

BPS65916PC-2009062707  
SEQUENCE LISTING

<110> BASF Plant Science GmbH, Bioriginal Corp.

<120> Nucleic acid encoding desaturases and modified plant oil

<130> BPS65916PC

<160> 140

<170> PatentIn version 3.5

<210> 1

<211> 1445

<212> DNA

<213> *Drechslera tritici-repentis*

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 35 40 45

Thr Tyr Gly Asn Glu Phe Glu Ile Pro Asp Tyr Thr Ile Lys Asp Ile  
 50 55 60

Arg Asp Ala Ile Pro Lys His Cys Phe Glu Arg Ser Ala Val Arg Gly  
 65 70 75 80

Leu Gly Tyr Val Ala Arg Asp Leu Ala Ser Leu Ala Ala Thr Phe Tyr  
 85 90 95

Val Phe His Asn Tyr Val Thr Pro Glu Thr Ile Pro Ser Met Pro Leu  
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Arg Ala Ala Leu Trp Thr Leu Tyr Thr Val Leu Gln Gly Phe Phe Gly  
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Thr Gly Leu Trp Ile Leu Ala His Glu Cys Gly His Gln Ala Phe Ser  
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Glu Ser Lys Leu Leu Asn Asp Thr Val Gly Trp Val Cys His Ser Ile  
 145 150 155 160

Leu Leu Val Pro Tyr Phe Ser Trp Lys Ile Ser His Gly Lys His His  
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Lys Ala Thr Gly His Met Glu Arg Asp Met Val Phe Leu Pro Lys Thr  
 180 185 190

Arg Glu Thr Tyr Ala Thr Arg Val Gly Lys Met Val His Glu Ile Ser  
 195 200 205

Glu Leu Thr Glu Glu Ala Pro Leu Ala Thr Leu Ile His Thr Phe Gly  
 210 215 220

Gln Gln Ile Gly Gly Trp Pro Leu Tyr Leu Ile Ala Asn Val Thr Gly  
 225 230 235 240

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

Tyr Glu Lys Arg Asp Glu His Leu Ile Leu Leu Ser Asp Leu Gly Leu  
 275 280 285

Ala Ile Val Ile Gly Phe Leu Thr Trp Val Gly Lys Asn Trp Gly Phe  
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Asn Asn Val Phe Val Trp Tyr Ile Ile Pro Tyr Leu Trp Val Asn His  
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Trp Leu Val Met Ile Thr Phe Leu Gln His Thr Asp Pro Ala Leu Pro  
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His Tyr Asp Ala Asp Thr Trp Thr Tyr Thr Arg Gly Ala Ala Ala Thr  
 340 345 350

Ile Asp Arg Glu Phe Gly Phe Ile Gly Arg Thr Leu Leu His Gly Ile  
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Val Glu Thr His Val Leu His His Tyr Ile Ser Thr Ile Pro Phe Tyr  
 370 375 380

His Ala Asp Glu Ala Thr Glu Ala Ile Lys Lys Val Met Gly Lys His  
 385 390 395 400

Tyr Arg Ser Asp Thr Lys Gly Gly Pro Met Gly Phe Met Asn Ala Leu  
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Trp Lys Thr Ala Arg Trp Cys Gln Trp Val Glu Pro Ser Ala Glu Ala  
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Glu Gly Glu Gly Lys Gly Val Leu Phe Phe Arg Asn Arg Asn Gly Leu  
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 <213> Cyllindrocarpon heteronema

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 35 40 45

Ala His Cys Phe Gln Pro Ser Leu Phe Thr Ser Tyr Tyr Tyr Val Val  
 50 55 60

Arg Asp Phe Thr Met Val Gly Thr Leu Val Trp Ala Ala Leu Thr Phe  
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Ile Pro Ser Ile Pro Asp Pro Ile Leu Arg Gly Ala Ala Trp Met Leu  
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 Thr Met Leu Ala<sub>180</sub> Gly Ile Gly Leu Asp<sub>185</sub> Glu Leu Phe Glu Asp<sub>190</sub> Thr Pro  
 Leu Phe Gln<sub>195</sub> Thr Leu Arg Leu Val<sub>200</sub> Gly His Gln Leu Phe<sub>205</sub> Gly Trp Gln  
 Ile Tyr<sub>210</sub> Leu Leu Phe Asn Ala<sub>215</sub> Thr Ser Gly Lys Gly<sub>220</sub> Ser Met Gln Arg  
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 Lys Ile Gly<sub>275</sub> Val Ser Thr Thr Phe<sub>280</sub> Leu Leu Tyr Gly Val<sub>285</sub> Pro Tyr Leu  
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 Leu Gly Lys His Tyr Val Arg Asp Ser Arg Ser Phe Leu Gly Gln Leu

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375

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Pro Gly Ala Met Arg Trp Ala Lys  
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 <213> Diplodia natalensis

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Pro Asn Asp Ser Pro Ala Gln Ser Pro Ser Ser Thr Ser Leu Ser Ser  
 35 40 45

