

SEQUENCE LISTING

<110> CHUGAI SEIYAKU KABUSHIKI KAISHA
 <120> FGFR3-Fused Genes and Medicament Targeting Them
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 <150> JP 2012-214739
 <151> 2012-09-27
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 gtgcacaacc tcgactacta caag 24
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 gtaatcctcc acgcacttct tc 22
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 <212> DNA
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 <223> An artificially synthesized primer sequence
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 tgtttgaccg agtctacact cacc 24
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<400> 4
gacatgtccc agttcagttg ac 22

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gggtgtcact cttctgtcta agga 24

<210> 6
<211> 808
<212> PRT
<213> Homo sapiens

<400> 6

Met Gly Ala Pro Ala Cys Ala Leu Ala Leu Cys Val Ala Val Ala Ile
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Val Ala Gly Ala Ser Ser Glu Ser Leu Gly Thr Glu Gln Arg Val Val
20 25 30

Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
35 40 45

Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro
50 55 60

Gly Gly Gly Pro Met Gly Pro Thr Val Trp Val Lys Asp Gly Thr Gly
65 70 75 80

Leu Val Pro Ser Glu Arg Val Leu Val Gly Pro Gln Arg Leu Gln Val
85 90 95

Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg
100 105 110

Leu Thr Gln Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala
115 120 125

Pro Ser Ser Gly Asp Asp Glu Asp Gly Glu Asp Glu Ala Glu Asp Thr
 130 135 140

Gly Val Asp Thr Gly Ala Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp
 145 150 155 160

Lys Lys Leu Leu Ala Val Pro Ala Ala Asn Thr Val Arg Phe Arg Cys
 165 170 175

Pro Ala Ala Gly Asn Pro Thr Pro Ser Ile Ser Trp Leu Lys Asn Gly
 180 185 190

Arg Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His
 195 200 205

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

Asn Tyr Thr Cys Val Val Glu Asn Lys Phe Gly Ser Ile Arg Gln Thr
 225 230 235 240

Tyr Thr Leu Asp Val Leu Glu Arg Ser Pro His Arg Pro Ile Leu Gln
 245 250 255

Ala Gly Leu Pro Ala Asn Gln Thr Ala Val Leu Gly Ser Asp Val Glu
 260 265 270

Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu
 275 280 285

Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
 290 295 300

Tyr Val Thr Val Leu Lys Ser Trp Ile Ser Glu Ser Val Glu Ala Asp
 305 310 315 320

Val Arg Leu Arg Leu Ala Asn Val Ser Glu Arg Asp Gly Gly Glu Tyr
 325 330 335

Leu Cys Arg Ala Thr Asn Phe Ile Gly Val Ala Glu Lys Ala Phe Trp
 340 345 350

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

355																			
Asp	Glu	Ala	Gly	Ser	Val	Tyr	Ala	Gly	Ile	Leu	Ser	Tyr	Gly	Val	Gly				
370						375					380								
Phe	Phe	Leu	Phe	Ile	Leu	Val	Val	Ala	Ala	Val	Thr	Leu	Cys	Arg	Leu				
385					390					395					400				
Arg	Ser	Pro	Pro	Lys	Lys	Gly	Leu	Gly	Ser	Pro	Thr	Val	His	Lys	Ile				
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Ser	Arg	Phe	Pro	Leu	Lys	Arg	Gln	Val	Ser	Leu	Glu	Ser	Asn	Ala	Ser				
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Met	Ser	Ser	Asn	Thr	Pro	Leu	Val	Arg	Ile	Ala	Arg	Leu	Ser	Ser	Gly				
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Glu	Gly	Pro	Thr	Leu	Ala	Asn	Val	Ser	Glu	Leu	Glu	Leu	Pro	Ala	Asp				
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Pro	Lys	Trp	Glu	Leu	Ser	Arg	Ala	Arg	Leu	Thr	Leu	Gly	Lys	Pro	Leu				
465					470					475					480				
Gly	Glu	Gly	Cys	Phe	Gly	Gln	Val	Val	Met	Ala	Glu	Ala	Ile	Gly	Ile				
				485					490					495					
Asp	Lys	Asp	Arg	Ala	Ala	Lys	Pro	Val	Thr	Val	Ala	Val	Lys	Met	Leu				
			500					505					510						
Lys	Asp	Asp	Ala	Thr	Asp	Lys	Asp	Leu	Ser	Asp	Leu	Val	Ser	Glu	Met				
		515					520					525							
Glu	Met	Met	Lys	Met	Ile	Gly	Lys	His	Lys	Asn	Ile	Ile	Asn	Leu	Leu				
	530					535					540								
Gly	Ala	Cys	Thr	Gln	Gly	Gly	Pro	Leu	Tyr	Val	Leu	Val	Glu	Tyr	Ala				
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Ala	Lys	Gly	Asn	Leu	Arg	Glu	Phe	Leu	Arg	Ala	Arg	Arg	Pro	Pro	Gly				
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Leu	Asp	Tyr	Ser	Phe	Asp	Thr	Cys	Lys	Pro	Pro	Glu	Glu	Gln	Leu	Thr				
			580					585					590						

Phe Lys Asp Leu Val Ser Cys Ala Tyr Gln Val Ala Arg Gly Met Glu
595 600 605

Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn
610 615 620

Val Leu Val Thr Glu Asp Asn Val Met Lys Ile Ala Asp Phe Gly Leu
625 630 635 640

Ala Arg Asp Val His Asn Leu Asp Tyr Tyr Lys Lys Thr Thr Asn Gly
645 650 655

Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val
660 665 670

Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu
675 680 685

Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu
690 695 700

Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn
705 710 715 720

Cys Thr His Asp Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Ala
725 730 735

Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg
740 745 750

Val Leu Thr Val Thr Ser Thr Asp Glu Tyr Leu Asp Leu Ser Ala Pro
755 760 765

Phe Glu Gln Tyr Ser Pro Gly Gly Gln Asp Thr Pro Ser Ser Ser Ser
770 775 780

Ser Gly Asp Asp Ser Val Phe Ala His Asp Leu Leu Pro Pro Ala Pro
785 790 795 800

Pro Ser Ser Gly Gly Ser Arg Thr
805

<211> 806
<212> PRT
<213> Homo sapiens

<400> 7

Met Gly Ala Pro Ala Cys Ala Leu Ala Leu Cys Val Ala Val Ala Ile
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Val Ala Gly Ala Ser Ser Glu Ser Leu Gly Thr Glu Gln Arg Val Val
20 25 30

Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
35 40 45

Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro
50 55 60

Gly Gly Gly Pro Met Gly Pro Thr Val Trp Val Lys Asp Gly Thr Gly
65 70 75 80

Leu Val Pro Ser Glu Arg Val Leu Val Gly Pro Gln Arg Leu Gln Val
85 90 95

Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg
100 105 110

Leu Thr Gln Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala
115 120 125

Pro Ser Ser Gly Asp Asp Glu Asp Gly Glu Asp Glu Ala Glu Asp Thr
130 135 140

Gly Val Asp Thr Gly Ala Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp
145 150 155 160

Lys Lys Leu Leu Ala Val Pro Ala Ala Asn Thr Val Arg Phe Arg Cys
165 170 175

Pro Ala Ala Gly Asn Pro Thr Pro Ser Ile Ser Trp Leu Lys Asn Gly
180 185 190

Arg Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His
195 200 205

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

Asn Tyr Thr Cys Val Val Glu Asn Lys Phe Gly Ser Ile Arg Gln Thr
 225 230 235 240

Tyr Thr Leu Asp Val Leu Glu Arg Ser Pro His Arg Pro Ile Leu Gln
 245 250 255

Ala Gly Leu Pro Ala Asn Gln Thr Ala Val Leu Gly Ser Asp Val Glu
 260 265 270

Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu
 275 280 285

Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
 290 295 300

Tyr Val Thr Val Leu Lys Thr Ala Gly Ala Asn Thr Thr Asp Lys Glu
 305 310 315 320

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

Tyr Thr Cys Leu Ala Gly Asn Ser Ile Gly Phe Ser His His Ser Ala
 340 345 350

Trp Leu Val Val Leu Pro Ala Glu Glu Glu Leu Val Glu Ala Asp Glu
 355 360 365

Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly Phe Phe
 370 375 380

Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu Arg Ser
 385 390 395 400

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

Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser Met Ser
 420 425 430

Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser Ser Gly Glu Gly
 435 440 445

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

His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu Ile Phe
675 680 685

Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe
690 695 700

Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn Cys Thr
705 710 715 720

His Asp Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Ala Pro Ser
725 730 735

Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Val Leu
740 745 750

Thr Val Thr Ser Thr Asp Glu Tyr Leu Asp Leu Ser Ala Pro Phe Glu
755 760 765

Gln Tyr Ser Pro Gly Gly Gln Asp Thr Pro Ser Ser Ser Ser Ser Gly
770 775 780

Asp Asp Ser Val Phe Ala His Asp Leu Leu Pro Pro Ala Pro Pro Ser
785 790 795 800

Ser Gly Gly Ser Arg Thr
805

<210> 8
<211> 511
<212> PRT
<213> Homo sapiens

<400> 8

Met Ser Arg Gly Pro Glu Glu Val Asn Arg Leu Thr Glu Ser Thr Tyr
1 5 10 15

Arg Asn Val Met Glu Gln Phe Asn Pro Gly Leu Arg Asn Leu Ile Asn
20 25 30

Leu Gly Lys Asn Tyr Glu Lys Ala Val Asn Ala Met Ile Leu Ala Gly
35 40 45

Lys Ala Tyr Tyr Asp Gly Val Ala Lys Ile Gly Glu Ile Ala Thr Gly
50 55 60

Ser Pro Val Ser Thr Glu Leu Gly His Val Leu Ile Glu Ile Ser Ser
65 70 75 80

Thr His Lys Lys Leu Asn Glu Ser Leu Asp Glu Asn Phe Lys Lys Phe
85 90 95

His Lys Glu Ile Ile His Glu Leu Glu Lys Lys Ile Glu Leu Asp Val
100 105 110

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

Lys Leu Glu Ser Leu Glu Lys Ser Gln Ala Glu Leu Lys Lys Ile Arg
130 135 140

Arg Lys Ser Gln Gly Ser Arg Asn Ala Leu Lys Tyr Glu His Lys Glu
145 150 155 160

Ile Glu Tyr Val Glu Thr Val Thr Ser Arg Gln Ser Glu Ile Gln Lys
165 170 175

Phe Ile Ala Asp Gly Cys Lys Glu Ala Leu Leu Glu Glu Lys Arg Arg
180 185 190

Phe Cys Phe Leu Val Asp Lys His Cys Gly Phe Ala Asn His Ile His
195 200 205

Tyr Tyr His Leu Gln Ser Ala Glu Leu Leu Asn Ser Lys Leu Pro Arg
210 215 220

Trp Gln Glu Thr Cys Val Asp Ala Ile Lys Val Pro Glu Lys Ile Met
225 230 235 240

Asn Met Ile Glu Glu Ile Lys Thr Pro Ala Ser Thr Pro Val Ser Gly
245 250 255

Thr Pro Gln Ala Ser Pro Met Ile Glu Arg Ser Asn Val Val Arg Lys
260 265 270

Asp Tyr Asp Thr Leu Ser Lys Cys Ser Pro Lys Met Pro Pro Ala Pro
275 280 285

Ser Gly Arg Ala Tyr Thr Ser Pro Leu Ile Asp Met Phe Asn Asn Pro

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

<210> 9
 <211> 838
 <212> PRT

<213> Homo sapiens

<400> 9

Met Ser Leu Gln Val Leu Asn Asp Lys Asn Val Ser Asn Glu Lys Asn
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Thr Glu Asn Cys Asp Phe Leu Phe Ser Pro Pro Glu Val Thr Gly Arg
20 25 30

