

SEQUENCE LISTING

<110> Firmenich SA

<120> Method for producing sclareol

<130> 7260

<160> 98

<170> PatentIn version 3.5

<210> 1

<211> 575

<212> PRT

<213> Salvia sclarea

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Phe	Pro	Thr	Thr	Thr	Thr	Leu	Arg	Ser	Glu	Asp	Ile	Pro	Ser	Asn	Leu
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Cys	Ile	Ile	Asp	Thr	Leu	Gln	Arg	Leu	Gly	Val	Asp	Gln	Phe	Phe	Gln
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Glu Arg Ser Leu Glu Lys Ile Leu Ala Trp Thr Thr Ile Phe Leu Asn
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Lys Gln Val Gln Asp Asn Ser Ile Pro Asp Lys Lys Leu His Lys Leu
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260 265 270

Leu Gln Gln Leu Gln Arg Trp Tyr Ala Asp Cys Arg Leu Asp Thr Leu
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290 295 300

Ile Ile Gly Asp His Ala Phe Asp Tyr Val Arg Leu Ala Phe Ala Lys
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325 330 335

Ser Ser Gln Glu Cys Asp Lys Ile Ile Glu Leu Val Lys Glu Trp Lys
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Met Ala Leu Tyr Asn Thr Val Asn Glu Leu Ala Glu Arg Ala Arg Val
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Ile Leu Ser Ala Phe Lys Ile Glu Leu Asp Thr Trp Ser Asn Gly Thr
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Gln Gln Ser Phe Asp Glu Tyr Ile Ser Ser Ser Trp Leu Ser Asn Gly
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Ser Arg Leu Thr Gly Leu Leu Thr Met Gln Phe Val Gly Val Lys Leu
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Val Cys Met Val Gly Arg Leu Leu Asn Asp Val Cys Ser Ser Glu Arg
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Thr Glu Lys Asp Gly Arg Lys Val Ser Glu Asp Glu Ala Ile Ala Glu
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Ile Asn Glu Met Val Glu Tyr His Trp Arg Lys Val Leu Gln Ile Val
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 <213> Salvia sclarea

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 <213> Artificial sequence

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 <223> n is a, c, g, or t

<220>
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<210> 5
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 <213> Salvia sclarea

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 <210> 8
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 <400> 8
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 <210> 9
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 <212> DNA
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 <220>
 <223> Adaptor sequence to extend oligodT primers

 <400> 9
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 <400> 10
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 <210> 11
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 <212> DNA

<213> Salvia sclarea

<400> 11

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aaaaaaaaa a                                                                1271
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<212> DNA

<213> Artificial sequence

<220>

<223> Primer designed specifically for FN23

<400> 12

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<210> 13

<211> 33
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 <223> Primer designed specifically for FN23

 <400> 13
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 <210> 14
 <211> 30
 <212> DNA
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 <220>
 <223> Primer designed specifically for FN23

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 <210> 15
 <211> 1449
 <212> DNA
 <213> Salvia sclarea

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 gcgattatcc ggcgaggct gcagctacag ccggaatttc atgccgagtg ttcattggctg 180
 aaaagcagca gcaaacacgc gcccttgacc ttgagttgcc aaatccgtcc taagcaactc 240
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<210> 17
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 <213> *Salvia sclarea*
 <400> 17

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260 265 270

Lys Leu Gln Ser Gly Asn Gly Ser Phe Leu Thr Ser Pro Ser Ser Thr
275 280 285

Ala Ala Val Leu Met His Thr Lys Asp Glu Lys Cys Leu Lys Tyr Ile
290 295 300

Glu Asn Ala Leu Lys Asn Cys Asp Gly Gly Ala Pro His Thr Tyr Pro
305 310 315 320

Val Asp Ile Phe Ser Arg Leu Trp Ala Ile Asp Arg Leu Gln Arg Leu
325 330 335

Gly Ile Ser Arg Phe Phe Gln His Glu Ile Lys Tyr Phe Leu Asp His
340 345 350

Ile Glu Ser Val Trp Glu Glu Thr Gly Val Phe Ser Gly Arg Tyr Thr
355 360 365

Lys Phe Ser Asp Ile Asp Asp Thr Ser Met Gly Val Arg Leu Leu Lys
370 375 380

Met His Gly Tyr Asp Val Asp Pro Asn Val Leu Lys His Phe Lys Gln
385 390 395 400

Gln Asp Gly Lys Phe Ser Cys Tyr Ile Gly Gln Ser Val Glu Ser Ala
405 410 415

Ser Pro Met Tyr Asn Leu Tyr Arg Ala Ala Gln Leu Arg Phe Pro Gly
420 425 430

Glu Glu Val Leu Glu Glu Ala Thr Lys Phe Ala Phe Asn Phe Leu Gln
435 440 445

Glu Met Leu Val Lys Asp Arg Leu Gln Glu Arg Trp Val Ile Ser Asp
450 455 460

His Leu Phe Asp Glu Ile Lys Leu Gly Leu Lys Met Pro Trp Tyr Ala
465 470 475 480

Thr Leu Pro Arg Val Glu Ala Ala Tyr Tyr Leu Asp His Tyr Ala Gly

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Asn	Asn	Glu	Tyr	Thr	Ala	Leu	Ser	Thr	Leu	Thr	Asn	Lys	Ile	Cys	Asn	
	690					695					700					
Arg	Leu	Ala	Gln	Ile	Gln	Asp	Asn	Lys	Ile	Leu	Gln	Val	Val	Asp	Gly	
705					710					715					720	
Ser	Ile	Lys	Asp	Lys	Glu	Leu	Glu	Gln	Asp	Met	Gln	Ala	Leu	Val	Lys	
			725						730					735		

Leu Val Leu Gln Glu Asn Gly Gly Ala Val Asp Arg Asn Ile Arg His
740 745 750

Thr Phe Leu Ser Val Ser Lys Thr Phe Tyr Tyr Asp Ala Tyr His Asp
755 760 765

Asp Glu Thr Thr Asp Leu His Ile Phe Lys Val Leu Phe Arg Pro Val
770 775 780

Val
785

<210> 18
<211> 38
<212> DNA
<213> Artificial sequence

<220>
<223> Primer

<400> 18
tactgacata tgacttctgt aaatttgagc agagcacc 38

<210> 19
<211> 36
<212> DNA
<213> Artificial sequence

<220>
<223> Primer

<400> 19
ttggtacctc atacaaccgg tcgaaagagt actttg 36

<210> 20
<211> 31
<212> DNA
<213> Artificial sequence

<220>
<223> Primer

<400> 20
gttggagtgg atccacatgc aggaatggta c 31

<210> 21
<211> 31
<212> DNA
<213> Artificial sequence

<220>
<223> Primer

<400> 21
gtaccattcc tgcattctgga tccactccaa c 31

<210> 22
<211> 2358
<212> DNA
<213> Salvia sclarea

<400> 22
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accttgagtt gccaaatccg tcctaagcaa ctctcccaaa tagctgaatt gagagtaaca 180
agcctggatg cgtcgcaagc gagtgaaaaa gacatttccc ttgttcaaac tccgcataag 240
gttgaggtta atgaaaagat cgaggagtca atcgagtacg tccaaaatct gttgatgacg 300
tcggggcgagc ggcgaataag cgtgtcaccc tatgacacgg cagtgatcgc cctgatcaag 360
gacttgaaag ggcgcgacgc cccgcagttt ccgtcatgtc tcgagtggat cgcgcaccac 420
caactggctg atggctcatg gggcgacgaa ttcttctgta tttatgatcg gattctaaat 480
acattggcat gtgtcgtagc cttgaaatca tggaaccttc actctgatat tattgaaaaa 540
ggagtgcagt acatcaagga gaatgtgcat aaacttaaag gtgcaaagt tgcacacagg 600
acagcggggc tcgaacttgt ggttcctact tttatgcaaa tggccacaga tttgggcac 660
caagatctgc cctatgatca tcccctcatc aaggagattg ctgacacaaa acaacaaaga 720
ttgaaagaga tacccaagga tttgggttac caaatgccaa cgaatttact gtacagttta 780
gaagggttag gagatttgga gtgggaaagg ctactgaaac tgcagtcggg caatggctcc 840
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gtcgatatct tctcaagact ttgggcaatc gataggctac aacgcctagg aatttctcgt 1020
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tggaattggca agagtttcta caggatgccca gaaatcagca atgatacata caaggagctt	1560
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gaatggtacg acagatgcag ccttagcgaa ttcgggataa gcaaaagaga gttgcttcgc	1680
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atatacactc tccatcaact caaacatggt tggagccaat gggttcatgaa agtgcagcaa	1980
ggagagggaa gcggcgggga agacgcggtg ctcttagcga acacgctcaa catctgcgcc	2040
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gaaaatggcg gcgccgtaga cagaaacatc agacacacgt ttttgtcggg ttccaagact	2280
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tttcgaccgg ttgtatga	2358

