

## SEQUENCE LISTING

SEQ ID NO 1 - tccatgacgt tcctgacgtt

SEQ ID NO 2 - tctcccagcg tgcgccat

5 SEQ ID NO 3 - accgatgacg tcgccggtga cggcaccacg

SEQ ID NO 4 - tcgtcgtttt gtcgttttgt cggtt

SEQ ID NO 5 - tccatgacgt tcctgatgct

SEQ ID NO 6 - tcgacgtttt cggcgcgcgc cg

10 SEQ ID NO 7

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

15

Asp	Asp	Thr	Phe	Thr	Val	Lys	Val	Gly	Asp	Lys	Glu	Leu	Phe	Thr	Asn
			20					25					30		

20

Arg	Trp	Asn	Leu	Gln	Ser	Leu	Leu	Leu	Ser	Ala	Gln	Ile	Thr	Gly	Met
		35				40						45			

25

Thr	Val	Thr	Ile	Lys	Thr	Asn	Ala	Cys	His	Asn	Gly	Gly	Gly	Phe	Ser
	50					55					60				

30

Glu Val Ile Phe Arg  
65

SEQ ID NO 8

35

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

40

Asp	Asp	Thr	Phe	Thr	Val	Lys	Val	Gly	Asp	Lys	Glu	Leu	Phe	Thr	Asn
			20					25					30		

45

Arg	Trp	Asn	Leu	Gln	Ser	Leu	Leu	Leu	Ser	Ala	Gln	Ile	Thr	Gly	Met
		35				40						45			

Thr	Val	Thr	Ile	Lys	Thr	Asn	Ala	Cys	His	Asn	Gly	Gly	Gly	Phe	Ser
	50					55					60				

50

Glu	Val	Ile	Phe	Arg	Cys
65				70	

SEQ ID NO 9

5 Ala Pro Gln Ser Ile Thr Glu Leu Cys Ser Glu Tyr Arg Asn Thr Gln  
1 5 10 15

Ile Tyr Thr Ile Asn Asp Lys Ile Leu Ser Tyr Thr Glu Ser Met Ala  
20 25 30

10 Gly Lys Arg Glu Met Val Ile Ile Thr Phe Lys Ser Gly Ala Thr Phe  
35 40 45

15 Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln Lys Lys Ala  
50 55 60

20 Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr Tyr Leu Thr Glu Thr  
65 70 75 80

25 Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys Thr Pro Asn Ser Ile  
85 90 95

Ala Ala Ile Ser Met Glu Asn  
100

30

SEQ ID NO 10

35 Thr Pro Gln Asn Ile Thr Asp Leu Cys Ala Glu Tyr His Asn Thr Gln  
1 5 10 15

Ile Tyr Thr Leu Asn Asp Lys Ile Phe Ser Tyr Thr Glu Ser Leu Ala  
20 25 30

40 Gly Lys Arg Glu Met Ala Ile Ile Thr Phe Lys Asn Gly Ala Ile Phe  
35 40 45

45 Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln Lys Lys Ala  
50 55 60

50 Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Ala Tyr Leu Thr Glu Ala  
65 70 75 80

55 Lys Val Glu Lys Leu Cys Val Trp Asn Asn Lys Thr Pro His Ala Ile  
85 90 95

Ala Ala Ile Ser Met Ala Asn  
100

SEQ ID NO 11

5 Met Pro Ile Thr Ile Asn Asn Phe Arg Tyr Ser Asp Pro Val Asn Asn  
 1 5 10 15  
 10 Asp Thr Ile Ile Met Met Glu Pro Pro Tyr Cys Lys Gly Leu Asp Ile  
 20 25 30  
 15 Tyr Tyr Lys Ala Phe Lys Ile Thr Asp Arg Ile Trp Ile Val Pro Glu  
 35 40 45  
 20 Arg Tyr Glu Phe Gly Thr Lys Pro Glu Asp Phe Asn Pro Pro Ser Ser  
 50 55 60  
 25 Leu Ile Glu Gly Ala Ser Glu Tyr Tyr Asp Pro Asn Tyr Leu Arg Thr  
 65 70 75 80  
 30 Asp Ser Asp Lys Asp Arg Phe Leu Gln Thr Met Val Lys Leu Phe Asn  
 85 90 95  
 35 Arg Ile Lys Asn Asn Val Ala Gly Glu Ala Leu Leu Asp Lys Ile Ile  
 100 105 110  
 40 Asn Ala Ile Pro Tyr Leu Gly Asn Ser Tyr Ser Leu Leu Asp Lys Phe  
 115 120 125  
 45 Asp Thr Asn Ser Asn Ser Val Ser Phe Asn Leu Leu Glu Gln Asp Pro  
 130 135 140  
 50 Ser Gly Ala Thr Thr Lys Ser Ala Met Leu Thr Asn Leu Ile Ile Phe  
 145 150 155 160  
 55 Gly Pro Gly Pro Val Leu Asn Lys Asn Glu Val Arg Gly Ile Val Leu  
 165 170 175  
 60 Arg Val Asp Asn Lys Asn Tyr Phe Pro Cys Arg Asp Gly Phe Gly Ser  
 180 185 190  
 65 Ile Met Gln Met Ala Phe Cys Pro Glu Tyr Val Pro Thr Phe Asp Asn  
 195 200 205  
 70 Val Ile Glu Asn Ile Thr Ser Leu Thr Ile Gly Lys Ser Lys Tyr Phe  
 210 215 220

