

PF58811.ST25.txt
SEQUENCE LISTING

<110> CropDesign N.V.

<120> Plants having enhanced yield-related traits and a method for making the same

<130> PF58811

<150> EP 07101436.9

<151> 2007-01-30

<150> US 60/890,845

<151> 2007-02-21

<160> 39

<170> PatentIn version 3.3

<210> 1

<211> 1686

<212> DNA

<213> Saccharum officinarum

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Gly Gly Glu Leu Val Arg Ala Thr Arg Asp Asn Glu Tyr Ser Asp Leu
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Phe Tyr Ala Ile Pro Trp Ser Gln Gly Thr Leu Gly Leu Leu Val Ala
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Ala Glu Ile Arg Leu Val His Ile Lys Glu Tyr Met Lys Leu Thr Tyr
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PF58811.ST25.txt

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Ala Phe Arg Asn Val	Leu Glu Ile Asp Lys	Glu Arg Met Ile Ala Arg
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Val Tyr Pro Ile Trp	Leu Cys Pro His Lys	Leu Phe Lys Leu Pro Val
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Asp Ala Gly Leu Tyr	Glu His Thr Arg Arg	Lys Tyr Gly Ala Val Gly
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Phe Val Glu Gly Met Val Tyr Ser Pro Thr Glu Gly Val Phe Met Thr
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Ile Tyr Pro Ile Trp Leu Cys Pro His Arg Leu Phe Lys Leu Pro Val
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 Asp Asn Val Gln Lys Val Val Lys Arg Leu Lys Gln Arg Asn Pro Lys
 65 70 75 80
 Lys Asp Gly Leu Val Cys Thr Ala Arg Lys Pro Trp Ile Ala Val Gly
 85 90 95
 Met Arg Asn Val Asp Tyr Lys Arg Ala Arg His Phe Glu Val Asp Leu
 100 105 110
 Ser Ala Phe Arg Asn Ile Leu Glu Ile Asp Arg Glu Arg Met Val Ala
 115 120 125

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Lys Val Glu Pro Leu Val Asn Met Gly Gln Ile Thr Arg Ala Thr Cys
130                      135                      140
Pro Met Asn Leu Ala Leu Ala Val Val Ala Glu Leu Asp Asp Leu Thr
145                      150                      155                      160
Val Gly Gly Leu Ile Asn Gly Tyr Gly Ile Glu Gly Ser Ser His Leu
165                      170                      175
Tyr Gly Leu Phe Ser Asp Thr Val Val Ala Val Glu Val Val Leu Ala
180                      185                      190
Asp Gly Arg Val Val Arg Ala Thr Lys Asp Asn Glu Tyr Ser Asp Leu
195                      200                      205
Phe Tyr Gly Ile Pro Trp Ser Gln Gly Thr Leu Gly Phe Leu Val Ser
210                      215                      220
Ala Glu Ile Lys Leu Ile Pro Ile Lys Glu Tyr Met Arg Leu Thr Tyr
225                      230                      235                      240
Thr Pro Val Lys Gly Ser Leu Lys Glu Ile Ala Gln Gly Tyr Cys Asp
245                      250                      255
Ser Phe Ala Pro Arg Asp Gly Asp Pro Ala Lys Val Pro Asp Phe Val
260                      265                      270
Glu Gly Met Val Tyr Thr Glu Asn Glu Gly Val Met Met Thr Gly Val
275                      280                      285
Tyr Ala Ser Lys Glu Glu Ala Lys Lys Lys Gly Asn Lys Ile Asn Cys
290                      295                      300
Val Gly Trp Trp Phe Lys Pro Trp Phe Tyr Gln His Ala Gln Thr Ala
305                      310                      315                      320
Leu Lys Lys Gly Glu Phe Val Glu Tyr Ile Pro Thr Arg Glu Tyr Tyr
325                      330                      335
His Arg His Thr Arg Cys Leu Tyr Trp Glu Gly Lys Leu Ile Leu Pro
340                      345                      350
Phe Gly Asp Gln Phe Trp Phe Arg Phe Leu Leu Gly Trp Leu Met Pro
355                      360                      365
Pro Lys Val Ser Leu Leu Lys Ala Thr Gln Gly Glu Ser Ile Arg Asn
370                      375                      380
Tyr Tyr His Asp Asn His Val Ile Gln Asp Met Leu Val Pro Leu Tyr
385                      390                      395                      400
Lys Val Gly Asp Ala Leu Glu Phe Val His Lys Glu Met Glu Val Tyr
405                      410                      415
Pro Leu Trp Leu Cys Pro His Arg Leu Tyr Lys Leu Pro Val Lys Thr
420                      425                      430
Met Val Tyr Pro Glu Pro Gly Phe Glu His His His Arg Gln Gly Asp
435                      440                      445
Thr Ser Tyr Ala Gln Met Phe Thr Asp Val Gly Val Tyr Tyr Ala Pro
450                      455                      460
Gly Ala Val Leu Arg Gly Glu Glu Phe Asn Gly Ala Leu Ala Val His
465                      470                      475                      480
Arg Leu Glu Gln Trp Leu Ile Glu Asn His Ser Tyr Gln Pro Gln Tyr
485                      490                      495
Ala Val Ser Glu Leu Asn Glu Lys Asp Phe Trp Arg Met Phe Asp Ala
500                      505                      510
Ser His Tyr Glu His Cys Arg Gln Lys Tyr Gly Ala Val Gly Thr Phe
515                      520                      525
Met Ser Val Tyr Tyr Lys Ser Lys Lys Gly Arg Lys Thr Glu Lys Glu
530                      535                      540
Val Gln Glu Ala Glu Ala Ala Ile Leu Glu Pro Ala Tyr Ala Asp Glu
545                      550                      555                      560
Ala