Met Ala Ser Val Glu Pro Glu Val Lys Asn Ser Arg Gly Lys Leu Ile  
 50 55 60

Asp Thr Tyr Gly Asn Glu Phe Glu Ile Pro Asp Tyr Thr Ile Lys Gln  
 65 70 75 80

Ile Tyr Asp Ala Ile Pro Lys His Cys Phe Glu Arg Ser Ala Ile Arg  
 85 90 95

Ser Leu Ser Tyr Val Ala Arg Asp Val Ala Val Leu Ala Ser Val Phe  
 100 105 110

Tyr Val Phe Tyr Asn Tyr Val Thr Pro Glu Tyr Ile Pro Ser Thr Pro  
 115 120 125

Val Arg Ala Val Leu Trp Ala Leu Tyr Thr Val Val Gln Gly Leu Phe  
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Gly Thr Gly Val Trp Val Leu Ala His Glu Cys Gly His Gln Ala Phe  
 145 150 155 160

Ser Pro Ser Lys Thr Leu Asn Asp Thr Val Gly Trp Ile Cys His Ser  
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Ala Leu Leu Val Pro Tyr Phe Ser Trp Lys Ile Ser His Gly Lys His  
 180 185 190

His Lys Ala Thr Gly His Leu Thr Arg Asp Met Val Phe Val Pro Lys  
 195 200 205

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

His Glu Leu Thr Glu Glu Thr Pro Ile Ala Thr Ala Thr His Met Ile  
 225 230 235 240

Gly Gln Gln Leu Ala Gly Trp Leu Leu Tyr Leu Phe Ile Asn Val Thr  
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245

250

255

Gly His Asn Gln His Glu Lys Gln Lys Glu Gly Lys Gly Val Gly Lys  
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Lys Asn Gly Trp Phe Gly Gly Val Asn His Phe Met Pro Ser Ser Pro  
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Leu Tyr Glu Lys Lys Asp Glu Lys Leu Ile Leu Leu Ser Asp Leu Gly  
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Leu Ala Ile Thr Gly Tyr Val Leu Tyr Gln Val Gly Ser Lys Phe Gly  
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Phe Ala Asn Leu Phe Val Trp Tyr Ile Val Pro Tyr Leu Trp Val Asn  
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His Trp Leu Val Ala Ile Thr Tyr Leu Gln His Thr Asp Pro Ser Leu  
                   340                                  345                                  350

Pro His Tyr Asp Ala Ala Thr Trp Thr Phe Thr Arg Gly Ala Ala Ala  
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Thr Ile Asp Arg Glu Phe Gly Phe Ile Gly Arg His Ile Leu His Gly  
           370                                  375                                  380

Ile Ile Glu Thr His Val Leu His His Tyr Val Ser Thr Ile Pro Phe  
   385                                  390                                  395                                  400

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

His Tyr Arg Ala Asp Val Glu Asp Gly Pro Ile Gly Phe Leu Lys Ala  
                   420                                  425                                  430

Met Trp Lys Ser Ala Arg Trp Cys Gln Trp Val Glu Pro Ser Ala Glu  
                   435                                  440                                  445

Ala Gln Gly Glu Gly Lys Gly Val Leu Phe Phe Arg Asn Arg Asn Gly  
   450                                  455                                  460

Leu Gly Val Pro Pro Val Val Ile Pro Ala Pro Gly Thr Glu Lys Lys  
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&lt;211&gt; 1497

&lt;212&gt; DNA

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&lt;400&gt; 7



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<212> PRT

<213> Stagonospora nodorum

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 35 40 45

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

Asn Leu Phe Val Trp Tyr Ile Leu Pro Tyr Leu Trp Val Asn His Trp  
 325 330 335

Leu Val Ala Ile Thr Phe Leu Gln His Thr Asp Pro Thr Leu Pro His  
 340 345 350

Tyr Asp Ala Asn Thr Trp Thr Tyr Thr Arg Gly Ala Ala Ala Thr Ile  
 355 360 365

Asp Arg Glu Phe Gly Phe Ile Gly Arg Glu Ile Leu His Gly Ile Val  
 370 375 380

Glu Thr His Val Leu His His Tyr Ile Ser Thr Ile Pro Phe Tyr His  
 385 390 395 400

Ala Asp Glu Ala Ser Glu Ala Ile Lys Pro Val Met Gly Arg His Tyr  
 405 410 415

Arg Ser Asp Val Glu Gly Gly Pro Ile Gly Phe Leu Lys Ala Met Trp  
 420 425 430

Lys Ser Ala Arg Trp Cys Gln Trp Val Glu Pro Ser Ala Asp Ala Glu  
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Gly Glu Gly Lys Gly Val Leu Phe Phe Arg Asn His Asn Gly Leu Gly  
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 <211> 459  
 <212> PRT  
 <213> Pythium irregulare  
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Ile Arg Glu His Ala Thr Pro Ala Thr Ala Trp Ile Val Ile His His  
 20 25 30

