

PF60827.ST25.txt  
SEQUENCE LISTING

<110> CropDesign N.V.

<120> Yield enhancement in plants by modulation of ZmPHDF

<130> PF60827

<150> US 60/939,382

<151> 2007-05-22

<160> 16

<170> PatentIn version 3.3

<210> 1

<211> 1525

<212> DNA

<213> Zea mays

<400> 1

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atatggcaag gtggttttga gctgcagagg actggaagtt caccggagct gtgtgatggg    180
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ccttctaaag tccagcttga ggaagttcct cggaagaatt catggccaac acagtttcag    300
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caggccatgg attggatgcc atctacccat tcattctcac agaacaggag tgatttagct    660
gaaccggacc ctgatttggt aaagtcaact aattttgaac cgagtttgga agccagtcgt    720
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aagaggggaca cttttgggtg taatgttagt gaaagagatt tcgatgtgaa cacggtgccca    960
gttacttggt ctgtctcctt aactcacctt caggaagaac ctggttaagct gagcacagcc   1020
atcgacctca tggatataga ccatgggggt agcgcagggt cactggatcg ttcacatgca   1080
tcagggtggt caggtaaaaag aagttttgag acggccgaag tagctgctga agtacccgag   1140
cataagaaaa ctaagctgga taataatgtt gtgcctataa gctctggtcc acgcgagaat   1200
gcctgtacga atgatggcaa tagcgataaa ctgatgcctg gaagctcaag cagtgatggc   1260
aagcgcgtgt ttccacttga tctaaatgca gtgggggatg aggacatcgt aaatattcca   1320
gccttcaggt gatgaagagt togetgttcc atgacaaacc aaccgtggtg gtttggttca   1380
gaatgagaga tgtgcattgt aaatcgcatg tgcagttttt gacctaatgt tttcagacaa   1440
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<210> 2

<211> 957

<212> PRT

<213> Zea mays

<400> 2

PF60827.ST25.txt

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Cys	Ser	Arg	Cys	Asn	Asp	Gly	Ala	Glu	His	Thr	Tyr	Cys	Met	Arg	Val	20	25	30
Met	Met	Glu	Glu	Val	Pro	Asp	Ser	Glu	Trp	Leu	Cys	Glu	Asp	Cys	Gln	35	40	45
Thr	Ala	Val	Glu	Ser	Glu	Asn	Glu	Asn	Arg	Leu	Gln	Lys	Ser	Gln	Val	50	55	60
Lys	Ala	Gly	Thr	Ser	Lys	Glu	Leu	Ser	Leu	Glu	Gly	Glu	Ile	Asn	Lys	65	70	75
Pro	Ala	Ile	Ala	Ala	Lys	Gly	Arg	Ser	Ser	Ser	Asp	Cys	Glu	Leu	Lys	85	90	95
Ala	Gly	Asn	Ile	Glu	Asn	Lys	Glu	Ser	Asn	Thr	Thr	Asn	Glu	Arg	Asn	100	105	110
Gly	Thr	Val	Lys	Thr	Arg	Thr	Glu	Glu	Asp	Ala	Val	Thr	Thr	Ser	Ser	115	120	125
Thr	Arg	Asp	Ile	Phe	Ser	Glu	Thr	Gly	Gly	Leu	Tyr	Met	Gly	Ala	Asp	130	135	140
Ser	Arg	Lys	Arg	Met	Glu	Pro	Ser	His	Glu	Thr	Phe	Val	Ser	Asp	Ala	145	150	155
Asp	Lys	Gly	Lys	Gln	Pro	Ser	His	Gln	Val	Ser	Thr	Ser	Leu	Val	Val	165	170	175
Asn	Ala	Leu	Lys	Asn	Gln	Ala	Pro	Gln	Ser	Arg	Gly	Gln	Leu	Ser	Lys	180	185	190
Ser	Thr	Ser	Phe	Asn	Asn	Ser	Lys	Val	Pro	Lys	Val	Lys	Gln	Leu	Leu	195	200	205
Asn	Glu	Val	Pro	Gln	Lys	Pro	Lys	Phe	Leu	Lys	Glu	Ser	Trp	Ser	Ser	210	215	220
Ile	Ile	Asn	Lys	Lys	Glu	Gly	Pro	Ile	Ser	Met	Thr	Thr	Lys	Ser	Ala	225	230	235
Thr	Phe	Lys	Lys	Pro	Lys	Pro	Cys	Glu	Pro	Thr	Asn	Lys	Ala	Lys	Ser	245	250	255
Ser	Val	Leu	Ser	Pro	Ala	Glu	Glu	Pro	Arg	Val	Pro	Asn	Gln	Leu	Ala	260	265	270
Ser	His	Asn	Val	Thr	Asn	Gly	Gln	Cys	Ser	Ile	Leu	Gly	Pro	Pro	Ser	275	280	285
Ala	Thr	Ser	Ser	Met	Val	Ala	Pro	Val	Leu	Arg	Thr	Asp	Ser	Thr	Thr	290	295	300
Gln	Leu	Leu	Ser	Thr	Arg	Asn	Asn	Thr	Val	Asp	Ser	Asn	Asn	Leu	Gly	305	310	315
Ser	Val	His	Leu	Gln	Gly	Asn	Ser	Glu	Leu	Lys	Lys	Pro	Arg	Leu	Ala	325	330	335
Lys	Val	Pro	Gly	Ser	Met	Met	Leu	Ser	Asn	Ala	Glu	Arg	Ser	Ala	Gly	340	345	350
Gly	Ile	Leu	Gly	Ser	Gly	Ala	His	Arg	Glu	Val	Ile	Gln	Asn	Ser	Asp	355	360	365
Pro	Ser	His	Arg	Asp	Ala	Lys	Ile	Lys	Asp	Gln	Thr	Gly	Phe	Arg	Gln	370	375	380
Gly	Ala	Ser	Ser	Ser	Asn	Arg	Thr	Ile	Arg	Cys	Gln	Arg	Cys	Asn	Glu	385	390	395
Tyr	Gly	His	Ser	Thr	His	Phe	Cys	Glu	Val	Glu	Lys	Leu	Arg	Leu	Ser	405	410	415
Ser	Gly	Gln	Pro	Leu	Ser	Glu	Arg	Asn	Leu	Lys	Asp	Ala	Ser	Ala	Lys	420	425	430

PF60827.ST25.txt

Arg	Asn	Lys	Thr	Ser	Glu	Val	Ser	Thr	Leu	Ala	Ser	Ser	Glu	Lys	Thr
		435					440					445			
Pro	Ser	Arg	Glu	Pro	Glu	His	Val	Val	Lys	Cys	Ala	Ile	Asn	Gln	Asn
	450					455					460				
Leu	Ile	Asn	Gly	Pro	Asn	Asp	Gly	Ile	Pro	Ala	Pro	Phe	Ser	His	Val
465					470					475					480
Lys	Lys	His	Ser	Leu	Ser	Pro	Arg	Ala	Asn	Val	Ser	Ile	Pro	Gly	Ser
			485						490					495	
Gly	Val	Asp	Cys	Ser	Lys	Pro	Lys	Phe	Lys	Asn	Asn	Asp	Pro	Ser	Leu
		500						505					510		
Ser	Gly	Thr	Ala	Gly	Ile	Phe	Val	His	Asn	Gly	Arg	Ile	Met	Pro	Asn
		515					520					525			
Asp	His	Arg	Asp	Glu	Pro	Ala	Gln	Gly	Phe	Ser	Ala	Gly	Asp	Glu	Pro
	530					535					540				
Thr	Ser	Ser	Thr	Val	Pro	Glu	Leu	Gly	Trp	Ile	Trp	Gln	Gly	Gly	Phe
545					550					555					560
Glu	Leu	Gln	Arg	Thr	Gly	Ser	Ser	Pro	Glu	Leu	Cys	Asp	Gly	Phe	Gln
			565						570					575	
Ala	His	Leu	Ser	Cys	Ser	Ala	Ser	Gln	Leu	Val	Leu	Asp	Ala	Val	Lys
		580						585					590		
Lys	Phe	Pro	Ser	Lys	Val	Gln	Leu	Glu	Glu	Val	Pro	Arg	Lys	Asn	Ser
		595					600					605			
Trp	Pro	Thr	Gln	Phe	Gln	Lys	Asn	Gly	Pro	Thr	Tyr	Asp	Asn	Ile	Gly
	610					615					620				
Leu	Phe	Phe	Phe	Ala	Arg	Asp	Val	Gln	Ser	Tyr	Glu	Asn	His	Tyr	Ser
625					630					635					640
Lys	Leu	Val	Glu	Asn	Met	Leu	Lys	Asn	Asp	Leu	Val	Leu	Arg	Gly	Ser
			645						650					655	
Val	Gly	Thr	Val	Glu	Leu	Leu	Ile	Phe	Pro	Ser	Asn	Ile	Leu	Ser	Lys
		660						665					670		
Asn	Phe	Gln	Arg	Trp	Asn	Met	Leu	Tyr	Phe	Leu	Trp	Gly	Leu	Phe	Arg
	675					680						685			
Val	Ser	Lys	Lys	Asp	Ser	Ser	Asn	Leu	Pro	Ser	Tyr	Leu	Ser	Thr	Ser
	690					695					700				
Arg	Val	Glu	Gln	Asn	Phe	Asn	Asp	Asp	Leu	Gln	Ala	Met	Asp	Trp	Met
705					710					715					720
Pro	Ser	Thr	His	Ser	Phe	Ser	Gln	Asn	Arg	Ser	Asp	Leu	Ala	Glu	Leu
			725						730					735	
Asp	Pro	Gly	Leu	Lys	Ser	Thr	Asn	Phe	Glu	Pro	Ser	Leu	Glu	Ala	
		740						745					750		
Ser	Arg	Glu	Val	Cys	Leu	Asp	Gly	Glu	Asn	Ser	Leu	Asn	Gln	Leu	Val
		755					760					765			
Arg	Arg	Arg	Ala	Leu	Asp	Asn	His	Leu	Asp	Ser	Asp	Ala	Lys	Ala	Cys
	770					775					780				
Ser	Thr	Ile	Ser	Asn	Gly	Ala	Met	Gly	Ser	Ser	Ala	Met	Ser	Met	Gln
785					790					795					800
Arg	Lys	His	Gln	Lys	Pro	Asp	Tyr	Pro	Glu	His	Gln	Asp	Lys	Thr	Arg
			805						810					815	
Asp	Thr	Phe	Gly	Asn	Val	Ser	Glu	Arg	Asp	Phe	Asp	Val	Asn	Thr	
		820					825					830			
Val	Pro	Val	Thr	Cys	Ser	Val	Ser	Leu	Thr	His	Leu	Gln	Glu	Glu	Pro
		835					840					845			
Gly	Lys	Leu	Ser	Thr	Ala	Ile	Asp	Leu	Met	Asp	Ile	Asp	His	Gly	Val
	850					855					860				