Ser Ser Val Leu Arg Val Ser Gln Lys Glu Asn Val Pro Pro Lys Asn
35 40 45

Leu Ala Lys Ala Met Lys Val Thr Phe Gln Thr Pro Leu Arg Asp Pro
50 55 60

Gln Thr His Arg Ile Leu Ser Pro Ser Met Ala Ser Lys Leu Glu Ala
65 70 75 80

Pro Phe Thr Gln Asp Asp Thr Leu Gly Leu Glu Asn Ser His Pro Val
85 90 95

Trp Thr Gln Lys Glu Asn Gln Gln Leu Ile Lys Glu Val Asp Ala Lys
100 105 110

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

Leu Gly Asp Ala Ser Pro Ala Phe Gly Ser Gly Ser Ser Ser Glu Ser
130 135 140

Gly Pro Gly Ala Leu Ala Asp Leu Asp Cys Ser Ser Ser Ser Gln Ser
145 150 155 160

Pro Gly Ser Ser Glu Asn Gln Met Val Ser Pro Gly Lys Val Ser Gly
165 170 175

Ser Pro Glu Gln Ala Val Glu Glu Asn Leu Ser Ser Tyr Ser Leu Asp
180 185 190

Arg Arg Val Thr Pro Ala Ser Glu Thr Leu Glu Asp Pro Cys Arg Thr
195 200 205

Glu Ser Gln His Lys Ala Glu Thr Pro His Gly Ala Glu Glu Glu Cys
210 215 220

Lys Ala Glu Thr Pro His Gly Ala Glu Glu Glu Cys Arg His Gly Gly
225 230 235 240

Val Cys Ala Pro Ala Ala Val Ala Thr Ser Pro Pro Gly Ala Ile Pro
245 250 255

Lys Glu Ala Cys Gly Gly Ala Pro Leu Gln Gly Leu Pro Gly Glu Ala
260 265 270

Leu Gly Cys Pro Ala Gly Val Gly Thr Pro Val Pro Ala Asp Gly Thr
275 280 285

Gln Thr Leu Thr Cys Ala His Thr Ser Ala Pro Glu Ser Thr Ala Pro
290 295 300

Thr Asn His Leu Val Ala Gly Arg Ala Met Thr Leu Ser Pro Gln Glu
305 310 315 320

Glu Val Ala Ala Gly Gln Met Ala Ser Ser Ser Arg Ser Gly Pro Val
325 330 335

Lys Leu Glu Phe Asp Val Ser Asp Gly Ala Thr Ser Lys Arg Ala Pro
340 345 350

Pro Pro Arg Arg Leu Gly Glu Arg Ser Gly Leu Lys Pro Pro Leu Arg
355 360 365

Lys Ala Ala Val Arg Gln Gln Lys Ala Pro Gln Glu Val Glu Glu Asp
370 375 380

Asp Gly Arg Ser Gly Ala Gly Glu Asp Pro Pro Met Pro Ala Ser Arg
385 390 395 400

Gly Ser Tyr His Leu Asp Trp Asp Lys Met Asp Asp Pro Asn Phe Ile
405 410 415

Pro Phe Gly Gly Asp Thr Lys Ser Gly Cys Ser Glu Ala Gln Pro Pro
420 425 430

Glu Ser Pro Glu Thr Arg Leu Gly Gln Pro Ala Ala Glu Gln Leu His
435 440 445

Ala Gly Pro Ala Thr Glu Glu Pro Gly Pro Cys Leu Ser Gln Gln Leu
 450 455 460

His Ser Ala Ser Ala Glu Asp Thr Pro Val Val Gln Leu Ala Ala Glu
 465 470 475 480

Thr Pro Thr Ala Glu Ser Lys Glu Arg Ala Leu Asn Ser Ala Ser Thr
 485 490 495

Ser Leu Pro Thr Ser Cys Pro Gly Ser Glu Pro Val Pro Thr His Gln
 500 505 510

Gln Gly Gln Pro Ala Leu Glu Leu Lys Glu Glu Ser Phe Arg Asp Pro
 515 520 525

Ala Glu Val Leu Gly Thr Gly Ala Glu Val Asp Tyr Leu Glu Gln Phe
 530 535 540

Gly Thr Ser Ser Phe Lys Glu Ser Ala Leu Arg Lys Gln Ser Leu Tyr
 545 550 555 560

Leu Lys Phe Asp Pro Leu Leu Arg Asp Ser Pro Gly Arg Pro Val Pro
 565 570 575

Val Ala Thr Glu Thr Ser Ser Met His Gly Ala Asn Glu Thr Pro Ser
 580 585 590

Gly Arg Pro Arg Glu Ala Lys Leu Val Glu Phe Asp Phe Leu Gly Ala
 595 600 605

Leu Asp Ile Pro Val Pro Gly Pro Pro Pro Gly Val Pro Ala Pro Gly
 610 615 620

Gly Pro Pro Leu Ser Thr Gly Pro Ile Val Asp Leu Leu Gln Tyr Ser
 625 630 635 640

Gln Lys Asp Leu Asp Ala Val Val Lys Ala Thr Gln Glu Glu Asn Arg
 645 650 655

Glu Leu Arg Ser Arg Cys Glu Glu Leu His Gly Lys Asn Leu Glu Leu
 660 665 670

Gly Lys Ile Met Asp Arg Phe Glu Glu Val Val Tyr Gln Ala Met Glu
 675 680 685

Glu Val Gln Lys Gln Lys Glu Leu Ser Lys Ala Glu Ile Gln Lys Val
690 695 700

Leu Lys Glu Lys Asp Gln Leu Thr Thr Asp Leu Asn Ser Met Glu Lys
705 710 715 720

Ser Phe Ser Asp Leu Phe Lys Arg Phe Glu Lys Gln Lys Glu Val Ile
725 730 735

Glu Gly Tyr Arg Lys Asn Glu Glu Ser Leu Lys Lys Cys Val Glu Asp
740 745 750

Tyr Leu Ala Arg Ile Thr Gln Glu Gly Gln Arg Tyr Gln Ala Leu Lys
755 760 765

Ala His Ala Glu Glu Lys Leu Gln Leu Ala Asn Glu Glu Ile Ala Gln
770 775 780

Val Arg Ser Lys Ala Gln Ala Glu Ala Leu Ala Leu Gln Ala Ser Leu
785 790 795 800

Arg Lys Glu Gln Met Arg Ile Gln Ser Leu Glu Lys Thr Val Glu Gln
805 810 815

Lys Thr Lys Glu Asn Glu Glu Leu Thr Arg Ile Cys Asp Asp Leu Ile
820 825 830

Ser Lys Met Glu Lys Ile
835

<210> 10

<211> 2427

<212> DNA

<213> Homo sapiens

<400> 10

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ccagagcccc gccagcagga gcagttggtc ttccgcagcg gggatgctgt ggagctgagc 180

tgccccccgc ccgggggtgg tcccatgggg cccactgtct gggtaagga tggcacaggg 240

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gctgaggaca	caggtgtgga	cacagggggc	ccttactgga	cacggcccga	gcggatggac	480
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aacccccactc	cctccatctc	ctggctgaag	aacggcaggg	agttccgcgg	cgagcaccgc	600
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tacacgctgg	acgtgctgga	gcgctccccg	caccggccca	tcctgcaggc	ggggctgccg	780
gccaaccaga	cggcgggtgct	gggcagcgac	gtggagttcc	actgcaaggt	gtacagtgac	840
gcacagcccc	acatccagtg	gctcaagcac	gtggaggtga	atggcagcaa	ggtgggcccg	900
gacggcacac	cctacgttac	cgtgctcaag	tcctggatca	gtgagagtgt	ggaggccgac	960
gtgcgcctcc	gcctggccaa	tgtgtcggag	cgggacgggg	gcgagtacct	ctgtcgagcc	1020
accaatttca	taggcgtggc	cgagaaggcc	ttttggctga	gcgttcacgg	gccccgagca	1080
gccgaggagg	agctggtgga	ggctgacgag	gcgggcagtg	tgtatgcagg	catcctcagc	1140
tacgggggtg	gcttcttcct	gttcatcctg	gtggtggcgg	ctgtgacgct	ctgccgcctg	1200
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cgcatacgaa	ggctgtcctc	aggggagggc	cccacgctgg	ccaatgtctc	cgagctcgag	1380
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ctgtcggacc	tgggtgtctga	gatggagatg	atgaagatga	tcgggaaaca	caaaaacatc	1620
atcaacctgc	tgggcgcctg	cacgcagggc	gggcccctgt	acgtgctggg	ggagtacgcg	1680
gccaagggta	acctgcggga	gtttctgcgg	gcgcggcggc	ccccgggcct	ggactactcc	1740
ttcgacacct	gcaagccgcc	cgaggagcag	ctcaccttca	aggacctggg	gtcctgtgcc	1800
taccagggtg	cccggggcat	ggagtacttg	gcctcccaga	agtgcattca	cagggacctg	1860
gctgcccga	atgtgctggg	gaccgaggac	aacgtgatga	agatcgaga	cttcgggctg	1920
gcccgggacg	tgacaaacct	cgactactac	aagaagacaa	ccaacggccg	gctgcccgtg	1980
aagtggatgg	cgctgaggc	cttgtttgac	cgagtctaca	ctcaccagag	tgacgtctgg	2040

tcctttgggg	tctgtctctg	ggagatcttc	acgctggggg	gctccccgta	ccccggcatc	2100
cctgtggagg	agctcttcaa	gctgctgaag	gagggccacc	gcatggacaa	gcccggccaac	2160
tgcacacacg	acctgtacat	gatcatgcgg	gagtgtctggc	atgccgcgcc	ctcccagagg	2220
cccaccttca	agcagctggg	ggaggacctg	gaccgtgtcc	ttaccgtgac	gtccaccgac	2280
gagtacctgg	acctgtcggc	gcctttcgag	cagtactccc	cgggtggcca	ggacaccccc	2340
agctccagct	cctcagggga	cgactccgtg	tttggccacg	acctgtgtcc	cccggcccca	2400
cccagcagtg	ggggctcgcg	gacgtga				2427

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 <212> DNA
 <213> Homo sapiens

<400> 11	
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<210> 12
 <211> 1536
 <212> DNA
 <213> Homo sapiens

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gtaaacgcta	tgatcctggc aggaaaagcc tactacgatg gagtggccaa gatcgggtgag 180

attgccactg ggtccccgt gtcaactgaa ctgggacatg tcctcataga gatttcaagt	240
accacaaga aactcaacga gagtcttgat gaaaatttta aaaaattcca caaagagatt	300
atccatgagc tggagaagaa gatagaactt gacgtgaaat atatgaacgc aactctaaaa	360
agataccaaa cagaacacaa gaataaatta gagtcttttg agaaatccca agctgagttg	420
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<210> 13
 <211> 2517
 <212> DNA
 <213> Homo sapiens

<400> 13	
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aaagaaaatg tgccacccaa gaacctggcc aaagctatga aggtgacttt tcagacacct	180

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 <211> 383
 <212> DNA
 <213> Homo sapiens

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gacgtaaagg	cgacacagga ggagaaccgg gagctgagga gcagggtgtga ggagctccac 180
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gaaaaagacc	aacttaccac agatctgaac tccatggaga agtccttctc cgacctcttc 360
aagcgttttg	agaaacagaa aga 383

<210> 15
 <211> 448
 <212> DNA
 <213> Homo sapiens

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ctggcccagg tgccttggt gacctggact gctcaagctc ttcccagagc ccaggaagtt	360
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aaaaccttag ttcctattcc ttagacag	448

<210> 16
 <211> 427
 <212> DNA
 <213> Homo sapiens

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ctgaact	427

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> An artificially synthesized primer sequence

<400> 17	
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<210> 18
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> An artificially synthesized primer sequence

<400> 18	
ccatcgtagt aggcctttcc tg	22

<210> 19
 <211> 4
 <212> PRT

<213> Artificial Sequence
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<223> Peptide linker sequence
<400> 19

Gly Gly Gly Ser
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<210> 20
<211> 4
<212> PRT
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<220>
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<400> 20

Ser Gly Gly Gly
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<210> 21
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<212> PRT
<213> Artificial Sequence

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Gly Gly Gly Gly Ser
1 5

<210> 22
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
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<400> 22

Ser Gly Gly Gly Gly
1 5

<210> 23
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide linker sequence

<400> 23

Gly Gly Gly Gly Gly Ser
1 5

<210> 24
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
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<400> 24

Ser Gly Gly Gly Gly Gly
1 5

<210> 25
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide linker sequence

<400> 25

Gly Gly Gly Gly Gly Gly Ser
1 5

<210> 26
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Peptide linker sequence

<400> 26

Ser Gly Gly Gly Gly Gly Gly
1 5

<210> 27
<211> 2856
<212> DNA
<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(2856)

<400> 27

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

210	215	220	
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tac acg ctg gac gtg ctg gag cgc tcc ccg cac cgg ccc atc ctg cag Tyr Thr Leu Asp Val Leu Glu Arg Ser Pro His Arg Pro Ile Leu Gln 245 250 255			768
gcg ggg ctg ccg gcc aac cag acg gcg gtg ctg ggc agc gac gtg gag Ala Gly Leu Pro Ala Asn Gln Thr Ala Val Leu Gly Ser Asp Val Glu 260 265 270			816
ttc cac tgc aag gtg tac agt gac gca cag ccc cac atc cag tgg ctc Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu 275 280 285			864
aag cac gtg gag gtg aat ggc agc aag gtg ggc ccg gac ggc aca ccc Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro 290 295 300			912
tac gtt acc gtg ctc aag tcc tgg atc agt gag agt gtg gag gcc gac Tyr Val Thr Val Leu Lys Ser Trp Ile Ser Glu Ser Val Glu Ala Asp 305 310 315 320			960
gtg cgc ctc cgc ctg gcc aat gtg tcg gag cgg gac ggg ggc gag tac Val Arg Leu Arg Leu Ala Asn Val Ser Glu Arg Asp Gly Gly Glu Tyr 325 330 335			1008
ctc tgt cga gcc acc aat ttc ata ggc gtg gcc gag aag gcc ttt tgg Leu Cys Arg Ala Thr Asn Phe Ile Gly Val Ala Glu Lys Ala Phe Trp 340 345 350			1056
ctg agc gtt cac ggg ccc cga gca gcc gag gag gag ctg gtg gag gct Leu Ser Val His Gly Pro Arg Ala Ala Glu Glu Glu Leu Val Glu Ala 355 360 365			1104
gac gag gcg ggc agt gtg tat gca ggc atc ctc agc tac ggg gtg ggc Asp Glu Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly 370 375 380			1152
ttc ttc ctg ttc atc ctg gtg gtg gcg gct gtg acg ctc tgc cgc ctg Phe Phe Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu 385 390 395 400			1200
cgc agc ccc ccc aag aaa ggc ctg ggc tcc ccc acc gtg cac aag atc Arg Ser Pro Pro Lys Lys Gly Leu Gly Ser Pro Thr Val His Lys Ile 405 410 415			1248
tcc cgc ttc ccg ctc aag cga cag gtg tcc ctg gag tcc aac gcg tcc Ser Arg Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser 420 425 430			1296
atg agc tcc aac aca cca ctg gtg cgc atc gca agg ctg tcc tca ggg Met Ser Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser Ser Gly 435 440 445			1344

