

## SEQUENCE LISTING

<110> BASF Aktiengesellschaft

<120> Verfahren zur Herstellung eines keratinbindenden  
Effektormoleküls-2

<130> AE 20060474 und 20060849, PF 57349 BaR

<160> 176

<170> PatentIn version 3.3

<210> 1

<211> 8616

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(8616)

<400> 1

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Met	Ile	Arg	Ala	Glu	Ser	Gly	Pro	Asp	Leu	Arg	Tyr	Glu	Val	Thr	Ser	
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ggc	ggc	ggg	ggc	acc	agc	agg	atg	tac	tat	tct	cgg	cgc	ggc	gtg	atc	144
Gly	Gly	Gly	Gly	Thr	Ser	Arg	Met	Tyr	Tyr	Ser	Arg	Arg	Gly	Val	Ile	
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acc	gac	cag	aac	tcg	gac	ggc	tac	tgt	caa	acc	ggc	acg	atg	tcc	agg	192
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Cys	Leu	Met	Arg	Ala	Glu	Leu	Ile	Val	Gln	Pro	Glu	Leu	Lys	Tyr	Gly	
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gat	gga	ata	caa	ctg	act	cgg	agt	cga	gaa	ttg	gat	gag	tgt	ttt	gcc	336
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cag	gcc	aat	gac	caa	atg	gaa	atc	ctc	gac	agc	ttg	atc	aga	gag	atg	384
Gln	Ala	Asn	Asp	Gln	Met	Glu	Ile	Leu	Asp	Ser	Leu	Ile	Arg	Glu	Met	
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Arg	Gln	Met	Gly	Gln	Pro	Cys	Asp	Ala	Tyr	Gln	Lys	Arg	Leu	Leu	Gln	
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Val	Arg	Arg	Ala	Ser	Ser	Lys	Gly	Gly	Gly	Gly	Tyr	Thr	Cys	Gln	Ser	
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ctg Leu 1115	act Thr 1115	tat Tyr 1115	gag Glu 1115	att Ile 1120	gaa Glu 1120	gat Asp 1120	gaa Glu 1125	aag Lys 1125	aga Arg 1125	aga Arg 1125	aga Arg 1125	aaa Lys 1125	tct Ser 1125	gtg Val 1125	3384
gaa Glu 1130	gac Asp 1130	aga Arg 1130	ttt Phe 1130	gac Asp 1135	caa Gln 1135	cag Gln 1135	aag Lys 1135	aat Asn 1140	gac Asp 1140	tat Tyr 1140	gac Asp 1140	caa Gln 1140	ctg Leu 1140	cag Gln 1140	3429
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agc aaa ata gaa att gag agg ctg cag tct ctc aca gag aac ctg Ser Lys Ile Glu Ile Glu Arg Leu Gln Ser Leu Thr Glu Asn Leu 1700 1705 1710	5139
acc aag gag cac ttg atg tta gaa gaa gaa ctg cgg aac ctg agg Thr Lys Glu His Leu Met Leu Glu Glu Glu Leu Arg Asn Leu Arg 1715 1720 1725	5184
ctg gag tac gat gac ctg agg aga gga cga agc gaa gcg gac agt Leu Glu Tyr Asp Asp Leu Arg Arg Gly Arg Ser Glu Ala Asp Ser 1730 1735 1740	5229
gat aaa aat gca acc atc ttg gaa cta agg agc cag ctg cag atc Asp Lys Asn Ala Thr Ile Leu Glu Leu Arg Ser Gln Leu Gln Ile 1745 1750 1755	5274
agc aac aac cgg acc ctg gaa ctg cag ggg ctg att aat gat tta Ser Asn Asn Arg Thr Leu Glu Leu Gln Gly Leu Ile Asn Asp Leu 1760 1765 1770	5319
cag aga gag agg gaa aat ttg aga cag gaa att gag aaa ttc caa Gln Arg Glu Arg Glu Asn Leu Arg Gln Glu Ile Glu Lys Phe Gln 1775 1780 1785	5364
aag cag gct tta gag gca tct aat agg att cag gaa tca aag aat Lys Gln Ala Leu Glu Ala Ser Asn Arg Ile Gln Glu Ser Lys Asn 1790 1795 1800	5409
cag tgt act cag gtg gta cag gaa aga gag agc ctt ctg gtg aaa Gln Cys Thr Gln Val Val Gln Glu Arg Glu Ser Leu Leu Val Lys 1805 1810 1815	5454
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gaa acc gga atg cgc ctg ctg gaa gcc cag att gct tca ggg ggt Glu Thr Gly Met Arg Leu Leu Glu Ala Gln Ile Ala Ser Gly Gly 2120 2125 2130	6399

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ttg Leu 2150	gcc Ala	cgg Arg	ggg Gly	ctg Leu	att Ile	gat Asp 2155	aga Arg	gat Asp	ttg Leu	tat Tyr	cga Arg 2160	tcc Ser	ctg Leu	aat Asn	6489
gat Asp 2165	ccc Pro	cga Arg	gat Asp	agt Ser	cag Gln	aaa Lys 2170	aac Asn	ttt Phe	gtg Val	gat Asp	cca Pro 2175	gtc Val	acc Thr	aaa Lys	6534
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cca Pro 2195	cat His	act Thr	ggg Gly	ctg Leu	ctc Leu	ttg Leu 2200	ctt Leu	tca Ser	gta Val	cag Gln	aag Lys 2205	aga Arg	agc Ser	atg Met	6624
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2690 2695 2700	
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Lys Lys Lys Met Ser Ala Ala Glu Ala Val Lys Glu Lys Trp Leu	
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Pro Tyr Glu Ala Gly Gln Arg Phe Leu Glu Phe Gln Tyr Leu Thr	
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Gly Gly Leu Val Asp Pro Glu Val His Gly Arg Ile Ser Thr Glu	
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Glu Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg Ala Ala Gln Arg	
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Leu Gln Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr Cys Pro Lys	
2765 2770 2775	
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Thr Lys Leu Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg Ser Met	
2780 2785 2790	
gta gaa gat atc act ggg ctg cgc ctt ctg gaa gcc gcc tcc gtg	8424
Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser Val	
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 <213> Homo sapiens

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Thr	Asp	Gln	Asn	Ser	Asp	Gly	Tyr	Cys	Gln	Thr	Gly	Thr	Met	Ser	Arg		
	50					55					60						
His	Gln	Asn	Gln	Asn	Thr	Ile	Gln	Glu	Leu	Leu	Gln	Asn	Cys	Ser	Asp		
65					70					75					80		
Cys	Leu	Met	Arg	Ala	Glu	Leu	Ile	Val	Gln	Pro	Glu	Leu	Lys	Tyr	Gly		
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Asp	Gly	Ile	Gln	Leu	Thr	Arg	Ser	Arg	Glu	Leu	Asp	Glu	Cys	Phe	Ala		
			100					105					110				
Gln	Ala	Asn	Asp	Gln	Met	Glu	Ile	Leu	Asp	Ser	Leu	Ile	Arg	Glu	Met		
		115					120					125					
Arg	Gln	Met	Gly	Gln	Pro	Cys	Asp	Ala	Tyr	Gln	Lys	Arg	Leu	Leu	Gln		
	130					135					140						
Leu	Gln	Glu	Gln	Met	Arg	Ala	Leu	Tyr	Lys	Ala	Ile	Ser	Val	Pro	Arg		
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Val	Arg	Arg	Ala	Ser	Ser	Lys	Gly	Gly	Gly	Gly	Tyr	Thr	Cys	Gln	Ser		
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Gly	Ser	Gly	Trp	Asp	Glu	Phe	Thr	Lys	His	Val	Thr	Ser	Glu	Cys	Leu		
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Gly	Trp	Met	Arg	Gln	Gln	Arg	Ala	Glu	Met	Asp	Met	Val	Ala	Trp	Gly		
		195					200					205					
Val	Asp	Leu	Ala	Ser	Val	Glu	Gln	His	Ile	Asn	Ser	His	Arg	Gly	Ile		
	210					215					220						
His	Asn	Ser	Ile	Gly	Asp	Tyr	Arg	Trp	Gln	Leu	Asp	Lys	Ile	Lys	Ala		
225					230					235					240		
Asp	Leu	Arg	Glu	Lys	Ser	Ala	Ile	Tyr	Gln	Leu	Glu	Glu	Glu	Tyr	Glu		
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Asn	Leu	Leu	Lys	Ala	Ser	Phe	Glu	Arg	Met	Asp	His	Leu	Arg	Gln	Leu		
			260					265					270				
Gln	Asn	Ile	Ile	Gln	Ala	Thr	Ser	Arg	Glu	Ile	Met	Trp	Ile	Asn	Asp		
		275					280					285					
Cys	Glu	Glu	Glu	Glu	Leu	Leu	Tyr	Asp	Trp	Ser	Asp	Lys	Asn	Thr	Asn		
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Ile	Ala	Gln	Lys	Gln	Glu	Ala	Phe	Ser	Ile	Arg	Met	Ser	Gln	Leu	Glu		
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Val Lys Glu Lys Glu Leu Asn Lys Leu Lys Gln Glu Ser Asp Gln Leu  
325 330 335

Val Leu Asn Gln His Pro Ala Ser Asp Lys Ile Glu Ala Tyr Met Asp  
340 345 350

Thr Leu Gln Thr Gln Trp Ser Trp Ile Leu Gln Ile Thr Lys Cys Ile  
355 360 365

Asp Val His Leu Lys Glu Asn Ala Ala Tyr Phe Gln Phe Phe Glu Glu  
370 375 380

Ala Gln Ser Thr Glu Ala Tyr Leu Lys Gly Leu Gln Asp Ser Ile Arg  
385 390 395 400

Lys Lys Tyr Pro Cys Asp Lys Asn Met Pro Leu Gln His Leu Leu Glu  
405 410 415

Gln Ile Lys Glu Leu Glu Lys Glu Arg Glu Lys Ile Leu Glu Tyr Lys  
420 425 430

Arg Gln Val Gln Asn Leu Val Asn Lys Ser Lys Lys Ile Val Gln Leu  
435 440 445

Lys Pro Arg Asn Pro Asp Tyr Arg Ser Asn Lys Pro Ile Ile Leu Arg  
450 455 460

Ala Leu Cys Asp Tyr Lys Gln Asp Gln Lys Ile Val His Lys Gly Asp  
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Glu Cys Ile Leu Lys Asp Asn Asn Glu Arg Ser Lys Trp Tyr Val Thr  
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Gly Pro Gly Gly Val Asp Met Leu Val Pro Ser Val Gly Leu Ile Ile  
500 505 510

Pro Pro Pro Asn Pro Leu Ala Val Asp Leu Ser Cys Lys Ile Glu Gln  
515 520 525

Tyr Tyr Glu Ala Ile Leu Ala Leu Trp Asn Gln Leu Tyr Ile Asn Met  
530 535 540

Lys Ser Leu Val Ser Trp His Tyr Cys Met Ile Asp Ile Glu Lys Ile  
545 550 555 560

Arg Ala Met Thr Ile Ala Lys Leu Lys Thr Met Arg Gln Glu Asp Tyr  
565 570 575

Met Lys Thr Ile Ala Asp Leu Glu Leu His Tyr Gln Glu Phe Ile Arg  
580 585 590

Asn Ser Gln Gly Ser Glu Met Phe Gly Asp Asp Asp Lys Arg Lys Ile  
595 600 605

Gln	Ser	Gln	Phe	Thr	Asp	Ala	Gln	Lys	His	Tyr	Gln	Thr	Leu	Val	Ile	
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Gln	Leu	Pro	Gly	Tyr	Pro	Gln	His	Gln	Thr	Val	Thr	Thr	Thr	Glu	Ile	
625					630					635					640	
Thr	His	His	Gly	Thr	Cys	Gln	Asp	Val	Asn	His	Asn	Lys	Val	Ile	Glu	
				645					650					655		
Thr	Asn	Arg	Glu	Asn	Asp	Lys	Gln	Glu	Thr	Trp	Met	Leu	Met	Glu	Leu	
			660					665					670			
Gln	Lys	Ile	Arg	Arg	Gln	Ile	Glu	His	Cys	Glu	Gly	Arg	Met	Thr	Leu	
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Lys	Asn	Leu	Pro	Leu	Ala	Asp	Gln	Gly	Ser	Ser	His	His	Ile	Thr	Val	
	690					695					700					
Lys	Ile	Asn	Glu	Leu	Lys	Ser	Val	Gln	Asn	Asp	Ser	Gln	Ala	Ile	Ala	
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Glu	Val	Leu	Asn	Gln	Leu	Lys	Asp	Met	Leu	Ala	Asn	Phe	Arg	Gly	Ser	
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Glu	Lys	Tyr	Cys	Tyr	Leu	Gln	Asn	Glu	Val	Phe	Gly	Leu	Phe	Gln	Lys	
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785					790					795					800	
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Tyr	Asp	Leu	Asp	Leu	Gly	Lys	Phe	Gly	Glu	Lys	Val	Thr	Gln	Leu	Thr	
	850					855					860					
Asp	Arg	Trp	Gln	Arg	Ile	Asp	Lys	Gln	Ile	Asp	Phe	Arg	Leu	Trp	Asp	
865					870					875					880	
Leu	Glu	Lys	Gln	Ile	Lys	Gln	Leu	Arg	Asn	Tyr	Arg	Asp	Asn	Tyr	Gln	
				885					890					895		

Ala Phe Cys Lys Trp Leu Tyr Asp Ala Lys Arg Arg Gln Asp Ser Leu  
900 905 910

Glu Ser Met Lys Phe Gly Asp Ser Asn Thr Val Met Arg Phe Leu Asn  
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Glu Gln Lys Asn Leu His Ser Glu Ile Ser Gly Lys Arg Asp Lys Ser  
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Glu Glu Val Gln Lys Ile Ala Glu Leu Cys Ala Asn Ser Ile Lys Asp  
945 950 955 960

Tyr Glu Leu Gln Leu Ala Ser Tyr Thr Ser Gly Leu Glu Thr Leu Leu  
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Asn Ile Pro Ile Lys Arg Thr Met Ile Gln Ser Pro Ser Gly Val Ile  
980 985 990

Leu Gln Glu Ala Ala Asp Val His Ala Arg Tyr Ile Glu Leu Leu Thr  
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Cys Ser Gln Phe Lys Ala Lys Leu Ala Ser Leu Glu Glu Leu Lys  
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Glu Ser Glu Lys Ala Ile Lys Glu Lys Glu Tyr Glu Ile Glu Arg  
1160 1165 1170

Leu	Arg	Val	Leu	Leu	Gln	Glu	Glu	Gly	Thr	Arg	Lys	Arg	Glu	Tyr
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1205						1210					1215			
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1235						1240					1245			
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1250						1255					1260			
Thr	Glu	Gln	Arg	Arg	Arg	Ala	Glu	Glu	Asn	Ala	Leu	Gln	Gln	Lys
1265						1270					1275			
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1295						1300					1305			
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1310						1315					1320			
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1325						1330					1335			
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1370						1375					1380			
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1385						1390					1395			
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Gly 2015	Ala	Gly	Ser	Ile	Ala	Gly 2020	Ala	Ser	Ala	Ser	Pro 2025	Lys	Glu	Lys
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Ala 2090	Glu	Lys	Ala	Ile	Thr	Gly 2095	Phe	Asp	Asp	Pro	Phe 2100	Ser	Gly	Lys
Thr 2105	Val	Ser	Val	Ser	Glu	Ala 2110	Ile	Lys	Lys	Asn	Leu 2115	Ile	Asp	Arg
Glu 2120	Thr	Gly	Met	Arg	Leu	Leu 2125	Glu	Ala	Gln	Ile	Ala 2130	Ser	Gly	Gly
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Asp 2165	Pro	Arg	Asp	Ser	Gln	Lys 2170	Asn	Phe	Val	Asp	Pro 2175	Val	Thr	Lys
Lys 2180	Lys	Val	Ser	Tyr	Val	Gln 2185	Leu	Lys	Glu	Arg	Cys 2190	Arg	Ile	Glu
Pro 2195	His	Thr	Gly	Leu	Leu	Leu 2200	Leu	Ser	Val	Gln	Lys 2205	Arg	Ser	Met
Ser 2210	Phe	Gln	Gly	Ile	Arg	Gln 2215	Pro	Val	Thr	Val	Thr 2220	Glu	Leu	Val
Asp 2225	Ser	Gly	Ile	Leu	Arg	Pro 2230	Ser	Thr	Val	Asn	Glu 2235	Leu	Glu	Ser
Gly 2240	Gln	Ile	Ser	Tyr	Asp	Glu 2245	Val	Gly	Glu	Arg	Ile 2250	Lys	Asp	Phe

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Thr Gly 2525	Ser Gln Tyr Asp 2530	Ile Gln Asp Ala Ile Asp 2535	Lys Gly Leu
Val Asp 2540	Arg Lys Phe Phe Asp 2545	Gln Tyr Arg Ser Gly 2550	Ser Leu Ser
Leu Thr 2555	Gln Phe Ala Asp Met 2560	Ile Ser Leu Lys Asn 2565	Gly Val Gly
Thr Ser 2570	Ser Ser Met Gly Ser 2575	Gly Val Ser Asp Asp 2580	Val Phe Ser
Ser Ser 2585	Arg His Glu Ser Val 2590	Ser Lys Ile Ser Thr 2595	Ile Ser Ser
Val Arg 2600	Asn Leu Thr Ile Arg 2605	Ser Ser Ser Phe Ser 2610	Asp Thr Leu
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Glu Lys 2630	Ile Ser Ile Thr Glu 2635	Gly Ile Glu Arg Gly 2640	Ile Val Asp
Ser Ile 2645	Thr Gly Gln Arg Leu 2650	Leu Glu Ala Gln Ala 2655	Cys Thr Gly
Gly Ile 2660	Ile His Pro Thr Thr 2665	Gly Gln Lys Leu Ser 2670	Leu Gln Asp
Ala Val 2675	Ser Gln Gly Val Ile 2680	Asp Gln Asp Met Ala 2685	Thr Arg Leu
Lys Pro 2690	Ala Gln Lys Ala Phe 2695	Ile Gly Phe Glu Gly 2700	Val Lys Gly
Lys Lys 2705	Lys Met Ser Ala Ala 2710	Glu Ala Val Lys Glu 2715	Lys Trp Leu
Pro Tyr 2720	Glu Ala Gly Gln Arg 2725	Phe Leu Glu Phe Gln 2730	Tyr Leu Thr
Gly Gly 2735	Leu Val Asp Pro Glu 2740	Val His Gly Arg Ile 2745	Ser Thr Glu
Glu Ala 2750	Ile Arg Lys Gly Phe 2755	Ile Asp Gly Arg Ala 2760	Ala Gln Arg
Leu Gln 2765	Asp Thr Ser Ser Tyr 2770	Ala Lys Ile Leu Thr 2775	Cys Pro Lys
Thr Lys 2780	Leu Lys Ile Ser Tyr 2785	Lys Asp Ala Ile Asn 2790	Arg Ser Met

Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser Val  
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Ser Ser Lys Gly Leu Pro Ser Pro Tyr Asn Met Ser Ser Ala Pro  
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Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg  
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Ser Gly Ser Arg Ser Gly Ser Arg Arg Gly Ser Phe Asp Ala Thr  
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Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp  
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Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
85 90 95  
ctg gag ttg ctg gaa gcc caa gca gct act ggc ttt ata gtg gat cct 336  
Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro  
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115 120 125  
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Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val  
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Ala	Met	Asn	Lys	Glu 165	Leu	Ile	Glu	Lys	Gly 170	His	Gly	Ile	Arg	Leu 175	Leu		
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Glu	Ala	Gln	Ile 180	Ala	Thr	Gly	Gly	Ile 185	Ile	Asp	Pro	Lys	Glu	Ser	His		
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Arg	Leu	Pro	Val	Asp	Ile	Ala	Tyr 200	Lys	Arg	Gly	Tyr	Phe 205	Asn	Glu	Glu		
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Leu	Ser	Glu	Ile	Leu	Ser	Asp	Pro 215	Ser	Asp	Asp	Thr	Lys 220	Gly	Phe	Phe		
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Cys	Ile	Lys	Asp	Glu 245	Glu	Thr	Gly	Leu	Cys 250	Leu	Leu	Pro	Leu	Lys	Glu		
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Lys	Lys	Lys	Gln 260	Val	Gln	Thr	Ser	Gln 265	Lys	Asn	Thr	Leu	Arg	Lys	Arg		
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Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu	Leu	Glu	Ser	Gly	Gln		
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Ser	Ser	Cys	Ile	Ala	Gly	Ile	Tyr	Asn	Glu	Thr	Thr	Lys	Gln	Lys	Leu		
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105

110

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Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
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Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
165 170 175

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
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Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
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Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe  
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Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg  
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Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu  
245 250 255

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Ser Gly Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu Ser Gly Gln

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Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala															
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Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His															
180 185 190															
cgt tta cca gtt gac ata gca tat aag agg ggc tat ttc aat gag gaa	624														
Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu															
195 200 205															
ctc agt gag att ctc tca gat cca agt gat gat acc aaa gga ttt ttt	672														
Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe															
210 215 220															
gac ccc aac act gaa gaa aat ctt acc tat ctg caa cta aaa gaa aga	720														
Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg															
225 230 235 240															
tgc att aag gat gag gaa aca ggg ctc tgt ctt ctg cct ctg aaa gaa	768														
Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu															
245 250 255															

<210> 6  
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 <212> PRT  
 <213> Homo sapiens

<400> 6

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Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp
20 25 30
Ser Gly Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu Ser Gly Gln
35 40 45

Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly  
50 55 60

Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu  
65 70 75 80

Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
85 90 95

Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro  
100 105 110

Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu  
115 120 125

Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val  
130 135 140

Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
145 150 155 160

Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
165 170 175

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
180 185 190

Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
195 200 205

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

Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg  
225 230 235 240

Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu  
245 250 255

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<212> DNA  
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<220>  
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1 5 10 15

tct ggt ata ttg aga ccg tcc act gtc aat gaa ctg gaa tct ggt cag 96  
Ser Gly Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu Ser Gly Gln  
20 25 30

att tct tat gac gag gtt ggt gag aga att aag gac ttc ctc cag ggt	144
Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly	
35 40 45	
tca agc tgc ata gca ggc ata tac aat gag acc aca aaa cag aag ctt	192
Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu	
50 55 60	
ggc att tat gag gcc atg aaa att ggc tta gtc cga cct ggt act gct	240
Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala	
65 70 75 80	
ctg gag ttg ctg gaa gcc caa gca gct act ggc ttt ata gtg gat cct	288
Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro	
85 90 95	
gtt agc aac ttg agg tta cca gtg gag gaa gcc tac aag aga ggt ctg	336
Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu	
100 105 110	
gtg ggc att gag ttc aaa gag aag ctc ctg tct gca gaa cga gct gtc	384
Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val	
115 120 125	
act ggg tat aat gat cct gaa aca gga aac atc atc tct ttg ttc caa	432
Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln	
130 135 140	
gcc atg aat aag gaa ctc atc gaa aag ggc cac ggt att cgc tta tta	480
Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu	
145 150 155 160	
gaa gca cag atc gca acc ggg ggg atc att gac cca aag gag agc cat	528
Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His	
165 170 175	
cgt tta cca gtt gac ata gca tat aag agg ggc tat ttc aat gag gaa	576
Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu	
180 185 190	
ctc agt gag att ctc tca gat cca agt gat gat acc aaa gga ttt ttt	624
Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe	
195 200 205	
gac ccc aac act gaa gaa aat ctt acc tat ctg caa cta aaa gaa aga	672
Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg	
210 215 220	
tgc att aag gat gag gaa aca ggg ctc tgt ctt ctg cct ctg aaa gaa	720
Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu	
225 230 235 240	

<210> 8  
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 <212> PRT  
 <213> Homo sapiens

<400> 8

Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp
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Ser Gly Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu Ser Gly Gln
20 25 30

Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly
35 40 45

Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu  
50 55 60

Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
65 70 75 80

Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro  
85 90 95

Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu  
100 105 110

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

Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
130 135 140

Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
145 150 155 160

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
165 170 175

Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
180 185 190

Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe  
195 200 205

Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg  
210 215 220

Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu  
225 230 235 240

<210> 9  
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<212> DNA  
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<220>  
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<222> (1)..(798)

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1 5 10 15

atc ttt gac aca gaa aac ctg gag aaa atc tcc att aca gaa ggt ata 96  
Ile Phe Asp Thr Glu Asn Leu Glu Lys Ile Ser Ile Thr Glu Gly Ile  
20 25 30

gag cgg ggc atc gtt gac agc atc acg ggt cag agg ctt ctg gag gct 144  
Glu Arg Gly Ile Val Asp Ser Ile Thr Gly Gln Arg Leu Leu Glu Ala  
35 40 45



cag gcc tgc aca ggt ggc atc atc cac cca acc acg ggc cag aag ctg	192
Gln Ala Cys Thr Gly Gly Ile Ile His Pro Thr Thr Gly Gln Lys Leu	
50 55 60	
tca ctt cag gac gca gtc tcc cag ggt gtg att gac caa gac atg gcc	240
Ser Leu Gln Asp Ala Val Ser Gln Gly Val Ile Asp Gln Asp Met Ala	
65 70 75 80	
acc agg ctg aag cct gct cag aaa gcc ttc ata ggc ttc gag ggt gtg	288
Thr Arg Leu Lys Pro Ala Gln Lys Ala Phe Ile Gly Phe Glu Gly Val	
85 90 95	
aag gga aag aag aag atg tca gca gca gag gca gtg aaa gaa aaa tgg	336
Lys Gly Lys Lys Lys Met Ser Ala Ala Glu Ala Val Lys Glu Lys Trp	
100 105 110	
ctc ccg tat gag gct ggc cag cgc ttc ctg gag ttc cag tac ctc acg	384
Leu Pro Tyr Glu Ala Gly Gln Arg Phe Leu Glu Phe Gln Tyr Leu Thr	
115 120 125	
gga ggt ctt gtt gac ccg gaa gtg cat ggg agg ata agc acc gaa gaa	432
Gly Gly Leu Val Asp Pro Glu Val His Gly Arg Ile Ser Thr Glu Glu	
130 135 140	
gcc atc cgg aag ggg ttc ata gat ggc cgc gcc gca cag agg ctg caa	480
Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg Ala Ala Gln Arg Leu Gln	
145 150 155 160	
gac acc agc agc tat gcc aaa atc ctg acc tgc ccc aaa acc aaa tta	528
Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr Cys Pro Lys Thr Lys Leu	
165 170 175	
aaa ata tcc tat aag gat gcc ata aat cgc tcc atg gta gaa gat atc	576
Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg Ser Met Val Glu Asp Ile	
180 185 190	
act ggg ctg cgc ctt ctg gaa gcc gcc tcc gtg tcg tcc aag ggc tta	624
Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser Val Ser Ser Lys Gly Leu	
195 200 205	
ccc agc cct tac aac atg tct tcg gct ccg ggg tcc cgc tcc ggc tcc	672
Pro Ser Pro Tyr Asn Met Ser Ser Ala Pro Gly Ser Arg Ser Gly Ser	
210 215 220	
cgc tcg gga tct cgc tcc gga tct cgc tcc ggg tcc cgc agt ggg tcc	720
Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser	
225 230 235 240	
cgg aga gga agc ttt gac gcc aca ggg aat tct tcc tac tct tat tcc	768
Arg Arg Gly Ser Phe Asp Ala Thr Gly Asn Ser Ser Tyr Ser Tyr Ser	
245 250 255	
tac tca ttt agc agt agt tct att ggg cac	798
Tyr Ser Phe Ser Ser Ser Ser Ile Gly His	
260 265	

<210> 10  
 <211> 266  
 <212> PRT  
 <213> Homo sapiens

<400> 10

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

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

<210> 11  
 <211> 768  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(768)

<400> 11  
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tcc	att	aca	gaa	ggg	ata	gag	cgg	ggc	atc	gtt	gac	agc	atc	acg	ggt		96
Ser	Ile	Thr	Glu	Gly	Ile	Glu	Arg	Gly	Ile	Val	Asp	Ser	Ile	Thr	Gly		
			20					25					30				
cag	agg	ctt	ctg	gag	gct	cag	gcc	tgc	aca	ggg	ggc	atc	atc	cac	cca		144
Gln	Arg	Leu	Leu	Glu	Ala	Gln	Ala	Cys	Thr	Gly	Gly	Ile	Ile	His	Pro		
		35					40					45					
acc	acg	ggc	cag	aag	ctg	tca	ctt	cag	gac	gca	gtc	tcc	cag	ggg	gtg		192
Thr	Thr	Gly	Gln	Lys	Leu	Ser	Leu	Gln	Asp	Ala	Val	Ser	Gln	Gly	Val		
	50					55					60						
att	gac	caa	gac	atg	gcc	acc	agg	ctg	aag	cct	gct	cag	aaa	gcc	ttc		240
Ile	Asp	Gln	Asp	Met	Ala	Thr	Arg	Leu	Lys	Pro	Ala	Gln	Lys	Ala	Phe		
65					70					75					80		
ata	ggc	ttc	gag	ggg	gtg	aag	gga	aag	aag	aag	atg	tca	gca	gca	gag		288
Ile	Gly	Phe	Glu	Gly	Val	Lys	Gly	Lys	Lys	Lys	Met	Ser	Ala	Ala	Glu		
			85					90						95			
gca	gtg	aaa	gaa	aaa	tgg	ctc	ccg	tat	gag	gct	ggc	cag	cgc	ttc	ctg		336
Ala	Val	Lys	Glu	Lys	Trp	Leu	Pro	Tyr	Glu	Ala	Gly	Gln	Arg	Phe	Leu		
		100					105					110					
gag	ttc	cag	tac	ctc	acg	gga	ggg	ctt	gtt	gac	ccg	gaa	gtg	cat	ggg		384
Glu	Phe	Gln	Tyr	Leu	Thr	Gly	Gly	Leu	Val	Asp	Pro	Glu	Val	His	Gly		
	115					120					125						
agg	ata	agc	acc	gaa	gaa	gcc	atc	cgg	aag	ggg	ttc	ata	gat	ggc	cgc		432
Arg	Ile	Ser	Thr	Glu	Glu	Ala	Ile	Arg	Lys	Gly	Phe	Ile	Asp	Gly	Arg		
	130					135					140						
gcc	gca	cag	agg	ctg	caa	gac	acc	agc	agc	tat	gcc	aaa	atc	ctg	acc		480
Ala	Ala	Gln	Arg	Leu	Gln	Asp	Thr	Ser	Ser	Tyr	Ala	Lys	Ile	Leu	Thr		
145					150					155				160			
tgc	ccc	aaa	acc	aaa	tta	aaa	ata	tcc	tat	aag	gat	gcc	ata	aat	cgc		528
Cys	Pro	Lys	Thr	Lys	Leu	Lys	Ile	Ser	Tyr	Lys	Asp	Ala	Ile	Asn	Arg		
			165					170					175				
tcc	atg	gta	gaa	gat	atc	act	ggg	ctg	cgc	ctt	ctg	gaa	gcc	gcc	tcc		576
Ser	Met	Val	Glu	Asp	Ile	Thr	Gly	Leu	Arg	Leu	Leu	Glu	Ala	Ala	Ser		
		180					185					190					
gtg	tcg	tcc	aag	ggc	tta	ccc	agc	cct	tac	aac	atg	tct	tcg	gct	ccg		624
Val	Ser	Ser	Lys	Gly	Leu	Pro	Ser	Pro	Tyr	Asn	Met	Ser	Ser	Ala	Pro		
	195					200					205						
ggg	tcc	cgc	tcc	ggc	tcc	cgc	tcg	gga	tct	cgc	tcc	gga	tct	cgc	tcc		672
Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser		
	210				215					220							
ggg	tcc	cgc	agt	ggg	tcc	cgg	aga	gga	agc	ttt	gac	gcc	aca	ggg	aat		720
Gly	Ser	Arg	Ser	Gly	Ser	Arg	Arg	Gly	Ser	Phe	Asp	Ala	Thr	Gly	Asn		
225					230				235					240			
tct	tcc	tac	tct	tat	tcc	tac	tca	ttt	agc	agt	agt	tct	att	ggg	cac		768
Ser	Ser	Tyr	Ser	Tyr	Ser	Tyr	Ser	Phe	Ser	Ser	Ser	Ser	Ile	Gly	His		
			245					250					255				

<210> 12  
 <211> 256  
 <212> PRT  
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<400> 12

Ser Ser Pro Ile Ala Ala Ile Phe Asp Thr Glu Asn Leu Glu Lys Ile

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Ser Ile Thr Glu Gly Ile Glu Arg Gly Ile Val Asp Ser Ile Thr Gly  
20 25 30

Gln Arg Leu Leu Glu Ala Gln Ala Cys Thr Gly Gly Ile Ile His Pro  
35 40 45

Thr Thr Gly Gln Lys Leu Ser Leu Gln Asp Ala Val Ser Gln Gly Val  
50 55 60

Ile Asp Gln Asp Met Ala Thr Arg Leu Lys Pro Ala Gln Lys Ala Phe  
65 70 75 80

Ile Gly Phe Glu Gly Val Lys Gly Lys Lys Lys Met Ser Ala Ala Glu  
85 90 95

Ala Val Lys Glu Lys Trp Leu Pro Tyr Glu Ala Gly Gln Arg Phe Leu  
100 105 110

Glu Phe Gln Tyr Leu Thr Gly Gly Leu Val Asp Pro Glu Val His Gly  
115 120 125

Arg Ile Ser Thr Glu Glu Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg  
130 135 140

Ala Ala Gln Arg Leu Gln Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr  
145 150 155 160

Cys Pro Lys Thr Lys Leu Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg  
165 170 175

Ser Met Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser  
180 185 190

Val Ser Ser Lys Gly Leu Pro Ser Pro Tyr Asn Met Ser Ser Ala Pro  
195 200 205

Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser  
210 215 220

Gly Ser Arg Ser Gly Ser Arg Arg Gly Ser Phe Asp Ala Thr Gly Asn  
225 230 235 240

Ser Ser Tyr Ser Tyr Ser Tyr Ser Phe Ser Ser Ser Ser Ile Gly His  
245 250 255

<210> 13  
<211> 588  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(588)

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tcg agc ccc att gca gcc atc ttt gac aca gaa aac ctg gag aaa atc 48  
Ser Ser Pro Ile Ala Ala Ile Phe Asp Thr Glu Asn Leu Glu Lys Ile  
1 5 10 15

tcc att aca gaa ggt ata gag cgg ggc atc gtt gac agc atc acg ggt 96  
Ser Ile Thr Glu Gly Ile Glu Arg Gly Ile Val Asp Ser Ile Thr Gly  
20 25 30

cag agg ctt ctg gag gct cag gcc tgc aca ggt ggc atc atc cac cca 144  
Gln Arg Leu Leu Glu Ala Gln Ala Cys Thr Gly Gly Ile Ile His Pro  
35 40 45

acc acg ggc cag aag ctg tca ctt cag gac gca gtc tcc cag ggt gtg 192  
Thr Thr Gly Gln Lys Leu Ser Leu Gln Asp Ala Val Ser Gln Gly Val  
50 55 60

att gac caa gac atg gcc acc agg ctg aag cct gct cag aaa gcc ttc 240  
Ile Asp Gln Asp Met Ala Thr Arg Leu Lys Pro Ala Gln Lys Ala Phe  
65 70 75 80

ata ggc ttc gag ggt gtg aag gga aag aag aag atg tca gca gca gag 288  
Ile Gly Phe Glu Gly Val Lys Gly Lys Lys Lys Met Ser Ala Ala Glu  
85 90 95

gca gtg aaa gaa aaa tgg ctc ccg tat gag gct ggc cag cgc ttc ctg 336  
Ala Val Lys Glu Lys Trp Leu Pro Tyr Glu Ala Gly Gln Arg Phe Leu  
100 105 110

gag ttc cag tac ctc acg gga ggt ctt gtt gac ccg gaa gtg cat ggg 384  
Glu Phe Gln Tyr Leu Thr Gly Gly Leu Val Asp Pro Glu Val His Gly  
115 120 125

agg ata agc acc gaa gaa gcc atc cgg aag ggg ttc ata gat ggc cgc 432  
Arg Ile Ser Thr Glu Glu Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg  
130 135 140

gcc gca cag agg ctg caa gac acc agc agc tat gcc aaa atc ctg acc 480  
Ala Ala Gln Arg Leu Gln Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr  
145 150 155 160

tgc ccc aaa acc aaa tta aaa ata tcc tat aag gat gcc ata aat cgc 528  
Cys Pro Lys Thr Lys Leu Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg  
165 170 175

tcc atg gta gaa gat atc act ggg ctg cgc ctt ctg gaa gcc gcc tcc 576  
Ser Met Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser  
180 185 190

gtg tcg tcc aag 588  
Val Ser Ser Lys  
195

<210> 14  
<211> 196  
<212> PRT  
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<400> 14  
Ser Ser Pro Ile Ala Ala Ile Phe Asp Thr Glu Asn Leu Glu Lys Ile  
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Ser Ile Thr Glu Gly Ile Glu Arg Gly Ile Val Asp Ser Ile Thr Gly  
20 25 30

Gln Arg Leu Leu Glu Ala Gln Ala Cys Thr Gly Gly Ile Ile His Pro  
35 40 45

Thr Thr Gly Gln Lys Leu Ser Leu Gln Asp Ala Val Ser Gln Gly Val  
50 55 60

Ile Asp Gln Asp Met Ala Thr Arg Leu Lys Pro Ala Gln Lys Ala Phe  
65 70 75 80

Ile Gly Phe Glu Gly Val Lys Gly Lys Lys Lys Met Ser Ala Ala Glu  
85 90 95

Ala Val Lys Glu Lys Trp Leu Pro Tyr Glu Ala Gly Gln Arg Phe Leu  
100 105 110

Glu Phe Gln Tyr Leu Thr Gly Gly Leu Val Asp Pro Glu Val His Gly  
115 120 125

Arg Ile Ser Thr Glu Glu Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg  
130 135 140

Ala Ala Gln Arg Leu Gln Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr  
145 150 155 160

Cys Pro Lys Thr Lys Leu Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg  
165 170 175

Ser Met Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser  
180 185 190

Val Ser Ser Lys  
195

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<212> DNA  
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<220>  
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<222> (1)..(12186)

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1 5 10 15

caa tat tca aaa aaa gat aaa aac act gac aca ttg agt aaa aaa gag 96  
Gln Tyr Ser Lys Lys Asp Lys Asn Thr Asp Thr Leu Ser Lys Lys Glu  
20 25 30

ctg aag gaa ctt ctg gaa aag gaa ttt cgg caa atc ctg aag aat cca 144  
Leu Lys Glu Leu Leu Glu Lys Glu Phe Arg Gln Ile Leu Lys Asn Pro  
35 40 45

gat gac cca gat atg gtt gat gtc ttc atg gat cac ttg gat ata gac 192  
Asp Asp Pro Asp Met Val Asp Val Phe Met Asp His Leu Asp Ile Asp  
50 55 60

cac aac aag aaa att gac ttc act gag ttt ctt ctg atg gta ttc aag 240  
His Asn Lys Lys Ile Asp Phe Thr Glu Phe Leu Leu Met Val Phe Lys  
65 70 75 80

ttg gct caa gca tat tat gag tct acc aga aaa gag aat tta ccg ata	288
Leu Ala Gln Ala Tyr Tyr Glu Ser Thr Arg Lys Glu Asn Leu Pro Ile	
85 90 95	
tca gga cac aag cac aga aag cac agt cat cat gat aaa cat gaa gat	336
Ser Gly His Lys His Arg Lys His Ser His His Asp Lys His Glu Asp	
100 105 110	
aat aaa cag gaa gaa aac aaa gaa aac aga aaa aga ccc tca agt ctg	384
Asn Lys Gln Glu Glu Asn Lys Glu Asn Arg Lys Arg Pro Ser Ser Leu	
115 120 125	
gaa aga aga aac aat aga aaa ggg aat aag gga aga tcc aag agc cca	432
Glu Arg Arg Asn Asn Arg Lys Gly Asn Lys Gly Arg Ser Lys Ser Pro	
130 135 140	
aga gaa aca ggg ggg aaa agg cat gaa tct agt tct gaa aaa aaa gaa	480
Arg Glu Thr Gly Gly Lys Arg His Glu Ser Ser Ser Glu Lys Lys Glu	
145 150 155 160	
aga aaa gga tat tca cct act cat aga gaa gaa gaa tat gga aaa aac	528
Arg Lys Gly Tyr Ser Pro Thr His Arg Glu Glu Glu Tyr Gly Lys Asn	
165 170 175	
cat cat aac tca agt aaa aaa gag aaa aac aag act gaa aat act aga	576
His His Asn Ser Ser Lys Lys Glu Lys Asn Lys Thr Glu Asn Thr Arg	
180 185 190	
tta gga gac aat agg aag agg cta agt gaa aga ctt gaa gag aaa gaa	624
Leu Gly Asp Asn Arg Lys Arg Leu Ser Glu Arg Leu Glu Glu Lys Glu	
195 200 205	
gac aat gaa gaa gga gta tat gat tat gaa aat aca gga aga atg act	672
Asp Asn Glu Glu Gly Val Tyr Asp Tyr Glu Asn Thr Gly Arg Met Thr	
210 215 220	
caa aaa tgg ata caa tca ggc cat att gcc aca tat tac aca atc cag	720
Gln Lys Trp Ile Gln Ser Gly His Ile Ala Thr Tyr Tyr Thr Ile Gln	
225 230 235 240	
gat gaa gcc tat gac acc act gat agt cta tta gaa gaa aac aaa ata	768
Asp Glu Ala Tyr Asp Thr Thr Asp Ser Leu Leu Glu Glu Asn Lys Ile	
245 250 255	
tat gaa aga tca agg tca tct gat ggc aaa tca tca tct caa gtg aac	816
Tyr Glu Arg Ser Arg Ser Ser Asp Gly Lys Ser Ser Ser Gln Val Asn	
260 265 270	
agg tca aga cat gaa aat aca agc cag gta cca ttg cag gag tcc agg	864
Arg Ser Arg His Glu Asn Thr Ser Gln Val Pro Leu Gln Glu Ser Arg	
275 280 285	
aca aga aag cgt agg gga tcc aga gtt agc cag gac agg gac agt gag	912
Thr Arg Lys Arg Arg Gly Ser Arg Val Ser Gln Asp Arg Asp Ser Glu	
290 295 300	
gga cac tca gaa gac tct gag agg cac tct ggg tcg gct tcc aga aac	960
Gly His Ser Glu Asp Ser Glu Arg His Ser Gly Ser Ala Ser Arg Asn	
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cat cat gga tct gcg tgg gag cag tca aga gat ggc tcc aga cac ccc	1008
His His Gly Ser Ala Trp Glu Gln Ser Arg Asp Gly Ser Arg His Pro	
325 330 335	
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Arg Ser His Asp Glu Asp Arg Ala Ser His Gly His Ser Ala Asp Ser	
340 345 350	
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Ser Arg Gln Ser Gly Thr Arg His Ala Glu Thr Ser Ser Arg Gly Gln	
355 360 365	

act gca tca tcc cat gaa cag gca aga tca agt cca gga gaa aga cat	1152
Thr Ala Ser Ser His Glu Gln Ala Arg Ser Ser Pro Gly Glu Arg His	
370 375 380	
gga tcc ggc cac cag cag tca gca gac agc tcc aga cac tca gcc act	1200
Gly Ser Gly His Gln Gln Ser Ala Asp Ser Ser Arg His Ser Ala Thr	
385 390 395 400	
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Gly Arg Gly Gln Ala Ser Ser Ala Val Ser Asp Arg Gly His Arg Gly	
405 410 415	
tct agc ggt agt cag gcc agt gac agt gag gga cat tca gaa aac tca	1296
Ser Ser Gly Ser Gln Ala Ser Asp Ser Glu Gly His Ser Glu Asn Ser	
420 425 430	
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Asp Thr Gln Ser Val Ser Gly His Gly Lys Ala Gly Leu Arg Gln Gln	
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Ser His Gln Glu Ser Thr Arg Gly Arg Ser Gly Glu Arg Ser Gly Arg	
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Ser Gly Ser Ser Leu Tyr Gln Val Ser Thr His Glu Gln Pro Asp Ser	
465 470 475 480	
gcc cat gga cgg acc ggg acc agc act gga gga aga caa gga tcg cac	1488
Ala His Gly Arg Thr Gly Thr Ser Thr Gly Gly Arg Gln Gly Ser His	
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cac gag cag gca cga gac agc tcc agg cat tca gcg tcc caa gag ggt	1536
His Glu Gln Ala Arg Asp Ser Ser Arg His Ser Ala Ser Gln Glu Gly	
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Gln Asp Thr Ile Arg Gly His Pro Gly Ser Ser Arg Gly Gly Arg Gln	
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Gly Ser His His Glu Gln Ser Val Asn Arg Ser Gly His Ser Gly Ser	
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His His Ser His Thr Thr Ser Gln Gly Arg Ser Asp Ala Ser His Gly	
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Gln Ser Gly Ser Arg Ser Ala Ser Arg Gln Thr Arg Asn Glu Glu Gln	
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Ser Gly Asp Gly Thr Arg His Ser Gly Ser Arg His His Glu Ala Ser	
580 585 590	
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Ser Gln Ala Asp Ser Ser Arg His Ser Gln Val Gly Gln Gly Gln Ser	
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Ser Gly Pro Arg Thr Ser Arg Asn Gln Gly Ser Ser Val Ser Gln Asp	
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Ser Asp Ser Gln Gly His Ser Glu Asp Ser Glu Arg Trp Ser Gly Ser	
625 630 635 640	
gct tcc aga aac cat cat gga tct gct cag gag cag tca aga gat ggc	1968
Ala Ser Arg Asn His His Gly Ser Ala Gln Glu Gln Ser Arg Asp Gly	
645 650 655	



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Ser Arg His Pro Arg Ser His His Glu Asp Arg Ala Gly His Gly His	
660 665 670	
tct gca gac agc tcc aga aaa tca ggc act cgt cac aca cag aat tcc	2064
Ser Ala Asp Ser Ser Arg Lys Ser Gly Thr Arg His Thr Gln Asn Ser	
675 680 685	
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Ser Ser Gly Gln Ala Ala Ser Ser His Glu Gln Ala Arg Ser Ser Ala	
690 695 700	
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Gly Glu Arg His Gly Ser Arg His Gln Leu Gln Ser Ala Asp Ser Ser	
705 710 715 720	
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Arg His Ser Gly Thr Gly His Gly Gln Ala Ser Ser Ala Val Arg Asp	
725 730 735	
agt gga cac cga ggg tcc agt ggt agt cag gcc act gac agt gag gga	2256
Ser Gly His Arg Gly Ser Ser Gly Ser Gln Ala Thr Asp Ser Glu Gly	
740 745 750	
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His Ser Glu Asp Ser Asp Thr Gln Ser Val Ser Gly His Gly Gln Ala	
755 760 765	
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Gly His His Gln Gln Ser His Gln Glu Ser Ala Arg Asp Arg Ser Gly	
770 775 780	
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Glu Arg Ser Arg Arg Ser Gly Ser Phe Leu Tyr Gln Val Ser Thr His	
785 790 795 800	
aaa cag tct gag tcc tcc cat gga tgg aca ggg ccc agc act gga gta	2448
Lys Gln Ser Glu Ser Ser His Gly Trp Thr Gly Pro Ser Thr Gly Val	
805 810 815	
aga caa gga tcc cac cat gag cag gca cga gac aac tcc agg cac tca	2496
Arg Gln Gly Ser His His Glu Gln Ala Arg Asp Asn Ser Arg His Ser	
820 825 830	
gca tcc caa gat ggt cag gac acc att cgt gga cac ccg ggg tca agc	2544
Ala Ser Gln Asp Gly Gln Asp Thr Ile Arg Gly His Pro Gly Ser Ser	
835 840 845	
aga aga gga agg cag ggg tcc cac cac gag caa tcg gta gat agg tct	2592
Arg Arg Gly Arg Gln Gly Ser His His Glu Gln Ser Val Asp Arg Ser	
850 855 860	
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Gly His Ser Gly Ser His His Ser His Thr Thr Ser Gln Gly Arg Ser	
865 870 875 880	
gat gcc tcc cgt ggg cag tca gga tcc aga agt gca agc aga aca aca	2688
Asp Ala Ser Arg Gly Gln Ser Gly Ser Arg Ser Ala Ser Arg Thr Thr	
885 890 895	
cgt aat gag gaa caa tca aga gac ggc tcc agg cac tca ggg tca cgt	2736
Arg Asn Glu Glu Gln Ser Arg Asp Gly Ser Arg His Ser Gly Ser Arg	
900 905 910	
cac cat gaa gct tcc tct cat gcc gac atc tct aga cac tca cag gca	2784
His His Glu Ala Ser Ser His Ala Asp Ile Ser Arg His Ser Gln Ala	
915 920 925	
ggc cag gga caa tca gag ggg tcc agg aca agc agg cgc cag gga tcc	2832
Gly Gln Gly Gln Ser Glu Gly Ser Arg Thr Ser Arg Arg Gln Gly Ser	
930 935 940	

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agg tgg tct ggg tct gct tcc aga aac cat cgt gga tct gct cag gag Arg Trp Ser Gly Ser Ala Ser Arg Asn His Arg Gly Ser Ala Gln Glu 965 970 975	2928
cag tca aga cat ggc tcc aga cac ccc agg tcc cat cac gaa gac aga Gln Ser Arg His Gly Ser Arg His Pro Arg Ser His His Glu Asp Arg 980 985 990	2976
gcc ggt cac ggg cac tct gca gac agc tcc aga caa tca gga act cct Ala Gly His Gly His Ser Ala Asp Ser Ser Arg Gln Ser Gly Thr Pro 995 1000 1005	3024
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cag gca aga tca agt cca gga gaa aga cac gga tcc cgc cac cag Gln Ala Arg Ser Ser Pro Gly Glu Arg His Gly Ser Arg His Gln 1025 1030 1035	3114
cag tca gca gac agc tcc aga cac tca ggc att ccg cgc aga caa Gln Ser Ala Asp Ser Ser Arg His Ser Gly Ile Pro Arg Arg Gln 1040 1045 1050	3159
gct tca tct gca gtc aga gac agt gga cac tgg ggg tcc agt ggt Ala Ser Ser Ala Val Arg Asp Ser Gly His Trp Gly Ser Ser Gly 1055 1060 1065	3204
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cag tca gtg tca ggc cat gga cag gat ggg ccc cat cag cag agc Gln Ser Val Ser Gly His Gly Gln Asp Gly Pro His Gln Gln Ser 1085 1090 1095	3294
cac caa gag tcc gca cgt gac tgg tca ggg gga agg tct gga cgt His Gln Glu Ser Ala Arg Asp Trp Ser Gly Gly Arg Ser Gly Arg 1100 1105 1110	3339
tca ggg tct ttc atc tac cag gtg agc act cat gaa cag tct gag Ser Gly Ser Phe Ile Tyr Gln Val Ser Thr His Glu Gln Ser Glu 1115 1120 1125	3384
tct gcc cat ggg cgg acc agg acc agc act gga cga aga caa gga Ser Ala His Gly Arg Thr Arg Thr Ser Thr Gly Arg Arg Gln Gly 1130 1135 1140	3429
tcc cac cac gag cag gca cga gac agc tcc agg cac tca gcg tcc Ser His His Glu Gln Ala Arg Asp Ser Ser Arg His Ser Ala Ser 1145 1150 1155	3474
caa gag ggt cag gac acc att cgt gca cac ccg ggg tca agg aga Gln Glu Gly Gln Asp Thr Ile Arg Ala His Pro Gly Ser Arg Arg 1160 1165 1170	3519
gga gga agg cag gga tcc cac cat gag caa tcg gta gat aga tct Gly Gly Arg Gln Gly Ser His His Glu Gln Ser Val Asp Arg Ser 1175 1180 1185	3564
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tct gat gcc tcc cat ggg cag tca gga tcc aga agt gca agc aga Ser Asp Ala Ser His Gly Gln Ser Gly Ser Arg Ser Ala Ser Arg 1205 1210 1215	3654

caa act cgt aag gac aaa caa tca gga gac ggc tcc agg cac tca Gln Thr Arg Lys Asp Lys Gln Ser Gly Asp Gly Ser Arg His Ser 1220 1225 1230	3699
ggg tca cgt cac cat gaa gct gcc tct tgg gct gac agc tct aga Gly Ser Arg His His Glu Ala Ala Ser Trp Ala Asp Ser Ser Arg 1235 1240 1245	3744
cac tca cag gtg gga cag gaa caa tca tct ggg tcc agg aca agc His Ser Gln Val Gly Gln Glu Gln Ser Ser Gly Ser Arg Thr Ser 1250 1255 1260	3789
agg cac cag gga tcc agt gtt agc cag gac agt gac agt gag aga Arg His Gln Gly Ser Ser Val Ser Gln Asp Ser Asp Ser Glu Arg 1265 1270 1275	3834
cac tca gac gac tcc gag agg ttg tct ggg tct gct tcc aga aac His Ser Asp Asp Ser Glu Arg Leu Ser Gly Ser Ala Ser Arg Asn 1280 1285 1290	3879
cat cat gga tct tct cgg gag cag tca aga gat ggc tcc aga cac His His Gly Ser Ser Arg Glu Gln Ser Arg Asp Gly Ser Arg His 1295 1300 1305	3924
cct ggg ttc cat caa gaa gac aga gcc agt cac ggg cac tct gca Pro Gly Phe His Gln Glu Asp Arg Ala Ser His Gly His Ser Ala 1310 1315 1320	3969
gac agc tcc aga caa tca ggc act cat cac aca gag tct tcc tct Asp Ser Ser Arg Gln Ser Gly Thr His His Thr Glu Ser Ser Ser 1325 1330 1335	4014
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gac agt gga cac cga ggg tcc agt ggt agt cag gtc act aac agt Asp Ser Gly His Arg Gly Ser Ser Gly Ser Gln Val Thr Asn Ser 1385 1390 1395	4194
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cga aac agc tct agg cac tca gca tcc caa gac ggt cag gac acc Arg Asn Ser Ser Arg His Ser Ala Ser Gln Asp Gly Gln Asp Thr 1475 1480 1485	4464

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Ile Arg Gly His Pro Gly Ser Ser Arg Gly Gly Arg Gln Gly Ser	
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Tyr His Glu Gln Ser Val Asp Arg Ser Gly His Ser Gly Tyr His	
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His Ser His Thr Thr Pro Gln Gly Arg Ser Asp Ala Ser His Gly	
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Gln Ser Gly Pro Arg Ser Ala Ser Arg Gln Thr Arg Asn Glu Glu	
1535 1540 1545	
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Gln Ser Gly Asp Gly Ser Arg His Ser Gly Ser Arg His His Glu	
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Pro Ser Thr Arg Ala Gly Ser Ser Arg His Ser Gln Val Gly Gln	
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Gly Glu Ser Ala Gly Ser Lys Thr Ser Arg Arg Gln Gly Ser Ser	
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Val Ser Gln Asp Arg Asp Ser Glu Gly His Ser Glu Asp Ser Glu	
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Arg Arg Ser Glu Ser Ala Ser Arg Asn His Tyr Gly Ser Ala Arg	
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Glu Gln Ser Arg His Gly Ser Arg Asn Pro Arg Ser His Gln Glu	
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Asp Arg Ala Ser His Gly His Ser Ala Glu Ser Ser Arg Gln Ser	
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Gly Thr Arg His Ala Glu Thr Ser Ser Gly Gly Gln Ala Ala Ser	
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Ser Gln Glu Gln Ala Arg Ser Ser Pro Gly Glu Arg His Gly Ser	
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1685 1690 1695	
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Arg Arg Gln Asp Ser Ser Val Val Gly Asp Ser Gly Asn Arg Gly	
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Ser Ser Gly Ser Gln Ala Ser Asp Ser Glu Gly His Ser Glu Glu	
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Ser Asp Thr Gln Ser Val Ser Ala His Gly Gln Ala Gly Pro His	
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Gln Gln Ser His Gln Glu Ser Thr Arg Gly Gln Ser Gly Glu Arg	
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Ser Gly Arg Ser Gly Ser Phe Leu Tyr Gln Val Ser Thr His Glu	
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Gln Ser Glu Ser Ala His Gly Arg Thr Gly Pro Ser Thr Gly Gly	
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Arg Gln Arg Ser Arg His Glu Gln Ala Arg Asp Ser Ser Arg His	
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Ser Ala Ser Gln Glu Gly Gln Asp Thr Ile Arg Gly His Pro Gly	
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Gln Glu Arg Ser Asp Val Ser Arg Gly Gln Ser Gly Ser Arg Ser	
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Val Ser Arg Gln Thr Arg Asn Glu Lys Gln Ser Gly Asp Gly Ser	
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Arg His Ser Gly Ser Arg His His Glu Ala Ser Ser Arg Ala Asp	
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Ser Ser Arg His Ser Gln Val Gly Gln Gly Gln Ser Ser Gly Pro	
1895 1900 1905	
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Arg Thr Ser Arg Asn Gln Gly Ser Ser Val Ser Gln Asp Ser Asp	
1910 1915 1920	
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Ser Gln Gly His Ser Glu Asp Ser Glu Arg Trp Ser Gly Ser Ala	
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Ser Arg Asn His Leu Gly Ser Ala Trp Glu Gln Ser Arg Asp Gly	
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Ser Arg His Pro Gly Ser His His Glu Asp Arg Ala Gly His Gly	
1955 1960 1965	
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His Ser Ala Asp Ser Ser Arg Gln Ser Gly Thr Arg His Thr Glu	
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Ser Ser Ser Arg Gly Gln Ala Ala Ser Ser His Glu Gln Ala Arg	
1985 1990 1995	
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Ser Ser Ala Gly Glu Arg His Gly Ser His His Gln Leu Gln Ser	
2000 2005 2010	
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Ala Asp Ser Ser Arg His Ser Gly Ile Gly His Gly Gln Ala Ser	
2015 2020 2025	

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gcc Ala 2045	agt Ser 2045	gac Asp 2045	agt Ser 2045	gag Glu 2045	gga Gly 2050	cat His 2050	tca Ser 2050	gaa Glu 2050	gac Asp 2055	tca Ser 2055	gac Asp 2055	aca Thr 2055	cag Gln 2055	tca Ser 2055	6174
gtg Val 2060	tca Ser 2060	gca Ala 2060	cag Gln 2060	gga Gly 2060	aaa Lys 2065	gct Ala 2065	ggg Gly 2065	ccc Pro 2065	cat His 2065	cag Gln 2070	cag Gln 2070	agc Ser 2070	cac His 2070	aaa Lys 2070	6219
gag Glu 2075	tcc Ser 2075	gca Ala 2075	cgt Arg 2075	ggc Gly 2075	cag Gln 2080	tca Ser 2080	ggg Gly 2080	gaa Glu 2080	agc Ser 2080	tct Ser 2085	gga Gly 2085	cgt Arg 2085	tca Ser 2085	ggg Gly 2085	6264
tct Ser 2090	ttc Phe 2090	ctc Leu 2090	tac Tyr 2090	cag Gln 2090	gtg Val 2095	agc Ser 2095	act Thr 2095	cat His 2095	gaa Glu 2095	cag Gln 2100	tct Ser 2100	gag Glu 2100	tcc Ser 2100	acc Thr 2100	6309
cat His 2105	gga Gly 2105	cag Gln 2105	tct Ser 2105	gcg Ala 2105	ccc Pro 2110	agc Ser 2110	act Thr 2110	gga Gly 2110	gga Gly 2110	aga Arg 2115	caa Gln 2115	gga Gly 2115	tcc Ser 2115	cat His 2115	6354
tat Tyr 2120	gat Asp 2120	cag Gln 2120	gca Ala 2120	caa Gln 2120	gac Asp 2125	agc Ser 2125	tcc Ser 2125	agg Arg 2125	cac His 2125	tca Ser 2130	gca Ala 2130	tcc Ser 2130	caa Gln 2130	gag Glu 2130	6399
ggt Gly 2135	cag Gln 2135	gac Asp 2135	acc Thr 2135	att Ile 2135	cgt Arg 2140	gga Gly 2140	cac His 2140	ccg Pro 2140	ggg Gly 2140	cca Pro 2145	agc Ser 2145	aga Arg 2145	gga Gly 2145	gga Gly 2145	6444
aga Arg 2150	cag Gln 2150	ggg Gly 2150	tcc Ser 2150	cac His 2150	caa Gln 2155	gag Glu 2155	caa Gln 2155	tcg Ser 2155	gta Val 2155	gat Asp 2160	agg Arg 2160	tct Ser 2160	gga Gly 2160	cac His 2160	6489
tca Ser 2165	ggg Gly 2165	tct Ser 2165	cat His 2165	cac His 2165	agc Ser 2170	cac His 2170	acc Thr 2170	aca Thr 2170	tcc Ser 2175	cag Gln 2175	gga Gly 2175	agg Arg 2175	tct Ser 2175	gat Asp 2175	6534
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His Asn Lys Lys Ile Asp Phe Thr Glu Phe Leu Leu Met Val Phe Lys
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 130 135 140

Arg Glu Thr Gly Gly Lys Arg His Glu Ser Ser Ser Glu Lys Lys Glu  
 145 150 155 160

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

His His Asn Ser Ser Lys Lys Glu Lys Asn Lys Thr Glu Asn Thr Arg  
 180 185 190

Leu Gly Asp Asn Arg Lys Arg Leu Ser Glu Arg Leu Glu Glu Lys Glu  
 195 200 205

Asp Asn Glu Glu Gly Val Tyr Asp Tyr Glu Asn Thr Gly Arg Met Thr  
 210 215 220

Gln Lys Trp Ile Gln Ser Gly His Ile Ala Thr Tyr Tyr Thr Ile Gln  
 225 230 235 240

Asp Glu Ala Tyr Asp Thr Thr Asp Ser Leu Leu Glu Glu Asn Lys Ile  
 245 250 255

Tyr Glu Arg Ser Arg Ser Ser Asp Gly Lys Ser Ser Ser Gln Val Asn  
 260 265 270

Arg Ser Arg His Glu Asn Thr Ser Gln Val Pro Leu Gln Glu Ser Arg  
 275 280 285

Thr Arg Lys Arg Arg Gly Ser Arg Val Ser Gln Asp Arg Asp Ser Glu  
 290 295 300

Gly His Ser Glu Asp Ser Glu Arg His Ser Gly Ser Ala Ser Arg Asn  
 305 310 315 320

His His Gly Ser Ala Trp Glu Gln Ser Arg Asp Gly Ser Arg His Pro  
 325 330 335

Arg Ser His Asp Glu Asp Arg Ala Ser His Gly His Ser Ala Asp Ser  
 340 345 350

Ser Arg Gln Ser Gly Thr Arg His Ala Glu Thr Ser Ser Arg Gly Gln  
 355 360 365

Thr Ala Ser Ser His Glu Gln Ala Arg Ser Ser Pro Gly Glu Arg His  
 370 375 380

Gly	Ser	Gly	His	Gln	Gln	Ser	Ala	Asp	Ser	Ser	Arg	His	Ser	Ala	Thr	385		390		395		400	
Gly	Arg	Gly	Gln	Ala	Ser	Ser	Ala	Val	Ser	Asp	Arg	Gly	His	Arg	Gly		405		410		415		
Ser	Ser	Gly	Ser	Gln	Ala	Ser	Asp	Ser	Glu	Gly	His	Ser	Glu	Asn	Ser		420		425		430		
Asp	Thr	Gln	Ser	Val	Ser	Gly	His	Gly	Lys	Ala	Gly	Leu	Arg	Gln	Gln		435		440		445		
Ser	His	Gln	Glu	Ser	Thr	Arg	Gly	Arg	Ser	Gly	Glu	Arg	Ser	Gly	Arg		450		455		460		
Ser	Gly	Ser	Ser	Leu	Tyr	Gln	Val	Ser	Thr	His	Glu	Gln	Pro	Asp	Ser		465		470		475		480
Ala	His	Gly	Arg	Thr	Gly	Thr	Ser	Thr	Gly	Gly	Arg	Gln	Gly	Ser	His		485		490		495		
His	Glu	Gln	Ala	Arg	Asp	Ser	Ser	Arg	His	Ser	Ala	Ser	Gln	Glu	Gly		500		505		510		
Gln	Asp	Thr	Ile	Arg	Gly	His	Pro	Gly	Ser	Ser	Arg	Gly	Gly	Arg	Gln		515		520		525		
Gly	Ser	His	His	Glu	Gln	Ser	Val	Asn	Arg	Ser	Gly	His	Ser	Gly	Ser		530		535		540		
His	His	Ser	His	Thr	Thr	Ser	Gln	Gly	Arg	Ser	Asp	Ala	Ser	His	Gly		545		550		555		560
Gln	Ser	Gly	Ser	Arg	Ser	Ala	Ser	Arg	Gln	Thr	Arg	Asn	Glu	Glu	Gln		565		570		575		
Ser	Gly	Asp	Gly	Thr	Arg	His	Ser	Gly	Ser	Arg	His	His	Glu	Ala	Ser		580		585		590		
Ser	Gln	Ala	Asp	Ser	Ser	Arg	His	Ser	Gln	Val	Gly	Gln	Gly	Gln	Ser		595		600		605		
Ser	Gly	Pro	Arg	Thr	Ser	Arg	Asn	Gln	Gly	Ser	Ser	Val	Ser	Gln	Asp		610		615		620		
Ser	Asp	Ser	Gln	Gly	His	Ser	Glu	Asp	Ser	Glu	Arg	Trp	Ser	Gly	Ser		625		630		635		640
Ala	Ser	Arg	Asn	His	His	Gly	Ser	Ala	Gln	Glu	Gln	Ser	Arg	Asp	Gly		645		650		655		
Ser	Arg	His	Pro	Arg	Ser	His	His	Glu	Asp	Arg	Ala	Gly	His	Gly	His		660		665		670		

Ser Ala Asp Ser Ser Arg Lys Ser Gly Thr Arg His Thr Gln Asn Ser  
 675 680 685

Ser Ser Gly Gln Ala Ala Ser Ser His Glu Gln Ala Arg Ser Ser Ala  
 690 695 700

Gly Glu Arg His Gly Ser Arg His Gln Leu Gln Ser Ala Asp Ser Ser  
 705 710 715 720

Arg His Ser Gly Thr Gly His Gly Gln Ala Ser Ser Ala Val Arg Asp  
 725 730 735

Ser Gly His Arg Gly Ser Ser Gly Ser Gln Ala Thr Asp Ser Glu Gly  
 740 745 750

His Ser Glu Asp Ser Asp Thr Gln Ser Val Ser Gly His Gly Gln Ala  
 755 760 765

Gly His His Gln Gln Ser His Gln Glu Ser Ala Arg Asp Arg Ser Gly  
 770 775 780

Glu Arg Ser Arg Arg Ser Gly Ser Phe Leu Tyr Gln Val Ser Thr His  
 785 790 795 800

Lys Gln Ser Glu Ser Ser His Gly Trp Thr Gly Pro Ser Thr Gly Val  
 805 810 815

Arg Gln Gly Ser His His Glu Gln Ala Arg Asp Asn Ser Arg His Ser  
 820 825 830

Ala Ser Gln Asp Gly Gln Asp Thr Ile Arg Gly His Pro Gly Ser Ser  
 835 840 845

Arg Arg Gly Arg Gln Gly Ser His His Glu Gln Ser Val Asp Arg Ser  
 850 855 860

Gly His Ser Gly Ser His His Ser His Thr Thr Ser Gln Gly Arg Ser  
 865 870 875 880

Asp Ala Ser Arg Gly Gln Ser Gly Ser Arg Ser Ala Ser Arg Thr Thr  
 885 890 895

Arg Asn Glu Glu Gln Ser Arg Asp Gly Ser Arg His Ser Gly Ser Arg  
 900 905 910

His His Glu Ala Ser Ser His Ala Asp Ile Ser Arg His Ser Gln Ala  
 915 920 925

Gly Gln Gly Gln Ser Glu Gly Ser Arg Thr Ser Arg Arg Gln Gly Ser  
 930 935 940

Ser Val Ser Gln Asp Ser Asp Ser Glu Gly His Ser Glu Asp Ser Glu  
 945 950 955 960



Arg	Trp	Ser	Gly	Ser	Ala	Ser	Arg	Asn	His	Arg	Gly	Ser	Ala	Gln	Glu
				965					970					975	
Gln	Ser	Arg	His	Gly	Ser	Arg	His	Pro	Arg	Ser	His	His	Glu	Asp	Arg
			980					985					990		
Ala	Gly	His	Gly	His	Ser	Ala	Asp	Ser	Ser	Arg	Gln	Ser	Gly	Thr	Pro
		995					1000					1005			
His	Ala	Glu	Thr	Ser	Ser	Gly	Gly	Gln	Ala	Ala	Ser	Ser	His	Glu	
	1010					1015					1020				
Gln	Ala	Arg	Ser	Ser	Pro	Gly	Glu	Arg	His	Gly	Ser	Arg	His	Gln	
	1025					1030					1035				
Gln	Ser	Ala	Asp	Ser	Ser	Arg	His	Ser	Gly	Ile	Pro	Arg	Arg	Gln	
	1040					1045					1050				
Ala	Ser	Ser	Ala	Val	Arg	Asp	Ser	Gly	His	Trp	Gly	Ser	Ser	Gly	
	1055					1060					1065				
Ser	Gln	Ala	Ser	Asp	Ser	Glu	Gly	His	Ser	Glu	Glu	Ser	Asp	Thr	
	1070					1075					1080				
Gln	Ser	Val	Ser	Gly	His	Gly	Gln	Asp	Gly	Pro	His	Gln	Gln	Ser	
	1085					1090					1095				
His	Gln	Glu	Ser	Ala	Arg	Asp	Trp	Ser	Gly	Gly	Arg	Ser	Gly	Arg	
	1100					1105					1110				
Ser	Gly	Ser	Phe	Ile	Tyr	Gln	Val	Ser	Thr	His	Glu	Gln	Ser	Glu	
	1115					1120					1125				
Ser	Ala	His	Gly	Arg	Thr	Arg	Thr	Ser	Thr	Gly	Arg	Arg	Gln	Gly	
	1130					1135					1140				
Ser	His	His	Glu	Gln	Ala	Arg	Asp	Ser	Ser	Arg	His	Ser	Ala	Ser	
	1145					1150					1155				
Gln	Glu	Gly	Gln	Asp	Thr	Ile	Arg	Ala	His	Pro	Gly	Ser	Arg	Arg	
	1160					1165					1170				
Gly	Gly	Arg	Gln	Gly	Ser	His	His	Glu	Gln	Ser	Val	Asp	Arg	Ser	
	1175					1180					1185				
Gly	His	Ser	Gly	Ser	His	His	Ser	His	Thr	Thr	Ser	Gln	Gly	Arg	
	1190					1195					1200				
Ser	Asp	Ala	Ser	His	Gly	Gln	Ser	Gly	Ser	Arg	Ser	Ala	Ser	Arg	
	1205					1210					1215				
Gln	Thr	Arg	Lys	Asp	Lys	Gln	Ser	Gly	Asp	Gly	Ser	Arg	His	Ser	
	1220					1225					1230				

Gly	Ser	Arg	His	His	Glu	Ala	Ala	Ser	Trp	Ala	Asp	Ser	Ser	Arg
1235						1240					1245			
His	Ser	Gln	Val	Gly	Gln	Glu	Gln	Ser	Ser	Gly	Ser	Arg	Thr	Ser
1250						1255					1260			
Arg	His	Gln	Gly	Ser	Ser	Val	Ser	Gln	Asp	Ser	Asp	Ser	Glu	Arg
1265						1270					1275			
His	Ser	Asp	Asp	Ser	Glu	Arg	Leu	Ser	Gly	Ser	Ala	Ser	Arg	Asn
1280						1285					1290			
His	His	Gly	Ser	Ser	Arg	Glu	Gln	Ser	Arg	Asp	Gly	Ser	Arg	His
1295						1300					1305			
Pro	Gly	Phe	His	Gln	Glu	Asp	Arg	Ala	Ser	His	Gly	His	Ser	Ala
1310						1315					1320			
Asp	Ser	Ser	Arg	Gln	Ser	Gly	Thr	His	His	Thr	Glu	Ser	Ser	Ser
1325						1330					1335			
His	Gly	Gln	Ala	Val	Ser	Ser	His	Glu	Gln	Ala	Arg	Ser	Ser	Pro
1340						1345					1350			
Gly	Glu	Arg	His	Gly	Ser	Arg	His	Gln	Gln	Ser	Ala	Asp	Ser	Ser
1355						1360					1365			
Arg	His	Ser	Gly	Ile	Gly	His	Arg	Gln	Ala	Ser	Ser	Ala	Val	Arg
1370						1375					1380			
Asp	Ser	Gly	His	Arg	Gly	Ser	Ser	Gly	Ser	Gln	Val	Thr	Asn	Ser
1385						1390					1395			
Glu	Gly	His	Ser	Glu	Asp	Ser	Asp	Thr	Gln	Ser	Val	Ser	Ala	His
1400						1405					1410			
Gly	Gln	Ala	Gly	Pro	His	Gln	Gln	Ser	His	Lys	Glu	Ser	Ala	Arg
1415						1420					1425			
Gly	Gln	Ser	Gly	Glu	Ser	Ser	Gly	Arg	Ser	Arg	Ser	Phe	Leu	Tyr
1430						1435					1440			
Gln	Val	Ser	Ser	His	Glu	Gln	Ser	Glu	Ser	Thr	His	Gly	Gln	Thr
1445						1450					1455			
Ala	Pro	Ser	Thr	Gly	Gly	Arg	Gln	Gly	Ser	Arg	His	Glu	Gln	Ala
1460						1465					1470			
Arg	Asn	Ser	Ser	Arg	His	Ser	Ala	Ser	Gln	Asp	Gly	Gln	Asp	Thr
1475						1480					1485			
Ile	Arg	Gly	His	Pro	Gly	Ser	Ser	Arg	Gly	Gly	Arg	Gln	Gly	Ser
1490						1495					1500			

Tyr	His	Glu	Gln	Ser	Val	Asp	Arg	Ser	Gly	His	Ser	Gly	Tyr	His
1505						1510					1515			
His	Ser	His	Thr	Thr	Pro	Gln	Gly	Arg	Ser	Asp	Ala	Ser	His	Gly
1520						1525					1530			
Gln	Ser	Gly	Pro	Arg	Ser	Ala	Ser	Arg	Gln	Thr	Arg	Asn	Glu	Glu
1535						1540					1545			
Gln	Ser	Gly	Asp	Gly	Ser	Arg	His	Ser	Gly	Ser	Arg	His	His	Glu
1550						1555					1560			
Pro	Ser	Thr	Arg	Ala	Gly	Ser	Ser	Arg	His	Ser	Gln	Val	Gly	Gln
1565						1570					1575			
Gly	Glu	Ser	Ala	Gly	Ser	Lys	Thr	Ser	Arg	Arg	Gln	Gly	Ser	Ser
1580						1585					1590			
Val	Ser	Gln	Asp	Arg	Asp	Ser	Glu	Gly	His	Ser	Glu	Asp	Ser	Glu
1595						1600					1605			
Arg	Arg	Ser	Glu	Ser	Ala	Ser	Arg	Asn	His	Tyr	Gly	Ser	Ala	Arg
1610						1615					1620			
Glu	Gln	Ser	Arg	His	Gly	Ser	Arg	Asn	Pro	Arg	Ser	His	Gln	Glu
1625						1630					1635			
Asp	Arg	Ala	Ser	His	Gly	His	Ser	Ala	Glu	Ser	Ser	Arg	Gln	Ser
1640						1645					1650			
Gly	Thr	Arg	His	Ala	Glu	Thr	Ser	Ser	Gly	Gly	Gln	Ala	Ala	Ser
1655						1660					1665			
Ser	Gln	Glu	Gln	Ala	Arg	Ser	Ser	Pro	Gly	Glu	Arg	His	Gly	Ser
1670						1675					1680			
Arg	His	Gln	Gln	Ser	Ala	Asp	Ser	Ser	Thr	Asp	Ser	Gly	Thr	Gly
1685						1690					1695			
Arg	Arg	Gln	Asp	Ser	Ser	Val	Val	Gly	Asp	Ser	Gly	Asn	Arg	Gly
1700						1705					1710			
Ser	Ser	Gly	Ser	Gln	Ala	Ser	Asp	Ser	Glu	Gly	His	Ser	Glu	Glu
1715						1720					1725			
Ser	Asp	Thr	Gln	Ser	Val	Ser	Ala	His	Gly	Gln	Ala	Gly	Pro	His
1730						1735					1740			
Gln	Gln	Ser	His	Gln	Glu	Ser	Thr	Arg	Gly	Gln	Ser	Gly	Glu	Arg
1745						1750					1755			
Ser	Gly	Arg	Ser	Gly	Ser	Phe	Leu	Tyr	Gln	Val	Ser	Thr	His	Glu
1760						1765					1770			

Gln	Ser	Glu	Ser	Ala	His	Gly	Arg	Thr	Gly	Pro	Ser	Thr	Gly	Gly
1775						1780					1785			
Arg	Gln	Arg	Ser	Arg	His	Glu	Gln	Ala	Arg	Asp	Ser	Ser	Arg	His
1790						1795					1800			
Ser	Ala	Ser	Gln	Glu	Gly	Gln	Asp	Thr	Ile	Arg	Gly	His	Pro	Gly
1805						1810					1815			
Ser	Ser	Arg	Gly	Gly	Arg	Gln	Gly	Ser	His	Tyr	Glu	Gln	Ser	Val
1820						1825					1830			
Asp	Ser	Ser	Gly	His	Ser	Gly	Ser	His	His	Ser	His	Thr	Thr	Ser
1835						1840					1845			
Gln	Glu	Arg	Ser	Asp	Val	Ser	Arg	Gly	Gln	Ser	Gly	Ser	Arg	Ser
1850						1855					1860			
Val	Ser	Arg	Gln	Thr	Arg	Asn	Glu	Lys	Gln	Ser	Gly	Asp	Gly	Ser
1865						1870					1875			
Arg	His	Ser	Gly	Ser	Arg	His	His	Glu	Ala	Ser	Ser	Arg	Ala	Asp
1880						1885					1890			
Ser	Ser	Arg	His	Ser	Gln	Val	Gly	Gln	Gly	Gln	Ser	Ser	Gly	Pro
1895						1900					1905			
Arg	Thr	Ser	Arg	Asn	Gln	Gly	Ser	Ser	Val	Ser	Gln	Asp	Ser	Asp
1910						1915					1920			
Ser	Gln	Gly	His	Ser	Glu	Asp	Ser	Glu	Arg	Trp	Ser	Gly	Ser	Ala
1925						1930					1935			
Ser	Arg	Asn	His	Leu	Gly	Ser	Ala	Trp	Glu	Gln	Ser	Arg	Asp	Gly
1940						1945					1950			
Ser	Arg	His	Pro	Gly	Ser	His	His	Glu	Asp	Arg	Ala	Gly	His	Gly
1955						1960					1965			
His	Ser	Ala	Asp	Ser	Ser	Arg	Gln	Ser	Gly	Thr	Arg	His	Thr	Glu
1970						1975					1980			
Ser	Ser	Ser	Arg	Gly	Gln	Ala	Ala	Ser	Ser	His	Glu	Gln	Ala	Arg
1985						1990					1995			
Ser	Ser	Ala	Gly	Glu	Arg	His	Gly	Ser	His	His	Gln	Leu	Gln	Ser
2000						2005					2010			
Ala	Asp	Ser	Ser	Arg	His	Ser	Gly	Ile	Gly	His	Gly	Gln	Ala	Ser
2015						2020					2025			
Ser	Ala	Val	Arg	Asp	Ser	Gly	His	Arg	Gly	Tyr	Ser	Gly	Ser	Gln
2030						2035					2040			

Ala	Ser	Asp	Ser	Glu	Gly	His	Ser	Glu	Asp	Ser	Asp	Thr	Gln	Ser
2045						2050					2055			
Val	Ser	Ala	Gln	Gly	Lys	Ala	Gly	Pro	His	Gln	Gln	Ser	His	Lys
2060						2065					2070			
Glu	Ser	Ala	Arg	Gly	Gln	Ser	Gly	Glu	Ser	Ser	Gly	Arg	Ser	Gly
2075						2080					2085			
Ser	Phe	Leu	Tyr	Gln	Val	Ser	Thr	His	Glu	Gln	Ser	Glu	Ser	Thr
2090						2095					2100			
His	Gly	Gln	Ser	Ala	Pro	Ser	Thr	Gly	Gly	Arg	Gln	Gly	Ser	His
2105						2110					2115			
Tyr	Asp	Gln	Ala	Gln	Asp	Ser	Ser	Arg	His	Ser	Ala	Ser	Gln	Glu
2120						2125					2130			
Gly	Gln	Asp	Thr	Ile	Arg	Gly	His	Pro	Gly	Pro	Ser	Arg	Gly	Gly
2135						2140					2145			
Arg	Gln	Gly	Ser	His	Gln	Glu	Gln	Ser	Val	Asp	Arg	Ser	Gly	His
2150						2155					2160			
Ser	Gly	Ser	His	His	Ser	His	Thr	Thr	Ser	Gln	Gly	Arg	Ser	Asp
2165						2170					2175			
Ala	Ser	Arg	Gly	Gln	Ser	Gly	Ser	Arg	Ser	Ala	Ser	Arg	Lys	Thr
2180						2185					2190			
Tyr	Asp	Lys	Glu	Gln	Ser	Gly	Asp	Gly	Ser	Arg	His	Ser	Gly	Ser
2195						2200					2205			
His	His	His	Glu	Ala	Ser	Ser	Trp	Ala	Asp	Ser	Ser	Arg	His	Ser
2210						2215					2220			
Leu	Val	Gly	Gln	Gly	Gln	Ser	Ser	Gly	Pro	Arg	Thr	Ser	Arg	Pro
2225						2230					2235			
Arg	Gly	Ser	Ser	Val	Ser	Gln	Asp	Ser	Asp	Ser	Glu	Gly	His	Ser
2240						2245					2250			
Glu	Asp	Ser	Glu	Arg	Arg	Ser	Gly	Ser	Ala	Ser	Arg	Asn	His	His
2255						2260					2265			
Gly	Ser	Ala	Gln	Glu	Gln	Ser	Arg	Asp	Gly	Ser	Arg	His	Pro	Arg
2270						2275					2280			
Ser	His	His	Glu	Asp	Arg	Ala	Gly	His	Gly	His	Ser	Ala	Glu	Ser
2285						2290					2295			
Ser	Arg	Gln	Ser	Gly	Thr	His	His	Ala	Glu	Asn	Ser	Ser	Gly	Gly
2300						2305					2310			

Gln Ala	Ala Ser Ser His	Glu	Gln Ala Arg Ser Ser	Ala Gly Glu
2315		2320		2325
Arg His	Gly Ser His His	Gln	Gln Ser Ala Asp Ser	Ser Arg His
2330		2335		2340
Ser Gly	Ile Gly His Gly	Gln	Ala Ser Ser Ala Val	Arg Asp Ser
2345		2350		2355
Gly His	Arg Gly Ser Ser	Gly	Ser Gln Ala Ser Asp	Ser Glu Gly
2360		2365		2370
His Ser	Glu Asp Ser Asp	Thr	Gln Ser Val Ser Ala	His Gly Gln
2375		2380		2385
Ala Gly	Pro His Gln Gln	Ser	His Gln Glu Ser Thr	Arg Gly Arg
2390		2395		2400
Ser Ala	Gly Arg Ser Gly	Arg	Ser Gly Ser Phe Leu	Tyr Gln Val
2405		2410		2415
Ser Thr	His Glu Gln Ser	Glu	Ser Ala His Gly Arg	Thr Gly Thr
2420		2425		2430
Ser Thr	Gly Gly Arg Gln	Gly	Ser His His Lys Gln	Ala Arg Asp
2435		2440		2445
Ser Ser	Arg His Ser Thr	Ser	Gln Glu Gly Gln Asp	Thr Ile His
2450		2455		2460
Gly His	Pro Gly Ser Ser	Ser	Gly Gly Arg Gln Gly	Ser His Tyr
2465		2470		2475
Glu Gln	Leu Val Asp Arg	Ser	Gly His Ser Gly Ser	His His Ser
2480		2485		2490
His Thr	Thr Ser Gln Gly	Arg	Ser Asp Ala Ser His	Gly His Ser
2495		2500		2505
Gly Ser	Arg Ser Ala Ser	Arg	Gln Thr Arg Asn Asp	Glu Gln Ser
2510		2515		2520
Gly Asp	Gly Ser Arg His	Ser	Gly Ser Arg His His	Glu Ala Ser
2525		2530		2535
Ser Arg	Ala Asp Ser Ser	Gly	His Ser Gln Val Gly	Gln Gly Gln
2540		2545		2550
Ser Glu	Gly Pro Arg Thr	Ser	Arg Asn Trp Gly Ser	Ser Phe Ser
2555		2560		2565
Gln Asp	Ser Asp Ser Gln	Gly	His Ser Glu Asp Ser	Glu Arg Trp
2570		2575		2580

Ser	Gly	Ser	Ala	Ser	Arg	Asn	His	His	Gly	Ser	Ala	Gln	Glu	Gln
2585						2590					2595			
Leu	Arg	Asp	Gly	Ser	Arg	His	Pro	Arg	Ser	His	Gln	Glu	Asp	Arg
2600						2605					2610			
Ala	Gly	His	Gly	His	Ser	Ala	Asp	Ser	Ser	Arg	Gln	Ser	Gly	Thr
2615						2620					2625			
Arg	His	Thr	Gln	Thr	Ser	Ser	Gly	Gly	Gln	Ala	Ala	Ser	Ser	His
2630						2635					2640			
Glu	Gln	Ala	Arg	Ser	Ser	Ala	Gly	Glu	Arg	His	Gly	Ser	His	His
2645						2650					2655			
Gln	Gln	Ser	Ala	Asp	Ser	Ser	Arg	His	Ser	Gly	Ile	Gly	His	Gly
2660						2665					2670			
Gln	Ala	Ser	Ser	Ala	Val	Arg	Asp	Ser	Gly	His	Arg	Gly	Tyr	Ser
2675						2680					2685			
Gly	Ser	Gln	Ala	Ser	Asp	Asn	Glu	Gly	His	Ser	Glu	Asp	Ser	Asp
2690						2695					2700			
Thr	Gln	Ser	Val	Ser	Ala	His	Gly	Gln	Ala	Gly	Ser	His	Gln	Gln
2705						2710					2715			
Ser	His	Gln	Glu	Ser	Ala	Arg	Gly	Arg	Ser	Gly	Glu	Thr	Ser	Gly
2720						2725					2730			
His	Ser	Gly	Ser	Phe	Leu	Tyr	Gln	Val	Ser	Thr	His	Glu	Gln	Ser
2735						2740					2745			
Glu	Ser	Ser	His	Gly	Trp	Thr	Gly	Pro	Ser	Thr	Arg	Gly	Arg	Gln
2750						2755					2760			
Gly	Ser	Arg	His	Glu	Gln	Ala	Gln	Asp	Ser	Ser	Arg	His	Ser	Ala
2765						2770					2775			
Ser	Gln	Asp	Gly	Gln	Asp	Thr	Ile	Arg	Gly	His	Pro	Gly	Ser	Ser
2780						2785					2790			
Arg	Gly	Gly	Arg	Gln	Gly	Tyr	His	His	Glu	His	Ser	Val	Asp	Ser
2795						2800					2805			
Ser	Gly	His	Ser	Gly	Ser	His	His	Ser	His	Thr	Thr	Ser	Gln	Gly
2810						2815					2820			
Arg	Ser	Asp	Ala	Ser	Arg	Gly	Gln	Ser	Gly	Ser	Arg	Ser	Ala	Ser
2825						2830					2835			
Arg	Thr	Thr	Arg	Asn	Glu	Glu	Gln	Ser	Gly	Asp	Gly	Ser	Arg	His
2840						2845					2850			

Ser Gly 2855	Ser Arg His His 2860	Glu Ala Ser Thr His 2865	Ala Asp Ile Ser
Arg His 2870	Ser Gln Ala Val 2875	Gly Gln Ser Glu Gly 2880	Ser Arg Arg
Ser Arg 2885	Arg Gln Gly Ser 2890	Val Ser Gln Asp Ser 2895	Asp Ser Glu
Gly His 2900	Ser Glu Asp Ser 2905	Arg Trp Ser Gly Ser 2910	Ala Ser Arg
Asn His 2915	His Gly Ser Ala 2920	Glu Gln Leu Arg Asp 2925	Gly Ser Arg
His Pro 2930	Arg Ser His Gln 2935	Asp Arg Ala Gly His 2940	Gly His Ser
Ala Asp 2945	Ser Ser Arg Gln 2950	Gly Thr Arg His Thr 2955	Gln Thr Ser
Ser Gly 2960	Gly Gln Ala Ala 2965	Ser His Glu Gln Ala 2970	Arg Ser Ser
Ala Gly 2975	Glu Arg His Gly 2980	Ser His His Gln Gln 2985	Ser Ala Asp Ser
Ser Arg 2990	His Ser Gly Ile 2995	Gly His Gly Gln Ala 3000	Ser Ala Val
Arg Asp 3005	Ser Gly His Arg 3010	Tyr Ser Gly Ser Gln 3015	Ala Ser Asp
Asn Glu 3020	Gly His Ser Glu 3025	Asp Ser Asp Thr Gln 3030	Val Ser Ala
His Gly 3035	Gln Ala Gly Ser 3040	His Gln Gln Ser His 3045	Gln Glu Ser Ala
Arg Gly 3050	Arg Ser Gly Glu 3055	Thr Ser Gly His Ser 3060	Ser Phe Leu
Tyr Gln 3065	Val Ser Thr His 3070	Glu Gln Ser Glu Ser 3075	Ser His Gly Trp
Thr Gly 3080	Pro Ser Thr Arg 3085	Gly Arg Gln Gly Ser 3090	Arg His Glu Gln
Ala Gln 3095	Asp Ser Ser Arg 3100	His Ser Ala Ser Gln 3105	Tyr Gly Gln Asp
Thr Ile 3110	Arg Gly His Pro 3115	Gly Ser Ser Arg Gly 3120	Gly Arg Gln Gly



Tyr	His	His	Glu	His	Ser	Val	Asp	Ser	Ser	Gly	His	Ser	Gly	Ser
3125						3130					3135			
His	His	Ser	His	Thr	Thr	Ser	Gln	Gly	Arg	Ser	Asp	Ala	Ser	Arg
3140						3145					3150			
Gly	Gln	Ser	Gly	Ser	Arg	Ser	Ala	Ser	Arg	Thr	Thr	Arg	Asn	Glu
3155						3160					3165			
Glu	Gln	Ser	Gly	Asp	Ser	Ser	Arg	His	Ser	Val	Ser	Arg	His	His
3170						3175					3180			
Glu	Ala	Ser	Thr	His	Ala	Asp	Ile	Ser	Arg	His	Ser	Gln	Ala	Val
3185						3190					3195			
Gln	Gly	Gln	Ser	Glu	Gly	Ser	Arg	Arg	Ser	Arg	Arg	Gln	Gly	Ser
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3245						3250					3255			
Glu	Asp	Arg	Ala	Gly	His	Gly	His	Ser	Ala	Asp	Arg	Ser	Arg	Gln
3260						3265					3270			
Ser	Gly	Thr	Arg	His	Ala	Glu	Thr	Ser	Ser	Gly	Gly	Gln	Ala	Ala
3275						3280					3285			
Ser	Ser	His	Glu	Gln	Ala	Arg	Ser	Ser	Pro	Gly	Glu	Arg	His	Gly
3290						3295					3300			
Ser	Arg	His	Gln	Gln	Ser	Ala	Asp	Ser	Ser	Arg	His	Ser	Gly	Ile
3305						3310					3315			
Pro	Arg	Gly	Gln	Ala	Ser	Ser	Ala	Val	Arg	Asp	Ser	Arg	His	Trp
3320						3325					3330			
Gly	Ser	Ser	Gly	Ser	Gln	Ala	Ser	Asp	Ser	Glu	Gly	His	Ser	Glu
3335						3340					3345			
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Arg	Ser	Gly	Arg	Ser	Gly	Ser	Phe	Leu	Tyr	Gln	Val	Ser	Thr	His
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His	Ser	Ala	Ser	Gln	Glu	Gly	Gln	Asp	Thr	Ile	Arg	Gly	His	Pro
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Ser	Ala	Ser	Arg	Gln	Thr	Arg	Asn	Asp	Glu	Gln	Ser	Gly	Asp	Gly
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Asp	Ser	Ser	Arg	His	Ser	Gln	Ser	Gly	Gln	Gly	Gln	Ser	Ala	Gly
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Asp	Ser	Gln	Gly	His	Ser	Glu	Asp	Ser	Glu	Arg	Trp	Ser	Gly	Ser
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Ala	Ser	Arg	Asn	His	Arg	Gly	Ser	Ala	Gln	Glu	Gln	Ser	Arg	Asp
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Ser Pro His Ser Ser Ser Ser Tyr His Tyr Gln Ser Glu Gly Thr  
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Glu Arg Gln Lys Gly Gln Ser Gly Leu Val Trp Arg His Gly Ser  
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Tyr Gly Ser Ala Asp Tyr Asp Tyr Gly Glu Ser Gly Phe Arg His  
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Ser Gln His Gly Ser Val Ser Tyr Asn Ser Asn Pro Val Val Phe  
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Lys Glu Arg Ser Asp Ile Cys Lys Ala Ser Ala Phe Gly Lys Asp  
4010 4015 4020

His Pro Arg Tyr Tyr Ala Thr Tyr Ile Asn Lys Asp Pro Gly Leu  
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Ser Gln Arg Tyr Tyr Tyr Tyr Glu  
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Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys Met Lys  
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aca ggc acg tct ggc agg cag cgc gtg cag gag cag gtg atg atg acc 144  
Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met Met Thr  
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Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
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Gly Thr Thr Ser Arg Ser Ser Tyr Tyr Ser Lys Phe Gln Ala Gly Asn  
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Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg Glu Pro	
100 105 110	
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His Tyr Pro Arg Gly Ser Cys Asn Thr Thr Gly Ala Gly Ser Asp Ile	
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Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp Leu Tyr	
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Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Ser Lys Gly	
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Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys Ser Gly	
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Gln Lys Ala Ile Lys Lys Cys Pro Val Arg Pro Pro Ser Cys Ala Ser	
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Lys Gln Asp Pro Val Tyr Ile Pro Pro Ile Ser Cys Asn Lys Asp Leu	
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Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu Ser Ser	
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Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln His Thr	
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Cys Phe Gln Asp Glu Ser Ala Lys Gln Gln Val Tyr Gln Leu Gly Gly	
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atc tgc aag ctg gtg gac ctc ctc cgc agc ccc aac cag aac gtc cag	912
Ile Cys Lys Leu Val Asp Leu Leu Arg Ser Pro Asn Gln Asn Val Gln	
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cag gcc gcg gca ggg gcc ctg cgc aac ctg gtg ttc agg agc acc acc	960
Gln Ala Ala Ala Gly Ala Leu Arg Asn Leu Val Phe Arg Ser Thr Thr	
305 310 315 320	
aac aag ctg gag acc cgg agg cag aat ggg atc cgc gag gca gtc agc	1008
Asn Lys Leu Glu Thr Arg Arg Gln Asn Gly Ile Arg Glu Ala Val Ser	
325 330 335	
ctc ctg agg aga acc ggg aac gcc gag atc cag aag cag ctg act ggg	1056
Leu Leu Arg Arg Thr Gly Asn Ala Glu Ile Gln Lys Gln Leu Thr Gly	
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ctg ctc tgg aac ctg tct tcc act gac gag ctg aag gag gaa ctc att	1104
Leu Leu Trp Asn Leu Ser Ser Thr Asp Glu Leu Lys Glu Glu Leu Ile	
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Ala Asp Ala Leu Pro Val Leu Ala Asp Arg Val Ile Ile Pro Phe Ser	
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aag tct gtg gaa aac tgc atg tgt gtt ctg cac aac ctc tcc tac cgc Lys Ser Val Glu Asn Cys Met Cys Val Leu His Asn Leu Ser Tyr Arg 450 455 460	1392
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atg tcc agt ggc atg agc cag ttg att ggg ctg aag gaa aag ggc ctg Met Ser Ser Gly Met Ser Gln Leu Ile Gly Leu Lys Glu Lys Gly Leu 565 570 575	1728
cca caa att gcc cgc ctc ctg caa tct ggc aac tct gat gtg gtg cgg Pro Gln Ile Ala Arg Leu Leu Gln Ser Gly Asn Ser Asp Val Val Arg 580 585 590	1776
tcc gga gcc tcc ctc ctg agc aac atg tcc cgc cac cct ctg ctg cac Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg His Pro Leu Leu His 595 600 605	1824
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tgc tac act gtg agg aac ctg atg gcc tcg cag cca caa ctg gcc aag Cys Tyr Thr Val Arg Asn Leu Met Ala Ser Gln Pro Gln Leu Ala Lys 645 650 655	1968
cag tac ttc tcc agc agc atg ctc aac aac atc atc aac ctg tgc cga Gln Tyr Phe Ser Ser Ser Met Leu Asn Asn Ile Ile Asn Leu Cys Arg 660 665 670	2016

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Ser	Ser	Ala	Ser	Pro	Lys	Ala	Ala	Glu	Ala	Ala	Arg	Leu	Leu	Leu	Ser	
		675					680					685				

gac	atg	tgg	tcc	agc	aag	gaa	ctg	cag	ggg	gtc	ctc	aga	cag	caa	ggg	2112
Asp	Met	Trp	Ser	Ser	Lys	Glu	Leu	Gln	Gly	Val	Leu	Arg	Gln	Gln	Gly	
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ttc	gat	agg	aac	atg	ctg	gga	acc	tta	gct	ggg	gcc	aac	agc	ctc	agg	2160
Phe	Asp	Arg	Asn	Met	Leu	Gly	Thr	Leu	Ala	Gly	Ala	Asn	Ser	Leu	Arg	
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Asn	Phe	Thr	Ser	Arg	Phe											
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Thr	Gly	Thr	Ser	Gly	Arg	Gln	Arg	Val	Gln	Glu	Gln	Val	Met	Met	Thr
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Val	Lys	Arg	Gln	Lys	Ser	Lys	Ser	Ser	Gln	Ser	Ser	Thr	Leu	Ser	His
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Ser	Asn	Arg	Gly	Ser	Met	Tyr	Asp	Gly	Leu	Ala	Asp	Asn	Tyr	Asn	Tyr
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Gly	Thr	Thr	Ser	Arg	Ser	Ser	Tyr	Tyr	Ser	Lys	Phe	Gln	Ala	Gly	Asn
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Gly	Ser	Trp	Gly	Tyr	Pro	Ile	Tyr	Asn	Gly	Thr	Leu	Lys	Arg	Glu	Pro
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Asp	Asn	Arg	Arg	Phe	Ser	Ser	Tyr	Ser	Gln	Met	Glu	Asn	Trp	Ser	Arg
		115					120					125			

His	Tyr	Pro	Arg	Gly	Ser	Cys	Asn	Thr	Thr	Gly	Ala	Gly	Ser	Asp	Ile
	130					135					140				

Cys	Phe	Met	Gln	Lys	Ile	Lys	Ala	Ser	Arg	Ser	Glu	Pro	Asp	Leu	Tyr
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Cys	Asp	Pro	Arg	Gly	Thr	Leu	Arg	Lys	Gly	Thr	Leu	Gly	Ser	Lys	Gly
				165					170					175	

Gln	Lys	Thr	Thr	Gln	Asn	Arg	Tyr	Ser	Phe	Tyr	Ser	Thr	Cys	Ser	Gly
			180					185					190		

Gln	Lys	Ala	Ile	Lys	Lys	Cys	Pro	Val	Arg	Pro	Pro	Ser	Cys	Ala	Ser		
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Lys	Gln	Asp	Pro	Val	Tyr	Ile	Pro	Pro	Ile	Ser	Cys	Asn	Lys	Asp	Leu		
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Glu	Cys	Ser	Gly	Leu	Thr	Ile	Pro	Lys	Ala	Val	Gln	Tyr	Leu	Ser	Ser		
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Gln	Asp	Glu	Lys	Tyr	Gln	Ala	Ile	Gly	Ala	Tyr	Tyr	Ile	Gln	His	Thr		
			260					265					270				
Cys	Phe	Gln	Asp	Glu	Ser	Ala	Lys	Gln	Gln	Val	Tyr	Gln	Leu	Gly	Gly		
		275					280					285					
Ile	Cys	Lys	Leu	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn	Val	Gln		
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Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser	Thr	Thr		
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Ala	Asp	Ala	Leu	Pro	Val	Leu	Ala	Asp	Arg	Val	Ile	Ile	Pro	Phe	Ser		
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Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Ser	Gly	Leu	Ile	Asp	Ser		
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Leu	Met	Ala	Tyr	Val	Gln	Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys	Asp	Asp		
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Lys	Ser	Val	Glu	Asn	Cys	Met	Cys	Val	Leu	His	Asn	Leu	Ser	Tyr	Arg		
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Glu	Thr	Asn	Pro	Lys	Gly	Ser	Gly	Trp	Leu	Tyr	His	Ser	Asp	Ala	Ile	515	520	525	
Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	Lys	Asp	Ala	Thr	Leu	530	535	540	
Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr	Ala	Ser	Lys	Gly	Leu	545	550	555	560
Met	Ser	Ser	Gly	Met	Ser	Gln	Leu	Ile	Gly	Leu	Lys	Glu	Lys	Gly	Leu	565	570	575	
Pro	Gln	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Gly	Asn	Ser	Asp	Val	Val	Arg	580	585	590	
Ser	Gly	Ala	Ser	Leu	Leu	Ser	Asn	Met	Ser	Arg	His	Pro	Leu	Leu	His	595	600	605	
Arg	Val	Met	Gly	Asn	Gln	Val	Phe	Pro	Glu	Val	Thr	Arg	Leu	Leu	Thr	610	615	620	
Ser	His	Thr	Gly	Asn	Thr	Ser	Asn	Ser	Glu	Asp	Ile	Leu	Ser	Ser	Ala	625	630	635	640
Cys	Tyr	Thr	Val	Arg	Asn	Leu	Met	Ala	Ser	Gln	Pro	Gln	Leu	Ala	Lys	645	650	655	
Gln	Tyr	Phe	Ser	Ser	Ser	Met	Leu	Asn	Asn	Ile	Ile	Asn	Leu	Cys	Arg	660	665	670	
Ser	Ser	Ala	Ser	Pro	Lys	Ala	Ala	Glu	Ala	Ala	Arg	Leu	Leu	Leu	Ser	675	680	685	
Asp	Met	Trp	Ser	Ser	Lys	Glu	Leu	Gln	Gly	Val	Leu	Arg	Gln	Gln	Gly	690	695	700	
Phe	Asp	Arg	Asn	Met	Leu	Gly	Thr	Leu	Ala	Gly	Ala	Asn	Ser	Leu	Arg	705	710	715	720
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Asp	Gln	Asp	Asn	Ser	Thr	Leu	Ala	Leu	Pro	Ser	Asp	Gln	Lys	Met	Lys	
			20					25					30			

aca	ggc	acg	tct	ggc	agg	cag	cgc	gtg	cag	gag	cag	gtg	atg	atg	acc	144
Thr	Gly	Thr	Ser	Gly	Arg	Gln	Arg	Val	Gln	Glu	Gln	Val	Met	Met	Thr	
			35				40					45				

gtc	aag	cgg	cag	aag	tcc	aag	tct	tcc	cag	tcg	tcc	acc	ctg	agc	cac	192
Val	Lys	Arg	Gln	Lys	Ser	Lys	Ser	Ser	Gln	Ser	Ser	Thr	Leu	Ser	His	
	50					55					60					

tcc	aat	cga	ggc	tcc	atg	tat	gat	ggc	ttg	gct	gac	aat	tac	aac	tat	240
Ser	Asn	Arg	Gly	Ser	Met	Tyr	Asp	Gly	Leu	Ala	Asp	Asn	Tyr	Asn	Tyr	
65					70				75						80	

ggg	acc	acc	agc	agg	agc	agc	tac	tac	tcc	aag	ttc	cag	gca	ggg	aat	288
Gly	Thr	Thr	Ser	Arg	Ser	Ser	Tyr	Tyr	Ser	Lys	Phe	Gln	Ala	Gly	Asn	
				85					90					95		

ggc	tca	tgg	gga	tat	ccg	atc	tac	aat	gga	acc	ctc	aag	cgg	gag	cct	336
Gly	Ser	Trp	Gly	Tyr	Pro	Ile	Tyr	Asn	Gly	Thr	Leu	Lys	Arg	Glu	Pro	
			100					105					110			

gac	aac	agg	cgc	ttc	agc	tcc	tac	agc	cag	atg	gag	aac	tgg	agc	cgg	384
Asp	Asn	Arg	Arg	Phe	Ser	Ser	Tyr	Ser	Gln	Met	Glu	Asn	Trp	Ser	Arg	
			115				120					125				

cac	tac	ccc	cgg	ggc	agc	tgt	aac	acc	acc	ggc	gca	ggc	agc	gac	atc	432
His	Tyr	Pro	Arg	Gly	Ser	Cys	Asn	Thr	Thr	Gly	Ala	Gly	Ser	Asp	Ile	
	130					135					140					

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Cys	Phe	Met	Gln	Lys	Ile	Lys	Ala	Ser	Arg	Ser	Glu	Pro	Asp	Leu	Tyr	
145					150					155					160	

tgt	gac	cca	cgg	ggc	acc	ctg	cgc	aag	ggc	acg	ctg	ggc	agc	aag	ggc	528
Cys	Asp	Pro	Arg	Gly	Thr	Leu	Arg	Lys	Gly	Thr	Leu	Gly	Ser	Lys	Gly	
				165					170					175		

cag	aag	acc	acc	cag	aac	cgc	tac	agc	ttt	tac	agc	acc	tgc	agt	ggt	576
Gln	Lys	Thr	Thr	Gln	Asn	Arg	Tyr	Ser	Phe	Tyr	Ser	Thr	Cys	Ser	Gly	
			180				185						190			

cag	aag	gcc	ata	aag	aag	tgc	cct	gtg	cgc	ccg	ccc	tct	tgt	gcc	tcc	624
Gln	Lys	Ala	Ile	Lys	Lys	Cys	Pro	Val	Arg	Pro	Pro	Ser	Cys	Ala	Ser	
			195				200					205				

aag	cag	gac	cct	gtg	tat	atc	ccg	ccc	atc	tcc	tgc	aac	aag	gac	ctg	672
Lys	Gln	Asp	Pro	Val	Tyr	Ile	Pro	Pro	Ile	Ser	Cys	Asn	Lys	Asp	Leu	
	210					215					220					

tcc	ttt	ggc	cac	tct	agg	gcc	agc	tcc	aag	atc	tgc	agt	gag	gac	atc	720
Ser	Phe	Gly	His	Ser	Arg	Ala	Ser	Ser	Lys	Ile	Cys	Ser	Glu	Asp	Ile	
225					230					235					240	

gag	tgc	agt	ggg	ctg	acc	atc	ccc	aag	gct	gtg	cag	tac	ctg	agc	tcc	768
Glu	Cys	Ser	Gly	Leu	Thr	Ile	Pro	Lys	Ala	Val	Gln	Tyr	Leu	Ser	Ser	
				245					250					255		

cag	gat	gag	aag	tac	cag	gcc	att	ggg	gcc	tat	tac	atc	cag	cat	acc	816
Gln	Asp	Glu	Lys	Tyr	Gln	Ala	Ile	Gly	Ala	Tyr	Tyr	Ile	Gln	His	Thr	
			260					265					270			

tgc	ttc	cag	gat	gaa	tct	gcc	aag	caa	cag	gtc	tat	cag	ctg	gga	ggc	864
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Cys	Phe	Gln	Asp	Glu	Ser	Ala	Lys	Gln	Gln	Val	Tyr	Gln	Leu	Gly	Gly	
		275					280					285				
atc	tgc	aag	ctg	gtg	gac	ctc	ctc	cgc	agc	ccc	aac	cag	aac	gtc	cag	912
Ile	Cys	Lys	Leu	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn	Val	Gln	
	290					295					300					
cag	gcc	gcg	gca	ggg	gcc	ctg	cgc	aac	ctg	gtg	ttc	agg	agc	acc	acc	960
Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser	Thr	Thr	
305					310					315					320	
aac	aag	ctg	gag	acc	cgg	agg	cag	aat	ggg	atc	cgc	gag	gca	gtc	agc	1008
Asn	Lys	Leu	Glu	Thr	Arg	Arg	Gln	Asn	Gly	Ile	Arg	Glu	Ala	Val	Ser	
				325					330					335		
ctc	ctg	agg	aga	acc	ggg	aac	gcc	gag	atc	cag	aag	cag	ctg	act	ggg	1056
Leu	Leu	Arg	Arg	Thr	Gly	Asn	Ala	Glu	Ile	Gln	Lys	Gln	Leu	Thr	Gly	
			340					345						350		
ctg	ctc	tgg	aac	ctg	tct	tcc	act	gac	gag	ctg	aag	gag	gaa	ctc	att	1104
Leu	Leu	Trp	Asn	Leu	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu	Leu	Ile	
		355					360					365				
gcc	gac	gcc	ctg	cct	gtt	ctg	gcc	gac	cgc	gtc	atc	att	ccc	ttc	tct	1152
Ala	Asp	Ala	Leu	Pro	Val	Leu	Ala	Asp	Arg	Val	Ile	Ile	Pro	Phe	Ser	
	370					375					380					
ggc	tgg	tgc	gat	ggc	aat	agc	aac	atg	tcc	cgg	gaa	gtg	gtg	gac	cct	1200
Gly	Trp	Cys	Asp	Gly	Asn	Ser	Asn	Met	Ser	Arg	Glu	Val	Val	Asp	Pro	
385					390					395					400	
gag	gtc	ttc	ttc	aat	gcc	aca	ggc	tgc	ttg	aga	aag	aga	ctg	ggc	atg	1248
Glu	Val	Phe	Phe	Asn	Ala	Thr	Gly	Cys	Leu	Arg	Lys	Arg	Leu	Gly	Met	
				405				410						415		
cgg	gag	ctt	ctg	gct	ctt	gtt	ccg	caa	agg	gcc	act	agt	agc	agg	gtg	1296
Arg	Glu	Leu	Leu	Ala	Leu	Val	Pro	Gln	Arg	Ala	Thr	Ser	Ser	Arg	Val	
			420					425					430			
aac	ctg	agc	tcg	gcc	gat	gca	ggc	cgc	cag	acc	atg	cgt	aac	tac	tca	1344
Asn	Leu	Ser	Ser	Ala	Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Ser	
			435				440					445				
ggg	ctc	att	gat	tcc	ctc	atg	gcc	tat	gtc	cag	aac	tgt	gta	gcg	gcc	1392
Gly	Leu	Ile	Asp	Ser	Leu	Met	Ala	Tyr	Val	Gln	Asn	Cys	Val	Ala	Ala	
	450					455					460					
agc	cgc	tgt	gac	gac	aag	tct	gtg	gaa	aac	tgc	atg	tgt	gtt	ctg	cac	1440
Ser	Arg	Cys	Asp	Asp	Lys	Ser	Val	Glu	Asn	Cys	Met	Cys	Val	Leu	His	
465					470					475					480	
aac	ctc	tcc	tac	cgc	ctg	gac	gcc	gag	gtg	ccc	acc	cgc	tac	cgc	cag	1488
Asn	Leu	Ser	Tyr	Arg	Leu	Asp	Ala	Glu	Val	Pro	Thr	Arg	Tyr	Arg	Gln	
				485					490					495		
ctg	gag	tat	aac	gcc	cgc	aac	gcc	tac	acc	gag	aag	tcc	tcc	act	ggc	1536
Leu	Glu	Tyr	Asn	Ala	Arg	Asn	Ala	Tyr	Thr	Glu	Lys	Ser	Ser	Thr	Gly	
			500					505						510		
tgc	ttc	agc	aac	aag	agc	gac	aag	atg	atg	aac	aac	aac	tat	gac	tgc	1584
Cys	Phe	Ser	Asn	Lys	Ser	Asp	Lys	Met	Met	Asn	Asn	Asn	Tyr	Asp	Cys	
		515					520					525				
ccc	ctg	cct	gag	gaa	gag	acc	aac	ccc	aag	ggc	agc	ggc	tgg	ttg	tac	1632
Pro	Leu	Pro	Glu	Glu	Glu	Thr	Asn	Pro	Lys	Gly	Ser	Gly	Trp	Leu	Tyr	
		530				535						540				
cat	tca	gat	gcc	atc	cgc	acc	tac	ctg	aac	ctc	atg	ggc	aag	agc	aag	1680
His	Ser	Asp	Ala	Ile	Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	
					550					555					560	
aaa	gat	gct	acc	ctg	gag	gcc	tgt	gct	ggt	gcc	ctg	cag	aac	ctg	aca	1728

Lys	Asp	Ala	Thr	Leu	Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr		
				565					570					575			
gcc	agc	aag	ggg	ctg	atg	tcc	agt	ggc	atg	agc	cag	ttg	att	ggg	ctg		1776
Ala	Ser	Lys	Gly	Leu	Met	Ser	Ser	Gly	Met	Ser	Gln	Leu	Ile	Gly	Leu		
			580					585					590				
aag	gaa	aag	ggc	ctg	cca	caa	att	gcc	cgc	ctc	ctg	caa	tct	ggc	aac		1824
Lys	Glu	Lys	Gly	Leu	Pro	Gln	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Gly	Asn		
		595					600					605					
tct	gat	gtg	gtg	cgg	tcc	gga	gcc	tcc	ctc	ctg	agc	aac	atg	tcc	cgc		1872
Ser	Asp	Val	Val	Arg	Ser	Gly	Ala	Ser	Leu	Leu	Ser	Asn	Met	Ser	Arg		
	610					615					620						
cac	cct	ctg	ctg	cac	aga	gtg	atg	ggg	aac	cag	gtg	ttc	ccg	gag	gtg		1920
His	Pro	Leu	Leu	His	Arg	Val	Met	Gly	Asn	Gln	Val	Phe	Pro	Glu	Val		
	625				630					635					640		
acc	agg	ctc	ctc	acc	agc	cac	act	ggc	aat	acc	agc	aac	tcc	gaa	gac		1968
Thr	Arg	Leu	Leu	Thr	Ser	His	Thr	Gly	Asn	Thr	Ser	Asn	Ser	Glu	Asp		
				645					650					655			
atc	ttg	tcc	tcg	gcc	tgc	tac	act	gtg	agg	aac	ctg	atg	gcc	tcg	cag		2016
Ile	Leu	Ser	Ser	Ala	Cys	Tyr	Thr	Val	Arg	Asn	Leu	Met	Ala	Ser	Gln		
			660					665					670				
cca	caa	ctg	gcc	aag	cag	tac	ttc	tcc	agc	agc	atg	ctc	aac	aac	atc		2064
Pro	Gln	Leu	Ala	Lys	Gln	Tyr	Phe	Ser	Ser	Ser	Met	Leu	Asn	Asn	Ile		
		675					680					685					
atc	aac	ctg	tgc	cga	agc	agt	gcc	tca	ccc	aag	gcc	gca	gaa	gct	gcc		2112
Ile	Asn	Leu	Cys	Arg	Ser	Ser	Ala	Ser	Pro	Lys	Ala	Ala	Glu	Ala	Ala		
	690					695					700						
cgg	ctt	ctc	ctg	tct	gac	atg	tgg	tcc	agc	aag	gaa	ctg	cag	ggt	gtc		2160
Arg	Leu	Leu	Leu	Ser	Asp	Met	Trp	Ser	Ser	Lys	Glu	Leu	Gln	Gly	Val		
	705				710					715					720		
ctc	aga	cag	caa	ggt	ttc	gat	agg	aac	atg	ctg	gga	acc	tta	gct	ggg		2208
Leu	Arg	Gln	Gln	Gly	Phe	Asp	Arg	Asn	Met	Leu	Gly	Thr	Leu	Ala	Gly		
				725					730					735			
gcc	aac	agc	ctc	agg	aac	ttc	acc	tcc	cga	ttc							2241
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Asp	Gln	Asp	Asn	Ser	Thr	Leu	Ala	Leu	Pro	Ser	Asp	Gln	Lys	Met	Lys		
			20					25					30				

Thr	Gly	Thr	Ser	Gly	Arg	Gln	Arg	Val	Gln	Glu	Gln	Val	Met	Met	Thr		
		35					40					45					

Val	Lys	Arg	Gln	Lys	Ser	Lys	Ser	Ser	Gln	Ser	Ser	Thr	Leu	Ser	His		
	50					55					60						

Ser	Asn	Arg	Gly	Ser	Met	Tyr	Asp	Gly	Leu	Ala	Asp	Asn	Tyr	Asn	Tyr		
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65					70						75				80
Gly	Thr	Thr	Ser	Arg	Ser	Ser	Tyr	Tyr	Ser	Lys	Phe	Gln	Ala	Gly	Asn
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Gly	Ser	Trp	Gly	Tyr	Pro	Ile	Tyr	Asn	Gly	Thr	Leu	Lys	Arg	Glu	Pro
			100					105					110		
Asp	Asn	Arg	Arg	Phe	Ser	Ser	Tyr	Ser	Gln	Met	Glu	Asn	Trp	Ser	Arg
		115					120					125			
His	Tyr	Pro	Arg	Gly	Ser	Cys	Asn	Thr	Thr	Gly	Ala	Gly	Ser	Asp	Ile
	130					135					140				
Cys	Phe	Met	Gln	Lys	Ile	Lys	Ala	Ser	Arg	Ser	Glu	Pro	Asp	Leu	Tyr
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Cys	Asp	Pro	Arg	Gly	Thr	Leu	Arg	Lys	Gly	Thr	Leu	Gly	Ser	Lys	Gly
				165					170					175	
Gln	Lys	Thr	Thr	Gln	Asn	Arg	Tyr	Ser	Phe	Tyr	Ser	Thr	Cys	Ser	Gly
			180					185					190		
Gln	Lys	Ala	Ile	Lys	Lys	Cys	Pro	Val	Arg	Pro	Pro	Ser	Cys	Ala	Ser
		195					200					205			
Lys	Gln	Asp	Pro	Val	Tyr	Ile	Pro	Pro	Ile	Ser	Cys	Asn	Lys	Asp	Leu
	210					215					220				
Ser	Phe	Gly	His	Ser	Arg	Ala	Ser	Ser	Lys	Ile	Cys	Ser	Glu	Asp	Ile
225					230					235					240
Glu	Cys	Ser	Gly	Leu	Thr	Ile	Pro	Lys	Ala	Val	Gln	Tyr	Leu	Ser	Ser
				245					250					255	
Gln	Asp	Glu	Lys	Tyr	Gln	Ala	Ile	Gly	Ala	Tyr	Tyr	Ile	Gln	His	Thr
			260					265					270		
Cys	Phe	Gln	Asp	Glu	Ser	Ala	Lys	Gln	Gln	Val	Tyr	Gln	Leu	Gly	Gly
		275					280					285			
Ile	Cys	Lys	Leu	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn	Val	Gln
	290					295					300				
Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser	Thr	Thr
305					310					315					320
Asn	Lys	Leu	Glu	Thr	Arg	Arg	Gln	Asn	Gly	Ile	Arg	Glu	Ala	Val	Ser
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Leu	Leu	Arg	Arg	Thr	Gly	Asn	Ala	Glu	Ile	Gln	Lys	Gln	Leu	Thr	Gly
				340				345					350		
Leu	Leu	Trp	Asn	Leu	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu	Leu	Ile

355

360

365

Ala Asp Ala Leu Pro Val Leu Ala Asp Arg Val Ile Ile Pro Phe Ser  
370 375 380

Gly Trp Cys Asp Gly Asn Ser Asn Met Ser Arg Glu Val Val Asp Pro  
385 390 395 400

Glu Val Phe Phe Asn Ala Thr Gly Cys Leu Arg Lys Arg Leu Gly Met  
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Arg Glu Leu Leu Ala Leu Val Pro Gln Arg Ala Thr Ser Ser Arg Val  
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Asn Leu Ser Ser Ala Asp Ala Gly Arg Gln Thr Met Arg Asn Tyr Ser  
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Gly Leu Ile Asp Ser Leu Met Ala Tyr Val Gln Asn Cys Val Ala Ala  
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Ser Arg Cys Asp Asp Lys Ser Val Glu Asn Cys Met Cys Val Leu His  
465 470 475 480

Asn Leu Ser Tyr Arg Leu Asp Ala Glu Val Pro Thr Arg Tyr Arg Gln  
485 490 495

Leu Glu Tyr Asn Ala Arg Asn Ala Tyr Thr Glu Lys Ser Ser Thr Gly  
500 505 510

Cys Phe Ser Asn Lys Ser Asp Lys Met Met Asn Asn Asn Tyr Asp Cys  
515 520 525

Pro Leu Pro Glu Glu Glu Thr Asn Pro Lys Gly Ser Gly Trp Leu Tyr  
530 535 540

His Ser Asp Ala Ile Arg Thr Tyr Leu Asn Leu Met Gly Lys Ser Lys  
545 550 555 560

Lys Asp Ala Thr Leu Glu Ala Cys Ala Gly Ala Leu Gln Asn Leu Thr  
565 570 575

Ala Ser Lys Gly Leu Met Ser Ser Gly Met Ser Gln Leu Ile Gly Leu  
580 585 590

Lys Glu Lys Gly Leu Pro Gln Ile Ala Arg Leu Leu Gln Ser Gly Asn  
595 600 605

Ser Asp Val Val Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg  
610 615 620

His Pro Leu Leu His Arg Val Met Gly Asn Gln Val Phe Pro Glu Val  
625 630 635 640

Thr Arg Leu Leu Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp

645

650

655

Ile Leu Ser Ser Ala Cys Tyr Thr Val Arg Asn Leu Met Ala Ser Gln  
660 665 670

Pro Gln Leu Ala Lys Gln Tyr Phe Ser Ser Ser Met Leu Asn Asn Ile  
675 680 685

Ile Asn Leu Cys Arg Ser Ser Ala Ser Pro Lys Ala Ala Glu Ala Ala  
690 695 700

Arg Leu Leu Leu Ser Asp Met Trp Ser Ser Lys Glu Leu Gln Gly Val  
705 710 715 720

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Leu Gly Gln Gln Ile Leu Gly His Leu Asp Ser Ser Ser Leu Ala Leu  
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ccc tcc gag gcc aga ctg agg ctg gcc ggc agc agc ggc cgc ggc gac 144  
Pro Ser Glu Ala Arg Leu Arg Leu Ala Gly Ser Ser Gly Arg Gly Asp  
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Pro Ala Ala Arg Ser Gln Arg Ile Gln Glu Gln Val Gln Gln Thr Leu  
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Ala Arg Arg Gly Arg Ser Ser Ala Val Ser Gly Asn Leu His Arg Thr  
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agc agt gtc cct gag tat gtc tac aag cta cac gtg gtt gag aat gac 288  
Ser Ser Val Pro Glu Tyr Val Tyr Lys Leu His Val Val Glu Asn Asp  
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ttt gtt gga cgg cag tca cct gtc act agg gac tat gac atg ctt aag 336  
Phe Val Gly Arg Gln Ser Pro Val Thr Arg Asp Tyr Asp Met Leu Lys  
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Ala Gly Met Thr Ala Thr Tyr Gly Ser Arg Trp Gly Arg Ala Ala Ala  
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Gln Tyr Ser Ser Gln Lys Ser Val Glu Glu Arg Ser Trp Arg Gln Pro

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ctg agg aga ctt gag att tcc cca gat agc agc ccg gag aga gcc cac			480
Leu Arg Arg Leu Glu Ile Ser Pro Asp Ser Ser Pro Glu Arg Ala His			
145	150	155	160
tat ggg cac agc gaa tac cag tat gcc tgg cgg agc cac gtg gtg cct			528
Tyr Gly His Ser Glu Tyr Gln Tyr Ala Trp Arg Ser His Val Val Pro			
	165	170	175
ggg ggg cgc ctc acc ctg cca cgc tat gct cgc tca gag atc ctg ggc			576
Gly Gly Arg Leu Thr Leu Pro Arg Tyr Ala Arg Ser Glu Ile Leu Gly			
	180	185	190
cta cgc cag gct ggc aca gcc cgc agg cca cct ggg tgc ggg tca ttc			624
Leu Arg Gln Ala Gly Thr Ala Arg Arg Pro Pro Gly Cys Gly Ser Phe			
	195	200	205
agc gat gct gtc ttc gac aat ggc cca ctc aag ccc aca atg ccc acc			672
Ser Asp Ala Val Phe Asp Asn Gly Pro Leu Lys Pro Thr Met Pro Thr			
	210	215	220
cac cct cct ggc acc agc cac agt gcg ggc agc ttg ttg gaa gag acc			720
His Pro Pro Gly Thr Ser His Ser Ala Gly Ser Leu Leu Glu Glu Thr			
	225	230	235
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Thr Val Arg Val Ser Gln Ala Arg Leu Gln Ser Thr Gln Ser Arg Thr			
	245	250	255
gcc cgc tcc tcc tgg ccc agg agc tca gtc cgc agt agc ctg cgg gag			816
Ala Arg Ser Ser Trp Pro Arg Ser Ser Val Arg Ser Ser Leu Arg Glu			
	260	265	270
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Pro Gly Arg Met Leu Thr Thr Ala Gly Gln Ala Ala Val Gly Ser Gly			
	275	280	285
gat gca cat ggg gac agg agt gtc ttc gct gac gcc cag ctg ggg aat			912
Asp Ala His Gly Asp Arg Ser Val Phe Ala Asp Ala Gln Leu Gly Asn			
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gca gac atc gaa atg acc ttg gag aga gct gtg aat atg ctg gat gca			960
Ala Asp Ile Glu Met Thr Leu Glu Arg Ala Val Asn Met Leu Asp Ala			
	305	310	315
gac cat gta cca gta tcc aag atc tct gcc gca gct acc ttc ata cag			1008
Asp His Val Pro Val Ser Lys Ile Ser Ala Ala Ala Thr Phe Ile Gln			
	325	330	335
cat gag agc ttc caa aaa tct gaa gca cgg aaa agg gtc aat caa ctt			1056
His Glu Ser Phe Gln Lys Ser Glu Ala Arg Lys Arg Val Asn Gln Leu			
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cga ggc atc cct aag ctt cta caa ctg ctc aaa ctt cag aac gaa gat			1104
Arg Gly Ile Pro Lys Leu Leu Gln Leu Leu Lys Leu Gln Asn Glu Asp			
	355	360	365
gtt caa cgg gct gct tgt ggg gcc ttg aga aac ttg gta ttt gaa gac			1152
Val Gln Arg Ala Ala Cys Gly Ala Leu Arg Asn Leu Val Phe Glu Asp			
	370	375	380
aat gat aac aag ttg gag gta gct gaa ctg aat gga gtg cct cgg cta			1200
Asn Asp Asn Lys Leu Glu Val Ala Glu Leu Asn Gly Val Pro Arg Leu			
	385	390	395
ctg cag gtg ctg aag caa acc aga gac ttg gag aca aaa aag caa ata			1248
Leu Gln Val Leu Lys Gln Thr Arg Asp Leu Glu Thr Lys Lys Gln Ile			
	405	410	415
aca ggt ttg ctc tgg aac ctg tcc tct agt gat aaa ctc aag cat ctc			1296
Thr Gly Leu Leu Trp Asn Leu Ser Ser Ser Asp Lys Leu Lys His Leu			



420						425						430						
atg	ata	aca	gaa	gcc	ttg	ctc	acc	ttg	aca	gag	agt	gtc	atc	atc	ccc	1344		
Met	Ile	Thr	Glu	Ala	Leu	Leu	Thr	Leu	Thr	Glu	Ser	Val	Ile	Ile	Pro			
435						440						445						
ttc	tcc	ggg	tgg	cct	gaa	ggc	gac	tac	ccc	aaa	gcc	aat	ggc	ttg	ctt	1392		
Phe	Ser	Gly	Trp	Pro	Glu	Gly	Asp	Tyr	Pro	Lys	Ala	Asn	Gly	Leu	Leu			
450						455						460						
gat	ttt	gat	ata	ttc	tac	aat	gtc	act	gga	tgc	cta	agg	aac	atg	agc	1440		
Asp	Phe	Asp	Ile	Phe	Tyr	Asn	Val	Thr	Gly	Cys	Leu	Arg	Asn	Met	Ser			
465						470						475			480			
tct	gct	ggc	ccc	gat	ggg	agg	aag	atg	atg	aga	agg	tgt	gat	ggt	ctc	1488		
Ser	Ala	Gly	Pro	Asp	Gly	Arg	Lys	Met	Met	Arg	Arg	Cys	Asp	Gly	Leu			
			485						490						495			
att	gac	tca	ttg	gtc	cac	tat	gtc	aga	gga	act	att	gca	gac	tac	cag	1536		
Ile	Asp	Ser	Leu	Val	His	Tyr	Val	Arg	Gly	Thr	Ile	Ala	Asp	Tyr	Gln			
			500						505						510			
cca	gat	gat	aag	gcc	aca	gag	aac	tgt	gtg	tgc	att	ctt	cat	aac	ctc	1584		
Pro	Asp	Asp	Lys	Ala	Thr	Glu	Asn	Cys	Val	Cys	Ile	Leu	His	Asn	Leu			
			515						520						525			
tcc	tac	cag	ctg	gag	gca	gag	ctc	cca	gag	aaa	tat	tcc	cag	agt	atc	1632		
Ser	Tyr	Gln	Leu	Glu	Ala	Glu	Leu	Pro	Glu	Lys	Tyr	Ser	Gln	Ser	Ile			
530						535						540						
tac	atg	caa	aac	cgg	aat	atc	cag	act	aac	agt	aac	aaa	agt	att	ggg	1680		
Tyr	Met	Gln	Asn	Arg	Asn	Ile	Gln	Thr	Asn	Ser	Asn	Lys	Ser	Ile	Gly			
545						550						555			560			
tgt	ttt	ggc	agc	cga	agt	agg	aaa	cta	aaa	gag	caa	tac	caa	gac	ttg	1728		
Cys	Phe	Gly	Ser	Arg	Ser	Arg	Lys	Leu	Lys	Glu	Gln	Tyr	Gln	Asp	Leu			
			565						570						575			
cag	atg	cca	gag	gaa	agg	agc	aat	cca	cat	ggc	att	gag	tgg	ctg	tgg	1776		
Gln	Met	Pro	Glu	Glu	Arg	Ser	Asn	Pro	His	Gly	Ile	Glu	Trp	Leu	Trp			
			580						585						590			
cat	tcc	att	gtg	ata	agg	atg	tat	ttg	tcc	tta	att	gcc	aag	agt	acc	1824		
His	Ser	Ile	Val	Ile	Arg	Met	Tyr	Leu	Ser	Leu	Ile	Ala	Lys	Ser	Thr			
			595						600						605			
cga	aac	tat	acc	caa	gag	gca	tca	ctt	ggg	gct	ctc	cag	aac	ctc	aca	1872		
Arg	Asn	Tyr	Thr	Gln	Glu	Ala	Ser	Leu	Gly	Ala	Leu	Gln	Asn	Leu	Thr			
610						615						620						
gca	gga	ggc	ggc	ccg	ata	ccc	aca	ttg	gtg	gct	cga	atg	gtt	gtc	caa	1920		
Ala	Gly	Gly	Gly	Pro	Ile	Pro	Thr	Leu	Val	Ala	Arg	Met	Val	Val	Gln			
625						630						635			640			
aag	gaa	aat	ggt	ctt	cag	cat	aca	cgg	aag	atg	ctg	cac	gtg	ggt	gat	1968		
Lys	Glu	Asn	Gly	Leu	Gln	His	Thr	Arg	Lys	Met	Leu	His	Val	Gly	Asp			
			645						650						655			
ccc	agt	gtg	aaa	aag	act	gcg	gtc	tcc	ctg	ctg	agg	aat	ttg	tca	cgg	2016		
Pro	Ser	Val	Lys	Lys	Thr	Ala	Val	Ser	Leu	Leu	Arg	Asn	Leu	Ser	Arg			
			660						665						670			
aat	ctt	tcc	ctg	cag	aat	gaa	att	gct	aaa	gaa	act	cta	cca	gat	ttg	2064		
Asn	Leu	Ser	Leu	Gln	Asn	Glu	Ile	Ala	Lys	Glu	Thr	Leu	Pro	Asp	Leu			
			675						680						685			
gtt	tct	ata	att	cct	gac	aca	gtc	cca	agt	act	gac	ctt	ctc	att	gaa	2112		
Val	Ser	Ile	Ile	Pro	Asp	Thr	Val	Pro	Ser	Thr	Asp	Leu	Leu	Ile	Glu			
690						695						700						
acc	aca	gcc	tct	gct	tgc	tat	acg	ttg	aac	aat	tta	atg	caa	aat	agt	2160		
Thr	Thr	Ala	Ser	Ala	Cys	Tyr	Thr	Leu	Asn	Asn	Leu	Met	Gln	Asn	Ser			

705	710	715	720	
tac cag aat gca cga gac ctt ctg aac acc gga ggt ctg cag aaa att				2208
Tyr Gln Asn Ala Arg Asp Leu Leu Asn Thr Gly Gly Leu Gln Lys Ile	725	730	735	
atg acc atc agc ata ggg gaa ggc tat gcc ccc aac aag gcc agc aaa				2256
Met Thr Ile Ser Ile Gly Glu Gly Tyr Ala Pro Asn Lys Ala Ser Lys	740	745	750	
gca gcc tct gtc ctc ctt tac tct ctg tgg gca cat aca gag ctg cat				2304
Ala Ala Ser Val Leu Leu Tyr Ser Leu Trp Ala His Thr Glu Leu His	755	760	765	
cac gcc tat aag aag gct cag ttt aag aaa aca gac ttt gtc aac agc				2352
His Ala Tyr Lys Lys Ala Gln Phe Lys Lys Thr Asp Phe Val Asn Ser	770	775	780	
cgg act gcc aaa gcc tac cac tct ctt aaa gac				2385
Arg Thr Ala Lys Ala Tyr His Ser Leu Lys Asp	785	790	795	

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Pro Ser Glu Ala Arg Leu Arg Leu Ala Gly Ser Ser Gly Arg Gly Asp
35 40 45

Pro Ala Ala Arg Ser Gln Arg Ile Gln Glu Gln Val Gln Gln Thr Leu
50 55 60

Ala Arg Arg Gly Arg Ser Ser Ala Val Ser Gly Asn Leu His Arg Thr
65 70 75 80

Ser Ser Val Pro Glu Tyr Val Tyr Lys Leu His Val Val Glu Asn Asp
85 90 95

Phe Val Gly Arg Gln Ser Pro Val Thr Arg Asp Tyr Asp Met Leu Lys
100 105 110

Ala Gly Met Thr Ala Thr Tyr Gly Ser Arg Trp Gly Arg Ala Ala Ala
115 120 125

Gln Tyr Ser Ser Gln Lys Ser Val Glu Glu Arg Ser Trp Arg Gln Pro
130 135 140

Leu Arg Arg Leu Glu Ile Ser Pro Asp Ser Ser Pro Glu Arg Ala His
145 150 155 160

Tyr Gly His Ser Glu Tyr Gln Tyr Ala Trp Arg Ser His Val Val Pro
165 170 175

Gly	Gly	Arg	Leu	Thr	Leu	Pro	Arg	Tyr	Ala	Arg	Ser	Glu	Ile	Leu	Gly	180	185	190
Leu	Arg	Gln	Ala	Gly	Thr	Ala	Arg	Arg	Pro	Pro	Gly	Cys	Gly	Ser	Phe	195	200	205
Ser	Asp	Ala	Val	Phe	Asp	Asn	Gly	Pro	Leu	Lys	Pro	Thr	Met	Pro	Thr	210	215	220
His	Pro	Pro	Gly	Thr	Ser	His	Ser	Ala	Gly	Ser	Leu	Leu	Glu	Glu	Thr	225	230	235
Thr	Val	Arg	Val	Ser	Gln	Ala	Arg	Leu	Gln	Ser	Thr	Gln	Ser	Arg	Thr	245	250	255
Ala	Arg	Ser	Ser	Trp	Pro	Arg	Ser	Ser	Val	Arg	Ser	Ser	Leu	Arg	Glu	260	265	270
Pro	Gly	Arg	Met	Leu	Thr	Thr	Ala	Gly	Gln	Ala	Ala	Val	Gly	Ser	Gly	275	280	285
Asp	Ala	His	Gly	Asp	Arg	Ser	Val	Phe	Ala	Asp	Ala	Gln	Leu	Gly	Asn	290	295	300
Ala	Asp	Ile	Glu	Met	Thr	Leu	Glu	Arg	Ala	Val	Asn	Met	Leu	Asp	Ala	305	310	315
Asp	His	Val	Pro	Val	Ser	Lys	Ile	Ser	Ala	Ala	Ala	Thr	Phe	Ile	Gln	325	330	335
His	Glu	Ser	Phe	Gln	Lys	Ser	Glu	Ala	Arg	Lys	Arg	Val	Asn	Gln	Leu	340	345	350
Arg	Gly	Ile	Pro	Lys	Leu	Leu	Gln	Leu	Leu	Lys	Leu	Gln	Asn	Glu	Asp	355	360	365
Val	Gln	Arg	Ala	Ala	Cys	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Glu	Asp	370	375	380
Asn	Asp	Asn	Lys	Leu	Glu	Val	Ala	Glu	Leu	Asn	Gly	Val	Pro	Arg	Leu	385	390	395
Leu	Gln	Val	Leu	Lys	Gln	Thr	Arg	Asp	Leu	Glu	Thr	Lys	Lys	Gln	Ile	405	410	415
Thr	Gly	Leu	Leu	Trp	Asn	Leu	Ser	Ser	Ser	Asp	Lys	Leu	Lys	His	Leu	420	425	430
Met	Ile	Thr	Glu	Ala	Leu	Leu	Thr	Leu	Thr	Glu	Ser	Val	Ile	Ile	Pro	435	440	445
Phe	Ser	Gly	Trp	Pro	Glu	Gly	Asp	Tyr	Pro	Lys	Ala	Asn	Gly	Leu	Leu	450	455	460

Asp	Phe	Asp	Ile	Phe	Tyr	Asn	Val	Thr	Gly	Cys	Leu	Arg	Asn	Met	Ser	465	470	475	480
Ser	Ala	Gly	Pro	Asp	Gly	Arg	Lys	Met	Met	Arg	Arg	Cys	Asp	Gly	Leu	485	490	495	
Ile	Asp	Ser	Leu	Val	His	Tyr	Val	Arg	Gly	Thr	Ile	Ala	Asp	Tyr	Gln	500	505	510	
Pro	Asp	Asp	Lys	Ala	Thr	Glu	Asn	Cys	Val	Cys	Ile	Leu	His	Asn	Leu	515	520	525	
Ser	Tyr	Gln	Leu	Glu	Ala	Glu	Leu	Pro	Glu	Lys	Tyr	Ser	Gln	Ser	Ile	530	535	540	
Tyr	Met	Gln	Asn	Arg	Asn	Ile	Gln	Thr	Asn	Ser	Asn	Lys	Ser	Ile	Gly	545	550	555	560
Cys	Phe	Gly	Ser	Arg	Ser	Arg	Lys	Leu	Lys	Glu	Gln	Tyr	Gln	Asp	Leu	565	570	575	
Gln	Met	Pro	Glu	Glu	Arg	Ser	Asn	Pro	His	Gly	Ile	Glu	Trp	Leu	Trp	580	585	590	
His	Ser	Ile	Val	Ile	Arg	Met	Tyr	Leu	Ser	Leu	Ile	Ala	Lys	Ser	Thr	595	600	605	
Arg	Asn	Tyr	Thr	Gln	Glu	Ala	Ser	Leu	Gly	Ala	Leu	Gln	Asn	Leu	Thr	610	615	620	
Ala	Gly	Gly	Gly	Pro	Ile	Pro	Thr	Leu	Val	Ala	Arg	Met	Val	Val	Gln	625	630	635	640
Lys	Glu	Asn	Gly	Leu	Gln	His	Thr	Arg	Lys	Met	Leu	His	Val	Gly	Asp	645	650	655	
Pro	Ser	Val	Lys	Lys	Thr	Ala	Val	Ser	Leu	Leu	Arg	Asn	Leu	Ser	Arg	660	665	670	
Asn	Leu	Ser	Leu	Gln	Asn	Glu	Ile	Ala	Lys	Glu	Thr	Leu	Pro	Asp	Leu	675	680	685	
Val	Ser	Ile	Ile	Pro	Asp	Thr	Val	Pro	Ser	Thr	Asp	Leu	Leu	Ile	Glu	690	695	700	
Thr	Thr	Ala	Ser	Ala	Cys	Tyr	Thr	Leu	Asn	Asn	Leu	Met	Gln	Asn	Ser	705	710	715	720
Tyr	Gln	Asn	Ala	Arg	Asp	Leu	Leu	Asn	Thr	Gly	Gly	Leu	Gln	Lys	Ile	725	730	735	
Met	Thr	Ile	Ser	Ile	Gly	Glu	Gly	Tyr	Ala	Pro	Asn	Lys	Ala	Ser	Lys	740	745	750	

Ala Ala Ser Val Leu Leu Tyr Ser Leu Trp Ala His Thr Glu Leu His  
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His Ala Tyr Lys Lys Ala Gln Phe Lys Lys Thr Asp Phe Val Asn Ser  
770 775 780

Arg Thr Ala Lys Ala Tyr His Ser Leu Lys Asp  
785 790 795

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gac cag gac aac tcc acg ctg gct ttg ccc tct gac caa aag atg aag 96  
Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys Met Lys  
20 25 30  
acc ggc acg tcg ggc agg cag cgc gtg cag gag caa gtg atg atg acc 144  
Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met Met Thr  
35 40 45  
gtc aaa cgg cag aag tcc aag tct tcc cag tcg tcc acc ttg agt cac 192  
Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
50 55 60  
tcc aac cga ggt tcc atg tat gat ggg ctg gct gac aat tac aac aac 240  
Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Ala Asp Asn Tyr Asn Asn  
65 70 75 80  
tac ggc acc acg agc aga agc agc tac ttc tcc aag ttc cag gca ggg 288  
Tyr Gly Thr Thr Ser Arg Ser Ser Tyr Phe Ser Lys Phe Gln Ala Gly  
85 90 95  
aat ggc tcg tgg gga tat ccg atc tac aat ggg acc ctc aag cgg gag 336  
Asn Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg Glu  
100 105 110  
ccc gac aac aga cgc ttc agc tcc tat agc cag atg gag aac tgg agc 384  
Pro Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp Ser  
115 120 125  
cgg cac tat ccc cga ggc agc tgt gcc acc ccg ggc gct ggc agt gac 432  
Arg His Tyr Pro Arg Gly Ser Cys Ala Thr Pro Gly Ala Gly Ser Asp  
130 135 140  
atc tgc ttc atg cag aaa atc aag gca agc cgc agt gag cct gac ctc 480  
Ile Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp Leu  
145 150 155 160  
tac tgt gac cca agg ggc aca ctg cgc aag ggc acc ctg ggc agc aag 528  
Tyr Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Ser Lys  
165 170 175  
ggc cac aag acc acc cag aac cga tgc agc ttc tac agc act tgc agt 576  
Gly His Lys Thr Thr Gln Asn Arg Cys Ser Phe Tyr Ser Thr Cys Ser  
180 185 190

ggt cag aag gct gtc aag aag tgt ccc gtg cgg ccg ccc tcc tgc acc	624
Gly Gln Lys Ala Val Lys Lys Cys Pro Val Arg Pro Pro Ser Cys Thr	
195 200 205	
tcc aag caa gac ccg gtg tat gtg ccg cct atc tcc tgc aac aag gac	672
Ser Lys Gln Asp Pro Val Tyr Val Pro Pro Ile Ser Cys Asn Lys Asp	
210 215 220	
ctg tcc ttc ggc cac tcg agg gcc agt tcc aag atc tgc agt gag gac	720
Leu Ser Phe Gly His Ser Arg Ala Ser Ser Lys Ile Cys Ser Glu Asp	
225 230 235 240	
att gag tgt agt ggg ctg acc atc ccc aag gct gtg cag tac ctg tgc	768
Ile Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu Cys	
245 250 255	
tcc cag gat gag aag tac cag gcc atc gga gcc tat tac atc cag cac	816
Ser Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln His	
260 265 270	
acc tgc ttc cag gat gaa tct gcc aag caa cag gtc tat cag ctg ggg	864
Thr Cys Phe Gln Asp Glu Ser Ala Lys Gln Gln Val Tyr Gln Leu Gly	
275 280 285	
ggc atc tgc aag ctg gtg gac ctc ctc cgc agc ccc aat cag aat gtc	912
Gly Ile Cys Lys Leu Val Asp Leu Leu Arg Ser Pro Asn Gln Asn Val	
290 295 300	
cag cag gct gct gcc ggg gcc ctg cgc aac ctg gtg ttc agg agc acc	960
Gln Gln Ala Ala Ala Gly Ala Leu Arg Asn Leu Val Phe Arg Ser Thr	
305 310 315 320	
ccc aac aag ctg gag acc agg agg cag aac gga atc cgt gaa gct gtc	1008
Pro Asn Lys Leu Glu Thr Arg Arg Gln Asn Gly Ile Arg Glu Ala Val	
325 330 335	
agc ctc ctg agg aga agc ggg agc acg gag atc caa aaa cag ctg act	1056
Ser Leu Leu Arg Arg Ser Gly Ser Thr Glu Ile Gln Lys Gln Leu Thr	
340 345 350	
ggg ctc ctc tgg aac ctg tct tcc act gat gag ctg aag gag gag ctg	1104
Gly Leu Leu Trp Asn Leu Ser Ser Thr Asp Glu Leu Lys Glu Glu Leu	
355 360 365	
gtg gcc gac gcc ctg cct gtt ctg act gac cgg gtc atc att cct ttc	1152
Val Ala Asp Ala Leu Pro Val Leu Thr Asp Arg Val Ile Ile Pro Phe	
370 375 380	
tct ggc tgg tgt gat ggt aac agc aac atg tcc cgg gaa gta gtg gac	1200
Ser Gly Trp Cys Asp Gly Asn Ser Asn Met Ser Arg Glu Val Val Asp	
385 390 395 400	
cct gag gtc ttc ttc aat gct aca ggc tgc ttg agg aac ctg agt tca	1248
Pro Glu Val Phe Phe Asn Ala Thr Gly Cys Leu Arg Asn Leu Ser Ser	
405 410 415	
gct gat gct ggc cgc cag act atg cgg aac tac tct ggg ctc att gac	1296
Ala Asp Ala Gly Arg Gln Thr Met Arg Asn Tyr Ser Gly Leu Ile Asp	
420 425 430	
tcc ctc atg gcc tat gtc cag aac tgc gtg gct gcc agc cgc tgc gat	1344
Ser Leu Met Ala Tyr Val Gln Asn Cys Val Ala Ala Ser Arg Cys Asp	
435 440 445	
gac aag tct gtg gag aac tgc atg tgt atc ctg cat aac ctc tcc tac	1392
Asp Lys Ser Val Glu Asn Cys Met Cys Ile Leu His Asn Leu Ser Tyr	
450 455 460	
cgc ctg gac gcc gag gtg ccc acc cgc tac cgc cag ctg gag tac aat	1440
Arg Leu Asp Ala Glu Val Pro Thr Arg Tyr Arg Gln Leu Glu Tyr Asn	
465 470 475 480	

acc cgc aat gcc tac acc gag aag tcc tcc act ggc tgc ttc agc aac	1488
Thr Arg Asn Ala Tyr Thr Glu Lys Ser Ser Thr Gly Cys Phe Ser Asn	
485 490 495	
agg ggt gac aag atg atg aac aat aac tat gac tgc cca ctt ccg gag	1536
Arg Gly Asp Lys Met Met Asn Asn Asn Tyr Asp Cys Pro Leu Pro Glu	
500 505 510	
gaa gag acc aac ccc aag ggc agc agc tgg ctg tac cac tca gat gcc	1584
Glu Glu Thr Asn Pro Lys Gly Ser Ser Trp Leu Tyr His Ser Asp Ala	
515 520 525	
atc cgg acc tac ctg aac ctc atg gga aag agc aag aaa gat gct acc	1632
Ile Arg Thr Tyr Leu Asn Leu Met Gly Lys Ser Lys Lys Asp Ala Thr	
530 535 540	
ttg gag gcc tgt gct ggg gcc ctg caa aac ctg aca gcc agc aag ggg	1680
Leu Glu Ala Cys Ala Gly Ala Leu Gln Asn Leu Thr Ala Ser Lys Gly	
545 550 555 560	
ctg atg tcc aat ggt atg agt cag tta att gga ata aag gaa aag ggc	1728
Leu Met Ser Asn Gly Met Ser Gln Leu Ile Gly Ile Lys Glu Lys Gly	
565 570 575	
ctg cca caa atc gcc cgt ctc ctg caa tct ggc aat tcg gat gtg gtg	1776
Leu Pro Gln Ile Ala Arg Leu Leu Gln Ser Gly Asn Ser Asp Val Val	
580 585 590	
cgg tcc gga gcc tct ctg ctg agc aac atg tct cgc cac cct gtg ctg	1824
Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg His Pro Val Leu	
595 600 605	
cac aga gtg atg gga aac cag gtg ttc cca gag gta acc aga ctc ctc	1872
His Arg Val Met Gly Asn Gln Val Phe Pro Glu Val Thr Arg Leu Leu	
610 615 620	
act agc cac acc ggc aat acc agc aac tct gaa gat atc ttg tcc tca	1920
Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp Ile Leu Ser Ser	
625 630 635 640	
gcc tgc tac act gtg agg aac ctg atg acc tca cag cct cag atg gcc	1968
Ala Cys Tyr Thr Val Arg Asn Leu Met Thr Ser Gln Pro Gln Met Ala	
645 650 655	
aag cag tac ttc tcc aac agc atg ctc aac aat gtc ttc aac ttg tgc	2016
Lys Gln Tyr Phe Ser Asn Ser Met Leu Asn Asn Val Phe Asn Leu Cys	
660 665 670	
cgc aac act gcc tcc tca cct aag gct gca gag gct gcc cgg cta ctc	2064
Arg Asn Thr Ala Ser Ser Pro Lys Ala Ala Glu Ala Ala Arg Leu Leu	
675 680 685	
ctg tct gac atg tgg gcc agc aag gag ctg cag agt gtc ctc agg cag	2112
Leu Ser Asp Met Trp Ala Ser Lys Glu Leu Gln Ser Val Leu Arg Gln	
690 695 700	
caa ggt ttc gat agg aat atg atg gga aac ata gct ggg gcc aac aac	2160
Gln Gly Phe Asp Arg Asn Met Met Gly Asn Ile Ala Gly Ala Asn Asn	
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ctc aga aac ttc acc tcc cgg ttc	2184
Leu Arg Asn Phe Thr Ser Arg Phe	
725	

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



Gly	Ile	Cys	Lys	Leu	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn	Val	290	295	300	
Gln	Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser	Thr	305	310	315	320
Pro	Asn	Lys	Leu	Glu	Thr	Arg	Arg	Gln	Asn	Gly	Ile	Arg	Glu	Ala	Val	325	330	335	
Ser	Leu	Leu	Arg	Arg	Ser	Gly	Ser	Thr	Glu	Ile	Gln	Lys	Gln	Leu	Thr	340	345	350	
Gly	Leu	Leu	Trp	Asn	Leu	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu	Leu	355	360	365	
Val	Ala	Asp	Ala	Leu	Pro	Val	Leu	Thr	Asp	Arg	Val	Ile	Ile	Pro	Phe	370	375	380	
Ser	Gly	Trp	Cys	Asp	Gly	Asn	Ser	Asn	Met	Ser	Arg	Glu	Val	Val	Asp	385	390	395	400
Pro	Glu	Val	Phe	Phe	Asn	Ala	Thr	Gly	Cys	Leu	Arg	Asn	Leu	Ser	Ser	405	410	415	
Ala	Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Ser	Gly	Leu	Ile	Asp	420	425	430	
Ser	Leu	Met	Ala	Tyr	Val	Gln	Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys	Asp	435	440	445	
Asp	Lys	Ser	Val	Glu	Asn	Cys	Met	Cys	Ile	Leu	His	Asn	Leu	Ser	Tyr	450	455	460	
Arg	Leu	Asp	Ala	Glu	Val	Pro	Thr	Arg	Tyr	Arg	Gln	Leu	Glu	Tyr	Asn	465	470	475	480
Thr	Arg	Asn	Ala	Tyr	Thr	Glu	Lys	Ser	Ser	Thr	Gly	Cys	Phe	Ser	Asn	485	490	495	
Arg	Gly	Asp	Lys	Met	Met	Asn	Asn	Asn	Tyr	Asp	Cys	Pro	Leu	Pro	Glu	500	505	510	
Glu	Glu	Thr	Asn	Pro	Lys	Gly	Ser	Ser	Trp	Leu	Tyr	His	Ser	Asp	Ala	515	520	525	
Ile	Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	Lys	Asp	Ala	Thr	530	535	540	
Leu	Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr	Ala	Ser	Lys	Gly	545	550	555	560
Leu	Met	Ser	Asn	Gly	Met	Ser	Gln	Leu	Ile	Gly	Ile	Lys	Glu	Lys	Gly	565	570	575	

Leu Pro Gln Ile Ala Arg Leu Leu Gln Ser Gly Asn Ser Asp Val Val  
580 585 590

Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg His Pro Val Leu  
595 600 605

His Arg Val Met Gly Asn Gln Val Phe Pro Glu Val Thr Arg Leu Leu  
610 615 620

Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp Ile Leu Ser Ser  
625 630 635 640

Ala Cys Tyr Thr Val Arg Asn Leu Met Thr Ser Gln Pro Gln Met Ala  
645 650 655

Lys Gln Tyr Phe Ser Asn Ser Met Leu Asn Asn Val Phe Asn Leu Cys  
660 665 670

Arg Asn Thr Ala Ser Ser Pro Lys Ala Ala Glu Ala Ala Arg Leu Leu  
675 680 685

Leu Ser Asp Met Trp Ala Ser Lys Glu Leu Gln Ser Val Leu Arg Gln  
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Gln Gly Phe Asp Arg Asn Met Met Gly Asn Ile Ala Gly Ala Asn Asn  
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Leu Arg Asn Phe Thr Ser Arg Phe  
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Leu Glu Tyr Asn Ala Arg Asn Ala Tyr Thr Asp Lys Ser Ser Thr Gly  
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tgc ttc agc aac aag agc gac cgc atg acg aac aac aac tat gat tgc 96  
Cys Phe Ser Asn Lys Ser Asp Arg Met Thr Asn Asn Asn Tyr Asp Cys  
20 25 30

ccg ctt ccc gag gaa gag ccc aac ccc aag ggc agc agc tgg ctg tac 144  
Pro Leu Pro Glu Glu Glu Pro Asn Pro Lys Gly Ser Ser Trp Leu Tyr  
35 40 45

cac tcg gac gcc gtc cgc acc tac ctg aac ctc atg ggc aag agc aag 192  
His Ser Asp Ala Val Arg Thr Tyr Leu Asn Leu Met Gly Lys Ser Lys  
50 55 60

aag gac gcc acc ctg gag gcc tgc gcg ggc gcc ctg cag aac ctg acc 240  
Lys Asp Ala Thr Leu Glu Ala Cys Ala Gly Ala Leu Gln Asn Leu Thr  
65 70 75 80

gcc agc aag ggg ctg atg tcc agt ggc atg agc cag ctg atc ggg ctg	288
Ala Ser Lys Gly Leu Met Ser Ser Gly Met Ser Gln Leu Ile Gly Leu	
85 90 95	
aag gag aag ggc ctg ccc cac atc gcc cgc ctc ctg caa tct ggc aac	336
Lys Glu Lys Gly Leu Pro His Ile Ala Arg Leu Leu Gln Ser Gly Asn	
100 105 110	
tcg gac gtg gtg cgg tcc gga gcc tcg ctc ctg agc aac atg tcc cgc	384
Ser Asp Val Val Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg	
115 120 125	
cac ccc gcg ctg cac agg gtg atg ggg acc caa gtg ttc cca gag gtg	432
His Pro Ala Leu His Arg Val Met Gly Thr Gln Val Phe Pro Glu Val	
130 135 140	
acc aga ctc ctc acc agt cac act ggc aac acc agc aac tcg gag gac	480
Thr Arg Leu Leu Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp	
145 150 155 160	
atc ctg gcc tcg gcc tgc tac act gtg agg aac ctg atg gcc tcc ctg	528
Ile Leu Ala Ser Ala Cys Tyr Thr Val Arg Asn Leu Met Ala Ser Leu	
165 170 175	
ccg ggc atg gcc aag cag cac ttc tcc agc agc atg gtc aac aac atc	576
Pro Gly Met Ala Lys Gln His Phe Ser Ser Ser Met Val Asn Asn Ile	
180 185 190	
atc aac ctg tgc cgc agc agc acc tcc ccc aag gct gcg gag gcc gcc	624
Ile Asn Leu Cys Arg Ser Ser Thr Ser Pro Lys Ala Ala Glu Ala Ala	
195 200 205	
cgc ctc ctc ctg tcc gac atg tgg tcc agc agg gag ctg cag ggg ctg	672
Arg Leu Leu Leu Ser Asp Met Trp Ser Ser Arg Glu Leu Gln Gly Leu	
210 215 220	
ctc agg cag caa ggt ttc gat agg agc atg ctg ggg acc tta gcc ggg	720
Leu Arg Gln Gln Gly Phe Asp Arg Ser Met Leu Gly Thr Leu Ala Gly	
225 230 235 240	
gcc aac agc ctc agg aac ttc acc tcc cga ttc	753
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245 250	

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

His Ser Asp Ala Val Arg Thr Tyr Leu Asn Leu Met Gly Lys Ser Lys
50 55 60

Lys Asp Ala Thr Leu Glu Ala Cys Ala Gly Ala Leu Gln Asn Leu Thr
65 70 75 80

Ala Ser Lys Gly Leu Met Ser Ser Gly Met Ser Gln Leu Ile Gly Leu  
85 90 95

Lys Glu Lys Gly Leu Pro His Ile Ala Arg Leu Leu Gln Ser Gly Asn  
100 105 110

Ser Asp Val Val Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg  
115 120 125

His Pro Ala Leu His Arg Val Met Gly Thr Gln Val Phe Pro Glu Val  
130 135 140

Thr Arg Leu Leu Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp  
145 150 155 160

Ile Leu Ala Ser Ala Cys Tyr Thr Val Arg Asn Leu Met Ala Ser Leu  
165 170 175

Pro Gly Met Ala Lys Gln His Phe Ser Ser Ser Met Val Asn Asn Ile  
180 185 190

Ile Asn Leu Cys Arg Ser Ser Thr Ser Pro Lys Ala Ala Glu Ala Ala  
195 200 205

Arg Leu Leu Leu Ser Asp Met Trp Ser Ser Arg Glu Leu Gln Gly Leu  
210 215 220

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1 5 10 15

gac cag gac aac tcc acg ctg gcc ctg ccg tcg gac cag aag atg aag 96  
Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys Met Lys  
20 25 30

acg ggc acg tcg ggc cgc cag cgc gtg cag gag cag gtg atg atg acc 144  
Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met Met Thr  
35 40 45

gtc aag cgg cag aag tcc aag tcc tcg cag tcg tcc acc ctg agc cac 192  
Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
50 55 60

tcc aac cga ggt tcc atg tac gat ggc ctg gcc gac aat tac aac aac 240

Ser 65	Asn	Arg	Gly	Ser 70	Met	Tyr	Asp	Gly	Leu	Ala 75	Asp	Asn	Tyr	Asn 80	Asn		
tat	ggg	acc	acc	agc	cgg	agc	agc	tac	tac	tcc	aag	atg	cag	gcg	gcg	288	
Tyr	Gly	Thr	Thr	Ser 85	Arg	Ser	Ser	Tyr	Tyr 90	Ser	Lys	Met	Gln	Ala 95	Ala		
aat	ggc	tca	tgg	gga	tat	ccg	atc	tac	aac	ggg	acc	ctc	aag	cgg	gag	336	
Asn	Gly	Ser	Trp	Gly	Tyr	Pro	Ile	Tyr	Asn	Gly	Thr	Leu	Lys	Arg	Glu		
100			100					105					110				
aat	gac	aac	agg	cgc	ttc	agc	tcc	tac	agc	cag	atg	gag	aac	tgg	ggc	384	
Asn	Asp	Asn	Arg	Arg	Phe	Ser	Ser	Tyr	Ser	Gln	Met	Glu	Asn	Trp	Gly		
115			115					120				125					
cgg	cac	tac	cca	cgg	ggc	acc	tgt	acc	acc	act	ggc	gcc	ggc	agc	gac	432	
Arg	His	Tyr	Pro	Arg	Gly		Cys	Thr	Thr	Thr	Gly	Ala	Gly	Ser	Asp		
130							135				140						
atc	tgc	ttc	atg	cag	aag	atc	aag	gcg	agc	cgc	agc	gag	ccg	gac	ctc	480	
Ile	Cys	Phe	Met	Gln	Lys	Ile	Lys	Ala	Ser	Arg	Ser	Glu	Pro	Asp	Leu		
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Tyr	Cys	Asp	Pro	Arg	Gly	Thr	Leu	Arg	Lys	Gly	Thr	Leu	Gly	Asn	Arg		
165									170					175			
ggc	cag	aag	acc	acc	cag	aac	cgc	tac	agc	ttc	tac	agc	acc	tgc	agc	576	
Gly	Gln	Lys	Thr	Thr	Gln	Asn	Arg	Tyr	Ser	Phe	Tyr	Ser	Thr	Cys	Ser		
180								185					190				
ggc	cag	aag	gcg	gtc	aag	aag	tgt	ccc	gtg	cgc	ccg	tcc	tcc	tgc	acc	624	
Gly	Gln	Lys	Ala	Val	Lys	Lys	Cys	Pro	Val	Arg	Pro	Ser	Ser	Cys	Thr		
195							200					205					
tcc	aag	ccg	gac	ccc	gtg	tac	gtc	cca	ccc	atc	tcc	tgc	aac	aag	gac	672	
Ser	Lys	Pro	Asp	Pro	Val	Tyr	Val	Pro	Pro	Ile	Ser	Cys	Asn	Lys	Asp		
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ctg	tcc	ttt	ggc	cac	tcg	agg	gcc	agc	tcc	aag	atc	tgc	agt	gag	gat	720	
Leu	Ser	Phe	Gly	His	Ser	Arg	Ala	Ser	Ser	Lys	Ile	Cys	Ser	Glu	Asp		
225					230					235					240		
att	gag	tgc	agt	ggg	ctg	acc	atc	ccc	aag	gct	gtg	cag	tac	ctg	agc	768	
Ile	Glu	Cys	Ser	Gly	Leu	Thr	Ile	Pro	Lys	Ala	Val	Gln	Tyr	Leu	Ser		
245									250					255			
tcc	cag	gac	gag	aag	tac	cag	gcc	atc	ggg	gcc	tat	tac	atc	cag	cac	816	
Ser	Gln	Asp	Glu	Lys	Tyr	Gln	Ala	Ile	Gly	Ala	Tyr	Tyr	Ile	Gln	His		
260								265					270				
acc	tgt	ttc	cag	gac	gaa	tcg	gcc	aaa	caa	cag	gtg	tat	cag	ctg	gga	864	
Thr	Cys	Phe	Gln	Asp	Glu	Ser	Ala	Lys	Gln	Gln	Val	Tyr	Gln	Leu	Gly		
275							280					285					
ggc	atc	tgc	aag	ctg	gtg	gac	ctc	ctc	cgg	agc	ccc	aac	cag	aac	gtg	912	
Gly	Ile	Cys	Lys	Leu	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn	Val		
290						295					300						
cag	cag	gct	gcg	gct	ggg	gcc	ctg	cgt	aac	ctg	gtg	ttc	cgg	agt	gtc	960	
Gln	Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser	Val		
305					310					315					320		
acg	aac	aag	ctg	gag	acc	cgg	agg	cag	agc	ggg	atc	cga	gag	gct	gtc	1008	
Thr	Asn	Lys	Leu	Glu	Thr	Arg	Arg	Gln	Ser	Gly	Ile	Arg	Glu	Ala	Val		
325								330						335			
agc	ctc	ctg	agg	aga	acc	ggg	agc	act	gag	atc	cag	aaa	caa	ctg	acc	1056	
Ser	Leu	Leu	Arg	Arg	Thr	Gly	Ser	Thr	Glu	Ile	Gln	Lys	Gln	Leu	Thr		
340								345					350				
ggg	ctg	ctc	tgg	aac	ctg	tcg	tcc	act	gac	gag	ctg	aag	gag	gag	ctc	1104	

Gly	Leu	Leu	Trp	Asn	Leu	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu	Leu	
	355						360					365				
atc	gcc	gac	gcc	ctg	cct	gtg	ctg	gcc	gac	cgg	gtc	atc	atc	ccc	ttc	1152
Ile	Ala	Asp	Ala	Leu	Pro	Val	Leu	Ala	Asp	Arg	Val	Ile	Ile	Pro	Phe	
	370						375				380					
tcc	ggc	tgg	tgt	gac	ggc	aac	agc	aac	gtg	acc	cgg	gaa	atg	gtg	gac	1200
Ser	Gly	Trp	Cys	Asp	Gly	Asn	Ser	Asn	Val	Thr	Arg	Glu	Met	Val	Asp	
	385				390					395					400	
ccc	gaa	gtc	ttc	ttc	aat	gcc	acc	ggc	tgc	ttg	agg	aac	ctg	agc	tcg	1248
Pro	Glu	Val	Phe	Phe	Asn	Ala	Thr	Gly	Cys	Leu	Arg	Asn	Leu	Ser	Ser	
				405					410					415		
gcc	gat	gcc	ggc	cgc	cag	acc	atg	cgg	aac	tac	acg	ggg	ctc	att	gac	1296
Ala	Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Thr	Gly	Leu	Ile	Asp	
			420					425					430			
tcc	ctc	atg	gcc	tac	gtc	cag	aac	tgc	gtg	gcc	gcc	agc	cgc	tgt	gat	1344
Ser	Leu	Met	Ala	Tyr	Val	Gln	Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys	Asp	
		435					440					445				
gac	aag	tcc	gtg	gag	aac	tgc	atg	tgc	atc	ctg	cac	aac	ctc	tcc	tac	1392
Asp	Lys	Ser	Val	Glu	Asn	Cys	Met	Cys	Ile	Leu	His	Asn	Leu	Ser	Tyr	
	450					455					460					
cgc	ctg	gac	gcg	gag	gtg	ccc	acg	cgc	tac	cgc	cag	ctg	gag	tac	aac	1440
Arg	Leu	Asp	Ala	Glu	Val	Pro	Thr	Arg	Tyr	Arg	Gln	Leu	Glu	Tyr	Asn	
	465				470					475					480	
gcg	cgc	aac	gcc	tac	acg	gag	aag	tcc	tcc	acc	ggc	tgc	ttc	agc	aac	1488
Ala	Arg	Asn	Ala	Tyr	Thr	Glu	Lys	Ser	Ser	Thr	Gly	Cys	Phe	Ser	Asn	
			485						490					495		
aag	agc	gat	aag	atg	atg	aac	aac	aac	tac	gac	tgc	ccc	ctc	ccg	gag	1536
Lys	Ser	Asp	Lys	Met	Met	Asn	Asn	Asn	Tyr	Asp	Cys	Pro	Leu	Pro	Glu	
			500					505					510			
gaa	gag	gcc	aac	ccc	aag	ggc	agc	agc	tgg	ctg	tac	cat	tcg	gat	gcc	1584
Glu	Glu	Ala	Asn	Pro	Lys	Gly	Ser	Ser	Trp	Leu	Tyr	His	Ser	Asp	Ala	
		515					520					525				
atc	cgc	acc	tac	ctg	aac	ctc	atg	ggc	aag	agc	aag	aaa	gac	gcc	acc	1632
Ile	Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	Lys	Asp	Ala	Thr	
	530					535					540					
ttg	gag	gcc	tgc	gcc	ggc	gcc	ctg	cag	aac	ctg	acg	gcc	agc	aag	ggg	1680
Leu	Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr	Ala	Ser	Lys	Gly	
	545				550					555					560	
ctg	atg	tcc	agt	ggc	atg	agc	cag	ctg	atc	ggg	ctc	aag	gag	aaa	ggc	1728
Leu	Met	Ser	Ser	Gly	Met	Ser	Gln	Leu	Ile	Gly	Leu	Lys	Glu	Lys	Gly	
				565					570					575		
ctg	ccc	cag	atc	gct	cgc	ctc	ctg	caa	tca	ggc	aac	tct	gat	gtg	gtg	1776
Leu	Pro	Gln	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Gly	Asn	Ser	Asp	Val	Val	
			580					585					590			
cgg	tct	gga	gcc	tcc	ctc	ctg	agc	aac	atg	tcc	cgc	cac	ccc	gtg	ctg	1824
Arg	Ser	Gly	Ala	Ser	Leu	Leu	Ser	Asn	Met	Ser	Arg	His	Pro	Val	Leu	
		595					600					605				
cac	aga	gcg	atg	ggg	aac	cag	gta	ttc	ccc	gag	gtg	acc	agg	ctc	ctc	1872
His	Arg	Ala	Met	Gly	Asn	Gln	Val	Phe	Pro	Glu	Val	Thr	Arg	Leu	Leu	
	610					615				620						
acc	agt	cac	act	ggg	aac	acc	agc	aac	tcg	gaa	gac	atc	ctg	tcc	tcg	1920
Thr	Ser	His	Thr	Gly	Asn	Thr	Ser	Asn	Ser	Glu	Asp	Ile	Leu	Ser	Ser	
	625				630					635					640	
gcc	tgc	tac	acg	gtg	agg	aac	ctg	atg	gcc	tcc	cag	ccg	cag	atg	gcc	1968

Ala Cys Tyr Thr Val Arg Asn Leu Met Ala Ser Gln Pro Gln Met Ala  
645 650 655

aag cag tac ttc acc agc agc atg gtc aac aac atc atc aac ctg tgc 2016  
Lys Gln Tyr Phe Thr Ser Ser Met Val Asn Asn Ile Ile Asn Leu Cys  
660 665 670

cgc agc agt gcc tca ccc aag gct gcg gaa gct gcc cgc ctc ctc ctg 2064  
Arg Ser Ser Ala Ser Pro Lys Ala Ala Glu Ala Ala Arg Leu Leu Leu  
675 680 685

tct gac atg tgg tcc agc aag gaa ctg cag ggt gtc ctc aga cag caa 2112  
Ser Asp Met Trp Ser Ser Lys Glu Leu Gln Gly Val Leu Arg Gln Gln  
690 695 700

ggc ctg gat agg aac atg ctg ggg gcc tta acc gga ccc aac agc ctc 2160  
Gly Leu Asp Arg Asn Met Leu Gly Ala Leu Thr Gly Pro Asn Ser Leu  
705 710 715 720

agg aac ttc acc tcc cga ttc taa 2184  
Arg Asn Phe Thr Ser Arg Phe  
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20 25 30

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35 40 45

Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
50 55 60

Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Ala Asp Asn Tyr Asn Asn  
65 70 75 80

Tyr Gly Thr Thr Ser Arg Ser Ser Tyr Tyr Ser Lys Met Gln Ala Ala  
85 90 95

Asn Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg Glu  
100 105 110

Asn Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp Gly  
115 120 125

Arg His Tyr Pro Arg Gly Thr Cys Thr Thr Thr Gly Ala Gly Ser Asp  
130 135 140

Ile Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp Leu  
145 150 155 160

Tyr Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Asn Arg

165

170

175

Gly Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys Ser  
 180 185 190

Gly Gln Lys Ala Val Lys Lys Cys Pro Val Arg Pro Ser Ser Cys Thr  
 195 200 205

Ser Lys Pro Asp Pro Val Tyr Val Pro Pro Ile Ser Cys Asn Lys Asp  
 210 215 220

Leu Ser Phe Gly His Ser Arg Ala Ser Ser Lys Ile Cys Ser Glu Asp  
 225 230 235 240

Ile Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu Ser  
 245 250 255

Ser Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln His  
 260 265 270

Thr Cys Phe Gln Asp Glu Ser Ala Lys Gln Gln Val Tyr Gln Leu Gly  
 275 280 285

Gly Ile Cys Lys Leu Val Asp Leu Leu Arg Ser Pro Asn Gln Asn Val  
 290 295 300

Gln Gln Ala Ala Ala Gly Ala Leu Arg Asn Leu Val Phe Arg Ser Val  
 305 310 315 320

Thr Asn Lys Leu Glu Thr Arg Arg Gln Ser Gly Ile Arg Glu Ala Val  
 325 330 335

Ser Leu Leu Arg Arg Thr Gly Ser Thr Glu Ile Gln Lys Gln Leu Thr  
 340 345 350

Gly Leu Leu Trp Asn Leu Ser Ser Thr Asp Glu Leu Lys Glu Glu Leu  
 355 360 365

Ile Ala Asp Ala Leu Pro Val Leu Ala Asp Arg Val Ile Ile Pro Phe  
 370 375 380

Ser Gly Trp Cys Asp Gly Asn Ser Asn Val Thr Arg Glu Met Val Asp  
 385 390 395 400

Pro Glu Val Phe Phe Asn Ala Thr Gly Cys Leu Arg Asn Leu Ser Ser  
 405 410 415

Ala Asp Ala Gly Arg Gln Thr Met Arg Asn Tyr Thr Gly Leu Ile Asp  
 420 425 430

Ser Leu Met Ala Tyr Val Gln Asn Cys Val Ala Ala Ser Arg Cys Asp  
 435 440 445

Asp Lys Ser Val Glu Asn Cys Met Cys Ile Leu His Asn Leu Ser Tyr





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<212> DNA  
<213> Danio rerio

<220>  
<221> CDS  
<222> (1)..(813)

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1 5 10 15  
  
cag aac cgc att cgc cag tcg ttg gag aac tgc gtt tgc att ttg cac 96  
Gln Asn Arg Ile Arg Gln Ser Leu Glu Asn Cys Val Cys Ile Leu His  
20 25 30  
  
aac ctg acc tat cag ctg gag acc gag atg ccg act ctc ttc aac aaa 144  
Asn Leu Thr Tyr Gln Leu Glu Thr Glu Met Pro Thr Leu Phe Asn Lys  
35 40 45  
  
ata aac gct ctg gcc agt cag tct cac aac cgc tcc agt tcc tct gac 192  
Ile Asn Ala Leu Ala Ser Gln Ser His Asn Arg Ser Ser Ser Ser Asp  
50 55 60  
  
gct ggt cct atc atc tgc ttc agg tta cag agc cag aaa ctc aag cag 240  
Ala Gly Pro Ile Ile Cys Phe Arg Leu Gln Ser Gln Lys Leu Lys Gln  
65 70 75 80  
  
agg ggt ttt gac tat cct gtg atg gag gat aac aac cct gaa ggt gtg 288  
Arg Gly Phe Asp Tyr Pro Val Met Glu Asp Asn Asn Pro Glu Gly Val  
85 90 95  
  
ggc tgg ctc ttc cac tct aaa gcg ctg cag ttt tac ctc aat ctg ctg 336  
Gly Trp Leu Phe His Ser Lys Ala Leu Gln Phe Tyr Leu Asn Leu Leu  
100 105 110  
  
agt tcc agt gaa cgg gac gcc aca ctg gag gcc tgt tgt gga acc ctg 384  
Ser Ser Ser Glu Arg Asp Ala Thr Leu Glu Ala Cys Cys Gly Thr Leu  
115 120 125  
  
cag aac ctc aca gcc aat gaa ggc ata gtt gtt gtg cgt ctg act gta 432  
Gln Asn Leu Thr Ala Asn Glu Gly Ile Val Val Val Arg Leu Thr Val  
130 135 140  
  
tgt tgt gtg tgt gtt ttg ctc tat aaa gca cct cag tct ctg ccg cag 480  
Cys Cys Val Cys Val Leu Leu Tyr Lys Ala Pro Gln Ser Leu Pro Gln  
145 150 155 160  
  
ctg gtg ggt ttc ctg aac tct ggt ctt tcc aag aaa gaa tct tct cct 528  
Leu Val Gly Phe Leu Asn Ser Gly Leu Ser Lys Lys Glu Ser Ser Pro  
165 170 175  
  
gaa tat gac agt gcg atg gcc acc gct ctg cgc agc gca aac act ctg 576  
Glu Tyr Asp Ser Ala Met Ala Thr Ala Leu Arg Ser Ala Asn Thr Leu  
180 185 190  
  
att aat gcg gat cct gat act ggc aag aac ctg ctg aac aac agc ctg 624  
Ile Asn Ala Asp Pro Asp Thr Gly Lys Asn Leu Leu Asn Asn Ser Leu  
195 200 205  
  
atc aac aac ctc tac aac atg agt ctc aat agg gat ctt caa aag tcc 672  
Ile Asn Asn Leu Tyr Asn Met Ser Leu Asn Arg Asp Leu Gln Lys Ser  
210 215 220  
  
agc aaa gcg tca gca ctt ctt ctt cac aat ctg tgg tcg aat aag aat 720  
Ser Lys Ala Ser Ala Leu Leu Leu His Asn Leu Trp Ser Asn Lys Asn  
225 230 235 240  
  
atc caa agc ttt ctt aaa aag aac ggc atg aaa aag aag tcc ttt gtg 768  
Ile Gln Ser Phe Leu Lys Lys Asn Gly Met Lys Lys Lys Ser Phe Val

245

250

255

aat gaa gtg acg tca gca gct ctg aaa tct cat ctg gtt att gac 813  
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260 265 270

<210> 30  
<211> 271  
<212> PRT  
<213> Danio rerio

<400> 30

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Asn Leu Thr Tyr Gln Leu Glu Thr Glu Met Pro Thr Leu Phe Asn Lys  
35 40 45

Ile Asn Ala Leu Ala Ser Gln Ser His Asn Arg Ser Ser Ser Ser Asp  
50 55 60

Ala Gly Pro Ile Ile Cys Phe Arg Leu Gln Ser Gln Lys Leu Lys Gln  
65 70 75 80

Arg Gly Phe Asp Tyr Pro Val Met Glu Asp Asn Asn Pro Glu Gly Val  
85 90 95

Gly Trp Leu Phe His Ser Lys Ala Leu Gln Phe Tyr Leu Asn Leu Leu  
100 105 110

Ser Ser Ser Glu Arg Asp Ala Thr Leu Glu Ala Cys Cys Gly Thr Leu  
115 120 125

Gln Asn Leu Thr Ala Asn Glu Gly Ile Val Val Val Arg Leu Thr Val  
130 135 140

Cys Cys Val Cys Val Leu Leu Tyr Lys Ala Pro Gln Ser Leu Pro Gln  
145 150 155 160

Leu Val Gly Phe Leu Asn Ser Gly Leu Ser Lys Lys Glu Ser Ser Pro  
165 170 175

Glu Tyr Asp Ser Ala Met Ala Thr Ala Leu Arg Ser Ala Asn Thr Leu  
180 185 190

Ile Asn Ala Asp Pro Asp Thr Gly Lys Asn Leu Leu Asn Asn Ser Leu  
195 200 205

Ile Asn Asn Leu Tyr Asn Met Ser Leu Asn Arg Asp Leu Gln Lys Ser  
210 215 220

Ser Lys Ala Ser Ala Leu Leu Leu His Asn Leu Trp Ser Asn Lys Asn  
225 230 235 240

Ile Gln Ser Phe Leu Lys Lys Asn Gly Met Lys Lys Lys Ser Phe Val  
245 250 255

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260 265 270

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<211> 2184  
<212> DNA  
<213> Rattus norvegicus

<220>  
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<222> (1)..(2184)

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gac cag gac aac tcc acg ctc gct ttg ccc tct gac cag aag atg aag 96  
Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys Met Lys  
20 25 30  
acc gcc acg tcg gcc agg cag cgt gtg cag gag cag gtg atg atg acg 144  
Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met Met Thr  
35 40 45  
gtc aaa cgg cag aag tcc aag tct tcg cag tcg tcc acc ttg agt cac 192  
Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
50 55 60  
tcc aac cga ggt tcc atg tac gat ggg ctg gtt gac aat tac aac aac 240  
Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Val Asp Asn Tyr Asn Asn  
65 70 75 80  
tat gcc acc acg agc aga agc agc tac ttc tcc aag ttc caa gca ggg 288  
Tyr Gly Thr Thr Ser Arg Ser Ser Tyr Phe Ser Lys Phe Gln Ala Gly  
85 90 95  
aat gcc tcc tgg gga tat ccg atc tat aat ggg acc ctc aag cgg gag 336  
Asn Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg Glu  
100 105 110  
cct gac aac aga cgc ttc agc tcc tat agc cag atg gag aac tgg agc 384  
Pro Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp Ser  
115 120 125  
cgg cac tat ccc cga ggg agc tgt gcc acc aca ggc gct ggc agt gac 432  
Arg His Tyr Pro Arg Gly Ser Cys Ala Thr Thr Gly Ala Gly Ser Asp  
130 135 140  
atc tgc ttc atg cag aaa atc aag gca agc cgc agc gag cct gac ctc 480  
Ile Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp Leu  
145 150 155 160  
tac tgt gac ccg agg ggc aca ctg cgc aag ggc aca ctg ggc ggc aag 528  
Tyr Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Gly Lys  
165 170 175  
ggc caa aag acc acc cag aac cga tac agc ttt tac agc act tgc agc 576  
Gly Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys Ser  
180 185 190  
ggg cag aag gct gtc aag aag tgt ccc gtg agg ccg ccc tcc tgc acc 624  
Gly Gln Lys Ala Val Lys Lys Cys Pro Val Arg Pro Pro Ser Cys Thr  
195 200 205

tcc aag caa gac cca gtg tgc atg ccg cct atc tcc tgc aac aag gac	672
Ser Lys Gln Asp Pro Val Cys Met Pro Pro Ile Ser Cys Asn Lys Asp	
210 215 220	
atg tcc ttt ggc cac tca agg gcc agt tcc aag atc tgc agt gag gac	720
Met Ser Phe Gly His Ser Arg Ala Ser Ser Lys Ile Cys Ser Glu Asp	
225 230 235 240	
att gag tgt agc ggg ctg acc atc ccc aag gct gtg cag tac ctg tgc	768
Ile Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu Cys	
245 250 255	
tcc cag gac gag aag tac cag gcc atc gga gcc tat tac atc cag cac	816
Ser Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln His	
260 265 270	
acc tgc ttc cag gat gaa tct gcc aag caa cag gtc tat cag ctg ggg	864
Thr Cys Phe Gln Asp Glu Ser Ala Lys Gln Gln Val Tyr Gln Leu Gly	
275 280 285	
ggc atc tgc aag ctg gtg gac ctc ctc cgc agc ccc aat cag aat gtc	912
Gly Ile Cys Lys Leu Val Asp Leu Leu Arg Ser Pro Asn Gln Asn Val	
290 295 300	
cag cag gct gct gcc ggg gct ctg cgc aat ctg gtg ttc agg agc acc	960
Gln Gln Ala Ala Ala Gly Ala Leu Arg Asn Leu Val Phe Arg Ser Thr	
305 310 315 320	
act aac aag ctg gag acc agg agg cag aat ggg atc cgt gag gct gtc	1008
Thr Asn Lys Leu Glu Thr Arg Arg Gln Asn Gly Ile Arg Glu Ala Val	
325 330 335	
agc ctc ctg agg aga agc ggg agc acg gag atc cag aaa cag ttg act	1056
Ser Leu Leu Arg Arg Ser Gly Ser Thr Glu Ile Gln Lys Gln Leu Thr	
340 345 350	
ggg ctg ctc tgg aac ctg tct tcc act gac gag cta aag gag gaa ctg	1104
Gly Leu Leu Trp Asn Leu Ser Ser Thr Asp Glu Leu Lys Glu Glu Leu	
355 360 365	
gtg gcc gat gcc ctg cct gtt ctg act gac cgg gtc atc atc cct ttc	1152
Val Ala Asp Ala Leu Pro Val Leu Thr Asp Arg Val Ile Ile Pro Phe	
370 375 380	
tct ggc tgg tgt gat ggt aac agc aac atg tcc cgg gaa gta gtg gac	1200
Ser Gly Trp Cys Asp Gly Asn Ser Asn Met Ser Arg Glu Val Val Asp	
385 390 395 400	
ccc gag gtc ttc ttc aat gcc aca ggc tgc ctg agg aat ctg agt tca	1248
Pro Glu Val Phe Phe Asn Ala Thr Gly Cys Leu Arg Asn Leu Ser Ser	
405 410 415	
gct gat gct ggc cgc cag act atg cgg aac tac tct ggg ctc att gac	1296
Ala Asp Ala Gly Arg Gln Thr Met Arg Asn Tyr Ser Gly Leu Ile Asp	
420 425 430	
tcc ctc atg gcc tat gtc cag aac tgt gtg gct gcc agc cgc tgc gat	1344
Ser Leu Met Ala Tyr Val Gln Asn Cys Val Ala Ala Ser Arg Cys Asp	
435 440 445	
gac aag tct gtg gag aac tgc atg tgt atc ctg cat aac ctc tca tac	1392
Asp Lys Ser Val Glu Asn Cys Met Cys Ile Leu His Asn Leu Ser Tyr	
450 455 460	
cgc ctg gac gcc gag gtg ccc acc cgc tac cgg cag ctg gag tac aac	1440
Arg Leu Asp Ala Glu Val Pro Thr Arg Tyr Arg Gln Leu Glu Tyr Asn	
465 470 475 480	
acc cgc aat gcc tac acc gag aag tcc tcc act ggc tgc ttc agc aac	1488
Thr Arg Asn Ala Tyr Thr Glu Lys Ser Ser Thr Gly Cys Phe Ser Asn	
485 490 495	

agg ggt gac aag atg atg aac aac aac tat gac tgc cca ctc cct gag	1536
Arg Gly Asp Lys Met Met Asn Asn Asn Tyr Asp Cys Pro Leu Pro Glu	
500 505 510	
gaa gag acc aac ccc aag ggc agc agc tgg ctg tac cac tca gat gcc	1584
Glu Glu Thr Asn Pro Lys Gly Ser Ser Trp Leu Tyr His Ser Asp Ala	
515 520 525	
atc cgc acc tac ctg aac ctc atg ggc aag agc aag aaa gac gct acc	1632
Ile Arg Thr Tyr Leu Asn Leu Met Gly Lys Ser Lys Lys Asp Ala Thr	
530 535 540	
ttg gag gcc tgt gcc ggg gcc ctg cag aac ctg acc gcc agc aag ggc	1680
Leu Glu Ala Cys Ala Gly Ala Leu Gln Asn Leu Thr Ala Ser Lys Gly	
545 550 555 560	
ctg atg tcg aat ggt atg agt cag ttg att gga ata aag gaa aag ggc	1728
Leu Met Ser Asn Gly Met Ser Gln Leu Ile Gly Ile Lys Glu Lys Gly	
565 570 575	
ttg cca caa ata gcc cgt ctc ctg caa tct ggc aat tcg gat gtg gtg	1776
Leu Pro Gln Ile Ala Arg Leu Leu Gln Ser Gly Asn Ser Asp Val Val	
580 585 590	
cgg tct ggg gcc tct ctg ctg agc aac atg tct cgc cac cct gtg ctg	1824
Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg His Pro Val Leu	
595 600 605	
cac aga gtg atg ggg aat cag gtg ttc cca gag gta acc aga ctc ctc	1872
His Arg Val Met Gly Asn Gln Val Phe Pro Glu Val Thr Arg Leu Leu	
610 615 620	
act agc cac acc ggc aat acc agc aac tct gaa gat atc ctg tcc tct	1920
Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp Ile Leu Ser Ser	
625 630 635 640	
gcc tgc tac act gtg agg aac ctg atg acc tcg cag cct cag atg gcc	1968
Ala Cys Tyr Thr Val Arg Asn Leu Met Thr Ser Gln Pro Gln Met Ala	
645 650 655	
aag cag tac ttc tcc aac agc atg ctc aac aat gtc ttc aac ttg tgc	2016
Lys Gln Tyr Phe Ser Asn Ser Met Leu Asn Asn Val Phe Asn Leu Cys	
660 665 670	
cgc aac agt gcc tcc tca cct aag gct gcc gag gct gcc cgg cta ctc	2064
Arg Asn Ser Ala Ser Ser Pro Lys Ala Ala Glu Ala Ala Arg Leu Leu	
675 680 685	
ctg tct gac atg tgg gcc agc aag gag ctg cag agt gtc ctc agg cag	2112
Leu Ser Asp Met Trp Ala Ser Lys Glu Leu Gln Ser Val Leu Arg Gln	
690 695 700	
caa ggt ttc gat agg aac atg atg gga aac ata gct ggg gcc aac aac	2160
Gln Gly Phe Asp Arg Asn Met Met Gly Asn Ile Ala Gly Ala Asn Asn	
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ttc aga aac ttc acc tcc cgg ttc	2184
Phe Arg Asn Phe Thr Ser Arg Phe	
725	

<210> 32  
 <211> 728  
 <212> PRT  
 <213> Rattus norvegicus

<400> 32

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Thr	Gly	Thr	Ser	Gly	Arg	Gln	Arg	Val	Gln	Glu	Gln	Val	Met	Met	Thr		
		35					40					45					
Val	Lys	Arg	Gln	Lys	Ser	Lys	Ser	Ser	Gln	Ser	Ser	Thr	Leu	Ser	His		
	50					55						60					
Ser	Asn	Arg	Gly	Ser	Met	Tyr	Asp	Gly	Leu	Val	Asp	Asn	Tyr	Asn	Asn		
65					70					75					80		
Tyr	Gly	Thr	Thr	Ser	Arg	Ser	Ser	Tyr	Phe	Ser	Lys	Phe	Gln	Ala	Gly		
				85					90					95			
Asn	Gly	Ser	Trp	Gly	Tyr	Pro	Ile	Tyr	Asn	Gly	Thr	Leu	Lys	Arg	Glu		
			100					105					110				
Pro	Asp	Asn	Arg	Arg	Phe	Ser	Ser	Tyr	Ser	Gln	Met	Glu	Asn	Trp	Ser		
		115					120					125					
Arg	His	Tyr	Pro	Arg	Gly	Ser	Cys	Ala	Thr	Thr	Gly	Ala	Gly	Ser	Asp		
	130					135					140						
Ile	Cys	Phe	Met	Gln	Lys	Ile	Lys	Ala	Ser	Arg	Ser	Glu	Pro	Asp	Leu		
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Tyr	Cys	Asp	Pro	Arg	Gly	Thr	Leu	Arg	Lys	Gly	Thr	Leu	Gly	Gly	Lys		
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Gly	Gln	Lys	Thr	Thr	Gln	Asn	Arg	Tyr	Ser	Phe	Tyr	Ser	Thr	Cys	Ser		
			180					185					190				
Gly	Gln	Lys	Ala	Val	Lys	Lys	Cys	Pro	Val	Arg	Pro	Pro	Ser	Cys	Thr		
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Ser	Lys	Gln	Asp	Pro	Val	Cys	Met	Pro	Pro	Ile	Ser	Cys	Asn	Lys	Asp		
	210					215					220						
Met	Ser	Phe	Gly	His	Ser	Arg	Ala	Ser	Ser	Lys	Ile	Cys	Ser	Glu	Asp		
225					230					235					240		
Ile	Glu	Cys	Ser	Gly	Leu	Thr	Ile	Pro	Lys	Ala	Val	Gln	Tyr	Leu	Cys		
				245					250					255			
Ser	Gln	Asp	Glu	Lys	Tyr	Gln	Ala	Ile	Gly	Ala	Tyr	Tyr	Ile	Gln	His		
			260					265					270				
Thr	Cys	Phe	Gln	Asp	Glu	Ser	Ala	Lys	Gln	Gln	Val	Tyr	Gln	Leu	Gly		
		275					280						285				
Gly	Ile	Cys	Lys	Leu	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn	Val		
	290					295					300						

Gln	Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser	Thr		
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Thr	Asn	Lys	Leu	Glu	Thr	Arg	Arg	Gln	Asn	Gly	Ile	Arg	Glu	Ala	Val		
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Ser	Leu	Leu	Arg	Arg	Ser	Gly	Ser	Thr	Glu	Ile	Gln	Lys	Gln	Leu	Thr		
			340					345					350				
Gly	Leu	Leu	Trp	Asn	Leu	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu	Leu		
		355					360						365				
Val	Ala	Asp	Ala	Leu	Pro	Val	Leu	Thr	Asp	Arg	Val	Ile	Ile	Pro	Phe		
	370					375					380						
Ser	Gly	Trp	Cys	Asp	Gly	Asn	Ser	Asn	Met	Ser	Arg	Glu	Val	Val	Asp		
385					390					395					400		
Pro	Glu	Val	Phe	Phe	Asn	Ala	Thr	Gly	Cys	Leu	Arg	Asn	Leu	Ser	Ser		
			405						410					415			
Ala	Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Ser	Gly	Leu	Ile	Asp		
			420					425					430				
Ser	Leu	Met	Ala	Tyr	Val	Gln	Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys	Asp		
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Asp	Lys	Ser	Val	Glu	Asn	Cys	Met	Cys	Ile	Leu	His	Asn	Leu	Ser	Tyr		
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Arg	Leu	Asp	Ala	Glu	Val	Pro	Thr	Arg	Tyr	Arg	Gln	Leu	Glu	Tyr	Asn		
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Thr	Arg	Asn	Ala	Tyr	Thr	Glu	Lys	Ser	Ser	Thr	Gly	Cys	Phe	Ser	Asn		
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Arg	Gly	Asp	Lys	Met	Met	Asn	Asn	Asn	Tyr	Asp	Cys	Pro	Leu	Pro	Glu		
			500					505					510				
Glu	Glu	Thr	Asn	Pro	Lys	Gly	Ser	Ser	Trp	Leu	Tyr	His	Ser	Asp	Ala		
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Ile	Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	Lys	Asp	Ala	Thr		
	530					535					540						
Leu	Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr	Ala	Ser	Lys	Gly		
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Leu	Pro	Gln	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Gly	Asn	Ser	Asp	Val	Val		
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Arg	Ser	Gly	Ala	Ser	Leu	Leu	Ser	Asn	Met	Ser	Arg	His	Pro	Val	Leu	
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His	Arg	Val	Met	Gly	Asn	Gln	Val	Phe	Pro	Glu	Val	Thr	Arg	Leu	Leu	
		610				615					620					
Thr	Ser	His	Thr	Gly	Asn	Thr	Ser	Asn	Ser	Glu	Asp	Ile	Leu	Ser	Ser	
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Ala	Cys	Tyr	Thr	Val	Arg	Asn	Leu	Met	Thr	Ser	Gln	Pro	Gln	Met	Ala	
				645					650					655		
Lys	Gln	Tyr	Phe	Ser	Asn	Ser	Met	Leu	Asn	Asn	Val	Phe	Asn	Leu	Cys	
			660					665						670		
Arg	Asn	Ser	Ala	Ser	Ser	Pro	Lys	Ala	Ala	Glu	Ala	Ala	Arg	Leu	Leu	
			675				680						685			
Leu	Ser	Asp	Met	Trp	Ala	Ser	Lys	Glu	Leu	Gln	Ser	Val	Leu	Arg	Gln	
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Gln	Gly	Phe	Asp	Arg	Asn	Met	Met	Gly	Asn	Ile	Ala	Gly	Ala	Asn	Asn	
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Phe	Arg	Asn	Phe	Thr	Ser	Arg	Phe									
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<210> 33
<211> 450
<212> DNA
<213> Pan troglodytes

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<220>
<221> CDS
<222> (1)..(450)

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aac	tgt	gta	gcg	gcc	agc	cgc	tgt	gac	gac	aag	tct	gtg	gaa	aac	tgc	96
Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys	Asp	Asp	Lys	Ser	Val	Glu	Asn	Cys	
			20					25					30			
atg	tgt	gtt	ctg	cac	aac	ctc	tcc	tac	cgc	ctg	gac	gcc	gag	gtg	ccc	144
Met	Cys	Val	Leu	His	Asn	Leu	Ser	Tyr	Arg	Leu	Asp	Ala	Glu	Val	Pro	
			35				40					45				
acc	cgc	tac	cgc	cag	ctg	gag	tat	aac	gcc	cgc	aac	gcc	tac	acc	gag	192
Thr	Arg	Tyr	Arg	Gln	Leu	Glu	Tyr	Asn	Ala	Arg	Asn	Ala	Tyr	Thr	Glu	
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aag	tcc	tcc	acc	ggc	tgc	ttc	agc	aac	aag	agc	gac	aag	atg	atg	aac	240
Lys	Ser	Ser	Thr	Gly	Cys	Phe	Ser	Asn	Lys	Ser	Asp	Lys	Met	Met	Asn	
65					70					75					80	
aac	aac	tat	gac	tgc	ccc	ctg	cct	gag	gaa	gag	acc	aac	ccc	aag	ggc	288
Asn	Asn	Tyr	Asp	Cys	Pro	Leu	Pro	Glu	Glu	Glu	Thr	Asn	Pro	Lys	Gly	
				85					90						95	

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100105110

atg ggc aag agg cag tgt tgc tgt ctg cgt gtc cac ctt gga atc tgg384  
Met Gly Lys Arg Gln Cys Cys Cys Leu Arg Val His Leu Gly Ile Trp  
115120125

ctg aac tgg ctg gga gga cca aga ctg cgg ctg ggg tgg gca ggg aag432  
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130135140

gga agc cgg ggg ctg ctg450  
Gly Ser Arg Gly Leu Leu  
145150

<210> 34  
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<212> PRT  
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Met 1250	Thr	Ile	Gln	Lys	Ala	Ile 1255	Gln	Leu	Leu	Cys	Ser 1260	Ser	Asp	Asp		
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Lys 1265	Tyr	Gln	Ala	Met	Gly	Ala 1270	Tyr	Tyr	Leu	Gln	His 1275	Thr	Cys	Phe		
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Gln 1280	Asp	Glu	Ser	Ala	Lys	Gln 1285	Glu	Val	Tyr	Arg	Leu 1290	Gly	Gly	Ile		
gcc	aag	ctc	gtt	gag	ctg	ctc	cgc	agc	aca	aac	cag	aac	gta	cag		3924
Ala 1295	Lys	Leu	Val	Glu	Leu	Leu 1300	Arg	Ser	Thr	Asn	Gln 1305	Asn	Val	Gln		
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Arg 1310	Ala	Ala	Ala	Gly	Ala	Leu 1315	Arg	Asn	Leu	Val	Phe 1320	Arg	Asn	Pro		
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Glu 1370	Glu	Leu	Ile	Gln	Glu	Ala 1375	Leu	Pro	Val	Leu	Thr 1380	Asp	Cys	Val		
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Ile 1385	Ile	Pro	Phe	Ser	Gly	Trp 1390	Ser	Asp	Gly	Gly	Cys 1395	Asn	Arg	Thr		
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Asn	Tyr	Pro	Gly	Leu	Ile	Asp	Ser	Val	Met	Thr	Tyr	Ala	Gln	Asn	
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Cys	Val	Ala	Ser	Asn	Arg	Pro	Asp	Asp	Lys	Ser	Val	Glu	Asn	Cys	
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Ile	Cys	Ile	Leu	His	Asn	Leu	Ser	Tyr	Arg	Leu	Asp	Ala	Glu	Val	
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ccc	aac	aaa	tac	acc	caa	ctc	aac	cac	atg	gcc	cgg	agc	gtt	tac	4464
Pro	Asn	Lys	Tyr	Thr	Gln	Leu	Asn	His	Met	Ala	Arg	Ser	Val	Tyr	
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Lys	Pro	Lys	Gly	Pro	Ser	Trp	Leu	Tyr	His	Ser	Asp	Ala	Ile	Arg	
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Ser	Arg	Leu	Leu	Ser	Phe	Gln	Ser	Gly	Asn	Thr	Asn	Ser	Tyr	Gly	
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Glu	Ile	Met	Thr	Ser	Ala	Cys	Tyr	Thr	Leu	Arg	Asn	Leu	Ile	Met	
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Asn	Asn	Val	Val	Ser	Leu	Cys	Arg	Asn	Gly	Ser	Cys	Pro	Lys	Ala			
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Glu	Leu	Gln	Ser	Val	Leu	Lys	Gln	Glu	Leu	Val	Lys	Leu	Cys	Thr			
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Gly	Ala	Ala	Asp														
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Leu	Val	Leu	Leu	Val	Gln	Val	Trp	Leu	Val	Gln	Gly	Gln	Leu	Gly	Leu		
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His	Met	Gly	Arg	Met	Val	Phe	Gln	Leu	Gly	Leu	Val	Leu	Val	Val	Gln		
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Gly	Val	Lys	Lys	Ser	Trp	Asp	Leu	Ser	Met	Val	Arg	Met	Leu	Cys	Leu		
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Ala	Glu	Leu	Lys	Asp	Ile	His	Asp	Leu	Thr	Gly	Thr	Trp	Phe	Lys	Asp		
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Gly	Leu	Lys	Leu	Thr	Ser	Met	Asp	Gly	Val	Ser	Leu	Glu	Lys	Glu	Gly		
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Leu	Val	His	Lys	Leu	Val	Ile	Ser	Lys	Val	Glu	Asp	Ile	His	Ala	Gly		
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Lys	Tyr	Arg	Phe	Glu	Ala	Gly	Asp	Ile	Lys	Thr	Glu	Ala	Ser	Ile	Phe		
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Val	Glu	Asp	Lys	Pro	Gln	Pro	Pro	Ala	Gly	Pro	Met	Lys	Ile	Val	Glu		
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Ser	Ser	Ala	Asn	Asp	Val	Thr	Ile	Gln	Trp	Asn	Pro	Pro	Lys	Asp	Asp		
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Gly	Gly	Lys	Pro	Val	Gln	Asn	Tyr	Ile	Ile	Glu	Lys	Gln	Gln	Val	Gly		
			180					185					190				

Lys	Ser	Asp	Trp	Val	Ala	Val	Gly	Glu	Thr	Pro	Arg	Ser	Cys	Thr	Thr		
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195

200

205

Phe Thr Thr Ser Lys Val Glu Gln Asp Met Ser Tyr Tyr Phe Arg Val  
210 215 220

Arg Ala Val Asn Ala Glu Gly Thr Ser Asp Ala Leu Glu Ser Asp Glu  
225 230 235 240

Val Val Thr Ile Ser Lys Asp Pro Pro Glu Ile Ile Gly Val Ser Lys  
245 250 255

Asp Thr Ile Thr Ile Ser Trp Lys Thr Pro Arg Arg Ala Gly Ser Ser  
260 265 270

Arg Ile Ser Gly Tyr Ile Val Gln Lys Arg Lys Met Gly Ser Met Thr  
275 280 285

Trp Val Pro Val Asn Ser Val Pro Val Ala Asp Lys Lys Leu Lys Ile  
290 295 300

Thr Asp Leu Lys Lys Gly Leu Gln Tyr Glu Phe Cys Val Ala Ala Val  
305 310 315 320

Asn Ala Ser Gly Ile Gly Asp Met Ser Ala Pro Ser Gln Ser Val Phe  
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Ala Arg Asp Ser Thr Thr Lys Glu Gly Ser Ala Val Glu Gly Tyr Asn  
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Val Glu Met Arg Ser Ser Asn Asn Leu Ser Trp Thr Lys Cys Asn Ile  
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Phe Pro Ile Glu Thr Thr Thr Tyr Lys Val Lys Gly Leu Gln Thr Lys  
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Gly Thr Tyr Phe Leu Arg Asp Gly Val Pro Leu Pro Ser Arg Ala Lys  
385 390 395 400

Ile Ser Thr Gln Asp Asp Thr Ser Gln Leu Leu Ile Lys Ala Ala Gln  
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Phe Thr Asp Ser Gly Ile Tyr Thr Val Glu Leu Thr Ser Gly Thr Gly  
420 425 430

Lys Arg Glu Thr Phe Ser Phe Gln Val Gln Val Thr Asp Ile Pro Gln  
435 440 445

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

Val Thr Trp Glu Pro Ser Thr Ser Glu Lys Trp Glu Ser Asn Leu Phe  
465 470 475 480

Tyr Thr Val Leu Lys Arg Glu Ser Arg Lys Gly Leu Trp His Val Ile

485

490

495

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

Gly Arg Asp Tyr Tyr Phe Arg Val Val Ala Lys Asn His Leu Gly Ser  
 515 520 525

Ser Cys Pro Ser Asp Thr Val Gln Pro Trp Arg Ile Arg Lys Pro Lys  
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Ala Asp Ile Gln Val Arg Pro Gln Arg Tyr Lys Gly Val Asn Gln Asn  
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Gln Pro Pro Arg Phe Leu Val Pro Leu Lys Pro His Val Val Thr Thr  
 565 570 575

Gly Ser Glu Cys Arg Met Ser Cys Ala Val Gly Gly His Pro Pro Pro  
 580 585 590

Lys Val Thr Trp Tyr Lys Asp Gly Lys Asp Leu Ser Asn Asn Pro Ser  
 595 600 605

Tyr Phe Gly Thr Asn Asp Phe Gly Val Cys Ser Leu Val Ile Leu Gly  
 610 615 620

Val Ser Lys Ala Asp Glu Gly Asp Tyr Thr Val Glu Ala Thr Asn Glu  
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Ser Gly Arg Ala Phe Ser Arg Ala Ser Leu Thr Ile Lys Ala Gln Leu  
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Ser Ala Gly Ser Ser Ser Gln His Arg Ser Ser Ala Val Val Trp His  
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Ile Val Ala Phe Val Leu Thr His Cys Thr Lys Arg Lys Gly Phe His  
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Asn Arg Val Glu Pro Arg Ala Ser Ser Arg His Arg Arg Ala Arg Ser  
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Leu Pro Lys Leu Gly Pro Val Ile Ser Ala Pro Ser Pro Val Gly Thr  
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Ser Ser Pro Phe Pro Ala Ala Phe Arg Ser Trp Gly Ser Ser Leu Cys  
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Ala Gly Gly Gly Glu Glu Glu Cys Gly Asp Leu Pro Thr Glu Asn Gly  
 740 745 750

Arg Glu Ala Ala Gly Asp Gly Gln His Leu Asn Gln Ser Gly Gly Gly  
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Ser Leu Gly Ala Ala Lys Ala Thr Thr Arg Glu Pro Glu Pro Met Gly

770

775

780

Ile Gln Leu Ala Val Gly Ala Ala Ser Gly Ala Gln Asp Ala Gly Gly  
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Lys Glu Asn Ser Ala Val Pro Arg Val Glu Gly Ala Pro Ser Asp Pro  
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Pro Gly Gly Lys Asp Leu Pro Arg Gly Ala Glu Gln Arg Arg Gly Cys  
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Ala His Glu Glu Gly Arg Phe Ser Ser Gly Arg Asn Leu Gly Lys Cys  
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Gln Leu Ser His Gly Ser Glu Asn Ala Ile Ile Val Gly Asp Ala Pro  
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His Pro Arg Leu Ser Ser Val Cys Pro Pro Pro Leu Pro Arg Arg Ala  
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Pro Pro Gly Ser Ser Thr Pro Arg Cys Arg Gly Gly Thr Ala Glu Pro  
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Pro Ser Ala Asp Thr Phe Ser Ser Gly Ala Pro Asp Lys Phe Glu Gln  
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Lys Ala Pro His Arg Ser Gly Ser Ser Ile Gly Pro Ala Ser Pro Leu  
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Ile Ala Ile Arg Gln Leu Ala Gly Ile Pro Glu Leu Gly Val Arg Ala  
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Ala Glu Leu Pro Ala Leu Gln Gly Arg Glu Arg Arg Arg Arg Gly Ala  
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Pro Leu Ala Tyr Glu Cys Phe Gln Asp Gln Ala Ser Ser Thr Leu Ala  
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Leu Pro Ser Asp His Lys Leu Lys Thr Lys Gly Thr Gly Lys Gln Arg  
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Val Gln Glu Gln Val Met Met Thr Val Lys Arg Gln Lys Gln Lys  
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Ser Ser Val Ser Ser Ser Val Gly His Ser Asn Arg Gly Ser Met  
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Tyr Asp Cys Val Ala Asp Gly Tyr Gly Tyr Gly Thr Ser Arg Gly  
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Ser Tyr Tyr Thr Lys Thr Gln Met Gly Asn Ser Ser Trp Gly Tyr

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Ser	Lys	Ala	Val	Cys	Ser	Pro	Asn	Arg	Ala	Gly	Ser	Asp	Tyr	Cys	
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Phe	Val	Gln	Asn	Ile	Lys	Ser	Ser	Arg	Ser	Glu	Pro	Asp	Leu	Tyr	
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Cys	Glu	Pro	Pro	Arg	Gly	Thr	Leu	Arg	Lys	Ser	Gln	Val	Gly	Gly	
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Gly	Leu	Pro	Arg	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Asn	Ser	Ser	Glu	
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1595

1600

1605

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Glu Ile Met Thr Ser Ala Cys Tyr Thr Leu Arg Asn Leu Ile Met

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Ser Asn Pro His Leu Gly Lys Cys Tyr Leu Thr Ser Asn Met Leu

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Asn Asn Val Val Ser Leu Cys Arg Asn Gly Ser Cys Pro Lys Ala

167016751680

Ala Glu Ala Ala Arg Leu Leu Leu Thr Asp Leu Trp Ser Asn Arg

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Gly Ser Thr Ser Gly Ser Tyr Thr Ala Pro Trp Glu Arg Asp Arg Ala

354045

144

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Val Pro His Glu Ala Asp Gly Pro Ala Gly Arg Leu Glu Pro Ala Gly

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192

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Lys Ile Thr Gln Ala Ala Pro Ser Asn Thr Gly Met Glu Pro Glu Thr

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288

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Thr Ala Thr Asn Ile Leu Ala Ser Val Lys Glu Gln Glu Leu Gln Phe

336

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



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Ser	Ser	Gln	Ala	Pro	Met	Gly	Ser	Ser	Ser	Ser	Pro	Lys	Arg	Ala	Gly									
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Met	Thr	Ala	Val	Pro	Gln	His	Met	Gly	Thr	Leu	Gln	Arg	Asn	Leu	His									
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Asp	Ile	Asp	Gln	Tyr	Gly	Gln	Gln	His	Tyr	Asp	Ile	Tyr	Glu	Arg	Met									
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Val	Pro	Ser	Arg	Pro	Asp	Ser	Leu	Thr	Gly	Leu	Arg	Ser	Ser	Tyr	Ala									
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agt	caa	cac	agt	caa	ctt	gga	cag	gaa	ctg	aga	tca	aca	gta	tca	ccc	1440								
Ser	Gln	His	Ser	Gln	Leu	Gly	Gln	Glu	Leu	Arg	Ser	Thr	Val	Ser	Pro									
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Asp	Leu	Gln	Ile	Thr	Pro	Ile	Tyr	Glu	Gly	Arg	Thr	Tyr	Tyr	Ser	Pro									
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gtc	tac	cgc	aac	gcc	aac	cat	gcg	gcc	ata	gag	ctc	agg	caa	ggc	tca	1536								
Val	Tyr	Arg	Asn	Ala	Asn	His	Ala	Ala	Ile	Glu	Leu	Arg	Gln	Gly	Ser									
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acc	atg	agc	aat	cgt	agc	aca	ctt	gca	tac	caa	aga	aat	aat	tat	gcg	1632								
Thr	Met	Ser	Asn	Arg	Ser	Thr	Leu	Ala	Tyr	Gln	Arg	Asn	Asn	Tyr	Ala									
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Pro	Arg	Glu	Phe	Ala	Trp	Arg	Asp	Pro	Glu	Leu	Pro	Glu	Val	Ile	Tyr									
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Arg	Leu	Gly	Gly	Ile	Lys	His	Leu	Val	Asp	Leu	Leu	Asp	Asn	Lys	Val									
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Leu	Glu	Val	Gln	Lys	Asn	Ala	Cys	Gly	Ala	Leu	Arg	Asn	Leu	Val	Tyr									
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cct	ggg	ctt	tcc	cag	tcc	ccc	aaa	gga	gtg	gaa	atg	ctg	tgg	cac	cca	2688				
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gga	ctt	cct	att	ctg	gtt	gaa	ctc	ctg	aga	atg	gat	aat	gat	agg	gtt	2880				
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965

970

975

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

Val Pro His Glu Ala Asp Gly Pro Ala Gly Arg Leu Glu Pro Ala Gly
50 55 60

Gly Met Pro Val Pro Gly Gln Thr Ser Leu Met Glu Glu Ala Leu Gln
65 70 75 80

Lys Ile Thr Gln Ala Ala Pro Ser Asn Thr Gly Met Glu Pro Glu Thr
85 90 95

Thr Ala Thr Asn Ile Leu Ala Ser Val Lys Glu Gln Glu Leu Gln Phe
100 105 110

Glu Arg Leu Thr Arg Glu Leu Glu Val Glu Arg Gln Ile Val Ala Asn
115 120 125

Gln Leu Glu Arg Cys Arg Leu Gly Ala Glu Ser Pro Ser Ile Ala Ser
130 135 140

Val Ser Ser Thr Glu Lys Ser Phe Pro Trp Arg Ser Gly Asp Val Pro
145 150 155 160

Ala Gly Gly Pro Ser Lys Pro Arg Leu Ser Asp Ser Ser His Pro Asn
165 170 175

His Phe Leu Ile Arg Ser Glu Pro Glu Pro Met Ala Val Tyr Ser Pro
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Glu Gln Ser Ser Leu His Glu Ser Glu Gly Ser Met Gly Asn Ser Arg
195 200 205

Ser Ser Thr Gln Met Asn Ser Tyr Ser Asp Ser Gly Tyr Gln Glu Ala
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Gly	Ser	Phe	His	Asn	Asn	Asn	Ile	Gly	Lys	Ala	Glu	Leu	Arg	Ala	Gln	225	230	235	240
Leu	Ser	Phe	Thr	Gly	Ser	Thr	Gly	Asn	His	Val	Val	Arg	Asn	Ser	Arg	245	250	255	
Ala	Glu	Gly	Gln	Thr	Leu	Val	Gln	Pro	Pro	Pro	Pro	Asn	Thr	Met	Ala	260	265	270	
Gly	Ser	Arg	Ala	Val	Arg	Arg	Val	Ser	Ser	Val	Pro	Ser	Arg	Ser	Gln	275	280	285	
Ser	Pro	Ser	Tyr	Val	Ile	Gly	Ser	Gly	Val	Ser	Pro	Ser	Arg	Gly	Ser	290	295	300	
Leu	Arg	Thr	Ser	Val	Gly	Ser	Gly	Tyr	Gly	Ser	Pro	Thr	Ile	Ser	Asp	305	310	315	320
Pro	Arg	Pro	Leu	Ala	Thr	Ser	Asn	Thr	Tyr	Ser	Ser	Thr	Thr	Leu	Pro	325	330	335	
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Pro	Asn	Thr	Met	Thr	Ser	Ser	Tyr	Gln	Thr	Leu	Gly	Ser	Ser	Ala	Arg	370	375	380	
Val	Gly	Ser	Pro	Leu	Thr	Leu	Ser	Asp	Ala	His	Ser	Arg	Val	Gly	Ser	385	390	395	400
Ser	Ser	Gln	Ala	Pro	Met	Gly	Ser	Ser	Ser	Ser	Pro	Lys	Arg	Ala	Gly	405	410	415	
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Asp	Ile	Asp	Gln	Tyr	Gly	Gln	Gln	His	Tyr	Asp	Ile	Tyr	Glu	Arg	Met	435	440	445	
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Asp	Leu	Gln	Ile	Thr	Pro	Ile	Tyr	Glu	Gly	Arg	Thr	Tyr	Tyr	Ser	Pro	485	490	495	
Val	Tyr	Arg	Asn	Ala	Asn	His	Ala	Ala	Ile	Glu	Leu	Arg	Gln	Gly	Ser	500	505	510	

His	Thr	Ala	Ile	Tyr	Arg	Thr	Gly	Ser	Gly	Ser	Gly	Asn	Leu	Gln	Arg
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	530					535					540				
Leu	Asn	Thr	Ala	Ala	Asn	Tyr	Ala	Glu	Pro	Tyr	Arg	Ser	Met	Gln	Tyr
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Arg	Ile	Ser	Glu	Ser	Gly	Tyr	Asn	Arg	Met	Pro	His	Thr	Ala	Pro	Pro
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Leu	Gln	His	Leu	Cys	Phe	Gly	Asp	His	Lys	Thr	Lys	Ile	Glu	Val	Cys
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Arg	Leu	Gly	Gly	Ile	Lys	His	Leu	Val	Asp	Leu	Leu	Asp	Asn	Lys	Val
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Gly	Lys	Ser	Thr	Asp	Glu	Asn	Lys	Ile	Ala	Val	Lys	Asn	Ala	Gly	Gly
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Val	Pro	Ala	Leu	Leu	Arg	Leu	Leu	Arg	Lys	Thr	Asn	Asp	Gln	Glu	Val
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Arg	Glu	Leu	Val	Thr	Gly	Val	Leu	Trp	Asn	Leu	Ser	Ser	Cys	Asp	Ala
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Val	Lys	Met	Thr	Ile	Ile	Arg	Asp	Ala	Leu	Ser	Pro	Leu	Thr	Asn	Thr
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Val	Ile	Val	Pro	His	Ser	Gly	Phe	Asn	Asn	Ser	Ser	Phe	Asp	Asp	Asp
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His	Lys	Met	Lys	Phe	Gln	Ser	Ser	Ser	Val	Leu	Arg	Asn	Thr	Thr	Gly
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Cys	Met	Arg	Asn	Leu	Ser	Ser	Ala	Gly	Glu	Glu	Ala	Arg	Lys	Gln	Met
	770					775					780				
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785					790					795					800

Cys	Val	Asn	Thr	Ser	Asp	Phe	Asp	Ser	Lys	Thr	Val	Glu	Asn	Cys	Val	805	810	815
Cys	Thr	Leu	Arg	Asn	Leu	Ser	Tyr	Arg	Leu	Glu	Leu	Glu	Val	Pro	Gln	820	825	830
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Pro	Ser	Lys	Asp	Ser	Asp	Ser	Ser	Cys	Trp	Gly	Lys	Lys	Lys	Lys	Lys	850	855	860
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Val	Ser	Ser	Val	Ala	Thr	Ala	Leu	Arg	Asn	Met	Ala	Leu	Asp	Val	Arg	965	970	975
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Lys	Ala	Ala	Ala	Gln	Val	Leu	Asn	Thr	Leu	Trp	Gln	Tyr	Arg	Asp		1055	1060	1065
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cgg cag atg ggc cag ccc tgt gat gct tac cag aaa agg ctt ctt cag Arg Gln Met Gly Gln Pro Cys Asp Ala Tyr Gln Lys Arg Leu Leu Gln 130 135 140	432
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gtc	ctc	aat	cag	cat	cca	gct	tca	gac	aaa	att	gag	gcc	tat	atg	gac	1056
Val	Leu	Asn	Gln	His	Pro	Ala	Ser	Asp	Lys	Ile	Glu	Ala	Tyr	Met	Asp	
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Thr	Leu	Gln	Thr	Gln	Trp	Ser	Trp	Ile	Leu	Gln	Ile	Thr	Lys	Cys	Ile	
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Lys	Lys	Tyr	Pro	Cys	Asp	Lys	Asn	Met	Pro	Leu	Gln	His	Leu	Leu	Glu	
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Gln	Ile	Lys	Glu	Leu	Glu	Lys	Glu	Arg	Glu	Lys	Ile	Leu	Glu	Tyr	Lys	
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Arg	Gln	Val	Gln	Asn	Leu	Val	Asn	Lys	Ser	Lys	Lys	Ile	Val	Gln	Leu	
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Lys	Pro	Arg	Asn	Pro	Asp	Tyr	Arg	Ser	Asn	Lys	Pro	Ile	Ile	Leu	Arg	
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Glu	Cys	Ile	Leu	Lys	Asp	Asn	Asn	Glu	Arg	Ser	Lys	Trp	Tyr	Val	Thr	
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Pro	Pro	Pro	Asn	Pro	Leu	Ala	Val	Asp	Leu	Ser	Cys	Lys	Ile	Glu	Gln	
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Tyr	Tyr	Glu	Ala	Ile	Leu	Ala	Leu	Trp	Asn	Gln	Leu	Tyr	Ile	Asn	Met	
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Lys Tyr Ser Leu Val Glu Ala Lys Arg Lys Lys Leu Ile Ser Pro	
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Glu Ser Thr Val Met Leu Leu Glu Ala Gln Ala Ala Thr Gly Gly	
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Ile Ala Arg Asp Leu Ile Asp Phe Asp Asp Arg Gln Gln Ile Tyr	
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Lys Thr Val Ser Val Ser Glu Ala Ile Lys Lys Asn Leu Ile Asp	
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gaa Glu 1745	aca Thr	gga Gly	aac Asn	atc Ile	atc Ile	tct Ser 1750	ttg Leu	ttc Phe	caa Gln	gcc Ala	atg Met 1755	aat Asn	aag Lys	gaa Glu	5274
ctc Leu 1760	atc Ile	gaa Glu	aag Lys	ggc Gly	cac His	ggt Gly 1765	att Ile	cgc Arg	tta Leu	tta Leu	gaa Glu 1770	gca Ala	cag Gln	atc Ile	5319
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gag Glu 1805	att Ile	ctc Leu	tca Ser	gat Asp	cca Pro	agt Ser 1810	gat Asp	gat Asp	acc Thr	aaa Lys	gga Gly 1815	ttt Phe	ttt Phe	gac Asp	5454
ccc Pro 1820	aac Asn	act Thr	gaa Glu	gaa Glu	aat Asn	ctt Leu 1825	acc Thr	tat Tyr	ctg Leu	caa Gln	cta Leu 1830	aaa Lys	gaa Glu	aga Arg	5499
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ctt Leu 1940	gtt Val	gac Asp	agg Arg	aag Lys	ttc Phe	ttt Phe 1945	gat Asp	cag Gln	tac Tyr	cga Arg	tcc Ser 1950	ggc Gly	agc Ser	ctc Leu	5859
agc Ser 1955	ctc Leu	act Thr	caa Gln	ttt Phe	gct Ala	gac Asp 1960	atg Met	atc Ile	tcc Ser	ttg Leu	aaa Lys 1965	aat Asn	ggg Gly	gtc Val	5904
ggc Gly 1970	acc Thr	agc Ser	agc Ser	agc Ser	atg Met	ggc Gly 1975	agt Ser	ggg Gly	gtc Val	agc Ser	gat Asp 1980	gat Asp	gtt Val	ttt Phe	5949

agc Ser 1985	agc Ser 1985	tcc Ser	cga Arg	cat His	gaa Glu	tca Ser 1990	gta Val	agt Ser	aag Lys	att Ile	tcc Ser 1995	acc Thr	ata Ile	tcc Ser	5994
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ctg Leu 2015	gaa Glu	gaa Glu	tcg Ser	agc Ser	ccc Pro	att Ile 2020	gca Ala	gcc Ala	atc Ile	ttt Phe	gac Asp 2025	aca Thr	gaa Glu	aac Asn	6084
ctg Leu 2030	gag Glu	aaa Lys	atc Ile	tcc Ser	att Ile 2035	aca Thr 2035	gaa Glu	ggc Gly	ata Ile	gag Glu	cgg Arg 2040	ggc Gly	atc Ile	gtt Val	6129
gac Asp 2045	agc Ser	atc Ile	acg Thr	ggc Gly	cag Gln	agg Arg 2050	ctt Leu	ctg Leu	gag Glu	gct Ala	cag Gln 2055	gcc Ala	tgc Cys	aca Thr	6174
ggc Gly 2060	ggc Gly	atc Ile	atc Ile	cac His	cca Pro	acc Thr 2065	acg Thr	ggc Gly	cag Gln	aag Lys	ctg Leu 2070	tca Ser	ctt Leu	cag Gln	6219
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aaa Lys 2180	acc Thr	aaa Lys	tta Leu	aaa Lys	ata Ile	tcc Ser 2185	tat Tyr	aag Lys	gat Asp	gcc Ala	ata Ile 2190	aat Asn	cgc Arg	tcc Ser	6579
atg Met 2195	gta Val	gaa Glu	gat Asp	atc Ile	act Thr	ggg Gly 2200	ctg Leu	cgc Arg	ctt Leu	ctg Leu	gaa Glu 2205	gcc Ala	gcc Ala	tcc Ser	6624
gtg Val 2210	tcg Ser	tcc Ser	aag Lys	ggc Gly	tta Leu	ccc Pro 2215	agc Ser	cct Pro	tac Tyr	aac Asn	atg Met 2220	tct Ser	tcg Ser	gct Ala	6669
ccg Pro 2225	ggg Gly	tcc Ser	cgc Arg	tcc Ser	ggc Gly	tcc Ser 2230	cgc Arg	tcg Ser	gga Gly	tct Ser	cgc Arg 2235	tcc Ser	gga Gly	tct Ser	6714
cgc Arg 2240	tcc Ser	ggg Gly	tcc Ser	cgc Arg	agt Ser	ggg Gly 2245	tcc Ser	cgg Arg	aga Arg	gga Gly	agc Ser 2250	ttt Phe	gac Asp	gcc Ala	6759



aca ggg aat tct tcc tac tct tat tcc tac tca ttt agc agt agt 6804  
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2255 2260 2265

tct att ggg cac 6816  
Ser Ile Gly His  
2270

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<211> 2272  
<212> PRT  
<213> Homo sapiens

<400> 40

Met Ser Cys Asn Gly Gly Ser His Pro Arg Ile Asn Thr Leu Gly Arg  
1 5 10 15

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

Gly Gly Gly Gly Thr Ser Arg Met Tyr Tyr Ser Arg Arg Gly Val Ile  
35 40 45

Thr Asp Gln Asn Ser Asp Gly Tyr Cys Gln Thr Gly Thr Met Ser Arg  
50 55 60

His Gln Asn Gln Asn Thr Ile Gln Glu Leu Leu Gln Asn Cys Ser Asp  
65 70 75 80

Cys Leu Met Arg Ala Glu Leu Ile Val Gln Pro Glu Leu Lys Tyr Gly  
85 90 95

Asp Gly Ile Gln Leu Thr Arg Ser Arg Glu Leu Asp Glu Cys Phe Ala  
100 105 110

Gln Ala Asn Asp Gln Met Glu Ile Leu Asp Ser Leu Ile Arg Glu Met  
115 120 125

Arg Gln Met Gly Gln Pro Cys Asp Ala Tyr Gln Lys Arg Leu Leu Gln  
130 135 140

Leu Gln Glu Gln Met Arg Ala Leu Tyr Lys Ala Ile Ser Val Pro Arg  
145 150 155 160

Val Arg Arg Ala Ser Ser Lys Gly Gly Gly Gly Tyr Thr Cys Gln Ser  
165 170 175

Gly Ser Gly Trp Asp Glu Phe Thr Lys His Val Thr Ser Glu Cys Leu  
180 185 190

Gly Trp Met Arg Gln Gln Arg Ala Glu Met Asp Met Val Ala Trp Gly  
195 200 205

Val Asp Leu Ala Ser Val Glu Gln His Ile Asn Ser His Arg Gly Ile  
210 215 220

His	Asn	Ser	Ile	Gly	Asp	Tyr	Arg	Trp	Gln	Leu	Asp	Lys	Ile	Lys	Ala	225	230	235	240
Asp	Leu	Arg	Glu	Lys	Ser	Ala	Ile	Tyr	Gln	Leu	Glu	Glu	Glu	Tyr	Glu	245	250	255	
Asn	Leu	Leu	Lys	Ala	Ser	Phe	Glu	Arg	Met	Asp	His	Leu	Arg	Gln	Leu	260	265	270	
Gln	Asn	Ile	Ile	Gln	Ala	Thr	Ser	Arg	Glu	Ile	Met	Trp	Ile	Asn	Asp	275	280	285	
Cys	Glu	Glu	Glu	Glu	Leu	Leu	Tyr	Asp	Trp	Ser	Asp	Lys	Asn	Thr	Asn	290	295	300	
Ile	Ala	Gln	Lys	Gln	Glu	Ala	Phe	Ser	Ile	Arg	Met	Ser	Gln	Leu	Glu	305	310	315	320
Val	Lys	Glu	Lys	Glu	Leu	Asn	Lys	Leu	Lys	Gln	Glu	Ser	Asp	Gln	Leu	325	330	335	
Val	Leu	Asn	Gln	His	Pro	Ala	Ser	Asp	Lys	Ile	Glu	Ala	Tyr	Met	Asp	340	345	350	
Thr	Leu	Gln	Thr	Gln	Trp	Ser	Trp	Ile	Leu	Gln	Ile	Thr	Lys	Cys	Ile	355	360	365	
Asp	Val	His	Leu	Lys	Glu	Asn	Ala	Ala	Tyr	Phe	Gln	Phe	Phe	Glu	Glu	370	375	380	
Ala	Gln	Ser	Thr	Glu	Ala	Tyr	Leu	Lys	Gly	Leu	Gln	Asp	Ser	Ile	Arg	385	390	395	400
Lys	Lys	Tyr	Pro	Cys	Asp	Lys	Asn	Met	Pro	Leu	Gln	His	Leu	Leu	Glu	405	410	415	
Gln	Ile	Lys	Glu	Leu	Glu	Lys	Glu	Arg	Glu	Lys	Ile	Leu	Glu	Tyr	Lys	420	425	430	
Arg	Gln	Val	Gln	Asn	Leu	Val	Asn	Lys	Ser	Lys	Lys	Ile	Val	Gln	Leu	435	440	445	
Lys	Pro	Arg	Asn	Pro	Asp	Tyr	Arg	Ser	Asn	Lys	Pro	Ile	Ile	Leu	Arg	450	455	460	
Ala	Leu	Cys	Asp	Tyr	Lys	Gln	Asp	Gln	Lys	Ile	Val	His	Lys	Gly	Asp	465	470	475	480
Glu	Cys	Ile	Leu	Lys	Asp	Asn	Asn	Glu	Arg	Ser	Lys	Trp	Tyr	Val	Thr	485	490	495	
Gly	Pro	Gly	Gly	Val	Asp	Met	Leu	Val	Pro	Ser	Val	Gly	Leu	Ile	Ile	500	505	510	

Pro	Pro	Pro	Asn	Pro	Leu	Ala	Val	Asp	Leu	Ser	Cys	Lys	Ile	Glu	Gln
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Tyr	Tyr	Glu	Ala	Ile	Leu	Ala	Leu	Trp	Asn	Gln	Leu	Tyr	Ile	Asn	Met
	530					535					540				
Lys	Ser	Leu	Val	Ser	Trp	His	Tyr	Cys	Met	Ile	Asp	Ile	Glu	Lys	Ile
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Arg	Ala	Met	Thr	Ile	Ala	Lys	Leu	Lys	Thr	Met	Arg	Gln	Glu	Asp	Tyr
				565					570					575	
Met	Lys	Thr	Ile	Ala	Asp	Leu	Glu	Leu	His	Tyr	Gln	Glu	Phe	Ile	Arg
			580					585					590		
Asn	Ser	Gln	Gly	Ser	Glu	Met	Phe	Gly	Asp	Asp	Asp	Lys	Arg	Lys	Ile
		595					600					605			
Gln	Ser	Gln	Phe	Thr	Asp	Ala	Gln	Lys	His	Tyr	Gln	Thr	Leu	Val	Ile
	610					615					620				
Gln	Leu	Pro	Gly	Tyr	Pro	Gln	His	Gln	Thr	Val	Thr	Thr	Thr	Glu	Ile
625					630					635					640
Thr	His	His	Gly	Thr	Cys	Gln	Asp	Val	Asn	His	Asn	Lys	Val	Ile	Glu
				645					650					655	
Thr	Asn	Arg	Glu	Asn	Asp	Lys	Gln	Glu	Thr	Trp	Met	Leu	Met	Glu	Leu
			660					665					670		
Gln	Lys	Ile	Arg	Arg	Gln	Ile	Glu	His	Cys	Glu	Gly	Arg	Met	Thr	Leu
		675					680					685			
Lys	Asn	Leu	Pro	Leu	Ala	Asp	Gln	Gly	Ser	Ser	His	His	Ile	Thr	Val
	690					695					700				
Lys	Ile	Asn	Glu	Leu	Lys	Ser	Val	Gln	Asn	Asp	Ser	Gln	Ala	Ile	Ala
705					710					715					720
Glu	Val	Leu	Asn	Gln	Leu	Lys	Asp	Met	Leu	Ala	Asn	Phe	Arg	Gly	Ser
				725					730					735	
Glu	Lys	Tyr	Cys	Tyr	Leu	Gln	Asn	Glu	Val	Phe	Gly	Leu	Phe	Gln	Lys
			740					745					750		
Leu	Glu	Asn	Ile	Asn	Gly	Val	Thr	Asp	Gly	Tyr	Leu	Asn	Ser	Leu	Cys
		755					760					765			
Thr	Val	Arg	Ala	Leu	Leu	Gln	Ala	Ile	Leu	Gln	Thr	Glu	Asp	Met	Leu
						775					780				
Lys	Val	Tyr	Glu	Ala	Arg	Leu	Thr	Glu	Glu	Glu	Thr	Val	Cys	Leu	Asp
785					790					795					800

Leu Asp Lys Val Glu Ala Tyr Arg Cys Gly Leu Lys Lys Ile Lys Asn  
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Asp Leu Asn Leu Lys Lys Ser Leu Leu Ala Thr Met Lys Thr Glu Leu  
 820 825 830

Gln Lys Ala Gln Gln Ile His Ser Gln Thr Ser Gln Gln Tyr Pro Leu  
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Tyr Asp Leu Asp Leu Gly Lys Phe Gly Glu Lys Val Thr Gln Leu Thr  
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Asp Arg Trp Gln Arg Ile Asp Lys Gln Ile Asp Phe Arg Leu Trp Asp  
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Leu Glu Lys Gln Ile Lys Gln Leu Arg Asn Tyr Arg Asp Asn Tyr Gln  
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Ala Phe Cys Lys Trp Leu Tyr Asp Ala Lys Arg Arg Gln Asp Ser Leu  
 900 905 910