<210> 23
 <211> 2355
 <212> DNA
 <213> *Salvia sclarea*

<400> 23	
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cagccggaat ttcatgccga gtgttcatgg ctgaaaagca gcagcaaaca cgcgcacctc	120
accttgagtt gccaaatccg tcctaagcaa ctctcccaa tagctgaatt gagagtaaca	180
agcctggatg cgtcgcaagc gagtgaaaaa gacatttccc ttgttcaaac tccgcataag	240
gttgaggtta atgaaaagat cgaggagtca atcgagtacg tccaaaatct gttgatgacg	300
tcgggagcag ggcgaataag cgtgtcaccc tatgacacgg cagtgatcgc cctgatcaag	360
gacttgaaag ggcgcgacgc cccgcagttt ccgtcatgtc tcgagtggat cgcgcaccac	420
caactggctg atggctcatg gggcgacgaa ttcttctgta tttatgatcg gattctaaat	480
acattggcat gtgtcgtagc cttgaaatca tggaaccttc aatctgatat tattgaaaaa	540
ggtgtgacgt acatcaagga gaatgtgcat aaacttaaag gtgcaaagtgt tgagcacagg	600
acagcggggg tcgaacttgt ggttcctact tttatgcaaa tggccacaga tttgggcac	660
caaggctctgc cctatgatca tcccctcatc aaggagattg ctgacacaaa acaacaaaga	720

ttgaaagaga tacccaagga tttgggtttac caaatgccaa cgaatttact gtacagttta	780
gaaggggtag gagatttgga gtgggaaagg ttactgaaac tgcagtcggg caatggctcc	840
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aatggcggcg ccgtagacag aaacatcaga cacacgtttt tgcgggtttc caagactttc	2280
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cgaccggttg tatga	2355