PF60827.ST25.txt

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Ser Ala Gly Ala Leu Asp Arg Ser His Ala Ser Gly Gly Ala Gly Lys
865                               870                               875                               880
Arg Ser Phe Glu Thr Ala Glu Val Ala Asp Glu Val Pro Glu His Lys
                               885                               890                               895
Lys Thr Lys Leu Asp Asn Asn Val Val Pro Ile Ser Ser Gly Pro Arg
                               900                               905                               910
Glu Asn Ala Cys Thr Asn Asp Gly Asn Ser Asp Lys Leu Met Pro Gly
                               915                               920                               925
Ser Ser Ser Ser Asp Gly Lys Arg Val Phe Pro Leu Asp Leu Asn Ala
930                               935                               940
Val Gly Asp Glu Asp Ile Val Asn Ile Pro Ala Phe Arg
945                               950                               955

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<210> 3
<211> 432
<212> PRT
<213> Zea mays

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<400> 3
Met Pro Asn Asp His Arg Asp Glu Pro Ala Gln Gly Phe Ser Ala Gly
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Asp Glu Pro Thr Ser Ser Thr Val Pro Glu Leu Gly Trp Ile Trp Gln
                               20                               25                               30
Gly Gly Phe Glu Leu Gln Arg Thr Gly Ser Ser Pro Glu Leu Cys Asp
                               35                               40                               45
Gly Phe Gln Ala His Leu Ser Cys Ser Ala Ser Gln Leu Val Leu Asp
50                               55                               60
Ala Val Lys Lys Phe Pro Ser Lys Val Gln Leu Glu Glu Val Pro Arg
65                               70                               75                               80
Lys Asn Ser Trp Pro Thr Gln Phe Gln Lys Asn Gly Pro Thr Tyr Asp
                               85                               90                               95
Asn Ile Gly Leu Phe Phe Phe Ala Arg Asp Val Gln Ser Tyr Glu Asn
100                              105                              110
His Tyr Ser Lys Leu Val Glu Asn Met Leu Lys Asn Asp Leu Val Leu
115                              120                              125
Arg Gly Ser Val Gly Thr Val Glu Leu Leu Ile Phe Pro Ser Asn Ile
130                              135                              140
Leu Ser Lys Asn Phe Gln Arg Trp Asn Met Leu Tyr Phe Leu Trp Gly
145                              150                              155                              160
Leu Phe Arg Val Ser Lys Lys Asp Ser Ser Asn Leu Pro Ser Tyr Leu
165                              170                              175
Ser Thr Ser Arg Val Glu Arg Asn Phe Asn Asp Asp Leu Gln Ala Met
180                              185                              190
Asp Trp Met Pro Ser Thr His Ser Phe Ser Gln Asn Arg Ser Asp Leu
195                              200                              205
Ala Glu Pro Asp Pro Asp Leu Leu Lys Ser Thr Asn Phe Glu Pro Ser
210                              215                              220
Leu Glu Ala Ser Arg Glu Val Cys Leu Asp Gly Glu Asn Ser Leu Asn
225                              230                              235                              240
Gln Leu Val Arg Arg Arg Ala Leu Asp Asp His Leu Asp Ser Asp Ala
245                              250                              255
Lys Ala Cys Ser Thr Ile Ser Asn Gly Ala Met Gly Ser Ser Ala Met
260                              265                              270
Ser Met Gln Arg Lys His Gln Lys Pro Asp Tyr Pro Glu His Gln Asp

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PF60827.ST25.txt

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      275      280      285
Lys Lys Arg Asp Thr Phe Gly Gly Asn Val Ser Glu Arg Asp Phe Asp
 290      295      300
Val Asn Thr Val Pro Val Thr Cys Ser Val Ser Leu Thr His Leu Gln
305      310      315      320
Glu Glu Pro Gly Lys Leu Ser Thr Ala Ile Asp Leu Met Asp Ile Asp
      325      330      335
His Gly Val Ser Ala Gly Ala Leu Asp Arg Ser His Ala Ser Gly Gly
      340      345      350
Ala Gly Lys Arg Ser Phe Glu Thr Ala Glu Val Ala Ala Glu Val Pro
      355      360      365
Glu His Lys Lys Thr Lys Leu Asp Asn Asn Val Val Pro Ile Ser Ser
      370      375      380
Gly Pro Arg Glu Asn Ala Cys Thr Asn Asp Gly Asn Ser Asp Lys Leu
385      390      395      400
Met Pro Gly Ser Ser Ser Ser Asp Gly Lys Arg Val Phe Pro Leu Asp
      405      410      415
Leu Asn Ala Val Gly Asp Glu Asp Ile Val Asn Ile Pro Ala Phe Arg
      420      425      430

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<210> 4  
 <211> 46  
 <212> PRT  
 <213> Zea mays

<220>  
 <221> DOMAIN  
 <222> (1)..(46)  
 <223> Maize ZF domain

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<400> 4
Cys Asp Ile Cys Gly Asp Val Gly Glu Glu Glu Lys Leu Ala Val Cys
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Ser Arg Cys Asn Asp Gly Ala Glu His Thr Tyr Cys Met Arg Val Met
      20      25      30
Met Glu Glu Val Pro Asp Ser Glu Trp Leu Cys Glu Asp Cys
      35      40      45

```

<210> 5  
 <211> 153  
 <212> PRT  
 <213> Zea mays

<220>  
 <221> DOMAIN  
 <222> (1)..(153)  
 <223> Maize LLIF domain

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<400> 5
Ser Ser Thr Val Pro Glu Leu Gly Trp Ile Trp Gln Gly Gly Phe Glu
1      5      10      15
Leu Gln Arg Thr Gly Ser Ser Pro Glu Leu Cys Asp Gly Phe Gln Ala
      20      25      30
His Leu Ser Cys Ser Ala Ser Gln Leu Val Leu Asp Ala Val Lys Lys

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PF60827.ST25.txt

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

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<210> 6  
 <211> 963  
 <212> PRT  
 <213> Arabidopsis thaliana

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<400> 6
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Cys Ser Ala Pro Cys Ser Ser Cys Met His His Asn Ala Glu Phe Ser
      20      25      30
Gly Ser Lys Ser Asp Glu Ser Ser Asp Glu Asn Ser His Gly Val Leu
      35      40      45
Ala Ser Gln Cys Ser Phe Asn Gly Asp Asn Leu Leu Arg Ser Ser Gly
      50      55      60
Val Asn Ala Pro Gly Ser Ser His Asn Thr Ser Ser Glu Ala Ser His
65      70      75      80
Leu Val Asn Ser Asn His Asp Thr Ser Ser Glu Asn Ala Glu Ser Lys
      85      90      95
Glu Ile Ile Arg Ser Ser Asp Ile Ser His Gly Pro Leu Leu Asp Arg
      100      105      110
Pro His Lys Asp Gln Asp Ser Met Lys Val Asp Ser Cys Asn Asp His
      115      120      125
Gln Ala Arg Ser Thr Leu Gly Gln Gly Lys Val Lys Glu Lys Ser Gly
      130      135      140
Ala Lys Asn Asn Glu Glu Lys Lys Asn Thr Leu Thr Gly Ser Ser Lys
145      150      155      160
His Ser Gly Pro Arg Val Gly Lys Ser Gly Glu Asn Val Leu Leu Asn
      165      170      175
Lys Ala Asp Glu Ser Asn Thr Ser Ala Met Ser Asp Ser Glu Ser Glu
      180      185      190
Asn Asp Pro Glu Met Leu Glu Leu Asp Val Lys Val Cys Asp Thr Cys
      195      200      205
Gly Asp Ala Gly Arg Glu Asp Leu Leu Ala Ile Cys Ser Arg Cys Ser
      210      215      220
Asp Gly Ala Glu His Thr Tyr Cys Met Arg Val Met Leu Lys Lys Val
225      230      235      240
Pro Lys Gly Tyr Trp Leu Cys Glu Glu Cys Lys Phe Ala Glu Lys Ala
      245      250      255

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PF60827.ST25.txt

Glu	Lys	His	Lys	Leu	Glu	Thr	Lys	Arg	Lys	Arg	Glu	Ser	Glu	Val	Asn	
			260					265					270			
Val	Asn	Thr	Gln	Ile	Ser	Ser	Lys	Arg	His	Ile	Asp	Lys	Phe	Glu	Ala	
		275					280					285				
Val	Pro	Asp	Ser	Lys	Arg	Leu	Ala	Val	Gly	Ala	Gln	Ile	Gly	Ser	Pro	
	290					295					300					
Lys	Arg	Ser	Val	Leu	Pro	Arg	Met	Ser	Thr	Leu	Ser	Arg	Glu	Thr	Ser	
305					310					315					320	
Phe	Lys	Gly	Leu	Glu	Lys	Pro	Thr	Arg	Lys	Leu	Ala	His	Tyr	Ser	Ser	
			325						330					335		
Phe	Asn	Ser	His	Ser	Ser	Asp	Asp	Thr	Glu	Ser	Thr	Arg	Ser	Thr	Asp	
			340					345					350			
Ser	Gln	Leu	Gln	Ser	Pro	Lys	Gly	Ser	Phe	Leu	Lys	Ser	Asn	Ser	Phe	
		355					360					365				
Asn	Ser	Leu	Ser	Ser	Arg	Ser	Lys	Val	Arg	Pro	Val	Asp	Asp	Asp	Met	
	370					375					380					
Leu	Pro	Arg	Gln	Lys	Thr	Gly	Asn	Glu	Asn	Ser	Ser	Leu	Glu	Val	Lys	
385					390					395					400	
Glu	Gly	Phe	Ser	Lys	Asn	Val	Gly	Lys	Ser	Met	Ser	Ser	Arg	Cys	Ile	
			405						410					415		
Asp	Val	Gly	Ser	Ser	Asn	Cys	Asn	Asp	Ser	Lys	Val	Lys	Gly	Ser	Lys	
			420					425					430			
Gln	Leu	Lys	Asp	Trp	Ser	Thr	Glu	Ala	Asn	Pro	Ser	Ala	Ser	Ile	Ser	
		435					440					445				
Arg	Gly	Asn	Ser	Ser	Ile	Pro	Tyr	Ala	Lys	Ser	Pro	Arg	Asp	Leu	Lys	
	450					455					460					
Asp	Leu	Gln	Ser	Asp	Gly	Lys	Gln	Val	Gly	Asp	Ser	Ser	Lys	Asn	Glu	
465					470					475					480	
Lys	Cys	Ser	Ser	Ser	Glu	Gln	Ile	Ser	Ser	Glu	Ala	Lys	Cys	Lys	Asp	
			485						490					495		
Glu	Leu	Ala	Gln	Val	Asp	Gly	Val	Pro	Arg	Ser	Arg	Glu	Phe	Arg	Glu	
			500					505					510			
Ala	Gly	Glu	Lys	Thr	Lys	Asp	Ala	Val	Gly	Asn	His	Gln	Lys	Arg	Asn	
		515					520					525				
Ile	Gly	Glu	Asp	Asn	Asn	Lys	Gly	Asn	Arg	Leu	Arg	Ala	Ala	Val	Asp	
	530					535					540					
Ala	Ala	Leu	Arg	Lys	Lys	Pro	Ser	Phe	Ser	Lys	Asn	Arg	Gly	Leu	Glu	
545					550					555					560	
Gln	Ser	Asp	Leu	Pro	Pro	Val	Ser	Asn	Val	Asp	Ser	Gly	Cys	Asn	Lys	
			565						570					575		
Ala	Leu	Lys	Cys	Leu	Ser	Ser	Lys	Val	Pro	Val	Ile	Arg	Asp	Trp	Pro	
			580					585					590			
Val	Gly	Phe	Gln	Gly	Leu	Pro	Gly	Gly	His	Pro	Asn	Leu	Arg	Thr	Asp	
		595					600					605				
Lys	Gln	Thr	Asn	Thr	Val	Asn	Glu	Lys	Gln	Phe	Thr	Leu	Ala	Gly	Thr	
	610					615					620					
Asp	Ala	Thr	Thr	Ala	Ser	Gln	Ser	Val	Glu	Pro	Glu	Val	Asn	Asp	Pro	
625					630					635					640	
Ser	Val	Gln	Ser	Val	Met	Arg	Asp	Leu	Pro	Val	Ala	Ala	Pro	Asn	Val	
			645						650					655		
Leu	Ser	Thr	Thr	Ser	Ala	Ile	Pro	Lys	Pro	Glu	Tyr	Ile	Trp	Gln	Gly	
			660					665					670			
Asp	Leu	Glu	Val	Gln	Lys	Ser	Arg	Asn	Leu	Ser	Ala	Met	His	Ser	Gly	
	675						680					685				

PF60827.ST25.txt

