

SEQUENCE LISTING

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 Kizhner, Tali

<120> STABILIZED ALPHA-GALACTOSIDASE AND USES THEREOF

<130> 50863

<150> US 61/309,487
 <151> 2010-03-02

<150> US 61/434,499
 <151> 2011-01-20

<150> PCT/IL2010/000956
 <151> 2010-11-17

<150> US 61/434,503
 <151> 2011-01-20

<160> 14

<170> PatentIn version 3.5

<210> 1
 <211> 405
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Plant recombinant human alpha-GAL (prh-alpha-GAL)

<400> 1

Glu Phe Leu Asp Asn Gly Leu Ala Arg Thr Pro Thr Met Gly Trp Leu
 1 5 10 15

His Trp Glu Arg Phe Met Cys Asn Leu Asp Cys Gln Glu Glu Pro Asp
 20 25 30

Ser Cys Ile Ser Glu Lys Leu Phe Met Glu Met Ala Glu Leu Met Val
 35 40 45

Ser Glu Gly Trp Lys Asp Ala Gly Tyr Glu Tyr Leu Cys Ile Asp Asp
 50 55 60

Cys Trp Met Ala Pro Gln Arg Asp Ser Glu Gly Arg Leu Gln Ala Asp
 65 70 75 80

Pro Gln Arg Phe Pro His Gly Ile Arg Gln Leu Ala Asn Tyr Val His
 85 90 95

Ser Lys Gly Leu Lys Leu Gly Ile Tyr Ala Asp Val Gly Asn Lys Thr
 100 105 110

Cys Ala Gly Phe Pro Gly Ser Phe Gly Tyr Tyr Asp Ile Asp Ala Gln
 115 120 125

Thr Phe Ala Asp Trp Gly Val Asp Leu Leu Lys Phe Asp Gly Cys Tyr

130 135 140
 Cys Asp Ser Leu Glu Asn Leu Ala Asp Gly Tyr Lys His Met Ser Leu
 145 150 155 160
 Ala Leu Asn Arg Thr Gly Arg Ser Ile Val Tyr Ser Cys Glu Trp Pro
 165 170 175
 Leu Tyr Met Trp Pro Phe Gln Lys Pro Asn Tyr Thr Glu Ile Arg Gln
 180 185 190
 Tyr Cys Asn His Trp Arg Asn Phe Ala Asp Ile Asp Asp Ser Trp Lys
 195 200 205
 Ser Ile Lys Ser Ile Leu Asp Trp Thr Ser Phe Asn Gln Glu Arg Ile
 210 215 220
 Val Asp Val Ala Gly Pro Gly Gly Trp Asn Asp Pro Asp Met Leu Val
 225 230 235 240
 Ile Gly Asn Phe Gly Leu Ser Trp Asn Gln Gln Val Thr Gln Met Ala
 245 250 255
 Leu Trp Ala Ile Met Ala Ala Pro Leu Phe Met Ser Asn Asp Leu Arg
 260 265 270
 His Ile Ser Pro Gln Ala Lys Ala Leu Leu Gln Asp Lys Asp Val Ile
 275 280 285
 Ala Ile Asn Gln Asp Pro Leu Gly Lys Gln Gly Tyr Gln Leu Arg Gln
 290 295 300
 Gly Asp Asn Phe Glu Val Trp Glu Arg Pro Leu Ser Gly Leu Ala Trp
 305 310 315 320
 Ala Val Ala Met Ile Asn Arg Gln Glu Ile Gly Gly Pro Arg Ser Tyr
 325 330 335
 Thr Ile Ala Val Ala Ser Leu Gly Lys Gly Val Ala Cys Asn Pro Ala
 340 345 350
 Cys Phe Ile Thr Gln Leu Leu Pro Val Lys Arg Lys Leu Gly Phe Tyr
 355 360 365
 Glu Trp Thr Ser Arg Leu Arg Ser His Ile Asn Pro Thr Gly Thr Val
 370 375 380
 Leu Leu Gln Leu Glu Asn Thr Met Gln Met Ser Leu Lys Asp Leu Ser
 385 390 395 400
 Glu Lys Asp Glu Leu
 405

<210> 2
 <211> 404
 <212> PRT

<213> Artificial sequence

<220>

<223> Plant recombinant human alpha-GAL (prh-alpha-GAL)

<400> 2

Leu Asp Asn Gly Leu Ala Arg Thr Pro Thr Met Gly Trp Leu His Trp
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Glu Arg Phe Met Cys Asn Leu Asp Cys Gln Glu Glu Pro Asp Ser Cys
20 25 30

Ile Ser Glu Lys Leu Phe Met Glu Met Ala Glu Leu Met Val Ser Glu
35 40 45

Gly Trp Lys Asp Ala Gly Tyr Glu Tyr Leu Cys Ile Asp Asp Cys Trp
50 55 60

Met Ala Pro Gln Arg Asp Ser Glu Gly Arg Leu Gln Ala Asp Pro Gln
65 70 75 80

Arg Phe Pro His Gly Ile Arg Gln Leu Ala Asn Tyr Val His Ser Lys
85 90 95

Gly Leu Lys Leu Gly Ile Tyr Ala Asp Val Gly Asn Lys Thr Cys Ala
100 105 110

Gly Phe Pro Gly Ser Phe Gly Tyr Tyr Asp Ile Asp Ala Gln Thr Phe
115 120 125

Ala Asp Trp Gly Val Asp Leu Leu Lys Phe Asp Gly Cys Tyr Cys Asp
130 135 140

Ser Leu Glu Asn Leu Ala Asp Gly Tyr Lys His Met Ser Leu Ala Leu
145 150 155 160

Asn Arg Thr Gly Arg Ser Ile Val Tyr Ser Cys Glu Trp Pro Leu Tyr
165 170 175

Met Trp Pro Phe Gln Lys Pro Asn Tyr Thr Glu Ile Arg Gln Tyr Cys
180 185 190

Asn His Trp Arg Asn Phe Ala Asp Ile Asp Asp Ser Trp Lys Ser Ile
195 200 205

Lys Ser Ile Leu Asp Trp Thr Ser Phe Asn Gln Glu Arg Ile Val Asp
210 215 220

Val Ala Gly Pro Gly Gly Trp Asn Asp Pro Asp Met Leu Val Ile Gly
225 230 235 240

Asn Phe Gly Leu Ser Trp Asn Gln Gln Val Thr Gln Met Ala Leu Trp
245 250 255

Ala Ile Met Ala Ala Pro Leu Phe Met Ser Asn Asp Leu Arg His Ile
260 265 270

Ser Pro Gln Ala Lys Ala Leu Leu Gln Asp Lys Asp Val Ile Ala Ile
275 280 285

Asn Gln Asp Pro Leu Gly Lys Gln Gly Tyr Gln Leu Arg Gln Gly Asp
290 295 300

Asn Phe Glu Val Trp Glu Arg Pro Leu Ser Gly Leu Ala Trp Ala Val
305 310 315 320

Ala Met Ile Asn Arg Gln Glu Ile Gly Gly Pro Arg Ser Tyr Thr Ile
325 330 335

Ala Val Ala Ser Leu Gly Lys Gly Val Ala Cys Asn Pro Ala Cys Phe
340 345 350

Ile Thr Gln Leu Leu Pro Val Lys Arg Lys Leu Gly Phe Tyr Glu Trp
355 360 365

Thr Ser Arg Leu Arg Ser His Ile Asn Pro Thr Gly Thr Val Leu Leu
370 375 380

Gln Leu Glu Asn Thr Met Gln Met Ser Leu Lys Asp Leu Leu Ser Glu
385 390 395 400

Lys Asp Glu Leu

<210> 3
<211> 405
<212> PRT
<213> Artificial sequence

<220>
<223> Plant recombinant human alpha-GAL (prh-alpha-GAL)

