

35255784_ST25.TXT
SEQUENCE LISTING

<110> Hexima Limited

<120> Generation of peptides

<130> 35255784/EJH

<150> AU 2015903918

<151> 2015-09-25

<160> 104

<170> PatentIn version 3.5

<210> 1

<211> 474

<212> PRT

<213> artificial

<220>

<223> Oldenlandia affinis OaAEP1b

<400> 1

Met Val Arg Tyr Leu Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser
1 5 10 15

Val Ala Ala Ala Val Ser Gly Ala Arg Asp Gly Asp Tyr Leu His Leu
20 25 30

Pro Ser Glu Val Ser Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp
35 40 45

His Gly Glu Asp Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly
50 55 60

Ser Lys Gly Tyr Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala
65 70 75 80

Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val
85 90 95

Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly
100 105 110

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Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro
115 120 125

Lys Asp Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu Ala Ala
130 135 140

Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val
145 150 155 160

Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly
165 170 175

Ala Ala Gly Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp
180 185 190

Glu Leu Asn Asp Ala Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys
195 200 205

Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu
210 215 220

Gly Ile Leu Pro Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn
225 230 235 240

Thr Thr Glu Ser Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro
245 250 255

Pro Pro Pro Glu Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala
260 265 270

Trp Leu Glu Asp Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn
275 280 285

Gln Gln Tyr His His Val Asp Lys Arg Ile Ser His Ala Ser His Ala
290 295 300

Thr Gln Tyr Gly Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe Val Tyr
305 310 315 320

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Met Gly Ser Asn Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp Gly Asn
 325 330 335

Ala Leu Thr Pro Ser Ser Ile Val Val Asn Gln Arg Asp Ala Asp Leu
 340 345 350

Leu His Leu Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala Arg
 355 360 365

Lys Glu Val Ala Gln Thr Gln Ile Phe Lys Ala Met Ser His Arg Val
 370 375 380

His Ile Asp Ser Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly Ile
 385 390 395 400

Glu Lys Cys Thr Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln Pro
 405 410 415

Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe Glu
 420 425 430

Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg Thr
 435 440 445

Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu Glu Gln Met Ala Glu
 450 455 460

Ala Ala Ser Gln Ala Cys Ala Ser Ile Pro
 465 470

<210> 2
 <211> 474
 <212> PRT
 <213> artificial

<220>
 <223> Oldenlandia affinis OaAEP1

<400> 2

Met Val Arg Tyr Leu Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser

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

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210

215

220

Gly Ile Leu Pro Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn
 225 230 235 240

Thr Thr Glu Ser Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro
 245 250 255

Pro Pro Pro Glu Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala
 260 265 270

Trp Leu Glu Asp Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn
 275 280 285

Gln Gln Tyr His His Val Asp Lys Arg Ile Ser His Ala Ser His Ala
 290 295 300

Thr Gln Tyr Gly Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe Val Tyr
 305 310 315 320

Met Gly Ser Asn Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp Gly Asn
 325 330 335

Ala Leu Thr Pro Ser Ser Ile Val Val Asn Gln Arg Asp Ala Asp Leu
 340 345 350

Leu His Leu Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala Arg
 355 360 365

Lys Glu Glu Ala Gln Thr Gln Ile Phe Lys Ala Met Ser His Arg Val
 370 375 380

His Ile Asp Ser Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly Ile
 385 390 395 400

Glu Lys Cys Thr Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln Pro
 405 410 415

Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe Glu

420

425

430

Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg Thr
 435 440 445

Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu Glu Gln Met Ala Glu
 450 455 460

Ala Ala Ser Gln Ala Cys Ala Ser Ile Pro
 465 470

<210> 3

<211> 488

<212> PRT

<213> artificial

<220>

<223> Oldenlandia affinis OaAEP2

<400> 3

Met Val Arg Tyr Pro Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser
 1 5 10 15

Val Val Ala Val Asp Gly Ala Arg Asp Gly Tyr Leu Lys Leu Pro Ser
 20 25 30

Glu Val Ser Asp Phe Phe Arg Pro Arg Asn Thr Asn Asp Gly Asp Asp
 35 40 45

Ser Val Gly Thr Arg Trp Ala Val Leu Leu Ala Gly Ser Asn Gly Tyr
 50 55 60

Trp Asn Tyr Arg His Gln Ala Asp Leu Cys His Ala Tyr Gln Ile Leu
 65 70 75 80

Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
 85 90 95

Asp Ile Ala Tyr Asn Glu Glu Asn Pro Arg Pro Gly Val Ile Ile Asn
 100 105 110

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Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr Thr
115 120 125

Gly Asp Gln Val Asn Ala Lys Asn Phe Leu Ala Ala Ile Leu Gly Asn
130 135 140

Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asn Ser Gly Pro
145 150 155 160

Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Gly Pro Gly Val
165 170 175

Leu Gly Met Pro Val Gly Pro Tyr Ile Tyr Ala Asp Asp Leu Ile Asp
180 185 190

Thr Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Leu Val Phe
195 200 205

Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu Gly Leu Leu Pro
210 215 220

Glu Gly Leu Asn Ile Tyr Ala Thr Thr Ala Ser Asn Ala Glu Glu Ser
225 230 235 240

Ser Trp Gly Thr Tyr Cys Pro Gly Glu Tyr Pro Ser Pro Pro Glu
245 250 255

Tyr Asp Thr Cys Leu Gly Asp Leu Tyr Ser Val Ala Trp Met Glu Asp
260 265 270

Ser Glu Val His Asn Leu Arg Ser Glu Thr Leu Lys Gln Gln Tyr His
275 280 285

Leu Val Lys Ala Arg Thr Ser Asn Gly Asn Ser Ala Tyr Gly Ser His
290 295 300

Val Met Gln Tyr Gly Asp Leu Lys Leu Ser Val Asp Asn Leu Phe Leu
305 310 315 320

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Tyr Met Gly Thr Asn Pro Ala Asn Asp Asn Tyr Thr Phe Val Asp Asp
325 330 335

Asn Ala Leu Arg Pro Ser Ser Lys Ala Val Asn Gln Arg Asp Ala Asp
340 345 350

Leu Leu His Phe Trp Asp Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala
355 360 365

Arg Lys Glu Glu Ala Arg Lys Gln Val Phe Glu Ala Met Ser His Arg
370 375 380

Met His Ile Asp Asn Ser Ile Lys Leu Val Gly Lys Leu Leu Phe Gly
385 390 395 400

Ile Glu Arg Gly Ala Glu Ile Leu Asp Ala Val Arg Pro Ala Gly Gln
405 410 415

Pro Leu Ala Asp Asp Trp Thr Cys Leu Lys Ser Leu Val Arg Thr Phe
420 425 430

Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met Lys His Met Arg
435 440 445

Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Thr Lys Glu Gln Met Ala
450 455 460

Glu Ala Ser Ala Gln Ala Cys Ser Ser Val Pro Ser Asn Pro Trp Ser
465 470 475 480

Ser Leu His Lys Gly Phe Ser Ala
485

<210> 4

<211> 489

<212> PRT

<213> artificial

<220>

<223> Oldenlandia affinis OaAEP3

35255784_ST25.TXT

<400> 4

Met Val Arg Tyr Leu Ala Gly Ala Phe Gln Val Val Leu Leu Val Val
1 5 10 15

Ile Leu Ser Asp Ile Ala Ile Ser Glu Glu Arg Thr Asp Gly Tyr Leu
20 25 30

Lys Leu Pro Thr Glu Val Ser Arg Phe Phe Arg Thr Pro Glu Gln Ser
35 40 45

Ser Asp Gly Gly Asp Asp Ser Ile Gly Thr Arg Trp Ala Val Leu Ile
50 55 60

Ala Gly Ser Lys Gly Tyr Asp Asn Tyr Arg His Gln Ala Asp Val Cys
65 70 75 80

His Ala Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile
85 90 95

Val Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg
100 105 110

Pro Gly Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly
115 120 125

Val Pro Lys Asp Tyr Thr Gly Asp Glu Val Asn Ala Lys Asn Phe Leu
130 135 140

Ala Ala Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys
145 150 155 160

Val Val Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp
165 170 175

His Gly Ala Pro Gly Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr
180 185 190

Ala Asp Glu Leu Asn Asp Ala Leu Arg Lys Lys His Ala Ser Gly Thr

195

200

205

Tyr Lys Ser Met Val Phe Tyr Leu Glu Ala Cys Glu Ala Gly Ser Met
 210 215 220

Phe Asp Gly Leu Leu Pro Asp Gly Leu Asn Ile Tyr Ala Leu Thr Ala
 225 230 235 240

Ser Asn Thr Thr Glu Gly Ser Trp Cys Tyr Tyr Cys Pro Gly Gln Asp
 245 250 255

Ala Gly Pro Pro Pro Glu Tyr Ser Val Cys Leu Gly Asp Phe Phe Ser
 260 265 270

Ile Ala Trp Leu Glu Asp Ser Asp Val His Asn Leu Arg Ser Glu Thr
 275 280 285

Leu Asn Gln Gln Tyr His Asn Val Lys Asn Arg Ile Ser Tyr Ala Ser
 290 295 300

His Ala Thr Gln Tyr Gly Asp Leu Lys Arg Gly Val Glu Gly Leu Phe
 305 310 315 320

Leu Tyr Leu Gly Ser Asn Pro Glu Asn Asp Asn Tyr Thr Phe Val Asp
 325 330 335

Asp Asn Val Val Arg Pro Ser Ser Lys Ala Val Asn Gln Arg Asp Ala
 340 345 350

Asp Leu Val His Phe Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser
 355 360 365

Ser Lys Lys Glu Glu Ala Gln Lys Gln Ile Leu Glu Ala Met Ser His
 370 375 380

Arg Val His Ile Asp Ser Ser Ile Asn Leu Ile Gly Lys Leu Leu Phe
 385 390 395 400

Gly Ile Glu Lys Gly His Lys Ile Leu Thr Ala Val Arg Ser Ala Gly

405

410

415

His Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Arg Thr
 420 425 430

Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met Lys His Thr
 435 440 445

Arg Thr Leu Ala Asn Ile Cys Asn Ala Gly Ile Thr Glu Glu Gln Met
 450 455 460

Ala Glu Ala Ala Ser Gln Ala Cys Val Ser Ile Pro Ser Asn Pro Trp
 465 470 475 480

Ser Ser His Asp Gly Gly Phe Ser Ala
 485

<210> 5

<211> 20

<212> PRT

<213> artificial

<220>

<223> Amino acid sequence of model peptide with flanking sequences

<400> 5

Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser Arg Met
 1 5 10 15

His Ile Leu Lys
 20

<210> 6

<211> 17

<212> DNA

<213> artificial

<220>

<223> OaAEPdegen-F, 5' forward primer

<400> 6

gttcgatatc ycgccgg

17

<210> 7
 <211> 29
 <212> DNA
 <213> artificial

<220>
 <223> 0aAEP1-R, 5' reverse primer

<400> 7
 tcatgaacta aatcctccat ggaaagagc 29

<210> 8
 <211> 26
 <212> DNA
 <213> artificial

<220>
 <223> 0aAEP2-R, 5' reverse primer

<400> 8
 ttatgcactg aatcctttat ggaggg 26

<210> 9
 <211> 22
 <212> DNA
 <213> artificial

<220>
 <223> 0aAEP3-R, 5' reverse primer

<400> 9
 ttatgcactg aatcctccat cg 22

<210> 10
 <211> 7
 <212> PRT
 <213> artificial

<220>
 <223> C-terminal pro-hepta-peptide

<400> 10

Gly Leu Pro Ser Leu Ala Ala
 1 5

<210> 11

<211> 36
 <212> PRT
 <213> artificial

<220>
 <223> kB1wt

<400> 11

Gly	Leu	Pro	Val	Cys	Gly	Glu	Thr	Cys	Val	Gly	Gly	Thr	Cys	Asn	Thr
1				5					10					15	

Pro	Gly	Cys	Thr	Cys	Ser	Trp	Pro	Val	Cys	Thr	Arg	Asn	Gly	Leu	Pro
			20					25					30		

Ser	Leu	Ala	Ala
			35

<210> 12
 <211> 13
 <212> PRT
 <213> artificial

<220>
 <223> C-terminal flanking sequence for NaD1

<400> 12

Ser	Thr	Arg	Asn	Gly	Leu	Pro	His	His	His	His	His	His
1				5				10				

<210> 13
 <211> 8
 <212> PRT
 <213> artificial

<220>
 <223> Ligation partner

<400> 13

Gly	Leu	Pro	Val	Ser	Gly	Glu	Lys
1				5			

<210> 14
 <211> 7
 <212> PRT

<213> artificial

<220>

<223> Ligation partner

<400> 14

Gly Leu Pro Val Ser Gly Glu
1 5

<210> 15

<211> 58

<212> PRT

<213> artificial

<220>

<223> Ligation product

<400> 15

Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1 5 10 15

Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
20 25 30

His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Ser
35 40 45

Thr Arg Asn Gly Leu Pro Val Ser Gly Glu
50 55

<210> 16

<211> 58

<212> PRT

<213> artificial

<220>

<223> Ligation product

<400> 16

Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1 5 10 15

Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly

20

25

30

His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Ser
 35 40 45

Thr Arg Asn Gly Leu Pro Val Ser Gly Glu
 50 55

<210> 17
 <211> 5
 <212> PRT
 <213> artificial

<220>
 <223> Linker

<400> 17

Glu Glu Lys Lys Asn
 1 5

<210> 18
 <211> 9
 <212> PRT
 <213> artificial

<220>
 <223> Linker

<400> 18

Ala Ala Ala Gly Gly Gly Gly Gly Ser
 1 5

<210> 19
 <211> 9
 <212> PRT
 <213> artificial

<220>
 <223> Target peptide

<400> 19

Gly Leu Pro His His His His His His
 1 5

<210> 20
 <211> 534
 <212> PRT
 <213> artificial

<220>
 <223> 6xHis-ubiquitin-OaAEP1b fusion protein

<400> 20

Met His His His His His His Met Gln Ile Phe Val Lys Thr Leu Thr
 1 5 10 15

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

Val Lys Ala Lys Ile Gln Asp Lys Glu Gly Ile Pro Pro Asp Gln Gln
 35 40 45

Arg Leu Ile Phe Ala Gly Lys Gln Leu Glu Asp Gly Arg Thr Leu Ser
 50 55 60

Asp Tyr Asn Ile Gln Lys Glu Ser Thr Leu His Leu Val Leu Arg Leu
 65 70 75 80

Arg Gly Gly Ala Arg Asp Gly Asp Tyr Leu His Leu Pro Ser Glu Val
 85 90 95

Ser Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp His Gly Glu Asp
 100 105 110

Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly Ser Lys Gly Tyr
 115 120 125

Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala Tyr Gln Ile Leu
 130 135 140

Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
 145 150 155 160

Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly Val Ile Ile Asn

165

170

175

Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr Thr
 180 185 190

Gly Glu Glu Val Asn Ala Lys Asn Phe Leu Ala Ala Ile Leu Gly Asn
 195 200 205

Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asp Ser Gly Pro
 210 215 220

Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Ala Ala Gly Val
 225 230 235 240

Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp Glu Leu Asn Asp
 245 250 255

Ala Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Leu Val Phe
 260 265 270

Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu Gly Ile Leu Pro
 275 280 285

Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn Thr Thr Glu Ser
 290 295 300

Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro Pro Pro Pro Glu
 305 310 315 320

Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala Trp Leu Glu Asp
 325 330 335

Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn Gln Gln Tyr His
 340 345 350

His Val Asp Lys Arg Ile Ser His Ala Ser His Ala Thr Gln Tyr Gly
 355 360 365

Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe Val Tyr Met Gly Ser Asn

370

375

380

Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp Gly Asn Ala Leu Thr Pro
 385 390 395 400

Ser Ser Ile Val Val Asn Gln Arg Asp Ala Asp Leu Leu His Leu Trp
 405 410 415

Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala Arg Lys Glu Val Ala
 420 425 430