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ccc aaa tgg gag ctg tct cgg gcc cgg ctg acc ctg ggc aag ccc ctt Pro Lys Trp Glu Leu Ser Arg Ala Arg Leu Thr Leu Gly Lys Pro Leu 465 470 475 480	1440
ggg gag ggc tgc ttc ggc cag gtg gtc atg gcg gag gcc atc ggc att Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile Gly Ile 485 490 495	1488
gac aag gac cgg gcc gcc aag cct gtc acc gta gcc gtg aag atg ctg Asp Lys Asp Arg Ala Ala Lys Pro Val Thr Val Ala Val Lys Met Leu 500 505 510	1536
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ctg gac tac tcc ttc gac acc tgc aag ccg ccc gag gag cag ctc acc Leu Asp Tyr Ser Phe Asp Thr Cys Lys Pro Pro Glu Glu Gln Leu Thr 580 585 590	1776
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gtg ctg gtg acc gag gac aac gtg atg aag atc gca gac ttc ggg ctg Val Leu Val Thr Glu Asp Asn Val Met Lys Ile Ala Asp Phe Gly Leu 625 630 635 640	1920
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675					680					685						
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Ile	Phe	Thr	Leu	Gly	Gly	Ser	Pro	Tyr	Pro	Gly	Ile	Pro	Val	Glu	Glu	
	690					695					700					
ctc	ttc	aag	ctg	ctg	aag	gag	ggc	cac	cgc	atg	gac	aag	ccc	gcc	aac	2160
Leu	Phe	Lys	Leu	Leu	Lys	Glu	Gly	His	Arg	Met	Asp	Lys	Pro	Ala	Asn	
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tgc	aca	cac	gac	ctg	tac	atg	atc	atg	cgg	gag	tgc	tgg	cat	gcc	gcg	2208
Cys	Thr	His	Asp	Leu	Tyr	Met	Ile	Met	Arg	Glu	Cys	Trp	His	Ala	Ala	
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ccc	tcc	cag	agg	ccc	acc	ttc	aag	cag	ctg	gtg	gag	gac	ctg	gac	cgt	2256
Pro	Ser	Gln	Arg	Pro	Thr	Phe	Lys	Gln	Leu	Val	Glu	Asp	Leu	Asp	Arg	
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gtc	ctt	acc	gtg	acg	tcc	acc	gac	gta	aag	gcg	aca	cag	gag	gag	aac	2304
Val	Leu	Thr	Val	Thr	Ser	Thr	Asp	Val	Lys	Ala	Thr	Gln	Glu	Glu	Asn	
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cgg	gag	ctg	agg	agc	agg	tgt	gag	gag	ctc	cac	ggg	aag	aac	ctg	gaa	2352
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Leu	Gly	Lys	Ile	Met	Asp	Arg	Phe	Glu	Glu	Val	Val	Tyr	Gln	Ala	Met	
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Glu	Glu	Val	Gln	Lys	Gln	Lys	Glu	Leu	Ser	Lys	Ala	Glu	Ile	Gln	Lys	
				805					810					815		
gtt	cta	aaa	gaa	aaa	gac	caa	ctt	acc	aca	gat	ctg	aac	tcc	atg	gag	2496
Val	Leu	Lys	Glu	Lys	Asp	Gln	Leu	Thr	Thr	Asp	Leu	Asn	Ser	Met	Glu	
			820					825					830			
aag	tcc	ttc	tcc	gac	ctc	ttc	aag	cgt	ttt	gag	aaa	cag	aaa	gag	gtg	2544
Lys	Ser	Phe	Ser	Asp	Leu	Phe	Lys	Arg	Phe	Glu	Lys	Gln	Lys	Glu	Val	
		835					840					845				
atc	gag	ggc	tac	cgc	aag	aac	gaa	gag	tca	ctg	aag	aag	tgc	gtg	gag	2592
Ile	Glu	Gly	Tyr	Arg	Lys	Asn	Glu	Glu	Ser	Leu	Lys	Lys	Cys	Val	Glu	
	850					855					860					
gat	tac	ctg	gca	agg	atc	acc	cag	gag	ggc	cag	agg	tac	caa	gcc	ctg	2640
Asp	Tyr	Leu	Ala	Arg	Ile	Thr	Gln	Glu	Gly	Gln	Arg	Tyr	Gln	Ala	Leu	
	865				870					875					880	
aag	gcc	cac	gcg	gag	gag	aag	ctg	cag	ctg	gca	aac	gag	gag	atc	gcc	2688
Lys	Ala	His	Ala	Glu	Glu	Lys	Leu	Gln	Leu	Ala	Asn	Glu	Glu	Ile	Ala	
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cag	gtc	cgg	agc	aag	gcc	cag	gcg	gaa	gcg	ttg	gcc	ctc	cag	gcc	agc	2736
Gln	Val	Arg	Ser	Lys	Ala	Gln	Ala	Glu	Ala	Leu	Ala	Leu	Gln	Ala	Ser	
			900					905					910			

ctg agg aag gag cag atg cgc atc cag tcg ctg gag aag aca gtg gag	2784
Leu Arg Lys Glu Gln Met Arg Ile Gln Ser Leu Glu Lys Thr Val Glu	
915 920 925	

cag aag act aaa gag aac gag gag ctg acc agg atc tgc gac gac ctc	2832
Gln Lys Thr Lys Glu Asn Glu Glu Leu Thr Arg Ile Cys Asp Asp Leu	
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atc tcc aag atg gag aag atc tga	2856
Ile Ser Lys Met Glu Lys Ile	
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Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
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Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro
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Gly Gly Gly Pro Met Gly Pro Thr Val Trp Val Lys Asp Gly Thr Gly
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Leu Val Pro Ser Glu Arg Val Leu Val Gly Pro Gln Arg Leu Gln Val
85 90 95

Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg
100 105 110

Leu Thr Gln Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala
115 120 125

Pro Ser Ser Gly Asp Asp Glu Asp Gly Glu Asp Glu Ala Glu Asp Thr
130 135 140

Gly Val Asp Thr Gly Ala Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp
145 150 155 160

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

Phe	Phe	Leu	Phe	Ile	Leu	Val	Val	Ala	Ala	Val	Thr	Leu	Cys	Arg	Leu	385	390	395	400
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Ser	Arg	Phe	Pro	Leu	Lys	Arg	Gln	Val	Ser	Leu	Glu	Ser	Asn	Ala	Ser	420	425	430	
Met	Ser	Ser	Asn	Thr	Pro	Leu	Val	Arg	Ile	Ala	Arg	Leu	Ser	Ser	Gly	435	440	445	
Glu	Gly	Pro	Thr	Leu	Ala	Asn	Val	Ser	Glu	Leu	Glu	Leu	Pro	Ala	Asp	450	455	460	
Pro	Lys	Trp	Glu	Leu	Ser	Arg	Ala	Arg	Leu	Thr	Leu	Gly	Lys	Pro	Leu	465	470	475	480
Gly	Glu	Gly	Cys	Phe	Gly	Gln	Val	Val	Met	Ala	Glu	Ala	Ile	Gly	Ile	485	490	495	
Asp	Lys	Asp	Arg	Ala	Ala	Lys	Pro	Val	Thr	Val	Ala	Val	Lys	Met	Leu	500	505	510	
Lys	Asp	Asp	Ala	Thr	Asp	Lys	Asp	Leu	Ser	Asp	Leu	Val	Ser	Glu	Met	515	520	525	
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Ala	Lys	Gly	Asn	Leu	Arg	Glu	Phe	Leu	Arg	Ala	Arg	Arg	Pro	Pro	Gly	565	570	575	
Leu	Asp	Tyr	Ser	Phe	Asp	Thr	Cys	Lys	Pro	Pro	Glu	Glu	Gln	Leu	Thr	580	585	590	
Phe	Lys	Asp	Leu	Val	Ser	Cys	Ala	Tyr	Gln	Val	Ala	Arg	Gly	Met	Glu	595	600	605	
Tyr	Leu	Ala	Ser	Gln	Lys	Cys	Ile	His	Arg	Asp	Leu	Ala	Ala	Arg	Asn	610	615	620	

Val Leu Val Thr Glu Asp Asn Val Met Lys Ile Ala Asp Phe Gly Leu
625 630 635 640

Ala Arg Asp Val His Asn Leu Asp Tyr Tyr Lys Lys Thr Thr Asn Gly
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Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val
660 665 670

Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu
675 680 685

Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu
690 695 700

Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn
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Cys Thr His Asp Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Ala
725 730 735

Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg
740 745 750

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

Arg Glu Leu Arg Ser Arg Cys Glu Glu Leu His Gly Lys Asn Leu Glu
770 775 780

Leu Gly Lys Ile Met Asp Arg Phe Glu Glu Val Val Tyr Gln Ala Met
785 790 795 800

Glu Glu Val Gln Lys Gln Lys Glu Leu Ser Lys Ala Glu Ile Gln Lys
805 810 815

Val Leu Lys Glu Lys Asp Gln Leu Thr Thr Asp Leu Asn Ser Met Glu
820 825 830

Lys Ser Phe Ser Asp Leu Phe Lys Arg Phe Glu Lys Gln Lys Glu Val
835 840 845

Ile Glu Gly Tyr Arg Lys Asn Glu Glu Ser Leu Lys Lys Cys Val Glu
850 855 860

Asp Tyr Leu Ala Arg Ile Thr Gln Glu Gly Gln Arg Tyr Gln Ala Leu
865 870 875 880

Lys Ala His Ala Glu Glu Lys Leu Gln Leu Ala Asn Glu Glu Ile Ala
885 890 895

Gln Val Arg Ser Lys Ala Gln Ala Glu Ala Leu Ala Leu Gln Ala Ser
900 905 910

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Val Ala Gly Ala Ser Ser Glu Ser Leu Gly Thr Glu Gln Arg Val Val
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Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
35 40 45
ttg gtc ttc ggc agc ggg gat gct gtg gag ctg agc tgt ccc ccg ccc 192
Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro
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ggg ggt ggt ccc atg ggg ccc act gtc tgg gtc aag gat ggc aca ggg 240
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65 70 75 80

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cca tcc tcg gga gat gac gaa gac ggg gag gac gag gct gag gac aca Pro Ser Ser Gly Asp Asp Glu Asp Gly Glu Asp Glu Ala Glu Asp Thr 130 135 140	432
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agg gag ttc cgc ggc gag cac cgc att gga ggc atc aag ctg cgg cat Arg Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His 195 200 205	624
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gcg ggg ctg ccg gcc aac cag acg gcg gtg ctg ggc agc gac gtg gag Ala Gly Leu Pro Ala Asn Gln Thr Ala Val Leu Gly Ser Asp Val Glu 260 265 270	816
ttc cac tgc aag gtg tac agt gac gca cag ccc cac atc cag tgg ctc Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu 275 280 285	864
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tac gtt acc gtg ctc aag tcc tgg atc agt gag agt gtg gag gcc gac	960

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Val	Arg	Leu	Arg	Leu	Ala	Asn	Val	Ser	Glu	Arg	Asp	Gly	Gly	Glu	Tyr	
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ctc	tgt	cga	gcc	acc	aat	ttc	ata	ggc	gtg	gcc	gag	aag	gcc	ttt	tgg	1056
Leu	Cys	Arg	Ala	Thr	Asn	Phe	Ile	Gly	Val	Ala	Glu	Lys	Ala	Phe	Trp	
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Phe	Phe	Leu	Phe	Ile	Leu	Val	Val	Ala	Ala	Val	Thr	Leu	Cys	Arg	Leu	
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cgc	agc	ccc	ccc	aag	aaa	ggc	ctg	ggc	tcc	ccc	acc	gtg	cac	aag	atc	1248
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Ser	Arg	Phe	Pro	Leu	Lys	Arg	Gln	Val	Ser	Leu	Glu	Ser	Asn	Ala	Ser	
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Met	Ser	Ser	Asn	Thr	Pro	Leu	Val	Arg	Ile	Ala	Arg	Leu	Ser	Ser	Gly	
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Glu	Gly	Pro	Thr	Leu	Ala	Asn	Val	Ser	Glu	Leu	Glu	Leu	Pro	Ala	Asp	
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Asp	Lys	Asp	Arg	Ala	Ala	Lys	Pro	Val	Thr	Val	Ala	Val	Lys	Met	Leu	
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Lys	Asp	Asp	Ala	Thr	Asp	Lys	Asp	Leu	Ser	Asp	Leu	Val	Ser	Glu	Met	
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gag	atg	atg	aag	atg	atc	ggg	aaa	cac	aaa	aac	atc	atc	aac	ctg	ctg	1632
Glu	Met	Met	Lys	Met	Ile	Gly	Lys	His	Lys	Asn	Ile	Ile	Asn	Leu	Leu	
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ccc tcc cag agg ccc acc ttc aag cag ctg gtg gag gac ctg gac cgt Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg 740 745 750	2256
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cca ccc gcc tat gcc cct ccc cct gcc gtc ccc ggc cat cct gcc ccc	2352

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Gln	Ser	Ala	Glu	Val	Trp	Gly	Gly	Pro	Ser	Gly	Pro	Gly	Ala	Leu	Ala	800	
785					790					795							
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Asp	Leu	Asp	Cys	Ser	Ser	Ser	Ser	Gln	Ser	Pro	Gly	Ser	Ser	Glu	Asn	815	
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Ser	Glu	Thr	Leu	Glu	Asp	Pro	Cys	Arg	Thr	Glu	Ser	Gln	His	Lys	Ala	860	
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Glu	Thr	Pro	His	Gly	Ala	Glu	Glu	Glu	Cys	Lys	Ala	Glu	Thr	Pro	His	880	
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Gly	Ala	Glu	Glu	Glu	Cys	Arg	His	Gly	Gly	Val	Cys	Ala	Pro	Ala	Ala	895	
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Ala	Pro	Leu	Gln	Gly	Leu	Pro	Gly	Glu	Ala	Leu	Gly	Cys	Pro	Ala	Gly	925	
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gtg	ggc	acc	ccc	gtg	cca	gca	gat	ggc	act	cag	acc	ctt	acc	tgt	gca	2832	
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cac	acc	tct	gct	cct	gag	agc	aca	gcc	cca	acc	aac	cac	ctg	gtg	gct	2880	
His	Thr	Ser	Ala	Pro	Glu	Ser	Thr	Ala	Pro	Thr	Asn	His	Leu	Val	Ala	960	
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Gly	Arg	Ala	Met	Thr	Leu	Ser	Pro	Gln	Glu	Glu	Val	Ala	Ala	Gly	Gln	975	
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Met	Ala	Ser	Ser	Ser	Arg	Ser	Gly	Pro	Val	Lys	Leu	Glu	Phe	Asp	Val	990	
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Ser	Asp	Gly	Ala	Thr	Ser	Lys	Arg	Ala	Pro	Pro	Pro	Pro	Arg	Arg	Leu	Gly	1005
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cag Gln	caa Gln	aag Lys	gcc Ala	ccg Pro	cag Gln	gag Glu	gtg Val	gag Glu	gag Glu	gac Asp	gac Asp	ggg Gly	agg Arg	agc Ser	3114
1025						1030					1035				
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1100						1105					1110				
ctg Leu	cat His	tca Ser	gcc Ala	tca Ser	gcg Ala	gag Glu	gac Asp	acg Thr	cct Pro	gtg Val	gtg Val	cag Gln	ttg Leu	gca Ala	3384
1115						1120					1125				
gcc Ala	gag Glu	acc Thr	cca Pro	aca Thr	gca Ala	gag Glu	agc Ser	aag Lys	gag Glu	aga Arg	gcc Ala	ttg Leu	aac Asn	tct Ser	3429
1130						1135					1140				
gcc Ala	agc Ser	acc Thr	tcg Ser	ctt Leu	ccc Pro	aca Thr	agc Ser	tgt Cys	cca Pro	ggc Gly	agt Ser	gag Glu	cca Pro	gtg Val	3474
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1160						1165					1170				
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1175						1180					1185				
gat Asp	tac Tyr	ctg Leu	gag Glu	cag Gln	ttt Phe	gga Gly	act Thr	tcc Ser	tcg Ser	ttt Phe	aag Lys	gag Glu	tcg Ser	gcc Ala	3609
1190						1195					1200				
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1205						1210					1215				
gac	agt	cct	ggg	aga	cca	gtg	ccc	gtg	gcc	acc	gag	acc	agc	agc	3699