Gln Asp Pro Ala Leu Leu Leu Met His Glu Leu Ile His Val Leu His  
 225 230 235 240  
 5  
 Gly Leu Tyr Gly Met Gln Val Ser Ser His Glu Ile Ile Pro Ser Lys  
 245 250 255  
 10  
 Gln Glu Ile Tyr Met Gln His Thr Tyr Pro Ile Ser Ala Glu Glu Leu  
 260 265 270  
 15  
 Phe Thr Phe Gly Gly Gln Asp Ala Asn Leu Ile Ser Ile Asp Ile Lys  
 275 280 285  
 20  
 Asn Asp Leu Tyr Glu Lys Thr Leu Asn Asp Tyr Lys Ala Ile Ala Asn  
 290 295 300  
 Lys Leu Ser Gln Val Thr Ser Cys Asn Asp Pro Asn Ile Asp Ile Asp  
 305 310 315 320  
 25  
 Ser Tyr Lys Gln Ile Tyr Gln Gln Lys Tyr Gln Phe Asp Lys Asp Ser  
 325 330 335  
 30  
 Asn Gly Gln Tyr Ile Val Asn Glu Asp Lys Phe Gln Ile Leu Tyr Asn  
 340 345 350  
 35  
 Ser Ile Met Tyr Gly Phe Thr Glu Ile Glu Leu Gly Lys Lys Phe Asn  
 355 360 365  
 40  
 Ile Lys Thr Arg Leu Ser Tyr Phe Ser Met Asn His Asp Pro Val Lys  
 370 375 380  
 Ile Pro Asn Leu Leu Asp Asp Thr Ile Tyr Asn Asp Thr Glu Gly Phe  
 385 390 395 400  
 45  
 Asn Ile Glu Ser Lys Asp Leu Lys Ser Glu Tyr Lys Gly Gln Asn Met  
 405 410 415  
 50  
 Arg Val Asn Thr Asn Ala Phe Arg Asn Val Asp Gly Ser Gly Leu Val  
 420 425 430  
 Ser Lys Leu Ile Gly Leu Cys Lys Lys Ile Ile Pro Pro Thr Asn Ile  
 435 440 445  
 55  
 Arg Glu Asn Leu Tyr Asn Arg Thr Ala Ser Leu Thr Asp Leu Gly Gly  
 450 455 460

Glu Leu Cys Ile Lys Ile Lys Asn Glu Asp Leu Thr Phe Ile Ala Glu  
 465 470 475 480  
 5  
 Lys Asn Ser Phe Ser Glu Glu Pro Phe Gln Asp Glu Ile Val Ser Tyr  
 485 490 495  
 10  
 Asn Thr Lys Asn Lys Pro Leu Asn Phe Asn Tyr Ser Leu Asp Lys Ile  
 500 505 510  
 15  
 Ile Val Asp Tyr Asn Leu Gln Ser Lys Ile Thr Leu Pro Asn Asp Arg  
 515 520 525  
 20  
 Thr Thr Pro Val Thr Lys Gly Ile Pro Tyr Ala Pro Glu Tyr Lys Ser  
 530 535 540  
 25  
 Asn Ala Ala Ser Thr Ile Glu Ile His Asn Ile Asp Asp Asn Thr Ile  
 545 550 555 560  
 30  
 Tyr Gln Tyr Leu Tyr Ala Gln Lys Ser Pro Thr Thr Leu Gln Arg Ile  
 565 570 575  
 35  
 Thr Met Thr Asn Ser Val Asp Asp Ala Leu Ile Asn Ser Thr Lys Ile  
 580 585 590  
 40  
 Tyr Ser Tyr Phe Pro Ser Val Ile Ser Lys Val Asn Gln Gly Ala Gln  
 595 600 605  
 45  
 Gly Ile Leu Phe Leu Gln Trp Val Arg Asp Ile Ile Asp Asp Phe Thr  
 610 615 620  
 50  
 Asn Glu Ser Ser Gln Lys Thr Thr Ile Asp Lys Ile Ser Asp Val Ser  
 625 630 635 640  
 55  
 Thr Ile Val Pro Tyr Ile Gly Pro Ala Leu Asn Ile Val Lys Gln Gly  
 645 650 655  
 60  
 Tyr Glu Gly Asn Phe Ile Gly Ala Leu Glu Thr Thr Gly Val Val Leu  
 660 665 670  
 65  
 Leu Leu Glu Tyr Ile Pro Glu Ile Thr Leu Pro Val Ile Ala Ala Leu  
 675 680 685  
 70  
 Ser Ile Ala Glu Ser Ser Thr Gln Lys Glu Lys Ile Ile Lys Thr Ile  
 690 695 700