<210> 24
 <211> 785
 <212> PRT
 <213> Salvia sclarea

<400> 24

Met Thr Ser Val Asn Leu Ser Arg Ala Pro Ala Ala Ile Thr Arg Arg
1 5 10 15

Arg Leu Gln Leu Gln Pro Glu Phe His Ala Glu Cys Ser Trp Leu Lys
20 25 30

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

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

Ser Gln Ala Ser Glu Lys Asp Ile Ser Leu Val Gln Thr Pro His Lys
65 70 75 80

Val Glu Val Asn Glu Lys Ile Glu Glu Ser Ile Glu Tyr Val Gln Asn
85 90 95

Leu Leu Met Thr Ser Gly Asp Gly Arg Ile Ser Val Ser Pro Tyr Asp
100 105 110

Thr Ala Val Ile Ala Leu Ile Lys Asp Leu Lys Gly Arg Asp Ala Pro
115 120 125

Gln Phe Pro Ser Cys Leu Glu Trp Ile Ala His His Gln Leu Ala Asp
130 135 140

Gly Ser Trp Gly Asp Glu Phe Phe Cys Ile Tyr Asp Arg Ile Leu Asn
145 150 155 160

Thr Leu Ala Cys Val Val Ala Leu Lys Ser Trp Asn Leu His Ser Asp
165 170 175

Ile Ile Glu Lys Gly Val Thr Tyr Ile Lys Glu Asn Val His Lys Leu
180 185 190

Lys Gly Ala Asn Val Glu His Arg Thr Ala Gly Phe Glu Leu Val Val
195 200 205

Pro Thr Phe Met Gln Met Ala Thr Asp Leu Gly Ile Gln Asp Leu Pro
210 215 220

Tyr Asp His Pro Leu Ile Lys Glu Ile Ala Asp Thr Lys Gln Gln Arg
225 230 235 240

Leu Lys Glu Ile Pro Lys Asp Leu Val Tyr Gln Met Pro Thr Asn Leu
245 250 255

Leu Tyr Ser Leu Glu Gly Leu Gly Asp Leu Glu Trp Glu Arg Leu Leu
260 265 270

Lys Leu Gln Ser Gly Asn Gly Ser Phe Leu Thr Ser Pro Ser Ser Thr
275 280 285

Ala Ala Val Leu Met His Thr Lys Asp Glu Lys Cys Leu Lys Tyr Ile
290 295 300

Glu Asn Ala Leu Lys Asn Cys Asp Gly Gly Ala Pro His Thr Tyr Pro
305 310 315 320

Val Asp Ile Phe Ser Arg Leu Trp Ala Ile Asp Arg Leu Gln Arg Leu
325 330 335

Gly Ile Ser Arg Phe Phe Gln His Glu Ile Lys Tyr Phe Leu Asp His
340 345 350

Ile Glu Ser Val Trp Glu Glu Thr Gly Val Phe Ser Gly Arg Tyr Thr
355 360 365

Lys Phe Ser Asp Ile Asp Asp Thr Ser Met Gly Val Arg Leu Leu Lys
370 375 380

Met His Gly Tyr Asp Val Asp Pro Asn Val Leu Lys His Phe Lys Gln
385 390 395 400

Gln Asp Gly Lys Phe Ser Cys Tyr Ile Gly Gln Ser Val Glu Ser Ala
405 410 415

Ser Pro Met Tyr Asn Leu Tyr Arg Ala Ala Gln Leu Arg Phe Pro Gly
420 425 430

Glu Glu Val Leu Glu Glu Ala Thr Lys Phe Ala Phe Asn Phe Leu Gln
435 440 445

Glu Met Leu Val Lys Asp Arg Leu Gln Glu Arg Trp Val Ile Ser Asp
450 455 460

His Leu Phe Asp Glu Ile Lys Leu Gly Leu Lys Met Pro Trp Tyr Ala
465 470 475 480

Thr Leu Pro Arg Val Glu Ala Ala Tyr Tyr Leu Asp His Tyr Ala Gly
485 490 495

Ser Gly Asp Val Trp Ile Gly Lys Ser Phe Tyr Arg Met Pro Glu Ile
500 505 510

Ser Asn Asp Thr Tyr Lys Glu Leu Ala Ile Leu Asp Phe Asn Arg Cys
515 520 525

Gln Thr Gln His Gln Leu Glu Trp Ile His Met Gln Glu Trp Tyr Asp
530 535 540

Arg Cys Ser Leu Ser Glu Phe Gly Ile Ser Lys Arg Glu Leu Leu Arg
545 550 555 560

Ser Tyr Phe Leu Ala Ala Ala Thr Ile Phe Glu Pro Glu Arg Thr Gln
565 570 575

Glu Arg Leu Leu Trp Ala Lys Thr Arg Ile Leu Ser Lys Met Ile Thr
580 585 590

Ser Phe Val Asn Ile Ser Gly Thr Thr Leu Ser Leu Asp Tyr Asn Phe
595 600 605

Asn Gly Leu Asp Glu Ile Ile Ser Ser Ala Asn Glu Asp Gln Gly Leu
610 615 620

Ala Gly Thr Leu Leu Ala Thr Phe His Gln Leu Leu Asp Gly Phe Asp
625 630 635 640

Ile Tyr Thr Leu His Gln Leu Lys His Val Trp Ser Gln Trp Phe Met
645 650 655

Lys Val Gln Gln Gly Glu Gly Ser Gly Gly Glu Asp Ala Val Leu Leu
660 665 670

Ala Asn Thr Leu Asn Ile Cys Ala Gly Leu Asn Glu Asp Val Leu Ser
675 680 685

Asn Asn Glu Tyr Thr Ala Leu Ser Thr Leu Thr Asn Lys Ile Cys Asn
690 695 700

Arg Leu Ala Gln Ile Gln Asp Asn Lys Ile Leu Gln Val Val Asp Gly
705 710 715 720

Ser Ile Lys Asp Lys Glu Leu Glu Gln Asp Met Gln Ala Leu Val Lys
725 730 735

Leu Val Leu Gln Glu Asn Gly Gly Ala Val Asp Arg Asn Ile Arg His
740 745 750

Thr Phe Leu Ser Val Ser Lys Thr Phe Tyr Tyr Asp Ala Tyr His Asp
755 760 765

Asp Glu Thr Thr Asp Leu His Ile Phe Lys Val Leu Phe Arg Pro Val
770 775 780

Val
785

<210> 25
<211> 784
<212> PRT
<213> Salvia sclarea

<400> 25

Met Thr Ser Val Asn Leu Ser Arg Ala Pro Ala Ala Ile Ile Arg Arg
1 5 10 15

Arg Leu Gln Leu Gln Pro Glu Phe His Ala Glu Cys Ser Trp Leu Lys
20 25 30

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

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

Ser Gln Ala Ser Glu Lys Asp Ile Ser Leu Val Gln Thr Pro His Lys
65 70 75 80

Val Glu Val Asn Glu Lys Ile Glu Glu Ser Ile Glu Tyr Val Gln Asn
85 90 95

Leu Leu Met Thr Ser Gly Asp Gly Arg Ile Ser Val Ser Pro Tyr Asp
100 105 110

Thr Ala Val Ile Ala Leu Ile Lys Asp Leu Lys Gly Arg Asp Ala Pro
115 120 125

Gln Phe Pro Ser Cys Leu Glu Trp Ile Ala His His Gln Leu Ala Asp
130 135 140

Gly Ser Trp Gly Asp Glu Phe Phe Cys Ile Tyr Asp Arg Ile Leu Asn
145 150 155 160

Thr Leu Ala Cys Val Val Ala Leu Lys Ser Trp Asn Leu Gln Ser Asp
165 170 175

Ile Ile Glu Lys Gly Val Thr Tyr Ile Lys Glu Asn Val His Lys Leu
180 185 190

Lys Gly Ala Asn Val Glu His Arg Thr Ala Gly Phe Glu Leu Val Val
195 200 205

Pro Thr Phe Met Gln Met Ala Thr Asp Leu Gly Ile Gln Gly Leu Pro
210 215 220

Tyr Asp His Pro Leu Ile Lys Glu Ile Ala Asp Thr Lys Gln Gln Arg
225 230 235 240

Leu Lys Glu Ile Pro Lys Asp Leu Val Tyr Gln Met Pro Thr Asn Leu
245 250 255

Leu Tyr Ser Leu Glu Gly Leu Gly Asp Leu Glu Trp Glu Arg Leu Leu
260 265 270

Lys Leu Gln Ser Gly Asn Gly Ser Phe Leu Thr Ser Pro Ser Ser Thr
275 280 285

Ala Ala Val Leu Met His Thr Lys Asp Glu Lys Cys Leu Lys Tyr Ile
290 295 300

Glu Asn Ala Leu Lys Asn Cys Asp Gly Gly Ala Pro His Thr Tyr Pro
305 310 315 320

Val Asp Ile Phe Ser Arg Leu Trp Ala Ile Asp Arg Leu Gln Arg Leu
325 330 335

Gly Ile Ser Arg Phe Phe Gln His Glu Ile Lys Tyr Phe Leu Asp His
340 345 350

Ile Glu Ser Val Trp Glu Glu Thr Gly Val Phe Ser Gly Arg Tyr Thr
355 360 365

Lys Phe Ser Asp Ile Asp Asp Thr Ser Met Gly Val Arg Leu Leu Lys
370 375 380

Met His Gly Tyr Asp Val Asp Pro Asn Val Leu Lys His Phe Lys Gln
385 390 395 400

Gln Asp Gly Lys Phe Ser Cys Tyr Ile Gly Gln Ser Val Glu Ser Ala
405 410 415

Ser Pro Met Tyr Asn Leu Tyr Arg Ala Ala Gln Leu Arg Phe Pro Gly
420 425 430

Glu Glu Val Leu Glu Glu Ala Thr Lys Phe Ala Phe Asn Phe Leu Gln
435 440 445

Glu Met Leu Val Lys Asp Arg Leu Gln Glu Arg Trp Val Ile Ser Asp
450 455 460

His Leu Phe Asp Glu Ile Lys Leu Gly Leu Lys Met Pro Trp Tyr Ala
465 470 475 480

Thr Leu Pro Arg Val Glu Ala Ala Tyr Tyr Leu Asp His Tyr Ala Gly
485 490 495

Ser Gly Asp Val Trp Ile Gly Lys Ser Phe Tyr Arg Met Pro Glu Ile
500 505 510

Ser Asn Asp Thr Tyr Lys Glu Leu Ala Ile Leu Asp Phe Asn Arg Cys
515 520 525

Gln Thr Gln His Gln Leu Glu Trp Ile Gln Met Gln Glu Trp Tyr Asp
530 535 540

Arg Cys Ser Leu Ser Glu Phe Gly Ile Ser Lys Arg Glu Leu Leu Arg
545 550 555 560

Ser Tyr Phe Leu Ala Ala Ala Thr Ile Phe Glu Pro Glu Arg Thr Gln
565 570 575

Glu Arg Leu Leu Trp Ala Lys Thr Arg Ile Leu Ser Lys Met Ile Thr
580 585 590

Ser Phe Val Asn Ile Ser Gly Thr Thr Leu Ser Leu Asp Tyr Asn Phe
595 600 605

Asn Gly Leu Asp Glu Ile Ile Ser Ala Asn Glu Asp Gln Gly Leu Ala
610 615 620

Gly Thr Leu Leu Ala Thr Phe His Gln Leu Leu Asp Gly Phe Asp Ile
625 630 635 640

Tyr Thr Leu His Gln Leu Lys His Val Trp Ser Gln Trp Phe Met Lys
645 650 655

Val Gln Gln Gly Glu Gly Ser Gly Gly Glu Asp Ala Val Leu Leu Ala
660 665 670

Asn Thr Leu Asn Ile Cys Ala Gly Leu Asn Glu Asp Val Leu Ser Asn
675 680 685

Asn Glu Tyr Thr Ala Leu Ser Thr Leu Thr Asn Lys Ile Cys Asn Arg
690 695 700

Leu Ala Gln Ile Gln Asp Asn Lys Ile Leu Gln Val Val Asp Gly Ser
705 710 715 720

Ile Lys Asp Lys Glu Leu Glu Gln Asp Met Gln Ala Leu Val Lys Leu
725 730 735

Val Leu Gln Glu Asn Gly Gly Ala Val Asp Arg Asn Ile Arg His Thr
740 745 750

Phe Leu Ser Val Ser Lys Thr Phe Tyr Tyr Asp Ala Tyr His Asp Asp
755 760 765

Glu Thr Thr Asp Leu His Ile Phe Lys Val Leu Phe Arg Pro Val Val
770 775 780

<210> 26
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Primer

<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, c, g, or t

<220>
<221> misc_feature

<222> (15)..(15)
 <223> n is a, c, g, or t

 <400> 26
 tatgatacng cngtnatdgc 20

 <210> 27
 <211> 20
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer

 <400> 27
 tatgacacgg cagtgatcgc 20

 <210> 28
 <211> 20
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer

 <220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

 <400> 28
 tatgacacgg cakkgrtngc 20

 <210> 29
 <211> 23
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer

 <220>
 <221> misc_feature
 <222> (15)..(15)
 <223> n is a, c, g, or t

 <220>
 <221> misc_feature
 <222> (18)..(18)
 <223> n is a, c, g, or t

 <400> 29
 caactggctg atggntcntg ggg 23

 <210> 30

<211> 23
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer

 <400> 30
 caactggctg atggctcatg ggg 23

<210> 31
 <211> 26
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer

 <400> 31
 gatcctccaa crtcrrwarar rtrrtc 26

<210> 32
 <211> 25
 <212> DNA
 <213> Artificial sequence

 <220>
 <223> Primer

 <400> 32
 gatcctccac gtcgwagaag tcgtc 25

<210> 33
 <211> 81
 <212> DNA
 <213> Salvia sclarea

 <400> 33
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 atatcctgtt ctagctcctt a 81

<210> 34
 <211> 73
 <212> DNA
 <213> Salvia sclarea

 <400> 34
 attcctgcat atggatccac tccaactgat gttgtgtttg gcattctgttg aaatccaata 60
 tcgcaagctc ctt 73

<210> 35
 <211> 52
 <212> DNA
 <213> Salvia sclarea

<400> 35
tattattgaa aaaggagtga cgtacatcaa ggagaatgtg cataaactta aa 52

<210> 36
<211> 857
<212> DNA
<213> Salvia sclarea

<400> 36
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cgagtaactc ctcaaccggg agttccgcct gaagaagcag gggccgcggg agctgccgaa 180
tcttctactg gtacatggac aactgtgtgg accgatggac ttaccagcct tgatcgttac 240
aaagggcgat gctaccacat tgagcccggt cctggagaaa aagatcaata tatctgttat 300
gtagcttacc ctttagacct ttttgaagaa ggttctgtta ctaacatgtt tacttccatt 360
gtaggaaatg tatttgatt caaagcccta cgtgctctac gtctggaaga tctgcgaatt 420
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aaattgaaca agtacggtcg tcctctgctg ggatgtacta ttaaacctaa attggggtta 540
tctgctaaaa actatggtag agcggtttat gaatgtcttc gcggtggact tgattttacc 600
aaagatgatg agaacgtgaa ctcccagcca tttatgcgtt ggagagaccg cttcttattt 660
tgtgccgaag caatttataa agcacaggct gaaacagggtg aaatcaaagg gcattacttg 720
aatgctactg cgggtacatg cgaagagatg atgaaaagag ctatatattgc tagagaattg 780
ggagttccta tcgtaatgca cgactactta acaggaggat tcaccgcaaa taccagtttg 840
gctcattatt gccgaga 857