<400> 3

Gly Leu Asp Asn Gly Leu Ala Arg Thr Pro Thr Met Gly Trp Leu His
1 5 10 15

Trp Glu Arg Phe Met Cys Asn Leu Asp Cys Gln Glu Glu Pro Asp Ser
20 25 30

Cys Ile Ser Glu Lys Leu Phe Met Glu Met Ala Glu Leu Met Val Ser
35 40 45

Glu Gly Trp Lys Asp Ala Gly Tyr Glu Tyr Leu Cys Ile Asp Asp Cys
50 55 60

Trp Met Ala Pro Gln Arg Asp Ser Glu Gly Arg Leu Gln Ala Asp Pro
65 70 75 80

Gln Arg Phe Pro His Gly Ile Arg Gln Leu Ala Asn Tyr Val His Ser
85 90 95

Lys Gly Leu Lys Leu Gly Ile Tyr Ala Asp Val Gly Asn Lys Thr Cys
100 105 110

Ala Gly Phe Pro Gly Ser Phe Gly Tyr Tyr Asp Ile Asp Ala Gln Thr
 115 120 125
 Phe Ala Asp Trp Gly Val Asp Leu Leu Lys Phe Asp Gly Cys Tyr Cys
 130 135 140
 Asp Ser Leu Glu Asn Leu Ala Asp Gly Tyr Lys His Met Ser Leu Ala
 145 150 155 160
 Leu Asn Arg Thr Gly Arg Ser Ile Val Tyr Ser Cys Glu Trp Pro Leu
 165 170 175
 Tyr Met Trp Pro Phe Gln Lys Pro Asn Tyr Thr Glu Ile Arg Gln Tyr
 180 185 190
 Cys Asn His Trp Arg Asn Phe Ala Asp Ile Asp Asp Ser Trp Lys Ser
 195 200 205
 Ile Lys Ser Ile Leu Asp Trp Thr Ser Phe Asn Gln Glu Arg Ile Val
 210 215 220
 Asp Val Ala Gly Pro Gly Gly Trp Asn Asp Pro Asp Met Leu Val Ile
 225 230 235 240
 Gly Asn Phe Gly Leu Ser Trp Asn Gln Gln Val Thr Gln Met Ala Leu
 245 250 255
 Trp Ala Ile Met Ala Ala Pro Leu Phe Met Ser Asn Asp Leu Arg His
 260 265 270
 Ile Ser Pro Gln Ala Lys Ala Leu Leu Gln Asp Lys Asp Val Ile Ala
 275 280 285
 Ile Asn Gln Asp Pro Leu Gly Lys Gln Gly Tyr Gln Leu Arg Gln Gly
 290 295 300
 Asp Asn Phe Glu Val Trp Glu Arg Pro Leu Ser Gly Leu Ala Trp Ala
 305 310 315 320
 Val Ala Met Ile Asn Arg Gln Glu Ile Gly Gly Pro Arg Ser Tyr Thr
 325 330 335
 Ile Ala Val Ala Ser Leu Gly Lys Gly Val Ala Cys Asn Pro Ala Cys
 340 345 350
 Phe Ile Thr Gln Leu Leu Pro Val Lys Arg Lys Leu Gly Phe Tyr Glu
 355 360 365
 Trp Thr Ser Arg Leu Arg Ser His Ile Asn Pro Thr Gly Thr Val Leu
 370 375 380
 Leu Gln Leu Glu Asn Thr Met Gln Met Ser Leu Lys Asp Leu Leu Ser
 385 390 395 400
 Glu Lys Asp Glu Leu