```

Ile Gln Ala Tyr Leu Ser Thr Leu Ala Ser Pro Lys Val Val Glu Val
690 695 700
Val Lys Gln Phe Pro Glu Lys Val Thr Leu Asn Glu Val Pro Arg Leu
705 710 715 720
Ser Ser Trp Pro Ala Gln Phe Gln Asp Thr Gly Ala Lys Glu Gln His
725 730 735
Val Ala Leu Phe Phe Phe Ala Lys Asp Ile Glu Ser Tyr Glu Lys Asn
740 745 750
Tyr Lys Pro Leu Val Asp Asn Met Ile Gln Lys Asp Leu Ala Leu Lys
755 760 765
Gly Asn Leu Glu Gly Val Glu Leu Leu Ile Phe Ala Ser Asn Gln Leu
770 775 780
Pro Gln Asp Cys Gln Arg Trp Asn Met Leu Phe Phe Leu Trp Gly Val
785 790 795 800
Phe Arg Gly Lys Lys Glu Ser Cys Ser Asn Pro Pro Lys Asn Thr Pro
805 810 815
Leu Pro Ala Ser Cys Val Ser Pro Asn Arg Asp Thr Phe Arg His Glu
820 825 830
Asn Pro Ser Asn Lys Lys Ser Leu Thr Asp Arg Thr Leu Ser Arg Met
835 840 845
Gln Ser Cys Met Lys Glu Glu Asp Ala Lys Glu Gly Lys Ala Cys Ser
850 855 860
Gly Thr Glu Lys Glu Asn Ala Phe Ser Val Ser Tyr Gly Glu Gly Glu
865 870 875 880
Val Asp Val Glu Thr Glu Glu Gly Glu Ile Gly Val Ser Pro Gln Leu
885 890 895
Lys Tyr Glu Lys Thr Ala Gly Pro Gly Thr Val Lys Ser Ala Asp Met
900 905 910
Asn Gln Arg Val Asn Val Asp Asp Leu Asn Lys Glu Gly Leu Cys Glu
915 920 925
Gly Pro Ala Asn Lys Lys Leu Lys Thr Val Thr Gly Val Glu Thr Gly
930 935 940
Cys Ser Ile Val Arg Arg Asp Thr Ser Val His Lys Phe Ala Ser Arg
945 950 955 960
Lys Phe Val

```

<210> 7  
 <211> 1290  
 <212> PRT  
 <213> Arabidopsis thaliana

