

## 1

## SEQUENCE LISTING

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<120> RECEPTOR PROTEINS; RELATED REAGENTS AND METHODS

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cgg aag ata atg aac acc aag acc tac ctg gag tgg ccc atg gac gag	2304

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

aat cta gca tct cta gag aac ttc ccc att gga cat ctc aaa act ttg

48

96

144

192

240

288

336

Asn Leu Ala Ser Leu Glu Asn Phe Pro Ile Gly His Leu Lys Thr Leu			
100	105	110	
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Lys Glu Leu Asn Val Ala His Asn Leu Ile Gln Ser Phe Lys Leu Pro			
115	120	125	
gag tat ttt tct aat ctg acc aat cta gag cac ttg gac ctt tcc agc		432	
Glu Tyr Phe Ser Asn Leu Thr Asn Leu Glu His Leu Asp Leu Ser Ser			
130	135	140	
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Asn Lys Ile Gln Ser Ile Tyr Cys Thr Asp Leu Arg Val Leu His Gln			
145	150	155	160
atg ccc cta ctc aat ctc tct tta gac ctg tcc ctg aac cct atg aac		528	
Met Pro Leu Leu Asn Leu Ser Leu Asp Leu Ser Leu Asn Pro Met Asn			
165	170	175	
ttt atc caa cca ggt gca ttt aaa gaa att agg ctt cat aag ctg act		576	
Phe Ile Gln Pro Gly Ala Phe Lys Glu Ile Arg Leu His Lys Leu Thr			
180	185	190	
tta aga aat aat ttt gat agt tta aat gta atg aaa act tgt att caa		624	
Leu Arg Asn Asn Phe Asp Ser Leu Asn Val Met Lys Thr Cys Ile Gln			
195	200	205	
ggg ctg gct ggt tta gaa gtc cat cgt ttg gtt ctg gga gaa ttt aga		672	
Gly Leu Ala Gly Leu Glu Val His Arg Leu Val Leu Gly Glu Phe Arg			
210	215	220	
aat gaa gga aac ttg gaa aag ttt gac aaa tot gct cta gag ggc ctg		720	
Asn Glu Gly Asn Leu Glu Lys Phe Asp Lys Ser Ala Leu Glu Gly Leu			
225	230	235	240
tgc aat ttg acc att gaa gaa ttc cga tta gca tac tta gac tac tac		768	
Cys Asn Leu Thr Ile Glu Glu Phe Arg Leu Ala Tyr Leu Asp Tyr Tyr			
245	250	255	
ctc gat gat att att gac tta ttt aat tgt ttg aca aat gtt tct tca		816	
Leu Asp Asp Ile Ile Asp Leu Phe Asn Cys Leu Thr Asn Val Ser Ser			
260	265	270	
ttt tcc ctg gtg agt gtg act att gaa agg gta aaa gac ttt tct tat		864	
Phe Ser Leu Val Ser Val Thr Ile Glu Arg Val Lys Asp Phe Ser Tyr			
275	280	285	
aat ttc gga tgg caa cat tta gaa gtt aac tgt aaa ttt gga cag		912	
Asn Phe Gly Trp Gln His Leu Glu Leu Val Asn Cys Lys Phe Gly Gln			
290	295	300	
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Phe Pro Thr Leu Lys Leu Lys Ser Leu Lys Arg Leu Thr Phe Thr Ser			
305	310	315	320
aac aaa ggt ggg aat gct ttt tca gaa gtt gat cta cca agc ctt gag		1008	
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325	330	335	
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Phe Leu Asp Leu Ser Arg Asn Gly Leu Ser Phe Lys Gly Cys Cys Ser			

340	345	350	
caa agt gat ttt ggg aca acc agc cta aag tat tta gat ctg agc ttc Gln Ser Asp Phe Gly Thr Thr Ser Leu Lys Tyr Leu Asp Leu Ser Phe 395	360	365	1104
aat ggt gtt att acc atg agt tca aac ttc ttg ggc tta gaa caa cta Asn Gly Val Ile Thr Met Ser Ser Asn Phe Leu Gly Leu Glu Gln Leu 370	375	380	1152
gaa cat ctg gat ttc cag cat tcc aat ttg aaa caa atg agt gag ttt Glu His Leu Asp Phe Gln His Ser Asn Leu Lys Gln Met Ser Glu Phe 385	390	395	1200
tca gta ttc cta tca ctc aga aac ctc att tac ctt gac att tct cat Ser Val Phe Leu Ser Leu Arg Asn Leu Ile Tyr Leu Asp Ile Ser His 405	410	415	1248
act cac acc aga gtt gct ttc aat ggc atc ttc aat ggc ttg tcc agt Thr His Thr Arg Val Ala Phe Asn Gly Ile Phe Asn Gly Leu Ser Ser 420	425	430	1296
ctc gaa gtc ttg aaa atg gct aat tct ttc cag gaa aac ttc ctt Leu Glu Val Leu Lys Met Ala Gly Asn Ser Phe Gln Glu Asn Phe Leu 435	440	445	1344
cca gat atc ttc aca gag ctg aga aac ttg acc ttc ctg gac ctc tct Pro Asp Ile Phe Thr Glu Leu Arg Asn Leu Thr Phe Leu Asp Leu Ser 450	455	460	1392
cag tgt caa ctg gag cag ttg tct cca aca gca ttt aac tca ctc tcc Gln Cys Gln Leu Glu Gln Leu Ser Pro Thr Ala Phe Asn Ser Leu Ser 465	470	475	1440
agt ctt cag gta cta aat atg agc cac aac ttc ttt tca ttg gat Ser Leu Gln Val Leu Asn Met Ser His Asn Asn Phe Phe Ser Leu Asp 485	490	495	1488
acg ttt cct tat aag tgt ctg aac tcc ctc cag gtt ctt gat tac agt Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu Gln Val Leu Asp Tyr Ser 500	505	510	1536
ctc aat cac ata atg act tcc aaa aaa cag gaa cta cag cat ttt cca Leu Asn His Ile Met Thr Ser Lys Lys Gln Glu Leu Gln His Phe Pro 515	520	525	1584
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tgt gaa cac cag agt ttc ctg caa tgg atc aag gac cag agg cag ctc Cys Glu His Gln Ser Phe Leu Gln Trp Ile Lys Asp Gln Arg Gln Leu 545	550	555	1680
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ggc atg cct gtg ctg agt ttg aat atc acc tgc cag atg aat aag acc Gly Met Pro Val Leu Ser Leu Asn Ile Thr Cys Gln Met Asn Lys Thr 580	585	590	1776

atc att ggt gtg tcc gtc ctc agt gtg ctt gta gta tct gtt gta gca Ile Ile Gly Val Ser Val Leu Ser Val Leu Val Val Ser Val Val Ala 595 600 605	1824
gtt ctg gtc tat aag ttc tat ttt cac ctg arg ctt gct ggc tgc Val Leu Val Tyr Lys Phe Tyr Phe His Leu Met Leu Leu Ala Gly Cys 610 615 620	1872
ata aag tat ggt aga ggt gaa aac atc tat gat gcc ttt gtt atc tac Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr Asp Ala Phe Val Ile Tyr 625 630 635 640	1920
tca agc cag gat gag gac tgg Gta egg aat gag cta gta aag aat tta Ser Ser Gln Asp Glu Asp Trp Val Arg Asn Glu Leu Val Lys Asn Leu 645 650 655	1968
gaa gaa ggg gtg cct cca ttt cag ctc tgc ctt cac tac aga gac ttt Glu Glu Gly Val Pro Pro Phe Gln Leu Cys Leu His Tyr Arg Asp Phe 660 665 670	2016
att ccc ggt gtg gcc att gct gcc aad atc atc cat gaa ggt ttc cat Ile Pro Gly Val Ala Ile Ala Asn Ile Ile His Glu Gly Phe His 675 680 685	2064
aaa agc cga aag gtg att gtt gtg gtg tcc cag cac ttc atc cag agc Lys Ser Arg Lys Val Ile Val Val Ser Gln His Phe Ile Gln Ser 690 695 700	2112
cgc tgg tgt atc ttt gaa tat gag att gct cag acc tgg cag ttt ctg Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala Gln Thr Trp Gln Phe Leu 705 710 715 720	2160
agc agt cgt gct ggt atc atc ttc att gtc ctg cag aag gtg gag aag Ser Ser Arg Ala Gly Ile Ile Phe Ile Val Leu Gln Lys Val Glu Lys 725 730 735	2208
acc ctg ctc agg cag cag gtg gag ctg tac cgc ctt ctc agc agg aac Thr Leu Leu Arg Gln Gln Val Glu Leu Tyr Arg Leu Leu Ser Arg Asn 740 745 750	2256
act tac ctg gag tgg gag gac agt gtc ctg ggg cgg cac atc ttc tgg Thr Tyr Leu Glu Trp Glu Asp Ser Val Leu Gly Arg His Ile Phe Trp 755 760 765	2304
aga cga ctc aga aaa gcc ctg ctg gat ggt aaa tca tgg aat cca gaa Arg Arg Leu Arg Lys Ala Leu Leu Asp Gly Lys Ser Trp Asn Pro Glu 770 775 780	2352
gga aca gtc ggt aca gga tgc aat tgg cag gaa gca aca tct atc tga Gly Thr Val Gly Thr Gly Cys Asn Trp Gln Glu Ala Thr Ser Ile 785 790 795	2400
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Ser Phe Phe Ser Phe Pro Glu Leu Gln Val Leu Asp Leu Ser Arg Cys  
 35 40 45

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

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

Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys Leu Val Ala Val Glu Thr  
 85 90 95

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

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

Glu Tyr Phe Ser Asn Leu Thr Asn Leu Glu His Leu Asp Leu Ser Ser  
 130 135 140

Asn Lys Ile Gln Ser Ile Tyr Cys Thr Asp Leu Arg Val Leu His Gln  
 145 150 155 160

Met Pro Leu Leu Asn Leu Ser Leu Asp Leu Ser Leu Asn Pro Met Asn  
 165 170 175

Phe Ile Gln Pro Gly Ala Phe Lys Glu Ile Arg Leu His Lys Leu Thr  
 180 185 190

Leu Arg Asn Asn Phe Asp Ser Leu Asn Val Met Lys Thr Cys Ile Gln  
 195 200 205

Gly Leu Ala Gly Leu Glu Val His Arg Leu Val Leu Gly Glu Phe Arg  
 210 215 220

Asn Glu Gly Asn Leu Glu Lys Phe Asp Lys Ser Ala Leu Glu Gly Leu  
 225 230 235 240

Cys Asn Leu Thr Ile Glu Glu Phe Arg Leu Ala Tyr Leu Asp Tyr Tyr

28

245	250	255
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Phe Ser Leu Val Ser Val Thr Ile Glu Arg Val Lys Asp Phe Ser Tyr		
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Asn Phe Gly Trp Gln His Leu Glu Leu Val Asn Cys Lys Phe Gly Gln		
290	295	300
Phe Pro Thr Leu Lys Leu Lys Ser Leu Lys Arg Leu Thr Phe Thr Ser		
305	310	315
320		
Asn Lys Gly Gly Asn Ala Phe Ser Glu Val Asp Leu Pro Ser Leu Glu		
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Phe Leu Asp Leu Ser Arg Asn Gly Leu Ser Phe Lys Gly Cys Cys Ser		
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Gln Ser Asp Phe Gly Thr Thr Ser Leu Lys Tyr Leu Asp Leu Ser Phe		
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Asn Gly Val Ile Thr Met Ser Ser Asn Phe Leu Gly Leu Glu Gln Leu		
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Glu His Leu Asp Phe Gln His Ser Asn Leu Lys Gln Met Ser Glu Phe		
385	390	395
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Ser Val Phe Leu Ser Leu Arg Asn Leu Ile Tyr Leu Asp Ile Ser His		
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Thr His Thr Arg Val Ala Phe Asn Gly Ile Phe Asn Gly Leu Ser Ser		
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Leu Glu Val Leu Lys Met Ala Gly Asn Ser Phe Gln Glu Asn Phe Leu		
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Pro Asp Ile Phe Thr Glu Leu Arg Asn Leu Thr Phe Leu Asp Leu Ser		
450	455	460
Gln Cys Gln Leu Glu Gln Leu Ser Pro Thr Ala Phe Asn Ser Leu Ser		
465	470	475
480		
Ser Leu Gln Val Leu Asn Met Ser His Asn Asn Phe Phe Ser Leu Asp		
485	490	495

Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu Gln Val Leu Asp Tyr Ser  
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Leu Asn His Ile Met Thr Ser Lys Lys Gln Glu Leu Gln His Phe Pro  
 515 520 525

Ser Ser Leu Ala Phe Leu Asn Leu Thr Gln Asn Asp Phe Ala Cys Thr  
 530 535 540

Cys Glu His Gln Ser Phe Leu Gln Trp Ile Lys Asp Gln Arg Gln Leu  
 545 550 555 560

Leu Val Glu Val Glu Arg Met Glu Cys Ala Thr Pro Ser Asp Lys Gln  
 565 570 575

Gly Met Pro Val Leu Ser Leu Asn Ile Thr Cys Gln Met Asn Lys Thr  
 580 585 590

Ile Ile Gly Val Ser Val Leu Ser Val Leu Val Val Ser Val Val Ala  
 595 600 605

Val Leu Val Tyr Lys Phe Tyr Phe His Leu Met Leu Leu Ala Gly Cys  
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Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr Asp Ala Phe Val Ile Tyr  
 625 630 635 640

Ser Ser Gln Asp Glu Asp Trp Val Arg Asn Glu Leu Val Lys Asn Leu  
 645 650 655

Glu Glu Gly Val Pro Pro Phe Gln Leu Cys Leu His Tyr Arg Asp Phe  
 660 665 670

Ile Pro Gly Val Ala Ile Ala Ala Asn Ile Ile His Glu Gly Phe His  
 675 680 685

Lys Ser Arg Lys Val Ile Val Val Val Ser Gln His Phe Ile Gln Ser  
 690 695 700

Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala Gln Thr Trp Gln Phe Leu  
 705 710 715 720

Ser Ser Arg Ala Gly Ile Ile Phe Ile Val Leu Gln Lys Val Glu Lys  
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Thr Leu Leu Arg Gln Gln Val Glu Leu Tyr Arg Leu Leu Ser Arg Asn  
740 745 750

Thr Tyr Leu Glu Trp Glu Asp Ser Val Leu Gly Arg His Ile Phe Trp  
755 760 765

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Asn His Asn Tyr Leu Asn Ser Leu Pro Pro Gly Val Phe Ser His Leu
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act gca tta agg gga cta agc ctc aac tcc aac agg ctg aca gtt ctt
Thr Ala Leu Arg Gly Leu Ser Leu Asn Ser Asn Arg Leu Thr Val Leu
35 40 45 50
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Ser His Asn Asp Leu Pro Ala Asn Leu Glu Ile Leu Asp Ile Ser Arg
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aac cag ctc cta gct cct aat cct gat gta ttt gta tca ctt agt gtc
Asn Gln Leu Leu Ala Pro Asn Pro Asp Val Phe Val Ser Leu Ser Val
65 70 75 80
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Leu Asp Ile Thr His Asn Lys Phe Ile Cys Glu Cys Glu Leu Ser Thr
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ttt atc aat tgg ctt aat cac acc aat gtc act ata gct ggg cct cct
Phe Ile Asn Trp Leu Asn His Thr Asn Val Thr Ile Ala Gly Pro Pro
100 105 110 115
gca gac ata tat tgt gtg tac cct gac tcg ttc tct ggg gtt tcc ctc
Ala Asp Ile Tyr Cys Val Tyr Pro Asp Ser Phe Ser Gly Val Ser Leu
115 120 125 130

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 Thr Ala Leu Arg Gly Leu Ser Leu Asn Ser Asn Arg Leu Thr Val Leu  
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 Asn Gln Leu Leu Ala Pro Asn Pro Asp Val Phe Val Ser Leu Ser Val  
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 Ala Asp Ile Tyr Cys Val Tyr Pro Asp Ser Phe Ser Gly Val Ser Leu  
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 Cys Tyr Lys Thr Ala Gln Arg Leu Val Phe Lys Asp His Pro Gln Gly  
 180 185 190

33

Thr Glu Pro Asp Met Tyr Lys Tyr Asp Ala Tyr Leu Cys Phe Ser Ser  
195 200 205

Lys Asp Phe Thr Trp Val Gln Asn Ala Leu Leu Lys His Leu Asp Thr  
 210 215 220

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

Phe Val Pro Gly Glu Asn Arg Ile Ala Asn Ile Gln Asp Ala Ile Trp  
245 250 255

Asn Ser Arg Lys Ile Val Cys Leu Val Ser Arg His Phe Leu Arg Asp  
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Gly Trp Cys Leu Glu Ala Phe Ser Tyr Ala Gln Gly Arg Cys Leu Ser  
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Asp Leu Asn Ser Ala Leu Ile Met Val Val Val Gly Ser Leu Ser Gln  
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Tyr Gln Leu Met Lys His Gln Ser Ile Arg Gly Phe Val Gln Lys Gln  
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Gln Tyr Leu Arg Trp Pro Glu Asp Leu Gln Asp Val Gly Trp Phe Leu  
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Asn Leu Thr Leu Thr Ile Asn His Ile Pro Asp Ile Ser Pro Ala Ser		
65	70	75
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Phe His Arg Leu Asp His Leu Val Glu Ile Asp Phe Arg Cys Asn Cys		
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Val Pro Ile Pro Leu Gly Ser Lys Asn Asn Met Cys Ile Lys Arg Leu		
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Gln Ile Lys Pro Arg Ser Phe Ser Gly Leu Thr Tyr Leu Lys Ser Leu		
115	120	125
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Tyr Leu Asp Gly Asn Gln Leu Leu Glu Ile Pro Gln Gly Leu Pro Pro		
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Ser Leu Gln Leu Leu Ser Leu Glu Ala Asn Asn Ile Phe Ser Ile Arg		
145	150	155
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Lys Glu Asn Leu Thr Glu Leu Ala Asn Ile Glu Ile Leu Tyr Leu Gly		
165	170	175
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Gln Asn Cys Tyr Tyr Arg Asn Pro Cys Tyr Val Ser Tyr Ser Ile Glu		
180	185	190
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Lys Asp Ala Phe Leu Asn Leu Thr Lys Leu Lys Val Leu Ser Leu Lys		
195	200	205
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225	230	235
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Phe Asn Asn Leu Asn Gln Leu Gln Ile Leu Asp Leu Ser Gly Asn Cys		
245	250	255
cct cgt tgt tat aat gcc cca ttt cct tgt gcg ccg tgt aaa aat aat		
Pro Arg Cys Tyr Asn Ala Pro Phe Pro Cys Ala Pro Cys Lys Asn Asn		
		816

