

LISTADO DE SECUENCIAS

<110> Immatics Biotechnologies GmbH
 <120> NUEVOS RECEPTORES DE CÉLULAS T MODIFICADOS GENÉTICAMENTE Y TERAPIAS INMUNOLÓGICAS QUE EMPLEAN LOS MISMOS
 <130> I33054WO
 <150> DE 10 2017 125 888.4
 <151> 2017-11-06
 <150> US 62/582,202
 <151> 2017-11-06

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

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

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

Leu Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu Ile Arg Asp Ser Gln
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35 40 45

Val Leu Asp Met Arg Ser Met Asp Phe Lys Ser Asn Ser Ala Val Ala
50 55 60

Trp Ser Asn Lys Ser Asp Phe Ala Cys Ala Asn Ala Phe Asn Asn Ser
65 70 75 80

Ile Ile Pro Glu Asp Thr Phe Phe Pro Ser Pro Glu Ser Ser Cys Asp
85 90 95

Val Lys Leu Val Glu Lys Ser Phe Glu Thr Asp Thr Asn Leu Asn Phe
100 105 110

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35 40 45

Leu Ser Val Tyr Trp Tyr Gln Gln Ser Leu Asp Gln Gly Leu Gln Phe
50 55 60

Leu Ile Gln Tyr Tyr Asn Gly Glu Glu Arg Ala Lys Gly Asn Ile Leu
65 70 75 80

Glu Arg Phe Ser Ala Gln Gln Phe Pro Asp Leu His Ser Glu Leu Asn
85 90 95

Leu Ser Ser Leu Glu Leu Gly Asp Ser Ala Leu Tyr Phe Cys Ala Ser
100 105 110

Ser Val Glu Ser Ser Tyr Gly Tyr Thr Phe Gly Ser Gly Thr Arg Leu
115 120 125

Thr Val Val Glu Asp Leu Asn Lys Val Phe Pro Pro Glu Val Ala Val
130 135 140

Phe Glu Pro Ser Glu Ala Glu Ile Ser His Thr Gln Lys Ala Thr Leu
145 150 155 160

Val Cys Leu Ala Thr Gly Phe Phe Pro Asp His Val Glu Leu Ser Trp
165 170 175

Trp Val Asn Gly Lys Glu Val His Ser Gly Val Ser Thr Asp Pro Gln
180 185 190

Pro Leu Lys Glu Gln Pro Ala Leu Asn Asp Ser Arg Tyr Cys Leu Ser
195 200 205

Ser Arg Leu Arg Val Ser Ala Thr Phe Trp Gln Asn Pro Arg Asn His
210 215 220

Phe Arg Cys Gln Val Gln Phe Tyr Gly Leu Ser Glu Asn Asp Glu Trp
225 230 235 240

Thr Gln Asp Arg Ala Lys Pro Val Thr Gln Ile Val Ser Ala Glu Ala
245 250 255

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

Tyr Tyr Asn Gly Glu Glu Arg Ala Lys Gly Asn Ile Leu Glu Arg Phe
50 55 60

Ser Ala Gln Gln Phe Pro Asp Leu His Ser Glu Leu Asn Leu Ser Ser
65 70 75 80

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

Ser Ser Tyr Gly Tyr Thr Phe Gly Ser Gly Thr Arg Leu Thr Val Val
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Arg Ser Gly Asp Leu Ser
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Tyr Asn Gly Glu Glu
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<213> Homo sapiens

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

Gly Lys Glu Val His Ser Gly Val Ser Thr Asp Pro Gln Pro Leu Lys
50 55 60

Glu Gln Pro Ala Leu Asn Asp Ser Arg Tyr Cys Leu Ser Ser Arg Leu
65 70 75 80

Arg Val Ser Ala Thr Phe Trp Gln Asn Pro Arg Asn His Phe Arg Cys
85 90 95

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

Arg Ala Lys Pro Val Thr Gln Ile Val Ser Ala Glu Ala Trp Gly Arg
115 120 125

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

Ala Thr Ile Leu Tyr Glu Ile Leu Leu Gly Lys Ala Thr Leu Tyr Ala
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Val Leu Val Ser Ala Leu Val Leu Met Ala Met Val Lys Arg Lys Asp
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Glu Asp Leu Asn Lys
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Glu Asp Leu Lys Asn
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1 5 10 15

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20 25 30

Leu Glu Ser Thr Pro Tyr Ser Leu Ser Thr Thr Thr Ile Leu Ala Asn
35 40 45

Gly Lys Ala Met Gln Gly Val Phe Glu Tyr Tyr Lys Ser Val Thr Phe
50 55 60

Val Ser Asn Cys Gly Ser His Pro Ser Thr Thr Ser Lys Gly Ser Pro

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Val	Ser	Leu	Leu	Ile	Arg	Asp	Ser	Gln	Pro	Ser	Asp	Ser	Ala	Thr	Tyr
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Ser	Gly	Val	Thr	Gln	Thr	Pro	Lys	His	Leu	Ile	Thr	Ala	Thr	Gly	Gln
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Glu	Leu	Gly	Asp	Ser	Ala	Leu	Tyr	Phe	Cys	Ala	Ser	Ser	Val	Glu	Ser
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Ser	Tyr	Gly	Tyr	Thr	Phe	Gly	Ser	Gly	Thr	Arg	Leu	Thr	Val	Val	Glu
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Leu Glu Ser Thr Pro Tyr Ser Leu Ser Thr Thr Thr Ile Leu Ala Asn
35 40 45