Lys Val Tyr Asp Ile Ser Lys Trp Asp Ser His Pro Gly Gly Ser Val  
 35 40 45

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

His Pro Ser Ser Ala Leu Lys Leu Leu Glu Gln Phe Tyr Val Gly Asp  
 65 70 75 80

Val Asp Glu Thr Ser Lys Ala Glu Ile Glu Gly Glu Pro Ala Ser Asp  
 85 90 95

Glu Glu Arg Ala Arg Arg Glu Arg Ile Asn Glu Phe Ile Ala Ser Tyr  
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Arg Arg Leu Arg Val Lys Val Lys Gly Met Gly Leu Tyr Asp Ala Ser  
 115 120 125

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

Leu Ser Met Ala Ile Cys Phe Phe Phe Asn Ser Phe Ala Met Tyr Met  
 145 150 155 160  
 Val Ala Gly Val Ile Met Gly Leu Phe Tyr Gln Gln Ser Gly Trp Leu  
 165 170 175  
 Ala His Asp Phe Leu His Asn Gln Val Cys Glu Asn Arg Thr Leu Gly  
 180 185 190  
 Asn Leu Ile Gly Cys Leu Val Gly Asn Ala Trp Gln Gly Phe Ser Met  
 195 200 205  
 Gln Trp Trp Lys Asn Lys His Asn Leu His His Ala Val Pro Asn Leu  
 210 215 220  
 His Ser Ala Lys Asp Glu Gly Phe Ile Gly Asp Pro Asp Ile Asp Thr  
 225 230 235 240  
 Met Pro Leu Leu Ala Trp Ser Lys Glu Met Ala Arg Lys Ala Phe Glu  
 245 250 255  
 Ser Ala His Gly Pro Phe Phe Ile Arg Asn Gln Ala Phe Leu Tyr Phe  
 260 265 270  
 Pro Leu Leu Leu Leu Ala Arg Leu Ser Trp Leu Ala Gln Ser Phe Phe  
 275 280 285  
 Tyr Val Phe Thr Glu Phe Ser Phe Gly Ile Phe Asp Lys Val Glu Phe  
 290 295 300  
 Asp Gly Pro Glu Lys Ala Gly Leu Ile Val His Tyr Ile Trp Gln Leu  
 305 310 315 320  
 Ala Ile Pro Tyr Phe Cys Asn Met Ser Leu Phe Glu Gly Val Ala Tyr  
 325 330 335  
 Phe Leu Met Gly Gln Ala Ser Cys Gly Leu Leu Leu Ala Leu Val Phe  
 340 345 350  
 Ser Ile Gly His Asn Gly Met Ser Val Tyr Glu Arg Glu Thr Lys Pro  
 355 360 365  
 Asp Phe Trp Gln Leu Gln Val Thr Thr Thr Arg Asn Ile Arg Ala Ser  
 370 375 380  
 Val Phe Met Asp Trp Phe Thr Gly Gly Leu Asn Tyr Gln Ile Asp His  
 385 390 395 400  
 His Leu Phe Pro Leu Val Pro Arg His Asn Leu Pro Lys Val Asn Val  
 405 410 415

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

Gly Phe Trp Glu Gly Ile Tyr Glu Val Val Asp His Leu Ala Asp Ile  
                   435                                  440                                  445

Ser Lys Glu Phe Ile Thr Glu Phe Pro Ala Met  
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 <211> 272  
 <212> PRT  
 <213> *Thalassiosira pseudonana*

<400> 12

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Asp Trp Ser Asp Pro Asp Gly Lys Phe Arg Ala Asp Arg Glu Asp Trp  
           20                                  25                                  30

Trp Leu Cys Asp Phe Arg Ser Ala Ile Thr Ile Ala Leu Ile Tyr Ile  
           35                                  40                                  45

Ala Phe Val Ile Leu Gly Ser Ala Val Met Gln Ser Leu Pro Ala Met  
           50                                  55                                  60

Asp Pro Tyr Pro Ile Lys Phe Leu Tyr Asn Val Ser Gln Ile Phe Leu  
65 70 75 80

Cys Ala Tyr Met Thr Val Glu Ala Gly Phe Leu Ala Tyr Arg Asn Gly  
85 90 95

Tyr Thr Val Met Pro Cys Asn His Phe Asn Val Asn Asp Pro Pro Val  
100 105 110

Ala Asn Leu Leu Trp Leu Phe Tyr Ile Ser Lys Val Trp Asp Phe Trp  
115 120 125

Asp Thr Ile Phe Ile Val Leu Gly Lys Lys Trp Arg Gln Leu Ser Phe  
130 135 140

Leu His Val Tyr His His Thr Thr Ile Phe Leu Phe Tyr Trp Leu Asn  
145 150 155 160

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

Gly Phe Ile His Thr Val Met Tyr Thr Tyr Tyr Phe Ile Cys Met His  
180 185 190

Thr Lys Asp Ser Lys Thr Gly Lys Ser Leu Pro Ile Trp Trp Lys Ser  
195 200 205

Ser Leu Thr Ala Phe Gln Leu Leu Gln Phe Thr Ile Met Met Ser Gln  
210 215 220

Ala Thr Tyr Leu Val Phe His Gly Cys Asp Lys Val Ser Leu Arg Ile  
225 230 235 240

Thr Ile Val Tyr Phe Val Tyr Ile Leu Ser Leu Phe Phe Leu Phe Ala  
245 250 255

Gln Phe Phe Val Gln Ser Tyr Met Ala Pro Lys Lys Lys Lys Ser Ala  
260 265 270

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<211> 1320  
<212> DNA  
<213> Thraustochytrium ssp.

