

Sequence Listing

5 <110> University College Dublin, National University of Ireland,
 Dublin
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	Phe Glu Lys Pro Gln Arg Ala Leu Cys Val Gly Leu Phe Lys Gly Ile	
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75	gct gag ttc gac ctg gcc aac agt tct ctg gac atc ctc cag ggc ggt	816
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20 gtg ccg gag gcg agt gcc ccc cag ccg ctg ctg ttc ttt gcc agc cgt 1785
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Gly Gly Pro Gln Pro Met Arg Leu Tyr Gly Asp Leu Lys Ala Pro Ser
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 Lys Glu Ala Pro Ile Arg Ala Val Thr Met Ser Phe Ser Pro Gly His
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360

365

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1 5 10 15

35 ctt ggc ctc ttc ctc cgc cag cat gac gtc gac gtc act gtg tac act 96
Leu Gly Leu Phe Leu Arg Gln His Asp Val Asp Val Thr Val Tyr Thr
20 25 30

40 gat cgt aag ccc gat gag tac agt gga ctg cgg ctc ctg aat acc gtt 144
Asp Arg Lys Pro Asp Glu Tyr Ser Gly Leu Arg Leu Leu Asn Thr Val
35 40 45

45 gct cac aac gcg gtg acg gtg cag cgg gag gtt gcc ctc gac gtc aat 192
Ala His Asn Ala Val Thr Val Gln Arg Glu Val Ala Leu Asp Val Asn
50 55 60

50 gag tgg ccg tct gag gag ttt ggc tat ttc ggc cac tac tac tac gta 240
Glu Trp Pro Ser Glu Glu Phe Gly Tyr Phe Gly His Tyr Tyr Tyr Val
65 70 75 80

55 ggt ggg ccg cag ccc atg cgt ctc tac ggt gat ctc aag gct ccc agc 288
Gly Gly Pro Gln Pro Met Arg Leu Tyr Gly Asp Leu Lys Ala Pro Ser
85 90 95

60 cgt gca gtg gac tac cgt ctc tac ctg ccg atg ctg atg cgt gca ctg 336
Arg Ala Val Asp Tyr Arg Leu Tyr Leu Pro Met Leu Met Arg Ala Leu
100 105 110

65 gaa gcc agg ggc ggc aag ttc tgc tac gac gcc gtg tct gcc gaa gat 384
Glu Ala Arg Gly Gly Lys Phe Cys Tyr Asp Ala Val Ser Ala Glu Asp
115 120 125

70 ctg gaa ggg ctg tcg gag cag tat gat ctg ctg gtt gtg tgc act ggt 432
Leu Glu Gly Leu Ser Glu Gln Tyr Asp Leu Leu Val Val Cys Thr Gly
130 135 140