Gly Lys Ala Met Gln Gly Val Phe Glu Tyr Tyr Lys Ser Val Thr Phe
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Val Ser Asn Cys Gly Ser His Pro Ser Thr Thr Ser Lys Gly Ser Pro
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Ile Asn Thr Gln Tyr Val Phe
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20 25 30

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35 40 45

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

Leu Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu Ile Arg Asp Ser Gln
 65 70 75 80
 Pro Ser Asp Ser Ala Thr Tyr Leu Cys Ala Ala Tyr Ser Gly Ala Gly
 85 90 95
 Ser Tyr Gln Leu Thr Phe Gly Lys Gly Thr Lys Leu Ser Val Ile Pro
 100 105 110
 Asn Ile Gln Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125
 Gly Gly Ser Gly Gly Gly Gly Ser Gly Val Thr Gln Thr Pro Lys His
 130 135 140
 Leu Ile Thr Ala Thr Gly Gln Arg Val Thr Leu Arg Cys Ser Pro Arg
 145 150 155 160
 Ser Gly Asp Leu Ser Val Tyr Trp Tyr Gln Gln Ser Leu Asp Gln Gly
 165 170 175
 Leu Gln Phe Leu Ile Gln Tyr Tyr Asn Gly Glu Glu Arg Ala Lys Gly
 180 185 190
 Asn Ile Leu Glu Arg Phe Ser Ala Gln Gln Phe Pro Asp Leu His Ser
 195 200 205
 Glu Leu Asn Leu Ser Ser Leu Glu Leu Gly Asp Ser Ala Leu Tyr Phe
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 35 40 45
 Ser Ile Tyr Ser Asn Gly Asp Lys Glu Asp Gly Arg Phe Thr Ala Gln
 50 55 60
 Leu Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu Ile Arg Asp Ser Gln
 65 70 75 80
 Pro Ser Asp Ser Ala Thr Tyr Leu Cys Ala Ala Tyr Ser Gly Ala Gly
 85 90 95
 Ser Tyr Gln Leu Thr Phe Gly Lys Gly Thr Lys Leu Ser Val Ile Pro
 100 105 110
 Asn Ile Gln Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125
 Gly Gly Ser Gly Gly Gly Gly Ser Gly Val Thr Gln Thr Pro Lys His
 130 135 140
 Leu Ile Thr Ala Thr Gly Gln Arg Val Thr Leu Arg Cys Ser Pro Arg
 145 150 155 160
 Ser Gly Asp Leu Ser Val Tyr Trp Tyr Lys Gln Ser Leu Asp Gln Gly
 165 170 175
 Leu Gln Phe Leu Ile Gln Tyr Tyr Asn Gly Glu Glu Arg Ala Lys Gly
 180 185 190
 Asn Ile Leu Glu Arg Phe Ser Ala Gln Gln Phe Pro Asp Leu His Ser
 195 200 205
 Glu Leu Asn Leu Ser Ser Leu Glu Leu Gly Asp Ser Ala Leu Tyr Phe
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 Cys Ala Ser Ser Val Glu Ser Ser Tyr Gly Tyr Thr Phe Gly Ser Gly
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 35 40 45
 Ser Ile Tyr Ser Asn Gly Asp Lys Glu Asp Gly Arg Phe Thr Ala Gln
 50 55 60
 Leu Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu Ile Arg Asp Ser Gln
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 Pro Ser Asp Ser Ala Thr Tyr Leu Cys Ala Ala Tyr Ser Gly Ala Gly
 85 90 95
 Ser Tyr Gln Leu Thr Phe Gly Lys Gly Thr Lys Leu Ser Val Ile Pro
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 Asn Ile Gln Asn Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
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 Gly Gly Ser Gly Gly Gly Gly Ser Gly Val Thr Gln Thr Pro Lys His
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 Ser Gly Asp Leu Ser Val Tyr Trp Tyr Gln Gln Ser Leu Asp Gln Gly
 165 170 175
 Leu Gln Phe Leu Ile Gln Tyr Tyr Asn Gly Glu Glu Arg Ala Lys Gly
 180 185 190
 Asn Ile Ser Glu Arg Phe Ser Ala Gln Gln Phe Pro Asp Leu His Ser
 195 200 205
 Glu Leu Asn Leu Ser Ser Leu Glu Leu Gly Asp Ser Ala Leu Tyr Phe
 210 215 220
 Cys Ala Ser Ser Val Glu Ser Ser Tyr Gly Tyr Thr Phe Gly Ser Gly
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 35 40 45
 Ser Ile Tyr Ser Asn Gly Asp Lys Glu Asp Gly Arg Phe Thr Ala Gln
 50 55 60
 Leu Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu Ile Arg Asp Ser Gln
 65 70 75 80
 Pro Ser Asp Ser Ala Thr Tyr Leu Cys Ala Ala Tyr Ser Gly Ala Gly
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 Ser Tyr Gln Leu Thr Phe Gly Lys Gly Thr Lys Leu Ser Val Ile Pro
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 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
 115 120 125
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Val Thr Gln Thr Pro Lys
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 His Leu Ile Thr Ala Thr Gly Gln Arg Val Thr Leu Arg Cys Ser Pro
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 Arg Ser Gly Asp Leu Ser Val Tyr Trp Tyr Lys Gln Ser Leu Asp Gln
 165 170 175
 Gly Leu Gln Phe Leu Ile Gln Tyr Tyr Asn Gly Glu Glu Arg Ala Lys
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 Gly Asn Ile Ser Glu Arg Phe Ser Ala Gln Gln Phe Pro Asp Leu His
 195 200 205
 Ser Glu Leu Asn Leu Ser Ser Leu Glu Leu Gly Asp Ser Ala Leu Tyr
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 225 230 235 240
 Gly Thr Arg Leu Thr Val Val
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Ala Thr Asp His Tyr Asn