Gln Thr Gln Ile Phe Lys Ala Met Ser His Arg Val His Ile Asp Ser
 435 440 445

Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly Ile Glu Lys Cys Thr
 450 455 460

Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln Pro Leu Val Asp Asp
 465 470 475 480

Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe Glu Thr His Cys Gly
 485 490 495

Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg Thr Ile Ala Asn Ile
 500 505 510

Cys Asn Ala Gly Ile Ser Glu Glu Gln Met Ala Glu Ala Ala Ser Gln
 515 520 525

Ala Cys Ala Ser Ile Pro
 530

<210> 21

<211> 8

<212> PRT

<213> artificial

<220>

<223> Internally quenched peptide

<400> 21

Ser Thr Arg Asn Gly Leu Pro Ser
1 5

<210> 22
<211> 375
<212> DNA
<213> artificial

<220>
<223> Nucleotide sequence encoding full kalata B1 protein

<400> 22
atggctaagt tcaccgtctg tctcctcctg tgcttgcttc ttgcagcatt tgttggggcg 60
tttggatctg agctttctga ctcccacaag accaccttgg tcaatgaaat cgctgagaag 120
atgctacaaa gaaagatatt ggatgggggtg gaagctactt tggtcactga tgtcgccgag 180
aagatgttcc taagaaagat gaaggctgaa gcgaaaactt ctgaaaccgc cgatcaggtg 240
ttcctgaaac agttgcagct caaaggactt ccagtatgcg gtgagacttg tgttggggga 300
acttgcaaca ctccaggctg cacttgctcc tggcctgttt gcacacgcaa tggccttcct 360
agtttggccg cataa 375

<210> 23
<211> 124
<212> PRT
<213> artificial

<220>
<223> Amino acid sequence of full kolata B1 protein

<220>
<221> MISC_FEATURE
<222> (1)..(20)
<223> Signal sequence

<220>
<221> MISC_FEATURE
<222> (21)..(66)
<223> N-terminal prddomain

<220>
<221> MISC_FEATURE
<222> (67)..(88)
<223> N-terminal repeat

<220>
 <221> MISC_FEATURE
 <222> (89)..(117)
 <223> Mature cyclotide sequence

<220>
 <221> MISC_FEATURE
 <222> (118)..(124)
 <223> C-terminal prodomain

<400> 23

Met Ala Lys Phe Thr Val Cys Leu Leu Leu Cys Leu Leu Leu Ala Ala
 1 5 10 15

Phe Val Gly Ala Phe Gly Ser Glu Leu Ser Asp Ser His Lys Thr Thr
 20 25 30

Leu Val Asn Glu Ile Ala Glu Lys Met Leu Gln Arg Lys Ile Leu Asp
 35 40 45

Gly Val Glu Ala Thr Leu Val Thr Asp Val Ala Glu Lys Met Phe Leu
 50 55 60

Arg Lys Met Lys Ala Glu Ala Lys Thr Ser Glu Thr Ala Asp Gln Val
 65 70 75 80

Phe Leu Lys Gln Leu Gln Leu Lys Gly Leu Pro Val Cys Gly Glu Thr
 85 90 95

Cys Val Gly Gly Thr Cys Asn Thr Pro Gly Cys Thr Cys Ser Trp Pro
 100 105 110

Val Cys Thr Arg Asn Gly Leu Pro Ser Leu Ala Ala
 115 120

<210> 24
 <211> 12
 <212> PRT
 <213> artificial

<220>
 <223> Model peptide Bac2A

<400> 24

Arg	Leu	Ala	Arg	Ile	Val	Val	Ile	Arg	Val	Ala	Arg
1				5					10		

<210> 25

<211> 8

<212> PRT

<213> artificial

<220>

<223> Internally quenched peptide L31A

<400> 25

Ser	Thr	Arg	Asn	Gly	Ala	Pro	Ser
1			5				

<210> 26

<211> 30

<212> PRT

<213> artificial

<220>

<223> rOaAEP1b-mediated processing

<400> 26

Gly	Leu	Pro	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly
1				5					10					15	

Ser	Arg	Met	His	Ile	Leu	Lys	Ser	Thr	Arg	Asn	Gly	Leu	Pro
			20					25				30	

<210> 27

<211> 25

<212> PRT

<213> artificial

<220>

<223> rOaAEP1b-mediated processing

<400> 27

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg Met His Ile Leu Lys Asn Gly Leu
 20 25

<210> 28
 <211> 24
 <212> PRT
 <213> artificial

<220>
 <223> r0aAEP1b-mediated processing

<400> 28

Gly Leu Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser
 1 5 10 15

Arg Met His Ile Leu Lys Asn Gly
 20

<210> 29
 <211> 23
 <212> PRT
 <213> artificial

<220>
 <223> r0aAEP1b-mediated processing

<400> 29

Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser Arg Met
 1 5 10 15

His Ile Leu Lys Asn Gly Leu
 20

<210> 30
 <211> 25
 <212> PRT
 <213> artificial

<220>
 <223> r0aAEP1b-mediated processing

<400> 30

Gln Leu Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser

<223> L or A or I

<220>

<221> MISC_FEATURE

<222> (7)..(8)

<223> optional or any amino acid

<220>

<221> MISC_FEATURE

<222> (7)..(8)

<223> optional or any amino acid

<400> 32

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

1

5

<210> 33

<211> 4

<212> PRT

<213> artificial

<220>

<223> N-terminal AEP recognition

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> optional and any amino acid or G, Q, K, V or L

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> optional and any amino acid or L, F or I or a hydrophobic amino acid residue

<220>

<221> MISC_FEATURE

<222> (3)..(4)

<223> optional and any amino acid

<400> 33

Xaa Xaa Xaa Xaa

1

<210> 34

<211> 8

<212> PRT

<213> artificial

<220>

<223> C-terminal AEP recognition

<220>

<221> MISC_FEATURE

<222> (1)..(3)

<223> optional or is any amino acid

<220>

<221> MISC_FEATURE

<222> (7)..(8)

<223> optional or is any amino acid

<400> 34

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1 5

<210> 35

<211> 1392

<212> DNA

<213> artificial

<220>

<223> OaAEP1b

<400> 35

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 <212> DNA
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<220>
 <223> OaAEP1

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<210> 37
 <211> 1467
 <212> DNA
 <213> artificial

<220>
 <223> OaAEP2

<400> 37		
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<210> 38
<211> 1470
<212> DNA
<213> artificial

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<220>
<223> 0aAEP3

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<400> 38
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<210> 39

<211> 483

<212> PRT
 <213> artificial

<220>
 <223> OaAEP4 aa

<400> 39

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Val Val Ala Val Asp Gly Ala Arg Asp Gly Tyr Leu Lys Leu Pro Ser
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Glu Val Ser Asp Phe Phe Arg Pro Arg Asn Thr Asn Asp Gly Asp Asp
 35 40 45

Ser Val Gly Thr Arg Trp Ala Val Leu Leu Ala Gly Ser Asn Gly Tyr
 50 55 60

Trp Asn Tyr Arg His Gln Ala Asp Leu Cys His Ala Tyr Gln Ile Leu
 65 70 75 80

Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
 85 90 95

Asp Ile Ala Tyr Asn Glu Glu Asn Pro Arg Pro Gly Val Ile Ile Asn
 100 105 110

Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr Thr
 115 120 125

Gly Asp Glu Val Asn Ala Lys Asn Phe Leu Ala Ala Ile Leu Gly Asn
 130 135 140

Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asp Ser Gly Pro
 145 150 155 160

Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Ala Pro Gly Val
 165 170 175

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Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp Glu Leu Asn Asp
 180 185 190

Ala Leu Arg Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Met Val Phe
 195 200 205

Tyr Leu Glu Ala Cys Glu Ala Gly Ser Met Phe Asp Gly Leu Leu Pro
 210 215 220

Asp Gly Leu Asn Ile Tyr Ala Leu Thr Ala Ser Asn Thr Thr Glu Gly
 225 230 235 240

Ser Trp Cys Tyr Tyr Cys Pro Gly Gln Asp Ala Gly Pro Pro Pro Glu
 245 250 255

Tyr Ser Val Cys Leu Gly Asp Phe Phe Ser Ile Ala Trp Leu Glu Asp
 260 265 270

Ser Asp Val His Asn Leu Arg Ser Glu Thr Leu Asn Gln Gln Tyr His
 275 280 285

Asn Val Lys Asn Arg Ile Ser Tyr Ala Ser His Ala Thr Gln Tyr Gly
 290 295 300

Asp Leu Lys Arg Gly Val Glu Gly Leu Phe Leu Tyr Leu Gly Ser Asn
 305 310 315 320

Pro Glu Asn Asp Asn Tyr Thr Phe Val Asp Asp Asn Val Val Arg Pro
 325 330 335

Ser Ser Lys Ala Val Asn Gln Arg Asp Ala Asp Leu Val His Phe Trp
 340 345 350

Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ser Lys Lys Glu Glu Ala
 355 360 365

Gln Lys Gln Ile Leu Glu Ala Met Ser His Arg Val His Ile Asp Ser
 370 375 380

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Ser Ile Asn Leu Ile Gly Lys Leu Leu Phe Gly Ile Glu Lys Gly His
385 390 395 400

Lys Ile Leu Thr Ala Val Arg Ser Ala Gly His Pro Leu Val Asp Asp
405 410 415

Trp Ala Cys Leu Arg Ser Leu Val Arg Thr Phe Glu Thr His Cys Gly
420 425 430

Ser Leu Ser Gln Tyr Gly Met Lys His Thr Arg Thr Leu Ala Asn Ile
435 440 445

Cys Asn Ala Gly Ile Thr Glu Glu Gln Met Ala Glu Ala Ala Ser Gln
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Ala Cys Val Ser Ile Pro Ser Asn Pro Trp Ser Ser His Asp Gly Gly
465 470 475 480

Phe Ser Ala

<210> 40
<211> 1386
<212> DNA
<213> artificial

<220>
<223> OaAEP4 na

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gcgtga                                             1386

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<210> 41
<211> 497
<212> PRT
<213> artificial

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<220>
<223> 0aAEP5 aa

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<220>
<221> misc_feature
<222> (485)..(485)
<223> Xaa can be any naturally occurring amino acid

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<400> 41

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20 25 30

Lys Leu Pro Thr Glu Val Ser Arg Phe Phe Arg Thr Pro Glu Gln Ser
35 40 45

Ser Asp Gly Gly Asp Asp Ser Ile Gly Thr Arg Trp Ala Val Leu Ile
50 55 60

Ala Gly Ser Lys Gly Tyr Asp Asn Tyr Arg His Gln Ala Asp Val Cys
65 70 75 80

His Ala Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile
85 90 95

Val Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg
100 105 110

Pro Gly Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly
115 120 125

Val Pro Lys Asp Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu
130 135 140

Ala Ala Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys
145 150 155 160

Val Val Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp
165 170 175

His Gly Ala Ala Gly Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr
180 185 190

Ala Asp Glu Leu Asn Asp Ala Leu Lys Lys Lys His Ala Ser Gly Thr
195 200 205

Tyr Lys Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ala Gly Ser Met
210 215 220

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Phe Glu Gly Leu Leu Thr Asp Asp Leu Asn Ile Tyr Ala Leu Thr Ala
225 230 235 240

Ser Asn Ala Thr Glu Gly Ser Cys Pro Tyr Tyr Cys Pro Gly Asp Leu
245 250 255

Asn Tyr Ser Pro Pro Pro Glu Tyr Asp Val Cys Leu Gly Asp Phe Phe
260 265 270

Ser Ile Ala Trp Leu Glu Asp Ser Asp Val His Asn Leu Arg Ser Glu
275 280 285

Thr Leu Asn Gln Gln Tyr His Asn Val Lys Asn Arg Ile Ser Tyr Ala
290 295 300

Ser His Ala Thr Gln Tyr Gly Asp Leu Lys Arg Gly Val Glu Gly Leu
305 310 315 320

Phe Leu Tyr Leu Gly Ser Asn Pro Glu Asn Asp Asn Tyr Thr Phe Val
325 330 335

Asp Asp Asn Val Val Arg Pro Ser Ser Lys Ala Val Asn Gln Arg Asp
340 345 350

Ala Asp Leu Val His Phe Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly
355 360 365

Ser Ser Lys Lys Glu Glu Ala Gln Lys Gln Ile Leu Glu Ala Met Ser
370 375 380

His Arg Val His Ile Asp Ser Ser Ile Asn Leu Ile Gly Lys Leu Leu
385 390 395 400

Phe Gly Ile Glu Lys Gly His Lys Ile Leu Thr Ala Val Arg Ser Ala
405 410 415

Gly His Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly
420 425 430

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Thr Phe Glu Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His
435 440 445

Thr Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu Asp Gln
450 455 460

Met Lys Glu Ala Ala Ser Gln Ala Cys Ala Ser Val Pro Ser Asn Ser
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Trp Ser Ser Leu Xaa Lys Gly Phe His Ala Arg Leu Ala Lys Ile Ile
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Ala

<210> 42
<211> 1380
<212> DNA
<213> artificial

<220>
<223> OaAEP5 na

<400> 42
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gaaggcctgc tgacggatga cctgaacatc tatgcactga ccgcttcgaa tgcgacggaa 660

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<210> 43
 <211> 489
 <212> PRT
 <213> artificial

<220>
 <223> 0aAEP6 aa

<400> 43

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```

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          20          25          30

```

```

Lys Leu Pro Thr Glu Val Ser Arg Phe Phe Arg Thr Pro Glu Gln Ser
          35          40          45

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```

Ser Asp Gly Gly Asp Asp Ser Ile Gly Thr Arg Trp Ala Val Leu Ile
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35255784_ST25.TXT

Ala Gly Ser Lys Gly Tyr Ala Asn Tyr Arg His Gln Ala Asp Val Cys
 65 70 75 80

His Ala Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile
 85 90 95

Val Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg
 100 105 110

Pro Gly Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly
 115 120 125

Val Pro Lys Asp Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu
 130 135 140

Ala Ala Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys
 145 150 155 160

Val Val Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp
 165 170 175

His Gly Ala Pro Val Thr Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr
 180 185 190

Ala Asp Glu Leu Ile Asp Thr Leu Lys Lys Lys His Ala Ser Gly Thr
 195 200 205

Tyr Lys Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met
 210 215 220

Phe Glu Gly Ile Leu Pro Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser
 225 230 235 240

Thr Asn Thr Thr Glu Ser Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu
 245 250 255

Asn Pro Pro Pro Pro Glu Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser
 260 265 270

35255784_ST25.TXT

Val Ala Trp Leu Glu Asp Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr
 275 280 285

Leu Asn Gln Gln Tyr His His Val Asp Lys Arg Ile Ser His Ala Ser
 290 295 300

His Ala Thr Gln Tyr Gly Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe
 305 310 315 320

Val Tyr Met Gly Ser Asn Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp
 325 330 335

Gly Asn Ala Leu Thr Pro Ser Ser Ile Val Val Asn Gln Arg Asp Ala
 340 345 350

Asp Leu Leu His Phe Trp Asp Lys Phe Arg Lys Ala Pro Glu Gly Ser
 355 360 365

Ala Arg Lys Glu Glu Ala Arg Lys Gln Val Phe Glu Ala Met Ser His
 370 375 380

Arg Met His Ile Asp Asn Ser Ile Lys Leu Val Gly Lys Leu Leu Phe
 385 390 395 400

Gly Ile Glu Arg Gly Ala Glu Ile Leu Asp Ala Val Arg Pro Ala Gly
 405 410 415

Gln Pro Leu Ala Asp Asp Trp Thr Cys Leu Lys Ser Leu Val Arg Thr
 420 425 430

Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met Lys His Met
 435 440 445

Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Thr Lys Glu Gln Met
 450 455 460

