

SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.
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 And Uses Thereof

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 <212> DNA
 <213> homo sapien

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 <212> DNA
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 <213> homo sapien

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 <212> DNA
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tgaaggaaga attgtgaact ggaagctgat ttgacacggg acctcttctc agccagagca	1920
tatgaagcag cctcgtgtgt acacgtccta caacactgtt cagaatgaca gaagaggggt	1980
ggagaagatg gtggatccag gggaggagca gcccacacaa gagaacccta aggagaacac	2040
cctgggtgtcc aaaagcccca gcagcagcag cgtagggggc cggagggatg agttggagga	2100
gggagccccct tccgaggcca tgctgcgact cctgcaaagt gctttcagta aaaactcacc	2160
gccaaagcaa tcaccaaaga agtccccaac tgcaaagctc aacatccctt atgaaaactt	2220
ctacgaagcc ctggaaaagc tgaacaaacc ttcccagctt aaagactctg aagacagtct	2280
gtataatgac tatgttgatg tttttataa cactaaacct tacaagcaca gagacgaccg	2340
gctgcttcaa gctctgggtg acattctgaa tgaggaaaat taaaataagt gtgtggtccc	2400
aagttggaag tattcatgct tcttccttac cctgcgattt tgcctgtgtc	2450

<210> 23
 <211> 2276
 <212> DNA
 <213> homo sapien

<400> 23	
gcgatcgcca tggagcgaag agcctggagt ctgcagtgca ctgctttcgt cctcttttgc	60
gcttgggtgtg cactgaacag tgcaaaagcg aaaaggcaat ttgtcaatga atgggcagcg	120
gagatccccg ggggcccgga agcagcctcg gccatcgccg aggagctggg ctatgacctt	180
ttgggtcaga ttggttcact tgaaaaatcac tacttattca aacataaaaa ccaccccaga	240
aggtctcgaa ggagtgcctt tcatatcact aagagattat ctgatgatga tcgtgtgata	300
tgggctgaac aacagtatga aaaagaaaga agtaaacgtt cagctctaag ggactcagca	360
ctaaatctct tcaatgatcc catgtggaat cagcaatggg acttgcaaga taccaggatg	420
acggcagccc tgcccaagct ggaccttcat gtgatacctg tttggcaaaa aggcattacg	480
ggcaaaggag ttgttatcac cgtactggat gatggtttgg agtggaatca cacggacatt	540

tatgccaaact atgatccaga ggctagctat gattttaatg ataatgacca tgatccattt	600
ccccgatatg atccccacaaa cgagaacaaa cacggggacca gatgtgcagg agaaattgcc	660
atgcaagcaa ataatcacia atgcgggggtt ggagttgcat acaattccaa agttggaggc	720
ataagaatgc tggatggcat tgtgacggat gctattgagg ccagttcaat tggattcaat	780
cctggacacg tggatattha cagtgaagc tggggcccta atgatgatgg gaaaactgtg	840
gaggggcctg gccggctagc ccagaaggct tttgaatatg gtgtcaaaca ggggagacag	900
gggaaggggt ccatcttcgt ctgggcttcg ggaaacgggg ggcgtcaggg agataattgt	960
gactgtgatg gctacacaga cagcatctac accatctcca tcagcagtgc ctcccagcaa	1020
ggcctatccc cctggtacgc tgagaagtgc tcctccacac tggccacctc ttacagcagc	1080
ggagattaca ccgaccagag aatcacgagc gctgacctgc acaatgactg cacggagacg	1140
cacacaggca cctcggcctc tgcacctctg gctgctggca tcttcgctct ggccctggaa	1200
gcaaacccaa atctcacctg gcgagatatg cagcacctgg ttgtctggac ctctgagtat	1260
gacccgctgg ccaataaccc tggatggaaa aagaatggag caggcttgat ggtgaatagt	1320
cgatttggat ttggcttgct aaatgccaaa gctctggtgg atttagctga cccagggacc	1380
tggaggagcg tgcctgagaa gaaagagtgt gttgtaaagg acaatgactt tgagcccaga	1440
gccctgaaaag ctaatggaga agttatcatt gaaattccaa caagagcttg tgaaggacaa	1500
gaaaatgcta tcaagtccct ggagcatgta caatttgaag caacaattga atattcccga	1560
agaggagacc ttcatgtcac acttacttct gctgctggaa ctagcactgt gctcttggct	1620
gaaagagaac gggatacatc tcctaattggc tttaagaatt gggacttcat gtctgttcac	1680
acatggggag agaaccctat aggtacttgg actttgagaa ttacagacat gtctggaaga	1740
attcaaaatg aaggaagaat tgtgaactgg aagctgattt tgcacgggac ctcttctcag	1800
ccagagcata tgaagcagcc tcgtgtgtac acgtcctaca aactgttca gaatgacaga	1860
agaggggtgg agaagatggg ggatccaggg gagggagcagc ccacacaaga gaaccctaag	1920
gagaacaccc tgggtgtccaa aagccccagc agcagcagcg tagggggccg gagggatgag	1980
ttggaggagg gagcccctc ccaggccatg ctgcgactcc tgcaaagtgc tttcagtaaa	2040