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Ala Arg Tyr His Thr Asn

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Ala Pro Tyr His Leu Asn

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Ala Lys Asp His Thr Asn

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Ala Arg Tyr His Arg Asn

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Ala Arg Trp His Ser Asn

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Ala Thr Asp His Tyr Asn

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20 25 30

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr Gly
35 40 45

Tyr Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
50 55 60

Val Ala Leu Ile Asn Pro Tyr Lys Gly Val Ser Thr Tyr Asn Gln Lys
65 70 75 80

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

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

Cys Ala Arg Ser Gly Tyr Tyr Gly Asp Ser Asp Trp Tyr Phe Asp Val
115 120 125

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
130 135 140

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

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

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

Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val

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Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys
225					230					235					240
Ser	Cys	Asp	Lys	Thr	His	Thr	Ser	Pro	Pro	Ser	Pro	Ala	Pro	Pro	Val
				245					250					255	
Ala	Gly	Gln	Lys	Glu	Val	Glu	Gln	Asn	Ser	Gly	Pro	Leu	Ser	Val	Pro
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Glu	Gly	Ala	Ile	Ala	Ser	Leu	Asn	Cys	Thr	Tyr	Ser	Asp	Arg	Gly	Ser
		275					280					285			
Gln	Ser	Phe	Phe	Trp	Tyr	Arg	Gln	Tyr	Ser	Gly	Lys	Ser	Pro	Glu	Leu
	290					295					300				
Ile	Met	Ser	Ile	Tyr	Ser	Asn	Gly	Asp	Lys	Glu	Asp	Gly	Arg	Phe	Thr
305					310					315					320
Ala	Gln	Leu	Asn	Lys	Ala	Ser	Gln	Tyr	Val	Ser	Leu	Leu	Ile	Arg	Asp
				325					330					335	
Ser	Gln	Pro	Ser	Asp	Ser	Ala	Thr	Tyr	Leu	Cys	Ala	Ala	Tyr	Ser	Gly
			340					345					350		
Ala	Gly	Ser	Tyr	Gln	Leu	Thr	Phe	Gly	Lys	Gly	Thr	Lys	Leu	Ser	Val
		355					360					365			
Ile	Pro	Asn	Ile	Gln	Asn	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser
	370					375					380				
Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly
385				390						395					400
Val	Thr	Gln	Thr	Pro	Lys	His	Leu	Ile	Thr	Ala	Thr	Gly	Gln	Arg	Val
				405					410					415	
Thr	Leu	Arg	Cys	Ser	Pro	Arg	Ser	Gly	Asp	Leu	Ser	Val	Tyr	Trp	Tyr
			420					425					430		
Lys	Gln	Ser	Leu	Asp	Gln	Gly	Leu	Gln	Phe	Leu	Ile	Gln	Tyr	Tyr	Asn
		435					440					445			
Gly	Glu	Glu	Arg	Ala	Lys	Gly	Asn	Ile	Ser	Glu	Arg	Phe	Ser	Ala	Gln
		450				455					460				
Gln	Phe	Pro	Asp	Leu	His	Ser	Glu	Leu	Asn	Leu	Ser	Ser	Leu	Glu	Leu
465					470					475					480
Gly	Asp	Ser	Ala	Leu	Tyr	Phe	Cys	Ala	Ser	Ser	Val	Glu	Ser	Ser	Tyr