	aaa tac gcc ctc ggc agg gtg ttc gag aag cag tcc gaa aac tcg ccc	480
	Lys Tyr Ala Leu Gly Arg Val Phe Glu Lys Gln Ser Glu Asn Ser Pro	
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5	ttc gag aag ccg caa cgg gca ctg tgc gtt ggt ctc ttc aag ggc atc	528
	Phe Glu Lys Pro Gln Arg Ala Leu Cys Val Gly Leu Phe Lys Gly Ile	
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10	aag gaa gca ccg att cgc gcg gtg act atg tcc ttc tcg cca ggg cat	576
	Lys Glu Ala Pro Ile Arg Ala Val Thr Met Ser Phe Ser Pro Gly His	
	180 185 190	
15	ggc gag ctg att gag att cca acc ctg tcg ttc aat ggc atg agc aca	624
	Gly Glu Leu Ile Glu Ile Pro Thr Leu Ser Phe Asn Gly Met Ser Thr	
	195 200 205	
20	gcg ctg gtg ctc gaa aac cat att ggt agc gat ctg gaa gtc ctc gcc	672
	Ala Leu Val Leu Glu Asn His Ile Gly Ser Asp Leu Glu Val Leu Ala	
	210 215 220	
	cac acc aag tat gac gat gac ccg cgt gcg ttc ctc gat ctg atg ctg	720
	His Thr Lys Tyr Asp Asp Asp Pro Arg Ala Phe Leu Asp Leu Met Leu	
	225 230 235 240	
25	gag aag ctg cgt aag cat cat cct tcc gtt gcc gag cgc atc gat ccg	768
	Glu Lys Leu Arg Lys His His Pro Ser Val Ala Glu Arg Ile Asp Pro	
	245 250 255	
30	gct gag ttc gac ctg gcc aac agt tct ctg gac atc ctc cag ggc ggt	816
	Ala Glu Phe Asp Leu Ala Asn Ser Ser Leu Asp Ile Leu Gln Gly Gly	
	260 265 270	
35	gtt gtg cca gta ttc cgc gac ggt cat gcg acc ctc aat aac ggc aaa	864
	Val Val Pro Val Phe Arg Asp Gly His Ala Thr Leu Asn Asn Gly Lys	
	275 280 285	
40	acc atc atc ggg ctg ggc gac atc cag gca act gtc gat ccg gtc ttg	912
	Thr Ile Ile Gly Leu Gly Asp Ile Gln Ala Thr Val Asp Pro Val Leu	
	290 295 300	
	ggc cag ggc gcg aac atg gcg tcc tat gcg gca tgg att ctg ggc gag	960
	Gly Gln Gly Ala Asn Met Ala Ser Tyr Ala Ala Trp Ile Leu Gly Glu	
	305 310 315 320	
45	gaa atc ctt gcg cac tct gtc tac gac ctg cgc ttc agc gaa cac ctg	1008
	Glu Ile Leu Ala His Ser Val Tyr Asp Leu Arg Phe Ser Glu His Leu	
	325 330 335	
50	gag cgt cgc cgc cag gat cgc gtg ctg tgc gcc acc cgc tgg acc aac	1056
	Glu Arg Arg Arg Gln Asp Arg Val Leu Cys Ala Thr Arg Trp Thr Asn	
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55	ttc act ctg agc gcc ttc acg gaa ctt ccg ccg gaa ttc ctc acc ttc	1104
	Phe Thr Leu Ser Ala Phe Thr Glu Leu Pro Pro Glu Phe Leu Thr Phe	
	355 360 365	
60	ctt cag atc ctg agc cag agc cgt gaa atg gct gat gag ttc acg gac	1152
	Leu Gln Ile Leu Ser Gln Ser Arg Glu Met Ala Asp Glu Phe Thr Asp	
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	Arg	Ile	Gly	Gln	Trp	Cys	Ser	Gln	Tyr	Ala	Pro	Thr	Ile	Ala	Leu	Leu		
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10	cgg	cct	gac	gct	att	gct	ccg	ctg	gtc	aag	gcc	agc	gga	gcc	cta	act		1296
	Arg	Pro	Asp	Ala	Ile	Ala	Pro	Leu	Val	Lys	Ala	Ser	Gly	Ala	Leu	Thr		
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15	cct	ggg	tga	ttcaa	atg	acg	tta	aaa	aaa	gat	gtg	gtg	gtg	gat	atc	gac		1346
	Pro	Gly			Met	Thr	Leu	Lys	Lys	Asp	Val	Val	Val	Asp	Ile	Asp		
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	tcc	acc	agc	ttc	cgc	cag	gcg	gtt	gca	ctg	ttc	gcg	acg	gga	att	gcg		1394
	Ser	Thr	Ser	Phe	Arg	Gln	Ala	Val	Ala	Leu	Phe	Ala	Thr	Gly	Ile	Ala		
				450					455					460				
20	gtt	ctc	agc	gcg	gag	act	gac	gag	ggc	gaa	gtg	cat	ggc	atg	acg	gtg		1442
	Val	Leu	Ser	Ala	Glu	Thr	Asp	Glu	Gly	Glu	Val	His	Gly	Met	Thr	Val		
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25	aac	agc	ttc	acc	tcc	atc	agt	ctg	gac	ccg	ccg	act	gtg	atg	gtg	tcc		1490
	Asn	Ser	Phe	Thr	Ser	Ile	Ser	Leu	Asp	Pro	Pro	Thr	Val	Met	Val	Ser		
		480					485					490						
30	ctg	aag	tcg	ggc	cgt	atg	cat	gag	ctg	ctg	act	caa	ggc	gga	cgc	ttc		1538
	Leu	Lys	Ser	Gly	Arg	Met	His	Glu	Leu	Leu	Thr	Gln	Gly	Gly	Arg	Phe		
	495				500					505					510			
35	ggc	gtc	agc	ctc	ctg	ggt	gaa	agt	cag	aag	atg	tta	tcg	gca	ttc	ttc		1586
	Gly	Val	Ser	Leu	Leu	Gly	Glu	Ser	Gln	Lys	Met	Leu	Ser	Ala	Phe	Phe		
				515						520					525			
	agc	aag	cgt	gtg	atc	gat	ggc	act	cct	cct	cct	gct	ttc	aca	ggt	cag		1634
	Ser	Lys	Arg	Val	Ile	Asp	Gly	Thr	Pro	Pro	Pro	Ala	Phe	Thr	Val	Gln		
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40	gcc	ggc	ctc	ccc	act	ctg	cgg	gac	gcc	atg	gcc	tgg	ttc	gaa	tgc	gat		1682
	Ala	Gly	Leu	Pro	Thr	Leu	Arg	Asp	Ala	Met	Ala	Trp	Phe	Glu	Cys	Asp		
			545					550					555					
45	gtg	gag	agc	acg	gtt	gaa	gta	cac	gac	cac	acg	ctc	ttc	att	gcg	cgc		1730
	Val	Glu	Ser	Thr	Val	Glu	Val	His	Asp	His	Thr	Leu	Phe	Ile	Ala	Arg		
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 15 Asp Arg Lys Pro Asp Glu Tyr Ser Gly Leu Arg Leu Leu Asn Thr Val
 35 40 45
 20 Ala His Asn Ala Val Thr Val Gln Arg Glu Val Ala Leu Asp Val Asn
 50 55 60
 25 Glu Trp Pro Ser Glu Glu Phe Gly Tyr Phe Gly His Tyr Tyr Tyr Val
 65 70 75 80
 30 Gly Gly Pro Gln Pro Met Arg Leu Tyr Gly Asp Leu Lys Ala Pro Ser
 85 90 95
 35 Arg Ala Val Asp Tyr Arg Leu Tyr Leu Pro Met Leu Met Arg Ala Leu
 100 105 110
 40 Glu Ala Arg Gly Gly Lys Phe Cys Tyr Asp Ala Val Ser Ala Glu Asp
 115 120 125
 45 Leu Glu Gly Leu Ser Glu Gln Tyr Asp Leu Leu Val Val Cys Thr Gly
 130 135 140
 50 Lys Tyr Ala Leu Gly Arg Val Phe Glu Lys Gln Ser Glu Asn Ser Pro
 145 150 155 160
 55 Phe Glu Lys Pro Gln Arg Ala Leu Cys Val Gly Leu Phe Lys Gly Ile
 165 170 175
 60 Lys Glu Ala Pro Ile Arg Ala Val Thr Met Ser Phe Ser Pro Gly His
 180 185 190
 65 Gly Glu Leu Ile Glu Ile Pro Thr Leu Ser Phe Asn Gly Met Ser Thr
 195 200 205
 70 Ala Leu Val Leu Glu Asn His Ile Gly Ser Asp Leu Glu Val Leu Ala
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 75 His Thr Lys Tyr Asp Asp Asp Pro Arg Ala Phe Leu Asp Leu Met Leu
 225 230 235 240