```

<400> 7
Met Ala Asp Arg Arg Val Gly Lys Arg Gln Met Gly Gln Arg Gly Phe
1 5 10 15
Ser Lys Val Glu Ser Gly Thr Cys Asn Val Cys Ser Ala Pro Cys Ser
20 25 30
Ser Cys Met His Arg Asn Val Gly Phe Thr Gly Ser Lys Leu Asp Glu
35 40 45
Ser Ser Asp Glu Asn Cys His Gly Val Val Gly Ser Gln Cys Ser Val
50 55 60
Asn Glu Asp Asp Leu Leu Pro Ser Ser Met Val Asn Ala His Lys Ser
65 70 75 80
Leu Asn Asn Thr Ala Ser Glu Ala Ser Asn Leu Val Asn Ser Ser His

```



					85				90					95	
Asp	Ala	Leu	Ser	Glu	Asn	Ala	Glu	Ser	Lys	Glu	Thr	Ile	Arg	Cys	Ser
			100					105					110		
Gly	Ile	Ser	Asp	Asp	Ser	Gly	Ala	Ala	Ala	Met	Thr	Ser	Lys	Pro	Ser
			115				120					125			
Leu	Ser	Gly	Ser	Arg	Met	Lys	His	Lys	Val	Ser	Ala	Ser	Ala	Asn	Met
			130			135					140				
Leu	Asp	Gln	Ser	Ser	Asn	Cys	Ile	Glu	Asp	Gln	Glu	Asp	Gly	Ile	Leu
145					150					155					160
Ser	Ala	Asp	Arg	Ala	Lys	Gln	Leu	Lys	Ser	Gly	Cys	Ser	Asn	Asn	Glu
				165					170					175	
Ile	Gly	Asn	Lys	Asp	Leu	Ala	Asp	Gly	Ser	Ala	Leu	Asn	Ser	Asp	Pro
			180					185					190		
Ile	Pro	Gly	Gly	Ser	Arg	Lys	Asp	Glu	Val	Lys	Leu	Glu	Ser	Leu	Gln
			195				200					205			
Asn	Pro	Ser	Ser	Asn	His	Asp	Asp	Arg	Val	Ser	Ser	Glu	Lys	Gly	Asn
						215						220			
Phe	Lys	Glu	Lys	Ser	Arg	Pro	Gly	Gly	Asn	Lys	Glu	Arg	Gln	Glu	Pro
225					230					235					240
Ser	Val	Glu	Gly	Ser	Thr	Arg	Ser	Gly	Glu	Asn	Arg	Lys	Asp	Gly	Lys
				245					250					255	
Ser	Ser	Lys	Ser	Ser	Ser	Ser	Asn	Ser	Ser	Ala	Val	Ser	Glu	Ser	Glu
				260				265					270		
Ser	Asp	Asp	Ser	Glu	Met	Val	Glu	His	Asp	Val	Lys	Val	Cys	Asp	Ile
				275			280					285			
Cys	Gly	Asp	Ala	Gly	Arg	Glu	Asp	Leu	Leu	Ala	Ile	Cys	Ser	Gly	Cys
						295					300				
Ser	Asp	Gly	Ala	Glu	His	Thr	Tyr	Cys	Met	Arg	Glu	Met	Leu	Asp	Glu
305					310					315					320
Val	Pro	Glu	Gly	Asp	Trp	Leu	Cys	Glu	Glu	Cys	Ala	Glu	Glu	Ala	Glu
				325					330					335	
Lys	Gln	Lys	Gln	Glu	Ala	Lys	Arg	Lys	Arg	Glu	Thr	Glu	Val	Thr	Phe
				340				345					350		
Asn	Thr	Tyr	Ser	Ser	Gly	Lys	Arg	His	Ala	Asp	Lys	Ile	Glu	Ala	Ala
							360					365			
Pro	Asp	Ala	Lys	Arg	Gln	Val	Val	Glu	Ala	Ser	Thr	Gly	Ser	Pro	Lys
						375					380				
Lys	Ser	Ile	Leu	Pro	Arg	Val	Gly	Ala	Leu	Ser	Arg	Glu	Thr	Ser	Phe
385					390					395					400
Lys	Gly	Leu	Asp	Arg	Leu	Arg	Gly	Lys	Leu	Asn	His	Gln	Thr	Ser	Phe
				405					410					415	
Ser	Asp	Asp	Thr	Glu	Ser	Ala	Arg	Ser	Ala	Gly	Ser	Gln	Leu	Gln	Pro
				420				425					430		
Pro	Lys	Gly	Ala	Phe	Leu	Lys	Ser	Ser	Ser	Phe	Asn	Cys	Ser	Ser	Ser
				435			440								

PF60827.ST25.txt

515	520	525
Ala Asn Ala Ser Ala Ser Ser Ile Asp Gln Lys Leu Lys Ser Arg Gly		
530	535	540
Asn Ser Ser Val Ser His Ala Asn Asn Asn Arg Asp Leu Lys Gly Leu		
545	550	555
Gln Ser Asp Gly Lys Arg Gly Gly Asp Ile Ser Thr Asn Glu Lys Cys		
565	570	575
Ser Ala Ser Glu Gln Ser Ser Ser Gln Ala Asp Cys Lys Asp Glu Leu		
580	585	590
Pro Ser Thr Ser Cys Thr Gly Glu Gly Met Pro Asn His Gly Thr Val		
595	600	605
Ala Leu Gln Asp Gly Leu Pro Arg Ser Arg Val Pro Arg Glu Val Gly		
610	615	620
Lys Lys Ser Lys Glu Ala Phe Ser Lys Arg Gln Arg Ser Ser Leu Leu		
625	630	635
Ala Gly Ala Lys Gly Leu Pro Ser Ser Gln Lys Gly Gly Gln Thr Ala		
645	650	655
Glu Ser Ser Asp Thr Ser Gly Val Ser Asp Ser Asp Leu Ser Thr Thr		
660	665	670
Lys Asn Val Lys Glu Asp Leu Asn Lys Gly Asn Arg Leu Arg Ala Ala		
675	680	685
Val Asp Ala Ala Leu Arg Lys Lys Pro Ser Phe Gly Lys Asn Arg Val		
690	695	700
Leu Glu Gln Ser Asp Ala Ser Leu Val Ala Asn Val Asp Ser Ser Ser		
705	710	715
Glu Lys Thr Leu Arg Asn Gln Leu Pro Ser Lys Met His Lys Asn His		
725	730	735
Val Ser His Glu Gly Leu Gln Gly Gly His Pro Ile Leu Trp Pro Thr		
740	745	750
Ser Asp Pro Tyr Lys Gln Thr Ile Val Thr Asn Glu Lys Gln Leu Ile		
755	760	765
Phe Pro Gly Ala Asp Thr Ile Pro Ser Arg Leu Val Glu Pro Glu Val		
770	775	780
Ser Phe Pro Ala Val Lys Pro Val Met Arg Asp Leu Pro Leu Val Pro		
785	790	795
Ser Pro Val Met Leu Arg Ser Ser Ala Ile Pro Asp His Glu Phe Ile		
805	810	815
Trp Gln Gly Asp Leu Glu Val Arg Lys Ile Ile Asn Gln Ser Ala Met		
820	825	830
His Ser Gly Ile Gln Ala His Leu Ser Thr Leu Ala Ser Pro Arg Val		
835	840	845
Ala Glu Val Val Asn Lys Phe Pro Glu Thr Phe Ser Leu Asn Glu Val		
850	855	860
Pro Arg Lys Ser Thr Trp Pro Thr Gln Phe Glu Lys Leu Gly Thr Lys		
865	870	875
Glu Ala His Ile Ala Leu Phe Phe Phe Ala Lys Asp Thr Glu Ser Tyr		
885	890	895
Glu Arg Asn Tyr Lys Pro Leu Val Asp Asn Met Ile Lys Asn Asp Leu		
900	905	910
Ala Leu Lys Gly Asn Leu Asp Asn Val Asp Leu Leu Ile Phe Ala Ser		
915	920	925
Asn Gln Leu Pro Ser Asn Cys Gln Arg Trp Asn Met Leu Tyr Phe Leu		
930	935	940
Trp Gly Val Phe Gln Gly Arg Lys Glu Thr Asn Pro Gln Lys Asn Thr		

PF60827.ST25.txt

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945          950          955          960
Ser Leu Pro Thr Ser Asn Val Leu Pro Arg Asp Arg Asp Pro Lys Glu
          965          970          975
Leu Cys Gln Thr Ser Ser Pro Ser Lys His Leu Glu Lys Gly Ser Ser
          980          985          990
Leu Arg Glu Ser Ser Ser Asn Gly Ile Glu Thr Arg Asn Gly Thr Asp
          995          1000          1005
Ala Arg Ser His Glu Asn Pro Asn Asn Arg Glu Ser Ser Ile Glu
1010          1015          1020
Arg Ser Pro Ser Lys Lys Glu Asp Ile Ala Leu Lys Val Glu Glu
1025          1030          1035
Ala Gly Val Asn His Ile Pro Pro Gln Val Thr Gly Ser Asn Ser
1040          1045          1050
Gly Asp Ser Leu Val Arg Lys Val Gln Lys Val Glu Glu Gln Glu
1055          1060          1065
Leu Gly Gly Arg Lys Asp Leu Pro Leu Thr Val Met Gly Ser Gly
1070          1075          1080
Ile Gln Ser His Gly Gln Asp Asn Pro Leu Glu Lys Asp Leu Asn
1085          1090          1095
Ser Ser Gln Ala Ser His Arg Lys Arg Pro Leu Trp Glu Leu Ser
1100          1105          1110
Asn Pro Ala Asn Glu Asn Ser Ser Ala Ile Asn Gln Lys Val Glu
1115          1120          1125
Leu Asn Asn Asp Gly Leu Cys Glu Gly Ser Pro Asn Lys Lys Leu
1130          1135          1140
Lys Thr Glu Asn Gly Ser Ser Ser Leu Cys Arg Asp Thr Ser Gly
1145          1150          1155
His Asp Ser Gly Ile Met Lys Lys Ser Pro Lys Val Val Phe Pro
1160          1165          1170
Leu Asp Leu Asn Asp Asp Ser Glu Met Val Asp Asn Leu Ser Pro
1175          1180          1185
Leu Gly Asn Asp Glu Asn Asn Asn Asn Arg Arg Leu Ile Ser Gly
1190          1195          1200
Thr Val Pro Asn Leu Glu Leu Ala Leu Gly Ala Glu Glu Thr Thr
1205          1210          1215
Glu Ala Thr Met Gly Leu Leu Pro Phe Leu Ser Arg Ser Ser Asn
1220          1225          1230
Ser Gly Glu Gln Ser Asn Asn Ser Met Asn Lys Glu Lys Gln Lys
1235          1240          1245
Ala Asp Glu Glu Glu Glu Asp Asp Ala Glu Val Ala Ala Ser Leu
1250          1255          1260
Ser Leu Ser Leu Ser Phe Pro Gly Thr Glu Glu Arg Lys Asn Val
1265          1270          1275
Asn Thr Pro Leu Phe Leu Phe Arg Asp Leu Pro Arg
1280          1285          1290

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 <212> PRT  
 <213> Oryza sativa

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PF60827.ST25.txt

Phe	Phe	Leu	Leu	Ala	Ala	Phe	Ala	Ser	Gly	Leu	Ser	Thr	Gly	Asp	Ala