				485						490						495
Gly	Tyr	Thr	Phe	Gly	Ser	Gly	Thr	Arg	Leu	Thr	Val	Val	Glu	Asp	Leu	
			500					505					510			
Lys Asn																
<210>	51															
<211>	258															
<212>	PRT															
<213>	Homo sapiens															
<400>	51															
Met	Lys	Trp	Val	Thr	Phe	Ile	Ser	Leu	Leu	Phe	Leu	Phe	Ser	Ser	Ala	
1				5				10					15			
Tyr	Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	
			20					25					30			
Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Thr	Gly	
		35					40					45				
Tyr	Thr	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	
	50					55					60					
Val	Ala	Leu	Ile	Asn	Pro	Tyr	Lys	Gly	Val	Ser	Thr	Tyr	Asn	Gln	Lys	
65					70					75					80	
Phe	Lys	Asp	Arg	Phe	Thr	Ile	Ser	Val	Asp	Lys	Ser	Lys	Asn	Thr	Ala	
				85					90					95		
Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	
			100					105					110			
Cys	Ala	Arg	Ser	Gly	Tyr	Tyr	Gly	Asp	Ser	Asp	Trp	Tyr	Phe	Asp	Val	
		115					120					125				
Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	
	130					135					140					
Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	
145					150					155					160	
Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	
				165					170					175		
Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	
			180					185					190			
Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	
		195					200					205				
Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	
	210					215					220					