[illegible]

<400> 9

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Met Thr Leu Lys Lys Asp Val Val Val Asp Ile Asp Ser Thr Ser Phe
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Arg Gln Ala Val Ala Leu Phe Ala Thr Gly Ile Ala Val Leu Ser Ala
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10

Glu Thr Asp Glu Gly Glu Val His Gly Met Thr Val Asn Ser Phe Thr
          35          40          45

15 Ser Ile Ser Leu Asp Pro Pro Thr Val Met Val Ser Leu Lys Ser Gly
    50          55          60

20 Arg Met His Glu Leu Leu Thr Gln Gly Gly Arg Phe Gly Val Ser Leu
    65          70          75          80

Leu Gly Glu Ser Gln Lys Met Leu Ser Ala Phe Phe Ser Lys Arg Val
          85          90          95
25

Ile Asp Gly Thr Pro Pro Pro Ala Phe Thr Val Gln Ala Gly Leu Pro
          100          105          110
30

Thr Leu Arg Asp Ala Met Ala Trp Phe Glu Cys Asp Val Glu Ser Thr
    115          120          125

35 Val Glu Val His Asp His Thr Leu Phe Ile Ala Arg Val Ser Ala Cys
    130          135          140

Gly Val Pro Glu Ala Ser Ala Pro Gln Pro Leu Leu Phe Phe Ala Ser
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Arg Tyr His Gly Asn Pro Leu Pro Leu Asn
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<223> StyB