Glu Ser Met Lys Phe Gly Asp Ser Asn Thr Val Met Arg Phe Leu Asn  
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Glu Gln Lys Asn Leu His Ser Glu Ile Ser Gly Lys Arg Asp Lys Ser  
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Glu Glu Val Gln Lys Ile Ala Glu Leu Cys Ala Asn Ser Ile Lys Asp  
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Tyr Glu Leu Gln Leu Ala Ser Tyr Thr Ser Gly Leu Glu Thr Leu Leu  
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Asn Ile Pro Ile Lys Arg Thr Met Ile Gln Ser Pro Ser Gly Val Ile  
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Leu Gln Glu Ala Ala Asp Val His Ala Arg Tyr Ile Glu Leu Leu Thr  
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Arg Ser Gly Asp Tyr Tyr Arg Phe Leu Ser Glu Met Leu Lys Ser  
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Leu Glu Asp Leu Lys Leu Lys Asn Thr Lys Ile Glu Val Leu Glu  
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Glu Glu Leu Arg Leu Ala Arg Asp Ala Asn Ser Glu Asn Cys Asn  
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Lys Asn Lys Phe Leu Asp Gln Asn Leu Gln Lys Tyr Gln Ala Glu  
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Cys Ser Gln Phe Lys Ala Lys Leu Ala Ser Leu Glu Glu Leu Lys  
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1145						1150					1155			
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1190						1195					1200			
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1205						1210					1215			
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1235						1240					1245			
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1250						1255					1260			
Asp	Leu	Asn	Gln	Trp	Lys	Thr	Gln	Tyr	Ser	Arg	Lys	Glu	Glu	Ala
1265						1270					1275			
Ile	Arg	Lys	Ile	Glu	Ser	Glu	Arg	Glu	Lys	Ser	Glu	Arg	Glu	Lys
1280						1285					1290			
Asn	Ser	Leu	Arg	Ser	Glu	Ile	Glu	Arg	Leu	Gln	Ala	Glu	Ile	Lys
1295						1300					1305			
Arg	Ile	Glu	Glu	Arg	Cys	Arg	Arg	Lys	Leu	Glu	Asp	Ser	Thr	Arg
1310						1315					1320			
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Phe	Asp	Gly	Leu	Arg	Lys	Lys	Val	Thr	Ala	Met	Gln	Leu	Tyr	Glu
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1475						1480					1485			
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Val	Asp	Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu	Leu	Glu
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ctg gag Leu Glu 1370	att gaa Ile Glu 1375	ctg aag Leu Lys 1375	cag Gln 1375	gtc atc Val Ile 1380	cag cag Gln Gln 1380	cgc Arg 1380	tca gag Ser Glu 1380	gac Asp 1380	4149
aac gcc Asn Ala 1385	agg cac Arg His 1390	aag cag Lys Gln 1390	tcc Ser 1390	ctg gag Leu Glu 1395	gag gct Glu Ala 1395	gcc Ala 1395	aag acc Lys Thr 1395	atc Ile 1395	4194
cag gac Gln Asp 1400	aag aac Lys Asn 1405	aaa gag Lys Glu 1405	atc Ile 1405	gaa agg Glu Arg 1410	ctc aaa Leu Lys 1410	gct Ala 1410	gag tat Glu Tyr 1410	cag Gln 1410	4239
gag gag Glu Glu 1415	gcc aag Ala Lys 1420	cgg cgc Arg Arg 1420	tgg Trp 1420	gaa tac Glu Tyr 1425	gaa aat Glu Asn 1425	ctg agt Leu Ser 1425	aag Lys 1425		4284
gta agg Val Arg 1430	aac agt Asn Ser 1435	tac gat Tyr Asp 1435	gag Glu 1435	gag atc Glu Ile 1440	att agc Ile Ser 1440	tta Leu 1440	aaa aac Lys Asn 1440	cag Gln 1440	4329
ttc gag Phe Glu 1445	acc gag Thr Glu 1450	atc aac Ile Asn 1450	atc Ile 1450	acc aag Thr Lys 1455	acc acc Thr Thr 1455	atc Ile 1455	cac cag His Gln 1455	ctg Leu 1455	4374
acc atg Thr Met 1460	cag aag Gln Lys 1465	gaa gag Glu Glu 1465	gac Asp 1465	acc agt Thr Ser 1470	ggc tac Gly Tyr 1470	cga Arg 1470	gcg cag Ala Gln 1470	ata Ile 1470	4419
gac aat Asp Asn 1475	ctc acc Leu Thr 1480	cga gaa Arg Glu 1480	aac Asn 1480	agg agc Arg Ser 1485	ttg tgt Leu Cys 1485	gag Glu 1485	gag gtc Glu Val 1485	aag Lys 1485	4464
agg ctg Arg Leu 1490	aag aac Lys Asn 1495	act cta Thr Leu 1495	gcc Ala 1495	cag acc Gln Thr 1500	acc gag Thr Glu 1500	aac Asn 1500	ctc agg Leu Arg 1500	agg Arg 1500	4509
gtc gaa Val Glu 1505	gag aac Glu Asn 1510	gcc cag Ala Gln 1510	cag Gln 1510	cag aag Gln Lys 1515	gcc act Ala Thr 1515	ggc Gly 1515	tca gag Ser Glu 1515	atg Met 1515	4554

tct Ser 1520	cag Gln 1520	agg Arg	aaa Lys	cag Gln	cag Gln	ttg Leu 1525	gag Glu 1525	atc Ile	gag Glu	ctc Leu	cga Arg 1530	cag Gln	gtc Val	act Thr	4599
cag Gln 1535	atg Met	cga Arg	act Thr	gaa Glu	gag Glu	agc Ser 1540	atg Met	agg Arg	tac Tyr	aag Lys	cag Gln 1545	tcc Ser	ctc Leu	gat Asp	4644
gac Asp 1550	gct Ala	gcc Ala	aag Lys	acc Thr	atc Ile	cag Gln 1555	gat Asp	aag Lys	aac Asn	aag Lys	gag Glu 1560	atc Ile	gaa Glu	agg Arg	4689
ctc Leu 1565	aaa Lys	cag Gln	ctg Leu	gtc Val	gac Asp	aaa Lys 1570	gaa Glu	acc Thr	aat Asn	gag Glu	agg Arg 1575	aag Lys	tgc Cys	ctg Leu	4734
gag Glu 1580	gac Asp	gaa Glu	aat Asn	tcc Ser	aag Lys	ttg Leu 1585	cag Gln	aga Arg	gtc Val	cag Gln	tat Tyr 1590	gac Asp	ctg Leu	cag Gln	4779
aaa Lys 1595	gcc Ala	aac Asn	aac Asn	agc Ser	gcc Ala	acg Thr 1600	gag Glu	gcc Ala	atg Met	agc Ser	aaa Lys 1605	ctg Leu	aag Lys	gtt Val	4824
cag Gln 1610	gaa Glu	cag Gln	gag Glu	tta Leu	acg Thr	cgc Arg 1615	cta Leu	cgg Arg	att Ile	gac Asp	tat Tyr 1620	gag Glu	agg Arg	gtg Val	4869
tcc Ser 1625	cag Gln	gag Glu	agg Arg	acc Thr	gtg Val	aag Lys 1630	gat Asp	cag Gln	gac Asp	atc Ile	acg Thr 1635	agg Arg	atc Ile	cag Gln	4914
agc Ser 1640	tcc Ser	ctg Leu	aag Lys	gat Asp	ctg Leu	cag Gln 1645	ctg Leu	cag Gln	aag Lys	cag Gln	aaa Lys 1650	gcg Ala	gaa Glu	gag Glu	4959
gag Glu 1655	ctg Leu	agt Ser	agg Arg	ctg Leu	aag Lys	aga Arg 1660	aca Thr	gcc Ala	tcc Ser	gac Asp	gag Glu 1665	tcc Ser	tcc Ser	aag Lys	5004
agg Arg 1670	aag Lys	atg Met	ctg Leu	gag Glu	gag Glu	gaa Glu 1675	ctg Leu	gag Glu	gcc Ala	atg Met	agg Arg 1680	agg Arg	tct Ser	ttg Leu	5049
aaa Lys 1685	gag Glu	caa Gln	gcc Ala	gtc Val	aaa Lys	atc Ile 1690	acc Thr	aac Asn	ctg Leu	acc Thr	cag Gln 1695	cag Gln	ctg Leu	gag Glu	5094
cag Gln 1700	gcg Ala	tcc Ser	att Ile	gtt Val	aag Lys	aag Lys 1705	agg Arg	agc Ser	gag Glu	gat Asp	gac Asp 1710	ctc Leu	agg Arg	cag Gln	5139
cag Gln 1715	agg Arg	gat Asp	gtg Val	ctg Leu	gat Asp	ggc Gly 1720	cac His	gtg Val	agg Arg	gag Glu	aag Lys 1725	cag Gln	agg Arg	acc Thr	5184
cag Gln 1730	gag Glu	gag Glu	ctg Leu	agg Arg	agg Arg	ctc Leu 1735	tcc Ser	ttg Leu	gat Asp	gtc Val	gag Glu 1740	gcc Ala	ctc Leu	cgg Arg	5229
cgg Arg 1745	cag Gln	ctg Leu	gtc Val	cag Gln	gaa Glu	cag Gln 1750	gag Glu	aat Asn	gtc Val	aag Lys	cag Gln 1755	gct Ala	cac His	ttg Leu	5274
agg Arg 1760	aat Asn	gag Glu	cat His	ttc Phe	cag Gln	aag Lys 1765	gcc Ala	ata Ile	gaa Glu	gac Asp	aaa Lys 1770	agc Ser	agg Arg	agc Ser	5319
ctc Leu 1775	aat Asn	gag Glu	agt Ser	aaa Lys	ata Ile	gag Glu 1780	atc Ile	gaa Glu	agg Arg	cta Leu	cag Gln 1785	tcg Ser	ctc Leu	acg Thr	5364

gag Glu 1790	aac Asn	ctg Leu	acc Thr	aag Lys	gaa Glu	cac His 1795	ttg Leu	atg Met	ctg Leu	gag Glu	gaa Glu 1800	gag Glu	ctg Leu	agg Arg	5409
aac Asn 1805	ctg Leu	agg Arg	ctg Leu	gag Glu	tac Tyr 1810	gac Asp 1815	gac Asp	ctg Leu	cgg Arg	agg Arg	ggc Gly 1815	cgg Arg	agt Ser	gaa Glu	5454
gcg Ala 1820	gac Asp	agc Ser	gat Asp	aaa Lys	aac Asn	tca Ser 1825	acc Thr	atc Ile	tcc Ser	gag Glu	cta Leu 1830	agg Arg	agc Ser	caa Gln	5499
ctg Leu 1835	cag Gln	atc Ile	agc Ser	aac Asn	aat Asn	cga Arg 1840	acc Thr	ctc Leu	gag Glu	ctg Leu	cag Gln 1845	ggg Gly	ctg Leu	att Ile	5544
aat Asn 1850	gat Asp	tta Leu	cag Gln	aga Arg	gag Glu 1855	agg Arg 1855	gaa Glu	aat Asn	ttg Leu	aga Arg	cag Gln 1860	gaa Glu	att Ile	gag Glu	5589
aaa Lys 1865	ttc Phe	caa Gln	aag Lys	cag Gln	gct Ala 1870	tta Leu 1870	gag Glu	gca Ala	tct Ser	aat Asn	agg Arg 1875	atc Ile	cag Gln	gag Glu	5634
tca Ser 1880	aag Lys	agt Ser	cag Gln	tgc Cys	act Thr 1885	caa Gln 1885	gtt Val	gtt Val	cag Gln	gag Glu	aga Arg 1890	gag Glu	agc Ser	ctg Leu	5679
ctg Leu 1895	gtg Val	aag Lys	atc Ile	aaa Lys	gtc Val 1900	ctg Leu 1900	gag Glu	caa Gln	gac Asp	aag Lys	gcg Ala 1905	agg Arg	ctg Leu	cag Gln	5724
cgg Arg 1910	ctg Leu	gag Glu	gat Asp	gag Glu	ctg Leu	aac Asn 1915	cgt Arg	gcc Ala	aaa Lys	gca Ala	acg Thr 1920	ctg Leu	gag Glu	gca Ala	5769
gaa Glu 1925	agc Ser	cgg Arg	gtg Val	aaa Lys	cag Gln	cgt Arg 1930	ctg Leu	gag Glu	tgt Cys	gag Glu	aag Lys 1935	cag Gln	cag Gln	atc Ile	5814
cag Gln 1940	aac Asn	gac Asp	ctg Leu	aac Asn	cag Gln	tgg Trp 1945	aaa Lys	act Thr	cag Gln	tat Tyr	tcc Ser 1950	cgc Arg	aag Lys	gag Glu	5859
gag Glu 1955	acc Thr	att Ile	agg Arg	aag Lys	ata Ile	gag Glu 1960	tcg Ser	gaa Glu	aga Arg	gag Glu	aag Lys 1965	agc Ser	gag Glu	cga Arg	5904
gaa Glu 1970	aag Lys	aac Asn	agt Ser	ctc Leu	agg Arg	agt Ser 1975	gag Glu	atc Ile	gag Glu	agg Arg	ctc Leu 1980	cag Gln	gcg Ala	gag Glu	5949
atc Ile 1985	aag Lys	agg Arg	atc Ile	gaa Glu	gag Glu	aga Arg 1990	tgc Cys	agg Arg	agg Arg	aag Lys	cta Leu 1995	gag Glu	gat Asp	tct Ser	5994
tct Ser 2000	agg Arg	gag Glu	act Thr	cag Gln	tcc Ser	cag Gln 2005	ctg Leu	gaa Glu	tcc Ser	gaa Glu	cgc Arg 2010	tgc Cys	agg Arg	ctt Leu	6039
cag Gln 2015	aag Lys	gag Glu	atc Ile	gag Glu	aaa Lys	ctc Leu 2020	agg Arg	cag Gln	cgc Arg	ccc Pro	tac Tyr 2025	ggg Gly	tcc Ser	cat His	6084
cgg Arg 2030	gag Glu	acc Thr	cag Gln	acg Thr	gaa Glu	tac Tyr 2035	gag Glu	tgg Trp	acc Thr	gtt Val	gat Asp 2040	tcc Ser	tcc Ser	aag Lys	6129
ctg Leu 2045	gta Val	ttt Phe	gat Asp	ggg Gly	ctg Leu	agg Arg 2050	aag Lys	aag Lys	gtg Val	acg Thr	gca Ala 2055	atg Met	cag Gln	ctc Leu	6174



tat Tyr 2060	gag Glu 2060	tgc Cys 2060	cag Gln 2060	ctg Leu 2060	atc Ile 2065	gac Asp 2065	aag Lys 2065	acg Thr 2065	acg Thr 2065	cta Leu 2070	gac Asp 2070	aag Lys 2070	ctg Leu 2070	ttg Leu 2070	6219
aag Lys 2075	ggg Gly 2075	aag Lys 2075	aag Lys 2075	tca Ser 2080	gtg Val 2080	gag Glu 2080	gag Glu 2085	gtg Val 2085	gcc Ala 2085	tca Ser 2085	gag Glu 2085	atc Ile 2085	cag Gln 2085	cct Pro 2085	6264
ttc Phe 2090	ctg Leu 2090	cgc Arg 2090	ggc Gly 2090	gca Ala 2095	ggc Gly 2095	gcc Ala 2095	atc Ile 2100	gcc Ala 2100	ggg Gly 2100	gct Ala 2100	tcc Ser 2100	gct Ala 2100	tct Ser 2100	ccc Pro 2100	6309
aag Lys 2105	gaa Glu 2105	aag Lys 2105	tac Tyr 2110	tct Ser 2110	ttg Leu 2110	gtg Val 2110	gag Glu 2115	gcc Ala 2115	aag Lys 2115	aga Arg 2115	aag Lys 2115	aaa Lys 2115	ttc Phe 2115	atc Ile 2115	6354
acc Thr 2120	cca Pro 2120	gaa Glu 2120	tcc Ser 2125	act Thr 2125	gtc Val 2125	atg Met 2125	ctt Leu 2130	ctg Leu 2130	gag Glu 2130	gcc Ala 2130	cag Gln 2130	gca Ala 2130	gcc Ala 2130	acc Thr 2130	6399
ggc Gly 2135	ggc Gly 2135	atc Ile 2135	atc Ile 2135	gat Asp 2140	ccc Pro 2140	cat His 2140	cgg Arg 2145	aat Asn 2145	gag Glu 2145	aag Lys 2145	ctc Leu 2145	act Thr 2145	gtg Val 2145	gac Asp 2145	6444
aat Asn 2150	gcc Ala 2150	gta Val 2155	gcc Ala 2155	cgg Arg 2155	gat Asp 2155	ctc Leu 2155	atc Ile 2160	gac Asp 2160	ttc Phe 2160	gac Asp 2160	gac Asp 2160	cgc Arg 2160	caa Gln 2160	cag Gln 2160	6489
atc Ile 2165	tac Tyr 2165	aca Thr 2170	gcg Ala 2170	gag Glu 2170	aaa Lys 2170	gcc Ala 2170	atc Ile 2175	act Thr 2175	ggc Gly 2175	ttc Phe 2175	gat Asp 2175	gac Asp 2175	ccg Pro 2175	ttt Phe 2175	6534
tcg Ser 2180	ggc Gly 2180	aag Lys 2185	acg Thr 2185	gtc Val 2185	tct Ser 2185	gtt Val 2185	tca Ser 2190	gaa Glu 2190	gcc Ala 2190	atc Ile 2190	aag Lys 2190	aag Lys 2190	aat Asn 2190	ttg Leu 2190	6579
atc Ile 2195	gac Asp 2195	aga Arg 2200	gaa Glu 2200	acc Thr 2200	gga Gly 2200	atg Met 2205	cgc Arg 2205	ctg Leu 2205	ctg Leu 2205	gaa Glu 2205	gcc Ala 2205	cag Gln 2205	ctt Leu 2205	gct Ala 2205	6624
tca Ser 2210	ggg Gly 2210	ggc Gly 2215	gta Val 2215	gtt Val 2215	gat Asp 2215	cca Pro 2215	gtc Val 2220	aac Asn 2220	agt Ser 2220	gtc Val 2220	ttc Phe 2220	ttg Leu 2220	cca Pro 2220	aaa Lys 2220	6669
gat Asp 2225	gtc Val 2225	gcc Ala 2230	ttg Leu 2230	gcc Ala 2230	cgt Arg 2230	ggg Gly 2230	ctg Leu 2235	att Ile 2235	gat Asp 2235	aga Arg 2235	gat Asp 2235	ttg Leu 2235	tat Tyr 2235	cgc Arg 2235	6714
tcc Ser 2240	ttg Leu 2240	aac Asn 2245	gat Asp 2245	ccc Pro 2245	cga Arg 2245	gat Asp 2245	agt Ser 2250	cag Gln 2250	aag Lys 2250	aac Asn 2250	ttc Phe 2250	gtg Val 2250	gat Asp 2250	cca Pro 2250	6759
atc Ile 2255	acc Thr 2255	aag Lys 2260	aag Lys 2260	aag Lys 2260	gtc Val 2260	agc Ser 2260	tac Tyr 2265	atg Met 2265	cag Gln 2265	ctg Leu 2265	aga Arg 2265	gaa Glu 2265	agg Arg 2265	tgc Cys 2265	6804
aga Arg 2270	atc Ile 2270	gaa Glu 2275	ccc Pro 2275	cac His 2275	acg Thr 2275	ggc Gly 2275	ctg Leu 2280	ctc Leu 2280	ctg Leu 2280	ctg Leu 2280	tca Ser 2280	gta Val 2280	cag Gln 2280	aag Lys 2280	6849
aga Arg 2285	agc Ser 2285	atg Met 2290	tcc Ser 2290	ttc Phe 2290	cag Gln 2290	gga Gly 2290	atc Ile 2295	aga Arg 2295	caa Gln 2295	ccc Pro 2295	gtg Val 2295	acc Thr 2295	gtc Val 2295	acc Thr 2295	6894
gaa Glu 2300	ctg Leu 2300	gtt Val 2305	gat Asp 2305	tct Ser 2305	ggc Gly 2305	ata Ile 2305	ttg Leu 2310	aga Arg 2310	ccg Pro 2310	tcc Ser 2310	act Thr 2310	gta Val 2310	aac Asn 2310	gaa Glu 2310	6939
ctg Leu 2315	gaa Glu 2315	tcc Ser 2320	ggc Gly 2320	cag Gln 2320	att Ile 2320	tcc Ser 2320	tat Tyr 2325	gat Asp 2325	gag Glu 2325	gtt Val 2325	ggg Gly 2325	gag Glu 2325	aga Arg 2325	atc Ile 2325	6984

aag gac ttc ctc cag ggt tca agc tgc ata gca ggc ata tat aat Lys Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly Ile Tyr Asn 2330 2335 2340	7029
gag acc act aag cag aag ctg ggc atc tat gag gcc atg aaa ata Glu Thr Thr Lys Gln Lys Leu Gly Ile Tyr Glu Ala Met Lys Ile 2345 2350 2355	7074
ggc tta gtt cga cct ggt acc gcc ctg gag ttg ctg gaa gcc caa Gly Leu Val Arg Pro Gly Thr Ala Leu Glu Leu Leu Glu Ala Gln 2360 2365 2370	7119
gca gct act ggc ttt att gtg gat ccc gtc agc aat tta agg cta Ala Ala Thr Gly Phe Ile Val Asp Pro Val Ser Asn Leu Arg Leu 2375 2380 2385	7164
cct gtg gag gaa gcc tac aag aga ggt ctg gtg ggc att gag ttc Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu Val Gly Ile Glu Phe 2390 2395 2400	7209
aaa gag aag ctt ctg tct gcg gaa cga gcc gtc act ggc tac aac Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Asn 2405 2410 2415	7254
gat cct gag acc gga aac atc atc tct tta ttc caa gca atg aac Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln Ala Met Asn 2420 2425 2430	7299
aag gag ctc atc gaa aag ggc cat ggc att cgc ttg ctg gag gca Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu Glu Ala 2435 2440 2445	7344
cag atc gca acc ggc ggc atc atc gac ccg aag gag agc cat cgg Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His Arg 2450 2455 2460	7389
tta ccg gtt gac atg gcg tat aag agg ggt tat ttt aat gag gag Leu Pro Val Asp Met Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu 2465 2470 2475	7434
ctt agc gaa atc ctc tca gac cca agt gat gat acc aaa ggc ttt Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe 2480 2485 2490	7479
ttc gat cca aac aca gaa gaa aac ctc acc tat ctg caa ctg aag Phe Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys 2495 2500 2505	7524
gag aga tgc atc aaa gat gag gaa aca ggg ctc tgc ctg ctg ccc Glu Arg Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro 2510 2515 2520	7569
ctg aaa gag aag aag aaa cag gtg cag act tct cag aag aac acg Leu Lys Glu Lys Lys Lys Gln Val Gln Thr Ser Gln Lys Asn Thr 2525 2530 2535	7614
ctc aga aag cgg cgg gtg gtc ata gtt gac ccg gaa acc aat aag Leu Arg Lys Arg Arg Val Val Ile Val Asp Pro Glu Thr Asn Lys 2540 2545 2550	7659
gag atg tct gtt cag gag gcc tac aag aaa ggt ctc att gat tat Glu Met Ser Val Gln Glu Ala Tyr Lys Lys Gly Leu Ile Asp Tyr 2555 2560 2565	7704
gac acc ttc aag gag cta tgt gaa caa gag tgc gaa tgg gaa gaa Asp Thr Phe Lys Glu Leu Cys Glu Gln Glu Cys Glu Trp Glu Glu 2570 2575 2580	7749
ata acc atc aca gga tca gac ggc tcc acc agg gtg gtc tta gtg Ile Thr Ile Thr Gly Ser Asp Gly Ser Thr Arg Val Val Leu Val 2585 2590 2595	7794

gac Asp 2600	agg Arg 2600	aag Lys 2600	acc Thr 2600	ggc Gly 2600	agt Ser 2605	cag Gln 2605	tat Tyr 2605	gac Asp 2610	att Ile 2610	caa Gln 2610	gat Asp 2610	gct Ala 2610	att Ile 2610	gac Asp 2610	7839
aag Lys 2615	ggc Gly 2615	ctc Leu 2615	gtt Val 2615	gac Asp 2620	agg Arg 2620	aag Lys 2620	ttc Phe 2620	ttc Phe 2625	gat Asp 2625	caa Gln 2625	tac Tyr 2625	cga Arg 2625	tca Ser 2625	ggc Gly 2625	7884
agc Ser 2630	ctt Leu 2630	agc Ser 2630	ctc Leu 2630	aca Thr 2635	cag Gln 2635	ttt Phe 2635	gct Ala 2640	gac Asp 2640	atg Met 2640	atc Ile 2640	tcc Ser 2640	ttg Leu 2640	aaa Lys 2640	aac Asn 2640	7929
ggc Gly 2645	gtc Val 2645	ggc Gly 2650	aac Asn 2650	agc Ser 2650	agc Ser 2650	ggc Gly 2650	ttg Leu 2655	ggg Gly 2655	agg Ser 2655	gtc Val 2655	aac Asn 2655	gat Asp 2655	gat Asp 2655		7974
gtt Val 2660	ttt Phe 2660	agc Ser 2665	agc Ser 2665	tcc Ser 2665	cga Arg 2665	cac His 2665	gac Asp 2670	tcc Ser 2670	gtg Val 2670	agt Ser 2670	aag Lys 2670	att Ile 2670	tcc Ser 2670	acc Thr 2670	8019
ata Ile 2675	tcc Ser 2675	agt Ser 2680	gtc Val 2680	aga Arg 2680	aat Asn 2680	cta Leu 2680	acc Thr 2685	atc Ile 2685	cga Arg 2685	agc Ser 2685	agc Ser 2685	tct Ser 2685	ctg Leu 2685	tca Ser 2685	8064
gac Asp 2690	cct Pro 2690	ctg Leu 2695	gag Glu 2695	gag Glu 2695	tca Ser 2695	agc Ser 2695	ccc Pro 2700	att Ile 2700	gcg Ala 2700	gcc Ala 2700	atc Ile 2700	ttt Phe 2700	gac Asp 2700	aca Thr 2700	8109
gag Glu 2705	aac Asn 2705	ctg Leu 2710	gag Glu 2710	aaa Lys 2710	atc Ile 2710	tcg Ser 2710	atc Ile 2715	gca Ala 2715	gaa Glu 2715	ggg Gly 2715	ata Ile 2715	gag Glu 2715	cgg Arg 2715	ggc Gly 2715	8154
att Ile 2720	gtg Val 2720	gat Asp 2725	agc Ser 2725	atc Ile 2725	acc Thr 2725	ggg Gly 2725	cag Gln 2730	agg Arg 2730	ctt Leu 2730	ctg Leu 2730	gag Glu 2730	gct Ala 2730	cag Gln 2730	gcc Ala 2730	8199
tgc Cys 2735	act Thr 2735	ggg Gly 2740	ggc Gly 2740	atc Ile 2740	att Ile 2740	cac His 2740	cct Pro 2745	acc Thr 2745	act Thr 2745	ggg Gly 2745	cag Gln 2745	aag Lys 2745	ctc Leu 2745	tcc Ser 2745	8244
ctt Leu 2750	caa Gln 2750	gat Asp 2755	gca Ala 2755	gtc Val 2755	aac Asn 2755	cag Gln 2755	ggg Gly 2760	ctc Leu 2760	att Ile 2760	gac Asp 2760	caa Gln 2760	gac Asp 2760	atg Met 2760	gcc Ala 2760	8289
acc Thr 2765	agg Arg 2765	ctg Leu 2770	aag Lys 2770	cct Pro 2770	gcc Ala 2770	cag Gln 2775	aag Lys 2775	gcc Ala 2775	ttc Phe 2775	atc Ile 2775	ggc Gly 2775	ttt Phe 2775	gaa Glu 2775	ggg Gly 2775	8334
gta Val 2780	aaa Lys 2780	gga Gly 2785	aag Lys 2785	aag Lys 2785	aag Lys 2785	atg Met 2785	tcg Ser 2790	gca Ala 2790	gca Ala 2790	gag Glu 2790	gca Ala 2790	gtc Val 2790	aaa Lys 2790	gag Glu 2790	8379
aaa Lys 2795	tgg Trp 2795	ctt Leu 2800	ccc Pro 2800	tac Tyr 2800	gag Glu 2800	gca Ala 2805	ggc Gly 2805	cag Gln 2805	cgc Arg 2805	ttc Phe 2805	ctg Leu 2805	gag Glu 2805	ttc Phe 2805	cag Gln 2805	8424
ttc Phe 2810	ctc Leu 2810	acg Thr 2815	gga Gly 2815	ggc Gly 2815	ctt Leu 2815	gtt Val 2815	gac Asp 2820	ccg Pro 2820	gaa Glu 2820	gtg Val 2820	cat His 2820	ggg Gly 2820	agg Arg 2820	atc Ile 2820	8469
agc Ser 2825	acc Thr 2825	gaa Glu 2830	gaa Glu 2830	gcc Ala 2830	atc Ile 2830	cgc Arg 2835	aaa Lys 2835	ggg Gly 2835	ttc Phe 2835	atc Ile 2835	gat Asp 2835	ggc Gly 2835	cgt Arg 2835	gca Ala 2835	8514
gct Ala 2840	cag Gln 2840	agg Arg 2845	ttg Leu 2845	cag Gln 2845	gac Asp 2845	atc Ile 2845	agc Ser 2850	agc Ser 2850	tat Tyr 2850	gcc Ala 2850	aaa Lys 2850	atc Ile 2850	ctc Leu 2850	acc Thr 2850	8559
tgc Cys 2855	ccc Pro 2855	aaa Lys 2860	acc Thr 2860	aag Lys 2860	tta Leu 2860	aaa Lys 2860	atc Ile 2865	tcc Ser 2865	tac Tyr 2865	aag Lys 2865	gat Asp 2865	gcc Ala 2865	atg Met 2865	aat Asn 2865	8604

cgc tcc	atg gtg	gaa gac	atc	act ggg	ttg cgc	ctt	ctg gaa	gcc	8649
Arg Ser	Met Val	Glu Asp	Ile	Thr Gly	Leu Arg	Leu	Leu Glu	Ala	
2870			2875			2880			
gcc tcc	gtg tcc	tcg aag	ggt	ttg cct	agc cct	tat	aac atg	tca	8694
Ala Ser	Val Ser	Ser Ser	Lys	Gly	Leu Pro	Ser Pro	Tyr	Asn Met	Ser
2885			2890				2895		
gcc cca	ggc tcc	cgc tct	ggt	tca agg	tcc gga	tct	cgc tca	ggc	8739
Ala Pro	Gly Ser	Arg Ser	Gly	Ser Arg	Ser Gly	Ser	Arg Ser	Gly	
2900			2905				2910		
tcc cgc	tct ggc	tcc cgc	agc	ggg tct	cgg aga	gga	agc ttc	gat	8784
Ser Arg	Ser Gly	Ser Arg	Ser	Gly Ser	Arg Arg	Gly	Ser Phe	Asp	
2915			2920				2925		
gct acg	ggc aat	tct tct	tac	tcc tat	tcc tat	tca	ttt agc	agt	8829
Ala Thr	Gly Asn	Ser Ser	Tyr	Ser Tyr	Ser Tyr	Ser	Phe Ser	Ser	
2930			2935				2940		
agc tcc	att ggg	ggg tac	tag						8850
Ser Ser	Ile Gly	Gly Tyr							
2945									

<210> 42  
 <211> 2949  
 <212> PRT  
 <213> Mus musculus

<400> 42

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

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

His	Leu	Lys	Glu	Asn	Ala	Ala	Tyr	Phe	Gln	Phe	Phe	Glu	Glu	Ala	Gln	450	455	460
Ser	Thr	Glu	Ala	Tyr	Leu	Lys	Gly	Leu	Gln	Asp	Ser	Ile	Arg	Lys	Lys	465	470	475
Tyr	Pro	Cys	Asp	Lys	Asn	Met	Pro	Leu	Gln	His	Leu	Leu	Glu	Gln	Ile	485	490	495
Lys	Glu	Leu	Glu	Lys	Glu	Arg	Glu	Lys	Ile	Ile	Glu	Tyr	Lys	Arg	Gln	500	505	510
Val	Gln	Asn	Leu	Val	Asn	Lys	Ser	Lys	Lys	Ile	Val	Gln	Leu	Lys	Pro	515	520	525
Arg	Asn	Pro	Asp	Tyr	Arg	Ser	Asn	Lys	Pro	Ile	Ile	Leu	Arg	Ala	Leu	530	535	540
Cys	Asp	Tyr	Lys	Gln	Asp	Gln	Lys	Ile	Val	His	Lys	Gly	Asp	Glu	Cys	545	550	555
Ile	Leu	Lys	Asp	Asn	Asn	Glu	Arg	Ser	Lys	Trp	Tyr	Val	Thr	Gly	Pro	565	570	575
Gly	Gly	Val	Asp	Met	Leu	Val	Pro	Ser	Val	Gly	Leu	Ile	Ile	Pro	Pro	580	585	590
Pro	Asn	Pro	Leu	Ala	Val	Asp	Leu	Ser	Cys	Lys	Ile	Glu	Gln	Tyr	Tyr	595	600	605
Glu	Ala	Ile	Leu	Ala	Leu	Trp	Asn	Gln	Leu	Tyr	Ile	Asn	Met	Lys	Ser	610	615	620
Leu	Val	Ser	Trp	His	Tyr	Cys	Met	Ile	Asp	Ile	Glu	Lys	Ile	Arg	Ala	625	630	635
Met	Thr	Ile	Ala	Lys	Leu	Lys	Thr	Met	Arg	Gln	Glu	Asp	Tyr	Met	Lys	645	650	655
Thr	Ile	Glu	Asp	Leu	Glu	Leu	His	Tyr	Gln	Asp	Phe	Ile	Lys	Asn	Ser	660	665	670
Gln	Gly	Ser	Glu	Met	Phe	Gly	Asp	Asp	Asp	Lys	Arg	Arg	Met	Gln	Ser	675	680	685
Gln	Phe	Thr	Asp	Ala	Gln	Lys	His	Tyr	Gln	Thr	Leu	Val	Ile	Gln	Leu	690	695	700
Pro	Gly	His	Pro	Gln	His	Gln	Thr	Val	Thr	Lys	Thr	Glu	Ile	Thr	His	705	710	715
Leu	Gly	Thr	Cys	Gln	Asp	Val	Asn	His	Asn	Lys	Val	Ile	Glu	Thr	Asn	725	730	735

Arg Glu Asn Asp Lys Gln Glu Thr Trp Leu Leu Met Glu Leu Gln Lys  
740 745 750

Ile Arg Arg Gln Met Glu His Cys Glu Ala Arg Met Thr Leu Lys Asn  
755 760 765

Leu Leu Leu Ala Glu Gln Gly Ser Thr His His Ile Thr Val Lys Ile  
770 775 780

Asn Glu Leu Lys Ser Val Gln Asn Asp Ser Gln Ala Leu Ala Glu Val  
785 790 795 800

Leu Asn Gln Leu Lys Asp Met Leu Ala Asn Phe Arg Gly Ser Glu Lys  
805 810 815

Tyr Cys Tyr Leu Gln Asn Glu Ile Phe Gly Leu Phe Gln Lys Leu Glu  
820 825 830

Asn Ile Asn Gly Val Ser Asp Gly Tyr Leu Asn Ser Leu Cys Ser Val  
835 840 845

Arg Ala Leu Leu Gln Ala Ile Leu Gln Thr Glu Asp Met Leu Lys Val  
850 855 860

Tyr Glu Ala Arg Leu Thr Glu Glu Glu Thr Val Cys Leu Asp Leu Asp  
865 870 875 880

Lys Val Glu Ala Tyr Arg Cys Gly Leu Lys Lys Ile Lys Asn Asp Leu  
885 890 895

Asn Leu Lys Lys Ser Leu Leu Ala Thr Met Lys Thr Glu Leu Gln Lys  
900 905 910

Ala Gln Gln Ile His Ser Gln Ser Ser Gln Gln Tyr Pro Leu Tyr Asp  
915 920 925

Leu Asp Leu Gly Lys Phe Thr Glu Lys Val Thr Gln Leu Thr Asp Arg  
930 935 940

Trp Gln Lys Ile Asp Lys Gln Ile Asp Phe Arg Leu Trp Asp Leu Glu  
945 950 955 960

Lys Gln Ile Lys Gln Leu Arg Asn Tyr Arg Asp Asn Tyr Gln Ser Phe  
965 970 975

Cys Lys Trp Leu Tyr Asp Ala Lys Arg Arg Gln Asp Ser Leu Glu Ser  
980 985 990

Met Lys Phe Gly Asp Ser Asn Thr Val Met Arg Phe Leu Asn Glu Gln  
995 1000 1005

Lys Asn Leu His Ser Glu Ile Ser Gly Lys Arg Asp Lys Ser Glu  
1010 1015 1020

Glu Val	His Lys	Ile Ala	Glu Leu	Cys Ala	Asn Ser	Ile Lys	Asp
1025			1030		1035		
Tyr Glu	Leu Gln	Leu Ala	Ser Tyr	Thr Ser	Gly Leu	Glu Thr	Leu
1040			1045		1050		
Leu Asn	Ile Pro	Ile Lys	Arg Thr	Met Val	Gln Ser	Pro Ser	Gly
1055			1060		1065		
Val Ile	Leu Gln	Glu Ala	Ala Asp	Ile His	Ala Arg	Tyr Ile	Glu
1070			1075		1080		
Leu Leu	Thr Arg	Ser Gly	Asp Tyr	Tyr Arg	Phe Leu	Ser Glu	Met
1085			1090		1095		
Leu Lys	Ser Leu	Glu Asp	Leu Lys	Leu Lys	Asn Thr	Lys Ile	Glu
1100			1105		1110		
Val Leu	Glu Glu	Glu Leu	Arg Leu	Ala Arg	Asp Ala	Asn Ser	Glu
1115			1120		1125		
Asn Cys	Asn Lys	Asn Lys	Phe Leu	Asp Gln	Asn Leu	Gln Lys	Tyr
1130			1135		1140		
Gln Ala	Glu Cys	Ser Gln	Phe Lys	Ala Lys	Leu Val	Ser Leu	Glu
1145			1150		1155		
Glu Leu	Lys Arg	Gln Ala	Glu Leu	Asp Gly	Lys Ser	Ala Lys	Gln
1160			1165		1170		
Asn Leu	Asp Lys	Cys Tyr	Gly Gln	Ile Lys	Glu Leu	Asn Glu	Lys
1175			1180		1185		
Ile Thr	Arg Leu	Thr Tyr	Glu Ile	Glu Asp	Glu Lys	Arg Arg	Arg
1190			1195		1200		
Lys Thr	Val Glu	Asp Arg	Phe Asp	Gln Gln	Lys Asn	Asp Tyr	Asp
1205			1210		1215		
Gln Leu	Gln Lys	Ala Arg	Gln Cys	Glu Lys	Glu Asn	Leu Ser	Trp
1220			1225		1230		
Gln Lys	Leu Glu	Ser Glu	Lys Ala	Ile Lys	Glu Lys	Glu Tyr	Glu
1235			1240		1245		
Ile Glu	Arg Leu	Arg Val	Leu Leu	Gln Glu	Glu Gly	Ala Arg	Lys
1250			1255		1260		
Arg Glu	Tyr Glu	Asn Glu	Leu Ala	Lys Val	Arg Asn	His Tyr	Asn
1265			1270		1275		
Glu Glu	Met Ser	Asn Leu	Arg Asn	Lys Tyr	Glu Thr	Glu Ile	Asn
1280			1285		1290		



Ile	Thr	Lys	Thr	Thr	Ile	Lys	Glu	Ile	Ser	Met	Gln	Lys	Glu	Asp
1295						1300					1305			
Asp	Ser	Lys	Asn	Leu	Arg	Asn	Gln	Met	Asp	Arg	Leu	Ser	Arg	Glu
1310						1315					1320			
Asn	Arg	Asp	Leu	Lys	Asp	Glu	Ile	Val	Arg	Leu	Asn	Asp	Ser	Ile
1325						1330					1335			
Leu	Gln	Ala	Thr	Glu	Gln	Arg	Arg	Arg	Ala	Glu	Glu	Asn	Ala	Leu
1340						1345					1350			
Gln	Gln	Lys	Ala	Cys	Gly	Ser	Glu	Thr	Met	Gln	Lys	Lys	Gln	Arg
1355						1360					1365			
Leu	Glu	Ile	Glu	Leu	Lys	Gln	Val	Ile	Gln	Gln	Arg	Ser	Glu	Asp
1370						1375					1380			
Asn	Ala	Arg	His	Lys	Gln	Ser	Leu	Glu	Glu	Ala	Ala	Lys	Thr	Ile
1385						1390					1395			
Gln	Asp	Lys	Asn	Lys	Glu	Ile	Glu	Arg	Leu	Lys	Ala	Glu	Tyr	Gln
1400						1405					1410			
Glu	Glu	Ala	Lys	Arg	Arg	Trp	Glu	Tyr	Glu	Asn	Glu	Leu	Ser	Lys
1415						1420					1425			
Val	Arg	Asn	Ser	Tyr	Asp	Glu	Glu	Ile	Ile	Ser	Leu	Lys	Asn	Gln
1430						1435					1440			
Phe	Glu	Thr	Glu	Ile	Asn	Ile	Thr	Lys	Thr	Thr	Ile	His	Gln	Leu
1445						1450					1455			
Thr	Met	Gln	Lys	Glu	Glu	Asp	Thr	Ser	Gly	Tyr	Arg	Ala	Gln	Ile
1460						1465					1470			
Asp	Asn	Leu	Thr	Arg	Glu	Asn	Arg	Ser	Leu	Cys	Glu	Glu	Val	Lys
1475						1480					1485			
Arg	Leu	Lys	Asn	Thr	Leu	Ala	Gln	Thr	Thr	Glu	Asn	Leu	Arg	Arg
1490						1495					1500			
Val	Glu	Glu	Asn	Ala	Gln	Gln	Gln	Lys	Ala	Thr	Gly	Ser	Glu	Met
1505						1510					1515			
Ser	Gln	Arg	Lys	Gln	Gln	Leu	Glu	Ile	Glu	Leu	Arg	Gln	Val	Thr
1520						1525					1530			
Gln	Met	Arg	Thr	Glu	Glu	Ser	Met	Arg	Tyr	Lys	Gln	Ser	Leu	Asp
1535						1540					1545			
Asp	Ala	Ala	Lys	Thr	Ile	Gln	Asp	Lys	Asn	Lys	Glu	Ile	Glu	Arg
1550						1555					1560			

Leu	Lys	Gln	Leu	Val	Asp	Lys	Glu	Thr	Asn	Glu	Arg	Lys	Cys	Leu
1565						1570					1575			
Glu	Asp	Glu	Asn	Ser	Lys	Leu	Gln	Arg	Val	Gln	Tyr	Asp	Leu	Gln
1580						1585					1590			
Lys	Ala	Asn	Asn	Ser	Ala	Thr	Glu	Ala	Met	Ser	Lys	Leu	Lys	Val
1595						1600					1605			
Gln	Glu	Gln	Glu	Leu	Thr	Arg	Leu	Arg	Ile	Asp	Tyr	Glu	Arg	Val
1610						1615					1620			
Ser	Gln	Glu	Arg	Thr	Val	Lys	Asp	Gln	Asp	Ile	Thr	Arg	Ile	Gln
1625						1630					1635			
Ser	Ser	Leu	Lys	Asp	Leu	Gln	Leu	Gln	Lys	Gln	Lys	Ala	Glu	Glu
1640						1645					1650			
Glu	Leu	Ser	Arg	Leu	Lys	Arg	Thr	Ala	Ser	Asp	Glu	Ser	Ser	Lys
1655						1660					1665			
Arg	Lys	Met	Leu	Glu	Glu	Glu	Leu	Glu	Ala	Met	Arg	Arg	Ser	Leu
1670						1675					1680			
Lys	Glu	Gln	Ala	Val	Lys	Ile	Thr	Asn	Leu	Thr	Gln	Gln	Leu	Glu
1685						1690					1695			
Gln	Ala	Ser	Ile	Val	Lys	Lys	Arg	Ser	Glu	Asp	Asp	Leu	Arg	Gln
1700						1705					1710			
Gln	Arg	Asp	Val	Leu	Asp	Gly	His	Val	Arg	Glu	Lys	Gln	Arg	Thr
1715						1720					1725			
Gln	Glu	Glu	Leu	Arg	Arg	Leu	Ser	Leu	Asp	Val	Glu	Ala	Leu	Arg
1730						1735					1740			
Arg	Gln	Leu	Val	Gln	Glu	Gln	Glu	Asn	Val	Lys	Gln	Ala	His	Leu
1745						1750					1755			
Arg	Asn	Glu	His	Phe	Gln	Lys	Ala	Ile	Glu	Asp	Lys	Ser	Arg	Ser
1760						1765					1770			
Leu	Asn	Glu	Ser	Lys	Ile	Glu	Ile	Glu	Arg	Leu	Gln	Ser	Leu	Thr
1775						1780					1785			
Glu	Asn	Leu	Thr	Lys	Glu	His	Leu	Met	Leu	Glu	Glu	Glu	Leu	Arg
1790						1795					1800			
Asn	Leu	Arg	Leu	Glu	Tyr	Asp	Asp	Leu	Arg	Arg	Gly	Arg	Ser	Glu
1805						1810					1815			
Ala	Asp	Ser	Asp	Lys	Asn	Ser	Thr	Ile	Ser	Glu	Leu	Arg	Ser	Gln
1820						1825					1830			

Leu	Gln	Ile	Ser	Asn	Asn	Arg	Thr	Leu	Glu	Leu	Gln	Gly	Leu	Ile
1835						1840					1845			
Asn	Asp	Leu	Gln	Arg	Glu	Arg	Glu	Asn	Leu	Arg	Gln	Glu	Ile	Glu
1850						1855					1860			
Lys	Phe	Gln	Lys	Gln	Ala	Leu	Glu	Ala	Ser	Asn	Arg	Ile	Gln	Glu
1865						1870					1875			
Ser	Lys	Ser	Gln	Cys	Thr	Gln	Val	Val	Gln	Glu	Arg	Glu	Ser	Leu
1880						1885					1890			
Leu	Val	Lys	Ile	Lys	Val	Leu	Glu	Gln	Asp	Lys	Ala	Arg	Leu	Gln
1895						1900					1905			
Arg	Leu	Glu	Asp	Glu	Leu	Asn	Arg	Ala	Lys	Ala	Thr	Leu	Glu	Ala
1910						1915					1920			
Glu	Ser	Arg	Val	Lys	Gln	Arg	Leu	Glu	Cys	Glu	Lys	Gln	Gln	Ile
1925						1930					1935			
Gln	Asn	Asp	Leu	Asn	Gln	Trp	Lys	Thr	Gln	Tyr	Ser	Arg	Lys	Glu
1940						1945					1950			
Glu	Thr	Ile	Arg	Lys	Ile	Glu	Ser	Glu	Arg	Glu	Lys	Ser	Glu	Arg
1955						1960					1965			
Glu	Lys	Asn	Ser	Leu	Arg	Ser	Glu	Ile	Glu	Arg	Leu	Gln	Ala	Glu
1970						1975					1980			
Ile	Lys	Arg	Ile	Glu	Glu	Arg	Cys	Arg	Arg	Lys	Leu	Glu	Asp	Ser
1985						1990					1995			
Ser	Arg	Glu	Thr	Gln	Ser	Gln	Leu	Glu	Ser	Glu	Arg	Cys	Arg	Leu
2000						2005					2010			
Gln	Lys	Glu	Ile	Glu	Lys	Leu	Arg	Gln	Arg	Pro	Tyr	Gly	Ser	His
2015						2020					2025			
Arg	Glu	Thr	Gln	Thr	Glu	Tyr	Glu	Trp	Thr	Val	Asp	Ser	Ser	Lys
2030						2035					2040			
Leu	Val	Phe	Asp	Gly	Leu	Arg	Lys	Lys	Val	Thr	Ala	Met	Gln	Leu
2045						2050					2055			
Tyr	Glu	Cys	Gln	Leu	Ile	Asp	Lys	Thr	Thr	Leu	Asp	Lys	Leu	Leu
2060						2065					2070			
Lys	Gly	Lys	Lys	Ser	Val	Glu	Glu	Val	Ala	Ser	Glu	Ile	Gln	Pro
2075						2080					2085			
Phe	Leu	Arg	Gly	Ala	Gly	Ala	Ile	Ala	Gly	Ala	Ser	Ala	Ser	Pro
2090						2095					2100			

Lys	Glu	Lys	Tyr	Ser	Leu	Val	Glu	Ala	Lys	Arg	Lys	Lys	Phe	Ile
2105						2110					2115			
Thr	Pro	Glu	Ser	Thr	Val	Met	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr
2120						2125					2130			
Gly	Gly	Ile	Ile	Asp	Pro	His	Arg	Asn	Glu	Lys	Leu	Thr	Val	Asp
2135						2140					2145			
Asn	Ala	Val	Ala	Arg	Asp	Leu	Ile	Asp	Phe	Asp	Asp	Arg	Gln	Gln
2150						2155					2160			
Ile	Tyr	Thr	Ala	Glu	Lys	Ala	Ile	Thr	Gly	Phe	Asp	Asp	Pro	Phe
2165						2170					2175			
Ser	Gly	Lys	Thr	Val	Ser	Val	Ser	Glu	Ala	Ile	Lys	Lys	Asn	Leu
2180						2185					2190			
Ile	Asp	Arg	Glu	Thr	Gly	Met	Arg	Leu	Leu	Glu	Ala	Gln	Leu	Ala
2195						2200					2205			
Ser	Gly	Gly	Val	Val	Asp	Pro	Val	Asn	Ser	Val	Phe	Leu	Pro	Lys
2210						2215					2220			
Asp	Val	Ala	Leu	Ala	Arg	Gly	Leu	Ile	Asp	Arg	Asp	Leu	Tyr	Arg
2225						2230					2235			
Ser	Leu	Asn	Asp	Pro	Arg	Asp	Ser	Gln	Lys	Asn	Phe	Val	Asp	Pro
2240						2245					2250			
Ile	Thr	Lys	Lys	Lys	Val	Ser	Tyr	Met	Gln	Leu	Arg	Glu	Arg	Cys
2255						2260					2265			
Arg	Ile	Glu	Pro	His	Thr	Gly	Leu	Leu	Leu	Leu	Ser	Val	Gln	Lys
2270						2275					2280			
Arg	Ser	Met	Ser	Phe	Gln	Gly	Ile	Arg	Gln	Pro	Val	Thr	Val	Thr
2285						2290					2295			
Glu	Leu	Val	Asp	Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu
2300						2305					2310			
Leu	Glu	Ser	Gly	Gln	Ile	Ser	Tyr	Asp	Glu	Val	Gly	Glu	Arg	Ile
2315						2320					2325			
Lys	Asp	Phe	Leu	Gln	Gly	Ser	Ser	Cys	Ile	Ala	Gly	Ile	Tyr	Asn
2330						2335					2340			
Glu	Thr	Thr	Lys	Gln	Lys	Leu	Gly	Ile	Tyr	Glu	Ala	Met	Lys	Ile
2345						2350					2355			
Gly	Leu	Val	Arg	Pro	Gly	Thr	Ala	Leu	Glu	Leu	Leu	Glu	Ala	Gln
2360						2365					2370			

Ala	Ala	Thr	Gly	Phe	Ile	Val	Asp	Pro	Val	Ser	Asn	Leu	Arg	Leu
2375						2380					2385			
Pro	Val	Glu	Glu	Ala	Tyr	Lys	Arg	Gly	Leu	Val	Gly	Ile	Glu	Phe
2390						2395					2400			
Lys	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Asn
2405						2410					2415			
Asp	Pro	Glu	Thr	Gly	Asn	Ile	Ile	Ser	Leu	Phe	Gln	Ala	Met	Asn
2420						2425					2430			
Lys	Glu	Leu	Ile	Glu	Lys	Gly	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala
2435						2440					2445			
Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Lys	Glu	Ser	His	Arg
2450						2455					2460			
Leu	Pro	Val	Asp	Met	Ala	Tyr	Lys	Arg	Gly	Tyr	Phe	Asn	Glu	Glu
2465						2470					2475			
Leu	Ser	Glu	Ile	Leu	Ser	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe
2480						2485					2490			
Phe	Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Lys
2495						2500					2505			
Glu	Arg	Cys	Ile	Lys	Asp	Glu	Glu	Thr	Gly	Leu	Cys	Leu	Leu	Pro
2510						2515					2520			
Leu	Lys	Glu	Lys	Lys	Lys	Gln	Val	Gln	Thr	Ser	Gln	Lys	Asn	Thr
2525						2530					2535			
Leu	Arg	Lys	Arg	Arg	Val	Val	Ile	Val	Asp	Pro	Glu	Thr	Asn	Lys
2540						2545					2550			
Glu	Met	Ser	Val	Gln	Glu	Ala	Tyr	Lys	Lys	Gly	Leu	Ile	Asp	Tyr
2555						2560					2565			
Asp	Thr	Phe	Lys	Glu	Leu	Cys	Glu	Gln	Glu	Cys	Glu	Trp	Glu	Glu
2570						2575					2580			
Ile	Thr	Ile	Thr	Gly	Ser	Asp	Gly	Ser	Thr	Arg	Val	Val	Leu	Val
2585						2590					2595			
Asp	Arg	Lys	Thr	Gly	Ser	Gln	Tyr	Asp	Ile	Gln	Asp	Ala	Ile	Asp
2600						2605					2610			
Lys	Gly	Leu	Val	Asp	Arg	Lys	Phe	Phe	Asp	Gln	Tyr	Arg	Ser	Gly
2615						2620					2625			
Ser	Leu	Ser	Leu	Thr	Gln	Phe	Ala	Asp	Met	Ile	Ser	Leu	Lys	Asn
2630						2635					2640			

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Val Phe 2660	Ser Ser Ser Arg His 2665	Asp Ser Val Ser Lys 2670	Ile Ser Thr
Ile Ser 2675	Ser Val Arg Asn Leu 2680	Thr Ile Arg Ser Ser 2685	Ser Leu Ser
Asp Pro 2690	Leu Glu Glu Ser Ser 2695	Pro Ile Ala Ala Ile 2700	Phe Asp Thr
Glu Asn 2705	Leu Glu Lys Ile Ser 2710	Ile Ala Glu Gly Ile 2715	Glu Arg Gly
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Cys Thr 2735	Gly Gly Ile Ile His 2740	Pro Thr Thr Gly Gln 2745	Lys Leu Ser
Leu Gln 2750	Asp Ala Val Asn Gln 2755	Gly Leu Ile Asp Gln 2760	Asp Met Ala
Thr Arg 2765	Leu Lys Pro Ala Gln 2770	Lys Ala Phe Ile Gly 2775	Phe Glu Gly
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Ser Thr 2825	Glu Glu Ala Ile Arg 2830	Lys Gly Phe Ile Asp 2835	Gly Arg Ala
Ala Gln 2840	Arg Leu Gln Asp Ile 2845	Ser Ser Tyr Ala Lys 2850	Ile Leu Thr
Cys Pro 2855	Lys Thr Lys Leu Lys 2860	Ile Ser Tyr Lys Asp 2865	Ala Met Asn
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 Gln Ala Gly Thr Phe Gly Gln Gly Val Ala Arg Leu Leu Gly Arg Pro  
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 Arg Gln Asp Pro Val Ser Leu Arg Pro Ala Leu Thr Pro Val Asn Arg  
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gag cgt ggt caa acc ggc acc atg tcc agg cat cag aac cag aac act 336  
 Glu Arg Gly Gln Thr Gly Thr Met Ser Arg His Gln Asn Gln Asn Thr  
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atc caa gaa ctt ctg caa aac tgc gca gac tgt ctg atg cgg gca gag 384  
 Ile Gln Glu Leu Leu Gln Asn Cys Ala Asp Cys Leu Met Arg Ala Glu  
 115 120 125

ctg atc gca cag ccg gaa ctg aag ttc gga gaa gga atc cag ctg gcg 432  
 Leu Ile Ala Gln Pro Glu Leu Lys Phe Gly Glu Gly Ile Gln Leu Ala  
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Lys	Gly	Gly	Tyr	Thr	Cys	Gln	Ser	Gly	Ser	Gly	Trp	Asp	Glu	Phe	Thr		
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Glu	Met	Asp	Leu	Met	Ala	Trp	Gly	Val	Asp	Ser	Gly	Ser	Val	Glu	Gln		
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Trp	Gln	Leu	Asp	Lys	Ile	Lys	Ala	Asp	Leu	Arg	Glu	Lys	Ser	Ala	Ile		
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gac	tgg	agc	gac	aag	aac	aca	aac	atc	gct	cag	aag	cag	gag	gcc	ttc	1056	
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Asp	Lys	Ile	Glu	Ala	Tyr	Met	Asp	Thr	Leu	Gln	Thr	Gln	Trp	Ser	Trp		
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Arg	Glu	Lys	Ile	Leu	Glu	Tyr	Lys	Arg	Gln	Val	Gln	Asn	Leu	Val	Asn		
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Lys	Ser	Lys	Lys	Ile	Val	Gln	Leu	Lys	Pro	Arg	Asn	Pro	Asp	Tyr	Arg	
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agc	aac	aaa	ccc	att	att	ctc	agg	gcc	ctc	tgc	gac	tac	aaa	caa	gac	1536
Ser	Asn	Lys	Pro	Ile	Ile	Leu	Arg	Ala	Leu	Cys	Asp	Tyr	Lys	Gln	Asp	
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cag	aaa	atc	gtc	cac	aag	ggg	gat	gaa	tgc	atc	ctc	aag	gac	aac	aat	1584
Gln	Lys	Ile	Val	His	Lys	Gly	Asp	Glu	Cys	Ile	Leu	Lys	Asp	Asn	Asn	
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Glu	Arg	Ser	Lys	Trp	Tyr	Val	Thr	Gly	Pro	Gly	Gly	Val	Asp	Met	Leu	
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Val	Pro	Ser	Val	Gly	Leu	Ile	Ile	Pro	Pro	Pro	Asn	Pro	Leu	Ala	Val	
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Asp	Leu	Ser	Cys	Lys	Ile	Glu	Gln	Tyr	Tyr	Glu	Ala	Ile	Leu	Ala	Leu	
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Trp	Asn	Gln	Leu	Tyr	Ile	Asn	Met	Lys	Ser	Leu	Val	Ser	Trp	His	Tyr	
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Cys	Met	Ile	Asp	Ile	Glu	Lys	Ile	Arg	Ala	Met	Thr	Ile	Ala	Lys	Leu	
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Leu	His	Tyr	Gln	Asp	Phe	Ile	Lys	Asn	Ser	Gln	Gly	Ser	Glu	Met	Phe	
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Gly	Asp	Asp	Asp	Lys	Arg	Arg	Met	Gln	Ser	Gln	Phe	Thr	Asp	Ala	Gln	
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aag	cat	tac	cag	acc	ctg	gtc	att	cag	ctt	cct	ggc	cac	ccc	cag	cac	2016
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			660					665					670			
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Gln	Thr	Val	Thr	Lys	Thr	Glu	Ile	Thr	His	Val	Gly	Thr	Cys	Gln	Asp	
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His	Cys	Glu	Ala	Arg	Met	Thr	Leu	Lys	Asn	Leu	Leu	Leu	Thr	Asp	Gln	
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Gln	Asn	Asp	Ser	Gln	Ala	Leu	Ala	Glu	Val	Leu	Asn	Gln	Leu	Lys	Asp	
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Gln	Ile	Asp	Phe	Arg	Leu	Trp	Asp	Leu	Glu	Lys	Gln	Ile	Lys	Gln	Leu	
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Ser	Glu	Asn	Cys	Asn	Lys	Asn	Lys	Phe	Leu	Asp	Gln	Asn	Leu	Gln	
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Lys	Tyr	Gln	Ala	Glu	Cys	Ser	Gln	Phe	Lys	Ala	Lys	Leu	Val	Ser	
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Tyr	Glu	Ile	Glu	Arg	Leu	Arg	Val	Leu	Leu	Gln	Glu	Glu	Gly	Ala	
	1205					1210					1215				
cgg	aag	aga	gaa	tat	gaa	aat	gag	ctg	gca	aag	gca	tct	aat	agg	3699
Arg	Lys	Arg	Glu	Tyr	Glu	Asn	Glu	Leu	Ala	Lys	Ala	Ser	Asn	Arg	
	1220					1225					1230				
att	cag	gag	tca	aag	agt	cag	tgc	act	caa	gtc	gtt	cag	gag	aga	3744
Ile	Gln	Glu	Ser	Lys	Ser	Gln	Cys	Thr	Gln	Val	Val	Gln	Glu	Arg	
	1235					1240					1245				
gag	agc	ctg	ctg	gtg	aag	att	aag	gtc	ctg	gag	caa	gac	aag	gca	3789
Glu	Ser	Leu	Leu	Val	Lys	Ile	Lys	Val	Leu	Glu	Gln	Asp	Lys	Ala	
	1250					1255					1260				
agg	ctg	cag	cgg	ctg	gag	gac	gag	ctg	aac	cgt	gcc	aaa	gca	acg	3834
Arg	Leu	Gln	Arg	Leu	Glu	Asp	Glu	Leu	Asn	Arg	Ala	Lys	Ala	Thr	
	1265					1270					1275				
ctg	gag	gca	gaa	acc	cgg	gtg	aaa	cag	cgc	cta	gag	tgt	gag	aag	3879
Leu	Glu	Ala	Glu	Thr	Arg	Val	Lys	Gln	Arg	Leu	Glu	Cys	Glu	Lys	
	1280					1285					1290				
cag	cag	atc	cag	aac	gac	ctg	aac	cag	tgg	aaa	act	caa	tac	tcc	3924
Gln	Gln	Ile	Gln	Asn	Asp	Leu	Asn	Gln	Trp	Lys	Thr	Gln	Tyr	Ser	
	1295					1300					1305				
cgc	aag	gag	gag	acc	att	agg	aag	ata	gag	tcg	gaa	aga	gag	aag	3969
Arg	Lys	Glu	Glu	Thr	Ile	Arg	Lys	Ile	Glu	Ser	Glu	Arg	Glu	Lys	
	1310					1315					1320				
agt	gag	aga	gag	aag	aac	agt	ctt	agg	agt	gag	att	gag	aga	ctc	4014

Ser 1325	Glu	Arg	Glu	Lys	Asn	Ser 1330	Leu	Arg	Ser	Glu	Ile 1335	Glu	Arg	Leu	
cag 1340	gca	gag	atc	aag	agg	att	gaa	gag	agg	tgc	agg	cgg	aag	cta	4059
Gln 1340	Ala	Glu	Ile	Lys	Arg	Ile 1345	Glu	Glu	Arg	Cys	Arg 1350	Arg	Lys	Leu	
gag 1355	gat	tct	acc	agg	gag	act	cag	tcc	cag	ctg	gaa	acg	gaa	cgc	4104
Glu 1355	Asp	Ser	Thr	Arg	Glu	Thr 1360	Gln	Ser	Gln	Leu	Glu 1365	Thr	Glu	Arg	
tgc 1370	agg	ctt	cag	aag	gag	att	gac	aaa	ctc	agg	cag	cgc	ccc	tat	4149
Cys 1370	Arg	Leu	Gln	Lys	Glu	Ile 1375	Asp	Lys	Leu	Arg	Gln 1380	Arg	Pro	Tyr	
ggg 1385	tcc	cat	cgg	gag	acc	cag	aca	gag	tac	gag	tgg	acc	gtt	gat	4194
Gly 1385	Ser	His	Arg	Glu	Thr	Gln 1390	Thr	Glu	Tyr	Glu	Trp 1395	Thr	Val	Asp	
tcc 1400	tcc	aag	ctg	gta	ttt	gac	gga	ctg	agg	aag	aag	gtg	aca	gca	4239
Ser 1400	Ser	Lys	Leu	Val	Phe	Asp 1405	Gly	Leu	Arg	Lys	Lys 1410	Val	Thr	Ala	
atg 1415	cag	ctc	tat	gag	tgc	cag	ttg	att	gac	aag	aca	aca	ctg	gac	4284
Met 1415	Gln	Leu	Tyr	Glu	Cys	Gln 1420	Leu	Ile	Asp	Lys	Thr 1425	Thr	Leu	Asp	
aag 1430	cta	ttg	aag	ggg	aag	aag	tca	gtg	gag	gag	gtg	gct	tca	gag	4329
Lys 1430	Leu	Leu	Lys	Gly	Lys	Lys 1435	Ser	Val	Glu	Glu	Val 1440	Ala	Ser	Glu	
atc 1445	cag	cct	ttc	ctg	cgg	ggg	gag	ggg	gcc	atc	gct	ggg	gct	tct	4374
Ile 1445	Gln	Pro	Phe	Leu	Arg	Gly 1450	Ala	Gly	Ala	Ile	Ala 1455	Gly	Ala	Ser	
gct 1460	tct	ccc	aag	gaa	aaa	tac	tct	ttg	gtg	gag	gcc	aag	aga	aag	4419
Ala 1460	Ser	Pro	Lys	Glu	Lys	Tyr 1465	Ser	Leu	Val	Glu	Ala 1470	Lys	Arg	Lys	
aaa 1475	ttc	atc	acc	cca	gaa	tcc	aca	gtc	atg	ctt	ctg	gag	gcc	cag	4464
Lys 1475	Phe	Ile	Thr	Pro	Glu	Ser 1480	Thr	Val	Met	Leu	Leu 1485	Glu	Ala	Gln	
gag 1490	gcc	act	ggg	ggg	atc	atc	gat	ccc	cat	cgg	aag	gag	aag	ctc	4509
Ala 1490	Ala	Thr	Gly	Gly	Ile	Ile 1495	Asp	Pro	His	Arg	Asn 1500	Glu	Lys	Leu	
acg 1505	gtg	gac	aag	gcc	ata	gct	cgg	gac	ctc	att	gac	ttt	gat	gac	4554
Thr 1505	Val	Asp	Asn	Ala	Ile	Ala 1510	Arg	Asp	Leu	Ile	Asp 1515	Phe	Asp	Asp	
cgc 1520	caa	cag	atc	tac	aca	gcc	gag	aaa	gcc	atc	act	ggg	ttt	gat	4599
Arg 1520	Gln	Gln	Ile	Tyr	Thr	Ala 1525	Glu	Lys	Ala	Ile	Thr 1530	Gly	Phe	Asp	
gac 1535	ccg	ttt	tca	ggc	aag	acc	gta	tct	gtt	tca	gaa	gcc	atc	aag	4644
Asp 1535	Pro	Phe	Ser	Gly	Lys	Thr 1540	Val	Ser	Val	Ser	Glu 1545	Ala	Ile	Lys	
aag 1550	aag	ttg	att	gac	aga	gaa	acc	gga	atg	cgc	ctg	ctg	gaa	gcc	4689
Lys 1550	Asn	Leu	Ile	Asp	Arg	Glu 1555	Thr	Gly	Met	Arg	Leu 1560	Leu	Glu	Ala	
cag 1565	ctt	gct	tca	ggg	ggg	gta	gtt	gat	cca	gtc	aac	agt	gtc	ttt	4734
Gln 1565	Leu	Ala	Ser	Gly	Gly	Val 1570	Val	Asp	Pro	Val	Asn 1575	Ser	Val	Phe	
ttg 1580	cca	aaa	gat	gta	gcc	ttg	gcc	cgt	ggg	ctg	att	gat	agg	gat	4779
Leu 1580	Pro	Lys	Asp	Val	Ala	Leu 1585	Ala	Arg	Gly	Leu	Ile 1590	Asp	Arg	Asp	
ttg 1595	tat	cgc	tcc	ttg	aag	gac	ccc	cga	gat	agc	cag	aag	aac	ttc	4824

Leu	Tyr	Arg	Ser	Leu	Asn	Asp	Pro	Arg	Asp	Ser	Gln	Lys	Asn	Phe	
1595						1600					1605				
gtg	gat	cca	atc	acc	aag	aag	aag	gtc	agc	tac	atg	cag	ctg	aga	4869
Val	Asp	Pro	Ile	Thr	Lys	Lys	Lys	Val	Ser	Tyr	Met	Gln	Leu	Arg	
1610						1615					1620				
gaa	cgg	tgc	aga	atc	gaa	ccc	cac	acg	ggc	ctg	ctc	ctg	ctg	tca	4914
Glu	Arg	Cys	Arg	Ile	Glu	Pro	His	Thr	Gly	Leu	Leu	Leu	Leu	Ser	
1625						1630					1635				
gta	cag	aag	aga	agc	atg	tcc	ttc	caa	gga	atc	aga	cag	cca	gtg	4959
Val	Gln	Lys	Arg	Ser	Met	Ser	Phe	Gln	Gly	Ile	Arg	Gln	Pro	Val	
1640						1645					1650				
acc	gtc	acc	gaa	ctg	gtt	gat	tct	ggc	ata	ttg	aga	cca	tcc	acc	5004
Thr	Val	Thr	Glu	Leu	Val	Asp	Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	
1655						1660					1665				
gta	aat	gaa	ctg	gaa	tct	ggc	cag	att	tct	tat	gac	gag	gtt	ggc	5049
Val	Asn	Glu	Leu	Glu	Ser	Gly	Gln	Ile	Ser	Tyr	Asp	Glu	Val	Gly	
1670						1675					1680				
gag	aga	att	aag	gac	ttc	ctc	cag	ggg	tca	agc	tgc	ata	gca	ggc	5094
Glu	Arg	Ile	Lys	Asp	Phe	Leu	Gln	Gly	Ser	Ser	Cys	Ile	Ala	Gly	
1685						1690					1695				
att	tat	aat	gag	acc	acg	aaa	cag	aag	ctt	ggc	atc	tac	gag	gct	5139
Ile	Tyr	Asn	Glu	Thr	Thr	Lys	Gln	Lys	Leu	Gly	Ile	Tyr	Glu	Ala	
1700						1705					1710				
atg	aaa	att	ggc	tta	gtt	cga	cct	ggc	acc	gct	ctg	gag	ttg	ctg	5184
Met	Lys	Ile	Gly	Leu	Val	Arg	Pro	Gly	Thr	Ala	Leu	Glu	Leu	Leu	
1715						1720					1725				
gaa	gcc	caa	gca	gct	act	ggc	ttt	ata	gta	gat	cct	gtc	agc	aat	5229
Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Val	Asp	Pro	Val	Ser	Asn	
1730						1735					1740				
tta	agg	tta	cct	gtg	gag	gaa	gcc	tac	aaa	aga	ggc	ctg	gtg	ggc	5274
Leu	Arg	Leu	Pro	Val	Glu	Glu	Ala	Tyr	Lys	Arg	Gly	Leu	Val	Gly	
1745						1750					1755				
att	gag	ttc	aaa	gag	aag	ctt	ctc	tct	gca	gaa	cga	gct	gtc	act	5319
Ile	Glu	Phe	Lys	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	
1760						1765					1770				
ggc	tat	aac	gat	cct	gaa	acc	gga	aac	atc	atc	tct	ttg	ttc	caa	5364
Gly	Tyr	Asn	Asp	Pro	Glu	Thr	Gly	Asn	Ile	Ile	Ser	Leu	Phe	Gln	
1775						1780					1785				
gcg	atg	aac	aag	gaa	ctc	atc	gaa	aag	ggc	cac	gga	att	cgc	tta	5409
Ala	Met	Asn	Lys	Glu	Leu	Ile	Glu	Lys	Gly	His	Gly	Ile	Arg	Leu	
1790						1795					1800				
ctg	gag	gct	cag	atc	gca	acc	ggc	ggc	atc	att	gat	cca	aag	gag	5454
Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Lys	Glu	
1805						1810					1815				
agt	cat	cgg	tta	ccg	gtt	gac	atg	gct	tat	aag	agg	ggc	tat	ttt	5499
Ser	His	Arg	Leu	Pro	Val	Asp	Met	Ala	Tyr	Lys	Arg	Gly	Tyr	Phe	
1820						1825					1830				
aac	gag	gag	ctt	agc	gaa	atc	ctc	tca	gac	cca	agt	gat	gat	acc	5544
Asn	Glu	Glu	Leu	Ser	Glu	Ile	Leu	Ser	Asp	Pro	Ser	Asp	Asp	Thr	
1835						1840					1845				
aaa	ggc	ttt	ttc	gat	ccc	aac	act	gaa	gaa	aac	ctc	acc	tat	ttg	5589
Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu	Thr	Tyr	Leu	
1850						1855					1860				
caa	ctg	aaa	gaa	agg	tgc	atc	aaa	gat	gag	gag	acg	ggg	ctc	tgc	5634

Gln 1865	Leu	Lys	Glu	Arg	Cys	Ile 1870	Lys	Asp	Glu	Glu	Thr 1875	Gly	Leu	Cys	
ctg	ctg	cct	ctg	aaa	gaa	aag	aag	aaa	cag	gtg	cag	act	tca	cag	5679
Leu 1880	Leu	Pro	Leu	Lys	Glu	Lys 1885	Lys	Lys	Gln	Val	Gln 1890	Thr	Ser	Gln	
aag	aac	acc	ctc	aga	aag	cgg	cgg	gtg	gta	ata	gtt	gac	cca	gaa	5724
Lys 1895	Asn	Thr	Leu	Arg	Lys	Arg 1900	Arg	Val	Val	Ile	Val 1905	Asp	Pro	Glu	
acc	aac	aaa	gag	atg	tct	gtt	cag	gag	gcg	tac	aag	aaa	ggc	ctt	5769
Thr 1910	Asn	Lys	Glu	Met	Ser	Val 1915	Gln	Glu	Ala	Tyr	Lys 1920	Lys	Gly	Leu	
att	gat	tat	gaa	acc	ttc	aaa	gag	ctg	tgt	gag	cag	gag	tgt	gaa	5814
Ile 1925	Asp	Tyr	Glu	Thr	Phe	Lys 1930	Glu	Leu	Cys	Glu	Gln 1935	Glu	Cys	Glu	
tgg	gaa	gaa	ata	acc	atc	acg	ggc	tcg	gat	ggc	tcc	acc	agg	gta	5859
Trp 1940	Glu	Glu	Ile	Thr	Ile	Thr 1945	Gly	Ser	Asp	Gly	Ser 1950	Thr	Arg	Val	
gtc	cta	gta	gac	agg	aag	acg	ggc	agt	cag	tat	gac	att	caa	gat	5904
Val 1955	Leu	Val	Asp	Arg	Lys	Thr 1960	Gly	Ser	Gln	Tyr	Asp 1965	Ile	Gln	Asp	
gct	att	gac	aaa	ggc	ctc	gtc	gac	agg	aag	ttc	ttc	gat	caa	tac	5949
Ala 1970	Ile	Asp	Lys	Gly	Leu	Val 1975	Asp	Arg	Lys	Phe	Phe 1980	Asp	Gln	Tyr	
cga	tcc	ggc	agc	ctc	agc	ctc	acg	cag	ttt	gcg	gac	atg	atc	tcc	5994
Arg 1985	Ser	Gly	Ser	Leu	Ser	Leu 1990	Thr	Gln	Phe	Ala	Asp 1995	Met	Ile	Ser	
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Leu 2000	Lys	Asn	Gly	Val	Gly	Thr 2005	Ser	Ser	Gly	Leu	Ser 2010	Gly	Ser	Val	
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Asn 2015	Asp	Asp	Val	Phe	Ser	Ser 2020	Ser	Arg	His	Glu	Ser 2025	Val	Ser	Lys	
att	tcc	acc	ata	tcc	agc	gtc	aga	aat	tta	acc	atc	cga	agc	agc	6129
Ile 2030	Ser	Thr	Ile	Ser	Ser	Val 2035	Arg	Asn	Leu	Thr	Ile 2040	Arg	Ser	Ser	
tct	ctg	tct	gac	ccc	ctg	gag	gag	tca	agc	ccc	att	gcg	gcc	atc	6174
Ser 2045	Leu	Ser	Asp	Pro	Leu	Glu 2050	Glu	Ser	Ser	Pro	Ile 2055	Ala	Ala	Ile	
ttt	gac	aca	gaa	aac	ctg	gag	aaa	atc	tcc	att	aca	gaa	ggc	ata	6219
Phe 2060	Asp	Thr	Glu	Asn	Leu	Glu 2065	Lys	Ile	Ser	Ile	Thr 2070	Glu	Gly	Ile	
gag	cgg	ggc	att	gtg	gat	agc	atc	act	ggc	cag	agg	ctt	ctg	gaa	6264
Glu 2075	Arg	Gly	Ile	Val	Asp	Ser 2080	Ile	Thr	Gly	Gln	Arg 2085	Leu	Leu	Glu	
gct	cag	gcc	tgc	acg	ggc	ggc	atc	atc	cac	cct	acc	acc	ggc	cag	6309
Ala 2090	Gln	Ala	Cys	Thr	Gly	Gly 2095	Ile	Ile	His	Pro	Thr 2100	Thr	Gly	Gln	
aag	ctg	tcc	ctt	caa	gac	gca	gtc	tcc	cag	ggc	ctc	att	gac	caa	6354
Lys 2105	Leu	Ser	Leu	Gln	Asp	Ala 2110	Val	Ser	Gln	Gly	Leu 2115	Ile	Asp	Gln	
gac	atg	gcc	acc	agg	ctg	aag	ccc	gcc	cag	aag	gcc	ttc	att	ggc	6399
Asp 2120	Met	Ala	Thr	Arg	Leu	Lys 2125	Pro	Ala	Gln	Lys	Ala 2130	Phe	Ile	Gly	
ttt	gaa	ggc	gtc	aaa	gga	aag	aag	aag	atg	tca	gca	gca	gag	gca	6444

Phe	Glu	Gly	Val	Lys	Gly	Lys	Lys	Met	Ser	Ala	Ala	Glu	Ala	
2135						2140				2145				
gtg	aaa	gaa	aaa	tgg	ctg	ccc	tac	gag	gca	ggc	cag	cgc	ttc	ctg
Val	Lys	Glu	Lys	Trp	Leu	Pro	Tyr	Glu	Ala	Gly	Gln	Arg	Phe	Leu
2150						2155					2160			6489
gag	ttc	cag	ttc	ctc	acc	gga	ggc	ctt	gtt	gac	ccg	gaa	gta	cat
Glu	Phe	Gln	Phe	Leu	Thr	Gly	Gly	Leu	Val	Asp	Pro	Glu	Val	His
2165						2170					2175			6534
ggg	agg	atc	agc	acc	gaa	gaa	gcc	atc	cgc	aaa	ggt	ttc	atc	gat
Gly	Arg	Ile	Ser	Thr	Glu	Glu	Ala	Ile	Arg	Lys	Gly	Phe	Ile	Asp
2180						2185					2190			6579
ggc	cgt	gca	gct	cag	agg	ttg	cag	gac	atc	agc	agc	tat	gcc	aaa
Gly	Arg	Ala	Ala	Gln	Arg	Leu	Gln	Asp	Ile	Ser	Ser	Tyr	Ala	Lys
2195						2200					2205			6624
atc	ctc	acc	tgc	ccc	aaa	acc	aaa	tta	aaa	atc	tcc	tac	aag	gat
Ile	Leu	Thr	Cys	Pro	Lys	Thr	Lys	Leu	Lys	Ile	Ser	Tyr	Lys	Asp
2210						2215					2220			6669
gcc	atg	aat	cgc	tcc	atg	gtg	gaa	gac	atc	act	ggg	ctg	cgc	ctt
Ala	Met	Asn	Arg	Ser	Met	Val	Glu	Asp	Ile	Thr	Gly	Leu	Arg	Leu
2225						2230					2235			6714
ctg	gaa	gcc	gcc	tcc	gtg	tcc	tcg	aag	ggc	ttg	cct	agc	cct	tat
Leu	Glu	Ala	Ala	Ser	Val	Ser	Ser	Lys	Gly	Leu	Pro	Ser	Pro	Tyr
2240						2245					2250			6759
aac	atg	tcg	gcc	cca	ggc	tcc	cgc	tct	ggc	tcg	agg	tcc	gga	tct
Asn	Met	Ser	Ala	Pro	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser
2255						2260					2265			6804
cgc	tca	ggc	tcc	cgc	tot	ggt	tcc	cgt	agt	ggg	tct	cga	aga	gga
Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Arg	Gly
2270						2275					2280			6849
agc	ttc	gat	gcg	acc	ggg	aat	tcc	tcc	tac	tcc	tat	tcc	tat	tca
Ser	Phe	Asp	Ala	Thr	Gly	Asn	Ser	Ser	Tyr	Ser	Tyr	Ser	Tyr	Ser
2285						2290					2295			6894
ttt	agc	agt	agc	tcc	att	ggg	tac	tag						
Phe	Ser	Ser	Ser	Ser	Ile	Gly	Tyr							
2300						2305								6921

65					70					75				80	
Arg	Gln	Asp	Pro	Val	Ser	Leu	Arg	Pro	Ala	Leu	Thr	Pro	Val	Asn	Arg
				85					90					95	
Glu	Arg	Gly	Gln	Thr	Gly	Thr	Met	Ser	Arg	His	Gln	Asn	Gln	Asn	Thr
			100					105					110		
Ile	Gln	Glu	Leu	Leu	Gln	Asn	Cys	Ala	Asp	Cys	Leu	Met	Arg	Ala	Glu
		115					120					125			
Leu	Ile	Ala	Gln	Pro	Glu	Leu	Lys	Phe	Gly	Glu	Gly	Ile	Gln	Leu	Ala
	130					135					140				
Trp	Asn	Arg	Glu	Leu	Asp	Glu	Tyr	Phe	Thr	Gln	Ala	Asn	Asp	Gln	Met
145					150					155					160
Glu	Ile	Ile	Asp	Gly	Leu	Ile	Arg	Glu	Met	Arg	Gln	Met	Gly	Gln	Pro
				165					170					175	
Cys	Asp	Ala	Tyr	Gln	Lys	Arg	Leu	Leu	Gln	Leu	Gln	Glu	Gln	Met	Arg
			180					185					190		
Ala	Leu	Tyr	Lys	Ala	Ile	Ser	Ala	Pro	Arg	Val	Arg	Arg	Ala	Ser	Ser
		195					200					205			
Lys	Gly	Gly	Tyr	Thr	Cys	Gln	Ser	Gly	Ser	Gly	Trp	Asp	Glu	Phe	Thr
	210					215					220				
Lys	Arg	Leu	Thr	Gly	Glu	Cys	Leu	Gly	Trp	Met	Arg	Gln	Gln	Arg	Ala
225					230					235					240
Glu	Met	Asp	Leu	Met	Ala	Trp	Gly	Val	Asp	Ser	Gly	Ser	Val	Glu	Gln
				245					250					255	
His	Ile	Asn	Ser	His	Arg	Ser	Ile	His	Asn	Ala	Ile	Gly	Asp	Tyr	Arg
			260					265					270		
Trp	Gln	Leu	Asp	Lys	Ile	Lys	Ala	Asp	Leu	Arg	Glu	Lys	Ser	Ala	Ile
		275					280					285			
Tyr	Gln	Leu	Glu	Glu	Glu	Tyr	Glu	Asn	Leu	Leu	Lys	Ala	Ser	Phe	Glu
	290					295					300				
Arg	Met	Asp	His	Leu	Arg	Gln	Leu	Gln	Asn	Ile	Ile	Gln	Ala	Thr	Ser
305					310					315					320
Arg	Glu	Ile	Met	Trp	Ile	Asn	Asp	Cys	Glu	Glu	Glu	Glu	Leu	Leu	Tyr
				325					330					335	
Asp	Trp	Ser	Asp	Lys	Asn	Thr	Asn	Ile	Ala	Gln	Lys	Gln	Glu	Ala	Phe
			340					345					350		
Ser	Ile	Arg	Met	Ser	Gln	Leu	Glu	Val	Lys	Glu	Lys	Glu	Leu	Asn	Lys



355

360

365

Leu Lys Gln Glu Ser Asp Gln Leu Val Leu Asn Gln His Pro Ala Ser  
 370 375 380

Asp Lys Ile Glu Ala Tyr Met Asp Thr Leu Gln Thr Gln Trp Ser Trp  
 385 390 395 400

Ile Leu Gln Ile Thr Lys Cys Ile Asp Val His Leu Lys Glu Asn Ala  
 405 410 415

Ala Tyr Phe Gln Phe Phe Glu Glu Ala Gln Ser Thr Glu Ala Tyr Leu  
 420 425 430

Lys Gly Leu Gln Asp Ser Ile Arg Lys Lys Tyr Pro Cys Asp Lys Asn  
 435 440 445

Met Pro Leu Gln His Leu Leu Glu Gln Ile Lys Glu Leu Glu Lys Glu  
 450 455 460

Arg Glu Lys Ile Leu Glu Tyr Lys Arg Gln Val Gln Asn Leu Val Asn  
 465 470 475 480

Lys Ser Lys Lys Ile Val Gln Leu Lys Pro Arg Asn Pro Asp Tyr Arg  
 485 490 495

Ser Asn Lys Pro Ile Ile Leu Arg Ala Leu Cys Asp Tyr Lys Gln Asp  
 500 505 510

Gln Lys Ile Val His Lys Gly Asp Glu Cys Ile Leu Lys Asp Asn Asn  
 515 520 525

Glu Arg Ser Lys Trp Tyr Val Thr Gly Pro Gly Gly Val Asp Met Leu  
 530 535 540

Val Pro Ser Val Gly Leu Ile Ile Pro Pro Pro Asn Pro Leu Ala Val  
 545 550 555 560

Asp Leu Ser Cys Lys Ile Glu Gln Tyr Tyr Glu Ala Ile Leu Ala Leu  
 565 570 575

Trp Asn Gln Leu Tyr Ile Asn Met Lys Ser Leu Val Ser Trp His Tyr  
 580 585 590

Cys Met Ile Asp Ile Glu Lys Ile Arg Ala Met Thr Ile Ala Lys Leu  
 595 600 605

Lys Thr Met Arg Gln Glu Asp Tyr Met Lys Thr Ile Glu Asp Leu Glu  
 610 615 620

Leu His Tyr Gln Asp Phe Ile Lys Asn Ser Gln Gly Ser Glu Met Phe  
 625 630 635 640

Gly Asp Asp Asp Lys Arg Arg Met Gln Ser Gln Phe Thr Asp Ala Gln

645

650

655

Lys His Tyr Gln Thr Leu Val Ile Gln Leu Pro Gly His Pro Gln His  
660 665 670

Gln Thr Val Thr Lys Thr Glu Ile Thr His Val Gly Thr Cys Gln Asp  
675 680 685

Val Asn His Asn Lys Val Ile Glu Thr Asn Arg Glu Asn Asp Lys Gln  
690 695 700

Glu Thr Trp Leu Leu Met Glu Leu Gln Lys Ile Arg Arg Gln Met Glu  
705 710 715 720

His Cys Glu Ala Arg Met Thr Leu Lys Asn Leu Leu Leu Thr Asp Gln  
725 730 735

Gly Ser Thr His Asn Ile Thr Val Lys Ile Asn Glu Leu Lys Ser Val  
740 745 750

Gln Asn Asp Ser Gln Ala Leu Ala Glu Val Leu Asn Gln Leu Lys Asp  
755 760 765

Met Leu Ala Asn Phe Arg Gly Ser Glu Lys Tyr Cys Tyr Leu Gln Asn  
770 775 780

Glu Ile Phe Gly Leu Phe Gln Lys Leu Glu Asn Ile Asn Gly Val Thr  
785 790 795 800

Asp Gly Tyr Leu Asn Ser Leu Cys Ser Val Arg Ala Leu Leu Gln Ala  
805 810 815

Ile Leu Gln Thr Glu Asp Met Leu Lys Val Tyr Glu Ala Arg Leu Thr  
820 825 830

Glu Glu Glu Thr Val Cys Leu Asp Leu Asp Lys Val Glu Ala Tyr Arg  
835 840 845

Cys Gly Leu Lys Lys Ile Lys Asn Asp Leu Asn Leu Lys Lys Ser Leu  
850 855 860

Leu Ala Thr Met Lys Thr Glu Leu Gln Lys Ala Gln Gln Ile His Ser  
865 870 875 880

Gln Ser Ser Gln Gln Tyr Pro Leu Tyr Asp Leu Asp Leu Gly Lys Phe  
885 890 895

Thr Glu Lys Val Thr Gln Leu Thr Asp Arg Trp Gln Lys Ile Asp Lys  
900 905 910

Gln Ile Asp Phe Arg Leu Trp Asp Leu Glu Lys Gln Ile Lys Gln Leu  
915 920 925

Arg Asn Tyr Arg Asp Asn Tyr Gln Ser Phe Cys Lys Trp Leu Tyr Asp

930

935

940

Ala Lys Arg Arg Gln Asp Ser Leu Glu Ser Met Lys Phe Gly Asp Ser  
 945 950 955 960

Asn Thr Val Met Arg Phe Leu Asn Glu Gln Lys Asn Leu His Asn Glu  
 965 970 975

Ile Ser Gly Lys Arg Asp Lys Ser Glu Glu Val His Lys Ile Ala Glu  
 980 985 990

Leu Cys Ala Asn Ser Ile Lys Asp Tyr Glu Leu Gln Leu Ala Ser Tyr  
 995 1000 1005

Thr Ser Gly Leu Glu Thr Leu Leu Asn Ile Pro Ile Lys Arg Thr  
 1010 1015 1020

Met Val Gln Ser Pro Ser Gly Ala Ala Asp Ile His Ala Arg Tyr  
 1025 1030 1035

Ile Glu Leu Leu Thr Arg Ser Gly Asp Tyr Tyr Arg Phe Leu Ser  
 1040 1045 1050

Glu Met Leu Lys Ser Leu Glu Asp Leu Lys Leu Lys Asn Thr Lys  
 1055 1060 1065

Ile Glu Val Leu Glu Glu Glu Leu Arg Leu Ala Arg Asp Ala Asn  
 1070 1075 1080

Ser Glu Asn Cys Asn Lys Asn Lys Phe Leu Asp Gln Asn Leu Gln  
 1085 1090 1095

Lys Tyr Gln Ala Glu Cys Ser Gln Phe Lys Ala Lys Leu Val Ser  
 1100 1105 1110

Leu Glu Glu Leu Lys Arg Gln Ala Glu Leu Asp Gly Lys Ser Ala  
 1115 1120 1125

Lys Gln Asn Leu Asp Lys Cys Tyr Gly Gln Ile Lys Glu Leu Asn  
 1130 1135 1140

Glu Lys Ile Thr Arg Leu Thr Tyr Glu Ile Glu Asp Glu Lys Arg  
 1145 1150 1155

Arg Arg Lys Thr Val Glu Asp Arg Phe Asp Gln Gln Lys Asn Asp  
 1160 1165 1170

Tyr Asp Gln Leu Gln Lys Ala Arg Gln Cys Glu Lys Glu Ser Leu  
 1175 1180 1185

Gly Trp Gln Lys Leu Glu Ser Glu Lys Ala Ile Lys Glu Lys Glu  
 1190 1195 1200

Tyr Glu Ile Glu Arg Leu Arg Val Leu Leu Gln Glu Glu Gly Ala

1205		1210		1215
Arg Lys	Arg Glu Tyr Glu	Asn Glu Leu Ala Lys	Ala Ser Asn Arg	
1220		1225	1230	
Ile Gln	Glu Ser Lys Ser	Gln Cys Thr Gln Val	Val Gln Glu Arg	
1235		1240	1245	
Glu Ser	Leu Leu Val Lys	Ile Lys Val Leu Glu	Gln Asp Lys Ala	
1250		1255	1260	
Arg Leu	Gln Arg Leu Glu	Asp Glu Leu Asn Arg	Ala Lys Ala Thr	
1265		1270	1275	
Leu Glu	Ala Glu Thr Arg	Val Lys Gln Arg Leu	Glu Cys Glu Lys	
1280		1285	1290	
Gln Gln	Ile Gln Asn Asp	Leu Asn Gln Trp Lys	Thr Gln Tyr Ser	
1295		1300	1305	
Arg Lys	Glu Glu Thr Ile	Arg Lys Ile Glu Ser	Glu Arg Glu Lys	
1310		1315	1320	
Ser Glu	Arg Glu Lys Asn	Ser Leu Arg Ser Glu	Ile Glu Arg Leu	
1325		1330	1335	
Gln Ala	Glu Ile Lys Arg	Ile Glu Glu Arg Cys	Arg Arg Lys Leu	
1340		1345	1350	
Glu Asp	Ser Thr Arg Glu	Thr Gln Ser Gln Leu	Glu Thr Glu Arg	
1355		1360	1365	
Cys Arg	Leu Gln Lys Glu	Ile Asp Lys Leu Arg	Gln Arg Pro Tyr	
1370		1375	1380	
Gly Ser	His Arg Glu Thr	Gln Thr Glu Tyr Glu	Trp Thr Val Asp	
1385		1390	1395	
Ser Ser	Lys Leu Val Phe	Asp Gly Leu Arg Lys	Lys Val Thr Ala	
1400		1405	1410	
Met Gln	Leu Tyr Glu Cys	Gln Leu Ile Asp Lys	Thr Thr Leu Asp	
1415		1420	1425	
Lys Leu	Leu Lys Gly Lys	Lys Ser Val Glu Glu	Val Ala Ser Glu	
1430		1435	1440	
Ile Gln	Pro Phe Leu Arg	Gly Ala Gly Ala Ile	Ala Gly Ala Ser	
1445		1450	1455	
Ala Ser	Pro Lys Glu Lys	Tyr Ser Leu Val Glu	Ala Lys Arg Lys	
1460		1465	1470	
Lys Phe	Ile Thr Pro Glu	Ser Thr Val Met Leu	Leu Glu Ala Gln	

1475		1480		1485
Ala Ala Thr Gly Gly Ile Ile Asp Pro His Arg Asn Glu Lys Leu				
1490		1495		1500
Thr Val Asp Asn Ala Ile Ala Arg Asp Leu Ile Asp Phe Asp Asp				
1505		1510		1515
Arg Gln Gln Ile Tyr Thr Ala Glu Lys Ala Ile Thr Gly Phe Asp				
1520		1525		1530
Asp Pro Phe Ser Gly Lys Thr Val Ser Val Ser Glu Ala Ile Lys				
1535		1540		1545
Lys Asn Leu Ile Asp Arg Glu Thr Gly Met Arg Leu Leu Glu Ala				
1550		1555		1560
Gln Leu Ala Ser Gly Gly Val Val Asp Pro Val Asn Ser Val Phe				
1565		1570		1575
Leu Pro Lys Asp Val Ala Leu Ala Arg Gly Leu Ile Asp Arg Asp				
1580		1585		1590
Leu Tyr Arg Ser Leu Asn Asp Pro Arg Asp Ser Gln Lys Asn Phe				
1595		1600		1605
Val Asp Pro Ile Thr Lys Lys Lys Val Ser Tyr Met Gln Leu Arg				
1610		1615		1620
Glu Arg Cys Arg Ile Glu Pro His Thr Gly Leu Leu Leu Leu Ser				
1625		1630		1635
Val Gln Lys Arg Ser Met Ser Phe Gln Gly Ile Arg Gln Pro Val				
1640		1645		1650
Thr Val Thr Glu Leu Val Asp Ser Gly Ile Leu Arg Pro Ser Thr				
1655		1660		1665
Val Asn Glu Leu Glu Ser Gly Gln Ile Ser Tyr Asp Glu Val Gly				
1670		1675		1680
Glu Arg Ile Lys Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly				
1685		1690		1695
Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu Gly Ile Tyr Glu Ala				
1700		1705		1710
Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala Leu Glu Leu Leu				
1715		1720		1725
Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro Val Ser Asn				
1730		1735		1740
Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu Val Gly				

1745		1750		1755
Ile Glu Phe Lys Glu Lys	Leu Leu Ser Ala Glu Arg	Ala Val Thr		
1760	1765	1770		
Gly Tyr Asn Asp Pro Glu Thr	Gly Asn Ile Ile Ser	Leu Phe Gln		
1775	1780	1785		
Ala Met Asn Lys Glu Leu Ile	Glu Lys Gly His Gly	Ile Arg Leu		
1790	1795	1800		
Leu Glu Ala Gln Ile Ala Thr	Gly Gly Ile Ile Asp	Pro Lys Glu		
1805	1810	1815		
Ser His Arg Leu Pro Val Asp	Met Ala Tyr Lys Arg	Gly Tyr Phe		
1820	1825	1830		
Asn Glu Glu Leu Ser Glu Ile	Leu Ser Asp Pro Ser	Asp Asp Thr		
1835	1840	1845		
Lys Gly Phe Phe Asp Pro Asn	Thr Glu Glu Asn Leu	Thr Tyr Leu		
1850	1855	1860		
Gln Leu Lys Glu Arg Cys Ile	Lys Asp Glu Glu Thr	Gly Leu Cys		
1865	1870	1875		
Leu Leu Pro Leu Lys Glu Lys	Lys Lys Gln Val Gln	Thr Ser Gln		
1880	1885	1890		
Lys Asn Thr Leu Arg Lys Arg	Arg Val Val Ile Val	Asp Pro Glu		
1895	1900	1905		
Thr Asn Lys Glu Met Ser Val	Gln Glu Ala Tyr Lys	Lys Gly Leu		
1910	1915	1920		
Ile Asp Tyr Glu Thr Phe Lys	Glu Leu Cys Glu Gln	Glu Cys Glu		
1925	1930	1935		
Trp Glu Glu Ile Thr Ile Thr	Gly Ser Asp Gly Ser	Thr Arg Val		
1940	1945	1950		
Val Leu Val Asp Arg Lys Thr	Gly Ser Gln Tyr Asp	Ile Gln Asp		
1955	1960	1965		
Ala Ile Asp Lys Gly Leu Val	Asp Arg Lys Phe Phe	Asp Gln Tyr		
1970	1975	1980		
Arg Ser Gly Ser Leu Ser Leu	Thr Gln Phe Ala Asp	Met Ile Ser		
1985	1990	1995		
Leu Lys Asn Gly Val Gly Thr	Ser Ser Gly Leu Ser	Gly Ser Val		
2000	2005	2010		
Asn Asp Asp Val Phe Ser Ser	Ser Arg His Glu Ser	Val Ser Lys		

2015					2020					2025				
Ile	Ser	Thr	Ile	Ser	Ser	Val	Arg	Asn	Leu	Thr	Ile	Arg	Ser	Ser
2030					2035					2040				
Ser	Leu	Ser	Asp	Pro	Leu	Glu	Glu	Ser	Ser	Pro	Ile	Ala	Ala	Ile
2045					2050					2055				
Phe	Asp	Thr	Glu	Asn	Leu	Glu	Lys	Ile	Ser	Ile	Thr	Glu	Gly	Ile
2060					2065					2070				
Glu	Arg	Gly	Ile	Val	Asp	Ser	Ile	Thr	Gly	Gln	Arg	Leu	Leu	Glu
2075					2080					2085				
Ala	Gln	Ala	Cys	Thr	Gly	Gly	Ile	Ile	His	Pro	Thr	Thr	Gly	Gln
2090					2095					2100				
Lys	Leu	Ser	Leu	Gln	Asp	Ala	Val	Ser	Gln	Gly	Leu	Ile	Asp	Gln
2105					2110					2115				
Asp	Met	Ala	Thr	Arg	Leu	Lys	Pro	Ala	Gln	Lys	Ala	Phe	Ile	Gly
2120					2125					2130				
Phe	Glu	Gly	Val	Lys	Gly	Lys	Lys	Lys	Met	Ser	Ala	Ala	Glu	Ala
2135					2140					2145				
Val	Lys	Glu	Lys	Trp	Leu	Pro	Tyr	Glu	Ala	Gly	Gln	Arg	Phe	Leu
2150					2155					2160				
Glu	Phe	Gln	Phe	Leu	Thr	Gly	Gly	Leu	Val	Asp	Pro	Glu	Val	His
2165					2170					2175				
Gly	Arg	Ile	Ser	Thr	Glu	Glu	Ala	Ile	Arg	Lys	Gly	Phe	Ile	Asp
2180					2185					2190				
Gly	Arg	Ala	Ala	Gln	Arg	Leu	Gln	Asp	Ile	Ser	Ser	Tyr	Ala	Lys
2195					2200					2205				
Ile	Leu	Thr	Cys	Pro	Lys	Thr	Lys	Leu	Lys	Ile	Ser	Tyr	Lys	Asp
2210					2215					2220				
Ala	Met	Asn	Arg	Ser	Met	Val	Glu	Asp	Ile	Thr	Gly	Leu	Arg	Leu
2225					2230					2235				
Leu	Glu	Ala	Ala	Ser	Val	Ser	Ser	Lys	Gly	Leu	Pro	Ser	Pro	Tyr
2240					2245					2250				
Asn	Met	Ser	Ala	Pro	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser
2255					2260					2265				
Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Ser	Gly	Ser	Arg	Arg	Gly
2270					2275					2280				
Ser	Phe	Asp	Ala	Thr	Gly	Asn	Ser	Ser	Tyr	Ser	Tyr	Ser	Tyr	Ser

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Phe Ser Ser Ser Ser Ile Gly Tyr			
2300	2305		
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1 5 10 15			
cac aga ggc agg aag gca cct ggg att gag tat tgg gat tcg gct gtg		96	
His Arg Gly Arg Lys Ala Pro Gly Ile Glu Tyr Trp Asp Ser Ala Val			
20 25 30			
gag gga gtg gcc tgc cag gct gcg gag tgt gta tct tac ctg tgg ata		144	
Glu Gly Val Ala Cys Gln Ala Ala Glu Cys Val Ser Tyr Leu Trp Ile			
35 40 45			
gtg gga gcc aat gaa gat tcc caa act gct aag cag tta aaa ctc aag		192	
Val Gly Ala Asn Glu Asp Ser Gln Thr Ala Lys Gln Leu Lys Leu Lys			
50 55 60			
gag ccg tcg gac agg ttt aac gag agt gaa gtg tgc cgc tcc aca ccc		240	
Glu Pro Ser Asp Arg Phe Asn Glu Ser Glu Val Cys Arg Ser Thr Pro			
65 70 75 80			
acc ttt gca aga cag aac tgc ttc acg gtt cat aaa cat ttt gga aac		288	
Thr Phe Ala Arg Gln Asn Cys Phe Thr Val His Lys His Phe Gly Asn			
85 90 95			
gca ctg tat cag aag aaa cag ctt ttc atg gat ggt gtg act ggg tct		336	
Ala Leu Tyr Gln Lys Lys Gln Leu Phe Met Asp Gly Val Thr Gly Ser			
100 105 110			
gta tcc aaa ccc ggt tcg gtt cct gga gcc aac ggt gta gtt aac act		384	
Val Ser Lys Pro Gly Ser Val Pro Gly Ala Asn Gly Val Val Asn Thr			
115 120 125			
cag cct ctt gca gtt aac act cag cct ctt aac tgg gag tgg ccc tgg		432	
Gln Pro Leu Ala Val Asn Thr Gln Pro Leu Asn Trp Glu Trp Pro Trp			
130 135 140			
agc aag tcg ctg gaa tgt tca agc tcc gcg tca ctc atc ggt acc aac		480	
Ser Lys Ser Leu Glu Cys Ser Ser Ser Ala Ser Leu Ile Gly Thr Asn			
145 150 155 160			
tcc gac gca gct cct ctg cgc cct tgc cgc cct ccg agc cac agc tct		528	
Ser Asp Ala Ala Pro Leu Arg Pro Cys Arg Pro Pro Ser His Ser Ser			
165 170 175			
tcc tcc cgc tcc tgc ccc cgg ccc gtc gcc gtc tcc gcg ctc gca gcg		576	
Ser Ser Arg Ser Cys Pro Arg Pro Val Ala Val Ser Ala Leu Ala Ala			
180 185 190			
gcc tcg gga ggg ccc agg tgg cga gca gcg acc tcg cga gcc ttc cgc		624	
Ala Ser Gly Gly Pro Arg Trp Arg Ala Ala Thr Ser Arg Ala Phe Arg			
195 200 205			
act ccc gcc cgg ttc ccc ggc cgt ccg cct atc ctt ggc ccc ctc cgc		672	
Thr Pro Ala Arg Phe Pro Gly Arg Pro Pro Ile Leu Gly Pro Leu Arg			



210	215	220	
ttt ctc cgc gcc ggc Phe Leu Arg Ala Gly 225	ccg cct cgc tta tgc Pro Pro Arg Leu Cys 230	ctc ggc gct gag ccg ctc Leu Gly Ala Glu Pro Leu 235	720
tcc cga ttg ccc gcc Ser Arg Leu Pro Ala 245	gac atg agc tgc Asp Met Ser Cys 250	gga ggc tcc cac ccg cgg Gly Gly Ser His Pro Arg 255	768
atc aac act ctg ggc Ile Asn Thr Leu Gly 260	cgc atg atc cgc Arg Met Ile Arg 265	gcc gag tct ggc ccg gac ctg Ala Glu Ser Gly Pro Asp Leu 270	816
cgc tac gag gtg acg Arg Tyr Glu Val Thr 275	agt ggc ggc ggg ggc Ser Gly Gly Gly 280	acc agc agg atg tac tac Thr Ser Arg Met Tyr Tyr 285	864
tcg cgg cgc gcc gtg Ser Arg Arg Gly Val 290	atc acc gac cag aac Ile Thr Asp Gln Asn 295	tcg gac ggc tac tgg tgg Ser Asp Gly Tyr Trp Trp 300	912
gta cct gcc cgg aga Val Pro Ala Arg Arg 305	gcg cgg gct gcg ggg Ala Arg Ala Ala Gly 310	ctc gcg gga cag gga ggg Leu Ala Gly Gln Gly Gly 315	960
acc atc ctc ctc tgg Thr Ile Leu Leu Trp 325	acg act ggg aga atc Thr Thr Gly Arg Ile 330	gag tcc cga agc cgg gcg Glu Ser Arg Ser Arg Ala 335	1008
ggt ggt cag agg ggg Gly Gly Gln Arg Gly 340	cgt cgg gcc cgc gcg Arg Arg Ala Arg Ala 345	ctg tcc cct gcc tgc Gly Leu Ser Pro Ala Cys 350	1056
tgg aca cgg ctg cag Trp Thr Arg Leu Gln 355	ccg cct ttg tcc cag Pro Pro Leu Ser Gln 360	ccc gcg aat ggg agg tca Pro Ala Asn Gly Arg Ser 365	1104
ggc gag gtg ggg ctg Gly Glu Val Gly Leu 370	cga cca caa aac cca Arg Pro Gln Asn Pro 375	acc tct cca acc gta atc Thr Ser Pro Thr Val Ile 380	1152
aaa gta aaa gag gaa Lys Val Lys Glu Glu 385	agg agc ggg gcc ccg Arg Ser Gly Ala Pro 390	gtc ctg tct ggt ggc cga Val Leu Ser Gly Gly Arg 395	1200
gtg gtg ctc ggg gct Val Val Leu Gly Ala 405	ccg cag tct cta ccg Pro Gln Ser Leu Pro 410	gct cac ccc caa tcc cca Ala His Pro Gln Ser Pro 415	1248
gta acc ccg aga cca Val Thr Pro Arg Pro 420	cga ctg caa cga ctc Arg Leu Gln Arg Leu 425	ctg gac tcc tcg gcc acc Leu Asp Ser Ser Ala Thr 430	1296
caa gga cgt ttg tat Gln Gly Arg Leu Tyr 435	caa ggc tgc gcg tcc Gln Gly Cys Ala Ser 440	cgg cgg cgc ggg gtc ctg Arg Arg Arg Gly Val Leu 445	1344
tcc cga gga ggc gct Ser Arg Gly Gly Ala 450	tcg gct tcc cct caa Ser Ala Ser Pro Gln 455	act aca aac acc atc cag Thr Thr Asn Thr Ile Gln 460	1392
gag ctg ctg cag aac Glu Leu Leu Gln Asn 465	tgc tcc gac tgc ttg Cys Ser Asp Cys Leu 470	atg cga gca gag ctc atc Met Arg Ala Glu Leu Ile 475	1440
gtg cag cct gaa ttg Val Gln Pro Glu Leu 485	aag tat gga gat gga Lys Tyr Gly Asp Gly 490	ata caa ctg act cgg agt Ile Gln Leu Thr Arg Ser 495	1488
cga gaa ttg gat gag Arg Glu Leu Asp Glu 500	tgt ttt gcc cag gcc Cys Phe Ala Gln Ala 505	aac gac caa atg gaa atc Asn Asp Gln Met Glu Ile 510	1536

500					505					510									
ctc	gac	agc	ttg	atc	aga	gag	atg	cgg	cag	atg	ggc	cag	ccc	tgt	gat	1584			
Leu	Asp	Ser	Leu	Ile	Arg	Glu	Met	Arg	Gln	Met	Gly	Gln	Pro	Cys	Asp				
		515				520						525							
gct	tac	cag	aaa	agg	ctt	ctt	cag	ctc	caa	gag	caa	atg	cga	gcc	ctt	1632			
Ala	Tyr	Gln	Lys	Arg	Leu	Leu	Gln	Leu	Gln	Glu	Gln	Met	Arg	Ala	Leu				
		530				535						540							
tat	aaa	gcc	atc	agt	gtc	cct	cga	gtc	cgc	agg	gcc	agc	tcc	aag	ggc	1680			
Tyr	Lys	Ala	Ile	Ser	Val	Pro	Arg	Val	Arg	Arg	Ala	Ser	Ser	Lys	Gly				
545				550						555				560					
ggc	gga	ggc	tac	act	tgt	cag	agt	ggc	tct	ggc	tgg	gat	gag	ttc	acc	1728			
Gly	Gly	Gly	Tyr	Thr	Cys	Gln	Ser	Gly	Ser	Gly	Trp	Asp	Glu	Phe	Thr				
				565						570				575					
aaa	cat	gtc	acc	agt	gaa	tgt	ttg	gga	tgg	atg	agg	cag	caa	agg	gcg	1776			
Lys	His	Val	Thr	Ser	Glu	Cys	Leu	Gly	Trp	Met	Arg	Gln	Gln	Arg	Ala				
		580						585				590							
gag	atg	gac	atg	gtg	gcc	tgg	ggc	gtg	gac	ctg	gcc	tca	gtg	gag	cag	1824			
Glu	Met	Asp	Met	Val	Ala	Trp	Gly	Val	Asp	Leu	Ala	Ser	Val	Glu	Gln				
		595				600						605							
cac	att	aac	agc	cac	cgg	ggc	atc	cac	aac	tcc	atc	ggc	gac	tat	cgc	1872			
His	Ile	Asn	Ser	His	Arg	Gly	Ile	His	Asn	Ser	Ile	Gly	Asp	Tyr	Arg				
		610				615						620							
tgg	cag	ctg	gac	aaa	atc	aaa	gcc	gac	ctg	cgt	gag	aaa	tct	gcg	atc	1920			
Trp	Gln	Leu	Asp	Lys	Ile	Lys	Ala	Asp	Leu	Arg	Glu	Lys	Ser	Ala	Ile				
625				630						635				640					
tac	cag	tgg	agg	gag	gag	tat	gaa	aac	ctg	ctg	aaa	gcg	tcc	ttt	gag	1968			
Tyr	Gln	Trp	Arg	Glu	Glu	Tyr	Glu	Asn	Leu	Leu	Lys	Ala	Ser	Phe	Glu				
				645						650				655					
agg	atg	gat	cac	ctg	cga	cag	ctg	cag	aac	atc	att	cag	gcc	acg	tcc	2016			
Arg	Met	Asp	His	Leu	Arg	Gln	Leu	Gln	Asn	Ile	Ile	Gln	Ala	Thr	Ser				
		660						665				670							
agg	gag	atc	atg	tgg	atc	aat	gac	tgc	gag	gaa	gag	gag	ctg	ctg	tac	2064			
Arg	Glu	Ile	Met	Trp	Ile	Asn	Asp	Cys	Glu	Glu	Glu	Glu	Leu	Leu	Tyr				
		675				680						685							
gac	tgg	agc	gac	aag	aac	acc	aac	atc	gct	cag	aaa	cag	gag	gcc	ttc	2112			
Asp	Trp	Ser	Asp	Lys	Asn	Thr	Asn	Ile	Ala	Gln	Lys	Gln	Glu	Ala	Phe				
690						695						700							
tcc	ata	cgc	atg	agt	caa	ctg	gaa	gtt	aaa	gaa	aaa	gag	ctc	aat	aag	2160			
Ser	Ile	Arg	Met	Ser	Gln	Leu	Glu	Val	Lys	Glu	Lys	Glu	Leu	Asn	Lys				
705				710						715				720					
ctg	aaa	caa	gaa	agt	gac	caa	ctt	gtc	ctc	aat	cag	cat	cca	gct	tca	2208			
Leu	Lys	Gln	Glu	Ser	Asp	Gln	Leu	Val	Leu	Asn	Gln	His	Pro	Ala	Ser				
				725				730						735					
gac	aaa	att	gag	gcc	tat	atg	gac	act	ctg	cag	acg	cag	tgg	agt	tgg	2256			
Asp	Lys	Ile	Glu	Ala	Tyr	Met	Asp	Thr	Leu	Gln	Thr	Gln	Trp	Ser	Trp				
		740						745				750							
att	ctt	cag	atc	acc	aag	tgc	att	gat	gtt	cat	ctg	aaa	gaa	aat	gct	2304			
Ile	Leu	Gln	Ile	Thr	Lys	Cys	Ile	Asp	Val	His	Leu	Lys	Glu	Asn	Ala				
		755				760						765							
gcc	tac	ttt	cag	ttt	ttt	gaa	gag	gcg	cag	tca	act	gaa	gca	tac	ctg	2352			
Ala	Tyr	Phe	Gln	Phe	Phe	Glu	Glu	Ala	Gln	Ser	Thr	Glu	Ala	Tyr	Leu				
		770				775				780									
aag	ggg	ctt	cag	gac	tcc	atc	agg	aag	aag	tac	cga	agc	gac	aag	aac	2400			
Lys	Gly	Leu	Gln	Asp	Ser	Ile	Arg	Lys	Lys	Tyr	Arg	Ser	Asp	Lys	Asn				

785	790	795	800	
atg ccc ctg cag cac ctg ctg gaa cag atc aag gag ctg gag aaa gaa				2448
Met Pro Leu Gln His Leu Leu Glu Gln Ile Lys Glu Leu Glu Lys Glu	805	810	815	
cga gag aaa atc ctt gaa tac aag cgt cag gtg cag aac ttg gta aac				2496
Arg Glu Lys Ile Leu Glu Tyr Lys Arg Gln Val Gln Asn Leu Val Asn	820	825	830	
aag tct aag aag att gta cag ctg aag cct cgt aac cca gac tac aga				2544
Lys Ser Lys Lys Ile Val Gln Leu Lys Pro Arg Asn Pro Asp Tyr Arg	835	840	845	
agc aat aaa ccc att att ctc aga gct ctc tgt gac tac aaa caa gac				2592
Ser Asn Lys Pro Ile Ile Leu Arg Ala Leu Cys Asp Tyr Lys Gln Asp	850	855	860	
cag aaa att gtg cat aag ggg gat gag tgt atc ctg aag gac aac aac				2640
Gln Lys Ile Val His Lys Gly Asp Glu Cys Ile Leu Lys Asp Asn Asn	865	870	875	880
gag cgc agc aag tgg tac gtg acg ggc ccg gga ggc gtt gac atg ctc				2688
Glu Arg Ser Lys Trp Tyr Val Thr Gly Pro Gly Gly Val Asp Met Leu	885	890	895	
gtt ccc tct gtg ggg ctg atc atc cct cct ccg aac cca ctg gcc ctg				2736
Val Pro Ser Val Gly Leu Ile Ile Pro Pro Pro Asn Pro Leu Ala Leu	900	905	910	
aaa aca atg cgg cag gaa gat tac atg aag acg ata gcc gac ctt gag				2784
Lys Thr Met Arg Gln Glu Asp Tyr Met Lys Thr Ile Ala Asp Leu Glu	915	920	925	
tta cat tac caa gag ttc atc aga aat agc caa ggc tca gag atg ttt				2832
Leu His Tyr Gln Glu Phe Ile Arg Asn Ser Gln Gly Ser Glu Met Phe	930	935	940	
gga gat gat gac aag cgg aaa ata cag tct cag ttc acc gat gcc cag				2880
Gly Asp Asp Asp Lys Arg Lys Ile Gln Ser Gln Phe Thr Asp Ala Gln	945	950	955	960
aag cat tac cag acc ctg gtc att cag ctc cct ggc tat ccc cag cac				2928
Lys His Tyr Gln Thr Leu Val Ile Gln Leu Pro Gly Tyr Pro Gln His	965	970	975	
cag aca gtg acc aca act gaa atc act cat cat gga acc tgc caa gat				2976
Gln Thr Val Thr Thr Thr Glu Ile Thr His His Gly Thr Cys Gln Asp	980	985	990	
gtc aac cat aat aaa gta att gaa acc aac aga gaa aat gac aag caa				3024
Val Asn His Asn Lys Val Ile Glu Thr Asn Arg Glu Asn Asp Lys Gln	995	1000	1005	
gaa aca tgg atg ctg atg gag ctg cag aag att cgc agg cag ata				3069
Glu Thr Trp Met Leu Met Glu Leu Gln Lys Ile Arg Arg Gln Ile	1010	1015	1020	
gag cac tgc gag ggc agg atg act ctc aaa aac ctc cct cta gca				3114
Glu His Cys Glu Gly Arg Met Thr Leu Lys Asn Leu Pro Leu Ala	1025	1030	1035	
gac cag ggg tct tct cac cac atc aca gtg aaa att aac gag ctt				3159
Asp Gln Gly Ser Ser His His Ile Thr Val Lys Ile Asn Glu Leu	1040	1045	1050	
aag agt gtg cag aat gat tca caa gca att gct gag gtt ctc aac				3204
Lys Ser Val Gln Asn Asp Ser Gln Ala Ile Ala Glu Val Leu Asn	1055	1060	1065	
cag ctt aaa gat atg ctt gcc aac ttc aga ggt tct gaa aag tac				3249
Gln Leu Lys Asp Met Leu Ala Asn Phe Arg Gly Ser Glu Lys Tyr				

1070	1075	1080	
tgc tat tta cag aat gaa gta ttt gga cta ttt cag aaa ctg gaa			3294
Cys Tyr Leu Gln Asn Glu Val Phe Gly Leu Phe Gln Lys Leu Glu			
1085	1090	1095	
aat atc aat ggt gtt aca gat ggc tac tta aat agc tta tgc aca			3339
Asn Ile Asn Gly Val Thr Asp Gly Tyr Leu Asn Ser Leu Cys Thr			
1100	1105	1110	
gta agg gca ctg ctc cag gct att ctc caa aca gaa gac atg tta			3384
Val Arg Ala Leu Leu Gln Ala Ile Leu Gln Thr Glu Asp Met Leu			
1115	1120	1125	
aag gtt tac gaa gcc agg ctc cct gag gaa gaa act gtc tgc ctg			3429
Lys Val Tyr Glu Ala Arg Leu Pro Glu Glu Glu Thr Val Cys Leu			
1130	1135	1140	
gac ctg gat aaa gcg gaa gct tac cgc tgt gga ctg aag aaa ata			3474
Asp Leu Asp Lys Ala Glu Ala Tyr Arg Cys Gly Leu Lys Lys Ile			
1145	1150	1155	
aaa aat gac ttg aac ttg aag aag tcg ttg ttg gcc act atg aag			3519
Lys Asn Asp Leu Asn Leu Lys Lys Ser Leu Leu Ala Thr Met Lys			
1160	1165	1170	
aca gaa cta cag aaa gcc cag cag atc cac tct cag act tca cag			3564
Thr Glu Leu Gln Lys Ala Gln Gln Ile His Ser Gln Thr Ser Gln			
1175	1180	1185	
cag tat ccg ctt tat gat ctg gac ttg ggc aag ttc ggt gaa aaa			3609
Gln Tyr Pro Leu Tyr Asp Leu Asp Leu Gly Lys Phe Gly Glu Lys			
1190	1195	1200	
gtc aca cag ctg aca gac cgc tgg caa agg ata gat aaa cag atc			3654
Val Thr Gln Leu Thr Asp Arg Trp Gln Arg Ile Asp Lys Gln Ile			
1205	1210	1215	
gac ttt aga tta tgg gac ctg gag aaa caa atc aag caa ttg agg			3699
Asp Phe Arg Leu Trp Asp Leu Glu Lys Gln Ile Lys Gln Leu Arg			
1220	1225	1230	
aat tat cgt gat aac tat cag gct ttc tgc aag tgg gtc tat gat			3744
Asn Tyr Arg Asp Asn Tyr Gln Ala Phe Cys Lys Trp Val Tyr Asp			
1235	1240	1245	
gct aaa cgc cgc cag gat tcc tta gaa tcc atg aaa ttt gga gat			3789
Ala Lys Arg Arg Gln Asp Ser Leu Glu Ser Met Lys Phe Gly Asp			
1250	1255	1260	
tcc aac aca gtc atg cgg ttt ttg aat gag cag aag aac ttg cac			3834
Ser Asn Thr Val Met Arg Phe Leu Asn Glu Gln Lys Asn Leu His			
1265	1270	1275	
agt gaa ata tct ggc aaa cga gac aaa tca gag gaa gta caa aaa			3879
Ser Glu Ile Ser Gly Lys Arg Asp Lys Ser Glu Glu Val Gln Lys			
1280	1285	1290	
att gct gaa ctt tgc gcc aat tca att aag gat tat gag ctc cag			3924
Ile Ala Glu Leu Cys Ala Asn Ser Ile Lys Asp Tyr Glu Leu Gln			
1295	1300	1305	
ctg gcc tca tac acc tca gga ctg gaa act ctg ctg aac ata cct			3969
Leu Ala Ser Tyr Thr Ser Gly Leu Glu Thr Leu Leu Asn Ile Pro			
1310	1315	1320	
atc aag agg acc atg att cag tcc cct tct ggg gtg att ctg caa			4014
Ile Lys Arg Thr Met Ile Gln Ser Pro Ser Gly Val Ile Leu Gln			
1325	1330	1335	
gag gct gca gat gtt cat gct cgg tac att gaa cta ctt aca aga			4059
Glu Ala Ala Asp Val His Ala Arg Tyr Ile Glu Leu Leu Thr Arg			

1340	1345	1350	
tct gga gac tat tac agg ttc tta agt gag atg ctg aag agt ttg			4104
Ser Gly Asp Tyr Tyr Arg Phe Leu Ser Glu Met Leu Lys Ser Leu			
1355	1360	1365	
gaa gat ctg aag ctg aaa aat acc aag atc gaa gtt ttg gaa gag			4149
Glu Asp Leu Lys Leu Lys Asn Thr Lys Ile Glu Val Leu Glu Glu			
1370	1375	1380	
gag ctc aga ctg gcc cga gat gcc aac tcg gaa aac tgt aat aag			4194
Glu Leu Arg Leu Ala Arg Asp Ala Asn Ser Glu Asn Cys Asn Lys			
1385	1390	1395	
aac aaa ttc ctg gat cag aac ctg cag aaa tac cag gca gag tgt			4239
Asn Lys Phe Leu Asp Gln Asn Leu Gln Lys Tyr Gln Ala Glu Cys			
1400	1405	1410	
tcc cag ttc aaa gcg aag ctt gcg agc ctg gag gag ctg aag aga			4284
Ser Gln Phe Lys Ala Lys Leu Ala Ser Leu Glu Glu Leu Lys Arg			
1415	1420	1425	
cag gct gag ctg gat ggg aag tcg gct aag caa aat cta gac aag			4329
Gln Ala Glu Leu Asp Gly Lys Ser Ala Lys Gln Asn Leu Asp Lys			
1430	1435	1440	
tgc tac ggc caa ata aaa gaa ctc aat gag aag atc acc cga ctg			4374
Cys Tyr Gly Gln Ile Lys Glu Leu Asn Glu Lys Ile Thr Arg Leu			
1445	1450	1455	
act tat gag att gaa gat gaa aag aga aga aga aaa tct gtg gaa			4419
Thr Tyr Glu Ile Glu Asp Glu Lys Arg Arg Arg Lys Ser Val Glu			
1460	1465	1470	
gac aga ttt gac caa cag aag aat gac tat gac caa ctg cag aaa			4464
Asp Arg Phe Asp Gln Gln Lys Asn Asp Tyr Asp Gln Leu Gln Lys			
1475	1480	1485	
gca agg caa tgt gaa aag gag aac ctt ggt tgg cag aaa tta gag			4509
Ala Arg Gln Cys Glu Lys Glu Asn Leu Gly Trp Gln Lys Leu Glu			
1490	1495	1500	
tct gag aaa gcc atc aag gag aag gag tac gag att gaa agg ttg			4554
Ser Glu Lys Ala Ile Lys Glu Lys Glu Tyr Glu Ile Glu Arg Leu			
1505	1510	1515	
agg gtt cta ctg cag gaa gaa ggc acc cgg aag aga gaa tat gaa			4599
Arg Val Leu Leu Gln Glu Glu Gly Thr Arg Lys Arg Glu Tyr Glu			
1520	1525	1530	
aat gag ctg gca aag gta aga aac cac tat aat gag gag atg agt			4644
Asn Glu Leu Ala Lys Val Arg Asn His Tyr Asn Glu Glu Met Ser			
1535	1540	1545	
aat tta agg aac aag tat gaa aca gag att aac att acg aag acc			4689
Asn Leu Arg Asn Lys Tyr Glu Thr Glu Ile Asn Ile Thr Lys Thr			
1550	1555	1560	
acc atc aag gag ata tcc atg caa aaa gag gat gat tcc aaa aat			4734
Thr Ile Lys Glu Ile Ser Met Gln Lys Glu Asp Asp Ser Lys Asn			
1565	1570	1575	
ctt aga aac cag ctt gat aga ctc tca agg gaa aat cga gat ctg			4779
Leu Arg Asn Gln Leu Asp Arg Leu Ser Arg Glu Asn Arg Asp Leu			
1580	1585	1590	
aag gat gaa att gtc agg ctc aat gac agc atc ttg cag gcc act			4824
Lys Asp Glu Ile Val Arg Leu Asn Asp Ser Ile Leu Gln Ala Thr			
1595	1600	1605	
gag cag cga agg cga gct gaa gaa aat gcc ctt cag caa aag gcc			4869
Glu Gln Arg Arg Arg Ala Glu Glu Asn Ala Leu Gln Gln Lys Ala			

1610	1615	1620	
tgt ggc tct gag ata atg cag aag aag cag cat ctg gag ata gaa			4914
Cys Gly Ser Glu Ile Met Gln Lys Lys Gln His Leu Glu Ile Glu			
1625	1630	1635	
ctg aag cag gtc atg cag cag cgc tct gag gac aat gcc cgg cac			4959
Leu Lys Gln Val Met Gln Gln Arg Ser Glu Asp Asn Ala Arg His			
1640	1645	1650	
aag cag tcc ctg gag gag gct gcc aag acc att cag gac aaa aat			5004
Lys Gln Ser Leu Glu Glu Ala Ala Lys Thr Ile Gln Asp Lys Asn			
1655	1660	1665	
aag gag atc gag aga ctc aaa gct gag ttt cag gag gag gcc aag			5049
Lys Glu Ile Glu Arg Leu Lys Ala Glu Phe Gln Glu Glu Ala Lys			
1670	1675	1680	
cgc cgc tgg gaa tat gaa aat gaa ctg agt aag gta aga aac aat			5094
Arg Arg Trp Glu Tyr Glu Asn Glu Leu Ser Lys Val Arg Asn Asn			
1685	1690	1695	
tat gat gag gag atc att agc tta aaa aat cag ttt gag acc gag			5139
Tyr Asp Glu Glu Ile Ile Ser Leu Lys Asn Gln Phe Glu Thr Glu			
1700	1705	1710	
atc aac atc acc aag acc acc atc cac cag ctc acc atg cag aag			5184
Ile Asn Ile Thr Lys Thr Thr Ile His Gln Leu Thr Met Gln Lys			
1715	1720	1725	
gaa gag gat acc agt ggc tac cgg gct cag ata gac aat ctc acc			5229
Glu Glu Asp Thr Ser Gly Tyr Arg Ala Gln Ile Asp Asn Leu Thr			
1730	1735	1740	
cga gaa aac agg agc tta tct gaa gaa ata aag agg ctg aag aac			5274
Arg Glu Asn Arg Ser Leu Ser Glu Glu Ile Lys Arg Leu Lys Asn			
1745	1750	1755	
act cta acc cag acc aca gag aat ctc agg agg gtg gaa gaa gac			5319
Thr Leu Thr Gln Thr Thr Glu Asn Leu Arg Arg Val Glu Glu Asp			
1760	1765	1770	
gtc caa cag caa aag gcc act ggc tct gag gtg tct cag agg aaa			5364
Val Gln Gln Gln Lys Ala Thr Gly Ser Glu Val Ser Gln Arg Lys			
1775	1780	1785	
cag cag ctg gag gtt gag ctg aga caa gtc act cag atg cga aca			5409
Gln Gln Leu Glu Val Glu Leu Arg Gln Val Thr Gln Met Arg Thr			
1790	1795	1800	
gag gag agc gta aga tat aag caa tct ctt gat gat gct gcc aaa			5454
Glu Glu Ser Val Arg Tyr Lys Gln Ser Leu Asp Asp Ala Ala Lys			
1805	1810	1815	
acc atc cag gat aaa aac aag gag ata gaa agg tta aaa caa ctg			5499
Thr Ile Gln Asp Lys Asn Lys Glu Ile Glu Arg Leu Lys Gln Leu			
1820	1825	1830	
atc gac aaa gaa aca aat gac cgg aaa tgc ctg gaa gat gaa aac			5544
Ile Asp Lys Glu Thr Asn Asp Arg Lys Cys Leu Glu Asp Glu Asn			
1835	1840	1845	
gcg aga tta caa agg gtc cag tat gac ctg cag aaa gca aac agt			5589
Ala Arg Leu Gln Arg Val Gln Tyr Asp Leu Gln Lys Ala Asn Ser			
1850	1855	1860	
agt gcg acg gag aca ata aac aaa ctg aag gtt cag gag caa gaa			5634
Ser Ala Thr Glu Thr Ile Asn Lys Leu Lys Val Gln Glu Gln Glu			
1865	1870	1875	
ctg aca cgc ctg agg atc gac tat gaa agg gtt tcc cag gag agg			5679
Leu Thr Arg Leu Arg Ile Asp Tyr Glu Arg Val Ser Gln Glu Arg			

1880					1885					1890					
act	gtg	aag	gac	cag	gat	atc	acg	cgg	ttc	cag	agc	tct	ctg	aaa	5724
Thr	Val	Lys	Asp	Gln	Asp	Ile	Thr	Arg	Phe	Gln	Ser	Ser	Leu	Lys	
	1895					1900					1905				
gag	ctg	cag	ctg	cag	aag	cag	aag	gtg	gaa	gag	gag	ctc	aat	cgg	5769
Glu	Leu	Gln	Leu	Gln	Lys	Gln	Lys	Val	Glu	Glu	Glu	Leu	Asn	Arg	
	1910					1915					1920				
ctg	aag	agg	acg	gcg	tca	gaa	gac	tcc	tgc	aag	agg	aag	aag	ctg	5814
Leu	Lys	Arg	Thr	Ala	Ser	Glu	Asp	Ser	Cys	Lys	Arg	Lys	Lys	Leu	
	1925					1930					1935				
gag	gaa	gag	ctg	gaa	ggc	atg	agg	agg	tcg	ctg	aag	gag	caa	gcc	5859
Glu	Glu	Glu	Leu	Glu	Gly	Met	Arg	Arg	Ser	Leu	Lys	Glu	Gln	Ala	
	1940					1945					1950				
atc	aaa	atc	acc	aac	ctg	acc	cag	cag	ctg	gag	cag	gca	tcc	att	5904
Ile	Lys	Ile	Thr	Asn	Leu	Thr	Gln	Gln	Leu	Glu	Gln	Ala	Ser	Ile	
	1955					1960					1965				
gtt	aag	aag	agg	agt	gag	gat	gac	ctc	cgg	cag	cag	agg	gac	gtg	5949
Val	Lys	Lys	Arg	Ser	Glu	Asp	Asp	Leu	Arg	Gln	Gln	Arg	Asp	Val	
	1970					1975					1980				
ctg	gat	ggc	cac	ctg	agg	gaa	aag	cag	agg	acc	cag	gaa	gag	ctg	5994
Leu	Asp	Gly	His	Leu	Arg	Glu	Lys	Gln	Arg	Thr	Gln	Glu	Glu	Leu	
	1985					1990					1995				
agg	agg	ctg	tct	tct	gag	gtc	gag	gcc	ctg	agg	cgg	cag	tta	ctc	6039
Arg	Arg	Leu	Ser	Ser	Glu	Val	Glu	Ala	Leu	Arg	Arg	Gln	Leu	Leu	
	2000					2005					2010				
cag	gaa	cag	gaa	agt	gtc	aaa	caa	gct	cac	ttg	agg	aat	gag	cat	6084
Gln	Glu	Gln	Glu	Ser	Val	Lys	Gln	Ala	His	Leu	Arg	Asn	Glu	His	
	2015					2020					2025				
ttc	cag	aag	gcg	ata	gaa	gat	aaa	agc	aga	agc	tta	aat	gaa	agc	6129
Phe	Gln	Lys	Ala	Ile	Glu	Asp	Lys	Ser	Arg	Ser	Leu	Asn	Glu	Ser	
	2030					2035					2040				
aaa	ata	gaa	att	gag	agg	ctg	cag	tct	ctc	aca	gag	aac	ctg	acc	6174
Lys	Ile	Glu	Ile	Glu	Arg	Leu	Gln	Ser	Leu	Thr	Glu	Asn	Leu	Thr	
	2045					2050					2055				
aag	gag	cac	ttg	atg	tta	gaa	gaa	gaa	ctg	cgg	aac	ctg	agg	ctg	6219
Lys	Glu	His	Leu	Met	Leu	Glu	Glu	Glu	Leu	Arg	Asn	Leu	Arg	Leu	
	2060					2065					2070				
gag	tac	gat	gac	ctg	agg	aga	ggg	cga	agc	gaa	gcg	gac	agt	gat	6264
Glu	Tyr	Asp	Asp	Leu	Arg	Arg	Gly	Arg	Ser	Glu	Ala	Asp	Ser	Asp	
	2075					2080					2085				
aaa	aat	gca	acc	atc	ttg	gaa	cta	agg	agc	cag	ctg	cag	atc	agc	6309
Lys	Asn	Ala	Thr	Ile	Leu	Glu	Leu	Arg	Ser	Gln	Leu	Gln	Ile	Ser	
	2090					2095					2100				
aac	aac	cgg	acc	ctg	gaa	ctg	cag	ggg	ctg	att	cat	gat	tta	cag	6354
Asn	Asn	Arg	Thr	Leu	Glu	Leu	Gln	Gly	Leu	Ile	His	Asp	Leu	Gln	
	2105					2110					2115				
aga	gag	agg	gaa	aat	ttg	aga	cag	gaa	att	gag	aaa	ttc	caa	aag	6399
Arg	Glu	Arg	Glu	Asn	Leu	Arg	Gln	Glu	Ile	Glu	Lys	Phe	Gln	Lys	
	2120					2125					2130				
cag	gct	tta	gag	gca	tct	aat	agg	att	cag	gaa	tca	aag	aat	cag	6444
Gln	Ala	Leu	Glu	Ala	Ser	Asn	Arg	Ile	Gln	Glu	Ser	Lys	Asn	Gln	
	2135					2140					2145				
tgt	act	cag	gtg	gta	cag	gaa	aga	gag	agc	ctt	ctg	gtg	aaa	atc	6489
Cys	Thr	Gln	Val	Val	Gln	Glu	Arg	Glu	Ser	Leu	Leu	Val	Lys	Ile	

2150	2155	2160	
aaa gtc ctg gag caa gac Lys Val Leu Glu Gln Asp 2165	aag gca agg ctg cag agg Lys Ala Arg Leu Gln Arg 2170	ctg gag gat Leu Glu Asp 2175	6534
gag ctg aat cgt gca aaa Glu Leu Asn Arg Ala Lys 2180	gca act cta gag gca gaa Ala Thr Leu Glu Ala Glu 2185	acc agg gtg Thr Arg Val 2190	6579
aaa cag cgc ctg gag tgt Lys Gln Arg Leu Glu Cys 2195	gag aaa cag caa att Glu Lys Gln Gln Ile 2200	cag aat gac ctg Gln Asn Asp Leu 2205	6624
aat cag tgg aag act caa tat Asn Gln Trp Lys Thr Gln Tyr 2210	tcc cgc aag gag gag Ser Arg Lys Glu Glu 2215	gct att agg Ala Ile Arg 2220	6669
aag ata gaa tgc gaa aga Lys Ile Glu Ser Glu Arg 2225	gaa aag agt gag aga gag Glu Lys Ser Glu Arg Glu 2230	aag aac agt Lys Asn Ser 2235	6714
ctt agg agt gag atc gaa Leu Arg Ser Glu Ile Glu 2240	aga ctc caa gca gag atc Arg Leu Gln Ala Glu Ile 2245	aag aga att Lys Arg Ile 2250	6759
gaa gag agg tgc agg cgt Glu Glu Arg Cys Arg Arg 2255	aag ctg gag gat tct acc Lys Leu Glu Asp Ser Thr 2260	agg gag aca Arg Glu Thr 2265	6804
cag tca cag tta gaa aca Gln Ser Gln Leu Glu Thr 2270	gaa cgc tcc cga tat cag Glu Arg Ser Arg Tyr Gln 2275	agg gag atc Arg Glu Ile 2280	6849
gat aaa ctc aga cag cgc Asp Lys Leu Arg Gln Arg 2285	cca tat ggg tcc cat cga Pro Tyr Gly Ser His Arg 2290	gag acc cag Glu Thr Gln 2295	6894
act gac tgt gag tgg acc Thr Asp Cys Glu Trp Thr 2300	gtt gac acc tcc aag ctg Val Asp Thr Ser Lys Leu 2305	gtg ttt gat Val Phe Asp 2310	6939
ggg ctg agg aag aag gtg Gly Leu Arg Lys Lys Val 2315	aca gca atg cag ctc tat Thr Ala Met Gln Leu Tyr 2320	gag tgt cag Glu Cys Gln 2325	6984
ctg atc gac aaa aca acc Leu Ile Asp Lys Thr Thr 2330	ttg gac aaa cta ttg aag Leu Asp Lys Leu Leu Lys 2335	ggg aag aag Gly Lys Lys 2340	7029
tca gtg gaa gaa gtt gct Ser Val Glu Glu Val Ala 2345	tct gaa atc cag cca ttc Ser Glu Ile Gln Pro Phe 2350	ctt cgg ggt Leu Arg Gly 2355	7074
gca gga tct atc gct gga Ala Gly Ser Ile Ala Gly 2360	gca tct gct tct cct aag Ala Ser Ala Ser Pro Lys 2365	gaa aaa tac Glu Lys Tyr 2370	7119
tct ttg gta gag gcc aag Ser Leu Val Glu Ala Lys 2375	aga aag aaa tta atc agc Arg Lys Lys Leu Ile Ser 2380	cca gaa tcc Pro Glu Ser 2385	7164
aca gtc atg ctt ctg gag Thr Val Met Leu Leu Glu 2390	gcc cag gca gct aca ggt Ala Gln Ala Ala Thr Gly 2395	ggt ata att Gly Ile Ile 2400	7209
gat ccc cat cgg aat gag Asp Pro His Arg Asn Glu 2405	aag ctg act gtc gac agt Lys Leu Thr Val Asp Ser 2410	gcc ata gct Ala Ile Ala 2415	7254
cgg gac ctc att gac ttc Arg Asp Leu Ile Asp Phe 2415	gat gac cgt cag cag ata Asp Asp Arg Gln Gln Ile 2420	tat gca gca Tyr Ala Ala 2425	7299



2420	2425	2430	
gaa aaa gct atc act ggt ttt gat gat cca ttt tca ggc aag aca Glu Lys Ala Ile Thr Gly Phe Asp Asp Pro Phe Ser Gly Lys Thr 2435 2440 2445			7344
gta tct gtt tca gaa gcc atc aag aaa aat ttg att gat aga gaa Val Ser Val Ser Glu Ala Ile Lys Lys Asn Leu Ile Asp Arg Glu 2450 2455 2460			7389
acc gga atg cgc ctg ctg gaa gcc cag att gct gca ggg ggt gta Thr Gly Met Arg Leu Leu Glu Ala Gln Ile Ala Ala Gly Gly Val 2465 2470 2475			7434
gta gac cct gtg aac agt gtc ttt ttg cca aaa gat gtc gcc ttg Val Asp Pro Val Asn Ser Val Phe Leu Pro Lys Asp Val Ala Leu 2480 2485 2490			7479
gcc cgg ggg ctg att gat aga gat ttg tat cga tcc ctg aat gat Ala Arg Gly Leu Ile Asp Arg Asp Leu Tyr Arg Ser Leu Asn Asp 2495 2500 2505			7524
ccc cga gat agt cag aaa aac ttt gtg gat cca gtc acc aaa aag Pro Arg Asp Ser Gln Lys Asn Phe Val Asp Pro Val Thr Lys Lys 2510 2515 2520			7569
aag gtc agt tac gtg cag ctg aag gaa cgg tgc aga atc gaa cca Lys Val Ser Tyr Val Gln Leu Lys Glu Arg Cys Arg Ile Glu Pro 2525 2530 2535			7614
cat act ggt ctg ctc ttg ctt tca gta cag aag aga agc atg tcc His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met Ser 2540 2545 2550			7659
ttc caa gga atc aga caa cct gtg acc gtc act gag cta gta gat Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp 2555 2560 2565			7704
tct ggt ata ttg aga ccg tcc act gtc aat gaa ctg gaa tct ggt Ser Gly Ile Leu Arg Pro Ser Thr Val Asn Glu Leu Glu Ser Gly 2570 2575 2580			7749
cag att tct tat gac gag gtt ggt gag aga att aag gac ttc ctc Gln Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu 2585 2590 2595			7794
cag ggt tca agc tgc ata gca ggc ata tac aat gag acc aca aaa Gln Gly Ser Ser Cys Ile Ala Glu Gly Ile Tyr Asn Glu Thr Thr Lys 2600 2605 2610			7839
cag aag ctt ggc att tat gag gcc atg aaa att ggc tta gtc cga Gln Lys Leu Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg 2615 2620 2625			7884
cct ggt act gct ctg gag ttg ctg gaa gcc caa gca gct act ggc Pro Gly Thr Ala Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly 2630 2635 2640			7929
ttt ata gtg gat cct gtt agc aac ttg agg tta cca gtg gag gaa Phe Ile Val Asp Pro Val Ser Asn Leu Arg Leu Pro Val Glu Glu 2645 2650 2655			7974
gcc tat aag aga ggt ctg gtg ggc att gag ttc aaa gag aag ctc Ala Tyr Lys Arg Gly Leu Val Gly Ile Glu Phe Lys Glu Lys Leu 2660 2665 2670			8019
ctg tct gca gaa cga gct gtc act ggg tat aat gat cct gaa aca Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Asn Asp Pro Glu Thr 2675 2680 2685			8064
gga aac atc atc tct ttg ttc caa gcc atg aat aag gaa ctc atc Gly Asn Ile Ile Ser Leu Phe Gln Ala Met Asn Lys Glu Leu Ile 2690 2695 2700			8109

2690	2695	2700	
gaa aag ggc cat ggt att cgc tta tta gaa gca cag atc gca acc			8154
Glu Lys Gly His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr			
2705	2710	2715	
ggg ggg atc att gac cca aag gag agc cat cgt tta cca gtt gac			8199
Gly Gly Ile Ile Asp Pro Lys Glu Ser His Arg Leu Pro Val Asp			
2720	2725	2730	
ata gca tat aag agg ggc tat ttc aat gag gaa ctc agt gag att			8244
Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu Ile			
2735	2740	2745	
ctc tca gat cca agt gat gat acc aaa gga ttt ttt gac ccc aac			8289
Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn			
2750	2755	2760	
act gaa gaa aat ctt acc tat ctg caa cta aaa gaa aga tgc att			8334
Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg Cys Ile			
2765	2770	2775	
aag gat gag gaa aca ggg ctc tgt ctt ctg cct ctg aaa gaa aag			8379
Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu Lys			
2780	2785	2790	
aag aaa cag gtg cag aca tca caa aag aat acc ctc agg aag cgt			8424
Lys Lys Gln Val Gln Thr Ser Gln Lys Asn Thr Leu Arg Lys Arg			
2795	2800	2805	
aga gtg gtc ata gtt gac cca gaa acc aat aaa gaa atg tct gtt			8469
Arg Val Val Ile Val Asp Pro Glu Thr Asn Lys Glu Met Ser Val			
2810	2815	2820	
cag gag gcc tac aag aag ggc cta att gat tat gaa acc ttc aaa			8514
Gln Glu Ala Tyr Lys Lys Gly Leu Ile Asp Tyr Glu Thr Phe Lys			
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gaa ctg tgt gag cag gaa tgt gaa tgg gaa gaa ata acc atc acg			8559
Glu Leu Cys Glu Gln Glu Cys Glu Trp Glu Glu Ile Thr Ile Thr			
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Gly Ser Asp Gly Thr Thr Arg Val Val Leu Val Asp Arg Lys Thr			
2855	2860	2865	
ggc agt cag tat gat att caa gat gct att gac aag ggc ctt gtt			8649
Gly Ser Gln Tyr Asp Ile Gln Asp Ala Ile Asp Lys Gly Leu Val			
2870	2875	2880	
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Asp Arg Lys Phe Phe Asp Gln Tyr Arg Ser Gly Ser Leu Ser Leu			
2885	2890	2895	
act caa ttt gct gac atg atc tcc ttg aaa aat ggt gtt ggc acc			8739
Thr Gln Phe Ala Asp Met Ile Ser Leu Lys Asn Gly Val Gly Thr			
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agc agc agc atg ggc agt ggt gtc agc gat gat gtt ttt agc agc			8784
Ser Ser Ser Met Gly Ser Gly Val Ser Asp Asp Val Phe Ser Ser			
2915	2920	2925	
tcc cga cat gaa tca gta agt aag att tcc acc ata tcc agc gtc			8829
Ser Arg His Glu Ser Val Ser Lys Ile Ser Thr Ile Ser Ser Val			
2930	2935	2940	
agg aat tta acc ata agg agc agc tct ttt tca gac acc ctg gaa			8874
Arg Asn Leu Thr Ile Arg Ser Ser Ser Phe Ser Asp Thr Leu Glu			
2945	2950	2955	
gaa tcg agc ccc att gca gcc atc ttt gac aca gaa aac ctg gag			8919
Glu Ser Ser Pro Ile Ala Ala Ile Phe Asp Thr Glu Asn Leu Glu			

2960	2965	2970	
aaa atc tcc att aca gaa ggt Lys Ile Ser Ile Thr Glu Gly 2975	ata gag cgg ggc Ile Glu Arg Gly 2980	atc gtt gac agc Ile Val Asp Ser 2985	8964
atc acg ggt cag agg ctt ctg Ile Thr Gly Gln Arg Leu Leu 2990	gag gct cag gcc tgc Glu Ala Gln Ala Cys 2995	aca ggt ggc Thr Gly Gly 3000	9009
atc atc cac cca acc acg ggc Ile Ile His Pro Thr Thr Gly 3005	cag aag ctg tca ctt Gln Lys Leu Ser Leu 3010	cag gac gca Gln Asp Ala 3015	9054
gtc tcc cag ggt gtg att gac Val Ser Gln Gly Val Ile Asp 3020	caa gac atg gcc acc Gln Asp Met Ala Thr 3025	agg ctg aag Arg Leu Lys 3030	9099
cct gct cag aaa gcc ttc ata Pro Ala Gln Lys Ala Phe Ile 3035	ggc ttc gag ggt gtg Gly Phe Glu Gly Val 3040	aag gga aag Lys Gly Lys 3045	9144
aag aag atg tca gca gca gag Lys Lys Met Ser Ala Ala Glu 3050	gca gtg aaa gaa aaa Ala Val Lys Glu Lys 3055	tgg ctc ccg Trp Leu Pro 3060	9189
tat gag gct ggc cag cgc ttc Tyr Glu Ala Gly Gln Arg Phe 3065	ctg gag ttc cag tac Leu Glu Phe Gln Tyr 3070	ctc acg gga Leu Thr Gly 3075	9234
ggc ctt gtt gac ccg gaa gtg Gly Leu Val Asp Pro Glu Val 3080	cat ggg agg ata agc His Gly Arg Ile Ser 3085	acc gaa gaa Thr Glu Glu 3090	9279
gcc atc cgg aag ggg ttc atc Ala Ile Arg Lys Gly Phe Ile 3095	gat ggc cgc gcc gca Asp Gly Arg Ala Ala 3100	cag agg ctg Gln Arg Leu 3105	9324
caa gac acc agc agc tat gcc Gln Asp Thr Ser Ser Tyr Ala 3110	aaa atc ctg acc tgc Lys Ile Leu Thr Cys 3115	ccc aaa acc Pro Lys Thr 3120	9369
aaa tta aaa ata tcc tat aag Lys Leu Lys Ile Ser Tyr Lys 3125	gat gcc ata aat cgc Asp Ala Ile Asn Arg 3130	tcc atg gta Ser Met Val 3135	9414
gaa gat atc act ggg ctg cgc Glu Asp Ile Thr Gly Leu Arg 3140	ctt ctg gaa gct gcc Leu Leu Glu Ala Ala 3145	tcc gtg tcg Ser Val Ser 3150	9459
tcc aag ggc tta ccc agc cct Ser Lys Gly Leu Pro Ser Pro 3155	tac aac atg tct tcc Tyr Asn Met Ser Ser 3160	gct ccg ggc Ala Pro Gly 3165	9504
tcc cgc tcc ggc tcc cgc tcg Ser Arg Ser Gly Ser Arg Ser 3170	gga tct cgc tcc gga Gly Ser Arg Ser Gly 3175	tct cgc tcc Ser Arg Ser 3180	9549
ggg tcc cgc agt ggg tcc cgg Gly Ser Arg Ser Gly Ser Arg 3185	aga gga agc ttt gac Arg Gly Ser Phe Asp 3190	gcc aca ggg Ala Thr Gly 3195	9594
aat tct tcc tac tct tat tcc Asn Ser Ser Tyr Ser Tyr Ser 3200	tac tca ttt agc agt Tyr Ser Phe Ser Ser 3205	agt tct att Ser Ser Ile 3210	9639
ggg cac tagtagtcag ttgggagtg Gly His 3215	ggg ttgctatacc ttgacttcat 3215	ttatatgaat	9695
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ttaagaaggt gtctttatga agtttgctat tctggcaata aacttttaga cttttgaa 10353

<210> 46  
<211> 3215  
<212> PRT  
<213> Pan troglodytes

<400> 46

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

Ser	Ser	Arg	Ser	Cys	Pro	Arg	Pro	Val	Ala	Val	Ser	Ala	Leu	Ala	Ala	180	185	190	
Ala	Ser	Gly	Gly	Pro	Arg	Trp	Arg	Ala	Ala	Thr	Ser	Arg	Ala	Phe	Arg	195	200	205	
Thr	Pro	Ala	Arg	Phe	Pro	Gly	Arg	Pro	Pro	Ile	Leu	Gly	Pro	Leu	Arg	210	215	220	
Phe	Leu	Arg	Ala	Gly	Pro	Pro	Arg	Leu	Cys	Leu	Gly	Ala	Glu	Pro	Leu	225	230	235	240
Ser	Arg	Leu	Pro	Ala	Asp	Met	Ser	Cys	Asn	Gly	Gly	Ser	His	Pro	Arg	245	250	255	
Ile	Asn	Thr	Leu	Gly	Arg	Met	Ile	Arg	Ala	Glu	Ser	Gly	Pro	Asp	Leu	260	265	270	
Arg	Tyr	Glu	Val	Thr	Ser	Gly	Gly	Gly	Gly	Thr	Ser	Arg	Met	Tyr	Tyr	275	280	285	
Ser	Arg	Arg	Gly	Val	Ile	Thr	Asp	Gln	Asn	Ser	Asp	Gly	Tyr	Trp	Trp	290	295	300	
Val	Pro	Ala	Arg	Arg	Ala	Arg	Ala	Ala	Gly	Leu	Ala	Gly	Gln	Gly	Gly	305	310	315	320
Thr	Ile	Leu	Leu	Trp	Thr	Thr	Gly	Arg	Ile	Glu	Ser	Arg	Ser	Arg	Ala	325	330	335	
Gly	Gly	Gln	Arg	Gly	Arg	Arg	Ala	Arg	Ala	Gly	Leu	Ser	Pro	Ala	Cys	340	345	350	
Trp	Thr	Arg	Leu	Gln	Pro	Pro	Leu	Ser	Gln	Pro	Ala	Asn	Gly	Arg	Ser	355	360	365	
Gly	Glu	Val	Gly	Leu	Arg	Pro	Gln	Asn	Pro	Thr	Ser	Pro	Thr	Val	Ile	370	375	380	
Lys	Val	Lys	Glu	Glu	Arg	Ser	Gly	Ala	Pro	Val	Leu	Ser	Gly	Gly	Arg	385	390	395	400
Val	Val	Leu	Gly	Ala	Pro	Gln	Ser	Leu	Pro	Ala	His	Pro	Gln	Ser	Pro	405	410	415	
Val	Thr	Pro	Arg	Pro	Arg	Leu	Gln	Arg	Leu	Leu	Asp	Ser	Ser	Ala	Thr	420	425	430	
Gln	Gly	Arg	Leu	Tyr	Gln	Gly	Cys	Ala	Ser	Arg	Arg	Arg	Gly	Val	Leu	435	440	445	
Ser	Arg	Gly	Gly	Ala	Ser	Ala	Ser	Pro	Gln	Thr	Thr	Asn	Thr	Ile	Gln	450	455	460	

Glu Leu Leu Gln Asn Cys Ser Asp Cys Leu Met Arg Ala Glu Leu Ile  
465 470 475 480

Val Gln Pro Glu Leu Lys Tyr Gly Asp Gly Ile Gln Leu Thr Arg Ser  
485 490 495

Arg Glu Leu Asp Glu Cys Phe Ala Gln Ala Asn Asp Gln Met Glu Ile  
500 505 510

Leu Asp Ser Leu Ile Arg Glu Met Arg Gln Met Gly Gln Pro Cys Asp  
515 520 525

Ala Tyr Gln Lys Arg Leu Leu Gln Leu Gln Glu Gln Met Arg Ala Leu  
530 535 540

Tyr Lys Ala Ile Ser Val Pro Arg Val Arg Arg Ala Ser Ser Lys Gly  
545 550 555 560

Gly Gly Gly Tyr Thr Cys Gln Ser Gly Ser Gly Trp Asp Glu Phe Thr  
565 570 575

Lys His Val Thr Ser Glu Cys Leu Gly Trp Met Arg Gln Gln Arg Ala  
580 585 590

Glu Met Asp Met Val Ala Trp Gly Val Asp Leu Ala Ser Val Glu Gln  
595 600 605

His Ile Asn Ser His Arg Gly Ile His Asn Ser Ile Gly Asp Tyr Arg  
610 615 620

Trp Gln Leu Asp Lys Ile Lys Ala Asp Leu Arg Glu Lys Ser Ala Ile  
625 630 635 640

Tyr Gln Trp Arg Glu Glu Tyr Glu Asn Leu Leu Lys Ala Ser Phe Glu  
645 650 655

Arg Met Asp His Leu Arg Gln Leu Gln Asn Ile Ile Gln Ala Thr Ser  
660 665 670

Arg Glu Ile Met Trp Ile Asn Asp Cys Glu Glu Glu Glu Leu Leu Tyr  
675 680 685

Asp Trp Ser Asp Lys Asn Thr Asn Ile Ala Gln Lys Gln Glu Ala Phe  
690 695 700

Ser Ile Arg Met Ser Gln Leu Glu Val Lys Glu Lys Glu Leu Asn Lys  
705 710 715 720

Leu Lys Gln Glu Ser Asp Gln Leu Val Leu Asn Gln His Pro Ala Ser  
725 730 735

Asp Lys Ile Glu Ala Tyr Met Asp Thr Leu Gln Thr Gln Trp Ser Trp  
740 745 750

Ile Leu Gln Ile Thr Lys Cys Ile Asp Val His Leu Lys Glu Asn Ala  
755 760 765

Ala Tyr Phe Gln Phe Phe Glu Glu Ala Gln Ser Thr Glu Ala Tyr Leu  
770 775 780

Lys Gly Leu Gln Asp Ser Ile Arg Lys Lys Tyr Arg Ser Asp Lys Asn  
785 790 795 800

Met Pro Leu Gln His Leu Leu Glu Gln Ile Lys Glu Leu Glu Lys Glu  
805 810 815

Arg Glu Lys Ile Leu Glu Tyr Lys Arg Gln Val Gln Asn Leu Val Asn  
820 825 830

Lys Ser Lys Lys Ile Val Gln Leu Lys Pro Arg Asn Pro Asp Tyr Arg  
835 840 845

Ser Asn Lys Pro Ile Ile Leu Arg Ala Leu Cys Asp Tyr Lys Gln Asp  
850 855 860

Gln Lys Ile Val His Lys Gly Asp Glu Cys Ile Leu Lys Asp Asn Asn  
865 870 875 880

Glu Arg Ser Lys Trp Tyr Val Thr Gly Pro Gly Gly Val Asp Met Leu  
885 890 895

Val Pro Ser Val Gly Leu Ile Ile Pro Pro Pro Asn Pro Leu Ala Leu  
900 905 910

Lys Thr Met Arg Gln Glu Asp Tyr Met Lys Thr Ile Ala Asp Leu Glu  
915 920 925

Leu His Tyr Gln Glu Phe Ile Arg Asn Ser Gln Gly Ser Glu Met Phe  
930 935 940

Gly Asp Asp Asp Lys Arg Lys Ile Gln Ser Gln Phe Thr Asp Ala Gln  
945 950 955 960

Lys His Tyr Gln Thr Leu Val Ile Gln Leu Pro Gly Tyr Pro Gln His  
965 970 975

Gln Thr Val Thr Thr Thr Glu Ile Thr His His Gly Thr Cys Gln Asp  
980 985 990

Val Asn His Asn Lys Val Ile Glu Thr Asn Arg Glu Asn Asp Lys Gln  
995 1000 1005

Glu Thr Trp Met Leu Met Glu Leu Gln Lys Ile Arg Arg Gln Ile  
1010 1015 1020

Glu His Cys Glu Gly Arg Met Thr Leu Lys Asn Leu Pro Leu Ala  
1025 1030 1035

Asp	Gln	Gly	Ser	Ser	His	His	Ile	Thr	Val	Lys	Ile	Asn	Glu	Leu
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Lys	Ser	Val	Gln	Asn	Asp	Ser	Gln	Ala	Ile	Ala	Glu	Val	Leu	Asn
1055						1060					1065			
Gln	Leu	Lys	Asp	Met	Leu	Ala	Asn	Phe	Arg	Gly	Ser	Glu	Lys	Tyr
1070						1075					1080			
Cys	Tyr	Leu	Gln	Asn	Glu	Val	Phe	Gly	Leu	Phe	Gln	Lys	Leu	Glu
1085						1090					1095			
Asn	Ile	Asn	Gly	Val	Thr	Asp	Gly	Tyr	Leu	Asn	Ser	Leu	Cys	Thr
1100						1105					1110			
Val	Arg	Ala	Leu	Leu	Gln	Ala	Ile	Leu	Gln	Thr	Glu	Asp	Met	Leu
1115						1120					1125			
Lys	Val	Tyr	Glu	Ala	Arg	Leu	Pro	Glu	Glu	Glu	Thr	Val	Cys	Leu
1130						1135					1140			
Asp	Leu	Asp	Lys	Ala	Glu	Ala	Tyr	Arg	Cys	Gly	Leu	Lys	Lys	Ile
1145						1150					1155			
Lys	Asn	Asp	Leu	Asn	Leu	Lys	Lys	Ser	Leu	Leu	Ala	Thr	Met	Lys
1160						1165					1170			
Thr	Glu	Leu	Gln	Lys	Ala	Gln	Gln	Ile	His	Ser	Gln	Thr	Ser	Gln
1175						1180					1185			
Gln	Tyr	Pro	Leu	Tyr	Asp	Leu	Asp	Leu	Gly	Lys	Phe	Gly	Glu	Lys
1190						1195					1200			
Val	Thr	Gln	Leu	Thr	Asp	Arg	Trp	Gln	Arg	Ile	Asp	Lys	Gln	Ile
1205						1210					1215			
Asp	Phe	Arg	Leu	Trp	Asp	Leu	Glu	Lys	Gln	Ile	Lys	Gln	Leu	Arg
1220						1225					1230			
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Ala	Lys	Arg	Arg	Gln	Asp	Ser	Leu	Glu	Ser	Met	Lys	Phe	Gly	Asp
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Ser	Asn	Thr	Val	Met	Arg	Phe	Leu	Asn	Glu	Gln	Lys	Asn	Leu	His
1265						1270					1275			
Ser	Glu	Ile	Ser	Gly	Lys	Arg	Asp	Lys	Ser	Glu	Glu	Val	Gln	Lys
1280						1285					1290			
Ile	Ala	Glu	Leu	Cys	Ala	Asn	Ser	Ile	Lys	Asp	Tyr	Glu	Leu	Gln
1295						1300					1305			



Leu	Ala	Ser	Tyr	Thr	Ser	Gly	Leu	Glu	Thr	Leu	Leu	Asn	Ile	Pro
1310						1315					1320			
Ile	Lys	Arg	Thr	Met	Ile	Gln	Ser	Pro	Ser	Gly	Val	Ile	Leu	Gln
1325						1330					1335			
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1340						1345					1350			
Ser	Gly	Asp	Tyr	Tyr	Arg	Phe	Leu	Ser	Glu	Met	Leu	Lys	Ser	Leu
1355						1360					1365			
Glu	Asp	Leu	Lys	Leu	Lys	Asn	Thr	Lys	Ile	Glu	Val	Leu	Glu	Glu
1370						1375					1380			
Glu	Leu	Arg	Leu	Ala	Arg	Asp	Ala	Asn	Ser	Glu	Asn	Cys	Asn	Lys
1385						1390					1395			
Asn	Lys	Phe	Leu	Asp	Gln	Asn	Leu	Gln	Lys	Tyr	Gln	Ala	Glu	Cys
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1490						1495					1500			
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1595						1600					1605			
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1610						1615					1620			
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1625						1630					1635			
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Arg	Arg	Trp	Glu	Tyr	Glu	Asn	Glu	Leu	Ser	Lys	Val	Arg	Asn	Asn
1685						1690					1695			
Tyr	Asp	Glu	Glu	Ile	Ile	Ser	Leu	Lys	Asn	Gln	Phe	Glu	Thr	Glu
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1715						1720					1725			
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1745						1750					1755			
Thr	Leu	Thr	Gln	Thr	Thr	Glu	Asn	Leu	Arg	Arg	Val	Glu	Glu	Asp
1760						1765					1770			
Val	Gln	Gln	Gln	Lys	Ala	Thr	Gly	Ser	Glu	Val	Ser	Gln	Arg	Lys
1775						1780					1785			
Gln	Gln	Leu	Glu	Val	Glu	Leu	Arg	Gln	Val	Thr	Gln	Met	Arg	Thr
1790						1795					1800			
Glu	Glu	Ser	Val	Arg	Tyr	Lys	Gln	Ser	Leu	Asp	Asp	Ala	Ala	Lys
1805						1810					1815			
Thr	Ile	Gln	Asp	Lys	Asn	Lys	Glu	Ile	Glu	Arg	Leu	Lys	Gln	Leu
1820						1825					1830			
Ile	Asp	Lys	Glu	Thr	Asn	Asp	Arg	Lys	Cys	Leu	Glu	Asp	Glu	Asn
1835						1840					1845			

Ala Arg	Leu Gln Arg Val	Gln Tyr Asp Leu Gln Lys	Ala Asn Ser
1850		1855	1860
Ser Ala	Thr Glu Thr Ile Asn	Lys Leu Lys Val Gln	Glu Gln Glu
1865		1870	1875
Leu Thr	Arg Leu Arg Ile Asp	Tyr Glu Arg Val Ser	Gln Glu Arg
1880		1885	1890
Thr Val	Lys Asp Gln Asp Ile	Thr Arg Phe Gln Ser	Ser Leu Lys
1895		1900	1905
Glu Leu	Gln Leu Gln Lys Gln	Lys Val Glu Glu Glu	Leu Asn Arg
1910		1915	1920
Leu Lys	Arg Thr Ala Ser Glu	Asp Ser Cys Lys Arg	Lys Lys Leu
1925		1930	1935
Glu Glu	Glu Leu Glu Gly Met	Arg Arg Ser Leu Lys	Glu Gln Ala
1940		1945	1950
Ile Lys	Ile Thr Asn Leu Thr	Gln Gln Leu Glu Gln	Ala Ser Ile
1955		1960	1965
Val Lys	Lys Arg Ser Glu Asp	Asp Leu Arg Gln Gln	Arg Asp Val
1970		1975	1980
Leu Asp	Gly His Leu Arg Glu	Lys Gln Arg Thr Gln	Glu Glu Leu
1985		1990	1995
Arg Arg	Leu Ser Ser Glu Val	Glu Ala Leu Arg Arg	Gln Leu Leu
2000		2005	2010
Gln Glu	Gln Glu Ser Val Lys	Gln Ala His Leu Arg	Asn Glu His
2015		2020	2025
Phe Gln	Lys Ala Ile Glu Asp	Lys Ser Arg Ser Leu	Asn Glu Ser
2030		2035	2040
Lys Ile	Glu Ile Glu Arg Leu	Gln Ser Leu Thr Glu	Asn Leu Thr
2045		2050	2055
Lys Glu	His Leu Met Leu Glu	Glu Glu Leu Arg Asn	Leu Arg Leu
2060		2065	2070
Glu Tyr	Asp Asp Leu Arg Arg	Gly Arg Ser Glu Ala	Asp Ser Asp
2075		2080	2085
Lys Asn	Ala Thr Ile Leu Glu	Leu Arg Ser Gln Leu	Gln Ile Ser
2090		2095	2100
Asn Asn	Arg Thr Leu Glu Leu	Gln Gly Leu Ile His	Asp Leu Gln
2105		2110	2115

Arg Glu 2120	Arg Glu Asn Leu 2125	Arg Gln Glu Ile Glu Lys 2130	Phe Gln Lys
Gln Ala 2135	Leu Glu Ala Ser Asn 2140	Arg Ile Gln Glu Ser 2145	Lys Asn Gln
Cys Thr 2150	Gln Val Val Gln Glu 2155	Arg Glu Ser Leu Leu 2160	Val Lys Ile
Lys Val 2165	Leu Glu Gln Asp Lys 2170	Ala Arg Leu Gln Arg 2175	Leu Glu Asp
Glu Leu 2180	Asn Arg Ala Lys Ala 2185	Thr Leu Glu Ala Glu 2190	Thr Arg Val
Lys Gln 2195	Arg Leu Glu Cys Glu 2200	Lys Gln Gln Ile Gln 2205	Asn Asp Leu
Asn Gln 2210	Trp Lys Thr Gln Tyr 2215	Ser Arg Lys Glu Glu 2220	Ala Ile Arg
Lys Ile 2225	Glu Ser Glu Arg Glu 2230	Lys Ser Glu Arg Glu 2235	Lys Asn Ser
Leu Arg 2240	Ser Glu Ile Glu Arg 2245	Leu Gln Ala Glu Ile 2250	Lys Arg Ile
Glu Glu 2255	Arg Cys Arg Arg Lys 2260	Leu Glu Asp Ser Thr 2265	Arg Glu Thr
Gln Ser 2270	Gln Leu Glu Thr Glu 2275	Arg Ser Arg Tyr Gln 2280	Arg Glu Ile
Asp Lys 2285	Leu Arg Gln Arg Pro 2290	Tyr Gly Ser His Arg 2295	Glu Thr Gln
Thr Asp 2300	Cys Glu Trp Thr Val 2305	Asp Thr Ser Lys Leu 2310	Val Phe Asp
Gly Leu 2315	Arg Lys Lys Val Thr 2320	Ala Met Gln Leu Tyr 2325	Glu Cys Gln
Leu Ile 2330	Asp Lys Thr Thr Leu 2335	Asp Lys Leu Leu Lys 2340	Gly Lys Lys
Ser Val 2345	Glu Glu Val Ala Ser 2350	Glu Ile Gln Pro Phe 2355	Leu Arg Gly
Ala Gly 2360	Ser Ile Ala Gly Ala 2365	Ser Ala Ser Pro Lys 2370	Glu Lys Tyr
Ser Leu 2375	Val Glu Ala Lys Arg 2380	Lys Lys Leu Ile Ser 2385	Pro Glu Ser

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2405						2410					2415			
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Glu	Lys	Ala	Ile	Thr	Gly	Phe	Asp	Asp	Pro	Phe	Ser	Gly	Lys	Thr
2435						2440					2445			
Val	Ser	Val	Ser	Glu	Ala	Ile	Lys	Lys	Asn	Leu	Ile	Asp	Arg	Glu
2450						2455					2460			
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2465						2470					2475			
Val	Asp	Pro	Val	Asn	Ser	Val	Phe	Leu	Pro	Lys	Asp	Val	Ala	Leu
2480						2485					2490			
Ala	Arg	Gly	Leu	Ile	Asp	Arg	Asp	Leu	Tyr	Arg	Ser	Leu	Asn	Asp
2495						2500					2505			
Pro	Arg	Asp	Ser	Gln	Lys	Asn	Phe	Val	Asp	Pro	Val	Thr	Lys	Lys
2510						2515					2520			
Lys	Val	Ser	Tyr	Val	Gln	Leu	Lys	Glu	Arg	Cys	Arg	Ile	Glu	Pro
2525						2530					2535			
His	Thr	Gly	Leu	Leu	Leu	Leu	Ser	Val	Gln	Lys	Arg	Ser	Met	Ser
2540						2545					2550			
Phe	Gln	Gly	Ile	Arg	Gln	Pro	Val	Thr	Val	Thr	Glu	Leu	Val	Asp
2555						2560					2565			
Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu	Leu	Glu	Ser	Gly
2570						2575					2580			
Gln	Ile	Ser	Tyr	Asp	Glu	Val	Gly	Glu	Arg	Ile	Lys	Asp	Phe	Leu
2585						2590					2595			
Gln	Gly	Ser	Ser	Cys	Ile	Ala	Gly	Ile	Tyr	Asn	Glu	Thr	Thr	Lys
2600						2605					2610			
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2615						2620					2625			
Pro	Gly	Thr	Ala	Leu	Glu	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly
2630						2635					2640			
Phe	Ile	Val	Asp	Pro	Val	Ser	Asn	Leu	Arg	Leu	Pro	Val	Glu	Glu
2645						2650					2655			

Ala Tyr	Lys Arg Gly Leu Val	Gly Ile Glu Phe Lys	Glu Lys Leu
2660	2665	2670	
Leu Ser	Ala Glu Arg Ala Val	Thr Gly Tyr Asn Asp	Pro Glu Thr
2675	2680	2685	
Gly Asn	Ile Ile Ser Leu Phe	Gln Ala Met Asn Lys	Glu Leu Ile
2690	2695	2700	
Glu Lys	Gly His Gly Ile Arg	Leu Leu Glu Ala Gln	Ile Ala Thr
2705	2710	2715	
Gly Gly	Ile Ile Asp Pro Lys	Glu Ser His Arg Leu	Pro Val Asp
2720	2725	2730	
Ile Ala	Tyr Lys Arg Gly Tyr	Phe Asn Glu Glu Leu	Ser Glu Ile
2735	2740	2745	
Leu Ser	Asp Pro Ser Asp Asp	Thr Lys Gly Phe Phe	Asp Pro Asn
2750	2755	2760	
Thr Glu	Glu Asn Leu Thr Tyr	Leu Gln Leu Lys Glu	Arg Cys Ile
2765	2770	2775	
Lys Asp	Glu Glu Thr Gly Leu	Cys Leu Leu Pro Leu	Lys Glu Lys
2780	2785	2790	
Lys Lys	Gln Val Gln Thr Ser	Gln Lys Asn Thr Leu	Arg Lys Arg
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Arg Val	Val Ile Val Asp Pro	Glu Thr Asn Lys Glu	Met Ser Val
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Gln Glu	Ala Tyr Lys Lys Gly	Leu Ile Asp Tyr Glu	Thr Phe Lys
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Glu Leu	Cys Glu Gln Glu Cys	Glu Trp Glu Glu Ile	Thr Ile Thr
2840	2845	2850	
Gly Ser	Asp Gly Thr Thr Arg	Val Val Leu Val Asp	Arg Lys Thr
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Asp Arg	Lys Phe Phe Asp Gln	Tyr Arg Ser Gly Ser	Leu Ser Leu
2885	2890	2895	
Thr Gln	Phe Ala Asp Met Ile	Ser Leu Lys Asn Gly	Val Gly Thr
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Ser Ser	Ser Met Gly Ser Gly	Val Ser Asp Asp Val	Phe Ser Ser
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Arg	Asn	Leu	Thr	Ile	Arg	Ser	Ser	Ser	Phe	Ser	Asp	Thr	Leu	Glu
2945						2950					2955			
Glu	Ser	Ser	Pro	Ile	Ala	Ala	Ile	Phe	Asp	Thr	Glu	Asn	Leu	Glu
2960						2965					2970			
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2975						2980					2985			
Ile	Thr	Gly	Gln	Arg	Leu	Leu	Glu	Ala	Gln	Ala	Cys	Thr	Gly	Gly
2990						2995					3000			
Ile	Ile	His	Pro	Thr	Thr	Gly	Gln	Lys	Leu	Ser	Leu	Gln	Asp	Ala
3005						3010					3015			
Val	Ser	Gln	Gly	Val	Ile	Asp	Gln	Asp	Met	Ala	Thr	Arg	Leu	Lys
3020						3025					3030			
Pro	Ala	Gln	Lys	Ala	Phe	Ile	Gly	Phe	Glu	Gly	Val	Lys	Gly	Lys
3035						3040					3045			
Lys	Lys	Met	Ser	Ala	Ala	Glu	Ala	Val	Lys	Glu	Lys	Trp	Leu	Pro
3050						3055					3060			
Tyr	Glu	Ala	Gly	Gln	Arg	Phe	Leu	Glu	Phe	Gln	Tyr	Leu	Thr	Gly
3065						3070					3075			
Gly	Leu	Val	Asp	Pro	Glu	Val	His	Gly	Arg	Ile	Ser	Thr	Glu	Glu
3080						3085					3090			
Ala	Ile	Arg	Lys	Gly	Phe	Ile	Asp	Gly	Arg	Ala	Ala	Gln	Arg	Leu
3095						3100					3105			
Gln	Asp	Thr	Ser	Ser	Tyr	Ala	Lys	Ile	Leu	Thr	Cys	Pro	Lys	Thr
3110						3115					3120			
Lys	Leu	Lys	Ile	Ser	Tyr	Lys	Asp	Ala	Ile	Asn	Arg	Ser	Met	Val
3125						3130					3135			
Glu	Asp	Ile	Thr	Gly	Leu	Arg	Leu	Leu	Glu	Ala	Ala	Ser	Val	Ser
3140						3145					3150			
Ser	Lys	Gly	Leu	Pro	Ser	Pro	Tyr	Asn	Met	Ser	Ser	Ala	Pro	Gly
3155						3160					3165			
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3170						3175					3180			
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Met Ala Arg Ala Asp Ser Gly Thr Asp Leu Arg Tyr Glu Met Ser Ser  
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His Val Val Gly Gly Gly Gly Gly Gly Thr His Thr His Lys Thr Tyr  
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Tyr Tyr Gln Lys Thr Tyr Gly Gly Asp Tyr Ala Ser Asp Gly Tyr Gly  
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Gln Asn Gly Thr Cys Thr Val Thr Arg Arg Gln Asn Thr Ile Gln Glu  
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Leu Leu Gln Asn Cys Ser Asp Cys Leu Met Arg Ala Glu Leu Ile Val  
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caa cct gaa ttg aaa tat ggt gat ggt gtc cag att aga gga aac aga 336  
Gln Pro Glu Leu Lys Tyr Gly Asp Gly Val Gln Ile Arg Gly Asn Arg  
100 105 110  
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Asp Leu Glu Glu Cys Phe Ala Gln Ala Asn Asp Gln Met Asp Ile Leu  
115 120 125  
gat ggg ctg atc cga gag cta agg cag atg aat cag ccc tgt gaa atg 432  
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130 135 140  
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145 150 155 160  
aaa gcc att agt gtt ccc cgt gcc agg agg gcc agc tcc aaa ggt ggt 528  
Lys Ala Ile Ser Val Pro Arg Ala Arg Arg Ala Ser Ser Lys Gly Gly  
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ggg tgc tac tcc tct cag agt ggt tca ggc tgg gat gag tac aca aaa 576  
Gly Cys Tyr Ser Ser Gln Ser Gly Ser Gly Trp Asp Glu Tyr Thr Lys  
180 185 190  
cgt gtg aca agt gaa tgc tta aat tgg atg agg caa cag aag gct gaa 624  
Arg Val Thr Ser Glu Cys Leu Asn Trp Met Arg Gln Gln Lys Ala Glu  
195 200 205  
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Met	Glu	Leu	Val	Lys	Trp	Gly	Phe	Asp	Ala	Ala	Ser	Ile	Glu	Gln	Gln	
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att	agt	gac	cat	aga	aga	act	cac	aat	gcc	att	gga	gac	tat	cgc	tgg	720
Ile	Ser	Asp	His	Arg	Arg	Thr	His	Asn	Ala	Ile	Gly	Asp	Tyr	Arg	Trp	
225					230				235						240	
cac	ctg	gac	aaa	gtc	aaa	aca	gat	ctg	cgt	gag	aag	gct	gcc	gtt	cac	768
His	Leu	Asp	Lys	Val	Lys	Thr	Asp	Leu	Arg	Glu	Lys	Ala	Ala	Val	His	
				245					250					255		
cag	ctg	gag	gaa	gaa	tac	gaa	gga	ctg	ctg	aaa	tac	tcc	ttt	gag	aga	816
Gln	Leu	Glu	Glu	Glu	Tyr	Glu	Gly	Leu	Leu	Lys	Tyr	Ser	Phe	Glu	Arg	
			260					265					270			
atg	gat	cag	ctc	cgt	caa	ttc	cag	aac	ctt	atc	caa	gca	acc	agc	aga	864
Met	Asp	Gln	Leu	Arg	Gln	Phe	Gln	Asn	Leu	Ile	Gln	Ala	Thr	Ser	Arg	
		275					280					285				
gag	atc	atg	tgg	atc	aat	gac	tgt	gag	gaa	gaa	gag	ctt	ctc	tac	gac	912
Glu	Ile	Met	Trp	Ile	Asn	Asp	Cys	Glu	Glu	Glu	Glu	Leu	Leu	Tyr	Asp	
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Trp	Ser	Asp	Arg	Asn	Thr	Asp	Ile	Ser	Arg	Lys	Gln	Glu	Ala	Phe	Ser	
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aaa	cgt	atg	agt	gaa	ctg	gag	ctt	aaa	gaa	aaa	gaa	ctc	aac	aag	cta	1008
Lys	Arg	Met	Ser	Glu	Leu	Glu	Leu	Lys	Glu	Lys	Glu	Leu	Asn	Lys	Leu	
				325					330					335		
aag	caa	gaa	agt	gac	cag	ctt	gtg	ctc	aac	cag	cac	cct	gct	tca	gac	1056
Lys	Gln	Glu	Ser	Asp	Gln	Leu	Val	Leu	Asn	Gln	His	Pro	Ala	Ser	Asp	
			340					345					350			
aaa	att	gag	gcc	tac	atg	gat	aca	cta	caa	act	cag	tgg	agc	tgg	att	1104
Lys	Ile	Glu	Ala	Tyr	Met	Asp	Thr	Leu	Gln	Thr	Gln	Trp	Ser	Trp	Ile	
		355					360					365				
ctt	cag	atc	acg	aag	tgc	att	gat	gtt	cat	ttg	aaa	gag	aat	gca	gct	1152
Leu	Gln	Ile	Thr	Lys	Cys	Ile	Asp	Val	His	Leu	Lys	Glu	Asn	Ala	Ala	
	370					375					380					
tac	ttt	cag	ttc	ttt	gag	gag	gcc	caa	gct	aca	gag	agc	tat	ctg	aag	1200
Tyr	Phe	Gln	Phe	Phe	Glu	Glu	Ala	Gln	Ala	Thr	Glu	Ser	Tyr	Leu	Lys	
385					390					395					400	
aat	tta	cag	gac	tcc	atc	aga	aag	aag	ttc	ata	tgt	gat	aag	agc	atg	1248
Asn	Leu	Gln	Asp	Ser	Ile	Arg	Lys	Lys	Phe	Ile	Cys	Asp	Lys	Ser	Met	
				405					410					415		
tca	ctt	cag	agc	ttg	ctg	gag	cag	atc	aaa	gag	ctg	gag	aat	gaa	cga	1296
Ser	Leu	Gln	Ser	Leu	Leu	Glu	Gln	Ile	Lys	Glu	Leu	Glu	Asn	Glu	Arg	
			420					425					430			
gag	aga	att	ctt	gaa	tac	aag	agg	caa	gtg	cag	agt	ttg	gtg	aat	aaa	1344
Glu	Arg	Ile	Leu	Glu	Tyr	Lys	Arg	Gln	Val	Gln	Ser	Leu	Val	Asn	Lys	
		435					440					445				
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Ser	Lys	Lys	Ile	Val	Gln	Leu	Lys	Pro	Arg	Asn	Pro	Asp	Tyr	Arg	Ser	
	450					455					460					
aac	aag	ccc	att	atc	ctc	aag	gct	cta	tgt	gac	tac	aaa	cag	gat	ctg	1440
Asn	Lys	Pro	Ile	Ile	Leu	Lys	Ala	Leu	Cys	Asp	Tyr	Lys	Gln	Asp	Leu	
465					470					475					480	
aaa	aca	gtg	cgc	aaa	gga	gat	gaa	tgc	atc	ctg	aag	gac	aac	aat	gag	1488
Lys	Thr	Val	Arg	Lys	Gly	Asp	Glu	Cys	Ile	Leu	Lys	Asp	Asn	Asn	Glu	
				485					490					495		
cgc	agc	aag	tgg	ttg	gtg	act	ggc	cct	gga	gga	gtg	gat	atg	ctg	gtg	1536

Arg	Ser	Lys	Trp	Leu	Val	Thr	Gly	Pro	Gly	Gly	Val	Asp	Met	Leu	Val	
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cca	tct	gtt	agt	ctg	atc	atc	cca	ccc	cca	aat	cca	tta	gca	gtg	gat	1584
Pro	Ser	Val	Ser	Leu	Ile	Ile	Pro	Pro	Pro	Asn	Pro	Leu	Ala	Val	Asp	
			515					520					525			
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Leu	Ala	Thr	Lys	Ile	Glu	Gln	Tyr	Tyr	Glu	Ala	Ile	Leu	Ala	Leu	Trp	
			530					535					540			
aac	cag	ctg	tat	atc	aac	atg	aag	agc	ctg	gta	tct	tgg	cat	tat	tgc	1680
Asn	Gln	Leu	Tyr	Ile	Asn	Met	Lys	Ser	Leu	Val	Ser	Trp	His	Tyr	Cys	
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Met	Ile	Asp	Ile	Glu	Lys	Ile	Arg	Ala	Met	Thr	Ile	Ala	Lys	Leu	Lys	
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aca	atg	cgt	aag	gaa	gat	tac	caa	aaa	ata	ata	act	gac	ttg	gag	atc	1776
Thr	Met	Arg	Lys	Glu	Asp	Tyr	Gln	Lys	Ile	Ile	Thr	Asp	Leu	Glu	Ile	
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cat	tat	caa	gaa	ttc	ctc	agg	aac	agc	caa	ggc	tct	gag	atg	ttt	ggt	1824
His	Tyr	Gln	Glu	Phe	Leu	Arg	Asn	Ser	Gln	Gly	Ser	Glu	Met	Phe	Gly	
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gat	gaa	gac	aaa	cga	aag	atc	cag	acg	cag	ttc	act	gat	gct	cag	aaa	1872
Asp	Glu	Asp	Lys	Arg	Lys	Ile	Gln	Thr	Gln	Phe	Thr	Asp	Ala	Gln	Lys	
			610					615					620			
cac	tac	caa	acc	tta	ata	ata	caa	cta	ccc	aat	caa	cca	cgg	cca	ccc	1920
His	Tyr	Gln	Thr	Leu	Ile	Ile	Gln	Leu	Pro	Asn	Gln	Pro	Arg	Pro	Pro	
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cag	aca	gtg	att	cca	act	gag	agt	tgt	cct	gtg	ggg	acc	tca	aac	acc	1968
Gln	Thr	Val	Ile	Pro	Thr	Glu	Ser	Cys	Pro	Val	Gly	Thr	Ser	Asn	Thr	
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att	ata	gtt	aat	gag	aga	aac	cga	gaa	cat	gat	aaa	cag	gag	gct	tgg	2016
Ile	Ile	Val	Asn	Glu	Arg	Asn	Arg	Glu	His	Asp	Lys	Gln	Glu	Ala	Trp	
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ctg	ctg	atg	gaa	ctt	cag	aaa	ctt	cgg	cgt	cag	att	gaa	gct	tct	gag	2064
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Ile	Arg	Met	Val	Gln	Arg	Ala	Pro	Leu	Gly	Val	Asp	Gln	Gly	Ala	Leu	
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His	Asp	Phe	Ser	Val	Arg	Ile	Gln	Asp	Leu	Glu	Gly	Val	Gln	Asn	Asp	
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Asn	Phe	Arg	Gly	Cys	Glu	Lys	Tyr	Val	Tyr	Leu	Gln	Ser	Glu	Ile	Asn	
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gcc	ctg	ttt	caa	aaa	ctg	gaa	aac	att	aat	ggg	gtt	tct	gct	ggc	tac	2304
Ala	Leu	Phe	Gln	Lys	Leu	Glu	Asn	Ile	Asn	Gly	Val	Ser	Ala	Gly	Tyr	
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Leu	Asp	Ser	Leu	Asn	Ala	Leu	Arg	Cys	Leu	Leu	Gln	Leu	Ile	Leu	Gln	
			770					775				780				
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Thr 785	Glu	Asp	Val	Ile	Arg 790	Val	Phe	Glu	Val	Arg 795	Leu	Ser	Glu	Glu	Glu 800	
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Thr	Val	Pro	Leu	Asp 805	Leu	Asp	Lys	Val	Glu 810	Ala	Tyr	Arg	Ala	Cys	Leu 815	
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Lys	Lys	Met	Lys	Ser	Asp	Leu	Asn	Met	Lys	Lys	Ser	Leu	Leu	Asn	Thr	
			820					825					830			
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Leu	Glu	Asn	Glu	Leu	Gln	Lys	Met	Ile	Gln	Ile	His	Ser	Gln	Ser	Cys	
		835					840				845					
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Gln	Ser	Tyr	Thr	Leu	Tyr	Asp	Met	Asp	Val	Gly	Lys	Phe	Thr	Asp	Lys	
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Asn	Arg	Ser	Trp	Asp	Leu	Glu	Arg	Gln	Ile	Lys	Gln	Leu	Lys	Thr	Tyr	
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Arg	Asp	Leu	Tyr	Gln	Ala	Leu	Cys	Lys	Trp	Ile	Cys	Asp	Ala	Lys	Arg	
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Arg	Gln	Asp	Ser	Ile	Glu	Ser	Thr	Lys	Leu	Cys	Asp	Ser	Asn	Thr	Ile	
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Met	Arg	Tyr	Leu	His	Asp	Gln	Lys	Asn	Leu	His	Ser	Glu	Ile	Cys	Gly	
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Lys	Arg	Asp	Lys	Val	Glu	Glu	Leu	Leu	Lys	His	Ala	Asp	Gln	Cys	Ser	
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Ala	Ala	Ile	Lys	Asp	Tyr	Glu	Leu	Gln	Val	Ala	Ser	Tyr	Ser	Ser	Gly	
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Leu	Glu	Thr	Leu	Leu	Asn	Ile	Pro	Ile	Lys	Lys	Cys	Val	Val	Gln	Ser	
		980					985						990			
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Pro	Ala	Val	Leu	Ile	Leu	Gln	Glu	Ala	Ser	Glu	Ala	Gln	Ala	Arg	Tyr	
		995				1000						1005				
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Ile	Glu	Leu	Leu	Thr	Arg	Ser	Gly	Asp	Tyr	Tyr	Lys	Phe	Leu	Ser		
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Glu	Met	Leu	Lys	Ser	Met	Glu	Asp	Leu	Lys	Met	Lys	Ala	Thr	Lys		
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Ile	Glu	Leu	Leu	Glu	Glu	Glu	Leu	Arg	Leu	Ala	Arg	Asp	Ser	Asn		
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Ser	Glu	Thr	Asn	Asn	Lys	His	Lys	Phe	Leu	Glu	Gln	Asn	Leu	Gln		
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Lys	Gln	Asn	Leu	Asp	Lys	Cys	Tyr	Ala	Gln	Ile	Lys	Asp	Leu	Asn	
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Asp	Asp	Asp	Ala	Lys	Gly	Leu	Arg	Ala	Gln	Val	Asp	Arg	Leu	Ser	
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Arg	Glu	Asn	Arg	Asp	Leu	Lys	Asp	Glu	Ile	Val	Arg	Leu	Asn	Asp	
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Ala	Ile	Leu	Gln	Thr	Thr	Asp	Gln	Arg	Arg	Arg	Ala	Glu	Glu	Asp	
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Ala	Leu	Gln	Gln	Lys	Ala	Cys	Ser	Ser	Glu	Val	Ser	Gln	Gln	Lys	
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Ala	Lys	Val	Arg	Asn	Ser	Tyr	Asp	Glu	Glu	Ile	Ile	Ser	Leu	Lys	
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Gln	Arg	Glu	Ile	Glu	Lys	Leu	Lys	Gln	Arg	Pro	Tyr	Gly	Ser	His	
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Tyr 1910	Glu	Cys	Gln	Leu	Ile	Asp 1915	Lys	Leu	Thr	Leu	Asp 1920	Lys	Leu	Leu	
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Arg 1955	Gln	Lys	Tyr	Ser	Phe	Val 1960	Glu	Ala	Lys	Arg	Asn 1965	Gln	Leu	Leu	
acg	gcg	gaa	aat	gca	gtc	ctg	ctc	ttg	gaa	gcc	cag	gca	gca	aca	5949
Thr 1970	Ala	Glu	Asn	Ala	Val	Leu 1975	Leu	Leu	Glu	Ala	Gln 1980	Ala	Ala	Thr	
gga	gga	gtg	ata	gat	cca	cac	cgc	aat	gag	gtg	tta	aca	gtg	gac	5994
Gly 1985	Gly	Val	Ile	Asp	Pro	His 1990	Arg	Asn	Glu	Val	Leu 1995	Thr	Val	Asp	
agt	gct	att	gcc	aga	gat	ctg	att	gac	ttt	gat	gac	aga	gaa	caa	6039
Ser 2000	Ala	Ile	Ala	Arg	Asp	Leu 2005	Ile	Asp	Phe	Asp	Asp 2010	Arg	Glu	Gln	
atc	tat	aca	gca	gaa	aag	gct	att	aca	ggg	ttt	aaa	gat	cct	ttc	6084
Ile 2015	Tyr	Thr	Ala	Glu	Lys	Ala 2020	Ile	Thr	Gly	Phe	Lys 2025	Asp	Pro	Phe	
tca	ggc	aaa	act	gtg	cca	cta	tct	gaa	gcc	atc	aag	aaa	aac	ttg	6129
Ser 2030	Gly	Lys	Thr	Val	Pro	Leu 2035	Ser	Glu	Ala	Ile	Lys 2040	Lys	Asn	Leu	
gtt	gac	aga	gaa	att	ggg	atg	cgt	ctg	ctt	gaa	gcc	cag	ctg	gct	6174
Val 2045	Asp	Arg	Glu	Ile	Gly	Met 2050	Arg	Leu	Leu	Glu	Ala 2055	Gln	Leu	Ala	
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Val 2060	Gly	Gly	Ile	Val	Asp	Pro 2065	Val	Asn	Ser	Val	Phe 2070	Leu	Pro	Lys	
gat	gta	gct	tta	tcc	cgt	gga	ttg	att	gac	aaa	gat	ctg	tac	agg	6264
Asp 2075	Val	Ala	Leu	Ser	Arg	Gly 2080	Leu	Ile	Asp	Lys	Asp 2085	Leu	Tyr	Arg	
att	cta	aac	aac	tgc	caa	agt	acc	aca	aag	aac	ttc	att	gat	ccc	6309
Ile 2090	Leu	Asn	Asn	Cys	Gln	Ser 2095	Thr	Thr	Lys	Asn	Phe 2100	Ile	Asp	Pro	
agc	acc	aaa	aaa	gca	gtc	act	tac	atg	cag	cta	aag	gaa	aaa	tgc	6354
Ser 2105	Thr	Lys	Lys	Ala	Val	Thr 2110	Tyr	Met	Gln	Leu	Lys 2115	Glu	Lys	Cys	
agg	att	gag	cca	cat	act	ggc	ttg	ctc	ctc	ctt	cca	gtg	cag	aag	6399
Arg 2120	Ile	Glu	Pro	His	Thr	Gly 2125	Leu	Leu	Leu	Leu	Pro 2130	Val	Gln	Lys	
agg	agt	atg	tca	ttc	caa	ggg	atc	agg	cag	cct	gtc	tca	gca	gat	6444
Arg 2135	Ser	Met	Ser	Phe	Gln	Gly 2140	Ile	Arg	Gln	Pro	Val 2145	Ser	Ala	Asp	
gct	ctt	ctt	gag	gct	gga	att	att	aag	gaa	tca	aca	aga	aat	gat	6489

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ttg gaa aga ggt gca atc aca gtg gaa gaa gtg agt gag agg att	6534
Leu Glu Arg Gly Ala Ile Thr Val Glu Glu Val Ser Glu Arg Ile	
2165 2170 2175	
att gat ttc ctt cag ggc tct agc tgt att gca ggt atc tac aat	6579
Ile Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly Ile Tyr Asn	
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gag gct act aaa gag aaa ctt ggc att tac cag gct atg aaa ata	6624
Glu Ala Thr Lys Glu Lys Leu Gly Ile Tyr Gln Ala Met Lys Ile	
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ggc ttg gtt aga cca gag ctg tca ctg ggt aca aag acc cag aaa	6669
Gly Leu Val Arg Pro Glu Leu Ser Leu Gly Thr Lys Thr Gln Lys	
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ctg gaa aca tca ttt ctc tgt ttc aag caa tga	6702
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 <213> Gallus gallus

<400> 48

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His Val Val Gly Gly Gly Gly Gly Gly Thr His Thr His Lys Thr Tyr
35 40 45

Tyr Tyr Gln Lys Thr Tyr Gly Gly Asp Tyr Ala Ser Asp Gly Tyr Gly
50 55 60

Gln Asn Gly Thr Cys Thr Val Thr Arg Arg Gln Asn Thr Ile Gln Glu
65 70 75 80

Leu Leu Gln Asn Cys Ser Asp Cys Leu Met Arg Ala Glu Leu Ile Val
85 90 95

Gln Pro Glu Leu Lys Tyr Gly Asp Gly Val Gln Ile Arg Gly Asn Arg
100 105 110

Asp Leu Glu Glu Cys Phe Ala Gln Ala Asn Asp Gln Met Asp Ile Leu
115 120 125

Asp Gly Leu Ile Arg Glu Leu Arg Gln Met Asn Gln Pro Cys Glu Met
130 135 140

Tyr Gln Lys Arg Leu Leu Gln Leu Gln Glu Gln Met Arg Ala Leu Tyr
145 150 155 160

Lys Ala Ile Ser Val Pro Arg Ala Arg Arg Ala Ser Ser Lys Gly Gly



165

170

175

Gly Cys Tyr Ser Ser Gln Ser Gly Ser Gly Trp Asp Glu Tyr Thr Lys  
 180 185 190

Arg Val Thr Ser Glu Cys Leu Asn Trp Met Arg Gln Gln Lys Ala Glu  
 195 200 205

Met Glu Leu Val Lys Trp Gly Phe Asp Ala Ala Ser Ile Glu Gln Gln  
 210 215 220

Ile Ser Asp His Arg Arg Thr His Asn Ala Ile Gly Asp Tyr Arg Trp  
 225 230 235 240

His Leu Asp Lys Val Lys Thr Asp Leu Arg Glu Lys Ala Ala Val His  
 245 250 255

Gln Leu Glu Glu Glu Tyr Glu Gly Leu Leu Lys Tyr Ser Phe Glu Arg  
 260 265 270

Met Asp Gln Leu Arg Gln Phe Gln Asn Leu Ile Gln Ala Thr Ser Arg  
 275 280 285

Glu Ile Met Trp Ile Asn Asp Cys Glu Glu Glu Glu Leu Leu Tyr Asp  
 290 295 300

Trp Ser Asp Arg Asn Thr Asp Ile Ser Arg Lys Gln Glu Ala Phe Ser  
 305 310 315 320

Lys Arg Met Ser Glu Leu Glu Leu Lys Glu Lys Glu Leu Asn Lys Leu  
 325 330 335

Lys Gln Glu Ser Asp Gln Leu Val Leu Asn Gln His Pro Ala Ser Asp  
 340 345 350

Lys Ile Glu Ala Tyr Met Asp Thr Leu Gln Thr Gln Trp Ser Trp Ile  
 355 360 365

Leu Gln Ile Thr Lys Cys Ile Asp Val His Leu Lys Glu Asn Ala Ala  
 370 375 380

Tyr Phe Gln Phe Phe Glu Glu Ala Gln Ala Thr Glu Ser Tyr Leu Lys  
 385 390 395 400

Asn Leu Gln Asp Ser Ile Arg Lys Lys Phe Ile Cys Asp Lys Ser Met  
 405 410 415

Ser Leu Gln Ser Leu Leu Glu Gln Ile Lys Glu Leu Glu Asn Glu Arg  
 420 425 430

Glu Arg Ile Leu Glu Tyr Lys Arg Gln Val Gln Ser Leu Val Asn Lys  
 435 440 445

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

460

Asn Phe Arg Gly Cys Glu Lys Tyr Val Tyr Leu Gln Ser Glu Ile Asn

740

745

750

Ala Leu Phe Gln Lys Leu Glu Asn Ile Asn Gly Val Ser Ala Gly Tyr  
 755 760 765

Leu Asp Ser Leu Asn Ala Leu Arg Cys Leu Leu Gln Leu Ile Leu Gln  
 770 775 780

Thr Glu Asp Val Ile Arg Val Phe Glu Val Arg Leu Ser Glu Glu Glu  
 785 790 795 800

Thr Val Pro Leu Asp Leu Asp Lys Val Glu Ala Tyr Arg Ala Cys Leu  
 805 810 815

Lys Lys Met Lys Ser Asp Leu Asn Met Lys Lys Ser Leu Leu Asn Thr  
 820 825 830

Leu Glu Asn Glu Leu Gln Lys Met Ile Gln Ile His Ser Gln Ser Cys  
 835 840 845

Gln Ser Tyr Thr Leu Tyr Asp Met Asp Val Gly Lys Phe Thr Asp Lys  
 850 855 860

Val Thr Gln Leu Ile Asp Arg Trp Gln Arg Ala Glu Lys Gln Ile Asp  
 865 870 875 880

Asn Arg Ser Trp Asp Leu Glu Arg Gln Ile Lys Gln Leu Lys Thr Tyr  
 885 890 895

Arg Asp Leu Tyr Gln Ala Leu Cys Lys Trp Ile Cys Asp Ala Lys Arg  
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Arg Gln Asp Ser Ile Glu Ser Thr Lys Leu Cys Asp Ser Asn Thr Ile  
 915 920 925

Met Arg Tyr Leu His Asp Gln Lys Asn Leu His Ser Glu Ile Cys Gly  
 930 935 940

Lys Arg Asp Lys Val Glu Glu Leu Leu Lys His Ala Asp Gln Cys Ser  
 945 950 955 960

Ala Ala Ile Lys Asp Tyr Glu Leu Gln Val Ala Ser Tyr Ser Ser Gly  
 965 970 975

Leu Glu Thr Leu Leu Asn Ile Pro Ile Lys Lys Cys Val Val Gln Ser  
 980 985 990

Pro Ala Val Leu Ile Leu Gln Glu Ala Ser Glu Ala Gln Ala Arg Tyr  
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Ile Glu Leu Leu Thr Arg Ser Gly Asp Tyr Tyr Lys Phe Leu Ser  
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Glu Met Leu Lys Ser Met Glu Asp Leu Lys Met Lys Ala Thr Lys

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Ile Glu Leu Leu Glu Glu Glu Leu Arg Leu Ala Arg Asp Ser Asn				
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Ser Glu Thr Asn Asn Lys His Lys Phe Leu Glu Gln Asn Leu Gln				
1055		1060		1065
Lys Tyr Gln Met Asp Ile Ser Gln Leu Lys Ala Lys Leu Met Ser				
1070		1075		1080
Leu Glu Glu Met Lys Arg Gln Ala Glu Met Asp Gly Asn Ser Ala				
1085		1090		1095
Lys Gln Asn Leu Asp Lys Cys Tyr Ala Gln Ile Lys Asp Leu Asn				
1100		1105		1110
Asp Arg Ile Thr Arg Leu Thr Tyr Glu Thr Glu Asp Glu Lys Arg				
1115		1120		1125
Lys Arg Lys Leu Leu Glu Asp Arg Tyr Glu Gln Gln Lys Asn Asp				
1130		1135		1140
Tyr Asp Gln Leu Gln Lys Thr Arg Gln Asn Glu Lys Asp Ser Leu				
1145		1150		1155
Gly Trp Gln Lys Leu Glu Ser Glu Lys Val Ile Lys Glu Lys Glu				
1160		1165		1170
Tyr Glu Ile Glu Arg Leu Arg Val Leu Leu Gln Asp Glu Gly Thr				
1175		1180		1185
Arg Lys Arg Glu Tyr Glu Asn Glu Leu Ala Lys Val Arg Asn Gln				
1190		1195		1200
Phe Ser Glu Glu Met Ser Asn Leu Lys Asn Lys Tyr Glu Thr Glu				
1205		1210		1215
Ile Asn Ile Lys Lys Thr Thr Ile Gln Gln Ile Ala Ala Gln Lys				
1220		1225		1230
Asp Asp Asp Ala Lys Gly Leu Arg Ala Gln Val Asp Arg Leu Ser				
1235		1240		1245
Arg Glu Asn Arg Asp Leu Lys Asp Glu Ile Val Arg Leu Asn Asp				
1250		1255		1260
Ala Ile Leu Gln Thr Thr Asp Gln Arg Arg Arg Ala Glu Glu Asp				
1265		1270		1275
Ala Leu Gln Gln Lys Ala Cys Ser Ser Glu Val Ser Gln Gln Lys				
1280		1285		1290
His Gln Leu Glu Leu Glu Leu Lys Gln Ile Ile Gln Leu Arg Gly				

1295						1300					1305			
Glu Asp	Asn Ser	Arg Tyr	Lys	Gln Ala	Leu Glu	Glu Glu	Ala Ala	Ala						
1310			1315			1320								
Thr Ile	Gln Asp	Lys Thr	Lys	Glu Leu	Glu Arg	Leu	Lys Leu	Gln						
1325			1330			1335								
Leu Gln	Glu Glu	Ala Lys	Ser	Arg Trp	Glu Leu	Glu	Asn Glu	Leu						
1340			1345			1350								
Ala Lys	Val Arg	Asn Ser	Tyr	Asp Glu	Glu Ile	Ile	Ser Leu	Lys						
1355			1360			1365								
Asn Lys	Tyr Glu	Thr Glu	Ile	Asn Ile	Thr Lys	Thr	Thr Ile	His						
1370			1375			1380								
Gln Val	Thr Met	Gln Lys	Glu	Glu Asp	Thr Asn	Asn	Tyr Arg	Thr						
1385			1390			1395								
Gln Leu	Asp Asn	Ala Val	Arg	Glu Asn	Arg Asn	Leu	Cys Glu	Glu						
1400			1405			1410								
Ile Arg	Arg Leu	Lys Asn	Thr	Ile Thr	Gln Thr	Thr	Asp Asn	Leu						
1415			1420			1425								
Arg Lys	Ile Glu	Glu Asn	Ala	Gln Gln	Gln Lys	Ala	Ala Gly	Ser						
1430			1435			1440								
Glu Leu	Ser Gln	Lys Lys	Gln	Gln Leu	Glu Ile	Glu	Leu Lys	Gln						
1445			1450			1455								
Val Ile	Gln Arg	His Ser	Asp	Glu Ser	Met Arg	Tyr	Lys Gln	Ser						
1460			1465			1470								
Leu Asp	Asp Ala	Ser Lys	Thr	Ile Lys	Glu Arg	Asn	Lys Glu	Ile						
1475			1480			1485								
Glu Arg	Leu Arg	Lys Leu	Leu	Asp Ile	Gln Lys	His	Lys Leu	Glu						
1490			1495			1500								
Glu Glu	Leu Cys	Arg Gln	Asn	Lys Asn	Val Met	Glu	Glu Thr	Ala						
1505			1510			1515								
Arg Arg	Lys Lys	Leu Asp	Glu	Glu Val	Glu Gly	Met	Arg Arg	Ser						
1520			1525			1530								
Leu Arg	Glu Gln	Ser Val	Lys	Ile Thr	Asn Leu	Thr	Gln Gln	Ile						
1535			1540			1545								
Glu Glu	Val Ser	Ile Val	Lys	Lys Arg	Asn Glu	Asp	Asp Leu	Arg						
1550			1555			1560								
His Gln	Arg Glu	Val Leu	Asp	Gly His	Val Arg	Glu	Lys Gln	Arg						

1565		1570		1575
Tyr Met Glu Glu Ile Arg Lys	Tyr Thr Ser Asp Leu	Glu Thr Leu		
1580	1585	1590		
Arg Arg Gln Leu Val Gln Glu	Gln Glu Gln Leu Lys	Gln Ala His		
1595	1600	1605		
Leu Arg Asn Glu His Leu Gln	Lys Thr Ser Glu Glu	Lys Ser Lys		
1610	1615	1620		
Asn Leu Asn Glu Cys Lys Ile	Glu Ile Glu Arg Leu	Gln Ser Leu		
1625	1630	1635		
Thr Glu Asn Leu Thr Lys Glu	His Leu Leu Leu Glu	Glu Glu Leu		
1640	1645	1650		
Arg Asn Val Arg Leu Glu Tyr	Asp Asp Leu Lys Met	Val Arg Ser		
1655	1660	1665		
Glu Val Asp Glu Lys Asn Ser	Ala Ile Ala Glu Leu	Lys Asn Gln		
1670	1675	1680		
Leu Gln Thr Ser Ser Lys Gln	Thr Leu Glu Leu Gln	Gly Leu Ile		
1685	1690	1695		
Asn Asp Leu Gln Lys Glu Arg	Glu Lys Leu Arg Gln	Glu Ile Glu		
1700	1705	1710		
Lys Phe Gln Lys Gln Ala Leu	Glu Ala Ser Asn Arg	Ile Gln Glu		
1715	1720	1725		
Ser Lys Asn Gln Tyr Asn His	Ile Met Gln Glu Arg	Glu Thr Leu		
1730	1735	1740		
Leu Ile Lys Met Ser Ala Leu	Glu Gln Asp Lys Ala	Arg Leu Gln		
1745	1750	1755		
Arg Leu Glu Glu Glu Leu Asn	Arg Leu Lys Val Asn	Leu Glu Ser		
1760	1765	1770		
Glu Ser Arg Leu Lys Gln Arg	Leu Glu Asn Glu Lys	Gln Gln Ile		
1775	1780	1785		
Leu Asn Asp Leu Asn Gln Trp	Lys Ser Gln His Ser	Arg Thr Glu		
1790	1795	1800		
Glu Ser Ile Arg Lys Ile Gln	Cys Glu Arg Glu Lys	Ser Glu Arg		
1805	1810	1815		
Glu Lys Asn Thr Leu Arg Ser	Glu Ile Glu Arg Leu	Gln Met Glu		
1820	1825	1830		
Ile Lys Arg Ile Glu Glu Arg	Tyr Arg Cys Arg Leu	Glu Glu Thr		

1835						1840						1845			
Ala Val	Lys Asn	Gln Ser	Glu Leu	Glu Ser	Glu Arg	Leu Arg	Leu								
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Gln Arg	Glu Ile	Glu Lys	Leu Lys	Gln Arg	Pro Tyr	Gly Ser	His								
1865					1870					1875					
Arg Ser	Thr Gln	Thr Glu	Glu Glu	Asp Phe	Cys Ile	Asp Ala	Ser Lys								
1880					1885					1890					
Leu Leu	Phe Asn	Gly Leu	Arg Lys	Lys Lys	Ile Thr	Ala Met	Gln Leu								
1895					1900					1905					
Tyr Glu	Cys Gln	Leu Ile	Asp Lys	Leu Thr	Leu Asp	Lys Leu	Leu								
1910					1915					1920					
Lys Gly	Gln Arg	Ser Val	Glu Glu	Val Ala	Ala Asp	Ile Glu	Pro								
1925					1930					1935					
Phe Leu	Lys Gly	Ala Gly	Ala Ile	Ala Gly	Val Ser	Val Leu	Pro								
1940					1945					1950					
Arg Gln	Lys Tyr	Ser Phe	Val Glu	Ala Lys	Arg Asn	Gln Leu	Leu								
1955					1960					1965					
Thr Ala	Glu Asn	Ala Val	Leu Leu	Leu Glu	Ala Gln	Ala Ala	Thr								
1970					1975					1980					
Gly Gly	Val Ile	Asp Pro	His Arg	Asn Glu	Val Leu	Thr Val	Asp								
1985					1990					1995					
Ser Ala	Ile Ala	Arg Asp	Leu Ile	Asp Phe	Asp Asp	Arg Glu	Gln								
2000					2005					2010					
Ile Tyr	Thr Ala	Glu Lys	Ala Ile	Thr Gly	Phe Lys	Asp Pro	Phe								
2015					2020					2025					
Ser Gly	Lys Thr	Val Pro	Leu Ser	Glu Ala	Ile Lys	Lys Asn	Leu								
2030					2035					2040					
Val Asp	Arg Glu	Ile Gly	Met Arg	Leu Leu	Glu Ala	Gln Leu	Ala								
2045					2050					2055					
Val Gly	Gly Ile	Val Asp	Pro Val	Asn Ser	Val Phe	Leu Pro	Lys								
2060					2065					2070					
Asp Val	Ala Leu	Ser Arg	Gly Leu	Ile Asp	Lys Asp	Leu Tyr	Arg								
2075					2080					2085					
Ile Leu	Asn Asn	Cys Gln	Ser Thr	Thr Lys	Asn Phe	Ile Asp	Pro								
2090					2095					2100					
Ser Thr	Lys Lys	Ala Val	Thr Tyr	Met Gln	Leu Lys	Glu Lys	Cys								

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Arg Ile Glu Pro His Thr Gly Leu Leu Leu Leu Pro Val Gln Lys			
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Arg Ser Met Ser Phe Gln Gly Ile Arg Gln Pro Val Ser Ala Asp			
2135	2140	2145	
Ala Leu Leu Glu Ala Gly Ile Ile Lys Glu Ser Thr Arg Asn Asp			
2150	2155	2160	
Leu Glu Arg Gly Ala Ile Thr Val Glu Glu Val Ser Glu Arg Ile			
2165	2170	2175	
Ile Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly Ile Tyr Asn			
2180	2185	2190	
Glu Ala Thr Lys Glu Lys Leu Gly Ile Tyr Gln Ala Met Lys Ile			
2195	2200	2205	
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Gln Gln Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Ala Asn Thr	
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tgc gtg ccc tcc gtc agc agc aag ggc atc atg gag gag gat gag gcc	144
Cys Val Pro Ser Val Ser Ser Lys Gly Ile Met Glu Glu Asp Glu Ala	
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tgc ggg cgc cag tac acg ctc aag aaa acc acc act tac acc cag ggg	192
Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Gly	
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gtg ccc ccc agc caa ggt gac ctg gag tac cag atg tcc aca aca gcc	240
Val Pro Pro Ser Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala	
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agg gcc aaa cgg gtg cgg gag gcc atg tgc cct ggt gtg tca ggc gag	288
Arg Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Ser Gly Glu	
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gac agc tcg ctt ctg ctg gcc acc cag gtg gag ggg cag gcc acc aac	336
Asp Ser Ser Leu Leu Leu Ala Thr Gln Val Glu Gly Gln Ala Thr Asn	



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ctg	cag	cga	ctg	gcc	gag	ccg	tcc	cag	ctg	ctc	aag	tcg	gcc	att	gtg	384
Leu	Gln	Arg	Leu	Ala	Glu	Pro	Ser	Gln	Leu	Leu	Lys	Ser	Ala	Ile	Val	
115				120				125								
cat	ctc	atc	aac	tac	cag	gac	gat	gcc	gag	ctg	gcc	act	cgc	gcc	ctg	432
His	Leu	Ile	Asn	Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Leu	
130				135				140								
ccc	gag	ctc	acc	aaa	ctg	ctc	aac	gac	gag	gac	ccg	gtg	gtg	gtg	acc	480
Pro	Glu	Leu	Thr	Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Val	Val	Val	Thr	
145				150				155				160				
aag	gcg	gcc	atg	att	gtg	aac	cag	ctg	tcg	aag	aag	gag	gcg	tcg	cgg	528
Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	
165				170				175				175				
cgg	gcc	ctg	atg	ggc	tcg	ccc	cag	ctg	gtg	gcc	gct	gtc	gtg	cgt	acc	576
Arg	Ala	Leu	Met	Gly	Ser	Pro	Gln	Leu	Val	Ala	Ala	Val	Val	Arg	Thr	
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atg	cag	aat	acc	agc	gac	ctg	gac	aca	gcc	cgc	tgc	acc	acc	agc	atc	624
Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	
195				200				205								
ctg	cac	aac	ctc	tcc	cac	cac	cgg	gag	ggg	ctg	ctc	gcc	atc	ttc	aag	672
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys	
210				215				220								
tcg	ggt	ggc	atc	cct	gct	ctg	gtc	cgc	atg	ctc	agc	tcc	cct	gtg	gag	720
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	
225				230				235				240				
tcg	gtc	ctg	ttc	tat	gcc	atc	acc	acg	ctg	cac	aac	ctg	ctc	ctg	tac	768
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	
245				250				255								
cag	gag	ggc	gcc	aag	atg	gcc	gtg	cgc	ctg	gcc	gac	ggg	ctg	caa	aag	816
Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	
260				265				270								
atg	gtg	ccc	ctg	ctc	aac	aag	aac	aac	ccc	aag	ttc	ctg	gcc	atc	acc	864
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	
275				280				285								
acc	gac	tgc	ctg	cag	ctc	ctg	gcc	tac	ggc	aac	cag	gag	agc	aag	ctg	912
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	
290				295				300								
atc	atc	ctg	gcc	aat	ggt	ggg	ccc	cag	gcc	ctc	gtg	cag	atc	atg	cgt	960
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Ala	Leu	Val	Gln	Ile	Met	Arg	
305				310				315				320				
aac	tac	agt	tat	gaa	aag	ctg	ctc	tgg	acc	acc	agt	cgt	gtg	ctc	aag	1008
Asn	Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	
325				330				335								
gtg	cta	tcc	gtg	tgt	ccc	agc	aat	aag	cct	gcc	att	gtg	gag	gct	ggt	1056
Val	Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	
340				345				350								
ggg	atg	cag	gcc	ctg	ggc	aag	cac	ctg	acc	agc	aac	agc	ccc	cgc	ctg	1104
Gly	Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	
355				360				365								
gtg	cag	aac	tgc	ctg	tgg	acc	ctg	cgc	aac	ctc	tca	gat	gtg	gcc	acc	1152
Val	Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	
370				375				380								
aag	cag	gag	ggc	ctg	gag	agt	gtg	ctg	aag	att	ctg	gtg	aat	cag	ctg	1200
Lys	Gln	Glu	Gly	Leu	Glu	Ser	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu	

385		390		395		400										
agt	gtg	gat	gac	gtc	aac	gtc	ctc	acc	tgt	gcc	acg	ggc	aca	ctc	tcc	1248
Ser	Val	Asp	Asp	Val	Asn	Val	Leu	Thr	Cys	Ala	Thr	Gly	Thr	Leu	Ser	
			405						410					415		
aac	ctg	aca	tgc	aac	aac	agc	aag	aac	aag	acg	ctg	gtg	aca	cag	aac	1296
Asn	Leu	Thr	Cys	Asn	Asn	Ser	Lys	Asn	Lys	Thr	Leu	Val	Thr	Gln	Asn	
			420					425					430			
agc	ggg	gtg	gag	gct	ctc	atc	cat	gcc	atc	ctg	cgt	gct	ggg	gac	aag	1344
Ser	Gly	Val	Glu	Ala	Leu	Ile	His	Ala	Ile	Leu	Arg	Ala	Gly	Asp	Lys	
		435					440					445				
gac	gac	atc	acg	gag	cct	gcc	gtc	tgc	gct	ctg	cgc	cac	ctc	act	agc	1392
Asp	Asp	Ile	Thr	Glu	Pro	Ala	Val	Cys	Ala	Leu	Arg	His	Leu	Thr	Ser	
	450					455					460					
cgc	cac	cct	gag	gcc	gag	atg	gcc	cag	aac	tct	gtg	cgt	ctc	aac	tat	1440
Arg	His	Pro	Glu	Ala	Glu	Met	Ala	Gln	Asn	Ser	Val	Arg	Leu	Asn	Tyr	
465					470					475					480	
ggc	atc	cca	gcc	atc	gtg	aag	ctg	ctc	aac	cag	ccc	aac	cag	tgg	cca	1488
Gly	Ile	Pro	Ala	Ile	Val	Lys	Leu	Leu	Asn	Gln	Pro	Asn	Gln	Trp	Pro	
			485						490					495		
ctg	gtc	aag	gca	acc	atc	ggc	ttg	atc	agg	aat	ctg	gcc	ctg	tgc	cca	1536
Leu	Val	Lys	Ala	Thr	Ile	Gly	Leu	Ile	Arg	Asn	Leu	Ala	Leu	Cys	Pro	
			500					505					510			
gcc	aac	cat	gcc	ccg	ctg	cag	gag	gca	gcg	gtc	atc	ccc	cgc	ctc	gtc	1584
Ala	Asn	His	Ala	Pro	Leu	Gln	Glu	Ala	Ala	Val	Ile	Pro	Arg	Leu	Val	
		515					520					525				
caa	ctg	ctg	gtg	aag	gcc	cac	cag	gat	gcc	cag	cgc	cac	gta	gct	gca	1632
Gln	Leu	Leu	Val	Lys	Ala	His	Gln	Asp	Ala	Gln	Arg	His	Val	Ala	Ala	
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ggc	aca	cag	cag	ccc	tac	acg	gat	ggg	gtg	agg	atg	gag	gag	att	gtg	1680
Gly	Thr	Gln	Gln	Pro	Tyr	Thr	Asp	Gly	Val	Arg	Met	Glu	Glu	Ile	Val	
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gag	ggc	tgc	acc	gga	gca	ctg	cac	atc	ctc	gcc	cgg	gac	ccc	atg	aac	1728
Glu	Gly	Cys	Thr	Gly	Ala	Leu	His	Ile	Leu	Ala	Arg	Asp	Pro	Met	Asn	
			565						570					575		
cgc	atg	gag	atc	ttc	cgg	ctc	aac	acc	att	ccc	ctg	ttt	gtg	cag	ctc	1776
Arg	Met	Glu	Ile	Phe	Arg	Leu	Asn	Thr	Ile	Pro	Leu	Phe	Val	Gln	Leu	
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ctg	tac	tcg	tcg	gtg	gag	aac	atc	cag	cgc	gtg	gct	gcc	ggg	gtg	ctg	1824
Leu	Tyr	Ser	Ser	Val	Glu	Asn	Ile	Gln	Arg	Val	Ala	Ala	Gly	Val	Leu	
		595					600					605				
tgt	gag	ctg	gcc	cag	gac	aag	gag	gcg	gcc	gac	gcc	att	gat	gca	gag	1872
Cys	Glu	Leu	Ala	Gln	Asp	Lys	Glu	Ala	Ala	Asp	Ala	Ile	Asp	Ala	Glu	
	610					615				620						
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Gly	Ala	Ser	Ala	Pro	Leu	Met	Glu	Leu	Leu	His	Ser	Arg	Asn	Glu	Gly	
625					630					635					640	
act	gcc	acc	tac	gct	gct	gcc	gtc	ctg	ttc	cgc	atc	tcc	gag	gac	aag	1968
Thr	Ala	Thr	Tyr	Ala	Ala	Ala	Val	Leu	Phe	Arg	Ile	Ser	Glu	Asp	Lys	
			645						650				655			
aac	cca	gac	tac	cgg	aag	cgc	gtg	tcc	gtg	gag	ctc	acc	aac	tcc	ctc	2016
Asn	Pro	Asp	Tyr	Arg	Lys	Arg	Val	Ser	Val	Glu	Leu	Thr	Asn	Ser	Leu	
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ttc	aag	cat	gac	ccg	gct	gcc	tgg	gag	gct	gcc	cag	agc	atg	att	ccc	2064
Phe	Lys	His	Asp	Pro	Ala	Ala	Trp	Glu	Ala	Ala	Gln	Ser	Met	Ile	Pro	

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Ile Asn Glu Pro Tyr Gly Asp Asp Met Asp Ala Thr Tyr Arg Pro Met			
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tac tcc agc gat gtg ccc ctt gac ccg ctg gag atg cac atg gac atg			2160
Tyr Ser Ser Asp Val Pro Leu Asp Pro Leu Glu Met His Met Asp Met			
705	710	715	720
gat gga gac tac ccc atc gac acc tac agc gac ggc ctc agg ccc ccg			2208
Asp Gly Asp Tyr Pro Ile Asp Thr Tyr Ser Asp Gly Leu Arg Pro Pro			
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tac ccc act gca gac cac atg ctg gcc			2235
Tyr Pro Thr Ala Asp His Met Leu Ala			
740	745		

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 <213> Homo sapiens

<400> 50

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Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Gly
50 55 60

Val Pro Pro Ser Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala
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Arg Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Ser Gly Glu
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Asp Ser Ser Leu Leu Leu Ala Thr Gln Val Glu Gly Gln Ala Thr Asn
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Leu Gln Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val
115 120 125

His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu
130 135 140

Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr
145 150 155 160

Lys Ala Ala Met Ile Val Asn Gln Leu Ser Lys Lys Glu Ala Ser Arg
165 170 175

Arg Ala Leu Met Gly Ser Pro Gln Leu Val Ala Ala Val Val Arg Thr
180 185 190

Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	195	200	205	
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys	210	215	220	
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	225	230	235	240
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	245	250	255	
Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	260	265	270	
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	275	280	285	
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	290	295	300	
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Ala	Leu	Val	Gln	Ile	Met	Arg	305	310	315	320
Asn	Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	325	330	335	
Val	Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	340	345	350	
Gly	Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	355	360	365	
Val	Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	370	375	380	
Lys	Gln	Glu	Gly	Leu	Glu	Ser	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu	385	390	395	400
Ser	Val	Asp	Asp	Val	Asn	Val	Leu	Thr	Cys	Ala	Thr	Gly	Thr	Leu	Ser	405	410	415	
Asn	Leu	Thr	Cys	Asn	Asn	Ser	Lys	Asn	Lys	Thr	Leu	Val	Thr	Gln	Asn	420	425	430	
Ser	Gly	Val	Glu	Ala	Leu	Ile	His	Ala	Ile	Leu	Arg	Ala	Gly	Asp	Lys	435	440	445	
Asp	Asp	Ile	Thr	Glu	Pro	Ala	Val	Cys	Ala	Leu	Arg	His	Leu	Thr	Ser	450	455	460	
Arg	His	Pro	Glu	Ala	Glu	Met	Ala	Gln	Asn	Ser	Val	Arg	Leu	Asn	Tyr	465	470	475	480

Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro  
 485 490 495  
 Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro  
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 Ala Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val  
 515 520 525  
 Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala  
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 Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val  
 545 550 555 560  
 Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn  
 565 570 575  
 Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu  
 580 585 590  
 Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu  
 595 600 605  
 Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu  
 610 615 620  
 Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly  
 625 630 635 640  
 Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys  
 645 650 655  
 Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu  
 660 665 670  
 Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro  
 675 680 685  
 Ile Asn Glu Pro Tyr Gly Asp Asp Met Asp Ala Thr Tyr Arg Pro Met  
 690 695 700  
 Tyr Ser Ser Asp Val Pro Leu Asp Pro Leu Glu Met His Met Asp Met  
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Met Glu	
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gtg atg aac ctt att gag cag ccc atc aag gtg aca gag tgg caa cag	166
Val Met Asn Leu Ile Glu Gln Pro Ile Lys Val Thr Glu Trp Gln Gln	
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aca tac acc tac gac tcg ggc atc cac tcc ggc gtc aat acc tgt gtg	214
Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Val Asn Thr Cys Val	
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ccc tct gta agc agc aag ggc atc atg gat gag gat gat gcc tgc ggc	262
Pro Ser Val Ser Ser Lys Gly Ile Met Asp Glu Asp Asp Ala Cys Gly	
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aga cag tac aca ctc aag aag act acc acc tat aca caa ggg gtg cca	310
Arg Gln Tyr Thr Leu Lys Lys Thr Thr Tyr Thr Gln Gly Val Pro	
55 60 65	
cag aac caa ggt gac ctg gaa tac cag atg tcc aca acg gcc aga gcc	358
Gln Asn Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala Arg Ala	
70 75 80	
aag cgg gtg cgg gag gcc atg tgt cca ggg gtc tca ggc gag gac agt	406
Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Ser Gly Glu Asp Ser	
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tct cta ctg ctg gcc acc cag gtg gag ggg cag aca acc aat ctg cag	454
Ser Leu Leu Leu Ala Thr Gln Val Glu Gly Gln Thr Thr Asn Leu Gln	
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Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val His Leu	
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atc aac tac cag gat gat gca gag ctg gcc acc cgg gct ctg cct gag	550
Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu Pro Glu	
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ctc acc aag ctg ctc aac gat gag gac ccg gta gtg gtg acc aag gcg	598
Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr Lys Ala	
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gct atg atc gtg aac cag ctg tcc aag aag gag gca tcc cgc cgg gct	646
Ala Met Ile Val Asn Gln Leu Ser Lys Lys Glu Ala Ser Arg Arg Ala	
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cta atg ggc tcg ccc cag ctg gtg gcg gcg gtg gtg cgg act atg cag	694
Leu Met Gly Ser Pro Gln Leu Val Ala Ala Val Val Arg Thr Met Gln	
180 185 190	
aac acc agt gac ctg gat act gcc cgg tgt acc acc agc atc ctg cac	742
Asn Thr Ser Asp Leu Asp Thr Ala Arg Cys Thr Thr Ser Ile Leu His	
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aac ctc tct cac cac cga gag ggc ttg ctc gcc ata ttc aag tct gga	790
Asn Leu Ser His His Arg Glu Gly Leu Leu Ala Ile Phe Lys Ser Gly	
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ggc atc cct gcc cta gtc cga atg ctc agt tcc ccc gta gaa tct gtc	838

Gly Ile Pro Ala Leu Val Arg Met Leu Ser Ser Pro Val Glu Ser Val	
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ctg ttc tac gcc atc acc aca ctg cac aac ctg ctg ctc tat cag gag	886
Leu Phe Tyr Ala Ile Thr Thr Leu His Asn Leu Leu Tyr Gln Glu	
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Gly Ala Lys Met Ala Val Arg Leu Ala Asp Gly Leu Gln Lys Met Val	
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ccc cta ctc aac aag aac aac cct aag ttc ctg gcc atc act act gac	982
Pro Leu Leu Asn Lys Asn Asn Pro Lys Phe Leu Ala Ile Thr Thr Asp	
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tgc ctg cag ctc ctg gcc tat ggc aac cag gag agc aag ctg atc atc	1030
Cys Leu Gln Leu Leu Ala Tyr Gly Asn Gln Glu Ser Lys Leu Ile Ile	
295 300 305	
ctg gcc aat ggg gga ccc caa ggg ctt gtg cag atc atg agg aac tac	1078
Leu Ala Asn Gly Gly Pro Gln Gly Leu Val Gln Ile Met Arg Asn Tyr	
310 315 320	
agc tac gag aag ctt ctg tgg acc acc agc cgt gtg ctc aag gtg ctc	1126
Ser Tyr Glu Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys Val Leu	
325 330 335	
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Ser Val Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly Gly Met	
340 345 350	
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Gln Ala Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu Val Gln	
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Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr Lys Gln	
375 380 385	
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Glu Gly Leu Glu Ser Val Leu Lys Ile Leu Val Asn Gln Leu Ser Val	
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gat gac gtc aac gtc ctc acc tgt gcc acg ggc acc ctc tcc aac ctg	1366
Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser Asn Leu	
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Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn Ser Gly	
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gtg gag gcg ctc atc cac gcc atc ctg aga gcc gga gac aaa gat gac	1462
Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys Asp Asp	
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Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser Arg His	
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Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr Gly Ile	
470 475 480	
ccg gcc att gtg aaa ctg ctc aac cag cca aac cag tgg cca ctg gtc	1606
Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro Leu Val	
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Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro Ala Asn	
500 505 510	
cat gcc cct ctg cag gag gcc gcg gtc att ccc cgc ctc gtc cag ctg	1702

His 515	Ala	Pro	Leu	Gln		Glu 520	Ala	Ala	Val	Ile	Pro	Arg	Leu	Val	Gln	Leu 530	
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Leu	Val	Lys	Ala	His		Gln	Asp	Ala	Gln	Arg	His	Val	Ala	Ala	Gly	Thr	
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cag	cag	ccc	tac	acg		gat	ggg	gtg	agg	atg	gag	gag	atc	gtg	gaa	ggc	1798
Gln	Gln	Pro	Tyr	Thr		Asp	Gly	Val	Arg	Met	Glu	Glu	Ile	Val	Glu	Gly	
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Cys	Thr	Gly	Ala	Leu		His	Ile	Leu	Ala	Arg	Asp	Pro	Met	Asn	Arg	Met	
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Glu	Ile	Phe	Arg	Leu		Asn	Thr	Ile	Pro	Leu	Phe	Val	Gln	Leu	Leu	Tyr	
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tcc	tct	gtg	gag	aac		atc	cag	cgt	gtg	gct	gcg	gga	gtg	ctc	tgc	gag	1942
Ser	Ser	Val	Glu	Asn		Ile	Gln	Arg	Val	Ala	Ala	Gly	Val	Leu	Cys	Glu	
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Leu	Ala	Gln	Asp	Lys		Glu	Ala	Ala	Asp	Ala	Ile	Asp	Ala	Glu	Gly	Ala	
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tct	gcc	cct	ctc	atg		gag	cta	ctc	cat	tcc	cgc	aat	gag	ggc	acc	gcg	2038
Ser	Ala	Pro	Leu	Met		Glu	Leu	Leu	His	Ser	Arg	Asn	Glu	Gly	Thr	Ala	
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Thr	Tyr		Ala	Ala		Val	Leu	Phe	Arg	Ile	Ser	Glu	Asp	Lys	Asn	Pro	
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gat	tac	cgt	aag	cga		gtg	tct	gtg	gag	ctc	acc	aat	tcc	ctc	ttc	aag	2134
Asp	Tyr	Arg	Lys	Arg		Val	Ser	Val	Glu	Leu	Thr	Asn	Ser	Leu	Phe	Lys	
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cat	gac	cca	gct	gcc		tgg	gag	gct	gcc	cag	agt	atg	atc	ccg	atc	aac	2182
His	Asp	Pro	Ala	Ala		Trp	Glu	Ala	Ala	Gln	Ser	Met	Ile	Pro	Ile	Asn	
675						680					685					690	
gaa	ccc	tat	gca	gac		gac	atg	gat	gcc	acc	tac	cgc	ccc	atg	tac	tcc	2230
Glu	Pro	Tyr	Ala	Asp		Asp	Met	Asp	Ala	Thr	Tyr	Arg	Pro	Met	Tyr	Ser	
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agc	gat	gtg	cct	ctg		gac	cct	ctg	gac	atg	cac	atg	gac	ctg	gat	gga	2278
Ser	Asp	Val	Pro	Leu		Asp	Pro	Leu	Asp	Met	His	Met	Asp	Leu	Asp	Gly	
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gac	tac	ccc	atg	gac		acc	tac	agt	gac	ggc	ctg	agg	cct</				



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Cys Val Pro Ser Val Ser Ser Lys Gly Ile Met Asp Glu Asp Asp Ala  
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Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Gly  
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Val Pro Gln Asn Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala  
65 70 75 80  
  
Arg Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Ser Gly Glu  
85 90 95  
  
Asp Ser Ser Leu Leu Leu Ala Thr Gln Val Glu Gly Gln Thr Thr Asn  
100 105 110  
  
Leu Gln Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val  
115 120 125  
  
His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu  
130 135 140  
  
Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr  
145 150 155 160  
  
Lys Ala Ala Met Ile Val Asn Gln Leu Ser Lys Lys Glu Ala Ser Arg  
165 170 175  
  
Arg Ala Leu Met Gly Ser Pro Gln Leu Val Ala Ala Val Val Arg Thr  
180 185 190

Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	195	200	205	
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys	210	215	220	
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	225	230	235	240
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	245	250	255	
Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	260	265	270	
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	275	280	285	
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	290	295	300	
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Gly	Leu	Val	Gln	Ile	Met	Arg	305	310	315	320
Asn	Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	325	330	335	
Val	Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	340	345	350	
Gly	Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	355	360	365	
Val	Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	370	375	380	
Lys	Gln	Glu	Gly	Leu	Glu	Ser	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu	385	390	395	400
Ser	Val	Asp	Asp	Val	Asn	Val	Leu	Thr	Cys	Ala	Thr	Gly	Thr	Leu	Ser	405	410	415	
Asn	Leu	Thr	Cys	Asn	Asn	Ser	Lys	Asn	Lys	Thr	Leu	Val	Thr	Gln	Asn	420	425	430	
Ser	Gly	Val	Glu	Ala	Leu	Ile	His	Ala	Ile	Leu	Arg	Ala	Gly	Asp	Lys	435	440	445	
Asp	Asp	Ile	Thr	Glu	Pro	Ala	Val	Cys	Ala	Leu	Arg	His	Leu	Thr	Ser	450	455	460	
Arg	His	Pro	Glu	Ala	Glu	Met	Ala	Gln	Asn	Ser	Val	Arg	Leu	Asn	Tyr	465	470	475	480

Gly	Ile	Pro	Ala	Ile	Val	Lys	Leu	Leu	Asn	Gln	Pro	Asn	Gln	Trp	Pro
				485					490					495	
Leu	Val	Lys	Ala	Thr	Ile	Gly	Leu	Ile	Arg	Asn	Leu	Ala	Leu	Cys	Pro
			500					505					510		
Ala	Asn	His	Ala	Pro	Leu	Gln	Glu	Ala	Ala	Val	Ile	Pro	Arg	Leu	Val
		515					520					525			
Gln	Leu	Leu	Val	Lys	Ala	His	Gln	Asp	Ala	Gln	Arg	His	Val	Ala	Ala
	530					535					540				
Gly	Thr	Gln	Gln	Pro	Tyr	Thr	Asp	Gly	Val	Arg	Met	Glu	Glu	Ile	Val
545					550					555					560
Glu	Gly	Cys	Thr	Gly	Ala	Leu	His	Ile	Leu	Ala	Arg	Asp	Pro	Met	Asn
				565					570					575	
Arg	Met	Glu	Ile	Phe	Arg	Leu	Asn	Thr	Ile	Pro	Leu	Phe	Val	Gln	Leu
			580					585					590		
Leu	Tyr	Ser	Ser	Val	Glu	Asn	Ile	Gln	Arg	Val	Ala	Ala	Gly	Val	Leu
		595					600					605			
Cys	Glu	Leu	Ala	Gln	Asp	Lys	Glu	Ala	Ala	Asp	Ala	Ile	Asp	Ala	Glu
	610					615					620				
Gly	Ala	Ser	Ala	Pro	Leu	Met	Glu	Leu	Leu	His	Ser	Arg	Asn	Glu	Gly
625					630					635					640
Thr	Ala	Thr	Tyr	Ala	Ala	Ala	Val	Leu	Phe	Arg	Ile	Ser	Glu	Asp	Lys
				645					650					655	
Asn	Pro	Asp	Tyr	Arg	Lys	Arg	Val	Ser	Val	Glu	Leu	Thr	Asn	Ser	Leu
			660					665					670		
Phe	Lys	His	Asp	Pro	Ala	Ala	Trp	Glu	Ala	Ala	Gln	Ser	Met	Ile	Pro
		675					680					685			
Ile	Asn	Glu	Pro	Tyr	Ala	Asp	Asp	Met	Asp	Ala	Thr	Tyr	Arg	Pro	Met
	690					695					700				
Tyr	Ser	Ser	Asp	Val	Pro	Leu	Asp	Pro	Leu	Asp	Met	His	Met	Asp	Leu
705					710					715					720
Asp	Gly	Asp	Tyr	Pro	Met	Asp	Thr	Tyr	Ser	Asp	Gly	Leu	Arg	Pro	Pro
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Tyr	Pro	Thr	Ala	Asp	His	Met	Leu	Ala							
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<213> Rattus norvegicus

<220>

<221> CDS

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Met	Glu	Val	Met	Asn	Leu	Ile	Glu	Gln	Pro	Ile	Lys	Val	Thr	Glu	Trp	
1				5					10					15		

cag	cag	acg	tac	acc	tat	gac	tcg	ggc	atc	cac	tcc	ggg	gtc	aat	acc	96
Gln	Gln	Thr	Tyr	Thr	Tyr	Asp	Ser	Gly	Ile	His	Ser	Gly	Val	Asn	Thr	
			20					25					30			

tgt	gtg	ccc	tct	gtc	agc	agc	aag	ggc	ctc	ctc	gat	gag	gat	gac	acc	144
Cys	Val	Pro	Ser	Val	Ser	Ser	Lys	Gly	Leu	Leu	Asp	Glu	Asp	Asp	Thr	
		35					40					45				

tgc	ggc	aga	cag	tac	aca	ctc	aag	aaa	act	acc	acc	tac	aca	caa	ggg	192
Cys	Gly	Arg	Gln	Tyr	Thr	Leu	Lys	Lys	Thr	Thr	Thr	Tyr	Thr	Gln	Gly	
	50					55					60					

gtg	cca	cag	agc	caa	ggc	gac	ctg	gag	tac	cag	atg	tcc	acc	acg	gcc	240
Val	Pro	Gln	Ser	Gln	Gly	Asp	Leu	Glu	Tyr	Gln	Met	Ser	Thr	Thr	Ala	
65				70					75						80	

aga	gcc	aag	cgg	gtg	cgg	gag	gcc	atg	tgc	cca	ggg	gtc	tca	ggc	gag	288
Arg	Ala	Lys	Arg	Val	Arg	Glu	Ala	Met	Cys	Pro	Gly	Val	Ser	Gly	Glu	
				85					90					95		

gac	agt	tct	ctc	ctc	ctg	gcc	acc	cag	gtg	gag	ggg	cag	acg	acc	aac	336
Asp	Ser	Ser	Leu	Leu	Leu	Ala	Thr	Gln	Val	Glu	Gly	Gln	Thr	Thr	Asn	
			100					105					110			

ctg	cag	cga	ctg	gcc	gaa	cca	tcc	cag	cta	ctc	aag	tcg	gcc	att	gta	384
Leu	Gln	Arg	Leu	Ala	Glu	Pro	Ser	Gln	Leu	Leu	Lys	Ser	Ala	Ile	Val	
		115					120					125				

cat	ctc	atc	aac	tac	cag	gac	gac	gca	gag	ctg	gcc	acc	cgg	gct	ctg	432
His	Leu	Ile	Asn	Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Leu	
	130				135						140					

cct	gag	ctc	acc	aag	ctg	ctc	aac	gat	gag	gac	ccg	gta	gtg	gtc	acc	480
Pro	Glu	Leu	Thr	Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Val	Val	Val	Thr	
145					150					155					160	

aag	gcg	gct	atg	atc	gtg	aac	cag	ctg	tcc	aag	aag	gag	gca	tcc	cgc	528
Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	
			165					170					175			

cgt	gcc	ctg	atg	ggc	tcg	ccc	cag	ctg	gtg	gcg	gct	gtg	gtg	cgg	acc	576
Arg	Ala	Leu	Met	Gly	Ser	Pro	Gln	Leu	Val	Ala	Ala	Val	Val	Arg	Thr	
		180						185					190			

atg	cag	aac	acc	agt	gac	ctg	gat	act	gcc	cgc	tgt	acc	acc	agc	atc	624
Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	
		195				200						205				

ctg	cac	aac	ctc	tcc	cac	cac	cga	gag	ggg	ctg	ctt	gct	atc	ttc	aag	672
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys	
	210					215					220					

tct	gga	ggc	atc	ccc	gcc	ctg	gtc	cga	atg	ctc	agt	tcc	ccc	gta	gag	720
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	
225				230						235					240	

tct	gtc	ctg	ttc	tac	gcc	atc	acc	aca	ctg	cac	aac	ctg	ctg	ctc	tac	768
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	
			245						250					255		

cag gag ggc gcc aag atg gcg gtg cgt ctg gca gac gga ctg cag aag Gln Glu Gly Ala Lys Met Ala Val Arg Leu Ala Asp Gly Leu Gln Lys 260 265 270	816
atg gtg ccc cta ctt aac aag aac aac ccc aaa ttc ctg gcc atc acc Met Val Pro Leu Leu Asn Lys Asn Asn Pro Lys Phe Leu Ala Ile Thr 275 280 285	864
acc gac tgc ctg cag ctc ctg gcc tat ggc aac cag gag agc aag ctg Thr Asp Cys Leu Gln Leu Leu Ala Tyr Gly Asn Gln Glu Ser Lys Leu 290 295 300	912
atc atc ctg gcc aat ggg gga ccc cag ggt ctt gtg cag atc atg agg Ile Ile Leu Ala Asn Gly Gly Pro Gln Gly Leu Val Gln Ile Met Arg 305 310 315 320	960
aac tac agc tac gag aag ctt ctg tgg acc acc agc cgg gtg ctc aag Asn Tyr Ser Tyr Glu Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys 325 330 335	1008
gtg ctc tcc gtg tgc ccc agc aac aag cct gcc atc gtg gag gct ggt Val Leu Ser Val Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly 340 345 350	1056
ggg atg cag gct cta ggc aag cac ttg aca agc aac agc ccc cgc ctg Gly Met Gln Ala Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu 355 360 365	1104
gtg cag aac tgc ctg tgg act ctg cgc aat ctc tcg gat gtg gcc acc Val Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr 370 375 380	1152
aag cag gag ggc ctg gag aac gtg ctg aag atc ctg gtc aat cag ctg Lys Gln Glu Gly Leu Glu Asn Val Leu Lys Ile Leu Val Asn Gln Leu 385 390 395 400	1200
agc gtg gat gat gtc aac gtc ctc acc tgt gcc acg ggc acc ctc tcc Ser Val Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser 405 410 415	1248
aac ctg acc tgc aac aac agc aaa aac aag acg ctg gtg acg cag aac Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn 420 425 430	1296
agt ggc gtg gag gcg ctc atc cac gcc atc ctc aga gcc gga gac aag Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys 435 440 445	1344
gac gac atc aca gag ccc gcc gtt tgc gcc ctg cgc cac ctt acc agc Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser 450 455 460	1392
cgc cac cct gag gct gag atg gcc cag aac tct gtg cgc ctc aac tat Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr 465 470 475 480	1440
gga atc ccg gcc att gtg aaa ctg ctc aac cag ccg aac cag tgg cca Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro 485 490 495	1488
ctg gtc aag gca act atc ggc ctg atc cgg aac ctg gct ctg tgc ccc Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro 500 505 510	1536
gcc aat cat gcc ccg ctg cag gag gcc gcg gtc att ccc cgc ctc gtt Ala Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val 515 520 525	1584
cag ctg ctg gtc aag gcc cac cag gat gcc cag cga cat gta gct gcg Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala 530 535 540	1632

ggc acc cag cag ccc tac acg gat ggt gtg agg atg gag gag atc gtg	1680
Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val	
545 550 555 560	
gag ggc tgc acc gga gcc ctg cac atc ctc gcc cga gat ccc atg aac	1728
Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn	
565 570 575	
cgc atg gag atc ttc cgg ctc aac acc att ccc ctg ttt gtc cag ctc	1776
Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu	
580 585 590	
ctg tat tcc tct gtg gag aac atc cag cgt gtg gct gcc gga gtg ctg	1824
Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu	
595 600 605	
tgc gag ctg gcc cag gac aag gag gct gcc gat gcc ata gac gcg gag	1872
Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu	
610 615 620	
ggc gcc tct gcc cct ctc atg gaa ctg ctc cac tcc cgc aat gag ggg	1920
Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly	
625 630 635 640	
acc gcg acc tac gct gct gct gtc ctg ttc cgc atc tcc gag gac aag	1968
Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys	
645 650 655	
aac cca gat tac cgt aag cga gtg tct gtg gaa ctc acc aac tcg ctc	2016
Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu	
660 665 670	
ttc aag cat gac cca gct gcc tgg gag gct gcc cag agc atg atc ccg	2064
Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro	
675 680 685	
atc aac gaa ccc tat gca gac gac atg gat gca acc tac cgc ccc atg	2112
Ile Asn Glu Pro Tyr Ala Asp Asp Met Asp Ala Thr Tyr Arg Pro Met	
690 695 700	
tac tcc agc gat gtg cct ctg gac ccc ctg gat atg cac atg gac atg	2160
Tyr Ser Ser Asp Val Pro Leu Asp Pro Leu Asp Met His Met Asp Met	
705 710 715 720	
gat ggc gac tac ccc atg gac acc tac agc gac ggc ctg aga cct ccc	2208
Asp Gly Asp Tyr Pro Met Asp Thr Tyr Ser Asp Gly Leu Arg Pro Pro	
725 730 735	
tac ccc gct gca gac cac atg ctg gcc	2235
Tyr Pro Ala Ala Asp His Met Leu Ala	
740 745	

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 <212> PRT  
 <213> Rattus norvegicus

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Gln Gln Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Val Asn Thr
20 25 30

Cys Val Pro Ser Val Ser Ser Lys Gly Leu Leu Asp Glu Asp Asp Thr
35 40 45

Cys	Gly	Arg	Gln	Tyr	Thr	Leu	Lys	Lys	Thr	Thr	Thr	Tyr	Thr	Gln	Gly	50	55	60	
Val	Pro	Gln	Ser	Gln	Gly	Asp	Leu	Glu	Tyr	Gln	Met	Ser	Thr	Thr	Ala	65	70	75	80
Arg	Ala	Lys	Arg	Val	Arg	Glu	Ala	Met	Cys	Pro	Gly	Val	Ser	Gly	Glu	85	90	95	
Asp	Ser	Ser	Leu	Leu	Leu	Ala	Thr	Gln	Val	Glu	Gly	Gln	Thr	Thr	Asn	100	105	110	
Leu	Gln	Arg	Leu	Ala	Glu	Pro	Ser	Gln	Leu	Leu	Lys	Ser	Ala	Ile	Val	115	120	125	
His	Leu	Ile	Asn	Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Leu	130	135	140	
Pro	Glu	Leu	Thr	Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Val	Val	Val	Thr	145	150	155	160
Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	165	170	175	
Arg	Ala	Leu	Met	Gly	Ser	Pro	Gln	Leu	Val	Ala	Ala	Val	Val	Arg	Thr	180	185	190	
Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	195	200	205	
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys	210	215	220	
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	225	230	235	240
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	245	250	255	
Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	260	265	270	
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	275	280	285	
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	290	295	300	
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Gly	Leu	Val	Gln	Ile	Met	Arg	305	310	315	320
Asn	Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	325	330	335	

Val Leu Ser Val Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly  
340 345 350

Gly Met Gln Ala Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu  
355 360 365

Val Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr  
370 375 380

Lys Gln Glu Gly Leu Glu Asn Val Leu Lys Ile Leu Val Asn Gln Leu  
385 390 395 400

Ser Val Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser  
405 410 415

Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn  
420 425 430

Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys  
435 440 445

Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser  
450 455 460

Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr  
465 470 475 480

Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro  
485 490 495

Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro  
500 505 510

Ala Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val  
515 520 525

Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala  
530 535 540

Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val  
545 550 555 560

Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn  
565 570 575

Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu  
580 585 590

Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu  
595 600 605

Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu  
610 615 620



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

Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys  
645 650 655

Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu  
660 665 670

Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro  
675 680 685

Ile Asn Glu Pro Tyr Ala Asp Asp Met Asp Ala Thr Tyr Arg Pro Met  
690 695 700

Tyr Ser Ser Asp Val Pro Leu Asp Pro Leu Asp Met His Met Asp Met  
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725 730 735

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

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Thr Thr Val Arg Ser Asp Asp Gly Thr Glu Tyr Ser Ser Lys Lys  
35 40 45

ttc acc tac acc acc aca ttc aca gag aac cct gca gag gtg gag tct 192  
Phe Thr Tyr Thr Thr Thr Phe Thr Glu Asn Pro Ala Glu Val Glu Ser  
50 55 60

cag tta aac atg act cgt gct cag cgt gtg agg gcg gcc atg ttt cct 240  
Gln Leu Asn Met Thr Arg Ala Gln Arg Val Arg Ala Ala Met Phe Pro  
65 70 75 80

gag act gtg atg gag gga tcg gtc att cat tct aca cag atc gat cca 288  
Glu Thr Val Met Glu Gly Ser Val Ile His Ser Thr Gln Ile Asp Pro  
85 90 95

tcc cag cag acc aat gta caa aag ctg gcc gaa cca tct cag cag ctc 336  
Ser Gln Gln Thr Asn Val Gln Lys Leu Ala Glu Pro Ser Gln Gln Leu  
100 105 110

aaa gct gcc atc gtt cac ctc atc aac tac cag gac gac gct gaa ctc 384

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gcc	aca	cgc	gcc	atc	cca	gag	ctc	acc	aaa	ctc	ctc	aac	gat	gaa	gac	432
Ala	Thr	Arg	Ala	Ile	Pro	Glu	Leu	Thr	Lys	Leu	Leu	Asn	Asp	Glu	Asp	
		130					135					140				
cag	ttg	gtt	gtg	aac	aaa	gcc	gct	atg	atc	gtg	aac	caa	ctg	acc	cgc	480
Gln	Leu	Val	Val	Asn	Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Thr	Arg	
		145			150						155				160	
aag	gag	gca	tcc	cgc	agg	gct	ctt	atg	cag	tcc	ccg	cag	atg	gtg	gcc	528
Lys	Glu	Ala	Ser	Arg	Arg	Ala	Leu	Met	Gln	Ser	Pro	Gln	Met	Val	Ala	
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Leu	Ala	Ile	Phe	Lys	Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	
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agc	tct	ccg	atg	gac	tct	gta	ctt	ttc	tac	gcc	atc	acc	acc	ctg	cac	720
Ser	Ser	Pro	Met	Asp	Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	
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aac	ctg	ctt	ttg	cac	caa	gag	gga	gcc	aag	atg	gcg	gtg	cgt	ctg	gct	768
Asn	Leu	Leu	Leu	His	Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	
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Phe	Leu	Ala	Ile	Thr	Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ser	Tyr	Gly	Asn	
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Gln	Glu	Ser	Lys	Leu	Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Glu	Gly	Leu	
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Val	Asn	Ile	Met	Arg	Thr	Tyr	Asn	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	
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Leu	Val	Gly	Leu	Leu	Ser	Ala	Asp	Asp	Ile	Asn	Met	Leu	Thr	Cys	Ala	
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Thr	Gly	Val	Leu	Ser	Asn	Leu	Thr	Cys	Asn	Asn	Thr	Arg	Asn	Lys	Thr	
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Gln	Val	Thr	Gln	Ser	Asn	Gly	Val	Glu	Ala	Leu	Ile	His	Thr	Ile	Leu	
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Arg	Ala	Ser	Ser	Lys	Gln	Asp	Val	Ile	Glu	Pro	Ala	Val	Cys	Ala	Leu	
		435					440					445				
cgc	cac	ctc	acc	agc	cga	cac	cca	gag	gct	gag	act	gca	cag	aac	gcc	1392
Arg	His	Leu	Thr	Ser	Arg	His	Pro	Glu	Ala	Glu	Thr	Ala	Gln	Asn	Ala	
	450					455					460					
gta	cga	atg	cat	tac	ggc	atc	cct	gct	att	gtc	aaa	ctg	ctc	aat	caa	1440
Val	Arg	Met	His	Tyr	Gly	Ile	Pro	Ala	Ile	Val	Lys	Leu	Leu	Asn	Gln	
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ccc	tac	cac	tgg	cca	gtt	gtc	aag	gct	gtg	gtt	ggg	ctg	atc	cgt	aac	1488
Pro	Tyr	His	Trp	Pro	Val	Val	Lys	Ala	Val	Val	Gly	Leu	Ile	Arg	Asn	
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Leu	Ala	Leu	Cys	Pro	Ala	Asn	Gln	Ala	Pro	Leu	Arg	Asp	Ala	Asp	Ala	
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Lys	Pro	Gly	Ser	Ser	Ala	Gln	Arg	Ser	Tyr	Gln	Asp	Gly	Val	Arg	Met	
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Phe	Val	Gln	Leu	Leu	Tyr	Ser	Pro	Leu	Asp	Asn	Val	Lys	Arg	Val	Ala	
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Ala	Glu	Asp	Lys	Asn	Pro	Asp	Tyr	Lys	Lys	Arg	Val	Ser	Val	Glu	Leu	
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Thr	His	Ser	Leu	Phe	Lys	His	Asp	Pro	Glu	Ala	Trp	Glu	Met	Ala	His	
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Asn	Thr	Val	Met	Asp	Pro	Val	Leu	Gly	Asp	Glu	Glu	Leu	Asp	Gly	Tyr	
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tcc atg gcc aga gtc tac cat gat tac 2187  
Ser Met Ala Arg Val Tyr His Asp Tyr  
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Thr Thr Val Arg Ser Asp Asp Asp Gly Thr Glu Tyr Ser Ser Lys Lys  
35 40 45

Phe Thr Tyr Thr Thr Thr Phe Thr Glu Asn Pro Ala Glu Val Glu Ser  
50 55 60

Gln Leu Asn Met Thr Arg Ala Gln Arg Val Arg Ala Ala Met Phe Pro  
65 70 75 80

Glu Thr Val Met Glu Gly Ser Val Ile His Ser Thr Gln Ile Asp Pro  
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Ser Gln Gln Thr Asn Val Gln Lys Leu Ala Glu Pro Ser Gln Gln Leu  
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Lys Ala Ala Ile Val His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu  
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Ala Thr Arg Ala Ile Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp  
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Gln Leu Val Val Asn Lys Ala Ala Met Ile Val Asn Gln Leu Thr Arg  
145 150 155 160

Lys Glu Ala Ser Arg Arg Ala Leu Met Gln Ser Pro Gln Met Val Ala  
165 170 175

Ala Val Val Arg Ala Met Gln Asn Thr Thr Asp Met Glu Thr Thr Arg  
180 185 190

Ala Thr Ala Ser Ile Leu His Asn Leu Ser His Gln Arg Glu Gly Leu  
195 200 205

Leu Ala Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu Val Arg Met Leu

210

215

220

Ser Ser Pro Met Asp Ser Val Leu Phe Tyr Ala Ile Thr Thr Leu His  
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Asn Leu Leu Leu His Gln Glu Gly Ala Lys Met Ala Val Arg Leu Ala  
245 250 255

Asp Gly Leu Gln Arg Met Val Pro Leu Leu Lys Lys Ser Asn Pro Lys  
260 265 270

Phe Leu Ala Ile Thr Thr Asp Cys Leu Gln Leu Leu Ser Tyr Gly Asn  
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Gln Glu Ser Lys Leu Ile Ile Leu Ala Asn Gly Gly Pro Glu Gly Leu  
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Ser Arg Val Leu Lys Val Leu Ser Val Cys Pro Ser Asn Lys Pro Ala  
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Ile Val Asp Ala Gly Gly Met Gln Ala Leu Gly Lys His Leu Ser Gly  
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Ser Ser Gln Arg Leu Met Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu  
355 360 365

Ser Asp Ala Ala Thr Lys Gln Asp Gly Met Glu Asn Leu Leu Gln Val  
370 375 380

Leu Val Gly Leu Leu Ser Ala Asp Asp Ile Asn Met Leu Thr Cys Ala  
385 390 395 400

Thr Gly Val Leu Ser Asn Leu Thr Cys Asn Asn Thr Arg Asn Lys Thr  
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Gln Val Thr Gln Ser Asn Gly Val Glu Ala Leu Ile His Thr Ile Leu  
420 425 430

Arg Ala Ser Ser Lys Gln Asp Val Ile Glu Pro Ala Val Cys Ala Leu  
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Arg His Leu Thr Ser Arg His Pro Glu Ala Glu Thr Ala Gln Asn Ala  
450 455 460

Val Arg Met His Tyr Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln  
465 470 475 480

Pro Tyr His Trp Pro Val Val Lys Ala Val Val Gly Leu Ile Arg Asn  
485 490 495

Leu Ala Leu Cys Pro Ala Asn Gln Ala Pro Leu Arg Asp Ala Asp Ala

500

505

510

Ile Pro Lys Leu Val Thr Leu Leu Ser Lys Ala His Gln Asp Ala Gln  
515 520 525

Lys Pro Gly Ser Ser Ala Gln Arg Ser Tyr Gln Asp Gly Val Arg Met  
530 535 540

Glu Glu Ile Val Glu Gly Cys Thr Gly Ala Leu His Ile Met Ala Arg  
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Asp Pro Met Asn Arg Gly Thr Ile Ala Ser Met Asp Thr Ile Pro Leu  
565 570 575

Phe Val Gln Leu Leu Tyr Ser Pro Leu Asp Asn Val Lys Arg Val Ala  
580 585 590

Ala Gly Val Leu Cys Glu Leu Ala Leu Asp Lys Gln Ser Ala Glu Ile  
595 600 605

Ile Asp Ala Glu Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser  
610 615 620

Ser Asn Glu Gly Ile Ala Thr Tyr Ala Ala Val Leu Tyr Arg Thr  
625 630 635 640

Ala Glu Asp Lys Asn Pro Asp Tyr Lys Lys Arg Val Ser Val Glu Leu  
645 650 655

Thr His Ser Leu Phe Lys His Asp Pro Glu Ala Trp Glu Met Ala His  
660 665 670

Asn Thr Val Met Asp Pro Val Leu Gly Asp Glu Glu Leu Asp Gly Tyr  
675 680 685

Gly Pro Ala Gly Tyr Gly Gly Tyr Ala Asp Gly Met His Met Asp Pro  
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Leu Asp Pro Glu Met Gln Asp Asp Phe Arg Ser Gly Met Pro Tyr Asn  
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Ser Met Ala Arg Val Tyr His Asp Tyr  
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gcg tct cca tcg tta aac ggg aaa atg gtc atc gag gac gac agc cat Ala Ser Pro Ser Leu Asn Gly Lys Met Val Ile Glu Asp Asp Ser His 35 40 45	144			
gcc tac ccc ggc agt tac act gtt aaa acc acg acg tac aca cag cag Ala Tyr Pro Gly Ser Tyr Thr Val Lys Thr Thr Thr Tyr Thr Gln Gln 50 55 60	192			
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ctg act acc cag ata gaa ggg cag caa acc aac gtg cag aaa ctg gcg Leu Thr Thr Gln Ile Glu Gly Gln Gln Thr Asn Val Gln Lys Leu Ala 100 105 110	336			
gaa ccc tcc caa atg ttg aaa tct gct atc atc cac ctt atc aac tac Glu Pro Ser Gln Met Leu Lys Ser Ala Ile Ile His Leu Ile Asn Tyr 115 120 125	384			
cag gat gat gct gag ctt gcc acc cgc gcc att ccg gaa ctg aca aag Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Ile Pro Glu Leu Thr Lys 130 135 140	432			
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Pro	Ala	Val	Cys	Ala	Leu	Arg	His	Leu	Thr	Ser	Arg	His	Gln	Asp	Ala	
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Lys	Leu	Asn	Thr	Ile	Pro	Leu	Phe	Val	Gln	Leu	Leu	Tyr	Ser	Pro	Val	



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625					630					635					640		
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Ala	Ala	Val	Leu	Phe	Arg	Ile	Ser	Glu	Asp	Lys	Asn	Ala	Asp	Tyr	Arg		
645					650					655							
aag	cgc	gtg	tcc	gtg	gag	ctc	act	aat	gcc	atc	ttc	cga	cag	gat	cct	2016	
Lys	Arg	Val	Ser	Val	Glu	Leu	Thr	Asn	Ala	Ile	Phe	Arg	Gln	Asp	Pro		
660					665					670							
gcc	gcc	tgg	gaa	gca	gcg	cag	agc	atg	att	cct	ctt	aat	gat	cct	tat	2064	
Ala	Ala	Trp	Glu	Ala	Ala	Gln	Ser	Met	Ile	Pro	Leu	Asn	Asp	Pro	Tyr		
675					680					685							
cca	gat	gaa	atg	gaa	aat	tat	cga	gct	atg	tac	cct	gaa	gat	att	cca	2112	
Pro	Asp	Glu	Met	Glu	Asn	Tyr	Arg	Ala	Met	Tyr	Pro	Glu	Asp	Ile	Pro		
690					695					700							
tta	gaa	cca	atg	gga	gga	gat	atg	gat	gtg	gag	tat	gca	atg	gat	ggc	2160	
Leu	Glu	Pro	Met	Gly	Gly	Asp	Met	Asp	Val	Glu	Tyr	Ala	Met	Asp	Gly		
705					710					715					720		
tac	agt	gac	cac	cca	gtc	agg	ggg	ggc	tac	tct	gat	aac	cac	atg	atg	2208	
Tyr	Ser	Asp	His	Pro	Val	Arg	Gly	Gly	Tyr	Ser	Asp	Asn	His	Met	Met		
725					730					735							
gca															2211		
Ala																	

<210> 58  
 <211> 737  
 <212> PRT  
 <213> *Xenopus tropicalis*

<400> 58

Met	Asp	Leu	Val	Asp	Val	Val	Glu	Val	Pro	Ile	Lys	Val	Thr	Glu	Trp
1				5					10					15	

Gln	Lys	Thr	Tyr	Thr	Tyr	Asp	Ser	Gly	Ile	Asn	Ser	Gly	Ile	Asn	Thr
			20					25					30		

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

Ala	Tyr	Pro	Gly	Ser	Tyr	Thr	Val	Lys	Thr	Thr	Thr	Tyr	Thr	Gln	Gln
	50					55					60				

Gln	Thr	Pro	Asp	Met	Asp	Ala	Gln	Ile	Asn	Met	Thr	Arg	Ala	Gln	Arg
65					70					75					80