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

Ser Cys Asp Lys Thr His Thr Ser Pro Pro Ser Pro Ala Pro Pro Val
245 250 255

Ala Gly

<210> 52

<211> 232

<212> PRT

<213> Homo sapiens

<400> 52

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

Tyr Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser
20 25 30

Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Ile Arg
35 40 45

Asn Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu
50 55 60

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

Ser Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu
85 90 95

Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Gly Asn Thr Leu
100 105 110

Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val
115 120 125

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

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

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

Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser
180 185 190

Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys
195 200 205

Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
210 215 220

Lys Ser Phe Asn Arg Gly Glu Cys
225 230

<210> 53

<211> 274

<212> PRT

<213> Homo sapiens

<400> 53

Met Glu Thr Leu Leu Gly Leu Leu Ile Leu Trp Leu Gln Leu Gln Trp
1 5 10 15

Val Ser Ser Lys Gln Glu Val Thr Gln Ile Pro Ala Ala Leu Ser Val
20 25 30

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

Ile Tyr Asn Leu Gln Trp Phe Arg Gln Asp Pro Gly Lys Gly Leu Thr
50 55 60

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

Leu Asn Ala Ser Leu Asp Lys Ser Ser Gly Arg Ser Thr Leu Tyr Ile
85 90 95

Ala Ala Ser Gln Pro Gly Asp Ser Ala Thr Tyr Leu Cys Ala Val Arg
100 105 110

Pro Thr Ser Gly Gly Ser Tyr Ile Pro Thr Phe Gly Arg Gly Thr Ser
115 120 125

Leu Ile Val His Pro Tyr Ile Gln Asn Pro Asp Pro Ala Val Tyr Gln
130 135 140

Leu Arg Asp Ser Lys Ser Ser Asp Lys Ser Val Cys Leu Phe Thr Asp
145 150 155 160

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

Ile Thr Asp Lys Thr Val Leu Asp Met Arg Ser Met Asp Phe Lys Ser
180 185 190

Asn Ser Ala Val Ala Trp Ser Asn Lys Ser Asp Phe Ala Cys Ala Asn
195 200 205

Ala Phe Asn Asn Ser Ile Ile Pro Glu Asp Thr Phe Phe Pro Ser Pro
210 215 220

Glu Ser Ser Cys Asp Val Lys Leu Val Glu Lys Ser Phe Glu Thr Asp
225 230 235 240

Thr Asn Leu Asn Phe Gln Asn Leu Ser Val Ile Gly Phe Arg Ile Leu
245 250 255

Leu Leu Lys Val Ala Gly Phe Asn Leu Leu Met Thr Leu Arg Leu Trp
260 265 270

Ser Ser

<210> 54

<211> 20

<212> PRT

<213> Homo sapiens

<400> 54

Met Glu Thr Leu Leu Gly Leu Leu Ile Leu Trp Leu Gln Leu Gln Trp
1 5 10 15

Val Ser Ser Lys
20

<210> 55

<211> 113

<212> PRT

<213> Homo sapiens

<400> 55

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

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

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

Ile Gln Ser Ser Gln Arg Glu Gln Thr Ser Gly Arg Leu Asn Ala Ser
50 55 60

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

Pro Gly Asp Ser Ala Thr Tyr Leu Cys Ala Val Arg Pro Thr Ser Gly
85 90 95

Gly Ser Tyr Ile Pro Thr Phe Gly Arg Gly Thr Ser Leu Ile Val His
100 105 110

Pro

<210> 56

<211> 141

<212> PRT

<213> Homo sapiens

<400> 56

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

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

Asn Val Ser Gln Ser Lys Asp Ser Asp Val Tyr Ile Thr Asp Lys Thr
35 40 45

Val Leu Asp Met Arg Ser Met Asp Phe Lys Ser Asn Ser Ala Val Ala
50 55 60

Trp Ser Asn Lys Ser Asp Phe Ala Cys Ala Asn Ala Phe Asn Asn Ser
65 70 75 80

Ile Ile Pro Glu Asp Thr Phe Phe Pro Ser Pro Glu Ser Ser Cys Asp
85 90 95

Val Lys Leu Val Glu Lys Ser Phe Glu Thr Asp Thr Asn Leu Asn Phe
100 105 110

Gln Asn Leu Ser Val Ile Gly Phe Arg Ile Leu Leu Leu Lys Val Ala
115 120 125

Gly Phe Asn Leu Leu Met Thr Leu Arg Leu Trp Ser Ser
130 135 140

<210> 57

<211> 311

<212> PRT

<213> Homo sapiens

<400> 57

Met Ser Ile Gly Leu Leu Cys Cys Ala Ala Leu Ser Leu Leu Trp Ala
1 5 10 15

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

Lys Thr Gly Gln Ser Met Thr Leu Gln Cys Ala Gln Asp Met Asn His
35 40 45

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

Ile His Tyr Ser Val Gly Ala Gly Ile Thr Asp Gln Gly Glu Val Pro
65 70 75 80

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

Leu Leu Ser Ala Ala Pro Ser Gln Thr Ser Val Tyr Phe Cys Ala Ser
100 105 110

Ser Tyr Val Gly Asn Thr Gly Glu Leu Phe Phe Gly Glu Gly Ser Arg
115 120 125

Leu Thr Val Leu Glu Asp Leu Lys Asn Val Phe Pro Pro Glu Val Ala
130 135 140

Val Phe Glu Pro Ser Glu Ala Glu Ile Ser His Thr Gln Lys Ala Thr
145 150 155 160

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

Trp Trp Val Asn Gly Lys Glu Val His Ser Gly Val Ser Thr Asp Pro
180 185 190

Gln Pro Leu Lys Glu Gln Pro Ala Leu Asn Asp Ser Arg Tyr Cys Leu
195 200 205

Ser Ser Arg Leu Arg Val Ser Ala Thr Phe Trp Gln Asn Pro Arg Asn
210 215 220

His Phe Arg Cys Gln Val Gln Phe Tyr Gly Leu Ser Glu Asn Asp Glu
225 230 235 240

Trp Thr Gln Asp Arg Ala Lys Pro Val Thr Gln Ile Val Ser Ala Glu
245 250 255

Ala Trp Gly Arg Ala Asp Cys Gly Phe Thr Ser Glu Ser Tyr Gln Gln