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	Leu	Gly	Leu	Phe	Leu	Arg	Gln	His	Asp	Val	Asp	Val	Thr	Val	Tyr	Thr	
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15	gat	cgt	aag	ccc	gat	gaa	tac	agt	gga	ctg	cgg	ctc	ctg	aat	acc	gtt	144
	Asp	Arg	Lys	Pro	Asp	Glu	Tyr	Ser	Gly	Leu	Arg	Leu	Leu	Asn	Thr	Val	
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	Ala	His	Asn	Ala	Val	Thr	Val	Gln	Arg	Glu	Val	Ala	Leu	Asp	Val	Asn	
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	Glu	Trp	Pro	Ser	Glu	Glu	Phe	Gly	Tyr	Phe	Gly	His	Tyr	Tyr	Tyr	Val	
	65					70					75					80	
30	ggt	ggg	ccg	cag	ccc	atg	cgt	ctc	tac	ggt	gat	ctc	aag	gct	ccc	agc	288
	Gly	Gly	Pro	Gln	Pro	Met	Arg	Leu	Tyr	Gly	Asp	Leu	Lys	Ala	Pro	Ser	
					85					90					95		
35	cgt	gca	gtg	gac	tac	cgt	ctc	tac	ctg	ccg	atg	ctg	atg	cgt	gca	ctg	336
	Arg	Ala	Val	Asp	Tyr	Arg	Leu	Tyr	Leu	Pro	Met	Leu	Met	Arg	Ala	Leu	
				100					105					110			
40	gaa	gcc	agg	ggc	ggc	aag	ttc	tgc	tac	gac	gcc	gtg	tct	gcc	gaa	gat	384
	Glu	Ala	Arg	Gly	Gly	Lys	Phe	Cys	Tyr	Asp	Ala	Val	Ser	Ala	Glu	Asp	
			115					120					125				
45	ctg	gaa	ggg	ctg	tcg	gag	cag	tat	gat	ctg	ctg	gtt	gtg	tgc	act	ggg	432
	Leu	Glu	Gly	Leu	Ser	Glu	Gln	Tyr	Asp	Leu	Leu	Val	Val	Cys	Thr	Gly	
		130					135					140					
50	aaa	tac	gcc	ctc	ggc	agg	gtg	ttc	gag	aag	cag	tcc	gaa	aac	tcg	ccc	480
	Lys	Tyr	Ala	Leu	Gly	Arg	Val	Phe	Glu	Lys	Gln	Ser	Glu	Asn	Ser	Pro	
			145			150					155					160	
55	ttc	gag	aag	ccg	caa	cgg	gca	ctg	tgc	gtt	ggg	ctc	ttc	aag	ggc	atc	528
	Phe	Glu	Lys	Pro	Gln	Arg	Ala	Leu	Cys	Val	Gly	Leu	Phe	Lys	Gly	Ile	
					165					170					175		
60	aag	gaa	gca	ccg	att	cgc	gcg	gtg	act	atg	tcc	ttc	tcg	cca	ggg	cat	576
	Lys	Glu	Ala	Pro	Ile	Arg	Ala	Val	Thr	Met	Ser	Phe	Ser	Pro	Gly	His	
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65	ggc	gag	ctg	att	gag	att	cca	acc	ctg	tcg	ttc	aat	ggc	atg	agc	aca	624
	Gly	Glu	Leu	Ile	Glu	Ile	Pro	Thr	Leu	Ser	Phe	Asn	Gly	Met	Ser	Thr	
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70	gcg	ctg	gtg	ctc	gaa	aac	cat	att	ggg	agc	gat	ctg	gaa	gtc	ctc	gcc	672
	Ala	Leu	Val	Leu	Glu	Asn	His	Ile	Gly	Ser	Asp	Leu	Glu	Val	Leu	Ala	
			210				215					220					
75	cac	acc	aag	tat	gac	gat	gac	ccg	cgt	gcg	ttc	ctc	gat	ctg	atg	ctg	720
	His	Thr	Lys	Tyr	Asp	Asp	Asp	Pro	Arg	Ala	Phe	Leu	Asp	Leu	Met	Leu	