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<210> 15

<211> 1704

PF58811.ST25.txt

<212> DNA

<213> Pisum sativum

<400> 15

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tttcttacat accttgggga tgtgagatct gagtggaaagt cctttaagac gcggcagaag      180
gaacacgatg agaatgtcca gaaggttgct aatcgctca aaaagaggaa tccttcaaag      240
gatgggcttg tgtgcactgc tcgtaagcca tgggttgctg ttgggatgag aaatgttgac      300
tataagaggg ctcgtcattt tgaggttgat ctttctcctt tcaggaacat tcttgatata      360
gacaaagagc ggatgattgc tagggtagag ccccttgctc acatggggca gatcaccagg      420
gtgactgtgc ctatgaatct tgcactcgct gtggttgctg agctcgatga tcttactgtt      480
ggtggcctca taaatggtta tgggatcgaa ggaagtccc acaaatatgg ctttttttct      540
gatactgttg tagcctttga aattattttg gcagatggat ctcttgttaa agccaccaag      600
gacaatgagt actctgatct attttatgct attccatggg ctcagggaac acttgggctt      660
cttgttgctg ctgaggtcaa gcttataccc attaaggagt acatgaagtt aacttataaa      720
ccagttgctg gtaacctgaa agatattgca caggcatatt ctgattcttt tgctcccaga      780
gacggtgacc aggataatga tgagaagggt ccagactttg ttgaaactat gatttattcg      840
ccaacacgag ctgtgtgcat gacagggaga tatgcttcaa aggaagaggc caagaaaaag      900
gggaataaga ttaacaatgt aggggtggtg taaaaaacct ggttctacca acatgcagag      960
acagcactca agaaaggtct gtttgtagaa tacattccca ccagagagta ttatcacagg     1020
cacacaaggt gtttgtattg ggagggaaaag cttatcctcc catttggtga tcaatttttg     1080
tttagatttc tgtttggctg gttgatgcca ccaaggttt ctttgctcaa ggcaactcaa     1140
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ctgtacaagg tgggagatgc actagaatgg gttgaccgtg agatggaggt ataccccatt     1260
tggctctgtc cacataaact gttcaagctg cctatcaaaa ctatgattta cccagaagca     1320
ggctttgagt tgcaacgcag gcaggagagc acacagaatg ctcagatgtt cacagatgtt     1380
ggagtttact atgcaccagg tcctgtgtta aggggcgagg tgtttgatgg tgcagaagca     1440
gtgcgtaaaa tggagagctg gatgattgag aatcattgtt ttcagccaca gtatgctgtg     1500
tctgagctga atgagaaaaa cttctggagg atgtttgatg ctggtctgta tgagcattgt     1560
aggaggaagt atggagccgt tggaaacttt atgagtgtgt actacaaatg caagaagggc     1620
aggaaaactg agaaggaagt gcgtgaagcc gagcaagcac accttgacac tgcgtatgca     1680
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<210> 16

<211> 567

<212> PRT

<213> Pisum sativum

<400> 16

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

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145					150					155					160
Gly	Gly	Leu	Ile	Asn	Gly	Tyr	Gly	Ile	Glu	Gly	Ser	Ser	His	Lys	Tyr
				165					170					175	
Gly	Leu	Phe	Ser	Asp	Thr	Val	Val	Ala	Phe	Glu	Ile	Ile	Leu	Ala	Asp
			180					185					190		
Gly	Ser	Leu	Val	Lys	Ala	Thr	Lys	Asp	Asn	Glu	Tyr	Ser	Asp	Leu	Phe
		195					200					205			
Tyr	Ala	Ile	Pro	Trp	Ser	Gln	Gly	Thr	Leu	Gly	Leu	Leu	Val	Ala	Ala
	210					215				220					
Glu	Val	Lys	Leu	Ile	Pro	Ile	Lys	Glu	Tyr	Met	Lys	Leu	Thr	Tyr	Lys
225					230					235					240
Pro	Val	Val	Gly	Asn	Leu	Lys	Asp	Ile	Ala	Gln	Ala	Tyr	Ser	Asp	Ser
				245					250					255	
Phe	Ala	Pro	Arg	Asp	Gly	Asp	Gln	Asp	Asn	Asp	Glu	Lys	Val	Pro	Asp
		260						265					270		
Phe	Val	Glu	Thr	Met	Ile	Tyr	Ser	Pro	Thr	Arg	Ala	Val	Cys	Met	Thr
	275						280					285			
Gly	Arg	Tyr	Ala	Ser	Lys	Glu	Ala	Lys	Lys	Lys	Gly	Asn	Lys	Ile	
	290					295			300						
Asn	Asn	Val	Gly	Trp	Trp	Tyr	Lys	Thr	Trp	Phe	Tyr	Gln	His	Ala	Glu
305					310					315					320
Thr	Ala	Leu	Lys	Lys	Gly	Leu	Phe	Val	Glu	Tyr	Ile	Pro	Thr	Arg	Glu
				325					330					335	
Tyr	Tyr	His	Arg	His	Thr	Arg	Cys	Leu	Tyr	Trp	Glu	Gly	Lys	Leu	Ile
			340					345					350		
Leu	Pro	Phe	Gly	Asp	Gln	Phe	Trp	Phe	Arg	Phe	Leu	Phe	Gly	Trp	Leu
		355					360					365			
Met	Pro	Pro	Lys	Val	Ser	Leu	Leu	Lys	Ala	Thr	Gln	Gly	Glu	Ala	Ile
	370					375					380				
Arg	Asn	Tyr	Tyr	His	Glu	Met	His	Val	Ile	Gln	Asp	Met	Leu	Val	Pro
385					390					395					400
Leu	Tyr	Lys	Val	Gly	Asp	Ala	Leu	Glu	Trp	Val	Asp	Arg	Glu	Met	Glu
				405					410					415	
Val	Tyr	Pro	Ile	Trp	Leu	Cys	Pro	His	Lys	Leu	Phe	Lys	Leu	Pro	Ile
			420					425					430		
Lys	Thr	Met	Ile	Tyr	Pro	Glu	Ala	Gly	Phe	Glu	Leu	Gln	Arg	Arg	Gln
		435					440					445			
Gly	Asp	Thr	Gln	Asn	Ala	Gln	Met	Phe	Thr	Asp	Val	Gly	Val	Tyr	Tyr
	450					455					460				
Ala	Pro	Gly	Pro	Val	Leu	Arg	Gly	Glu	Val	Phe	Asp	Gly	Ala	Glu	Ala
465					470					475					480
Val	Arg	Lys	Met	Glu	Ser	Trp	Met	Ile	Glu	Asn	His	Cys	Phe	Gln	Pro
				485					490					495	
Gln	Tyr	Ala	Val	Ser	Glu	Leu	Asn	Glu	Lys	Asn	Phe	Trp	Arg	Met	Phe
		500						505					510		
Asp	Ala	Gly	Leu	Tyr	Glu	His	Cys	Arg	Arg	Lys	Tyr	Gly	Ala	Val	Gly
		515					520					525			
Thr	Phe	Met	Ser	Val	Tyr	Tyr	Lys	Cys	Lys	Lys	Gly	Arg	Lys	Thr	Glu
	530					535					540				
Lys	Glu	Val	Arg	Glu	Ala	Glu	Gln	Ala	His	Leu	Asp	Thr	Ala	Tyr	Ala
545					550					555					560
Glu	Val	Asp	Gln	Pro	Ala	Asp									
				565											