Ala Glu Ala Ser Ala Gln Ala Cys Ser Ser Val Pro Ser Asn Pro Trp
 465 470 475 480

Ser Ser Leu His Lys Gly Phe Ser Ala
485

<210> 44
<211> 495
<212> PRT
<213> artificial

<220>
<223> 0aAEP7 aa

<220>
<221> misc_feature
<222> (483)..(483)
<223> Xaa can be any naturally occurring amino acid

<400> 44

Met Val Arg Tyr Leu Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser
1 5 10 15

Val Ala Ala Ala Val Ser Gly Ala Arg Asp Gly Asp Tyr Leu His Leu
20 25 30

Pro Ser Glu Val Ser Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp
35 40 45

His Gly Glu Asp Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly
50 55 60

Ser Lys Gly Tyr Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala
65 70 75 80

Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val
85 90 95

Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly
100 105 110

Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro
115 120 125

35255784_ST25.TXT

Lys Asp Tyr Thr Gly Asp Asp Val Asn Ala Lys Asn Phe Leu Ala Ala
 130 135 140

Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val
 145 150 155 160

Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly
 165 170 175

Ala Pro Val Thr Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp
 180 185 190

Glu Leu Ile Asp Thr Leu Lys Lys Lys His Ala Ser Gly Gly Tyr Lys
 195 200 205

Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ala Gly Ser Met Phe Glu
 210 215 220

Gly Leu Leu Thr Asp Asp Leu Asn Ile Tyr Ala Leu Thr Ala Ser Asn
 225 230 235 240

Ala Thr Glu Gly Ser Cys Pro Tyr Tyr Cys Pro Gly Asp Leu Asn Tyr
 245 250 255

Ser Pro Pro Pro Glu Tyr Asp Val Cys Leu Gly Asp Phe Phe Ser Ile
 260 265 270

Ala Trp Leu Glu Asp Ser Asp Ile Glu Asn Ser Met Ser Glu Thr Leu
 275 280 285

Asn Gln Gln Tyr His His Val Lys Lys Arg Ile Glu Ile Ala Ser Thr
 290 295 300

Ala Ser Gln Tyr Gly Asn Met Lys Leu Ala Gly Glu Asp Leu Phe Leu
 305 310 315 320

Tyr Ile Gly Ser Asn Pro Glu Asn Asp Asn Tyr Thr Ser Leu His Asp
 325 330 335

35255784_ST25.TXT

His Ala Leu Thr Pro Ser Pro Leu Ala Val Asn Gln Arg Asp Ala Asp
340 345 350

Leu Leu His Leu Trp Glu Lys Phe Arg Arg Ala Pro Glu Gly Ser Ala
355 360 365

Arg Lys Glu Glu Ala Gln Lys Gln Ile Phe Lys Thr Met Ser Asp Arg
370 375 380

Val His Val Asp Asn Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly
385 390 395 400

Ile Glu Lys Gly Thr Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln
405 410 415

Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe
420 425 430

Glu Arg His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg
435 440 445

Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu Asp Gln Met Lys
450 455 460

Glu Ala Ala Ser Gln Ala Cys Ala Ser Val Pro Ser Asn Ser Trp Ser
465 470 475 480

Ser Leu Xaa Lys Gly Phe His Ala Arg Leu Ala Lys Ile Ile Ala
485 490 495

<210> 45
<211> 458
<212> PRT
<213> artificial

<220>
<223> 0aAEP8 aa

<400> 45

Met Val Arg Tyr Leu Ala Gly Ala Phe Gln Val Val Leu Leu Val Val
1 5 10 15

35255784_ST25.TXT

Ile Leu Ser Asp Ile Ala Ile Ser Glu Glu Arg Thr Asp Gly Tyr Leu
20 25 30

Lys Leu Pro Thr Glu Val Ser Arg Phe Phe Arg Thr Pro Glu Gln Ser
35 40 45

Ser Asp Gly Gly Asp Asp Ser Ile Gly Thr Arg Trp Ala Val Leu Ile
50 55 60

Ala Gly Ser Lys Gly Tyr Asp Asn Tyr Arg His Gln Ala Asp Val Cys
65 70 75 80

His Ala Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile
85 90 95

Val Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg
100 105 110

Pro Gly Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly
115 120 125

Val Pro Lys Asp Tyr Thr Gly Asp Glu Val Asn Ala Lys Asn Phe Leu
130 135 140

Ala Ala Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys
145 150 155 160

Val Val Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp
165 170 175

His Gly Ala Pro Gly Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr
180 185 190

Ala Asp Glu Leu Asn Asp Ala Leu Arg Lys Lys His Ala Ser Gly Thr
195 200 205

Tyr Lys Ser Met Val Phe Tyr Leu Glu Ala Cys Glu Ala Gly Ser Met
210 215 220

35255784_ST25.TXT

Phe Asp Gly Leu Leu Pro Asp Gly Leu Asn Ile Tyr Ala Leu Thr Ala
 225 230 235 240

Ser Asn Thr Thr Glu Gly Ser Trp Cys Tyr Tyr Cys Pro Gly Gln Asp
 245 250 255

Ala Gly Pro Pro Pro Glu Tyr Ser Val Cys Leu Gly Asp Phe Phe Ser
 260 265 270

Ile Ala Trp Leu Glu Asp Ser Asp Ile Glu Asn Ser Met Ser Glu Thr
 275 280 285

Leu Asn Gln Gln Tyr His His Val Lys Lys Arg Ile Glu Ile Ala Ser
 290 295 300

Thr Ala Ser Gln Tyr Gly Asn Met Lys Leu Ala Gly Glu Asp Leu Phe
 305 310 315 320

Leu Tyr Ile Gly Ser Asn Pro Glu Asn Asp Asn Tyr Thr Ser Leu His
 325 330 335

Asp His Ala Leu Thr Pro Ser Pro Leu Ala Val Asn Gln Arg Asp Ala
 340 345 350

Asp Leu Leu His Leu Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser
 355 360 365

Ala Arg Lys Glu Glu Ala Gln Thr Gln Ile Phe Lys Ala Met Ser His
 370 375 380

Arg Val His Ile Asp Ser Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe
 385 390 395 400

Gly Ile Glu Lys Cys Thr Glu Ile Leu Asn Ala Val Arg Pro Ala Gly
 405 410 415

Gln Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly Thr
 420 425 430

Phe Glu Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His Thr
 435 440 445

Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly
 450 455

<210> 46
 <211> 490
 <212> PRT
 <213> artificial

<220>
 <223> 0aAEP9 aa

<400> 46

Met Val Arg Tyr Leu Ala Gly Thr Val Leu Phe Leu Val Leu Leu Ser
 1 5 10 15

Ala Ala Ala Ile Ser Glu Ala Arg Asp Gly Ser His Leu Asn Leu Pro
 20 25 30

Ser Glu Val Ala Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp Gly
 35 40 45

Glu Asp Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly Ser Lys
 50 55 60

Gly Tyr Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala Tyr Gln
 65 70 75 80

Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met
 85 90 95

Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly Val Ile
 100 105 110

Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp
 115 120 125

35255784_ST25.TXT

Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu Ala Ala Ile Leu
 130 135 140

Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asp Ser
 145 150 155 160

Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Ala Pro
 165 170 175

Gly Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp Glu Leu
 180 185 190

Asn Asp Ala Leu Arg Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Met
 195 200 205

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

Leu Pro Asp Gly Leu Asn Ile Tyr Ala Leu Thr Ala Ser Asn Thr Thr
 225 230 235 240

Glu Gly Ser Trp Cys Tyr Tyr Cys Pro Gly Gln Asp Ala Gly Pro Pro
 245 250 255

Pro Glu Tyr Ser Val Cys Leu Gly Asp Phe Phe Ser Ile Ala Trp Leu
 260 265 270

Glu Asp Ser Asp Val His Asn Leu Arg Ser Glu Thr Leu Lys Gln Gln
 275 280 285

Tyr His Leu Val Lys Ala Arg Thr Ser Asn Gly Asn Ser Ala Tyr Gly
 290 295 300

Ser His Val Met Gln Tyr Gly Asp Leu Lys Leu Ser Val Asp Asn Leu
 305 310 315 320

Phe Leu Tyr Met Gly Thr Asn Pro Ala Asn Asp Asn Tyr Thr Phe Val
 325 330 335

35255784_ST25.TXT

Asp Asp Asn Ala Leu Arg Pro Ser Ser Lys Ala Val Asn Gln Arg Asp
340 345 350

Ala Asp Leu Leu His Leu Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly
355 360 365

Ser Ala Arg Lys Glu Glu Ala Gln Lys Gln Ile Phe Lys Thr Met Ser
370 375 380

Asp Arg Val His Val Asp Asn Ser Ile Lys Leu Ile Gly Lys Leu Leu
385 390 395 400

Phe Gly Ile Glu Lys Gly His Lys Ile Leu Thr Ala Val Arg Ser Ala
405 410 415

Gly His Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Arg
420 425 430

Thr Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met Lys His
435 440 445

Thr Arg Thr Leu Ala Asn Ile Cys Asn Ala Gly Ile Thr Glu Glu Gln
450 455 460

Met Ala Glu Ala Ala Ser Gln Ala Cys Val Ser Ile Pro Ser Asn Pro
465 470 475 480

Trp Ser Ser His Asp Gly Gly Phe Ser Ala
485 490

<210> 47
<211> 506
<212> PRT
<213> artificial

<220>
<223> 0aAEP10 aa

<220>
<221> misc_feature
<222> (494)..(494)

<223> Xaa can be any naturally occurring amino acid

<400> 47

Phe Ser Ser Ser Cys Tyr Phe Gln Leu Pro Glu Thr Thr Ile Met Val
1 5 10 15

Arg Tyr Leu Ala Gly Thr Val Leu Phe Leu Val Leu Leu Ser Ala Ala
20 25 30

Ala Ile Ser Glu Ala Arg Asp Gly Ser His Leu Asn Leu Pro Ser Glu
35 40 45

Val Ala Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp Gly Glu Asp
50 55 60

Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly Ser Lys Gly Tyr
65 70 75 80

Ala Asn Tyr Arg His Gln Ala Asp Val Cys His Ala Tyr Gln Ile Leu
85 90 95

Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
100 105 110

Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly Val Ile Ile Asn
115 120 125

Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr Thr
130 135 140

Gly Glu Glu Val Asn Ala Lys Asn Phe Leu Ala Ala Ile Leu Gly Asn
145 150 155 160

Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asp Ser Gly Pro
165 170 175

Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Ala Ala Gly Val
180 185 190

35255784_ST25.TXT

Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp Glu Leu Asn Asp
 195 200 205

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

Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu Gly Ile Leu Pro
 225 230 235 240

Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn Thr Thr Glu Ser
 245 250 255

Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro Pro Pro Pro Glu
 260 265 270

Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala Trp Leu Glu Asp
 275 280 285

Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn Gln Gln Tyr His
 290 295 300

His Val Asp Lys Arg Ile Ser His Ala Ser His Ala Thr Gln Tyr Gly
 305 310 315 320

Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe Val Tyr Met Gly Ser Asn
 325 330 335

Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp Gly Asn Ala Leu Thr Pro
 340 345 350

Ser Ser Ile Val Val Asn Gln Arg Asp Ala Asp Leu Leu His Leu Trp
 355 360 365

Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala Arg Lys Glu Glu Ala
 370 375 380

Gln Lys Gln Ile Phe Lys Thr Met Ser Asp Arg Val His Val Asp Asn
 385 390 395 400

35255784_ST25.TXT

Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly Ile Glu Lys Gly Thr
405 410 415

Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln Pro Leu Val Asp Asp
420 425 430

Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe Glu Arg His Cys Gly
435 440 445

Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg Thr Ile Ala Asn Ile
450 455 460

Cys Asn Ala Gly Ile Ser Glu Asp Gln Met Lys Glu Ala Ala Ser Gln
465 470 475 480

Ala Cys Ala Ser Val Pro Ser Asn Ser Trp Ser Ser Leu Xaa Lys Gly
485 490 495

Phe His Ala Arg Leu Ala Lys Ile Ile Ala
500 505

<210> 48
<211> 501
<212> PRT
<213> artificial

<220>
<223> 0aAEP11

<220>
<221> misc_feature
<222> (489)..(489)
<223> Xaa can be any naturally occurring amino acid

<400> 48

Met Val Arg Tyr Leu Ala Gly Ala Phe Gln Val Val Leu Leu Val Val
1 5 10 15

Ile Leu Ser Asp Ile Ala Ile Ser Glu Glu Arg Thr Asp Gly Tyr Leu
20 25 30

35255784_ST25.TXT

Lys Leu Pro Thr Glu Val Ser Arg Phe Phe Arg Thr Pro Glu Gln Ser
 35 40 45

Ser Asp Gly Gly Asp Asp Ser Ile Gly Thr Arg Trp Ala Val Leu Ile
 50 55 60

Ala Gly Ser Lys Gly Tyr Ala Asn Tyr Arg His Gln Ala Asp Val Cys
 65 70 75 80

His Ala Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile
 85 90 95

Val Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg
 100 105 110

Pro Gly Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly
 115 120 125

Val Pro Lys Asp Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu
 130 135 140

Ala Ala Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys
 145 150 155 160

Val Val Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp
 165 170 175

His Gly Ala Pro Val Thr Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr
 180 185 190

Ala Asp Glu Leu Ile Asp Thr Leu Lys Lys Lys His Ala Ser Gly Thr
 195 200 205

Tyr Lys Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met
 210 215 220

Phe Glu Gly Leu Leu Pro Glu Gly Leu Asn Ile Tyr Ala Thr Thr Ala
 225 230 235 240

35255784_ST25.TXT

Ser Asn Ala Glu Glu Ser Ser Trp Gly Thr Tyr Cys Pro Gly Glu Tyr
 245 250 255

Pro Ser Pro Pro Pro Glu Tyr Asp Thr Cys Leu Gly Asp Leu Tyr Ser
 260 265 270

Val Ala Trp Met Glu Asp Ser Glu Val His Asn Leu Arg Ser Glu Thr
 275 280 285

Leu Lys Gln Gln Tyr His Leu Val Lys Ala Arg Thr Ser Asn Gly Asn
 290 295 300

Ser Ala Tyr Gly Ser His Val Met Gln Tyr Gly Asp Leu Lys Leu Ser
 305 310 315 320

Val Asp Asn Leu Phe Leu Tyr Met Gly Thr Asn Pro Ala Asn Asp Asn
 325 330 335

Tyr Thr Phe Val Asp Asp Asn Ala Leu Arg Pro Ser Ser Lys Ala Val
 340 345 350

Asn Gln Arg Asp Ala Asp Leu Leu His Leu Trp Glu Lys Phe Arg Lys
 355 360 365

Ala Pro Glu Gly Ser Ala Arg Lys Glu Glu Ala Gln Lys Gln Ile Phe
 370 375 380

Lys Thr Met Ser Asp Arg Val His Val Asp Asn Ser Ile Lys Leu Ile
 385 390 395 400

Gly Lys Leu Leu Phe Gly Ile Glu Lys Gly Thr Glu Ile Leu Asn Ala
 405 410 415

Val Arg Pro Ala Gly Gln Pro Leu Val Asp Asp Trp Ala Cys Leu Arg
 420 425 430

Ser Leu Val Gly Thr Phe Glu Arg His Cys Gly Ser Leu Ser Glu Tyr
 435 440 445

35255784_ST25.TXT

Gly Met Arg His Thr Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile
450 455 460

Ser Glu Asp Gln Met Lys Glu Ala Ala Ser Gln Ala Cys Ala Ser Val
465 470 475 480

Pro Ser Asn Ser Trp Ser Ser Leu Xaa Lys Gly Phe His Ala Arg Leu
485 490 495

Ala Lys Ile Ile Ala
500

<210> 49
<211> 489
<212> PRT
<213> artificial

<220>
<223> OaAEP12 aa

<400> 49

Met Val Arg Tyr Pro Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser
1 5 10 15