5 Asp Asn Phe Leu Glu Lys Arg Tyr Glu Lys Trp Ile Glu Val Tyr Lys  
 705 710 715 720  
 Leu Val Lys Ala Lys Trp Leu Gly Thr Val Asn Thr Gln Phe Gln Lys  
 725 730 735  
 10 Arg Ser Tyr Gln Met Tyr Arg Ser Leu Glu Tyr Gln Val Asp Ala Ile  
 740 745 750  
 15 Lys Lys Ile Ile Asp Tyr Glu Tyr Lys Ile Tyr Ser Gly Pro Asp Lys  
 755 760 765  
 20 Glu Gln Ile Ala Asp Glu Ile Asn Asn Leu Lys Asn Lys Leu Glu Glu  
 770 775 780  
 25 Lys Ala Asn Lys Ala Met Ile Asn Ile Asn Ile Phe Met Arg Glu Ser  
 785 790 795 800  
 Ser Arg Ser Phe Leu Val Asn Gln Met Ile Asn Glu Ala Lys Lys Gln  
 805 810 815  
 30 Leu Leu Glu Phe Asp Thr Gln Ser Lys Asn Ile Leu Met Gln Tyr Ile  
 820 825 830  
 35 Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Lys Lys Leu Glu  
 835 840 845  
 40 Ser Lys Ile Asn Lys Val Phe Ser Thr Pro Ile Pro Phe Ser Tyr Ser  
 850 855 860  
 45 Lys Asn Leu Asp Cys Trp Val Asp Asn Glu Glu Asp Ile Asp Val Ile  
 865 870 875 880  
 Leu Lys Lys Ser Thr Ile Leu Asn Leu Asp Ile Asn Asn Asp Ile Ile  
 885 890 895  
 50 Ser Asp Ile Ser Gly Phe Asn Ser Ser Val Ile Thr Tyr Pro Asp Ala  
 900 905 910  
 55 Gln Leu Val Pro Gly Ile Asn Gly Lys Ala Ile His Leu Val Asn Asn  
 915 920 925  
 Glu Ser Ser Glu Val Ile Val His Lys Ala Met Asp Ile Glu Tyr Asn

	930		935		940														
5	Asp 945	Met	Phe	Asn	Asn	Phe 950	Thr	Val	Ser	Phe	Trp 955	Leu	Arg	Val	Pro	Lys 960			
10	Val	Ser	Ala	Ser	His 965	Leu	Glu	Gln	Tyr	Gly 970	Thr	Asn	Glu	Tyr	Ser	Ile 975			
15	Ile	Ser	Ser	Met 980	Lys	Lys	His	Ser	Leu	Ser	Ile	Gly	Ser	Gly 990	Trp	Ser			
20	Val	Ser	Leu 995	Lys	Gly	Asn	Asn	Leu 1000	Ile	Trp	Thr	Leu	Lys 1005	Asp	Ser	Ala			
25	Gly 1010	Glu	Val	Arg	Gln	Ile	Thr 1015	Phe	Arg	Asp	Leu	Pro 1020	Asp	Lys	Phe				
30	Asn 1025	Ala	Tyr	Leu	Ala	Asn	Lys 1030	Trp	Val	Phe	Ile	Thr 1035	Ile	Thr	Asn				
35	Asp 1040	Arg	Leu	Ser	Ser	Ala	Asn 1045	Leu	Tyr	Ile	Asn	Gly 1050	Val	Leu	Met				
40	Gly 1055	Ser	Ala	Glu	Ile	Thr	Gly 1060	Leu	Gly	Ala	Ile	Arg 1065	Glu	Asp	Asn				
45	Asn 1070	Ile	Thr	Leu	Lys	Leu	Asp 1075	Arg	Cys	Asn	Asn	Asn 1080	Asn	Gln	Tyr				
50	Val 1085	Ser	Ile	Asp	Lys	Phe	Arg 1090	Ile	Phe	Cys	Lys	Ala 1095	Leu	Asn	Pro				
55	Lys 1100	Glu	Ile	Glu	Lys	Leu	Tyr 1105	Thr	Ser	Tyr	Leu	Ser 1110	Ile	Thr	Phe				
	Leu 1115	Arg	Asp	Phe	Trp	Gly	Asn 1120	Pro	Leu	Arg	Tyr	Asp 1125	Thr	Glu	Tyr				
	Tyr 1130	Leu	Ile	Pro	Val	Ala	Ser 1135	Ser	Ser	Lys	Asp	Val 1140	Gln	Leu	Lys				
	Asn 1145	Ile	Thr	Asp	Tyr	Met	Tyr 1150	Leu	Thr	Asn	Ala	Pro 1155	Ser	Tyr	Thr				