		20						25					30		
Thr	Ser	Gly	Arg	Gly	Thr	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Ala	Ala	Gln
		35					40					45			
Leu	Arg	Gln	Ala	Pro	Pro	Thr	Leu	Ala	Pro	Arg	Pro	Leu	Val	Gly	Asp
	50					55					60				
Ala	Thr	Leu	Gly	Arg	Arg	Thr	Asp	Gly	Gly	Gly	Gly	Asn	Gly	Ala	Ala
65					70					75					80
Arg	Leu	Arg	Val	Ile	Phe	Asn	Ser	Glu	Lys	Glu	Ser	Thr	Ser	Leu	Val
			85						90					95	
Ser	Asn	Ala	Gln	Glu	Asn	Asn	Val	Thr	Tyr	Val	Asp	Ser	Ser	Ser	Glu
			100					105					110		
Glu	Ser	Glu	Asp	Gln	Gln	Val	Lys	Ile	Cys	Asp	Ile	Cys	Gly	Asp	Val
		115					120					125			
Gly	Glu	Glu	Lys	Lys	Leu	Ala	Ile	Cys	Ser	Arg	Cys	Asn	Asp	Gly	Ala
	130					135					140				
Glu	His	Ile	Tyr	Cys	Met	Arg	Val	Met	Met	Pro	Glu	Val	Pro	Glu	Gly
145					150					155					160
Asp	Trp	Phe	Cys	Glu	Glu	Cys	Arg	Thr	Glu	Met	Gln	Ile	Glu	Lys	Glu
			165						170					175	
Lys	Ser	Ile	Leu	Glu	Lys	Ser	Gln	Val	Lys	Val	Ser	Thr	Ile	Ser	Val
			180					185					190		
Gly	Ser	Lys	Val	Lys	Ala	Ala	Asn	Val	Ser	Ser	Lys	Asp	Leu	Asn	Val
		195					200					205			
Ser	Asn	Ile	Ser	Ser	Lys	Ser	Thr	Lys	Glu	Asp	Ala	Glu	Glu	Gly	Ile
	210					215					220				
Val	Pro	Ser	Gly	Cys	Thr	Ser	Thr	Gly	Lys	Glu	Glu	Asp	Gly	Arg	Ser
225					230					235					240
Cys	Ile	Gly	Gly	Ser	Glu	Ala	Ala	Asn	Lys	Asn	Glu	Glu	Gln	Thr	Ser
				245					250					255	
Ser	Gly	Arg	Asn	Asp	Asp	Phe	Asn	Leu	Lys	Ile	Leu	Asp	Gly	Glu	Arg
			260					265					270		
His	Met	Gln	Ser	His	Asn	Asn	Asp	Val	Pro	Phe	Thr	Ser	Val	Ala	His
		275					280					285			
Asp	Ile	Ser	Asn	Met	Ala	Val	Lys	Asn	Lys	Ser	Ser	Ile	Lys	Ser	Glu
	290					295					300				
Val	Lys	Ser	Ser	Glu	Glu	Val	Glu	Asp	Val	Lys	Val	Cys	Asp	Ile	Cys
305					310					315					320
Gly	Asp	Ile	Gly	Ala	Glu	Glu	Lys	Leu	Ala	Val	Cys	Ser	Arg	Cys	Asn
				325					330					335	
Asp	Gly	Ala	Glu	His	Ile	Tyr	Cys	Met	Arg	Val	Met	Met	Gln	Glu	Val
			340					345					350		
Pro	Lys	Ala	Lys	Trp	Leu	Cys	Glu	Thr	Cys	His	Ser	Glu	Val	Glu	Ser
		355					360					365			
Glu	Lys	Arg	Lys	Asn	Lys	Ile	Glu	Thr	Ser	Glu	Leu	Lys	Val	Gly	Gly
	370					375					380				
Ser	Lys	Gly	Pro	Met	Asn	Lys	Pro	Ser	Ser	Ser	Glu	Asn	Gly	Val	Asp
385					390					395					400
Ala	Glu	Asn	Val	Gly	Ser	Asn	Met	Ser	Asn	Arg	Gly	Asn	Glu	Met	Asn
			405						410					415	
Ser	Val	Asn	Lys	Arg	Lys	Asp	Gly	Asp	Ala	Gly	Ile	Thr	Ser	Leu	Val
			420					425					430		
Arg	Gln	Asn	Pro	Val	Ser	Arg	Glu	Ser	Ser	Phe	Lys	Leu	Asp	Gly	Lys
		435					440					445			

PF60827.ST25.txt

Lys	Gly	Lys	Asp	Pro	Ala	Gly	His	Val	Ser	Thr	Leu	Thr	Ser	Asn	450	455	460	
Tyr	Pro	Lys	Asn	Gln	Met	Ala	Pro	Leu	Arg	Gly	Gln	Leu	Ser	Lys	Ser	465	470	475
Thr	Ser	Phe	Asn	Asn	Ser	Lys	Val	Pro	Lys	Val	Lys	Gln	Leu	Leu	Asn	485	490	495
Glu	Val	Pro	Gln	Lys	Pro	Lys	Thr	Phe	Lys	Asp	Ser	Leu	Ser	Thr	Pro	500	505	510
Met	Arg	Lys	Glu	Gly	Pro	Met	Gly	Ile	Leu	Ala	Lys	Ser	Ala	Ser	Phe	515	520	525
Lys	Lys	Pro	Lys	Cys	Phe	Glu	Pro	Val	Asn	Lys	Ala	Lys	Pro	Ser	Thr	530	535	540
Val	Met	Asn	Pro	Leu	Val	Ser	Glu	Asn	Ala	Arg	Asn	Asp	Ile	Leu	Thr	545	550	555
Ser	Ile	Leu	Gly	Ser	Arg	Ser	Leu	Thr	Gly	Ser	Val	Thr	Val	Pro	Val	565	570	575
His	Ser	Lys	Ala	Gln	Ser	Ser	Ala	Gln	His	Leu	Asn	Lys	Gly	Asn	Arg	580	585	590
Met	Ala	Asp	Ser	Asn	Ile	Leu	Gly	Thr	Ser	Gly	Gly	Glu	Gly	Ala	Arg	595	600	605
Ser	Phe	Leu	Gly	His	Cys	Gly	Ile	Lys	Lys	Pro	Pro	His	Thr	Lys	Gly	610	615	620
His	Ala	Asn	Ile	Gly	Met	Leu	Gly	Ser	Gly	Ala	Gln	Lys	Lys	Thr	Ile	625	630	635
Gln	Val	Pro	Asp	Ser	Ser	His	Leu	Asp	Asp	Gln	Ile	Lys	Ser	Pro	Ser	645	650	655
Ser	Leu	Val	Pro	Ser	Asn	Ser	Ser	Ser	Val	Ser	Ile	Pro	Gly	Ser	Ala	660	665	670
Ser	Leu	Arg	Asp	His	Gln	Thr	Val	Pro	Ser	Met	Arg	Gly	Arg	Ser	Val	675	680	685
Asp	Ser	Ile	Ser	Ala	Met	Ser	Lys	Asp	Met	Lys	Glu	Lys	Lys	Ile	Thr	690	695	700
Phe	Ser	Ser	Gln	Ser	Phe	Ser	Pro	Ser	Cys	Lys	His	Ile	Ala	Ser	Thr	705	710	715
Ile	Pro	Glu	Leu	Asp	Tyr	Ile	Trp	Arg	Gly	Gly	Phe	Glu	Leu	Ser	Arg	725	730	735
Thr	Val	Arg	Ser	Pro	Val	Leu	Cys	Glu	Gly	Leu	Gln	Ala	His	Leu	Ser	740	745	750
Cys	Phe	Ala	Ser	Pro	Lys	Val	Leu	Glu	Val	Ala	Lys	Lys	Phe	Pro	Ser	755	760	765
Asn	Val	Gln	Leu	Glu	Glu	Leu	Pro	Arg	Gln	Asn	Leu	Trp	Pro	Pro	Gln	770	775	780
Phe	His	Asp	Asn	Gly	Pro	Thr	Ile	Asp	Ser	Ile	Ala	Leu	Phe	Phe	Phe	785	790	795
Ala	Arg	Asp	Thr	Glu	Ser	Tyr	Glu	Ile	His	Tyr	Arg	Lys	Leu	Val	Glu	805	810	815
Asn	Met	Leu	Lys	Asp	Asp	Leu	Ala	Leu	Arg	Gly	Asn	Ile	Glu	Thr	Ala	820	825	830
Glu	Leu	Leu	Ile	Phe	Ala	Ser	Asn	Thr	Leu	Pro	Asn	Asn	Phe	Gln	Arg	835	840	845
Trp	Asn	Met	Phe	His	Phe	Leu	Trp	Gly	Val	Phe	Arg	Val	Arg	Arg	Lys	850	855	860
Asp	Ala	Asn	Leu	Pro	Pro	Asp	Leu	Pro	Ile	Tyr	Asp	Asn	Asn	Gln	Gly	865	870	875

PF60827.ST25.txt

Cys Ser Asn Gly Val Lys Ser Leu Phe His Pro Leu Val Gly Asn Pro  
885 890 895  
Leu Asp Gly Gln Ser His Asp Ser Ile Thr Ala Met Phe Pro Thr Asn  
900 905 910  
Asn Ser Ser Ala Ile Asp Asp Phe Leu Pro Val Pro Thr Arg Lys Asp  
915 920 925  
Leu Lys Leu Ala Tyr Ser Glu Gln Lys Glu Lys Met Gly Tyr Pro Ser  
930 935 940  
Val Gly Asn Gly Cys Asp Val Asn Phe Asp Val Asn Met Lys Leu Asn  
945 950 955 960  
Thr Cys Ser Phe Ser Val Ile His Gly Lys Gly Asn Glu Ser Thr Asn  
965 970 975  
Asn Lys Met Asp Asn Ala Glu His Leu Met Asp Gly Asp Ser Val Asn  
980 985 990  
Ala Thr Gly Val Ser Ser Ser Asn Val His Thr Ile Ser His Val Ser  
995 1000 1005  
Gly Gly Val Arg Lys Arg Ser Val Asp Val Ala Asn Trp Asp Asp  
1010 1015 1020  
Lys Val Ser Ser Ala His Ala Phe Met Ala Gln Lys Glu Leu Ser  
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Lys Met Gln Gln Cys Leu Arg Ser Val Gly Lys Met Ser Arg Thr  
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Lys Pro Ser  
1055

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<213> Oryza sativa

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

			180						185					190			
Gln	Val	Lys	Val	Ser	Thr	Ile	Ser	Val	Gly	Ser	Lys	Val	Lys	Ala	Ala		
		195					200					205					
Asn	Val	Ser	Ser	Lys	Asp	Leu	Asn	Val	Ser	Asn	Thr	Ser	Ser	Lys	Ser		
		210				215					220						
Thr	Lys	Glu	Asp	Ala	Glu	Glu	Gly	Ile	Val	Pro	Ser	Gly	Cys	Thr	Ser		
225					230					235					240		
Thr	Gly	Lys	Glu	Glu	Asp	Gly	Arg	Ser	Cys	Ile	Gly	Gly	Ser	Glu	Ala		
				245					250					255			
Ala	Asn	Lys	Asn	Glu	Glu	Gln	Thr	Ser	Ser	Gly	Arg	Asn	Asp	Asp	Phe		
			260					265					270				
Asn	Leu	Lys	Ile	Leu	His	Gly	Glu	Arg	His	Met	Gln	Ser	His	Asn	Asn		
		275				280					285						
Asp	Val	Pro	Phe	Thr	Ser	Val	Ala	His	Asp	Ile	Ser	Asn	Met	Ala	Val		
		290				295					300						
Lys	Asn	Lys	Ser	Ser	Ile	Lys	Ser	Glu	Val	Lys	Ser	Ser	Glu	Glu	Val		
305					310					315					320		
Glu	Asp	Val	Lys	Val	Cys	Asp	Ile	Cys	Gly	Asp	Ile	Gly	Ala	Glu	Glu		
				325					330					335			
Lys	Leu	Ala	Val	Cys	Ser	Arg	Cys	Asn	Asp	Gly	Ala	Glu	His	Ile	Tyr		
			340					345					350				
Cys	Met	Arg	Val	Met	Met	Gln	Glu	Val	Pro	Lys	Ala	Lys	Trp	Leu	Cys		
		355				360						365					
Glu	Thr	Cys	His	Ser	Glu	Val	Glu	Ser	Glu	Lys	Arg	Lys	Asn	Lys	Ile		
		370				375					380						
Glu	Thr	Ser	Glu	Leu	Lys	Val	Gly	Gly	Ser	Lys	Gly	Pro	Met	Asn	Lys		
385					390					395					400		
Pro	Ser	Ser	Ser	Glu	Asn	Gly	Val	Asp	Ala	Glu	Asn	Val	Gly	Ser	Asn		
				405					410					415			