aactcaccgc caaagcaatc accaaagaag tccccaagtg caaagctcaa catcccttat	2100
gaaaacttct acgaagccct ggaaaagctg aacaaacctt cccagcttaa agactctgaa	2160
gacagtctgt ataatgacta tgttgatgtt ttttataaca ctaaacctta caagcacaga	2220
gacgaccggc tgcttcaagc tctggtggac attctgaatg aggaaaatgt ttaaac	2276

<210> 24
 <211> 753
 <212> PRT
 <213> homo sapien

<400> 24

Met	Glu	Arg	Arg	Ala	Trp	Ser	Leu	Gln	Cys	Thr	Ala	Phe	Val	Leu	Phe
1				5					10					15	

Cys	Ala	Trp	Cys	Ala	Leu	Asn	Ser	Ala	Lys	Ala	Lys	Arg	Gln	Phe	Val
			20					25					30		

Asn	Glu	Trp	Ala	Ala	Glu	Ile	Pro	Gly	Gly	Pro	Glu	Ala	Ala	Ser	Ala
			35				40					45			

Ile	Ala	Glu	Glu	Leu	Gly	Tyr	Asp	Leu	Leu	Gly	Gln	Ile	Gly	Ser	Leu
	50					55					60				

Glu	Asn	His	Tyr	Leu	Phe	Lys	His	Lys	Asn	His	Pro	Arg	Arg	Ser	Arg
65					70				75					80	

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

Ile	Trp	Ala	Glu	Gln	Gln	Tyr	Glu	Lys	Glu	Arg	Ser	Lys	Arg	Ser	Ala
			100					105					110		

Leu	Arg	Asp	Ser	Ala	Leu	Asn	Leu	Phe	Asn	Asp	Pro	Met	Trp	Asn	Gln
		115					120					125			

Gln	Trp	Tyr	Leu	Gln	Asp	Thr	Arg	Met	Thr	Ala	Ala	Leu	Pro	Lys	Leu
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

130

135

140

Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys Gly
 145 150 155 160

Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr Asp
 165 170 175

Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp Asn
 180 185 190

Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys His
 195 200 205

Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn Asn His Lys
 210 215 220

Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg Met
 225 230 235 240

Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly Phe
 245 250 255

Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn Asp
 260 265 270

Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala Phe
 275 280 285

Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe Val
 290 295 300

Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys Asp
 305 310 315 320

Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser Gln
 325 330 335

Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu Ala
340 345 350

Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser Ala
355 360 365

Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala Ser
370 375 380

Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn Pro
385 390 395 400

Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp Thr Ser Glu
405 410 415

Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn Gly Ala Gly
420 425 430

Leu Met Val Asn Ser Arg Phe Gly Phe Gly Leu Leu Asn Ala Lys Ala
435 440 445

Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val Pro Glu Lys
450 455 460

Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg Ala Leu Lys
465 470 475 480

Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala Cys Glu Gly
485 490 495

Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe Glu Ala Thr
500 505 510

Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu Thr Ser Ala
515 520 525

Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg Asp Thr Ser

530

535

540

Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His Thr Trp Gly
 545 550 555 560

Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp Met Ser Gly
 565 570 575

Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu Ile Leu His
 580 585 590

Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr Thr
 595 600 605

Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu Lys Met Val
 610 615 620

Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn Thr
 625 630 635 640

Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg Asp
 645 650 655

Glu Leu Glu Glu Gly Ala Pro Ser Glu Ala Met Leu Arg Leu Leu Gln
 660 665 670

Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys Ser
 675 680 685

Pro Thr Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala Leu
 690 695 700

Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser Leu
 705 710 715 720

Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys His
 725 730 735

Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu Glu
740 745 750

Asn

<210> 25
<211> 753
<212> PRT
<213> homo sapien

<400> 25

Met Glu Arg Arg Ala Trp Ser Leu Gln Cys Thr Ala Phe Val Leu Phe
1 5 10 15

Cys Ala Trp Cys Ala Leu Asn Ser Ala Lys Ala Lys Arg Gln Phe Val
20 25 30

Asn Glu Trp Ala Ala Glu Ile Pro Gly Gly Pro Glu Ala Ala Ser Ala
35 40 45

Ile Ala Glu Glu Leu Gly Tyr Asp Leu Leu Gly Gln Ile Gly Ser Leu
50 55 60

Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg Arg Ser Arg
65 70 75 80

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

Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys Arg Ser Ala
100 105 110

Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met Trp Asn Gln
115 120 125

Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu Pro Lys Leu
130 135 140

Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys Gly
145 150 155 160

Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr Asp
165 170 175

Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp Asn
180 185 190

Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys His
195 200 205

Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asp Asn His Lys
210 215 220

Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg Met
225 230 235 240

Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly Phe
245 250 255

Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn Asp
260 265 270

Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala Phe
275 280 285

Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe Val
290 295 300

Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys Asp
305 310 315 320

Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser Gln
325 330 335

Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu Ala
340 345 350

Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser Ala
355 360 365

Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala Ser
370 375 380

Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn Pro
385 390 395 400

Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp Thr Ser Glu
405 410 415

Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn Gly Ala Gly
420 425 430

Leu Met Val Asn Ser Arg Phe Gly Phe Gly Leu Leu Asn Ala Lys Ala
435 440 445

Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val Pro Glu Lys
450 455 460

Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg Ala Leu Lys
465 470 475 480

Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala Cys Glu Gly
485 490 495

Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe Glu Ala Thr
500 505 510

Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu Thr Ser Ala
515 520 525

Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg Asp Thr Ser
530 535 540

Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His Thr Trp Gly
545 550 555 560

Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp Met Ser Gly
565 570 575

Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu Ile Leu His
580 585 590

Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr Thr
595 600 605

Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu Lys Met Val
610 615 620

Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn Thr
625 630 635 640

Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg Asp
645 650 655

Glu Leu Glu Glu Gly Ala Pro Ser Glu Ala Met Leu Arg Leu Leu Gln
660 665 670

Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys Ser
675 680 685

Pro Thr Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala Leu
690 695 700

Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser Leu
705 710 715 720

Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys His
725 730 735

Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu Glu
740 745 750

Asn

<210> 26
<211> 753
<212> PRT
<213> homo sapien

<400> 26

Met Glu Arg Arg Ala Trp Ser Leu Gln Cys Thr Ala Phe Val Leu Phe
1 5 10 15

Cys Ala Trp Cys Ala Leu Asn Ser Ala Lys Ala Lys Arg Gln Phe Val
20 25 30

Asn Glu Trp Ala Ala Glu Ile Pro Gly Gly Pro Glu Ala Ala Ser Ala
35 40 45

Ile Ala Glu Glu Leu Gly Tyr Asp Leu Leu Gly Gln Ile Gly Ser Leu
50 55 60

Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg Arg Ser Arg
65 70 75 80

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

Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys Arg Ser Ala
100 105 110

Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met Trp Asn Gln
115 120 125

Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu Pro Lys Leu
130 135 140

Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys Gly
145 150 155 160

Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr Asp
165 170 175

Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp Asn
180 185 190

Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys His
195 200 205

Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn Asn His Lys
210 215 220

Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg Met
225 230 235 240

Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly Phe
245 250 255

Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn Asp
260 265 270

Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala Phe
275 280 285

Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe Val
290 295 300

Trp Ala Leu Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys Asp
305 310 315 320

Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser Gln
325 330 335

Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu Ala

340

345

350

Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser Ala
 355 360 365

Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala Ser
 370 375 380

Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn Pro
 385 390 395 400

Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp Thr Ser Glu
 405 410 415

Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn Gly Ala Gly
 420 425 430

Leu Met Val Asn Ser Arg Phe Gly Phe Gly Leu Leu Asn Ala Lys Ala
 435 440 445

Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val Pro Glu Lys
 450 455 460

Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg Ala Leu Lys
 465 470 475 480

Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala Cys Glu Gly
 485 490 495

Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe Glu Ala Thr
 500 505 510

Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu Thr Ser Ala
 515 520 525

Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg Asp Thr Ser
 530 535 540

Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His Thr Trp Gly
545 550 555 560

Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp Met Ser Gly
565 570 575

Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu Ile Leu His
580 585 590

Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr Thr
595 600 605

Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu Lys Met Val
610 615 620

Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn Thr
625 630 635 640

Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg Asp
645 650 655

Glu Leu Glu Glu Gly Ala Pro Ser Glu Ala Met Leu Arg Leu Leu Gln
660 665 670

Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys Ser
675 680 685

Pro Thr Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala Leu
690 695 700

Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser Leu
705 710 715 720

Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys His
725 730 735

Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu Glu

740

745

750

Asn

<210> 27
 <211> 753
 <212> PRT
 <213> homo sapien

<400> 27

Met Glu Arg Arg Ala Trp Ser Leu Gln Cys Thr Ala Phe Val Leu Phe
 1 5 10 15

Cys Ala Trp Cys Ala Leu Asn Ser Ala Lys Ala Lys Arg Gln Phe Val
 20 25 30

Asn Glu Trp Ala Ala Glu Ile Pro Gly Gly Pro Glu Ala Ala Ser Ala
 35 40 45

Ile Ala Glu Glu Leu Gly Tyr Asp Leu Leu Gly Gln Ile Gly Ser Leu
 50 55 60

Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg Arg Ser Arg
 65 70 75 80

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

Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys Arg Ser Ala
 100 105 110

Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met Trp Asn Gln
 115 120 125

Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu Pro Lys Leu
 130 135 140

Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys Gly
145 150 155 160

Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr Asp
165 170 175

Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp Asn
180 185 190

Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys His
195 200 205

Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn Asn His Lys
210 215 220

Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg Met
225 230 235 240

Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly Phe
245 250 255

Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn Asp
260 265 270

Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala Phe
275 280 285

Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe Val
290 295 300

Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys Asp
305 310 315 320

Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser Gln
325 330 335

Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu Ala
340 345 350

Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser Ala
355 360 365

Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala Ser
370 375 380

Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn Pro
385 390 395 400

Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp Thr Ser Glu
405 410 415

Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn Gly Ala Gly
420 425 430

Leu Met Val Asn Ser Arg Phe Gly Phe Gly Leu Leu Asn Ala Lys Ala
435 440 445

Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val Pro Glu Lys
450 455 460

Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg Ala Leu Lys
465 470 475 480

Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala Cys Glu Gly
485 490 495

Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe Glu Ala Thr
500 505 510

Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu Thr Ser Ala
515 520 525

Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg Asp Thr Ser
530 535 540

Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His Thr Trp Gly
545 550 555 560

Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp Met Ser Gly
565 570 575

Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu Ile Leu His
580 585 590

Arg Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr Thr
595 600 605

Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu Lys Met Val
610 615 620

Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn Thr
625 630 635 640

Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg Asp
645 650 655

Glu Leu Glu Glu Gly Ala Pro Ser Glu Ala Met Leu Arg Leu Leu Gln
660 665 670

Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys Ser
675 680 685

Pro Thr Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala Leu
690 695 700

Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser Leu
705 710 715 720

Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys His
725 730 735

Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu Glu
740 745 750

Asn

<210> 28
<211> 724
<212> PRT
<213> homo sapien

<400> 28

Gln Phe Val Asn Glu Trp Ala Ala Glu Ile Pro Gly Gly Pro Glu Ala
1 5 10 15

Ala Ser Ala Ile Ala Glu Glu Leu Gly Tyr Asp Leu Leu Gly Gln Ile
20 25 30

Gly Ser Leu Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg
35 40 45

Arg Ser Arg Arg Ser Ala Phe His Ile Thr Lys Arg Leu Ser Asp Asp
50 55 60

Asp Arg Val Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys
65 70 75 80

Arg Ser Ala Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met
85 90 95

Trp Asn Gln Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu
100 105 110

Pro Lys Leu Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr
115 120 125

Gly Lys Gly Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn
130 135 140

His Thr Asp Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe

145		150		155		160
Asn Asp Asn Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu						
		165		170		175
Asn Lys His Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn						
		180		185		190
Asn His Lys Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly						
		195		200		205
Ile Arg Met Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser						
		210		215		220
Ile Gly Phe Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly						
225		230		235		240
Pro Asn Asp Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln						
		245		250		255
Lys Ala Phe Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser						
		260		265		270
Ile Phe Val Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys						
		275		280		285
Asp Cys Asp Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser						
		290		295		300
Ala Ser Gln Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser						
305		310		315		320
Thr Leu Ala Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile						
		325		330		335
Thr Ser Ala Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr						
		340		345		350

Ser Ala Ser Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu
355 360 365

Ala Asn Pro Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp
370 375 380

Thr Ser Glu Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn
385 390 395 400

Gly Ala Gly Leu Met Val Asn Ser Arg Ile Gly Phe Gly Leu Leu Asn
405 410 415

Ala Lys Ala Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val
420 425 430

Pro Glu Lys Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg
435 440 445

Ala Leu Lys Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala
450 455 460

Cys Glu Gly Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe
465 470 475 480

Glu Ala Thr Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu
485 490 495

Thr Ser Ala Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg
500 505 510

Asp Thr Ser Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His
515 520 525

Thr Trp Gly Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp
530 535 540

Met Ser Gly Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu

545 550 555 560

Ile Leu His Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg
565 570 575

Val Tyr Thr Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu
580 585 590

Lys Met Val Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys
595 600 605

Glu Asn Thr Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly
610 615 620

Arg Arg Asp Glu Leu Glu Glu Gly Ala Pro Ser Glu Ala Met Leu Arg
625 630 635 640

Leu Leu Gln Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro
645 650 655

Lys Lys Ser Pro Thr Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr
660 665 670

Glu Ala Leu Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu
675 680 685

Asp Ser Leu Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro
690 695 700

Tyr Lys His Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu
705 710 715 720

Asn Glu Glu Asn

<210> 29
<211> 753
<212> PRT

<213> homo sapien

<400> 29

Met Glu Arg Arg Ala Trp Ser Leu Gln Cys Thr Ala Phe Val Leu Phe
1 5 10 15

Cys Ala Trp Cys Ala Leu Asn Ser Ala Lys Ala Lys Arg Gln Phe Val
20 25 30

Asn Glu Trp Ala Ala Glu Ile Pro Gly Gly Pro Glu Ala Ala Ser Ala
35 40 45

Ile Ala Glu Glu Leu Gly Tyr Asp Leu Leu Gly Gln Ile Gly Ser Leu
50 55 60

Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg Arg Ser Arg
65 70 75 80

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

Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys Arg Ser Ala
100 105 110

Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met Trp Asn Gln
115 120 125

Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu Pro Lys Leu
130 135 140

Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys Gly
145 150 155 160

Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr Asp
165 170 175

Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp Asn
180 185 190

Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys His
195 200 205

Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn Asn His Lys
210 215 220

Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg Met
225 230 235 240

Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly Phe
245 250 255

Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn Asp
260 265 270

Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala Phe
275 280 285

Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe Val
290 295 300

Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys Asp
305 310 315 320

Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser Gln
325 330 335

Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu Ala
340 345 350

Thr Ser Tyr Ser Gly Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser Ala
355 360 365

Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala Ser
370 375 380

Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn Pro
385 390 395 400

Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp Thr Ser Glu
405 410 415

Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn Gly Ala Gly
420 425 430

Leu Met Val Asn Ser Arg Phe Gly Phe Gly Leu Leu Asn Ala Lys Ala
435 440 445

Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val Pro Glu Lys
450 455 460

Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg Ala Leu Lys
465 470 475 480

Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala Cys Glu Gly
485 490 495

Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe Glu Ala Thr
500 505 510

Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu Thr Ser Ala
515 520 525

Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg Asp Thr Ser
530 535 540

Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His Thr Trp Gly
545 550 555 560

Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp Met Ser Gly
565 570 575

Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu Ile Leu His
580 585 590

Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr Thr
595 600 605

Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu Lys Met Val
610 615 620

Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn Thr
625 630 635 640

Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg Asp
645 650 655

Glu Leu Glu Glu Gly Ala Pro Ser Gln Ala Met Leu Arg Leu Leu Gln
660 665 670

Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys Ser
675 680 685

Pro Ser Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala Leu
690 695 700

Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser Leu
705 710 715 720

Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys His
725 730 735

Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu Glu
740 745 750

Asn

<210> 30
<211> 753
<212> PRT
<213> homo sapien

<400> 30

Met Glu Arg Arg Ala Trp Ser Leu Gln Cys Thr Ala Phe Val Leu Phe
1 5 10 15

Cys Ala Trp Cys Ala Leu Asn Ser Ala Lys Ala Lys Arg Gln Phe Val
20 25 30

Asn Glu Trp Ala Ala Glu Ile Pro Gly Gly Pro Glu Ala Ala Ser Ala
35 40 45

Ile Ala Glu Glu Leu Gly Tyr Asp Leu Leu Gly Gln Ile Gly Ser Leu
50 55 60

Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg Arg Ser Arg
65 70 75 80

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

Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys Arg Ser Ala
100 105 110

Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met Trp Asn Gln
115 120 125

Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu Pro Lys Leu
130 135 140

Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys Gly
145 150 155 160

Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr Asp
165 170 175

Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp Asn
180 185 190

Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys His
195 200 205

Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn Asn His Lys
210 215 220

Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg Met
225 230 235 240

Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly Phe
245 250 255

Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn Asp
260 265 270

Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala Phe
275 280 285

Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe Val
290 295 300

Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys Asp
305 310 315 320

Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser Gln
325 330 335

Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu Ala
340 345 350

Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser Ala
355 360 365

Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala Ser
370 375 380

Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn Pro

385		390		395		400									
Asn	Leu	Thr	Trp	Arg	Asp	Met	Gln	His	Leu	Val	Val	Trp	Thr	Ser	Glu
				405					410					415	
Tyr	Asp	Pro	Leu	Ala	Asn	Asn	Pro	Gly	Trp	Lys	Lys	Asn	Gly	Ala	Gly
			420					425					430		
Leu	Met	Val	Asn	Ser	Arg	Phe	Gly	Phe	Gly	Leu	Leu	Asn	Ala	Lys	Ala
		435					440					445			
Leu	Val	Asp	Leu	Ala	Asp	Pro	Arg	Thr	Trp	Arg	Ser	Val	Pro	Glu	Lys
	450					455					460				
Lys	Glu	Cys	Val	Val	Lys	Asp	Asn	Asp	Phe	Glu	Pro	Arg	Ala	Leu	Lys
465					470					475					480
Ala	Asn	Gly	Glu	Val	Ile	Ile	Glu	Ile	Pro	Thr	Arg	Ala	Cys	Glu	Gly
				485					490					495	
Gln	Glu	Asn	Ala	Ile	Lys	Ser	Leu	Glu	His	Val	Gln	Phe	Glu	Ala	Thr
			500					505					510		
Ile	Glu	Tyr	Ser	Arg	Arg	Gly	Asp	Leu	His	Val	Thr	Leu	Thr	Ser	Ala
		515					520					525			
Ala	Gly	Thr	Ser	Thr	Val	Leu	Leu	Ala	Glu	Arg	Glu	Arg	Asp	Thr	Ser
	530					535					540				
Pro	Asn	Gly	Phe	Lys	Asn	Trp	Asp	Phe	Met	Ser	Val	His	Thr	Trp	Gly
545					550					555					560
Glu	Asn	Pro	Ile	Gly	Thr	Trp	Thr	Leu	Arg	Ile	Thr	Asp	Met	Ser	Gly
				565				570						575	
Arg	Ile	Gln	Asn	Glu	Gly	Arg	Ile	Val	Asn	Trp	Lys	Leu	Ile	Leu	His
			580					585					590		

Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr Thr
595 600 605

Ser Tyr Asn Thr Val Gln Asn Asp Arg Arg Gly Val Glu Lys Met Val
610 615 620

Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn Thr
625 630 635 640

Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg Asp
645 650 655

Glu Leu Glu Glu Gly Ala Pro Ser Gln Ala Met Leu Arg Leu Leu Gln
660 665 670

Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys Ser
675 680 685

Pro Ser Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala Leu
690 695 700

Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser Leu
705 710 715 720

Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys His
725 730 735

Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu Glu
740 745 750

Asn

<210> 31
<211> 706
<212> PRT
<213> homo sapien

<400> 31

Met Gly Lys Gly Ser Ile Ser Phe Leu Phe Phe Ser Gln Ile Gly Ser
1 5 10 15

Leu Glu Asn His Tyr Leu Phe Lys His Lys Asn His Pro Arg Arg Ser
20 25 30

Arg Arg Ser Ala Phe His Ile Thr Lys Arg Leu Ser Asp Asp Asp Arg
35 40 45

Val Ile Trp Ala Glu Gln Gln Tyr Glu Lys Glu Arg Ser Lys Arg Ser
50 55 60

Ala Leu Arg Asp Ser Ala Leu Asn Leu Phe Asn Asp Pro Met Trp Asn
65 70 75 80

Gln Gln Trp Tyr Leu Gln Asp Thr Arg Met Thr Ala Ala Leu Pro Lys
85 90 95

Leu Asp Leu His Val Ile Pro Val Trp Gln Lys Gly Ile Thr Gly Lys
100 105 110

Gly Val Val Ile Thr Val Leu Asp Asp Gly Leu Glu Trp Asn His Thr
115 120 125

Asp Ile Tyr Ala Asn Tyr Asp Pro Glu Ala Ser Tyr Asp Phe Asn Asp
130 135 140

Asn Asp His Asp Pro Phe Pro Arg Tyr Asp Pro Thr Asn Glu Asn Lys
145 150 155 160

His Gly Thr Arg Cys Ala Gly Glu Ile Ala Met Gln Ala Asn Asn His
165 170 175

Lys Cys Gly Val Gly Val Ala Tyr Asn Ser Lys Val Gly Gly Ile Arg
180 185 190

Met Leu Asp Gly Ile Val Thr Asp Ala Ile Glu Ala Ser Ser Ile Gly
195 200 205

Phe Asn Pro Gly His Val Asp Ile Tyr Ser Ala Ser Trp Gly Pro Asn
210 215 220

Asp Asp Gly Lys Thr Val Glu Gly Pro Gly Arg Leu Ala Gln Lys Ala
225 230 235 240

Phe Glu Tyr Gly Val Lys Gln Gly Arg Gln Gly Lys Gly Ser Ile Phe
245 250 255

Val Trp Ala Ser Gly Asn Gly Gly Arg Gln Gly Asp Asn Cys Asp Cys
260 265 270

Asp Gly Tyr Thr Asp Ser Ile Tyr Thr Ile Ser Ile Ser Ser Ala Ser
