

01 SQ listing ST25 14-MAR-2006
SEQUENCE LISTING

<110> Novozymes A/S
<120> Recombinant Expression of Defensins in Filamentous Fungi
<130> 10789.204-WO
<160> 24
<170> PatentIn version 3.3
<210> 1
<211> 288
<212> DNA
<213> Pseudoplectania nigrella

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<222> (1)..(285)

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<222> (1)..(69)

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<221> mat_peptide
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Met Gln Phe Thr Thr Ile Leu Ser Ile Gly Ile Thr Val Phe Gly Leu
-55 -50 -45 -40

ctc aac acc gga gcc ttt gca gca ccc cag cct gtt ccc gag gct tac 96
Leu Asn Thr Gly Ala Phe Ala Ala Pro Gln Pro Val Pro Glu Ala Tyr
-35 -30 -25

gct gtt tct gat ccc gag gct cat cct gac gat ttt gct ggt atg gat 144
Ala Val Ser Asp Pro Glu Ala His Pro Asp Asp Phe Ala Gly Met Asp
-20 -15 -10

gcg aac caa ctt cag aaa cgt gga ttt gga tgc aat ggt cct tgg gat 192
Ala Asn Gln Leu Gln Lys Arg Gly Phe Gly Cys Asn Gly Pro Trp Asp
-5 -1 1 5

gag gat gat atg cag tgc cac aat cac tgc aag tct att aag ggt tac 240
Glu Asp Asp Met Gln Cys His Asn His Cys Lys Ser Ile Lys Gly Tyr
10 15 20 25

aag gga ggt tat tgt gct aag ggg ggc ttt gtt tgc aag tgt tac tag 288
Lys Gly Gly Tyr Cys Ala Lys Gly Gly Phe Val Cys Lys Cys Tyr
30 35 40

<210> 2
<211> 95
<212> PRT
<213> Pseudoplectania nigrella

<400> 2
Met Gln Phe Thr Thr Ile Leu Ser Ile Gly Ile Thr Val Phe Gly Leu
-55 -50 -45 -40

Leu Asn Thr Gly Ala Phe Ala Ala Pro Gln Pro Val Pro Glu Ala Tyr
Page 1

-35

-30

-25

Ala Val Ser Asp Pro Glu Ala His Pro Asp Asp Phe Ala Gly Met Asp
 -20 -15 -10

Ala Asn Gln Leu Gln Lys Arg Gly Phe Gly Cys Asn Gly Pro Trp Asp
 -5 -1 1 5

Glu Asp Asp Met Gln Cys His Asn His Cys Lys Ser Ile Lys Gly Tyr
 10 15 20 25

Lys Gly Gly Tyr Cys Ala Lys Gly Gly Phe Val Cys Lys Cys Tyr
 30 35 40

<210> 3
 <211> 273
 <212> DNA
 <213> Eurotium amstelodami

<220>
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 <222> (145)..(270)

<400> 3
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 Met His Phe Thr Lys Val Ser Thr Ile Leu Phe Thr Ile Phe Ala Ala
 -45 -40 -35

ggc atc atg gct gct ccc acc gaa gga gtc cgt gag gaa gcc gcc cct 96
 Gly Ile Met Ala Ala Pro Thr Glu Gly Val Arg Glu Glu Ala Ala Pro
 -30 -25 -20

ggc cag gag gtt tac ccc gac gaa cct cct gct tct ctg acc aag cgt 144
 Gly Gln Glu Val Tyr Pro Asp Glu Pro Pro Ala Ser Leu Thr Lys Arg
 -15 -10 -5 -1

ggc ttc gga tgt cct ggt gat gcc tac cag tgc agt gaa cac tgc agg 192
 Gly Phe Gly Cys Pro Gly Asp Ala Tyr Gln Cys Ser Glu His Cys Arg
 1 5 10 15

gcc ctg ggc ggt gga cgc act gga gga tac tgt gct gga cct tgg tat 240
 Ala Leu Gly Gly Gly Arg Thr Gly Gly Tyr Cys Ala Gly Pro Trp Tyr
 20 25 30

ttg ggt cac cct acc tgc acc tgt tct ttc taa 273
 Leu Gly His Pro Thr Cys Thr Cys Ser Phe
 35 40