<210> 37
<211> 540
<212> DNA
<213> Salvia sclarea

<400> 37
aaagtatcca ctgctttaa ttcaaacttg atttctttcc atacctcaca agcggcagct 60
agttcaggac tccatttgca agcttcacgg ataattgcat taccttcagc agcaagatca 120
cgtccttcat tacgagcttt tacacacgct tctacagcta ctcggttagc tacagcacct 180
ggtgcattac cccaagggtg tcctaaagtt cctccaccga actgtagtac ggaatcgtct 240
ccaaagatct cggtcagagc aggcataatgc caaacgtgaa taccacctga agccacagga 300
ataacacccg gcagggagac ccaatcttga gtgaaataaa taccgcgact tcgggtctttt 360
tcaataaaat catcacgcag taaatcaaca aaacctaaag taatgtctct ctctccttca 420

agtttaccta ctacggtacc agagtgaata tgatctccac cggacagacg taacgcttta 480

gctagtacac ggaagtgcac accgtgattc ttctgtctat caataactgc atgcattgca 540

<210> 38

<211> 60

<212> DNA

<213> Salvia sclarea

<400> 38

atgttcgtct cgcatttgcc aaaacatctg tgcttgtaac aattatggat gattttttcg 60

<210> 39

<211> 35

<212> DNA

<213> Salvia sclarea

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<210> 40

<211> 35

<212> DNA

<213> Salvia sclarea

<400> 40

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<210> 41

<211> 72

<212> DNA

<213> Salvia sclarea

<400> 41

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gagttggcct ca 72

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<211> 35

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<400> 42

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<210> 43

<211> 35

<212> DNA

<213> Salvia sclarea

<400> 43

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<400> 44

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<210> 45
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<213> Salvia sclarea

<400> 45

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1 5 10

<210> 46
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<212> PRT
<213> Salvia sclarea

<400> 46

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1 5 10 15

Val Ser Ser Glu Glu Leu Ala Ser
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<400> 47

Ala Thr Asp Asp Phe Val Asp Val Gly Gly Ser
1 5 10

<210> 48
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<212> PRT
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<400> 48

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1 5 10

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 <220>
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<220>
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<220>
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<400> 68
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<210> 69
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<220>
<223> Primer

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<400> 71	
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gtatctgatt cctgcccttt gctaactttc ccaaattttg tcccgtttaa ttccataggg 180
gatttcttca aggccgccat gtcgcttcct ctctccactt gcaatggatc acattttcgg 240
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gtccttt 547

<210> 82
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<212> DNA
<213> *Salvia sclarea*

<400> 82
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ttgtaacaat tatggatgat tttttcgact gtcattggctc tagtcaagag tgtgacaaga	600
tcattgaatt agtaaaagaa tggaaggaga atccggatgc agagtacgga tctgaggagc	660
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tttcttcgtc gtgggtgtcg aacggttccc ggctgacagg tctcctgacg atgcaattcg	900
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tggagatggc taagggtacg ttttatgctt atgggatcaa cgatgaattg acttctcctc	1260
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ggtgatatta ggggtgtgtaa tacaattatg aactgtaat atttttatatt gtacaaaaca	1380
cgtggttctt tgcatatcaa aaatttgaaa atgttataag gatttgtatc cactataaga	1440
aattgttggg taaaaaaaaa aaaaaaaaaa aaa	1473

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 <212> DNA
 <213> Salvia sclarea

<400> 83	
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ttgattcaag ttgtaaatgc aattattcac aaacctattg tcctcaagga acaaacagga	120
gcaaggatat aattttttta atctgtatct atatataaaa gagaaacca ttcgttaaaa	180
taaaaaaaaa aaaaaaaaaa aaaaaaa	207

<210> 84
 <211> 464
 <212> DNA
 <213> Salvia sclarea

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gcaggaaaga aaaatttcca gtccaaggat ttctgtgac ccccccaat aggtcacgtc	180

tcatcgtaa	ctgcagcctt	actacaatag	atttcatggc	gaaaatgaaa	gagaatttca	240
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tcaacactat	tctagataac	acattcaggt	tgtggcaaga	aaaacacaaa	gttatatatg	420
gcaatgttac	tactcatgca	atggcattta	ggcttttgcg	agtg		464

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 <211> 2388
 <212> DNA
 <213> *Salvia sclarea*

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cagcaaaaat	cgctctatg
ccagcgtgct	ttgaggagac
gagagggagg	atagcaaagt
tgtttcataa	ggatgaactt
tctgtgtcga	catatgatac
agcatgggtt	gccatgggtc
cttctccaac	ttcgttagag
gaaccttgct	tccccgattg
tctaaactgg	ttgctcgaga
accagtgcc	tgatggttcg
tgggcccgtc	cccaccatca
ctctttgcta	atgaaagatg
tcctttcttc	taccttgccc
tgcatcttg	ctcttaaaaa
atggggagtt	ggtgaaaaac
agattaacag	gggcttgcat
tttatggagt	tgaattttgc
ttcagctact	gagaagtgtc
agattactcc	catgggattt
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gcttgattat	gccagagact
tctctttgga	catgcattta
gagccaacta	cgttgaatga
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tggagcttaa	aagcaagcca
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agcctattgg	gcatatatag
ctgaagggaat	ggggaattta
cggaactggg	aatcagttat
gaaatatcaa	agaagggaatg
gatctctttt	caactgtcct
tccacgacag	cagctgcttt
tgttgactcg	ggcaattctg
actgcctcaa	ctacctgcat
tcagccttaa	agaagtttgg
gaatgcagtt	cctgcagttt
atcctctaga	tatatattct
cacctgtgca	tagttgacaa
tcttgaaagg	ttggggatca
gccgttattt	tttgactgag
attcaaagcg	tgtagatga
aacacacaga	tgttggatgc
agggcaatga	agagatcttc
atggatgcct	caacttgtgc
tttagctttc	cggatattgc
gattgaacgg	atacgatgta
acttcagatc	cggttacaaa
aattcaacac	gagtgccttt
cgagttcctt	tcatggaaat
gtgatggaca	ttaacacgac
tcttgaaatta	tatagggcat
ctgaactcat	actatatcca
gatgaaagag	atctagttag
acaaaattta	aggcttaaac
aaatactaga	gcaagagcta
tccaatgggt	ttattcaatc
atgtcaactt	ggaagaagtg
ttaatgcaga	ggtgaaccag
gctatcgagt	atccatttta
tgcaattatg	gacaggggtg
caaaacggaa	aaatatagag

aactacaact ttgataatac aagaattctg aaaacttcat attgttcacc aaattttggc	1380
aacaaggatt ttctttttct gtccgtagag gacttcaatc tgtgtcaagc cacacatcgc	1440
gaagaactca gggaacttga aagatgggtc gtagagaata gattggacga gctgcagttt	1500
gcaaggagta agtctgcata ttgttatttt tctgcagcag caaccttttc tgetccagaa	1560
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tgggatgtgg atgtagcac agaatgctct tcccataatg tccagataat attttcagca	1740
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actaaccata taattggcat ttggttagat ttgctgaatt ctatgatgaa agaaactgaa	1860
tgggctagag acaactatgt cccaacaatt gatgaatata tgagcaatgc atatgtgtca	1920
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gagatggcaa accaccccgga gtactataaa ctattcaaat tgatgagcac atgcggacgc	2040
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tctttgtaca tggctaataca tgggtgtgaa gtaagtaaag aagcagccat ttcagagatc	2160
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agtgtccttc caaagccatg caaggaatta ttttggcaca tgtgctctgt ggtccatcta	2280
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<210> 86
 <211> 795
 <212> PRT
 <213> Salvia sclarea

<400> 86

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Arg	Leu	Ser	Pro	Ala	Ser	Ala	Ser	Met	Glu	Thr	Gly	Leu	Gln	Thr	Ala
			20					25					30		

Thr	Ser	Ala	Lys	Ile	Ala	Ser	Met	Pro	Ala	Cys	Phe	Glu	Glu	Thr	Arg
		35					40					45			

