

PhoenixTemp59768.tmp.txt
SEQUENCE LISTING

<110> BASF Plant Science GmbH
<120> Lipid Metabolism Protein and uses thereof II (Phosphate Transporter)
<130> PF 60402
<150> EP 07150061.5
<151> 2007-12-17
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<170> PatentIn version 3.4
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Lys Asp Ala Phe Val Asp Tyr Ser Gln Leu Lys Lys Asp Leu Lys Lys	
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atc cat ttg ttc acc aat gga gtt gag aag aag cac aca gaa act tct	144
Ile His Leu Phe Thr Asn Gly Val Glu Lys Lys His Thr Glu Thr Ser	
35 40 45	
ctc atc aaa acc gtt aag tcc tct tta gga agg ctt tcc att ttc ggt	192
Leu Ile Lys Thr Val Lys Ser Ser Leu Gly Arg Leu Ser Ile Phe Gly	
50 55 60	
aat aag ggg cgg gaa caa tct cgt gtc atc caa gtt cat aag aag ctt	240
Asn Lys Gly Arg Glu Gln Ser Arg Val Ile Gln Val His Lys Lys Leu	
65 70 75 80	
gct tct tct gga agt aac aat gac gtg tat gaa acg gaa ctt ctg gag	288
Ala Ser Ser Gly Ser Asn Asn Asp Val Tyr Glu Thr Glu Leu Leu Glu	
85 90 95	
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Lys Ile Ala Asp Asp Thr Asp Ala Ala Lys Glu Phe Phe Ala Cys Leu	
100 105 110	
gac atg cag ctt aac aaa gtg aat cag ttc tac aag aca aag gag aaa	384
Asp Met Gln Leu Asn Lys Val Asn Gln Phe Tyr Lys Thr Lys Glu Lys	
115 120 125	
gag ttc ttg gag aga gga gag tgt tta aag aag caa atg gat ata ctc	432
Glu Phe Leu Glu Arg Gly Glu Cys Leu Lys Lys Gln Met Asp Ile Leu	
130 135 140	
att gag ctc aaa gat gct ttc aaa caa aag caa gcc aat gga gag tct	480
Ile Glu Leu Lys Asp Ala Phe Lys Gln Lys Gln Ala Asn Gly Glu Ser	
145 150 155 160	
act caa gaa tca aaa gaa gac gat tcc ata tca tgc acc atc tct tgc	528
Thr Gln Glu Ser Lys Glu Asp Asp Ser Ile Ser Cys Thr Ile Ser Cys	
165 170 175	

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tct Ser	tgc Cys	tta Leu 195	gat Asp	aat Asn	ttg Leu	gag Glu	gat Asp 200	aat Asn	ggg Gly	gaa Glu	gaa Glu	gca Ala 205	ttg Leu	gag Glu	tct Ser	624
ctg Leu	gga Gly 210	tca Ser	gaa Glu	gaa Glu	ccg Pro	atc Ile 215	aaa Lys	gct Ala	aac Asn	aac Asn	gag Glu 220	gac Asp	tcg Ser	aag Lys	ctg Leu	672
acc Thr 225	acg Thr	gtt Val	tct Ser	agt Ser	cgt Arg 230	gtt Val	ttc Phe	agc Ser	tgc Cys	caa Gln 235	ggg Gly	aag Lys	aat Asn	gtg Val	aag Lys 240	720
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ata Ile	aaa Lys 290	gga Gly	gct Ala	ttg Leu	aca Thr	gaa Glu 295	ctc Leu	ttt Phe	aaa Lys	ggg Gly	cta Leu 300	aat Asn	tat Tyr	ctc Leu	aaa Lys	912
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aga Arg	aag Lys 370	gcg Ala	atg Met	aaa Lys	tat Tyr	ctg Leu 375	aaa Lys	ccg Pro	cac His	cac His	cgt Arg 380	aaa Lys	gag Glu	tct Ser	cac His	1152
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Tyr	Lys	Ser	Ser	Arg	Tyr	Arg	Leu	Ile	Ser	Val	Ile	Arg	Asn	Ile	Val	
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gct	gta	aag	aca	gtg	ccg	ctt	cct	ttc	aga	gaa	gtg	gat	gaa	gaa	gac	2352	
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 Ser Cys Leu Asp Asn Leu Glu Asp Asn Gly Glu Glu Ala Leu Glu Ser
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 Leu Gly Ser Glu Glu Pro Ile Lys Ala Asn Asn Glu Asp Ser Lys Leu
 210 215 220
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 225 230 235 240
 Ile Lys Ile Pro Leu Thr Asn Pro Ser Arg Thr Phe Ser Ala Ile Ser
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 Tyr Leu Ile Asn Gln Ser Ser Ser Lys Lys Asn Gly Pro Asp Gly Gly
 260 265 270
 Asn Lys Leu Gln Ile Ser Lys Lys Lys Leu Ser His Ala Glu Lys Met
 275 280 285
 Ile Lys Gly Ala Leu Thr Glu Leu Phe Lys Gly Leu Asn Tyr Leu Lys
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 Thr Tyr Arg Asn Leu Asn Ile Leu Ala Phe Met Asn Ile Leu Lys Lys
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 Phe Asp Lys Val Thr Gly Lys Gln Ile Leu Pro Ile Tyr Leu Lys Val
 325 330 335
 Val Glu Ser Ser Tyr Phe Asn Ile Ser Asp Lys Val Met Ile Leu Ser
 340 345 350
 Asp Glu Val Glu Glu Trp Phe Ile Lys His Leu Ala Gly Glu Asn Arg
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 Arg Lys Ala Met Lys Tyr Leu Lys Pro His His Arg Lys Glu Ser His
 370 375 380
 Ser Val Thr Phe Phe Ile Gly Leu Phe Thr Gly Cys Phe Val Ala Leu
 385 390 395 400
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 405 410 415
 His Ser Ala Asn Thr Phe Tyr Met Glu Thr Ala Tyr Pro Val Leu Ser
 420 425 430
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 Phe Met Trp Arg Lys Ala Arg Ile Asn Tyr Ser Phe Ile Phe Glu Leu