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

Leu	Thr	Thr	Gln	Ile	Glu	Gly	Gln	Gln	Thr	Asn	Val	Gln	Lys	Leu	Ala	100	105	110	
Glu	Pro	Ser	Gln	Met	Leu	Lys	Ser	Ala	Ile	Ile	His	Leu	Ile	Asn	Tyr	115	120	125	
Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Ile	Pro	Glu	Leu	Thr	Lys	130	135	140	
Leu	Leu	Asn	Asp	Glu	Asp	Pro	Met	Val	Val	Asn	Lys	Ala	Ser	Met	Ile	145	150	155	160
Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	Lys	Ala	Leu	Met	Gln	165	170	175	
Ser	Pro	Gln	Ile	Val	Ala	Ala	Val	Val	Arg	Thr	Met	Gln	His	Thr	Ser	180	185	190	
Asp	Met	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	Leu	His	Asn	Leu	Ser	195	200	205	
His	His	Arg	Glu	Gly	Leu	Leu	Ser	Ile	Phe	Lys	Ser	Gly	Gly	Ile	Pro	210	215	220	
Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	Ser	Val	Leu	Phe	Tyr	225	230	235	240
Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	Gln	Glu	Gly	Ala	Lys	245	250	255	
Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	Met	Val	Pro	Leu	Leu	260	265	270	
Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	Thr	Asp	Cys	Leu	Gln	275	280	285	
Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	Ile	Ile	Leu	Ala	Asn	290	295	300	
Gly	Gly	Pro	Gln	Gly	Leu	Val	Gln	Ile	Met	Arg	Asn	Tyr	Asn	Tyr	Glu	305	310	315	320
Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	Val	Leu	Ser	Val	Cys	325	330	335	
Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	Gly	Met	Gln	Ala	Leu	340	345	350	
Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	Val	Gln	Asn	Cys	Leu	355	360	365	
Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	Lys	Gln	Glu	Gly	Leu	370	375	380	

Asp	Asn	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu	Ser	Ser	Asp	Asp	Val	385	390	395	400
Asn	Val	Leu	Thr	Cys	Ala	Thr	Gly	Thr	Leu	Ser	Asn	Leu	Thr	Cys	Asn	405	410	415	
Asn	Gly	Arg	Asn	Lys	Thr	Leu	Val	Thr	Gln	Ser	Asn	Gly	Val	Glu	Ser	420	425	430	
Leu	Ile	His	Thr	Ile	Leu	Arg	Ala	Ser	Asp	Lys	Asp	Asp	Ile	Ala	Glu	435	440	445	
Pro	Ala	Val	Cys	Ala	Leu	Arg	His	Leu	Thr	Ser	Arg	His	Gln	Asp	Ala	450	455	460	
Glu	Val	Ala	Gln	Asn	Ser	Val	Arg	Leu	His	Tyr	Gly	Ile	Pro	Ala	Ile	465	470	475	480
Val	Lys	Leu	Leu	Asn	Pro	Pro	Tyr	Gln	Trp	Pro	Leu	Val	Lys	Ala	Thr	485	490	495	
Ile	Gly	Leu	Ile	Arg	Asn	Leu	Ala	Leu	Cys	Pro	Ala	Asn	His	Ala	Pro	500	505	510	
Leu	Tyr	Asp	Ala	Gly	Val	Ile	Pro	Arg	Leu	Val	Gln	Leu	Leu	Val	Lys	515	520	525	
Ala	His	Gln	Asp	Ala	Gln	Arg	His	Ala	Ala	Ser	Gly	Ala	Gln	Gln	Pro	530	535	540	
Tyr	Thr	Asp	Gly	Val	Lys	Met	Glu	Glu	Ile	Val	Glu	Gly	Cys	Thr	Gly	545	550	555	560
Ala	Leu	His	Ile	Leu	Ala	Arg	Asp	Pro	Val	Asn	Arg	Met	Asp	Ile	Tyr	565	570	575	
Lys	Leu	Asn	Thr	Ile	Pro	Leu	Phe	Val	Gln	Leu	Leu	Tyr	Ser	Pro	Val	580	585	590	
Glu	Asn	Ile	Gln	Arg	Val	Ala	Ala	Gly	Val	Leu	Cys	Glu	Leu	Ala	Gln	595	600	605	
Asp	Lys	Glu	Ala	Ala	Asp	Thr	Ile	Asp	Ala	Glu	Gly	Ala	Ser	Ala	Pro	610	615	620	
Leu	Met	Glu	Leu	Leu	His	Ser	Arg	Asn	Glu	Gly	Ile	Ala	Thr	Tyr	Ala	625	630	635	640
Ala	Ala	Val	Leu	Phe	Arg	Ile	Ser	Glu	Asp	Lys	Asn	Ala	Asp	Tyr	Arg	645	650	655	
Lys	Arg	Val	Ser	Val	Glu	Leu	Thr	Asn	Ala	Ile	Phe	Arg	Gln	Asp	Pro	660	665	670	

Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro Leu Asn Asp Pro Tyr  
675 680 685

Pro Asp Glu Met Glu Asn Tyr Arg Ala Met Tyr Pro Glu Asp Ile Pro  
690 695 700

Leu Glu Pro Met Gly Gly Asp Met Asp Val Glu Tyr Ala Met Asp Gly  
705 710 715 720

Tyr Ser Asp His Pro Val Arg Gly Gly Tyr Ser Asp Asn His Met Met  
725 730 735

Ala

<210> 59  
<211> 2232  
<212> DNA  
<213> Canis familiaris

<220>  
<221> CDS  
<222> (1)..(2232)

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caa cag aca tac acc tat gac tct ggc att cac tcg ggt gcc aac acc 96  
Gln Gln Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Ala Asn Thr  
20 25 30

tgt gtg ccc tcg gtc agc agc aag ggc atc atg gaa gag gat gag gcc 144  
Cys Val Pro Ser Val Ser Ser Lys Gly Ile Met Glu Glu Asp Glu Ala  
35 40 45

tgc ggg cgt cag tac acg ctc aag aag acc acc acc tat acc cag gtg 192  
Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Val  
50 55 60

ccc cag agc caa ggt gac ctg gag tac caa atg tcc acg aca gcc aga 240  
Pro Gln Ser Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala Arg  
65 70 75 80

gcc aag cgg gta cgg gag gcc atg tgt cct ggc gtg aca ggc gaa gac 288  
Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Thr Gly Glu Asp  
85 90 95

agc tcg ctg cta ctg gcc acc cag gtg gaa ggg cag acc acc aac ctg 336  
Ser Ser Leu Leu Leu Ala Thr Gln Val Glu Gly Gln Thr Thr Asn Leu  
100 105 110

cag cgg ctg gcc gag ccg tcc cag ctg ctc aag tca gcc atc gta cat 384  
Gln Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val His  
115 120 125

ctc atc aac tac cag gac gac gcc gag ctg gcc acc cgg gcc ctg cct 432  
Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu Pro  
130 135 140

gaa ctc acc aaa ctg ctc aac gac gag gac ccg gtg gtg gtg acc aag 480  
Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr Lys  
145 150 155 160

gca gcc atg atc gtg aac cag ctg tcc aag aaa gag gcg tca cgg cgg	528
Ala Ala Met Ile Val Asn Gln Leu Ser Lys Lys Glu Ala Ser Arg Arg	
165 170 175	
gcg ctg atg ggc tcg ccc cag ctg gtg gca gcc gtg gtg cgt act atg	576
Ala Leu Met Gly Ser Pro Gln Leu Val Ala Ala Val Val Arg Thr Met	
180 185 190	
cag aac acc agt gac ctg gac aca gcc cgc tgc acc acc agc atc ctg	624
Gln Asn Thr Ser Asp Leu Asp Thr Ala Arg Cys Thr Thr Ser Ile Leu	
195 200 205	
cac aac ctc tcc cac cac cgc gag ggg ctg ctt gcc atc ttc aag tcg	672
His Asn Leu Ser His His Arg Glu Gly Leu Leu Ala Ile Phe Lys Ser	
210 215 220	
ggc ggc atc cct gcc ctg gtc cgc atg ctc agc tcc ccg gtg gag tca	720
Gly Gly Ile Pro Ala Leu Val Arg Met Leu Ser Ser Pro Val Glu Ser	
225 230 235 240	
gtc ctg ttt tac gcc atc acc acg ctg cac aac ctg ctg ctg tac cag	768
Val Leu Phe Tyr Ala Ile Thr Thr Leu His Asn Leu Leu Leu Tyr Gln	
245 250 255	
gag ggc gcc aag atg gcg gtg cgc ctg gca gat ggg ctg cag aag atg	816
Glu Gly Ala Lys Met Ala Val Arg Leu Ala Asp Gly Leu Gln Lys Met	
260 265 270	
gtg ccc ctg ctc aac aaa aac aac ccc aag ttc ctg gcc atc acc acc	864
Val Pro Leu Leu Asn Lys Asn Asn Pro Lys Phe Leu Ala Ile Thr Thr	
275 280 285	
gac tgc ctg cag ctc ctg gct tat ggc aac cag gag agc aag ctc atc	912
Asp Cys Leu Gln Leu Leu Ala Tyr Gly Asn Gln Glu Ser Lys Leu Ile	
290 295 300	
atc ttg gcc aat gga gga ccc cag gcc ctt gtg cag atc atg cgc aac	960
Ile Leu Ala Asn Gly Gly Pro Gln Ala Leu Val Gln Ile Met Arg Asn	
305 310 315 320	
tac agc tat gag aag ctg ctc tgg acc acc agc cgt gtg ctc aag gtg	1008
Tyr Ser Tyr Glu Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys Val	
325 330 335	
ctg tct gtg tgt ccc agc aat aag cct gcc atc gtg gag gct ggt ggg	1056
Leu Ser Val Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly Gly	
340 345 350	
atg cag gcc ttg ggc aaa cac ctg aca agc aac agc ccc cgc ctt gta	1104
Met Gln Ala Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu Val	
355 360 365	
cag aac tgt ctc tgg acc ttg cgc aac ctc tcg gat gtg gcc acc aaa	1152
Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr Lys	
370 375 380	
cag gag ggc ctg gag agc gtc ctg aag atc ctg gtg aac cag ctg agt	1200
Gln Glu Gly Leu Glu Ser Val Leu Lys Ile Leu Val Asn Gln Leu Ser	
385 390 395 400	
gtg gac gac gtc aat gtc ctc acc tgt gcc acg ggc act ctg tcc aac	1248
Val Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser Asn	
405 410 415	
ctg acg tgc aac aac agc aag aat aag acg ctg gtg acc cag aac agc	1296
Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn Ser	
420 425 430	
ggc gtg gag gct ctc atc cat gcc atc ctg cgg gct ggc gac aag gat	1344
Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys Asp	
435 440 445	

gac atc acg gag ccc gcc gtc tgc gcc ctg cgc cac ctc acc agc cgc	1392
Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser Arg	
450 455 460	
cac ccg gag gcc gag atg gcc cag aac tcc gtg cgc ctc aac tac ggc	1440
His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr Gly	
465 470 475 480	
atc ccg gcc att gtc aag ctt ctc aac cag ccc aac cag tgg ccg ctg	1488
Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro Leu	
485 490 495	
gtc aag gca acc atc ggc ctg atc agg aat ctg gct ctg tgc cca gca	1536
Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro Ala	
500 505 510	
aac cat gcc cca ctg cag gag gca gca gtt att ccc cgc ctt gtc cag	1584
Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val Gln	
515 520 525	
ttg ctg gtc aag gct cac cag gat gcc cag cgt cat gtg gct gca ggc	1632
Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala Gly	
530 535 540	
aca cag cag ccc tac acg gac ggt gtg agg atg gag gag att gtg gag	1680
Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val Glu	
545 550 555 560	
ggc tgc act gga gcc ctg cac atc ctc gcc cgg gat ccc atg aac cgc	1728
Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn Arg	
565 570 575	
atg gag atc ttc cga ctc aac act ata ccc ctg ttt gta cag ctc ctg	1776
Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu Leu	
580 585 590	
tac tcg tca gtg gag aac atc cag cgc gtg gct gcc ggg gtg ctg tgt	1824
Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu Cys	
595 600 605	
gag ctg gcc cag gac aag gag gca gct gat gca att gat gct gag ggg	1872
Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu Gly	
610 615 620	
gcc tca gct cca ctc atg gag cta ctg cac tcc cgc aat gag ggc acc	1920
Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly Thr	
625 630 635 640	
gcc acc tac gct gcg gct gtc ctg ttc cgc atc tcc gag gac aag aac	1968
Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys Asn	
645 650 655	
cca gat tac cgt aaa cgc gta tct gtg gag ctc acc aac tcc ctc ttc	2016
Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu Phe	
660 665 670	
aag cat gac cca gct gca tgg gag gct gcc cag agc atg atc ccc atc	2064
Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro Ile	
675 680 685	
aat gag ccc tac gca gat gac atg gac gcc acc tac cgc ccc atg tac	2112
Asn Glu Pro Tyr Ala Asp Asp Met Asp Ala Thr Tyr Arg Pro Met Tyr	
690 695 700	
tcg agt gat gtg ccc ctg gac ccc ctg gac atg cac atg gac atg gac	2160
Ser Ser Asp Val Pro Leu Asp Pro Leu Asp Met His Met Asp Met Asp	
705 710 715 720	
gcg gac tat ccc atc gac act tac agc gac ggc ctg agg ccc ccc tac	2208
Ala Asp Tyr Pro Ile Asp Thr Tyr Ser Asp Gly Leu Arg Pro Pro Tyr	
725 730 735	

ccc acg gcg gac cat atg ctg gcc  
Pro Thr Ala Asp His Met Leu Ala  
740

2232

<210> 60  
<211> 744  
<212> PRT  
<213> Canis familiaris  
  
<400> 60

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

Cys Val Pro Ser Val Ser Ser Lys Gly Ile Met Glu Glu Asp Glu Ala  
35 40 45

Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Val  
50 55 60

Pro Gln Ser Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala Arg  
65 70 75 80

Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Thr Gly Glu Asp  
85 90 95

Ser Ser Leu Leu Leu Ala Thr Gln Val Glu Gly Gln Thr Thr Asn Leu  
100 105 110

Gln Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val His  
115 120 125

Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu Pro  
130 135 140

Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr Lys  
145 150 155 160

Ala Ala Met Ile Val Asn Gln Leu Ser Lys Lys Glu Ala Ser Arg Arg  
165 170 175

Ala Leu Met Gly Ser Pro Gln Leu Val Ala Ala Val Val Arg Thr Met  
180 185 190

Gln Asn Thr Ser Asp Leu Asp Thr Ala Arg Cys Thr Thr Ser Ile Leu  
195 200 205

His Asn Leu Ser His His Arg Glu Gly Leu Leu Ala Ile Phe Lys Ser  
210 215 220

Gly Gly Ile Pro Ala Leu Val Arg Met Leu Ser Ser Pro Val Glu Ser  
225 230 235 240

Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	Gln	
				245					250					255		
Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	Met	
			260					265					270			
Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	Thr	
		275					280					285				
Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	Ile	
	290					295					300					
Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Ala	Leu	Val	Gln	Ile	Met	Arg	Asn	
305					310					315					320	
Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	Val	
				325					330					335		
Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	Gly	
			340					345					350			
Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	Val	
		355					360					365				
Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	Lys	
	370					375					380					
Gln	Glu	Gly	Leu	Glu	Ser	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu	Ser	
385					390					395					400	
Val	Asp	Asp	Val	Asn	Val	Leu	Thr	Cys	Ala	Thr	Gly	Thr	Leu	Ser	Asn	
				405					410					415		
Leu	Thr	Cys	Asn	Asn	Ser	Lys	Asn	Lys	Thr	Leu	Val	Thr	Gln	Asn	Ser	
			420					425					430			
Gly	Val	Glu	Ala	Leu	Ile	His	Ala	Ile	Leu	Arg	Ala	Gly	Asp	Lys	Asp	
		435					440					445				
Asp	Ile	Thr	Glu	Pro	Ala	Val	Cys	Ala	Leu	Arg	His	Leu	Thr	Ser	Arg	
	450					455					460					
His	Pro	Glu	Ala	Glu	Met	Ala	Gln	Asn	Ser	Val	Arg	Leu	Asn	Tyr	Gly	
465					470					475					480	
Ile	Pro	Ala	Ile	Val	Lys	Leu	Leu	Asn	Gln	Pro	Asn	Gln	Trp	Pro	Leu	
				485					490					495		
Val	Lys	Ala	Thr	Ile	Gly	Leu	Ile	Arg	Asn	Leu	Ala	Leu	Cys	Pro	Ala	
			500					505					510			
Asn	His	Ala	Pro	Leu	Gln	Glu	Ala	Ala	Val	Ile	Pro	Arg	Leu	Val	Gln	
		515					520					525				



Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala Gly  
 530 535 540  
 Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val Glu  
 545 550 555 560  
 Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn Arg  
 565 570 575  
 Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu Leu  
 580 585 590  
 Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu Cys  
 595 600 605  
 Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu Gly  
 610 615 620  
 Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly Thr  
 625 630 635 640  
 Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys Asn  
 645 650 655  
 Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu Phe  
 660 665 670  
 Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro Ile  
 675 680 685  
 Asn Glu Pro Tyr Ala Asp Asp Met Asp Ala Thr Tyr Arg Pro Met Tyr  
 690 695 700  
 Ser Ser Asp Val Pro Leu Asp Pro Leu Asp Met His Met Asp Met Asp  
 705 710 715 720  
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 725 730 735  
 Pro Thr Ala Asp His Met Leu Ala  
 740

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 <212> DNA  
 <213> *Xenopus laevis*

<220>  
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 Met Asp Leu Gly Asp Val Val Glu Met Pro Met Lys Val Thr Glu Trp  
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cag	aaa	acc	tac	act	tac	gac	tcg	ggc	atc	aac	tct	gga	ata	aac	acg	96
Gln	Lys	Thr	Tyr	Thr	Tyr	Asp	Ser	Gly	Ile	Asn	Ser	Gly	Ile	Asn	Thr	
			20					25					30			
tct	gtt	cca	tca	ttg	aat	ggg	aaa	atg	gtc	att	gag	gac	gac	agt	ctg	144
Ser	Val	Pro	Ser	Leu	Asn	Gly	Lys	Met	Val	Ile	Glu	Asp	Asp	Ser	Leu	
		35					40					45				
gcc	tat	ccc	aac	agt	tac	acc	act	gtc	aaa	acc	aca	aca	tac	aca	cag	192
Ala	Tyr	Pro	Asn	Ser	Tyr	Thr	Thr	Val	Lys	Thr	Thr	Thr	Tyr	Thr	Gln	
	50					55					60					
cag	cag	aat	cca	gac	atg	gaa	tcc	cac	tta	aac	atg	act	cgg	gcc	cag	240
Gln	Gln	Asn	Pro	Asp	Met	Glu	Ser	His	Leu	Asn	Met	Thr	Arg	Ala	Gln	
65					70					75					80	
cgt	gtc	cga	gca	gcg	atg	tat	ccg	gag	acg	gtg	gaa	gac	cac	tcg	tat	288
Arg	Val	Arg	Ala	Ala	Met	Tyr	Pro	Glu	Thr	Val	Glu	Asp	His	Ser	Tyr	
				85					90					95		
ctg	ttc	agc	aca	cag	ata	gaa	ggg	cag	caa	aca	aat	gtg	cag	aaa	ctg	336
Leu	Phe	Ser	Thr	Gln	Ile	Glu	Gly	Gln	Gln	Thr	Asn	Val	Gln	Lys	Leu	
			100					105					110			
gca	gaa	ccc	tct	caa	atg	tta	aaa	tct	gcc	atc	atg	cac	ctt	atc	aac	384
Ala	Glu	Pro	Ser	Gln	Met	Leu	Lys	Ser	Ala	Ile	Met	His	Leu	Ile	Asn	
		115					120					125				
tac	cag	gac	gat	gct	gag	ctg	gcc	acc	cgt	gcc	att	cct	gaa	ctg	acc	432
Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Ile	Pro	Glu	Leu	Thr	
	130					135					140					
aag	ctt	ctt	aat	gat	gag	gat	ccg	atg	gtg	gtg	aac	aag	gct	tcc	atg	480
Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Met	Val	Val	Asn	Lys	Ala	Ser	Met	
145					150					155					160	
att	gta	aac	cag	ctg	tcc	aag	aag	gaa	gcg	tca	cgc	aaa	gcc	ctc	atg	528
Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	Lys	Ala	Leu	Met	
			165						170					175		
cag	tct	ccc	cag	att	gtg	gca	gcc	ata	gtt	cgc	acc	atg	caa	cac	aca	576
Gln	Ser	Pro	Gln	Ile	Val	Ala	Ala	Ile	Val	Arg	Thr	Met	Gln	His	Thr	
		180						185					190			
agt	gac	atg	gac	act	gct	cgc	tgt	aca	acc	agc	att	ctg	cac	aac	ctc	624
Ser	Asp	Met	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	Leu	His	Asn	Leu	
		195					200					205				
tcc	cac	cac	cgc	gag	ggg	ctt	ctg	tct	atc	ttc	aag	tcc	ggg	ggc	atc	672
Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ser	Ile	Phe	Lys	Ser	Gly	Gly	Ile	
	210					215					220					
cct	gca	ctg	gtg	cgc	atg	ctc	agt	tct	cca	gta	gaa	tct	gtg	cta	ttc	720
Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	Ser	Val	Leu	Phe	
225					230					235					240	
tat	gcc	atc	acc	acc	ttg	cac	aac	ctg	ctc	ctc	tac	cag	gaa	ggg	gca	768
Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	Gln	Glu	Gly	Ala	
			245						250					255		
aag	atg	gca	gtg	cgt	ctg	gca	gat	ggg	ctc	caa	aag	atg	gtg	ccc	ttg	816
Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	Met	Val	Pro	Leu	
		260						265					270			
ctt	aat	aag	aat	aac	ccc	aag	ttc	ttg	gcc	atc	acc	aca	gac	tgt	ctg	864
Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	Thr	Asp	Cys	Leu	
		275					280					285				
caa	ctt	ctg	gcc	tac	gga	aat	cag	gag	agc	aag	cta	att	ata	ttg	ggc	912
Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	Ile	Ile	Leu	Gly	
	290					295					300					

aat gga ggc ccc caa ggt ttg gtt cag atc atg agg aac tac aat tac	960
Asn Gly Gly Pro Gln Gly Leu Val Gln Ile Met Arg Asn Tyr Asn Tyr	
305 310 315 320	
gag aag ctt ctg tgg acc act agc cgg gtg cta aaa gta ttg tct gta	1008
Glu Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys Val Leu Ser Val	
325 330 335	
tgt ccc agc aat aag cca gcc att gtg gaa gct ggt gga atg caa gct	1056
Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly Gly Met Gln Ala	
340 345 350	
ctg ggg aaa cat ctg acc agc aac agc cca aga ctt gta cag aac tgc	1104
Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu Val Gln Asn Cys	
355 360 365	
ctg tgg aca tta aga aat ctc tct gat gtg gcc aca aaa cag gag ggc	1152
Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr Lys Gln Glu Gly	
370 375 380	
ctg gat aac gtt ctg aag atc ctg gtg aac cag ctg agc tcc gat gat	1200
Leu Asp Asn Val Leu Lys Ile Leu Val Asn Gln Leu Ser Ser Asp Asp	
385 390 395 400	
gtc aac gtc ctc acc tgt gcc act ggc act ttg tcc aac tta acc tgc	1248
Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser Asn Leu Thr Cys	
405 410 415	
aac aac ggt cgc aac aag act ctg gtg acc cag agc aat ggg gtg gaa	1296
Asn Asn Gly Arg Asn Lys Thr Leu Val Thr Gln Ser Asn Gly Val Glu	
420 425 430	
tct ctc att cac acc atc ctc cgt gca agt gac aag gac gac att gca	1344
Ser Leu Ile His Thr Ile Leu Arg Ala Ser Asp Lys Asp Asp Ile Ala	
435 440 445	
gag cct gcg gtc tgt gcc atg cgc cat ctt acc agt cgc cac cag gat	1392
Glu Pro Ala Val Cys Ala Met Arg His Leu Thr Ser Arg His Gln Asp	
450 455 460	
gct gag gta gcg cag aac tct gtg cga ctt cac tac ggc atc ccc gcc	1440
Ala Glu Val Ala Gln Asn Ser Val Arg Leu His Tyr Gly Ile Pro Ala	
465 470 475 480	
att gtg aaa ctt ctc aac cca cca tac cag tgg cca ctg gtc aag gca	1488
Ile Val Lys Leu Leu Asn Pro Pro Tyr Gln Trp Pro Leu Val Lys Ala	
485 490 495	
act atc ggc ttg atc cga aat ctg gcc ctg tgt cca gcc aat cac gct	1536
Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro Ala Asn His Ala	
500 505 510	
cct ttg tat gat gcg ggt gtt atc ccc cgg cta gtc cag ctg ctg gtt	1584
Pro Leu Tyr Asp Ala Gly Val Ile Pro Arg Leu Val Gln Leu Leu Val	
515 520 525	
aaa tct cac caa gat gca cag agg cat gct gct tct ggg aca cag caa	1632
Lys Ser His Gln Asp Ala Gln Arg His Ala Ala Ser Gly Thr Gln Gln	
530 535 540	
ccc tat acg gat gga gtg aag atg gaa gag att gtg gaa ggc tgc act	1680
Pro Tyr Thr Asp Gly Val Lys Met Glu Glu Ile Val Glu Gly Cys Thr	
545 550 555 560	
ggg gct ctg cat att ctt gcc agg gat cct gtg aat cgt atg gac atc	1728
Gly Ala Leu His Ile Leu Ala Arg Asp Pro Val Asn Arg Met Asp Ile	
565 570 575	
tac aag ctg aac acc atc cca ctg ttt gtg cag ctc ctg tat tcc ccc	1776
Tyr Lys Leu Asn Thr Ile Pro Leu Phe Val Gln Leu Leu Tyr Ser Pro	
580 585 590	

gtg gag aac att cag aga gtg tca agc ggc gtg ctg tgt gag ttg gct	1824
Val Glu Asn Ile Gln Arg Val Ser Ser Gly Val Leu Cys Glu Leu Ala	
595 600 605	
cag gat aaa gaa gcg gca gac acc att gat gca gag gga gct tcg gcc	1872
Gln Asp Lys Glu Ala Ala Asp Thr Ile Asp Ala Glu Gly Ala Ser Ala	
610 615 620	
cca ctt atg gag ttg ctg cac tcc cgc aat gaa ggc ata gcc aca tat	1920
Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly Ile Ala Thr Tyr	
625 630 635 640	
gct gct gct gtt ctt ttc cgc ata tcc gag gac aaa aac gct gat tat	1968
Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys Asn Ala Asp Tyr	
645 650 655	
agg aaa cgt gtg tcc gta gag ctc aca aat gcc atc ttc cga cag gac	2016
Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ala Ile Phe Arg Gln Asp	
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cct gcc gca tgg gaa gca gcg cag agc atg att cct ctc aat gac cct	2064
Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro Leu Asn Asp Pro	
675 680 685	
tat tca gat gaa atg gaa aat tac aga gcg atg tac cct gaa gat atc	2112
Tyr Ser Asp Glu Met Glu Asn Tyr Arg Ala Met Tyr Pro Glu Asp Ile	
690 695 700	
cca tta gaa cca atg ggg gga gac atg gac gtg gag tac gca atg gat	2160
Pro Leu Glu Pro Met Gly Gly Asp Met Asp Val Glu Tyr Ala Met Asp	
705 710 715 720	
ggc tac agc gac cac cca ggc agg ggc cac tat gct gat aat cac atg	2208
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atg gca	2214
Met Ala	

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<400> 62

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Ser Val Pro Ser Leu Asn Gly Lys Met Val Ile Glu Asp Asp Ser Leu	
35 40 45	
Ala Tyr Pro Asn Ser Tyr Thr Thr Val Lys Thr Thr Tyr Thr Gln	
50 55 60	
Gln Gln Asn Pro Asp Met Glu Ser His Leu Asn Met Thr Arg Ala Gln	
65 70 75 80	
Arg Val Arg Ala Ala Met Tyr Pro Glu Thr Val Glu Asp His Ser Tyr	
85 90 95	

Leu	Phe	Ser	Thr	Gln	Ile	Glu	Gly	Gln	Gln	Thr	Asn	Val	Gln	Lys	Leu	100	105	110	
Ala	Glu	Pro	Ser	Gln	Met	Leu	Lys	Ser	Ala	Ile	Met	His	Leu	Ile	Asn	115	120	125	
Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Ile	Pro	Glu	Leu	Thr	130	135	140	
Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Met	Val	Val	Asn	Lys	Ala	Ser	Met	145	150	155	160
Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	Lys	Ala	Leu	Met	165	170	175	
Gln	Ser	Pro	Gln	Ile	Val	Ala	Ala	Ile	Val	Arg	Thr	Met	Gln	His	Thr	180	185	190	
Ser	Asp	Met	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	Leu	His	Asn	Leu	195	200	205	
Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ser	Ile	Phe	Lys	Ser	Gly	Gly	Ile	210	215	220	
Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	Ser	Val	Leu	Phe	225	230	235	240
Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	Gln	Glu	Gly	Ala	245	250	255	
Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	Met	Val	Pro	Leu	260	265	270	
Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	Thr	Asp	Cys	Leu	275	280	285	
Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	Ile	Ile	Leu	Gly	290	295	300	
Asn	Gly	Gly	Pro	Gln	Gly	Leu	Val	Gln	Ile	Met	Arg	Asn	Tyr	Asn	Tyr	305	310	315	320
Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	Val	Leu	Ser	Val	325	330	335	
Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	Gly	Met	Gln	Ala	340	345	350	
Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	Val	Gln	Asn	Cys	355	360	365	
Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	Lys	Gln	Glu	Gly	370	375	380	

Leu Asp Asn Val Leu Lys Ile Leu Val Asn Gln Leu Ser Ser Asp Asp  
385 390 395 400

Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser Asn Leu Thr Cys  
405 410 415

Asn Asn Gly Arg Asn Lys Thr Leu Val Thr Gln Ser Asn Gly Val Glu  
420 425 430

Ser Leu Ile His Thr Ile Leu Arg Ala Ser Asp Lys Asp Asp Ile Ala  
435 440 445

Glu Pro Ala Val Cys Ala Met Arg His Leu Thr Ser Arg His Gln Asp  
450 455 460

Ala Glu Val Ala Gln Asn Ser Val Arg Leu His Tyr Gly Ile Pro Ala  
465 470 475 480

Ile Val Lys Leu Leu Asn Pro Pro Tyr Gln Trp Pro Leu Val Lys Ala  
485 490 495

Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro Ala Asn His Ala  
500 505 510

Pro Leu Tyr Asp Ala Gly Val Ile Pro Arg Leu Val Gln Leu Leu Val  
515 520 525

Lys Ser His Gln Asp Ala Gln Arg His Ala Ala Ser Gly Thr Gln Gln  
530 535 540

Pro Tyr Thr Asp Gly Val Lys Met Glu Glu Ile Val Glu Gly Cys Thr  
545 550 555 560

Gly Ala Leu His Ile Leu Ala Arg Asp Pro Val Asn Arg Met Asp Ile  
565 570 575

Tyr Lys Leu Asn Thr Ile Pro Leu Phe Val Gln Leu Leu Tyr Ser Pro  
580 585 590

Val Glu Asn Ile Gln Arg Val Ser Ser Gly Val Leu Cys Glu Leu Ala  
595 600 605

Gln Asp Lys Glu Ala Ala Asp Thr Ile Asp Ala Glu Gly Ala Ser Ala  
610 615 620

Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly Ile Ala Thr Tyr  
625 630 635 640

Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys Asn Ala Asp Tyr  
645 650 655

Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ala Ile Phe Arg Gln Asp  
660 665 670

Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro Leu Asn Asp Pro  
675 680 685

Tyr Ser Asp Glu Met Glu Asn Tyr Arg Ala Met Tyr Pro Glu Asp Ile  
690 695 700

Pro Leu Glu Pro Met Gly Gly Asp Met Asp Val Glu Tyr Ala Met Asp  
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Gly Tyr Ser Asp His Pro Gly Arg Gly His Tyr Ala Asp Asn His Met  
725 730 735

Met Ala

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cag cag aca tat acc tac gac tct ggc atc cac tcg ggg gcc aac acc 96  
Gln Gln Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Ala Asn Thr  
20 25 30

tgt gtg ccc tcg ctc agc agc aag ggc ctc ata gag gag gat gag gcc 144  
Cys Val Pro Ser Leu Ser Ser Lys Gly Leu Ile Glu Glu Asp Glu Ala  
35 40 45

tgc ggg cgc cag tac acg ctc aag aag acc acc acc tac acc cag tcg 192  
Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Ser  
50 55 60

gtg ccc ccg ggc caa ggt gac ctg gag tac cag atg tcc aca acc gcc 240  
Val Pro Pro Gly Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala  
65 70 75 80

aga gcc aag cgg gtg cgg gag gcc atg tgt ccc ggt gtg aca gga gag 288  
Arg Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Thr Gly Glu  
85 90 95

gac agc tcg ctg ctg ctc acc acc cag gtg gag ggg cag acc acc aac 336  
Asp Ser Ser Leu Leu Leu Thr Thr Gln Val Glu Gly Gln Thr Thr Asn  
100 105 110

ctg cag cgg ctg gct gag cca tcc caa ctc ctc aag tcg gcc atc gta 384  
Leu Gln Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val  
115 120 125

cat ctc atc aac tac cag gat gat gct gag ctg gcc acc cgg gcc ctg 432  
His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu  
130 135 140

cct gag ctc acc aag ctg ctc aat gat gag gac ccg gtg gtg gtg acc 480  
Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr  
145 150 155 160

aag gcg gcc atg atc gtg aac cag ctg tcg aag aag gag gcg tct cgg 528

Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg	
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cgg	gcg	ctg	atg	ggc	tcg	ccc	cag	ctg	gtg	gcg	gct	gtc	gtg	cgc	acc	576
Arg	Ala	Leu	Met	Gly	Ser	Pro	Gln	Leu	Val	Ala	Ala	Val	Val	Arg	Thr	
			180					185					190			
atg	cag	aac	acc	agt	gac	ctg	gac	acg	gcc	cgt	tgc	acc	acc	agc	atc	624
Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile	
		195					200					205				
ctg	cac	aac	ctc	tcc	cac	cac	cgc	gag	ggg	ctg	ctt	gcc	atc	ttc	aag	672
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys	
	210					215					220					
tcg	ggc	ggc	atc	cct	gcc	ctg	gtc	cgc	atg	ctc	agc	tcc	cct	gta	gag	720
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu	
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tcg	gtc	ttg	ttc	tat	gcc	atc	acc	acg	ctg	cac	aac	ctg	ctg	ctc	tac	768
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr	
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cag	gag	ggc	gcc	aag	atg	gca	gtg	cgc	ctg	gca	gac	ggg	ctg	cag	aag	816
Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys	
			260					265					270			
atg	gtg	ccc	ctg	ctc	aac	aag	aac	aac	ccc	aag	ttc	ctg	gcc	atc	acc	864
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr	
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acc	gac	tgc	ctg	cag	ctc	ctg	gcc	tat	ggc	aac	cag	gag	agc	aag	ctc	912
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu	
	290					295					300					
atc	atc	ctg	gcc	aat	gga	gga	ccc	cag	gcc	ctc	gtc	cag	atc	atg	cgc	960
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Ala	Leu	Val	Gln	Ile	Met	Arg	
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aac	tac	agt	tat	gag	aag	ctg	ctc	tgg	acc	acc	agc	cgc	gtg	ctc	aaa	1008
Asn	Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys	
			325						330					335		
gtg	ctg	tcc	gtg	tgt	ccc	agc	aac	aag	cct	gcc	att	gtg	gag	gct	ggc	1056
Val	Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly	
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ggg	atg	cag	gcc	ctg	ggc	aag	cac	ctg	acg	agc	aat	agc	ccc	cgc	ctt	1104
Gly	Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu	
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Val	Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr	
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Lys	Gln	Glu	Gly	Leu	Glu	Ser	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu	
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Ser	Val	Asp	Asp	Val	Asn	Val	Leu	Thr	Cys	Ala	Thr	Gly	Thr	Leu	Ser	
				405					410					415		
aac	ctg	aca	tgc	aac	aac	agc	aag	aac	aag	acg	ctg	gtg	aca	cag	aac	1296
Asn	Leu	Thr	Cys	Asn	Asn	Ser	Lys	Asn	Lys	Thr	Leu	Val	Thr	Gln	Asn	
			420					425					430			
agt	ggt	gtg	gag	gcg	ctc	atc	cac	gcc	atc	ctg	cgc	gcg	ggc	gac	aag	1344
Ser	Gly	Val	Glu	Ala	Leu	Ile	His	Ala	Ile	Leu	Arg	Ala	Gly	Asp	Lys	
		435					440					445				
gat	gac	atc	acg	gag	ccc	gct	gtc	tgc	gcc	ctg	cgc	cac	ctc	acc	agc	1392



Asp 450	Asp	Ile	Thr	Glu	Pro	Ala 455	Val	Cys	Ala	Leu	Arg 460	His	Leu	Thr	Ser	
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Arg 465	His	Pro	Glu	Ala	Glu 470	Met	Ala	Gln	Asn	Ser 475	Val	Arg	Leu	Asn	Tyr 480	
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Gly	Ile	Pro	Ala	Ile 485	Val	Lys	Leu	Leu	Asn 490	Gln	Pro	Asn	Gln	Trp	Pro	
ctg	gtc	aag	gca	acc	att	ggc	ctg	atc	agg	aat	ctg	gcc	ctg	tgc	cca	1536
Leu	Val	Lys	Ala	Thr 500	Ile	Gly	Leu	Ile	Arg 505	Asn	Leu	Ala	Leu	Cys	Pro	
gcc	aac	cat	gcc	cca	ctg	cag	gag	gca	gcg	gtc	att	ccc	cgc	ctt	gtc	1584
Ala	Asn	His 515	Ala	Pro	Leu	Gln 520	Ala	Ala	Val	Ile	Pro 525	Arg	Leu	Val		
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Gln 530	Leu	Leu	Val	Lys	Ala	His 535	Gln	Asp	Ala	Gln	Arg 540	His	Val	Ala	Ala	
ggc	aca	cag	cag	ccc	tac	acg	gat	ggc	gtg	agg	atg	gag	gag	att	gtg	1680
Gly 545	Thr	Gln	Gln	Pro	Tyr 550	Thr	Asp	Gly	Val	Arg 555	Met	Glu	Glu	Ile	Val 560	
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Glu	Gly	Cys	Thr 565	Gly	Ala	Leu	His	Ile	Leu 570	Ala	Arg	Asp	Pro	Met	Asn 575	
cgc	atg	gag	atc	ttc	cga	ctc	aac	acc	atc	ccc	ctg	ttt	gtg	cag	ctc	1776
Arg	Met	Glu	Ile 580	Phe	Arg	Leu	Asn	Thr	Ile 585	Pro	Leu	Phe	Val	Gln	Leu	
ctc	tac	tcc	tcg	gtg	gag	aac	atc	cag	cgc	gtg	gcc	gcc	ggg	gtg	ctg	1824
Leu	Tyr	Ser 595	Ser	Val	Glu	Asn 600	Ile	Gln	Arg	Val	Ala	Ala	Gly	Val	Leu	
tgc	gag	ctg	gcc	cag	gac	aag	gag	gcg	gcc	gac	gcc	att	gat	gcg	gag	1872
Cys	Glu 610	Leu	Ala	Gln	Asp 615	Lys	Glu	Ala	Ala	Asp 620	Ala	Ile	Asp	Ala	Glu	
ggc	gcg	tcg	gcc	cca	ctc	atg	gag	ctg	ctg	cac	tcg	cgc	aat	gag	ggc	1920
Gly 625	Ala	Ser	Ala	Pro	Leu 630	Met	Glu	Leu	Leu	His 635	Ser	Arg	Asn	Glu	Gly 640	
acc	gcc	acc	tac	gcc	gct	gcc	gtc	ttg	ttc	cgc	atc	tcc	gag	gac	aag	1968
Thr	Ala	Thr	Tyr 645	Ala	Ala	Ala	Val	Leu	Phe 650	Arg	Ile	Ser	Glu	Asp	Lys 655	
aac	cca	gat	tac	cgc	aaa	cgg	gtg	tct	gtg	gag	ctc	act	aac	tcc	ctc	2016
Asn	Pro	Asp 660	Tyr	Arg	Lys	Arg	Val	Ser 665	Val	Glu	Leu	Thr	Asn	Ser	Leu	
ttc	aag	cac	gac	cct	gcc	gcc	tgg	gag	gct	gcc	cag	agc	atg	atc	ccc	2064
Phe	Lys 675	His	Asp	Pro	Ala	Ala	Trp	Glu 680	Ala	Ala	Gln	Ser	Met	Ile	Pro	
atg	aat	gaa	ccc	tat	gct	gat	gac	atg	gac	gcc	acc	tac	cgc	ccc	atg	2112
Met 690	Asn	Glu	Pro	Tyr	Ala 695	Asp	Asp	Met	Asp	Ala 700	Thr	Tyr	Arg	Pro	Met	
tac	tcg	agc	gac	gtg	ccc	atg	gac	cca	ctg	gag	atg	cac	atg	gac	atg	2160
Tyr 705	Ser	Ser	Asp	Val 710	Pro	Met	Asp	Pro	Leu 715	Glu	Met	His	Met	Asp	Met 720	
gat	gga	gac	tat	ccc	atc	gac	acc	tac	agt	gac	ggc	ctc	agg	ccc	ccc	2208
Asp	Gly	Asp	Tyr 725	Pro	Ile	Asp	Thr	Tyr	Ser 730	Asp	Gly	Leu	Arg	Pro	Pro 735	
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Tyr Ala Thr Ala Asp His Met Leu Ala  
740 745

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<213> Bos taurus

<400> 64

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Gln Gln Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Ala Asn Thr  
20 25 30

Cys Val Pro Ser Leu Ser Ser Lys Gly Leu Ile Glu Glu Asp Glu Ala  
35 40 45

Cys Gly Arg Gln Tyr Thr Leu Lys Lys Thr Thr Thr Tyr Thr Gln Ser  
50 55 60

Val Pro Pro Gly Gln Gly Asp Leu Glu Tyr Gln Met Ser Thr Thr Ala  
65 70 75 80

Arg Ala Lys Arg Val Arg Glu Ala Met Cys Pro Gly Val Thr Gly Glu  
85 90 95

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

Leu Gln Arg Leu Ala Glu Pro Ser Gln Leu Leu Lys Ser Ala Ile Val  
115 120 125

His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu Ala Thr Arg Ala Leu  
130 135 140

Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp Pro Val Val Val Thr  
145 150 155 160

Lys Ala Ala Met Ile Val Asn Gln Leu Ser Lys Lys Glu Ala Ser Arg  
165 170 175

Arg Ala Leu Met Gly Ser Pro Gln Leu Val Ala Ala Val Val Arg Thr  
180 185 190

Met Gln Asn Thr Ser Asp Leu Asp Thr Ala Arg Cys Thr Thr Ser Ile  
195 200 205

Leu His Asn Leu Ser His His Arg Glu Gly Leu Leu Ala Ile Phe Lys  
210 215 220

Ser Gly Gly Ile Pro Ala Leu Val Arg Met Leu Ser Ser Pro Val Glu  
225 230 235 240

Ser Val Leu Phe Tyr Ala Ile Thr Thr Leu His Asn Leu Leu Leu Tyr

245

250

255

Gln Glu Gly Ala Lys Met Ala Val Arg Leu Ala Asp Gly Leu Gln Lys  
 260 265 270

Met Val Pro Leu Leu Asn Lys Asn Asn Pro Lys Phe Leu Ala Ile Thr  
 275 280 285

Thr Asp Cys Leu Gln Leu Leu Ala Tyr Gly Asn Gln Glu Ser Lys Leu  
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Ile Ile Leu Ala Asn Gly Gly Pro Gln Ala Leu Val Gln Ile Met Arg  
 305 310 315 320

Asn Tyr Ser Tyr Glu Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys  
 325 330 335

Val Leu Ser Val Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly  
 340 345 350

Gly Met Gln Ala Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu  
 355 360 365

Val Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr  
 370 375 380

Lys Gln Glu Gly Leu Glu Ser Val Leu Lys Ile Leu Val Asn Gln Leu  
 385 390 395 400

Ser Val Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser  
 405 410 415

Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn  
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Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys  
 435 440 445

Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser  
 450 455 460

Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr  
 465 470 475 480

Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro  
 485 490 495

Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro  
 500 505 510

Ala Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val  
 515 520 525

Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala

530

535

540

Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val

545550555560

Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn

565570575

Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu

580585590

Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu

595600605

Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu

610615620

Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly

625630635640

Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys

645650655

Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu

660665670

Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro

675680685

Met Asn Glu Pro Tyr Ala Asp Asp Met Asp Ala Thr Tyr Arg Pro Met

690695700

Tyr Ser Ser Asp Val Pro Met Asp Pro Leu Glu Met His Met Asp Met

705710715720

Asp Gly Asp Tyr Pro Ile Asp Thr Tyr Ser Asp Gly Leu Arg Pro Pro

725730735

Tyr Ala Thr Ala Asp His Met Leu Ala

740745

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<220>  
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<400> 65

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Met Glu Val Met Asn Leu Ile Glu Gln Pro Ile Lys Val Thr Glu Trp

151015

48

cag cag aca tac acc tat gac tcg ggc atc cac tcg ggg gcc aac acc

Gln Gln Thr Tyr Thr Tyr Asp Ser Gly Ile His Ser Gly Ala Asn Thr

96

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tgc	gtg	ccc	tcg	gtc	agc	agc	aaa	ggc	ctc	atg	gag	gag	gac	gag	gcc			144
Cys	Val	Pro	Ser	Val	Ser	Ser	Lys	Gly	Leu	Met	Glu	Glu	Asp	Glu	Ala			
		35					40					45						
tgc	ggg	cgc	cag	tac	acg	ctc	aaa	aag	acc	acc	acc	tac	acc	cag	gcg			192
Cys	Gly	Arg	Gln	Tyr	Thr	Leu	Lys	Lys	Thr	Thr	Thr	Tyr	Thr	Gln	Ala			
	50					55					60							
gtg	ccc	caa	agc	caa	ggc	gac	ctg	gag	tac	cag	atg	tcc	acg	acg	gcc			240
Val	Pro	Gln	Ser	Gln	Gly	Asp	Leu	Glu	Tyr	Gln	Met	Ser	Thr	Thr	Ala			
	65				70					75					80			
aga	gcc	aag	cgg	gtg	cgg	gag	gcc	atg	tgt	cct	ggc	gtg	acg	gga	gag			288
Arg	Ala	Lys	Arg	Val	Arg	Glu	Ala	Met	Cys	Pro	Gly	Val	Thr	Gly	Glu			
				85					90					95				
gac	agc	tcg	ctg	ctg	ctg	gcc	acc	cag	gtg	gag	ggg	cag	acc	acc	aac			336
Asp	Ser	Ser	Leu	Leu	Leu	Ala	Thr	Gln	Val	Glu	Gly	Gln	Thr	Thr	Asn			
			100					105					110					
ctg	cag	cgg	ctg	gcc	gag	cca	tcc	cag	ctc	ctc	aag	tcg	gcc	atc	gtg			384
Leu	Gln	Arg	Leu	Ala	Glu	Pro	Ser	Gln	Leu	Leu	Lys	Ser	Ala	Ile	Val			
		115					120					125						
cat	ctc	atc	aac	tac	cag	gac	gac	gct	gag	ctg	gct	acc	cgg	gcc	ctg			432
His	Leu	Ile	Asn	Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Leu			
	130					135					140							
ccc	gag	ctc	acc	aaa	ctg	ctc	aac	gac	gag	gac	cgc	gtg	gtg	gtg	acc			480
Pro	Glu	Leu	Thr	Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Val	Val	Val	Thr			
	145				150					155					160			
aag	gcg	gcc	atg	atc	gtg	aac	cag	ctg	tcg	aag	aag	gag	gcg	tct	cgg			528
Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg			
				165					170					175				
cgg	gcg	ctg	atg	ggc	tcg	ccc	cag	ctg	gtg	gcg	gcc	gtc	gtg	cgc	acc			576
Arg	Ala	Leu	Met	Gly	Ser	Pro	Gln	Leu	Val	Ala	Ala	Val	Val	Arg	Thr			
			180					185					190					
atg	cag	aac	acc	agc	gac	ctg	gac	acg	gcc	cgc	tgc	acc	acc	agc	atc			624
Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile			
		195					200					205						
ctg	cac	aac	ctc	tcc	cac	cac	cgc	gag	ggg	ctg	ctt	gcc	atc	ttc	aag			672
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys			
	210					215					220							
tcc	ggc	ggc	atc	cct	gcc	ctg	gtc	cgc	atg	ctc	agc	tcc	ccc	gtg	gag			720
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu			
	225				230					235					240			
tcg	gtc	ctg	ttc	tac	gcc	atc	acc	acg	ctg	cac	aac	ctg	ctg	ctc	tac			768
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr			
				245					250					255				
cag	gag	ggc	gcc	aag	atg	gca	gtg	cgc	ctg	gcc	gac	ggg	ctg	cag	aag			816
Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys			
			260					265					270					
atg	gtg	ccc	ctg	ctg	aac	aag	aac	aac	ccc	aag	ttc	ctg	gcc	atc	acc			864
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr			
		275					280						285					
acc	gac	tgc	ctg	cag	ctc	ctg	gcc	tat	ggc	aac	cag	gag	agc	aag	ctc			912
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu			
	290					295					300							
atc	atc	ctg	gcc	aat	gga	gga	ccc	cag	gcc	ctc	gtg	cag	atc	atg	cgc			960
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Ala	Leu	Val	Gln	Ile	Met	Arg			

305		310		315		320	
aac tat agt tat gag aag ctg ctc tgg acc acc agc cgc gtg ctt aag	1008						
Asn Tyr Ser Tyr Glu Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys							
		325		330		335	
gtg ctg tct gtg tgt ccc agc aat aag cct gcc att gtg gag gcc ggt	1056						
Val Leu Ser Val Cys Pro Ser Asn Lys Pro Ala Ile Val Glu Ala Gly							
		340		345		350	
ggg atg cag gcc ctg ggc aaa cac ctg aca agc aac agc cct cgc ctc	1104						
Gly Met Gln Ala Leu Gly Lys His Leu Thr Ser Asn Ser Pro Arg Leu							
		355		360		365	
gtg cag aac tgc ctc tgg acc ctg cgt aac ctc tcg gac gtg gcc acc	1152						
Val Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu Ser Asp Val Ala Thr							
		370		375		380	
aag cag gag ggc ctg gag agt gtg ctg aag att ctg gtg aac cag ctg	1200						
Lys Gln Glu Gly Leu Glu Ser Val Leu Lys Ile Leu Val Asn Gln Leu							
		385		390		395	400
agc gtg gac gat gtc aac gtc ctc acc tgt gcc acg ggc act ctg tcc	1248						
Ser Val Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser							
		405		410		415	
aac ctg acc tgc aac aac agc aag aac aag acg ctg gtg acg cag aac	1296						
Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn							
		420		425		430	
agc ggc gtg gag gcg ctc atc cac gcc atc ctg cgc gcg ggc gac aag	1344						
Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys							
		435		440		445	
gat gac atc acg gag ccc gcc gtc tgc gcc ctg cgc cac ctc acc agc	1392						
Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser							
		450		455		460	
cgc cac ccc gag gct gag atg gcc cag aac tcc gtg cgc ctc aac tac	1440						
Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr							
		465		470		475	480
ggc atc ccg gcc atc gtc aag ctg ctc aat cag ccc aac cag tgg cca	1488						
Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro							
		485		490		495	
ctg gtc aag gca acc atc ggc ctg atc agg aat ctg gcc ctg tgc cca	1536						
Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro							
		500		505		510	
gcc aac cac gcc cca ctg cag gag gca tct gtc atc ccc cgc ctc gtc	1584						
Ala Asn His Ala Pro Leu Gln Glu Ala Ser Val Ile Pro Arg Leu Val							
		515		520		525	
cag ctg ctg gtc aag gcc cat cag gat gcc cag cgc cat gtg gct gca	1632						
Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala							
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ggc aca cag cag ccc tac acg gat ggc gtg agg atg gag gag att gtg	1680						
Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val							
		545		550		555	560
gag ggc tgc acc gga gcc ctg cac atc ctc gcc cgg gat ccc atg aac	1728						
Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn							
		565		570		575	
cgc atg gag atc ttc cga ctc aac acc atc ccc ctg ttt gtg cag ctc	1776						
Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu							
		580		585		590	
ctg tac tct tcc gtg gag aac atc cag cgt gtg gcc gca ggg gtg ctg	1824						
Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu							

595					600					605						
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Cys	Glu	Leu	Ala	Gln	Asp	Lys	Glu	Ala	Ala	Asp	Ala	Ile	Asp	Ala	Glu	
610					615					620						
ggg	gcc	tcg	tcc	ccc	ctc	atg	gag	ctc	ctg	cac	tcc	cgc	aat	gag	ggc	1920
Gly	Ala	Ser	Ser	Pro	Leu	Met	Glu	Leu	Leu	His	Ser	Arg	Asn	Glu	Gly	
625					630					635					640	
act	gcc	acc	tat	gct	gct	gct	gtc	ttg	ttc	cgc	atc	tct	gag	gac	aag	1968
Thr	Ala	Thr	Tyr	Ala	Ala	Ala	Val	Leu	Phe	Arg	Ile	Ser	Glu	Asp	Lys	
645					650					655						
aac	cca	gat	tac	cgt	aag	cgt	gtg	tct	gtg	gaa	ctc	acc	aac	tcc	ctc	2016
Asn	Pro	Asp	Tyr	Arg	Lys	Arg	Val	Ser	Val	Glu	Leu	Thr	Asn	Ser	Leu	
660					665					670						
ttc	aag	cac	gac	cct	gca	gcc	tgg	gag	gct	gcc	cag	agc	atg	atc	ccc	2064
Phe	Lys	His	Asp	Pro	Ala	Ala	Trp	Glu	Ala	Ala	Gln	Ser	Met	Ile	Pro	
675					680					685						
atc	aat	gaa	ccc	tat	gcc	gat	gac	atg	gat	gcc	acc	tac	cgc	ccc	atg	2112
Ile	Asn	Glu	Pro	Tyr	Ala	Asp	Asp	Met	Asp	Ala	Thr	Tyr	Arg	Pro	Met	
690					695					700						
tac	tca	agt	gat	gtg	ccc	ctg	gac	ccc	ctg	gag	atg	cac	atg	gac	atg	2160
Tyr	Ser	Ser	Asp	Val	Pro	Leu	Asp	Pro	Leu	Glu	Met	His	Met	Asp	Met	
705					710					715					720	
gac	ggg	gac	tat	ccc	atg	gac	acc	tac	agc	gac	ggc	ctc	agg	ccc	ccc	2208
Asp	Gly	Asp	Tyr	Pro	Met	Asp	Thr	Tyr	Ser	Asp	Gly	Leu	Arg	Pro	Pro	
725					730					735						
tac	ccc	gct	gca	gac	cac	atg	ctg	gcc								2235
Tyr	Pro	Ala	Ala	Asp	His	Met	Leu	Ala								
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Cys	Val	Pro	Ser	Val	Ser	Ser	Lys	Gly	Leu	Met	Glu	Glu	Asp	Glu	Ala
		35					40					45			
Cys	Gly	Arg	Gln	Tyr	Thr	Leu	Lys	Lys	Thr	Thr	Thr	Tyr	Thr	Gln	Ala
	50					55					60				
Val	Pro	Gln	Ser	Gln	Gly	Asp	Leu	Glu	Tyr	Gln	Met	Ser	Thr	Thr	Ala
65					70					75					80
Arg	Ala	Lys	Arg	Val	Arg	Glu	Ala	Met	Cys	Pro	Gly	Val	Thr	Gly	Glu
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Asp	Ser	Ser	Leu	Leu	Leu	Ala	Thr	Gln	Val	Glu	Gly	Gln	Thr	Thr	Asn
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Leu	Gln	Arg	Leu	Ala	Glu	Pro	Ser	Gln	Leu	Leu	Lys	Ser	Ala	Ile	Val
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His	Leu	Ile	Asn	Tyr	Gln	Asp	Asp	Ala	Glu	Leu	Ala	Thr	Arg	Ala	Leu
130						135						140			
Pro	Glu	Leu	Thr	Lys	Leu	Leu	Asn	Asp	Glu	Asp	Pro	Val	Val	Val	Thr
145				150						155				160	
Lys	Ala	Ala	Met	Ile	Val	Asn	Gln	Leu	Ser	Lys	Lys	Glu	Ala	Ser	Arg
				165				170						175	
Arg	Ala	Leu	Met	Gly	Ser	Pro	Gln	Leu	Val	Ala	Ala	Val	Val	Arg	Thr
		180						185				190			
Met	Gln	Asn	Thr	Ser	Asp	Leu	Asp	Thr	Ala	Arg	Cys	Thr	Thr	Ser	Ile
195						200						205			
Leu	His	Asn	Leu	Ser	His	His	Arg	Glu	Gly	Leu	Leu	Ala	Ile	Phe	Lys
210						215				220					
Ser	Gly	Gly	Ile	Pro	Ala	Leu	Val	Arg	Met	Leu	Ser	Ser	Pro	Val	Glu
225				230						235				240	
Ser	Val	Leu	Phe	Tyr	Ala	Ile	Thr	Thr	Leu	His	Asn	Leu	Leu	Leu	Tyr
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Gln	Glu	Gly	Ala	Lys	Met	Ala	Val	Arg	Leu	Ala	Asp	Gly	Leu	Gln	Lys
		260						265				270			
Met	Val	Pro	Leu	Leu	Asn	Lys	Asn	Asn	Pro	Lys	Phe	Leu	Ala	Ile	Thr
275						280						285			
Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ala	Tyr	Gly	Asn	Gln	Glu	Ser	Lys	Leu
290						295				300					
Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Gln	Ala	Leu	Val	Gln	Ile	Met	Arg
305				310						315				320	
Asn	Tyr	Ser	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	Ser	Arg	Val	Leu	Lys
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Val	Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	Ile	Val	Glu	Ala	Gly
		340						345				350			
Gly	Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Thr	Ser	Asn	Ser	Pro	Arg	Leu
355						360						365			
Val	Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	Ser	Asp	Val	Ala	Thr
370						375				380					
Lys	Gln	Glu	Gly	Leu	Glu	Ser	Val	Leu	Lys	Ile	Leu	Val	Asn	Gln	Leu
385				390						395				400	



Ser Val Asp Asp Val Asn Val Leu Thr Cys Ala Thr Gly Thr Leu Ser  
 405 410 415

Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn  
 420 425 430

Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys  
 435 440 445

Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser  
 450 455 460

Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr  
 465 470 475 480

Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro  
 485 490 495

Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro  
 500 505 510

Ala Asn His Ala Pro Leu Gln Glu Ala Ser Val Ile Pro Arg Leu Val  
 515 520 525

Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala  
 530 535 540

Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val  
 545 550 555 560

Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn  
 565 570 575

Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu  
 580 585 590

Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu  
 595 600 605

Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu  
 610 615 620

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

Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys  
 645 650 655

Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu  
 660 665 670

Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro  
 675 680 685

Ile	Asn	Glu	Pro	Tyr	Ala	Asp	Asp	Met	Asp	Ala	Thr	Tyr	Arg	Pro	Met
690						695					700				
Tyr	Ser	Ser	Asp	Val	Pro	Leu	Asp	Pro	Leu	Glu	Met	His	Met	Asp	Met
705					710					715					720
Asp	Gly	Asp	Tyr	Pro	Met	Asp	Thr	Tyr	Ser	Asp	Gly	Leu	Arg	Pro	Pro
				725					730					735	
Tyr	Pro	Ala	Ala	Asp	His	Met	Leu	Ala							
				740				745							

<210> 67  
 <211> 2187  
 <212> DNA  
 <213> Danio rerio

<220>  
 <221> CDS  
 <222> (1)..(2187)

<400> 67	
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Met Glu Met His Met Gly Glu Ala Pro Gly Ser Val Lys Val Thr Glu	
1 5 10 15	
tgg cag cag tcg tac tac ggc aca gat tca ggc atc cat tca gga gcc	96
Trp Gln Gln Ser Tyr Tyr Gly Thr Asp Ser Gly Ile His Ser Gly Ala	
20 25 30	
act act gtt cgc tca gat gat gat gga aca gag tac agc tct aag aaa	144
Thr Thr Val Arg Ser Asp Asp Asp Gly Thr Glu Tyr Ser Ser Lys Lys	
35 40 45	
ttc acc tac acc acc aca ttc aca gag aac cct gca gag gtg gag tct	192
Phe Thr Tyr Thr Thr Thr Phe Thr Glu Asn Pro Ala Glu Val Glu Ser	
50 55 60	
cag tta aat atg act cgt gct cag cgt gtg agg gcg gcc atg ttt cct	240
Gln Leu Asn Met Thr Arg Ala Gln Arg Val Arg Ala Ala Met Phe Pro	
65 70 75 80	
gag act gtg atg gag gga tcg gtc att cat tct aca cag atc gat cca	288
Glu Thr Val Met Glu Gly Ser Val Ile His Ser Thr Gln Ile Asp Pro	
85 90 95	
tcc cag cag acc aat gta cag aag ctg gcc gaa cca tct cag cag ctc	336
Ser Gln Gln Thr Asn Val Gln Lys Leu Ala Glu Pro Ser Gln Gln Leu	
100 105 110	
aaa gct gcc atc gtt cac ctc atc aac tac cag gac gac gct gaa ctc	384
Lys Ala Ala Ile Val His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu	
115 120 125	
gcc aca cgc gcc atc cca gag ctc acc aaa ctc ctc aac gat gaa gac	432
Ala Thr Arg Ala Ile Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp	
130 135 140	
cag ttg gtt gtg aac aaa gcc gct atg atc gtg aac caa ctg acc cgc	480
Gln Leu Val Val Asn Lys Ala Ala Met Ile Val Asn Gln Leu Thr Arg	
145 150 155 160	
aag gag gca tcc cgc cgg gct ctt atg cag tcc ccg cag atg gtg gcc	528
Lys Glu Ala Ser Arg Arg Ala Leu Met Gln Ser Pro Gln Met Val Ala	
165 170 175	

gct gta gtg aga gcc atg cag aac acg acc gac atg gag acg acc cgc Ala Val Val Arg Ala Met Gln Asn Thr Thr Asp Met Glu Thr Thr Arg 180 185 190	576
gcc aca gcc agc atc ctg cac aac ctc tcg cac cag cgt gaa gga ctg Ala Thr Ala Ser Ile Leu His Asn Leu Ser His Gln Arg Glu Gly Leu 195 200 205	624
ctc gcc atc ttc aaa tca ggc ggc att cca gct ctg gtg cgc atg ctg Leu Ala Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu Val Arg Met Leu 210 215 220	672
agc tct ccg atg gac tct gta ctt ttc tac gcc atc acc acc ctg cac Ser Ser Pro Met Asp Ser Val Leu Phe Tyr Ala Ile Thr Thr Leu His 225 230 235 240	720
aac ctg ctt ttg cac caa gag gga gcc aag atg gcg gtg cgt ctg gct Asn Leu Leu Leu His Gln Glu Gly Ala Lys Met Ala Val Arg Leu Ala 245 250 255	768
gat ggt ctc cag agg atg gtt ccc ctg ctg aag aaa agc aac ccc aaa Asp Gly Leu Gln Arg Met Val Pro Leu Leu Lys Lys Ser Asn Pro Lys 260 265 270	816
ttc ctg gcc atc acc aca gac tgc ttg cag ctg ctg tcc tat ggc aac Phe Leu Ala Ile Thr Thr Asp Cys Leu Gln Leu Leu Ser Tyr Gly Asn 275 280 285	864
cag gag agc aag ctg att atc ctg gct aat ggt ggt cct gag ggt ctt Gln Glu Ser Lys Leu Ile Ile Leu Ala Asn Gly Gly Pro Glu Gly Leu 290 295 300	912
gtc aac atc atg agg act tac aac tat gag aag ctg ctg tgg acc acc Val Asn Ile Met Arg Thr Tyr Asn Tyr Glu Lys Leu Leu Trp Thr Thr 305 310 315 320	960
agt cgt gtg ctg aaa gtg ctc tct gtc tgt cca agc aac aag cct gcc Ser Arg Val Leu Lys Val Leu Ser Val Cys Pro Ser Asn Lys Pro Ala 325 330 335	1008
atc gta gat gct ggt gga atg caa gct ctt ggt aaa cat ctg tcc ggc Ile Val Asp Ala Gly Gly Met Gln Ala Leu Gly Lys His Leu Ser Gly 340 345 350	1056
tca agt cag cgt ctg atg caa aac tgc ttg tgg act ttg aga aac ttg Ser Ser Gln Arg Leu Met Gln Asn Cys Leu Trp Thr Leu Arg Asn Leu 355 360 365	1104
tca gat gct gca acc aaa cag gac ggt atg gag aat ctt ctt caa gtc Ser Asp Ala Ala Thr Lys Gln Asp Gly Met Glu Asn Leu Leu Gln Val 370 375 380	1152
ttg gtc ggt ctg ctg tct gct gat gac atc aac atg ctg acc tgt gcc Leu Val Gly Leu Leu Ser Ala Asp Asp Ile Asn Met Leu Thr Cys Ala 385 390 395 400	1200
aca ggc gtc ctg tcc aac ctc acc tgc aac aac aca cgc aac aaa acg Thr Gly Val Leu Ser Asn Leu Thr Cys Asn Asn Thr Arg Asn Lys Thr 405 410 415	1248
cag gtg acc cag agt aac ggc gtg gag gct ctt att cac acc atc ctg Gln Val Thr Gln Ser Asn Gly Val Glu Ala Leu Ile His Thr Ile Leu 420 425 430	1296
agg gcc agt tca aaa cag gac gtg atc gag cca gcc gtc tgc gcc ctg Arg Ala Ser Ser Lys Gln Asp Val Ile Glu Pro Ala Val Cys Ala Leu 435 440 445	1344
cgc cac ctc acc agc cgg cac cca gag gct gag act gca cag aac gcc Arg His Leu Thr Ser Arg His Pro Glu Ala Glu Thr Ala Gln Asn Ala 450 455 460	1392

gta cga atg cat tac ggc atc cct gct att gtc aaa ctg ctc aat caa	1440
Val Arg Met His Tyr Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln	
465 470 475 480	
ccc tac cac tgg cca gtt gtc aag gct gtg gtt ggt ctg atc cgt aac	1488
Pro Tyr His Trp Pro Val Val Lys Ala Val Val Gly Leu Ile Arg Asn	
485 490 495	
ctg gcc ctg tgt cca gcc aat cag gct cct ttg agg gac gct gac gcc	1536
Leu Ala Leu Cys Pro Ala Asn Gln Ala Pro Leu Arg Asp Ala Asp Ala	
500 505 510	
att ccc aaa ctg gtc act ttg ctt tca aaa gct cat cag gat gca cag	1584
Ile Pro Lys Leu Val Thr Leu Leu Ser Lys Ala His Gln Asp Ala Gln	
515 520 525	
aaa ccc ggt tca tct gct caa cga tca tac cag gat ggg gta aga atg	1632
Lys Pro Gly Ser Ser Ala Gln Arg Ser Tyr Gln Asp Gly Val Arg Met	
530 535 540	
gag gag att gtt gag ggc tgc act ggt gct ctt cat atc atg gcc aga	1680
Glu Glu Ile Val Glu Gly Cys Thr Gly Ala Leu His Ile Met Ala Arg	
545 550 555 560	
gat cct atg aac cga ggc acc att gcc agc atg gac acc att cct ctg	1728
Asp Pro Met Asn Arg Gly Thr Ile Ala Ser Met Asp Thr Ile Pro Leu	
565 570 575	
ttt gtt cag ctg ttg tat tct cca ctg gat aac gtc aag cgt gtg gca	1776
Phe Val Gln Leu Leu Tyr Ser Pro Leu Asp Asn Val Lys Arg Val Ala	
580 585 590	
gct ggt gtt ctg tgt gag ctg gct ctt gat aaa cag tcg gct gag atc	1824
Ala Gly Val Leu Cys Glu Leu Ala Leu Asp Lys Gln Ser Ala Glu Ile	
595 600 605	
atc gat gcg gaa gga gcc agt gct cct ctc atg gag ctc ctt cac tcc	1872
Ile Asp Ala Glu Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser	
610 615 620	
agc aac gaa ggg atc gcc acc tat gct gct gct gtt ctc tac aga act	1920
Ser Asn Glu Gly Ile Ala Thr Tyr Ala Ala Val Leu Tyr Arg Thr	
625 630 635 640	
gct gag gac aaa aac cca gac tat aag aaa aga gtt tca gta gaa ctc	1968
Ala Glu Asp Lys Asn Pro Asp Tyr Lys Lys Arg Val Ser Val Glu Leu	
645 650 655	
aca cac tca ctc ttc aaa cat gac cct gag gct tgg gaa atg gca cac	2016
Thr His Ser Leu Phe Lys His Asp Pro Glu Ala Trp Glu Met Ala His	
660 665 670	
aac act gtg atg gat ccc gtc ctt ggc gat gaa gag ctt gat ggc tac	2064
Asn Thr Val Met Asp Pro Val Leu Gly Asp Glu Glu Leu Asp Gly Tyr	
675 680 685	
ggt cct gca gga tac ggt gga tat gct gat ggc atg cat atg gat cct	2112
Gly Pro Ala Gly Tyr Gly Gly Tyr Ala Asp Gly Met His Met Asp Pro	
690 695 700	
cta gat cca gaa atg caa gac gat ttt agg agc ggc atg ccc tac aac	2160
Leu Asp Pro Glu Met Gln Asp Asp Phe Arg Ser Gly Met Pro Tyr Asn	
705 710 715 720	
tcc atg gcc aga gtc tac cat gat tac	2187
Ser Met Ala Arg Val Tyr His Asp Tyr	
725	

<210> 68  
<211> 729

<212> PRT  
<213> Danio rerio

<400> 68

Met Glu Met His Met Gly Glu Ala Pro Gly Ser Val Lys Val Thr Glu  
1 5 10 15

Trp Gln Gln Ser Tyr Tyr Gly Thr Asp Ser Gly Ile His Ser Gly Ala  
20 25 30

Thr Thr Val Arg Ser Asp Asp Asp Gly Thr Glu Tyr Ser Ser Lys Lys  
35 40 45

Phe Thr Tyr Thr Thr Thr Phe Thr Glu Asn Pro Ala Glu Val Glu Ser  
50 55 60

Gln Leu Asn Met Thr Arg Ala Gln Arg Val Arg Ala Ala Met Phe Pro  
65 70 75 80

Glu Thr Val Met Glu Gly Ser Val Ile His Ser Thr Gln Ile Asp Pro  
85 90 95

Ser Gln Gln Thr Asn Val Gln Lys Leu Ala Glu Pro Ser Gln Gln Leu  
100 105 110

Lys Ala Ala Ile Val His Leu Ile Asn Tyr Gln Asp Asp Ala Glu Leu  
115 120 125

Ala Thr Arg Ala Ile Pro Glu Leu Thr Lys Leu Leu Asn Asp Glu Asp  
130 135 140

Gln Leu Val Val Asn Lys Ala Ala Met Ile Val Asn Gln Leu Thr Arg  
145 150 155 160

Lys Glu Ala Ser Arg Arg Ala Leu Met Gln Ser Pro Gln Met Val Ala  
165 170 175

Ala Val Val Arg Ala Met Gln Asn Thr Thr Asp Met Glu Thr Thr Arg  
180 185 190

Ala Thr Ala Ser Ile Leu His Asn Leu Ser His Gln Arg Glu Gly Leu  
195 200 205

Leu Ala Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu Val Arg Met Leu  
210 215 220

Ser Ser Pro Met Asp Ser Val Leu Phe Tyr Ala Ile Thr Thr Leu His  
225 230 235 240

Asn Leu Leu Leu His Gln Glu Gly Ala Lys Met Ala Val Arg Leu Ala  
245 250 255

Asp Gly Leu Gln Arg Met Val Pro Leu Leu Lys Lys Ser Asn Pro Lys  
260 265 270

Phe	Leu	Ala	Ile	Thr	Thr	Asp	Cys	Leu	Gln	Leu	Leu	Ser	Tyr	Gly	Asn	275	280	285
Gln	Glu	Ser	Lys	Leu	Ile	Ile	Leu	Ala	Asn	Gly	Gly	Pro	Glu	Gly	Leu	290	295	300
Val	Asn	Ile	Met	Arg	Thr	Tyr	Asn	Tyr	Glu	Lys	Leu	Leu	Trp	Thr	Thr	305	310	315
Ser	Arg	Val	Leu	Lys	Val	Leu	Ser	Val	Cys	Pro	Ser	Asn	Lys	Pro	Ala	325	330	335
Ile	Val	Asp	Ala	Gly	Gly	Met	Gln	Ala	Leu	Gly	Lys	His	Leu	Ser	Gly	340	345	350
Ser	Ser	Gln	Arg	Leu	Met	Gln	Asn	Cys	Leu	Trp	Thr	Leu	Arg	Asn	Leu	355	360	365
Ser	Asp	Ala	Ala	Thr	Lys	Gln	Asp	Gly	Met	Glu	Asn	Leu	Leu	Gln	Val	370	375	380
Leu	Val	Gly	Leu	Leu	Ser	Ala	Asp	Asp	Ile	Asn	Met	Leu	Thr	Cys	Ala	385	390	395
Thr	Gly	Val	Leu	Ser	Asn	Leu	Thr	Cys	Asn	Asn	Thr	Arg	Asn	Lys	Thr	405	410	415
Gln	Val	Thr	Gln	Ser	Asn	Gly	Val	Glu	Ala	Leu	Ile	His	Thr	Ile	Leu	420	425	430
Arg	Ala	Ser	Ser	Lys	Gln	Asp	Val	Ile	Glu	Pro	Ala	Val	Cys	Ala	Leu	435	440	445
Arg	His	Leu	Thr	Ser	Arg	His	Pro	Glu	Ala	Glu	Thr	Ala	Gln	Asn	Ala	450	455	460
Val	Arg	Met	His	Tyr	Gly	Ile	Pro	Ala	Ile	Val	Lys	Leu	Leu	Asn	Gln	465	470	475
Pro	Tyr	His	Trp	Pro	Val	Val	Lys	Ala	Val	Val	Gly	Leu	Ile	Arg	Asn	485	490	495
Leu	Ala	Leu	Cys	Pro	Ala	Asn	Gln	Ala	Pro	Leu	Arg	Asp	Ala	Asp	Ala	500	505	510
Ile	Pro	Lys	Leu	Val	Thr	Leu	Leu	Ser	Lys	Ala	His	Gln	Asp	Ala	Gln	515	520	525
Lys	Pro	Gly	Ser	Ser	Ala	Gln	Arg	Ser	Tyr	Gln	Asp	Gly	Val	Arg	Met	530	535	540
Glu	Glu	Ile	Val	Glu	Gly	Cys	Thr	Gly	Ala	Leu	His	Ile	Met	Ala	Arg	545	550	555

Asp Pro Met Asn Arg Gly Thr Ile Ala Ser Met Asp Thr Ile Pro Leu  
 565 570 575  
  
 Phe Val Gln Leu Leu Tyr Ser Pro Leu Asp Asn Val Lys Arg Val Ala  
 580 585 590  
  
 Ala Gly Val Leu Cys Glu Leu Ala Leu Asp Lys Gln Ser Ala Glu Ile  
 595 600 605  
  
 Ile Asp Ala Glu Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser  
 610 615 620  
  
 Ser Asn Glu Gly Ile Ala Thr Tyr Ala Ala Val Leu Tyr Arg Thr  
 625 630 635 640  
  
 Ala Glu Asp Lys Asn Pro Asp Tyr Lys Lys Arg Val Ser Val Glu Leu  
 645 650 655  
  
 Thr His Ser Leu Phe Lys His Asp Pro Glu Ala Trp Glu Met Ala His  
 660 665 670  
  
 Asn Thr Val Met Asp Pro Val Leu Gly Asp Glu Glu Leu Asp Gly Tyr  
 675 680 685  
  
 Gly Pro Ala Gly Tyr Gly Gly Tyr Ala Asp Gly Met His Met Asp Pro  
 690 695 700  
  
 Leu Asp Pro Glu Met Gln Asp Asp Phe Arg Ser Gly Met Pro Tyr Asn  
 705 710 715 720  
  
 Ser Met Ala Arg Val Tyr His Asp Tyr  
 725

<210> 69  
 <211> 1734  
 <212> DNA  
 <213> *Saccharomyces cerevisiae*

<220>  
 <221> CDS  
 <222> (1)..(1734)

<400> 69  
 atg ggt tca tgt tgt agt tgc ttg aaa gat tct tca gac gag gcc agt 48  
 Met Gly Ser Cys Cys Ser Cys Leu Lys Asp Ser Ser Asp Glu Ala Ser  
 1 5 10 15  
  
 gtc tca cca att gcc gat aat gaa aga gaa gcg gtg act tta tta cta 96  
 Val Ser Pro Ile Ala Asp Asn Glu Arg Glu Ala Val Thr Leu Leu Leu  
 20 25 30  
  
 ggg tat ttg gag gat aaa gac caa tta gac ttt tac tct ggt ggt cca 144  
 Gly Tyr Leu Glu Asp Lys Asp Gln Leu Asp Phe Tyr Ser Gly Gly Pro  
 35 40 45  
  
 cta aag gcc cta act act ttg gtg tat tca gat aat cta aat ttg caa 192  
 Leu Lys Ala Leu Thr Thr Leu Val Tyr Ser Asp Asn Leu Asn Leu Gln  
 50 55 60

agg agc gcc gct ctg gca ttc gca gaa att act gaa aaa tac gtc cgt	240
Arg Ser Ala Ala Leu Ala Phe Ala Glu Ile Thr Glu Lys Tyr Val Arg	
65 70 75 80	
cag gtc tct aga gag gta ctg gaa ccc atc tta ata tta tta caa agc	288
Gln Val Ser Arg Glu Val Leu Glu Pro Ile Leu Ile Leu Leu Gln Ser	
85 90 95	
caa gat cca cag att caa gtg gcc gct tgt gca gcc ttg ggt aat ttg	336
Gln Asp Pro Gln Ile Gln Val Ala Ala Cys Ala Ala Leu Gly Asn Leu	
100 105 110	
gcc gtt aat aat gaa aat aaa tta tta att gtg gaa atg gga ggc tta	384
Ala Val Asn Asn Glu Asn Lys Leu Leu Ile Val Glu Met Gly Gly Leu	
115 120 125	
gag cca tta ata aac caa atg atg ggt gac aat gta gaa gtt caa tgt	432
Glu Pro Leu Ile Asn Gln Met Met Gly Asp Asn Val Glu Val Gln Cys	
130 135 140	
aat gct gtt gga tgc att acc aat tta gcc aca agg gat gac aat aaa	480
Asn Ala Val Gly Cys Ile Thr Asn Leu Ala Thr Arg Asp Asp Asn Lys	
145 150 155 160	
cat aag att gct act tct ggt gct tta att cca ttg act aag cta gct	528
His Lys Ile Ala Thr Ser Gly Ala Leu Ile Pro Leu Thr Lys Leu Ala	
165 170 175	
aaa tcc aaa cat ata aga gtt cag aga aat gct aca ggt gca tta tta	576
Lys Ser Lys His Ile Arg Val Gln Arg Asn Ala Thr Gly Ala Leu Leu	
180 185 190	
aat atg aca cat tct gag gaa aat aga aaa gaa ttg gtt aat gca ggt	624
Asn Met Thr His Ser Glu Glu Asn Arg Lys Glu Leu Val Asn Ala Gly	
195 200 205	
gct gtg cct gta ttg gta tct tta ctg tgc tcc acc gat cct gat gtt	672
Ala Val Pro Val Leu Val Ser Leu Leu Ser Ser Thr Asp Pro Asp Val	
210 215 220	
cag tac tat tgt act act gct tta tca aat ata gca gtg gat gaa gcc	720
Gln Tyr Tyr Cys Thr Thr Ala Leu Ser Asn Ile Ala Val Asp Glu Ala	
225 230 235 240	
aat cgc aag aag ttg gct caa act gag cca aga ttg gtt tcc aaa ttg	768
Asn Arg Lys Lys Leu Ala Gln Thr Glu Pro Arg Leu Val Ser Lys Leu	
245 250 255	
gtt agt ctg atg gat tct cca tct tca agg gta aaa tgt caa gct act	816
Val Ser Leu Met Asp Ser Pro Ser Ser Arg Val Lys Cys Gln Ala Thr	
260 265 270	
ttg gct tta cga aac cta gcg tcc gat aca agc tac caa tta gaa att	864
Leu Ala Leu Arg Asn Leu Ala Ser Asp Thr Ser Tyr Gln Leu Glu Ile	
275 280 285	
gta agg gct ggt ggg ttg cct cat ttg gta aag ttg att caa agt gat	912
Val Arg Ala Gly Gly Leu Pro His Leu Val Lys Leu Ile Gln Ser Asp	
290 295 300	
tct ata cca ctg gtt ttg gct agt gtg gca tgc att aga aac att tct	960
Ser Ile Pro Leu Val Leu Ala Ser Val Ala Cys Ile Arg Asn Ile Ser	
305 310 315 320	
att cac cct cta aat gaa ggt tta att gtt gat gca ggt ttc tta aaa	1008
Ile His Pro Leu Asn Glu Gly Leu Ile Val Asp Ala Gly Phe Leu Lys	
325 330 335	
cca tta gta aga ttg ttg gac tat aag gat tca gaa gaa att caa tgt	1056
Pro Leu Val Arg Leu Leu Asp Tyr Lys Asp Ser Glu Glu Ile Gln Cys	
340 345 350	



cac gcc gta tct act ttg aga aat ttg gct gca tca tct gaa aaa aac	1104
His Ala Val Ser Thr Leu Arg Asn Leu Ala Ala Ser Ser Glu Lys Asn	
355 360 365	
aga aaa gag ttc ttc gaa agt ggt gct gtc gaa aaa tgt aag gaa ctg	1152
Arg Lys Glu Phe Phe Glu Ser Gly Ala Val Glu Lys Cys Lys Glu Leu	
370 375 380	
gct cta gat tca cct gtt agt gtt caa agt gaa att tcc gca tgt ttt	1200
Ala Leu Asp Ser Pro Val Ser Val Gln Ser Glu Ile Ser Ala Cys Phe	
385 390 395 400	
gct att tta gcc cta gca gat gtc tcc aaa ttg gat cta ctg gaa gca	1248
Ala Ile Leu Ala Leu Ala Asp Val Ser Lys Leu Asp Leu Leu Glu Ala	
405 410 415	
aat atc tta gat gct tta atc cct atg act ttt tcc cag aac caa gaa	1296
Asn Ile Leu Asp Ala Leu Ile Pro Met Thr Phe Ser Gln Asn Gln Glu	
420 425 430	
gtt tct ggt aat gct gct gct gct ttg gca aat cta tgt tca aga gtg	1344
Val Ser Gly Asn Ala Ala Ala Leu Ala Asn Leu Cys Ser Arg Val	
435 440 445	
aat aat tat aca aaa att att gaa gca tgg gat cgt ccg aat gaa ggc	1392
Asn Asn Tyr Thr Lys Ile Ile Glu Ala Trp Asp Arg Pro Asn Glu Gly	
450 455 460	
att cgt gga ttt ctg att aga ttt ttg aaa agt gac tat gct acc ttt	1440
Ile Arg Gly Phe Leu Ile Arg Phe Leu Lys Ser Asp Tyr Ala Thr Phe	
465 470 475 480	
gaa cac att gcg cta tgg aca att tta caa ttg cta gaa agt cat aat	1488
Glu His Ile Ala Leu Trp Thr Ile Leu Gln Leu Leu Glu Ser His Asn	
485 490 495	
gat aaa gtg gaa gat ttg gtt aaa aat gat gac gac atc att aac gga	1536
Asp Lys Val Glu Asp Leu Val Lys Asn Asp Asp Asp Ile Ile Asn Gly	
500 505 510	
gtg aga aaa atg gca gat gtg acc ttt gag cgt tta caa aga tca gga	1584
Val Arg Lys Met Ala Asp Val Thr Phe Glu Arg Leu Gln Arg Ser Gly	
515 520 525	
att gat gtt aaa aat ccg ggg agc aac aac aat cca agc tcg aat gat	1632
Ile Asp Val Lys Asn Pro Gly Ser Asn Asn Asn Pro Ser Ser Asn Asp	
530 535 540	
aac aac agt aat aac aat gac aca gga tct gaa cat caa cct gta gag	1680
Asn Asn Ser Asn Asn Asn Asp Thr Gly Ser Glu His Gln Pro Val Glu	
545 550 555 560	
gat gca agt ttg gaa ttg tat aat att act caa cag att tta caa ttt	1728
Asp Ala Ser Leu Glu Leu Tyr Asn Ile Thr Gln Gln Ile Leu Gln Phe	
565 570 575	
tta cat	1734
Leu His	

<210> 70  
 <211> 578  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 70

Met Gly Ser Cys Cys Ser Cys Leu Lys Asp Ser Ser Asp Glu Ala Ser
1 5 10 15

Val	Ser	Pro	Ile	Ala	Asp	Asn	Glu	Arg	Glu	Ala	Val	Thr	Leu	Leu	Leu		
			20					25					30				
Gly	Tyr	Leu	Glu	Asp	Lys	Asp	Gln	Leu	Asp	Phe	Tyr	Ser	Gly	Gly	Pro		
		35					40				45						
Leu	Lys	Ala	Leu	Thr	Thr	Leu	Val	Tyr	Ser	Asp	Asn	Leu	Asn	Leu	Gln		
	50					55					60						
Arg	Ser	Ala	Ala	Leu	Ala	Phe	Ala	Glu	Ile	Thr	Glu	Lys	Tyr	Val	Arg		
65					70					75					80		
Gln	Val	Ser	Arg	Glu	Val	Leu	Glu	Pro	Ile	Leu	Ile	Leu	Leu	Gln	Ser		
				85					90					95			
Gln	Asp	Pro	Gln	Ile	Gln	Val	Ala	Ala	Cys	Ala	Ala	Leu	Gly	Asn	Leu		
			100					105					110				
Ala	Val	Asn	Asn	Glu	Asn	Lys	Leu	Leu	Ile	Val	Glu	Met	Gly	Gly	Leu		
		115					120					125					
Glu	Pro	Leu	Ile	Asn	Gln	Met	Met	Gly	Asp	Asn	Val	Glu	Val	Gln	Cys		
	130					135					140						
Asn	Ala	Val	Gly	Cys	Ile	Thr	Asn	Leu	Ala	Thr	Arg	Asp	Asp	Asn	Lys		
145					150					155					160		
His	Lys	Ile	Ala	Thr	Ser	Gly	Ala	Leu	Ile	Pro	Leu	Thr	Lys	Leu	Ala		
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Ile His Pro Leu Asn Glu Gly Leu Ile Val Asp Ala Gly Phe Leu Lys  
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Val Ser Gly Asn Ala Ala Ala Ala Leu Ala Asn Leu Cys Ser Arg Val  
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Asn Asn Tyr Thr Lys Ile Ile Glu Ala Trp Asp Arg Pro Asn Glu Gly  
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Asp Lys Val Glu Asp Leu Val Lys Asn Asp Asp Asp Ile Ile Asn Gly  
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Val Arg Lys Met Ala Asp Val Thr Phe Glu Arg Leu Gln Arg Ser Gly  
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 Pro Arg Ser Leu His Pro His Val Pro Gly Val Thr Asn Leu Gln Val  
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 Met Arg Ala Met Ala Ser Leu Arg Ala Arg Gly Leu Val Arg Glu Thr  
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 Phe Ala Trp Cys His Phe Tyr Trp Tyr Leu Thr Asn Glu Gly Ile Ala  
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 Thr Pro His Val Gln Ala Val Gln Gly Pro Leu Gly Ser Pro Pro Lys  
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 Arg Gly Pro Leu Pro Thr Glu Glu Gln Arg Val Tyr Arg Arg Lys Glu  
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 Asp Gly His Asn Leu Ile Ser Leu Leu Glu Val Leu Ser Gly Asp Ser  
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Ile	Arg	Asn	Asp	Asp	Ile	Ala	Asp	Gly	Asn	Pro	Lys	Leu	Thr	Leu	Gly	
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Leu	Ile	Trp	Thr	Ile	Ile	Leu	His	Phe	Gln	Ile	Ser	Asp	Ile	Gln	Val	
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Ser	Gly	Gln	Ser	Glu	Asp	Met	Thr	Ala	Lys	Glu	Lys	Leu	Leu	Leu	Trp	
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His	Lys	Pro	Leu	Leu	Ile	Asp	Met	Asn	Lys	Val	Tyr	Arg	Gln	Thr	Asn	
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Val	Thr	Arg	Leu	Leu	Asp	Pro	Glu	Asp	Val	Asp	Val	Pro	Gln	Pro	Asp	
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Arg	His	His	Thr	Ala	Ala	Phe	Glu	Glu	Arg	Arg	Phe	Pro	Ser	Ser	Phe	
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Ala	Ile	Leu	Glu	Arg	Glu	Lys	Gln	Leu	Arg	Ser	Glu	Phe	Glu	Arg	Leu	
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Glu 530	Cys	Leu	Gln	Arg	Ile	Val	Thr	Lys	Leu	Gln	Met	Glu	Ala	Gly	Leu	
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Ala	Leu	Pro	Glu	Pro	Ser	Pro	Ala	Ala	Pro	Thr	Leu	Arg	Ser	Glu	
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ctg	gag	ctg	acg	ctg	ggc	aag	ctg	gag	cag	gtc	cgc	agc	ctg	tct	3654
Leu	Glu	Leu	Thr	Leu	Gly	Lys	Leu	Glu	Gln	Val	Arg	Ser	Leu	Ser	
1205						1210					1215				
gcc	atc	tac	ctg	gag	aag	ctc	aag	acc	atc	agc	ctg	gtg	atc	cgc	3699
Ala	Ile	Tyr	Leu	Glu	Lys	Leu	Lys	Thr	Ile	Ser	Leu	Val	Ile	Arg	
1220						1225					1230				
ggc	acg	cag	ggg	gcc	gag	gag	gtg	ctc	agg	gcc	cac	gag	gag	cag	3744
Gly	Thr	Gln	Gly	Ala	Glu	Glu	Val	Leu	Arg	Ala	His	Glu	Glu	Gln	
1235						1240					1245				
ctc	aag	gag	gcc	cag	gcc	gtg	ccg	gcc	acc	ctc	ccg	gag	ctc	gag	3789
Leu	Lys	Glu	Ala	Gln	Ala	Val	Pro	Ala	Thr	Leu	Pro	Glu	Leu	Glu	
1250						1255					1260				
gcc	acc	aag	gcc	tct	ctg	aag	aag	ctg	cgg	gcc	cag	gcc	gag	gca	3834
Ala	Thr	Lys	Ala	Ser	Leu	Lys	Lys	Leu	Arg	Ala	Gln	Ala	Glu	Ala	
1265						1270					1275				
cag	cag	ccc	acg	ttc	gac	gcc	ctg	cgg	gat	gag	ctg	cgg	ggg	gca	3879
Gln	Gln	Pro	Thr	Phe	Asp	Ala	Leu	Arg	Asp	Glu	Leu	Arg	Gly	Ala	
1280						1285					1290				
cag	gag	gtg	ggg	gag	cga	ctg	cag	cag	cgg	cac	ggg	gag	cgg	gac	3924
Gln	Glu	Val	Gly	Glu	Arg	Leu	Gln	Gln	Arg	His	Gly	Glu	Arg	Asp	
1295						1300					1305				
gtg	gag	gtg	gag	cgc	tgg	cgg	gag	cgg	gtc	gcc	cag	ttg	ctt	gag	3969
Val	Glu	Val	Glu	Arg	Trp	Arg	Glu	Arg	Val	Ala	Gln	Leu	Leu	Glu	
1310						1315					1320				
cgc	tgg	cag	gct	gtg	ctg	gcc	cag	acc	gac	gtg	cgg	cag	cgc	gag	4014
Arg	Trp	Gln	Ala	Val	Leu	Ala	Gln	Thr	Asp	Val	Arg	Gln	Arg	Glu	
1325						1330					1335				
ctc	gag	caa	ctg	ggc	cgc	cag	ctg	cgt	tac	tac	cgc	gag	agt	gca	4059
Leu	Glu	Gln	Leu	Gly	Arg	Gln	Leu	Arg	Tyr	Tyr	Arg	Glu	Ser	Ala	
1340						1345					1350				
gac	ccc	ttg	ggc	gcc	tgg	ctg	cag	gac	gcc	agg	cgg	cgg	cag	gag	4104
Asp	Pro	Leu	Gly	Ala	Trp	Leu	Gln	Asp	Ala	Arg	Arg	Arg	Gln	Glu	
1355						1360					1365				
cag	atc	cag	gcc	atg	ccg	ctg	gcc	gac	agc	cag	gct	gtg	cgg	gag	4149



Gln Ile 1370	Gln Ala Met Pro 1375	Leu Ala Asp Ser 1380	Val Arg Glu	
cag ctg Gln Leu 1385	cgg cag gag cag Arg Gln Glu Gln 1390	gcc ctg ctg gag gag Ala Leu Leu Glu Glu 1395	atc gag cgc cac Ile Glu Arg His	4194
ggc gag Gly Glu 1400	aag gtc gag gag Lys Val Glu Glu 1405	tgc cag agg ttt gcg aaa Cys Gln Arg Phe Ala Lys 1410	cag tac atc Gln Tyr Ile	4239
aac gcc Asn Ala 1415	atc aag gac tat Ile Lys Asp Tyr 1420	gaa ctc cag ctg gtg Glu Leu Gln Leu Val 1425	acg tac aag gcg Thr Tyr Lys Ala	4284
cag ctt Gln Leu 1430	gag ccg gtg gcc Glu Pro Val Ala 1435	tcc ccg gcc aag aag Ser Pro Ala Lys Lys 1440	ccc aag gtc cag Pro Lys Val Gln	4329
tcg gga Ser Gly 1445	tca gag agt gtc Ser Glu Ser Val 1450	atc cag gag tac gtg Ile Gln Glu Tyr Val 1455	gac ctg cgt acg Asp Leu Arg Thr	4374
cac tac His Tyr 1460	agc gag ctg acc Ser Glu Leu Thr 1465	aca ctg acg agc cag Thr Leu Thr Ser Gln 1470	tac atc aag ttc Tyr Ile Lys Phe	4419
atc agc Ile Ser 1475	gag act ctg cgg Glu Thr Leu Arg 1480	cgc atg gag gag gag Arg Met Glu Glu Glu 1485	gag agg ctg gct Glu Arg Leu Ala	4464
gag cag Glu Gln 1490	cag ccg gca gag Gln Arg Ala Glu 1495	gag cgc gag ccg ctg Arg Glu Arg Leu 1500	gcc gag gtg gag Ala Glu Val Glu	4509
gcc gcg Ala Ala 1505	ctg gag aag cag Leu Glu Lys Gln 1510	cgg cag ctg gcc gag Arg Gln Leu Ala Glu 1515	gcg cac gcc cag Ala His Ala Gln	4554
gca aag Ala Lys 1520	gca cag gcg gag Ala Gln Ala Glu 1525	cgg gag gcg aag gag Arg Glu Ala Lys Glu 1530	ctg cag cag cgc Leu Gln Gln Arg	4599
atg cag Met Gln 1535	gag gag gtg gtg Glu Glu Val Val 1540	cgg cag gag gcg gcg Arg Glu Glu Ala Ala 1545	gtg gac gcg Val Asp Ala	4644
cag cag Gln Gln 1550	cag aag cgc agc Gln Lys Arg Ser 1555	att cag gag gag ctg Ile Gln Glu Glu Leu 1560	cag cag ctg cgg Gln Gln Leu Arg	4689
cag agc Gln Ser 1565	tcg gag gcg gag Ser Glu Ala Glu 1570	atc cag gcc aag gcc Ile Gln Ala Lys Ala 1575	cgg cag gca gag Arg Gln Ala Glu	4734
gcg gct Ala Ala 1580	gag cgc agc cgg Glu Arg Ser Arg 1585	ctg cgc atc gag gag Leu Arg Ile Glu Glu 1590	gag atc cgc gtg Glu Ile Arg Val	4779
gtg cgc Val Arg 1595	ctg cag ttg gag Leu Gln Leu Glu 1600	gcc acc gag cgc cag Ala Thr Glu Arg Gln 1605	cgt ggc ggg gct Arg Gly Gly Ala	4824
gag ggg Glu Gly 1610	gag ctg cag gca Glu Leu Gln Ala 1615	ctg cgt gca ccg gcg Leu Arg Ala Arg Ala 1620	gag gag gct gag Glu Glu Ala Glu	4869
gca caa Ala Gln 1625	aag cga cag gcg Lys Arg Gln Ala 1630	cag gag gcc gag Gln Glu Ala Glu Arg 1635	cgc ttg cgg agg Arg Leu Arg Arg	4914
cag gtg 1640	cag gac gag agc 1645	cag cgt aag ccg cag 1650	gcg gag gtg gag 1655	4959

Gln Val 1640	Gln Asp 1645	Glu Ser 1650	Gln Arg 1655	Lys Arg 1660	Gln Ala 1665	Glu Val 1670	Glu 1675	
ctg gcc 1655	tcg cgc 1660	gtg aag 1665	gcc gag 1670	gag gcc 1675	gag gcg 1680	gag ggc 1685	gag ggc 1690	5004
Leu Ala 1655	Ser Arg 1660	Val Lys 1665	Ala Ala 1670	Glu Ala 1675	Glu Ala 1680	Arg Glu 1685	Lys 1690	
cag cgg 1670	gcc ctg 1675	cag gcc 1680	ctg gag 1685	gag gag 1690	ctg cgg 1695	ctg cag 1700	gag ggc 1705	5049
Gln Arg 1670	Ala Leu 1675	Gln Ala 1680	Leu Ala 1685	Glu Leu 1690	Arg Leu 1695	Gln Ala 1700	Glu 1705	
gag gcg 1685	gag cgg 1690	cgc ctg 1695	ctg cgg 1700	cag gcc 1705	gag gtg 1710	gag cga 1715	gag cgc 1720	5094
Glu Ala 1685	Glu Arg 1690	Arg Arg 1695	Leu Leu 1700	Arg Arg 1705	Gln Ala 1710	Glu Val 1715	Glu Arg 1720	
cag gta 1700	cag gtg 1705	gcc ctg 1710	gag gag 1715	acg gcg 1720	cag cgc 1725	agt gca 1730	gag ggc 1735	5139
Gln Val 1700	Gln Val 1705	Ala Leu 1710	Glu Leu 1715	Thr Ala 1720	Gln Arg 1725	Ser Ser 1730	Ala Ala 1735	
gag ctg 1715	cag agc 1720	aaa cgc 1725	gcc gag 1730	tcc ttc 1735	gcc gag 1740	aag acg 1745	gca cag 1750	5184
Glu Leu 1715	Gln Ser 1720	Lys Arg 1725	Ala Ala 1730	Ser Phe 1735	Ala Glu 1740	Lys Thr 1745	Ala Gln 1750	
ctg gag 1730	cgc tcc 1735	ctg ctg 1740	cag gag 1745	gaa cac 1750	gtg gct 1755	gtg gca 1760	cag ctg 1765	5229
Leu Glu 1730	Arg Ser 1735	Leu Gln 1740	Glu Gln 1745	Glu His 1750	Val Val 1755	Ala Val 1760	Gln Leu 1765	
cgg gag 1745	gag gct 1750	gag cgg 1755	cgg gag 1760	gca cag 1765	cag cag 1770	gcc gag 1775	gcc gag 1780	5274
Arg Glu 1745	Glu Ala 1750	Glu Arg 1755	Arg Arg 1760	Ala Gln 1765	Gln Gln 1770	Ala Glu 1775	Ala Glu 1780	
cgg gcg 1760	cgc gag 1765	gag gca 1770	gag gag 1775	cgg gag 1780	ctg gag 1785	cgc tgg 1790	cag ctc 1795	5319
Arg Ala 1760	Arg Glu 1765	Glu Glu 1770	Ala Ala 1775	Arg Glu 1780	Leu Glu 1785	Arg Trp 1790	Gln Leu 1795	
aag gcc 1775	aac gag 1780	gag gcg 1785	cta cgg 1790	ctg cgg 1795	cag cag 1800	gag ggc 1805	gag gtg 1810	5364
Lys Ala 1775	Asn Glu 1780	Ala Ala 1785	Leu Leu 1790	Arg Arg 1795	Gln Gln 1800	Ala Glu 1805	Val Val 1810	
gcg cag 1790	cag aag 1795	agc ctg 1800	gcg gag 1805	cag gcc 1810	gag gct 1815	gag aag 1820	cag aag 1825	5409
Ala Gln 1790	Gln Lys 1795	Ser Leu 1800	Ala Ala 1805	Gln Ala 1810	Glu Ala 1815	Glu Lys 1820	Gln Lys 1825	
gag gag 1805	gcg gag 1810	cgc gag 1815	gag gcc 1820	cgg cgg 1825	cgc gcc 1830	aag gcg 1835	gag gag 1840	5454
Glu Glu 1805	Ala Glu 1810	Arg Arg 1815	Glu Ala 1820	Arg Arg 1825	Arg Gly 1830	Lys Lys 1835	Glu Glu 1840	
cag gcc 1820	gtc cgg 1825	cag cgg 1830	gag gag 1835	ctg gct 1840	gaa caa 1845	gag ctg 1850	gag aag 1855	5499
Gln Ala 1820	Val Arg 1825	Gln Arg 1830	Glu Glu 1835	Leu Ala 1840	Gln Gln 1845	Glu Glu 1850	Leu Lys 1855	
cag cgg 1835	cag ctg 1840	gcg gaa 1845	ggc gag 1850	acc gcg 1855	cag cag 1860	cgc ctg 1865	gcc gcc 1870	5544
Gln Arg 1835	Gln Leu 1840	Ala Glu 1845	Gly Thr 1850	Ala Ala 1855	Gln Gln 1860	Arg Leu 1865	Ala Ala 1870	
gag cag 1850	gag ttg 1855	atc cgg 1860	ctg ctg 1865	cgg gcc 1870	gag acg 1875	gag cag 1880	ggg gag 1885	5589
Glu Gln 1850	Glu Leu 1855	Ile Arg 1860	Leu Leu 1865	Arg Ala 1870	Glu Thr 1875	Glu Glu 1880	Gln Gly 1885	
cag cag 1865	cgg cag 1870	ctg ctg 1875	gag gag 1880	gag gag 1885	ctg gcc 1890	cgg ctg 1895	cag cgt 1900	5634
Gln Gln 1865	Arg Gln 1870	Leu Leu 1875	Glu Glu 1880	Glu Glu 1885	Ala Ala 1890	Arg Arg 1895	Gln Arg 1900	
gag gcg 1880	gct gca 1885	gcc acg 1890	cag gag 1895	aaa cgg 1900	cag gag 1905	ctg gaa 1910	gcc gcc 1915	5679
Glu Ala 1880	Ala Ala 1885	Ala Thr 1890	Gln Gln 1895	Lys Arg 1900	Gln Glu 1905	Leu Glu 1910	Ala Glu 1915	
ctg gcc 1895	aag gtg 1900	cgg gcc 1905	gag gag 1910	atg gag 1915	gtg ctg 1920	ctg gcc 1925	agc aag 1930	5724
Leu Ala 1895	Lys Val 1900	Arg Ala 1905	Glu Glu 1910	Met Glu 1915	Val Leu 1920	Leu Leu 1925	Ser Lys 1930	
gcg agg 1900	gct gag 1905	gag gag 1910	tgc cgc 1915	tcc acc 1920	agc gag 1925	aag tcc 1930	aag 1935	5769

Ala	Arg	Ala	Glu	Glu	Glu	Ser	Arg	Ser	Thr	Ser	Glu	Lys	Ser	Lys	
1910						1915					1920				
cag	agg	ctg	gag	gcc	gag	gcc	ggc	cgg	ttc	cgc	gag	ctg	gcc	gag	5814
Gln	Arg	Leu	Glu	Ala	Glu	Ala	Gly	Arg	Phe	Arg	Glu	Leu	Ala	Glu	
1925						1930					1935				
gag	gcc	gcc	cgc	ctg	cgt	gcc	ctg	gcg	gaa	gag	gcc	aag	cgg	cag	5859
Glu	Ala	Ala	Arg	Leu	Arg	Ala	Leu	Ala	Glu	Glu	Ala	Lys	Arg	Gln	
1940						1945					1950				
cgg	cag	ctg	gcc	gag	gaa	gac	gcg	gcg	cgg	cag	cgg	gcc	gag	gcg	5904
Arg	Gln	Leu	Ala	Glu	Glu	Asp	Ala	Ala	Arg	Gln	Arg	Ala	Glu	Ala	
1955						1960					1965				
gag	cgg	gtg	ctt	gcg	gag	aag	ctg	gcc	gcc	atc	ggc	gag	gcc	acg	5949
Glu	Arg	Val	Leu	Ala	Glu	Lys	Leu	Ala	Ala	Ile	Gly	Glu	Ala	Thr	
1970						1975					1980				
cgg	ctc	aag	acg	gag	gcg	gag	atc	gcg	ctc	aag	gag	aag	gag	gcg	5994
Arg	Leu	Lys	Thr	Glu	Ala	Glu	Ile	Ala	Leu	Lys	Glu	Lys	Glu	Ala	
1985						1990					1995				
gag	aac	gag	cgc	ctg	cgg	cgg	ctg	gcg	gag	gac	gag	gcc	ttc	cag	6039
Glu	Asn	Glu	Arg	Leu	Arg	Arg	Leu	Ala	Glu	Asp	Glu	Ala	Phe	Gln	
2000						2005					2010				
cgg	cgg	cgg	ctg	gag	gag	cag	gcc	gcg	caa	cac	aag	gct	gac	atc	6084
Arg	Arg	Arg	Leu	Glu	Glu	Gln	Ala	Ala	Gln	His	Lys	Ala	Asp	Ile	
2015						2020					2025				
gag	gag	cgc	ctg	gcc	cag	ctg	cgc	aag	gca	tcg	gac	agc	gag	ctg	6129
Glu	Glu	Arg	Leu	Ala	Gln	Leu	Arg	Lys	Ala	Ser	Asp	Ser	Glu	Leu	
2030						2035					2040				
gag	cgg	cag	aag	ggg	ctg	gtg	gag	gac	acg	ctg	agg	cag	cgg	cgg	6174
Glu	Arg	Gln	Lys	Gly	Leu	Val	Glu	Asp	Thr	Leu	Arg	Gln	Arg	Arg	
2045						2050					2055				
cag	gtg	gag	gag	gag	atc	ctg	gcg	ctg	aag	gcg	agc	ttc	gag	aag	6219
Gln	Val	Glu	Glu	Glu	Ile	Leu	Ala	Leu	Lys	Ala	Ser	Phe	Glu	Lys	
2060						2065					2070				
gcg	gcc	gct	ggc	aag	gcg	gag	ctg	gag	ctg	gag	ctg	gga	cgc	atc	6264
Ala	Ala	Ala	Gly	Lys	Ala	Glu	Leu	Glu	Leu	Glu	Leu	Gly	Arg	Ile	
2075						2080					2085				
cgc	agc	aac	gcg	gag	gac	acg	ctg	cgc	agc	aag	gag	cag	gcc	gag	6309
Arg	Ser	Asn	Ala	Glu	Asp	Thr	Leu	Arg	Ser	Lys	Glu	Gln	Ala	Glu	
2090						2095					2100				
ctg	gag	gct	gcg	agg	cag	cgg	cag	ctg	gcg	gcg	gag	gag	gag	cgg	6354
Leu	Glu	Ala	Ala	Arg	Gln	Arg	Gln	Leu	Ala	Ala	Glu	Glu	Glu	Arg	
2105						2110					2115				
cgg	cgc	cgt	gag	gct	gag	gag	cgc	gtg	cag	aag	agc	ctg	gcg	gcc	6399
Arg	Arg	Arg	Glu	Ala	Glu	Glu	Arg	Val	Gln	Lys	Ser	Leu	Ala	Ala	
2120						2125					2130				
gag	gag	gag	gcc	gca	cgg	cag	cgg	aag	gcg	gcg	ctg	gag	gaa	gtc	6444
Glu	Glu	Glu	Ala	Ala	Arg	Gln	Arg	Lys	Ala	Ala	Leu	Glu	Glu	Val	
2135						2140					2145				
gag	cgg	ctg	aaa	gcc	aag	gtg	gag	gag	gcg	cgg	cgc	ctg	cgg	gag	6489
Glu	Arg	Leu	Lys	Ala	Lys	Val	Glu	Glu	Ala	Arg	Arg	Leu	Arg	Glu	
2150						2155					2160				
cga	gcg	gag	cag	gag	tcg	gcg	cgg	cag	ctg	cag	ctg	gcc	cag	gag	6534
Arg	Ala	Glu	Gln	Glu	Ser	Ala	Arg	Gln	Leu	Gln	Leu	Ala	Gln	Glu	
2165						2170					2175				
gcc	gcc	cag	aag	cgg	ctg	cag	gcg	gaa	gag	aag	gca	cac	gcc	ttc	6579

Ala 2180	Ala	Gln	Lys	Arg	Leu	Gln 2185	Ala	Glu	Glu	Lys	Ala 2190	His	Ala	Phe	
gcg 2195	gtg Val	cag Gln	cag Gln	aag Lys	gag Glu	cag Gln 2200	gag Glu	cta Leu	cag Gln	cag Gln	acg Thr 2205	ctg Leu	cag Gln	cag Gln	6624
gag 2210	cag Gln	agc Ser	gtg Val	ctg Leu	gac Asp	cag Gln 2215	ctg Leu	cgc Arg	ggc Gly	gag Glu	gcg Ala 2220	gag Glu	gcg Ala	gcc Ala	6669
cgg 2225	cgg Arg	gcg Ala	gct Ala	gag Glu	gag Glu	gcg Ala 2230	gag Glu	gag Glu	gcc Ala	cgg Arg	gtg Val 2235	cag Gln	gcg Ala	gag Glu	6714
cgt 2240	gag Glu	gcg Ala	gcg Ala	cag Gln	tcc Ser	cgg Arg 2245	cgg Arg	cag Gln	gtg Val	gaa Glu	gag Glu 2250	gcc Ala	gag Glu	cgg Arg	6759
ctg 2255	aag Lys	cag Gln	tcg Ser	gca Ala	gag Glu	gag Glu 2260	cag Gln	gca Ala	cag Gln	gcc Ala	cgg Arg 2265	gct Ala	cag Gln	gca Ala	6804
cag 2270	gcg Ala	gct Ala	gca Ala	gag Glu	aag Lys	ctg Leu 2275	cgc Arg	aag Lys	gag Glu	gcc Ala	gag Glu 2280	caa Gln	gag Glu	gcg Ala	6849
gcg 2285	cgg Arg	cgg Arg	gca Ala	cag Gln	gcg Ala	gag Glu 2290	cag Gln	gcg Ala	gcc Ala	ctg Leu	cgg Arg 2295	cag Gln	aag Lys	cag Gln	6894
gca 2300	gct Ala	gac Asp	gcg Ala	gag Glu	atg Met	gag Glu 2305	aag Lys	cat His	aag Lys	aaa Lys	ttc Phe 2310	gcc Ala	gag Glu	cag Gln	6939
acg 2315	ctg Leu	cgg Arg	cag Gln	aag Lys	gcg Ala	cag Gln 2320	gtg Val	gag Glu	cag Gln	gag Glu	ctg Leu 2325	aca Thr	aca Thr	ctg Leu	6984
cgg 2330	ctg Leu	cag Gln	ctg Leu	gag Glu	gag Glu	acc Thr 2335	gac Asp	cac His	cag Gln	aag Lys	aac Asn 2340	ctg Leu	ctg Leu	gac Asp	7029
gag 2345	gag Glu	ctg Leu	cag Gln	cgg Arg	ctg Leu	aag Lys 2350	gcg Ala	gag Glu	gcc Ala	acg Thr	gag Glu 2355	gcc Ala	gca Ala	cgc Arg	7074
cag 2360	cgc Arg	agc Ser	cag Gln	gtg Val	gag Glu	gag Glu 2365	gag Glu	ctc Leu	ttc Phe	tcg Ser	gtg Val 2370	cgc Arg	gtg Val	cag Gln	7119
atg 2375	gag Glu	gag Glu	ctg Leu	agc Ser	aag Lys	ctc Leu 2380	aag Lys	gca Ala	cgc Arg	atc Ile	gag Glu 2385	gct Ala	gag Glu	aac Asn	7164
cgc 2390	gca Ala	ctc Leu	atc Ile	ttg Leu	cgt Arg	gac Asp 2395	aag Lys	gac Asp	aat Asn	acg Thr	cag Gln 2400	cgc Arg	ttc Phe	ctg Leu	7209
cag 2405	gag Glu	gag Glu	gct Ala	gag Glu	aag Lys	atg Met 2410	aag Lys	cag Gln	gtg Val	gcg Ala	gag Glu 2415	gag Glu	gcc Ala	gcg Ala	7254
cgg 2420	ctg Leu	agt Ser	gtg Val	gcg Ala	gcc Ala	caa Gln 2425	gag Glu	gct Ala	gcg Ala	cga Arg	ctg Leu 2430	cgg Arg	cag Gln	ctg Leu	7299
gca 2435	gag Glu	gag Glu	gac Asp	ctg Leu	gca Ala	cag Gln 2440	cag Gln	cgg Arg	gcc Ala	ttg Leu	gca Ala 2445	gag Glu	aag Lys	atg Met	7344
ctc	aag	gag	aag	atg	cag	gcg	gtg	cag	gag	gcc	acg	cga	ctc	aag	7389

Leu	Lys	Glu	Lys	Met	Gln	Ala	Val	Gln	Glu	Ala	Thr	Arg	Leu	Lys	
2450						2455					2460				
gct	gag	gcg	gaa	ctg	ctg	cag	cag	cag	aag	gag	ctt	gcg	cag	gag	7434
Ala	Glu	Ala	Glu	Leu	Leu	Gln	Gln	Gln	Lys	Glu	Leu	Ala	Gln	Glu	
2465						2470					2475				
cag	gcg	cgg	cgg	ctg	cag	gag	gac	aag	gag	cag	atg	gcg	cag	cag	7479
Gln	Ala	Arg	Arg	Leu	Gln	Glu	Asp	Lys	Glu	Gln	Met	Ala	Gln	Gln	
2480						2485					2490				
ctg	gcg	gag	gag	acg	cag	ggc	ttc	cag	cgg	acg	ctg	gag	gcc	gag	7524
Leu	Ala	Glu	Glu	Thr	Gln	Gly	Phe	Gln	Arg	Thr	Leu	Glu	Ala	Glu	
2495						2500					2505				
cgg	cag	cgg	cag	ctg	gag	atg	agc	gct	gag	gct	gag	cgc	ctc	aag	7569
Arg	Gln	Arg	Gln	Leu	Glu	Met	Ser	Ala	Glu	Ala	Glu	Arg	Leu	Lys	
2510						2515					2520				
ctg	cgt	gtg	gcc	gag	atg	agc	cga	gcc	cag	gcc	cgc	gct	gag	gag	7614
Leu	Arg	Val	Ala	Glu	Met	Ser	Arg	Ala	Gln	Ala	Arg	Ala	Glu	Glu	
2525						2530					2535				
gac	gcc	cag	cgc	ttc	cgg	aag	cag	gcg	gag	gag	atc	ggc	gag	aag	7659
Asp	Ala	Gln	Arg	Phe	Arg	Lys	Gln	Ala	Glu	Glu	Ile	Gly	Glu	Lys	
2540						2545					2550				
ctg	cac	cgc	acg	gag	ctc	gcc	acc	cag	gag	aag	gtg	acc	ctg	gtg	7704
Leu	His	Arg	Thr	Glu	Leu	Ala	Thr	Gln	Glu	Lys	Val	Thr	Leu	Val	
2555						2560					2565				
cag	aca	ctg	gag	atc	cag	cga	cag	cag	agt	gac	cat	gat	gcc	gag	7749
Gln	Thr	Leu	Glu	Ile	Gln	Arg	Gln	Gln	Ser	Asp	His	Asp	Ala	Glu	
2570						2575					2580				
cgc	ctg	cgg	gag	gcc	atc	gct	gag	ctg	gag	cgt	gag	aag	gag	aag	7794
Arg	Leu	Arg	Glu	Ala	Ile	Ala	Glu	Leu	Glu	Arg	Glu	Lys	Glu	Lys	
2585						2590					2595				
ctc	caa	cag	gag	gcc	aaa	ctg	ctg	cag	ctc	aag	tct	gag	gag	atg	7839
Leu	Gln	Gln	Glu	Ala	Lys	Leu	Leu	Gln	Leu	Lys	Ser	Glu	Glu	Met	
2600						2605					2610				
cag	acg	gtg	cag	cag	gag	cag	ctg	ctg	cag	gag	acg	cag	gcc	ctg	7884
Gln	Thr	Val	Gln	Gln	Glu	Gln	Leu	Leu	Gln	Glu	Thr	Gln	Ala	Leu	
2615						2620					2625				
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Gln	Gln	Ser	Phe	Leu	Ser	Glu	Lys	Asp	Ser	Leu	Leu	Gln	Arg	Glu	
2630						2635					2640				
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Arg	Phe	Ile	Glu	Gln	Glu	Lys	Ala	Lys	Leu	Glu	Gln	Leu	Phe	Gln	
2645						2650					2655				
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Asp	Glu	Val	Ala	Lys	Ala	Gln	Gln	Leu	Arg	Glu	Glu	Gln	Gln	Arg	
2660						2665					2670				
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Gln	Gln	Gln	Gln	Met	Glu	Gln	Glu	Arg	Gln	Arg	Leu	Val	Ala	Ser	
2675						2680					2685				
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Met	Glu	Glu	Ala	Arg	Arg	Arg	Gln	His	Glu	Ala	Glu	Glu	Gly	Val	
2690						2695					2700				
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Arg	Arg	Lys	Gln	Glu	Glu	Leu	Gln	Gln	Leu	Glu	Gln	Gln	Arg	Arg	
2705						2710					2715				
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Gln	Gln	Glu	Glu	Leu	Leu	Ala	Glu	Glu	Asn	Gln	Arg	Leu	Arg	Glu	
2720						2725					2730				
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Gln	Leu	Gln	Leu	Leu	Glu	Glu	Gln	His	Arg	Ala	Ala	Leu	Ala	His	
2735						2740					2745				
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Ser	Glu	Glu	Val	Thr	Ala	Ser	Gln	Val	Ala	Ala	Thr	Lys	Thr	Leu	
2750						2755					2760				
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Pro	Asn	Gly	Arg	Asp	Ala	Leu	Asp	Gly	Pro	Ala	Ala	Glu	Ala	Glu	
2765						2770					2775				
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Pro	Glu	His	Ser	Phe	Asp	Gly	Leu	Arg	Arg	Lys	Val	Ser	Ala	Gln	
2780						2785					2790				
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Arg	Leu	Gln	Glu	Ala	Gly	Ile	Leu	Ser	Ala	Glu	Glu	Leu	Gln	Arg	
2795						2800					2805				
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Leu	Ala	Gln	Gly	His	Thr	Thr	Val	Asp	Glu	Leu	Ala	Arg	Arg	Glu	
2810						2815					2820				
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2825						2830					2835				
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2840						2845					2850				
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Gln	Arg	Gln	Leu	Leu	Ser	Pro	Gly	Thr	Ala	Leu	Ile	Leu	Leu	Glu	
2855						2860					2865				
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Ala	Gln	Ala	Ala	Ser	Gly	Phe	Leu	Leu	Asp	Pro	Val	Arg	Asn	Arg	
2870						2875					2880				
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2885						2890					2895				
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Glu	Leu	His	His	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	
2900						2905					2910				
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Tyr	Lys	Asp	Pro	Tyr	Thr	Gly	Gln	Gln	Ile	Ser	Leu	Phe	Gln	Ala	
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Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Val	Ile	Asp	Pro	Val	His	Ser	
2945						2950					2955				
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Lys	Ile	Ile	Ile	Thr	Val	Val 3100	Glu	Glu	Gln	Glu	Gln 3105	Lys	Gly	Arg	
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gcg	gtc	acc	ggc	tac	cgt	gac	ccc	tac	acc	gag	cag	acc	atc	tcg	11754
Ala 3905	Val	Thr	Gly	Tyr	Arg	Asp 3910	Pro	Tyr	Thr	Glu	Gln 3915	Thr	Ile	Ser	
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Leu 3920	Phe	Gln	Ala	Met	Lys	Lys 3925	Glu	Leu	Ile	Pro	Thr 3930	Glu	Glu	Ala	
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Pro 3950	Arg	Leu	Gly	Phe	His	Leu 3955	Pro	Leu	Glu	Val	Ala 3960	Tyr	Gln	Arg	
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Gly 3965	Tyr	Leu	Asn	Lys	Asp	Thr 3970	His	Asp	Gln	Leu	Ser 3975	Glu	Pro	Ser	
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Glu 3980	Val	Arg	Ser	Tyr	Val	Asp 3985	Pro	Ser	Thr	Asp	Glu 3990	Arg	Leu	Ser	
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Tyr 3995	Thr	Gln	Leu	Leu	Arg	Arg 4000	Cys	Arg	Arg	Asp	Asp 4005	Gly	Thr	Gly	
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Gln 4010	Leu	Leu	Leu	Pro	Leu	Ser 4015	Asp	Ala	Arg	Lys	Leu 4020	Thr	Phe	Arg	
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Gly 4025	Leu	Arg	Lys	Gln	Ile	Thr 4030	Met	Glu	Glu	Leu	Val 4035	Arg	Ser	Gln	
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Val 4040	Met	Asp	Glu	Ala	Thr	Ala 4045	Leu	Gln	Leu	Arg	Glu 4050	Gly	Leu	Thr	
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Ser 4055	Ile	Glu	Glu	Val	Thr	Lys 4060	Asn	Leu	Gln	Lys	Phe 4065	Leu	Glu	Gly	
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Thr	Ala	Phe	Glu	Leu	Leu	Glu 4105	Ala	Gln	Ala	Ala	Thr 4110	Gly	Tyr	Val	
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Ile	Asp	Pro	Ile	Lys	Gly	Leu 4120	Lys	Leu	Thr	Val	Glu 4125	Glu	Ala	Val	
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Arg	Met	Gly	Ile	Val	Gly	Pro 4135	Glu	Phe	Lys	Asp	Lys 4140	Leu	Leu	Ser	
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Ala	Glu	Arg	Ala	Val	Thr	Gly 4150	Tyr	Lys	Asp	Pro	Tyr 4155	Ser	Gly	Lys	
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Leu	Ile	Ser	Leu	Phe	Gln	Ala 4165	Met	Lys	Lys	Gly	Leu 4170	Ile	Leu	Lys	
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Asp	His	Gly	Ile	Arg	Leu	Leu 4180	Glu	Ala	Gln	Ile	Ala 4185	Thr	Gly	Gly	
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Ile	Ile	Asp	Pro	Glu	Glu	Ser 4195	His	Arg	Leu	Pro	Val 4200	Glu	Val	Ala	
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Tyr	Lys	Arg	Gly	Leu	Phe	Asp 4210	Glu	Glu	Met	Asn	Glu 4215	Ile	Leu	Thr	
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Asp	Pro	Ser	Asp	Asp	Thr	Lys 4225	Gly	Phe	Phe	Asp	Pro 4230	Asn	Thr	Glu	
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Glu	Asn	Leu	Thr	Tyr	Leu	Gln 4240	Leu	Met	Glu	Arg	Cys 4245	Ile	Thr	Asp	
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Pro	Gln	Thr	Gly	Leu	Cys	Leu 4255	Leu	Pro	Leu	Lys	Glu 4260	Lys	Lys	Arg	
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Glu	Arg	Lys	Thr	Ser	Ser	Lys 4270	Ser	Ser	Val	Arg	Lys 4275	Arg	Arg	Val	
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Val	Ile	Val	Asp	Pro	Glu	Thr 4285	Gly	Lys	Glu	Met	Ser 4290	Val	Tyr	Glu	
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Ala	Tyr	Arg	Lys	Gly	Leu	Ile 4300	Asp	His	Gln	Thr	Tyr 4305	Leu	Glu	Leu	
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Ser	Glu	Gln	Glu	Cys	Glu	Trp 4315	Glu	Glu	Ile	Thr	Ile 4320	Ser	Ser	Ser	
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Asp	Gly	Val	Val	Lys	Ser	Met 4330	Ile	Ile	Asp	Arg	Arg 4335	Ser	Gly	Arg	
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Gln Tyr Asp Ile Asp Asp Ala Ile Ala Lys Asn Leu Ile Asp Arg	
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tcg gca ctg gac cag tac cgc gcc ggc acg ctc tcc atc acc gag	13104
Ser Ala Leu Asp Gln Tyr Arg Ala Gly Thr Leu Ser Ile Thr Glu	
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ttc gcc gac atg ctc tcg ggc aac gcc ggt ggt ttc cgc tcc cgt	13149
Phe Ala Asp Met Leu Ser Gly Asn Ala Gly Gly Phe Arg Ser Arg	
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Ser Ser Ser Val Gly Ser Ser Ser Ser Tyr Pro Ile Ser Pro Ala	
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Val Ser Arg Thr Gln Leu Ala Ser Trp Ser Asp Pro Thr Glu Glu	
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Thr Gly Pro Val Ala Gly Ile Leu Asp Thr Glu Thr Leu Glu Lys	
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Val Ser Ile Thr Glu Ala Met His Arg Asn Leu Val Asp Asn Ile	
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Thr Gly Gln Arg Leu Leu Glu Ala Gln Ala Cys Thr Gly Gly Ile	
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Ile Asp Pro Ser Thr Gly Glu Arg Phe Pro Val Thr Asp Ala Val	
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Asn Lys Gly Leu Val Asp Lys Ile Met Val Asp Arg Ile Asn Leu	
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Ala Gln Lys Ala Phe Cys Gly Phe Glu Asp Pro Arg Thr Lys Thr	
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Lys Met Ser Ala Ala Gln Ala Leu Lys Lys Gly Trp Leu Tyr Tyr	
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Glu Ala Gly Gln Arg Phe Leu Glu Val Gln Tyr Leu Thr Gly Gly	
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Leu Ile Glu Pro Asp Thr Pro Gly Arg Val Pro Leu Asp Glu Ala	
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ctg cag cgc ggc acg gtg gac gcc cgc acc gca cag aag ctg cgt	13689
Leu Gln Arg Gly Thr Val Asp Ala Arg Thr Ala Gln Lys Leu Arg	
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gac gtg ggc gcc tac tcc aag tac ctc acc tgc cct aag acc aag	13734
Asp Val Gly Ala Tyr Ser Lys Tyr Leu Thr Cys Pro Lys Thr Lys	
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ctc aag atc tcc tat aag gac gcg ctg gac cgc agc atg gtg gag	13779
Leu Lys Ile Ser Tyr Lys Asp Ala Leu Asp Arg Ser Met Val Glu	
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Glu Gly Thr Gly Leu Arg Leu Leu Glu Ala Ala Ala Gln Ser Thr	
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aag ggc tac tac agc ccc tac agc gtc agc ggc tcc ggc tct acc	13869

Lys	Gly	Tyr	Tyr	Ser	Pro	Tyr	Ser	Val	Ser	Gly	Ser	Gly	Ser	Thr	
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Ala	Gly	Ser	Arg	Thr	Gly	Ser	Arg	Thr	Gly	Ser	Arg	Ala	Gly	Ser	
4625						4630					4635				
cgc	cgc	ggc	agc	ttt	gac	gcc	acc	ggc	tcc	ggc	ttc	tcc	atg	acc	13959
Arg	Arg	Gly	Ser	Phe	Asp	Ala	Thr	Gly	Ser	Gly	Phe	Ser	Met	Thr	
4640						4645					4650				
ttc	tct	tca	tcc	tcc	tac	tcc	tcc	tcg	ggc	tac	ggc	cgc	cgc	tac	14004
Phe	Ser	Ser	Ser	Ser	Tyr	Ser	Ser	Ser	Gly	Tyr	Gly	Arg	Arg	Tyr	
4655						4660					4665				
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Ala	Ser	Gly	Ser	Ser	Ala	Ser	Leu	Gly	Gly	Pro	Glu	Ser	Ala	Val	
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gcc															14052
Ala															

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 <211> 4684  
 <212> PRT  
 <213> Homo sapiens

<400> 72

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Glu	Val	Leu	Phe	Arg	Glu	Gly	Val	Met	Val	Ala	Lys	Lys	Asp	Arg	Arg
			20					25					30		

Pro	Arg	Ser	Leu	His	Pro	His	Val	Pro	Gly	Val	Thr	Asn	Leu	Gln	Val
		35					40					45			

Met	Arg	Ala	Met	Ala	Ser	Leu	Arg	Ala	Arg	Gly	Leu	Val	Arg	Glu	Thr
	50					55					60				

Phe	Ala	Trp	Cys	His	Phe	Tyr	Trp	Tyr	Leu	Thr	Asn	Glu	Gly	Ile	Ala
65					70					75					80

His	Leu	Arg	Gln	Tyr	Leu	His	Leu	Pro	Pro	Glu	Ile	Val	Pro	Ala	Ser
				85					90					95	

Leu	Gln	Arg	Val	Arg	Arg	Pro	Val	Ala	Met	Val	Met	Pro	Ala	Arg	Arg
			100					105					110		

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

Arg	Gly	Pro	Leu	Pro	Thr	Glu	Glu	Gln	Arg	Val	Tyr	Arg	Arg	Lys	Glu
	130					135					140				

Leu	Glu	Glu	Val	Ser	Pro	Glu	Thr	Pro	Val	Val	Pro	Ala	Thr	Thr	Gln
145					150					155					160

Arg	Thr	Leu	Ala	Arg	Pro	Gly	Pro	Glu	Pro	Ala	Pro	Ala	Thr	Asp	Glu
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165

170

175

Arg Asp Arg Val Gln Lys Lys Thr Phe Thr Lys Trp Val Asn Lys His  
180 185 190

Leu Ile Lys Ala Gln Arg His Ile Ser Asp Leu Tyr Glu Asp Leu Arg  
195 200 205

Asp Gly His Asn Leu Ile Ser Leu Leu Glu Val Leu Ser Gly Asp Ser  
210 215 220

Leu Pro Arg Glu Lys Gly Arg Met Arg Phe His Lys Leu Gln Asn Val  
225 230 235 240

Gln Ile Ala Leu Asp Tyr Leu Arg His Arg Gln Val Lys Leu Val Asn  
245 250 255

Ile Arg Asn Asp Asp Ile Ala Asp Gly Asn Pro Lys Leu Thr Leu Gly  
260 265 270

Leu Ile Trp Thr Ile Ile Leu His Phe Gln Ile Ser Asp Ile Gln Val  
275 280 285

Ser Gly Gln Ser Glu Asp Met Thr Ala Lys Glu Lys Leu Leu Leu Trp  
290 295 300

Ser Gln Arg Met Val Glu Gly Tyr Gln Gly Leu Arg Cys Asp Asn Phe  
305 310 315 320

Thr Ser Ser Trp Arg Asp Gly Arg Leu Phe Asn Ala Ile Ile His Arg  
325 330 335

His Lys Pro Leu Leu Ile Asp Met Asn Lys Val Tyr Arg Gln Thr Asn  
340 345 350

Leu Glu Asn Leu Asp Gln Ala Phe Ser Val Ala Glu Arg Asp Leu Gly  
355 360 365

Val Thr Arg Leu Leu Asp Pro Glu Asp Val Asp Val Pro Gln Pro Asp  
370 375 380

Glu Lys Ser Ile Ile Thr Tyr Val Ser Ser Leu Tyr Asp Ala Met Pro  
385 390 395 400

Arg Val Pro Asp Val Gln Asp Gly Val Arg Ala Asn Glu Leu Gln Leu  
405 410 415

Arg Trp Gln Glu Tyr Arg Glu Leu Val Leu Leu Leu Leu Gln Trp Met  
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Arg His His Thr Ala Ala Phe Glu Glu Arg Arg Phe Pro Ser Ser Phe  
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Glu Glu Ile Glu Ile Leu Trp Ser Gln Phe Leu Lys Phe Lys Glu Met

460

Gln Tyr Ala Lys Leu Leu Asn Ser Ser Lys Ala Arg Leu Arg Ser Leu

740

745

750

Glu Ser Leu His Ser Phe Val Ala Ala Ala Thr Lys Glu Leu Met Trp  
 755 760 765

Leu Asn Glu Lys Glu Glu Glu Glu Val Gly Phe Asp Trp Ser Asp Arg  
 770 775 780

Asn Thr Asn Met Thr Ala Lys Lys Glu Ser Tyr Ser Ala Leu Met Arg  
 785 790 795 800

Glu Leu Glu Leu Lys Glu Lys Lys Ile Lys Glu Leu Gln Asn Ala Gly  
 805 810 815

Asp Arg Leu Leu Arg Glu Asp His Pro Ala Arg Pro Thr Val Glu Ser  
 820 825 830

Phe Gln Ala Ala Leu Gln Thr Gln Trp Ser Trp Met Leu Gln Leu Cys  
 835 840 845

Cys Cys Ile Glu Ala His Leu Lys Glu Asn Ala Ala Tyr Phe Gln Phe  
 850 855 860

Phe Ser Asp Val Arg Glu Ala Glu Gly Gln Leu Gln Lys Leu Gln Glu  
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Ala Leu Arg Arg Lys Tyr Ser Cys Asp Arg Ser Ala Thr Val Thr Arg  
 885 890 895

Leu Glu Asp Leu Leu Gln Asp Ala Gln Asp Glu Lys Glu Gln Leu Asn  
 900 905 910

Glu Tyr Lys Gly His Leu Ser Gly Leu Ala Lys Arg Ala Lys Ala Val  
 915 920 925

Val Gln Leu Lys Pro Arg His Pro Ala His Pro Met Arg Gly Arg Leu  
 930 935 940

Pro Leu Leu Ala Val Cys Asp Tyr Lys Gln Val Glu Val Thr Val His  
 945 950 955 960

Lys Gly Asp Glu Cys Gln Leu Val Gly Pro Ala Gln Pro Ser His Trp  
 965 970 975

Lys Val Leu Ser Ser Ser Gly Ser Glu Ala Ala Val Pro Ser Val Cys  
 980 985 990

Phe Leu Val Pro Pro Pro Asn Gln Glu Ala Gln Glu Ala Val Thr Arg  
 995 1000 1005

Leu Glu Ala Gln His Gln Ala Leu Val Thr Leu Trp His Gln Leu  
 1010 1015 1020

His Val Asp Met Lys Ser Leu Leu Ala Trp Gln Ser Leu Arg Arg



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Asp	Val	Gln	Leu	Ile	Arg	Ser	Trp	Ser	Leu	Ala	Thr	Phe	Arg	Thr	
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Leu	Lys	Pro	Glu	Glu	Gln	Arg	Gln	Ala	Leu	His	Ser	Leu	Glu	Leu	
	1055					1060						1065			
His	Tyr	Gln	Ala	Phe	Leu	Arg	Asp	Ser	Gln	Asp	Ala	Gly	Gly	Phe	
	1070					1075						1080			
Gly	Pro	Glu	Asp	Arg	Leu	Met	Ala	Glu	Arg	Glu	Tyr	Gly	Ser	Cys	
	1085					1090						1095			
Ser	His	His	Tyr	Gln	Gln	Leu	Leu	Gln	Ser	Leu	Glu	Gln	Gly	Ala	
	1100					1105						1110			
Gln	Glu	Glu	Ser	Arg	Cys	Gln	Arg	Cys	Ile	Ser	Glu	Leu	Lys	Asp	
	1115					1120						1125			
Ile	Arg	Leu	Gln	Leu	Glu	Ala	Cys	Glu	Thr	Arg	Thr	Val	His	Arg	
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Leu	Arg	Leu	Pro	Leu	Asp	Lys	Glu	Pro	Ala	Arg	Glu	Cys	Ala	Gln	
	1145					1150						1155			
Arg	Ile	Ala	Glu	Gln	Gln	Lys	Ala	Gln	Ala	Glu	Val	Glu	Gly	Leu	
	1160					1165						1170			
Gly	Lys	Gly	Val	Ala	Arg	Leu	Ser	Ala	Glu	Ala	Glu	Lys	Val	Leu	
	1175					1180						1185			
Ala	Leu	Pro	Glu	Pro	Ser	Pro	Ala	Ala	Pro	Thr	Leu	Arg	Ser	Glu	
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Ala	Ile	Tyr	Leu	Glu	Lys	Leu	Lys	Thr	Ile	Ser	Leu	Val	Ile	Arg	
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Gly	Thr	Gln	Gly	Ala	Glu	Glu	Val	Leu	Arg	Ala	His	Glu	Glu	Gln	
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Leu	Lys	Glu	Ala	Gln	Ala	Val	Pro	Ala	Thr	Leu	Pro	Glu	Leu	Glu	
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Ala	Thr	Lys	Ala	Ser	Leu	Lys	Lys	Leu	Arg	Ala	Gln	Ala	Glu	Ala	
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Gln	Gln	Pro	Thr	Phe	Asp	Ala	Leu	Arg	Asp	Glu	Leu	Arg	Gly	Ala	
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Gln	Glu	Val	Gly	Glu	Arg	Leu	Gln	Gln	Arg	His	Gly	Glu	Arg	Asp	

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Val Glu	Val Glu Arg Trp	Arg Glu Arg Val Ala	Gln Leu Leu Glu	
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Arg Trp	Gln Ala Val Leu	Ala Gln Thr Asp Val	Arg Gln Arg Glu	
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Leu Glu	Gln Leu Gly Arg	Gln Leu Arg Tyr Tyr	Arg Glu Ser Ala	
1340		1345	1350	
Asp Pro	Leu Gly Ala Trp	Leu Gln Asp Ala Arg	Arg Arg Gln Glu	
1355		1360	1365	
Gln Ile	Gln Ala Met Pro	Leu Ala Asp Ser Gln	Ala Val Arg Glu	
1370		1375	1380	
Gln Leu	Arg Gln Glu Gln	Ala Leu Leu Glu Glu	Ile Glu Arg His	
1385		1390	1395	
Gly Glu	Lys Val Glu Glu	Cys Gln Arg Phe Ala	Lys Gln Tyr Ile	
1400		1405	1410	
Asn Ala	Ile Lys Asp Tyr	Glu Leu Gln Leu Val	Thr Tyr Lys Ala	
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Gln Leu	Glu Pro Val Ala	Ser Pro Ala Lys Lys	Pro Lys Val Gln	
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Ser Gly	Ser Glu Ser Val	Ile Gln Glu Tyr Val	Asp Leu Arg Thr	
1445		1450	1455	
His Tyr	Ser Glu Leu Thr	Thr Leu Thr Ser Gln	Tyr Ile Lys Phe	
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Ile Ser	Glu Thr Leu Arg	Arg Met Glu Glu Glu	Glu Arg Leu Ala	
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Glu Gln	Gln Arg Ala Glu	Glu Arg Glu Arg Leu	Ala Glu Val Glu	
1490		1495	1500	
Ala Ala	Leu Glu Lys Gln	Arg Gln Leu Ala Glu	Ala His Ala Gln	
1505		1510	1515	
Ala Lys	Ala Gln Ala Glu	Arg Glu Ala Lys Glu	Leu Gln Gln Arg	
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Met Gln	Glu Glu Val Val	Arg Arg Glu Glu Ala	Ala Val Asp Ala	
1535		1540	1545	
Gln Gln	Gln Lys Arg Ser	Ile Gln Glu Glu Leu	Gln Gln Leu Arg	
1550		1555	1560	
Gln Ser	Ser Glu Ala Glu	Ile Gln Ala Lys Ala	Arg Gln Ala Glu	

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Ala Ala Glu Arg Ser Arg	Leu Arg Ile Glu Glu Glu	Ile Arg Val
1580	1585	1590
Val Arg Leu Gln Leu Glu	Ala Thr Glu Arg Gln Arg	Gly Gly Ala
1595	1600	1605
Glu Gly Glu Leu Gln Ala	Leu Arg Ala Arg Ala Glu	Glu Ala Glu
1610	1615	1620
Ala Gln Lys Arg Gln Ala	Gln Glu Glu Ala Glu Arg	Leu Arg Arg
1625	1630	1635
Gln Val Gln Asp Glu Ser	Gln Arg Lys Arg Gln Ala	Glu Val Glu
1640	1645	1650
Leu Ala Ser Arg Val Lys	Ala Glu Ala Glu Ala Ala	Arg Glu Lys
1655	1660	1665
Gln Arg Ala Leu Gln Ala	Leu Glu Glu Leu Arg Leu	Gln Ala Glu
1670	1675	1680
Glu Ala Glu Arg Arg Leu	Arg Gln Ala Glu Val Glu	Arg Ala Arg
1685	1690	1695
Gln Val Gln Val Ala Leu	Glu Thr Ala Gln Arg Ser	Ala Glu Ala
1700	1705	1710
Glu Leu Gln Ser Lys Arg	Ala Ser Phe Ala Glu Lys	Thr Ala Gln
1715	1720	1725
Leu Glu Arg Ser Leu Gln	Glu Glu His Val Ala Val	Ala Gln Leu
1730	1735	1740
Arg Glu Glu Ala Glu Arg	Arg Ala Gln Gln Gln Ala	Glu Ala Glu
1745	1750	1755
Arg Ala Arg Glu Glu Ala	Glu Arg Glu Leu Glu Arg	Trp Gln Leu
1760	1765	1770
Lys Ala Asn Glu Ala Leu	Arg Leu Arg Leu Gln Ala	Glu Glu Val
1775	1780	1785
Ala Gln Gln Lys Ser Leu	Ala Gln Ala Glu Ala Glu	Lys Gln Lys
1790	1795	1800
Glu Glu Ala Glu Arg Glu	Ala Arg Arg Arg Gly Lys	Ala Glu Glu
1805	1810	1815
Gln Ala Val Arg Gln Arg	Glu Leu Ala Glu Gln Glu	Leu Glu Lys
1820	1825	1830
Gln Arg Gln Leu Ala Glu	Gly Thr Ala Gln Gln Arg	Leu Ala Ala

1835		1840		1845
Glu Gln Glu Leu Ile Arg	Leu Arg Ala Glu Thr	Glu Gln Gly Glu		
1850	1855	1860		
Gln Gln Arg Gln Leu Leu	Glu Glu Leu Ala Arg	Leu Gln Arg		
1865	1870	1875		
Glu Ala Ala Ala Ala Thr	Gln Lys Arg Gln Glu	Leu Glu Ala Glu		
1880	1885	1890		
Leu Ala Lys Val Arg Ala	Glu Met Glu Val Leu	Leu Ala Ser Lys		
1895	1900	1905		
Ala Arg Ala Glu Glu Glu	Ser Arg Ser Thr Ser	Glu Lys Ser Lys		
1910	1915	1920		
Gln Arg Leu Glu Ala Glu	Ala Gly Arg Phe Arg	Glu Leu Ala Glu		
1925	1930	1935		
Glu Ala Ala Arg Leu Arg	Ala Leu Ala Glu Glu	Ala Lys Arg Gln		
1940	1945	1950		
Arg Gln Leu Ala Glu Glu	Asp Ala Ala Arg Gln	Arg Ala Glu Ala		
1955	1960	1965		
Glu Arg Val Leu Ala Glu	Lys Leu Ala Ala Ile	Gly Glu Ala Thr		
1970	1975	1980		
Arg Leu Lys Thr Glu Ala	Glu Ile Ala Leu Lys	Glu Lys Glu Ala		
1985	1990	1995		
Glu Asn Glu Arg Leu Arg	Arg Leu Ala Glu Asp	Glu Ala Phe Gln		
2000	2005	2010		
Arg Arg Arg Leu Glu Glu	Gln Ala Ala Gln His	Lys Ala Asp Ile		
2015	2020	2025		
Glu Glu Arg Leu Ala Gln	Leu Arg Lys Ala Ser	Asp Ser Glu Leu		
2030	2035	2040		
Glu Arg Gln Lys Gly Leu	Val Glu Asp Thr Leu	Arg Gln Arg Arg		
2045	2050	2055		
Gln Val Glu Glu Glu Ile	Leu Ala Leu Lys Ala	Ser Phe Glu Lys		
2060	2065	2070		
Ala Ala Ala Gly Lys Ala	Glu Leu Glu Leu Glu	Leu Gly Arg Ile		
2075	2080	2085		
Arg Ser Asn Ala Glu Asp	Thr Leu Arg Ser Lys	Glu Gln Ala Glu		
2090	2095	2100		
Leu Glu Ala Ala Arg Gln	Arg Gln Leu Ala Ala	Glu Glu Glu Arg		

2105	2110	2115
Arg Arg Arg Glu Ala Glu Glu Arg Val Gln Lys Ser Leu Ala Ala		
2120	2125	2130
Glu Glu Glu Ala Ala Arg Gln Arg Lys Ala Ala Leu Glu Glu Val		
2135	2140	2145
Glu Arg Leu Lys Ala Lys Val Glu Glu Ala Arg Arg Leu Arg Glu		
2150	2155	2160
Arg Ala Glu Gln Glu Ser Ala Arg Gln Leu Gln Leu Ala Gln Glu		
2165	2170	2175
Ala Ala Gln Lys Arg Leu Gln Ala Glu Glu Lys Ala His Ala Phe		
2180	2185	2190
Ala Val Gln Gln Lys Glu Gln Glu Leu Gln Gln Thr Leu Gln Gln		
2195	2200	2205
Glu Gln Ser Val Leu Asp Gln Leu Arg Gly Glu Ala Glu Ala Ala		
2210	2215	2220
Arg Arg Ala Ala Glu Glu Ala Glu Glu Ala Arg Val Gln Ala Glu		
2225	2230	2235
Arg Glu Ala Ala Gln Ser Arg Arg Gln Val Glu Glu Ala Glu Arg		
2240	2245	2250
Leu Lys Gln Ser Ala Glu Glu Gln Ala Gln Ala Arg Ala Gln Ala		
2255	2260	2265
Gln Ala Ala Ala Glu Lys Leu Arg Lys Glu Ala Glu Gln Glu Ala		
2270	2275	2280
Ala Arg Arg Ala Gln Ala Glu Gln Ala Ala Leu Arg Gln Lys Gln		
2285	2290	2295
Ala Ala Asp Ala Glu Met Glu Lys His Lys Lys Phe Ala Glu Gln		
2300	2305	2310
Thr Leu Arg Gln Lys Ala Gln Val Glu Gln Glu Leu Thr Thr Leu		
2315	2320	2325
Arg Leu Gln Leu Glu Glu Thr Asp His Gln Lys Asn Leu Leu Asp		
2330	2335	2340
Glu Glu Leu Gln Arg Leu Lys Ala Glu Ala Thr Glu Ala Ala Arg		
2345	2350	2355
Gln Arg Ser Gln Val Glu Glu Glu Leu Phe Ser Val Arg Val Gln		
2360	2365	2370
Met Glu Glu Leu Ser Lys Leu Lys Ala Arg Ile Glu Ala Glu Asn		

2375	2380	2385
Arg Ala Leu Ile Leu Arg	Asp Lys Asp Asn Thr	Gln Arg Phe Leu
2390	2395	2400
Gln Glu Glu Ala Glu Lys	Met Lys Gln Val Ala	Glu Glu Ala Ala
2405	2410	2415
Arg Leu Ser Val Ala Ala	Gln Glu Ala Ala Arg	Leu Arg Gln Leu
2420	2425	2430
Ala Glu Glu Asp Leu Ala	Gln Gln Arg Ala Leu	Ala Glu Lys Met
2435	2440	2445
Leu Lys Glu Lys Met Gln	Ala Val Gln Glu Ala	Thr Arg Leu Lys
2450	2455	2460
Ala Glu Ala Glu Leu Leu	Gln Gln Lys Glu Leu	Ala Gln Glu
2465	2470	2475
Gln Ala Arg Arg Leu Gln	Glu Asp Lys Glu Gln	Met Ala Gln Gln
2480	2485	2490
Leu Ala Glu Glu Thr Gln	Gly Phe Gln Arg Thr	Leu Glu Ala Glu
2495	2500	2505
Arg Gln Arg Gln Leu Glu	Met Ser Ala Glu Ala	Glu Arg Leu Lys
2510	2515	2520
Leu Arg Val Ala Glu Met	Ser Arg Ala Gln Ala	Arg Ala Glu Glu
2525	2530	2535
Asp Ala Gln Arg Phe Arg	Lys Gln Ala Glu Glu	Ile Gly Glu Lys
2540	2545	2550
Leu His Arg Thr Glu Leu	Ala Thr Gln Glu Lys	Val Thr Leu Val
2555	2560	2565
Gln Thr Leu Glu Ile Gln	Arg Gln Gln Ser Asp	His Asp Ala Glu
2570	2575	2580
Arg Leu Arg Glu Ala Ile	Ala Glu Leu Glu Arg	Glu Lys Glu Lys
2585	2590	2595
Leu Gln Gln Glu Ala Lys	Leu Leu Gln Leu Lys	Ser Glu Glu Met
2600	2605	2610
Gln Thr Val Gln Gln Glu	Gln Leu Leu Gln Glu	Thr Gln Ala Leu
2615	2620	2625
Gln Gln Ser Phe Leu Ser	Glu Lys Asp Ser Leu	Leu Gln Arg Glu
2630	2635	2640
Arg Phe Ile Glu Gln Glu	Lys Ala Lys Leu Glu	Gln Leu Phe Gln

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Asp Glu Val Ala Lys Ala Gln Gln Leu Arg Glu Glu Gln Gln Arg				
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Gln Gln Gln Gln Met Glu Gln Glu Arg Gln Arg Leu Val Ala Ser				
2675		2680		2685
Met Glu Glu Ala Arg Arg Arg Gln His Glu Ala Glu Glu Gly Val				
2690		2695		2700
Arg Arg Lys Gln Glu Glu Leu Gln Gln Leu Glu Gln Gln Arg Arg				
2705		2710		2715
Gln Gln Glu Glu Leu Leu Ala Glu Glu Asn Gln Arg Leu Arg Glu				
2720		2725		2730
Gln Leu Gln Leu Leu Glu Glu Gln His Arg Ala Ala Leu Ala His				
2735		2740		2745
Ser Glu Glu Val Thr Ala Ser Gln Val Ala Ala Thr Lys Thr Leu				
2750		2755		2760
Pro Asn Gly Arg Asp Ala Leu Asp Gly Pro Ala Ala Glu Ala Glu				
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Pro Glu His Ser Phe Asp Gly Leu Arg Arg Lys Val Ser Ala Gln				
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Arg Leu Gln Glu Ala Gly Ile Leu Ser Ala Glu Glu Leu Gln Arg				
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Leu Ala Gln Gly His Thr Thr Val Asp Glu Leu Ala Arg Arg Glu				
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Asp Val Arg His Tyr Leu Gln Gly Arg Ser Ser Ile Ala Gly Leu				
2825		2830		2835
Leu Leu Lys Ala Thr Asn Glu Lys Leu Ser Val Tyr Ala Ala Leu				
2840		2845		2850
Gln Arg Gln Leu Leu Ser Pro Gly Thr Ala Leu Ile Leu Leu Glu				
2855		2860		2865
Ala Gln Ala Ala Ser Gly Phe Leu Leu Asp Pro Val Arg Asn Arg				
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Arg Leu Thr Val Asn Glu Ala Val Lys Glu Gly Val Val Gly Pro				
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Glu Leu His His Lys Leu Leu Ser Ala Glu Arg Ala Val Thr Gly				
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Tyr Lys Asp Pro Tyr Thr Gly Gln Gln Ile Ser Leu Phe Gln Ala				

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Met Gln Lys Gly Leu Ile Val Arg Glu His Gly Ile Arg Leu Leu				
2930		2935		2940
Glu Ala Gln Ile Ala Thr Gly Gly Val Ile Asp Pro Val His Ser				
2945		2950		2955
His Arg Val Pro Val Asp Val Ala Tyr Arg Arg Gly Tyr Phe Asp				
2960		2965		2970
Glu Glu Met Asn Arg Val Leu Ala Asp Pro Ser Asp Asp Thr Lys				
2975		2980		2985
Gly Phe Phe Asp Pro Asn Thr His Glu Asn Leu Thr Tyr Leu Gln				
2990		2995		3000
Leu Leu Glu Arg Cys Val Glu Asp Pro Glu Thr Gly Leu Cys Leu				
3005		3010		3015
Leu Pro Leu Thr Asp Lys Ala Ala Lys Gly Gly Glu Leu Val Tyr				
3020		3025		3030
Thr Asp Ser Glu Ala Arg Asp Val Phe Glu Lys Ala Thr Val Ser				
3035		3040		3045
Ala Pro Phe Gly Lys Phe Gln Gly Lys Thr Val Thr Ile Trp Glu				
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Ile Ile Asn Ser Glu Tyr Phe Thr Ala Glu Gln Arg Arg Asp Leu				
3065		3070		3075
Leu Arg Gln Phe Arg Thr Gly Arg Ile Thr Val Glu Lys Ile Ile				
3080		3085		3090
Lys Ile Ile Ile Thr Val Val Glu Glu Gln Glu Gln Lys Gly Arg				
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Leu Cys Phe Glu Gly Leu Arg Ser Leu Val Pro Ala Ala Glu Leu				
3110		3115		3120
Leu Glu Ser Arg Val Ile Asp Arg Glu Leu Tyr Gln Gln Leu Gln				
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Arg Gly Glu Arg Ser Val Arg Asp Val Ala Glu Val Asp Thr Val				
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Arg Arg Ala Leu Arg Gly Ala Asn Val Ile Ala Gly Val Trp Leu				
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Glu Glu Ala Gly Gln Lys Leu Ser Ile Tyr Asn Ala Leu Lys Lys				
3170		3175		3180
Asp Leu Leu Pro Ser Asp Met Ala Val Ala Leu Leu Glu Ala Gln				



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Ala Gly Thr Gly His Ile Ile Asp Pro Ala Thr Ser Ala Arg Leu				
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Thr Val Asp Glu Ala Val Arg Ala Gly Leu Val Gly Pro Glu Phe				
3215		3220		3225
His Glu Lys Leu Leu Ser Ala Glu Lys Ala Val Thr Gly Tyr Arg				
3230		3235		3240
Asp Pro Tyr Thr Gly Gln Ser Val Ser Leu Phe Gln Ala Leu Lys				
3245		3250		3255
Lys Gly Leu Ile Pro Arg Glu Gln Gly Leu Arg Leu Leu Asp Ala				
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Gln Leu Ser Thr Gly Gly Ile Val Asp Pro Ser Lys Ser His Arg				
3275		3280		3285
Val Pro Leu Asp Val Ala Cys Ala Arg Gly Cys Leu Asp Glu Glu				
3290		3295		3300
Thr Ser Arg Ala Leu Ser Ala Pro Arg Ala Asp Ala Lys Ala Tyr				
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Ser Asp Pro Ser Thr Gly Glu Pro Ala Thr Tyr Gly Glu Leu Gln				
3320		3325		3330
Gln Arg Cys Arg Pro Asp Gln Leu Thr Gly Leu Ser Leu Leu Pro				
3335		3340		3345
Leu Ser Glu Lys Ala Ala Arg Ala Arg Gln Glu Glu Leu Tyr Ser				
3350		3355		3360
Glu Leu Gln Ala Arg Glu Thr Phe Glu Lys Thr Pro Val Glu Val				
3365		3370		3375
Pro Val Gly Gly Phe Lys Gly Arg Thr Val Thr Val Trp Glu Leu				
3380		3385		3390
Ile Ser Ser Glu Tyr Phe Thr Ala Glu Gln Arg Gln Glu Leu Leu				
3395		3400		3405
Arg Gln Phe Arg Thr Gly Lys Val Thr Val Glu Lys Val Ile Lys				
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Ile Leu Ile Thr Ile Val Glu Glu Val Glu Thr Leu Arg Gln Glu				
3425		3430		3435
Arg Leu Ser Phe Ser Gly Leu Arg Ala Pro Val Pro Ala Ser Glu				
3440		3445		3450
Leu Leu Ala Ser Gly Val Leu Ser Arg Ala Gln Phe Glu Gln Leu				

3455		3460		3465
Lys Asp Gly Lys Thr Thr Val Lys Asp Leu Ser Glu Leu Gly Ser				
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Val Arg Thr Leu Leu Gln Gly Ser Gly Cys Leu Ala Gly Ile Tyr				
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Leu Glu Asp Thr Lys Glu Lys Val Ser Ile Tyr Glu Ala Met Arg				
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Arg Gly Leu Leu Arg Ala Thr Thr Ala Ala Leu Leu Leu Glu Ala				
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Gln Ala Ala Thr Gly Phe Leu Val Asp Pro Val Arg Asn Gln Arg				
3530		3535		3540
Leu Tyr Val His Glu Ala Val Lys Ala Gly Val Val Gly Pro Glu				
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Leu His Glu Gln Leu Leu Ser Ala Glu Lys Ala Val Thr Gly Tyr				
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Arg Asp Pro Tyr Ser Gly Ser Thr Ile Ser Leu Phe Gln Ala Met				
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Gln Lys Gly Leu Val Leu Arg Gln His Gly Ile Arg Leu Leu Glu				
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Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Val His Ser His				
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Arg Val Pro Val Asp Val Ala Tyr Gln Arg Gly Tyr Phe Ser Glu				
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Glu Met Asn Arg Val Leu Ala Asp Pro Ser Asp Asp Thr Lys Gly				
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Phe Phe Asp Pro Asn Thr His Glu Asn Leu Thr Tyr Arg Gln Leu				
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Leu Glu Arg Cys Val Glu Asp Pro Glu Thr Gly Leu Arg Leu Leu				
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Pro Leu Lys Gly Ala Glu Lys Ala Glu Val Val Glu Thr Thr Gln				
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Val Tyr Thr Glu Glu Glu Thr Arg Arg Ala Phe Glu Glu Thr Gln				
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Ile Asp Ile Pro Gly Gly Gly Ser His Gly Gly Ser Thr Met Ser				
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Leu Trp Glu Val Met Gln Ser Asp Leu Ile Pro Glu Glu Gln Arg				

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Ala Gln Leu Met Ala Asp Phe Gln Ala Gly Arg Val Thr Lys Glu				
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Arg Met Ile Ile Ile Ile Ile Glu Ile Ile Glu Lys Thr Glu Ile				
3755		3760		3765
Ile Arg Gln Gln Gly Leu Ala Ser Tyr Asp Tyr Val Arg Arg Arg				
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Leu Thr Ala Glu Asp Leu Phe Glu Ala Arg Ile Ile Ser Leu Glu				
3785		3790		3795
Thr Tyr Asn Leu Leu Arg Glu Gly Thr Arg Ser Leu Arg Glu Ala				
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Leu Glu Ala Glu Ser Ala Trp Cys Tyr Leu Tyr Gly Thr Gly Ser				
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Val Ala Gly Val Tyr Leu Pro Gly Ser Arg Gln Thr Leu Ser Ile				
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Tyr Gln Ala Leu Lys Lys Gly Leu Leu Ser Ala Glu Val Ala Arg				
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Leu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Leu Leu Asp Pro				
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Val Lys Gly Glu Arg Leu Thr Val Asp Glu Ala Val Arg Lys Gly				
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Leu Val Gly Pro Glu Leu His Asp Arg Leu Leu Ser Ala Glu Arg				
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Ala Val Thr Gly Tyr Arg Asp Pro Tyr Thr Glu Gln Thr Ile Ser				
3905		3910		3915
Leu Phe Gln Ala Met Lys Lys Glu Leu Ile Pro Thr Glu Glu Ala				
3920		3925		3930
Leu Arg Leu Leu Asp Ala Gln Leu Ala Thr Gly Gly Ile Val Asp				
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Pro Arg Leu Gly Phe His Leu Pro Leu Glu Val Ala Tyr Gln Arg				
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Gly Tyr Leu Asn Lys Asp Thr His Asp Gln Leu Ser Glu Pro Ser				
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Glu Val Arg Ser Tyr Val Asp Pro Ser Thr Asp Glu Arg Leu Ser				
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Tyr Thr Gln Leu Leu Arg Arg Cys Arg Arg Asp Asp Gly Thr Gly				

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Gln Leu Leu Leu Pro Leu Ser Asp Ala Arg Lys Leu Thr Phe Arg					
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Gly Leu Arg Lys Gln Ile Thr Met Glu Glu Leu Val Arg Ser Gln					
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Val Met Asp Glu Ala Thr Ala Leu Gln Leu Arg Glu Gly Leu Thr					
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Ser Ile Glu Glu Val Thr Lys Asn Leu Gln Lys Phe Leu Glu Gly					
4055		4060		4065	
Thr Ser Cys Ile Ala Gly Val Phe Val Asp Ala Thr Lys Glu Arg					
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Leu Ser Val Tyr Gln Ala Met Lys Lys Gly Ile Ile Arg Pro Gly					
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Thr Ala Phe Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Tyr Val					
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Ile Asp Pro Ile Lys Gly Leu Lys Leu Thr Val Glu Glu Ala Val					
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Arg Met Gly Ile Val Gly Pro Glu Phe Lys Asp Lys Leu Leu Ser					
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Ala Glu Arg Ala Val Thr Gly Tyr Lys Asp Pro Tyr Ser Gly Lys					
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Leu Ile Ser Leu Phe Gln Ala Met Lys Lys Gly Leu Ile Leu Lys					
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Asp His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly					
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Ile Ile Asp Pro Glu Glu Ser His Arg Leu Pro Val Glu Val Ala					
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Tyr Lys Arg Gly Leu Phe Asp Glu Glu Met Asn Glu Ile Leu Thr					
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Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr Glu					
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Glu Asn Leu Thr Tyr Leu Gln Leu Met Glu Arg Cys Ile Thr Asp					
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Pro Gln Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu Lys Lys Arg					
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Glu Arg Lys Thr Ser Ser Lys Ser Ser Val Arg Lys Arg Arg Val					

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Val Ile	Val Asp Pro Glu Thr	Gly Lys Glu Met Ser	Val Tyr Glu	
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Ala Tyr	Arg Lys Gly Leu Ile	Asp His Gln Thr Tyr	Leu Glu Leu	
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Ser Glu	Gln Glu Cys Glu Trp	Glu Glu Ile Thr Ile	Ser Ser Ser	
4310		4315	4320	
Asp Gly	Val Val Lys Ser Met	Ile Ile Asp Arg Arg	Ser Gly Arg	
4325		4330	4335	
Gln Tyr	Asp Ile Asp Asp Ala	Ile Ala Lys Asn Leu	Ile Asp Arg	
4340		4345	4350	
Ser Ala	Leu Asp Gln Tyr Arg	Ala Gly Thr Leu Ser	Ile Thr Glu	
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Phe Ala	Asp Met Leu Ser Gly	Asn Ala Gly Gly Phe	Arg Ser Arg	
4370		4375	4380	
Ser Ser	Ser Val Gly Ser Ser	Ser Ser Tyr Pro Ile	Ser Pro Ala	
4385		4390	4395	
Val Ser	Arg Thr Gln Leu Ala	Ser Trp Ser Asp Pro	Thr Glu Glu	
4400		4405	4410	
Thr Gly	Pro Val Ala Gly Ile	Leu Asp Thr Glu Thr	Leu Glu Lys	
4415		4420	4425	
Val Ser	Ile Thr Glu Ala Met	His Arg Asn Leu Val	Asp Asn Ile	
4430		4435	4440	
Thr Gly	Gln Arg Leu Leu Glu	Ala Gln Ala Cys Thr	Gly Gly Ile	
4445		4450	4455	
Ile Asp	Pro Ser Thr Gly Glu	Arg Phe Pro Val Thr	Asp Ala Val	
4460		4465	4470	
Asn Lys	Gly Leu Val Asp Lys	Ile Met Val Asp Arg	Ile Asn Leu	
4475		4480	4485	
Ala Gln	Lys Ala Phe Cys Gly	Phe Glu Asp Pro Arg	Thr Lys Thr	
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Lys Met	Ser Ala Ala Gln Ala	Leu Lys Lys Gly Trp	Leu Tyr Tyr	
4505		4510	4515	
Glu Ala	Gly Gln Arg Phe Leu	Glu Val Gln Tyr Leu	Thr Gly Gly	
4520		4525	4530	
Leu Ile	Glu Pro Asp Thr Pro	Gly Arg Val Pro Leu	Asp Glu Ala	

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Leu Gln Arg Gly Thr Val Asp Ala Arg Thr Ala Gln Lys Leu Arg				
4550		4555		4560
Asp Val Gly Ala Tyr Ser Lys Tyr Leu Thr Cys Pro Lys Thr Lys				
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Leu Lys Ile Ser Tyr Lys Asp Ala Leu Asp Arg Ser Met Val Glu				
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Glu Gly Thr Gly Leu Arg Leu Leu Glu Ala Ala Ala Gln Ser Thr				
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Lys Gly Tyr Tyr Ser Pro Tyr Ser Val Ser Gly Ser Gly Ser Thr				
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Ala Gly Ser Arg Thr Gly Ser Arg Thr Gly Ser Arg Ala Gly Ser				
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Arg Arg Gly Ser Phe Asp Ala Thr Gly Ser Gly Phe Ser Met Thr				
4640		4645		4650
Phe Ser Ser Ser Ser Tyr Ser Ser Ser Gly Tyr Gly Arg Arg Tyr				
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Ala

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aag aga acc agc tca gag gac aac ctc tac ctg gct gtg ctc aga gcc		96
Lys Arg Thr Ser Ser Glu Asp Asn Leu Tyr Leu Ala Val Leu Arg Ala		
	20	25 30
tcc gag ggc aag aaa gat gaa cga gac cgt gtg cag aag aaa act ttc		144
Ser Glu Gly Lys Lys Asp Glu Arg Asp Arg Val Gln Lys Lys Thr Phe		
	35	40 45
acc aag tgg gtc aac aaa cac ctt atc aag gct cag agg cac atc agt		192
Thr Lys Trp Val Asn Lys His Leu Ile Lys Ala Gln Arg His Ile Ser		
	50	55 60
gac ctg tac gaa gac ctc cgt gat ggc cac aac ctc atc tcc ctg ctg		240
Asp Leu Tyr Glu Asp Leu Arg Asp Gly His Asn Leu Ile Ser Leu Leu		

65				70				75				80				
gaa	gtc	ctc	tca	gga	gac	agc	ctg	ccc	cgc	gag	aaa	ggg	agg	atg	cgc	288
Glu	Val	Leu	Ser	Gly	Asp	Ser	Leu	Pro	Arg	Glu	Lys	Gly	Arg	Met	Arg	
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ttc	cac	aag	ctg	cag	aat	gtg	cag	att	gcc	ctg	gac	tat	ctc	cga	cat	336
Phe	His	Lys	Leu	Gln	Asn	Val	Gln	Ile	Ala	Leu	Asp	Tyr	Leu	Arg	His	
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cgc	cag	gtg	aag	tta	gtg	aac	atc	aga	aat	gat	gac	att	gct	gac	ggc	384
Arg	Gln	Val	Lys	Leu	Val	Asn	Ile	Arg	Asn	Asp	Asp	Ile	Ala	Asp	Gly	
				115					120					125		
aac	ccc	aag	ctg	acc	ctc	ggc	ctc	atc	tgg	aca	atc	atc	ctg	cac	ttc	432
Asn	Pro	Lys	Leu	Thr	Leu	Gly	Leu	Ile	Trp	Thr	Ile	Ile	Leu	His	Phe	
				130					135					140		
cag	atc	tca	gac	att	cag	gtg	agc	gga	cag	tcg	gag	gac	atg	aca	gca	480
Gln	Ile	Ser	Asp	Ile	Gln	Val	Ser	Gly	Gln	Ser	Glu	Asp	Met	Thr	Ala	
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aag	gag	aag	ctg	ctg	ctg	tgg	tca	cag	cgt	atg	gta	gag	ggc	tac	caa	528
Lys	Glu	Lys	Leu	Leu	Leu	Trp	Ser	Gln	Arg	Met	Val	Glu	Gly	Tyr	Gln	
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ggc	ctg	cgc	tgt	gac	aac	ttc	acc	acc	agt	tgg	cgc	gat	ggc	cgt	ctc	576
Gly	Leu	Arg	Cys	Asp	Asn	Phe	Thr	Thr	Ser	Trp	Arg	Asp	Gly	Arg	Leu	
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ttc	aat	gct	atc	atc	cac	cgg	cac	aag	ccc	atg	ctc	ata	gat	atg	aat	624
Phe	Asn	Ala	Ile	Ile	His	Arg	His	Lys	Pro	Met	Leu	Ile	Asp	Met	Asn	
				195					200					205		
aaa	gtg	tat	cga	cag	acc	aac	ctg	gag	aac	cta	gac	cag	gca	ttc	tcg	672
Lys	Val	Tyr	Arg	Gln	Thr	Asn	Leu	Glu	Asn	Leu	Asp	Gln	Ala	Phe	Ser	
				210					215					220		
gtg	gca	gag	cgg	gac	ctg	gga	gtt	aca	cgg	ctc	ctg	gac	cca	gaa	gat	720
Val	Ala	Glu	Arg	Asp	Leu	Gly	Val	Thr	Arg	Leu	Leu	Asp	Pro	Glu	Asp	
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gtg	gac	gtc	cct	cag	cct	gat	gaa	aag	tcc	atc	atc	acc	tat	gtt	tca	768
Val	Asp	Val	Pro	Gln	Pro	Asp	Glu	Lys	Ser	Ile	Ile	Thr	Tyr	Val	Ser	
				245					250					255		
tcc	ctg	tac	gat	gct	atg	ccc	cgc	gtg	cct	ggt	gca	cag	gac	gga	gtg	816
Ser	Leu	Tyr	Asp	Ala	Met	Pro	Arg	Val	Pro	Gly	Ala	Gln	Asp	Gly	Val	
				260					265					270		
agg	gcc	aat	gag	ctg	cag	ctt	cgt	tgg	cag	gag	tac	cgg	gag	ctt	gtg	864
Arg	Ala	Asn	Glu	Leu	Gln	Leu	Arg	Trp	Gln	Glu	Tyr	Arg	Glu	Leu	Val	
				275					280					285		
ttg	ctg	ctg	ctg	caa	tgg	atc	cgg	cac	cac	acc	gct	gct	ttt	gag	gag	912
Leu	Leu	Leu	Leu	Gln	Trp	Ile	Arg	His	His	Thr	Ala	Ala	Phe	Glu	Glu	
				290					295					300		
cgc	aag	ttc	ccc	tcc	agc	ttt	gaa	gag	att	gag	atc	cta	tgg	tgc	cag	960
Arg	Lys	Phe	Pro	Ser	Ser	Phe	Glu	Glu	Ile	Glu	Ile	Leu	Trp	Cys	Gln	
				305					310					315		
ttt	ttg	aag	ttc	aag	gag	aca	gaa	ctt	cct	gcc	aag	gag	gca	gac	aaa	1008
Phe	Leu	Lys	Phe	Lys	Glu	Thr	Glu	Leu	Pro	Ala	Lys	Glu	Ala	Asp	Lys	
				325					330					335		
aac	cgg	tcc	aaa	gtt	atc	tac	cag	tct	ttg	gag	ggg	gca	gta	caa	gcg	1056
Asn	Arg	Ser	Lys	Val	Ile	Tyr	Gln	Ser	Leu	Glu	Gly	Ala	Val	Gln	Ala	
				340					345					350		
ggc	cag	ctc	aaag	att	ccc	cct	ggc	tac	cac	cca	cta	gat	gtg	gag	aag	1104
Gly	Gln	Leu	Lys	Ile	Pro	Pro	Gly	Tyr	His	Pro	Leu	Asp	Val	Glu	Lys	

355						360						365						
gag	tgg	ggc	aag	ctg	cat	gtg	gcc	atc	ctg	gag	cgg	gag	aag	caa	ctg			1152
Glu	Trp	Gly	Lys	Leu	His	Val	Ala	Ile	Leu	Glu	Arg	Glu	Lys	Gln	Leu			
370						375						380						
cga	agc	gag	ttt	gag	agg	ctg	gag	tgt	ctt	cag	cgc	att	gtg	agc	aag			1200
Arg	Ser	Glu	Phe	Glu	Arg	Leu	Glu	Cys	Leu	Gln	Arg	Ile	Val	Ser	Lys			
385						390						395						400
cta	cag	atg	gag	gct	ggg	ctg	tgt	gag	gag	cag	ctg	aac	cag	gcg	gac			1248
Leu	Gln	Met	Glu	Ala	Gly	Leu	Cys	Glu	Glu	Gln	Leu	Asn	Gln	Ala	Asp			
405						410						415						
gcc	cta	ctg	cag	tcg	gat	att	cgg	ctg	ctg	gcc	tca	ggc	aag	gtg	gct			1296
Ala	Leu	Leu	Gln	Ser	Asp	Ile	Arg	Leu	Leu	Ala	Ser	Gly	Lys	Val	Ala			
420						425						430						
cag	cga	gct	ggg	gaa	gtc	gag	aga	gac	ctg	gac	aag	gct	gat	ggt	atg			1344
Gln	Arg	Ala	Gly	Glu	Val	Glu	Arg	Asp	Leu	Asp	Lys	Ala	Asp	Gly	Met			
435						440						445						
atc	cgg	ctg	ttg	ttc	aat	gat	gtg	cag	acc	ctt	aaa	gat	ggg	cgg	cat			1392
Ile	Arg	Leu	Leu	Phe	Asn	Asp	Val	Gln	Thr	Leu	Lys	Asp	Gly	Arg	His			
450						455						460						
cca	cag	ggt	gaa	cag	atg	tac	cgg	agg	gtg	tat	cgt	ctg	cat	gag	cgc			1440
Pro	Gln	Gly	Glu	Gln	Met	Tyr	Arg	Arg	Val	Tyr	Arg	Leu	His	Glu	Arg			
465						470						475						480
ctg	gta	gcc	atc	cgc	act	gag	tac	aac	ctc	cgg	ctg	aag	gca	gga	gtg			1488
Leu	Val	Ala	Ile	Arg	Thr	Glu	Tyr	Asn	Leu	Arg	Leu	Lys	Ala	Gly	Val			
485						490						495						
ggt	gcc	cct	gtg	acc	cag	gtg	acc	ctg	cag	agt	aca	cag	agg	cgc	cca			1536
Gly	Ala	Pro	Val	Thr	Gln	Val	Thr	Leu	Gln	Ser	Thr	Gln	Arg	Arg	Pro			
500						505						510						
gag	cta	gag	gac	tcc	aca	ctg	cgc	tac	ctg	caa	gac	ctg	ctg	gcc	tgg			1584
Glu	Leu	Glu	Asp	Ser	Thr	Leu	Arg	Tyr	Leu	Gln	Asp	Leu	Leu	Ala	Trp			
515						520						525						
gta	gag	gag	aac	cag	cgt	cga	ata	gac	agt	gct	gag	tgg	ggc	gtg	gac			1632
Val	Glu	Glu	Asn	Gln	Arg	Arg	Ile	Asp	Ser	Ala	Glu	Trp	Gly	Val	Asp			
530						535						540						
ttg	ccc	agt	gtg	gag	gcc	cag	ctg	ggc	agc	cac	cga	ggc	atg	cat	cag			1680
Leu	Pro	Ser	Val	Glu	Ala	Gln	Leu	Gly	Ser	His	Arg	Gly	Met	His	Gln			
545						550						555						560
tct	ata	gag	gaa	ttt	cgg	gcc	aag	atc	gag	cgg	gct	cgg	aat	gat	gag			1728
Ser	Ile	Glu	Glu	Phe	Arg	Ala	Lys	Ile	Glu	Arg	Ala	Arg	Asn	Asp	Glu			
565						570						575						
agc	cag	ctc	tcc	cct	gcc	acc	cgg	ggt	gcc	tac	cgg	gac	tgc	cta	ggt			1776
Ser	Gln	Leu	Ser	Pro	Ala	Thr	Arg	Gly	Ala	Tyr	Arg	Asp	Cys	Leu	Gly			
580						585						590						
cgc	cta	gac	ctg	cag	tat	gca	aag	ctg	ctg	aac	tcc	tcc	aag	gcc	cgc			1824
Arg	Leu	Asp	Leu	Gln	Tyr	Ala	Lys	Leu	Leu	Asn	Ser	Ser	Lys	Ala	Arg			
595						600						605						
ctc	cgg	tcc	ctg	gag	agc	ttg	cac	ggg	ttt	gtg	gcg	gca	gct	acc	aag			1872
Leu	Arg	Ser	Leu	Glu	Ser	Leu	His	Gly	Phe	Val	Ala	Ala	Ala	Thr	Lys			
610						615						620						
gag	ctg	atg	tgg	ctg	aat	gag	aaa	gaa	gag	gag	gaa	gtg	ggc	ttt	gat			1920
Glu	Leu	Met	Trp	Leu	Asn	Glu	Lys	Glu	Glu	Glu	Glu	Val	Gly	Phe	Asp			
625						630						635						640
tgg	agt	gac	cgc	aat	acc	aac	atg	gca	gcc	aag	aaa	gaa	agt	tac	tcg			1968
Trp	Ser	Asp	Arg	Asn	Thr	Asn	Met	Ala	Ala	Lys	Lys	Glu	Ser	Tyr	Ser			



645						650						655						
gcc	ctg	atg	cga	gaa	ctg	gaa	atg	aag	gaa	aag	aaa	atc	aag	gag	atc			2016
Ala	Leu	Met	Arg	Glu	Leu	Glu	Met	Lys	Glu	Lys	Lys	Ile	Lys	Glu	Ile			
			660					665					670					
cag	aac	aca	ggg	gac	agg	ctg	ctg	cgg	gaa	gac	cat	cct	gcc	cgg	ccc			2064
Gln	Asn	Thr	Gly	Asp	Arg	Leu	Leu	Arg	Glu	Asp	His	Pro	Ala	Arg	Pro			
		675					680					685						
acg	gtg	gag	tcc	ttc	cag	gct	gcc	ttg	cag	aca	cag	tgg	agc	tgg	atg			2112
Thr	Val	Glu	Ser	Phe	Gln	Ala	Ala	Leu	Gln	Thr	Gln	Trp	Ser	Trp	Met			
	690					695					700							
ctg	cag	ctg	tgt	tgc	tgc	att	gaa	gca	cac	ttg	aaa	gag	aat	aca	gcc			2160
Leu	Gln	Leu	Cys	Cys	Cys	Ile	Glu	Ala	His	Leu	Lys	Glu	Asn	Thr	Ala			
705					710					715					720			
tac	ttc	cag	ttc	ttc	tca	gat	gtt	cgg	gag	gcg	gag	gaa	cag	ttg	cag			2208
Tyr	Phe	Gln	Phe	Phe	Ser	Asp	Val	Arg	Glu	Ala	Glu	Glu	Gln	Leu	Gln			
			725					730						735				
aag	cta	cag	gag	acg	tta	cgc	agg	aag	tac	agc	tgt	gac	cgc	acc	atc			2256
Lys	Leu	Gln	Glu	Thr	Leu	Arg	Arg	Lys	Tyr	Ser	Cys	Asp	Arg	Thr	Ile			
			740				745					750						
acc	gtc	acc	agg	ctc	gag	gat	ctg	ctg	cag	gat	gcc	cag	gat	gag	aag			2304
Thr	Val	Thr	Arg	Leu	Glu	Asp	Leu	Leu	Gln	Asp	Ala	Gln	Asp	Glu	Lys			
		755					760					765						
gaa	caa	ctg	aat	gag	tac	aag	ggg	cac	ctc	tca	ggc	ctg	gcc	aag	cgg			2352
Glu	Gln	Leu	Asn	Glu	Tyr	Lys	Gly	His	Leu	Ser	Gly	Leu	Ala	Lys	Arg			
	770					775					780							
gcc	aag	gct	att	gtg	cag	ttg	aag	cca	cgc	aac	cct	gcc	cac	ccg	gtg			2400
Ala	Lys	Ala	Ile	Val	Gln	Leu	Lys	Pro	Arg	Asn	Pro	Ala	His	Pro	Val			
785					790				795						800			
cgg	ggc	cac	gtg	ccc	ctg	ata	gcc	gtg	tgt	gac	tac	aag	cag	gtg	gag			2448
Arg	Gly	His	Val	Pro	Leu	Ile	Ala	Val	Cys	Asp	Tyr	Lys	Gln	Val	Glu			
			805						810					815				
gtg	act	gtg	cac	aag	ggt	gac	caa	tgc	cag	ctg	gtg	ggt	cct	gcc	cag			2496
Val	Thr	Val	His	Lys	Gly	Asp	Gln	Cys	Gln	Leu	Val	Gly	Pro	Ala	Gln			
			820				825						830					
cca	tcc	cac	tgg	aag	gtg	ctc	agt	ggt	tcc	agc	agc	gag	gcc	gct	gtg			2544
Pro	Ser	His	Trp	Lys	Val	Leu	Ser	Gly	Ser	Ser	Ser	Glu	Ala	Ala	Val			
		835					840					845						
cct	tct	gtg	tgc	ttt	ctt	gtg	ccg	ccg	ccc	aac	cag	gag	gcc	cag	gaa			2592
Pro	Ser	Val	Cys	Phe	Leu	Val	Pro	Pro	Pro	Asn	Gln	Glu	Ala	Gln	Glu			
	850					855					860							
gct	gtc	gct	aga	ctg	gag	gcg	cag	cat	cag	gcc	ctg	gtc	aca	ctg	tgg			2640
Ala	Val	Ala	Arg	Leu	Glu	Ala	Gln	His	Gln	Ala	Leu	Val	Thr	Leu	Trp			
865					870					875					880			
cac	cag	ctt	cac	gtg	gac	atg	aag	agc	ctt	ctg	gcg	tgg	cag	agc	ctc			2688
His	Gln	Leu	His	Val	Asp	Met	Lys	Ser	Leu	Leu	Ala	Trp	Gln	Ser	Leu			
			885						890					895				
agt	cgg	gac	ata	cag	ctc	atc	cgg	tcc	tgg	tcc	cta	gtc	acg	ttc	cgc			2736
Ser	Arg	Asp	Ile	Gln	Leu	Ile	Arg	Ser	Trp	Ser	Leu	Val	Thr	Phe	Arg			
		900					905						910					
aca	ctg	aag	ccc	gag	gag	cag	cga	caa	gct	ctg	cgc	aac	ctg	gaa	ttg			2784
Thr	Leu	Lys	Pro	Glu	Glu	Gln	Arg	Gln	Ala	Leu	Arg	Asn	Leu	Glu	Leu			
		915					920					925						
cac	tac	cag	gcc	ttc	ctt	cga	gac	agc	cag	gat	gcc	ggt	ggc	ttt	ggg			2832
His	Tyr	Gln	Ala	Phe	Leu	Arg	Asp	Ser	Gln	Asp	Ala	Gly	Gly	Phe	Gly			

930	935	940	
cct gag gac cgt cta gtg gca gag cgc gag tat gga tct tgc agc cgc Pro Glu Asp Arg Leu Val Ala Glu Arg Glu Tyr Gly Ser Cys Ser Arg 945 950 955 960			2880
cat tac cag cag tta cta caa agc ctg gag cag ggt gag cag gag gag His Tyr Gln Gln Leu Leu Gln Ser Leu Glu Gln Gly Glu Gln Glu Glu 965 970 975			2928
tcc cgc tgt cag cga tgc atc tcg gag ctc aag gat atc cgg ctg cag Ser Arg Cys Gln Arg Cys Ile Ser Glu Leu Lys Asp Ile Arg Leu Gln 980 985 990			2976
ctg gag gcc tgt gag act cgg act gtg cac cgt ctg cgg ctg cca ctg Leu Glu Ala Cys Glu Thr Arg Thr Val His Arg Leu Arg Leu Pro Leu 995 1000 1005			3024
gat aag gac ccc gca cgg gag tgc gcc cag cgc atc gct gag caa Asp Lys Asp Pro Ala Arg Glu Cys Ala Gln Arg Ile Ala Glu Gln 1010 1015 1020			3069
cag aaa gcg cag gct gag gtg gag ggg ctg ggc aag gga gtt gcc Gln Lys Ala Gln Ala Glu Val Glu Gly Leu Gly Lys Gly Val Ala 1025 1030 1035			3114
cgg ctg tct gct gag gct gag aaa gtt cta gcc ttg cca gag ccg Arg Leu Ser Ala Glu Ala Glu Lys Val Leu Ala Leu Pro Glu Pro 1040 1045 1050			3159
tca cct gct gca ccc act ctg cgc tcg gag ttg gaa ctg acc ctg Ser Pro Ala Ala Pro Thr Leu Arg Ser Glu Leu Glu Leu Thr Leu 1055 1060 1065			3204
ggc aag ctg gaa cag gtc cga agc ctg tct gcc atc tac ctg gag Gly Lys Leu Glu Gln Val Arg Ser Leu Ser Ala Ile Tyr Leu Glu 1070 1075 1080			3249
aaa ctc aag acc atc agc ttg gtg att cgc agt acc cag ggg gct Lys Leu Lys Thr Ile Ser Leu Val Ile Arg Ser Thr Gln Gly Ala 1085 1090 1095			3294
gag gag gtg ctt aaa acc cat gag gag cag ctg aag gag gcc cag Glu Glu Val Leu Lys Thr His Glu Glu Gln Leu Lys Glu Ala Gln 1100 1105 1110			3339
gct gtg cct gcc act ctc caa gag ctt gaa gcc acc aag gcc tca Ala Val Pro Ala Thr Leu Gln Glu Leu Glu Ala Thr Lys Ala Ser 1115 1120 1125			3384
cta aag aag ctg cgg gcc cag gcc gag gca cag cag cca gta ttc Leu Lys Lys Leu Arg Ala Gln Ala Glu Ala Gln Gln Pro Val Phe 1130 1135 1140			3429
aac acc cta aga gat gag ttg cgg ggg gca cag gag gtt ggt gag Asn Thr Leu Arg Asp Glu Leu Arg Gly Ala Gln Glu Val Gly Glu 1145 1150 1155			3474
cgg cta cag cag cgg cat ggt gag cgg gac gta gaa gtt gag cgc Arg Leu Gln Gln Arg His Gly Glu Arg Asp Val Glu Val Glu Arg 1160 1165 1170			3519
tgg cga gaa cgt gtc act cag ttg ctg gag cgc tgg cag gct gtt Trp Arg Glu Arg Val Thr Gln Leu Leu Glu Arg Trp Gln Ala Val 1175 1180 1185			3564
cta gcc cag aca gat gtg cgg cag cgt gag ctc gag cag ctg ggc Leu Ala Gln Thr Asp Val Arg Gln Arg Glu Leu Glu Gln Leu Gly 1190 1195 1200			3609
cgc cag ctt cgc tac tat cgt gag agc gcg gat cct ctg agc gcc Arg Gln Leu Arg Tyr Tyr Arg Glu Ser Ala Asp Pro Leu Ser Ala 1205 1210 1215			3654

1205	1210	1215	
tgg ctg cag gat gcc aag agg	cgg caa gag cag atc	cag gcc gtg	3699
Trp Leu Gln Asp Ala Lys Arg	Arg Gln Glu Gln Ile	Gln Ala Val	
1220	1225	1230	
cca ata gcc aac tgt cag gct	gcg cga gaa cag ctg	cgc cag gag	3744
Pro Ile Ala Asn Cys Gln Ala	Ala Arg Glu Gln Leu	Arg Gln Glu	
1235	1240	1245	
aag gcc ctg ctg gag gag att	gag cgt cat ggt gag	aag gtt gag	3789
Lys Ala Leu Leu Glu Glu Ile	Glu Arg His Gly Glu	Lys Val Glu	
1250	1255	1260	
gag tgc cag aag ttt gct aag	cag tac atc aat gca	atc aag gac	3834
Glu Cys Gln Lys Phe Ala Lys	Gln Tyr Ile Asn Ala	Ile Lys Asp	
1265	1270	1275	
tat gag ctg cag ctg atc acg	tac aag gct cag ctt	gaa ccc gtg	3879
Tyr Glu Leu Gln Leu Ile Thr	Tyr Lys Ala Gln Leu	Glu Pro Val	
1280	1285	1290	
gcc tcc cct gcc aag aag ccc	aag gtt cag tct gga	tcg gag agc	3924
Ala Ser Pro Ala Lys Lys Pro	Lys Val Gln Ser Gly	Ser Glu Ser	
1295	1300	1305	
gtc atc cag gag tac gtg gat	ctg cgc acg cgc tac	agc gag ctg	3969
Val Ile Gln Glu Tyr Val Asp	Leu Arg Thr Arg Tyr	Ser Glu Leu	
1310	1315	1320	
acc acg ctg acg agc cag tat	atc aag ttc atc agt	gag acc ctt	4014
Thr Thr Leu Thr Ser Gln Tyr	Ile Lys Phe Ile Ser	Glu Thr Leu	
1325	1330	1335	
cgc cgc atg gaa gag gag gag	cgg ctg gct gag caa	cag cgg gca	4059
Arg Arg Met Glu Glu Glu Glu	Arg Leu Ala Glu Gln	Gln Arg Ala	
1340	1345	1350	
gag gag cgg gag cga ctg gcc	gag gtg gag gct gcg	ctg gag aag	4104
Glu Glu Arg Glu Arg Leu Ala	Glu Val Glu Ala Ala	Leu Glu Lys	
1355	1360	1365	
cag cgg cag cta gct gag gca	cac gcc cag gct aag	gcc cag gca	4149
Gln Arg Gln Leu Ala Glu Ala	His Ala Gln Ala Lys	Ala Gln Ala	
1370	1375	1380	
gag ctg gaa gca caa gaa ctg	cag cgg cgc atg cag	gag gag gtg	4194
Glu Leu Glu Ala Gln Glu Leu	Gln Arg Arg Met Gln	Glu Glu Val	
1385	1390	1395	
gcg cgg cgc gag gag gca gca	gtg gac gca cag cag	cag aag cgc	4239
Ala Arg Arg Glu Glu Ala Ala	Val Asp Ala Gln Gln	Gln Lys Arg	
1400	1405	1410	
agc atc caa gag gag ctg cag	cac ctg agg cag agc	tcg gag gca	4284
Ser Ile Gln Glu Glu Leu Gln	His Leu Arg Gln Ser	Ser Glu Ala	
1415	1420	1425	
gag atc cag gcc aag gcc cag	cag gtg gag gct gca	gaa cgc agc	4329
Glu Ile Gln Ala Lys Ala Gln	Gln Val Glu Ala Ala	Glu Arg Ser	
1430	1435	1440	
cgg atg cgc att gag gaa gag	atc cgt gta gta cgt	ctg cag ctg	4374
Arg Met Arg Ile Glu Glu Glu	Ile Arg Val Val Arg	Leu Gln Leu	
1445	1450	1455	
gag aca act gag cgg cag cgt	gga ggg gcg gag ggc	gag ctg cag	4419
Glu Thr Thr Glu Arg Gln Arg	Gly Gly Ala Glu Gly	Glu Leu Gln	
1460	1465	1470	
gct ctg cgc gct cgg gct gag	gag gca gaa gcg cag	aag cgg cag	4464
Ala Leu Arg Ala Arg Ala Glu	Glu Ala Glu Ala Gln	Lys Arg Gln	

1475	1480	1485	
gct cag gag gaa gct gaa cgc	ttg cga agg cag gtg	cag gat gag	4509
Ala Gln Glu Glu Ala Glu Arg	Leu Arg Arg Gln Val	Gln Asp Glu	
1490	1495	1500	
agc cag cgc aaa cgg cag gca	gag gca gag ctg gcc	ctg cgt gtg	4554
Ser Gln Arg Lys Arg Gln Ala	Glu Ala Glu Leu Ala	Leu Arg Val	
1505	1510	1515	
aag gct gaa gct gag gca gcg	cga gag aag cag agg	gcc ctg cag	4599
Lys Ala Glu Ala Glu Ala Ala	Arg Glu Lys Gln Arg	Ala Leu Gln	
1520	1525	1530	
gcc ctg gat gag ctg aga ctg	cag gcc gag gag gcc	gag cgg cgg	4644
Ala Leu Asp Glu Leu Arg Leu	Gln Ala Glu Glu Ala	Glu Arg Arg	
1535	1540	1545	
ctg cgc caa gcc gag gca gag	cgg gca cgc caa gtg	cag gtg gcc	4689
Leu Arg Gln Ala Glu Ala Glu	Arg Ala Arg Gln Val	Gln Val Ala	
1550	1555	1560	
ctg gag acg gca cag cgc agt	gcg gaa gtg gag ctg	cag agc aag	4734
Leu Glu Thr Ala Gln Arg Ser	Ala Glu Val Glu Leu	Gln Ser Lys	
1565	1570	1575	
cgg gca tcc ttt gca gag aag	acc gca caa ttg gag	cgc act ctg	4779
Arg Ala Ser Phe Ala Glu Lys	Thr Ala Gln Leu Glu	Arg Thr Leu	
1580	1585	1590	
cag gag gag cat gta aca gtg	gcc cag ctg cgg gag	gag gcc gag	4824
Gln Glu Glu His Val Thr Val	Ala Gln Leu Arg Glu	Glu Ala Glu	
1595	1600	1605	
cga cgg gca cag cag caa gct	gag gct gag cga gcc	cgg gag gaa	4869
Arg Arg Ala Gln Gln Gln Ala	Glu Ala Glu Arg Ala	Arg Glu Glu	
1610	1615	1620	
gct gag cgg gag ctg gag cgc	tgg cag ctg aag gcc	aat gaa gca	4914
Ala Glu Arg Glu Leu Glu Arg	Trp Gln Leu Lys Ala	Asn Glu Ala	
1625	1630	1635	
ctg cgg ctg cgg ctg cag gca	gaa gag gtg gca cag	cag aag agc	4959
Leu Arg Leu Arg Leu Gln Ala	Glu Glu Val Ala Gln	Gln Lys Ser	
1640	1645	1650	
ctg gca cag gcc gat gcc gag	aag cag aag gaa gag	gcc gag cgg	5004
Leu Ala Gln Ala Asp Ala Glu	Lys Gln Lys Glu Glu	Ala Glu Arg	
1655	1660	1665	
gaa gcg cgg cgg cgg ggc aag	gcg gag gag cag gct	gtg cgg cag	5049
Glu Ala Arg Arg Arg Gly Lys	Ala Glu Glu Gln Ala	Val Arg Gln	
1670	1675	1680	
cgg gag ctg gcg gag cag gag	ctg gag aag cag cgg	cag ctg gcg	5094
Arg Glu Leu Ala Glu Gln Glu	Leu Glu Lys Gln Arg	Gln Leu Ala	
1685	1690	1695	
gag ggc acc gca cag cag cgc	ctg gct gcg gag caa	gag ctg atc	5139
Glu Gly Thr Ala Gln Gln Arg	Leu Ala Ala Glu Gln	Glu Leu Ile	
1700	1705	1710	
cgc ctg cgg gcc gag aca gag	caa ggt gag cag cag	cgg cag ctg	5184
Arg Leu Arg Ala Glu Thr Glu	Gln Gly Glu Gln Gln	Arg Gln Leu	
1715	1720	1725	
ctg gag gaa gag ctg gcc cgg	cta cag cac gag gcc	acc gca gcc	5229
Leu Glu Glu Glu Leu Ala Arg	Leu Gln His Glu Ala	Thr Ala Ala	
1730	1735	1740	
acg cag aag cgc cag gag ctg	gag gct gaa ctg gct	aag gtc cgg	5274
Thr Gln Lys Arg Gln Glu Leu	Glu Ala Glu Leu Ala	Lys Val Arg	

1745					1750					1755					
gca	gag	atg	gag	gta	ctt	ctg	gcc	agc	aag	gcg	cga	gcc	gag	gaa	5319
Ala	Glu	Met	Glu	Val	Leu	Leu	Ala	Ser	Lys	Ala	Arg	Ala	Glu	Glu	
1760					1765					1770					
gag	tct	cgc	tct	acc	agc	gaa	aag	tct	aag	cag	agg	cta	gag	gct	5364
Glu	Ser	Arg	Ser	Thr	Ser	Glu	Lys	Ser	Lys	Gln	Arg	Leu	Glu	Ala	
1775					1780					1785					
gag	gca	ggc	cgc	ttt	cgg	gaa	ctg	gcc	gag	gag	gct	gcc	cgg	ctg	5409
Glu	Ala	Gly	Arg	Phe	Arg	Glu	Leu	Ala	Glu	Glu	Ala	Ala	Arg	Leu	
1790					1795					1800					
cgt	gct	ctg	gcg	gag	gag	gcc	aag	agg	cag	agg	cag	ttg	gca	gag	5454
Arg	Ala	Leu	Ala	Glu	Glu	Ala	Lys	Arg	Gln	Arg	Gln	Leu	Ala	Glu	
1805					1810					1815					
gag	gat	gcc	gcc	cgc	cag	cgg	gcc	gag	gca	gag	cgg	gtg	ctt	act	5499
Glu	Asp	Ala	Ala	Arg	Gln	Arg	Ala	Glu	Ala	Glu	Arg	Val	Leu	Thr	
1820					1825					1830					
gag	aag	ctg	gct	gcc	atc	agt	gag	gcc	aca	cgg	ctc	aag	acg	gag	5544
Glu	Lys	Leu	Ala	Ala	Ile	Ser	Glu	Ala	Thr	Arg	Leu	Lys	Thr	Glu	
1835					1840					1845					
gca	gag	att	gca	ctc	aaa	gag	aag	gag	gcc	gag	aat	gag	cgc	ctg	5589
Ala	Glu	Ile	Ala	Leu	Lys	Glu	Lys	Glu	Ala	Glu	Asn	Glu	Arg	Leu	
1850					1855					1860					
agg	cgc	ctg	gca	gaa	gac	gag	gcc	ttc	cag	cgg	cgg	cgt	ctg	gag	5634
Arg	Arg	Leu	Ala	Glu	Asp	Glu	Ala	Phe	Gln	Arg	Arg	Arg	Leu	Glu	
1865					1870					1875					
gag	cag	gcg	gca	ctg	cac	aag	gct	gac	atc	gag	gag	cgc	ctg	gcc	5679
Glu	Gln	Ala	Ala	Leu	His	Lys	Ala	Asp	Ile	Glu	Glu	Arg	Leu	Ala	
1880					1885					1890					
cag	ctg	cgc	aag	gca	tca	gag	agc	gag	ctg	gag	cgg	cag	aag	ggc	5724
Gln	Leu	Arg	Lys	Ala	Ser	Glu	Ser	Glu	Leu	Glu	Arg	Gln	Lys	Gly	
1895					1900					1905					
ttg	gtg	gag	gac	acc	ctg	cga	cag	cgg	cgg	cag	gtg	gag	gag	gag	5769
Leu	Val	Glu	Asp	Thr	Leu	Arg	Gln	Arg	Arg	Gln	Val	Glu	Glu	Glu	
1910					1915					1920					
atc	atg	gcg	ctg	aag	gtg	agc	ttt	gag	aaa	gcc	gcc	gcg	ggc	aag	5814
Ile	Met	Ala	Leu	Lys	Val	Ser	Phe	Glu	Lys	Ala	Ala	Ala	Gly	Lys	
1925					1930					1935					
gca	gag	ctg	gag	ctg	gag	ctg	ggg	cgc	att	cgc	agc	aac	gcg	gag	5859
Ala	Glu	Leu	Glu	Leu	Glu	Leu	Gly	Arg	Ile	Arg	Ser	Asn	Ala	Glu	
1940					1945					1950					
gac	aca	atg	cgc	agc	aag	gag	cag	gcg	gaa	ctg	gag	gcg	gcc	cgg	5904
Asp	Thr	Met	Arg	Ser	Lys	Glu	Gln	Ala	Glu	Leu	Glu	Ala	Ala	Arg	
1955					1960					1965					
cag	cgg	cag	ttg	gcg	gca	gag	gag	gag	cag	agg	cgc	cgg	gag	gcc	5949
Gln	Arg	Gln	Leu	Ala	Ala	Glu	Glu	Glu	Gln	Arg	Arg	Arg	Glu	Ala	
1970					1975					1980					
gag	gag	cgc	gtg	cag	agg	agc	ctg	gca	gcg	gag	gag	gaa	gcc	gct	5994
Glu	Glu	Arg	Val	Gln	Arg	Ser	Leu	Ala	Ala	Glu	Glu	Glu	Ala	Ala	
1985					1990					1995					
cgg	cag	cgc	aag	gtg	gca	ctg	gag	gag	gtc	gag	cga	ctc	aag	gcc	6039
Arg	Gln	Arg	Lys	Val	Ala	Leu	Glu	Glu	Val	Glu	Arg	Leu	Lys	Ala	
2000					2005					2010					
aag	gtt	gaa	gaa	gca	cgg	cgc	ctg	cga	gag	cgg	gca	gag	cag	gag	6084
Lys	Val	Glu	Glu	Ala	Arg	Arg	Leu	Arg	Glu	Arg	Ala	Glu	Gln	Glu	

2015					2020					2025					
tcg	gcc	agg	cag	ctg	cag	ctg	gcc	cag	gag	gcc	gcc	cag	aaa	cgg	6129
Ser	Ala	Arg	Gln	Leu	Gln	Leu	Ala	Gln	Glu	Ala	Ala	Gln	Lys	Arg	
2030					2035					2040					
ctg	cag	gcg	gag	gag	aag	gca	cac	gcc	ttt	gtg	gtg	cag	cag	cga	6174
Leu	Gln	Ala	Glu	Glu	Lys	Ala	His	Ala	Phe	Val	Val	Gln	Gln	Arg	
2045					2050					2055					
gag	gag	gag	ctg	cag	cag	acg	ctt	cag	caa	gag	cag	aac	atg	ctg	6219
Glu	Glu	Glu	Leu	Gln	Gln	Thr	Leu	Gln	Gln	Glu	Gln	Asn	Met	Leu	
2060					2065					2070					
gat	cgg	ctg	cgg	agt	gag	gca	gag	gca	gcg	agg	cga	gcc	gcc	gag	6264
Asp	Arg	Leu	Arg	Ser	Glu	Ala	Glu	Ala	Ala	Arg	Arg	Ala	Ala	Glu	
2075					2080					2085					
gag	gcg	gag	gag	gcc	cgg	gag	cag	gcg	gag	cgc	gag	gca	gcg	cag	6309
Glu	Ala	Glu	Glu	Ala	Arg	Glu	Gln	Ala	Glu	Arg	Glu	Ala	Ala	Gln	
2090					2095					2100					
tct	cgg	aaa	caa	gtg	gaa	gag	gcc	gag	cgg	ctg	aaa	cag	tca	gca	6354
Ser	Arg	Lys	Gln	Val	Glu	Glu	Ala	Glu	Arg	Leu	Lys	Gln	Ser	Ala	
2105					2110					2115					
gag	gag	cag	gct	cag	gcc	cag	gct	cag	gcg	cag	gcg	gcc	gca	gag	6399
Glu	Glu	Gln	Ala	Gln	Ala	Gln	Ala	Gln	Ala	Gln	Ala	Ala	Ala	Glu	
2120					2125					2130					
aag	ctg	cgc	aag	gaa	gcg	gag	cag	gag	gcg	gcg	cgt	cgg	gcc	cag	6444
Lys	Leu	Arg	Lys	Glu	Ala	Glu	Gln	Glu	Ala	Ala	Arg	Arg	Ala	Gln	
2135					2140					2145					
gca	gag	cag	gca	gcg	ctg	aaa	cag	aag	cag	gca	gcc	gac	gcg	gag	6489
Ala	Glu	Gln	Ala	Ala	Leu	Lys	Gln	Lys	Gln	Ala	Ala	Asp	Ala	Glu	
2150					2155					2160					
atg	gag	aag	cat	aaa	aag	ttt	gca	gag	cag	aca	ctc	cgg	cag	aag	6534
Met	Glu	Lys	His	Lys	Lys	Phe	Ala	Glu	Gln	Thr	Leu	Arg	Gln	Lys	
2165					2170					2175					
gcc	cag	gta	gag	cag	gag	ctg	acc	aca	ctg	agg	ctg	cag	cta	gag	6579
Ala	Gln	Val	Glu	Gln	Glu	Leu	Thr	Thr	Leu	Arg	Leu	Gln	Leu	Glu	
2180					2185					2190					
gag	act	gac	cac	cag	aag	agc	atc	ctg	gat	gag	gag	ctg	cag	cga	6624
Glu	Thr	Asp	His	Gln	Lys	Ser	Ile	Leu	Asp	Glu	Glu	Leu	Gln	Arg	
2195					2200					2205					
cta	aag	gcc	gag	gta	aca	gag	gca	gcc	cgg	cag	cgc	agc	cag	gta	6669
Leu	Lys	Ala	Glu	Val	Thr	Glu	Ala	Ala	Arg	Gln	Arg	Ser	Gln	Val	
2210					2215					2220					
gag	gag	gag	ctc	ttc	tct	gtc	cgt	gtg	cag	atg	gag	gag	ctg	ggc	6714
Glu	Glu	Glu	Leu	Phe	Ser	Val	Arg	Val	Gln	Met	Glu	Glu	Leu	Gly	
2225					2230					2235					
aag	ctc	aag	gct	cgc	att	gaa	gct	gaa	aac	cgg	gcc	ctc	atc	ctt	6759
Lys	Leu	Lys	Ala	Arg	Ile	Glu	Ala	Glu	Asn	Arg	Ala	Leu	Ile	Leu	
2240					2245					2250					
cgt	gac	aag	gac	aac	aca	cag	cgc	ttc	ctg	gag	gag	gag	gcc	gag	6804
Arg	Asp	Lys	Asp	Asn	Thr	Gln	Arg	Phe	Leu	Glu	Glu	Glu	Ala	Glu	
2255					2260					2265					
aag	atg	aaa	cag	gtg	gcc	gag	gaa	gcg	gca	cgg	ttg	agc	gtg	gcc	6849
Lys	Met	Lys	Gln	Val	Ala	Glu	Glu	Ala	Ala	Arg	Leu	Ser	Val	Ala	
2270					2275					2280					
gcc	cag	gag	gca	gca	cgg	ctg	agg	cag	cta	gcg	gag	gag	gac	ctg	6894
Ala	Gln	Glu	Ala	Ala	Arg	Leu	Arg	Gln	Leu	Ala	Glu	Glu	Asp	Leu	

2285	2290	2295	
gcg cag cag cgg gcc ctg gca gag aag atg ctg aag gag aag atg			6939
Ala Gln Gln Arg Ala Leu Ala Glu Lys Met Leu Lys Glu Lys Met			
2300	2305	2310	
cag gcg gtg cag gaa gcc acg agg ctc aag gcc gag gct gag ctg			6984
Gln Ala Val Gln Glu Ala Thr Arg Leu Lys Ala Glu Ala Glu Leu			
2315	2320	2325	
ctg cag cag cag aag gag ctt gcc cag gag cag gcc cgg cgg ctg			7029
Leu Gln Gln Gln Lys Glu Leu Ala Gln Glu Gln Ala Arg Arg Leu			
2330	2335	2340	
cag gag gac aag gag caa atg gct cag cag ttg gta gag gag aca			7074
Gln Glu Asp Lys Glu Gln Met Ala Gln Gln Leu Val Glu Glu Thr			
2345	2350	2355	
cag ggt ttc cag agg act ctg gag gcc gag cgg cag cgg cag ctg			7119
Gln Gly Phe Gln Arg Thr Leu Glu Ala Glu Arg Gln Arg Gln Leu			
2360	2365	2370	
gag atg agc gcg gag gcc gag cgc ctc aag ctg cgc atg gtt gag			7164
Glu Met Ser Ala Glu Ala Glu Arg Leu Lys Leu Arg Met Val Glu			
2375	2380	2385	
atg agc cgg gct cag gcc cgc gcg gag gag gac gcc cag cgc ttc			7209
Met Ser Arg Ala Gln Ala Arg Ala Glu Glu Asp Ala Gln Arg Phe			
2390	2395	2400	
cgg aag cag gct gaa gag atc ggc gag aag ctg cac cgc act gaa			7254
Arg Lys Gln Ala Glu Glu Ile Gly Glu Lys Leu His Arg Thr Glu			
2405	2410	2415	
ctt gcg aca cag gag aag gtg acg ttg gtg cag acg ctg gag atc			7299
Leu Ala Thr Gln Glu Lys Val Thr Leu Val Gln Thr Leu Glu Ile			
2420	2425	2430	
cag cga cag cag agt gac cac gat gcc gag cgt ctg agg gag gcc			7344
Gln Arg Gln Gln Ser Asp His Asp Ala Glu Arg Leu Arg Glu Ala			
2435	2440	2445	
att gcg gag ctg gag cgt gag aag gag aag ctc aag cag gag gcg			7389
Ile Ala Glu Leu Glu Arg Glu Lys Glu Lys Leu Lys Gln Glu Ala			
2450	2455	2460	
aag tta ctg cag ctc aag tcg gag gag atg cag act gtg cag cag			7434
Lys Leu Leu Gln Leu Lys Ser Glu Glu Met Gln Thr Val Gln Gln			
2465	2470	2475	
gag cag ata ctg cag gag acc cag gcc ctg cag aag agc ttc ctc			7479
Glu Gln Ile Leu Gln Glu Thr Gln Ala Leu Gln Lys Ser Phe Leu			
2480	2485	2490	
tct gag aag gac agc ctg ctg cag cgc gag cgc ttc atc gag cag			7524
Ser Glu Lys Asp Ser Leu Leu Gln Arg Glu Arg Phe Ile Glu Gln			
2495	2500	2505	
gag aag gcc aag ctg gag cag ctc ttc cag gac gag gtg gct aaa			7569
Glu Lys Ala Lys Leu Glu Gln Leu Phe Gln Asp Glu Val Ala Lys			
2510	2515	2520	
gca aag cag ctg cgt gag gag cag cag cgg cag cag cag cag atg			7614
Ala Lys Gln Leu Arg Glu Glu Gln Gln Arg Gln Gln Gln Gln Met			
2525	2530	2535	
gaa cag gaa aag cag gag ctg atg gcc agc atg gag gag gcc agg			7659
Glu Gln Glu Lys Gln Glu Leu Met Ala Ser Met Glu Glu Ala Arg			
2540	2545	2550	
agg cgg cag cgc gag gct gag gag gcc gtg agg cgc aag caa gag			7704
Arg Arg Gln Arg Glu Ala Glu Glu Gly Val Arg Arg Lys Gln Glu			

2555	2560	2565	
gaa ctg cag cat ctg gag cag cag cgg cag cag cag gag aag ctc Glu Leu Gln His Leu Glu Gln Gln Arg Gln Gln Gln Glu Lys Leu 2570 2575 2580			7749
ctg gcg gag gaa aac cag cgg ctg cga gag cgg ctg cag cgc ctg Leu Ala Glu Glu Asn Gln Arg Leu Arg Glu Arg Leu Gln Arg Leu 2585 2590 2595			7794
gag gaa gag cac cgc gct gcc ttg gct cac tct gag atc gcc acc Glu Glu Glu His Arg Ala Ala Leu Ala His Ser Glu Ile Ala Thr 2600 2605 2610			7839
acc cag gcc gct tcc acg aag gca ctg ccc aac ggc cgg gat gca Thr Gln Ala Ala Ser Thr Lys Ala Leu Pro Asn Gly Arg Asp Ala 2615 2620 2625			7884
ccc gat ggc ccg tcc gtg gag gct gaa ccc gag tac acc ttt gag Pro Asp Gly Pro Ser Val Glu Ala Glu Pro Glu Tyr Thr Phe Glu 2630 2635 2640			7929
gga cta cgt cag aag gtg ccg gcc cag cag cta cag gaa gca ggc Gly Leu Arg Gln Lys Val Pro Ala Gln Gln Leu Gln Glu Ala Gly 2645 2650 2655			7974
atc ctg agc cag gag gaa ctg cag cgt ttg gca cag ggt cac acc Ile Leu Ser Gln Glu Glu Leu Gln Arg Leu Ala Gln Gly His Thr 2660 2665 2670			8019
acg gtg gct gag ctc acg cag cgg gaa gat gtg tac cgg tac ctg Thr Val Ala Glu Leu Thr Gln Arg Glu Asp Val Tyr Arg Tyr Leu 2675 2680 2685			8064
aag ggc cgc agc agc att gca gga ctg tta ctg aag ccc acc aat Lys Gly Arg Ser Ser Ile Ala Gly Leu Leu Leu Lys Pro Thr Asn 2690 2695 2700			8109
gag aaa ctg agt gtc tac aca gcc cta cag cgg cag ctg ctc agc Glu Lys Leu Ser Val Tyr Thr Ala Leu Gln Arg Gln Leu Leu Ser 2705 2710 2715			8154
ccc gga aca gct ctg atc ttg ctg gag gcc cag gca gcc tcg ggc Pro Gly Thr Ala Leu Ile Leu Leu Glu Ala Gln Ala Ala Ser Gly 2720 2725 2730			8199
ttc ctg ctg gat cct gtg cgg aat cgg cgg ctg aca gtc aat gag Phe Leu Leu Asp Pro Val Arg Asn Arg Arg Leu Thr Val Asn Glu 2735 2740 2745			8244
gct gtg aag gag ggt gtc gtg ggt cct gag ctg cac cac aaa ctg Ala Val Lys Glu Gly Val Val Gly Pro Glu Leu His His Lys Leu 2750 2755 2760			8289
ctg tca gct gag cgt gcc gtc acc ggc tac aag gac ccc tat aca Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Lys Asp Pro Tyr Thr 2765 2770 2775			8334
ggg gaa cag atc tcg ctc ttc cag gcc atg aag aag gac ctt att Gly Glu Gln Ile Ser Leu Phe Gln Ala Met Lys Lys Asp Leu Ile 2780 2785 2790			8379
gtc agg gac cat ggc gtc cgc ctg ctg gag gcc cag atc gcc acc Val Arg Asp His Gly Val Arg Leu Leu Glu Ala Gln Ile Ala Thr 2795 2800 2805			8424
ggt ggc atc att gat cct gtg cac agc cac cgt gtg cct gtg gac Gly Gly Ile Ile Asp Pro Val His Ser His Arg Val Pro Val Asp 2810 2815 2820			8469
gtg gcc tac aaa cgt ggc tac ttc gat gaa gag atg aac cgc atc Val Ala Tyr Lys Arg Gly Tyr Phe Asp Glu Glu Met Asn Arg Ile 2825 2830 2835			8514



2825	2830	2835	
ttg tct gac cca agc gat gac acc aag ggc ttc ttc gac ccc aac 8559			
Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn			
2840	2845	2850	
acc cac gag aac ctc act tac ctg cag ctg ctg gag cgc tgt gtg 8604			
Thr His Glu Asn Leu Thr Tyr Leu Gln Leu Leu Glu Arg Cys Val			
2855	2860	2865	
gag gac ccc gag acc ggc ctg cgc ctc ctg cca ctc aca gat aag 8649			
Glu Asp Pro Glu Thr Gly Leu Arg Leu Leu Pro Leu Thr Asp Lys			
2870	2875	2880	
gct gcc aag ggt ggc gag ctg gtg tac acc gat acg gag gcc cgt 8694			
Ala Ala Lys Gly Gly Glu Leu Val Tyr Thr Asp Thr Glu Ala Arg			
2885	2890	2895	
gac gtc ttc gaa aag gcc acc gtg tct gca ccg ttt ggc aag ttc 8739			
Asp Val Phe Glu Lys Ala Thr Val Ser Ala Pro Phe Gly Lys Phe			
2900	2905	2910	
cag ggc agg acc gtg acc atc tgg gag atc atc aac tcg gag tac 8784			
Gln Gly Arg Thr Val Thr Ile Trp Glu Ile Ile Asn Ser Glu Tyr			
2915	2920	2925	
ttc acg gcg gaa cag cga cgg gac ctg ctg cag cag ttc cgc acg 8829			
Phe Thr Ala Glu Gln Arg Arg Asp Leu Leu Gln Gln Phe Arg Thr			
2930	2935	2940	
ggc cac atc acg gtg gag aaa atc atc aaa atc gtc atc aca gtg 8874			
Gly His Ile Thr Val Glu Lys Ile Ile Lys Ile Val Ile Thr Val			
2945	2950	2955	
gtg gag gaa cac gag cgg aag ggc cag ctc tgc ttt gag ggc ctc 8919			
Val Glu Glu His Glu Arg Lys Gly Gln Leu Cys Phe Glu Gly Leu			
2960	2965	2970	
cgt gcc ctc gtg ccc gcc gca gag ctg ctg gac agt ggg gtc atc 8964			
Arg Ala Leu Val Pro Ala Ala Glu Leu Leu Asp Ser Gly Val Ile			
2975	2980	2985	
agc cac gaa ctc tac cag cag ctg cag cgg ggt gag cgt tct gtg 9009			
Ser His Glu Leu Tyr Gln Gln Leu Gln Arg Gly Glu Arg Ser Val			
2990	2995	3000	
cgg gaa gtg gcc gag gcg gac agc gtg agg cag gcc ctg cgg ggt 9054			
Arg Glu Val Ala Glu Ala Asp Ser Val Arg Gln Ala Leu Arg Gly			
3005	3010	3015	
acc aat gtc atc gcc ggt gtg tgg ctg gaa gaa gca ggg cag aag 9099			
Thr Asn Val Ile Ala Gly Val Trp Leu Glu Glu Ala Gly Gln Lys			
3020	3025	3030	
ctg agc atc tat gag gcc ctg aag aaa gac ttg ctg cag cca gag 9144			
Leu Ser Ile Tyr Glu Ala Leu Lys Lys Asp Leu Leu Gln Pro Glu			
3035	3040	3045	
gtg gct gtg gcc ttg ctg gag gcc cag gct ggc act ggg cat atc 9189			
Val Ala Val Ala Leu Leu Glu Ala Gln Ala Gly Thr Gly His Ile			
3050	3055	3060	
atc gac cct gcc acc agc gcc agg ctg act gtg gac gag gcg gtg 9234			
Ile Asp Pro Ala Thr Ser Ala Arg Leu Thr Val Asp Glu Ala Val			
3065	3070	3075	
cgt gct ggc ctg gtg ggg cct gag ctg cac gag aag ctg ctg tca 9279			
Arg Ala Gly Leu Val Gly Pro Glu Leu His Glu Lys Leu Leu Ser			
3080	3085	3090	
gcc gag aag gcc gtg aca ggc tac agg gat ccc tac tca gga cag 9324			
Ala Glu Lys Ala Val Thr Gly Tyr Arg Asp Pro Tyr Ser Gly Gln			

3095		3100		3105	
agt gtc tca ctg ttc cag gcc ttg aag aag ggt ctc atc ccc cga	9369				
Ser Val Ser Leu Phe Gln Ala Leu Lys Lys Gly Leu Ile Pro Arg					
3110		3115		3120	
gaa cag ggc ctg cgc ctg ctg gat gcc cag tta tcc act ggt ggc	9414				
Glu Gln Gly Leu Arg Leu Leu Asp Ala Gln Leu Ser Thr Gly Gly					
3125		3130		3135	
att gta gac ccc agc aaa agc cac cgt gtg ccc ctg gat gtt gcc	9459				
Ile Val Asp Pro Ser Lys Ser His Arg Val Pro Leu Asp Val Ala					
3140		3145		3150	
tat gcc cgg ggc tac ctg gac aaa gag act aac agg gcc ctg acg	9504				
Tyr Ala Arg Gly Tyr Leu Asp Lys Glu Thr Asn Arg Ala Leu Thr					
3155		3160		3165	
tca ccc aga gat gat gcc aga gtc tac cat gac ccc agc acc cag	9549				
Ser Pro Arg Asp Asp Ala Arg Val Tyr His Asp Pro Ser Thr Gln					
3170		3175		3180	
gag cca gtc acc tac agc cag ctc caa cag cgg tgc cgg tct gac	9594				
Glu Pro Val Thr Tyr Ser Gln Leu Gln Gln Arg Cys Arg Ser Asp					
3185		3190		3195	
cag ctg acc ggc ttg agc cta ctg cca ctc tca gag aag gcc gtc	9639				
Gln Leu Thr Gly Leu Ser Leu Leu Pro Leu Ser Glu Lys Ala Val					
3200		3205		3210	
cgg gcc cgg cag gag gag gtc tac tct gag ctc cag gcc cgg gag	9684				
Arg Ala Arg Gln Glu Glu Val Tyr Ser Glu Leu Gln Ala Arg Glu					
3215		3220		3225	
aca ctg gag cag gcc aag gtt gag gtt cct gtg ggc agc ttt aag	9729				
Thr Leu Glu Gln Ala Lys Val Glu Val Pro Val Gly Ser Phe Lys					
3230		3235		3240	
ggc agg gcg atg act gtg tgg gag ctc atc agc tct gaa tac ttt	9774				
Gly Arg Ala Met Thr Val Trp Glu Leu Ile Ser Ser Glu Tyr Phe					
3245		3250		3255	
act gag gag cag cgg cag gag ttg ctg cgg cag ttc cgc aca ggc	9819				
Thr Glu Glu Gln Arg Gln Glu Leu Leu Arg Gln Phe Arg Thr Gly					
3260		3265		3270	
aag gtc acc gtg gag aag gtc atc aag att gtc atc acc atc gtg	9864				
Lys Val Thr Val Glu Lys Val Ile Lys Ile Val Ile Thr Ile Val					
3275		3280		3285	
gag gag gtg gag act cgg cgg cag gag aga ctg tcc ttt agt ggc	9909				
Glu Glu Val Glu Thr Arg Arg Gln Glu Arg Leu Ser Phe Ser Gly					
3290		3295		3300	
ctc cgt gcc cct gtg ccg gcc agt gag ctc ctg gac gcc aag atc	9954				
Leu Arg Ala Pro Val Pro Ala Ser Glu Leu Leu Asp Ala Lys Ile					
3305		3310		3315	
ctc agc aga gct cag ttt gac cag ctc aag gat ggc aag aca tca	9999				
Leu Ser Arg Ala Gln Phe Asp Gln Leu Lys Asp Gly Lys Thr Ser					
3320		3325		3330	
gtc aaa gag ctg tcc gag gtg ggc tcc gtg cgg act ctg ctg cag	10044				
Val Lys Glu Leu Ser Glu Val Gly Ser Val Arg Thr Leu Leu Gln					
3335		3340		3345	
ggc agc ggc tgc ctg gcc ggc atc tat ctg gag gac tgc aag gag	10089				
Gly Ser Gly Cys Leu Ala Gly Ile Tyr Leu Glu Asp Ser Lys Glu					
3350		3355		3360	
aaa gta acc atc tat gag gcc atg cgc cgg ggc ctc ctc aga ccc	10134				
Lys Val Thr Ile Tyr Glu Ala Met Arg Arg Gly Leu Leu Arg Pro					

3365	3370	3375	
agc aca gcc acg ctc ctg ctg	gag gcc cag gca gcc	act ggt ttc	10179
Ser Thr Ala Thr Leu Leu Leu	Glu Ala Gln Ala Ala	Thr Gly Phe	
3380	3385	3390	
ctg gtg gac cct gtg cgg aac	caa cgt ctg tat gtc	cat gag gct	10224
Leu Val Asp Pro Val Arg Asn	Gln Arg Leu Tyr Val	His Glu Ala	
3395	3400	3405	
gtc aag gcg ggc gta gtg ggc	cct gaa ctc cat gag	aag ctg ctg	10269
Val Lys Ala Gly Val Val Gly	Pro Glu Leu His Glu	Lys Leu Leu	
3410	3415	3420	
tcg gcc gag aag gcc gtc act	ggc tac aag gat ccc	tac tcg ggc	10314
Ser Ala Glu Lys Ala Val Thr	Gly Tyr Lys Asp Pro	Tyr Ser Gly	
3425	3430	3435	
aac acc atc tcg ctg ttc cag	gcc atg aaa aag ggc	ctg gtc ctc	10359
Asn Thr Ile Ser Leu Phe Gln	Ala Met Lys Lys Gly	Leu Val Leu	
3440	3445	3450	
agg gac cat gcc atc cgc ctg	ctg gag gcc cag gtc	gcc acg ggt	10404
Arg Asp His Ala Ile Arg Leu	Leu Glu Ala Gln Val	Ala Thr Gly	
3455	3460	3465	
ggc atc atc gac ccg gtg cac	agc cac cgc ctg cct	gtg gac gtg	10449
Gly Ile Ile Asp Pro Val His	Ser His Arg Leu Pro	Val Asp Val	
3470	3475	3480	
gcc tac cag cgt ggc tac ttc	gat gag gag atg aac	cgt gtg ctg	10494
Ala Tyr Gln Arg Gly Tyr Phe	Asp Glu Glu Met Asn	Arg Val Leu	
3485	3490	3495	
gca gat cca agt gat gac acc	aag ggc ttc ttt gac	ccc aac acc	10539
Ala Asp Pro Ser Asp Asp Thr	Lys Gly Phe Phe Asp	Pro Asn Thr	
3500	3505	3510	
cac gag aac ctc acc tac ctg	cag ctg ctg gag cgc	tgt gtg gag	10584
His Glu Asn Leu Thr Tyr Leu	Gln Leu Leu Glu Arg	Cys Val Glu	
3515	3520	3525	
gac ccc gag acc ggc ctg cgc	ctc ctg cca ctc aaa	ggg gca gag	10629
Asp Pro Glu Thr Gly Leu Arg	Leu Leu Pro Leu Lys	Gly Ala Glu	
3530	3535	3540	
aag acc gag gtg gta gaa acc	aca cag gtg tat act	gag gag gag	10674
Lys Thr Glu Val Val Glu Thr	Thr Gln Val Tyr Thr	Glu Glu Glu	
3545	3550	3555	
act cgg agg gcg ttc gag gag	acg cag att gac atc	ccg ggt ggt	10719
Thr Arg Arg Ala Phe Glu Glu	Thr Gln Ile Asp Ile	Pro Gly Gly	
3560	3565	3570	
ggc agc cac ggt ggc tcc tcc	atg tct ctg tgg gag	gtg atg cag	10764
Gly Ser His Gly Gly Ser Ser	Met Ser Leu Trp Glu	Val Met Gln	
3575	3580	3585	
tca aac atg atc ccg gag gat	cag cgt gcc cgg ctc	atg gct gac	10809
Ser Asn Met Ile Pro Glu Asp	Gln Arg Ala Arg Leu	Met Ala Asp	
3590	3595	3600	
ttt cag gct ggg agg gta acc	aag gaa cgc atg atc	att atc atc	10854
Phe Gln Ala Gly Arg Val Thr	Lys Glu Arg Met Ile	Ile Ile Ile	
3605	3610	3615	
atc gaa atc atc gag aag acc	gag atc atc cgc cag	cag aac ctg	10899
Ile Glu Ile Ile Glu Lys Thr	Glu Ile Ile Arg Gln	Gln Asn Leu	
3620	3625	3630	
gcc tcc tat gac tac gtg cgc	cgc cgc ctc act gcc	gaa gac ctg	10944
Ala Ser Tyr Asp Tyr Val Arg	Arg Arg Leu Thr Ala	Glu Asp Leu	

3635	3640	3645	
tac gag gcc cgg atc atc tcc ctt gag acc tac aac ctc ttc cgg			10989
Tyr Glu Ala Arg Ile Ile Ser Leu Glu Thr Tyr Asn Leu Phe Arg			
3650	3655	3660	
gaa ggc acc aag aac ctc cgt gaa gtg ctg gag atg gaa tct gcc			11034
Glu Gly Thr Lys Asn Leu Arg Glu Val Leu Glu Met Glu Ser Ala			
3665	3670	3675	
tgg cgc tac ctt tac ggc aca ggc gcg gtg gcc ggt gtc tac ctg			11079
Trp Arg Tyr Leu Tyr Gly Thr Gly Ala Val Ala Gly Val Tyr Leu			
3680	3685	3690	
cct ggc tcc agg cag acg cta acc atc tac cag gcc ctt aag aag			11124
Pro Gly Ser Arg Gln Thr Leu Thr Ile Tyr Gln Ala Leu Lys Lys			
3695	3700	3705	
ggg ttg ctg agt gcc gag gtg gcc cgc tta ttg ctg gaa gca cag			11169
Gly Leu Leu Ser Ala Glu Val Ala Arg Leu Leu Leu Glu Ala Gln			
3710	3715	3720	
gca gcc acg ggc ttc ctg ctg gac cca gtg aag ggg gag cgg ctg			11214
Ala Ala Thr Gly Phe Leu Leu Asp Pro Val Lys Gly Glu Arg Leu			
3725	3730	3735	
acc gtg gat gag gct gtg cgg aag ggc ctg gta ggc ccc gag ctg			11259
Thr Val Asp Glu Ala Val Arg Lys Gly Leu Val Gly Pro Glu Leu			
3740	3745	3750	
cat gac cgc ctc ctc tct gcc gag cga gct gta act ggt tac cga			11304
His Asp Arg Leu Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Arg			
3755	3760	3765	
gac ccc tac acg gaa cag acc atc tca ctc ttc cag gcc atg aag			11349
Asp Pro Tyr Thr Glu Gln Thr Ile Ser Leu Phe Gln Ala Met Lys			
3770	3775	3780	
aag gag ctg atc cct gct gag gag gcg ctg agg ctg ctg gat gcg			11394
Lys Glu Leu Ile Pro Ala Glu Glu Ala Leu Arg Leu Leu Asp Ala			
3785	3790	3795	
cag cta gcc aca gga ggc att gtg gac ccc cgc ctg ggt ttc cac			11439
Gln Leu Ala Thr Gly Gly Ile Val Asp Pro Arg Leu Gly Phe His			
3800	3805	3810	
ctc cct ctg gag gtg gct tac caa cgc ggc tac ctc aat aag gac			11484
Leu Pro Leu Glu Val Ala Tyr Gln Arg Gly Tyr Leu Asn Lys Asp			
3815	3820	3825	
acg cac gac cag ctg tcg gag ccc agc gag gtg cgc agc tac gtg			11529
Thr His Asp Gln Leu Ser Glu Pro Ser Glu Val Arg Ser Tyr Val			
3830	3835	3840	
gac ccc tcc acg gat gag cgg ctc agc tac aca cag ctg ctc aag			11574
Asp Pro Ser Thr Asp Glu Arg Leu Ser Tyr Thr Gln Leu Leu Lys			
3845	3850	3855	
cgt tgc cgc cgt gat gac ccc agc ggc cag atg ctg ctg ctg ctc			11619
Arg Cys Arg Arg Asp Asp Pro Ser Gly Gln Met Leu Leu Leu Leu			
3860	3865	3870	
tct gat gcc cgc aag ctg acc ttc cgc ggt ctc cgc aag cag atc			11664
Ser Asp Ala Arg Lys Leu Thr Phe Arg Gly Leu Arg Lys Gln Ile			
3875	3880	3885	
act gtg gag gag ctg gta cgc tct caa gtc atg gac gag gcc aca			11709
Thr Val Glu Glu Leu Val Arg Ser Gln Val Met Asp Glu Ala Thr			
3890	3895	3900	
gcg cta cag cta caa gaa ggc ctg acc tcc atc gag gag gtc act			11754
Ala Leu Gln Leu Gln Glu Gly Leu Thr Ser Ile Glu Glu Val Thr			

3905		3910		3915	
aag aac ctg cag aag ttc ctc gag ggt acc agc tgc att gcc gga	11799				
Lys Asn Leu Gln Lys Phe Leu Glu Gly Thr Ser Cys Ile Ala Gly					
3920		3925		3930	
gtc ttt gtt gat gcc acc aag gaa cgg ctc tcg gtg tac cag gct	11844				
Val Phe Val Asp Ala Thr Lys Glu Arg Leu Ser Val Tyr Gln Ala					
3935		3940		3945	
atg aag aag ggc atc atc cgc ccc ggg aca gcc ttt gag ctc ctg	11889				
Met Lys Lys Gly Ile Ile Arg Pro Gly Thr Ala Phe Glu Leu Leu					
3950		3955		3960	
gaa gca cag gca gcc acc ggc tat gtc att gac ccc atc aag gga	11934				
Glu Ala Gln Ala Ala Thr Gly Tyr Val Ile Asp Pro Ile Lys Gly					
3965		3970		3975	
ctc aag ctg acg gtg gaa gaa gcc gtt cgt atg ggt att gtg ggc	11979				
Leu Lys Leu Thr Val Glu Glu Ala Val Arg Met Gly Ile Val Gly					
3980		3985		3990	
ccc gag ttc aag gac aag ctg ctg tca gct gag cgt gcc gtc act	12024				
Pro Glu Phe Lys Asp Lys Leu Leu Ser Ala Glu Arg Ala Val Thr					
3995		4000		4005	
ggc tac aag gac ccc tac tct ggg aaa ctc atc tcc ctc ttc cag	12069				
Gly Tyr Lys Asp Pro Tyr Ser Gly Lys Leu Ile Ser Leu Phe Gln					
4010		4015		4020	
gcc atg aag aag ggc ctg atc ctg aag gac cat ggc atc cgt ctg	12114				
Ala Met Lys Lys Gly Leu Ile Leu Lys Asp His Gly Ile Arg Leu					
4025		4030		4035	
ctg gag gct cag atc gcc act ggg ggc atc att gac ccc gag gag	12159				
Leu Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Glu Glu					
4040		4045		4050	
agc cac cgt ttg cct gtg gaa gtg gcc tat aag cgc ggc ctc ttt	12204				
Ser His Arg Leu Pro Val Glu Val Ala Tyr Lys Arg Gly Leu Phe					
4055		4060		4065	
gat gag gag atg aac gag atc ttg act gat ccc tca gat gac acc	12249				
Asp Glu Glu Met Asn Glu Ile Leu Thr Asp Pro Ser Asp Asp Thr					
4070		4075		4080	
aag ggt ttc ttt gac ccc aac aca gag gag aac ctc act tac ctg	12294				
Lys Gly Phe Phe Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu					
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cag ctg atg gag cgc tgc atc act gac ccc cag acg ggc ctg tgt	12339				
Gln Leu Met Glu Arg Cys Ile Thr Asp Pro Gln Thr Gly Leu Cys					
4100		4105		4110	
ctc ctg ccc ctg aag gag aag aag cgg gaa cgg aag aca tcc tcc	12384				
Leu Leu Pro Leu Lys Glu Lys Lys Arg Glu Arg Lys Thr Ser Ser					
4115		4120		4125	
aag tcc tca gtg cgc aag cgc cgc gtg gtg att gtg gac cca gag	12429				
Lys Ser Ser Val Arg Lys Arg Arg Val Val Ile Val Asp Pro Glu					
4130		4135		4140	
acg ggc aag gag atg tct gtg tac gag gcc tac cgc aag ggt ctc	12474				
Thr Gly Lys Glu Met Ser Val Tyr Glu Ala Tyr Arg Lys Gly Leu					
4145		4150		4155	
att gac cac cag acg tac ctg gag ttg tcg gag cag gag tgt gag	12519				
Ile Asp His Gln Thr Tyr Leu Glu Leu Ser Glu Gln Glu Cys Glu					
4160		4165		4170	
tgg gaa gag atc acc atc tcc tcc tca gat ggc gtc gtc aag tct	12564				
Trp Glu Glu Ile Thr Ile Ser Ser Ser Asp Gly Val Val Lys Ser					

4175	4180	4185	
atg atc atc gac cgc cgc tct ggt cgc cag tat gac atc gac gac			12609
Met Ile Ile Asp Arg Arg Ser Gly Arg Gln Tyr Asp Ile Asp Asp			
4190	4195	4200	
gcc atc acc aag aac ctc att gac cgc tca gca ctg gac cag tac			12654
Ala Ile Thr Lys Asn Leu Ile Asp Arg Ser Ala Leu Asp Gln Tyr			
4205	4210	4215	
cgc gct ggt acg ctt tcg atc act gag ttt gct gac atg ctc tca			12699
Arg Ala Gly Thr Leu Ser Ile Thr Glu Phe Ala Asp Met Leu Ser			
4220	4225	4230	
ggc aat gcc ggt ggc ttc cgt tcc cgc tcc tcc tct gtg ggc tca			12744
Gly Asn Ala Gly Gly Phe Arg Ser Arg Ser Ser Ser Val Gly Ser			
4235	4240	4245	
tct tcc tcc tac ccc atc agt tct gct ggc ccc agg acc cag cta			12789
Ser Ser Ser Tyr Pro Ile Ser Ser Ala Gly Pro Arg Thr Gln Leu			
4250	4255	4260	
gcc tcc tgg tct gat ccg act gag gag act ggc ccc gtg gcc ggc			12834
Ala Ser Trp Ser Asp Pro Thr Glu Glu Thr Gly Pro Val Ala Gly			
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atc ctg gac aca gag act ctg gag aag gtg tcc atc acg gag gcc			12879
Ile Leu Asp Thr Glu Thr Leu Glu Lys Val Ser Ile Thr Glu Ala			
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atg cac cgc aac ctg gta gac aac atc acc ggc cag cgg ctg ctg			12924
Met His Arg Asn Leu Val Asp Asn Ile Thr Gly Gln Arg Leu Leu			
4295	4300	4305	
gag gcc caa gcc tgc acc ggg ggc atc att gac ccc agc act ggt			12969
Glu Ala Gln Ala Cys Thr Gly Gly Ile Ile Asp Pro Ser Thr Gly			
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gag cgc ttc ccg gtc act gaa gct gtc aac aag ggc ctg gtg gac			13014
Glu Arg Phe Pro Val Thr Glu Ala Val Asn Lys Gly Leu Val Asp			
4325	4330	4335	
aag atc atg gta gac cgt atc aat ctg gcc cag aag gcc ttc tgt			13059
Lys Ile Met Val Asp Arg Ile Asn Leu Ala Gln Lys Ala Phe Cys			
4340	4345	4350	
ggg ttt gag gac cca cgc acc aag acc aag atg tca gct gcc cag			13104
Gly Phe Glu Asp Pro Arg Thr Lys Thr Lys Met Ser Ala Ala Gln			
4355	4360	4365	
gcc ctg aag aag ggc tgg ctg tac tat gag gca ggc cag cgt ttc			13149
Ala Leu Lys Lys Gly Trp Leu Tyr Tyr Glu Ala Gly Gln Arg Phe			
4370	4375	4380	
ctg gag gtg cag tac ctg acc ggt ggt ctg atc gag cct gac acg			13194
Leu Glu Val Gln Tyr Leu Thr Gly Gly Leu Ile Glu Pro Asp Thr			
4385	4390	4395	
ccc ggc cgt gtg tct ctc gac gaa gct ctg caa cgt ggc act gtg			13239
Pro Gly Arg Val Ser Leu Asp Glu Ala Leu Gln Arg Gly Thr Val			
4400	4405	4410	
gat gcc cgc aca gcc cag aag ctg cgt gat gtc agt gct tac tcc			13284
Asp Ala Arg Thr Ala Gln Lys Leu Arg Asp Val Ser Ala Tyr Ser			
4415	4420	4425	
aag tac ctc acg tgc ccc aag acc aag ctc aag atc tcc tac aag			13329
Lys Tyr Leu Thr Cys Pro Lys Thr Lys Leu Lys Ile Ser Tyr Lys			
4430	4435	4440	
gac gct ctg gac cgt agc atg gtg gag gag ggc acg ggg ctg agg			13374
Asp Ala Leu Asp Arg Ser Met Val Glu Glu Gly Thr Gly Leu Arg			

4445	4450	4455	
ctg ctg gag gct gcg gca cag tcc agc aag ggc tac tac agc ccg			13419
Leu Leu Glu Ala Ala Ala Gln Ser Ser Lys Gly Tyr Tyr Ser Pro			
4460	4465	4470	
tac agc gtc agt ggc tct ggc tgc acc gcc ggc tca cgc act ggt			13464
Tyr Ser Val Ser Gly Ser Gly Ser Thr Ala Gly Ser Arg Thr Gly			
4475	4480	4485	
tca cgc acc ggc tcc agg gcc ggc tcc cgg cgt ggc agc ttt gat			13509
Ser Arg Thr Gly Ser Arg Ala Gly Ser Arg Arg Gly Ser Phe Asp			
4490	4495	4500	
gcc act ggc tct ggc ttc tcc atg acc ttt tct tct tcc tcc tac			13554
Ala Thr Gly Ser Gly Phe Ser Met Thr Phe Ser Ser Ser Ser Tyr			
4505	4510	4515	
tct tcc tca ggc tat ggc cgc cgc tat gcc tca ggg cct tca gcc			13599
Ser Ser Ser Gly Tyr Gly Arg Arg Tyr Ala Ser Gly Pro Ser Ala			
4520	4525	4530	
tct ctt ggg ggc cct gag tct gca gtg gcc			13629
Ser Leu Gly Gly Pro Glu Ser Ala Val Ala			
4535	4540		

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 <212> PRT  
 <213> Mus musculus

<400> 74

Met Ser Gln His Arg Leu Arg Val Pro Glu Pro Glu Gly Leu Gly Ser		
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Lys Arg Thr Ser Ser Glu Asp Asn Leu Tyr Leu Ala Val Leu Arg Ala		
20 25 30		
Ser Glu Gly Lys Lys Asp Glu Arg Asp Arg Val Gln Lys Lys Thr Phe		
35 40 45		
Thr Lys Trp Val Asn Lys His Leu Ile Lys Ala Gln Arg His Ile Ser		
50 55 60		
Asp Leu Tyr Glu Asp Leu Arg Asp Gly His Asn Leu Ile Ser Leu Leu		
65 70 75 80		
Glu Val Leu Ser Gly Asp Ser Leu Pro Arg Glu Lys Gly Arg Met Arg		
85 90 95		
Phe His Lys Leu Gln Asn Val Gln Ile Ala Leu Asp Tyr Leu Arg His		
100 105 110		
Arg Gln Val Lys Leu Val Asn Ile Arg Asn Asp Asp Ile Ala Asp Gly		
115 120 125		
Asn Pro Lys Leu Thr Leu Gly Leu Ile Trp Thr Ile Ile Leu His Phe		
130 135 140		
Gln Ile Ser Asp Ile Gln Val Ser Gly Gln Ser Glu Asp Met Thr Ala		
145 150 155 160		

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



Ile	Arg	Leu	Leu	Phe	Asn	Asp	Val	Gln	Thr	Leu	Lys	Asp	Gly	Arg	His	450	455	460
Pro	Gln	Gly	Glu	Gln	Met	Tyr	Arg	Arg	Val	Tyr	Arg	Leu	His	Glu	Arg	465	470	475
Leu	Val	Ala	Ile	Arg	Thr	Glu	Tyr	Asn	Leu	Arg	Leu	Lys	Ala	Gly	Val	485	490	495
Gly	Ala	Pro	Val	Thr	Gln	Val	Thr	Leu	Gln	Ser	Thr	Gln	Arg	Arg	Pro	500	505	510
Glu	Leu	Glu	Asp	Ser	Thr	Leu	Arg	Tyr	Leu	Gln	Asp	Leu	Leu	Ala	Trp	515	520	525
Val	Glu	Glu	Asn	Gln	Arg	Arg	Ile	Asp	Ser	Ala	Glu	Trp	Gly	Val	Asp	530	535	540
Leu	Pro	Ser	Val	Glu	Ala	Gln	Leu	Gly	Ser	His	Arg	Gly	Met	His	Gln	545	550	555
Ser	Ile	Glu	Glu	Phe	Arg	Ala	Lys	Ile	Glu	Arg	Ala	Arg	Asn	Asp	Glu	565	570	575
Ser	Gln	Leu	Ser	Pro	Ala	Thr	Arg	Gly	Ala	Tyr	Arg	Asp	Cys	Leu	Gly	580	585	590
Arg	Leu	Asp	Leu	Gln	Tyr	Ala	Lys	Leu	Leu	Asn	Ser	Ser	Lys	Ala	Arg	595	600	605
Leu	Arg	Ser	Leu	Glu	Ser	Leu	His	Gly	Phe	Val	Ala	Ala	Ala	Thr	Lys	610	615	620
Glu	Leu	Met	Trp	Leu	Asn	Glu	Lys	Glu	Glu	Glu	Glu	Val	Gly	Phe	Asp	625	630	635
Trp	Ser	Asp	Arg	Asn	Thr	Asn	Met	Ala	Ala	Lys	Lys	Glu	Ser	Tyr	Ser	645	650	655
Ala	Leu	Met	Arg	Glu	Leu	Glu	Met	Lys	Glu	Lys	Lys	Ile	Lys	Glu	Ile	660	665	670
Gln	Asn	Thr	Gly	Asp	Arg	Leu	Leu	Arg	Glu	Asp	His	Pro	Ala	Arg	Pro	675	680	685
Thr	Val	Glu	Ser	Phe	Gln	Ala	Ala	Leu	Gln	Thr	Gln	Trp	Ser	Trp	Met	690	695	700
Leu	Gln	Leu	Cys	Cys	Cys	Ile	Glu	Ala	His	Leu	Lys	Glu	Asn	Thr	Ala	705	710	715
Tyr	Phe	Gln	Phe	Phe	Ser	Asp	Val	Arg	Glu	Ala	Glu	Glu	Gln	Leu	Gln	725	730	735

Lys	Leu	Gln	Glu	Thr	Leu	Arg	Arg	Lys	Tyr	Ser	Cys	Asp	Arg	Thr	Ile	
			740					745							750	
Thr	Val	Thr	Arg	Leu	Glu	Asp	Leu	Leu	Gln	Asp	Ala	Gln	Asp	Glu	Lys	
		755					760						765			
Glu	Gln	Leu	Asn	Glu	Tyr	Lys	Gly	His	Leu	Ser	Gly	Leu	Ala	Lys	Arg	
	770					775						780				
Ala	Lys	Ala	Ile	Val	Gln	Leu	Lys	Pro	Arg	Asn	Pro	Ala	His	Pro	Val	
785					790					795					800	
Arg	Gly	His	Val	Pro	Leu	Ile	Ala	Val	Cys	Asp	Tyr	Lys	Gln	Val	Glu	
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Val	Thr	Val	His	Lys	Gly	Asp	Gln	Cys	Gln	Leu	Val	Gly	Pro	Ala	Gln	
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Pro	Ser	His	Trp	Lys	Val	Leu	Ser	Gly	Ser	Ser	Ser	Glu	Ala	Ala	Val	
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Pro	Ser	Val	Cys	Phe	Leu	Val	Pro	Pro	Pro	Asn	Gln	Glu	Ala	Gln	Glu	
		850				855					860					
Ala	Val	Ala	Arg	Leu	Glu	Ala	Gln	His	Gln	Ala	Leu	Val	Thr	Leu	Trp	
865					870					875					880	
His	Gln	Leu	His	Val	Asp	Met	Lys	Ser	Leu	Leu	Ala	Trp	Gln	Ser	Leu	
				885					890					895		
Ser	Arg	Asp	Ile	Gln	Leu	Ile	Arg	Ser	Trp	Ser	Leu	Val	Thr	Phe	Arg	
			900					905						910		
Thr	Leu	Lys	Pro	Glu	Glu	Gln	Arg	Gln	Ala	Leu	Arg	Asn	Leu	Glu	Leu	
		915					920						925			
His	Tyr	Gln	Ala	Phe	Leu	Arg	Asp	Ser	Gln	Asp	Ala	Gly	Gly	Phe	Gly	
	930					935					940					
Pro	Glu	Asp	Arg	Leu	Val	Ala	Glu	Arg	Glu	Tyr	Gly	Ser	Cys	Ser	Arg	
945					950					955					960	
His	Tyr	Gln	Gln	Leu	Leu	Gln	Ser	Leu	Glu	Gln	Gly	Glu	Gln	Glu	Glu	
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Ser	Arg	Cys	Gln	Arg	Cys	Ile	Ser	Glu	Leu	Lys	Asp	Ile	Arg	Leu	Gln	
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Leu	Glu	Ala	Cys	Glu	Thr	Arg	Thr	Val	His	Arg	Leu	Arg	Leu	Pro	Leu	
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Asp	Lys	Asp	Pro	Ala	Arg	Glu	Cys	Ala	Gln	Arg	Ile	Ala	Glu	Gln		
	1010					1015					1020					