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

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

Met Asp Ala Ser Thr Cys Ala Leu Ala Phe Arg Ile Leu Arg Leu Asn
325 330 335

Gly Tyr Asp Val Thr Ser Asp Pro Val Thr Lys Ile Gln His Glu Cys
340 345 350

Phe Ser Ser Ser Phe His Gly Asn Val Met Asp Ile Asn Thr Thr Leu
355 360 365

Glu Leu Tyr Arg Ala Ser Glu Leu Ile Leu Tyr Pro Asp Glu Arg Asp
370 375 380

Leu Val Arg Gln Asn Leu Arg Leu Lys Gln Ile Leu Glu Gln Glu Leu
385 390 395 400

Ser Asn Gly Phe Ile Gln Ser Cys Gln Leu Gly Arg Ser Val Asn Ala
405 410 415

Glu Val Asn Gln Ala Ile Glu Tyr Pro Phe Tyr Ala Ile Met Asp Arg
420 425 430

Val Ala Lys Arg Lys Asn Ile Glu Asn Tyr Asn Phe Asp Asn Thr Arg
435 440 445

Ile Leu Lys Thr Ser Tyr Cys Ser Pro Asn Phe Gly Asn Lys Asp Phe
450 455 460

Leu Phe Leu Ser Val Glu Asp Phe Asn Leu Cys Gln Ala Thr His Arg
465 470 475 480

Glu Glu Leu Arg Glu Leu Glu Arg Trp Val Val Glu Asn Arg Leu Asp
485 490 495

Glu Leu Gln Phe Ala Arg Ser Lys Ser Ala Tyr Cys Tyr Phe Ser Ala
500 505 510

Ala Ala Thr Phe Ser Ala Pro Glu Leu Arg Asp Ala Arg Met Ser Trp
515 520 525

Ala Lys Gly Gly Val Leu Thr Thr Val Ile Asp Asp Phe Phe Asp Val
530 535 540

Gly Gly Ser Met Glu Glu Leu Lys Asn Leu Ile His Leu Val Glu Lys
545 550 555 560

Trp Asp Val Asp Val Ser Thr Glu Cys Ser Ser His Asn Val Gln Ile
565 570 575

Ile Phe Ser Ala Leu Lys Ser Thr Ile Arg Glu Ile Gly Tyr Lys Gly
580 585 590

Leu Lys Leu Gln Gly Arg Cys Ile Thr Asn His Ile Ile Gly Ile Trp
595 600 605

Leu Asp Leu Leu Asn Ser Met Met Lys Glu Thr Glu Trp Ala Arg Asp
610 615 620

Asn Tyr Val Pro Thr Ile Asp Glu Tyr Met Ser Asn Ala Tyr Val Ser
625 630 635 640

Phe Ala Leu Gly Pro Ile Val Leu Pro Thr Leu Tyr Leu Val Gly Pro
645 650 655

Lys Leu Ser Glu Glu Met Ala Asn His Pro Glu Tyr Tyr Lys Leu Phe
660 665 670

Lys Leu Met Ser Thr Cys Gly Arg Leu Leu Asn Asp Ile Arg Gly Tyr
675 680 685

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

Ala Asn His Gly Gly Glu Val Ser Lys Glu Ala Ala Ile Ser Glu Ile
705 710 715 720

Lys Ser Trp Ile Glu Ser Ser Arg Arg Glu Leu Leu Arg Leu Val Leu
725 730 735

Glu Gly Lys Lys Ser Val Leu Pro Lys Pro Cys Lys Glu Leu Phe Trp
740 745 750

His Met Cys Ser Val Val His Leu Phe Tyr Ser Lys Asp Asp Gly Phe
755 760 765

Thr Ser Gln Asp Leu Ile Gln Val Val Asn Ala Ile Ile His Lys Pro
770 775 780

Ile Val Leu Lys Glu Gln Thr Gly Ala Arg Ile
785 790 795

<210> 87
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<212> DNA
<213> *Salvia sclarea*

<400> 87
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tcaacactat tctagataac acattcaggt tgtggcaaga aaaacacaaa gttatatatg 420
gcaatgttac tactcatgca atggcattta ggcttttgcg agtgaaagga tacgaagttt 480
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<210> 88
<211> 95
<212> DNA
<213> *Salvia sclarea*

<400> 88
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tgatattcaa ccatttcatt gatctctgca atggc 95

<210> 89
<211> 55
<212> DNA
<213> *Salvia sclarea*

<400> 89
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<210> 90
<211> 53
<212> DNA
<213> *Salvia sclarea*

<400> 90
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<210> 91
<211> 2391
<212> DNA
<213> *Salvia sclarea*

<400> 91
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ccagcgtgct ttgaggagac gagagggagg atagcaaagt tgtttcataa ggatgaactt	180
tctgtgtcga catatgatac agcatgggtt gccatgggtcc cttctccaac ttcgttagag	240
gaaccttgct tccccgattg tctaaactgg ttgctcgaga accagtgcc a tgatggttcg	300
tggggccgtc cccaccatca ctctttgcta atgaaagatg tcctttcttc taccttggcc	360
tgcatcttg ctcttaaaaa atggggagtt ggtgaaaaac agattaacag gggcttgc	420
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gatattgtat ttctgccat gcttgattat gccagagact tctcttttga catgcattta	540
gagccaacta cgttgaatga tttgatacat aagagggatt tggagcttaa aagcaagcca	600
gatttttcat cggatgggga agcctattgg gcatatatag ctgaaggaat ggggaattta	660
cggaactggg aatcagttat gaaatatcaa agaaggaatg gatctctttt caactgtcct	720
tccacgacag cagctgcttt tgttgactg ggcaattctg actgcctcaa ctacctgc	780
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acttcagatc cggttacaaa aattcaacac gagtgccttt cgagttcctt tcatggaaat	1080
gtgatggaca ttaacacgac tcttgaatta tatagggcat ctgaactcat actatatcca	1140
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tccaatggtt ttattcaatc atgtcaactt ggaagaagtg ttaatgcaga ggtgaaccag	1260
gctatcgagt atccatttta tgcaattatg gacaggggtg caaacggaa aaatatagag	1320
aactacaact ttgataatac aagaattctg aaaacttcat attgttcacc aaattttggc	1380
aacaaggatt ttctttttct gtccgtagag gacttcaatc tgtgtcaagc cacacatcgc	1440
gaagaactca gggaacttga aagatgggtc gtagagaata gattggacga gctgcagttt	1500
gcaaggagta agtctgcata ttgttatttt tctgcagcag caaccttttc tgctccagaa	1560
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gagatggcaa	accacccccga	gtactataaaa	ctattcaaatt	tgatgagcac	atgcggacgc	2040
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aaaagttgga	ttgagagcag	taggagagaa	ttactgagat	tagtttttga	ggggaagaag	2220
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ttctacagta	aagacgacgg	attcacctcg	caggatttga	ttcaagttgt	aaatgcaatt	2340
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<210> 92
 <211> 2316
 <212> DNA
 <213> *Salvia sclarea*

<400> 92						
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tatgatacag	catggggttg	catggtcctt	tctccaactt	cgttagagga	accttgcttc	180
cccgattgtc	taaactgggt	gctcgagaac	cagtgccatg	atggttcgtg	ggcccgtccc	240
caccatcact	ctttgctaata	gaaagatgtc	ctttcttcta	ccttggcctg	cattcttgc	300
cttaaaaaat	ggggagttgg	tgaaaaacag	attaacaggg	gcttgcattt	tatggagttg	360
aattttgctt	cagctactga	gaagtgtcag	attactccca	tgggatttga	tattgtattt	420
cctgccatgc	ttgattatgc	cagagacttc	tctttggaca	tgcatthaga	gccaactacg	480
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gatggggaag	cctattgggc	atatatagct	gaaggaatgg	ggaatttacg	gaactgggaa	600
tcagttatga	aatatcaaag	aaggaatgga	tctcttttca	actgtccttc	cacgacagca	660
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aagtttgga	atgcagttcc	tgcaagttat	cctctagata	tatattctca	cctgtgcata	780
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ctagt gagac	aaaatttaag	gcttaa acaa	atactagagc	aagagctatc	caatgg tttt	1140
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aagccatgca	aggaattatt	ttggc acatg	tgctctgt gg	tccatctatt	ctacag taaa	2220
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<210> 93
 <211> 1578
 <212> DNA
 <213> *Salvia sclarea*

<400> 93	
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aatttccaac	gacaacgact
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ctctaatttg	tgtataatcg
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120	
gtcgatcaat	tcttccaata
tgaaatcaac	actattctag
ataacacatt	caggttgtgg
180	
caagaaaaac	acaagttat
atatggcaat	gttactactc
atgcaatggc	atttaggctt
240	
ttgcgagtga	aaggatacga
agtttcatca	gaggagttgg
ctccatatgg	taaccaagag
300	
gctgttagcc	agcaaacaaa
tgacctgccg	atgattattg
agctttatag	agcagcaaat
360	

gagagaatat atgaagaaga gaggagtctt gaaaaaatc ttgcttggac taccatcttt	420
ctcaataagc aagtgaaga taactcaatt cccgacaaaa aactgcacaa actggtggaa	480
ttctacttga ggaattacaa aggcataacc ataagattgg gagctagacg aaacctcgag	540
ctatatgaca tgacctacta tcaagctctg aaatctacaa acaggttctc taatttatgc	600
aacgaagatt ttctagtttt cgcaaagcaa gatttcgata tacatgaagc ccagaaccag	660
aaaggacttc aacaactgca aaggtggtat gcagattgta ggttggacac cttaaacttt	720
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gaaatgctta tgagtgaaga gtgcactgat ttggctaggc atgtctgtat ggtcggccgg	1260
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tatagcattc tactagcaac tgagaaagat ggaagaaaag ttagtgaaga tgaagccatt	1380
gcagagatca atgaaatggt tgaatatcac tggagaaaag tgttgcagat tgtgtataaa	1440
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aaatcctttg tcttttga	1578

<210> 94
 <211> 795
 <212> PRT
 <213> Salvia sclarea

<400> 94

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

Thr	Ser	Ala	Lys	Ile	Ala	Ser	Met	Pro	Ala	Cys	Phe	Glu	Glu	Thr	Arg
		35					40					45			