<210> 17
 <211> 1692
 <212> DNA
 <213> Populus tremuloides

PF58811.ST25.txt

<400> 17

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tttctcactt accttgggga tgtcaaataca gagatgaaat cctacaaaca gcgtcagaag 180
gaacatgatg aaaatgttaa aaaagtgggt aaacgcctca aagagaggaa tccatccaag 240
gatggtcttg tttgcaactgc tcgtaaaccc tggattgctg ttggaatgcg gaatgttgac 300
tataaacggg ctcggcactt tgaagttgat ttatcatctt tccgtaatat cttgaaatt 360
gacagagaga gaatggttgc aagagttgag ccacttgtaa atatgggaca gattagcagg 420
gcgagtgtcc caatgaatct ttcccttgca gtggttgag aacttgatga tctcactgtt 480
ggtgggctaa ttaatggtta tgggattgaa ggaagctctc acatctatgg cttgttctct 540
gacactgttg tggcttatga gattgttttg gcagatggcc aggttggttag agccaccaag 600
gacaatgaat actctgatct tttctatgcc atcccttggg ctcagggaac acttgggctt 660
cttgtctctg ctgagatcaa gcttattccc gttaaggaat acatgaggct gacctacaaa 720
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gatggagatc aggataaccc gagcaagggt ccagactttg tggagactat gatttataac 840
tctaccgatg gtgtgatgat gacagggaga tatgcctcca aagaagaggc caagaagaag 900
ggaaatgtga ttaacaatgt tgggttgggtg ttaaaaccgt ggttctatca gcatgcgcag 960
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ctttacaagg ttggggatgc cctagaatgg gtcgaccgtg agatggaggt atatcccatt 1260
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tctgagctga atgagaagaa attctggagg atgtttgatg ctgacctcta tgaacacgcc 1560
aggaagaaat atggagctgt ggaaccttc atgagcgtgt actacaaatc caagaaagga 1620
aggaagacgg agaaggaggt gcaggaagca gaacaagccc accttgagac tgcttatgct 1680
gaggtcgggt ag 1692

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<210> 18

<211> 563

<212> PRT

<213> Populus tremuloides

<400> 18

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20     25     30
Leu Pro Ile Ser Phe Thr Leu Tyr Phe Leu Thr Tyr Leu Gly Asp Val
35     40     45
Lys Ser Glu Met Lys Ser Tyr Lys Gln Arg Gln Lys Glu His Asp Glu
50     55     60
Asn Val Lys Lys Val Val Lys Arg Leu Lys Glu Arg Asn Pro Ser Lys
65     70     75     80
Asp Gly Leu Val Cys Thr Ala Arg Lys Pro Trp Ile Ala Val Gly Met
85     90     95
Arg Asn Val Asp Tyr Lys Arg Ala Arg His Phe Glu Val Asp Leu Ser
100    105    110
Ser Phe Arg Asn Ile Leu Glu Ile Asp Arg Glu Arg Met Val Ala Arg
115    120    125
Val Glu Pro Leu Val Asn Met Gly Gln Ile Ser Arg Ala Ser Val Pro
130    135    140
Met Asn Leu Ser Leu Ala Val Val Ala Glu Leu Asp Asp Leu Thr Val
145    150    155    160
Gly Gly Leu Ile Asn Gly Tyr Gly Ile Glu Gly Ser Ser His Ile Tyr
165    170    175

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PF58811.ST25.txt

Gly Leu Phe Ser Asp Thr Val Val Ala Tyr Glu Ile Val Leu Ala Asp
180 185 190
Gly Gln Val Val Arg Ala Thr Lys Asp Asn Glu Tyr Ser Asp Leu Phe
195 200 205
Tyr Ala Ile Pro Trp Ser Gln Gly Thr Leu Gly Leu Leu Val Ser Ala
210 215 220
Glu Ile Lys Leu Ile Pro Val Lys Glu Tyr Met Arg Leu Thr Tyr Lys
225 230 235 240
Pro Val Val Gly Asn Leu Lys Glu Leu Ala Gln Ala Tyr Ile Asp Ser
245 250 255
Phe Ala Pro Arg Asp Gly Asp Gln Asp Asn Pro Ser Lys Val Pro Asp
260 265 270
Phe Val Glu Thr Met Ile Tyr Asn Ser Thr Asp Gly Val Met Met Thr
275 280 285
Gly Arg Tyr Ala Ser Lys Glu Glu Ala Lys Lys Lys Gly Asn Val Ile
290 295 300
Asn Asn Val Gly Trp Trp Phe Lys Pro Trp Phe Tyr Gln His Ala Gln
305 310 315 320
Thr Ala Leu Lys Lys Gly Glu Phe Val Glu Tyr Ile Pro Thr Arg Glu
325 330 335
Tyr Tyr His Arg His Thr Arg Cys Leu Tyr Trp Glu Gly Lys Leu Ile
340 345 350
Leu Pro Phe Ala Asp Gln Trp Trp Phe Arg Phe Leu Leu Gly Trp Met
355 360 365
Met Pro Pro Lys Val Ser Leu Leu Lys Ala Thr Gln Gly Glu Ala Ile
370 375 380
Arg Asn Tyr Tyr His Glu Met His Val Ile Gln Asp Met Leu Val Pro
385 390 395 400
Leu Tyr Lys Val Gly Asp Ala Leu Glu Trp Val Asp Arg Glu Met Glu
405 410 415
Val Tyr Pro Ile Trp Leu Cys Pro His Arg Leu Phe Lys Leu Pro Val
420 425 430
Lys Thr Met Val Tyr Pro Glu Pro Gly Phe Glu His Gln His Arg Gln
435 440 445
Gly Asp Thr Ser Tyr Ala Gln Met Tyr Thr Asp Val Gly Val Tyr Tyr
450 455 460
Ser Pro Gly Pro Val Leu Arg Gly Glu Val Phe Glu Gly Ala Asp Ala
465 470 475 480
Val Arg Arg Met Glu Asp Trp Leu Ile Glu Asn His Gly Phe Gln Pro
485 490 495
Gln Tyr Ala Val Ser Glu Leu Asn Glu Lys Lys Phe Trp Arg Met Phe
500 505 510
Asp Ala Asp Leu Tyr Glu His Ala Arg Lys Lys Tyr Gly Ala Val Gly
515 520 525
Thr Phe Met Ser Val Tyr Tyr Lys Ser Lys Lys Gly Arg Lys Thr Glu
530 535 540
Lys Glu Val Gln Glu Ala Glu Gln Ala His Leu Glu Thr Ala Tyr Ala
545 550 555 560
Glu Ala Gly

<210> 19

<211> 1686

<212> DNA

<213> Triticum aestivum

<400> 19

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ctggtgcagt tccgatggat cctcgtcatc ttctggtgc ttccgggctc ggggtcatc 120