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 <211> 439  
 <212> PRT  
 <213> *Thraustochytrium* ssp.

<400> 14

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

Tyr Asp Ala Thr Asn Phe Lys His Pro Gly Gly Ser Ile Ile Asn Phe  
 35 40 45

Leu Thr Glu Gly Glu Ala Gly Val Asp Ala Thr Gln Ala Tyr Arg Glu  
 50 55 60

Phe His Gln Arg Ser Gly Lys Ala Asp Lys Tyr Leu Lys Ser Leu Pro  
 65 70 75 80

Lys Leu Asp Ala Ser Lys Val Glu Ser Arg Phe Ser Ala Lys Glu Gln  
 85 90 95

Ala Arg Arg Asp Ala Met Thr Arg Asp Tyr Ala Ala Phe Arg Glu Glu  
 100 105 110



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

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

Phe Lys Arg His Asn Leu Pro Tyr Tyr Asp Leu Pro Tyr Thr Ser Ala  
405 410 415

Val Ser Thr Thr Phe Ala Asn Leu Tyr Ser Val Gly His Ser Val Gly  
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Ala Asp Thr Lys Lys Gln Asp  
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<211> 831  
<212> DNA  
<213> Thraustochytrium ssp.

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<211> 276  
<212> PRT  
<213> Thraustochytrium ssp.

<400> 16

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Asn Gly Ile Val Glu Phe Met Glu His Glu Lys Pro Asn Lys Leu Asn  
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Glu Gly Lys Leu Phe Thr Ser Thr Glu Glu Met Met Ala Leu Ile Val  
35 40 45

Gly Tyr Leu Ala Phe Val Val Leu Gly Ser Ala Phe Met Lys Ala Phe  
 50 55 60

Val Asp Lys Pro Phe Glu Leu Lys Phe Leu Lys Leu Val His Asn Ile  
 65 70 75 80

Phe Leu Thr Gly Leu Ser Met Tyr Met Ala Thr Glu Cys Ala Arg Gln  
 85 90 95

Ala Tyr Leu Gly Gly Tyr Lys Leu Phe Gly Asn Pro Met Glu Lys Gly  
 100 105 110

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

Val Ser Lys Phe Leu Glu Phe Leu Asp Thr Val Phe Met Ile Leu Gly  
 130 135 140

Lys Lys Trp Lys Gln Leu Ser Phe Leu His Val Tyr His His Ala Ser  
 145 150 155 160

Ile Ser Phe Ile Trp Gly Ile Ile Ala Arg Phe Ala Pro Gly Gly Asp  
 165 170 175

Ala Tyr Phe Ser Thr Ile Leu Asn Ser Ser Val His Val Val Leu Tyr  
 180 185 190

Gly Tyr Tyr Ala Ser Thr Thr Leu Gly Tyr Thr Phe Met Arg Pro Leu  
 195 200 205

Arg Pro Tyr Ile Thr Thr Ile Gln Leu Thr Gln Phe Met Ala Met Val  
 210 215 220

Val Gln Ser Val Tyr Asp Tyr Tyr Asn Pro Cys Asp Tyr Pro Gln Pro  
 225 230 235 240

Leu Val Lys Leu Leu Phe Trp Tyr Met Leu Thr Met Leu Gly Leu Phe  
 245 250 255

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

Gln Lys Thr Ile  
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<210> 17  
 <211> 1086  
 <212> DNA  
 <213> Phytophthora infestans

<400> 17  
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<210> 18  
<211> 361  
<212> PRT  
<213> Phytophthora infestans  
<400> 18

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Arg Ser Leu Pro Lys Asp Cys Phe Glu Ala Ser Val Pro Leu Ser Leu  
20 25 30

Tyr Tyr Thr Val Arg Cys Leu Val Ile Ala Val Ala Leu Thr Phe Gly  
35 40 45

Leu Asn Tyr Ala Arg Ala Leu Pro Glu Val Glu Ser Phe Trp Ala Leu  
50 55 60

Asp Ala Ala Leu Cys Thr Gly Tyr Ile Leu Leu Gln Gly Ile Val Phe  
65 70 75 80

Trp Gly Phe Phe Thr Val Gly His Asp Ala Gly His Gly Ala Phe Ser  
85 90 95

Arg Tyr His Leu<sub>100</sub> Leu Asn Phe Val Val<sub>105</sub> Gly Thr Phe Met His<sub>110</sub> Ser Leu