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Met	His	Gly	Ala	Asn	Glu	Thr	Pro	Ser	Gly	Arg	Pro	Arg	Glu	Ala	
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Lys	Leu	Val	Glu	Phe	Asp	Phe	Leu	Gly	Ala	Leu	Asp	Ile	Pro	Val	
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Pro	Gly	Pro	Pro	Pro	Gly	Val	Pro	Ala	Pro	Gly	Gly	Pro	Pro	Leu	
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Ser	Thr	Gly	Pro	Ile	Val	Asp	Leu	Leu	Gln	Tyr	Ser	Gln	Lys	Asp	
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Lys	Ile	Met	Asp	Arg	Phe	Glu	Glu	Val	Val	Tyr	Gln	Ala	Met	Glu	
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gaa	gtt	cag	aag	cag	aag	gaa	ctt	tcc	aaa	gct	gaa	atc	cag	aaa	4059
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Val	Leu	Lys	Glu	Lys	Asp	Gln	Leu	Thr	Thr	Asp	Leu	Asn	Ser	Met	
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gag	aag	tcc	ttc	tcc	gac	ctc	ttc	aag	cgt	ttt	gag	aaa	cag	aaa	4149
Glu	Lys	Ser	Phe	Ser	Asp	Leu	Phe	Lys	Arg	Phe	Glu	Lys	Gln	Lys	
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Glu	Val	Ile	Glu	Gly	Tyr	Arg	Lys	Asn	Glu	Glu	Ser	Leu	Lys	Lys	
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tgc	gtg	gag	gat	tac	ctg	gca	agg	atc	acc	cag	gag	ggc	cag	agg	4239
Cys	Val	Glu	Asp	Tyr	Leu	Ala	Arg	Ile	Thr	Gln	Glu	Gly	Gln	Arg	
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Tyr	Gln	Ala	Leu	Lys	Ala	His	Ala	Glu	Glu	Lys	Leu	Gln	Leu	Ala	
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Asn	Glu	Glu	Ile	Ala	Gln	Val	Arg	Ser	Lys	Ala	Gln	Ala	Glu	Ala	
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Leu Ala	Leu Gln Ala Ser Leu	Arg Lys Glu Gln Met	Arg Ile Gln	
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tcg ctg	gag aag aca gtg gag	cag aag act aaa gag	aac gag gag	4419
Ser Leu	Glu Lys Thr Val Glu	Gln Lys Thr Lys Glu	Asn Glu Glu	
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ctg acc	agg atc tgc gac gac	ctc atc tcc aag atg	gag aag atc	4464
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Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro
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Gly Gly Gly Pro Met Gly Pro Thr Val Trp Val Lys Asp Gly Thr Gly
65 70 75 80

Leu Val Pro Ser Glu Arg Val Leu Val Gly Pro Gln Arg Leu Gln Val
85 90 95

Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg
100 105 110

Leu Thr Gln Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala
115 120 125

Pro Ser Ser Gly Asp Asp Glu Asp Gly Glu Asp Glu Ala Glu Asp Thr
130 135 140

Gly Val Asp Thr Gly Ala Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp
145 150 155 160

Lys Lys Leu Leu Ala Val Pro Ala Ala Asn Thr Val Arg Phe Arg Cys
165 170 175

Pro Ala Ala Gly Asn Pro Thr Pro Ser Ile Ser Trp Leu Lys Asn Gly
180 185 190

Arg Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His
195 200 205

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

Asn Tyr Thr Cys Val Val Glu Asn Lys Phe Gly Ser Ile Arg Gln Thr
225 230 235 240

Tyr Thr Leu Asp Val Leu Glu Arg Ser Pro His Arg Pro Ile Leu Gln
245 250 255

Ala Gly Leu Pro Ala Asn Gln Thr Ala Val Leu Gly Ser Asp Val Glu
260 265 270

Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu
275 280 285

Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
290 295 300

Tyr Val Thr Val Leu Lys Ser Trp Ile Ser Glu Ser Val Glu Ala Asp
305 310 315 320

Val Arg Leu Arg Leu Ala Asn Val Ser Glu Arg Asp Gly Gly Glu Tyr
325 330 335

Leu Cys Arg Ala Thr Asn Phe Ile Gly Val Ala Glu Lys Ala Phe Trp
340 345 350

Leu Ser Val His Gly Pro Arg Ala Ala Glu Glu Glu Leu Val Glu Ala
355 360 365

Asp Glu Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly

370																			
Phe	Phe	Leu	Phe	Ile	Leu	Val	Val	Ala	Ala	Val	Thr	Leu	Cys	Arg	Leu				
385					390					395					400				
Arg	Ser	Pro	Pro	Lys	Lys	Gly	Leu	Gly	Ser	Pro	Thr	Val	His	Lys	Ile				
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Ser	Arg	Phe	Pro	Leu	Lys	Arg	Gln	Val	Ser	Leu	Glu	Ser	Asn	Ala	Ser				
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Glu	Gly	Pro	Thr	Leu	Ala	Asn	Val	Ser	Glu	Leu	Glu	Leu	Pro	Ala	Asp				
	450					455					460								
Pro	Lys	Trp	Glu	Leu	Ser	Arg	Ala	Arg	Leu	Thr	Leu	Gly	Lys	Pro	Leu				
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Gly	Glu	Gly	Cys	Phe	Gly	Gln	Val	Val	Met	Ala	Glu	Ala	Ile	Gly	Ile				
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Asp	Lys	Asp	Arg	Ala	Ala	Lys	Pro	Val	Thr	Val	Ala	Val	Lys	Met	Leu				
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Lys	Asp	Asp	Ala	Thr	Asp	Lys	Asp	Leu	Ser	Asp	Leu	Val	Ser	Glu	Met				
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Gly	Ala	Cys	Thr	Gln	Gly	Gly	Pro	Leu	Tyr	Val	Leu	Val	Glu	Tyr	Ala				
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Leu	Asp	Tyr	Ser	Phe	Asp	Thr	Cys	Lys	Pro	Pro	Glu	Glu	Gln	Leu	Thr				
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Phe	Lys	Asp	Leu	Val	Ser	Cys	Ala	Tyr	Gln	Val	Ala	Arg	Gly	Met	Glu				
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Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn
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Val Leu Val Thr Glu Asp Asn Val Met Lys Ile Ala Asp Phe Gly Leu
625 630 635 640

Ala Arg Asp Val His Asn Leu Asp Tyr Tyr Lys Lys Thr Thr Asn Gly
645 650 655

Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val
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Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu
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Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu
690 695 700

Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn
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Cys Thr His Asp Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Ala
725 730 735

Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg
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Val Leu Thr Val Thr Ser Thr Asp Val Ser Ala Gly Ser Gly Leu Val
755 760 765

Pro Pro Ala Tyr Ala Pro Pro Pro Ala Val Pro Gly His Pro Ala Pro
770 775 780

Gln Ser Ala Glu Val Trp Gly Gly Pro Ser Gly Pro Gly Ala Leu Ala
785 790 795 800

Asp Leu Asp Cys Ser Ser Ser Ser Gln Ser Pro Gly Ser Ser Glu Asn
805 810 815

Gln Met Val Ser Pro Gly Lys Val Ser Gly Ser Pro Glu Gln Ala Val
820 825 830

Glu Glu Asn Leu Ser Ser Tyr Ser Leu Asp Arg Arg Val Thr Pro Ala

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

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Cys	Val	Glu	Asp	Tyr	Leu	Ala	Arg	Ile	Thr	Gln	Glu	Gly	Gln	Arg
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Tyr	Gln	Ala	Leu	Lys	Ala	His	Ala	Glu	Glu	Lys	Leu	Gln	Leu	Ala
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Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln	
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Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg	
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Leu Thr Gln Arg Val Leu Cys His Phe Ser Val Arg Val Thr Asp Ala	
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cca tcc tcg gga gat gac gaa gac ggg gag gac gag gct gag gac aca	432
Pro Ser Ser Gly Asp Asp Glu Asp Gly Glu Asp Glu Ala Glu Asp Thr	
130 135 140	
ggt gtg gac aca ggg gcc cct tac tgg aca cgg ccc gag cgg atg gac	480
Gly Val Asp Thr Gly Ala Pro Tyr Trp Thr Arg Pro Glu Arg Met Asp	
145 150 155 160	
aag aag ctg ctg gcc gtg ccg gcc gcc aac acc gtc cgc ttc cgc tgc	528
Lys Lys Leu Leu Ala Val Pro Ala Ala Asn Thr Val Arg Phe Arg Cys	
165 170 175	
cca gcc gct ggc aac ccc act ccc tcc atc tcc tgg ctg aag aac ggc	576
Pro Ala Ala Gly Asn Pro Thr Pro Ser Ile Ser Trp Leu Lys Asn Gly	
180 185 190	
agg gag ttc cgc ggc gag cac cgc att gga ggc atc aag ctg cgg cat	624
Arg Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His	

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

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

660										665					670					
tac	act	cac	cag	agt	gac	gtc	tgg	tcc	ttt	ggg	gtc	ctg	ctc	tgg	gag	2064				
Tyr	Thr	His	Gln	Ser	Asp	Val	Trp	Ser	Phe	Gly	Val	Leu	Leu	Trp	Glu					
		675					680					685								
atc	ttc	acg	ctg	ggg	ggc	tcc	ccg	tac	ccc	ggc	atc	cct	gtg	gag	gag	2112				
Ile	Phe	Thr	Leu	Gly	Gly	Ser	Pro	Tyr	Pro	Gly	Ile	Pro	Val	Glu	Glu					
	690					695					700									
ctc	ttc	aag	ctg	ctg	aag	gag	ggc	cac	cgc	atg	gac	aag	ccc	gcc	aac	2160				
Leu	Phe	Lys	Leu	Leu	Lys	Glu	Gly	His	Arg	Met	Asp	Lys	Pro	Ala	Asn					
705					710					715					720					
tgc	aca	cac	gac	ctg	tac	atg	atc	atg	cgg	gag	tgc	tgg	cat	gcc	gcg	2208				
Cys	Thr	His	Asp	Leu	Tyr	Met	Ile	Met	Arg	Glu	Cys	Trp	His	Ala	Ala					
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ccc	tcc	cag	agg	ccc	acc	ttc	aag	cag	ctg	gtg	gag	gac	ctg	gac	cgt	2256				
Pro	Ser	Gln	Arg	Pro	Thr	Phe	Lys	Gln	Leu	Val	Glu	Asp	Leu	Asp	Arg					
			740					745					750							
gtc	ctt	acc	gtg	acg	tcc	acc	gac	aat	gtt	atg	gaa	cag	ttc	aat	cct	2304				
Val	Leu	Thr	Val	Thr	Ser	Thr	Asp	Asn	Val	Met	Glu	Gln	Phe	Asn	Pro					
		755					760					765								
ggg	ctg	cga	aat	tta	ata	aac	ctg	ggg	aaa	aat	tat	gag	aaa	gct	gta	2352				
Gly	Leu	Arg	Asn	Leu	Ile	Asn	Leu	Gly	Lys	Asn	Tyr	Glu	Lys	Ala	Val					
	770					775					780									
aac	gct	atg	atc	ctg	gca	gga	aaa	gcc	tac	tac	gat	gga	gtg	gcc	aag	2400				
Asn	Ala	Met	Ile	Leu	Ala	Gly	Lys	Ala	Tyr	Tyr	Asp	Gly	Val	Ala	Lys					
785					790					795					800					
atc	ggg	gag	att	gcc	act	ggg	tcc	ccc	gtg	tca	act	gaa	ctg	gga	cat	2448				
Ile	Gly	Glu	Ile	Ala	Thr	Gly	Ser	Pro	Val	Ser	Thr	Glu	Leu	Gly	His					
				805					810					815						
gtc	ctc	ata	gag	att	tca	agt	acc	cac	aag	aaa	ctc	aac	gag	agt	ctt	2496				
Val	Leu	Ile	Glu	Ile	Ser	Ser	Thr	His	Lys	Lys	Leu	Asn	Glu	Ser	Leu					
			820					825					830							
gat	gaa	aat	ttt	aaa	aaa	ttc	cac	aaa	gag	att	atc	cat	gag	ctg	gag	2544				
Asp	Glu	Asn	Phe	Lys	Lys	Phe	His	Lys	Glu	Ile	Ile	His	Glu	Leu	Glu					
		835					840					845								
aag	aag	ata	gaa	ctt	gac	gtg	aaa	tat	atg	aac	gca	act	cta	aaa	aga	2592				
Lys	Lys	Ile	Glu	Leu	Asp	Val	Lys	Tyr	Met	Asn	Ala	Thr	Leu	Lys	Arg					
	850					855					860									
tac	caa	aca	gaa	cac	aag	aat	aaa	tta	gag	tct	ttg	gag	aaa	tcc	caa	2640				
Tyr	Gln	Thr	Glu	His	Lys	Asn	Lys	Leu	Glu	Ser	Leu	Glu	Lys	Ser	Gln					
865					870					875					880					
gct	gag	ttg	aag	aag	atc	aga	agg	aaa	agc	caa	gga	agc	cga	aac	gca	2688				
Ala	Glu	Leu	Lys	Lys	Ile	Arg	Arg	Lys	Ser	Gln	Gly	Ser	Arg	Asn	Ala					
				885					890					895						