Gln	Lys	Ala	Gln	Ala	Glu	Val	Glu	Gly	Leu	Gly	Lys	Gly	Val	Ala
1025						1030					1035			
Arg	Leu	Ser	Ala	Glu	Ala	Glu	Lys	Val	Leu	Ala	Leu	Pro	Glu	Pro
1040						1045					1050			
Ser	Pro	Ala	Ala	Pro	Thr	Leu	Arg	Ser	Glu	Leu	Glu	Leu	Thr	Leu
1055						1060					1065			
Gly	Lys	Leu	Glu	Gln	Val	Arg	Ser	Leu	Ser	Ala	Ile	Tyr	Leu	Glu
1070						1075					1080			
Lys	Leu	Lys	Thr	Ile	Ser	Leu	Val	Ile	Arg	Ser	Thr	Gln	Gly	Ala
1085						1090					1095			
Glu	Glu	Val	Leu	Lys	Thr	His	Glu	Glu	Gln	Leu	Lys	Glu	Ala	Gln
1100						1105					1110			
Ala	Val	Pro	Ala	Thr	Leu	Gln	Glu	Leu	Glu	Ala	Thr	Lys	Ala	Ser
1115						1120					1125			
Leu	Lys	Lys	Leu	Arg	Ala	Gln	Ala	Glu	Ala	Gln	Gln	Pro	Val	Phe
1130						1135					1140			
Asn	Thr	Leu	Arg	Asp	Glu	Leu	Arg	Gly	Ala	Gln	Glu	Val	Gly	Glu
1145						1150					1155			
Arg	Leu	Gln	Gln	Arg	His	Gly	Glu	Arg	Asp	Val	Glu	Val	Glu	Arg
1160						1165					1170			
Trp	Arg	Glu	Arg	Val	Thr	Gln	Leu	Leu	Glu	Arg	Trp	Gln	Ala	Val
1175						1180					1185			
Leu	Ala	Gln	Thr	Asp	Val	Arg	Gln	Arg	Glu	Leu	Glu	Gln	Leu	Gly
1190						1195					1200			
Arg	Gln	Leu	Arg	Tyr	Tyr	Arg	Glu	Ser	Ala	Asp	Pro	Leu	Ser	Ala
1205						1210					1215			
Trp	Leu	Gln	Asp	Ala	Lys	Arg	Arg	Gln	Glu	Gln	Ile	Gln	Ala	Val
1220						1225					1230			
Pro	Ile	Ala	Asn	Cys	Gln	Ala	Ala	Arg	Glu	Gln	Leu	Arg	Gln	Glu
1235						1240					1245			
Lys	Ala	Leu	Leu	Glu	Glu	Ile	Glu	Arg	His	Gly	Glu	Lys	Val	Glu
1250						1255					1260			
Glu	Cys	Gln	Lys	Phe	Ala	Lys	Gln	Tyr	Ile	Asn	Ala	Ile	Lys	Asp
1265						1270					1275			
Tyr	Glu	Leu	Gln	Leu	Ile	Thr	Tyr	Lys	Ala	Gln	Leu	Glu	Pro	Val
1280						1285					1290			

Ala	Ser	Pro	Ala	Lys	Lys	Pro	Lys	Val	Gln	Ser	Gly	Ser	Glu	Ser
1295						1300					1305			
Val	Ile	Gln	Glu	Tyr	Val	Asp	Leu	Arg	Thr	Arg	Tyr	Ser	Glu	Leu
1310						1315					1320			
Thr	Thr	Leu	Thr	Ser	Gln	Tyr	Ile	Lys	Phe	Ile	Ser	Glu	Thr	Leu
1325						1330					1335			
Arg	Arg	Met	Glu	Glu	Glu	Glu	Arg	Leu	Ala	Glu	Gln	Gln	Arg	Ala
1340						1345					1350			
Glu	Glu	Arg	Glu	Arg	Leu	Ala	Glu	Val	Glu	Ala	Ala	Leu	Glu	Lys
1355						1360					1365			
Gln	Arg	Gln	Leu	Ala	Glu	Ala	His	Ala	Gln	Ala	Lys	Ala	Gln	Ala
1370						1375					1380			
Glu	Leu	Glu	Ala	Gln	Glu	Leu	Gln	Arg	Arg	Met	Gln	Glu	Glu	Val
1385						1390					1395			
Ala	Arg	Arg	Glu	Glu	Ala	Ala	Val	Asp	Ala	Gln	Gln	Gln	Lys	Arg
1400						1405					1410			
Ser	Ile	Gln	Glu	Glu	Leu	Gln	His	Leu	Arg	Gln	Ser	Ser	Glu	Ala
1415						1420					1425			
Glu	Ile	Gln	Ala	Lys	Ala	Gln	Gln	Val	Glu	Ala	Ala	Glu	Arg	Ser
1430						1435					1440			
Arg	Met	Arg	Ile	Glu	Glu	Glu	Ile	Arg	Val	Val	Arg	Leu	Gln	Leu
1445						1450					1455			
Glu	Thr	Thr	Glu	Arg	Gln	Arg	Gly	Gly	Ala	Glu	Gly	Glu	Leu	Gln
1460						1465					1470			
Ala	Leu	Arg	Ala	Arg	Ala	Glu	Glu	Ala	Glu	Ala	Gln	Lys	Arg	Gln
1475						1480					1485			
Ala	Gln	Glu	Glu	Ala	Glu	Arg	Leu	Arg	Arg	Gln	Val	Gln	Asp	Glu
1490						1495					1500			
Ser	Gln	Arg	Lys	Arg	Gln	Ala	Glu	Ala	Glu	Leu	Ala	Leu	Arg	Val
1505						1510					1515			
Lys	Ala	Glu	Ala	Glu	Ala	Ala	Arg	Glu	Lys	Gln	Arg	Ala	Leu	Gln
1520						1525					1530			
Ala	Leu	Asp	Glu	Leu	Arg	Leu	Gln	Ala	Glu	Glu	Ala	Glu	Arg	Arg
1535						1540					1545			
Leu	Arg	Gln	Ala	Glu	Ala	Glu	Arg	Ala	Arg	Gln	Val	Gln	Val	Ala
1550						1555					1560			

Leu	Glu	Thr	Ala	Gln	Arg	Ser	Ala	Glu	Val	Glu	Leu	Gln	Ser	Lys
1565						1570					1575			
Arg	Ala	Ser	Phe	Ala	Glu	Lys	Thr	Ala	Gln	Leu	Glu	Arg	Thr	Leu
1580						1585					1590			
Gln	Glu	Glu	His	Val	Thr	Val	Ala	Gln	Leu	Arg	Glu	Glu	Ala	Glu
1595						1600					1605			
Arg	Arg	Ala	Gln	Gln	Gln	Ala	Glu	Ala	Glu	Arg	Ala	Arg	Glu	Glu
1610						1615					1620			
Ala	Glu	Arg	Glu	Leu	Glu	Arg	Trp	Gln	Leu	Lys	Ala	Asn	Glu	Ala
1625						1630					1635			
Leu	Arg	Leu	Arg	Leu	Gln	Ala	Glu	Glu	Val	Ala	Gln	Gln	Lys	Ser
1640						1645					1650			
Leu	Ala	Gln	Ala	Asp	Ala	Glu	Lys	Gln	Lys	Glu	Glu	Ala	Glu	Arg
1655						1660					1665			
Glu	Ala	Arg	Arg	Arg	Gly	Lys	Ala	Glu	Glu	Gln	Ala	Val	Arg	Gln
1670						1675					1680			
Arg	Glu	Leu	Ala	Glu	Gln	Glu	Leu	Glu	Lys	Gln	Arg	Gln	Leu	Ala
1685						1690					1695			
Glu	Gly	Thr	Ala	Gln	Gln	Arg	Leu	Ala	Ala	Glu	Gln	Glu	Leu	Ile
1700						1705					1710			
Arg	Leu	Arg	Ala	Glu	Thr	Glu	Gln	Gly	Glu	Gln	Gln	Arg	Gln	Leu
1715						1720					1725			
Leu	Glu	Glu	Glu	Leu	Ala	Arg	Leu	Gln	His	Glu	Ala	Thr	Ala	Ala
1730						1735					1740			
Thr	Gln	Lys	Arg	Gln	Glu	Leu	Glu	Ala	Glu	Leu	Ala	Lys	Val	Arg
1745						1750					1755			
Ala	Glu	Met	Glu	Val	Leu	Leu	Ala	Ser	Lys	Ala	Arg	Ala	Glu	Glu
1760						1765					1770			
Glu	Ser	Arg	Ser	Thr	Ser	Glu	Lys	Ser	Lys	Gln	Arg	Leu	Glu	Ala
1775						1780					1785			
Glu	Ala	Gly	Arg	Phe	Arg	Glu	Leu	Ala	Glu	Glu	Ala	Ala	Arg	Leu
1790						1795					1800			
Arg	Ala	Leu	Ala	Glu	Glu	Ala	Lys	Arg	Gln	Arg	Gln	Leu	Ala	Glu
1805						1810					1815			
Glu	Asp	Ala	Ala	Arg	Gln	Arg	Ala	Glu	Ala	Glu	Arg	Val	Leu	Thr
1820						1825					1830			

Glu	Lys	Leu	Ala	Ala	Ile	Ser	Glu	Ala	Thr	Arg	Leu	Lys	Thr	Glu
1835						1840					1845			
Ala	Glu	Ile	Ala	Leu	Lys	Glu	Lys	Glu	Ala	Glu	Asn	Glu	Arg	Leu
1850						1855					1860			
Arg	Arg	Leu	Ala	Glu	Asp	Glu	Ala	Phe	Gln	Arg	Arg	Arg	Leu	Glu
1865						1870					1875			
Glu	Gln	Ala	Ala	Leu	His	Lys	Ala	Asp	Ile	Glu	Glu	Arg	Leu	Ala
1880						1885					1890			
Gln	Leu	Arg	Lys	Ala	Ser	Glu	Ser	Glu	Leu	Glu	Arg	Gln	Lys	Gly
1895						1900					1905			
Leu	Val	Glu	Asp	Thr	Leu	Arg	Gln	Arg	Arg	Gln	Val	Glu	Glu	Glu
1910						1915					1920			
Ile	Met	Ala	Leu	Lys	Val	Ser	Phe	Glu	Lys	Ala	Ala	Ala	Gly	Lys
1925						1930					1935			
Ala	Glu	Leu	Glu	Leu	Glu	Leu	Gly	Arg	Ile	Arg	Ser	Asn	Ala	Glu
1940						1945					1950			
Asp	Thr	Met	Arg	Ser	Lys	Glu	Gln	Ala	Glu	Leu	Glu	Ala	Ala	Arg
1955						1960					1965			
Gln	Arg	Gln	Leu	Ala	Ala	Glu	Glu	Glu	Gln	Arg	Arg	Arg	Glu	Ala
1970						1975					1980			
Glu	Glu	Arg	Val	Gln	Arg	Ser	Leu	Ala	Ala	Glu	Glu	Glu	Ala	Ala
1985						1990					1995			
Arg	Gln	Arg	Lys	Val	Ala	Leu	Glu	Glu	Val	Glu	Arg	Leu	Lys	Ala
2000						2005					2010			
Lys	Val	Glu	Glu	Ala	Arg	Arg	Leu	Arg	Glu	Arg	Ala	Glu	Gln	Glu
2015						2020					2025			
Ser	Ala	Arg	Gln	Leu	Gln	Leu	Ala	Gln	Glu	Ala	Ala	Gln	Lys	Arg
2030						2035					2040			
Leu	Gln	Ala	Glu	Glu	Lys	Ala	His	Ala	Phe	Val	Val	Gln	Gln	Arg
2045						2050					2055			
Glu	Glu	Glu	Leu	Gln	Gln	Thr	Leu	Gln	Gln	Glu	Gln	Asn	Met	Leu
2060						2065					2070			
Asp	Arg	Leu	Arg	Ser	Glu	Ala	Glu	Ala	Ala	Arg	Arg	Ala	Ala	Glu
2075						2080					2085			
Glu	Ala	Glu	Glu	Ala	Arg	Glu	Gln	Ala	Glu	Arg	Glu	Ala	Ala	Gln
2090						2095					2100			

Ser	Arg	Lys	Gln	Val	Glu	Glu	Ala	Glu	Arg	Leu	Lys	Gln	Ser	Ala
2105						2110					2115			
Glu	Glu	Gln	Ala	Gln	Ala	Gln	Ala	Gln	Ala	Gln	Ala	Ala	Ala	Glu
2120						2125					2130			
Lys	Leu	Arg	Lys	Glu	Ala	Glu	Gln	Glu	Ala	Ala	Arg	Arg	Ala	Gln
2135						2140					2145			
Ala	Glu	Gln	Ala	Ala	Leu	Lys	Gln	Lys	Gln	Ala	Ala	Asp	Ala	Glu
2150						2155					2160			
Met	Glu	Lys	His	Lys	Lys	Phe	Ala	Glu	Gln	Thr	Leu	Arg	Gln	Lys
2165						2170					2175			
Ala	Gln	Val	Glu	Gln	Glu	Leu	Thr	Thr	Leu	Arg	Leu	Gln	Leu	Glu
2180						2185					2190			
Glu	Thr	Asp	His	Gln	Lys	Ser	Ile	Leu	Asp	Glu	Glu	Leu	Gln	Arg
2195						2200					2205			
Leu	Lys	Ala	Glu	Val	Thr	Glu	Ala	Ala	Arg	Gln	Arg	Ser	Gln	Val
2210						2215					2220			
Glu	Glu	Glu	Leu	Phe	Ser	Val	Arg	Val	Gln	Met	Glu	Glu	Leu	Gly
2225						2230					2235			
Lys	Leu	Lys	Ala	Arg	Ile	Glu	Ala	Glu	Asn	Arg	Ala	Leu	Ile	Leu
2240						2245					2250			
Arg	Asp	Lys	Asp	Asn	Thr	Gln	Arg	Phe	Leu	Glu	Glu	Glu	Ala	Glu
2255						2260					2265			
Lys	Met	Lys	Gln	Val	Ala	Glu	Glu	Ala	Ala	Arg	Leu	Ser	Val	Ala
2270						2275					2280			
Ala	Gln	Glu	Ala	Ala	Arg	Leu	Arg	Gln	Leu	Ala	Glu	Glu	Asp	Leu
2285						2290					2295			
Ala	Gln	Gln	Arg	Ala	Leu	Ala	Glu	Lys	Met	Leu	Lys	Glu	Lys	Met
2300						2305					2310			
Gln	Ala	Val	Gln	Glu	Ala	Thr	Arg	Leu	Lys	Ala	Glu	Ala	Glu	Leu
2315						2320					2325			
Leu	Gln	Gln	Gln	Lys	Glu	Leu	Ala	Gln	Glu	Gln	Ala	Arg	Arg	Leu
2330						2335					2340			
Gln	Glu	Asp	Lys	Glu	Gln	Met	Ala	Gln	Gln	Leu	Val	Glu	Glu	Thr
2345						2350					2355			
Gln	Gly	Phe	Gln	Arg	Thr	Leu	Glu	Ala	Glu	Arg	Gln	Arg	Gln	Leu
2360						2365					2370			

Glu	Met	Ser	Ala	Glu	Ala	Glu	Arg	Leu	Lys	Leu	Arg	Met	Val	Glu
	2375					2380					2385			
Met	Ser	Arg	Ala	Gln	Ala	Arg	Ala	Glu	Glu	Asp	Ala	Gln	Arg	Phe
	2390					2395					2400			
Arg	Lys	Gln	Ala	Glu	Glu	Ile	Gly	Glu	Lys	Leu	His	Arg	Thr	Glu
	2405					2410					2415			
Leu	Ala	Thr	Gln	Glu	Lys	Val	Thr	Leu	Val	Gln	Thr	Leu	Glu	Ile
	2420					2425					2430			
Gln	Arg	Gln	Gln	Ser	Asp	His	Asp	Ala	Glu	Arg	Leu	Arg	Glu	Ala
	2435					2440					2445			
Ile	Ala	Glu	Leu	Glu	Arg	Glu	Lys	Glu	Lys	Leu	Lys	Gln	Glu	Ala
	2450					2455					2460			
Lys	Leu	Leu	Gln	Leu	Lys	Ser	Glu	Glu	Met	Gln	Thr	Val	Gln	Gln
	2465					2470					2475			
Glu	Gln	Ile	Leu	Gln	Glu	Thr	Gln	Ala	Leu	Gln	Lys	Ser	Phe	Leu
	2480					2485					2490			
Ser	Glu	Lys	Asp	Ser	Leu	Leu	Gln	Arg	Glu	Arg	Phe	Ile	Glu	Gln
	2495					2500					2505			
Glu	Lys	Ala	Lys	Leu	Glu	Gln	Leu	Phe	Gln	Asp	Glu	Val	Ala	Lys
	2510					2515					2520			
Ala	Lys	Gln	Leu	Arg	Glu	Glu	Gln	Gln	Arg	Gln	Gln	Gln	Gln	Met
	2525					2530					2535			
Glu	Gln	Glu	Lys	Gln	Glu	Leu	Met	Ala	Ser	Met	Glu	Glu	Ala	Arg
	2540					2545					2550			
Arg	Arg	Gln	Arg	Glu	Ala	Glu	Glu	Gly	Val	Arg	Arg	Lys	Gln	Glu
	2555					2560					2565			
Glu	Leu	Gln	His	Leu	Glu	Gln	Gln	Arg	Gln	Gln	Gln	Glu	Lys	Leu
	2570					2575					2580			
Leu	Ala	Glu	Glu	Asn	Gln	Arg	Leu	Arg	Glu	Arg	Leu	Gln	Arg	Leu
	2585					2590					2595			
Glu	Glu	Glu	His	Arg	Ala	Ala	Leu	Ala	His	Ser	Glu	Ile	Ala	Thr
	2600					2605					2610			
Thr	Gln	Ala	Ala	Ser	Thr	Lys	Ala	Leu	Pro	Asn	Gly	Arg	Asp	Ala
	2615					2620					2625			
Pro	Asp	Gly	Pro	Ser	Val	Glu	Ala	Glu	Pro	Glu	Tyr	Thr	Phe	Glu
	2630					2635					2640			



Gly	Leu	Arg	Gln	Lys	Val	Pro	Ala	Gln	Gln	Leu	Gln	Glu	Ala	Gly
2645						2650					2655			
Ile	Leu	Ser	Gln	Glu	Glu	Leu	Gln	Arg	Leu	Ala	Gln	Gly	His	Thr
2660						2665					2670			
Thr	Val	Ala	Glu	Leu	Thr	Gln	Arg	Glu	Asp	Val	Tyr	Arg	Tyr	Leu
2675						2680					2685			
Lys	Gly	Arg	Ser	Ser	Ile	Ala	Gly	Leu	Leu	Leu	Lys	Pro	Thr	Asn
2690						2695					2700			
Glu	Lys	Leu	Ser	Val	Tyr	Thr	Ala	Leu	Gln	Arg	Gln	Leu	Leu	Ser
2705						2710					2715			
Pro	Gly	Thr	Ala	Leu	Ile	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Ser	Gly
2720						2725					2730			
Phe	Leu	Leu	Asp	Pro	Val	Arg	Asn	Arg	Arg	Leu	Thr	Val	Asn	Glu
2735						2740					2745			
Ala	Val	Lys	Glu	Gly	Val	Val	Gly	Pro	Glu	Leu	His	His	Lys	Leu
2750						2755					2760			
Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Lys	Asp	Pro	Tyr	Thr
2765						2770					2775			
Gly	Glu	Gln	Ile	Ser	Leu	Phe	Gln	Ala	Met	Lys	Lys	Asp	Leu	Ile
2780						2785					2790			
Val	Arg	Asp	His	Gly	Val	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr
2795						2800					2805			
Gly	Gly	Ile	Ile	Asp	Pro	Val	His	Ser	His	Arg	Val	Pro	Val	Asp
2810						2815					2820			
Val	Ala	Tyr	Lys	Arg	Gly	Tyr	Phe	Asp	Glu	Glu	Met	Asn	Arg	Ile
2825						2830					2835			
Leu	Ser	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn
2840						2845					2850			
Thr	His	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Glu	Arg	Cys	Val
2855						2860					2865			
Glu	Asp	Pro	Glu	Thr	Gly	Leu	Arg	Leu	Leu	Pro	Leu	Thr	Asp	Lys
2870						2875					2880			
Ala	Ala	Lys	Gly	Gly	Glu	Leu	Val	Tyr	Thr	Asp	Thr	Glu	Ala	Arg
2885						2890					2895			
Asp	Val	Phe	Glu	Lys	Ala	Thr	Val	Ser	Ala	Pro	Phe	Gly	Lys	Phe
2900						2905					2910			

Gln	Gly	Arg	Thr	Val	Thr	Ile	Trp	Glu	Ile	Ile	Asn	Ser	Glu	Tyr
2915						2920					2925			
Phe	Thr	Ala	Glu	Gln	Arg	Arg	Asp	Leu	Leu	Gln	Gln	Phe	Arg	Thr
2930						2935					2940			
Gly	His	Ile	Thr	Val	Glu	Lys	Ile	Ile	Lys	Ile	Val	Ile	Thr	Val
2945						2950					2955			
Val	Glu	Glu	His	Glu	Arg	Lys	Gly	Gln	Leu	Cys	Phe	Glu	Gly	Leu
2960						2965					2970			
Arg	Ala	Leu	Val	Pro	Ala	Ala	Glu	Leu	Leu	Asp	Ser	Gly	Val	Ile
2975						2980					2985			
Ser	His	Glu	Leu	Tyr	Gln	Gln	Leu	Gln	Arg	Gly	Glu	Arg	Ser	Val
2990						2995					3000			
Arg	Glu	Val	Ala	Glu	Ala	Asp	Ser	Val	Arg	Gln	Ala	Leu	Arg	Gly
3005						3010					3015			
Thr	Asn	Val	Ile	Ala	Gly	Val	Trp	Leu	Glu	Glu	Ala	Gly	Gln	Lys
3020						3025					3030			
Leu	Ser	Ile	Tyr	Glu	Ala	Leu	Lys	Lys	Asp	Leu	Leu	Gln	Pro	Glu
3035						3040					3045			
Val	Ala	Val	Ala	Leu	Leu	Glu	Ala	Gln	Ala	Gly	Thr	Gly	His	Ile
3050						3055					3060			
Ile	Asp	Pro	Ala	Thr	Ser	Ala	Arg	Leu	Thr	Val	Asp	Glu	Ala	Val
3065						3070					3075			
Arg	Ala	Gly	Leu	Val	Gly	Pro	Glu	Leu	His	Glu	Lys	Leu	Leu	Ser
3080						3085					3090			
Ala	Glu	Lys	Ala	Val	Thr	Gly	Tyr	Arg	Asp	Pro	Tyr	Ser	Gly	Gln
3095						3100					3105			
Ser	Val	Ser	Leu	Phe	Gln	Ala	Leu	Lys	Lys	Gly	Leu	Ile	Pro	Arg
3110						3115					3120			
Glu	Gln	Gly	Leu	Arg	Leu	Leu	Asp	Ala	Gln	Leu	Ser	Thr	Gly	Gly
3125						3130					3135			
Ile	Val	Asp	Pro	Ser	Lys	Ser	His	Arg	Val	Pro	Leu	Asp	Val	Ala
3140						3145					3150			
Tyr	Ala	Arg	Gly	Tyr	Leu	Asp	Lys	Glu	Thr	Asn	Arg	Ala	Leu	Thr
3155						3160					3165			
Ser	Pro	Arg	Asp	Asp	Ala	Arg	Val	Tyr	His	Asp	Pro	Ser	Thr	Gln
3170						3175					3180			

Glu	Pro	Val	Thr	Tyr	Ser	Gln	Leu	Gln	Gln	Arg	Cys	Arg	Ser	Asp
3185						3190					3195			
Gln	Leu	Thr	Gly	Leu	Ser	Leu	Leu	Pro	Leu	Ser	Glu	Lys	Ala	Val
3200						3205					3210			
Arg	Ala	Arg	Gln	Glu	Glu	Val	Tyr	Ser	Glu	Leu	Gln	Ala	Arg	Glu
3215						3220					3225			
Thr	Leu	Glu	Gln	Ala	Lys	Val	Glu	Val	Pro	Val	Gly	Ser	Phe	Lys
3230						3235					3240			
Gly	Arg	Ala	Met	Thr	Val	Trp	Glu	Leu	Ile	Ser	Ser	Glu	Tyr	Phe
3245						3250					3255			
Thr	Glu	Glu	Gln	Arg	Gln	Glu	Leu	Leu	Arg	Gln	Phe	Arg	Thr	Gly
3260						3265					3270			
Lys	Val	Thr	Val	Glu	Lys	Val	Ile	Lys	Ile	Val	Ile	Thr	Ile	Val
3275						3280					3285			
Glu	Glu	Val	Glu	Thr	Arg	Arg	Gln	Glu	Arg	Leu	Ser	Phe	Ser	Gly
3290						3295					3300			
Leu	Arg	Ala	Pro	Val	Pro	Ala	Ser	Glu	Leu	Leu	Asp	Ala	Lys	Ile
3305						3310					3315			
Leu	Ser	Arg	Ala	Gln	Phe	Asp	Gln	Leu	Lys	Asp	Gly	Lys	Thr	Ser
3320						3325					3330			
Val	Lys	Glu	Leu	Ser	Glu	Val	Gly	Ser	Val	Arg	Thr	Leu	Leu	Gln
3335						3340					3345			
Gly	Ser	Gly	Cys	Leu	Ala	Gly	Ile	Tyr	Leu	Glu	Asp	Ser	Lys	Glu
3350						3355					3360			
Lys	Val	Thr	Ile	Tyr	Glu	Ala	Met	Arg	Arg	Gly	Leu	Leu	Arg	Pro
3365						3370					3375			
Ser	Thr	Ala	Thr	Leu	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe
3380						3385					3390			
Leu	Val	Asp	Pro	Val	Arg	Asn	Gln	Arg	Leu	Tyr	Val	His	Glu	Ala
3395						3400					3405			
Val	Lys	Ala	Gly	Val	Val	Gly	Pro	Glu	Leu	His	Glu	Lys	Leu	Leu
3410						3415					3420			
Ser	Ala	Glu	Lys	Ala	Val	Thr	Gly	Tyr	Lys	Asp	Pro	Tyr	Ser	Gly
3425						3430					3435			
Asn	Thr	Ile	Ser	Leu	Phe	Gln	Ala	Met	Lys	Lys	Gly	Leu	Val	Leu
3440						3445					3450			

Arg	Asp	His	Ala	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Val	Ala	Thr	Gly
3455						3460					3465			
Gly	Ile	Ile	Asp	Pro	Val	His	Ser	His	Arg	Leu	Pro	Val	Asp	Val
3470						3475					3480			
Ala	Tyr	Gln	Arg	Gly	Tyr	Phe	Asp	Glu	Glu	Met	Asn	Arg	Val	Leu
3485						3490					3495			
Ala	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr
3500						3505					3510			
His	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Glu	Arg	Cys	Val	Glu
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Thr	Val	Asp	Glu	Ala	Val	Arg	Lys	Gly	Leu	Val	Gly	Pro	Glu	Leu
3740						3745					3750			
His	Asp	Arg	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Arg
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Asp	Pro	Tyr	Thr	Glu	Gln	Thr	Ile	Ser	Leu	Phe	Gln	Ala	Met	Lys
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Gln	Leu	Ala	Thr	Gly	Gly	Ile	Val	Asp	Pro	Arg	Leu	Gly	Phe	His
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Met	Lys	Lys	Gly	Ile	Ile	Arg	Pro	Gly	Thr	Ala	Phe	Glu	Leu	Leu
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Leu	Lys	Leu	Thr	Val	Glu	Glu	Ala	Val	Arg	Met	Gly	Ile	Val	Gly
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Ser	His	Arg	Leu	Pro	Val	Glu	Val	Ala	Tyr	Lys	Arg	Gly	Leu	Phe
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Asp	Glu	Glu	Met	Asn	Glu	Ile	Leu	Thr	Asp	Pro	Ser	Asp	Asp	Thr
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Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu	Thr	Tyr	Leu
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Thr	Gly	Lys	Glu	Met	Ser	Val	Tyr	Glu	Ala	Tyr	Arg	Lys	Gly	Leu
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Ser	Ser	Ser	Tyr	Pro	Ile	Ser	Ser	Ala	Gly	Pro	Arg	Thr	Gln	Leu
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Asp	Ala	Leu	Asp	Arg	Ser	Met	Val	Glu	Glu	Gly	Thr	Gly	Leu	Arg
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Leu	Leu	Glu	Ala	Ala	Ala	Gln	Ser	Ser	Lys	Gly	Tyr	Tyr	Ser	Pro
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Tyr	Ser	Val	Ser	Gly	Ser	Gly	Ser	Thr	Ala	Gly	Ser	Arg	Thr	Gly
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4520						4525					4530			

Ser Leu Gly Gly Pro Glu Ser Ala Val Ala  
4535 4540



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 <211> 1039  
 <212> PRT  
 <213> Bos taurus

<400> 76

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

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Leu	Gln	Ser	Leu	Leu	Gly	Ser	Val	Ser	Cys	His	Met	Leu	Ser	Leu	Lys	
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Pro	Gly	Trp	Leu	Gln	Glu	Glu	Ala	Glu	Leu	Gln	Leu	Ala	Leu	Tyr	Arg	580	585	590
Ser	Leu	Gln	Pro	Arg	Gly	Gln	Ala	Ala	Glu	Gln	Glu	Glu	Ala	Glu	Leu	595	600	605
Gln	Gln	Ala	Leu	Ala	Leu	Ser	Leu	Leu	Glu	Pro	Pro	Pro	Leu	Ser	Gly	610	615	620
Glu	Gln	Glu	Leu	Leu	Trp	Gly	Gln	Gly	Pro	Gly	Gly	Trp	Ala	Gln	Leu	625	630	635
Glu	Val	His	Ala	Ser	Phe	Glu	Arg	Asp	Met	Asp	Glu	Leu	Asp	Arg	Ala	645	650	655
Leu	Glu	Ala	Ala	Leu	Glu	Val	His	Leu	Arg	Glu	Glu	Leu	Val	Gly	Ala	660	665	670
Pro	Gly	Cys	Val	Leu	Pro	Ala	Glu	Leu	Cys	Ala	Arg	Leu	Glu	Arg	Cys	675	680	685
His	Gly	Val	Ser	Val	Ala	Leu	His	Gly	Gly	His	Ile	Val	Leu	Arg	Gly	690	695	700
Phe	Gly	Val	Gln	Pro	Thr	His	Ala	Ala	His	His	Leu	Ala	Ala	Leu	Leu	705	710	715
Ala	Gly	Pro	Arg	Asp	Gln	Ser	Ser	Ala	Phe	Pro	Leu	Ala	Ala	Ser	Cys	725	730	735
Ser	Thr	Arg	Glu	Gly	Pro	Lys	Glu	Pro	Leu	Gly	Arg	Leu	Glu	Arg	Leu	740	745	750
Ala	Glu	Ser	Ser	Ser	Glu	Phe	Gln	Ala	Val	Val	Gln	Ala	Phe	Cys	Asp	755	760	765
Thr	Leu	Asp	Thr	Ala	His	Gly	Arg	Ile	His	Val	Val	Arg	Val	Glu	Arg	770	775	780
Val	Leu	His	Pro	Leu	Leu	Gln	Gln	Gln	Tyr	Glu	Leu	His	Arg	Glu	Arg	785	790	795
Leu	Glu	Gln	Cys	Cys	Glu	Arg	Pro	Ala	Glu	Gln	Val	Leu	Tyr	His	Gly	805	810	815
Thr	Ala	Met	Pro	Thr	Val	Pro	Asp	Ile	Cys	Ala	His	Gly	Phe	Asn	Arg	820	825	830
Ser	Phe	Cys	Gly	Arg	Asn	Ala	Gln	Ser	Leu	Gln	Asp	Gly	Ala	Pro	Phe	835	840	845
Thr	Ser	Cys	Thr	Pro	Ala	Arg	Gly	Ala	Arg	Ala	Leu	Arg	Gly	Val	Arg	850	855	860

Ala Ser Val Pro Glu Ala Met Ser Gly Glu Asp Gln Glu Val Arg Ala  
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Val Val Glu Asp Gly Ser Asn Gly Gly Ser Gly Ser Pro Ser Pro Gly  
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Asp Thr Leu Pro Trp Asn Leu Glu Lys Thr Gln Arg Ser Arg Arg Gly  
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Gly Gly Gly Pro Gly Gly Asn Gly Ser Val Leu Asp Pro Ala Glu Arg  
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Pro Ser Trp Arg Arg Lys Gly Lys Val Arg Gly Lys Asp Pro Asp Arg  
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Val Gly Trp Gln Gln Thr Ala Ala Ala Pro Ser Gly Asn Ser Asp Pro  
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Gly Ala Asp Ser Pro Pro Thr Pro Ser Leu Arg Ala Val Pro Arg Ala  
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Phe

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Glu Val Leu Phe Arg Glu Gly Val Met Val Ala Lys Lys Asp Arg Arg  
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Pro Arg Ser Leu His Pro His Val Pro Gly Val Thr Asn Leu Gln Val  
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Met Arg Ala Met Ala Ser Leu Arg Ala Arg Gly Leu Val Arg Glu Thr	
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Phe Ala Trp Arg His Phe Tyr Trp Tyr Leu Thr Asn Glu Gly Ile Ala	
65 70 75 80	
cac cta cgc cag tac ctg cac ctg ccg ccg gag atc gtg cct gcc tct	288
His Leu Arg Gln Tyr Leu His Leu Pro Pro Glu Ile Val Pro Ala Ser	
85 90 95	
ctg cag cgc gtg cgc cgc cct gtc gcc atg gtg atg ccc gcg cgc cgc	336
Leu Gln Arg Val Arg Arg Pro Val Ala Met Val Met Pro Ala Arg Arg	
100 105 110	
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Ile Pro His Val Gln Ser Val Gln Gly Pro Leu Ser Cys Pro Pro Lys	
115 120 125	
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Trp Gly Pro Val Pro Thr Glu Asp Pro Ala His Glu Glu Arg Arg Val	
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tac cgt cgg aag gag cct gag gag gga gca tct gag ccc cct gtg gtg	480
Tyr Arg Arg Lys Glu Pro Glu Glu Gly Ala Ser Glu Pro Pro Val Val	
145 150 155 160	
cct gct acc acc ccg ggg aac ctg gcg agg cct ggc ccg aag cct gcc	528
Pro Ala Thr Thr Pro Gly Asn Leu Ala Arg Pro Gly Pro Lys Pro Ala	
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cca gcc aca gat gaa cgg gat cgt gtg cag aag aaa acc ttc acc aag	576
Pro Ala Thr Asp Glu Arg Asp Arg Val Gln Lys Lys Thr Phe Thr Lys	
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Trp Val Asn Lys His Leu Ile Lys Ala Gln Arg His Ile Ser Asp Leu	
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Tyr Glu Asp Leu Arg Asp Gly His Asn Leu Ile Ser Leu Leu Glu Val	
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Leu Ser Gly Asp Ser Leu Pro Arg Glu Lys Gly Arg Met Arg Phe His	
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Lys Leu Gln Asn Val Gln Ile Ala Leu Asp Tyr Leu Arg His Arg Gln	
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Val Lys Leu Val Asn Ile Arg Asn Asp Asp Ile Ala Asp Gly Asn Pro	
260 265 270	
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Lys Leu Thr Leu Gly Leu Ile Trp Thr Ile Ile Leu His Phe Gln Ile	
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Ser Asp Ile Gln Val Ser Gly Gln Ser Glu Asp Met Thr Ala Lys Glu	
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Arg Cys Asp Asn Phe Thr Ser Ser Trp Arg Asp Gly Arg Leu Phe Asn	
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Ala Ile Ile His Arg His Arg Pro Met Leu Ile Asp Met Ser Lys Val	
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Tyr Arg Gln Thr Asn Leu Glu Asn Leu Asp Gln Ala Phe Ser Val Ala	
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Glu Arg Asp Leu Gly Val Thr Arg Leu Leu Asp Pro Glu Asp Val Asp	
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Val Pro Gln Pro Asp Glu Lys Ser Ile Ile Thr Tyr Val Ser Ser Leu	
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Tyr Asp Ala Met Pro Arg Val Pro Asp Val Gln Asp Gly Val Lys Ala	
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Asn Glu Leu Gln Leu Arg Trp Gln Glu Tyr Arg Glu Leu Val Val Leu	
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Leu Leu Gln Trp Met Arg His His Thr Ala Ala Phe Glu Glu His Arg	
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Phe Pro Ser Ser Phe Glu Glu Ile Glu Ile Leu Trp Cys Gln Phe Leu	
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aaa ttt aag gag acg gag ctt ccg gcc aag gag gca gac aag aac cgg	1440
Lys Phe Lys Glu Thr Glu Leu Pro Ala Lys Glu Ala Asp Lys Asn Arg	
465 470 475 480	
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Ser Lys Gly Ile Tyr Gln Ser Leu Glu Gly Ala Val Gln Ala Gly Gln	
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Leu Lys Val Pro Pro Gly Tyr His Pro Leu Asp Val Glu Lys Glu Trp	
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Leu Gln Ser Asp Val Arg Leu Leu Ala Ala Ser Lys Ala Pro Gln Arg	
565 570 575	
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Ala Ala Glu Val Glu Arg Asp Leu Asp Lys Ala Asp Gly Met Ile Arg	
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Leu Leu Phe Asn Asp Val Gln Thr Leu Lys Asp Gly Arg His Pro Gln	
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Gly Glu Gln Met Tyr Arg Arg Val Tyr Arg Leu His Glu Arg Leu Val	
610 615 620	

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acg cgc ctg gag gac ctg cta cag gat gcc cag gat gag aag gag cag Thr Arg Leu Glu Asp Leu Leu Gln Asp Ala Gln Asp Glu Lys Glu Gln 900 905 910	2736

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Leu Asn Glu Tyr Arg Ala His Leu Ser Gly Leu Ala Lys Arg Ala Lys	
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Ala Val Val Gln Leu Lys Pro Arg Asp Gln Ala Gln Pro Val Arg Gly	
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Ser Arg Leu Glu Ala Gln His Gln Ala Leu Val Ala Leu Trp His	
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Gln Leu His Val Asp Met Lys Ser Leu Leu Ala Trp Gln Cys Leu	
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Ile	Arg	Ser	Thr	Gln	Gly	Ala	Glu	Glu	Val	Leu	Arg	Ala	His	Glu	
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Glu	Gln	Leu	Lys	Glu	Ala	Gln	Ala	Val	Pro	Ala	Thr	Leu	Pro	Asp	
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Leu	Glu	Ala	Thr	Lys	Ala	Ala	Leu	Lys	Lys	Leu	Arg	Val	Gln	Ala	
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Glu	Ala	Gln	Gln	Pro	Val	Phe	Asp	Ala	Leu	Arg	Asp	Glu	Leu	Arg	
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Leu	Glu	Arg	Trp	Gln	Ala	Ala	Leu	Ala	Gln	Thr	Asp	Val	Arg	Gln	
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Ser	Ala	Asp	Pro	Leu	Gly	Thr	Trp	Leu	Gln	Asp	Ala	Lys	Gln	Arg	
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Gln	Glu	Arg	Ile	Gln	Ala	Val	Pro	Leu	Ala	Asn	Ser	Gln	Ala	Val	
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Tyr	Ile	Asn	Ala	Ile	Lys	Asp	Tyr	Glu	Leu	Gln	Leu	Val	Thr	Tyr	
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ctg gct Leu Ala 1490	gag cag Glu Gln	cag cgg Gln Arg	gca Ala	gag gag Glu Glu	cgg gaa Arg Glu	cgg Arg	ctg gcc Leu Ala	gag Glu	4509
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gcg cag Ala Gln 1520	gcg aag Ala Lys	gcg cag Ala Gln	gcc Ala	gag cgg Glu Arg	gag gca Glu Ala	gag Glu	gag ctg Glu Leu	cag Gln	4599
cgg cgc Arg Arg 1535	atg cag Met Gln	gag gag Glu Glu	gtg Val	gca cgg Ala Arg	cgg gag Arg Glu	gag Glu	gcc gcg Ala Ala	gtg Val	4644
gac gca Asp Ala 1550	cag cag Gln Gln	cag aag Gln Lys	cgg Arg	agc att Ser Ile	cag gag Gln Glu	gag Glu	ctg cag Leu Gln	cac His	4689
ttg cgg Leu Arg 1565	cag agc Gln Ser	tcg gag Ser Glu	gcc Ala	gag atc Glu Ile	cag gcc Gln Ala	aag Lys	gcc cgg Ala Arg	cag Gln	4734
gtg gag Val Glu 1580	gcc gca Ala Ala	gaa cgc Glu Arg	agc Ser	cgg gtg Arg Val	cgc atc Arg Ile	gag Glu	gag gag Glu Glu	atc Ile	4779
cgc gtg Arg Val 1595	gtc cgc Val Arg	ctg cag Leu Gln	ctg Leu	gag gcc Glu Ala	act gag Thr Glu	cgc Arg	cag cgg Gln Arg	ggc Gly	4824
ggg gcc Gly Ala 1610	gag ggc Glu Gly	gag ctg Glu Leu	cag Gln	gcc cta Ala Leu	cgt gcg Arg Ala	cgg Arg	gcg gaa Ala Glu	gag Glu	4869
gcc gag Ala Glu 1625	gcg cag Ala Gln	aag cgg Lys Arg	cag Gln	gca cag Ala Gln	gag gag Glu Glu	gcg Ala	gag cgc Glu Arg	ttg Leu	4914
cgg cgg Arg Arg 1640	cag gtg Gln Val	cag gac Gln Asp	gag Glu	agc cag Ser Gln	cgc aag Arg Lys	cgg Arg	cag gca Gln Ala	gag Glu	4959
gcg gag Ala Glu 1655	ctg gcc Leu Ala	ctg cgc Leu Arg	gtg Val	aag gcc Lys Ala	gag gcc Glu Ala	gag Glu	gcg gcc Ala Ala	cga Arg	5004
gaa aag Glu Lys 1670	cag cgg Gln Arg	gcc ctg Ala Leu	cag Gln	gcg ctc Ala Leu	gag gac Glu Asp	gtg Val	cgg ctc Arg Leu	cag Gln	5049
gcc gag Ala Glu 1685	gag gcg Glu Ala	gag cgg Glu Arg	cgc Arg	ctg cgg Leu Arg	cag gcg Gln Ala	gag Glu	gcc gac Ala Asp	cgg Arg	5094
gcc cgc Ala Arg 1700	cag gtg Gln Val	cag gtg Gln Val	gcc Ala	ctg gag Leu Glu	acg gcg Thr Ala	cag Gln	cgc agc Arg Ser	gca Ala	5139
gag gtg Glu Val 1715	gag ctg Glu Leu	cag agc Gln Ser	aag Lys	cgc gcc Arg Ala	tcc ttc Ser Phe	gcc Ala	gag aag Glu Lys	act Thr	5184

gcg cag ctg gag cgc acg ctg cag gaa gag cac gtg gcc gtg gca Ala Gln Leu Glu Arg Thr Leu Gln Glu Glu His Val Ala Val Ala 1730 1735 1740	5229
cag ctg cgc gag gag gcg gag cgg cgg gct cag cag cag gcg gag Gln Leu Arg Glu Glu Ala Glu Arg Arg Ala Gln Gln Gln Ala Glu 1745 1750 1755	5274
gcc gag cgc gcc cgg gag gag gcg gag cag gag ctg gag cgc tgg Ala Glu Arg Ala Arg Glu Glu Ala Glu Gln Glu Leu Glu Arg Trp 1760 1765 1770	5319
cgg ctg aag gcc aac gag gca ctg cgc ctg cgg ctg cag gcg gaa Arg Leu Lys Ala Asn Glu Ala Leu Arg Leu Arg Leu Gln Ala Glu 1775 1780 1785	5364
gag gtg gcc cag cag aag agc ctg gcg cag gct gag gcc gag aag Glu Val Ala Gln Gln Lys Ser Leu Ala Gln Ala Glu Ala Glu Lys 1790 1795 1800	5409
cag aag gag gag gcg gag cgg gag gcg cgg cgc cgg ggc aag gcg Gln Lys Glu Glu Ala Glu Arg Glu Ala Arg Arg Arg Gly Lys Ala 1805 1810 1815	5454
gag gag cag gcc gtg cgg cag cgg gag ctg gcc gag cag gag ctg Glu Glu Gln Ala Val Arg Gln Arg Glu Leu Ala Glu Gln Glu Leu 1820 1825 1830	5499
gag aag cag cgg cag ctg gca gag ggc acc gcg cag cag cgc ctg Glu Lys Gln Arg Gln Leu Ala Glu Gly Thr Ala Gln Gln Arg Leu 1835 1840 1845	5544
gtg gcg gag cag gag ctg atc cgg ctg cgg gcc gag acg gag cag Val Ala Glu Gln Glu Leu Ile Arg Leu Arg Ala Glu Thr Glu Gln 1850 1855 1860	5589
ggg gag cag cag cgg cag ctg ttg gag gag gag ctg gcg cgc ctg Gly Glu Gln Gln Arg Gln Leu Leu Glu Glu Glu Leu Ala Arg Leu 1865 1870 1875	5634
cag cgg gag gcg gcc gca gcc acg cac aag cgc cag gag ctg gaa Gln Arg Glu Ala Ala Ala Thr His Lys Arg Gln Glu Leu Glu 1880 1885 1890	5679
gcc gag ctg gcc aag gtg cgg gct gag atg gag gtg ctg ctg gcc Ala Glu Leu Ala Lys Val Arg Ala Glu Met Glu Val Leu Leu Ala 1895 1900 1905	5724
agc aag gcg cgc gca gag gag gag tcc cgc tcc acc agc gag aag Ser Lys Ala Arg Ala Glu Glu Glu Ser Arg Ser Thr Ser Glu Lys 1910 1915 1920	5769
tcc aag cag agg ctg gag gcc gag gcc agc cgg ttc cgc gag ctg Ser Lys Gln Arg Leu Glu Ala Glu Ala Ser Arg Phe Arg Glu Leu 1925 1930 1935	5814
gcc gag gag gcc gcc cgc ctg cgt gcc ctg gct gag gag acc aag Ala Glu Glu Ala Ala Arg Leu Arg Ala Leu Ala Glu Glu Thr Lys 1940 1945 1950	5859
cgg cag cgg cag ctg gcc gag gag gat gcg gcc cgg cag cgg gcg Arg Gln Arg Gln Leu Ala Glu Glu Asp Ala Ala Arg Gln Arg Ala 1955 1960 1965	5904
gag gcg gag agg gta ctg gcc gag aag ctg gcc gcc atc agc gag Glu Ala Glu Arg Val Leu Ala Glu Lys Leu Ala Ala Ile Ser Glu 1970 1975 1980	5949
gcc acg cgg ctc aag acc gag gcc gag atc gcc ctc aag gag aag Ala Thr Arg Leu Lys Thr Glu Ala Glu Ile Ala Leu Lys Glu Lys 1985 1990 1995	5994

gag Glu 2000	gag Ala 2000	aat Asn	gag Glu	cgt Arg	ctg Leu 2005	cgg Arg	cgg Arg	ctg Leu	gcg Ala	gaa Glu 2010	gac Asp	gaa Glu	gcc Ala	6039	
ttc Phe 2015	cag Gln 2015	cgg Arg	cgg Arg	cgg Arg	ctg Leu 2020	gag Glu 2020	gag Glu	cag Gln	gcc Ala	gcc Ala	cag Gln 2025	cac His	aag Lys	gcg Ala	6084
gac Asp 2030	atc Ile 2030	gag Glu	gag Glu	cgg Arg	ctg Leu 2035	gcg Ala 2035	cag Gln	ctg Leu	cgc Arg	aag Lys 2040	gcg Ala 2040	tca Ser	gag Glu	aac Asn	6129
gag Glu 2045	ctg Leu 2045	gag Glu	cgg Arg	cag Gln	aag Lys 2050	ggg Gly 2050	ctg Leu	gtg Val	gag Glu	gac Asp 2055	acg Thr 2055	ctg Leu	cgg Arg	cag Gln	6174
cgg Arg 2060	cgg Arg 2060	cag Gln	gtg Val	gag Glu	gag Glu 2065	gag Glu 2065	atc Ile	ctg Leu	gcc Ala	ctg Leu 2070	aag Lys 2070	gcg Ala	agc Ser	ttc Phe	6219
gag Glu 2075	aag Lys 2075	gca Ala	gct Ala	gcc Ala	ggc Gly 2080	aag Lys 2080	gcg Ala	gag Glu	ctg Leu	gag Glu 2085	ctg Leu 2085	gag Glu	ctc Leu	ggg Gly	6264
cgc Arg 2090	atc Ile 2090	cgc Arg	agt Ser	aac Asn	gcc Ala 2095	gag Glu 2095	gac Asp	aca Thr	ctg Leu	cgc Arg 2100	agc Ser 2100	aag Lys	gag Glu	cag Gln	6309
gct Ala 2105	gag Glu 2105	ctg Leu	gag Glu	gcc Ala	acg Thr 2110	cgg Arg 2110	cag Gln	cgg Arg	cag Gln	ctg Leu 2115	gcg Ala 2115	gct Ala	gag Glu	gag Glu	6354
gag Glu 2120	cag Gln 2120	cgg Arg	cgc Arg	cgc Arg	gag Glu 2125	gcc Ala 2125	gag Glu	gag Glu	cgc Arg	gtg Val 2130	caa Gln 2130	aag Lys	agc Ser	ctg Leu	6399
gct Ala 2135	gct Ala 2135	gag Glu	gag Glu	gag Glu	gcc Ala 2140	gcg Ala 2140	cgg Arg	cag Gln	cgc Arg	aag Lys 2145	tct Ser 2145	gcc Ala	ctg Leu	gag Glu	6444
gag Glu 2150	gtg Val 2150	gag Glu	cgg Arg	ctc Leu	aag Lys 2155	gcc Ala 2155	aag Lys	gtg Val	gag Glu	gag Glu 2160	gcc Ala 2160	cgg Arg	cgc Arg	ctg Leu	6489
cgt Arg 2165	gag Glu 2165	cga Arg	gcg Ala	gag Glu	cag Gln 2170	gag Glu 2170	tcg Ser	gct Ala	cgg Arg	cag Gln 2175	cta Leu 2175	caa Gln	ctg Leu	gcc Ala	6534
cag Gln 2180	gag Glu 2180	gcc Ala	gcc Ala	cag Gln	aag Lys 2185	cgg Arg 2185	ctg Leu	cag Gln	gcc Ala	gag Glu 2190	gag Glu 2190	aag Lys	gcg Ala	cac His	6579
gcc Ala 2195	ttc Phe 2195	gcc Ala	gtg Val	cag Gln	cag Gln 2200	aag Lys 2200	gaa Glu	cag Gln	gag Glu	ctg Leu 2205	cag Gln 2205	cag Gln	aca Thr	ctc Leu	6624
cag Gln 2210	cag Gln 2210	gag Glu	cag Gln	agc Ser	atg Met 2215	ctg Leu 2215	gag Glu	cgg Arg	ctg Leu	cgg Arg 2220	gcc Ala 2220	gag Glu	gcg Ala	gag Glu	6669
gcg Ala 2225	gcg Ala 2225	cgg Arg	cgg Arg	gcg Ala	gcc Ala 2230	gag Glu 2230	gag Glu	gcg Ala	gag Glu	gag Glu 2235	gag Glu 2235	gcg Ala	cgg Arg	gag Glu	6714
gcc Ala 2240	gag Glu 2240	agg Arg	gag Glu	gca Ala	gca Ala 2245	cag Gln 2245	tcc Ser	cgg Arg	cgg Arg	cag Gln 2250	gtg Val 2250	gag Glu	gag Glu	gcc Ala	6759
gag Glu 2255	agg Arg 2255	ctg Leu	aag Lys	cag Gln	ctg Leu 2260	gcc Ala 2260	gag Glu	gag Glu	cag Gln	gcg Ala 2265	cag Gln 2265	gcc Ala	cag Gln	gag Ala	6804

cag gcg Gln Ala 2270	cag gcc gcc gcg Gln Ala Ala Ala 2275	gag Glu 2275	aag ctt cgc Lys Leu Arg 2280	aag gaa Lys Glu 2280	gcg gag cag Ala Glu Gln	6849
gag gcg Glu Ala 2285	gtg cgg cgg gcg Val Arg Arg Ala 2290	cag Gln 2290	gca gag cag gcc gcc Ala Glu Gln Ala Ala 2295	ctg aag cag Leu Lys Gln	6894	
aag cag Lys Gln 2300	gtg gcc gac gcc Val Ala Asp Ala 2305	gag Glu 2305	atg gag aag cac aag Met Glu Lys His Lys 2310	aag ttt gct Lys Phe Ala	6939	
gag cag Glu Gln 2315	act ttg cgg cag Thr Leu Arg Gln 2320	aag Lys 2320	gcg cag gtg gag cag Ala Gln Val Glu Gln 2325	gag ctg acc Glu Leu Thr	6984	
acg ctg Thr Leu 2330	agg ctg cag ctg Arg Leu Gln Leu 2335	gag Glu 2335	gag acc gac cac cag Glu Thr Asp His Gln 2340	aag agc atc Lys Ser Ile	7029	
ctg gac Leu Asp 2345	gag gag ctg cag Glu Glu Leu Gln 2350	cgg Arg 2350	ctg aag gcc gag gtg Leu Lys Ala Glu Val 2355	act gag gca Thr Glu Ala	7074	
gcc cgc Ala Arg 2360	cag cgc aac cag Gln Arg Asn Gln 2365	gtg Val 2365	gag gag gag ctc ttc Glu Glu Glu Leu Phe 2370	tct gtg cgc Ser Val Arg	7119	
gtg cag Val Gln 2375	atg gag gag ctg Met Glu Glu Leu 2380	agc Ser 2380	aag ctc aag gca cgc Lys Leu Lys Ala Arg 2385	atc gag gcg Ile Glu Ala	7164	
gag aac Glu Asn 2390	cgt gcg ctc atc ctc Arg Ala Leu Ile Leu 2395	cgc Arg 2395	gac aag gac aac Asp Lys Asp Asn 2400	act cag cgc Thr Gln Arg	7209	
ttc ctg Phe Leu 2405	cag gag gag gcc Gln Glu Glu Ala 2410	gag Glu 2410	aag atg aaa cag gtg Lys Met Lys Gln Val 2415	gca gag gag Ala Glu Glu	7254	
gcc gcc Ala Ala 2420	cgg ctg agc gtg Arg Leu Ser Val 2425	gcc Ala 2425	gcc cag gag gca gcc Ala Gln Glu Ala Ala 2430	cgg ctg cgg Arg Leu Arg	7299	
cag ctg Gln Leu 2435	gcc gag gag gac Ala Glu Glu Asp 2440	ctg Leu 2440	gca cag cag cgg gcc Ala Gln Gln Arg Ala 2445	ctg gcg gag Leu Ala Glu	7344	
aag atg Lys Met 2450	ctc aaa gaa aag Leu Lys Glu Lys 2455	atg Met 2455	cag gcg gtg cag gag Gln Ala Val Gln Glu 2460	gcc act cgc Ala Thr Arg	7389	
ctc aag Leu Lys 2465	gcc gag gcg gag Ala Glu Ala Glu 2470	ctg Leu 2470	ctg cag cag cag aaa Leu Gln Gln Gln Lys 2475	gag ctg gcg Glu Leu Ala	7434	
cag gag Gln Glu 2480	cag gcc cga cag Gln Ala Arg Gln 2485	ctg Leu 2485	cag gag gat aag gag Gln Glu Asp Lys Glu 2490	cag atg gcc Gln Met Ala	7479	
cag cag Gln Gln 2495	ctg gct cag gag Leu Ala Gln Glu 2500	acg Thr 2500	cag ggt ttc cag cgg Gln Gly Phe Gln Arg 2505	acg ctg gag Thr Leu Glu	7524	
gcg gag Ala Glu 2510	cgg cag cga cag Arg Gln Arg Gln 2515	ctg Leu 2515	gag atg agc gcc gag Glu Met Ser Ala Glu 2520	gct gag cgc Ala Glu Arg	7569	
ctc aag Leu Lys 2525	ctt cgt gtg gcc Leu Arg Val Ala 2530	gag Glu 2530	atg agc cgg gcc cag Met Ser Arg Ala Gln 2535	gcc cgc gcc Ala Arg Ala	7614	



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gag Glu 2555	aag Lys 2555	ctg Leu	cac His	cgc Arg	aca Thr	gag Glu 2560	ctc Leu	gcc Ala	acg Thr	cag Gln	gag Glu 2565	aag Lys	gtg Val	aca Thr	7704
ctg Leu 2570	gta Val	cac His	act Thr	ctc Leu	gag Glu 2575	att Ile 2575	cag Gln	cgg Arg	cag Gln	cag Gln	agc Ser 2580	gac Asp	cat His	gac Asp	7749
gcc Ala 2585	gag Glu 2585	cgc Arg	cta Leu	cgg Arg	gcg Ala 2590	gct Ala 2590	atc Ile	acc Thr	gag Glu	ctg Leu 2595	gag Glu 2595	cgt Arg	gag Glu	aag Lys	7794
gag Glu 2600	aag Lys 2600	ctc Leu	cag Gln	gag Glu	gag Glu 2605	gcc Ala 2605	acg Thr	ttg Leu	ctg Leu	cag Gln 2610	cag Gln 2610	aag Lys	tct Ser	gag Glu	7839
gag Glu 2615	atg Met 2615	cag Gln	gtg Val	gtg Val	cag Gln 2620	cag Gln 2620	gag Glu	cag Gln	ctg Leu	ctg Leu 2625	cag Gln 2625	gag Glu	acg Thr	cgg Arg	7884
gcc Ala 2630	ctg Leu 2630	cag Gln	gag Glu	agc Ser	ttc Phe 2635	ctg Leu 2635	tca Ser	gag Glu	aag Lys	gac Asp 2640	cgc Arg 2640	ctg Leu	ctg Leu	cag Gln	7929
cgg Arg 2645	gag Glu 2645	cgc Arg	ttc Phe	atc Ile	gag Glu 2650	cag Gln 2650	gag Glu	aag Lys	gcc Ala	aag Lys 2655	ctg Leu 2655	gag Glu	cag Gln	ctc Leu	7974
ttc Phe 2660	cgg Arg 2660	gac Asp	gag Glu	gtg Val	gcc Ala 2665	aag Lys 2665	gcg Ala	cag Gln	aaa Lys	ttg Leu 2670	cgt Arg 2670	gag Glu	gag Glu	cag Gln	8019
cag Gln 2675	cgg Arg 2675	cag Gln	cag Gln	cag Gln	cag Gln 2680	atg Met 2680	gag Glu	cag Gln	gag Glu	cgg Arg 2685	gag Glu 2685	cag Gln	ctg Leu	gtg Val	8064
gcc Ala 2690	agc Ser 2690	atg Met	gag Glu	gag Glu	gcc Ala 2695	cgg Arg 2695	cag Gln	tgc Cys	cag Gln	cgt Arg 2700	gag Glu 2700	gcc Ala	gag Glu	gag Glu	8109
ggc Gly 2705	gtg Val 2705	cgc Arg	cgc Arg	aag Lys	cag Gln 2710	gag Glu 2710	gag Glu	ctg Leu	cag Gln	ctt Leu 2715	ctc Leu 2715	gag Glu	cag Gln	cag Gln	8154
cgg Arg 2720	cag Gln 2720	cag Gln	cag Gln	gag Glu	cga Arg 2725	ctg Leu 2725	ctg Leu	gcc Ala	gag Glu	gag Glu 2730	aac Asn 2730	cag Gln	cgg Arg	ctg Leu	8199
cgc Arg 2735	gag Glu 2735	cgg Arg	cta Leu	cag Gln	cgc Arg 2740	ctg Leu 2740	gag Glu	gag Glu	gag Glu	cac His 2745	cgg Arg 2745	gcc Ala	gcc Ala	ttg Leu	8244
gcg Ala 2750	cat His 2750	tcg Ser	gag Glu	gag Glu	atc Ile 2755	gcc Ala 2755	gcc Ala	tcg Ser	cag Gln	gcc Ala 2760	gcg Ala 2760	gct Ala	gcc Ala	aaa Lys	8289
gcc Ala 2765	ctg Leu 2765	ccc Pro	aac Asn	ggc Gly	cgg Arg 2770	gat Asp 2770	gcg Ala	ccc Pro	gac Asp	ggc Gly 2775	cca Pro 2775	gcc Ala	gtg Val	gag Glu	8334
gca Ala 2780	gag Glu 2780	cct Pro	gag Glu	cac His	atg Met 2785	ttc Phe 2785	gat Asp	ggc Gly	ctt Leu	cgg Arg 2790	cgg Arg 2790	aag Lys	gtg Val	cca Pro	8379
gcc Ala 2795	cag Gln 2795	cgg Arg	ctg Leu	cag Gln	gag Glu 2800	gtg Val 2800	ggc Gly	atc Ile	ctg Leu	agc Ser 2805	gca Ala 2805	gag Glu	gag Glu	ctg Leu	8424

cag Gln 2810	cgg Arg	ctg Leu	gcc Ala	cag Gln	ggc Gly	cgc Arg 2815	acg Thr	aca Thr	gtg Val	gcc Ala	gag Glu 2820	ctt Leu	gct Ala	cag Gln	8469
cgg Arg 2825	gag Glu	gac Asp	gtg Val	tgc Cys	cag Gln	tac Tyr 2830	ctg Leu	cag Gln	ggc Gly	cgc Arg 2835	ggt Gly	ggc Gly	atc Ile	gcc Ala	8514
ggg Gly 2840	ctg Leu	ctg Leu	ctc Leu	aaa Lys	ccg Pro	gcc Ala 2845	aac Asn	gag Glu	aag Lys	ctg Leu	agt Ser 2850	atc Ile	tac Tyr	gcg Ala	8559
gcc Ala 2855	ctc Leu	cgg Arg	agg Arg	cag Gln	ctg Leu	ctg Leu 2860	agc Ser	cca Pro	ggc Gly	acg Thr	gcg Ala 2865	ctc Leu	atc Ile	ctg Leu	8604
ctg Leu 2870	gag Glu	gca Ala	cag Gln	gcg Ala	gcc Ala	act Thr 2875	ggc Gly	ttc Phe	ctc Leu	ctg Leu	gac Asp 2880	ccc Pro	gtg Val	cag Gln	8649
aac Asn 2885	cga Arg	cgg Arg	ctg Leu	act Thr	gtc Val	aac Asn 2890	gag Glu	gct Ala	gtg Val	aag Lys	gaa Glu 2895	ggc Gly	gtg Val	gtg Val	8694
ggg Gly 2900	ccc Pro	gag Glu	ctg Leu	cac His	cac His	aag Lys 2905	ctg Leu	ctg Leu	tcg Ser	gcc Ala	gag Glu 2910	cgc Arg	gcc Ala	gtc Val	8739
acc Thr 2915	ggc Gly	tac Tyr	aag Lys	gac Asp	ccc Pro	tac Tyr 2920	acc Thr	ggt Gly	gag Glu	cag Gln	atc Ile 2925	tcg Ser	ctc Leu	ttc Phe	8784
cag Gln 2930	gcc Ala	atg Met	cag Gln	aag Lys	gag Glu	ctc Leu 2935	atc Ile	gtg Val	cgc Arg	gac Asp	cac His 2940	ggc Gly	atc Ile	cgc Arg	8829
ctg Leu 2945	ctg Leu	gag Glu	gcc Ala	cag Gln	atc Ile	gcc Ala 2950	acg Thr	ggc Gly	ggc Gly	atc Ile	atc Ile 2955	gac Asp	ccg Pro	gta Val	8874
cac His 2960	agc Ser	cac His	cgg Arg	ctg Leu	ccc Pro	gtg Val 2965	gac Asp	gtg Val	gcc Ala	tac Tyr	cag Gln 2970	cgc Arg	ggc Gly	tac Tyr	8919
ttc Phe 2975	gac Asp	gag Glu	gag Glu	atg Met	aac Asn	cgc Arg 2980	gtg Val	ctg Leu	gcc Ala	gac Asp	ccg Pro 2985	agc Ser	gac Asp	gac Asp	8964
acc Thr 2990	aag Lys	ggc Gly	ttc Phe	ttc Phe	gac Asp	ccc Pro 2995	aac Asn	acg Thr	cac His	gag Glu	aac Asn 3000	ctc Leu	acg Thr	tat Tyr	9009
ctg Leu 3005	cag Gln	ctg Leu	ctg Leu	gag Glu	cgc Arg	tgc Cys 3010	gtg Val	ctc Leu	gac Asp	ccc Pro	gag Glu 3015	aca Thr	ggc Gly	ctg Leu	9054
cgc Arg 3020	ctg Leu	ctg Leu	ccc Pro	ctc Leu	acg Thr	gac Asp 3025	cag Gln	gcc Ala	gcc Ala	agg Arg	ggc Gly 3030	ggt Gly	gag Glu	ctg Leu	9099
gtc Val 3035	tac Tyr	acc Thr	gac Asp	tcc Ser	gag Glu	gcc Ala 3040	cgg Arg	gac Asp	gtg Val	ttc Phe	gag Glu 3045	aaa Lys	gcc Ala	act Thr	9144
gtg Val 3050	tct Ser	gca Ala	ccg Pro	ttc Phe	ggg Gly	aag Lys 3055	ttc Phe	cag Gln	ggc Gly	agg Arg	acg Thr 3060	gtg Val	acc Thr	atc Ile	9189
tgg Trp 3065	gag Glu	ctc Leu	atc Ile	aac Asn	tcc Ser	gag Glu 3070	tac Tyr	ttc Phe	acg Thr	acg Thr	gag Glu 3075	cag Gln	cgg Arg	cgg Arg	9234

gat	ctg	ctg	agg	cag	ttc	cgc	atg	ggc	aag	gtc	acc	gtg	gag	aag	9279
Asp	Leu	Leu	Arg	Gln	Phe	Arg	Met	Gly	Lys	Val	Thr	Val	Glu	Lys	
	3080					3085					3090				
atc	atc	aag	atc	gtc	atc	acg	gtg	gtg	gag	gaa	cac	gag	cag	aaa	9324
Ile	Ile	Lys	Ile	Val	Ile	Thr	Val	Val	Glu	Glu	His	Glu	Gln	Lys	
	3095					3100					3105				
ggc	cag	ctc	tgc	ttc	gag	ggc	ctg	cgc	gcc	ctc	gta	ccc	gcc	gcc	9369
Gly	Gln	Leu	Cys	Phe	Glu	Gly	Leu	Arg	Ala	Leu	Val	Pro	Ala	Ala	
	3110					3115					3120				
gag	ctg	ctc	gag	agc	ggg	gtc	ata	gac	cac	aac	ctc	tac	cgc	cag	9414
Glu	Leu	Leu	Glu	Ser	Gly	Val	Ile	Asp	His	Asn	Leu	Tyr	Arg	Gln	
	3125					3130					3135				
ctg	cag	cgg	ggc	gag	cgc	tct	gtg	cga	gag	gtg	gcc	gag	gtg	gac	9459
Leu	Gln	Arg	Gly	Glu	Arg	Ser	Val	Arg	Glu	Val	Ala	Glu	Val	Asp	
	3140					3145					3150				
gcc	gtg	cgg	cgg	gcc	ctg	cgg	ggc	acc	agc	gtc	att	gca	ggg	gtg	9504
Ala	Val	Arg	Arg	Ala	Leu	Arg	Gly	Thr	Ser	Val	Ile	Ala	Gly	Val	
	3155					3160					3165				
tgg	ctg	gag	gag	aca	gga	cag	agg	ctg	agc	atc	tac	gaa	gcc	ctg	9549
Trp	Leu	Glu	Glu	Thr	Gly	Gln	Arg	Leu	Ser	Ile	Tyr	Glu	Ala	Leu	
	3170					3175					3180				
aag	aag	gat	ctc	ctg	cct	cca	gag	gta	gca	gtg	gct	ctc	ctg	gag	9594
Lys	Lys	Asp	Leu	Leu	Pro	Pro	Glu	Val	Ala	Val	Ala	Leu	Leu	Glu	
	3185					3190					3195				
gcc	cag	gcc	ggc	act	ggc	cac	atc	att	gac	ccc	gcc	acg	agc	gcc	9639
Ala	Gln	Ala	Gly	Thr	Gly	His	Ile	Ile	Asp	Pro	Ala	Thr	Ser	Ala	
	3200					3205					3210				
cgg	ctc	acc	gtg	gac	gag	gcg	gtg	cgt	gct	ggc	ctg	gtg	ggg	ccc	9684
Arg	Leu	Thr	Val	Asp	Glu	Ala	Val	Arg	Ala	Gly	Leu	Val	Gly	Pro	
	3215					3220					3225				
gag	ctg	cat	gag	aag	ctg	ctg	tcg	gcc	gag	aag	gcc	gtg	acg	ggc	9729
Glu	Leu	His	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Lys	Ala	Val	Thr	Gly	
	3230					3235					3240				
tac	aag	gac	ccg	tac	tcg	ggg	cag	agt	gtt	tct	ctc	ttc	cag	gcc	9774
Tyr	Lys	Asp	Pro	Tyr	Ser	Gly	Gln	Ser	Val	Ser	Leu	Phe	Gln	Ala	
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Tyr	Ser	Glu	Leu	Gln	Ala	Arg	Glu	Thr	Phe	Gln	Lys	Thr	Pro	Val	
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Glu	Val	Pro	Val	Gly	Ser	Phe	Lys	Gly	Arg	Thr	Val	Thr	Val	Trp	
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Glu	Leu	Leu	Ser	Ser	Glu	Tyr	Phe	Thr	Thr	Glu	Gln	Arg	Gln	Glu	
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Ser	Glu	Leu	Leu	Ala	Ser	Gly	Val	Leu	Ser	Arg	Thr	Gln	Phe	Glu	
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Gln	Leu	Lys	Asp	Gly	Lys	Thr	Ser	Val	Lys	Asp	Leu	Ser	Glu	Leu	
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Pro	Glu	Leu	His	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Lys	Ala	Val	Thr	
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gac Asp 3635	gag Glu	gag Glu	atg Met	aac Asn	cgc Arg	gtg Val 3640	ctg Leu	gcc Ala	gac Asp	ccg Pro	agc Ser 3645	gac Asp	gac Asp	acc Thr	10944
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Pro Gly	Thr Ala Phe Glu	Leu	Leu Glu Ala Gln	Ala	Ala Thr Gly	
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<212> PRT  
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<400> 78

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Met Arg Ala Met Ala Ser Leu Arg Ala Arg Gly Leu Val Arg Glu Thr  
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Phe Ala Trp Arg His Phe Tyr Trp Tyr Leu Thr Asn Glu Gly Ile Ala  
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His Leu Arg Gln Tyr Leu His Leu Pro Pro Glu Ile Val Pro Ala Ser  
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Leu Gln Arg Val Arg Arg Pro Val Ala Met Val Met Pro Ala Arg Arg  
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Ile Pro His Val Gln Ser Val Gln Gly Pro Leu Ser Cys Pro Pro Lys  
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Trp Gly Pro Val Pro Thr Glu Asp Pro Ala His Glu Glu Arg Arg Val  
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Tyr Arg Arg Lys Glu Pro Glu Glu Gly Ala Ser Glu Pro Pro Val Val  
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Trp Val Asn Lys His Leu Ile Lys Ala Gln Arg His Ile Ser Asp Leu  
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Tyr Glu Asp Leu Arg Asp Gly His Asn Leu Ile Ser Leu Leu Glu Val  
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Leu Ser Gly Asp Ser Leu Pro Arg Glu Lys Gly Arg Met Arg Phe His  
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Val Lys Leu Val Asn Ile Arg Asn Asp Asp Ile Ala Asp Gly Asn Pro  
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Ser Asp Ile Gln Val Ser Gly Gln Ser Glu Asp Met Thr Ala Lys Glu  
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Val Pro Gln Pro Asp Glu Lys Ser Ile Ile Thr Tyr Val Ser Ser Leu  
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Tyr Asp Ala Met Pro Arg Val Pro Asp Val Gln Asp Gly Val Lys Ala  
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Leu Leu Gln Trp Met Arg His His Thr Ala Ala Phe Glu Glu His Arg  
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Lys Phe Lys Glu Thr Glu Leu Pro Ala Lys Glu Ala Asp Lys Asn Arg  
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Ser Lys Gly Ile Tyr Gln Ser Leu Glu Gly Ala Val Gln Ala Gly Gln  
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Leu Lys Val Pro Pro Gly Tyr His Pro Leu Asp Val Glu Lys Glu Trp  
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Glu Phe Glu Arg Leu Glu Cys Leu Gln Arg Ile Val Ser Lys Leu Gln  
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Leu Leu Phe Asn Asp Val Gln Thr Leu Lys Asp Gly Arg His Pro Gln  
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Gly Glu Gln Met Tyr Arg Arg Val Tyr Arg Leu His Glu Arg Leu Val  
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Ala Ile Arg Thr Glu Tyr Asn Leu Arg Leu Lys Ser Gly Val Ala Ala  
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Pro Val Thr Gln Val Thr Met Gln Thr Thr Gln Arg Arg Pro Glu Leu  
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Glu Asp Ala Thr Leu Arg Tyr Leu Gln Asp Leu Leu Ala Trp Val Glu  
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Glu Asn Gln Arg Arg Val Asp Ser Ala Glu Trp Gly Gly Asp Leu Pro  
675 680 685

Ser Val Glu Ala Gln Leu Gly Ser His Arg Gly Leu His Gln Ser Ile  
690 695 700

Asp Glu Phe Arg Ala Lys Ile Glu Arg Ala Arg Ala Asp Glu Gly Gln  
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Leu Ser Pro Ala Pro Arg Gly Thr Tyr Arg Asp Cys Leu Gly Arg Leu  
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Met Arg Glu Leu Glu Val Lys Glu Lys Lys Ile Lys Glu Ile Gln Ser  
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885 890 895

Thr Arg Leu Glu Asp Leu Leu Gln Asp Ala Gln Asp Glu Lys Glu Gln  
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Val His Lys Gly Asp Gln Tyr Gln Leu Leu Gly Pro Ala Gln Pro Ala  
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His Trp Lys Val Leu Ser Ser Ser Gly Ser Glu Ala Ala Val Pro Ser  
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Val Cys Phe Leu Val Pro Pro Pro Asn Gln Glu Ala Gln Glu Ala Val  
995 1000 1005

Ser Arg Leu Glu Ala Gln His Gln Ala Leu Val Ala Leu Trp His  
1010 1015 1020

Gln Leu His Val Asp Met Lys Ser Leu Leu Ala Trp Gln Cys Leu  
1025 1030 1035

Ser Arg Asp Val Gln Leu Ile Arg Ser Trp Ser Leu Val Thr Phe  
1040 1045 1050

Arg Thr Leu Lys Pro Glu Glu Gln Arg Gln Ala Leu Arg Ser Leu  
1055 1060 1065

Glu Leu His Tyr Gln Ala Phe Leu Arg Asp Ser Gln Asp Ala Gly  
1070 1075 1080

Gly Phe Gly Pro Glu Asp Arg Leu Gln Ala Glu Arg Glu Tyr Gly  
1085 1090 1095

Ser Cys Ser Arg His Tyr Gln Gln Leu Leu Gln Ser Ala Glu Gln  
1100 1105 1110

Gly	Ala	Gln	Glu	Glu	Ser	Arg	Cys	Gln	Arg	Cys	Ile	Ser	Glu	Leu
1115						1120					1125			
Lys	Asp	Ile	Arg	Leu	Gln	Leu	Glu	Ala	Cys	Glu	Thr	Arg	Thr	Val
1130						1135					1140			
His	Arg	Leu	Arg	Leu	Pro	Leu	Asp	Lys	Glu	Pro	Ala	Arg	Glu	Cys
1145						1150					1155			
Ala	Gln	Arg	Ile	Ala	Glu	Gln	Gln	Lys	Ala	Gln	Ala	Glu	Val	Glu
1160						1165					1170			
Gly	Leu	Gly	Lys	Gly	Val	Ala	Arg	Leu	Ser	Ala	Glu	Ala	Glu	Lys
1175						1180					1185			
Val	Leu	Ala	Leu	Pro	Glu	Pro	Ser	Pro	Ala	Ala	Pro	Thr	Leu	Arg
1190						1195					1200			
Ser	Glu	Leu	Glu	Leu	Thr	Leu	Gly	Lys	Leu	Glu	Gln	Val	Arg	Ser
1205						1210					1215			
Leu	Ser	Ala	Ile	Tyr	Leu	Glu	Lys	Leu	Lys	Thr	Ile	Ser	Leu	Val
1220						1225					1230			
Ile	Arg	Ser	Thr	Gln	Gly	Ala	Glu	Glu	Val	Leu	Arg	Ala	His	Glu
1235						1240					1245			
Glu	Gln	Leu	Lys	Glu	Ala	Gln	Ala	Val	Pro	Ala	Thr	Leu	Pro	Asp
1250						1255					1260			
Leu	Glu	Ala	Thr	Lys	Ala	Ala	Leu	Lys	Lys	Leu	Arg	Val	Gln	Ala
1265						1270					1275			
Glu	Ala	Gln	Gln	Pro	Val	Phe	Asp	Ala	Leu	Arg	Asp	Glu	Leu	Arg
1280						1285					1290			
Gly	Ala	Gln	Glu	Val	Gly	Glu	Arg	Leu	Gln	Arg	Gln	His	Gly	Glu
1295						1300					1305			
Arg	Asp	Val	Glu	Val	Glu	Arg	Trp	Arg	Glu	Arg	Val	Ala	Pro	Leu
1310						1315					1320			
Leu	Glu	Arg	Trp	Gln	Ala	Ala	Leu	Ala	Gln	Thr	Asp	Val	Arg	Gln
1325						1330					1335			
Arg	Glu	Leu	Glu	Gln	Leu	Gly	Arg	Gln	Leu	Arg	Tyr	Tyr	Arg	Glu
1340						1345					1350			
Ser	Ala	Asp	Pro	Leu	Gly	Thr	Trp	Leu	Gln	Asp	Ala	Lys	Gln	Arg
1355						1360					1365			
Gln	Glu	Arg	Ile	Gln	Ala	Val	Pro	Leu	Ala	Asn	Ser	Gln	Ala	Val
1370						1375					1380			

Arg Glu Gln Leu Gln Gln Glu Lys Glu Leu Leu Glu Glu Ile Glu  
1385 1390 1395

Arg Tyr Gly Glu Lys Val Asp Glu Cys Gln Gln Leu Ala Lys Gln  
1400 1405 1410

Tyr Ile Asn Ala Ile Lys Asp Tyr Glu Leu Gln Leu Val Thr Tyr  
1415 1420 1425

Lys Ala Gln Leu Glu Pro Val Ala Ser Pro Ala Lys Lys Pro Lys  
1430 1435 1440

Val	Gln	Ser	Gly	Ser	Glu	Ser	Val	Ile	Gln	Glu	Tyr	Val	Asp	Leu
1445						1450					1455			

Arg Thr Arg Tyr Ser Glu Leu Thr Thr Leu Thr Ser Gln Tyr Ile  
1460 1465 1470

Lys Phe Ile Arg Glu Thr Leu Arg Arg Met Glu Glu Glu Glu Arg  
1475 1480 1485

Leu Ala Glu Gln Gln Arg Ala Glu Glu Arg Glu Arg Leu Ala Glu  
1490 1495 1500

Val Glu Ala Ala Leu Glu Lys Gln Arg Gln Leu Ala Glu Ala His  
1505 1510 1515

Ala Gln Ala Lys Ala Gln Ala Glu Arg Glu Ala Glu Glu Leu Gln  
1520 1525 1530

Arg Arg Met Gln Glu Glu Val Ala Arg Arg Glu Glu Ala Ala Val  
1535 1540 1545

Asp Ala Gln Gln Gln Lys Arg Ser Ile Gln Glu Glu Leu Gln His  
1550 1555 1560

Leu Arg Gln Ser Ser Glu Ala Glu Ile Gln Ala Lys Ala Arg Gln  
1565 1570 1575

Val Glu Ala Ala Glu Arg Ser Arg Val Arg Ile Glu Glu Glu Ile  
1580 1585 1590

Arg Val Val Arg Leu Gln Leu Glu Ala Thr Glu Arg Gln Arg Gly  
1595 1600 1605

Gly Ala Glu Gly Glu Leu Gln Ala Leu Arg Ala Arg Ala Glu Glu  
1610 1615 1620

Ala Glu Ala Gln Lys Arg Gln Ala Gln Glu Glu Ala Glu Arg Leu  
1625 1630 1635

Arg Arg Gln Val Gln Asp Glu Ser Gln Arg Lys Arg Gln Ala Glu  
1640 1645 1650

Ala	Glu	Leu	Ala	Leu	Arg	Val	Lys	Ala	Glu	Ala	Glu	Ala	Ala	Arg
	1655					1660					1665			
Glu	Lys	Gln	Arg	Ala	Leu	Gln	Ala	Leu	Glu	Asp	Val	Arg	Leu	Gln
	1670					1675					1680			
Ala	Glu	Glu	Ala	Glu	Arg	Arg	Leu	Arg	Gln	Ala	Glu	Ala	Asp	Arg
	1685					1690					1695			
Ala	Arg	Gln	Val	Gln	Val	Ala	Leu	Glu	Thr	Ala	Gln	Arg	Ser	Ala
	1700					1705					1710			
Glu	Val	Glu	Leu	Gln	Ser	Lys	Arg	Ala	Ser	Phe	Ala	Glu	Lys	Thr
	1715					1720					1725			
Ala	Gln	Leu	Glu	Arg	Thr	Leu	Gln	Glu	Glu	His	Val	Ala	Val	Ala
	1730					1735					1740			
Gln	Leu	Arg	Glu	Glu	Ala	Glu	Arg	Arg	Ala	Gln	Gln	Gln	Ala	Glu
	1745					1750					1755			
Ala	Glu	Arg	Ala	Arg	Glu	Glu	Ala	Glu	Gln	Glu	Leu	Glu	Arg	Trp
	1760					1765					1770			
Arg	Leu	Lys	Ala	Asn	Glu	Ala	Leu	Arg	Leu	Arg	Leu	Gln	Ala	Glu
	1775					1780					1785			
Glu	Val	Ala	Gln	Gln	Lys	Ser	Leu	Ala	Gln	Ala	Glu	Ala	Glu	Lys
	1790					1795					1800			
Gln	Lys	Glu	Glu	Ala	Glu	Arg	Glu	Ala	Arg	Arg	Arg	Gly	Lys	Ala
	1805					1810					1815			
Glu	Glu	Gln	Ala	Val	Arg	Gln	Arg	Glu	Leu	Ala	Glu	Gln	Glu	Leu
	1820					1825					1830			
Glu	Lys	Gln	Arg	Gln	Leu	Ala	Glu	Gly	Thr	Ala	Gln	Gln	Arg	Leu
	1835					1840					1845			
Val	Ala	Glu	Gln	Glu	Leu	Ile	Arg	Leu	Arg	Ala	Glu	Thr	Glu	Gln
	1850					1855					1860			
Gly	Glu	Gln	Gln	Arg	Gln	Leu	Leu	Glu	Glu	Glu	Leu	Ala	Arg	Leu
	1865					1870					1875			
Gln	Arg	Glu	Ala	Ala	Ala	Ala	Thr	His	Lys	Arg	Gln	Glu	Leu	Glu
	1880					1885					1890			
Ala	Glu	Leu	Ala	Lys	Val	Arg	Ala	Glu	Met	Glu	Val	Leu	Leu	Ala
	1895					1900					1905			
Ser	Lys	Ala	Arg	Ala	Glu	Glu	Glu	Ser	Arg	Ser	Thr	Ser	Glu	Lys
	1910					1915					1920			

Ser	Lys	Gln	Arg	Leu	Glu	Ala	Glu	Ala	Ser	Arg	Phe	Arg	Glu	Leu
1925						1930					1935			
Ala	Glu	Glu	Ala	Ala	Arg	Leu	Arg	Ala	Leu	Ala	Glu	Glu	Thr	Lys
1940						1945					1950			
Arg	Gln	Arg	Gln	Leu	Ala	Glu	Glu	Asp	Ala	Ala	Arg	Gln	Arg	Ala
1955						1960					1965			
Glu	Ala	Glu	Arg	Val	Leu	Ala	Glu	Lys	Leu	Ala	Ala	Ile	Ser	Glu
1970						1975					1980			
Ala	Thr	Arg	Leu	Lys	Thr	Glu	Ala	Glu	Ile	Ala	Leu	Lys	Glu	Lys
1985						1990					1995			
Glu	Ala	Glu	Asn	Glu	Arg	Leu	Arg	Arg	Leu	Ala	Glu	Asp	Glu	Ala
2000						2005					2010			
Phe	Gln	Arg	Arg	Arg	Leu	Glu	Glu	Gln	Ala	Ala	Gln	His	Lys	Ala
2015						2020					2025			
Asp	Ile	Glu	Glu	Arg	Leu	Ala	Gln	Leu	Arg	Lys	Ala	Ser	Glu	Asn
2030						2035					2040			
Glu	Leu	Glu	Arg	Gln	Lys	Gly	Leu	Val	Glu	Asp	Thr	Leu	Arg	Gln
2045						2050					2055			
Arg	Arg	Gln	Val	Glu	Glu	Glu	Ile	Leu	Ala	Leu	Lys	Ala	Ser	Phe
2060						2065					2070			
Glu	Lys	Ala	Ala	Ala	Gly	Lys	Ala	Glu	Leu	Glu	Leu	Glu	Leu	Gly
2075						2080					2085			
Arg	Ile	Arg	Ser	Asn	Ala	Glu	Asp	Thr	Leu	Arg	Ser	Lys	Glu	Gln
2090						2095					2100			
Ala	Glu	Leu	Glu	Ala	Thr	Arg	Gln	Arg	Gln	Leu	Ala	Ala	Glu	Glu
2105						2110					2115			
Glu	Gln	Arg	Arg	Arg	Glu	Ala	Glu	Glu	Arg	Val	Gln	Lys	Ser	Leu
2120						2125					2130			
Ala	Ala	Glu	Glu	Glu	Ala	Ala	Arg	Gln	Arg	Lys	Ser	Ala	Leu	Glu
2135						2140					2145			
Glu	Val	Glu	Arg	Leu	Lys	Ala	Lys	Val	Glu	Glu	Ala	Arg	Arg	Leu
2150						2155					2160			
Arg	Glu	Arg	Ala	Glu	Gln	Glu	Ser	Ala	Arg	Gln	Leu	Gln	Leu	Ala
2165						2170					2175			
Gln	Glu	Ala	Ala	Gln	Lys	Arg	Leu	Gln	Ala	Glu	Glu	Lys	Ala	His
2180						2185					2190			



Ala Phe	Ala Val	Gln Gln	Lys	Glu Gln	Glu Leu	Gln	Gln Thr	Leu		
2195			2200			2205				
Gln Gln	Glu Gln	Ser Met	Leu	Glu Arg	Leu Arg	Ala	Glu Ala	Glu		
2210			2215			2220				
Ala Ala	Arg Arg	Ala Ala	Glu	Glu Ala	Glu Glu	Ala	Arg Glu	Arg		
2225			2230			2235				
Ala Glu	Arg Glu	Ala Ala	Gln	Ser Arg	Arg Gln	Val	Glu Glu	Ala		
2240			2245			2250				
Glu Arg	Leu Lys	Gln Leu	Ala	Glu Glu	Gln Ala	Gln	Ala Gln	Ala		
2255			2260			2265				
Gln Ala	Gln Ala	Ala Ala	Glu	Lys Leu	Arg Lys	Glu	Ala Glu	Gln		
2270			2275			2280				
Glu Ala	Val Arg	Arg Ala	Gln	Ala Glu	Gln Ala	Ala	Leu Lys	Gln		
2285			2290			2295				
Lys Gln	Val Ala	Asp Ala	Glu	Met Glu	Lys His	Lys	Lys Phe	Ala		
2300			2305			2310				
Glu Gln	Thr Leu	Arg Gln	Lys	Ala Gln	Val Glu	Gln	Glu Leu	Thr		
2315			2320			2325				
Thr Leu	Arg Leu	Gln Leu	Glu	Glu Thr	Asp His	Gln	Lys Ser	Ile		
2330			2335			2340				
Leu Asp	Glu Glu	Leu Gln	Arg	Leu Lys	Ala Glu	Val	Thr Glu	Ala		
2345			2350			2355				
Ala Arg	Gln Arg	Asn Gln	Val	Glu Glu	Glu Leu	Phe	Ser Val	Arg		
2360			2365			2370				
Val Gln	Met Glu	Glu Leu	Ser	Lys Leu	Lys Ala	Arg	Ile Glu	Ala		
2375			2380			2385				
Glu Asn	Arg Ala	Leu Ile	Leu	Arg Asp	Lys Asp	Asn	Thr Gln	Arg		
2390			2395			2400				
Phe Leu	Gln Glu	Glu Ala	Glu	Lys Met	Lys Gln	Val	Ala Glu	Glu		
2405			2410			2415				
Ala Ala	Arg Leu	Ser Val	Ala	Ala Gln	Glu Ala	Ala	Arg Leu	Arg		
2420			2425			2430				
Gln Leu	Ala Glu	Glu Asp	Leu	Ala Gln	Gln Arg	Ala	Leu Ala	Glu		
2435			2440			2445				
Lys Met	Leu Lys	Glu Lys	Met	Gln Ala	Val Gln	Glu	Ala Thr	Arg		
2450			2455			2460				

Leu	Lys	Ala	Glu	Ala	Glu	Leu	Leu	Gln	Gln	Gln	Lys	Glu	Leu	Ala
	2465					2470					2475			
Gln	Glu	Gln	Ala	Arg	Gln	Leu	Gln	Glu	Asp	Lys	Glu	Gln	Met	Ala
	2480					2485					2490			
Gln	Gln	Leu	Ala	Gln	Glu	Thr	Gln	Gly	Phe	Gln	Arg	Thr	Leu	Glu
	2495					2500					2505			
Ala	Glu	Arg	Gln	Arg	Gln	Leu	Glu	Met	Ser	Ala	Glu	Ala	Glu	Arg
	2510					2515					2520			
Leu	Lys	Leu	Arg	Val	Ala	Glu	Met	Ser	Arg	Ala	Gln	Ala	Arg	Ala
	2525					2530					2535			
Glu	Glu	Asp	Ala	Gln	Arg	Phe	Arg	Lys	Gln	Ala	Glu	Glu	Ile	Gly
	2540					2545					2550			
Glu	Lys	Leu	His	Arg	Thr	Glu	Leu	Ala	Thr	Gln	Glu	Lys	Val	Thr
	2555					2560					2565			
Leu	Val	His	Thr	Leu	Glu	Ile	Gln	Arg	Gln	Gln	Ser	Asp	His	Asp
	2570					2575					2580			
Ala	Glu	Arg	Leu	Arg	Ala	Ala	Ile	Thr	Glu	Leu	Glu	Arg	Glu	Lys
	2585					2590					2595			
Glu	Lys	Leu	Gln	Glu	Glu	Ala	Thr	Leu	Leu	Gln	Gln	Lys	Ser	Glu
	2600					2605					2610			
Glu	Met	Gln	Val	Val	Gln	Gln	Glu	Gln	Leu	Leu	Gln	Glu	Thr	Arg
	2615					2620					2625			
Ala	Leu	Gln	Glu	Ser	Phe	Leu	Ser	Glu	Lys	Asp	Arg	Leu	Leu	Gln
	2630					2635					2640			
Arg	Glu	Arg	Phe	Ile	Glu	Gln	Glu	Lys	Ala	Lys	Leu	Glu	Gln	Leu
	2645					2650					2655			
Phe	Arg	Asp	Glu	Val	Ala	Lys	Ala	Gln	Lys	Leu	Arg	Glu	Glu	Gln
	2660					2665					2670			
Gln	Arg	Gln	Gln	Gln	Gln	Met	Glu	Gln	Glu	Arg	Glu	Gln	Leu	Val
	2675					2680					2685			
Ala	Ser	Met	Glu	Glu	Ala	Arg	Gln	Cys	Gln	Arg	Glu	Ala	Glu	Glu
	2690					2695					2700			
Gly	Val	Arg	Arg	Lys	Gln	Glu	Glu	Leu	Gln	Leu	Leu	Glu	Gln	Gln
	2705					2710					2715			
Arg	Gln	Gln	Gln	Glu	Arg	Leu	Leu	Ala	Glu	Glu	Asn	Gln	Arg	Leu
	2720					2725					2730			

Arg Glu 2735	Arg Leu Gln Arg Leu 2740	Glu Glu Glu His Arg 2745	Ala Ala Leu
Ala His 2750	Ser Glu Glu Ile Ala 2755	Ala Ser Gln Ala Ala 2760	Ala Ala Lys
Ala Leu 2765	Pro Asn Gly Arg Asp 2770	Ala Pro Asp Gly Pro 2775	Ala Val Glu
Ala Glu 2780	Pro Glu His Met Phe 2785	Asp Gly Leu Arg Arg 2790	Lys Val Pro
Ala Gln 2795	Arg Leu Gln Glu Val 2800	Gly Ile Leu Ser Ala 2805	Glu Glu Leu
Gln Arg 2810	Leu Ala Gln Gly Arg 2815	Thr Thr Val Ala Glu 2820	Leu Ala Gln
Arg Glu 2825	Asp Val Cys Gln Tyr 2830	Leu Gln Gly Arg Gly 2835	Gly Ile Ala
Gly Leu 2840	Leu Leu Lys Pro Ala 2845	Asn Glu Lys Leu Ser 2850	Ile Tyr Ala
Ala Leu 2855	Arg Arg Gln Leu Leu 2860	Ser Pro Gly Thr Ala 2865	Leu Ile Leu
Leu Glu 2870	Ala Gln Ala Ala Thr 2875	Gly Phe Leu Leu Asp 2880	Pro Val Gln
Asn Arg 2885	Arg Leu Thr Val Asn 2890	Glu Ala Val Lys Glu 2895	Gly Val Val
Gly Pro 2900	Glu Leu His His Lys 2905	Leu Leu Ser Ala Glu 2910	Arg Ala Val
Thr Gly 2915	Tyr Lys Asp Pro Tyr 2920	Thr Gly Glu Gln Ile 2925	Ser Leu Phe
Gln Ala 2930	Met Gln Lys Glu Leu 2935	Ile Val Arg Asp His 2940	Gly Ile Arg
Leu Leu 2945	Glu Ala Gln Ile Ala 2950	Thr Gly Gly Ile Ile 2955	Asp Pro Val
His Ser 2960	His Arg Leu Pro Val 2965	Asp Val Ala Tyr Gln 2970	Arg Gly Tyr
Phe Asp 2975	Glu Glu Met Asn Arg 2980	Val Leu Ala Asp Pro 2985	Ser Asp Asp
Thr Lys 2990	Gly Phe Phe Asp Pro 2995	Asn Thr His Glu Asn 3000	Leu Thr Tyr

Leu	Gln	Leu	Leu	Glu	Arg	Cys	Val	Leu	Asp	Pro	Glu	Thr	Gly	Leu
3005						3010					3015			
Arg	Leu	Leu	Pro	Leu	Thr	Asp	Gln	Ala	Ala	Arg	Gly	Gly	Glu	Leu
3020						3025					3030			
Val	Tyr	Thr	Asp	Ser	Glu	Ala	Arg	Asp	Val	Phe	Glu	Lys	Ala	Thr
3035						3040					3045			
Val	Ser	Ala	Pro	Phe	Gly	Lys	Phe	Gln	Gly	Arg	Thr	Val	Thr	Ile
3050						3055					3060			
Trp	Glu	Leu	Ile	Asn	Ser	Glu	Tyr	Phe	Thr	Thr	Glu	Gln	Arg	Arg
3065						3070					3075			
Asp	Leu	Leu	Arg	Gln	Phe	Arg	Met	Gly	Lys	Val	Thr	Val	Glu	Lys
3080						3085					3090			
Ile	Ile	Lys	Ile	Val	Ile	Thr	Val	Val	Glu	Glu	His	Glu	Gln	Lys
3095						3100					3105			
Gly	Gln	Leu	Cys	Phe	Glu	Gly	Leu	Arg	Ala	Leu	Val	Pro	Ala	Ala
3110						3115					3120			
Glu	Leu	Leu	Glu	Ser	Gly	Val	Ile	Asp	His	Asn	Leu	Tyr	Arg	Gln
3125						3130					3135			
Leu	Gln	Arg	Gly	Glu	Arg	Ser	Val	Arg	Glu	Val	Ala	Glu	Val	Asp
3140						3145					3150			
Ala	Val	Arg	Arg	Ala	Leu	Arg	Gly	Thr	Ser	Val	Ile	Ala	Gly	Val
3155						3160					3165			
Trp	Leu	Glu	Glu	Thr	Gly	Gln	Arg	Leu	Ser	Ile	Tyr	Glu	Ala	Leu
3170						3175					3180			
Lys	Lys	Asp	Leu	Leu	Pro	Pro	Glu	Val	Ala	Val	Ala	Leu	Leu	Glu
3185						3190					3195			
Ala	Gln	Ala	Gly	Thr	Gly	His	Ile	Ile	Asp	Pro	Ala	Thr	Ser	Ala
3200						3205					3210			
Arg	Leu	Thr	Val	Asp	Glu	Ala	Val	Arg	Ala	Gly	Leu	Val	Gly	Pro
3215						3220					3225			
Glu	Leu	His	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Lys	Ala	Val	Thr	Gly
3230						3235					3240			
Tyr	Lys	Asp	Pro	Tyr	Ser	Gly	Gln	Ser	Val	Ser	Leu	Phe	Gln	Ala
3245						3250					3255			
Leu	Lys	Lys	Gly	Leu	Ile	Pro	Arg	Glu	Gln	Gly	Leu	Arg	Leu	Leu
3260						3265					3270			

Asp	Ala	Gln	Leu	Ser	Thr	Gly	Gly	Ile	Val	Asp	Pro	Ser	Lys	Ser
3275						3280					3285			
His	Arg	Val	Pro	Met	Asp	Val	Ala	Tyr	Ala	Arg	Gly	Tyr	Leu	Asp
3290						3295					3300			
Gln	Glu	Thr	Ser	Arg	Ala	Leu	Ser	Ala	Pro	Gln	Asp	Glu	Ala	Lys
3305						3310					3315			
Thr	Tyr	His	Asp	Pro	Ser	Thr	Gln	Glu	Pro	Val	Thr	Tyr	Gly	Gln
3320						3325					3330			
Leu	Gln	Gln	Gln	Cys	Arg	Pro	Asp	Pro	Leu	Thr	Gly	Leu	Ser	Leu
3335						3340					3345			
Leu	Pro	Leu	Ser	Glu	Gln	Ala	Ala	Gln	Ala	Arg	Arg	Glu	Gly	Leu
3350						3355					3360			
Tyr	Ser	Glu	Leu	Gln	Ala	Arg	Glu	Thr	Phe	Gln	Lys	Thr	Pro	Val
3365						3370					3375			
Glu	Val	Pro	Val	Gly	Ser	Phe	Lys	Gly	Arg	Thr	Val	Thr	Val	Trp
3380						3385					3390			
Glu	Leu	Leu	Ser	Ser	Glu	Tyr	Phe	Thr	Thr	Glu	Gln	Arg	Gln	Glu
3395						3400					3405			
Leu	Leu	Arg	Gln	Phe	Arg	Thr	Gly	Thr	Val	Thr	Val	Glu	Lys	Ile
3410						3415					3420			
Ile	Lys	Ile	Val	Ile	Thr	Ile	Val	Glu	Glu	Val	Glu	Thr	Val	Arg
3425						3430					3435			
Gln	Glu	Arg	Leu	Ser	Phe	Ser	Gly	Leu	Arg	Ala	Pro	Val	Pro	Ala
3440						3445					3450			
Ser	Glu	Leu	Leu	Ala	Ser	Gly	Val	Leu	Ser	Arg	Thr	Gln	Phe	Glu
3455						3460					3465			
Gln	Leu	Lys	Asp	Gly	Lys	Thr	Ser	Val	Lys	Asp	Leu	Ser	Glu	Leu
3470						3475					3480			
Ser	Ser	Val	Arg	Thr	Leu	Leu	Gln	Gly	Ser	Gly	Cys	Leu	Ala	Gly
3485						3490					3495			
Ile	Tyr	Leu	Glu	Glu	Ser	Lys	Glu	Lys	Val	Thr	Ile	Tyr	Glu	Ala
3500						3505					3510			
Met	Arg	Arg	Gly	Leu	Leu	Arg	Pro	Ser	Thr	Ala	Thr	Leu	Leu	Leu
3515						3520					3525			
Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Leu	Ile	Asp	Pro	Val	Arg	Asn
3530						3535					3540			

Gln	Arg	Leu	Tyr	Val	His	Glu	Ala	Val	Lys	Ala	Gly	Val	Val	Gly
3545						3550					3555			
Pro	Glu	Leu	His	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Lys	Ala	Val	Thr
3560						3565					3570			
Gly	Tyr	Lys	Asp	Pro	Tyr	Ser	Gly	Ser	Thr	Ile	Ser	Leu	Phe	Gln
3575						3580					3585			
Ala	Met	Lys	Lys	Gly	Leu	Val	Leu	Arg	Glu	His	Gly	Ile	Arg	Leu
3590						3595					3600			
Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Val	His
3605						3610					3615			
Ser	His	Arg	Leu	Pro	Val	Asp	Val	Ala	Tyr	Gln	Arg	Gly	Tyr	Phe
3620						3625					3630			
Asp	Glu	Glu	Met	Asn	Arg	Val	Leu	Ala	Asp	Pro	Ser	Asp	Asp	Thr
3635						3640					3645			
Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	His	Glu	Asn	Leu	Thr	Tyr	Leu
3650						3655					3660			
Gln	Leu	Leu	Glu	Arg	Cys	Val	Glu	Asp	Pro	Glu	Thr	Gly	Leu	Arg
3665						3670					3675			
Leu	Leu	Pro	Leu	Lys	Gly	Ala	Glu	Lys	Thr	Glu	Val	Val	Glu	Ser
3680						3685					3690			
Thr	Gln	Val	Tyr	Thr	Glu	Glu	Glu	Thr	Arg	Arg	Ala	Phe	Glu	Glu
3695						3700					3705			
Thr	Gln	Ile	Asp	Ile	Pro	Gly	Ser	Ala	Gly	Arg	Ser	Gly	Ser	Thr
3710						3715					3720			
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3755						3760					3765			
Glu	Ile	Val	Arg	Gln	Gln	Asn	Leu	Ala	Ser	Tyr	Asp	Tyr	Val	Arg
3770						3775					3780			
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Ala Arg 3860	Phe Leu Leu Glu Ala 3865	Gln Ala Ala Thr Gly 3870	Phe Leu Leu
Glu Pro 3875	Val Lys Gly Glu Arg 3880	Leu Thr Val Asp Glu 3885	Ala Val Arg
Lys Gly 3890	Leu Val Gly Pro Glu 3895	Leu His Asp Arg Leu 3900	Leu Ser Ala
Glu Arg 3905	Ala Val Thr Gly Tyr 3910	Arg Asp Pro Tyr Thr 3915	Glu Gln Thr
Ile Ser 3920	Leu Phe Gln Ala Met 3925	Lys Lys Asp Leu Ile 3930	Pro Thr Asp
Glu Ala 3935	Leu Arg Leu Leu Asp 3940	Ala Gln Leu Ala Thr 3945	Gly Gly Ile
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Gln Arg 3965	Gly Tyr Leu Asn Lys 3970	Asp Thr His Asp Gln 3975	Leu Ser Glu
Pro Ser 3980	Glu Val Arg Ser Tyr 3985	Leu Asp Pro Ser Thr 3990	Asp Glu Arg
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Glu Gly 4070	Thr Ser Cys Ile Ala 4075	Gly Val Phe Val Asp 4080	Ala Thr Lys

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Tyr	Tyr	Glu	Ala	Gly	Gln	Arg	Phe	Leu	Glu	Ala	Gln	Tyr	Leu	Thr
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Val	Glu	Glu	Gly	Thr	Gly	Leu	Arg	Leu	Leu	Glu	Ala	Ala	Ala	Gln
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Gly Ser Arg Arg Gly Ser Phe Asp Ala Thr Gly Ser Gly Phe Ser  
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Met Thr Phe Ser Ser Ser Ser Tyr Ser Ser Ser Gly Tyr Gly Arg  
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Glu Arg Ala Ile Ile Ala Ala Met Glu Glu Val Asp Glu Leu Arg Ser  
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Leu Phe Leu Thr Arg Ile Asp Gly Ile Gln Arg Val Asp Ala Leu Glu  
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Asn Thr Ala Lys Glu Gly Arg Asp Ala Thr Pro Ala Lys Ser Lys Lys  
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Gly Asp Leu Ala Ser Val Pro Lys Lys Pro Arg Val Gly Ala Val Gly  
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gag aga aaa gaa aaa ggg aaa agt ggc agg gga ggg gag tgg tac aac 288  
Glu Arg Lys Glu Lys Gly Lys Ser Gly Arg Gly Gly Glu Trp Tyr Asn  
85 90 95

acc ccc tgc agt gag ctg acg ctg cgc cac ctg gaa gag gtg atg caa 336  
Thr Pro Cys Ser Glu Leu Thr Leu Arg His Leu Glu Glu Val Met Gln  
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Leu Ala Thr Glu Ala Ile Ala Ala Ser Ala Ala Gln Lys Glu Lys Ser  
115 120 125

cat ctg cat gag gtg cgg cag agt gcc ctc gag aag gag gtg gag gcg 432  
His Leu His Glu Val Arg Gln Ser Ala Leu Glu Lys Glu Val Glu Ala  
130 135 140

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tcg cag cag gtg cag gag atg gaa atg aaa cta cgc aaa ttg gag acc 528

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Lys	Met	Gln	Arg	Gln	Arg	Glu	Glu	Leu	Ile	Asp	Glu	Val	Leu	Lys	Arg	
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Gln	Glu	Ala	Leu	Arg	Ser	Leu	Val	Ala	Thr	Glu	Leu	Asp	Ala	Val	Met	
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Glu	Asp	Arg	Val	Lys	Ser	Ile	Ala	Glu	Ser	His	Leu	Gln	Gln	Leu	Leu	
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Arg	Arg	Val	His	Glu	Gln	Gln	Thr	Asp	Met	Ile	Val	Arg	Ser	Glu	His	
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Gln	Arg	Leu	Asp	Asp	Leu	Ala	Ala	Ala	Gln	Glu	Arg	Leu	Arg	Asp	Glu	
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Leu	Arg	Val	Ala	Val	Glu	Lys	Gln	Arg	Glu	Glu	Val	Arg	Met	Ala	Ile	
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Gln 465	Leu	Arg	Gly	Glu	Thr 470	Ala	Arg	Gln	Ile	Asp 475	Ala	Ala	Arg	Gln	Ala 480	
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Asn	Val	Ala	Leu	Gln	Ala	Leu	Glu	Glu	Glu	Gln	Arg	Ala	Leu	Arg	Glu	
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Phe	Pro	His	Ile	Thr	Val	Thr 695	Gln	Pro	Thr	Lys	Leu	Thr	Thr	Glu	Ser	
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Gly	Val	Val	Gln	Ser	Pro	Gly	Val	Pro	Tyr	Gly	Leu	Asn	Gln	Gly	Lys	
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Asn Thr Ala Lys Glu Gly Arg Asp Ala Thr Pro Ala Lys Ser Lys Lys  
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Gly Asp Leu Ala Ser Val Pro Lys Lys Pro Arg Val Gly Ala Val Gly  
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Glu Arg Lys Glu Lys Gly Lys Ser Gly Arg Gly Gly Glu Trp Tyr Asn  
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Thr Pro Cys Ser Glu Leu Thr Leu Arg His Leu Glu Glu Val Met Gln  
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Glu Leu Ile Gln Arg Leu Gln Glu Arg Val Ser Gln Leu Glu Leu Lys  
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Ala	Ala 290	Ile	Asp	Pro	Ser	Pro 295	Ala	Ala	Ala	Gly	Pro 300	Leu	Asp	Phe	Arg		
Ser 305	Leu	Arg	Leu	Asp	Val 310	Asp	Val	Leu	Arg	Gln 315	Asp	Leu	Val	Arg	Cys 320		
Ile	Val	Glu	Ile	Glu 325	Lys	Val	Met	Asp	Gln 330	Gln	Gln	Arg	Leu	Gly 335	Val		
Arg	Val	His	Ser 340	Cys	Val	Ser	Thr	Val 345	Gln	Arg	His	Gln	Thr 350	Asp	Ile		
Asp	Gly	Leu 355	Ser	Asp	Gln	Gln	Lys 360	Thr	Leu	Ile	Gln	Ser 365	His	Met	Ala		
Arg	Leu 370	Glu	Thr	Gln	Gln	Ala 375	Thr	Ala	Thr	Ala	Arg 380	Gln	Glu	Lys	His		
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Gln	Glu	Val	Ser	Thr 485	Asp	Glu	Thr	Gln	Arg 490	Leu	Leu	Gln	Asp 495	Thr	Gln		
Glu	Glu	Leu	Arg 500	Arg	Met	Gln	Asn	Asn 505	Leu	Lys	Asp	Ser 510	Ala	Val	Leu		
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520

525

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Pro Arg Ser Leu His Pro His Val Pro Gly Val Thr Asn Leu Gln Val
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Arg Ser Pro His Val Gln Thr Met Gln Gly Pro Leu Gly Cys Pro Pro
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Lys Val Gln Ser Gly Ser Glu Ser Val Ile Gln Glu Tyr Val Asp			
1445	1450	1455	
ctg cgt aca cgc tac agt gag ctg acc aca ctc acg agt cag tac			4419
Leu Arg Thr Arg Tyr Ser Glu Leu Thr Thr Leu Thr Ser Gln Tyr			
1460	1465	1470	
atc aag ttc atc agt gag aca ctg cgc cgc atg gaa gag gaa gag			4464
Ile Lys Phe Ile Ser Glu Thr Leu Arg Arg Met Glu Glu Glu Glu			
1475	1480	1485	
cgg ctg gct gag caa cag cgg gca gag gag cgg gag cgc ctg gcc			4509
Arg Leu Ala Glu Gln Gln Arg Ala Glu Glu Arg Glu Arg Leu Ala			
1490	1495	1500	
gag gtg gag gcc gcg ctg gag aag cag cgg cag ctg gct gag gcc			4554
Glu Val Glu Ala Ala Leu Glu Lys Gln Arg Gln Leu Ala Glu Ala			
1505	1510	1515	
cat gcc cag gcc aag gca cag gcc gag ctg gag gca cga gaa ctg			4599
His Ala Gln Ala Lys Ala Gln Ala Glu Leu Glu Ala Arg Glu Leu			
1520	1525	1530	
cag cgg cgc atg cag gag gag gtg acg cgg cgc gag gag gcg gcg			4644
Gln Arg Arg Met Gln Glu Glu Val Thr Arg Arg Glu Glu Ala Ala			
1535	1540	1545	
gtg gac gca cag caa cag aag cgc agc atc caa gag gag ctg cag			4689
Val Asp Ala Gln Gln Gln Lys Arg Ser Ile Gln Glu Glu Leu Gln			
1550	1555	1560	
cat ctg cgg caa agc tca gag gca gag atc cag gcc aag gcc cag			4734
His Leu Arg Gln Ser Ser Glu Ala Glu Ile Gln Ala Lys Ala Gln			
1565	1570	1575	
cag gtg gag gct gca gag cgc agc cgc atg cgc att gag gaa gag			4779
Gln Val Glu Ala Ala Glu Arg Ser Arg Met Arg Ile Glu Glu Glu			
1580	1585	1590	
atc cgc gta gtc cgt ctg cag cta gag aca act gag cgt cag cgt			4824
Ile Arg Val Val Arg Leu Gln Leu Glu Thr Thr Glu Arg Gln Arg			
1595	1600	1605	
gga ggg gcg gag gat gag ctg cag gct ctg cgt gca cgg gct gag			4869
Gly Gly Ala Glu Asp Glu Leu Gln Ala Leu Arg Ala Arg Ala Glu			
1610	1615	1620	
gag gca gaa gca cag aag cgg cag gct cag gag gaa gcc gag cgc			4914
Glu Ala Glu Ala Gln Lys Arg Gln Ala Gln Glu Glu Ala Glu Arg			
1625	1630	1635	
ttg cgg agg cag gtg cag gat gag agc caa cgc aaa cgg cag gcg			4959
Leu Arg Arg Gln Val Gln Asp Glu Ser Gln Arg Lys Arg Gln Ala			
1640	1645	1650	
gag gcc gag ctg gcc ctg cgt gtg aag gca gaa gcg gag gca gcg			5004
Glu Ala Glu Leu Ala Leu Arg Val Lys Ala Glu Ala Glu Ala Ala			
1655	1660	1665	
cga gag aag cag cgg gcc ctg cag gct ctg gat gaa ctg aaa ctg			5049
Arg Glu Lys Gln Arg Ala Leu Gln Ala Leu Asp Glu Leu Lys Leu			

1670	1675	1680	
cag gcc gag gag gcc gaa cgg tgg ctg tgc caa gcc gag gca gag Gln Ala Glu Glu Ala Glu Arg Trp Leu Cys Gln Ala Glu Ala Glu 1685 1690 1695			5094
agg gct cgc caa gtg cag gta gcc ctg gag aca gcg cag cgt agt Arg Ala Arg Gln Val Gln Val Ala Leu Glu Thr Ala Gln Arg Ser 1700 1705 1710			5139
gca gaa gtg gag ctg cag agc aag cgt ccg tcc ttt gca gag aag Ala Glu Val Glu Leu Gln Ser Lys Arg Pro Ser Phe Ala Glu Lys 1715 1720 1725			5184
acc gca cag ttg gag cgc acg ctg cag gaa gag cac gtg aca gtg Thr Ala Gln Leu Glu Arg Thr Leu Gln Glu Glu His Val Thr Val 1730 1735 1740			5229
aca cag ctg cgg gag gag gcg gaa cgg cgg gca cag cag cag gct Thr Gln Leu Arg Glu Glu Ala Glu Arg Arg Ala Gln Gln Gln Ala 1745 1750 1755			5274
gaa gcc gag cga gcc cgt gag gaa gcc gag cgg gag ctg gag cgc Glu Ala Glu Arg Ala Arg Glu Glu Ala Glu Arg Glu Leu Glu Arg 1760 1765 1770			5319
tgg cag ctg aag gcc aat gag gcg ctg cgg ctg cgg ctg cag gca Trp Gln Leu Lys Ala Asn Glu Ala Leu Arg Leu Arg Leu Gln Ala 1775 1780 1785			5364
gag gag gtg gca cag cag aag agc ctg gcc cag gcc gat gcg gag Glu Glu Val Ala Gln Gln Lys Ser Leu Ala Gln Ala Asp Ala Glu 1790 1795 1800			5409
aag cag aag gaa gag gca gaa cgg gaa gcc cgg cgg cgg ggc aag Lys Gln Lys Glu Glu Ala Glu Arg Glu Ala Arg Arg Arg Gly Lys 1805 1810 1815			5454
gca gag gag cag gcc gtg cgg cag cga gag ctg gct gag cag gag Ala Glu Glu Gln Ala Val Arg Gln Arg Glu Leu Ala Glu Gln Glu 1820 1825 1830			5499
ctg gag aag cag cgg cag ctg aca gag ggc acc gcc cag cag cgc Leu Glu Lys Gln Arg Gln Leu Thr Glu Gly Thr Ala Gln Gln Arg 1835 1840 1845			5544
ctg gct gcc gag cag gag ctg att cgc ctg cgg gca gag acg gag Leu Ala Ala Glu Gln Glu Leu Ile Arg Leu Arg Ala Glu Thr Glu 1850 1855 1860			5589
caa ggt gag cat cag cgg cag ctg ctg gag gaa gag ctg gcc cgg Gln Gly Glu His Gln Arg Gln Leu Leu Glu Glu Glu Leu Ala Arg 1865 1870 1875			5634
cta cag cac gaa gcg aca gca gcc aca cag aag cgc cag gag ctg Leu Gln His Glu Ala Thr Ala Ala Thr Gln Lys Arg Gln Glu Leu 1880 1885 1890			5679
gag gct gag ctg gcg aag gtt cgg gca gag atg gag gta ctg ctg Glu Ala Glu Leu Ala Lys Val Arg Ala Glu Met Glu Val Leu Leu 1895 1900 1905			5724
gcc agc aag gca cga gcc gaa gag gag tct cgc tcc acc agt gaa Ala Ser Lys Ala Arg Ala Glu Glu Glu Ser Arg Ser Thr Ser Glu 1910 1915 1920			5769
aag tcc aag cag agg ctg gaa gct gag gca ggg cgg ttt cga gag Lys Ser Lys Gln Arg Leu Glu Ala Glu Ala Gly Arg Phe Arg Glu 1925 1930 1935			5814
ctg gct gag gag gct gcc cgc ctg cgt gct ctg gcc gag gag gca Leu Ala Glu Glu Ala Ala Arg Leu Arg Ala Leu Ala Glu Glu Ala 1940 1945 1950			5859

1940					1945					1950					
agg	cgg	cac	cgg	gag	ttg	gcc	gag	gag	gac	gcg	gca	cgc	cag	cgg	5904
Arg	Arg	His	Arg	Glu	Leu	Ala	Glu	Glu	Asp	Ala	Ala	Arg	Gln	Arg	
	1955					1960					1965				
gcc	gag	gcg	gac	gga	gtg	ctt	acg	gag	aag	ctg	gct	gcc	atc	agt	5949
Ala	Glu	Ala	Asp	Gly	Val	Leu	Thr	Glu	Lys	Leu	Ala	Ala	Ile	Ser	
	1970					1975					1980				
gag	gcc	aca	agg	ctc	aag	acg	gag	gca	gag	att	gca	ctc	aaa	gag	5994
Glu	Ala	Thr	Arg	Leu	Lys	Thr	Glu	Ala	Glu	Ile	Ala	Leu	Lys	Glu	
	1985					1990					1995				
aag	gag	gcc	gag	aac	gag	cgc	ctg	agg	cgc	ctg	gct	gaa	gat	gag	6039
Lys	Glu	Ala	Glu	Asn	Glu	Arg	Leu	Arg	Arg	Leu	Ala	Glu	Asp	Glu	
	2000					2005					2010				
gcc	ttc	cag	cgg	cgc	cgg	ctg	gag	gag	cag	gca	gca	cag	cac	aag	6084
Ala	Phe	Gln	Arg	Arg	Arg	Leu	Glu	Glu	Gln	Ala	Ala	Gln	His	Lys	
	2015					2020					2025				
gca	gac	ata	gag	gag	cgc	ctg	gcc	cag	ctg	cgc	aag	gca	tcc	gag	6129
Ala	Asp	Ile	Glu	Glu	Arg	Leu	Ala	Gln	Leu	Arg	Lys	Ala	Ser	Glu	
	2030					2035					2040				
agc	gag	ctg	gag	cga	cag	aag	ggg	ttg	gtg	gag	gat	acc	ctg	cgg	6174
Ser	Glu	Leu	Glu	Arg	Gln	Lys	Gly	Leu	Val	Glu	Asp	Thr	Leu	Arg	
	2045					2050					2055				
cag	cgg	cgg	cag	gtg	gag	gag	gag	atc	atg	gct	ctg	aag	gcg	agc	6219
Gln	Arg	Arg	Gln	Val	Glu	Glu	Glu	Ile	Met	Ala	Leu	Lys	Ala	Ser	
	2060					2065					2070				
ttc	gag	aag	gcc	gcg	gct	ggc	aag	gca	gaa	ctg	gag	ctg	gag	ctt	6264
Phe	Glu	Lys	Ala	Ala	Ala	Gly	Lys	Ala	Glu	Leu	Glu	Leu	Glu	Leu	
	2075					2080					2085				
ggc	cgc	atc	cgc	agc	aat	gcc	gag	gac	acc	atg	cgc	agc	aag	gag	6309
Gly	Arg	Ile	Arg	Ser	Asn	Ala	Glu	Asp	Thr	Met	Arg	Ser	Lys	Glu	
	2090					2095					2100				
ctg	gcc	gag	cag	gag	gca	gcg	cgg	cag	cgg	cag	ttg	gca	gct	gag	6354
Leu	Ala	Glu	Gln	Glu	Ala	Ala	Arg	Gln	Arg	Gln	Leu	Ala	Ala	Glu	
	2105					2110					2115				
gag	gag	cag	agg	cgc	cgg	gaa	gcc	gag	gag	cgg	gtg	cag	agg	agc	6399
Glu	Glu	Gln	Arg	Arg	Arg	Glu	Ala	Glu	Glu	Arg	Val	Gln	Arg	Ser	
	2120					2125					2130				
ctg	gca	gcg	gag	gag	gaa	gcc	gca	cgg	cag	cgc	aag	gtc	gca	ctg	6444
Leu	Ala	Ala	Glu	Glu	Glu	Ala	Ala	Arg	Gln	Arg	Lys	Val	Ala	Leu	
	2135					2140					2145				
gag	gaa	gtc	gag	cgg	ctc	aag	gcc	aag	gtt	gag	gaa	gcg	cgg	cgc	6489
Glu	Glu	Val	Glu	Arg	Leu	Lys	Ala	Lys	Val	Glu	Glu	Ala	Arg	Arg	
	2150					2155					2160				
ctg	cga	gag	cga	gct	gag	cag	gag	tct	gcg	agg	cag	ctg	cag	ctg	6534
Leu	Arg	Glu	Arg	Ala	Glu	Gln	Glu	Ser	Ala	Arg	Gln	Leu	Gln	Leu	
	2165					2170					2175				
gcc	cag	gag	gct	gcc	cag	aaa	cgg	ctg	cag	gcg	gag	gag	aag	gcg	6579
Ala	Gln	Glu	Ala	Ala	Gln	Lys	Arg	Leu	Gln	Ala	Glu	Glu	Lys	Ala	
	2180					2185					2190				
cac	gcc	ttt	gtg	gtg	cag	cag	cga	gaa	gag	gag	ctg	cag	cag	act	6624
His	Ala	Phe	Val	Val	Gln	Gln	Arg	Glu	Glu	Glu	Leu	Gln	Gln	Thr	
	2195					2200					2205				
ctt	cag	caa	gag	cag	aac	atg	ctg	gag	cgg	ctg	cgg	agc	gag	gca	6669
Leu	Gln	Gln	Glu	Gln	Asn	Met	Leu	Glu	Arg	Leu	Arg	Ser	Glu	Ala	

2210	2215	2220	
gag gca gcg cgg cga gct gct Glu Ala 2225	gag gag gcg gag gag Glu Glu Ala Glu 2230	gag gag gcc cgg gag Glu Glu Ala Arg Glu 2235	6714
cag gca gaa cgt gag gca gcg Gln Ala Glu Arg Glu Ala Ala 2240	cag tct agg aag caa Gln Ser Arg Lys Glu 2245	gtg gaa gag Val Glu Glu 2250	6759
gcc gag cgg ctg aag cag tcg Ala Glu Arg Leu Lys Gln Ser 2255	gca gag gag cag gct Ala Glu Glu Gln Ala 2260	cag gcc cag Gln Ala Gln 2265	6804
gcc cag gcg cag gcg gct gca Ala Gln Ala Gln Ala Ala 2270	gag aaa ctg cgc aag Glu Lys Leu Arg Lys 2275	gaa gcg gag Glu Ala Glu 2280	6849
cag gag gcg gcg cgt cgg gcc Gln Glu Ala Ala Arg Arg Ala 2285	cag gcg gag cag gct Gln Ala Glu Gln Ala 2290	gcg ttg aaa Ala Leu Lys 2295	6894
cag aag cag gca gcc gac gcg Gln Lys Gln Ala Ala Asp Ala 2300	gag atg gag aag cac Glu Met Glu Lys His 2305	aag aag ttt Lys Lys Phe 2310	6939
gca gag cag acg cta cgg cag Ala Glu Gln Thr Leu Arg Gln 2315	aag gct cag gta gag Lys Ala Gln Val Glu 2320	cag gag ctg Gln Glu Leu 2325	6984
acc acg ctg agg ctg cag ctc Thr Thr Leu Arg Leu Gln Leu 2330	gag gag acc gac cac Glu Glu Thr Asp His 2335	cag aag agc Gln Lys Ser 2340	7029
atc ctg gat gag gag ctg cag Ile Leu Asp Glu Glu Leu Gln 2345	cgg cta aag gct gag Arg Leu Lys Ala Glu 2350	gta aca gag Val Thr Glu 2355	7074
gca gcc cgg cag cgt agc cag Ala Ala Arg Gln Arg Ser Gln 2360	gta gag gag gag ctc Val Glu Glu Glu Leu 2365	ttc tct gtc Phe Ser Val 2370	7119
cgc gtg cag atg gag gag ctg Arg Val Gln Met Glu Glu Leu 2375	ggc aaa ctc aag gct Gly Lys Leu Lys Ala 2380	cgc att gaa Arg Ile Glu 2385	7164
gct gaa aac cgg gca ctc atc Ala Glu Asn Arg Ala Leu Ile 2390	ctt cgt gac aag gac Leu Arg Asp Lys Asp 2395	aac aca cag Asn Thr Gln 2400	7209
cgc ttc ctg gag gag gag gcc Arg Phe Leu Glu Glu Glu Ala 2405	gag aag atg aaa cag Glu Lys Met Lys Gln 2410	gtg gca gag Val Ala Glu 2415	7254
gaa gct gca cgg ttg agc gta Glu Ala Ala Arg Leu Ser Val 2420	gct gcc cag gag gca Ala Ala Gln Glu Ala 2425	gca agg ctg Ala Arg Leu 2430	7299
cgg cag cta gcc gag gag gac Arg Gln Leu Ala Glu Glu Asp 2435	ctg gcc cag cag cgg Leu Ala Gln Gln Arg 2440	gcc ctg gcg Ala Leu Ala 2445	7344
gag aag atg ctg aag gag aag Glu Lys Met Leu Lys Glu Lys 2450	atg cag gcg gtg cag Met Gln Ala Val Gln 2455	gaa gcc aca Glu Ala Thr 2460	7389
agg ctc aag gct gag gct gag Arg Leu Lys Ala Glu Ala Glu 2465	ctg ctg cag cag cag Leu Leu Gln Gln Gln 2470	aag gag ctg Lys Glu Leu 2475	7434
gca cag gag cag gcc cgg cgg Ala Gln Glu Gln Ala Arg Arg 2479	ctg cag gcg gac aag Leu Gln Ala Asp Lys 2484	gag caa atg Glu Gln Met 2489	7479



2480	2485	2490	
gct cag cag ttg gta gag gag Ala Gln Gln Leu Val Glu Glu 2495	aca cag ggt ttc cag cgg acc ctg Thr Gln Gly Phe Gln Arg Thr Leu 2500	2505	7524
gag gct gag cgg cag cgg cag Glu Ala Glu Arg Gln Arg Glu 2510	cta gaa atg agc gca gag gct gaa Leu Glu Met Ser Ala Glu Ala Glu 2515	2520	7569
cgc ctc aag ttg cgc atg gct Arg Leu Lys Leu Arg Met Ala 2525	gag atg agc cgg gct cag gcc cgt Glu Met Ser Arg Ala Gln Ala Arg 2530	2535	7614
gca gag gag gat gcc cag cgc Ala Glu Glu Asp Ala Gln Arg 2540	ttc cgg aag cag gct gaa gag atc Phe Arg Lys Gln Ala Glu Glu Ile 2545	2550	7659
ggc gaa aag ctg cac cgc act Gly Glu Lys Leu His Arg Thr 2555	gaa ctc gct aca cag gag aag gtg Glu Leu Ala Thr Gln Glu Lys Val 2560	2565	7704
aca ttg gtg cag act ctc gag Thr Leu Val Gln Thr Leu Glu 2570	atc cag cga cag cag agt gac caa Ile Gln Arg Gln Gln Ser Asp Gln 2575	2580	7749
gat gcc gag cgt ctg agg gag Asp Ala Glu Arg Leu Arg Glu 2585	gcc att gct gag ctg gag cgt gag Ala Ile Ala Glu Leu Glu Arg Glu 2590	2595	7794
aag gag aag ctc aag cag gag Lys Glu Lys Leu Lys Gln Glu 2600	gcg aag tta ctg cag ctc aag tct Ala Lys Leu Leu Gln Leu Lys Ser 2605	2610	7839
gag gag atg cag act gtg cag Glu Glu Met Gln Thr Val Gln 2615	cag gag cag ata ctg cag gag aca Gln Glu Gln Ile Leu Gln Glu Thr 2620	2625	7884
cag gcc ctg cag aag agc ttt Gln Ala Leu Gln Lys Ser Phe 2630	ctc tct gag aag gac agc ttg ctg Leu Ser Glu Lys Asp Ser Leu Leu 2635	2640	7929
caa cgc gaa cgc ttc atc gag Gln Arg Glu Arg Phe Ile Glu 2645	cag gag aag gcc aag ctg gag cag Gln Glu Lys Ala Lys Leu Glu Gln 2650	2655	7974
ctt ttc cag gac gag gtg gca Leu Phe Gln Asp Glu Val Ala 2660	aaa gca aaa cag ctg cag gag gag Lys Ala Lys Gln Leu Gln Glu Glu 2665	2670	8019
cag cag cgg cag cag cag cag Gln Gln Arg Gln Gln Gln Glu 2675	atg gag cag gaa aag cag gag ctg Met Glu Gln Glu Lys Gln Glu Leu 2680	2685	8064
gtg gcc agc atg gag gag gcc Val Ala Ser Met Glu Glu Ala 2690	cgg agg cgg cag cgt gag gca gag Arg Arg Arg Gln Arg Glu Ala Glu 2695	2700	8109
gag ggt gtg agg cgc aag caa Glu Gly Val Arg Arg Lys Gln 2705	gag gaa ctg cag cgt ctg gag cag Glu Glu Leu Gln Arg Leu Glu Gln 2710	2715	8154
cag cgg cag cag cag gag aaa Gln Arg Gln Gln Gln Glu Lys 2720	cta ctg gca gag gag aac cag agg Leu Leu Ala Glu Glu Asn Gln Arg 2725	2730	8199
ctg cgg gag cgg ctg cag cgc Leu Arg Glu Arg Leu Gln Arg 2735	ctg gag gaa gag cac cga gct gcg Leu Glu Glu Glu His Arg Ala Ala 2740	2745	8244
ttg gcg cac tct gag gag atc Leu Ala His Ser Glu Glu Ile 2750	gcc acc tcc cag gct gct gcc aca Ala Thr Ser Gln Ala Ala Ala Thr 2755		8289

2750	2755	2760	
aaa gca ctg ccc aat ggc cgc gac gca ctt gat ggc ccc tcc atg			8334
Lys Ala Leu Pro Asn Gly Arg Asp Ala Leu Asp Gly Pro Ser Met			
2765	2770	2775	
gag gcc gag ccc gag tac acc ttt gag gga tta cgt cag aag gtg			8379
Glu Ala Glu Pro Glu Tyr Thr Phe Glu Gly Leu Arg Gln Lys Val			
2780	2785	2790	
cca gct cag cag cta cag gaa gca ggc att ctg agc atg gag gaa			8424
Pro Ala Gln Gln Leu Gln Glu Ala Gly Ile Leu Ser Met Glu Glu			
2795	2800	2805	
ctg cag cgt ttg aca cag ggt cac acc acg gtg gct gag ctc acg			8469
Leu Gln Arg Leu Thr Gln Gly His Thr Thr Val Ala Glu Leu Thr			
2810	2815	2820	
cag cgg gaa gat gtg cgc cac tac ctg aag ggc ggc agc agc atc			8514
Gln Arg Glu Asp Val Arg His Tyr Leu Lys Gly Gly Ser Ser Ile			
2825	2830	2835	
gca gga ttg ctc ctg aag ccc acc aat gag aaa ctg agt gtc tac			8559
Ala Gly Leu Leu Leu Lys Pro Thr Asn Glu Lys Leu Ser Val Tyr			
2840	2845	2850	
aca gcc cta cag cgg cag ctg ctc agc cct gga aca gcc ctt atc			8604
Thr Ala Leu Gln Arg Gln Leu Leu Ser Pro Gly Thr Ala Leu Ile			
2855	2860	2865	
tta ctt gag gcc cag gca gcc tcg ggc ttc ctg ctg gac cct gtc			8649
Leu Leu Glu Ala Gln Ala Ala Ser Gly Phe Leu Leu Asp Pro Val			
2870	2875	2880	
cgg aac cgg cgg ctg acg gtc aat gag gct gtg aag gag ggt gtg			8694
Arg Asn Arg Arg Leu Thr Val Asn Glu Ala Val Lys Glu Gly Val			
2885	2890	2895	
gtg ggt ccc gag ctg cac cac aag ctg ctg tca gct gag cgt gcc			8739
Val Gly Pro Glu Leu His His Lys Leu Leu Ser Ala Glu Arg Ala			
2900	2905	2910	
gtc act ggc tac aag gac cct tac aca gga gaa cag atc tct ctc			8784
Val Thr Gly Tyr Lys Asp Pro Tyr Thr Gly Glu Gln Ile Ser Leu			
2915	2920	2925	
ttc cag gcc atg aag aag gac ctc att gtc agg gac cat ggc atc			8829
Phe Gln Ala Met Lys Lys Asp Leu Ile Val Arg Asp His Gly Ile			
2930	2935	2940	
cgc ctg ctg gaa gcc cag atc gcc aca ggt ggc atc att gac cct			8874
Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro			
2945	2950	2955	
gta cac agc cac cgt gtt ccc gtg gac gtg gcc tac cag cgt ggc			8919
Val His Ser His Arg Val Pro Val Asp Val Ala Tyr Gln Arg Gly			
2960	2965	2970	
tac ttc gat gag gag atg aac cgt gtg ctg gct gac cca agc gat			8964
Tyr Phe Asp Glu Glu Met Asn Arg Val Leu Ala Asp Pro Ser Asp			
2975	2980	2985	
gac acc aag ggc ttc ttt gac ccc aac act cac gag aac ctc acg			9009
Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr His Glu Asn Leu Thr			
2990	2995	3000	
tac ctg cag ctg ctg gag cgc tgt gtg gag gac ccc gag aca ggc			9054
Tyr Leu Gln Leu Leu Glu Arg Cys Val Glu Asp Pro Glu Thr Gly			
3005	3010	3015	
ctg cgc ctc ctg cca ctc aca gac aag gct gcc aag ggt ggt gag			9099
Leu Arg Leu Leu Pro Leu Thr Asp Lys Ala Ala Lys Gly Gly Glu			

3020	3025	3030	
ctg gtg tac act gac acg gag gcc cgt gac gtc ttc gaa aag gcc Leu Val Tyr Thr Asp Thr Glu Ala Arg Asp Val Phe Glu Lys Ala 3035 3040 3045			9144
aca gtg tct gca cca ttc ggc aag ttc cag ggc aag acc gtg acc Thr Val Ser Ala Pro Phe Gly Lys Phe Gln Gly Lys Thr Val Thr 3050 3055 3060			9189
atc tgg gag atc atc aac tca gag tac ttc aca gcg gag cag cga Ile Trp Glu Ile Ile Asn Ser Glu Tyr Phe Thr Ala Glu Gln Arg 3065 3070 3075			9234
cgg gac ctg ctc cgg cag ttc cgc acg ggc cgc atc acg gtg gag Arg Asp Leu Leu Arg Gln Phe Arg Thr Gly Arg Ile Thr Val Glu 3080 3085 3090			9279
aag atc atc aag att gtc atc acg gtg gta gag gaa cac gag cgg Lys Ile Ile Lys Ile Val Ile Thr Val Val Glu Glu His Glu Arg 3095 3100 3105			9324
aag ggc cag ctc tgc ttt gag ggc ctc cgt gcc ctt gtg cct gct Lys Gly Gln Leu Cys Phe Glu Gly Leu Arg Ala Leu Val Pro Ala 3110 3115 3120			9369
gca gag ctg ctg gac agt gga gtc atc agt cat gaa gtc tac cag Ala Glu Leu Leu Asp Ser Gly Val Ile Ser His Glu Val Tyr Gln 3125 3130 3135			9414
cag ctg cag cgg ggt gag cgc tct gtg cgg gaa gtg gcc gag gca Gln Leu Gln Arg Gly Glu Arg Ser Val Arg Glu Val Ala Glu Ala 3140 3145 3150			9459
gac gag gtg agg cag gcc ctg cgg ggt acc agt gtc att gcc ggt Asp Glu Val Arg Gln Ala Leu Arg Gly Thr Ser Val Ile Ala Gly 3155 3160 3165			9504
gtg tgg ctg gaa gaa gca ggg cag aag ctg agc atc tat gag gcc Val Trp Leu Glu Glu Ala Gly Gln Lys Leu Ser Ile Tyr Glu Ala 3170 3175 3180			9549
ctg agg aga gat ttg ctg cag cca gag gtg gct gtg gcc ttg ctg Leu Arg Arg Asp Leu Leu Gln Pro Glu Val Ala Val Ala Leu Leu 3185 3190 3195			9594
gag gcc cag gct ggc act ggg cac atc att gac cct gcc acg agt Glu Ala Gln Ala Gly Thr Gly His Ile Ile Asp Pro Ala Thr Ser 3200 3205 3210			9639
gcc agg ctg act gtg gat gag gca gtg cgt gct ggc ctg gtg ggt Ala Arg Leu Thr Val Asp Glu Ala Val Arg Ala Gly Leu Val Gly 3215 3220 3225			9684
cct gag atg cac gag aag ctc ttg tca gct gag aag gct gta aca Pro Glu Met His Glu Lys Leu Leu Ser Ala Glu Lys Ala Val Thr 3230 3235 3240			9729
ggc tat agg gat ccc tac tcg gga cag agc gtc tcg ctc ttc cag Gly Tyr Arg Asp Pro Tyr Ser Gly Gln Ser Val Ser Leu Phe Gln 3245 3250 3255			9774
gct ctg aag aag ggt ctc atc ccc cga gaa cag ggc ctg cgc ctg Ala Leu Lys Lys Gly Leu Ile Pro Arg Glu Gln Gly Leu Arg Leu 3260 3265 3270			9819
ctg gat gcc cag tta tcc act ggt ggc att gta gac ccc agc aaa Leu Asp Ala Gln Leu Ser Thr Gly Gly Ile Val Asp Pro Ser Lys 3275 3280 3285			9864
agc cac cgt gtg ccc ctg gat gtt gcc tat gcc cgg ggc tac ctg Ser His Arg Val Pro Leu Asp Val Ala Tyr Ala Arg Gly Tyr Leu 3290 3295 3300			9909

3290		3295		3300	
gac aaa gag act aac agg gcc ctg acg tca ccc aga gac gat gcc 9954	Asp Lys Glu Thr Asn Arg Ala Leu Thr Ser Pro Arg Asp Asp Ala	3305	3310	3315	
aga gtc tac ctt gac ccc agc acc cgg gag cca gtc acc tac agc 9999	Arg Val Tyr Leu Asp Pro Ser Thr Arg Glu Pro Val Thr Tyr Ser	3320	3325	3330	
cag ctc caa cag cgg tgc cgg tct gac cag ctg act ggg ttg agc 10044	Gln Leu Gln Gln Arg Cys Arg Ser Asp Gln Leu Thr Gly Leu Ser	3335	3340	3345	
cta ctg ccc ctc tca gag aag gcc gtc cgg gcc cgg cag gaa gag 10089	Leu Leu Pro Leu Ser Glu Lys Ala Val Arg Ala Arg Gln Glu Glu	3350	3355	3360	
gtc tac tct gag ctc cag gcc cgt gag aca ttg gag aag gcc aag 10134	Val Tyr Ser Glu Leu Gln Ala Arg Glu Thr Leu Glu Lys Ala Lys	3365	3370	3375	
gtg gag gtt cct gtg ggc ggc ttt aag ggc agg gcg ctg aca gtg 10179	Val Glu Val Pro Val Gly Gly Phe Lys Gly Arg Ala Leu Thr Val	3380	3385	3390	
tgg gag ctc ata agc tcg gaa tac ttc act gag gag cag cgg cag 10224	Trp Glu Leu Ile Ser Ser Glu Tyr Phe Thr Glu Glu Gln Arg Gln	3395	3400	3405	
gag ctg cta cgg cag ttc cgc aca ggc aag gtc act gta gag aag 10269	Glu Leu Leu Arg Gln Phe Arg Thr Gly Lys Val Thr Val Glu Lys	3410	3415	3420	
gtc atc aag att ctt atc acc att gtg gag gag gtg gag act caa 10314	Val Ile Lys Ile Leu Ile Thr Ile Val Glu Glu Val Glu Thr Gln	3425	3430	3435	
cgg cag gag aga ctg tcc ttc agt ggc ctc cgt gcc cct gtg ccg 10359	Arg Gln Glu Arg Leu Ser Phe Ser Gly Leu Arg Ala Pro Val Pro	3440	3445	3450	
gcc agt gag ctc ctg gcc tcc aag atc ctc agc aga act cag ttt 10404	Ala Ser Glu Leu Leu Ala Ser Lys Ile Leu Ser Arg Thr Gln Phe	3455	3460	3465	
gag cag ctc aag gat ggc aag aca tca gtc aaa gat ctg tca gag 10449	Glu Gln Leu Lys Asp Gly Lys Thr Ser Val Lys Asp Leu Ser Glu	3470	3475	3480	
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ggc atc tat ctg gag gac tcg aag gag aaa gta acc atc tat gag 10539	Gly Ile Tyr Leu Glu Asp Ser Lys Glu Lys Val Thr Ile Tyr Glu	3500	3505	3510	
gcc atg cgc cgg ggc ctc ctc aga gcc agc aca gcc aca ctc ctg 10584	Ala Met Arg Arg Gly Leu Leu Arg Ala Ser Thr Ala Thr Leu Leu	3515	3520	3525	
ctg gag gcc cag gcg gcc act ggt ttt cta gtg gac cct gtg cgg 10629	Leu Glu Ala Gln Ala Ala Thr Gly Phe Leu Val Asp Pro Val Arg	3530	3535	3540	
aac caa cgt ctg tac gtc cat gaa gct gtc aag gct gga gtg gtg 10674	Asn Gln Arg Leu Tyr Val His Glu Ala Val Lys Ala Gly Val Val	3545	3550	3555	
ggc ccg gag ctc cat gag aag ctg ctg tcg gct gag aag gcg gtc 10719	Gly Pro Glu Leu His Glu Lys Leu Leu Ser Ala Glu Lys Ala Val				

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act ggt tac aaa gat ccc Thr Gly Tyr Lys Asp Pro	tac tct ggc agc acc Tyr Ser Gly Ser Thr	atc tcg ctg ttc Ile Ser Leu Phe	10764
3575	3580	3585	
cag gcc atg aag aag ggc Gln Ala Met Lys Lys Gly	ttg gtc ctc agg gac Leu Val Leu Arg Asp	cat gcc atc cgc His Ala Ile Arg	10809
3590	3595	3600	
ctg ctg gag gcc cag att Leu Leu Glu Ala Gln Ile	gcc aca ggt ggc atc Ala Thr Gly Gly Ile	att gac cct gtg Ile Ile Asp Pro Val	10854
3605	3610	3615	
cac agt cac cgc ctt ccc His Ser His Arg Leu Pro	gta gat gtt gcc tac Val Asp Val Ala Tyr	cag cgt ggc tac Gln Arg Gly Tyr	10899
3620	3625	3630	
ttc gat gag gag atg aac Phe Asp Glu Glu Met Asn	cgt gtg ctg gct gac Arg Val Leu Ala Asp	cca agt gat gac Pro Ser Asp Asp	10944
3635	3640	3645	
acc aag ggc ttc ttc gac Thr Lys Gly Phe Phe Asp	ccc aac acc cac gag Pro Asn Thr His Glu	aac ctc acg tac Asn Leu Thr Tyr	10989
3650	3655	3660	
ctg cag ctg ctg gag cgc Leu Gln Leu Leu Glu Arg	tgc gtg gag gac ccc Cys Val Glu Asp Pro	gag aca ggc ctg Glu Thr Gly Leu	11034
3665	3670	3675	
cgc ctc ctg cca ctc aga Arg Leu Leu Pro Leu Arg	ggg gca gag aag aca Gly Ala Glu Lys Thr	gag gtg gta gaa Glu Val Val Glu	11079
3680	3685	3690	
acc aca cag gtg tat act Thr Thr Gln Val Tyr Thr	gag glu gag act cgg Glu Glu Glu Thr Arg	agg gcg ttc gag Arg Ala Phe Glu	11124
3695	3700	3705	
gag acg cag att gac atc Glu Thr Gln Ile Asp Ile	cca ggt ggt ggc agc Pro Gly Gly Gly Ser	cac ggt ggc tcc His Gly Gly Ser	11169
3710	3715	3720	
tcc atg tct cta tgg gag Ser Met Ser Leu Trp Glu	gtg atg cag tca gac Val Met Gln Ser Asp	atg atc cca gag Met Ile Pro Glu	11214
3725	3730	3735	
gac cag cgt gcc cgg ctc Asp Gln Arg Ala Arg Leu	atg gcc gac ttt cag Met Ala Asp Phe Gln	gct ggc aga gtg Ala Gly Arg Val	11259
3740	3745	3750	
acc aag gag cgc atg atc Thr Lys Glu Arg Met Ile	att atc atc atc gaa Ile Ile Ile Ile Glu	atc att gag aag Ile Ile Glu Lys	11304
3755	3760	3765	
acg gag atc atc cgc cag Thr Glu Ile Ile Arg Gln	cag cag aac ctc gcc Gln Gln Asn Leu Ala	tcc tat gac tac gta Ser Tyr Asp Tyr Val	11349
3770	3775	3780	
cgc cgc cgc ctc acc gcc Arg Arg Arg Leu Thr Ala	gaa gac ctg tat gag Glu Asp Leu Tyr Glu	gcc cgg atc atc Ala Arg Ile Ile	11394
3785	3790	3795	
tcc ctt gag acc tac aac Ser Leu Glu Thr Tyr Asn	ctc ttc cgg gaa ggc Leu Phe Arg Glu Gly	acc aag agc ctc Thr Lys Ser Leu	11439
3800	3805	3810	
cgt gag gtt ctg gag atg Arg Glu Val Leu Glu Met	gaa tct gcc tgg cgc Glu Ser Ala Trp Arg	tac ctt tac ggc Tyr Leu Tyr Gly	11484
3815	3820	3825	
aca gga tcg gtg gcc ggt Thr Gly Ser Val Ala Gly	gtc tac ctg cct ggc Val Tyr Leu Pro Gly	tct agg cag acg Ser Arg Gln Thr	11529

3830	3835	3840	
cta acc atc tac cag gcc ctt aag aag ggg ctg ctg agt gcc gag Leu Thr Ile Tyr Gln Ala Leu Lys Lys Gly Leu Leu Ser Ala Glu 3845 3850 3855	11574		
gtg gcc cgc ttg ctg ctg gaa gca cag gca gcc aca ggc ttt ctg Val Ala Arg Leu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Leu 3860 3865 3870	11619		
ctg gac cca gtg aaa ggc gag agg ctg act gtg gac gag gcc gtg Leu Asp Pro Val Lys Gly Glu Arg Leu Thr Val Asp Glu Ala Val 3875 3880 3885	11664		
cgg aag ggt ctg gta ggc ccc gag ctg cac gat cgg ctc ctc tct Arg Lys Gly Leu Val Gly Pro Glu Leu His Asp Arg Leu Leu Ser 3890 3895 3900	11709		
gcc gag cga gct gta act ggc tac cga gac ccc tac acc gaa cag Ala Glu Arg Ala Val Thr Gly Tyr Arg Asp Pro Tyr Thr Glu Gln 3905 3910 3915	11754		
ccc atc tca ctc ttc cag gcc atg aag aag gag ctg atc cct gcc Pro Ile Ser Leu Phe Gln Ala Met Lys Lys Glu Leu Ile Pro Ala 3920 3925 3930	11799		
gag gag gca ctg agg ctg ctg gat gct cag cta gcc aca gga ggc Glu Glu Ala Leu Arg Leu Leu Asp Ala Gln Leu Ala Thr Gly Gly 3935 3940 3945	11844		
att gtg gac ccc cgc ctg ggt ttc cac ctc ccc ctg gag gtg gct Ile Val Asp Pro Arg Leu Gly Phe His Leu Pro Leu Glu Val Ala 3950 3955 3960	11889		
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gag ccc agt gag gtg cgc agc tat gtg gac ccc tcc acg gat gag Glu Pro Ser Glu Val Arg Ser Tyr Val Asp Pro Ser Thr Asp Glu 3980 3985 3990	11979		
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aac agc ggc cag atg ctg ctg ccg ctc tct gat gcc cgc aag ctg Asn Ser Gly Gln Met Leu Leu Pro Leu Ser Asp Ala Arg Lys Leu 4010 4015 4020	12069		
acc ttc cgc ggc ctg cgc aag cag atc acc gtg gag gag ctg gta Thr Phe Arg Gly Leu Arg Lys Gln Ile Thr Val Glu Glu Leu Val 4025 4030 4035	12114		
cgc tct cag gtc atg gat gag gcc aca gca ctg cag ctg caa gaa Arg Ser Gln Val Met Asp Glu Ala Thr Ala Leu Gln Leu Gln Glu 4040 4045 4050	12159		
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ctt gag ggt acc agc tgc att gct gga gtc ttt gtt gat gct acc Leu Glu Gly Thr Ser Cys Ile Ala Gly Val Phe Val Asp Ala Thr 4070 4075 4080	12249		
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cgt ccc ggg aca gcc ttc gag ctc ctg gaa gcg cag gca gcc acc Arg Pro Gly Thr Ala Phe Glu Leu Leu Glu Ala Gln Ala Ala Thr 12339			

4100	4105	4110	
ggc tac gtc att gac cct atc aag ggg ctc aag ctg act gtg gaa			12384
Gly Tyr Val Ile Asp Pro Ile Lys Gly Leu Lys Leu Thr Val Glu			
4115	4120	4125	
gag gcc gtg cgc atg ggt atc gtg ggc ccc gag ttc aag gac aag			12429
Glu Ala Val Arg Met Gly Ile Val Gly Pro Glu Phe Lys Asp Lys			
4130	4135	4140	
ctg ctg tct gct gag cgt gcc gtc act ggc tac aag gac cct tac			12474
Leu Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Lys Asp Pro Tyr			
4145	4150	4155	
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Ser Gly Lys Leu Ile Ser Leu Phe Gln Ala Met Lys Lys Gly Leu			
4160	4165	4170	
atc ctg aag gac cat ggc atc cgc ctg cta gag gct cag atc gcc			12564
Ile Leu Lys Asp His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala			
4175	4180	4185	
acc ggt ggc atc att gac cct gag gag agc cac cgc ctg cct gtg			12609
Thr Gly Gly Ile Ile Asp Pro Glu Glu Ser His Arg Leu Pro Val			
4190	4195	4200	
gaa gtg gcc tat aag cgt ggt ctc ttt gat gag gag atg aac gag			12654
Glu Val Ala Tyr Lys Arg Gly Leu Phe Asp Glu Glu Met Asn Glu			
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Ile Leu Thr Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro			
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aac acc gag gag aac ctc aca tac ctg cag ctg atg gag cgc tgt			12744
Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Met Glu Arg Cys			
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Ile Thr Asp Pro Gln Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu			
4250	4255	4260	
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Lys Lys Arg Glu Arg Lys Thr Ser Ser Lys Ser Ser Val Arg Lys			
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Arg Arg Val Val Ile Val Asp Pro Glu Thr Gly Lys Glu Met Ser			
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Val Tyr Glu Ala Tyr Arg Lys Gly Leu Ile Asp His Gln Thr Tyr			
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Leu Glu Leu Ser Glu Gln Glu Cys Glu Trp Glu Glu Ile Thr Ile			
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Ser Ser Ser Asp Gly Val Val Lys Ser Met Ile Ile Asp Arg Arg			
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Ser Gly Arg Gln Tyr Asp Ile Gly Asp Ala Ile Thr Lys Asn Leu			
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att gac cgc tca gca ctg gac cag tac cgc gct ggc aca ctt tct			13104
Ile Asp Arg Ser Ala Leu Asp Gln Tyr Arg Ala Gly Thr Leu Ser			
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atc acc gag ttt gcc gac atg ctc tca ggc aac gct ggt ggc ttc			13149
Ile Thr Glu Phe Ala Asp Met Leu Ser Gly Asn Ala Gly Gly Phe			

4370		4375		4380	
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Arg Ser	Arg Ser Ser Ser	Val Gly Ser Ser Ser	Tyr Pro Ile		
4385		4390	4395		
agt tct	gct gtc cct agg	acc cag cta gcc tcc tgg	tct gat cct	13239	
Ser Ser	Ala Val Pro Arg	Thr Gln Leu Ala Ser	Trp Ser Asp Pro		
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act gag	gag act ggc cca	gtg gcc ggc atc cta	gac aca gag act	13284	
Thr Glu	Glu Thr Gly Pro	Val Ala Gly Ile Leu	Asp Thr Glu Thr		
4415		4420	4425		
ctg gag	aag gtg tcc atc	aca gag gcc atg cac	cgc aac ctg gta	13329	
Leu Glu	Lys Val Ser Ile	Thr Glu Ala Met His	Arg Asn Leu Val		
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gac aac	atc act ggc cag	cgg ttg ctg gag gca	cag gcc tgc acc	13374	
Asp Asn	Ile Thr Gly Gln	Arg Leu Leu Glu Ala	Gln Ala Cys Thr		
4445		4450	4455		
ggg ggc	atc att gac ccc	agc act ggt gag cgc	ttc ccg gtc act	13419	
Gly Gly	Ile Ile Asp Pro	Ser Thr Gly Glu Arg	Phe Pro Val Thr		
4460		4465	4470		
gag gct	gtc aac aag ggc	ctg gtg gac aag atc	atg gta gac cgt	13464	
Glu Ala	Val Asn Lys Gly	Leu Val Asp Lys Ile	Met Val Asp Arg		
4475		4480	4485		
atc aat	ctg gcc cag aag	gcc ttc tgt ggg ttt	gag gac cca cgc	13509	
Ile Asn	Leu Ala Gln Lys	Ala Phe Cys Gly Phe	Glu Asp Pro Arg		
4490		4495	4500		
acc aag	acc aag atg tca	gct gcc cag gcc ctg	aag aag ggc tgg	13554	
Thr Lys	Thr Lys Met Ser	Ala Ala Gln Ala Leu	Lys Lys Gly Trp		
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ctt tac	tac gag gca ggc	cag cgt ttc ctc gag	gtg cag tac ctg	13599	
Leu Tyr	Tyr Glu Ala Gly	Gln Arg Phe Leu Glu	Val Gln Tyr Leu		
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acg ggt	ggg ctg att gag	cct gac aca cct ggc	cgt gtg tct ctt	13644	
Thr Gly	Gly Leu Ile Glu	Pro Asp Thr Pro Gly	Arg Val Ser Leu		
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gat gaa	gcc ttg caa cgt	ggc act gtg gat gcc	cgc aca gcc cag	13689	
Asp Glu	Ala Leu Gln Arg	Gly Thr Val Asp Ala	Arg Thr Ala Gln		
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Lys Leu	Arg Asp Val Ser	Ala Tyr Ser Lys Tyr	Leu Thr Cys Pro		
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Lys Thr	Lys Leu Lys Ile	Ser Tyr Lys Asp Ala	Leu Asp Arg Ser		
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Met Val	Glu Glu Gly Thr	Gly Leu Arg Leu Leu	Glu Ala Ala Ala		
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Gln Ser	Ser Lys Gly Tyr	Tyr Ser Pro Tyr Ser	Val Ser Gly Ser		
4610		4615	4620		
ggc tct	act gct ggt tca	cgc act ggt tca cgc	acc ggc tcc agg	13914	
Gly Ser	Thr Ala Gly Ser	Arg Thr Gly Ser Arg	Thr Gly Ser Arg		
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Ala Gly	Ser Arg Arg Gly	Ser Phe Asp Ala Thr	Gly Ser Gly Phe		



4640	4645	4650	
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Ser Met Thr Phe Ser Ser Ser	Ser Tyr Ser Ser Ser	Gly Tyr Gly	
4655	4660	4665	
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Arg Arg Tyr Ala Ser Gly Pro	Ser Ala Ser Leu Gly	Gly Pro Glu	
4670	4675	4680	
tct gca gtg gcc tgatcccca	gcctgtatcc tgccttcccg	ctctgcatgt	14101
Ser Ala Val Ala			
4685			
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 <212> PRT  
 <213> Rattus norvegicus

<400> 82

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1 5 10 15

Glu Val Leu Phe Arg Glu Gly Val Met Val Ala Lys Lys Asp Arg Arg
20 25 30

Pro Arg Ser Leu His Pro His Val Pro Gly Val Thr Asn Leu Gln Val
35 40 45

Met	Arg	Ala	Met	Thr	Ser	Leu	Lys	Ala	Arg	Gly	Leu	Val	Arg	Glu	Thr	50	55	60	
Phe	Ala	Trp	Cys	His	Phe	Tyr	Trp	Tyr	Leu	Thr	Asn	Glu	Gly	Ile	Asp	65	70	75	80
His	Leu	Arg	Gln	Tyr	Leu	His	Leu	Pro	Pro	Glu	Ile	Val	Pro	Ala	Ser	85	90	95	
Leu	Gln	Arg	Val	Arg	Arg	Pro	Val	Ala	Met	Val	Met	Pro	Ala	Arg	Arg	100	105	110	
Arg	Ser	Pro	His	Val	Gln	Thr	Met	Gln	Gly	Pro	Leu	Gly	Cys	Pro	Pro	115	120	125	
Lys	Arg	Gly	Pro	Leu	Pro	Ala	Glu	Asp	Pro	Ala	Arg	Glu	Glu	Arg	Gln	130	135	140	
Val	Tyr	Arg	Arg	Lys	Glu	Arg	Glu	Glu	Gly	Ala	Pro	Glu	Thr	Pro	Val	145	150	155	160
Val	Ser	Ala	Thr	Ile	Val	Gly	Thr	Leu	Ala	Arg	Pro	Gly	Pro	Glu	Pro	165	170	175	
Thr	Pro	Ala	Thr	Asp	Glu	Arg	Asp	Arg	Val	Gln	Lys	Lys	Thr	Ser	Thr	180	185	190	
Lys	Trp	Val	Asn	Lys	His	Leu	Ile	Lys	Ala	Gln	Arg	His	Ile	Ser	Asp	195	200	205	
Leu	Tyr	Glu	Asp	Leu	Arg	Asp	Gly	His	Asn	Leu	Ile	Ser	Leu	Leu	Glu	210	215	220	
Val	Leu	Ser	Gly	Asp	Ser	Leu	Pro	Arg	Glu	Lys	Gly	Arg	Met	Arg	Phe	225	230	235	240
His	Lys	Leu	Gln	Asn	Val	Gln	Ile	Ala	Leu	Asp	Tyr	Leu	Arg	His	Arg	245	250	255	
Gln	Val	Lys	Leu	Val	Asn	Ile	Arg	Asn	Asp	Asp	Ile	Ala	Asp	Gly	Asn	260	265	270	
Pro	Lys	Leu	Thr	Leu	Gly	Leu	Ile	Trp	Thr	Ile	Ile	Leu	His	Phe	Lys	275	280	285	
Ile	Ser	Asp	Ile	Gln	Val	Ser	Gly	Gln	Ser	Glu	Asp	Met	Thr	Ala	Lys	290	295	300	
Glu	Lys	Leu	Leu	Leu	Trp	Ser	Gln	Arg	Met	Val	Glu	Gly	Tyr	Gln	Gly	305	310	315	320
Leu	Arg	Cys	Asp	Asn	Phe	Thr	Thr	Ser	Trp	Arg	Asp	Gly	Arg	Leu	Phe	325	330	335	

Asn Ala Ile Ile His Arg His Lys Pro Met Leu Ile Asp Met Asn Lys  
340 345 350

Val Tyr Arg Gln Thr Asn Leu Glu Asn Leu Asp Gln Ala Phe Ser Val  
355 360 365

Ala Glu Arg Asp Leu Gly Val Thr Arg Leu Leu Asp Pro Glu Asp Val  
370 375 380

Asp Val Pro Gln Pro Asp Glu Lys Ser Ile Ile Thr Tyr Val Ser Ser  
385 390 395 400

Leu Tyr Asp Ala Met Pro Arg Val Pro Gly Ala Gln Asp Gly Val Arg  
405 410 415

Ala Asn Glu Leu Gln Leu Arg Trp Gln Glu Tyr Arg Glu Leu Val Leu  
420 425 430

Leu Leu Leu Gln Trp Ile Arg His His Thr Ala Ala Phe Glu Glu Arg  
435 440 445

Lys Phe Pro Ser Ser Phe Glu Glu Ile Glu Ile Leu Trp Cys Gln Phe  
450 455 460

Leu Lys Phe Lys Glu Thr Glu Leu Pro Ala Lys Glu Ala Asp Lys Asn  
465 470 475 480

Arg Ser Lys Gly Ile Tyr Gln Ser Leu Glu Gly Ala Val Gln Ala Gly  
485 490 495

Gln Leu Lys Ile Pro Pro Gly Tyr His Pro Leu Asp Val Glu Lys Glu  
500 505 510

Trp Gly Lys Leu His Val Ala Ile Leu Glu Arg Glu Lys Gln Leu Arg  
515 520 525

Ser Glu Phe Glu Arg Leu Glu Cys Leu Gln Arg Ile Val Ser Lys Leu  
530 535 540

Gln Met Glu Ala Gly Leu Cys Glu Glu Gln Leu Tyr Gln Ala Asp Ser  
545 550 555 560

Leu Leu Gln Ser Asp Ile Arg Leu Leu Ala Ser Gly Lys Ala Ala Gln  
565 570 575

Arg Ala Gly Glu Val Glu Arg Asp Leu Asp Lys Ala Asp Gly Met Ile  
580 585 590

Arg Leu Leu Phe Asn Asp Val Gln Thr Leu Lys Asp Gly Arg His Pro  
595 600 605

Gln Gly Glu Gln Met Tyr Arg Arg Val Tyr Arg Leu His Glu Arg Leu  
610 615 620

Val Ala Ile Arg Thr Glu Tyr Asn Leu Arg Leu Lys Ala Gly Val Gly  
625 630 635 640

Ala Pro Val Thr Gln Val Thr Leu Gln Ser Thr Gln Arg Arg Pro Glu  
645 650 655

Leu Glu Asp Ser Thr Leu Arg Tyr Leu His Asp Leu Leu Ala Trp Val  
660 665 670

Glu Glu Asn Gln Arg Arg Ile Asp Gly Ala Glu Trp Gly Val Asp Leu  
675 680 685

Pro Ser Val Glu Ala Gln Leu Gly Ser His Arg Gly Met His Gln Ser  
690 695 700

Ile Glu Glu Phe Arg Ala Lys Ile Glu Arg Ala Arg Asn Asp Glu Ser  
705 710 715 720

Gln Leu Ser Pro Ala Thr Arg Gly Ala Tyr Arg Asp Cys Leu Gly Arg  
725 730 735

Leu Asp Leu Gln Tyr Ala Lys Leu Leu Asn Ser Ser Lys Ala Arg Leu  
740 745 750

Arg Ser Leu Glu Ser Leu His Gly Phe Val Ala Ala Ala Thr Lys Glu  
755 760 765

Leu Met Trp Leu Asn Glu Lys Glu Glu Glu Glu Val Gly Phe Asp Trp  
770 775 780

Ser Asp Arg Asn Thr Asn Met Ala Ala Lys Lys Glu Ser Tyr Ser Ala  
785 790 795 800

Leu Met Arg Glu Leu Glu Met Lys Glu Lys Lys Ile Lys Glu Ile Gln  
805 810 815

Asn Thr Gly Asp Arg Leu Leu Arg Glu Asp His Pro Ala Arg Pro Thr  
820 825 830

Val Glu Ser Phe Gln Ala Ala Leu Gln Thr Gln Trp Ser Trp Met Leu  
835 840 845

Gln Leu Cys Cys Cys Ile Glu Ala His Leu Lys Glu Asn Thr Ala Tyr  
850 855 860

Phe Gln Phe Phe Ser Asp Val Arg Glu Ala Glu Glu Gln Leu Gln Lys  
865 870 875 880

Leu Gln Glu Thr Leu Arg Arg Lys Tyr Ser Cys Asp Arg Ser Ile Thr  
885 890 895

Val Thr Arg Leu Glu Asp Leu Leu Gln Asp Ala Gln Asp Glu Lys Glu  
900 905 910

Gln Leu Asn Glu Tyr Lys Gly His Leu Ser Gly Leu Ala Lys Arg Ala  
915 920 925

Lys Ala Ile Val Gln Leu Lys Pro Arg Asn Pro Ala His Pro Val Arg  
930 935 940

Gly His Val Pro Leu Leu Ala Val Cys Asp Tyr Lys Gln Val Glu Val  
945 950 955 960

Thr Val His Lys Gly Asp Gln Cys Gln Leu Val Gly Pro Ala Gln Pro  
965 970 975

Phe His Trp Lys Val Leu Ser Ser Ser Gly Ser Glu Ala Ala Val Pro  
980 985 990

Ser Val Cys Phe Leu Val Pro Pro Pro Asn Gln Glu Ala Gln Glu Ala  
995 1000 1005

Val Ala Arg Leu Glu Ala Gln His Gln Ala Leu Val Thr Leu Trp  
1010 1015 1020

His Gln Leu His Val Asp Met Lys Ser Leu Leu Ala Trp Gln Ser  
1025 1030 1035

Leu Asn Arg Asp Ile Gln Leu Ile Arg Ser Trp Ser Leu Val Thr  
1040 1045 1050

Phe Arg Thr Leu Lys Pro Glu Glu Gln Arg Gln Ala Leu Arg Asn  
1055 1060 1065

Leu Glu Leu His Tyr Gln Ala Phe Leu Arg Asp Ser Gln Asp Ala  
1070 1075 1080

Gly Gly Phe Gly Pro Glu Asp Arg Leu Val Ala Glu Arg Glu Tyr  
1085 1090 1095

Gly Ser Cys Ser Arg His Tyr Gln Gln Leu Leu Gln Ser Leu Glu  
1100 1105 1110

Gln Gly Glu Gln Glu Glu Ser Arg Cys Gln Arg Cys Ile Ser Glu  
1115 1120 1125

Leu Lys Asp Ile Arg Leu Gln Leu Glu Ala Cys Glu Thr Arg Thr  
1130 1135 1140

Val His Arg Leu Arg Leu Pro Leu Asp Lys Asp Pro Ala Arg Glu  
1145 1150 1155

Cys Ala Gln Arg Ile Ala Glu Gln Gln Lys Ala Gln Ala Glu Val  
1160 1165 1170

Glu Gly Leu Gly Lys Gly Val Ala Arg Leu Ser Ala Glu Ala Glu  
1175 1180 1185

Lys	Val	Leu	Ala	Leu	Pro	Glu	Pro	Ser	Pro	Ala	Ala	Pro	Thr	Leu
	1190					1195					1200			
Arg	Ser	Glu	Leu	Glu	Leu	Thr	Leu	Gly	Lys	Leu	Glu	Gln	Val	Arg
	1205					1210					1215			
Ser	Leu	Ser	Ala	Ile	Tyr	Leu	Glu	Lys	Leu	Lys	Thr	Ile	Ser	Leu
	1220					1225					1230			
Val	Ile	Arg	Ser	Thr	Gln	Gly	Ala	Glu	Glu	Val	Leu	Lys	Thr	His
	1235					1240					1245			
Glu	Glu	His	Leu	Lys	Glu	Ala	Gln	Ala	Val	Pro	Ala	Thr	Leu	Gln
	1250					1255					1260			
Glu	Leu	Glu	Val	Thr	Lys	Ala	Ser	Leu	Lys	Lys	Leu	Arg	Ala	Gln
	1265					1270					1275			
Ala	Glu	Ala	Gln	Gln	Pro	Val	Phe	Asn	Thr	Leu	Arg	Asp	Glu	Leu
	1280					1285					1290			
Arg	Gly	Ala	Gln	Glu	Val	Gly	Glu	Arg	Leu	Gln	Gln	Arg	His	Gly
	1295					1300					1305			
Glu	Arg	Asp	Val	Glu	Val	Glu	Arg	Trp	Arg	Glu	Arg	Val	Thr	Gln
	1310					1315					1320			
Leu	Leu	Glu	Arg	Trp	Gln	Ala	Val	Leu	Ala	Gln	Thr	Asp	Val	Arg
	1325					1330					1335			
Gln	Arg	Glu	Leu	Glu	Gln	Leu	Gly	Arg	Gln	Leu	Arg	Tyr	Tyr	Arg
	1340					1345					1350			
Glu	Ser	Ala	Asp	Pro	Leu	Ser	Ser	Trp	Leu	Gln	Asp	Ala	Lys	Ser
	1355					1360					1365			
Arg	Gln	Glu	Gln	Ile	Gln	Ala	Val	Pro	Ile	Ala	Asn	Ser	Gln	Ala
	1370					1375					1380			
Ala	Arg	Glu	Gln	Leu	Arg	Gln	Glu	Lys	Ala	Leu	Leu	Glu	Glu	Ile
	1385					1390					1395			
Glu	Arg	His	Gly	Glu	Lys	Val	Glu	Glu	Cys	Gln	Lys	Phe	Ala	Lys
	1400					1405					1410			
Gln	Tyr	Ile	Asn	Ala	Ile	Lys	Asp	Tyr	Glu	Leu	Gln	Leu	Ile	Thr
	1415					1420					1425			
Tyr	Lys	Ala	Gln	Leu	Glu	Pro	Val	Ala	Ser	Pro	Ala	Lys	Lys	Pro
	1430					1435					1440			
Lys	Val	Gln	Ser	Gly	Ser	Glu	Ser	Val	Ile	Gln	Glu	Tyr	Val	Asp
	1445					1450					1455			

Leu	Arg	Thr	Arg	Tyr	Ser	Glu	Leu	Thr	Thr	Leu	Thr	Ser	Gln	Tyr
1460						1465					1470			
Ile	Lys	Phe	Ile	Ser	Glu	Thr	Leu	Arg	Arg	Met	Glu	Glu	Glu	Glu
1475						1480					1485			
Arg	Leu	Ala	Glu	Gln	Gln	Arg	Ala	Glu	Glu	Arg	Glu	Arg	Leu	Ala
1490						1495					1500			
Glu	Val	Glu	Ala	Ala	Leu	Glu	Lys	Gln	Arg	Gln	Leu	Ala	Glu	Ala
1505						1510					1515			
His	Ala	Gln	Ala	Lys	Ala	Gln	Ala	Glu	Leu	Glu	Ala	Arg	Glu	Leu
1520						1525					1530			
Gln	Arg	Arg	Met	Gln	Glu	Glu	Val	Thr	Arg	Arg	Glu	Glu	Ala	Ala
1535						1540					1545			
Val	Asp	Ala	Gln	Gln	Gln	Lys	Arg	Ser	Ile	Gln	Glu	Glu	Leu	Gln
1550						1555					1560			
His	Leu	Arg	Gln	Ser	Ser	Glu	Ala	Glu	Ile	Gln	Ala	Lys	Ala	Gln
1565						1570					1575			
Gln	Val	Glu	Ala	Ala	Glu	Arg	Ser	Arg	Met	Arg	Ile	Glu	Glu	Glu
1580						1585					1590			
Ile	Arg	Val	Val	Arg	Leu	Gln	Leu	Glu	Thr	Thr	Glu	Arg	Gln	Arg
1595						1600					1605			
Gly	Gly	Ala	Glu	Asp	Glu	Leu	Gln	Ala	Leu	Arg	Ala	Arg	Ala	Glu
1610						1615					1620			
Glu	Ala	Glu	Ala	Gln	Lys	Arg	Gln	Ala	Gln	Glu	Glu	Ala	Glu	Arg
1625						1630					1635			
Leu	Arg	Arg	Gln	Val	Gln	Asp	Glu	Ser	Gln	Arg	Lys	Arg	Gln	Ala
1640						1645					1650			
Glu	Ala	Glu	Leu	Ala	Leu	Arg	Val	Lys	Ala	Glu	Ala	Glu	Ala	Ala
1655						1660					1665			
Arg	Glu	Lys	Gln	Arg	Ala	Leu	Gln	Ala	Leu	Asp	Glu	Leu	Lys	Leu
1670						1675					1680			
Gln	Ala	Glu	Glu	Ala	Glu	Arg	Trp	Leu	Cys	Gln	Ala	Glu	Ala	Glu
1685						1690					1695			
Arg	Ala	Arg	Gln	Val	Gln	Val	Ala	Leu	Glu	Thr	Ala	Gln	Arg	Ser
1700						1705					1710			
Ala	Glu	Val	Glu	Leu	Gln	Ser	Lys	Arg	Pro	Ser	Phe	Ala	Glu	Lys
1715						1720					1725			

Thr	Ala	Gln	Leu	Glu	Arg	Thr	Leu	Gln	Glu	Glu	His	Val	Thr	Val
1730						1735					1740			
Thr	Gln	Leu	Arg	Glu	Glu	Ala	Glu	Arg	Arg	Ala	Gln	Gln	Gln	Ala
1745						1750					1755			
Glu	Ala	Glu	Arg	Ala	Arg	Glu	Glu	Ala	Glu	Arg	Glu	Leu	Glu	Arg
1760						1765					1770			
Trp	Gln	Leu	Lys	Ala	Asn	Glu	Ala	Leu	Arg	Leu	Arg	Leu	Gln	Ala
1775						1780					1785			
Glu	Glu	Val	Ala	Gln	Gln	Lys	Ser	Leu	Ala	Gln	Ala	Asp	Ala	Glu
1790						1795					1800			
Lys	Gln	Lys	Glu	Glu	Ala	Glu	Arg	Glu	Ala	Arg	Arg	Arg	Gly	Lys
1805						1810					1815			
Ala	Glu	Glu	Gln	Ala	Val	Arg	Gln	Arg	Glu	Leu	Ala	Glu	Gln	Glu
1820						1825					1830			
Leu	Glu	Lys	Gln	Arg	Gln	Leu	Thr	Glu	Gly	Thr	Ala	Gln	Gln	Arg
1835						1840					1845			
Leu	Ala	Ala	Glu	Gln	Glu	Leu	Ile	Arg	Leu	Arg	Ala	Glu	Thr	Glu
1850						1855					1860			
Gln	Gly	Glu	His	Gln	Arg	Gln	Leu	Leu	Glu	Glu	Glu	Leu	Ala	Arg
1865						1870					1875			
Leu	Gln	His	Glu	Ala	Thr	Ala	Ala	Thr	Gln	Lys	Arg	Gln	Glu	Leu
1880						1885					1890			
Glu	Ala	Glu	Leu	Ala	Lys	Val	Arg	Ala	Glu	Met	Glu	Val	Leu	Leu
1895						1900					1905			
Ala	Ser	Lys	Ala	Arg	Ala	Glu	Glu	Glu	Ser	Arg	Ser	Thr	Ser	Glu
1910						1915					1920			
Lys	Ser	Lys	Gln	Arg	Leu	Glu	Ala	Glu	Ala	Gly	Arg	Phe	Arg	Glu
1925						1930					1935			
Leu	Ala	Glu	Glu	Ala	Ala	Arg	Leu	Arg	Ala	Leu	Ala	Glu	Glu	Ala
1940						1945					1950			
Arg	Arg	His	Arg	Glu	Leu	Ala	Glu	Glu	Asp	Ala	Ala	Arg	Gln	Arg
1955						1960					1965			
Ala	Glu	Ala	Asp	Gly	Val	Leu	Thr	Glu	Lys	Leu	Ala	Ala	Ile	Ser
1970						1975					1980			
Glu	Ala	Thr	Arg	Leu	Lys	Thr	Glu	Ala	Glu	Ile	Ala	Leu	Lys	Glu
1985						1990					1995			



Lys 2000	Glu	Ala	Glu	Asn	Glu	Arg 2005	Leu	Arg	Arg	Leu	Ala 2010	Glu	Asp	Glu
Ala 2015	Phe	Gln	Arg	Arg	Arg	Leu 2020	Glu	Glu	Gln	Ala	Ala 2025	Gln	His	Lys
Ala 2030	Asp	Ile	Glu	Glu	Arg	Leu 2035	Ala	Gln	Leu	Arg	Lys 2040	Ala	Ser	Glu
Ser 2045	Glu	Leu	Glu	Arg	Gln	Lys 2050	Gly	Leu	Val	Glu	Asp 2055	Thr	Leu	Arg
Gln 2060	Arg	Arg	Gln	Val	Glu	Glu 2065	Glu	Ile	Met	Ala	Leu 2070	Lys	Ala	Ser
Phe 2075	Glu	Lys	Ala	Ala	Ala	Gly 2080	Lys	Ala	Glu	Leu	Glu 2085	Leu	Glu	Leu
Gly 2090	Arg	Ile	Arg	Ser	Asn	Ala 2095	Glu	Asp	Thr	Met	Arg 2100	Ser	Lys	Glu
Leu 2105	Ala	Glu	Gln	Glu	Ala	Ala 2110	Arg	Gln	Arg	Gln	Leu 2115	Ala	Ala	Glu
Glu 2120	Glu	Gln	Arg	Arg	Arg	Glu 2125	Ala	Glu	Glu	Arg	Val 2130	Gln	Arg	Ser
Leu 2135	Ala	Ala	Glu	Glu	Glu	Ala 2140	Ala	Arg	Gln	Arg	Lys 2145	Val	Ala	Leu
Glu 2150	Glu	Val	Glu	Arg	Leu	Lys 2155	Ala	Lys	Val	Glu	Glu 2160	Ala	Arg	Arg
Leu 2165	Arg	Glu	Arg	Ala	Glu	Gln 2170	Glu	Ser	Ala	Arg	Gln 2175	Leu	Gln	Leu
Ala 2180	Gln	Glu	Ala	Ala	Gln	Lys 2185	Arg	Leu	Gln	Ala	Glu 2190	Glu	Lys	Ala
His 2195	Ala	Phe	Val	Val	Gln	Gln 2200	Arg	Glu	Glu	Glu	Leu 2205	Gln	Gln	Thr
Leu 2210	Gln	Gln	Glu	Gln	Asn	Met 2215	Leu	Glu	Arg	Leu	Arg 2220	Ser	Glu	Ala
Glu 2225	Ala	Ala	Arg	Arg	Ala	Ala 2230	Glu	Glu	Ala	Glu	Glu 2235	Ala	Arg	Glu
Gln 2240	Ala	Glu	Arg	Glu	Ala	Ala 2245	Gln	Ser	Arg	Lys	Gln 2250	Val	Glu	Glu
Ala 2255	Glu	Arg	Leu	Lys	Gln	Ser 2260	Ala	Glu	Glu	Gln	Ala 2265	Gln	Ala	Gln

Ala Gln 2270	Ala Gln	Ala Ala	Ala Ala	Glu Lys	Leu Arg	Lys	Glu Ala	Glu	
Gln Glu 2285	Ala Ala	Arg Arg	Ala	Gln Ala	Glu Gln	Ala	Ala Leu	Lys	
Gln Lys 2300	Gln Ala	Ala Asp	Ala	Glu Met	Glu Lys	His	Lys Lys	Phe	
Ala Glu 2315	Gln Thr	Leu Arg	Gln	Lys Ala	Gln Val	Glu	Gln Glu	Leu	
Thr Thr 2330	Leu Arg	Leu Gln	Leu	Glu Glu	Thr Asp	His	Gln Lys	Ser	
Ile Leu 2345	Asp Glu	Glu Leu	Gln	Arg Leu	Lys Ala	Glu	Val Thr	Glu	
Ala Ala 2360	Arg Gln	Arg Ser	Gln	Val Glu	Glu Glu	Leu	Phe Ser	Val	
Arg Val 2375	Gln Met	Glu Glu	Leu	Gly Lys	Leu Lys	Ala	Arg Ile	Glu	
Ala Glu 2390	Asn Arg	Ala Leu	Ile	Leu Arg	Asp Lys	Asp	Asn Thr	Gln	
Arg Phe 2405	Leu Glu	Glu Glu	Ala	Glu Lys	Met Lys	Gln	Val Ala	Glu	
Glu Ala 2420	Ala Arg	Leu Ser	Val	Ala Ala	Gln Glu	Ala	Ala Arg	Leu	
Arg Gln 2435	Leu Ala	Glu Glu	Asp	Leu Ala	Gln Gln	Arg	Ala Leu	Ala	
Glu Lys 2450	Met Leu	Lys Glu	Lys	Met Gln	Ala Val	Gln	Glu Ala	Thr	
Arg Leu 2465	Lys Ala	Glu Ala	Glu	Leu Leu	Gln Gln	Gln	Lys Glu	Leu	
Ala Gln 2480	Glu Gln	Ala Arg	Arg	Leu Gln	Ala Asp	Lys	Glu Gln	Met	
Ala Gln 2495	Gln Leu	Val Glu	Glu	Thr Gln	Gly Phe	Gln	Arg Thr	Leu	
Glu Ala 2510	Glu Arg	Gln Arg	Gln	Leu Glu	Met Ser	Ala	Glu Ala	Glu	
Arg Leu 2525	Lys Leu	Arg Met	Ala	Glu Met	Ser Arg	Ala	Gln Ala	Arg	

Ala Glu Glu Asp Ala Gln Arg Phe Arg Lys Gln Ala Glu Glu Ile  
2540 2545 2550

Gly Glu Lys Leu His Arg Thr Glu Leu Ala Thr Gln Glu Lys Val  
2555 2560 2565

Thr Leu Val Gln Thr Leu Glu Ile Gln Arg Gln Gln Ser Asp Gln  
2570 2575 2580

Asp Ala Glu Arg Leu Arg Glu Ala Ile Ala Glu Leu Glu Arg Glu  
2585 2590 2595

Lys Glu Lys Leu Lys Gln Glu Ala Lys Leu Leu Gln Leu Lys Ser  
2600 2605 2610

Glu Glu Met Gln Thr Val Gln Gln Glu Gln Ile Leu Gln Glu Thr  
2615 2620 2625

Gln Ala Leu Gln Lys Ser Phe Leu Ser Glu Lys Asp Ser Leu Leu  
2630 2635 2640

Gln Arg Glu Arg Phe Ile Glu Gln Glu Lys Ala Lys Leu Glu Gln  
2645 2650 2655

Leu Phe Gln Asp Glu Val Ala Lys Ala Lys Gln Leu Gln Glu Glu  
2660 2665 2670

Gln Gln Arg Gln Gln Gln Gln Met Glu Gln Glu Lys Gln Glu Leu  
2675 2680 2685

Val Ala Ser Met Glu Glu Ala Arg Arg Arg Gln Arg Glu Ala Glu  
2690 2695 2700

Glu Gly Val Arg Arg Lys Gln Glu Glu Leu Gln Arg Leu Glu Gln  
2705 2710 2715

Gln Arg Gln Gln Gln Glu Lys Leu Leu Ala Glu Glu Asn Gln Arg  
2720 2725 2730

Leu Arg Glu Arg Leu Gln Arg Leu Glu Glu Glu His Arg Ala Ala  
2735 2740 2745

Leu Ala His Ser Glu Glu Ile Ala Thr Ser Gln Ala Ala Ala Thr  
2750 2755 2760

Lys Ala Leu Pro Asn Gly Arg Asp Ala Leu Asp Gly Pro Ser Met  
2765 2770 2775

Glu Ala    Glu Pro Glu Tyr Thr    Phe Glu Gly Leu Arg    Gln Lys Val  
            2780                          2785                          2790

Pro Ala Gln Gln Leu Gln Glu Ala Gly Ile Leu Ser Met Glu Glu  
2795 2800 2805

Leu	Gln	Arg	Leu	Thr	Gln	Gly	His	Thr	Thr	Val	Ala	Glu	Leu	Thr
2810						2815					2820			
Gln	Arg	Glu	Asp	Val	Arg	His	Tyr	Leu	Lys	Gly	Gly	Ser	Ser	Ile
2825						2830					2835			
Ala	Gly	Leu	Leu	Leu	Lys	Pro	Thr	Asn	Glu	Lys	Leu	Ser	Val	Tyr
2840						2845					2850			
Thr	Ala	Leu	Gln	Arg	Gln	Leu	Leu	Ser	Pro	Gly	Thr	Ala	Leu	Ile
2855						2860					2865			
Leu	Leu	Glu	Ala	Gln	Ala	Ala	Ser	Gly	Phe	Leu	Leu	Asp	Pro	Val
2870						2875					2880			
Arg	Asn	Arg	Arg	Leu	Thr	Val	Asn	Glu	Ala	Val	Lys	Glu	Gly	Val
2885						2890					2895			
Val	Gly	Pro	Glu	Leu	His	His	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala
2900						2905					2910			
Val	Thr	Gly	Tyr	Lys	Asp	Pro	Tyr	Thr	Gly	Glu	Gln	Ile	Ser	Leu
2915						2920					2925			
Phe	Gln	Ala	Met	Lys	Lys	Asp	Leu	Ile	Val	Arg	Asp	His	Gly	Ile
2930						2935					2940			
Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro
2945						2950					2955			
Val	His	Ser	His	Arg	Val	Pro	Val	Asp	Val	Ala	Tyr	Gln	Arg	Gly
2960						2965					2970			
Tyr	Phe	Asp	Glu	Glu	Met	Asn	Arg	Val	Leu	Ala	Asp	Pro	Ser	Asp
2975						2980					2985			
Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	His	Glu	Asn	Leu	Thr
2990						2995					3000			
Tyr	Leu	Gln	Leu	Leu	Glu	Arg	Cys	Val	Glu	Asp	Pro	Glu	Thr	Gly
3005						3010					3015			
Leu	Arg	Leu	Leu	Pro	Leu	Thr	Asp	Lys	Ala	Ala	Lys	Gly	Gly	Glu
3020						3025					3030			
Leu	Val	Tyr	Thr	Asp	Thr	Glu	Ala	Arg	Asp	Val	Phe	Glu	Lys	Ala
3035						3040					3045			
Thr	Val	Ser	Ala	Pro	Phe	Gly	Lys	Phe	Gln	Gly	Lys	Thr	Val	Thr
3050						3055					3060			
Ile	Trp	Glu	Ile	Ile	Asn	Ser	Glu	Tyr	Phe	Thr	Ala	Glu	Gln	Arg
3065						3070					3075			

Arg Asp 3080	Leu Leu Arg Gln Phe 3085	Arg Thr Gly Arg Ile Thr Val Glu 3090
Lys Ile 3095	Ile Lys Ile Val Ile Thr Val Val Glu Glu His Glu Arg 3100 3105	
Lys Gly 3110	Gln Leu Cys Phe Glu Gly Leu Arg Ala Leu Val Pro Ala 3115 3120	
Ala Glu 3125	Leu Leu Asp Ser Gly Val Ile Ser His Glu Val Tyr Gln 3130 3135	
Gln Leu 3140	Gln Arg Gly Glu Arg Ser Val Arg Glu Val Ala Glu Ala 3145 3150	
Asp Glu 3155	Val Arg Gln Ala Leu Arg Gly Thr Ser Val Ile Ala Gly 3160 3165	
Val Trp 3170	Leu Glu Glu Ala Gly Gln Lys Leu Ser Ile Tyr Glu Ala 3175 3180	
Leu Arg 3185	Arg Asp Leu Leu Gln Pro Glu Val Ala Val Ala Leu Leu 3190 3195	
Glu Ala 3200	Gln Ala Gly Thr Gly His Ile Ile Asp Pro Ala Thr Ser 3205 3210	
Ala Arg 3215	Leu Thr Val Asp Glu Ala Val Arg Ala Gly Leu Val Gly 3220 3225	
Pro Glu 3230	Met His Glu Lys Leu Leu Ser Ala Glu Lys Ala Val Thr 3235 3240	
Gly Tyr 3245	Arg Asp Pro Tyr Ser Gly Gln Ser Val Ser Leu Phe Gln 3250 3255	
Ala Leu 3260	Lys Lys Gly Leu Ile Pro Arg Glu Gln Gly Leu Arg Leu 3265 3270	
Leu Asp 3275	Ala Gln Leu Ser Thr Gly Gly Ile Val Asp Pro Ser Lys 3280 3285	
Ser His 3290	Arg Val Pro Leu Asp Val Ala Tyr Ala Arg Gly Tyr Leu 3295 3300	
Asp Lys 3305	Glu Thr Asn Arg Ala Leu Thr Ser Pro Arg Asp Asp Ala 3310 3315	
Arg Val 3320	Tyr Leu Asp Pro Ser Thr Arg Glu Pro Val Thr Tyr Ser 3325 3330	
Gln Leu 3335	Gln Gln Arg Cys Arg Ser Asp Gln Leu Thr Gly Leu Ser 3340 3345	

Leu	Leu	Pro	Leu	Ser	Glu	Lys	Ala	Val	Arg	Ala	Arg	Gln	Glu	Glu
3350						3355					3360			
Val	Tyr	Ser	Glu	Leu	Gln	Ala	Arg	Glu	Thr	Leu	Glu	Lys	Ala	Lys
3365						3370					3375			
Val	Glu	Val	Pro	Val	Gly	Gly	Phe	Lys	Gly	Arg	Ala	Leu	Thr	Val
3380						3385					3390			
Trp	Glu	Leu	Ile	Ser	Ser	Glu	Tyr	Phe	Thr	Glu	Glu	Gln	Arg	Gln
3395						3400					3405			
Glu	Leu	Leu	Arg	Gln	Phe	Arg	Thr	Gly	Lys	Val	Thr	Val	Glu	Lys
3410						3415					3420			
Val	Ile	Lys	Ile	Leu	Ile	Thr	Ile	Val	Glu	Glu	Val	Glu	Thr	Gln
3425						3430					3435			
Arg	Gln	Glu	Arg	Leu	Ser	Phe	Ser	Gly	Leu	Arg	Ala	Pro	Val	Pro
3440						3445					3450			
Ala	Ser	Glu	Leu	Leu	Ala	Ser	Lys	Ile	Leu	Ser	Arg	Thr	Gln	Phe
3455						3460					3465			
Glu	Gln	Leu	Lys	Asp	Gly	Lys	Thr	Ser	Val	Lys	Asp	Leu	Ser	Glu
3470						3475					3480			
Val	Gly	Ser	Val	Arg	Thr	Leu	Leu	Gln	Gly	Ser	Gly	Cys	Leu	Ala
3485						3490					3495			
Gly	Ile	Tyr	Leu	Glu	Asp	Ser	Lys	Glu	Lys	Val	Thr	Ile	Tyr	Glu
3500						3505					3510			
Ala	Met	Arg	Arg	Gly	Leu	Leu	Arg	Ala	Ser	Thr	Ala	Thr	Leu	Leu
3515						3520					3525			
Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Leu	Val	Asp	Pro	Val	Arg
3530						3535					3540			
Asn	Gln	Arg	Leu	Tyr	Val	His	Glu	Ala	Val	Lys	Ala	Gly	Val	Val
3545						3550					3555			
Gly	Pro	Glu	Leu	His	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Lys	Ala	Val
3560						3565					3570			
Thr	Gly	Tyr	Lys	Asp	Pro	Tyr	Ser	Gly	Ser	Thr	Ile	Ser	Leu	Phe
3575						3580					3585			
Gln	Ala	Met	Lys	Lys	Gly	Leu	Val	Leu	Arg	Asp	His	Ala	Ile	Arg
3590						3595					3600			
Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Val
3605						3610					3615			

His 3620	Ser	His	Arg	Leu	Pro	Val 3625	Asp	Val	Ala	Tyr	Gln 3630	Arg	Gly	Tyr
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Ser 3800	Leu	Glu	Thr	Tyr	Asn	Leu 3805	Phe	Arg	Glu	Gly	Thr 3810	Lys	Ser	Leu
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Glu Val 4205	Ala Tyr Lys Arg 4210	Gly Leu Phe Asp Glu 4215	Glu Met Asn Glu
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Val Tyr 4295	Glu Ala Tyr Arg 4300	Lys Gly Leu Ile Asp 4305	His Gln Thr Tyr
Leu Glu 4310	Leu Ser Glu Gln 4315	Glu Cys Glu Trp Glu 4320	Glu Ile Thr Ile
Ser Ser 4325	Ser Asp Gly Val 4330	Val Lys Ser Met Ile 4335	Ile Ile Asp Arg Arg
Ser Gly 4340	Arg Gln Tyr Asp 4345	Ile Gly Asp Ala Ile 4350	Thr Lys Asn Leu
Ile Asp 4355	Arg Ser Ala Leu 4360	Asp Gln Tyr Arg Ala 4365	Gly Thr Leu Ser
Ile Thr 4370	Glu Phe Ala Asp 4375	Met Leu Ser Gly Asn 4380	Ala Gly Gly Phe
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Thr Glu 4415	Glu Thr Gly Pro 4420	Val Ala Gly Ile Leu 4425	Asp Thr Glu Thr

Leu Glu Lys Val Ser Ile Thr Glu Ala Met His Arg Asn Leu Val  
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Gly Gly Ile Ile Asp Pro Ser Thr Gly Glu Arg Phe Pro Val Thr  
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Glu Ala Val Asn Lys Gly Leu Val Asp Lys Ile Met Val Asp Arg  
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Ile Asn Leu Ala Gln Lys Ala Phe Cys Gly Phe Glu Asp Pro Arg  
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 Arg His Arg Gln Val Lys Leu Val Asn Ile Arg Asn Asp Asp Ile Ala  
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gat ggc aac ccc aag ctg acc ctt ggc ctg atc tgg acc atc atc ctc 144  
 Asp Gly Asn Pro Lys Leu Thr Leu Gly Leu Ile Trp Thr Ile Ile Leu  
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 His Phe Gln Ile Ser Asp Ile Gln Val Ser Gly Gln Ser Glu Asp Met  
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 Thr Ala Lys Glu Lys Leu Leu Leu Trp Ser Gln Arg Met Val Glu Gly  
 65 70 75 80

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 Tyr Gln Gly Leu Arg Cys Asp Asn Phe Thr Thr Ser Trp Arg Asp Gly  
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Arg	His	Pro	Gln	Gly	Glu	Gln	Met	Tyr	Arg	Arg	Val	Tyr	Arg	Leu	His	
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Ala	Arg	Leu	Arg	Ser	Leu	Glu	Ser	Leu	His	Gly	Phe	Val	Ala	Ala	Ala	
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Pro Ala Ala Pro Thr Leu Arg Ser Glu Leu Glu Leu Thr Leu Gly Lys	
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Lys Ala His Glu Glu Gln Leu Lys Glu Ala Gln Ala Val Pro Ala	
1010 1015 1020	
acg ctc caa gag ctt gaa gcc acc aag gcc tca cta aag aaa ctg	3114
Thr Leu Gln Glu Leu Glu Ala Thr Lys Ala Ser Leu Lys Lys Leu	
1025 1030 1035	
cgg gcc cag gca gaa gca cag cag cct gta ttc gac acc cta agg	3159
Arg Ala Gln Ala Glu Ala Gln Gln Pro Val Phe Asp Thr Leu Arg	
1040 1045 1050	
gat gag ctg cgg ggg gca cag gaa gtt ggc gag cgg ctg cag cag	3204
Asp Glu Leu Arg Gly Ala Gln Glu Val Gly Glu Arg Leu Gln Gln	
1055 1060 1065	
cgg cac gga gag cgg gac gtg gaa gtg gag cgc tgg cga gag cgt	3249
Arg His Gly Glu Arg Asp Val Glu Val Glu Arg Trp Arg Glu Arg	
1070 1075 1080	
gtc aat cag ctg ctg gag cgc tgg cag gcc gtg ctt gcc cag att	3294
Val Asn Gln Leu Leu Glu Arg Trp Gln Ala Val Leu Ala Gln Ile	
1085 1090 1095	
gac gtg cgg cagcgt gag cta gaa cag ctg ggg cgc cag ctt cgc	3339

Asp	Val	Arg	Gln	Arg	Glu	Leu	Glu	Gln	Leu	Gly	Arg	Gln	Leu	Arg	
1100						1105					1110				
tac	tac	cgc	gag	agc	gct	gac	cca	ctg	agc	tcc	tgg	ctg	cag	gat	3384
Tyr	Tyr	Arg	Glu	Ser	Ala	Asp	Pro	Leu	Ser	Ser	Trp	Leu	Gln	Asp	
1115						1120					1125				
gcc	aag	agg	cgg	caa	gag	cag	atc	cag	gct	gtg	cca	ata	ccc	aac	3429
Ala	Lys	Arg	Arg	Gln	Glu	Gln	Ile	Gln	Ala	Val	Pro	Ile	Pro	Asn	
1130						1135					1140				
agc	cag	gct	gca	cgg	gag	caa	ctg	cgc	cag	gag	aag	gcc	ctg	ctg	3474
Ser	Gln	Ala	Ala	Arg	Glu	Gln	Leu	Arg	Gln	Glu	Lys	Ala	Leu	Leu	
1145						1150					1155				
gaa	gag	att	gag	cgt	cac	ggt	gag	aag	gtg	gag	gag	tgc	cag	aag	3519
Glu	Glu	Ile	Glu	Arg	His	Gly	Glu	Lys	Val	Glu	Glu	Cys	Gln	Lys	
1160						1165					1170				
ttc	gcc	aag	cag	tac	atc	aac	gcc	atc	aag	gac	tat	gag	ctc	cag	3564
Phe	Ala	Lys	Gln	Tyr	Ile	Asn	Ala	Ile	Lys	Asp	Tyr	Glu	Leu	Gln	
1175						1180					1185				
ctg	gtc	acc	tac	aag	gca	cag	ctt	gaa	ccc	gtg	gcc	tcc	cca	gcc	3609
Leu	Val	Thr	Tyr	Lys	Ala	Gln	Leu	Glu	Pro	Val	Ala	Ser	Pro	Ala	
1190						1195					1200				
aag	aag	ccc	aag	gtt	cag	tct	gga	tcg	gag	agt	gtc	atc	caa	gag	3654
Lys	Lys	Pro	Lys	Val	Gln	Ser	Gly	Ser	Glu	Ser	Val	Ile	Gln	Glu	
1205						1210					1215				
tat	gtg	gat	ctg	cgg	aca	cgc	tac	agt	gag	ctg	acc	aca	ctc	aca	3699
Tyr	Val	Asp	Leu	Arg	Thr	Arg	Tyr	Ser	Glu	Leu	Thr	Thr	Leu	Thr	
1220						1225					1230				
agt	cag	tac	atc	aag	ttc	atc	agc	gag	acc	ctg	cgc	cgc	atg	gaa	3744
Ser	Gln	Tyr	Ile	Lys	Phe	Ile	Ser	Glu	Thr	Leu	Arg	Arg	Met	Glu	
1235						1240					1245				
gag	gaa	gag	agg	ctg	gct	gag	caa	cag	cgg	gca	gag	gag	cgt	gag	3789
Glu	Glu	Glu	Arg	Leu	Ala	Glu	Gln	Gln	Arg	Ala	Glu	Glu	Arg	Glu	
1250						1255					1260				
cga	ctg	gct	gag	gga	gag	gct	gcg	ctg	gag	aag	cag	cgg	cag	cta	3834
Arg	Leu	Ala	Glu	Gly	Glu	Ala	Ala	Leu	Glu	Lys	Gln	Arg	Gln	Leu	
1265						1270					1275				
gct	gag	gcc	cac	gcc	cag	gct	aag	gcc	cag	gca	gag	ctg	gag	gcg	3879
Ala	Glu	Ala	His	Ala	Gln	Ala	Lys	Ala	Gln	Ala	Glu	Leu	Glu	Ala	
1280						1285					1290				
cag	gag	ctg	cag	cgg	cgc	atg	cag	gag	gag	gtg	gca	cgg	cgt	gag	3924
Gln	Glu	Leu	Gln	Arg	Arg	Met	Gln	Glu	Glu	Val	Ala	Arg	Arg	Glu	
1295						1300					1305				
gag	gcg	gcg	gtg	aac	gcg	cag	cag	cag	aag	cgc	agc	atc	caa	gag	3969
Glu	Ala	Ala	Val	Asn	Ala	Gln	Gln	Gln	Lys	Arg	Ser	Ile	Gln	Glu	
1310						1315					1320				
gag	ctg	cag	cac	ctg	cgg	cag	agc	tca	gag	gca	gag	atc	cag	gcc	4014
Glu	Leu	Gln	His	Leu	Arg	Gln	Ser	Ser	Glu	Ala	Glu	Ile	Gln	Ala	
1325						1330					1335				
aag	gcc	cag	cag	gtg	gag	gct	gca	gag	cgc	agc	cgg	atg	cgc	att	4059
Lys	Ala	Gln	Gln	Val	Glu	Ala	Ala	Glu	Arg	Ser	Arg	Met	Arg	Ile	
1340						1345					1350				
gag	gaa	gag	atc	cga	gtg	gtg	cgt	ctg	cag	ctg	gag	aca	acc	gag	4104
Glu	Glu	Glu	Ile	Arg	Val	Val	Arg	Leu	Gln	Leu	Glu	Thr	Thr	Glu	
1355						1360					1365				
cgt	cag	cgt	gga	ggg	gca	gag	ggt	gag	ctg	cag	gcg	ctg	cgt	gca	4149

Arg Gln 1370	Arg Gly Gly Ala 1375	Glu Gly Glu Leu Gln Ala 1380	Leu Arg Ala	
cgg gcc Arg Ala 1385	gag gag gcc gaa gcc Glu Glu Ala Glu Ala 1390	cag aag cgg cag gct Gln Lys Arg Gln Ala 1395	cag gag gaa Gln Glu Glu	4194
gcc gag Ala Glu 1400	cgc ctg cga aga cag Arg Leu Arg Arg Gln 1405	gtg cag gat gag agc Val Gln Asp Glu Ser 1410	cag cgc aag Gln Arg Lys	4239
agg cag Arg Gln 1415	gcc gag gca gag ctg Ala Glu Ala Glu Leu 1420	gcc ctg cgc gtg aag Ala Leu Arg Val Lys 1425	gcc cag gcc Ala Gln Ala	4284
gag gca Glu Ala 1430	gct caa gag aag cag Ala Gln Glu Lys Gln 1435	cgg gcc ctg cag gcc Arg Ala Leu Gln Ala 1440	ctg gag gaa Leu Glu Glu	4329
ctg cgg Leu Arg 1445	ctg cag gcc gag gag Leu Gln Ala Glu Glu 1450	gct gaa cgg cgg ctg Ala Glu Arg Arg Leu 1455	cgc cag gcc Arg Gln Ala	4374
cag gcg Gln Ala 1460	gag aga gcg cgc caa Glu Arg Ala Arg Gln 1465	gtg cag gta gct ctg Val Gln Val Ala Leu 1470	gag acg gcg Glu Thr Ala	4419
cag cgc Gln Arg 1475	agt gcg gag gtg gag Ser Ala Glu Val Glu 1480	ctg cag agc aag cgt Leu Gln Ser Lys Arg 1485	gcg tcc ttt Ala Ser Phe	4464
gcg gag Ala Glu 1490	aag aca gcg cag ctg Lys Thr Ala Gln Leu 1495	gag cgc acg ctg cag Glu Arg Thr Leu Gln 1500	gaa gag cac Glu Glu His	4509
gtg aca Val Thr 1505	gtg acc cag ctg cgc Val Thr Gln Leu Arg 1510	gag aag gcc gag cgt Glu Lys Ala Glu Arg 1515	cgg gcc cag Arg Ala Gln	4554
cag caa Gln Gln 1520	gcg gag gct gag cga Ala Glu Ala Glu Arg 1525	gcc cgc gag gag gct Ala Arg Glu Glu Ala 1530	gag cgg gag Glu Arg Glu	4599
ctg gag Leu Glu 1535	cgc tgg cag cta aag Arg Trp Gln Leu Lys 1540	gcc aac gaa gcg ctt Ala Asn Glu Ala Leu 1545	agg ctg cgg Arg Leu Arg	4644
ctg caa Leu Gln 1550	gca gaa gag gtg gcc Ala Glu Glu Val Ala 1555	cag cag agg agt ctg Gln Gln Arg Ser Leu 1560	gcg cag gcc Ala Gln Ala	4689
gat gca Asp Ala 1565	gag aag cag aag gag Glu Lys Gln Lys Glu 1570	gag gcc gag cgt gag Glu Ala Glu Arg Glu 1575	gcc cgg cgg Ala Arg Arg	4734
cgc gcc Arg Gly 1580	aag gcc gag gaa cag Lys Ala Glu Glu Gln 1585	gcc gtg cgg cag cga Ala Val Arg Gln Arg 1590	gag ctg gcc Glu Leu Ala	4779
gag cag Glu Gln 1595	gag ctg gag aag cag Glu Leu Glu Lys Gln 1600	cgg cag ctg gcg gag Arg Gln Leu Ala Glu 1605	ggc acc gcg Gly Thr Ala	4824
cag cag Gln Gln 1610	cgc ctg gct gcg gag Arg Leu Ala Ala Glu 1615	cag gag ctc atc cgc Gln Glu Leu Ile Arg 1620	ctg cgg gcc Leu Arg Ala	4869
gag acg Glu Thr 1625	gag cag ggt gag cag Glu Gln Gly Glu Gln 1630	cag cgg cag ctg ctg Gln Arg Gln Leu Leu 1635	gag gag gag Glu Glu Glu	4914
ctg gcc	cgg ctg cag cgg gaa	gcg acc gca gcc acg	cac aag cgc	4959



Leu	Ala	Arg	Leu	Gln	Arg	Glu	Ala	Thr	Ala	Ala	Thr	His	Lys	Arg	
1640						1645					1650				
cag	gag	ctg	gag	gcc	gag	ctg	gcc	aaa	gtg	cgg	gcc	gag	atg	gag	5004
Gln	Glu	Leu	Glu	Ala	Glu	Leu	Ala	Lys	Val	Arg	Ala	Glu	Met	Glu	
1655						1660					1665				
gtg	ctg	ctg	gcc	agc	aag	gcg	cga	gcc	gag	gaa	gag	tcc	cgt	tct	5049
Val	Leu	Leu	Ala	Ser	Lys	Ala	Arg	Ala	Glu	Glu	Glu	Ser	Arg	Ser	
1670						1675					1680				
acc	agc	gag	aag	tcc	aag	cag	agg	cta	gag	gcc	gag	gcc	gac	cgc	5094
Thr	Ser	Glu	Lys	Ser	Lys	Gln	Arg	Leu	Glu	Ala	Glu	Ala	Asp	Arg	
1685						1690					1695				
ttt	cga	gag	ctg	gcc	gag	gag	gct	gcg	cgt	ctg	cgc	gcc	ctg	gcg	5139
Phe	Arg	Glu	Leu	Ala	Glu	Glu	Ala	Ala	Arg	Leu	Arg	Ala	Leu	Ala	
1700						1705					1710				
gag	gag	gcc	aag	cgg	cag	cgg	cag	ctg	gct	gag	gag	gac	gca	gcg	5184
Glu	Glu	Ala	Lys	Arg	Gln	Arg	Gln	Leu	Ala	Glu	Glu	Asp	Ala	Ala	
1715						1720					1725				
cgc	cag	cgg	gcc	gag	gca	gag	cga	gtg	ctt	acg	gag	aag	ctg	gcc	5229
Arg	Gln	Arg	Ala	Glu	Ala	Glu	Arg	Val	Leu	Thr	Glu	Lys	Leu	Ala	
1730						1735					1740				
gcc	atc	agt	gag	gcc	acg	agg	ctc	aag	acg	gag	gca	gag	att	gcc	5274
Ala	Ile	Ser	Glu	Ala	Thr	Arg	Leu	Lys	Thr	Glu	Ala	Glu	Ile	Ala	
1745						1750					1755				
ctc	aaa	gag	aag	gag	gcc	gag	aat	gag	cgc	ctc	cgg	cgc	ctg	gct	5319
Leu	Lys	Glu	Lys	Glu	Ala	Glu	Asn	Glu	Arg	Leu	Arg	Arg	Leu	Ala	
1760						1765					1770				
gaa	gac	gag	gcc	ttc	cag	cgg	cgg	cgg	ctg	gag	gag	cag	gcg	gcc	5364
Glu	Asp	Glu	Ala	Phe	Gln	Arg	Arg	Arg	Leu	Glu	Glu	Gln	Ala	Ala	
1775						1780					1785				
ctg	cac	aag	gcc	gac	ata	gag	gag	cgc	ttg	gcc	cag	ctg	cgc	aag	5409
Leu	His	Lys	Ala	Asp	Ile	Glu	Glu	Arg	Leu	Ala	Gln	Leu	Arg	Lys	
1790						1795					1800				
gcg	tcg	gag	agt	gag	ctg	gag	cgc	cag	aag	ggc	ttg	gtg	gag	gat	5454
Ala	Ser	Glu	Ser	Glu	Leu	Glu	Arg	Gln	Lys	Gly	Leu	Val	Glu	Asp	
1805						1810					1815				
acg	ctg	cgg	cag	cgg	cgg	cag	gtg	gag	gag	gag	atc	ctg	gcg	ctg	5499
Thr	Leu	Arg	Gln	Arg	Arg	Gln	Val	Glu	Glu	Glu	Ile	Leu	Ala	Leu	
1820						1825					1830				
aag	gtg	agc	ttt	gag	aaa	gcc	gcc	gcc	ggc	aag	gcg	gag	ctg	gag	5544
Lys	Val	Ser	Phe	Glu	Lys	Ala	Ala	Ala	Gly	Lys	Ala	Glu	Leu	Glu	
1835						1840					1845				
ctg	gag	ctg	ggg	cgc	atc	cgc	agc	agt	gcc	gag	gac	aca	atg	cgc	5589
Leu	Glu	Leu	Gly	Arg	Ile	Arg	Ser	Ser	Ala	Glu	Asp	Thr	Met	Arg	
1850						1855					1860				
agc	aag	gag	cag	gcg	gag	cag	gag	gcg	gcg	cgg	cag	cgg	cag	ctg	5634
Ser	Lys	Glu	Gln	Ala	Glu	Gln	Glu	Ala	Ala	Arg	Gln	Arg	Gln	Leu	
1865						1870					1875				
gca	gcc	gag	gag	gag	cag	cgg	cgt	cgg	gag	gcc	gag	gag	cgc	gtg	5679
Ala	Ala	Glu	Glu	Glu	Gln	Arg	Arg	Arg	Glu	Ala	Glu	Glu	Arg	Val	
1880						1885					1890				
cag	aag	agc	ctg	gcc	gct	gag	gag	gaa	gcc	gcg	cgg	cag	cgg	aag	5724
Gln	Lys	Ser	Leu	Ala	Ala	Glu	Glu	Glu	Ala	Ala	Arg	Gln	Arg	Lys	
1895						1900					1905				
gct	gca	ctg	gag	gaa	gtc	gag	cgg	ctc	aag	gcc	aag	gtg	gag	gaa	5769

Ala	Ala	Leu	Glu	Glu	Val	Glu	Arg	Leu	Lys	Ala	Lys	Val	Glu	Glu	
1910						1915					1920				
gcg	cgg	cgc	ctg	cga	gaa	cga	gca	gag	cag	gag	tcc	gcc	agg	cag	5814
Ala	Arg	Arg	Leu	Arg	Glu	Arg	Ala	Glu	Gln	Glu	Ser	Ala	Arg	Gln	
1925						1930					1935				
ctg	cag	ctg	gcc	cag	gag	gct	gcc	cag	aag	cga	ctg	cag	gca	gag	5859
Leu	Gln	Leu	Ala	Gln	Glu	Ala	Ala	Gln	Lys	Arg	Leu	Gln	Ala	Glu	
1940						1945					1950				
gag	aag	gcg	cat	gcc	ttt	gtg	gtg	cag	cag	cgg	gaa	gag	gag	ctg	5904
Glu	Lys	Ala	His	Ala	Phe	Val	Val	Gln	Gln	Arg	Glu	Glu	Glu	Leu	
1955						1960					1965				
cag	cag	act	ctg	cag	cag	gag	cag	agc	atg	ctg	gag	cgg	ctg	cgg	5949
Gln	Gln	Thr	Leu	Gln	Gln	Glu	Gln	Ser	Met	Leu	Glu	Arg	Leu	Arg	
1970						1975					1980				
ggt	gag	gca	gag	gcg	gcg	cgg	cga	gct	gcc	gag	gag	gcc	gag	gag	5994
Gly	Glu	Ala	Glu	Ala	Ala	Arg	Arg	Ala	Ala	Glu	Glu	Ala	Glu	Glu	
1985						1990					1995				
gcc	cgg	gag	cag	gcc	gaa	cgg	gag	gcg	gct	cag	tct	cgg	aaa	caa	6039
Ala	Arg	Glu	Gln	Ala	Glu	Arg	Glu	Ala	Ala	Gln	Ser	Arg	Lys	Gln	
2000						2005					2010				
gtg	gaa	gag	gcg	gag	cgg	ctg	aaa	cag	tcg	gcg	gag	gag	cag	gcc	6084
Val	Glu	Glu	Ala	Glu	Arg	Leu	Lys	Gln	Ser	Ala	Glu	Glu	Gln	Ala	
2015						2020					2025				
cag	gcc	cgg	gcc	cag	gcc	cag	gcc	gct	gca	gag	aag	ctg	cgt	aag	6129
Gln	Ala	Arg	Ala	Gln	Ala	Gln	Ala	Ala	Ala	Glu	Lys	Leu	Arg	Lys	
2030						2035					2040				
gaa	gct	gag	cag	gag	gca	gcg	cgt	cgg	gca	cag	gcg	gag	cag	gca	6174
Glu	Ala	Glu	Gln	Glu	Ala	Ala	Arg	Arg	Ala	Gln	Ala	Glu	Gln	Ala	
2045						2050					2055				
gcg	ttg	aag	cag	aag	caa	gca	gcc	gac	gcg	gag	atg	gag	aag	cac	6219
Ala	Leu	Lys	Gln	Lys	Gln	Ala	Ala	Asp	Ala	Glu	Met	Glu	Lys	His	
2060						2065					2070				
aag	aag	ttt	gca	gag	cag	acg	ctg	cgg	cag	aag	gcc	cag	gtg	gag	6264
Lys	Lys	Phe	Ala	Glu	Gln	Thr	Leu	Arg	Gln	Lys	Ala	Gln	Val	Glu	
2075						2080					2085				
cag	gag	ctg	acg	acg	ctg	agg	ctg	cag	ctg	gag	gag	act	gac	cac	6309
Gln	Glu	Leu	Thr	Thr	Leu	Arg	Leu	Gln	Leu	Glu	Glu	Thr	Asp	His	
2090						2095					2100				
cag	aag	agc	atc	ctg	gac	gag	gag	ctg	cag	cgg	ctg	aag	gcc	gag	6354
Gln	Lys	Ser	Ile	Leu	Asp	Glu	Glu	Leu	Gln	Arg	Leu	Lys	Ala	Glu	
2105						2110					2115				
gtg	acc	gag	gct	gcc	cgg	cag	cgt	agc	cag	gta	gag	gag	gag	ctc	6399
Val	Thr	Glu	Ala	Ala	Arg	Gln	Arg	Ser	Gln	Val	Glu	Glu	Glu	Leu	
2120						2125					2130				
ttc	tct	gtt	cgc	gtg	cag	atg	gag	gag	ctg	ggc	aag	ctc	aag	gcc	6444
Phe	Ser	Val	Arg	Val	Gln	Met	Glu	Glu	Leu	Gly	Lys	Leu	Lys	Ala	
2135						2140					2145				
cgc	att	gaa	gcc	gaa	aac	cgg	gca	ctc	atc	ctg	cgt	gac	aag	gac	6489
Arg	Ile	Glu	Ala	Glu	Asn	Arg	Ala	Leu	Ile	Leu	Arg	Asp	Lys	Asp	
2150						2155					2160				
aac	acc	cag	cgc	ttc	ctg	gag	gag	gag	gct	gag	aag	atg	aaa	cag	6534
Asn	Thr	Gln	Arg	Phe	Leu	Glu	Glu	Glu	Ala	Glu	Lys	Met	Lys	Gln	
2165						2170					2175				
gtg	gcg	gag	gag	gct	gcg	cgg	ctg	agt	gtg	gct	gcc	cag	gag	gcg	6579

Val 2180	Ala	Glu	Glu	Ala	Ala	Arg 2185	Leu	Ser	Val	Ala	Ala 2190	Gln	Glu	Ala	
gcc Ala 2195	cgg Arg	ctg Leu	cgg Arg	cag Gln	ctg Leu	gcc Ala 2200	gag Glu	gaa Glu	gac Asp	ctg Leu	gcg Ala 2205	cag Gln	cag Gln	cgg Arg	6624
gcc Ala 2210	ctg Leu	gca Ala	gag Glu	aag Lys	atg Met	ctt Leu 2215	aag Lys	gag Glu	aag Lys	atg Met	cag Gln 2220	gcg Ala	gtg Val	cag Gln	6669
gaa Glu 2225	gcc Ala	acc Thr	agg Arg	ctc Leu	aag Lys	gcc Ala 2230	gag Glu	gcc Ala	gag Glu	ctg Leu	ctc Leu 2235	cag Gln	cag Gln	cag Gln	6714
aag Lys 2240	gag Glu	ctt Leu	gct Ala	cag Gln	gag Glu	cag Gln 2245	gcc Ala	cgg Arg	cgg Arg	ctg Leu	cag Gln 2250	gaa Glu	gac Asp	aag Lys	6759
gag Glu 2255	cag Gln	atg Met	gcc Ala	cag Gln	cag Gln	ttg Leu 2260	gta Val	gag Glu	gag Glu	acg Thr	cag Gln 2265	ggt Gly	ttc Phe	cag Gln	6804
cgg Arg 2270	acg Thr	ctg Leu	gag Glu	gta Val	gag Glu	cgg Arg 2275	cag Gln	cgg Arg	cag Gln	ctg Leu	gaa Glu 2280	atg Met	agc Ser	gcg Ala	6849
gag Glu 2285	gcc Ala	gag Glu	cgc Arg	ctc Leu	aag Lys	ctg Leu 2290	cgc Arg	atg Met	gct Ala	gag Glu	atg Met 2295	agc Ser	cgg Arg	gcg Ala	6894
cag Gln 2300	gcc Ala	cgt Arg	gcg Ala	gag Glu	gag Glu	gat Asp 2305	gcc Ala	cag Gln	cgc Arg	ttc Phe	cgg Arg 2310	aag Lys	cag Gln	gct Ala	6939
gag Glu 2315	gag Glu	att Ile	ggc Gly	gaa Glu	aag Lys	ctg Leu 2320	cac His	cgc Arg	act Thr	gaa Glu	ctt Leu 2325	gct Ala	acg Thr	cag Gln	6984
gag Glu 2330	aaa Lys	gtg Val	aca Thr	ttg Leu	gtg Val	cag Gln 2335	acg Thr	ctg Leu	gag Glu	atc Ile	cag Gln 2340	cga Arg	caa Gln	cag Gln	7029
agc Ser 2345	gat Asp	cac His	gat Asp	gcc Ala	gag Glu	cgt Arg 2350	ctg Leu	agg Arg	gag Glu	gcc Ala	att Ile 2355	gct Ala	gag Glu	ctg Leu	7074
gag Glu 2360	cgg Arg	gag Glu	aag Lys	gag Glu	aag Lys	ctc Leu 2365	aag Lys	caa Gln	gag Glu	gcc Ala	aaa Lys 2370	ttg Leu	ctg Leu	cag Gln	7119
ctg Leu 2375	aag Lys	tct Ser	gag Glu	gag Glu	atg Met	cag Gln 2380	act Thr	gtg Val	cag Gln	cag Gln	gag Glu 2385	cag Gln	atc Ile	ctg Leu	7164
cag Gln 2390	gag Glu	acg Thr	cag Gln	gcg Ala	ctg Leu	cag Gln 2395	aag Lys	agc Ser	ttc Phe	ctg Leu	tct Ser 2400	gag Glu	aag Lys	gat Asp	7209
agc Ser 2405	ctg Leu	ctg Leu	cag Gln	cgg Arg	gaa Glu	cgc Arg 2410	ttc Phe	atc Ile	gag Glu	cag Gln	gag Glu 2415	aag Lys	gcc Ala	aag Lys	7254
ctg Leu 2420	gaa Glu	cag Gln	ctt Leu	ttc Phe	cag Gln	gac Asp 2425	gaa Glu	gtg Val	gca Ala	aaa Lys	gcg Ala 2430	cag Gln	cag Gln	ctc Leu	7299
cgg Arg 2435	gag Glu	gag Glu	cag Gln	cag Gln	cgg Arg	cag Gln 2440	cag Gln	cgg Arg	cag Gln	atg Met	gag Glu 2445	cag Gln	gag Glu	aaa Lys	7344
cag 2450	gag 2455	ctg 2460	gtg 2465	gcc 2470	agc 2475	atg 2480	gag 2485	gag 2490	gcc 2495	agg 2500	agg 2505	cgg 2510	cag 2515	tgc 2520	7389

Gln Glu	Leu Val	Ala Ser	Met	Glu Glu	Ala Arg	Arg Arg	Arg Gln	Cys	
2450			2455			2460			
gag gcc	gag gag	gcc gtg	cgg	cgc aag	cag gag	gag	ctg cag	cat	7434
Glu Ala	Glu Glu	Ala Val	Arg	Arg Lys	Gln Glu	Glu	Leu Gln	His	
2465			2470			2475			
ctg gag	ctg cag	cgg cag	cag	cag gag	aag ctg	ctg	gcc gag	gag	7479
Leu Glu	Leu Gln	Arg Gln	Gln	Gln Glu	Lys Leu	Leu	Ala Glu	Glu	
2480			2485			2490			
aac cag	agg ctg	cga gag	cgg	ctg cag	cgc ctg	gag	gag gag	cac	7524
Asn Gln	Arg Leu	Arg Glu	Arg	Leu Gln	Arg Leu	Glu	Glu Glu	His	
2495			2500			2505			
cgg gcc	gcc ctg	gct cac	tct	gag gag	att gca	gct	act cag	gct	7569
Arg Ala	Ala Leu	Ala His	Ser	Glu Glu	Ile Ala	Ala	Thr Gln	Ala	
2510			2515			2520			
gcc gcc	gcg aaa	gcc ctg	ccc	aat gcc	cgc gac	gcg	ctg gat	ggc	7614
Ala Ala	Ala Lys	Ala Leu	Pro	Asn Gly	Arg Asp	Ala	Leu Asp	Gly	
2525			2530			2535			
ccg tcc	atg gag	gtg gag	cct	gag cac	gcc ttc	gag	gga ctg	cgt	7659
Pro Ser	Met Glu	Val Glu	Pro	Glu His	Ala Phe	Glu	Gly Leu	Arg	
2540			2545			2550			
cag aag	gtg ccg	gct ctg	cag	cta ccg	gaa gcg	ggc	att ctg	agc	7704
Gln Lys	Val Pro	Ala Leu	Gln	Leu Arg	Glu Ala	Gly	Ile Leu	Ser	
2555			2560			2565			
gcg gag	gaa ctg	cag ccg	ctg	gaa cag	ggc cac	acc	aca gtg	gct	7749
Ala Glu	Glu Leu	Gln Arg	Leu	Glu Gln	Gly His	Thr	Thr Val	Ala	
2570			2575			2580			
gag ctc	tcg cag	agg gaa	gat	gtg cgc	cag tac	ctg	cag ggc	cgc	7794
Glu Leu	Ser Gln	Arg Glu	Asp	Val Arg	Gln Tyr	Leu	Gln Gly	Arg	
2585			2590			2595			
agc agc	att gcg	ggg ctg	ctg	cta aag	ccc acc	gat	gag aaa	ctg	7839
Ser Ser	Ile Ala	Gly Leu	Leu	Leu Lys	Pro Thr	Asp	Glu Lys	Leu	
2600			2605			2610			
agt gtc	tac aca	gcc ctg	cag	agg cag	ctg ctt	agc	ccc gga	aca	7884
Ser Val	Tyr Thr	Ala Leu	Gln	Arg Gln	Leu Leu	Ser	Pro Gly	Thr	
2615			2620			2625			
gct ctt	atc ctt	ctt gag	gcc	cag gcg	gcc tca	ggc	ttc ctg	ctg	7929
Ala Leu	Ile Leu	Leu Glu	Ala	Gln Ala	Ala Ser	Gly	Phe Leu	Leu	
2630			2635			2640			
gac cct	gtg ccg	aac ccg	cgg	ctg act	gtc aac	gag	ccc gtg	aag	7974
Asp Pro	Val Arg	Asn Arg	Arg	Leu Thr	Val Asn	Glu	Pro Val	Lys	
2645			2650			2655			
gag ggc	gtc gtg	ggt cct	gag	ctg cac	cac aag	ctc	ctg tca	gcc	8019
Glu Gly	Val Val	Gly Pro	Glu	Leu His	His Lys	Leu	Leu Ser	Ala	
2660			2665			2670			
gag cgc	gct gtc	act ggc	tac	aag gac	ccc tac	acg	ggg gag	cag	8064
Glu Arg	Ala Val	Thr Gly	Tyr	Lys Asp	Pro Tyr	Thr	Gly Glu	Gln	
2675			2680			2685			
atc tcc	ctc ttc	cag gcc	atg	aag aag	gac ctc	ctc	gtc agg	gac	8109
Ile Ser	Leu Phe	Gln Ala	Met	Lys Lys	Asp Leu	Leu	Val Arg	Asp	
2690			2695			2700			
cac gcc	atc ccg	ctg ctg	gag	gcc cag	atc gcc	acg	ggg ggc	atc	8154
His Ala	Ile Arg	Leu Leu	Glu	Ala Gln	Ile Ala	Thr	Gly Gly	Ile	
2705			2710			2715			
atc gac	acc gtg	cac agc	cac	cgc gtg	ccc gtg	gac	gtg gcc	tac	8199

Ile 2720	Asp	Thr	Val	His	Ser	His 2725	Arg	Val	Pro	Val	Asp 2730	Val	Ala	Tyr		
cag Gln 2735	cgc Arg	ggc Gly	tac Tyr	ttc Phe	gac Asp	gag Glu 2740	gag Glu	atg Met	agc Ser	cgc Arg	atc Ile 2745	ctg Leu	gct Ala	gac Asp	8244	
cct Pro 2750	ggg Gly	gac Asp	gac Asp	acc Thr	aag Lys	ggc Gly 2755	ttc Phe	ttc Phe	gac Asp	ccc Pro	aac Asn 2760	acg Thr	cat His	gag Glu	8289	
aac Asn 2765	ctc Leu	acc Thr	tac Tyr	ctg Leu	cag Gln	ctg Leu 2770	ctg Leu	gag Glu	cgc Arg	tgc Cys	gtg Val 2775	gag Glu	gac Asp	ccc Pro	8334	
gag Glu 2780	acg Thr	ggc Gly	ctg Leu	cac His	ctc Leu	ctg Leu 2785	ccg Pro	ctc Leu	aca Thr	gat Asp	aag Lys 2790	gcc Ala	gcc Ala	aag Lys	8379	
ggg Gly 2795	ggg Gly	gag Glu	ctg Leu	gtg Val	tac Tyr	acg Thr 2800	gat Asp	aca Thr	gag Glu	gcc Ala	cgt Arg 2805	gac Asp	gtc Val	ttt Phe	8424	
gag Glu 2810	aag Lys	gcc Ala	act Thr	gtg Val	tct Ser	gca Ala 2815	ccg Pro	ttt Phe	ggc Gly	aag Lys	ttc Phe 2820	cag Gln	ggc Gly	aag Lys	8469	
acc Thr 2825	gtg Val	acc Thr	atc Ile	tgg Trp	gag Glu	atc Ile 2830	atc Ile	aac Asn	tca Ser	gag Glu	tac Tyr 2835	ttc Phe	aca Thr	gcg Ala	8514	
gag Glu 2840	cag Gln	cgg Arg	cgg Arg	gat Asp	ctg Leu	ctg Leu 2845	cgg Arg	cag Gln	ttc Phe	cgc Arg	acg Thr 2850	ggc Gly	cgc Arg	atc Ile	8559	
acg Thr 2855	gtg Val	gag Glu	aag Lys	atc Ile	atc Ile	aag Lys 2860	att Ile	gtc Val	atc Ile	acg Thr	gtg Val 2865	gtg Val	gag Glu	gag Glu	8604	
cag Gln 2870	gag Glu	cgg Arg	aag Lys	ggc Gly	cag Gln	ctc Leu 2875	tgc Cys	ttc Phe	gag Glu	ggc Gly	ctc Leu 2880	cga Arg	gcc Ala	ctc Leu	8649	
gtg Val 2885	cct Pro	gct Ala	gcg Ala	gag Glu	ctc Leu	ctg Leu 2890	gag Glu	agc Ser	ggg Gly	gtc Val	att Ile 2895	agc Ser	cac His	gaa Glu	8694	
ctc Leu 2900	tac Tyr	cag Gln	cag Gln	ctg Leu	caa Gln	agg Arg 2905	ggg Gly	gag Glu	cgt Arg	tct Ser	gtg Val 2910	cgg Arg	gag Glu	gtg Val	8739	
gcc Ala 2915	gag Glu	gca Ala	gac Asp	agc Ser	gtg Val	aga Arg 2920	cgg Arg	gcc Ala	ctg Leu	cgg Arg	ggg Gly 2925	gcc Ala	agc Ser	gtc Val	8784	
att Ile 2930	gca Ala	gga Gly	gtg Val	tgg Trp	ctg Leu	gaa Glu 2935	gag Glu	gca Ala	ggg Gly	cag Gln	aag Lys 2940	ctg Leu	agc Ser	atc Ile	8829	
tat Tyr 2945	gag Glu	gcc Ala	ttg Leu	aag Lys	aaa Lys	gac Asp 2950	ttg Leu	ctg Leu	cag Gln	cca Pro	gac Asp 2955	gtg Val	gct Ala	gtg Val	8874	
gcc Ala 2960	ttg Leu	ctg Leu	gag Glu	gcc Ala	cag Gln	gct Ala 2965	ggc Gly	act Thr	ggg Gly	cac His	atc Ile 2970	att Ile	gac Asp	cct Pro	8919	
gcc Ala 2975	act Thr	agt Ser	gcc Ala	cgg Arg	ctg Leu	acc Thr 2980	gtg Val	gat Asp	gag Glu	gcg Ala	gtg Val 2985	cgc Arg	gcc Ala	ggc Gly	8964	
cta 2990	gtg	ggg	ccc	gag	ctg	cat	gag	aag	ctc	ttg	tca	gct	gag	aag	9009	

Leu	Val	Gly	Pro	Glu	Leu	His	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Lys	
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Ala	Val	Thr	Gly	Tyr	Arg	Asp	Pro	Tyr	Ser	Gly	Gln	Ser	Val	Ser	
3005						3010					3015				
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Leu	Phe	Gln	Ala	Leu	Lys	Lys	Gly	Leu	Ile	Pro	Arg	Glu	Gln	Gly	
3020						3025					3030				
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Leu	Arg	Leu	Leu	Asp	Ala	Gln	Leu	Ser	Thr	Gly	Gly	Met	Val	Asp	
3035						3040					3045				
ccc	agc	aag	agc	cac	cgt	gtg	cca	ctg	gat	ggt	gcg	tat	gcc	cgg	9189
Pro	Ser	Lys	Ser	His	Arg	Val	Pro	Leu	Asp	Val	Ala	Tyr	Ala	Arg	
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Gly	Tyr	Leu	Asp	Lys	Glu	Thr	Asn	Arg	Ala	Leu	Thr	Ser	Pro	Arg	
3065						3070					3075				
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Asn	Asp	Ala	Arg	Val	Tyr	Leu	Asp	Pro	Ser	Ser	Gln	Glu	Pro	Ala	
3080						3085					3090				
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Thr	Tyr	Ser	Gln	Leu	Gln	Gln	Arg	Cys	Arg	Ala	Asp	Gln	Leu	Thr	
3095						3100					3105				
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Gly	Leu	Ser	Leu	Leu	Pro	Val	Ser	Glu	Lys	Ala	Val	Arg	Ala	Arg	
3110						3115					3120				
cag	gag	gag	gtc	tac	tct	gag	ctc	cag	gcc	cgt	gag	acg	ctg	gag	9414
Gln	Glu	Glu	Val	Tyr	Ser	Glu	Leu	Gln	Ala	Arg	Glu	Thr	Leu	Glu	
3125						3130					3135				
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Lys	Ala	Arg	Val	Glu	Val	Pro	Val	Gly	Gly	Phe	Lys	Gly	Arg	Thr	
3140						3145					3150				
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Met	Thr	Val	Trp	Glu	Leu	Ile	Ser	Ser	Glu	Tyr	Phe	Thr	Gln	Glu	
3155						3160					3165				
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Gln	Arg	Gln	Glu	Leu	Leu	Arg	Gln	Phe	Arg	Thr	Gly	Lys	Val	Thr	
3170						3175					3180				
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Val	Glu	Lys	Val	Ile	Arg	Ile	Val	Ile	Thr	Ile	Val	Glu	Glu	Val	
3185						3190					3195				
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Glu	Thr	Gln	Arg	Gln	Glu	Arg	Leu	Ser	Phe	Ser	Gly	Leu	Arg	Ala	
3200						3205					3210				
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Pro	Val	Pro	Ala	Ser	Glu	Leu	Leu	Ala	Ala	Lys	Ile	Leu	Ser	Arg	
3215						3220					3225				
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Ala	Gln	Phe	Asp	Gln	Leu	Lys	Glu	Gly	Lys	Thr	Ser	Val	Lys	Asp	
3230						3235					3240				
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Leu	Ser	Glu	Val	Gly	Ser	Val	Arg	Thr	Leu	Leu	Gln	Gly	Ser	Gly	
3245						3250					3255				
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Cys 3260	Leu	Ala	Gly	Val	Tyr	Leu 3265	Glu	Asp	Ser	Lys	Glu 3270	Lys	Val	Thr	
atc	tat	gag	gcc	atg	cgc	cgg	ggc	ctc	ctc	aga	ccc	agc	aca	gcc	9864
Ile	Tyr 3275	Glu	Ala	Met	Arg	Arg 3280	Gly	Leu	Leu	Arg	Pro 3285	Ser	Thr	Ala	
aca	ctc	ctg	ctg	gag	gcc	cag	gct	gcc	act	ggc	ttt	ctg	gtg	gac	9909
Thr	Leu 3290	Leu	Leu	Glu	Ala	Gln 3295	Ala	Ala	Thr	Gly	Phe 3300	Leu	Val	Asp	
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Pro	Val 3305	Arg	Asn	Gln	Arg	Leu 3310	Tyr	Val	His	Glu	Ala 3315	Val	Lys	Ala	
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Lys	Ala 3335	Val	Thr	Gly	Tyr	Lys 3340	Asp	Pro	Tyr	Ser	Gly 3345	Thr	Thr	Ile	
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Ala	Ile 3365	Arg	Leu	Leu	Glu	Ala 3370	Gln	Ile	Ala	Thr	Gly 3375	Gly	Ile	Ile	
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Arg	Gly 3395	Tyr	Phe	Asp	Glu	Glu 3400	Met	Ser	Arg	Ile	Leu 3405	Ala	Asp	Pro	
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Ile	Pro 3500	Glu	Asp	Gln	Arg	Ala 3505	Arg	Leu	Met	Ala	Asp 3510	Phe	Gln	Ala	
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Gly	Arg 3515	Val	Thr	Lys	Glu	Arg 3520	Met	Ile	Ile	Ile	Ile 3525	Ile	Glu	Ile	
atc	gag	aag	acc	gag	atc	atc	cgc	cag	cag	aac	ctt	gcc	tcc	tat	10629

Ile	Glu	Lys	Thr	Glu	Ile	Ile	Arg	Gln	Gln	Asn	Leu	Ala	Ser	Tyr	
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Asp	Tyr	Val	Arg	Arg	Arg	Leu	Thr	Ala	Glu	Asp	Leu	Tyr	Glu	Ala	
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Arg	Ile	Ile	Ser	Leu	Glu	Thr	Tyr	Asn	Leu	Phe	Arg	Glu	Gly	Thr	
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Lys	Ser	Leu	Arg	Glu	Val	Leu	Glu	Met	Glu	Ser	Ala	Trp	Arg	Tyr	
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Ser	Ala	Glu	Val	Ala	Arg	Leu	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	
3620						3625					3630				
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Gly	Phe	Leu	Leu	Asp	Pro	Val	Lys	Gly	Glu	Arg	Leu	Thr	Val	Asp	
3635						3640					3645				
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Glu	Ala	Val	Arg	Lys	Gly	Leu	Val	Gly	Pro	Glu	Leu	His	Asp	Arg	
3650						3655					3660				
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3665						3670					3675				
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Thr	Glu	Gln	Thr	Ile	Ser	Leu	Phe	Gln	Ala	Met	Lys	Lys	Glu	Leu	
3680						3685					3690				
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Ile	Pro	Ala	Glu	Glu	Ala	Leu	Arg	Leu	Leu	Asp	Ala	Gln	Leu	Ala	
3695						3700					3705				
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3710						3715					3720				
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Glu	Val	Ala	Tyr	Gln	Arg	Gly	Tyr	Leu	Asn	Lys	Asp	Thr	His	Asp	
3725						3730					3735				
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Gln	Leu	Ser	Glu	Pro	Ser	Glu	Val	Arg	Ser	Tyr	Val	Asp	Pro	Ser	
3740						3745					3750				
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Thr	Asp	Glu	Arg	Leu	Ser	Tyr	Thr	Gln	Leu	Leu	Lys	Arg	Cys	Arg	
3755						3760					3765				
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Arg	Asp	Asp	Gly	Ser	Gly	Gln	Met	Leu	Leu	Pro	Leu	Ser	Asp	Ala	
3770						3775					3780				
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Arg	Arg	Leu	Thr	Phe	Arg	Gly	Leu	Arg	Lys	Gln	Ile	Thr	Val	Glu	
3785						3790					3795				
gag	ctg	gtg	cgt	tct	cag	gtc	atg	gac	gag	gcc	acg	gcg	cta	cag	11439



Glu 3800	Leu	Val	Arg	Ser	Gln	Val 3805	Met	Asp	Glu	Ala	Thr 3810	Ala	Leu	Gln	
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Leu 3815	Gln	Glu	Gly	Leu	Thr	Ser 3820	Ile	Glu	Glu	Val	Thr 3825	Lys	Thr	Leu	
cag	aag	ttc	ctt	gag	ggt	acc	agc	tgc	atc	gcc	gga	gtc	ttc	gtt	11529
Gln 3830	Lys	Phe	Leu	Glu	Gly	Thr 3835	Ser	Cys	Ile	Ala	Gly 3840	Val	Phe	Val	
gac	gcc	acc	aag	gag	cgg	ctg	tca	gtg	tac	cag	gcc	atg	aag	aag	11574
Asp 3845	Ala	Thr	Lys	Glu	Arg	Leu 3850	Ser	Val	Tyr	Gln	Ala 3855	Met	Lys	Lys	
ggc	att	atc	cgc	ccc	ggc	acg	gcc	ttt	gag	ctc	ctg	gaa	gca	cag	11619
Gly 3860	Ile	Ile	Arg	Pro	Gly	Thr 3865	Ala	Phe	Glu	Leu	Leu 3870	Glu	Ala	Gln	
gcg	gcc	act	ggc	tat	gtc	att	gac	cct	atc	aag	gga	ctc	aag	ctg	11664
Ala 3875	Ala	Thr	Gly	Tyr	Val	Ile 3880	Asp	Pro	Ile	Lys	Gly 3885	Leu	Lys	Leu	
act	gtg	gag	gag	gct	gtg	cgc	atg	ggc	atc	gtg	ggc	ccc	gag	ttc	11709
Thr 3890	Val	Glu	Glu	Ala	Val	Arg 3895	Met	Gly	Ile	Val	Gly 3900	Pro	Glu	Phe	
aaa	gac	agg	ctg	ctg	tca	gcc	gag	cgc	gcc	gtc	act	ggc	tac	aag	11754
Lys 3905	Asp	Arg	Leu	Leu	Ser	Ala 3910	Glu	Arg	Ala	Val	Thr 3915	Gly	Tyr	Lys	
gat	ccc	tac	tct	ggg	aaa	ctc	atc	tct	ctc	ttc	cag	gcc	atg	aag	11799
Asp 3920	Pro	Tyr	Ser	Gly	Lys	Leu 3925	Ile	Ser	Leu	Phe	Gln 3930	Ala	Met	Lys	
aag	ggc	cta	atc	ctg	aag	gac	cac	ggc	atc	cgt	ctg	ctg	gag	gct	11844
Lys 3935	Gly	Leu	Ile	Leu	Lys	Asp 3940	His	Gly	Ile	Arg	Leu 3945	Leu	Glu	Ala	
cag	atc	gcc	act	ggc	ggc	atc	atc	gac	ccc	gaa	gag	agc	cac	cgc	11889
Gln 3950	Ile	Ala	Thr	Gly	Gly	Ile 3955	Ile	Asp	Pro	Glu	Glu 3960	Ser	His	Arg	
cta	cct	gtg	gaa	gtg	gcc	tat	aag	cgt	ggc	ctc	ttc	gac	gag	gag	11934
Leu 3965	Pro	Val	Glu	Val	Ala	Tyr 3970	Lys	Arg	Gly	Leu	Phe 3975	Asp	Glu	Glu	
atg	aat	gag	atc	ctg	acc	gat	ccc	tca	gat	gac	acc	aag	ggc	ttc	11979
Met 3980	Asn	Glu	Ile	Leu	Thr	Asp 3985	Pro	Ser	Asp	Asp	Thr 3990	Lys	Gly	Phe	
ttt	gac	ccc	aac	aca	gag	gag	aac	ctc	acc	tac	ctg	cag	ctg	atg	12024
Phe 3995	Asp	Pro	Asn	Thr	Glu	Glu 4000	Asn	Leu	Thr	Tyr	Leu 4005	Gln	Leu	Met	
gag	cgc	tgc	atc	act	gac	ccc	cag	act	ggc	ctg	cgt	ctc	ctg	cca	12069
Glu 4010	Arg	Cys	Ile	Thr	Asp	Pro 4015	Gln	Thr	Gly	Leu	Arg 4020	Leu	Leu	Pro	
ctg	aag	gag	aag	aag	cgg	gag	cgg	aag	acg	tcc	tcc	aag	tct	tca	12114
Leu 4025	Lys	Glu	Lys	Lys	Arg	Glu 4030	Arg	Lys	Thr	Ser	Ser 4035	Lys	Ser	Ser	
gtg	cgt	aag	cgc	cgt	gtg	gtg	att	gtg	gac	cct	gag	aca	agc	aag	12159
Val 4040	Arg	Lys	Arg	Arg	Val	Val 4045	Ile	Val	Asp	Pro	Glu 4050	Thr	Ser	Lys	
gag	atg	tcg	gtg	tac	gag	gcc	tac	cgc	aag	ggc	ctc	att	gac	cac	12204
Glu 4055	Met	Ser	Val	Tyr	Glu	Ala 4060	Tyr	Arg	Lys	Gly	Leu 4065	Ile	Asp	His	
cag	acg	tac	ctg	gag	ctg	tca	gag	cag	gag	tgc	gag	tgg	gaa	gaa	12249

Gln	Thr	Tyr	Leu	Glu	Leu	Ser	Glu	Gln	Glu	Cys	Glu	Trp	Glu	Glu	
	4070					4075					4080				
atc	acc	atc	tcc	tcg	tca	gac	ggc	gtg	gtc	aaa	tct	atg	atc	att	12294
Ile	Thr	Ile	Ser	Ser	Ser	Asp	Gly	Val	Val	Lys	Ser	Met	Ile	Ile	
	4085					4090					4095				
gac	cgg	cgc	tct	ggc	cga	cag	tat	gac	att	gat	gac	gcc	atc	acc	12339
Asp	Arg	Arg	Ser	Gly	Arg	Gln	Tyr	Asp	Ile	Asp	Asp	Ala	Ile	Thr	
	4100					4105					4110				
gag	aac	ctc	att	gac	cgc	tcc	gca	ctg	gac	cag	tac	cgt	gcg	ggc	12384
Glu	Asn	Leu	Ile	Asp	Arg	Ser	Ala	Leu	Asp	Gln	Tyr	Arg	Ala	Gly	
	4115					4120					4125				
aca	ctt	tcc	atc	act	gag	ttt	gct	gac	atg	ctc	tcg	ggc	aat	gct	12429
Thr	Leu	Ser	Ile	Thr	Glu	Phe	Ala	Asp	Met	Leu	Ser	Gly	Asn	Ala	
	4130					4135					4140				
ggc	ggc	ttc	cgc	tcc	cgc	tcc	tcc	tcc	gtg	ggc	tca	tca	tct	tcc	12474
Gly	Gly	Phe	Arg	Ser	Arg	Ser	Ser	Ser	Val	Gly	Ser	Ser	Ser	Ser	
	4145					4150					4155				
tac	ccc	atc	agc	cct	gcc	gtc	tcg	agg	acc	cag	ttg	gct	tcc	tg	12519
Tyr	Pro	Ile	Ser	Pro	Ala	Val	Ser	Arg	Thr	Gln	Leu	Ala	Ser	Trp	
	4160					4165					4170				
tct	gat	cct	acc	gag	gag	acc	ggc	cca	gtg	gct	ggc	atc	ctg	gac	12564
Ser	Asp	Pro	Thr	Glu	Glu	Thr	Gly	Pro	Val	Ala	Gly	Ile	Leu	Asp	
	4175					4180					4185				
aca	gag	act	ctg	gag	aag	gtg	tcc	atc	acg	gag	gcc	atg	cac	cgc	12609
Thr	Glu	Thr	Leu	Glu	Lys	Val	Ser	Ile	Thr	Glu	Ala	Met	His	Arg	
	4190					4195					4200				
aac	ctg	gta	gac	aac	atc	act	ggc	cag	cgg	ctg	ctg	gag	gca	cag	12654
Asn	Leu	Val	Asp	Asn	Ile	Thr	Gly	Gln	Arg	Leu	Leu	Glu	Ala	Gln	
	4205					4210					4215				
gcc	tgc	act	ggg	ggc	atc	atc	gat	ccc	agc	acg	ggc	gag	cgc	ttc	12699
Ala	Cys	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Ser	Thr	Gly	Glu	Arg	Phe	
	4220					4225					4230				
cca	gtc	act	gag	gct	gtc	aac	aag	ggc	ctg	gta	gac	aag	atc	atg	12744
Pro	Val	Thr	Glu	Ala	Val	Asn	Lys	Gly	Leu	Val	Asp	Lys	Ile	Met	
	4235					4240					4245				
gta	gac	cgc	atc	aat	ctg	gcc	cag	aag	ggc	ttc	tgt	ggg	ttc	gag	12789
Val	Asp	Arg	Ile	Asn	Leu	Ala	Gln	Lys	Ala	Phe	Cys	Gly	Phe	Glu	
	4250					4255					4260				
gac	cca	cgc	acc	aag	acc	aag	atg	tca	ggc	gcg	cag	gcc	ctg	aag	12834
Asp	Pro	Arg	Thr	Lys	Thr	Lys	Met	Ser	Ala	Ala	Gln	Ala	Leu	Lys	
	4265					4270					4275				
aag	ggc	tgg	ctg	tac	tac	gag	g								

Thr	Cys	Pro	Lys	Thr	Lys	Leu	Lys	Ile	Ser	Tyr	Lys	Asp	Ala	Leu	
	4340					4345					4350				
gac	cgc	agc	atg	gtg	gag	gag	ggc	acg	ggg	ctg	agg	ctg	ttg	gaa	13104
Asp	Arg	Ser	Met	Val	Glu	Glu	Gly	Thr	Gly	Leu	Arg	Leu	Leu	Glu	
	4355					4360					4365				
gcc	gca	gca	cag	tcc	agc	aag	ggc	tac	tac	agt	ccc	tac	agt	gtc	13149
Ala	Ala	Ala	Gln	Ser	Ser	Lys	Gly	Tyr	Tyr	Ser	Pro	Tyr	Ser	Val	
	4370					4375					4380				
agc	ggc	tct	ggc	tcc	acc	acc	ggc	tca	cgc	act	ggc	tca	cgc	acc	13194
Ser	Gly	Ser	Gly	Ser	Thr	Thr	Gly	Ser	Arg	Thr	Gly	Ser	Arg	Thr	
	4385					4390					4395				
ggc	tcc	cgg	gcc	ggc	tcc	cgc	cgt	ggc	agc	ttt	gat	gcc	act	ggc	13239
Gly	Ser	Arg	Ala	Gly	Ser	Arg	Arg	Gly	Ser	Phe	Asp	Ala	Thr	Gly	
	4400					4405					4410				
tct	ggc	ttc	tcc	atg	acc	ttc	tgc	tct	tcc	tct	tac	tct	tcc	tcc	13284
Ser	Gly	Phe	Ser	Met	Thr	Phe	Ser	Ser	Ser	Ser	Tyr	Ser	Ser	Ser	
	4415					4420					4425				
ggg	tat	ggc	cgc	cgc	tac	gcc	tca	ggg	cct	cca	gcc	tct	tta	ggg	13329
Gly	Tyr	Gly	Arg	Arg	Tyr	Ala	Ser	Gly	Pro	Pro	Ala	Ser	Leu	Gly	
	4430					4435					4440				
ggc	cct	gag	tcc	gcg	gtg	gcc									13350
Gly	Pro	Glu	Ser	Ala	Val	Ala									
	4445					4450									

Met Arg Phe His Lys Leu Gln Asn Val Gln Ile Ala Leu Asp Tyr Leu  
1 5 10 15

Asp Gly Asn Pro Lys Leu Thr Leu Gly Leu Ile Trp Thr Ile Ile Leu  
35 40 45

Thr Ala Lys Glu Lys Leu Leu Leu Trp Ser Gln Arg Met Val Glu Gly  
65 70 75 80

Arg Leu Phe Asn Ala Ile Ile His Arg His Lys Pro Met Leu Ile Asp  
100 105 110

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

130

135

140

Glu Asp Val Asp Val Pro Gln Pro Asp Glu Lys Ser Ile Ile Thr Tyr  
145 150 155 160