Val Val Ala Val Asp Gly Ala Arg Asp Gly Tyr Leu Lys Leu Pro Ser
20 25 30

Glu Val Ser Asp Phe Phe Arg Pro Arg Asn Thr Asn Asp Gly Asp Asp
35 40 45

Ser Val Gly Thr Arg Trp Ala Val Leu Leu Ala Gly Ser Asn Gly Tyr
50 55 60

Trp Asn Tyr Arg His Gln Ala Asp Leu Cys His Ala Tyr Gln Ile Leu
65 70 75 80

Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
85 90 95

Asp Ile Ala Tyr Asn Glu Glu Asn Pro Arg Pro Gly Val Ile Ile Asn
100 105 110

35255784_ST25.TXT

Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr Thr
115 120 125

Gly Asp Gln Val Asn Ala Lys Asn Phe Leu Ala Ala Ile Leu Gly Asn
130 135 140

Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asn Ser Gly Pro
145 150 155 160

Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Gly Pro Gly Val
165 170 175

Leu Gly Met Pro Val Gly Pro Tyr Ile Tyr Ala Asp Asp Leu Ile Asp
180 185 190

Thr Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Leu Val Phe
195 200 205

Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu Gly Leu Leu Pro
210 215 220

Glu Gly Leu Asn Ile Tyr Ala Thr Thr Ala Ser Asn Ala Glu Glu Ser
225 230 235 240

Ser Trp Gly Thr Tyr Cys Pro Gly Glu Tyr Pro Ser Pro Pro Glu
245 250 255

Tyr Asp Thr Cys Leu Gly Asp Leu Tyr Ser Val Ala Trp Met Glu Asp
260 265 270

Ser Glu Val His Asn Leu Arg Ser Glu Thr Leu Lys Gln Gln Tyr His
275 280 285

Leu Val Lys Ala Arg Thr Ser Asn Gly Asn Ser Ala Tyr Gly Ser His
290 295 300

Val Met Gln Tyr Gly Asp Leu Lys Leu Ser Val Asp Lys Leu Phe Phe
305 310 315 320

35255784_ST25.TXT

Tyr Met Gly Thr Asp Pro Ala Asn Glu Asn Tyr Thr Phe Val Asp Asp
325 330 335

Asn Asp Leu Ile Arg Ser Ser Ser Lys Pro Val Asn Gln Arg Asp Ala
340 345 350

Asp Leu Val His Phe Trp Asp Lys Phe Arg Lys Ala Pro Glu Gly Ser
355 360 365

Ala Arg Lys Glu Glu Ala Arg Lys Gln Val Phe Glu Ala Met Ser His
370 375 380

Arg Met His Ile Asp Asn Ser Ile Lys Leu Val Gly Lys Leu Leu Phe
385 390 395 400

Gly Ile Glu Arg Gly Ala Glu Ile Leu Asp Ala Val Arg Pro Ala Gly
405 410 415

Gln Pro Leu Ala Asp Asp Trp Thr Cys Leu Lys Ser Leu Val Arg Thr
420 425 430

Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met Lys His Met
435 440 445

Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Thr Lys Glu Gln Met
450 455 460

Ala Glu Ala Ser Ala Gln Ala Cys Ser Ser Val Pro Ser Asn Pro Trp
465 470 475 480

Ser Ser Leu His Lys Gly Phe Ser Ala
485

<210> 50

<211> 380

<212> PRT

<213> artificial

<220>

<223> OaAEP13 aa

<220>

<221> misc_feature

<222> (368)..(368)

<223> Xaa can be any naturally occurring amino acid

<400> 50

Asn Pro Arg Pro Gly Val Ile Phe Asn Ser Pro His Gly Ser Asp Val
1 5 10 15

Tyr Ala Gly Val Pro Lys Asp Tyr Thr Gly Asp Gln Val Thr Val Lys
20 25 30

Asn Phe Leu Ala Ala Ile Leu Gly Asp Lys Ser Ala Ile Thr Gly Gly
35 40 45

Ser Gly Lys Val Val Asn Ser Gly Pro Asn Asp His Ile Phe Ile Tyr
50 55 60

Tyr Thr Asp His Gly Gly Pro Gly Val Val Gly Met Pro Val Gly Pro
65 70 75 80

Tyr Leu Tyr Ala Asp Asp Leu Ile Asp Thr Leu Lys Lys Lys His Ala
85 90 95

Ser Gly Thr Tyr Lys Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser
100 105 110

Gly Ser Met Phe Glu Gly Leu Leu Pro Glu Gly Leu Asn Ile Tyr Ala
115 120 125

Thr Thr Ala Ser Asn Ala Val Glu Glu Ser Trp Ala Thr Tyr Cys Pro
130 135 140

Gly Gln His Pro Ser Ala Pro Leu Glu Phe Met Thr Cys Leu Gly Asp
145 150 155 160

Leu Phe Ser Val Ala Trp Met Glu Asp Ser Glu Val His Asn Leu Arg
165 170 175

35255784_ST25.TXT

Ser Glu Thr Leu Asn Gln Gln Tyr His Asn Val Lys Asn Arg Ile Ser
180 185 190

Tyr Ala Ser His Ala Thr Gln Tyr Gly Asp Leu Lys Arg Gly Val Glu
195 200 205

Gly Leu Phe Leu Tyr Leu Gly Ser Asn Pro Glu Asn Asp Asn Tyr Thr
210 215 220

Phe Val Asp Asp Asn Ala Leu Arg Pro Ser Ser Lys Ala Val Asn Gln
225 230 235 240

Arg Asp Ala Asp Leu Leu His Phe Trp Asp Lys Phe Arg Lys Ala Pro
245 250 255

Glu Gly Ser Ala Ser Lys Glu Glu Ala Arg Lys Gln Val Phe Glu Ala
260 265 270

Met Ser His Arg Met His Ile Asp Ser Ser Ile Lys Leu Val Gly Lys
275 280 285

Leu Leu Phe Gly Ile Glu Lys Cys Thr Glu Ile Leu Asn Ala Val Arg
290 295 300

Pro Ala Gly Gln Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu
305 310 315 320

Val Gly Thr Phe Glu Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met
325 330 335

Arg His Thr Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu
340 345 350

Glu Gln Met Ala Glu Ala Ala Ser Gln Ala Cys Ala Ser Ile Pro Xaa
355 360 365

Asn Pro Trp Ser Ser Phe His Gly Gly Phe Ser Ser
370 375 380

<210> 51
 <211> 506
 <212> PRT
 <213> artificial

<220>
 <223> 0aAEP14 aa

<220>
 <221> misc_feature
 <222> (494)..(494)
 <223> Xaa can be any naturally occurring amino acid

<400> 51

Met Val Arg Tyr Leu Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser
 1 5 10 15

Val Ala Ala Ala Val Ser Gly Ala Arg Asp Gly Asp Tyr Leu His Leu
 20 25 30

Pro Ser Glu Val Ser Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp
 35 40 45

His Gly Glu Asp Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly
 50 55 60

Ser Lys Gly Tyr Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala
 65 70 75 80

Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val
 85 90 95

Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly
 100 105 110

Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro
 115 120 125

Lys Asp Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu Ala Ala
 130 135 140

35255784_ST25.TXT

Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val
 145 150 155 160

Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly
 165 170 175

Ala Ala Gly Val Ile Glu Leu Ile Arg Gly Ser Leu Cys Tyr Leu Ala
 180 185 190

Asn Leu Asn Leu Arg Ala Pro Ser Gly Met Pro Ser Lys Pro Tyr Leu
 195 200 205

Tyr Ala Asp Glu Leu Asn Asp Ala Leu Lys Lys Lys His Ala Ser Gly
 210 215 220

Thr Tyr Lys Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser
 225 230 235 240

Met Phe Glu Gly Ile Leu Pro Glu Asp Leu Asn Ile Tyr Ala Leu Thr
 245 250 255

Ser Thr Asn Thr Thr Glu Ser Ser Trp Cys Tyr Tyr Cys Pro Ala Gln
 260 265 270

Glu Asn Pro Pro Pro Glu Tyr Asn Val Cys Leu Gly Asp Leu Phe
 275 280 285

Ser Val Ala Trp Leu Glu Asp Ser Asp Val Gln Asn Ser Trp Tyr Glu
 290 295 300

Thr Leu Asn Gln Gln Tyr His His Val Asp Lys Arg Ile Ser His Ala
 305 310 315 320

Ser His Ala Thr Gln Tyr Gly Asn Leu Lys Leu Gly Glu Glu Gly Leu
 325 330 335

Phe Val Tyr Met Gly Ser Asn Pro Ala Asn Asp Asn Tyr Thr Ser Leu
 340 345 350

35255784_ST25.TXT

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

Ala Asp Leu Leu His Leu Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly
370 375 380

Ser Ala Arg Lys Glu Glu Ala Gln Thr Gln Ile Phe Lys Ala Met Ser
385 390 395 400

His Arg Val His Ile Asp Ser Ser Ile Lys Leu Ile Gly Lys Leu Leu
405 410 415

Phe Gly Ile Glu Lys Cys Thr Glu Ile Leu Asn Ala Val Arg Pro Ala
420 425 430

Gly Gln Pro Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly
435 440 445

Thr Phe Glu Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His
450 455 460

Thr Arg Thr Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu Glu Gln
465 470 475 480

Met Ala Glu Ala Ala Ser Gln Ala Cys Ala Ser Ile Pro Xaa Asn Pro
485 490 495

Trp Ser Ser Phe His Gly Gly Phe Ser Ser
500 505

<210> 52
<211> 382
<212> PRT
<213> artificial

<220>
<223> 0aAEP15 aa

<400> 52

35255784_ST25.TXT

Asn Pro Arg Pro Gly Val Ile Phe Asn Ser Pro His Gly Ser Asp Val
1 5 10 15

Tyr Ala Gly Val Pro Lys Asp Tyr Thr Gly Asp Gln Val Thr Val Lys
20 25 30

Asn Phe Leu Ala Ala Ile Leu Gly Asp Lys Ser Ala Ile Thr Gly Gly
35 40 45

Ser Gly Lys Val Val Asn Ser Gly Pro Asn Asp His Ile Phe Ile Tyr
50 55 60

Tyr Thr Asp His Gly Gly Pro Gly Val Val Gly Met Pro Val Gly Pro
65 70 75 80

Tyr Leu Tyr Ala Asp Asp Leu Ile Asp Thr Leu Lys Lys Lys His Ala
85 90 95

Ser Gly Thr Tyr Lys Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser
100 105 110

Gly Ser Met Phe Glu Gly Leu Leu Pro Glu Gly Leu Asn Ile Tyr Ala
115 120 125

Thr Thr Ala Ser Asn Ala Val Glu Glu Ser Trp Ala Thr Tyr Cys Pro
130 135 140

Gly Gln His Pro Ser Ala Pro Leu Glu Phe Met Thr Cys Leu Gly Asp
145 150 155 160

Leu Phe Ser Val Ala Trp Met Glu Asp Ser Glu Val His Asn Leu Arg
165 170 175

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

Ala Phe Gly Ala Ser His Val Met Gln Tyr Gly Asp Leu Lys Leu Ser
195 200 205

35255784_ST25.TXT

Val Asp Asn Leu Phe Leu Tyr Met Gly Thr Asn Pro Ala Asn Asp Asn
 210 215 220

Tyr Thr Phe Val Asp Asp Asn Ala Leu Arg Pro Ser Ser Lys Ala Val
 225 230 235 240

Asn Gln Arg Asp Ala Asp Leu Leu His Phe Trp Asp Lys Phe Arg Lys
 245 250 255

Ala Pro Glu Gly Ser Ala Ser Lys Glu Glu Ala Arg Lys Gln Val Phe
 260 265 270

Glu Ala Met Ser His Arg Met His Ile Asp Ser Ser Ile Lys Leu Val
 275 280 285

Gly Lys Leu Leu Phe Gly Ile Gln Arg Gly Pro Glu Ile Leu Asp Ala
 290 295 300

Val Arg Pro Ala Gly Gln Pro Leu Ala Asp Asp Trp Ser Cys Leu Lys
 305 310 315 320

Ser Met Val Arg Thr Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr
 325 330 335

Gly Met Lys His Met Arg Thr Phe Ala Asn Ile Cys Asn Ala Gly Ile
 340 345 350

Thr Lys Glu Gln Met Ala Glu Ala Ser Ala Gln Ala Cys Ala Ser Val
 355 360 365

Pro Ser Asn Pro Trp Ser Ser Leu His Arg Gly Phe Ser Ala
 370 375 380

<210> 53
 <211> 295
 <212> PRT
 <213> artificial

<220>
 <223> 0aAEP16 aa

<400> 53

Met Val Arg Ser Pro Ala Gly Val Val Leu Leu Leu Val Val Leu Ser
1 5 10 15

Val Val Ala Val Ser Gly Ala Arg Asp Gly Tyr Leu Lys Leu Pro Ser
20 25 30

Glu Val Ser Asp Phe Phe Arg Pro Arg Asn Thr Asn Asp Gly Asp Asp
35 40 45

Ser Ile Gly Thr Arg Trp Ala Val Leu Leu Ala Gly Ser Asn Ser Tyr
50 55 60

Trp Asn Tyr Arg His Gln Ala Asp Val Cys His Ala Tyr Gln Ile Leu
65 70 75 80

Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
85 90 95

Asp Ile Ala Tyr Asn Lys Tyr Asn Pro Arg Pro Gly Val Ile Phe Asn
100 105 110

Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr Thr
115 120 125

Gly Asp Gln Val Thr Val Lys Asn Phe Leu Ala Ala Ile Leu Gly Asp
130 135 140

Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asp Ser Gly Pro
145 150 155 160

Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Ala Pro Gly Val
165 170 175

Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp Glu Leu Asn Asp
180 185 190

Ala Leu Arg Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Met Val Phe
195 200 205

35255784_ST25.TXT

Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu Gly Ile Leu Pro
210 215 220

Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn Thr Thr Glu Ser
225 230 235 240

Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro Pro Pro Pro Glu
245 250 255

Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala Trp Leu Glu Asp
260 265 270

Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn Gln Gln Tyr His
275 280 285

His Val Asp Lys Arg Ile Ser
290 295

<210> 54
<211> 487
<212> PRT
<213> artificial

<220>
<223> 0aAEP17 aa

<220>
<221> misc_feature
<222> (475)..(475)
<223> Xaa can be any naturally occurring amino acid

<400> 54

Met Val Arg Tyr Leu Ala Gly Ala Val Leu Leu Leu Val Val Leu Ser
1 5 10 15

Val Ala Ala Ala Val Ser Gly Ala Arg Asp Gly Asp Tyr Leu His Leu
20 25 30

Pro Ser Glu Val Ser Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp
35 40 45

35255784_ST25.TXT

His Gly Glu Asp Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly
50 55 60

Ser Lys Gly Tyr Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala
65 70 75 80

Tyr Gln Ile Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val
85 90 95

Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly
100 105 110

Val Ile Ile Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro
115 120 125

Lys Asp Tyr Thr Gly Glu Glu Val Asn Ala Lys Asn Phe Leu Ala Ala
130 135 140

Ile Leu Gly Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val
145 150 155 160

Asp Ser Gly Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly
165 170 175

Ala Ala Gly Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp
180 185 190

Glu Leu Asn Asp Ala Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys
195 200 205

Ser Leu Val Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu
210 215 220

Gly Ile Leu Pro Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn
225 230 235 240

Thr Thr Glu Ser Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro
245 250 255

35255784_ST25.TXT

Pro Pro Pro Glu Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala
260 265 270

Trp Leu Glu Asp Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn
275 280 285

Gln Gln Tyr His His Val Asp Lys Arg Ile Ser His Ala Ser His Ala
290 295 300

Thr Gln Tyr Gly Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe Val Tyr
305 310 315 320

Met Gly Ser Asn Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp Gly Asn
325 330 335

Ala Leu Thr Pro Ser Ser Ile Val Val Asn Gln Arg Asp Ala Asp Leu
340 345 350

Leu His Leu Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala Arg
355 360 365

Lys Glu Glu Ala Gln Thr Gln Ile Phe Lys Ala Met Ser His Arg Val
370 375 380

His Ile Asp Ser Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly Ile
385 390 395 400