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

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

aat aaa atc cag atg atc caa aag acc agc ttc cca gaa aat gtc ctc Asn Lys Ile Gln Met Ile Gln Lys Thr Ser Phe Pro Glu Asn Val Leu 755 760 765	2304
aac aat ctg aag atg ttg ctt ttg cat cat aat cgg ttt ctg tgc acc Asn Asn Leu Lys Met Leu Leu His His Asn Arg Phe Leu Cys Thr 770 775 780	2352
tgt gat gct gtg tgg ttt gtc tgg tgg gtt aac cat acg gag gtg act Cys Asp Ala Val Trp Phe Val Trp Val Asn His Thr Glu Val Thr 785 790 795 800	2400
att cct tac ctg gcc aca gat gtg act tgt gtg ggg cca gga gca cac Ile Pro Tyr Leu Ala Thr Asp Val Thr Cys Val Gly Pro Gly Ala His 805 810 815	2448
aag ggc caa agt gtg atc tcc ctg gat ctg tac acc tgt gag tta gat Lys Gly Gln Ser Val Ile Ser Leu Asp Leu Tyr Thr Cys Glu Leu Asp 820 825 830	2496
ctg act aac ctg att ctg ttc tca ctt tcc ata tct gta tct ctc ttt Leu Thr Asn Leu Ile Leu Phe Ser Leu Ser Ile Ser Val Ser Leu Phe 835 840 845	2544
ctc atg gtg atg atg aca gca agt cac ctc tat ttc tgg gat gtg tgg Leu Met Val Met Met Thr Ala Ser His Leu Tyr Phe Trp Asp Val Trp 850 855 860	2592
tat att tac cat ttc tgt aag gcc aag ata aag ggg tat cag cgt cta Tyr Ile Tyr His Phe Cys Lys Ala Lys Ile Lys Gly Tyr Gln Arg Leu 865 870 875 880	2640
ata tca cca gac tgt tgc tat gat gct ttt att gtg tat gac act aaa Ile Ser Pro Asp Cys Cys Tyr Asp Ala Phe Ile Val Tyr Asp Thr Lys 885 890 895	2688
gac cca gct gtg acc gag tgg gtt ttg gct gag ctg gtg gcc aaa ctg Asp Pro Ala Val Thr Glu Trp Val Leu Ala Glu Leu Val Ala Lys Leu 900 905 910	2736
gaa gac cca aga gag aaa cat ttt aat tta tgt ctc gag gaa agg gac Glu Asp Pro Arg Glu Lys His Phe Asn Leu Cys Leu Glu Glu Arg Asp 915 920 925	2784
tgg tta cca ggg cag cca gtt ctg gaa aac ctt tcc cag agc ata cag Trp Leu Pro Gly Gln Pro Val Leu Glu Asn Leu Ser Gln Ser Ile Gln 930 935 940	2832
ctt agc aaa aag aca gtg ttt gtg atg aca gac aag tat gca aag act Leu Ser Lys Thr Val Phe Val Met Thr Asp Lys Tyr Ala Lys Thr 945 950 955 960	2880
gaa aat ttt aag ata gca ttt tac ttg tcc cat cag agg ctc atg gat Glu Asn Phe Lys Ile Ala Phe Tyr Leu Ser His Gln Arg Leu Met Asp 965 970 975	2928
gaa aaa gtt gat gtg att atc ttg ata ttt ctt gag aag ccc ttt cag Glu Lys Val Asp Val Ile Ile Leu Ile Phe Leu Glu Lys Pro Phe Gln 980 985 990	2976
aag tcc aag ttc ctc cag ctc cgg aaa agg ctc tgt ggg agt tct gtc	3024

Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg Leu Cys Gly Ser Ser Val  
 995 1000 1005

ctt gag tgg cca aca aac ccg caa gct cac cca tac ttc tgg cag 3069  
 Leu Glu Trp Pro Thr Asn Pro Gln Ala His Pro Tyr Phe Trp Gln  
 1010 1015 1020

tgt cta aag aac gcc ctg gcc aca gac aat cat gtg gcc tat agt 3114  
 Cys Leu Lys Asn Ala Leu Ala Thr Asp Asn His Val Ala Tyr Ser  
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cag gtg ttc aag gaa acg gtc tag 3138  
 Gln Val Phe Lys Glu Thr Val  
 1040 1045

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Met Trp Thr Leu Lys Arg Leu Ile Leu Ile Leu Phe Asn Ile Ile Leu  
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Ile Ser Lys Leu Leu Gly Ala Arg Trp Phe Pro Lys Thr Leu Pro Cys  
 20 25 30

Asp Val Thr Leu Asp Val Pro Lys Asn His Val Ile Val Asp Cys Thr  
 35 40 45

Asp Lys His Leu Thr Glu Ile Pro Gly Gly Ile Pro Thr Asn Thr Thr  
 50 55 60

Asn Leu Thr Leu Thr Ile Asn His Ile Pro Asp Ile Ser Pro Ala Ser  
 65 70 75 80

Phe His Arg Leu Asp His Leu Val Glu Ile Asp Phe Arg Cys Asn Cys  
 85 90 95

Val Pro Ile Pro Leu Gly Ser Lys Asn Asn Met Cys Ile Lys Arg Leu  
 100 105 110

Gln Ile Lys Pro Arg Ser Phe Ser Gly Leu Thr Tyr Leu Lys Ser Leu  
 115 120 125

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

Ser Leu Gln Leu Leu Ser Leu Glu Ala Asn Asn Ile Phe Ser Ile Arg  
 145 150 155 160

Lys Glu Asn Leu Thr Glu Leu Ala Asn Ile Glu Ile Leu Tyr Leu Gly  
 165 170 175

Gln Asn Cys Tyr Tyr Arg Asn Pro Cys Tyr Val Ser Tyr Ser Ile Glu  
 180 185 190

Lys Asp Ala Phe Leu Asn Leu Thr Lys Leu Lys Val Leu Ser Leu Lys  
 195 200 205

Asp Asn Asn Val Thr Ala Val Pro Thr Val Leu Pro Ser Thr Leu Thr  
 210 215 220

Glu Leu Tyr Leu Tyr Asn Asn Met Ile Ala Lys Ile Gln Glu Asp Asp  
 225 230 235 240

Phe Asn Asn Leu Asn Gln Leu Gln Ile Leu Asp Leu Ser Gly Asn Cys  
 245 250 255

Pro Arg Cys Tyr Asn Ala Pro Phe Pro Cys Ala Pro Cys Lys Asn Asn  
 260 265 270

Ser Pro Leu Gln Ile Pro Val Asn Ala Phe Asp Ala Leu Thr Glu Leu  
 275 280 285

Lys Val Leu Arg Leu His Ser Asn Ser Leu Gln His Val Pro Pro Arg  
 290 295 300

Trp Phe Lys Asn Ile Asn Lys Leu Gln Glu Leu Asp Leu Ser Gln Asn  
 305 310 315 320

Phe Leu Ala Lys Glu Ile Gly Asp Ala Lys Phe Leu His Phe Leu Pro  
 325 330 335

Ser Leu Ile Gln Leu Asp Leu Ser Phe Asn Phe Glu Leu Gln Val Tyr  
 340 345 350

Arg Ala Ser Met Asn Leu Ser Gln Ala Phe Ser Ser Leu Lys Ser Leu  
 365 360 365

Lys Ile Leu Arg Ile Arg Gly Tyr Val Phe Lys Glu Leu Lys Ser Phe  
 370 375 380

Asn Leu Ser Pro Leu His Asn Leu Gln Asn Leu Glu Val Leu Asp Leu  
 385 390 395 400

Gly Thr Asn Phe Ile Lys Ile Ala Asn Leu Ser Met Phe Lys Gln Phe  
 405 410 415  
 Lys Arg Leu Lys Val Ile Asp Leu Ser Val Asn Lys Ile Ser Pro Ser  
 420 425 430  
 Gly Asp Ser Ser Glu Val Gly Phe Cys Ser Asn Ala Arg Thr Ser Val  
 435 440 445  
 Glu Ser Tyr Glu Pro Gin Val Leu Glu Gln Leu His Tyr Phe Arg Tyr  
 450 455 460  
 Asp Lys Tyr Ala Arg Ser Cys Arg Phe Lys Asn Lys Glu Ala Ser Phe  
 465 470 475 480  
 Met Ser Val Asn Glu Ser Cys Tyr Lys Tyr Gly Gln Thr Leu Asp Leu  
 485 490 495  
 Ser Lys Asn Ser Ile Phe Phe Val Lys Ser Ser Asp Phe Gln His Leu  
 500 505 510  
 Ser Phe Leu Lys Cys Leu Asn Leu Ser Gly Asn Leu Ile Ser Gln Thr  
 515 520 525  
 Leu Asn Gly Ser Glu Phe Gln Pro Leu Ala Glu Leu Arg Tyr Leu Asp  
 530 535 540  
 The Ser Asn Asn Arg Leu Asp Leu Leu His Ser Thr Ala Phe Glu Glu  
 545 550 555 560  
 eu His Lys Leu Glu Val Leu Asp Ile Ser Ser Asn Ser His Tyr Phe  
 565 570 575  
 In Ser Glu Gly Ile Thr His Met Leu Asn Phe Thr Lys Asn Leu Lys  
 580 585 590  
 al Leu Gln Lys Leu Met Met Asn Asp Asn Asp Ile Ser Ser Ser Thr  
 595 600 605  
 er Arg Thr Met Glu Ser Glu Ser Leu Arg Thr Leu Glu Phe Arg Gly  
 610 615 620  
 n His Leu Asp Val Leu Trp Arg Glu Gly Asp Asn Arg Tyr Leu Gln  
 630 635 640

Leu Phe Lys Asn Leu Leu Lys Leu Glu Glu Leu Asp Ile Ser Lys Asn  
 645 650 655

Ser Leu Ser Phe Leu Pro Ser Gly Val Phe Asp Gly Met Pro Pro Asn  
 660 665 670

Leu Lys Asn Leu Ser Leu Ala Lys Asn Gly Leu Lys Ser Phe Ser Trp  
 675 680 685

Lys Lys Leu Gln Cys Leu Lys Asn Leu Glu Thr Leu Asp Leu Ser His  
 690 695 700

Asn Gln Leu Thr Thr Val Pro Glu Arg Leu Ser Asn Cys Ser Arg Ser  
 705 710 715 720

Leu Lys Asn Leu Ile Leu Lys Asn Asn Gln Ile Arg Ser Leu Thr Lys  
 725 730 735

Tyr Phe Leu Gln Asp Ala Phe Gln Leu Arg Tyr Leu Asp Leu Ser Ser  
 740 745 750

Asn Lys Ile Gln Met Ile Gln Lys Thr Ser Phe Pro Glu Asn Val Leu  
 755 760 765

Asn Asn Leu Lys Met Leu Leu His His Asn Arg Phe Leu Cys Thr  
 770 775 780

Cys Asp Ala Val Trp Phe Val Trp Trp Val Asn His Thr Glu Val Thr  
 785 790 795 800

Ile Pro Tyr Leu Ala Thr Asp Val Thr Cys Val Gly Pro Gly Ala His  
 805 810 815

Lys Gly Gln Ser Val Ile Ser Leu Asp Leu Tyr Thr Cys Glu Leu Asp  
 820 825 830

Leu Thr Asn Leu Ile Leu Phe Ser Leu Ser Ile Ser Val Ser Leu Phe  
 835 840 845

Leu Met Val Met Met Thr Ala Ser His Leu Tyr Phe Trp Asp Val Trp  
 850 855 860

Tyr Ile Tyr His Phe Cys Lys Ala Lys Ile Lys Gly Tyr Gln Arg Leu  
 865 870 875 880

Ile Ser Pro Asp Cys Cys Tyr Asp Ala Phe Ile Val Tyr Asp Thr Lys

865

890

895

Asp Pro Ala Val Thr Glu Trp Val Leu Ala Glu Leu Val Ala Lys Leu  
 900 905 910

Glu Asp Pro Arg Glu Lys His Phe Asn Leu Cys Leu Glu Glu Arg Asp  
 915 920 925

Trp Leu Pro Gly Gln Pro Val Leu Glu Asn Leu Ser Gln Ser Ile Gln  
 930 935 940

Leu Ser Lys Lys Thr Val Phe Val Met Thr Asp Lys Tyr Ala Lys Thr  
 945 950 955 960

Glu Asn Phe Lys Ile Ala Phe Tyr Leu Ser His Gln Arg Leu Met Asp  
 965 970 975

Glu Lys Val Asp Val Ile Ile Leu Ile Phe Leu Glu Lys Pro Phe Gln  
 980 985 990

Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg Leu Cys Gly Ser Ser Val  
 995 1000 1005

Leu Glu Trp Pro Thr Asn Pro Gln Ala His Pro Tyr Phe Trp Gln  
 1010 1015 1020

Cys Leu Lys Asn Ala Leu Ala Thr Asp Asn His Val Ala Tyr Ser  
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Gln Val Phe Lys Glu Thr Val  
 1040 1045

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 Leu Gly Lys Pro Leu Gln Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg  
 1 5 10 15

ctc tgc agg agc tct gtc ctt gag tgg cct gca aat cca cag gct cac  
 Leu Cys Arg Ser Ser Val Leu Glu Trp Pro Ala Asn Pro Gln Ala His

48

96

43

20

25

30

cca tac ttc tgg cag tgc ctg aaa aat gcc ctg acc aca gac aat cat  
Pro Tyr Phe Trp Gln Cys Leu Lys Asn Ala Leu Thr Thr Asp Asn His 144  
35 40 45

gtg gct tat agt caa atg ttc aag gaa aca gtc tag  
Val Ala Tyr Ser Gln Met Phe Lys Glu Thr Val 180  
50 55

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Leu Cys Arg Ser Ser Val Leu Glu Trp Pro Ala Asn Pro Gln Ala His  
20 25 30

Pro Tyr Phe Trp Gln Cys Leu Lys Asn Ala Leu Thr Thr Asp Asn His  
35 40 45

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

tat ttt aac aaa gtt tgc gag aaa act aac ata gaa gat gga gta ttt 97  
Tyr Phe Asn Lys Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe  
20 25 30

gaa acg ctg aca aat ttg gag ttg cta tca cta tct ttc aat tct ctt 145  
Glu Thr Leu Thr Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu  
35 40 45

tca cat gtg cca ccc aaa ctg cca agc tcc cta cgc aaa ctt ttt ctg 193  
Ser His Val Pro Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu  
50 55 60

agc aac acc cag atc aaa tac att agt gaa gaa gat ttc aag gga ttg Ser Asn Thr Gln Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu 65 70 75 80	241
ata aat tta aca tta cta gat tta agc ggg aac tgt ccg agg tgc ttc Ile Asn Leu Thr Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe 85 90 95	289
aat gcc cca ttt cca tgc gtg cct tgt gat ggt ggt gct tca att aat Asn Ala Pro Phe Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn 100 105 110	337
ata gat cgt ttt gct ttt caa aac ttg acc caa ctt cga tac cta aac Ile Asp Arg Phe Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn 115 120 125	385
ctc tct agc act tcc ctc agg aag att aat gct gcc tgg ttt aaa aat Leu Ser Ser Thr Ser Leu Arg Lys Ile Asn Ala Ala Trp Phe Lys Asn 130 135 140	433
atg cct cat ctg aag gtg ctg gat ctt gaa ttc aac tat tta gtg gga Met Pro His Leu Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly 145 150 155 160	481
gaa ata gcc tct ggg gca ttt tta acg atg ctg ccc cgc tta gaa ata Glu Ile Ala Ser Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile 165 170 175	529
ctt gac ttg tct ttt aac tat ata aag ggg agt tat cca cag cat att Leu Asp Leu Ser Phe Asn Tyr Ile Lys Gly Ser Tyr Pro Gln His Ile 180 185 190	577
aat att tcc aga aac ttc tct aaa ctt ttg tct cta cgg gca ttg cat Asn Ile Ser Arg Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His 195 200 205	625
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ctg atg cag ctt cca aac tta tcg act atc aac ttg ggt att aat ttt Leu Met Gln Leu Pro Asn Leu Ser Thr Ile Asn Leu Gly Ile Asn Phe 225 230 235 240	721
att aag caa atc gat ttc aaa ctt ttc caa aat ttc tcc aat ctg gaa Ile Lys Gln Ile Asp Phe Lys Leu Phe Gln Asn Phe Ser Asn Leu Glu 245 250 255	769
att att tac ttg tca gaa aac aga ata tca ccg ttg gta aaa gat acc Ile Ile Tyr Leu Ser Glu Asn Arg Ile Ser Pro Leu Val Lys Asp Thr 260 265 270	817
cgg cag agt tat gca aat agt tcc tct ttt caa cgt cat atc ccg aaa Arg Gln Ser Tyr Ala Asn Ser Ser Phe Gln Arg His Ile Arg Lys 275 280 285	865
cga cgc tca aca gat ttt gag ttt gac cca cat tcg aac ttt tat cat Arg Arg Ser Thr Asp Phe Glu Phe Asp Pro His Ser Asn Phe Tyr His 290 295 300	913

ttc acc cgt cct tta ata aag cca caa tgt get get tat gga aaa gcc 961  
 Phe Thr Arg Pro Leu Ile Lys Pro Gln Cys Ala Ala Tyr Gly Lys Ala  
 305 310 315 320

tta gat tta agc ctc aac agt att ttc tt 990  
 Leu Asp Leu Ser Leu Asn Ser Ile Phe  
 325