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

Tyr Asp Thr Ala Trp Val Ala Met Val Pro Ser Pro Thr Ser Leu Glu
65 70 75 80

Glu Pro Cys Phe Pro Asp Cys Leu Asn Trp Leu Leu Glu Asn Gln Cys
85 90 95

His Asp Gly Ser Trp Ala Arg Pro His His His Ser Leu Leu Met Lys
100 105 110

Asp Val Leu Ser Ser Thr Leu Ala Cys Ile Leu Ala Leu Lys Lys Trp
115 120 125

Gly Val Gly Glu Lys Gln Ile Asn Arg Gly Leu His Phe Met Glu Leu
130 135 140

Asn Phe Ala Ser Ala Thr Glu Lys Cys Gln Ile Thr Pro Met Gly Phe
145 150 155 160

Asp Ile Val Phe Pro Ala Met Leu Asp Tyr Ala Arg Asp Phe Ser Leu
165 170 175

Asp Met His Leu Glu Pro Thr Thr Leu Asn Asp Leu Ile His Lys Arg
180 185 190

Asp Leu Glu Leu Lys Ser Lys Pro Asp Phe Ser Ser Asp Gly Glu Ala
195 200 205

Tyr Trp Ala Tyr Ile Ala Glu Gly Met Gly Asn Leu Arg Asn Trp Glu
210 215 220

Ser Val Met Lys Tyr Gln Arg Arg Asn Gly Ser Leu Phe Asn Cys Pro
225 230 235 240

Ser Thr Thr Ala Ala Ala Phe Val Ala Leu Gly Asn Ser Asp Cys Leu
245 250 255

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

Val Tyr Pro Leu Asp Ile Tyr Ser His Leu Cys Ile Val Asp Asn Leu
275 280 285

Glu Arg Leu Gly Ile Ser Arg Tyr Phe Leu Thr Glu Ile Gln Ser Val
290 295 300

Leu Asp Glu Thr His Arg Cys Trp Met Gln Gly Asn Glu Glu Ile Phe
305 310 315 320

Met Asp Ala Ser Thr Cys Ala Leu Ala Phe Arg Ile Leu Arg Leu Asn
325 330 335

Gly Tyr Asp Val Thr Ser Asp Pro Val Thr Lys Ile Gln His Glu Cys
340 345 350

Phe Ser Ser Ser Phe His Gly Asn Val Met Asp Ile Asn Thr Thr Leu
355 360 365

Glu Leu Tyr Arg Ala Ser Glu Leu Ile Leu Tyr Pro Asp Glu Arg Asp
370 375 380

Leu Val Arg Gln Asn Leu Arg Leu Lys Gln Ile Leu Glu Gln Glu Leu
385 390 395 400

Ser Asn Gly Phe Ile Gln Ser Cys Gln Leu Gly Arg Ser Val Asn Ala
405 410 415

Glu Val Asn Gln Ala Ile Glu Tyr Pro Phe Tyr Ala Ile Met Asp Arg
420 425 430

Val Ala Lys Arg Lys Asn Ile Glu Asn Tyr Asn Phe Asp Asn Thr Arg
435 440 445

Ile Leu Lys Thr Ser Tyr Cys Ser Pro Asn Phe Gly Asn Lys Asp Phe
450 455 460

Leu Phe Leu Ser Val Glu Asp Phe Asn Leu Cys Gln Ala Thr His Arg
465 470 475 480

Glu Glu Leu Arg Glu Leu Glu Arg Trp Val Val Glu Asn Arg Leu Asp
485 490 495

Glu Leu Gln Phe Ala Arg Ser Lys Ser Ala Tyr Cys Tyr Phe Ser Ala
500 505 510

Ala Ala Thr Phe Ser Ala Pro Glu Leu Arg Asp Ala Arg Met Ser Trp
515 520 525

Ala Lys Gly Gly Val Leu Thr Thr Val Ile Asp Asp Phe Phe Asp Val

530		535		540
Gly 545	Gly	Ser	Met	Glu 550
	Glu	Leu	Lys	Asn 555
	Ile	His	Leu	Val 560
	Glu	Lys		
Trp	Asp	Val	Asp 565	Ser
	Thr	Glu	Cys	Ser 570
	His	Asn	Val	Gln 575
	Ile			
Ile	Phe	Ser	Ala 580	Leu
	Lys	Ser	Thr	Ile 585
	Arg	Glu	Ile	Gly 590
	Tyr	Lys	Gly	
Leu	Lys	Leu	Gln 595	Arg
	Cys	Ile	Thr	Asn 600
	His	Ile	Ile	Gly 605
	Ile	Gly	Ile	Trp
Leu	Asp 610	Leu	Leu	Asn
	Ser	Met	Met	Lys 615
	Glu	Thr	Glu	Trp 620
	Ala	Arg	Asp	
Asn 625	Tyr	Val	Pro	Thr
	Ile	Asp	Glu	Tyr
	Met	Ser	Asn	Ala
	Tyr	Val	Ser	640
Phe	Ala	Leu	Gly	Pro
	Ile	Val	Leu	Pro
	Thr	Leu	Tyr	Leu
	Val	Gly	Pro	655
Lys	Leu	Ser	Glu	Glu
	Met	Ala	Asn	His
	660	665	Pro	Glu
	Tyr	Tyr	Lys	Leu
	Phe			
Lys	Leu	Met	Ser	Thr
	Cys	Gly	Arg	Leu
	675	680	Leu	Asn
	Asp	Ile	Arg	Gly
	Tyr			
Glu	Arg	Glu	Leu	Lys
	690	695	Lys	Leu
	Asn	Ala	Leu	Ser
	700		Leu	Tyr
	Met			
Ala	Asn	His	Gly	Gly
	705	710	Val	Ser
	Lys	Glu	Ala	Ala
	715		Ile	Ser
	Glu	Ile		
	720			
Lys	Ser	Trp	Ile	Glu
	725	730	Ser	Ser
	Arg	Arg	Glu	Leu
	Leu	Leu	Arg	Leu
	Val	Leu		
	735			
Glu	Gly	Lys	Lys	Ser
	740	745	Val	Leu
	Pro	Lys	Pro	Cys
	Lys	Glu	Leu	Phe
	750		Trp	
His	Met	Cys	Ser	Val
	755	760	His	Leu
	Phe	Tyr	Ser	Lys
	765		Asp	Asp
	Gly	Phe		
Thr	Ser	Gln	Asp	Leu
	770	775	Ile	Gln
	Val	Val	Asn	Ala
	Ile	Ile	His	Lys
	780		Pro	

Ile Val Leu Lys Glu Gln Thr Gly Ala Arg Ile
785 790 795

<210> 95
<211> 771
<212> PRT
<213> Salvia sclarea

<400> 95

Met Glu Thr Gly Leu Gln Thr Ala Thr Ser Ala Lys Ile Ala Ser Met
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Pro Ala Cys Phe Glu Glu Thr Arg Gly Arg Ile Ala Lys Leu Phe His
20 25 30