PF58811.ST25.txt

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aaggagcacg aggacaacgt gcagaaggtc gtgaagcggc tcaagcagcg caaccccaag 240
aaggacggcc tcgtctgcac ggccaggaag ccgtggatcg ccgtcggcat gcgcaacgtg 300
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atcgacgccg agaggatggt cgccaaggtc gagccgctcg tcaacatggg ccagatatcc 420
agggccacct gcccacatgaa cctctccctc gccgtggtgg cggagctcga cgacctcacc 480
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aagtacggcg ccgtgggcac cttcatgagc gtctactaca agagcaagaa ggggcgcaag 1620
tccgagaagg aggtgcagga ggccgaggcc gccatcctgg agcccgcccta cgccgacgag 1680
gcctag 1686
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<210> 20
 <211> 561
 <212> PRT
 <213> Triticum aestivum

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

PF58811.ST25.txt

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195          200          205
Phe Tyr Gly Val Pro Trp Ser Gln Gly Thr Leu Gly Phe Leu Val Ser
210          215          220
Ala Glu Ile Lys Leu Ile Pro Ile Lys Glu Tyr Met Arg Leu Thr Tyr
225          230          235          240
Thr Pro Val Lys Gly Pro Leu Lys Glu Val Ala Gln Ala Tyr Ala Asp
245          250          255
Ala Val Ala Pro Arg Asp Gly Asp Pro Ala Lys Val Pro Asp Phe Val
260          265          270
Glu Gly Met Val Tyr Ser Ala Thr Glu Gly Val Met Met Thr Gly Val
275          280          285
Tyr Ala Ser Lys Glu Glu Ala Lys Lys Lys Gly Asn Lys Ile Asn Ser
290          295          300
Val Gly Trp Trp Phe Lys Pro Trp Phe Tyr Gln His Ala Gln Thr Ala
305          310          315          320
Leu Lys Lys Gly Glu Phe Val Glu Tyr Ile Pro Thr Arg Glu Tyr Tyr
325          330          335
His Arg His Thr Arg Cys Leu Tyr Trp Glu Gly Lys Leu Ile Leu Pro
340          345          350
Phe Gly Asp Gln Phe Trp Phe Arg Phe Leu Phe Gly Trp Leu Met Pro
355          360          365
Pro Lys Val Ser Leu Leu Lys Ala Thr Gln Gly Asp Ala Ile Arg Asn
370          375          380
Tyr Tyr His Asp Asn His Val Ile Gln Asp Met Leu Val Pro Leu Tyr
385          390          395          400
Lys Val Gly Asp Ala Leu Glu Phe Val His His Glu Met Glu Val Tyr
405          410          415
Pro Leu Trp Leu Cys Pro His Arg Leu Phe Lys Leu Pro Val Lys Thr
420          425          430
Met Ile Tyr Pro Glu Pro Gly Phe Glu His Gln Gln Arg Gln Gly Asp
435          440          445
Thr Ser Tyr Ala Gln Met Phe Thr Asp Val Gly Val Tyr Tyr Thr Pro
450          455          460
Ala Cys Ile Phe Arg Gly Glu Glu Phe Asp Gly Ala Glu Ser Val Lys
465          470          475          480
Arg Leu Glu Gln Trp Leu Ile Glu Asn His Ser Tyr Gln Pro Gln Tyr
485          490          495
Ala Val Thr Glu Leu Asn Glu Lys Asp Phe Trp Arg Met Phe Asp Ala
500          505          510
Ser His Tyr Glu His Cys Arg His Lys Tyr Gly Ala Val Gly Thr Phe
515          520          525
Met Ser Val Tyr Tyr Lys Ser Lys Lys Gly Arg Lys Ser Glu Lys Glu
530          535          540
Val Gln Glu Ala Glu Ala Ala Ile Leu Glu Pro Ala Tyr Ala Asp Glu
545          550          555          560
Ala

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<210> 21
 <211> 1689
 <212> DNA
 <213> Zea mays

<400> 21
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 tacttcaaca tcttctctggg cgacatgtgg tccgccatga agtcggagaa gaagcgccag 180
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 aaggacgggtc ttgtttgcac ggccaggaag ccctggatcg ctgttggcat gcgcaacgtg 300

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<210> 22
 <211> 562
 <212> PRT
 <213> Zea mays

<400> 22

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			20					25					30		
Val	Leu	Pro	Ile	Ser	Thr	Leu	Ile	Tyr	Phe	Asn	Ile	Phe	Leu	Gly	Asp
			35				40					45			
Met	Trp	Ser	Ala	Met	Lys	Ser	Glu	Lys	Lys	Arg	Gln	Lys	Gln	His	Asp
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Glu	Asn	Val	Gln	Lys	Val	Val	Lys	Arg	Leu	Lys	Gln	Arg	Asn	Pro	Lys
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Lys	Asp	Gly	Leu	Val	Cys	Thr	Ala	Arg	Lys	Pro	Trp	Ile	Ala	Val	Gly
				85				90						95	
Met	Arg	Asn	Val	Asp	Tyr	Lys	Arg	Ala	Arg	His	Phe	Glu	Val	Asp	Leu
			100					105					110		
Ser	Ser	Phe	Arg	Asn	Ile	Leu	Glu	Ile	Asp	Lys	Glu	Arg	Met	Val	Ala
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Lys	Val	Glu	Pro	Leu	Val	Asn	Met	Gly	Gln	Ile	Thr	Arg	Ala	Thr	Cys
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Pro	Met	Asn	Leu	Ala	Leu	Ala	Val	Val	Ala	Glu	Leu	Asp	Asp	Leu	Thr
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Val	Gly	Gly	Leu	Ile	Asn	Gly	Tyr	Gly	Ile	Glu	Gly	Ser	Ser	His	Leu
			165					170						175	
Tyr	Gly	Leu	Phe	Ser	Asp	Thr	Val	Val	Ala	Met	Glu	Val	Val	Leu	Ala
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Asp	Gly	Arg	Val	Val	Arg	Ala	Thr	Lys	Asp	Asn	Glu	Tyr	Ser	Asp	Leu
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Phe	Tyr	Gly	Ile	Pro	Trp	Ser	Gln	Gly	Thr	Leu	Gly	Phe	Leu	Val	Ser
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 Thr Pro Val Lys Gly Gly Leu Lys Glu Ile Ala Gln Ala Tyr Ala Asp
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 260 265 270
 Glu Gly Met Val Tyr Thr Glu Ser Glu Gly Val Met Met Thr Gly Val
 275 280 285
 Tyr Ala Ser Lys Glu Glu Ala Lys Lys Lys Gly Asn Lys Ile Asn Cys
 290 295 300
 Val Gly Trp Trp Phe Lys Pro Trp Phe Tyr Gln His Ala Gln Thr Ala
 305 310 315 320
 Leu Asn Arg Gly Glu Phe Val Glu Tyr Ile Pro Thr Arg Glu Tyr Tyr
 325 330 335
 His Arg His Thr Arg Cys Leu Tyr Trp Glu Gly Lys Leu Ile Leu Pro
 340 345 350
 Phe Gly Asp Gln Phe Trp Phe Arg Phe Leu Leu Gly Trp Leu Met Pro
 355 360 365
 Pro Lys Val Ser Leu Leu Lys Ala Thr Gln Gly Glu Ala Ile Arg Asn
 370 375 380
 Tyr Tyr His Asp Asn His Val Ile Gln Asp Met Leu Val Pro Leu Tyr
 385 390 395 400
 Lys Val Gly Asp Ala Leu Glu Phe Val His Arg Glu Met Glu Val Tyr
 405 410 415
 Pro Leu Trp Leu Cys Pro His Arg Leu Tyr Lys Leu Pro Val Lys Thr
 420 425 430
 Met Val Tyr Pro Glu Pro Gly Phe Glu His Gln His Arg Gln Gly Asp
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 Ala Ser Tyr Ala Gln Met Phe Thr Asp Val Gly Val Tyr Tyr Ala Pro
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 Gly Ala Val Leu Arg Gly Glu Glu Phe Asn Gly Ala Glu Ala Val His
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 Arg Leu Glu Gln Trp Leu Ile Glu Asn His Ser Tyr Gln Pro Gln Tyr
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 Ala Val Ser Glu Leu Asn Glu Lys Asp Ser Trp Arg Met Phe Asp Ala
 500 505 510
 Ser His Tyr Glu His Cys Arg Gln Lys Tyr Gly Ala Val Gly Thr Phe
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 Glu Ala