Glu Lys Cys Thr Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln Pro
405 410 415

Leu Val Asp Asp Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe Glu
420 425 430

Thr His Cys Gly Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg Thr
435 440 445

Ile Ala Asn Ile Cys Asn Ala Gly Ile Ser Glu Glu Gln Met Ala Glu
450 455 460

35255784_ST25.TXT

Ala Ala Ser Gln Ala Cys Ala Ser Ile Pro Xaa Asn Pro Trp Ser Ser
465 470 475 480

Phe His Gly Gly Phe Ser Ser
485

<210> 55
<211> 489
<212> PRT
<213> artificial

<220>
<223> Nicotiana tabacum NtAEP1b

<400> 55

Met Ile Arg Tyr Val Ala Gly Thr Leu Phe Leu Ile Gly Leu Ala Leu
1 5 10 15

Asn Val Ala Val Ser Glu Ser Arg Asn Val Leu Lys Leu Pro Ser Glu
20 25 30

Val Ser Arg Phe Phe Gly Ala Asp Glu Ser Asn Ala Gly Asp His Asp
35 40 45

Asp Asp Ser Val Gly Thr Arg Trp Ala Ile Leu Leu Ala Gly Ser Asn
50 55 60

Gly Tyr Trp Asn Tyr Arg His Gln Ala Asp Ile Cys His Ala Tyr Gln
65 70 75 80

Leu Leu Lys Lys Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met
85 90 95

Tyr Asp Asp Ile Ala Asn Asn Glu Glu Asn Pro Arg Arg Gly Val Ile
100 105 110

Ile Asn Ser Pro His Gly Glu Asp Val Tyr Lys Gly Val Pro Lys Asp
115 120 125

35255784_ST25.TXT

Tyr Thr Gly Asp Asp Val Thr Val Asp Asn Phe Phe Ala Val Ile Leu
 130 135 140

Gly Asn Lys Thr Ala Leu Ser Gly Gly Ser Gly Lys Val Val Asn Ser
 145 150 155 160

Gly Pro Asn Asp His Ile Phe Ile Phe Tyr Ser Asp His Gly Gly Pro
 165 170 175

Gly Val Leu Gly Met Pro Thr Asp Pro Tyr Leu Tyr Ala Asn Asp Leu
 180 185 190

Ile Asp Val Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Leu
 195 200 205

Val Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser Ile Phe Glu Gly Leu
 210 215 220

Leu Pro Glu Gly Leu Asn Ile Tyr Ala Thr Thr Ala Ser Asn Ala Glu
 225 230 235 240

Glu Ser Ser Trp Gly Thr Tyr Cys Pro Gly Glu Tyr Pro Ser Pro Pro
 245 250 255

Ile Glu Tyr Met Thr Cys Leu Gly Asp Leu Tyr Ser Ile Ser Trp Met
 260 265 270

Glu Asp Ser Glu Leu His Asn Leu Arg Thr Glu Ser Leu Lys Gln Gln
 275 280 285

Tyr His Leu Val Lys Glu Arg Thr Ala Thr Gly Asn Pro Val Tyr Gly
 290 295 300

Ser His Val Met Gln Tyr Gly Asp Leu His Leu Ser Lys Asp Ala Leu
 305 310 315 320

Tyr Leu Tyr Met Gly Thr Asn Pro Ala Asn Asp Asn Tyr Thr Phe Met
 325 330 335

35255784_ST25.TXT

Asp Asp Asn Ser Leu Arg Val Ser Lys Ala Val Asn Gln Arg Asp Ala
340 345 350

Asp Leu Leu His Phe Trp His Lys Phe Arg Thr Ala Pro Glu Gly Ser
355 360 365

Val Arg Lys Ile Glu Ala Gln Lys Gln Leu Asn Glu Ala Ile Ser His
370 375 380

Arg Val His Leu Asp Asn Ser Val Ala Leu Val Gly Lys Leu Leu Phe
385 390 395 400

Gly Ile Glu Lys Gly Pro Glu Val Leu Ser Gly Val Arg Pro Ala Gly
405 410 415

Gln Pro Leu Val Asp Asp Trp Asp Cys Leu Lys Ser Phe Val Arg Thr
420 425 430

Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met Lys His Met
435 440 445

Arg Ser Ile Ala Asn Ile Cys Asn Ala Gly Ile Lys Lys Glu Gln Met
450 455 460

Val Glu Ala Ser Ala Gln Ala Cys Pro Ser Val Pro Ser Asn Thr Trp
465 470 475 480

Ser Ser Leu His Arg Gly Phe Ser Ala
485

<210> 56

<211> 481

<212> PRT

<213> artificial

<220>

<223> Petunia hybrida PxAEP3a

<400> 56

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

35255784_ST25.TXT

Ala Ala Gly Glu Gly Arg Asn Val Leu Lys Leu Pro Ser Glu Ala Ser
20 25 30

Arg Phe Phe Asp Lys Gly Asp Asp Asp Ser Val Gly Thr Arg Trp Ala
35 40 45

Val Leu Leu Ala Gly Ser Asn Gly Tyr Trp Asn Tyr Arg His Gln Ala
50 55 60

Asp Val Cys His Ala Tyr Gln Leu Leu Arg Lys Gly Gly Leu Lys Asp
65 70 75 80

Glu Asn Ile Ile Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Glu
85 90 95

Asn Pro Arg Lys Gly Val Ile Ile Asn Ser Pro Ala Gly Glu Asp Val
100 105 110

Tyr Lys Gly Val Pro Lys Asp Tyr Thr Gly Asp Asp Val Asn Val Asp
115 120 125

Asn Phe Leu Ala Val Leu Leu Gly Asn Lys Thr Ala Leu Thr Gly Gly
130 135 140

Ser Gly Lys Val Val Asp Ser Gly Pro Asn Asp His Ile Phe Val Phe
145 150 155 160

Tyr Ser Asp His Gly Gly Pro Gly Val Leu Gly Met Pro Thr Asn Pro
165 170 175

Tyr Leu Tyr Ala Ser Asp Leu Ile Gly Ala Leu Lys Lys Lys His Ala
180 185 190

Ser Gly Thr Tyr Lys Ser Leu Val Leu Tyr Ile Glu Ala Cys Glu Ser
195 200 205

Gly Ser Ile Phe Glu Gly Leu Leu Pro Glu Gly Leu Asn Val Tyr Ala
210 215 220

35255784_ST25.TXT

Thr Thr Ala Ser Asn Ala Val Glu Ser Ser Trp Gly Thr Tyr Cys Pro
225 230 235 240

Gly Glu Asn Pro Ser Pro Pro Pro Glu Tyr Glu Thr Cys Leu Gly Asp
245 250 255

Leu Tyr Ala Val Ser Trp Met Glu Asp Ser Glu Lys His Asn Leu Gln
260 265 270

Thr Glu Ser Leu Arg Gln Gln Tyr His Leu Val Lys Arg Arg Thr Ala
275 280 285

Asn Gly Asn Ser Ala Tyr Gly Ser His Val Met Gln Phe Gly Asp Leu
290 295 300

Lys Leu Ser Val Asp Ser Leu Ser Met Tyr Met Gly Thr Asp Pro Ala
305 310 315 320

Asn Asp Asn Ser Thr Phe Val Asp Asp Asn Ser Leu Gly Ala Ser Ser
325 330 335

Lys Ala Val Asn Gln Arg Asp Ala Asp Leu Leu His Phe Trp Asp Lys
340 345 350

Phe Leu Lys Ala Pro Glu Gly Ser Ala Arg Lys Val Glu Ala Gln Lys
355 360 365

Gln Phe Thr Glu Ala Met Ser His Arg Met His Leu Asp Asn Ser Met
370 375 380

Ala Leu Val Gly Lys Leu Leu Phe Gly Ile Gln Lys Gly Pro Glu Val
385 390 395 400

Leu Lys Arg Val Arg Ser Asp Gly Gln Pro Leu Val Asp Asp Trp Ala
405 410 415

Cys Leu Lys Ser Phe Val Arg Thr Phe Glu Thr His Cys Gly Ser Leu
420 425 430

Ser Gln Tyr Gly Met Lys His Met Arg Ser Ile Ala Asn Ile Cys Asn
435 440 445

Ala Gly Ile Lys Met Glu Gln Met Val Glu Ala Ser Ser Gln Ala Cys
450 455 460

Pro Ser Val Pro Ser Asn Thr Trp Ser Ser Leu His Arg Gly Phe Ser
465 470 475 480

Ala

<210> 57
<211> 478
<212> PRT
<213> artificial

<220>
<223> Petunia hybrida PxAEP3b

<400> 57

Met Ile Ser His Val Ala Gly Ile Leu Ile Leu Val Gly Phe Ser Ile
1 5 10 15

Leu Gly Ala Gly Glu Gly Arg Asn Val Leu Lys Leu Pro Ser Glu Ala
20 25 30

Ser Arg Phe Phe Lys Lys Gly Glu Asp Asp Asp Ser Val Gly Thr Arg
35 40 45

Trp Ala Val Leu Leu Ala Gly Ser Asn Ser Tyr Trp Asn Tyr Arg His
50 55 60

Gln Ala Asp Val Cys His Ala Tyr Gln Leu Leu Arg Lys Gly Gly Leu
65 70 75 80

Lys Asp Glu Asn Ile Val Val Leu Met Tyr Asp Asp Ile Ala Tyr Asn
85 90 95

35255784_ST25.TXT

Glu Glu Asn Pro Arg Lys Gly Val Ile Ile Asn Asn Pro Ala Gly Glu
 100 105 110

Asp Val Tyr Lys Gly Val Pro Lys Asp Tyr Thr Gly Asp Asp Val Asn
 115 120 125

Val Asp Asn Phe Leu Ala Val Leu Leu Gly Asn Lys Thr Ala Ile Thr
 130 135 140

Gly Gly Ser Gly Lys Val Val Asp Ser Gly Pro Asn Asp His Ile Phe
 145 150 155 160

Ile Phe Tyr Thr Asp His Gly Gly Pro Gly Val Leu Gly Met Pro Thr
 165 170 175

Lys Pro Tyr Leu Tyr Ala Ser Asp Leu Ile Gly Ala Leu Lys Lys Lys
 180 185 190

His Ala Ser Gly Thr Tyr Lys Ser Leu Val Leu Tyr Val Glu Ala Cys
 195 200 205

Glu Ala Gly Ser Ile Phe Glu Gly Leu Leu Pro Glu Gly Leu Asn Val
 210 215 220

Tyr Ala Thr Thr Ala Ser Asp Ala Val Glu Gly Ser Trp Val Thr Tyr
 225 230 235 240

Cys Pro Gly Gln Asn Pro Ser Pro Pro Glu Tyr Thr Thr Cys Leu
 245 250 255

Gly Asp Leu Tyr Ser Val Ser Trp Met Glu Asp Ser Glu Lys His Asn
 260 265 270

Leu Gln Thr Glu Ser Leu Arg Gln Gln Tyr His Leu Val Lys Glu Lys
 275 280 285

Ile Ala Tyr Ala Ser His Val Met Gln Tyr Gly Asp Leu Lys Leu Ser
 290 295 300

35255784_ST25.TXT

Met Asp Ser Leu Ser Met Tyr Met Gly Thr Asp Pro Ala Asn Asp Asn
 305 310 315 320

Tyr Thr Phe Val Asp Asp Asn Ser Leu Gly Thr Ser Ser Lys Ala Val
 325 330 335

Asn Gln Arg Asp Ala Asp Leu Leu His Phe Ser Asp Lys Phe Leu Lys
 340 345 350

Ala Pro Glu Gly Ser Ala Arg Lys Val Glu Ala Gln Lys Gln Phe Ala
 355 360 365

Glu Ala Met Ser His Arg Leu His Leu Asp Asn Ser Met Ala Leu Val
 370 375 380

Gly Lys Leu Leu Phe Gly Ile Lys Lys Gly Pro Glu Val Leu Lys Arg
 385 390 395 400

Val Arg Ser Asp Gly Gln Leu Leu Val Asp Asp Trp Ala Cys Leu Lys
 405 410 415

Ser Phe Val Arg Thr Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr
 420 425 430

Gly Met Lys His Met Arg Ser Phe Ala Asn Ile Cys Asn Ala Gly Ile
 435 440 445

Lys Val Glu Gln Met Val Glu Ala Ser Ser Gln Ala Cys Pro Ser Val
 450 455 460

Pro Ser Asn Thr Trp Ser Ser Leu His Arg Gly Phe Ser Ala
 465 470 475

<210> 58
 <211> 482
 <212> PRT
 <213> artificial

<220>
 <223> Clitoria ternatea CtAEP1

<400> 58

Met Lys Asn Pro Leu Ala Ile Leu Phe Leu Ile Ala Thr Val Val Ala
 1 5 10 15

Val Val Ser Gly Ile Arg Asp Asp Phe Leu Arg Leu Pro Ser Gln Ala
 20 25 30

Ser Lys Phe Phe Gln Ala Asp Asp Asn Val Glu Gly Thr Arg Trp Ala
 35 40 45

Val Leu Val Ala Gly Ser Lys Gly Tyr Val Asn Tyr Arg His Gln Ala
 50 55 60

Asp Val Cys His Ala Tyr Gln Ile Leu Lys Lys Gly Gly Leu Lys Asp
 65 70 75 80

Glu Asn Ile Ile Val Phe Met Tyr Asp Asp Ile Ala Tyr Asn Glu Ser
 85 90 95

Asn Pro His Pro Gly Val Ile Ile Asn His Pro Tyr Gly Ser Asp Val
 100 105 110

Tyr Lys Gly Val Pro Lys Asp Tyr Val Gly Glu Asp Ile Asn Pro Pro
 115 120 125

Asn Phe Tyr Ala Val Leu Leu Ala Asn Lys Ser Ala Leu Thr Gly Thr
 130 135 140

Gly Ser Gly Lys Val Leu Asp Ser Gly Pro Asn Asp His Val Phe Ile
 145 150 155 160

Tyr Tyr Thr Asp His Gly Gly Ala Gly Val Leu Gly Met Pro Ser Lys
 165 170 175

Pro Tyr Ile Ala Ala Ser Asp Leu Asn Asp Val Leu Lys Lys Lys His
 180 185 190

Ala Ser Gly Thr Tyr Lys Ser Ile Val Phe Tyr Val Glu Ser Cys Glu
 195 200 205

35255784_ST25.TXT

Ser Gly Ser Met Phe Asp Gly Leu Leu Pro Glu Asp His Asn Ile Tyr
210 215 220

Val Met Gly Ala Ser Asp Thr Gly Glu Ser Ser Trp Val Thr Tyr Cys
225 230 235 240

Pro Leu Gln His Pro Ser Pro Pro Pro Glu Tyr Asp Val Cys Val Gly
245 250 255

Asp Leu Phe Ser Val Ala Trp Leu Glu Asp Cys Asp Val His Asn Leu
260 265 270

Gln Thr Glu Thr Phe Gln Gln Gln Tyr Glu Val Val Lys Asn Lys Thr
275 280 285

Ile Val Ala Leu Ile Glu Asp Gly Thr His Val Val Gln Tyr Gly Asp
290 295 300

Val Gly Leu Ser Lys Gln Thr Leu Phe Val Tyr Met Gly Thr Asp Pro
305 310 315 320

Ala Asn Asp Asn Asn Thr Phe Thr Asp Lys Asn Ser Leu Gly Thr Pro
325 330 335

Arg Lys Ala Val Ser Gln Arg Asp Ala Asp Leu Ile His Tyr Trp Glu
340 345 350

Lys Tyr Arg Arg Ala Pro Glu Gly Ser Ser Arg Lys Ala Glu Ala Lys
355 360 365

Lys Gln Leu Arg Glu Val Met Ala His Arg Met His Ile Asp Asn Ser
370 375 380

Val Lys His Ile Gly Lys Leu Leu Phe Gly Ile Glu Lys Gly His Lys
385 390 395 400

Met Leu Asn Asn Val Arg Pro Ala Gly Leu Pro Val Val Asp Asp Trp
405 410 415

35255784_ST25.TXT

Asp Cys Phe Lys Thr Leu Ile Arg Thr Phe Glu Thr His Cys Gly Ser
420 425 430

Leu Ser Glu Tyr Gly Met Lys His Met Arg Ser Phe Ala Asn Leu Cys
435 440 445

Asn Ala Gly Ile Arg Lys Glu Gln Met Ala Glu Ala Ser Ala Gln Ala
450 455 460

Cys Val Ser Ile Pro Asp Asn Pro Trp Ser Ser Leu His Ala Gly Phe
465 470 475 480

Ser Val

<210> 59
<211> 497
<212> PRT
<213> artificial

<220>
<223> Clitoria ternatea CtAEP2

<400> 59

Met Ala Val Asp His Cys Phe Leu Lys Lys Lys Thr Cys Tyr Tyr Gly
1 5 10 15

Phe Val Leu Trp Ser Trp Met Leu Met Met Ser Leu His Ser Lys Ala
20 25 30

Ala Arg Leu Asn Pro Gln Lys Glu Trp Asp Ser Val Ile Arg Leu Pro
35 40 45

Thr Glu Pro Val Asp Ala Asp Thr Asp Glu Val Gly Thr Arg Trp Ala
50 55 60

Val Leu Val Ala Gly Ser Asn Gly Tyr Glu Asn Tyr Arg His Gln Ala
65 70 75 80

35255784_ST25.TXT

Asp Val Cys His Ala Tyr Gln Leu Leu Ile Lys Gly Gly Leu Lys Glu
 85 90 95

Glu Asn Ile Val Val Phe Met Tyr Asp Asp Ile Ala Trp His Glu Leu
 100 105 110

Asn Pro Arg Pro Gly Val Ile Ile Asn Asn Pro Arg Gly Glu Asp Val
 115 120 125

Tyr Ala Gly Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Thr Ala Glu
 130 135 140