Ile Leu Thr<sub>115</sub> Pro Phe Glu Ser Trp<sub>120</sub> Lys Leu Thr His Arg<sub>125</sub> His His His

Lys Asn<sub>130</sub> Thr Gly Asn Ile Asp<sub>135</sub> Arg Asp Glu Val Phe<sub>140</sub> Tyr Pro Gln Arg

Lys Ala Asp Asp His Pro<sub>150</sub> Leu Ser Arg Asn Leu<sub>155</sub> Ile Leu Ala Leu Gly<sub>160</sub>

Ala Ala Trp Leu Ala<sub>165</sub> Tyr Leu Val Glu Gly<sub>170</sub> Phe Pro Pro Arg Lys<sub>175</sub> Val

Asn His Phe Asn<sub>180</sub> Pro Phe Glu Pro Leu<sub>185</sub> Phe Val Arg Gln Val<sub>190</sub> Ser Ala

Val Val Ile<sub>195</sub> Ser Leu Leu Ala His<sub>200</sub> Phe Phe Val Ala Gly<sub>205</sub> Leu Ser Ile

Tyr Leu<sub>210</sub> Ser Leu Gln Leu Gly<sub>215</sub> Leu Lys Thr Met Ala<sub>220</sub> Ile Tyr Tyr Tyr

Gly<sub>225</sub> Pro Val Phe Val Phe<sub>230</sub> Gly Ser Met Leu Val<sub>235</sub> Ile Thr Thr Phe Leu<sub>240</sub>

His His Asn Asp Glu<sub>245</sub> Glu Thr Pro Trp Tyr<sub>250</sub> Ala Asp Ser Glu Trp<sub>255</sub> Thr

Tyr Val Lys Gly<sub>260</sub> Asn Leu Ser Ser Val<sub>265</sub> Asp Arg Ser Tyr Gly<sub>270</sub> Ala Leu

Ile Asp Asn<sub>275</sub> Leu Ser His Asn Ile<sub>280</sub> Gly Thr His Gln Ile<sub>285</sub> His His Leu

Phe Pro<sub>290</sub> Ile Ile Pro His Tyr<sub>295</sub> Lys Leu Lys Lys Ala<sub>300</sub> Thr Ala Ala Phe

His Gln Ala Phe Pro Glu<sub>310</sub> Leu Val Arg Lys Ser<sub>315</sub> Asp Glu Pro Ile Ile<sub>320</sub>

Lys Ala Phe Phe Arg<sub>325</sub> Val Gly Arg Leu Tyr<sub>330</sub> Ala Asn Tyr Gly Val<sub>335</sub> Val

Asp Gln Glu Ala<sub>340</sub> Lys Leu Phe Thr Leu<sub>345</sub> Lys Glu Ala Lys Ala<sub>350</sub> Ala Thr

Glu Ala Ala<sub>355</sub> Ala Lys Thr Lys Ser Thr<sub>360</sub>

<210> 19

&lt;211&gt; 1371

&lt;212&gt; DNA

<213> *Ostreococcus tauri*

&lt;400&gt; 19

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&lt;210&gt; 20

&lt;211&gt; 456

&lt;212&gt; PRT

<213> *Ostreococcus tauri*

&lt;400&gt; 20

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

Ala Glu Lys Met Glu Pro Ala Ala Leu Ala Lys Thr Phe Ala Arg Arg  
 35 40 45

Tyr Val Val Ile Glu Gly Val Glu Tyr Asp Val Thr Asp Phe Lys His  
 50 55 60  
 Pro Gly Gly Thr Val Ile Phe Tyr Ala Leu Ser Asn Thr Gly Ala Asp  
 65 70 75 80  
 Ala Thr Glu Ala Phe Lys Glu Phe His His Arg Ser Arg Lys Ala Arg  
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 Lys Ala Leu Ala Ala Leu Pro Ser Arg Pro Ala Lys Thr Ala Lys Val  
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 Asp Asp Ala Glu Met Leu Gln Asp Phe Ala Lys Trp Arg Lys Glu Leu  
 115 120 125  
 Glu Arg Asp Gly Phe Phe Lys Pro Ser Pro Ala His Val Ala Tyr Arg  
 130 135 140  
 Phe Ala Glu Leu Ala Ala Met Tyr Ala Leu Gly Thr Tyr Leu Met Tyr  
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 Ala Arg Tyr Val Val Ser Ser Val Leu Val Tyr Ala Cys Phe Phe Gly  
 165 170 175  
 Ala Arg Cys Gly Trp Val Gln His Glu Gly Gly His Ser Ser Leu Thr  
 180 185 190  
 Gly Asn Ile Trp Trp Asp Lys Arg Ile Gln Ala Phe Thr Ala Gly Phe  
 195 200 205  
 Gly Leu Ala Gly Ser Gly Asp Met Trp Asn Ser Met His Asn Lys His  
 210 215 220  
 His Ala Thr Pro Gln Lys Val Arg His Asp Met Asp Leu Asp Thr Thr  
 225 230 235 240  
 Pro Ala Val Ala Phe Phe Asn Thr Ala Val Glu Asp Asn Arg Pro Arg  
 245 250 255  
 Gly Phe Ser Lys Tyr Trp Leu Arg Leu Gln Ala Trp Thr Phe Ile Pro  
 260 265 270  
 Val Thr Ser Gly Leu Val Leu Leu Phe Trp Met Phe Phe Leu His Pro  
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<212>	DNA
<213>	Phytophthora sojae