<210> 16  
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Asn Ser Arg Leu Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys  
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Tyr Phe Asn Lys Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe  
 20 25 30

Glu Thr Leu Thr Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu  
 35 40 45

Ser His Val Pro Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu  
 50 55 60

Ser Asn Thr Gln Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu  
 65 70 75 80

Ile Asn Leu Thr Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe  
 85 90 95

Asn Ala Pro Phe Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn  
 100 105 110

Ile Asp Arg Phe Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn  
 115 120 125

Leu Ser Ser Thr Ser Leu Arg Lys Ile Asn Ala Ala Trp Phe Lys Asn  
 130 135 140

Met Pro His Leu Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly  
 145 150 155 160

Glu Ile Ala Ser Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile  
 165 170 175

Leu Asp Leu Ser Phe Asn Tyr Ile Lys Gly Ser Tyr Pro Gln His Ile

180

185

190

Asn Ile Ser Arg Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His  
 195 200 205

Leu Arg Gly Tyr Val Phe Gln Glu Leu Arg Glu Asp Asp Phe Gln Pro  
 210 215 220

Leu Met Gln Leu Pro Asn Leu Ser Thr Ile Asn Leu Gly Ile Asn Phe  
 225 230 235 240

Ile Lys Gln Ile Asp Phe Lys Leu Phe Gln Asn Phe Ser Asn Leu Glu  
 245 250 255

Ile Ile Tyr Leu Ser Glu Asn Arg Ile Ser Pro Leu Val Lys Asp Thr  
 260 265 270

Arg Gln Ser Tyr Ala Asn Ser Ser Ser Phe Gln Arg His Ile Arg Lys  
 275 280 285

Arg Arg Ser Thr Asp Phe Glu Phe Asp Pro His Ser Asn Phe Tyr His  
 290 295 300

Phe Thr Arg Pro Leu Ile Lys Pro Gln Cys Ala Ala Tyr Gly Lys Ala  
 305 310 315 320

Leu Asp Leu Ser Leu Asn Ser Ile Phe  
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<210> 17  
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 1 S 10 15

gac acc aaa gat gcc tct gtt act gac tgg gtg ata aat gag ctg cgc 96  
 Asp Thr Lys Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg  
 20 25 30

tac cac ctt gaa gag agc cga gac aaa aac gtt ctc ctt tgt cta gag 144  
 Tyr His Leu Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu

35

40

45

gag agg gat tgg gac ccg gga ttg gcc atc atc gac aac ctc atg cag Glu Arg Asp Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln	192
50 55 60	
agc atc aac caa agc aag aaa aca gta ttt gtt tta acc aaa aaa tat Ser Ile Asn Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr	240
65 70 75 80	
gca aaa agc tgg aac ttt aaa aca gct ttt tac ttg gsc ttg cag agg Ala Lys Ser Trp Asn Phe Lys Thr Ala Phe Tyr Leu Xaa Leu Gln Arg	288
85 90 95	
cta atg ggt gag aac atg gat gtg att ata ttt atc ctg ctg gag cca Leu Met Gly Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro	336
100 105 110	
gtg tta cag cat tct ccg tat ttg agg cta ccg cag ccg atc tgt aag Val Leu Gln His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys	384
115 120 125	
agc tcc atc ctc cag tgg cct gac aac ccg aag gca gaa agg ttg ttt Ser Ser Ile Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Arg Leu Phe	432
130 135 140	
tgg caa act ctg wga aat gtg gtc ttg act gaa aat gat tca ccg tat Trp Gln Thr Leu Xaa Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr	480
145 150 155 160	
aac aat atg tat gtc gat tcc att aag caa tac taactgacgt taagtcatga Asn Asn Met Tyr Val Asp Ser Ile Lys Gln Tyr	533
165 170	
tttgcgcgcca taataaaagat gcaaaggaaat gacatttcgt attagttatc tattgtctagg taacaaattha tccccaaaaac ttagtggttt aaaacaacac atttgcgtgc ccacagtttt	593
tgaggggtcag gagtccaggg ccagcataac tgggtttttt gtttcagggt gtctcagagg	653
ctgcaatgta ggtgttcacc agagacatag gcatcactgg ggtcacactc atgtgggtgt	713
tttctggatt caattccccc tgggttattt gccaaaggct atactcatgt aagccatgcg	773
agcctatccc acaaggcagc ttgcttcatac agagctagca aaaaagagag gttgctagca	833
agatgaagtc acaatctttt gtaatcgaat caaaaaaaaatg atatctatc acttttggcca	893
tattctatcc gttagaagta aaccacaggt cccaccagct ccatggaggt gaccacctca	953
gtccaggaa aacagctgaa gaccaagatg gtgagctctg attgcttcag ttggtcatac	1013
actatttcc cttgactgt gtcctggat ggccggctat cttgatggat agattgtgaa	1073
tatcaggagg ccagggatca ctgtggacca tcttagcagt tgacctaaca catcttcttt	1133
tcaaatatcta agaacttttg ccactgtgac taatggccct aataataaagc tggttgttat	1193
atttatcata tatctatggc tacatggta tattatgtcg tggttgcgtt cggttttatt	1253
tacagttgct tttacaaata ttgcgtgtaa catttgactt ctaaggttta gatgccattt	1313
	1373

aagaactgag atggatagtctttaaagcat cttttacttc ttaccatttt ttaaaaagtat	1433
gcagctaaat tcgaagcttt tggtctatat tgttaattgc cattgctgta aatcttaaaa	1493
tgaatgaata aaaatgtttc attttaaaaa aaaaaaaaaa aaaaaaaaaa	1543

<210> 18  
<211> 171  
<212> PRT  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (93)..(93)  
<223> The 'Xaa' at location 93 stands for Gly, or Ala.

<220>  
<221> misc\_feature  
<222> (149)..(149)  
<223> The 'Kaa' at location 149 stands for Arg, or a stop codon.

<400> 18

Gln Ser Leu Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr			
1	5	10	15

Asp Thr Lys Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg		
20	25	30

Tyr His Leu Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu		
35	40	45

Glu Arg Asp Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln		
50	55	60

Ser Ile Asn Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr			
65	70	75	80

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

Leu Met Gly Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro		
100	105	110

Val Leu Gln His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys		
115	120	125

Ser Ser Ile Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Arg Leu Phe		
130	135	140

Trp Gln Thr Leu Xaa Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr  
 145                    150                    155                    160

Asn Asn Met Tyr Val Asp Ser Ile Lys Gln Tyr  
165 170

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<210> 19
<211> 629
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(486)
<223>
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<400> 19  
 aat gaa ttg atc ccc aat cta gag aag gaa gat ggt tct atc ttg att 48  
 Asn Glu Leu Ile Pro Asn Leu Glu Lys Glu Asp Gly Ser Ile Leu Ile  
 1 5 10 15  
  
 tgc ctt tat gaa agc tac ttt gac cct ggc aaa agc att agt gaa aat 96  
 Cys Leu Tyr Glu Ser Tyr Phe Asp Pro Gly Lys Ser Ile Ser Glu Asn  
 20 25 30  
  
 att gta agc ttc att gag aaa agc tat aag tcc atc ttt gtt ttg tcy 144  
 Ile Val Ser Phe Ile Glu Lys Ser Tyr Lys Ser Ile Phe Val Leu Xaa  
 35 40 45  
  
 ccc aac ttt gtc cag aat gag tgg tgc cat tat gaa ttc tac ttt gcc 192  
 Pro Asn Phe Val Gln Asn Glu Trp Cys His Tyr Glu Phe Tyr Phe Ala  
 50 55 60  
  
 cac cac aat ctc ttc cat gaa aat tct gat cay ata att ctt atc tta 240  
 His His Asn Leu Phe His Glu Asn Ser Asp His Ile Ile Leu Ile Leu  
 65 70 75 80  
  
 ctg gaa ccc att cca ttc tat tgc att ccd acc agg tat cat aaa ctg 288  
 Leu Glu Pro Ile Pro Phe Tyr Cys Ile Pro Thr Arg Tyr His Lys Leu  
 85 90 95  
  
 gaa gct ctc ctg gaa aaa aaa gca tac ttg gaa tgg ccc aag gat agg 336  
 Glu Ala Leu Leu Glu Lys Lys Ala Tyr Leu Glu Trp Pro Lys Asp Arg  
 100 105 110  
  
 cgt aaa tgt ggg ctt ttc tgg gca aac ctt cga gct gct gtt aat gtt 384  
 Arg Lys Cys Gly Leu Phe Trp Ala Asn Leu Arg Ala Ala Val Asn Val  
 115 120 125  
  
 aat gta tta gcc acc aga gaa atg tat gaa ctg cag aca ttc aca gag 432  
 Asn Val Leu Ala Thr Arg Glu Met Tyr Glu Leu Gln Thr Phe Thr Glu  
 130 135 140  
  
 tta aat gaa gag tct cga ggt tct aca atc tct ctg atg aga aca gac 480  
 Leu Asn Glu Glu Ser Arg Gly Ser Thr Ile Ser Leu Met Arg Thr Asp  
 145 150 155 160  
  
 tgt cta taaaatccca cagtccttgg gaagttgggg accacataaca ctgtttggat 536

Cys Leu

gtacattgat acaaccttta tcatggcaat ttgacaatat ttattaaaat aaaaaatggt	596
tattcccttc aaaaaaaaaaaa aaaaaaaaaaaa aaa	629

<210> 20  
<211> 162  
<212> PRT  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (48)..(48)  
<223> The 'Xaa' at location 48 stands for Ser.

&lt;400&gt; 20

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

Cys Leu Tyr Glu Ser Tyr Phe Asp Pro Gly Lys Ser Ile Ser Glu Asn		
20	25	30

Ile Val Ser Phe Ile Glu Lys Ser Tyr Lys Ser Ile Phe Val Leu Xaa		
35	40	45

Pro Asn Phe Val Gln Asn Glu Trp Cys His Tyr Glu Phe Tyr Phe Ala		
50	55	60

His His Asn Leu Phe His Glu Asn Ser Asp His Ile Ile Leu Ile Leu			
65	70	75	80

Leu Glu Pro Ile Pro Phe Tyr Cys Ile Pro Thr Arg Tyr His Lys Leu		
85	90	95

Glu Ala Leu Leu Glu Lys Lys Ala Tyr Leu Glu Trp Pro Lys Asp Arg		
100	105	110

Arg Lys Cys Gly Leu Phe Trp Ala Asn Leu Arg Ala Ala Val Asn Val		
115	120	125

Asn Val Leu Ala Thr Arg Glu Met Tyr Glu Leu Gln Thr Phe Thr Glu		
130	135	140

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

Cys Leu

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<210> 21
<211> 427
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(426)
<223>

<400> 21
aag aac tcc aaa gaa aac ctc cag ttt cat gct ttt att tca tat agt
Lys Asn Ser Lys Glu Asn Leu Gln Phe His Ala Phe Ile Ser Tyr Ser
1 5 10 15
48

gaa cat gat tct gcc tgg gtg aaa agt gaa ttg gta cct tac cta gaa
Glu His Asp Ser Ala Trp Val Lys Ser Glu Leu Val Pro Tyr Leu Glu
20 25 30
96

aaa gaa gat ata cag att tgt ctt cat gag aga aac ttt gtc cct ggc
Lys Glu Asp Ile Gln Ile Cys Leu His Glu Arg Asn Phe Val Pro Gly
35 40 45
144

aag agc att gtg gaa aat atc atc aac tgc att gag aag agt tac aag
Lys Ser Ile Val Glu Asn Ile Ile Asn Cys Ile Glu Lys Ser Tyr Lys
50 55 60
192

tcc atc ttt gtt ttg tct ccc aac ttt gtc cag agt gag tgg tgc cat
Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Ser Glu Trp Cys His
65 70 75 80
240

cac gaa ctc tat ttt gcc cat cac aat ctc ttt cat gaa gga tct aat
Tyr Glu Leu Tyr Phe Ala His His Asn Leu Phe His Glu Gly Ser Asn
85 90 95
288

aac tta atc ctc atc tta ctg gaa ccc att cca cag aac agc att ccc
Asn Leu Ile Leu Ile Leu Glu Pro Ile Pro Gln Asn Ser Ile Pro
100 105 110
336

ac aag tac cac aag ctg aag gct ctc atg acg cag cggt act tat ttg
Asn Lys Tyr His Lys Leu Lys Ala Leu Met Thr Gln Arg Thr Tyr Leu
115 120 125
384

ag tgg ccc aag gag aaa agc aas cgt ggg ctc ttt tgg gct a
In Trp Pro Lys Glu Lys Ser Lys Arg Gly Leu Phe Trp Ala
130 135 140
427