	225				230					235					240		
5	gag Glu	aag Lys	ctg Leu	cgt Arg	gag Glu	cat His	cat His	cct Pro	tcc Ser	gtt Val	gcc Ala	gag Glu	cgc Arg	atc Ile	gat Asp	ccg Pro	768
					245					250					255		
10	gct Ala	gag Glu	ttc Phe	gac Asp	ctg Leu	gcc Ala	aac Asn	agt Ser	tct Ser	ctg Leu	gac Asp	atc Ile	ctc Leu	cag Gln	ggc Gly	ggt Gly	816
				260					265					270			
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			275					280					285				
15	acc Thr	atc Ile	atc Ile	ggg Gly	ctg Leu	ggc Gly	gac Asp	atc Ile	cag Gln	gca Ala	act Thr	gtc Val	gat Asp	ccg Pro	gtc Val	ttg Leu	912
		290					295					300					
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	305					310					315					320	
25	gaa Glu	atc Ile	ctt Leu	gcg Ala	cac His	tct Ser	gtc Val	tac Tyr	gac Asp	ctg Leu	cgc Arg	ttc Phe	agc Ser	gaa Glu	cac His	ctg Leu	1008
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30	gag Glu	cgt Arg	cgc Arg	cgc Arg	cag Gln	gat Asp	cgc Arg	gtg Val	ctg Leu	tgc Cys	gcc Ala	acc Thr	cgc Arg	tgg Trp	acc Thr	aac Asn	1056
				340					345					350			
	ttc Phe	act Thr	ctg Leu	agc Ser	gcc Ala	ttc Phe	acg Thr	gaa Glu	ctt Leu	ccg Pro	ccg Pro	gaa Glu	ttc Phe	ctc Leu	acc Thr	ttc Phe	1104
			355					360					365				
35	ctt Leu	cag Gln	atc Ile	ctg Leu	agc Ser	cag Gln	agc Ser	cgt Arg	gaa Glu	atg Met	gct Ala	gat Asp	gag Glu	ttc Phe	acg Thr	gac Asp	1152
		370					375					380					
40	aac Asn	ttc Phe	aac Asn	tat Tyr	ccg Pro	gaa Glu	ctt Leu	cag Gln	tgg Trp	gat Asp	cgc Arg	ttc Phe	tcc Ser	agc Ser	ccg Pro	gaa Glu	1200
	385					390					395					400	
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				405						410					415		
50	cgg Arg	cct Pro	gac Asp	act Thr	att Ile	gct Ala	ccg Pro	ctg Leu	gtc Val	aag Lys	gcc Ala	agc Ser	gga Gly	gcc Ala	cta Leu	act Thr	1296
				420					425					430			
	cct Pro	ggg Gly	tga	ttcaa	atg Met	acg Thr	tta Leu	aaa Lys	aaa Lys	gat Asp	gtg Val	gtg Val	gtg Val	gat Asp	atc Ile	gac Asp	1346
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5	ctg aag tcg ggc cgt atg cat gag ctg ctg act caa ggc gga cgc ttc	1538
	Leu Lys Ser Gly Arg Met His Glu Leu Leu Thr Gln Gly Gly Arg Phe	
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10	ggc gtc agc ctc ctg ggt gaa agt cag aag atg tta tcg gca ttc ttc	1586
	Gly Val Ser Leu Leu Gly Glu Ser Gln Lys Met Leu Ser Ala Phe Phe	
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15	agc aag cgt gtg atc gat ggc act cct cct cct gct ttc aca gtt cag	1634
	Ser Lys Arg Val Ile Asp Gly Thr Pro Pro Pro Ala Phe Thr Val Gln	
	530 535 540	
20	gcc ggc ctc ccc act ctg cgg gac gcc atg gcc tgg ttc gaa tgc gat	1682
	Ala Gly Leu Pro Thr Leu Arg Asp Ala Met Ala Trp Phe Glu Cys Asp	
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25	gtg gag agc acg gtt gaa gta cac gac cac acg ctc ttc att gcg cgc	1730
	Val Glu Ser Thr Val Glu Val His Asp His Thr Leu Phe Ile Ala Arg	
	560 565 570	
30	gtt agc gcc tgt gga gtg ccg gag gcg agt gcc ccc cag ccg ctg ctg	1778
	Val Ser Ala Cys Gly Val Pro Glu Ala Ser Ala Pro Gln Pro Leu Leu	
	575 580 585 590	
35	ttc ttt gcc agc cgt tat cac ggc aac ccg ttg ccg ctg aat tga	1823
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60	Asp Arg Lys Pro Asp Glu Tyr Ser Gly Leu Arg Leu Leu Asn Thr Val	
	35 40 45	
65	Ala His Asn Ala Val Thr Val Gln Arg Glu Val Ala Leu Asp Val Asn	
	50 55 60	
70	Glu Trp Pro Ser Glu Glu Phe Gly Tyr Phe Gly His Tyr Tyr Tyr Val	
	65 70 75 80	

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5	Arg	Ala	Val	Asp	Tyr	Arg	Leu	Tyr	Leu	Pro	Met	Leu	Met	Arg	Ala	Leu	
				100					105					110			
10	Glu	Ala	Arg	Gly	Gly	Lys	Phe	Cys	Tyr	Asp	Ala	Val	Ser	Ala	Glu	Asp	
			115					120					125				
15	Leu	Glu	Gly	Leu	Ser	Glu	Gln	Tyr	Asp	Leu	Leu	Val	Val	Cys	Thr	Gly	
	130						135					140					
20	Lys	Tyr	Ala	Leu	Gly	Arg	Val	Phe	Glu	Lys	Gln	Ser	Glu	Asn	Ser	Pro	
	145					150					155					160	
25	Phe	Glu	Lys	Pro	Gln	Arg	Ala	Leu	Cys	Val	Gly	Leu	Phe	Lys	Gly	Ile	
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30	Lys	Glu	Ala	Pro	Ile	Arg	Ala	Val	Thr	Met	Ser	Phe	Ser	Pro	Gly	His	
				180					185					190			
35	Gly	Glu	Leu	Ile	Glu	Ile	Pro	Thr	Leu	Ser	Phe	Asn	Gly	Met	Ser	Thr	
			195					200					205				
40	Ala	Leu	Val	Leu	Glu	Asn	His	Ile	Gly	Ser	Asp	Leu	Glu	Val	Leu	Ala	
	210						215					220					
45	His	Thr	Lys	Tyr	Asp	Asp	Asp	Pro	Arg	Ala	Phe	Leu	Asp	Leu	Met	Leu	
	225					230					235					240	
50	Glu	Lys	Leu	Arg	Glu	His	His	Pro	Ser	Val	Ala	Glu	Arg	Ile	Asp	Pro	
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55	Ala	Glu	Phe	Asp	Leu	Ala	Asn	Ser	Ser	Leu	Asp	Ile	Leu	Gln	Gly	Gly	
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60	Val	Val	Pro	Val	Phe	Arg	Asp	Gly	His	Ala	Thr	Leu	Asn	Asn	Gly	Lys	
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65	Thr	Ile	Ile	Gly	Leu	Gly	Asp	Ile	Gln	Ala	Thr	Val	Asp	Pro	Val	Leu	
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325