[illegible]



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&lt;210&gt; 22

&lt;211&gt; 398

&lt;212&gt; PRT

&lt;213&gt; Phytophthora sojae

&lt;400&gt; 22

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Asp Ser Glu Ala Lys Gln Arg Gln Leu Ala Glu Ala Gly Tyr Thr His  
 20 25 30

Val Glu Gly Ala Pro Ala Pro Leu Pro Leu Glu Leu Pro His Phe Ser  
 35 40 45

Leu Arg Asp Leu Arg Ala Ala Ile Pro Lys His Cys Phe Glu Arg Ser  
 50 55 60

Phe Val Thr Ser Thr Tyr Tyr Met Ile Lys Asn Val Leu Thr Cys Ala  
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Ala Leu Phe Tyr Ala Ala Thr Phe Ile Asp Arg Ala Gly Ala Ala Ala  
 85 90 95

Tyr Val Leu Trp Pro Val Tyr Trp Phe Phe Gln Gly Ser Tyr Leu Thr  
 100 105 110

Gly Val Trp Val Ile Ala His Glu Cys Gly His Gln Ala Tyr Cys Ser  
 115 120 125

Ser Glu Val Val Asn Asn Leu Ile Gly Leu Val Leu His Ser Ala Leu  
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Leu Val Pro Tyr His Ser Trp Arg Ile Ser His Arg Lys His His Ser  
 145 150 155 160

Asn Thr Gly Ser Cys Glu Asn Asp Glu Val Phe Val Pro Val Thr Arg  
 165 170 175

Ser Val Leu Ala Ser Ser Trp Asn Glu Thr Leu Glu Asp Ser Pro Leu  
 180 185 190

Tyr Gln Leu Tyr Arg Ile Val Tyr Met Leu Val Val Gly Trp Met Pro  
 195 200 205

Gly Tyr Leu Phe Phe Asn Ala Thr Gly Pro Thr Lys Tyr Trp Gly Lys  
 210 215 220

Ser Arg Ser His Phe Asn Pro Tyr Ser Ala Ile Tyr Ala Asp Arg Glu  
 225 230 235 240

Arg Trp Met Ile Val Leu Ser Asp Ile Phe Leu Val Ala Met Leu Ala  
 245 250 255

Val Leu Ala Ala Leu Val His Thr Phe Ser Phe Asn Thr Met Val Lys  
 260 265 270

Phe Tyr Val Val Pro Tyr Phe Ile Val Asn Ala Tyr Leu Val Leu Ile  
 275 280 285

Thr Tyr Leu Gln His Thr Asp Thr Tyr Ile Pro His Phe Arg Glu Gly  
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Glu Trp Asn Trp Leu Arg Gly Ala Leu Cys Thr Val Asp Arg Ser Phe  
 305 310 315 320

Gly Pro Phe Leu Asp Ser Val Val His Arg Ile Val Asp Thr His Val  
 325 330 335

Cys His His Ile Phe Ser Lys Met Pro Phe Tyr His Cys Glu Glu Ala  
 340 345 350

Thr Asn Ala Ile Lys Pro Leu Leu Gly Lys Phe Tyr Leu Lys Asp Thr  
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Thr Pro Val Pro Val Ala Leu Trp Arg Ser Tyr Thr His Cys Lys Phe  
 370 375 380

Val Glu Asp Asp Gly Lys Val Val Phe Tyr Lys Asn Lys Leu  
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 <212> DNA  
 <213> Arabidopsis thaliana

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 gcggcgattc ctaagcactg ttgggttaag agtcctttga gatcaatgag ttacgtcgtc 180  
 agagacatta tcgccgtcgc ggctttggcc atcgctgccg tgtatgttga tagctggttc 240  
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<400> 24

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35 40 45

Val Lys Ser Pro Leu Arg Ser Met Ser Tyr Val Val Arg Asp Ile Ile  
50 55 60

Ala Val Ala Ala Leu Ala Ile Ala Ala Val Tyr Val Asp Ser Trp Phe  
65 70 75 80

Leu Trp Pro Leu Tyr Trp Ala Ala Gln Gly Thr Leu Phe Trp Ala Ile  
85 90 95

Phe Val Leu Gly His Asp Cys Gly His Gly Ser Phe Ser Asp Ile Pro  
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Leu Leu Asn Ser Val Val Gly His Ile Leu His Ser Phe Ile Leu Val  
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Pro Tyr His Gly Trp Arg Ile Ser His Arg Thr His His Gln Asn His  
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Gly His Val Glu Asn Asp Glu Ser Trp Val Pro Leu Pro Glu Arg Val  
145 150 155 160