ctc aaa tat gaa cac aaa gaa att gag tat gtg gag acc gtt act tct Leu Lys Tyr Glu His Lys Glu Ile Glu Tyr Val Glu Thr Val Thr Ser 900 905 910	2736
cgt cag agt gaa atc cag aaa ttc att gca gat ggt tgc aaa gag gct Arg Gln Ser Glu Ile Gln Lys Phe Ile Ala Asp Gly Cys Lys Glu Ala 915 920 925	2784
ctg ctt gaa gag aag agg cgc ttc tgc ttt ctg gtt gat aag cac tgt Leu Leu Glu Glu Lys Arg Arg Phe Cys Phe Leu Val Asp Lys His Cys 930 935 940	2832
ggc ttt gca aac cac ata cat tat tat cac tta cag tct gca gaa cta Gly Phe Ala Asn His Ile His Tyr Tyr His Leu Gln Ser Ala Glu Leu 945 950 955 960	2880
ctg aat tcc aag ctg cct cgg tgg cag gag acc tgt gtt gat gcc atc Leu Asn Ser Lys Leu Pro Arg Trp Gln Glu Thr Cys Val Asp Ala Ile 965 970 975	2928
aaa gtg cca gag aaa atc atg aat atg atc gaa gaa ata aag acc cca Lys Val Pro Glu Lys Ile Met Asn Met Ile Glu Glu Ile Lys Thr Pro 980 985 990	2976
gcc tct acc ccc gtg tct gga act cct cag gct tca ccc atg atc gag Ala Ser Thr Pro Val Ser Gly Thr Pro Gln Ala Ser Pro Met Ile Glu 995 1000 1005	3024
aga agc aat gtg gtt agg aaa gat tac gac acc ctt tct aaa tgc Arg Ser Asn Val Val Arg Lys Asp Tyr Asp Thr Leu Ser Lys Cys 1010 1015 1020	3069
tca cca aag atg ccc ccc gct cct tca ggc aga gca tat acc agt Ser Pro Lys Met Pro Pro Ala Pro Ser Gly Arg Ala Tyr Thr Ser 1025 1030 1035	3114
ccc ttg atc gat atg ttt aat aac cca gcc acg gct gcc ccg aat Pro Leu Ile Asp Met Phe Asn Asn Pro Ala Thr Ala Ala Pro Asn 1040 1045 1050	3159
tca caa agg gta aat aat tca aca ggt act tcc gaa gat ccc agt Ser Gln Arg Val Asn Asn Ser Thr Gly Thr Ser Glu Asp Pro Ser 1055 1060 1065	3204
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aag cag aaa gtg aag acc atc ttc ccg cac act gcg ggc tcc aac Lys Gln Lys Val Lys Thr Ile Phe Pro His Thr Ala Gly Ser Asn 1085 1090 1095	3294
aag acc tta ctc agc ttt gca cag gga gat gtc atc acg ctg ctc Lys Thr Leu Leu Ser Phe Ala Gln Gly Asp Val Ile Thr Leu Leu 1100 1105 1110	3339
atc ccc gag gag aag gat ggc tgg ctc tat gga gaa cac gac gtg Ile Pro Glu Glu Lys Asp Gly Trp Leu Tyr Gly Glu His Asp Val 1115 1120 1125	3384

	1115						1120						1125						
tcc	aag	gcg	agg	ggc	tgg	ttc	cgc	tcg	tcg	tac	acg	aag	ttg	ctg	3429				
Ser	Lys	Ala	Arg	Gly	Trp	Phe	Pro	Ser	Ser	Tyr	Thr	Lys	Leu	Leu					
	1130						1135						1140						
gaa	gaa	aat	gag	aca	gaa	gca	gtg	acc	gtg	ccc	acg	cca	agc	ccc	3474				
Glu	Glu	Asn	Glu	Thr	Glu	Ala	Val	Thr	Val	Pro	Thr	Pro	Ser	Pro					
	1145						1150						1155						
aca	cca	gtg	aga	agc	atc	agc	acc	gtg	aac	ttg	tct	gag	aat	agc	3519				
Thr	Pro	Val	Arg	Ser	Ile	Ser	Thr	Val	Asn	Leu	Ser	Glu	Asn	Ser					
	1160						1165						1170						
agt	gtt	gtc	atc	ccc	cca	ccc	gac	tac	ttg	gaa	tgc	ttg	tcc	atg	3564				
Ser	Val	Val	Ile	Pro	Pro	Pro	Asp	Tyr	Leu	Glu	Cys	Leu	Ser	Met					
	1175						1180						1185						
ggg	gca	gct	gcc	gac	agg	aga	gca	gat	tcg	gcc	agg	acg	aca	tcc	3609				
Gly	Ala	Ala	Ala	Asp	Arg	Arg	Ala	Asp	Ser	Ala	Arg	Thr	Thr	Ser					
	1190						1195						1200						
acc	ttt	aag	gcc	cca	gcg	tcc	aag	ccc	gag	acc	gcg	gct	cct	aac	3654				
Thr	Phe	Lys	Ala	Pro	Ala	Ser	Lys	Pro	Glu	Thr	Ala	Ala	Pro	Asn					
	1205						1210						1215						
gat	gcc	aac	ggg	act	gca	aag	cgc	cct	ttt	ctc	agc	gga	gaa	aac	3699				
Asp	Ala	Asn	Gly	Thr	Ala	Lys	Pro	Pro	Phe	Leu	Ser	Gly	Glu	Asn					
	1220						1225						1230						
ccc	ttt	gcc	act	gtg	aaa	ctc	cgc	cgc	act	gtg	acg	aat	gat	cgc	3744				
Pro	Phe	Ala	Thr	Val	Lys	Leu	Arg	Pro	Thr	Val	Thr	Asn	Asp	Arg					
	1235						1240						1245						
tcg	gca	ccc	atc	att	cga	tga									3765				
Ser	Ala	Pro	Ile	Ile	Arg														
	1250																		

<400> 32

Met Gly Ala Pro Ala Cys Ala Leu Ala Leu Cys Val Ala Val Ala Ile
1 5 10 15

Val Ala Gly Ala Ser Ser Glu Ser Leu Gly Thr Glu Gln Arg Val Val
20 25 30

Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
35 40 45

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

Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
290 295 300

Tyr Val Thr Val Leu Lys Ser Trp Ile Ser Glu Ser Val Glu Ala Asp
305 310 315 320

Val Arg Leu Arg Leu Ala Asn Val Ser Glu Arg Asp Gly Gly Glu Tyr
325 330 335

Leu Cys Arg Ala Thr Asn Phe Ile Gly Val Ala Glu Lys Ala Phe Trp
340 345 350

Leu Ser Val His Gly Pro Arg Ala Ala Glu Glu Glu Leu Val Glu Ala
355 360 365

Asp Glu Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly
370 375 380

Phe Phe Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu
385 390 395 400

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

Ser Arg Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser
420 425 430

Met Ser Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser Ser Gly
435 440 445

Glu Gly Pro Thr Leu Ala Asn Val Ser Glu Leu Glu Leu Pro Ala Asp
450 455 460

Pro Lys Trp Glu Leu Ser Arg Ala Arg Leu Thr Leu Gly Lys Pro Leu
465 470 475 480

Gly Glu Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile Gly Ile
485 490 495

Asp Lys Asp Arg Ala Ala Lys Pro Val Thr Val Ala Val Lys Met Leu
500 505 510

Lys Asp Asp Ala Thr Asp Lys Asp Leu Ser Asp Leu Val Ser Glu Met
 515 520 525

Glu Met Met Lys Met Ile Gly Lys His Lys Asn Ile Ile Asn Leu Leu
 530 535 540

Gly Ala Cys Thr Gln Gly Gly Pro Leu Tyr Val Leu Val Glu Tyr Ala
 545 550 555 560

Ala Lys Gly Asn Leu Arg Glu Phe Leu Arg Ala Arg Arg Pro Pro Gly
 565 570 575

Leu Asp Tyr Ser Phe Asp Thr Cys Lys Pro Pro Glu Glu Gln Leu Thr
 580 585 590

Phe Lys Asp Leu Val Ser Cys Ala Tyr Gln Val Ala Arg Gly Met Glu
 595 600 605

Tyr Leu Ala Ser Gln Lys Cys Ile His Arg Asp Leu Ala Ala Arg Asn
 610 615 620

Val Leu Val Thr Glu Asp Asn Val Met Lys Ile Ala Asp Phe Gly Leu
 625 630 635 640

Ala Arg Asp Val His Asn Leu Asp Tyr Tyr Lys Lys Thr Thr Asn Gly
 645 650 655

Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val
 660 665 670

Tyr Thr His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu
 675 680 685

Ile Phe Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu
 690 695 700

Leu Phe Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn
 705 710 715 720

Cys Thr His Asp Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Ala
 725 730 735

Pro Ser Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg
 740 745 750

Val	Leu	Thr	Val	Thr	Ser	Thr	Asp	Asn	Val	Met	Glu	Gln	Phe	Asn	Pro	755	760	765	
Gly	Leu	Arg	Asn	Leu	Ile	Asn	Leu	Gly	Lys	Asn	Tyr	Glu	Lys	Ala	Val	770	775	780	
Asn	Ala	Met	Ile	Leu	Ala	Gly	Lys	Ala	Tyr	Tyr	Asp	Gly	Val	Ala	Lys	785	790	795	800
Ile	Gly	Glu	Ile	Ala	Thr	Gly	Ser	Pro	Val	Ser	Thr	Glu	Leu	Gly	His	805	810	815	
Val	Leu	Ile	Glu	Ile	Ser	Ser	Thr	His	Lys	Lys	Leu	Asn	Glu	Ser	Leu	820	825	830	
Asp	Glu	Asn	Phe	Lys	Lys	Phe	His	Lys	Glu	Ile	Ile	His	Glu	Leu	Glu	835	840	845	
Lys	Lys	Ile	Glu	Leu	Asp	Val	Lys	Tyr	Met	Asn	Ala	Thr	Leu	Lys	Arg	850	855	860	
Tyr	Gln	Thr	Glu	His	Lys	Asn	Lys	Leu	Glu	Ser	Leu	Glu	Lys	Ser	Gln	865	870	875	880
Ala	Glu	Leu	Lys	Lys	Ile	Arg	Arg	Lys	Ser	Gln	Gly	Ser	Arg	Asn	Ala	885	890	895	
Leu	Lys	Tyr	Glu	His	Lys	Glu	Ile	Glu	Tyr	Val	Glu	Thr	Val	Thr	Ser	900	905	910	
Arg	Gln	Ser	Glu	Ile	Gln	Lys	Phe	Ile	Ala	Asp	Gly	Cys	Lys	Glu	Ala	915	920	925	
Leu	Leu	Glu	Glu	Lys	Arg	Arg	Phe	Cys	Phe	Leu	Val	Asp	Lys	His	Cys	930	935	940	
Gly	Phe	Ala	Asn	His	Ile	His	Tyr	Tyr	His	Leu	Gln	Ser	Ala	Glu	Leu	945	950	955	960
Leu	Asn	Ser	Lys	Leu	Pro	Arg	Trp	Gln	Glu	Thr	Cys	Val	Asp	Ala	Ile	965	970	975	

Lys Val Pro Glu Lys Ile Met Asn Met Ile Glu Glu Ile Lys Thr Pro
980 985 990

Ala Ser Thr Pro Val Ser Gly Thr Pro Gln Ala Ser Pro Met Ile Glu
995 1000 1005

Arg Ser Asn Val Val Arg Lys Asp Tyr Asp Thr Leu Ser Lys Cys
1010 1015 1020

Ser Pro Lys Met Pro Pro Ala Pro Ser Gly Arg Ala Tyr Thr Ser
1025 1030 1035

Pro Leu Ile Asp Met Phe Asn Asn Pro Ala Thr Ala Ala Pro Asn
1040 1045 1050

Ser Gln Arg Val Asn Asn Ser Thr Gly Thr Ser Glu Asp Pro Ser
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Leu Gln Arg Ser Val Ser Val Ala Thr Gly Leu Asn Met Met Lys
1070 1075 1080