210> 22
211> 142
212> PRT
213> Homo sapiens

400> 22

ys Asn Ser Lys Glu Asn Leu Gln Phe His Ala Phe Ile Ser Tyr Ser
5 10 15

```

Glu His Asp Ser Ala Trp Val Lys Ser Glu Leu Val Pro Tyr Leu Glu  
 20 25 30

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

Lys Ser Ile Val Glu Asn Ile Ile Asn Cys Ile Glu Lys Ser Tyr Lys  
 50 55 60

Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Ser Glu Trp Cys His  
 65 70 75 80

Tyr Glu Leu Tyr Phe Ala His His Asn Leu Phe His Glu Gly Ser Asn  
 85 90 95

Asn Leu Ile Leu Ile Leu Leu Glu Pro Ile Pro Gln Asn Ser Ile Pro  
 100 105 110

Asn Lys Tyr His Lys Leu Lys Ala Leu Met Thr Gln Arg Thr Tyr Leu  
 115 120 125

Gln Trp Pro Lys Glu Lys Ser Lys Arg Gly Leu Phe Trp Ala  
 130 135 140

<210> 23  
<211> 662  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(627)  
<223>

<220>  
<221> misc\_feature  
<222> (316)..(316)  
<223> unknown nucleotide

<220>  
<221> misc\_feature  
<222> (380)..(380)  
<223> unknown nucleotide

<220>  
<221> misc\_feature  
<222> (407)..(407)  
<223> unknown nucleotide

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<220>
<221> misc_feature
<222> (408)..(408)
<223> unknown nucleotide

<400> 23
gct tcc acc tgt gcc tgg cct ggc ttc cct ggc ggg ggc ggc aaa gtg      48
Ala Ser Thr Cys Ala Trp Pro Gly Phe Pro Gly Gly Gly Lys Val
1           5           10          15
                           10           15
ggc gar atg agg atg ccc tgc cct acg atg cct tcg tgg tct tcg aca      96
Gly Glu Met Arg Met Pro Cys Pro Thr Met Pro Ser Trp Ser Ser Thr
20          25          30
                           25           30
aaa cgc rga gcg cag tgg cag act ggg tgt aca acg agc ttc ggg ggc      144
Lys Arg Xaa Ala Gln Trp Gln Thr Gly Cys Thr Ser Phe Gly Gly
35          40          45
                           40           45
agc tgg agg agt gcc gtg ggc gct ggg cac tcc gcc tgt gcc tgg agg      192
Ser Trp Arg Ser Ala Val Gly Ala Gly His Ser Ala Cys Ala Trp Arg
50          55          60
                           55           60
aac gcg act ggc tgc ctg gca aaa ccc tct ttg aga acc tgt ggg cct      240
Asn Ala Thr Gly Cys Leu Ala Lys Pro Ser Leu Arg Thr Cys Gly Pro
65          70          75          80
                           70           75           80
cgg tct atg gca gcc gca aga cgc tgt ttg tgc tgg ccc aca cgg acc      288
Arg Ser Met Ala Ala Arg Arg Cys Leu Cys Trp Pro Thr Arg Thr
85          90          95
                           90           95
ggg tca gtg gtc tct tgc gcg cca ktt ntc ctg ctg gcc cag cag cgc      336
Gly Ser Val Val Ser Cys Ala Pro Xaa Xaa Leu Leu Ala Gln Gln Arg
100         105         110
                           105           110
ctg ctg gar gac cgc aag gac gtc gtg ctg gtg atc cta ang cct      384
Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val Ile Leu Xaa Pro
115         120         125
                           120           125
gac ggc caa gcc tcc cga cta cnn gat gcg ctg acc agc gcc tct gcc      432
Asp Gly Gln Ala Ser Arg Leu Xaa Asp Ala Leu Thr Ser Ala Ser Ala
130         135         140
                           135           140
gcc aga gtg tcc tcc tct ggc ccc acc agc cca gtg gtc gcg cag ctt      480
Ala Arg Val Ser Ser Gly Pro Thr Ser Pro Val Val Ala Gln Leu
145         150         155         160
                           150           155           160
ctg agg cca gca tgc atg gcc ctg acc agg gac aac cac cac ttc tat      528
Leu Arg Pro Ala Cys Met Ala Leu Thr Arg Asp Asn His His Phe Tyr
165         170         175
                           170           175
aac cgg aac ttc tgc cag gga acc cac ggc cga ata gcc gtg agc cgg      576
Asn Arg Asn Phe Cys Gln Gly Thr His Gly Arg Ile Ala Val Ser Arg
180         185         190
                           185           190
aat cct gca cgg tgc cac ctc cac aca cac cta aca tat gcc tgc ctg      624
Asn Pro Ala Arg Cys His Leu His Thr His Leu Thr Tyr Ala Cys Leu
195         200         205
                           200           205

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atc tgaccaaacat atgctcgccac cccttcaccac acacc  
Ile

662

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<210> 24
<211> 209
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (35)..(35)
<223> The 'Xaa' at location 35 stands for Gly, or Arg.

<220>
<221> misc_feature
<222> (105)..(105)
<223> The 'Xaa' at location 105 stands for Val, or Phe.

<220>
<221> misc_feature
<222> (106)..(106)
<223> The 'Xaa' at location 106 stands for Ile, Val, Leu, or Phe.

<220>
<221> misc_feature
<222> (127)..(127)
<223> The 'Xaa' at location 127 stands for Lys, Arg, Thr, or Met.

<220>
<221> misc_feature
<222> (136)..(136)
<223> The 'Xaa' at location 136 stands for Gln, His, Arg, Pro, or Leu.

<220>
<221> misc_feature
<222> (316)..(316)
<223> unknown nucleotide

<220>
<221> misc_feature
<222> (380)..(380)
<223> unknown nucleotide

<220>
<221> misc_feature
<222> (407)..(407)
<223> unknown nucleotide

<220>
<221> misc_feature
<222> (408)..(408)
<223> unknown nucleotide

<400> 24

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

55

Gly Glu Met Arg Met Pro Cys Pro Thr Met Pro Ser Trp Ser Ser Thr  
20 25 30

Lys Arg Xaa Ala Gln Trp Gln Thr Gly Cys Thr Thr Ser Phe Gly Gly  
35 40 45

Ser Trp Arg Ser Ala Val Gly Ala Gly His Ser Ala Cys Ala Trp Arg  
50 55 60

Asn Ala Thr Gly Cys Leu Ala Lys Pro Ser Leu Arg Thr Cys Gly Pro  
65 70 75 80

Arg Ser Met Ala Ala Ala Arg Arg Cys Leu Cys Trp Pro Thr Arg Thr  
85 90 95

Gly Ser Val Val Ser Cys Ala Pro Xaa Xaa Leu Leu Ala Gln Gln Arg  
100 105 110

Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val Ile Leu Xaa Pro  
115 120 125

Asp Gly Gln Ala Ser Arg Leu Xaa Asp Ala Leu Thr Ser Ala Ser Ala  
130 135 140

Ala Arg Val Ser Ser Ser Gly Pro Thr Ser Pro Val Val Ala Gln Leu  
145 150 155 160

Leu Arg Pro Ala Cys Met Ala Leu Thr Arg Asp Asn His His Phe Tyr  
165 170 175

Asn Arg Asn Phe Cys Gln Gly Thr His Gly Arg Ile Ala Val Ser Arg  
180 185 190

Asn Pro Ala Arg Cys His Leu His Thr His Leu Thr Tyr Ala Cys Leu  
195 200 205

Ile

<210> 25  
<211> 4865  
<212> DNA  
<213> Homo sapiens  
  
<220>  
<221> CDS  
<222> (107)..(2617)  
<223>

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<220>
<221> mat_peptide
<222> (173)...()
<223>

<400> 25
aaaatactcc cttgcctcaa aaactgctcg gtcaaacggt gatagcaaac cacgcattca      60
cagggccact gctgctcaca aaaccagtga ggatgatgcc aggatg atg tct gcc      115
                                         Met Ser Ala
                                         -20
tcg cgc ctg gct ggg act ctg atc cca gcc atg gcc ttc ctc tcc tgc      163
Ser Arg Leu Ala Gly Thr Leu Ile Pro Ala Met Ala Phe Leu Ser Cys
-15           -10           -5
gtg aga cca gaa agc tgg gag ccc tgc gtg gag gtt cct aat att act      211
Val Arg Pro Glu Ser Trp Glu Pro Cys Val Glu Val Pro Asn Ile Thr
-1   1           5           10
tat caa tgc atg gag ctg aat ttc tac aaa atc ccc gac aac ctc ccc      259
Tyr Gln Cys Met Glu Leu Asn Phe Tyr Lys Ile Pro Asp Asn Leu Pro
15           20           25
ttc tca acc aag aac ctg gac ctg agc ttt aat ccc ctg agg cat tta      307
Phe Ser Thr Lys Asn Leu Asp Leu Ser Phe Asn Pro Leu Arg His Leu
30           35           40           45
ggc agc tat agc ttc ttc agt ttc cca gaa ctg cag gtg ctg gat tta      355
Gly Ser Tyr Ser Phe Phe Ser Phe Pro Glu Leu Gln Val Leu Asp Leu
50           55           60
tcc agg tgt gaa atc cag aca att gaa gat ggg gca tat cag agc cta      403
Ser Arg Cys Glu Ile Gln Thr Ile Glu Asp Gly Ala Tyr Gln Ser Leu
65           70           75
agc cac ctc tct acc tta ata ttg aca gga aac ccc atc cag agt tta      451
Ser His Leu Ser Thr Leu Ile Leu Thr Gly Asn Pro Ile Gln Ser Leu
80           85           90
gcc ctg gga gcc ttt tct gga cta tca agt tta cag aag ctg gtg gct      499
Ala Leu Gly Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys Leu Val Ala
95           100          105
gtg gag aca aat cta gca tct cta gag aac ttc ccc att gga cat ctc      547
Val Glu Thr Asn Leu Ala Ser Leu Glu Asn Phe Pro Ile Gly His Leu
110          115          120          125
aaa act ttg aaa gaa ctt aat gtg gct cac aat ctt atc caa tct ttc      595
Lys Thr Leu Lys Glu Leu Asn Val Ala His Asn Leu Ile Gln Ser Phe
130          135          140
aaa tta cct gag tat ttt tct aat ctg acc aat cta gag cac ttg gac      643
Lys Leu Pro Glu Tyr Phe Ser Asn Leu Thr Asn Leu Glu His Leu Asp
145          150          155
ctt tcc agc aac aag att caa agt att tat tgc aca gac ttg cgg gtt      691
Leu Ser Ser Asn Lys Ile Gln Ser Ile Tyr Cys Thr Asp Leu Arg Val

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160

165

170

cta cat caa atg ccc cta ctc aat ctc tct tta gac ctg tcc ctg aac 739  
 Leu His Gln Met Pro Leu Leu Asn Leu Ser Leu Asp Leu Ser Leu Asn  
 175 180 185  
 cct atg aac ttt atc caa cca ggt gca ttt aaa gaa att agg ctt cat 787  
 Pro Met Asn Phe Ile Gln Pro Gly Ala Phe Lys Glu Ile Arg Leu His  
 190 195 200 205  
 aag ctg act tta aga aat aat ttt gat agt tta aat gta atg aaa act 835  
 Lys Leu Thr Leu Arg Asn Asn Phe Asp Ser Leu Asn Val Met Lys Thr  
 210 215 220  
 tgt att caa ggt ctg gct ggt tta gaa gtc cat cgt ttg gtt ctg gga 883  
 Cys Ile Gln Gly Leu Ala Gly Leu Glu Val His Arg Leu Val Leu Gly  
 225 230 235  
 gaa ttt aga aat gaa gga aac ttg gaa aag ttt gac aaa tct gct cta 931  
 Glu Phe Arg Asn Glu Gly Asn Leu Glu Lys Phe Asp Lys Ser Ala Leu  
 240 245 250  
 gag ggc ctg tgc aat ttg acc att gaa gaa ttc cga tta gca tac tta 979  
 Glu Gly Leu Cys Asn Leu Thr Ile Glu Glu Phe Arg Leu Ala Tyr Leu  
 255 260 265  
 gac tac tac ctc gat gat att att gac tta ttt aat tgt ttg aca aat 1027  
 Asp Tyr Tyr Leu Asp Asp Ile Ile Asp Leu Phe Asn Cys Leu Thr Asn  
 270 275 280 285  
 gtt tct tca ttt tcc ctg gtg agt gtg act att gaa agg gta aaa gac 1075  
 Val Ser Ser Phe Ser Leu Val Ser Val Thr Ile Glu Arg Val Lys Asp  
 290 295 300  
 ttt tct tat aat ttc gga tgg caa cat tta gaa tta gtt aac tgt aaa 1123  
 Phe Ser Tyr Asn Phe Gly Trp Gln His Leu Glu Leu Val Asn Cys Lys  
 305 310 315  
 ttt gga cag ttt ccc aca ttg aaa ctc aaa tct ctc aaa agg ctt act 1171  
 Phe Gly Gln Phe Pro Thr Leu Lys Leu Lys Ser Leu Lys Arg Leu Thr  
 320 325 330  
 ttc act tcc aac aaa ggt ggg aat gct ttt tca gaa gtt gat cta cca 1219  
 Phe Thr Ser Asn Lys Gly Asn Ala Phe Ser Glu Val Asp Leu Pro  
 335 340 345  
 agc ctt gag ttt cta gat ctc agt aga aat ggc ttg agt ttc aaa ggt 1267  
 Ser Leu Glu Phe Leu Asp Leu Ser Arg Asn Gly Leu Ser Phe Lys Gly  
 350 355 360 365  
 tgc tgt tct caa agt gat ttt ggg aca acc agc cta aag tat tta gat 1315  
 Cys Cys Ser Gln Ser Asp Phe Gly Thr Thr Ser Leu Lys Tyr Leu Asp  
 370 375 380  
 ctg agc ttc aat ggt gtt att acc atg agt tca aac ttc ttg ggc tta 1363  
 Leu Ser Phe Asn Gly Val Ile Thr Met Ser Ser Asn Phe Leu Gly Leu  
 385 390 395  
 gaa caa cta gaa cat ctg gat ttc cag cat tcc aat ttg aaa caa atg 1411  
 Glu Gln Leu Glu His Leu Asp Phe Gln His Ser Asn Leu Lys Cln Met  
 400 405 410

agt gag ttt tca gta ttc cta tca ctc aga aac ctc att tac ctt gac Ser Glu Phe Ser Val Phe Leu Ser Leu Arg Asn Leu Ile Tyr Leu Asp 415 420 425	1459
att tct cat act cac acc aga gtt gct ttc aat ggc atc ttc aat ggc Ile Ser His Thr His Arg Val Ala Phe Asn Gly Ile Phe Asn Gly 430 435 440 445	1507
ttg tcc agt ctc gaa gtc ttg aaa atg gct ggc aat tct ttc cag gaa Leu Ser Ser Leu Glu Val Lys Met Ala Gly Asn Ser Phe Gln Glu 450 455 460	1555
aac ttc ctt cca gat atc ttc aca gag ctg aga aac ttg acc ttc ctg Asn Phe Leu Pro Asp Ile Phe Thr Glu Leu Arg Asn Leu Thr Phe Leu 465 470 475	1603
gac ctc tct cag tgt caa ctg gag cag ttg tct cca aca gca ttt aac Asp Leu Ser Gln Cys Gln Leu Glu Gln Leu Ser Pro Thr Ala Phe Asn 480 485 490	1651
tca ctc tcc agt ctt cag gta cta aat atg agc cac aac aac ttc ttt Ser Leu Ser Ser Leu Gln Val Leu Asn Met Ser His Asn Asn Phe Phe 495 500 505	1699
tca ttg gat acg ttt cct tat aag tgt ctg aac tcc ctc cag gtt ctt Ser Leu Asp Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu Gln Val Leu 510 515 520 525	1747
gat tac agt ctc aat cac ata atg act tcc aaa aaa cag gaa cta cag Asp Tyr Ser Leu Asn His Ile Met Thr Ser Lys Lys Gln Glu Leu Gln 530 535 540	1795
cat ttt cca agt agt cta gct ttc tta aat ctt act cag aat gac ttt His Phe Pro Ser Ser Leu Ala Phe Leu Asn Leu Thr Gln Asn Asp Phe 545 550 555	1843
gct tgt act tgt gaa cac cag agt ttc ctg caa tgg atc aag gac cag Ala Cys Thr Cys Glu His Gln Ser Phe Leu Gln Trp Ile Lys Asp Gln 560 565 570	1891
agg cag ctc ttg gtg gaa gtt gaa cga atg gaa tgt gca aca cct tca Arg Gln Leu Leu Val Glu Val Glu Arg Met Glu Cys Ala Thr Pro Ser 575 580 585	1939
gat aag cag ggc atg cct gtg ctg agt ttg aat atc acc tgt cag atg Asp Lys Gln Gly Met Pro Val Leu Ser Leu Asn Ile Thr Cys Gln Met 590 595 600 605	1987
aat aag acc atc att ggt gtg tcg gtc ctc agt gtg ctt gta gta tct Asn Lys Thr Ile Ile Gly Val Ser Val Leu Ser Val Leu Val Val Ser 610 615 620	2035
gtt gta gca gtt ctg gtc tat aag ttc tat ttt cac ctg atg ctt ctt Val Val Ala Val Leu Val Tyr Lys Phe Tyr Phe His Leu Met Leu Leu 625 630 635	2083
gct ggc tgc ata aag tat ggt aga ggt gaa aac atc tat gat gcc ttt Ala Gly Cys Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr Asp Ala Phe 640 645 650	2131

gtc atc tac tca agc cag gat gag gac tgg gta agg aat gag cta gta Val Ile Tyr Ser Ser Gln Asp Glu Asp Trp Val Arg Asn Glu Leu Val 655 650 665	2179
aag aat tta gaa gaa ggg gtg cct cca ttt cag ctc tgc ctt cac tac Lys Asn Leu Glu Glu Gly Val Pro Pro Phe Gln Leu Cys Leu His Tyr 670 675 680 685	2227
aga gac ttt att ccc ggt gtg gcc att gct gcc aac atc atc cat gaa Arg Asp Phe Ile Pro Gly Val Ala Ile Ala Ala Asn Ile Ile His Glu 690 695 700	2275
ggt ttc cat aaa agc cga aag gtg att gtt gtg gtg tcc cag cac ttc Gly Phe His Lys Ser Arg Lys Val Ile Val Val Val Ser Gln His Phe 705 710 715	2323
atc cag agc cgc tgg tgt atc ttt gaa tat gag att gct cag acc tgg Ile Gln Ser Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala Gln Thr Trp 720 725 730	2371
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aat cca gaa gga aca gtg ggt aca gga tgc aat tgg cag gaa gca aca Asn Pro Glu Gly Thr Val Gly Thr Gly Cys Asn Trp Gln Glu Ala Thr 800 805 810	2611
tct atc tgaagaggaa aaataaaaaac ctccctgagc atttcttgcc cagctgggtc Ser Ile 815	2667
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&lt;213&gt; Homo sapiens

&lt;400&gt; 26

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Leu Ser Cys Val Arg Pro Glu Ser Trp Glu Pro Cys Val Glu Val Pro		