Tyr Lys Lys Leu Pro His Ser Thr Arg Met Leu Arg Tyr Thr Val Pro  
165 170 175

Leu Pro Met Leu Ala Tyr Pro Leu Tyr Leu Cys Tyr Arg Ser Pro Gly  
180 185 190

Lys Glu Gly Ser His Phe Asn Pro Tyr Ser Ser Leu Phe Ala Pro Ser  
195 200 205

Glu Arg Lys Leu Ile Ala Thr Ser Thr Thr Cys Trp Ser Ile Met Phe  
210 215 220

Val Ser Leu Ile Ala Leu Ser Phe Val Phe Gly Pro Leu Ala Val Leu  
225 230 235 240

Lys Val Tyr Gly Val Pro Tyr Ile Ile Phe Val Met Trp Leu Asp Ala  
245 250 255

Val Thr Tyr Leu His His His Gly His Asp Glu Lys Leu Pro Trp Tyr  
260 265 270

Arg Gly Lys Glu Trp Ser Tyr Leu Arg Gly Gly Leu Thr Thr Ile Asp  
275 280 285

Arg Asp Tyr Gly Ile Phe Asn Asn Ile His His Asp Ile Gly Thr His  
290 295 300

Val Ile His His Leu Phe Pro Gln Ile Pro His Tyr His Leu Val Asp  
305 310 315 320

Ala Thr Lys Ala Ala Lys His Val Leu Gly Arg Tyr Tyr Arg Glu Pro  
325 330 335

Lys Thr Ser Gly Ala Ile Pro Ile His Leu Val Glu Ser Leu Val Ala  
340 345 350

Ser Ile Lys Lys Asp His Tyr Val Ser Asp Thr Gly Asp Ile Val Phe  
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Tyr Glu Thr Asp Pro Asp Leu Tyr Val Tyr Ala Ser Asp Lys Ser Lys  
370 375 380

Ile Asn  
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 <212> DNA  
 <213> *Claviceps purpurea*

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 <212> PRT  
 <213> *Claviceps purpurea*

<400> 26

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

Phe Gly Trp Ala Asn Val Ala Val Trp Tyr Phe Val Pro Tyr Leu Trp  
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Val Asn His Trp Ile Val Ala Ile Thr Phe Leu Gln His Thr Asp Pro  
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Thr Leu Pro His Tyr Thr Ala Glu Glu Trp Asn Phe Val Arg Gly Ala  
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Ala Ala Thr Ile Asp Arg Glu Met Gly Phe Ile Gly Arg His Leu Phe  
 370 375 380

His Gly Ile Val Glu Thr His Val Leu His His Tyr Val Ser Ser Ile  
 385 390 395 400

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

Gly Lys His Tyr Arg Ser Glu Thr Lys Asp Gly Pro Met Gly Phe Ile  
 420 425 430

Arg Ala Leu Trp Lys Thr Ala Arg Trp Cys Gln Trp Val Glu Pro Ser  
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Ala Asp Ala Gln Gly Ala Gly Glu Gly Val Leu Phe Phe Arg Asn Arg  
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 <211> 1224  
 <212> DNA  
 <213> Acanthamoeba castellanii

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 <213> Acanthamoeba castellanii  
 <400> 28

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



Val Pro His Thr Ile Thr Pro Glu Gln Arg Ala Lys Val Asp Gln Gly  
 165 170 175  
 Glu Leu Pro His Pro Asn Lys Pro Ser Leu Phe Ala Phe Tyr Glu Arg  
 180 185 190  
 Trp Val Ile Pro Phe Val Met Leu Phe Leu Gly Trp Pro Leu Tyr Leu  
 195 200 205  
 Ser Ile Asn Ala Ser Gly Pro Pro Lys Lys Glu Leu Val Ser His Tyr  
 210 215 220  
 Asp Pro Lys Ala Ser Ile Phe Asn Lys Lys Asp Trp Trp Lys Ile Leu  
 225 230 235 240  
 Leu Ser Asp Leu Gly Leu Val Ala Trp Thr Leu Ala Leu Trp Lys Leu  
 245 250 255  
 Gly Glu Thr Phe Gly Phe Gly Leu Val Ala Ala Leu Tyr Ile Pro Pro  
 260 265 270  
 Val Leu Val Thr Asn Ser Tyr Leu Val Ala Ile Thr Phe Leu Gln His  
 275 280 285  
 Thr Asp Asp Ile Leu Pro His Tyr Asp Ala Thr Glu Trp Thr Trp Leu  
 290 295 300  
 Arg Gly Ala Leu Cys Thr Val Asp Arg Ser Leu Gly Trp Phe Gly Asp  
 305 310 315 320  
 Tyr Lys Thr His His Ile Val Asp Thr His Val Thr His His Ile Phe  
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 Ser Tyr Leu Pro Phe Tyr Asn Ala Glu Glu Ala Thr Lys Ala Ile Lys  
 340 345 350  
 Pro Val Leu Lys Glu Tyr His Cys Glu Asp Lys Arg Gly Phe Phe His  
 355 360 365  
 Phe Trp Tyr Leu Phe Phe Lys Thr Ala Ala Glu Asn Ser Val Val Asp  
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<210> 29  
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 <212> DNA