<210> 4
 <211> 90
 <212> PRT
 <213> Eurotium amstelodami

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<400> 4

Met His Phe Thr Lys Val Ser Thr Ile Leu Phe Thr Ile Phe Ala Ala
-45 -40 -35

Gly Ile Met Ala Ala Pro Thr Glu Gly Val Arg Glu Glu Ala Ala Pro
-30 -25 -20

Gly Gln Glu Val Tyr Pro Asp Glu Pro Pro Ala Ser Leu Thr Lys Arg
-15 -10 -5 -1

Gly Phe Gly Cys Pro Gly Asp Ala Tyr Gln Cys Ser Glu His Cys Arg
1 5 10 15

Ala Leu Gly Gly Gly Arg Thr Gly Gly Tyr Cys Ala Gly Pro Trp Tyr
20 25 30

Leu Gly His Pro Thr Cys Thr Cys Ser Phe
35 40

<210> 5
<211> 273
<212> DNA
<213> Picea glauca

<220>
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<220>
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<221> mat_peptide
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Met Lys Phe Thr Ile Ser Ile Ile Ala Ala Leu Ala Phe Phe Ala Gln
-50 -45 -40 -35

gga atc gtg gca gct cct gcg cct atc ccc gag gcc gcc gcg gtg gct 96
Gly Ile Val Ala Ala Pro Ala Pro Ile Pro Glu Ala Ala Ala Val Ala
-30 -25 -20

gcc cca gag gcc gag cca aag gcg tta gat gag ctt ccg gag ttg caa 144
Ala Pro Glu Ala Glu Pro Lys Ala Leu Asp Glu Leu Pro Glu Leu Gln
-15 -10 -5

aag cgt ggc ttt ggg tgc aac ggt tgg cct ttc gag gac gat gag cag 192
Lys Arg Gly Phe Gly Cys Asn Gly Trp Pro Phe Glu Asp Asp Glu Gln
-1 1 5 10

tgc cat aat cac tgc aag acc att cct ggt tat aag ggt ggc tac tgt 240
Cys His Asn His Cys Lys Thr Ile Pro Gly Tyr Lys Gly Gly Tyr Cys
15 20 25 30

gcc aac gtt ggc acc act tgc aag tgc tac tag 273
Ala Asn Val Gly Thr Thr Cys Lys Cys Tyr
35 40

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<210> 6
 <211> 90
 <212> PRT
 <213> Picea glauca

<400> 6

Met Lys Phe Thr Ile Ser Ile Ile Ala Ala Leu Ala Phe Phe Ala Gln
 -50 -45 -40 -35

Gly Ile Val Ala Ala Pro Ala Pro Ile Pro Glu Ala Ala Ala Val Ala
 -30 -25 -20

Ala Pro Glu Ala Glu Pro Lys Ala Leu Asp Glu Leu Pro Glu Leu Gln
 -15 -10 -5

Lys Arg Gly Phe Gly Cys Asn Gly Trp Pro Phe Glu Asp Asp Glu Gln
 -1 1 5 10

Cys His Asn His Cys Lys Thr Ile Pro Gly Tyr Lys Gly Gly Tyr Cys
 15 20 25 30

Ala Asn Val Gly Thr Thr Cys Lys Cys Tyr
 35 40

<210> 7
 <211> 189
 <212> DNA
 <213> Crassostrea virginica

<220>
 <221> CDS
 <222> (1)..(186)

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<400> 7
 atg aaa gtg ttt gta ctt ctt aca ata gca gta atg ctt atg gta tct 48
 Met Lys Val Phe Val Leu Leu Thr Ile Ala Val Met Leu Met Val Ser
 -20 -15 -10

gcc gac gtt gct ttg gcc ggc ttt ggc tgt cct ttg aac cgg tac cag 96
 Ala Asp Val Ala Leu Ala Gly Phe Gly Cys Pro Leu Asn Arg Tyr Gln
 -5 -1 1 5 10

tgt cac tca cat tgc caa tcc att ggt cgt aaa ggt gga tac tgt ggt 144
 Cys His Ser His Cys Gln Ser Ile Gly Arg Lys Gly Gly Tyr Cys Gly
 15 20 25

ggg tgg tgg agt ttt aca tgc aca tgc tac cgc act aaa aag tag 189
 Gly Trp Trp Ser Phe Thr Cys Thr Cys Tyr Arg Thr Lys Lys
 30 35 40

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<210> 8
 <211> 62
 <212> PRT
 <213> Crassostrea virginica

<400> 8

Met Lys Val Phe Val Leu Leu Thr Ile Ala Val Met Leu Met Val Ser
 -20 -15 -10

Ala Asp Val Ala Leu Ala Gly Phe Gly Cys Pro Leu Asn Arg Tyr Gln
 -5 -1 1 5 10

Cys His Ser His Cys Gln Ser Ile Gly Arg Lys Gly Gly Tyr Cys Gly
 15 20 25

Gly Trp Trp Ser Phe Thr Cys Thr Cys Tyr Arg Thr Lys Lys
 30 35 40

<210> 9
 <211> 189
 <212> DNA
 <213> Mesobuthus gibbosus

<220>
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 <222> (1)..(186)