-5	-1 1	5
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Asn Ile Thr Tyr Gln Cys Met Glu Leu Asn Phe Tyr Lys Ile Pro Asp		
15	20	25

Asn Leu Pro Phe Ser Thr Lys Asn Leu Asp Leu Ser Phe Asn Pro Leu		
30	35	40

Arg His Leu Gly Ser Tyr Ser Phe Phe Ser Phe Pro Glu Leu Gln Val		
45	50	55

Leu Asp Leu Ser Arg Cys Glu Ile Gln Thr Ile Glu Asp Gly Ala Tyr		
60	65	70

Gln Ser Leu Ser His Leu Ser Thr Leu Ile Leu Thr Gly Asn Pro Ile		
75	80	85
		90

Gln Ser Leu Ala Leu Gly Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys		
95	100	105

Leu Val Ala Val Glu Thr Asn Leu Ala Ser Leu Glu Asn Phe Pro Ile		
110	115	120

Gly His Leu Lys Thr Leu Lys Glu Leu Asn Val Ala His Asn Leu Ile		
125	130	135

Gln Ser Phe Lys Leu Pro Glu Tyr Phe Ser Asn Leu Thr Asn Leu Glu		
140	145	150

His Leu Asp Leu Ser Ser Asn Lys Ile Gln Ser Ile Tyr Cys Thr Asp		
155	160	165
		170

Leu Arg Val Leu His Gln Met Pro Leu Leu Asn Leu Ser Leu Asp Leu		
175	180	185

Ser Leu Asn Pro Met Asn Phe Ile Gln Pro Gly Ala Phe Lys Glu Ile		
190	195	200

Arg Leu His Lys Leu Thr Leu Arg Asn Asn Phe Asp Ser Leu Asn Val		
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205

210

215

Met Lys Thr Cys Ile Gln Gly Leu Ala Gly Leu Glu Val His Arg Leu  
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Val Leu Gly Glu Phe Arg Asn Glu Gly Asn Leu Glu Lys Phe Asp Lys  
 235                   240                   245                   250

Ser Ala Leu Glu Gly Leu Cys Asn Leu Thr Ile Glu Glu Phe Arg Leu  
 255                   260                   265

Ala Tyr Leu Asp Tyr Tyr Leu Asp Asp Ile Ile Asp Leu Phe Asn Cys  
 270                   275                   280

Leu Thr Asn Val Ser Ser Phe Ser Leu Val Ser Val Thr Ile Glu Arg  
 285                   290                   295

Val Lys Asp Phe Ser Tyr Asn Phe Gly Trp Gln His Leu Glu Leu Val  
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Asn Cys Lys Phe Gly Gln Phe Pro Thr Leu Lys Leu Lys Ser Leu Lys  
 315                   320                   325                   330

Arg Leu Thr Phe Thr Ser Asn Lys Gly Asn Ala Phe Ser Glu Val  
 335                   340                   345

Asp Leu Pro Ser Leu Glu Phe Leu Asp Leu Ser Arg Asn Gly Leu Ser  
 350                   355                   360

Phe Lys Gly Cys Cys Ser Gln Ser Asp Phe Gly Thr Thr Ser Leu Lys  
 365                   370                   375

Tyr Leu Asp Leu Ser Phe Asn Gly Val Ile Thr Met Ser Ser Asn Phe  
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Leu Gly Leu Glu Gln Leu Glu His Leu Asp Phe Gln His Ser Asn Leu  
 395                   400                   405                   410

Lys Gln Met Ser Glu Phe Ser Val Phe Leu Ser Leu Arg Asn Leu Ile  
 415                   420                   425

Tyr Leu Asp Ile Ser His Thr His Thr Arg Val Ala Phe Asn Gly Ile  
 430                   435                   440

Phe Asn Gly Leu Ser Ser Leu Glu Val Leu Lys Met Ala Gly Asn Ser  
 445                   450                   455

Phe Gln Glu Asn Phe Leu Pro Asp Ile Phe Thr Glu Leu Arg Asn Leu  
 460                    465                    470  
  
 Thr Phe Leu Asp Leu Ser Gln Cys Gln Leu Glu Gln Leu Ser Pro Thr  
 475                    480                    485                    490  
  
 Ala Phe Asn Ser Leu Ser Ser Leu Gln Val Leu Asn Met Ser His Asn  
 495                    500                    505  
  
 Asn Phe Phe Ser Leu Asp Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu  
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 Gln Val Leu Asp Tyr Ser Leu Asn His Ile Met Thr Ser Lys Lys Gln  
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 Glu Leu Gln His Phe Pro Ser Ser Leu Ala Phe Leu Asn Leu Thr Gln  
 540                    545                    550  
  
 Asn Asp Phe Ala Cys Thr Cys Glu His Gln Ser Phe Leu Gln Trp Ile  
 555                    560                    565                    570  
  
 Lys Asp Gln Arg Gln Leu Leu Val Glu Val Glu Arg Met Glu Cys Ala  
 575                    580                    585  
  
 Thr Pro Ser Asp Lys Gln Gly Met Pro Val Leu Ser Leu Asn Ile Thr  
 590                    595                    600  
  
 Cys Gln Met Asn Lys Thr Ile Ile Gly Val Ser Val Leu Ser Val Leu  
 605                    610                    615  
  
 Val Val Ser Val Val Ala Val Leu Val Tyr Lys Phe Tyr Phe His Leu  
 620                    625                    630  
  
 Met Leu Leu Ala Gly Cys Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr  
 635                    640                    645                    650  
  
 Asp Ala Phe Val Ile Tyr Ser Ser Gln Asp Glu Asp Trp Val Arg Asn  
 655                    660                    665  
  
 Glu Leu Val Lys Asn Leu Glu Glu Gly Val Pro Pro Phe Gln Leu Cys  
 670                    675                    680  
  
 Leu His Tyr Arg Asp Phe Ile Pro Gly Val Ala Ile Ala Ala Asn Ile  
 685                    690                    695

Ile His Glu Gly Phe His Lys Ser Arg Lys Val Ile Val Val Val Ser  
 700 705 710

Gln His Phe Ile Gln Ser Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala  
 715 720 725 730

Gln Thr Trp Gln Phe Leu Ser Ser Arg Ala Gly Ile Ile Phe Ile Val  
 735 740 745

Leu Gln Lys Val Glu Lys Thr Leu Leu Arg Gln Gln Val Glu Leu Tyr  
 750 755 760

Arg Leu Leu Ser Arg Asn Thr Tyr Leu Glu Trp Glu Asp Ser Val Leu  
 765 770 775

Gly Arg His Ile Phe Trp Arg Arg Leu Arg Lys Ala Leu Leu Asp Gly  
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 795 800 805 810

Glu Ala Thr Ser Ile  
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 1 5 10 15

gtt ctc tca cta aaa gat aac aat gtc aca gct gtc ccc acc act ttg 96  
 Val Leu Ser Leu Lys Asp Asn Asn Val Thr Ala Val Pro Thr Thr Leu  
 20 25 30

cca cct aat tca cta gag ctc tat ctt tat aac aat atc att aag aaa 144  
 Pro Pro Asn Leu Leu Glu Leu Tyr Leu Tyr Asn Asn Ile Ile Lys Lys  
 35 40 45

atc caa gaa aat gat ttc aat aac ctc aat gag ttg caa gtc ctt gac 192  
 Ile Gln Glu Asn Asp Phe Asn Asn Leu Asn Glu Leu Gln Val Leu Asp  
 50 55 60

65

cta cgt gga aat tgc cct cga tgt cat aat gtc cca tat ccg tgt aca 240  
Leu Arg Gly Asn Cys Pro Arg Cys His Asn Val Pro Tyr Pro Cys Thr  
65 70 75 80

ccg tgt gaa aat aat tcc ccc tta cag atc cat gag aat gct ttc aat 288  
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Ser Ser Thr Asp  
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Pro Pro Asn Leu Leu Glu Leu Tyr Leu Tyr Asn Asn Ile Ile Lys Lys  
35 40 45

Ile Gln Glu Asn Asp Phe Asn Asn Leu Asn Glu Leu Gln Val Leu Asp  
50 55 60

Leu Arg Gly Asn Cys Pro Arg Cys His Asn Val Pro Tyr Pro Cys Thr  
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Ser Ser Thr Asp  
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atg ccc cca aat cta aag aat ctc tcc ttg gcc aaa aat ggg ctc aaa			
Met Pro Pro Asn Leu Lys Asn Leu Ser Leu Ala Lys Asn Gly Leu Lys			
20	25	30	
tct ttc ttt tgg gac aga ctc cag tta ctg aag cat ttg gaa att ttg			
Ser Phe Phe Trp Asp Arg Leu Gln Leu Leu Lys His Leu Glu Ile Leu			
35	40	45	
gac ctc agc cat aac cag ctg aca aaa gta cct gag aga ttg gcc aac			
Asp Leu Ser His Asn Gln Leu Thr Lys Val Pro Glu Arg Leu Ala Asn			
50	55	60	
tgt tcc aaa agt ctc aca aca ctg att ctt aag cat aat caa atc agg			
Cys Ser Lys Ser Leu Thr Thr Leu Ile Leu Lys His Asn Gln Ile Arg			
65	70	75	80
caa ttg aca aaa tat ttt cta gaa gat gct ttg caa ttg cgc tat cta			
Gln Leu Thr Lys Tyr Phe Leu Glu Asp Ala Leu Gln Leu Arg Tyr Leu			
85	90	95	
gac atc agt tca aat aaa atc cag gtc att cag aag act agc ttc cca			
Asp Ile Ser Ser Asn Lys Ile Gln Val Ile Gln Lys Thr Ser Phe Pro			
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gaa aat gtc ctc aac aat ctg gag atg ttg gtt tta cat cac aat cgc			
Glu Asn Val Leu Asn Asn Leu Glu Met Leu Val Leu His His Asn Arg			
115	120	125	
ttt ctt tgc aac tgt gat gct gtg tgg ttt gtc tgg tgg gtt aac cat			
Phe Leu Cys Asn Cys Asp Ala Val Trp Phe Val Trp Trp Val Asn His			
130	135	140	
aca gat gtt act att cca tac ctg gcc act gat gtg act tgt gta ggt			
Thr Asp Val Thr Ile Pro Tyr Leu Ala Thr Asp Val Thr Cys Val Gly			
145	150	155	160
cca gga gca cac aaa ggt caa agt gtc ata tcc ctt gat ctg tat acg			
Pro Gly Ala His Lys Gly Gln Ser Val Ile Ser Leu Asp Leu Tyr Thr			
165	170	175	
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Cys Glu Leu Asp Leu Thr Asn Leu Ile Leu Phe Ser Val Ser Ile Ser			
180	185	190	
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Ser Val Leu Phe Leu Met Val Val Met Thr Thr Ser His Leu Phe Phe			
195	200	205	
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Trp Asp Met Trp Tyr Ile Tyr Tyr Phe Trp Lys Ala Lys Ile Lys Gly			
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Tyr Pro Ala Ser Ala Ile Pro Trp Ser Pro Cys Tyr Asp Ala Phe Ile			
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Val Tyr Asp Thr Lys Asn Ser Ala Val Thr Glu Trp Val Leu Gln Glu			
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67

245

250

255

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&lt;212&gt; PRT

&lt;213&gt; Mus musculus

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				20				25					30		

Ser	Phe	Phe	Trp	Asp	Arg	Leu	Gln	Leu	Leu	Lys	His	Leu	Glu	Ile	Leu
				35				40				45			

Asp	Leu	Ser	His	Asn	Gln	Leu	Thr	Lys	Val	Pro	Glu	Arg	Leu	Ala	Asn
	50				55				60						

Cys	Ser	Lys	Ser	Leu	Thr	Thr	Leu	Ile	Leu	Lys	His	Asn	Gln	Ile	Arg
65				70				75				80			

Gln	Leu	Thr	Lys	Tyr	Phe	Leu	Glu	Asp	Ala	Leu	Gln	Leu	Arg	Tyr	Leu
	85							90				95			

Asp	Ile	Ser	Ser	Asn	Lys	Ile	Gln	Val	Ile	Gln	Lys	Thr	Ser	Phe	Pro
	100					105					110				

Glu	Asn	Val	Leu	Asn	Asn	Leu	Glu	Met	Leu	Val	Leu	His	His	Asn	Arg
	115					120					125				

Phe	Leu	Cys	Asn	Cys	Asp	Ala	Val	Trp	Phe	Val	Trp	Trp	Val	Asn	His
	130				135						140				

Thr	Asp	Val	Thr	Ile	Pro	Tyr	Leu	Ala	Thr	Asp	Val	Thr	Cys	Val	Gly
145				150				155			160				

Pro	Gly	Ala	His	Lys	Gly	Gln	Ser	Val	Ile	Ser	Leu	Asp	Leu	Tyr	Thr
	165					170					175				

Cys	Glu	Leu	Asp	Leu	Thr	Asn	Leu	Ile	Leu	Phe	Ser	Val	Ser	Ile	Ser
	180					185				190					

Ser	Val	Leu	Phe	Leu	Met	Val	Val	Met	Thr	Thr	Ser	His	Leu	Phe	Phe
	195				200				205						

Trp	Asp	Met	Trp	Tyr	Ile	Tyr	Tyr	Phe	Trp	Lys	Ala	Lys	Ile	Lys	Gly
	210				215					220					

69

Tyr Pro Ala Ser Ala Ile Pro Trp Ser Pro Cys Tyr Asp Ala Phe Ile  
225 230 235 240

Val Tyr Asp Thr Lys Asn Ser Ala Val Thr Glu Trp Val Leu Gln Glu  
245 250 255

Leu Val Ala Lys Leu Glu Asp Pro Arg Glu Lys His Phe Asn Leu Cys  
260 265 270

Leu Glu Glu Arg Asp Trp Leu Pro Gly Gln Pro Val Leu Glu Asn Leu  
275 280 285

Ser Gln Ser Ile Gln Leu Ser Lys Lys Thr Val Phe Val Met Thr Gln  
290 295 300

Lys Tyr Ala Lys Thr Glu Ser Phe Lys Met Ala Phe Tyr Leu Ser His  
305 310 315 320

Gln Arg Leu Leu Asp Glu Lys Val Asp Val Ile Ile Leu Ile Phe Leu  
325 330 335

Glu Arg Pro Leu Gln Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg Leu  
340 345 350

Cys Arg Ser Ser Val Leu Glu Trp Pro Ala Asn Pro Gln Ala His Pro  
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Ala Tyr Ser Gln Met Phe Lys Glu Thr Val  
385 390

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Gly Trp Ser Asp Ser Tyr Thr Cys Glu Tyr Pro Leu Asn Leu Arg Gly			
20	25	30	
act agg tta aaa gac gtt cat ctc cac gaa tta tct tgc aac aca gct			145
Thr Arg Leu Lys Asp Val His Leu His Glu Leu Ser Cys Asn Thr Ala			
35	40	45	
ctg ttg att gtc acc att gtg gtt att atg cta gtt ctg ggg ttg gct			193
Leu Leu Ile Val Thr Ile Val Val Ile Met Leu Val Leu Gly Leu Ala			
50	55	60	
gtg gcc ttc tgc tgt ctc cac ttt gat ctg ccc tgg tat ctc agg atg			241
Val Ala Phe Cys Cys Leu His Phe Asp Leu Pro Trp Tyr Leu Arg Met			
65	70	75	80
cta ggt caa tgc aca caa aca tgg cac agg gtt agg aaa aca acc caa			289
Leu Gly Gln Cys Thr Gln Thr Trp His Arg Val Arg Lys Thr Thr Gln			
85	90	95	
gaa caa ctc aag aga aat gtc cga ttc cac gca ttt att tca tac agt			337
Glu Gln Leu Lys Arg Asn Val Arg Phe His Ala Phe Ile Ser Tyr Ser			
100	105	110	
gaa cat gat tct ctg tgg gtg aag aat gaa ttg atc ccc aat cta gag			385
Glu His Asp Ser Leu Trp Val Lys Asn Glu Leu Ile Pro Asn Leu Glu			
115	120	125	
aag gaa gat ggt tct atc ttg att tgc ctt tat gaa agc tac ttt gag			433
Lys Glu Asp Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe Asp			
130	135	140	
cct ggc aaa agc att agt gaa aat att gta agc ttc att gag aaa agc			481
Pro Gly Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys Ser			
145	150	155	160
tat aag tcc atc ttt gtt ttg tct ccc aac ttt gtc cag aat gag tgg			529
Tyr Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu Trp			
165	170	175	
tgc cat tat gaa ttc tac ttt gcc cac cac aat ctc ttc cat gaa aat			577
Cys His Tyr Glu Phe Tyr Phe Ala His His Asn Leu Phe His Glu Asn			
180	185	190	
tct gat cac ata att ctt atc tta ctg gaa ccc att cca ttc tat tgc			625
Ser Asp His Ile Ile Leu Ile Leu Glu Pro Ile Pro Phe Tyr Cys			
195	200	205	
att ccc acc agg tat cat aaa ctg gaa gct ctc ctg gaa aaa aaa gca			673
Ile Pro Thr Arg Tyr His Lys Leu Glu Ala Leu Glu Lys Lys Ala			
210	215	220	
tac ttg gaa tgg ccc aag gat agg cgt aaa tgt ggg ctt ttc tgg gca			721
Tyr Leu Glu Trp Pro Lys Asp Arg Arg Lys Cys Gly Leu Phe Trp Ala			
225	230	235	240
aac ctt cga gct gct gtt aat gtt aat gta tta gcc acc aga gaa atg			769
Asn Leu Arg Ala Ala Val Asn Val Leu Ala Thr Arg Glu Met			
245	250	255	
tat gaa ctg cag aca ttc aca gag tta aat gaa gag tct cga ggt tct			817
Tyr Glu Leu Gln Thr Phe Thr Glu Leu Asn Glu Glu Ser Arg Gly Ser			

260

265

270

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 275 280

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 35 40 45

Leu Leu Ile Val Thr Ile Val Val Ile Met Leu Val Leu Gly Leu Ala  
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Val Ala Phe Cys Cys Leu His Phe Asp Leu Pro Trp Tyr Leu Arg Met  
 65 70 75 80

Leu Gly Gln Cys Thr Gln Thr Trp His Arg Val Arg Lys Thr Thr Gln  
 85 90 95

Glu Gln Leu Lys Arg Asn Val Arg Phe His Ala Phe Ile Ser Tyr Ser  
 100 105 110

Glu His Asp Ser Leu Trp Val Lys Asn Glu Leu Ile Pro Asn Leu Glu  
 115 120 125

Lys Glu Asp Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe Asp  
 130 135 140

Pro Gly Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys Ser  
 145 150 155 160

Tyr Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu Trp

72

165

170

175

Cys His Tyr Glu Phe Tyr Phe Ala His His Asn Leu Phe His Glu Asn  