Val Ser Ser Leu Tyr Asp Ala Met Pro Arg Val Pro Gly Ala Gln Asn  
165 170 175

Gly Val Arg Ala Asn Glu Leu Gln Leu Arg Trp Gln Glu Tyr Arg Glu  
180 185 190

Leu Val Leu Leu Leu Leu Gln Trp Ile Arg His His Thr Ala Ala Phe  
195 200 205

Glu Glu Arg Lys Phe Pro Ser Ser Phe Glu Glu Ile Glu Ile Leu Trp  
210 215 220

Cys Gln Phe Leu Lys Phe Lys Glu Thr Glu Leu Pro Ala Lys Glu Ala  
225 230 235 240

Asp Lys Ser Arg Ser Lys Gly Ile Tyr Gln Ser Leu Glu Gly Ala Val  
245 250 255

Gln Ala Gly Gln Leu Gln Ile Pro Pro Gly Phe His Pro Leu Asp Val  
260 265 270

Glu Lys Glu Trp Gly Lys Leu His Val Ala Ile Leu Glu Arg Glu Lys  
275 280 285

Gln Leu Arg Gly Glu Phe Glu Arg Leu Glu Cys Leu Gln Arg Ile Val  
290 295 300

Ser Lys Leu Gln Met Glu Ala Gly Leu Cys Glu Glu Gln Leu Asn Gln  
305 310 315 320

Ala Asp Ser Leu Leu Gln Ser Asp Ile Arg Leu Leu Ala Ser Gly Lys  
325 330 335

Val Ala Gln Arg Ala Gly Glu Val Glu Arg Asp Leu Asp Lys Ala Asp  
340 345 350

Gly Met Ile Arg Leu Leu Phe Asn Asp Val Gln Thr Leu Lys Asp Gly  
355 360 365

Arg His Pro Gln Gly Glu Gln Met Tyr Arg Arg Val Tyr Arg Leu His  
370 375 380

Glu Arg Leu Val Ala Ile Arg Thr Glu Tyr Asn Leu Arg Leu Lys Ala  
385 390 395 400

Gly Val Ala Ala Pro Val Thr Gln Val Thr Val Gln Ser Thr Gln Arg  
405 410 415

Arg Pro Glu Leu Glu Asp Ser Thr Leu Arg Tyr Leu Gln Asp Leu Leu

420

425

430

Ala Trp Val Glu Glu Asn Gln Arg Arg Ile Asp Ser Ala Glu Trp Gly  
 435 440 445

Val Asp Leu Pro Ser Val Glu Ala Gln Leu Gly Ser His Arg Gly Met  
 450 455 460

His Gln Ser Ile Glu Glu Phe Arg Ala Lys Ile Glu Arg Ala Arg Asn  
 465 470 475 480

Asp Glu Ser Gln Leu Ser Pro Ala Thr Arg Gly Ala Tyr Arg Glu Cys  
 485 490 495

Leu Gly Arg Leu Asp Leu Gln Tyr Ala Lys Leu Leu Asn Ser Ser Lys  
 500 505 510

Ala Arg Leu Arg Ser Leu Glu Ser Leu His Gly Phe Val Ala Ala Ala  
 515 520 525

Thr Lys Glu Leu Met Trp Leu Asn Glu Lys Glu Glu Glu Glu Val Gly  
 530 535 540

Phe Asp Trp Ser Asp Arg Asn Thr Asn Met Ala Ala Lys Lys Glu Ser  
 545 550 555 560

Tyr Ser Ala Leu Met Arg Glu Leu Glu Met Lys Glu Lys Lys Ile Lys  
 565 570 575

Glu Thr Gln Asn Thr Gly Asp Arg Leu Leu Arg Glu Asp His His Ala  
 580 585 590

Arg Pro Thr Val Glu Ser Phe Gln Ala Ala Leu Gln Thr Gln Trp Ser  
 595 600 605

Trp Met Leu Gln Leu Cys Cys Cys Ile Glu Ala His Leu Lys Glu Asn  
 610 615 620

Thr Ala Tyr Phe Gln Phe Phe Ser Asp Val Arg Glu Ala Glu Glu Gln  
 625 630 635 640

Leu Gln Lys Leu Gln Glu Thr Met Arg Arg Glu Tyr Ser Cys Asp Arg  
 645 650 655

Ser Ile Thr Val Thr Arg Leu Glu Asp Leu Leu Gln Asp Ala Gln Asp  
 660 665 670

Glu Arg Glu Gln Leu Asn Glu Tyr Lys Gly His Leu Ser Gly Leu Ala  
 675 680 685

Lys Arg Ala Lys Ala Ile Val Gln Leu Lys Pro Arg Asn Pro Ala His  
 690 695 700

Pro Val Arg Gly His Val Pro Leu Met Ala Val Cys Asp Tyr Lys Gln

705		710		715		720
Val Glu Val Thr	Val His Lys Gly Asp	Gln Cys Gln Leu Val	Gly Pro			
	725		730			735
Ala Gln Pro Ser	His Trp Lys Val	Leu Arg Gly Pro	Ser Ser Glu Ala			
	740		745			750
Ala Val Pro Ser	Val Cys Phe Leu Val	Pro Pro Pro Asn	Gln Glu Ala			
	755		760			765
Gln Glu Ala Val	Ala Arg Leu Glu Ala	Gln His Gln Ala	Leu Val Thr			
	770		775			780
Leu Trp His Gln	Leu His Val Asp Met	Lys Ser Leu Leu Ala	Trp Gln			
	785		790			795
Asn Leu Ser Arg	Asp Ile Gln Leu Ile	Arg Ser Trp Ser	Leu Val Thr			
	805		810			815
Phe Arg Thr Leu	Lys Pro Glu Glu Gln	Arg Gln Ala Leu	Arg Asn Leu			
	820		825			830
Glu Leu His Tyr	Gln Ala Phe Leu Arg	Asp Ser Gln Asp	Ala Gly Gly			
	835		840			845
Phe Gly Pro Glu	Asp Arg Leu Val Ala	Glu Arg Glu Tyr	Gly Ser Cys			
	850		855			860
Ser Arg His Tyr	Gln Gln Leu Leu Gln	Ser Leu Glu Gln	Gly Glu Gln			
	865		870			875
Glu Glu Ser Arg	Cys Gln Arg Cys Ile	Ser Glu Leu Lys	Asp Ile Arg			
	885		890			895
Leu Gln Leu Glu	Ala Cys Glu Thr Arg	Thr Val His Arg	Leu Arg Leu			
	900		905			910
Pro Leu Asp Lys	Glu Pro Ala Arg Glu	Cys Ala Gln Arg	Ile Ala Glu			
	915		920			925
Gln Gln Lys Ala	Gln Ala Glu Val Glu	Gly Leu Gly Lys	Gly Val Ala			
	930		935			940
Arg Leu Ser Ala	Glu Ala Glu Lys Val	Leu Ala Leu Pro	Glu Pro Ser			
	945		950			955
Pro Ala Ala Pro	Thr Leu Arg Ser Glu	Leu Glu Leu Thr	Leu Gly Lys			
	965		970			975
Leu Glu Gln Val	Arg Ser Leu Ser Ala	Ile Tyr Leu Glu	Lys Leu Lys			
	980		985			990
Thr Ile Ser Leu	Val Ile Arg Ser Thr	Gln Gly Ala Glu	Glu Val Leu			

995

1000

1005

Lys Ala His Glu Glu Gln Leu Lys Glu Ala Gln Ala Val Pro Ala  
1010 1015 1020

Thr Leu Gln Glu Leu Glu Ala Thr Lys Ala Ser Leu Lys Lys Leu  
1025 1030 1035

Arg Ala Gln Ala Glu Ala Gln Gln Pro Val Phe Asp Thr Leu Arg  
1040 1045 1050

Asp Glu Leu Arg Gly Ala Gln Glu Val Gly Glu Arg Leu Gln Gln  
1055 1060 1065

Arg His Gly Glu Arg Asp Val Glu Val Glu Arg Trp Arg Glu Arg  
1070 1075 1080

Val Asn Gln Leu Leu Glu Arg Trp Gln Ala Val Leu Ala Gln Ile  
1085 1090 1095

Asp Val Arg Gln Arg Glu Leu Glu Gln Leu Gly Arg Gln Leu Arg  
1100 1105 1110

Tyr Tyr Arg Glu Ser Ala Asp Pro Leu Ser Ser Trp Leu Gln Asp  
1115 1120 1125

Ala Lys Arg Arg Gln Glu Gln Ile Gln Ala Val Pro Ile Pro Asn  
1130 1135 1140

Ser Gln Ala Ala Arg Glu Gln Leu Arg Gln Glu Lys Ala Leu Leu  
1145 1150 1155

Glu Glu Ile Glu Arg His Gly Glu Lys Val Glu Glu Cys Gln Lys  
1160 1165 1170

Phe Ala Lys Gln Tyr Ile Asn Ala Ile Lys Asp Tyr Glu Leu Gln  
1175 1180 1185

Leu Val Thr Tyr Lys Ala Gln Leu Glu Pro Val Ala Ser Pro Ala  
1190 1195 1200

Lys Lys Pro Lys Val Gln Ser Gly Ser Glu Ser Val Ile Gln Glu  
1205 1210 1215

Tyr Val Asp Leu Arg Thr Arg Tyr Ser Glu Leu Thr Thr Leu Thr  
1220 1225 1230

Ser Gln Tyr Ile Lys Phe Ile Ser Glu Thr Leu Arg Arg Met Glu  
1235 1240 1245

Glu Glu Glu Arg Leu Ala Glu Gln Gln Arg Ala Glu Glu Arg Glu  
1250 1255 1260

Arg Leu Ala Glu Gly Glu Ala Ala Leu Glu Lys Gln Arg Gln Leu

1265		1270		1275
Ala Glu 1280	Ala His 1280	Ala Gln 1285	Lys Ala 1285	Gln Ala 1290
				Leu Glu Ala 1290
Gln Glu 1295	Leu Gln 1295	Arg Arg 1300	Met 1300	Gln Glu 1305
				Glu Val 1305
Glu Ala 1310	Ala Val 1310	Asn Ala 1315	Gln 1315	Gln Gln 1320
				Lys Arg 1320
Glu Leu 1325	Gln His 1325	Leu Arg 1330	Gln 1330	Ser Ser 1335
				Glu Ala 1335
Lys Ala 1340	Gln Gln 1340	Val Glu 1345	Ala Ala 1345	Glu Arg 1350
				Ser Arg 1350
Glu Glu 1355	Glu Ile 1355	Arg Val 1360	Val 1360	Arg Leu 1365
				Gln Leu 1365
Arg Gln 1370	Arg Gly 1370	Gly Ala 1375	Glu 1375	Gly Glu 1380
				Leu Gln 1380
Arg Ala 1385	Glu Glu 1385	Ala Glu 1390	Ala 1390	Gln Lys 1395
				Arg Gln 1395
Ala Glu 1400	Arg Leu 1400	Arg Arg 1405	Gln 1405	Val Gln 1410
				Asp Glu 1410
Arg Gln 1415	Ala Glu 1415	Ala Glu 1420	Leu 1420	Ala Leu 1425
				Arg Val 1425
Glu Ala 1430	Ala Gln 1430	Glu Lys 1435	Gln 1435	Arg Ala 1440
				Leu Gln 1440
Leu Arg 1445	Leu Gln 1445	Ala Glu 1450	Glu 1450	Ala Glu 1455
				Arg Arg 1455
Gln Ala 1460	Glu Arg 1460	Ala Arg 1465	Gln 1465	Val Gln 1470
				Val Ala 1470
Gln Arg 1475	Ser Ala 1475	Glu Val 1480	Glu 1480	Leu Gln 1485
				Ser Lys 1485
Ala Glu 1490	Lys Thr 1490	Ala Gln 1495	Leu 1495	Glu Arg 1500
				Thr Leu 1500
Val Thr 1505	Val Thr 1505	Gln Leu 1510	Arg 1510	Glu Lys 1515
				Ala Glu 1515
Gln Gln 1520	Ala Glu 1520	Ala Glu 1525	Arg 1525	Ala Arg 1530
				Glu Glu 1530
Leu Glu	Arg Trp	Gln Leu	Lys	Ala Asn
				Glu Ala
				Leu
				Arg Leu
				Arg



1535		1540		1545
Leu Gln Ala Glu Glu Val	Ala Gln Gln Arg Ser	Leu Ala Gln Ala		
1550	1555	1560		
Asp Ala Glu Lys Gln Lys	Glu Glu Ala Glu Arg	Glu Ala Arg Arg		
1565	1570	1575		
Arg Gly Lys Ala Glu Glu	Gln Ala Val Arg Gln Arg	Glu Leu Ala		
1580	1585	1590		
Glu Gln Glu Leu Glu Lys	Gln Arg Gln Leu Ala	Glu Gly Thr Ala		
1595	1600	1605		
Gln Gln Arg Leu Ala Ala	Glu Gln Glu Leu Ile Arg	Leu Arg Ala		
1610	1615	1620		
Glu Thr Glu Gln Gly Glu	Gln Arg Gln Leu Leu	Glu Glu Glu		
1625	1630	1635		
Leu Ala Arg Leu Gln Arg	Glu Ala Thr Ala Ala Thr	His Lys Arg		
1640	1645	1650		
Gln Glu Leu Glu Ala Glu	Leu Ala Lys Val Arg Ala	Glu Met Glu		
1655	1660	1665		
Val Leu Leu Ala Ser Lys	Ala Arg Ala Glu Glu Glu	Ser Arg Ser		
1670	1675	1680		
Thr Ser Glu Lys Ser Lys	Gln Arg Leu Glu Ala Glu	Ala Asp Arg		
1685	1690	1695		
Phe Arg Glu Leu Ala Glu	Glu Ala Ala Arg Leu Arg	Ala Leu Ala		
1700	1705	1710		
Glu Glu Ala Lys Arg Gln	Arg Gln Leu Ala Glu Glu	Asp Ala Ala		
1715	1720	1725		
Arg Gln Arg Ala Glu Ala	Glu Arg Val Leu Thr Glu	Lys Leu Ala		
1730	1735	1740		
Ala Ile Ser Glu Ala Thr	Arg Leu Lys Thr Glu Ala	Glu Ile Ala		
1745	1750	1755		
Leu Lys Glu Lys Glu Ala	Glu Asn Glu Arg Leu Arg	Arg Leu Ala		
1760	1765	1770		
Glu Asp Glu Ala Phe Gln	Arg Arg Leu Glu Glu	Gln Ala Ala		
1775	1780	1785		
Leu His Lys Ala Asp Ile	Glu Glu Arg Leu Ala Gln	Leu Arg Lys		
1790	1795	1800		
Ala Ser Glu Ser Glu Leu	Glu Arg Gln Lys Gly Leu	Val Glu Asp		

1805		1810		1815	
Thr Leu Arg Gln Arg Arg Gln Val Glu Glu Glu Ile Leu Ala Leu					
1820		1825		1830	
Lys Val Ser Phe Glu Lys Ala Ala Ala Gly Lys Ala Glu Leu Glu					
1835		1840		1845	
Leu Glu Leu Gly Arg Ile Arg Ser Ser Ala Glu Asp Thr Met Arg					
1850		1855		1860	
Ser Lys Glu Gln Ala Glu Gln Glu Ala Ala Arg Gln Arg Gln Leu					
1865		1870		1875	
Ala Ala Glu Glu Glu Gln Arg Arg Arg Glu Ala Glu Glu Arg Val					
1880		1885		1890	
Gln Lys Ser Leu Ala Ala Glu Glu Glu Ala Ala Arg Gln Arg Lys					
1895		1900		1905	
Ala Ala Leu Glu Glu Val Glu Arg Leu Lys Ala Lys Val Glu Glu					
1910		1915		1920	
Ala Arg Arg Leu Arg Glu Arg Ala Glu Gln Glu Ser Ala Arg Gln					
1925		1930		1935	
Leu Gln Leu Ala Gln Glu Ala Ala Gln Lys Arg Leu Gln Ala Glu					
1940		1945		1950	
Glu Lys Ala His Ala Phe Val Val Gln Gln Arg Glu Glu Glu Leu					
1955		1960		1965	
Gln Gln Thr Leu Gln Gln Glu Gln Ser Met Leu Glu Arg Leu Arg					
1970		1975		1980	
Gly Glu Ala Glu Ala Ala Arg Arg Ala Ala Glu Glu Ala Glu Glu					
1985		1990		1995	
Ala Arg Glu Gln Ala Glu Arg Glu Ala Ala Gln Ser Arg Lys Gln					
2000		2005		2010	
Val Glu Glu Ala Glu Arg Leu Lys Gln Ser Ala Glu Glu Gln Ala					
2015		2020		2025	
Gln Ala Arg Ala Gln Ala Gln Ala Ala Ala Glu Lys Leu Arg Lys					
2030		2035		2040	
Glu Ala Glu Gln Glu Ala Ala Arg Arg Ala Gln Ala Glu Gln Ala					
2045		2050		2055	
Ala Leu Lys Gln Lys Gln Ala Ala Asp Ala Glu Met Glu Lys His					
2060		2065		2070	
Lys Lys Phe Ala Glu Gln Thr Leu Arg Gln Lys Ala Gln Val Glu					

2075	2080	2085
Gln Glu Leu Thr Thr Leu Arg Leu Gln Leu Glu Glu Thr Asp His		
2090	2095	2100
Gln Lys Ser Ile Leu Asp Glu Glu Leu Gln Arg Leu Lys Ala Glu		
2105	2110	2115
Val Thr Glu Ala Ala Arg Gln Arg Ser Gln Val Glu Glu Glu Leu		
2120	2125	2130
Phe Ser Val Arg Val Gln Met Glu Glu Leu Gly Lys Leu Lys Ala		
2135	2140	2145
Arg Ile Glu Ala Glu Asn Arg Ala Leu Ile Leu Arg Asp Lys Asp		
2150	2155	2160
Asn Thr Gln Arg Phe Leu Glu Glu Glu Ala Glu Lys Met Lys Gln		
2165	2170	2175
Val Ala Glu Glu Ala Ala Arg Leu Ser Val Ala Ala Gln Glu Ala		
2180	2185	2190
Ala Arg Leu Arg Gln Leu Ala Glu Glu Asp Leu Ala Gln Gln Arg		
2195	2200	2205
Ala Leu Ala Glu Lys Met Leu Lys Glu Lys Met Gln Ala Val Gln		
2210	2215	2220
Glu Ala Thr Arg Leu Lys Ala Glu Ala Glu Leu Leu Gln Gln Gln		
2225	2230	2235
Lys Glu Leu Ala Gln Glu Gln Ala Arg Arg Leu Gln Glu Asp Lys		
2240	2245	2250
Glu Gln Met Ala Gln Gln Leu Val Glu Glu Thr Gln Gly Phe Gln		
2255	2260	2265
Arg Thr Leu Glu Val Glu Arg Gln Arg Gln Leu Glu Met Ser Ala		
2270	2275	2280
Glu Ala Glu Arg Leu Lys Leu Arg Met Ala Glu Met Ser Arg Ala		
2285	2290	2295
Gln Ala Arg Ala Glu Glu Asp Ala Gln Arg Phe Arg Lys Gln Ala		
2300	2305	2310
Glu Glu Ile Gly Glu Lys Leu His Arg Thr Glu Leu Ala Thr Gln		
2315	2320	2325
Glu Lys Val Thr Leu Val Gln Thr Leu Glu Ile Gln Arg Gln Gln		
2330	2335	2340
Ser Asp His Asp Ala Glu Arg Leu Arg Glu Ala Ile Ala Glu Leu		

2345		2350		2355
Glu Arg	Glu Lys	Glu Lys	Leu Lys	Gln Glu Ala Lys
2360			2365	2370
Leu Lys	Ser Glu	Glu Met	Gln Thr	Val Gln Gln Glu
2375			2380	2385
Gln Glu	Thr Gln	Ala Leu	Gln Lys	Ser Phe Leu Ser
2390			2395	2400
Ser Leu	Leu Gln	Arg Glu	Arg Phe	Ile Glu Gln Glu
2405			2410	2415
Leu Glu	Gln Leu	Phe Gln	Asp Glu	Val Ala Lys Ala
2420			2425	2430
Arg Glu	Glu Gln	Gln Arg	Gln Gln	Arg Met Glu
2435			2440	2445
Gln Glu	Leu Val	Ala Ser	Met Glu	Glu Ala Arg
2450			2455	2460
Glu Ala	Glu Glu	Ala Val	Arg Arg	Lys Gln Glu
2465			2470	2475
Leu Glu	Leu Gln	Arg Gln	Gln Gln	Lys Leu Leu
2480			2485	2490
Asn Gln	Arg Leu	Arg Glu	Arg Leu	Gln Arg Leu
2495			2500	2505
Arg Ala	Ala Leu	Ala His	Ser Glu	Glu Ile Ala
2510			2515	2520
Ala Ala	Ala Lys	Ala Leu	Pro Asn	Gly Arg Asp
2525			2530	2535
Pro Ser	Met Glu	Val Glu	Pro Glu	His Ala Phe
2540			2545	2550
Gln Lys	Val Pro	Ala Leu	Gln Leu	Arg Glu Ala
2555			2560	2565
Ala Glu	Glu Leu	Gln Arg	Leu Glu	Gln Gly His
2570			2575	2580
Glu Leu	Ser Gln	Arg Glu	Asp Val	Arg Gln Tyr
2585			2590	2595
Ser Ser	Ile Ala	Gly Leu	Leu Leu	Lys Pro Thr
2600			2605	2610
Ser Val	Tyr Thr	Ala Leu	Gln Arg	Gln Leu Leu
				Ser Pro Gly Thr

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Ala Leu Ile Leu Leu Glu	Ala Gln Ala Ala Ser Gly	Phe Leu Leu			
2630	2635	2640			
Asp Pro Val Arg Asn Arg	Arg Leu Thr Val Asn Glu	Pro Val Lys			
2645	2650	2655			
Glu Gly Val Val Gly Pro	Glu Leu His His Lys Leu	Leu Ser Ala			
2660	2665	2670			
Glu Arg Ala Val Thr Gly	Tyr Lys Asp Pro Tyr Thr	Gly Glu Gln			
2675	2680	2685			
Ile Ser Leu Phe Gln Ala	Met Lys Lys Asp Leu Leu	Val Arg Asp			
2690	2695	2700			
His Ala Ile Arg Leu Leu	Glu Ala Gln Ile Ala Thr	Gly Gly Ile			
2705	2710	2715			
Ile Asp Thr Val His Ser	His Arg Val Pro Val Asp	Val Ala Tyr			
2720	2725	2730			
Gln Arg Gly Tyr Phe Asp	Glu Glu Met Ser Arg Ile	Leu Ala Asp			
2735	2740	2745			
Pro Gly Asp Asp Thr Lys	Gly Phe Phe Asp Pro Asn	Thr His Glu			
2750	2755	2760			
Asn Leu Thr Tyr Leu Gln	Leu Leu Glu Arg Cys Val	Glu Asp Pro			
2765	2770	2775			
Glu Thr Gly Leu His Leu	Leu Pro Leu Thr Asp Lys	Ala Ala Lys			
2780	2785	2790			
Gly Gly Glu Leu Val Tyr	Thr Asp Thr Glu Ala Arg	Asp Val Phe			
2795	2800	2805			
Glu Lys Ala Thr Val Ser	Ala Pro Phe Gly Lys Phe	Gln Gly Lys			
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Thr Val Thr Ile Trp Glu	Ile Ile Asn Ser Glu Tyr	Phe Thr Ala			
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Glu Gln Arg Arg Asp Leu	Leu Arg Gln Phe Arg Thr	Gly Arg Ile			
2840	2845	2850			
Thr Val Glu Lys Ile Ile	Lys Ile Val Ile Thr Val	Val Glu Glu			
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Gln Glu Arg Lys Gly Gln	Leu Cys Phe Glu Gly Leu	Arg Ala Leu			
2870	2875	2880			
Val Pro Ala Ala Glu Leu	Leu Glu Ser Gly Val Ile	Ser His Glu			

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Leu Tyr	Gln Gln	Leu Gln	Arg Gly	Glu Arg Ser Val Arg Glu Val
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Ala Glu	Ala Asp Ser Val	Arg Arg	Ala Leu Arg Gly	Ala Ser Val
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Ile Ala	Gly Val Trp Leu	Glu Glu	Ala Gly Gln Lys	Leu Ser Ile
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Tyr Glu	Ala Leu Lys Lys	Asp Leu	Leu Gln Pro Asp	Val Ala Val
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Ala Leu	Leu Glu Ala Gln	Ala Gly	Thr Gly His Ile	Ile Asp Pro
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Ala Thr	Ser Ala Arg Leu	Thr Val	Asp Glu Ala Val	Arg Ala Gly
2975		2980		2985
Leu Val	Gly Pro Glu Leu	His Glu	Lys Leu Leu Ser	Ala Glu Lys
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Ala Val	Thr Gly Tyr Arg	Asp Pro	Tyr Ser Gly Gln	Ser Val Ser
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Leu Phe	Gln Ala Leu Lys	Lys Gly	Leu Ile Pro Arg	Glu Gln Gly
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Leu Arg	Leu Leu Asp Ala	Gln Leu	Ser Thr Gly Gly	Met Val Asp
3035		3040		3045
Pro Ser	Lys Ser His Arg	Val Pro	Leu Asp Val Ala	Tyr Ala Arg
3050		3055		3060
Gly Tyr	Leu Asp Lys Glu	Thr Asn	Arg Ala Leu Thr	Ser Pro Arg
3065		3070		3075
Asn Asp	Ala Arg Val Tyr	Leu Asp	Pro Ser Ser Gln	Glu Pro Ala
3080		3085		3090
Thr Tyr	Ser Gln Leu Gln	Gln Arg	Cys Arg Ala Asp	Gln Leu Thr
3095		3100		3105
Gly Leu	Ser Leu Leu Pro	Val Ser	Glu Lys Ala Val	Arg Ala Arg
3110		3115		3120
Gln Glu	Glu Val Tyr Ser	Glu Leu	Gln Ala Arg Glu	Thr Leu Glu
3125		3130		3135
Lys Ala	Arg Val Glu Val	Pro Val	Gly Gly Phe Lys	Gly Arg Thr
3140		3145		3150
Met Thr	Val Trp Glu Leu	Ile Ser	Ser Glu Tyr Phe	Thr Gln Glu

3155		3160		3165
Gln Arg 3170	Gln Glu Leu Leu	Arg 3175	Gln Phe Arg Thr	Gly Lys Val Thr 3180
Val Glu 3185	Lys Val Ile Arg	Ile 3190	Val Ile Thr Ile	Val Glu Glu Val 3195
Glu Thr 3200	Gln Arg Gln Glu	Arg 3205	Leu Ser Phe Ser	Gly Leu Arg Ala 3210
Pro Val 3215	Pro Ala Ser Glu	Leu 3220	Leu Ala Ala Lys	Ile Leu Ser Arg 3225
Ala Gln 3230	Phe Asp Gln Leu	Lys 3235	Glu Gly Lys Thr	Ser Val Lys Asp 3240
Leu Ser 3245	Glu Val Gly Ser	Val 3250	Arg Thr Leu Leu	Gln Gly Ser Gly 3255
Cys Leu 3260	Ala Gly Val Tyr	Leu 3265	Glu Asp Ser Lys	Glu Lys Val Thr 3270
Ile Tyr 3275	Glu Ala Met Arg	Arg 3280	Gly Leu Leu Arg	Pro Ser Thr Ala 3285
Thr Leu 3290	Leu Leu Glu Ala	Gln 3295	Ala Ala Thr Gly	Phe Leu Val Asp 3300
Pro Val 3305	Arg Asn Gln Arg	Leu 3310	Tyr Val His Glu	Ala Val Lys Ala 3315
Gly Val 3320	Val Gly Pro Glu	Leu 3325	His Glu Lys Leu	Leu Ser Ala Glu 3330
Lys Ala 3335	Val Thr Gly Tyr	Lys 3340	Asp Pro Tyr Ser	Gly Thr Thr Ile 3345
Ser Leu 3350	Phe Gln Ala Met	Lys 3355	Lys Gly Leu Val	Leu Arg Glu His 3360
Ala Ile 3365	Arg Leu Leu Glu	Ala 3370	Gln Ile Ala Thr	Gly Gly Ile Ile 3375
Asp Pro 3380	Val His Ser His	Arg 3385	Leu Pro Val Asp	Val Ala Tyr Gln 3390
Arg Gly 3395	Tyr Phe Asp Glu	Glu 3400	Met Ser Arg Ile	Leu Ala Asp Pro 3405
Ser Asp 3410	Asp Thr Lys Gly	Phe 3415	Phe Asp Pro Asn	Thr His Glu Asn 3420
Leu Thr	Tyr Leu Gln Leu	Leu	Glu Arg Cys Val	Glu Asp Pro Glu

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Thr Gly	Leu Arg	Leu Leu	Pro	Leu Lys Gly Ala Glu
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Val Val	Glu Thr	Thr Gln	Val	Tyr Thr Glu Glu Glu
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Ala Phe	Glu Glu	Thr Gln	Ile	Asp Ile Pro Gly Gly
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Gly Gly	Ser Ser	Met Ser	Leu	Trp Glu Val Met Gln
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Ile Pro	Glu Asp	Gln Arg	Ala	Arg Leu Met Ala Asp
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Gly Arg	Val Thr	Lys Glu	Arg	Met Ile Ile Ile Ile
3515			3520	3525
Ile Glu	Lys Thr	Glu Ile	Ile	Arg Gln Gln Asn Leu
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Asp Tyr	Val Arg	Arg Arg	Leu	Thr Ala Glu Asp Leu
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Arg Ile	Ile Ser	Leu Glu	Thr	Tyr Asn Leu Phe Arg
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Lys Ser	Leu Arg	Glu Val	Leu	Glu Met Glu Ser Ala
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Leu Tyr	Gly Thr	Gly Ser	Val	Ala Gly Val Tyr Leu
3590			3595	3600
Arg Gln	Thr Leu	Thr Ile	Tyr	Gln Ala Leu Lys Lys
3605			3610	3615
Ser Ala	Glu Val	Ala Arg	Leu	Leu Leu Glu Ala Gln
3620			3625	3630
Gly Phe	Leu Leu	Asp Pro	Val	Lys Gly Glu Arg Leu
3635			3640	3645
Glu Ala	Val Arg	Lys Gly	Leu	Val Gly Pro Glu Leu
3650			3655	3660
Leu Leu	Ser Ala	Glu Arg	Ala	Val Thr Gly Tyr Arg
3665			3670	3675
Thr Glu	Gln Thr	Ile Ser	Leu	Phe Gln Ala Met Lys
3680			3685	3690
Ile Pro	Ala Glu	Glu Ala	Leu	Arg Leu Leu Asp Ala
				Gln Leu Ala



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Thr Gly 3710	Gly Ile Val Asp	Pro 3715	Arg Leu Gly Phe	His 3720	Leu Pro Leu
Glu Val 3725	Ala Tyr Gln Arg	Gly 3730	Tyr Leu Asn Lys	Asp 3735	Thr His Asp
Gln Leu 3740	Ser Glu Pro Ser	Glu 3745	Val Arg Ser Tyr	Val 3750	Asp Pro Ser
Thr Asp 3755	Glu Arg Leu Ser	Tyr 3760	Thr Gln Leu Leu	Lys 3765	Arg Cys Arg
Arg Asp 3770	Asp Gly Ser Gly	Gln 3775	Met Leu Leu Pro	Leu 3780	Ser Asp Ala
Arg Arg 3785	Leu Thr Phe Arg	Gly 3790	Leu Arg Lys Gln	Ile 3795	Thr Val Glu
Glu Leu 3800	Val Arg Ser Gln	Val 3805	Met Asp Glu Ala	Thr 3810	Ala Leu Gln
Leu Gln 3815	Glu Gly Leu Thr	Ser 3820	Ile Glu Glu Val	Thr 3825	Lys Thr Leu
Gln Lys 3830	Phe Leu Glu Gly	Thr 3835	Ser Cys Ile Ala	Gly 3840	Val Phe Val
Asp Ala 3845	Thr Lys Glu Arg	Leu 3850	Ser Val Tyr Gln	Ala 3855	Met Lys Lys
Gly Ile 3860	Ile Arg Pro Gly	Thr 3865	Ala Phe Glu Leu	Leu 3870	Glu Ala Gln
Ala Ala 3875	Thr Gly Tyr Val	Ile 3880	Asp Pro Ile Lys	Gly 3885	Leu Lys Leu
Thr Val 3890	Glu Glu Ala Val	Arg 3895	Met Gly Ile Val	Gly 3900	Pro Glu Phe
Lys Asp 3905	Arg Leu Leu Ser	Ala 3910	Glu Arg Ala Val	Thr 3915	Gly Tyr Lys
Asp Pro 3920	Tyr Ser Gly Lys	Leu 3925	Ile Ser Leu Phe	Gln 3930	Ala Met Lys
Lys Gly 3935	Leu Ile Leu Lys	Asp 3940	His Gly Ile Arg	Leu 3945	Leu Glu Ala
Gln Ile 3950	Ala Thr Gly Gly	Ile 3955	Ile Asp Pro Glu	Glu 3960	Ser His Arg
Leu Pro	Val Glu Val Ala Tyr	Lys Arg Gly Leu Phe	Asp Glu Glu		

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Met Asn Glu Ile Leu Thr	Asp Pro Ser Asp Asp Thr	Lys Gly Phe			
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Phe Asp Pro Asn Thr Glu	Glu Asn Leu Thr Tyr Leu	Gln Leu Met			
3995	4000	4005			
Glu Arg Cys Ile Thr Asp	Pro Gln Thr Gly Leu Arg	Leu Leu Pro			
4010	4015	4020			
Leu Lys Glu Lys Lys Arg	Glu Arg Lys Thr Ser Ser	Lys Ser Ser			
4025	4030	4035			
Val Arg Lys Arg Arg Val	Val Ile Val Asp Pro Glu	Thr Ser Lys			
4040	4045	4050			
Glu Met Ser Val Tyr Glu	Ala Tyr Arg Lys Gly Leu	Ile Asp His			
4055	4060	4065			
Gln Thr Tyr Leu Glu Leu	Ser Glu Gln Glu Cys Glu	Trp Glu Glu			
4070	4075	4080			
Ile Thr Ile Ser Ser Ser	Asp Gly Val Val Lys Ser	Met Ile Ile			
4085	4090	4095			
Asp Arg Arg Ser Gly Arg	Gln Tyr Asp Ile Asp Asp	Ala Ile Thr			
4100	4105	4110			
Glu Asn Leu Ile Asp Arg	Ser Ala Leu Asp Gln Tyr	Arg Ala Gly			
4115	4120	4125			
Thr Leu Ser Ile Thr Glu	Phe Ala Asp Met Leu Ser	Gly Asn Ala			
4130	4135	4140			
Gly Gly Phe Arg Ser Arg	Ser Ser Ser Val Gly Ser	Ser Ser Ser			
4145	4150	4155			
Tyr Pro Ile Ser Pro Ala	Val Ser Arg Thr Gln Leu	Ala Ser Trp			
4160	4165	4170			
Ser Asp Pro Thr Glu Glu	Thr Gly Pro Val Ala Gly	Ile Leu Asp			
4175	4180	4185			
Thr Glu Thr Leu Glu Lys	Val Ser Ile Thr Glu Ala	Met His Arg			
4190	4195	4200			
Asn Leu Val Asp Asn Ile	Thr Gly Gln Arg Leu Leu	Glu Ala Gln			
4205	4210	4215			
Ala Cys Thr Gly Gly Ile	Ile Asp Pro Ser Thr Gly	Glu Arg Phe			
4220	4225	4230			
Pro Val Thr Glu Ala Val	Asn Lys Gly Leu Val Asp	Lys Ile Met			

4235		4240		4245
Val Asp Arg Ile Asn Leu	Ala Gln Lys Ala Phe	Cys Gly Phe Glu		
4250	4255	4260		
Asp Pro Arg Thr Lys Thr	Lys Met Ser Ala Ala	Gln Ala Leu Lys		
4265	4270	4275		
Lys Gly Trp Leu Tyr Tyr	Glu Ala Gly Gln Arg	Phe Leu Glu Val		
4280	4285	4290		
Gln Tyr Leu Thr Gly Gly	Leu Ile Glu Pro Asp	Thr Pro Gly Arg		
4295	4300	4305		
Val Pro Leu Asp Glu Ala	Leu Gln Arg Gly Thr	Val Asp Ala Arg		
4310	4315	4320		
Thr Ala Gln Lys Leu Arg	Asp Val Ser Ala Tyr	Ser Lys Tyr Leu		
4325	4330	4335		
Thr Cys Pro Lys Thr Lys	Leu Lys Ile Ser Tyr	Lys Asp Ala Leu		
4340	4345	4350		
Asp Arg Ser Met Val Glu	Glu Gly Thr Gly Leu	Arg Leu Leu Glu		
4355	4360	4365		
Ala Ala Ala Gln Ser Ser	Lys Gly Tyr Tyr Ser	Pro Tyr Ser Val		
4370	4375	4380		
Ser Gly Ser Gly Ser Thr	Thr Gly Ser Arg Thr	Gly Ser Arg Thr		
4385	4390	4395		
Gly Ser Arg Ala Gly Ser	Arg Arg Gly Ser Phe	Asp Ala Thr Gly		
4400	4405	4410		
Ser Gly Phe Ser Met Thr	Phe Ser Ser Ser Ser	Tyr Ser Ser Ser		
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Gly Tyr Gly Arg Arg Tyr	Ala Ser Gly Pro Pro	Ala Ser Leu Gly		
4430	4435	4440		
Gly Pro Glu Ser Ala Val	Ala			
4445	4450			

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Val	Gln	Thr	Arg	Ser	Ile	Ser	Asn	Lys	Glu	Leu	Ser	Glu	Leu	Ile	Glu	
			20					25					30			
cag	ctg	cag	aag	aat	gcc	gac	cag	gtg	gag	aag	aac	atc	gtg	gac	aca	144
Gln	Leu	Gln	Lys	Asn	Ala	Asp	Gln	Val	Glu	Lys	Asn	Ile	Val	Asp	Thr	
			35				40					45				
gag	gcc	aag	atg	cag	agt	gac	ctg	gct	cgg	ctg	cag	gag	ggg	cgg	cag	192
Glu	Ala	Lys	Met	Gln	Ser	Asp	Leu	Ala	Arg	Leu	Gln	Glu	Gly	Arg	Gln	
	50					55					60					
cct	gag	cac	cgg	gac	gtg	acc	ctg	cag	aag	gtg	ttg	gac	tct	gag	aag	240
Pro	Glu	His	Arg	Asp	Val	Thr	Leu	Gln	Lys	Val	Leu	Asp	Ser	Glu	Lys	
65					70				75						80	
ctg	ctc	tat	gtg	cta	gag	gcg	gat	gcg	gcc	att	gcc	aag	cac	atg	aag	288
Leu	Leu	Tyr	Val	Leu	Glu	Ala	Asp	Ala	Ala	Ile	Ala	Lys	His	Met	Lys	
				85				90						95		
cac	cca	cag	ggg	gac	atg	atc	gcc	gag	gat	atc	cgc	cag	ctg	aag	gag	336
His	Pro	Gln	Gly	Asp	Met	Ile	Ala	Glu	Asp	Ile	Arg	Gln	Leu	Lys	Glu	
			100					105					110			
cgt	gtg	acc	aac	ctg	cgc	ggg	aaa	cac	aag	cag	atc	tac	agg	ctg	gcg	384
Arg	Val	Thr	Asn	Leu	Arg	Gly	Lys	His	Lys	Gln	Ile	Tyr	Arg	Leu	Ala	
			115				120					125				
gtg	aag	gaa	gtg	gat	cca	cag	gtc	aac	tgg	gcg	gca	ctg	gtg	gag	gag	432
Val	Lys	Glu	Val	Asp	Pro	Gln	Val	Asn	Trp	Ala	Ala	Leu	Val	Glu	Glu	
	130					135					140					
aag	ctg	gac	aag	ctg	aac	aac	cag	agc	ttt	ggg	act	gac	ctg	ccg	ctg	480
Lys	Leu	Asp	Lys	Leu	Asn	Asn	Gln	Ser	Phe	Gly	Thr	Asp	Leu	Pro	Leu	
145					150					155					160	
gtg	gac	cac	caa	gtg	gag	gag	cat	aac	atc	ttc	cac	aat	gag	gtc	aag	528
Val	Asp	His	Gln	Val	Glu	Glu	His	Asn	Ile	Phe	His	Asn	Glu	Val	Lys	
				165				170						175		
gcc	atc	ggg	ccc	cac	ctg	gcc	aag	gac	ggg	gac	aag	gag	cag	aac	agc	576
Ala	Ile	Gly	Pro	His	Leu	Ala	Lys	Asp	Gly	Asp	Lys	Glu	Gln	Asn	Ser	
			180					185					190			
gaa	ctc	cgg	gcc	aag	tac	cag	aaa	ctg	ctg	gca	gca	tca	cag	gcc	cgg	624
Glu	Leu	Arg	Ala	Lys	Tyr	Gln	Lys	Leu	Leu	Ala	Ala	Ser	Gln	Ala	Arg	
			195				200					205				
cag	cag	cac	ctg	agt	tcg	ctg	cag	gac	tac	atg	cag	cgc	tgc	acc	aat	672
Gln	Gln	His	Leu	Ser	Ser	Leu	Gln	Asp	Tyr	Met	Gln	Arg	Cys	Thr	Asn	
			210				215					220				
gag	ctg	tac	tgg	ctg	gac	cag	cag	gcc	aag	ggc	cgc	atg	cag	tac	gac	720
Glu	Leu	Tyr	Trp	Leu	Asp	Gln	Gln	Ala	Lys	Gly	Arg	Met	Gln	Tyr	Asp	
225					230					235					240	
tgg	agt	gac	cgc	aac	ctc	gac	tac	ccc	agc	cgc	cgg	cgc	cag	tat	gag	768
Trp	Ser	Asp	Arg	Asn	Leu	Asp	Tyr	Pro	Ser	Arg	Arg	Arg	Gln	Tyr	Glu	
				245					250					255		
aat	ttc	atc	aac	cgg	aac	ctg	gag	gcc	aaa	gag	gag	aga	atc	aac	aaa	816
Asn	Phe	Ile	Asn	Arg	Asn	Leu	Glu	Ala	Lys	Glu	Glu	Arg	Ile	Asn	Lys	
			260					265					270			
ctg	cac	agc	gag	ggc	gac	cag	ctg	ctg	gcg	gcc	gag	cac	ccc	ggg	agg	864
Leu	His	Ser	Glu	Gly	Asp	Gln	Leu	Leu	Ala	Ala	Glu	His	Pro	Gly	Arg	
			275				280					285				
aac	tcc	att	gag	gcg	cac	atg	gag	gct	gtg	cac	gca	gac	tgg	aag	gag	912
Asn	Ser	Ile	Glu	Ala	His	Met	Glu	Ala	Val	His	Ala	Asp	Trp	Lys	Glu	

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tac ctg aac ctg ctc atc tgc gag gag agc cac ctc aag tac atg gag	960				
Tyr Leu Asn Leu Leu Ile Cys Glu Glu Ser His Leu Lys Tyr Met Glu					
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gac tac cac cag ttt cac gaa gac gtg aag gac gct cag gag ctg ctg	1008				
Asp Tyr His Gln Phe His Glu Asp Val Lys Asp Ala Gln Glu Leu Leu					
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cgc aag gtg gac tcg gac ctg aac cag aag tat ggc cct gac ttc aag	1056				
Arg Lys Val Asp Ser Asp Leu Asn Gln Lys Tyr Gly Pro Asp Phe Lys					
		340		345	350
gac cgg tac cag att gag ctg ctg ctg cgg gag ctg gat gac cag gag	1104				
Asp Arg Tyr Gln Ile Glu Leu Leu Leu Arg Glu Leu Asp Asp Gln Glu					
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aag gtg ctg gac aag tat gag gac gtg gtg cag ggg ctg cag aag cga	1152				
Lys Val Leu Asp Lys Tyr Glu Asp Val Val Gln Gly Leu Gln Lys Arg					
		370		375	380
ggc cag cag gtg gtg ccc ctc aag tac cgc cgg gag act ccg ctc aag	1200				
Gly Gln Gln Val Val Pro Leu Lys Tyr Arg Arg Glu Thr Pro Leu Lys					
		385		390	395
ccc atc ccc gtg gag gca ctc tgt gac ttt gag ggg gag cag ggc ctg	1248				
Pro Ile Pro Val Glu Ala Leu Cys Asp Phe Glu Gly Glu Gln Gly Leu					
		405		410	415
atc tcg cgg ggc tac agc tac acc ctg cag aag aac aac ggg gag agc	1296				
Ile Ser Arg Gly Tyr Ser Tyr Thr Leu Gln Lys Asn Asn Gly Glu Ser					
		420		425	430
tgg gag ctc atg gac agc gct ggg aac aag ctg att gct ccg gcc gtc	1344				
Trp Glu Leu Met Asp Ser Ala Gly Asn Lys Leu Ile Ala Pro Ala Val					
		435		440	445
tgt ttt gtg atc ccc ccc aca gac cct gag gcc ctg gct ctg gct gac	1392				
Cys Phe Val Ile Pro Pro Thr Asp Pro Glu Ala Leu Ala Leu Ala Asp					
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agc ctg ggc agc cag tac cgg agc gtg cgg cag aag gca gct ggg agc	1440				
Ser Leu Gly Ser Gln Tyr Arg Ser Val Arg Gln Lys Ala Ala Gly Ser					
		465		470	475
aaa cgc acg ctg cag cag cgg tat gag gtg ctg aag acc gag aat ccc	1488				
Lys Arg Thr Leu Gln Gln Arg Tyr Glu Val Leu Lys Thr Glu Asn Pro					
		485		490	495
gga gat gcc tct gac cta cag ggg cgg cag ctg ctg gct ggc ttg gac	1536				
Gly Asp Ala Ser Asp Leu Gln Gly Arg Gln Leu Leu Ala Gly Leu Asp					
		500		505	510
aag gtg gcc agc gac ctg gac cgg cag gag aag gcc atc aca ggg atc	1584				
Lys Val Ala Ser Asp Leu Asp Arg Gln Glu Lys Ala Ile Thr Gly Ile					
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ctg cgg cca cca ctg gag caa ggc cgg gct gtg cag gac agt gcc gag	1632				
Leu Arg Pro Pro Leu Glu Gln Gly Arg Ala Val Gln Asp Ser Ala Glu					
		530		535	540
cgg gcc aag gac ctc aag aac atc acc aac gag cta ctg cgg att gaa	1680				
Arg Ala Lys Asp Leu Lys Asn Ile Thr Asn Glu Leu Leu Arg Ile Glu					
		545		550	555
cct gag aag acg cgg agc acg gct gag ggc gaa gcc ttc atc cag gcc	1728				
Pro Glu Lys Thr Arg Ser Thr Ala Glu Gly Glu Ala Phe Ile Gln Ala					
		565		570	575
ctc cca ggc agt ggc acc aca ccc ctg ctg agg acc cgg gtg gag gac	1776				
Leu Pro Gly Ser Gly Thr Thr Pro Leu Leu Arg Thr Arg Val Glu Asp					

	580					585					590					
acc	aac	cgg	aaa	tac	gag	cac	ctc	ctg	cag	ctg	ctg	gac	ttg	gcc	cag	1824
Thr	Asn	Arg	Lys	Tyr	Glu	His	Leu	Leu	Gln	Leu	Leu	Asp	Leu	Ala	Gln	
		595					600					605				
gag	aag	gtt	gat	gtg	gcc	aac	cgc	ctg	gag	aag	agc	ctg	cag	cag	agc	1872
Glu	Lys	Val	Asp	Val	Ala	Asn	Arg	Leu	Glu	Lys	Ser	Leu	Gln	Gln	Ser	
	610					615					620					
tgg	gag	ttg	ctg	gcc	aca	cac	gag	aac	cat	ctg	aat	cag	gat	gac	aca	1920
Trp	Glu	Leu	Leu	Ala	Thr	His	Glu	Asn	His	Leu	Asn	Gln	Asp	Asp	Thr	
625					630					635					640	
gtg	cct	gag	agc	agc	cgt	gtc	ctg	gac	agc	aag	ggg	cag	gag	ctg	gcg	1968
Val	Pro	Glu	Ser	Ser	Arg	Val	Leu	Asp	Ser	Lys	Gly	Gln	Glu	Leu	Ala	
				645					650					655		
gcc	atg	gcc	tgt	gag	tta	cag	gcc	cag	aag	tcc	ctc	ctg	ggt	gag	gtg	2016
Ala	Met	Ala	Cys	Glu	Leu	Gln	Ala	Gln	Lys	Ser	Leu	Leu	Gly	Glu	Val	
			660					665					670			
gag	cag	aac	ttg	cag	gcg	gcc	aag	cag	tgc	tcg	agc	aca	ctg	gcc	agc	2064
Glu	Gln	Asn	Leu	Gln	Ala	Ala	Lys	Gln	Cys	Ser	Ser	Thr	Leu	Ala	Ser	
		675					680					685				
cgc	ttc	cag	gag	cac	tgc	ccg	gac	ctg	gag	cgc	cag	gag	gcc	gag	gtg	2112
Arg	Phe	Gln	Glu	His	Cys	Pro	Asp	Leu	Glu	Arg	Gln	Glu	Ala	Glu	Val	
	690					695					700					
cac	aag	ctg	ggc	cag	cgt	ttc	aac	aac	ctg	cgc	cag	cag	gtg	gaa	cgc	2160
His	Lys	Leu	Gly	Gln	Arg	Phe	Asn	Asn	Leu	Arg	Gln	Gln	Val	Glu	Arg	
705					710					715					720	
agg	gcg	cag	agc	cta	cag	agc	gcc	aag	gca	gcc	tac	gag	cac	ttc	cac	2208
Arg	Ala	Gln	Ser	Leu	Gln	Ser	Ala	Lys	Ala	Ala	Tyr	Glu	His	Phe	His	
				725					730					735		
cgc	ggc	cat	gac	cac	gtg	ctg	cag	ttc	cta	gtc	agc	atc	ccc	agt	tac	2256
Arg	Gly	His	Asp	His	Val	Leu	Gln	Phe	Leu	Val	Ser	Ile	Pro	Ser	Tyr	
			740					745					750			
gag	ccc	cag	gag	aca	gac	agc	ctc	agc	cag	atg	gag	acc	aag	ctg	aag	2304
Glu	Pro	Gln	Glu	Thr	Asp	Ser	Leu	Ser	Gln	Met	Glu	Thr	Lys	Leu	Lys	
		755					760					765				
aac	cag	aag	aac	ctg	cta	gat	gag	ata	gca	agt	agg	gag	cag	gaa	gta	2352
Asn	Gln	Lys	Asn	Leu	Leu	Asp	Glu	Ile	Ala	Ser	Arg	Glu	Gln	Glu	Val	
		770				775					780					
cag	aag	atc	tgt	gcc	aat	tcc	cag	cag	tac	cag	caa	gct	gta	aag	gac	2400
Gln	Lys	Ile	Cys	Ala	Asn	Ser	Gln	Gln	Tyr	Gln	Gln	Ala	Val	Lys	Asp	
785					790					795					800	
tat	gag	tta	gaa	gca	gaa	aaa	cta	agg	tct	ctt	ctc	gac	ttg	gag	aat	2448
Tyr	Glu	Leu	Glu	Ala	Glu	Lys	Leu	Arg	Ser	Leu	Leu	Asp	Leu	Glu	Asn	
				805					810					815		
gga	agg	agc	agc	cac	gtg	agc	aag	aga	gcc	agg	ctc	caa	tct	cct	gcc	2496
Gly	Arg	Ser	Ser	His	Val	Ser	Lys	Arg	Ala	Arg	Leu	Gln	Ser	Pro	Ala	
				820				825					830			
acc	aaa	gtg	aag	gaa	gag	gaa	gca	gca	ctt	gcc	gcc	aag	ttc	act	gaa	2544
Thr	Lys	Val	Lys	Glu	Glu	Glu	Ala	Ala	Leu	Ala	Ala	Lys	Phe	Thr	Glu	
		835					840					845				
gtt	tat	gcc	atc	aac	aga	cag	agg	ctg	cag	aat	ctg	gag	ttt	gct	ctg	2592
Val	Tyr	Ala	Ile	Asn	Arg	Gln	Arg	Leu	Gln	Asn	Leu	Glu	Phe	Ala	Leu	
		850				855					860					
aat	ctc	ctc	aga	cag	cag	ccg	gaa	gta	gaa	gtg	acc	cat	gag	acc	ctg	2640
Asn	Leu	Leu	Arg	Gln	Gln	Pro	Glu	Val	Glu	Val	Thr	His	Glu	Thr	Leu	

865	870	875	880	
caa agg aat agg ccg gac tct gga gtg gag gag gcg tgg aag atc agg				2688
Gln Arg Asn Arg Pro Asp Ser Gly Val Glu Glu Ala Trp Lys Ile Arg	885	890	895	
aag gaa ctg gat gag gag act gag cgg agg cgg cag ctg gag aac gag				2736
Lys Glu Leu Asp Glu Glu Thr Glu Arg Arg Arg Gln Leu Glu Asn Glu	900	905	910	
gtc aag agc acc cag gaa gaa atc tgg acc ttg agg aat cag ggg cct				2784
Val Lys Ser Thr Gln Glu Glu Ile Trp Thr Leu Arg Asn Gln Gly Pro	915	920	925	
cag gaa tcg gtg gtg agg aag gag gtg ctc aag aag gtg ccg gat ccc				2832
Gln Glu Ser Val Val Arg Lys Glu Val Leu Lys Lys Val Pro Asp Pro	930	935	940	
gtg ctg gag gag agc ttc cag cag ctg cag cgg acg ctg gca gag gag				2880
Val Leu Glu Glu Ser Phe Gln Gln Leu Gln Arg Thr Leu Ala Glu Glu	945	950	955	960
cag cac aag aac cag ctg ctg cag gag gag ctg gag gca ctg cag ctg				2928
Gln His Lys Asn Gln Leu Leu Gln Glu Glu Leu Glu Ala Leu Gln Leu	965	970	975	
cag ctg cgt gcc ctg gag cag gag acc aga gac ggg ggg cag gag tac				2976
Gln Leu Arg Ala Leu Glu Gln Glu Thr Arg Asp Gly Gly Gln Glu Tyr	980	985	990	
gtg gtc aag gag gtc ctg cgc atc gag cct gac agg gcc cag gcg gat				3024
Val Val Lys Glu Val Leu Arg Ile Glu Pro Asp Arg Ala Gln Ala Asp	995	1000	1005	
gag gtc ttg cag ctg cgg gag gag ctg gag gca ctg agg cgg cag				3069
Glu Val Leu Gln Leu Arg Glu Glu Leu Glu Ala Leu Arg Arg Gln	1010	1015	1020	
aag ggc gcc cgg gag gca gag gtg ctc ctc ctg cag cag cgt gtg				3114
Lys Gly Ala Arg Glu Ala Glu Val Leu Leu Leu Gln Gln Arg Val	1025	1030	1035	
gcc gcc ctg gct gaa gag aag agc cgg gcg cag gag aag gtc aca				3159
Ala Ala Leu Ala Glu Glu Lys Ser Arg Ala Gln Glu Lys Val Thr	1040	1045	1050	
gag aaa gag gtg gtg aaa ctg cag aat gac ccc cag ctg gag gca				3204
Glu Lys Glu Val Val Lys Leu Gln Asn Asp Pro Gln Leu Glu Ala	1055	1060	1065	
gag tac cag cag ctg cag gag gac cac cag cgc cag gac cag ctc				3249
Glu Tyr Gln Gln Leu Gln Glu Asp His Gln Arg Gln Asp Gln Leu	1070	1075	1080	
agg gag aag cag gag gag gag ctg agc ttc ctc cag gac aag ctc				3294
Arg Glu Lys Gln Glu Glu Glu Leu Ser Phe Leu Gln Asp Lys Leu	1085	1090	1095	
aag agg cta gag aag gag cgg gcc atg gcc gag ggc aag atc acc				3339
Lys Arg Leu Glu Lys Glu Arg Ala Met Ala Glu Gly Lys Ile Thr	1100	1105	1110	
gtc aag gag gtg ctc aag gtg gag aag gac gcg gcc acc gag agg				3384
Val Lys Glu Val Leu Lys Val Glu Lys Asp Ala Ala Thr Glu Arg	1115	1120	1125	
gag gtc agc gat ctc acc cgc caa tat gag gac gag gct gcc aag				3429
Glu Val Ser Asp Leu Thr Arg Gln Tyr Glu Asp Glu Ala Ala Lys	1130	1135	1140	
gct cgc gct agc cag agg gag aag acg gag ctg ctc cga aag ata				3474
Ala Arg Ala Ser Gln Arg Glu Lys Thr Glu Leu Leu Arg Lys Ile				

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tgg gcc ttg gag gag gag aac gcc aaa gtg gtg gtg cag gag aag 3519			
Trp Ala Leu Glu Glu Glu Asn Ala Lys Val Val Val Gln Glu Lys			
1160	1165	1170	
gtg cgg gag atc gtg cgg cca gac ccc aag gcg gaa agt gaa gtg 3564			
Val Arg Glu Ile Val Arg Pro Asp Pro Lys Ala Glu Ser Glu Val			
1175	1180	1185	
gcg aac ctc cgc ctg gag ctt gtg gag cag gag cga aag tac cgg 3609			
Ala Asn Leu Arg Leu Glu Leu Val Glu Gln Glu Arg Lys Tyr Arg			
1190	1195	1200	
ggt gcc gag gag cag ctc cgg agc tac cag agt gag ctg gag gcc 3654			
Gly Ala Glu Glu Gln Leu Arg Ser Tyr Gln Ser Glu Leu Glu Ala			
1205	1210	1215	
ctc agg agg cga ggc ccc cag gtg gaa gtc aaa gag gtg act aag 3699			
Leu Arg Arg Arg Gly Pro Gln Val Glu Val Lys Glu Val Thr Lys			
1220	1225	1230	
gaa gtc att aag tac aag act gac cct gag atg gag aag gag ctt 3744			
Glu Val Ile Lys Tyr Lys Thr Asp Pro Glu Met Glu Lys Glu Leu			
1235	1240	1245	
cag cgg ctc agg gag gag atc gtg gac aag acc aga ctg atc gaa 3789			
Gln Arg Leu Arg Glu Glu Ile Val Asp Lys Thr Arg Leu Ile Glu			
1250	1255	1260	
agg tgt gat tta gag atc tac cag ctg aaa aag gaa atc cag gcc 3834			
Arg Cys Asp Leu Glu Ile Tyr Gln Leu Lys Lys Glu Ile Gln Ala			
1265	1270	1275	
ctg aaa gac acc aaa ccc cag gtc cag acc aaa gag gtg gtc cag 3879			
Leu Lys Asp Thr Lys Pro Gln Val Gln Thr Lys Glu Val Val Gln			
1280	1285	1290	
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Glu Ile Leu Gln Phe Gln Glu Asp Pro Gln Thr Lys Glu Glu Val			
1295	1300	1305	
gcg tct ctg agg gca aag ctc tca gag gag cag aag aaa caa gtg 3969			
Ala Ser Leu Arg Ala Lys Leu Ser Glu Glu Gln Lys Lys Gln Val			
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Asp Leu Glu Arg Glu Arg Ala Ser Gln Glu Glu Gln Ile Ala Arg			
1325	1330	1335	
aaa gag gag gag ctc tcg cgg gtg aag gaa agg gtg gtg cag cag 4059			
Lys Glu Glu Glu Leu Ser Arg Val Lys Glu Arg Val Val Gln Gln			
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gag gtg gtc agg tat gag gag gag cca ggc ctg cgg gcc gag gcg 4104			
Glu Val Val Arg Tyr Glu Glu Glu Glu Pro Gly Leu Arg Ala Glu Ala			
1355	1360	1365	
agc gcc ttt gcc gag agc atc gat gtg gag ctg cgg cag att gac 4149			
Ser Ala Phe Ala Glu Ser Ile Asp Val Glu Leu Arg Gln Ile Asp			
1370	1375	1380	
aag ctg cgg gca gag ctg cgg cgg ctg cag cgc cgg cgc acc gag 4194			
Lys Leu Arg Ala Glu Leu Arg Arg Leu Gln Arg Arg Arg Thr Glu			
1385	1390	1395	
ctt gag cgg cag ctg gag gag cta gag cgc gag cgg cag gcc cgc 4239			
Leu Glu Arg Gln Leu Glu Glu Leu Glu Arg Glu Arg Gln Ala Arg			
1400	1405	1410	
agg gag gcc gag cgc gag gta cag cgg ttg cag cag cgg ctg gca 4284			
Arg Glu Ala Glu Arg Glu Val Gln Arg Leu Gln Gln Arg Leu Ala			



1415	1420	1425	
gcg ctg gag cag gaa gaa gct gag gcc cgt gag aag gta acc cat 4329			
Ala Leu Glu Gln Glu Glu Ala Glu Ala Arg Glu Lys Val Thr His			
1430	1435	1440	
acg cag aag gtg gtg ctg cag cag gac ccg cag cag gcg cga gag 4374			
Thr Gln Lys Val Val Leu Gln Gln Asp Pro Gln Gln Ala Arg Glu			
1445	1450	1455	
cat gcc ctg ctc cga ctc cag ctg gaa gaa gag cag cac cgg cgg 4419			
His Ala Leu Leu Arg Leu Gln Leu Glu Glu Glu Gln His Arg Arg			
1460	1465	1470	
cag ctc ctg gag ggg gag ctc gag acc ctc cgg agg aaa ctg gct 4464			
Gln Leu Leu Glu Gly Glu Leu Glu Thr Leu Arg Arg Lys Leu Ala			
1475	1480	1485	
gca ctg gag aag gcg gag gtc aag gag aag gtg gtg ctc tcc gag 4509			
Ala Leu Glu Lys Ala Glu Val Lys Glu Lys Val Val Leu Ser Glu			
1490	1495	1500	
agt gtc cag gtg gag aag ggc gac acc gag caa gag atc cag agg 4554			
Ser Val Gln Val Glu Lys Gly Asp Thr Glu Gln Glu Ile Gln Arg			
1505	1510	1515	
ctc aag agc agc ctg gag gag gag agc cgc agc aag cgc gag ctg 4599			
Leu Lys Ser Ser Leu Glu Glu Glu Ser Arg Ser Lys Arg Glu Leu			
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Asp Val Glu Val Ser Arg Leu Glu Ala Arg Leu Ser Glu Leu Glu			
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Phe His Asn Ser Lys Ser Ser Lys Glu Leu Asp Phe Leu Arg Glu			
1550	1555	1560	
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Glu Asn His Lys Leu Gln Leu Glu Arg Gln Asn Leu Gln Leu Glu			
1565	1570	1575	
acc cga agg ctc caa tcg gaa atc aac atg gca gcg acg gaa aca 4779			
Thr Arg Arg Leu Gln Ser Glu Ile Asn Met Ala Ala Thr Glu Thr			
1580	1585	1590	
cga gac ctg cgg aac atg acc gtg gcg gac tct ggg acc aac cat 4824			
Arg Asp Leu Arg Asn Met Thr Val Ala Asp Ser Gly Thr Asn His			
1595	1600	1605	
gac tcc aga ctg tgg tcc ctg gag agg gaa ctg gat gac ctc aag 4869			
Asp Ser Arg Leu Trp Ser Leu Glu Arg Glu Leu Asp Asp Leu Lys			
1610	1615	1620	
agg ctc tcc aag gac aaa gac ctc gag atc gac gag ctg cag aag 4914			
Arg Leu Ser Lys Asp Lys Asp Leu Glu Ile Asp Glu Leu Gln Lys			
1625	1630	1635	
cgc ctg ggc tcc gtg gcc gtc aag cgg gag cag cgg gag aac cac 4959			
Arg Leu Gly Ser Val Ala Val Lys Arg Glu Gln Arg Glu Asn His			
1640	1645	1650	
ctg cgg cgc tcc atc gta gtc atc cac cct gac aca ggc cgc gag 5004			
Leu Arg Arg Ser Ile Val Val Ile His Pro Asp Thr Gly Arg Glu			
1655	1660	1665	
ctg tcc ccg gag gaa gcc cac cgt gcc ggg ctc att gac tgg aac 5049			
Leu Ser Pro Glu Glu Ala His Arg Ala Gly Leu Ile Asp Trp Asn			
1670	1675	1680	
atg ttc gtg aaa ctc aga agc cag gag tgc gac tgg gag gag atc 5094			
Met Phe Val Lys Leu Arg Ser Gln Glu Cys Asp Trp Glu Glu Ile			

1685	1690	1695	
tca gtg aag ggt ccc aat ggg	gag tcc tca gtg ata	cac gac agg	5139
Ser Val Lys Gly Pro Asn Gly	Glu Ser Ser Val Ile	His Asp Arg	
1700	1705	1710	
aag tct ggc aag aag ttc tcc	atc gaa gag gcc ctg	cag agt ggc	5184
Lys Ser Gly Lys Lys Phe Ser	Ile Glu Glu Ala Leu	Gln Ser Gly	
1715	1720	1725	
agg ctg acc cct gct cag tat	gac cgc tat gtc aac	aag gat atg	5229
Arg Leu Thr Pro Ala Gln Tyr	Asp Arg Tyr Val Asn	Lys Asp Met	
1730	1735	1740	
tcc atc cag gag ctg gcg gtc	ttg gta tct ggg cag	aag	5268
Ser Ile Gln Glu Leu Ala Val	Leu Val Ser Gly Gln	Lys	
1745	1750	1755	

<210> 86  
 <211> 1756  
 <212> PRT  
 <213> Homo sapiens

<400> 86

Met Asn Ser Leu Phe Arg Lys Arg Asn Lys Gly Lys Tyr Ser Pro Thr
1 5 10 15

Val Gln Thr Arg Ser Ile Ser Asn Lys Glu Leu Ser Glu Leu Ile Glu
20 25 30

Gln Leu Gln Lys Asn Ala Asp Gln Val Glu Lys Asn Ile Val Asp Thr
35 40 45

Glu Ala Lys Met Gln Ser Asp Leu Ala Arg Leu Gln Glu Gly Arg Gln
50 55 60

Pro Glu His Arg Asp Val Thr Leu Gln Lys Val Leu Asp Ser Glu Lys
65 70 75 80

Leu Leu Tyr Val Leu Glu Ala Asp Ala Ala Ile Ala Lys His Met Lys
85 90 95

His Pro Gln Gly Asp Met Ile Ala Glu Asp Ile Arg Gln Leu Lys Glu
100 105 110

Arg Val Thr Asn Leu Arg Gly Lys His Lys Gln Ile Tyr Arg Leu Ala
115 120 125

Val Lys Glu Val Asp Pro Gln Val Asn Trp Ala Ala Leu Val Glu Glu
130 135 140

Lys Leu Asp Lys Leu Asn Asn Gln Ser Phe Gly Thr Asp Leu Pro Leu
145 150 155 160

Val Asp His Gln Val Glu Glu His Asn Ile Phe His Asn Glu Val Lys
165 170 175

Ala Ile Gly Pro His Leu Ala Lys Asp Gly Asp Lys Glu Gln Asn Ser
180 185 190

Glu	Leu	Arg	Ala	Lys	Tyr	Gln	Lys	Leu	Leu	Ala	Ala	Ser	Gln	Ala	Arg	195	200	205	
Gln	Gln	His	Leu	Ser	Ser	Leu	Gln	Asp	Tyr	Met	Gln	Arg	Cys	Thr	Asn	210	215	220	
Glu	Leu	Tyr	Trp	Leu	Asp	Gln	Gln	Ala	Lys	Gly	Arg	Met	Gln	Tyr	Asp	225	230	235	240
Trp	Ser	Asp	Arg	Asn	Leu	Asp	Tyr	Pro	Ser	Arg	Arg	Arg	Gln	Tyr	Glu	245	250	255	
Asn	Phe	Ile	Asn	Arg	Asn	Leu	Glu	Ala	Lys	Glu	Glu	Arg	Ile	Asn	Lys	260	265	270	
Leu	His	Ser	Glu	Gly	Asp	Gln	Leu	Leu	Ala	Ala	Glu	His	Pro	Gly	Arg	275	280	285	
Asn	Ser	Ile	Glu	Ala	His	Met	Glu	Ala	Val	His	Ala	Asp	Trp	Lys	Glu	290	295	300	
Tyr	Leu	Asn	Leu	Leu	Ile	Cys	Glu	Glu	Ser	His	Leu	Lys	Tyr	Met	Glu	305	310	315	320
Asp	Tyr	His	Gln	Phe	His	Glu	Asp	Val	Lys	Asp	Ala	Gln	Glu	Leu	Leu	325	330	335	
Arg	Lys	Val	Asp	Ser	Asp	Leu	Asn	Gln	Lys	Tyr	Gly	Pro	Asp	Phe	Lys	340	345	350	
Asp	Arg	Tyr	Gln	Ile	Glu	Leu	Leu	Leu	Arg	Glu	Leu	Asp	Asp	Gln	Glu	355	360	365	
Lys	Val	Leu	Asp	Lys	Tyr	Glu	Asp	Val	Val	Gln	Gly	Leu	Gln	Lys	Arg	370	375	380	
Gly	Gln	Gln	Val	Val	Pro	Leu	Lys	Tyr	Arg	Arg	Glu	Thr	Pro	Leu	Lys	385	390	395	400
Pro	Ile	Pro	Val	Glu	Ala	Leu	Cys	Asp	Phe	Glu	Gly	Glu	Gln	Gly	Leu	405	410	415	
Ile	Ser	Arg	Gly	Tyr	Ser	Tyr	Thr	Leu	Gln	Lys	Asn	Asn	Gly	Glu	Ser	420	425	430	
Trp	Glu	Leu	Met	Asp	Ser	Ala	Gly	Asn	Lys	Leu	Ile	Ala	Pro	Ala	Val	435	440	445	
Cys	Phe	Val	Ile	Pro	Pro	Thr	Asp	Pro	Glu	Ala	Leu	Ala	Leu	Ala	Asp	450	455	460	
Ser	Leu	Gly	Ser	Gln	Tyr	Arg	Ser	Val	Arg	Gln	Lys	Ala	Ala	Gly	Ser	465	470	475	480

Lys	Arg	Thr	Leu	Gln	Gln	Arg	Tyr	Glu	Val	Leu	Lys	Thr	Glu	Asn	Pro	485	490	495
Gly	Asp	Ala	Ser	Asp	Leu	Gln	Gly	Arg	Gln	Leu	Leu	Ala	Gly	Leu	Asp	500	505	510
Lys	Val	Ala	Ser	Asp	Leu	Asp	Arg	Gln	Glu	Lys	Ala	Ile	Thr	Gly	Ile	515	520	525
Leu	Arg	Pro	Pro	Leu	Glu	Gln	Gly	Arg	Ala	Val	Gln	Asp	Ser	Ala	Glu	530	535	540
Arg	Ala	Lys	Asp	Leu	Lys	Asn	Ile	Thr	Asn	Glu	Leu	Leu	Arg	Ile	Glu	545	550	555
Pro	Glu	Lys	Thr	Arg	Ser	Thr	Ala	Glu	Gly	Glu	Ala	Phe	Ile	Gln	Ala	565	570	575
Leu	Pro	Gly	Ser	Gly	Thr	Thr	Pro	Leu	Leu	Arg	Thr	Arg	Val	Glu	Asp	580	585	590
Thr	Asn	Arg	Lys	Tyr	Glu	His	Leu	Leu	Gln	Leu	Leu	Asp	Leu	Ala	Gln	595	600	605
Glu	Lys	Val	Asp	Val	Ala	Asn	Arg	Leu	Glu	Lys	Ser	Leu	Gln	Gln	Ser	610	615	620
Trp	Glu	Leu	Leu	Ala	Thr	His	Glu	Asn	His	Leu	Asn	Gln	Asp	Asp	Thr	625	630	635
Val	Pro	Glu	Ser	Ser	Arg	Val	Leu	Asp	Ser	Lys	Gly	Gln	Glu	Leu	Ala	645	650	655
Ala	Met	Ala	Cys	Glu	Leu	Gln	Ala	Gln	Lys	Ser	Leu	Leu	Gly	Glu	Val	660	665	670
Glu	Gln	Asn	Leu	Gln	Ala	Ala	Lys	Gln	Cys	Ser	Ser	Thr	Leu	Ala	Ser	675	680	685
Arg	Phe	Gln	Glu	His	Cys	Pro	Asp	Leu	Glu	Arg	Gln	Glu	Ala	Glu	Val	690	695	700
His	Lys	Leu	Gly	Gln	Arg	Phe	Asn	Asn	Leu	Arg	Gln	Gln	Val	Glu	Arg	705	710	715
Arg	Ala	Gln	Ser	Leu	Gln	Ser	Ala	Lys	Ala	Ala	Tyr	Glu	His	Phe	His	725	730	735
Arg	Gly	His	Asp	His	Val	Leu	Gln	Phe	Leu	Val	Ser	Ile	Pro	Ser	Tyr	740	745	750
Glu	Pro	Gln	Glu	Thr	Asp	Ser	Leu	Ser	Gln	Met	Glu	Thr	Lys	Leu	Lys	755	760	765

Asn	Gln	Lys	Asn	Leu	Leu	Asp	Glu	Ile	Ala	Ser	Arg	Glu	Gln	Glu	Val	770	775	780
Gln	Lys	Ile	Cys	Ala	Asn	Ser	Gln	Gln	Tyr	Gln	Gln	Ala	Val	Lys	Asp	785	790	795
Tyr	Glu	Leu	Glu	Ala	Glu	Lys	Leu	Arg	Ser	Leu	Leu	Asp	Leu	Glu	Asn	805	810	815
Gly	Arg	Ser	Ser	His	Val	Ser	Lys	Arg	Ala	Arg	Leu	Gln	Ser	Pro	Ala	820	825	830
Thr	Lys	Val	Lys	Glu	Glu	Glu	Ala	Ala	Leu	Ala	Ala	Lys	Phe	Thr	Glu	835	840	845
Val	Tyr	Ala	Ile	Asn	Arg	Gln	Arg	Leu	Gln	Asn	Leu	Glu	Phe	Ala	Leu	850	855	860
Asn	Leu	Leu	Arg	Gln	Gln	Pro	Glu	Val	Glu	Val	Thr	His	Glu	Thr	Leu	865	870	875
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Lys	Glu	Leu	Asp	Glu	Glu	Thr	Glu	Arg	Arg	Arg	Gln	Leu	Glu	Asn	Glu	900	905	910
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Gln	Glu	Ser	Val	Val	Arg	Lys	Glu	Val	Leu	Lys	Lys	Val	Pro	Asp	Pro	930	935	940
Val	Leu	Glu	Glu	Ser	Phe	Gln	Gln	Leu	Gln	Arg	Thr	Leu	Ala	Glu	Glu	945	950	955
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Gln	Leu	Arg	Ala	Leu	Glu	Gln	Glu	Thr	Arg	Asp	Gly	Gly	Gln	Glu	Tyr	980	985	990
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Glu	Val	Leu	Gln	Leu	Arg	Glu	Glu	Leu	Glu	Ala	Leu	Arg	Arg	Gln		1010	1015	1020
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Ala	Ala	Leu	Ala	Glu	Glu	Lys	Ser	Arg	Ala	Gln	Glu	Lys	Val	Thr		1040	1045	1050

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Gln Leu Gln Lys Asn Ala Asp Gln Val Glu Arg Asn Ile Val Asp Thr	
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ctg Leu 1295	cag Gln 1295	ttc Phe 1295	cag Gln 1300	gaa Glu 1300	gac Asp 1300	ccc Pro 1300	caa Gln 1305	acc Thr 1305	aag Lys 1305	aag Lys 1305	gag Glu 1305	gta Val 1305	gag Glu 1305	tct Ser 1305	3924
ctg Leu 1310	cgt Arg 1310	ata Ile 1310	cag Gln 1315	ctg Leu 1315	tca Ser 1315	gaa Glu 1315	gaa Glu 1320	cag Gln 1320	aag Lys 1320	aaa Lys 1320	cag Gln 1320	gtg Val 1320	gac Asp 1320	ctg Leu 1320	3969
gaa Glu 1325	ggg Gly 1325	gag Glu 1325	cgg Arg 1325	gca Ala 1330	tcc Ser 1330	cag Gln 1330	gaa Glu 1335	gag Glu 1335	aag Lys 1335	atc Ile 1335	aaa Lys 1335	cgc Arg 1335	aag Lys 1335	gag Glu 1335	4014
gaa Glu 1340	gag Glu 1340	ctg Leu 1340	gca Ala 1345	cag Gln 1345	cag Gln 1345	agg Arg 1345	aag Lys 1350	gaa Glu 1350	agg Arg 1350	gtt Val 1350	gta Val 1350	cgc Arg 1350	cag Gln 1350	gag Glu 1350	4059
gta Val 1355	gta Val 1355	cag Gln 1355	tat Tyr 1355	gaa Glu 1360	gat Asp 1360	gag Glu 1360	cca Pro 1365	gat Asp 1365	ttg Leu 1365	cga Arg 1365	gct Ala 1365	gag Glu 1365	gtg Val 1365	act Thr 1365	4104
gcc Ala 1370	ttc Phe 1370	aca Thr 1370	aac Asn 1375	agc Ser 1375	att Ile 1375	gat Asp 1375	gct Ala 1380	gag Glu 1380	ctg Leu 1380	cgg Arg 1380	cag Gln 1380	att Ile 1380	gat Asp 1380	aaa Lys 1380	4149
ctg Leu 1385	cat His 1385	gtg Val 1385	gag Glu 1390	cta Leu 1390	cgg Arg 1390	cgg Arg 1390	tta Leu 1395	cag Gln 1395	cat His 1395	cgc Arg 1395	cga Arg 1395	gca Ala 1395	gag Glu 1395	ctg Leu 1395	4194
gag Glu 1400	agg Arg 1400	cag Gln 1400	ttg Leu 1405	gag Glu 1405	gag Glu 1405	ctg Leu 1405	gag Glu 1410	cgg Arg 1410	gag Glu 1410	agg Arg 1410	cag Gln 1410	gca Ala 1410	cgt Arg 1410	agg Arg 1410	4239
gca Ala 1415	gcc Ala 1415	gag Glu 1415	ctg Leu 1420	gag Glu 1420	gta Val 1420	cag Gln 1420	agg Arg 1425	ctg Leu 1425	caa Gln 1425	cag Gln 1425	cgg Arg 1425	ctg Leu 1425	gct Ala 1425	gca Ala 1425	4284
ttg Leu 1430	gag Glu 1430	cag Gln 1430	gag Glu 1435	gag Glu 1435	gcc Ala 1435	aag Lys 1435	act Thr 1440	ggt Gly 1440	gag Glu 1440	aag Lys 1440	gtg Val 1440	acc Thr 1440	cac His 1440	aca Thr 1440	4329
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gcc Ala 1460	ctg Leu 1460	ctc Leu 1460	cga Arg 1465	gcc Ala 1465	cag Gln 1465	ctg Leu 1465	gag Glu 1470	gaa Glu 1470	gag Glu 1470	cgg Arg 1470	cac His 1470	cgg Arg 1470	agg Arg 1470	cag Gln 1470	4419

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Lys	Lys	Ser	Leu	Glu	Glu	Glu	Ser	Gln	Ser	Lys	Arg	Glu	Leu	Asp	
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Ser	Glu	Val	Thr	Arg	Leu	Glu	Ala	Lys	Leu	Ser	Glu	Leu	Glu	Phe	
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Asn	His	Lys	Leu	Gln	Leu	Glu	Arg	Gln	Asn	Leu	Gln	Leu	Glu	Thr	
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Arg	Arg	Leu	Gln	Ser	Glu	Ile	Glu	Met	Ala	Ala	Thr	Glu	Thr	Arg	
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Asp	Leu	Lys	Asn	Ile	Thr	Thr	Ile	Asp	Ser	Gly	Thr	His	Leu	Asn	
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Ser	Arg	Leu	Trp	Ser	Leu	Glu	Lys	Glu	Leu	Asp	Asp	Leu	Lys	Lys	
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Met	Ser	Lys	Asp	Lys	Asp	Leu	Glu	Ile	Asp	Glu	Leu	Gln	Arg	Arg	
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Arg	Arg	Ser	Ile	Val	Val	Ile	Asp	Pro	Asp	Thr	Gly	Arg	Glu	Leu	
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Ser	Pro	Glu	Glu	Ala	His	Arg	Ala	Gly	Leu	Ile	Asp	Trp	Lys	Met	
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Phe	Val	Lys	Leu	Arg	Ser	Gln	Glu	Cys	Asp	Trp	Glu	Glu	Ile	Ser	
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Val	Lys	Gly	Pro	Asn	Gly	Glu	Ser	Ser	Val	Ile	His	Asp	Arg	Lys	
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tca	ggc	aag	aag	ttc	tcc	att	gag	gac	gct	ctt	cag	agt	ggc	agg	5184
Ser	Gly	Lys	Lys	Phe	Ser	Ile	Glu	Asp	Ala	Leu	Gln	Ser	Gly	Arg	
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Leu	Thr	Ala	Ala	Gln	Tyr	Asp	Arg	Tyr	Val	Asn	Lys	Asp	Met	Ser	
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<400> 88

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Val Gln Thr Arg Ser Ile Ser Asn Lys Glu Leu Ser Asp Leu Ile Glu  
20 25 30

Gln Leu Gln Lys Asn Ala Asp Gln Val Glu Arg Asn Ile Val Asp Thr  
35 40 45

Glu Ala Lys Met Gln Ser Asp Leu Ala Arg Met Gln Glu Gly Gln Leu  
50 55 60

Pro Glu His Arg Asp Ala Ala Leu Gln Asn Val Ser Asp Ser Glu Lys  
65 70 75 80

Leu Leu Tyr Val Leu Glu Ala Asp Ser Ala Ile Ala Lys His Met Lys  
85 90 95

His Pro Gln Gly Asp Met Ile Ala Glu Asp Ile Arg Gln Leu Lys Glu  
100 105 110

Arg Val Thr Asn Leu Arg Gly Lys His Lys Gln Met Tyr Ser Leu Ala  
115 120 125

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

Lys Leu Asp Lys Leu Ser Ser Gln Ser Phe Gly Thr Asp Leu Pro Leu  
145 150 155 160

Val Asp Ser Gln Val Glu Gln His Asn Ile Phe His Asn Glu Val Lys  
165 170 175

Ala Ile Gly Pro His Leu Ala Lys Asp Lys Glu Gln Asn Ser Glu Leu  
180 185 190

Gln Ala Lys Tyr Gln Lys Leu Leu Thr Ala Ser Gln Ala Arg Gln Gln  
195 200 205

His Leu Ser Ser Leu Gln Asp Tyr Met Gln Arg Cys Thr Asn Glu Leu  
210 215 220

Tyr Trp Leu Asp Gln Gln Ala Lys Gly Arg Met Gln Tyr Asp Trp Ser  
225 230 235 240

Asp	Arg	Asn	Leu	Asp	Tyr	Pro	Ser	Arg	Arg	Arg	Gln	Tyr	Glu	Asn	Phe
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Ile	Asn	Arg	Asn	Leu	Glu	Ala	Lys	Glu	Glu	Arg	Ile	Asn	Lys	Leu	His
			260					265					270		
Thr	Glu	Gly	Asp	Gln	Leu	Leu	Thr	Ala	Glu	His	Pro	Gly	Arg	Asn	Ser
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Ile	Glu	Ala	His	Met	Glu	Ala	Val	His	Ala	Glu	Trp	Lys	Glu	Tyr	Leu
	290					295					300				
Asn	Leu	Leu	Ile	Cys	Glu	Glu	Ser	His	Leu	Lys	Tyr	Met	Glu	Asp	Tyr
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His	Gln	Phe	His	Lys	Asp	Met	Lys	Asp	Ala	Gln	Glu	Leu	Leu	Arg	Lys
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Val	Asp	Ser	Asp	Leu	Asn	Gln	Lys	Tyr	Ser	Pro	Asp	Phe	Lys	Asp	Arg
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Tyr	Gln	Ile	Glu	Leu	Leu	Leu	Arg	Glu	Leu	Asp	Asp	Gln	Glu	Lys	Ala
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Leu	Asp	Lys	Tyr	Glu	Asp	Val	Val	Arg	Gly	Leu	Gln	Arg	Arg	Gly	Gln
	370					375					380				
Gln	Val	Val	Pro	Leu	Lys	Tyr	Arg	Arg	Glu	Thr	Pro	Leu	Lys	Pro	Ile
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Pro	Val	Glu	Ala	Leu	Cys	Asp	Phe	Glu	Ser	Asp	Gln	Gly	Leu	Ile	Ser
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Arg	Gly	Tyr	Ser	Tyr	Thr	Leu	Gln	Lys	Asn	Asn	Gly	Glu	Ser	Trp	Glu
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Ile	Ile	Pro	Pro	Thr	Asp	Pro	Glu	Ala	Leu	Ala	Leu	Ala	Asp	Ser	Leu
	450					455					460				
Gly	Ser	Gln	Tyr	Arg	Ser	Val	Arg	Gln	Lys	Ala	Thr	Gly	Ser	Lys	His
465					470					475					480
Ala	Leu	Gln	Gln	Arg	His	Glu	Val	Leu	Arg	Thr	Glu	Asn	Pro	Gly	Asp
				485					490					495	
Ala	Ser	Asp	Leu	Gln	Gly	Arg	Gln	Leu	Leu	Ala	Gly	Leu	Asp	Lys	Val
			500					505					510		
Ala	Ser	Asp	Leu	Asp	Arg	Gln	Glu	Lys	Ala	Ile	Thr	Gly	Ile	Leu	Arg
			515				520					525			



Pro	Pro	Leu	Glu	Gln	Gly	Arg	Ala	Ile	Glu	Asp	Ser	Ala	Glu	Arg	Ala		
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Lys	Gly	Leu	Lys	Asn	Ile	Thr	Asn	Glu	Leu	Leu	Gln	Ile	Glu	Pro	Glu		
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Lys	Thr	Gln	Cys	Thr	Ala	Glu	Cys	Glu	Ala	Phe	Val	Gln	Ala	Leu	Pro		
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Ala	Ser	Gly	Thr	Ala	Pro	Leu	Leu	Lys	Thr	Arg	Val	Glu	Asp	Thr	Asn		
			580					585					590				
Gln	Lys	Tyr	Glu	Arg	Leu	Val	Trp	Leu	Leu	Glu	Ala	Ala	Gln	Glu	Lys		
		595					600						605				
Val	Asp	Val	Ala	Asn	Arg	Leu	Glu	Asn	Ser	Leu	Gln	Arg	Gly	Arg	Glu		
	610					615					620						
Leu	Leu	Ala	Ser	Tyr	Glu	Asn	Arg	Leu	Ile	Gln	Asp	Asp	Thr	Met	Pro		
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Glu	Ser	Gly	His	Val	Leu	Asp	Arg	Lys	Arg	Gln	Glu	Leu	Glu	Ala	Met		
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Ala	Ser	Glu	Leu	Gln	Ala	His	Lys	Ser	Leu	Leu	Gly	Glu	Val	Gly	Lys		
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Asn	Leu	Gln	Val	Ala	Lys	Gln	Cys	Ser	Ser	Ser	Leu	Ala	Ser	Arg	Phe		
		675					680					685					
Gln	Glu	His	Cys	Pro	Asp	Leu	Glu	Arg	Gln	Glu	Ala	Glu	Val	His	Lys		
	690					695					700						
Leu	Asn	Gln	Arg	Phe	Asn	Asn	Leu	Ser	Gln	Gln	Val	Glu	Arg	Arg	Ala		
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Gln	Ser	Leu	Gln	Ser	Ala	Arg	Ala	Ala	Tyr	Asp	Glu	Tyr	Cys	Ser	Gly		
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Tyr	Asn	Arg	Val	Leu	Gln	Phe	Leu	Ala	Lys	Thr	Pro	Ser	Tyr	Glu	Pro		
			740					745						750			
Gln	Glu	Thr	Asp	Ser	Leu	Gly	Gln	Met	Glu	Thr	Lys	Leu	Lys	Asn	Gln		
		755					760					765					
Lys	Asn	Leu	Leu	Asp	Glu	Leu	Ala	Ser	Arg	Glu	Gln	Glu	Val	Gln	Lys		
	770					775					780						
Val	Tyr	Ala	Asp	Ser	Gln	Gln	Tyr	Gln	Gln	Ala	Val	Lys	Asp	Tyr	Glu		
785					790					795					800		
Leu	Glu	Ala	Glu	Lys	Leu	Arg	Ser	Leu	Leu	Asp	Leu	Glu	Asn	Gly	Arg		
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Asn Ser His Val Asn Lys Arg Ala Arg Leu Gln Ser Pro Ala Ala Lys  
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Val Lys Glu Glu Glu Ala Ala Leu Ala Ala Lys Phe Thr Glu Val Asn  
835 840 845

Ala Ile Asn Arg Gln Arg Leu Gln Asn Leu Glu Phe Ala Leu Asn Leu  
850 855 860

Leu Arg Gln Gln Pro Glu Ala Gly Val Thr His Glu Thr Leu Gln Gly  
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Gly Lys Leu Ser Ser Gly Met Glu Glu Thr Trp Lys Ile Lys Lys Glu  
885 890 895

Leu Glu Glu Glu Ile Glu Arg Arg Gln Gln Leu Glu Asn Glu Val Lys  
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Ser Ala Gln Glu Glu Ile Gln Thr Leu Lys Asp Gln Gly Pro Gln Glu  
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Ser Leu Val Arg Lys Glu Val Leu Lys Lys Val Pro Asp Pro Ala Leu  
930 935 940

Glu Glu Ser Phe Gln Gln Leu Gln Gln Thr Leu Ala Glu Glu Gln His  
945 950 955 960

Lys Asn Gln Leu Leu Gln Glu Glu Leu Gly Ala Leu Gln Leu Arg Leu  
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Gln Ala Leu Glu Gln Glu Thr Arg Asp Gly Gly Gln Glu Tyr Val Val  
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Lys Glu Val Leu Arg Ile Glu Pro Asp Arg Ala Gln Glu Asp Glu Val  
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Leu Gln Leu Arg Glu Glu Leu Glu Ala Leu Arg Arg Gln Lys Gly  
1010 1015 1020

Ala Arg Glu Ala Glu Val Leu Leu Leu Gln Gln Arg Val Ala Ala  
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Leu Ala Ala Glu Lys Ser Arg Val Gln Glu Lys Val Thr Glu Arg  
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Glu Val Val Lys Leu Gln Asn Asp Pro Gln Leu Glu Ala Glu Tyr  
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Arg Arg Leu Gln Glu Glu His Gln Arg Glu Gly Thr Leu Arg Glu  
1070 1075 1080

Lys Gln Glu Glu Glu Leu Ser Phe Leu Gln Ala Lys Leu Arg Arg  
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Leu	Glu	Lys	Glu	Arg	Ala	Met	Ala	Glu	Gly	Lys	Ile	Thr	Val	Lys
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1115						1120					1125			
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1130						1135					1140			
Ser	Gly	Gln	Arg	Glu	Lys	Thr	Glu	Leu	Leu	Arg	Lys	Ile	Trp	Ala
1145						1150					1155			
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Glu	Ile	Val	Arg	Pro	Asp	Pro	Lys	Ala	Glu	Ser	Glu	Val	Ala	Asn
1175						1180					1185			
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Glu	Glu	Gln	Leu	Lys	Ser	Tyr	Gln	Ser	Glu	Leu	Glu	Ala	Leu	Arg
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1235						1240					1245			
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1265						1270					1275			
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Leu	Arg	Ile	Gln	Leu	Ser	Glu	Glu	Gln	Lys	Lys	Gln	Val	Asp	Leu
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 Ser Pro Glu Glu Ala His Arg Ala Gly Leu Ile Asp Trp Lys Met  
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 Phe Val Lys Leu Arg Ser Gln Glu Cys Asp Trp Glu Glu Ile Ser  
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 Val Lys Gly Pro Asn Gly Glu Ser Ser Val Ile His Asp Arg Lys  
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 Ser Gly Lys Lys Phe Ser Ile Glu Asp Ala Leu Gln Ser Gly Arg  
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 Gly Ser Pro Ala Lys Gly Ser Pro Lys Gly Ser Pro Ser Arg His Ser  
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 Asn Ala Asp Gln Val Glu Arg Asp Ile Leu Glu Thr Gln Lys Arg Leu  
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 Gln Glu Thr Gly Arg Ser Leu Lys Glu Ala Glu Val Leu Leu Lys Asp  
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 Leu Phe Leu Asp Val Asp Lys Ala Arg Arg Leu Lys His Pro Gln Ala  
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His	Val	Asp	Ser	Ile	Cys	Asp	Trp	Asp	Ser	Gly	Glu	Val	Gln	Leu	Leu	
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Phe	Cys	Ile	Pro	Ala	Pro	Asp	Pro	Asp	Ala	Val	Ala	Arg	Ala	Ser	Arg	
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Ser	Arg	Leu	Lys	Ala	Ser	Ala	Val	Glu	Ser	Leu	Arg	Pro	Ser	Gln	Gln	
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Val	Leu	Ala	Trp	Ala	Arg	Ala	Pro	Leu	Ser	Arg	Pro	Thr	Pro	Leu	Glu	
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Asp	Leu	Glu	Gly	Arg	Ile	His	Ser	His	Glu	Gly	Thr	Ala	Gln	Arg	Leu	
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Gln	Ser	Leu	Gly	Thr	Glu	Lys	Glu	Thr	Ala	Gln	Lys	Glu	Cys	Glu	Ala	
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Phe	Leu	Ser	Thr	Arg	Pro	Val	Gly	Pro	Ala	Ala	Leu	Gln	Leu	Pro	Val	
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Ser	Glu	Leu	Gln	Arg	Gln	Arg	Arg	Glu	Leu	Leu	Glu	Gln	Gln	Thr	Cys	
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Gln	Arg	Gln	Val	Arg	Ala	Leu	Thr	Asp	Arg	Tyr	His	Ala	Val	Gly	Asp	
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Gln	Gln	Phe	Lys	Asn	Cys	Lys	Asp	Asn	Leu	Ser	Ser	Trp	Leu	Glu	His	
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Leu	Pro	Arg	Ser	Gln	Val	Arg	Pro	Ser	Asp	Gly	Pro	Ser	Gln	Ile	Ala	
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Leu	Arg	Thr	Gln	Arg	Pro	Leu	Glu	Arg	Leu	Glu	Glu	Lys	Glu	Val	Val	
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Glu	Phe	Tyr	Arg	Asp	Pro	Gln	Leu	Glu	Gly	Ser	Leu	Ser	Arg	Val	Lys	
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980 985 990	
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Leu Glu Val Ala Ala Gln Lys Val Val Gln Leu Glu Ser Lys Arg Lys	
995 1000 1005	
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Thr Met Gln Pro His Leu Leu Thr Lys Glu Val Thr Gln Val Glu	
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Arg Asp Pro Gly Leu Asp Ser Gln Ala Ala Gln Leu Arg Ile Gln	
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Ile Gln Gln Leu Arg Gly Glu Asp Ala Val Ile Ser Ala Arg Leu	
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Glu Gly Leu Lys Lys Glu Leu Leu Ala Leu Glu Lys Arg Glu Val	
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cgc Arg 1430	agc Ser 1430	aag Lys 1430	aag Lys 1430	ctg Leu 1435	gcc Ala 1435	gtg Val 1435	gag Glu 1440	agg Arg 1440	gag Glu 1440	ctg Leu 1440	cgg Arg 1440	cag Gln 1440	ctg Leu 1440	acc Thr 1440	4329
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ctg Leu 1475	gag Glu 1475	aag Lys 1475	tcc Ser 1475	acg Thr 1480	gaa Glu 1480	gcc Ala 1480	ctg Leu 1485	cgg Arg 1485	tgg Trp 1485	gac Asp 1485	ctg Leu 1485	gac Asp 1485	cag Gln 1485	gag Glu 1485	4464
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Ile	Tyr	Lys	Glu	Val	Ile	Arg	Val	Gln	Lys	Asp	Arg	Val	Leu	Glu	
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Asp	Glu	Arg	Ala	Arg	Val	Trp	Glu	Met	Leu	Asn	Arg	Glu	Arg	Thr	
	1535					1540					1545				
gcc	cgg	cag	gcc	cgg	gag	gag	gag	gca	cgg	cgc	ctg	cgg	gag	cgc	4689
Ala	Arg	Gln	Ala	Arg	Glu	Glu	Glu	Ala	Arg	Arg	Leu	Arg	Glu	Arg	
	1550					1555					1560				
att	gac	cgg	gcc	gag	acg	ctg	ggg	aga	acc	tgg	tcc	cgg	gag	gag	4734
Ile	Asp	Arg	Ala	Glu	Thr	Leu	Gly	Arg	Thr	Trp	Ser	Arg	Glu	Glu	
	1565					1570					1575				
tcc	gag	ctg	cag	agg	gcc	cgg	gac	cag	gcc	gac	cag	gag	tgt	ggg	4779
Ser	Glu	Leu	Gln	Arg	Ala	Arg	Asp	Gln	Ala	Asp	Gln	Glu	Cys	Gly	
	1580					1585					1590				
cgg	ctg	cag	cag	gag	ctg	cgg	gct	ctg	gag	agg	cag	aag	cag	cag	4824
Arg	Leu	Gln	Gln	Glu	Leu	Arg	Ala	Leu	Glu	Arg	Gln	Lys	Gln	Gln	
	1595					1600					1605				
cag	aca	ctg	cag	ctg	cag	gag	gag	tcg	aag	ctg	ctc	agc	cag	aag	4869
Gln	Thr	Leu	Gln	Leu	Gln	Glu	Glu	Ser	Lys	Leu	Leu	Ser	Gln	Lys	
	1610					1615					1620				
acg	gag	agc	gag	cga	cag	aag	gcg	gcc	cag	cgg	ggc	cag	gag	ctc	4914
Thr	Glu	Ser	Glu	Arg	Gln	Lys	Ala	Ala	Gln	Arg	Gly	Gln	Glu	Leu	
	1625					1630					1635				
tcg	cgg	ctg	gag	gcg	gcc	atc	ctc	cgc	gag	aag	gac	cag	atc	tac	4959
Ser	Arg	Leu	Glu	Ala	Ala	Ile	Leu	Arg	Glu	Lys	Asp	Gln	Ile	Tyr	
	1640					1645					1650				
gag	aag	gag	cgg	acg	ctc	cgg	gac	ctc	cac	gcc	aag	gtg	agc	cgg	5004
Glu	Lys	Glu	Arg	Thr	Leu	Arg	Asp	Leu	His	Ala	Lys	Val	Ser	Arg	
	1655					1660					1665				
gag	gag	ctc	agc	cag	gag	acc	cag	acg	cga	gag	acc	aac	ctt	tcc	5049
Glu	Glu	Leu	Ser	Gln	Glu	Thr	Gln	Thr	Arg	Glu	Thr	Asn	Leu	Ser	
	1670					1675					1680				
acc	aag	atc	tcc	atc	ctg	gaa	ccc	gag	acg	ggg	aag	gac	atg	tcc	5094
Thr	Lys	Ile	Ser	Ile	Leu	Glu	Pro	Glu	Thr	Gly	Lys	Asp	Met	Ser	
	1685					1690					1695				
cca	tac	gag	gcc	tac	aag	agg	ggc	atc	atc	gac	agg	ggc	cag	tac	5139
Pro	Tyr	Glu	Ala	Tyr	Lys	Arg	Gly	Ile	Ile	Asp	Arg	Gly	Gln	Tyr	
	1700					1705					1710				
ttg	cag	ctg	cag	gag	ctc	gag	tgt	gac	tgg	gag	gag	gtc	acc	acc	5184
Leu	Gln	Leu	Gln	Glu	Leu	Glu	Cys	Asp	Trp	Glu	Glu	Val	Thr	Thr	
	1715					1720					1725				
tcg	ggg	ccc	tgt	ggg	gag	gag	tct	gtg	ctc	ctg	gac	cgc	aag	agc	5229
Ser	Gly	Pro	Cys	Gly	Glu	Glu	Ser	Val	Leu	Leu	Asp	Arg	Lys	Ser	
	1730					1735					1740				
ggg	aag	cag	tac	tcc	atc	gag	gcc	gcc	ctc	cgc	tgc	cgg	cgc	atc	5274
Gly	Lys	Gln	Tyr	Ser	Ile	Glu	Ala	Ala	Leu	Arg	Cys	Arg	Arg	Ile	
	1745					1750					1755				
tct	aag	gag	gag	tac	cat	ctg	tac	aag	gac	ggc	cac	ctg	ccc	atc	5319
Ser	Lys	Glu	Glu	Tyr	His	Leu	Tyr	Lys	Asp	Gly	His	Leu	Pro	Ile	
	1760					1765					1770				
tcc	gag	ttt	gcg	ctg	ctt	gta	gct	ggg	gag	acc	aag	cca	agc	tcc	5364
Ser	Glu	Phe	Ala	Leu	Leu	Val	Ala	Gly	Glu	Thr	Lys	Pro	Ser	Ser	
	1775					1780					1785				

tca ctc tcc atc ggc tct atc atc tcc aag tcc ccg ctc gcc tcc	5409
Ser Leu Ser Ile Gly Ser Ile Ile Ser Lys Ser Pro Leu Ala Ser	
1790 1795 1800	
ccg gcc ccc cag agc acc agt ttc ttc tct ccc agc ttc tct ctc	5454
Pro Ala Pro Gln Ser Thr Ser Phe Phe Ser Pro Ser Phe Ser Leu	
1805 1810 1815	
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Gly Leu Gly Asp Asp Ser Phe Pro Ile Ala Gly Ile Tyr Asp Thr	
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acc aca gac aac aag tgc agc atc aag acg gcc gtg gcc aag aac	5544
Thr Thr Asp Asn Lys Cys Ser Ile Lys Thr Ala Val Ala Lys Asn	
1835 1840 1845	
atg ctg gac ccc atc act ggg cag aag cta ctg gag gcc cag gcg	5589
Met Leu Asp Pro Ile Thr Gly Gln Lys Leu Leu Glu Ala Gln Ala	
1850 1855 1860	
gcc aca ggg ggc atc gtg gac ctg ctc agc cgt gag cgc tac tct	5634
Ala Thr Gly Gly Ile Val Asp Leu Leu Ser Arg Glu Arg Tyr Ser	
1865 1870 1875	
gtg cac aag gcg atg gag agg ggc ctg atc gag aac acc tcc aca	5679
Val His Lys Ala Met Glu Arg Gly Leu Ile Glu Asn Thr Ser Thr	
1880 1885 1890	
cag agg ctg ctt aac gcc cag aag gcc ttc acc ggc atc gag gac	5724
Gln Arg Leu Leu Asn Ala Gln Lys Ala Phe Thr Gly Ile Glu Asp	
1895 1900 1905	
ccc gtc acc aag aag agg ctc tcg gtg ggc gag gcc gtc cag aag	5769
Pro Val Thr Lys Lys Arg Leu Ser Val Gly Glu Ala Val Gln Lys	
1910 1915 1920	
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Gly Trp Met Pro Arg Glu Ser Val Leu Pro His Leu Gln Val Gln	
1925 1930 1935	
cac ctg acc ggg ggg ctc atc gac ccc aag agg aca ggc cgc atc	5859
His Leu Thr Gly Gly Leu Ile Asp Pro Lys Arg Thr Gly Arg Ile	
1940 1945 1950	
ccc atc cag cag gcc ctc ctc tcc ggg atg atc agt gaa gag ctg	5904
Pro Ile Gln Gln Ala Leu Leu Ser Gly Met Ile Ser Glu Glu Leu	
1955 1960 1965	
gcc cag ctc ctg cag gac gag tcc agc tac gag aag gat ttg aca	5949
Ala Gln Leu Leu Gln Asp Glu Ser Ser Tyr Glu Lys Asp Leu Thr	
1970 1975 1980	
gac ccc atc tcc aag gaa cgg ctg agc tac aag gag gcc atg ggc	5994
Asp Pro Ile Ser Lys Glu Arg Leu Ser Tyr Lys Glu Ala Met Gly	
1985 1990 1995	
cgc tgc cgc aaa gac ccc ctg agc ggc ctg ctg ctc ctg cca gcg	6039
Arg Cys Arg Lys Asp Pro Leu Ser Gly Leu Leu Leu Leu Pro Ala	
2000 2005 2010	
gca ctg gag ggg tac cgc tgc tac cgc tcc gcc tcc ccc acc gtc	6084
Ala Leu Glu Gly Tyr Arg Cys Tyr Arg Ser Ala Ser Pro Thr Val	
2015 2020 2025	
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Pro Arg Ser Leu Arg	
2030	

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<213> Homo sapiens

<400> 90

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Gly Ser Pro Ala Lys Gly Ser Pro Lys Gly Ser Pro Ser Arg His Ser  
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Arg Ala Ala Thr Gln Glu Leu Ala Leu Leu Ile Ser Arg Met Gln Ala  
35 40 45

Asn Ala Asp Gln Val Glu Arg Asp Ile Leu Glu Thr Gln Lys Arg Leu  
50 55 60

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

Gln Glu Thr Gly Arg Ser Leu Lys Glu Ala Glu Val Leu Leu Lys Asp  
85 90 95

Leu Phe Leu Asp Val Asp Lys Ala Arg Arg Leu Lys His Pro Gln Ala  
100 105 110

Glu Glu Ile Glu Lys Asp Ile Lys Gln Leu His Glu Arg Val Thr Gln  
115 120 125

Glu Cys Ala Glu Tyr Arg Ala Leu Tyr Glu Lys Met Val Leu Pro Pro  
130 135 140

Asp Val Gly Pro Arg Val Asp Trp Ala Arg Val Leu Glu Gln Lys Gln  
145 150 155 160

Lys Gln Val Cys Ala Gly Gln Tyr Gly Pro Gly Met Ala Glu Leu Glu  
165 170 175

Gln Gln Ile Ala Glu His Asn Ile Leu Gln Lys Glu Ile Asp Ala Tyr  
180 185 190

Gly Gln Gln Leu Arg Ser Leu Val Gly Pro Asp Ala Ala Thr Ile Arg  
195 200 205

Ser Gln Tyr Arg Asp Leu Leu Lys Ala Ala Ser Trp Arg Gly Gln Ser  
210 215 220

Leu Gly Ser Leu Tyr Thr His Leu Gln Gly Cys Thr Arg Gln Leu Ser  
225 230 235 240

Ala Leu Ala Glu Gln Gln Arg Arg Ile Leu Gln Gln Asp Trp Ser Asp  
245 250 255

Leu Met Ala Asp Pro Ala Gly Val Arg Arg Glu Tyr Glu His Phe Lys  
260 265 270

Gln	His	Glu	Leu	Leu	Ser	Gln	Glu	Gln	Ser	Val	Asn	Gln	Leu	Glu	Asp	275	280	285
Asp	Gly	Glu	Arg	Met	Val	Glu	Leu	Arg	His	Pro	Ala	Val	Gly	Pro	Ile	290	295	300
Gln	Ala	His	Gln	Glu	Ala	Leu	Lys	Met	Glu	Trp	Gln	Asn	Phe	Leu	Asn	305	310	315
Leu	Cys	Ile	Cys	Gln	Glu	Thr	Gln	Leu	Gln	His	Val	Glu	Asp	Tyr	Arg	325	330	335
Arg	Phe	Gln	Glu	Glu	Ala	Asp	Ser	Val	Ser	Gln	Thr	Leu	Ala	Lys	Leu	340	345	350
Asn	Ser	Asn	Leu	Asp	Ala	Lys	Tyr	Ser	Pro	Ala	Pro	Gly	Gly	Pro	Pro	355	360	365
Gly	Ala	Pro	Thr	Glu	Leu	Leu	Gln	Gln	Leu	Glu	Ala	Glu	Glu	Lys	Arg	370	375	380
Leu	Ala	Val	Thr	Glu	Arg	Ala	Thr	Gly	Asp	Leu	Gln	Arg	Arg	Ser	Arg	385	390	395
Asp	Val	Ala	Pro	Leu	Pro	Gln	Arg	Arg	Asn	Pro	Pro	Gln	Gln	Pro	Leu	405	410	415
His	Val	Asp	Ser	Ile	Cys	Asp	Trp	Asp	Ser	Gly	Glu	Val	Gln	Leu	Leu	420	425	430
Gln	Gly	Glu	Arg	Tyr	Lys	Leu	Val	Asp	Asn	Thr	Glu	Pro	His	Ala	Trp	435	440	445
Val	Val	Gln	Gly	Pro	Gly	Gly	Glu	Thr	Lys	Arg	Ala	Pro	Ala	Ala	Cys	450	455	460
Phe	Cys	Ile	Pro	Ala	Pro	Asp	Pro	Asp	Ala	Val	Ala	Arg	Ala	Ser	Arg	465	470	475
Leu	Ala	Ser	Glu	Leu	Gln	Ala	Leu	Lys	Gln	Lys	Leu	Ala	Thr	Val	Gln	485	490	495
Ser	Arg	Leu	Lys	Ala	Ser	Ala	Val	Glu	Ser	Leu	Arg	Pro	Ser	Gln	Gln	500	505	510
Ala	Pro	Ser	Gly	Ser	Asp	Leu	Ala	Asn	Pro	Gln	Ala	Gln	Lys	Leu	Leu	515	520	525
Thr	Gln	Met	Thr	Arg	Leu	Asp	Gly	Asp	Leu	Gly	Gln	Ile	Glu	Arg	Gln	530	535	540
Val	Leu	Ala	Trp	Ala	Arg	Ala	Pro	Leu	Ser	Arg	Pro	Thr	Pro	Leu	Glu	545	550	555

Asp Leu Glu Gly Arg Ile His Ser His Glu Gly Thr Ala Gln Arg Leu  
565 570 575

Gln Ser Leu Gly Thr Glu Lys Glu Thr Ala Gln Lys Glu Cys Glu Ala  
580 585 590

Phe Leu Ser Thr Arg Pro Val Gly Pro Ala Ala Leu Gln Leu Pro Val  
595 600 605

Ala Leu Asn Ser Val Lys Asn Lys Phe Ser Asp Val Gln Val Leu Cys  
610 615 620

Ser Leu Tyr Gly Glu Lys Ala Lys Ala Ala Leu Asp Leu Glu Arg Gln  
625 630 635 640

Ile Gln Asp Ala Asp Arg Val Ile Arg Gly Phe Glu Ala Thr Leu Val  
645 650 655

Gln Glu Ala Pro Ile Pro Ala Glu Pro Gly Ala Leu Gln Glu Arg Val  
660 665 670

Ser Glu Leu Gln Arg Gln Arg Arg Glu Leu Leu Glu Gln Gln Thr Cys  
675 680 685

Val Leu Arg Leu His Arg Ala Leu Lys Ala Ser Glu His Ala Cys Ala  
690 695 700

Ala Leu Gln Asn Asn Phe Gln Glu Phe Cys Gln Asp Leu Pro Arg Gln  
705 710 715 720

Gln Arg Gln Val Arg Ala Leu Thr Asp Arg Tyr His Ala Val Gly Asp  
725 730 735

Gln Leu Asp Leu Arg Glu Lys Val Val Gln Asp Ala Ala Leu Thr Tyr  
740 745 750

Gln Gln Phe Lys Asn Cys Lys Asp Asn Leu Ser Ser Trp Leu Glu His  
755 760 765

Leu Pro Arg Ser Gln Val Arg Pro Ser Asp Gly Pro Ser Gln Ile Ala  
770 775 780

Tyr Lys Leu Gln Ala Gln Lys Arg Leu Thr Gln Glu Ile Gln Ser Arg  
785 790 795 800

Glu Arg Asp Arg Ala Thr Ala Ser His Leu Ser Gln Ala Leu Gln Ala  
805 810 815

Ala Leu Gln Asp Tyr Glu Leu Gln Ala Asp Thr Tyr Arg Cys Ser Leu  
820 825 830

Glu Pro Thr Leu Ala Val Ser Ala Pro Lys Arg Pro Arg Val Ala Pro  
835 840 845

Leu Gln Glu Ser Ile Gln Ala Gln Glu Lys Asn Leu Ala Lys Ala Tyr  
850 855 860

Thr Glu Val Ala Ala Ala Gln Gln Gln Leu Leu Gln Gln Leu Glu Phe  
865 870 875 880

Ala Arg Lys Met Leu Glu Lys Lys Glu Leu Ser Glu Asp Ile Arg Arg  
885 890 895

Thr His Asp Ala Lys Gln Gly Ser Glu Ser Pro Ala Gln Ala Gly Arg  
900 905 910

Glu Ser Glu Ala Leu Lys Ala Gln Leu Glu Glu Glu Arg Lys Arg Val  
915 920 925

Ala Arg Val Gln His Glu Leu Glu Ala Gln Arg Ser Gln Leu Leu Gln  
930 935 940

Leu Arg Thr Gln Arg Pro Leu Glu Arg Leu Glu Glu Lys Glu Val Val  
945 950 955 960

Glu Phe Tyr Arg Asp Pro Gln Leu Glu Gly Ser Leu Ser Arg Val Lys  
965 970 975

Ala Gln Val Glu Glu Glu Gly Lys Arg Arg Ala Gly Leu Gln Ala Asp  
980 985 990

Leu Glu Val Ala Ala Gln Lys Val Val Gln Leu Glu Ser Lys Arg Lys  
995 1000 1005

Thr Met Gln Pro His Leu Leu Thr Lys Glu Val Thr Gln Val Glu  
1010 1015 1020

Arg Asp Pro Gly Leu Asp Ser Gln Ala Ala Gln Leu Arg Ile Gln  
1025 1030 1035

Ile Gln Gln Leu Arg Gly Glu Asp Ala Val Ile Ser Ala Arg Leu  
1040 1045 1050

Glu Gly Leu Lys Lys Glu Leu Leu Ala Leu Glu Lys Arg Glu Val  
1055 1060 1065

Asp Val Lys Glu Lys Val Val Val Lys Glu Val Val Lys Val Glu  
1070 1075 1080

Lys Asn Leu Glu Met Val Lys Ala Ala Gln Ala Leu Arg Leu Gln  
1085 1090 1095

Met Glu Glu Asp Ala Ala Arg Arg Lys Gln Ala Glu Glu Ala Val  
1100 1105 1110

Ala Lys Leu Gln Ala Arg Ile Glu Asp Leu Glu Arg Ala Ile Ser  
1115 1120 1125



Ser Val 1130	Glu Pro Lys Val 1135	Ile Val Lys Glu Val Lys 1140	Lys Val Glu
Gln Asp 1145	Pro Gly Leu Leu Gln 1150	Glu Ser Ser Arg Leu 1155	Arg Ser Leu
Leu Glu 1160	Glu Glu Arg Thr Lys 1165	Asn Ala Thr Leu Ala 1170	Arg Glu Leu
Ser Asp 1175	Leu His Ser Lys Tyr 1180	Ser Val Val Glu Lys 1185	Gln Arg Pro
Lys Val 1190	Gln Leu Gln Glu Arg 1195	Val His Glu Ile Phe 1200	Gln Val Asp
Pro Glu 1205	Thr Glu Gln Glu Ile 1210	Thr Arg Leu Lys Ala 1215	Lys Leu Gln
Glu Met 1220	Ala Gly Lys Arg Ser 1225	Gly Val Glu Lys Glu 1230	Val Glu Lys
Leu Leu 1235	Pro Asp Leu Glu Val 1240	Leu Arg Ala Gln Lys 1245	Pro Thr Val
Glu Tyr 1250	Lys Glu Val Thr Gln 1255	Glu Val Val Arg His 1260	Glu Arg Ser
Pro Glu 1265	Val Leu Arg Glu Ile 1270	Asp Arg Leu Lys Ala 1275	Gln Leu Asn
Glu Leu 1280	Val Asn Ser His Gly 1285	Arg Ser Gln Glu Gln 1290	Leu Ile Arg
Leu Gln 1295	Gly Glu Arg Asp Glu 1300	Trp Arg Arg Glu Arg 1305	Ala Lys Val
Glu Thr 1310	Lys Thr Val Ser Lys 1315	Glu Val Val Arg His 1320	Glu Lys Asp
Pro Val 1325	Leu Glu Lys Glu Ala 1330	Glu Arg Leu Arg Gln 1335	Glu Val Arg
Glu Ala 1340	Ala Gln Lys Arg Arg 1345	Ala Ala Glu Asp Ala 1350	Val Tyr Glu
Leu Gln 1355	Ser Lys Arg Leu Leu 1360	Leu Glu Arg Arg Lys 1365	Pro Glu Glu
Lys Val 1370	Val Val Gln Glu Val 1375	Val Val Thr Gln Lys 1380	Asp Pro Lys
Leu Arg 1385	Glu Glu His Ser Arg 1390	Leu Ser Gly Ser Leu 1395	Asp Glu Glu

Val Gly 1400	Arg Arg Arg Gln 1405	Glu Leu Glu Val Gln 1410	Gln Leu Arg
Ala Gly 1415	Val Glu Glu Gln Glu 1420	Gly Leu Leu Ser Phe 1425	Gln Glu Asp
Arg Ser 1430	Lys Lys Leu Ala Val 1435	Glu Arg Glu Leu Arg 1440	Gln Leu Thr
Leu Arg 1445	Ile Gln Glu Leu Glu 1450	Lys Arg Pro Pro Thr 1455	Val Gln Glu
Lys Ile 1460	Ile Met Glu Glu Val 1465	Val Lys Leu Glu Lys 1470	Asp Pro Asp
Leu Glu 1475	Lys Ser Thr Glu Ala 1480	Leu Arg Trp Asp Leu 1485	Asp Gln Glu
Lys Thr 1490	Gln Val Thr Glu Leu 1495	Asn Arg Glu Cys Lys 1500	Asn Leu Gln
Val Gln 1505	Ile Asp Val Leu Gln 1510	Lys Ala Lys Ser Gln 1515	Glu Lys Thr
Ile Tyr 1520	Lys Glu Val Ile Arg 1525	Val Gln Lys Asp Arg 1530	Val Leu Glu
Asp Glu 1535	Arg Ala Arg Val Trp 1540	Glu Met Leu Asn Arg 1545	Glu Arg Thr
Ala Arg 1550	Gln Ala Arg Glu Glu 1555	Glu Ala Arg Arg Leu 1560	Arg Glu Arg
Ile Asp 1565	Arg Ala Glu Thr Leu 1570	Gly Arg Thr Trp Ser 1575	Arg Glu Glu
Ser Glu 1580	Leu Gln Arg Ala Arg 1585	Asp Gln Ala Asp Gln 1590	Glu Cys Gly
Arg Leu 1595	Gln Gln Glu Leu Arg 1600	Ala Leu Glu Arg Gln 1605	Lys Gln Gln
Gln Thr 1610	Leu Gln Leu Gln Glu 1615	Glu Ser Lys Leu Leu 1620	Ser Gln Lys
Thr Glu 1625	Ser Glu Arg Gln Lys 1630	Ala Ala Gln Arg Gly 1635	Gln Glu Leu
Ser Arg 1640	Leu Glu Ala Ala Ile 1645	Leu Arg Glu Lys Asp 1650	Gln Ile Tyr
Glu Lys 1655	Glu Arg Thr Leu Arg 1660	Asp Leu His Ala Lys 1665	Val Ser Arg

Glu	Glu	Leu	Ser	Gln	Glu	Thr	Gln	Thr	Arg	Glu	Thr	Asn	Leu	Ser	1670	1675	1680
Thr	Lys	Ile	Ser	Ile	Leu	Glu	Pro	Glu	Thr	Gly	Lys	Asp	Met	Ser	1685	1690	1695
Pro	Tyr	Glu	Ala	Tyr	Lys	Arg	Gly	Ile	Ile	Asp	Arg	Gly	Gln	Tyr	1700	1705	1710
Leu	Gln	Leu	Gln	Glu	Leu	Glu	Cys	Asp	Trp	Glu	Glu	Val	Thr	Thr	1715	1720	1725
Ser	Gly	Pro	Cys	Gly	Glu	Glu	Ser	Val	Leu	Leu	Asp	Arg	Lys	Ser	1730	1735	1740
Gly	Lys	Gln	Tyr	Ser	Ile	Glu	Ala	Ala	Leu	Arg	Cys	Arg	Arg	Ile	1745	1750	1755
Ser	Lys	Glu	Glu	Tyr	His	Leu	Tyr	Lys	Asp	Gly	His	Leu	Pro	Ile	1760	1765	1770
Ser	Glu	Phe	Ala	Leu	Leu	Val	Ala	Gly	Glu	Thr	Lys	Pro	Ser	Ser	1775	1780	1785
Ser	Leu	Ser	Ile	Gly	Ser	Ile	Ile	Ser	Lys	Ser	Pro	Leu	Ala	Ser	1790	1795	1800
Pro	Ala	Pro	Gln	Ser	Thr	Ser	Phe	Phe	Ser	Pro	Ser	Phe	Ser	Leu	1805	1810	1815
Gly	Leu	Gly	Asp	Asp	Ser	Phe	Pro	Ile	Ala	Gly	Ile	Tyr	Asp	Thr	1820	1825	1830
Thr	Thr	Asp	Asn	Lys	Cys	Ser	Ile	Lys	Thr	Ala	Val	Ala	Lys	Asn	1835	1840	1845
Met	Leu	Asp	Pro	Ile	Thr	Gly	Gln	Lys	Leu	Leu	Glu	Ala	Gln	Ala	1850	1855	1860
Ala	Thr	Gly	Gly	Ile	Val	Asp	Leu	Leu	Ser	Arg	Glu	Arg	Tyr	Ser	1865	1870	1875
Val	His	Lys	Ala	Met	Glu	Arg	Gly	Leu	Ile	Glu	Asn	Thr	Ser	Thr	1880	1885	1890
Gln	Arg	Leu	Leu	Asn	Ala	Gln	Lys	Ala	Phe	Thr	Gly	Ile	Glu	Asp	1895	1900	1905
Pro	Val	Thr	Lys	Lys	Arg	Leu	Ser	Val	Gly	Glu	Ala	Val	Gln	Lys	1910	1915	1920
Gly	Trp	Met	Pro	Arg	Glu	Ser	Val	Leu	Pro	His	Leu	Gln	Val	Gln	1925	1930	1935

His Leu Thr Gly Gly Leu Ile Asp Pro Lys Arg Thr Gly Arg Ile  
1940 1945 1950

Pro Ile Gln Gln Ala Leu Leu Ser Gly Met Ile Ser Glu Glu Leu  
1955 1960 1965

Ala Gln Leu Leu Gln Asp Glu Ser Ser Tyr Glu Lys Asp Leu Thr  
1970 1975 1980

Asp Pro Ile Ser Lys Glu Arg Leu Ser Tyr Lys Glu Ala Met Gly  
1985 1990 1995

Arg Cys Arg Lys Asp Pro Leu Ser Gly Leu Leu Leu Leu Pro Ala  
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2015 2020 2025

Pro Arg Ser Leu Arg  
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Gly Ser Pro Ala Lys Gly Ser Pro Lys Gly Ser Pro Asn Lys His Asn  
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cgg gct gca acc cag gaa ctg gct ctg ctc atc tcc cgc atg caa gcc 144  
Arg Ala Ala Thr Gln Glu Leu Ala Leu Leu Ile Ser Arg Met Gln Ala  
35 40 45

aac gct gac cag gtg gaa aga gac att ttg gag acg cag aag aag ctg 192  
Asn Ala Asp Gln Val Glu Arg Asp Ile Leu Glu Thr Gln Lys Lys Leu  
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caa cag gat cgg cag aat ggt gag cag aac cag gct tta caa cac cag 240  
Gln Gln Asp Arg Gln Asn Gly Glu Gln Asn Gln Ala Leu Gln His Gln  
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cag gag act ggc cgc aac ctg aag gaa gcg gag gta ctc ctc aaa gat 288  
Gln Glu Thr Gly Arg Asn Leu Lys Glu Ala Glu Val Leu Leu Lys Asp  
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ctc ttc ctg gat gta gac aag gcg cgg cgg ctc aag cac cca cag gct 336  
Leu Phe Leu Asp Val Asp Lys Ala Arg Arg Leu Lys His Pro Gln Ala  
100 105 110

gag gag att gag aaa gac atc aag cag ctg cat gag cgg gtg acc cag 384  
Glu Glu Ile Glu Lys Asp Ile Lys Gln Leu His Glu Arg Val Thr Gln  
115 120 125

gag tgc tcg gagtac cgt gct ctg tat gag aag atg gta ctt ccg cct 432

Glu 130	Cys	Ser	Glu	Tyr	Arg	Ala 135	Leu	Tyr	Glu	Lys	Met 140	Val	Leu	Pro	Pro	
gat	gtg	ggg	ccc	agg	gtc	gac	tgg	gcg	cgt	gtg	ttg	gag	cag	aaa	cag	480
Asp 145	Val	Gly	Pro	Arg	Val 150	Asp	Trp	Ala	Arg	Val 155	Leu	Glu	Gln	Lys	Gln 160	
aat	ctg	gtc	cgt	gag	ggc	cac	tat	ggg	cct	ggg	atg	gca	gag	ctg	gaa	528
Asn	Leu	Val	Arg	Glu 165	Gly	His	Tyr	Gly	Pro 170	Gly	Met	Ala	Glu	Leu	Glu 175	
cag	cag	gtg	gcc	gag	cac	aac	atc	ctg	cag	aga	gaa	atc	gag	gct	tac	576
Gln	Gln	Val	Ala 180	Glu	His	Asn	Ile	Leu	Gln 185	Arg	Glu	Ile	Glu	Ala	Tyr 190	
ggg	cag	cag	ctg	cgg	acg	ctg	gtg	gga	ccg	gat	gca	aac	acc	atc	agg	624
Gly	Gln	Gln 195	Leu	Arg	Thr	Leu	Val 200	Gly	Pro	Asp	Ala	Asn	Thr	Ile	Arg 205	
aac	caa	tac	cgt	gag	ctg	ctg	aag	gcg	gcc	tcg	tgg	cgc	cga	cag	agt	672
Asn	Gln	Tyr	Arg	Glu	Leu	Leu 215	Lys	Ala	Ala	Ser	Trp	Arg	Arg	Gln	Ser 220	
ctg	ggc	agc	ctg	tac	acc	cac	ctg	caa	ggc	tgc	acg	aag	cag	ctg	agc	720
Leu 225	Gly	Ser	Leu	Tyr	Thr 230	His	Leu	Gln	Gly	Cys 235	Thr	Lys	Gln	Leu	Ser 240	
gcc	ctg	gcc	gat	caa	caa	ggc	cgc	atc	ctg	cag	cag	gat	tgg	agt	gac	768
Ala	Leu	Ala	Asp	Gln 245	Gln	Gly	Arg	Ile	Leu 250	Gln	Gln	Asp	Trp	Ser	Asp 255	
ctc	atg	ccg	gac	ccc	gct	ggc	gtg	agg	cga	gag	tat	gaa	cac	ttc	aag	816
Leu	Met	Pro	Asp	Pro	Ala 260	Gly	Val	Arg	Arg	Glu	Tyr	Glu	His	Phe	Lys 270	
cag	cat	gag	ctg	ctg	gcc	cag	gaa	cgg	aac	ata	aac	cag	ctg	gaa	gat	864
Gln	His	Glu	Leu	Leu	Ala 275	Gln	Glu	Arg	Asn	Ile	Asn	Gln	Leu	Glu	Asp 285	
gac	gca	gat	cgc	atg	gtg	gaa	ctt	ggg	cac	ccg	gcc	att	ggg	ccc	atc	912
Asp 290	Ala	Asp	Arg	Met	Val 295	Glu	Leu	Gly	His	Pro	Ala	Ile	Gly	Pro	Ile 300	
caa	gtc	cac	cag	gag	gcc	ctc	aag	atg	gag	tgg	cag	aat	ttc	cta	aac	960
Gln 305	Val	His	Gln	Glu	Ala 310	Leu	Lys	Met	Glu	Trp	Gln	Asn	Phe	Leu	Asn 320	
ctt	tgc	atc	tgt	cag	gag	agc	cag	ctg	caa	cgg	gtg	gag	gac	tac	cgt	1008
Leu	Cys	Ile	Cys	Gln 325	Glu	Ser	Gln	Leu	Gln 330	Arg	Val	Glu	Asp	Tyr	Arg 335	
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Arg	Phe	Gln	Glu	Ala	Asp	Ser	Val 345	Ser	Gln	Thr	Leu	Ala	Lys	Leu		
agc	tcc	aac	ctg	gat	acc	aag	tac	ggc	ttt	ggc	act	ggg	gac	tcc	tcc	1104
Ser	Ser	Asn	Leu	Asp	Thr 355	Lys	Tyr	Gly	Phe	Gly	Thr	Gly	Asp	Ser	Ser 365	
ggc	tcc	ccc	aca	gag	ctc	ctg	cta	cag	ctg	gag	gca	gag	gag	aag	cag	1152
Gly 370	Ser	Pro	Thr	Glu	Leu 375	Leu	Leu	Gln	Leu	Glu	Ala	Glu	Glu	Lys	Gln 380	
ctg	gcc	ata	gca	gag	agg	gct	gtt	gga	gat	ctg	cag	cag	cga	agc	cag	1200
Leu 385	Ala	Ile	Ala	Glu	Arg 390	Ala	Val	Gly	Asp	Leu 395	Gln	Gln	Arg	Ser	Gln 400	
gag	gtg	gcc	cca	ctg	cca	cag	cgc	agg	aac	cca	tcc	aag	cag	ccc	ctg	1248
Glu	Val	Ala	Pro	Leu 405	Pro	Gln	Arg	Arg	Asn 410	Pro	Ser	Lys	Gln	Pro	Leu 415	
cac	gtg	gac	agc	atc	tgt	gac	tgg	gac	tcg	gga	gaa	gtt	cag	ctg	ctt	1296

His	Val	Asp	Ser	Ile	Cys	Asp	Trp	Asp	Ser	Gly	Glu	Val	Gln	Leu	Leu	
			420					425					430			
cgg	gga	gag	cgg	tgc	aca	ctc	aag	gat	aat	gct	gac	cca	tac	acg	tgg	1344
Arg	Gly	Glu	Arg	Cys	Thr	Leu	Lys	Asp	Asn	Ala	Asp	Pro	Tyr	Thr	Trp	
			435				440					445				
ctg	gtt	caa	ggc	cct	gga	gga	gag	acc	aaa	agt	gcc	cca	gct	gcc	tgc	1392
Leu	Val	Gln	Gly	Pro	Gly	Gly	Glu	Thr	Lys	Ser	Ala	Pro	Ala	Ala	Cys	
	450					455					460					
ctg	tgg	atc	cca	gca	cca	gac	cct	gaa	gct	gtg	ggc	aaa	gcc	tct	agg	1440
Leu	Trp	Ile	Pro	Ala	Pro	Asp	Pro	Glu	Ala	Val	Gly	Lys	Ala	Ser	Arg	
465					470					475					480	
ctg	gcc	acg	gag	ctg	cag	acc	ctg	aag	cag	aag	ctg	tct	aca	gag	aag	1488
Leu	Ala	Thr	Glu	Leu	Gln	Thr	Leu	Lys	Gln	Lys	Leu	Ser	Thr	Glu	Lys	
				485				490						495		
aac	cgc	ctg	aag	gct	gct	gct	gtg	gaa	cac	tta	cag	cct	ggc	cag	cag	1536
Asn	Arg	Leu	Lys	Ala	Ala	Ala	Val	Glu	His	Leu	Gln	Pro	Gly	Gln	Gln	
			500					505					510			
gct	ccg	gca	ggc	tca	gcc	ccc	gct	gac	cca	caa	ggc	cag	acg	ctc	ctg	1584
Ala	Pro	Ala	Gly	Ser	Ala	Pro	Ala	Asp	Pro	Gln	Gly	Gln	Thr	Leu	Leu	
		515				520						525				
tca	cag	atg	acc	cag	ctg	gat	ggg	gat	ctg	ggg	cag	ata	gag	agg	cag	1632
Ser	Gln	Met	Thr	Gln	Leu	Asp	Gly	Asp	Leu	Gly	Gln	Ile	Glu	Arg	Gln	
	530					535					540					
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Val	Leu	Ser	Trp	Ala	Arg	Ser	Pro	Leu	Ser	Gln	Ser	Ser	Ser	Leu	Lys	
545					550					555					560	
gac	ctc	gag	ggc	cgc	atc	cac	agc	tgt	gag	ggc	aca	gca	cag	cgc	ctt	1728
Asp	Leu	Glu	Gly	Arg	Ile	His	Ser	Cys	Glu	Gly	Thr	Ala	Gln	Arg	Leu	
				565				570						575		
cag	agt	ctg	gga	gcg	gag	aag	gag	gca	gcc	cag	cag	gag	tgt	gag	gcg	1776
Gln	Ser	Leu	Gly	Ala	Glu	Lys	Glu	Ala	Ala	Gln	Gln	Glu	Cys	Glu	Ala	
			580					585					590			
ttt	ctg	tct	acc	aag	cct	acg	ggc	tcc	gct	gcc	gtg	caa	ctg	ccc	gtg	1824
Phe	Leu	Ser	Thr	Lys	Pro	Thr	Gly	Ser	Ala	Ala	Val	Gln	Leu	Pro	Val	
		595					600					605				
gtc	ttc	cac	agt	gtg	aag	aac	aga	tac	aat	gat	gtg	cag	agc	ctg	tgc	1872
Val	Phe	His	Ser	Val	Lys	Asn	Arg	Tyr	Asn	Asp	Val	Gln	Ser	Leu	Cys	
	610					615					620					
cac	ctc	tat	ggg	gag	aaa	gcc	aag	gct	gct	ctg	ggc	ctg	gag	aag	cag	1920
His	Leu	Tyr	Gly	Glu	Lys	Ala	Lys	Ala	Ala	Leu	Gly	Leu	Glu	Lys	Gln	
625					630					635					640	
atc	cag	gag	gca	gac	agg	gtc	atc	caa	ggc	ttt	gaa	gcc	gcc	ctg	gca	1968
Ile	Gln	Glu	Ala	Asp	Arg	Val	Ile	Gln	Gly	Phe	Glu	Ala	Ala	Leu	Ala	
				645					650					655		
ctt	gag	ggc	ccc	gtc	ccc	gaa	ggc	tct	ggg	gca	ctg	cag	gag	agg	gtc	2016
Leu	Glu	Gly	Pro	Val	Pro	Glu	Gly	Ser	Gly	Ala	Leu	Gln	Glu	Arg	Val	
			660					665					670			
agc	gag	ctg	cag	cgc	cag	cgc	aaa	gaa	ctc	ctt	cag	cag	cag	gcc	tgt	2064
Ser	Glu	Leu	Gln	Arg	Gln	Arg	Lys	Glu	Leu	Leu	Gln	Gln	Gln	Ala	Cys	
			675				680						685			
gtg	ctg	ggg	ctg	cac	cgc	cag	ctg	aag	gcc	act	gag	cat	gcg	tgc	agt	2112
Val	Leu	Gly	Leu	His	Arg	Gln	Leu	Lys	Ala	Thr	Glu	His	Ala	Cys	Ser	
		690				695					700					
gcg	ctg	cag	aac	aat	ttc	caa	gag	ttc	tgc	caa	gac	ctg	ccg	cgc	cag	2160

Ala 705	Leu	Gln	Asn	Asn	Phe 710	Gln	Glu	Phe	Cys	Gln 715	Asp	Leu	Pro	Arg	Gln 720		
cag	cgc	cag	gtt	cgt	gcc	ctc	act	gac	cgt	tac	cac	gct	gtg	ggg	gac	2208	
Gln	Arg	Gln	Val	Arg 725	Ala	Leu	Thr	Asp	Arg 730	Tyr	His	Ala	Val	Gly	Asp 735		
cag	ctg	gat	ttg	agg	gag	aag	ata	gta	cag	gat	gcc	agc	ctc	acc	tac	2256	
Gln	Leu	Asp	Leu	Arg	Glu	Lys	Ile	Val	Gln	Asp	Ala	Ser	Leu	Thr	Tyr		
			740					745					750				
cag	cag	ctc	agg	aac	agc	agg	gac	aac	ctg	agc	tct	tgg	ctg	gag	cag	2304	
Gln	Gln	Leu	Arg	Asn	Ser	Arg	Asp	Asn	Leu	Ser	Ser	Trp	Leu	Glu	Gln		
		755					760					765					
ctg	ccc	cac	cac	cgg	gtg	cag	ccc	agc	gac	ggg	cca	agc	cag	att	tcc	2352	
Leu	Pro	His	His	Arg	Val	Gln	Pro	Ser	Asp	Gly	Pro	Ser	Gln	Ile	Ser		
	770					775					780						
tac	aag	ctg	caa	gca	cag	aag	aga	ctg	ata	caa	gaa	atc	ctg	ggg	cgc	2400	
Tyr	Lys	Leu	Gln	Ala	Gln	Lys	Arg	Leu	Ile	Gln	Glu	Ile	Leu	Gly	Arg		
					790					795					800		
gag	cag	gac	cag	gcc	acc	gtg	tcc	cgc	ctc	acc	cgg	gac	ctg	cag	gag	2448	
Glu	Gln	Asp	Gln	Ala	Thr	Val	Ser	Arg	Leu	Thr	Arg	Asp	Leu	Gln	Glu		
				805					810					815			
gcc	ctc	caa	gac	tat	gag	ctg	caa	gca	gat	acc	tac	cgc	tgc	tcc	tta	2496	
Ala	Leu	Gln	Asp	Tyr	Glu	Leu	Gln	Ala	Asp	Thr	Tyr	Arg	Cys	Ser	Leu		
			820					825					830				
gaa	ccc	gcc	ttg	gca	gtg	tcc	gcc	cgg	aaa	gaa	ctc	aga	gtg	att	tcc	2544	
Glu	Pro	Ala	Leu	Ala	Val	Ser	Ala	Pro	Lys	Glu	Leu	Arg	Val	Ile	Ser		
		835					840					845					
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Leu	Gln	Glu	Asn	Ile	Gln	Ala	Gln	Glu	Asn	Asn	Leu	Ala	Lys	Ala	Tyr		
	850					855					860						
act	gag	gtt	gcc	gca	gct	gag	cag	cag	cag	ctg	cgc	cag	ctg	gag	ttt	2640	
Thr	Glu	Val	Ala	Ala	Glu	Gln	Gln	Gln	Gln	Leu	Arg	Gln	Leu	Glu	Phe		
	865				870					875					880		
gct	aaa	aag	atg	ctc	agg	aag	aag	gaa	ctt	gat	gag	gac	atc	caa	gcc	2688	
Ala	Lys	Lys	Met	Leu	Arg	Lys	Lys	Glu	Leu	Asp	Glu	Asp	Ile	Gln	Ala		
				885					890					895			
atc	cac	agc	gcg	aga	cag	gga	tct	ggg	agt	ccg	gca	cac	gca	agg	acg	2736	
Ile	His	Ser	Ala	Arg	Gln	Gly	Ser	Gly	Ser	Pro	Ala	His	Ala	Arg	Thr		
			900					905					910				
gcg	gag	tca	gag	gtc	ctg	aag	acc	cag	ctt	gag	gaa	gag	agg	aag	cgg	2784	
Ala	Glu	Ser	Glu	Val	Leu	Lys	Thr	Gln	Leu	Glu	Glu	Glu	Arg	Lys	Arg		
		915					920					925					
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Val	Ala	Glu	Val	Gln	Arg	Asp	Leu	Glu	Glu	Gln	Arg	Gln	Arg	Leu	Leu		
	930					935					940						
cag	ctg	agg	acc	cag	cag	cct	gtg	gcg	cgg	ctg	gag	gag	aag	gaa	gtg	2880	
Gln	Leu	Arg	Thr	Gln	Gln	Pro	Val	Ala	Arg	Leu	Glu	Glu	Lys	Glu	Val		
	945				950					955					960		
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Val	Glu	Phe	Tyr	Arg	Asp	Pro	Gln	Leu	Glu	Ser	Asn	Leu	Ser	Gln	Ala		
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Ala	Ser	Arg	Val	Glu	Glu	Glu	Gly	Lys	Arg	Arg	Ala	Arg	Leu	Gln	Ala		
			980				985						990				
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Glu	Leu	Glu	Ala	Val	Ala	Gln	Lys	Val	Val	His	Leu	Glu	Gly	Lys	Arg	
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aag	acc	atg	caa	ctt	cac	ctg	ctg	acc	aaa	gag	gtc	acc	caa	atc		3069
Lys	Thr	Met	Gln	Leu	His	Leu	Leu	Thr	Lys	Glu	Val	Thr	Gln	Ile		
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Glu	Arg	Asp	Pro	Gly	Leu	Asp	Ser	Gln	Val	Thr	Gln	Leu	His	Ser		
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Glu	Met	Gln	Arg	Leu	Arg	Gly	Glu	Asn	Gly	Val	Leu	Thr	Ala	Arg		
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Leu	Glu	Glu	Leu	Lys	Asp	Glu	Leu	Leu	Ala	Leu	Glu	Gln	Lys	Glu		
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Met	Asn	Val	Lys	Glu	Lys	Val	Val	Val	Lys	Glu	Val	Val	Lys	Val		
		1070					1075				1080					
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Glu	Lys	Asp	Leu	Glu	Met	Val	Lys	Ala	Ala	Gln	Thr	Leu	Arg	Leu		
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Gln	Ile	Glu	Glu	Asp	Ala	Ala	Arg	Arg	Lys	Gly	Ala	Lys	Glu	Thr		
		1100					1105				1110					
gtt	gcc	aag	ata	cag	gct	cgc	atc	aaa	gac	ctg	gag	cag	gcg	atc		3384
Val	Ala	Lys	Ile	Gln	Ala	Arg	Ile	Lys	Asp	Leu	Glu	Gln	Ala	Ile		
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Ser	Ser	Val	Glu	Pro	Lys	Val	Ile	Val	Lys	Glu	Val	Lys	Lys	Val		
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Glu	Gln	Asp	Pro	Gly	Leu	Leu	Lys	Glu	Ala	Ser	Arg	Leu	Arg	Ser		
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Leu	Leu	Glu	Glu	Glu	Lys	Asn	Asn	Asn	Val	Ala	Leu	Ala	Arg	Glu		
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Leu	Gln	Glu	Leu	Gln	Glu	Lys	Tyr	Arg	Val	Val	Glu	Lys	Gln	Lys		
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ccc	aag	gtg	cag	ctg	cag	gag	cga	gtc	agc	gag	atc	ttc	cag	gtg		3609
Pro	Lys	Val	Gln	Leu	Gln	Glu	Arg	Val	Ser	Glu	Ile	Phe	Gln	Val		
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Leu	Pro	Glu	Thr	Glu	Gln	Glu	Ile	Arg	Arg	Leu	Arg	Ala	Gln	Leu		
		1205					1210				1215					
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Gln	Glu	Thr	Gly	Ser	Lys	Lys	Ser	Gly	Val	Glu	Gln	Glu	Val	Glu		
		1220					1225				1230					
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Lys	Leu	Leu	Pro	Glu	Leu	Glu	Val	Leu	Arg	Ala	Gln	Lys	Pro	Val		
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Val	Glu	Tyr	Lys	Glu	Val	Thr	Gln	Glu	Val	Val	Arg	His	Glu	Lys		
		1250					1255				1260					
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Asn 1265	Pro	Glu	Val	Leu	Arg	Glu 1270	Ile	Asp	Arg	Leu	Lys 1275	Ala	Gln	Leu	
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Asn 1280	Glu	Leu	Val	Asn	Thr	Asn 1285	Gly	Arg	Ser	Gln	Glu 1290	Gln	Leu	Ile	
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Arg 1295	Leu	Gln	Gly	Glu	Arg	Asp 1300	Glu	Trp	Lys	Arg	Glu 1305	Arg	Ser	Lys	
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Val 1310	Glu	Thr	Lys	Met	Val	Ser 1315	Lys	Glu	Val	Val	Arg 1320	His	Glu	Lys	
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Arg 1340	Glu	Ala	Val	Gln	Arg	Arg 1345	Arg	Ala	Thr	Glu	Asp 1350	Ala	Val	Tyr	
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Glu 1355	Leu	Gln	Asn	Lys	Leu	Leu 1360	Leu	Leu	Glu	Arg	Arg 1365	Arg	Pro	Glu	
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Glu 1370	Gln	Ile	Val	Val	Gln	Glu 1375	Val	Val	Val	Thr	Gln 1380	Lys	Asp	Pro	
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Lys 1385	Leu	Arg	Glu	Glu	His	Ser 1390	Arg	Leu	Ser	Arg	Ser 1395	Leu	Asp	Glu	
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Glu 1400	Val	Gly	Arg	Arg	Arg	Gln 1405	Leu	Glu	Leu	Glu	Val 1410	Arg	Gln	Leu	
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Asp 1430	Arg	Ser	Lys	Lys	Leu	Ala 1435	Ala	Glu	Arg	Glu	Leu 1440	Arg	Gln	Leu	
acc	ctg	aag	atc	cag	gag	ctg	gag	aag	cgg	ccc	cct	gcc	ctg	cag	4374
Thr 1445	Leu	Lys	Ile	Gln	Glu	Leu 1450	Glu	Lys	Arg	Pro	Pro 1455	Ala	Leu	Gln	
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Glu 1460	Lys	Ile	Ile	Met	Glu	Glu 1465	Val	Val	Lys	Leu	Glu 1470	Lys	Asp	Pro	
gac	ctg	gag	agg	tct	aca	gaa	gct	ctg	cgg	cgc	gag	ctg	gat	cag	4464
Asp 1475	Leu	Glu	Arg	Ser	Thr	Glu 1480	Ala	Leu	Arg	Arg	Glu 1485	Leu	Asp	Gln	
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Glu 1490	Lys	Asn	Arg	Val	Thr	Glu 1495	Leu	His	Arg	Glu	Cys 1500	Gln	Gly	Leu	
cag	gtt	cag	gtc	gac	ctc	ctc	cag	aaa	act	aaa	tca	cag	gag	aag	4554
Gln 1505	Val	Gln	Val	Asp	Leu	Leu 1510	Gln	Lys	Thr	Lys	Ser 1515	Gln	Glu	Lys	
acc	ata	tac	aag	gaa	gtg	atc	agg	gtc	gag	aag	gac	ccg	gtg	ctg	4599
Thr 1520	Ile	Tyr	Lys	Glu	Val	Ile 1525	Arg	Val	Glu	Lys	Asp 1530	Pro	Val	Leu	
gag	ggc	gag	agg	gcc	cga	gtg	tgg	gag	atc	ctt	aac	cgg	gag	cgc	4644

Glu Gly 1535	Glu Arg 1540	Ala Arg 1545	Val Trp 1550	Glu Ile 1555	Leu Asn 1560	Arg Glu Arg	
gca gcc 1550	cgc aag 1555	ggc cgg 1560	gag gag 1565	gat gtc 1570	cgg agc 1575	ttg cag gag 1580	4689
Ala Ala 1550	Arg Lys 1555	Gly Arg 1560	Glu Glu 1565	Asp Val 1570	Ser Ser 1575	Leu Gln Glu	
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Arg Ile 1565	Asp Arg 1570	Ala Glu 1575	Ala Ala 1580	Leu Arg 1585	Ser Trp 1590	Ser Arg Glu	
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Glu Ala 1580	Glu Leu 1585	Gln Arg 1590	Ala Ala 1595	Arg Asp 1600	Gln Ala 1605	Ser Gln Asp Cys	
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Gly Arg 1595	Leu Gln 1600	Arg Gln 1605	Leu Leu 1610	Arg Glu 1615	Glu Leu 1620	Gln Lys Gln	
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Gln Lys 1610	Ala Arg 1615	Gln Leu 1620	Gln Gln 1625	Glu Glu 1630	Gly Arg 1635	Leu Leu Ser Gln	
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Lys Thr 1625	Glu Ser 1630	Glu Arg 1635	Gln Gln 1640	Lys Ala 1645	Ala Ala 1650	Trp Ser Gln Ala	
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Val Thr 1640	Gln Leu 1645	Glu Ala 1650	Ala Ile 1655	Gln Leu 1660	Glu Lys 1665	Asp Lys Ile	
tac gag 1655	aaa gag 1660	agg acc 1665	ctc agg 1670	gac gag 1675	ctg cac 1680	acc aag gtg agc 1685	5004
Tyr Glu 1655	Lys Glu 1660	Arg Thr 1665	Leu Leu 1670	Arg Asp 1675	Leu His 1680	Thr Lys Val Ser	
cgg gag 1670	gag ctc 1675	aac cag 1680	gag acc 1685	cag acc 1690	cgg gag 1695	acc aac ctc 1700	5049
Arg Glu 1670	Glu Leu 1675	Asn Gln 1680	Glu Glu 1685	Thr Gln 1690	Thr Arg 1695	Glu Thr Asn Leu	
tcc acc 1685	aag atc 1690	tgc atc 1695	ttg gaa 1700	ccg ccg 1705	gag acc 1710	ggc aat gac atg 1715	5094
Ser Thr 1685	Lys Ile 1690	Cys Ile 1695	Leu Leu 1700	Glu Pro 1705	Glu Thr 1710	Gly Asn Asp Met	
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Ser Pro 1700	Tyr Glu 1705	Ala Tyr 1710	Lys Lys 1715	Arg Gly 1720	Val Ile 1725	Asp Arg Gly Gln	
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Tyr Leu 1715	Gln Leu 1720	Gln Glu 1725	Leu Leu 1730	Glu Cys 1735	Asp Trp 1740	Glu Glu Val Thr	
acc tcc 1730	agc ccc 1735	tgc ggg 1740	gag gag 1745	tct gtg 1750	ctc ctg 1755	gac cgc aag 1760	5229
Thr Ser 1730	Ser Pro 1735	Cys Gly 1740	Glu Glu 1745	Ser Val 1750	Leu Leu 1755	Asp Arg Lys	
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Ser Gly 1745	Lys Gln 1750	Tyr Ser 1755	Ile Ile 1760	Glu Ala 1765	Ala Leu 1770	Arg Cys Arg Arg	
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Ile Ser 1760	Lys Glu 1765	Glu Tyr 1770	His His 1775	Arg Tyr 1780	Lys Asp 1785	Gly Arg Leu Pro	
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Ile Ser 1775	Glu Phe 1780	Ala Leu 1785	Leu Leu 1790	Val Ala 1795	Gly Glu 1800	Thr Lys Pro Ser	
tct tca 1790	ctc tcc 1795	att ggg 1800	tcc atc 1805	atc atc 1810	tcc aag 1815	tct cca gtc tgc 1820	5409
Ser Ser 1790	Leu Ser 1795	Ile Gly 1800	Ser Ser 1805	Ile Ile 1810	Ser Lys 1815	Ser Pro Val Cys	
tcc cca 1800	ggc ccc 1805	cag agt 1810	acc ggc 1815	ttc ttc 1820	tcc cca 1825	ggc ctc tct	5454

Ser 1805	Pro	Gly	Pro	Gln	Ser	Thr 1810	Gly	Phe	Phe	Ser	Pro 1815	Gly	Leu	Ser	
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Asn 1850	Met	Leu	Asp	Pro	Ile	Thr 1855	Gly	Gln	Lys	Leu	Leu 1860	Arg	Pro	Arg	
caa	gcc	acg	gga	ggc	att	gtt	gac	ctt	ctt	agc	cga	gaa	cgg	tac	5634
Gln 1865	Ala	Thr	Gly	Gly	Ile	Val 1870	Asp	Leu	Leu	Ser	Arg 1875	Glu	Arg	Tyr	
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Ser 1880	Val	His	Lys	Ala	Val	Glu 1885	Arg	Gly	Leu	Ile	Glu 1890	Asn	Thr	Ser	
act	caa	cgg	ctg	ctc	aat	gct	cag	aag	gcc	ttc	acc	ggc	atc	gag	5724
Thr 1895	Gln	Arg	Leu	Leu	Asn	Ala 1900	Gln	Lys	Ala	Phe	Thr 1905	Gly	Ile	Glu	
gac	cct	gtc	acc	agg	aag	agg	ctg	tcg	gtg	ggc	gag	gcc	atc	cag	5769
Asp 1910	Pro	Val	Thr	Arg	Lys	Arg 1915	Leu	Ser	Val	Gly	Glu 1920	Ala	Ile	Gln	
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Lys 1925	Gly	Trp	Met	Pro	Gln	Glu 1930	Ser	Val	Leu	Pro	His 1935	Leu	Leu	Val	
cag	cac	ctg	act	ggg	ggc	ctc	atc	gac	ccc	aag	agg	acg	gga	cgc	5859
Gln 1940	His	Leu	Thr	Gly	Gly	Leu 1945	Ile	Asp	Pro	Lys	Arg 1950	Thr	Gly	Arg	
atc	ccc	gtc	cct	cag	gct	gtg	ctc	tgc	ggg	atg	atc	agc	gaa	gac	5904
Ile 1955	Pro	Val	Pro	Gln	Ala	Val 1960	Leu	Cys	Gly	Met	Ile 1965	Ser	Glu	Asp	
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Leu 1970	Gly	Gln	Leu	Leu	Gln	Asp 1975	Glu	Ser	Gly	Tyr	Glu 1980	Lys	Asp	Leu	
aca	gac	ccc	atc	acc	aag	gag	agg	ctg	agc	tac	aag	gag	gcc	atg	5994
Thr 1985	Asp	Pro	Ile	Thr	Lys	Glu 1990	Arg	Leu	Ser	Tyr	Lys 1995	Glu	Ala	Met	
ggg	cgc	tgc	cgc	aaa	gat	cct	cta	agt	ggc	cta	cta	ctg	ctc	ccc	6039
Gly 2000	Arg	Cys	Arg	Lys	Asp	Pro 2005	Leu	Ser	Gly	Leu	Leu 2010	Leu	Leu	Pro	
gcc	atg	cta	gaa	ggc	tat	cgc	tgc	tac	cgc	gcg	gcc	tcc	ccc	acc	6084
Ala 2015	Met	Leu	Glu	Gly	Tyr	Arg 2020	Cys	Tyr	Arg	Ala	Ala 2025	Ser	Pro	Thr	
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Leu 2030	Pro	Arg	Ser	Cys	Val	Arg 2035									

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Arg	Ala	Ala	Thr	Gln	Glu	Leu	Ala	Leu	Leu	Ile	Ser	Arg	Met	Gln	Ala				
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Asn	Ala	Asp	Gln	Val	Glu	Arg	Asp	Ile	Leu	Glu	Thr	Gln	Lys	Lys	Leu				
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Gln	Gln	Asp	Arg	Gln	Asn	Gly	Glu	Gln	Asn	Gln	Ala	Leu	Gln	His	Gln				
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Gln	Glu	Thr	Gly	Arg	Asn	Leu	Lys	Glu	Ala	Glu	Val	Leu	Leu	Lys	Asp				
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Leu	Phe	Leu	Asp	Val	Asp	Lys	Ala	Arg	Arg	Leu	Lys	His	Pro	Gln	Ala				
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Glu	Glu	Ile	Glu	Lys	Asp	Ile	Lys	Gln	Leu	His	Glu	Arg	Val	Thr	Gln				
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Glu	Cys	Ser	Glu	Tyr	Arg	Ala	Leu	Tyr	Glu	Lys	Met	Val	Leu	Pro	Pro				
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Asp	Val	Gly	Pro	Arg	Val	Asp	Trp	Ala	Arg	Val	Leu	Glu	Gln	Lys	Gln				
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Gln	Gln	Val	Ala	Glu	His	Asn	Ile	Leu	Gln	Arg	Glu	Ile	Glu	Ala	Tyr				
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Leu	Gly	Ser	Leu	Tyr	Thr	His	Leu	Gln	Gly	Cys	Thr	Lys	Gln	Leu	Ser				
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Ala	Leu	Ala	Asp	Gln	Gln	Gly	Arg	Ile	Leu	Gln	Gln	Asp	Trp	Ser	Asp				
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Leu	Met	Pro	Asp	Pro	Ala	Gly	Val	Arg	Arg	Glu	Tyr	Glu	His	Phe	Lys				
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Gln	His	Glu	Leu	Leu	Ala	Gln	Glu	Arg	Asn	Ile	Asn	Gln	Leu	Glu	Asp				
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Asp	Ala	Asp	Arg	Met	Val	Glu	Leu	Gly	His	Pro	Ala	Ile	Gly	Pro	Ile				

300

Gln Ser Leu Gly Ala Glu Lys Glu Ala Ala Gln Gln Glu Cys Glu Ala

580

585

590

Phe Leu Ser Thr Lys Pro Thr Gly Ser Ala Ala Val Gln Leu Pro Val  
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Val Phe His Ser Val Lys Asn Arg Tyr Asn Asp Val Gln Ser Leu Cys  
610 615 620

His Leu Tyr Gly Glu Lys Ala Lys Ala Ala Leu Gly Leu Glu Lys Gln  
625 630 635 640

Ile Gln Glu Ala Asp Arg Val Ile Gln Gly Phe Glu Ala Ala Leu Ala  
645 650 655

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

Ser Glu Leu Gln Arg Gln Arg Lys Glu Leu Leu Gln Gln Gln Ala Cys  
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Val Leu Gly Leu His Arg Gln Leu Lys Ala Thr Glu His Ala Cys Ser  
690 695 700

Ala Leu Gln Asn Asn Phe Gln Glu Phe Cys Gln Asp Leu Pro Arg Gln  
705 710 715 720

Gln Arg Gln Val Arg Ala Leu Thr Asp Arg Tyr His Ala Val Gly Asp  
725 730 735

Gln Leu Asp Leu Arg Glu Lys Ile Val Gln Asp Ala Ser Leu Thr Tyr  
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Gln Gln Leu Arg Asn Ser Arg Asp Asn Leu Ser Ser Trp Leu Glu Gln  
755 760 765

Leu Pro His His Arg Val Gln Pro Ser Asp Gly Pro Ser Gln Ile Ser  
770 775 780

Tyr Lys Leu Gln Ala Gln Lys Arg Leu Ile Gln Glu Ile Leu Gly Arg  
785 790 795 800

Glu Gln Asp Gln Ala Thr Val Ser Arg Leu Thr Arg Asp Leu Gln Glu  
805 810 815

Ala Leu Gln Asp Tyr Glu Leu Gln Ala Asp Thr Tyr Arg Cys Ser Leu  
820 825 830

Glu Pro Ala Leu Ala Val Ser Ala Pro Lys Glu Leu Arg Val Ile Ser  
835 840 845

Leu Gln Glu Asn Ile Gln Ala Gln Glu Asn Asn Leu Ala Lys Ala Tyr  
850 855 860

Thr Glu Val Ala Ala Ala Glu Gln Gln Gln Leu Arg Gln Leu Glu Phe

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Ala Lys Lys Met	Leu Arg Lys Lys Glu	Leu Asp Glu Asp	Ile Gln Ala			
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Ile His Ser	Ala Arg Gln Gly Ser	Gly Ser Pro Ala His	Ala Arg Thr			
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Ala Glu Ser	Glu Val Leu Lys Thr	Gln Leu Glu Glu Glu	Arg Lys Arg			
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Val Ala Glu	Val Gln Arg Asp	Leu Glu Glu Gln	Arg Gln Arg	Leu Leu		
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Gln Leu Arg	Thr Gln Gln Pro	Val Ala Arg	Leu Glu Glu	Lys Glu	Val	
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Val Glu Phe	Tyr Arg Asp	Pro Gln Leu	Glu Ser Asn	Leu Ser	Gln Ala	
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Ala Ser Arg	Val Glu Glu Glu	Gly Lys Arg	Arg Ala Arg	Leu Gln	Ala	
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Glu Leu Glu	Ala Val Ala Gln	Lys Val Val	His Leu Glu	Gly Lys	Arg	
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Lys Thr	Met Gln Leu His	Leu Leu Thr	Lys Glu Val	Thr Gln	Ile	
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Glu Arg	Asp Pro Gly	Leu Asp Ser	Gln Val Thr	Gln Leu	His Ser	
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Glu Met	Gln Arg Leu Arg	Gly Glu Asn	Gly Val Leu	Thr Ala	Arg	
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Leu Glu	Glu Leu Lys Asp	Glu Leu Leu	Ala Leu Glu	Gln Lys	Glu	
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Met Asn	Val Lys Glu Lys	Val Val Lys	Glu Val Val	Lys Val		
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Glu Lys	Asp Leu Glu Met	Val Lys Ala	Ala Gln Thr	Leu Arg	Leu	
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Gln Ile	Glu Glu Asp Ala	Ala Arg Arg	Lys Gly Ala	Lys Glu	Thr	
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Val Ala	Lys Ile Gln Ala	Arg Ile Lys	Asp Leu Glu	Gln Ala	Ile	
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Ser Ser	Val Glu Pro Lys	Val Ile Val	Lys Glu Val	Lys Lys	Val	
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Glu Gln	Asp Pro Gly	Leu Leu Lys	Glu Ala Ser	Arg Leu	Arg Ser	

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Leu 1175	Gln Glu Leu Gln Glu	Lys 1180	Tyr Arg Val Val	Glu 1185
Pro 1190	Lys Val Gln Leu Gln	Glu 1195	Arg Val Ser Glu	Ile 1200
Leu 1205	Pro Glu Thr Glu Gln	Glu 1210	Ile Arg Arg Leu	Arg 1215
Gln 1220	Glu Thr Gly Ser Lys	Lys 1225	Ser Gly Val Glu	Gln 1230
Lys 1235	Leu Leu Pro Glu Leu	Glu 1240	Val Leu Arg Ala	Gln 1245
Val 1250	Glu Tyr Lys Glu Val	Thr 1255	Gln Glu Val Val	Arg 1260
Asn 1265	Pro Glu Val Leu Arg	Glu 1270	Ile Asp Arg Leu	Lys 1275
Asn 1280	Glu Leu Val Asn Thr	Asn 1285	Gly Arg Ser Gln	Glu 1290
Arg 1295	Leu Gln Gly Glu Arg	Asp 1300	Glu Trp Lys Arg	Glu 1305
Val 1310	Glu Thr Lys Met Val	Ser 1315	Lys Glu Val Val	Arg 1320
Asp 1325	Pro Val Leu Glu Lys	Glu 1330	Ala Glu Arg Leu	Arg 1335
Arg 1340	Glu Ala Val Gln Arg	Arg 1345	Arg Ala Thr Glu	Asp 1350
Glu 1355	Leu Gln Asn Lys Leu	Leu 1360	Leu Leu Glu Arg	Arg 1365
Glu 1370	Gln Ile Val Val Gln	Glu 1375	Val Val Val Thr	Gln 1380
Lys 1385	Leu Arg Glu Glu His	Ser 1390	Arg Leu Ser Arg	Ser 1395
Glu 1400	Val Gly Arg Arg Arg	Gln 1405	Leu Glu Leu Glu	Val 1410
Gly Ala	Arg Val Glu Glu Glu	Glu Ala Arg Leu	Ser Phe Glu Glu	



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Thr Leu Lys Ile Gln Glu	Leu Glu Lys Arg Pro Pro	Ala Leu Gln		
1445	1450	1455		
Glu Lys Ile Ile Met Glu	Glu Val Val Lys Leu Glu	Lys Asp Pro		
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Asp Leu Glu Arg Ser Thr	Glu Ala Leu Arg Arg Glu	Leu Asp Gln		
1475	1480	1485		
Glu Lys Asn Arg Val Thr	Glu Leu His Arg Glu Cys	Gln Gly Leu		
1490	1495	1500		
Gln Val Gln Val Asp Leu	Leu Gln Lys Thr Lys Ser	Gln Glu Lys		
1505	1510	1515		
Thr Ile Tyr Lys Glu Val	Ile Arg Val Glu Lys Asp	Pro Val Leu		
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Glu Gly Glu Arg Ala Arg	Val Trp Glu Ile Leu Asn	Arg Glu Arg		
1535	1540	1545		
Ala Ala Arg Lys Gly Arg	Glu Glu Asp Val Arg Ser	Leu Gln Glu		
1550	1555	1560		
Arg Ile Asp Arg Ala Glu	Ala Leu Arg Arg Ser Trp	Ser Arg Glu		
1565	1570	1575		
Glu Ala Glu Leu Gln Arg	Ala Arg Asp Gln Ala Ser	Gln Asp Cys		
1580	1585	1590		
Gly Arg Leu Gln Arg Gln	Leu Arg Glu Leu Glu Gln	Gln Lys Gln		
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Gln Lys Ala Arg Gln Leu	Gln Glu Glu Gly Arg Leu	Leu Ser Gln		
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Lys Thr Glu Ser Glu Arg	Gln Lys Ala Ala Gln Trp	Ser Gln Ala		
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Val Thr Gln Leu Glu Ala	Ala Ile Leu Gln Glu Lys	Asp Lys Ile		
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Tyr Glu Lys Glu Arg Thr	Leu Arg Asp Leu His Thr	Lys Val Ser		
1655	1660	1665		
Arg Glu Glu Leu Asn Gln	Glu Thr Gln Thr Arg Glu	Thr Asn Leu		
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Ser Thr Lys Ile Cys Ile	Leu Glu Pro Glu Thr Gly	Asn Asp Met		

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Ser Pro Tyr Glu Ala Tyr Lys Arg Gly Val Ile Asp Arg Gly Gln				
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Tyr Leu Gln Leu Gln Glu Leu Glu Cys Asp Trp Glu Glu Val Thr				
1715		1720		1725
Thr Ser Ser Pro Cys Gly Glu Glu Ser Val Leu Leu Asp Arg Lys				
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Ser Gly Lys Gln Tyr Ser Ile Glu Ala Ala Leu Arg Cys Arg Arg				
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Ile Ser Lys Glu Glu Tyr His Arg Tyr Lys Asp Gly Arg Leu Pro				
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Ile Ser Glu Phe Ala Leu Leu Val Ala Gly Glu Thr Lys Pro Ser				
1775		1780		1785
Ser Ser Leu Ser Ile Gly Ser Ile Ile Ser Lys Ser Pro Val Cys				
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Ser Pro Gly Pro Gln Ser Thr Gly Phe Phe Ser Pro Gly Leu Ser				
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Asn Met Leu Asp Pro Ile Thr Gly Gln Lys Leu Leu Arg Pro Arg				
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Gln Ala Thr Gly Gly Ile Val Asp Leu Leu Ser Arg Glu Arg Tyr				
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Ser Val His Lys Ala Val Glu Arg Gly Leu Ile Glu Asn Thr Ser				
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Thr Gln Arg Leu Leu Asn Ala Gln Lys Ala Phe Thr Gly Ile Glu				
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Asp Pro Val Thr Arg Lys Arg Leu Ser Val Gly Glu Ala Ile Gln				
1910		1915		1920
Lys Gly Trp Met Pro Gln Glu Ser Val Leu Pro His Leu Leu Val				
1925		1930		1935
Gln His Leu Thr Gly Gly Leu Ile Asp Pro Lys Arg Thr Gly Arg				
1940		1945		1950
Ile Pro Val Pro Gln Ala Val Leu Cys Gly Met Ile Ser Glu Asp				

1955	1960	1965	
Leu Gly Gln Leu Leu Gln Asp Glu Ser Gly Tyr Glu Lys Asp Leu 1970 1975 1980			
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aac gcc gac cag gtg gag agg gac att ctg gag acc cag aag aag ctg Asn Ala Asp Gln Val Glu Arg Asp Ile Leu Glu Thr Gln Lys Lys Leu 50 55 60			192
cag cag gac cgg cag cac agc gag cag cgc cag gcc ctg cag cac cgg Gln Gln Asp Arg Gln His Ser Glu Gln Arg Gln Ala Leu Gln His Arg 65 70 75 80			240
cag gag gtg ggc cgc agc ctg aag gag gcc gag gtg ctg ctg aaa gac Gln Glu Val Gly Arg Ser Leu Lys Glu Ala Glu Val Leu Leu Lys Asp 85 90 95			288
ctc ttc ctg gat gtg gac aag gcc cag cgg ctc aag cac cca cag gcc Leu Phe Leu Asp Val Asp Lys Ala Gln Arg Leu Lys His Pro Gln Ala 100 105 110			336
gag gag atc gag aag gac atc aag cag ctg cac gag cgg gtg acc cag Glu Glu Ile Glu Lys Asp Ile Lys Gln Leu His Glu Arg Val Thr Gln 115 120 125			384
gag tgc gcc gag tac cgc gcc ctg tac gag aag atg gtg ctg ccg ccc Glu Cys Ala Glu Tyr Arg Ala Leu Tyr Glu Lys Met Val Leu Pro Pro 130 135 140			432
gat gtg ggg ccc agg gtc gac tgg gcg agg gtg ctg gag cag aag cag Asp Val Gly Pro Arg Val Asp Trp Ala Arg Val Leu Glu Gln Lys Gln			480

145		150		155		160	
aag cag gtc tgc gag ggc cag tac ggg ccg ggc atg gcg gag ctg gag	528						
Lys Gln Val Cys Glu Gly Gln Tyr Gly Pro Gly Met Ala Glu Leu Glu							
		165		170		175	
cag cag gtc gcc gaa cac aat atc ctg cag aag gag atc gag gcc tac	576						
Gln Gln Val Ala Glu His Asn Ile Leu Gln Lys Glu Ile Glu Ala Tyr							
		180		185		190	
ggg cag cag ctg cgg acc ctt gta ggg ccg gac gcg gcc acc atc cgg	624						
Gly Gln Gln Leu Arg Thr Leu Val Gly Pro Asp Ala Ala Thr Ile Arg							
		195		200		205	
agc caa tac cgg gac ctc ctg aag gcg gcc tcg tgg cga ggg cag agc	672						
Ser Gln Tyr Arg Asp Leu Leu Lys Ala Ala Ser Trp Arg Gly Gln Ser							
		210		215		220	
ctg ggc agc ctg tac acg cac ctg cag ggc tgc acg cgc cag ctg aac	720						
Leu Gly Ser Leu Tyr Thr His Leu Gln Gly Cys Thr Arg Gln Leu Asn							
		225		230		235	240
gcc ctg gcc cag cag cag cag cgc atc ctc cag caa gac tgg agc gac	768						
Ala Leu Ala Gln Gln Gln Gln Arg Ile Leu Gln Gln Asp Trp Ser Asp							
		245		250		255	
cac ctg gcc gac ccc gcg ggc gtg cgg agg gag tac gag cac ttc aag	816						
His Leu Ala Asp Pro Ala Gly Val Arg Arg Glu Tyr Glu His Phe Lys							
		260		265		270	
cag cac gag ctg ctg agc cag gag cag cgc gtg aac cag ctg gag gac	864						
Gln His Glu Leu Leu Ser Gln Glu Gln Arg Val Asn Gln Leu Glu Asp							
		275		280		285	
gac ggg gag cgc atg gtg gag ctc ggg cat ccg gcc gtg ggg ccc atc	912						
Asp Gly Glu Arg Met Val Glu Leu Gly His Pro Ala Val Gly Pro Ile							
		290		295		300	
cag gcc cac cag gag gcc cta aag gtg gag tgg cag aac ttc ctg aac	960						
Gln Ala His Gln Glu Ala Leu Lys Val Glu Trp Gln Asn Phe Leu Asn							
		305		310		315	320
ctt tgc atc tgc cag gag agc cag ctg cag cac gtg gag gac tac cgc	1008						
Leu Cys Ile Cys Gln Glu Ser Gln Leu Gln His Val Glu Asp Tyr Arg							
		325		330		335	
agg ttc cag gaa gag gcg gat tct gtc agc cag acc ctg gca aag ctc	1056						
Arg Phe Gln Glu Glu Ala Asp Ser Val Ser Gln Thr Leu Ala Lys Leu							
		340		345		350	
aac tcc agc ctg gac agc cag tac agc cct gcc ccg gag ggc cca cct	1104						
Asn Ser Ser Leu Asp Ser Gln Tyr Ser Pro Ala Pro Glu Gly Pro Pro							
		355		360		365	
ggg gct cta atg gag atg ctg cgg cag ctg gag gca gag gag aag cag	1152						
Gly Ala Leu Met Glu Met Leu Arg Gln Leu Glu Ala Glu Glu Lys Gln							
		370		375		380	
ctg acc atg gcc gaa aag act ctc aag gac ctg cag ctg caa agc cag	1200						
Leu Thr Met Ala Glu Lys Thr Leu Lys Asp Leu Gln Leu Gln Ser Gln							
		385		390		395	400
ggg gtg gcc cct ctg ccc cag aga agg aac ctg ccc ctg cag ccc ctg	1248						
Gly Val Ala Pro Leu Pro Gln Arg Arg Asn Leu Pro Leu Gln Pro Leu							
		405		410		415	
cgt gtg gac agc atc tgt gac tgg gac tca gga gaa gtg cag ctg ctg	1296						
Arg Val Asp Ser Ile Cys Asp Trp Asp Ser Gly Glu Val Gln Leu Leu							
		420		425		430	
cgg ggt gag cag tat aca ctg gtg gac aac act gac cca cac acc tgg	1344						
Arg Gly Glu Gln Tyr Thr Leu Val Asp Asn Thr Asp Pro His Thr Trp							

435					440					445										
gtg	gtc	cag	ggc	cag	gca	ggc	gag	ccc	aag	cgg	gcc	cca	gcc	gcc	tgc	1392				
Val	Val	Gln	Gly	Gln	Ala	Gly	Glu	Pro	Lys	Arg	Ala	Pro	Ala	Ala	Cys					
450					455					460										
ttc	tgc	atc	cca	gct	ccg	gac	cct	gaa	gcc	gtg	gcc	agg	gcc	tcc	ggg	1440				
Phe	Cys	Ile	Pro	Ala	Pro	Asp	Pro	Glu	Ala	Val	Ala	Arg	Ala	Ser	Gly					
465					470					475					480					
ctt	gcc	tcg	gag	ctg	cag	gca	ctg	aag	cag	aaa	ctg	acc	gca	gtc	cag	1488				
Leu	Ala	Ser	Glu	Leu	Gln	Ala	Leu	Lys	Gln	Lys	Leu	Thr	Ala	Val	Gln					
485					490					495										
agc	cgc	ctg	aag	gcc	agt	gcc	aag	gag	ccc	tta	cgg	ccc	agc	cag	cag	1536				
Ser	Arg	Leu	Lys	Ala	Ser	Ala	Lys	Glu	Pro	Leu	Arg	Pro	Ser	Gln	Gln					
500					505					510										
gct	cca	agc	agc	tcg	ggc	cca	ccc	gac	cca	cag	gcc	cag	aag	ctc	ctg	1584				
Ala	Pro	Ser	Ser	Ser	Gly	Pro	Pro	Asp	Pro	Gln	Ala	Gln	Lys	Leu	Leu					
515					520					525										
aca	cag	atg	acc	cgg	ctg	gaa	gag	gac	ctg	ggg	cag	ata	gag	aag	cag	1632				
Thr	Gln	Met	Thr	Arg	Leu	Glu	Glu	Asp	Leu	Gly	Gln	Ile	Glu	Lys	Gln					
530					535					540										
ctg	ctg	gct	tgg	gca	cgg	gcc	ccg	ctg	agc	cgc	acc	aca	cca	ctc	gag	1680				
Leu	Leu	Ala	Trp	Ala	Arg	Ala	Pro	Leu	Ser	Arg	Thr	Thr	Pro	Leu	Glu					
545					550					555					560					
gac	ctc	gag	ggc	cgc	atc	cag	aac	cac	cag	ggc	acg	gcc	cag	cgg	ctg	1728				
Asp	Leu	Glu	Gly	Arg	Ile	Gln	Asn	His	Gln	Gly	Thr	Ala	Gln	Arg	Leu					
565					570					575										
cag	agc	ctg	gga	gca	gag	aag	gag	gcg	gcc	cag	cag	aag	tgt	gag	gcg	1776				
Gln	Ser	Leu	Gly	Ala	Glu	Lys	Glu	Ala	Ala	Gln	Gln	Lys	Cys	Glu	Ala					
580					585					590										
ttt	ctg	tcg	ggg	cag	ccc	tca	ggg	ccc	gct	gcc	ctg	cat	ctg	ccc	gtg	1824				
Phe	Leu	Ser	Gly	Gln	Pro	Ser	Gly	Pro	Ala	Ala	Leu	His	Leu	Pro	Val					
595					600					605										
gtc	ctc	aac	agc	gtc	aag	aac	aaa	tac	agg	gat	gtg	cag	gtt	ctc	tgc	1872				
Val	Leu	Asn	Ser	Val	Lys	Asn	Lys	Tyr	Arg	Asp	Val	Gln	Val	Leu	Cys					
610					615					620										
agc	ctc	tac	ggg	gag	aaa	gcc	aag	gcc	gcc	ctg	ggt	ctg	gaa	cgg	cag	1920				
Ser	Leu	Tyr	Gly	Glu	Lys	Ala	Lys	Ala	Ala	Leu	Gly	Leu	Glu	Arg	Gln					
625					630					635					640					
atc	cgg	gat	gca	gac	aag	gtc	atc	cga	ggc	ttc	gag	tct	gcc	ctg	gca	1968				
Ile	Arg	Asp	Ala	Asp	Lys	Val	Ile	Arg	Gly	Phe	Glu	Ser	Ala	Leu	Ala					
645					650					655										
cag	gag	gcc	ccc	atc	ccc	gca	ggc	ccg	ggc	gca	ctg	cag	gag	agg	gtc	2016				
Gln	Glu	Ala	Pro	Ile	Pro	Ala	Gly	Pro	Gly	Ala	Leu	Gln	Glu	Arg	Val					
660					665					670										
agc	gag	ctg	aag	cgc	cgg	cgg	agg	gag	ctg	ctg	gag	cag	cag	gcc	tgt	2064				
Ser	Glu	Leu	Lys	Arg	Arg	Arg	Arg	Glu	Leu	Leu	Glu	Gln	Gln	Ala	Cys					
675					680					685										
gtg	ctc	ggg	cta	cac	cgc	cag	ctg	aag	gct	gtc	gag	cat	atg	tgc	agc	2112				
Val	Leu	Gly	Leu	His	Arg	Gln	Leu	Lys	Ala	Val	Glu	His	Met	Cys	Ser					
690					695					700										
gca	ctg	cag	aac	aat	ttc	tgc	gag	ttc	tgc	aaa	gac	ctg	cct	cac	cag	2160				
Ala	Leu	Gln	Asn	Asn	Phe	Cys	Glu	Phe	Cys	Lys	Asp	Leu	Pro	His	Gln					
705					710					715					720					
cag	cgc	cag	gtg	cgg	gcc	ctc	acc	gac	cgc	tac	cac	gcc	gtg	ggg	gac	2208				
Gln	Arg	Gln	Val	Arg	Ala	Leu	Thr	Asp	Arg	Tyr	His	Ala	Val	Gly	Asp					

725										730					735					
cag	ttg	gac	ctg	cgg	gag	aag	atg	atg	cag	gat	gcc	ggc	ctc	acc	tac	2256				
Gln	Leu	Asp	Leu	Arg	Glu	Lys	Met	Met	Gln	Asp	Ala	Gly	Leu	Thr	Tyr					
740					745					750										
cag	cag	ttc	aag	aac	tgc	aca	gac	aac	ctg	aac	gcg	tgg	ctg	gag	cgc	2304				
Gln	Gln	Phe	Lys	Asn	Cys	Thr	Asp	Asn	Leu	Asn	Ala	Trp	Leu	Glu	Arg					
755					760					765										
ctg	ccc	cac	aac	aag	gtg	cgg	ccc	agc	gac	ggg	ccc	agc	cag	atc	gcc	2352				
Leu	Pro	His	Asn	Lys	Val	Arg	Pro	Ser	Asp	Gly	Pro	Ser	Gln	Ile	Ala					
770					775					780										
tac	aag	ctg	cag	gcg	cag	aag	acc	tgg	gtt	caa	tcc	ctg	ggt	cgg	gaa	2400				
Tyr	Lys	Leu	Gln	Ala	Gln	Lys	Thr	Trp	Val	Gln	Ser	Leu	Gly	Arg	Glu					
785					790					795					800					
gat	ctc	ctg	gag	aag	gaa	atg	gca	acc	cac	tcc	agt	att	ccc	agt	cta	2448				
Asp	Leu	Leu	Glu	Lys	Glu	Met	Ala	Thr	His	Ser	Ser	Ile	Pro	Ser	Leu					
805					810					815										
tgt	cct	tcc	cca	cct	gct	cag	gac	tat	gag	ctg	cag	gca	gac	acc	tac	2496				
Cys	Pro	Ser	Pro	Pro	Ala	Gln	Asp	Tyr	Glu	Leu	Gln	Ala	Asp	Thr	Tyr					
820					825					830										
cga	ggt	tcc	ctg	gag	ccc	acc	cag	gtg	gga	tcg	gcc	ccc	aag	aga	ccg	2544				
Arg	Gly	Ser	Leu	Glu	Pro	Thr	Gln	Val	Gly	Ser	Ala	Pro	Lys	Arg	Pro					
835					840					845										
cga	gtt	gcg	ccc	ctg	cag	gac	agc	atc	caa	gcc	cag	gag	aag	aac	ctg	2592				
Arg	Val	Ala	Pro	Leu	Gln	Asp	Ser	Ile	Gln	Ala	Gln	Glu	Lys	Asn	Leu					
850					855					860										
acg	aag	gcc	tac	act	gag	gtg	gca	gct	gcc	cac	cag	cag	caa	ctg	cac	2640				
Thr	Lys	Ala	Tyr	Thr	Glu	Val	Ala	Ala	Ala	His	Gln	Gln	Gln	Leu	His					
865					870					875					880					
cag	ctg	gaa	ttt	gcc	aga	aag	att	ctg	gag	aag	aaa	gag	ctc	aat	gag	2688				
Gln	Leu	Glu	Phe	Ala	Arg	Lys	Ile	Leu	Glu	Lys	Lys	Glu	Leu	Asn	Glu					
885					890					895										
gac	atc	cag	gtg	aca	cct	aac	gcc	cag	cag	ggg	tct	gag	agc	cca	gcc	2736				
Asp	Ile	Gln	Val	Thr	Pro	Asn	Ala	Gln	Gln	Gly	Ser	Glu	Ser	Pro	Ala					
900					905					910										
cgg	ggg	ggc	agg	aag	tca	gag	gcc	ctg	agg	tcc	cag	cta	gag	gag	gag	2784				
Arg	Gly	Gly	Arg	Lys	Ser	Glu	Ala	Leu	Arg	Ser	Gln	Leu	Glu	Glu	Glu					
915					920					925										
agg	aag	cgg	gtg	gcc	cag	gta	caa	cgt	gag	ctg	gag	gag	cag	agg	agc	2832				
Arg	Lys	Arg	Val	Ala	Gln	Val	Gln	Arg	Glu	Leu	Glu	Glu	Gln	Arg	Ser					
930					935					940										
cag	ttg	ctg	cag	ctg	aag	acc	cag	cgg	ccc	gtg	gag	aaa	ctg	gag	gag	2880				
Gln	Leu	Leu	Gln	Leu	Lys	Thr	Gln	Arg	Pro	Val	Glu	Lys	Leu	Glu	Glu					
945					950					955					960					
aag	gaa	gtg	gtg	gag	ttc	tac	cgg	gat	ccc	cag	ctg	gag	agc	aac	ctg	2928				
Lys	Glu	Val	Val	Glu	Phe	Tyr	Arg	Asp	Pro	Gln	Leu	Glu	Ser	Asn	Leu					
965					970					975										
tcc	agg	gtg	aag	tcc	cag	gtg	gag	gac	gag	ggc	aag	aag	cag	gct	ggc	2976				
Ser	Arg	Val	Lys	Ser	Gln	Val	Glu	Asp	Glu	Gly	Lys	Lys	Gln	Ala	Gly					
980					985					990										
ctg	cag	gca	gac	ctg	gag	gca	gtg	gcc	cag	aag	gtc	atg	cag	ctg	gag	3024				
Leu	Gln	Ala	Asp	Leu	Glu	Ala	Val	Ala	Gln	Lys	Val	Met	Gln	Leu	Glu					
995					1000					1005										
agc	cag	agg	aag	gcc	acg	gaa	cct	cac	ctg	ctg	acc	aag	gag	gtc		3069				
Ser	Gln	Arg	Lys	Ala	Thr	Glu	Pro	His	Leu	Leu	Thr	Lys	Glu	Val						

1010	1015	1020	
acc cag atc gag agg gac Thr Gln Ile Glu Arg Asp	ccc ggc ctg gac agc Pro Gly Leu Asp Ser	cag gca gcc cag Gln Ala Ala Gln	3114
1025	1030	1035	
ctc aag agt gag ctc cag Leu Lys Ser Glu Leu Gln	ctc ctg caa gag gag Leu Leu Gln Glu Glu	aac acc gcc gtc Asn Thr Ala Val	3159
1040	1045	1050	
ttg gcc cag ctg gag gca Leu Ala Gln Leu Glu Ala	ctg aag gca gag ctg Leu Lys Ala Glu Leu	ctg gcc ctt gag Leu Leu Ala Leu Glu	3204
1055	1060	1065	
cag aag gag gtg aac gtg Gln Lys Glu Val Asn Val	aaa gag aca gtc gtg Lys Glu Thr Val Val	gtg aaa gaa gtg Val Lys Glu Val	3249
1070	1075	1080	
gtc aag gtg gag aag gac Val Lys Val Glu Lys Asp	ctg gag atg ctc cag Leu Glu Met Leu Gln	gca gcc cag gcc Ala Ala Gln Ala	3294
1085	1090	1095	
ctg agg ctg aag att cag Leu Arg Leu Lys Ile Gln	gag gat gtg gcc cag Glu Asp Val Ala Gln	cgg aaa ggg gcg Arg Lys Gly Ala	3339
1100	1105	1110	
gag gat gcc gtg gcc aag Glu Asp Ala Val Ala Lys	ctg cag gct cga gtc Leu Gln Ala Arg Val	gtg gag ctg gag Val Val Glu Leu Glu	3384
1115	1120	1125	
gca gca atc cgc act gtg Ala Ala Ile Arg Thr Val	gag gcc aag gtg att Glu Glu Lys Val Ile	gtg aag gag gtg Val Lys Glu Val	3429
1130	1135	1140	
aag aag gtg gaa cag gac Lys Lys Val Glu Gln Asp	ccc agg ctc ctc cag Pro Arg Leu Leu Gln	gag gca tcc agg Glu Ala Ser Arg	3474
1145	1150	1155	
ctg agg agc ctc ctg gag Leu Arg Ser Leu Leu Glu	gtg cag agg agt gaa Val Gln Arg Ser Glu	aac gag gtg ctg Asn Glu Val Leu	3519
1160	1165	1170	
gcc agg gag gag ctg aag Ala Arg Glu Glu Leu Lys	gag ctg cac agc aag Glu Leu His Ser Lys	cac agc gcg gcg His Ser Ala Ala	3564
1175	1180	1185	
gag aag cag aag ccc cgg Glu Lys Gln Lys Pro Arg	gtg gat ctg cag gag Val Asp Leu Gln Glu	cgc gta cag gag Arg Val Gln Glu	3609
1190	1195	1200	
acc ttc cgg gtg gac ccg Thr Phe Arg Val Asp Pro	gag aca gag cgg gag Glu Thr Glu Arg Glu	atc gca cag ctc Ile Ala Gln Leu	3654
1205	1210	1215	
cgg gct gag ctg cag gag Arg Ala Glu Leu Gln Glu	act ggc cgc aag agg Thr Gly Arg Lys Arg	aat ggc acg gag Asn Gly Thr Glu	3699
1220	1225	1230	
cag gag gtg gag cga ctg Gln Glu Val Glu Arg Leu	ctc tct gag ctg gtg Leu Ser Glu Leu Val	gtg ctg cgg gcc Val Leu Arg Ala	3744
1235	1240	1245	
cag aag ccc acc gtg gag Gln Lys Pro Thr Val Glu	tac aag gag gtg acg Tyr Lys Glu Val Thr	cag gag ctg gtg Gln Glu Leu Val	3789
1250	1255	1260	
cgg cac gag aag aac ccc Arg His Glu Lys Asn Pro	gag ctg ctg cgg gag Glu Leu Leu Arg Glu	atc gac cgc ctg Ile Asp Arg Leu	3834
1265	1270	1275	
aag gcc cag ctc aat gag Lys Ala Gln Leu Asn Glu	ctg gtc aac ggc agt Leu Val Asn Gly Ser	gga cgg gcc cag Gly Arg Ala Gln	3879

1280	1285	1290	
gag cag ctc atc cgg ctg cag Glu Gln Leu Ile Arg Leu Gln 1295	ggg gag cgc gac gag Gly Glu Arg Asp Glu 1300	tgg cgg cgc Trp Arg Arg 1305	3924
gaa cgc tcc aag gtc gag acc Glu Arg Ser Lys Val Glu Thr 1310	aag acg gtg aac aag Lys Thr Val Asn Lys 1315	gag gtg gtg Glu Val Val 1320	3969
cgc cgt gag aag gac ccc gtc Arg Arg Glu Lys Asp Pro Val 1325	ctg gag cag gaa gcc Leu Glu Gln Glu Ala 1330	cag cgg ctg Gln Arg Leu 1335	4014
cgc cag gag gtg cgg gag gcc Arg Gln Glu Val Arg Glu Ala 1340	act cag aag cgg cgg Thr Gln Lys Arg Arg 1345	gcg gcc gag Ala Ala Glu 1350	4059
gac gcc gtc cac cag ctg cag Asp Ala Val His Gln Leu Gln 1355	aac aag tac ctg ctg Asn Lys Tyr Leu Leu 1360	ctg gag agg Leu Glu Arg 1365	4104
cgg cgg cct gag gag agg gtg Arg Arg Pro Glu Glu Arg Val 1370	gtg gtg cag gag gtg Val Val Gln Glu Val 1375	gtg gtc acc Val Val Thr 1380	4149
cag aag gac ccg aag ctc cat Gln Lys Asp Pro Lys Leu His 1385	gag gag cac agc cgg Glu Glu His Ser Arg 1390	ctg agc cag Leu Ser Gln 1395	4194
agc ttg gat gag gag gcc ggc Ser Leu Asp Glu Glu Ala Gly 1400	cgg cgg cgg cag ctg Arg Arg Arg Gln Leu 1405	gaa cgg gag Glu Arg Glu 1410	4239
gtg cag cag ctg cag gcc gcc Val Gln Gln Leu Gln Ala Ala 1415	gtg cag gag gac gag Val Gln Glu Asp Glu 1420	ggc cga ctc Gly Arg Leu 1425	4284
agc ttc cgg gag gac cgt agt Ser Phe Arg Glu Asp Arg Ser 1430	aag aag ctg gct gtg Lys Lys Leu Ala Val 1435	gag agg gag Glu Arg Glu 1440	4329
ctg cgg cag ctg acc ctg aag Leu Arg Gln Leu Thr Leu Lys 1445	ctc cag gag ctg gag Leu Gln Glu Leu Glu 1450	aag cgg cct Lys Arg Pro 1455	4374
ccg gca gtg cag gag aag atc Pro Ala Val Gln Glu Lys Ile 1460	atc atg gag gag gta Ile Met Glu Glu Val 1465	gtc cag ctg Val Gln Leu 1470	4419
gag aag gac ccg gac ctg gag Glu Lys Asp Pro Asp Leu Glu 1475	aag tcc acg gcg gcc Lys Ser Thr Ala Ala 1480	ctc cgg caa Leu Arg Gln 1485	4464
gac ctg gcc cag gag aag acc Asp Leu Ala Gln Glu Lys Thr 1490	cag gcg acc gag gtg Gln Ala Thr Glu Val 1495	cat cgg gag His Arg Glu 1500	4509
tgc aag aac ctt cag gtg cag Cys Lys Asn Leu Gln Val Gln 1505	atc gac gtg ctc cag Ile Asp Val Leu Gln 1510	aag acg aag Lys Thr Lys 1515	4554
ctg cag gag aag acc atc tac Leu Gln Glu Lys Thr Ile Tyr 1520	aag gaa gtg atc agg Lys Glu Val Ile Arg 1525	gtg gag aag Val Glu Lys 1530	4599
gac ccc gtg ctg gag gga gag Asp Pro Val Leu Glu Gly Glu 1535	cgt gcc cgg gtg tgg Arg Ala Arg Val Trp 1540	gag gcg ctc Glu Ala Leu 1545	4644
aac cgg gag cgc gcg gcc cgg Asn Arg Glu Arg Ala Ala Arg 1550	gag agc cgg gag gag Glu Ser Arg Glu Glu 1555	gag gtg agg Glu Val Arg 1560	4689



1550	1555	1560	
cgc ctg cgg gag cgg gtg gag Arg Leu Arg Glu Arg Val Glu	cgg gcc gag gcg ctg ggg agg acc Arg Ala Glu Ala Leu Gly Arg Thr	4734	
1565	1570	1575	
tgg gct cgg gag gag gcc gag Trp Ala Arg Glu Glu Ala Glu	ctc cag aag acc cgg gac cgg gca Leu Gln Lys Thr Arg Asp Arg Ala	4779	
1580	1585	1590	
agc cag gag tgc agg cag ctg Ser Gln Glu Cys Arg Gln Leu	cag cag gag ctg cgg gag ctg gaa Gln Gln Glu Leu Arg Glu Leu Glu	4824	
1595	1600	1605	
agg cag aag cag cag cgg gtg Arg Gln Lys Gln Gln Arg Val	ctg cac ctg cag gag gag tcc aag Leu His Leu Gln Glu Glu Ser Lys	4869	
1610	1615	1620	
ctg ctc agc cag aag acg gag Leu Leu Ser Gln Lys Thr Glu	agc gag cgg cag agg gca gcc cag Ser Glu Arg Gln Arg Ala Ala Gln	4914	
1625	1630	1635	
cgg ggc cag gaa ctc tcg cag Arg Gly Gln Glu Leu Ser Gln	ctc gag tcg gcc atc ctc cgc gag Leu Glu Ser Ala Ile Leu Arg Glu	4959	
1640	1645	1650	
aag gac cgg atc tat gag aag Lys Asp Arg Ile Tyr Glu Lys	gag cgg acc ctg cgg gac ctc cac Glu Arg Thr Leu Arg Asp Leu His	5004	
1655	1660	1665	
acc cag gtg agc cgg gag gag Thr Gln Val Ser Arg Glu Glu	ctc aac cag gag acc cag aca cga Leu Asn Gln Glu Thr Gln Thr Arg	5049	
1670	1675	1680	
gag acc aac atc tcc acc aag Glu Thr Asn Ile Ser Thr Lys	atc tcc atc ctg gag ccc gag acg Ile Ser Ile Leu Glu Pro Glu Thr	5094	
1685	1690	1695	
ggg aag gac atg tcc cca tac Gly Lys Asp Met Ser Pro Tyr	gag gcc tac aag agg ggc gtc att Glu Ala Tyr Lys Arg Gly Val Ile	5139	
1700	1705	1710	
gac cga agc cag tac ctc cag Asp Arg Ser Gln Tyr Leu Gln	ctg cag gat ctc gag tgt gac tgg Leu Gln Asp Leu Glu Cys Asp Trp	5184	
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cgc agc cgg cgc atc tcc aaa Arg Ser Arg Arg Ile Ser Lys	gag gag tac cat ctc tac aag gat Glu Glu Tyr His Leu Tyr Lys Asp	5319	
1760	1765	1770	
ggc cag ctc ccc atc agc gaa Gly Gln Leu Pro Ile Ser Glu	ttc gct ctg ctc gtg gcc ggg gag Phe Ala Leu Leu Val Ala Gly Glu	5364	
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acc aag ccc tgc ccc tcc ctc Thr Lys Pro Cys Pro Ser Leu	tcc atc ggc gcc atc atc tcc aag Ser Ile Gly Ala Ile Ile Ser Lys	5409	
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ccc agc ttc tct ctc ggg ctt Pro Ser Phe Ser Leu Gly Leu	agc gag gac agc ttc ccc atc gcc Ser Glu Asp Ser Phe Pro Ile Ala	5499	

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gcc gtg gcc aag aac atg ctg gac ccc atc acc ggg cag aag ctg Ala Val Ala Lys Asn Met Leu Asp Pro Ile Thr Gly Gln Lys Leu 1850 1855 1860			5589
ctg gag gct cag gcg gcc acg ggg ggc att gtg gac ctc ctg agc Leu Glu Ala Gln Ala Ala Thr Gly Gly Ile Val Asp Leu Leu Ser 1865 1870 1875			5634
cgg gag cgc tac tcc gtg cac aag gcg gtg gag cgg ggg ctg atc Arg Glu Arg Tyr Ser Val His Lys Ala Val Glu Arg Gly Leu Ile 1880 1885 1890			5679
gag agc ggc tca acc cag agg ctg ctc aac gca cag aag gcc ttc Glu Ser Gly Ser Thr Gln Arg Leu Leu Asn Ala Gln Lys Ala Phe 1895 1900 1905			5724
acg ggc att gag gac ccc gtg acc aag aag agg ctg tcg gtg ggc Thr Gly Ile Glu Asp Pro Val Thr Lys Lys Arg Leu Ser Val Gly 1910 1915 1920			5769
gag gcc gtc cag aag ggc tgg atg ccc cag gaa agc gtg ctc cca Glu Ala Val Gln Lys Gly Trp Met Pro Gln Glu Ser Val Leu Pro 1925 1930 1935			5814
cac ctg cgg gtg cag cac ctg acc ggg ggg ctc atc gac ccc aag His Leu Arg Val Gln His Leu Thr Gly Gly Leu Ile Asp Pro Lys 1940 1945 1950			5859
aag acc ggc cgc atc ccc gtg gct cag gct gtg ctc tct ggc atg Lys Thr Gly Arg Ile Pro Val Ala Gln Ala Val Leu Ser Gly Met 1955 1960 1965			5904
atc agc gag gag ctg gcc cag ctc ctg caa gac gag gcc agt tac Ile Ser Glu Glu Leu Ala Gln Leu Leu Gln Asp Glu Ala Ser Tyr 1970 1975 1980			5949
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Asp	Val	Gly	Pro	Arg	Val	Asp	Trp	Ala	Arg	Val	Leu	Glu	Gln	Lys	Gln
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Lys	Gln	Val	Cys	Glu	Gly	Gln	Tyr	Gly	Pro	Gly	Met	Ala	Glu	Leu	Glu
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Phe	Cys	Ile	Pro	Ala	Pro	Asp	Pro	Glu	Ala	Val	Ala	Arg	Ala	Ser	Gly		
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Ser	Arg	Leu	Lys	Ala	Ser	Ala	Lys	Glu	Pro	Leu	Arg	Pro	Ser	Gln	Gln		
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Ala	Pro	Ser	Ser	Ser	Gly	Pro	Pro	Asp	Pro	Gln	Ala	Gln	Lys	Leu	Leu		
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Ser 625	Leu	Tyr	Gly	Glu	Lys 630	Ala	Lys	Ala	Ala	Leu 635	Gly	Leu	Glu	Arg	Gln 640
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Val 690	Leu	Gly	Leu	His	Arg	Gln 695	Leu	Lys	Ala	Val	Glu 700	His	Met	Cys	Ser
Ala 705	Leu	Gln	Asn	Asn	Phe 710	Cys	Glu	Phe	Cys	Lys 715	Asp	Leu	Pro	His	Gln 720
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Gln	Leu	Asp 740	Leu	Arg	Glu	Lys	Met	Met 745	Gln	Asp	Ala	Gly	Leu 750	Thr	Tyr
Gln	Gln	Phe 755	Lys	Asn	Cys	Thr	Asp 760	Asn	Leu	Asn	Ala	Trp 765	Leu	Glu	Arg
Leu 770	Pro	His	Asn	Lys	Val	Arg 775	Pro	Ser	Asp	Gly	Pro 780	Ser	Gln	Ile	Ala
Tyr 785	Lys	Leu	Gln	Ala	Gln 790	Lys	Thr	Trp	Val	Gln 795	Ser	Leu	Gly	Arg	Glu 800
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Cys	Pro	Ser	Pro 820	Pro	Ala	Gln	Asp	Tyr 825	Glu	Leu	Gln	Ala	Asp 830	Thr	Tyr
Arg	Gly	Ser 835	Leu	Glu	Pro	Thr	Gln 840	Val	Gly	Ser	Ala	Pro 845	Lys	Arg	Pro
Arg 850	Val	Ala	Pro	Leu	Gln	Asp 855	Ser	Ile	Gln	Ala	Gln 860	Glu	Lys	Asn	Leu
Thr 865	Lys	Ala	Tyr	Thr	Glu 870	Val	Ala	Ala	Ala	His 875	Gln	Gln	Gln	Leu	His 880
Gln	Leu	Glu	Phe 885	Ala	Arg	Lys	Ile	Leu	Glu 890	Lys	Lys	Glu	Leu	Asn 895	Glu

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35 40 45

gta gag agg gac att ctg gag acc cag aag aga ctg cag cag gac cgg 192  
Val Glu Arg Asp Ile Leu Glu Thr Gln Lys Arg Leu Gln Gln Asp Arg  
50 55 60

ctg cac agc gag cag agc cag gcc ctg cag cac agg cag gaa gtg ggg 240  
Leu His Ser Glu Gln Ser Gln Ala Leu Gln His Arg Gln Glu Val Gly  
65 70 75 80

cgc agc ctg aag gag gct gag gtg ctg ctg aaa gac ctc ttc ctg gat 288  
Arg Ser Leu Lys Glu Ala Glu Val Leu Leu Lys Asp Leu Phe Leu Asp  
85 90 95

gtg gat aag gcg cgg cgg ctc aag cac cca cag gcc gag gag att gag 336  
Val Asp Lys Ala Arg Arg Leu Lys His Pro Gln Ala Glu Glu Ile Glu  
100 105 110

aag gac atc aag cag ctg cac gag cga gtg acc caa gag tgt gcc gag 384  
Lys Asp Ile Lys Gln Leu His Glu Arg Val Thr Gln Glu Cys Ala Glu  
115 120 125

tac cgc gcc ctg tat gag aag ata gtg ctg cca ccc gat gtg ggg ccc 432  
Tyr Arg Ala Leu Tyr Glu Lys Ile Val Leu Pro Pro Asp Val Gly Pro  
130 135 140

agg gtc gac tgg gcg cgt gtg cta gag cag aaa cag aag cag gtc tgc 480  
Arg Val Asp Trp Ala Arg Val Leu Glu Gln Lys Gln Lys Gln Val Cys  
145 150 155 160

gag ggc cag tac ggg ccg ggc atg gca gag ctg gag cag cag att gcg 528  
Glu Gly Gln Tyr Gly Pro Gly Met Ala Glu Leu Glu Gln Gln Ile Ala  
165 170 175

gag cac aac atc ctg cag aag gag att gag gcc tac ggg cag cag ctc Glu His Asn Ile Leu Gln Lys Glu Ile Glu Ala Tyr Gly Gln Gln Leu 180 185 190	576
cgg aac ctc atc ggg ccg gac gca gct acc atc agg agc caa tac cgg Arg Asn Leu Ile Gly Pro Asp Ala Ala Thr Ile Arg Ser Gln Tyr Arg 195 200 205	624
gac ctc ctg aag gcg gcc tcg tgg cgc ggc cag agc ctg ggc agc ctg Asp Leu Leu Lys Ala Ala Ser Trp Arg Gly Gln Ser Leu Gly Ser Leu 210 215 220	672
tac acg cac ctt cag ggc tgc acg cgc cag ctg agt gcc ctg gcc cag Tyr Thr His Leu Gln Gly Cys Thr Arg Gln Leu Ser Ala Leu Ala Gln 225 230 235 240	720
cag cag cag ggc atc ctg cag cag gac tgg agc gac ctc ctg gcg gac Gln Gln Gln Gly Ile Leu Gln Gln Asp Trp Ser Asp Leu Leu Ala Asp 245 250 255	768
ccc cag ggc gtg cgg cgg gag tac gag cac ttc aag cag cag gag ctg Pro Gln Gly Val Arg Arg Glu Tyr Glu His Phe Lys Gln Gln Glu Leu 260 265 270	816
ctg agc cag gag cag agc gtg aac cag ctg gag gat gac ggg gag cgc Leu Ser Gln Glu Gln Ser Val Asn Gln Leu Glu Asp Asp Gly Glu Arg 275 280 285	864
atg gtg gag ctg ggg cac ccg gct gtg ggg ccc atc cag acc cac cag Met Val Glu Leu Gly His Pro Ala Val Gly Pro Ile Gln Thr His Gln 290 295 300	912
gag gcc ctg aag atg gaa tgg cag aac ttt cta aac ctc tgc atc tgc Glu Ala Leu Lys Met Glu Trp Gln Asn Phe Leu Asn Leu Cys Ile Cys 305 310 315 320	960
cag gag agc cag ctg cag cac gtg gag gcc tac cac cgg ttc cag gaa Gln Glu Ser Gln Leu Gln His Val Glu Ala Tyr His Arg Phe Gln Glu 325 330 335	1008
gag gcc gac tcc gtg agc caa acc ctg gcg aag ctg aac tcc agc ctg Glu Ala Asp Ser Val Ser Gln Thr Leu Ala Lys Leu Asn Ser Ser Leu 340 345 350	1056
gac acc cag tac agc cca gcc cct ggg gcg ccc cct ggc gcc ctc acg Asp Thr Gln Tyr Ser Pro Ala Pro Gly Ala Pro Pro Gly Ala Leu Thr 355 360 365	1104
gag ctg ctg cag cag ctg gag gca gag aag aag cat ctg gct gtc act Glu Leu Leu Gln Gln Leu Glu Ala Glu Lys Lys His Leu Ala Val Thr 370 375 380	1152
gag aag acc att agg gac ctg cag cgg cag agc cag cag gtg gcc cct Glu Lys Thr Ile Arg Asp Leu Gln Arg Gln Ser Gln Gln Val Ala Pro 385 390 395 400	1200
ctg cag cag cgc aga aac cca ccc cag cag ccc ctg cac gtg gac agc Leu Gln Gln Arg Arg Asn Pro Pro Gln Gln Pro Leu His Val Asp Ser 405 410 415	1248
atc tgt gac tgg gac tca gga gaa gtg cag ctg ctg cgg ggc gaa cgg Ile Cys Asp Trp Asp Ser Gly Glu Val Gln Leu Leu Arg Gly Glu Arg 420 425 430	1296
tat ttg ctg atg gac aac act gac cag cac acc tgg gtc gtt cag ggt Tyr Leu Leu Met Asp Asn Thr Asp Gln His Thr Trp Val Val Gln Gly 435 440 445	1344
cca gat ggg gag acc aaa cgt gcc cca gcc gcc tgc ttc tgc atc cca Pro Asp Gly Glu Thr Lys Arg Ala Pro Ala Ala Cys Phe Cys Ile Pro 450 455 460	1392

gct Ala 465	ccg Pro	gac Asp	cct Pro	gac Asp	gct Ala 470	gtg Val	gcc Ala	agg Arg	gcc Ala 475	tcc Ser 475	aag Lys	ctg Leu	gcg Ala	tcg Ser 480	gag Glu	1440
ctg Leu	cag Gln	gcc Ala	ctg Leu	aag Lys 485	cag Gln	aaa Lys	ttg Leu	gcc Ala 490	gca Ala	gtc Val	cag Gln	agc Ser	gag Glu	ctg Leu 495	aca Thr	1488
gcc Ala	tgt Cys	gct Ala	gag Glu 500	cag Gln	ccc Pro	tta Leu	cag Gln	acc Thr 505	agc Ser	cag Gln	cag Gln	gct Ala 510	ccc Pro	act Thr	ggc Gly	1536
tca Ser	gcc Ala	cca Pro 515	gaa Glu	gac Asp	cca Pro	cag Gln	gcc Ala 520	cag Gln	aag Lys	ctc Leu	ctg Leu	aca Thr 525	cag Gln	atg Met	acc Thr	1584
cag Gln 530	ctg Leu	gat Asp	gga Gly	gac Asp	ctg Leu	aag Lys 535	cag Gln	ata Ile	gag Glu	agg Arg	caa Gln 540	gta Val	ctg Leu	gcc Ala	tgg Trp	1632
gcc Ala 545	cgg Arg	acc Thr	ccg Pro	ctg Leu	agc Ser 550	cgc Arg	acg Thr	aca Thr	ccc Pro	ctg Leu 555	gaa Glu	gac Asp	ctg Leu	gag Glu	ggc Gly 560	1680
cgc Arg	atc Ile	cag Gln	agc Ser	cat His 565	aag Lys	gaa Glu	aca Thr	gcc Ala	cag Gln 570	cgg Arg	ctg Leu	cag Gln	ggc Gly 575	ctg Leu	gga Gly	1728
gca Ala	gag Glu	aaa Lys 580	gaa Glu	aca Thr	gcc Ala	cag Gln	cag Gln	gag Glu 585	tgt Cys	gag Glu	gcg Ala	ttg Leu	ctg Leu 590	tcc Ser	gcc Ala	1776
cgg Arg	cct Pro	ggg Gly 595	ggc Gly	ccc Pro	gct Ala	gcc Ala	ctg Leu 600	cag Gln	ctg Leu	ccc Pro	gtg Val	gcc Ala 605	ctc Leu	aac Asn	agt Ser	1824
gtc Val 610	aag Lys	aac Asn	aag Lys	tac Tyr	agt Ser	gac Asp 615	gtg Val	cag Gln	att Ile	ctt Leu	tgc Cys 620	aac Asn	ctc Leu	tac Tyr	ggg Gly	1872
gag Glu 625	aaa Lys	gcc Ala	aga Arg	gct Ala	gcc Ala 630	ctg Leu	ggt Gly	ctg Leu	gag Glu	cgc Arg 635	cgg Arg	atc Ile	cag Gln	gac Asp	gcg Ala 640	1920
gac Asp	agg Arg	gtc Val	atc Ile	cga Arg 645	ggc Gly	ttc Phe	gag Glu	tcc Ser	act Thr 650	gtg Val	gcg Ala	cag Gln	gag Glu	ggc Gly 655	ccc Pro	1968
atc Ile	ccc Pro	gcc Ala	agc Ser 660	ccc Pro	ggg Gly	gca Ala	ctg Leu	cag Gln 665	gag Glu	agg Arg	gtc Val	aat Asn 670	gag Glu	cta Leu	cag Gln	2016
cgc Arg	ctg Leu	cgg Arg	agg Arg	gag Glu	ctg Leu	ctg Leu	gaa Glu 680	aag Lys	cag Gln	gcc Ala	tgt Cys 685	gtg Val	ctg Leu	ggg Gly	ctg Leu	2064
cac His 690	cgc Arg	gag Glu	ctg Leu	aag Lys	gcc Ala	acc Thr 695	gag Glu	cat His	gca Ala	tgc Cys 700	agc Ser	gcc Ala	ctg Leu	cag Gln	aac Asn	2112
aac Asn 705	ttc Phe	cag Gln	gag Glu	ttc Phe	tgc Cys 710	caa Gln	gac Asp	ctg Leu	cct Pro	cgc Arg 715	cag Gln	cag Gln	cgc Arg	cag Gln	gcc Ala 720	2160
cgg Arg	gcc Ala	ctt Leu	acc Thr	gac Asp 725	cgc Arg	tac Tyr	cac His	gct Ala	gtg Val 730	ggg Gly	gac Asp	cag Gln	ctg Leu	gac Asp 735	ctg Leu	2208
cgg Arg	gag Glu	aag Lys	atg Met 740	ttg Leu	cag Gln	gat Asp	gtt Val	ggc Gly 745	ctc Leu	acc Thr	tac Tyr	cag Gln	cag Gln	ttc Phe	aag Lys 750	2256

aat tac ttg gac aat ctg agc ttc tgg ctg gaa aac ctg ccc cgc aat	2304
Asn Tyr Leu Asp Asn Leu Ser Phe Trp Leu Glu Asn Leu Pro Arg Asn	
755 760 765	
gaa gtg cgg ccc agc gat ggg ccc agc cag ctc gcc tac aag ctg cag	2352
Glu Val Arg Pro Ser Asp Gly Pro Ser Gln Leu Ala Tyr Lys Leu Gln	
770 775 780	
gca cag aag agg ctg cag cag gag atc cag ggc cga gag cag gac agg	2400
Ala Gln Lys Arg Leu Gln Gln Glu Ile Gln Gly Arg Glu Gln Asp Arg	
785 790 795 800	
gcc atg gca tcc cgc ctc tcc cag gac ctg cag gca gct ctc cag gac	2448
Ala Met Ala Ser Arg Leu Ser Gln Asp Leu Gln Ala Ala Leu Gln Asp	
805 810 815	
tat gag ttg cag gca gac acc tac cgc tgc tcc cta gag acc acc acc	2496
Tyr Glu Leu Gln Ala Asp Thr Tyr Arg Cys Ser Leu Glu Thr Thr Thr	
820 825 830	
cag gca ggg tca gcc ccc aag aga ccc cga gtg gct ccc ctg cag gag	2544
Gln Ala Gly Ser Ala Pro Lys Arg Pro Arg Val Ala Pro Leu Gln Glu	
835 840 845	
agc atc cag gag cag gag aag agc ctg aca aag gcc tat act gag gtt	2592
Ser Ile Gln Glu Gln Glu Lys Ser Leu Thr Lys Ala Tyr Thr Glu Val	
850 855 860	
gcg gct gca cac cag cag cag ctg cat cag ctg gag ttt gcc aga agg	2640
Ala Ala Ala His Gln Gln Gln Leu His Gln Leu Glu Phe Ala Arg Arg	
865 870 875 880	
atg ctg gag aag aag gag ctc agt gag gat gtc cag gtg acc cat gat	2688
Met Leu Glu Lys Lys Glu Leu Ser Glu Asp Val Gln Val Thr His Asp	
885 890 895	
gca cag cag ggg tct gag agc cca gcc caa gca agg aag gag tca gag	2736
Ala Gln Gln Gly Ser Glu Ser Pro Ala Gln Ala Arg Lys Glu Ser Glu	
900 905 910	
gcc cta aag tcc cag ctg gag gag gag agg aag cgg gtg gcc cag gtg	2784
Ala Leu Lys Ser Gln Leu Glu Glu Glu Arg Lys Arg Val Ala Gln Val	
915 920 925	
cag caa cag ctg gag gaa cag cgg aac cag ctg ctg cag ctg aga acc	2832
Gln Gln Gln Leu Glu Glu Gln Arg Asn Gln Leu Leu Gln Leu Arg Thr	
930 935 940	
cag cgc ccc ttg gag agg cta gaa gag aag gaa gtg gta gag ttt tac	2880
Gln Arg Pro Leu Glu Arg Leu Glu Glu Lys Glu Val Val Glu Phe Tyr	
945 950 955 960	
cgg gac ccc caa ctg gag agc agc ctg tcc agg gta aag tcc cag gta	2928
Arg Asp Pro Gln Leu Glu Ser Ser Leu Ser Arg Val Lys Ser Gln Val	
965 970 975	
gag gag gaa ggc aag aag cgg gcc ggc ctg cag gcg gac ctg gag gca	2976
Glu Glu Glu Gly Lys Lys Arg Ala Gly Leu Gln Ala Asp Leu Glu Ala	
980 985 990	
gca gcc cag aag gtc gtc cag ctg gag agc aag aag agg gcc atg caa	3024
Ala Ala Gln Lys Val Val Gln Leu Glu Ser Lys Lys Arg Ala Met Gln	
995 1000 1005	
cct cac ctg ctg acc aag gag gta acc cag atc gag agg gac cct	3069
Pro His Leu Leu Thr Lys Glu Val Thr Gln Ile Glu Arg Asp Pro	
1010 1015 1020	
gac ctg gag agc cag gca gcc cag ctc agc agc gag atc ctg cag	3114
Asp Leu Glu Ser Gln Ala Ala Gln Leu Ser Ser Glu Ile Leu Gln	
1025 1030 1035	

ctg	cgg	ggg	gag	aat	gcc	acc	gtc	tcg	gcc	cgg	ctc	gag	gtg	cta	3159
Leu	Arg	Gly	Glu	Asn	Ala	Thr	Val	Ser	Ala	Arg	Leu	Glu	Val	Leu	
	1040					1045					1050				
aag	aag	gag	ctg	ctg	gcc	ctg	gag	cag	aag	gag	ccg	aat	gtg	aag	3204
Lys	Lys	Glu	Leu	Leu	Ala	Leu	Glu	Gln	Lys	Glu	Pro	Asn	Val	Lys	
	1055					1060					1065				
gag	agg	gtc	gtg	gtg	aaa	gaa	gtg	gtc	aag	gtg	gag	aag	gac	ctg	3249
Glu	Arg	Val	Val	Val	Lys	Glu	Val	Val	Lys	Val	Glu	Lys	Asp	Leu	
	1070					1075					1080				
gaa	atg	ctt	aag	gca	gcc	cag	gcc	ctc	cgg	ctg	cag	ctg	gag	gag	3294
Glu	Met	Leu	Lys	Ala	Ala	Gln	Ala	Leu	Arg	Leu	Gln	Leu	Glu	Glu	
	1085					1090					1095				
gac	tct	gcg	cgg	agg	aag	ggg	gcg	gaa	gag	gct	gtg	gcc	aag	ctg	3339
Asp	Ser	Ala	Arg	Arg	Lys	Gly	Ala	Glu	Glu	Ala	Val	Ala	Lys	Leu	
	1100					1105					1110				
cgg	gca	cgc	att	gaa	gag	cta	gag	cgg	gcg	atc	ggt	gcc	gtg	gag	3384
Arg	Ala	Arg	Ile	Glu	Glu	Leu	Glu	Arg	Ala	Ile	Gly	Ala	Val	Glu	
	1115					1120					1125				
ccc	aag	gtg	atc	gtg	aag	gag	gtg	aag	aag	gtg	gag	cag	gac	ctg	3429
Pro	Lys	Val	Ile	Val	Lys	Glu	Val	Lys	Lys	Val	Glu	Gln	Asp	Leu	
	1130					1135					1140				
ggc	ctc	ctg	gaa	gag	gcg	tcc	agg	ctg	agg	aac	ctc	cta	gag	gag	3474
Gly	Leu	Leu	Glu	Glu	Ala	Ser	Arg	Leu	Arg	Asn	Leu	Leu	Glu	Glu	
	1145					1150					1155				
gcc	agg	agc	agg	aac	gcc	acg	ctg	gcg	cgc	gag	ctg	gag	gac	gtg	3519
Ala	Arg	Ser	Arg	Asn	Ala	Thr	Leu	Ala	Arg	Glu	Leu	Glu	Asp	Val	
	1160					1165					1170				
cgg	ggc	aag	tac	agc	gtg	gtg	gag	aag	cag	aag	ccc	aaa	gtg	gag	3564
Arg	Gly	Lys	Tyr	Ser	Val	Val	Glu	Lys	Gln	Lys	Pro	Lys	Val	Glu	
	1175					1180					1185				
ctc	cag	gag	cgc	atc	cac	gag	acc	ttc	cag	gtg	gct	ccg	gag	acg	3609
Leu	Gln	Glu	Arg	Ile	His	Glu	Thr	Phe	Gln	Val	Ala	Pro	Glu	Thr	
	1190					1195					1200				
cag	cag	gag	atc	gcg	cgg	ctc	cgg	gcc	cag	ctg	cag	gac	acc	gcc	3654
Gln	Gln	Glu	Ile	Ala	Arg	Leu	Arg	Ala	Gln	Leu	Gln	Asp	Thr	Ala	
	1205					1210					1215				
agc	agg	agg	agc	ggc	gta	gag	aag	gag	ctg	gag	ggg	ctg	ctg	ccc	3699
Ser	Arg	Arg	Ser	Gly	Val	Glu	Lys	Glu	Leu	Glu	Gly	Leu	Leu	Pro	
	1220					1225					1230				
gag	ctg	gcc	gcc	ctc	cgt	gcc	cag	aag	ccc	gcg	gtg	gag	tac	aag	3744
Glu	Leu	Ala	Ala	Leu	Arg	Ala	Gln	Lys	Pro	Ala	Val	Glu	Tyr	Lys	
	1235					1240					1245				
cag	gtg	acg	cag	gag	gtg	gtg	aag	cac	gag	agg	agt	ccc	gag	gtg	3789
Gln	Val	Thr	Gln	Glu	Val	Val	Lys	His	Glu	Arg	Ser	Pro	Glu	Val	
	1250					1255					1260				
ctg	cgg	gag	atc	gac	cgc	ctg	aag	gcc	cag	ctg	aat	gag	ctg	gta	3834
Leu	Arg	Glu	Ile	Asp	Arg	Leu	Lys	Ala	Gln	Leu	Asn	Glu	Leu	Val	
	1265					1270					1275				
aac	ggc	agc	ggg	cgg	gcc	cag	gag	cag	ctc	atc	cgg	ctg	cag	ggg	3879
Asn	Gly	Ser	Gly	Arg	Ala	Gln	Glu	Gln	Leu	Ile	Arg	Leu	Gln	Gly	
	1280					1285					1290				
gag	cgc	gac	gag	tgg	agg	cgg	gag	cgg	tcc	aag	gtg	gag	acc	aag	3924
Glu	Arg	Asp	Glu	Trp	Arg	Arg	Glu	Arg	Ser	Lys	Val	Glu	Thr	Lys	
	1295					1300					1305				

aca	gtg	aac	aag	gag	gtg	gtg	cgc	cac	gag	aag	gac	cct	gtc	ctg	3969
Thr	Val	Asn	Lys	Glu	Val	Val	Arg	His	Glu	Lys	Asp	Pro	Val	Leu	
	1310					1315					1320				
gag	aag	gag	gcc	gag	cgg	ctg	cgc	cag	gag	gtt	cga	gaa	gcc	acc	4014
Glu	Lys	Glu	Ala	Glu	Arg	Leu	Arg	Gln	Glu	Val	Arg	Glu	Ala	Thr	
	1325					1330					1335				
cag	agg	agg	cgg	gcc	acc	gag	gac	gtg	gtc	tcc	gag	ctg	cag	aac	4059
Gln	Arg	Arg	Arg	Ala	Thr	Glu	Asp	Val	Val	Ser	Glu	Leu	Gln	Asn	
	1340					1345					1350				
cgg	tac	ctg	ctg	ctg	gag	agg	agg	cgg	ccc	gag	gag	agg	gtg	gtg	4104
Arg	Tyr	Leu	Leu	Leu	Glu	Arg	Arg	Arg	Pro	Glu	Glu	Arg	Val	Val	
	1355					1360					1365				
gta	cag	gag	gtg	gtg	gtc	acc	cag	aag	gac	ccg	aag	ctc	cga	gag	4149
Val	Gln	Glu	Val	Val	Val	Thr	Gln	Lys	Asp	Pro	Lys	Leu	Arg	Glu	
	1370					1375					1380				
gac	cac	ggc	cgg	ctg	agc	cag	agc	ctg	gac	gag	gag	gcg	ggc	cgg	4194
Asp	His	Gly	Arg	Leu	Ser	Gln	Ser	Leu	Asp	Glu	Glu	Ala	Gly	Arg	
	1385					1390					1395				
cgg	cgg	cag	ctg	gag	cgg	gag	gtg	cag	cag	ctc	cgg	gct	ggt	gtg	4239
Arg	Arg	Gln	Leu	Glu	Arg	Glu	Val	Gln	Gln	Leu	Arg	Ala	Gly	Val	
	1400					1405					1410				
cag	gag	aag	gag	agc	ctg	ctc	agc	ttc	cag	gag	gac	cgg	acc	aag	4284
Gln	Glu	Lys	Glu	Ser	Leu	Leu	Ser	Phe	Gln	Glu	Asp	Arg	Thr	Lys	
	1415					1420					1425				
aag	ctg	gcc	gtg	gag	agg	gag	ctg	cgg	cag	ctg	acc	ctg	cgg	atc	4329
Lys	Leu	Ala	Val	Glu	Arg	Glu	Leu	Arg	Gln	Leu	Thr	Leu	Arg	Ile	
	1430					1435					1440				
cag	gag	ctc	gag	cag	cgg	cct	cct	gcg	gtg	caa	gag	aag	atc	atc	4374
Gln	Glu	Leu	Glu	Gln	Arg	Pro	Pro	Ala	Val	Gln	Glu	Lys	Ile	Ile	
	1445					1450					1455				
atg	gag	gag	gtg	gtc	aag	ctg	gag	aaa	gac	ccg	gat	ctg	gag	aag	4419
Met	Glu	Glu	Val	Val	Lys	Leu	Glu	Lys	Asp	Pro	Asp	Leu	Glu	Lys	
	1460					1465					1470				
tcc	aca	gaa	gcc	ctg	cgg	cag	gac	ctg	gag	cag	gag	aag	acc	cgg	4464
Ser	Thr	Glu	Ala	Leu	Arg	Gln	Asp	Leu	Glu	Gln	Glu	Lys	Thr	Arg	
	1475					1480					1485				
gtg	aca	gag	ctg	cat	cgg	gag	tgc	aag	aac	ctg	cag	gtg	cag	atc	4509
Val	Thr	Glu	Leu	His	Arg	Glu	Cys	Lys	Asn	Leu	Gln	Val	Gln	Ile	
	1490					1495					1500				
gac	gtc	ctc	cag	acc	acg	aaa	tgc	cag	gag	aag	acc	atc	tac	aag	4554
Asp	Val	Leu	Gln	Thr	Thr	Lys	Ser	Gln	Glu	Lys	Thr	Ile	Tyr	Lys	
	1505					1510					1515				
gaa	gtg	atc	cgg	gta	gag	aag	gac	cgg	gtg	ctg	gag	ggc	gag	cgg	4599
Glu	Val	Ile	Arg	Val	Glu	Lys	Asp	Arg	Val	Leu	Glu	Gly	Glu	Arg	
	1520					1525					1530				
tcc	cgg	gcg	tgg	gag	gcg	ctc	aac	cgg	gag	cgc	ggg	gcc	cgg	cag	4644
Ser	Arg	Ala	Trp	Glu	Ala	Leu	Asn	Arg	Glu	Arg	Gly	Ala	Arg	Gln	
	1535					1540					1545				
agc	cgg	gag	gag	gag	gtg	cgg	cac	ctc	cgg	cag	cgg	ctg	gac	ggg	4689
Ser	Arg	Glu	Glu	Glu	Val	Arg	His	Leu	Arg	Gln	Arg	Leu	Asp	Gly	
	1550					1555					1560				
gcc	gag	gcg	ctg	agg	agg	acc	cgg	gcc	cgc	gag	gag	gct	gag	ctc	4734
Ala	Glu	Ala	Leu	Arg	Arg	Thr	Arg	Ala	Arg	Glu	Glu	Ala	Glu	Leu	
	1565					1570					1575				

cag Gln 1580	agg Arg 1580	tcc Ser 1580	cgg Arg 1580	gcc Ala 1580	cag Gln 1585	gcg Ala 1585	gac Asp 1585	cag Gln 1590	gag Glu 1590	cac His 1590	cgg Arg 1590	cag Gln 1590	ctg Leu 1590	cgg Arg 1590	4779
cag Gln 1595	gag Glu 1595	ctg Leu 1595	cgg Arg 1600	gag Glu 1600	ctg Leu 1600	gag Glu 1600	agg Arg 1605	cgg Arg 1605	aag Lys 1605	cag Gln 1605	cag Gln 1605	agg Arg 1605	gcg Ala 1605	ctg Leu 1605	4824
cac His 1610	ctg Leu 1610	cag Gln 1610	gag Glu 1615	gag Glu 1615	gcg Ala 1615	aag Lys 1615	ctg Leu 1615	ctc Leu 1620	agc Ser 1620	cag Gln 1620	agg Arg 1620	acg Thr 1620	gac Asp 1620	ggc Gly 1620	4869
gag Glu 1625	cgg Arg 1625	cag Gln 1630	aag Lys 1630	gcg Ala 1630	gcc Ala 1630	cag Gln 1630	cgg Arg 1635	ggc Gly 1635	cag Gln 1635	gag Glu 1635	ctc Leu 1635	tcg Ser 1635	cag Gln 1635	ctc Leu 1635	4914
gag Glu 1640	gcg Ala 1640	gcc Ala 1645	atc Ile 1645	ctc Leu 1645	cgc Arg 1645	gag Glu 1645	aag Lys 1650	gac Asp 1650	cag Gln 1650	atc Ile 1650	cac His 1650	gag Glu 1650	aag Lys 1650	gag Glu 1650	4959
agg Arg 1655	acg Thr 1655	ctg Leu 1660	cgc Arg 1660	gac Asp 1660	ctc Leu 1660	cgc Arg 1660	gcc Ala 1665	agg Arg 1665	gtg Val 1665	agc Ser 1665	agg Arg 1665	gag Glu 1665	gag Glu 1665	ctc Leu 1665	5004
aac Asn 1670	cag Gln 1670	gag Glu 1675	acc Thr 1675	cag Gln 1675	acg Thr 1675	cga Arg 1675	gag Glu 1680	acc Thr 1680	aac Asn 1680	ctc Leu 1680	tcc Ser 1680	acc Thr 1680	aag Lys 1680	atc Ile 1680	5049
tcc Ser 1685	atc Ile 1685	ttg Leu 1690	gaa Glu 1690	ccc Pro 1690	gag Glu 1690	acg Thr 1690	ggg Gly 1695	aag Lys 1695	gac Asp 1695	ctg Leu 1695	tcc Ser 1695	ccg Pro 1695	tat Tyr 1695	gag Glu 1695	5094
gcc Ala 1700	tac Tyr 1700	aag Lys 1705	cag Gln 1705	ggc Gly 1705	atc Ile 1705	atc Ile 1705	gat Asp 1710	cgg Arg 1710	ggc Gly 1710	cag Gln 1710	tac Tyr 1710	ctc Leu 1710	cag Gln 1710	ctc Leu 1710	5139
cag Gln 1715	gag Glu 1715	ctc Leu 1720	gag Glu 1720	tgt Cys 1720	gac Asp 1720	tgg Trp 1720	gag Glu 1725	gag Glu 1725	gtc Val 1725	acc Thr 1725	acc Thr 1725	tcg Ser 1725	ggc Gly 1725	ccc Pro 1725	5184
tgc Cys 1730	ggc Gly 1730	gag Glu 1735	gag Glu 1735	tcc Ser 1735	gtg Val 1735	ctg Leu 1735	ctg Leu 1740	gac Asp 1740	cgc Arg 1740	aag Lys 1740	agc Ser 1740	ggg Gly 1740	aag Lys 1740	cag Gln 1740	5229
tac Tyr 1745	tcc Ser 1745	atc Ile 1750	gag Glu 1750	gcg Ala 1750	gcc Ala 1750	ctg Leu 1750	tac Tyr 1755	tgc Cys 1755	cgg Arg 1755	cgc Arg 1755	atc Ile 1755	tcc Ser 1755	aag Lys 1755	gag Glu 1755	5274
gag Glu 1760	tac Tyr 1760	cac His 1765	ctc Leu 1765	tac Tyr 1765	aag Lys 1765	gac Asp 1765	ggc Gly 1770	cag Gln 1770	ctg Leu 1770	ccc Pro 1770	atc Ile 1770	tcc Ser 1770	gag Glu 1770	ttc Phe 1770	5319
gcg Ala 1775	ctg Leu 1775	ctc Leu 1780	gtg Val 1780	gca Ala 1780	ggg Gly 1780	gag Glu 1780	acc Thr 1785	aag Lys 1785	ccc Pro 1785	tgc Cys 1785	tcc Ser 1785	tcg Ser 1785	ctc Leu 1785	tcc Ser 1785	5364
att Ile 1790	ggc Gly 1790	tcc Ser 1795	atc Ile 1795	atc Ile 1795	tcc Ser 1795	aag Lys 1795	tcc Ser 1800	cca Pro 1800	ctc Leu 1800	gcc Ala 1800	tcc Ser 1800	cca Pro 1800	gcc Ala 1800	acc Thr 1800	5409
cag Gln 1805	ggc Gly 1805	tcc Ser 1810	ggt Gly 1810	ttc Phe 1810	ttc Phe 1810	tcc Ser 1810	agc Ser 1815	ggc Gly 1815	tcc Ser 1815	ctt Leu 1815	ggg Gly 1815	ctc Leu 1815	agc Ser 1815	gat Asp 1815	5454
gac Asp 1820	agc Ser 1820	ttc Phe 1825	ccc Pro 1825	atc Ile 1825	gct Ala 1825	ggc Gly 1825	atc Ile 1830	tat Tyr 1830	gac Asp 1830	acg Thr 1830	acc Thr 1830	acg Thr 1830	gac Asp 1830	aac Asn 1830	5499
aaa Lys 1835	tgc Cys 1835	agc Ser 1840	atc Ile 1840	aag Lys 1840	acg Thr 1840	gcc Ala 1840	atg Met 1845	gcc Ala 1845	aag Lys 1845	aac Asn 1845	atg Met 1845	ctg Leu 1845	gac Asp 1845	ccc Pro 1845	5544



atc acg ggg cag aag ctg ctg gag gcc cag gcg gcc	5589
Ile Thr Gly Gln Lys Leu Leu Glu Ala Gln Ala Ala Thr Gly Gly	
1850 1855 1860	
atc gtg gac ctc ctc agc cgg gag cgc tac tcc gtg cac aag gcc	5634
Ile Val Asp Leu Leu Ser Arg Glu Arg Tyr Ser Val His Lys Ala	
1865 1870 1875	
atg gaa agg ggg ctg atc gag aac acc tcg aca cag agg ctg ctc	5679
Met Glu Arg Gly Leu Ile Glu Asn Thr Ser Thr Gln Arg Leu Leu	
1880 1885 1890	
aac gcc cag aag gcc ttc acc ggc atc gag gat ccc gtc acc agg	5724
Asn Ala Gln Lys Ala Phe Thr Gly Ile Glu Asp Pro Val Thr Arg	
1895 1900 1905	
aag agg ctg tcg gtg ggc gag gcc gtg cag aag ggc tgg atg ccg	5769
Lys Arg Leu Ser Val Gly Glu Ala Val Gln Lys Gly Trp Met Pro	
1910 1915 1920	
cgg gag agc gtg ctc cca cac ctg cag gtc cag cac ctg acc ggg	5814
Arg Glu Ser Val Leu Pro His Leu Gln Val Gln His Leu Thr Gly	
1925 1930 1935	
gga ctc atc gac ccc aag agg acc ggc cgc atc cct gtc cct cag	5859
Gly Leu Ile Asp Pro Lys Arg Thr Gly Arg Ile Pro Val Pro Gln	
1940 1945 1950	
gcc gtg ctc tcc gga atg atc agt gaa gag ctg gcc cag ctc ctg	5904
Ala Val Leu Ser Gly Met Ile Ser Glu Glu Leu Ala Gln Leu Leu	
1955 1960 1965	
cag gat gag tcc ggc tat gag aag gat ttg aca gac ccc atc tcc	5949
Gln Asp Glu Ser Gly Tyr Glu Lys Asp Leu Thr Asp Pro Ile Ser	
1970 1975 1980	
agg gag cgg atg agc tac aag gag gcc atg ggg cgc tgc cgg aga	5994
Arg Glu Arg Met Ser Tyr Lys Glu Ala Met Gly Arg Cys Arg Arg	
1985 1990 1995	
gac ccc ctg agc ggc ctg ctg ctg ctc cca gcc acg ctg gag ggg	6039
Asp Pro Leu Ser Gly Leu Leu Leu Leu Pro Ala Thr Leu Glu Gly	
2000 2005 2010	
tac cac tgc tac cgc tcc gcc tcc ccc agg gcg ctg cgc tcc ctg	6084
Tyr His Cys Tyr Arg Ser Ala Ser Pro Arg Ala Leu Arg Ser Leu	
2015 2020 2025	
cgc	6087
Arg	

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 <212> PRT  
 <213> Canis familiaris

<400> 96

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

Gly Ser Ser Ala Lys Gly Ser Pro Ser Lys His Ser Arg Ala Ala Thr
20 25 30

Gln Glu Leu Ala Leu Leu Ile Ser Arg Met Gln Ala Asn Ala Asp Gln
35 40 45

Val	Glu	Arg	Asp	Ile	Leu	Glu	Thr	Gln	Lys	Arg	Leu	Gln	Gln	Asp	Arg	50	55	60	
Leu	His	Ser	Glu	Gln	Ser	Gln	Ala	Leu	Gln	His	Arg	Gln	Glu	Val	Gly	65	70	75	80
Arg	Ser	Leu	Lys	Glu	Ala	Glu	Val	Leu	Leu	Lys	Asp	Leu	Phe	Leu	Asp	85	90	95	
Val	Asp	Lys	Ala	Arg	Arg	Leu	Lys	His	Pro	Gln	Ala	Glu	Glu	Ile	Glu	100	105	110	
Lys	Asp	Ile	Lys	Gln	Leu	His	Glu	Arg	Val	Thr	Gln	Glu	Cys	Ala	Glu	115	120	125	
Tyr	Arg	Ala	Leu	Tyr	Glu	Lys	Ile	Val	Leu	Pro	Pro	Asp	Val	Gly	Pro	130	135	140	
Arg	Val	Asp	Trp	Ala	Arg	Val	Leu	Glu	Gln	Lys	Gln	Lys	Gln	Val	Cys	145	150	155	160
Glu	Gly	Gln	Tyr	Gly	Pro	Gly	Met	Ala	Glu	Leu	Glu	Gln	Gln	Ile	Ala	165	170	175	
Glu	His	Asn	Ile	Leu	Gln	Lys	Glu	Ile	Glu	Ala	Tyr	Gly	Gln	Gln	Leu	180	185	190	
Arg	Asn	Leu	Ile	Gly	Pro	Asp	Ala	Ala	Thr	Ile	Arg	Ser	Gln	Tyr	Arg	195	200	205	
Asp	Leu	Leu	Lys	Ala	Ala	Ser	Trp	Arg	Gly	Gln	Ser	Leu	Gly	Ser	Leu	210	215	220	
Tyr	Thr	His	Leu	Gln	Gly	Cys	Thr	Arg	Gln	Leu	Ser	Ala	Leu	Ala	Gln	225	230	235	240
Gln	Gln	Gln	Gly	Ile	Leu	Gln	Gln	Asp	Trp	Ser	Asp	Leu	Leu	Ala	Asp	245	250	255	
Pro	Gln	Gly	Val	Arg	Arg	Glu	Tyr	Glu	His	Phe	Lys	Gln	Gln	Glu	Leu	260	265	270	
Leu	Ser	Gln	Glu	Gln	Ser	Val	Asn	Gln	Leu	Glu	Asp	Asp	Gly	Glu	Arg	275	280	285	
Met	Val	Glu	Leu	Gly	His	Pro	Ala	Val	Gly	Pro	Ile	Gln	Thr	His	Gln	290	295	300	
Glu	Ala	Leu	Lys	Met	Glu	Trp	Gln	Asn	Phe	Leu	Asn	Leu	Cys	Ile	Cys	305	310	315	320
Gln	Glu	Ser	Gln	Leu	Gln	His	Val	Glu	Ala	Tyr	His	Arg	Phe	Gln	Glu	325	330	335	

Glu	Ala	Asp	Ser	Val	Ser	Gln	Thr	Leu	Ala	Lys	Leu	Asn	Ser	Ser	Leu	
			340					345					350			
Asp	Thr	Gln	Tyr	Ser	Pro	Ala	Pro	Gly	Ala	Pro	Pro	Gly	Ala	Leu	Thr	
		355					360					365				
Glu	Leu	Leu	Gln	Gln	Leu	Glu	Ala	Glu	Lys	Lys	His	Leu	Ala	Val	Thr	
	370					375					380					
Glu	Lys	Thr	Ile	Arg	Asp	Leu	Gln	Arg	Gln	Ser	Gln	Gln	Val	Ala	Pro	
385					390					395					400	
Leu	Gln	Gln	Arg	Arg	Asn	Pro	Pro	Gln	Gln	Pro	Leu	His	Val	Asp	Ser	
				405					410					415		
Ile	Cys	Asp	Trp	Asp	Ser	Gly	Glu	Val	Gln	Leu	Leu	Arg	Gly	Glu	Arg	
			420					425					430			
Tyr	Leu	Leu	Met	Asp	Asn	Thr	Asp	Gln	His	Thr	Trp	Val	Val	Gln	Gly	
	435						440					445				
Pro	Asp	Gly	Glu	Thr	Lys	Arg	Ala	Pro	Ala	Ala	Cys	Phe	Cys	Ile	Pro	
	450					455					460					
Ala	Pro	Asp	Pro	Asp	Ala	Val	Ala	Arg	Ala	Ser	Lys	Leu	Ala	Ser	Glu	
465					470					475					480	
Leu	Gln	Ala	Leu	Lys	Gln	Lys	Leu	Ala	Ala	Val	Gln	Ser	Glu	Leu	Thr	
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Ala	Cys	Ala	Glu	Gln	Pro	Leu	Gln	Thr	Ser	Gln	Gln	Ala	Pro	Thr	Gly	
			500					505					510			
Ser	Ala	Pro	Glu	Asp	Pro	Gln	Ala	Gln	Lys	Leu	Leu	Thr	Gln	Met	Thr	
	515						520					525				
Gln	Leu	Asp	Gly	Asp	Leu	Lys	Gln	Ile	Glu	Arg	Gln	Val	Leu	Ala	Trp	
	530					535					540					
Ala	Arg	Thr	Pro	Leu	Ser	Arg	Thr	Thr	Pro	Leu	Glu	Asp	Leu	Glu	Gly	
545					550					555					560	
Arg	Ile	Gln	Ser	His	Lys	Glu	Thr	Ala	Gln	Arg	Leu	Gln	Gly	Leu	Gly	
				565					570					575		
Ala	Glu	Lys	Glu	Thr	Ala	Gln	Gln	Glu	Cys	Glu	Ala	Leu	Leu	Ser	Ala	
			580					585					590			
Arg	Pro	Gly	Gly	Pro	Ala	Ala	Leu	Gln	Leu	Pro	Val	Ala	Leu	Asn	Ser	
		595					600					605				
Val	Lys	Asn	Lys	Tyr	Ser	Asp	Val	Gln	Ile	Leu	Cys	Asn	Leu	Tyr	Gly	
	610					615					620					

Glu	Lys	Ala	Arg	Ala	Ala	Leu	Gly	Leu	Glu	Arg	Arg	Ile	Gln	Asp	Ala	
625					630					635					640	
Asp	Arg	Val	Ile	Arg	Gly	Phe	Glu	Ser	Thr	Val	Ala	Gln	Glu	Gly	Pro	
				645					650					655		
Ile	Pro	Ala	Ser	Pro	Gly	Ala	Leu	Gln	Glu	Arg	Val	Asn	Glu	Leu	Gln	
			660					665					670			
Arg	Leu	Arg	Arg	Glu	Leu	Leu	Glu	Lys	Gln	Ala	Cys	Val	Leu	Gly	Leu	
		675					680					685				
His	Arg	Glu	Leu	Lys	Ala	Thr	Glu	His	Ala	Cys	Ser	Ala	Leu	Gln	Asn	
		690				695					700					
Asn	Phe	Gln	Glu	Phe	Cys	Gln	Asp	Leu	Pro	Arg	Gln	Gln	Arg	Gln	Ala	
705					710					715					720	
Arg	Ala	Leu	Thr	Asp	Arg	Tyr	His	Ala	Val	Gly	Asp	Gln	Leu	Asp	Leu	
				725					730					735		
Arg	Glu	Lys	Met	Leu	Gln	Asp	Val	Gly	Leu	Thr	Tyr	Gln	Gln	Phe	Lys	
			740					745						750		
Asn	Tyr	Leu	Asp	Asn	Leu	Ser	Phe	Trp	Leu	Glu	Asn	Leu	Pro	Arg	Asn	
		755					760					765				
Glu	Val	Arg	Pro	Ser	Asp	Gly	Pro	Ser	Gln	Leu	Ala	Tyr	Lys	Leu	Gln	
	770					775					780					
Ala	Gln	Lys	Arg	Leu	Gln	Gln	Glu	Ile	Gln	Gly	Arg	Glu	Gln	Asp	Arg	
785					790					795					800	
Ala	Met	Ala	Ser	Arg	Leu	Ser	Gln	Asp	Leu	Gln	Ala	Ala	Leu	Gln	Asp	
				805					810					815		
Tyr	Glu	Leu	Gln	Ala	Asp	Thr	Tyr	Arg	Cys	Ser	Leu	Glu	Thr	Thr	Thr	
			820					825					830			
Gln	Ala	Gly	Ser	Ala	Pro	Lys	Arg	Pro	Arg	Val	Ala	Pro	Leu	Gln	Glu	
		835					840					845				
Ser	Ile	Gln	Glu	Gln	Glu	Lys	Ser	Leu	Thr	Lys	Ala	Tyr	Thr	Glu	Val	
		850				855					860					
Ala	Ala	Ala	His	Gln	Gln	Gln	Leu	His	Gln	Leu	Glu	Phe	Ala	Arg	Arg	
865					870					875					880	
Met	Leu	Glu	Lys	Lys	Glu	Leu	Ser	Glu	Asp	Val	Gln	Val	Thr	His	Asp	
				885					890					895		
Ala	Gln	Gln	Gly	Ser	Glu	Ser	Pro	Ala	Gln	Ala	Arg	Lys	Glu	Ser	Glu	
			900					905					910			

Ala Leu Lys Ser Gln Leu Glu Glu Glu Arg Lys Arg Val Ala Gln Val  
915 920 925

Gln Gln Gln Leu Glu Glu Gln Arg Asn Gln Leu Leu Gln Leu Arg Thr  
930 935 940

Gln Arg Pro Leu Glu Arg Leu Glu Glu Lys Glu Val Val Glu Phe Tyr  
945 950 955 960

Arg Asp Pro Gln Leu Glu Ser Ser Leu Ser Arg Val Lys Ser Gln Val  
965 970 975

Glu Glu Glu Gly Lys Lys Arg Ala Gly Leu Gln Ala Asp Leu Glu Ala  
980 985 990

Ala Ala Gln Lys Val Val Gln Leu Glu Ser Lys Lys Arg Ala Met Gln  
995 1000 1005

Pro His Leu Leu Thr Lys Glu Val Thr Gln Ile Glu Arg Asp Pro  
1010 1015 1020

Asp Leu Glu Ser Gln Ala Ala Gln Leu Ser Ser Glu Ile Leu Gln  
1025 1030 1035

Leu Arg Gly Glu Asn Ala Thr Val Ser Ala Arg Leu Glu Val Leu  
1040 1045 1050

Lys Lys Glu Leu Leu Ala Leu Glu Gln Lys Glu Pro Asn Val Lys  
1055 1060 1065

Glu Arg Val Val Val Lys Glu Val Val Lys Val Glu Lys Asp Leu  
1070 1075 1080

Glu Met Leu Lys Ala Ala Gln Ala Leu Arg Leu Gln Leu Glu Glu  
1085 1090 1095

Asp Ser Ala Arg Arg Lys Gly Ala Glu Glu Ala Val Ala Lys Leu  
1100 1105 1110

Arg Ala Arg Ile Glu Glu Leu Glu Arg Ala Ile Gly Ala Val Glu  
1115 1120 1125

Pro Lys Val Ile Val Lys Glu Val Lys Lys Val Glu Gln Asp Leu  
1130 1135 1140

Gly Leu Leu Glu Glu Ala Ser Arg Leu Arg Asn Leu Leu Glu Glu  
1145 1150 1155

Ala Arg Ser Arg Asn Ala Thr Leu Ala Arg Glu Leu Glu Asp Val  
1160 1165 1170

Arg Gly Lys Tyr Ser Val Val Glu Lys Gln Lys Pro Lys Val Glu  
1175 1180 1185

Leu	Gln	Glu	Arg	Ile	His	Glu	Thr	Phe	Gln	Val	Ala	Pro	Glu	Thr
1190						1195					1200			
Gln	Gln	Glu	Ile	Ala	Arg	Leu	Arg	Ala	Gln	Leu	Gln	Asp	Thr	Ala
1205						1210					1215			
Ser	Arg	Arg	Ser	Gly	Val	Glu	Lys	Glu	Leu	Glu	Gly	Leu	Leu	Pro
1220						1225					1230			
Glu	Leu	Ala	Ala	Leu	Arg	Ala	Gln	Lys	Pro	Ala	Val	Glu	Tyr	Lys
1235						1240					1245			
Gln	Val	Thr	Gln	Glu	Val	Val	Lys	His	Glu	Arg	Ser	Pro	Glu	Val
1250						1255					1260			
Leu	Arg	Glu	Ile	Asp	Arg	Leu	Lys	Ala	Gln	Leu	Asn	Glu	Leu	Val
1265						1270					1275			
Asn	Gly	Ser	Gly	Arg	Ala	Gln	Glu	Gln	Leu	Ile	Arg	Leu	Gln	Gly
1280						1285					1290			
Glu	Arg	Asp	Glu	Trp	Arg	Arg	Glu	Arg	Ser	Lys	Val	Glu	Thr	Lys
1295						1300					1305			
Thr	Val	Asn	Lys	Glu	Val	Val	Arg	His	Glu	Lys	Asp	Pro	Val	Leu
1310						1315					1320			
Glu	Lys	Glu	Ala	Glu	Arg	Leu	Arg	Gln	Glu	Val	Arg	Glu	Ala	Thr
1325						1330					1335			
Gln	Arg	Arg	Arg	Ala	Thr	Glu	Asp	Val	Val	Ser	Glu	Leu	Gln	Asn
1340						1345					1350			
Arg	Tyr	Leu	Leu	Leu	Glu	Arg	Arg	Arg	Pro	Glu	Glu	Arg	Val	Val
1355						1360					1365			
Val	Gln	Glu	Val	Val	Val	Thr	Gln	Lys	Asp	Pro	Lys	Leu	Arg	Glu
1370						1375					1380			
Asp	His	Gly	Arg	Leu	Ser	Gln	Ser	Leu	Asp	Glu	Glu	Ala	Gly	Arg
1385						1390					1395			
Arg	Arg	Gln	Leu	Glu	Arg	Glu	Val	Gln	Gln	Leu	Arg	Ala	Gly	Val
1400						1405					1410			
Gln	Glu	Lys	Glu	Ser	Leu	Leu	Ser	Phe	Gln	Glu	Asp	Arg	Thr	Lys
1415						1420					1425			
Lys	Leu	Ala	Val	Glu	Arg	Glu	Leu	Arg	Gln	Leu	Thr	Leu	Arg	Ile
1430						1435					1440			
Gln	Glu	Leu	Glu	Gln	Arg	Pro	Pro	Ala	Val	Gln	Glu	Lys	Ile	Ile
1445						1450					1455			