405

<210> 4
 <211> 753
 <212> PRT
 <213> Cucumis melo

<400> 4

Met Thr Val Gly Ala Gly Ile Thr Ile Ser Asp Ala Asn Leu Thr Val
 1 5 10 15

Leu Gly Asn Arg Val Leu Ser Asp Val His Asn Asn Ile Thr Leu Thr
 20 25 30

Ala Ala Pro Gly Gly Gly Val Met Asn Gly Ala Phe Ile Gly Val Gln
 35 40 45

Ser Asp Gln Ile Gly Ser Arg Arg Val Phe Pro Ile Gly Lys Leu Ile
 50 55 60

Gly Leu Arg Phe Leu Cys Ala Phe Arg Phe Lys Leu Trp Trp Met Thr
 65 70 75 80

Gln Arg Met Gly Cys Ser Gly Gln Glu Val Pro Phe Glu Thr Gln Phe
 85 90 95

Leu Val Val Glu Thr Arg Asp Gly Ser Asn Ile Ala Gly Asn Gly Glu
 100 105 110

Glu Gly Asp Ala Val Tyr Thr Val Phe Leu Pro Ile Leu Glu Gly Asp
 115 120 125

Phe Arg Ala Val Leu Gln Gly Asn Asp Asn Asn Glu Ile Glu Ile Cys
 130 135 140

Leu Glu Ser Gly Asp Pro Ser Val Asp Gly Phe Glu Gly Ser His Leu
 145 150 155 160

Val Phe Val Gly Ala Gly Ser Asp Pro Phe Glu Thr Ile Thr Tyr Ala
 165 170 175

Val Lys Ser Val Glu Lys His Leu Gln Thr Phe Ala His Arg Glu Arg
 180 185 190

Lys Lys Met Pro Asp Ile Leu Asn Trp Phe Gly Trp Cys Thr Trp Asp
 195 200 205

Ala Phe Tyr Thr Asp Val Thr Ser Asp Gly Val Lys Lys Gly Leu Glu
 210 215 220

Ser Phe Glu Asn Gly Gly Ile Pro Pro Lys Phe Val Ile Ile Asp Asp
 225 230 235 240

Gly Trp Gln Ser Val Ala Lys Asp Ala Thr Ser Ala Asp Cys Lys Ala
 245 250 255

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

Lys Ile Trp Asn Leu Asn Asp Leu Ser Gly Val Val Gly Val Phe Asn
565 570 575

Cys Gln Gly Ala Gly Trp Cys Lys Val Gly Lys Lys Asn Leu Ile His
580 585 590

Asp Glu Asn Pro Asp Thr Ile Thr Gly Val Ile Arg Ala Lys Asp Val
595 600 605

Ser Tyr Leu Trp Lys Ile Ala Gly Glu Ser Trp Thr Gly Asp Ala Val
610 615 620

Ile Phe Ser His Leu Ala Gly Glu Val Val Tyr Leu Pro Gln Asp Ala
625 630 635 640

Ser Met Pro Ile Thr Leu Lys Pro Arg Glu Phe Asp Val Phe Thr Val
645 650 655

Val Pro Val Lys Glu Leu Val Asn Asp Ile Lys Phe Ala Pro Ile Gly
660 665 670

Leu Ile Lys Met Phe Asn Ser Gly Gly Ala Val Lys Glu Met Asn His
675 680 685

Gln Pro Gly Ser Ser Asn Val Ser Leu Lys Val Arg Gly Ser Gly Pro
690 695 700

Phe Gly Ala Tyr Ser Ser Ser Lys Pro Lys Arg Val Ala Val Asp Ser
705 710 715 720

Glu Glu Val Glu Phe Met Tyr Asp Glu Gly Gly Leu Ile Thr Ile Asp
725 730 735

Leu Lys Val Pro Glu Lys Glu Leu Tyr Leu Trp Asp Ile Arg Ile Glu
740 745 750

Leu

<210> 5
<211> 772
<212> PRT
<213> Cucumis melo

<400> 5

Met Thr Val Thr Pro Lys Ile Ser Val Asn Asp Gly Asn Leu Val Val
1 5 10 15

His Gly Lys Thr Ile Leu Thr Gly Val Pro Asp Asn Ile Val Leu Thr
20 25 30

Pro Gly Ser Gly Leu Gly Leu Val Ala Gly Ala Phe Ile Gly Ala Thr
35 40 45

Ala Ser Asn Ser Lys Ser Leu His Val Phe Pro Val Gly Val Leu Glu

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

His Gly Ile Gly Leu Val His Pro Lys Lys Val Phe Asn Phe Tyr Asn
 355 360 365
 Glu Leu His Ser Tyr Leu Ala Ser Cys Gly Ile Asp Gly Val Lys Val
 370 375 380
 Asp Val Gln Asn Ile Ile Glu Thr Leu Gly Ala Gly His Gly Gly Arg
 385 390 395 400
 Val Thr Leu Thr Arg Ser Tyr His Gln Ala Leu Glu Ala Ser Ile Ala
 405 410 415
 Arg Asn Phe Ser Asp Asn Gly Cys Ile Ala Cys Met Cys His Asn Thr
 420 425 430
 Asp Ser Leu Tyr Ser Ala Lys Gln Thr Ala Val Val Arg Ala Ser Asp
 435 440 445
 Asp Tyr Tyr Pro Arg Asp Pro Ala Ser His Thr Ile His Ile Ser Ser
 450 455 460
 Val Ala Tyr Asn Ser Leu Phe Leu Gly Glu Phe Met Gln Pro Asp Trp
 465 470 475 480
 Asp Met Phe His Ser Leu His Pro Thr Ala Glu Tyr His Gly Ala Ala
 485 490 495
 Arg Ala Ile Gly Gly Cys Ala Ile Tyr Val Ser Asp Lys Pro Gly Asn
 500 505 510
 His Asn Phe Asp Leu Leu Lys Lys Leu Val Leu Pro Asp Gly Ser Val
 515 520 525
 Leu Arg Ala Gln Leu Pro Gly Arg Pro Thr Arg Asp Ser Leu Phe Asn
 530 535 540
 Asp Pro Ala Arg Asp Gly Thr Ser Leu Leu Lys Ile Trp Asn Met Asn
 545 550 555 560
 Lys Cys Ser Gly Val Val Gly Val Phe Asn Cys Gln Gly Ala Gly Trp
 565 570 575
 Cys Arg Ile Thr Lys Lys Thr Arg Ile His Asp Glu Ser Pro Gly Thr
 580 585 590
 Leu Thr Thr Ser Val Arg Ala Ala Asp Val Asp Ala Ile Ser Gln Val
 595 600 605
 Ala Gly Ala Asp Trp Lys Gly Asp Thr Ile Val Tyr Ala Tyr Arg Ser
 610 615 620
 Gly Asp Leu Ile Arg Leu Pro Lys Gly Ala Ser Val Pro Val Thr Leu
 625 630 635 640
 Lys Val Leu Glu Tyr Asp Leu Leu His Ile Ser Pro Leu Lys Asp Ile

645 650 655
 Ala Ser Asn Ile Ser Phe Ala Pro Ile Gly Leu Leu Asp Met Phe Asn
 660 665 670
 Thr Gly Gly Ala Val Glu Gln Val Asn Val Gln Val Val Glu Pro Ile
 675 680 685
 Pro Glu Phe Asp Gly Glu Val Ala Ser Glu Leu Thr Cys Ser Leu Pro
 690 695 700
 Asn Asp Arg Pro Pro Thr Ala Thr Ile Thr Met Lys Ala Arg Gly Cys
 705 710 715 720
 Arg Arg Phe Gly Leu Tyr Ser Ser Gln Arg Pro Leu Lys Cys Ser Val
 725 730 735
 Asp Lys Val Asp Val Asp Phe Val Tyr Asp Glu Val Thr Gly Leu Val
 740 745 750
 Thr Phe Glu Ile Pro Ile Pro Thr Glu Glu Met Tyr Arg Trp Asn Ile
 755 760 765
 Glu Ile Gln Val
 770
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 <211> 767
 <212> PRT
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 <400> 6
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 1 5 10 15
 His Gly Lys Thr Ile Leu Thr Gly Val Pro Asp Asn Ile Ile Leu Thr
 20 25 30
 Pro Gly Ser Gly Ala Gly Leu Ala Ala Gly Ala Phe Ile Gly Ala Thr
 35 40 45
 Ala Asp Asp Ser Lys Cys Leu His Val Phe Pro Met Gly Thr Leu Glu
 50 55 60
 Gly Leu Arg Phe Met Cys Cys Leu Arg Phe Lys Leu Trp Trp Met Thr
 65 70 75 80
 Gln Arg Met Gly Lys Cys Gly Lys Asp Ile Pro Leu Glu Thr Gln Phe
 85 90 95
 Met Ile Val Glu Ser Lys Asp Asp Thr Val Glu Gly Glu Pro Asp Asp
 100 105 110
 Ser Pro Thr Ile Tyr Thr Val Phe Leu Pro Leu Leu Glu Gly Gln Phe
 115 120 125