Met	Ser	Asn	Arg	Gly	Asn	Glu	Met	Asn	Ser	Val	Asn	Lys	Arg	Lys	Asp		
			420					425				430					
Gly	Asp	Ala	Gly	Ile	Thr	Ser	Leu	Val	Arg	Gln	Asn	Pro	Val	Ser	Arg		
		435					440					445					
Glu	Ser	Ser	Phe	Lys	Gln	Asp	Gly	Lys	Lys	Gly	Lys	Asp	Pro	Ala	Gly		
		450				455					460						
His	Val	Ser	Thr	Leu	Leu	Thr	Ser	Asn	Tyr	Pro	Lys	Asn	Gln	Met	Ala		
465					470					475					480		
Pro	Leu	Arg	Gly	Gln	Leu	Ser	Lys	Ser	Thr	Ser	Phe	Asn	Asn	Ser	Lys		
				485					490					495			
Val	Pro	Lys	Val	Lys	Gln	Leu	Leu	Asn	Glu	Val	Pro	Gln	Lys	Pro	Lys		
			500					505					510				
Thr	Phe	Lys	Asp	Phe	Leu	Ser	Thr	Pro	Met	Arg	Lys	Glu	Gly	Pro	Met		
		515					520					525					
Gly	Ile	Leu	Ala	Lys	Ser	Ala	Ser	Phe	Lys	Lys	Pro	Lys	Cys	Phe	Glu		
		530				535					540</						

PF60827.ST25.txt

610		615		620	
Leu Phe Pro Phe Ile Ser	Leu Val Leu Leu Thr Phe Phe Ser Gly Cys				
625		630		635	640
Leu Asp Ser Ser Lys Ile Met Leu Ile Pro Tyr Leu Arg Gly Gly Phe					
		645		650	655
Glu Leu Ser Arg Thr Val Arg Ser Pro Val Leu Cys Glu Gly Leu Gln					
		660		665	670
Ala His Leu Ser Cys Phe Ala Ser Pro Lys Val Leu Glu Val Ala Lys					
		675		680	685
Lys Phe Pro Ser Asn Val Gln Leu Glu Glu Leu Pro Arg Gln Asn Leu					
		690		695	700
Trp Pro Pro Gln Phe His Asp Asn Gly Pro Thr Ile Asp Ser Ile Ala					
		710		715	720
Leu Phe Phe Phe Ala Arg Asp Thr Glu Ser Tyr Glu Ile His Tyr Arg					
		725		730	735
Lys Leu Val Glu Asn Met Leu Lys Asp Asp Leu Ala Leu Arg Gly Asn					
		740		745	750
Ile Glu Thr Ala Glu Leu Leu Ile Phe Ala Ser Asn Thr Leu Pro Asn					
		755		760	765
Asn Phe Gln Arg Trp Asn Met Phe His Phe Leu Trp Gly Val Phe Arg					
		770		775	780
Val Arg Arg Lys Asp Ala Asn Leu Pro Pro Asp Leu Pro Ile Tyr Asp					
		785		790	800
Asn Asn Gln Gly Cys Ser Asn Gly Val Lys Ser Leu Phe His Pro Leu					
		805		810	815
Val Gly Asn Pro Leu Asp Gly Gln Ser His Asp Ser Ile Thr Ala Met					
		820		825	830
Phe Pro Thr Asn Asn Ser Ser Ala Ile Asp Asp Phe Leu Pro Val Pro					
		835		840	845
Thr Arg Lys Asp Leu Lys Leu Ala Tyr Ser Glu Gln Lys Glu Lys Met					
		850		855	860
Gly Tyr Pro Ser Val Gly Asn Gly Cys Asp Val Asn Phe Asp Val Asn					
		865		870	875
Met Lys Leu Asn Thr Cys Ser Phe Ser Val Ile His Gly Lys Gly Asn					
		885		890	895
Glu Ser Thr Asn Asn Lys Met Asp Asn Ala Glu His Leu Met Asp Cys					
		900		905	910
Asp Cys Val Asn Ala Thr Gly Val Ser Ser Ser Asn Val His Thr Ile					
		915		920	925
Ser His Val Ser Gly Gly Val Arg Lys Arg Ser Val Asp Val Ala Asn					
		930		935	940
Trp Asp Asp Lys Val Asn Gly Arg Pro Gln His Lys Lys Ile Lys Leu					
		945		950	955
Asp Asp Gly Gly Ser Val Cys Pro Ser					
		965			

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 <212> PRT  
 <213> Oryza sativa

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 Met Glu Ser Glu Ala Gly Ser Ala Pro Asn Gly Cys Thr Ser Thr Val  
 1 5 10 15



PF60827.ST25.txt

Lys	Gly	Ser	Glu	Glu	Arg	His	Ser	Leu	Glu	Arg	Arg	His	Asp	Asp	Gly	20	25	30
Ser	Cys	Ile	Ser	Glu	Ile	Lys	Leu	Ile	Ser	Asn	Met	Val	Val	Lys	Lys	35	40	45
Lys	Arg	Gly	Arg	Arg	Ala	Pro	Pro	Ser	Ser	Arg	Arg	Leu	Ser	Gly	Asn	50	55	60
Lys	Val	Ile	Ser	Gly	Glu	Asp	Ala	Val	Gln	Asn	Arg	Asn	His	Ala	Lys	65	70	75
Glu	Glu	Asp	Gln	Ala	Gly	Asn	Ser	Ser	Asp	Val	Ala	Leu	Ser	Pro	Ser	85	90	95
Ser	Arg	Lys	Thr	Glu	Gly	Gln	Asp	Gln	Ser	Thr	Asn	Pro	Lys	Asp	Leu	100	105	110
Phe	Glu	Lys	Ala	Cys	His	Gln	Ala	Thr	Glu	Met	Val	Thr	Glu	Ser	Thr	115	120	125
Thr	Gly	Cys	Lys	Lys	Ser	Phe	Trp	Glu	Glu	Lys	Gly	Ser	Asp	Asn	Arg	130	135	140
Arg	Gly	Arg	Gln	Ala	Thr	Leu	Cys	Val	Lys	Gln	Asp	Gly	Leu	Asp	Ile	145	150	155
Glu	Thr	Thr	Gly	Lys	Asp	Val	Ser	Ala	Ser	Glu	Ala	Tyr	Glu	Lys	Ser	165	170	175
Ser	Thr	Leu	Glu	Asp	Thr	Ser	Val	Gly	His	Ala	Ala	Ala	Lys	Ser	Val	180	185	190
Asn	Pro	Glu	Asp	Asn	Ser	Leu	Asp	Pro	Met	Asp	Asn	Val	Ser	Asp	Thr	195	200	205
His	Val	Asn	Ala	Thr	Ser	Ser	Glu	Asp	Lys	Ser	Ser	Glu	Glu	Val	Glu	210	215	220
Asp	Val	Lys	Val	Cys	Asp	Ile	Cys	Gly	Asp	Val	Gly	Glu	Glu	Glu	Arg	225	230	235
Leu	Ala	Val	Cys	Thr	Arg	Cys	Asn	Asp	Gly	Ala	Glu	His	Ile	Tyr	Cys	245	250	255
Met	Arg	Val	Met	Met	Glu	Glu	Val	Pro	Glu	Gly	Glu	Trp	Leu	Cys	Glu	260	265	270
Glu	Cys	Glu	Asn	Glu	Leu	Glu	Tyr	Glu	Lys	Lys	Lys	Lys	Leu	Glu	Lys	275	280	285
Ser	Gln	Leu	Lys	Val	Gly	Ala	Ser	Lys	Ser	Gln	Phe	Phe	Glu	Arg	Lys	290	295	300
Thr	Asn	Lys	Ile	Ala	Asn	Ala	Ser	Lys	Ser	Asn	Ser	Tyr	Glu	Asp	Glu	305	310	315
Thr	Ser	Lys	Ala	Leu	Glu	Gly	Lys	Ile	Ser	Lys	Pro	Asp	Thr	Ala	Leu	325	330	335
Lys	Asn	Arg	Ser	Ser	Phe	Glu	Asn	Glu	Val	Glu	Asn	Glu	Asn	Gly	Asp	340	345	350
Lys	Lys	Glu	Leu	Asn	Ser	Thr	Asn	Gln	Cys	Asn	Asn	Ser	Asn	Ser	Lys	355	360	365
Arg	Lys	Glu	Glu	Gly	Ala	Gly	Ile	Ile	Ser	Ser	Ile	Lys	Gln	Ser	Ile	370	375	380
Thr	Glu	Arg	Cys	Gly	Phe	Ser	Met	Gly	Ala	Glu	Ser	Arg	Lys	Arg	Leu	385	390	395
Pro	Leu	Ser	Cys	Glu	Ser	Ser	Phe	Arg	Leu	Asp	Val	Glu	Lys	Gly	Lys	405	410	415
Gln	Ala	Ala	Thr	Lys	Val	Pro	Thr	Ser	Leu	Ala	Phe	Asp	Ala	Ala	Lys	420	425	430
Asn	Leu	Gly	Pro	Pro	Leu	Arg	Asp	Leu	Gly	Lys	Glu	Asn	Leu	His	Arg	435	440	445

PF60827.ST25.txt

Lys	Val	Pro	Lys	Val	Lys	Gln	Leu	Val	Asn	Glu	Val	Pro	Gln	Lys	Pro	450	455	460
Asn	Asn	Met	Lys	Asp	His	Ile	Pro	Phe	Leu	Ala	Lys	Lys	Glu	Gly	Pro	465	470	475
Val	Gly	Ile	Leu	Ala	Lys	Ser	Pro	Phe	Phe	Lys	Lys	Pro	Lys	Ser	Cys	485	490	495
Glu	Ser	Ala	Asn	Lys	Ala	Lys	Ser	Ser	Ile	Leu	Pro	Pro	Thr	Glu	Glu	500	505	510
Ser	Lys	Val	Val	Asn	Pro	Pro	Val	Ser	His	Asn	Val	Thr	Ser	Asp	Arg	515	520	525
Asp	Thr	Ser	Ile	Leu	Gly	Cys	Pro	Ser	Val	Thr	Ala	Ser	Met	Thr	Thr	530	535	540
Gln	Val	Ser	Ser	Lys	Glu	Glu	Ser	Lys	Ala	Gln	His	Leu	Thr	Thr	Gly	545	550	555
Tyr	Ser	Glu	Val	Asn	Lys	Gln	Leu	Val	Ala	Lys	Ala	Pro	Gly	Ser	Thr	565	570	575
Thr	Val	Ser	Ser	Ala	Glu	Lys	Ser	Ser	Gly	Ile	Leu	Gly	Ser	Gly	Ala	580	585	590
Gln	Arg	Lys	Arg	Cys	Asn	Glu	Ala	Gly	His	Ser	Thr	Gln	Phe	Cys	Ser	595	600	605
Val	Asp	Lys	Leu	Ser	Leu	Ser	Ala	Val	Lys	Pro	Met	Ser	Glu	Arg	Asn	610	615	620
Met	Lys	Asp	Ser	Ser	Ala	Lys	Arg	Asn	Lys	Thr	Phe	Glu	Ala	Thr	Asn	625	630	635
Val	Ile	Ala	Ala	Glu	Lys	Ala	Ala	Ser	Arg	Pro	Ala	Asp	Gln	Ser	Glu	645	650	655
His	Ile	Val	Lys	Cys	Gly	Pro	Ser	His	Asn	Pro	Met	Cys	Arg	Pro	Lys	660	665	670
Asp	Leu	Leu	Ser	Thr	Ser	Phe	Gly	His	Val	Lys	Lys	Pro	Ser	Gln	Leu	675	680	685
Tyr	Gly	Gln	Thr	Asn	Glu	Gln	Asp	Met	Arg	Asn	Thr	Ser	Ser	Asn	Lys	690	695	700
Ala	Ser	Thr	Asp	Gly	Ser	Lys	Leu	Lys	Pro	Asn	Glu	Cys	Gln	Thr	Val	705	710	715
Ser	Val	Lys	Thr	Gly	Arg	Leu	Val	Asp	Gly	Ser	Leu	Thr	Met	Pro	Asp	725	730	735
Ala	Leu	Met	Asp	Lys	Ser	Ser	Thr	Val	Pro	Glu	Leu	Asp	Phe	Ile	Trp	740	745	750
Gln	Gly	Gly	Phe	Glu	Leu	Trp	Arg	Thr	Gly	Arg	Ser	Pro	Glu	Leu	Cys	755	760	765
Asp	Gly	Phe	Gln	Ala	His	Leu	Ser	Cys	Ser	Ala	Ser	Pro	Lys	Val	Leu	770	775	780
Glu	Val	Ala	Lys	Lys	Phe	Pro	Ser	Lys	Val	Gln	Leu	Glu	Glu	Leu	Pro	785	790	795
Arg	Gln	Asn	Ser	Trp	Pro	Thr	Gln	Phe	Gln	Glu	Asn	Gly	Pro	Ser	Tyr	805	810	815
Glu	Asn	Ile	Gly	Leu	Phe	Phe	Phe	Ala	Arg	Asp	Thr	Asp	Ser	Tyr	Glu	820	825	830
Asn	Tyr	Tyr	Ser	Lys	Leu	Val	Glu	Asn	Met	Leu	Lys	Asn	Asp	Leu	Ala	835	840	845
Leu	Arg	Gly	Asn	Ile	Glu	Thr	Ala	Glu	Leu	Leu	Ile	Phe	Pro	Ser	Asn	850	855	860
Ile	Leu	Ser	Lys	Asn	Phe	Gln	Arg	Trp	Asn	Met	Phe	Tyr	Phe	Leu	Trp	865	870	875

PF60827.ST25.txt