Asn Leu Phe Ala Val Ile Leu Gly Asp Arg Ser Lys Val Lys Gly Gly
 145 150 155 160

Ser Gly Lys Val Ile Asn Ser Lys Pro Glu Asp Arg Ile Phe Ile Phe
 165 170 175

Tyr Ser Asp His Gly Gly Pro Gly Val Leu Gly Met Pro Asn Glu Gln
 180 185 190

Ile Leu Tyr Ala Met Asp Phe Ile Asp Val Leu Lys Lys Lys His Ala
 195 200 205

Ser Gly Gly Tyr Arg Glu Met Val Ile Tyr Val Glu Ala Cys Glu Ser
 210 215 220

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

Thr Thr Ala Ser Asn Ala Gln Glu Asn Ser Trp Gly Thr Tyr Cys Pro
 245 250 255

Gly Thr Glu Pro Ser Pro Pro Pro Glu Tyr Thr Thr Cys Leu Gly Asp
 260 265 270

Leu Tyr Ser Val Ala Trp Met Glu Asp Ser Glu Ser His Asn Leu Arg
 275 280 285

35255784_ST25.TXT

Arg Glu Thr Val Asn Gln Gln Tyr Arg Ser Val Lys Glu Arg Thr Ser
 290 295 300

Asn Phe Lys Asp Tyr Ala Met Gly Ser His Val Met Gln Tyr Gly Asp
 305 310 315 320

Thr Asn Ile Thr Ala Glu Lys Leu Tyr Leu Phe Gln Gly Phe Asp Pro
 325 330 335

Ala Thr Val Asn Leu Pro Pro His Asn Gly Arg Ile Glu Ala Lys Met
 340 345 350

Glu Val Val His Gln Arg Asp Ala Glu Leu Leu Phe Met Trp Gln Met
 355 360 365

Tyr Gln Arg Ser Asn His Leu Leu Gly Lys Lys Thr His Ile Leu Lys
 370 375 380

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

Glu Leu Ile Gly Val Leu Leu Tyr Gly Pro Gly Lys Gly Ser Pro Val
 405 410 415

Leu Gln Ser Val Arg Asp Pro Gly Leu Pro Leu Val Asp Asn Trp Ala
 420 425 430

Cys Leu Lys Ser Met Val Arg Val Phe Glu Ser His Cys Gly Ser Leu
 435 440 445

Thr Gln Tyr Gly Met Lys His Met Arg Ala Phe Ala Asn Ile Cys Asn
 450 455 460

Ser Gly Val Ser Glu Ser Ser Met Glu Glu Ala Cys Met Val Ala Cys
 465 470 475 480

Gly Gly His Asp Ala Gly His Leu His Pro Ser Lys Arg Gly Tyr Ile
 485 490 495

Ala

<210> 60
 <211> 46
 <212> PRT
 <213> artificial

<220>
 <223> EcAMP1

<400> 60

Gly Leu Pro Gly Ser Gly Arg Gly Ser Cys Arg Ser Gln Cys Met Arg
 1 5 10 15

Arg His Glu Asp Glu Pro Trp Arg Val Gln Glu Cys Val Ser Gln Cys
 20 25 30

Arg Arg Arg Arg Gly Gly Gly Asp Thr Arg Asn Gly Leu Pro
 35 40 45

<210> 61
 <211> 25
 <212> PRT
 <213> artificial

<220>
 <223> R1

<400> 61

Gly Leu Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser
 1 5 10 15

Arg Met His Ile Leu Lys Gly His Val
 20 25

<210> 62
 <211> 25
 <212> PRT
 <213> artificial

<220>
 <223> R1

<400> 62

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	His	Val
			20					25

<210> 63

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 63

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	His	Leu
			20					25

<210> 64

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 64

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	Gly	His
			20					25

<210> 65

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 65

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	Gly	Phe
			20					25

<210> 66

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 66

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	Phe	Leu
			20					25

<210> 67

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 67

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asp	Gly	Leu
			20					25

<210> 68

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 68

Leu	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Gly	His	Val
			20					25

<210> 69

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 69

Gly	Lys	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Gly	His	Val
			20					25

<210> 70

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 70

Gly	Phe	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Gly	His	Val
			20					25

<210> 71

<211> 16

<212> PRT
 <213> artificial

<220>
 <223> SFT1-110R

<400> 71

Met	Leu	Gly	Arg	Cys	Thr	Lys	Ser	Ile	Pro	Pro	Arg	Cys	Phe	Pro	Asp
1				5					10					15	

<210> 72
 <211> 110
 <212> PRT
 <213> artificial

<220>
 <223> SFT1-110R

<400> 72

Met	Leu	Gly	Arg	Cys	Thr	Lys	Ser	Ile	Pro	Pro	Arg	Cys	Phe	Pro	Asp
1				5					10					15	

Gly	Leu	Pro	Gly	Gly	Gly	Gly	Ser	Glu	Phe	Glu	Leu	Met	Gln	Ile	Phe
			20					25					30		

Val	Lys	Thr	Leu	Thr	Gly	Lys	Thr	Ile	Thr	Leu	Glu	Val	Glu	Pro	Ser
		35					40					45			

Asp	Thr	Ile	Glu	Asn	Val	Lys	Ala	Lys	Ile	Gln	Asp	Lys	Glu	Gly	Ile
	50					55					60				

Pro	Pro	Asp	Gln	Gln	Arg	Leu	Ile	Phe	Ala	Gly	Lys	Gln	Leu	Glu	Asp
65					70					75				80	

Gly	Arg	Thr	Leu	Ser	Asp	Tyr	Asn	Ile	Gln	Lys	Glu	Ser	Thr	Leu	His
			85						90					95	

Leu	Val	Leu	Arg	Leu	Arg	Gly	Gly	His	His	His	His	His	His		
			100					105					110		

<210> 73
 <211> 29

<212> PRT
 <213> artificial

<220>
 <223> Kalata B1

<400> 73

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

Pro Gly Cys Thr Cys Ser Trp Pro Val Cys Thr Arg Asn
 20 25

<210> 74
 <211> 118
 <212> PRT
 <213> artificial

<220>
 <223> Kalata B1

<400> 74

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

Pro Gly Cys Thr Cys Ser Trp Pro Val Cys Thr Arg Asn Gly Leu Pro
 20 25 30

Glu Phe Glu Leu Met Gln Ile Phe Val Lys Thr Leu Thr Gly Lys Thr
 35 40 45

Ile Thr Leu Glu Val Glu Pro Ser Asp Thr Ile Glu Asn Val Lys Ala
 50 55 60

Lys Ile Gln Asp Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile
 65 70 75 80

Phe Ala Gly Lys Gln Leu Glu Asp Gly Arg Thr Leu Ser Asp Tyr Asn
 85 90 95

Ile Gln Lys Glu Ser Thr Leu His Leu Val Leu Arg Leu Arg Gly Gly
 100 105 110

His His His His His His
115

<210> 75
<211> 24
<212> PRT
<213> artificial

<220>
<223> Vc1.1

<400> 75

Met Leu Gly Cys Cys Ser Asp Pro Arg Cys Asn Tyr Asp His Pro Glu
1 5 10 15

Ile Cys Gly Gly Ala Ala Gly Asn
20

<210> 76
<211> 118
<212> PRT
<213> artificial

<220>
<223> Vc1.1

<400> 76

Met Leu Gly Cys Cys Ser Asp Pro Arg Cys Asn Tyr Asp His Pro Glu
1 5 10 15

Ile Cys Gly Gly Ala Ala Gly Asn Gly Leu Pro Gly Gly Gly Gly Ser
20 25 30

Glu Phe Glu Leu Met Gln Ile Phe Val Lys Thr Leu Thr Gly Lys Thr
35 40 45

Ile Thr Leu Glu Val Glu Pro Ser Asp Thr Ile Glu Asn Val Lys Ala
50 55 60

Lys Ile Gln Asp Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile
65 70 75 80

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Phe Ala Gly Lys Gln Leu Glu Asp Gly Arg Thr Leu Ser Asp Tyr Asn
85 90 95

Ile Gln Lys Glu Ser Thr Leu His Leu Val Leu Arg Leu Arg Gly Gly
100 105 110

His His His His His His
115

<210> 77
<211> 599
<212> PRT
<213> artificial

<220>
<223> Kalata B1 + OaAEP1b

<400> 77

Met Ile Leu His Thr Tyr Ile Ile Leu Ser Leu Leu Thr Ile Phe Pro
1 5 10 15

Lys Ala Ile Gly Leu Ser Leu Gln Met Pro Met Ala Leu Glu Ala Ser
20 25 30

Tyr Ala Ser Leu Val Glu Lys Ala Thr Leu Ala Val Gly Gln Glu Ile
35 40 45

Asp Ala Ile Gln Lys Gly Ile Gln Gln Gly Trp Leu Glu Val Glu Thr
50 55 60

Arg Phe Pro Thr Ile Val Ser Gln Leu Ser Tyr Ser Thr Gly Pro Lys
65 70 75 80

Phe Ala Ile Lys Lys Lys Asp Ala Thr Phe Trp Asp Phe Tyr Val Glu
85 90 95

Ser Gln Glu Leu Pro Asn Tyr Arg Leu Arg Val Gly Leu Pro Val Cys
100 105 110

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Gly Glu Thr Cys Val Gly Gly Thr Cys Asn Thr Pro Gly Cys Thr Cys
 115 120 125

Ser Trp Pro Val Cys Thr Arg Asn Gly Leu Pro Ala Ala Ala Gly Gly
 130 135 140

Gly Gly Gly Ser Ala Arg Asp Gly Asp Tyr Leu His Leu Pro Ser Glu
 145 150 155 160

Val Ser Arg Phe Phe Arg Pro Gln Glu Thr Asn Asp Asp His Gly Glu
 165 170 175

Asp Ser Val Gly Thr Arg Trp Ala Val Leu Ile Ala Gly Ser Lys Gly
 180 185 190

Tyr Ala Asn Tyr Arg His Gln Ala Gly Val Cys His Ala Tyr Gln Ile
 195 200 205

Leu Lys Arg Gly Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr
 210 215 220

Asp Asp Ile Ala Tyr Asn Glu Ser Asn Pro Arg Pro Gly Val Ile Ile
 225 230 235 240

Asn Ser Pro His Gly Ser Asp Val Tyr Ala Gly Val Pro Lys Asp Tyr
 245 250 255

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

Asn Lys Ser Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asp Ser Gly
 275 280 285

Pro Asn Asp His Ile Phe Ile Tyr Tyr Thr Asp His Gly Ala Ala Gly
 290 295 300

Val Ile Gly Met Pro Ser Lys Pro Tyr Leu Tyr Ala Asp Glu Leu Asn
 305 310 315 320

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Asp Ala Leu Lys Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Leu Val
 325 330 335

Phe Tyr Leu Glu Ala Cys Glu Ser Gly Ser Met Phe Glu Gly Ile Leu
 340 345 350

Pro Glu Asp Leu Asn Ile Tyr Ala Leu Thr Ser Thr Asn Thr Thr Glu
 355 360 365

Ser Ser Trp Cys Tyr Tyr Cys Pro Ala Gln Glu Asn Pro Pro Pro Pro
 370 375 380

Glu Tyr Asn Val Cys Leu Gly Asp Leu Phe Ser Val Ala Trp Leu Glu
 385 390 395 400

Asp Ser Asp Val Gln Asn Ser Trp Tyr Glu Thr Leu Asn Gln Gln Tyr
 405 410 415

His His Val Asp Lys Arg Ile Ser His Ala Ser His Ala Thr Gln Tyr
 420 425 430

Gly Asn Leu Lys Leu Gly Glu Glu Gly Leu Phe Val Tyr Met Gly Ser
 435 440 445

Asn Pro Ala Asn Asp Asn Tyr Thr Ser Leu Asp Gly Asn Ala Leu Thr
 450 455 460

Pro Ser Ser Ile Val Val Asn Gln Arg Asp Ala Asp Leu Leu His Leu
 465 470 475 480

Trp Glu Lys Phe Arg Lys Ala Pro Glu Gly Ser Ala Arg Lys Glu Val
 485 490 495

Ala Gln Thr Gln Ile Phe Lys Ala Met Ser His Arg Val His Ile Asp
 500 505 510

Ser Ser Ile Lys Leu Ile Gly Lys Leu Leu Phe Gly Ile Glu Lys Cys
 515 520 525

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Thr Glu Ile Leu Asn Ala Val Arg Pro Ala Gly Gln Pro Leu Val Asp
 530 535 540

Asp Trp Ala Cys Leu Arg Ser Leu Val Gly Thr Phe Glu Thr His Cys
 545 550 555 560

Gly Ser Leu Ser Glu Tyr Gly Met Arg His Thr Arg Thr Ile Ala Asn
 565 570 575

Ile Cys Asn Ala Gly Ile Ser Glu Glu Gln Met Ala Glu Ala Ala Ser
 580 585 590

Gln Ala Cys Ala Ser Ile Pro
 595

<210> 78
 <211> 1800
 <212> DNA
 <213> artificial

<220>
 <223> Kalata B1 + OaAEP1b

<400> 78
 atgatcttac acacctatat tatcttatcc ttattaacta tcttccttaa agcaatcggg 60
 ttatccttac aaatgcctat ggccttgga gcatcttatg cctcattggg tgaaaaagct 120
 acttttagcag taggtcaaga aatagatgct atccaaaagg gtatccaaca aggttggttg 180
 gaagtcgaaa caagatttcc aaccattggt tctcaattat cctacagtac tggtcctaaa 240
 ttcgctatta aaaagaaaga tgccacattt tgggacttct atgttgaaag tcaagaattg 300
 ccaaattacc gtttacgtgt cggactccct gtatgtgggt aaacatgcgt cgggtggtact 360
 tgtaatacac caggttgtac ttgctcatgg cctgtttgca caagaaatgg ttgcctgcg 420
 gccgcgggtg gtgggtgggt ttctgctaga gatgggtgact atttgcattt gccatccgaa 480
 gttagtagat ttttcagacc tcaagaaaca aatgatgacc acggtgaaga tagttaggtg 540
 accagatggg cagtcttgat tgccggttcc aaagggttatg ctaattacag acatcaagcc 600
 ggtgtttgtc acgcttacca aatattgaag agaggtgggt tgaaggatga aaacatcggt 660
 gtttttatgt atgatgacat cgcatacaat gaaagtaacc caagacctgg tgtaattata 720