	Asn	Gly	Lys	Leu	Asn	Ile	Tyr	Tyr	Arg	Arg	Leu	Tyr	Asn	Gly	Leu	
	1160						1165					1170				
5	Lys	Phe	Ile	Ile	Lys	Arg	Tyr	Thr	Pro	Asn	Asn	Glu	Ile	Asp	Ser	
	1175						1180					1185				
10	Phe	Val	Lys	Ser	Gly	Asp	Phe	Ile	Lys	Leu	Tyr	Val	Ser	Tyr	Asn	
	1190						1195					1200				
15	Asn	Asn	Glu	His	Ile	Val	Gly	Tyr	Pro	Lys	Asp	Gly	Asn	Ala	Phe	
	1205						1210					1215				
20	Asn	Asn	Leu	Asp	Arg	Ile	Leu	Arg	Val	Gly	Tyr	Asn	Ala	Pro	Gly	
	1220						1225					1230				
	Ile	Pro	Leu	Tyr	Lys	Lys	Met	Glu	Ala	Val	Lys	Leu	Arg	Asp	Leu	
	1235						1240					1245				
25	Lys	Thr	Tyr	Ser	Val	Gln	Leu	Lys	Leu	Tyr	Asp	Asp	Lys	Asn	Ala	
	1250						1255					1260				
30	Ser	Leu	Gly	Leu	Val	Gly	Thr	His	Asn	Gly	Gln	Ile	Gly	Asn	Asp	
	1265						1270					1275				
35	Pro	Asn	Arg	Asp	Ile	Leu	Ile	Ala	Ser	Asn	Trp	Tyr	Phe	Asn	His	
	1280						1285					1290				
40	Leu	Lys	Asp	Lys	Ile	Leu	Gly	Cys	Asp	Trp	Tyr	Phe	Val	Pro	Thr	
	1295						1300					1305				
	Asp	Glu	Gly	Trp	Thr	Asn	Asp									
	1310						1315									
45	SEQ ID NO 12															
	Met	Lys	Val	Lys	Glu	Thr	Arg	Lys	Asn	Tyr	Gln	His	Leu	Trp	Arg	Trp
	1				5					10					15	
50	Gly	Thr	Met	Leu	Leu	Gly	Met	Leu	Met	Ile	Cys	Ser	Ala	Ala	Glu	Gln
				20				25						30		
55	Leu	Trp	Val	Thr	Val	Tyr	Tyr	Gly	Val	Pro	Val	Trp	Lys	Glu	Ala	Thr
			35					40					45			
	Thr	Thr	Leu	Phe	Cys	Ala	Ser	Asp	Ala	Lys	Ala	Tyr	Asp	Thr	Glu	Val