```

Gly Val Phe Arg Val Arg Lys Lys Asp Gln Met Asn Ile Pro Pro Asp
      885      890      895
Val Pro Phe Ser Thr Cys Glu Pro Asn Leu Asn Thr Asp Arg Met Asp
      900      905      910
Val Asp Glu Ser Ile Ser Val Leu Thr Ser Gly Pro Ser Phe Ser Glu
      915      920      925
Gly Gln Asn Asn Gly Ala Lys Ser Asp His Asp Leu Val Lys Ser Val
      930      935      940
Ser Cys Val Asp Tyr Gln Cys Pro Gln Ser Thr Glu Thr Asn Tyr Gln
      945      950      955      960
Arg Cys Ser Asn Gly Glu Thr Glu Ser Asn Gln Pro Val Ser Gln Asn
      965      970      975
Glu Leu Glu Asp His His Gln Val Pro Ile Thr Ala Ser Ser Ser Thr
      980      985      990
Asn Asn Ser Thr Asp Leu Ala Thr Glu Gln Gln Lys Leu Ser Cys Ser
      995      1000      1005
Gly Asp Glu Asp Thr Lys Asp Ser Ser Asn Ser Ile Ala Cys Glu
      1010      1015      1020
Ala Ile Ile Asp Val Asn Thr Val Pro Val Thr Cys Ser Val Ser
      1025      1030      1035
Ser Val Tyr Glu Ile Gly Lys Gly Ile Arg Val Ile Asn Leu Asn
      1040      1045      1050
Glu Ala Asp Asn Leu Val Asp Val Asp Ile Asn Ser Ser Glu Val
      1055      1060      1065
Asn Ser Gly Thr Val Asp Leu Ile Ser His Thr Thr Ala Thr Leu
      1070      1075      1080
His Lys Arg Asn Val Glu Val Ala Asn Trp Ala Asp Glu Val Asn
      1085      1090      1095
Gly Lys Leu Glu Gln Lys Lys Ile Lys Leu Asp Asn Val Gly Ser
      1100      1105      1110
Ala Asn Ser Ser Leu Ser Glu Asn Thr Ser Asp Gly Arg Leu Ser
      1115      1120      1125
Ser Lys Val His Pro Leu Val Ser Ser Ser Phe Asp Asp Ser Val
      1130      1135      1140
Asp Gln Ser Leu Ala Gly Ser Ser Lys Cys Asn Gly Lys Arg Ile
      1145      1150      1155
Phe Pro Leu Asp Leu Asn Thr Val Asp Ala Gly Asn Val Val Asn
      1160      1165      1170
Ile Ser Asp Asp Glu Glu Met Pro Glu Arg Asp Ala Pro Asp Phe
      1175      1180      1185
Glu Leu Glu Leu Thr Asp Asn Asn Ser Pro Arg Lys Thr Met Phe
      1190      1195      1200
Ser Phe Leu Ser Pro Lys Val Glu Glu Asn Arg Ser Lys Glu His
      1205      1210      1215
Ser Leu Pro Thr Asp Ser Pro Gly Ser Leu Ser Leu Ser Leu Ala
      1220      1225      1230
Phe Pro Ala Ser Arg Glu His Ala Gly Lys Leu Gln Ser Glu Ile
      1235      1240      1245
Pro Lys Gln Leu Pro Glu Met Ser Ser Gln Asn Lys Ile Ser Ser
      1250      1255      1260
Ile Trp Asp Arg Gln
      1265

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<210> 11

PF60827.ST25.txt

<211> 1489

<212> PRT

<213> Oryza sativa

<400> 11

```

Asp Lys Leu Thr Ala Arg Lys Arg Pro Val Pro Leu Asp Ser Pro Asn
1          5          10          15
Val Lys Thr Glu Ser Gly Thr Cys Asn Val Cys Cys Ala Pro Cys Ser
20          25          30
Ser Cys Leu His Arg Asn Ile Ala Leu Thr Asp Ser Asn Met Asp Cys
35          40          45
Gly Ser Ser Gln Thr Cys Phe Ala Arg Ser Glu Thr Lys Asn Ser Ser
50          55          60
Phe Val Arg Val Asp Lys Gly Leu Arg Thr Lys Ala Lys Gly Gly Glu
65          70          75          80
Asn Asp Asp Glu Phe Ser Ala Thr Ser Ser Pro Ala Ser Tyr Ser Glu
85          90          95
Asn Gly Glu Asn Lys Val Ile Ala Arg Ser Ser Val Ala Ala Asp Ser
100          105          110
Glu Val Asp Lys Pro Ala Lys Arg Arg Arg Leu Val Asn His Gly Ser
115          120          125
Arg Ser Pro Ile Val Glu Cys His Asp Asp Ser Asn Ser Cys Val Thr
130          135          140
Gly Val Ser Ala Ala Ser Lys Leu Leu Leu Asp Lys Lys Lys Asp Lys
145          150          155          160
Leu Ser Thr Ser Ala Ser Ser Arg Asp Leu Thr Val Asn Tyr Lys Asp
165          170          175
Asn Gly Ile Asn Arg Leu Arg Asn Tyr Cys Ala Glu Glu Ser Thr Gly
180          185          190
Lys Lys Arg Ser Asp Val His Ala Met His Arg Ser Ser Ser Asp Arg
195          200          205
Ser Leu Pro Ala Glu Ser Pro Phe Ala Thr Lys Arg Leu Leu Arg Thr
210          215          220
Gln Ser Ser Leu Ser Ala Ser His Gly Leu Ser Pro Lys Arg Pro Thr
225          230          235          240
Gln Ala Phe Gly Asn Ala Gln Asn Asn Leu Ala His Gln Pro Cys Glu
245          250          255
Lys Ala Ser Ser Asn Lys Thr Val Glu Arg Ser Leu Gly Gly Lys Ser
260          265          270
Asp Pro Ser Val Leu Gly Gly Glu Arg His Ser Met Met Thr Ser Cys
275          280          285
Gly Thr Ser Asn Arg Asp Lys Ile Lys Ala Gly Ser Leu Thr Lys Asn
290          295          300
Leu Glu Asn Gly Thr Ser Cys Ser Arg Asn Gly Ser Leu Glu His Ala
305          310          315          320
Asp Ile Gln Ser Asn Asp Ala Val Asn Arg Asn Asp Asn Asp Lys Gln
325          330          335
Glu Cys Ser Gly Arg Lys Leu Asn Thr Gln Asn Asp Val Met Thr Asp
340          345          350
Ser Gly Asn Ser Glu Gly Leu Ile Asp Val Asn Val Cys Asp Ile Cys
355          360          365
Gly Asp Val Gly Arg Glu Tyr Leu Leu Ala Thr Cys Thr Arg Cys Leu
370          375          380
Glu Gly Ala Glu His Thr Tyr Cys Met Arg Val Lys Leu Glu Lys Val

```

PF60827.ST25.txt

```

385          390          395          400
Pro Asp Gly Glu Trp Leu Cys Glu Glu Cys Cys Leu Lys Glu Asp Glu
          405          410          415
Asn Gln Thr Arg Ser Asn Gly Gly Thr Ser Arg Tyr Lys Val Leu Asp
          420          425          430
Gly Lys Asn Gln Asn Ser Glu Ser Thr Asn Asn Ser Lys Thr Leu Lys
          435          440          445
Val Val Val Thr Asp Leu Asp Ser Gln Gln Ile Thr Cys Gly Thr Pro
          450          455          460
Val Asn Asp Pro Leu Ala Gly Ser Asn Gln Lys Leu His Leu Ala Ser
465          470          475          480
Ser Asp Leu Glu Ala Arg Gln Val Lys Cys Ala Thr Pro Thr Ala Glu
          485          490          495
Arg Leu Asp Val Lys Asn Lys Asn Ser Gly Ile Met Gly Asn Arg Lys
          500          505          510
Lys Leu Gln Val Val Thr Ser Ser Leu Glu Ala Arg Gln Ser Ser Cys
          515          520          525
Arg Thr Pro Thr Ser Gly Ser Leu Asp Lys Lys Asn Gln Ser Leu Asp
          530          535          540
Lys Arg Ser Gln Ser Ser Glu Val Leu Leu Lys Arg Lys Lys Leu Arg
545          550          555          560
Val Ala Thr Asp Met Glu Ser Pro Leu Ser Asn Asp Gly Val Arg Ser
          565          570          575
Pro Pro Lys Ser Cys Lys Arg Tyr Ala Glu Asn Thr Leu Ser Ser Thr
          580          585          590
Pro Arg Leu Leu Lys Ala Asp Ser Pro Arg Asn His Asp Val Phe Ser
          595          600          605
Arg Glu Asn Ser Phe Lys Ser Ser Asn Lys Gly Ser Ile Lys Ser Pro
          610          615          620
Asp Asn Ala Pro Met Arg Ser Gln Ala Val Asn Ser Ser Val Thr Leu
625          630          635          640
Pro Arg Ser Tyr Ser Leu Gly Asn Leu Ala Asn Val Lys Thr Pro Gly
          645          650          655
Pro Ser Pro Arg Gly Leu Leu Ser Lys Gln Pro Ser Phe Asn Asn Ser
          660          665          670
Ser Asn Glu Pro Lys Val Lys Gln Leu Ala Glu Pro Val Leu Ser Lys
          675          680          685
Leu Lys Pro Ser Lys His Ser Pro Arg Asp Pro Arg Glu Ser Ile Arg
          690          695          700
Lys Val Met Lys Ser Gly Pro Leu Lys His Glu Ala Ser Ile Cys Lys
705          710          715          720
Gly Ser Ser Ser Ser Lys Gln Lys Gln Ser Val His Ser Ser Gln Asn
          725          730          735
Glu Gln Pro Arg Ile Leu Lys Pro Val Lys Pro Thr Ile Leu Leu Glu
          740          745          750
Arg Gly Ala Ser Phe Asn Leu Gln Lys Pro Asn Ile Ser Ser Ser Pro
          755          760          765
Arg Pro Asp Ser Ser Ile Lys Ser Gly Asp Pro Arg Asn Asp Gln Asp
          770          775          780
Ser Pro Arg Pro Gly Pro Ser Ile Leu Lys Ser Ser Lys Lys Pro Gly
785          790          795          800
Ile Val Glu Asn Lys His Ser Ser Ile Leu Ser Lys Ser Asp Lys Gln
          805          810          815
Gly Ile Thr Ser Thr Gly Val Val Cys Ser Lys Asp Thr Cys Val Val