330

335

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15 Leu Gln Ile Leu Ser Gln Ser Arg Glu Met Ala Asp Glu Phe Thr Asp
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20 Asn Phe Asn Tyr Pro Glu Leu Gln Trp Asp Arg Phe Ser Ser Pro Glu
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55 Ser Ile Ser Leu Asp Pro Pro Thr Val Met Val Ser Leu Lys Ser Gly
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Leu Gly Glu Ser Gln Lys Met Leu Ser Ala Phe Phe Ser Lys Arg Val

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	Asp	Arg	Lys	Pro	Asp	Glu	Tyr	Ser	Gly	Leu	Arg	Leu	Leu	Asn	Thr	Val		
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	Ala	His	Asn	Ala	Val	Thr	Val	Gln	Arg	Glu	Val	Ala	Leu	Asp	Val	Asn		
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	Glu	Trp	Pro	Ser	Glu	Glu	Phe	Gly	Tyr	Phe	Gly	His	Tyr	Tyr	Tyr	Val		
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	Gly Gly Pro Gln Pro Met Arg Leu Tyr Gly Asp Leu Lys Ala Pro Ser	
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	Arg Ala Val Asp Tyr Arg Leu Tyr Leu Pro Met Leu Met Arg Ala Leu	
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	Glu Ala Arg Gly Gly Lys Phe Cys Tyr Asp Ala Val Ser Ala Glu Asp	
	115 120 125	
15	ctg gaa ggg ctg tgc gag cag tat gat ctg ctg gtt gtg tgc act ggt	432
	Leu Glu Gly Leu Ser Glu Gln Tyr Asp Leu Leu Val Val Cys Thr Gly	
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	Lys Tyr Ala Leu Gly Arg Val Phe Glu Lys Gln Ser Glu Asn Ser Pro	
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	Lys Glu Thr Pro Ile Arg Ala Val Thr Met Ser Phe Ser Pro Gly His	
	180 185 190	
35	ggc gag ctg att gag att cca acc ctg tcg ttc aat ggc atg agc aca	624
	Gly Glu Leu Ile Glu Ile Pro Thr Leu Ser Phe Asn Gly Met Ser Thr	
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	Ala Leu Val Leu Glu Asn His Ile Gly Ser Asp Leu Glu Val Leu Ala	
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	His Thr Lys Tyr Asp Asp Asp Pro Arg Ala Phe Leu Asp Leu Met Leu	
	225 230 235 240	
50	gag aag ctg cgt aag cat cat cct tcc gtt gcc gag cgc atc gat ccg	768
	Glu Lys Leu Arg Lys His His Pro Ser Val Ala Glu Arg Ile Asp Pro	
	245 250 255	
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	Ala Glu Phe Asp Leu Ala Asn Ser Ser Leu Asp Ile Leu Gln Gly Gly	
	260 265 270	
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	Val Val Pro Val Phe Arg Asp Gly His Ala Thr Leu Asn Asn Gly Lys	
	275 280 285	
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	Thr Ile Ile Gly Leu Gly Asp Ile Gln Ala Thr Val Asp Pro Val Leu	
	290 295 300	
70	ggc cag ggc gcg aac atg gcg tcc tat gcg gca tgg att ctg ggc gag	960
	Gly Gln Gly Ala Asn Met Ala Ser Tyr Ala Ala Trp Ile Leu Gly Glu	
	305 310 315 320	
75	gaa atc ctt gcg cac tct gtc tac gac ctg cgc ttc agc gaa cac ctg	1008