Arg Ala Val Leu Gln Gly Thr Glu Lys Asn Glu Ile Glu Ile Cys Leu
 130 135 140

Glu Ser Gly Asp Thr Thr Val Gln Thr Ser Gln Gly Leu His Leu Val
 145 150 155 160

Tyr Met His Ala Gly Thr Asn Pro Tyr Glu Val Ile Asn Gln Ala Val
 165 170 175

Lys Ala Val Glu Lys His Met Gln Thr Phe Arg His Arg Glu Lys Lys
 180 185 190

Arg Leu Pro Ser Phe Val Asp Trp Phe Gly Trp Cys Thr Trp Asp Ala
 195 200 205

Phe Tyr Thr Asp Val Thr Ala Glu Gly Val Asp Glu Gly Leu Arg Ser
 210 215 220

Leu Ser Glu Gly Gly Thr Pro Pro Arg Phe Leu Ile Ile Asp Asp Gly
 225 230 235 240

Trp Gln Gln Ile Gly Asn Glu Ile Val Lys Asp Glu Asn Cys Met Val
 245 250 255

Gln Glu Gly Ala Gln Phe Ala Asn Arg Leu Thr Gly Ile Lys Glu Asn
 260 265 270

Ala Lys Phe Gln Lys Lys Lys Asn Gly Glu Asp Lys Asp Gln Val Pro
 275 280 285

Gly Leu Lys His Val Val Glu Glu Ala Lys Gln Arg His Asn Val Lys
 290 295 300

Ser Val Tyr Val Trp His Ala Leu Ala Gly Tyr Trp Gly Gly Val Lys
 305 310 315 320

Pro Ala Ala Ala Gly Met Glu His Tyr Asp Thr Ala Leu Ala Tyr Pro
 325 330 335

Val Gln Ser Pro Gly Val Leu Gly Asn Gln Pro Asp Val Val Met Asp
 340 345 350

Ser Leu Ser Val His Gly Leu Gly Leu Val His Pro Lys Lys Val Phe
 355 360 365

Asn Phe Tyr Asn Glu Leu His Ala Tyr Leu Ala Ala Cys Gly Val Asp
 370 375 380

Gly Val Lys Val Asp Val Gln Asn Ile Ile Glu Thr Leu Gly Ala Gly
 385 390 395 400

His Gly Gly Arg Val Ser Leu Thr Arg Ala Tyr His Gln Ala Leu Glu
 405 410 415

Ala Ser Ile Ala Arg Asn Phe Pro Asp Asn Gly Cys Ile Ser Cys Met
 420 425 430

Cys His Asn Thr Asp Gly Ile Tyr Ser Thr Lys Gln Thr Ala Val Val
 435 440 445
 Arg Ala Ser Asp Asp Phe Tyr Pro Arg Asp Pro Ala Ser His Thr Ile
 450 455 460
 His Ile Ser Ser Val Ala Tyr Asn Ser Leu Phe Leu Gly Glu Phe Met
 465 470 475 480
 Gln Pro Asp Trp Asp Met Phe His Ser Leu His Pro Ala Ala Asp Tyr
 485 490 495
 His Ala Ala Ala Arg Ala Val Gly Gly Cys Pro Ile Tyr Val Ser Asp
 500 505 510
 Lys Pro Gly Phe His Asn Phe Glu Leu Leu Lys Lys Leu Val Leu Pro
 515 520 525
 Asp Gly Ser Val Leu Arg Ala Arg Leu Pro Gly Arg Pro Thr Arg Asp
 530 535 540
 Cys Leu Phe Asn Asp Pro Ala Arg Asp Gly Thr Ser Leu Leu Lys Ile
 545 550 555 560
 Trp Asn Lys Asn Asn Cys Ser Gly Val Val Gly Val Phe Asn Cys Gln
 565 570 575
 Gly Ala Gly Trp Cys Lys Ile Glu Lys Lys Ile Arg Ile His Asp Thr
 580 585 590
 Ser Pro Gly Thr Leu Thr Gly Ser Val Arg Ala Thr Asp Val Asp Ser
 595 600 605
 Ile Ala Glu Val Ala Gly Gln Gly Trp Asn Gly Asp Val Val Val Tyr
 610 615 620
 Leu Tyr Arg Ala Gly Glu Leu Val Cys Leu Pro Lys Gly Ala Ser Leu
 625 630 635 640
 Pro Val Thr Leu Lys Val Arg Glu Tyr Glu Leu Phe His Phe Cys Pro
 645 650 655
 Ile Lys Glu Ile Thr Ser Asn Ile Ser Phe Ala Pro Ile Gly Leu Leu
 660 665 670
 Asp Met Phe Asn Gly Ser Gly Ala Val Asp Gln Phe Asp Val Gln Leu
 675 680 685
 Thr Ser Glu Asn Arg Thr Glu Leu Ser Asp Gly Glu Lys Arg Ser Pro
 690 695 700
 Ser Ala Ser Ile Gln Leu Lys Val Arg Gly Cys Gly Arg Phe Gly Ala
 705 710 715 720

Tyr Ser Ser Gln Cys Pro Leu Lys Cys Thr Val Gly Gly Ala Asp Ser
725 730 735

Gly Phe Asn Tyr Asp Glu Glu Thr Cys Leu Leu Thr Leu Thr Leu Pro
740 745 750

Val Pro Gln Glu Glu Met Tyr Arg Trp Pro Val Glu Ile Gln Val
755 760 765

<210> 7
<211> 772
<212> PRT
<213> Cucumis sativus

<400> 7

Met Thr Val Thr Pro Lys Ile Thr Val Asn Asp Gly Asn Leu Val Val
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His Gly Lys Thr Ile Leu Thr Gly Val Pro Asp Asn Ile Val Leu Thr
20 25 30

Pro Gly Ser Gly Leu Gly Leu Val Ala Gly Ala Phe Ile Gly Ala Thr
35 40 45

Ala Ser Asn Ser Lys Ser Leu His Val Phe Pro Val Gly Val Leu Glu
50 55 60

Gly Thr Arg Phe Leu Cys Cys Phe Arg Phe Lys Leu Trp Trp Met Thr
65 70 75 80

Gln Arg Met Gly Thr Ser Gly Arg Asp Ile Pro Phe Glu Thr Gln Phe
85 90 95

Leu Leu Met Glu Ser Gln Gly Asn Asp Gly Glu Asp Pro Asp Asn Ser
100 105 110

Ser Thr Ile Tyr Thr Val Phe Leu Pro Leu Leu Glu Gly Gln Phe Arg
115 120 125

Ala Ala Leu Gln Gly Asn Glu Lys Asn Glu Met Glu Ile Cys Leu Glu
130 135 140

Ser Gly Asp Asn Thr Val Glu Thr Asn Gln Gly Leu Ser Leu Val Tyr
145 150 155 160

Met His Ala Gly Thr Asn Pro Phe Glu Val Ile Thr Gln Ala Val Lys
165 170 175

Ala Val Glu Lys His Thr Gln Thr Phe Leu His Arg Glu Lys Lys Lys
180 185 190

Leu Pro Ser Phe Leu Asp Trp Phe Gly Trp Cys Thr Trp Asp Ala Phe
195 200 205

Tyr Thr Asp Val Thr Ala Glu Gly Val Val Glu Gly Leu Gln Ser Leu
210 215 220

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

515 520 525
 Leu Arg Ala Gln Leu Pro Gly Arg Pro Thr Arg Asp Ser Leu Phe Asn
 530 535 540
 Asp Pro Ala Arg Asp Gly Thr Ser Leu Leu Lys Ile Trp Asn Met Asn
 545 550 555 560
 Lys Cys Ser Gly Val Val Gly Val Phe Asn Cys Gln Gly Ala Gly Trp
 565 570 575
 Cys Arg Ile Thr Lys Lys Thr Arg Ile His Asp Glu Ser Pro Gly Thr
 580 585 590
 Leu Thr Thr Ser Val Arg Ala Ala Asp Val Asp Ala Ile Ser Gln Val
 595 600 605
 Ala Gly Ala Asp Trp Lys Gly Asp Thr Ile Val Tyr Ala Tyr Arg Ser
 610 615 620
 Gly Asp Leu Thr Arg Leu Pro Lys Gly Ala Ser Val Pro Val Thr Leu
 625 630 635 640
 Lys Val Leu Glu Tyr Asp Leu Phe His Ile Ser Pro Leu Lys Asp Ile
 645 650 655
 Thr Ser Asn Ile Ser Phe Ala Pro Ile Gly Leu Val Asp Met Phe Asn
 660 665 670
 Ile Gly Gly Ala Val Glu Gln Val Asp Ile Gln Val Val Glu Pro Ile
 675 680 685
 Pro Glu Phe Asp Gly Glu Val Ala Ser Glu Leu Thr Cys Ser Leu Pro
 690 695 700
 Asp Asp Arg Pro Pro Thr Ala Thr Ile Thr Met Lys Ala Arg Gly Cys
 705 710 715 720
 Gly Arg Phe Gly Leu Tyr Ser Ser Gln Arg Pro Leu Lys Cys Ser Val
 725 730 735
 Asp Lys Val Gly Thr Asp Phe Val Tyr Asp Asp Val Thr Gly Leu Val
 740 745 750
 Thr Phe Glu Ile Pro Ile Pro Thr Glu Glu Met Tyr Arg Trp Asn Ile
 755 760 765
 Glu Ile Glu Val
 770
 <210> 8
 <211> 211
 <212> PRT
 <213> Zea mays
 <400> 8