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455

460

Gly Ser Lys Asn Glu Leu Lys Tyr Arg Asp Val Phe Leu Ile Cys Thr
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Cys Tyr Tyr Ile Thr Gly Ser Tyr Ala Thr Gln Asp Tyr Glu Tyr Cys
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Met Arg Val Lys Tyr Tyr Arg Asp Leu Ala Tyr Ala Val Ser Phe Leu
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Pro Tyr Tyr Trp Arg Ala Met Gln Cys Ala Arg Arg Trp Phe Asp Glu
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Leu Ala Ala Gly Thr Lys Val Ala Tyr Glu Lys Glu Arg Ser Leu Gly
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Trp Leu Cys Leu Val Val Ala Met Ser Ser Val Ala Thr Ile Tyr Gln
 660 665 670

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

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Gly Leu Phe Leu Ala Ala Leu Glu Val Ile Arg Arg Gly Gln Trp Asn
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 Thr Lys Arg Lys Val Glu Glu Glu Asp Leu Gln Gly Glu Arg Arg Pro
 20 25 30
 atg gtg aag ttc tcc aag cag ttc gag ggc cag ctt gtg ccc gaa tgg 144
 Met Val Lys Phe Ser Lys Gln Phe Glu Gly Gln Leu Val Pro Glu Trp
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 Gly Gly Gly Gly Gly Ala Val Ala Gly Glu Val Tyr Glu Thr Glu Leu
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 Gln Ser Leu Arg Gly Thr Ser Glu Gln Glu Glu Gly Gln Glu Lys
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aaa Lys	tgc Cys	ggc Gly	gac Asp	aag Lys 325	ctg Leu	agc Ser	atc Ile	aac Asn	aag Lys 330	agg Arg	aag Lys	gtg Val	cat His	cag Gln 335	gca Ala	1008
gag Glu	aag Lys	atg Met	ata Ile 340	agg Arg	ggt Gly	gcc Ala	ctg Leu	att Ile 345	gag Glu	ctg Leu	tac Tyr	aag Lys	gga Gly 350	ttg Leu	ggg Gly	1056
tat Tyr	ctc Leu	aag Lys 355	aca Thr	tac Tyr	cgg Arg	agc Ser	tta Leu 360	aac Asn	atg Met	atg Met	gcg Ala	ttt Phe 365	gtg Val	aag Lys	att Ile	1104
ttg Leu	aag Lys 370	aaa Lys	ttt Phe	gac Asp	aag Lys	gtt Val 375	aca Thr	gca Ala	aag Lys	gaa Glu	gct Ala 380	cag Gln	tca Ser	ata Ile	tac Tyr	1152
ctt Leu 385	aaa Lys	gta Val	gtg Val	gag Glu	agc Ser 390	tcc Ser	tac Tyr	ttc Phe	aat Asn	gtc Val 395	tct Ser	gac Asp	aag Lys	gta Val	att Ile 400	1200
agg Arg	cta Leu	atg Met	gac Asp	gat Asp 405	gtg Val	gat Asp	gag Glu	ctg Leu	ttt Phe 410	gtg Val	agg Arg	cat His	ttt Phe	gca Ala 415	gaa Glu	1248
ggt Gly	gac Asp	aaa Lys	cgg Arg 420	aaa Lys	gca Ala	atg Met	aag Lys	tat Tyr 425	ctt Leu	aag Lys	cca Pro	aat Asn	cag Gln 430	agg Arg	gaa Glu	1296
gaa Glu	tca Ser	cac His 435	acc Thr	aca Thr	aca Thr	ttt Phe	ttc Phe 440	ata Ile	ggg Gly	cta Leu	ttc Phe	act Thr 445	ggt Gly	ggc Gly	ttt Phe	1344
gca Ala 450	gca Ala	tta Leu	ttc Phe	att Ile	ggt Gly	tat Tyr 455	tgt Cys	atc Ile	atg Met	gca Ala	cac His 460	att Ile	gct Ala	ggg Gly	atg Met	1392
tac Tyr 465	acc Thr	cag Gln	cag Gln	tca Ser	aac Asn 470	aag Lys	gtc Val	tac Tyr	atg Met	gca Ala 475	aca Thr	tca Ser	tat Tyr	cct Pro	gtc Val 480	1440
ctg Leu	agc Ser	atg Met	ttc Phe	agc Ser 485	ctc Leu	ttc Phe	ttt Phe	ctg Leu	cat His 490	ctc Leu	ttc Phe	ctc Leu	tac Tyr	gga Gly 495	tgc Cys	1488
aac Asn	atc Ile	ttc Phe	atg Met	tgg Trp	aga Arg	aag Lys	aca Thr	cgc Arg	ata Ile	aac Asn	tac Tyr	aca Thr	ttc Phe	ata Ile	ttt Phe	1536