260 265 270

Gly Val Leu Ser Ala Thr Ile Leu Tyr Glu Ile Leu Leu Gly Lys Ala
275 280 285

Thr Leu Tyr Ala Val Leu Val Ser Ala Leu Val Leu Met Ala Met Val
290 295 300

Lys Arg Lys Asp Ser Arg Gly
305 310

<210> 58

<211> 21

<212> PRT

<213> Homo sapiens

<400> 58

Met Ser Ile Gly Leu Leu Cys Cys Ala Ala Leu Ser Leu Leu Trp Ala
1 5 10 15

Gly Pro Val Asn Ala
20

<210> 59

<211> 111

<212> PRT

<213> Homo sapiens

<400> 59

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

Met Thr Leu Gln Cys Ala Gln Asp Met Asn His Glu Tyr Met Ser Trp
20 25 30

Tyr Arg Gln Asp Pro Gly Met Gly Leu Arg Leu Ile His Tyr Ser Val
35 40 45

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

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

Pro Ser Gln Thr Ser Val Tyr Phe Cys Ala Ser Ser Tyr Val Gly Asn
85 90 95

Thr Gly Glu Leu Phe Phe Gly Glu Gly Ser Arg Leu Thr Val Leu
100 105 110

<210> 60

<211> 179

<212> PRT

<213> Homo sapiens

<400> 60

Glu Asp Leu Lys Asn Val Phe Pro Pro Glu Val Ala Val Phe Glu Pro
1 5 10 15

Ser Glu Ala Glu Ile Ser His Thr Gln Lys Ala Thr Leu Val Cys Leu
20 25 30

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

Gly Lys Glu Val His Ser Gly Val Ser Thr Asp Pro Gln Pro Leu Lys
50 55 60

Glu Gln Pro Ala Leu Asn Asp Ser Arg Tyr Cys Leu Ser Ser Arg Leu
65 70 75 80

Arg Val Ser Ala Thr Phe Trp Gln Asn Pro Arg Asn His Phe Arg Cys
85 90 95

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

Arg Ala Lys Pro Val Thr Gln Ile Val Ser Ala Glu Ala Trp Gly Arg
115 120 125

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

Ala Thr Ile Leu Tyr Glu Ile Leu Leu Gly Lys Ala Thr Leu Tyr Ala
145 150 155 160

Val Leu Val Ser Ala Leu Val Leu Met Ala Met Val Lys Arg Lys Asp
165 170 175

Ser Arg Gly

<210> 61

<211> 9

<212> PRT

<213> Homo sapiens

<400> 61

Ser Leu Leu Met Trp Ile Thr Gln Val
1 5

<210> 62

<211> 308

<212> PRT

<213> Homo sapiens

<400> 62

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

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

Ala Thr Gly Gln Arg Val Thr Leu Arg Cys Ser Pro Ala Met Asp His
35 40 45

Pro Tyr Val Tyr Trp Tyr Gln Gln Ser Leu Asp Gln Gly Leu Gln Phe
50 55 60

Leu Ile Gln Tyr Tyr Asn Gly Glu Glu Arg Ala Lys Gly Asn Ile Leu
65 70 75 80

Glu Arg Phe Ser Ala Gln Gln Phe Pro Asp Leu His Ser Glu Leu Asn
85 90 95

Leu Ser Ser Leu Glu Leu Gly Asp Ser Ala Leu Tyr Phe Cys Ala Ser
100 105 110

Ser Val Glu Ser Ser Tyr Gly Tyr Thr Phe Gly Ser Gly Thr Arg Leu
115 120 125

Thr Val Val Glu Asp Leu Asn Lys Val Phe Pro Pro Glu Val Ala Val
130 135 140

Phe Glu Pro Ser Glu Ala Glu Ile Ser His Thr Gln Lys Ala Thr Leu
145 150 155 160

Val Cys Leu Ala Thr Gly Phe Phe Pro Asp His Val Glu Leu Ser Trp
165 170 175

Trp Val Asn Gly Lys Glu Val His Ser Gly Val Ser Thr Asp Pro Gln
180 185 190

Pro Leu Lys Glu Gln Pro Ala Leu Asn Asp Ser Arg Tyr Cys Leu Ser
195 200 205

Ser Arg Leu Arg Val Ser Ala Thr Phe Trp Gln Asn Pro Arg Asn His
210 215 220

Phe Arg Cys Gln Val Gln Phe Tyr Gly Leu Ser Glu Asn Asp Glu Trp
225 230 235 240

Thr Gln Asp Arg Ala Lys Pro Val Thr Gln Ile Val Ser Ala Glu Ala
245 250 255

Trp Gly Arg Ala Asp Cys Gly Phe Thr Ser Val Ser Tyr Gln Gln Gly
260 265 270

Val Leu Ser Ala Thr Ile Leu Tyr Glu Ile Leu Leu Gly Lys Ala Thr
275 280 285

Leu Tyr Ala Val Leu Val Ser Ala Leu Val Leu Met Ala Met Val Lys
290 295 300

Arg Lys Asp Phe
305

<210> 63
<211> 274
<212> PRT
<213> Homo sapiens
<400> 63

Met Lys Ser Leu Arg Val Leu Leu Val Ile Leu Trp Leu Gln Leu Ser
1 5 10 15

Trp Val Trp Ser Gln Gln Lys Glu Val Glu Gln Asn Ser Gly Pro Leu
20 25 30

Ser Val Pro Glu Gly Ala Ile Ala Ser Leu Asn Cys Thr Tyr Ser Asp
35 40 45

Arg Arg Ser Gln Ser Phe Phe Trp Tyr Arg Gln Tyr Ser Gly Lys Ser
50 55 60

Pro Glu Leu Ile Met Phe Ile Tyr Ser Asn Gly Asp Lys Glu Asp Gly
65 70 75 80

Arg Phe Thr Ala Gln Leu Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu
85 90 95

Ile Arg Asp Ser Gln Pro Ser Asp Ser Ala Thr Tyr Leu Cys Ala Ala
100 105 110

Tyr Ser Gly Ala Gly Ser Tyr Gln Leu Thr Phe Gly Lys Gly Thr Lys
115 120 125

Leu Ser Val Ile Pro Asn Ile Gln Asn Pro Asp Pro Ala Val Tyr Gln

130		135		140	
Leu	Arg	Asp	Ser	Lys	Ser
145		150		155	
Phe	Asp	Ser	Gln	Thr	Asn
		165		170	
Ile	Thr	Asp	Lys	Thr	Val
		180		185	
Asn	Ser	Ala	Val	Ala	Trp
		195		200	
Ala	Phe	Asn	Asn	Ser	Ile
		210		215	
Glu	Ser	Ser	Cys	Asp	Val
225				230	
Thr	Asn	Leu	Asn	Phe	Gln
				245	
Leu	Leu	Lys	Val	Ala	Gly
				260	

Ser Ser

<210> 64
 <211> 515
 <212> PRT
 <213> Homo sapiens
 <400> 64

Met	Lys	Trp	Val	Thr	Phe	Ile	Ser	Leu	Leu	Phe	Leu	Phe	Ser	Ser	Ala
1				5				10						15	
Tyr	Ser	Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro
			20				25						30		
Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Thr
		35					40					45			
Gly	Tyr	Thr	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu
		50				55					60				
Trp	Val	Ala	Leu	Ile	Asn	Pro	Tyr	Lys	Gly	Val	Ser	Thr	Tyr	Asn	Gln
65					70					75					80
Lys	Phe	Lys	Asp	Arg	Phe	Thr	Ile	Ser	Val	Asp	Lys	Ser	Lys	Asn	Thr
				85					90					95	
Ala	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr
			100					105					110		

