

<400> 26

Met Ala Ser His Arg Leu Leu Leu Leu Cys Leu Ala Gly Leu Val Phe
1 5 10 15

Val Ser Glu Ala Gly Pro Thr Gly Thr Gly Glu Ser Lys Cys Pro Leu
20 25 30

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

Ala Val His Val Phe Arg Lys Ala Ala Asp Asp Thr Trp Glu Pro Phe
50 55 60

Ala Ser Gly Lys Thr Ser Glu Ser Gly Glu Leu His Gly Leu Thr Thr
65 70 75 80

Glu Glu Glu Phe Val Glu Gly Ile Tyr Lys Val Glu Ile Asp Thr Lys
85 90 95

Ser Tyr Trp Lys Ala Leu Gly Ile Ser Pro Phe His Glu His Ala Glu
100 105 110

Val Val Phe Thr Ala Asn Asp Ser Gly Pro Arg Arg Tyr Thr Ile Ala
115 120 125

Ala Leu Leu Ser Pro Tyr Ser Tyr Ser Thr Thr Ala Val Val Thr Asn
130 135 140

Pro Lys Glu
145

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

<400> 27

Gly Pro Thr Gly Thr Gly Glu Ser Lys Cys Pro Leu Met Val Lys Val
1 5 10 15

Leu Asp Ala Val Arg Gly Ser Pro Ala Ile Asn Val Ala Val His Val
20 25 30

Phe Arg Lys Ala Ala Asp Asp Thr Trp Glu Pro Phe Ala Ser Gly Lys
35 40 45

Thr Ser Glu Ser Gly Glu Leu His Gly Leu Thr Thr Glu Glu Gln Phe
50 55 60

Val Glu Gly Ile Tyr Lys Val Glu Ile Asp Thr Lys Ser Tyr Trp Lys
65 70 75 80

Ala Leu Gly Ile Ser Pro Phe His Glu His Ala Glu Val Val Phe Thr
85 90 95

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

Pro Tyr Ser Tyr Ser Thr Thr Ala Val Val Thr Asn Pro Lys Glu
115 120 125

<210> 28
<211> 127
<212> PRT
<213> Homo sapiens

<400> 28

Gly Pro Thr Gly Thr Gly Glu Ser Lys Cys Pro Leu Met Val Lys Val
1 5 10 15

Leu Asp Ala Val Arg Gly Ser Pro Ala Ile Asn Val Ala Val His Val
20 25 30

Phe Arg Lys Ala Ala Asp Asp Thr Trp Glu Pro Phe Ala Ser Gly Lys
35 40 45

Thr Ser Glu Ser Gly Glu Leu His Gly Leu Thr Thr Glu Glu Gln Phe
50 55 60

Val Glu Gly Ile Tyr Lys Val Glu Ile Asp Thr Lys Ser Tyr Trp Lys
65 70 75 80

Ala Leu Gly Ile Ser Pro Phe His Glu His Ala Glu Val Val Phe Thr
85 90 95

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

Pro Tyr Ser Tyr Ser Thr Thr Ala Val Val Thr Asn Pro Lys Glu
115 120 125

<210> 29
<211> 138
<212> PRT
<213> Homo sapiens

<400> 29

Met Ala Ser His Arg Leu Leu Leu Leu Cys Leu Ala Gly Leu Val Phe
1 5 10 15

Val Ser Glu Ala Gly Pro Thr Gly Thr Gly Glu Ser Lys Cys Pro Leu
20 25 30

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

Ala Val His Val Phe Arg Lys Ala Ala Asp Asp Thr Trp Glu Pro Phe
50 55 60

Ala Ser Gly Lys Thr Ser Glu Ser Gly Glu Leu His Gly Leu Thr Thr
65 70 75 80

Glu Glu Glu Phe Val Glu Gly Ile Tyr Lys Val Glu Ile Asp Thr Lys
85 90 95

Ser Tyr Trp Lys Ala Leu Gly Ile Ser Pro Phe His Glu His Ala Glu
100 105 110

Val Val Phe Thr Ala Asn Asp Ser Gly Pro Arg Arg Tyr Ser Tyr Ser
115 120 125

Thr Thr Ala Val Val Thr Asn Pro Lys Glu
130 135

<210> 30
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<213> Homo sapiens

<400> 30

Gly Pro Arg Arg Tyr Thr Ile Ala Ala
1 5

<210> 31
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<213> Homo sapiens

<400> 31

Phe His Glu His Ala Glu Val Val Phe Thr Ala Asn Asp Ser Gly Pro
1 5 10 15

Arg Arg Tyr Thr Ile Ala Ala Leu Leu Ser Pro Tyr Ser Tyr Ser Thr
20 25 30

Thr Ala Val Val Thr Asn Pro Lys Glu
35 40

<210> 32
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<212> DNA

<213> Artificial sequence

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<223> Synthesized

<400> 32

gcctccacca aggggtccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg	60
ggcacagcgg ccctgggctg cctgggtcaag gactacttcc ccgaaccggt gacggtgtcg	120
tggaactcag gcgccctgac cagcggcgctg cacaccttcc cggctgtcct acagtcctca	180
ggactctact ccctcagcag cgtgggtgacc gtgccctcca gcagcttggg caccagacc	240
tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagag agttgagccc	300
aaatcttgtg acaaaactca cacatgcca ccgtgcccag cacctgaact cctgggggga	360
ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccctt	420
gaggtcacat gcgtgggtgtt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg	480
tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac	540
agcacgtacc gtgtgggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag	600
gagtacaagt gcaagggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc	660