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Ser Asp His Ile Ile Leu Leu Glu Pro Ile Pro Phe Tyr Cys  
195 200 205

Ile Pro Thr Arg Tyr His Lys Leu Glu Ala Leu Leu Glu Lys Lys Ala  
210 215 220

Tyr Leu Glu Trp Pro Lys Asp Arg Arg Lys Cys Gly Leu Phe Trp Ala  
225 230 235 240

Asn Leu Arg Ala Ala Val Asn Val Asn Val Leu Ala Thr Arg Glu Met  
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Ile Ser Phe Val Ala Pro Gly Phe Ser Lys Ala Lys Glu Leu Arg  
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Glu Leu Asn Leu Ser Ala Asn Ala Leu Lys Thr Val Asp His Ser Trp  
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ttt ggg ccc ctg gcg agt gcc ctg caa ata gat gta agc gcc aac 192  
Phe Gly Pro Leu Ala Ser Ala Leu Gln Ile Leu Asp Val Ser Ala Asn  
50 55 60  
cct ctg cac tgc gcc tgt ggg gcg gcc ttt atg gac ttc ctg ctg gag 240  
Pro Leu His Cys Ala Cys Gly Ala Ala Phe Met Asp Phe Leu Leu Glu

65	70	75	80	
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85	90	95		
ccg ggc cag ctc cag ggc ctc agc atc ttt gca cag gac ctg cgc ctc Pro Gly Gln Leu Gln Gly Leu Ser Ile Phe Ala Gln Asp Leu Arg Leu				336
100	105	110		
tgc ctg gat gag gcc ctc tcc tgg gac tgt ttc gcc ctc tcg ctg ctg Cys Leu Asp Glu Ala Leu Ser Trp Asp Cys Phe Ala Leu Ser Leu Leu				384
115	120	125		
gct gtg gct ctg ggc ctg ggt gtg ccc atg ctg cat cac ctc tgt ggc Ala Val Ala Leu Gly Leu Gly Val Pro Met Leu His His Leu Cys Gly				432
130	135	140		
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145	150	155	160	
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165	170	175		
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180	185	190		
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195	200	205		
cgc ctg tgc ctg gag gaa cgc gac tgg ctg cct ggc aaa acc ctc ttt Arg Leu Cys Leu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe				672
210	215	220		
gag aac ctg tgg gcc tgc tat ggc agc cgc aag acg ctg ttt gtg Glu Asn Leu Trp Ala Ser Val Tyr Gly Ser Arg Lys Thr Leu Phe Val				720
225	230	235	240	
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245	250	255		
ctg gcc cag cag cgc ctg gag gac cgc aag gac gtc gtg gtg ctg Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Leu				816
260	265	270		
gtg atc ctg agc cct gac ggc cgc tcc cgc tac gag cgg ctg cgc Val Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Glu Arg Leu Arg				864
275	280	285		
cag cgc ctc tgc cgc cag agt gtc ctc ctc tgg ccc cac cag ccc agt Gln Arg Leu Cys Arg Gln Ser Val Leu Leu Trp Pro His Gln Pro Ser				912
290	295	300		
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305	310	315	320	

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

Phe Val Val Phe Asp Lys Thr Gln Ser Ala Val Ala Asp Trp Val Tyr  
 180 185 190

Asn Glu Leu Arg Gly Gln Leu Glu Glu Cys Arg Gly Arg Trp Ala Leu  
 195 200 205

Arg Leu Cys Leu Glu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe  
 210 215 220

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

Leu Ala His Thr Asp Arg Val Ser Gly Leu Leu Arg Ala Ser Phe Leu  
 245 250 255

Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Leu  
 260 265 270

Val Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Glu Arg Leu Arg  
 275 280 285

Gln Arg Leu Cys Arg Gln Ser Val Leu Leu Trp Pro His Gln Pro Ser  
 290 295 300

Gly Gln Arg Ser Phe Trp Ala Gln Leu Gly Met Ala Leu Thr Arg Asp  
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<211> 497

<212> DNA

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cagctggaaa	cagctgcata	ttcatgtctg	gttcccgagt	tgctctgcct	gccttgtct	360
gtttaactac	accgctattt	ggcaagtgcg	caatatatgc	taccaagccaa	ccaggccac	420

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Ala Glu Glu Asn Phe Ser Arg Ser Tyr Pro Cys Asp Glu Lys Lys Gln			
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aat gac tca gtt att gca gag tgc agc aat cgt cga cta cag gaa gtt	144		
Asn Asp Ser Val Ile Ala Glu Cys Ser Asn Arg Arg Leu Gln Glu Val			
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ccc caa acg gtg ggc aaa tat gtg aca gaa cta gac ctg tct gat aat	192		
Pro Gln Thr Val Gly Lys Tyr Val Thr Glu Leu Asp Leu Ser Asp Asn			
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50	55	60	
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Thr Lys Ile Asn Leu Asn His Asn Pro Asn Val Gln His Gln Asn Gly			
65	70	75	
aat ccc ggt ata caa tca aat ggc ttg aat atc aca gac ggg gca ttc	336		
Asn Pro Gly Ile Gln Ser Asn Gly Leu Asn Ile Thr Asp Gly Ala Phe			
80	85	90	95
ctc aac cta aaa aac cta agg gag tta ctg ctt gaa gac aac cag tta	384		
Leu Asn Leu Lys Asn Leu Arg Glu Leu Leu Glu Asp Asn Gln Leu			
100	105	110	
ccc caa ata ccc tct ggt ttg cca gag tct ttg aca gaa ctt agt cta	432		
Pro Gln Ile Pro Ser Gly Leu Pro Glu Ser Leu Thr Glu Leu Ser Leu			
115	120	125	
att caa aac aat ata tac aac ata act aaa gag ggc att tca aga ctt	480		

Ile Gln Asn Asn Ile Tyr Asn Ile Thr Lys Glu Gly Ile Ser Arg Leu			
130	135	140	
ata aac ttg aaa aat ctc tat ttg gcc tgg aac tgc tat ttt aac aaa		528	
Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys Tyr Phe Asn Lys			
145	150	155	
gtt tgc gag aaa act aac ata gaa gat gga gta ttt gaa acg ctg aca		576	
Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe Glu Thr Leu Thr			
160	165	170	175
aat ttg gag ttg cta tca cta tct ttc aat tct ctt tca cat gtg cca		624	
Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu Ser His Val Pro			
180	185	190	
tcc aaa ctg cca agc tcc cta cgc aaa ctt ttt ctg agc aac acc cag		672	
Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu Ser Asn Thr Gln			
195	200	205	
atc aaa tac att agt gaa gaa gat ttc aag gga ttg ata aat tta aca		720	
Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu Ile Asn Leu Thr			
210	215	220	
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Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe Asn Ala Pro Phe			
225	230	235	
cca tgc gtg cct tgt gat ggt gct tca att aat ata gat cgt ttt		816	
Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn Ile Asp Arg Phe			
240	245	250	255
gct ttt caa aac ttg acc caa ctt cga tac cta aac ctc tct agc act		864	
Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn Leu Ser Ser Thr			
260	265	270	
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275	280	285	
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Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly Glu Ile Ala Ser			
290	295	300	
ggg gca ttt tta acg atg ctg ccc cgc tta gaa ata ctt gac ttg tct		1008	
Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile Leu Asp Leu Ser			
305	310	315	
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320	325	330	335
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Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His Leu Arg Gly Tyr			
340	345	350	
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355	360	365	
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370

375

380

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gtc act gca gtg ata tta ttt ttc acg ttc ttt atc acc acc atg Val Thr Ala Val Ile Leu Phe Phe Phe Thr Phe Ile Thr Thr Met 800 805 810 815	2496
gtt atg ttg gct gcc ctg gct cac cat ttg ttt tac tgg gat gtt tgg Val Met Leu Ala Ala Leu Ala His His Leu Phe Tyr Trp Asp Val Trp 820 825 830	2544
ttt ata tat aat gtg tgt tta gct aag tta aaa ggc tac agg tct ctt Phe Ile Tyr Asn Val Cys Leu Ala Lys Leu Lys Gly Tyr Arg Ser Leu 835 840 845	2592
tcc aca tcc caa act ttc tat gat gct tac att tct tat gac acc aaa Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr Asp Thr Lys 850 855 860	2640

gat gcc tct gtt act gac tgg gtg ata aat gag ctg cgc tac cac ctt Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg Tyr His Leu 865 870 875	2688
gaa gag agc cga gac aaa aac gtt ctc ctt tgt cta gag gag agg gat Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu Glu Arg Asp 880 885 890 895	2736
tgg gac ccg gga ttg gcc atc atc gac aac ctc atg cag agc atc aac Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln Ser Ile Asn 900 905 910	2784
caa agc aag aaa aca gta ttt gtt tta acc aaa aaa tat gca aaa agc Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr Ala Lys Ser 915 920 925	2832
tgg aac ttt aaa aca gct ttt tac ttg gcc ttg cag agg cta atg ggt Trp Asn Phe Lys Thr Ala Phe Tyr Leu Ala Leu Gln Arg Leu Met Gly 930 935 940	2880
gag aac atg gat gtg att ata ttt atc ctg ctg gag cca gtg tta cag Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro Val Leu Gln 945 950 955	2928
cat tct ccg tat ttg agg cta ccg cag ccg atc tgt aag agc tcc atc His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys Ser Ser Ile 960 965 970 975	2976
ctc cag tgg cct gac aac ccg aag gca gaa ggc ttg ttt tgg caa act Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Gly Leu Phe Trp Gln Thr 980 985 990	3024
ctg aga aat gtg gtc ttg act gaa aat gat tca ccg tat aac aat atg Leu Arg Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr Asn Asn Met 995 1000 1005	3072
tat gtc gat tcc att aag caa tac taa Tyr Val Asp Ser Ile Lys Gln Tyr 1010 1015	3099

<210> 37  
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<212> PRT  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (725)..(725)  
<223> The 'Xaa' at location 725 stands for Ile.

<400> 37

Met Leu Thr Cys Ile Phe Leu Leu Ile Ser Gly Ser Cys Glu Leu Cys  
-15 -10 -5

Ala Glu Glu Asn Phe Ser Arg Ser Tyr Pro Cys Asp Glu Lys Lys Gln  
-1 1 5 10 15

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

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

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

Thr Lys Ile Asn Leu Asn His Asn Pro Asn Val Gln His Gln Asn Gly  
 65 70 75

Asn Pro Gly Ile Gln Ser Asn Gly Leu Asn Ile Thr Asp Gly Ala Phe  
 80 85 90 95

Leu Asn Leu Lys Asn Leu Arg Glu Leu Leu Glu Asp Asn Gln Leu  
 100 105 110

Pro Gln Ile Pro Ser Gly Leu Pro Glu Ser Leu Thr Glu Leu Ser Leu  
 115 120 125

Ile Gln Asn Asn Ile Tyr Asn Ile Thr Lys Glu Gly Ile Ser Arg Leu  
 130 135 140

Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys Tyr Phe Asn Lys  
 145 150 155

Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe Glu Thr Leu Thr  
 160 165 170 175

Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu Ser His Val Pro  
 180 185 190

Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu Ser Asn Thr Gln  
 195 200 205

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

Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe Asn Ala Pro Phe  
 225 230 235

Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn Ile Asp Arg Phe  
 240 245 250 255

Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn Leu Ser Ser Thr

82

260 265 270

Ser Leu Arg Lys Ile Asn Ala Ala Trp Phe Lys Asn Met Pro His Leu  
275 280 285

Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly Glu Ile Ala Ser  
290 295 300

Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile Leu Asp Leu Ser  
305 310 315

Phe Asn Tyr Ile Lys Gly Ser Tyr Pro Gln His Ile Asn Ile Ser Arg  
320 325 330 335

Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His Leu Arg Gly Tyr  
340 345 350

Val Phe Gln Glu Leu Arg Glu Asp Asp Phe Gln Pro Leu Met Gln Leu  
355 360 365

Pro Asn Leu Ser Thr Ile Asn Leu Gly Ile Asn Phe Ile Lys Gln Ile  
370 375 380

Asp Phe Lys Leu Phe Gln Asn Phe Ser Asn Leu Glu Ile Ile Tyr Leu  
385 390 395

Ser Glu Asn Arg Ile Ser Pro Leu Val Lys Asp Thr Arg Gln Ser Tyr  
400 405 410 415

Ala Asn Ser Ser Ser Phe Gln Arg His Ile Arg Lys Arg Arg Ser Thr  
420 425 430

Asp Phe Glu Phe Asp Pro His Ser Asn Phe Tyr His Phe Thr Arg Pro  
435 440 445

Leu Ile Lys Pro Gln Cys Ala Ala Tyr Gly Lys Ala Leu Asp Leu Ser  
450 455 460

Leu Asn Ser Ile Phe Phe Ile Gly Pro Asn Gln Phe Glu Asn Leu Pro  
465 470 475

Asp Ile Ala Cys Leu Asn Leu Ser Ala Asn Ser Asn Ala Gln Val Leu  
480 485 490 495

Ser Gly Thr Glu Phe Ser Ala Ile Pro His Val Lys Tyr Leu Asp Leu  
500 505 510

Thr Asn Asn Arg Leu Asp Phe Asp Asn Ala Ser Ala Leu Thr Glu Leu  
 515 520 525

Ser Asp Leu Glu Val Leu Asp Leu Ser Tyr Asn Ser His Tyr Phe Arg  
 530 535 540

Ile Ala Gly Val Thr His His Leu Glu Phe Ile Gln Asn Phe Thr Asn  
 545 550 555

Leu Lys Val Leu Asn Leu Ser His Asn Asn Ile Tyr Thr Leu Thr Asp  
 560 565 570 575

Lys Tyr Asn Leu Glu Ser Lys Ser Leu Val Glu Leu Val Phe Ser Gly  
 580 585 590

Asn Arg Leu Asp Ile Leu Trp Asn Asp Asp Asp Asn Arg Tyr Ile Ser  
 595 600 605

Ile Phe Lys Gly Leu Lys Asn Leu Thr Arg Leu Asp Leu Ser Leu Asn  
 610 615 620

Arg Leu Lys His Ile Pro Asn Glu Ala Phe Leu Asn Leu Pro Ala Ser  
 625 630 635

Leu Thr Glu Leu His Ile Asn Asp Asn Met Leu Lys Phe Phe Asn Trp  
 640 645 650 655

Thr Leu Leu Gln Gln Phe Pro Arg Leu Glu Leu Leu Asp Leu Arg Gly  
 660 665 670

Asn Lys Leu Leu Phe Leu Thr Asp Ser Leu Ser Asp Phe Thr Ser Ser  
 675 680 685

Leu Arg Thr Leu Leu Leu Ser His Asn Arg Ile Ser His Leu Pro Ser  
 690 695 700

Gly Phe Leu Ser Glu Val Ser Ser Leu Lys His Leu Asp Leu Ser Ser  
 705 710 715

Asn Leu Leu Lys Thr Xaa Asn Lys Ser Ala Leu Glu Thr Lys Thr Thr  
 720 725 730 735

Thr Lys Leu Ser Met Leu Glu Leu His Gly Asn Pro Phe Glu Cys Thr  
 740 745 750

Cys Asp Ile Gly Asp Phe Arg Arg Trp Met Asp Glu His Leu Asn Val  
 755                    760                    765

Lys Ile Pro Arg Leu Val Asp Val Ile Cys Ala Ser Pro Gly Asp Gln  
 770                    775                    780

Arg Gly Lys Ser Ile Val Ser Leu Glu Leu Thr Thr Cys Val Ser Asp  
 785                    790                    795

Val Thr Ala Val Ile Leu Phe Phe Phe Thr Phe Phe Ile Thr Thr Met  
 800                    805                    810                    815

Val Met Leu Ala Ala Leu Ala His His Leu Phe Tyr Trp Asp Val Trp  
 820                    825                    830

Phe Ile Tyr Asn Val Cys Leu Ala Lys Leu Lys Gly Tyr Arg Ser Leu  
 835                    840                    845

Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr Asp Thr Lys  
 850                    855                    860

Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg Tyr His Leu  
 865                    870                    875

Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu Glu Arg Asp  
 880                    885                    890                    895

Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln Ser Ile Asn  
 900                    905                    910

Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr Ala Lys Ser  
 915                    920                    925