Met	Glu	Glu	Val	Val	Lys	Leu	Glu	Lys	Asp	Pro	Asp	Leu	Glu	Lys
1460						1465					1470			
Ser	Thr	Glu	Ala	Leu	Arg	Gln	Asp	Leu	Glu	Gln	Glu	Lys	Thr	Arg
1475						1480					1485			
Val	Thr	Glu	Leu	His	Arg	Glu	Cys	Lys	Asn	Leu	Gln	Val	Gln	Ile
1490						1495					1500			
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1505						1510					1515			
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1535						1540					1545			
Ser	Arg	Glu	Glu	Glu	Val	Arg	His	Leu	Arg	Gln	Arg	Leu	Asp	Gly
1550						1555					1560			
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1565						1570					1575			
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1580						1585					1590			
Gln	Glu	Leu	Arg	Glu	Leu	Glu	Arg	Arg	Lys	Gln	Gln	Arg	Ala	Leu
1595						1600					1605			
His	Leu	Gln	Glu	Glu	Ala	Lys	Leu	Leu	Ser	Gln	Arg	Thr	Asp	Gly
1610						1615					1620			
Glu	Arg	Gln	Lys	Ala	Ala	Gln	Arg	Gly	Gln	Glu	Leu	Ser	Gln	Leu
1625						1630					1635			
Glu	Ala	Ala	Ile	Leu	Arg	Glu	Lys	Asp	Gln	Ile	His	Glu	Lys	Glu
1640						1645					1650			
Arg	Thr	Leu	Arg	Asp	Leu	Arg	Ala	Arg	Val	Ser	Arg	Glu	Glu	Leu
1655						1660					1665			
Asn	Gln	Glu	Thr	Gln	Thr	Arg	Glu	Thr	Asn	Leu	Ser	Thr	Lys	Ile
1670						1675					1680			
Ser	Ile	Leu	Glu	Pro	Glu	Thr	Gly	Lys	Asp	Leu	Ser	Pro	Tyr	Glu
1685						1690					1695			
Ala	Tyr	Lys	Gln	Gly	Ile	Ile	Asp	Arg	Gly	Gln	Tyr	Leu	Gln	Leu
1700						1705					1710			
Gln	Glu	Leu	Glu	Cys	Asp	Trp	Glu	Glu	Val	Thr	Thr	Ser	Gly	Pro
1715						1720					1725			

Cys	Gly	Glu	Glu	Ser	Val	Leu	Leu	Asp	Arg	Lys	Ser	Gly	Lys	Gln
1730						1735					1740			
Tyr	Ser	Ile	Glu	Ala	Ala	Leu	Tyr	Cys	Arg	Arg	Ile	Ser	Lys	Glu
1745						1750					1755			
Glu	Tyr	His	Leu	Tyr	Lys	Asp	Gly	Gln	Leu	Pro	Ile	Ser	Glu	Phe
1760						1765					1770			
Ala	Leu	Leu	Val	Ala	Gly	Glu	Thr	Lys	Pro	Cys	Ser	Ser	Leu	Ser
1775						1780					1785			
Ile	Gly	Ser	Ile	Ile	Ser	Lys	Ser	Pro	Leu	Ala	Ser	Pro	Ala	Thr
1790						1795					1800			
Gln	Gly	Ser	Gly	Phe	Phe	Ser	Ser	Gly	Ser	Leu	Gly	Leu	Ser	Asp
1805						1810					1815			
Asp	Ser	Phe	Pro	Ile	Ala	Gly	Ile	Tyr	Asp	Thr	Thr	Thr	Asp	Asn
1820						1825					1830			
Lys	Cys	Ser	Ile	Lys	Thr	Ala	Met	Ala	Lys	Asn	Met	Leu	Asp	Pro
1835						1840					1845			
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1850						1855					1860			
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1865						1870					1875			
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1880						1885					1890			
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1895						1900					1905			
Lys	Arg	Leu	Ser	Val	Gly	Glu	Ala	Val	Gln	Lys	Gly	Trp	Met	Pro
1910						1915					1920			
Arg	Glu	Ser	Val	Leu	Pro	His	Leu	Gln	Val	Gln	His	Leu	Thr	Gly
1925						1930					1935			
Gly	Leu	Ile	Asp	Pro	Lys	Arg	Thr	Gly	Arg	Ile	Pro	Val	Pro	Gln
1940						1945					1950			
Ala	Val	Leu	Ser	Gly	Met	Ile	Ser	Glu	Glu	Leu	Ala	Gln	Leu	Leu
1955						1960					1965			
Gln	Asp	Glu	Ser	Gly	Tyr	Glu	Lys	Asp	Leu	Thr	Asp	Pro	Ile	Ser
1970						1975					1980			
Arg	Glu	Arg	Met	Ser	Tyr	Lys	Glu	Ala	Met	Gly	Arg	Cys	Arg	Arg
1985						1990					1995			



Asp Pro Leu Ser Gly Leu Leu Leu Leu Pro Ala Thr Leu Glu Gly  
2000 2005 2010

Tyr His Cys Tyr Arg Ser Ala Ser Pro Arg Ala Leu Arg Ser Leu  
2015 2020 2025

Arg

<210> 97  
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1 5 10 15  
  
cct gag gaa aag ctt gta gta caa gag gta gtg cgt cta caa aag gat 96  
Pro Glu Glu Lys Leu Val Val Gln Glu Val Val Arg Leu Gln Lys Asp  
20 25 30  
  
cca agg cag atc ctt gat cat gac agg tta gga agg agt cta gat gaa 144  
Pro Arg Gln Ile Leu Asp His Asp Arg Leu Gly Arg Ser Leu Asp Glu  
35 40 45  
  
gaa gtg aag aat agg aga aaa cta gaa cta gag gta cag cag ctg aga 192  
Glu Val Lys Asn Arg Arg Lys Leu Glu Leu Glu Val Gln Gln Leu Arg  
50 55 60  
  
gca ctc ata gaa gac aag gaa ata gca atc agg agc agt gat gaa aag 240  
Ala Leu Ile Glu Asp Lys Glu Ile Ala Ile Arg Ser Ser Asp Glu Lys  
65 70 75 80  
  
caa aaa aag att cag gtg gaa act gag ctg aga caa att aaa tcc aga 288  
Gln Lys Lys Ile Gln Val Glu Thr Glu Leu Arg Gln Ile Lys Ser Arg  
85 90 95  
  
att cat gag cta gaa act gcc cca cct cct att gaa gag aac ata gtc 336  
Ile His Glu Leu Glu Thr Ala Pro Pro Pro Ile Glu Glu Asn Ile Val  
100 105 110  
  
ata gag gaa gtt cta aaa gtt gag agg gat cca aaa ctt gat aaa ctg 384  
Ile Glu Glu Val Leu Lys Val Glu Arg Asp Pro Lys Leu Asp Lys Leu  
115 120 125  
  
aca aat ggt ctt cgc aca gat atg gat aaa gaa agc agc gac att atg 432  
Thr Asn Gly Leu Arg Thr Asp Met Asp Lys Glu Ser Ser Asp Ile Met  
130 135 140  
  
cgt cta gaa aga gat atc agg aaa ttg gca ctt gat att gaa atc ttg 480  
Arg Leu Glu Arg Asp Ile Arg Lys Leu Ala Leu Asp Ile Glu Ile Leu  
145 150 155 160  
  
cag cga gag aag tca gtt gag aag acc atc tat aaa gag gtt gtt cgt 528  
Gln Arg Glu Lys Ser Val Glu Lys Thr Ile Tyr Lys Glu Val Val Arg  
165 170 175  
  
gta gag aaa gat caa gca ctt gaa gca gaa cga tcc cac ctt aga gac 576  
Val Glu Lys Asp Gln Ala Leu Glu Ala Glu Arg Ser His Leu Arg Asp  
180 185 190

cag ttc ctt cag gag aaa aat gtc aga cga gac ctt gag gat aaa ctc Gln Phe Leu Gln Glu Lys Asn Val Arg Arg Asp Leu Glu Asp Lys Leu 195 200 205	624
cat cgt cta caa gag aaa cta cag caa caa gca agc aaa aaa acg gca His Arg Leu Gln Glu Lys Leu Gln Gln Gln Ala Ser Lys Lys Thr Ala 210 215 220	672
atg tcg ctg gag gag acc aac cta gtt cat gat cgg gac aag ctg caa Met Ser Leu Glu Glu Thr Asn Leu Val His Asp Arg Asp Lys Leu Gln 225 230 235 240	720
aga gaa aaa gaa aac ctt cag aga gaa ctg aga tca ttg gaa tct gaa Arg Glu Lys Glu Asn Leu Gln Arg Glu Leu Arg Ser Leu Glu Ser Glu 245 250 255	768
aga caa aac atc acc atc tcc ttc caa cag cat tct agg ctg atg agt Arg Gln Asn Ile Thr Ile Ser Phe Gln Gln His Ser Arg Leu Met Ser 260 265 270	816
gaa aga aac caa atg aac agg caa aga agc att aaa atg gaa tca gat Glu Arg Asn Gln Met Asn Arg Gln Arg Ser Ile Lys Met Glu Ser Asp 275 280 285	864
ggt cag agg ctg gaa agg gat atc ctt gat gaa aaa gac aaa att cac Gly Gln Arg Leu Glu Arg Asp Ile Leu Asp Glu Lys Asp Lys Ile His 290 295 300	912
aaa cga gat aac ata att agg gag ctg aag aac agt tta cag aag gag Lys Arg Asp Asn Ile Ile Arg Glu Leu Lys Asn Ser Leu Gln Lys Glu 305 310 315 320	960
gac tcc tct gag atg cgc aca aaa gaa gtc aat gtt tcc aca aag ata Asp Ser Ser Glu Met Arg Thr Lys Glu Val Asn Val Ser Thr Lys Ile 325 330 335	1008
agc atc ttg gac ccc aac act gga aaa gat atg tca cca tat gat gcc Ser Ile Leu Asp Pro Asn Thr Gly Lys Asp Met Ser Pro Tyr Asp Ala 340 345 350	1056
tat agg caa ggc ttc ctc gat cgc aac aaa tac ttg cag tta caa gaa Tyr Arg Gln Gly Phe Leu Asp Arg Asn Lys Tyr Leu Gln Leu Gln Glu 355 360 365	1104
atg gag tgt gac tgg gag gaa atc act aca atg gca cct gat gat gag Met Glu Cys Asp Trp Glu Glu Ile Thr Thr Met Ala Pro Asp Asp Glu 370 375 380	1152
ata ttg gtt ttg caa gat cgc aag agt ggg aaa cag tac tcc atc aaa Ile Leu Val Leu Gln Asp Arg Lys Ser Gly Lys Gln Tyr Ser Ile Lys 385 390 395 400	1200
act gca cta aaa gaa ggc aag gtg acc aaa tac caa cta caa cag tat Thr Ala Leu Lys Glu Gly Lys Val Thr Lys Tyr Gln Leu Gln Gln Tyr 405 410 415	1248
aag gat ggc aaa atg tct att tca gag ttt gct ctt ctt gta gct ggg Lys Asp Gly Lys Met Ser Ile Ser Glu Phe Ala Leu Leu Val Ala Gly 420 425 430	1296
gaa aaa aaa tca tcg tca tac act cca cac ttc aac agc caa ttg aat Glu Lys Lys Ser Ser Ser Tyr Thr Pro His Phe Asn Ser Gln Leu Asn 435 440 445	1344
caa cag ctt aaa gaa gag ttt cct ata tgt ggt gta tat gat gta cac Gln Gln Leu Lys Glu Glu Phe Pro Ile Cys Gly Val Tyr Asp Val His 450 455 460	1392
aca gat tca tgt gta aat gtg cgc agt gcc atg agt cga aag ttg att Thr Asp Ser Cys Val Asn Val Arg Ser Ala Met Ser Arg Lys Leu Ile 465 470 475 480	1440

gac acc aac act gcc caa aag ctt ctt gaa gca caa gct gcc act gga Asp Thr Asn Thr Ala Gln Lys Leu Leu Glu Ala Gln Ala Ala Thr Gly 485 490 495	1488
ggt att gtg gac atc agc aat gga ata aaa tat tcg gta cac aaa gca Gly Ile Val Asp Ile Ser Asn Gly Ile Lys Tyr Ser Val His Lys Ala 500 505 510	1536
gct gat cga ggt ctg att gag tct agt cag cta cag agg tta cta aat Ala Asp Arg Gly Leu Ile Glu Ser Ser Gln Leu Gln Arg Leu Leu Asn 515 520 525	1584
gct caa aag gcc ttc acc gga gtt gag gat cct atg acc aaa gaa cgt Ala Gln Lys Ala Phe Thr Gly Val Glu Asp Pro Met Thr Lys Glu Arg 530 535 540	1632
ctg tcg gtc gga gag gct gta caa aaa ggc tgg atg ccc aaa gaa aat Leu Ser Val Gly Glu Ala Val Gln Lys Gly Trp Met Pro Lys Glu Asn 545 550 555 560	1680
gcc atg aga tac atg gag gca caa ttt ctg aca ggc ggg ttg gtc aac Ala Met Arg Tyr Met Glu Ala Gln Phe Leu Thr Gly Gly Leu Val Asn 565 570 575	1728
ccc aac aaa gca gga aga gtt aac att gtg gat gca gtc agc tct aag Pro Asn Lys Ala Gly Arg Val Asn Ile Val Asp Ala Val Ser Ser Lys 580 585 590	1776
atg att gac agt aca atg atg aga gag ctt cag gaa gag atc aat tat Met Ile Asp Ser Thr Met Met Arg Glu Leu Gln Glu Glu Ile Asn Tyr 595 600 605	1824
gca aaa gag ctg act gat cca atc aca aag gaa aag atc aac tac aaa Ala Lys Glu Leu Thr Asp Pro Ile Thr Lys Glu Lys Ile Asn Tyr Lys 610 615 620	1872
cag gct ttg gct cgt tgt aag ata gac cca ctc tca ggc ctt ccg atg Gln Ala Leu Ala Arg Cys Lys Ile Asp Pro Leu Ser Gly Leu Pro Met 625 630 635 640	1920
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Pro Arg Gln Ile Leu Asp His Asp Arg Leu Gly Arg Ser Leu Asp Glu 35 40 45	
Glu Val Lys Asn Arg Arg Lys Leu Glu Leu Glu Val Gln Gln Leu Arg 50 55 60	
Ala Leu Ile Glu Asp Lys Glu Ile Ala Ile Arg Ser Ser Asp Glu Lys 65 70 75 80	

Gln	Lys	Lys	Ile	Gln	Val	Glu	Thr	Glu	Leu	Arg	Gln	Ile	Lys	Ser	Arg			85	90	95	
Ile	His	Glu	Leu	Glu	Thr	Ala	Pro	Pro	Pro	Ile	Glu	Glu	Asn	Ile	Val			100	105	110	
Ile	Glu	Glu	Val	Leu	Lys	Val	Glu	Arg	Asp	Pro	Lys	Leu	Asp	Lys	Leu			115	120	125	
Thr	Asn	Gly	Leu	Arg	Thr	Asp	Met	Asp	Lys	Glu	Ser	Ser	Asp	Ile	Met			130	135	140	
Arg	Leu	Glu	Arg	Asp	Ile	Arg	Lys	Leu	Ala	Leu	Asp	Ile	Glu	Ile	Leu			145	150	155	160
Gln	Arg	Glu	Lys	Ser	Val	Glu	Lys	Thr	Ile	Tyr	Lys	Glu	Val	Val	Arg			165	170	175	
Val	Glu	Lys	Asp	Gln	Ala	Leu	Glu	Ala	Glu	Arg	Ser	His	Leu	Arg	Asp			180	185	190	
Gln	Phe	Leu	Gln	Glu	Lys	Asn	Val	Arg	Arg	Asp	Leu	Glu	Asp	Lys	Leu			195	200	205	
His	Arg	Leu	Gln	Glu	Lys	Leu	Gln	Gln	Gln	Ala	Ser	Lys	Lys	Thr	Ala			210	215	220	
Met	Ser	Leu	Glu	Glu	Thr	Asn	Leu	Val	His	Asp	Arg	Asp	Lys	Leu	Gln			225	230	235	240
Arg	Glu	Lys	Glu	Asn	Leu	Gln	Arg	Glu	Leu	Arg	Ser	Leu	Glu	Ser	Glu			245	250	255	
Arg	Gln	Asn	Ile	Thr	Ile	Ser	Phe	Gln	Gln	His	Ser	Arg	Leu	Met	Ser			260	265	270	
Glu	Arg	Asn	Gln	Met	Asn	Arg	Gln	Arg	Ser	Ile	Lys	Met	Glu	Ser	Asp			275	280	285	
Gly	Gln	Arg	Leu	Glu	Arg	Asp	Ile	Leu	Asp	Glu	Lys	Asp	Lys	Ile	His			290	295	300	
Lys	Arg	Asp	Asn	Ile	Ile	Arg	Glu	Leu	Lys	Asn	Ser	Leu	Gln	Lys	Glu			305	310	315	320
Asp	Ser	Ser	Glu	Met	Arg	Thr	Lys	Glu	Val	Asn	Val	Ser	Thr	Lys	Ile			325	330	335	
Ser	Ile	Leu	Asp	Pro	Asn	Thr	Gly	Lys	Asp	Met	Ser	Pro	Tyr	Asp	Ala			340	345	350	
Tyr	Arg	Gln	Gly	Phe	Leu	Asp	Arg	Asn	Lys	Tyr	Leu	Gln	Leu	Gln	Glu			355	360	365	

Met Glu Cys Asp Trp Glu Glu Ile Thr Thr Met Ala Pro Asp Asp Glu  
370 375 380

Ile Leu Val Leu Gln Asp Arg Lys Ser Gly Lys Gln Tyr Ser Ile Lys  
385 390 395 400

Thr Ala Leu Lys Glu Gly Lys Val Thr Lys Tyr Gln Leu Gln Gln Tyr  
405 410 415

Lys Asp Gly Lys Met Ser Ile Ser Glu Phe Ala Leu Leu Val Ala Gly  
420 425 430

Glu Lys Lys Ser Ser Ser Tyr Thr Pro His Phe Asn Ser Gln Leu Asn  
435 440 445

Gln Gln Leu Lys Glu Glu Phe Pro Ile Cys Gly Val Tyr Asp Val His  
450 455 460

Thr Asp Ser Cys Val Asn Val Arg Ser Ala Met Ser Arg Lys Leu Ile  
465 470 475 480

Asp Thr Asn Thr Ala Gln Lys Leu Leu Glu Ala Gln Ala Ala Thr Gly  
485 490 495

Gly Ile Val Asp Ile Ser Asn Gly Ile Lys Tyr Ser Val His Lys Ala  
500 505 510

Ala Asp Arg Gly Leu Ile Glu Ser Ser Gln Leu Gln Arg Leu Leu Asn  
515 520 525

Ala Gln Lys Ala Phe Thr Gly Val Glu Asp Pro Met Thr Lys Glu Arg  
530 535 540

Leu Ser Val Gly Glu Ala Val Gln Lys Gly Trp Met Pro Lys Glu Asn  
545 550 555 560

Ala Met Arg Tyr Met Glu Ala Gln Phe Leu Thr Gly Gly Leu Val Asn  
565 570 575

Pro Asn Lys Ala Gly Arg Val Asn Ile Val Asp Ala Val Ser Ser Lys  
580 585 590

Met Ile Asp Ser Thr Met Met Arg Glu Leu Gln Glu Glu Ile Asn Tyr  
595 600 605

Ala Lys Glu Leu Thr Asp Pro Ile Thr Lys Glu Lys Ile Asn Tyr Lys  
610 615 620

Gln Ala Leu Ala Arg Cys Lys Ile Asp Pro Leu Ser Gly Leu Pro Met  
625 630 635 640

Phe Asn Ala Ser Ser Lys Asn Val  
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<212> DNA  
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ggc tcc cca gct aag ggg tcc cct aag ggc tcc ccc aac aag cac agt 96  
Gly Ser Pro Ala Lys Gly Ser Pro Lys Gly Ser Pro Asn Lys His Ser  
20 25 30  
cgg gct gca acc cag gaa ctg gct ctg ctc atc tct cgc atg caa gcc 144  
Arg Ala Ala Thr Gln Glu Leu Ala Leu Leu Ile Ser Arg Met Gln Ala  
35 40 45  
aat gct gac cag gta gag agg gac att ttg gag act cag aag aag ctg 192  
Asn Ala Asp Gln Val Glu Arg Asp Ile Leu Glu Thr Gln Lys Lys Leu  
50 55 60  
cag caa gtc aac aag aac att ggg gaa ctt gtg gtg agc ctt tgc gcc 240  
Gln Gln Val Asn Lys Asn Ile Gly Glu Leu Val Val Ser Leu Cys Ala  
65 70 75 80  
ctg acc aca tgg gtc atg cct cac cag gat cgg cag aat ggt gca cag 288  
Leu Thr Thr Trp Val Met Pro His Gln Asp Arg Gln Asn Gly Ala Gln  
85 90 95  
aat cag gca cta cag cac cag cag gag acg ggc cgc aac ctg aag gaa 336  
Asn Gln Ala Leu Gln His Gln Gln Glu Thr Gly Arg Asn Leu Lys Glu  
100 105 110  
gcg gag gta ctc ctc aaa gat ctc ttc ctg gat gta gac aag gct cgg 384  
Ala Glu Val Leu Leu Lys Asp Leu Phe Leu Asp Val Asp Lys Ala Arg  
115 120 125  
cgc ctc aag cac cca cag gct gag gag att gag aaa gac atc aag cag 432  
Arg Leu Lys His Pro Gln Ala Glu Glu Ile Glu Lys Asp Ile Lys Gln  
130 135 140  
ctg cac gaa cga gtg acc cag gag tgt gcg gag tat cga gct ctg tat 480  
Leu His Glu Arg Val Thr Gln Glu Cys Ala Glu Tyr Arg Ala Leu Tyr  
145 150 155 160  
gag aag ata gtg ctg ccg ccg gat gtg ggg ccc agg gtc gac tgg aca 528  
Glu Lys Ile Val Leu Pro Pro Asp Val Gly Pro Arg Val Asp Trp Thr  
165 170 175  
cgg gtg ctg gag cag aaa cag aag ctg atc tgt gag ggc cac tat ggg 576  
Arg Val Leu Glu Gln Lys Gln Lys Leu Ile Cys Glu Gly His Tyr Gly  
180 185 190  
cct ggg atg gca gaa ctg gaa cag cag gtg gcc gag cac aac atc ctg 624  
Pro Gly Met Ala Glu Leu Glu Gln Gln Val Ala Glu His Asn Ile Leu  
195 200 205  
cag agg gaa atc gag gct tac ggg cag cag ctg cgg aca ctg gtg gga 672  
Gln Arg Glu Ile Glu Ala Tyr Gly Gln Gln Leu Arg Thr Leu Val Gly  
210 215 220  
ccg gat gca aac gcc atc agg aac caa tac cgt gac cta ctg aag gca 720  
Pro Asp Ala Asn Ala Ile Arg Asn Gln Tyr Arg Asp Leu Leu Lys Ala  
225 230 235 240  
gcc tcg tgg cgc cgg cag agt ctg ggc agc ttg tac aca cac ctg cag 768

Ala	Ser	Trp	Arg	Arg	Gln	Ser	Leu	Gly	Ser	Leu	Tyr	Thr	His	Leu	Gln	
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ggc	tgc	acg	aag	cag	ctg	ggc	gcc	ctg	gcg	gat	caa	caa	ggc	cgc	atc	816
Gly	Cys	Thr	Lys	Gln	Leu	Gly	Ala	Leu	Ala	Asp	Gln	Gln	Gly	Arg	Ile	
			260					265					270			
ctg	cag	cag	gat	tgg	agt	gac	ctc	atg	cct	gac	ccc	gct	ggg	gtg	agg	864
Leu	Gln	Gln	Asp	Trp	Ser	Asp	Leu	Met	Pro	Asp	Pro	Ala	Gly	Val	Arg	
			275					280					285			
cga	gag	tat	gag	cac	ttc	aag	cag	cat	gag	ctg	ctg	gcc	cag	gaa	cag	912
Arg	Glu	Tyr	Glu	His	Phe	Lys	Gln	His	Glu	Leu	Leu	Ala	Gln	Glu	Gln	
			290				295					300				
agt	ata	aac	cag	ttg	gag	gat	gac	gca	gag	cgc	atg	gtc	gag	ctc	ggg	960
Ser	Ile	Asn	Gln	Leu	Glu	Asp	Asp	Ala	Glu	Arg	Met	Val	Glu	Leu	Gly	
305					310					315					320	
cac	ccg	gcc	att	ggg	ccc	atc	cag	gcc	cac	cag	gag	gcc	ctc	aaa	atg	1008
His	Pro	Ala	Ile	Gly	Pro	Ile	Gln	Ala	His	Gln	Glu	Ala	Leu	Lys	Met	
				325					330					335		
gag	tgg	cag	aat	ttc	cta	aac	ctg	tgc	atc	tgt	cag	gag	agc	cag	ctg	1056
Glu	Trp	Gln	Asn	Phe	Leu	Asn	Leu	Cys	Ile	Cys	Gln	Glu	Ser	Gln	Leu	
			340					345					350			
cag	cat	gtg	gag	gac	tac	cga	agg	ttc	cag	gaa	gag	gcc	gac	tca	gcc	1104
Gln	His	Val	Glu	Asp	Tyr	Arg	Arg	Phe	Gln	Glu	Glu	Ala	Asp	Ser	Ala	
			355				360					365				
agc	cag	acc	ctg	gca	aag	ctc	agc	tcc	aac	ctg	gac	acc	aag	tac	agc	1152
Ser	Gln	Thr	Leu	Ala	Lys	Leu	Ser	Ser	Asn	Leu	Asp	Thr	Lys	Tyr	Ser	
			370				375					380				
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Phe	Gly	Ala	Gly	Asp	Ser	Ser	Val	Ser	Pro	Thr	Glu	Leu	Leu	Leu	Gln	
385					390					395					400	
ctg	gag	gca	gag	gag	aag	cag	ctg	gcc	ata	gca	gag	agg	act	att	gga	1248
Leu	Glu	Ala	Glu	Glu	Lys	Gln	Leu	Ala	Ile	Ala	Glu	Arg	Thr	Ile	Gly	
				405				410						415		
gag	ctg	cag	cga	cga	agc	cag	gag	gtg	gcc	ccg	ctg	cca	cag	cgc	agg	1296
Glu	Leu	Gln	Arg	Arg	Ser	Gln	Glu	Val	Ala	Pro	Leu	Pro	Gln	Arg	Arg	
			420					425					430			
aac	cca	ccc	aag	cag	ccc	ctg	cac	gtg	gac	agc	atc	tgt	gac	tgg	gac	1344
Asn	Pro	Pro	Lys	Gln	Pro	Leu	His	Val	Asp	Ser	Ile	Cys	Asp	Trp	Asp	
			435				440					445				
tcc	gga	gaa	gtg	cag	ctg	ctt	cgg	gga	gag	cgg	tac	aca	ctc	aag	gat	1392
Ser	Gly	Glu	Val	Gln	Leu	Leu	Arg	Gly	Glu	Arg	Tyr	Thr	Leu	Lys	Asp	
			450				455				460					
aat	gct	gac	ccc	tac	acc	tgg	gtg	gtt	cag	ggc	cct	gga	gga	gag	acc	1440
Asn	Ala	Asp	Pro	Tyr	Thr	Trp	Val	Val	Gln	Gly	Pro	Gly	Gly	Glu	Thr	
465					470					475					480	
aag	agt	gcc	cca	gct	gcc	tgc	ctc	tgc	atc	cca	gca	cca	gac	cca	gaa	1488
Lys	Ser	Ala	Pro	Ala	Ala	Cys	Leu	Cys	Ile	Pro	Ala	Pro	Asp	Pro	Glu	
				485				490					495			
gct	gta	gcc	aaa	gcc	tcc	agg	ttg	gcc	tcc	gag	ctg	cag	acc	ctg	aag	1536
Ala	Val	Ala	Lys	Ala	Ser	Arg	Leu	Ala	Ser	Glu	Leu	Gln	Thr	Leu	Lys	
			500					505					510			
cag	aag	ctg	tct	aca	gag	aag	agt	cgt	ctc	aag	aat	gct	tca	gca	gag	1584
Gln	Lys	Leu	Ser	Thr	Glu	Lys	Ser	Arg	Leu	Lys	Asn	Ala	Ser	Ala	Glu	
			515				520					525				
cac	tta	cag	cag	ggc	cag	cag	ggt	acc	aga	gga	tgt	cca	ggg	agg	gca	1632

His 530	Leu	Gln	Gln	Gly	Gln	Gln	Gly	Thr	Arg	Gly	Cys	Pro	Gly	Arg	Ala	
						535					540					
ctg	gtg	ggg	ggg	ccg	tgc	cgg	gta	gaa	gct	ccg	gca	ggc	tca	gcc	ccg	1680
Leu	Val	Gly	Gly	Pro	Cys	Arg	Val	Glu	Ala	Pro	Ala	Gly	Ser	Ala	Pro	
545					550					555					560	
gct	gac	cca	cag	gct	cag	aag	ctc	ctg	tca	cag	atg	acc	cag	ctg	gat	1728
Ala	Asp	Pro	Gln	Ala	Gln	Lys	Leu	Leu	Ser	Gln	Met	Thr	Gln	Leu	Asp	
				565					570					575		
ggg	gat	ctg	gga	cag	gta	gag	agg	cag	gtg	ctg	agc	tgg	gct	cgg	agc	1776
Gly	Asp	Leu	Gly	Gln	Val	Glu	Arg	Gln	Val	Leu	Ser	Trp	Ala	Arg	Ser	
			580					585					590			
ccg	ttg	aac	gac	tct	tct	cca	ctg	aag	gac	cta	gag	ggc	cga	atc	cag	1824
Pro	Leu	Asn	Asp	Ser	Ser	Pro	Leu	Lys	Asp	Leu	Glu	Gly	Arg	Ile	Gln	
		595					600					605				
agc	tgt	gag	ggc	acg	gca	cag	cat	ctt	cag	aac	ctg	gga	gct	gag	aag	1872
Ser	Cys	Glu	Gly	Thr	Ala	Gln	His	Leu	Gln	Asn	Leu	Gly	Ala	Glu	Lys	
	610					615					620					
gag	gca	gcc	cag	cag	gag	tgt	gag	gcg	ttt	ctg	tcg	act	aag	cct	aca	1920
Glu	Ala	Ala	Gln	Gln	Glu	Cys	Glu	Ala	Phe	Leu	Ser	Thr	Lys	Pro	Thr	
625					630					635					640	
ggc	tca	gcg	gcc	ctg	cag	ctg	cct	gtg	gtc	ctc	aat	aat	gtc	aag	aac	1968
Gly	Ser	Ala	Ala	Leu	Gln	Leu	Pro	Val	Val	Leu	Asn	Asn	Val	Lys	Asn	
				645					650					655		
aag	tat	agt	gat	gtg	cat	agc	ctg	tgc	tac	ctc	tat	ggg	gag	aaa	gcc	2016
Lys	Tyr	Ser	Asp	Val	His	Ser	Leu	Cys	Tyr	Leu	Tyr	Gly	Glu	Lys	Ala	
			660					665					670			
aag	gct	gct	ctg	ggc	ctg	gag	aag	cag	atc	cag	gag	gca	gat	ggg	atc	2064
Lys	Ala	Ala	Leu	Gly	Leu	Glu	Lys	Gln	Ile	Gln	Glu	Ala	Asp	Gly	Ile	
		675					680					685				
atc	caa	ggc	ttt	gaa	gct	acc	ctg	gca	cag	gag	ggc	ccc	atc	cct	gaa	2112
Ile	Gln	Gly	Phe	Glu	Ala	Thr	Leu	Ala	Gln	Glu	Gly	Pro	Ile	Pro	Glu	
	690					695					700					
ggc	tct	ggg	gca	ctg	cag	gag	agg	gtc	agc	gag	ctg	cag	cgc	cag	cgg	2160
Gly	Ser	Gly	Ala	Leu	Gln	Glu	Arg	Val	Ser	Glu	Leu	Gln	Arg	Gln	Arg	
705					710					715					720	
aaa	gag	ctc	ctc	cag	cag	cag	gcc	tgc	gtg	ttg	ggg	ctg	cac	cgg	cag	2208
Lys	Glu	Leu	Leu	Gln	Gln	Gln	Ala	Cys	Val	Leu	Gly	Leu	His	Arg	Gln	
				725					730					735		
ctg	aag	gcc	gcg	gag	cac	gcg	tgc	ggt	gcg	ctg	cag	aac	aat	ttc	caa	2256
Leu	Lys	Ala	Ala	Glu	His	Ala	Cys	Gly	Ala	Leu	Gln	Asn	Asn	Phe	Gln	
			740					745					750			
gag	ttc	tgc	cag	gac	ctg	ccg	cgc	cag	cag	cgc	caa	gtg	cga	gcc	ctc	2304
Glu	Phe	Cys	Gln	Asp	Leu	Pro	Arg	Gln	Gln	Arg	Gln	Val	Arg	Ala	Leu	
		755					760					765				
acc	gac	cgt	tac	cac	agc	gtg	ggg	gac	cag	ctg	gat	ttg	agg	gag	aag	2352
Thr	Asp	Arg	Tyr	His	Ser	Val	Gly	Asp	Gln	Leu	Asp	Leu	Arg	Glu	Lys	
	770					775					780					
ata	cta	cag	gat	gcc	agc	ctc	acc	cac	cag	cag	ctc	aag	aac	agc	agg	2400
Ile	Leu	Gln	Asp	Ala	Ser	Leu	Thr	His	Gln	Gln	Leu	Lys	Asn	Ser	Arg	
785					790					795					800	
gac	aac	ctg	agc	tcc	tgg	ctg	gag	cag	ctg	ccc	cac	cac	cgt	gtg	cag	2448
Asp	Asn	Leu	Ser	Ser	Trp	Leu	Glu	Gln	Leu	Pro	His	His	Arg	Val	Gln	
				805					810					815		
ccc	agc	gac	ggg	cca	agc	cag	atc	gcc	tac	aag	ctg	caa	gca	cag	aag	2496



Pro Ser Asp Gly Pro Ser Gln Ile Ala Tyr Lys Leu Gln Ala Gln Lys	
820 825 830	
agg ctg ata cag gaa atc ctg ggt cgt gag cag gac cag gcc aca gtg	2544
Arg Leu Ile Gln Glu Ile Leu Gly Arg Glu Gln Asp Gln Ala Thr Val	
835 840 845	
gcc cgc ctc acc cgg gac ctg cag gag gct ctc cag gag tat gag ctg	2592
Ala Arg Leu Thr Arg Asp Leu Gln Glu Ala Leu Gln Glu Tyr Glu Leu	
850 855 860	
cga gca gac acc tac cgc tgc tcc ctg gag ccc acc ttg gcg gtg tcc	2640
Arg Ala Asp Thr Tyr Arg Cys Ser Leu Glu Pro Thr Leu Ala Val Ser	
865 870 875 880	
gcc cct aag aga ctc aga gtg att tcc tta aag gag aac atc cag gct	2688
Ala Pro Lys Arg Leu Arg Val Ile Ser Leu Lys Glu Asn Ile Gln Ala	
885 890 895	
cag gag aag aac ctt act aaa gct tac act gag gtc gcc gca gcg gaa	2736
Gln Glu Lys Asn Leu Thr Lys Ala Tyr Thr Glu Val Ala Ala Ala Glu	
900 905 910	
cag cag cag ctg cac cag ctg gag ttt gct aag aag atg ctg gag aag	2784
Gln Gln Gln Leu His Gln Leu Glu Phe Ala Lys Lys Met Leu Glu Lys	
915 920 925	
aag gag ctc aat gag gac ttc caa gcc atc cac agt gca aga caa gga	2832
Lys Glu Leu Asn Glu Asp Phe Gln Ala Ile His Ser Ala Arg Gln Gly	
930 935 940	
tct ggc agt cca gca cat aca aag aca gag tca gag gtc ctg aag acc	2880
Ser Gly Ser Pro Ala His Thr Lys Thr Glu Ser Glu Val Leu Lys Thr	
945 950 955 960	
cag ctc gag gaa gag agg aaa cgc gtg gct gag gtg cag cgt gaa ctg	2928
Gln Leu Glu Glu Glu Arg Lys Arg Val Ala Glu Val Gln Arg Glu Leu	
965 970 975	
gag gag cgg agg cag cag ctg ctg cag ctg agg acc cag cag cct gtg	2976
Glu Glu Arg Arg Gln Gln Leu Leu Gln Leu Arg Thr Gln Gln Pro Val	
980 985 990	
gct cgg ctg gag gag aag gaa gtg gta gag ttc tac cgg gac ccc cag	3024
Ala Arg Leu Glu Glu Lys Glu Val Val Glu Phe Tyr Arg Asp Pro Gln	
995 1000 1005	
cta aag agt aac gtg ctt cag gca tcg tcc cgg ctg gag gaa gaa	3069
Leu Lys Ser Asn Val Leu Gln Ala Ser Ser Arg Leu Glu Glu Glu	
1010 1015 1020	
ggc aag agg cga gcc cgc cta caa gcc gag ctg gag gtg gtg gcc	3114
Gly Lys Arg Arg Ala Arg Leu Gln Ala Glu Leu Glu Val Val Ala	
1025 1030 1035	
caa aag gtt gtc cac ttg gag ggc aag agg aag gcc atg cag cct	3159
Gln Lys Val Val His Leu Glu Gly Lys Arg Lys Ala Met Gln Pro	
1040 1045 1050	
cac ctg ctg acc aaa gag gtc acc caa att gag agg gac ccc ggc	3204
His Leu Leu Thr Lys Glu Val Thr Gln Ile Glu Arg Asp Pro Gly	
1055 1060 1065	
ctg gac agc cag gtt acc cag ctc cac aat gag atg cag ggg ctg	3249
Leu Asp Ser Gln Val Thr Gln Leu His Asn Glu Met Gln Gly Leu	
1070 1075 1080	
cgt ggg gag aac gcc gtc ctc gca gcc agg ctg gag ggg ctg aag	3294
Arg Gly Glu Asn Ala Val Leu Ala Ala Arg Leu Glu Gly Leu Lys	
1085 1090 1095	
gat gag ttg ctg acc ctg gag cag aag gag ata aat gtg aag gag	3339

Asp	Glu	Leu	Leu	Thr	Leu	Glu	Gln	Lys	Glu	Ile	Asn	Val	Lys	Glu		
1100						1105					1110					
aag	gtg	gtg	gtg	aag	gag	gta	gtt	aag	gtg	gag	aag	gat	ctg	gaa		3384
Lys	Val	Val	Val	Lys	Glu	Val	Val	Lys	Val	Glu	Lys	Asp	Leu	Glu		
1115						1120					1125					
atg	gtg	aag	gcg	gcc	cag	acg	cta	agg	ctg	cag	atc	gag	gaa	gat		3429
Met	Val	Lys	Ala	Ala	Gln	Thr	Leu	Arg	Leu	Gln	Ile	Glu	Glu	Asp		
1130						1135					1140					
gct	gca	cgg	agg	aag	ggg	gcg	aag	gaa	gca	gta	gcc	aag	aca	cag		3474
Ala	Ala	Arg	Arg	Lys	Gly	Ala	Lys	Glu	Ala	Val	Ala	Lys	Thr	Gln		
1145						1150					1155					
gct	cgc	atc	aaa	gac	ctg	gag	cag	gcg	atc	agc	tcc	gtg	gag	ccc		3519
Ala	Arg	Ile	Lys	Asp	Leu	Glu	Gln	Ala	Ile	Ser	Ser	Val	Glu	Pro		
1160						1165					1170					
aag	gtc	att	gtg	aag	gag	gtg	aag	aaa	gtg	gag	cag	gac	cct	ggg		3564
Lys	Val	Ile	Val	Lys	Glu	Val	Lys	Lys	Val	Glu	Gln	Asp	Pro	Gly		
1175						1180					1185					
ctt	ctc	aag	gaa	gcc	tcc	agg	ctg	aga	agc	ctc	ctg	gag	gag	gag		3609
Leu	Leu	Lys	Glu	Ala	Ser	Arg	Leu	Arg	Ser	Leu	Leu	Glu	Glu	Glu		
1190						1195					1200					
aag	aac	aag	aac	gtc	atg	ttg	gcc	agg	gaa	ctg	cag	gaa	ctg	cag		3654
Lys	Asn	Lys	Asn	Val	Met	Leu	Ala	Arg	Glu	Leu	Gln	Glu	Leu	Gln		
1205						1210					1215					
gac	aag	tac	agg	gcg	gta	gag	aag	cag	aag	cct	aag	gtg	cag	ctg		3699
Asp	Lys	Tyr	Arg	Ala	Val	Glu	Lys	Gln	Lys	Pro	Lys	Val	Gln	Leu		
1220						1225					1230					
cag	gag	cgc	gtc	agc	gag	atc	ttc	cag	gtg	cac	ccg	gag	aca	gag		3744
Gln	Glu	Arg	Val	Ser	Glu	Ile	Phe	Gln	Val	His	Pro	Glu	Thr	Glu		
1235						1240					1245					
cag	gag	atc	ctg	agg	ctc	cgg	gcc	cag	ctg	cag	gag	aca	ggc	agc		3789
Gln	Glu	Ile	Leu	Arg	Leu	Arg	Ala	Gln	Leu	Gln	Glu	Thr	Gly	Ser		
1250						1255					1260					
aag	aag	agc	tgt	gtg	gag	cgg	gag	gtg	gag	aag	ctg	ctg	cct	gag		3834
Lys	Lys	Ser	Cys	Val	Glu	Arg	Glu	Val	Glu	Lys	Leu	Leu	Pro	Glu		
1265						1270					1275					
ctg	gag	gtc	ctg	cgg	gct	cag	aag	ccc	gtg	gtg	gaa	tat	aag	gag		3879
Leu	Glu	Val	Leu	Arg	Ala	Gln	Lys	Pro	Val	Val	Glu	Tyr	Lys	Glu		
1280						1285					1290					
gtg	acg	cag	gag	gtg	gtg	agg	cac	gag	aag	aac	cca	gag	gtg	ctc		3924
Val	Thr	Gln	Glu	Val	Val	Arg	His	Glu	Lys	Asn	Pro	Glu	Val	Leu		
1295						1300					1305					
cgg	gag	atc	gac	cgc	ctc	aag	gct	cag	ctc	aat	gaa	ctg	gtc	aac		3969
Arg	Glu	Ile	Asp	Arg	Leu	Lys	Ala	Gln	Leu	Asn	Glu	Leu	Val	Asn		
1310						1315					1320					
acc	cac	ggg	cgc	tgt	caa	gag	cag	ctc	atc	cgg	ctc	cag	ggc	gaa		4014
Thr	His	Gly	Arg	Cys	Gln	Glu	Gln	Leu	Ile	Arg	Leu	Gln	Gly	Glu		
1325						1330					1335					
cgc	gat	gag	tgg	aag	cgt	gag	cgg	tcc	aag	gtg	gag	acc	aag	atg		4059
Arg	Asp	Glu	Trp	Lys	Arg	Glu	Arg	Ser	Lys	Val	Glu	Thr	Lys	Met		
1340						1345					1350					
gtg	aac	aaa	gag	gtg	gtg	agg	cat	gag	aag	gat	cca	gtg	ctg	gag		4104
Val	Asn	Lys	Glu	Val	Val	Arg	His	Glu	Lys	Asp	Pro	Val	Leu	Glu		
1355						1360					1365					
aaa	gag	gcc	gag	agg	ctc	cgg	cag	gag	gtg	cgg	gag	gcc	gtc	cag		4149

Lys	Glu	Ala	Glu	Arg	Leu	Arg	Gln	Glu	Val	Arg	Glu	Ala	Val	Gln	
1370						1375					1380				
aag	agg	cga	gcc	gcc	gag	gat	gct	gtc	tac	gag	ctg	cag	aac	aag	4194
Lys	Arg	Arg	Ala	Ala	Glu	Asp	Ala	Val	Tyr	Glu	Leu	Gln	Asn	Lys	
1385						1390					1395				
tat	ctg	ctg	ctg	gag	agg	aga	cgc	ccc	gag	gag	cag	atc	gta	gtg	4239
Tyr	Leu	Leu	Leu	Glu	Arg	Arg	Arg	Pro	Glu	Glu	Gln	Ile	Val	Val	
1400						1405					1410				
cag	gag	gtg	gtg	gtc	acc	cag	aag	gac	ccg	aag	ctg	cac	gag	gag	4284
Gln	Glu	Val	Val	Val	Thr	Gln	Lys	Asp	Pro	Lys	Leu	His	Glu	Glu	
1415						1420					1425				
cac	agc	cgg	ctg	agc	cgg	agc	ttg	gat	gag	gag	gtg	ggg	agg	cgg	4329
His	Ser	Arg	Leu	Ser	Arg	Ser	Leu	Asp	Glu	Glu	Val	Gly	Arg	Arg	
1430						1435					1440				
cgg	cag	ctg	gag	ctg	gag	gtg	cgg	cag	ctg	agc	gcc	agc	gtg	gag	4374
Arg	Gln	Leu	Glu	Leu	Glu	Val	Arg	Gln	Leu	Ser	Ala	Ser	Val	Glu	
1445						1450					1455				
gag	gag	gag	gcc	atg	ctc	agc	ttc	gag	gag	gac	cgc	agc	aag	aag	4419
Glu	Glu	Glu	Ala	Met	Leu	Ser	Phe	Glu	Glu	Asp	Arg	Ser	Lys	Lys	
1460						1465					1470				
ctg	gct	gcg	gag	agg	gag	ctg	cgg	caa	ctg	acc	ctg	aag	atc	cag	4464
Leu	Ala	Ala	Glu	Arg	Glu	Leu	Arg	Gln	Leu	Thr	Leu	Lys	Ile	Gln	
1475						1480					1485				
gag	ctg	gag	aag	cgg	cct	cct	gcc	ctg	cag	gaa	aag	atc	atc	atg	4509
Glu	Leu	Glu	Lys	Arg	Pro	Pro	Ala	Leu	Gln	Glu	Lys	Ile	Ile	Met	
1490						1495					1500				
gag	gag	gta	gtc	aag	tta	gaa	aag	gat	ccg	gat	ctg	gag	agg	tcc	4554
Glu	Glu	Val	Val	Lys	Leu	Glu	Lys	Asp	Pro	Asp	Leu	Glu	Arg	Ser	
1505						1510					1515				
aca	gaa	gct	ctg	agg	cga	gag	ctg	gat	cag	gag	aag	aac	cgg	gtg	4599
Thr	Glu	Ala	Leu	Arg	Arg	Glu	Leu	Asp	Gln	Glu	Lys	Asn	Arg	Val	
1520						1525					1530				
atc	gag	cta	cac	cgg	gag	tgc	aag	ggc	ctg	cag	gtt	gag	gtc	gac	4644
Ile	Glu	Leu	His	Arg	Glu	Cys	Lys	Gly	Leu	Gln	Val	Glu	Val	Asp	
1535						1540					1545				
ctc	ctt	cag	aaa	acg	aaa	tca	cag	gaa	aag	acc	ata	tat	aag	gaa	4689
Leu	Leu	Gln	Lys	Thr	Lys	Ser	Gln	Glu	Lys	Thr	Ile	Tyr	Lys	Glu	
1550						1555					1560				
gtg	atc	agg	gtg	gag	aag	gac	cca	gtc	ctg	gag	agc	gag	agg	gcc	4734
Val	Ile	Arg	Val	Glu	Lys	Asp	Pro	Val	Leu	Glu	Ser	Glu	Arg	Ala	
1565						1570					1575				
cgt	gtg	tgg	gaa	acc	ctt	aac	cgg	gag	cga	gca	gca	cgc	cag	agt	4779
Arg	Val	Trp	Glu	Thr	Leu	Asn	Arg	Glu	Arg	Ala	Ala	Arg	Gln	Ser	
1580						1585					1590				
cgg	gag	gag	gat	gtc	cgg	agc	ttg	aaa	gag	cgg	atc	gac	cga	gcc	4824
Arg	Glu	Glu	Asp	Val	Arg	Ser	Leu	Lys	Glu	Arg	Ile	Asp	Arg	Ala	
1595						1600					1605				
gag	gct	ctg	agg	agg	tcc	tgg	tca	ctc	cag	aag	gcc	cgg	gac	cag	4869
Glu	Ala	Leu	Arg	Arg	Ser	Trp	Ser	Leu	Gln	Lys	Ala	Arg	Asp	Gln	
1610						1615					1620				
gca	agc	cag	gac	tgt	ggg	cgg	ctg	cag	aga	gag	ctc	cga	gag	ctg	4914
Ala	Ser	Gln	Asp	Cys	Gly	Arg	Leu	Gln	Arg	Glu	Leu	Arg	Glu	Leu	
1625						1630					1635				
gag	cag	cag	aag	cta	cag	aaa	gcc	cag	cag	cta	caa	gag	gag	ggg	4959

Glu	Gln	Gln	Lys	Leu	Gln	Lys	Ala	Gln	Gln	Leu	Gln	Glu	Glu	Gly	
1640						1645					1650				
cgg	ctg	ctt	agc	cag	aag	acg	gag	agc	gag	cgc	cag	aag	gcc	gct	5004
Arg	Leu	Leu	Ser	Gln	Lys	Thr	Glu	Ser	Glu	Arg	Gln	Lys	Ala	Ala	
1655						1660					1665				
cag	cgg	agc	cag	gcc	ctc	tca	cag	ctc	gag	gct	gcc	att	ctc	cat	5049
Gln	Arg	Ser	Gln	Ala	Leu	Ser	Gln	Leu	Glu	Ala	Ala	Ile	Leu	His	
1670						1675					1680				
gaa	aag	gac	aag	ata	tac	gag	aag	gaa	agg	acc	ctc	agg	gac	ctg	5094
Glu	Lys	Asp	Lys	Ile	Tyr	Glu	Lys	Glu	Arg	Thr	Leu	Arg	Asp	Leu	
1685						1690					1695				
cac	acc	aaa	gtg	agc	cgg	gag	gag	ctc	aac	cag	gaa	acc	cag	aca	5139
His	Thr	Lys	Val	Ser	Arg	Glu	Glu	Leu	Asn	Gln	Glu	Thr	Gln	Thr	
1700						1705					1710				
cgg	gag	acc	aac	ctt	tcc	acc	aag	atc	tgc	atc	ttg	gaa	cca	gag	5184
Arg	Glu	Thr	Asn	Leu	Ser	Thr	Lys	Ile	Cys	Ile	Leu	Glu	Pro	Glu	
1715						1720					1725				
acc	ggg	aat	gac	atg	tct	ccc	tac	gag	gcc	tac	aag	agg	ggg	atc	5229
Thr	Gly	Asn	Asp	Met	Ser	Pro	Tyr	Glu	Ala	Tyr	Lys	Arg	Gly	Ile	
1730						1735					1740				
atc	gac	aga	ggc	cag	tac	ctc	cag	ctg	cag	gag	ctg	gag	tgt	gac	5274
Ile	Asp	Arg	Gly	Gln	Tyr	Leu	Gln	Leu	Gln	Glu	Leu	Glu	Cys	Asp	
1745						1750					1755				
tgg	gaa	gaa	gtt	acc	acc	tcc	agt	ccc	tgt	ggg	gag	gag	tct	gtg	5319
Trp	Glu	Glu	Val	Thr	Thr	Ser	Ser	Pro	Cys	Gly	Glu	Glu	Ser	Val	
1760						1765					1770				
ctc	ttg	gac	cgc	aag	agc	ggg	aag	caa	tac	tcc	att	gag	gcc	gcc	5364
Leu	Leu	Asp	Arg	Lys	Ser	Gly	Lys	Gln	Tyr	Ser	Ile	Glu	Ala	Ala	
1775						1780					1785				
ctc	cgc	tgc	cgc	cgc	atc	tcc	aaa	gaa	gaa	tat	cac	agg	tac	aaa	5409
Leu	Arg	Cys	Arg	Arg	Ile	Ser	Lys	Glu	Glu	Tyr	His	Arg	Tyr	Lys	
1790						1795					1800				
gat	ggc	cgc	ctc	ccc	atc	tcc	gag	ttt	gcc	ctg	ctt	gtg	gca	ggg	5454
Asp	Gly	Arg	Leu	Pro	Ile	Ser	Glu	Phe	Ala	Leu	Leu	Val	Ala	Gly	
1805						1810					1815				
gag	acc	aag	ccc	agt	tcc	tca	ctc	tcc	att	ggg	tcc	atc	atc	tcc	5499
Glu	Thr	Lys	Pro	Ser	Ser	Ser	Leu	Ser	Ile	Gly	Ser	Ile	Ile	Ser	
1820						1825					1830				
aag	tcc	cca	gtc	tgc	tcc	cca	gga	ccc	cag	agt	acc	ggc	ttc	ttc	5544
Lys	Ser	Pro	Val	Cys	Ser	Pro	Gly	Pro	Gln	Ser	Thr	Gly	Phe	Phe	
1835						1840					1845				
tcc	cca	ggc	ctt	tct	ttg	ggg	ctc	act	gag	gat	agc	ttc	ccc	atc	5589
Ser	Pro	Gly	Leu	Ser	Leu	Gly	Leu	Thr	Glu	Asp	Ser	Phe	Pro	Ile	
1850						1855					1860				
gct	ggg	gtt	tat	gat	aca	acc	aca	gat	aac	aag	tgt	agc	atc	aag	5634
Ala	Gly	Val	Tyr	Asp	Thr	Thr	Thr	Asp	Asn	Lys	Cys	Ser	Ile	Lys	
1865						1870					1875				
gca	gct	gtg	gcc	aag	aac	atg	ctg	gat	ccc	atc	act	ggg	cag	aag	5679
Ala	Ala	Val	Ala	Lys	Asn	Met	Leu	Asp	Pro	Ile	Thr	Gly	Gln	Lys	
1880						1885					1890				
ctg	ttg	gag	gcc	cag	gca	gcc	aca	gga	ggc	atc	gta	gat	ctt	ctc	5724
Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Gly	Ile	Val	Asp	Leu	Leu	
1895						1900					1905				
agc	cga	gaa	cgatac	tcc	gta	cac	aag	gca	gtg	gag	cag	gga	ctc		5769

Ser	Arg	Glu	Arg	Tyr	Ser	Val	His	Lys	Ala	Val	Glu	Gln	Gly	Leu	
1910						1915					1920				
att	gag	aac	acc	tcc	acc	caa	cgt	ctg	ctc	aac	gct	cag	aag	gcc	5814
Ile	Glu	Asn	Thr	Ser	Thr	Gln	Arg	Leu	Leu	Asn	Ala	Gln	Lys	Ala	
1925						1930					1935				
ttc	acc	ggc	atc	gag	gac	cca	gtc	acc	agg	aag	agg	ctg	tca	gtg	5859
Phe	Thr	Gly	Ile	Glu	Asp	Pro	Val	Thr	Arg	Lys	Arg	Leu	Ser	Val	
1940						1945					1950				
ggt	gag	gcc	atc	cag	aag	ggc	tgg	atg	ccc	cag	gaa	agc	gtg	ctt	5904
Gly	Glu	Ala	Ile	Gln	Lys	Gly	Trp	Met	Pro	Gln	Glu	Ser	Val	Leu	
1955						1960					1965				
ccc	cac	cta	ctg	gtg	cag	cac	ctt	act	ggg	ggc	ctc	atc	gat	ccc	5949
Pro	His	Leu	Leu	Val	Gln	His	Leu	Thr	Gly	Gly	Leu	Ile	Asp	Pro	
1970						1975					1980				
aag	agg	aca	gga	cgc	atc	ccc	gtc	cct	cag	gct	gtg	ctc	tgc	ggg	5994
Lys	Arg	Thr	Gly	Arg	Ile	Pro	Val	Pro	Gln	Ala	Val	Leu	Cys	Gly	
1985						1990					1995				
atg	atc	agc	gaa	gac	cta	ggt	cag	ctc	ctg	caa	gac	gaa	tcc	agc	6039
Met	Ile	Ser	Glu	Asp	Leu	Gly	Gln	Leu	Leu	Gln	Asp	Glu	Ser	Ser	
2000						2005					2010				
tac	gag	aag	gat	ttg	aca	gac	ccc	atc	acc	aag	gag	agg	ctg	agc	6084
Tyr	Glu	Lys	Asp	Leu	Thr	Asp	Pro	Ile	Thr	Lys	Glu	Arg	Leu	Ser	
2015						2020					2025				
tac	aag	gag	gcc	atg	ggg	cgc	tgc	cac	aaa	gat	cct	cta	agt	ggc	6129
Tyr	Lys	Glu	Ala	Met	Gly	Arg	Cys	His	Lys	Asp	Pro	Leu	Ser	Gly	
2030						2035					2040				
ctg	cta	ctt	ctc	cca	gcc	atg	ctg	gaa	ggc	tac	cgc	tgc	tac	cga	6174
Leu	Leu	Leu	Leu	Pro	Ala	Met	Leu	Glu	Gly	Tyr	Arg	Cys	Tyr	Arg	
2045						2050					2055				
gtg	gcc	tcc	ccc	acc	ctg	cct	cgc	tcc	tgt	gtg	cgt	tga			6213
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<400> 100

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Gly	Ser	Pro	Ala	Lys	Gly	Ser	Pro	Lys	Gly	Ser	Pro	Asn	Lys	His	Ser
			20					25					30		

Arg	Ala	Ala	Thr	Gln	Glu	Leu	Ala	Leu	Leu	Ile	Ser	Arg	Met	Gln	Ala
	35						40					45			

Asn	Ala	Asp	Gln	Val	Glu	Arg	Asp	Ile	Leu	Glu	Thr	Gln	Lys	Lys	Leu
50						55					60				

Gln	Gln	Val	Asn	Lys	Asn	Ile	Gly	Glu	Leu	Val	Val	Ser	Leu	Cys	Ala
65					70					75					80

Leu Thr Thr Trp Val Met Pro His Gln Asp Arg Gln Asn Gly Ala Gln

85

90

95

Asn Gln Ala Leu Gln His Gln Gln Glu Thr Gly Arg Asn Leu Lys Glu  
 100 105 110

Ala Glu Val Leu Leu Lys Asp Leu Phe Leu Asp Val Asp Lys Ala Arg  
 115 120 125

Arg Leu Lys His Pro Gln Ala Glu Glu Ile Glu Lys Asp Ile Lys Gln  
 130 135 140

Leu His Glu Arg Val Thr Gln Glu Cys Ala Glu Tyr Arg Ala Leu Tyr  
 145 150 155 160

Glu Lys Ile Val Leu Pro Pro Asp Val Gly Pro Arg Val Asp Trp Thr  
 165 170 175

Arg Val Leu Glu Gln Lys Gln Lys Leu Ile Cys Glu Gly His Tyr Gly  
 180 185 190

Pro Gly Met Ala Glu Leu Glu Gln Gln Val Ala Glu His Asn Ile Leu  
 195 200 205

Gln Arg Glu Ile Glu Ala Tyr Gly Gln Gln Leu Arg Thr Leu Val Gly  
 210 215 220

Pro Asp Ala Asn Ala Ile Arg Asn Gln Tyr Arg Asp Leu Leu Lys Ala  
 225 230 235 240

Ala Ser Trp Arg Arg Gln Ser Leu Gly Ser Leu Tyr Thr His Leu Gln  
 245 250 255

Gly Cys Thr Lys Gln Leu Gly Ala Leu Ala Asp Gln Gln Gly Arg Ile  
 260 265 270

Leu Gln Gln Asp Trp Ser Asp Leu Met Pro Asp Pro Ala Gly Val Arg  
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Arg Glu Tyr Glu His Phe Lys Gln His Glu Leu Leu Ala Gln Glu Gln  
 290 295 300

Ser Ile Asn Gln Leu Glu Asp Asp Ala Glu Arg Met Val Glu Leu Gly  
 305 310 315 320

His Pro Ala Ile Gly Pro Ile Gln Ala His Gln Glu Ala Leu Lys Met  
 325 330 335

Glu Trp Gln Asn Phe Leu Asn Leu Cys Ile Cys Gln Glu Ser Gln Leu  
 340 345 350

Gln His Val Glu Asp Tyr Arg Arg Phe Gln Glu Glu Ala Asp Ser Ala  
 355 360 365

Ser Gln Thr Leu Ala Lys Leu Ser Ser Asn Leu Asp Thr Lys Tyr Ser

380

Lys Tyr Ser Asp Val His Ser Leu Cys Tyr Leu Tyr Gly Glu Lys Ala

660

665

670

Lys Ala Ala Leu Gly Leu Glu Lys Gln Ile Gln Glu Ala Asp Gly Ile  
675 680 685

Ile Gln Gly Phe Glu Ala Thr Leu Ala Gln Glu Gly Pro Ile Pro Glu  
690 695 700

Gly Ser Gly Ala Leu Gln Glu Arg Val Ser Glu Leu Gln Arg Gln Arg  
705 710 715 720

Lys Glu Leu Leu Gln Gln Gln Ala Cys Val Leu Gly Leu His Arg Gln  
725 730 735

Leu Lys Ala Ala Glu His Ala Cys Gly Ala Leu Gln Asn Asn Phe Gln  
740 745 750

Glu Phe Cys Gln Asp Leu Pro Arg Gln Gln Arg Gln Val Arg Ala Leu  
755 760 765

Thr Asp Arg Tyr His Ser Val Gly Asp Gln Leu Asp Leu Arg Glu Lys  
770 775 780

Ile Leu Gln Asp Ala Ser Leu Thr His Gln Gln Leu Lys Asn Ser Arg  
785 790 795 800

Asp Asn Leu Ser Ser Trp Leu Glu Gln Leu Pro His His Arg Val Gln  
805 810 815

Pro Ser Asp Gly Pro Ser Gln Ile Ala Tyr Lys Leu Gln Ala Gln Lys  
820 825 830

Arg Leu Ile Gln Glu Ile Leu Gly Arg Glu Gln Asp Gln Ala Thr Val  
835 840 845

Ala Arg Leu Thr Arg Asp Leu Gln Glu Ala Leu Gln Glu Tyr Glu Leu  
850 855 860

Arg Ala Asp Thr Tyr Arg Cys Ser Leu Glu Pro Thr Leu Ala Val Ser  
865 870 875 880

Ala Pro Lys Arg Leu Arg Val Ile Ser Leu Lys Glu Asn Ile Gln Ala  
885 890 895

Gln Glu Lys Asn Leu Thr Lys Ala Tyr Thr Glu Val Ala Ala Ala Glu  
900 905 910

Gln Gln Gln Leu His Gln Leu Glu Phe Ala Lys Lys Met Leu Glu Lys  
915 920 925

Lys Glu Leu Asn Glu Asp Phe Gln Ala Ile His Ser Ala Arg Gln Gly  
930 935 940

Ser Gly Ser Pro Ala His Thr Lys Thr Glu Ser Glu Val Leu Lys Thr



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Gln Leu Glu Glu Glu Arg Lys Arg Val Ala Glu Val Gln Arg Glu Leu						
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Glu Glu Arg Arg Gln Gln Leu Leu Gln Leu Arg Thr Gln Gln Pro Val						
	980			985		990
Ala Arg Leu Glu Glu Lys Glu Val Val Glu Phe Tyr Arg Asp Pro Gln						
	995			1000		1005
Leu Lys Ser Asn Val Leu Gln Ala Ser Ser Arg Leu Glu Glu Glu						
	1010			1015		1020
Gly Lys Arg Arg Ala Arg Leu Gln Ala Glu Leu Glu Val Val Ala						
	1025			1030		1035
Gln Lys Val Val His Leu Glu Gly Lys Arg Lys Ala Met Gln Pro						
	1040			1045		1050
His Leu Leu Thr Lys Glu Val Thr Gln Ile Glu Arg Asp Pro Gly						
	1055			1060		1065
Leu Asp Ser Gln Val Thr Gln Leu His Asn Glu Met Gln Gly Leu						
	1070			1075		1080
Arg Gly Glu Asn Ala Val Leu Ala Ala Arg Leu Glu Gly Leu Lys						
	1085			1090		1095
Asp Glu Leu Leu Thr Leu Glu Gln Lys Glu Ile Asn Val Lys Glu						
	1100			1105		1110
Lys Val Val Val Lys Glu Val Val Lys Val Glu Lys Asp Leu Glu						
	1115			1120		1125
Met Val Lys Ala Ala Gln Thr Leu Arg Leu Gln Ile Glu Glu Asp						
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Ala Ala Arg Arg Lys Gly Ala Lys Glu Ala Val Ala Lys Thr Gln						
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Ala Arg Ile Lys Asp Leu Glu Gln Ala Ile Ser Ser Val Glu Pro						
	1160			1165		1170
Lys Val Ile Val Lys Glu Val Lys Lys Val Glu Gln Asp Pro Gly						
	1175			1180		1185
Leu Leu Lys Glu Ala Ser Arg Leu Arg Ser Leu Leu Glu Glu Glu						
	1190			1195		1200
Lys Asn Lys Asn Val Met Leu Ala Arg Glu Leu Gln Glu Leu Gln						
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Asp Lys Tyr Arg Ala Val Glu Lys Gln Lys Pro Lys Val Gln Leu						

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Gln Glu Arg Val Ser Glu Ile Phe Gln Val His Pro Glu Thr Glu				
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Gln Glu Ile Leu Arg Leu Arg Ala Gln Leu Gln Glu Thr Gly Ser				
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Lys Lys Ser Cys Val Glu Arg Glu Val Glu Lys Leu Leu Pro Glu				
1265		1270		1275
Leu Glu Val Leu Arg Ala Gln Lys Pro Val Val Glu Tyr Lys Glu				
1280		1285		1290
Val Thr Gln Glu Val Val Arg His Glu Lys Asn Pro Glu Val Leu				
1295		1300		1305
Arg Glu Ile Asp Arg Leu Lys Ala Gln Leu Asn Glu Leu Val Asn				
1310		1315		1320
Thr His Gly Arg Cys Gln Glu Gln Leu Ile Arg Leu Gln Gly Glu				
1325		1330		1335
Arg Asp Glu Trp Lys Arg Glu Arg Ser Lys Val Glu Thr Lys Met				
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Val Asn Lys Glu Val Val Arg His Glu Lys Asp Pro Val Leu Glu				
1355		1360		1365
Lys Glu Ala Glu Arg Leu Arg Gln Glu Val Arg Glu Ala Val Gln				
1370		1375		1380
Lys Arg Arg Ala Ala Glu Asp Ala Val Tyr Glu Leu Gln Asn Lys				
1385		1390		1395
Tyr Leu Leu Leu Glu Arg Arg Arg Pro Glu Glu Gln Ile Val Val				
1400		1405		1410
Gln Glu Val Val Val Thr Gln Lys Asp Pro Lys Leu His Glu Glu				
1415		1420		1425
His Ser Arg Leu Ser Arg Ser Leu Asp Glu Glu Val Gly Arg Arg				
1430		1435		1440
Arg Gln Leu Glu Leu Glu Val Arg Gln Leu Ser Ala Ser Val Glu				
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Glu Glu Glu Ala Met Leu Ser Phe Glu Glu Asp Arg Ser Lys Lys				
1460		1465		1470
Leu Ala Ala Glu Arg Glu Leu Arg Gln Leu Thr Leu Lys Ile Gln				
1475		1480		1485
Glu Leu Glu Lys Arg Pro Pro Ala Leu Gln Glu Lys Ile Ile Met				

1490		1495		1500
Glu Glu Val Val Lys Leu	Glu Lys Asp Pro Asp Leu	Glu Arg Ser		
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Thr Glu Ala Leu Arg Arg	Glu Leu Asp Gln Glu Lys	Asn Arg Val		
1520	1525	1530		
Ile Glu Leu His Arg Glu	Cys Lys Gly Leu Gln Val	Glu Val Asp		
1535	1540	1545		
Leu Leu Gln Lys Thr Lys	Ser Gln Glu Lys Thr Ile	Tyr Lys Glu		
1550	1555	1560		
Val Ile Arg Val Glu Lys	Asp Pro Val Leu Glu Ser	Glu Arg Ala		
1565	1570	1575		
Arg Val Trp Glu Thr Leu	Asn Arg Glu Arg Ala Ala	Arg Gln Ser		
1580	1585	1590		
Arg Glu Glu Asp Val Arg	Ser Leu Lys Glu Arg Ile	Asp Arg Ala		
1595	1600	1605		
Glu Ala Leu Arg Arg Ser	Trp Ser Leu Gln Lys Ala	Arg Asp Gln		
1610	1615	1620		
Ala Ser Gln Asp Cys Gly	Arg Leu Gln Arg Glu Leu	Arg Glu Leu		
1625	1630	1635		
Glu Gln Gln Lys Leu Gln	Lys Ala Gln Gln Leu Gln	Glu Glu Gly		
1640	1645	1650		
Arg Leu Leu Ser Gln Lys	Thr Glu Ser Glu Arg Gln	Lys Ala Ala		
1655	1660	1665		
Gln Arg Ser Gln Ala Leu	Ser Gln Leu Glu Ala Ala	Ile Leu His		
1670	1675	1680		
Glu Lys Asp Lys Ile Tyr	Glu Lys Glu Arg Thr Leu	Arg Asp Leu		
1685	1690	1695		
His Thr Lys Val Ser Arg	Glu Glu Leu Asn Gln Glu	Thr Gln Thr		
1700	1705	1710		
Arg Glu Thr Asn Leu Ser	Thr Lys Ile Cys Ile Leu	Glu Pro Glu		
1715	1720	1725		
Thr Gly Asn Asp Met Ser	Pro Tyr Glu Ala Tyr Lys	Arg Gly Ile		
1730	1735	1740		
Ile Asp Arg Gly Gln Tyr	Leu Gln Leu Gln Glu Leu	Glu Cys Asp		
1745	1750	1755		
Trp Glu Glu Val Thr Thr	Ser Ser Pro Cys Gly Glu	Glu Ser Val		

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Leu Leu Asp Arg Lys Ser Gly Lys Gln Tyr Ser Ile Glu Ala Ala				
1775		1780		1785
Leu Arg Cys Arg Arg Ile Ser Lys Glu Glu Tyr His Arg Tyr Lys				
1790		1795		1800
Asp Gly Arg Leu Pro Ile Ser Glu Phe Ala Leu Leu Val Ala Gly				
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Glu Thr Lys Pro Ser Ser Ser Leu Ser Ile Gly Ser Ile Ile Ser				
1820		1825		1830
Lys Ser Pro Val Cys Ser Pro Gly Pro Gln Ser Thr Gly Phe Phe				
1835		1840		1845
Ser Pro Gly Leu Ser Leu Gly Leu Thr Glu Asp Ser Phe Pro Ile				
1850		1855		1860
Ala Gly Val Tyr Asp Thr Thr Thr Asp Asn Lys Cys Ser Ile Lys				
1865		1870		1875
Ala Ala Val Ala Lys Asn Met Leu Asp Pro Ile Thr Gly Gln Lys				
1880		1885		1890
Leu Leu Glu Ala Gln Ala Ala Thr Gly Gly Ile Val Asp Leu Leu				
1895		1900		1905
Ser Arg Glu Arg Tyr Ser Val His Lys Ala Val Glu Gln Gly Leu				
1910		1915		1920
Ile Glu Asn Thr Ser Thr Gln Arg Leu Leu Asn Ala Gln Lys Ala				
1925		1930		1935
Phe Thr Gly Ile Glu Asp Pro Val Thr Arg Lys Arg Leu Ser Val				
1940		1945		1950
Gly Glu Ala Ile Gln Lys Gly Trp Met Pro Gln Glu Ser Val Leu				
1955		1960		1965
Pro His Leu Leu Val Gln His Leu Thr Gly Gly Leu Ile Asp Pro				
1970		1975		1980
Lys Arg Thr Gly Arg Ile Pro Val Pro Gln Ala Val Leu Cys Gly				
1985		1990		1995
Met Ile Ser Glu Asp Leu Gly Gln Leu Leu Gln Asp Glu Ser Ser				
2000		2005		2010
Tyr Glu Lys Asp Leu Thr Asp Pro Ile Thr Lys Glu Arg Leu Ser				
2015		2020		2025
Tyr Lys Glu Ala Met Gly Arg Cys His Lys Asp Pro Leu Ser Gly				

2030	2035	2040	
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Val Ala Ser Pro Thr Leu Pro Arg Ser Cys Val Arg			
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Gly Ser Pro Ala Lys Gly Val Pro Gln Arg Leu Pro Gln Gln Ala Gln			
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ccg gac cgg ctg aac agt gag cag agc cag gcc ctg cag cac cag cag		144	
Pro Asp Arg Leu Asn Ser Glu Gln Ser Gln Ala Leu Gln His Gln Gln			
35 40 45			
gag acg ggc cgc agc ctg aag gag gcc gag gtg ctg ctc aag gac ctt		192	
Glu Thr Gly Arg Ser Leu Lys Glu Ala Glu Val Leu Leu Lys Asp Leu			
50 55 60			
ttc ctg gac gtg gac aag gcc cgg cgg ctc aag cac ccg cag gct gag		240	
Phe Leu Asp Val Asp Lys Ala Arg Arg Leu Lys His Pro Gln Ala Glu			
65 70 75 80			
gag att gag aag gac atc aag cag ctg cac gag cgg gtg acc cag gag		288	
Glu Ile Glu Lys Asp Ile Lys Gln Leu His Glu Arg Val Thr Gln Glu			
85 90 95			
tgt gcg gag tac cgt gcc ctg tac gag aag atg gtg ctg ccc ccc gac		336	
Cys Ala Glu Tyr Arg Ala Leu Tyr Glu Lys Met Val Leu Pro Pro Asp			
100 105 110			
gtg gga ccc agg gtc gac tgg gca cgc gtg ctg gag cag aaa cag gcc		384	
Val Gly Pro Arg Val Asp Trp Ala Arg Val Leu Glu Gln Lys Gln Ala			
115 120 125			
cac cag gag gcc ctg aag atg gag tgg cag aac ttc ctg aac ctg tgt		432	
His Gln Glu Ala Leu Lys Met Glu Trp Gln Asn Phe Leu Asn Leu Cys			
130 135 140			
atc tgc cag gag acc cag ctg cag cac gtg gag gac tac cgc cgg ttc		480	
Ile Cys Gln Glu Thr Gln Leu Gln His Val Glu Asp Tyr Arg Arg Phe			
145 150 155 160			
cag gaa gag gcc gac tca gtc agc cag acc ctg gcg aag ctc aac tcc		528	
Gln Glu Glu Ala Asp Ser Val Ser Gln Thr Leu Ala Lys Leu Asn Ser			
165 170 175			
aac ttg gat gcc aag tac agc cct gca cct ggg ggc ccc cct ggc gcc		576	
Asn Leu Asp Ala Lys Tyr Ser Pro Ala Pro Gly Gly Pro Pro Gly Ala			
180 185 190			
ccc aca gag ctg ctg caa cag ctg gag gca gag gaa aaa cgg ctg gcc		624	
Pro Thr Glu Leu Leu Gln Gln Leu Glu Ala Glu Glu Lys Arg Leu Ala			

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ccc cct ctg cca cag cga aga aac cca cct cag cag ccc ctg cac gtg Pro Pro Leu Pro Gln Arg Arg Asn Pro Pro Gln Gln Pro Leu His Val 225 230 235 240	720		
gac agc atc tgc gac tgg gac tca gga gaa gtg cag ctg ctg cgg ggt Asp Ser Ile Cys Asp Trp Asp Ser Gly Glu Val Gln Leu Leu Arg Gly 245 250 255	768		
gag cgg tat aag ctg gta gat aac act gac ccg cac acc tgg gtc gtg Glu Arg Tyr Lys Leu Val Asp Asn Thr Asp Pro His Thr Trp Val Val 260 265 270	816		
cag ggc cct ggt ggg gag acc aag cgt gct ccc gcc gcc tgc ttc tgc Gln Gly Pro Gly Gly Glu Thr Lys Arg Ala Pro Ala Ala Cys Phe Cys 275 280 285	864		
atc cca gca cca gac cct gat gct gtg gcc agg gcc tcc cgg aag gtt Ile Pro Ala Pro Asp Pro Asp Ala Val Ala Arg Ala Ser Arg Lys Val 290 295 300	912		
cca gta ggg ccc aat gtc aac acc cca gga ggt att ctg ggc aca gcc Pro Val Gly Pro Asn Val Asn Thr Pro Gly Gly Ile Leu Gly Thr Ala 305 310 315 320	960		
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tgc gag gcg ttt ctg tcc acg cgg ccc gtg ggc ccc gct gcc ctg cag Cys Glu Ala Phe Leu Ser Thr Arg Pro Val Gly Pro Ala Ala Leu Gln 340 345 350	1056		
ctg ccc gta gcc ctc aac agc gtg aag aac aag ttc agt gac gtg cag Leu Pro Val Ala Leu Asn Ser Val Lys Asn Lys Phe Ser Asp Val Gln 355 360 365	1104		
gtt ctg tgc agc ctc tac ggg gag aaa gcc aag gct gcc ctg ggt ctg Val Leu Cys Ser Leu Tyr Gly Glu Lys Ala Lys Ala Ala Leu Gly Leu 370 375 380	1152		
gag cgg cag atc cag gat gcg gac agg gtc atc cga ggc ttc gag gcc Glu Arg Gln Ile Gln Asp Ala Asp Arg Val Ile Arg Gly Phe Glu Ala 385 390 395 400	1200		
acc ctg gtg cag gag gcc ccc atc cct gct gaa ccg ggg gct ctg cag Thr Leu Val Gln Glu Ala Pro Ile Pro Ala Glu Pro Gly Ala Leu Gln 405 410 415	1248		
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cct cgc cag cag cgc cag gtg cga gcc ctc acc gac cgc tac cac gcc Pro Arg Gln Gln Arg Gln Val Arg Ala Leu Thr Asp Arg Tyr His Ala 465 470 475 480	1440		
gta ggg gac cag ctg gac ctg cgg gag aag gtg gtg cag gat gcc gcc Val Gly Asp Gln Leu Asp Leu Arg Glu Lys Val Val Gln Asp Ala Ala	1488		

485

490

495

ctc acc tac cag cag ttc aag aac tgc aag gat aac ctg agc tcc tgg 1536  
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ctg gag cac ctg ccc cgc agc cat gtg cgg ccc agc gac ggc ccc agc 1584  
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cag atc gcc tac aag ttg cag gcg cag aag acg ggg cca gcc cat ctc 1632  
 Gln Ile Ala Tyr Lys Leu Gln Ala Gln Lys Thr Gly Pro Ala His Leu  
 530 535 540

tgt ctg gcc cga ctg ggg cag tgg gat tta caa gct cag gcc aca gag 1680  
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ccc tga 1686  
 Pro

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 20 25 30

Pro Asp Arg Leu Asn Ser Glu Gln Ser Gln Ala Leu Gln His Gln Gln  
 35 40 45

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

Phe Leu Asp Val Asp Lys Ala Arg Arg Leu Lys His Pro Gln Ala Glu  
 65 70 75 80

Glu Ile Glu Lys Asp Ile Lys Gln Leu His Glu Arg Val Thr Gln Glu  
 85 90 95

Cys Ala Glu Tyr Arg Ala Leu Tyr Glu Lys Met Val Leu Pro Pro Asp  
 100 105 110

Val Gly Pro Arg Val Asp Trp Ala Arg Val Leu Glu Gln Lys Gln Ala  
 115 120 125

His Gln Glu Ala Leu Lys Met Glu Trp Gln Asn Phe Leu Asn Leu Cys  
 130 135 140

Ile Cys Gln Glu Thr Gln Leu Gln His Val Glu Asp Tyr Arg Arg Phe  
 145 150 155 160

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

Asn	Leu	Asp	Ala	Lys	Tyr	Ser	Pro	Ala	Pro	Gly	Gly	Pro	Pro	Gly	Ala		
			180					185					190				
Pro	Thr	Glu	Leu	Leu	Gln	Gln	Leu	Glu	Ala	Glu	Glu	Lys	Arg	Leu	Ala		
		195					200					205					
Ile	Thr	Glu	Arg	Ala	Thr	Gly	Asp	Leu	Gln	Arg	Arg	Ser	Gln	Asp	Val		
	210					215					220						
Pro	Pro	Leu	Pro	Gln	Arg	Arg	Asn	Pro	Pro	Gln	Gln	Pro	Leu	His	Val		
225					230					235					240		
Asp	Ser	Ile	Cys	Asp	Trp	Asp	Ser	Gly	Glu	Val	Gln	Leu	Leu	Arg	Gly		
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Glu	Arg	Tyr	Lys	Leu	Val	Asp	Asn	Thr	Asp	Pro	His	Thr	Trp	Val	Val		
		260						265					270				
Gln	Gly	Pro	Gly	Gly	Glu	Thr	Lys	Arg	Ala	Pro	Ala	Ala	Cys	Phe	Cys		
		275					280					285					
Ile	Pro	Ala	Pro	Asp	Pro	Asp	Ala	Val	Ala	Arg	Ala	Ser	Arg	Lys	Val		
	290					295					300						
Pro	Val	Gly	Pro	Asn	Val	Asn	Thr	Pro	Gly	Gly	Ile	Leu	Gly	Thr	Ala		
305					310					315					320		
Gln	Arg	Leu	Gln	Ser	Leu	Gly	Thr	Glu	Lys	Glu	Thr	Ala	Gln	Lys	Glu		
				325					330					335			
Cys	Glu	Ala	Phe	Leu	Ser	Thr	Arg	Pro	Val	Gly	Pro	Ala	Ala	Leu	Gln		
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Leu	Pro	Val	Ala	Leu	Asn	Ser	Val	Lys	Asn	Lys	Phe	Ser	Asp	Val	Gln		
		355					360					365					
Val	Leu	Cys	Ser	Leu	Tyr	Gly	Glu	Lys	Ala	Lys	Ala	Ala	Leu	Gly	Leu		
	370					375					380						
Glu	Arg	Gln	Ile	Gln	Asp	Ala	Asp	Arg	Val	Ile	Arg	Gly	Phe	Glu	Ala		
385					390					395					400		
Thr	Leu	Val	Gln	Glu	Ala	Pro	Ile	Pro	Ala	Glu	Pro	Gly	Ala	Leu	Gln		
			405						410					415			
Glu	Arg	Val	Ser	Glu	Leu	Gln	Arg	Gln	Arg	Arg	Glu	Leu	Leu	Glu	Gln		
		420						425					430				
Gln	Thr	Cys	Val	Leu	Arg	Leu	His	Arg	Ala	Leu	Lys	Ala	Ser	Glu	His		
		435					440					445					
Ala	Cys	Ala	Ala	Leu	Gln	Asn	Asn	Phe	Gln	Glu	Phe	Cys	Gln	Asp	Leu		
	450					455					460						



Pro Arg Gln Gln Arg Gln Val Arg Ala Leu Thr Asp Arg Tyr His Ala  
465 470 475 480

Val Gly Asp Gln Leu Asp Leu Arg Glu Lys Val Val Gln Asp Ala Ala  
485 490 495

Leu Thr Tyr Gln Gln Phe Lys Asn Cys Lys Asp Asn Leu Ser Ser Trp  
500 505 510

Leu Glu His Leu Pro Arg Ser His Val Arg Pro Ser Asp Gly Pro Ser  
515 520 525

Gln Ile Ala Tyr Lys Leu Gln Ala Gln Lys Thr Gly Pro Ala His Leu  
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Cys Leu Ala Arg Leu Gly Gln Trp Asp Leu Gln Ala Gln Ala Thr Glu  
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Pro

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Met Val Pro Ser Val Cys  
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Phe Thr Val Pro Pro Pro Asn Lys Glu Ala Val Asp Leu Ala Asn Arg  
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Ile Glu Gln Gln Tyr Gln Asn Val Leu Thr Leu Trp His Glu Ser His  
25 30 35

ata aac atg aag agt gta gta tcc tgg cat tat ctc atc aat gaa att 319  
Ile Asn Met Lys Ser Val Val Ser Trp His Tyr Leu Ile Asn Glu Ile  
40 45 50

gat aga att cga gct agc aat gtg gct tca ata aag aca atg cta cct 367  
Asp Arg Ile Arg Ala Ser Asn Val Ala Ser Ile Lys Thr Met Leu Pro  
55 60 65 70

ggt gaa cat cag caa gtt cta agt aat cta caa tct cgt ttt gaa gat 415  
Gly Glu His Gln Gln Val Leu Ser Asn Leu Gln Ser Arg Phe Glu Asp  
75 80 85

ttt ctg gaa gat agc cag gaa tcc caa gtc ttt tca ggc tca gat ata 463  
Phe Leu Glu Asp Ser Gln Glu Ser Gln Val Phe Ser Gly Ser Asp Ile  
90 95 100

aca	caa	ctg	gaa	aag	gag	gtt	aat	gta	tgt	aag	cag	tat	tat	caa	gaa	511
Thr	Gln	Leu	Glu	Lys	Glu	Val	Asn	Val	Cys	Lys	Gln	Tyr	Tyr	Gln	Glu	
	105						110					115				
ctt	ctt	aaa	tct	gca	gaa	aga	gag	gag	caa	gag	gaa	tca	gtt	tat	aat	559
Leu	Leu	Lys	Ser	Ala	Glu	Arg	Glu	Glu	Gln	Glu	Glu	Ser	Val	Tyr	Asn	
	120					125					130					
ctc	tac	atc	tct	gaa	gtt	cga	aac	att	aga	ctt	cgg	tta	gag	aac	tgt	607
Leu	Tyr	Ile	Ser	Glu	Val	Arg	Asn	Ile	Arg	Leu	Arg	Leu	Glu	Asn	Cys	
	135				140					145					150	
gaa	gat	cgg	ctg	att	aga	cag	att	cga	act	ccc	ctg	gaa	aga	gat	gat	655
Glu	Asp	Arg	Leu	Ile	Arg	Gln	Ile	Arg	Thr	Pro	Leu	Glu	Arg	Asp	Asp	
			155						160					165		
ttg	cat	gaa	agt	gtg	ttc	aga	atc	aca	gaa	cag	gag	aaa	cta	aag	aaa	703
Leu	His	Glu	Ser	Val	Phe	Arg	Ile	Thr	Glu	Gln	Glu	Lys	Leu	Lys	Lys	
		170					175						180			
gag	ctg	gaa	cga	ctt	aaa	gat	gat	ttg	gga	aca	atc	aca	aat	aag	tgt	751
Glu	Leu	Glu	Arg	Leu	Lys	Asp	Asp	Leu	Gly	Thr	Ile	Thr	Asn	Lys	Cys	
	185					190						195				
gag	gag	ttt	ttc	agt	caa	gca	gca	gcc	tct	tca	tca	gtc	cct	acc	cta	799
Glu	Glu	Phe	Phe	Ser	Gln	Ala	Ala	Ala	Ser	Ser	Ser	Val	Pro	Thr	Leu	
	200					205					210					
cga	tca	gag	ctt	aat	gtg	gtc	ctt	cag	aac	atg	aac	caa	gtc	tat	tct	847
Arg	Ser	Glu	Leu	Asn	Val	Val	Leu	Gln	Asn	Met	Asn	Gln	Val	Tyr	Ser	
	215				220					225					230	
atg	tct	tcc	act	tac	ata	gat	aag	ttg	aaa	act	gtt	aac	ttg	gtg	tta	895
Met	Ser	Ser	Thr	Tyr	Ile	Asp	Lys	Leu	Lys	Thr	Val	Asn	Leu	Val	Leu	
			235					240						245		
aaa	aac	act	caa	gct	gca	gaa	gcc	ctc	gta	aaa	ctc	tat	gaa	act	aaa	943
Lys	Asn	Thr	Gln	Ala	Ala	Glu	Ala	Leu	Val	Lys	Leu	Tyr	Glu	Thr	Lys	
		250						255					260			
ctg	tgt	gaa	gaa	gaa	gca	gtt	ata	gct	gac	aag	aat	aat	att	gag	aat	991
Leu	Cys	Glu	Glu	Glu	Ala	Val	Ile	Ala	Asp	Lys	Asn	Asn	Ile	Glu	Asn	
	265					270						275				
cta	ata	agt	act	tta	aag	caa	tgg	aga	tct	gaa	gta	gat	gaa	aag	aga	1039
Leu	Ile	Ser	Thr	Leu	Lys	Gln	Trp	Arg	Ser	Glu	Val	Asp	Glu	Lys	Arg	
	280					285					290					
cag	gta	ttc	cat	gcc	tta	gag	gat	gag	ttg	cag	aaa	gct	aaa	gcc	atc	1087
Gln	Val	Phe	His	Ala	Leu	Glu	Asp	Glu	Leu	Gln	Lys	Ala	Lys	Ala	Ile	
	295				300					305					310	
agt	gat	gaa	atg	ttt	aaa	acg	tat	aaa	gaa	cgg	gac	ctt	gat	ttt	gac	1135
Ser	Asp	Glu	Met	Phe	Lys	Thr	Tyr	Lys	Glu	Arg	Asp	Leu	Asp	Phe	Asp	
			315					320						325		
tgg	cac	aaa	gaa	aaa	gca	gat	caa	tta	gtt	gaa	agg	tgg	caa	aat	gtt	1183
Trp	His	Lys	Glu	Lys	Ala	Asp	Gln	Leu	Val	Glu	Arg	Trp	Gln	Asn	Val	
		330					335						340			
cat	gtg	cag	att	gac	aac	agg	tta	cgg	gac	tta	gag	ggc	att	ggc	aaa	1231
His	Val	Gln	Ile	Asp	Asn	Arg	Leu	Arg	Asp	Leu	Glu	Gly	Ile	Gly	Lys	
		345					350					355				
tca	ctg	aag	tac	tac	aga	gac	act	tac	cat	cct	tta	gat	gat	tgg	atc	1279
Ser	Leu	Lys	Tyr	Tyr	Arg	Asp	Thr	Tyr	His	Pro	Leu	Asp	Asp	Trp	Ile	
	360					365					370					
cag	cag	gtt	gaa	act	act	cag	aga	aag	att	cag	gaa	aat	cag	cct	gaa	1327
Gln	Gln	Val	Glu	Thr	Thr	Gln	Arg	Lys	Ile	Gln	Glu	Asn	Gln	Pro	Glu	
	375				380					385					390	

aat agt aaa acc cta gcc aca cag ttg aat caa cag aag atg ctg gtg	1375
Asn Ser Lys Thr Leu Ala Thr Gln Leu Asn Gln Gln Lys Met Leu Val	
395 400 405	
tcc gaa ata gaa atg aaa cag agc aaa atg gac gag tgt caa aaa tat	1423
Ser Glu Ile Glu Met Lys Gln Ser Lys Met Asp Glu Cys Gln Lys Tyr	
410 415 420	
gca gaa cag tac tca gct aca gtg aag gac tat gaa tta caa aca atg	1471
Ala Glu Gln Tyr Ser Ala Thr Val Lys Asp Tyr Glu Leu Gln Thr Met	
425 430 435	
acc tac cgg gcc atg gta gat tca caa caa aaa tct cca gtg aaa cgc	1519
Thr Tyr Arg Ala Met Val Asp Ser Gln Gln Lys Ser Pro Val Lys Arg	
440 445 450	
cga aga atg cag agt tca gca gat ctc att att caa gag ttc atg gac	1567
Arg Arg Met Gln Ser Ser Ala Asp Leu Ile Ile Gln Glu Phe Met Asp	
455 460 465 470	
cta agg act cga tat act gcc ctg gtc act ctc atg aca caa tat att	1615
Leu Arg Thr Arg Tyr Thr Ala Leu Val Thr Leu Met Thr Gln Tyr Ile	
475 480 485	
aaa ttt gct ggt gat tca ttg aag agg ctg gaa gag gag gag att aaa	1663
Lys Phe Ala Gly Asp Ser Leu Lys Arg Leu Glu Glu Glu Glu Ile Lys	
490 495 500	
agg tgt aag gag act tct gaa cat ggg gca tat tca gat ctg ctt cag	1711
Arg Cys Lys Glu Thr Ser Glu His Gly Ala Tyr Ser Asp Leu Leu Gln	
505 510 515	
cgt cag aag gca aca gtg ctt gag aat agc aaa ctt aca gga aag ata	1759
Arg Gln Lys Ala Thr Val Leu Glu Asn Ser Lys Leu Thr Gly Lys Ile	
520 525 530	
agt gag ttg gaa aga atg gta gct gaa cta aag aaa caa aag tcc cga	1807
Ser Glu Leu Glu Arg Met Val Ala Glu Leu Lys Lys Gln Lys Ser Arg	
535 540 545 550	
gta gag gaa gaa ctt ccg aag gtc agg gag gct gca gaa aat gaa ttg	1855
Val Glu Glu Glu Leu Pro Lys Val Arg Glu Ala Ala Glu Asn Glu Leu	
555 560 565	
aga aag cag cag aga aat gta gaa gat atc tct ctg cag aag ata agg	1903
Arg Lys Gln Gln Arg Asn Val Glu Asp Ile Ser Leu Gln Lys Ile Arg	
570 575 580	
gct gaa agt gaa gcc aag cag tac cgc agg gaa ctt gaa acc att gtg	1951
Ala Glu Ser Glu Ala Lys Gln Tyr Arg Arg Glu Leu Glu Thr Ile Val	
585 590 595	
aga gag aag gaa gcc gct gaa aga gaa ctg gag cgg gtg agg cag ctc	1999
Arg Glu Lys Glu Ala Ala Glu Arg Glu Leu Glu Arg Val Arg Gln Leu	
600 605 610	
acc ata gag gcc gag gct aaa aga gct gcc gtg gaa gag aac ctc ctg	2047
Thr Ile Glu Ala Glu Ala Lys Arg Ala Ala Val Glu Glu Asn Leu Leu	
615 620 625 630	
aat ttt cgc aat cag ttg gag gaa aac acc ttt acc aga cga aca ctg	2095
Asn Phe Arg Asn Gln Leu Glu Glu Asn Thr Phe Thr Arg Arg Thr Leu	
635 640 645	
gaa gat cat ctt aaa aga aaa gat tta agt ctc aat gat ttg gag caa	2143
Glu Asp His Leu Lys Arg Lys Asp Leu Ser Leu Asn Asp Leu Glu Gln	
650 655 660	
caa aaa aat aaa tta atg gaa gaa tta aga aga aag aga gac aat gag	2191
Gln Lys Asn Lys Leu Met Glu Glu Leu Arg Arg Lys Arg Asp Asn Glu	
665 670 675	

gaa gaa ctc ttg aag ctg ata aag cag atg gaa aaa gac ctt gca ttt Glu Glu Leu Leu Lys Leu Ile Lys Gln Met Glu Lys Asp Leu Ala Phe 680 685 690	2239
cag aaa cag gta gca gag aaa cag ttg aaa gaa aag cag aaa att gaa Gln Lys Gln Val Ala Glu Lys Gln Leu Lys Glu Lys Gln Lys Ile Glu 695 700 705 710	2287
ttg gaa gca aga aga aaa ata act gaa att cag tat aca tgt aga gaa Leu Glu Ala Arg Arg Lys Ile Thr Glu Ile Gln Tyr Thr Cys Arg Glu 715 720 725	2335
aat gca ttg cca gtg tgt ccg atc aca cag gct aca tca tgc agg gca Asn Ala Leu Pro Val Cys Pro Ile Thr Gln Ala Thr Ser Cys Arg Ala 730 735 740	2383
gta acg ggt ctc cag caa gaa cat gac aag cag aaa gca gaa gaa ctc Val Thr Gly Leu Gln Gln Glu His Asp Lys Gln Lys Ala Glu Glu Leu 745 750 755	2431
aaa cag cag gta gat gaa cta aca gct gcc aat aga aag gct gaa caa Lys Gln Gln Val Asp Glu Leu Thr Ala Ala Asn Arg Lys Ala Glu Gln 760 765 770	2479
gac atg aga gag ctg aca tat gaa ctt aat gcc ctc cag ctt gaa aaa Asp Met Arg Glu Leu Thr Tyr Glu Leu Asn Ala Leu Gln Leu Glu Lys 775 780 785 790	2527
acg tca tct gag gaa aag gct cgt ttg cta aaa gat aaa cta gat gaa Thr Ser Ser Glu Glu Lys Ala Arg Leu Leu Lys Asp Lys Leu Asp Glu 795 800 805	2575
aca aat aat aca ctc aga tgc ctt aag ttg gag ctg gaa agg aag gat Thr Asn Asn Thr Leu Arg Cys Leu Lys Leu Glu Leu Glu Arg Lys Asp 810 815 820	2623
cag gcg gag aaa ggg tat tct caa caa ctc aga gag ctt ggt agg caa Gln Ala Glu Lys Gly Tyr Ser Gln Gln Leu Arg Glu Leu Gly Arg Gln 825 830 835	2671
ttg aat caa acc aca ggt aaa gct gaa gaa gcc atg caa gaa gct agt Leu Asn Gln Thr Thr Gly Lys Ala Glu Glu Ala Met Gln Glu Ala Ser 840 845 850	2719
gat ctc aag aaa ata aag cgc aat tat cag tta gaa tta gaa tct ctt Asp Leu Lys Lys Ile Lys Arg Asn Tyr Gln Leu Glu Leu Glu Ser Leu 855 860 865 870	2767
aat cat gaa aaa ggg aaa cta caa aga gaa gta gac aga atc aca agg Asn His Glu Lys Gly Lys Leu Gln Arg Glu Val Asp Arg Ile Thr Arg 875 880 885	2815
gca cat gct gta gct gag aag aat att cag cat tta aat tca caa att Ala His Ala Val Ala Glu Lys Asn Ile Gln His Leu Asn Ser Gln Ile 890 895 900	2863
cat tct ttt cga gat gag aaa gaa tta gaa aga cta caa atc tgc cag His Ser Phe Arg Asp Glu Lys Glu Leu Glu Arg Leu Gln Ile Cys Gln 905 910 915	2911
aga aaa tca gat cat cta aaa gaa caa ttt gag aaa agc cat gag cag Arg Lys Ser Asp His Leu Lys Glu Gln Phe Glu Lys Ser His Glu Gln 920 925 930	2959
ttg ctt caa aat atc aaa gct gaa aaa gaa aat aat gat aaa atc caa Leu Leu Gln Asn Ile Lys Ala Glu Lys Glu Asn Asn Asp Lys Ile Gln 935 940 945 950	3007
agg ctc aat gaa gaa ttg gag aaa agt aat gag tgt gca gag atg cta Arg Leu Asn Glu Glu Leu Glu Lys Ser Asn Glu Cys Ala Glu Met Leu 955 960 965	3055

aaa caa aaa gta gag gag ctt act agg cag aat aat gaa acc aaa tta	3103
Lys Gln Lys Val Glu Glu Leu Thr Arg Gln Asn Asn Glu Thr Lys Leu	
970 975 980	
atg atg cag aga att cag gca gaa tca gag aat ata gtt tta gag aaa	3151
Met Met Gln Arg Ile Gln Ala Glu Ser Glu Asn Ile Val Leu Glu Lys	
985 990 995	
caa act atc cag caa aga tgt gaa gca ctg aaa att cag gca gat	3196
Gln Thr Ile Gln Gln Arg Cys Glu Ala Leu Lys Ile Gln Ala Asp	
1000 1005 1010	
ggt ttt aaa gat cag cta cgc agc aca aat gaa cac ttg cat aaa	3241
Gly Phe Lys Asp Gln Leu Arg Ser Thr Asn Glu His Leu His Lys	
1015 1020 1025	
cag aca aaa aca gag cag gat ttt caa aga aaa att aaa tgc cta	3286
Gln Thr Lys Thr Glu Gln Asp Phe Gln Arg Lys Ile Lys Cys Leu	
1030 1035 1040	
gaa gaa gac ctg gcg aaa agt caa aat ttg gta agt gaa ttt aag	3331
Glu Glu Asp Leu Ala Lys Ser Gln Asn Leu Val Ser Glu Phe Lys	
1045 1050 1055	
caa aag tgt gac caa cag aac att atc atc cag aat acc aag aaa	3376
Gln Lys Cys Asp Gln Gln Asn Ile Ile Ile Gln Asn Thr Lys Lys	
1060 1065 1070	
gaa gtt aga aat ctg aat gcg gaa ctg aat gct tcc aaa gaa gag	3421
Glu Val Arg Asn Leu Asn Ala Glu Leu Asn Ala Ser Lys Glu Glu	
1075 1080 1085	
aag cga cgc ggg gag cag aaa gtt cag cta caa caa gct cag gtg	3466
Lys Arg Arg Gly Glu Gln Lys Val Gln Leu Gln Gln Ala Gln Val	
1090 1095 1100	
caa gag tta aat aac agg ttg aaa aaa gta caa gac gaa tta cac	3511
Gln Glu Leu Asn Asn Arg Leu Lys Lys Val Gln Asp Glu Leu His	
1105 1110 1115	
tta aag acc ata gag gag cag atg acc cac aga aag atg gtt ctg	3556
Leu Lys Thr Ile Glu Glu Gln Met Thr His Arg Lys Met Val Leu	
1120 1125 1130	
ttt cag gaa gaa tct ggt aaa ttc aaa caa tca gca gag gag ttt	3601
Phe Gln Glu Glu Ser Gly Lys Phe Lys Gln Ser Ala Glu Glu Phe	
1135 1140 1145	
cgg aag aag atg gaa aaa tta atg gag tcc aaa gtc atc act gaa	3646
Arg Lys Lys Met Glu Lys Leu Met Glu Ser Lys Val Ile Thr Glu	
1150 1155 1160	
aat gat att tca ggc att agg ctt gac ttt gtg tct ctt caa caa	3691
Asn Asp Ile Ser Gly Ile Arg Leu Asp Phe Val Ser Leu Gln Gln	
1165 1170 1175	
gaa aac tct aga gcc caa gaa aat gct aag ctt tgt gaa aca aac	3736
Glu Asn Ser Arg Ala Gln Glu Asn Ala Lys Leu Cys Glu Thr Asn	
1180 1185 1190	
att aaa gaa ctt gaa aga cag ctt caa cag tat cgt gaa caa atg	3781
Ile Lys Glu Leu Glu Arg Gln Leu Gln Gln Tyr Arg Glu Gln Met	
1195 1200 1205	
cag caa ggg cag cac atg gaa gca aat cat tac caa aaa tgt cag	3826
Gln Gln Gly Gln His Met Glu Ala Asn His Tyr Gln Lys Cys Gln	
1210 1215 1220	
aaa ctt gag gat gag ctg ata gcc cag aag cgt gag gtt gaa aac	3871
Lys Leu Glu Asp Glu Leu Ile Ala Gln Lys Arg Glu Val Glu Asn	
1225 1230 1235	

ctg aag caa aaa atg gac caa cag atc aaa gag cat gaa cat caa	3916
Leu Lys Gln Lys Met Asp Gln Gln Ile Lys Glu His Glu His Gln	
1240 1245 1250	
tta gtt ttg ctc cag tgt gaa att caa aaa aag agc aca gcc aaa	3961
Leu Val Leu Leu Gln Cys Glu Ile Gln Lys Lys Ser Thr Ala Lys	
1255 1260 1265	
gac tgt acc ttc aaa cca gat ttt gag atg aca gtg aag gag tgc	4006
Asp Cys Thr Phe Lys Pro Asp Phe Glu Met Thr Val Lys Glu Cys	
1270 1275 1280	
cag cac tct gga gag ctg tcc tct aga aac act gga cac ctt cac	4051
Gln His Ser Gly Glu Leu Ser Ser Arg Asn Thr Gly His Leu His	
1285 1290 1295	
cca aca ccc aga tcc cct ctg ttg aga tgg act caa gaa cca cag	4096
Pro Thr Pro Arg Ser Pro Leu Leu Arg Trp Thr Gln Glu Pro Gln	
1300 1305 1310	
cca ttg gaa gag aag tgg cag cat cgg gtt gtt gaa cag ata ccc	4141
Pro Leu Glu Glu Lys Trp Gln His Arg Val Val Glu Gln Ile Pro	
1315 1320 1325	
aaa gaa gtc caa ttc cag cca cca ggg gct cca ctc gag aaa gag	4186
Lys Glu Val Gln Phe Gln Pro Pro Gly Ala Pro Leu Glu Lys Glu	
1330 1335 1340	
aaa agc cag cag tgt tac tct gag tac ttt tct cag aca agc acc	4231
Lys Ser Gln Gln Cys Tyr Ser Glu Tyr Phe Ser Gln Thr Ser Thr	
1345 1350 1355	
gag tta cag ata act ttt gat gag aca aac ccc att aca aga ctg	4276
Glu Leu Gln Ile Thr Phe Asp Glu Thr Asn Pro Ile Thr Arg Leu	
1360 1365 1370	
tct gaa att gag aag ata aga gac caa gcc ctg aac aat tct aga	4321
Ser Glu Ile Glu Lys Ile Arg Asp Gln Ala Leu Asn Asn Ser Arg	
1375 1380 1385	
cca cct gtt agg tat caa gat aac gca tgt gaa atg gaa ctg gtg	4366
Pro Pro Val Arg Tyr Gln Asp Asn Ala Cys Glu Met Glu Leu Val	
1390 1395 1400	
aag gtt ttg aca ccc tta gag ata gct aag aac aag cag tat gat	4411
Lys Val Leu Thr Pro Leu Glu Ile Ala Lys Asn Lys Gln Tyr Asp	
1405 1410 1415	
atg cat aca gaa gtc aca aca tta aaa caa gaa aag aac cca gtt	4456
Met His Thr Glu Val Thr Thr Leu Lys Gln Glu Lys Asn Pro Val	
1420 1425 1430	
ccc agt gct gaa gaa tgg atg ctt gaa ggg tgc aga gca tct ggt	4501
Pro Ser Ala Glu Glu Trp Met Leu Glu Gly Cys Arg Ala Ser Gly	
1435 1440 1445	
gga ctc aag aaa ggg gat ttc ctt aag aag ggc tta gaa cca gag	4546
Gly Leu Lys Lys Gly Asp Phe Leu Lys Lys Gly Leu Glu Pro Glu	
1450 1455 1460	
acc ttc cag aac ttt gat ggt gat cat gca tgt tca gtc agg gat	4591
Thr Phe Gln Asn Phe Asp Gly Asp His Ala Cys Ser Val Arg Asp	
1465 1470 1475	
gat gaa ttt aaa ttc caa ggg ctt agg cac act gtg act gcc agg	4636
Asp Glu Phe Lys Phe Gln Gly Leu Arg His Thr Val Thr Ala Arg	
1480 1485 1490	
cag ttg gtg gaa gct aag ctt ctg gac atg aga aca att gag cag	4681
Gln Leu Val Glu Ala Lys Leu Leu Asp Met Arg Thr Ile Glu Gln	
1495 1500 1505	

ctg cga ctc ggt ctt aag act gtt gaa gaa gtt cag aaa act ctt	4726
Leu Arg Leu Gly Leu Lys Thr Val Glu Glu Val Gln Lys Thr Leu	
1510 1515 1520	
aac aag ttt ctg acg aaa gcc acc tca att gca ggg ctt tac cta	4771
Asn Lys Phe Leu Thr Lys Ala Thr Ser Ile Ala Gly Leu Tyr Leu	
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gaa tct aca aaa gaa aag att tca ttt gcc tca gcg gcc gag aga	4816
Glu Ser Thr Lys Glu Lys Ile Ser Phe Ala Ser Ala Ala Glu Arg	
1540 1545 1550	
atc ata ata gac aaa atg gtg gct ttg gca ttt tta gaa gct cag	4861
Ile Ile Ile Asp Lys Met Val Ala Leu Ala Phe Leu Glu Ala Gln	
1555 1560 1565	
gct gca aca ggt ttt ata att gat ccc att tca ggt cag aca tat	4906
Ala Ala Thr Gly Phe Ile Ile Asp Pro Ile Ser Gly Gln Thr Tyr	
1570 1575 1580	
tct gtt gaa gat gca gtt ctt aaa gga gtt gtt gac ccc gaa ttc	4951
Ser Val Glu Asp Ala Val Leu Lys Gly Val Val Asp Pro Glu Phe	
1585 1590 1595	
aga att agg ctt ctt gag gca gag aag gca gct gtg gga tat tct	4996
Arg Ile Arg Leu Leu Glu Ala Glu Lys Ala Ala Val Gly Tyr Ser	
1600 1605 1610	
tat tct tct aag aca ttg tca gtg ttt caa gct atg gaa aat aga	5041
Tyr Ser Ser Lys Thr Leu Ser Val Phe Gln Ala Met Glu Asn Arg	
1615 1620 1625	
atg ctt gac aga caa aaa ggt aaa cat atc ttg gaa gcc cag att	5086
Met Leu Asp Arg Gln Lys Gly Lys His Ile Leu Glu Ala Gln Ile	
1630 1635 1640	
gcc agt ggg ggt gtc att gac cct gtg aga ggc att cgt gtt cct	5131
Ala Ser Gly Gly Val Ile Asp Pro Val Arg Gly Ile Arg Val Pro	
1645 1650 1655	
cca gaa att gct ctg cag cag ggg ttg ttg aat aat gcc atc tta	5176
Pro Glu Ile Ala Leu Gln Gln Gly Leu Leu Asn Asn Ala Ile Leu	
1660 1665 1670	
cag ttt tta cat gag cca tcc agc aac aca aga gtt ttc cct aat	5221
Gln Phe Leu His Glu Pro Ser Ser Asn Thr Arg Val Phe Pro Asn	
1675 1680 1685	
ccc aat aac aag caa gct ctg tat tac tca gaa tta ctg cga atg	5266
Pro Asn Asn Lys Gln Ala Leu Tyr Tyr Ser Glu Leu Leu Arg Met	
1690 1695 1700	
tgt gta ttt gat gta gag tcc caa tgc ttt ctg ttt cca ttt ggg	5311
Cys Val Phe Asp Val Glu Ser Gln Cys Phe Leu Phe Pro Phe Gly	
1705 1710 1715	
gag agg aac att tcc aat ctc aat gtc aag aaa aca cat aga att	5356
Glu Arg Asn Ile Ser Asn Leu Asn Val Lys Lys Thr His Arg Ile	
1720 1725 1730	
tct gta gta gat act aaa aca gga tca gaa ttg acc gtg tat gag	5401
Ser Val Val Asp Thr Lys Thr Gly Ser Glu Leu Thr Val Tyr Glu	
1735 1740 1745	
gct ttc cag aga aac ctg att gag aaa agt ata tat ctt gaa ctt	5446
Ala Phe Gln Arg Asn Leu Ile Glu Lys Ser Ile Tyr Leu Glu Leu	
1750 1755 1760	
tca ggg cag caa tat cag tgg aag gaa gct atg ttt ttt gaa tcc	5491
Ser Gly Gln Gln Tyr Gln Trp Lys Glu Ala Met Phe Phe Glu Ser	
1765 1770 1775	

tat Tyr	ggg Gly 1780	cat His	tct Ser	tct Ser	cat His	atg Met 1785	ctg Leu	act Thr	gat Asp	act Thr	aaa Lys 1790	aca Thr	gga Gly	tta Leu	5536
cac His	ttc Phe 1795	aat Asn	att Ile	aat Asn	gag Glu	gct Ala 1800	ata Ile	gag Glu	cag Gln	gga Gly	aca Thr 1805	att Ile	gac Asp	aaa Lys	5581
gcc Ala	ttg Leu 1810	gtc Val	aaa Lys	aag Lys	tat Tyr	cag Gln 1815	gaa Glu	ggc Gly	ctc Leu	atc Ile	aca Thr 1820	ctt Leu	aca Thr	gaa Glu	5626
ctt Leu	gct Ala 1825	gat Asp	tct Ser	ttg Leu	ctg Leu	agc Ser 1830	cgg Arg	tta Leu	gtc Val	ccc Pro	aag Lys 1835	aaa Lys	gat Asp	ttg Leu	5671
cac His	agt Ser 1840	cct Pro	gtt Val	gca Ala	ggg Gly	tat Tyr 1845	tgg Trp	ctg Leu	act Thr	gct Ala	agt Ser 1850	ggg Gly	gaa Glu	agg Arg	5716
atc Ile	tct Ser 1855	gta Val	cta Leu	aaa Lys	gcc Ala	tcc Ser 1860	cgt Arg	aga Arg	aat Asn	ttg Leu	gtt Val 1865	gat Asp	cgg Arg	att Ile	5761
act Thr	gcc Ala 1870	ctc Leu	cga Arg	tgc Cys	ctt Leu	gaa Glu 1875	gcc Ala	caa Gln	gtc Val	agt Ser	aca Thr 1880	ggg Gly	ggc Gly	ata Ile	5806
att Ile	gat Asp 1885	cct Pro	ctt Leu	act Thr	ggc Gly	aaa Lys 1890	aag Lys	tac Tyr	cgg Arg	gtg Val	gcc Ala 1895	gaa Glu	gct Ala	ttg Leu	5851
cat His	aga Arg 1900	ggc Gly	ctg Leu	gtt Val	gat Asp	gag Glu 1905	ggg Gly	ttt Phe	gcc Ala	cag Gln	cag Gln 1910	ctg Leu	cga Arg	cag Gln	5896
tgt Cys	gaa Glu 1915	tta Leu	gta Val	atc Ile	aca Thr	ggg Gly 1920	att Ile	ggc Gly	cat His	ccc Pro	atc Ile 1925	act Thr	aac Asn	aaa Lys	5941
atg Met	atg Met 1930	tca Ser	gtg Val	gtg Val	gaa Glu	gct Ala 1935	gtg Val	aat Asn	gca Ala	aat Asn	att Ile 1940	ata Ile	aat Asn	aag Lys	5986
gaa Glu	atg Met 1945	gga Gly	atc Ile	cga Arg	tgt Cys	ttg Leu 1950	gaa Glu	ttt Phe	cag Gln	tac Tyr	ttg Leu 1955	aca Thr	gga Gly	ggg Gly	6031
ttg Leu	ata Ile 1960	gag Glu	cca Pro	cag Gln	gtt Val	cac His 1965	tct Ser	cgg Arg	tta Leu	tca Ser	ata Ile 1970	gaa Glu	gag Glu	gct Ala	6076
ctc Leu	caa Gln 1975	gta Val	ggg Gly	att Ile	ata Ile	gat Asp 1980	gtc Val	ctc Leu	att Ile	gcc Ala	aca Thr 1985	aaa Lys	ctc Leu	aaa Lys	6121
gat Asp	caa Gln 1990	aag Lys	tca Ser	tat Tyr	gtc Val	aga Arg 1995	aat Asn	ata Ile	ata Ile	tgc Cys	cct Pro 2000	cag Gln	aca Thr	aaa Lys	6166
aga Arg	aag Lys 2005	ttg Leu	aca Thr	tat Tyr	aaa Lys	gaa Glu 2010	gcc Ala	tta Leu	gaa Glu	aaa Lys	gct Ala 2015	gat Asp	ttt Phe	gat Asp	6211
ttc Phe	cac His 2020	aca Thr	gga Gly	ctt Leu	aaa Lys	ctg Leu 2025	tta Leu	gaa Glu	gta Val	tct Ser	gag Glu 2030	ccc Pro	ctg Leu	atg Met	6256
aca Thr	gga Gly 2035	att Ile	tct Ser	agc Ser	ctc Leu	tac Tyr 2040	tat Tyr	tct Ser	tcc Ser	taatgggaca	tgttttaaata				6306



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Leu Trp His Glu Ser His Ile Asn Met Lys Ser Val Val Ser Trp His  
35 40 45  
  
Tyr Leu Ile Asn Glu Ile Asp Arg Ile Arg Ala Ser Asn Val Ala Ser  
50 55 60  
  
Ile Lys Thr Met Leu Pro Gly Glu His Gln Gln Val Leu Ser Asn Leu  
65 70 75 80  
  
Gln Ser Arg Phe Glu Asp Phe Leu Glu Asp Ser Gln Glu Ser Gln Val  
85 90 95  
  
Phe Ser Gly Ser Asp Ile Thr Gln Leu Glu Lys Glu Val Asn Val Cys  
100 105 110  
  
Lys Gln Tyr Tyr Gln Glu Leu Leu Lys Ser Ala Glu Arg Glu Glu Gln  
115 120 125  
  
Glu Glu Ser Val Tyr Asn Leu Tyr Ile Ser Glu Val Arg Asn Ile Arg  
130 135 140  
  
Leu Arg Leu Glu Asn Cys Glu Asp Arg Leu Ile Arg Gln Ile Arg Thr  
145 150 155 160  
  
Pro Leu Glu Arg Asp Asp Leu His Glu Ser Val Phe Arg Ile Thr Glu

165

170

175

Gln Glu Lys Leu Lys Lys Glu Leu Glu Arg Leu Lys Asp Asp Leu Gly  
 180 185 190

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

Thr Val Asn Leu Val Leu Lys Asn Thr Gln Ala Ala Glu Ala Leu Val  
 245 250 255

Lys Leu Tyr Glu Thr Lys Leu Cys Glu Glu Glu Ala Val Ile Ala Asp  
 260 265 270

Lys Asn Asn Ile Glu Asn Leu Ile Ser Thr Leu Lys Gln Trp Arg Ser  
 275 280 285

Glu Val Asp Glu Lys Arg Gln Val Phe His Ala Leu Glu Asp Glu Leu  
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Gln Lys Ala Lys Ala Ile Ser Asp Glu Met Phe Lys Thr Tyr Lys Glu  
 305 310 315 320

Arg Asp Leu Asp Phe Asp Trp His Lys Glu Lys Ala Asp Gln Leu Val  
 325 330 335

Glu Arg Trp Gln Asn Val His Val Gln Ile Asp Asn Arg Leu Arg Asp  
 340 345 350

Leu Glu Gly Ile Gly Lys Ser Leu Lys Tyr Tyr Arg Asp Thr Tyr His  
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Pro Leu Asp Asp Trp Ile Gln Gln Val Glu Thr Thr Gln Arg Lys Ile  
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Gln Glu Asn Gln Pro Glu Asn Ser Lys Thr Leu Ala Thr Gln Leu Asn  
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Gln Gln Lys Met Leu Val Ser Glu Ile Glu Met Lys Gln Ser Lys Met  
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Asp Glu Cys Gln Lys Tyr Ala Glu Gln Tyr Ser Ala Thr Val Lys Asp  
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Tyr Glu Leu Gln Thr Met Thr Tyr Arg Ala Met Val Asp Ser Gln Gln  
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Lys Ser Pro Val Lys Arg Arg Arg Met Gln Ser Ser Ala Asp Leu Ile

450

455

460

Ile Gln Glu Phe Met Asp Leu Arg Thr Arg Tyr Thr Ala Leu Val Thr  
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Leu Met Thr Gln Tyr Ile Lys Phe Ala Gly Asp Ser Leu Lys Arg Leu  
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Glu Glu Glu Glu Ile Lys Arg Cys Lys Glu Thr Ser Glu His Gly Ala  
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Tyr Ser Asp Leu Leu Gln Arg Gln Lys Ala Thr Val Leu Glu Asn Ser  
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Lys Leu Thr Gly Lys Ile Ser Glu Leu Glu Arg Met Val Ala Glu Leu  
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Lys Lys Gln Lys Ser Arg Val Glu Glu Glu Leu Pro Lys Val Arg Glu  
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Ala Ala Glu Asn Glu Leu Arg Lys Gln Gln Arg Asn Val Glu Asp Ile  
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Ser Leu Gln Lys Ile Arg Ala Glu Ser Glu Ala Lys Gln Tyr Arg Arg  
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Glu Leu Glu Thr Ile Val Arg Glu Lys Glu Ala Ala Glu Arg Glu Leu  
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Glu Arg Val Arg Gln Leu Thr Ile Glu Ala Glu Ala Lys Arg Ala Ala  
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Val Glu Glu Asn Leu Leu Asn Phe Arg Asn Gln Leu Glu Glu Asn Thr  
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Phe Thr Arg Arg Thr Leu Glu Asp His Leu Lys Arg Lys Asp Leu Ser  
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Leu Asn Asp Leu Glu Gln Gln Lys Asn Lys Leu Met Glu Glu Leu Arg  
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Arg Lys Arg Asp Asn Glu Glu Glu Leu Leu Lys Leu Ile Lys Gln Met  
 675 680 685

Glu Lys Asp Leu Ala Phe Gln Lys Gln Val Ala Glu Lys Gln Leu Lys  
 690 695 700

Glu Lys Gln Lys Ile Glu Leu Glu Ala Arg Arg Lys Ile Thr Glu Ile  
 705 710 715 720

Gln Tyr Thr Cys Arg Glu Asn Ala Leu Pro Val Cys Pro Ile Thr Gln  
 725 730 735

Ala Thr Ser Cys Arg Ala Val Thr Gly Leu Gln Gln Glu His Asp Lys

740

745

750

Gln Lys Ala Glu Glu Leu Lys Gln Gln Val Asp Glu Leu Thr Ala Ala  
755 760 765

Asn Arg Lys Ala Glu Gln Asp Met Arg Glu Leu Thr Tyr Glu Leu Asn  
770 775 780

Ala Leu Gln Leu Glu Lys Thr Ser Ser Glu Glu Lys Ala Arg Leu Leu  
785 790 795 800

Lys Asp Lys Leu Asp Glu Thr Asn Asn Thr Leu Arg Cys Leu Lys Leu  
805 810 815

Glu Leu Glu Arg Lys Asp Gln Ala Glu Lys Gly Tyr Ser Gln Gln Leu  
820 825 830

Arg Glu Leu Gly Arg Gln Leu Asn Gln Thr Thr Gly Lys Ala Glu Glu  
835 840 845

Ala Met Gln Glu Ala Ser Asp Leu Lys Lys Ile Lys Arg Asn Tyr Gln  
850 855 860

Leu Glu Leu Glu Ser Leu Asn His Glu Lys Gly Lys Leu Gln Arg Glu  
865 870 875 880

Val Asp Arg Ile Thr Arg Ala His Ala Val Ala Glu Lys Asn Ile Gln  
885 890 895

His Leu Asn Ser Gln Ile His Ser Phe Arg Asp Glu Lys Glu Leu Glu  
900 905 910

Arg Leu Gln Ile Cys Gln Arg Lys Ser Asp His Leu Lys Glu Gln Phe  
915 920 925

Glu Lys Ser His Glu Gln Leu Leu Gln Asn Ile Lys Ala Glu Lys Glu  
930 935 940

Asn Asn Asp Lys Ile Gln Arg Leu Asn Glu Glu Leu Glu Lys Ser Asn  
945 950 955 960

Glu Cys Ala Glu Met Leu Lys Gln Lys Val Glu Glu Leu Thr Arg Gln  
965 970 975

Asn Asn Glu Thr Lys Leu Met Met Gln Arg Ile Gln Ala Glu Ser Glu  
980 985 990

Asn Ile Val Leu Glu Lys Gln Thr Ile Gln Gln Arg Cys Glu Ala Leu  
995 1000 1005

Lys Ile Gln Ala Asp Gly Phe Lys Asp Gln Leu Arg Ser Thr Asn  
1010 1015 1020

Glu His Leu His Lys Gln Thr Lys Thr Glu Gln Asp Phe Gln Arg

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Val Ser	Glu Phe Lys Gln	Lys Cys Asp Gln Gln	Asn Ile Ile Ile	
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Gln Asn	Thr Lys Lys Glu	Val Arg Asn Leu Asn	Ala Glu Leu Asn	
1070		1075	1080	
Ala Ser	Lys Glu Glu Lys	Arg Arg Gly Glu Gln	Lys Val Gln Leu	
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Gln Gln	Ala Gln Val Gln	Glu Leu Asn Asn Arg	Leu Lys Lys Val	
1100		1105	1110	
Gln Asp	Glu Leu His Leu	Lys Thr Ile Glu Glu	Gln Met Thr His	
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Arg Lys	Met Val Leu Phe	Gln Glu Glu Ser Gly	Lys Phe Lys Gln	
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Ser Ala	Glu Glu Phe Arg	Lys Lys Met Glu Lys	Leu Met Glu Ser	
1145		1150	1155	
Lys Val	Ile Thr Glu Asn	Asp Ile Ser Gly Ile	Arg Leu Asp Phe	
1160		1165	1170	
Val Ser	Leu Gln Gln Glu	Asn Ser Arg Ala Gln	Glu Asn Ala Lys	
1175		1180	1185	
Leu Cys	Glu Thr Asn Ile	Lys Glu Leu Glu Arg	Gln Leu Gln Gln	
1190		1195	1200	
Tyr Arg	Glu Gln Met Gln	Gln Gly Gln His Met	Glu Ala Asn His	
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Tyr Gln	Lys Cys Gln Lys	Leu Glu Asp Glu Leu	Ile Ala Gln Lys	
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Arg Glu	Val Glu Asn Leu	Lys Gln Lys Met Asp	Gln Gln Ile Lys	
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Glu His	Glu His Gln Leu	Val Leu Leu Gln Cys	Glu Ile Gln Lys	
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Lys Ser	Thr Ala Lys Asp	Cys Thr Phe Lys Pro	Asp Phe Glu Met	
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Thr Val	Lys Glu Cys Gln	His Ser Gly Glu Leu	Ser Ser Arg Asn	
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Thr Gly	His Leu His Pro	Thr Pro Arg Ser Pro	Leu Leu Arg Trp	

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Pro	Leu	Glu	Lys	Glu	Lys	Ser	Gln	Gln	Cys	Tyr	Ser	Glu	Tyr	Phe	
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Ser	Gln	Thr	Ser	Thr	Glu	Leu	Gln	Ile	Thr	Phe	Asp	Glu	Thr	Asn	
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Pro	Ile	Thr	Arg	Leu	Ser	Glu	Ile	Glu	Lys	Ile	Arg	Asp	Gln	Ala	
1370						1375					1380				
Leu	Asn	Asn	Ser	Arg	Pro	Pro	Val	Arg	Tyr	Gln	Asp	Asn	Ala	Cys	
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1415						1420					1425				
Glu	Lys	Asn	Pro	Val	Pro	Ser	Ala	Glu	Glu	Trp	Met	Leu	Glu	Gly	
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Cys	Arg	Ala	Ser	Gly	Gly	Leu	Lys	Lys	Gly	Asp	Phe	Leu	Lys	Lys	
1445						1450					1455				
Gly	Leu	Glu	Pro	Glu	Thr	Phe	Gln	Asn	Phe	Asp	Gly	Asp	His	Ala	
1460						1465					1470				
Cys	Ser	Val	Arg	Asp	Asp	Glu	Phe	Lys	Phe	Gln	Gly	Leu	Arg	His	
1475						1480					1485				
Thr	Val	Thr	Ala	Arg	Gln	Leu	Val	Glu	Ala	Lys	Leu	Leu	Asp	Met	
1490						1495					1500				
Arg	Thr	Ile	Glu	Gln	Leu	Arg	Leu	Gly	Leu	Lys	Thr	Val	Glu	Glu	
1505						1510					1515				
Val	Gln	Lys	Thr	Leu	Asn	Lys	Phe	Leu	Thr	Lys	Ala	Thr	Ser	Ile	
1520						1525					1530				
Ala	Gly	Leu	Tyr	Leu	Glu	Ser	Thr	Lys	Glu	Lys	Ile	Ser	Phe	Ala	
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Ser	Ala	Ala	Glu	Arg	Ile	Ile	Ile	Asp	Lys	Met	Val	Ala	Leu	Ala	
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Phe	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Ile	Asp	Pro	Ile	

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Val Asp 1595	Pro Glu Phe Arg	Ile 1600	Arg Leu Leu Glu	Ala 1605 Glu Lys Ala
Ala Val 1610	Gly Tyr Ser Tyr	Ser 1615	Ser Lys Thr Leu	Ser 1620 Val Phe Gln
Ala Met 1625	Glu Asn Arg Met	Leu 1630	Asp Arg Gln Lys	Gly 1635 Lys His Ile
Leu Glu 1640	Ala Gln Ile Ala	Ser 1645	Gly Gly Val Ile	Asp 1650 Pro Val Arg
Gly Ile 1655	Arg Val Pro Pro	Glu 1660	Ile Ala Leu Gln	Gln 1665 Gly Leu Leu
Asn Asn 1670	Ala Ile Leu Gln	Phe 1675	Leu His Glu Pro	Ser 1680 Ser Asn Thr
Arg Val 1685	Phe Pro Asn Pro	Asn 1690	Asn Lys Gln Ala	Leu 1695 Tyr Tyr Ser
Glu Leu 1700	Leu Arg Met Cys	Val 1705	Phe Asp Val Glu	Ser 1710 Gln Cys Phe
Leu Phe 1715	Pro Phe Gly Glu	Arg 1720	Asn Ile Ser Asn	Leu 1725 Asn Val Lys
Lys Thr 1730	His Arg Ile Ser	Val 1735	Val Asp Thr Lys	Thr 1740 Gly Ser Glu
Leu Thr 1745	Val Tyr Glu Ala	Phe 1750	Gln Arg Asn Leu	Ile 1755 Glu Lys Ser
Ile Tyr 1760	Leu Glu Leu Ser	Gly 1765	Gln Gln Tyr Gln	Trp 1770 Lys Glu Ala
Met Phe 1775	Phe Glu Ser Tyr	Gly 1780	His Ser Ser His	Met 1785 Leu Thr Asp
Thr Lys 1790	Thr Gly Leu His	Phe 1795	Asn Ile Asn Glu	Ala 1800 Ile Glu Gln
Gly Thr 1805	Ile Asp Lys Ala	Leu 1810	Val Lys Lys Tyr	Gln 1815 Glu Gly Leu
Ile Thr 1820	Leu Thr Glu Leu	Ala 1825	Asp Ser Leu Leu	Ser 1830 Arg Leu Val
Pro Lys	Lys Asp Leu His	Ser	Pro Val Ala Gly	Tyr Trp Leu Thr

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Ala Ser Gly Glu Arg Ile	Ser Val Leu Lys Ala Ser Arg Arg Asn			
1850	1855	1860		
Leu Val Asp Arg Ile Thr	Ala Leu Arg Cys Leu Glu Ala Gln Val			
1865	1870	1875		
Ser Thr Gly Gly Ile Ile	Asp Pro Leu Thr Gly Lys Lys Tyr Arg			
1880	1885	1890		
Val Ala Glu Ala Leu His	Arg Gly Leu Val Asp Glu Gly Phe Ala			
1895	1900	1905		
Gln Gln Leu Arg Gln Cys	Glu Leu Val Ile Thr Gly Ile Gly His			
1910	1915	1920		
Pro Ile Thr Asn Lys Met	Met Ser Val Val Glu Ala Val Asn Ala			
1925	1930	1935		
Asn Ile Ile Asn Lys Glu	Met Gly Ile Arg Cys Leu Glu Phe Gln			
1940	1945	1950		
Tyr Leu Thr Gly Gly Leu	Ile Glu Pro Gln Val His Ser Arg Leu			
1955	1960	1965		
Ser Ile Glu Glu Ala Leu	Gln Val Gly Ile Ile Asp Val Leu Ile			
1970	1975	1980		
Ala Thr Lys Leu Lys Asp	Gln Lys Ser Tyr Val Arg Asn Ile Ile			
1985	1990	1995		
Cys Pro Gln Thr Lys Arg	Lys Leu Thr Tyr Lys Glu Ala Leu Glu			
2000	2005	2010		
Lys Ala Asp Phe Asp Phe	His Thr Gly Leu Lys Leu Leu Glu Val			
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Lys	Leu	Ile	Leu	Ala	Arg	Asn	Ala	Leu	Gln	Ser	Asp	Ser	Lys	Arg	Leu		
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Glu	Ser	Gly	Val	Gln	Phe	Gln	Asn	Glu	Ala	Glu	Ile	Ala	Gly	Tyr	Ile		
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Leu	Glu	Cys	Glu	Asn	Leu	Leu	Arg	Gln	His	Val	Ile	Asp	Val	Gln	Ile		
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Leu	Ile	Asp	Gly	Lys	Tyr	Tyr	Gln	Ala	Asp	Gln	Leu	Val	Gln	Arg	Val		
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Ala	Lys	Leu	Arg	Asp	Glu	Ile	Met	Ala	Leu	Arg	Asn	Glu	Cys	Ser	Ser		
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Thr	Ser	Ser	Ser	Val	Thr	Ser	Gly	Leu	Ser	Ser	Gly	Met	Thr	Ser	Arg		
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Trp	Gly	Ser	Asp	Leu	Pro	Ser	Val	Glu	Ser	His	Leu	Glu	Asn	His	Lys		
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		290				295					300						
aaa	att	agt	gag	att	cag	atg	aca	gcg	cct	ctg	aaa	ctc	tct	tac	aca	960	
Lys	Ile	Ser	Glu	Ile	Gln	Met	Thr	Ala	Pro	Leu	Lys	Leu	Ser	Tyr	Thr		

305		310		315		320	
gat aag ttg cac aga tta gag agt cag tac gct aaa ctc ttg aat aca	1008						
Asp Lys Leu His Arg Leu Glu Ser Gln Tyr Ala Lys Leu Leu Asn Thr							
		325		330		335	
tcc aga aat cag gag cga cat ctc gat aca ctc cac aac ttt gta acc	1056						
Ser Arg Asn Gln Glu Arg His Leu Asp Thr Leu His Asn Phe Val Thr							
		340		345		350	
cgc gca act aac gag ctt atc tgg ttg aat gaa aag gag gag tcg gaa	1104						
Arg Ala Thr Asn Glu Leu Ile Trp Leu Asn Glu Lys Glu Glu Ser Glu							
		355		360		365	
gtt gct tat gat tgg agt gag aga aac agc agt gtc gcc cgg aag aaa	1152						
Val Ala Tyr Asp Trp Ser Glu Arg Asn Ser Ser Val Ala Arg Lys Lys							
		370		375		380	
agc tac cac gtg gag ctg atg cgg gag ctg gag cag aag gag gag agc	1200						
Ser Tyr His Val Glu Leu Met Arg Glu Leu Glu Gln Lys Glu Glu Ser							
		385		390		395	400
att aaa gct gtt cag gag atc gca gag cag ctg ctt ctg gaa aac cac	1248						
Ile Lys Ala Val Gln Glu Ile Ala Glu Gln Leu Leu Leu Glu Asn His							
		405		410		415	
cca gcc cgc ttg acc atc gag gcg tac aga gcg gcc atg cag aca cag	1296						
Pro Ala Arg Leu Thr Ile Glu Ala Tyr Arg Ala Ala Met Gln Thr Gln							
		420		425		430	
tgg agc tgg atc cta cag ctg tgc cag tgc gtg gag cag cac att cag	1344						
Trp Ser Trp Ile Leu Gln Leu Cys Gln Cys Val Glu Gln His Ile Gln							
		435		440		445	
gag aac tct gcc tat ttc gag ttt ttc aat gat gcc aaa gaa gcc act	1392						
Glu Asn Ser Ala Tyr Phe Glu Phe Phe Asn Asp Ala Lys Glu Ala Thr							
		450		455		460	
gat tac cta agg aat ctg aaa gat gcc atc cag cgc aag tac agc tgt	1440						
Asp Tyr Leu Arg Asn Leu Lys Asp Ala Ile Gln Arg Lys Tyr Ser Cys							
		465		470		475	480
gac agg tcc agc agc att cac aaa ctg gaa gac ctt gtc cag gag tcc	1488						
Asp Arg Ser Ser Ser Ile His Lys Leu Glu Asp Leu Val Gln Glu Ser							
		485		490		495	
atg gaa aag gag gag ctc ctg cag tac cgg agt gtg gtg gca ggg ctg	1536						
Met Glu Lys Glu Glu Leu Leu Gln Tyr Arg Ser Val Val Ala Gly Leu							
		500		505		510	
atg ggg cga gcg aag aca gtg gtg cag ctg aag ccg agg aat cct gac	1584						
Met Gly Arg Ala Lys Thr Val Val Gln Leu Lys Pro Arg Asn Pro Asp							
		515		520		525	
aac cca ctc aag acg tcc atc ccc atc aaa gcc atc tgc gac tac aga	1632						
Asn Pro Leu Lys Thr Ser Ile Pro Ile Lys Ala Ile Cys Asp Tyr Arg							
		530		535		540	
cag att gag ata acc att tac aaa gac gat gag tgt gtc ttg gca aac	1680						
Gln Ile Glu Ile Thr Ile Tyr Lys Asp Asp Glu Cys Val Leu Ala Asn							
		545		550		555	560
aac tct cat cga gct aaa tgg aag gtc atc agt cct act ggg aac gag	1728						
Asn Ser His Arg Ala Lys Trp Lys Val Ile Ser Pro Thr Gly Asn Glu							
		565		570		575	
gcc gtg gtc ccg tct gtg tgc ttt act gtt ccc cca cca aac aaa gaa	1776						
Ala Val Val Pro Ser Val Cys Phe Thr Val Pro Pro Pro Asn Lys Glu							
		580		585		590	
gca gtt gac ttt gcc aac aga att gag caa cag tat cag agt gta ctc	1824						
Ala Val Asp Phe Ala Asn Arg Ile Glu Gln Gln Tyr Gln Ser Val Leu							

595	600	605	
act ctc tgg cat gag tct cac ata aac atg aag agt gtc gtc tcc tgg			1872
Thr Leu Trp His Glu Ser His Ile Asn Met Lys Ser Val Val Ser Trp			
610	615	620	
cac tat cta gtc aat gaa atc gac aga att cga gct agt aat gtg gct			1920
His Tyr Leu Val Asn Glu Ile Asp Arg Ile Arg Ala Ser Asn Val Ala			
625	630	635	640
tcg ata aag acg atg ttg cct ggc gag cac cag cag gtt ctc agt aat			1968
Ser Ile Lys Thr Met Leu Pro Gly Glu His Gln Gln Val Leu Ser Asn			
645	650	655	
ctc cag tcc cgc ttg gag gat ttc ctg gag gat agc cag gaa tcc cag			2016
Leu Gln Ser Arg Leu Glu Asp Phe Leu Glu Asp Ser Gln Glu Ser Gln			
660	665	670	
ata ttc tca ggc tcg gat ata agt caa cta gaa aag gaa gtg agt gtg			2064
Ile Phe Ser Gly Ser Asp Ile Ser Gln Leu Glu Lys Glu Val Ser Val			
675	680	685	
tgc agg aag tat tat caa gag ctc ctc aag tct gca gaa aga gag gag			2112
Cys Arg Lys Tyr Tyr Gln Glu Leu Leu Lys Ser Ala Glu Arg Glu Glu			
690	695	700	
caa gag gaa tct gtg tat aat ctt tac atc tcg gaa gtg cga aac att			2160
Gln Glu Glu Ser Val Tyr Asn Leu Tyr Ile Ser Glu Val Arg Asn Ile			
705	710	715	720
cgg ctc cgc ctg gag agc tgt gaa gac agg ttg att cgg cag atc cgg			2208
Arg Leu Arg Leu Glu Ser Cys Glu Asp Arg Leu Ile Arg Gln Ile Arg			
725	730	735	
act ccc ctg gaa aga gat gat tta cat gaa agc atg ctc agg atc acg			2256
Thr Pro Leu Glu Arg Asp Asp Leu His Glu Ser Met Leu Arg Ile Thr			
740	745	750	
gag cag gag aaa ctg aag aaa gag ctg gat cgg ctt aaa gat gac ttg			2304
Glu Gln Glu Lys Leu Lys Lys Glu Leu Asp Arg Leu Lys Asp Asp Leu			
755	760	765	
gga acg atc aca aat aag tgt gaa gag ttt ttc agc caa gcg gct gac			2352
Gly Thr Ile Thr Asn Lys Cys Glu Glu Phe Phe Ser Gln Ala Ala Asp			
770	775	780	
tcg ccg tct gtc ccc gct ctc cga tca gag ctc agc gtg gtc att cag			2400
Ser Pro Ser Val Pro Ala Leu Arg Ser Glu Leu Ser Val Val Ile Gln			
785	790	795	800
agc ttg agt cag atc tac tct atg tct tcc acg tac ata gag aaa ttg			2448
Ser Leu Ser Gln Ile Tyr Ser Met Ser Ser Thr Tyr Ile Glu Lys Leu			
805	810	815	
aag act gtg aat ttg gtt tta aaa aac act caa gcc gca gaa gcc ctt			2496
Lys Thr Val Asn Leu Val Leu Lys Asn Thr Gln Ala Ala Glu Ala Leu			
820	825	830	
gtc aaa ctc tac gaa acc aaa ctg tgt gaa gag gaa gca gtt ata gca			2544
Val Lys Leu Tyr Glu Thr Lys Leu Cys Glu Glu Glu Ala Val Ile Ala			
835	840	845	
gac aag aat aac att gag aat tta atg agt act tta aag caa tgg cga			2592
Asp Lys Asn Asn Ile Glu Asn Leu Met Ser Thr Leu Lys Gln Trp Arg			
850	855	860	
tca gaa gta gat gag aag aga gag gtg ttc cat gca ttg gaa gac gag			2640
Ser Glu Val Asp Glu Lys Arg Glu Val Phe His Ala Leu Glu Asp Glu			
865	870	875	880
ttg cag aaa gca aaa gcc atc agc gat gag atg ttc aag aca cac aaa			2688
Leu Gln Lys Ala Lys Ala Ile Ser Asp Glu Met Phe Lys Thr His Lys			

885										890										895																				
gaa cgg gac ctt gac ttt gac tgg cac										aaa gaa aag gca gac cag ctt										2736																				
Glu Arg Asp Leu Asp Phe Asp Trp His										Lys Glu Lys Ala Asp Gln Leu																														
900										905										910																				
gtc gaa agg tgg cag agc gtt cac gtc										cag atc gac aac agg ctc cgg										2784																				
Val Glu Arg Trp Gln Ser Val His Val										Gln Ile Asp Asn Arg Leu Arg																														
915										920										925																				
gac tta gaa gga atc ggg aag tcc ctg										aag cac tac agg gac tcc tac										2832																				
Asp Leu Glu Gly Ile Gly Lys Ser Leu										Lys His Tyr Arg Asp Ser Tyr																														
930										935										940																				
cac cct ctc gat gac tgg atc cag cac										att gaa acg acc cag aga aaa										2880																				
His Pro Leu Asp Asp Trp Ile Gln His										Ile Glu Thr Thr Gln Arg Lys																														
945										950										955										960										
att cag gaa aat cag cca gaa aac agc										aaa gcc ctg gcc ctg cag ctg										2928																				
Ile Gln Glu Asn Gln Pro Glu Asn Ser										Lys Ala Leu Ala Leu Gln Leu																														
965										970										975																				
aac caa cag aag atg ctg gtg tct gaa										ata gag gtg aag cag agc aaa										2976																				
Asn Gln Gln Lys Met Leu Val Ser Glu										Ile Glu Val Lys Gln Ser Lys																														
980										985										990																				
atg gac gag tgt cag aaa tac tca										gag cag tac tcg gct gcc gtc aag										3024																				
Met Asp Glu Cys Gln Lys Tyr Ser										Glu Gln Tyr Ser Ala Ala Val Lys																														
995										1000										1005																				
gac tat gag ttg caa aca atg										acc tac agg gct atg gtg gag tcc										3069																				
Asp Tyr Glu Leu Gln Thr Met Thr										Tyr Arg Ala Met Val Glu Ser																														
1010										1015										1020																				
cag cag aag tcg cca gtg aag										cga cgg cgg ata cag agc tca gca										3114																				
Gln Gln Lys Ser Pro Val Lys Arg										Arg Arg Arg Ile Gln Ser Ser Ala																														
1025										1030										1035																				
gac ctc gtt att caa gag ttc										atg gac cta cgg aca cgg tac act										3159																				
Asp Leu Val Ile Gln Glu Phe Met										Asp Leu Arg Thr Arg Tyr Thr																														
1040										1045										1050																				
gcc ctg gtc act ctt atg acg										cag tat att aaa ttt gct ggt gat										3204																				
Ala Leu Val Thr Leu Met Thr Gln										Tyr Ile Lys Phe Ala Gly Asp																														
1055										1060										1065																				
tcg ttg aaa agg ctg gaa gag										gag gag atg aaa agg tct aaa gag										3249																				
Ser Leu Lys Arg Leu Glu Glu										Glu Glu Met Lys Arg Ser Lys Glu																														
1070										1075										1080																				
aat tct gag cac ggg gcg tat										tca gat cta ctg cag cgt cag aga										3294																				
Asn Ser Glu His Gly Ala Tyr Ser										Asp Leu Leu Gln Arg Gln Arg																														
1085										1090										1095																				
gca acc atg gtt gag aat agc										aaa ctt acc ggg aag atc agt gaa										3339																				
Ala Thr Met Val Glu Asn Ser Lys										Leu Thr Gly Lys Ile Ser Glu																														
1100										1105										1110																				
ctg gaa aca atg gtg gct gag										cta aag aaa cag aaa tcc cgg gtc										3384																				
Leu Glu Thr Met Val Ala Glu										Leu Lys Lys Gln Lys Ser Arg Val																														
1115										1120										1125																				
gag gag gag ctt ccg aaa gtt										aag gag gcc gcc gaa aat gaa ctg										3429																				
Glu Glu Glu Leu Pro Lys Val Lys										Glu Ala Ala Glu Asn Glu Leu																														
1130										1135										1140																				
agg aag caa cag agg aac gtg										gaa gac atc gcc ctg cag aag ctg										3474																				
Arg Lys Gln Gln Arg Asn Val Glu										Asp Ile Ala Leu Gln Lys Leu																														
1145										1150										1155																				
agg gcc gag agc gag gcc aag										cag tac cgc cgt gag ctg gag acg										3519																				
Arg Ala Glu Ser Glu Ala Lys Gln										Tyr Arg Arg Glu Leu Glu Thr																														

1160	1165	1170	
atc gtg agg gag aag gaa gct gcc gag cgg gag ctg gag cgg gtg			3564
Ile Val Arg Glu Lys Glu Ala Ala Glu Arg Glu Leu Glu Arg Val			
1175	1180	1185	
agg cag ctc acg gcg gag gcg gaa gct cgg cga gcc gcg gtg gag			3609
Arg Gln Leu Thr Ala Glu Ala Glu Ala Arg Arg Ala Ala Val Glu			
1190	1195	1200	
gag aac ctc cgc aac ttc cgg agc cag ctg cag gaa aac acc ttc			3654
Glu Asn Leu Arg Asn Phe Arg Ser Gln Leu Gln Glu Asn Thr Phe			
1205	1210	1215	
acc agg cag acg ctg gaa gat cat ctg cgg agg aaa gac tcg agc			3699
Thr Arg Gln Thr Leu Glu Asp His Leu Arg Arg Lys Asp Ser Ser			
1220	1225	1230	
ctc agt gat ctg gaa cag cag aaa cgg gcc ctg gtg gaa gaa ctg			3744
Leu Ser Asp Leu Glu Gln Gln Lys Arg Ala Leu Val Glu Glu Leu			
1235	1240	1245	
caa cga aag cgg gac cac gag gag gag ctc ctg cga ctg gtg aag			3789
Gln Arg Lys Arg Asp His Glu Glu Glu Leu Leu Arg Leu Val Lys			
1250	1255	1260	
cag atg gag cgg gac ctg gcc ttc cag aag cag gtg gcc gag aag			3834
Gln Met Glu Arg Asp Leu Ala Phe Gln Lys Gln Val Ala Glu Lys			
1265	1270	1275	
cag ctg aag gaa aag cag aag gtc gag ttg gaa gcc aga agg aaa			3879
Gln Leu Lys Glu Lys Gln Lys Val Glu Leu Glu Ala Arg Arg Lys			
1280	1285	1290	
atc acc gaa att cag ttt tca tgt aga gag agc gct gcg gtg gca			3924
Ile Thr Glu Ile Gln Phe Ser Cys Arg Glu Ser Ala Ala Val Ala			
1295	1300	1305	
cag gca cgg ccc cag agg gag cag ggc aga cag aaa gag gag gag			3969
Gln Ala Arg Pro Gln Arg Glu Gln Gly Arg Gln Lys Glu Glu Glu			
1310	1315	1320	
ctg aag cag cag gtg gat gag ctg acc ttg gcc aat agg aag gca			4014
Leu Lys Gln Gln Val Asp Glu Leu Thr Leu Ala Asn Arg Lys Ala			
1325	1330	1335	
gag aaa gag atg agg gag ctg aag tat gaa ctc agc gcg gtc cag			4059
Glu Lys Glu Met Arg Glu Leu Lys Tyr Glu Leu Ser Ala Val Gln			
1340	1345	1350	
ctc gaa aag gcc tcg tct gag gaa aag gcc cgg ctg ttg aag gat			4104
Leu Glu Lys Ala Ser Ser Glu Glu Lys Ala Arg Leu Leu Lys Asp			
1355	1360	1365	
aaa ttg gac gag acg aat aac aca ctc aag tgc ctc aag gaa gat			4149
Lys Leu Asp Glu Thr Asn Asn Thr Leu Lys Cys Leu Lys Glu Asp			
1370	1375	1380	
ctg gaa agg aag gat cag gcc cag gaa cgc tat tcc cag cag ctc			4194
Leu Glu Arg Lys Asp Gln Ala Gln Glu Arg Tyr Ser Gln Gln Leu			
1385	1390	1395	
aga gac ctt ggc ggg cag ctg aac caa aca aca gac aaa gct gaa			4239
Arg Asp Leu Gly Gly Gln Leu Asn Gln Thr Thr Asp Lys Ala Glu			
1400	1405	1410	
gag gtc agg cag gaa gca aac gat ctc aag aaa ata aag cac acc			4284
Glu Val Arg Gln Glu Ala Asn Asp Leu Lys Lys Ile Lys His Thr			
1415	1420	1425	
tat cag ttg gaa tta gag tct ctc cat caa gag aaa gga aaa ctc			4329
Tyr Gln Leu Glu Leu Glu Ser Leu His Gln Glu Lys Gly Lys Leu			

1430		1435		1440	
cag agg gaa gtt gac aga gtc acc agg gcg cac gca cta gcc gag	4374				
Gln Arg Glu Val Asp Arg Val Thr Arg Ala His Ala Leu Ala Glu					
1445		1450		1455	
agg aac att cag tgt tta aac tcc caa gtt cac gct tcg agg gat	4419				
Arg Asn Ile Gln Cys Leu Asn Ser Gln Val His Ala Ser Arg Asp					
1460		1465		1470	
gag aag gac ctc tca gaa gag agg aga cgg ctc tgc cag aga aaa	4464				
Glu Lys Asp Leu Ser Glu Glu Arg Arg Arg Leu Cys Gln Arg Lys					
1475		1480		1485	
tca gac cat tta aaa gaa gag ttt gag agg agc cat gca cag ttg	4509				
Ser Asp His Leu Lys Glu Glu Phe Glu Arg Ser His Ala Gln Leu					
1490		1495		1500	
ctt cag aat att caa gcc gag aaa gaa aat aat gat aaa atc caa	4554				
Leu Gln Asn Ile Gln Ala Glu Lys Glu Asn Asn Asp Lys Ile Gln					
1505		1510		1515	
aag ctg aat aaa gag ctg gag aaa agc aat gag tgc gca gaa acg	4599				
Lys Leu Asn Lys Glu Leu Glu Lys Ser Asn Glu Cys Ala Glu Thr					
1520		1525		1530	
ctc aag cag aag gtg gat gaa ctc act agg cag aat aat gaa acc	4644				
Leu Lys Gln Lys Val Asp Glu Leu Thr Arg Gln Asn Asn Glu Thr					
1535		1540		1545	
aaa ttg atg atg cag agg att cag gca gag tcc aag aac ata gtc	4689				
Lys Leu Met Met Gln Arg Ile Gln Ala Glu Ser Lys Asn Ile Val					
1550		1555		1560	
cgc gag aag caa gcc atc cag cag aga tgc gaa gtg ctg cgg atc	4734				
Arg Glu Lys Gln Ala Ile Gln Gln Arg Cys Glu Val Leu Arg Ile					
1565		1570		1575	
cag gca gac ggt ttt aag gat cag tta cgg aac acc aac gaa cac	4779				
Gln Ala Asp Gly Phe Lys Asp Gln Leu Arg Asn Thr Asn Glu His					
1580		1585		1590	
ttg cat aag cag aca aaa aca gag cag gat ttc cac aga aaa att	4824				
Leu His Lys Gln Thr Lys Thr Glu Gln Asp Phe His Arg Lys Ile					
1595		1600		1605	
aaa agc ctc gaa gat gat cta gcc caa agt caa aac cta gta agc	4869				
Lys Ser Leu Glu Asp Asp Leu Ala Gln Ser Gln Asn Leu Val Ser					
1610		1615		1620	
gag ttc aag caa aag tgt gac cag cag agc atg atc atc cag aaa	4914				
Glu Phe Lys Gln Lys Cys Asp Gln Gln Ser Met Ile Ile Gln Lys					
1625		1630		1635	
acg gag aag gag gtg agg agc ctg agc gca gaa ctg agc gcg tcc	4959				
Thr Glu Lys Glu Val Arg Ser Leu Ser Ala Glu Leu Ser Ala Ser					
1640		1645		1650	
aaa gag gag aag cgg cgg gaa gag cag aag gct cag ctg cag cga	5004				
Lys Glu Glu Lys Arg Arg Glu Glu Gln Lys Ala Gln Leu Gln Arg					
1655		1660		1665	
gct cag gtg cag gag ctg aat gac agg ctg aag agg gtg caa gac	5049				
Ala Gln Val Gln Glu Leu Asn Asp Arg Leu Lys Arg Val Gln Asp					
1670		1675		1680	
gag ctg cac ctg aag acc atc gaa gag cag atg acc cac agg aag	5094				
Glu Leu His Leu Lys Thr Ile Glu Glu Gln Met Thr His Arg Lys					
1685		1690		1695	
atg atc ctg ctc cag gaa gag tcg gat aag ttc aaa cgc tcg gca	5139				
Met Ile Leu Leu Gln Glu Glu Ser Asp Lys Phe Lys Arg Ser Ala					

1700	1705	1710	
gat gag ttt cgg aag aag atg Asp Glu Phe Arg Lys Lys Met 1715	gag aag cta atg gag Glu Lys Leu Met Glu 1720	tcc aag gtc Ser Lys Val 1725	5184
gtc act gaa acc gat ctc tca Val Thr Glu Thr Asp Leu Ser 1730	ggc atc aag cac gac Gly Ile Lys His Asp 1735	ttt gtg tct Phe Val Ser 1740	5229
ctc cag aga gaa aac ttc cgg Leu Gln Arg Glu Asn Phe Arg 1745	gcg caa gag aac gcg Ala Gln Glu Asn Ala 1750	aag ctg tgg Lys Leu Trp 1755	5274
gag acc aac att cga gag ctt Glu Thr Asn Ile Arg Glu Leu 1760	gag cgg cag ctt cag Glu Arg Gln Leu Gln 1765	tgc tac cgt Cys Tyr Arg 1770	5319
gag aag atg cag caa ggc ccg Glu Lys Met Gln Gln Gly Pro 1775	ccc gtg gaa gca aac Pro Val Glu Ala Asn 1780	cac tat cag His Tyr Gln 1785	5364
aag tgc cgg aga ctc gag gag Lys Cys Arg Arg Leu Glu Glu 1790	gag ctg ttg gcc cag Glu Leu Leu Ala Gln 1795	aga cgg gaa Arg Arg Glu 1800	5409
gtt gaa aac ctc aaa caa aaa Val Glu Asn Leu Lys Gln Lys 1805	atg gac cag cag ata Met Asp Gln Gln Ile 1810	aag gaa cat Lys Glu His 1815	5454
gag cac cag ttg ctt cgg ctc Glu His Gln Leu Leu Arg Leu 1820	cag tgt gaa atc caa Gln Cys Glu Ile Gln 1825	aag aag agc Lys Lys Ser 1830	5499
aca acc caa gac cac acc ttc Thr Thr Gln Asp His Thr Phe 1835	gcg tcg gct ttt gat Ala Ser Ala Phe Asp 1840	acg gca ggg Thr Ala Gly 1845	5544
aga gag tgc cac cac cct gca Arg Glu Cys His His Pro Ala 1850	gag atc tcc cct ggg Glu Ile Ser Pro Gly 1855	aac tct ggg Asn Ser Gly 1860	5589
cac ctt aac cta aag acc aga His Leu Asn Leu Lys Thr Arg 1865	ctc cca ctg tcc agg Leu Pro Leu Ser Arg 1870	tgg act cag Trp Thr Gln 1875	5634
gag cca cac cag aca gaa gga Glu Pro His Gln Thr Glu Gly 1880	aaa tgg ccg cac agg Lys Trp Pro His Arg 1885	gct gct gaa Ala Ala Glu 1890	5679
caa ctt ccg aag gag gtt cag Gln Leu Pro Lys Glu Val Gln 1895	ttc cga cag cca ggg Phe Arg Gln Pro Gly 1900	gct ccg ctg Ala Pro Leu 1905	5724
gac agg gag agc agc cag cca Asp Arg Glu Ser Ser Gln Pro 1910	tgc tac tcg gag tat Cys Tyr Ser Glu Tyr 1915	ttt tct cag Phe Ser Gln 1920	5769
aca agc act gaa ctg cag ata Thr Ser Thr Glu Leu Gln Ile 1925	act ttt gat gat aaa Thr Phe Asp Asp Lys 1930	aac cca atc Asn Pro Ile 1935	5814
acg cga ctg tct gaa cta gag Thr Arg Leu Ser Glu Leu Glu 1940	acg atg agg gag caa Thr Met Arg Glu Gln 1945	gcc ctg cat Ala Leu His 1950	5859
ccc tcc aga ccg ccg gtg acg Pro Ser Arg Pro Pro Val Thr 1955	tat cag gat gac aaa Tyr Gln Asp Asp Lys 1960	ctt gaa agg Leu Glu Arg 1965	5904
gag ttg gtg aag ctt ttg aca Glu Leu Val Lys Leu Leu Thr 1970	ccc tta gag ata gct Pro Leu Glu Ile Ala 1975	aag aac aaa Lys Asn Lys 1980	5949

1970					1975					1980					
cag	tgt	ggc	atg	cat	aca	gaa	gtc	acg	acc	tta	aaa	caa	gag	aag	5994
Gln	Cys	Gly	Met	His	Thr	Glu	Val	Thr	Thr	Leu	Lys	Gln	Glu	Lys	
	1985					1990					1995				
agg	ctg	ggg	tcc	agt	gct	ggg	gga	tgg	atg	ctg	gaa	ggg	tgc	aga	6039
Arg	Leu	Gly	Ser	Ser	Ala	Gly	Gly	Trp	Met	Leu	Glu	Gly	Cys	Arg	
	2000					2005					2010				
aca	tct	ggg	gga	ctc	aag	gga	gat	ttc	ctt	aag	aaa	agc	gta	gag	6084
Thr	Ser	Gly	Gly	Leu	Lys	Gly	Asp	Phe	Leu	Lys	Lys	Ser	Val	Glu	
	2015					2020					2025				
cca	gag	gct	tcc	ccg	agc	ctt	gac	ctt	aac	cag	gcg	tgc	tct	gtt	6129
Pro	Glu	Ala	Ser	Pro	Ser	Leu	Asp	Leu	Asn	Gln	Ala	Cys	Ser	Val	
	2030					2035					2040				
agg	gat	gag	gag	ttt	cag	ttt	caa	ggg	ctc	agg	cac	acc	gtg	act	6174
Arg	Asp	Glu	Glu	Phe	Gln	Phe	Gln	Gly	Leu	Arg	His	Thr	Val	Thr	
	2045					2050					2055				
ggc	agg	cag	ctg	gtc	gaa	gcc	aag	ctc	ctg	gac	atg	agg	aca	gtt	6219
Gly	Arg	Gln	Leu	Val	Glu	Ala	Lys	Leu	Leu	Asp	Met	Arg	Thr	Val	
	2060					2065					2070				
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Glu	Gln	Leu	Arg	Leu	Gly	Leu	Lys	Thr	Val	Glu	Glu	Val	Gln	Arg	
	2075					2080					2085				
agt	ctt	agc	aag	ttt	ctg	acc	aaa	gct	acc	tcc	att	gca	gga	ctt	6309
Ser	Leu	Ser	Lys	Phe	Leu	Thr	Lys	Ala	Thr	Ser	Ile	Ala	Gly	Leu	
	2090					2095					2100				
tat	cta	gaa	tct	tcc	aaa	gaa	aaa	atg	tcg	ttc	act	tcg	gcg	gcc	6354
Tyr	Leu	Glu	Ser	Ser	Lys	Glu	Lys	Met	Ser	Phe	Thr	Ser	Ala	Ala	
	2105					2110					2115				
cag	aaa	atc	ata	ata	gac	aaa	atg	ata	gct	cta	gcc	ttt	tta	gaa	6399
Gln	Lys	Ile	Ile	Ile	Asp	Lys	Met	Ile	Ala	Leu	Ala	Phe	Leu	Glu	
	2120					2125					2130				
gct	cag	gct	gca	aca	ggg	ttt	ata	att	gat	ccg	gtt	tct	ggg	cag	6444
Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Ile	Asp	Pro	Val	Ser	Gly	Gln	
	2135					2140					2145				
act	tac	tgt	gtt	gaa	gat	gca	gtt	ctt	cat	ggc	atc	gtt	gat	cct	6489
Thr	Tyr	Cys	Val	Glu	Asp	Ala	Val	Leu	His	Gly	Ile	Val	Asp	Pro	
	2150					2155					2160				
gag	ttc	agg	agc	agg	ctc	ctg	gag	gca	gag	aag	gca	gtt	ttg	gga	6534
Glu	Phe	Arg	Ser	Arg	Leu	Leu	Glu	Ala	Glu	Lys	Ala	Val	Leu	Gly	
	2165					2170					2175				
tat	tca	cat	gct	tct	aag	acg	ctg	tca	gtg	ttc	cag	gca	atg	gaa	6579
Tyr	Ser	His	Ala	Ser	Lys	Thr	Leu	Ser	Val	Phe	Gln	Ala	Met	Glu	
	2180					2185					2190				
aat	aga	atg	ctt	gat	agg	aag	aaa	ggg	aaa	cat	atc	ttg	gag	gca	6624
Asn	Arg	Met	Leu	Asp	Arg	Lys	Lys	Gly	Lys	His	Ile	Leu	Glu	Ala	
	2195					2200					2205				
caa	att	gcc	agt	ggg	ggc	gtc	att	gac	cct	gtg	aga	ggc	gtc	cgt	6669
Gln	Ile	Ala	Ser	Gly	Gly	Val	Ile	Asp	Pro	Val	Arg	Gly	Val	Arg	
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gtc	cct	cca	gaa	atg	gct	gtg	cag	cag	ggc	ttg	ctg	aac	aac	gcc	6714
Val	Pro	Pro	Glu	Met	Ala	Val	Gln	Gln	Gly	Leu	Leu	Asn	Asn	Ala	
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gtc	cta	cag	ttc	ctg	cat	gaa	ccg	tcc	agc	aac	acg	aga	gtc	ttt	6759
Val	Leu	Gln	Phe	Leu	His	Glu	Pro	Ser	Ser	Asn	Thr	Arg	Val	Phe	



2240	2245	2250	
cct aat ccc aac aac aag cag gct ctg tat tat tcg gag tta ctg			6804
Pro Asn Pro Asn Asn Lys Gln Ala Leu Tyr Tyr Ser Glu Leu Leu			
2255	2260	2265	
cag atc tgt gtg ttt gat gta gat tgc cag tgt ttt ctc ttg ccg			6849
Gln Ile Cys Val Phe Asp Val Asp Cys Gln Cys Phe Leu Leu Pro			
2270	2275	2280	
ttt ggg gag agg gaa ata tcc aat ctc aac ata gag aaa act cat			6894
Phe Gly Glu Arg Glu Ile Ser Asn Leu Asn Ile Glu Lys Thr His			
2285	2290	2295	
aaa att gcc gtg gta gat acc aaa act ggg gcg gaa ctg acg gca			6939
Lys Ile Ala Val Val Asp Thr Lys Thr Gly Ala Glu Leu Thr Ala			
2300	2305	2310	
ttc gag gct ttc cag aga aac ctg att gac aag ggt att tat ctc			6984
Phe Glu Ala Phe Gln Arg Asn Leu Ile Asp Lys Gly Ile Tyr Leu			
2315	2320	2325	
gaa ctc tca ggg cag cag tat cag tgg aag gaa gct aca ttt ttt			7029
Glu Leu Ser Gly Gln Gln Tyr Gln Trp Lys Glu Ala Thr Phe Phe			
2330	2335	2340	
gac tcc tac ggg cat cct tct cac atg ctg act gat act aaa act			7074
Asp Ser Tyr Gly His Pro Ser His Met Leu Thr Asp Thr Lys Thr			
2345	2350	2355	
ggc ctg cag ttc aat att agt gaa gct gtc gag cag gga acg cta			7119
Gly Leu Gln Phe Asn Ile Ser Glu Ala Val Glu Gln Gly Thr Leu			
2360	2365	2370	
gac aaa gcc ttg gtg caa aag tat cag gaa ggc cta act aca cta			7164
Asp Lys Ala Leu Val Gln Lys Tyr Gln Glu Gly Leu Thr Thr Leu			
2375	2380	2385	
aca gaa ctg gct gac ttt ctt ctg agc aag gta gtt ccc aag aag			7209
Thr Glu Leu Ala Asp Phe Leu Leu Ser Lys Val Val Pro Lys Lys			
2390	2395	2400	
gat ttg cac agt ccc att gca ggc tat tgg ctg acc gct agt ggg			7254
Asp Leu His Ser Pro Ile Ala Gly Tyr Trp Leu Thr Ala Ser Gly			
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gag cga atc tcc ttg ctg aaa gcc tcc cgt aga aac ttg gtt gat			7299
Glu Arg Ile Ser Leu Leu Lys Ala Ser Arg Arg Asn Leu Val Asp			
2420	2425	2430	
agg gtt aca gcc ctc aga tgc ctt gaa gcc caa atc tgt aca gga			7344
Arg Val Thr Ala Leu Arg Cys Leu Glu Ala Gln Ile Cys Thr Gly			
2435	2440	2445	
ggg atc atc gat ccc cta act ggg aaa aag tac agg gtg gcc gag			7389
Gly Ile Ile Asp Pro Leu Thr Gly Lys Lys Tyr Arg Val Ala Glu			
2450	2455	2460	
gct ttg cat aga ggg ctg gtg gac gag ggc ttc gcc cag cag cta			7434
Ala Leu His Arg Gly Leu Val Asp Glu Gly Phe Ala Gln Gln Leu			
2465	2470	2475	
cgc cag tgt gaa tta gtg atc acg ggg atc agc cac ccc gtc agc			7479
Arg Gln Cys Glu Leu Val Ile Thr Gly Ile Ser His Pro Val Ser			
2480	2485	2490	
aat aaa atg atg tca gtg gtg gaa gcc gtg aat gca aat atc atc			7524
Asn Lys Met Met Ser Val Val Glu Ala Val Asn Ala Asn Ile Ile			
2495	2500	2505	
agt aaa gaa atg ggc atg cgg tgc ctg gaa ttt cag tac ctg aca			7569
Ser Lys Glu Met Gly Met Arg Cys Leu Glu Phe Gln Tyr Leu Thr			

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Gly Gly Leu Ile Glu Pro Lys Val Phe Ser Arg Leu Thr Ile Glu			
2525	2530	2535	
gag gcc ctt cac gtc ggt atc att gat gtc ctc atc gcc acc aga			7659
Glu Ala Leu His Val Gly Ile Ile Asp Val Leu Ile Ala Thr Arg			
2540	2545	2550	
ctc aaa gat caa aag tca tat gtc agg gat ata atg tgc ccc cag			7704
Leu Lys Asp Gln Lys Ser Tyr Val Arg Asp Ile Met Cys Pro Gln			
2555	2560	2565	
act aag aga aaa ttg aca tat aaa gag gcc ctg gag aaa gct gat			7749
Thr Lys Arg Lys Leu Thr Tyr Lys Glu Ala Leu Glu Lys Ala Asp			
2570	2575	2580	
ttt gat ttc cac aca gga ctt aag ctg tta gaa gtg tct gaa ccc			7794
Phe Asp Phe His Thr Gly Leu Lys Leu Leu Glu Val Ser Glu Pro			
2585	2590	2595	
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Leu Gly Thr Gly Ile Ser Asn Leu Tyr Tyr Ser Ser Gln			
2600	2605	2610	

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 <212> PRT  
 <213> Mus musculus

<400> 106

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Ile Ser Phe Ser Asn Glu Ser Leu Asp Gly His Arg Leu Asp Met Leu
20 25 30

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

Lys Leu Ile Leu Ala Arg Asn Ala Leu Gln Ser Asp Ser Lys Arg Leu
50 55 60

Glu Ser Gly Val Gln Phe Gln Asn Glu Ala Glu Ile Ala Gly Tyr Ile
65 70 75 80

Leu Glu Cys Glu Asn Leu Leu Arg Gln His Val Ile Asp Val Gln Ile
85 90 95

Leu Ile Asp Gly Lys Tyr Tyr Gln Ala Asp Gln Leu Val Gln Arg Val
100 105 110

Ala Lys Leu Arg Asp Glu Ile Met Ala Leu Arg Asn Glu Cys Ser Ser
115 120 125

Val Tyr Ser Lys Gly Arg Met Leu Thr Thr Glu Gln Thr Lys Leu Met
130 135 140

Ile Ser Gly Ile Thr Gln Ser Leu Asn Ser Gly Phe Ala Gln Thr Leu
145 150 155 160

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

Glu	Asn	Ser	Ala	Tyr	Phe	Glu	Phe	Phe	Asn	Asp	Ala	Lys	Glu	Ala	Thr	450	455	460	
Asp	Tyr	Leu	Arg	Asn	Leu	Lys	Asp	Ala	Ile	Gln	Arg	Lys	Tyr	Ser	Cys	465	470	475	480
Asp	Arg	Ser	Ser	Ser	Ile	His	Lys	Leu	Glu	Asp	Leu	Val	Gln	Glu	Ser	485	490	495	
Met	Glu	Lys	Glu	Glu	Leu	Leu	Gln	Tyr	Arg	Ser	Val	Val	Ala	Gly	Leu	500	505	510	
Met	Gly	Arg	Ala	Lys	Thr	Val	Val	Gln	Leu	Lys	Pro	Arg	Asn	Pro	Asp	515	520	525	
Asn	Pro	Leu	Lys	Thr	Ser	Ile	Pro	Ile	Lys	Ala	Ile	Cys	Asp	Tyr	Arg	530	535	540	
Gln	Ile	Glu	Ile	Thr	Ile	Tyr	Lys	Asp	Asp	Glu	Cys	Val	Leu	Ala	Asn	545	550	555	560
Asn	Ser	His	Arg	Ala	Lys	Trp	Lys	Val	Ile	Ser	Pro	Thr	Gly	Asn	Glu	565	570	575	
Ala	Val	Val	Pro	Ser	Val	Cys	Phe	Thr	Val	Pro	Pro	Pro	Asn	Lys	Glu	580	585	590	
Ala	Val	Asp	Phe	Ala	Asn	Arg	Ile	Glu	Gln	Gln	Tyr	Gln	Ser	Val	Leu	595	600	605	
Thr	Leu	Trp	His	Glu	Ser	His	Ile	Asn	Met	Lys	Ser	Val	Val	Ser	Trp	610	615	620	
His	Tyr	Leu	Val	Asn	Glu	Ile	Asp	Arg	Ile	Arg	Ala	Ser	Asn	Val	Ala	625	630	635	640
Ser	Ile	Lys	Thr	Met	Leu	Pro	Gly	Glu	His	Gln	Gln	Val	Leu	Ser	Asn	645	650	655	
Leu	Gln	Ser	Arg	Leu	Glu	Asp	Phe	Leu	Glu	Asp	Ser	Gln	Glu	Ser	Gln	660	665	670	
Ile	Phe	Ser	Gly	Ser	Asp	Ile	Ser	Gln	Leu	Glu	Lys	Glu	Val	Ser	Val	675	680	685	
Cys	Arg	Lys	Tyr	Tyr	Gln	Glu	Leu	Leu	Lys	Ser	Ala	Glu	Arg	Glu	Glu	690	695	700	
Gln	Glu	Glu	Ser	Val	Tyr	Asn	Leu	Tyr	Ile	Ser	Glu	Val	Arg	Asn	Ile	705	710	715	720
Arg	Leu	Arg	Leu	Glu	Ser	Cys	Glu	Asp	Arg	Leu	Ile	Arg	Gln	Ile	Arg	725	730	735	

Thr	Pro	Leu	Glu	Arg	Asp	Asp	Leu	His	Glu	Ser	Met	Leu	Arg	Ile	Thr	740	745	750	
Glu	Gln	Glu	Lys	Leu	Lys	Lys	Glu	Leu	Asp	Arg	Leu	Lys	Asp	Asp	Leu	755	760	765	
Gly	Thr	Ile	Thr	Asn	Lys	Cys	Glu	Glu	Phe	Phe	Ser	Gln	Ala	Ala	Asp	770	775	780	
Ser	Pro	Ser	Val	Pro	Ala	Leu	Arg	Ser	Glu	Leu	Ser	Val	Val	Ile	Gln	785	790	795	800
Ser	Leu	Ser	Gln	Ile	Tyr	Ser	Met	Ser	Ser	Thr	Tyr	Ile	Glu	Lys	Leu	805	810	815	
Lys	Thr	Val	Asn	Leu	Val	Leu	Lys	Asn	Thr	Gln	Ala	Ala	Glu	Ala	Leu	820	825	830	
Val	Lys	Leu	Tyr	Glu	Thr	Lys	Leu	Cys	Glu	Glu	Glu	Ala	Val	Ile	Ala	835	840	845	
Asp	Lys	Asn	Asn	Ile	Glu	Asn	Leu	Met	Ser	Thr	Leu	Lys	Gln	Trp	Arg	850	855	860	
Ser	Glu	Val	Asp	Glu	Lys	Arg	Glu	Val	Phe	His	Ala	Leu	Glu	Asp	Glu	865	870	875	880
Leu	Gln	Lys	Ala	Lys	Ala	Ile	Ser	Asp	Glu	Met	Phe	Lys	Thr	His	Lys	885	890	895	
Glu	Arg	Asp	Leu	Asp	Phe	Asp	Trp	His	Lys	Glu	Lys	Ala	Asp	Gln	Leu	900	905	910	
Val	Glu	Arg	Trp	Gln	Ser	Val	His	Val	Gln	Ile	Asp	Asn	Arg	Leu	Arg	915	920	925	
Asp	Leu	Glu	Gly	Ile	Gly	Lys	Ser	Leu	Lys	His	Tyr	Arg	Asp	Ser	Tyr	930	935	940	
His	Pro	Leu	Asp	Asp	Trp	Ile	Gln	His	Ile	Glu	Thr	Thr	Gln	Arg	Lys	945	950	955	960
Ile	Gln	Glu	Asn	Gln	Pro	Glu	Asn	Ser	Lys	Ala	Leu	Ala	Leu	Gln	Leu	965	970	975	
Asn	Gln	Gln	Lys	Met	Leu	Val	Ser	Glu	Ile	Glu	Val	Lys	Gln	Ser	Lys	980	985	990	
Met	Asp	Glu	Cys	Gln	Lys	Tyr	Ser	Glu	Gln	Tyr	Ser	Ala	Ala	Val	Lys	995	1000	1005	
Asp	Tyr	Glu	Leu	Gln	Thr	Met	Thr	Tyr	Arg	Ala	Met	Val	Glu	Ser		1010	1015	1020	

Gln	Gln	Lys	Ser	Pro	Val	Lys	Arg	Arg	Arg	Ile	Gln	Ser	Ser	Ala
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Asp	Leu	Val	Ile	Gln	Glu	Phe	Met	Asp	Leu	Arg	Thr	Arg	Tyr	Thr
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Ala	Leu	Val	Thr	Leu	Met	Thr	Gln	Tyr	Ile	Lys	Phe	Ala	Gly	Asp
1055						1060					1065			
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1070						1075					1080			
Asn	Ser	Glu	His	Gly	Ala	Tyr	Ser	Asp	Leu	Leu	Gln	Arg	Gln	Arg
1085						1090					1095			
Ala	Thr	Met	Val	Glu	Asn	Ser	Lys	Leu	Thr	Gly	Lys	Ile	Ser	Glu
1100						1105					1110			
Leu	Glu	Thr	Met	Val	Ala	Glu	Leu	Lys	Lys	Gln	Lys	Ser	Arg	Val
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1145						1150					1155			
Arg	Ala	Glu	Ser	Glu	Ala	Lys	Gln	Tyr	Arg	Arg	Glu	Leu	Glu	Thr
1160						1165					1170			
Ile	Val	Arg	Glu	Lys	Glu	Ala	Ala	Glu	Arg	Glu	Leu	Glu	Arg	Val
1175						1180					1185			
Arg	Gln	Leu	Thr	Ala	Glu	Ala	Glu	Ala	Arg	Arg	Ala	Ala	Val	Glu
1190						1195					1200			
Glu	Asn	Leu	Arg	Asn	Phe	Arg	Ser	Gln	Leu	Gln	Glu	Asn	Thr	Phe
1205						1210					1215			
Thr	Arg	Gln	Thr	Leu	Glu	Asp	His	Leu	Arg	Arg	Lys	Asp	Ser	Ser
1220						1225					1230			
Leu	Ser	Asp	Leu	Glu	Gln	Gln	Lys	Arg	Ala	Leu	Val	Glu	Glu	Leu
1235						1240					1245			
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1250						1255					1260			
Gln	Met	Glu	Arg	Asp	Leu	Ala	Phe	Gln	Lys	Gln	Val	Ala	Glu	Lys
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Ile	Thr	Glu	Ile	Gln	Phe	Ser	Cys	Arg	Glu	Ser	Ala	Ala	Val	Ala
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1385						1390					1395			
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1595						1600					1605			
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1610						1615					1620			
Glu	Phe	Lys	Gln	Lys	Cys	Asp	Gln	Gln	Ser	Met	Ile	Ile	Gln	Lys
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Thr	Glu	Lys	Glu	Val	Arg	Ser	Leu	Ser	Ala	Glu	Leu	Ser	Ala	Ser
1640						1645					1650			
Lys	Glu	Glu	Lys	Arg	Arg	Glu	Glu	Gln	Lys	Ala	Gln	Leu	Gln	Arg
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1685						1690					1695			
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1775						1780					1785			
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Tyr	Leu	Glu	Ser	Ser	Lys	Glu	Lys	Met	Ser	Phe	Thr	Ser	Ala	Ala
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Glu	Phe	Arg	Ser	Arg	Leu	Leu	Glu	Ala	Glu	Lys	Ala	Val	Leu	Gly
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Lys Tyr Ala Ile Glu Asp Gly Val Asn Gln Ala Thr Leu Thr Arg Thr
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Glu Leu Arg Gln Leu Leu Glu Gly Glu Ile Gly Asp Phe Leu Gln Pro
      35      40      45

cat gtc ttt cat gct gtg gag aga aag ttg aac ctt ctg aat ttt gac      192
His Val Phe His Ala Val Glu Arg Lys Leu Asn Leu Leu Asn Phe Asp
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Arg Asp Gly Thr Ile Ser Phe Glu Glu Phe Val Leu Ala Ile Phe Ser
65      70      75      80

tta ttg aat ccc tct tat ttt gac ata tca tta cta aat tca gaa cca      288
Leu Leu Asn Pro Ser Tyr Phe Asp Ile Ser Leu Leu Asn Ser Glu Pro
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Arg Leu Met Ser Lys Ser Glu Lys Ile Asp Ala Val Asp Leu Gly Ala
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Arg Ser Lys Pro Ser Arg Arg Leu Ser Asp Thr Lys Ile Ser Asp His
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gat cca ttc ctg caa aaa aga gac aaa gcc acc ggg tca gag aac act      816
Asp Pro Phe Leu Gln Lys Arg Asp Lys Ala Thr Gly Ser Glu Asn Thr
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Glu	Lys	Cys	Gln	Glu	Phe	Pro	Gly	Ser	Trp	Arg	Glu	Asn	Asp	Ala	Lys	
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Lys	Asp	Ser	Ala	Ala	Lys	Asp	Pro	Ser	Ser	Glu	Glu	Gly	Asn	Gln	Asn	
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Gln	Asp	Lys	Pro	Val	Arg	Lys	Glu	Asp	His	Asn	Glu	Gly	Glu	Asp	Ser	
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Val Glu Pro Ser Glu Gly Glu Glu Val Gln Glu Ala Thr Ala Gly Arg	
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Glu Leu Ser Leu Thr Gln Ser Asp Glu Gly Phe Cys Glu Ile Pro Asn  
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Ser Leu Ala Pro Glu Val Gly Lys Ser Ser Ser Glu Ile Ala Glu Pro  
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His Val Pro Glu Asp Ser Gln Ser Gln Ile Asp His His Gly Asp Ala  
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Lys Gln Glu Ser His Thr Asn Asn Pro Asp Pro Gln Lys Gln Gly Ala  
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Pro Gly Glu Ser Ser Arg Glu Gln Glu Ala Val Val Leu Ser Ile Gln  
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Leu His Asp Gly Leu Ser Ser Arg Thr Lys Gly Gly Pro Gly Ala Ala  
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His Leu Leu Ser Ala His Ser Arg Cys Pro Thr Phe His Leu Leu Ser  
35 40 45

ctc gag aac aag tct cct gag ttt gta aag atg cct cag ctc ctg aga 192  
Leu Glu Asn Lys Ser Pro Glu Phe Val Lys Met Pro Gln Leu Leu Arg  
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gac atc ctc tgt gta att gag aca ttc cac aag tac gcc agg gag gat Asp Ile Leu Cys Val Ile Glu Thr Phe His Lys Tyr Ala Arg Glu Asp 65 70 75 80	240
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ttt gtt ctt gca atc ttc agc ttt ttg aat gtc tgt tac ctt gac aca Phe Val Leu Ala Ile Phe Ser Phe Leu Asn Val Cys Tyr Leu Asp Thr 130 135 140	432
cag tca tta cta aac tca gaa cca aga caa gta tct aaa cca gag ggg Gln Ser Leu Leu Asn Ser Glu Pro Arg Gln Val Ser Lys Pro Glu Gly 145 150 155 160	480
atg cca cat gat atg ggt ctt cag gtg acg aat gaa act gac cag tgg Met Pro His Asp Met Gly Leu Gln Val Thr Asn Glu Thr Asp Gln Trp 165 170 175	528
aca gaa gga act tca caa act caa gac aaa gtg gtg ctt cct tca gga Thr Glu Gly Thr Ser Gln Thr Gln Asp Lys Val Val Leu Pro Ser Gly 180 185 190	576
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cag gga aaa gat gag ccc agt tca gaa cat gtc gac ctg cca aaa caa	1104
Gln Gly Lys Asp Glu Pro Ser Ser Glu His Val Asp Leu Pro Lys Gln	
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Ala Ala Ala Arg Lys Pro Ser Gln Thr Gln Lys Ser Ala Ala Ala Lys	
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Asp Glu Ser Arg Thr Ala Glu Thr Pro Glu Pro Pro Ile Gln Glu Lys	
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Glu Val His Gln Thr Val Gly Gln Lys Gln Ile Glu Glu Lys Thr Gln	
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Pro Pro Ala Leu Glu Glu Pro Thr Glu Asp Lys Lys Tyr His Glu Leu	
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Gln Glu Ser Ser Lys Glu Lys Asn Ala Gly Glu Asp Ser Glu Thr His	
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Glu Leu Asn Ser Glu Gly Gly Glu Gln Lys Asp Ser Glu Ser Glu Gly	
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Ala Ile Ser Pro Gly Glu Glu Ala Arg His Ala Glu Glu Gly Thr Ala	
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Glu Ala Leu Val Asn Ser Lys Asn Ala Pro Glu Ala Glu Gly Thr Pro	
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Gly Thr Arg Glu Arg Ile Trp Glu Leu Thr Thr Leu Glu Asn Gln Ser	
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Asn Asp Glu Arg Ser Pro Glu Thr Pro Asn Ser Leu Thr Ala Glu Asp	
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Gln Ser Gln Thr Asn Pro Phe Arg Gly Ser Val Gln Gly Ser Asp Ser	
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cgc cct caa aga gag gaa cta gaa cca caa aag gaa gca agc act cca Arg Pro Gln Arg Glu Glu Leu Glu Pro Gln Lys Glu Ala Ser Thr Pro 915 920 925	2784

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Lys Gln  
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2793

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His Leu Leu Ser Ala His Ser Arg Cys Pro Thr Phe His Leu Leu Ser  
35 40 45

Leu Glu Asn Lys Ser Pro Glu Phe Val Lys Met Pro Gln Leu Leu Arg  
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Asp Ile Leu Cys Val Ile Glu Thr Phe His Lys Tyr Ala Arg Glu Asp  
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Ala Ala Thr Leu Thr Cys Thr Glu Leu Lys Gln Leu Ile Gln Ser Glu  
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Phe Glu Asp Ile Phe Gln Pro Cys Ala Ile His Ala Val Glu Arg Asn  
100 105 110

Leu Asn Leu Leu Asn Ile Asp Ser Asn Gly Ala Ile Ser Phe Asp Glu  
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Phe Val Leu Ala Ile Phe Ser Phe Leu Asn Val Cys Tyr Leu Asp Thr  
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Gln Ser Leu Leu Asn Ser Glu Pro Arg Gln Val Ser Lys Pro Glu Gly  
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Met Pro His Asp Met Gly Leu Gln Val Thr Asn Glu Thr Asp Gln Trp  
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Thr Glu Gly Thr Ser Gln Thr Gln Asp Lys Val Val Leu Pro Ser Gly  
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Thr Ala Ser Ser Thr His Leu Ser Leu Glu Glu Arg Ala Val Glu His  
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Glu Thr Ser Glu His Ser Asp Ser Lys Asn Gln His Leu Lys Gly Asp  
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Glu Gln Ser Gln Lys Val Asp Gln Asp Val Ser Ala Thr Gly Asp Ser  
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Arg Thr Gln Arg Glu Thr Ser Lys Pro Met Ala Gly Ser Glu Gln Ile  
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Ser Ser His Thr Lys Gly Glu Gly Gln Asn Lys Glu Ile Leu Gln Lys  
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Gly Asp Ile Leu Ala Arg Lys Gln Ser Gly Thr Glu Thr Gly Gly Arg  
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Gln Gly Lys Asp Glu Pro Ser Ser Glu His Val Asp Leu Pro Lys Gln  
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Glu Tyr Glu Thr Arg Asp Leu Ser Val Gln Gly Glu Asn Arg Asn Val  
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Gly Asp Ser Asn Ser Glu Thr Ser Asp Leu Phe Val Gln Gly Asp Ser  
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Gln Ser Gln Thr Asn Pro Phe Arg Gly Ser Val Gln Gly Ser Asp Ser  
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Asn Asn Pro Glu Thr Gln Lys His Leu Ala Leu Ser Glu Glu Lys Arg  
625 630 635 640

Val Gln Glu Ala Ala Val Leu Ala Val Arg Gly Glu Asp Glu Gln Val  
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Thr Glu Glu His Ala Gln Glu His Glu Gly Gln Gly Ser Ala Thr Thr  
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Gly Arg Gly Pro Ala Val Glu Pro Arg Gly His Ser Asp Thr Gln Val  
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Phe Ile Val Arg Asp Glu Asn Thr Lys Ser Leu Glu Pro Gly Ile Pro  
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Gly Ala Pro Asn Ala Gly Ile Thr Lys Gln Leu Ser Val Arg Gln Leu  
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Pro Thr Lys Lys Asp Ser Arg Lys Glu Leu Lys Asp Gln Ser Pro Ser  
725 730 735

Thr Lys Lys Glu Glu Asp Gly Ala Leu Glu Ala Gln Glu Asp Leu Val  
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Lys Ser Leu Asp Glu Asn Asn Ala Val Ser Gln Lys Thr Cys Pro Ala  
755 760 765

Thr Leu Glu Glu Glu Thr Glu Ser Pro Gln Gln Leu Ala Gly Glu Gln  
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Ser Leu Ser Thr Lys Glu His Asp Pro Ser Val Ser Glu Ser Gly Leu  
785 790 795 800

Glu Glu Arg Met Gln Arg Asp Gln Glu Leu Cys Leu Val Glu Arg Gly  
805 810 815

Ala Glu His Ser Ser Pro Leu Tyr Glu Ala Leu Gln Glu Lys Met Leu  
820 825 830

Gln Gln Thr Asn Val Thr Gln Gly Lys His Gln Asn Gln Ala Gln Thr  
835 840 845

Ala Ser Val Ala Ser Pro Glu Ile Arg Arg Asn Gln Ser Ser Ala Ser  
850 855 860

Leu Thr Asn Asp Ser Ser Asp Gly Leu Val Phe Phe Ile Asp Arg Gln  
865 870 875 880

Ala Leu Gln Lys Tyr Ile Arg Glu Phe Leu Pro Asp Glu Asp Pro Thr  
885 890 895

Gly Ala Gln Gln Ile Ser Ala Pro Gln Ala Leu Glu Asp Lys Gln Gly  
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Lys Tyr Ala Ser Glu Asp Ser Asn Gly Ala Thr Leu Thr Gly Arg Glu  
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Leu Lys Gln Leu Ile Gln Gly Glu Phe Gly Asp Phe Phe Gln Pro Cys  
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Val Leu His Ala Val Glu Lys Asn Ser Asn Leu Leu Asn Ile Asp Ser  
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65 70 75 80  
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Leu Asn Leu Cys Tyr Leu Asp Ile Lys Ser Leu Leu Ser Ser Glu Leu  
85 90 95  
aga cag gtg act aaa cca gag aag gag aag cta gat gat gtg gat gtt 336  
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Gln	Glu	Lys	Arg	Met	Leu	Pro	Ser	Gly	Met	Ala	Ser	Ser	Ser	Gln	Leu	
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Ile	Pro	Glu	Glu	Ser	Gly	Ala	Val	Gly	Asn	Asn	Arg	Val	Asp	Pro	Trp	
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Asp	Pro	Lys	Asn	Lys	His	Leu	Glu	Gly	Asp	Glu	Gln	Ser	Gln	Glu	Val	
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Ala	Gln	Asp	Ile	Gln	Thr	Thr	Glu	Asp	Asn	Glu	Gly	Gln	Leu	Lys	Thr	
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Asn	Lys	Pro	Met	Ala	Gly	Ser	Lys	Lys	Thr	Ser	Ser	Pro	Thr	Glu	Arg	
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Cys	Glu	Asp	Gln	Glu	Val	Arg	Thr	Glu	Lys	Glu	Lys	His	Ser	Asn	Ile	
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Gln	Glu	Pro	Pro	Leu	Gln	Arg	Glu	Asp	Glu	Pro	Ser	Ser	Gln	His	Ala	
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Ser	Thr	Asp	Ser	Lys	Asp	Val	Cys	Arg	Met	Phe	Asp	Thr	Gln	Glu	Pro	
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Ser	Asp	Met	Arg	Asp	Glu	Arg	Lys	Glu	Arg	Arg	Gly	Pro	Glu	Ala	His	
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Leu	Glu	Thr	Gln	Thr	Gln	Asp	Gly	Lys	Tyr	Gln	Glu	Leu	Gln	Gly	Leu	
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tca	aaa	tca	aaa	gat	gct	gaa	aaa	ggg	tct	gag	aca	caa	tat	cta	agc	1344
Ser	Lys	Ser	Lys	Asp	Ala	Glu	Lys	Gly	Ser	Glu	Thr	Gln	Tyr	Leu	Ser	
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Ser	Glu	Gly	Gly	Asp	Gln	Thr	His	Pro	Glu	Leu	Glu	Gly	Thr	Ala	Val	
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Ser	Gly	Glu	Glu	Ala	Glu	His	Thr	Lys	Glu	Gly	Thr	Ala	Glu	Ala	Phe	
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Val	Asn	Ser	Lys	Asn	Ala	Pro	Ala	Ala	Glu	Arg	Thr	Leu	Gly	Ala	Arg	
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Glu	Arg	Thr	Gln	Asp	Leu	Ala	Pro	Leu	Glu	Lys	Gln	Ser	Val	Gly	Glu	
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Asn	Thr	Arg	Val	Thr	Lys	Thr	His	Asp	Gln	Pro	Val	Glu	Glu	Glu	Asp	
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ggg	tac	cag	ggg	gag	gac	cct	gag	tca	cca	ttc	aca	cag	agt	gat	gag	1632
Gly	Tyr	Gln	Gly	Glu	Asp	Pro	Glu	Ser	Pro	Phe	Thr	Gln	Ser	Asp	Glu	
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Gly	Ser	Ser	Glu	Thr	Pro	Asn	Ser	Leu	Ala	Ser	Glu	Glu	Gly	Asn	Ser	
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Ser	Ser	Glu	Thr	Gly	Glu	Leu	Pro	Val	Gln	Gly	Asp	Ser	Gln	Ser	Gln	
				565					570					575		
ggg	gac	caa	cat	gga	gag	tct	gtg	caa	gga	ggg	cac	aat	aat	aac	cca	1776
Gly	Asp	Gln	His	Gly	Glu	Ser	Val	Gln	Gly	Gly	His	Asn	Asn	Asn	Pro	
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gat	acc	cag	agg	cag	gga	aca	cct	ggg	gag	aaa	aac	aga	gct	ctg	gag	1824
Asp	Thr	Gln	Arg	Gln	Gly	Thr	Pro	Gly	Glu	Lys	Asn	Arg	Ala	Leu	Glu	
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gca	gtg	gta	cca	gca	gtc	aga	gga	gag	gat	gta	cag	ctc	aca	gag	gac	1872
Ala	Val	Val	Pro	Ala	Val	Arg	Gly	Glu	Asp	Val	Gln	Leu	Thr	Glu	Asp	
				610				615				620				
cag	gaa	cag	cct	gcc	aga	gga	gaa	cac	aag	aat	caa	ggc	cca	ggg	acc	1920
Gln	Glu	Gln	Pro	Ala	Arg	Gly	Glu	His	Lys	Asn	Gln	Gly	Pro	Gly	Thr	
625					630					635					640	
aaa	ggc	cca	ggg	gca	gct	gtg	gag	ccc	aat	gga	cac	cca	gaa	gca	cag	1968
Lys	Gly	Pro	Gly	Ala	Ala	Val	Glu	Pro	Asn	Gly	His	Pro	Glu	Ala	Gln	
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gaa	tcc	aca	gca	gga	gat	gaa	aat	aga	aag	tcc	ctg	gaa	ata	gag	atc	2016
Glu	Ser	Thr	Ala	Gly	Asp	Glu	Asn	Arg	Lys	Ser	Leu	Glu	Ile	Glu	Ile	
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aca	ggg	gcc	ctg	gat	gaa	gac	ttc	act	gac	cag	ctt	tcc	cta	atg	cag	2064
Thr	Gly	Ala	Leu	Asp	Glu	Asp	Phe	Thr	Asp	Gln	Leu	Ser	Leu	Met	Gln	
				675				680				685				
ctc	cct	gga	aag	gga	gat	agc	aga	aat	gaa	tta	aag	gtc	caa	ggc	cca	2112

Leu	Pro	Gly	Lys	Gly	Asp	Ser	Arg	Asn	Glu	Leu	Lys	Val	Gln	Gly	Pro	
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Ser	Ser	Lys	Glu	Glu	Lys	Gly	Arg	Ala	Thr	Glu	Ala	Gln	Asn	Thr	Leu	
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Leu	Glu	Ser	Leu	Asp	Glu	Asp	Asn	Ser	Ala	Ser	Leu	Lys	Ile	Gln	Leu	
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Glu	Thr	Lys	Glu	Pro	Val	Thr	Ser	Glu	Glu	Glu	Asp	Glu	Ser	Pro	Gln	
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		755					760					765				
cac	aat	tct	tca	gtc	ccc	tgg	tca	agt	ctt	gaa	aag	cag	atg	cag	aga	2352
His	Asn	Ser	Ser	Val	Pro	Trp	Ser	Ser	Leu	Glu	Lys	Gln	Met	Gln	Arg	
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Asp	Gln	Glu	Pro	Cys	Ser	Val	Glu	Arg	Gly	Ala	Val	Tyr	Ser	Ser	Pro	
785					790					795					800	
cta	tac	cag	tac	cta	cag	gag	aag	ata	ctg	cag	caa	aca	aat	gta	acc	2448
Leu	Tyr	Gln	Tyr	Leu	Gln	Glu	Lys	Ile	Leu	Gln	Gln	Thr	Asn	Val	Thr	
				805					810					815		
caa	gag	gag	cat	caa	aag	caa	gtt	cag	ata	gcc	cag	gca	tca	ggc	cca	2496
Gln	Glu	Glu	His	Gln	Lys	Gln	Val	Gln	Ile	Ala	Gln	Ala	Ser	Gly	Pro	
			820					825					830			
gag	ctt	tgc	agt	gta	tcc	ctc	acc	agt	gag	atc	tca	gat	tgt	tct	gtc	2544
Glu	Leu	Cys	Ser	Val	Ser	Leu	Thr	Ser	Glu	Ile	Ser	Asp	Cys	Ser	Val	
		835					840					845				
ttt	ttc	aac	tac	agc	caa	gca	tca	caa	cca	tat	acc	agg	gga	ctt	cca	2592
Phe	Phe	Asn	Tyr	Ser	Gln	Ala	Ser	Gln	Pro	Tyr	Thr	Arg	Gly	Leu	Pro	
	850					855					860					
ctt	gat	gag	agt	cct	gct	ggt	gca	cag	gaa	aca	cca	gct	ccc	cag	gcc	2640
Leu	Asp	Glu	Ser	Pro	Ala	Gly	Ala	Gln	Glu	Thr	Pro	Ala	Pro	Gln	Ala	
865					870					875					880	
ttg	gaa	gat	aag	caa	ggt	cac	cct	cag	aga	gag	agg	ctg	gta	cta	caa	2688
Leu	Glu	Asp	Lys	Gln	Gly	His	Pro	Gln	Arg	Glu	Arg	Leu	Val	Leu	Gln	
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			900													

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Leu Lys Gln Leu Ile Gln Gly Glu Phe Gly Asp Phe Phe Gln Pro Cys

35

40

45

Val Leu His Ala Val Glu Lys Asn Ser Asn Leu Leu Asn Ile Asp Ser  
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Asn Gly Ile Ile Ser Phe Asp Glu Phe Val Leu Ala Ile Phe Asn Leu  
65 70 75 80

Leu Asn Leu Cys Tyr Leu Asp Ile Lys Ser Leu Leu Ser Ser Glu Leu  
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Arg Gln Val Thr Lys Pro Glu Lys Glu Lys Leu Asp Asp Val Asp Val  
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Gln Ala Thr Thr Gly Asp Gly Gln Trp Thr Val Gly Thr Ser Pro Thr  
115 120 125

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

Arg Glu Ala Lys Thr His Asn Phe Pro Gly Glu Ala Ser Glu His Asn  
165 170 175

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

Ala Gln Asp Ile Gln Thr Thr Glu Asp Asn Glu Gly Gln Leu Lys Thr  
195 200 205

Asn Lys Pro Met Ala Gly Ser Lys Lys Thr Ser Ser Pro Thr Glu Arg  
210 215 220

Lys Gly Gln Asp Lys Glu Ile Ser Gln Glu Gly Asp Glu Pro Ala Arg  
225 230 235 240

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

Asn Leu Ala Thr Gln Ser Ser Pro Pro Lys Glu Ala Thr Gln Arg Pro  
260 265 270

Cys Glu Asp Gln Glu Val Arg Thr Glu Lys Glu Lys His Ser Asn Ile  
275 280 285

Gln Glu Pro Pro Leu Gln Arg Glu Asp Glu Pro Ser Ser Gln His Ala  
290 295 300

Asp Leu Pro Glu Gln Ala Ala Ala Arg Ser Pro Ser Gln Thr Gln Lys  
305 310 315 320

Ser Thr Asp Ser Lys Asp Val Cys Arg Met Phe Asp Thr Gln Glu Pro

325

330

335

Gly Lys Asp Ala Asp Gln Thr Pro Ala Lys Thr Lys Asn Leu Gly Glu  
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Pro Glu Asp Tyr Gly Arg Thr Ser Glu Thr Gln Glu Lys Glu Cys Glu  
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Thr Lys Asp Leu Pro Val Gln Tyr Gly Ser Arg Asn Gly Ser Glu Thr  
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Ser Asp Met Arg Asp Glu Arg Lys Glu Arg Arg Gly Pro Glu Ala His  
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Gly Thr Ala Gly Gln Lys Glu Arg Asp Arg Lys Thr Arg Pro Leu Val  
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Leu Glu Thr Gln Thr Gln Asp Gly Lys Tyr Gln Glu Leu Gln Gly Leu  
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Ser Lys Ser Lys Asp Ala Glu Lys Gly Ser Glu Thr Gln Tyr Leu Ser  
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Ser Glu Gly Gly Asp Gln Thr His Pro Glu Leu Glu Gly Thr Ala Val  
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Ser Gly Glu Glu Ala Glu His Thr Lys Glu Gly Thr Ala Glu Ala Phe  
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Val Asn Ser Lys Asn Ala Pro Ala Ala Glu Arg Thr Leu Gly Ala Arg  
 485 490 495

Glu Arg Thr Gln Asp Leu Ala Pro Leu Glu Lys Gln Ser Val Gly Glu  
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Asn Thr Arg Val Thr Lys Thr His Asp Gln Pro Val Glu Glu Glu Asp  
 515 520 525

Gly Tyr Gln Gly Glu Asp Pro Glu Ser Pro Phe Thr Gln Ser Asp Glu  
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Gly Ser Ser Glu Thr Pro Asn Ser Leu Ala Ser Glu Glu Gly Asn Ser  
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Ser Ser Glu Thr Gly Glu Leu Pro Val Gln Gly Asp Ser Gln Ser Gln  
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Gly Asp Gln His Gly Glu Ser Val Gln Gly Gly His Asn Asn Asn Pro  
 580 585 590

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 Thr Ala Gly Leu Met Ser Glu Asp Lys Arg Gln Gln Lys Leu Gly Glu  
 20 25 30

ctg aag gag cag cgt cga cag tgg agg gaa agt gga ccc acc aag gag 144  
 Leu Lys Glu Gln Arg Arg Gln Trp Arg Glu Ser Gly Pro Thr Lys Glu  
 35 40 45

act gag gat gaa cag aca gat att ctc cgg aaa gga gta gct gtc ttg 192  
 Thr Glu Asp Glu Gln Thr Asp Ile Leu Arg Lys Gly Val Ala Val Leu  
 50 55 60

ctt gaa agt cgt ctc att ggg atg aaa gct atc cag ggt gga gag gcc 240  
 Leu Glu Ser Arg Leu Ile Gly Met Lys Ala Ile Gln Gly Gly Glu Ala  
 65 70 75 80

act gac ggg gac gta gag gtc agt ctc atc gct gac ctt caa gag aaa 288  
 Thr Asp Gly Asp Val Glu Val Ser Leu Ile Ala Asp Leu Gln Glu Lys  
 85 90 95

cag gac aaa gag gct ggc tat ctc atg gat gat ctt gag agc aag agt 336  
 Gln Asp Lys Glu Ala Gly Tyr Leu Met Asp Asp Leu Glu Ser Lys Ser  
 100 105 110

gca atg acc tta aag cag ttg aag cag gtg cag ttc atc gcc cga gcc 384  
 Ala Met Thr Leu Lys Gln Leu Lys Gln Val Gln Phe Ile Ala Arg Ala  
 115 120 125

aac gga tgg aat gac aat gtg gct gcc acc gtc ctg gtg acc aag tct 432  
 Asn Gly Trp Asn Asp Asn Val Ala Ala Thr Val Leu Val Thr Lys Ser  
 130 135 140

gat aca gag atg gtg act gag gaa caa ctc ttg aaa gct ttg gag agc 480  
 Asp Thr Glu Met Val Thr Glu Glu Gln Leu Leu Lys Ala Leu Glu Ser  
 145 150 155 160

aaa tat gat gtg atg aga gat aaa cta ctg gca gag gct ttg atc aag 528  
 Lys Tyr Asp Val Met Arg Asp Lys Leu Leu Ala Glu Ala Leu Ile Lys  
 165 170 175

cag aca ggc gaa gca gag tgg gcc aag ctc act gaa cgt gag cgt cag 576  
 Gln Thr Gly Glu Ala Glu Trp Ala Lys Leu Thr Glu Arg Glu Arg Gln  
 180 185 190

gct cgt ctt atg aaa ctc aaa ctc cag gaa cgt aag atg aga cag gag 624  
 Ala Arg Leu Met Lys Leu Lys Leu Gln Glu Arg Lys Met Arg Gln Glu  
 195 200 205

aat aag ttt gat gag gcc aac tcc ctt ctc agt cag ggt atc aag gat 672  
 Asn Lys Phe Asp Glu Ala Asn Ser Leu Leu Ser Gln Gly Ile Lys Asp  
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caa gca gaa ctg gct cgg ttg cta ggg gca acc aag acg gag cag gag 720  
 Gln Ala Glu Leu Ala Arg Leu Leu Gly Ala Thr Lys Thr Glu Gln Glu

225					230				235				240				
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Glu	Lys	Leu	Lys	Gln	Arg	Leu	Glu	Arg	Lys	Lys	Gln	Leu	Lys	Glu	Glu		
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cgt	gag	gcc	caa	gga	ttg	gag	gcc	aat	gat	gag	gtg	ttg	gat	gag	atc	816	
Arg	Glu	Ala	Gln	Gly	Leu	Glu	Ala	Asn	Asp	Glu	Val	Leu	Asp	Glu	Ile		
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Val	Gln	His	Glu	Met	Ser	Arg	Lys	Glu	Ile	Leu	Glu	Asp	Arg	Lys	Lys		
				275					280					285			
aga	cat	aac	att	ctt	gaa	gga	cta	aac	aac	cac	ttt	gag	gat	gag	aag	912	
Arg	His	Asn	Ile	Leu	Glu	Gly	Leu	Asn	Asn	His	Phe	Glu	Asp	Glu	Lys		
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aat	gct	ctg	ctg	gct	gcg	ttg	agg	agt	cag	gac	gat	acc	ctg	cag	agt	960	
Asn	Ala	Leu	Leu	Ala	Ala	Leu	Arg	Ser	Gln	Asp	Asp	Thr	Leu	Gln	Ser		
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gag	aag	gag	aga	cag	ctg	gcc	ctg	gct	aag	ctg	agg	agg	gac	caa	cgc	1008	
Glu	Lys	Glu	Arg	Gln	Leu	Ala	Leu	Ala	Lys	Leu	Arg	Arg	Asp	Gln	Arg		
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Lys	Leu	Gln	Asp	Glu	Glu	Lys	Phe	Glu	Ala	Ala	Ala	Ala	Leu	Phe	Gly		
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Lys	Glu	Arg	Gln	Lys	Gln	Leu	Ala	Arg	Glu	Arg	Leu	Ala	Ala	Arg	Arg		
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Ala	Lys	Met	Ala	Gly	Asp	Glu	Lys	Gly	Glu	Gln	Ala	Lys	His	Leu	Thr		
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Arg	Ser	Asp	Ile	Gln	Glu	Gln	Leu	Leu	Leu	Glu	Glu	Lys	Glu	Asn	Ala		
				405					410					415			
aaa	gca	gat	gca	gcg	cat	gcc	acc	aag	tca	gat	ccg	gta	tcc	ctg	gtt	1296	
Lys	Ala	Asp	Ala	Ala	His	Ala	Thr	Lys	Ser	Asp	Pro	Val	Ser	Leu	Val		
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tct	acg	gtg	atg	gat	gag	gta	gat	aag	aag	cag	agc	agt	gag	cga	gat	1344	
Ser	Thr	Val	Met	Asp	Glu	Val	Asp	Lys	Lys	Gln	Ser	Ser	Glu	Arg	Asp		
				435					440					445			
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Val	Leu	Val	Thr	Leu	Ile	Asp	Gly	Ala	Met	Ala	Asn	Ser	Lys	Glu	Arg		
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aca	agg	ctg	gag	gaa	cta	gct	ctc	aag	gac	ctg	tta	gcc	cag	ctg	gaa	1440	
Thr	Arg	Leu	Glu	Glu	Leu	Ala	Leu	Lys	Asp	Leu	Leu	Ala	Gln	Leu	Glu		
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Ala	Leu	Lys	Glu	Glu	Arg	Arg	Gln	Leu	Arg	Glu	Asp	Ser	Asp	Leu	Glu		
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Phe	Gly	Asp	Val	Asp	Val	Ser	Gly	Leu	Ser	Glu	Glu	Glu	Leu	Ser	Arg		
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cat	ctc	acac	cag	gtc	tct	gag	tat	cag	gag	cag	cag	cat	cga	ctc	ctc	1584	
His	Leu	Thr	Gln	Val	Ser	Glu	Tyr	Gln	Glu	Gln	Gln	His	Arg	Leu	Leu		

515						520						525							
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Lys	Ser	Ala	Ile	Asn	Ile	Lys	Ile	Glu	Met	Met	Arg	Arg	Ser	Leu	Ile				
530						535						540							
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Glu	Glu	Lys	Arg	Leu	Ser	Leu	Glu	Glu	Ile	Glu	Glu	Glu	Leu	Ala	Val				
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Met	Met	Leu	Ser	Glu	Leu	Gln	Gln	Lys	Gln	Ser	Val	Glu	Val	Asn	Ala				
565						570						575							
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Leu	His	His	Val	Leu	Glu	Gly	Phe	Pro	Gly	Asp	Asn	Ser	Lys	Pro	Gln				
580						585						590							
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Gly	His	Pro	Gly	Gly	Leu	Asp	Lys	Arg	His	Ser	Met	Ala	Ser	Ile	Ala				
595						600						605							
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645						650						655							
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Phe	Asp	His	Thr	Thr	Val	Thr	Leu	Glu	Met	Thr	Thr	Glu	Ile	Glu	Glu				
660						665						670							
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675						680						685							
aaa	gag	ctt	gag	gag	aag	aag	gcg	gag	gtt	atg	aag	aat	gag	agt	ggc	2112			
Lys	Glu	Leu	Glu	Glu	Lys	Lys	Ala	Glu	Val	Met	Lys	Asn	Glu	Ser	Gly				
690						695						700							
aga	act	gca	gag	gaa	cta	gat	gca	atg	att	gcc	aag	cta	gag	aag	gag	2160			
Arg	Thr	Ala	Glu	Glu	Leu	Asp	Ala	Met	Ile	Ala	Lys	Leu	Glu	Lys	Glu				
705						710						715						720	
tat	gca	gat	aga	aag	aag	gct	ctt	gag	gag	gag	cag	acc	agg	gag	agg	2208			
Tyr	Ala	Asp	Arg	Lys	Lys	Ala	Leu	Glu	Glu	Glu	Gln	Thr	Arg	Glu	Arg				
725						730						735							
agg	cag	gag	gca	gag	atg	aaa	gat	gtc	aac	cag	gag	ctg	gag	cag	aag	2256			
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740						745						750							
gag	caa	gat	ctt	cag	aac	ctg	gag	cag	gag	atg	cag	gaa	gcc	att	gag	2304			
Glu	Gln	Asp	Leu	Gln	Asn	Leu	Glu	Gln	Glu	Met	Gln	Glu	Ala	Ile	Glu				
755						760						765							
aac	gag	cgt	aaa	cgt	cgt	cca	aat	gag	gag	ttt	gat	gcc	gag	gct	atg	2352			
Asn	Glu	Arg	Lys	Arg	Arg	Pro	Asn	Glu	Glu	Phe	Asp	Ala	Glu	Ala	Met				
770						775						780							
atg	gcg	gaa	att	gag	gct	cag	ttt	gct	gct	aag	aaa	agg	gca	atg	caa	2400			
Met	Ala	Glu	Ile	Glu	Ala	Gln	Phe	Ala	Ala	Lys	Lys	Arg	Ala	Met	Gln				
785						790						795						800	
gtt	cag	ctt	gag	aag	cag	cgt	cgt	cag	gcg	atg	gag	aag	ata	gcc	gcc	2448			
Val	Gln	Leu	Glu	Lys	Gln	Arg	Arg	Gln	Ala	Met	Glu	Lys	Ile	Ala	Ala				



805										810					815					
agg aag cag aga atg gaa gat aga aac tat gaa gat gag atg gct gtg	2496																			
Arg Lys Gln Arg Met Glu Asp Arg Asn Tyr Glu Asp Glu Met Ala Val																				
820 825 830																				
gct ctg att cat gct gca gag aag agt aaa act cag aag gaa gag gca	2544																			
Ala Leu Ile His Ala Ala Glu Lys Ser Lys Thr Gln Lys Glu Glu Ala																				
835 840 845																				
gcg gtg gag cag aag aac aaa cag aat cag ctg cct gtc atc act gac	2592																			
Ala Val Glu Gln Lys Asn Lys Gln Asn Gln Leu Pro Val Ile Thr Asp																				
850 855 860																				
ccc tca ccc cgg aag cct aag aaa aag ggc aag aaa ggg gtg agt ttt	2640																			
Pro Ser Pro Arg Lys Pro Lys Lys Lys Gly Lys Lys Gly Val Ser Phe																				
865 870 875 880																				
ggg gaa cca ccc aaa gct gac aaa gtg gct ggt cct ggt ctg atg cga	2688																			
Gly Glu Pro Pro Lys Ala Asp Lys Val Ala Gly Pro Gly Leu Met Arg																				
885 890 895																				
gag aag acg gtg ctg gat gtg gac atg tcc gag gat gag aag caa aac	2736																			
Glu Lys Thr Val Leu Asp Val Asp Met Ser Glu Asp Glu Lys Gln Asn																				
900 905 910																				
ctg tct aag atg ctc ctc tct cac cat agc aaa gca caa tgg aag atg	2784																			
Leu Ser Lys Met Leu Leu Ser His His Ser Lys Ala Gln Trp Lys Met																				
915 920 925																				
gag aag gag cga gag aag agg gca aat gag ctt aaa gaa cga ctg gaa	2832																			
Glu Lys Glu Arg Glu Lys Arg Ala Asn Glu Leu Lys Glu Arg Leu Glu																				
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Met Arg Lys Thr Arg Ile Gln Asp Ala Ala Thr Thr Ile Leu Gly Leu																				
945 950 955 960																				
gga gag aga cag aaa act atg gtg gag aat aaa aag aag gat gaa agg	2928																			
Gly Glu Arg Gln Lys Thr Met Val Glu Asn Lys Lys Lys Asp Glu Arg																				
965 970 975																				
gag cgt cag ata gcg ctg gtg aag gag cgt gtg cag cgt gta cgg tat	2976																			
Glu Arg Gln Ile Ala Leu Val Lys Glu Arg Val Gln Arg Val Arg Tyr																				
980 985 990																				
gaa cgc acc cag acc atg aag ttc aaa ggt gac gac aag aaa cgg ttc	3024																			
Glu Arg Thr Gln Thr Met Lys Phe Lys Gly Asp Asp Lys Lys Arg Phe																				
995 1000 1005																				
aag gac tac cta gag aag gag gat tct ggt ctg tca gag gat gag	3069																			
Lys Asp Tyr Leu Glu Lys Glu Asp Ser Gly Leu Ser Glu Asp Glu																				
1010 1015 1020																				
aag atg acg aag ata gct gac cgg att aat agc cag ttc aag agg	3114																			
Lys Met Thr Lys Ile Ala Asp Arg Ile Asn Ser Gln Phe Lys Arg																				
1025 1030 1035																				
cat gag tcc agc tat agg gca gga cac aag agt gcc ttt gaa cct	3159																			
His Glu Ser Ser Tyr Arg Ala Gly His Lys Ser Ala Phe Glu Pro																				
1040 1045 1050																				
gat gag gat gaa ctt gca tca aac tcc tcc ggt tcc aag ccc gcc	3204																			
Asp Glu Asp Glu Leu Ala Ser Asn Ser Ser Gly Ser Lys Pro Ala																				
1055 1060 1065																				
aca ccc cag ggc tcc gcc cga ccc aaa aca ggg cgt ctc ctg ggc	3249																			
Thr Pro Gln Gly Ser Ala Arg Pro Lys Thr Gly Arg Leu Leu Gly																				
1070 1075 1080																				
cag aag gaa aga gag caa ttg atc aag tct cgc cag gcc aag agg	3294																			
Gln Lys Glu Arg Glu Gln Leu Ile Lys Ser Arg Gln Ala Lys Arg																				

1085	1090	1095	
aga gag atc aag aag gtc aac aac agt atc tca gcc gca ccc gac			3339
Arg Glu Ile Lys Lys Val Asn Asn Ser Ile Ser Ala Ala Pro Asp			
1100	1105	1110	
atg gac tcc ctc gcc aag atg att gag gac cgc aag aaa gcc ggt			3384
Met Asp Ser Leu Ala Lys Met Ile Glu Asp Arg Lys Lys Ala Gly			
1115	1120	1125	
atg cag cag gag gag gag gag gag gag gat aat gga agt gag gtt			3429
Met Gln Gln Glu Glu Glu Glu Glu Glu Asp Asn Gly Ser Glu Val			
1130	1135	1140	
taa			3432

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 <212> PRT  
 <213> Strongylocentrotus purpuratus

<400> 114

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Thr	Ala	Gly	Leu	Met	Ser	Glu	Asp	Lys	Arg	Gln	Gln	Lys	Leu	Gly	Glu
		20						25					30		

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

Thr	Glu	Asp	Glu	Gln	Thr	Asp	Ile	Leu	Arg	Lys	Gly	Val	Ala	Val	Leu
50						55					60				

Leu	Glu	Ser	Arg	Leu	Ile	Gly	Met	Lys	Ala	Ile	Gln	Gly	Gly	Glu	Ala
65				70					75					80	

Thr	Asp	Gly	Asp	Val	Glu	Val	Ser	Leu	Ile	Ala	Asp	Leu	Gln	Glu	Lys
			85					90					95		

Gln	Asp	Lys	Glu	Ala	Gly	Tyr	Leu	Met	Asp	Asp	Leu	Glu	Ser	Lys	Ser
		100						105					110		

Ala	Met	Thr	Leu	Lys	Gln	Leu	Lys	Gln	Val	Gln	Phe	Ile	Ala	Arg	Ala
	115						120					125			

Asn	Gly	Trp	Asn	Asp	Asn	Val	Ala	Ala	Thr	Val	Leu	Val	Thr	Lys	Ser
130						135					140				

Asp	Thr	Glu	Met	Val	Thr	Glu	Glu	Gln	Leu	Leu	Lys	Ala	Leu	Glu	Ser
145					150					155				160	

Lys	Tyr	Asp	Val	Met	Arg	Asp	Lys	Leu	Leu	Ala	Glu	Ala	Leu	Ile	Lys
			165					170						175	

Gln	Thr	Gly	Glu	Ala	Glu	Trp	Ala	Lys	Leu	Thr	Glu	Arg	Glu	Arg	Gln
		180						185					190		

Ala	Arg	Leu	Met	Lys	Leu	Lys	Leu	Gln	Glu	Arg	Lys	Met	Arg	Gln	Glu		
		195					200					205					
Asn	Lys	Phe	Asp	Glu	Ala	Asn	Ser	Leu	Leu	Ser	Gln	Gly	Ile	Lys	Asp		
	210					215					220						
Gln	Ala	Glu	Leu	Ala	Arg	Leu	Leu	Gly	Ala	Thr	Lys	Thr	Glu	Gln	Glu		
225					230					235					240		
Glu	Lys	Leu	Lys	Gln	Arg	Leu	Glu	Arg	Lys	Lys	Gln	Leu	Lys	Glu	Glu		
				245					250					255			
Arg	Glu	Ala	Gln	Gly	Leu	Glu	Ala	Asn	Asp	Glu	Val	Leu	Asp	Glu	Ile		
			260					265						270			
Val	Gln	His	Glu	Met	Ser	Arg	Lys	Glu	Ile	Leu	Glu	Asp	Arg	Lys	Lys		
		275					280					285					
Arg	His	Asn	Ile	Leu	Glu	Gly	Leu	Asn	Asn	His	Phe	Glu	Asp	Glu	Lys		
	290					295					300						
Asn	Ala	Leu	Leu	Ala	Ala	Leu	Arg	Ser	Gln	Asp	Asp	Thr	Leu	Gln	Ser		
305					310					315					320		
Glu	Lys	Glu	Arg	Gln	Leu	Ala	Leu	Ala	Lys	Leu	Arg	Arg	Asp	Gln	Arg		
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Lys	Leu	Gln	Asp	Glu	Glu	Lys	Phe	Glu	Ala	Ala	Ala	Ala	Leu	Phe	Gly		
			340					345					350				
Leu	Ala	Gln	Gln	His	Glu	Lys	Thr	Arg	Glu	Ala	Asn	Tyr	Glu	Lys	Asp		
		355					360					365					
Lys	Glu	Arg	Gln	Lys	Gln	Leu	Ala	Arg	Glu	Arg	Leu	Ala	Ala	Arg	Arg		
	370					375					380						
Ala	Lys	Met	Ala	Gly	Asp	Glu	Lys	Gly	Glu	Gln	Ala	Lys	His	Leu	Thr		
385					390					395					400		
Arg	Ser	Asp	Ile	Gln	Glu	Gln	Leu	Leu	Leu	Glu	Glu	Lys	Glu	Asn	Ala		
				405					410					415			
Lys	Ala	Asp	Ala	Ala	His	Ala	Thr	Lys	Ser	Asp	Pro	Val	Ser	Leu	Val		
			420					425					430				
Ser	Thr	Val	Met	Asp	Glu	Val	Asp	Lys	Lys	Gln	Ser	Ser	Glu	Arg	Asp		
		435					440					445					
Val	Leu	Val	Thr	Leu	Ile	Asp	Gly	Ala	Met	Ala	Asn	Ser	Lys	Glu	Arg		
	450					455					460						
Thr	Arg	Leu	Glu	Glu	Leu	Ala	Leu	Lys	Asp	Leu	Leu	Ala	Gln	Leu	Glu		
465					470					475					480		

Ala	Leu	Lys	Glu	Glu	Arg	Arg	Gln	Leu	Arg	Glu	Asp	Ser	Asp	Leu	Glu	485	490	495	
Phe	Gly	Asp	Val	Asp	Val	Ser	Gly	Leu	Ser	Glu	Glu	Glu	Leu	Ser	Arg	500	505	510	
His	Leu	Thr	Gln	Val	Ser	Glu	Tyr	Gln	Glu	Gln	Gln	His	Arg	Leu	Leu	515	520	525	
Lys	Ser	Ala	Ile	Asn	Ile	Lys	Ile	Glu	Met	Met	Arg	Arg	Ser	Leu	Ile	530	535	540	
Glu	Glu	Lys	Arg	Leu	Ser	Leu	Glu	Glu	Ile	Glu	Glu	Glu	Leu	Ala	Val	545	550	555	560
Met	Met	Leu	Ser	Glu	Leu	Gln	Gln	Lys	Gln	Ser	Val	Glu	Val	Asn	Ala	565	570	575	
Leu	His	His	Val	Leu	Glu	Gly	Phe	Pro	Gly	Asp	Asn	Ser	Lys	Pro	Gln	580	585	590	
Gly	His	Pro	Gly	Gly	Leu	Asp	Lys	Arg	His	Ser	Met	Ala	Ser	Ile	Ala	595	600	605	
Ser	Gly	Val	Gly	His	Ser	Phe	Lys	Glu	Leu	Phe	Phe	Ser	Glu	Ser	Thr	610	615	620	
Glu	Val	Ile	Lys	Asn	Glu	Glu	Phe	Leu	His	Gln	Met	Lys	Val	Thr	Gln	625	630	635	640
Arg	Arg	Ala	Arg	Arg	Glu	Gly	Trp	Leu	Asp	Asn	Val	Ala	Val	Thr	Val	645	650	655	
Phe	Asp	His	Thr	Thr	Val	Thr	Leu	Glu	Met	Thr	Thr	Glu	Ile	Glu	Glu	660	665	670	
Met	Thr	Arg	Arg	Ile	Gln	Ala	Arg	Glu	Gly	Ala	Leu	Leu	Thr	Met	Asp	675	680	685	
Lys	Glu	Leu	Glu	Glu	Lys	Lys	Ala	Glu	Val	Met	Lys	Asn	Glu	Ser	Gly	690	695	700	
Arg	Thr	Ala	Glu	Glu	Leu	Asp	Ala	Met	Ile	Ala	Lys	Leu	Glu	Lys	Glu	705	710	715	720
Tyr	Ala	Asp	Arg	Lys	Lys	Ala	Leu	Glu	Glu	Glu	Gln	Thr	Arg	Glu	Arg	725	730	735	
Arg	Gln	Glu	Ala	Glu	Met	Lys	Asp	Val	Asn	Gln	Glu	Leu	Glu	Gln	Lys	740	745	750	
Glu	Gln	Asp	Leu	Gln	Asn	Leu	Glu	Gln	Glu	Met	Gln	Glu	Ala	Ile	Glu	755	760	765	

Asn Glu Arg Lys Arg Arg Pro Asn Glu Glu Phe Asp Ala Glu Ala Met  
770 775 780

Met Ala Glu Ile Glu Ala Gln Phe Ala Ala Lys Lys Arg Ala Met Gln  
785 790 795 800

Val Gln Leu Glu Lys Gln Arg Arg Gln Ala Met Glu Lys Ile Ala Ala  
805 810 815

Arg Lys Gln Arg Met Glu Asp Arg Asn Tyr Glu Asp Glu Met Ala Val  
820 825 830

Ala Leu Ile His Ala Ala Glu Lys Ser Lys Thr Gln Lys Glu Glu Ala  
835 840 845

Ala Val Glu Gln Lys Asn Lys Gln Asn Gln Leu Pro Val Ile Thr Asp  
850 855 860

Pro Ser Pro Arg Lys Pro Lys Lys Lys Gly Lys Lys Gly Val Ser Phe  
865 870 875 880

Gly Glu Pro Pro Lys Ala Asp Lys Val Ala Gly Pro Gly Leu Met Arg  
885 890 895

Glu Lys Thr Val Leu Asp Val Asp Met Ser Glu Asp Glu Lys Gln Asn  
900 905 910

Leu Ser Lys Met Leu Leu Ser His His Ser Lys Ala Gln Trp Lys Met  
915 920 925

Glu Lys Glu Arg Glu Lys Arg Ala Asn Glu Leu Lys Glu Arg Leu Glu  
930 935 940

Met Arg Lys Thr Arg Ile Gln Asp Ala Ala Thr Thr Ile Leu Gly Leu  
945 950 955 960

Gly Glu Arg Gln Lys Thr Met Val Glu Asn Lys Lys Lys Asp Glu Arg  
965 970 975

Glu Arg Gln Ile Ala Leu Val Lys Glu Arg Val Gln Arg Val Arg Tyr  
980 985 990

Glu Arg Thr Gln Thr Met Lys Phe Lys Gly Asp Asp Lys Lys Arg Phe  
995 1000 1005

Lys Asp Tyr Leu Glu Lys Glu Asp Ser Gly Leu Ser Glu Asp Glu  
1010 1015 1020

Lys Met Thr Lys Ile Ala Asp Arg Ile Asn Ser Gln Phe Lys Arg  
1025 1030 1035

His Glu Ser Ser Tyr Arg Ala Gly His Lys Ser Ala Phe Glu Pro  
1040 1045 1050

Asp Glu Asp Glu Leu Ala Ser Asn Ser Ser Gly Ser Lys Pro Ala  
1055 1060 1065

Thr Pro Gln Gly Ser Ala Arg Pro Lys Thr Gly Arg Leu Leu Gly  
1070 1075 1080

Gln Lys Glu Arg Glu Gln Leu Ile Lys Ser Arg Gln Ala Lys Arg  
1085 1090 1095

Arg Glu Ile Lys Lys Val Asn Asn Ser Ile Ser Ala Ala Pro Asp  
1100 1105 1110

Met Asp Ser Leu Ala Lys Met Ile Glu Asp Arg Lys Lys Ala Gly  
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Met Gln Gln Glu Glu Glu Glu Glu Glu Asp Asn Gly Ser Glu Val  
1130 1135 1140

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Met Arg Lys Asn Glu Arg Asp Ala Leu Ser Leu Tyr Val Ser Phe Ala  
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ttc agt ctt tta tca tat ggg aag gga ttc ctg tgc aaa ttt ctg gtg 96  
Phe Ser Leu Leu Ser Tyr Gly Lys Gly Phe Leu Cys Lys Phe Leu Val  
20 25 30  
tct ttt atc cat ttc tct cta ttt ttt ttt ttt aat ttc tgt tcc tta 144  
Ser Phe Ile His Phe Ser Leu Phe Phe Phe Phe Asn Phe Cys Ser Leu  
35 40 45  
tta tta tta tta ttt ttt ttt ttt cca ttg agg cct tat gat gac aga 192  
Leu Leu Leu Leu Phe Phe Phe Phe Pro Leu Arg Pro Tyr Asp Asp Arg  
50 55 60  
atg aac att att gtg tct tgc agg gcg tct gag gtt gac tcg att acc 240  
Met Asn Ile Ile Val Ser Cys Arg Ala Ser Glu Val Asp Ser Ile Thr  
65 70 75 80  
tca ttt ttt cga aaa gag cga att ccc acg ccc acg gct gtg tgt acc 288  
Ser Phe Phe Arg Lys Glu Arg Ile Pro Thr Pro Thr Ala Val Cys Thr  
85 90 95  
gct gaa tct acc gct gac ttt gtc act cga cat gtt cgt gcg gtc gta 336  
Ala Glu Ser Thr Ala Asp Phe Val Thr Arg His Val Arg Ala Val Val  
100 105 110  
gat ggc tgt gga tcc aat aat aac gat gag gat ggt gag ggg acg aag 384  
Asp Gly Cys Gly Ser Asn Asn Asn Asp Glu Asp Gly Glu Gly Thr Lys  
115 120 125  
gca tcg gtt gtg gac gtc gtg gca atc gga gta gat gac gtg atg ttg 432  
Ala Ser Val Val Asp Val Val Ala Ile Gly Val Asp Asp Val Met Leu  
130 135 140  
gat aaa ttt ttttttg aac agc ctg tct cgt cac gtt gtg tgt gcg ttt 480

Asp 145	Lys	Phe	Phe	Leu	Asn 150	Ser	Leu	Ser	Arg	His 155	Val	Val	Cys	Ala	Phe 160	
ctc	tcc	gga	ggg	gct	gcc	gtt	gcg	gta	tcg	ttg	gtg	gtc	ttt	ccg	acc	528
Leu	Ser	Gly	Gly	Ala 165	Ala	Val	Ala	Val	Ser 170	Leu	Val	Val	Phe	Pro	Thr 175	
ccc	cat	gac	gca	cgg	cag	agg	agc	gtt	gac	atc	aca	gcg	aaa	tta	ttc	576
Pro	His	Asp	Ala 180	Arg	Gln	Arg	Ser	Val 185	Asp	Ile	Thr	Ala	Lys 190	Leu	Phe	
act	gag	gca	gtg	ggc	gat	ggt	ggc	gtg	tac	att	cac	agc	gtc	tcg	gag	624
Thr	Glu	Ala	Val 195	Gly	Asp	Gly	Gly	Val 200	Tyr	Ile	His	Ser 205	Val	Ser	Glu	
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Tyr	Asp	Arg	Ile 210	Ile	Glu	Leu 215	Leu	Thr	Asn	Ser	Pro 220	Ser	Phe	Cys	His	
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Ile	Phe	Pro	Val 225	Ser	Ser 230	Leu	Leu	Leu	Arg	Leu 235	Cys	Pro	Gln	Gly	Glu 240	
caa	gca	gct	tgt	gtg	gtg	aat	atg	tgg	tgg	ctg	cag	acg	tcg	cat	gtt	768
Gln	Ala	Ala	Cys 245	Val	Val	Asn	Met	Trp	Trp 250	Leu	Gln	Thr	Ser	His	Val 255	
cag	tta	ttt	ttt	ccc	gct	gac	gga	ctg	ctt	gac	gcg	cgg	cga	ttg	ccc	816
Gln	Leu	Phe 260	Phe	Pro	Ala	Asp	Gly 265	Leu	Leu	Asp	Ala	Arg 270	Arg	Leu	Pro	
cat	cgt	gtt	gtc	gtt	ttc	ccc	gtg	cgt	gac	acg	aat	gag	ttg	cag	ttg	864
His	Arg	Val 275	Val	Val	Phe	Pro	Val 280	Arg	Asp	Thr	Asn 285	Glu	Leu	Gln	Leu	
cga	ttg	gct	tcc	att	gga	ttc	atc	cgt	gca	gcg	aaa	ggt	tcc	cct	gac	912
Arg	Leu	Ala	Ser 290	Ile	Gly	Phe 295	Ile	Arg	Ala	Ala	Lys 300	Gly	Ser	Pro	Asp	
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Ala	Gln	Leu	Gln 305	Gly	Pro 310	Val	Val	Glu	Glu	Lys 315	Glu	Arg	Glu	Met	Leu 320	
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Lys	Ala	Asp	Leu 325	Gln	Ala	Val	Arg	Asp	Glu 330	Phe	Glu	Ser	Thr	Arg	Thr 335	
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Thr	Ile	Gln	Gln 340	Gln	Lys	Ser	Arg	Asn 345	Glu	Ala	Leu	Glu	Gly 350	Thr	Ile	
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Leu	Arg	Leu 355	Arg	Glu	Lys	Val 360	Arg	Gly	Leu	Ala	Arg 365	Glu	Gln	Arg	Arg	
tta	gag	agc	gag	tgt	agc	gcg	gcg	cgg	cac	tcg	agg	gaa	cag	ttg	gaa	1152
Leu	Glu	Ser 370	Glu	Cys	Ser 375	Ala	Ala	Arg	His	Ser 380	Arg	Glu	Gln	Leu	Glu	
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Glu	Asp	Met	Arg 385	Gln	Gln 390	Val	Asp	Met	Arg	Asn 395	Glu	Met	Glu	Gly	Arg 400	
cga	gtt	gcg	cat	ctt	cgc	cga	cag	ttg	gag	tgg	gag	ctg	agg	atg	gaa	1248
Arg	Val	Ala	His 405	Leu	Arg	Arg	Gln	Leu 410	Glu	Trp	Glu	Leu	Arg	Met	Glu 415	
aga	gga	cgc	gta	gaa	agc	tac	tgt	gcc	cac	ctt	gcg	aga	att	cgg	gag	1296
Arg	Gly	Arg	Val 420	Glu	Ser	Tyr	Cys	Ala 425	His	Leu	Ala	Arg 430	Ile	Arg	Glu	
gaa	gaa	aat	aaacgc	aca	gta	atg	cac	agg	gaa	gct	cta	gac	agg	gaa		1344

Glu	Glu	Asn	Lys	Arg	Thr	Val	Met	His	Arg	Glu	Ala	Leu	Asp	Arg	Glu	
		435					440					445				
ata	ggc	gct	gct	cga	gag	cag	aaa	gag	agg	ctt	ttg	ggc	atc	att	tcc	1392
Ile	Gly	Ala	Ala	Arg	Glu	Gln	Lys	Glu	Arg	Leu	Leu	Gly	Ile	Ile	Ser	
	450					455					460					
cgg	aaa	agg	agg	gat	aca	tct	ctt	cgt	tcc	gtg	ttt	ggg	acg	tct	cga	1440
Arg	Lys	Arg	Arg	Asp	Thr	Ser	Leu	Arg	Ser	Val	Phe	Gly	Thr	Ser	Arg	
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tcg	act	tcg	aca	agg	gaa	acg	agt	ttg	atg	agg	gcg	cac	aca	agc	gat	1488
Ser	Thr	Ser	Thr	Arg	Glu	Thr	Ser	Leu	Met	Arg	Ala	His	Thr	Ser	Asp	
				485					490					495		
gtg	gag	gtg	tcg	agc	cgc	cca	tac	gag	gac	tca	gaa	ctg	tgc	cgt	gtg	1536
Val	Glu	Val	Ser	Ser	Arg	Pro	Tyr	Glu	Asp	Ser	Glu	Leu	Cys	Arg	Val	
			500					505					510			
aac	gag	caa	tgc	cag	cgt	ctc	agc	cgc	ctg	tgt	gct	gcc	ctc	cgt	gtg	1584
Asn	Glu	Gln	Cys	Gln	Arg	Leu	Ser	Arg	Leu	Cys	Ala	Ala	Leu	Arg	Val	
		515					520					525				
gaa	agg	gac	gag	ctt	gcg	act	ttc	gag	caa	tca	tgg	gcg	cta	gga	gtg	1632
Glu	Arg	Asp	Glu	Leu	Ala	Thr	Phe	Glu	Gln	Ser	Trp	Ala	Leu	Gly	Val	
	530					535					540					
gaa	gag	gac	gag	gta	aga	gac	agc	ggt	gac	gat	gat	ggg	ttt	gag	agg	1680
Glu	Glu	Asp	Glu	Val	Arg	Asp	Ser	Gly	Asp	Asp	Asp	Gly	Phe	Glu	Arg	
545					550				555						560	
ggt	atc	cgt	ctg	aag	agc	gaa	gat	gtg	agg	caa	atg	gcg	cgg	gag	act	1728
Gly	Ile	Arg	Leu	Lys	Ser	Glu	Asp	Val	Arg	Gln	Met	Ala	Arg	Glu	Thr	
				565					570					575		
ctg	gaa	aga	gaa	gaa	cac	gtc	acg	cga	gag	gct	ttt	tgc	gcc	atc	gag	1776
Leu	Glu	Arg	Glu	Glu	His	Val	Thr	Arg	Glu	Ala	Phe	Cys	Ala	Ile	Glu	
			580					585					590			
gag	gca	agg	agg	gcg	gag	ttt	gac	tgg	gat	tgg	gtg	gtt	tgt	acg	cag	1824
Glu	Ala	Arg	Arg	Ala	Glu	Phe	Asp	Trp	Asp	Trp	Val	Val	Cys	Thr	Gln	
		595					600					605				
tgc	ctg	agc	tgt	gcg	tct	tta	ttt	gtt	tca	ggc	gag	ggg	agt	cgg	cct	1872
Cys	Leu	Ser	Cys	Ala	Ser	Leu	Phe	Val	Ser	Gly	Glu	Gly	Ser	Arg	Pro	
	610					615					620					
ccc	tac	ggt	gcg	agg	gag	cag	caa	cga	cgc	gaa	ttg	act	ctt	tgc	gaa	1920
Pro	Tyr	Gly	Ala	Arg	Glu	Gln	Gln	Arg	Arg	Glu	Leu	Thr	Leu	Cys	Glu	
625					630					635					640	
ctc	gaa	cgc	gta	ggc	cga	ttg	aag	gcg	gcg	gtg	caa	cgg	gaa	atg	caa	1968
Leu	Glu	Arg	Val	Gly	Arg	Leu	Lys	Ala	Ala	Val	Gln	Arg	Glu	Met	Gln	
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agg	atc	cac	ctg	gaa	ggt	gcc	atc	cgc	gag	cgg	tcc	gtg	cgc	caa	ctc	2016
Arg	Ile	His	Leu	Glu	Gly	Ala	Ile	Arg	Glu	Arg	Ser	Val	Arg	Gln	Leu	
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gtg	gac	cag	ctg	cga	gtg	gag	tct	gag	cga	ctg	gcc	cag	gaa	cgc	aac	2064
Val	Asp	Gln	Leu	Arg	Val	Glu	Ser	Glu	Arg	Leu	Ala	Gln	Glu	Arg	Asn	
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gcg	tgt	gcg	gaa	gtt	atg	gcg	agc	gag	aaa	aag	gcg	gcc	gag	gcg	gag	2112
Ala	Cys	Ala	Glu	Val	Met	Ala	Ser	Glu	Lys	Lys	Ala	Ala	Glu	Ala	Glu	
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Ala	Glu	Ala	Leu	Arg	His	Thr	Leu	Gln	Leu	Leu	His	Ser	Cys	Met	Asn	
705					710					715					720	
ata	cgt	ctc	cct	ctt	tcc	ggc	ccc	ttt	ttc	tcc	act	ggg	ccc	ggt	ggg	2208



Ile Arg Leu Pro Leu Ser Gly Pro Phe Phe Ser Thr Gly Pro Gly Gly  
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Asn Trp His Thr Leu Ser His Ala Ile Thr Ala Leu Gly Arg Arg Val  
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Ser Phe Ile His Phe Ser Leu Phe Phe Phe Asn Phe Cys Ser Leu  
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Leu Leu Leu Leu Phe Phe Phe Phe Pro Leu Arg Pro Tyr Asp Asp Arg  
50 55 60

Met Asn Ile Ile Val Ser Cys Arg Ala Ser Glu Val Asp Ser Ile Thr  
65 70 75 80

Ser Phe Phe Arg Lys Glu Arg Ile Pro Thr Pro Thr Ala Val Cys Thr  
85 90 95

Ala Glu Ser Thr Ala Asp Phe Val Thr Arg His Val Arg Ala Val Val  
100 105 110

Asp Gly Cys Gly Ser Asn Asn Asn Asp Glu Asp Gly Glu Gly Thr Lys  
115 120 125

Ala Ser Val Val Asp Val Val Ala Ile Gly Val Asp Asp Val Met Leu  
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Asp Lys Phe Phe Leu Asn Ser Leu Ser Arg His Val Val Cys Ala Phe  
145 150 155 160

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

Pro His Asp Ala Arg Gln Arg Ser Val Asp Ile Thr Ala Lys Leu Phe  
180 185 190

Thr Glu Ala Val Gly Asp Gly Gly Val Tyr Ile His Ser Val Ser Glu  
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Tyr Asp Arg Ile Ile Glu Leu Leu Thr Asn Ser Pro Ser Phe Cys His

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Gln Leu Phe Phe Pro	Ala Asp Gly Leu Leu	Asp Ala Arg Arg Leu Pro			
	260	265		270	
His Arg Val Val Val	Phe Pro Val Arg Asp	Thr Asn Glu Leu Gln Leu			
	275	280		285	
Arg Leu Ala Ser Ile	Gly Phe Ile Arg Ala	Ala Lys Gly Ser Pro Asp			
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Ala Gln Leu Gln Gly	Pro Val Val Glu Glu	Lys Glu Arg Glu Met Leu			
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Lys Ala Asp Leu Gln	Ala Val Arg Asp Glu	Phe Glu Ser Thr Arg Thr			
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Thr Ile Gln Gln Gln	Lys Ser Arg Asn Glu	Ala Leu Glu Gly Thr Ile			
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Leu Arg Leu Arg Glu	Lys Val Arg Gly Leu	Ala Arg Glu Gln Arg Arg			
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Glu Asp Met Arg Gln	Gln Val Asp Met Arg	Asn Glu Met Glu Gly Arg			
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Arg Val Ala His Leu	Arg Arg Gln Leu Glu	Trp Glu Leu Arg Met Glu			
	405	410		415	
Arg Gly Arg Val Glu	Ser Tyr Cys Ala His	Leu Ala Arg Ile Arg Glu			
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Glu Glu Asn Lys Arg	Thr Val Met His Arg	Glu Ala Leu Asp Arg Glu			
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Ile Gly Ala Ala Arg	Glu Gln Lys Glu Arg	Leu Leu Gly Ile Ile Ser			
	450	455		460	
Arg Lys Arg Arg Asp	Thr Ser Leu Arg Ser	Val Phe Gly Thr Ser Arg			
465	470	475		480	
Ser Thr Ser Thr Arg	Glu Thr Ser Leu Met	Arg Ala His Thr Ser Asp			
	485	490		495	
Val Glu Val Ser Ser	Arg Pro Tyr Glu Asp	Ser Glu Leu Cys Arg Val			

500

505

510

Asn Glu Gln Cys Gln Arg Leu Ser Arg Leu Cys Ala Ala Leu Arg Val  
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Glu Arg Asp Glu Leu Ala Thr Phe Glu Gln Ser Trp Ala Leu Gly Val  
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Glu Glu Asp Glu Val Arg Asp Ser Gly Asp Asp Asp Gly Phe Glu Arg  
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Gly Ile Arg Leu Lys Ser Glu Asp Val Arg Gln Met Ala Arg Glu Thr  
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Glu Ala Arg Arg Ala Glu Phe Asp Trp Asp Trp Val Val Cys Thr Gln  
 595 600 605

Cys Leu Ser Cys Ala Ser Leu Phe Val Ser Gly Glu Gly Ser Arg Pro  
 610 615 620

Pro Tyr Gly Ala Arg Glu Gln Gln Arg Arg Glu Leu Thr Leu Cys Glu  
 625 630 635 640

Leu Glu Arg Val Gly Arg Leu Lys Ala Ala Val Gln Arg Glu Met Gln  
 645 650 655

Arg Ile His Leu Glu Gly Ala Ile Arg Glu Arg Ser Val Arg Gln Leu  
 660 665 670

Val Asp Gln Leu Arg Val Glu Ser Glu Arg Leu Ala Gln Glu Arg Asn  
 675 680 685

Ala Cys Ala Glu Val Met Ala Ser Glu Lys Lys Ala Ala Glu Ala Glu  
 690 695 700

Ala Glu Ala Leu Arg His Thr Leu Gln Leu Leu His Ser Cys Met Asn  
 705 710 715 720

Ile Arg Leu Pro Leu Ser Gly Pro Phe Phe Ser Thr Gly Pro Gly Gly  
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ccg act tcc ccg cgg tcc att gtg gcc atg aac agg tgt ggg ata acg      96
Pro Thr Ser Pro Arg Ser Ile Val Ala Met Asn Arg Cys Gly Ile Thr
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cca cca gac ata ctt tac gtt tct cgc gaa gaa cta aag cat cgc att      144
Pro Pro Asp Ile Leu Tyr Val Ser Arg Glu Glu Leu Lys His Arg Ile
          35          40          45

gca tac aag aat cta acg gat aag gag ttt gtc atc tac tac gat aac      192
Ala Tyr Lys Asn Leu Thr Asp Lys Glu Phe Val Ile Tyr Tyr Asp Asn
          50          55          60

tat gag gca atg cgg aaa gag gct ctg agc caa gct ata gcc gag tac      240
Tyr Glu Ala Met Arg Lys Glu Ala Leu Ser Gln Ala Ile Ala Glu Tyr
65          70          75          80

cag cta att tta gag caa gga att tcg aag gcc gag gct gcg ctt tac      288
Gln Leu Ile Leu Glu Gln Gly Ile Ser Lys Ala Glu Ala Ala Leu Tyr
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ccc cac ttg cgc ttt cca aac gtt act tca gct cca tct aca ccg cga      336
Pro His Leu Arg Phe Pro Asn Val Thr Ser Ala Pro Ser Thr Pro Arg
          100          105          110

ggg ggg ctt ttg cag aca tcc acg cat aac ccg gac gag ctc aag gcc      384
Gly Gly Leu Leu Gln Thr Ser Thr His Asn Pro Asp Glu Leu Lys Ala
          115          120          125

aaa atc att gaa cgt cat att aag gaa gtg gag ctc aat ctc cga cag      432
Lys Ile Ile Glu Arg His Ile Lys Glu Val Glu Leu Asn Leu Arg Gln
          130          135          140

cgc att gct aag gaa gca caa caa cag ctt caa ctt gag gct gca caa      480
Arg Ile Ala Lys Glu Ala Gln Gln Gln Leu Gln Leu Glu Ala Ala Gln
145          150          155          160

gag cat cgc ctg aag gcc cag gag att gaa aat aga atg act gct aag      528
Glu His Arg Leu Lys Ala Gln Glu Ile Glu Asn Arg Met Thr Ala Lys
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tat gag gac gag gcc att aag tac att ctt cag gag cag cac cgc ctt      576
Tyr Glu Asp Glu Ala Ile Lys Tyr Ile Leu Gln Glu Gln His Arg Leu
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gag atc ttt agt agc ttt cag cgc cag cag gag gaa tgc agg aaa cgc      624
Glu Ile Phe Ser Ser Phe Gln Arg Gln Gln Glu Glu Cys Arg Lys Arg
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Ser Tyr Ala Lys Thr Ile Gln Glu Met His Ala His Asp Ala Leu Leu
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Gln Arg Arg Gln Arg Tyr Leu Asp Asp Gln Ser Val Arg Ser Lys Thr
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cgc tcg gtt cct cga gag gag ttc ttg tat caa ctg gcc caa gag cgc      768
Arg Ser Val Pro Arg Glu Glu Phe Leu Tyr Gln Leu Ala Gln Glu Arg
          245          250          255