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 <211> 1692
 <212> DNA
 <213> *Zinnia elegans*

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<210> 24
 <211> 563
 <212> PRT
 <213> Zinnia elegans

<400> 24

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

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[illegible]

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<210> 25
<211> 1551
<212> DNA
<213> Homo sapiens
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<210> 26
 <211> 516
 <212> PRT
 <213> Homo sapiens

<400> 26

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Val	Phe	Val	Cys	Leu	Phe	Leu	Leu	Pro	Leu	Ser	Leu	Ile	Phe	Asp	Ile	35	40	45	
Tyr	Tyr	Tyr	Val	Arg	Ala	Trp	Val	Val	Phe	Lys	Leu	Ser	Ser	Ala	Pro	50	55	60	
Arg	Leu	His	Glu	Gln	Arg	Val	Arg	Asp	Ile	Gln	Lys	Gln	Val	Arg	Glu	65	70	75	80
Trp	Lys	Glu	Gln	Gly	Ser	Lys	Thr	Phe	Met	Cys	Thr	Gly	Arg	Pro	Gly	85	90	95	
Trp	Leu	Thr	Val	Ser	Leu	Arg	Val	Gly	Lys	Tyr	Lys	Lys	Thr	His	Lys	100	105	110	
Asn	Ile	Met	Ile	Asn	Leu	Met	Asp	Ile	Leu	Glu	Val	Asp	Thr	Lys	Lys	115	120	125	
Gln	Ile	Val	Arg	Val	Glu	Pro	Leu	Val	Thr	Met	Gly	Gln	Val	Thr	Ala	130	135	140	
Leu	Leu	Thr	Ser	Ile	Gly	Trp	Thr	Leu	Pro	Val	Leu	Pro	Glu	Leu	Asp	145	150	155	160
Asp	Leu	Thr	Val	Gly	Gly	Leu	Ile	Met	Gly	Thr	Gly	Ile	Glu	Ser	Ser	165	170	175	
Ser	His	Lys	Tyr	Gly	Leu	Phe	Gln	His	Ile	Cys	Thr	Ala	Tyr	Glu	Leu	180	185	190	
Val	Leu	Ala	Asp	Gly	Ser	Phe	Val	Arg	Cys	Thr	Pro	Ser	Glu	Asn	Ser	195	200	205	
Asp	Leu	Phe	Tyr	Ala	Val	Pro	Trp	Ser	Cys	Gly	Thr	Leu	Gly	Phe	Leu	210	215	220	
Val	Ala	Ala	Glu	Ile	Arg	Ile	Ile	Pro	Ala	Lys	Lys	Tyr	Val	Lys	Leu	225	230	235	240
Arg	Phe	Glu	Pro	Val	Arg	Gly	Leu	Glu	Ala	Ile	Cys	Ala	Lys	Phe	Thr	245	250	255	
His	Glu	Ser	Gln	Arg	Gln	Glu	Asn	His	Phe	Val	Glu	Gly	Leu	Leu	Tyr	260	265	270	
Ser	Leu	Asp	Glu	Ala	Val	Ile	Met	Thr	Gly	Val	Met	Thr	Asp	Glu	Ala	275	280	285	
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	325		330	335
Trp Glu Leu Gln Asp Ile Ile Pro Phe Gly Asn Asn Pro Ile Phe Arg				
	340		345	350
Tyr Leu Phe Gly Trp Met Val Pro Pro Lys Ile Ser Leu Leu Lys Leu				
	355		360	365
Thr Gln Gly Glu Thr Leu Arg Lys Leu Tyr Glu Gln His His Val Val				
	370		375	380
Gln Asp Met Leu Val Pro Met Lys Cys Leu Gln Gln Ala Leu His Thr				
385		390		400
Phe Gln Asn Asp Ile His Val Tyr Pro Ile Trp Leu Cys Pro Phe Ile				
	405		410	415
Leu Pro Ser Gln Pro Gly Leu Val His Pro Lys Gly Asn Glu Ala Glu				
	420		425	430
Leu Tyr Ile Asp Ile Gly Ala Tyr Gly Glu Pro Arg Val Lys His Phe				
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Glu Ala Arg Ser Cys Met Arg Gln Leu Glu Lys Phe Val Arg Ser Val				
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His Gly Phe Gln Met Leu Tyr Ala Asp Cys Tyr Met Asn Arg Glu Glu				
465		470		480
Phe Trp Glu Met Phe Asp Gly Ser Leu Tyr His Lys Leu Arg Glu Lys				
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Leu Gly Cys Gln Asp Ala Phe Pro Glu Val Tyr Asp Lys Ile Cys Lys				
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Ala Ala Arg His				
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 <212> DNA
 <213> Danio rerio