Lys Gln Lys Val Lys Thr Ile Phe Pro His Thr Ala Gly Ser Asn
1085 1090 1095

Lys Thr Leu Leu Ser Phe Ala Gln Gly Asp Val Ile Thr Leu Leu
1100 1105 1110

Ile Pro Glu Glu Lys Asp Gly Trp Leu Tyr Gly Glu His Asp Val
1115 1120 1125

Ser Lys Ala Arg Gly Trp Phe Pro Ser Ser Tyr Thr Lys Leu Leu
1130 1135 1140

Glu Glu Asn Glu Thr Glu Ala Val Thr Val Pro Thr Pro Ser Pro
1145 1150 1155

Thr Pro Val Arg Ser Ile Ser Thr Val Asn Leu Ser Glu Asn Ser
1160 1165 1170

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

ggg cga gcg gca gaa gtc ccg ggc cca gag ccc ggc cag cag gag cag 144
 Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
 35 40 45

ttg gtc ttc ggc agc ggg gat gct gtg gag ctg agc tgt ccc ccg ccc 192
 Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro
 50 55 60

ggg ggt ggt ccc atg ggg ccc act gtc tgg gtc aag gat ggc aca ggg 240
 Gly Gly Gly Pro Met Gly Pro Thr Val Trp Val Lys Asp Gly Thr Gly
 65 70 75 80

ctg gtg ccc tcg gag cgt gtc ctg gtg ggg ccc cag cgg ctg cag gtg 288
 Leu Val Pro Ser Glu Arg Val Leu Val Gly Pro Gln Arg Leu Gln Val
 85 90 95

ctg aat gcc tcc cac gag gac tcc ggg gcc tac agc tgc cgg cag cgg 336
 Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg
 100 105 110

ctc acg cag cgc gta ctg tgc cac ttc agt gtg cgg gtg aca gac gct 384

Leu	Thr	Gln	Arg	Val	Leu	Cys	His	Phe	Ser	Val	Arg	Val	Thr	Asp	Ala		
		115					120					125					
cca	tcc	tcg	gga	gat	gac	gaa	gac	ggg	gag	gac	gag	gct	gag	gac	aca		432
Pro	Ser	Ser	Gly	Asp	Asp	Glu	Asp	Gly	Glu	Asp	Glu	Ala	Glu	Asp	Thr		
	130					135					140						
ggt	gtg	gac	aca	ggg	gcc	cct	tac	tgg	aca	cgg	ccc	gag	cgg	atg	gac		480
Gly	Val	Asp	Thr	Gly	Ala	Pro	Tyr	Trp	Thr	Arg	Pro	Glu	Arg	Met	Asp		
145					150					155					160		
aag	aag	ctg	ctg	gcc	gtg	ccg	gcc	gcc	aac	acc	gtc	cgc	ttc	cgc	tgc		528
Lys	Lys	Leu	Leu	Ala	Val	Pro	Ala	Ala	Asn	Thr	Val	Arg	Phe	Arg	Cys		
				165					170						175		
cca	gcc	gct	ggc	aac	ccc	act	ccc	tcc	atc	tcc	tgg	ctg	aag	aac	ggc		576
Pro	Ala	Ala	Gly	Asn	Pro	Thr	Pro	Ser	Ile	Ser	Trp	Leu	Lys	Asn	Gly		
			180					185					190				
agg	gag	ttc	cgc	ggc	gag	cac	cgc	att	gga	ggc	atc	aag	ctg	cgg	cat		624
Arg	Glu	Phe	Arg	Gly	Glu	His	Arg	Ile	Gly	Gly	Ile	Lys	Leu	Arg	His		
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cag	cag	tgg	agc	ctg	gtc	atg	gaa	agc	gtg	gtg	ccc	tcg	gac	cgc	ggc		672
Gln	Gln	Trp	Ser	Leu	Val	Met	Glu	Ser	Val	Val	Pro	Ser	Asp	Arg	Gly		
	210					215					220						
aac	tac	acc	tgc	gtc	gtg	gag	aac	aag	ttt	ggc	agc	atc	cgg	cag	acg		720
Asn	Tyr	Thr	Cys	Val	Val	Glu	Asn	Lys	Phe	Gly	Ser	Ile	Arg	Gln	Thr		
225					230					235					240		
tac	acg	ctg	gac	gtg	ctg	gag	cgc	tcc	ccg	cac	cgg	ccc	atc	ctg	cag		768
Tyr	Thr	Leu	Asp	Val	Leu	Glu	Arg	Ser	Pro	His	Arg	Pro	Ile	Leu	Gln		
				245					250					255			
gcg	ggg	ctg	ccg	gcc	aac	cag	acg	gcg	gtg	ctg	ggc	agc	gac	gtg	gag		816
Ala	Gly	Leu	Pro	Ala	Asn	Gln	Thr	Ala	Val	Leu	Gly	Ser	Asp	Val	Glu		
			260					265					270				
ttc	cac	tgc	aag	gtg	tac	agt	gac	gca	cag	ccc	cac	atc	cag	tgg	ctc		864
Phe	His	Cys	Lys	Val	Tyr	Ser	Asp	Ala	Gln	Pro	His	Ile	Gln	Trp	Leu		
		275					280					285					
aag	cac	gtg	gag	gtg	aat	ggc	agc	aag	gtg	ggc	ccg	gac	ggc	aca	ccc		912
Lys	His	Val	Glu	Val	Asn	Gly	Ser	Lys	Val	Gly	Pro	Asp	Gly	Thr	Pro		
		290				295					300						
tac	gtt	acc	gtg	ctc	aag	acg	gcg	ggc	gct	aac	acc	acc	gac	aag	gag		960
Tyr	Val	Thr	Val	Leu	Lys	Thr	Ala	Gly	Ala	Asn	Thr	Thr	Asp	Lys	Glu		
305					310					315					320		
cta	gag	gtt	ctc	tcc	ttg	cac	aac	gtc	acc	ttt	gag	gac	gcc	ggg	gag		1008
Leu	Glu	Val	Leu	Ser	Leu	His	Asn	Val	Thr	Phe	Glu	Asp	Ala	Gly	Glu		
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tac	acc	tgc	ctg	gcg	ggc	aat	tct	att	ggg	ttt	tct	cat	cac	tct	gcg		1056
Tyr	Thr	Cys	Leu	Ala	Gly	Asn	Ser	Ile	Gly	Phe	Ser	His	His	Ser	Ala		
			340					345					350				

tgg ctg gtg gtg ctg cca gcc gag gag gag ctg gtg gag gct gac gag	1104
Trp Leu Val Val Leu Pro Ala Glu Glu Glu Leu Val Glu Ala Asp Glu	
355 360 365	
gcg ggc agt gtg tat gca ggc atc ctc agc tac ggg gtg ggc ttc ttc	1152
Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly Phe Phe	
370 375 380	
ctg ttc atc ctg gtg gtg gcg gct gtg acg ctc tgc cgc ctg cgc agc	1200
Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu Arg Ser	
385 390 395 400	
ccc ccc aag aaa ggc ctg ggc tcc ccc acc gtg cac aag atc tcc cgc	1248
Pro Pro Lys Lys Gly Leu Gly Ser Pro Thr Val His Lys Ile Ser Arg	
405 410 415	
ttc ccg ctc aag cga cag gtg tcc ctg gag tcc aac gcg tcc atg agc	1296
Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser Met Ser	
420 425 430	
tcc aac aca cca ctg gtg cgc atc gca agg ctg tcc tca ggg gag ggc	1344
Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser Ser Gly Glu Gly	
435 440 445	
ccc acg ctg gcc aat gtc tcc gag ctc gag ctg cct gcc gac ccc aaa	1392
Pro Thr Leu Ala Asn Val Ser Glu Leu Glu Leu Pro Ala Asp Pro Lys	
450 455 460	
tgg gag ctg tct cgg gcc cgg ctg acc ctg ggc aag ccc ctt ggg gag	1440
Trp Glu Leu Ser Arg Ala Arg Leu Thr Leu Gly Lys Pro Leu Gly Glu	
465 470 475 480	
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Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile Gly Ile Asp Lys	
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gac cgg gcc gcc aag cct gtc acc gta gcc gtg aag atg ctg aaa gac	1536
Asp Arg Ala Ala Lys Pro Val Thr Val Ala Val Lys Met Leu Lys Asp	
500 505 510	
gat gcc act gac aag gac ctg tcg gac ctg gtg tct gag atg gag atg	1584
Asp Ala Thr Asp Lys Asp Leu Ser Asp Leu Val Ser Glu Met Glu Met	
515 520 525	
atg aag atg atc ggg aaa cac aaa aac atc atc aac ctg ctg ggc gcc	1632
Met Lys Met Ile Gly Lys His Lys Asn Ile Ile Asn Leu Leu Gly Ala	
530 535 540	
tgc acg cag ggc ggg ccc ctg tac gtg ctg gtg gag tac gcg gcc aag	1680
Cys Thr Gln Gly Gly Pro Leu Tyr Val Leu Val Glu Tyr Ala Ala Lys	
545 550 555 560	
ggg aac ctg cgg gag ttt ctg cgg gcg cgg cgg ccc ccg ggc ctg gac	1728
Gly Asn Leu Arg Glu Phe Leu Arg Ala Arg Arg Pro Pro Gly Leu Asp	
565 570 575	
tac tcc ttc gac acc tgc aag ccg ccc gag gag cag ctc acc ttc aag	1776

Tyr	Ser	Phe	Asp	Thr	Cys	Lys	Pro	Pro	Glu	Glu	Gln	Leu	Thr	Phe	Lys	
			580					585					590			
gac	ctg	gtg	tcc	tgt	gcc	tac	cag	gtg	gcc	cgg	ggc	atg	gag	tac	ttg	1824
Asp	Leu	Val	Ser	Cys	Ala	Tyr	Gln	Val	Ala	Arg	Gly	Met	Glu	Tyr	Leu	
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gcc	tcc	cag	aag	tgc	atc	cac	agg	gac	ctg	gct	gcc	cgc	aat	gtg	ctg	1872
Ala	Ser	Gln	Lys	Cys	Ile	His	Arg	Asp	Leu	Ala	Ala	Arg	Asn	Val	Leu	
	610					615					620					
gtg	acc	gag	gac	aac	gtg	atg	aag	atc	gca	gac	ttc	ggg	ctg	gcc	cgg	1920
Val	Thr	Glu	Asp	Asn	Val	Met	Lys	Ile	Ala	Asp	Phe	Gly	Leu	Ala	Arg	
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gac	gtg	cac	aac	ctc	gac	tac	tac	aag	aag	aca	acc	aac	ggc	cgg	ctg	1968
Asp	Val	His	Asn	Leu	Asp	Tyr	Tyr	Lys	Lys	Thr	Thr	Asn	Gly	Arg	Leu	
				645					650					655		
ccc	gtg	aag	tgg	atg	gcg	cct	gag	gcc	ttg	ttt	gac	cga	gtc	tac	act	2016
Pro	Val	Lys	Trp	Met	Ala	Pro	Glu	Ala	Leu	Phe	Asp	Arg	Val	Tyr	Thr	
			660					665					670			
cac	cag	agt	gac	gtc	tgg	tcc	ttt	ggg	gtc	ctg	ctc	tgg	gag	atc	ttc	2064
His	Gln	Ser	Asp	Val	Trp	Ser	Phe	Gly	Val	Leu	Leu	Trp	Glu	Ile	Phe	
		675					680					685				
acg	ctg	ggg	ggc	tcc	ccg	tac	ccc	ggc	atc	cct	gtg	gag	gag	ctc	ttc	2112
Thr	Leu	Gly	Gly	Ser	Pro	Tyr	Pro	Gly	Ile	Pro	Val	Glu	Glu	Leu	Phe	
	690					695					700					
aag	ctg	ctg	aag	gag	ggc	cac	cgc	atg	gac	aag	ccc	gcc	aac	tgc	aca	2160
Lys	Leu	Leu	Lys	Glu	Gly	His	Arg	Met	Asp	Lys	Pro	Ala	Asn	Cys	Thr	
705					710					715					720	
cac	gac	ctg	tac	atg	atc	atg	cgg	gag	tgc	tgg	cat	gcc	gcg	ccc	tcc	2208
His	Asp	Leu	Tyr	Met	Ile	Met	Arg	Glu	Cys	Trp	His	Ala	Ala	Pro	Ser	
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cag	agg	ccc	acc	ttc	aag	cag	ctg	gtg	gag	gac	ctg	gac	cgt	gtc	ctt	2256
Gln	Arg	Pro	Thr	Phe	Lys	Gln	Leu	Val	Glu	Asp	Leu	Asp	Arg	Val	Leu	
			740					745					750			
acc	gtg	acg	tcc	acc	gac	gta	aag	gcg	aca	cag	gag	gag	aac	cgg	gag	2304
Thr	Val	Thr	Ser	Thr	Asp	Val	Lys	Ala	Thr	Gln	Glu	Glu	Asn	Arg	Glu	
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ctg	agg	agc	agg	tgt	gag	gag	ctc	cac	ggg	aag	aac	ctg	gaa	ctg	ggg	2352
Leu	Arg	Ser	Arg	Cys	Glu	Glu	Leu	His	Gly	Lys	Asn	Leu	Glu	Leu	Gly	
	770					775					780					
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Lys	Ile	Met	Asp	Arg	Phe	Glu	Glu	Val	Val	Tyr	Gln	Ala	Met	Glu	Glu	
	785				790					795					800	
gtt	cag	aag	cag	aag	gaa	ctt	tcc	aaa	gct	gaa	atc	cag	aaa	gtt	cta	2448
Val	Gln	Lys	Gln	Lys	Glu	Leu	Ser	Lys	Ala	Glu	Ile	Gln	Lys	Val	Leu	
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Lys Glu Lys Asp Gln Leu Thr Thr Asp Leu Asn Ser Met Glu Lys Ser	
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ttc tcc gac ctc ttc aag cgt ttt gag aaa cag aaa gag gtg atc gag	2544
Phe Ser Asp Leu Phe Lys Arg Phe Glu Lys Gln Lys Glu Val Ile Glu	
835 840 845	
ggc tac cgc aag aac gaa gag tca ctg aag aag tgc gtg gag gat tac	2592
Gly Tyr Arg Lys Asn Glu Glu Ser Leu Lys Lys Cys Val Glu Asp Tyr	
850 855 860	
ctg gca agg atc acc cag gag ggc cag agg tac caa gcc ctg aag gcc	2640
Leu Ala Arg Ile Thr Gln Glu Gly Gln Arg Tyr Gln Ala Leu Lys Ala	
865 870 875 880	
cac gcg gag gag aag ctg cag ctg gca aac gag gag atc gcc cag gtc	2688
His Ala Glu Glu Lys Leu Gln Leu Ala Asn Glu Glu Ile Ala Gln Val	
885 890 895	
cgg agc aag gcc cag gcg gaa gcg ttg gcc ctc cag gcc agc ctg agg	2736
Arg Ser Lys Ala Gln Ala Glu Ala Leu Ala Leu Gln Ala Ser Leu Arg	
900 905 910	
aag gag cag atg cgc atc cag tcg ctg gag aag aca gtg gag cag aag	2784
Lys Glu Gln Met Arg Ile Gln Ser Leu Glu Lys Thr Val Glu Gln Lys	
915 920 925	
act aaa gag aac gag gag ctg acc agg atc tgc gac gac ctc atc tcc	2832
Thr Lys Glu Asn Glu Glu Leu Thr Arg Ile Cys Asp Asp Leu Ile Ser	
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Lys Met Glu Lys Ile	
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Gly Arg Ala Ala Glu Val Pro Gly Pro Glu Pro Gly Gln Gln Glu Gln
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Leu Val Phe Gly Ser Gly Asp Ala Val Glu Leu Ser Cys Pro Pro Pro