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<400> 9

atg aaa acc att gta ctt ctt ttc gtg ttg gct tta gta ttc tgc act 48
 Met Lys Thr Ile Val Leu Leu Phe Val Leu Ala Leu Val Phe Cys Thr
 -20 -15 -10

ctt gaa atg gga atg gtg gaa gcc gga ttc ggt tgt cca ttc aat caa 96
 Leu Glu Met Gly Met Val Glu Ala Gly Phe Gly Cys Pro Phe Asn Gln
 -5 -1 1 5

gga aga tgt cac aga cat tgt cga agt att cgt cga aga gga gga tat 144
 Gly Arg Cys His Arg His Cys Arg Ser Ile Arg Arg Arg Gly Gly Tyr
 10 15 20

tgc gat gga ttt ttg aaa caa aga tgt gtt tgt tat cgg aga taa 189
 Cys Asp Gly Phe Leu Lys Gln Arg Cys Val Cys Tyr Arg Arg
 25 30 35

<210> 10
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 <212> PRT
 <213> Mesobuthus gibbosus

<400> 10

Met Lys Thr Ile Val Leu Leu Phe Val Leu Ala Leu Val Phe Cys Thr

-20

-15

-10

Leu Glu Met Gly Met Val Glu Ala Gly Phe Gly Cys Pro Phe Asn Gln
 -5 -1 1 5

Gly Arg Cys His Arg His Cys Arg Ser Ile Arg Arg Arg Gly Gly Tyr
 10 15 20

Cys Asp Gly Phe Leu Lys Gln Arg Cys Val Cys Tyr Arg Arg
 25 30 35

<210> 11
 <211> 198
 <212> DNA
 <213> Crassostrea gigas

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 <222> (1)..(66)

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 <221> mat_peptide
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<400> 11
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 Met Lys Val Phe Val Leu Leu Thr Leu Ala Val Leu Leu Met Val Ser
 -20 -15 -10
 gca gac atg gct ttt gct gga ttt ggg tgt ccg ggt aac cag tta aag 96
 Ala Asp Met Ala Phe Ala Gly Phe Gly Cys Pro Gly Asn Gln Leu Lys
 -5 -1 1 5 10
 tgc aac aat cac tgc aag tcc att agt tgt aga gcg ggc tac tgt gat 144
 Cys Asn Asn His Cys Lys Ser Ile Ser Cys Arg Ala Gly Tyr Cys Asp
 15 20 25
 gca gcc acg ctc tgg tta aga tgt aca tgt acc gat tgt aat gga aag 192
 Ala Ala Thr Leu Trp Leu Arg Cys Thr Cys Thr Asp Cys Asn Gly Lys
 30 35 40
 aag taa 198
 Lys

<210> 12
 <211> 65
 <212> PRT
 <213> Crassostrea gigas

<400> 12
 Met Lys Val Phe Val Leu Leu Thr Leu Ala Val Leu Leu Met Val Ser
 -20 -15 -10
 Ala Asp Met Ala Phe Ala Gly Phe Gly Cys Pro Gly Asn Gln Leu Lys
 -5 -1 1 5 10

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Cys Asn Asn His Cys Lys Ser Ile Ser Cys Arg Ala Gly Tyr Cys Asp
 15 20 25

Ala Ala Thr Leu Trp Leu Arg Cys Thr Cys Thr Asp Cys Asn Gly Lys
 30 35 40

Lys

<210> 13
 <211> 195
 <212> DNA
 <213> Crassostrea virginica

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 <222> (1)..(66)

<220>
 <221> mat_peptide
 <222> (67)..(192)

<400> 13
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 Met Lys Val Phe Val Leu Leu Thr Ile Ala Val Met Leu Leu Val Ser
 -20 -15 -10
 gcc gat gta gct act gca gat aac gga tgt ccc cgt cgt ccg aga atc 96
 Ala Asp Val Ala Thr Ala Asp Asn Gly Cys Pro Arg Arg Pro Arg Ile
 -5 -1 1 5 10
 tgt cac aat cgg tgc ata tac aaa ggt cgt aga ggc gga aaa tgt gtc 144
 Cys His Asn Arg Cys Ile Tyr Lys Gly Arg Arg Gly Gly Lys Cys Val
 15 20 25
 gga aag tgg aga agc tta tgc gaa tgc atc tac cca tcg aag gcc ggg 192
 Gly Lys Trp Arg Ser Leu Cys Glu Cys Ile Tyr Pro Ser Lys Ala Gly
 30 35 40
 tga 195