<400> 27

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 <212> PRT
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 Ile Phe Val Cys Leu Phe Leu Leu Pro Leu Ser Val Val Phe Asp Val
 35 40 45
 Tyr Tyr His Leu Arg Ala Trp Ile Ile Phe Lys Met Cys Ser Ala Pro
 50 55 60
 Lys Gln His Asp Gln Arg Val Arg Asp Ile Gln Arg Gln Val Arg Glu
 65 70 75 80
 Trp Arg Lys Asp Gly Gly Lys Lys Tyr Met Cys Thr Gly Arg Pro Gly
 85 90 95
 Trp Leu Thr Val Ser Leu Arg Val Gly Lys Tyr Lys Lys Thr His Lys
 100 105 110
 Asn Ile Met Ile Asn Met Met Asp Ile Leu Glu Val Asp Thr Lys Arg
 115 120 125
 Lys Val Val Arg Val Glu Pro Leu Ala Asn Met Gly Gln Val Thr Ala
 130 135 140
 Leu Leu Asn Ser Ile Gly Trp Thr Leu Pro Val Leu Pro Glu Leu Asp
 145 150 155 160
 Asp Leu Thr Val Gly Gly Leu Val Met Gly Thr Gly Ile Glu Ser Ser
 165 170 175
 Ser His Ile Tyr Gly Leu Phe Gln His Ile Cys Val Ala Phe Glu Leu
 180 185 190
 Val Leu Ala Asp Gly Ser Leu Val Arg Cys Thr Glu Lys Glu Asn Ser
 195 200 205
 Asp Leu Phe Tyr Ala Val Pro Trp Ser Cys Gly Thr Leu Gly Phe Leu
 210 215 220
 Val Ala Ala Glu Ile Arg Ile Ile Pro Ala Gln Lys Trp Val Lys Leu
 225 230 235 240
 His Tyr Glu Pro Val Arg Gly Leu Asp Ala Ile Cys Lys Lys Phe Ala
 245 250 255
 Glu Glu Ser Ala Asn Lys Glu Asn Gln Phe Val Glu Gly Leu Gln Tyr
 260 265 270
 Ser Arg Asp Glu Ala Val Ile Met Thr Gly Val Met Thr Asp His Ala
 275 280 285
 Glu Pro Asp Lys Thr Asn Cys Ile Gly Tyr Tyr Tyr Lys Pro Trp Phe
 290 295 300
 Phe Arg His Val Glu Ser Phe Leu Lys Gln Asn Arg Val Ala Val Glu
 305 310 315 320
 Tyr Ile Pro Leu Arg His Tyr Tyr His Arg His Thr Arg Ser Ile Phe
 325 330 335
 Trp Glu Leu Gln Asp Ile Ile Pro Phe Gly Asn Asn Pro Leu Phe Arg
 340 345 350
 Tyr Val Phe Gly Trp Met Val Pro Pro Lys Ile Ser Leu Leu Lys Leu
 355 360 365
 Thr Gln Gly Glu Thr Ile Arg Lys Leu Tyr Glu Gln His His Val Val
 370 375 380
 Gln Asp Met Leu Val Pro Met Lys Asp Ile Lys Ala Ala Ile Gln Arg

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385          390          395          400
Phe His Glu Asp Ile His Val Tyr Pro Leu Trp Leu Cys Pro Phe Leu
          405          410          415
Leu Pro Asn Gln Pro Gly Met Val His Pro Lys Gly Asp Glu Asp Glu
          420          425          430
Leu Tyr Val Asp Ile Gly Ala Tyr Gly Glu Pro Lys Val Lys His Phe
          435          440          445
Glu Ala Thr Ser Ser Thr Arg Gln Leu Glu Lys Phe Val Arg Asp Val
          450          455          460
His Gly Phe Gln Met Leu Tyr Ala Asp Val Tyr Met Glu Arg Lys Glu
465          470          475          480
Phe Trp Glu Met Phe Asp Gly Thr Leu Tyr His Lys Leu Arg Glu Glu
          485          490          495
Leu Gly Cys Lys Asp Ala Phe Pro Glu Val Phe Asp Lys Ile Cys Lys
          500          505          510
Ser Ala Arg His
          515

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<210> 29
<211> 328
<212> PRT
<213> Saccharum officinarum

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<220>
<221> DOMAIN
<222> (1)..(328)
<223> substrate binding domain of SEQ ID NO: 2

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

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Asn Gly Val Glu Ala Val His Arg Leu Glu Gln Trp Leu Ile Glu Asn
 245 250 255
 His Ser Tyr Gln Pro Gln Tyr Ala Val Ser Glu Leu Asn Glu Lys Asp
 260 265 270
 Phe Trp Arg Met Phe Asp Ala Ser His Tyr Glu His Cys Arg His Lys
 275 280 285
 Tyr Gly Ala Val Gly Thr Phe Met Ser Val Tyr Tyr Lys Ser Lys Lys
 290 295 300
 Gly Arg Lys Thr Glu Lys Glu Val Gln Glu Ala Glu Ala Ala Ile Leu
 305 310 315 320
 Glu Pro Ala Tyr Ala Asp Glu Ala
 325

<210> 30
 <211> 54
 <212> DNA
 <213> Artificial sequence

<220>
 <223> primer: prm05930

<400> 30
 ggggacaagt ttgtacaaaa aagcaggctt cacaatggcg gacgtgcatg aacc 54

<210> 31
 <211> 49
 <212> DNA
 <213> Artificial sequence

<220>
 <223> primer: prm05931

<400> 31
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<210> 32
 <211> 2193
 <212> DNA
 <213> Oryza sativa

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 catccaccta ctttagtggc aatcgggcta aataaaaaag agtcgctaca ctagtttcgt 180
 ttcccttagt aattaagtgg gaaaatgaaa tcattattgc ttagaatata cgttcacatc 240
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 ttgtgcattc gtcatatcgc acatcattaa ggacatgtct tactccatcc caatttttat 480
 ttagtaatta aagacaattg acttattttt attattttatc ttttttcgat tagatgcaag 540
 gtacttacgc acacactttg tgctcatgtg catgtgtgag tgcacctcct caatacacgt 600
 tcaactagca acacatctct aatatcactc gcctattttaa tacatttagg tagcaatatc 660
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 aattttacag aatagcatga aaagtatgaa acgaactatt taggtttttc acatacaaaa 780
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 acagagtggc tgccacaga acaaccaca aaaaacgatg atctaacgga ggacagcaag 900
 tccgcaacaa ccttttaaca gcaggctttg cggccaggag agaggaggag aggcaaagaa 960
 aaccaagcat cctcctcctc ccactataaa attcctcccc ctttttcccc tctctatata 1020
 ggaggcatcc aagccaagaa gagggagagc accaaggaca cgcgactagc agaagccgag 1080