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aattccccac atggtagtga tgtctatgcc ggtgttccta aagactacac tggatgaagaa	780
gtcaatgcta agaacttttt ggctgcaatt ttaggtaata agtctgcaat aacaggtggt	840
tcaggtaaag tcgttgatag tggtcctaac gaccatattt ttatctatta caccgatcac	900
ggtgccgctg gtgttattgg tatgccatca aaaccttatt tgtacgctga tgaattgaac	960
gacgcattaa agaaaaagca tgcctctggt acatacaagt cattggtttt ctatttggaa	1020
gcttgatgaa gtgggttcaat gttcgaaggt atcttgccag aagatttgaa tatctatgcc	1080
ttaacctcaa ctaacactac agaaagttca tgggtgttatt actgccctgc tcaagaaaat	1140
ccacctccac ctgaatacaa tgtatgcttg ggtgacttgt tttctgtcgc atggttggag	1200
gacagtgatg ttcaaaatag ttggtatgaa accttaaacc aacaatacca tcatgtagat	1260
aagagaatat ctcatgcctc acacgtact caatatggta atttgaagtt aggtgaagaa	1320
ggtttgtttg tttatatggg tagtaacca gctaatgata actacacctc tttggacggt	1380
aatgcattaa ctcttccag tattgtagtc aaccaaagag atgctgactt gttacatttg	1440
tgggaaaagt ttagaaaggc accagaaggt agtgccagaa aggaagttgc tcaaactcaa	1500
atattcaagg caatgtctca tagagtacac atagatagtt caattaaatt gatcggtaaa	1560
ttgttggttg gtatagaaaa gtgtacagaa atcttgaacg ctgtaagacc agcaggtcaa	1620
ccttttagtcg atgactgggc atgtttgaga tctttagttg gtaccttcga aactcattgc	1680
ggttccttaa gtgaatatgg tatgagacac acaagaacca tcgccaatat ttgtaacgct	1740
ggtatctcag aagaacaaat ggcagaagcc gcctcccaag cctgtgcatc tatcccataa	1800

<210> 79
 <211> 56
 <212> PRT
 <213> artificial

<220>
 <223> Target peptides

<400> 79

Gly	Leu	Pro	Arg	Glu	Cys	Lys	Thr	Glu	Ser	Asn	Thr	Phe	Pro	Gly	Ile
1				5				10						15	

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Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe
 20 25 30

Thr Asp Gly His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys
 35 40 45

Pro Cys Thr Arg Asn Gly Leu Pro
 50 55

<210> 80
 <211> 7
 <212> PRT
 <213> artificial

<220>
 <223> Ligation partner peptide

<400> 80

Pro Leu Pro Val Ser Gly Glu
 1 5

<210> 81
 <211> 60
 <212> PRT
 <213> artificial

<220>
 <223> Ligated peptide product

<400> 81

Gly Leu Pro Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile
 1 5 10 15

Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe
 20 25 30

Thr Asp Gly His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys
 35 40 45

Pro Cys Thr Arg Asn Gly Leu Pro Val Ser Gly Glu
 50 55 60

<210> 82
 <211> 60
 <212> PRT
 <213> artificial

<220>
 <223> Ligated peptide product

<400> 82

Gly Leu Pro Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile
 1 5 10 15

Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe
 20 25 30

Thr Asp Gly His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys
 35 40 45

Pro Cys Thr Arg Asn Pro Leu Pro Val Ser Gly Glu
 50 55 60

<210> 83
 <211> 25
 <212> PRT
 <213> artificial

<220>
 <223> Target peptide

<400> 83

Gly Lys Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser
 1 5 10 15

Arg Met His Ile Leu Lys Asn Gly Leu
 20 25

<210> 84
 <211> 26
 <212> PRT
 <213> artificial

<220>
 <223> Ligated peptide product _ C-terminal biotin

<400> 84

Gly	Lys	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	Gly	Leu	Lys
			20					25	

<210> 85

<211> 28

<212> PRT

<213> artificial

<220>

<223> Ligated peptide product + N-terminal biotin

<400> 85

Thr	Arg	Asn	Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys
1				5					10					15	

Phe	Gly	Ser	Arg	Met	His	Ile	Leu	Lys	Gly	His	Val
			20					25			

<210> 86

<211> 29

<212> PRT

<213> artificial

<220>

<223> R1

<400> 86

Gly	Leu	Pro	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly
1				5					10					15	

Ser	Arg	Met	His	Ile	Leu	Lys	Ser	Thr	Arg	Asn	Gly	Leu
			20					25				

<210> 87

<211> 21

<212> PRT

<213> artificial

<220>

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<223> Bac2A

<400> 87

Gly Leu Pro Arg Leu Ala Arg Ile Val Val Ile Arg Val Ala Arg Thr
1 5 10 15

Arg Asn Gly Leu Pro
20

<210> 88

<211> 31

<212> PRT

<213> artificial

<220>

<223> Kalata B1

<400> 88

Gly Leu Pro Val Cys Gly Glu Thr Cys Val Gly Gly Thr Cys Asn Thr
1 5 10 15

Pro Gly Cys Thr Cys Ser Trp Pro Val Cys Thr Arg Asn Gly Leu
20 25 30

<210> 89

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 89

Leu Leu Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser
1 5 10 15

Arg Met His Ile Leu Lys Asn Gly Leu
20 25

<210> 90

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 90

Gly	Lys	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	Gly	Leu
			20					25

<210> 91

<211> 25

<212> PRT

<213> artificial

<220>

<223> R1

<400> 91

Gly	Phe	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
1				5					10					15	

Arg	Met	His	Ile	Leu	Lys	Asn	Gly	Leu
			20					25

<210> 92

<211> 415

<212> PRT

<213> artificial

<220>

<223> Cicer arietinum

<400> 92

Met	Glu	Arg	Arg	Met	Arg	Phe	Trp	Val	Val	Ala	Leu	Ile	Val	Lys	Val
1				5					10					15	

Cys	Met	Ile	Ile	Thr	Met	Thr	Lys	Ser	Lys	Gly	Gln	Glu	Asp	Tyr	Gly
			20					25					30		

Val	Gln	Trp	Ala	Phe	Leu	Ile	Ala	Gly	Ser	Lys	Gly	Tyr	Arg	Asn	Tyr
		35					40					45			

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Arg His Gln Ala Asp Val Cys His Ala Tyr Gln Val Leu Arg Ile Gly
50 55 60

Gly Leu Lys Asp Glu Asn Ile Ile Val Met Met Tyr Asp Asp Ile Ala
65 70 75 80

Tyr Asn Lys Glu Asn Pro His Pro Gly Tyr Ile Ala Asn Lys Pro His
85 90 95

Gly Ile Asn Val Tyr Phe Asn Val Pro Lys Asp Tyr Thr Gly Lys Asp
100 105 110

Ala Thr Lys Glu Asn Phe Tyr Ala Val Leu Ser Gly Lys Lys Ser Gly
115 120 125

Val Lys Gly Gly Ser Gly Lys Val Leu Asp Thr Asn Pro Asp Asp Thr
130 135 140

Ile Phe Ile Phe Phe Ser Gly His Gly Asn Thr Gly Leu Ile Ala Leu
145 150 155 160

Pro Asp Gly Arg Thr Val Tyr Ala Asp Arg Phe Ile Asn Thr Leu Lys
165 170 175

Ala Lys Ile Asn Tyr Asn Lys Met Val Ile Tyr Leu Glu Ser Cys Asn
180 185 190

Ala Gly Ser Met Phe Gln Gly Leu Leu Pro Asn Asn Leu Asn Ile Tyr
195 200 205

Ala Thr Thr Ala Ser Asn Pro Phe Glu Asn Ser Tyr Ala Phe Tyr Cys
210 215 220

Pro Lys Arg Gln Ser Ser Pro Pro Pro Gln Tyr Thr Val Cys Leu Gly
225 230 235 240

Asn Leu Tyr Ser Ile Ser Trp Leu Glu Asp Ser Glu Gln Asn Asp Arg
245 250 255

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Glu Ser Glu Ser Leu Asn Gln Gln Tyr Leu Lys Val Ser Arg Ser Ile
260 265 270

Asn Tyr Arg Tyr Ser His Val Met Gln Tyr Gly Asn Met Arg Met Ala
275 280 285

Gly Asp Leu Leu Phe Thr Tyr Leu Gly Thr Asn Leu Ser Pro Ala Lys
290 295 300

Asp Asn Tyr His Phe Asn Thr Thr Ala Thr His Glu His Ser Tyr Lys
305 310 315 320

Pro Phe Asn Met Thr Thr Ser Gln Gln Asp Ala His Leu Leu Tyr Leu
325 330 335

Lys Leu Lys Cys Leu Trp Lys Arg His Gln Ala Gln Ile Glu Leu Asp
340 345 350

Asp Glu Ile Ser Arg Arg Lys His Glu Asp Gln Ser Val Tyr Leu Ile
355 360 365

Trp Lys Ile Leu Phe Gly Glu Asp Thr Arg Ser Ile Met Met Ala Asn
370 375 380

Leu Arg Ser Asp Ala Gln Pro Leu Val Asp Asp Trp Asn Cys Leu Arg
385 390 395 400

Ile Leu Lys Lys Thr Ala Ala Ala Ser Gln Val Cys Arg Val Pro
405 410 415

<210> 93

<211> 460

<212> PRT

<213> artificial

<220>

<223> Medicago truncatula

<400> 93

35255784_ST25.TXT

Met Asn His Lys Asn Lys Tyr Trp Val Ala Leu Ile Ala Ser Ile Trp
 1 5 10 15

Met Ser Val Thr Asp Asn Val Phe Ala Glu Gly Glu Ser Thr Thr Gly
 20 25 30

Lys Lys Trp Ala Phe Leu Val Ala Gly Ser Asn Gly Tyr Val Asn Tyr
 35 40 45

Arg His Gln Ala Asp Ile Cys His Ala Tyr Gln Ile Leu Lys Lys Gly
 50 55 60

Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp Asp Ile Ala
 65 70 75 80

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

Gly Ser Asp Val Tyr Asn Gly Val Pro Lys Asp Tyr Ile Gly Asp Tyr
 100 105 110

Gly Asn Leu Glu Asn Phe Leu Ala Val Leu Ser Gly Asn Lys Ser Ala
 115 120 125

Thr Lys Gly Gly Ser Gly Lys Val Leu Asp Thr Gly Pro Asp Asp Thr
 130 135 140

Ile Phe Ile Phe Tyr Thr Asp His Gly Ser Pro Gly Ser Ile Gly Ile
 145 150 155 160

Pro Asp Gly Gly Leu Leu Tyr Ala Asn Asp Phe Val Asp Ala Leu Lys
 165 170 175

Lys Lys His Asp Ala Lys Ser Tyr Lys Lys Met Val Ile Tyr Met Glu
 180 185 190

Ala Cys Glu Ala Gly Ser Met Phe Glu Gly Leu Leu Pro Asn Asp Ile
 195 200 205

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Asn Ile Tyr Val Thr Thr Ala Ser Asn Lys Ser Glu Asn Ser Tyr Gly
 210 215 220

Phe Tyr Cys Pro Asn Ser Tyr Leu Pro Pro Pro Glu Tyr Asp Ile
 225 230 235 240

Cys Leu Gly Asp Leu Tyr Ser Ile Ser Trp Met Glu Asp Ser Glu Lys
 245 250 255

Asn Asp Met Thr Lys Glu Ile Leu Lys Glu Gln Tyr Glu Thr Val Arg
 260 265 270

Gln Arg Thr Leu Leu Ser His Val Leu Gln Tyr Gly Asp Leu Asn Ile
 275 280 285

Ser Asn Asp Thr Leu Ile Thr Tyr Ile Gly Ala Asp Pro Thr Asn Val
 290 295 300

Asn Asp Asn Phe Asn Val Thr Ser Thr Thr Asn Val Phe Ser Phe Asp
 305 310 315 320

Asp Phe Lys Ser Pro Asn Pro Thr Arg Asn Phe Gly Gln Arg Asp Ala
 325 330 335

His Leu Ile Tyr Leu Lys Thr Lys Leu Gly Arg Ala Ser Ser Gly Ser
 340 345 350

Glu Asp Lys Leu Lys Ala Gln Lys Glu Leu Glu Val Glu Ile Ala Arg
 355 360 365

Arg Lys His Val Asp Asn Asn Val His Gln Ile Ser Asp Leu Leu Phe
 370 375 380

Gly Glu Glu Lys Gly Ser Ile Val Met Val His Val Arg Ala Ser Gly
 385 390 395 400

Gln Pro Leu Val Asp Asn Trp Asp Cys Leu Lys Thr Leu Val Lys Thr
 405 410 415

35255784_ST25.TXT

Tyr Glu Ser His Cys Gly Thr Leu Ser Ser Tyr Gly Arg Lys Tyr Leu
 420 425 430

Arg Ala Phe Ala Asn Met Cys Asn Asn Gly Ile Thr Val Lys Gln Met
 435 440 445

Val Ala Ala Ser Leu Gln Ala Cys Leu Glu Lys Asn
 450 455 460

<210> 94
 <211> 442
 <212> PRT
 <213> artificial

<220>
 <223> Hordeum vulgare

<400> 94

Met Arg Leu Gln Leu Phe Ala Ala Ser Ile Ala Leu Leu Ala Val Ile
 1 5 10 15

Gly Thr Ala Ser Ala Gly Gln Asn Trp Ala Val Leu Val Ala Gly Ser
 20 25 30

Asn Gly Trp Tyr Asn Tyr Arg His Gln Ser Asp Val Cys His Ala Tyr
 35 40 45

Gln Ile Leu His Lys Asn Gly Ile Pro Asp Ser Asn Ile Ile Val Met
 50 55 60

Met Tyr Asp Asp Leu Ala Lys Asn Lys Gln Asn Pro Thr Pro Gly Ile
 65 70 75 80

Ile Ile Asn His Pro Asn Gly Gln Asp Val Tyr Lys Gly Val Pro His
 85 90 95

Asp Tyr Thr Gly Asn Thr Val Thr Pro Lys Asn Phe Ile Asn Val Leu
 100 105 110

Leu Gly Lys Lys Asp Ala Met Lys Gly Val Gly Ser Gly Lys Val Leu
 115 120 125

35255784_ST25.TXT

Glu Ser Gly Pro Asp Asp Asn Val Phe Ile Tyr Phe Thr Asp His Gly
 130 135 140

Ala Thr Gly Leu Val Ala Phe Pro Thr Gly Val Leu Tyr Ala Lys Asp
 145 150 155 160

Leu Asn Lys Thr Ile Ala Gln Met Asn Glu Glu Lys Lys Tyr Lys Glu
 165 170 175

Met Val Ile Tyr Ile Glu Ala Cys Glu Ser Gly Ser Met Leu Glu Gly
 180 185 190

Leu Leu Pro Asp Asn Ile Asn Ile Tyr Ala Thr Thr Ala Ser Asn Ala
 195 200 205

Glu Glu Ser Ser Tyr Ala Cys Tyr Tyr Asp Ser Lys Arg Gln Thr Tyr
 210 215 220

Leu Gly Asp Leu Tyr Ser Val Asn Trp Met Glu Asp Ser Asp Ala Glu
 225 230 235 240

Asp Ile Gly Lys Glu Thr Leu Phe Lys Gln Phe Gln Val Thr Lys Gln
 245 250 255

Lys Thr Thr Glu Ser His Val Met Gln Tyr Gly Asp Leu Asn Leu Gly
 260 265 270

Ala Gln His Thr Val Ser Glu Phe Gln Gly Thr Thr Arg Asn Gly Lys
 275 280 285

Gln Gln Ser Val Ser Pro Val Val Asp Arg Met Asn Thr Leu Leu Lys
 290 295 300

Arg Glu Thr Ala Ala Thr Val Asp Val Arg Ile Ser Ile Leu Ser Lys
 305 310 315 320

Arg Leu Ala Ala Ser Pro Val Asn Ser Glu Glu Arg Leu Ser Ile Glu
 325 330 335

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Arg Glu Leu Ala His Thr Val Arg Gln Arg Thr Ile Ile Ser Ser Thr
340 345 350