Pro Phe Glu Val Ile Thr Ser Ser Val Lys Ala Val Glu Arg His Leu
 1 5 10 15
 Gln Thr Phe Ser His Arg Glu Lys Lys Lys Met Pro Asp Ile Leu Asn
 20 25 30
 Trp Phe Gly Trp Cys Thr Trp Asp Ala Phe Tyr Thr Asn Val Thr Ala
 35 40 45
 Gln Gly Val Lys Gln Gly Leu Gln Ser Leu Glu Lys Gly Gly Val Ser
 50 55 60
 Pro Arg Phe Val Ile Ile Asp Asp Gly Trp Gln Ser Val Ala Met Asp
 65 70 75 80
 Pro Val Gly Ile Ala Cys Leu Ser Asp Asn Ser Ala Asn Phe Ala Asn
 85 90 95
 Arg Leu Thr His Ile Arg Glu Asn His Lys Phe Gln Lys Asn Gly Arg
 100 105 110
 Glu Gly His Arg Glu Asp Asp Pro Ala Lys Gly Leu Ala His Val Val
 115 120 125
 Asn Glu Ile Lys Gly Lys His Gln Leu Lys Tyr Val Tyr Val Trp His
 130 135 140
 Ala Ile Thr Gly Tyr Trp Gly Gly Val Arg Pro Gly Ala Ala Gly Met
 145 150 155 160
 Glu His Tyr Gly Ser Lys Met Gln Arg Pro Val Pro Ser Pro Gly Val
 165 170 175
 Pro Lys Asn Glu Arg Cys Glu Ala Leu Asp Ser Met Thr Ala Asn Gly
 180 185 190
 Leu Gly Leu Val Asn Leu Asp Arg Ala Phe Ser Phe Tyr Asp Glu Leu
 195 200 205
 His Ser Tyr
 210

<210> 9
 <211> 747
 <212> PRT
 <213> Zea mays

<400> 9

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

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

340 345 350
 Arg Phe Tyr Asp Glu Leu His Ala Tyr Leu Ala Ala Ala Gly Val Asp
 355 360 365
 Gly Val Lys Val Asp Val Gln Cys Ile Leu Glu Thr Leu Gly Ala Gly
 370 375 380
 His Gly Gly Arg Val Gln Leu Thr Arg Gln Tyr His Gln Ala Leu Asp
 385 390 395 400
 Ala Ser Val Ala Lys Asn Phe Pro Glu Asn Gly Ile Ile Ala Cys Met
 405 410 415
 Ser His Asn Thr Asp Ala Leu Tyr Cys Ser Lys Gln Thr Ala Val Val
 420 425 430
 Arg Ala Ser Asp Asp Phe Cys Pro Arg Asp Pro Ala Ser His Thr Ile
 435 440 445
 His Ile Ala Ser Val Ala Tyr Asn Ser Val Phe Leu Gly Glu Phe Met
 450 455 460
 Leu Pro Asp Trp Asp Met Phe His Ser Leu His Gln Ala Gly Asp Tyr
 465 470 475 480
 His Gly Ser Ala Arg Ala Ile Ser Gly Gly Pro Val Tyr Val Ser Asp
 485 490 495
 Ala Pro Gly Lys His Asn Phe Glu Leu Leu Lys Lys Ile Val Leu Pro
 500 505 510
 Asp Gly Ser Ile Leu Arg Ala Arg Leu Pro Gly Arg Pro Thr Lys Asp
 515 520 525
 Cys Leu Phe Thr Asp Pro Ala Arg Asp Gly Val Ser Leu Leu Lys Ile
 530 535 540
 Trp Asn Met Asn Lys Phe Thr Gly Val Leu Gly Val Tyr Asn Cys Gln
 545 550 555 560
 Gly Ala Ala Trp Asn Ser Val Glu Lys Lys Asn Thr Phe His Gln Thr
 565 570 575
 Gly Thr Glu Ala Leu Thr Cys Gly Val Lys Gly Gly Asp Val His Leu
 580 585 590
 Ile Ser Glu Ala Ala Thr Asp Thr Glu Trp Asp Gly Asp Cys Ala Met
 595 600 605
 Tyr Arg His Ala Asp Gly Asp Leu Val Val Leu Pro His Asp Ala Ala
 610 615 620
 Leu Pro Val Ser Leu Lys Val Leu Glu His Asp Ile Leu Thr Val Ser
 625 630 635 640