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

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gta Val 785	act Thr	ttg Leu	ttc Phe	atc Ile	ttg Leu 790	gca Ala	gct Ala	ctt Leu	gag Glu	gtg Val 795	att Ile	cga Arg	cga Arg	ggc Gly	cac His 800	2400
tg Trp	aac Asn	ttc Phe	tac Tyr	agg Arg 805	ttg Leu	gaa Glu	aac Asn	gag Glu	cac His 810	cta Leu	aac Asn	aat Asn	gca Ala	ggg Gly 815	aaa Lys	2448
ttc Phe	aga Arg	gct Ala	gtg Val 820	aag Lys	tat Tyr	att Ile	tca Ser	agt Ser 825	cat His	gaa Glu	aaa Lys	gtc Val	agc Ser 830	aaa Lys	ctc Leu	2496
tgc Cys	aaa Lys	agg Arg 835	gag Glu	aat Asn	gac Asp	tat Tyr	att Ile 840	gaa Glu	aac Asn	aat Asn	aga Arg	cag Gln 845	cac His	cct Pro	ctt Leu	2544
gcc Ala 850	cta Leu	gca Ala	tg Trp	ctg Leu	cta Leu	cac His 855	gca Ala	agc Ser	atc Ile	gag Glu 860	cta Leu	cct Pro	cca Pro	gtg Val	gca Ala	2592
ccg Pro 865	gcc Ala	gca Ala	gcg Ala	gct Ala	ttc Phe 870	ctc Leu	cac His	ctt Leu	gat Asp	gag Glu 875	ccg Pro	aag Lys	gtg Val	ctc Leu	gtc Val 880	2640
tcc Ser	ctc Leu	tgc Cys	aac Asn	agc Ser 885	tcc Ser	agc Ser	aac Asn	gac Asp	aag Lys 890	gct Ala	gat Asp	ggg Gly	tg Trp	tac Tyr 895	ctc Leu	2688
gac Asp	acc Thr	ggc Gly 900	gcc Ala	acc Thr	cat His	cac His	atg Met	act Thr 905	ggc Gly	cag Gln	cgg Arg	gag Glu	gtc Val 910	ttc Phe	acc Thr	2736
gag Glu	ctt Leu	gac Asp 915	tcc Ser	agc Ser	gtc Val	cga Arg	ggc Gly 920	tcc Ser	gtc Val	aag Lys	ttt Phe	ggg Gly 925	gat Asp	gcc Ala	tcc Ser	2784
ggc Gly 930	gtg Val	gag Glu	atc Ile	aag Lys	ggc Gly 935	gtc Val	ggc Gly	tcc Ser	gtc Val	acc Thr	ttc Phe 940	acc Thr	gcc Ala	aag Lys	tcc Ser	2832
ggt Gly 945	gag Glu	cac His	agg Arg	ctg Leu	ctc Leu 950	acc Thr	gga Gly	gtc Val	tac Tyr	tac Tyr 955	atc Ile	ccc Pro	gcg Ala	ttg Leu	aga Arg 960	2880
aac Asn	tct Ser	atc Ile	atc Ile	agc Ser 965	gtg Val	gga Gly	cag Gln	ctt Leu	gat Asp 970	gag Glu	aac Asn	ggc Gly	tca Ser	cgc Arg 975	gtg Val	2928
ttg Leu	gtc Val	gag Glu	cac His 980	gga Gly	gtc Val	atg Met	agg Arg	att Ile 985	tg Trp	gat Asp	cgc Arg	cgc Arg	cgt Arg 990	cgc Arg	ctt Leu	2976
ctt Leu	gcc Ala	aag Lys 995	gtc Val	gca Ala	caa Gln	cca Pro	gta Val 1000	tgc Cys	ctc Leu	gcc Ala	act Thr	cgt Arg 1005	cgg Arg	gac Asp	gat Asp	3024
gag Glu 1010	gcg Ala	tg Trp	cag Gln	tg Trp	cac His	gag Glu 1015	cgt Arg	ttc Phe	ggg Gly	cac His	ctc Leu 1020	cac His	ttt Phe	gag Glu		3069
gcc Ala 1025	ctg Leu	aag Lys	cgg Arg	ctc Leu	agt Ser	gcc Ala 1030	aag Lys	gag Glu	atg Met	cag Gln	acg Thr 1035	agt Ser	ttc Phe	cga Arg		3114
gcc Ala 1040	aag Lys	gag Glu	cgg Arg	ctc Leu	gag Glu	ctc Leu 1045	gtg Val	cac His	ggg Gly	gac Asp	ttg Leu 1050	tgt Cys	ggc Gly	cca Pro		3159