Lys Asp Glu Leu Ser Val Ser Thr Tyr Asp Thr Ala Trp Val Ala Met
35 40 45

Val Pro Ser Pro Thr Ser Leu Glu Glu Pro Cys Phe Pro Asp Cys Leu
50 55 60

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

His His His Ser Leu Leu Met Lys Asp Val Leu Ser Ser Thr Leu Ala
85 90 95

Cys Ile Leu Ala Leu Lys Lys Trp Gly Val Gly Glu Lys Gln Ile Asn
100 105 110

Arg Gly Leu His Phe Met Glu Leu Asn Phe Ala Ser Ala Thr Glu Lys
115 120 125

Cys Gln Ile Thr Pro Met Gly Phe Asp Ile Val Phe Pro Ala Met Leu
130 135 140

Asp Tyr Ala Arg Asp Phe Ser Leu Asp Met His Leu Glu Pro Thr Thr
145 150 155 160

Leu Asn Asp Leu Ile His Lys Arg Asp Leu Glu Leu Lys Ser Lys Pro
165 170 175

Asp Phe Ser Ser Asp Gly Glu Ala Tyr Trp Ala Tyr Ile Ala Glu Gly
180 185 190

Met Gly Asn Leu Arg Asn Trp Glu Ser Val Met Lys Tyr Gln Arg Arg
195 200 205

Asn Gly Ser Leu Phe Asn Cys Pro Ser Thr Thr Ala Ala Ala Phe Val
210 215 220

Ala Leu Gly Asn Ser Asp Cys Leu Asn Tyr Leu His Ser Ala Leu Lys
225 230 235 240

Lys Phe Gly Asn Ala Val Pro Ala Val Tyr Pro Leu Asp Ile Tyr Ser
245 250 255

His Leu Cys Ile Val Asp Asn Leu Glu Arg Leu Gly Ile Ser Arg Tyr
260 265 270

Phe Leu Thr Glu Ile Gln Ser Val Leu Asp Glu Thr His Arg Cys Trp
275 280 285

Met Gln Gly Asn Glu Glu Ile Phe Met Asp Ala Ser Thr Cys Ala Leu
290 295 300

Ala Phe Arg Ile Leu Arg Leu Asn Gly Tyr Asp Val Thr Ser Asp Pro
305 310 315 320

Val Thr Lys Ile Gln His Glu Cys Phe Ser Ser Ser Phe His Gly Asn
325 330 335

Val Met Asp Ile Asn Thr Thr Leu Glu Leu Tyr Arg Ala Ser Glu Leu
340 345 350

Ile Leu Tyr Pro Asp Glu Arg Asp Leu Val Arg Gln Asn Leu Arg Leu
355 360 365

Lys Gln Ile Leu Glu Gln Glu Leu Ser Asn Gly Phe Ile Gln Ser Cys
370 375 380

Gln Leu Gly Arg Ser Val Asn Ala Glu Val Asn Gln Ala Ile Glu Tyr
385 390 395 400

Pro Phe Tyr Ala Ile Met Asp Arg Val Ala Lys Arg Lys Asn Ile Glu
405 410 415

Asn Tyr Asn Phe Asp Asn Thr Arg Ile Leu Lys Thr Ser Tyr Cys Ser
420 425 430

Pro Asn Phe Gly Asn Lys Asp Phe Leu Phe Leu Ser Val Glu Asp Phe

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

Arg Glu Leu Leu Arg Leu Val Leu Glu Gly Lys Lys Ser Val Leu Pro
705 710 715 720

Lys Pro Cys Lys Glu Leu Phe Trp His Met Cys Ser Val Val His Leu
725 730 735

Phe Tyr Ser Lys Asp Asp Gly Phe Thr Ser Gln Asp Leu Ile Gln Val
740 745 750

Val Asn Ala Ile Ile His Lys Pro Ile Val Leu Lys Glu Gln Thr Gly
755 760 765

Ala Arg Ile
770

<210> 96
<211> 525
<212> PRT
<213> Salvia sclarea

<400> 96

Met Ala Lys Met Lys Glu Asn Phe Lys Arg Glu Asp Asp Lys Phe Pro
1 5 10 15

Thr Thr Thr Thr Leu Arg Ser Glu Asp Ile Pro Ser Asn Leu Cys Ile
20 25 30

Ile Asp Thr Leu Gln Arg Leu Gly Val Asp Gln Phe Phe Gln Tyr Glu
35 40 45

Ile Asn Thr Ile Leu Asp Asn Thr Phe Arg Leu Trp Gln Glu Lys His
50 55 60

Lys Val Ile Tyr Gly Asn Val Thr Thr His Ala Met Ala Phe Arg Leu
65 70 75 80

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

Gly Asn Gln Glu Ala Val Ser Gln Gln Thr Asn Asp Leu Pro Met Ile
100 105 110

Ile Glu Leu Tyr Arg Ala Ala Asn Glu Arg Ile Tyr Glu Glu Glu Arg
115 120 125

Ser Leu Glu Lys Ile Leu Ala Trp Thr Thr Ile Phe Leu Asn Lys Gln
130 135 140

Val Gln Asp Asn Ser Ile Pro Asp Lys Lys Leu His Lys Leu Val Glu
145 150 155 160

Phe Tyr Leu Arg Asn Tyr Lys Gly Ile Thr Ile Arg Leu Gly Ala Arg
165 170 175

Arg Asn Leu Glu Leu Tyr Asp Met Thr Tyr Tyr Gln Ala Leu Lys Ser
180 185 190

Thr Asn Arg Phe Ser Asn Leu Cys Asn Glu Asp Phe Leu Val Phe Ala
195 200 205

Lys Gln Asp Phe Asp Ile His Glu Ala Gln Asn Gln Lys Gly Leu Gln
210 215 220

Gln Leu Gln Arg Trp Tyr Ala Asp Cys Arg Leu Asp Thr Leu Asn Phe
225 230 235 240

Gly Arg Asp Val Val Ile Ile Ala Asn Tyr Leu Ala Ser Leu Ile Ile
245 250 255

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

Val Leu Val Thr Ile Met Asp Asp Phe Phe Asp Cys His Gly Ser Ser
275 280 285

Gln Glu Cys Asp Lys Ile Ile Glu Leu Val Lys Glu Trp Lys Glu Asn
290 295 300

Pro Asp Ala Glu Tyr Gly Ser Glu Glu Leu Glu Ile Leu Phe Met Ala
305 310 315 320

Leu Tyr Asn Thr Val Asn Glu Leu Ala Glu Arg Ala Arg Val Glu Gln
325 330 335

Gly Arg Ser Val Lys Glu Phe Leu Val Lys Leu Trp Val Glu Ile Leu
340 345 350

Ser Ala Phe Lys Ile Glu Leu Asp Thr Trp Ser Asn Gly Thr Gln Gln

355

360

365

Ser Phe Asp Glu Tyr Ile Ser Ser Ser Trp Leu Ser Asn Gly Ser Arg
 370 375 380

Leu Thr Gly Leu Leu Thr Met Gln Phe Val Gly Val Lys Leu Ser Asp
 385 390 395 400

Glu Met Leu Met Ser Glu Glu Cys Thr Asp Leu Ala Arg His Val Cys
 405 410 415

Met Val Gly Arg Leu Leu Asn Asp Val Cys Ser Ser Glu Arg Glu Arg
 420 425 430

Glu Glu Asn Ile Ala Gly Lys Ser Tyr Ser Ile Leu Leu Ala Thr Glu
 435 440 445

Lys Asp Gly Arg Lys Val Ser Glu Asp Glu Ala Ile Ala Glu Ile Asn
 450 455 460

Glu Met Val Glu Tyr His Trp Arg Lys Val Leu Gln Ile Val Tyr Lys
 465 470 475 480

Lys Glu Ser Ile Leu Pro Arg Arg Cys Lys Asp Val Phe Leu Glu Met
 485 490 495

Ala Lys Gly Thr Phe Tyr Ala Tyr Gly Ile Asn Asp Glu Leu Thr Ser
 500 505 510

Pro Gln Gln Ser Lys Glu Asp Met Lys Ser Phe Val Phe
 515 520 525

<210> 97

<211> 805

<212> PRT

<213> Salvia sclarea

<400> 97

Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15

Arg Gly Ser His Met Thr Ser Val Asn Leu Ser Arg Ala Pro Ala Ala
 20 25 30

Ile Thr Arg Arg Arg Leu Gln Leu Gln Pro Glu Phe His Ala Glu Cys
 35 40 45

Ser Trp Leu Lys Ser Ser Ser Lys His Ala Pro Leu Thr Leu Ser Cys
50 55 60

Gln Ile Arg Pro Lys Gln Leu Ser Gln Ile Ala Glu Leu Arg Val Thr
65 70 75 80

Ser Leu Asp Ala Ser Gln Ala Ser Glu Lys Asp Ile Ser Leu Val Gln
85 90 95

Thr Pro His Lys Val Glu Val Asn Glu Lys Ile Glu Glu Ser Ile Glu
100 105 110

Tyr Val Gln Asn Leu Leu Met Thr Ser Gly Asp Gly Arg Ile Ser Val
115 120 125

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

Arg Asp Ala Pro Gln Phe Pro Ser Cys Leu Glu Trp Ile Ala His His
145 150 155 160

Gln Leu Ala Asp Gly Ser Trp Gly Asp Glu Phe Phe Cys Ile Tyr Asp
165 170 175

Arg Ile Leu Asn Thr Leu Ala Cys Val Val Ala Leu Lys Ser Trp Asn
180 185 190

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

Val His Lys Leu Lys Gly Ala Asn Val Glu His Arg Thr Ala Gly Phe
210 215 220

Glu Leu Val Val Pro Thr Phe Met Gln Met Ala Thr Asp Leu Gly Ile
225 230 235 240

Gln Asp Leu Pro Tyr Asp His Pro Leu Ile Lys Glu Ile Ala Asp Thr
245 250 255

Lys Gln Gln Arg Leu Lys Glu Ile Pro Lys Asp Leu Val Tyr Gln Met
260 265 270

Pro Thr Asn Leu Leu Tyr Ser Leu Glu Gly Leu Gly Asp Leu Glu Trp
275 280 285

Glu Arg Leu Leu Lys Leu Gln Ser Gly Asn Gly Ser Phe Leu Thr Ser
290 295 300