aaagccaaag ggagccccg agaaccacag gtgtacaccc tgccccatc ccgggaggag	720
atgaccaaga accaggtcag cctgacctgc ctgggtcaaag gcttctatcc cagcgacatc	780
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg	840
ctggactccg acggctcctt cttcctctat agcaagctca ccgtggacaa gagcaggtgg	900
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg	960
cagaagagcc tctccctgtc cccgggtaaa	990

<210> 33

<211> 321

<212> DNA

<213> Artificial sequence

<220>

<223> Synthesized

<400> 33

cgaactgtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct	60
ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag	120

tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac	180
agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag	240
aaacacaaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaaag	300
agcttcaaca ggggagagtg t	321

<210> 34
 <211> 318
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthesized

<400> 34	
actgtggctg caccatctgt cttcatcttc ccgccatctg atgagcagtt gaaatctgga	60
actgcctctg ttgtgtgcct gctgaataac ttctatccca gagaggccaa agtacagtgg	120
aaggtggata acgccctcca atcgggtaac tcccaggaga gtgtcacaga gcaggacagc	180
aaggacagca cctacagcct cagcagcacc ctgacgctga gcaaagcaga ctacgagaaa	240
cacaaagtct acgcctgcga agtcacccat cagggcctga gctcgcccgt cacaaagagc	300
ttcaacaggg gagagtgt	318

<210> 35
 <211> 19
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Synthesized

<400> 35

Met	Asn	Phe	Gly	Leu	Ser	Leu	Ile	Phe	Leu	Val	Leu	Val	Leu	Lys	Gly
1				5				10					15		

Val Gln Cys

<210> 36
 <211> 57
 <212> DNA
 <213> Artificial sequence

<220>

<223> Synthesized

<400> 36

atgaactttg ggctcagctt gattttcctt gtccttgttt taaaaggtgt ccagtgt

57

<210> 37

<211> 20

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 37

Met	Glu	Ser	His	Thr	Gln	Val	Phe	Val	Phe	Val	Phe	Leu	Trp	Leu	Ser
1				5				10				15			

Gly	Val	Asp	Gly
			20

<210> 38

<211> 60

<212> DNA

<213> Artificial sequence

<220>

<223> Synthesized

<400> 38

atggagtcac atactcaggt ctttgatttc gtgtttctct ggttgtctgg tgttgacgga

60

<210> 39

<211> 5

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 39

Ser	Tyr	Thr	Met	Ser
1			5	

<210> 40

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 40

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

Gly

<210> 41

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 41

His	Tyr	Tyr	Tyr	Gly	Gly	Gly	Tyr	Gly	Gly	Trp	Phe	Phe	Asp	Val
1				5					10					15

<210> 42

<211> 16

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 42

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

<210> 43

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 43

Arg Val Ser Asn Leu Ala Ser

1

5

<210> 44
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 44

Met Gln His Leu Glu Tyr Pro Leu Thr
1 5

<210> 45
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 45

Glu His Ala Glu Val Val Phe Thr Ala
1 5

<210> 46
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 46

Asn Tyr Ala Met Ser
1 5

<210> 47
<211> 16
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 47

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

<210> 48
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 48

Tyr Tyr Tyr Gly Gln Tyr Phe Asp Phe
1 5

<210> 49
<211> 11
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 49

Lys Ala Ser Gln Asp Val Ser Thr Thr Val Ala
1 5 10

<210> 50
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 50

Ser Ala Ser Tyr Arg Cys Thr
1 5

<210> 51
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 51

Gln Gln His Tyr Ser Thr Pro Leu Thr
1 5

<210> 52

<211> 5

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 52

Asn Tyr Tyr Met Ser
1 5

<210> 53

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 53

Tyr Ile Ser Ile Asp Gly Asn Asn Ile Tyr His Pro Asp Ser Val Lys
1 5 10 15

Gly

<210> 54

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 54

Asp Ser Asp Tyr Gly Tyr Phe Asp Val
1 5

<210> 55

<211> 16
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 55

Arg	Ser	Ser	Gln	Ser	Ile	Val	His	Ser	Asn	Gly	Asn	Thr	Tyr	Leu	Glu
1			5						10					15	