Tyr	Cys	Ala	Arg	Ser	Gly	Tyr	Tyr	Gly	Asp	Ser	Asp	Trp	Tyr	Phe	Asp	
		115					120					125				
Val	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	
	130					135					140					
Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	
145					150					155					160	
Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	
				165					170					175		
Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	
			180					185					190			
Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	
		195					200					205				
Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	
	210					215					220					
Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	
225					230					235					240	
Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Ser	Pro	Pro	Ser	Pro	Ala	Pro	Pro	
				245					250					255		
Val	Ala	Gly	Gln	Lys	Glu	Val	Glu	Gln	Asn	Ser	Gly	Pro	Leu	Ser	Val	
			260					265					270			
Pro	Glu	Gly	Ala	Ile	Ala	Ser	Leu	Asn	Cys	Thr	Tyr	Ser	Asp	Arg	Gly	
		275					280					285				
Ser	Gln	Ser	Phe	Phe	Trp	Tyr	Arg	Gln	Tyr	Ser	Gly	Lys	Ser	Pro	Glu	
	290					295					300					
Leu	Ile	Met	Ser	Ile	Tyr	Ser	Asn	Gly	Asp	Lys	Glu	Asp	Gly	Arg	Phe	
305					310					315					320	
Thr	Ala	Gln	Leu	Asn	Lys	Ala	Ser	Gln	Tyr	Val	Ser	Leu	Leu	Ile	Arg	
				325					330					335		
Asp	Ser	Gln	Pro	Ser	Asp	Ser	Ala	Thr	Tyr	Leu	Cys	Ala	Ala	Tyr	Ser	
			340					345					350			
Gly	Ala	Gly	Ser	Tyr	Gln	Leu	Thr	Phe	Gly	Lys	Gly	Thr	Lys	Leu	Ser	
		355					360					365				
Val	Ile	Pro	Asn	Ile	Gln	Asn	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	
	370					375					380					
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	
385					390					395					400	

Gly Val Thr Gln Thr Pro Lys His Leu Ile Thr Ala Thr Gly Gln Arg
405 410 415

Val Thr Leu Arg Cys Ser Pro Ala Met Asp His Pro Tyr Val Tyr Trp
420 425 430

Tyr Lys Gln Ser Leu Asp Gln Gly Leu Gln Phe Leu Ile Gln Tyr Tyr
435 440 445

Asn Gly Glu Glu Arg Ala Lys Gly Asn Ile Ser Glu Arg Phe Ser Ala
450 455 460

Gln Gln Phe Pro Asp Leu His Ser Glu Leu Asn Leu Ser Ser Leu Glu
465 470 475 480

Leu Gly Asp Ser Ala Leu Tyr Phe Cys Ala Ser Ser Val Glu Ser Ser
485 490 495

Tyr Gly Tyr Thr Phe Gly Ser Gly Thr Arg Leu Thr Val Val Glu Asp
500 505 510

Leu Lys Asn
515

<210> 65

<211> 515

<212> PRT

<213> Homo sapiens

<400> 65

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

Tyr Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro
20 25 30

Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr
35 40 45

Gly Tyr Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
50 55 60

Trp Val Ala Leu Ile Asn Pro Tyr Lys Gly Val Ser Thr Tyr Asn Gln
65 70 75 80

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

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

Tyr Cys Ala Arg Ser Gly Tyr Tyr Gly Asp Ser Asp Trp Tyr Phe Asp
115 120 125

Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys

130						135						140					
Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly		
145					150					155					160		
Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro		
				165					170					175			
Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr		
			180					185					190				
Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val		
		195						200				205					
Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn		
	210					215					220						
Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro		
225					230					235					240		
Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Ser	Pro	Pro	Ser	Pro	Ala	Pro	Pro		
				245					250					255			
Val	Ala	Gly	Gln	Lys	Glu	Val	Glu	Gln	Asn	Ser	Gly	Pro	Leu	Ser	Val		
			260					265					270				
Pro	Glu	Gly	Ala	Ile	Ala	Ser	Leu	Asn	Cys	Thr	Tyr	Ser	Asp	Arg	Arg		
		275					280					285					
Ser	Gln	Ser	Phe	Phe	Trp	Tyr	Arg	Gln	Tyr	Ser	Gly	Lys	Ser	Pro	Glu		
	290					295					300						
Leu	Ile	Met	Ser	Ile	Tyr	Ser	Asn	Gly	Asp	Lys	Glu	Asp	Gly	Arg	Phe		
305					310					315					320		
Thr	Ala	Gln	Leu	Asn	Lys	Ala	Ser	Gln	Tyr	Val	Ser	Leu	Leu	Ile	Arg		
				325					330					335			
Asp	Ser	Gln	Pro	Ser	Asp	Ser	Ala	Thr	Tyr	Leu	Cys	Ala	Ala	Tyr	Ser		
			340					345					350				
Gly	Ala	Gly	Ser	Tyr	Gln	Leu	Thr	Phe	Gly	Lys	Gly	Thr	Lys	Leu	Ser		
		355					360					365					
Val	Ile	Pro	Asn	Ile	Gln	Asn	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly		
	370					375					380						
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser		
385					390					395					400		
Gly	Val	Thr	Gln	Thr	Pro	Lys	His	Leu	Ile	Thr	Ala	Thr	Gly	Gln	Arg		
				405					410					415			
Val	Thr	Leu	Arg	Cys	Ser	Pro	Ala	Met	Asp	His	Pro	Tyr	Val	Tyr	Trp		