<210> 14
 <211> 64
 <212> PRT
 <213> Crassostrea virginica

<400> 14

Met Lys Val Phe Val Leu Leu Thr Ile Ala Val Met Leu Leu Val Ser
 -20 -15 -10

Ala Asp Val Ala Thr Ala Asp Asn Gly Cys Pro Arg Arg Pro Arg Ile
 -5 -1 1 5 10

Cys His Asn Arg Cys Ile Tyr Lys Gly Arg Arg Gly Gly Lys Cys Val

15

20

25

Gly Lys Trp Arg Ser Leu Cys Glu Cys Ile Tyr Pro Ser Lys Ala Gly
 30 35 40

<210> 15
 <211> 207
 <212> DNA
 <213> *Aspergillus oryzae*

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 <222> (1)..(54)

<220>
 <221> mat_peptide
 <222> (79)..(207)

<400> 15
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 Met Lys Leu Leu Thr Val Ala Phe Ser Leu Leu Leu Leu Gly Gln Val
 -25 -20 -15

cat gcc agt cct ttg gta ctc gac aaa agg tct tcc tgc cag ttg ggt 96
 His Ala Ser Pro Leu Val Leu Asp Lys Arg Ser Ser Cys Gln Leu Gly
 -10 -5 -1 1 5

gac gtc tgg gac ctc aat gct gca gac gcc gcc tgc agc gct tcg tgt 144
 Asp Val Trp Asp Leu Asn Ala Ala Asp Ala Ala Cys Ser Ala Ser Cys
 10 15 20

gcc att caa cac ggc gac aaa cac ggc gga cac tgc gat aag aac aag 192
 Ala Ile Gln His Gly Asp Lys His Gly Gly His Cys Asp Lys Asn Lys
 25 30 35

gtc tgc gtc tgc aat 207
 Val Cys Val Cys Asn
 40

<210> 16
 <211> 69
 <212> PRT
 <213> *Aspergillus oryzae*

<400> 16

Met Lys Leu Leu Thr Val Ala Phe Ser Leu Leu Leu Leu Gly Gln Val
 -25 -20 -15

His Ala Ser Pro Leu Val Leu Asp Lys Arg Ser Ser Cys Gln Leu Gly
 -10 -5 -1 1 5

Asp Val Trp Asp Leu Asn Ala Ala Asp Ala Ala Cys Ser Ala Ser Cys
 10 15 20

Ala Ile Gln His Gly Asp Lys His Gly Gly His Cys Asp Lys Asn Lys
 25 30 35

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Val Cys Val Cys Asn
40

<210> 17
<211> 362
<212> DNA
<213> Artificial

<220>
<223> Pleactasin encoding sequence with intron (see Example 1)

<400> 17
ggatccacca tgcaatttac caccatcctc tccatcggtg tcaccgtctt cggacttctc 60
aacaccggag cctttgcagc accccagccg gtacccgagg cttacgctgt ttctgatccc 120
gaggctcatc ctgacgattt tgctggtatg gatgcgaacc aacttcagaa acgtggattt 180
ggatgcaatg gtccttggga tgaggatgat atgcagtgcc acaagtaaga atcacttata 240
actagtagat taagccaaga gtattggaac tgatgataaa tagtactgc aagtctatta 300
agggttaca gggagggttat tgtgctaagg ggggctttgt ttgcaagtgt tactagctcg 360
ag 362

<210> 18
<211> 303
<212> DNA
<213> Artificial

<220>
<223> Intron-less MluNI containing sequence encoding Plectasin (see Example 3)

<400> 18
ggatccacca tgcaatttac caccatcctc tccatcggtg tcaccgtctt cggactggcc 60
aacaccggag cctttgcagc accccagccg gtacccgagg cttacgctgt ttctgatccc 120
gaggctcatc ctgacgattt tgctggtatg gatgcgaacc aacttcagaa acgtggattt 180
ggatgcaatg gtccttggga tgaggatgat atgcagtgcc acaatcactg caagtctatt 240
aagggttaca agggagggtta ttgtgctaag gggggctttg ttgcaagtgt ttactagctc 300
gag 303

<210> 19
<211> 358
<212> DNA
<213> Artificial

<220>
<223> Plectasin encoding sequence with intron of pMT2899 (see Example 3)

<400> 19
ggatccacca tgcaatttac caccatcctc tccatcggtg tcaccgtctt cggactgggt 60
atgtacacca ccccttgcg tctgatctgt gacatatgta gctgactggt cagccaacac 120
cggagccttt gcagcaccac agccggtacc cgaggcttac gctgtttctg atcccagggc 180