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gtg Val	aca Thr 1055	cca Pro	gcc Ala	aca Thr	cca Pro	gga Gly 1060	gga Gly	cga Arg	cgt Arg	tac Tyr	ttc Phe 1065	ctg Leu	ctg Leu	ctc Leu	3204
gtc Val	gac Asp 1070	gac Asp	ctc Leu	tcc Ser	cgc Arg	tac Tyr 1075	atg Met	tgg Trp	gtg Val	atg Met	gtc Val 1080	ctc Leu	ggc Gly	agc Ser	3249
aag Lys	gga Gly 1085	gag Glu	gct Ala	gcg Ala	gac Asp	gcc Ala 1090	atc Ile	cgg Arg	cac His	gcg Ala	cag Gln 1095	gct Ala	gct Ala	gca Ala	3294
gag Glu	gcg Ala 1100	gag Glu	tgc Cys	ggc Gly	cgc Arg	aag Lys 1105	ctg Leu	tgc Cys	gtg Val	ctg Leu	cgc Arg 1110	acc Thr	gac Asp	aac Asn	3339
ggc Gly	ggc Gly 1115	gaa Glu	ttc Phe	acg Thr	gcg Ala	gct Ala 1120	gaa Glu	ttc Phe	gcg Ala	tcg Ser	tac Tyr 1125	tgc Cys	gct Ala	gat Asp	3384
gag Glu	ggc Gly 1130	att Ile	cag Gln	cgc Arg	cac His	tac Tyr 1135	acc Thr	gcg Ala	ccg Pro	tat Tyr	agc Ser 1140	ccg Pro	cag Gln	cag Gln	3429
aac Asn	ggc Gly 1145	gtc Val	gtc Val	gag Glu	cgg Arg	cgc Arg 1150	aac Asn	cag Gln	acg Thr	gtt Val	gtg Val 1155	ggg Gly	atg Met	gct Ala	3474
cgg Arg	gct Ala 1160	ctc Leu	ctc Leu	aag Lys	cag Gln	agg Arg 1165	ggg Gly	atg Met	ccg Pro	gcc Ala	atc Ile 1170	ttc Phe	tgg Trp	gga Gly	3519
gag Glu	gcg Ala 1175	gtg Val	gtg Val	acg Thr	gcc Ala	gtc Val 1180	tac Tyr	gtc Val	ctc Leu	aac Asn	cgc Arg 1185	tcg Ser	cct Pro	acc Thr	3564
aag Lys	gcc Ala 1190	ctc Leu	gat Asp	ggc Gly	agg Arg	aca Thr 1195	ccg Pro	tat Tyr	gag Glu	gct Ala	tgg Trp 1200	cat His	ggg Gly	cgc Arg	3609
aag Lys	ccg Pro 1205	ggg Gly	gcc Ala	tcc Ser	cac His	ctg Leu 1210	cgg Arg	gtc Val	ttc Phe	ggc Gly	tgc Cys 1215	ctc Leu	gcg Ala	ttc Phe	3654
gtc Val	aag Lys 1220	gag Glu	ctt Leu	ggc Gly	cac His	atc Ile 1225	gac Asp	aag Lys	ctt Leu	gac Asp	gac Asp 1230	agg Arg	agc Ser	acc Thr	3699
cca Pro	ggg Gly 1235	gtg Val	ttc Phe	atc Ile	ggc Gly	tac Tyr 1240	gcg Ala	gag Glu	ggc Gly	tcg Ser	aag Lys 1245	gcc Ala	tac Tyr	cgc Arg	3744
atc Ile	ctc Leu 1250	gac Asp	ccg Pro	gag Glu	aca Thr	cag Gln 1255	cgt Arg	gtg Val	cgc Arg	aca Thr	gcg Ala 1260	cac His	gac Asp	gta Val	3789
gtg Val	ttc Phe 1265	gac Asp	aaa Lys	ggg Gly	cga Arg	ggg Gly 1270	tgg Trp	gta Val	tgg Trp	gac Asp	aag Lys 1275	gcg Ala	gtg Val	gac Asp	3834
gat Asp	ggt Gly 1280	tcg Ser	act Thr	ccg Pro	acg Thr	tac Tyr 1285	gac Asp	gac Asp	ttc Phe	acc Thr	gtc Val 1290	gag Glu	tac Tyr	gtc Val	3879
cac His	ttc Phe 1295	gag Glu	gga Gly	gct Ala	ggg Gly	gga Gly 1300	gta Val	ggc Gly	agc Ser	tct Ser	tct Ser 1305	tca Ser	cct Pro	agc Ser	3924
gtg	tct	acc	cca	gtc	ccc	gag	cct	cca	ccg	act	ccg	aca	cca	aca	3969