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Gly	Gly	Gly	Pro	Met	Gly	Pro	Thr	Val	Trp	Val	Lys	Asp	Gly	Thr	Gly	
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Leu	Val	Pro	Ser	Glu	Arg	Val	Leu	Val	Gly	Pro	Gln	Arg	Leu	Gln	Val	
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Leu	Asn	Ala	Ser	His	Glu	Asp	Ser	Gly	Ala	Tyr	Ser	Cys	Arg	Gln	Arg	
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Leu	Thr	Gln	Arg	Val	Leu	Cys	His	Phe	Ser	Val	Arg	Val	Thr	Asp	Ala	
		115					120					125				
Pro	Ser	Ser	Gly	Asp	Asp	Glu	Asp	Gly	Glu	Asp	Glu	Ala	Glu	Asp	Thr	
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Gly	Val	Asp	Thr	Gly	Ala	Pro	Tyr	Trp	Thr	Arg	Pro	Glu	Arg	Met	Asp	
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Lys	Lys	Leu	Leu	Ala	Val	Pro	Ala	Ala	Asn	Thr	Val	Arg	Phe	Arg	Cys	
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Pro	Ala	Ala	Gly	Asn	Pro	Thr	Pro	Ser	Ile	Ser	Trp	Leu	Lys	Asn	Gly	
			180					185					190			
Arg	Glu	Phe	Arg	Gly	Glu	His	Arg	Ile	Gly	Gly	Ile	Lys	Leu	Arg	His	
		195					200					205				
Gln	Gln	Trp	Ser	Leu	Val	Met	Glu	Ser	Val	Val	Pro	Ser	Asp	Arg	Gly	
	210					215					220					
Asn	Tyr	Thr	Cys	Val	Val	Glu	Asn	Lys	Phe	Gly	Ser	Ile	Arg	Gln	Thr	
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Tyr	Thr	Leu	Asp	Val	Leu	Glu	Arg	Ser	Pro	His	Arg	Pro	Ile	Leu	Gln	
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Ala	Gly	Leu	Pro	Ala	Asn	Gln	Thr	Ala	Val	Leu	Gly	Ser	Asp	Val	Glu	
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Phe	His	Cys	Lys	Val	Tyr	Ser	Asp	Ala	Gln	Pro	His	Ile	Gln	Trp	Leu	
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Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
290 295 300

Tyr Val Thr Val Leu Lys Thr Ala Gly Ala Asn Thr Thr Asp Lys Glu
305 310 315 320

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

Tyr Thr Cys Leu Ala Gly Asn Ser Ile Gly Phe Ser His His Ser Ala
340 345 350

Trp Leu Val Val Leu Pro Ala Glu Glu Glu Leu Val Glu Ala Asp Glu
355 360 365

Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly Phe Phe
370 375 380

Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu Arg Ser
385 390 395 400

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

Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser Met Ser
420 425 430

Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser Ser Gly Glu Gly
435 440 445

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

Trp Glu Leu Ser Arg Ala Arg Leu Thr Leu Gly Lys Pro Leu Gly Glu
465 470 475 480

Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile Gly Ile Asp Lys
485 490 495

Asp Arg Ala Ala Lys Pro Val Thr Val Ala Val Lys Met Leu Lys Asp
500 505 510

Asp Ala Thr Asp Lys Asp Leu Ser Asp Leu Val Ser Glu Met Glu Met

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Cys	Thr	Gln	Gly	Gly	Pro	Leu	Tyr	Val	Leu	Val	Glu	Tyr	Ala	Ala	Lys
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Gly	Asn	Leu	Arg	Glu	Phe	Leu	Arg	Ala	Arg	Arg	Pro	Pro	Gly	Leu	Asp
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Tyr	Ser	Phe	Asp	Thr	Cys	Lys	Pro	Pro	Glu	Glu	Gln	Leu	Thr	Phe	Lys
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Asp	Leu	Val	Ser	Cys	Ala	Tyr	Gln	Val	Ala	Arg	Gly	Met	Glu	Tyr	Leu
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Ala	Ser	Gln	Lys	Cys	Ile	His	Arg	Asp	Leu	Ala	Ala	Arg	Asn	Val	Leu
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Asp	Val	His	Asn	Leu	Asp	Tyr	Tyr	Lys	Lys	Thr	Thr	Asn	Gly	Arg	Leu
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Pro	Val	Lys	Trp	Met	Ala	Pro	Glu	Ala	Leu	Phe	Asp	Arg	Val	Tyr	Thr
		660						665				670			
His	Gln	Ser	Asp	Val	Trp	Ser	Phe	Gly	Val	Leu	Leu	Trp	Glu	Ile	Phe
		675				680						685			
Thr	Leu	Gly	Gly	Ser	Pro	Tyr	Pro	Gly	Ile	Pro	Val	Glu	Glu	Leu	Phe
690						695				700					
Lys	Leu	Leu	Lys	Glu	Gly	His	Arg	Met	Asp	Lys	Pro	Ala	Asn	Cys	Thr
705				710						715				720	
His	Asp	Leu	Tyr	Met	Ile	Met	Arg	Glu	Cys	Trp	His	Ala	Ala	Pro	Ser
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Gln	Arg	Pro	Thr	Phe	Lys	Gln	Leu	Val	Glu	Asp	Leu	Asp	Arg	Val	Leu
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Thr Val Thr Ser Thr Asp Val Lys Ala Thr Gln Glu Glu Asn Arg Glu
755 760 765

Leu Arg Ser Arg Cys Glu Glu Leu His Gly Lys Asn Leu Glu Leu Gly
770 775 780

Lys Ile Met Asp Arg Phe Glu Glu Val Val Tyr Gln Ala Met Glu Glu
785 790 795 800

Val Gln Lys Gln Lys Glu Leu Ser Lys Ala Glu Ile Gln Lys Val Leu
805 810 815

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

Phe Ser Asp Leu Phe Lys Arg Phe Glu Lys Gln Lys Glu Val Ile Glu
835 840 845

Gly Tyr Arg Lys Asn Glu Glu Ser Leu Lys Lys Cys Val Glu Asp Tyr
850 855 860

Leu Ala Arg Ile Thr Gln Glu Gly Gln Arg Tyr Gln Ala Leu Lys Ala
865 870 875 880

His Ala Glu Glu Lys Leu Gln Leu Ala Asn Glu Glu Ile Ala Gln Val
885 890 895

Arg Ser Lys Ala Gln Ala Glu Ala Leu Ala Leu Gln Ala Ser Leu Arg
900 905 910

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

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Val	Ala	Gly	Ala	Ser	Ser	Glu	Ser	Leu	Gly	Thr	Glu	Gln	Arg	Val	Val	
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ggg	cga	gcg	gca	gaa	gtc	ccg	ggc	cca	gag	ccc	ggc	cag	cag	gag	cag	144
Gly	Arg	Ala	Ala	Glu	Val	Pro	Gly	Pro	Glu	Pro	Gly	Gln	Gln	Glu	Gln	
		35					40					45				

ttg	gtc	ttc	ggc	agc	ggg	gat	gct	gtg	gag	ctg	agc	tgt	ccc	ccg	ccc	192
Leu	Val	Phe	Gly	Ser	Gly	Asp	Ala	Val	Glu	Leu	Ser	Cys	Pro	Pro	Pro	
	50					55					60					

ggg	ggt	ggt	ccc	atg	ggg	ccc	act	gtc	tgg	gtc	aag	gat	ggc	aca	ggg	240
Gly	Gly	Gly	Pro	Met	Gly	Pro	Thr	Val	Trp	Val	Lys	Asp	Gly	Thr	Gly	
65					70				75						80	

ctg	gtg	ccc	tcg	gag	cgt	gtc	ctg	gtg	ggg	ccc	cag	cgg	ctg	cag	gtg	288
Leu	Val	Pro	Ser	Glu	Arg	Val	Leu	Val	Gly	Pro	Gln	Arg	Leu	Gln	Val	
				85					90					95		

ctg	aat	gcc	tcc	cac	gag	gac	tcc	ggg	gcc	tac	agc	tgc	cgg	cag	cgg	336
Leu	Asn	Ala	Ser	His	Glu	Asp	Ser	Gly	Ala	Tyr	Ser	Cys	Arg	Gln	Arg	
			100					105					110			

ctc	acg	cag	cgc	gta	ctg	tgc	cac	ttc	agt	gtg	cgg	gtg	aca	gac	gct	384
Leu	Thr	Gln	Arg	Val	Leu	Cys	His	Phe	Ser	Val	Arg	Val	Thr	Asp	Ala	
		115					120					125				

cca	tcc	tcg	gga	gat	gac	gaa	gac	ggg	gag	gac	gag	gct	gag	gac	aca	432
Pro	Ser	Ser	Gly	Asp	Asp	Glu	Asp	Gly	Glu	Asp	Glu	Ala	Glu	Asp	Thr	
	130					135					140					

ggt	gtg	gac	aca	ggg	gcc	cct	tac	tgg	aca	cgg	ccc	gag	cgg	atg	gac	480
Gly	Val	Asp	Thr	Gly	Ala	Pro	Tyr	Trp	Thr	Arg	Pro	Glu	Arg	Met	Asp	
145					150					155					160	

aag	aag	ctg	ctg	gcc	gtg	ccg	gcc	gcc	aac	acc	gtc	cgc	ttc	cgc	tgc	528
Lys	Lys	Leu	Leu	Ala	Val	Pro	Ala	Ala	Asn	Thr	Val	Arg	Phe	Arg	Cys	
				165					170					175		

cca	gcc	gct	ggc	aac	ccc	act	ccc	tcc	atc	tcc	tgg	ctg	aag	aac	ggc	576
Pro	Ala	Ala	Gly	Asn	Pro	Thr	Pro	Ser	Ile	Ser	Trp	Leu	Lys	Asn	Gly	
			180					185					190			

agg	gag	ttc	cgc	ggc	gag	cac	cgc	att	gga	ggc	atc	aag	ctg	cgg	cat	624
Arg	Glu	Phe	Arg	Gly	Glu	His	Arg	Ile	Gly	Gly	Ile	Lys	Leu	Arg	His	
		195					200					205				

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

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

cac His	cag Gln	agt Ser	gac Asp	gtc Val	tgg Trp	tcc Ser	ttt Phe	ggg Gly	gtc Val	ctg Leu	ctc Leu	tgg Trp	gag Glu	atc Ile	ttc Phe	2064
		675					680					685				
acg Thr	ctg Leu	ggg Gly	ggc Gly	tcc Ser	ccg Pro	tac Tyr	ccc Pro	ggc Gly	atc Ile	cct Pro	gtg Val	gag Glu	gag Glu	ctc Leu	ttc Phe	2112
	690					695					700					
aag Lys	ctg Leu	ctg Leu	aag Lys	gag Glu	ggc Gly	cac His	cgc Arg	atg Met	gac Asp	aag Lys	ccc Pro	gcc Ala	aac Asn	tgc Cys	aca Thr	2160
	705				710					715					720	
cac His	gac Asp	ctg Leu	tac Tyr	atg Met	atc Ile	atg Met	cgg Arg	gag Glu	tgc Cys	tgg Trp	cat His	gcc Ala	gcg Ala	ccc Pro	tcc Ser	2208
				725					730						735	
cag Gln	agg Arg	ccc Pro	acc Thr	ttc Phe	aag Lys	cag Gln	ctg Leu	gtg Val	gag Glu	gac Asp	ctg Leu	gac Asp	cgt Arg	gtc Val	ctt Leu	2256
			740					745					750			
acc Thr	gtg Val	acg Thr	tcc Ser	acc Thr	gac Asp	gtg Val	agt Ser	gct Ala	ggc Gly	tct Ser	ggc Gly	ctg Leu	gtg Val	cca Pro	ccc Pro	2304
		755					760					765				
gcc Ala	tat Tyr	gcc Ala	cct Pro	ccc Pro	cct Pro	gcc Ala	gtc Val	ccc Pro	ggc Gly	cat His	cct Pro	gcc Ala	ccc Pro	cag Gln	agt Ser	2352
	770					775					780					
gct Ala	gag Glu	gtg Val	tgg Trp	ggc Gly	ggg Gly	cct Pro	tct Ser	ggc Gly	cca Pro	ggt Gly	gcc Ala	ctg Leu	gct Ala	gac Asp	ctg Leu	2400
	785				790					795					800	
gac Asp	tgc Cys	tca Ser	agc Ser	tct Ser	tcc Ser	cag Gln	agc Ser	cca Pro	gga Gly	agt Ser	tct Ser	gag Glu	aac Asn	caa Gln	atg Met	2448
				805					810					815		
gtg Val	tct Ser	cca Pro	gga Gly	aaa Lys	gtg Val	tct Ser	ggc Gly	agc Ser	cct Pro	gag Glu	caa Gln	gcc Ala	gtg Val	gag Glu	gaa Glu	2496
			820				825						830			
aac Asn	ctt Leu	agt Ser	tcc Ser	tat Tyr	tcc Ser	tta Leu	gac Asp	aga Arg	aga Arg	gtg Val	aca Thr	ccc Pro	gcc Ala	tct Ser	gag Glu	2544
		835					840					845				
acc Thr	cta Leu	gaa Glu	gac Asp	cct Pro	tgc Cys	agg Arg	aca Thr	gag Glu	tcc Ser	cag Gln	cac His	aaa Lys	gcg Ala	gag Glu	act Thr	2592
	850					855					860					
ccg Pro	cac His	gga Gly	gcc Ala	gag Glu	gaa Glu	gaa Glu	tgc Cys	aaa Lys	gcg Ala	gag Glu	act Thr	ccg Pro	cac His	gga Gly	gcc Ala	2640
	865				870					875					880	
gag Glu	gag Glu	gaa Glu	tgc Cys	cgg Arg	cac His	ggt Gly	ggg Gly	gtc Val	tgt Cys	gct Ala	ccc Pro	gca Ala	gca Ala	gtg Val	gcc Ala	2688
				885					890					895		
act Thr	tcg Ser	cct Pro	cct Pro	ggt Gly	gca Ala	atc Ile	cct Pro	aag Lys	gaa Glu	gcc Ala	tgc Cys	gga Gly	gga Gly	gca Ala	ccc Pro	2736