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Lys Ala Glu Asp Arg Ala Arg Glu Leu Glu Phe Lys Glu Arg Gln Leu

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Val	Glu	Arg	Leu	Gln	Gln	Ser	Leu	Arg	Glu	Asn	Gln	Leu	Arg	His	Thr			
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ctt	cgg	agg	gtt	cag	tac	gag	aaa	gaa	aat	gtg	ctc	tcg	aat	aag	gag	1296		
Leu	Arg	Arg	Val	Gln	Tyr	Glu	Lys	Glu	Asn	Val	Leu	Ser	Asn	Lys	Glu			
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Phe	Lys	Ala	Ile	Asn	Ser	Ile	Arg	Ala	Leu	Asn	Met	Thr	Lys	Glu	Lys			
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cac	tat	atg	gac	gag	gcc	att	gac	atg	ctc	aag	gga	gaa	gaa	agc	ttt	1536		
His	Tyr	Met	Asp	Glu	Ala	Ile	Asp	Met	Leu	Lys	Gly	Glu	Glu	Ser	Phe			
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Lys	Arg	Thr	Leu	Arg	Met	Val	Pro	Val	Ser	Glu	Ser	Tyr	Ala	Ser	Val			
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Val	Ser	His	Asn	Ser	Met	Arg	Ser	Ala	Ser	Asp	Ser	Thr	Ile	Glu	Thr	
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Pro	Gln	Trp	Ser	Asp	Ser	Val	Ser	Ser	Asn	Ile	Ser	Ser	Thr	Lys	Lys	
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gat	agt	cag	cga	aat	aaa	tct	aag	aca	gac	acc	gaa	gct	gca	cag	gat	2256
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Asp	Tyr	Asp	Thr	Glu	Asn	Arg	Thr	Gln	Gln	Ile	Tyr	Ala	Ser	Leu	Ser	
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Ile	Arg	Ala	Asn	Glu	Ala	Gly	Met	Asp	Pro	Lys	Gln	Phe	Glu	Gln	Asp	
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aca ttt tcc aaa gct acg cct gaa gca acg cag atc aac gat gac aca			2640
Thr Phe Ser Lys Ala Thr Pro Glu Ala Thr Gln Ile Asn Asp Asp Thr			
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Pro Lys Tyr Phe Ala Pro Gly Ser Met Thr Leu Met Gln Glu Ser Ala			
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Pro Pro Ser Arg Asn Ile Gly Asp Gly Ser Thr Lys Asp Tyr Val Ala			
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Thr Leu Glu Tyr Pro Asn Val Lys Gly Asn Asp Gly Leu Arg Pro Ala			
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gag ctg tcc aca tac tcg att gtc ctg cct ccc gtg tcc gca ggc gca			2832
Glu Leu Ser Thr Tyr Ser Ile Val Leu Pro Pro Val Ser Ala Gly Ala			
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Gly Ile Pro Arg Val Ala Gln Glu Pro Gln Ser Pro Gln Arg Val Val			
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Asn Phe Gly Ile Asp Val Thr Ala Ser Asp Leu Lys Ile Ser Ser Leu			
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gaa aag gtt cca gat aca agt gag ccg gca ttt atc gac gac agc ttg			2976
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Glu Glu Asn			
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 <213> Giardia lamblia ATCC 50803

<400> 118

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

Pro	Pro	Asp	Ile	Leu	Tyr	Val	Ser	Arg	Glu	Glu	Leu	Lys	His	Arg	Ile
		35					40					45			

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

Tyr	Glu	Ala	Met	Arg	Lys	Glu	Ala	Leu	Ser	Gln	Ala	Ile	Ala	Glu	Tyr	65	70	75	80
Gln	Leu	Ile	Leu	Glu	Gln	Gly	Ile	Ser	Lys	Ala	Glu	Ala	Ala	Leu	Tyr	85	90	95	
Pro	His	Leu	Arg	Phe	Pro	Asn	Val	Thr	Ser	Ala	Pro	Ser	Thr	Pro	Arg	100	105	110	
Gly	Gly	Leu	Leu	Gln	Thr	Ser	Thr	His	Asn	Pro	Asp	Glu	Leu	Lys	Ala	115	120	125	
Lys	Ile	Ile	Glu	Arg	His	Ile	Lys	Glu	Val	Glu	Leu	Asn	Leu	Arg	Gln	130	135	140	
Arg	Ile	Ala	Lys	Glu	Ala	Gln	Gln	Gln	Leu	Gln	Leu	Glu	Ala	Ala	Gln	145	150	155	160
Glu	His	Arg	Leu	Lys	Ala	Gln	Glu	Ile	Glu	Asn	Arg	Met	Thr	Ala	Lys	165	170	175	
Tyr	Glu	Asp	Glu	Ala	Ile	Lys	Tyr	Ile	Leu	Gln	Glu	Gln	His	Arg	Leu	180	185	190	
Glu	Ile	Phe	Ser	Ser	Phe	Gln	Arg	Gln	Gln	Glu	Glu	Cys	Arg	Lys	Arg	195	200	205	
Ser	Tyr	Ala	Lys	Thr	Ile	Gln	Glu	Met	His	Ala	His	Asp	Ala	Leu	Leu	210	215	220	
Gln	Arg	Arg	Gln	Arg	Tyr	Leu	Asp	Asp	Gln	Ser	Val	Arg	Ser	Lys	Thr	225	230	235	240
Arg	Ser	Val	Pro	Arg	Glu	Glu	Phe	Leu	Tyr	Gln	Leu	Ala	Gln	Glu	Arg	245	250	255	
Lys	Ala	Glu	Asp	Arg	Ala	Arg	Glu	Leu	Glu	Phe	Lys	Glu	Arg	Gln	Leu	260	265	270	
Ile	Arg	Glu	Gln	Arg	Ser	Gln	Arg	Ala	Gln	Glu	Lys	Lys	Arg	Gln	Glu	275	280	285	
Val	Glu	Arg	Leu	Gln	Gln	Ser	Leu	Arg	Glu	Asn	Gln	Leu	Arg	His	Thr	290	295	300	
Lys	Val	Phe	Asn	Glu	Tyr	Trp	Glu	Asp	Val	Ala	Arg	Ser	Lys	Ser	Val	305	310	315	320
Asp	His	Ala	Leu	Arg	Glu	Asn	Arg	Arg	Leu	Ala	Gly	Ala	Lys	Arg	Ala	325	330	335	
Ser	Thr	Glu	Lys	Leu	Lys	Glu	Asn	Ala	Glu	Arg	Ile	Ser	Glu	Thr	Ser	340	345	350	



Gln	Arg	Ile	Glu	Val	Thr	Leu	Lys	Asn	Phe	Gly	Lys	Ile	Tyr	Arg	Asn
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Lys	Gln	Asp	Ala	Lys	Ala	Arg	Lys	Leu	Glu	Glu	Glu	Glu	Leu	Arg	Ser
370						375				380					
Ser	Arg	His	Ile	Leu	Glu	Thr	Ser	Val	Asn	Ala	Arg	Gln	Arg	Ala	Leu
385				390						395		400			
Glu	Asp	Glu	Leu	Leu	Lys	Asp	Leu	Arg	Thr	Lys	Arg	Ala	Glu	Met	His
				405				410						415	
Leu	Arg	Arg	Val	Gln	Tyr	Glu	Lys	Glu	Asn	Val	Leu	Ser	Asn	Lys	Glu
		420						425				430			
Phe	Lys	Ala	Ile	Asn	Ser	Ile	Arg	Ala	Leu	Asn	Met	Thr	Lys	Glu	Lys
435						440						445			
Glu	Glu	Glu	Leu	Met	Ala	Leu	Ser	Asn	Lys	Leu	His	Thr	Gln	Arg	His
450						455				460					
Ile	Leu	Lys	Gly	Ser	Gln	Thr	Ile	Arg	Asp	Asp	Gly	Tyr	Leu	Asp	Ile
465				470						475		480			
Pro	Asp	Asp	Leu	Arg	Lys	Leu	Ala	Pro	Pro	Glu	Ser	Ile	Leu	Lys	Cys
				485				490						495	
His	Tyr	Met	Asp	Glu	Ala	Ile	Asp	Met	Leu	Lys	Gly	Glu	Glu	Ser	Phe
		500						505				510			
Lys	Arg	Thr	Leu	Arg	Met	Val	Pro	Val	Ser	Glu	Ser	Tyr	Ala	Ser	Val
515						520						525			
Tyr	Lys	Ser	Ile	Asp	Thr	Glu	Pro	Arg	Lys	Lys	Lys	Pro	Thr	Lys	Ser
530						535				540					
Gln	His	Val	Ala	Arg	His	Asn	Ser	Ile	Ser	Asp	Phe	Ser	Met	Asp	Thr
545				550						555		560			
Pro	Asp	Ser	Gly	Arg	Pro	Tyr	Tyr	Gln	Val	Lys	Asn	Ser	Arg	Pro	Leu
				565				570						575	
Arg	Ser	Ser	Ser	Asn	Gly	Asp	Gly	Leu	Leu	Val	Glu	Arg	Arg	Ser	Lys
		580						585				590			
Ser	Leu	Thr	Arg	Pro	Arg	Thr	Ala	Ser	Arg	Ser	Gly	Pro	Ala	Ala	Leu
595						600						605			
Asp	Ser	Ser	Arg	Thr	Asp	Ser	Thr	Pro	Gly	Ser	Ser	Tyr	Leu	Gly	Gly
610						615				620					
His	His	Ser	Gly	Ala	Gln	Val	Ala	Ser	Val	Pro	Leu	Arg	Pro	Gly	Asp
625				630						635				640	

Ala	Ser	Arg	Pro	Lys	Lys	Ala	Ala	Lys	Arg	Gly	Ser	Ser	Lys	Ser	Lys	645	650	655
Val	Ser	His	Asn	Ser	Met	Arg	Ser	Ala	Ser	Asp	Ser	Thr	Ile	Glu	Thr	660	665	670
Pro	Gln	Trp	Ser	Asp	Ser	Val	Ser	Ser	Asn	Ile	Ser	Ser	Thr	Lys	Lys	675	680	685
Lys	Ala	Thr	Arg	Leu	Arg	Ser	Asp	Asp	Ala	Asn	Leu	Ser	Val	Ser	Leu	690	695	700
Pro	Leu	Pro	Ala	Leu	Lys	Gly	Pro	Gly	Ser	Gly	Leu	Ile	Glu	Glu	Glu	705	710	715
Lys	Lys	Arg	Asn	Ala	Thr	Val	Arg	Gln	Ser	Lys	Lys	Glu	Arg	Pro	Arg	725	730	735
Asp	Ser	Gln	Arg	Asn	Lys	Ser	Lys	Thr	Asp	Thr	Glu	Ala	Ala	Gln	Asp	740	745	750
Ser	Leu	Leu	Arg	Asn	Gln	Ser	Leu	Glu	Ile	Val	Arg	Gln	Leu	Ser	Gln	755	760	765
Leu	Thr	Lys	Leu	Asn	Lys	Pro	Ala	Ile	Ser	Asn	Phe	Pro	Pro	Pro	Asp	770	775	780
Glu	Arg	Arg	Glu	Leu	Leu	Gly	Lys	Leu	Thr	Gly	Ala	Thr	Gln	Glu	Pro	785	790	795
Asp	Tyr	Asp	Thr	Glu	Asn	Arg	Thr	Gln	Gln	Ile	Tyr	Ala	Ser	Leu	Ser	805	810	815
Ile	Arg	Ala	Asn	Glu	Ala	Gly	Met	Asp	Pro	Lys	Gln	Phe	Glu	Gln	Asp	820	825	830
Val	Leu	Pro	Glu	His	Thr	Gln	Thr	Arg	His	Leu	Phe	Ala	Ser	Leu	Gly	835	840	845
Lys	Ser	Ser	Thr	Pro	Asn	Asp	His	Met	Asp	Gly	Asp	Leu	Ile	Leu	Thr	850	855	860
Thr	Phe	Ser	Lys	Ala	Thr	Pro	Glu	Ala	Thr	Gln	Ile	Asn	Asp	Asp	Thr	865	870	875
Pro	Lys	Tyr	Phe	Ala	Pro	Gly	Ser	Met	Thr	Leu	Met	Gln	Glu	Ser	Ala	885	890	895
Pro	Pro	Ser	Arg	Asn	Ile	Gly	Asp	Gly	Ser	Thr	Lys	Asp	Tyr	Val	Ala	900	905	910
Thr	Leu	Glu	Tyr	Pro	Asn	Val	Lys	Gly	Asn	Asp	Gly	Leu	Arg	Pro	Ala	915	920	925

Glu Leu Ser Thr Tyr Ser Ile Val Leu Pro Pro Val Ser Ala Gly Ala  
930 935 940

Gly Ile Pro Arg Val Ala Gln Glu Pro Gln Ser Pro Gln Arg Val Val  
945 950 955 960

Asn Phe Gly Ile Asp Val Thr Ala Ser Asp Leu Lys Ile Ser Ser Leu  
965 970 975

Glu Lys Val Pro Asp Thr Ser Glu Pro Ala Phe Ile Asp Asp Ser Leu  
980 985 990

Pro Ala Glu Glu Ala Ala Thr Ala Pro Asn Thr Arg Glu Ser Ile Gly  
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Tyr Phe Val Ser Ser Ser Ala Asn Val His Gly Asp Asn Thr Asp  
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Glu Glu Asn  
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Glu Lys Glu Ser Asp Thr Tyr Arg Arg Pro Gln Arg Ser Arg His Lys  
20 25 30  
cgc ttc gcc caa gac gat gaa tac gat gaa ttg aaa cat gga agt cga 144  
Arg Phe Ala Gln Asp Asp Glu Tyr Asp Glu Leu Lys His Gly Ser Arg  
35 40 45  
atg tcc ccg cca ctt ccc gtg gac gag ttg acg cgt cta cac ata caa 192  
Met Ser Pro Pro Leu Pro Val Asp Glu Leu Thr Arg Leu His Ile Gln  
50 55 60  
gaa cgg tca aag ccc gac ttt att cat gag agc ttt gat cca ccg cgg 240  
Glu Arg Ser Lys Pro Asp Phe Ile His Glu Ser Phe Asp Pro Pro Arg  
65 70 75 80  
tac cct ggc cct ctc gct gtg atg cga gag agg gag gaa aat gag atg 288  
Tyr Pro Gly Pro Leu Ala Val Met Arg Glu Arg Glu Glu Asn Glu Met  
85 90 95  
gac atg ctt ccg cca gag aca ttg agg ggc tac gag ctg gac agg cac 336  
Asp Met Leu Pro Pro Glu Thr Leu Arg Gly Tyr Glu Leu Asp Arg His  
100 105 110  
gag cgt cgt gag cga cct cgg cat agg aga act gct aag ggg gag gat 384  
Glu Arg Arg Glu Arg Pro Arg His Arg Arg Thr Ala Lys Gly Glu Asp  
115 120 125

gtt tat ttt cag gag aaa tcg caa aga cag agg tat aca agg gct gaa Val Tyr Phe Gln Glu Lys Ser Gln Arg Gln Arg Tyr Thr Arg Ala Glu 130 135 140	432
tat gac gag gga gaa ttt gag ctg caa agg gaa agg cca tca ata ccg Tyr Asp Glu Gly Glu Phe Glu Leu Gln Arg Glu Arg Pro Ser Ile Pro 145 150 155 160	480
cga tcc aac ttg gat agc gat gag gaa ctt gta cgt tta cgt agc gac Arg Ser Asn Leu Asp Ser Asp Glu Glu Leu Val Arg Leu Arg Ser Asp 165 170 175	528
aag aaa ggg aag aaa ggc tcg cgc gtg aag cac gcg gat ctt gag att Lys Lys Gly Lys Lys Gly Ser Arg Val Lys His Ala Asp Leu Glu Ile 180 185 190	576
gag cga gat gag ctt tat cgc cgt ggg tct gac gcc agg tgg gag cac Glu Arg Asp Glu Leu Tyr Arg Arg Gly Ser Asp Ala Arg Trp Glu His 195 200 205	624
acc agg ctt cac agt gat gtt aga gaa cgc aca cca gca gca cac tta Thr Arg Leu His Ser Asp Val Arg Glu Arg Thr Pro Ala Ala His Leu 210 215 220	672
cga tcc cac cgg cac cgg cag ccg gat gga gac gaa gag gat gca gag Arg Ser His Arg His Arg Gln Pro Asp Gly Asp Glu Glu Asp Ala Glu 225 230 235 240	720
gat atc att atc caa aga gat gag cgg agg ggt cga agc ggc agg ttc Asp Ile Ile Ile Gln Arg Asp Glu Arg Arg Gly Arg Ser Gly Arg Phe 245 250 255	768
aag gaa aag gaa aag att acc atg cga gaa aga gaa atc tcg acg tct Lys Glu Lys Glu Lys Ile Thr Met Arg Glu Arg Glu Ile Ser Thr Ser 260 265 270	816
ccg gag tcg cca agt tcg aga gag ctt tcg cag gtc cgg aag tct cat Pro Glu Ser Pro Ser Ser Arg Glu Leu Ser Gln Val Arg Lys Ser His 275 280 285	864
gtt aca tct cgt gaa cgc atg aga gat ggt tat gaa ctg cct cgt gca Val Thr Ser Arg Glu Arg Met Arg Asp Gly Tyr Glu Leu Pro Arg Ala 290 295 300	912
cca ctt gca ccc agt cca gat cct tct tct cca agt agc ttc gag gag Pro Leu Ala Pro Ser Pro Asp Pro Ser Ser Pro Ser Ser Phe Glu Glu 305 310 315 320	960
ttg gag att cgt cac cgt aca cgg gga cgc cca agg aag gag aag att Leu Glu Ile Arg His Arg Thr Arg Gly Arg Pro Arg Lys Glu Lys Ile 325 330 335	1008
att ata gaa cga cgc gat gat act tca cct cca tca ata ctt tca tcc Ile Ile Glu Arg Arg Asp Asp Thr Ser Pro Pro Ser Ile Leu Ser Ser 340 345 350	1056
tca gaa tca ggc aac aaa agc gag gac gaa ctt gac atc act cac gca Ser Glu Ser Gly Asn Lys Ser Glu Asp Glu Leu Asp Ile Thr His Ala 355 360 365	1104
aat ctc aag acc tca aac aga aga gag gac gtt ttg att atg gaa cgt Asn Leu Lys Thr Ser Asn Arg Arg Glu Asp Val Leu Ile Met Glu Arg 370 375 380	1152
caa ccc caa ccc cac gag agt gat gaa gag gtc cat gtc ttt gag gag Gln Pro Gln Pro His Glu Ser Asp Glu Glu Val His Val Phe Glu Glu 385 390 395 400	1200
gaa cag tac acc cgg cac gat gcg gga ggg cct cag cga cgg agc aca Glu Gln Tyr Thr Arg His Asp Ala Gly Gly Pro Gln Arg Arg Ser Thr 405 410 415	1248

cct aca gtc acg att gaa gat aaa gcg ata gtt cgg gcc gat tca gga	1296
Pro Thr Val Thr Ile Glu Asp Lys Ala Ile Val Arg Ala Asp Ser Gly	
420 425 430	
agt cat ggc agt gca gac cag cag atg cga cgg gag cgc cgt gta tcc	1344
Ser His Gly Ser Ala Asp Gln Gln Met Arg Arg Glu Arg Arg Val Ser	
435 440 445	
aca cag cga tcc cga tcc atc aag ggc cac aga agg ctg tct gac gag	1392
Thr Gln Arg Ser Arg Ser Ile Lys Gly His Arg Arg Leu Ser Asp Glu	
450 455 460	
aac atc gac tgc aaa gac ggt cga atc gga cgg cga tac att ggc gta	1440
Asn Ile Asp Cys Lys Asp Gly Arg Ile Gly Arg Arg Tyr Ile Gly Val	
465 470 475 480	
aaa gac aag cga gat cga ctc tgg aca gaa atc acc aag gac ctg gtg	1488
Lys Asp Lys Arg Asp Arg Leu Trp Thr Glu Ile Thr Lys Asp Leu Val	
485 490 495	
gtc agg gag gcc att gag cgg gcc ggc tat gaa tac gag gaa acg gac	1536
Val Arg Glu Ala Ile Glu Arg Ala Gly Tyr Glu Tyr Glu Glu Thr Asp	
500 505 510	
tcg ttc tat tac ata ttc tcg tat ctt gga tat gac gat ata tcg gct	1584
Ser Phe Tyr Tyr Ile Phe Ser Tyr Leu Gly Tyr Asp Asp Ile Ser Ala	
515 520 525	
ctt gtc gca cta tcg gag gac atc cgc cgc gca cga cgc caa cga att	1632
Leu Val Ala Leu Ser Glu Asp Ile Arg Arg Ala Arg Arg Gln Arg Ile	
530 535 540	
cag gag atc agg agg gag cga ggc tcc atg cgt att cca ttt gca cct	1680
Gln Glu Ile Arg Arg Glu Arg Gly Ser Met Arg Ile Pro Phe Ala Pro	
545 550 555 560	
gag cca gtt aca ccc gct ccc gtg tta ccg ggg agg ccg ccg tct ccg	1728
Glu Pro Val Thr Pro Ala Pro Val Leu Pro Gly Arg Pro Pro Ser Pro	
565 570 575	
cgc ctc cgg act cgg gat gag cgg aga ctt aag aaa gag cgg gag ctc	1776
Arg Leu Arg Thr Arg Asp Glu Arg Arg Leu Lys Lys Glu Arg Glu Leu	
580 585 590	
att att gaa gaa gga cgg tgg aga cca ggt cca gct cca ttg aag aga	1824
Ile Ile Glu Glu Gly Arg Trp Arg Pro Gly Pro Ala Pro Leu Lys Arg	
595 600 605	
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Trp	

<210> 120  
 <211> 609  
 <212> PRT  
 <213> Aspergillus fumigatus Af293  
  
 <400> 120

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Glu Lys Glu Ser Asp Thr Tyr Arg Arg Pro Gln Arg Ser Arg His Lys	
20 25 30	
Arg Phe Ala Gln Asp Asp Glu Tyr Asp Glu Leu Lys His Gly Ser Arg	
35 40 45	

Met	Ser	Pro	Pro	Leu	Pro	Val	Asp	Glu	Leu	Thr	Arg	Leu	His	Ile	Gln	50	55	60
Glu	Arg	Ser	Lys	Pro	Asp	Phe	Ile	His	Glu	Ser	Phe	Asp	Pro	Pro	Arg	65	70	75
Tyr	Pro	Gly	Pro	Leu	Ala	Val	Met	Arg	Glu	Arg	Glu	Glu	Asn	Glu	Met	85	90	95
Asp	Met	Leu	Pro	Pro	Glu	Thr	Leu	Arg	Gly	Tyr	Glu	Leu	Asp	Arg	His	100	105	110
Glu	Arg	Arg	Glu	Arg	Pro	Arg	His	Arg	Arg	Thr	Ala	Lys	Gly	Glu	Asp	115	120	125
Val	Tyr	Phe	Gln	Glu	Lys	Ser	Gln	Arg	Gln	Arg	Tyr	Thr	Arg	Ala	Glu	130	135	140
Tyr	Asp	Glu	Gly	Glu	Phe	Glu	Leu	Gln	Arg	Glu	Arg	Pro	Ser	Ile	Pro	145	150	155
Arg	Ser	Asn	Leu	Asp	Ser	Asp	Glu	Glu	Leu	Val	Arg	Leu	Arg	Ser	Asp	165	170	175
Lys	Lys	Gly	Lys	Lys	Gly	Ser	Arg	Val	Lys	His	Ala	Asp	Leu	Glu	Ile	180	185	190
Glu	Arg	Asp	Glu	Leu	Tyr	Arg	Arg	Gly	Ser	Asp	Ala	Arg	Trp	Glu	His	195	200	205
Thr	Arg	Leu	His	Ser	Asp	Val	Arg	Glu	Arg	Thr	Pro	Ala	Ala	His	Leu	210	215	220
Arg	Ser	His	Arg	His	Arg	Gln	Pro	Asp	Gly	Asp	Glu	Glu	Asp	Ala	Glu	225	230	235
Asp	Ile	Ile	Ile	Gln	Arg	Asp	Glu	Arg	Arg	Gly	Arg	Ser	Gly	Arg	Phe	245	250	255
Lys	Glu	Lys	Glu	Lys	Ile	Thr	Met	Arg	Glu	Arg	Glu	Ile	Ser	Thr	Ser	260	265	270
Pro	Glu	Ser	Pro	Ser	Ser	Arg	Glu	Leu	Ser	Gln	Val	Arg	Lys	Ser	His	275	280	285
Val	Thr	Ser	Arg	Glu	Arg	Met	Arg	Asp	Gly	Tyr	Glu	Leu	Pro	Arg	Ala	290	295	300
Pro	Leu	Ala	Pro	Ser	Pro	Asp	Pro	Ser	Ser	Pro	Ser	Ser	Phe	Glu	Glu	305	310	315
Leu	Glu	Ile	Arg	His	Arg	Thr	Arg	Gly	Arg	Pro	Arg	Lys	Glu	Lys	Ile	325	330	335

Ile Ile Glu Arg Arg Asp Asp Thr Ser Pro Pro Ser Ile Leu Ser Ser  
 340 345 350  
 Ser Glu Ser Gly Asn Lys Ser Glu Asp Glu Leu Asp Ile Thr His Ala  
 355 360 365  
 Asn Leu Lys Thr Ser Asn Arg Arg Glu Asp Val Leu Ile Met Glu Arg  
 370 375 380  
 Gln Pro Gln Pro His Glu Ser Asp Glu Glu Val His Val Phe Glu Glu  
 385 390 395 400  
 Glu Gln Tyr Thr Arg His Asp Ala Gly Gly Pro Gln Arg Arg Ser Thr  
 405 410 415  
 Pro Thr Val Thr Ile Glu Asp Lys Ala Ile Val Arg Ala Asp Ser Gly  
 420 425 430  
 Ser His Gly Ser Ala Asp Gln Gln Met Arg Arg Glu Arg Arg Val Ser  
 435 440 445  
 Thr Gln Arg Ser Arg Ser Ile Lys Gly His Arg Arg Leu Ser Asp Glu  
 450 455 460  
 Asn Ile Asp Cys Lys Asp Gly Arg Ile Gly Arg Arg Tyr Ile Gly Val  
 465 470 475 480  
 Lys Asp Lys Arg Asp Arg Leu Trp Thr Glu Ile Thr Lys Asp Leu Val  
 485 490 495  
 Val Arg Glu Ala Ile Glu Arg Ala Gly Tyr Glu Tyr Glu Glu Thr Asp  
 500 505 510  
 Ser Phe Tyr Tyr Ile Phe Ser Tyr Leu Gly Tyr Asp Asp Ile Ser Ala  
 515 520 525  
 Leu Val Ala Leu Ser Glu Asp Ile Arg Arg Ala Arg Arg Gln Arg Ile  
 530 535 540  
 Gln Glu Ile Arg Arg Glu Arg Gly Ser Met Arg Ile Pro Phe Ala Pro  
 545 550 555 560  
 Glu Pro Val Thr Pro Ala Pro Val Leu Pro Gly Arg Pro Pro Ser Pro  
 565 570 575  
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 580 585 590  
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Trp

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 Gln Tyr Ala Ser His Asp Cys Asp Gly Ala Val Leu Lys Lys Lys Asp  
 20 25 30  
 cta aag atc ctt ctt gac agg gaa ttt gga gct gtc ctt cag aga cca 144  
 Leu Lys Ile Leu Leu Asp Arg Glu Phe Gly Ala Val Leu Gln Arg Pro  
 35 40 45  
 cat gac cct gag acg gta gac gtg atg cta gaa ctt ctg gat cgc gac 192  
 His Asp Pro Glu Thr Val Asp Val Met Leu Glu Leu Leu Asp Arg Asp  
 50 55 60  
 tct gat ggt ctg gtc ggg ttc gat gaa ttc tgc cta ctt att ttc aag 240  
 Ser Asp Gly Leu Val Gly Phe Asp Glu Phe Cys Leu Leu Ile Phe Lys  
 65 70 75 80  
 ttg gct caa gcg gct tat tat gca ctt ggc cag gcc tca ggg tta gac 288  
 Leu Ala Gln Ala Ala Tyr Tyr Ala Leu Gly Gln Ala Ser Gly Leu Asp  
 85 90 95  
 gag gaa aag cgg tcc cac ggt gag ggc aag ggg cgc ctg tta caa aat 336  
 Glu Glu Lys Arg Ser His Gly Glu Gly Lys Gly Arg Leu Leu Gln Asn  
 100 105 110  
 cgc agg caa gaa gat caa agg aga ttc gaa ctc cgg gac aga caa ttc 384  
 Arg Arg Gln Glu Asp Gln Arg Arg Phe Glu Leu Arg Asp Arg Gln Phe  
 115 120 125  
 gaa gat gaa cca gag cga cga cgc tgg caa aag cag gaa cag gag agg 432  
 Glu Asp Glu Pro Glu Arg Arg Arg Trp Gln Lys Gln Glu Gln Glu Arg  
 130 135 140  
 gag ctc gct gag gaa gag gaa cag agg aag aaa cga gag cga ttc gag 480  
 Glu Leu Ala Glu Glu Glu Glu Gln Arg Lys Lys Arg Glu Arg Phe Glu  
 145 150 155 160  
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 Gln His Tyr Ser Arg Gln Tyr Arg Asp Lys Glu Gln Arg Leu Gln Arg  
 165 170 175  
 caa gaa cta gaa gag cgc cgc gca gag gaa gag cag ctg cga agg cgc 576  
 Gln Glu Leu Glu Glu Arg Arg Ala Glu Glu Glu Gln Leu Arg Arg Arg  
 180 185 190  
 aag ggt cgc gac gca gag gag ttc att gag gaa gag cag ctg cga agg 624  
 Lys Gly Arg Asp Ala Glu Glu Phe Ile Glu Glu Glu Gln Leu Arg Arg  
 195 200 205  
 cga gag cag caa gag ctg aag agg gag ctc cgc gag gag gag cag caa 672  
 Arg Glu Gln Gln Glu Leu Lys Arg Glu Leu Arg Glu Glu Glu Gln Gln  
 210 215 220  
 agg cga gag cgc cga gag cag cac gag cgg gcg ctc cag gag gaa gaa 720  
 Arg Arg Glu Arg Arg Glu Gln His Glu Arg Ala Leu Gln Glu Glu Glu  
 225 230 235 240



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ctt gag cag gag gag agg cgc gag cag cag ctg agg cgc gag cag aga Leu Glu Gln Glu Glu Arg Arg Glu Gln Gln Leu Arg Arg Glu Gln Arg 275 280 285	864
ctt gag cag gag gag agg cgc gag cag cag ctg agg cgc gag ctg gaa Leu Glu Gln Glu Glu Arg Arg Glu Gln Gln Leu Arg Arg Glu Leu Glu 290 295 300	912
gag ata cgc gaa cgc gag cag agg ctt gag cag gag gag agg cgc gag Glu Ile Arg Glu Arg Glu Gln Arg Leu Glu Gln Glu Glu Arg Arg Glu 305 310 315 320	960
cag cga ctt gag cag gag gag agg cgc gag cag cag ctg aag cgc gag Gln Arg Leu Glu Gln Glu Glu Arg Arg Glu Gln Gln Leu Lys Arg Glu 325 330 335	1008
ctg gaa gag ata cgc gaa cgc gag cag agg ctt gag cag gag gag agg Leu Glu Glu Ile Arg Glu Arg Glu Gln Arg Leu Glu Gln Glu Glu Arg 340 345 350	1056
cgc gag cag ctg ctg gct gag gag gtg cgg gaa cag gcc cgg gag cga Arg Glu Gln Leu Leu Ala Glu Glu Val Arg Glu Gln Ala Arg Glu Arg 355 360 365	1104
ggc gag agc ctc acc cgg agg tgg cag cgg cag cta gag agt gag gcc Gly Glu Ser Leu Thr Arg Arg Trp Gln Arg Gln Leu Glu Ser Glu Ala 370 375 380	1152
ggc gca cgt cag agc aaa gtc tac tcc agg ccc cgc agg cag gaa gag Gly Ala Arg Gln Ser Lys Val Tyr Ser Arg Pro Arg Arg Gln Glu Glu 385 390 395 400	1200
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gaa gag agc gag agg cgc cgc cag agg ctg tcg gcc agg ccc tcg ttg Glu Glu Ser Glu Arg Arg Arg Gln Arg Leu Ser Ala Arg Pro Ser Leu 435 440 445	1344
cgc gag agg cag ctg agg gcg gag gag cgc cag gag cag gaa caa cgg Arg Glu Arg Gln Leu Arg Ala Glu Glu Arg Gln Glu Gln Glu Gln Arg 450 455 460	1392
ttc cgg gag gag gag gag cag cgg cgc gag agg agg cag gag ctg cag Phe Arg Glu Glu Glu Glu Gln Arg Arg Glu Arg Arg Gln Glu Leu Gln 465 470 475 480	1440
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gag cag ctg agg gag gaa gag gag ctg caa agg gag aag agg cgc cag Glu Gln Leu Arg Glu Glu Glu Leu Gln Arg Glu Lys Arg Arg Gln 545 550 555 560	1680
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gag cag gag ctc cgc cag gaa cgc gag agg aaa ctc cgc gag gag gag Glu Gln Glu Leu Arg Gln Glu Arg Glu Arg Lys Leu Arg Glu Glu Glu 645 650 655	1968
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aaa ctc cgc gaa gag gag cag ctg ctt cag gag agg gag gaa gag agg Lys Leu Arg Glu Glu Glu Gln Leu Leu Gln Glu Arg Glu Glu Glu Arg 675 680 685	2064
ctg cgc cgt cag gaa cgc gcc agg aaa ctc cgt gag gag gag cag ctg Leu Arg Arg Gln Glu Arg Ala Arg Lys Leu Arg Glu Glu Glu Gln Leu 690 695 700	2112
ctg cgc cag gag gag cag gag ctc cgc cag gaa cgg gag agg aaa ctc Leu Arg Gln Glu Glu Gln Glu Leu Arg Gln Glu Arg Glu Arg Lys Leu 705 710 715 720	2160
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gcc agg aaa ctc cgt gag gag gag cag ctg ctg cgc cag gag gag cag Ala Arg Lys Leu Arg Glu Glu Glu Gln Leu Leu Arg Gln Glu Glu Gln 865 870 875 880	2640
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gag cgc gcc agg aaa ctc cgt gag gag gag cag ctg ctg cgc cgg gag Glu Arg Ala Arg Lys Leu Arg Glu Glu Glu Gln Leu Leu Arg Arg Glu 980 985 990	2976
gag cag gag ctt cgt cag gag cgc gac aga aag ttc cgc gaa gag gag Glu Gln Glu Leu Arg Gln Glu Arg Asp Arg Lys Phe Arg Glu Glu Glu 995 1000 1005	3024
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cgt cag gag cgc gac agg aaa ttc cgc gag gag gag cag cag cga Arg Gln Glu Arg Asp Arg Lys Phe Arg Glu Glu Glu Gln Gln Arg 1070 1075 1080	3249
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Lys Phe Arg Glu Glu Glu Gln Leu Leu Gln Glu Arg Glu Glu Glu	
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1175 1180 1185	
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Arg Asp Arg Lys Phe Arg Glu Glu Glu Gln Leu Leu Arg Arg Glu	
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1280 1285 1290	
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Glu Glu Gln Glu Glu Gln Arg Leu Arg Gln Glu Arg Asp Arg Arg	
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Tyr Arg Ala Glu Glu Gln Phe Ala Arg Glu Glu Lys Ser Arg Arg	
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Leu Glu Arg Glu Leu Arg Gln Glu Glu Glu Gln Arg Arg Arg Arg	
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Glu Arg Glu Arg Lys Phe Arg Glu Glu Glu Leu Arg Arg Gln Gln	
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gag gag gag cag agg cgc cgc caa ctg cgg gag aga caa ttc cga	4104
Glu Glu Glu Gln Arg Arg Arg Gln Leu Arg Glu Arg Gln Phe Arg	
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Glu Asp	Gln Ser	Arg Arg	Gln Val	Leu Glu	Pro Gly	Thr Arg	Gln	
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ttt gct	agg gtc	ccg gtg	cgc tcc	agc cct	ctt tat	gaa tac	atc	4194
Phe Ala	Arg Val	Pro Val	Arg Ser	Ser Ser	Pro Leu	Tyr Glu	Tyr Ile	
1385			1390			1395		

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Gln Glu	Gln Arg	Ser Gln	Tyr Arg	Pro				
1400			1405					

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Gln Tyr	Ala Ser	His Asp	Cys Asp	Gly Ala	Val Leu	Lys Lys	Lys Asp
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Leu Lys	Ile Leu	Leu Asp	Arg Glu	Phe Gly	Ala Val	Leu Gln	Arg Pro
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His Asp	Pro Glu	Thr Val	Asp Val	Met Leu	Glu Leu	Leu Asp	Arg Asp
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Ser Asp	Gly Leu	Val Gly	Phe Asp	Glu Phe	Cys Leu	Leu Ile	Phe Lys
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Leu Ala	Gln Ala	Ala Tyr	Tyr Ala	Leu Gly	Gln Ala	Ser Gly	Leu Asp
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Glu Glu	Lys Arg	Ser His	Gly Glu	Gly Lys	Gly Arg	Leu Leu	Gln Asn
	100			105			110

Arg Arg	Gln Glu	Asp Gln	Arg Arg	Phe Glu	Leu Arg	Asp Arg	Gln Phe
	115		120			125	

Glu Asp	Glu Pro	Glu Arg	Arg Arg	Trp Gln	Lys Gln	Glu Gln	Glu Arg
130			135		140		

Glu Leu	Ala Glu	Glu Glu	Glu Gln	Arg Lys	Lys Arg	Glu Arg	Phe Glu
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Gln His	Tyr Ser	Arg Gln	Tyr Arg	Asp Lys	Glu Gln	Arg Leu	Gln Arg
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Gln Glu	Leu Glu	Glu Arg	Arg Ala	Glu Glu	Glu Gln	Leu Arg	Arg Arg
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Lys Gly	Arg Asp	Ala Glu	Glu Phe	Ile Glu	Glu Glu	Gln Leu	Arg Arg
	195		200			205	

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225 230 235 240

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245 250 255

Gln Gln Leu Arg Arg Glu Leu Glu Glu Ile Arg Glu Arg Glu Gln Arg  
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Leu Glu Gln Glu Glu Arg Arg Glu Gln Gln Leu Arg Arg Glu Gln Arg  
275 280 285

Leu Glu Gln Glu Glu Arg Arg Glu Gln Gln Leu Arg Arg Glu Leu Glu  
290 295 300

Glu Ile Arg Glu Arg Glu Gln Arg Leu Glu Gln Glu Glu Arg Arg Glu  
305 310 315 320

Gln Arg Leu Glu Gln Glu Glu Arg Arg Glu Gln Gln Leu Lys Arg Glu  
325 330 335

Leu Glu Glu Ile Arg Glu Arg Glu Gln Arg Leu Glu Gln Glu Glu Arg  
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Arg Glu Gln Leu Leu Ala Glu Glu Val Arg Glu Gln Ala Arg Glu Arg  
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Gly Glu Ser Leu Thr Arg Arg Trp Gln Arg Gln Leu Glu Ser Glu Ala  
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Gly Ala Arg Gln Ser Lys Val Tyr Ser Arg Pro Arg Arg Gln Glu Glu  
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Gln Ser Leu Arg Gln Asp Gln Glu Arg Arg Gln Arg Gln Glu Arg Glu  
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Arg Glu Leu Glu Glu Gln Ala Arg Arg Gln Gln Gln Trp Gln Ala Glu  
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Glu Glu Ser Glu Arg Arg Arg Gln Arg Leu Ser Ala Arg Pro Ser Leu  
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Arg Glu Arg Gln Leu Arg Ala Glu Glu Arg Gln Glu Gln Glu Gln Arg  
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465 470 475 480

Phe Leu Glu Glu Glu Glu Gln Leu Gln Arg Arg Glu Arg Ala Gln Gln  
485 490 495

Leu Gln Glu Glu Asp Ser Phe Gln Glu Asp Arg Glu Arg Arg Arg Arg  
500 505 510

Gln Gln Glu Gln Arg Pro Gly Gln Thr Trp Arg Trp Gln Leu Gln Glu  
515 520 525

Glu Ala Gln Arg Arg Arg His Thr Leu Tyr Ala Lys Pro Gly Gln Gln  
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Glu Gln Leu Arg Glu Glu Glu Glu Leu Gln Arg Glu Lys Arg Arg Gln  
545 550 555 560

Glu Arg Glu Arg Glu Tyr Arg Glu Glu Glu Lys Leu Gln Arg Glu Glu  
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Asp Glu Lys Arg Arg Arg Gln Glu Arg Glu Arg Gln Tyr Arg Glu Leu  
580 585 590

Glu Glu Leu Arg Gln Glu Glu Gln Leu Arg Asp Arg Lys Leu Arg Glu  
595 600 605

Glu Glu Gln Leu Leu Gln Glu Arg Glu Glu Glu Arg Leu Arg Arg Gln  
610 615 620

Glu Arg Glu Arg Lys Leu Arg Glu Glu Glu Gln Leu Leu Arg Gln Glu  
625 630 635 640

Glu Gln Glu Leu Arg Gln Glu Arg Glu Arg Lys Leu Arg Glu Glu Glu  
645 650 655

Gln Leu Leu Arg Arg Glu Glu Gln Glu Leu Arg Gln Glu Arg Glu Arg  
660 665 670

Lys Leu Arg Glu Glu Glu Gln Leu Leu Gln Glu Arg Glu Glu Glu Arg  
675 680 685

Leu Arg Arg Gln Glu Arg Ala Arg Lys Leu Arg Glu Glu Glu Gln Leu  
690 695 700

Leu Arg Gln Glu Glu Gln Glu Leu Arg Gln Glu Arg Glu Arg Lys Leu  
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Arg Glu Glu Glu Gln Leu Leu Arg Arg Glu Glu Gln Leu Leu Arg Gln  
725 730 735

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740 745 750

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755 760 765

Glu Arg Asp Arg Lys Phe Arg Glu Glu Glu Gln Leu Leu Gln Glu Arg  
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785 790 795 800

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850 855 860

Ala Arg Lys Leu Arg Glu Glu Glu Gln Leu Leu Arg Gln Glu Glu Gln  
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Glu Leu Arg Gln Glu Arg Asp Arg Lys Leu Arg Glu Glu Glu Gln Leu  
885 890 895

Leu Arg Gln Glu Glu Gln Glu Leu Arg Gln Glu Arg Asp Arg Lys Leu  
900 905 910

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995 1000 1005

Gln Leu Leu Gln Glu Arg Glu Glu Glu Arg Leu Arg Arg Gln Glu  
1010 1015 1020

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Glu Leu Glu Glu Gln Phe Arg Gln Glu Arg Asp Arg Lys Phe Arg  
1040 1045 1050

Leu Glu Glu Gln Ile Arg Gln Glu Lys Glu Glu Lys Gln Leu Arg  
1055 1060 1065



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1085 1090 1095

Lys Phe Arg Glu Glu Glu Gln Leu Leu Gln Glu Arg Glu Glu Glu  
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Glu Gln Leu Leu Gln Glu Arg Glu Glu Glu Arg Leu Arg Arg Gln  
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Glu Arg Ala Arg Lys Leu Arg Glu Glu Glu Glu Gln Leu Leu Phe  
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Glu Glu Gln Glu Glu Gln Arg Leu Arg Gln Glu Arg Asp Arg Arg  
1295 1300 1305

Tyr Arg Ala Glu Glu Gln Phe Ala Arg Glu Glu Lys Ser Arg Arg  
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Glu Arg Glu Arg Lys Phe Arg Glu Glu Gln Leu Arg Arg Gln Gln  
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Glu Glu Glu Gln Arg Arg Arg Gln Leu Arg Glu Arg Gln Phe Arg  
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Gln Asn Gln Pro His Pro Leu Ser Thr Glu Ala Lys Asp Thr Gly Ser  
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gcc aaa ccc cct ttc cat gga ggt gaa gga cac aga atc agc caa acc 192  
Ala Lys Pro Pro Phe His Gly Gly Glu Gly His Arg Ile Ser Gln Thr  
50 55 60

ccc tct cca cca agg aga agg aca cag gat cag cca aac ccc ctc acc 240  
Pro Ser Pro Pro Arg Arg Arg Thr Gln Asp Gln Pro Asn Pro Leu Thr  
65 70 75 80

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Thr Glu Ala Lys Asp Thr Gly Ser Ala Lys Pro Pro Leu His Gln Gly  
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Glu Gly His Arg Ile Ser His Ile Pro Ser Pro Trp Arg Arg Arg Thr  
100 105 110

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gcc aaa tcc cct ctc cag caa gga gaa gga cac agg atc agc caa acc 432  
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ccc tct cca cgg aga caa agg aca cag aat cag cca cat ccc ctc tcc 480  
Pro Ser Pro Arg Arg Gln Arg Thr Gln Asn Gln Pro His Pro Leu Ser  
145 150 155 160

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Glu	Gly	Ala	Ala	Ala	Thr	Asp	Gly	Gly	Thr	Val	Gln	Leu	Leu	Gly	Gly	
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Leu	Leu	Arg	Gly	Asp	Thr	Gln	Gln	Lys	Leu	Cys	Gln	Arg	Leu	Leu	Arg	
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Glu	Asp	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Gly	Asp	Thr	
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Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Gly	Asp	Thr	Gln	Gln	Thr	
225					230					235					240	
cta	tgt	cag	agg	ctg	ctc	agt	gaa	gag	act	cag	cag	aca	cta	tgt	cag	768
Leu	Cys	Gln	Arg	Leu	Leu	Ser	Glu	Glu	Thr	Gln	Gln	Thr	Leu	Cys	Gln	
				245					250					255		
agg	ctg	ctc	aga	gaa	ggg	acc	cag	cag	aca	cta	tgt	cag	agg	ctg	ctc	816
Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	
			260					265					270			
aga	gaa	ggg	acc	cag	cag	aca	cta	tgt	cag	agg	ctg	ctc	aga	gaa	gac	864
Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu	Asp	
		275					280					285				
acc	cag	cag	aca	ctc	tgt	cag	agg	ctg	ctc	aga	gaa	gac	acc	cag	cag	912
Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu	Asp	Thr	Gln	Gln	
	290					295					300					
aca	cta	tgt	gag	agg	ctg	ctc	aga	gaa	ggg	acc	cag	cag	acg	cta	tgt	960
Thr	Leu	Cys	Glu	Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	
305					310					315					320	
cat	agg	ttg	ctc	aga	gaa	ggg	acc	cag	cag	aca	cta	tgt	cag	agg	ctg	1008
His	Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	
				325					330					335		
ttc	aga	gga	gac	acc	cag	cag	aca	cta	tgt	cag	agg	ctg	ctc	aga	gga	1056
Phe	Arg	Gly	Asp	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Gly	
			340					345					350			
gac	acc	cag	cag	aca	cta	tgt	gag	agg	ctg	ctc	aga	gaa	gag	acc	cag	1104
Asp	Thr	Gln	Gln	Thr	Leu	Cys	Glu	Arg	Leu	Leu	Arg	Glu	Glu	Thr	Gln	
		355					360					365				
cag	aca	cga	tgt	cag	agg	ctg	ctc	agt	gaa	gag	acc	cag	cag	aca	cga	1152
Gln	Thr	Arg	Cys	Gln	Arg	Leu	Leu	Ser	Glu	Glu	Thr	Gln	Gln	Thr	Arg	
		370				375					380					
tgt	cag	agg	ctg	ctc	aga	gaa	gac	acc	cag	cag	aca	cta	tgt	gag	agg	1200
Cys	Gln	Arg	Leu	Leu	Arg	Glu	Asp	Thr	Gln	Gln	Thr	Leu	Cys	Glu	Arg	
385					390					395				400		
ctg	ctc	aga	gaa	ggg	acc	cag	cag	aca	cga	tgt	cag	agg	ctg	ctc	aga	1248
Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	Arg	Cys	Gln	Arg	Leu	Leu	Arg	
				405					410					415		
gaa	ggg	acc	cag	cag	aca	cga	tgt	cag	agg	ctg	ctc	aga	gga	gac	acc	1296
Glu	Gly	Thr	Gln	Gln	Thr	Arg	Cys	Gln	Arg	Leu	Leu	Arg	Gly	Asp	Thr	
			420				425					430				
cag	cag	aca	cta	tgt	cag	agg	ctg	ctt	aga	gaa	ggg	acc	cag	cag	acg	1344
Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	
			435				440					445				
cta	tgt	gat	agg	ttg	ctc	aga	gaa	gac	gcc	cag	cag	acc	cta	tgt	caa	1392

Leu	Cys	Asp	Arg	Leu	Leu	Arg	Glu	Asp	Ala	Gln	Gln	Thr	Leu	Cys	Gln		
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agg	ctg	ctc	agt	aga	gag	aga	ccc	aga	aga	cac	tat	gtc	aga	ggc	tgc	1440	
Arg	Leu	Leu	Ser	Arg	Glu	Arg	Pro	Arg	Arg	His	Tyr	Val	Arg	Gly	Cys		
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tta	gag	aag	gga	ccc	agc	aga	cgc	tat	gtc	aga	ggc	tgc	tca	gag	gag	1488	
Leu	Glu	Lys	Gly	Pro	Ser	Arg	Arg	Tyr	Val	Arg	Gly	Cys	Ser	Glu	Glu		
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aca	ccc	agc	aga	cgc	tat	gtc	aga	ggc	tgc	tca	gaa	gag	aca	cga	ggc	1536	
Thr	Pro	Ser	Arg	Arg	Tyr	Val	Arg	Gly	Cys	Ser	Glu	Glu	Thr	Arg	Gly		
			500					505					510				
aga	cgc	tat	agg	ctg	ctc	agt	gaa	gag	act	cag	cag	aca	cta	tgt	cag	1584	
Arg	Arg	Tyr	Arg	Leu	Leu	Ser	Glu	Glu	Thr	Gln	Gln	Thr	Leu	Cys	Gln		
		515					520					525					
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Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu		
	530					535					540						
aga	gaa	ggg	acc	cag	cag	aca	cta	tgt	cag	agg	ctg	ctc	aga	gaa	ggg	1680	
Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu	Gly		
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acc	cag	cag	aca	cta	tgt	cag	agg	ctg	ctc	aga	gaa	gac	acc	cag	cag	1728	
Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu	Asp	Thr	Gln	Gln		
				565				570					575				
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Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu	Asp	Thr	Gln	Gln	Thr	Leu	Cys		
		580					585					590					
gag	agg	ctg	ctc	aga	gaa	ggg	acc	cag	cag	acg	cta	tgt	cat	agg	ttg	1824	
Glu	Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln	Gln	Thr	Leu	Cys	His	Arg	Leu		
	595					600						605					
ctc	aga	gaa	gac	gcc	cag	cag	aca	cta	tgt	caa	agg	ctg	ctc	aga	gaa	1872	
Leu	Arg	Glu	Asp	Ala	Gln	Gln	Thr	Leu	Cys	Gln	Arg	Leu	Leu	Arg	Glu		
	610				615					620							
gag	acc	cag	aag	aca	cta	agt	cag	agg	ctg	ctt	aga	gaa	ggg	acc	cag	1920	
Glu	Thr	Gln	Lys	Thr	Leu	Ser	Gln	Arg	Leu	Leu	Arg	Glu	Gly	Thr	Gln		
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cag	acg	cta	cgt	cag	agg	ctg	ctc	aga	gga	gac	acc	cag	cag	acg	cta	1968	
Gln	Thr	Leu	Arg	Gln	Arg	Leu	Leu	Arg	Gly	Asp	Thr	Gln	Gln	Thr	Leu		
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tgt	cag	agg	ctg	ctc	aga	gga	gac	acc	cag	cag	aca	cta	tgt	cag	agg	2016	
Cys	Gln	Arg	Leu	Leu	Arg	Gly	Asp	Thr	Gln	Gln	Thr	Leu	Cys	Gln	Arg		
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Leu	Leu																

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Glu Gly His Arg Ile Ser Gln Thr Pro Ser Pro Arg Arg Gln Arg Thr

20

25

30

Gln Asn Gln Pro His Pro Leu Ser Thr Glu Ala Lys Asp Thr Gly Ser  
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Ala Lys Pro Pro Phe His Gly Gly Glu Gly His Arg Ile Ser Gln Thr  
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Pro Ser Pro Pro Arg Arg Arg Thr Gln Asp Gln Pro Asn Pro Leu Thr  
 65 70 75 80

Thr Glu Ala Lys Asp Thr Gly Ser Ala Lys Pro Pro Leu His Gln Gly  
 85 90 95

Glu Gly His Arg Ile Ser His Ile Pro Ser Pro Trp Arg Arg Arg Thr  
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Gln Asn Gln Pro Asn Pro Leu Ser Thr Glu Ala Lys Asp Thr Gly Ser  
 115 120 125

Ala Lys Ser Pro Leu Gln Gln Gly Glu Gly His Arg Ile Ser Gln Thr  
 130 135 140

Pro Ser Pro Arg Arg Gln Arg Thr Gln Asn Gln Pro His Pro Leu Ser  
 145 150 155 160

Thr Glu Ala Lys Asp Thr Glu Ser Ala Lys Leu Pro Leu His Gly Gly  
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Glu Gly Ala Ala Ala Thr Asp Gly Gly Thr Val Gln Leu Leu Gly Gly  
 180 185 190

Leu Leu Arg Gly Asp Thr Gln Gln Lys Leu Cys Gln Arg Leu Leu Arg  
 195 200 205

Glu Asp Thr Gln Gln Thr Leu Cys Gln Arg Leu Leu Arg Gly Asp Thr  
 210 215 220

Gln Gln Thr Leu Cys Gln Arg Leu Leu Arg Gly Asp Thr Gln Gln Thr  
 225 230 235 240

Leu Cys Gln Arg Leu Leu Ser Glu Glu Thr Gln Gln Thr Leu Cys Gln  
 245 250 255

Arg Leu Leu Arg Glu Gly Thr Gln Gln Thr Leu Cys Gln Arg Leu Leu  
 260 265 270

Arg Glu Gly Thr Gln Gln Thr Leu Cys Gln Arg Leu Leu Arg Glu Asp  
 275 280 285

Thr Gln Gln Thr Leu Cys Gln Arg Leu Leu Arg Glu Asp Thr Gln Gln  
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Thr Leu Cys Glu Arg Leu Leu Arg Glu Gly Thr Gln Gln Thr Leu Cys

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His Arg Leu Leu Arg	Glu Gly Thr Gln	Gln Thr Leu Cys Gln	Arg Leu			
	325		330		335	
Phe Arg Gly Asp Thr	Gln Gln Thr Leu	Cys Gln Arg Leu	Leu Arg Gly			
	340		345		350	
Asp Thr Gln Gln Thr	Leu Cys Glu Arg	Leu Leu Arg Glu	Glu Thr Gln			
	355		360		365	
Gln Thr Arg Cys Gln	Arg Leu Leu Ser	Glu Glu Thr Gln	Gln Thr Arg			
	370		375		380	
Cys Gln Arg Leu Leu	Arg Glu Asp Thr	Gln Gln Thr Leu	Cys Glu Arg			
	385		390		395	400
Leu Leu Arg Glu Gly	Thr Gln Gln Thr	Arg Cys Gln Arg	Leu Leu Arg			
	405		410		415	
Glu Gly Thr Gln Gln	Thr Arg Cys Gln	Arg Leu Leu Arg	Gly Asp Thr			
	420		425		430	
Gln Gln Thr Leu Cys	Gln Arg Leu Leu	Arg Glu Gly Thr	Gln Gln Thr			
	435		440		445	
Leu Cys Asp Arg Leu	Leu Arg Glu Asp	Ala Gln Gln Thr	Leu Cys Gln			
	450		455		460	
Arg Leu Leu Ser Arg	Glu Arg Pro Arg	Arg His Tyr Val	Arg Gly Cys			
	465		470		475	480
Leu Glu Lys Gly Pro	Ser Arg Arg Tyr	Val Arg Gly Cys	Ser Glu Glu			
	485		490		495	
Thr Pro Ser Arg Arg	Tyr Val Arg Gly	Cys Ser Glu Glu	Thr Arg Gly			
	500		505		510	
Arg Arg Tyr Arg Leu	Leu Ser Glu Glu	Thr Gln Gln Thr	Leu Cys Gln			
	515		520		525	
Arg Leu Leu Arg Glu	Gly Thr Gln Gln	Thr Leu Cys Gln	Arg Leu Leu			
	530		535		540	
Arg Glu Gly Thr Gln	Gln Thr Leu Cys	Gln Arg Leu Leu	Arg Glu Gly			
	545		550		555	560
Thr Gln Gln Thr Leu	Cys Gln Arg Leu	Leu Arg Glu Asp	Thr Gln Gln			
	565		570		575	
Thr Leu Cys Gln Arg	Leu Leu Arg Glu	Asp Thr Gln Gln	Thr Leu Cys			
	580		585		590	
Glu Arg Leu Leu Arg	Glu Gly Thr Gln	Gln Thr Leu Cys	His Arg Leu			

595

600

605

Leu Arg Glu Asp Ala Gln Gln Thr Leu Cys Gln Arg Leu Leu Arg Glu  
610 615 620

Glu Thr Gln Lys Thr Leu Ser Gln Arg Leu Leu Arg Glu Gly Thr Gln  
625 630 635 640

Gln Thr Leu Arg Gln Arg Leu Leu Arg Gly Asp Thr Gln Gln Thr Leu  
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Cys Gln Arg Leu Leu Arg Gly Asp Thr Gln Gln Thr Leu Cys Gln Arg  
660 665 670

Leu Leu

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Met Ser Pro Leu Leu Arg Ser Ile Cys Asp Ile Thr Glu Ile Phe Asn  
1 5 10 15

cag tat gtc tct cat gat tgt gat gga gca gca tta act aag aaa gac 96  
Gln Tyr Val Ser His Asp Cys Asp Gly Ala Ala Leu Thr Lys Lys Asp  
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ctg aag aac ctc ctt gaa agg gaa ttt gga gct gtg ctt cgg aga cca 144  
Leu Lys Asn Leu Leu Glu Arg Glu Phe Gly Ala Val Leu Arg Arg Pro  
35 40 45

cat gac cct aag acg gta gat ctg atc ctg gaa ctt ctg gat cgt gac 192  
His Asp Pro Lys Thr Val Asp Leu Ile Leu Glu Leu Leu Asp Arg Asp  
50 55 60

agt aat ggg cgt gtc gat ttc aac gaa ttc ctc cta ttt att ttc aaa 240  
Ser Asn Gly Arg Val Asp Phe Asn Glu Phe Leu Leu Phe Ile Phe Lys  
65 70 75 80

gtg gct caa gct tgt tac tat gct ctc ggc cag gcc acg gga ctg gat 288  
Val Ala Gln Ala Cys Tyr Tyr Ala Leu Gly Gln Ala Thr Gly Leu Asp  
85 90 95

gag gag aag cga gcc cgg tgt gac gga aag gag agc ctg tta caa gat 336  
Glu Glu Lys Arg Ala Arg Cys Asp Gly Lys Glu Ser Leu Leu Gln Asp  
100 105 110

cga cgg aca gaa gaa gac caa agg aga ttc gag ccc cgg gac aga caa 384  
Arg Arg Thr Glu Glu Asp Gln Arg Arg Phe Glu Pro Arg Asp Arg Gln  
115 120 125

ctg gaa gaa gaa cct ggg caa cga cgc agg cag aag agg cag gaa cag 432  
Leu Glu Glu Glu Pro Gly Gln Arg Arg Arg Gln Lys Arg Gln Glu Gln  
130 135 140

gag agg gag cta gct gag gga gag gag caa agt gag aaa caa gag cga 480  
Glu Arg Glu Leu Ala Glu Gly Glu Glu Gln Ser Glu Lys Gln Glu Arg

145	150	155	160	
ctt gaa cag cgc gac Leu Glu Gln Arg Asp 165	agg cag cgc cgc gac Arg Gln Arg Arg Asp 170	gag gag ctg tgg cgg Glu Glu Leu Trp Arg 175	caa Gln	528
agg caa gaa tgg caa Arg Gln Glu Trp Gln 180	gaa cgg gaa gag Glu Arg Glu Glu 185	cgc cgt gca gag Arg Arg Ala Glu 190	gag gag cag Glu Glu Glu Gln	576
ctg cag agt tgc aaa Leu Gln Ser Cys Lys 195	ggc cac gaa act Gly His Glu Thr 200	gag gag ttt cca Glu Glu Phe Pro 205	gac gaa gag Asp Glu Glu	624
caa ctg cga agg cgg Gln Leu Arg Arg Arg 210	gag ctg ctg gag Leu Leu Glu Glu 215	agg agg aag ggc Arg Arg Lys Gly 220	cgc gag Arg Glu	672
gag aaa cag cag caa Glu Lys Gln Gln Gln 225	agg cga gag cgc Arg Arg Glu Arg 230	caa gac aga gtg ttc Gln Asp Arg Val Phe 235	cag gag Gln Glu 240	720
gaa gaa gag aaa gag Glu Glu Glu Lys Glu 245	tgg agg aag cgc Trp Arg Lys Arg 250	gag aca gtg ctc Glu Thr Val Leu 255	cgg aag gaa Arg Lys Glu	768
gaa gag aag ttg cag Glu Glu Lys Leu Gln 260	gaa gag gag ccg Glu Glu Glu Pro 265	cag cgg caa aga Gln Arg Gln Arg 270	gag ctc cag Glu Leu Gln	816
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agg cgc gag cag cag Arg Arg Glu Gln Gln 325	gag agg cgc gag Glu Arg Arg Glu 330	cag cag gag gag Gln Gln Glu Glu 335	agg cgc gag Arg Arg Glu	1008
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gag cag cag ctg agg Glu Gln Gln Leu Arg 420	cgc gag cag cag Glu Gln Gln Leu 425	agg cgc gag cag Arg Arg Glu Gln 430	cag cag ctg Gln Gln Leu	1296
agg cgc gag cag cag Arg Arg Glu Gln Gln 435	ctg agg cgc gag Glu Arg Arg Glu 440	cag cag ctg agg Gln Gln Leu Arg 445	cgc gag cag Arg Glu Gln	1344



435					440					445										
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cgg	ctg	aag	cgc	gag	cag	gag	gag	agg	cgc	gat	tgg	ctg	aag	cgc	gag	1440				
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465					470					475					480					
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Glu	Glu	Arg	Arg	Glu	Gln	Gln	Glu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg					
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Glu	Arg	Leu	Gln	Gln	Arg	Leu	Arg	Ser	Glu	Gln	Gln	Leu	Arg	Arg	Glu					
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Gln	Glu	Glu	Arg	Leu	Glu	Gln	Leu	Leu	Lys	Arg	Glu	Glu	Glu	Lys	Arg					
565					570					575										
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Leu	Glu	Gln	Glu	Arg	Arg	Glu	Gln	Arg	Leu	Lys	Arg	Glu	Gln	Glu	Glu					
580					585					590										
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Arg	Arg	Asp	Gln	Leu	Leu	Lys	Arg	Glu	Glu	Glu	Arg	Arg	Gln	Gln	Arg					
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645					650					655										
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660					665					670										
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Arg	Arg	Glu	Gln	Arg	Leu	Lys	Arg	Glu	Glu	Glu	Glu	Glu	Arg	Leu	Glu					
675					680					685										
cag	cgg	ctg	aag	cgc	gag	cat	gag	gaa	gag	agg	cgc	gag	cag	gag	cta	2112				
Gln	Arg	Leu	Lys	Arg	Glu	His	Glu	Glu	Glu	Arg	Arg	Glu	Gln	Glu	Leu					
690					695					700										
gct	gag	gag	gag	cag	gaa	cag	gcc	cgg	gag	cgg	att	aag	agc	cgc	atc	2160				
Ala	Glu	Glu	Glu	Gln	Glu	Gln	Ala	Arg	Glu	Arg	Ile	Lys	Ser	Arg	Ile					
705					710					715					720					
ccg	aag	tgg	cag	tgg	cag	cta	gaa	agc	gag	gcc	gac	gca	cgg	caa	agc	2208				
Pro	Lys	Trp	Gln	Trp	Gln	Leu	Glu	Ser	Glu	Ala	Asp	Ala	Arg	Gln	Ser					

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Lys Val Leu Leu Glu Ala Pro Gln Ala Gly Arg Ala Glu Ala Pro Gln																				
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Glu Gln Glu Glu Lys Arg Arg Arg Glu Ser Glu Leu Gln Trp Gln Glu																				
755 760 765																				
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Glu Glu Arg Ala His Arg Gln Gln Gln Glu Glu Glu Gln Arg Arg Asp																				
770 775 780																				
ttc aca tgg cag tgg cag gcg gag gaa aag agc gag agg ggc cgt cag	2400																			
Phe Thr Trp Gln Trp Gln Ala Glu Glu Lys Ser Glu Arg Gly Arg Gln																				
785 790 795 800																				
agg ctg tcg gcc agg ccc cca ttg cgg gag cag cgg gag agg cag ctg	2448																			
Arg Leu Ser Ala Arg Pro Pro Leu Arg Glu Gln Arg Glu Arg Gln Leu																				
805 810 815																				
agg gcc gag gag cgc cag cag cgg gaa caa cgg ttt ctc ccg gag gag	2496																			
Arg Ala Glu Glu Arg Gln Gln Arg Glu Gln Arg Phe Leu Pro Glu Glu																				
820 825 830																				
gag gag aag gag cag cgc ggc cgc cag cga cgc gag agg gag aaa gag	2544																			
Glu Glu Lys Glu Gln Arg Gly Arg Gln Arg Arg Glu Arg Glu Lys Glu																				
835 840 845																				
ctg cag ttc ctg gag gaa gag gag cag ctc cag cgg cgg gag cgt gcc	2592																			
Leu Gln Phe Leu Glu Glu Glu Glu Gln Leu Gln Arg Arg Glu Arg Ala																				
850 855 860																				
caa cag ctc cag gag gag gag gac ggc ctc cag gag gat cag gag agg	2640																			
Gln Gln Leu Gln Glu Glu Glu Asp Gly Leu Gln Glu Asp Gln Glu Arg																				
865 870 875 880																				
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Arg Arg Gln Glu Gln Arg Arg Asp Gln Lys Trp Arg Trp Gln Leu Glu																				
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gaa gaa agg aag aga cgc cgc cac acg ctg tac gcc aag cca gcc cta	2736																			
Glu Glu Arg Lys Arg Arg Arg His Thr Leu Tyr Ala Lys Pro Ala Leu																				
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915 920 925																				
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Glu Leu Gln Arg Glu Glu Arg Glu Lys Arg Arg Arg Gln Glu Gln Glu																				
930 935 940																				
aga caa tac cgc gag gaa gag cag ctg cag cag gag gaa gag cag ctg	2880																			
Arg Gln Tyr Arg Glu Glu Glu Gln Leu Gln Gln Glu Glu Glu Gln Leu																				
945 950 955 960																				
ctg aga gag gaa cgg gag aaa aga aga cgc cag gag cgg gaa agg caa	2928																			
Leu Arg Glu Glu Arg Glu Lys Arg Arg Arg Gln Glu Arg Glu Arg Gln																				
965 970 975																				
tat cgg aag gat aag aag ctg cag cag aag gaa gag cag ctg ctg gga	2976																			
Tyr Arg Lys Asp Lys Lys Leu Gln Gln Lys Glu Glu Gln Leu Leu Gly																				
980 985 990																				
gag gaa ccg gag aag aga agg cgc cag gag cgg gag aaa aaa tac cgc	3024																			
Glu Glu Pro Glu Lys Arg Arg Arg Gln Glu Arg Glu Lys Lys Tyr Arg																				
995 1000 1005																				
gag gaa gag gag ttg cag cag gag gaa gag cag ctg ctg aga gag	3069																			
Glu Glu Glu Glu Leu Gln Gln Glu Glu Glu Gln Leu Leu Arg Glu																				

1010	1015	1020	
gaa cgg gag aag aga agg cgc cag gag tgg gag agg cag tac cgc Glu Arg Glu Lys Arg Arg Arg Gln Glu Trp Glu Arg Gln Tyr Arg 1025 1030 1035			3114
aaa aaa gac gag ctg cag cag gaa gaa gag cag ctg ctg aga gag Lys Lys Asp Glu Leu Gln Gln Glu Glu Glu Gln Leu Leu Arg Glu 1040 1045 1050			3159
gaa cgg gag aaa aga aga ctc cag gag cgg gag agg caa tat cgg Glu Arg Glu Lys Arg Arg Leu Gln Glu Arg Glu Arg Gln Tyr Arg 1055 1060 1065			3204
gag gaa gag gag ctg cag cag gag gaa gag cag ctg ctg gga gag Glu Glu Glu Glu Leu Gln Gln Glu Glu Glu Gln Leu Leu Gly Glu 1070 1075 1080			3249
gaa cgg gag acg aga agg cgc cag gag ctg gag agg caa tat cgg Glu Arg Glu Thr Arg Arg Arg Gln Glu Leu Glu Arg Gln Tyr Arg 1085 1090 1095			3294
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gaa ccg gag aag aga agg cgc cag gag cgg gag agg caa tgt cgg Glu Pro Glu Lys Arg Arg Arg Gln Glu Arg Glu Arg Gln Cys Arg 1115 1120 1125			3384
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gat gag gat cag cgc agt gat ctg aaa tgg cag tgg gaa cca gaa Asp Glu Asp Gln Arg Ser Asp Leu Lys Trp Gln Trp Glu Pro Glu 1175 1180 1185			3564
aaa gaa aat gca gtt cgt gat aac aag gtt tac tgc aaa ggc aga Lys Glu Asn Ala Val Arg Asp Asn Lys Val Tyr Cys Lys Gly Arg 1190 1195 1200			3609
gag aat gaa cag ttc cgg cag ttg gaa gat tcc cag gtg cgc gac Glu Asn Glu Gln Phe Arg Gln Leu Glu Asp Ser Gln Val Arg Asp 1205 1210 1215			3654
aga caa tcc cag caa gat ctg cag cac ctg ctg ggt gaa cag caa Arg Gln Ser Gln Gln Asp Leu Gln His Leu Leu Gly Glu Gln Gln 1220 1225 1230			3699
gag aga gat cgt gag caa gag agg agg cgc tgg cag cag gcc aac Glu Arg Asp Arg Glu Gln Glu Arg Arg Arg Trp Gln Gln Ala Asn 1235 1240 1245			3744
agg cat ttc cca gag gaa gaa cag ctg gag cga gaa gag caa aag Arg His Phe Pro Glu Glu Glu Gln Leu Glu Arg Glu Glu Gln Lys 1250 1255 1260			3789
gaa gcc aaa agg cgc gac agg aag tcc caa gag gaa aag cag ttg Glu Ala Lys Arg Arg Asp Arg Lys Ser Gln Glu Glu Lys Gln Leu 1265 1270 1275			3834
ctg aga gag gaa aga gaa gag aag aga cgc cgt caa gag aca gac Leu Arg Glu Glu Arg Glu Glu Lys Arg Arg Arg Gln Glu Thr Asp 1280 1285 1290			3879

1280	1285	1290	
aga aaa ttc cgc gag gag gaa cag ctg ctc cag gaa agg gag gaa			3924
Arg Lys Phe Arg Glu Glu Glu Gln Leu Leu Gln Glu Arg Glu Glu			
1295	1300	1305	
cag ccg ctg ctc cgc caa gag cgt gac aga aaa ttc cgc gaa gag			3969
Gln Pro Leu Leu Arg Gln Glu Arg Asp Arg Lys Phe Arg Glu Glu			
1310	1315	1320	
gaa ctg ctc cat cag gaa caa ggg aga aaa ttc ctc gag gag gaa			4014
Glu Leu Leu His Gln Glu Gln Gly Arg Lys Phe Leu Glu Glu Glu			
1325	1330	1335	
cag cgg ctg cgc gag gaa cgg gag aga aaa ttc ctt aag gag gaa			4059
Gln Arg Leu Arg Glu Glu Arg Glu Arg Lys Phe Leu Lys Glu Glu			
1340	1345	1350	
cag cag ctg cgc ctc gag gag cgc gag caa ctg cgt cag gac cgc			4104
Gln Gln Leu Arg Leu Glu Glu Arg Glu Gln Leu Arg Gln Asp Arg			
1355	1360	1365	
gac aga aaa ttc cgc gag gag gaa cag cag ctg agc cgc caa gag			4149
Asp Arg Lys Phe Arg Glu Glu Glu Gln Gln Leu Ser Arg Gln Glu			
1370	1375	1380	
cgt gac aga aaa ttc cgt gaa gag gaa cag cag gtg cgc cgc cag			4194
Arg Asp Arg Lys Phe Arg Glu Glu Glu Glu Gln Gln Val Arg Arg Gln			
1385	1390	1395	
gaa cga gag aga aaa ttc ctg gag gag gaa cag cag ctg cgc cag			4239
Glu Arg Glu Arg Lys Phe Leu Glu Glu Glu Gln Gln Leu Arg Gln			
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gag cgt cac aga aaa ttc cgc gaa gag gaa cag ctg ctc cag gaa			4284
Glu Arg His Arg Lys Phe Arg Glu Glu Glu Gln Leu Leu Gln Glu			
1415	1420	1425	
agg gaa gaa cag cag ctg cac cgc caa gag cgt gac aga aaa ttc			4329
Arg Glu Glu Gln Gln Leu His Arg Gln Glu Arg Asp Arg Lys Phe			
1430	1435	1440	
ctg gag gag gaa caa cag ctg cgc cgc caa gag cgt gac aga aaa			4374
Leu Glu Glu Glu Gln Gln Leu Arg Arg Gln Glu Arg Asp Arg Lys			
1445	1450	1455	
ttc cgc gaa cag gaa ctg cgc agt cag gaa cca gag aga aaa ttc			4419
Phe Arg Glu Gln Glu Leu Arg Ser Gln Glu Pro Glu Arg Lys Phe			
1460	1465	1470	
ctc gag gag gaa cag cag ctg cac cgc cag caa cgg cag aga aaa			4464
Leu Glu Glu Glu Gln Gln Leu His Arg Gln Gln Arg Gln Arg Lys			
1475	1480	1485	
ttc ctc cag gag gaa cag cag ctg cgc cgc cag gag cgc ggg caa			4509
Phe Leu Gln Glu Glu Gln Gln Leu Arg Arg Gln Glu Arg Gly Gln			
1490	1495	1500	
cag cgg cgt cag gac cgt gac aga aaa ttc cgc gag gag gaa cag			4554
Gln Arg Arg Gln Asp Arg Asp Arg Lys Phe Arg Glu Glu Glu Gln			
1505	1510	1515	
ctg cgc cag gag agg gag gaa cag cag ctg agc cgc caa gag cgt			4599
Leu Arg Gln Glu Arg Glu Glu Gln Gln Leu Ser Arg Gln Glu Arg			
1520	1525	1530	
gac aga aaa ttc cgt tta gag gaa cag aaa gtg cgc cgc cag gaa			4644
Asp Arg Lys Phe Arg Leu Glu Glu Gln Lys Val Arg Arg Gln Glu			
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Gln Glu Arg Lys Phe Met Glu Asp Glu Gln Gln Leu Arg Arg Gln			

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Glu Gly Gln Gln Gln Leu Arg	Gln Glu Asp Arg Lys Phe Arg Glu		
1565	1570	1575	
gac gaa cag ctg ctc cag gaa	agg gaa gaa cag cag ctg cac cgc	4779	
Asp Glu Gln Leu Leu Gln Glu	Arg Glu Glu Gln Gln Leu His Arg		
1580	1585	1590	
caa gag cgt gac aga aaa ttc	ctc gag gag gaa ccg cag ctg cgc	4824	
Gln Glu Arg Asp Arg Lys Phe	Leu Glu Glu Glu Pro Gln Leu Arg		
1595	1600	1605	
cgc cag gag cgc gaa caa cag	ctg cgt cac gac cgc gac aga aaa	4869	
Arg Gln Glu Arg Glu Gln Gln	Leu Arg His Asp Arg Asp Arg Lys		
1610	1615	1620	
ttc cgt gaa gag gaa cag ctg	ctc cag gaa ggg gag gaa cag cag	4914	
Phe Arg Glu Glu Glu Gln Leu	Leu Gln Glu Gly Glu Glu Gln Gln		
1625	1630	1635	
ctg cgc cgc caa gag cgt gac	aga aaa ttc cgc gaa gag gaa cag	4959	
Leu Arg Arg Gln Glu Arg Asp	Arg Lys Phe Arg Glu Glu Glu Gln		
1640	1645	1650	
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Gln Leu Arg Arg Gln Glu Arg	Glu Arg Lys Phe Leu Gln Glu Glu		
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Gln Gln Leu Arg Arg Gln Glu	Leu Glu Arg Lys Phe Arg Glu Glu		
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gaa cag ctg cgc caa gaa acg	gag caa gag cag ctg cgc cgc caa	5094	
Glu Gln Leu Arg Gln Glu Thr	Glu Gln Glu Gln Leu Arg Arg Gln		
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gaa cgc tac aga aaa atc cta	gag gaa gag cag ctc cgt ccg gaa	5139	
Glu Arg Tyr Arg Lys Ile Leu	Glu Glu Glu Gln Leu Arg Pro Glu		
1700	1705	1710	
agg gaa gaa cag cag ctg cgc	cgc cag gag cgc gac aga aaa ttc	5184	
Arg Glu Glu Gln Gln Leu Arg	Arg Gln Glu Arg Asp Arg Lys Phe		
1715	1720	1725	
cgc gag gag gaa cag ctc cgc	cag gga agg gag gaa cag cag ctg	5229	
Arg Glu Glu Glu Gln Leu Arg	Gln Gly Arg Glu Glu Gln Gln Leu		
1730	1735	1740	
cgc agc caa gag tct gac aga	aaa ttc cgc gag gag gaa cag cta	5274	
Arg Ser Gln Glu Ser Asp Arg	Lys Phe Arg Glu Glu Glu Gln Leu		
1745	1750	1755	
cgc cag gag agg gaa gaa cag	cag ctc cgc ccc caa cag cgt gac	5319	
Arg Gln Glu Arg Glu Glu Gln	Gln Leu Arg Pro Gln Gln Arg Asp		
1760	1765	1770	
gga aag tat cgc tgg gaa gaa	gag cag ctc caa ctt gag gaa caa	5364	
Gly Lys Tyr Arg Trp Glu Glu	Glu Gln Leu Gln Leu Glu Glu Gln		
1775	1780	1785	
gag cag agg ctg cgg cag gag	cga gac cgg cag tac cgg gcg gag	5409	
Glu Gln Arg Leu Arg Gln Glu	Arg Asp Arg Gln Tyr Arg Ala Glu		
1790	1795	1800	
gag cag ttt gcc acg cag gag	aag agt cgt cgt gag gaa caa gaa	5454	
Glu Gln Phe Ala Thr Gln Glu	Lys Ser Arg Arg Glu Glu Gln Glu		
1805	1810	1815	
cta tgg caa gaa gag gag cag	aaa cgt cgc cag gaa cgg gaa agg	5499	
Leu Trp Gln Glu Glu Glu Gln	Lys Arg Arg Gln Glu Arg Glu Arg		

1820	1825	1830	
aaa tta cgg gaa gaa cac atc	cgc cgc cag cag aag	gag gaa cag	5544
Lys Leu Arg Glu Glu His Ile	Arg Arg Gln Gln Lys	Glu Glu Gln	
1835	1840	1845	
agg cac cgc caa gtc ggg gag	ata caa tcc caa gaa	ggg aag ggc	5589
Arg His Arg Gln Val Gly Glu	Ile Gln Ser Gln Glu	Gly Lys Gly	
1850	1855	1860	
cat ggg cgg ctt ctg gag ccc	ggc act cat cag ttt	gcc agt gtc	5634
His Gly Arg Leu Leu Glu Pro	Gly Thr His Gln Phe	Ala Ser Val	
1865	1870	1875	
cca gtg cgc tcc agc cct ctc	tat gag tac atc caa	gag cag aga	5679
Pro Val Arg Ser Ser Pro Leu	Tyr Glu Tyr Ile Gln	Glu Gln Arg	
1880	1885	1890	
tct caa tac cgc cct			5694
Ser Gln Tyr Arg Pro			
1895			

<210> 126  
 <211> 1898  
 <212> PRT  
 <213> Homo sapiens

<400> 126

Met Ser Pro Leu Leu Arg Ser Ile Cys Asp Ile Thr Glu Ile Phe Asn
1 5 10 15

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

Leu Lys Asn Leu Leu Glu Arg Glu Phe Gly Ala Val Leu Arg Arg Pro
35 40 45

His Asp Pro Lys Thr Val Asp Leu Ile Leu Glu Leu Leu Asp Arg Asp
50 55 60

Ser Asn Gly Arg Val Asp Phe Asn Glu Phe Leu Leu Phe Ile Phe Lys
65 70 75 80

Val Ala Gln Ala Cys Tyr Tyr Ala Leu Gly Gln Ala Thr Gly Leu Asp
85 90 95

Glu Glu Lys Arg Ala Arg Cys Asp Gly Lys Glu Ser Leu Leu Gln Asp
100 105 110

Arg Arg Thr Glu Glu Asp Gln Arg Arg Phe Glu Pro Arg Asp Arg Gln
115 120 125

Leu Glu Glu Glu Pro Gly Gln Arg Arg Arg Gln Lys Arg Gln Glu Gln
130 135 140

Glu Arg Glu Leu Ala Glu Gly Glu Glu Gln Ser Glu Lys Gln Glu Arg
145 150 155 160

Leu Glu Gln Arg Asp Arg Gln Arg Arg Asp Glu Glu Leu Trp Arg Gln
165 170 175

Arg	Gln	Glu	Trp	Gln	Glu	Arg	Glu	Glu	Arg	Arg	Ala	Glu	Glu	Glu	Gln	180	185	190	
Leu	Gln	Ser	Cys	Lys	Gly	His	Glu	Thr	Glu	Glu	Phe	Pro	Asp	Glu	Glu	195	200	205	
Gln	Leu	Arg	Arg	Arg	Glu	Leu	Leu	Glu	Leu	Arg	Arg	Lys	Gly	Arg	Glu	210	215	220	
Glu	Lys	Gln	Gln	Gln	Arg	Arg	Glu	Arg	Gln	Asp	Arg	Val	Phe	Gln	Glu	225	230	235	240
Glu	Glu	Glu	Lys	Glu	Trp	Arg	Lys	Arg	Glu	Thr	Val	Leu	Arg	Lys	Glu	245	250	255	
Glu	Glu	Lys	Leu	Gln	Glu	Glu	Glu	Pro	Gln	Arg	Gln	Arg	Glu	Leu	Gln	260	265	270	
Glu	Glu	Glu	Glu	Gln	Leu	Arg	Lys	Leu	Glu	Arg	Gln	Glu	Leu	Arg	Arg	275	280	285	
Glu	Arg	Gln	Glu	Glu	Glu	Gln	Gln	Gln	Gln	Arg	Leu	Arg	Arg	Glu	Gln	290	295	300	
Gln	Leu	Arg	Arg	Lys	Gln	Glu	Glu	Glu	Arg	Arg	Glu	Gln	Gln	Glu	Glu	305	310	315	320
Arg	Arg	Glu	Gln	Gln	Glu	Arg	Arg	Glu	Gln	Gln	Glu	Glu	Arg	Arg	Glu	325	330	335	
Gln	Gln	Leu	Arg	Arg	Glu	Gln	Glu	Glu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	340	345	350	
Arg	Glu	Gln	Glu	Glu	Glu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	355	360	365	
Glu	Glu	Glu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	Glu	Glu	Glu	370	375	380	
Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	385	390	395	400
Gln	Leu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	405	410	415	
Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	Gln	Leu	420	425	430	
Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Gln	435	440	445	
Glu	Glu	Glu	Arg	His	Glu	Gln	Lys	His	Glu	Gln	Glu	Arg	Arg	Glu	Gln	450	455	460	

Arg	Leu	Lys	Arg	Glu	Gln	Glu	Glu	Arg	Arg	Asp	Trp	Leu	Lys	Arg	Glu	465	470	475		480
Glu	Glu	Thr	Glu	Arg	His	Glu	Gln	Glu	Arg	Arg	Lys	Gln	Gln	Leu	Lys		485	490		495
Arg	Asp	Gln	Glu	Glu	Glu	Arg	Arg	Glu	Arg	Trp	Leu	Lys	Leu	Glu	Glu	500		505		510
Glu	Glu	Arg	Arg	Glu	Gln	Gln	Glu	Arg	Arg	Glu	Gln	Gln	Leu	Arg	Arg	515		520		525
Glu	Gln	Glu	Glu	Arg	Arg	Glu	Gln	Arg	Leu	Lys	Arg	Gln	Glu	Glu	Glu	530		535		540
Glu	Arg	Leu	Gln	Gln	Arg	Leu	Arg	Ser	Glu	Gln	Gln	Leu	Arg	Arg	Glu	545		550		555
Gln	Glu	Glu	Arg	Leu	Glu	Gln	Leu	Leu	Lys	Arg	Glu	Glu	Glu	Lys	Arg		565	570		575
Leu	Glu	Gln	Glu	Arg	Arg	Glu	Gln	Arg	Leu	Lys	Arg	Glu	Gln	Glu	Glu		580	585		590
Arg	Arg	Asp	Gln	Leu	Leu	Lys	Arg	Glu	Glu	Glu	Arg	Arg	Gln	Gln	Arg	595		600		605
Leu	Lys	Arg	Glu	Gln	Glu	Glu	Arg	Leu	Glu	Gln	Arg	Leu	Lys	Arg	Glu	610		615		620
Glu	Val	Glu	Arg	Leu	Glu	Gln	Glu	Glu	Arg	Arg	Asp	Glu	Arg	Leu	Lys	625		630		635
Arg	Glu	Glu	Pro	Glu	Glu	Glu	Arg	Arg	His	Glu	Leu	Leu	Lys	Ser	Glu		645	650		655
Glu	Gln	Glu	Glu	Arg	Arg	His	Glu	Gln	Leu	Arg	Arg	Glu	Gln	Gln	Glu		660	665		670
Arg	Arg	Glu	Gln	Arg	Leu	Lys	Arg	Glu	Glu	Glu	Glu	Glu	Arg	Leu	Glu	675		680		685
Gln	Arg	Leu	Lys	Arg	Glu	His	Glu	Glu	Glu	Arg	Arg	Glu	Gln	Glu	Leu	690		695		700
Ala	Glu	Glu	Glu	Gln	Glu	Gln	Ala	Arg	Glu	Arg	Ile	Lys	Ser	Arg	Ile	705		710		715
Pro	Lys	Trp	Gln	Trp	Gln	Leu	Glu	Ser	Glu	Ala	Asp	Ala	Arg	Gln	Ser		725	730		735
Lys	Val	Leu	Leu	Glu	Ala	Pro	Gln	Ala	Gly	Arg	Ala	Glu	Ala	Pro	Gln		740	745		750



Glu Gln Glu Glu Lys Arg Arg Arg Glu Ser Glu Leu Gln Trp Gln Glu  
 755 760 765

Glu Glu Arg Ala His Arg Gln Gln Gln Glu Glu Glu Gln Arg Arg Asp  
 770 775 780

Phe Thr Trp Gln Trp Gln Ala Glu Glu Lys Ser Glu Arg Gly Arg Gln  
 785 790 795 800

Arg Leu Ser Ala Arg Pro Pro Leu Arg Glu Gln Arg Glu Arg Gln Leu  
 805 810 815

Arg Ala Glu Glu Arg Gln Gln Arg Glu Gln Arg Phe Leu Pro Glu Glu  
 820 825 830

Glu Glu Lys Glu Gln Arg Gly Arg Gln Arg Arg Glu Arg Glu Lys Glu  
 835 840 845

Leu Gln Phe Leu Glu Glu Glu Glu Gln Leu Gln Arg Arg Glu Arg Ala  
 850 855 860

Gln Gln Leu Gln Glu Glu Glu Asp Gly Leu Gln Glu Asp Gln Glu Arg  
 865 870 875 880

Arg Arg Gln Glu Gln Arg Arg Asp Gln Lys Trp Arg Trp Gln Leu Glu  
 885 890 895

Glu Glu Arg Lys Arg Arg Arg His Thr Leu Tyr Ala Lys Pro Ala Leu  
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Gln Glu Gln Leu Arg Lys Glu Gln Gln Leu Leu Gln Glu Glu Glu Glu  
 915 920 925

Glu Leu Gln Arg Glu Glu Arg Glu Lys Arg Arg Arg Gln Glu Gln Glu  
 930 935 940

Arg Gln Tyr Arg Glu Glu Glu Gln Leu Gln Gln Glu Glu Glu Gln Leu  
 945 950 955 960

Leu Arg Glu Glu Arg Glu Lys Arg Arg Arg Gln Glu Arg Glu Arg Gln  
 965 970 975

Tyr Arg Lys Asp Lys Lys Leu Gln Gln Lys Glu Glu Gln Leu Leu Gly  
 980 985 990

Glu Glu Pro Glu Lys Arg Arg Arg Gln Glu Arg Glu Lys Lys Tyr Arg  
 995 1000 1005

Glu Glu Glu Glu Leu Gln Gln Glu Glu Glu Gln Leu Leu Arg Glu  
 1010 1015 1020

Glu Arg Glu Lys Arg Arg Arg Gln Glu Trp Glu Arg Gln Tyr Arg  
 1025 1030 1035

Lys	Lys	Asp	Glu	Leu	Gln	Gln	Glu	Glu	Glu	Gln	Leu	Leu	Arg	Glu
1040						1045					1050			
Glu	Arg	Glu	Lys	Arg	Arg	Leu	Gln	Glu	Arg	Glu	Arg	Gln	Tyr	Arg
1055						1060					1065			
Glu	Glu	Glu	Glu	Leu	Gln	Gln	Glu	Glu	Glu	Gln	Leu	Leu	Gly	Glu
1070						1075					1080			
Glu	Arg	Glu	Thr	Arg	Arg	Arg	Gln	Glu	Leu	Glu	Arg	Gln	Tyr	Arg
1085						1090					1095			
Lys	Glu	Glu	Glu	Leu	Gln	Gln	Glu	Glu	Glu	Gln	Leu	Leu	Arg	Glu
1100						1105					1110			
Glu	Pro	Glu	Lys	Arg	Arg	Arg	Gln	Glu	Arg	Glu	Arg	Gln	Cys	Arg
1115						1120					1125			
Glu	Glu	Glu	Glu	Leu	Gln	Gln	Glu	Glu	Glu	Gln	Leu	Leu	Arg	Glu
1130						1135					1140			
Glu	Arg	Glu	Lys	Arg	Arg	Arg	Gln	Glu	Leu	Glu	Arg	Gln	Tyr	Arg
1145						1150					1155			
Glu	Glu	Glu	Glu	Leu	Gln	Arg	Gln	Lys	Arg	Lys	Gln	Arg	Tyr	Arg
1160						1165					1170			
Asp	Glu	Asp	Gln	Arg	Ser	Asp	Leu	Lys	Trp	Gln	Trp	Glu	Pro	Glu
1175						1180					1185			
Lys	Glu	Asn	Ala	Val	Arg	Asp	Asn	Lys	Val	Tyr	Cys	Lys	Gly	Arg
1190						1195					1200			
Glu	Asn	Glu	Gln	Phe	Arg	Gln	Leu	Glu	Asp	Ser	Gln	Val	Arg	Asp
1205						1210					1215			
Arg	Gln	Ser	Gln	Gln	Asp	Leu	Gln	His	Leu	Leu	Gly	Glu	Gln	Gln
1220						1225					1230			
Glu	Arg	Asp	Arg	Glu	Gln	Glu	Arg	Arg	Arg	Trp	Gln	Gln	Ala	Asn
1235						1240					1245			
Arg	His	Phe	Pro	Glu	Glu	Glu	Gln	Leu	Glu	Arg	Glu	Glu	Gln	Lys
1250						1255					1260			
Glu	Ala	Lys	Arg	Arg	Asp	Arg	Lys	Ser	Gln	Glu	Glu	Lys	Gln	Leu
1265						1270					1275			
Leu	Arg	Glu	Glu	Arg	Glu	Glu	Lys	Arg	Arg	Arg	Gln	Glu	Thr	Asp
1280						1285					1290			
Arg	Lys	Phe	Arg	Glu	Glu	Glu	Gln	Leu	Leu	Gln	Glu	Arg	Glu	Glu
1295						1300					1305			

Gln	Pro	Leu	Leu	Arg	Gln	Glu	Arg	Asp	Arg	Lys	Phe	Arg	Glu	Glu
1310						1315					1320			
Glu	Leu	Leu	His	Gln	Glu	Gln	Gly	Arg	Lys	Phe	Leu	Glu	Glu	Glu
1325						1330					1335			
Gln	Arg	Leu	Arg	Glu	Glu	Arg	Glu	Arg	Lys	Phe	Leu	Lys	Glu	Glu
1340						1345					1350			
Gln	Gln	Leu	Arg	Leu	Glu	Glu	Arg	Glu	Gln	Leu	Arg	Gln	Asp	Arg
1355						1360					1365			
Asp	Arg	Lys	Phe	Arg	Glu	Glu	Glu	Gln	Gln	Leu	Ser	Arg	Gln	Glu
1370						1375					1380			
Arg	Asp	Arg	Lys	Phe	Arg	Glu	Glu	Glu	Gln	Gln	Val	Arg	Arg	Gln
1385						1390					1395			
Glu	Arg	Glu	Arg	Lys	Phe	Leu	Glu	Glu	Glu	Gln	Gln	Leu	Arg	Gln
1400						1405					1410			
Glu	Arg	His	Arg	Lys	Phe	Arg	Glu	Glu	Glu	Gln	Leu	Leu	Gln	Glu
1415						1420					1425			
Arg	Glu	Glu	Gln	Gln	Leu	His	Arg	Gln	Glu	Arg	Asp	Arg	Lys	Phe
1430						1435					1440			
Leu	Glu	Glu	Glu	Gln	Gln	Leu	Arg	Arg	Gln	Glu	Arg	Asp	Arg	Lys
1445						1450					1455			
Phe	Arg	Glu	Gln	Glu	Leu	Arg	Ser	Gln	Glu	Pro	Glu	Arg	Lys	Phe
1460						1465					1470			
Leu	Glu	Glu	Glu	Gln	Gln	Leu	His	Arg	Gln	Gln	Arg	Gln	Arg	Lys
1475						1480					1485			
Phe	Leu	Gln	Glu	Glu	Gln	Gln	Leu	Arg	Arg	Gln	Glu	Arg	Gly	Gln
1490						1495					1500			
Gln	Arg	Arg	Gln	Asp	Arg	Asp	Arg	Lys	Phe	Arg	Glu	Glu	Glu	Gln
1505						1510					1515			
Leu	Arg	Gln	Glu	Arg	Glu	Glu	Gln	Gln	Leu	Ser	Arg	Gln	Glu	Arg
1520						1525					1530			
Asp	Arg	Lys	Phe	Arg	Leu	Glu	Glu	Gln	Lys	Val	Arg	Arg	Gln	Glu
1535						1540					1545			
Gln	Glu	Arg	Lys	Phe	Met	Glu	Asp	Glu	Gln	Gln	Leu	Arg	Arg	Gln
1550						1555					1560			
Glu	Gly	Gln	Gln	Gln	Leu	Arg	Gln	Glu	Asp	Arg	Lys	Phe	Arg	Glu
1565						1570					1575			

Asp	Glu	Gln	Leu	Leu	Gln	Glu	Arg	Glu	Glu	Gln	Gln	Leu	His	Arg	
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Gln	Glu	Arg	Asp	Arg	Lys	Phe	Leu	Glu	Glu	Glu	Pro	Gln	Leu	Arg	
1595						1600					1605				
Arg	Gln	Glu	Arg	Glu	Gln	Gln	Leu	Arg	His	Asp	Arg	Asp	Arg	Lys	
1610						1615					1620				
Phe	Arg	Glu	Glu	Glu	Gln	Leu	Leu	Gln	Glu	Gly	Glu	Glu	Gln	Gln	
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1655						1660					1665				
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1670						1675					1680				
Glu	Gln	Leu	Arg	Gln	Glu	Thr	Glu	Gln	Glu	Gln	Leu	Arg	Arg	Gln	
1685						1690					1695				
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1700						1705					1710				
Arg	Glu	Glu	Gln	Gln	Leu	Arg	Arg	Gln	Glu	Arg	Asp	Arg	Lys	Phe	
1715						1720					1725				
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1730						1735					1740				
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1745						1750					1755				
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1760						1765					1770				
Gly	Lys	Tyr	Arg	Trp	Glu	Glu	Glu	Gln	Leu	Gln	Leu	Glu	Glu	Gln	
1775						1780					1785				
Glu	Gln	Arg	Leu	Arg	Gln	Glu	Arg	Asp	Arg	Gln	Tyr	Arg	Ala	Glu	
1790						1795					1800				
Glu	Gln	Phe	Ala	Thr	Gln	Glu	Lys	Ser	Arg	Arg	Glu	Glu	Gln	Glu	
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Leu	Trp	Gln	Glu	Glu	Glu	Gln	Lys	Arg	Arg	Gln	Glu	Arg	Glu	Arg	
1820						1825					1830				
Lys	Leu	Arg	Glu	Glu	His	Ile	Arg	Arg	Gln	Gln	Lys	Glu	Glu	Gln	
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Arg His Arg Gln Val Gly Glu Ile Gln Ser Gln Glu Gly Lys Gly  
1850 1855 1860

His Gly Arg Leu Leu Glu Pro Gly Thr His Gln Phe Ala Ser Val  
1865 1870 1875

Pro Val Arg Ser Ser Pro Leu Tyr Glu Tyr Ile Gln Glu Gln Arg  
1880 1885 1890

Ser Gln Tyr Arg Pro  
1895

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gaa cag cat caa gtg aag caa cct tgt cag cct cca cca caa gga aaa 96  
Glu Gln His Gln Val Lys Gln Pro Cys Gln Pro Pro Pro Gln Gly Lys  
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ttt gtt ccc ata gcc acc tct gag cca tgc cac aca gat gtt cca caa 144  
Phe Val Pro Ile Ala Thr Ser Glu Pro Cys His Thr Asp Val Pro Gln  
35 40 45

cca gga aac acc aag att cca gaa cca tgc agc acc aaa gtg cct gag 192  
Pro Gly Asn Thr Lys Ile Pro Glu Pro Cys Ser Thr Lys Val Pro Glu  
50 55 60

cca ggg aac act gtt gtt ctt gag cca gat tat act acg atg cct ggg 240  
Pro Gly Asn Thr Val Val Leu Glu Pro Asp Tyr Thr Thr Met Pro Gly  
65 70 75 80

cca tgt tct aca aac atc act gag cca gat tat acc aca att cct gga 288  
Pro Cys Ser Thr Asn Ile Thr Glu Pro Asp Tyr Thr Thr Ile Pro Gly  
85 90 95

cca tgc tct acc aac atc aca gag cca gat tat act aca att cct ggg 336  
Pro Cys Ser Thr Asn Ile Thr Glu Pro Asp Tyr Thr Thr Ile Pro Gly  
100 105 110

cca tgc tct acc aac atc cct ggg cca gat cgt acc gtg gtt cct gga 384  
Pro Cys Ser Thr Asn Ile Pro Gly Pro Asp Arg Thr Val Val Pro Gly  
115 120 125

tca tgc tct acc aac atc aca gag cca gat tat acc aca att cct ggg 432  
Ser Cys Ser Thr Asn Ile Thr Glu Pro Asp Tyr Thr Thr Ile Pro Gly  
130 135 140

cca tcc tct acc aaa atc cct gac cca ggc tgt gcc atg gtt cct ggg 480  
Pro Ser Ser Thr Lys Ile Pro Asp Pro Gly Cys Ala Met Val Pro Gly  
145 150 155 160

ccc agt cct tcc agt act tct gag cca agc tca gaa cca tgc tct atc 528  
Pro Ser Pro Ser Ser Thr Ser Glu Pro Ser Ser Glu Pro Cys Ser Ile  
165 170 175

aat gtt cgt gaa cct ggc tac atg aat gcc tca gag ccc acc cat gcc	576
Asn Val Arg Glu Pro Gly Tyr Met Asn Ala Ser Glu Pro Thr His Ala	
180 185 190	
aag gtt cct gat cag ggc tac acc aag ata cct gac cag gga tcc tct	624
Lys Val Pro Asp Gln Gly Tyr Thr Lys Ile Pro Asp Gln Gly Ser Ser	
195 200 205	
aag gta cca gag cca tgc cag tcc agg gtt cct gag gtg tgc ccc cca	672
Lys Val Pro Glu Pro Cys Gln Ser Arg Val Pro Glu Val Cys Pro Pro	
210 215 220	
act gtc acc cct gta tca gct aag cag aag acc aag cag aag taa	717
Thr Val Thr Pro Val Ser Ala Lys Gln Lys Thr Lys Gln Lys	
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Phe Val Pro Ile Ala Thr Ser Glu Pro Cys His Thr Asp Val Pro Gln	
35 40 45	
Pro Gly Asn Thr Lys Ile Pro Glu Pro Cys Ser Thr Lys Val Pro Glu	
50 55 60	
Pro Gly Asn Thr Val Val Leu Glu Pro Asp Tyr Thr Thr Met Pro Gly	
65 70 75 80	
Pro Cys Ser Thr Asn Ile Thr Glu Pro Asp Tyr Thr Thr Ile Pro Gly	
85 90 95	
Pro Cys Ser Thr Asn Ile Thr Glu Pro Asp Tyr Thr Thr Ile Pro Gly	
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Pro Cys Ser Thr Asn Ile Pro Gly Pro Asp Arg Thr Val Val Pro Gly	
115 120 125	
Ser Cys Ser Thr Asn Ile Thr Glu Pro Asp Tyr Thr Thr Ile Pro Gly	
130 135 140	
Pro Ser Ser Thr Lys Ile Pro Asp Pro Gly Cys Ala Met Val Pro Gly	
145 150 155 160	
Pro Ser Pro Ser Ser Thr Ser Glu Pro Ser Ser Glu Pro Cys Ser Ile	
165 170 175	
Asn Val Arg Glu Pro Gly Tyr Met Asn Ala Ser Glu Pro Thr His Ala	
180 185 190	

Lys Val Pro Asp Gln Gly Tyr Thr Lys Ile Pro Asp Gln Gly Ser Ser  
195 200 205

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gtg tgc ccc acg cca aag tgc cca gag cca tgt cca ccc ccg aag tgc 96  
Val Cys Pro Thr Pro Lys Cys Pro Glu Pro Cys Pro Pro Pro Lys Cys  
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cct gag ccc tgc cca cca cca aag tgt cca cag ccc tgc cca cct cag 144  
Pro Glu Pro Cys Pro Pro Pro Lys Cys Pro Gln Pro Cys Pro Pro Gln  
35 40 45  
  
cag tgc cag cag aaa tat cct cct gtg aca cct tcc cca ccc tgc cag 192  
Gln Cys Gln Gln Lys Tyr Pro Pro Val Thr Pro Ser Pro Pro Cys Gln  
50 55 60  
  
cca aag tat cca ccg aag agc aag 216  
Pro Lys Tyr Pro Pro Lys Ser Lys  
65 70

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<211> 72  
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Pro Glu Pro Cys Pro Pro Pro Lys Cys Pro Gln Pro Cys Pro Pro Gln  
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Pro Lys Tyr Pro Pro Lys Ser Lys  
65 70

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1 5 10 15	
caa tat gca tca caa agt tgt gat gga gca tca ctt agc aag aaa gac	96
Gln Tyr Ala Ser Gln Ser Cys Asp Gly Ala Ser Leu Ser Lys Lys Asp	
20 25 30	
ctg aaa aac ctc ctt gag aga gaa ctt gga gat gtc ctt cag aga cca	144
Leu Lys Asn Leu Leu Glu Arg Glu Leu Gly Asp Val Leu Gln Arg Pro	
35 40 45	
cat gac cct gag acg ata gac ctg acc cta gaa ctt ctg gat cgc gac	192
His Asp Pro Glu Thr Ile Asp Leu Thr Leu Glu Leu Leu Asp Arg Asp	
50 55 60	
tgc aac ggg cgt gtt gat ttc aac gaa ttc ctc ctg ttc ctt ttc aag	240
Cys Asn Gly Arg Val Asp Phe Asn Glu Phe Leu Leu Phe Leu Phe Lys	
65 70 75 80	
att gct caa gct tgc tat tat gct ctc gat cag gcc gca gag cta ggc	288
Ile Ala Gln Ala Cys Tyr Tyr Ala Leu Asp Gln Ala Ala Glu Leu Gly	
85 90 95	
gag aag aga gcc ctg ccc aat gaa aag agg aac ctg tca caa gat cgc	336
Glu Lys Arg Ala Leu Pro Asn Glu Lys Arg Asn Leu Ser Gln Asp Arg	
100 105 110	
agg caa gaa gac caa agg aga ttc gag ccc cga agc aga caa ctg gac	384
Arg Gln Glu Asp Gln Arg Arg Phe Glu Pro Arg Ser Arg Gln Leu Asp	
115 120 125	
gaa gaa cct ggg cgc cga agc tgg cag aag aga cgt gag cag gag gag	432
Glu Glu Pro Gly Arg Arg Ser Trp Gln Lys Arg Arg Glu Gln Glu Glu	
130 135 140	
cgc gct gag gag cag cgg ctg gag cag cgc tac agg cag cac cgc gat	480
Arg Ala Glu Glu Gln Arg Leu Glu Gln Arg Tyr Arg Gln His Arg Asp	
145 150 155 160	
gaa gag cag aga ctg caa agg cga gaa ctg caa gaa ctg gag gaa cgc	528
Glu Glu Gln Arg Leu Gln Arg Arg Glu Leu Gln Glu Leu Glu Arg	
165 170 175	
ctt gca gag aaa gag ccg ctt ggc tgg agt aag ggt cgt gac gcg gag	576
Leu Ala Glu Lys Glu Pro Leu Gly Trp Ser Lys Gly Arg Asp Ala Glu	
180 185 190	
gag ttt tct gag gta gag gaa cag caa agg caa gag agg cag gaa ctc	624
Glu Phe Ser Glu Val Glu Glu Gln Gln Arg Gln Glu Arg Gln Glu Leu	
195 200 205	
aag ggc aag ggc caa aca gaa gag aga agg ctg cag aag cgc agg caa	672
Lys Gly Lys Gly Gln Thr Glu Glu Arg Arg Leu Gln Lys Arg Arg Gln	
210 215 220	
gaa gag cta cgc gaa ccc ctg cta agg cgc gat ctg gag ttg agg cgc	720
Glu Glu Leu Arg Glu Pro Leu Leu Arg Arg Asp Leu Glu Leu Arg Arg	
225 230 235 240	
gaa caa gag cta agg cgc gag cag gag ttg agg cag gaa cag agg cgc	768



Glu	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Gln	Arg	Arg	
				245					250					255		
gag	cag	gag	cta	agg	cgc	gag	cag	gag	ctg	agg	caa	gag	ctg	agg	cgc	816
Glu	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Arg	Arg	
			260					265					270			
gag	cag	gag	ctg	aat	cga	agg	cag	gag	ctg	agg	cgc	gaa	caa	gag	cta	864
Glu	Gln	Glu	Leu	Asn	Arg	Arg	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	
		275					280					285				
agg	cgc	gag	cag	gag	ctg	agg	cag	gag	ctg	agg	cgc	gag	cag	gag	cta	912
Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	
		290				295					300					
agg	cgc	gag	cag	gag	ttg	agg	cag	gaa	ctg	agg	cgc	gag	caa	gag	cta	960
Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	
305					310					315					320	
agg	cgc	gag	cag	gag	ttg	agg	cag	gaa	ctg	agg	cgc	gag	caa	gag	cta	1008
Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	
			325						330					335		
agg	cgc	gag	cag	gag	ttg	agg	cag	gaa	ctg	agg	cgt	gag	caa	gag	cta	1056
Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	
		340						345				350				
aga	cgc	gag	caa	gag	ctg	agg	cag	gag	ctg	gct	gag	gag	gac	gag	ctg	1104
Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Ala	Glu	Glu	Asp	Glu	Leu	
		355					360					365				
acg	cgg	atc	cgg	gaa	ccc	gac	gag	agc	att	acc	cag	agg	tgg	cag	tgg	1152
Thr	Arg	Ile	Arg	Glu	Pro	Asp	Glu	Ser	Ile	Thr	Gln	Arg	Trp	Gln	Trp	
	370					375					380					
cag	ctc	gaa	aac	gag	gca	gac	gcc	cgt	cag	aac	aag	gtc	tac	tct	agg	1200
Gln	Leu	Glu	Asn	Glu	Ala	Asp	Ala	Arg	Gln	Asn	Lys	Val	Tyr	Ser	Arg	
385					390					395					400	
cct	agc	agg	cag	gag	cag	agg	ctt	cgc	cag	gag	ctg	ggg	gag	cgt	cag	1248
Pro	Ser	Arg	Gln	Glu	Gln	Arg	Leu	Arg	Gln	Glu	Leu	Gly	Glu	Arg	Gln	
			405						410					415		
ctc	cgg	gag	cag	gag	gag	cag	cgc	cgc	gac	ctc	caa	cag	gag	cgt	ccc	1296
Leu	Arg	Glu	Gln	Glu	Glu	Gln	Arg	Arg	Asp	Leu	Gln	Gln	Glu	Arg	Pro	
		420						425					430			
gct	gag	gag	gcg	cgc	cag	cgc	aac	cag	tgg	gag	agg	ccg	cag	cgg	gcg	1344
Ala	Glu	Glu	Ala	Arg	Gln	Arg	Asn	Gln	Trp	Glu	Arg	Pro	Gln	Arg	Ala	
		435					440					445				
gag	gag	cgc	ctg	gag	cag	gag	cag	cgg	ttc	cgc	gac	agg	gag	gag	cag	1392
Glu	Glu	Arg	Leu	Glu	Gln	Glu	Gln	Arg	Phe	Arg	Asp	Arg	Glu	Glu	Gln	
	450					455					460					
cgc	ttc	cgg	gag	gag	aag	ctg	caa	cga	gca	gag	ctc	cag	gac	agc	ctc	1440
Arg	Phe	Arg	Glu	Glu	Lys	Leu	Gln	Arg	Ala	Glu	Leu	Gln	Asp	Ser	Leu	
465					470					475					480	
cta	gat	gaa	gaa	cag	agg	cga	ctc	cag	gag	gaa	cgc	cga	gag	cca	aac	1488
Leu	Asp	Glu	Glu	Gln	Arg	Arg	Leu	Gln	Glu	Glu	Arg	Arg	Glu	Pro	Asn	
			485					490					495			
agg	agc	cgg	caa	ctg	agg	gaa	gaa	agc	cag	agg	cgc	cgc	aca	ctg	tac	1536
Arg	Ser	Arg	Gln	Leu	Arg	Glu	Glu	Ser	Gln	Arg	Arg	Arg	Thr	Leu	Tyr	
			500					505					510			
gcc	aaa	ccc	agc	cag	agg	cag	cgt	agg	gag	gag	gag	cta	cgc	gag	gaa	1584
Ala	Lys	Pro	Ser	Gln	Arg	Gln	Arg	Arg	Glu	Glu	Glu	Leu	Arg	Glu	Glu	
		515					520					525				
cgg	ctg	ttg	caa	gaa	gag	cag	cgc	cag	cag	cgg	gag	agg	aaa	cac	cgc	1632

Arg 530	Leu	Leu	Gln	Glu	Glu	Gln	Arg	Gln	Gln	Arg	Glu	Arg	Lys	His	Arg	
						535					540					
agg 545	gag	gag	gat	ctg	cag	cag	gag	gaa	aag	cgg	ctg	cag	caa	gac	gaa	1680
	Arg	Glu	Glu	Asp	Leu	Gln	Glu	Glu	Lys	Arg	Leu	Gln	Gln	Asp	Glu	
					550					555					560	
gag 565	caa	ctg	cag	cga	gaa	agg	agg	cgc	ctg	cag	cgg	gag	agg	cag	tat	1728
	Glu	Gln	Leu	Gln	Arg	Glu	Arg	Arg	Arg	Leu	Gln	Arg	Glu	Arg	Gln Tyr	
				565					570					575		
cag 580	gag	gag	gac	ctg	caa	cag	gag	gaa	gag	cgg	ctg	cag	cag	gag	gaa	1776
	Gln	Glu	Glu	Asp	Leu	Gln	Gln	Glu	Glu	Arg	Leu	Gln	Gln	Glu	Glu	
			580					585					590			
gag 595	cgg	ctg	cag	aga	gaa	aga	agg	cgc	ctg	cag	cag	gaa	agg	cag	tat	1824
	Glu	Arg	Leu	Gln	Arg	Glu	Arg	Arg	Leu	Gln	Gln	Glu	Arg	Gln	Tyr	
			595				600					605				
cag 610	gag	gag	gac	ctg	cag	cgg	ctg	cgg	gat	gaa	gat	cag	cgc	agg	gat	1872
	Gln	Glu	Glu	Asp	Leu	Gln	Arg	Leu	Arg	Asp	Glu	Asp	Gln	Arg	Arg Asp	
			610			615				620						
ctg 625	aaa	tgg	cag	tgg	caa	cca	agg	aaa	gaa	aat	gaa	gtt	cgt	agt	aac	1920
	Leu	Lys	Trp	Gln	Trp	Gln	Pro	Arg	Lys	Glu	Asn	Glu	Val	Arg	Asn	
					630					635					640	
agg 645	ctc	ttc	acc	aaa	cgc	aga	ggg	gat	gag	gaa	ccc	atc	cag	cag	ctg	1968
	Arg	Leu	Phe	Thr	Lys	Arg	Arg	Gly	Asp	Glu	Glu	Pro	Ile	Gln	Gln Leu	
				645					650					655		
gaa 660	gat	tct	cag	gag	cga	gag	aga	cgt	cag	gat	cgg	cgg	cct	ctg	caa	2016
	Glu	Asp	Ser	Gln	Glu	Arg	Glu	Arg	Arg	Gln	Asp	Arg	Arg	Pro	Leu Gln	
			660					665					670			
gac 675	gaa	gag	gaa	gag	aag	aga	gag	ctg	gag	cag	gag	agg	agg	cgt	cga	2064
	Asp	Glu	Glu	Glu	Lys	Arg	Glu	Leu	Glu	Gln	Glu	Arg	Arg	Arg	Arg	
			675				680					685				
cag 690	cag	cgc	gac	cgt	cag	atc	cta	gag	gaa	gag	cag	ttt	cag	cga	gag	2112
	Gln	Gln	Arg	Asp	Arg	Gln	Ile	Leu	Glu	Glu	Gln	Phe	Gln	Arg	Glu	
			690			695					700					
cac 705	caa	cgg	gaa	gcc	aga	aga	cga	gat	gag	acg	ttc	cag	gag	gaa	gaa	2160
	His	Gln	Arg	Glu	Ala	Arg	Arg	Arg	Asp	Glu	Thr	Phe	Gln	Glu	Glu	
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cag 725	ctc	cag	gga	gaa	tcg	aga	aga	cgg	caa	cag	gag	aga	gag	ggc	aag	2208
	Gln	Leu	Gln	Gly	Glu	Ser	Arg	Arg	Arg	Gln	Gln	Glu	Arg	Glu	Gly Lys	
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ttc 740	ctt	gag	gag	gaa	agg	cag	ctg	cgg	aca	gaa	cgg	gaa	gag	cag	agg	2256
	Phe	Leu	Glu	Glu	Arg	Gln	Leu	Arg	Thr	Glu	Arg	Glu	Glu	Gln	Arg	
			740					745					750			
cgg 755	cgt	caa	gaa	caa	gag	aga	gaa	ttc	caa	gag	gag	gag	gag	cac	ctc	2304
	Arg	Arg	Gln	Glu	Gln	Glu	Arg	Glu	Phe	Gln	Glu	Glu	Glu	Glu	His Leu	
			755				760					765				
caa 770	gaa	cgc	gag	aaa	gaa	ctt	cgg	cag	gaa	tgc	gac	aga	aaa	tct	cgt	2352
	Gln	Glu	Arg	Glu	Lys	Glu	Leu	Arg	Gln	Glu	Cys	Asp	Arg	Lys	Ser Arg	
			770				775				780					
gaa 785	caa	gag	cgc	cgc	cag	cag	cgt	gag	gaa	gag	cag	ctg	agg	cgt	cag	2400
	Glu	Gln	Glu	Arg	Arg	Gln	Gln	Arg	Glu	Glu	Gln	Leu	Arg	Arg	Gln	
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gag 805	cgg	gac	cag	aga	ttc	cgt	cgg	gaa	caa	gaa	cgc	cac	ctg	gaa	cgt	2448
	Glu	Arg	Asp	Gln	Arg	Phe	Arg	Arg	Glu	Gln	Glu	Arg	His	Leu	Glu Arg	
				805					810					815		
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Glu Glu Glu Gln Leu Arg Asp Arg Pro Ser Arg Arg Glu Gln Glu Arg	
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His Gln Glu Arg Glu Glu Glu Gln Leu Arg Asp Arg Pro Ser Arg Arg	
835 840 845	
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Glu Gln Glu Arg His Gln Glu Arg Glu Glu Glu Gln Leu Arg Asp Arg	
850 855 860	
cca tcc cgc cgg gaa caa gaa cgc cac cag gaa cgt gag gaa gag cag	2640
Pro Ser Arg Arg Glu Gln Glu Arg His Gln Glu Arg Glu Glu Glu Gln	
865 870 875 880	
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Leu Arg Asp Arg Pro Phe Arg Arg Glu Gln Glu Arg Arg Leu Glu Arg	
885 890 895	
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Glu Glu Glu Gln Leu Arg Asp Arg Pro Ser Arg Arg Glu Gln Glu Arg	
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His Gln Glu Arg Glu Glu Glu Gln Leu Arg Asp Arg Pro Ser Arg Arg	
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Glu Gln Glu Arg Arg Leu Glu Arg Glu Glu Glu Gln Leu Arg Asp Arg	
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Ser Phe Arg Arg Glu Gln Glu Leu Arg Arg Asp Arg Lys Phe His Glu	
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Glu Glu Glu Arg Arg Glu Glu Leu Glu Glu Glu Gln Arg Gly Gln Glu	
965 970 975	
cgg gac cgt ttg agg gtg gag gag cag ctt cgc gga cag cga gag gaa	2976
Arg Asp Arg Leu Arg Val Glu Glu Gln Leu Arg Gly Gln Arg Glu Glu	
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Glu Gln Arg Arg Arg Gln Glu Cys Asp Arg Lys Leu His Arg Glu Leu	
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Glu Val Arg Gln Glu Leu Glu Glu Glu Arg Leu Arg Asp Arg Lys	
1010 1015 1020	
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Leu Arg Arg Glu Gln Glu Leu Arg Arg Asp Arg Lys Phe His Glu	
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Glu Glu Glu Arg Arg His Glu Glu Phe Glu Glu Lys Gln Leu Arg	
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Leu Gln Glu Pro Asp Arg Arg Phe Arg Arg Glu Gln Glu Leu Arg	
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Gln Glu Cys Val Glu Glu Glu Arg Leu Arg Asp Ser Lys Ile Arg	
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Arg Glu Gln Glu Leu Arg Arg Glu Arg Glu Glu Glu Arg Leu Arg	
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Asp 1100	Arg	Lys	Ile	Arg	Arg	Asp 1105	Gln	Glu	Leu	Arg	Gln 1110	Gly	Leu	Glu	
gaa 1115	gag Glu	cag Gln	ctg Leu	agg Arg	cgc Arg	cag Gln	gaa Glu	ctt Leu	gac Asp	aga Arg	aaa Lys	ttc Phe	cgt Arg	gag Glu	3384
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aga 1145	aag Lys	atc Ile	cgc Arg	cgg Arg	gag Glu	caa Gln	gag Glu	ctc Leu	cgc Arg	cgg Arg	gag Glu	caa Gln	gag Glu	ctc Leu	3474
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cag 1205	gga Gly	ctg Leu	gag Glu	gaa Glu	gag Glu	cag Gln	ctg Leu	agg Arg	cgc Arg	cag Gln	gaa Glu	cgt Arg	gac Asp	aga Arg	3654
aaa 1220	gtc Val	cgt Arg	gag Glu	gaa Glu	caa Gln	gag Glu	ctc Leu	gac Asp	caa Gln	gaa Glu	ctg Leu	gag Glu	gaa Glu	gag Glu	3699
cgg 1235	ctg Arg	cgg Arg	gac Asp	aga Arg	aag Lys	atc Ile	cgc Arg	cgg Arg	gag Glu	caa Gln	gag Glu	ctc Leu	cgc Arg	aga Arg	3744
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agg 1295	cgc Arg	cag Gln	gaa Glu	cgt Arg	gac Asp	aga Arg	aaa Lys	ttc Phe	cgt Arg	gag Glu	gaa Glu	caa Gln	gag Glu	ctc Leu	3924
ggc 1310	caa Gln	gaa Glu	ctg Leu	gag Glu	gaa Glu	gag Glu	cgg Arg	ctg Leu	cgg Arg	gac Asp	aga Arg	aag Lys	atc Ile	cgc Arg	3969
cgg 1325	gag Glu	caa Gln	gag Glu	ctc Leu	cgc Arg	cgg Arg	gaa Glu	cgc Arg	gag Glu	caa Gln	gag Glu	cag Gln	cgg Arg	cgc Arg	4014
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gaa 1355	gag Glu	cag Gln	cgg Arg	cgc Arg	cgc Arg	cag Gln	gag Glu	cgc Arg	gag Glu	caa Gln	gag Glu	cag Gln	cag Gln	cgg Arg	4104
tgc	ctg	gag	cgt	gag	gag	gaa	caa	ttt	cgc	ttt	gag	gag	cag	cag	4149

Cys	Leu	Glu	Arg	Glu	Glu	Glu	Gln	Phe	Arg	Phe	Glu	Glu	Gln	Gln	
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Arg	Arg	Arg	Gln	Glu	Arg	Glu	Gln	Gln	Leu	Arg	Gln	Glu	Arg	Asp	
1385						1390					1395				
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Arg	Asp	Asn	Arg	Arg	Phe	Arg	Glu	Glu	Val	Glu	Leu	Arg	Gln	Glu	
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Glu	Val	Glu	Glu	Leu	Arg	Gln	Glu	Glu	Gln	Arg	Arg	Arg	Gln	Glu	
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cgt	gac	agg	aaa	ttc	cgc	gaa	gag	aaa	cac	cca	cgc	gag	gaa	cgc	4509
Arg	Asp	Arg	Lys	Phe	Arg	Glu	Glu	Lys	His	Pro	Arg	Glu	Glu	Arg	
1490						1495					1500				
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Glu	Glu	Gln	Gln	Leu	Arg	Arg	Glu	Lys	Arg	Asp	Gly	Gln	Tyr	Leu	
1505						1510					1515				
gct	gag	gag	cag	ttt	gcc	agg	gat	acg	att	cgt	cgc	cag	gaa	caa	4599
Ala	Glu	Glu	Gln	Phe	Ala	Arg	Asp	Thr	Ile	Arg	Arg	Gln	Glu	Gln	
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gaa	cta	cgt	caa	gaa	gag	gaa	caa	aga	cgt	cgc	caa	gag	cgg	gag	4644
Glu	Leu	Arg	Gln	Glu	Glu	Glu	Gln	Arg	Arg	Arg	Gln	Glu	Arg	Glu	
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aga	aaa	ttc	caa	gaa	gag	caa	atc	cgt	cgt	agg	caa	gag	gag	cag	4689
Arg	Lys	Phe	Gln	Glu	Glu	Gln	Ile	Arg	Arg	Arg	Gln	Glu	Glu	Gln	
1550						1555					1560				
agg	cgc	cgc	caa	atc	ctg	gag	cct	ggc	aca	cgc	cag	ttt	gcc	aat	4734
Arg	Arg	Arg	Gln	Ile	Leu	Glu	Pro	Gly	Thr	Arg	Gln	Phe	Ala	Asn	
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Val	Pro	Val	Arg	Ser	Ser	Pro	Leu	Tyr	Glu	Tyr	Ile	Gln	Glu	Gln	
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agg	tct	caa	tac	cgc	cct										4797
Arg	Ser	Gln	Tyr	Arg	Pro										
1595															

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 <212> PRT  
 <213> Mus musculus

<400> 132

Met Ser Pro Leu Ile Arg Ser Ile Val Asp Ile Thr Glu Val Phe Asn

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		20						25					30						
Leu	Lys	Asn	Leu	Leu	Glu	Arg	Glu	Leu	Gly	Asp	Val	Leu	Gln	Arg	Pro				
		35					40					45							
His	Asp	Pro	Glu	Thr	Ile	Asp	Leu	Thr	Leu	Glu	Leu	Leu	Asp	Arg	Asp				
	50					55					60								
Cys	Asn	Gly	Arg	Val	Asp	Phe	Asn	Glu	Phe	Leu	Leu	Phe	Leu	Phe	Lys				
65					70					75					80				
Ile	Ala	Gln	Ala	Cys	Tyr	Tyr	Ala	Leu	Asp	Gln	Ala	Ala	Glu	Leu	Gly				
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Glu	Lys	Arg	Ala	Leu	Pro	Asn	Glu	Lys	Arg	Asn	Leu	Ser	Gln	Asp	Arg				
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Arg	Gln	Glu	Asp	Gln	Arg	Arg	Phe	Glu	Pro	Arg	Ser	Arg	Gln	Leu	Asp				
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Glu	Glu	Pro	Gly	Arg	Arg	Ser	Trp	Gln	Lys	Arg	Arg	Glu	Gln	Glu	Glu				
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Arg	Ala	Glu	Glu	Gln	Arg	Leu	Glu	Gln	Arg	Tyr	Arg	Gln	His	Arg	Asp				
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Glu	Glu	Gln	Arg	Leu	Gln	Arg	Arg	Glu	Leu	Gln	Glu	Leu	Glu	Glu	Arg				
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Leu	Ala	Glu	Lys	Glu	Pro	Leu	Gly	Trp	Ser	Lys	Gly	Arg	Asp	Ala	Glu				
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Glu	Phe	Ser	Glu	Val	Glu	Glu	Gln	Gln	Arg	Gln	Glu	Arg	Gln	Glu	Leu				
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Lys	Gly	Lys	Gly	Gln	Thr	Glu	Glu	Arg	Arg	Leu	Gln	Lys	Arg	Arg	Gln				
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Glu	Glu	Leu	Arg	Glu	Pro	Leu	Leu	Arg	Arg	Asp	Leu	Glu	Leu	Arg	Arg				
225					230					235					240				
Glu	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Gln	Arg	Arg				
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Glu	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu	Arg	Gln	Glu	Leu	Arg	Arg				
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Glu	Gln	Glu	Leu	Asn	Arg	Arg	Gln	Glu	Leu	Arg	Arg	Glu	Gln	Glu	Leu				
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Thr	Arg	Ile	Arg	Glu	Pro	Asp	Glu	Ser	Ile	Thr	Gln	Arg	Trp	Gln	Trp
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Gln	Leu	Glu	Asn	Glu	Ala	Asp	Ala	Arg	Gln	Asn	Lys	Val	Tyr	Ser	Arg
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Pro	Ser	Arg	Gln	Glu	Gln	Arg	Leu	Arg	Gln	Glu	Leu	Gly	Glu	Arg	Gln
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Leu	Arg	Glu	Gln	Glu	Glu	Gln	Arg	Arg	Asp	Leu	Gln	Gln	Glu	Arg	Pro
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Ala	Glu	Glu	Ala	Arg	Gln	Arg	Asn	Gln	Trp	Glu	Arg	Pro	Gln	Arg	Ala
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Glu	Glu	Arg	Leu	Glu	Gln	Glu	Gln	Arg	Phe	Arg	Asp	Arg	Glu	Glu	Gln
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Arg	Phe	Arg	Glu	Glu	Lys	Leu	Gln	Arg	Ala	Glu	Leu	Gln	Asp	Ser	Leu
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Leu	Asp	Glu	Glu	Gln	Arg	Arg	Leu	Gln	Glu	Glu	Arg	Arg	Glu	Pro	Asn
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Ala	Lys	Pro	Ser	Gln	Arg	Gln	Arg	Arg	Glu	Glu	Glu	Leu	Arg	Glu	Glu
		515					520					525			
Arg	Leu	Leu	Gln	Glu	Glu	Gln	Arg	Gln	Gln	Arg	Glu	Arg	Lys	His	Arg
	530					535					540				
Arg	Glu	Glu	Asp	Leu	Gln	Gln	Glu	Glu	Lys	Arg	Leu	Gln	Gln	Asp	Glu
545					550					555					560
Glu	Gln	Leu	Gln	Arg	Glu	Arg	Arg	Arg	Leu	Gln	Arg	Glu	Arg	Gln	Tyr
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Gln	Glu	Glu	Asp	Leu	Gln	Gln	Glu	Glu	Glu	Arg	Leu	Gln	Gln	Glu	Glu

580

585

590

Glu Arg Leu Gln Arg Glu Arg Arg Arg Leu Gln Gln Glu Arg Gln Tyr  
595 600 605

Gln Glu Glu Asp Leu Gln Arg Leu Arg Asp Glu Asp Gln Arg Arg Asp  
610 615 620

Leu Lys Trp Gln Trp Gln Pro Arg Lys Glu Asn Glu Val Arg Ser Asn  
625 630 635 640

Arg Leu Phe Thr Lys Arg Arg Gly Asp Glu Glu Pro Ile Gln Gln Leu  
645 650 655

Glu Asp Ser Gln Glu Arg Glu Arg Arg Gln Asp Arg Arg Pro Leu Gln  
660 665 670

Asp Glu Glu Glu Glu Lys Arg Glu Leu Glu Gln Glu Arg Arg Arg Arg  
675 680 685

Gln Gln Arg Asp Arg Gln Ile Leu Glu Glu Glu Gln Phe Gln Arg Glu  
690 695 700

His Gln Arg Glu Ala Arg Arg Arg Asp Glu Thr Phe Gln Glu Glu Glu  
705 710 715 720

Gln Leu Gln Gly Glu Ser Arg Arg Arg Gln Gln Glu Arg Glu Gly Lys  
725 730 735

Phe Leu Glu Glu Glu Arg Gln Leu Arg Thr Glu Arg Glu Glu Gln Arg  
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Arg Arg Gln Glu Gln Glu Arg Glu Phe Gln Glu Glu Glu Glu His Leu  
755 760 765

Gln Glu Arg Glu Lys Glu Leu Arg Gln Glu Cys Asp Arg Lys Ser Arg  
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Glu Gln Glu Arg Arg Gln Gln Arg Glu Glu Glu Gln Leu Arg Arg Gln  
785 790 795 800

Glu Arg Asp Gln Arg Phe Arg Arg Glu Gln Glu Arg His Leu Glu Arg  
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Glu Glu Glu Gln Leu Arg Asp Arg Pro Ser Arg Arg Glu Gln Glu Arg  
820 825 830

His Gln Glu Arg Glu Glu Glu Gln Leu Arg Asp Arg Pro Ser Arg Arg  
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Glu Gln Glu Arg His Gln Glu Arg Glu Glu Glu Gln Leu Arg Asp Arg  
850 855 860

Pro Ser Arg Arg Glu Gln Glu Arg His Gln Glu Arg Glu Glu Glu Gln



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Leu Arg Asp Arg	Pro Phe Arg Arg	Glu Gln Glu Arg Arg	Leu Glu Arg			
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Glu Glu Glu Gln	Leu Arg Asp Arg	Pro Ser Arg Arg	Glu Gln Glu Arg			
	900		905		910	
His Gln Glu Arg	Glu Glu Glu Gln	Leu Arg Asp Arg	Pro Ser Arg Arg			
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Glu Gln Glu Arg	Arg Leu Glu Arg	Glu Glu Glu Gln	Leu Arg Asp Arg			
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Ser Phe Arg Arg	Glu Gln Glu Leu Arg	Arg Asp Arg Lys	Phe His Glu			
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Glu Glu Glu Arg	Arg Glu Glu Leu Glu	Glu Glu Gln Arg	Gly Gln Glu			
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Arg Asp Arg Leu	Arg Val Glu Glu Gln	Leu Arg Gly Gln	Arg Glu Glu			
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Glu Gln Arg Arg	Arg Gln Glu Cys	Asp Arg Lys Leu	His Arg Glu Leu			
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Glu Val Arg Gln	Glu Leu Glu Glu	Glu Arg Leu Arg	Asp Arg Lys			
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Leu Arg Arg Glu	Gln Glu Leu Arg	Arg Asp Arg Lys	Phe His Glu			
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Glu Glu Glu Arg	Arg His Glu Glu Phe	Glu Glu Lys Gln	Leu Arg			
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Leu Gln Glu Pro	Asp Arg Arg Phe	Arg Arg Glu Gln	Glu Leu Arg			
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Gln Glu Cys Val	Glu Glu Glu Arg	Leu Arg Asp Ser	Lys Ile Arg			
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Asp Arg Lys Ile	Arg Arg Asp Gln	Glu Leu Arg Gln	Gly Leu Glu			
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Glu Glu Gln Leu	Arg Arg Gln Glu	Leu Asp Arg Lys	Phe Arg Glu			
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Glu Gln Glu Leu	Asp Gln Glu Leu	Glu Glu Glu Arg	Leu Arg Asp			
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Arg Lys Ile Arg	Arg Glu Gln Glu	Leu Arg Arg Glu	Gln Glu Leu			

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Arg Arg Glu Gln Glu Phe	Arg Arg Glu Gln Glu	Leu Arg Arg Glu		
1160	1165	1170		
Gln Glu Phe Arg Arg Glu	Gln Glu Leu Arg Gln Glu	Arg Glu Glu		
1175	1180	1185		
Glu Arg Leu Arg Asp Arg	Lys Ile Arg Arg Asp	Gln Glu Leu Arg		
1190	1195	1200		
Gln Gly Leu Glu Glu Glu	Gln Leu Arg Arg Gln Glu	Arg Asp Arg		
1205	1210	1215		
Lys Val Arg Glu Glu Gln	Glu Leu Asp Gln Glu	Leu Glu Glu Glu		
1220	1225	1230		
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1235	1240	1245		
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1250	1255	1260		
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1265	1270	1275		
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Arg Arg Gln Glu Arg Asp	Arg Lys Phe Arg Glu Glu	Gln Glu Leu		
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Gly Gln Glu Leu Glu Glu	Glu Arg Leu Arg Asp Arg	Lys Ile Arg		
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Glu Glu Gln Arg Arg Arg	Gln Glu Arg Glu Gln Glu	Gln Gln Arg		
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Cys Leu Glu Arg Glu Glu	Glu Gln Phe Arg Phe Glu	Glu Gln Gln		
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Arg Arg Arg Gln Glu Arg	Glu Gln Gln Leu Arg Gln	Glu Arg Asp		
1385	1390	1395		
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Arg Asp Asn Arg Arg Phe Arg Glu Glu Val Glu Leu Arg Gln Glu	1445	1450	
Arg Glu Gly Gln Gln Leu Arg Gln Glu Arg Asp Arg Lys Phe Arg	1460	1465	1470
Glu Val Glu Glu Leu Arg Gln Glu Glu Gln Arg Arg Arg Gln Glu	1475	1480	1485
Arg Asp Arg Lys Phe Arg Glu Glu Lys His Pro Arg Glu Glu Arg	1490	1495	1500
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Ala Glu Glu Gln Phe Ala Arg Asp Thr Ile Arg Arg Gln Glu Gln	1520	1525	1530
Glu Leu Arg Gln Glu Glu Glu Gln Arg Arg Arg Gln Glu Arg Glu	1535	1540	1545
Arg Lys Phe Gln Glu Glu Gln Ile Arg Arg Arg Gln Glu Glu Gln	1550	1555	1560
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Thr Glu Gln Ala Ser Val Pro Arg Ala Met Ala Ala Thr Leu Gly Ala			
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Gly Thr Pro Pro Arg Pro Gln Ala Arg Ser Ile Ala Gly Val Tyr Val			

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65				70						75				80					
act	ggg	ggc	ctg	gtg	gac	ctc	gcc	cgg	ggc	cag	ctg	ctc	cct	gtg	tcc	288			
Thr	Gly	Gly	Leu	Val	Asp	Leu	Ala	Arg	Gly	Gln	Leu	Leu	Pro	Val	Ser				
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Lys	Ala	Leu	Gln	Gln	Gly	Leu	Val	Gly	Leu	Glu	Leu	Lys	Glu	Lys	Leu				
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cct	ggc	aca	ggt	gac	ctg	cgc	ttc	ctc	aac	ccc	aac	acg	ctg	gag	cgg	624			
Pro	Gly	Thr	Gly	Asp	Leu	Arg	Phe	Leu	Asn	Pro	Asn	Thr	Leu	Glu	Arg				
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Ala	Val	Gln	Gly	Leu	Arg	Glu	Gly	Arg	Leu	Ala	Ala	Val	Asp	Val	Ser				
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Ala	Arg	Ala	Glu	Val	Arg	Arg	Tyr	Leu	Glu	Gly	Thr	Gly	Ser	Val	Ala				
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ggg	gtt	gtc	ctg	ctg	ccc	gaa	ggc	cac	aag	aag	agc	ttt	ttc	cag	gct	912			
Gly	Val	Val	Leu	Leu	Pro	Glu	Gly	His	Lys	Lys	Ser	Phe	Phe	Gln	Ala				
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Ala	Thr	Glu	His	Leu	Leu	Pro	Met	Gly	Thr	Ala	Leu	Pro	Leu	Leu	Glu				
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gcc	cag	gct	gcc	acc	cac	acc	ctg	gtg	gac	ccc	atc	aca	ggc	cag	cgg	1008			
Ala	Gln	Ala	Ala	Thr	His	Thr	Leu	Val	Asp	Pro	Ile	Thr	Gly	Gln	Arg				

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His	Glu	Gln	Leu	Leu	Val	Ala	Glu	Gln	Ala	Val	Thr	Gly	His	His	Asp				
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gaa	cag	ctg	ctg	gcc	ctc	tgt	gtc	acc	gac	cca	gag	acc	ggg	ctt	gcc	1392			
Glu	Gln	Leu	Leu	Ala	Leu	Cys	Val	Thr	Asp	Pro	Glu	Thr	Gly	Leu	Ala				
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Phe	Leu	Pro	Leu	Ser	Gly	Gly	Pro	Arg	Gly	Gly	Glu	Pro	Gln	Gly	Pro				
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cca	ttc	atc	aag	tac	agc	act	cgg	cag	gcc	ctg	agc	acg	gcc	aca	gcc	1488			
Pro	Phe	Ile	Lys	Tyr	Ser	Thr	Arg	Gln	Ala	Leu	Ser	Thr	Ala	Thr	Ala				
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Thr	Val	Ser	Val	Gly	Lys	Phe	Arg	Gly	Arg	Pro	Val	Ser	Leu	Trp	Glu				
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Leu	Leu	Phe	Ser	Glu	Ala	Ile	Ser	Ser	Glu	Gln	Arg	Ala	Met	Leu	Ala				
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cag	cag	tac	cag	gaa	ggg	acc	ctc	tcc	gtg	gag	aag	ctg	gcc	gct	gag	1632			
Gln	Gln	Tyr	Gln	Glu	Gly	Thr	Leu	Ser	Val	Glu	Lys	Leu	Ala	Ala	Glu				
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tct	ggg	ctg	agg	gac	acc	gtg	aca	cca	gga	gag	ctg	ctg	aaa	gcc	gag	1728			
Ser	Gly	Leu	Arg	Asp	Thr	Val	Thr	Pro	Gly	Glu	Leu	Leu	Lys	Ala	Glu				
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Ile	Ile	Asp	Gln	Asp	Leu	Tyr	Glu	Arg	Leu	Glu	His	Gly	Gln	Ala	Thr				
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Ala	Lys	Asp	Val	Gly	Ser	Leu	Ala	Ser	Ala	Gln	Arg	Tyr	Leu	Gln	Gly				
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900

905

910

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Leu Ala Leu Leu Glu Ala Gln Ala Ala Thr Gly Thr Ile Met Asp Pro	
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His Ser Pro Glu Ser Leu Ser Val Asp Glu Ala Val Arg Arg Gly Val	
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Val Gly Pro Glu Leu Tyr Gly Arg Leu Lys Arg Ala Glu Gly Ala Ile	
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Ser His His His Leu Pro Met Pro Val Ala Ile Gln Arg Gly Tyr	
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Ala Val Thr Ala Leu Val Glu Ala Ala Glu Arg Gln Pro Leu Gln			
1505	1510	1515	
gcc acc ttc aga ggg ctc cgg aag cag gtg tca gcc agg gac ctg			4599
Ala Thr Phe Arg Gly Leu Arg Lys Gln Val Ser Ala Arg Asp Leu			
1520	1525	1530	
ttc agg gcg cag ctg atc agc agg aag acg ctg gac gag ctg agc			4644
Phe Arg Ala Gln Leu Ile Ser Arg Lys Thr Leu Asp Glu Leu Ser			
1535	1540	1545	
cag ggg aca acg act gtg aag gag gtg gcg gag atg gac agc gtg			4689
Gln Gly Thr Thr Thr Val Lys Glu Val Ala Glu Met Asp Ser Val			
1550	1555	1560	
aag cgg tcc ctg gag gga ggc aac ttc att gcc ggg gtc ctt atc			4734
Lys Arg Ser Leu Glu Gly Gly Asn Phe Ile Ala Gly Val Leu Ile			
1565	1570	1575	
cag ggc acc cag gag agg atg agc atc cca gag gcc ctg agg agg			4779
Gln Gly Thr Gln Glu Arg Met Ser Ile Pro Glu Ala Leu Arg Arg			
1580	1585	1590	
cac atc ctg cgg cct ggc aca gcc ctg gtg ctg ctg gag gca cag			4824
His Ile Leu Arg Pro Gly Thr Ala Leu Val Leu Leu Glu Ala Gln			
1595	1600	1605	
gca gct acc ggc ttc atc atc gac ccc gcg gag aac cgg aag ctg			4869
Ala Ala Thr Gly Phe Ile Ile Asp Pro Ala Glu Asn Arg Lys Leu			
1610	1615	1620	
acc gtg gag gag gcg ttc aaa gca gga atg ttc ggg aaa gaa acc			4914
Thr Val Glu Glu Ala Phe Lys Ala Gly Met Phe Gly Lys Glu Thr			
1625	1630	1635	
tac gtg aag ctg ctg tcg gcc gag cgc gcc gtc acc ggc tac acc			4959
Tyr Val Lys Leu Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Thr			
1640	1645	1650	
gac ccc tat acc ggg cag cag atc tcc ctc ttc cag gcc atg cag			5004
Asp Pro Tyr Thr Gly Gln Gln Ile Ser Leu Phe Gln Ala Met Gln			
1655	1660	1665	
aag gac ctc atc gtc cgg gag cac ggc atc cgc ctg ctg gag gcc			5049
Lys Asp Leu Ile Val Arg Glu His Gly Ile Arg Leu Leu Glu Ala			
1670	1675	1680	
cag atc gcc acg ggc ggc atc atc gac ccc gtg cac agc cac cgc			5094
Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Val His Ser His Arg			
1685	1690	1695	
gtg ccc gtg gac gtg gcc tac cgc tgc ggc tac ttc gac gag gag			5139
Val Pro Val Asp Val Ala Tyr Arg Cys Gly Tyr Phe Asp Glu Glu			
1700	1705	1710	
atg aac cgc atc ctg gcg gac ccc agc gac gac acc aag ggc ttc			5184
Met Asn Arg Ile Leu Ala Asp Pro Ser Asp Asp Thr Lys Gly Phe			

1715	1720	1725	
ttc gac ccc aac acg cac gag aac ctc acg tac ctg cag ctt ctg			5229
Phe Asp Pro Asn Thr His Glu Asn Leu Thr Tyr Leu Gln Leu Leu			
1730	1735	1740	
gag cgc tgt gtg gag gac ccc gag acg ggc ctg tac ctg cta caa			5274
Glu Arg Cys Val Glu Asp Pro Glu Thr Gly Leu Tyr Leu Leu Gln			
1745	1750	1755	
atc ata aag aaa gga gaa aac tac gtg tac atc aat gag gcc acg			5319
Ile Ile Lys Lys Gly Glu Asn Tyr Val Tyr Ile Asn Glu Ala Thr			
1760	1765	1770	
aga cac gtg ttg caa tcc aga act gca aaa atg cgc gtg ggg agg			5364
Arg His Val Leu Gln Ser Arg Thr Ala Lys Met Arg Val Gly Arg			
1775	1780	1785	
ttt gct gac cag gtg gtc tct ttc tgg gac ctg ctg tcc tct cca			5409
Phe Ala Asp Gln Val Val Ser Phe Trp Asp Leu Leu Ser Ser Pro			
1790	1795	1800	
tac ttc aca gag gac agg aag cgg gag ctc atc cag gag tat gga			5454
Tyr Phe Thr Glu Asp Arg Lys Arg Glu Leu Ile Gln Glu Tyr Gly			
1805	1810	1815	
gcc cag agt ggg ggc ctg gag aaa ttg ctg gaa atc atc acc acg			5499
Ala Gln Ser Gly Gly Leu Glu Lys Leu Leu Glu Ile Ile Thr Thr			
1820	1825	1830	
aca att gaa gaa aca gag acg caa aac caa ggc atc aaa gtg gcg			5544
Thr Ile Glu Glu Thr Glu Thr Gln Asn Gln Gly Ile Lys Val Ala			
1835	1840	1845	
gcc atc aga ggg gag gtg aca gct gca gac ctg ttc aac tcc agg			5589
Ala Ile Arg Gly Glu Val Thr Ala Ala Asp Leu Phe Asn Ser Arg			
1850	1855	1860	
gtc atc gat cag aag acc ctg cac aca ctt cgt gtg ggg agg act			5634
Val Ile Asp Gln Lys Thr Leu His Thr Leu Arg Val Gly Arg Thr			
1865	1870	1875	
ggg gga cag gca ctc agc acg ctg gag tgt gtg aag ccc tat ctg			5679
Gly Gly Gln Ala Leu Ser Thr Leu Glu Cys Val Lys Pro Tyr Leu			
1880	1885	1890	
gaa ggc agc gac tgc att gcg ggg gtc acg gtg ccc tcc acc agg			5724
Glu Gly Ser Asp Cys Ile Ala Gly Val Thr Val Pro Ser Thr Arg			
1895	1900	1905	
gag gtc atg agc ctc cat gag gcc agc agg aag gag ctc atc cct			5769
Glu Val Met Ser Leu His Glu Ala Ser Arg Lys Glu Leu Ile Pro			
1910	1915	1920	
gca gca ttt gcg act tgg ctg ctg gag gcg cag gcc gcc acc ggg			5814
Ala Ala Phe Ala Thr Trp Leu Leu Glu Ala Gln Ala Ala Thr Gly			
1925	1930	1935	
ttc ctc ctg gac ccc tgc acc cgc cag aag ctc tct gtg gat gag			5859
Phe Leu Leu Asp Pro Cys Thr Arg Gln Lys Leu Ser Val Asp Glu			
1940	1945	1950	
gct gtg gat gtg ggc ctg gtg aac gag gag ctg cgg gag agg ctc			5904
Ala Val Asp Val Gly Leu Val Asn Glu Glu Leu Arg Glu Arg Leu			
1955	1960	1965	
ctg aag gct gaa aga gct gcc acg ggc tac agg gat ccg gcc aca			5949
Leu Lys Ala Glu Arg Ala Ala Thr Gly Tyr Arg Asp Pro Ala Thr			
1970	1975	1980	
gga gac acg atc ccg ctg ttc cag gcc atg cag aag cag ctc atc			5994
Gly Asp Thr Ile Pro Leu Phe Gln Ala Met Gln Lys Gln Leu Ile			

1985					1990					1995					
gag	aag	gcg	gag	gca	ctg	agg	ctg	ctg	gag	gtg	cag	gtg	gcc	acg	6039
Glu	Lys	Ala	Glu	Ala	Leu	Arg	Leu	Leu	Glu	Val	Gln	Val	Ala	Thr	
	2000					2005					2010				
ggg	ggt	gtc	atc	gac	cca	cag	cac	cac	cac	cgg	ctc	cca	ctg	gaa	6084
Gly	Gly	Val	Ile	Asp	Pro	Gln	His	His	His	Arg	Leu	Pro	Leu	Glu	
	2015					2020					2025				
aca	gcc	tac	aga	cgg	ggc	tgt	ctg	cac	aag	gac	atc	tat	gcg	ctc	6129
Thr	Ala	Tyr	Arg	Arg	Gly	Cys	Leu	His	Lys	Asp	Ile	Tyr	Ala	Leu	
	2030					2035					2040				
att	tcc	gac	cag	aag	cac	atg	agg	aaa	cgg	ttt	gtg	gac	ccg	aac	6174
Ile	Ser	Asp	Gln	Lys	His	Met	Arg	Lys	Arg	Phe	Val	Asp	Pro	Asn	
	2045					2050					2055				
acg	caa	gag	aag	gtc	tcg	tac	cga	gag	ctg	cag	gag	agg	tgc	cgc	6219
Thr	Gln	Glu	Lys	Val	Ser	Tyr	Arg	Glu	Leu	Gln	Glu	Arg	Cys	Arg	
	2060					2065					2070				
cca	caa	gag	gac	acg	ggc	tgg	gtg	ctg	ttc	cca	gtg	aac	aag	gct	6264
Pro	Gln	Glu	Asp	Thr	Gly	Trp	Val	Leu	Phe	Pro	Val	Asn	Lys	Ala	
	2075					2080					2085				
gca	cgg	gac	tcc	gag	cac	atc	gat	gac	gag	acg	aga	agg	gcc	ctg	6309
Ala	Arg	Asp	Ser	Glu	His	Ile	Asp	Asp	Glu	Thr	Arg	Arg	Ala	Leu	
	2090					2095					2100				
gag	gca	gag	caa	gtg	gaa	atc	aca	gtg	gga	agg	ttc	aga	ggc	cag	6354
Glu	Ala	Glu	Gln	Val	Glu	Ile	Thr	Val	Gly	Arg	Phe	Arg	Gly	Gln	
	2105					2110					2115				
aaa	cca	aca	ctg	tgg	gca	cta	ctg	aat	tcc	gaa	tac	gtg	aca	gag	6399
Lys	Pro	Thr	Leu	Trp	Ala	Leu	Leu	Asn	Ser	Glu	Tyr	Val	Thr	Glu	
	2120					2125					2130				
gag	aag	aag	ctc	cag	ctg	gtg	agg	atg	tat	aga	aca	cac	acc	aga	6444
Glu	Lys	Lys	Leu	Gln	Leu	Val	Arg	Met	Tyr	Arg	Thr	His	Thr	Arg	
	2135					2140					2145				
cgg	gca	ctg	cag	acg	gta	gcg	cag	ctc	atc	tta	gag	ttg	atc	gag	6489
Arg	Ala	Leu	Gln	Thr	Val	Ala	Gln	Leu	Ile	Leu	Glu	Leu	Ile	Glu	
	2150					2155					2160				
aag	cag	gaa	acc	agc	aac	aaa	cac	ctg	tgg	ttc	caa	gga	att	aga	6534
Lys	Gln	Glu	Thr	Ser	Asn	Lys	His	Leu	Trp	Phe	Gln	Gly	Ile	Arg	
	2165					2170					2175				
cga	cag	atc	aca	gct	tct	gaa	ctc	ctc	agc	tca	gcc	ata	atc	acg	6579
Arg	Gln	Ile	Thr	Ala	Ser	Glu	Leu	Leu	Ser	Ser	Ala	Ile	Ile	Thr	
	2180					2185					2190				
gag	gaa	atg	ctc	cag	gac	ctg	gaa	acg	gga	cgg	agc	acg	acg	caa	6624
Glu	Glu	Met	Leu	Gln	Asp	Leu	Glu	Thr	Gly	Arg	Ser	Thr	Thr	Gln	
	2195					2200					2205				
gag	ctc	atg	gag	gac	gac	cgc	gtc	aag	cgc	tac	ctg	gag	ggc	acc	6669
Glu	Leu	Met	Glu	Asp	Asp	Arg	Val	Lys	Arg	Tyr	Leu	Glu	Gly	Thr	
	2210					2215					2220				
agc	tgc	atc	gcg	ggc	gtc	ctg	gtg	ccc	gcc	aag	gac	cag	ccc	ggc	6714
Ser	Cys	Ile	Ala	Gly	Val	Leu	Val	Pro	Ala	Lys	Asp	Gln	Pro	Gly	
	2225					2230					2235				
cgc	cag	gag	aag	atg	agc	atc	tac	cag	gcc	atg	tgg	aag	ggc	gtg	6759
Arg	Gln	Glu	Lys	Met	Ser	Ile	Tyr	Gln	Ala	Met	Trp	Lys	Gly	Val	
	2240					2245					2250				
ctg	cgg	ccc	ggc	acg	gcc	ctg	gtg	ctg	ctg	gag	gcg	cag	gcg	gcc	6804
Leu	Arg	Pro	Gly	Thr	Ala	Leu	Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala	

2255	2260	2265	
acc ggc ttc gtc atc gac Thr Gly Phe Val Ile Asp 2270	ccc gtg cgc aac ctg agg Pro Val Arg Asn Leu Arg 2275	ctg tcg gtg Leu Ser Val 2280	6849
gag gag ccc gtg ccc gcg Glu Glu Pro Val Pro Ala 2285	ggc gtg gtg ggc agc gag Gly Val Val Gly Ser Glu 2290	atc cag gag Ile Gln Glu 2295	6894
aag ctg ctg tcg gcc gag Lys Leu Leu Ser Ala Glu 2300	cgc gcc gtc acc ggc tac Arg Ala Val Thr Gly Tyr 2305	acc gac ccc Thr Asp Pro 2310	6939
tac acc ggg cag cag atc Tyr Thr Gly Gln Gln Ile 2315	tcc ctc ttc cag gcc atg Ser Leu Phe Gln Ala Met 2320	cag aag gac Gln Lys Asp 2325	6984
ctc atc gtc cgg gag cac Leu Ile Val Arg Glu His 2330	ggc atc cgc ctg ctg gag Gly Ile Arg Leu Leu Glu 2335	gcc cag atc Ala Gln Ile 2340	7029
gcc acg ggc ggc gtc atc Ala Thr Gly Gly Val Ile 2345	gac ccc gtg cac agc cac Asp Pro Val His Ser His 2350	cgc gtg ccc Arg Val Pro 2355	7074
gtg gac gtg gcc tac cgg Val Asp Val Ala Tyr Arg 2360	cgc gcc tac ttc gac gag Arg Gly Tyr Phe Asp Glu 2365	gag atg aac Glu Met Asn 2370	7119
cgt gtc ctg gcc gac ccc Arg Val Leu Ala Asp Pro 2375	agc gac gac acc aag ggt Ser Asp Asp Thr Lys Gly 2380	ttc ttc gac Phe Phe Asp 2385	7164
ccc aac acg cac gag aac Pro Asn Thr His Glu Asn 2390	ctc acg tac gtg cag ctg Leu Thr Tyr Val Gln Leu 2395	ctg cgc cgc Leu Arg Arg 2400	7209
tgc gtg ccc gac ccg gac Cys Val Pro Asp Pro Asp 2405	acc ggg ctc tac atg ctg Thr Gly Leu Tyr Met Leu 2410	cag ctg gca Gln Leu Ala 2415	7254
ggc cgg ggc tcc gcc gtg Gly Arg Gly Ser Ala Val 2420	cac cag ctg agc gag gag His Gln Leu Ser Glu Glu 2425	ctg cgc tgt Leu Arg Cys 2430	7299
gcc ctg cgc gac gcc cgc Ala Leu Arg Asp Ala Arg 2435	gtg acg cca ggc tcg ggc Val Thr Pro Gly Ser Gly 2440	gcc ctc cag Ala Leu Gln 2445	7344
ggc cag agc gtc tcc gtc Gly Gln Ser Val Ser Val 2450	tgg gag ctc ctc ttc tac Trp Glu Leu Leu Phe Tyr 2455	cgc gag gtg Arg Glu Val 2460	7389
tcc gag gac cgg cgc cag Ser Glu Asp Arg Arg Gln 2465	gac ctg ctg agc aga tac Asp Leu Leu Ser Arg Tyr 2470	cgg gcg ggc Arg Ala Gly 2475	7434
acg ctg acc gtg gag gag Thr Leu Thr Val Glu Glu 2480	ctg ggc gcc acc ctc acc Leu Gly Ala Thr Leu Thr 2485	tcg ctg ctg Ser Leu Leu 2490	7479
gcc cag gcc cag gcc cag Ala Gln Ala Gln Ala Gln 2495	gcc cgg gcc gag gcc gag Ala Arg Ala Glu Ala Glu 2500	gcc ggg agc Ala Gly Ser 2505	7524
ccg cgc cca gac ccc cgg Pro Arg Pro Asp Pro Arg 2510	gag gcc ctg cgt gcg gcc Glu Ala Leu Arg Ala Ala 2515	acc atg gag Thr Met Glu 2520	7569
gtc aag gtg ggc cgc ctc Val Lys Val Gly Arg Leu 2510	cgg ggg cgc gcg gtg ccc Arg Gly Arg Ala Val Pro 2515	gtg tgg gac Val Trp Asp 2520	7614

2525	2530	2535	
gtg ctg gcg tcc ggc tac Val Leu Ala Ser Gly Tyr	gtg agc agg gcc gcc cgg Val Ser Arg Ala Ala Arg	gag gag ctg Glu Glu Leu	7659
2540	2545	2550	
ctg gcc gag ttt ggc tcg Leu Ala Glu Phe Gly Ser	ggg acc ctg gac ttg ccc Gly Thr Leu Asp Leu Pro	gcg ctg acc Ala Leu Thr	7704
2555	2560	2565	
cgc cgg ctg acc gcc atc Arg Arg Leu Thr Ala Ile	atc gag gag gcc gag gaa Ile Glu Glu Ala Glu Glu	gcc ccc ggg Ala Pro Gly	7749
2570	2575	2580	
gcc cgg ccg cag ctc cag Ala Arg Pro Gln Leu Gln	gac gcc agg cgc ggc ccg Asp Ala Arg Arg Gly Pro	gcg gag cca Arg Glu Pro	7794
2585	2590	2595	
ggg cca gcc ggg cga ggg Gly Pro Ala Gly Arg Gly	gac ggc gac tcg ggg cgc Asp Gly Asp Ser Gly Arg	tcc cag cga Ser Gln Arg	7839
2600	2605	2610	
gag ggc cag ggg gag ggc Glu Gly Gln Gly Glu Gly	gag acc cag gag gcc gcc Glu Thr Gln Glu Ala Ala	gcc gcc gcc Ala Ala Ala	7884
2615	2620	2625	
gcc gcc gcc cgc cgc cag Ala Ala Ala Arg Arg Gln	gag cag acc ctg cgt gat Glu Gln Thr Leu Arg Asp	gcc acc atg Ala Thr Met	7929
2630	2635	2640	
gag gtg cag cgc ggg cag Glu Val Gln Arg Gly Gln	ttc cag ggg cgc ccg gtc Phe Gln Gly Arg Pro Val	tcc gtg tgg Ser Val Trp	7974
2645	2650	2655	
gac gtc ctc ttc tcc tcg Asp Val Leu Phe Ser Ser	tac ctg agc gag gcc cgc Tyr Leu Ser Glu Ala Arg	cga gac gag Arg Asp Glu	8019
2660	2665	2670	
ctc ctg gcc cag cac gcg Leu Leu Ala Gln His Ala	gcc ggc gcc ctg ggc ctg Ala Ala Gly Ala Leu Gly	ccc gac ctc Pro Asp Leu	8064
2675	2680	2685	
gtc gcc gtc ctc acc cgg Val Ala Val Leu Thr Arg	gtc atc gag gag acg gag Val Ile Glu Glu Thr Glu	gag cgg ctc Glu Arg Leu	8109
2690	2695	2700	
agc aag gtg tcc ttc cgc Ser Lys Val Ser Phe Arg	ggc ctg agg cgc cag gtg Gly Leu Arg Arg Gln Val	tcc gcc tcc Ser Ala Ser	8154
2705	2710	2715	
gag ctg cac acg tcc ggg Glu Leu His Thr Ser Gly	atc ctg ggc ccc gag acc Ile Leu Gly Pro Glu Thr	ctg cgg gac Leu Arg Asp	8199
2720	2725	2730	
ctg gcc cag ggc act aag Leu Ala Gln Gly Thr Lys	acg ctg cag gag gtg acg Thr Leu Gln Glu Val Thr	gag atg gac Glu Met Asp	8244
2735	2740	2745	
tcg gtc aag cgc tac ctg Ser Val Lys Arg Tyr Leu	gag ggc acc agc tgc atc Glu Gly Thr Ser Cys Ile	gcg ggc gtc Ala Gly Val	8289
2750	2755	2760	
ctg gtg ccc gcc aag gac Leu Val Pro Ala Lys Asp	cag ccc ggc cgc cag gag Gln Pro Gly Arg Gln Glu	aag atg agc Lys Met Ser	8334
2765	2770	2775	
atc tac cag gcc atg tgg Ile Tyr Gln Ala Met Trp	aag ggc gtg ctg cgg ccc Lys Gly Val Leu Arg Pro	ggc acg gcc Gly Thr Ala	8379
2780	2785	2790	
ctg gtg ctg ctg gag gcg Leu Val Leu Leu Glu Ala	cag gcg gcc acc ggc ttc Gln Ala Ala Thr Gly Phe	gtc atc gac Val Ile Asp	8424

2795					2800					2805					
ccc	gtg	cgc	aac	ctg	agg	ctg	tcg	gtg	gag	gag	gcc	gtg	gcc	gcg	8469
Pro	Val	Arg	Asn	Leu	Arg	Leu	Ser	Val	Glu	Glu	Ala	Val	Ala	Ala	
2810					2815					2820					
ggc	gtg	gtg	ggc	ggc	gag	atc	cag	gag	aag	ctg	ctg	tcg	gcc	gag	8514
Gly	Val	Val	Gly	Gly	Glu	Ile	Gln	Glu	Lys	Leu	Leu	Ser	Ala	Glu	
2825					2830					2835					
cgc	gcc	gtc	acc	ggc	tac	acc	gac	ccc	tac	acc	ggg	cag	cag	atc	8559
Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	Gly	Gln	Gln	Ile	
2840					2845					2850					
tcc	ctc	ttc	cag	gcc	atg	cag	aag	gac	ctc	atc	gtc	cgg	gag	cac	8604
Ser	Leu	Phe	Gln	Ala	Met	Gln	Lys	Asp	Leu	Ile	Val	Arg	Glu	His	
2855					2860					2865					
ggc	atc	cgc	ctg	ctg	gag	gcc	cag	atc	gcc	acg	ggc	ggc	gtc	atc	8649
Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Val	Ile	
2870					2875					2880					
gac	ccc	gtg	cac	agc	cac	cgc	gtg	ccc	gtg	gac	gtg	gcc	tac	cgg	8694
Asp	Pro	Val	His	Ser	His	Arg	Val	Pro	Val	Asp	Val	Ala	Tyr	Arg	
2885					2890					2895					
cgc	ggc	tac	ttc	gac	gag	gag	atg	aac	cgt	gtc	ctg	gcc	gac	ccc	8739
Arg	Gly	Tyr	Phe	Asp	Glu	Glu	Met	Asn	Arg	Val	Leu	Ala	Asp	Pro	
2900					2905					2910					
agc	gac	gac	acc	aag	ggt	ttc	ttc	gac	ccc	aac	acg	cac	gag	aac	8784
Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	His	Glu	Asn	
2915					2920					2925					
ctc	acg	tac	gtg	cag	ctg	ctg	cgc	cgc	tgc	gtg	ccc	gac	ccg	gac	8829
Leu	Thr	Tyr	Val	Gln	Leu	Leu	Arg	Arg	Cys	Val	Pro	Asp	Pro	Asp	
2930					2935					2940					
acc	ggg	ctc	tac	atg	ctg	cag	ctg	gca	ggc	cgg	ggc	tcc	gcc	gtg	8874
Thr	Gly	Leu	Tyr	Met	Leu	Gln	Leu	Ala	Gly	Arg	Gly	Ser	Ala	Val	
2945					2950					2955					
cac	cag	ctg	agc	gag	gag	ctg	cgc	tgt	gcc	ctg	cgc	gac	gcc	cgc	8919
His	Gln	Leu	Ser	Glu	Glu	Leu	Arg	Cys	Ala	Leu	Arg	Asp	Ala	Arg	
2960					2965					2970					
gtg	acg	cca	ggc	tcg	ggc	gcc	ctc	cag	ggc	cag	agc	gtc	tcc	gtc	8964
Val	Thr	Pro	Gly	Ser	Gly	Ala	Leu	Gln	Gly	Gln	Ser	Val	Ser	Val	
2975					2980					2985					
tgg	gag	ctc	ctc	ttc	tac	cgc	gag	gtg	tcc	gag	gac	cgg	cgc	cag	9009
Trp	Glu	Leu	Leu	Phe	Tyr	Arg	Glu	Val	Ser	Glu	Asp	Arg	Arg	Gln	
2990					2995					3000					
gac	ctg	ctg	agc	aga	tac	cgg	gcg	ggc	acg	ctg	acc	gtg	gag	gag	9054
Asp	Leu	Leu	Ser	Arg	Tyr	Arg	Ala	Gly	Thr	Leu	Thr	Val	Glu	Glu	
3005					3010					3015					
ctg	ggc	gcc	acc	ctc	acc	tcg	ctg	ctg	gcc	cag	gcc	cag	gcc	cag	9099
Leu	Gly	Ala	Thr	Leu	Thr	Ser	Leu	Leu	Ala	Gln	Ala	Gln	Ala	Gln	
3020					3025					3030					
gcc	cgg	gcc	gag	gcc	gag	gcc	ggg	agc	ccg	cgc	cca	gac	ccc	cgg	9144
Ala	Arg	Ala	Glu	Ala	Glu	Ala	Gly	Ser	Pro	Arg	Pro	Asp	Pro	Arg	
3035					3040					3045					
gag	gcc	ctg	cgt	gcg	gcc	acc	atg	gag	gtc	aag	gtg	ggc	cgc	ctc	9189
Glu	Ala	Leu	Arg	Ala	Ala	Thr	Met	Glu	Val	Lys	Val	Gly	Arg	Leu	
3050					3055					3060					
cgg	ggg	cgc	gcg	gtg	ccc	gtg	tgg	gac	gtg	ctg	gcg	tcc	ggc	tac	9234
Arg	Gly	Arg	Ala	Val	Pro	Val	Trp	Asp	Val	Leu	Ala	Ser	Gly	Tyr	

3065	3070	3075	
gtg agc ggg gcc gcc cgg gag	gag ctg ctg gcc gag	ttt ggc tcg	9279
Val Ser Gly Ala Ala Arg	Glu Leu Leu Ala Glu	Phe Gly Ser	
3080	3085	3090	
ggg acc ctg gac ttg ccc gcg	ctg acc cgc cgg ctg	acc gcc atc	9324
Gly Thr Leu Asp Leu Pro	Ala Leu Thr Arg Arg	Leu Thr Ala Ile	
3095	3100	3105	
atc gag gag gcc gag gag gcc	ccc ggg gcc cgg ccg	cag ctc cag	9369
Ile Glu Glu Ala Glu Glu	Ala Pro Gly Ala Arg	Pro Gln Leu Gln	
3110	3115	3120	
gac gcc tgg cgc ggc ccg cgg	gag cca ggg cca gcc	ggg cga ggg	9414
Asp Ala Trp Arg Gly Pro	Arg Glu Pro Gly Pro	Ala Gly Arg Gly	
3125	3130	3135	
gac ggc gac tcg ggg cgc tcc	cag cga gag ggc cag	ggg gag ggc	9459
Asp Gly Asp Ser Gly Arg	Ser Gln Arg Glu Gly	Gln Gly Glu Gly	
3140	3145	3150	
gag acc cag gag gcc gcc gcc	gcc gcc gcc gcc gcc	cgc cgc cag	9504
Glu Thr Gln Glu Ala Ala	Ala Ala Ala Ala Ala	Arg Arg Gln	
3155	3160	3165	
gag cag acc ctg cgt gat gcc	acc atg gag gtg cag	cgc ggg cag	9549
Glu Gln Thr Leu Arg Asp	Ala Thr Met Glu Val	Gln Arg Gly Gln	
3170	3175	3180	
ttc cag ggg cgg ccg gtc tcc	gtg tgg gac gtc ctc	ttc tcc tcg	9594
Phe Gln Gly Arg Pro Val	Ser Val Trp Asp Val	Leu Phe Ser Ser	
3185	3190	3195	
tac ctg agc gag gcc cgc cga	gac gag ctc ctg gcc	cag cac gcg	9639
Tyr Leu Ser Glu Ala Arg	Arg Asp Glu Leu Leu	Ala Gln His Ala	
3200	3205	3210	
gcc ggc gcc ctg ggc ctg ccc	gac ctc gtc gcc gtc	ctc acc cgg	9684
Ala Gly Ala Leu Gly Leu	Pro Asp Leu Val Ala	Val Leu Thr Arg	
3215	3220	3225	
gtc atc gag gag acg gag gag	cgg ctc agc aag gtg	tcc ttc cgc	9729
Val Ile Glu Glu Thr Glu	Glu Arg Leu Ser Lys	Val Ser Phe Arg	
3230	3235	3240	
ggc ctg agg cgc cag gtg tcc	gcc tcc gag ctg cac	acg tcc ggg	9774
Gly Leu Arg Arg Gln Val	Ser Ala Ser Glu Leu	His Thr Ser Gly	
3245	3250	3255	
atc ctg ggc ccc gag acc ctg	cgg gac ctg gcc cag	ggc act aag	9819
Ile Leu Gly Pro Glu Thr	Leu Arg Asp Leu Ala	Gln Gly Thr Lys	
3260	3265	3270	
acg ctg cag gag gtg acg gag	atg gac tcg gtc aag	cgc tac ctg	9864
Thr Leu Gln Glu Val Thr	Glu Met Asp Ser Val	Lys Arg Tyr Leu	
3275	3280	3285	
gag ggc acc agc tgc atc gcg	ggc gtc ctg gtg ccc	gcc aag gac	9909
Glu Gly Thr Ser Cys Ile	Ala Gly Val Leu Val	Pro Ala Lys Asp	
3290	3295	3300	
cag ccc ggc cgc cag gag aag	atg agc atc tac cag	gcc atg tgg	9954
Gln Pro Gly Arg Gln Glu	Lys Met Ser Ile Tyr	Gln Ala Met Trp	
3305	3310	3315	
aag ggc gtg ctg cgg ccc ggc	acg gcc ctg gtg ctg	ctg gag gcg	9999
Lys Gly Val Leu Arg Pro	Gly Thr Ala Leu Val	Leu Leu Glu Ala	
3320	3325	3330	
cag gcg gcc acc ggc ttc gtc	atc gac ccc gtg cgc	aac ctg agg	10044
Gln Ala Ala Thr Gly Phe	Val Ile Asp Pro Val	Arg Asn Leu Arg	

3335	3340	3345	
ctg tcg gtg gag gag gcc Leu Ser Val Glu Glu Ala	gtg gcc gcg ggc Val Ala Ala Gly	gtg gtg ggc ggc gag Val Val Gly Gly Glu	10089
3350	3355	3360	
atc cag gag aag ctg ctg Ile Gln Glu Lys Leu Leu	tcg gcc gag cgc gcc Ser Ala Glu Arg Ala	gtc acc ggc tac Val Thr Gly Tyr	10134
3365	3370	3375	
acc gac ccc tac acc ggg Thr Asp Pro Tyr Thr Gly	cag cag atc tcc ctc Gln Gln Ile Ser Leu	ttc cag gcc atg Phe Gln Ala Met	10179
3380	3385	3390	
cag aag gac ctc atc gtc Gln Lys Asp Leu Ile Val	cgg gag cac ggc atc Arg Glu His Gly Ile	cgc ctg ctg gag Arg Leu Leu Glu	10224
3395	3400	3405	
gcc cag atc gcc acg ggc Ala Gln Ile Ala Thr Gly	ggc gtc atc gac ccc Gly Val Ile Asp Pro	gtg cac agc cac Val His Ser His	10269
3410	3415	3420	
cgc gtg ccc gtg gac gtg Arg Val Pro Val Asp Val	gcc tac cgg cgc ggc Ala Tyr Arg Arg Gly	tac ttc gac gag Tyr Tyr Phe Asp Glu	10314
3425	3430	3435	
gag atg aac cgt gtc ctg Glu Met Asn Arg Val Leu	gcc gac ccc agc gac Ala Asp Pro Ser Asp	gac acc aag ggt Asp Thr Lys Gly	10359
3440	3445	3450	
ttc ttc gac ccc aac acg Phe Phe Asp Pro Asn Thr	cac gag aac ctc acg His Glu Asn Leu Thr	tac gtg cag ctg Tyr Val Gln Leu	10404
3455	3460	3465	
ctg cgc cgc tgc gtg ccc Leu Arg Arg Cys Val Pro	gac ccg gac acc ggg Asp Pro Asp Thr Gly	ctc tac atg ctg Leu Tyr Met Leu	10449
3470	3475	3480	
cag ctg gca ggc cgg ggc Gln Leu Ala Gly Arg Gly	tcc gcc gtg cac cag Ser Ala Val His Gln	ctg agc gag gag Leu Ser Glu Glu	10494
3485	3490	3495	
ctg cgc tgt gcc ctg cgc Leu Arg Cys Ala Leu Arg	gac gcc cgc gtg acg Asp Ala Arg Val Thr	cca ggc tcg ggc Pro Gly Ser Gly	10539
3500	3505	3510	
gcc ctc cag ggc cag agc Ala Leu Gln Gly Gln Ser	gtc tcc gtc tgg gag Val Ser Val Trp Glu	ctc ctc ttc tac Leu Leu Phe Tyr	10584
3515	3520	3525	
cgc gag gtg tcc gag gac Arg Glu Val Ser Glu Asp	cgg gcc cgc gag ctg Arg Arg Gln Asp Leu	ctg agc aga tac Leu Ser Arg Tyr	10629
3530	3535	3540	
cgg gcg ggc acg ctg acc Arg Ala Gly Thr Leu Thr	gtg gag gag ctg ggc Val Glu Glu Leu Gly	gcc acc ctc acc Ala Thr Leu Thr	10674
3545	3550	3555	
tcg ctg ctg gcc cag gcc Ser Leu Leu Ala Gln Ala	cag gcc cag gcc cgg Gln Ala Gln Ala Arg	gcc gag gcc gag Ala Glu Ala Glu	10719
3560	3565	3570	
gcc ggg agc ccg cgc cca Ala Gly Ser Pro Arg Pro	gac gcc ccc cgg gag Asp Pro Arg Glu Ala	ctg cgt gcg gcc Leu Arg Ala Ala	10764
3575	3580	3585	
acc atg gag gtc aag gtg Thr Met Glu Val Lys Val	ggc cgc ctc cgg ggg Gly Arg Leu Arg Gly	cgc gcg gtg ccc Arg Ala Val Pro	10809
3590	3595	3600	
gtg tgg gac gtg ctg gcg Val Trp Asp Val Leu Ala	tcc gcc tac gtg agc Ser Gly Tyr Val Ser	ggg gcc gcc cgg Gly Ala Ala Arg	10854



3605	3610	3615	
gag gag ctg ctg gcc gag ttt ggc tcg ggg acc ctg gac ttg ccc			10899
Glu Glu Leu Leu Ala Glu Phe Gly Ser Gly Thr Leu Asp Leu Pro			
3620	3625	3630	
gcg ctg acc cgc cgg ctg acc ggc atc atc gag gag gcc gag gag			10944
Ala Leu Thr Arg Arg Leu Thr Ala Ile Ile Glu Glu Ala Glu Glu			
3635	3640	3645	
gcc ccc ggg gcc cgg ccg cag ctc cag gac gcc tgg cgc gcc ccg			10989
Ala Pro Gly Ala Arg Pro Gln Leu Gln Asp Ala Trp Arg Gly Pro			
3650	3655	3660	
cgg gag cca ggg cca gcc ggg cga ggg gac ggc gac tcg ggg cgc			11034
Arg Glu Pro Gly Pro Ala Gly Arg Gly Asp Gly Asp Ser Gly Arg			
3665	3670	3675	
tcc cag cga gag ggc cag ggg gag ggc gag acc cag gag gcc gcc			11079
Ser Gln Arg Glu Gly Gln Gly Glu Gly Glu Thr Gln Glu Ala Ala			
3680	3685	3690	
gcc gcc gcc gcc gcc cgc cgc cag gag cag acc ctg cgt gat			11124
Ala Ala Ala Ala Ala Arg Arg Gln Glu Gln Thr Leu Arg Asp			
3695	3700	3705	
gcc acc atg gag gtg cag cgc ggg cag ttc cag ggg cgg ccg gtc			11169
Ala Thr Met Glu Val Gln Arg Gly Gln Phe Gln Gly Arg Pro Val			
3710	3715	3720	
tcc gtg tgg gac gtc ctc ttc tcc tcg tac ctg agc gag gcc cgc			11214
Ser Val Trp Asp Val Leu Phe Ser Ser Tyr Leu Ser Glu Ala Arg			
3725	3730	3735	
cga gac gag ctc ctg gcc cag cac gcg gcc ggc gcc ctg ggc ctg			11259
Arg Asp Glu Leu Leu Ala Gln His Ala Ala Gly Ala Leu Gly Leu			
3740	3745	3750	
ccc gac ctc gtc gcc gtc ctc acc cgg gtc atc gag gag acg gag			11304
Pro Asp Leu Val Ala Val Leu Thr Arg Val Ile Glu Glu Thr Glu			
3755	3760	3765	
gag cgg ctc agc aag gtg tcc ttc cgc gcc ctg agg cgc cag gtg			11349
Glu Arg Leu Ser Lys Val Ser Phe Arg Gly Leu Arg Arg Gln Val			
3770	3775	3780	
tcc gcc tcc gag ctg cac acg tcc ggg atc ctg ggc ccc gag acc			11394
Ser Ala Ser Glu Leu His Thr Ser Gly Ile Leu Gly Pro Glu Thr			
3785	3790	3795	
ctg cgg gac ctg gcc cag ggc act aag acg ctg cag gag gtg acg			11439
Leu Arg Asp Leu Ala Gln Gly Thr Lys Thr Leu Gln Glu Val Thr			
3800	3805	3810	
gag atg gac tcg gtc aag cgc tac ctg gag ggc acc agc tgc atc			11484
Glu Met Asp Ser Val Lys Arg Tyr Leu Glu Gly Thr Ser Cys Ile			
3815	3820	3825	
gcg ggc gtc ctg gtg ccc gcc aag gac cag ccc ggc cgc cag gag			11529
Ala Gly Val Leu Val Pro Ala Lys Asp Gln Pro Gly Arg Gln Glu			
3830	3835	3840	
aag atg agc atc tac cag gcc atg tgg aag ggc gtg ctg cgg ccc			11574
Lys Met Ser Ile Tyr Gln Ala Met Trp Lys Gly Val Leu Arg Pro			
3845	3850	3855	
ggc acg gcc ctg gtg ctg ctg gag gcg cag gcg gcc acc gcc ttc			11619
Gly Thr Ala Leu Val Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe			
3860	3865	3870	
gtc atc gac ccc gtg cgc aac ctg agg ctg tcg gtg gag gag gcc			11664
Val Ile Asp Pro Val Arg Asn Leu Arg Leu Ser Val Glu Glu Ala			

3875	3880	3885	
gtg gcc gcg ggc gtg gtg ggc ggc gag atc cag gag aag ctg ctg			11709
Val Ala Ala Gly Val Val Gly Gly Glu Ile Gln Glu Lys Leu Leu			
3890	3895	3900	
tcg gcc gag cgc gcc gtc acc ggc tac acc gac ccc tac acc ggg			11754
Ser Ala Glu Arg Ala Val Thr Gly Tyr Thr Asp Pro Tyr Thr Gly			
3905	3910	3915	
cag cag atc tcc ctc ttc cag gcc atg cag aag gac ctc atc gtc			11799
Gln Gln Ile Ser Leu Phe Gln Ala Met Gln Lys Asp Leu Ile Val			
3920	3925	3930	
cgg gag cac ggc atc cgc ctg ctg gag gcc cag atc gcc acg ggc			11844
Arg Glu His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly			
3935	3940	3945	
ggc gtc atc gac ccc gtg cac agc cac cgc gtg ccc gtg gac gtg			11889
Gly Val Ile Asp Pro Val His Ser His Arg Val Pro Val Asp Val			
3950	3955	3960	
gcc tac cgg cgc ggc tac ttc gac gag gag atg aac cgt gtc ctg			11934
Ala Tyr Arg Arg Gly Tyr Phe Asp Glu Glu Met Asn Arg Val Leu			
3965	3970	3975	
gcc gac ccc agc gac gac acc aag ggc ttc ttc gac ccc aac acg			11979
Ala Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr			
3980	3985	3990	
cac gag aac ctc acg tac gtg cag ctg ctg cgc cgc tgc gtg ccc			12024
His Glu Asn Leu Thr Tyr Val Gln Leu Leu Arg Arg Cys Val Pro			
3995	4000	4005	
gac ccg gac acc ggg ctc tac atg ctg cag ctg gca ggc cgg ggc			12069
Asp Pro Asp Thr Gly Leu Tyr Met Leu Gln Leu Ala Gly Arg Gly			
4010	4015	4020	
tcc gcc gtg cac cag ctg agc gag gag ctg cgc tgt gcc ctg cgc			12114
Ser Ala Val His Gln Leu Ser Glu Glu Leu Arg Cys Ala Leu Arg			
4025	4030	4035	
gac gcc cgc gtg acg cca ggc tcg ggc gcc ctc cag ggc cag agc			12159
Asp Ala Arg Val Thr Pro Gly Ser Gly Ala Leu Gln Gly Gln Ser			
4040	4045	4050	
gtc tcc gtc tgg gag ctc ctc ttc tac cgc gag gtg tcc gag gac			12204
Val Ser Val Trp Glu Leu Leu Phe Tyr Arg Glu Val Ser Glu Asp			
4055	4060	4065	
cgg cgc cag gac ctg ctg agc aga tac cgg gcg agc acg ctg acc			12249
Arg Arg Gln Asp Leu Leu Ser Arg Tyr Arg Ala Ser Thr Leu Thr			
4070	4075	4080	
gtg gag gag ctg ggc gcc acc ctc acc tcg ctg ctg gcc cag gcc			12294
Val Glu Glu Leu Gly Ala Thr Leu Thr Ser Leu Leu Ala Gln Ala			
4085	4090	4095	
cag gcc cag gcc cgg gcc gag gcc gag gcc ggg agc ccg cgc cca			12339
Gln Ala Gln Ala Arg Ala Glu Ala Glu Ala Gly Ser Pro Arg Pro			
4100	4105	4110	
gac ccc cgg gag gcc ctg cgt gcg gcc acc atg gag gtc aag gtg			12384
Asp Pro Arg Glu Ala Leu Arg Ala Ala Thr Met Glu Val Lys Val			
4115	4120	4125	
ggc cgc ctc cgg ggg cgc gcg gtg ccc gtg tgg gac gtg ctg gcg			12429
Gly Arg Leu Arg Gly Arg Ala Val Pro Val Trp Asp Val Leu Ala			
4130	4135	4140	
tcc ggc tac gtg agc agg gcc gcc cgg gag gag ctg ctg gcc gag			12474
Ser Gly Tyr Val Ser Arg Ala Ala Arg Glu Glu Leu Leu Ala Glu			

4145			4150					4155							
ttt	ggc	tcg	ggg	acc	ctg	gac	ttg	ccc	gcg	ctg	acc	cgc	cgg	ctg	12519
Phe	Gly	Ser	Gly	Thr	Leu	Asp	Leu	Pro	Ala	Leu	Thr	Arg	Arg	Leu	
4160			4165					4170							
acc	gcc	atc	atc	gag	gag	gcc	gag	gag	gcc	ccc	ggg	gcc	cgg	ccg	12564
Thr	Ala	Ile	Ile	Glu	Glu	Ala	Glu	Glu	Ala	Pro	Gly	Ala	Arg	Pro	
4175			4180					4185							
cag	ctc	cag	gac	gcc	tgg	cgc	ggc	ccg	cgg	gag	cca	ggg	cca	gcc	12609
Gln	Leu	Gln	Asp	Ala	Trp	Arg	Gly	Pro	Arg	Glu	Pro	Gly	Pro	Ala	
4190			4195					4200							
ggg	cga	ggg	gac	ggc	gac	tcg	ggg	cgc	tcc	cag	cga	gag	ggc	cag	12654
Gly	Arg	Gly	Asp	Gly	Asp	Ser	Gly	Arg	Ser	Gln	Arg	Glu	Gly	Gln	
4205			4210					4215							
ggg	gag	ggc	gag	acc	cag	gag	gcc	gcc	gcc	gcc	acc	gcc	gcc	gcc	12699
Gly	Glu	Gly	Glu	Thr	Gln	Glu	Ala	Ala	Ala	Ala	Thr	Ala	Ala	Ala	
4220			4225					4230							
cgc	cgc	cag	gag	cag	acc	ctg	cgt	gat	gcc	acc	atg	gag	gtg	cag	12744
Arg	Arg	Gln	Glu	Gln	Thr	Leu	Arg	Asp	Ala	Thr	Met	Glu	Val	Gln	
4235			4240					4245							
cgc	ggg	cag	ttc	cag	ggg	cgg	ccg	gtc	tcc	gtg	tgg	gac	gtc	ctc	12789
Arg	Gly	Gln	Phe	Gln	Gly	Arg	Pro	Val	Ser	Val	Trp	Asp	Val	Leu	
4250			4255					4260							
ttc	tcc	tcg	tac	ctg	agc	gag	gcc	cgc	cga	gac	gag	ctc	ctg	gcc	12834
Phe	Ser	Ser	Tyr	Leu	Ser	Glu	Ala	Arg	Arg	Asp	Glu	Leu	Leu	Ala	
4265			4270					4275							
cag	cac	gcg	gcc	ggc	gcc	ctg	ggc	ctg	ccc	gac	ctc	gtc	gcc	gtc	12879
Gln	His	Ala	Ala	Gly	Ala	Leu	Gly	Leu	Pro	Asp	Leu	Val	Ala	Val	
4280			4285					4290							
ctc	acc	cgg	gtc	atc	gag	gag	acg	gag	gag	cgg	ctc	agc	aag	gtg	12924
Leu	Thr	Arg	Val	Ile	Glu	Glu	Thr	Glu	Glu	Arg	Leu	Ser	Lys	Val	
4295			4300					4305							
tcc	ttc	cgc	ggc	ctg	agg	cgc	cag	gtg	tcc	gcc	tcc	gag	ctg	cac	12969
Ser	Phe	Arg	Gly	Leu	Arg	Arg	Gln	Val	Ser	Ala	Ser	Glu	Leu	His	
4310			4315					4320							
acg	tcc	ggg	atc	ctg	ggc	ccc	gag	acc	ctg	cgg	gac	ctg	gcc	cag	13014
Thr	Ser	Gly	Ile	Leu	Gly	Pro	Glu	Thr	Leu	Arg	Asp	Leu	Ala	Gln	
4325			4330					4335							
ggc	act	aag	acg	ctg	cag	gag	gtg	acg	gag	atg	gac	tcg	gtc	aag	13059
Gly	Thr	Lys	Thr	Leu	Gln	Glu	Val	Thr	Glu	Met	Asp	Ser	Val	Lys	
4340			4345					4350							
cgc	tac	ctg	gag	ggc	acc	agc	tgc	atc	gcg	ggc	gtc	ctg	gtg	ccc	13104
Arg	Tyr	Leu	Glu	Gly	Thr	Ser	Cys	Ile	Ala	Gly	Val	Leu	Val	Pro	
4355			4360					4365							
gcc	aag	gac	cag	ccc	ggc	cgc	cag	gag	aag	atg	agc	atc	tac	cag	13149
Ala	Lys	Asp	Gln	Pro	Gly	Arg	Gln	Glu	Lys	Met	Ser	Ile	Tyr	Gln	
4370			4375					4380							
gcc	atg	tgg	aag	ggc	gtg	ctg	cgg	ccc	ggc	acg	gcc	ctg	gtg	ctg	13194
Ala	Met	Trp	Lys	Gly	Val	Leu	Arg	Pro	Gly</						

4415	4420	4425	
ggc ggc gag atc cag gag aag ctg ctg tcg gcc gag cgc gcc gtc Gly Gly Glu Ile Gln Glu Lys Leu Leu Ser Ala Glu Arg Ala Val	4430	4435	4440
13329			
acc ggc tac acc gac ccc tac acc ggg cag cag atc tcc ctc ttc Thr Gly Tyr Thr Asp Pro Tyr Thr Gly Gln Gln Ile Ser Leu Phe	4445	4450	4455
13374			
cag gcc atg cag aag gac ctc atc gtc cgg gag cac ggc atc cgc Gln Ala Met Gln Lys Asp Leu Ile Val Arg Glu His Gly Ile Arg	4460	4465	4470
13419			
ctg ctg gag gcc cag atc gcc acg ggc ggc gtc atc gac ccc gtg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly Val Ile Asp Pro Val	4475	4480	4485
13464			
cac agc cac cgc gtg ccc gtg gac gtg gcc tac cgg cgc ggc tac His Ser His Arg Val Pro Val Asp Val Ala Tyr Arg Arg Gly Tyr	4490	4495	4500
13509			
ttc gac gag gag atg aac cgt gtc ctg gcc gac ccc agc gac gac Phe Asp Glu Glu Met Asn Arg Val Leu Ala Asp Pro Ser Asp Asp	4505	4510	4515
13554			
acc aag ggc ttc ttc gac ccc aac acg cac gag aac ctc acg tac Thr Lys Gly Phe Phe Asp Pro Asn Thr His Glu Asn Leu Thr Tyr	4520	4525	4530
13599			
gtg cag ctg ctg cgc cgc tgc gtg ccc gac ccg gac acc ggg ctc Val Gln Leu Leu Arg Arg Cys Val Pro Asp Pro Asp Thr Gly Leu	4535	4540	4545
13644			
tac atg ctg cag ctg gca ggc cgg ggc tcc gcc gtg cac cag ctg Tyr Met Leu Gln Leu Ala Gly Arg Gly Ser Ala Val His Gln Leu	4550	4555	4560
13689			
agc gag gag ctg cgc tgt gcc ctg cgc gac gcc cgc gtg acg cca Ser Glu Glu Leu Arg Cys Ala Leu Arg Asp Ala Arg Val Thr Pro	4565	4570	4575
13734			
ggc tcg ggc gcc ctc cag ggc cag agc gtc tcc gtc tgg gag ctc Gly Ser Gly Ala Leu Gln Gly Gln Ser Val Ser Val Trp Glu Leu	4580	4585	4590
13779			
ctc ttc tac cgc gag gtg tcc gag gac cgg cgc cag gac ctg ctg Leu Phe Tyr Arg Glu Val Ser Glu Asp Arg Arg Gln Asp Leu Leu	4595	4600	4605
13824			
agc aga tac cgg gcg ggc acg ctg acc gtg gag gag ctg ggc gcc Ser Arg Tyr Arg Ala Gly Thr Leu Thr Val Glu Glu Leu Gly Ala	4610	4615	4620
13869			
acc ctc acc tcg ctg ctg gcc cag gcc cag gcc cag gcc cgg gcc Thr Leu Thr Ser Leu Leu Ala Gln Ala Gln Ala Gln Ala Arg Ala	4625	4630	4635
13914			
gag gcc gag gcc ggg agc ccg cgc cca gac ccc cgg gag gcc ctg Glu Ala Glu Ala Gly Ser Pro Arg Pro Asp Pro Arg Glu Ala Leu	4640	4645	4650
13959			
cgt gcg gcc acc atg gag gtc aag gtg ggc cgc ctc cgg ggg cgc Arg Ala Ala Thr Met Glu Val Lys Val Gly Arg Leu Arg Gly Arg	4655	4660	4665
14004			
gcg gtg ccc gtg tgg gac gtg ctg gcg tcc ggc tac gtg agc ggg Ala Val Pro Val Trp Asp Val Leu Ala Ser Gly Tyr Val Ser Gly	4670	4675	4680
14049			
gcc gcc cgg gag gag ctg ctg gcc gag ttt ggc tcg ggg acc ctg Ala Ala Arg Glu Glu Leu Leu Ala Glu Phe Gly Ser Gly Thr Leu			
14094			

4685	4690	4695	
gac ttg ccc gcg ctg acc cgc cgg ctg acc gcc atc atc gag gag Asp Leu Pro Ala Leu Thr Arg Arg Leu Thr Ala Ile Ile Glu Glu 4700 4705 4710			14139
gcc gag gag gcc ccc ggg gcc cgg ccg cag ctc cag gac gcc tgg Ala Glu Glu Ala Pro Gly Ala Arg Pro Gln Leu Gln Asp Ala Trp 4715 4720 4725			14184
cgc ggc ccg cgg gag cca ggg cca gcc ggg cga ggg gac ggc gac Arg Gly Pro Arg Glu Pro Gly Pro Ala Gly Arg Gly Asp Gly Asp 4730 4735 4740			14229
tcg ggg cgc tcc cag cga gag ggc cag ggg gag ggc gag acc cag Ser Gly Arg Ser Gln Arg Glu Gly Gln Gly Glu Gly Glu Thr Gln 4745 4750 4755			14274
gag gcc gcc gcc gcc gcc gcc gcc gcc cgc cgc cag gag cag acc Glu Ala Ala Ala Ala Ala Ala Ala Ala Arg Arg Gln Glu Gln Thr 4760 4765 4770			14319
ctg cgt gat gcc acc atg gag gtg cag cgc ggg cag ttc cag ggg Leu Arg Asp Ala Thr Met Glu Val Gln Arg Gly Gln Phe Gln Gly 4775 4780 4785			14364
cgg ccg gtc tcc gtg tgg gac gtc ctc ttc tcc tcg tac ctg agc Arg Pro Val Ser Val Trp Asp Val Leu Phe Ser Ser Tyr Leu Ser 4790 4795 4800			14409
gag gcc cgc cga gac gag ctc ctg gcc cag cac gcg gcc ggc gcc Glu Ala Arg Arg Asp Glu Leu Leu Ala Gln His Ala Ala Gly Ala 4805 4810 4815			14454
ctg ggc ctg ccc gac ctc gtc gcc gtc ctc acc cgg gtc atc gag Leu Gly Leu Pro Asp Leu Val Ala Val Leu Thr Arg Val Ile Glu 4820 4825 4830			14499
gag acg gag gag cgg ctc agc aag gtg tcc ttc cgc ggc ctg agg Glu Thr Glu Glu Arg Leu Ser Lys Val Ser Phe Arg Gly Leu Arg 4835 4840 4845			14544
cgc cag gtg tcc gcc tcc gag ctg cac acg tcc ggg atc ctg ggc Arg Gln Val Ser Ala Ser Glu Leu His Thr Ser Gly Ile Leu Gly 4850 4855 4860			14589
ccc gag acc ctg cgg gac ctg gcc cag ggc act aag acg ctg cag Pro Glu Thr Leu Arg Asp Leu Ala Gln Gly Thr Lys Thr Leu Gln 4865 4870 4875			14634
gag gtg acg gag atg gac tcg gtc aag cgc tac ctg gag ggc acc Glu Val Thr Glu Met Asp Ser Val Lys Arg Tyr Leu Glu Gly Thr 4880 4885 4890			14679
agc tgc atc gcg ggc gtc ctg gtg ccc gcc aag gac cag ccc ggc Ser Cys Ile Ala Gly Val Leu Val Pro Ala Lys Asp Gln Pro Gly 4895 4900 4905			14724
cgc cag gag aag atg agc atc tac cag gcc atg tgg aag ggc gtg Arg Gln Glu Lys Met Ser Ile Tyr Gln Ala Met Trp Lys Gly Val 4910 4915 4920			14769
ctg cgg ccc ggc acg gcc ctg gtg ctg ctg gag gcg cag gcg gcc Leu Arg Pro Gly Thr Ala Leu Val Leu Leu Glu Ala Gln Ala Ala 4925 4930 4935			14814
acc ggc ttc gtc atc gac ccc gtg cgc aac ctg agg ctg tcg gtg Thr Gly Phe Val Ile Asp Pro Val Arg Asn Leu Arg Leu Ser Val 4940 4945 4950			14859
gag gag gcc gtg gcc gcg ggc gtg gtg ggc ggc gag atc cag gag Glu Glu Ala Val Ala Ala Gly Val Val Gly Gly Glu Ile Gln Glu 14904			

Lys Ala Leu Gln Gln Gly Leu Val Gly Leu Glu Leu Lys Glu Lys Leu  
100 105 110

Lys Ala Leu Gln Gln Gly Leu Val Gly Leu Glu Leu Lys Glu Lys Leu  
100 105 110

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

Thr	Gly	Gly	Leu	Val	Cys	Pro	Ala	Arg	Arg	Leu	Arg	Leu	Pro	Leu	Glu	405	410	415
Ala	Ala	Leu	Arg	Cys	Gly	Cys	Leu	Asp	Glu	Asp	Thr	Gln	Arg	Gln	Leu	420	425	430
Ser	Gln	Ala	Gly	Ser	Phe	Ser	Asp	Gly	Thr	His	Gly	Gly	Leu	Arg	Tyr	435	440	445
Glu	Gln	Leu	Leu	Ala	Leu	Cys	Val	Thr	Asp	Pro	Glu	Thr	Gly	Leu	Ala	450	455	460
Phe	Leu	Pro	Leu	Ser	Gly	Gly	Pro	Arg	Gly	Gly	Glu	Pro	Gln	Gly	Pro	465	470	475
Pro	Phe	Ile	Lys	Tyr	Ser	Thr	Arg	Gln	Ala	Leu	Ser	Thr	Ala	Thr	Ala	485	490	495
Thr	Val	Ser	Val	Gly	Lys	Phe	Arg	Gly	Arg	Pro	Val	Ser	Leu	Trp	Glu	500	505	510
Leu	Leu	Phe	Ser	Glu	Ala	Ile	Ser	Ser	Glu	Gln	Arg	Ala	Met	Leu	Ala	515	520	525
Gln	Gln	Tyr	Gln	Glu	Gly	Thr	Leu	Ser	Val	Glu	Lys	Leu	Ala	Ala	Glu	530	535	540
Leu	Ser	Ala	Thr	Leu	Glu	Gln	Ala	Ala	Ala	Thr	Ala	Arg	Val	Thr	Phe	545	550	555
Ser	Gly	Leu	Arg	Asp	Thr	Val	Thr	Pro	Gly	Glu	Leu	Leu	Lys	Ala	Glu	565	570	575
Ile	Ile	Asp	Gln	Asp	Leu	Tyr	Glu	Arg	Leu	Glu	His	Gly	Gln	Ala	Thr	580	585	590
Ala	Lys	Asp	Val	Gly	Ser	Leu	Ala	Ser	Ala	Gln	Arg	Tyr	Leu	Gln	Gly	595	600	605
Thr	Gly	Cys	Ile	Ala	Gly	Leu	Leu	Leu	Pro	Gly	Ser	Gln	Glu	Arg	Leu	610	615	620
Ser	Ile	Tyr	Glu	Ala	Arg	Cys	Lys	Gly	Leu	Leu	Arg	Pro	Gly	Thr	Ala	625	630	635
Leu	Ile	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Ile	Asp	Pro	645	650	655
Lys	Ala	Asn	Lys	Gly	His	Ser	Val	Glu	Glu	Ala	Leu	Arg	Ala	Ala	Val	660	665	670
Ile	Gly	Pro	Asp	Val	Phe	Ala	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	675	680	685



Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	Gly	Gln	Gln	Ile	Ser	Leu	Phe	Gln	690	695	700
Ala	Met	Gln	Lys	Gly	Leu	Ile	Val	Arg	Glu	His	Gly	Ile	Arg	Leu	Leu	705	710	715
Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Val	Ile	Asp	Pro	Val	His	Ser	His	725	730	735
Arg	Val	Pro	Val	Asp	Val	Ala	Tyr	Arg	Arg	Gly	Tyr	Phe	Asp	Gln	Met	740	745	750
Leu	Asn	Leu	Ile	Leu	Leu	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	755	760	765
Asp	Pro	Asn	Thr	His	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Glu	Arg	770	775	780
Cys	Val	Arg	Asp	Pro	Glu	Thr	Gly	Leu	Tyr	Leu	Leu	Pro	Leu	Ser	Ser	785	790	795
Thr	Gln	Ser	Pro	Leu	Val	Asp	Ser	Ala	Thr	Gln	Gln	Ala	Phe	Gln	Asn	805	810	815
Leu	Leu	Leu	Ser	Val	Lys	Tyr	Gly	Arg	Phe	Gln	Gly	Gln	Arg	Val	Ser	820	825	830
Ala	Trp	Glu	Leu	Ile	Asn	Ser	Glu	Tyr	Phe	Ser	Glu	Gly	Arg	Arg	Arg	835	840	845
Gln	Leu	Leu	Arg	Arg	Tyr	Arg	Gln	Arg	Glu	Val	Thr	Leu	Gly	Gln	Val	850	855	860
Ala	Lys	Leu	Leu	Glu	Ala	Glu	Thr	Gln	Arg	Gln	Ala	Asp	Ile	Met	Leu	865	870	875
Pro	Ala	Leu	Arg	Ser	Arg	Val	Thr	Val	His	Gln	Leu	Leu	Glu	Ala	Gly	885	890	895
Ile	Ile	Asp	Gln	Gln	Leu	Leu	Asp	Gln	Val	Leu	Ala	Gly	Thr	Ile	Ser	900	905	910
Pro	Glu	Ala	Leu	Leu	Leu	Met	Asp	Gly	Val	Arg	Arg	Tyr	Leu	Cys	Gly	915	920	925
Leu	Gly	Ala	Val	Gly	Gly	Val	Arg	Leu	Leu	Pro	Ser	Gly	Gln	Arg	Leu	930	935	940
Ser	Leu	Tyr	Gln	Ala	Met	Arg	Gln	Lys	Leu	Leu	Gly	Pro	Arg	Val	Ala	945	950	955
Leu	Ala	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Thr	Ile	Met	Asp	Pro	965	970	975

His Ser Pro Glu Ser Leu Ser Val Asp Glu Ala Val Arg Arg Gly Val  
980 985 990

Val Gly Pro Glu Leu Tyr Gly Arg Leu Lys Arg Ala Glu Gly Ala Ile  
995 1000 1005

Ala Gly Phe Arg Asp Pro Phe Ser Gly Lys Gln Val Ser Val Phe  
1010 1015 1020

Gln Ala Met Lys Lys Gly Leu Ile Pro Trp Glu Gln Ala Ala Arg  
1025 1030 1035

Leu Leu Glu Ala Gln Val Ala Thr Gly Gly Ile Ile Asp Pro Thr  
1040 1045 1050

Ser His His His Leu Pro Met Pro Val Ala Ile Gln Arg Gly Tyr  
1055 1060 1065

Val Asp Gln Glu Met Glu Thr Ala Leu Ser Ser Ser Ser Glu Thr  
1070 1075 1080

Phe Pro Thr Pro Asp Gly Gln Gly Arg Thr Ser Tyr Ala Gln Leu  
1085 1090 1095

Leu Glu Glu Cys Pro Arg Asp Glu Thr Ser Gly Leu His Leu Leu  
1100 1105 1110

Pro Leu Pro Glu Ser Ala Pro Ala Leu Pro Thr Glu Glu Gln Val  
1115 1120 1125

Gln Arg Ser Leu Gln Ala Val Pro Gly Ala Lys Asp Gly Thr Ser  
1130 1135 1140

Leu Trp Asp Leu Leu Ser Ser Cys His Phe Thr Glu Glu Gln Arg  
1145 1150 1155

Arg Gly Leu Leu Glu Asp Val Gln Glu Gly Arg Thr Thr Val Pro  
1160 1165 1170

Gln Leu Leu Ala Ser Val Gln Arg Trp Val Gln Glu Thr Lys Leu  
1175 1180 1185

Leu Ala Gln Ala Arg Val Met Val Pro Gly Pro Arg Gly Glu Val  
1190 1195 1200

Pro Ala Val Trp Leu Leu Asp Ala Gly Ile Ile Thr Gln Glu Thr  
1205 1210 1215

Leu Glu Ala Leu Ala Gln Gly Thr Gln Ser Pro Ala Gln Val Ala  
1220 1225 1230

Glu Gln Pro Ala Val Lys Ala Cys Leu Trp Gly Thr Gly Cys Val  
1235 1240 1245

Ala Gly	Val Leu Leu Gln	Pro	Ser Gly	Ala Lys	Ala	Ser Ile	Ala
1250		1255			1260		
Gln Ala	Val Arg Asp Gly	Leu	Leu Pro Thr	Gly	Leu	Gly Gln	Arg
1265		1270			1275		
Leu Leu	Glu Ala Gln Val	Ala	Ser Gly Phe	Leu	Val	Asp Pro	Leu
1280		1285			1290		
Asn Asn	Gln Arg Leu Ser	Val	Glu Asp Ala	Val	Lys	Val Gly	Leu
1295		1300			1305		
Val Gly	Arg Glu Leu Ser	Glu	Gln Leu Gly	Gln	Ala	Glu Arg	Ala
1310		1315			1320		
Ala Ala	Gly Tyr Pro Asp	Pro	Tyr Ser Arg	Ala	Ser	Leu Ser	Leu
1325		1330			1335		
Trp Gln	Ala Met Glu Lys	Gly	Leu Val Pro	Gln	Asn	Glu Gly	Leu
1340		1345			1350		
Pro Leu	Leu Gln Val Gln	Leu	Ala Thr Gly	Gly	Val	Val Asp	Pro
1355		1360			1365		
Val His	Gly Val His Leu	Pro	Gln Ala Ala	Ala	Cys	Arg Leu	Gly
1370		1375			1380		
Leu Leu	Asp Thr Gln Thr	Ser	Gln Val Leu	Thr	Ala	Val Asp	Lys
1385		1390			1395		
Asp Asn	Lys Phe Phe Phe	Asp	Pro Ser Ala	Arg	Asp	Gln Val	Thr
1400		1405			1410		
Tyr Gln	Gln Leu Arg Glu	Arg	Cys Val Cys	Asp	Ser	Glu Thr	Gly
1415		1420			1425		
Leu Leu	Leu Leu Pro Leu	Pro	Ser Asp Thr	Val	Leu	Glu Val	Asp
1430		1435			1440		
Asp His	Thr Ala Val Ala	Leu	Arg Ala Met	Lys	Val	Pro Val	Ser
1445		1450			1455		
Thr Gly	Arg Phe Lys Gly	Cys	Ser Val Ser	Leu	Trp	Asp Leu	Leu
1460		1465			1470		
Leu Ser	Glu Tyr Val Gly	Ala	Asp Lys Arg	Arg	Glu	Leu Val	Ala
1475		1480			1485		
Leu Cys	Arg Ser Gly Arg	Ala	Ala Ala Leu	Arg	Gln	Val Val	Ser
1490		1495			1500		
Ala Val	Thr Ala Leu Val	Glu	Ala Ala Glu	Arg	Gln	Pro Leu	Gln
1505		1510			1515		

Ala Thr	Phe Arg Gly Leu	Arg	Lys Gln Val Ser	Ala	Arg Asp Leu
1520		1525		1530	
Phe Arg	Ala Gln Leu Ile	Ser	Arg Lys Thr Leu	Asp	Glu Leu Ser
1535		1540		1545	
Gln Gly	Thr Thr Thr Val	Lys	Glu Val Ala Glu	Met	Asp Ser Val
1550		1555		1560	
Lys Arg	Ser Leu Glu Gly	Gly	Asn Phe Ile Ala	Gly	Val Leu Ile
1565		1570		1575	
Gln Gly	Thr Gln Glu Arg	Met	Ser Ile Pro Glu	Ala	Leu Arg Arg
1580		1585		1590	
His Ile	Leu Arg Pro Gly	Thr	Ala Leu Val Leu	Leu	Glu Ala Gln
1595		1600		1605	
Ala Ala	Thr Gly Phe Ile	Ile	Asp Pro Ala Glu	Asn	Arg Lys Leu
1610		1615		1620	
Thr Val	Glu Glu Ala Phe	Lys	Ala Gly Met Phe	Gly	Lys Glu Thr
1625		1630		1635	
Tyr Val	Lys Leu Leu Ser	Ala	Glu Arg Ala Val	Thr	Gly Tyr Thr
1640		1645		1650	
Asp Pro	Tyr Thr Gly Gln	Gln	Ile Ser Leu Phe	Gln	Ala Met Gln
1655		1660		1665	
Lys Asp	Leu Ile Val Arg	Glu	His Gly Ile Arg	Leu	Leu Glu Ala
1670		1675		1680	
Gln Ile	Ala Thr Gly Gly	Ile	Ile Asp Pro Val	His	Ser His Arg
1685		1690		1695	
Val Pro	Val Asp Val Ala	Tyr	Arg Cys Gly Tyr	Phe	Asp Glu Glu
1700		1705		1710	
Met Asn	Arg Ile Leu Ala	Asp	Pro Ser Asp Asp	Thr	Lys Gly Phe
1715		1720		1725	
Phe Asp	Pro Asn Thr His	Glu	Asn Leu Thr Tyr	Leu	Gln Leu Leu
1730		1735		1740	
Glu Arg	Cys Val Glu Asp	Pro	Glu Thr Gly Leu	Tyr	Leu Leu Gln
1745		1750		1755	
Ile Ile	Lys Lys Gly Glu	Asn	Tyr Val Tyr Ile	Asn	Glu Ala Thr
1760		1765		1770	
Arg His	Val Leu Gln Ser	Arg	Thr Ala Lys Met	Arg	Val Gly Arg
1775		1780		1785	

Phe	Ala	Asp	Gln	Val	Val	Ser	Phe	Trp	Asp	Leu	Leu	Ser	Ser	Pro
1790						1795					1800			
Tyr	Phe	Thr	Glu	Asp	Arg	Lys	Arg	Glu	Leu	Ile	Gln	Glu	Tyr	Gly
1805						1810					1815			
Ala	Gln	Ser	Gly	Gly	Leu	Glu	Lys	Leu	Leu	Glu	Ile	Ile	Thr	Thr
1820						1825					1830			
Thr	Ile	Glu	Glu	Thr	Glu	Thr	Gln	Asn	Gln	Gly	Ile	Lys	Val	Ala
1835						1840					1845			
Ala	Ile	Arg	Gly	Glu	Val	Thr	Ala	Ala	Asp	Leu	Phe	Asn	Ser	Arg
1850						1855					1860			
Val	Ile	Asp	Gln	Lys	Thr	Leu	His	Thr	Leu	Arg	Val	Gly	Arg	Thr
1865						1870					1875			
Gly	Gly	Gln	Ala	Leu	Ser	Thr	Leu	Glu	Cys	Val	Lys	Pro	Tyr	Leu
1880						1885					1890			
Glu	Gly	Ser	Asp	Cys	Ile	Ala	Gly	Val	Thr	Val	Pro	Ser	Thr	Arg
1895						1900					1905			
Glu	Val	Met	Ser	Leu	His	Glu	Ala	Ser	Arg	Lys	Glu	Leu	Ile	Pro
1910						1915					1920			
Ala	Ala	Phe	Ala	Thr	Trp	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly
1925						1930					1935			
Phe	Leu	Leu	Asp	Pro	Cys	Thr	Arg	Gln	Lys	Leu	Ser	Val	Asp	Glu
1940						1945					1950			
Ala	Val	Asp	Val	Gly	Leu	Val	Asn	Glu	Glu	Leu	Arg	Glu	Arg	Leu
1955						1960					1965			
Leu	Lys	Ala	Glu	Arg	Ala	Ala	Thr	Gly	Tyr	Arg	Asp	Pro	Ala	Thr
1970						1975					1980			
Gly	Asp	Thr	Ile	Pro	Leu	Phe	Gln	Ala	Met	Gln	Lys	Gln	Leu	Ile
1985						1990					1995			
Glu	Lys	Ala	Glu	Ala	Leu	Arg	Leu	Leu	Glu	Val	Gln	Val	Ala	Thr
2000						2005					2010			
Gly	Gly	Val	Ile	Asp	Pro	Gln	His	His	His	Arg	Leu	Pro	Leu	Glu
2015						2020					2025			
Thr	Ala	Tyr	Arg	Arg	Gly	Cys	Leu	His	Lys	Asp	Ile	Tyr	Ala	Leu
2030						2035					2040			
Ile	Ser	Asp	Gln	Lys	His	Met	Arg	Lys	Arg	Phe	Val	Asp	Pro	Asn
2045						2050					2055			

Thr	Gln	Glu	Lys	Val	Ser	Tyr	Arg	Glu	Leu	Gln	Glu	Arg	Cys	Arg
2060						2065					2070			
Pro	Gln	Glu	Asp	Thr	Gly	Trp	Val	Leu	Phe	Pro	Val	Asn	Lys	Ala
2075						2080					2085			
Ala	Arg	Asp	Ser	Glu	His	Ile	Asp	Asp	Glu	Thr	Arg	Arg	Ala	Leu
2090						2095					2100			
Glu	Ala	Glu	Gln	Val	Glu	Ile	Thr	Val	Gly	Arg	Phe	Arg	Gly	Gln
2105						2110					2115			
Lys	Pro	Thr	Leu	Trp	Ala	Leu	Leu	Asn	Ser	Glu	Tyr	Val	Thr	Glu
2120						2125					2130			
Glu	Lys	Lys	Leu	Gln	Leu	Val	Arg	Met	Tyr	Arg	Thr	His	Thr	Arg
2135						2140					2145			
Arg	Ala	Leu	Gln	Thr	Val	Ala	Gln	Leu	Ile	Leu	Glu	Leu	Ile	Glu
2150						2155					2160			
Lys	Gln	Glu	Thr	Ser	Asn	Lys	His	Leu	Trp	Phe	Gln	Gly	Ile	Arg
2165						2170					2175			
Arg	Gln	Ile	Thr	Ala	Ser	Glu	Leu	Leu	Ser	Ser	Ala	Ile	Ile	Thr
2180						2185					2190			
Glu	Glu	Met	Leu	Gln	Asp	Leu	Glu	Thr	Gly	Arg	Ser	Thr	Thr	Gln
2195						2200					2205			
Glu	Leu	Met	Glu	Asp	Asp	Arg	Val	Lys	Arg	Tyr	Leu	Glu	Gly	Thr
2210						2215					2220			
Ser	Cys	Ile	Ala	Gly	Val	Leu	Val	Pro	Ala	Lys	Asp	Gln	Pro	Gly
2225						2230					2235			
Arg	Gln	Glu	Lys	Met	Ser	Ile	Tyr	Gln	Ala	Met	Trp	Lys	Gly	Val
2240						2245					2250			
Leu	Arg	Pro	Gly	Thr	Ala	Leu	Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala
2255						2260					2265			
Thr	Gly	Phe	Val	Ile	Asp	Pro	Val	Arg	Asn	Leu	Arg	Leu	Ser	Val
2270						2275					2280			
Glu	Glu	Pro	Val	Pro	Ala	Gly	Val	Val	Gly	Ser	Glu	Ile	Gln	Glu
2285						2290					2295			
Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro
2300						2305					2310			
Tyr	Thr	Gly	Gln	Gln	Ile	Ser	Leu	Phe	Gln	Ala	Met	Gln	Lys	Asp
2315						2320					2325			

Leu	Ile	Val	Arg	Glu	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile
2330						2335					2340			
Ala	Thr	Gly	Gly	Val	Ile	Asp	Pro	Val	His	Ser	His	Arg	Val	Pro
2345						2350					2355			
Val	Asp	Val	Ala	Tyr	Arg	Arg	Gly	Tyr	Phe	Asp	Glu	Glu	Met	Asn
2360						2365					2370			
Arg	Val	Leu	Ala	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp
2375						2380					2385			
Pro	Asn	Thr	His	Glu	Asn	Leu	Thr	Tyr	Val	Gln	Leu	Leu	Arg	Arg
2390						2395					2400			
Cys	Val	Pro	Asp	Pro	Asp	Thr	Gly	Leu	Tyr	Met	Leu	Gln	Leu	Ala
2405						2410					2415			
Gly	Arg	Gly	Ser	Ala	Val	His	Gln	Leu	Ser	Glu	Glu	Leu	Arg	Cys
2420						2425					2430			
Ala	Leu	Arg	Asp	Ala	Arg	Val	Thr	Pro	Gly	Ser	Gly	Ala	Leu	Gln
2435						2440					2445			
Gly	Gln	Ser	Val	Ser	Val	Trp	Glu	Leu	Leu	Phe	Tyr	Arg	Glu	Val
2450						2455					2460			
Ser	Glu	Asp	Arg	Arg	Gln	Asp	Leu	Leu	Ser	Arg	Tyr	Arg	Ala	Gly
2465						2470					2475			
Thr	Leu	Thr	Val	Glu	Glu	Leu	Gly	Ala	Thr	Leu	Thr	Ser	Leu	Leu
2480						2485					2490			
Ala	Gln	Ala	Gln	Ala	Gln	Ala	Arg	Ala	Glu	Ala	Glu	Ala	Gly	Ser
2495						2500					2505			
Pro	Arg	Pro	Asp	Pro	Arg	Glu	Ala	Leu	Arg	Ala	Ala	Thr	Met	Glu
2510						2515					2520			
Val	Lys	Val	Gly	Arg	Leu	Arg	Gly	Arg	Ala	Val	Pro	Val	Trp	Asp
2525						2530					2535			
Val	Leu	Ala	Ser	Gly	Tyr	Val	Ser	Arg	Ala	Ala	Arg	Glu	Glu	Leu
2540						2545					2550			
Leu	Ala	Glu	Phe	Gly	Ser	Gly	Thr	Leu	Asp	Leu	Pro	Ala	Leu	Thr
2555						2560					2565			
Arg	Arg	Leu	Thr	Ala	Ile	Ile	Glu	Glu	Ala	Glu	Glu	Ala	Pro	Gly
2570						2575					2580			
Ala	Arg	Pro	Gln	Leu	Gln	Asp	Ala	Arg	Arg	Gly	Pro	Arg	Glu	Pro
2585						2590					2595			

Gly	Pro	Ala	Gly	Arg	Gly	Asp	Gly	Asp	Ser	Gly	Arg	Ser	Gln	Arg
2600						2605					2610			
Glu	Gly	Gln	Gly	Glu	Gly	Glu	Thr	Gln	Glu	Ala	Ala	Ala	Ala	Ala
2615						2620					2625			
Ala	Ala	Ala	Arg	Arg	Gln	Glu	Gln	Thr	Leu	Arg	Asp	Ala	Thr	Met
2630						2635					2640			
Glu	Val	Gln	Arg	Gly	Gln	Phe	Gln	Gly	Arg	Pro	Val	Ser	Val	Trp
2645						2650					2655			
Asp	Val	Leu	Phe	Ser	Ser	Tyr	Leu	Ser	Glu	Ala	Arg	Arg	Asp	Glu
2660						2665					2670			
Leu	Leu	Ala	Gln	His	Ala	Ala	Gly	Ala	Leu	Gly	Leu	Pro	Asp	Leu
2675						2680					2685			
Val	Ala	Val	Leu	Thr	Arg	Val	Ile	Glu	Glu	Thr	Glu	Glu	Arg	Leu
2690						2695					2700			
Ser	Lys	Val	Ser	Phe	Arg	Gly	Leu	Arg	Arg	Gln	Val	Ser	Ala	Ser
2705						2710					2715			
Glu	Leu	His	Thr	Ser	Gly	Ile	Leu	Gly	Pro	Glu	Thr	Leu	Arg	Asp
2720						2725					2730			
Leu	Ala	Gln	Gly	Thr	Lys	Thr	Leu	Gln	Glu	Val	Thr	Glu	Met	Asp
2735						2740					2745			
Ser	Val	Lys	Arg	Tyr	Leu	Glu	Gly	Thr	Ser	Cys	Ile	Ala	Gly	Val
2750						2755					2760			
Leu	Val	Pro	Ala	Lys	Asp	Gln	Pro	Gly	Arg	Gln	Glu	Lys	Met	Ser
2765						2770					2775			
Ile	Tyr	Gln	Ala	Met	Trp	Lys	Gly	Val	Leu	Arg	Pro	Gly	Thr	Ala
2780						2785					2790			
Leu	Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Val	Ile	Asp
2795						2800					2805			
Pro	Val	Arg	Asn	Leu	Arg	Leu	Ser	Val	Glu	Glu	Ala	Val	Ala	Ala
2810						2815					2820			
Gly	Val	Val	Gly	Gly	Glu	Ile	Gln	Glu	Lys	Leu	Leu	Ser	Ala	Glu
2825						2830					2835			
Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	Gly	Gln	Gln	Ile
2840						2845					2850			
Ser	Leu	Phe	Gln	Ala	Met	Gln	Lys	Asp	Leu	Ile	Val	Arg	Glu	His
2855						2860					2865			



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ctt gag gcc cag gca gcc act ggg ggc ctc gtg gac ctt gcc cag ggc	1424
Leu Glu Ala Gln Ala Ala Thr Gly Gly Leu Val Asp Leu Ala Gln Gly	
85 90 95	
cag ctt ctt cct gtg tct gag gcc cta agg cgg ggt cta gtg gga ttg	1472
Gln Leu Leu Pro Val Ser Glu Ala Leu Arg Arg Gly Leu Val Gly Leu	
100 105 110	
gag ctt aag gag aaa tta ctg gct gct gaa cgt gca gtt act ggc tat	1520
Glu Leu Lys Glu Lys Leu Leu Ala Ala Glu Arg Ala Val Thr Gly Tyr	
115 120 125	
ccc gac ccc tat ggg ggt gaa aag ctg tcc ctc ttc cag gcc atc aag	1568
Pro Asp Pro Tyr Gly Gly Glu Lys Leu Ser Leu Phe Gln Ala Ile Lys	
130 135 140 145	
aaa gaa gtt gta gac agg acc ctg ggg tgg aga ttg cta gag gcc cag	1616
Lys Glu Val Val Asp Arg Thr Leu Gly Trp Arg Leu Leu Glu Ala Gln	
150 155 160	
cta gct act ggg ggc ctg gtg gac cca acc cag ggt gtg caa gta gcc	1664
Leu Ala Thr Gly Gly Leu Val Asp Pro Thr Gln Gly Val Gln Val Ala	
165 170 175	
cca gag cta gcc tgc cag cag ggc ctt ttg gat aag gag aca tgg ctc	1712
Pro Glu Leu Ala Cys Gln Gln Gly Leu Leu Asp Lys Glu Thr Trp Leu	
180 185 190	
agc ctg gtg gag tca gag ccc agt atg ggt acc cct ggt ttt tct gac	1760
Ser Leu Val Glu Ser Glu Pro Ser Met Gly Thr Pro Gly Phe Ser Asp	
195 200 205	
ccc aac acg ctg gag cag ctg cca tac tct gtg ctg ttg ggt agg tgt	1808
Pro Asn Thr Leu Glu Gln Leu Pro Tyr Ser Val Leu Leu Gly Arg Cys	
210 215 220 225	
gtg caa gac ccc agc tca ggg ctg ccc cta ttg ccc tta aag acc act	1856
Val Gln Asp Pro Ser Ser Gly Leu Pro Leu Leu Pro Leu Lys Thr Thr	
230 235 240	
ttc cac acc ctg gct gga gca gcc agt gcg tca atg ctg ctg gag gcg	1904
Phe His Thr Leu Ala Gly Ala Ala Ser Ala Ser Met Leu Leu Glu Ala	
245 250 255	
gga gta cta aat gaa gag atg gtc cga gac ctg cag gag ggc atg ctg	1952
Gly Val Leu Asn Glu Glu Met Val Arg Asp Leu Gln Glu Gly Met Leu	
260 265 270	
gtg gtg tca gac gtg ggc aca cgt ccc gag gtg cga cgt tat ctg gaa	2000
Val Val Ser Asp Val Gly Thr Arg Pro Glu Val Arg Arg Tyr Leu Glu	
275 280 285	

ggc act gga ggg tta gcg ggg gtt gtc ctg ttg cct gga ggt cac aag Gly Thr Gly Gly Leu Ala Gly Val Val Leu Leu Pro Gly Gly His Lys 290 295 300 305	2048
aag agc ttt ttc cag gct aca gtt gaa cac ttg gtc tca aag ggt att Lys Ser Phe Phe Gln Ala Thr Val Glu His Leu Val Ser Lys Gly Ile 310 315 320	2096
gca cta caa ctc tta gag gct cag gct gcc acc cgc acc ctt gtg cac Ala Leu Gln Leu Leu Glu Ala Gln Ala Ala Thr Arg Thr Leu Val His 325 330 335	2144
cca acc aca ggc cag cgt ctt tgg gtg gaa gag gca gtc aag gct ggc Pro Thr Thr Gly Gln Arg Leu Trp Val Glu Glu Ala Val Lys Ala Gly 340 345 350	2192
ctg gtt ggc cca gaa ctt cat gag cag ctc ctg gtt gca gaa cag gca Leu Val Gly Pro Glu Leu His Glu Gln Leu Leu Val Ala Glu Gln Ala 355 360 365	2240
gta act ggg tat tat gac ccc ttt agc agc tcc cga atc ccc gtt ttc Val Thr Gly Tyr Tyr Asp Pro Phe Ser Ser Ser Arg Ile Pro Val Phe 370 375 380 385	2288
cag gct atg aag aag gga ctt gtg gac cag cca ctg gct ctg cgt ctc Gln Ala Met Lys Lys Gly Leu Val Asp Gln Pro Leu Ala Leu Arg Leu 390 395 400	2336
cta gat gcc cag cta gct aca ggt ggg ctt ata tgc cca gct cgc aga Leu Asp Ala Gln Leu Ala Thr Gly Gly Leu Ile Cys Pro Ala Arg Arg 405 410 415	2384
ttc cgg ctg ccc ctg gag gct gcc ctg cgc ttt ggc tgt ctg gac gaa Phe Arg Leu Pro Leu Glu Ala Ala Leu Arg Phe Gly Cys Leu Asp Glu 420 425 430	2432
gag act cgg caa cgt ctc tct cag gca atg ggc ttt tca gat cct acc Glu Thr Arg Gln Arg Leu Ser Gln Ala Met Gly Phe Ser Asp Pro Thr 435 440 445	2480
aca cac gat cgt ctt ggc tat gaa cag ctg ctg gcc ctc tct gtt act Thr His Asp Arg Leu Gly Tyr Glu Gln Leu Leu Ala Leu Ser Val Thr 450 455 460 465	2528
gac cca gag aca ggg ctt gcc ttc ctg cct ctc cct gga atg tcc cac Asp Pro Glu Thr Gly Leu Ala Phe Leu Pro Leu Pro Gly Met Ser His 470 475 480	2576
gca aat gag ccc cag gga ccc aca ttt att gat cac tgt act cga cag Ala Asn Glu Pro Gln Gly Pro Thr Phe Ile Asp His Cys Thr Arg Gln 485 490 495	2624
gcc ttg agc aag gct aca acc tcc atc tct gta ggg agg tac cag ggc Ala Leu Ser Lys Ala Thr Thr Ser Ile Ser Val Gly Arg Tyr Gln Gly 500 505 510	2672
agg cct gtc tcc ctc tgg gaa ctg ctc ttt tct gag tca gtg ccc gtt Arg Pro Val Ser Leu Trp Glu Leu Leu Phe Ser Glu Ser Val Pro Val 515 520 525	2720
aag aag agg gca atg ctt gcc cag cgg cac cag gaa ggg gct ctg tcc Lys Lys Arg Ala Met Leu Ala Gln Arg His Gln Glu Gly Ala Leu Ser 530 535 540 545	2768
gtg gag gag ctg gca gct gag ctg aag aac att gtt gag cag gct gcc Val Glu Glu Leu Ala Ala Glu Leu Lys Asn Ile Val Glu Gln Ala Ala 550 555 560	2816
gca act gcc aaa gtc acc ttt gct ggg ttg agg gac acc gtg aca cca Ala Thr Ala Lys Val Thr Phe Ala Gly Leu Arg Asp Thr Val Thr Pro 565 570 575	2864

gga gag ttg ttg aaa gct gag ata atc aat cag gac ctg ttt gag cag	2912
Gly Glu Leu Leu Lys Ala Glu Ile Ile Asn Gln Asp Leu Phe Glu Gln	
580 585 590	
ttg gaa cgt gga cag acc tca gcc caa gat gtg ggc agc ctg gac tcc	2960
Leu Glu Arg Gly Gln Thr Ser Ala Gln Asp Val Gly Ser Leu Asp Ser	
595 600 605	
gtg cag agg tac ctg cag ggc aca ggc agt att gca ggc ctt ttg ctt	3008
Val Gln Arg Tyr Leu Gln Gly Thr Gly Ser Ile Ala Gly Leu Leu Leu	
610 615 620 625	
cct gac tcc cag gaa cga ctc agt atc tat gag gcc cgt agc aag ggg	3056
Pro Asp Ser Gln Glu Arg Leu Ser Ile Tyr Glu Ala Arg Ser Lys Gly	
630 635 640	
ctc ctc agg cct ggt act gcc ctg atc ttg ctt gag gcc cag gct gcc	3104
Leu Leu Arg Pro Gly Thr Ala Leu Ile Leu Leu Glu Ala Gln Ala Ala	
645 650 655	
aca ggc ttt atc att gac cca aaa gag aac aag aga tac tct gtg gag	3152
Thr Gly Phe Ile Ile Asp Pro Lys Glu Asn Lys Arg Tyr Ser Val Glu	
660 665 670	
gag gca ctg agg gct ggt gtc att ggg ccc gat gta tat gcc aag ttg	3200
Glu Ala Leu Arg Ala Gly Val Ile Gly Pro Asp Val Tyr Ala Lys Leu	
675 680 685	
ctc tct gca gaa cat gcc gtg act ggc tac acg gac ccc tac tct ggg	3248
Leu Ser Ala Glu His Ala Val Thr Gly Tyr Thr Asp Pro Tyr Ser Gly	
690 695 700 705	
gag cag atc tcc ctc ttc cag gcc atg cag agg gac ctc att gtg aga	3296
Glu Gln Ile Ser Leu Phe Gln Ala Met Gln Arg Asp Leu Ile Val Arg	
710 715 720	
gac cac ggc att cgc ctg ctg gag gcc cag atc gcc aca ggt ggt gtc	3344
Asp His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly Val	
725 730 735	
att gac ccc gtg cac agc cac cgt gtg ccc gtg gac gtg gcc tac caa	3392
Ile Asp Pro Val His Ser His Arg Val Pro Val Asp Val Ala Tyr Gln	
740 745 750	
cgt ggc tac ttt gat cag att ctg aac tct atc ctg ctg gac cct tct	3440
Arg Gly Tyr Phe Asp Gln Ile Leu Asn Ser Ile Leu Leu Asp Pro Ser	
755 760 765	
gat gac acc aag ggc ttc ttt gac ccc aac acg cat gaa aat ctc act	3488
Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr His Glu Asn Leu Thr	
770 775 780 785	
tac ctg cag ctc ctg gag cgc tgt gta cat gac tcc gag aca ggc ctg	3536
Tyr Leu Gln Leu Leu Glu Arg Cys Val His Asp Ser Glu Thr Gly Leu	
790 795 800	
cac ctc ctg ccc ctc agt agt aca cga ccc cag ctg gtg gat agc tcc	3584
His Leu Leu Pro Leu Ser Ser Thr Arg Pro Gln Leu Val Asp Ser Ser	
805 810 815	
act cgg cag gcc ttc cag aag cta ctg ctc tcc gtg aaa tat gga cgg	3632
Thr Arg Gln Ala Phe Gln Lys Leu Leu Leu Ser Val Lys Tyr Gly Arg	
820 825 830	
ttc cgg ggg cag aga gtt tct gcg tgg gag ctg gtt aac tct gaa tat	3680
Phe Arg Gly Gln Arg Val Ser Ala Trp Glu Leu Val Asn Ser Glu Tyr	
835 840 845	
ttc aca gag gac cgg agg agg cag ctc ctg caa cgt tat cgg cag cgc	3728
Phe Thr Glu Asp Arg Arg Arg Gln Leu Leu Gln Arg Tyr Arg Gln Arg	
850 855 860 865	

aag atc aca ctg gag cag gtc act cag ctg ctg gag aaa gag atg agg Lys Ile Thr Leu Glu Gln Val Thr Gln Leu Leu Glu Lys Glu Met Arg 870 875 880	3776
agg tgg aca gac atc aca ctg cct gcc cta cag ggc cag gtc act gcc Arg Trp Thr Asp Ile Thr Leu Pro Ala Leu Gln Gly Gln Val Thr Ala 885 890 895	3824
tac cag ctt cta gag gcc cac atc atc aac cag gag ctc ctg gac cag Tyr Gln Leu Leu Glu Ala His Ile Ile Asn Gln Glu Leu Leu Asp Gln 900 905 910	3872
gtg ctg aca ggg acg atc agc cca gat gcc ctc ctt cag gtg ggt gat Val Leu Thr Gly Thr Ile Ser Pro Asp Ala Leu Leu Gln Val Gly Asp 915 920 925	3920
gtt cac agg tac ctt cgg ggc tca ggc act gtg ggt ggt gtg ctg cta Val His Arg Tyr Leu Arg Gly Ser Gly Thr Val Gly Gly Val Leu Leu 930 935 940 945	3968
aag ccc tcc aac cag cga atc agt ctc tac cag gcc atg aag cag aag Lys Pro Ser Asn Gln Arg Ile Ser Leu Tyr Gln Ala Met Lys Gln Lys 950 955 960	4016
ctg ctg cca cct agt aca gct ttg gcc ttg ctg gag gcc cag gca gcc Leu Leu Pro Pro Ser Thr Ala Leu Ala Leu Leu Glu Ala Gln Ala Ala 965 970 975	4064
act gga act atc act gac ccc tgc agt atg gag acc ctg tca gta gat Thr Gly Thr Ile Thr Asp Pro Cys Ser Met Glu Thr Leu Ser Val Asp 980 985 990	4112
gag gcc gtg tgc cgg gga gtt gtg gga gca gaa gta tat ggc aag ttg Glu Ala Val Cys Arg Gly Val Val Gly Ala Glu Val Tyr Gly Lys Leu 995 1000 1005	4160
aag cga gca gaa cat tct atc act ggc tac aga gac ccc ttt tct Lys Arg Ala Glu His Ser Ile Thr Gly Tyr Arg Asp Pro Phe Ser 1010 1015 1020	4205
gga aaa aag gtg tcc ctg ttc agg gcc atg aag aag ggc ctc gtc Gly Lys Lys Val Ser Leu Phe Arg Ala Met Lys Lys Gly Leu Val 1025 1030 1035	4250
ccc gtg gag cag gcg acc cgc cta cta gag gca cag gtg tcc aca Pro Val Glu Gln Ala Thr Arg Leu Leu Glu Ala Gln Val Ser Thr 1040 1045 1050	4295
gga ggg gtc gtt gat ccc aca acc cac ctc cac ctc ccc atg cct Gly Gly Val Val Asp Pro Thr Thr His Leu His Leu Pro Met Pro 1055 1060 1065	4340
gtg gca gtc cag cgt ggc tgc att gat cga gag atg gag gcg gcc Val Ala Val Gln Arg Gly Cys Ile Asp Arg Glu Met Glu Ala Ala 1070 1075 1080	4385
ttg tcc aga tct cct gag acc ttt ccc aca ccc gat ggc cgg ggg Leu Ser Arg Ser Pro Glu Thr Phe Pro Thr Pro Asp Gly Arg Gly 1085 1090 1095	4430
cac acc agc tat gcc cag ctt ctg gaa cac tgt ctc cag gac aaa His Thr Ser Tyr Ala Gln Leu Leu Glu His Cys Leu Gln Asp Lys 1100 1105 1110	4475
gcc tct ggg ctt cac ctc ctg ccc ctg aca gaa gat gcc ccc aac Ala Ser Gly Leu His Leu Leu Pro Leu Thr Glu Asp Ala Pro Asn 1115 1120 1125	4520
gtc ccc act gac aca cag atc cag gag acc ctg caa gca tca gct Val Pro Thr Asp Thr Gln Ile Gln Glu Thr Leu Gln Ala Ser Ala 1130 1135 1140	4565

ggc Gly 1145	act Thr	gaa Glu	gac Asp	ggt Gly	ttg Leu 1150	tcg Ser	ctc Leu	tgg Trp	gac Asp 1155	ttg Leu 1155	ctc Leu	acc Thr	tct Ser	tgc Cys	4610
cac His 1160	ttt Phe	acc Thr	gag Glu	gaa Glu	cag Gln 1165	cgc Arg	cgc Arg	ggc Gly	tac Tyr	ctc Leu 1170	gag Glu	gat Asp	gtg Val	aag Lys	4655
gtt Val 1175	ggg Gly	aag Lys	att Ile	tct Ser	gtg Val 1180	cca Pro	cag Gln	cta Leu	cag Gln	aac Asn 1185	act Thr	gtg Val	cgc Arg	agc Ser	4700
tgg Trp 1190	gtg Val	cac His	tca Ser	gcg Ala	aaa Lys 1195	ctc Leu	ctg Leu	gcc Ala	cgg Arg	gcc Ala 1200	cgc Arg	atc Ile	act Thr	gtg Val	4745
cca Pro 1205	ggc Gly	cca Pro	cgg Arg	ggc Gly	gag Glu 1210	gtc Val	cct Pro	gcc Ala	act Thr	tgg Trp 1215	cta Leu	cga Arg	gat Asp	gct Ala	4790
ggt Gly 1220	att Ile	atc Ile	acc Thr	caa Gln	gag Glu 1225	acg Thr	ctg Leu	gaa Glu	gca Ala	ctg Leu 1230	gca Ala	cag Gln	ggc Gly	atg Met	4835
cag Gln 1235	tct Ser	ccc Pro	gat Asp	gag Glu	gta Val 1240	gcc Ala	aaa Lys	cag Gln	cct Pro	acg Thr 1245	gtg Val	aag Lys	gtc Val	tgc Cys	4880
ctc Leu 1250	tgg Trp	ggt Gly	acg Thr	ggc Gly	tgt Cys 1255	gtg Val	gcc Ala	ggg Gly	gtg Val	ctg Leu 1260	ctc Leu	cag Gln	ccc Pro	tcg Ser	4925
ggg Gly 1265	acc Thr	aag Lys	ttg Leu	agc Ser	att Ile 1270	gcc Ala	cag Gln	gct Ala	gta Val	aga Arg 1275	gat Asp	ggc Gly	ctc Leu	ctg Leu	4970
ccc Pro 1280	aca Thr	ggt Gly	ctg Leu	ggc Gly	cag Gln 1285	cag Gln	ctg Leu	ctg Leu	gag Glu	gcc Ala 1290	cag Gln	gtg Val	gca Ala	tct Ser	5015
ggc Gly 1295	ttc Phe	ctc Leu	gtc Val	aat Asn	ccg Pro 1300	cta Leu	acc Thr	aac Asn	cag Gln	aga Arg 1305	ttg Leu	tca Ser	gtg Val	gag Glu	5060
ggt Gly 1310	gca Ala	gtg Val	aag Lys	gct Ala	ggc Gly 1315	ctg Leu	gtg Val	ggc Gly	atg Met	gag Glu 1320	cag Gln	agt Ser	gaa Glu	cat His	5105
ctg Leu 1325	agg Arg	cag Gln	gtt Val	gaa Glu	aag Lys 1330	gct Ala	gtg Val	aca Thr	ggg Gly	tac Tyr 1335	tca Ser	gac Asp	ccc Pro	ttt Phe	5150
tca Ser 1340	gga Gly	ggt Gly	tcc Ser	ctt Leu	tct Ser 1345	ctg Leu	tgg Trp	cag Gln	gcc Ala	atg Met 1350	gag Glu	aag Lys	ggg Gly	ctt Leu	5195
gta Val 1355	acc Thr	caa Gln	agt Ser	gag Glu	gcc Ala 1360	ttt Phe	cct Pro	ctc Leu	ctg Leu	caa Gln 1365	gtc Val	cag Gln	ctg Leu	gcc Ala	5240
aca Thr 1370	ggg Gly	ggt Gly	gtt Val	gtg Val	gac Asp 1375	ccc Pro	gtc Val	cat His	gga Gly	gtg Val 1380	cac His	ctg Leu	ccc Pro	cag Gln	5285
gaa Glu 1385	gtg Val	gcc Ala	tac Tyr	aag Lys	ctt Leu 1390	ggt Gly	ctc Leu	ctg Leu	gac Asp	gag Glu 1395	cag Gln	aca Thr	agc Ser	cga Arg	5330
gtg Val 1400	ctg Leu	acc Thr	gcc Ala	act Thr	ggg Gly 1405	aag Lys	gaa Glu	aac Asn	aaa Lys	ctc Leu 1410	ttt Phe	ttt Phe	gac Asp	ccc Pro	5375

aac Asn 1415	tcc Ser	cgt Arg	gag Glu	aag Lys	gtg Val 1420	aca Thr	tac Tyr	cag Gln	cag Gln	ctc Leu 1425	agg Arg	gaa Glu	ctc Leu	tgt Cys	5420
gtg Val 1430	ctg Leu	gat Asp	gcc Ala	gac Asp	act Thr 1435	ggc Gly	ttg Leu	tgg Trp	ctg Leu	ctg Leu 1440	ccc Pro	ctg Leu	ccc Pro	cag Gln	5465
ggc Gly 1445	act Thr	gtg Val	ctt Leu	gaa Glu	gtg Val 1450	gat Asp	gac Asp	cat His	act Thr	gcg Ala 1455	gtg Val	gca Ala	ctg Leu	agg Arg	5510
gct Ala 1460	atg Met	aag Lys	gtg Val	ccc Pro	atc Ile 1465	aac Asn	atg Met	ggg Gly	agg Arg	ttc Phe 1470	caa Gln	ggg Gly	cac His	agt Ser	5555
gtg Val 1475	tca Ser	ctc Leu	tgg Trp	gac Asp	ctg Leu 1480	cta Leu	cac His	tct Ser	gag Glu	tat Tyr 1485	gtt Val	ggg Gly	gct Ala	gag Glu	5600
aag Lys 1490	cgg Arg	agg Arg	gag Glu	ctg Leu	gtg Val 1495	gca Ala	ctt Leu	tgt Cys	tgt Cys	tcc Ser 1500	ggg Gly	agg Arg	gct Ala	gcc Ala	5645
gct Ala 1505	ctg Leu	cga Arg	cag Gln	gtc Val	atc Ile 1510	ggc Gly	atg Met	ctc Leu	acc Thr	acc Thr 1515	ctg Leu	gtg Val	gaa Glu	gct Ala	5690
gca Ala 1520	gag Glu	aag Lys	cag Gln	ccc Pro	tgc Ser 1525	cag Gln	gcc Ala	acc Thr	ttc Phe	aaa Lys 1530	ggg Gly	ctc Leu	cgg Arg	aag Lys	5735
cag Gln 1535	gtt Val	tca Ser	gct Ala	ggg Gly	gac Asp 1540	ttg Leu	ttt Phe	agg Arg	tcc Ser	cag Gln 1545	ctg Leu	atc Ile	acc Thr	aag Lys	5780
cag Gln 1550	aca Thr	ctg Leu	gat Asp	gag Glu	ctc Leu 1555	aat Asn	cag Gln	ggg Gly	aag Lys	agg Arg 1560	acg Thr	gtc Val	cag Gln	gaa Glu	5825
gtg Val 1565	aca Thr	gag Glu	atg Met	gat Asp	agt Ser 1570	gtg Val	agg Arg	agg Arg	tcc Ser	ctg Leu 1575	gaa Glu	gga Gly	ggc Gly	aac Asn	5870
ttc Phe 1580	att Ile	gct Ala	ggg Gly	gtc Val	ctt Leu 1585	att Ile	cag Gln	gat Asp	aca Thr	aaa Lys 1590	gag Glu	aag Lys	atg Met	agt Ser	5915
atc Ile 1595	cca Pro	gag Glu	gcc Ala	ttg Leu	aga Arg 1600	agg Arg	cac His	att Ile	ctg Leu	agg Arg 1605	cca Pro	ggc Gly	aca Thr	gcc Ala	5960
ctg Leu 1610	gtg Val	ctg Leu	ctg Leu	gag Glu	gca Ala 1615	cag Gln	gca Ala	gcc Ala	act Thr	ggc Gly 1620	ttc Phe	atc Ile	att Ile	gac Asp	6005
ccc Pro 1625	gtg Val	gaa Glu	aac Asn	cgg Arg	aag Lys 1630	cta Leu	act Thr	gta Val	gag Glu	caa Gln 1635	gcg Ala	ttc Phe	cag Gln	gca Ala	6050
ggg Gly 1640	atg Met	ttt Phe	ggg Gly	aag Lys	gaa Glu 1645	acc Thr	tac Tyr	atg Met	aag Lys	ctg Leu 1650	tta Leu	tca Ser	gcc Ala	gag Glu	6095
cgg Arg 1655	gct Ala	gtc Val	acc Thr	ggc Gly	tat Tyr 1660	aca Thr	gac Asp	cct Pro	tac Tyr	acg Thr 1665	gga Gly	gaa Glu	cag Gln	atc Ile	6140
tcc Ser 1670	ctc Leu	ttt Phe	cag Gln	gcc Ala	atg Met 1675	cag Gln	agg Arg	gac Asp	ctt Leu	att Ile 1680	gtc Val	agg Arg	gac Asp	cat His	6185

ggc Gly 1685	atc Ile	cgt Arg	cta Leu	ctg Leu	gag Glu 1690	gcc Ala	cag Gln	atc Ile	gcc Ala	aca Thr 1695	ggt Gly	ggt Gly	atc Ile	att Ile	6230
gac Asp 1700	cct Pro	gtg Val	cac His	agc Ser	cac His 1705	cgt Arg	gtg Val	cct Pro	gtg Val	gac Asp 1710	gtg Val	gcc Ala	tac Tyr	caa Gln	6275
cgt Arg 1715	ggc Gly	tac Tyr	ttc Phe	aat Asn	gag Glu 1720	gag Glu	atg Met	aac Asn	cgc Arg	atc Ile 1725	ttg Leu	tct Ser	gac Asp	cca Pro	6320
agc Ser 1730	gat Asp	gac Asp	acc Thr	aag Lys	ggc Gly 1735	ttc Phe	ttt Phe	gac Asp	ccc Pro	aac Asn 1740	acc Thr	cat His	gag Glu	aac Asn	6365
ctc Leu 1745	act Thr	tac Tyr	ctg Leu	cag Gln	ctg Leu 1750	cta Leu	gag Glu	cgc Arg	tgt Cys	gtg Val 1755	gag Glu	gac Asp	cct Pro	gag Glu	6410
act Thr 1760	ggc Gly	ctg Leu	tat Tyr	atg Met	ttg Leu 1765	gaa Glu	att Ile	gta Val	aag Lys	aaa Lys 1770	gga Gly	gaa Glu	acc Thr	tac Tyr	6455
aca Thr 1775	tac Tyr	att Ile	gat Asp	gaa Glu	gcc Ala 1780	aca Thr	agg Arg	caa Gln	gct Ala	ctg Leu 1785	aca Thr	tcc Ser	aga Arg	act Thr	6500
gtg Val 1790	aaa Lys	atg Met	tat Tyr	gta Val	ggg Gly 1795	aag Lys	ttt Phe	gca Ala	ggc Gly	cag Gln 1800	acg Thr	gtg Val	tct Ser	gtg Val	6545
tgg Trp 1805	gac Asp	ctg Leu	tta Leu	tct Ser	tcc Ser 1810	cag Gln	tat Tyr	ttt Phe	acc Thr	gaa Glu 1815	gga Gly	agg Arg	agg Arg	aga Arg	6590
aag Lys 1820	ctt Leu	ttg Leu	cgg Arg	gag Glu	tac Tyr 1825	aga Arg	gcc Ala	cag Gln	aac Asn	ata Ile 1830	ggc Gly	ctg Leu	gag Glu	aat Asn	6635
ctg Leu 1835	ctg Leu	gag Glu	gtg Val	att Ile	acc Thr 1840	tcg Ser	acc Thr	gtg Val	gaa Glu	gaa Glu 1845	aca Thr	gag Glu	aag Lys	caa Gln	6680
agt Ser 1850	caa Gln	ata Ile	ttc Phe	aag Lys	gtg Val 1855	ccg Pro	ggt Gly	atc Ile	cat His	ggc Gly 1860	gac Asp	gtg Val	aca Thr	gct Ala	6725
gca Ala 1865	gaa Glu	ctg Leu	ttc Phe	aac Asn	tcc Ser 1870	ggg Gly	atc Ile	ctt Leu	aac Asn	aag Lys 1875	aag Lys	acc Thr	ctg Leu	gat Asp	6770
gca Ala 1880	ctc Leu	cgc Arg	agt Ser	ggg Gly	gat Asp 1885	aga Arg	ggg Gly	ttc Phe	cag Gln	gac Asp 1890	ctc Leu	cgc Arg	tgg Trp	ctg Leu	6815
gag Glu 1895	gat Asp	gta Val	cgt Arg	gtc Val	tac Tyr 1900	ctg Leu	gag Glu	ggc Gly	agc Ser	aat Asn 1905	tac Tyr	atc Ile	gct Ala	gga Gly	6860
gtg Val 1910	ata Ile	gca Ala	ccc Pro	cta Leu	acc Thr 1915	cag Gln	aag Lys	gtc Val	atg Met	agc Ser 1920	ttc Phe	tac Tyr	gag Glu	gcc Ala	6905
agc Ser 1925	agg Arg	gaa Glu	gag Glu	ctc Leu	atc Ile 1930	ccc Pro	gca Ala	ggg Gly	ttt Phe	gca Ala 1935	gct Ala	cag Gln	atg Met	ctg Leu	6950
gag Glu 1940	gca Ala	cag Gln	gct Ala	gcc Ala	act Thr 1945	ggg Gly	tac Tyr	cta Leu	atg Met	gac Asp 1950	cct Pro	tgc Cys	acc Thr	aac Asn	6995



cag Gln 1955	agg Arg	ctg Leu	tgt Cys	gtg Val	gat Asp 1960	gag Glu	gcc Ala	ata Ile	gca Ala	gct Ala 1965	ggg Gly	ctg Leu	gtg Val	ggt Gly	7040
gaa Glu 1970	gac Asp	ctg Leu	aga Arg	gag Glu	aga Arg 1975	ctt Leu	gtg Val	aat Asn	gca Ala	gag Glu 1980	atg Met	gca Ala	gca Ala	aag Lys	7085
ggc Gly 1985	tac Tyr	aaa Lys	gac Asp	cca Pro	gcc Ala 1990	aca Thr	ggg Gly	gag Glu	act Thr	atc Ile 1995	cca Pro	ctc Leu	tac Tyr	cag Gln	7130
gcc Ala 2000	atg Met	gag Glu	agg Arg	aag Lys	tta Leu 2005	gtc Val	gga Gly	agg Arg	gag Glu	gag Glu 2010	gca Ala	ctg Leu	agg Arg	ttg Leu	7175
ctg Leu 2015	gag Glu	gtg Val	cag Gln	gtg Val	gcc Ala 2020	acg Thr	ggg Gly	gtc Gly	att Val	ile Ile 2025	gac Asp	cct Pro	cgg Arg	cac His	7220
cac His 2030	cat His	cgg Arg	gtc Val	cct Pro	ctg Leu 2035	gat Asp	aca Thr	gcc Ala	tgc Cys	cag Gln 2040	cgg Arg	ggc Gly	tgt Cys	atg Met	7265
tgt Cys 2045	gac Asp	gac Asp	agc Ser	ctt Leu	gtt Val 2050	ctc Leu	att Ile	gct Ala	gac Asp	caa Gln 2055	aag Lys	cac His	atg Met	agg Arg	7310
aaa Lys 2060	agg Arg	ttt Phe	gtg Val	gat Asp	ccc Pro 2065	aac Asn	aca Thr	caa Gln	gaa Glu	aag Lys 2070	gtc Val	aca Thr	tac Tyr	cag Gln	7355
gag Glu 2075	ctg Leu	cag Gln	gac Asp	cgg Arg	tgc Cys 2080	cag Gln	cgg Arg	gaa Glu	gag Glu	aag Lys 2085	tca Ser	ggc Gly	tgg Trp	gct Ala	7400
ctg Leu 2090	ttc Phe	cca Pro	gtg Val	gtc Val	aag Lys 2095	gac Asp	aaa Lys	aag Lys	gac Asp	ata Ile 2100	gaa Glu	tat Tyr	gtt Val	gat Asp	7445
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ctc Leu 2180	tgg Trp	ttc Phe	cga Arg	gga Gly	tta Leu 2185	aga Arg	act Thr	cag Gln	gtc Val	aca Thr 2190	gct Ala	gag Glu	gaa Glu	ctg Leu	7715
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ccc Pro 2240	gtc Val	cag Gln	gga Gly	gag Glu	cct Pro 2245	ggg Gly	cgc Arg	cag Gln	gag Glu	aag Lys 2250	atg Met	agc Ser	atc Ile	tat Tyr	7895
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gtc Val 2315	acc Ala	ggg Thr	tac Tyr	acg Thr	gac Asp 2320	ccc Pro	tac Tyr	acc Thr	ggg Gly	gac Asp 2325	cag Gln	atc Ile	tcc Ser	ctc Leu	8120
ttc Phe 2330	cag Gln	gcc Ala	atg Met	cag Gln	agg Arg 2335	gac Asp	ctc Leu	att Ile	gtg Val	aga Arg 2340	gac Asp	cat His	ggc Gly	att Ile	8165
cgt Arg 2345	ttg Leu	ttg Leu	gaa Glu	gcc Ala	cag Gln 2350	att Ile	gcc Ala	acg Thr	ggg Gly	ggc Gly 2355	gtc Val	atc Ile	gat Asp	cct Pro	8210
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cca Pro 2450	ggc Gly	acg Thr	ggc Gly	gac Asp	ttc Phe 2455	cag Gln	ggc Gly	cag Gln	agc Ser	atc Ile 2460	tct Ser	gtc Val	tgg Trp	gag Glu	8525
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gcg Ala 2750	ggc Gly	gtc Val	ctg Leu	gtg Val	ccc Pro 2755	gtc Val	cag Gln	gga Gly	gag Glu	cct Pro 2760	ggg Gly	cgc Arg	cag Gln	gag Glu	9425