Val	Ser	Thr	Pro	Val	Pro	Glu	Pro	Pro	Pro	Thr	Pro	Thr	Pro	Thr	
1310						1315					1320				
cac	tct	tgg	gcc	acg	act	tcg	act	acg	acg	agc	tct	tca	ccg	aca	4014
His	Ser	Trp	Ala	Thr	Thr	Ser	Thr	Thr	Thr	Ser	Ser	Ser	Pro	Thr	
1325						1330					1335				
cca	cca	cag	ccg	gcg	acc	cca	cgc	cct	cca	gca	cca	aca	gcc	act	4059
Pro	Pro	Gln	Pro	Ala	Thr	Pro	Arg	Pro	Pro	Ala	Pro	Thr	Ala	Thr	
1340						1345					1350				
cct	ccg	agc	acg	tct	act	ccg	acg	cca	gct	cgt	gtt	gag	cgc	agc	4104
Pro	Pro	Ser	Thr	Ser	Thr	Pro	Thr	Pro	Ala	Arg	Val	Glu	Arg	Ser	
1355						1360					1365				
ctg	gtg	gag	ttc	gct	act	ccg	ctc	tcc	cac	gac	agg	gag	cgc	atc	4149
Leu	Val	Glu	Phe	Ala	Thr	Pro	Leu	Ser	His	Asp	Arg	Glu	Arg	Ile	
1370						1375					1380				
gac	gcg	tac	cac	aac	ggc	gag	cag	cta	cgc	cgg	tgc	cgg	gac	tgg	4194
Asp	Ala	Tyr	His	Asn	Gly	Glu	Gln	Leu	Arg	Arg	Cys	Arg	Asp	Trp	
1385						1390					1395				
tgc	ctt	gcg	acc	tgg	agg	cgc	agt	tgc	acc	ttg	cgt	gcg	acg	aca	4239
Cys	Leu	Ala	Thr	Trp	Arg	Arg	Ser	Cys	Thr	Leu	Arg	Ala	Thr	Thr	
1400						1405					1410				
gtg	agc	ctc	ggt	ctt	tca	cag	agg	ccg	aga	aac	acg	tgg	cat	ggt	4284
Val	Ser	Leu	Gly	Leu	Ser	Gln	Arg	Pro	Arg	Asn	Thr	Trp	His	Gly	
1415						1420					1425				
gtg	ccg	cga	tgc	agt	cgg	aga	tgg	acg	cga	ttc	agg	aga	acc	aca	4329
Val	Pro	Arg	Cys	Ser	Arg	Arg	Trp	Thr	Arg	Phe	Arg	Arg	Thr	Thr	
1430						1435					1440				
cct	ggg	agc	ttg	ctg	acc	tcc	ctc	gtg	gtc	acc	gtg	cga	tca	ccc	4374
Pro	Gly	Ser	Leu	Leu	Thr	Ser	Leu	Val	Val	Thr	Val	Arg	Ser	Pro	
1445						1450					1455				
ttt	aag	tgg	gtg	ttc	aag	ctg	aag	agg	gat	gaa	gcc	gga	gcc	atc	4419
Phe	Lys	Trp	Val	Phe	Lys	Leu	Lys	Arg	Asp	Glu	Ala	Gly	Ala	Ile	
1460						1465					1470				
gtc	aag	cac	aag	gct	cgc	ttg	gtg	gca	cgc	ggt	ttc	gtg	cag	cag	4464
Val	Lys	His	Lys	Ala	Arg	Leu	Val	Ala	Arg	Gly	Phe	Val	Gln	Gln	
1475						1480					1485				
gag	ggg	atc	gac	tac	gac	gat	gcc	ttc	gct	ccc	gtg	gca	cgg	atg	4509
Glu	Gly	Ile	Asp	Tyr	Asp	Asp	Ala	Phe	Ala	Pro	Val	Ala	Arg	Met	
1490						1495					1500				
gag	tcc	gtg	cga	ctc	ctt	ctt	gcg	ctg	gct	gct	cag	gaa	ggc	tgg	4554
Glu	Ser	Val	Arg	Leu	Leu	Leu	Ala	Leu	Ala	Ala	Gln	Glu	Gly	Trp	
1505						1510					1515				
ggc	gtc	cat	cac	atg	gac	gtc	aag	ttg	gcg	ttt	ctg	aac	ggc	gac	4599
Gly	Val	His	His	Met	Asp	Val	Lys	Leu	Ala	Phe	Leu	Asn	Gly	Asp	
1520						1525					1530				
ttg	aag	aag	gag	gtc	tac	gtg	cac	cag	ccg	ccg	gga	ttt	gtg	atc	4644
Leu	Lys	Lys	Glu	Val	Tyr	Val	His	Gln	Pro	Pro	Gly	Phe	Val	Ile	
1535						1540					1545				
ccc	ggc	aag	gag	ggc	aag	gtg	cta	cgc	ctg	cac	aag	gcc	ctt	tac	4689
Pro	Gly	Lys	Glu	Gly	Lys	Val	Leu	Arg	Leu	His	Lys	Ala	Leu	Tyr	
1550						1555					1560				
ggc	ttg	cgg	cag	gca	ccg	agg	gcg	tgg	aat	gcc	aag	ttg	gat	tcc	4734
Gly	Leu	Arg	Gln	Ala	Pro	Arg	Ala	Trp	Asn	Ala	Lys	Leu	Asp	Ser	