Trp Asn Phe Lys Thr Ala Phe Tyr Leu Ala Leu Gln Arg Leu Met Gly  
 930                    935                    940

Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro Val Leu Gln  
 945                    950                    955

His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys Ser Ser Ile  
 960                    965                    970                    975

Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Gly Leu Phe Trp Gln Thr  
 980                    985                    990

Leu Arg Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr Asn Asn Met  
 995 1000 1005

Tyr Val Asp Ser Ile Lys Gln Tyr  
 1010 1015

<210> 38  
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 atcttcatca ttccatatgag gaaataagtg gtaaaatctt tgaaaaataca atg aga 116  
 Met Arg

ctc atc aga aac att tac ata ttt tgt agt att gtt atg aca gca gag 164  
 Leu Ile Arg Asn Ile Tyr Ile Phe Cys Ser Ile Val Met Thr Ala Glu  
 -15 ~10 -5

ggt gat gct cca gag ctg cca gaa gaa agg gaa ctg atg acc aac tgc 212  
 Gly Asp Ala Pro Glu Leu Pro Glu Arg Glu Leu Met Thr Asn Cys  
 -1 1 5 10 15

tcc aac atg tct cta aga aag gtt ccc gca gac ttg acc cca gcc aca 260  
 Ser Asn Met Ser Leu Arg Lys Val Pro Ala Asp Leu Thr Pro Ala Thr  
 20 25 30

acg aca ctg gat tta tcc tat aac ctc ctt ttt caa ctc cag agt tca 308  
 Thr Thr Leu Asp Leu Ser Tyr Asn Leu Leu Phe Gln Leu Gln Ser Ser  
 35 40 45

gat ttt cat tct gtc tcc aaa ctg aga gtt ttg att cta tgc cat aac 356  
 Asp Phe His Ser Val Ser Lys Leu Arg Val Leu Ile Leu Cys His Asn  
 50 55 60

aga att caa cag ctg gat ctc aaa acc ttt gaa ttc aac aag gag tta 404  
 Arg Ile Gln Gln Leu Asp Leu Lys Thr Phe Glu Phe Asn Lys Glu Leu  
 65 70 75

aga tat tta gat ttg tct aat aac aga ctg aag agt gta act tgg tat 452  
 Arg Tyr Leu Asp Leu Ser Asn Asn Arg Leu Lys Ser Val Thr Trp Tyr  
 80 85 90 95

tta ctg gca ggt ctc agg tat tta gat ctt tct ttt aat gac ttt gac 500

Leu Leu Ala Gly Leu Arg Tyr Leu Asp Leu Ser Phe Asn Asp Phe Asp			
100	105	110	
acc atg cct atc tgt gag gaa gct ggc aac atg tca cac ctg gaa atc		548	
Thr Met Pro Ile Cys Glu Glu Ala Gly Asn Met Ser His Leu Glu Ile			
115	120	125	
cta ggt ttg agt ggg gca aaa ata caa aaa tca gat ttc cag aaa att		596	
Leu Gly Leu Ser Gly Ala Lys Ile Gln Lys Ser Asp Phe Gln Lys Ile			
130	135	140	
gct cat ctg cat cta aat act gtc ttc tta gga ttc aga act ctt cct		644	
Ala His Leu His Leu Asn Thr Val Phe Leu Gly Phe Arg Thr Leu Pro			
145	150	155	
cat tat gaa gaa ggt agc ctg ccc atc tta aac aca aca aaa ctg cac		692	
His Tyr Glu Glu Gly Ser Leu Pro Ile Leu Asn Thr Thr Lys Leu His			
160	165	170	175
att gtt tta cca atg gac aca aat ttc tgg gtt ctt ttg cgt gat gga		740	
Ile Val Leu Pro Met Asp Thr Asn Phe Trp Val Leu Leu Arg Asp Gly			
180	185	190	
atc aag act tca aaa ata tta gaa atg aca aat ata gat ggc aaa agc		788	
Ile Lys Thr Ser Lys Ile Leu Glu Met Thr Asn Ile Asp Gly Lys Ser			
195	200	205	
caa ttt gta agt tat gaa atg caa cga aat ctt agt tta gaa aat gct		836	
Gln Phe Val Ser Tyr Glu Met Gln Arg Asn Leu Ser Leu Glu Asn Ala			
210	215	220	
aag aca tcg gtt cta ttg ctt aat aaa gtt gat tta ctc tgg gac gac		884	
Lys Thr Ser Val Leu Leu Asn Lys Val Asp Leu Leu Trp Asp Asp			
225	230	235	
ctt ttc ctt atc tta caa ttt gtt tgg cat aca tca gtg gaa cac ttt		932	
Leu Phe Leu Ile Leu Gln Phe Val Trp His Thr Ser Val Glu His Phe			
240	245	250	255
cag atc cga aat gtg act ttt ggt aag gct tat ctt gac cac aat		980	
Gln Ile Arg Asn Val Thr Phe Gly Gly Lys Ala Tyr Leu Asp His Asn			
260	265	270	
tca ttt gac tac tca aat act gta atg aga act ata aaa ttg gag cat		1028	
Ser Phe Asp Tyr Ser Asn Thr Val Met Arg Thr Ile Lys Leu Glu His			
275	280	285	
gta cat ttc aga gtg ttt tac att caa cag gat aaa atc tat ttg ctt		1076	
Val His Phe Arg Val Phe Tyr Ile Gln Gln Asp Lys Ile Tyr Leu Leu			
290	295	300	
ttg acc aaa atg gac ata gaa aac ctg aca ata tca aat gca caa atq		1124	
Leu Thr Lys Met Asp Ile Glu Asn Leu Thr Ile Ser Asn Ala Gln Met			
305	310	315	
cca cac atg ctt ttc ccg aat tat cct acg aaa ttc caa tat tta aat		1172	
Pro His Met Ile Phe Pro Asn Tyr Pro Thr Lys Phe Gln Tyr Leu Asn			
320	325	330	335
ttt gcc aat aat atc tta aca gac gag ttg ttt aaa aga act atc caa		1220	
Phe Ala Asn Asn Ile Ieu Thr Asp Glu Leu Phe Lys Arg Thr Ile Gln			

340

345

350

ctg cct cac ttg aaa act ctc att ttg aat ggc aat aaa ctg gag aca Leu Pro His Leu Lys Thr Leu Ile Leu Asn Gly Asn Lys Leu Glu Thr 355	360	365	1268
ctt tct tta gta agt tgc ttt gct aac aac aca ccc ttg gaa cac ttg Leu Ser Leu Val Ser Cys Phe Ala Asn Asn Thr Pro Leu Glu His Leu 370	375	380	1316
gat ctg agt caa aat cta tta caa cat aaa aat gat gaa aat tgc tca Asp Leu Ser Gln Asn Leu Leu Gln His Lys Asn Asp Glu Asn Cys Ser 385	390	395	1364
tgg cca gaa act gtg gtc aat atg aat ctg tca tac aat aaa ttg tct Trp Pro Glu Thr Val Val Asn Met Asn Leu Ser Tyr Asn Lys Leu Ser 400	405	410	415
gat tct gtc ttc agg tgc ttg ccc aaa agt att caa ata ctt gac cta Asp Ser Val Phe Arg Cys Leu Pro Lys Ser Ile Gln Ile Leu Asp Leu 420	425	430	1460
aat aat aac caa atc caa act gta cct aaa gag act att cat ctg atg Asn Asn Asn Gln Ile Gln Thr Val Pro Lys Glu Thr Ile His Leu Met 435	440	445	1508
gcc tta cga gaa cta aat att gca ttt aat ttt cta act gat ctc cct Ala Leu Arg Glu Leu Asn Ile Ala Phe Asn Phe Leu Thr Asp Leu Pro 450	455	460	1556
gga tgc agt cat ttc agt aga ctt tca gtt ctg aac att gaa atg aac Gly Cys Ser His Phe Ser Arg Leu Ser Val Leu Asn Ile Glu Met Asn 465	470	475	1604
ttc att ctc agc cca tct ctg gat ttt gtt cag agc tgc cag gaa gtt Phe Ile Leu Ser Pro Ser Leu Asp Phe Val Gln Ser Cys Gln Glu Val 480	485	490	495
aaa act cta aat gcg gga aga aat cca ttc cgg tgt acc tgt gaa tta Lys Thr Leu Asn Ala Gly Arg Asn Pro Phe Arg Cys Thr Cys Glu Leu 500	505	510	1700
aaa aat ttc att cag ctt gaa aca tat tca gag gtc atg atg gtt gga Lys Asn Phe Ile Gln Leu Glu Thr Tyr Ser Glu Val Met Met Val Gly 515	520	525	1748
tgg tca gat tca tac acc tgt gaa tac cct tta aac cta agg gga act Trp Ser Asp Ser Tyr Thr Cys Glu Tyr Pro Leu Asn Leu Arg Gly Thr 530	535	540	1796
agg tta aaa gac gtt cat ctc cac gaa tta tct tgc aac aca gct ctg Arg Leu Lys Asp Val His Leu His Glu Leu Ser Cys Asn Thr Ala Leu 545	550	555	1844
ttg att gtc acc att gtg gtt att atg cta gtt ctg ggg ttg gct gtg Leu Ile Val Thr Ile Val Val Ile Met Leu Val Leu Glu Leu Ala Val 560	565	570	575
gcc ttc tgc tgt ctc cac ttt gat ctg ccc tgg tat ctc agg atg cta Ala Phe Cys Cys Leu His Phe Asp Leu Pro Trp Tyr Leu Arg Met Leu 580	585	590	1892
			1940

ggt caa tgc aca caa aca tgg cac agg gtt agg aaa aca acc caa gaa Gly Gln Cys Thr Gln Thr Trp His Arg Val Arg Lys Thr Thr Gln Glu 595 600 605	1988
caa ctc aag aga aat gtc cga ttc cac gca ttt att tca tac agt gaa Gln Leu Lys Arg Asn Val Arg Phe His Ala Phe Ile Ser Tyr Ser Glu 610 615 620	2036
cat gat tct ctg tgg gtg aag aat gaa ttg atc ccc aat cta gag aag His Asp Ser Leu Trp Val Lys Asn Glu Leu Ile Pro Asn Leu Glu Lys 625 630 635	2084
gaa gat ggt tct atc ttg att tgc ctt tat gaa agc tac ttt gac cct Glu Asp Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe Asp Pro 640 645 650 655	2132
ggc aaa agc att agt gaa aat att gta agc ttc att gag aaa agc tat Gly Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys Ser Tyr 660 665 670	2180
aag tcc atc ttt gtt ttg tct ccc aac ttt gtc cag aat gag tgg tgc Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu Trp Cys 675 680 685	2228
cat tat gaa ttc tac ttt gcc cac cac aat ctc ttc cat gaa aat tct His Tyr Glu Phe Tyr Phe Ala His His Asn Leu Phe His Glu Asn Ser 690 695 700	2276
gat cat ata att ctt atc tta ctg gaa ccc att cca ttc tat tgc att Asp His Ile Ile Leu Ile Leu Leu Glu Pro Ile Pro Phe Tyr Cys Ile 705 710 715	2324
ccc acc agg tat cat aaa ctg aaa gct ctc ctg gaa aaa aaa gca tac Pro Thr Arg Tyr His Lys Leu Lys Ala Leu Leu Glu Lys Lys Ala Tyr 720 725 730 735	2372
ttg gaa tgg ccc aag gat agg cgt aaa tgt ggg ctt ttc tgg gca aac Leu Glu Trp Pro Lys Asp Arg Arg Lys Cys Gly Leu Phe Trp Ala Asn 740 745 750	2420
ctt cga gct gct att aat gtt aat gta tta gcc acc aga gaa atg tat Leu Arg Ala Ala Ile Asn Val Asn Val Leu Ala Thr Arg Glu Met Tyr 755 760 765	2468
gaa ctg cag aca ttc aca gag tta aat gaa gag tct cga ggt tct aca Glu Leu Gln Thr Phe Thr Glu Leu Asn Glu Ser Arg Gly Ser Thr 770 775 780	2516
atc tct ctg atg aga aca gat tgt cta taaaatcccc cagtccttgg Ile Ser Leu Met Arg Thr Asp Cys Leu 785 790	2563
gaagttgggg accacataca ctgttggat gtacattgat acaaccttta tgatggcaat	2623
ttgacaatat ttataaaaat aaaaaatggt tattcccttc atatcagttt ctagaaggat	2683
ttctaaagaat gtatccata gaaacacctt cacaagttta taagggttta tggaaaaagg	2743
tgttcatccc aggatgttt ataatcatga aaaaatgtggc caggtgcagt ggctcactct	2803

tgttaatccca	gcactatggg	aggccaaggt	gggtgaccca	cgaggtcaag	agatggagac	2863
catactggcc	aacatggtga	aaccctgtct	ctactaaaaa	tacaaaaatt	agctgggcgt	2923
gatggtagcac	gcctgttagtc	ccagctactt	gggaggctga	ggcaggagaa	tcgcttgaac	2983
ccgggaggctg	gcagttgcag	tgagctgaga	tcgagccact	gcactccagc	ctggtagacag	3043
agc						3046

<210> 39  
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<212> PRT  
<213> Homo sapiens  
<400> 39

Met Arg Leu Ile Arg Asn Ile Tyr Ile Phe Cys Ser Ile Val Met Thr			
-15		-10	-5

Ala Glu Gly Asp Ala Pro Glu Leu Pro Glu Glu Arg Glu Leu Met Thr			
-1	1	5	10

Asn Cys Ser Asn Met Ser Leu Arg Lys Val Pro Ala Asp Leu Thr Pro			
15	20	25	

Ala Thr Thr Thr Leu Asp Leu Ser Tyr Asn Leu Leu Phe Gln Leu Gln			
30	35	40	45

Ser Ser Asp Phe His Ser Val Ser Lys Leu Arg Val Leu Ile Leu Cys			
50	55	60	

His Asn Arg Ile Gln Gln Leu Asp Leu Lys Thr Phe Glu Phe Asn Lys			
65	70	75	

Glu Leu Arg Tyr Leu Asp Leu Ser Asn Asn Arg Leu Lys Ser Val Thr			
80	85	90	

Trp Tyr Leu Leu Ala Gly Leu Arg Tyr Leu Asp Leu Ser Phe Asn Asp			
95	100	105	

Phe Asp Thr Met Pro Ile Cys Glu Glu Ala Gly Asn Met Ser His Leu			
110	115	120	125

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

Lys Ile Ala His Leu His Leu Asn Thr Val Phe Leu Gly Phe Arg Thr			
145	150	155	

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

Cys Ser Trp Pro Glu Thr Val Val Asn Met Asn Leu Ser Tyr Asn Lys  
 400 405 410

Leu Ser Asp Ser Val Phe Arg Cys Leu Pro Lys Ser Ile Gln Ile Leu  
 415 420 425

Asp Leu Asn Asn Asn Gln Ile Gln Thr Val Pro Lys Glu Thr Ile His  
 430 435 440 445

Leu Met Ala Leu Arg Glu Leu Asn Ile Ala Phe Asn Phe Leu Thr Asp  
 450 455 460

Leu Pro Gly Cys Ser His Phe Ser Arg Leu Ser Val Leu Asn Ile Glu  
 465 470 475

Met Asn Phe Ile Leu Ser Pro Ser Leu Asp Phe Val Gln Ser Cys Gln  
 480 485 490

Glu Val Lys Thr Leu Asn Ala Gly Arg Asn Pro Phe Arg Cys Thr Cys  
 495 500 505

Glu Leu Lys Asn Phe Ile Gln Leu Glu Thr Tyr Ser Glu Val Met Met  
 510 515 520 525

Val Gly Trp Ser Asp Ser Tyr Thr Cys Glu Tyr Pro Leu Asn Leu Arg  
 530 535 540

Gly Thr Arg Leu Lys Asp Val His Leu His Glu Leu Ser Cys Asn Thr  
 545 550 555

Ala Leu Leu Ile Val Thr Ile Val Val Ile Met Leu Val Leu Gly Leu  
 560 565 570

Ala Val Ala Phe Cys Cys Leu His Phe Asp Leu Pro Trp Tyr Leu Arg  
 575 580 585

Met Leu Gly Gln Cys Thr Gln Thr Trp His Arg Val Arg Lys Thr Thr  
 590 595 600 605

Gln Glu Cln Leu Lys Arg Asn Val Arg Phe His Ala Phe Ile Ser Tyr  
 610 615 620

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Ser Phe Asn Asp Phe Lys Ala Leu Pro Ile Cys Lys Glu Phe Gly Asn  
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520

三三五

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Met His Phe Pro Cys His Met Thr Ile Glu Pro Ser Thr Phe Leu Ala
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102

355

360

365

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Gag cac tca ttc acg gag cta cca cga ctg gag gcc ctg gac ctc agc Glu His Ser Phe Thr Glu Leu Pro Arg Leu Glu Ala Leu Asp Leu Ser 515 520 525	1728
tac aac agc cag ccc ttt ggc atg cag ggc gtg ggc cac aac aac ttc agc Tyr Asn Ser Gln Pro Phe Gly Met Gln Gly Val Gly His Asn Phe Ser 530 535 540	1776
ttc gtg gct cac ctg cgc acc ctg cgc cac ctc agc ctg gcc cac aac Phe Val Ala His Leu Arg Thr Leu Arg His Leu Ser Leu Ala His Asn 545 550 555 560	1824
aac atc cac agc caa gtg tcc cag cag ctc tgc agt acg tcc ctg cgg Asn Ile His Ser Gln Val Ser Gln Gln Leu Cys Ser Thr Ser Leu Arg 565 570 575	1872
gcc ctg gac ttc agc ggc aat gca ctg ggc cat atg tgg gcc gag gga Ala Leu Asp Phe Ser Gly Asn Ala Leu Gly His Met Trp Ala Glu Gly 580 585 590	1920
gac ctc tat ctg cac ttc ttc caa ggc ctg agc ggt ttg atc tgg ctg Asp Leu Tyr Leu His Phe Phe Gln Gly Leu Ser Gly Leu Ile Trp Leu 595 600 605	1968

gac ttg tcc cag aac cgc ctg cac acc ctc ctg ccc caa acc ctg cgc Asp Leu Ser Gln Asn Arg Leu His Thr Leu Leu Pro Gln Thr Leu Arg 610 615 620	2016
aac ctc ccc aag agc cta cag gtg ctg cgt ctc cgt gac aat tac ctg Asn Leu Pro Lys Ser Leu Gln Val Leu Arg Leu Arg Asp Asn Tyr Leu 625 630 635 640	2064
gcc ttc ttt aag tgg tgg agc ctc cac ttc ctg ccc aaa ctg gaa gtc Ala Phe Phe Lys Trp Trp Ser Leu His Phe Leu Pro Lys Leu Glu Val 645 650 655	2112
ctc gac ctg gca gga aac cag ctg aag gcc ctg acc aat ggc agc ctg Leu Asp Leu Ala Gly Asn Gln Leu Lys Ala Leu Thr Asn Gly Ser Leu 660 665 670	2160
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ctc aac ctt agc gcc aac gcc ctc aag aca gtg gac cac tcc tgg ttt Leu Asn Leu Ser Ala Asn Ala Leu Lys Thr Val Asp His Ser Trp Phe 705 710 715 720	2304
ggg ccc ctg gcg agt gcc ctgcaa ata cta gat gta agc gcc aac cct Gly Pro Leu Ala Ser Ala Leu Gln Ile Leu Asp Val Ser Ala Asn Pro 725 730 735	2352
ctg cac tgc gcc tgt ggg ggc ttc atg gac ttc ctg ctg gag gtg Leu His Cys Ala Cys Gly Ala Ala Phe Met Asp Phe Leu Glu Val 740 745 750	2400
cag gct gcc gtg ccc ggt ctg ccc agc cgg gtg aag tgt ggc agt ccc Gln Ala Ala Val Pro Gly Leu Pro Ser Arg Val Lys Cys Gly Ser Pro 755 760 765	2448
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gac ctc tgg tac tgc ttc cac ctg tgc ctg gcc tgg ctt ccc tgg cgg Asp Leu Trp Tyr Cys Phe His Leu Cys Leu Ala Trp Leu Pro Trp Arg 820 825 830	2640
ggg cgg caa agt ggg cga gat gag gat gcc ctg ccc tac gat gcc ttc Gly Arg Gln Ser Gly Arg Asp Glu Asp Ala Leu Pro Tyr Asp Ala Phe 835 840 845	2688

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gcc cag cag cgc ctg ctg gag gac cgc aag gac gtc gtg gtg ctg gtg Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val 930 935 940	2976
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His Thr Ala Leu Pro Pro Gln Gly Phe Cys Arg Ser Ala Leu His -30 -25 -20	