900	905	910	
ctg cag ggt ctg cct ggc gaa gcc	ctg ggc tgc cct gcg ggt gtg ggc		2784
Leu Gln Gly Leu Pro Gly Glu Ala	Leu Gly Cys Pro Ala Gly Val Gly		
915	920	925	
acc ccc gtg cca gca gat ggc act	cag acc ctt acc tgt gca cac acc		2832
Thr Pro Val Pro Ala Asp Gly Thr	Gln Thr Leu Thr Cys Ala His Thr		
930	935	940	
tct gct cct gag agc aca gcc cca	acc aac cac ctg gtg gct ggc agg		2880
Ser Ala Pro Glu Ser Thr Ala Pro	Thr Asn His Leu Val Ala Gly Arg		
945	950	955	960
gcc atg acc ctg agt cct cag gaa	gaa gtg gct gca ggc caa atg gcc		2928
Ala Met Thr Leu Ser Pro Gln Glu	Glu Val Ala Ala Gly Gln Met Ala		
965	970	975	
agc tcc tcg agg agc gga cct gta	aaa cta gaa ttt gat gta tct gat		2976
Ser Ser Ser Arg Ser Gly Pro Val	Lys Leu Glu Phe Asp Val Ser Asp		
980	985	990	
ggc gcc acc agc aaa agg gca ccc	cca cca agg aga ctg gga gag agg		3024
Gly Ala Thr Ser Lys Arg Ala Pro	Pro Pro Arg Arg Leu Gly Glu Arg		
995	1000	1005	
tcc ggc ctc aag cct ccc ttg agg	aaa gca gca gtg agg cag caa		3069
Ser Gly Leu Lys Pro Pro Leu Arg	Lys Ala Ala Val Arg Gln Gln		
1010	1015	1020	
aag gcc ccg cag gag gtg gag gag	gac gac ggt agg agc gga gca		3114
Lys Ala Pro Gln Glu Val Glu Glu	Asp Asp Gly Arg Ser Gly Ala		
1025	1030	1035	
gga gag gac ccc ccc atg cca gct	tct cgg ggc tct tac cac ctc		3159
Gly Glu Asp Pro Pro Met Pro Ala	Ser Arg Gly Ser Tyr His Leu		
1040	1045	1050	
gac tgg gac aaa atg gat gac cca	aac ttc atc ccg ttc gga ggt		3204
Asp Trp Asp Lys Met Asp Asp Pro	Asn Phe Ile Pro Phe Gly Gly		
1055	1060	1065	
gac acc aag tct ggt tgc agt gag	gcc cag ccc cca gaa agc cct		3249
Asp Thr Lys Ser Gly Cys Ser Glu	Ala Gln Pro Pro Glu Ser Pro		
1070	1075	1080	
gag acc agg ctg ggc cag cca gcg	gct gaa cag ttg cat gct ggg		3294
Glu Thr Arg Leu Gly Gln Pro Ala	Ala Ala Glu Gln Leu His Ala Gly		
1085	1090	1095	
cct gcc acg gag gag cca ggt ccc	tgt ctg agc cag cag ctg cat		3339
Pro Ala Thr Glu Glu Pro Gly Pro	Cys Leu Ser Gln Gln Leu His		
1100	1105	1110	
tca gcc tca gcg gag gac acg cct	gtg gtg cag ttg gca gcc gag		3384
Ser Ala Ser Ala Glu Asp Thr Pro	Val Val Gln Leu Ala Ala Glu		
1115	1120	1125	

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

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

Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
 290 295 300

Tyr Val Thr Val Leu Lys Thr Ala Gly Ala Asn Thr Thr Asp Lys Glu
 305 310 315 320

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

Tyr Thr Cys Leu Ala Gly Asn Ser Ile Gly Phe Ser His His Ser Ala
 340 345 350

Trp Leu Val Val Leu Pro Ala Glu Glu Glu Leu Val Glu Ala Asp Glu
 355 360 365

Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly Phe Phe
 370 375 380

Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu Arg Ser
 385 390 395 400

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

Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser Met Ser
 420 425 430

Ser Asn Thr Pro Leu Val Arg Ile Ala Arg Leu Ser Ser Gly Glu Gly
 435 440 445

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

Trp Glu Leu Ser Arg Ala Arg Leu Thr Leu Gly Lys Pro Leu Gly Glu
 465 470 475 480

Gly Cys Phe Gly Gln Val Val Met Ala Glu Ala Ile Gly Ile Asp Lys
 485 490 495

Asp Arg Ala Ala Lys Pro Val Thr Val Ala Val Lys Met Leu Lys Asp
 500 505 510

Asp	Ala	Thr	Asp	Lys	Asp	Leu	Ser	Asp	Leu	Val	Ser	Glu	Met	Glu	Met		
		515					520					525					
Met	Lys	Met	Ile	Gly	Lys	His	Lys	Asn	Ile	Ile	Asn	Leu	Leu	Gly	Ala		
	530					535					540						
Cys	Thr	Gln	Gly	Gly	Pro	Leu	Tyr	Val	Leu	Val	Glu	Tyr	Ala	Ala	Lys		
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Gly	Asn	Leu	Arg	Glu	Phe	Leu	Arg	Ala	Arg	Arg	Pro	Pro	Gly	Leu	Asp		
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Tyr	Ser	Phe	Asp	Thr	Cys	Lys	Pro	Pro	Glu	Glu	Gln	Leu	Thr	Phe	Lys		
			580					585					590				
Asp	Leu	Val	Ser	Cys	Ala	Tyr	Gln	Val	Ala	Arg	Gly	Met	Glu	Tyr	Leu		
		595					600					605					
Ala	Ser	Gln	Lys	Cys	Ile	His	Arg	Asp	Leu	Ala	Ala	Arg	Asn	Val	Leu		
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Asp	Val	His	Asn	Leu	Asp	Tyr	Tyr	Lys	Lys	Thr	Thr	Asn	Gly	Arg	Leu		
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Pro	Val	Lys	Trp	Met	Ala	Pro	Glu	Ala	Leu	Phe	Asp	Arg	Val	Tyr	Thr		
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His	Gln	Ser	Asp	Val	Trp	Ser	Phe	Gly	Val	Leu	Leu	Trp	Glu	Ile	Phe		
		675					680					685					
Thr	Leu	Gly	Gly	Ser	Pro	Tyr	Pro	Gly	Ile	Pro	Val	Glu	Glu	Leu	Phe		
	690					695					700						
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His	Asp	Leu	Tyr	Met	Ile	Met	Arg	Glu	Cys	Trp	His	Ala	Ala	Pro	Ser		
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Gln	Arg	Pro	Thr	Phe	Lys	Gln	Leu	Val	Glu	Asp	Leu	Asp	Arg	Val	Leu		
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Val	Glu	Phe	Asp	Phe	Leu	Gly	Ala	Leu	Asp	Ile	Pro	Val	Pro	Gly
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Arg	Cys	Glu	Glu	Leu	His	Gly	Lys	Asn	Leu	Glu	Leu	Gly	Lys	Ile
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Lys	Glu	Lys	Asp	Gln	Leu	Thr	Thr	Asp	Leu	Asn	Ser	Met	Glu	Lys
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 ctg aat gcc tcc cac gag gac tcc ggg gcc tac agc tgc cgg cag cgg 336
 Leu Asn Ala Ser His Glu Asp Ser Gly Ala Tyr Ser Cys Arg Gln Arg
 100 105 110

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

Pro Ala Ala Gly Asn Pro Thr Pro Ser Ile Ser Trp Leu Lys Asn Gly
180 185 190

Arg Glu Phe Arg Gly Glu His Arg Ile Gly Gly Ile Lys Leu Arg His
195 200 205

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

Asn Tyr Thr Cys Val Val Glu Asn Lys Phe Gly Ser Ile Arg Gln Thr
225 230 235 240

Tyr Thr Leu Asp Val Leu Glu Arg Ser Pro His Arg Pro Ile Leu Gln
245 250 255

Ala Gly Leu Pro Ala Asn Gln Thr Ala Val Leu Gly Ser Asp Val Glu
260 265 270

Phe His Cys Lys Val Tyr Ser Asp Ala Gln Pro His Ile Gln Trp Leu
275 280 285

Lys His Val Glu Val Asn Gly Ser Lys Val Gly Pro Asp Gly Thr Pro
290 295 300

Tyr Val Thr Val Leu Lys Thr Ala Gly Ala Asn Thr Thr Asp Lys Glu
305 310 315 320

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

Tyr Thr Cys Leu Ala Gly Asn Ser Ile Gly Phe Ser His His Ser Ala
340 345 350

Trp Leu Val Val Leu Pro Ala Glu Glu Glu Leu Val Glu Ala Asp Glu
355 360 365

Ala Gly Ser Val Tyr Ala Gly Ile Leu Ser Tyr Gly Val Gly Phe Phe
370 375 380

Leu Phe Ile Leu Val Val Ala Ala Val Thr Leu Cys Arg Leu Arg Ser
385 390 395 400

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

Phe Pro Leu Lys Arg Gln Val Ser Leu Glu Ser Asn Ala Ser Met Ser

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

Pro Val Lys Trp Met Ala Pro Glu Ala Leu Phe Asp Arg Val Tyr Thr
660 665 670

His Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu Trp Glu Ile Phe
675 680 685

Thr Leu Gly Gly Ser Pro Tyr Pro Gly Ile Pro Val Glu Glu Leu Phe
690 695 700

Lys Leu Leu Lys Glu Gly His Arg Met Asp Lys Pro Ala Asn Cys Thr
705 710 715 720

His Asp Leu Tyr Met Ile Met Arg Glu Cys Trp His Ala Ala Pro Ser
725 730 735

Gln Arg Pro Thr Phe Lys Gln Leu Val Glu Asp Leu Asp Arg Val Leu
740 745 750

Thr Val Thr Ser Thr Asp Asn Val Met Glu Gln Phe Asn Pro Gly Leu
755 760 765

Arg Asn Leu Ile Asn Leu Gly Lys Asn Tyr Glu Lys Ala Val Asn Ala
770 775 780

Met Ile Leu Ala Gly Lys Ala Tyr Tyr Asp Gly Val Ala Lys Ile Gly
785 790 795 800

Glu Ile Ala Thr Gly Ser Pro Val Ser Thr Glu Leu Gly His Val Leu
805 810 815

Ile Glu Ile Ser Ser Thr His Lys Lys Leu Asn Glu Ser Leu Asp Glu
820 825 830

Asn Phe Lys Lys Phe His Lys Glu Ile Ile His Glu Leu Glu Lys Lys
835 840 845

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

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

Leu Lys Lys Ile Arg Arg Lys Ser Gln Gly Ser Arg Asn Ala Leu Lys

885										890					895				
Tyr	Glu	His	Lys	Glu	Ile	Glu	Tyr	Val	Glu	Thr	Val	Thr	Ser	Arg	Gln				
			900					905					910						
Ser	Glu	Ile	Gln	Lys	Phe	Ile	Ala	Asp	Gly	Cys	Lys	Glu	Ala	Leu	Leu				
		915					920					925							
Glu	Glu	Lys	Arg	Arg	Phe	Cys	Phe	Leu	Val	Asp	Lys	His	Cys	Gly	Phe				
	930					935					940								
Ala	Asn	His	Ile	His	Tyr	Tyr	His	Leu	Gln	Ser	Ala	Glu	Leu	Leu	Asn				
945					950					955					960				
Ser	Lys	Leu	Pro	Arg	Trp	Gln	Glu	Thr	Cys	Val	Asp	Ala	Ile	Lys	Val				
				965					970					975					
Pro	Glu	Lys	Ile	Met	Asn	Met	Ile	Glu	Glu	Ile	Lys	Thr	Pro	Ala	Ser				
			980					985					990						
Thr	Pro	Val	Ser	Gly	Thr	Pro	Gln	Ala	Ser	Pro	Met	Ile	Glu	Arg	Ser				
		995					1000					1005							
Asn	Val	Val	Arg	Lys	Asp	Tyr	Asp	Thr	Leu	Ser	Lys	Cys	Ser	Pro					
	1010					1015					1020								
Lys	Met	Pro	Pro	Ala	Pro	Ser	Gly	Arg	Ala	Tyr	Thr	Ser	Pro	Leu					
	1025					1030					1035								
Ile	Asp	Met	Phe	Asn	Asn	Pro	Ala	Thr	Ala	Ala	Pro	Asn	Ser	Gln					
	1040					1045					1050								
Arg	Val	Asn	Asn	Ser	Thr	Gly	Thr	Ser	Glu	Asp	Pro	Ser	Leu	Gln					
	1055					1060					1065								
Arg	Ser	Val	Ser	Val	Ala	Thr	Gly	Leu	Asn	Met	Met	Lys	Lys	Gln					
	1070					1075					1080								
Lys	Val	Lys	Thr	Ile	Phe	Pro	His	Thr	Ala	Gly	Ser	Asn	Lys	Thr					
	1085					1090					1095								
Leu	Leu	Ser	Phe	Ala	Gln	Gly	Asp	Val	Ile	Thr	Leu	Leu	Ile	Pro					
	1100					1105					1110								

Glu Glu Lys Asp Gly Trp Leu Tyr Gly Glu His Asp Val Ser Lys
1115 1120 1125

Ala Arg Gly Trp Phe Pro Ser Ser Tyr Thr Lys Leu Leu Glu Glu
1130 1135 1140

Asn Glu Thr Glu Ala Val Thr Val Pro Thr Pro Ser Pro Thr Pro
1145 1150 1155

Val Arg Ser Ile Ser Thr Val Asn Leu Ser Glu Asn Ser Ser Val
1160 1165 1170

Val Ile Pro Pro Pro Asp Tyr Leu Glu Cys Leu Ser Met Gly Ala
1175 1180 1185

Ala Ala Asp Arg Arg Ala Asp Ser Ala Arg Thr Thr Ser Thr Phe
1190 1195 1200

Lys Ala Pro Ala Ser Lys Pro Glu Thr Ala Ala Pro Asn Asp Ala
1205 1210 1215

Asn Gly Thr Ala Lys Pro Pro Phe Leu Ser Gly Glu Asn Pro Phe
1220 1225 1230

Ala Thr Val Lys Leu Arg Pro Thr Val Thr Asn Asp Arg Ser Ala
1235 1240 1245

Pro Ile Ile Arg
1250

<210> 39

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Biotinylated peptide sequence

<400> 39

Glu Gly Pro Trp Leu Glu Glu Glu Glu Glu Ala Tyr Gly Trp Met Asp
1 5 10 15

Phe