Ile Asp Ser Ile Ala Lys Lys Ser Phe Glu Val Asn Arg Ser Ala Tyr
355 360 365

Ala Asp Leu Val Thr Ser Gln Arg Met Lys Leu Thr Gln His Asp Cys
370 375 380

Tyr Lys Asp Ala Thr Gln Arg Ile His Asp Lys Cys Phe Asp Ile Gln
385 390 395 400

Asn Glu Phe Val Leu Asn Lys Leu Trp Ile Val Ala Asn Leu Cys Glu
405 410 415

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

Gly Val Leu Gly Arg Gln Gln Phe Glu Tyr
435 440

<210> 95

<211> 465

<212> PRT

<213> artificial

<220>

<223> *Gossypium raimondii*

<400> 95

Met Thr Thr Leu Val Ala Gly Val Leu Leu Leu Leu Ser Val Thr
1 5 10 15

Gly Ile Val Thr Ala Gln Arg Asp Ala Thr Gly Asp Val Leu Arg Leu
20 25 30

Val Ser Pro Glu Ala Tyr Lys Phe Phe His Gln Ser Asp Asp Gly Arg
35 40 45

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Val Gly Gly Ser Arg Trp Ala Val Leu Ile Ala Gly Ser Arg Gly Tyr
 50 55 60

Glu Asn Tyr Arg His Gln Ala Asp Val Cys His Ala Tyr Gln Leu Leu
 65 70 75 80

Arg Lys Cys Gly Leu Lys Asp Glu Asn Ile Val Val Phe Met Tyr Asp
 85 90 95

Asp Ile Ala Tyr Asn Glu Asn Asn Pro Arg Pro Gly Ile Ile Ile Asn
 100 105 110

Ser Pro Asn Gly Ser Asp Val Tyr His Gly Val Pro Lys Asp Tyr Thr
 115 120 125

Gly Asp Asp Val Thr Val Asn Asn Phe Phe Asn Val Ile Leu Gly Asn
 130 135 140

Lys Ala Ala Ile Thr Gly Gly Ser Gly Lys Val Val Asn Ser Gly Pro
 145 150 155 160

Asn Asp His Ile Phe Ile Phe Tyr Ser Asp His Gly Ala Ser Gly Val
 165 170 175

Leu Gly Met Pro Asp Asp Ser Tyr Ile Tyr Ala Asn Asp Leu Asn Trp
 180 185 190

Val Leu Arg Lys Lys His Ala Ser Gly Thr Tyr Lys Ser Leu Val Phe
 195 200 205

Tyr Ile Glu Ala Cys Glu Ser Gly Ser Ile Phe Asp Gly Leu Leu Asp
 210 215 220

Pro Lys Gly Leu Asn Ile Tyr Ala Thr Thr Ala Ser Asn Ala Thr Glu
 225 230 235 240

Ser Ser Trp Ala Thr Tyr Cys Pro Gly Gly Gln Pro Ser Ala Pro Pro
 245 250 255

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Glu Tyr Asp Thr Cys Leu Gly Asp Leu Tyr Ser Val Ala Trp Ile Glu
 260 265 270

Asp Ser Glu Ala His Asp Pro Arg Thr Glu Thr Leu Gln Gln Gln Tyr
 275 280 285

Gln Asn Val Lys Lys Arg Ala Thr Thr Ser His Val Met Gln Tyr Gly
 290 295 300

Asp Ile Val Leu Ser Leu Asp His Leu Ser Val Tyr Phe Gly Glu Asn
 305 310 315 320

Thr Ala Lys Tyr Asn Leu Gln Pro Pro Thr Thr Ala Ile Asn Gln Arg
 325 330 335

Asp Ala Asp Leu Val His Phe Trp Glu Lys Tyr Arg Lys Ala Pro Glu
 340 345 350

Gly Ser Ala Lys Lys Ala Glu Ala Gln Lys Gln Leu Val Glu Ile Met
 355 360 365

Ser His Arg Met His Ile Asp Thr Ser Val Lys Leu Ile Gly Asn Leu
 370 375 380

Leu Phe Gly Thr Glu Ile Gly Pro Asp Val Leu Asn Val Val Arg Pro
 385 390 395 400

Ala Gly Gln Pro Leu Val Asp Asp Trp Lys Cys Leu Lys Glu Met Val
 405 410 415

Lys Thr Phe Glu Thr His Cys Gly Lys Leu Ala Gln Tyr Gly Met Lys
 420 425 430

Tyr Ile Arg Ser Phe Ala Asn Ile Cys Asn Ala Gly Ile Gln Ile Glu
 435 440 445

His Met Ala Glu Ala Ser Ala Gln Ala Cys Val Gly Ile His Ala Asp
 450 455 460

His
465

<210> 96
<211> 576
<212> PRT
<213> artificial

<220>
<223> Chenopodium quinoa

<400> 96

Met Arg Lys Asn Ser Cys His Leu Met Ile Ile Gln Leu Thr Val Ile
1 5 10 15

Ile Phe Ala Leu Phe Phe Ser Leu Ser Val Glu Cys Arg Leu Thr Ser
20 25 30

Lys Val Phe Asp Asp Leu Ser Leu Asp Ser Ser Asn Asn Ser Asp Val
35 40 45

Phe Leu Asn Gly Gly Glu Lys Trp Ala Ile Leu Ile Ala Gly Ser Ser
50 55 60

Gly Tyr Glu Asn Tyr Arg His Gln Ala Asp Val Cys His Ala Tyr Gln
65 70 75 80

Val Met Lys Lys Gly Gly Leu Lys Asp Glu Asn Ile Ile Val Phe Met
85 90 95

Tyr Asp Asp Ile Ala Phe Asn Val Asp Asn Pro Asn Gln Gly Val Ile
100 105 110

Ile Asn Arg Pro Val Gly Arg Asn Val Tyr Thr Asn Val Pro Lys Asp
115 120 125

Tyr Thr Gly Lys Asn Leu Thr Thr Lys Asn Phe Phe Ala Ala Ile Leu
130 135 140

Gly Tyr Lys Lys Ala Ile Lys Gly Gly Ser Gly Lys Val Leu Asp Ser
145 150 155 160

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Gly Pro Asn Asp His Ile Phe Ile Phe Tyr Ser Asp His Gly Ser Ala
 165 170 175

Gly Met Leu Gly Met Pro Gln Asn Glu Pro Ala Ile Tyr Ala Lys Asp
 180 185 190

Phe Ile Glu Val Leu Lys Lys Lys His Ala Ser Asn Thr Tyr Lys Ser
 195 200 205

Met Val Ile Tyr Leu Glu Ala Cys Glu Ser Gly Ser Ile Phe Asp Gly
 210 215 220

Leu Leu Pro Asn Asn Leu Ser Ile Tyr Ala Thr Thr Ala Ser Asn Pro
 225 230 235 240

Asp Glu Ser Ser Tyr Ala Thr Tyr Cys Asp Gly Asp Pro Gly Val Pro
 245 250 255

Ser Glu Tyr Asn Asn Thr Cys Leu Gly Asp Leu Tyr Ser Ile Ser Trp
 260 265 270

Met Glu Asp Ser Glu Arg Lys Asp Pro Arg Asn Glu Thr Leu Arg Gln
 275 280 285

Gln Phe Ala Val Val Lys Asn Arg Thr Ser Glu Met Ser His Val Ser
 290 295 300

Glu Tyr Gly Asp Val His Leu Ser Ser Asn Tyr Leu Ser Leu Tyr Ile
 305 310 315 320

Ala Leu Glu Ser Arg Lys Pro Asn Gln Thr Tyr Ser Met Thr Asn Gln
 325 330 335

Ser Glu Pro Ile Thr Pro Leu Tyr Val Val Glu Gln Arg Glu Ala Asp
 340 345 350

Leu Ile Tyr Phe Lys Glu Met Val Arg Arg Ala Pro Glu Gly Ser Lys
 355 360 365

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Gln Lys Ile Glu Ala Gln Lys Arg Leu Asp Asp Val Ile Ser Gln Arg
 370 375 380

Lys His Val Asp Gln Thr Val Gln Ala Ile Ala Lys Gln Leu Phe Gly
 385 390 395 400

Glu Ser Arg Gly Pro Ser Tyr Leu Thr Lys Asn Arg Pro Ala Gly Thr
 405 410 415

Pro Leu Val Asp Asp Trp Asp Cys Phe Lys Ala Met Val Ser Thr Tyr
 420 425 430

Glu Glu His Cys Gly Ser Leu Gln Ser Tyr Gly Lys Lys Tyr Ala Arg
 435 440 445

Ala Phe Ala Asn Phe Cys Asn Ala Gly Ile His Ile Asp Arg Met Ala
 450 455 460

Gln Val Ser Ala Gln Val Cys Ala Asn Asn Glu Asn Leu Leu Ala Arg
 465 470 475 480

Thr Glu Glu Phe Lys Val Tyr Arg Gly Lys His Tyr Glu Ser Asp Ala
 485 490 495

Asp Asp Ser Pro Ala Lys Asn Val Val Val Lys Lys Trp Val Ile Arg
 500 505 510

Thr Met Asn Thr Arg Ile Thr Arg Cys Phe Val Phe Val Leu Ile Ile
 515 520 525

Ala Asn Val Tyr Ser Thr Val Asp Gly Ile Leu Asp Ala Thr Val Thr
 530 535 540

Phe Ile Lys Gly Asn Ile Ile Pro Ala Val Ile Lys Gly Val Asp Phe
 545 550 555 560

Val Ser Leu Ile Val Ile Arg Ser Asp Arg Asp Ile Gly Glu Asp Val
 565 570 575

<210> 97
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 <212> PRT
 <213> artificial

<220>
 <223> CtAEP6

<400> 97

Met Asp Ser Phe Pro Thr Leu Leu Leu Phe Leu Phe Leu Leu Ser Leu
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Ala Thr Leu Val Ser Ala Arg His Ala Leu Pro Gly Asp Phe Leu Arg
 20 25 30

Phe Pro Ser Asp Gln Asp Asn Leu Pro Gly Thr Ser Trp Ala Val Leu
 35 40 45

Leu Ala Gly Ser Lys Asp Tyr Trp Asn Tyr Arg His Gln Ala Asp Ile
 50 55 60

Cys His Ala Tyr Gln Ile Leu Arg Lys Gly Gly Leu Lys Glu Glu Asn
 65 70 75 80

Ile Ile Val Phe Met Tyr Asp Asp Ile Ala Phe Asn Glu Asn Asn Pro
 85 90 95

Arg Pro Gly Val Ile Ile Asn Lys Pro Asp Gly Asp Asp Val Tyr Glu
 100 105 110

Gly Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Asn Val Asn Asn Phe
 115 120 125

Phe Ala Val Leu Leu Gly Asn Lys Ser Ala Leu Thr Gly Gly Ser Gly
 130 135 140

Lys Val Leu Asn Ser Gly Pro Asn Asp His Ile Phe Ile Phe Tyr Ser
 145 150 155 160

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Asp His Gly Gly Pro Gly Val Leu Gly Met Pro Thr His Pro Tyr Leu
 165 170 175

Tyr Ala Asp Asp Leu Asn Glu Val Leu Lys Lys Lys His Ala Ser Gly
 180 185 190

Thr Tyr Lys Arg Leu Val Phe Tyr Ile Glu Ala Cys Glu Ser Gly Ser
 195 200 205

Ile Phe Glu Gly Leu Leu Pro Glu Asp Ile Asp Ile Tyr Ala Thr Thr
 210 215 220

Ala Ser Asn Ala Thr Glu Ser Ser Ser Pro Thr Tyr Cys Pro Arg Pro
 225 230 235 240

Pro Ala Glu His Ala Pro Phe Pro Glu Tyr Thr Thr Cys Leu Gly Asp
 245 250 255

Leu Tyr Ser Ile Thr Trp Met Glu Asp Ser Glu Lys His Asn Leu Gln
 260 265 270

Thr Glu Thr Leu His Gln Gln Tyr Lys Leu Leu Lys Glu Arg Val Ser
 275 280 285

Leu Arg Ser Asn Val Met Gln Tyr Gly Asp Ile Asp Ile Ser Ser Asp
 290 295 300

Val Leu Phe Gln Tyr Leu Gly Thr Asn Pro Thr Asn Glu Asn Phe Thr
 305 310 315 320

Phe Met Asp Glu Asn Tyr Leu Arg Ser Ser Ser Lys Ser Ile Asn Gln
 325 330 335

Arg Asp Ala Asp Leu Ile His Phe Trp His Lys Phe His Lys Ala Leu
 340 345 350

Glu Gly Ser Thr His Lys Asn Thr Ala Gln Lys Gln Val Leu Glu Val
 355 360 365

35255784_ST25.TXT

Met Ser His Arg Met His Ile Asp Asn Ser Val Gln Leu Ile Arg Lys
370 375 380

Leu Leu Phe Ser Ile Glu Lys Gly Pro Glu Thr Leu Asn Lys Val Arg
385 390 395 400

Pro Ala Gly Ser Val Leu Val Asp Asp Trp Gly Cys Leu Lys Thr Met
405 410 415

Val Arg Thr Phe Glu Thr His Cys Gly Ser Leu Ser Gln Tyr Gly Met
420 425 430

Lys His Met Arg Ser Phe Ala Asn Ile Cys Asn Ala Arg Ile Lys Asn
435 440 445

Glu Gln Met Ala Lys Ala Ser Ala Gln Ala Cys Val Ser Ile Pro Thr
450 455 460

Asn Pro Trp Ser Ser Leu Gln Arg Gly Phe Ser Ala
465 470 475

<210> 98
<211> 9
<212> PRT
<213> artificial

<220>
<223> NaD1

<400> 98

Gly Leu Pro Thr Arg Asn Gly Leu Pro
1 5

<210> 99
<211> 7
<212> PRT
<213> artificial

<220>
<223> Ligated peptide

<400> 99

Gly Leu Pro Val Ser Gly Glu
1 5

<210> 100
<211> 7
<212> PRT
<213> artificial

<220>
<223> Ligated peptide

<400> 100

Pro Leu Pro Val Ser Gly Glu
1 5

<210> 101
<211> 25
<212> PRT
<213> artificial

<220>
<223> R1 peptide derivative

<400> 101

Gly Lys Val Phe Ala Glu Phe Leu Pro Leu Phe Ser Lys Phe Gly Ser
1 5 10 15

Arg Met His Ile Leu Lys Asn Gly Leu
20 25

<210> 102
<211> 3
<212> PRT
<213> artificial

<220>
<223> Ligation partner

<400> 102

Gly Leu Lys
1

<210> 103
<211> 25

<212> PRT
 <213> artificial

<220>
 <223> R1 peptide derivative

<400> 103

Gly	Leu	Val	Phe	Ala	Glu	Phe	Leu	Pro	Leu	Phe	Ser	Lys	Phe	Gly	Ser
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Arg	Met	His	Ile	Leu	Lys	Gly	His	Val
			20					25

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 <212> PRT
 <213> artificial

<220>
 <223> Ligation peptide

<400> 104

Thr	Arg	Asn	Gly	Leu
1				5