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	Glu	Arg	Arg	Arg	Gln	Asp	Arg	Val	Leu	Cys	Ala	Thr	Arg	Trp	Thr	Asn	
				340					345					350			
10	ttc	act	ctg	agc	gcc	ttc	acg	gaa	ctt	ccg	ccg	gaa	ttc	ctc	acc	ttc	1104
	Phe	Thr	Leu	Ser	Ala	Phe	Thr	Glu	Leu	Pro	Pro	Glu	Phe	Leu	Thr	Phe	
			355					360					365				
15	ctt	cag	atc	ctg	agc	cag	agc	cgt	gaa	atg	gct	gat	gag	ttc	acg	gac	1152
	Leu	Gln	Ile	Leu	Ser	Gln	Ser	Arg	Glu	Met	Ala	Asp	Glu	Phe	Thr	Asp	
		370					375					380					
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	Asn	Phe	Asn	Tyr	Pro	Glu	Leu	Gln	Trp	Asp	Arg	Phe	Ser	Ser	Pro	Glu	
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25	cgt	atc	ggt	cag	tgg	tgc	agc	cag	tac	gca	ccc	act	att	gca	cta	ttg	1248
	Arg	Ile	Gly	Gln	Trp	Cys	Ser	Gln	Tyr	Ala	Pro	Thr	Ile	Ala	Leu	Leu	
				405					410						415		
30	cgg	cct	gac	gct	att	gct	cca	ctg	gtc	aac	gcc	agc	gga	gcc	cta	act	1296
	Arg	Pro	Asp	Ala	Ile	Ala	Pro	Leu	Val	Asn	Ala	Ser	Gly	Ala	Leu	Thr	
			420					425					430				
35	cct	ggg	tga	ttcaa	atg	acg	tta	aaa	aaa	gat	gtg	gtg	gtg	gat	atc	gac	1346
	Pro	Gly			Met	Thr	Leu	Lys	Lys	Asp	Val	Val	Val	Asp	Ile	Asp	
				435				440					445				
40	tcc	acc	agc	ttc	cgc	cag	gcg	gtt	gca	ctg	ttc	gcg	acg	gga	att	gcg	1394
	Ser	Thr	Ser	Phe	Arg	Gln	Ala	Val	Ala	Leu	Phe	Ala	Thr	Gly	Ile	Ala	
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	Val	Leu	Ser	Ala	Glu	Thr	Asp	Glu	Gly	Glu	Val	His	Gly	Met	Thr	Val	
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	Asn	Ser	Phe	Thr	Ser	Ile	Ser	Leu	Asp	Pro	Pro	Thr	Val	Met	Val	Ser	
		480				485						490					
55	ctg	aag	tcg	ggc	cgt	atg	cat	gag	ctg	ctg	act	caa	ggc	gga	cgc	ttc	1538
	Leu	Lys	Ser	Gly	Arg	Met	His	Glu	Leu	Leu	Thr	Gln	Gly	Gly	Arg	Phe	
	495				500					505						510	
60	ggc	gtc	agc	ctc	ctg	ggt	gaa	agt	cag	aag	atg	tta	tcg	gca	ttc	ttc	1586
	Gly	Val	Ser	Leu	Leu	Gly	Glu	Ser	Gln	Lys	Met	Leu	Ser	Ala	Phe	Phe	
				515					520					525			
65	agc	aag	cgt	gtg	atc	gat	ggc	act	cct	cct	cct	gct	ttc	aca	gtt	cag	1634
	Ser	Lys	Arg	Val	Ile	Asp	Gly	Thr	Pro	Pro	Pro	Ala	Phe	Thr	Val	Gln	
			530					535					540				
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	Ala	Gly	Leu	Pro	Thr	Leu	Arg	Asp	Ala	Met	Ala	Trp	Phe	Glu	Cys	Asp	
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	Val	Glu	Ser	Thr	Val	Glu	Val	His	Asp	His	Thr	Leu	Phe	Ile	Ala	Arg	
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 Val Ser Ala Cys Gly Val Pro Glu Ala Ser Ala Pro Gln Pro Leu Leu
 575 580 585 590
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 35 Ala His Asn Ala Val Thr Val Gln Arg Glu Val Ala Leu Asp Val Asn
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 Glu Trp Pro Ser Glu Glu Phe Gly Tyr Phe Gly His Tyr Tyr Tyr Val
 65 70 75 80
 40 Gly Gly Pro Gln Pro Met Arg Leu Tyr Gly Asp Leu Lys Ala Pro Ser
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 45 Arg Ala Val Asp Tyr Arg Leu Tyr Leu Pro Met Leu Met Arg Ala Leu
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 50 Glu Ala Arg Gly Gly Lys Phe Cys Tyr Asp Ala Val Ser Ala Glu Asp
 115 120 125
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 130 135 140
 55 Lys Tyr Ala Leu Gly Arg Val Phe Glu Lys Gln Ser Glu Asn Ser Pro
 145 150 155 160
 60 Phe Glu Lys Pro Gln Arg Ala Leu Cys Val Gly Leu Phe Lys Gly Ile
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10	Gly	Glu	Leu	Ile	Glu	Ile	Pro	Thr	Leu	Ser	Phe	Asn	Gly	Met	Ser	Thr
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20	His	Thr	Lys	Tyr	Asp	Asp	Asp	Pro	Arg	Ala	Phe	Leu	Asp	Leu	Met	Leu
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25	Glu	Lys	Leu	Arg	Lys	His	His	Pro	Ser	Val	Ala	Glu	Arg	Ile	Asp	Pro
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30	Ala	Glu	Phe	Asp	Leu	Ala	Asn	Ser	Ser	Leu	Asp	Ile	Leu	Gln	Gly	Gly
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45	Gly	Gln	Gly	Ala	Asn	Met	Ala	Ser	Tyr	Ala	Ala	Trp	Ile	Leu	Gly	Glu
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30 Ser Ile Ser Leu Asp Pro Pro Thr Val Met Val Ser Leu Lys Ser Gly
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35 Arg Met His Glu Leu Leu Thr Gln Gly Gly Arg Phe Gly Val Ser Leu
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Leu Gly Glu Ser Gln Lys Met Leu Ser Ala Phe Phe Ser Lys Arg Val
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Ile Asp Gly Thr Pro Pro Pro Ala Phe Thr Val Gln Ala Gly Leu Pro
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Thr Leu Arg Asp Ala Met Ala Trp Phe Glu Cys Asp Val Glu Ser Thr
 115 120 125