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1565	1570	1575	
acg ctc aag ggg atg ggc ttc gag caa agc ccg cac gag gtg gcc Thr Leu Lys Gly Met Gly Phe 1585 Glu Gln Ser Pro His 1590 Glu Val Ala			4779
atc tac cgg cgg ggc aat gga gga aat gcc ttg ctg gtg ggt gtc Ile Tyr Arg Arg Gly Asn Gly 1600 Gly Asn Ala Leu Leu 1605 Val Gly Val			4824
tac gtc gac gac ttg gtg atc acc ggc acc aag gat gcg gag gtc Tyr Val 1610 Asp Asp Leu Val Ile 1615 Thr Gly Thr Lys Asp 1620 Ala Glu Val			4869
gcg gcg ttc aag gag gag atg aag gcc acc ttc cag atg agt gat Ala Ala 1625 Phe Lys Glu Glu Met 1630 Lys Ala Thr Phe Gln 1635 Met Ser Asp			4914
ctg ggg cct ctc tct ttc tac ttg ggg att gag gtg cac cag gac Leu Gly 1640 Pro Leu Ser Phe Tyr 1645 Leu Gly Ile Glu Val 1650 His Gln Asp			4959
gac tcc ggg atc acg ctt cga cag acc gcc tac gcc aag cgc gtc Asp Ser 1655 Gly Ile Thr Leu Arg 1660 Gln Thr Ala Tyr Ala 1665 Lys Arg Val			5004
gtt gag ctg gct ggg ctc acc gat tgc aac cca act ctc act ccg Val Glu 1670 Leu Ala Gly Leu Thr 1675 Asp Cys Asn Pro Thr 1680 Leu Thr Pro			5049
atg gag aga ctg aag ctg agc cgc gat agc acg acg gag gaa gtg Met Glu 1685 Arg Leu Lys Leu Ser 1690 Arg Asp Ser Thr Thr 1695 Glu Glu Val			5094
gat gct aca cag tac cgg cgt ctt gtg ggg agc ctt cgc tac ctc Asp Ala 1700 Thr Gln Tyr Arg Arg 1705 Leu Val Gly Ser Leu 1710 Arg Tyr Leu			5139
acc cac aca cgg ccg gac ttg gcc ttc tcc gtc ggc tac gtc agt Thr His 1715 Thr Arg Pro Asp Leu 1720 Ala Phe Ser Val Gly 1725 Tyr Val Ser			5184
cgg ttc atg cag cga ccg aca acg gag cac cag cag gct gtg aag Arg Phe 1730 Met Gln Arg Pro Thr 1735 Thr Glu His Gln Gln 1740 Ala Val Lys			5229
agg atc atc cgc tac gtt gcg ggg act ctc aac cac ggt ctc tac Arg Ile 1745 Ile Arg Tyr Val Ala 1750 Gly Thr Leu Asn His 1755 Gly Leu Tyr			5274
tac ccg agg tgt cct ggc aag gca cac ttc atc ggg tac agc gac Tyr Pro 1760 Arg Cys Pro Gly Lys 1765 Ala His Phe Ile Gly 1770 Tyr Ser Asp			5319
agc gac cac gcc ggc gac atc gac acc agc aag agc acg agc ggg Ser Asp 1775 His Ala Gly Asp Ile 1780 Asp Thr Ser Lys Ser 1785 Thr Ser Gly			5364
att ctc ttc ttc ctt ggc gag tgc ctt gtt agc tgg cag tca gtc Ile Leu 1790 Phe Phe Leu Gly Glu 1795 Cys Leu Val Ser Trp 1800 Gln Ser Val			5409
aag cag cag gtg gtg gcc ctg tcc agc tgc gag gcc gag tac atg Lys Gln 1805 Gln Val Val Ala Leu 1810 Ser Ser Cys Glu Ala 1815 Glu Tyr Met			5454
gcg gcc tcc gcc gct tcg acc cag gcg cac tgg ctt gct cga ctg Ala Ala 1820 Ser Ala Ala Ser Thr 1825 Gln Ala His Trp Leu 1830 Ala Arg Leu			5499

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ctt agt gat ctc ctc ggc aga gat act gga gcg gtg aag ctc agg 5544
 Leu Ser Asp Leu Leu Gly Arg Asp Thr Gly Ala Val Lys Leu Arg
 1835 1840 1845
 gtg gat agc aag tcc act ctg gcc ctg gca aag aac ccc gtt ttt 5589
 Val Asp Ser Lys Ser Thr Leu Ala Leu Ala Lys Asn Pro Val Phe
 1850 1855 1860
 cac gaa cgg agc aag cac atc cgg gtg agg tac cac ttc atc cga 5634
 His Glu Arg Ser Lys His Ile Arg Val Arg Tyr His Phe Ile Arg
 1865 1870 1875
 agc tac ttg gag gaa ggg agc atc aag gcg agc tac atc aac acc 5679
 Ser Tyr Leu Glu Glu Gly Ser Ile Lys Ala Ser Tyr Ile Asn Thr
 1880 1885 1890
 aag gac cag ctt gcg gat ttg ctc acc aag ccc ctt ggg agg atc 5724
 Lys Asp Gln Leu Ala Asp Leu Leu Thr Lys Pro Leu Gly Arg Ile
 1895 1900 1905
 aag ttc ctt gag ctc tgc tcc cgg atc ggg atg gct caa ctt tcc 5769
 Lys Phe Leu Glu Leu Cys Ser Arg Ile Gly Met Ala Gln Leu Ser
 1910 1915 1920
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 His Lys Thr Ala His Lys Thr
 1925 1930

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 <211> 1930
 <212> PRT
 <213> Oryza sativa

<400> 6

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Thr Lys Arg Lys Val Glu Glu Glu Asp Leu Gln Gly Glu Arg Arg Pro
20 25 30