Pro Ile Lys Glu Leu Ala Pro Gly Phe Arg Phe Ala Pro Ile Gly Leu
645 650 655

Val Asp Met Phe Asn Ser Gly Gly Ala Val Glu Gly Leu Thr Tyr His
660 665 670

Leu Leu Gly Gly Asp Gly Ser Thr Leu Gly Ser Glu Ala Val Ala Leu
675 680 685

Ala Cys Met Glu Val Lys Gly Cys Gly Arg Phe Gly Ala Tyr Ser Ser
690 695 700

Val Arg Pro Arg Lys Ser Thr Leu Gly Ser Ala Gln Ile Glu Leu Lys
705 710 715 720

Tyr Asp Ser Ser Ser Gly Leu Leu Ile Leu Gln Leu Asp Ala Met Pro
725 730 735

Lys Glu Arg Val His Lys Ile Val Ile Glu Leu
740 745

<210> 10
<211> 753
<212> PRT
<213> Oryza sativa

<400> 10

Met Thr Val Gly Ala Gly Val Ala Val Gln Asp Gly Gly Leu Val Ala
1 5 10 15

Leu Gly Ala Thr Val Leu Thr Glu Val Arg Asp Asn Val Leu Leu Thr
20 25 30

Pro Ala Ala Gly Ala Gly Met Thr Ser Gly Thr Phe Val Gly Val Arg
35 40 45

Ser Ala Thr Ala Gly Ser Arg Ser Val Phe Pro Val Gly Lys Leu Arg
50 55 60

Gly Leu Arg Phe Ile Cys Thr Phe Arg Phe Lys Met Trp Trp Met Thr
65 70 75 80

Gln Arg Met Gly Thr Ser Gly Arg Asp Ile Pro Phe Glu Thr Gln Phe
85 90 95

Leu Leu Val Glu Ala Ala Asp Ala Asp Gly Ser His Leu Ala Gly Asp
100 105 110

Gly Ala Ala Ala Val Tyr Thr Val Phe Leu Pro Ile Leu Glu Gly Pro
115 120 125

Phe Arg Ala Val Leu Gln Gly Asn Ser Asp Asp Glu Leu Glu Ile Cys
130 135 140

Leu Glu Ser Gly Asp Pro Ala Val Glu Ser Phe Glu Gly Thr His Leu
145 150 155 160

Val Phe Val Gly Ala Gly Ser Asp Pro Phe Glu Val Ile Thr Asn Ser
 165 170 175

Val Lys Ala Val Glu Arg His Leu Gln Thr Phe Thr His Arg Glu Lys
 180 185 190

Lys Lys Met Pro Asp Met Leu Asn Trp Phe Gly Trp Cys Thr Trp Asp
 195 200 205

Ala Phe Tyr Thr Asp Val Thr Ser Glu Gly Val Met Glu Gly Leu Gln
 210 215 220

Ser Leu Gly Lys Gly Gly Thr Gly Pro Lys Phe Val Ile Ile Asp Asp
 225 230 235 240

Gly Trp Gln Ser Val Ser Met Asp Pro Ala Gly Ile Ala Ser Leu Ala
 245 250 255

Asp Asn Ser Ala Asn Phe Ala Asn Arg Leu Thr His Ile Lys Glu Asn
 260 265 270

His Lys Phe Gln Leu Asn Gly Arg Lys Gly His Arg Glu Glu Asn Pro
 275 280 285

Ala Asn Gly Leu Ala His Ile Val Asn Glu Ile Lys Gly Lys His Gln
 290 295 300

Leu Lys Tyr Val Tyr Val Trp His Ala Ile Thr Gly Tyr Trp Gly Gly
 305 310 315 320

Val Arg Pro Gly Ala Asp Gly Met Glu His Tyr Glu Ser Lys Met Gln
 325 330 335

Tyr Pro Val Ser Ser Pro Gly Val Gln Lys Asn Glu Pro Cys Asp Ala
 340 345 350

Leu Asn Ser Ile Thr Thr Asn Gly Leu Gly Leu Val Asn Pro Asp Arg
 355 360 365

Val Phe Ser Phe Tyr Asn Glu Leu His Ala Tyr Leu Ala Ser Ala Gly
 370 375 380

Ile Asp Gly Val Lys Val Asp Val Gln Asn Ile Leu Glu Thr Leu Gly
 385 390 395 400

Ala Gly His Gly Gly Arg Val Leu Leu Ala Arg Lys Tyr His Gln Ala
 405 410 415

Leu Glu Ala Ser Ile Ala Arg Asn Phe Arg Asp Asn Gly Ile Ile Cys
 420 425 430

Cys Met Ser His Asn Thr Asp Asn Leu Tyr Ser Ser Lys Arg Ser Ala
 435 440 445

Val Val Arg Ala Ser Asp Asp Phe Trp Pro Arg Asp Pro Ala Ser His
450 455 460

Thr Ile His Ile Ala Ser Val Ala Tyr Asn Thr Val Phe Leu Gly Glu
465 470 475 480

Phe Met Gln Pro Asp Trp Asp Met Phe His Ser Val His Pro Met Ala
485 490 495

Glu Tyr His Ala Ala Ala Arg Ala Val Gly Gly Cys Ala Ile Tyr Val
500 505 510

Ser Asp Lys Pro Gly Asn His Asp Phe Asn Leu Leu Lys Lys Leu Val
515 520 525

Leu Pro Asp Gly Ser Ile Leu Arg Ala Lys Leu Pro Gly Arg Pro Thr
530 535 540

Arg Asp Cys Leu Phe Ser Asp Pro Ala Arg Asp Gly Lys Ser Ile Leu
545 550 555 560

Lys Ile Trp Asn Leu Asn Glu His Ser Gly Val Ile Gly Ala Phe Asn
565 570 575

Cys Gln Gly Ala Gly Trp Cys Arg Val Gly Lys Lys Asn Leu Val His
580 585 590

Asp Glu Gln Pro Ala Thr Val Thr Gly Val Ile Arg Ala Gln Asp Val
595 600 605

His His Leu Ala Thr Val Ala Ala Asp Gly Trp Asn Gly Asp Val Ile
610 615 620

Val Tyr Ser His Ile Gly Gly Glu Val Thr Cys Leu Pro Lys Asn Ala
625 630 635 640

Ser Leu Pro Val Thr Leu Lys Thr Arg Glu Tyr Glu Val Phe Thr Val
645 650 655

Val Pro Leu Lys Lys Leu Asp Asn Gly Val Ser Phe Ala Ala Val Gly
660 665 670

Leu Ile Gly Met Phe Asn Ser Gly Gly Ala Val Thr Ala Val Arg Tyr
675 680 685

Val Glu Asp Ala Gly Val Glu Val Arg Val Arg Gly Ser Gly Thr Val
690 695 700

Gly Ala Tyr Ser Ser Ala Lys Pro Ala Arg Val Val Val Asp Ser Glu
705 710 715 720

Ala Ala Glu Phe Ser Tyr Asp Asp Gly Cys Gly Leu Val Thr Phe Glu
725 730 735

Leu Ala Val Pro Glu Gln Glu Leu Tyr Ser Trp Thr Ile Ser Ile Glu
740 745 750

Tyr

<210> 11
 <211> 777
 <212> PRT
 <213> Pisum sativum

<400> 11

Met Thr Val Thr Pro Lys Ile Ser Val Asn Asp Gly Asn Leu Val Val
 1 5 10 15

His Gly Lys Thr Ile Leu Lys Gly Val Pro Glu Asn Val Val Leu Thr
 20 25 30

Pro Gly Ser Gly Asn Gly Leu Leu Thr Gly Gly Ala Phe Ile Gly Ala
 35 40 45

Thr Ala Ser Asn Ser Lys Ser Leu His Val Phe Pro Ile Gly Ile Leu
 50 55 60

Glu Gly Leu Arg Phe Val Cys Cys Phe Arg Phe Lys Leu Trp Trp Met
 65 70 75 80

Thr Gln Arg Met Gly Thr Cys Gly Arg Asp Ile Pro Leu Glu Thr Gln
 85 90 95

Phe Met Leu Ile Glu Ser Lys Asp Ser Glu Gly Glu Glu Gly Asn Ser
 100 105 110

Pro Val Ile Tyr Thr Val Leu Leu Pro Leu Leu Glu Gly Pro Phe Arg
 115 120 125

Ser Val Leu Gln Gly Asn Glu Lys Ser Glu Ile Glu Ile Cys Phe Glu
 130 135 140

Ser Gly Asp His Ala Val Glu Thr Asn Gln Gly Leu His Met Val Tyr
 145 150 155 160

Met His Ala Gly Thr Asn Pro Phe Glu Val Ile Asn Gln Ala Val Lys
 165 170 175

Ala Val Glu Lys His Met Gln Thr Phe His His Arg Glu Lys Lys Arg
 180 185 190

Leu Pro Ser Phe Leu Asp Met Phe Gly Trp Cys Thr Trp Asp Ala Phe
 195 200 205

Tyr Thr Asp Val Thr Ala Glu Gly Val Glu Gln Gly Leu Lys Ser Leu
 210 215 220

Ser Glu Gly Gly Thr Pro Pro Arg Phe Leu Ile Ile Asp Asp Gly Trp
 225 230 235 240

Gln Gln Ile Glu Ser Lys Ala Lys Asp Pro Gly Cys Val Val Gln Glu

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

Phe Val Asp Pro Ala Arg Asp Arg Thr Ser Leu Leu Lys Ile Trp Asn
 545 550 555 560
 Met Asn Lys Cys Thr Gly Val Val Gly Val Phe Asn Cys Gln Gly Ala
 565 570 575
 Gly Trp Cys Lys Val Glu Lys Lys Thr Arg Ile His Asp Ile Ser Pro
 580 585 590
 Gly Thr Leu Thr Ser Ser Val Cys Ala Ser Asp Val Asp Leu Ile Thr
 595 600 605
 Gln Val Ala Gly Ala Glu Trp His Gly Glu Thr Ile Val Tyr Ala Tyr
 610 615 620
 Arg Ser Gly Glu Val Ile Arg Leu Pro Lys Gly Val Ser Ile Pro Val
 625 630 635 640
 Thr Leu Lys Val Leu Glu Phe Glu Leu Phe His Phe Cys Pro Ile Gln
 645 650 655
 Glu Ile Ser Ser Ser Ile Ser Phe Ala Thr Ile Gly Leu Met Asp Met
 660 665 670
 Phe Asn Thr Gly Gly Ala Val Glu Glu Val Glu Ile His Arg Glu Thr
 675 680 685
 Asp Asn Lys Gln Glu Leu Phe Glu Gly Glu Ala Val Ser Ser Glu Leu
 690 695 700
 Ile Thr Ser Leu Gly Pro Asn Arg Thr Thr Thr Ala Thr Ile Thr Leu
 705 710 715 720
 Lys Val Arg Gly Ser Gly Lys Phe Gly Val Tyr Ser Ser Gln Arg Pro
 725 730 735
 Ile Lys Cys Met Val Asp Gly Thr Glu Thr Asp Phe Asn Tyr Asp Ser
 740 745 750
 Glu Thr Gly Leu Thr Thr Phe Ile Ile Pro Val Pro Gln Glu Glu Leu
 755 760 765
 Tyr Lys Trp Leu Ile Glu Ile Gln Val
 770 775
 <210> 12
 <211> 753
 <212> PRT
 <213> Cucumis sativus
 <400> 12
 Met Thr Val Gly Ala Gly Ile Thr Ile Ser Asp Ala Asn Leu Thr Val
 1 5 10 15
 Leu Gly Asn Arg Val Leu Ser Asp Val His Asn Asn Ile Thr Leu Thr
 20 25 30