	50		55		60												
5	His 65	Asn	Val	Trp	Ala	Thr 70	His	Ala	Cys	Val	Pro 75	Thr	Asp	Pro	Asn	Pro 80	
10	Gln	Glu	Val	Val	Leu 85	Gly	Asn	Val	Thr	Glu 90	Tyr	Phe	Asn	Met	Trp 95	Lys	
15	Asn	Asn	Met	Val 100	Asp	Gln	Met	His	Glu 105	Asp	Ile	Ile	Ser	Leu 110	Trp	Asp	
20	Gln	Ser	Leu 115	Lys	Pro	Cys	Val	Lys 120	Leu	Thr	Pro	Leu	Cys 125	Val	Thr	Leu	
25	Asp	Cys 130	Asp	Asp	Val	Asn	Thr 135	Thr	Asn	Ser	Thr	Thr 140	Thr	Thr	Ser	Asn	
30	Gly 145	Trp	Thr	Gly	Glu	Ile 150	Arg	Lys	Gly	Glu 155	Ile	Lys	Asn	Cys	Ser	Phe 160	
35	Asn	Ile	Thr	Thr	Ser 165	Ile	Arg	Asp	Lys	Val 170	Gln	Lys	Glu	Tyr	Ala 175	Leu	
40	Phe	Tyr	Asn	Leu 180	Asp	Val	Val	Pro	Ile 185	Asp	Asp	Asp	Asn	Ala 190	Thr	Thr	
45	Lys	Asn	Lys 195	Thr	Thr	Arg	Asn	Phe 200	Arg	Leu	Ile	His	Cys 205	Asn	Ser	Ser	
50	Val	Met 210	Thr	Gln	Ala	Cys	Pro 215	Lys	Val	Ser	Phe	Glu 220	Pro	Ile	Pro	Ile	
55	His 225	Tyr	Cys	Ala	Pro	Ala 230	Gly	Phe	Ala	Ile	Leu 235	Lys	Cys	Asn	Asn	Lys 240	
60	Thr	Phe	Asp	Gly	Lys 245	Gly	Leu	Cys	Thr	Asn 250	Val	Ser	Thr	Val	Gln 255	Cys	
65	Thr	His	Gly	Ile 260	Arg	Pro	Val	Val	Ser 265	Thr	Gln	Leu	Leu	Leu	Asn 270	Gly	
70	Ser	Leu	Ala 275	Glu	Glu	Glu	Val	Val 280	Ile	Arg	Ser	Asp	Asn 285	Phe	Met	Asp	



SEQ ID NO 13

5 Met Val Ile Val Gln Asn Ile Gln Gly Gln Met Val His Gln Ala Ile  
 1 5 10 15  
 Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu Glu Lys Ala  
 20 25 30  
 10 Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala  
 35 40 45  
 15 Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln  
 50 55 60  
 20 Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu  
 65 70 75 80  
 Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln  
 85 90 95  
 25 Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu  
 100 105 110  
 30 Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly  
 115 120 125  
 35 Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg  
 130 135 140  
 40 Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu  
 145 150 155 160  
 Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu  
 165 170 175  
 45 Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val  
 180 185 190  
 50 Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro  
 195 200 205  
 55 Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly Gly  
 210 215 220

	Pro	Gly	His	Lys	Ala	Arg	Val	Leu	His	Met	Gly	Pro	Ile	Ser	Pro	Ile	225	230	235			240
5	Glu	Thr	Val	Ser	Val	Lys	Leu	Lys	Pro	Gly	Met	Asp	Gly	Pro	Lys	Val		245	250			255
10	Lys	Gln	Trp	Pro	Leu	Thr	Glu	Glu	Lys	Ile	Lys	Ala	Leu	Val	Glu	Ile		260	265			270
15	Cys	Thr	Glu	Met	Glu	Lys	Glu	Gly	Lys	Ile	Ser	Lys	Ile	Gly	Pro	Glu		275	280			285
20	Asn	Pro	Tyr	Asn	Thr	Pro	Val	Phe	Ala	Ile	Lys	Lys	Lys	Asp	Ser	Thr		290	295			300
	Lys	Trp	Arg	Lys	Leu	Val	Asp	Phe	Arg	Glu	Leu	Asn	Lys	Arg	Thr	Gln		305	310			320
25	Asp	Phe	Trp	Glu	Val	Gln	Leu	Gly	Ile	Pro	His	Pro	Ala	Gly	Leu	Lys		325	330			335
30	Lys	Lys	Lys	Ser	Val	Thr	Val	Leu	Asp	Val	Gly	Asp	Ala	Tyr	Phe	Ser		340	345			350
35	Val	Pro	Leu	Asp	Glu	Asp	Phe	Arg	Lys	Tyr	Thr	Ala	Phe	Thr	Ile	Pro		355	360			365
40	Ser	Ile	Asn	Asn	Glu	Thr	Pro	Gly	Ile	Arg	Tyr	Gln	Tyr	Asn	Val	Leu		370	375			380
	Pro	Gln	Gly	Trp	Lys	Gly	Ser	Pro	Ala	Ile	Phe	Gln	Ser	Cys	Met	Thr		385	390			400
45	Lys	Ile	Leu	Glu	Pro	Phe	Arg	Lys	Gln	Asn	Pro	Asp	Ile	Val	Ile	Tyr		405	410			415
50	Gln	Tyr	Met	Asp	Asp	Leu	Tyr	Val	Gly	Ser	Asp	Leu	Glu	Ile	Gly	Gln		420	425			430
55	His	Arg	Thr	Lys	Ile	Glu	Glu	Leu	Arg	Gln	His	Leu	Leu	Arg	Trp	Gly		435	440			445
	Leu	Thr	Thr	Pro	Asp	Lys	Lys	His	Gln	Lys	Glu	Pro	Pro	Phe	Leu	Lys		450	455			460