Met Val Lys Phe Ser Lys Gln Phe Glu Gly Gln Leu Val Pro Glu Trp
35 40 45

Lys Asp Ala Phe Val Asp Tyr Trp Gln Leu Lys Lys Asp Ile Lys Arg
50 55 60

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

Leu Ser Gln Cys Gln Ala Pro Val His Arg Lys Leu Ala Ser Gly Gly
85 90 95

Gly Gly Gly Gly Gly Ala Val Ala Gly Glu Val Tyr Glu Thr Glu Leu
100 105 110

Val Asp Gly Gly Ala Gly Phe Ala Asp Gly Glu Ala Ala Arg Ala Phe
115 120 125

Phe Ala Arg Leu Asp Glu Gln Leu Asn Lys Val Asn Arg Phe Tyr Glu
 130 135 140
 Arg Lys Glu Ala Glu Phe Val Glu Arg Gly Glu Ser Leu Arg Arg Gln
 145 150 155 160
 Leu Gln Ile Leu Ala Glu Leu Arg Ala Ala Val Val Ala Glu Gln Gln
 165 170 175
 Arg Asp Gly Arg Arg Arg Arg Cys Gly Asn Gly Gly Asp Ser Ser Pro
 180 185 190
 Pro Asp Thr Glu Asp Pro Ser Val Ser Cys Ser Ile Leu His Gly Asp
 195 200 205
 Gln Ser Leu Arg Gly Thr Ser Glu Gln Glu Gln Glu Gly Gln Glu Lys
 210 215 220
 Leu Thr Lys Asp Met Ile Ala Arg Ser Pro Asp Glu Gly Asp Asp Asp
 225 230 235 240
 Gln Leu Thr Ile Pro Gln Glu Leu Gly Asp Ser Gly Arg Leu Gly Arg
 245 250 255
 Pro Arg Glu Glu Ala Ala Asn Thr Arg Pro Arg Thr Thr Leu Pro Gly
 260 265 270
 Gly Arg Ala Val Thr Cys Gln Gly Arg Ser Val Arg Ile Asn Ile Pro
 275 280 285
 Val Thr Thr Pro Thr Arg Thr Val Thr Ala Ile Arg Glu Leu Leu Phe
 290 295 300
 Asp Asp Met Leu Ser Gln Ser Arg Arg Ser Gly Ser Ala Asn Gly Thr
 305 310 315 320
 Lys Cys Gly Asp Lys Leu Ser Ile Asn Lys Arg Lys Val His Gln Ala
 325 330 335
 Glu Lys Met Ile Arg Gly Ala Leu Ile Glu Leu Tyr Lys Gly Leu Gly
 340 345 350
 Tyr Leu Lys Thr Tyr Arg Ser Leu Asn Met Met Ala Phe Val Lys Ile
 355 360 365
 Leu Lys Lys Phe Asp Lys Val Thr Ala Lys Glu Ala Gln Ser Ile Tyr
 370 375 380
 Leu Lys Val Val Glu Ser Ser Tyr Phe Asn Val Ser Asp Lys Val Ile
 385 390 395 400
 Arg Leu Met Asp Asp Val Asp Glu Leu Phe Val Arg His Phe Ala Glu
 Page 16

405

410

415

Gly Asp Lys Arg Lys Ala Met Lys Tyr Leu Lys Pro Asn Gln Arg Glu
 420 425 430

Glu Ser His Thr Thr Thr Phe Phe Ile Gly Leu Phe Thr Gly Gly Phe
 435 440 445

Ala Ala Leu Phe Ile Gly Tyr Cys Ile Met Ala His Ile Ala Gly Met
 450 455 460

Tyr Thr Gln Gln Ser Asn Lys Val Tyr Met Ala Thr Ser Tyr Pro Val
 465 470 475 480

Leu Ser Met Phe Ser Leu Phe Phe Leu His Leu Phe Leu Tyr Gly Cys
 485 490 495

Asn Ile Phe Met Trp Arg Lys Thr Arg Ile Asn Tyr Thr Phe Ile Phe
 500 505 510

Glu Phe Thr Pro Thr Lys Glu Leu Lys Tyr Arg Asp Val Phe Leu Ile
 515 520 525

Cys Thr Thr Ser Met Thr Ile Val Ile Gly Val Met Phe Ala His Leu
 530 535 540

Thr Leu Ile Val Lys Gly Tyr Ser Ser Cys Ala Val Gln Ala Ile Pro
 545 550 555 560

Gly Ala Leu Leu Leu Val Phe Leu Leu Ile Leu Val Cys Pro Phe Asn
 565 570 575

Ile Leu Tyr Arg Ser Cys Arg Tyr His Phe Leu Thr Val Ile Arg Asn
 580 585 590

Ile Ile Leu Thr Pro Phe Tyr Lys Val Val Met Val Asp Phe Phe Met
 595 600 605

Ala Asp Gln Leu Cys Ser Gln Val Pro Leu Leu Arg Ser Leu Glu Tyr
 610 615 620

Leu Ala Cys Tyr Tyr Ile Thr Ser Ser Tyr Lys Thr Gln Asp Tyr Gly
 625 630 635 640

Tyr Cys Thr Arg Val Lys His Phe Arg Asp Leu Ala Tyr Ala Val Ser
 645 650 655

Phe Leu Pro Tyr Tyr Trp Arg Ala Met Gln Cys Ala Arg Arg Trp Phe
 660 665 670

Asp Glu Gly Asp Ile Asn His Ile Val Asn Leu Gly Lys Tyr Val Ser
 675 680 685

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Ala Met Leu Ala Ala Gly Thr Lys Val Ala Tyr Glu Asn Asp Asn Ser
690 695 700