<210> 56
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 56

Lys	Val	Ser	Lys	Arg	Phe	Ser
1			5			

<210> 57
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 57

Phe	Gln	Gly	Ser	His	Val	Pro	Leu	Thr
1			5					

<210> 58
<211> 455
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 58

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ile Asn Pro Cys Pro Pro Cys Lys Glu Cys His Lys Cys Pro Ala Pro

225		230		235		240									
Asn	Leu	Glu	Gly	Gly	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Asn	Ile	Lys
			245						250					255	
Asp	Val	Leu	Met	Ile	Ser	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val	Val
			260					265					270		
Asp	Val	Ser	Glu	Asp	Asp	Pro	Asp	Val	Arg	Ile	Ser	Trp	Phe	Val	Asn
		275					280					285			
Asn	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Thr	His	Arg	Glu	Asp	Tyr
	290					295					300				
Asn	Ser	Thr	Ile	Arg	Val	Val	Ser	Ala	Leu	Pro	Ile	Gln	His	Gln	Asp
305					310					315					320
Trp	Met	Ser	Gly	Lys	Glu	Phe	Lys	Cys	Lys	Val	Asn	Asn	Lys	Asp	Leu
			325						330					335	
Pro	Ser	Pro	Ile	Glu	Arg	Thr	Ile	Ser	Lys	Ile	Lys	Gly	Leu	Val	Arg
			340					345					350		
Ala	Pro	Gln	Val	Tyr	Ile	Leu	Pro	Pro	Pro	Ala	Glu	Gln	Leu	Ser	Arg
		355					360					365			
Lys	Asp	Val	Ser	Leu	Thr	Cys	Leu	Val	Val	Gly	Phe	Asn	Pro	Gly	Asp
	370					375					380				
Ile	Ser	Val	Glu	Trp	Thr	Ser	Asn	Gly	His	Thr	Glu	Glu	Asn	Tyr	Lys
385					390					395					400
Asp	Thr	Ala	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Tyr	Phe	Ile	Tyr	Ser
				405					410					415	
Lys	Leu	Asp	Ile	Lys	Thr	Ser	Thr	Val	Gly	Glu	Asn	Arg	Phe	Leu	Leu
			420					425					430		
Met	Gln	Arg	Glu	Thr	Arg	Gly	Ser	Glu	Lys	Leu	Leu	Pro	Glu	Glu	Asp
		435					440					445			

His Leu Pro Ser Pro Gly Lys
450 455

<210> 59
<211> 219
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 59

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

Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser Leu Phe Asp Ser
20 25 30

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

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

Pro Asp Arg Phe Ile 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 Phe Cys Lys Gln
85 90 95