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

Val Ser Ser Gly Val Lys Glu Met Glu Gln Tyr Glu Ser Lys Ile Ala
 325 330 335

Tyr Pro Val Ala Ser Pro Gly Val Glu Ser Asn Glu Pro Cys Asp Ala
 340 345 350

Leu Asn Ser Ile Ser Lys Thr Gly Leu Gly Leu Val Asn Pro Glu Lys
 355 360 365

Val Phe Asn Phe Tyr Asn Glu Gln His Ser Tyr Leu Ala Ser Ala Gly
 370 375 380

Val Asp Gly Val Lys Val Asp Val Gln Asn Ile Leu Glu Thr Leu Gly
 385 390 395 400

Ala Gly His Gly Gly Arg Val Lys Leu Ala Arg Lys Tyr His Gln Ala
 405 410 415

Leu Glu Ala Ser Ile Ser Arg Asn Phe Gln Asp Asn Gly Ile Ile Ser
 420 425 430

Cys Met Ser His Asn Thr Asp Gly Leu Tyr Ser Ser Lys Arg Asn Ala
 435 440 445

Val Ile Arg Ala Ser Asp Asp Phe Trp Pro Arg Asp Pro Ala Ser His
 450 455 460

Thr Ile His Ile Ala Ser Val Ala Tyr Asn Ser Leu Phe Leu Gly Glu
 465 470 475 480

Phe Met Gln Pro Asp Trp Asp Met Phe His Ser Leu His Pro Met Ala
 485 490 495

Glu Tyr His Gly Ala Ala Arg Ala Val Gly Gly Cys Ala Ile Tyr Val
 500 505 510

Ser Asp Lys Pro Gly Gln His Asp Phe Asn Leu Leu Lys Lys Leu Val
 515 520 525

Leu His Asp Gly Ser Ile Leu Arg Ala Lys Leu Pro Gly Arg Pro Thr
 530 535 540

Lys Asp Cys Leu Phe Ala Asp Pro Ala Arg Asp Gly Lys Ser Leu Leu
 545 550 555 560

Lys Ile Trp Asn Met Asn Asp Leu Ser Gly Val Val Gly Val Phe Asn
 565 570 575

Cys Gln Gly Ala Gly Trp Cys Lys Val Gly Lys Lys Asn Leu Ile His
 580 585 590

Asp Glu Asn Pro Asp Thr Ile Thr Gly Val Ile Arg Ala Lys Asp Val
 595 600 605

Ser Tyr Leu Trp Lys Ile Ala Gly Glu Ser Trp Thr Gly Asp Ala Val
 610 615 620

Ile Phe Ser His Leu Ala Gly Glu Val Val Tyr Leu Pro Gln Asp Ala
625 630 635 640

Ser Met Pro Ile Thr Leu Lys Ser Arg Glu Phe Asp Val Phe Thr Val
645 650 655

Val Pro Val Lys Glu Leu Ala Asn Asp Ile Lys Phe Ala Pro Ile Gly
660 665 670

Leu Met Lys Met Phe Asn Ser Gly Gly Ala Val Lys Glu Met Asn His
675 680 685

Gln Pro Gly Ser Ser Asn Val Ser Leu Lys Val Arg Gly Ser Gly Pro
690 695 700

Phe Gly Ala Tyr Ser Ser Ser Lys Pro Lys Arg Val Ala Val Asp Ser
705 710 715 720

Glu Glu Val Glu Phe Ile Tyr Asp Glu Gly Gly Leu Ile Thr Ile Asp
725 730 735

Leu Lys Val Pro Glu Lys Glu Leu Tyr Leu Trp Asp Ile Arg Ile Glu
740 745 750

Leu

<210> 13
<211> 772
<212> PRT
<213> Cucumis melo

<400> 13

Met Thr Val Thr Pro Lys Ile Ser Val Asn Asp Gly Asn Leu Val Val
1 5 10 15

His Gly Lys Thr Ile Leu Thr Gly Val Pro Asp Asn Ile Val Leu Thr
20 25 30

Pro Gly Ser Gly Leu Gly Leu Val Ala Gly Ala Phe Ile Gly Ala Thr
35 40 45

Ala Ser Asn Ser Lys Ser Leu His Val Phe Pro Val Gly Val Leu Glu
50 55 60

Gly Thr Arg Phe Leu Cys Cys Phe Arg Phe Lys Leu Trp Trp Met Thr
65 70 75 80

Gln Arg Met Gly Thr Ser Gly Arg Asp Ile Pro Phe Glu Thr Gln Phe
85 90 95

Leu Leu Met Glu Ser Lys Gly Asn Asp Gly Glu Asp Pro Asp Asn Ser
100 105 110

Ser Thr Ile Tyr Thr Val Phe Leu Pro Leu Leu Glu Gly Gln Phe Arg

115	120	125
Ala Ala Leu Gln Gly Asn Glu Lys Asn Glu Met Glu Ile Cys Leu Glu		
130	135	140
Ser Gly Asp Asn Thr Val Glu Thr Asn Gln Gly Leu Ser Leu Val Tyr		
145	150	155
Met His Ala Gly Thr Asn Pro Phe Glu Val Ile Thr Gln Ala Val Lys		
	165	170
		175
Ala Val Glu Lys His Thr Gln Thr Phe Leu His Arg Glu Lys Lys Lys		
	180	185
		190
Leu Pro Ser Phe Leu Asp Trp Phe Gly Trp Cys Thr Trp Asp Ala Phe		
	195	200
		205
Tyr Thr Asp Ala Thr Ala Glu Gly Val Val Glu Gly Leu Lys Ser Leu		
	210	215
		220
Ser Glu Gly Gly Ala Pro Pro Lys Phe Leu Ile Ile Asp Asp Gly Trp		
225	230	235
		240
Gln Gln Ile Glu Ala Lys Pro Lys Asp Ala Asp Cys Val Val Gln Glu		
	245	250
		255
Gly Ala Gln Phe Ala Ser Arg Leu Ser Gly Ile Lys Glu Asn His Lys		