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cacctcctcc	tcacagggtg	tgtgcccttc	ggtgtgtctt	ggatttattg	ttctaggttg	1200
tgtagtacgg	gcggtgatgt	taggaaaggg	gatctgtatc	tgtgatgatt	cctgttcttg	1260
gatttgggat	agaggggttc	ttgatgttgc	atgttatcgg	ttcggtttga	ttagtagtat	1320
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tgtcctcaat	tttgttttca	aattcacatc	gattatctat	gcattatcct	cttgtatcta	2040
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agctgtaatc	gggtagtita	tactgcttgt	tcttatgatt	catttccttt	gtgcagttct	2160
tggtgtagct	tgccactttc	accagcaaa	ttc			2193

<210> 33
 <211> 1686
 <212> DNA
 <213> Saccharum officinarum

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tacttcaata	tctttctggg	cgacatgtgg	tctgccatga	agtcagagaa	gaagcgccag	180
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gttgggtggc	tgatcaatgg	ttatggaatt	gaggggagct	ctcacctcta	tggccttttc	540
tctgacacgg	ttgttgcaat	ggaagttgtt	cttgcatgat	gccgggttgt	tagggccacc	600
aaggataatg	agtactctga	ccttttctat	ggcattccct	ggtcccagg	aacacttggg	660
ttccttgtct	ctgctgagat	caagctgatt	cccatcaagg	agtacatgaa	gctcacctac	720
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gaggggtgtc	tgatgactgg	tgtgtatgct	tcgaaagaag	aggcgaagaa	gaagggcaac	900
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ctcaagaggg	gcgagtttgt	ggagtacatc	ccaacaagag	agtactacca	ccgccacacc	1020
cgggtgcctgt	actgggaggg	aaagctgatc	ctgccattcg	gtgaccagtt	ctgggtcagg	1080
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aaggttggag	atgctctcga	gttcgtgcac	cgcgagatgg	aggtgtatcc	tctgtggctg	1260
tgccctcacc	gcctgtacaa	gctgcccggtg	aagacaatgg	tgtaccctga	gcctgggttc	1320
gagcaccagc	acaggcagg	cgacacaagc	tacgcacaga	tgttcacgga	cgtgggcgtg	1380
tactacgctc	ctgctgcggt	cctaagggga	gaggagttca	atggcgtgga	ggcgggtgcac	1440
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ctgaatgaga	aggacttctg	gcacatgttc	gacgcgtccc	actacgagca	ctgccggcac	1560
aagtatgggg	cgggtgggcac	gttcatgagc	gtgtactaca	agtcgaagaa	ggggcgcaag	1620
acggagaagg	aggtgcagga	ggcggaggcg	gccatcctgg	agccggccta	cgcggacgag	1680
gcctaa						1686

<210> 34
 <211> 561
 <212> PRT

<213> Saccharum officinarum

<400> 34

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

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Thr Ser Tyr Ala Gln Met Phe Thr Asp Val Gly Val Tyr Tyr Ala Pro
  450                      455                      460
Ala Ala Val Leu Arg Gly Glu Glu Phe Asn Gly Val Glu Ala Val His
465                      470                      475                      480
Arg Leu Glu Gln Trp Leu Ile Glu Asn His Ser Tyr Gln Pro Gln Tyr
                      485                      490                      495
Ala Val Ser Glu Leu Asn Glu Lys Asp Phe Trp His Met Phe Asp Ala
                      500                      505                      510
Ser His Tyr Glu His Cys Arg His Lys Tyr Gly Ala Val Gly Thr Phe
                      515                      520                      525
Met Ser Val Tyr Tyr Lys Ser Lys Lys Gly Arg Lys Thr Glu Lys Glu
                      530                      535                      540
Val Gln Glu Ala Glu Ala Ala Ile Leu Glu Pro Ala Tyr Ala Asp Glu
545                      550                      555                      560
Ala

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<210> 35
 <211> 1686
 <212> DNA
 <213> Sorghum bicolor

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<400> 35
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tacttcaata tctttctggg cgacatgtgg tctgccatga agtcagagaa gaagcgccag      180
aagcaacacg atgagaatgt gcagaaggtt gtgaagcggc tcaagcagag gaatccaaag      240
aaggatggtc ttgtttgcac agccaggaag ccctggattg ctgttggcat gcgcaatgtg      300
gactacaagc gtgcgaggca tttcgaggtt gacctttctt ccttcaggaa catccttgag      360
attgacaaag agaggatggt tgccaaggtt gagccccttg taaacatggg tcagataacc      420
agagctacct gcccaatgaa ccttgccctt gcagttgtcg ctgagcttga cgacctcact      480
gttggtgggc tgatcaatgg ttatggaatt gaggggagct ctcacctata tggccttttc      540
tctgacacag ttgtcgcaat ggaagttggt cttgcagatg gccgggtcgt tagagccacc      600
aaggataacg agtactctga cctattctat ggcatccctt ggtcccaggg aacacttggg      660
ttccttgtct ctgctgagat caagctgatt cccatcaagg agtacatgaa gctcacctac      720
attccagtga aggggagctt gaaggaaatc gcgcaggcat atgctgattc ttctcgccca      780
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gaggggtgtca tgatgactgg tgtgtatgct tcgaaagaag aggcgaagaa gaagggcaac      900
aagatcaact gtgtgggggtg gtggtttaag ccctggttct accagcatgc tcagacggca      960
cttaagaggg gcgagtgtgt ggagtacgtc ccaacaagag aatactacca tcgccacacc     1020
cgggtgcctgt actgggaggg gaagctgacg ctgccattcg gtgaccagtt ctggttcagg     1080
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tgccctcacc gcctgtacaa gctgcccgtg aagacgatgg tgtaccctga gcctgggttc     1320
gagcaccagc acaggcaggg cgacacaagc tacgcacaga tgttcacaga tgtgggcgtg     1380
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ctgaacgaga aggacttctg gcgcatgttt gacgcgtccc actacgagca ctgccgccac     1560
aaatacgggg cgggtgggcac gttcatgagc gtgtactaca agtcgaagaa ggggcgcaag     1620
acggagaagg aggtgcagga ggcggaggcg gccatcctgg agccggccta cgcggaacgag     1680
gcctaa                                           1686

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<210> 36
 <211> 561
 <212> PRT
 <213> Sorghum bicolor