Met Gly Tyr Glu Leu His Pro Asp Lys Trp Thr Val Gln Pro Ile Val  
 465 470 475 480  
 5  
 Leu Pro Glu Lys Asp Ser Trp Thr Val Asn Asp Ile Gln Lys Leu Val  
 485 490 495  
 10  
 Gly Lys Leu Asn Trp Ala Ser Gln Ile Tyr Pro Gly Ile Lys Val Arg  
 500 505 510  
 15  
 Gln Leu Cys Lys Leu Leu Arg Gly Thr Lys Ala Leu Thr Glu Val Ile  
 515 520 525  
 20  
 Pro Leu Thr Glu Glu Ala Glu Leu Glu Leu Ala Glu Asn Arg Glu Ile  
 530 535 540  
 25  
 Leu Lys Glu Pro Val His Gly Val Tyr Tyr Asp Pro Ser Lys Asp Leu  
 545 550 555 560  
 30  
 Ile Ala Glu Ile Gln Lys Gln Gly Gln Gly Gln Trp Thr Tyr Gln Ile  
 565 570 575  
 35  
 Tyr Gln Glu Pro Phe Lys Asn Leu Lys Thr Gly Lys Tyr Ala Arg Met  
 580 585 590  
 40  
 Arg Gly Ala His Thr Asn Asp Val Lys Gln Leu Thr Glu Ala Val Gln  
 595 600 605  
 45  
 Lys Ile Thr Thr Glu Ser Ile Val Ile Trp Gly Lys Thr Pro Lys Phe  
 610 615 620  
 50  
 Lys Leu Pro Ile Gln Lys Glu Thr Trp Glu Thr Trp Trp Thr Glu Tyr  
 625 630 635 640  
 55  
 Trp Gln Ala Thr Trp Ile Pro Glu Trp Glu Phe Val Asn Thr Pro Pro  
 645 650 655  
 60  
 Leu Val Lys Leu Trp Tyr Gln Leu Glu Lys Glu Pro Ile Val Gly Ala  
 660 665 670  
 65  
 Glu Thr Phe Tyr Val Asp Gly Ala Ala Asn Arg Glu Thr Lys Leu Gly  
 675 680 685  
 70  
 Lys Ala Gly Tyr Val Thr Asn Arg Gly Arg Gln Lys Val Val Thr Leu  
 690 695 700

5 Thr Asp Thr Thr Asn Gln Lys Thr Glu Leu Gln Ala Ile Tyr Leu Ala  
 705 710 715 720  
 Leu Gln Asp Ser Gly Leu Glu Val Asn Ile Val Thr Asp Ser Gln Tyr  
 725 730 735  
 10 Ala Leu Gly Ile Ile Gln Ala Gln Pro Asp Gln Ser Glu Ser Glu Leu  
 740 745 750  
 15 Val Asn Gln Ile Ile Glu Gln Leu Ile Lys Lys Glu Lys Val Tyr Leu  
 755 760 765  
 20 Ala Trp Val Pro Ala His Lys Gly Ile Gly Gly Asn Glu Gln Val Asp  
 770 775 780  
 25 Lys Leu Val Ser Ala Gly Ile Arg Lys Val Leu Ala Met Gly Gly Lys  
 785 790 795 800  
 Trp Ser Lys Ser Ser Val Val Gly Trp Pro Thr Val Arg Glu Arg Met  
 805 810 815  
 30 Arg Arg Ala Glu Pro Ala Ala Asp Gly Val Gly Ala Ala Ser Arg Asp  
 820 825 830  
 35 Leu Glu Lys His Gly Ala Ile Thr Ser Ser Asn Thr Ala Ala Thr Asn  
 835 840 845  
 40 Ala Ala Cys Ala Trp Leu Glu Ala Gln Glu Glu Glu Glu Val Gly Phe  
 850 855 860  
 45 Pro Val Thr Pro Gln Val Pro Leu Arg Pro Met Thr Tyr Lys Ala Ala  
 865 870 875 880  
 Val Asp Leu Ser His Phe Leu Lys Glu Lys Gly Gly Leu Glu Gly Leu  
 885 890 895  
 50 Ile His Ser Gln Arg Arg Gln Asp Ile Leu Asp Leu Trp Ile Tyr His  
 900 905 910  
 55 Thr Gln Gly Tyr Phe Pro Asp Trp Gln Asn Tyr Thr Pro Gly Pro Gly  
 915 920 925  
 Val Arg Tyr Pro Leu Thr Phe Gly Trp Cys Tyr Lys Leu Val Pro Val