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Leu Gly Thr Leu Pro Ala Phe Leu Pro Cys Glu Leu Gln Pro His Gly	

105

1	5	10	15
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Leu Val Asn Cys Asn Trp Leu Phe Leu Lys Ser Val Pro His Phe Ser  
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Met Ala Ala Pro Arg Gly Asn Val Thr Ser Leu Ser Leu Ser Ser Asn  
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Arg Ile His His Leu His Asp Ser Asp Phe Ala His Leu Pro Ser Leu  
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Arg His Leu Asn Leu Lys Trp Asn Cys Pro Pro Val Gly Leu Ser Pro  
65 70 75 80

Met His Phe Pro Cys His Met Thr Ile Glu Pro Ser Thr Phe Leu Ala  
85 90 95

Val Pro Thr Leu Glu Glu Leu Asn Leu Ser Tyr Asn Asn Ile Met Thr  
100 105 110

Val Pro Ala Leu Pro Lys Ser Leu Ile Ser Leu Ser Leu Ser His Thr  
115 120 125

Asn Ile Leu Met Leu Asp Ser Ala Ser Leu Ala Gly Leu His Ala Leu  
130 135 140

Arg Phe Leu Phe Met Asp Gly Asn Cys Tyr Tyr Lys Asn Pro Cys Arg  
145 150 155 160

Gln Ala Leu Glu Val Ala Pro Gly Ala Leu Leu Gly Leu Gly Asn Leu  
165 170 175

Thr His Leu Ser Leu Lys Tyr Asn Asn Leu Thr Val Val Pro Arg Asn  
180 185 190

Leu Pro Ser Ser Leu Glu Tyr Leu Leu Leu Ser Tyr Asn Arg Ile Val  
195 200 205

Lys Leu Ala Pro Glu Asp Leu Ala Asn Leu Thr Ala Leu Arg Val Leu  
210 215 220

Asp Val Gly Gly Asn Cys Arg Arg Cys Asp His Ala Pro Asn Pro Cys  
225 230 235 240

Met Glu Cys Pro Arg His Phe Pro Gln Leu His Pro Asp Thr Phe Ser  
245 250 255

His Leu Ser Arg Leu Glu Gly Leu Val Leu Lys Asp Ser Ser Leu Ser  
 260 265 270

Trp Leu Asn Ala Ser Trp Phe Arg Gly Leu Gly Asn Leu Arg Val Leu  
 275 280 285

Asp Leu Ser Glu Asn Phe Leu Tyr Lys Cys Ile Thr Lys Thr Lys Ala  
 290 295 300

Phe Gln Gly Leu Thr Gln Leu Arg Lys Leu Asn Leu Ser Phe Asn Tyr  
 305 310 315 320

Gln Lys Arg Val Ser Phe Ala His Leu Ser Leu Ala Pro Ser Phe Gly  
 325 330 335

Ser Leu Val Ala Leu Lys Glu Leu Asp Met His Gly Ile Phe Phe Arg  
 340 345 350

Ser Leu Asp Glu Thr Thr Leu Arg Pro Leu Ala Arg Leu Pro Met Leu  
 355 360 365

Gln Thr Leu Arg Leu Gln Met Asn Phe Ile Asn Gln Ala Gln Leu Gly  
 370 375 380

Ile Phe Arg Ala Phe Pro Gly Leu Arg Tyr Val Asp Leu Ser Asp Asn  
 385 390 395 400

Arg Ile Ser Gly Ala Ser Glu Leu Thr Ala Thr Met Gly Glu Ala Asp  
 405 410 415

Gly Gly Glu Lys Val Trp Leu Gln Pro Gly Asp Leu Ala Pro Ala Pro  
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Val Asp Thr Pro Ser Ser Glu Asp Phe Arg Pro Asn Cys Ser Thr Leu  
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Asn Phe Thr Leu Asp Leu Ser Arg Asn Asn Leu Val Thr Val Gln Pro  
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Glu Met Phe Ala Gln Leu Ser His Leu Gln Cys Leu Arg Leu Ser His  
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Asn Cys Ile Ser Gln Ala Val Asn Gly Ser Gln Phe Leu Pro Leu Thr  
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Gly Leu Gln Val Leu Asp Leu Ser His Asn Lys Leu Asp Leu Tyr His  
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Glu His Ser Phe Thr Glu Leu Pro Arg Leu Glu Ala Leu Asp Leu Ser  
 515 520 525

Tyr Asn Ser Gln Pro Phe Gly Met Gln Gly Val Gly His Asn Phe Ser  
 530 535 540

Phe Val Ala His Leu Arg Thr Leu Arg His Leu Ser Leu Ala His Asn  
 545 550 555 560

Asn Ile His Ser Gln Val Ser Gln Gln Leu Cys Ser Thr Ser Leu Arg  
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Ala Leu Asp Phe Ser Gly Asn Ala Leu Gly His Met Trp Ala Glu Gly  
 580 585 590

Asp Leu Tyr Leu His Phe Phe Gln Gly Leu Ser Gly Leu Ile Trp Leu  
 595 600 605

Asp Leu Ser Gln Asn Arg Leu His Thr Leu Leu Pro Gln Thr Leu Arg  
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Asn Leu Pro Lys Ser Leu Gln Val Leu Arg Leu Arg Asp Asn Tyr Leu  
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Ala Phe Phe Lys Trp Trp Ser Leu His Phe Leu Pro Lys Leu Glu Val  
 645 650 655

Leu Asp Leu Ala Gly Asn Gln Leu Lys Ala Leu Thr Asn Gly Ser Leu  
 660 665 670

Pro Ala Gly Thr Arg Leu Arg Arg Leu Asp Val Ser Cys Asn Ser Ile  
 675 680 685

Ser Phe Val Ala Pro Gly Phe Phe Ser Lys Ala Lys Glu Leu Arg Glu  
 690 695 700

Leu Asn Leu Ser Ala Asn Ala Leu Lys Thr Val Asp His Ser Tyr Phe  
 705 710 715 720

Gly Pro Leu Ala Ser Ala Leu Gln Ile Leu Asp Val Ser Ala Asn Pro  
 725 730 735

Leu His Cys Ala Cys Gly Ala Ala Phe Met Asp Phe Leu Leu Glu Val  
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Gln Ala Ala Val Pro Gly Leu Pro Ser Arg Val Lys Cys Gly Ser Pro  
 755 760 765

Gly Gln Leu Gln Gly Leu Ser Ile Phe Ala Gln Asp Leu Arg Leu Cys  
 770 775 780

Leu Asp Glu Ala Leu Ser Trp Asp Cys Phe Ala Leu Ser Leu Leu Ala  
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Val Ala Leu Gly Leu Gly Val Pro Met Leu His His Leu Cys Gly Trp  
 805 810 815

Asp Leu Trp Tyr Cys Phe His Leu Cys Leu Ala Trp Leu Pro Trp Arg  
 820 825 830

Gly Arg Gln Ser Gly Arg Asp Glu Asp Ala Leu Pro Tyr Asp Ala Phe  
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Val Val Phe Asp Lys Thr Gln Ser Ala Val Ala Asp Trp Val Tyr Asn  
 850 855 860

Glu Leu Arg Gly Gln Leu Glu Glu Cys Arg Gly Arg Trp Ala Leu Arg  
 865 870 875 880

Leu Cys Leu Glu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe Glu  
 885 890 895

Asn Leu Trp Ala Ser Val Tyr Gly Ser Arg Lys Thr Leu Phe Val Leu  
 900 905 910

Ala His Thr Asp Arg Val Ser Gly Leu Leu Arg Ala Ser Phe Leu Leu  
 915 920 925

Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val  
 930 935 940

Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Val Arg Leu Arg Gln  
 945 950 955 960

Arg Leu Cys Arg Gln Ser Val Leu Leu Trp Pro His Gln Pro Ser Gly  
 965 970 975

Gln Arg Ser Phe Trp Ala Gln Leu Gly Met Ala Leu Thr Arg Asp Asn

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980

985

990

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ctg gca agt tcc ttt aag aac ctg gtg tca ctg cag gag ctg aac atg 96  
Leu Ala Ser Ser Phe Lys Asn Leu Val Ser Leu Gln Glu Leu Asn Met  
20 25 30  
aac ggc atc ttc ttc cgc ttg ctc aac aag tac acg ctc aga tgg ctg 144  
Asn Gly Ile Phe Phe Arg Leu Leu Asn Lys Tyr Thr Leu Arg Trp Leu  
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gcc gat ctg ccc aaa ctc cac act ctg cat ctt caa atg aac ttc atc 192  
Ala Asp Leu Pro Lys Leu His Thr Leu His Leu Gln Met Asn Phe Ile  
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Asn Gln Ala Gln Leu Ser Ile Phe Gly Thr Phe Arg Ala Leu Arg Phe  
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85 90 95  
gcc acc cct gaa gag gca gat gat gca gag cag gag gag ctg ttg tct 336  
Ala Thr Pro Glu Glu Ala Asp Asp Ala Glu Gln Glu Glu Leu Leu Ser  
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gcg gat cct cac cca gct ccg ctg agc acc cct gct tct aag aac ttc 384  
Ala Asp Pro His Pro Ala Pro Leu Ser Thr Pro Ala Ser Lys Asn Phe  
115 120 125  
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Met Asp Arg Cys Lys Asn Phe Lys Phe Asn Met Asp Leu Ser Arg Asn  
130 135 140  
aac ctg gtg act atc aca gca gag atg ttt gta aat ctc tca cgc ctc 480  
Asn Leu Val Thr Ile Thr Ala Glu Met Phe Val Asn Leu Ser Arg Leu  
145 150 155 160  
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Gln Cys Leu Ser Leu Ser His Asn Ser Ile Ala Gln Ala Val Asn Gly

110			
165	170	175	
tct cag ttc ctg ccg ctg acc ggt ctg cag gtg cta gac ctg tcc cac Ser Gln Phe Leu Pro Leu Thr Gly Leu Gln Val Leu Asp Leu Ser His			576
180	185	190	
aat aag ctg gac ctc tac cac gag cac tca ttc acg gag cta cca cga Asn Lys Leu Asp Leu Tyr His Glu His Ser Phe Thr Glu Leu Pro Arg			624
195	200	205	
ctg gag gcc ctg gac ctc agc tac aac agc cag ccc ttt agc atg aag Leu Glu Ala Leu Asp Leu Ser Tyr Asn Ser Gln Pro Phe Ser Met Lys			672
210	215	220	
ggt ata ggc cac aat ttc agt ttt gtg acc cat ctg tcc atg cta cag Gly Ile Gly His Asn Phe Ser Phe Val Thr His Leu Ser Met Leu Gln			720
225	230	235	240
agc ctt agc ctg gca cac aat gac att cat acc cgt gtg tcc tca cat Ser Leu Ser Leu Ala His Asn Asp Ile His Thr Arg Val Ser Ser His			768
245	250	255	
ctc aac agc aac tca gtg agg ttt ctt gac ttc agc ggc aac ggt atg Leu Asn Ser Asn Ser Val Arg Phe Leu Asp Phe Ser Gly Asn Gly Met			816
260	265	270	
ggc cgc atg tgg gat gag ggg ggc ctt tat ctc cat ttc ttc caa ggc Gly Arg Met Trp Asp Glu Gly Leu Tyr Leu His Phe Phe Gln Gly			864
275	280	285	
ctg agt ggc gtg ctg aag ctg gac ctg tct caa aat aac ctg cat atc Leu Ser Gly Val Leu Lys Leu Asp Leu Ser Gln Asn Asn Leu His Ile			912
290	295	300	
ctc cgg ccc cag aac ctt gac aac ctc ccc aag agc ctg aag ctg ctg Leu Arg Pro Gln Asn Leu Asp Asn Leu Pro Lys Ser Leu Lys Leu			960
305	310	315	320
agc ctc cga gac aac tac cta tct ttc ttt aac tgg acc agt ctg tcc Ser Leu Arg Asp Asn Tyr Leu Ser Phe Asn Trp Thr Ser Leu Ser			1008
325	330	335	
ttc cta ccc aac ctg gaa gtc cta gac ctg gca ggc aac cag cta aag Phe Leu Pro Asn Leu Glu Val Leu Asp Leu Ala Gly Asn Gln Leu Lys			1056
340	345	350	
gcc ctg acc aat ggc acc ctg cct aat ggc acc ctc ctc cag aaa ctc Ala Leu Thr Asn Gly Thr Leu Pro Asn Gly Thr Leu Leu Gln Lys Leu			1104
355	360	365	
gat gtc agt agc aac agt atc gtc tct gtg gcc ccc ggc ttc ttt tcc Asp Val Ser Ser Asn Ser Ile Val Ser Val Ala Pro Gly Phe Phe Ser			1152
370	375	380	
aag gcc aag gag ctg cga gag ctc aac ctt agc gcc aac gcc ctc aag Lys Ala Lys Glu Leu Arg Glu Leu Asn Leu Ser Ala Asn Ala Leu Lys			1200
385	390	395	400
aca gtg gac cac tcc tgg ttt ggg ccc att gtg atg aac ctg aca gtt Thr Val Asp His Ser Trp Phe Gly Pro Ile Val Met Asn Leu Thr Val			1248
405	410	415	

## III

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ctg gca tgg cta cct ttg cta gcc cgc agc cga cgc agc gcc caa act Leu Ala Trp Leu Pro Leu Leu Ala Arg Ser Arg Arg Ser Ala Gln Thr 515 520 525	1584
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gcc gac tgg gtg tat aac gag ctg cgg stg cgg ctg gag gag cgg cgc Ala Asp Trp Val Tyr Asn Glu Leu Arg Val Arg Leu Glu Glu Arg Arg 545 550 555 560	1680
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## 112

ccc cag cag ccc aac ggg cag ggg ggc ttc tgg gcc cag ctg agt aca  
 Pro Gln Gln Pro Asn Gly Gln Gly Phe Trp Ala Gln Leu Ser Thr  
 660 665 670

2016

gcc ctg act agg gac aac cgc cac ttc tat aac cag aac ttc tgc cgg  
 Ala Leu Thr Arg Asp Asn Arg His Phe Tyr Asn Gln Asn Phe Cys Arg  
 675 680 685

2064

gga cct aca gca gaa tagctcagag caacagctgg aaacagctgc atcttcatgt  
 Gly Pro Thr Ala Glu  
 690

2119

ctggttcccg agttgtcttg cctgccttgc ttgttcttac tacaccgcta tttggcaagt  
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2179

2239

2289

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Asn Gly Ile Phe Phe Arg Leu Leu Asn Lys Tyr Thr Leu Arg Trp Leu  
 35 40 45

Ala Asp Leu Pro Lys Leu His Thr Leu His Leu Gln Met Asn Phe Ile  
 50 55 60

Asn Gln Ala Gln Leu Ser Ile Phe Gly Thr Phe Arg Ala Leu Arg Phe  
 65 70 75 80

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

Ala Thr Pro Glu Glu Ala Asp Asp Ala Glu Gln Glu Glu Leu Leu Ser  
 100 105 110

Ala Asp Pro His Pro Ala Pro Leu Ser Thr Pro Ala Ser Lys Asn Phe  
 115 120 125

Met Asp Arg Cys Lys Asn Phe Lys Phe Asn Met Asp Leu Ser Arg Asn  
 130 135 140

Aer Leu Val Thr Ile Thr Ala Glu Met Phe Val Asn Leu Ser Arg Leu  
 145                   150                   155                   160

Gln Cys Leu Ser Leu Ser His Asn Ser Ile Ala Gln Ala Val Asn Gly  
 165                   170                   175

Ser Gln Phe Leu Pro Leu Thr Gly Leu Gln Val Leu Asp Leu Ser His  
 180                   185                   190

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

Leu Glu Ala Leu Asp Leu Ser Tyr Asn Ser Gln Pro Phe Ser Met Lys  
 210                   215                   220

Gly Ile Gly His Asn Phe Ser Phe Val Thr His Leu Ser Met Leu Gln  
 225                   230                   235                   240

Ser Leu Ser Leu Ala His Asn Asp Ile His Thr Arg Val Ser Ser His  
 245                   250                   255

Leu Asn Ser Asn Ser Val Arg Phe Leu Asp Phe Ser Gly Asn Gly Met  
 260                   265                   270

Gly Arg Met Trp Asp Glu Gly Gly Leu Tyr Leu His Phe Phe Gln Gly  
 275                   280                   285

Leu Ser Gly Val Leu Lys Leu Asp Leu Ser Gln Asn Asn Leu His Ile  
 290                   295                   300

Leu Arg Pro Gln Asn Leu Asp Asn Leu Pro Lys Ser Leu Lys Leu Leu  
 305                   310                   315                   320

Ser Leu Arg Asp Asn Tyr Leu Ser Phe Phe Asn Trp Thr Ser Leu Ser  
 325                   330                   335

Phe Leu Pro Asn Leu Glu Val Leu Asp Leu Ala Gly Asn Gln Leu Lys  
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Ala Leu Thr Asn Gly Thr Leu Pro Asn Gly Thr Leu Leu Gln Lys Leu  
 355                   360                   365

Asp Val Ser Ser Asn Ser Ile Val Ser Val Ala Pro Gly Phe Phe Ser  
 370                   375                   380

Lys Ala Lys Glu Leu Arg Glu Leu Asn Leu Ser Ala Asn Ala Leu Lys  
 385 390 395 400

Thr Val Asp His Ser Trp Phe Gly Pro Ile Val Met Asn Leu Thr Val  
 405 410 415

Leu Asp Val Arg Ser Asn Pro Leu His Cys Ala Cys Gly Ala Ala Phe  
 420 425 430

Val Asp Leu Leu Leu Glu Val Gln Thr Lys Val Pro Gly Leu Ala Asn  
 435 440 445

Gly Val Lys Cys Gly Ser Pro Gly Gln Leu Gln Gly Arg Ser Ile Phe  
 450 455 460

Ala Gln Asp Leu Arg Leu Cys Leu Asp Glu Val Leu Ser Trp Asp Cys  
 465 470 475 480

Phe Gly Leu Ser Leu Leu Ala Val Ala Val Gly Met Val Val Pro Ile  
 485 490 495

Leu His His Leu Cys Gly Trp Asp Val Trp Tyr Cys Phe His Leu Cys  
 500 505 510

Leu Ala Trp Leu Pro Leu Leu Ala Arg Ser Arg Arg Ser Ala Gln Thr  
 515 520 525

Leu Pro Tyr Asp Ala Phe Val Val Phe Asp Lys Ala Gln Ser Ala Val  
 530 535 540

Ala Asp Trp Val Tyr Asn Glu Leu Arg Val Arg Leu Glu Glu Arg Arg  
 545 550 555 560

Gly Arg Trp Ala Leu Arg Leu Cys Leu Glu Asp Arg Asp Trp Leu Pro  
 565 570 575

Gly Gln Thr Leu Phe Glu Asn Leu Trp Ala Ser Ile Tyr Gly Ser Arg  
 580 585 590

Lys Thr Leu Phe Val Leu Ala His Thr Asp Arg Val Ser Gly Leu Leu  
 595 600 605

Arg Thr Ser Phe Leu Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys  
 610 615 620

Asp Val Val Val Leu Val Ile Leu Arg Pro Asp Ala His Arg Ser Arg

115

625

630

635

640

Tyr Val Arg Leu Arg Gln Arg Leu Cys Arg Gln Ser Val Leu Phe Trp  
645 650 655

Pro Gln Gln Pro Asn Gly Gln Gly Phe Trp Ala Gln Leu Ser Thr  
660 665 670

Ala Leu Thr Arg Asp Asn Arg His Phe Tyr Asn Gln Asn Phe Cys Arg  
675 680 685

Gly Pro Thr Ala Glu  
690