Ala Gly Trp Leu Ser Leu Val Val Ile Val Ser Ser Leu Ala Thr Ile
705 710 715 720

Tyr Gln Leu Tyr Trp Asp Phe Val Lys Asp Trp Gly Leu Leu Gln Phe
725 730 735

Asn Ser Lys Asn Pro Trp Leu Arg Asn Asp Leu Ile Leu Lys Gln Lys
740 745 750

Tyr Ile Tyr Phe Leu Ser Met Gly Leu Asn Leu Ile Leu Arg Leu Ala
755 760 765

Trp Leu Gln Thr Val Ile His Pro Asn Ile Gly Ser Leu Asp Ser Arg
770 775 780

Val Thr Leu Phe Ile Leu Ala Ala Leu Glu Val Ile Arg Arg Gly His
785 790 795 800

Trp Asn Phe Tyr Arg Leu Glu Asn Glu His Leu Asn Asn Ala Gly Lys
805 810 815

Phe Arg Ala Val Lys Tyr Ile Ser Ser His Glu Lys Val Ser Lys Leu
820 825 830

Cys Lys Arg Glu Asn Asp Tyr Ile Glu Asn Asn Arg Gln His Pro Leu
835 840 845

Ala Leu Ala Trp Leu Leu His Ala Ser Ile Glu Leu Pro Pro Val Ala
850 855 860

Pro Ala Ala Ala Ala Phe Leu His Leu Asp Glu Pro Lys Val Leu Val
865 870 875 880

Ser Leu Cys Asn Ser Ser Ser Asn Asp Lys Ala Asp Gly Trp Tyr Leu
885 890 895

Asp Thr Gly Ala Thr His His Met Thr Gly Gln Arg Glu Val Phe Thr
900 905 910

Glu Leu Asp Ser Ser Val Arg Gly Ser Val Lys Phe Gly Asp Ala Ser
915 920 925

Gly Val Glu Ile Lys Gly Val Gly Ser Val Thr Phe Thr Ala Lys Ser
930 935 940

Gly Glu His Arg Leu Leu Thr Gly Val Tyr Tyr Ile Pro Ala Leu Arg
945 950 955 960

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

Val Lys Glu Leu Gly His Ile Asp Lys Leu Asp Asp Arg Ser Thr
 1220 1225 1230
 Pro Gly Val Phe Ile Gly Tyr Ala Glu Gly Ser Lys Ala Tyr Arg
 1235 1240 1245
 Ile Leu Asp Pro Glu Thr Gln Arg Val Arg Thr Ala His Asp Val
 1250 1255 1260
 Val Phe Asp Lys Gly Arg Gly Trp Val Trp Asp Lys Ala Val Asp
 1265 1270 1275
 Asp Gly Ser Thr Pro Thr Tyr Asp Asp Phe Thr Val Glu Tyr Val
 1280 1285 1290
 His Phe Glu Gly Ala Gly Gly Val Gly Ser Ser Ser Ser Pro Ser
 1295 1300 1305
 Val Ser Thr Pro Val Pro Glu Pro Pro Pro Thr Pro Thr Pro Thr
 1310 1315 1320
 His Ser Trp Ala Thr Thr Ser Thr Thr Thr Ser Ser Ser Pro Thr
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 Pro Pro Gln Pro Ala Thr Pro Arg Pro Pro Ala Pro Thr Ala Thr
 1340 1345 1350
 Pro Pro Ser Thr Ser Thr Pro Thr Pro Ala Arg Val Glu Arg Ser
 1355 1360 1365
 Leu Val Glu Phe Ala Thr Pro Leu Ser His Asp Arg Glu Arg Ile
 1370 1375 1380
 Asp Ala Tyr His Asn Gly Glu Gln Leu Arg Arg Cys Arg Asp Trp
 1385 1390 1395
 Cys Leu Ala Thr Trp Arg Arg Ser Cys Thr Leu Arg Ala Thr Thr
 1400 1405 1410
 Val Ser Leu Gly Leu Ser Gln Arg Pro Arg Asn Thr Trp His Gly
 1415 1420 1425
 Val Pro Arg Cys Ser Arg Arg Trp Thr Arg Phe Arg Arg Thr Thr
 1430 1435 1440
 Pro Gly Ser Leu Leu Thr Ser Leu Val Val Thr Val Arg Ser Pro
 1445 1450 1455
 Phe Lys Trp Val Phe Lys Leu Lys Arg Asp Glu Ala Gly Ala Ile
 1460 1465 1470
 Val Lys His Lys Ala Arg Leu Val Ala Arg Gly Phe Val Gln Gln
 1475 1480 1485

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

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Arg	Ile 1745	Ile	Arg	Tyr	Val	Ala 1750	Gly	Thr	Leu	Asn	His 1755	Gly	Leu	Tyr
Tyr	Pro 1760	Arg	Cys	Pro	Gly	Lys 1765	Ala	His	Phe	Ile	Gly 1770	Tyr	Ser	Asp
Ser	Asp 1775	His	Ala	Gly	Asp	Ile 1780	Asp	Thr	Ser	Lys	Ser 1785	Thr	Ser	Gly
Ile	Leu 1790	Phe	Phe	Leu	Gly	Glu 1795	Cys	Leu	Val	Ser	Trp 1800	Gln	Ser	Val
Lys	Gln 1805	Gln	Val	Val	Ala	Leu 1810	Ser	Ser	Cys	Glu	Ala 1815	Glu	Tyr	Met
Ala	Ala 1820	Ser	Ala	Ala	Ser	Thr 1825	Gln	Ala	His	Trp	Leu 1830	Ala	Arg	Leu
Leu	Ser 1835	Asp	Leu	Leu	Gly	Arg 1840	Asp	Thr	Gly	Ala	Val 1845	Lys	Leu	Arg
Val	Asp 1850	Ser	Lys	Ser	Thr	Leu 1855	Ala	Leu	Ala	Lys	Asn 1860	Pro	Val	Phe
His	Glu 1865	Arg	Ser	Lys	His	Ile 1870	Arg	Val	Arg	Tyr	His 1875	Phe	Ile	Arg
Ser	Tyr 1880	Leu	Glu	Glu	Gly	Ser 1885	Ile	Lys	Ala	Ser	Tyr 1890	Ile	Asn	Thr
Lys	Asp 1895	Gln	Leu	Ala	Asp	Leu 1900	Leu	Thr	Lys	Pro	Leu 1905	Gly	Arg	Ile
Lys	Phe 1910	Leu	Glu	Leu	Cys	Ser 1915	Arg	Ile	Gly	Met	Ala 1920	Gln	Leu	Ser
His	Lys 1925	Thr	Ala	His	Lys	Thr 1930								