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

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

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

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

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

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

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

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

<210> 60
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 60

Arg Tyr Trp Ile Thr
1 5

<210> 61
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 61

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

Asn

<210> 62
<211> 9
<212> PRT
<213> Artificial sequence

<220>

<223> Synthesized

<400> 62

Tyr Tyr Gly Ser Thr Tyr Phe Tyr Val
1 5

<210> 63

<211> 16

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 63

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

<210> 64

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 64

Leu Met Ser Thr Arg Ala Ser
1 5

<210> 65

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 65

Gln Gln Leu Val Glu Tyr Pro Arg Thr
1 5

<210> 66

<211> 5

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 66

Ser Tyr Ala Met Ser
1 5

<210> 67

<211> 17

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 67

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

Gly

<210> 68

<211> 11

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 68

Asp Gly Ser Gly Arg Ile Asp Pro Phe Ala Leu
1 5 10

<210> 69

<211> 16

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 69

Arg Ser Ser Arg Ser Leu Val Tyr Ser Asp Gly Asn Ile Tyr Leu Asn

1 5 10 15

<210> 70
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 70

Lys Val Ser Asn Arg Asp Ser Gly
1 5

<210> 71
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 71

Met Gln Gly Thr His Trp Pro Arg Thr
1 5

<210> 72
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 72

Ala Asp Asp Thr Trp Glu Pro Phe Ala Ser Gly Lys Thr
1 5 10

<210> 73
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 73

Thr Ser Glu Ser Gly Glu Leu His Gly Leu Thr Thr Glu
1 5 10

<210> 74
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 74

Ala Leu Leu Ser Pro Tyr Ser Tyr Ser Thr Thr Ala Val
1 5 10

<210> 75
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 75

Ser Tyr Thr Met Ser
1 5

<210> 76
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 76

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

Gly

<210> 77
<211> 15
<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 77

His	Tyr	Tyr	Tyr	Gly	Gly	Gly	Tyr	Gly	Gly	Trp	Phe	Phe	Asp	Val
1				5					10					15

<210> 78

<211> 16

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 78

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

<210> 79

<211> 7

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 79

Arg	Val	Ser	Asn	Leu	Ala	Ser
1				5		

<210> 80

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> Synthesized

<400> 80

Met	Gln	His	Leu	Glu	Tyr	Pro	Leu	Thr
1				5				

<210> 81

<211> 121
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 81

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

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

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

Gly Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
50 55 60

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

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

Ala Arg Leu Gly Tyr Gly Asn Tyr Gly Trp Ala Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Ser Val Thr Val Ser Ser
115 120

<210> 82
<211> 122
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 82

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

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

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

Ala Phe Ile Ser Asn Leu Ala Tyr Ser Ile Tyr Tyr Ala Asp Thr Val
50 55 60

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

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

Ala Arg Tyr Asp Tyr Asp Asn Ile Leu Asp Tyr Val Met Asp Tyr Trp
100 105 110

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

<210> 83
<211> 112
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 83

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

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

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

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

Lys 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 Ser Gly Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
100 105 110

<210> 84
<211> 113
<212> PRT
<213> Homo sapiens

<400> 84

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

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

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

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

Lys 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 Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser
100 105 110

Ser

<210> 85
<211> 121

<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 85

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

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

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

Ala Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
50 55 60

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

Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 86
<211> 121
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 86

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

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

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

Gly Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu
50 55 60

Lys Asp 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 Leu Gly Tyr Gly Asn Tyr Gly Trp Ala Leu Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 87
<211> 112
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 87

Asp Val Leu 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 Ile Val Asp Ser
20 25 30

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

Pro Lys Leu Leu Ile Tyr Lys 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 Ile Tyr Tyr Cys Phe Gln Gly
85 90 95

Ser His Val Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
100 105 110

<210> 88
<211> 112
<212> PRT
<213> Artificial sequence

<220>
<223> Synthesized

<400> 88

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 Val His Ser
20 25 30

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

Pro Lys Leu Leu Ile Tyr Lys 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 Ser
85 90 95

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

<210> 89
<211> 112
<212> PRT
<213> Artificial sequence

<220>

<223> Synthesized

<400> 89

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

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

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

Pro Gln Leu Leu Ile Tyr Lys 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 Ser
85 90 95

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

<210> 90

<211> 112

<212> PRT

<213> Homo sapiens

<400> 90

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

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

Pro Arg Arg Leu Ile Tyr Lys Val Ser Asn Arg Asp Ser Gly Val Pro

50

55

60

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

Thr His Trp Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
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<210> 91

<211> 112

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<213> Artificial sequence

<220>

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<400> 91

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

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

Pro Gln Leu Leu Ile Tyr Lys 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 Phe Gln Gly
85 90 95

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

<210> 92

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

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val Asp Ser
20 25 30

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

Pro Arg Leu Leu Ile Tyr Lys 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 Phe Gln Gly
85 90 95

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

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<400> 93

Arg Phe Trp Met Ser
1 5

<210> 94
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<400> 94

Gly Phe Asp Phe Ser Arg Phe
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<210> 95

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Ser Arg Phe Trp Met Ser
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Asn Pro Gly Ser Ser Thr
1 5

<210> 97

<211> 10

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<400> 97

Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn
1 5 10

<210> 98

<211> 13
<212> PRT
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<400> 98

Trp Ile Gly Glu Ile Asn Pro Gly Ser Ser Thr Ile Asn
1 5 10

<210> 99
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<400> 99

Ala Arg Leu Gly Tyr Gly Asn Tyr Gly Trp Ala Leu Asp
1 5 10

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Asn Thr Tyr Leu Glu Trp Tyr
1 5

<210> 101
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Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
1 5 10

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<400> 102

Phe Gln Gly Ser His Val Pro Leu
1 5