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ccc Pro 3080	atg Met	ctg Leu	aag Lys	agg Arg	aga Arg 3085	ctg Leu	acc Thr	acc Thr	att Ile	att Ile 3090	gag Glu	gag Glu	gct Ala	gag Glu	10415
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cca Pro 3995	ggc Gly	acg Thr	ggc Gly	gac Asp	ttc Phe 4000	cag Gln	ggc Gly	cag Gln	agc Ser	atc Ile 4005	tct Ser	gtc Val	tgg Trp	gag Glu	13160
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ctg Leu 4085	aca Thr	tcc Ser	aac Asn	tat Tyr	gtg Val 4090	agc Ser	agg Arg	gac Asp	acc Thr	cgg Arg 4095	aag Lys	gag Glu	ctg Leu	ctg Leu	13430
gcc Ala 4100	cag Gln	ttc Phe	agc Ser	tct Ser	ggg Gly 4105	tgc Ser	ctg Leu	act Thr	ctg Leu	ccc Pro 4110	atg Met	ctg Leu	aag Lys	agg Arg	13475



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Arg	Leu	Thr	Thr	Ile	Ile	Glu	Glu	Ala	Glu	Glu	Thr	Gln	Glu	Ser	
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Lys	Pro	Lys	Pro	Arg	Asp	Ala	Ser	Leu	Lys	Gln	Gln	Asp	Thr	Gly	
4130					4135					4140					
gcc	aga	ggc	tca	ggg	acc	tcc	cca	gac	gag	gga	gat	gct	cag	gac	13610
Ala	Arg	Gly	Ser	Gly	Thr	Ser	Pro	Asp	Glu	Gly	Asp	Ala	Gln	Asp	
4145					4150					4155					
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Ser	Ser	Glu	Ser	Ala	Arg	Gln	Gln	Gln	Glu	Gln	Thr	Leu	Arg	Ala	
4160					4165					4170					
acc	acc	atg	cag	gta	cac	cgt	ggg	cag	ttc	cgg	gac	cag	caa	gtt	13700
Thr	Thr	Met	Gln	Val	His	Arg	Gly	Gln	Phe	Arg	Asp	Gln	Gln	Val	
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Ser	Val	Trp	Lys	Val	Leu	Phe	Ser	Ser	Tyr	Leu	Ser	Glu	Thr	Arg	
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Met	Glu	Leu	Val	Ser	Leu	Leu	Thr	Gln	Ile	Ile	Glu	Glu	Thr	Glu	
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Glu	Arg	Leu	Ser	Lys	Val	Ser	Phe	Pro	Gly	Leu	Arg	Arg	Gln	Val	
4235					4240					4245					
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Ser	Ala	Ser	Glu	Leu	Cys	Thr	Ser	Gly	Ile	Leu	Asp	Arg	Asp	Thr	
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Met	Arg	Glu	Leu	Ala	Gln	Gly	Thr	Lys	Thr	Ile	His	Glu	Val	Thr	
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Lys	Met	Ser	Ile	Tyr	Gln	Ala	Met	Trp	Lys	Gly	Val	Leu	Arg	Pro	
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Ile	Ile	Asp	Pro	Val	Asn	Asn	Arg	Arg	Leu	Ser	Val	Glu	Glu	Ala	
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Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	Gly	
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caa Gln 4655	cag Gln	gac Asp	act Thr	ggg Gly	gcc Ala 4660	aga Arg	ggc Gly	tca Ser	ggg Gly	acc Thr 4665	tcc Ser	cca Pro	gac Asp	gag Glu	15140
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Ser Ile Ala Gly Val Tyr Val Glu Ala Ser Gly Gln Thr Gln Ser Ile

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55

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Tyr Ala Ala Ile Lys Gln Gly Leu Leu Pro Thr Gly Leu Gly Leu Thr  
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Gly Gln Leu Leu Pro Val Ser Glu Ala Leu Arg Arg Gly Leu Val Gly  
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Lys Lys Glu Val Val Asp Arg Thr Leu Gly Trp Arg Leu Leu Glu Ala  
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Cys Val Gln Asp Pro Ser Ser Gly Leu Pro Leu Leu Pro Leu Lys Thr  
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His Pro Thr Thr Gly Gln Arg Leu Trp Val Glu Glu Ala Val Lys Ala

340

345

350

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Gly Arg Pro Val Ser Leu Trp Glu Leu Leu Phe Ser Glu Ser Val Pro  
 515 520 525

Val Lys Lys Arg Ala Met Leu Ala Gln Arg His Gln Glu Gly Ala Leu  
 530 535 540

Ser Val Glu Glu Leu Ala Ala Glu Leu Lys Asn Ile Val Glu Gln Ala  
 545 550 555 560

Ala Ala Thr Ala Lys Val Thr Phe Ala Gly Leu Arg Asp Thr Val Thr  
 565 570 575

Pro Gly Glu Leu Leu Lys Ala Glu Ile Ile Asn Gln Asp Leu Phe Glu  
 580 585 590

Gln Leu Glu Arg Gly Gln Thr Ser Ala Gln Asp Val Gly Ser Leu Asp  
 595 600 605

Ser Val Gln Arg Tyr Leu Gln Gly Thr Gly Ser Ile Ala Gly Leu Leu  
 610 615 620

Leu Pro Asp Ser Gln Glu Arg Leu Ser Ile Tyr Glu Ala Arg Ser Lys

625					630					635				640	
Gly	Leu	Leu	Arg	Pro	Gly	Thr	Ala	Leu	Ile	Leu	Leu	Glu	Ala	Gln	Ala
				645					650					655	
Ala	Thr	Gly	Phe	Ile	Ile	Asp	Pro	Lys	Glu	Asn	Lys	Arg	Tyr	Ser	Val
			660					665					670		
Glu	Glu	Ala	Leu	Arg	Ala	Gly	Val	Ile	Gly	Pro	Asp	Val	Tyr	Ala	Lys
		675					680					685			
Leu	Leu	Ser	Ala	Glu	His	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Ser
	690					695					700				
Gly	Glu	Gln	Ile	Ser	Leu	Phe	Gln	Ala	Met	Gln	Arg	Asp	Leu	Ile	Val
705					710					715					720
Arg	Asp	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly
				725					730					735	
Val	Ile	Asp	Pro	Val	His	Ser	His	Arg	Val	Pro	Val	Asp	Val	Ala	Tyr
			740					745					750		
Gln	Arg	Gly	Tyr	Phe	Asp	Gln	Ile	Leu	Asn	Ser	Ile	Leu	Leu	Asp	Pro
		755					760					765			
Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	His	Glu	Asn	Leu
	770					775					780				
Thr	Tyr	Leu	Gln	Leu	Leu	Glu	Arg	Cys	Val	His	Asp	Ser	Glu	Thr	Gly
785				790						795					800
Leu	His	Leu	Leu	Pro	Leu	Ser	Ser	Thr	Arg	Pro	Gln	Leu	Val	Asp	Ser
				805					810					815	
Ser	Thr	Arg	Gln	Ala	Phe	Gln	Lys	Leu	Leu	Leu	Ser	Val	Lys	Tyr	Gly
			820					825					830		
Arg	Phe	Arg	Gly	Gln	Arg	Val	Ser	Ala	Trp	Glu	Leu	Val	Asn	Ser	Glu
		835					840					845			
Tyr	Phe	Thr	Glu	Asp	Arg	Arg	Arg	Gln	Leu	Leu	Gln	Arg	Tyr	Arg	Gln
	850					855					860				
Arg	Lys	Ile	Thr	Leu	Glu	Gln	Val	Thr	Gln	Leu	Leu	Glu	Lys	Glu	Met
865				870						875					880
Arg	Arg	Trp	Thr	Asp	Ile	Thr	Leu	Pro	Ala	Leu	Gln	Gly	Gln	Val	Thr
				885					890					895	
Ala	Tyr	Gln	Leu	Leu	Glu	Ala	His	Ile	Ile	Asn	Gln	Glu	Leu	Leu	Asp
			900					905					910		
Gln	Val	Leu	Thr	Gly	Thr	Ile	Ser	Pro	Asp	Ala	Leu	Leu	Gln	Val	Gly

915

920

925

Asp Val His Arg Tyr Leu Arg Gly Ser Gly Thr Val Gly Gly Val Leu  
 930 935 940

Leu Lys Pro Ser Asn Gln Arg Ile Ser Leu Tyr Gln Ala Met Lys Gln  
 945 950 955 960

Lys Leu Leu Pro Pro Ser Thr Ala Leu Ala Leu Leu Glu Ala Gln Ala  
 965 970 975

Ala Thr Gly Thr Ile Thr Asp Pro Cys Ser Met Glu Thr Leu Ser Val  
 980 985 990

Asp Glu Ala Val Cys Arg Gly Val Val Gly Ala Glu Val Tyr Gly Lys  
 995 1000 1005

Leu Lys Arg Ala Glu His Ser Ile Thr Gly Tyr Arg Asp Pro Phe  
 1010 1015 1020

Ser Gly Lys Lys Val Ser Leu Phe Arg Ala Met Lys Lys Gly Leu  
 1025 1030 1035

Val Pro Val Glu Gln Ala Thr Arg Leu Leu Glu Ala Gln Val Ser  
 1040 1045 1050

Thr Gly Gly Val Val Asp Pro Thr Thr His Leu His Leu Pro Met  
 1055 1060 1065

Pro Val Ala Val Gln Arg Gly Cys Ile Asp Arg Glu Met Glu Ala  
 1070 1075 1080

Ala Leu Ser Arg Ser Pro Glu Thr Phe Pro Thr Pro Asp Gly Arg  
 1085 1090 1095

Gly His Thr Ser Tyr Ala Gln Leu Leu Glu His Cys Leu Gln Asp  
 1100 1105 1110

Lys Ala Ser Gly Leu His Leu Leu Pro Leu Thr Glu Asp Ala Pro  
 1115 1120 1125

Asn Val Pro Thr Asp Thr Gln Ile Gln Glu Thr Leu Gln Ala Ser  
 1130 1135 1140

Ala Gly Thr Glu Asp Gly Leu Ser Leu Trp Asp Leu Leu Thr Ser  
 1145 1150 1155

Cys His Phe Thr Glu Glu Gln Arg Arg Gly Tyr Leu Glu Asp Val  
 1160 1165 1170

Lys Val Gly Lys Ile Ser Val Pro Gln Leu Gln Asn Thr Val Arg  
 1175 1180 1185

Ser Trp Val His Ser Ala Lys Leu Leu Ala Arg Ala Arg Ile Thr

1190						1195						1200			
Val	Pro	Gly	Pro	Arg	Gly	Glu	Val	Pro	Ala	Thr	Trp	Leu	Arg	Asp	
1205						1210					1215				
Ala	Gly	Ile	Ile	Thr	Gln	Glu	Thr	Leu	Glu	Ala	Leu	Ala	Gln	Gly	
1220						1225					1230				
Met	Gln	Ser	Pro	Asp	Glu	Val	Ala	Lys	Gln	Pro	Thr	Val	Lys	Val	
1235						1240					1245				
Cys	Leu	Trp	Gly	Thr	Gly	Cys	Val	Ala	Gly	Val	Leu	Leu	Gln	Pro	
1250						1255					1260				
Ser	Gly	Thr	Lys	Leu	Ser	Ile	Ala	Gln	Ala	Val	Arg	Asp	Gly	Leu	
1265						1270					1275				
Leu	Pro	Thr	Gly	Leu	Gly	Gln	Gln	Leu	Leu	Glu	Ala	Gln	Val	Ala	
1280						1285					1290				
Ser	Gly	Phe	Leu	Val	Asn	Pro	Leu	Thr	Asn	Gln	Arg	Leu	Ser	Val	
1295						1300					1305				
Glu	Gly	Ala	Val	Lys	Ala	Gly	Leu	Val	Gly	Met	Glu	Gln	Ser	Glu	
1310						1315					1320				
His	Leu	Arg	Gln	Val	Glu	Lys	Ala	Val	Thr	Gly	Tyr	Ser	Asp	Pro	
1325						1330					1335				
Phe	Ser	Gly	Gly	Ser	Leu	Ser	Leu	Trp	Gln	Ala	Met	Glu	Lys	Gly	
1340						1345					1350				
Leu	Val	Thr	Gln	Ser	Glu	Ala	Phe	Pro	Leu	Leu	Gln	Val	Gln	Leu	
1355						1360					1365				
Ala	Thr	Gly	Gly	Val	Val	Asp	Pro	Val	His	Gly	Val	His	Leu	Pro	
1370						1375					1380				
Gln	Glu	Val	Ala	Tyr	Lys	Leu	Gly	Leu	Leu	Asp	Glu	Gln	Thr	Ser	
1385						1390					1395				
Arg	Val	Leu	Thr	Ala	Thr	Gly	Lys	Glu	Asn	Lys	Leu	Phe	Phe	Asp	
1400						1405					1410				
Pro	Asn	Ser	Arg	Glu	Lys	Val	Thr	Tyr	Gln	Gln	Leu	Arg	Glu	Leu	
1415						1420					1425				
Cys	Val	Leu	Asp	Ala	Asp	Thr	Gly	Leu	Trp	Leu	Leu	Pro	Leu	Pro	
1430						1435					1440				
Gln	Gly	Thr	Val	Leu	Glu	Val	Asp	Asp	His	Thr	Ala	Val	Ala	Leu	
1445						1450					1455				
Arg	Ala	Met	Lys	Val	Pro	Ile	Asn	Met	Gly	Arg	Phe	Gln	Gly	His	



1460					1465					1470				
Ser	Val	Ser	Leu	Trp	Asp	Leu	Leu	His	Ser	Glu	Tyr	Val	Gly	Ala
1475					1480					1485				
Glu	Lys	Arg	Arg	Glu	Leu	Val	Ala	Leu	Cys	Cys	Ser	Gly	Arg	Ala
1490					1495					1500				
Ala	Ala	Leu	Arg	Gln	Val	Ile	Gly	Met	Leu	Thr	Thr	Leu	Val	Glu
1505					1510					1515				
Ala	Ala	Glu	Lys	Gln	Pro	Ser	Gln	Ala	Thr	Phe	Lys	Gly	Leu	Arg
1520					1525					1530				
Lys	Gln	Val	Ser	Ala	Gly	Asp	Leu	Phe	Arg	Ser	Gln	Leu	Ile	Thr
1535					1540					1545				
Lys	Gln	Thr	Leu	Asp	Glu	Leu	Asn	Gln	Gly	Lys	Arg	Thr	Val	Gln
1550					1555					1560				
Glu	Val	Thr	Glu	Met	Asp	Ser	Val	Arg	Arg	Ser	Leu	Glu	Gly	Gly
1565					1570					1575				
Asn	Phe	Ile	Ala	Gly	Val	Leu	Ile	Gln	Asp	Thr	Lys	Glu	Lys	Met
1580					1585					1590				
Ser	Ile	Pro	Glu	Ala	Leu	Arg	Arg	His	Ile	Leu	Arg	Pro	Gly	Thr
1595					1600					1605				
Ala	Leu	Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Ile
1610					1615					1620				
Asp	Pro	Val	Glu	Asn	Arg	Lys	Leu	Thr	Val	Glu	Gln	Ala	Phe	Gln
1625					1630					1635				
Ala	Gly	Met	Phe	Gly	Lys	Glu	Thr	Tyr	Met	Lys	Leu	Leu	Ser	Ala
1640					1645					1650				
Glu	Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	Gly	Glu	Gln
1655					1660					1665				
Ile	Ser	Leu	Phe	Gln	Ala	Met	Gln	Arg	Asp	Leu	Ile	Val	Arg	Asp
1670					1675					1680				
His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile
1685					1690					1695				
Ile	Asp	Pro	Val	His	Ser	His	Arg	Val	Pro	Val	Asp	Val	Ala	Tyr
1700					1705					1710				
Gln	Arg	Gly	Tyr	Phe	Asn	Glu	Glu	Met	Asn	Arg	Ile	Leu	Ser	Asp
1715					1720					1725				
Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	His	Gln

1730						1735						1740			
Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Glu	Arg	Cys	Val	Glu	Asp	Pro	
1745						1750					1755				
Glu	Thr	Gly	Leu	Tyr	Met	Leu	Glu	Ile	Val	Lys	Lys	Gly	Glu	Thr	
1760						1765					1770				
Tyr	Thr	Tyr	Ile	Asp	Glu	Ala	Thr	Arg	Gln	Ala	Leu	Thr	Ser	Arg	
1775						1780					1785				
Thr	Val	Lys	Met	Tyr	Val	Gly	Lys	Phe	Ala	Gly	Gln	Thr	Val	Ser	
1790						1795					1800				
Val	Trp	Asp	Leu	Leu	Ser	Ser	Gln	Tyr	Phe	Thr	Glu	Gly	Arg	Arg	
1805						1810					1815				
Arg	Lys	Leu	Leu	Arg	Glu	Tyr	Arg	Ala	Gln	Asn	Ile	Gly	Leu	Glu	
1820						1825					1830				
Asn	Leu	Leu	Glu	Val	Ile	Thr	Ser	Thr	Val	Glu	Glu	Thr	Glu	Lys	
1835						1840					1845				
Gln	Ser	Gln	Ile	Phe	Lys	Val	Pro	Gly	Ile	His	Gly	Asp	Val	Thr	
1850						1855					1860				
Ala	Ala	Glu	Leu	Phe	Asn	Ser	Gly	Ile	Leu	Asn	Lys	Lys	Thr	Leu	
1865						1870					1875				
Asp	Ala	Leu	Arg	Ser	Gly	Asp	Arg	Gly	Phe	Gln	Asp	Leu	Arg	Trp	
1880						1885					1890				
Leu	Glu	Asp	Val	Arg	Val	Tyr	Leu	Glu	Gly	Ser	Asn	Tyr	Ile	Ala	
1895						1900					1905				
Gly	Val	Ile	Ala	Pro	Leu	Thr	Gln	Lys	Val	Met	Ser	Phe	Tyr	Glu	
1910						1915					1920				
Ala	Ser	Arg	Glu	Glu	Leu	Ile	Pro	Ala	Gly	Phe	Ala	Ala	Gln	Met	
1925						1930					1935				
Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Tyr	Leu	Met	Asp	Pro	Cys	Thr	
1940						1945					1950				
Asn	Gln	Arg	Leu	Cys	Val	Asp	Glu	Ala	Ile	Ala	Ala	Gly	Leu	Val	
1955						1960					1965				
Gly	Glu	Asp	Leu	Arg	Glu	Arg	Leu	Val	Asn	Ala	Glu	Met	Ala	Ala	
1970						1975					1980				
Lys	Gly	Tyr	Lys	Asp	Pro	Ala	Thr	Gly	Glu	Thr	Ile	Pro	Leu	Tyr	
1985						1990					1995				
Gln	Ala	Met	Glu	Arg	Lys	Leu	Val	Gly	Arg	Glu	Glu	Ala	Leu	Arg	

2000	2005	2010
Leu 2015	Leu 2020	Leu 2025
Glu 2015	Val 2020	Val 2025
Val 2015	Gln 2020	Gln 2025
Val 2015	Val 2020	Val 2025
Ala 2015	Thr 2020	Thr 2025
Thr 2015	Gly 2020	Gly 2025
Gly 2015	Gly 2020	Gly 2025
Val 2015	Val 2020	Val 2025
Ile 2015	Ile 2020	Ile 2025
Asp 2015	Asp 2020	Asp 2025
Pro 2015	Pro 2020	Pro 2025
Arg 2015	Arg 2020	Arg 2025
His 2030	His 2035	His 2040
His 2030	Arg 2035	Arg 2040
Arg 2030	Val 2035	Val 2040
Pro 2030	Pro 2035	Pro 2040
Leu 2030	Leu 2035	Leu 2040
Val 2030	Val 2035	Val 2040
Ala 2030	Ala 2035	Ala 2040
Cys 2030	Cys 2035	Cys 2040
Gln 2030	Gln 2035	Gln 2040
Arg 2030	Arg 2035	Arg 2040
Gly 2030	Gly 2035	Gly 2040
Cys 2030	Cys 2035	Cys 2040
Met 2045	Met 2050	Met 2055
Cys 2045	Asp 2050	Asp 2055
Asp 2045	Asp 2050	Asp 2055
Ser 2045	Ser 2050	Ser 2055
Leu 2045	Leu 2050	Leu 2055
Val 2045	Val 2050	Val 2055
Leu 2045	Leu 2050	Leu 2055
Ile 2045	Ile 2050	Ile 2055
Ala 2045	Ala 2050	Ala 2055
Asp 2045	Asp 2050	Asp 2055
Gln 2045	Gln 2050	Gln 2055
Lys 2045	Lys 2050	Lys 2055
His 2045	His 2050	His 2055
Met 2045	Met 2050	Met 2055
Arg 2060	Arg 2065	Arg 2070
Lys 2060	Lys 2065	Lys 2070
Arg 2060	Arg 2065	Arg 2070
Phe 2060	Phe 2065	Phe 2070
Val 2060	Val 2065	Val 2070
Asp 2060	Asp 2065	Asp 2070
Pro 2060	Pro 2065	Pro 2070
Asn 2060	Asn 2065	Asn 2070
Thr 2060	Thr 2065	Thr 2070
Gln 2060	Gln 2065	Gln 2070
Glu 2060	Glu 2065	Glu 2070
Lys 2060	Lys 2065	Lys 2070
Val 2060	Val 2065	Val 2070
Thr 2060	Thr 2065	Thr 2070
Tyr 2060	Tyr 2065	Tyr 2070
Gln 2075	Gln 2080	Gln 2085
Glu 2075	Glu 2080	Glu 2085
Leu 2075	Leu 2080	Leu 2085
Gln 2075	Gln 2080	Gln 2085
Asp 2075	Asp 2080	Asp 2085
Arg 2075	Arg 2080	Arg 2085
Cys 2075	Cys 2080	Cys 2085
Gln 2075	Gln 2080	Gln 2085
Arg 2075	Arg 2080	Arg 2085
Glu 2075	Glu 2080	Glu 2085
Lys 2075	Lys 2080	Lys 2085
Ser 2075	Ser 2080	Ser 2085
Gly 2075	Gly 2080	Gly 2085
Trp 2075	Trp 2080	Trp 2085
Ala 2090	Ala 2095	Ala 2100
Leu 2090	Leu 2095	Leu 2100
Phe 2090	Phe 2095	Phe 2100
Pro 2090	Pro 2095	Pro 2100
Val 2090	Val 2095	Val 2100
Val 2090	Val 2095	Val 2100
Lys 2090	Lys 2095	Lys 2100
Asp 2090	Asp 2095	Asp 2100
Lys 2090	Lys 2095	Lys 2100
Lys 2090	Lys 2095	Lys 2100
Asp 2090	Asp 2095	Asp 2100
Ile 2090	Ile 2095	Ile 2100
Glu 2090	Glu 2095	Glu 2100
Tyr 2090	Tyr 2095	Tyr 2100
Val 2090	Val 2095	Val 2100
Asp 2105	Asp 2110	Asp 2115
Glu 2105	Glu 2110	Glu 2115
Ala 2105	Ala 2110	Ala 2115
Thr 2105	Thr 2110	Thr 2115
Lys 2105	Lys 2110	Lys 2115
Arg 2105	Arg 2110	Arg 2115
Ala 2105	Ala 2110	Ala 2115
Leu 2105	Leu 2110	Leu 2115
Glu 2105	Glu 2110	Glu 2115
Gln 2105	Gln 2110	Gln 2115
Val 2105	Val 2110	Val 2115
Glu 2105	Glu 2110	Glu 2115
Val 2105	Val 2110	Val 2115
Thr 2120	Thr 2125	Thr 2130
Val 2120	Val 2125	Val 2130
Gly 2120	Gly 2125	Gly 2130
Arg 2120	Arg 2125	Arg 2130
Tyr 2120	Tyr 2125	Tyr 2130
Arg 2120	Arg 2125	Arg 2130
Gly 2120	Gly 2125	Gly 2130
Gln 2120	Gln 2125	Gln 2130
Arg 2120	Arg 2125	Arg 2130
Arg 2120	Arg 2125	Arg 2130
Ser 2120	Ser 2125	Ser 2130
Val 2120	Val 2125	Val 2130
Trp 2120	Trp 2125	Trp 2130
Glu 2120	Glu 2125	Glu 2130
Leu 2120	Leu 2125	Leu 2130
Leu 2135	Leu 2140	Leu 2145
Asn 2135	Asn 2140	Asn 2145
Ser 2135	Ser 2140	Ser 2145
Glu 2135	Glu 2140	Glu 2145
Tyr 2135	Tyr 2140	Tyr 2145
Val 2135	Val 2140	Val 2145
Ser 2135	Ser 2140	Ser 2145
Glu 2135	Glu 2140	Glu 2145
Lys 2135	Lys 2140	Lys 2145
Lys 2135	Lys 2140	Lys 2145
Met 2135	Met 2140	Met 2145
Glu 2135	Glu 2140	Glu 2145
Leu 2135	Leu 2140	Leu 2145
Val 2135	Val 2140	Val 2145
Arg 2150	Arg 2155	Arg 2160
Leu 2150	Leu 2155	Leu 2160
Tyr 2150	Tyr 2155	Tyr 2160
Lys 2150	Lys 2155	Lys 2160
Glu 2150	Glu 2155	Glu 2160
Asp 2150	Asp 2155	Asp 2160
Thr 2150	Thr 2155	Thr 2160
Thr 2150	Thr 2155	Thr 2160
Arg 2150	Arg 2155	Arg 2160
Ala 2150	Ala 2155	Ala 2160
Leu 2150	Leu 2155	Leu 2160
Gln 2150	Gln 2155	Gln 2160
Lys 2150	Lys 2155	Lys 2160
Val 2150	Val 2155	Val 2160
Val 2150	Val 2155	Val 2160
Glu 2165	Glu 2170	Glu 2175
Leu 2165	Leu 2170	Leu 2175
Ile 2165	Ile 2170	Ile 2175
Leu 2165	Leu 2170	Leu 2175
Gln 2165	Gln 2170	Gln 2175
Met 2165	Met 2170	Met 2175
Ile 2165	Ile 2170	Ile 2175
Ala 2165	Ala 2170	Ala 2175
Asp 2165	Asp 2170	Asp 2175
Lys 2165	Lys 2170	Lys 2175
Glu 2165	Glu 2170	Glu 2175
Arg 2165	Arg 2170	Arg 2175
Arg 2165	Arg 2170	Arg 2175
Ser 2165	Ser 2170	Ser 2175
Arg 2165	Arg 2170	Arg 2175
Gln 2180	Gln 2185	Gln 2190
Leu 2180	Leu 2185	Leu 2190
Trp 2180	Trp 2185	Trp 2190
Phe 2180	Phe 2185	Phe 2190
Arg 2180	Arg 2185	Arg 2190
Gly 2180	Gly 2185	Gly 2190
Leu 2180	Leu 2185	Leu 2190
Arg 2180	Arg 2185	Arg 2190
Thr 2180	Thr 2185	Thr 2190
Gln 2180	Gln 2185	Gln 2190
Val 2180	Val 2185	Val 2190
Thr 2180	Thr 2185	Thr 2190
Ala 2180	Ala 2185	Ala 2190
Glu 2180	Glu 2185	Glu 2190
Glu 2180	Glu 2185	Glu 2190
Leu 2195	Leu 2200	Leu 2205
Leu 2195	Leu 2200	Leu 2205
Arg 2195	Arg 2200	Arg 2205
Ser 2195	Ser 2200	Ser 2205
Glu 2195	Glu 2200	Glu 2205
Val 2195	Val 2200	Val 2205
Ile 2195	Ile 2200	Ile 2205
Thr 2195	Thr 2200	Thr 2205
Lys 2195	Lys 2200	Lys 2205
Gln 2195	Gln 2200	Gln 2205
Thr 2195	Thr 2200	Thr 2205
Leu 2195	Leu 2200	Leu 2205
Glu 2195	Glu 2200	Glu 2205
Asp 2195	Asp 2200	Asp 2205
Leu 2195	Leu 2200	Leu 2205
Glu 2210	Glu 2215	Glu 2220
Glu 2210	Glu 2215	Glu 2220
Gly 2210	Gly 2215	Gly 2220
Arg 2210	Arg 2215	Arg 2220
Thr 2210	Thr 2215	Thr 2220
Thr 2210	Thr 2215	Thr 2220
Val 2210	Val 2215	Val 2220
Asp 2210	Asp 2215	Asp 2220
Gln 2210	Gln 2215	Gln 2220
Ile 2210	Ile 2215	Ile 2220
Glu 2210	Glu 2215	Glu 2220
Arg 2210	Arg 2215	Arg 2220
Lys 2210	Lys 2215	Lys 2220
Glu 2210	Glu 2215	Glu 2220
Asp 2210	Asp 2215	Asp 2220
Val 2225	Val 2230	Val 2235
Lys 2225	Lys 2230	Lys 2235
Arg 2225	Arg 2230	Arg 2235
Tyr 2225	Tyr 2230	Tyr 2235
Leu 2225	Leu 2230	Leu 2235
Lys 2225	Lys 2230	Lys 2235
Gly 2225	Gly 2230	Gly 2235
Thr 2225	Thr 2230	Thr 2235
Ser 2225	Ser 2230	Ser 2235
Cys 2225	Cys 2230	Cys 2235
Ile 2225	Ile 2230	Ile 2235
Ala 2225	Ala 2230	Ala 2235
Gly 2225	Gly 2230	Gly 2235
Val 2225	Val 2230	Val 2235
Leu 2225	Leu 2230	Leu 2235
Val 2240	Val 2245	Val 2250
Pro 2240	Pro 2245	Pro 2250
Val 2240	Val 2245	Val 2250
Gln 2240	Gln 2245	Gln 2250
Gly 2240	Gly 2245	Gly 2250
Glu 2240	Glu 2245	Glu 2250
Pro 2240	Pro 2245	Pro 2250
Gly 2240	Gly 2245	Gly 2250
Arg 2240	Arg 2245	Arg 2250
Gln 2240	Gln 2245	Gln 2250
Glu 2240	Glu 2245	Glu 2250
Lys 2240	Lys 2245	Lys 2250
Met 2240	Met 2245	Met 2250
Ser 2240	Ser 2245	Ser 2250
Ile 2240	Ile 2245	Ile 2250
Tyr 2255	Tyr 2260	Tyr 2265
Gln 2255	Gln 2260	Gln 2265
Ala 2255	Ala 2260	Ala 2265
Met 2255	Met 2260	Met 2265
Trp 2255	Trp 2260	Trp 2265
Lys 2255	Lys 2260	Lys 2265
Gly 2255	Gly 2260	Gly 2265
Val 2255	Val 2260	Val 2265
Leu 2255	Leu 2260	Leu 2265
Arg 2255	Arg 2260	Arg 2265
Pro 2255	Pro 2260	Pro 2265
Gly 2255	Gly 2260	Gly 2265
Thr 2255	Thr 2260	Thr 2265
Ala 2255	Ala 2260	Ala 2265
Leu 2255	Leu 2260	Leu 2265
Val 2265	Val 2270	Val 2275
Leu 2265	Leu 2270	Leu 2275
Glu 2265	Glu 2270	Glu 2275
Ala 2265	Ala 2270	Ala 2275
Gln 2265	Gln 2270	Gln 2275
Ala 2265	Ala 2270	Ala 2275
Thr 2265	Thr 2270	Thr 2275
Phe 2265	Phe 2270	Phe 2275
Ile 2265	Ile 2270	Ile 2275
Ile 2265	Ile 2270	Ile 2275
Asp 2265	Asp 2270	Asp 2275
Pro 2265	Pro 2270	Pro 2275

2270	2275	2280
Val Asn Asn Arg Arg Leu Ser	Val Glu Glu Ala Val	Ala Ala Gly
2285	2290	2295
Val Val Gly Gly Glu Ile Gln	Glu Lys Leu Leu Ser	Ala Glu Arg
2300	2305	2310
Ala Val Thr Gly Tyr Thr Asp	Pro Tyr Thr Gly Asp	Gln Ile Ser
2315	2320	2325
Leu Phe Gln Ala Met Gln Arg	Asp Leu Ile Val Arg	Asp His Gly
2330	2335	2340
Ile Arg Leu Leu Glu Ala Gln	Ile Ala Thr Gly Gly	Val Ile Asp
2345	2350	2355
Pro Val His Ser His Arg Val	Pro Val Asp Val Ala	Tyr Gln Arg
2360	2365	2370
Gly Tyr Phe Asp Glu Asp Met	Asn Ser Ile Leu Ala	Asp Pro Gly
2375	2380	2385
Asp Asp Thr Lys Gly Phe Phe	Asp Pro Asn Thr His	Glu Asn Leu
2390	2395	2400
Thr Tyr Leu Gln Leu Leu Arg	Arg Cys Val Arg Asp	Pro Glu Thr
2405	2410	2415
Gly Phe Tyr Met Leu Gln Leu	Ala Gly Lys Gly Ser	Ser Val His
2420	2425	2430
His Leu Ser Glu Glu Leu Arg	Arg Ala Leu Arg Glu	Ala Arg Val
2435	2440	2445
Thr Pro Gly Thr Gly Asp Phe	Gln Gly Gln Ser Ile	Ser Val Trp
2450	2455	2460
Glu Leu Leu Phe Tyr Arg Glu	Val Pro Glu Ser Leu	Arg Gln Asp
2465	2470	2475
Leu Leu Arg Cys Tyr Gln Ala	Gly Gly Leu Thr Val	His Asp Val
2480	2485	2490
Thr Thr Thr Leu Thr Ser Leu	Leu Ala Arg Ala Lys	Asp Gly Ser
2495	2500	2505
Pro Arg Gly Asp Pro Gln Gly	Ala Leu Gly Lys Ala	Thr Met Glu
2510	2515	2520
Val Lys Arg Gly His Leu Arg	Gly His Glu Val Pro	Val Trp Asp
2525	2530	2535
Ile Leu Thr Ser Asn Tyr Val	Ser Arg Asp Thr Arg	Lys Glu Leu

2540		2545		2550	
Leu Ala Gln Phe Ser Ser Gly Ser Leu Thr Leu Pro Met Leu Lys					
2555		2560		2565	
Arg Arg Leu Thr Thr Ile Ile Glu Glu Ala Glu Glu Thr Gln Glu					
2570		2575		2580	
Ser Lys Pro Lys Pro Arg Asp Ala Ser Leu Lys Gln Gln Asp Thr					
2585		2590		2595	
Gly Ala Arg Gly Ser Gly Thr Ser Pro Asp Glu Gly Asp Ala Gln					
2600		2605		2610	
Asp Ser Ser Glu Ser Ala Arg Gln Gln Gln Glu Gln Thr Leu Arg					
2615		2620		2625	
Ala Thr Thr Met Gln Val His Arg Gly Gln Phe Arg Asp Gln Gln					
2630		2635		2640	
Val Ser Val Trp Lys Val Leu Phe Ser Ser Tyr Leu Ser Glu Thr					
2645		2650		2655	
Arg Arg Glu Glu Leu Leu Ala Gln His Leu Ala Gly Lys Leu Gly					
2660		2665		2670	
Val Met Glu Leu Val Ser Leu Leu Thr Gln Ile Ile Glu Glu Thr					
2675		2680		2685	
Glu Glu Arg Leu Ser Lys Val Ser Phe Pro Gly Leu Arg Arg Gln					
2690		2695		2700	
Val Ser Ala Ser Glu Leu Cys Thr Ser Gly Ile Leu Asp Arg Asp					
2705		2710		2715	
Thr Met Arg Glu Leu Ala Gln Gly Thr Lys Thr Ile His Glu Val					
2720		2725		2730	
Thr Glu Met Asp Ser Val Lys Arg Tyr Leu Gly Gly Ser Ser Cys					
2735		2740		2745	
Ile Ala Gly Val Leu Val Pro Val Gln Gly Glu Pro Gly Arg Gln					
2750		2755		2760	
Glu Lys Met Ser Ile Tyr Gln Ala Met Trp Lys Gly Val Leu Arg					
2765		2770		2775	
Pro Gly Thr Ala Leu Val Leu Leu Glu Ala Gln Ala Ala Thr Gly					
2780		2785		2790	
Phe Ile Ile Asp Pro Val Asn Asn Arg Arg Leu Ser Val Glu Glu					
2795		2800		2805	
Ala Val Ala Ala Gly Val Val Gly Gly Glu Ile Gln Glu Lys Leu					

2810						2815						2820			
Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	
2825						2830					2835				
Gly	Asp	Gln	Ile	Ser	Leu	Phe	Gln	Ala	Met	Gln	Arg	Asp	Leu	Ile	
2840						2845					2850				
Val	Arg	Asp	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	
2855						2860					2865				
Gly	Gly	Val	Ile	Asp	Pro	Val	His	Ser	His	Arg	Val	Pro	Val	Asp	
2870						2875					2880				
Val	Ala	Tyr	Gln	Arg	Gly	Tyr	Phe	Asp	Glu	Asp	Met	Asn	Ser	Ile	
2885						2890					2895				
Leu	Ala	Asp	Pro	Gly	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	
2900						2905					2910				
Thr	His	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Arg	Arg	Cys	Val	
2915						2920					2925				
Arg	Asp	Pro	Glu	Thr	Gly	Phe	Tyr	Met	Leu	Gln	Leu	Ala	Gly	Lys	
2930						2935					2940				
Gly	Ser	Ser	Val	His	His	Leu	Ser	Glu	Glu	Leu	Arg	Arg	Ala	Leu	
2945						2950					2955				
Arg	Glu	Ala	Arg	Val	Thr	Pro	Gly	Thr	Gly	Asp	Phe	Gln	Gly	Gln	
2960						2965					2970				
Ser	Ile	Ser	Val	Trp	Glu	Leu	Leu	Phe	Tyr	Arg	Glu	Val	Pro	Glu	
2975						2980					2985				
Ser	Leu	Arg	Gln	Asp	Leu	Leu	Arg	Arg	Tyr	Gln	Ala	Gly	Gly	Leu	
2990						2995					3000				
Thr	Val	His	Asp	Val	Thr	Thr	Thr	Leu	Thr	Ser	Leu	Leu	Ala	Arg	
3005						3010					3015				
Ala	Lys	Asp	Gly	Ser	Pro	Arg	Xaa	Asp	Pro	Gln	Gly	Ala	Leu	Gly	
3020						3025					3030				
Lys	Ala	Thr	Met	Glu	Val	Lys	Arg	Gly	His	Leu	Arg	Gly	His	Xaa	
3035						3040					3045				
Val	Pro	Val	Trp	Asp	Ile	Leu	Thr	Ser	Asn	Tyr	Val	Ser	Arg	Asp	
3050						3055					3060				
Thr	Arg	Lys	Glu	Leu	Leu	Ala	Gln	Phe	Ser	Ser	Gly	Ser	Leu	Thr	
3065						3070					3075				
Leu	Pro	Met	Leu	Lys	Arg	Arg	Leu	Thr	Thr	Ile	Ile	Glu	Glu	Ala	

3080		3085		3090
Glu Glu Thr Gln Glu Ser Lys Pro Lys Pro Arg Asp Ala Ser Leu				
3095		3100		3105
Lys Gln Gln Asp Thr Gly Ala Arg Gly Ser Gly Thr Ser Pro Asp				
3110		3115		3120
Glu Gly Asp Ala Gln Asp Ser Ser Glu Ser Ala Arg Gln Gln Gln				
3125		3130		3135
Glu Gln Thr Leu Arg Ala Thr Thr Met Gln Val His Arg Gly Gln				
3140		3145		3150
Phe Arg Asp Gln Gln Val Ser Val Trp Lys Val Leu Phe Ser Ser				
3155		3160		3165
Tyr Leu Ser Glu Thr Arg Arg Glu Glu Leu Leu Ala Gln His Leu				
3170		3175		3180
Ala Gly Lys Leu Gly Val Met Glu Leu Val Ser Leu Leu Thr Gln				
3185		3190		3195
Ile Ile Glu Glu Thr Glu Glu Arg Leu Ser Lys Val Ser Phe Pro				
3200		3205		3210
Gly Leu Arg Arg Gln Val Ser Ala Ser Glu Leu Cys Thr Ser Gly				
3215		3220		3225
Ile Leu Asp Arg Asp Thr Met Arg Glu Leu Ala Gln Gly Thr Lys				
3230		3235		3240
Thr Ile His Glu Val Thr Glu Met Asp Ser Val Lys Arg Tyr Leu				
3245		3250		3255
Gly Gly Ser Ser Cys Ile Ala Gly Val Leu Val Pro Val Gln Gly				
3260		3265		3270
Glu Pro Gly Arg Gln Glu Lys Met Ser Ile Tyr Gln Ala Met Trp				
3275		3280		3285
Lys Gly Val Leu Arg Pro Gly Thr Ala Leu Val Leu Leu Glu Ala				
3290		3295		3300
Gln Ala Ala Thr Gly Phe Ile Ile Asp Pro Val Asn Asn Arg Arg				
3305		3310		3315
Leu Ser Val Glu Glu Ala Val Ala Ala Gly Val Val Gly Gly Glu				
3320		3325		3330
Ile Gln Glu Lys Leu Xaa Ser Ala Glu Arg Ala Val Thr Gly Tyr				
3335		3340		3345
Thr Asp Pro Tyr Thr Gly Asp Gln Ile Ser Leu Phe Gln Ala Met				

3350		3355		3360
Gln Arg Asp Leu Ile Val	Arg Asp His Gly Ile	Arg Leu Leu Glu		
3365	3370	3375		
Ala Gln Ile Ala Thr Gly	Gly Val Ile Asp Pro	Val His Ser His		
3380	3385	3390		
Arg Val Pro Val Asp Val	Ala Tyr Gln Arg Gly	Tyr Phe Asp Glu		
3395	3400	3405		
Asp Met Asn Ser Ile Leu	Ala Asp Pro Gly Asp	Asp Thr Lys Gly		
3410	3415	3420		
Phe Phe Asp Pro Asn Thr	His Glu Asn Leu Thr	Tyr Leu Gln Leu		
3425	3430	3435		
Leu Arg Arg Cys Val Arg	Asp Pro Glu Thr Gly	Phe Tyr Met Leu		
3440	3445	3450		
Gln Leu Ala Gly Lys Gly	Ser Ser Val His His	Leu Ser Glu Glu		
3455	3460	3465		
Leu Arg Arg Ala Leu Arg	Glu Ala Arg Val Thr	Pro Gly Thr Gly		
3470	3475	3480		
Asp Phe Gln Gly Gln Ser	Ile Ser Val Trp Glu	Leu Leu Phe Tyr		
3485	3490	3495		
Arg Glu Val Pro Glu Ser	Leu Arg Gln Asp Leu	Leu Arg Arg Tyr		
3500	3505	3510		
Gln Ala Gly Gly Leu Thr	Val His Asp Val Thr	Thr Thr Leu Thr		
3515	3520	3525		
Ser Leu Leu Ala Arg Ala	Lys Asp Gly Ser Pro	Arg Xaa Asp Pro		
3530	3535	3540		
Gln Gly Ala Leu Gly Lys	Ala Thr Met Glu Val	Lys Arg Gly His		
3545	3550	3555		
Leu Arg Gly His Xaa Val	Pro Val Trp Asp Ile	Leu Thr Ser Asn		
3560	3565	3570		
Tyr Val Ser Arg Asp Thr	Arg Lys Glu Leu Leu	Ala Gln Phe Ser		
3575	3580	3585		
Ser Gly Ser Leu Thr Leu	Pro Met Leu Lys Arg	Arg Leu Thr Thr		
3590	3595	3600		
Ile Ile Glu Glu Ala Glu	Glu Thr Gln Glu Ser	Lys Pro Lys Pro		
3605	3610	3615		
Arg Asp Ala Ser Leu Lys	Gln Gln Asp Thr Gly	Ala Arg Gly Ser		



3620						3625					3630				
Gly	Thr	Ser	Pro	Asp	Glu	Gly	Asp	Ala	Gln	Asp	Ser	Ser	Glu	Ser	
3635						3640					3645				
Ala	Arg	Gln	Gln	Gln	Glu	Gln	Thr	Leu	Arg	Ala	Thr	Thr	Met	Gln	
3650						3655					3660				
Val	His	Arg	Gly	Gln	Phe	Arg	Asp	Gln	Gln	Val	Ser	Val	Trp	Lys	
3665						3670					3675				
Val	Leu	Phe	Ser	Ser	Tyr	Leu	Ser	Glu	Thr	Arg	Arg	Glu	Glu	Leu	
3680						3685					3690				
Leu	Ala	Gln	His	Leu	Ala	Gly	Lys	Leu	Gly	Val	Met	Glu	Leu	Val	
3695						3700					3705				
Ser	Leu	Leu	Thr	Gln	Ile	Ile	Glu	Glu	Thr	Glu	Glu	Arg	Leu	Ser	
3710						3715					3720				
Lys	Val	Ser	Phe	Pro	Gly	Leu	Arg	Arg	Gln	Val	Ser	Ala	Ser	Glu	
3725						3730					3735				
Leu	Cys	Thr	Ser	Gly	Ile	Leu	Asp	Arg	Asp	Thr	Met	Arg	Glu	Leu	
3740						3745					3750				
Ala	Gln	Gly	Thr	Lys	Thr	Ile	His	Glu	Val	Thr	Glu	Met	Asp	Ser	
3755						3760					3765				
Val	Lys	Arg	Tyr	Leu	Gly	Gly	Ser	Ser	Cys	Ile	Ala	Gly	Val	Leu	
3770						3775					3780				
Val	Pro	Val	Gln	Gly	Glu	Pro	Gly	Arg	Gln	Glu	Lys	Met	Ser	Ile	
3785						3790					3795				
Tyr	Gln	Ala	Met	Trp	Lys	Gly	Val	Leu	Arg	Pro	Gly	Thr	Ala	Leu	
3800						3805					3810				
Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Ile	Asp	Pro	
3815						3820					3825				
Val	Asn	Asn	Arg	Arg	Leu	Ser	Val	Glu	Glu	Ala	Val	Ala	Ala	Gly	
3830						3835					3840				
Val	Val	Gly	Gly	Glu	Ile	Gln	Glu	Lys	Leu	Xaa	Ser	Ala	Glu	Arg	
3845						3850					3855				
Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	Gly	Asp	Gln	Ile	Ser	
3860						3865					3870				
Leu	Phe	Gln	Ala	Met	Gln	Arg	Asp	Leu	Ile	Val	Arg	Asp	His	Gly	
3875						3880					3885				
Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Val	Ile	Asn	

3890						3895						3900			
Pro Val	His Ser	His Arg	Val	Pro Val	Asp Val	Ala	Tyr Gln	Arg							
3905			3910			3915									
Gly Tyr	Phe Asp	Glu Asp	Met	Asn Ser	Ile Leu	Ala	Asp Pro	Gly							
3920			3925			3930									
Asp Asp	Thr Lys	Gly Phe	Phe	Asp Pro	Asn Thr	His	Glu Asn	Leu							
3935			3940			3945									
Thr Tyr	Leu Gln	Leu Leu	Arg	Arg Cys	Val Arg	Asp	Pro Glu	Thr							
3950			3955			3960									
Gly Phe	Tyr Met	Leu Gln	Leu	Ala Gly	Lys Gly	Ser	Ser Val	His							
3965			3970			3975									
His Leu	Ser Glu	Glu Leu	Arg	Arg Ala	Leu Arg	Glu	Ala Arg	Val							
3980			3985			3990									
Thr Pro	Gly Thr	Gly Asp	Phe	Gln Gly	Gln Ser	Ile	Ser Val	Trp							
3995			4000			4005									
Glu Leu	Leu Phe	Tyr Arg	Glu	Val Pro	Glu Ser	Leu	Arg Gln	Asp							
4010			4015			4020									
Leu Leu	Arg Arg	Tyr Gln	Ala	Gly Gly	Leu Thr	Val	His Asp	Val							
4025			4030			4035									
Thr Thr	Thr Leu	Thr Ser	Leu	Leu Ala	Arg Ala	Lys	Asp Gly	Ser							
4040			4045			4050									
Pro Arg	Xaa Asp	Pro Gln	Gly	Ala Leu	Gly Lys	Ala	Thr Met	Glu							
4055			4060			4065									
Val Lys	Arg Gly	His Leu	Arg	Gly His	Xaa Val	Pro	Val Trp	Asp							
4070			4075			4080									
Ile Leu	Thr Ser	Asn Tyr	Val	Ser Arg	Asp Thr	Arg	Lys Glu	Leu							
4085			4090			4095									
Leu Ala	Gln Phe	Ser Ser	Gly	Ser Leu	Thr Leu	Pro	Met Leu	Lys							
4100			4105			4110									
Arg Arg	Leu Thr	Thr Ile	Ile	Glu Glu	Ala Glu	Glu	Thr Gln	Glu							
4115			4120			4125									
Ser Lys	Pro Lys	Pro Arg	Asp	Ala Ser	Leu Lys	Gln	Gln Asp	Thr							
4130			4135			4140									
Gly Ala	Arg Gly	Ser Gly	Thr	Ser Pro	Asp Glu	Gly	Asp Ala	Gln							
4145			4150			4155									
Asp Ser	Ser Glu	Ser Ala	Arg	Gln Gln	Gln Glu	Gln	Thr Leu	Arg							

4160					4165					4170				
Ala	Thr	Thr	Met	Gln	Val	His	Arg	Gly	Gln	Phe	Arg	Asp	Gln	Gln
Val	Ser	Val	Trp	Lys	Val	Leu	Phe	Ser	Ser	Tyr	Leu	Ser	Glu	Thr
Arg	Arg	Glu	Glu	Leu	Leu	Ala	Gln	His	Leu	Ala	Gly	Lys	Leu	Gly
Val	Met	Glu	Leu	Val	Ser	Leu	Leu	Thr	Gln	Ile	Ile	Glu	Glu	Thr
Glu	Glu	Arg	Leu	Ser	Lys	Val	Ser	Phe	Pro	Gly	Leu	Arg	Arg	Gln
Val	Ser	Ala	Ser	Glu	Leu	Cys	Thr	Ser	Gly	Ile	Leu	Asp	Arg	Asp
Thr	Met	Arg	Glu	Leu	Ala	Gln	Gly	Thr	Lys	Thr	Ile	His	Glu	Val
Thr	Glu	Met	Asp	Ser	Val	Lys	Arg	Tyr	Leu	Gly	Gly	Ser	Ser	Cys
Ile	Ala	Gly	Val	Leu	Val	Pro	Val	Gln	Gly	Glu	Pro	Gly	Arg	Gln
Glu	Lys	Met	Ser	Ile	Tyr	Gln	Ala	Met	Trp	Lys	Gly	Val	Leu	Arg
Pro	Gly	Thr	Ala	Leu	Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly
Phe	Ile	Ile	Asp	Pro	Val	Asn	Asn	Arg	Arg	Leu	Ser	Val	Glu	Glu
Ala	Val	Ala	Ala	Gly	Val	Val	Gly	Gly	Glu	Ile	Gln	Glu	Lys	Leu
Xaa	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr
Gly	Asp	Gln	Ile	Ser	Leu	Phe	Gln	Ala	Met	Gln	Arg	Asp	Leu	Ile
Val	Arg	Asp	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr
Gly	Gly	Val	Ile	Asp	Pro	Val	His	Ser	His	Arg	Val	Pro	Val	Asp
Val	Ala	Tyr	Gln	Arg	Gly	Tyr	Phe	Asp	Glu	Asp	Met	Asn	Ser	Ile

4430						4435						4440			
Leu	Ala	Asp	Pro	Gly	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	
4445						4450					4455				
Thr	His	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Arg	Arg	Cys	Val	
4460						4465					4470				
Arg	Asp	Pro	Glu	Thr	Gly	Phe	Tyr	Met	Leu	Gln	Leu	Ala	Gly	Lys	
4475						4480					4485				
Gly	Ser	Ser	Val	His	His	Leu	Ser	Glu	Glu	Leu	Arg	Arg	Ala	Leu	
4490						4495					4500				
Arg	Glu	Ala	Arg	Val	Thr	Pro	Gly	Thr	Gly	Asp	Phe	Gln	Gly	Gln	
4505						4510					4515				
Ser	Ile	Ser	Val	Trp	Glu	Leu	Leu	Phe	Tyr	Arg	Glu	Val	Pro	Glu	
4520						4525					4530				
Ser	Leu	Arg	Gln	Asp	Leu	Leu	Arg	Arg	Tyr	Gln	Ala	Gly	Gly	Leu	
4535						4540					4545				
Thr	Val	His	Asp	Val	Thr	Thr	Thr	Leu	Thr	Ser	Leu	Leu	Ala	Arg	
4550						4555					4560				
Ala	Lys	Asp	Gly	Ser	Pro	Arg	Xaa	Asp	Pro	Gln	Gly	Ala	Leu	Gly	
4565						4570					4575				
Lys	Ala	Thr	Met	Glu	Val	Lys	Arg	Gly	His	Leu	Arg	Gly	His	Xaa	
4580						4585					4590				
Val	Pro	Val	Trp	Asp	Ile	Leu	Thr	Ser	Asn	Tyr	Val	Ser	Arg	Asp	
4595						4600					4605				
Thr	Arg	Lys	Glu	Leu	Leu	Ala	Gln	Phe	Ser	Ser	Gly	Ser	Leu	Thr	
4610						4615					4620				
Leu	Pro	Met	Leu	Lys	Arg	Arg	Leu	Thr	Thr	Ile	Ile	Glu	Glu	Ala	
4625						4630					4635				
Glu	Glu	Thr	Gln	Glu	Ser	Lys	Pro	Lys	Pro	Arg	Asp	Ala	Ser	Leu	
4640						4645					4650				
Lys	Gln	Gln	Asp	Thr	Gly	Ala	Arg	Gly	Ser	Gly	Thr	Ser	Pro	Asp	
4655						4660					4665				
Glu	Gly	Asp	Ala	Gln	Asp	Ser	Ser	Glu	Ser	Ala	Arg	Gln	Gln	Gln	
4670						4675					4680				
Glu	Gln	Thr	Leu	Arg	Ala	Thr	Thr	Met	Gln	Val	His	Arg	Gly	Gln	
4685						4690					4695				
Phe	Arg	Asp	Gln	Gln	Val	Ser	Val	Trp	Lys	Val	Leu	Phe	Ser	Ser	

4700	4705	4710
Tyr Leu Ser Glu Thr Arg Arg Glu Glu Leu Leu Ala Gln His Leu		
4715	4720	4725
Ala Gly Lys Leu Gly Val Met Glu Leu Val Ser Leu Leu Thr Gln		
4730	4735	4740
Ile Ile Glu Glu Thr Glu Glu Arg Leu Ser Lys Val Ser Phe Pro		
4745	4750	4755
Gly Leu Arg Arg Gln Val Ser Ala Ser Glu Leu Cys Thr Ser Gly		
4760	4765	4770
Ile Leu Asp Arg Asp Thr Met Arg Glu Leu Ala Gln Gly Thr Lys		
4775	4780	4785
Thr Ile His Glu Val Thr Glu Met Asp Ser Val Lys Arg Tyr Leu		
4790	4795	4800
Gly Gly Ser Ser Cys Ile Ala Gly Val Leu Val Pro Val Gln Gly		
4805	4810	4815
Glu Pro Gly Arg Gln Glu Lys Met Ser Ile Tyr Gln Ala Met Trp		
4820	4825	4830
Lys Gly Val Leu Arg Pro Gly Thr Ala Leu Val Leu Leu Glu Ala		
4835	4840	4845
Gln Ala Ala Thr Gly Phe Ile Ile Asp Pro Val Asn Asn Arg Arg		
4850	4855	4860
Leu Ser Val Glu Glu Ala Val Ala Ala Gly Val Val Gly Gly Glu		
4865	4870	4875
Ile Gln Glu Lys Leu Xaa Ser Ala Glu Arg Ala Val Thr Gly Tyr		
4880	4885	4890
Thr Asp Pro Tyr Thr Gly Asp Gln Ile Ser Leu Phe Gln Ala Met		
4895	4900	4905
Gln Arg Asp Leu Ile Val Arg Asp His Gly Ile Arg Leu Leu Glu		
4910	4915	4920
Ala Gln Ile Ala Thr Gly Gly Val Ile Asp Pro Val His Ser His		
4925	4930	4935
Arg Val Pro Val Asp Val Ala Tyr Gln Arg Gly Tyr Phe Asp Glu		
4940	4945	4950
Asp Met Asn Ser Ile Leu Ala Asp Pro Gly Asp Asp Thr Lys Gly		
4955	4960	4965
Phe Phe Asp Pro Asn Thr His Glu Asn Leu Thr Tyr Leu Gln Leu		

4970						4975						4980			
Leu Arg	Arg Cys	Val Arg	Asp	Pro Glu	Thr Gly	Phe	Tyr Met	Leu							
4985			4990			4995									
Gln Leu	Ala Gly	Lys Gly	Ser	Ser Val	His His	Leu	Ser Glu	Glu							
5000			5005			5010									
Leu Arg	Arg Ala	Leu Arg	Glu	Ala Arg	Val Thr	Pro	Gly Thr	Gly							
5015			5020			5025									
Asp Phe	Gln Gly	Gln Ser	Ile	Ser Val	Trp Glu	Leu	Leu Phe	Tyr							
5030			5035			5040									
Arg Glu	Val Pro	Glu Ser	Leu	Arg Gln	Asp Leu	Leu	Arg Arg	Tyr							
5045			5050			5055									
Gln Ala	Gly Gly	Leu Thr	Val	His Asp	Val Thr	Thr	Thr Leu	Thr							
5060			5065			5070									
Ser Leu	Leu Ala	Arg Ala	Lys	Asp Gly	Ser Pro	Arg	Xaa Asp	Pro							
5075			5080			5085									
Gln Gly	Ala Leu	Gly Lys	Ala	Thr Met	Glu Val	Lys	Arg Gly	His							
5090			5095			5100									
Leu Arg	Gly His	Xaa Val	Pro	Val Trp	Asp Ile	Leu	Thr Ser	Asn							
5105			5110			5115									
Tyr Val	Ser Arg	Asp Thr	Arg	Lys Glu	Leu Leu	Ala	Gln Phe	Ser							
5120			5125			5130									
Ser Gly	Ser Leu	Thr Leu	Pro	Met Leu	Lys Arg	Arg	Leu Thr	Thr							
5135			5140			5145									
Ile Ile	Glu Glu	Ala Glu	Glu	Thr Gln	Glu Ser	Lys	Pro Lys	Pro							
5150			5155			5160									
Arg Asp	Ala Ser	Leu Lys	Gln	Gln Asp	Thr Gly	Ala	Arg Gly	Ser							
5165			5170			5175									
Gly Thr	Ser Pro	Asp Glu	Gly	Asp Ala	Gln Asp	Ser	Ser Glu	Ser							
5180			5185			5190									
Ala Arg	Gln Gln	Gln Glu	Gln	Thr Leu	Arg Ala	Thr	Thr Met	Gln							
5195			5200			5205									
Val His	Arg Gly	Gln Phe	Arg	Asp Gln	Gln Val	Ser	Val Trp	Lys							
5210			5215			5220									
Val Leu	Phe Ser	Ser Tyr	Leu	Ser Glu	Thr Arg	Arg	Glu Glu	Leu							
5225			5230			5235									
Leu Ala	Gln His	Leu Ala	Gly	Lys Leu	Gly Val	Met	Glu Leu	Val							

5240		5245		5250	
Ser Leu Leu Thr Gln Ile Ile Glu Glu Thr Glu Glu Arg Leu Ser					
5255		5260		5265	
Lys Val Ser Phe Pro Gly Leu Arg Arg Gln Val Ser Ala Ser Glu					
5270		5275		5280	
Leu Cys Thr Ser Gly Ile Leu Asp Arg Asp Thr Met Arg Glu Leu					
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Ala Gln Gly Thr Lys Thr Ile His Glu Val Thr Glu Met Asp Ser					
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Val Lys Arg Tyr Leu Gly Gly Ser Ser Cys Ile Ala Gly Val Leu					
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Val Pro Val Gln Gly Glu Pro Gly Arg Gln Glu Lys Met Ser Ile					
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Tyr Gln Ala Met Trp Lys Gly Val Leu Arg Pro Gly Thr Ala Leu					
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Val Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Ile Asp Pro					
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Val Asn Asn Arg Arg Leu Ser Val Glu Glu Ala Val Ala Ala Gly					
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Val Val Gly Gly Glu Ile Gln Glu Lys Leu Xaa Ser Ala Glu Arg					
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Ala Val Thr Gly Tyr Thr Asp Pro Tyr Thr Gly Asp Gln Ile Ser					
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Leu Phe Gln Ala Met Gln Arg Asp Leu Ile Val Arg Asp His Gly					
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Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly Val Ile Asp					
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Pro Val His Ser His Arg Val Pro Val Asp Val Ala Tyr Gln Arg					
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Gly Tyr Phe Asp Glu Asp Met Asn Ser Ile Leu Ala Asp Pro Gly					
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Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr His Glu Asn Leu					
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Thr Tyr Leu Gln Leu Leu Arg Arg Cys Val Arg Asp Pro Glu Thr					
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Gly Phe Tyr Met Leu Gln Leu Ala Gly Lys Gly Ser Ser Val His					

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His Leu Ser Glu Glu Leu Arg Arg Ala Leu Arg Glu Ala Arg Val					
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Thr Pro Gly Thr Gly Asp Phe Gln Gly Gln Ser Ile Ser Val Trp					
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Glu Leu Leu Phe Tyr Arg Glu Val Pro Glu Ser Leu Arg Gln Asp					
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Pro Arg Xaa Asp Pro Gln Gly Ala Leu Gly Lys Ala Thr Met Glu					
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Leu Ala Gln Phe Ser Ser Gly Ser Leu Thr Leu Pro Met Leu Lys					
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Arg Arg Leu Thr Thr Ile Ile Glu Glu Ala Glu Glu Thr Gln Glu					
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Ser Lys Pro Lys Pro Arg Asp Ala Ser Leu Lys Gln Gln Asp Thr					
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Gly Ala Arg Gly Ser Gly Thr Ser Pro Asp Glu Gly Asp Ala Gln					
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Ala Thr Thr Met Gln Val His Arg Gly Gln Phe Arg Asp Gln Gln					
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Val Ser Val Trp Lys Val Leu Phe Ser Ser Tyr Leu Ser Glu Thr					
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Arg Arg Glu Glu Leu Leu Ala Gln His Leu Ala Gly Lys Leu Gly					
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Val Met Glu Leu Val Ser Leu Leu Thr Gln Ile Ile Glu Glu Thr					
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Glu Glu Arg Leu Ser Lys Val Ser Phe Pro Gly Leu Arg Arg Gln					



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Thr	Glu	Met	Asp	Ser	Val	Lys	Arg	Tyr	Leu	Gly	Gly	Ser	Ser	Cys	
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Ile	Ala	Gly	Val	Leu	Val	Pro	Val	Gln	Gly	Glu	Pro	Gly	Arg	Gln	
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Pro	Gly	Thr	Ala	Leu	Val	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	
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Phe	Ile	Ile	Asp	Pro	Val	Asn	Asn	Arg	Arg	Leu	Ser	Val	Glu	Glu	
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Ala	Val	Ala	Ala	Gly	Val	Val	Gly	Gly	Glu	Ile	Gln	Glu	Lys	Leu	
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Xaa	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Thr	Asp	Pro	Tyr	Thr	
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Val	Arg	Asp	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	
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Val	Ala	Tyr	Gln	Arg	Gly	Tyr	Phe	Asp	Glu	Asp	Met	Asn	Ser	Ile	
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Leu	Ala	Asp	Pro	Gly	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	
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Thr	His	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Leu	Arg	Arg	Cys	Val	
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Thr Val His Asp Val Thr Thr Thr Leu Thr Ser Leu Leu Ala Arg				
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Ala Lys Asp Gly Ser Pro Arg Glu Asp Pro Gln Gly Ala Leu Gly				
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Lys Ala Thr Met Glu Val Lys Arg Gly His Leu Arg Gly His Val				
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Val Pro Val Trp Asp Ile Leu Thr Ser Asn Tyr Val Ser Arg Asp				
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Thr Arg Lys Glu Leu Leu Ala Gln Phe Ser Ser Gly Ser Leu Thr				
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Leu Pro Met Leu Lys Arg Arg Leu Thr Thr Ile Ile Glu Glu Ala				
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Glu Glu Thr Gln Glu Ser Lys Pro Lys Pro Arg Asp Ala Ser Leu				
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Lys Gln Gln Asp Thr Gly Ala Arg Gly Ser Gly Thr Ser Pro Asp				
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Glu Gly Asp Ala Gln Asp Ser Ser Glu Ser Ala Arg Gln Gln Gln				
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Glu Gln Thr Leu Arg Ala Thr Thr Met Gln Val His Arg Gly Gln				
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Phe Arg Asp Gln Gln Val Ser Val Trp Lys Val Leu Phe Ser Ser				
6245		6250		6255
Tyr Leu Ser Glu Thr Arg Arg Glu Glu Leu Leu Ala Gln His Leu				
6260		6265		6270
Ala Gly Lys Leu Gly Val Met Glu Leu Val Ser Leu Leu Thr Gln				
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Ile Ile Glu Glu Thr Glu Glu Arg Leu Ser Lys Val Ser Phe Pro				
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Gly Leu Arg Arg Gln Val Ser Ala Ser Glu Leu Cys Thr Ser Gly				
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Ile Leu Asp Arg Asp Thr Met Arg Glu Leu Ala Gln Gly Thr Lys				

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Thr Ile His Glu Val Thr	Glu Met Asp Ser Val	Lys Arg Tyr Leu		
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Gly Gly Ser Ser Cys Ile	Ala Gly Val Leu Val	Pro Val Gln Gly		
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Glu Pro Gly Arg Gln Glu	Lys Met Ser Ile Tyr	Gln Ala Met Trp		
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Lys Gly Val Leu Arg Pro	Gly Thr Ala Leu Val	Leu Leu Glu Ala		
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Gln Ala Ala Thr Gly Phe	Ile Ile Asp Pro Val	Asn Asn Arg Arg		
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Leu Ser Val Glu Glu Ala	Val Ala Ala Gly Val	Val Gly Gly Glu		
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Ile Gln Glu Lys Leu Leu	Ser Ala Glu Arg Ala	Val Thr Gly Tyr		
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Thr Asp Pro Tyr Thr Gly	Asp Gln Ile Ser Leu	Phe Gln Ala Met		
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Gln Arg Asp Leu Ile Val	Lys Asn His Gly Ile	Arg Leu Leu Glu		
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Ala Gln Ile Ala Thr Gly	Gly Val Ile Asp Pro	Val His Ser His		
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Arg Val Pro Val Asp Val	Ala Tyr Gln Arg Gly	Tyr Phe Asp Gln		
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Glu Met Asn Ser Ile Leu	Ala Asp Pro Gly Asp	Asp Thr Lys Gly		
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Phe Phe Asp Pro Asn Thr	His Glu Asn Leu Thr	Tyr Leu Gln Leu		
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Val Ala Leu Arg Thr Lys Lys Gly Leu Lys Gly Ser Ile Glu Asp Val																
	20					25					30					
ctt gga gac ctc ctg gga gat gac aca aca cca cct gag aag cct gct																144
Leu Gly Asp Leu Leu Gly Asp Asp Thr Thr Pro Pro Glu Lys Pro Ala																
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gag cca gct tcc cat gcc aaa gac aca gcg agc tca cct cag tgg cag																192
Glu Pro Ala Ser His Ala Lys Asp Thr Ala Ser Ser Pro Gln Trp Gln																
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gga gct gat gct gag gcc tcc agc gtc tcg gat gca gac cca cag gtc																288
Gly Ala Asp Ala Glu Ala Ser Ser Val Ser Asp Ala Asp Pro Gln Val																
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ttc ctg cag aac atg aag gac ttg gac agc atg gac gat gat ctc ttt																336
Phe Leu Gln Asn Met Lys Asp Leu Asp Ser Met Asp Asp Asp Leu Phe																
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ggt cgg ata aag tct cac cag ccc tcc ggc aaa gga gct gca aag ggt																384
Gly Arg Ile Lys Ser His Gln Pro Ser Gly Lys Gly Ala Ala Lys Gly																
	115					120					125					
cct ggg aaa gaa gga cct agc aat cac aag cct gct ggc aca tta aca																432
Pro Gly Lys Glu Gly Pro Ser Asn His Lys Pro Ala Gly Thr Leu Thr																
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Ala Asn Glu Lys Gly Tyr Thr Met Pro Thr Lys Lys Pro Pro Pro Ser																
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tcc agc aag act ggg ctt cag tat aag aag ttc tcc ttt gaa gac ttt																528
Ser Ser Lys Thr Gly Leu Gln Tyr Lys Lys Phe Ser Phe Glu Asp Phe																
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Glu Asp Pro Leu Ala Gly Leu Leu Ser Asp Glu Glu Glu Glu Thr Ala																
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acg aag ctg cct gca gtg gag agg aaa cct gct ccc aag agc cyg ggc																624
Thr Lys Leu Pro Ala Val Glu Arg Lys Pro Ala Pro Lys Ser Xaa Gly																
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gca gca gca ggc caa ggt cct tct gtt cct ctg acc cct ggg gat acg																672
Ala Ala Ala Gly Gln Gly Pro Ser Val Pro Leu Thr Pro Gly Asp Thr																
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ccc atc agg aag aaa gaa ctg ctc ttt gat gaa ggg gat gac atc atg																720
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act act ctg ggc ttt gaa gac agc ccc aag gca gag agg aag aag aca																768
Thr Thr Leu Gly Phe Glu Asp Ser Pro Lys Ala Glu Arg Lys Lys Thr																
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Leu Gly Arg Gly Thr Ala Ala Lys Leu Leu Thr Arg Pro Gly Thr Gly																

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cca gac cct aag gga gaa agc cta ggc ttc aaa cag agc tct cca cca Pro Asp Pro Lys Gly Glu Ser Leu Gly Phe Lys Gln Ser Ser Pro Pro 355 360 365			1104
gcc tcc agt cct atc cac ccc agg aaa gga gga gct gac tgg tta ggc Ala Ser Ser Pro Ile His Pro Arg Lys Gly Gly Ala Asp Trp Leu Gly 370 375 380			1152
ctt aag gac aat gac ctg gac ctg ctg tct ccc tct cct gtt caa aag Leu Lys Asp Asn Asp Leu Asp Leu Leu Ser Pro Ser Pro Val Gln Lys 385 390 395 400			1200
gcc caa cag gaa gac tca ccc atg aca ccc tct ctc ctg cct cct aca Ala Gln Gln Glu Asp Ser Pro Met Thr Pro Ser Leu Leu Pro Pro Thr 405 410 415			1248
aac cag ccc tca gcc cca gag cca cag tct gcc cca act gga ctt ccc Asn Gln Pro Ser Ala Pro Glu Pro Gln Ser Ala Pro Thr Gly Leu Pro 420 425 430			1296
tca gca gca aag cca cca gcc aag ggt gca aga ccc tct ctc aaa gcc Ser Ala Ala Lys Pro Pro Ala Lys Gly Ala Arg Pro Ser Leu Lys Ala 435 440 445			1344
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Pro	Thr	Gly	Leu	Ser	Val	Pro	Ile	Gln	Thr	Leu	Leu	Pro	Glu	Ser	Met			
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Met	Gln	Ser	Leu	Leu	Pro	Gly	Ser	Gly	Tyr	Gln	Lys	Gln	Leu	Leu	Ala			
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gcc	cag	ggg	cag	ctg	cag	agt	agc	act	gcc	cag	ctt	cag	gtt	gag	ctg			1872
Ala	Gln	Gly	Gln	Leu	Gln	Ser	Ser	Thr	Ala	Gln	Leu	Gln	Val	Glu	Leu			
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ctg	cag	agc	cag	acc	aag	ctg	tca	gag	ctg	gag	gcc	cag	gtg	cgc	aag			1920
Leu	Gln	Ser	Gln	Thr	Lys	Leu	Ser	Glu	Leu	Glu	Ala	Gln	Val	Arg	Lys			
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ttg	gag	ctg	gag	cgg	gcc	cag	cac	agg	atg	ctg	ctg	gag	agt	ttg	cag			1968
Leu	Glu	Leu	Glu	Arg	Ala	Gln	His	Arg	Met	Leu	Leu	Glu	Ser	Leu	Gln			
				645					650					655				
cag	cga	cac	cag	gca	gac	ctg	gag	ctc	atc	gag	gat	gca	cat	aga	agc			2016
Gln	Arg	His	Gln	Ala	Asp	Leu	Glu	Leu	Ile	Glu	Asp	Ala	His	Arg	Ser			
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cgt	atc	aag	gtg	cta	gaa	aca	tcc	tac	cag	cag	cgg	gag	gag	cag	ctg			2064
Arg	Ile	Lys	Val	Leu	Glu	Thr	Ser	Tyr	Gln	Gln	Arg	Glu	Glu	Gln	Leu			
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cgc	aga	gag	aag	gag	gtg	cta	tca	gct	cag	cat	gcg	tca	tat	tgc	cga			2112
Arg	Arg	Glu	Lys	Glu	Val	Leu	Ser	Ala	Gln	His	Ala	Ser	Tyr	Cys	Arg			
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gaa	gct	gag	cag	gcc	agg	gct	gag	ctc	gta	gcc	cag	cac	cag	cgg	cag			2160
Glu	Ala	Glu	Gln	Ala	Arg	Ala	Glu	Leu	Val	Ala	Gln	His	Gln	Arg	Gln			
705					710				715						720			
atg	gcc	atg	gct	gaa	cag	gag	agg	gac	cag	gag	gtt	gcc	cgg	ctc	cgg			2208
Met	Ala	Met	Ala	Glu	Gln	Glu	Arg	Asp	Gln	Glu	Val	Ala	Arg	Leu	Arg			
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gag	ctt	cag	cag	gca	tcc	atc	ctg	gag	atg	cgc	aag	gat	cat	gag	cac			2256
Glu	Leu	Gln	Gln	Ala	Ser	Ile	Leu	Glu	Met	Arg	Lys	Asp	His	Glu	His			
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cag	ctg	cag	cgg	ctg	aag	atg	ctg	aag	gac	cag	gag	att	gat	gct	gtc			2304
Gln	Leu	Gln	Arg	Leu	Lys	Met	Leu	Lys	Asp	Gln	Glu	Ile	Asp	Ala	Val			
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acc	agc	gct	acc	tcc	cat	act	cgg	tcc	ctg	aat	ggc	atc	atc	gag	cag			2352
Thr	Ser	Ala	Thr	Ser	His	Thr	Arg	Ser	Leu	Asn	Gly	Ile	Ile	Glu	Gln			
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Met	Glu	Lys	Phe	Ser	Ser	Ser	Leu	Asn	Thr	Leu	Ser	Ser	Arg	Val	Glu			
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Ala	Ser	His	Leu	Thr	Thr	Ser	Gln	Gln	Arg	Glu	Leu	Gly	Ile	Arg	Gln			
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Gln	Asp	Glu	Gln	Leu	Arg	Ala	Leu	Gln	Glu	Arg	Leu	Gly	Arg	Gln	Gln			
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cga	gac	atg	gag	gaa	gag	cgg	aac	agg	cta	cag	gag	gtc	atc	ggg	aag			2544
Arg	Asp	Met	Glu	Glu	Glu	Arg	Asn	Arg	Leu	Gln	Glu	Val	Ile	Gly	Lys			
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Met	Glu	Val	Arg	Leu	Ser	Glu	Gln	Ser	Arg	Leu	Leu	Glu	Gln	Glu	Arg			

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ctg gag gag caa agg aag atc atg gtc cag cag att gcc atg gag agg			2688
Leu Glu Glu Gln Arg Lys Ile Met Val Gln Gln Ile Ala Met Glu Arg			
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Glu Glu Leu Glu Arg Ala Lys Ser Ala Leu Leu Glu Glu Gln Lys Ser			
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Ile Ser Leu Thr Lys Glu Gln Ala Glu Leu Thr Val Arg Ala Cys Glu			
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Ser Leu Arg Leu Gln Ala Arg Ala Gln Glu Val Glu His Met Ser			
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aag gta gcc tcc aag aaa tac gag gag ggg gag cag gcc ttg cag			3114
Lys Val Ala Ser Lys Lys Tyr Glu Glu Gly Glu Gln Ala Leu Gln			
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gag gcg cag cag atg cag aat gag cag cag ggc cgg ctg cag gtg			3159
Glu Ala Gln Gln Met Gln Asn Glu Gln Gln Gly Arg Leu Gln Val			
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gtc cag cgg cag cag gag tgg ctg cgg cag cag gag caa cgt gtg			3204
Val Gln Arg Gln Gln Glu Trp Leu Arg Gln Gln Glu Gln Arg Val			
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cac cag gag cac ctg agc ctg gca cag cag agg ctg cag ctg gac			3249
His Gln Glu His Leu Ser Leu Ala Gln Gln Arg Leu Gln Leu Asp			
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cgc gtg cgg cag gaa gtg cct gct agc ctt ccg ggg ctg ccc ccc			3294
Arg Val Arg Gln Glu Val Pro Ala Ser Leu Pro Gly Leu Pro Pro			
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agg gtt cag ggc ccg gca gcc tcc agc cgg gat gct gtc cag gcc			3339
Arg Val Gln Gly Pro Ala Ala Ser Ser Arg Asp Ala Val Gln Ala			
1100	1105	1110	
ccc gct tcc agc agt cct cag tgt agc cag cca gct gct gcc cag			3384
Pro Ala Ser Ser Ser Pro Gln Cys Ser Gln Pro Ala Ala Ala Gln			
1115	1120	1125	
gtg ccc aca cac ctt ctt gcc aag ctg ctg ctg cta aag cat aca			3429
Val Pro Thr His Leu Leu Ala Lys Leu Leu Leu Leu Lys His Thr			

1130	1135	1140	
gca gaa gag gac cac gac ttc ttg gag aat gaa cag ttc ttc ctg			3474
Ala Glu Glu Asp His Asp Phe Leu Glu Asn Glu Gln Phe Phe Leu			
1145	1150	1155	
gag act ctg aag aaa gca ccc tat aat atg gcg tac cat tct gcc			3519
Glu Thr Leu Lys Lys Ala Pro Tyr Asn Met Ala Tyr His Ser Ala			
1160	1165	1170	

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Glu Pro Ala Ser His Ala Lys Asp Thr Ala Ser Ser Pro Gln Trp Gln	
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Ala Ser Lys Ala Lys Phe Leu Pro Lys Asp Ser Val Glu Gly Leu Ala	
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Gly Ala Asp Ala Glu Ala Ser Ser Val Ser Asp Ala Asp Pro Gln Val	
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Phe Leu Gln Asn Met Lys Asp Leu Asp Ser Met Asp Asp Asp Leu Phe	
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Gly Arg Ile Lys Ser His Gln Pro Ser Gly Lys Gly Ala Ala Lys Gly	
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Pro Gly Lys Glu Gly Pro Ser Asn His Lys Pro Ala Gly Thr Leu Thr	
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Ala Asn Glu Lys Gly Tyr Thr Met Pro Thr Lys Lys Pro Pro Pro Ser	
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Ser Ser Lys Thr Gly Leu Gln Tyr Lys Lys Phe Ser Phe Glu Asp Phe	
165 170 175	
Glu Asp Pro Leu Ala Gly Leu Leu Ser Asp Glu Glu Glu Glu Thr Ala	
180 185 190	
Thr Lys Leu Pro Ala Val Glu Arg Lys Pro Ala Pro Lys Ser Xaa Gly	



195

200

205

Ala Ala Ala Gly Gln Gly Pro Ser Val Pro Leu Thr Pro Gly Asp Thr  
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Pro Ile Arg Lys Lys Glu Leu Leu Phe Asp Glu Gly Asp Asp Ile Met  
 225 230 235 240

Thr Thr Leu Gly Phe Glu Asp Ser Pro Lys Ala Glu Arg Lys Lys Thr  
 245 250 255

Gly Asp Gln Glu Gly Pro Leu Pro Ala Arg Ser Lys Leu Asp Glu Leu  
 260 265 270

Leu Gly Arg Gly Thr Ala Ala Lys Leu Leu Thr Arg Pro Gly Thr Gly  
 275 280 285

Glu Arg Arg Glu Phe Gln Leu Asp Lys Lys Tyr Gln Lys Met Gly Gly  
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Glu Glu Ser Val Pro Ala Arg Asp Lys Glu Asp Ser Trp Asp Asp Glu  
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Thr Leu Thr Phe Gly Ala Tyr Lys Pro Thr Val Ala Ser Ser Glu Gly  
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Arg Gln Ser Arg Arg Gln Ser Val Ser Arg Phe Leu Gly Glu Gly Gly  
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Pro Asp Pro Lys Gly Glu Ser Leu Gly Phe Lys Gln Ser Ser Pro Pro  
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Ala Ser Ser Pro Ile His Pro Arg Lys Gly Gly Ala Asp Trp Leu Gly  
 370 375 380

Leu Lys Asp Asn Asp Leu Asp Leu Leu Ser Pro Ser Pro Val Gln Lys  
 385 390 395 400

Ala Gln Gln Glu Asp Ser Pro Met Thr Pro Ser Leu Leu Pro Pro Thr  
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Asn Gln Pro Ser Ala Pro Glu Pro Gln Ser Ala Pro Thr Gly Leu Pro  
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Ser Ala Ala Lys Pro Pro Ala Lys Gly Ala Arg Pro Ser Leu Lys Ala  
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Ser Gln Ala Ser Ser Pro Lys Ala Ser Glu Glu Lys Glu Asp Asp Trp  
 450 455 460

Leu Ser His Val Ile Ser Gln Lys Lys Ser Gln Asn Leu Ala Arg Glu  
 465 470 475 480

Glu Arg Ala Gly Pro Pro Lys Asp Leu Ala Ser Leu Gly Ser Leu Gly

485

490

495

Gln Thr Pro Ser Gly Ser Leu Pro Val Ala Gln Val Leu Glu Gln Ala  
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Pro Ala Gly Glu Ala Ser Lys Pro Thr Thr Gln Gly Met Ala Ala Val  
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Arg Pro Gly Val Thr Gly Ser Ser Met Ser Trp Ser Gln Ala Thr Thr  
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Val Leu Pro Val Asp Asp Pro Lys Lys Gly Ala Ala Ser Ala Ser Gly  
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Asp Phe Ser Ser Arg Glu Pro Ala Val Tyr Ile Pro His Ser Gln Glu  
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Pro Thr Gly Leu Ser Val Pro Ile Gln Thr Leu Leu Pro Glu Ser Met  
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Met Gln Ser Leu Leu Pro Gly Ser Gly Tyr Gln Lys Gln Leu Leu Ala  
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Ala Gln Gly Gln Leu Gln Ser Ser Thr Ala Gln Leu Gln Val Glu Leu  
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Leu Gln Ser Gln Thr Lys Leu Ser Glu Leu Glu Ala Gln Val Arg Lys  
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Leu Glu Leu Glu Arg Ala Gln His Arg Met Leu Leu Glu Ser Leu Gln  
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Gln Arg His Gln Ala Asp Leu Glu Leu Ile Glu Asp Ala His Arg Ser  
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Arg Ile Lys Val Leu Glu Thr Ser Tyr Gln Gln Arg Glu Glu Gln Leu  
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Arg Arg Glu Lys Glu Val Leu Ser Ala Gln His Ala Ser Tyr Cys Arg  
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Met Ala Met Ala Glu Gln Glu Arg Asp Gln Glu Val Ala Arg Leu Arg  
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Glu Leu Gln Gln Ala Ser Ile Leu Glu Met Arg Lys Asp His Glu His  
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Gln Leu Gln Arg Leu Lys Met Leu Lys Asp Gln Glu Ile Asp Ala Val  
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Thr Ser Ala Thr Ser His Thr Arg Ser Leu Asn Gly Ile Ile Glu Gln

770

775

780

Met Glu Lys Phe Ser Ser Ser Leu Asn Thr Leu Ser Ser Arg Val Glu  
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Ala Ser His Leu Thr Thr Ser Gln Gln Arg Glu Leu Gly Ile Arg Gln  
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Gln Asp Glu Gln Leu Arg Ala Leu Gln Glu Arg Leu Gly Arg Gln Gln  
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Arg Asp Met Glu Glu Glu Arg Asn Arg Leu Gln Glu Val Ile Gly Lys  
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Met Glu Val Arg Leu Ser Glu Gln Ser Arg Leu Leu Glu Gln Glu Arg  
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Trp Arg Val Ala Ala Glu Lys Thr Lys Ala Glu Ser Ala Gln Arg Thr  
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Leu Glu Glu Gln Arg Lys Ile Met Val Gln Gln Ile Ala Met Glu Arg  
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Glu Glu Leu Glu Arg Ala Lys Ser Ala Leu Leu Glu Glu Gln Lys Ser  
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Val Met Asn Lys Cys Gly Glu Glu Arg Arg Arg Leu Ala Ala Glu Trp  
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Glu Ala Glu Arg Ala Met His Ala Asp Ser Gln Arg Glu Gly Thr Ile  
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Ile Ser Leu Thr Lys Glu Gln Ala Glu Leu Thr Val Arg Ala Cys Glu  
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Leu Arg Ala Lys Glu Glu Lys Leu Leu Ala Glu Arg Glu Ala Leu Glu  
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Arg Glu Arg Gln Glu Leu Arg Leu Glu Lys Asp Arg Leu His Lys Ala  
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Ser Leu Arg Leu Gln Ala Arg Ala Gln Glu Val Glu His Met Ser  
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Lys Val Ala Ser Lys Lys Tyr Glu Glu Gly Glu Gln Ala Leu Gln  
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Glu Ala Gln Gln Met Gln Asn Glu Gln Gln Gly Arg Leu Gln Val  
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Val Gln Arg Gln Gln Glu Trp Leu Arg Gln Gln Glu Gln Arg Val

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Arg Val Gln Gly Pro Ala Ala Ser Ser Arg Asp Ala Val Gln Ala			
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Pro Ala Ser Ser Ser Pro Gln Cys Ser Gln Pro Ala Ala Ala Gln			
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Val Pro Thr His Leu Leu Ala Lys Leu Leu Leu Leu Lys His Thr			
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Ala Glu Glu Asp His Asp Phe Leu Glu Asn Glu Gln Phe Phe Leu			
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Thr Leu Cys Gly Ala Val Leu Gly Thr Val Ala Ala Val Ser Val Ala			
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Gly Gln Lys Val Phe Ala Asp Glu Thr Thr Thr Thr Ser Asp Val Asp			
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Thr Lys Val Val Gly Thr Gln Thr Gly Asn Pro Ala Thr Asn Leu Pro			
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Glu Ala Gln Gly Ser Ala Ser Lys Gln Ala Glu Gln Ser Gln Thr Lys			
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Leu Glu Arg Gln Met Val His Thr Ile Glu Val Pro Lys Thr Asp Leu			
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Asp Gln Ala Ala Lys Asp Ala Lys Ser Ala Gly Val Asn Val Val Gln			
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Asp Ala Asp Val Asn Lys Gly Thr Val Lys Thr Ala Glu Glu Ala Val			

115					120					125						
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Gln	Lys	Glu	Thr	Glu	Ile	Lys	Glu	Asp	Tyr	Thr	Lys	Gln	Ala	Glu	Asp	
130					135					140						
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Ile	Lys	Lys	Thr	Thr	Asp	Gln	Tyr	Lys	Ser	Asp	Val	Ala	Ala	His	Glu	
145					150					155					160	
gca	gaa	gtt	gct	aaa	atc	aaa	gct	aaa	aat	cag	gca	act	aaa	gaa	cag	528
Ala	Glu	Val	Ala	Lys	Ile	Lys	Ala	Lys	Asn	Gln	Ala	Thr	Lys	Glu	Gln	
165					170					175						
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Tyr	Gly	Lys	Asp	Met	Val	Ala	His	Lys	Ala	Glu	Val	Glu	Arg	Ile	Asn	
180					185					190						
gct	gca	aat	gct	gcc	agt	aaa	aca	gct	tat	gaa	gct	aaa	ttg	gct	caa	624
Ala	Ala	Asn	Ala	Ala	Ser	Lys	Thr	Ala	Tyr	Glu	Ala	Lys	Leu	Ala	Gln	
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Tyr	Gln	Ala	Asp	Leu	Ala	Ala	Val	Gln	Lys	Thr	Asn	Ala	Ala	Asn	Gln	
210					215					220						
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Ala	Ser	Tyr	Gln	Lys	Ala	Leu	Ala	Ala	Tyr	Gln	Ala	Glu	Leu	Lys	Arg	
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Val	Gln	Glu	Ala	Asn	Ala	Ala	Ala	Lys	Ala	Ala	Tyr	Asp	Thr	Ala	Val	
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Ala	Ala	Asn	Asn	Ala	Lys	Asn	Thr	Glu	Ile	Ala	Ala	Ala	Asn	Glu	Glu	
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Ile	Arg	Lys	Arg	Asn	Ala	Thr	Ala	Lys	Ala	Glu	Tyr	Glu	Thr	Lys	Leu	
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Ala	Gln	Tyr	Gln	Ala	Glu	Leu	Lys	Arg	Val	Gln	Glu	Ala	Asn	Ala	Ala	
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Asn	Glu	Ala	Asp	Tyr	Gln	Ala	Lys	Leu	Thr	Ala	Tyr	Gln	Thr	Glu	Leu	
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gct	cgc	gtt	cag	aaa	gcc	aat	gca	gat	gct	aaa	gcg	gcc	tat	gaa	gca	1008
Ala	Arg	Val	Gln	Lys	Ala	Asn	Ala	Asp	Ala	Lys	Ala	Ala	Tyr	Glu	Ala	
325					330					335						
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Ala	Val	Ala	Ala	Asn	Asn	Ala	Lys	Asn	Ala	Ala	Leu	Thr	Ala	Glu	Asn	
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Thr	Ala	Ile	Lys	Gln	Arg	Asn	Glu	Asn	Ala	Lys	Ala	Thr	Tyr	Glu	Ala	
355					360					365						
gca	ctc	aag	caa	tat	gag	gct	gat	ttg	gca	gcg	gtg	aaa	aaa	gct	aat	1152
Ala	Leu	Lys	Gln	Tyr	Glu	Ala	Asp	Leu	Ala	Ala	Val	Lys	Lys	Ala	Asn	
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Ala	Ala	Asn	Glu	Ala	Asp	Tyr	Gln	Ala	Lys	Leu	Thr	Ala	Tyr	Gln	Thr	
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Glu	Leu	Ala	Arg	Val	Gln	Lys	Ala	Asn	Ala	Asp	Ala	Lys	Ala	Ala	Tyr	

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Glu	Ala	Ala	Val	Ala	Ala	Asn	Asn	Ala	Ala	Asn	Ala	Ala	Leu	Thr	Ala		
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Glu	Asn	Thr	Ala	Ile	Lys	Lys	Arg	Asn	Ala	Asp	Ala	Lys	Ala	Asp	Tyr		
435			440				445										
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Glu	Ala	Lys	Leu	Ala	Lys	Tyr	Gln	Ala	Asp	Leu	Ala	Lys	Tyr	Gln	Lys		
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Asp	Leu	Ala	Asp	Tyr	Pro	Val	Lys	Leu	Lys	Ala	Tyr	Glu	Asp	Glu	Gln		
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Ala	Ser	Ile	Lys	Ala	Ala	Leu	Ala	Glu	Leu	Glu	Lys	His	Lys	Asn	Glu		
485				490				495									
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Asp	Gly	Asn	Leu	Thr	Glu	Pro	Ser	Ala	Gln	Asn	Leu	Val	Tyr	Asp	Leu		
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Glu	Pro	Asn	Ala	Asn	Leu	Ser	Leu	Thr	Thr	Asp	Gly	Lys	Phe	Leu	Lys		
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Tyr	Asp	Gln	Lys	Ile	Leu	Gln	Leu	Asp	Asp	Leu	Asp	Ile	Thr	Asn	Leu		
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Lys	Trp	Gly	Ser	Val	Leu	Leu	Glu	Arg	Gly	Gln	Ser	Ala	Thr	Ala	Thr		
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610			615				620										
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675			680				685										
aat	gcc	ctt	cta	tca	gta	gct	tct	ctt	aac	cga	gaa	aat	aat	tct	att	2112	
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Glu Met Ala Lys Asp Tyr Thr Gly Lys Phe Val Lys Ile Ser Gly Ser					
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tct atc ggt gaa aag aat ggc atg att tat gct aca gat act ctc aac	2208				
Ser Ile Gly Glu Lys Asn Gly Met Ile Tyr Ala Thr Asp Thr Leu Asn					
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Phe Arg Gln Gly Gln Gly Gly Ala Arg Trp Thr Met Tyr Thr Arg Ala					
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cct ccg gtt aaa cca aca gct cca act aaa cca act tat gaa aca gaa	2544				
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Lys Pro Leu Lys Pro Ala Pro Val Ala Pro Asn Tyr Glu Lys Glu Pro					
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cca agc tat gaa gca gag cca aca ccg ccg aca agg aca ccg gat cag	2736				
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Ala Glu Pro Asn Lys Pro Thr Pro Pro Thr Tyr Glu Thr Glu Lys Pro					
		915		920	925
ttg gag cca gca cct gtt gag cca agc tat gaa gca gag cca acg cca	2832				
Leu Glu Pro Ala Pro Val Glu Pro Ser Tyr Glu Ala Glu Pro Thr Pro					
		930		935	940
ccg aca cca aca cca gat caa cca gaa cca aac aaa cct gtt gag cca	2880				
Pro Thr Pro Thr Pro Asp Gln Pro Glu Pro Asn Lys Pro Val Glu Pro					
		945		950	955
act tat gag gtt att cca aca ccg ccg act gat cct gtt tat caa gat	2928				
Thr Tyr Glu Val Ile Pro Thr Pro Pro Thr Asp Pro Val Tyr Gln Asp					
		965		970	975
ctt cca aca cct cca tct ata cca act gtt cat ttc cat tac ttt aaa	2976				
Leu Pro Thr Pro Pro Ser Ile Pro Thr Val His Phe His Tyr Phe Lys					

980

985

990

cta gct gtt cag ccg cag gtt aac	aaa gaa att aga aac	aat aac gat	3024
Leu Ala Val Gln Pro Gln Val Asn	Lys Glu Ile Arg Asn	Asn Asn Asp	
995	1000	1005	
gtt aat att gac aga act ttg	gtg gct aaa caa tct	gtt gtt aag	3069
Val Asn Ile Asp Arg Thr Leu	Val Ala Lys Gln Ser	Val Val Lys	
1010	1015	1020	
ttc cag ctg aag aca gca gat	ctc cct gct gga cgt	gat gaa aca	3114
Phe Gln Leu Lys Thr Ala Asp	Leu Pro Ala Gly Arg	Asp Glu Thr	
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act tcc ttt gtc ttg gta gat	ccc ctg cca tct ggt	tat caa ttt	3159
Thr Ser Phe Val Leu Val Asp	Pro Leu Pro Ser Gly	Tyr Gln Phe	
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aat cct gaa gct aca aaa gct	gcc agc cct ggc ttt	gat gtc gct	3204
Asn Pro Glu Ala Thr Lys Ala	Ala Ser Pro Gly Phe	Asp Val Ala	
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tat gat aat gca act aat aca	gtc acc ttc aag gca	act gca gca	3249
Tyr Asp Asn Ala Thr Asn Thr	Val Thr Phe Lys Ala	Thr Ala Ala	
1070	1075	1080	
act ttg gct acg ttt aat gct	gat ttg act aag tca	gtg gca acg	3294
Thr Leu Ala Thr Phe Asn Ala	Asp Leu Thr Lys Ser	Val Ala Thr	
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att tat cca aca gtg gtc gga	caa gtt ctt aat gat	ggc gca act	3339
Ile Tyr Pro Thr Val Val Gly	Gln Val Leu Asn Asp	Gly Ala Thr	
1100	1105	1110	
tat aag aat aat ttc tcg ctc	aca gtc aat gat gct	tat ggc att	3384
Tyr Lys Asn Asn Phe Ser Leu	Thr Val Asn Asp Ala	Tyr Gly Ile	
1115	1120	1125	
aaa tcc aat gtt gtt cgg gtg	aca act cct ggt aaa	cca aat gat	3429
Lys Ser Asn Val Val Arg Val	Thr Thr Pro Gly Lys	Pro Asn Asp	
1130	1135	1140	
cca gat aac cca aat aat aat	tac att aag cca act	aag gtt aat	3474
Pro Asp Asn Pro Asn Asn Asn	Tyr Ile Lys Pro Thr	Lys Val Asn	
1145	1150	1155	
aaa aat gaa aat ggc gtt gtt	att gat ggt aaa aca	gtt ctt gcc	3519
Lys Asn Glu Asn Gly Val Val	Ile Asp Gly Lys Thr	Val Leu Ala	
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ggc tca acg aat tat tat gag	cta act tgg gat ttg	gat caa tat	3564
Gly Ser Thr Asn Tyr Tyr Glu	Leu Thr Trp Asp Leu	Asp Gln Tyr	
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Lys Asn Asp Arg Ser Ser Ala	Asp Thr Ile Gln Gln	Gly Phe Tyr	
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Tyr Val Asp Asp Tyr Pro Glu	Glu Ala Leu Glu Leu	Arg Gln Asp	
1205	1210	1215	
tta gtg aag att aca gat gct	aat ggc aat gaa gtt	act ggt gtt	3699
Leu Val Lys Ile Thr Asp Ala	Asn Gly Asn Glu Val	Thr Gly Val	
1220	1225	1230	
agt gtg gat aat tat act agt	ctt gaa gca gcc cct	caa gaa att	3744
Ser Val Asp Asn Tyr Thr Ser	Leu Glu Ala Ala Pro	Gln Glu Ile	
1235	1240	1245	
aga gat gtt ctt tct aag gca	gga att aga cct aaa	ggc gct ttc	3789
Arg Asp Val Leu Ser Lys Ala	Gly Ile Arg Pro Lys	Gly Ala Phe	



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caa att ttc cgt gcc gat aat cca aga gaa ttt tat gat act tat			3834
Gln Ile Phe Arg Ala Asp Asn Pro Arg Glu Phe Tyr Asp Thr Tyr			
1265	1270	1275	
gtc aaa act gga att gat ttg aag att gta tca cca atg gtt gtt			3879
Val Lys Thr Gly Ile Asp Leu Lys Ile Val Ser Pro Met Val Val			
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aaa aaa caa atg gga caa aca ggc ggg agt tat gaa gat caa gct			3924
Lys Lys Gln Met Gly Gln Thr Gly Gly Ser Tyr Glu Asp Gln Ala			
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tac caa att gac ttt ggt aat ggt tat gca tca aat atc gtt atc			3969
Tyr Gln Ile Asp Phe Gly Asn Gly Tyr Ala Ser Asn Ile Val Ile			
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aat aat gtt cct aag att aac cct aag aaa gat gtg acc tta aca			4014
Asn Asn Val Pro Lys Ile Asn Pro Lys Lys Asp Val Thr Leu Thr			
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ctt gat ccg gct gat aca aat aat gtt gat ggt cag act att cca			4059
Leu Asp Pro Ala Asp Thr Asn Asn Val Asp Gly Gln Thr Ile Pro			
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Ala Asn His Ser Glu Glu Leu Phe Glu Tyr Asn Phe Tyr Asp Asp			
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Tyr Asp Gln Thr Gly Asp His Tyr Thr Gly Gln Tyr Lys Val Phe			
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gcc aag gtt gat atc act ctt aaa aac ggt gtt att atc aag tca			4239
Ala Lys Val Asp Ile Thr Leu Lys Asn Gly Val Ile Ile Lys Ser			
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ggt act gag tta act cag tat acg aca gcg gaa gtt gat acc act			4284
Gly Thr Glu Leu Thr Gln Tyr Thr Thr Ala Glu Val Asp Thr Thr			
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Lys Gly Ala Ile Thr Ile Lys Phe Lys Glu Ala Phe Leu Arg Ser			
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Val Ser Ile Asp Ser Ala Phe Gln Ala Glu Ser Tyr Ile Gln Met			
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Lys Arg Ile Ala Val Gly Thr Phe Glu Asn Thr Tyr Ile Asn Thr			
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gtc aat ggg gta act tac agt tca aat aca gtg aaa aca act act			4464
Val Asn Gly Val Thr Tyr Ser Ser Asn Thr Val Lys Thr Thr Thr			
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cct gag gat cct gca gac cct act gat ccg caa gat cca tca tca			4509
Pro Glu Asp Pro Ala Asp Pro Thr Asp Pro Gln Asp Pro Ser Ser			
1490	1495	1500	
ccg cgg act tca act gta att atc tac aaa cct caa tca act gct			4554
Pro Arg Thr Ser Thr Val Ile Ile Tyr Lys Pro Gln Ser Thr Ala			
1505	1510	1515	
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Tyr Gln Pro Ser Ser Val Gln Lys Thr Leu Pro Asn Thr Gly Val			

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aca aac aat gct tat atg cct tta ctt ggt att att ggc tta gtt			4644
Thr Asn Asn Ala Tyr Met Pro Leu Leu Gly Ile Ile Gly Leu Val			
1535	1540	1545	

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Gly Gln Lys Val Phe Ala Asp Glu Thr Thr Thr Thr Ser Asp Val Asp	
35 40 45	

Thr Lys Val Val Gly Thr Gln Thr Gly Asn Pro Ala Thr Asn Leu Pro	
50 55 60	

Glu Ala Gln Gly Ser Ala Ser Lys Gln Ala Glu Gln Ser Gln Thr Lys	
65 70 75 80	

Leu Glu Arg Gln Met Val His Thr Ile Glu Val Pro Lys Thr Asp Leu	
85 90 95	

Asp Gln Ala Ala Lys Asp Ala Lys Ser Ala Gly Val Asn Val Val Gln	
100 105 110	

Asp Ala Asp Val Asn Lys Gly Thr Val Lys Thr Ala Glu Glu Ala Val	
115 120 125	

Gln Lys Glu Thr Glu Ile Lys Glu Asp Tyr Thr Lys Gln Ala Glu Asp	
130 135 140	

Ile Lys Lys Thr Thr Asp Gln Tyr Lys Ser Asp Val Ala Ala His Glu	
145 150 155 160	

Ala Glu Val Ala Lys Ile Lys Ala Lys Asn Gln Ala Thr Lys Glu Gln	
165 170 175	

Tyr Gly Lys Asp Met Val Ala His Lys Ala Glu Val Glu Arg Ile Asn	
180 185 190	

Ala Ala Asn Ala Ala Ser Lys Thr Ala Tyr Glu Ala Lys Leu Ala Gln	
195 200 205	

Tyr Gln Ala Asp Leu Ala Ala Val Gln Lys Thr Asn Ala Ala Asn Gln	
210 215 220	

Ala	Ser	Tyr	Gln	Lys	Ala	Leu	Ala	Ala	Tyr	Gln	Ala	Glu	Leu	Lys	Arg	225	230	235	240
Val	Gln	Glu	Ala	Asn	Ala	Ala	Ala	Lys	Ala	Ala	Tyr	Asp	Thr	Ala	Val	245	250	255	
Ala	Ala	Asn	Asn	Ala	Lys	Asn	Thr	Glu	Ile	Ala	Ala	Ala	Asn	Glu	Glu	260	265	270	
Ile	Arg	Lys	Arg	Asn	Ala	Thr	Ala	Lys	Ala	Glu	Tyr	Glu	Thr	Lys	Leu	275	280	285	
Ala	Gln	Tyr	Gln	Ala	Glu	Leu	Lys	Arg	Val	Gln	Glu	Ala	Asn	Ala	Ala	290	295	300	
Asn	Glu	Ala	Asp	Tyr	Gln	Ala	Lys	Leu	Thr	Ala	Tyr	Gln	Thr	Glu	Leu	305	310	315	320
Ala	Arg	Val	Gln	Lys	Ala	Asn	Ala	Asp	Ala	Lys	Ala	Ala	Tyr	Glu	Ala	325	330	335	
Ala	Val	Ala	Ala	Asn	Asn	Ala	Lys	Asn	Ala	Ala	Leu	Thr	Ala	Glu	Asn	340	345	350	
Thr	Ala	Ile	Lys	Gln	Arg	Asn	Glu	Asn	Ala	Lys	Ala	Thr	Tyr	Glu	Ala	355	360	365	
Ala	Leu	Lys	Gln	Tyr	Glu	Ala	Asp	Leu	Ala	Ala	Val	Lys	Lys	Ala	Asn	370	375	380	
Ala	Ala	Asn	Glu	Ala	Asp	Tyr	Gln	Ala	Lys	Leu	Thr	Ala	Tyr	Gln	Thr	385	390	395	400
Glu	Leu	Ala	Arg	Val	Gln	Lys	Ala	Asn	Ala	Asp	Ala	Lys	Ala	Ala	Tyr	405	410	415	
Glu	Ala	Ala	Val	Ala	Ala	Asn	Asn	Ala	Ala	Asn	Ala	Ala	Leu	Thr	Ala	420	425	430	
Glu	Asn	Thr	Ala	Ile	Lys	Lys	Arg	Asn	Ala	Asp	Ala	Lys	Ala	Asp	Tyr	435	440	445	
Glu	Ala	Lys	Leu	Ala	Lys	Tyr	Gln	Ala	Asp	Leu	Ala	Lys	Tyr	Gln	Lys	450	455	460	
Asp	Leu	Ala	Asp	Tyr	Pro	Val	Lys	Leu	Lys	Ala	Tyr	Glu	Asp	Glu	Gln	465	470	475	480
Ala	Ser	Ile	Lys	Ala	Ala	Leu	Ala	Glu	Leu	Glu	Lys	His	Lys	Asn	Glu	485	490	495	
Asp	Gly	Asn	Leu	Thr	Glu	Pro	Ser	Ala	Gln	Asn	Leu	Val	Tyr	Asp	Leu	500	505	510	

Glu	Pro	Asn	Ala	Asn	Leu	Ser	Leu	Thr	Thr	Asp	Gly	Lys	Phe	Leu	Lys
515						520				525					
Ala	Ser	Ala	Val	Asp	Asp	Ala	Phe	Ser	Lys	Ser	Thr	Ser	Lys	Ala	Lys
530						535				540					
Tyr	Asp	Gln	Lys	Ile	Leu	Gln	Leu	Asp	Asp	Leu	Asp	Ile	Thr	Asn	Leu
545				550						555				560	
Glu	Gln	Ser	Asn	Asp	Val	Ala	Ser	Ser	Met	Glu	Leu	Tyr	Gly	Asn	Phe
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Gly	Asp	Lys	Ala	Gly	Trp	Ser	Thr	Thr	Val	Ser	Asn	Asn	Ser	Gln	Val
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Lys	Trp	Gly	Ser	Val	Leu	Leu	Glu	Arg	Gly	Gln	Ser	Ala	Thr	Ala	Thr
		595				600						605			
Tyr	Thr	Asn	Leu	Gln	Asn	Ser	Tyr	Tyr	Asn	Gly	Lys	Lys	Ile	Ser	Lys
610						615				620					
Ile	Val	Tyr	Lys	Tyr	Thr	Val	Asp	Pro	Lys	Ser	Lys	Phe	Gln	Gly	Gln
625				630						635				640	
Lys	Val	Trp	Leu	Gly	Ile	Phe	Thr	Asp	Pro	Thr	Leu	Gly	Val	Phe	Ala
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Ser	Ala	Tyr	Thr	Gly	Gln	Val	Glu	Lys	Asn	Thr	Ser	Ile	Phe	Ile	Lys
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Asn	Glu	Phe	Thr	Phe	Tyr	Asp	Glu	Asp	Gly	Lys	Pro	Ile	Asn	Phe	Asp
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Asn	Ala	Leu	Leu	Ser	Val	Ala	Ser	Leu	Asn	Arg	Glu	Asn	Asn	Ser	Ile
690						695				700					
Glu	Met	Ala	Lys	Asp	Tyr	Thr	Gly	Lys	Phe	Val	Lys	Ile	Ser	Gly	Ser
705				710						715				720	
Ser	Ile	Gly	Glu	Lys	Asn	Gly	Met	Ile	Tyr	Ala	Thr	Asp	Thr	Leu	Asn
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Phe	Arg	Gln	Gly	Gln	Gly	Gly	Ala	Arg	Trp	Thr	Met	Tyr	Thr	Arg	Ala
		740				745						750			
Ser	Glu	Pro	Gly	Ser	Gly	Trp	Asp	Ser	Ser	Asp	Ala	Pro	Asn	Ser	Trp
		755				760						765			
Tyr	Gly	Ala	Gly	Ala	Ile	Arg	Met	Ser	Gly	Pro	Asn	Asn	Ser	Val	Thr
770						775				780					
Leu	Gly	Ala	Ile	Ser	Ser	Thr	Leu	Val	Val	Pro	Ala	Asp	Pro	Thr	Met
785				790						795				800	

Ala	Ile	Glu	Thr	Gly	Lys	Lys	Pro	Asn	Ile	Trp	Tyr	Ser	Leu	Asn	Gly	805	810	815
Lys	Ile	Arg	Ala	Val	Asn	Leu	Pro	Lys	Val	Thr	Lys	Glu	Lys	Pro	Thr	820	825	830
Pro	Pro	Val	Lys	Pro	Thr	Ala	Pro	Thr	Lys	Pro	Thr	Tyr	Glu	Thr	Glu	835	840	845
Lys	Pro	Leu	Lys	Pro	Ala	Pro	Val	Ala	Pro	Asn	Tyr	Glu	Lys	Glu	Pro	850	855	860
Thr	Pro	Pro	Thr	Arg	Thr	Pro	Asp	Gln	Ala	Glu	Pro	Lys	Lys	Pro	Thr	865	870	875
Pro	Pro	Thr	Tyr	Glu	Thr	Glu	Lys	Pro	Leu	Glu	Pro	Ala	Pro	Val	Glu	885	890	895
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Ala	Glu	Pro	Asn	Lys	Pro	Thr	Pro	Pro	Thr	Tyr	Glu	Thr	Glu	Lys	Pro	915	920	925
Leu	Glu	Pro	Ala	Pro	Val	Glu	Pro	Ser	Tyr	Glu	Ala	Glu	Pro	Thr	Pro	930	935	940
Pro	Thr	Pro	Thr	Pro	Asp	Gln	Pro	Glu	Pro	Asn	Lys	Pro	Val	Glu	Pro	945	950	955
Thr	Tyr	Glu	Val	Ile	Pro	Thr	Pro	Pro	Thr	Asp	Pro	Val	Tyr	Gln	Asp	965	970	975
Leu	Pro	Thr	Pro	Pro	Ser	Ile	Pro	Thr	Val	His	Phe	His	Tyr	Phe	Lys	980	985	990
Leu	Ala	Val	Gln	Pro	Gln	Val	Asn	Lys	Glu	Ile	Arg	Asn	Asn	Asn	Asp	995	1000	1005
Val	Asn	Ile	Asp	Arg	Thr	Leu	Val	Ala	Lys	Gln	Ser	Val	Val	Lys		1010	1015	1020
Phe	Gln	Leu	Lys	Thr	Ala	Asp	Leu	Pro	Ala	Gly	Arg	Asp	Glu	Thr		1025	1030	1035
Thr	Ser	Phe	Val	Leu	Val	Asp	Pro	Leu	Pro	Ser	Gly	Tyr	Gln	Phe		1040	1045	1050
Asn	Pro	Glu	Ala	Thr	Lys	Ala	Ala	Ser	Pro	Gly	Phe	Asp	Val	Ala		1055	1060	1065
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Leu	Val	Lys	Ile	Thr	Asp	Ala	Asn	Gly	Asn	Glu	Val	Thr	Gly	Val
1220						1225					1230			
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Val	Ser	Ile	Asp	Ser	Ala	Phe	Gln	Ala	Glu	Ser	Tyr	Ile	Gln	Met
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Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met Ser Phe Gln Gly Ile  
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aga caa cct gtg acc gtc act gag cta gta gat tct ggt ata ttg aga 147  
Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp Ser Gly Ile Leu Arg  
30 35 40

cgc tcc act gtc aat gaa ctg gaa tct ggt cag att tct tat gac gag 195  
Pro Ser Thr Val Asn Glu Leu Glu Ser Gly Gln Ile Ser Tyr Asp Glu  
45 50 55 60

gtt ggt gag aga att aag gac ttc ctc cag ggt tca agc tgc ata gca 243  
Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala  
65 70 75

ggc ata tac aat gag acc aca aaa cag aag ctt ggc att tat gag gcc 291  
Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu Gly Ile Tyr Glu Ala  
80 85 90

atg aaa att ggc tta gtc cga cct ggt act gct ctg gag ttg ctg gaa 339  
Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala Leu Glu Leu Leu Glu  
95 100 105

gcc caa gca gct act ggc ttt ata gtg gat cct gtt agc aac ttg agg 387  
Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro Val Ser Asn Leu Arg  
110 115 120

tta cca gtg gag gaa gcc tac aag aga ggt ctg gtg ggc att gag ttc 435  
Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu Val Gly Ile Glu Phe  
125 130 135 140

aaa gag aag ctc ctg tct gca gaa cga gct gtc act ggg tat aat gat 483  
Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Asn Asp  
145 150 155



cct gaa aca gga aac atc atc tct ttg ttc caa gcc atg aat aag gaa	531
Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln Ala Met Asn Lys Glu	
160 165 170	
ctc atc gaa aag ggc cac ggt att cgc tta tta gaa gca cag atc gca	579
Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala	
175 180 185	
acc ggg ggg atc att gac cca aag gag agc cat cgt tta cca gtt gac	627
Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His Arg Leu Pro Val Asp	
190 195 200	
ata gca tat aag agg ggc tat ttc aat gag gaa ctc agt gag att ctc	675
Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu Ile Leu	
205 210 215 220	
tca gat cca agt gat gat acc aaa gga ttt ttt gac ccc aac act gaa	723
Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr Glu	
225 230 235	
gaa aat ctt acc tat ctg caa cta aaa gaa aga tgc att aag gat gag	771
Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg Cys Ile Lys Asp Glu	
240 245 250	
gaa aca ggg ctc tgt ctt ctg cct ctg aaa gaa aag aag aaa cag gtg	819
Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu Lys Lys Lys Gln Val	
255 260 265	
cag aca tca caa aag aat acc ctc agg aag cgt aga gtg gtc ata gtt	867
Gln Thr Ser Gln Lys Asn Thr Leu Arg Lys Arg Arg Val Val Ile Val	
270 275 280	
gac cca gaa acc aat aaa gaa atg tct gtt cag gag ggg gtc gac ctg	915
Asp Pro Glu Thr Asn Lys Glu Met Ser Val Gln Glu Gly Val Asp Leu	
285 290 295 300	
cag cca agc tta att agc tgagaatttct ccagc	948
Gln Pro Ser Leu Ile Ser	
305	
<210> 146	
<211> 306	
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<213> Homo sapiens	
<400> 146	
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1 5 10 15	
Ser Val Gln Lys Arg Ser Met Ser Phe Gln Gly Ile Arg Gln Pro Val	
20 25 30	
Thr Val Thr Glu Leu Val Asp Ser Gly Ile Leu Arg Pro Ser Thr Val	
35 40 45	
Asn Glu Leu Glu Ser Gly Gln Ile Ser Tyr Asp Glu Val Gly Glu Arg	
50 55 60	
Ile Lys Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly Ile Tyr Asn	
65 70 75 80	
Glu Thr Thr Lys Gln Lys Leu Gly Ile Tyr Glu Ala Met Lys Ile Gly	
85 90 95	

Leu Val Arg Pro Gly Thr Ala Leu Glu Leu Leu Glu Ala Gln Ala Ala  
100 105 110

Thr Gly Phe Ile Val Asp Pro Val Ser Asn Leu Arg Leu Pro Val Glu  
115 120 125

Glu Ala Tyr Lys Arg Gly Leu Val Gly Ile Glu Phe Lys Glu Lys Leu  
130 135 140

Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Asn Asp Pro Glu Thr Gly  
145 150 155 160

Asn Ile Ile Ser Leu Phe Gln Ala Met Asn Lys Glu Leu Ile Glu Lys  
165 170 175

Gly His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly Ile  
180 185 190

Ile Asp Pro Lys Glu Ser His Arg Leu Pro Val Asp Ile Ala Tyr Lys  
195 200 205

Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu Ile Leu Ser Asp Pro Ser  
210 215 220

Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr Glu Glu Asn Leu Thr  
225 230 235 240

Tyr Leu Gln Leu Lys Glu Arg Cys Ile Lys Asp Glu Glu Thr Gly Leu  
245 250 255

Cys Leu Leu Pro Leu Lys Glu Lys Lys Lys Gln Val Gln Thr Ser Gln  
260 265 270

Lys Asn Thr Leu Arg Lys Arg Arg Val Val Ile Val Asp Pro Glu Thr  
275 280 285

Asn Lys Glu Met Ser Val Gln Glu Gly Val Asp Leu Gln Pro Ser Leu  
290 295 300

Ile Ser  
305

<210> 147  
<211> 56  
<212> DNA  
<213> Artificial, Primersequenz

<400> 147  
gctaaggaat tcaccatgca tcaccatcac catcacgagc cacatactgg tctgct 56

<210> 148  
<211> 35  
<212> DNA  
<213> Artificial, Primersequenz

<400> 148

gctggagaat tctcagctaa ttaagcttgg ctgca 35

<210> 149  
<211> 942  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(927)

<400> 149  
gct aag gaa ttc cat cac cat cac cat gag cca cat act ggt ctg 48  
Ala Lys Glu Phe His His His His His His Glu Pro His Thr Gly Leu  
1 5 10 15

ctc ttg ctt tca gta cag aag aga agc atg tcc ttc caa gga atc aga 96  
Leu Leu Leu Ser Val Gln Lys Arg Ser Met Ser Phe Gln Gly Ile Arg  
20 25 30

caa cct gtg acc gtc act gag cta gta gat tct ggt ata ttg aga ccg 144  
Gln Pro Val Thr Val Thr Glu Leu Val Asp Ser Gly Ile Leu Arg Pro  
35 40 45

tcc act gtc aat gaa ctg gaa tct ggt cag att tct tat gac gag gtt 192  
Ser Thr Val Asn Glu Leu Glu Ser Gly Gln Ile Ser Tyr Asp Glu Val  
50 55 60

ggt gag aga att aag gac ttc ctc cag ggt tca agc tgc ata gca ggc 240  
Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly  
65 70 75 80

ata tac aat gag acc aca aaa cag aag ctt ggc att tat gag gcc atg 288  
Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu Gly Ile Tyr Glu Ala Met  
85 90 95

aaa att ggc tta gtc cga cct ggt act gct ctg gag ttg ctg gaa gcc 336  
Lys Ile Gly Leu Val Arg Pro Gly Thr Ala Leu Glu Leu Leu Glu Ala  
100 105 110

caa gca gct act ggc ttt ata gtg gat cct gtt agc aac ttg agg tta 384  
Gln Ala Ala Thr Gly Phe Ile Val Asp Pro Val Ser Asn Leu Arg Leu  
115 120 125

cca gtg gag gaa gcc tac aag aga ggt ctg gtg ggc att gag ttc aaa 432  
Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu Val Gly Ile Glu Phe Lys  
130 135 140

gag aag ctc ctg tct gca gaa cga gct gtc act ggg tat aat gat cct 480  
Glu Lys Leu Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Asn Asp Pro  
145 150 155 160

gaa aca gga aac atc atc tct ttg ttc caa gcc atg aat aag gaa ctc 528  
Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln Ala Met Asn Lys Glu Leu  
165 170 175

atc gaa aag ggc cac ggt att cgc tta tta gaa gca cag atc gca acc 576  
Ile Glu Lys Gly His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr  
180 185 190

ggg ggg atc att gac cca aag gag agc cat cgt tta cca gtt gac ata 624  
Gly Gly Ile Ile Asp Pro Lys Glu Ser His Arg Leu Pro Val Asp Ile  
195 200 205

gca tat aag agg ggc tat ttc aat gag gaa ctc agt gag att ctc tca 672  
Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu Ile Leu Ser  
210 215 220

gat cca agt gat gat acc aaa gga ttt ttt gac ccc aac act gaa gaa 720  
Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr Glu Glu

225	230	235	240	
aat ctt acc tat ctg	caa cta aaa gaa	aga tgc att aag gat	gag gaa	768
Asn Leu Thr Tyr Leu	Gln Leu Lys Glu	Arg Cys Ile Lys Asp	Glu Glu	
	245	250	255	
aca ggg ctc tgt ctt	ctg cct ctg aaa	gaa aag aag aaa	cag gtg cag	816
Thr Gly Leu Cys Leu	Leu Leu Pro Leu	Lys Glu Lys Lys Lys	Gln Val Gln	
	260	265	270	
aca tca caa aag aat	acc ctc agg aag	cgt aga gtg gtc	ata gtt gac	864
Thr Ser Gln Lys Asn	Thr Leu Arg Lys	Arg Arg Val Val	Ile Val Asp	
	275	280	285	
cca gaa acc aat aaa	gaa atg tct gtt	cag gag ggg gtc	gac ctg cag	912
Pro Glu Thr Asn Lys	Glu Met Ser Val	Gln Glu Gly Val	Asp Leu Gln	
	290	295	300	
cca agc tta att agc	tgagaattct ccagc			942
Pro Ser Leu Ile Ser				
305				

<210> 150  
 <211> 309  
 <212> PRT  
 <213> Homo sapiens

<400> 150

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

Ile Glu Lys Gly His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr  
180 185 190

Gly Gly Ile Ile Asp Pro Lys Glu Ser His Arg Leu Pro Val Asp Ile  
195 200 205

Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu Ile Leu Ser  
210 215 220

Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr Glu Glu  
225 230 235 240

Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg Cys Ile Lys Asp Glu Glu  
245 250 255

Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu Lys Lys Lys Gln Val Gln  
260 265 270

Thr Ser Gln Lys Asn Thr Leu Arg Lys Arg Arg Val Val Ile Val Asp  
275 280 285

Pro Glu Thr Asn Lys Glu Met Ser Val Gln Glu Gly Val Asp Leu Gln  
290 295 300

Pro Ser Leu Ile Ser  
305

<210> 151  
<211> 50  
<212> DNA  
<213> Artificial, Primersequenz

<400> 151  
gctaaggaat tccatcacca tcaccatcac gagccacata ctggtctgct 50

<210> 152  
<211> 922  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (5)..(922)

<400> 152  
cacc atg cat cac cat cac cat cac gag cca cat act ggt ctg ctc ttg 49  
Met His His His His His His Glu Pro His Thr Gly Leu Leu Leu  
1 5 10 15

ctt tca gta cag aag aga agc atg tcc ttc caa gga atc aga caa cct 97  
Leu Ser Val Gln Lys Arg Ser Met Ser Phe Gln Gly Ile Arg Gln Pro  
20 25 30

gtg acc gtc act gag cta gta gat tct ggt ata ttg aga ccg tcc act 145  
Val Thr Val Thr Glu Leu Val Asp Ser Gly Ile Leu Arg Pro Ser Thr  
35 40 45

gtc aat gaa ctg gaa tct ggt cag att tct tat gac gag gtt ggt gag 193  
Val Asn Glu Leu Glu Ser Gly Gln Ile Ser Tyr Asp Glu Val Gly Glu

50					55					60							
aga	att	aag	gac	ttc	ctc	cag	ggt	tca	agc	tgc	ata	gca	ggc	ata	tac	241	
Arg	Ile	Lys	Asp	Phe	Leu	Gln	Gly	Ser	Ser	Cys	Ile	Ala	Gly	Ile	Tyr		
65					70					75							
aat	gag	acc	aca	aaa	cag	aag	ctt	ggc	att	tat	gag	gcc	atg	aaa	att	289	
Asn	Glu	Thr	Thr	Lys	Gln	Lys	Leu	Gly	Ile	Tyr	Glu	Ala	Met	Lys	Ile		
80					85					90					95		
ggc	tta	gtc	cga	cct	ggt	act	gct	ctg	gag	ttg	ctg	gaa	gcc	caa	gca	337	
Gly	Leu	Val	Arg	Pro	Gly	Thr	Ala	Leu	Glu	Leu	Leu	Glu	Ala	Gln	Ala		
100					105					110							
gct	act	ggc	ttt	ata	gtg	gat	cct	gtt	agc	aac	ttg	agg	tta	cca	gtg	385	
Ala	Thr	Gly	Phe	Ile	Val	Asp	Pro	Val	Ser	Asn	Leu	Arg	Leu	Pro	Val		
115					120					125							
gag	gaa	gcc	tac	aag	aga	ggt	ctg	gtg	ggc	att	gag	ttc	aaa	gag	aag	433	
Glu	Glu	Ala	Tyr	Lys	Arg	Gly	Leu	Val	Gly	Ile	Glu	Phe	Lys	Glu	Lys		
130					135					140							
ctc	ctg	tct	gca	gaa	cga	gct	gtc	act	ggg	tat	aat	gat	cct	gaa	aca	481	
Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	Thr	Gly	Tyr	Asn	Asp	Pro	Glu	Thr		
145					150					155							
gga	aac	atc	atc	tct	ttg	ttc	caa	gcc	atg	aat	aag	gaa	ctc	atc	gaa	529	
Gly	Asn	Ile	Ile	Ser	Leu	Phe	Gln	Ala	Met	Asn	Lys	Glu	Leu	Ile	Glu		
160					165					170					175		
aag	ggc	cac	ggt	att	cgc	tta	tta	gaa	gca	cag	atc	gca	acc	ggg	ggg	577	
Lys	Gly	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly		
180					185					190							
atc	att	gac	cca	aag	gag	agc	cat	cgt	tta	cca	ggt	gac	ata	gca	tat	625	
Ile	Ile	Asp	Pro	Lys	Glu	Ser	His	Arg	Leu	Pro	Val	Asp	Ile	Ala	Tyr		
195					200					205							
aag	agg	ggc	tat	ttc	aat	gag	gaa	ctc	agt	gag	att	ctc	tca	gat	cca	673	
Lys	Arg	Gly	Tyr	Phe	Asn	Glu	Glu	Leu	Ser	Glu	Ile	Leu	Ser	Asp	Pro		
210					215					220							
agt	gat	gat	acc	aaa	gga	ttt	ttt	gac	ccc	aac	act	gaa	gaa	aat	ctt	721	
Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu		
225					230					235							
acc	tat	ctg	caa	cta	aaa	gaa	aga	tgc	att	aag	gat	gag	gaa	aca	ggg	769	
Thr	Tyr	Leu	Gln	Leu	Lys	Glu	Arg	Cys	Ile	Lys	Asp	Glu	Glu	Thr	Gly		
240					245					250					255		
ctc	tgt	ctt	ctg	cct	ctg	aaa	gaa	aag	aag	aaa	cag	gtg	cag	aca	tca	817	
Leu	Cys	Leu	Leu	Pro	Leu	Lys	Glu	Lys	Lys	Lys	Gln	Val	Gln	Thr	Ser		
260					265					270							
caa	aag	aat	acc	ctc	agg	aag	cgt	aga	gtg	gtc	ata	ggt	gac	cca	gaa	865	
Gln	Lys	Asn	Thr	Leu	Arg	Lys	Arg	Arg	Val	Val	Ile	Val	Asp	Pro	Glu		
275					280					285							
acc	aat	aaa	gaa	atg	tct	gtt	cag	gag	ggg	gtc	gac	ctg	cag	cca	agc	913	
Thr	Asn	Lys	Glu	Met	Ser	Val	Gln	Glu	Gly	Val	Asp	Leu	Gln	Pro	Ser		
290					295					300							
tta	att	agc														922	
Leu	Ile	Ser															
305																	

<210> 153  
 <211> 306  
 <212> PRT  
 <213> Homo sapiens

<400> 153

Met His His His His His His Glu Pro His Thr Gly Leu Leu Leu Leu  
1 5 10 15

Ser Val Gln Lys Arg Ser Met Ser Phe Gln Gly Ile Arg Gln Pro Val  
20 25 30

Thr Val Thr Glu Leu Val Asp Ser Gly Ile Leu Arg Pro Ser Thr Val  
35 40 45

Asn Glu Leu Glu Ser Gly Gln Ile Ser Tyr Asp Glu Val Gly Glu Arg  
50 55 60

Ile Lys Asp Phe Leu Gln Gly Ser Ser Cys Ile Ala Gly Ile Tyr Asn  
65 70 75 80

Glu Thr Thr Lys Gln Lys Leu Gly Ile Tyr Glu Ala Met Lys Ile Gly  
85 90 95

Leu Val Arg Pro Gly Thr Ala Leu Glu Leu Leu Glu Ala Gln Ala Ala  
100 105 110

Thr Gly Phe Ile Val Asp Pro Val Ser Asn Leu Arg Leu Pro Val Glu  
115 120 125

Glu Ala Tyr Lys Arg Gly Leu Val Gly Ile Glu Phe Lys Glu Lys Leu  
130 135 140

Leu Ser Ala Glu Arg Ala Val Thr Gly Tyr Asn Asp Pro Glu Thr Gly  
145 150 155 160

Asn Ile Ile Ser Leu Phe Gln Ala Met Asn Lys Glu Leu Ile Glu Lys  
165 170 175

Gly His Gly Ile Arg Leu Leu Glu Ala Gln Ile Ala Thr Gly Gly Ile  
180 185 190

Ile Asp Pro Lys Glu Ser His Arg Leu Pro Val Asp Ile Ala Tyr Lys  
195 200 205

Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu Ile Leu Ser Asp Pro Ser  
210 215 220

Asp Asp Thr Lys Gly Phe Phe Asp Pro Asn Thr Glu Glu Asn Leu Thr  
225 230 235 240

Tyr Leu Gln Leu Lys Glu Arg Cys Ile Lys Asp Glu Glu Thr Gly Leu  
245 250 255

Cys Leu Leu Pro Leu Lys Glu Lys Lys Lys Gln Val Gln Thr Ser Gln  
260 265 270

Lys Asn Thr Leu Arg Lys Arg Arg Val Val Ile Val Asp Pro Glu Thr  
275 280 285

Asn Lys Glu Met Ser Val Gln Glu Gly Val Asp Leu Gln Pro Ser Leu  
290 295 300

Ile Ser  
305

<210> 154  
<211> 45  
<212> DNA  
<213> Artificial, Primersequenz

<400> 154  
caccatgcat caccatcacc atcacgagcc acatactggt ctgct 45

<210> 155  
<211> 20  
<212> DNA  
<213> Artificial, Primersequenz

<400> 155  
gctaattaag cttggctgca 20

<210> 156  
<211> 283  
<212> PRT  
<213> Homo sapiens

<220>  
<221> PEPTIDE  
<222> (1)..(283)

<400> 156

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

Glu Pro His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met  
20 25 30

Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp  
35 40 45

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

Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly  
65 70 75 80

Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu  
85 90 95

Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
100 105 110

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



Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu  
130 135 140

Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val  
145 150 155 160

Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
165 170 175

Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
180 185 190

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
195 200 205

Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
210 215 220

Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe  
225 230 235 240

Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg  
245 250 255

Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu  
260 265 270

Lys Lys Lys Gln Val Gln Thr Ser Gln Lys Asn  
275 280

<210> 157  
<211> 274  
<212> PRT  
<213> Homo sapiens

<220>  
<221> PEPTIDE  
<222> (1)..(274)

<400> 157

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

Glu Pro His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met  
20 25 30

Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp  
35 40 45

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

Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly  
65 70 75 80

Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu  
85 90 95

Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
100 105 110

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

Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu  
130 135 140

Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val  
145 150 155 160

Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
165 170 175

Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
180 185 190

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
195 200 205

Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
210 215 220

Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe  
225 230 235 240

Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg  
245 250 255

Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu  
260 265 270

Lys Lys

<210> 158  
<211> 272  
<212> PRT  
<213> Homo sapiens

<220>  
<221> PEPTIDE  
<222> (1)..(272)

<400> 158

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

Glu Pro His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met  
20 25 30

Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp  
35 40 45

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

Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly  
65 70 75 80

Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu  
85 90 95

Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
100 105 110

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

Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu  
130 135 140

Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val  
145 150 155 160

Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
165 170 175

Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
180 185 190

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
195 200 205

Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
210 215 220

Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe  
225 230 235 240

Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg  
245 250 255

Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu  
260 265 270

<210> 159  
<211> 948  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(945)

<400> 159  
atg aga gga tcg cat cac cat cac cat cac gga tcc gca tgc gag ctc

Met 1	Arg	Gly	Ser	His 5	His	His	His	His	His 10	Gly	Ser	Ala	Cys	Glu 15	Leu	
gag	cca	cat	act	ggg	ctg	ctc	ttg	ctt	tca	gta	cag	aag	aga	agc	atg	96
Glu	Pro	His	Thr	Gly 20	Leu	Leu	Leu	Leu 25	Ser	Val	Gln	Lys	Arg 30	Ser	Met	
tcc	ttc	caa	gga	atc	aga	caa	cct	gtg	acc	gtc	act	gag	cta	gta	gat	144
Ser	Phe	Gln	Gly	Ile	Arg	Gln	Pro	Val	Thr	Val	Thr	Glu	Leu	Val	Asp	
		35					40					45				
tct	ggg	ata	ttg	aga	ccg	tcc	act	gtc	aat	gaa	ctg	gaa	tct	ggg	cag	192
Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu	Leu	Glu	Ser	Gly	Gln	
	50					55				60						
att	tct	tat	gac	gag	gtt	ggg	gag	aga	att	aag	gac	ttc	ctc	cag	ggg	240
Ile	Ser	Tyr	Asp	Glu	Val	Gly	Glu	Arg	Ile	Lys	Asp	Phe	Leu	Gln	Gly	
65					70					75					80	
tca	agc	tgc	ata	gca	ggc	ata	tac	aat	gag	acc	aca	aaa	cag	aag	ctt	288
Ser	Ser	Cys	Ile	Ala	Gly	Ile	Tyr	Asn	Glu	Thr	Thr	Lys	Gln	Lys	Leu	
				85					90					95		
ggc	att	tat	gag	gcc	atg	aaa	att	ggc	tta	gtc	cga	cct	ggg	act	gct	336
Gly	Ile	Tyr	Glu	Ala	Met	Lys	Ile	Gly	Leu	Val	Arg	Pro	Gly	Thr	Ala	
			100					105					110			
ctg	gag	ttg	ctg	gaa	gcc	caa	gca	gct	act	ggc	ttt	ata	gtg	gat	cct	384
Leu	Glu	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Val	Asp	Pro	
			115				120					125				
gtt	agc	aac	ttg	agg	tta	cca	gtg	gag	gaa	gcc	tac	aag	aga	ggg	ctg	432
Val	Ser	Asn	Leu	Arg	Leu	Pro	Val	Glu	Glu	Ala	Tyr	Lys	Arg	Gly	Leu	
	130					135					140					
gtg	ggc	att	gag	ttc	aaa	gag	aag	ctc	ctg	tct	gca	gaa	cga	gct	gtc	480
Val	Gly	Ile	Glu	Phe	Lys	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	
145					150					155					160	
act	ggg	tat	aat	gat	cct	gaa	aca	gga	aac	atc	atc	tct	ttg	ttc	caa	528
Thr	Gly	Tyr	Asn	Asp	Pro	Glu	Thr	Gly	Asn	Ile	Ile	Ser	Leu	Phe	Gln	
				165					170					175		
gcc	atg	aat	aag	gaa	ctc	atc	gaa	aag	ggc	cac	ggg	att	cgc	tta	tta	576
Ala	Met	Asn	Lys	Glu	Leu	Ile	Glu	Lys	Gly	His	Gly	Ile	Arg	Leu	Leu	
			180					185					190			
gaa	gca	cag	atc	gca	acc	ggg	ggg	atc	att	gac	cca	aag	gag	agc	cat	624
Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Lys	Glu	Ser	His	
		195					200					205				
cgt	tta	cca	gtt	gac	ata	gca	tat	aag	agg	ggc	tat	ttc	aat	gag	gaa	672
Arg	Leu	Pro	Val	Asp	Ile	Ala	Tyr	Lys	Arg	Gly	Tyr	Phe	Asn	Glu	Glu	
	210					215					220					
ctc	agt	gag	att	ctc	tca	gat	cca	agt	gat	gat	acc	aaa	gga	ttt	ttt	720
Leu	Ser	Glu	Ile	Leu	Ser	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	
225					230					235					240	
gac	ccc	aac	act	gaa	gaa	aat	ctt	acc	tat	ctg	caa	cta	aaa	gaa	aga	768
Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Lys	Glu	Arg	
				245					250					255		
tgc	att	aag	gat	gag	gaa	aca	ggg	ctc	tgt	ctt	ctg	cct	ctg	aaa	gaa	816
Cys	Ile	Lys	Asp	Glu	Glu	Thr	Gly	Leu	Cys	Leu	Leu	Pro	Leu	Lys	Glu	
			260					265					270			
aag	aag	aaa	cag	gtg	cag	aca	tca	caa	aag	aat	acc	ctc	agg	aag	cgt	864
Lys	Lys	Lys	Gln	Val	Gln	Thr	Ser	Gln	Lys	Asn	Thr	Leu	Arg	Lys	Arg	
		275					280					285				
aga	gtg	gtc	ata	gtt	gac	cca	gaa	acc	aat	aaa	gaa	atg	tct	gtt	cag	912

Arg Val Val Ile Val Asp Pro Glu Thr Asn Lys Glu Met Ser Val Gln  
290 295 300

gag ggg gtc gac ctg cag cca agc tta att agc tga 948  
Glu Gly Val Asp Leu Gln Pro Ser Leu Ile Ser  
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<211> 315  
<212> PRT  
<213> Homo sapiens

<400> 160

Met Arg Gly Ser His His His His His His Gly Ser Ala Cys Glu Leu  
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Glu Pro His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met  
20 25 30

Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp  
35 40 45

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

Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly  
65 70 75 80

Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu  
85 90 95

Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala  
100 105 110

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

Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu  
130 135 140

Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val  
145 150 155 160

Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln  
165 170 175

Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu  
180 185 190

Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His  
195 200 205

Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu  
210 215 220

Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe

225		230		235		240									
Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Lys	Glu	Arg
				245					250					255	
Cys	Ile	Lys	Asp	Glu	Glu	Thr	Gly	Leu	Cys	Leu	Leu	Pro	Leu	Lys	Glu
			260					265						270	
Lys	Lys	Lys	Gln	Val	Gln	Thr	Ser	Gln	Lys	Asn	Thr	Leu	Arg	Lys	Arg
			275				280					285			
Arg	Val	Val	Ile	Val	Asp	Pro	Glu	Thr	Asn	Lys	Glu	Met	Ser	Val	Gln
	290					295					300				
Glu	Gly	Val	Asp	Leu	Gln	Pro	Ser	Leu	Ile	Ser					
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agcctcagag aaat atg gcg ctc ccg acg ctg ccg tcc tac tgg tgc agc	170
Met Ala Leu Pro Thr Leu Pro Ser Tyr Trp Cys Ser	
1 5 10	
cag cag cgc ctg aat cag cag cta gca cga cag cga gag cag gag gcc	218
Gln Gln Arg Leu Asn Gln Gln Leu Ala Arg Gln Arg Glu Gln Glu Ala	
15 20 25	
cgg ctt cgg cag cag tgg gag cag aac agc cgt tac ttc agg atg tct	266
Arg Leu Arg Gln Gln Trp Glu Gln Asn Ser Arg Tyr Phe Arg Met Ser	
30 35 40	
gac atc tgc agc tcc aaa cag gca gaa tgg agc tct aaa acc tcc tac	314
Asp Ile Cys Ser Ser Lys Gln Ala Glu Trp Ser Ser Lys Thr Ser Tyr	
45 50 55 60	
cag cgg agc atg cat gcc tat cag cgg gag aag atg aag gag gag aag	362
Gln Arg Ser Met His Ala Tyr Gln Arg Glu Lys Met Lys Glu Glu Lys	
65 70 75	
agg agg agt ctg gag gcc cga cgg gaa aag ctc agg cag ctc atg cag	410
Arg Arg Ser Leu Glu Ala Arg Arg Glu Lys Leu Arg Gln Leu Met Gln	
80 85 90	
gag gag cag gac ctg ctg gcc aga gaa ctg gag gag ctg agg ctg agc	458
Glu Glu Gln Asp Leu Leu Ala Arg Glu Leu Glu Glu Leu Arg Leu Ser	
95 100 105	
atg aac ttg cag gaa aga aga atc cgg gag cag cac ggg aag ctg aaa	506
Met Asn Leu Gln Glu Arg Arg Ile Arg Glu Gln His Gly Lys Leu Lys	
110 115 120	
tca gcc aaa gaa gag cag agg aaa ctg att gct gaa caa ctt ttg tac	554
Ser Ala Lys Glu Glu Gln Arg Lys Leu Ile Ala Glu Gln Leu Leu Tyr	

125					130					135					140	
gaa	cac	tgg	aaa	aag	aac	aac	cgg	aaa	ctt	cga	gag	atg	gag	ctg	gac	602
Glu	His	Trp	Lys	Lys	Asn	Asn	Pro	Lys	Leu	Arg	Glu	Met	Glu	Leu	Asp	
			145						150					155		
ctt	cac	cag	aag	cat	gtc	gta	aac	tct	tgg	gaa	atg	cag	aaa	gaa	gaa	650
Leu	His	Gln	Lys	His	Val	Val	Asn	Ser	Trp	Glu	Met	Gln	Lys	Glu	Glu	
			160					165					170			
aaa	aaa	cag	caa	gaa	gcc	acc	gca	gag	caa	gag	aac	aaa	cgg	tat	gaa	698
Lys	Lys	Gln	Gln	Glu	Ala	Thr	Ala	Glu	Gln	Glu	Asn	Lys	Arg	Tyr	Glu	
		175					180					185				
aat	gaa	tat	gaa	agg	gcc	cga	agg	gag	gcg	cta	gaa	agg	atg	aaa	gct	746
Asn	Glu	Tyr	Glu	Arg	Ala	Arg	Arg	Glu	Ala	Leu	Glu	Arg	Met	Lys	Ala	
	190					195				200						
gaa	gag	gag	agg	agg	cag	ctg	gag	gac	aag	ctc	cag	gcc	gag	gca	ctg	794
Glu	Glu	Glu	Arg	Arg	Gln	Leu	Glu	Asp	Lys	Leu	Gln	Ala	Glu	Ala	Leu	
205					210					215					220	
ctg	caa	cag	atg	gag	gag	ctg	aag	ctg	aag	gag	gtg	gag	gcg	acc	aaa	842
Leu	Gln	Gln	Met	Glu	Glu	Leu	Lys	Leu	Lys	Glu	Val	Glu	Ala	Thr	Lys	
			225					230					235			
cta	aag	aag	gag	cag	gag	aat	ctg	ttg	aag	cag	cgg	tgg	gag	cta	gag	890
Leu	Lys	Lys	Glu	Gln	Glu	Asn	Leu	Leu	Lys	Gln	Arg	Trp	Glu	Leu	Glu	
			240				245					250				
agg	ctg	gag	gaa	gag	cga	aag	cag	atg	gaa	gcc	ttc	cgg	cag	aag	gca	938
Arg	Leu	Glu	Glu	Glu	Arg	Lys	Gln	Met	Glu	Ala	Phe	Arg	Gln	Lys	Ala	
		255					260					265				
gag	ctg	ggg	cgt	ttc	ttg	aga	cat	cag	tat	aac	gct	caa	ctc	agc	aga	986
Glu	Leu	Gly	Arg	Phe	Leu	Arg	His	Gln	Tyr	Asn	Ala	Gln	Leu	Ser	Arg	
	270					275					280					
cgc	aca	cag	cag	atc	caa	gag	gag	ctg	gag	gca	gac	agg	cgg	atc	ctg	1034
Arg	Thr	Gln	Gln	Ile	Gln	Glu	Glu	Leu	Glu	Ala	Asp	Arg	Arg	Ile	Leu	
285					290					295					300	
cag	gcc	ctc	ctc	gag	aag	gag	gac	gag	agc	cag	cgc	ctc	cac	ctg	gcc	1082
Gln	Ala	Leu	Leu	Glu	Lys	Glu	Asp	Glu	Ser	Gln	Arg	Leu	His	Leu	Ala	
			305					310					315			
agg	cgg	gag	cag	gtc	atg	gcc	gat	gtg	gcc	tgg	atg	aag	cag	gcc	att	1130
Arg	Arg	Glu	Gln	Val	Met	Ala	Asp	Val	Ala	Trp	Met	Lys	Gln	Ala	Ile	
			320					325					330			
gag	gag	cag	ctg	cag	ctg	gag	cgg	gcg	cgg	gag	gca	gag	ctg	cag	atg	1178
Glu	Glu	Gln	Leu	Gln	Leu	Glu	Arg	Ala	Arg	Glu	Ala	Glu	Leu	Gln	Met	
		335					340					345				
ctg	ctg	agg	gag	gag	gcc	aag	gag	atg	tgg	gaa	aag	aga	gag	gca	gag	1226
Leu	Leu	Arg	Glu	Glu	Ala	Lys	Glu	Met	Trp	Glu	Lys	Arg	Glu	Ala	Glu	
		350				355					360					
tgg	gcc	cga	gag	cgc	agc	gca	cgg	gac	aga	ctg	atg	agc	gag	gtt	ctg	1274
Trp	Ala	Arg	Glu	Arg	Ser	Ala	Arg	Asp	Arg	Leu	Met	Ser	Glu	Val	Leu	
365					370					375					380	
aca	ggg	aga	caa	cag	caa	ata	caa	gag	aag	att	gag	cag	aac	cga	cgg	1322
Thr	Gly	Arg	Gln	Gln	Gln	Ile	Gln	Glu	Lys	Ile	Glu	Gln	Asn	Arg	Arg	
			385					390					395			
gca	caa	gag	gaa	tcc	ctg	aaa	cac	agg	gag	caa	ctt	att	cga	aat	ctt	1370
Ala	Gln	Glu	Glu	Ser	Leu	Lys	His	Arg	Glu	Gln	Leu	Ile	Arg	Asn	Leu	
			400					405					410			
gag	gag	gtg	aga	gag	ttg	gct	cgt	cgc	gag	aaa	gag	gag	agt	gaa	aag	1418
Glu	Glu	Val	Arg	Glu	Leu	Ala	Arg	Arg	Glu	Lys	Glu	Glu	Ser	Glu	Lys	

415	420	425	
ctg aaa tcg gcc agg aag cag gag ctg gaa gcc cag gtt gca gag cgc			1466
Leu Lys Ser Ala Arg Lys Gln Glu Leu Glu Ala Gln Val Ala Glu Arg			
430	435	440	
cgg ctg cag gca tgg gaa gca gac cag cag gag gag gag gaa gag gag			1514
Arg Leu Gln Ala Trp Glu Ala Asp Gln Gln Glu Glu Glu Glu Glu Glu			
445	450	455	460
gag gcc cgg cgg gtc gag cag ctc tca gat gcc ctg ctg cag cag gag			1562
Glu Ala Arg Arg Val Glu Gln Leu Ser Asp Ala Leu Leu Gln Gln Glu			
465	470	475	
gcg gag act atg gct gag cag ggc tac cgg cct aag cct tac gga cat			1610
Ala Glu Thr Met Ala Glu Gln Gly Tyr Arg Pro Lys Pro Tyr Gly His			
480	485	490	
cca aaa att gct tgg aac tgacttcatg ggtaccataa gtacagagaa			1658
Pro Lys Ile Ala Trp Asn			
495			
caagggatgc tgaggcttct gatcccagcc gccaggcagt tttacagggc tctgttaaca			1718
gtaagtgccccc ggggcactgt cagatggctc agcagtgccct gctcaggttc atcattgaaa			1778
catcccagtg tttggccaga cattaaggtg tcgtgagagt ccccttcatg cctttcttac			1838
ccaagcaagg gtctttgatg ggcacgtggtt tacagcgctg ctgcatagtc ttgtaatata			1898
ttaacagtca catcaactga aggtcaatac taagagccac aggttgtacc tgtgatgggg			1958
cgtgtgggttt cctgttgtct cacctttaat tgtcaacctc cagtgttgac tctagaaata			2018
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<210> 162  
 <211> 498  
 <212> PRT  
 <213> Homo sapiens

<400> 162

Met	Ala	Leu	Pro	Thr	Leu	Pro	Ser	Tyr	Trp	Cys	Ser	Gln	Gln	Arg	Leu
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Asn	Gln	Gln	Leu	Ala	Arg	Gln	Arg	Glu	Gln	Glu	Ala	Arg	Leu	Arg	Gln
			20					25					30		

Gln	Trp	Glu	Gln	Asn	Ser	Arg	Tyr	Phe	Arg	Met	Ser	Asp	Ile	Cys	Ser
		35					40					45			

Ser	Lys	Gln	Ala	Glu	Trp	Ser	Ser	Lys	Thr	Ser	Tyr	Gln	Arg	Ser	Met
	50					55					60				

His	Ala	Tyr	Gln	Arg	Glu	Lys	Met	Lys	Glu	Glu	Lys	Arg	Arg	Ser	Leu
65					70					75					80

Glu	Ala	Arg	Arg	Glu	Lys	Leu	Arg	Gln	Leu	Met	Gln	Glu	Glu	Gln	Asp
				85					90					95	

Leu	Leu	Ala	Arg	Glu	Leu	Glu	Glu	Leu	Arg	Leu	Ser	Met	Asn	Leu	Gln
				100				105							110



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

Ser Leu Lys His Arg Glu Gln Leu Ile Arg Asn Leu Glu Glu Val Arg  
405 410 415

Glu Leu Ala Arg Arg Glu Lys Glu Glu Ser Glu Lys Leu Lys Ser Ala  
420 425 430

Arg Lys Gln Glu Leu Glu Ala Gln Val Ala Glu Arg Arg Leu Gln Ala  
435 440 445

Trp Glu Ala Asp Gln Gln Glu Glu Glu Glu Glu Glu Ala Arg Arg  
450 455 460

Val Glu Gln Leu Ser Asp Ala Leu Leu Gln Gln Glu Ala Glu Thr Met  
465 470 475 480

Ala Glu Gln Gly Tyr Arg Pro Lys Pro Tyr Gly His Pro Lys Ile Ala  
485 490 495

Trp Asn

<210> 163  
<211> 8616  
<212> DNA  
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<222> (1)..(8613)

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atg atc cgc gcc gag tct ggc ccg gac ctg cgc tac gag gtg acc agc 96  
Met Ile Arg Ala Glu Ser Gly Pro Asp Leu Arg Tyr Glu Val Thr Ser  
20 25 30

ggc ggc ggg ggc acc agc agg atg tac tat tct cgg cgc ggc gtg atc 144  
Gly Gly Gly Gly Thr Ser Arg Met Tyr Tyr Ser Arg Arg Gly Val Ile  
35 40 45

acc gac cag aac tcg gac ggc tac tgt caa acc ggc acg atg tcc agg 192  
Thr Asp Gln Asn Ser Asp Gly Tyr Cys Gln Thr Gly Thr Met Ser Arg  
50 55 60

cac cag aac cag aac acc atc cag gag ctg ctg cag aac tgc tcc gac 240  
His Gln Asn Gln Asn Thr Ile Gln Glu Leu Leu Gln Asn Cys Ser Asp  
65 70 75 80

tgc ttg atg cga gca gag ctc atc gtg cag cct gaa ttg aag tat gga 288  
Cys Leu Met Arg Ala Glu Leu Ile Val Gln Pro Glu Leu Lys Tyr Gly  
85 90 95

gat gga ata caa ctg act cgg agt cga gaa ttg gat gag tgt ttt gcc 336  
Asp Gly Ile Gln Leu Thr Arg Ser Arg Glu Leu Asp Glu Cys Phe Ala  
100 105 110

cag gcc aat gac caa atg gaa atc ctc gac agc ttg atc aga gag atg 384  
Gln Ala Asn Asp Gln Met Glu Ile Leu Asp Ser Leu Ile Arg Glu Met  
115 120 125

cgg cag atg ggc cag ccc tgt gat gct tac cag aaa agg ctt ctt cag	432
Arg Gln Met Gly Gln Pro Cys Asp Ala Tyr Gln Lys Arg Leu Leu Gln	
130 135 140	
ctc caa gag caa atg cga gcc ctt tat aaa gcc atc agt gtc cct cga	480
Leu Gln Glu Gln Met Arg Ala Leu Tyr Lys Ala Ile Ser Val Pro Arg	
145 150 155 160	
gtc cgc agg gcc agc tcc aag ggt ggt gga gcc tac act tgt cag agt	528
Val Arg Arg Ala Ser Ser Lys Gly Gly Gly Gly Tyr Thr Cys Gln Ser	
165 170 175	
ggc tct ggc tgg gat gag ttc acc aaa cat gtc acc agt gaa tgt ttg	576
Gly Ser Gly Trp Asp Glu Phe Thr Lys His Val Thr Ser Glu Cys Leu	
180 185 190	
ggg tgg atg agg cag caa agg gcg gag atg gac atg gtg gcc tgg ggt	624
Gly Trp Met Arg Gln Gln Arg Ala Glu Met Asp Met Val Ala Trp Gly	
195 200 205	
gtg gac ctg gcc tca gtg gag cag cac att aac agc cac cgg gcc atc	672
Val Asp Leu Ala Ser Val Glu Gln His Ile Asn Ser His Arg Gly Ile	
210 215 220	
cac aac tcc atc ggc gac tat cgc tgg cag ctg gac aaa atc aaa gcc	720
His Asn Ser Ile Gly Asp Tyr Arg Trp Gln Leu Asp Lys Ile Lys Ala	
225 230 235 240	
gac ctg cgc gag aaa tct gcg atc tac cag ttg gag gag gag tat gaa	768
Asp Leu Arg Glu Lys Ser Ala Ile Tyr Gln Leu Glu Glu Glu Tyr Glu	
245 250 255	
aac ctg ctg aaa gcg tcc ttt gag agg atg gat cac ctg cga cag ctg	816
Asn Leu Leu Lys Ala Ser Phe Glu Arg Met Asp His Leu Arg Gln Leu	
260 265 270	
cag aac atc att cag gcc acg tcc agg gag atc atg tgg atc aat gac	864
Gln Asn Ile Ile Gln Ala Thr Ser Arg Glu Ile Met Trp Ile Asn Asp	
275 280 285	
tgc gag gag gag gag ctg ctg tac gac tgg agc gac aag aac acc aac	912
Cys Glu Glu Glu Glu Leu Leu Tyr Asp Trp Ser Asp Lys Asn Thr Asn	
290 295 300	
atc gct cag aaa cag gag gcc ttc tcc ata cgc atg agt caa ctg gaa	960
Ile Ala Gln Lys Gln Glu Ala Phe Ser Ile Arg Met Ser Gln Leu Glu	
305 310 315 320	
gtt aaa gaa aaa gag ctc aat aag ctg aaa caa gaa agt gac caa ctt	1008
Val Lys Glu Lys Glu Leu Asn Lys Leu Lys Gln Glu Ser Asp Gln Leu	
325 330 335	
gtc ctc aat cag cat cca gct tca gac aaa att gag gcc tat atg gac	1056
Val Leu Asn Gln His Pro Ala Ser Asp Lys Ile Glu Ala Tyr Met Asp	
340 345 350	
act ctg cag acg cag tgg agt tgg att ctt cag atc acc aag tgc att	1104
Thr Leu Gln Thr Gln Trp Ser Trp Ile Leu Gln Ile Thr Lys Cys Ile	
355 360 365	
gat gtt cat ctg aaa gaa aat gct gcc tac ttt cag ttt ttt gaa gag	1152
Asp Val His Leu Lys Glu Asn Ala Ala Tyr Phe Gln Phe Phe Glu Glu	
370 375 380	
gcg cag tct act gaa gca tac ctg aag ggg ctc cag gac tcc atc agg	1200
Ala Gln Ser Thr Glu Ala Tyr Leu Lys Gly Leu Gln Asp Ser Ile Arg	
385 390 395 400	
aag aag tac ccc tgc gac aag aac atg ccc ctg cag cac ctg ctg gaa	1248
Lys Lys Tyr Pro Cys Asp Lys Asn Met Pro Leu Gln His Leu Leu Glu	
405 410 415	

cag atc aag gag ctg gag aaa gaa cga gag aaa atc ctt gaa tac aag Gln Ile Lys Glu Leu Glu Lys Glu Arg Glu Lys Ile Leu Glu Tyr Lys 420 425 430	1296
cgt cag gtg cag aac ttg gta aac aag tct aag aag att gta cag ctg Arg Gln Val Gln Asn Leu Val Asn Lys Ser Lys Lys Ile Val Gln Leu 435 440 445	1344
aag cct cgt aac cca gac tac aga agc aat aaa ccc att att ctc aga Lys Pro Arg Asn Pro Asp Tyr Arg Ser Asn Lys Pro Ile Ile Leu Arg 450 455 460	1392
gct ctc tgt gac tac aaa caa gat cag aaa atc gtg cat aag ggg gat Ala Leu Cys Asp Tyr Lys Gln Asp Gln Lys Ile Val His Lys Gly Asp 465 470 475 480	1440
gag tgt atc ctg aag gac aac aac gag cgc agc aag tgg tac gtg acg Glu Cys Ile Leu Lys Asp Asn Asn Glu Arg Ser Lys Trp Tyr Val Thr 485 490 495	1488
ggc ccg gga ggc gtt gac atg ctt gtt ccc tct gtg ggg ctg atc atc Gly Pro Gly Gly Val Asp Met Leu Val Pro Ser Val Gly Leu Ile Ile 500 505 510	1536
cct cct ccg aac cca ctg gcc gtg gac ctc tct tgc aag att gag cag Pro Pro Pro Asn Pro Leu Ala Val Asp Leu Ser Cys Lys Ile Glu Gln 515 520 525	1584
tac tac gaa gcc atc ttg gct ctg tgg aac cag ctc tac atc aac atg Tyr Tyr Glu Ala Ile Leu Ala Leu Trp Asn Gln Leu Tyr Ile Asn Met 530 535 540	1632
aag agc ctg gtg tcc tgg cac tac tgc atg att gac ata gag aag atc Lys Ser Leu Val Ser Trp His Tyr Cys Met Ile Asp Ile Glu Lys Ile 545 550 555 560	1680
agg gcc atg aca atc gcc aag ctg aaa aca atg cgg cag gaa gat tac Arg Ala Met Thr Ile Ala Lys Leu Lys Thr Met Arg Gln Glu Asp Tyr 565 570 575	1728
atg aag acg ata gcc gac ctt gag tta cat tac caa gag ttc atc aga Met Lys Thr Ile Ala Asp Leu Glu Leu His Tyr Gln Glu Phe Ile Arg 580 585 590	1776
aat agc caa ggc tca gag atg ttt gga gat gat gac aag cgg aaa ata Asn Ser Gln Gly Ser Glu Met Phe Gly Asp Asp Asp Lys Arg Lys Ile 595 600 605	1824
cag tct cag ttc acc gat gcc cag aag cat tac cag acc ctg gtc att Gln Ser Gln Phe Thr Asp Ala Gln Lys His Tyr Gln Thr Leu Val Ile 610 615 620	1872
cag ctc cct ggc tat ccc cag cac cag aca gtg acc aca act gaa atc Gln Leu Pro Gly Tyr Pro Gln His Gln Thr Val Thr Thr Thr Glu Ile 625 630 635 640	1920
act cat cat gga acc tgc caa gat gtc aac cat aat aaa gta att gaa Thr His His Gly Thr Cys Gln Asp Val Asn His Asn Lys Val Ile Glu 645 650 655	1968
acc aac aga gaa aat gac aag caa gaa aca tgg atg ctg atg gag ctg Thr Asn Arg Glu Asn Asp Lys Gln Glu Thr Trp Met Leu Met Glu Leu 660 665 670	2016
cag aag att cgc agg cag ata gag cac tgc gag ggc agg atg act ctc Gln Lys Ile Arg Arg Gln Ile Glu His Cys Glu Gly Arg Met Thr Leu 675 680 685	2064
aaa aac ctc cct cta gca gac cag ggg tct tct cac cac atc aca gtg Lys Asn Leu Pro Leu Ala Asp Gln Gly Ser Ser His His Ile Thr Val 690 695 700	2112

aaa att aac gag ctt aag agt gtg cag aat gat tca caa gca att gct Lys Ile Asn Glu Leu Lys Ser Val Gln Asn Asp Ser Gln Ala Ile Ala 705 710 715 720	2160
gag gtt ctc aac cag ctt aaa gat atg ctt gcc aac ttc aga ggt tct Glu Val Leu Asn Gln Leu Lys Asp Met Leu Ala Asn Phe Arg Gly Ser 725 730 735	2208
gaa aag tac tgc tat tta cag aat gaa gta ttt gga cta ttt cag aaa Glu Lys Tyr Cys Tyr Leu Gln Asn Glu Val Phe Gly Leu Phe Gln Lys 740 745 750	2256
ctg gaa aat atc aat ggt gtt aca gat ggc tac tta aat agc tta tgc Leu Glu Asn Ile Asn Gly Val Thr Asp Gly Tyr Leu Asn Ser Leu Cys 755 760 765	2304
aca gta agg gca ctg ctc cag gct att ctc caa aca gaa gac atg tta Thr Val Arg Ala Leu Leu Gln Ala Ile Leu Gln Thr Glu Asp Met Leu 770 775 780	2352
aag gtt tat gaa gcc agg ctc act gag gag gaa act gtc tgc ctg gac Lys Val Tyr Glu Ala Arg Leu Thr Glu Glu Glu Thr Val Cys Leu Asp 785 790 795 800	2400
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gac ttg aac ttg aag aag tcg ttg ttg gcc act atg aag aca gaa cta Asp Leu Asn Leu Lys Lys Ser Leu Leu Ala Thr Met Lys Thr Glu Leu 820 825 830	2496
cag aaa gcc cag cag atc cac tct cag act tca cag cag tat cca ctt Gln Lys Ala Gln Gln Ile His Ser Gln Thr Ser Gln Gln Tyr Pro Leu 835 840 845	2544
tat gat ctg gac ttg ggc aag ttc ggt gaa aaa gtc aca cag ctg aca Tyr Asp Leu Asp Leu Gly Lys Phe Gly Glu Lys Val Thr Gln Leu Thr 850 855 860	2592
gac cgc tgg caa agg ata gat aaa cag atc gac ttt aga tta tgg gac Asp Arg Trp Gln Arg Ile Asp Lys Gln Ile Asp Phe Arg Leu Trp Asp 865 870 875 880	2640
ctg gag aaa caa atc aag caa ttg agg aat tat cgt gat aac tat cag Leu Glu Lys Gln Ile Lys Gln Leu Arg Asn Tyr Arg Asp Asn Tyr Gln 885 890 895	2688
gct ttc tgc aag tgg ctc tat gat cgt aaa cgc cgc cag gat tcc tta Ala Phe Cys Lys Trp Leu Tyr Asp Arg Lys Arg Arg Gln Asp Ser Leu 900 905 910	2736
gaa tcc atg aaa ttt gga gat tcc aac aca gtc atg cgg ttt ttg aat Glu Ser Met Lys Phe Gly Asp Ser Asn Thr Val Met Arg Phe Leu Asn 915 920 925	2784
gag cag aag aac ttg cac agt gaa ata tct ggc aaa cga gac aaa tca Glu Gln Lys Asn Leu His Ser Glu Ile Ser Gly Lys Arg Asp Lys Ser 930 935 940	2832
gag gaa gta caa aaa att gct gaa ctt tgc gcc aat tca att aag gat Glu Glu Val Gln Lys Ile Ala Glu Leu Cys Ala Asn Ser Ile Lys Asp 945 950 955 960	2880
tat gag ctc cag ctg gcc tca tac acc tca gga ctg gaa act ctg ctg Tyr Glu Leu Gln Leu Ala Ser Tyr Thr Ser Gly Leu Glu Thr Leu Leu 965 970 975	2928
aac ata cct atc aag agg acc atg att cag tcc cct tct ggg gtg att Asn Ile Pro Ile Lys Arg Thr Met Ile Gln Ser Pro Ser Gly Val Ile 980 985 990	2976

ctg	caa	gag	gct	gca	gat	gtt	cat	gct	cgg	tac	att	gaa	cta	ctt	aca	3024
Leu	Gln	Glu	Ala	Ala	Asp	Val	His	Ala	Arg	Tyr	Ile	Glu	Leu	Leu	Thr	
		995					1000					1005				
aga	tct	gga	gac	tat	tac	agg	ttc	tta	agt	gag	atg	ctg	aag	agt		3069
Arg	Ser	Gly	Asp	Tyr	Tyr	Arg	Phe	Leu	Ser	Glu	Met	Leu	Lys	Ser		
	1010					1015					1020					
ttg	gaa	gat	ctg	aag	ctg	aaa	aat	acc	aag	atc	gaa	gtt	ttg	gaa		3114
Leu	Glu	Asp	Leu	Lys	Leu	Lys	Asn	Thr	Lys	Ile	Glu	Val	Leu	Glu		
	1025					1030					1035					
gag	gag	ctc	aga	ctg	gcc	cga	gat	gcc	aac	tcg	gaa	aac	tgt	aat		3159
Glu	Glu	Leu	Arg	Leu	Ala	Arg	Asp	Ala	Asn	Ser	Glu	Asn	Cys	Asn		
	1040					1045					1050					
aag	aac	aaa	ttc	ctg	gat	cag	aac	ctg	cag	aaa	tac	cag	gca	gag		3204
Lys	Asn	Lys	Phe	Leu	Asp	Gln	Asn	Leu	Gln	Lys	Tyr	Gln	Ala	Glu		
	1055					1060					1065					
tgt	tcc	cag	ttc	aaa	gcg	aag	ctt	gcg	agc	ctg	gag	gag	ctg	aag		3249
Cys	Ser	Gln	Phe	Lys	Ala	Lys	Leu	Ala	Ser	Leu	Glu	Glu	Leu	Lys		
	1070					1075					1080					
aga	cag	gct	gag	ctg	gat	ggg	aag	tcg	gct	aag	caa	aat	cta	gac		3294
Arg	Gln	Ala	Glu	Leu	Asp	Gly	Lys	Ser	Ala	Lys	Gln	Asn	Leu	Asp		
	1085					1090					1095					
aag	tgc	tac	ggc	caa	ata	aaa	gaa	ctc	aat	gag	aag	atc	acc	cga		3339
Lys	Cys	Tyr	Gly	Gln	Ile	Lys	Glu	Leu	Asn	Glu	Lys	Ile	Thr	Arg		
	1100					1105					1110					
ctg	act	tat	gag	att	gaa	gat	gaa	aag	aga	aga	aga	aaa	tct	gtg		3384
Leu	Thr	Tyr	Glu	Ile	Glu	Asp	Glu	Lys	Arg	Arg	Arg	Lys	Ser	Val		
	1115					1120					1125					
gaa	gac	aga	ttt	gac	caa	cag	aag	aat	gac	tat	gac	caa	ctg	cag		3429
Glu	Asp	Arg	Phe	Asp	Gln	Gln	Lys	Asn	Asp	Tyr	Asp	Gln	Leu	Gln		
	1130					1135					1140					
aaa	gca	agg	caa	tgt	gaa	aag	gag	aac	ctt	ggt	tgg	cag	aaa	tta		3474
Lys	Ala	Arg	Gln	Cys	Glu	Lys	Glu	Asn	Leu	Gly	Trp	Gln	Lys	Leu		
	1145					1150					1155					
gag	tct	gag	aaa	gcc	atc	aag	gag	aag	gag	tac	gag	att	gaa	agg		3519
Glu	Ser	Glu	Lys	Ala	Ile	Lys	Glu	Lys	Glu	Tyr	Glu	Ile	Glu	Arg		
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Leu	Arg	Val	Leu	Leu	Gln	Glu	Glu	Gly	Thr	Arg	Lys	Arg	Glu	Tyr		
	1175					1180					1185					
gaa	aat	gag	ctg	gca	aag	gta	aga	aac	cac	tat	aat	gag	gag	atg		3609
Glu	Asn	Glu	Leu	Ala	Lys	Val	Arg	Asn	His	Tyr	Asn	Glu	Glu	Met		
	1190					1195					1200					
agt	aat	tta	agg	aac	aag	tat	gaa	aca	gag	att	aac	att	acg	aag		3654
Ser	Asn	Leu	Arg	Asn	Lys	Tyr	Glu	Thr	Glu	Ile	Asn	Ile	Thr	Lys		
	1205					1210					1215					
acc	acc	atc	aag	gag	ata	tcc	atg	caa	aaa	gag	gat	gat	tcc	aaa		3699
Thr	Thr	Ile	Lys	Glu	Ile	Ser	Met	Gln	Lys	Glu	Asp	Asp	Ser	Lys		
	1220					1225					1230					
aat	ctt	aga	aac	cag	ctt	gat	aga	ctt	tca	agg	gaa	aat	cga	gat		3744
Asn	Leu	Arg	Asn	Gln	Leu	Asp	Arg	Leu	Ser	Arg	Glu	Asn	Arg	Asp		
	1235					1240					1245					
ctg	aag	gat	gaa	att	gtc	agg	ctc	aat	gac	agc	atc	ttg	cag	gcc		3789
Leu	Lys	Asp	Glu	Ile	Val	Arg	Leu	Asn	Asp	Ser	Ile	Leu	Gln	Ala		
	1250					1255					1260					

act Thr 1265	gag Glu	cag Gln	cga Arg	agg Arg	cga Arg	gct Ala 1270	gaa Glu	gaa Glu	aac Asn	gcc Ala	ctt Leu 1275	cag Gln	caa Gln	aag Lys	3834
gcc Ala 1280	tgt Cys	ggc Gly	tct Ser	gag Glu	ata Ile	atg Met 1285	cag Gln	aag Lys	aag Lys	cag Gln	cat His 1290	ctg Leu	gag Glu	ata Ile	3879
gaa Glu 1295	ctg Leu	aag Lys	cag Gln	gtc Val	atg Met	cag Gln 1300	cag Gln	cgc Arg	tct Ser	gag Glu	gac Asp 1305	aat Asn	gcc Ala	cgg Arg	3924
cac His 1310	aag Lys	cag Gln	tcc Ser	ctg Leu	gag Glu	gag Glu 1315	gct Ala	gcc Ala	aag Lys	acc Thr	att Ile 1320	cag Gln	gac Asp	aaa Lys	3969
aat Asn 1325	aag Lys	gag Glu	atc Ile	gag Glu	aga Arg	ctc Leu 1330	aaa Lys	gct Ala	gag Glu	ttt Phe	cag Gln 1335	gag Glu	gag Glu	gcc Ala	4014
aag Lys 1340	cgc Arg	cgc Arg	tgg Trp	gaa Glu	tat Tyr	gaa Glu 1345	aat Asn	gaa Glu	ctg Leu	agt Ser	aag Lys 1350	gta Val	aga Arg	aac Asn	4059
aat Asn 1355	tat Tyr	gat Asp	gag Glu	gag Glu	atc Ile	att Ile 1360	agc Ser	tta Leu	aaa Lys	aat Asn	cag Gln 1365	ttt Phe	gag Glu	acc Thr	4104
gag Glu 1370	atc Ile	aac Asn	atc Ile	acc Thr	aag Lys	acc Thr 1375	acc Thr	atc Ile	cac His	cag Gln	ctc Leu 1380	acc Thr	atg Met	cag Gln	4149
aag Lys 1385	gaa Glu	gag Glu	gat Asp	acc Thr	agt Ser	ggc Gly 1390	tac Tyr	cgg Arg	gct Ala	cag Gln	ata Ile 1395	gac Asp	aat Asn	ctc Leu	4194
acc Thr 1400	cga Arg	gaa Glu	aac Asn	agg Arg	agc Ser	tta Leu 1405	tct Ser	gaa Glu	gaa Glu	ata Ile	aag Lys 1410	agg Arg	ctg Leu	aag Lys	4239
aac Asn 1415	act Thr	cta Leu	acc Thr	cag Gln	acc Thr	aca Thr 1420	gag Glu	aat Asn	ctc Leu	agg Arg	agg Arg 1425	gtg Val	gaa Glu	gaa Glu	4284
gac Asp 1430	atc Ile	caa Gln	cag Gln	caa Gln	aag Lys	gcc Ala 1435	act Thr	ggc Gly	tct Ser	gag Glu	gtg Val 1440	tct Ser	cag Gln	agg Arg	4329
aaa Lys 1445	cag Gln	cag Gln	ctg Leu	gag Glu	gtt Val	gag Glu 1450	ctg Leu	aga Arg	caa Gln	gtc Val	act Thr 1455	cag Gln	atg Met	cga Arg	4374
aca Thr 1460	gag Glu	gag Glu	agc Ser	gta Val	aga Arg	tat Tyr 1465	aag Lys	caa Gln	tct Ser	ctt Leu	gat Asp 1470	gat Asp	gct Ala	gcc Ala	4419
aaa Lys 1475	acc Thr	atc Ile	cag Gln	gat Asp	aaa Lys	aac Asn 1480	aag Lys	gag Glu	ata Ile	gaa Glu	agg Arg 1485	tta Leu	aaa Lys	caa Gln	4464
ctg Leu 1490	atc Ile	gac Asp	aaa Lys	gaa Glu	aca Thr	aat Asn 1495	gac Asp	cgg Arg	aaa Lys	tgc Cys	ctg Leu 1500	gaa Glu	gat Asp	gaa Glu	4509
aac Asn 1505	gcg Ala	aga Arg	tta Leu	caa Gln	agg Arg	gtc Val 1510	cag Gln	tat Tyr	gac Asp	ctg Leu	cag Gln 1515	aaa Lys	gca Ala	aac Asn	4554
agt Ser 1520	agt Ser	gcg Ala	acg Thr	gag Glu	aca Thr	ata Ile 1525	aac Asn	aaa Lys	ctg Leu	aag Lys	gtt Val 1530	cag Gln	gag Glu	caa Gln	4599

gaa	ctg	aca	cgc	ctg	agg	atc	gac	tat	gaa	agg	gtt	tcc	cag	gag	4644
Glu	Leu	Thr	Arg	Leu	Arg	Ile	Asp	Tyr	Glu	Arg	Val	Ser	Gln	Glu	
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agg	act	gtg	aag	gac	cag	gat	atc	acg	cgg	ttc	cag	aac	tct	ctg	4689
Arg	Thr	Val	Lys	Asp	Gln	Asp	Ile	Thr	Arg	Phe	Gln	Asn	Ser	Leu	
	1550					1555					1560				
aaa	gag	ctg	cag	ctg	cag	aag	cag	aag	gtg	gaa	gag	gag	ctg	aat	4734
Lys	Glu	Leu	Gln	Leu	Gln	Lys	Gln	Lys	Val	Glu	Glu	Glu	Leu	Asn	
	1565					1570					1575				
cgg	ctg	aag	agg	acc	gcg	tca	gaa	gac	tcc	tgc	aag	agg	aag	aag	4779
Arg	Leu	Lys	Arg	Thr	Ala	Ser	Glu	Asp	Ser	Cys	Lys	Arg	Lys	Lys	
	1580					1585					1590				
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Leu	Glu	Glu	Glu	Leu	Glu	Gly	Met	Arg	Arg	Ser	Leu	Lys	Glu	Gln	
	1595					1600					1605				
gcc	atc	aaa	atc	acc	aac	ctg	acc	cag	cag	ctg	gag	cag	gca	tcc	4869
Ala	Ile	Lys	Ile	Thr	Asn	Leu	Thr	Gln	Gln	Leu	Glu	Gln	Ala	Ser	
	1610					1615					1620				
att	gtt	aag	aag	agg	agt	gag	gat	gac	ctc	cgg	cag	cag	agg	gac	4914
Ile	Val	Lys	Lys	Arg	Ser	Glu	Asp	Asp	Leu	Arg	Gln	Gln	Arg	Asp	
	1625					1630					1635				
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Val	Leu	Asp	Gly	His	Leu	Arg	Glu	Lys	Gln	Arg	Thr	Gln	Glu	Glu	
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Leu	Arg	Arg	Leu	Ser	Ser	Glu	Val	Glu	Ala	Leu	Arg	Arg	Gln	Leu	
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Leu	Gln	Glu	Gln	Glu	Ser	Val	Lys	Gln	Ala	His	Leu	Arg	Asn	Glu	
	1670					1675					1680				
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His	Phe	Gln	Lys	Ala	Ile	Glu	Asp	Lys	Ser	Arg	Ser	Leu	Asn	Glu	
	1685					1690					1695				
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Ser	Lys	Ile	Glu	Ile	Glu	Arg	Leu	Gln	Ser	Leu	Thr	Glu	Asn	Leu	
	1700					1705					1710				
acc	aag	gag	cac	ttg	atg	tta	gaa	gaa	gaa	ctg	cgg	aac	ctg	agg	5184
Thr	Lys	Glu	His	Leu	Met	Leu	Glu	Glu	Glu	Leu	Arg	Asn	Leu	Arg	
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Leu	Glu	Tyr	Asp	Asp	Leu	Arg	Arg	Gly	Arg	Ser	Glu	Ala	Asp	Ser	
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Asp	Lys	Asn	Ala	Thr	Ile	Leu	Glu	Leu	Arg	Ser	Gln	Leu	Gln	Ile	
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agc	aac	aac	cgg	acc	ctg	gaa	ctg	cag	ggg	ctg	att	aat	gat	tta	5319
Ser	Asn	Asn	Arg	Thr	Leu	Glu	Leu	Gln	Gly	Leu	Ile	Asn	Asp	Leu	
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Gln	Arg	Glu	Arg	Glu	Asn	Leu	Arg	Gln	Glu	Ile	Glu	Lys	Phe	Gln	
	1775					1780					1785				
aag	cag	gct	tta	gag	gca	tct	aat	agg	att	cag	gaa	tca	aag	aat	5409
Lys	Gln	Ala	Leu	Glu	Ala	Ser	Asn	Arg	Ile	Gln	Glu	Ser	Lys	Asn	
	1790					1795					1800				



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Gln	Cys	Thr	Gln	Val	Val	Gln	Glu	Arg	Glu	Ser	Leu	Leu	Val	Lys	
	1805					1810					1815				
atc	aaa	gtc	ctg	gag	caa	gac	aag	gca	agg	ctg	cag	agg	ctg	gag	5499
Ile	Lys	Val	Leu	Glu	Gln	Asp	Lys	Ala	Arg	Leu	Gln	Arg	Leu	Glu	
	1820					1825					1830				
gat	gag	ctg	aat	cgt	gca	aaa	tca	act	cta	gag	gca	gaa	acc	agg	5544
Asp	Glu	Leu	Asn	Arg	Ala	Lys	Ser	Thr	Leu	Glu	Ala	Glu	Thr	Arg	
	1835					1840					1845				
gtg	aaa	cag	cgc	ctg	gag	tgt	gag	aaa	cag	caa	att	cag	aat	gac	5589
Val	Lys	Gln	Arg	Leu	Glu	Cys	Glu	Lys	Gln	Gln	Ile	Gln	Asn	Asp	
	1850					1855					1860				
ctg	aat	cag	tgg	aag	act	caa	tat	tcc	cgc	aag	gag	gag	gct	att	5634
Leu	Asn	Gln	Trp	Lys	Thr	Gln	Tyr	Ser	Arg	Lys	Glu	Glu	Ala	Ile	
	1865					1870					1875				
agg	aag	ata	gaa	tcg	gaa	aga	gaa	aag	agt	gag	aga	gag	aag	aac	5679
Arg	Lys	Ile	Glu	Ser	Glu	Arg	Glu	Lys	Ser	Glu	Arg	Glu	Lys	Asn	
	1880					1885					1890				
agt	ctt	agg	agt	gag	atc	gaa	aga	ctc	caa	gca	gag	atc	aag	aga	5724
Ser	Leu	Arg	Ser	Glu	Ile	Glu	Arg	Leu	Gln	Ala	Glu	Ile	Lys	Arg	
	1895					1900					1905				
att	gaa	gag	agg	tgc	agg	cgt	aag	ctg	gag	gat	tct	acc	agg	gag	5769
Ile	Glu	Glu	Arg	Cys	Arg	Arg	Lys	Leu	Glu	Asp	Ser	Thr	Arg	Glu	
	1910					1915					1920				
aca	cag	tca	cag	tta	gaa	aca	gaa	cgc	tcc	cga	tat	cag	agg	gag	5814
Thr	Gln	Ser	Gln	Leu	Glu	Thr	Glu	Arg	Ser	Arg	Tyr	Gln	Arg	Glu	
	1925					1930					1935				
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Ile	Asp	Lys	Leu	Arg	Gln	Arg	Pro	Tyr	Gly	Ser	His	Arg	Glu	Thr	
	1940					1945					1950				
cag	act	gag	tgt	gag	tgg	acc	gtt	gac	acc	tcc	aag	ctg	gtg	ttt	5904
Gln	Thr	Glu	Cys	Glu	Trp	Thr	Val	Asp	Thr	Ser	Lys	Leu	Val	Phe	
	1955					1960					1965				
gat	ggg	ctg	agg	aag	aag	gtg	aca	gca	atg	cag	ctc	tat	gag	tgt	5949
Asp	Gly	Leu	Arg	Lys	Lys	Val	Thr	Ala	Met	Gln	Leu	Tyr	Glu	Cys	
	1970					1975					1980				
cag	ctg	atc	gac	aaa	aca	acc	ttg	gac	aaa	cta	ttg	aag	ggg	aag	5994
Gln	Leu	Ile	Asp	Lys	Thr	Thr	Leu	Asp	Lys	Leu	Leu	Lys	Gly	Lys	
	1985					1990					1995				
aag	tca	gtg	gaa	gaa	gtt	gct	tct	gaa	atc	cag	cca	ttc	ctt	cgg	6039
Lys	Ser	Val	Glu	Glu	Val	Ala	Ser	Glu	Ile	Gln	Pro	Phe	Leu	Arg	
	2000					2005					2010				
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Gly	Ala	Gly	Ser	Ile	Ala	Gly	Ala	Ser	Ala	Ser	Pro	Lys	Glu	Lys	
	2015					2020					2025				
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Tyr	Ser	Leu	Val	Glu	Ala	Lys	Arg	Lys	Lys	Leu	Ile	Ser	Pro	Glu	
	2030					2035					2040				
tcc	aca	gtc	atg	ctt	ctg	gag	gcc	cag	gca	gct	aca	ggt	ggt	ata	6174
Ser	Thr	Val	Met	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Gly	Ile	
	2045					2050					2055				
att	gat	ccc	cat	cgg	aat	gag	aag	ctg	act	gtc	gac	agt	gcc	ata	6219
Ile	Asp	Pro	His	Arg	Asn	Glu	Lys	Leu	Thr	Val	Asp	Ser	Ala	Ile	
	2060					2065					2070				

gct Ala 2075	cgg Arg	gac Asp	ctc Leu	att Ile	gac Asp	ttc Phe 2080	gat Asp	gac Asp	cgt Arg	cag Gln	cag Gln 2085	ata Ile	tat Tyr	gca Ala	6264
gca Ala 2090	gaa Glu	aaa Lys	gct Ala	atc Ile	act Thr	ggg Gly 2095	ttt Phe	gat Asp	gat Asp	cca Pro	ttt Phe 2100	tca Ser	ggc Gly	aag Lys	6309
aca Thr 2105	gta Val	tct Ser	gtt Val	tca Ser	gaa Glu	gcc Ala 2110	atc Ile	aag Lys	aaa Lys	aat Asn	ttg Leu 2115	att Ile	gat Asp	aga Arg	6354
gaa Glu 2120	acc Thr	gga Gly	atg Met	cgc Arg	ctg Leu	ctg Leu 2125	gaa Glu	gcc Ala	cag Gln	att Ile	gct Ala 2130	tca Ser	ggg Gly	ggg Gly	6399
gta Val 2135	gta Val	gac Asp	cct Pro	gtg Val	aac Asn	agt Ser 2140	gtc Val	ttt Phe	ttg Leu	cca Pro	aaa Lys 2145	gat Asp	gtc Val	gcc Ala	6444
ttg Leu 2150	gcc Ala	cgg Arg	ggg Gly	ctg Leu	att Ile	gat Asp 2155	aga Arg	gat Asp	ttg Leu	tat Tyr	cga Arg 2160	tcc Ser	ctg Leu	aat Asn	6489
gat Asp 2165	ccc Pro	cga Arg	gat Asp	agt Ser	cag Gln	aaa Lys 2170	aac Asn	ttt Phe	gtg Val	gat Asp	cca Pro 2175	gtc Val	acc Thr	aaa Lys	6534
aag Lys 2180	aag Lys	gtc Val	agt Ser	tac Tyr	gtg Val	cag Gln 2185	ctg Leu	aag Lys	gaa Glu	cgg Arg	tgc Cys 2190	aga Arg	atc Ile	gaa Glu	6579
cca Pro 2195	cat His	act Thr	ggg Gly	ctg Leu	ctc Leu	ttg Leu 2200	ctt Leu	tca Ser	gta Val	cag Gln	aag Lys 2205	aga Arg	agc Ser	atg Met	6624
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gat Asp 2225	tct Ser	ggg Gly	ata Ile	ttg Leu	aga Arg	ccg Pro 2230	tcc Ser	act Thr	gtc Val	aat Asn	gaa Glu 2235	ctg Leu	gaa Glu	tct Ser	6714
ggg Gly 2240	cag Gln	att Ile	tct Ser	tat Tyr	gac Asp	gag Glu 2245	gtt Val	ggg Gly	gag Glu	aga Arg	att Ile 2250	aag Lys	gac Asp	ttc Phe	6759
ctc Leu 2255	cag Gln	ggg Gly	tca Ser	agc Ser	tgc Cys	ata Ile 2260	gca Ala	ggc Gly	ata Ile	tac Tyr	aat Asn 2265	gag Glu	acc Thr	aca Thr	6804
aaa Lys 2270	cag Gln	aag Lys	ctt Leu	ggc Gly	att Ile	tat Tyr 2275	gag Glu	gcc Ala	atg Met	aaa Lys	att Ile 2280	ggc Gly	tta Leu	gtc Val	6849
cga Arg 2285	cct Pro	ggg Gly	act Thr	gct Ala	ctg Leu	gag Glu 2290	ttg Leu	ctg Leu	gaa Glu	gcc Ala	caa Gln 2295	gca Ala	gct Ala	act Thr	6894
ggc Gly 2300	ttt Phe	ata Ile	gtg Val	gat Asp	cct Pro	gtt Val 2305	agc Ser	aac Asn	ttg Leu	agg Arg	tta Leu 2310	cca Pro	gtg Val	gag Glu	6939
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ctc Leu 2330	ctg Leu	tct Ser	gca Ala	gaa Glu	cga Arg	gct Ala 2335	gtc Val	act Thr	ggg Gly	tat Tyr	aat Asn 2340	gat Asp	cct Pro	gaa Glu	7029

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gac ata gca tat aag agg ggc tat ttc aat gag gaa ctc agt gag Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu Leu Ser Glu 2390 2395 2400	7209
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gtt gac agg aag ttc ttt gat cag tac cga tcc ggc agc ctc agc Val Asp Arg Lys Phe Phe Asp Gln Tyr Arg Ser Gly Ser Leu Ser 2540 2545 2550	7659
ctc act caa ttt gct gac atg atc tcc ttg aaa aat ggt gtc ggc Leu Thr Gln Phe Ala Asp Met Ile Ser Leu Lys Asn Gly Val Gly 2555 2560 2565	7704
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Glu Lys Ile Ser Ile Thr Glu Gly Ile Glu Arg Gly Ile Val Asp	
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Lys Pro Ala Gln Lys Ala Phe Ile Gly Phe Glu Gly Val Lys Gly	
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Lys Lys Lys Met Ser Ala Ala Glu Ala Val Lys Glu Lys Trp Leu	
2705 2710 2715	
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Pro Tyr Glu Ala Gly Gln Arg Phe Leu Glu Phe Gln Tyr Leu Thr	
2720 2725 2730	
gga ggt ctt gtt gac ccg gaa gtg cat ggg agg ata agc acc gaa	8244
Gly Gly Leu Val Asp Pro Glu Val His Gly Arg Ile Ser Thr Glu	
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Glu Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg Ala Ala Gln Arg	
2750 2755 2760	
ctg caa gac acc agc agc tat gcc aaa atc ctg acc tgc ccc aaa	8334
Leu Gln Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr Cys Pro Lys	
2765 2770 2775	
acc aaa tta aaa ata tcc tat aag gat gcc ata aat cgc tcc atg	8379
Thr Lys Leu Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg Ser Met	
2780 2785 2790	
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Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser Val	
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Ser Ser Lys Gly Leu Pro Ser Pro Tyr Asn Met Ser Ser Ala Pro	
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Ile Gly His	
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<212> PRT  
<213> Homo sapiens

<400> 164

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Met Ile Arg Ala Glu Ser Gly Pro Asp Leu Arg Tyr Glu Val Thr Ser  
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Gly Gly Gly Gly Thr Ser Arg Met Tyr Tyr Ser Arg Arg Gly Val Ile  
35 40 45

Thr Asp Gln Asn Ser Asp Gly Tyr Cys Gln Thr Gly Thr Met Ser Arg  
50 55 60

His Gln Asn Gln Asn Thr Ile Gln Glu Leu Leu Gln Asn Cys Ser Asp  
65 70 75 80

Cys Leu Met Arg Ala Glu Leu Ile Val Gln Pro Glu Leu Lys Tyr Gly  
85 90 95

Asp Gly Ile Gln Leu Thr Arg Ser Arg Glu Leu Asp Glu Cys Phe Ala  
100 105 110

Gln Ala Asn Asp Gln Met Glu Ile Leu Asp Ser Leu Ile Arg Glu Met  
115 120 125

Arg Gln Met Gly Gln Pro Cys Asp Ala Tyr Gln Lys Arg Leu Leu Gln  
130 135 140

Leu Gln Glu Gln Met Arg Ala Leu Tyr Lys Ala Ile Ser Val Pro Arg  
145 150 155 160

Val Arg Arg Ala Ser Ser Lys Gly Gly Gly Gly Tyr Thr Cys Gln Ser  
165 170 175

Gly Ser Gly Trp Asp Glu Phe Thr Lys His Val Thr Ser Glu Cys Leu  
180 185 190

Gly Trp Met Arg Gln Gln Arg Ala Glu Met Asp Met Val Ala Trp Gly  
195 200 205

Val Asp Leu Ala Ser Val Glu Gln His Ile Asn Ser His Arg Gly Ile  
210 215 220

His Asn Ser Ile Gly Asp Tyr Arg Trp Gln Leu Asp Lys Ile Lys Ala  
225 230 235 240

Asp Leu Arg Glu Lys Ser Ala Ile Tyr Gln Leu Glu Glu Glu Tyr Glu  
245 250 255

Asn	Leu	Leu	Lys	Ala	Ser	Phe	Glu	Arg	Met	Asp	His	Leu	Arg	Gln	Leu
			260					265					270		
Gln	Asn	Ile	Ile	Gln	Ala	Thr	Ser	Arg	Glu	Ile	Met	Trp	Ile	Asn	Asp
		275					280					285			
Cys	Glu	Glu	Glu	Glu	Leu	Leu	Tyr	Asp	Trp	Ser	Asp	Lys	Asn	Thr	Asn
	290					295					300				
Ile	Ala	Gln	Lys	Gln	Glu	Ala	Phe	Ser	Ile	Arg	Met	Ser	Gln	Leu	Glu
305					310					315					320
Val	Lys	Glu	Lys	Glu	Leu	Asn	Lys	Leu	Lys	Gln	Glu	Ser	Asp	Gln	Leu
				325					330					335	
Val	Leu	Asn	Gln	His	Pro	Ala	Ser	Asp	Lys	Ile	Glu	Ala	Tyr	Met	Asp
			340					345					350		
Thr	Leu	Gln	Thr	Gln	Trp	Ser	Trp	Ile	Leu	Gln	Ile	Thr	Lys	Cys	Ile
		355					360					365			
Asp	Val	His	Leu	Lys	Glu	Asn	Ala	Ala	Tyr	Phe	Gln	Phe	Phe	Glu	Glu
	370					375					380				
Ala	Gln	Ser	Thr	Glu	Ala	Tyr	Leu	Lys	Gly	Leu	Gln	Asp	Ser	Ile	Arg
385					390					395					400
Lys	Lys	Tyr	Pro	Cys	Asp	Lys	Asn	Met	Pro	Leu	Gln	His	Leu	Leu	Glu
				405					410					415	
Gln	Ile	Lys	Glu	Leu	Glu	Lys	Glu	Arg	Glu	Lys	Ile	Leu	Glu	Tyr	Lys
			420					425					430		
Arg	Gln	Val	Gln	Asn	Leu	Val	Asn	Lys	Ser	Lys	Lys	Ile	Val	Gln	Leu
		435					440					445			
Lys	Pro	Arg	Asn	Pro	Asp	Tyr	Arg	Ser	Asn	Lys	Pro	Ile	Ile	Leu	Arg
	450					455					460				
Ala	Leu	Cys	Asp	Tyr	Lys	Gln	Asp	Gln	Lys	Ile	Val	His	Lys	Gly	Asp
465					470					475					480
Glu	Cys	Ile	Leu	Lys	Asp	Asn	Asn	Glu	Arg	Ser	Lys	Trp	Tyr	Val	Thr
				485					490					495	
Gly	Pro	Gly	Gly	Val	Asp	Met	Leu	Val	Pro	Ser	Val	Gly	Leu	Ile	Ile
			500					505					510		
Pro	Pro	Pro	Asn	Pro	Leu	Ala	Val	Asp	Leu	Ser	Cys	Lys	Ile	Glu	Gln
		515					520					525			
Tyr	Tyr	Glu	Ala	Ile	Leu	Ala	Leu	Trp	Asn	Gln	Leu	Tyr	Ile	Asn	Met
	530					535						540			

Lys	Ser	Leu	Val	Ser	Trp	His	Tyr	Cys	Met	Ile	Asp	Ile	Glu	Lys	Ile	545	550	555	560
Arg	Ala	Met	Thr	Ile	Ala	Lys	Leu	Lys	Thr	Met	Arg	Gln	Glu	Asp	Tyr	565	570	575	
Met	Lys	Thr	Ile	Ala	Asp	Leu	Glu	Leu	His	Tyr	Gln	Glu	Phe	Ile	Arg	580	585	590	
Asn	Ser	Gln	Gly	Ser	Glu	Met	Phe	Gly	Asp	Asp	Asp	Lys	Arg	Lys	Ile	595	600	605	
Gln	Ser	Gln	Phe	Thr	Asp	Ala	Gln	Lys	His	Tyr	Gln	Thr	Leu	Val	Ile	610	615	620	
Gln	Leu	Pro	Gly	Tyr	Pro	Gln	His	Gln	Thr	Val	Thr	Thr	Thr	Glu	Ile	625	630	635	640
Thr	His	His	Gly	Thr	Cys	Gln	Asp	Val	Asn	His	Asn	Lys	Val	Ile	Glu	645	650	655	
Thr	Asn	Arg	Glu	Asn	Asp	Lys	Gln	Glu	Thr	Trp	Met	Leu	Met	Glu	Leu	660	665	670	
Gln	Lys	Ile	Arg	Arg	Gln	Ile	Glu	His	Cys	Glu	Gly	Arg	Met	Thr	Leu	675	680	685	
Lys	Asn	Leu	Pro	Leu	Ala	Asp	Gln	Gly	Ser	Ser	His	His	Ile	Thr	Val	690	695	700	
Lys	Ile	Asn	Glu	Leu	Lys	Ser	Val	Gln	Asn	Asp	Ser	Gln	Ala	Ile	Ala	705	710	715	720
Glu	Val	Leu	Asn	Gln	Leu	Lys	Asp	Met	Leu	Ala	Asn	Phe	Arg	Gly	Ser	725	730	735	
Glu	Lys	Tyr	Cys	Tyr	Leu	Gln	Asn	Glu	Val	Phe	Gly	Leu	Phe	Gln	Lys	740	745	750	
Leu	Glu	Asn	Ile	Asn	Gly	Val	Thr	Asp	Gly	Tyr	Leu	Asn	Ser	Leu	Cys	755	760	765	
Thr	Val	Arg	Ala	Leu	Leu	Gln	Ala	Ile	Leu	Gln	Thr	Glu	Asp	Met	Leu	770	775	780	
Lys	Val	Tyr	Glu	Ala	Arg	Leu	Thr	Glu	Glu	Glu	Thr	Val	Cys	Leu	Asp	785	790	795	800
Leu	Asp	Lys	Val	Glu	Ala	Tyr	Arg	Cys	Gly	Leu	Lys	Lys	Ile	Lys	Asn	805	810	815	
Asp	Leu	Asn	Leu	Lys	Lys	Ser	Leu	Leu	Ala	Thr	Met	Lys	Thr	Glu	Leu	820	825	830	

Gln Lys Ala Gln Gln Ile His Ser Gln Thr Ser Gln Gln Tyr Pro Leu  
835 840 845

Tyr Asp Leu Asp Leu Gly Lys Phe Gly Glu Lys Val Thr Gln Leu Thr  
850 855 860

Asp Arg Trp Gln Arg Ile Asp Lys Gln Ile Asp Phe Arg Leu Trp Asp  
865 870 875 880

Leu Glu Lys Gln Ile Lys Gln Leu Arg Asn Tyr Arg Asp Asn Tyr Gln  
885 890 895

Ala Phe Cys Lys Trp Leu Tyr Asp Arg Lys Arg Arg Gln Asp Ser Leu  
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Glu Ser Met Lys Phe Gly Asp Ser Asn Thr Val Met Arg Phe Leu Asn  
915 920 925

Glu Gln Lys Asn Leu His Ser Glu Ile Ser Gly Lys Arg Asp Lys Ser  
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Glu Glu Val Gln Lys Ile Ala Glu Leu Cys Ala Asn Ser Ile Lys Asp  
945 950 955 960

Tyr Glu Leu Gln Leu Ala Ser Tyr Thr Ser Gly Leu Glu Thr Leu Leu  
965 970 975

Asn Ile Pro Ile Lys Arg Thr Met Ile Gln Ser Pro Ser Gly Val Ile  
980 985 990

Leu Gln Glu Ala Ala Asp Val His Ala Arg Tyr Ile Glu Leu Leu Thr  
995 1000 1005

Arg Ser Gly Asp Tyr Tyr Arg Phe Leu Ser Glu Met Leu Lys Ser  
1010 1015 1020

Leu Glu Asp Leu Lys Leu Lys Asn Thr Lys Ile Glu Val Leu Glu  
1025 1030 1035

Glu Glu Leu Arg Leu Ala Arg Asp Ala Asn Ser Glu Asn Cys Asn  
1040 1045 1050

Lys Asn Lys Phe Leu Asp Gln Asn Leu Gln Lys Tyr Gln Ala Glu  
1055 1060 1065

Cys Ser Gln Phe Lys Ala Lys Leu Ala Ser Leu Glu Glu Leu Lys  
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Arg Gln Ala Glu Leu Asp Gly Lys Ser Ala Lys Gln Asn Leu Asp  
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Lys Cys Tyr Gly Gln Ile Lys Glu Leu Asn Glu Lys Ile Thr Arg  
1100 1105 1110



Leu Thr	Tyr Glu Ile Glu Asp	Glu Lys Arg Arg Arg	Lys Ser Val
1115	1120	1125	
Glu Asp	Arg Phe Asp Gln Gln	Lys Asn Asp Tyr Asp	Gln Leu Gln
1130	1135	1140	
Lys Ala	Arg Gln Cys Glu Lys	Glu Asn Leu Gly Trp	Gln Lys Leu
1145	1150	1155	
Glu Ser	Glu Lys Ala Ile Lys	Glu Lys Glu Tyr Glu	Ile Glu Arg
1160	1165	1170	
Leu Arg	Val Leu Leu Gln Glu	Glu Gly Thr Arg Lys	Arg Glu Tyr
1175	1180	1185	
Glu Asn	Glu Leu Ala Lys Val	Arg Asn His Tyr Asn	Glu Glu Met
1190	1195	1200	
Ser Asn	Leu Arg Asn Lys Tyr	Glu Thr Glu Ile Asn	Ile Thr Lys
1205	1210	1215	
Thr Thr	Ile Lys Glu Ile Ser	Met Gln Lys Glu Asp	Asp Ser Lys
1220	1225	1230	
Asn Leu	Arg Asn Gln Leu Asp	Arg Leu Ser Arg Glu	Asn Arg Asp
1235	1240	1245	
Leu Lys	Asp Glu Ile Val Arg	Leu Asn Asp Ser Ile	Leu Gln Ala
1250	1255	1260	
Thr Glu	Gln Arg Arg Arg Ala	Glu Glu Asn Ala Leu	Gln Gln Lys
1265	1270	1275	
Ala Cys	Gly Ser Glu Ile Met	Gln Lys Lys Gln His	Leu Glu Ile
1280	1285	1290	
Glu Leu	Lys Gln Val Met Gln	Gln Arg Ser Glu Asp	Asn Ala Arg
1295	1300	1305	
His Lys	Gln Ser Leu Glu Glu	Ala Ala Lys Thr Ile	Gln Asp Lys
1310	1315	1320	
Asn Lys	Glu Ile Glu Arg Leu	Lys Ala Glu Phe Gln	Glu Glu Ala
1325	1330	1335	
Lys Arg	Arg Trp Glu Tyr Glu	Asn Glu Leu Ser Lys	Val Arg Asn
1340	1345	1350	
Asn Tyr	Asp Glu Glu Ile Ile	Ser Leu Lys Asn Gln	Phe Glu Thr
1355	1360	1365	
Glu Ile	Asn Ile Thr Lys Thr	Thr Ile His Gln Leu	Thr Met Gln
1370	1375	1380	

Lys	Glu	Glu	Asp	Thr	Ser	Gly	Tyr	Arg	Ala	Gln	Ile	Asp	Asn	Leu
1385						1390					1395			
Thr	Arg	Glu	Asn	Arg	Ser	Leu	Ser	Glu	Glu	Ile	Lys	Arg	Leu	Lys
1400						1405					1410			
Asn	Thr	Leu	Thr	Gln	Thr	Thr	Glu	Asn	Leu	Arg	Arg	Val	Glu	Glu
1415						1420					1425			
Asp	Ile	Gln	Gln	Gln	Lys	Ala	Thr	Gly	Ser	Glu	Val	Ser	Gln	Arg
1430						1435					1440			
Lys	Gln	Gln	Leu	Glu	Val	Glu	Leu	Arg	Gln	Val	Thr	Gln	Met	Arg
1445						1450					1455			
Thr	Glu	Glu	Ser	Val	Arg	Tyr	Lys	Gln	Ser	Leu	Asp	Asp	Ala	Ala
1460						1465					1470			
Lys	Thr	Ile	Gln	Asp	Lys	Asn	Lys	Glu	Ile	Glu	Arg	Leu	Lys	Gln
1475						1480					1485			
Leu	Ile	Asp	Lys	Glu	Thr	Asn	Asp	Arg	Lys	Cys	Leu	Glu	Asp	Glu
1490						1495					1500			
Asn	Ala	Arg	Leu	Gln	Arg	Val	Gln	Tyr	Asp	Leu	Gln	Lys	Ala	Asn
1505						1510					1515			
Ser	Ser	Ala	Thr	Glu	Thr	Ile	Asn	Lys	Leu	Lys	Val	Gln	Glu	Gln
1520						1525					1530			
Glu	Leu	Thr	Arg	Leu	Arg	Ile	Asp	Tyr	Glu	Arg	Val	Ser	Gln	Glu
1535						1540					1545			
Arg	Thr	Val	Lys	Asp	Gln	Asp	Ile	Thr	Arg	Phe	Gln	Asn	Ser	Leu
1550						1555					1560			
Lys	Glu	Leu	Gln	Leu	Gln	Lys	Gln	Lys	Val	Glu	Glu	Glu	Leu	Asn
1565						1570					1575			
Arg	Leu	Lys	Arg	Thr	Ala	Ser	Glu	Asp	Ser	Cys	Lys	Arg	Lys	Lys
1580						1585					1590			
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1595						1600					1605			
Ala	Ile	Lys	Ile	Thr	Asn	Leu	Thr	Gln	Gln	Leu	Glu	Gln	Ala	Ser
1610						1615					1620			
Ile	Val	Lys	Lys	Arg	Ser	Glu	Asp	Asp	Leu	Arg	Gln	Gln	Arg	Asp
1625						1630					1635			
Val	Leu	Asp	Gly	His	Leu	Arg	Glu	Lys	Gln	Arg	Thr	Gln	Glu	Glu
1640						1645					1650			

Leu	Arg	Arg	Leu	Ser	Ser	Glu	Val	Glu	Ala	Leu	Arg	Arg	Gln	Leu
1655						1660					1665			
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1670						1675					1680			
His	Phe	Gln	Lys	Ala	Ile	Glu	Asp	Lys	Ser	Arg	Ser	Leu	Asn	Glu
1685						1690					1695			
Ser	Lys	Ile	Glu	Ile	Glu	Arg	Leu	Gln	Ser	Leu	Thr	Glu	Asn	Leu
1700						1705					1710			
Thr	Lys	Glu	His	Leu	Met	Leu	Glu	Glu	Glu	Leu	Arg	Asn	Leu	Arg
1715						1720					1725			
Leu	Glu	Tyr	Asp	Asp	Leu	Arg	Arg	Gly	Arg	Ser	Glu	Ala	Asp	Ser
1730						1735					1740			
Asp	Lys	Asn	Ala	Thr	Ile	Leu	Glu	Leu	Arg	Ser	Gln	Leu	Gln	Ile
1745						1750					1755			
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1760						1765					1770			
Gln	Arg	Glu	Arg	Glu	Asn	Leu	Arg	Gln	Glu	Ile	Glu	Lys	Phe	Gln
1775						1780					1785			
Lys	Gln	Ala	Leu	Glu	Ala	Ser	Asn	Arg	Ile	Gln	Glu	Ser	Lys	Asn
1790						1795					1800			
Gln	Cys	Thr	Gln	Val	Val	Gln	Glu	Arg	Glu	Ser	Leu	Leu	Val	Lys
1805						1810					1815			
Ile	Lys	Val	Leu	Glu	Gln	Asp	Lys	Ala	Arg	Leu	Gln	Arg	Leu	Glu
1820						1825					1830			
Asp	Glu	Leu	Asn	Arg	Ala	Lys	Ser	Thr	Leu	Glu	Ala	Glu	Thr	Arg
1835						1840					1845			
Val	Lys	Gln	Arg	Leu	Glu	Cys	Glu	Lys	Gln	Gln	Ile	Gln	Asn	Asp
1850						1855					1860			
Leu	Asn	Gln	Trp	Lys	Thr	Gln	Tyr	Ser	Arg	Lys	Glu	Glu	Ala	Ile
1865						1870					1875			
Arg	Lys	Ile	Glu	Ser	Glu	Arg	Glu	Lys	Ser	Glu	Arg	Glu	Lys	Asn
1880						1885					1890			
Ser	Leu	Arg	Ser	Glu	Ile	Glu	Arg	Leu	Gln	Ala	Glu	Ile	Lys	Arg
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Ile	Glu	Glu	Arg	Cys	Arg	Arg	Lys	Leu	Glu	Asp	Ser	Thr	Arg	Glu
1910						1915					1920			

Thr	Gln	Ser	Gln	Leu	Glu	Thr	Glu	Arg	Ser	Arg	Tyr	Gln	Arg	Glu
1925						1930					1935			
Ile	Asp	Lys	Leu	Arg	Gln	Arg	Pro	Tyr	Gly	Ser	His	Arg	Glu	Thr
1940						1945					1950			
Gln	Thr	Glu	Cys	Glu	Trp	Thr	Val	Asp	Thr	Ser	Lys	Leu	Val	Phe
1955						1960					1965			
Asp	Gly	Leu	Arg	Lys	Lys	Val	Thr	Ala	Met	Gln	Leu	Tyr	Glu	Cys
1970						1975					1980			
Gln	Leu	Ile	Asp	Lys	Thr	Thr	Leu	Asp	Lys	Leu	Leu	Lys	Gly	Lys
1985						1990					1995			
Lys	Ser	Val	Glu	Glu	Val	Ala	Ser	Glu	Ile	Gln	Pro	Phe	Leu	Arg
2000						2005					2010			
Gly	Ala	Gly	Ser	Ile	Ala	Gly	Ala	Ser	Ala	Ser	Pro	Lys	Glu	Lys
2015						2020					2025			
Tyr	Ser	Leu	Val	Glu	Ala	Lys	Arg	Lys	Lys	Leu	Ile	Ser	Pro	Glu
2030						2035					2040			
Ser	Thr	Val	Met	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Gly	Ile
2045						2050					2055			
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2060						2065					2070			
Ala	Arg	Asp	Leu	Ile	Asp	Phe	Asp	Asp	Arg	Gln	Gln	Ile	Tyr	Ala
2075						2080					2085			
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2090						2095					2100			
Thr	Val	Ser	Val	Ser	Glu	Ala	Ile	Lys	Lys	Asn	Leu	Ile	Asp	Arg
2105						2110					2115			
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2120						2125					2130			
Val	Val	Asp	Pro	Val	Asn	Ser	Val	Phe	Leu	Pro	Lys	Asp	Val	Ala
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Leu	Ala	Arg	Gly	Leu	Ile	Asp	Arg	Asp	Leu	Tyr	Arg	Ser	Leu	Asn
2150						2155					2160			
Asp	Pro	Arg	Asp	Ser	Gln	Lys	Asn	Phe	Val	Asp	Pro	Val	Thr	Lys
2165						2170					2175			
Lys	Lys	Val	Ser	Tyr	Val	Gln	Leu	Lys	Glu	Arg	Cys	Arg	Ile	Glu
2180						2185					2190			

Pro	His	Thr	Gly	Leu	Leu	Leu	Leu	Ser	Val	Gln	Lys	Arg	Ser	Met
2195						2200					2205			
Ser	Phe	Gln	Gly	Ile	Arg	Gln	Pro	Val	Thr	Val	Thr	Glu	Leu	Val
2210						2215					2220			
Asp	Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu	Leu	Glu	Ser
2225						2230					2235			
Gly	Gln	Ile	Ser	Tyr	Asp	Glu	Val	Gly	Glu	Arg	Ile	Lys	Asp	Phe
2240						2245					2250			
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2255						2260					2265			
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2270						2275					2280			
Arg	Pro	Gly	Thr	Ala	Leu	Glu	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr
2285						2290					2295			
Gly	Phe	Ile	Val	Asp	Pro	Val	Ser	Asn	Leu	Arg	Leu	Pro	Val	Glu
2300						2305					2310			
Glu	Ala	Tyr	Lys	Arg	Gly	Leu	Val	Gly	Ile	Glu	Phe	Lys	Glu	Lys
2315						2320					2325			
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2330						2335					2340			
Thr	Gly	Asn	Ile	Ile	Ser	Leu	Phe	Gln	Ala	Met	Asn	Lys	Glu	Leu
2345						2350					2355			
Ile	Glu	Lys	Gly	His	Gly	Ile	Arg	Leu	Leu	Glu	Ala	Gln	Ile	Ala
2360						2365					2370			
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2375						2380					2385			
Asp	Ile	Ala	Tyr	Lys	Arg	Gly	Tyr	Phe	Asn	Glu	Glu	Leu	Ser	Glu
2390						2395					2400			
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2420						2425					2430			
Ile	Lys	Asp	Glu	Glu	Thr	Gly	Leu	Cys	Leu	Leu	Pro	Leu	Lys	Glu
2435						2440					2445			
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2450						2455					2460			

Arg	Arg	Val	Val	Ile	Val	Asp	Pro	Glu	Thr	Asn	Lys	Glu	Met	Ser
2465						2470					2475			
Val	Gln	Glu	Ala	Tyr	Lys	Lys	Gly	Leu	Ile	Asp	Tyr	Glu	Thr	Phe
2480						2485					2490			
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2495						2500					2505			
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2525						2530					2535			
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2540						2545					2550			
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2585						2590					2595			
Val	Arg	Asn	Leu	Thr	Ile	Arg	Ser	Ser	Ser	Phe	Ser	Asp	Thr	Leu
2600						2605					2610			
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2615						2620					2625			
Glu	Lys	Ile	Ser	Ile	Thr	Glu	Gly	Ile	Glu	Arg	Gly	Ile	Val	Asp
2630						2635					2640			
Ser	Ile	Thr	Gly	Gln	Arg	Leu	Leu	Glu	Ala	Gln	Ala	Cys	Thr	Gly
2645						2650					2655			
Gly	Ile	Ile	His	Pro	Thr	Thr	Gly	Gln	Lys	Leu	Ser	Leu	Gln	Asp
2660						2665					2670			
Ala	Val	Ser	Gln	Gly	Val	Ile	Asp	Gln	Asp	Met	Ala	Thr	Ser	Val
2675						2680					2685			
Lys	Pro	Ala	Gln	Lys	Ala	Phe	Ile	Gly	Phe	Glu	Gly	Val	Lys	Gly
2690						2695					2700			
Lys	Lys	Lys	Met	Ser	Ala	Ala	Glu	Ala	Val	Lys	Glu	Lys	Trp	Leu
2705						2710					2715			
Pro	Tyr	Glu	Ala	Gly	Gln	Arg	Phe	Leu	Glu	Phe	Gln	Tyr	Leu	Thr
2720						2725					2730			

Gly Gly Leu Val Asp Pro Glu Val His Gly Arg Ile Ser Thr Glu  
2735 2740 2745

Glu Ala Ile Arg Lys Gly Phe Ile Asp Gly Arg Ala Ala Gln Arg  
2750 2755 2760

Leu Gln Asp Thr Ser Ser Tyr Ala Lys Ile Leu Thr Cys Pro Lys  
2765 2770 2775

Thr Lys Leu Lys Ile Ser Tyr Lys Asp Ala Ile Asn Arg Ser Met  
2780 2785 2790

Val Glu Asp Ile Thr Gly Leu Arg Leu Leu Glu Ala Ala Ser Val  
2795 2800 2805

Ser Ser Lys Gly Leu Pro Ser Pro Tyr Asn Met Ser Ser Ala Pro  
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Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg  
2825 2830 2835

Ser Gly Ser Arg Ser Gly Ser Arg Arg Gly Ser Phe Asp Ala Thr  
2840 2845 2850

Gly Asn Ser Ser Tyr Ser Tyr Ser Tyr Ser Phe Ser Ser Ser Ser  
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Glu Pro His Thr Gly Leu Leu Leu Leu Ser Val Gln Lys Arg Ser Met  
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tcc ttc caa gga atc aga caa cct gtg acc gtc act gag cta gta gat 144  
Ser Phe Gln Gly Ile Arg Gln Pro Val Thr Val Thr Glu Leu Val Asp  
35 40 45

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

att tct tat gac gag gtt ggt gag aga att aag gac ttc ctc cag ggt 240  
Ile Ser Tyr Asp Glu Val Gly Glu Arg Ile Lys Asp Phe Leu Gln Gly  
65 70 75 80

tca agc tgc ata gca ggc ata tac aat gag acc aca aaa cag aag ctt	288
Ser Ser Cys Ile Ala Gly Ile Tyr Asn Glu Thr Thr Lys Gln Lys Leu	
85 90 95	
ggc att tat gag gcc atg aaa att ggc tta gtc cga cct ggt act gct	336
Gly Ile Tyr Glu Ala Met Lys Ile Gly Leu Val Arg Pro Gly Thr Ala	
100 105 110	
ctg gag ttg ctg gaa gcc caa gca gct act ggc ttt ata gtg gat cct	384
Leu Glu Leu Leu Glu Ala Gln Ala Ala Thr Gly Phe Ile Val Asp Pro	
115 120 125	
gtt agc aac ttg agg tta cca gtg gag gaa gcc tac aag aga ggt ctg	432
Val Ser Asn Leu Arg Leu Pro Val Glu Glu Ala Tyr Lys Arg Gly Leu	
130 135 140	
gtg ggc att gag ttc aaa gag aag ctc ctg tct gca gaa cga gct gtc	480
Val Gly Ile Glu Phe Lys Glu Lys Leu Leu Ser Ala Glu Arg Ala Val	
145 150 155 160	
act ggg tat aat gat cct gaa aca gga aac atc atc tct ttg ttc caa	528
Thr Gly Tyr Asn Asp Pro Glu Thr Gly Asn Ile Ile Ser Leu Phe Gln	
165 170 175	
gcc atg aat aag gaa ctc atc gaa aag ggc cac ggt att cgc tta tta	576
Ala Met Asn Lys Glu Leu Ile Glu Lys Gly His Gly Ile Arg Leu Leu	
180 185 190	
gaa gca cag atc gca acc ggg ggg atc att gac cca aag gag agc cat	624
Glu Ala Gln Ile Ala Thr Gly Gly Ile Ile Asp Pro Lys Glu Ser His	
195 200 205	
cgt tta cca gtt gac ata gca tat aag agg ggc tat ttc aat gag gaa	672
Arg Leu Pro Val Asp Ile Ala Tyr Lys Arg Gly Tyr Phe Asn Glu Glu	
210 215 220	
ctc agt gag att ctc tca gat cca agt gat gat acc aaa gga ttt ttt	720
Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe Phe	
225 230 235 240	
gac ccc aac act gaa gaa aat ctt acc tat ctg caa cta aaa gaa aga	768
Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu Arg	
245 250 255	
tgc att aag gat gag gaa aca ggg ctc tgt ctt ctg cct ctg aaa gaa	816
Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys Glu	
260 265 270	
aag aag aaa cag gtg cag aca tca caa aag aat acc ctc agg aag cgt	864
Lys Lys Lys Gln Val Gln Thr Ser Gln Lys Asn Thr Leu Arg Lys Arg	
275 280 285	
aga gtg gtc ata gtt gac cca gaa acc aat aaa gaa atg tct gtt cag	912
Arg Val Val Ile Val Asp Pro Glu Thr Asn Lys Glu Met Ser Val Gln	
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<211> 315

<212> PRT

<213> Homo sapiens

<400> 166

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Ser	Phe	Gln	Gly	Ile	Arg	Gln	Pro	Val	Thr	Val	Thr	Glu	Leu	Val	Asp	35	40	45
Ser	Gly	Ile	Leu	Arg	Pro	Ser	Thr	Val	Asn	Glu	Leu	Glu	Ser	Gly	Gln	50	55	60
Ile	Ser	Tyr	Asp	Glu	Val	Gly	Glu	Arg	Ile	Lys	Asp	Phe	Leu	Gln	Gly	65	70	75
Ser	Ser	Cys	Ile	Ala	Gly	Ile	Tyr	Asn	Glu	Thr	Thr	Lys	Gln	Lys	Leu	85	90	95
Gly	Ile	Tyr	Glu	Ala	Met	Lys	Ile	Gly	Leu	Val	Arg	Pro	Gly	Thr	Ala	100	105	110
Leu	Glu	Leu	Leu	Glu	Ala	Gln	Ala	Ala	Thr	Gly	Phe	Ile	Val	Asp	Pro	115	120	125
Val	Ser	Asn	Leu	Arg	Leu	Pro	Val	Glu	Glu	Ala	Tyr	Lys	Arg	Gly	Leu	130	135	140
Val	Gly	Ile	Glu	Phe	Lys	Glu	Lys	Leu	Leu	Ser	Ala	Glu	Arg	Ala	Val	145	150	155
Thr	Gly	Tyr	Asn	Asp	Pro	Glu	Thr	Gly	Asn	Ile	Ile	Ser	Leu	Phe	Gln	165	170	175
Ala	Met	Asn	Lys	Glu	Leu	Ile	Glu	Lys	Gly	His	Gly	Ile	Arg	Leu	Leu	180	185	190
Glu	Ala	Gln	Ile	Ala	Thr	Gly	Gly	Ile	Ile	Asp	Pro	Lys	Glu	Ser	His	195	200	205
Arg	Leu	Pro	Val	Asp	Ile	Ala	Tyr	Lys	Arg	Gly	Tyr	Phe	Asn	Glu	Glu	210	215	220
Leu	Ser	Glu	Ile	Leu	Ser	Asp	Pro	Ser	Asp	Asp	Thr	Lys	Gly	Phe	Phe	225	230	235
Asp	Pro	Asn	Thr	Glu	Glu	Asn	Leu	Thr	Tyr	Leu	Gln	Leu	Lys	Glu	Arg	245	250	255
Cys	Ile	Lys	Asp	Glu	Glu	Thr	Gly	Leu	Cys	Leu	Leu	Pro	Leu	Lys	Glu	260	265	270
Lys	Lys	Lys	Gln	Val	Gln	Thr	Ser	Gln	Lys	Asn	Thr	Leu	Arg	Lys	Arg	275	280	285
Arg	Val	Val	Ile	Val	Asp	Pro	Glu	Thr	Asn	Lys	Glu	Met	Ser	Val	Gln	290	295	300

Glu Gly Val Asp Leu Gln Pro Ser Leu Ile Ser  
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Gly Thr Met Asn His Ser Pro Leu Lys Thr Ala Leu Ala Tyr Glu Cys  
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Phe Gln Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys  
35 40 45  
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Met Lys Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met  
50 55 60  
atg acc gtc aag cgg cag aag tcc aag tct tcc cag tcg tcc acc ctg 240  
Met Thr Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu  
65 70 75 80  
agc cac tcc aat cga ggt tcc atg tat gat ggc ttg gct gac aat tac 288  
Ser His Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Ala Asp Asn Tyr  
85 90 95  
aac tat ggg acc acc agc agg agc agc tac tac tcc aag ttc cag gca 336  
Asn Tyr Gly Thr Thr Ser Arg Ser Ser Tyr Tyr Ser Lys Phe Gln Ala  
100 105 110  
ggg aat ggc tca tgg gga tat ccg atc tac aat gga acc ctc aag cgg 384  
Gly Asn Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg  
115 120 125  
gag cct gac aac agg cgc ttc agc tcc tac agc cag atg gag aac tgg 432  
Glu Pro Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp  
130 135 140  
agc cgg cac tac ccc cgg ggc agc tgt aac acc acc ggc gca ggc agc 480  
Ser Arg His Tyr Pro Arg Gly Ser Cys Asn Thr Thr Gly Ala Gly Ser  
145 150 155 160  
gac atc tgc ttc atg cag aaa atc aag gcg agc cgc agt gag ccc gac 528  
Asp Ile Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp  
165 170 175  
ctc tac tgt gac cca cgg ggc acc ctg cgc aag ggc acg ctg ggc agc 576  
Leu Tyr Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Ser  
180 185 190  
aag ggc cag aag acc acc cag aac cgc tac agc ttt tac agc acc tgc 624  
Lys Gly Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys  
195 200 205  
agt ggt cag aag gcc ata aag aag tgc cct gtg cgc ccg ccc tct tgt 672  
Ser Gly Gln Lys Ala Ile Lys Lys Cys Pro Val Arg Pro Pro Ser Cys  
210 215 220  
gcc tcc aag cag gac cct gtg tat atc ccg ccc atc tcc tgc aac aag 720

Ala 225	Ser	Lys	Gln	Asp	Pro 230	Val	Tyr	Ile	Pro	Pro 235	Ile	Ser	Cys	Asn	Lys 240	
gac	ctg	tcc	ttt	ggc	cac	tct	agg	gcc	agc	tcc	aag	atc	tgc	agt	gag	768
Asp	Leu	Ser	Phe	Gly 245	His	Ser	Arg	Ala	Ser 250	Ser	Lys	Ile	Cys	Ser	Glu 255	
gac	atc	gag	tgc	agt	ggg	ctg	acc	atc	ccc	aag	gct	gtg	cag	tac	ctg	816
Asp	Ile	Glu	Cys 260	Ser	Gly	Leu	Thr	Ile	Pro	Lys	Ala	Val	Gln	Tyr	Leu 270	
agc	tcc	cag	gat	gag	aag	tac	cag	gcc	att	ggg	gcc	tat	tac	atc	cag	864
Ser	Ser	Gln	Asp	Glu	Lys	Tyr	Gln	Ala	Ile	Gly	Ala	Tyr	Tyr	Ile	Gln 285	
cat	acc	tgc	ttc	cag	gat	gaa	tct	gcc	aag	caa	cag	gtc	tat	cag	ctg	912
His	Thr	Cys	Phe	Gln	Asp	Glu 295	Ser	Ala	Lys	Gln	Gln	Val	Tyr	Gln	Leu 300	
gga	ggc	atc	tgc	aag	ctg	gtg	gac	ctc	ctc	cgc	agc	ccc	aac	cag	aac	960
Gly	Gly	Ile	Cys	Lys	Leu 310	Val	Asp	Leu	Leu	Arg	Ser	Pro	Asn	Gln	Asn 320	
gtc	cag	cag	gcc	gcg	gca	ggg	gcc	ctg	cgc	aac	ctg	gtg	ttc	agg	agc	1008
Val	Gln	Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser 335	
acc	acc	aac	aag	ctg	gag	acc	cgg	agg	cag	aat	ggg	atc	cgc	gag	gca	1056
Thr	Thr	Asn	Lys 340	Leu	Glu	Thr	Arg	Arg	Gln	Asn	Gly	Ile	Arg	Glu	Ala 350	
gtc	agc	ctc	ctg	agg	aga	acc	ggg	aac	gcc	gag	atc	cag	aag	cag	ctg	1104
Val	Ser	Leu	Leu	Arg	Arg	Thr	Gly	Asn	Ala	Glu	Ile	Gln	Lys	Gln	Leu 365	
act	ggg	ctg	ctc	tgg	aac	ctg	tct	tcc	act	gac	gag	ctg	aag	gag	gaa	1152
Thr	Gly	Leu	Leu	Trp	Asn	Leu 375	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu 380	
ctc	att	gcc	gac	gcc	ctg	cct	gtt	ctg	gcc	gac	cgc	gtc	atc	att	ccc	1200
Leu	Ile	Ala	Asp	Ala	Leu 390	Pro	Val	Leu	Ala	Asp	Arg	Val	Ile	Ile	Pro 400	
ttc	tct	ggc	tgg	tgc	gat	ggc	aat	agc	aac	atg	tcc	cgg	gaa	gtg	gtg	1248
Phe	Ser	Gly	Trp	Cys 405	Asp	Gly	Asn	Ser	Asn	Met	Ser	Arg	Glu	Val	Val 415	
gac	cct	gag	gtc	ttc	ttc	aat	gcc	aca	ggc	tgc	ttg	agg	aac	ctg	agc	1296
Asp	Pro	Glu	Val	Phe	Phe	Asn	Ala	Thr	Gly	Cys	Leu	Arg	Asn	Leu	Ser 430	
tcg	gcc	gat	gca	ggc	cgc	cag	acc	atg	cgt	aac	tac	tca	ggg	ctc	att	1344
Ser	Ala	Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Ser	Gly	Leu	Ile 445	
gat	tcc	ctc	atg	gcc	tat	gtc	cag	aac	tgt	gta	gcg	gcc	agc	cgc	tgt	1392
Asp	Ser	Leu	Met	Ala	Tyr	Val 455	Gln	Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys 460	
gac	gac	aag	tct	gtg	gaa	aac	tgc	atg	tgt	gtt	ctg	cac	aac	ctc	tcc	1440
Asp	Asp	Lys	Ser	Val	Glu 470	Asn	Cys	Met	Cys	Val	Leu	His	Asn	Leu	Ser 480	
tac	cgc	ctg	gac	gcc	gag	gtg	ccc	acc	cgc	tac	cgc	cag	ctg	gag	tat	1488
Tyr	Arg	Leu	Asp	Ala	Glu 485	Val	Pro	Thr	Arg	Tyr	Arg	Gln	Leu	Glu	Tyr 495	
aac	gcc	cgc	aac	gcc	tac	acc	gag	aag	tcc	tcc	act	ggc	tgc	ttc	agc	1536
Asn	Ala	Arg	Asn	Ala	Tyr 500	Thr	Glu	Lys	Ser	Ser	Thr	Gly	Cys	Phe	Ser 510	
aac	aag	agc	gac	aag	atg	atg	aac	aac	aac	tat	gac	tgc	ccc	ctg	cct	1584

Asn	Lys	Ser	Asp	Lys	Met	Met	Asn	Asn	Asn	Tyr	Asp	Cys	Pro	Leu	Pro	
		515					520					525				
gag	gaa	gag	acc	aac	ccc	aag	ggc	agc	ggc	tgg	ttg	tac	cat	tca	gat	1632
Glu	Glu	Glu	Thr	Asn	Pro	Lys	Gly	Ser	Gly	Trp	Leu	Tyr	His	Ser	Asp	
		530				535					540					
gcc	atc	cgc	acc	tac	ctg	aac	ctc	atg	ggc	aag	agc	aag	aaa	gat	gct	1680
Ala	Ile	Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	Lys	Asp	Ala	
					550					555					560	
acc	ctg	gag	gcc	tgt	gct	ggc	ctg	cag	aac	ctg	aca	gcc	agc	aag		1728
Thr	Leu	Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr	Ala	Ser	Lys	
				565					570					575		
ggg	ctg	atg	tcc	agt	ggc	atg	agc	cag	ttg	att	ggg	ctg	aag	gaa	aag	1776
Gly	Leu	Met		Ser	Gly	Met	Ser	Gln	Leu	Ile	Gly	Leu	Lys	Glu	Lys	
			580					585					590			
ggc	ctg	cca	caa	att	gcc	cgc	ctc	ctg	caa	tct	ggc	aac	tct	gat	gtg	1824
Gly	Leu	Pro	Gln	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Gly	Asn	Ser	Asp	Val	
		595					600					605				
gtg	cgg	tcc	gga	gcc	tcc	ctc	ctg	agc	aac	atg	tcc	cgc	cac	cct	ctg	1872
Val	Arg	Ser	Gly	Ala	Ser	Leu	Leu	Ser	Asn	Met	Ser	Arg	His	Pro	Leu	
		610				615					620					
ctg	cac	aga	gtg	atg	ggg	aac	cag	gtg	ttc	ccg	gag	gtg	acc	agg	ctc	1920
Leu	His	Arg	Val	Met	Gly	Asn	Gln	Val	Phe	Pro	Glu	Val	Thr	Arg	Leu	
					630					635					640	
ctc	acc	agc	cac	act	ggc	aat	acc	agc	aac	tcc	gaa	gac	atc	ttg	tcc	1968
Leu	Thr	Ser	His	Thr	Gly	Asn	Thr	Ser	Asn	Ser	Glu	Asp	Ile	Leu	Ser	
				645					650					655		
tcg	gcc	tgc	tac	act	gtg	agg	aac	ctg	atg	gcc	tcg	cag	cca	caa	ctg	2016
Ser	Ala	Cys	Tyr	Thr	Val	Arg	Asn	Leu	Met	Ala	Ser	Gln	Pro	Gln	Leu	
			660					665					670			
gcc	aag	cag	tac	ttc	tcc	agc	agc	atg	ctc	aac	aac	atc	atc	aac	ctg	2064
Ala	Lys	Gln	Tyr	Phe	Ser	Ser	Ser	Met	Leu	Asn	Asn	Ile	Ile	Asn	Leu	
		675					680					685				
tgc	cga	agc	agt	gcc	tca	ccc	aag	gcc	gca	gaa	gct	gcc	cgg	ctt	ctc	2112
Cys	Arg	Ser	Ser	Ala	Ser	Pro	Lys	Ala	Ala	Glu	Ala	Ala	Arg	Leu	Leu	
		690				695					700					
ctg	tct	gac	atg	tgg	tcc	agc	aag	gaa	ctg	cag	ggc	gtc	ctc	aga	cag	2160
Leu	Ser	Asp	Met	Trp	Ser	Ser	Lys	Glu	Leu	Gln	Gly	Val	Leu	Arg	Gln	
				710					715						720	
caa	ggc	ttc	gat	agg	aac	atg	ctg	gga	acc	tta	gct	ggg	gcc	aac	agc	2208
Gln	Gly	Phe	Asp	Arg	Asn	Met	Leu	Gly	Thr	Leu	Ala	Gly	Ala	Asn	Ser	
				725				730						735		
ctc	agg	aac	ttc	acc	tcc	cga	ttc									2232
Leu	Arg	Asn	Phe	Thr	Ser	Arg	Phe									
			740													

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 <212> PRT  
 <213> Homo sapiens

<400> 168

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Gly Thr Met Asn His Ser Pro Leu Lys Thr Ala Leu Ala Tyr Glu Cys

20

25

30

Phe Gln Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys  
 35 40 45

Met Lys Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met  
 50 55 60

Met Thr Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu  
 65 70 75 80

Ser His Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Ala Asp Asn Tyr  
 85 90 95

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

Gly Asn Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg  
 115 120 125

Glu Pro Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp  
 130 135 140

Ser Arg His Tyr Pro Arg Gly Ser Cys Asn Thr Thr Gly Ala Gly Ser  
 145 150 155 160

Asp Ile Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp  
 165 170 175

Leu Tyr Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Ser  
 180 185 190

Lys Gly Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys  
 195 200 205

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

Ala Ser Lys Gln Asp Pro Val Tyr Ile Pro Pro Ile Ser Cys Asn Lys  
 225 230 235 240

Asp Leu Ser Phe Gly His Ser Arg Ala Ser Ser Lys Ile Cys Ser Glu  
 245 250 255

Asp Ile Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu  
 260 265 270

Ser Ser Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln  
 275 280 285

His Thr Cys Phe Gln Asp Glu Ser Ala Lys Gln Gln Val Tyr Gln Leu  
 290 295 300

Gly Gly Ile Cys Lys Leu Val Asp Leu Leu Arg Ser Pro Asn Gln Asn

305					310					315				320	
Val	Gln	Gln	Ala	Ala	Ala	Gly	Ala	Leu	Arg	Asn	Leu	Val	Phe	Arg	Ser
				325					330					335	
Thr	Thr	Asn	Lys	Leu	Glu	Thr	Arg	Arg	Gln	Asn	Gly	Ile	Arg	Glu	Ala
			340					345					350		
Val	Ser	Leu	Leu	Arg	Arg	Thr	Gly	Asn	Ala	Glu	Ile	Gln	Lys	Gln	Leu
		355					360					365			
Thr	Gly	Leu	Leu	Trp	Asn	Leu	Ser	Ser	Thr	Asp	Glu	Leu	Lys	Glu	Glu
	370					375					380				
Leu	Ile	Ala	Asp	Ala	Leu	Pro	Val	Leu	Ala	Asp	Arg	Val	Ile	Ile	Pro
385					390					395					400
Phe	Ser	Gly	Trp	Cys	Asp	Gly	Asn	Ser	Asn	Met	Ser	Arg	Glu	Val	Val
				405					410					415	
Asp	Pro	Glu	Val	Phe	Phe	Asn	Ala	Thr	Gly	Cys	Leu	Arg	Asn	Leu	Ser
			420					425					430		
Ser	Ala	Asp	Ala	Gly	Arg	Gln	Thr	Met	Arg	Asn	Tyr	Ser	Gly	Leu	Ile
		435					440					445			
Asp	Ser	Leu	Met	Ala	Tyr	Val	Gln	Asn	Cys	Val	Ala	Ala	Ser	Arg	Cys
		450				455					460				
Asp	Asp	Lys	Ser	Val	Glu	Asn	Cys	Met	Cys	Val	Leu	His	Asn	Leu	Ser
465					470					475					480
Tyr	Arg	Leu	Asp	Ala	Glu	Val	Pro	Thr	Arg	Tyr	Arg	Gln	Leu	Glu	Tyr
				485					490					495	
Asn	Ala	Arg	Asn	Ala	Tyr	Thr	Glu	Lys	Ser	Ser	Thr	Gly	Cys	Phe	Ser
			500					505					510		
Asn	Lys	Ser	Asp	Lys	Met	Met	Asn	Asn	Asn	Tyr	Asp	Cys	Pro	Leu	Pro
		515					520					525			
Glu	Glu	Glu	Thr	Asn	Pro	Lys	Gly	Ser	Gly	Trp	Leu	Tyr	His	Ser	Asp
		530				535					540				
Ala	Ile	Arg	Thr	Tyr	Leu	Asn	Leu	Met	Gly	Lys	Ser	Lys	Lys	Asp	Ala
545					550					555					560
Thr	Leu	Glu	Ala	Cys	Ala	Gly	Ala	Leu	Gln	Asn	Leu	Thr	Ala	Ser	Lys
				565					570					575	
Gly	Leu	Met	Ser	Ser	Gly	Met	Ser	Gln	Leu	Ile	Gly	Leu	Lys	Glu	Lys
			580					585					590		
Gly	Leu	Pro	Gln	Ile	Ala	Arg	Leu	Leu	Gln	Ser	Gly	Asn	Ser	Asp	Val

595

600

605

Val Arg Ser Gly Ala Ser Leu Leu Ser Asn Met Ser Arg His Pro Leu  
610615620

Leu His Arg Val Met Gly Asn Gln Val Phe Pro Glu Val Thr Arg Leu  
625630635640

Leu Thr Ser His Thr Gly Asn Thr Ser Asn Ser Glu Asp Ile Leu Ser  
645650655

Ser Ala Cys Tyr Thr Val Arg Asn Leu Met Ala Ser Gln Pro Gln Leu  
660665670

Ala Lys Gln Tyr Phe Ser Ser Ser Met Leu Asn Asn Ile Ile Asn Leu  
675680685

Cys Arg Ser Ser Ala Ser Pro Lys Ala Ala Glu Ala Ala Arg Leu Leu  
690695700

Leu Ser Asp Met Trp Ser Ser Lys Glu Leu Gln Gly Val Leu Arg Gln  
705710715720

Gln Gly Phe Asp Arg Asn Met Leu Gly Thr Leu Ala Gly Ala Asn Ser  
725730735

Leu Arg Asn Phe Thr Ser Arg Phe  
740

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<212> DNA  
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<400> 169

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Met Asn His Ser Pro Leu Lys Thr Ala Leu Ala Tyr Glu Cys Phe Gln  
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gac cag gac aac tcc acg ttg gct ttg ccg tcg gac caa aag atg aaa  
Asp Gln Asp Asn Ser Thr Leu Ala Leu Pro Ser Asp Gln Lys Met Lys  
202530

aca ggc acg tct ggc agg cag cgc gtg cag gag cag gtg atg atg acc  
Thr Gly Thr Ser Gly Arg Gln Arg Val Gln Glu Gln Val Met Met Thr  
354045

gtc aag cgg cag aag tcc aag tct tcc cag tcg tcc acc ctg agc cac  
Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
505560

tcc aat cga ggt tcc atg tat gat ggc ttg gct gac aat tac aac tat  
Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Ala Asp Asn Tyr Asn Tyr  
65707580

ggg acc acc agc agg agc agc tac tac tcc aag ttc cag gca ggg aat  
Gly Thr Thr Ser Arg Ser Ser Tyr Tyr Ser Lys Phe Gln Ala Gly Asn

4896144192240288

85

90

95

ggc tca tgg gga tat ccg atc tac aat gga acc ctc aag cgg gag cct 336  
 Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg Glu Pro  
 100 105 110

gac aac agg cgc ttc agc tcc tac agc cag atg gag aac tgg agc cgg 384  
 Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp Ser Arg  
 115 120 125

cac tac ccc cgg ggc agc tgt aac acc acc ggc gca ggc agc gac atc 432  
 His Tyr Pro Arg Gly Ser Cys Asn Thr Thr Gly Ala Gly Ser Asp Ile  
 130 135 140

tgc ttc atg cag aaa atc aag gcg agc cgc agt gag ccc gac ctc tac 480  
 Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp Leu Tyr  
 145 150 155 160

tgt gac cca cgg ggc acc ctg cgc aag ggc acg ctg ggc agc aag ggc 528  
 Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Ser Lys Gly  
 165 170 175

cag aag acc acc cag aac cgc tac agc ttt tac agc acc tgc agt ggt 576  
 Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys Ser Gly  
 180 185 190

cag aag gcc ata aag aag tgc cct gtg cgc ccg ccc tct tgt gcc tcc 624  
 Gln Lys Ala Ile Lys Lys Cys Pro Val Arg Pro Pro Ser Cys Ala Ser  
 195 200 205

aag cag gac cct gtg tat atc ccg ccc atc tcc tgc aac aag gac ctg 672  
 Lys Gln Asp Pro Val Tyr Ile Pro Pro Ile Ser Cys Asn Lys Asp Leu  
 210 215 220

tcc ttt ggc cac tct agg gcc agc tcc aag atc tgc agt gag gac atc 720  
 Ser Phe Gly His Ser Arg Ala Ser Ser Lys Ile Cys Ser Glu Asp Ile  
 225 230 235 240

gag tgc agt ggg ctg acc atc ccc aag gct gtg cag tac ctg agc tcc 768  
 Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu Ser Ser  
 245 250 255

cag gat gag aag tac cag gcc att ggg gcc tat tac atc cag cat acc 816  
 Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln His Thr  
 260 265 270

gga tcc aga tct cat cac cat cac cat cac 846  
 Gly Ser Arg Ser His His His His His  
 275 280

&lt;210&gt; 170

&lt;211&gt; 282

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 170

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

Val Lys Arg Gln Lys Ser Lys Ser Ser Gln Ser Ser Thr Leu Ser His  
 50 55 60



Ser Asn Arg Gly Ser Met Tyr Asp Gly Leu Ala Asp Asn Tyr Asn Tyr  
65 70 75 80

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

Gly Ser Trp Gly Tyr Pro Ile Tyr Asn Gly Thr Leu Lys Arg Glu Pro  
100 105 110

Asp Asn Arg Arg Phe Ser Ser Tyr Ser Gln Met Glu Asn Trp Ser Arg  
115 120 125

His Tyr Pro Arg Gly Ser Cys Asn Thr Thr Gly Ala Gly Ser Asp Ile  
130 135 140

Cys Phe Met Gln Lys Ile Lys Ala Ser Arg Ser Glu Pro Asp Leu Tyr  
145 150 155 160

Cys Asp Pro Arg Gly Thr Leu Arg Lys Gly Thr Leu Gly Ser Lys Gly  
165 170 175

Gln Lys Thr Thr Gln Asn Arg Tyr Ser Phe Tyr Ser Thr Cys Ser Gly  
180 185 190

Gln Lys Ala Ile Lys Lys Cys Pro Val Arg Pro Pro Ser Cys Ala Ser  
195 200 205

Lys Gln Asp Pro Val Tyr Ile Pro Pro Ile Ser Cys Asn Lys Asp Leu  
210 215 220

Ser Phe Gly His Ser Arg Ala Ser Ser Lys Ile Cys Ser Glu Asp Ile  
225 230 235 240

Glu Cys Ser Gly Leu Thr Ile Pro Lys Ala Val Gln Tyr Leu Ser Ser  
245 250 255

Gln Asp Glu Lys Tyr Gln Ala Ile Gly Ala Tyr Tyr Ile Gln His Thr  
260 265 270

Gly Ser Arg Ser His His His His His His  
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