	930					935					940					
5	Glu 945	Pro	Asp	Lys	Val	Glu 950	Glu	Ala	Asn	Lys	Gly 955	Glu	Asn	Thr	Ser	Leu 960
10	Leu	His	Pro	Val	Ser 965	Leu	His	Gly	Met	Asp 970	Asp	Pro	Glu	Arg	Glu 975	Val
15	Leu	Glu	Trp	Arg 980	Phe	Asp	Ser	Arg	Leu 985	Ala	Phe	His	His	Val 990	Ala	Arg
20	Glu	Leu	His 995	Pro	Glu	Tyr	Phe	Lys 1000	Asn	Cys	Arg	Pro	Met 1005	Gly	Ala	Arg
25	Ala 1010	Ser	Val	Leu	Ser	Gly	Gly 1015	Glu	Leu	Asp	Arg	Trp 1020	Glu	Lys	Ile	
30	Arg 1025	Leu	Arg	Pro	Gly	Gly	Lys 1030	Lys	Lys	Tyr	Lys	Leu 1035	Lys	His	Ile	
35	Val 1040	Trp	Ala	Ser	Arg	Glu	Leu 1045	Glu	Arg	Phe	Ala	Val 1050	Asn	Pro	Gly	
40	Leu 1055	Leu	Glu	Thr	Ser	Glu	Gly 1060	Cys	Arg	Gln	Ile	Leu 1065	Gly	Gln	Leu	
45	Gln 1070	Pro	Ser	Leu	Gln	Thr	Gly 1075	Ser	Glu	Glu	Leu	Arg 1080	Ser	Leu	Tyr	
50	Asn 1085	Thr	Val	Ala	Thr	Leu	Tyr 1090	Cys	Val	His	Gln	Arg 1095	Ile	Glu	Ile	
55	Lys 1100	Asp	Thr	Lys	Glu	Ala	Leu 1105	Asp	Lys	Ile	Glu	Glu 1110	Glu	Gln	Asn	
	Lys 1115	Ser	Lys	Lys	Lys	Ala	Gln 1120	Gln	Ala	Ala	Ala	Asp 1125	Thr	Gly	His	
	Ser 1130	Asn	Gln	Val	Ser	Gln	Asn 1135	Tyr								
	SEQ ID NO 14															
	Met	Pro	Ile	Val	Gln	Asn	Ile	Gln	Gly	Gln	Met	Val	His	Gln	Ala	Ile





SEQ ID NO 15

5 Met Gly Ser Ile Gly Ala Ala Ser Met Glu Phe Cys Phe Asp Val Phe  
 1 5 10 15  
 Lys Glu Leu Lys Val His His Ala Asn Glu Asn Ile Phe Tyr Cys Pro  
 20 25 30  
 10 Ile Ala Ile Met Ser Ala Leu Ala Met Val Tyr Leu Gly Ala Lys Asp  
 35 40 45  
 15 Ser Thr Arg Thr Gln Ile Asn Lys Val Val Arg Phe Asp Lys Leu Pro  
 50 55 60  
 20 Gly Phe Gly Asp Ser Ile Glu Ala Gln Cys Gly Thr Ser Val Asn Val  
 65 70 75 80  
 His Ser Ser Leu Arg Asp Ile Leu Asn Gln Ile Thr Lys Pro Asn Asp  
 85 90 95  
 25 Val Tyr Ser Phe Ser Leu Ala Ser Arg Leu Tyr Ala Glu Glu Arg Tyr  
 100 105 110  
 30 Pro Ile Leu Pro Glu Tyr Leu Gln Cys Val Lys Glu Leu Tyr Arg Gly  
 115 120 125  
 35 Gly Leu Glu Pro Ile Asn Phe Gln Thr Ala Ala Asp Gln Ala Arg Glu  
 130 135 140  
 40 Leu Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Gly Ile Ile Arg Asn  
 145 150 155 160  
 Val Leu Gln Pro Ser Ser Val Asp Ser Gln Thr Ala Met Val Leu Val  
 165 170 175  
 45 Asn Ala Ile Val Phe Lys Gly Leu Trp Glu Lys Thr Phe Lys Asp Glu  
 180 185 190  
 50 Asp Thr Gln Ala Met Pro Phe Arg Val Thr Glu Gln Glu Ser Lys Pro  
 195 200 205  
 55 Val Gln Met Met Tyr Gln Ile Gly Leu Phe Arg Val Ala Ser Met Ala  
 210 215 220  
 Ser Glu Lys Met Lys Ile Leu Glu Leu Pro Phe Ala Ser Gly Thr Met  
 225 230 235 240