420 425 430
 Tyr Lys Gln Ser Leu Asp Gln Gly Leu Gln Phe Leu Ile Gln Tyr Tyr
 435 440 445
 Asn Gly Glu Glu Arg Ala Lys Gly Asn Ile Ser Glu Arg Phe Ser Ala
 450 455 460
 Gln Gln Phe Pro Asp Leu His Ser Glu Leu Asn Leu Ser Ser Leu Glu
 465 470 475 480
 Leu Gly Asp Ser Ala Leu Tyr Phe Cys Ala Ser Ser Val Glu Ser Ser
 485 490 495
 Tyr Gly Tyr Thr Phe Gly Ser Gly Thr Arg Leu Thr Val Val Glu Asp
 500 505 510
 Leu Lys Asn
 515
 <210> 66
 <211> 515
 <212> PRT
 <213> Homo sapiens
 <400> 66
 Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
 1 5 10 15
 Tyr Ser Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro
 20 25 30
 Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr
 35 40 45
 Gly Tyr Thr Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu
 50 55 60
 Trp Val Ala Leu Ile Asn Pro Tyr Lys Gly Val Ser Thr Tyr Asn Gln
 65 70 75 80
 Lys Phe Lys Asp Arg Phe Thr Ile Ser Val Asp Lys Ser Lys Asn Thr
 85 90 95
 Ala Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
 100 105 110
 Tyr Cys Ala Arg Ser Gly Tyr Tyr Gly Asp Ser Asp Trp Tyr Phe Asp
 115 120 125
 Val Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys
 130 135 140
 Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 145 150 155 160

Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	
				165					170					175		
Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	
			180					185					190			
Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	
		195					200					205				
Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	
	210					215					220					
Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	
225					230					235					240	
Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Ser	Pro	Pro	Ser	Pro	Ala	Pro	Pro	
				245					250					255		
Val	Ala	Gly	Gly	Val	Thr	Gln	Thr	Pro	Lys	His	Leu	Ile	Thr	Ala	Thr	
			260					265					270			
Gly	Gln	Arg	Val	Thr	Leu	Arg	Cys	Ser	Pro	Arg	Ser	Gly	Asp	Leu	Ser	
		275					280					285				
Val	Tyr	Trp	Tyr	Lys	Gln	Ser	Leu	Asp	Gln	Gly	Leu	Gln	Phe	Leu	Ile	
	290					295					300					
Gln	Tyr	Tyr	Asn	Gly	Glu	Glu	Arg	Ala	Lys	Gly	Asn	Ile	Ser	Glu	Arg	
305					310					315					320	
Phe	Ser	Ala	Gln	Gln	Phe	Pro	Asp	Leu	His	Ser	Glu	Leu	Asn	Leu	Ser	
				325					330					335		
Ser	Leu	Glu	Leu	Gly	Asp	Ser	Ala	Leu	Tyr	Phe	Cys	Ala	Ser	Ser	Val	
			340					345					350			
Glu	Ser	Ser	Tyr	Gly	Tyr	Thr	Phe	Gly	Ser	Gly	Thr	Arg	Leu	Thr	Val	
		355					360					365				
Val	Glu	Asp	Leu	Lys	Asn	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	
	370					375					380					
Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gln	
385					390					395					400	
Lys	Glu	Val	Glu	Gln	Asn	Ser	Gly	Pro	Leu	Ser	Val	Pro	Glu	Gly	Ala	
				405					410					415		
Ile	Ala	Ser	Leu	Asn	Cys	Thr	Tyr	Ser	Asp	Arg	Arg	Ser	Gln	Ser	Phe	
			420					425					430			
Phe	Trp	Tyr	Arg	Gln	Tyr	Ser	Gly	Lys	Ser	Pro	Glu	Leu	Ile	Met	Ser	
		435					440					445				

Ile Tyr Ser Asn Gly Asp Lys Glu Asp Gly Arg Phe Thr Ala Gln Leu
450 455 460

Asn Lys Ala Ser Gln Tyr Val Ser Leu Leu Ile Arg Asp Ser Gln Pro
465 470 475 480

Ser Asp Ser Ala Thr Tyr Leu Cys Ala Ala Tyr Ser Gly Ala Gly Ser
485 490 495

Tyr Gln Leu Thr Phe Gly Lys Gly Thr Lys Leu Ser Val Ile Pro Asn
500 505 510

Ile Gln Asn
515