275 280 285

Gln Gln Gly Leu Ser Pro Trp Tyr Ala Glu Lys Cys Ser Ser Thr Leu
290 295 300

Ala Thr Ser Tyr Ser Ser Gly Asp Tyr Thr Asp Gln Arg Ile Thr Ser
305 310 315 320

Ala Asp Leu His Asn Asp Cys Thr Glu Thr His Thr Gly Thr Ser Ala
325 330 335

Ser Ala Pro Leu Ala Ala Gly Ile Phe Ala Leu Ala Leu Glu Ala Asn
340 345 350

Pro Asn Leu Thr Trp Arg Asp Met Gln His Leu Val Val Trp Thr Ser
355 360 365

Glu Tyr Asp Pro Leu Ala Asn Asn Pro Gly Trp Lys Lys Asn Gly Ala
370 375 380

Gly Leu Met Val Asn Ser Arg Phe Gly Phe Gly Leu Leu Asn Ala Lys
385 390 395 400

Ala Leu Val Asp Leu Ala Asp Pro Arg Thr Trp Arg Ser Val Pro Glu
405 410 415

Lys Lys Glu Cys Val Val Lys Asp Asn Asp Phe Glu Pro Arg Ala Leu
420 425 430

Lys Ala Asn Gly Glu Val Ile Ile Glu Ile Pro Thr Arg Ala Cys Glu
435 440 445

Gly Gln Glu Asn Ala Ile Lys Ser Leu Glu His Val Gln Phe Glu Ala
450 455 460

Thr Ile Glu Tyr Ser Arg Arg Gly Asp Leu His Val Thr Leu Thr Ser
465 470 475 480

Ala Ala Gly Thr Ser Thr Val Leu Leu Ala Glu Arg Glu Arg Asp Thr
485 490 495

Ser Pro Asn Gly Phe Lys Asn Trp Asp Phe Met Ser Val His Thr Trp
500 505 510

Gly Glu Asn Pro Ile Gly Thr Trp Thr Leu Arg Ile Thr Asp Met Ser
515 520 525

Gly Arg Ile Gln Asn Glu Gly Arg Ile Val Asn Trp Lys Leu Ile Leu
530 535 540

His Gly Thr Ser Ser Gln Pro Glu His Met Lys Gln Pro Arg Val Tyr
545 550 555 560

Thr Ser Tyr Asn Thr Val Gln Asn Asp Gly Arg Gly Val Glu Lys Met
565 570 575

Val Asp Pro Gly Glu Glu Gln Pro Thr Gln Glu Asn Pro Lys Glu Asn
580 585 590

Thr Leu Val Ser Lys Ser Pro Ser Ser Ser Ser Val Gly Gly Arg Arg
595 600 605

Asp Glu Leu Glu Glu Gly Ala Pro Ser Gln Ala Met Leu Arg Leu Leu
610 615 620

Gln Ser Ala Phe Ser Lys Asn Ser Pro Pro Lys Gln Ser Pro Lys Lys
625 630 635 640

Ser Pro Ser Ala Lys Leu Asn Ile Pro Tyr Glu Asn Phe Tyr Glu Ala
645 650 655

Leu Glu Lys Leu Asn Lys Pro Ser Gln Leu Lys Asp Ser Glu Asp Ser
660 665 670

Leu Tyr Asn Asp Tyr Val Asp Val Phe Tyr Asn Thr Lys Pro Tyr Lys
675 680 685

His Arg Asp Asp Arg Leu Leu Gln Ala Leu Val Asp Ile Leu Asn Glu
690 695 700

Glu Asn
705

<210> 32
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> MC4R agonist

<400> 32

His Phe Arg Trp
1