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tcacccctgac gatttttctg gtatggatgc gaaccaactt cagaaacgtg gatttggatg	240
caatggctct tgggatgagg atgatatgca gtgccacaat cactgcaagt ctattaaggg	300
ttacaagggg gggtattgtg ctaagggggg ctttgtttgc aagtgttact agctcgag	358

<210> 20
 <211> 362
 <212> DNA
 <213> Artificial

<220>
 <223> Plectasin encoding sequence of pMT2900 (see Example 3)

<400> 20	
ggatccacca tgcaatttac caccatcctc tccatcggtg tcaccgtctt cggactgggt	60
aagaatcact tataactagt agattaagcc aagagtattg gaactgatga taaacagcca	120
acaccggagc ctttgcagca cccagccgg tacccgaggc ttacgctgtt tctgatcccg	180
aggctcatcc tgacgatttt gctggtatgg atgcgaacca acttcagaaa cgtggatttg	240
gatgcaatgg tccttgggat gaggatgata tgcagtgcc caatcactgc aagtctatta	300
agggttataa gggaggttat tgtgctaagg ggggctttgt ttgcaagtgt tactagctcg	360
ag	362

<210> 21
 <211> 34
 <212> DNA
 <213> Artificial

<220>
 <223> Primer A (see Example 5)

<400> 21	
tcttgatcc accatgcact tcaccaaggt ctcc	34

<210> 22
 <211> 33
 <212> DNA
 <213> Artificial

<220>
 <223> Primer B (see Example 5)

<400> 22	
tcttctcgag ttagaaagaa caggtgcagg tac	33

<210> 23
 <211> 386
 <212> DNA
 <213> Eurotium amstelodami

<220>
 <221> CDS
 <222> (10)..(195)

<220>
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<222> (10)..(69)

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<221> mat_peptide

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<221> Intron

<222> (196)..(240)

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<221> Intron

<222> (306)..(358)

<220>

<221> CDS

<222> (359)..(377)

<400> 23

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ggatccacc atg cac ttc acc aag gtc tcc acc att ctt ttt acc atc ttc      51
      Met His Phe Thr Lys Val Ser Thr Ile Leu Phe Thr Ile Phe
                -45                -40                -35

```

```

gcc gcc ggc atc atg gct gct ccc acc gaa gga gtc cgt gag gaa gcc      99
Ala Ala Gly Ile Met Ala Ala Pro Thr Glu Gly Val Arg Glu Glu Ala
                -30                -25                -20

```

```

gcc cct ggc cag gag gtt tac ccc gac gaa cct cct gct tct ctg acc      147
Ala Pro Gly Gln Glu Val Tyr Pro Asp Glu Pro Pro Ala Ser Leu Thr
                -15                -10                -5

```

```

aag cgt ggc ttc gga tgt cct ggt gat gcc tac cag tgc agt gaa cac      195
Lys Arg Gly Phe Gly Cys Pro Gly Asp Ala Tyr Gln Cys Ser Glu His
      -1  1                5                10

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gtatgtcctg ctgctatcta gagtgaatga agctaataaa tatag tgc agg gcc ctg      252
                        Cys Arg Ala Leu
                        15

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ggc ggt gga cgc act gga gga tac tgt gct gga cct tgg tat ttg ggt      300
Gly Gly Gly Arg Thr Gly Gly Tyr Cys Ala Gly Pro Trp Tyr Leu Gly
      20                25                30

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cac cc gtatgttgcc tagatattta attgtttata gtcctttact gatgagctta      355
His Pro
35

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tag t acc tgc acc tgt tct ttc taactcgag      386
      Thr Cys Thr Cys Ser Phe
                40

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<210> 24

<211> 90

<212> PRT

<213> Eurotium amstelodami

<400> 24

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Met His Phe Thr Lys Val Ser Thr Ile Leu Phe Thr Ile Phe Ala Ala
                -45                -40                -35

```

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Gly Ile Met Ala Ala Pro Thr Glu Gly Val Arg Glu Glu Ala Ala Pro

```

-30

-25

-20

Gly Gln Glu Val Tyr Pro Asp Glu Pro Pro Ala Ser Leu Thr Lys Arg
 -15 -10 -5 -1

Gly Phe Gly Cys Pro Gly Asp Ala Tyr Gln Cys Ser Glu His Cys Arg
 1 5 10 15

Ala Leu Gly Gly Gly Arg Thr Gly Gly Tyr Cys Ala Gly Pro Trp Tyr
 20 25 30

Leu Gly His Pro Thr Cys Thr Cys Ser Phe
 35 40