<400> 36

PF58811.ST25.txt

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Leu Val Asp Tyr Leu Val Gln Phe Arg Trp Ile Leu Val Ile Phe Val
20      25      30
Val Leu Pro Ile Ser Ser Leu Ile Tyr Phe Asn Ile Phe Leu Gly Asp
35      40      45
Met Trp Ser Ala Met Lys Ser Glu Lys Lys Arg Gln Lys Gln His Asp
50      55      60
Glu Asn Val Gln Lys Val Val Lys Arg Leu Lys Gln Arg Asn Pro Lys
65      70      75      80
Lys Asp Gly Leu Val Cys Thr Ala Arg Lys Pro Trp Ile Ala Val Gly
85      90      95
Met Arg Asn Val Asp Tyr Lys Arg Ala Arg His Phe Glu Val Asp Leu
100     105     110
Ser Ser Phe Arg Asn Ile Leu Glu Ile Asp Lys Glu Arg Met Val Ala
115     120     125
Lys Val Glu Pro Leu Val Asn Met Gly Gln Ile Thr Arg Ala Thr Cys
130     135     140
Pro Met Asn Leu Ala Leu Ala Val Val Ala Glu Leu Asp Asp Leu Thr
145     150     155     160
Val Gly Gly Leu Ile Asn Gly Tyr Gly Ile Glu Gly Ser Ser His Leu
165     170     175
Tyr Gly Leu Phe Ser Asp Thr Val Val Ala Met Glu Val Val Leu Ala
180     185     190
Asp Gly Arg Val Val Arg Ala Thr Lys Asp Asn Glu Tyr Ser Asp Leu
195     200     205
Phe Tyr Gly Ile Pro Trp Ser Gln Gly Thr Leu Gly Phe Leu Val Ser
210     215     220
Ala Glu Ile Lys Leu Ile Pro Ile Lys Glu Tyr Met Lys Leu Thr Tyr
225     230     235     240
Ile Pro Val Lys Gly Ser Leu Lys Glu Ile Ala Gln Ala Tyr Ala Asp
245     250     255
Ser Phe Ala Pro Arg Asp Gly Asp Pro Ala Lys Val Pro Asp Phe Val
260     265     270
Glu Gly Met Val Tyr Thr Glu Ser Glu Gly Val Met Met Thr Gly Val
275     280     285
Tyr Ala Ser Lys Glu Glu Ala Lys Lys Lys Gly Asn Lys Ile Asn Cys
290     295     300
Val Gly Trp Trp Phe Lys Pro Trp Phe Tyr Gln His Ala Gln Thr Ala
305     310     315     320
Leu Lys Arg Gly Glu Phe Val Glu Tyr Val Pro Thr Arg Glu Tyr Tyr
325     330     335
His Arg His Thr Arg Cys Leu Tyr Trp Glu Gly Lys Leu Ile Leu Pro
340     345     350
Phe Gly Asp Gln Phe Trp Phe Arg Phe Leu Leu Gly Trp Leu Met Pro
355     360     365
Pro Lys Val Ser Leu Leu Lys Ala Thr Gln Gly Glu Ala Ile Arg Asn
370     375     380
Tyr Tyr His Asp Asn His Val Ile Gln Asp Met Leu Val Pro Leu Tyr
385     390     395     400
Lys Val Gly Asp Ala Leu Glu Phe Val His Arg Glu Met Glu Val Tyr
405     410     415
Pro Leu Trp Leu Cys Pro His Arg Leu Tyr Lys Leu Pro Val Lys Thr
420     425     430
Met Val Tyr Pro Glu Pro Gly Phe Glu His Gln His Arg Gln Gly Asp
435     440     445
Thr Ser Tyr Ala Gln Met Phe Thr Asp Val Gly Val Tyr Tyr Ala Pro
450     455     460
Gly Ala Val Leu Arg Gly Glu Glu Phe Asn Gly Ala Glu Ala Val His

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PF58811.ST25.txt

465		470		475		480									
Arg	Leu	Glu	Gln	Trp	Leu	Ile	Glu	Asn	His	Ser	Tyr	Gln	Pro	Gln	Tyr
				485					490					495	
Ala	Val	Ser	Glu	Leu	Asn	Glu	Lys	Asp	Phe	Trp	Arg	Met	Phe	Asp	Ala
			500					505					510		
Ser	His	Tyr	Glu	His	Cys	Arg	His	Lys	Tyr	Gly	Ala	Val	Gly	Thr	Phe
		515					520					525			
Met	Ser	Val	Tyr	Tyr	Lys	Ser	Lys	Lys	Gly	Arg	Lys	Thr	Glu	Lys	Glu
	530					535					540				
Val	Gln	Glu	Ala	Glu	Ala	Ala	Ile	Leu	Glu	Pro	Ala	Tyr	Ala	Asp	Glu
545					550					555				560	
Ala															

<210> 37
 <211> 1692
 <212> DNA
 <213> Vitis vinifera

<400> 37

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gaacataatg	aaaatgtcaa	aaaagtcata	aaacgtctca	aagagaggaa	yccatcaagg	240
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tataagcggg	ctcggcattt	tgaagttgat	ctttcagctt	tcagaaatat	cctggacatt	360
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gacaatgagt	actctgatct	tttctatgct	attccatggg	ctcagggaac	actggggcct	660
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PF58811.ST25.txt

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Leu Pro Ile Ser Phe Thr Leu Tyr Phe Leu Thr Tyr Leu Gly Asp Val
35     40     45
Arg Ser Glu Ser Lys Ser Phe Lys Gln Arg Gln Glu Glu His Asn Glu
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Asp Gly Leu Val Cys Thr Ala Arg Lys Pro Trp Ile Ala Val Gly Met
85     90     95
Arg Asn Val Asp Tyr Lys Arg Ala Arg His Phe Glu Val Asp Leu Ser
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Gly Gly Leu Ile Asn Gly Tyr Gly Ile Glu Gly Ser Ser His Ile Tyr
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Gly Leu Phe Ser Asp Thr Val Val Ala Tyr Glu Ile Ile Leu Ala Asp
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Gly Arg Leu Val Arg Ala Thr Lys Asp Asn Glu Tyr Ser Asp Leu Phe
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Glu Ile Lys Leu Ile Pro Ile Lys Glu Tyr Met Lys Leu Thr Tyr Lys
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Pro Val Val Gly Asn Leu Lys Asp Leu Ala Gln Gly Tyr Leu Asp Ser
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Phe Ala Pro Arg Asp Gly Asp Gln Asp Asn Xaa Glu Lys Val Pro Asp
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Tyr Tyr His Arg His Thr Arg Cys Leu Tyr Trp Glu Gly Lys Leu Ile
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Leu Tyr Lys Val Gly Asp Ala Leu Glu Trp Val His His Glu Met Glu
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Val Tyr Pro Ile Trp Leu Cys Pro His Arg Leu Tyr Lys Leu Pro Val
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Lys Thr Met Ile Tyr Pro Glu Pro Gly Phe Glu Leu His Arg Arg Gln
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PF58811.ST25.txt

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Gln Tyr Ala Val Ser Glu Leu Thr	Glu Lys Asn Phe Trp Arg Met Phe				
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