5 Ser Met Leu Val Leu Leu Pro Asp Glu Val Ser Gly Leu Glu Gln Leu  
 245 250 255  
 Glu Ser Ile Ile Asn Phe Glu Lys Leu Thr Glu Trp Thr Ser Ser Asn  
 260 265 270  
 10 Val Met Glu Glu Arg Lys Ile Lys Val Tyr Leu Pro Arg Met Lys Met  
 275 280 285  
 15 Glu Glu Lys Tyr Asn Leu Thr Ser Val Leu Met Ala Met Gly Ile Thr  
 290 295 300  
 20 Asp Val Phe Ser Ser Ser Ala Asn Leu Ser Gly Ile Ser Ser Ala Glu  
 305 310 315 320  
 25 Ser Leu Lys Ile Ser Gln Ala Val His Ala Ala His Ala Glu Ile Asn  
 325 330 335  
 Glu Ala Gly Arg Glu Val Val Gly Ser Ala Glu Ala Gly Val Asp Ala  
 340 345 350  
 30 Ala Ser Val Ser Glu Glu Phe Arg Ala Asp His Pro Phe Leu Phe Cys  
 355 360 365  
 35 Ile Lys His Ile Ala Thr Asn Ala Val Leu Phe Phe Gly Arg Cys Val  
 370 375 380  
 40 Ser Pro  
 385  
 SEQ ID NO 16  
 45 Ala Pro Gln Ser Ile Thr Glu Leu Cys Ser Glu Tyr Arg Asn Thr Gln  
 1 5 10 15  
 50 Ile Tyr Thr Ile Asn Asp Lys Ile Leu Ser Tyr Thr Glu Ser Met Ala  
 20 25 30  
 Gly Lys Arg Glu Met Val Ile Ile Thr Phe Lys Ser Gly Ala Thr Phe  
 35 40 45  
 55 Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln Lys Lys Ala  
 50 55 60

5 Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr Tyr Leu Thr Glu Thr  
 65 70 75 80

Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys Thr Pro Asn Ser Ile  
 85 90 95

10 Ala Ala Ile Ser Met Glu Asn Cys  
 100

15 SEQ ID NO 17 - caccatgaat aaagtaaaat gttatgtttt at  
 SEQ ID NO 18 - gcactagagc ttagcagttt tccataactga ttgccgca

SEQ ID NO 19

20 Met Pro Val Gln Gln Ile Gly Gly Asn Tyr Val His Leu Pro Leu Ser  
 1 5 10 15

25 Pro Arg Thr Leu Asn Ala Trp Val Lys Leu Ile Glu Glu Lys Lys Phe  
 20 25 30

30 Gly Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr  
 35 40 45

Pro Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala  
 50 55 60

35 Ala Met Gln Ile Ile Arg Asp Ile Ile Asn Glu Glu Ala Ala Asp Trp  
 65 70 75 80

40 Asp Leu Gln His Pro Gln Pro Ala Pro Gln Gln Gly Gln Leu Arg Glu  
 85 90 95

45 Pro Ser Gly Ser Asp Ile Ala Gly Thr Thr Ser Ser Val Asp Glu Gln  
 100 105 110

50 Ile Gln Trp Met Tyr Arg Gln Gln Asn Pro Ile Pro Val Gly Asn Ile  
 115 120 125

Tyr Arg Arg Trp Ile Gln Leu Gly Leu Gln Lys Cys Val Arg Met Tyr  
 130 135 140

55 Asn Pro Thr Asn Ile Leu Asp Val Lys Gln Gly Pro Lys Glu Pro Phe  
 145 150 155 160

5 Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr  
165 170 175

10 Asp Ala Ala Val Lys Asn Trp Met Thr Gln Thr Leu Leu Ile Gln Asn  
180 185 190

15 Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Val Asn Pro  
195 200 205

20 Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly  
210 215 220

25 Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Ala Leu Ala Pro  
225 230 235 240

Val Pro Ile Pro Phe Ala Ala  
245