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	Leu Gly Leu Phe Leu Arg Gln His Asp Val Asp Val Thr Val Tyr Thr			
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	Ala His Asn Ala Val Thr Val Gln Arg Glu Val Ala Leu Asp Val Asn			
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	Glu Trp Pro Ser Glu Glu Phe Gly Tyr Phe Gly His Tyr Tyr Tyr Val			
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	Gly Gly Pro Gln Pro Met Cys Leu Tyr Gly Asp Leu Lys Ala Pro Ser			
	85 90 95			
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	Arg Ala Val Asp Tyr Arg Leu Tyr Leu Pro Met Leu Met Arg Ala Leu			
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55	gaa gcc agg ggc ggc aag ttc tgc tac gac gcc gtg tct gcc gaa gat			384
	Glu Ala Arg Gly Gly Lys Phe Cys Tyr Asp Ala Val Ser Ala Glu Asp			
	115 120 125			
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	Leu Glu Gly Leu Ser Glu Gln Tyr Asp Leu Leu Val Val Cys Thr Gly			
	130 135 140			
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	Lys Tyr Ala Leu Gly Arg Val Phe Glu Lys Gln Ser Glu Asn Ser Pro			
	145 150 155 160			
70	ttc gag aag ccg caa cgg gca ctg tgc gtt ggt ctc ttc aag ggc atc			528
	Phe Glu Lys Pro Gln Arg Ala Leu Cys Val Gly Leu Phe Lys Gly Ile			

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	His	Thr	Lys	Tyr	Asp	Asp	Asp	Pro	Arg	Ala	Phe	Leu	Asp	Leu	Met	Leu	
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	Ala	Glu	Phe	Asp	Leu	Ala	Asn	Ser	Ser	Leu	Asp	Ile	Leu	Gln	Gly	Gly	
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	Thr	Ile	Ile	Gly	Leu	Gly	Asp	Ile	Gln	Ala	Thr	Val	Asp	Pro	Ile	Leu	
45				290					295					300			
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	Gly	Gln	Gly	Ala	Asn	Met	Ala	Ser	Tyr	Ala	Ala	Trp	Ile	Leu	Gly	Glu	
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	Glu	Ile	Leu	Ala	His	Ser	Val	Tyr	Asp	Leu	Arg	Phe	Ser	Glu	His	Leu	
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	Glu	Arg	Arg	Arg	Gln	Asp	Arg	Val	Leu	Cys	Ala	Thr	Arg	Trp	Thr	Asn	
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	Phe	Thr	Leu	Ser	Ala	Phe	Thr	Glu	Leu	Pro	Pro	Glu	Phe	Leu	Thr	Phe	
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	Leu	Gln	Ile	Leu	Ser	Gln	Ser	Arg	Glu	Met	Ala	Asp	Glu	Phe	Thr	Asp	
70				370					375					380			
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	Pro Gly Met Thr Leu Lys Lys Asp Val Val Val Asp Ile Asp	
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	gtt agc gcc tgt gga gtg ccg gag gcg agt gcc ccc cag ccg ctg ctg	1778
	Val Ser Ala Cys Gly Val Pro Glu Ala Ser Ala Pro Gln Pro Leu Leu	
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265

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