Pro Ser Ser Thr Ala Ala Val Leu Met His Thr Lys Asp Glu Lys Cys
305 310 315 320

Leu Lys Tyr Ile Glu Asn Ala Leu Lys Asn Cys Asp Gly Gly Ala Pro
325 330 335

His Thr Tyr Pro Val Asp Ile Phe Ser Arg Leu Trp Ala Ile Asp Arg
340 345 350

Leu Gln Arg Leu Gly Ile Ser Arg Phe Phe Gln His Glu Ile Lys Tyr
355 360 365

Phe Leu Asp His Ile Glu Ser Val Trp Glu Glu Thr Gly Val Phe Ser
370 375 380

Gly Arg Tyr Thr Lys Phe Ser Asp Ile Asp Asp Thr Ser Met Gly Val
385 390 395 400

Arg Leu Leu Lys Met His Gly Tyr Asp Val Asp Pro Asn Val Leu Lys
405 410 415

His Phe Lys Gln Gln Asp Gly Lys Phe Ser Cys Tyr Ile Gly Gln Ser
420 425 430

Val Glu Ser Ala Ser Pro Met Tyr Asn Leu Tyr Arg Ala Ala Gln Leu
435 440 445

Arg Phe Pro Gly Glu Glu Val Leu Glu Glu Ala Thr Lys Phe Ala Phe
450 455 460

Asn Phe Leu Gln Glu Met Leu Val Lys Asp Arg Leu Gln Glu Arg Trp
465 470 475 480

Val Ile Ser Asp His Leu Phe Asp Glu Ile Lys Leu Gly Leu Lys Met
485 490 495

Pro Trp Tyr Ala Thr Leu Pro Arg Val Glu Ala Ala Tyr Tyr Leu Asp
500 505 510

His Tyr Ala Gly Ser Gly Asp Val Trp Ile Gly Lys Ser Phe Tyr Arg
515 520 525

Met Pro Glu Ile Ser Asn Asp Thr Tyr Lys Glu Leu Ala Ile Leu Asp

530

535

540

Phe Asn Arg Cys Gln Thr Gln His Gln Leu Glu Trp Ile His Met Gln
 545 550 555 560

Glu Trp Tyr Asp Arg Cys Ser Leu Ser Glu Phe Gly Ile Ser Lys Arg
 565 570 575

Glu Leu Leu Arg Ser Tyr Phe Leu Ala Ala Ala Thr Ile Phe Glu Pro
 580 585 590

Glu Arg Thr Gln Glu Arg Leu Leu Trp Ala Lys Thr Arg Ile Leu Ser
 595 600 605

Lys Met Ile Thr Ser Phe Val Asn Ile Ser Gly Thr Thr Leu Ser Leu
 610 615 620

Asp Tyr Asn Phe Asn Gly Leu Asp Glu Ile Ile Ser Ser Ala Asn Glu
 625 630 635 640

Asp Gln Gly Leu Ala Gly Thr Leu Leu Ala Thr Phe His Gln Leu Leu
 645 650 655

Asp Gly Phe Asp Ile Tyr Thr Leu His Gln Leu Lys His Val Trp Ser
 660 665 670

Gln Trp Phe Met Lys Val Gln Gln Gly Glu Gly Ser Gly Gly Glu Asp
 675 680 685

Ala Val Leu Leu Ala Asn Thr Leu Asn Ile Cys Ala Gly Leu Asn Glu
 690 695 700

Asp Val Leu Ser Asn Asn Glu Tyr Thr Ala Leu Ser Thr Leu Thr Asn
 705 710 715 720

Lys Ile Cys Asn Arg Leu Ala Gln Ile Gln Asp Asn Lys Ile Leu Gln
 725 730 735

Val Val Asp Gly Ser Ile Lys Asp Lys Glu Leu Glu Gln Asp Met Gln
 740 745 750

Ala Leu Val Lys Leu Val Leu Gln Glu Asn Gly Gly Ala Val Asp Arg
 755 760 765

Asn Ile Arg His Thr Phe Leu Ser Val Ser Lys Thr Phe Tyr Tyr Asp
 770 775 780

Ala Tyr His Asp Asp Glu Thr Thr Asp Leu His Ile Phe Lys Val Leu
785 790 795 800

Phe Arg Pro Val Val
805

<210> 98
<211> 804
<212> PRT
<213> Salvia sclarea

<400> 98

Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
1 5 10 15

Arg Gly Ser His Met Thr Ser Val Asn Leu Ser Arg Ala Pro Ala Ala
20 25 30

Ile Ile Arg Arg Arg Leu Gln Leu Gln Pro Glu Phe His Ala Glu Cys
35 40 45

Ser Trp Leu Lys Ser Ser Ser Lys His Ala Pro Phe Thr Leu Ser Cys
50 55 60

Gln Ile Arg Pro Lys Gln Leu Ser Gln Ile Ala Glu Leu Arg Val Thr
65 70 75 80

Ser Leu Asp Ala Ser Gln Ala Ser Glu Lys Asp Ile Ser Leu Val Gln
85 90 95

Thr Pro His Lys Val Glu Val Asn Glu Lys Ile Glu Glu Ser Ile Glu
100 105 110

Tyr Val Gln Asn Leu Leu Met Thr Ser Gly Asp Gly Arg Ile Ser Val
115 120 125

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

Arg Asp Ala Pro Gln Phe Pro Ser Cys Leu Glu Trp Ile Ala His His
145 150 155 160

Gln Leu Ala Asp Gly Ser Trp Gly Asp Glu Phe Phe Cys Ile Tyr Asp
165 170 175

Arg Ile Leu Asn Thr Leu Ala Cys Val Val Ala Leu Lys Ser Trp Asn
180 185 190

Leu Gln Ser Asp Ile Ile Glu Lys Gly Val Thr Tyr Ile Lys Glu Asn
195 200 205

Val His Lys Leu Lys Gly Ala Asn Val Glu His Arg Thr Ala Gly Phe
210 215 220

Glu Leu Val Val Pro Thr Phe Met Gln Met Ala Thr Asp Leu Gly Ile
225 230 235 240

Gln Gly Leu Pro Tyr Asp His Pro Leu Ile Lys Glu Ile Ala Asp Thr
245 250 255

Lys Gln Gln Arg Leu Lys Glu Ile Pro Lys Asp Leu Val Tyr Gln Met
260 265 270

Pro Thr Asn Leu Leu Tyr Ser Leu Glu Gly Leu Gly Asp Leu Glu Trp
275 280 285

Glu Arg Leu Leu Lys Leu Gln Ser Gly Asn Gly Ser Phe Leu Thr Ser
290 295 300

Pro Ser Ser Thr Ala Ala Val Leu Met His Thr Lys Asp Glu Lys Cys
305 310 315 320

Leu Lys Tyr Ile Glu Asn Ala Leu Lys Asn Cys Asp Gly Gly Ala Pro
325 330 335

His Thr Tyr Pro Val Asp Ile Phe Ser Arg Leu Trp Ala Ile Asp Arg
340 345 350

Leu Gln Arg Leu Gly Ile Ser Arg Phe Phe Gln His Glu Ile Lys Tyr
355 360 365

Phe Leu Asp His Ile Glu Ser Val Trp Glu Glu Thr Gly Val Phe Ser
370 375 380

Gly Arg Tyr Thr Lys Phe Ser Asp Ile Asp Asp Thr Ser Met Gly Val
385 390 395 400

Arg Leu Leu Lys Met His Gly Tyr Asp Val Asp Pro Asn Val Leu Lys
405 410 415

His Phe Lys Gln Gln Asp Gly Lys Phe Ser Cys Tyr Ile Gly Gln Ser

420

425

430

Val Glu Ser Ala Ser Pro Met Tyr Asn Leu Tyr Arg Ala Ala Gln Leu
 435 440 445

Arg Phe Pro Gly Glu Glu Val Leu Glu Glu Ala Thr Lys Phe Ala Phe
 450 455 460

Asn Phe Leu Gln Glu Met Leu Val Lys Asp Arg Leu Gln Glu Arg Trp
 465 470 475 480

Val Ile Ser Asp His Leu Phe Asp Glu Ile Lys Leu Gly Leu Lys Met
 485 490 495

Pro Trp Tyr Ala Thr Leu Pro Arg Val Glu Ala Ala Tyr Tyr Leu Asp
 500 505 510

His Tyr Ala Gly Ser Gly Asp Val Trp Ile Gly Lys Ser Phe Tyr Arg
 515 520 525

Met Pro Glu Ile Ser Asn Asp Thr Tyr Lys Glu Leu Ala Ile Leu Asp
 530 535 540

Phe Asn Arg Cys Gln Thr Gln His Gln Leu Glu Trp Ile Gln Met Gln
 545 550 555 560

Glu Trp Tyr Asp Arg Cys Ser Leu Ser Glu Phe Gly Ile Ser Lys Arg
 565 570 575

Glu Leu Leu Arg Ser Tyr Phe Leu Ala Ala Ala Thr Ile Phe Glu Pro
 580 585 590

Glu Arg Thr Gln Glu Arg Leu Leu Trp Ala Lys Thr Arg Ile Leu Ser
 595 600 605

Lys Met Ile Thr Ser Phe Val Asn Ile Ser Gly Thr Thr Leu Ser Leu
 610 615 620

Asp Tyr Asn Phe Asn Gly Leu Asp Glu Ile Ile Ser Ala Asn Glu Asp
 625 630 635 640

Gln Gly Leu Ala Gly Thr Leu Leu Ala Thr Phe His Gln Leu Leu Asp
 645 650 655

Gly Phe Asp Ile Tyr Thr Leu His Gln Leu Lys His Val Trp Ser Gln
 660 665 670

Trp Phe Met Lys Val Gln Gln Gly Glu Gly Ser Gly Gly Glu Asp Ala
675 680 685

Val Leu Leu Ala Asn Thr Leu Asn Ile Cys Ala Gly Leu Asn Glu Asp
690 695 700

Val Leu Ser Asn Asn Glu Tyr Thr Ala Leu Ser Thr Leu Thr Asn Lys
705 710 715 720

Ile Cys Asn Arg Leu Ala Gln Ile Gln Asp Asn Lys Ile Leu Gln Val
725 730 735

Val Asp Gly Ser Ile Lys Asp Lys Glu Leu Glu Gln Asp Met Gln Ala
740 745 750

Leu Val Lys Leu Val Leu Gln Glu Asn Gly Gly Ala Val Asp Arg Asn
755 760 765

Ile Arg His Thr Phe Leu Ser Val Ser Lys Thr Phe Tyr Tyr Asp Ala
770 775 780

Tyr His Asp Asp Glu Thr Thr Asp Leu His Ile Phe Lys Val Leu Phe
785 790 795 800

Arg Pro Val Val