```

			820					825					830			
Lys	Ala	Ser	Asp	Pro	Leu	Ile	Pro	Met	Asp	Lys	Ile	Lys	Asn	Asp	Ser	
		835						840					845			
Thr	Asp	Gly	Ala	Cys	Glu	Ser	Pro	Leu	Ile	Leu	Val	Asn	Asn	Asp	Asn	
		850						855					860			
Glu	Met	Ser	Thr	Lys	Pro	Glu	Val	Leu	Ser	Ile	Pro	Arg	Ala	Ser	Lys	
					870						875				880	
Thr	Cys	Gly	Ser	Asp	Phe	Gln	Asp	Ile	Ala	Pro	Thr	Ser	Ser	Ser	Glu	
					885					890					895	
Asp	Leu	Pro	Pro	Glu	Glu	Val	Gln	Tyr	Glu	Gln	Lys	Val	Val	Glu	Ser	
					900				905					910		
Asp	Gly	Asn	Ile	Ser	Cys	Lys	Ser	Ala	Ala	Ala	Ile	Gln	Ala	Ser	Glu	
		915						920					925			
Asp	Leu	Leu	Pro	Glu	Ser	Pro	Gln	Gly	Cys	Leu	Val	Ala	Gln	Asn	Pro	
		930					935					940				
Tyr	Ser	Pro	Asp	Thr	Lys	Ser	Asn	Asp	Leu	Asn	Leu	Lys	Gln	Gln	Ala	
					950						955				960	
Leu	Val	Asp	Gln	Ser	Ser	Thr	Val	Gly	Ser	Ser	Leu	Gly	Ala	Leu	Val	
					965				970						975	
Ile	Pro	Glu	Gln	Ser	Tyr	Ile	Trp	Gln	Gly	Thr	Phe	Glu	Val	Ser	Arg	
					980				985					990		
Pro	Gly	Ser	Ser	Pro	Glu	Met	Tyr	Asp	Gly	Phe	Gln	Ala	His	Leu	Ser	
		995						1000					1005			
Thr	Cys	Ala	Ser	Leu	Lys	Val	Leu	Glu	Ile	Val	Lys	Gln	Leu	Pro		
		1010					1015					1020				
Gln	Arg	Ile	Gln	Leu	Val	Glu	Val	Pro	Arg	His	Ser	Ser	Trp	Pro		
		1025					1030					1035				
Leu	Gln	Phe	Lys	Glu	Val	Lys	Pro	Asn	Glu	Asp	Asn	Ile	Ala	Leu		
						1045					1050					
Tyr	Phe	Phe	Ala	Lys	Asp	Val	Glu	Ser	Tyr	Glu	Arg	Ala	Tyr	Gly		
						1060					1065					
Lys	Leu	Leu	Glu	Asn	Met	Leu	Ala	Gly	Asp	Leu	Ser	Leu	Thr	Ala		
						1075					1080					
Asn	Ile	Cys	Gly	Ile	Glu	Leu	Leu	Ile	Phe	Thr	Ser	Asp	Lys	Leu		
		1085					1090				1095					
Pro	Glu	Arg	Thr	Gln	Arg	Trp	Asn	Gly	Leu	Leu	Phe	Phe	Trp	Gly		
						1105					1110					
Val	Leu	Tyr	Ala	Arg	Lys	Ala	Ser	Ser	Ser	Thr	Glu	Leu	Leu	Val		
						1120					1125					
Lys	Gly	Met	Asn	His	Ser	Pro	Leu	Glu	Gln	Ile	Asn	Gly	Pro	Val		
						1135					1140					
Asn	Gln	Leu	Val	Cys	Ser	Pro	Lys	Met	Pro	Gln	Ser	Leu	Gly	Ile		
						1150					1155					
Asp	Leu	Asn	Glu	Cys	Pro	Val	Asp	Glu	Leu	Tyr	Asp	Pro	Ala	Val		
						1165					1170					

PF60827.ST25.txt

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

<210> 12  
 <211> 153  
 <212> PRT  
 <213> Oryza sativa

<220>  
 <221> DOMAIN  
 <222> (1)..(153)  
 <223> Rice LLIF domain

<400> 12  
 Ser Ser Thr Val Pro Glu Leu Asp Phe Ile Trp Gln Gly Gly Phe Glu  
 1 5 10 15  
 Leu Trp Arg Thr Gly Arg Ser Pro Glu Leu Cys Asp Gly Phe Gln Ala  
 20 25 30  
 His Leu Ser Cys Ser Ala Ser Pro Lys Val Leu Glu Val Ala Lys Lys  
 35 40 45  
 Phe Pro Ser Lys Val Gln Leu Glu Glu Leu Pro Arg Gln Asn Ser Trp

PF60827.ST25.txt

```

      50              55              60
Pro Thr Gln Phe Gln Glu Asn Gly Pro Ser Tyr Glu Asn Ile Gly Leu
65              70              75              80
Phe Phe Phe Ala Arg Asp Thr Asp Ser Tyr Glu Asn Tyr Tyr Ser Lys
      85              90              95
Leu Val Glu Asn Met Leu Lys Asn Asp Leu Ala Leu Arg Gly Asn Ile
      100             105             110
Glu Thr Ala Glu Leu Leu Ile Phe Pro Ser Asn Ile Leu Ser Lys Asn
      115             120             125
Phe Gln Arg Trp Asn Met Phe Tyr Phe Leu Trp Gly Val Phe Arg Val
      130             135             140
Arg Lys Lys Asp Gln Met Asn Ile Pro
145              150

```

<210> 13  
 <211> 153  
 <212> PRT  
 <213> Arabidopsis thaliana

<220>  
 <221> DOMAIN  
 <222> (1)..(153)  
 <223> Arabidopsis LLIF domain

```

<400> 13
Ser Ser Ala Ile Pro Asp His Glu Phe Ile Trp Gln Gly Asp Leu Glu
1              5              10              15
Val Arg Lys Ile Ile Asn Gln Ser Ala Met His Ser Gly Ile Gln Ala
      20              25              30
His Leu Ser Thr Leu Ala Ser Pro Arg Val Ala Glu Val Val Asn Lys
      35              40              45
Phe Pro Glu Thr Phe Ser Leu Asn Glu Val Pro Arg Lys Ser Thr Trp
      50              55              60
Pro Thr Gln Phe Glu Lys Leu Gly Thr Lys Glu Ala His Ile Ala Leu
65              70              75              80
Phe Phe Phe Ala Lys Asp Thr Glu Ser Tyr Glu Arg Asn Tyr Lys Pro
      85              90              95
Leu Val Asp Asn Met Ile Lys Asn Asp Leu Ala Leu Lys Gly Asn Leu
      100             105             110
Asp Asn Val Asp Leu Leu Ile Phe Ala Ser Asn Gln Leu Pro Ser Asn
      115             120             125
Cys Gln Arg Trp Asn Met Leu Tyr Phe Leu Trp Gly Val Phe Gln Gly
      130             135             140
Arg Lys Glu Thr Asn Pro Gln Lys Asn
145              150

```

<210> 14  
 <211> 150  
 <212> PRT  
 <213> Glycine max

<220>  
 <221> DOMAIN  
 <222> (1)..(150)



<223> Soybean LLIF domain

<400> 14

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

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<210> 15

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> consensus ZF domain

<220>

<221> UNSURE

<222> (9)..(9)

<223> Unknown amino acid

<400> 15

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Cys Asp Ile Cys Gly Asp Val Gly Xaa Glu Glu Lys Leu Ala Val Cys
1      5      10      15
Ser Arg Cys Asn Asp Gly Ala Glu His Thr Tyr Cys Met Arg Val Met
      20      25      30
Met Glu Glu Val Pro Asp Gly Glu Trp Leu Cys Glu Glu Cys
      35      40      45

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<210> 16

<211> 153

<212> PRT

<213> Artificial Sequence

<220>

<223> consensus LLIF domain

<220>

PF60827.ST25.txt

<221> UNSURE  
<222> (18)..(18)  
<223> Unknown amino acid

<220>  
<221> UNSURE  
<222> (22)..(22)  
<223> Unknown amino acid

<220>  
<221> UNSURE  
<222> (37)..(37)  
<223> Unknown amino acid

<220>  
<221> UNSURE  
<222> (61)..(61)  
<223> Unknown amino acid

<220>  
<221> UNSURE  
<222> (75)..(75)  
<223> Unknown amino acid

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His Leu Ser Cys Xaa Ala Ser Pro Lys Val Leu Glu Val Val Lys Lys  
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Pro Thr Gln Phe Gln Asp Asn Gly Pro Thr Xaa Asp Asn Ile Ala Leu  
65 70 75 80  
Phe Phe Phe Ala Arg Asp Thr Glu Ser Tyr Glu Xaa His Tyr Lys Lys  
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PF60827.ST25.txt

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Arg	Lys	Lys	Asp	Ser	Ser	Asn	Pro	Pro							
145						150									