	260	265
		270
Phe Gln Lys Asn Gly Asn Asn Tyr Asp Gln Val Pro Gly Leu Lys Val		
	275	280
		285
Val Val Asp Asp Ala Lys Lys Gln His Lys Val Lys Phe Val Tyr Ala		
	290	295
		300
Trp His Ala Leu Ala Gly Tyr Trp Gly Gly Val Lys Pro Ala Ser Pro		
305	310	315
		320
Gly Met Glu His Tyr Asp Ser Ala Leu Ala Tyr Pro Val Gln Ser Pro		
	325	330
		335
Gly Met Leu Gly Asn Gln Pro Asp Ile Val Val Asp Ser Leu Ala Val		
	340	345
		350
His Gly Ile Gly Leu Val His Pro Lys Lys Val Phe Asn Phe Tyr Asn		
	355	360
		365
Glu Leu His Ser Tyr Leu Ala Ser Cys Gly Ile Asp Gly Val Lys Val		
	370	375
		380
Asp Val Gln Asn Ile Ile Glu Thr Leu Gly Ala Gly His Gly Gly Arg		
385	390	395
		400
Val Thr Leu Thr Arg Ser Tyr His Gln Ala Leu Glu Ala Ser Ile Ala		
	405	410
		415

Arg Asn Phe Ser Asp Asn Gly Cys Ile Ala Cys Met Cys His Asn Thr
 420 425 430

Asp Ser Leu Tyr Ser Ala Lys Gln Thr Ala Val Val Arg Ala Ser Asp
 435 440 445

Asp Tyr Tyr Pro Arg Asp Pro Thr Ser His Thr Ile His Ile Ser Ser
 450 455 460

Val Ala Tyr Asn Ser Leu Phe Leu Gly Glu Phe Met Gln Pro Asp Trp
 465 470 475 480

Asp Met Phe His Ser Leu His Pro Thr Ala Glu Tyr His Gly Ala Ala
 485 490 495

Arg Ala Ile Gly Gly Cys Ala Ile Tyr Val Ser Asp Lys Pro Gly Asn
 500 505 510

His Asn Phe Asp Leu Leu Lys Lys Leu Val Leu Pro Asp Gly Ser Val
 515 520 525

Leu Arg Ala Gln Leu Pro Gly Arg Pro Thr Arg Asp Ser Leu Phe Asn
 530 535 540

Asp Pro Ala Arg Asp Gly Ile Ser Leu Leu Lys Ile Trp Asn Met Asn
 545 550 555 560

Lys Cys Ser Gly Val Val Gly Val Phe Asn Cys Gln Gly Ala Gly Trp
 565 570 575

Cys Arg Ile Thr Lys Lys Thr Arg Ile His Asp Glu Ser Pro Gly Thr
 580 585 590

Leu Thr Thr Ser Val Arg Ala Ala Asp Val Asp Ala Ile Ser Gln Val
 595 600 605

Ala Gly Ala Asp Trp Lys Gly Asp Thr Ile Val Tyr Ala Tyr Arg Ser
 610 615 620

Gly Asp Leu Ile Arg Leu Pro Lys Gly Ala Ser Val Pro Val Thr Leu
 625 630 635 640

Lys Val Leu Glu Tyr Asp Leu Leu His Ile Ser Pro Leu Lys Asp Ile
 645 650 655

Ala Ser Asn Ile Ser Phe Ala Pro Ile Gly Leu Leu Asp Met Phe Asn
 660 665 670

Thr Gly Gly Ala Val Glu Gln Val Asn Val Gln Val Val Glu Pro Ile
 675 680 685

Pro Glu Phe Asp Gly Glu Val Ala Ser Glu Leu Thr Cys Ser Leu Pro
 690 695 700

Asn Asp Arg Pro Pro Thr Ala Thr Ile Thr Met Lys Ala Arg Gly Cys

705 710 715 720
 Arg Arg Phe Gly Leu Tyr Ser Ser Gln Arg Pro Leu Lys Cys Ser Val
 725 730 735
 Asp Lys Val Asp Val Asp Phe Val Tyr Asp Glu Val Thr Gly Leu Val
 740 745 750
 Thr Phe Glu Ile Pro Ile Pro Thr Glu Glu Met Tyr Arg Trp Asp Ile
 755 760 765
 Glu Ile Gln Val
 770
 <210> 14
 <211> 378
 <212> PRT
 <213> Coffea arabica
 <400> 14
 Met Val Lys Ser Pro Gly Thr Glu Asp Tyr Thr Arg Arg Ser Leu Leu
 1 5 10 15
 Ala Asn Gly Leu Gly Leu Thr Pro Pro Met Gly Trp Asn Ser Trp Asn
 20 25 30
 His Phe Arg Cys Asn Leu Asp Glu Lys Leu Ile Arg Glu Thr Ala Asp
 35 40 45
 Ala Met Val Ser Lys Gly Leu Ala Ala Leu Gly Tyr Lys Tyr Ile Asn
 50 55 60
 Leu Asp Asp Cys Trp Ala Glu Leu Asn Arg Asp Ser Gln Gly Asn Leu
 65 70 75 80
 Val Pro Lys Gly Ser Thr Phe Pro Ser Gly Ile Lys Ala Leu Ala Asp
 85 90 95
 Tyr Val His Ser Lys Gly Leu Lys Leu Gly Ile Tyr Ser Asp Ala Gly
 100 105 110
 Thr Gln Thr Cys Ser Lys Thr Met Pro Gly Ser Leu Gly His Glu Glu
 115 120 125
 Gln Asp Ala Lys Thr Phe Ala Ser Trp Gly Val Asp Tyr Leu Lys Tyr
 130 135 140
 Asp Asn Cys Asn Asn Asn Asn Ile Ser Pro Lys Glu Arg Tyr Pro Ile
 145 150 155 160
 Met Ser Lys Ala Leu Leu Asn Ser Gly Arg Ser Ile Phe Phe Ser Leu
 165 170 175
 Cys Glu Trp Gly Glu Glu Asp Pro Ala Thr Trp Ala Lys Glu Val Gly
 180 185 190

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