<213> *Lottia gigantea*

&lt;400&gt; 29

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&lt;210&gt; 30

&lt;211&gt; 370

&lt;212&gt; PRT

<213> *Lottia gigantea*

&lt;400&gt; 30

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Gln His Leu Ser Lys Arg Asn Gly Ser Ser Asn Gly Thr Ser Lys Asn
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Gly Val Ala Asn Lys Ile Pro Ser Ile Ser Glu Ile Lys Ala Ala Ile
      35          40          45

Pro Asn His Cys Phe Lys Ser Thr Ile Lys Gln Ser Met Tyr Tyr Val
      50          55          60

Phe Lys Asp Ile Ile Leu Ile Ile Ala Leu Tyr Cys Phe Gly His Trp
65          70          75          80

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Val Leu Gln Cys Asn Ser Ile Ile Leu Lys Thr Ala Leu Ser Pro Val  
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 His Asp Cys Asn His Gly Ser Phe Ser Ser Tyr Ala Leu Leu Asn Asp  
 115 120 125  
 Cys Leu Gly Thr Val Leu His Ser Phe Val Met Thr Pro Tyr Tyr Pro  
 130 135 140  
 Trp Lys Ile Ser His Arg His His His Asn Asn Thr Gly Asn Met Asp  
 145 150 155 160  
 Lys Asp Glu Ile Phe Tyr Pro Ile Arg Lys Lys Asp Asn Asn Lys Asn  
 165 170 175  
 Ser Phe Ala Leu Phe Phe Gly Leu Gly Phe Gly Trp Leu Ala Tyr Leu  
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 Trp Arg Gly Phe Gly Pro Arg Gln Met Asn His Trp Ile Pro Arg His  
 195 200 205  
 Ala Ile Phe Ala Lys His Val Val Gly Cys Ile Leu Ser Ile Gly Val  
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 Val Gly Ile Trp Val Gly Ile Leu Gly Tyr Tyr Val Gln Leu Met Gly  
 225 230 235 240  
 Met Val Ser Leu Val Tyr His Tyr Met Ile Pro Val Phe Ile Cys Gly  
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 Cys Tyr Ile Val Met Val Thr Phe Leu His His Ser Asp Ile Asn Leu  
 260 265 270  
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 Ser Val Asp Arg Asp Tyr Gly Ile Phe His Asp Val Ile His Thr Ile  
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 305 310 315 320  
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 Lys Tyr Ser Ser Gln Cys Ile Val Glu Asn Asp Ala Lys Ile His Tyr  
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355

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<210> 31  
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 <213> Microdochium nivalae

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 aagcaccaca aggctaccgg taacctcgcc cgtgacatgg ttttcgtccc ccgcactcgt 180  
 gaggagcacg ctcaccgtgt cgggtggcacc atcgagcagc tcggtgagct gatggaggag 240  
 acccccatcg ccactgctct caacctgctt ctccagcagc tcttcggatg gcccatgtac 300  
 ctcataacca acgtcactgg ccacaacaac cacaccaagc agatcgaggg tcgcggaag 360  
 ggcaaggcca acggctgggt cggcgggtgc aaccacttca accccagcag ccctctgtac 420  
 gaggtcggg acgccaagta cattgctctg agtgatctcg gtctcgccat caccggctct 480  
 gctctgtact atgtcggatc cacctatggc tggctcaacc tgctcgtctg gtacggtatc 540  
 ccctacctct ggggtgaacca ctggctcgtt gccatcactt tcctccagca caccgacct 600  
 accctcccc actatacccc tgagtcctgg aactttgccc gtggtgccgc tgccactatt 660  
 gaccgtgact tcggtttcgt cggtcgtcac ctctccacg gtatcatcga gactcacgtc 720  
 ctgcaccact atgtcagcaa catccccttc tacaacgccg acgaggcgtc cgaggccatc 780  
 cagaaggtca tgggctcgca ctaccgcacc gaagcccaga ccggctggac tggattcttc 840  
 aaggccctct ggaccagcgc ccgtgtctgc cagtgggtcg agccctccga gggaaccaca 900  
 ggcgagaacc agggagtgat gttcttccgc aacaccaacg gtctcggtgt tccccctacc 960  
 aagatggcca aatag 975

<210> 32  
 <211> 324  
 <212> PRT  
 <213> Microdochium nivalae

<400> 32  
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 1 5 10 15  
 Asn Asp Thr Val Gly Trp Ile Cys His Ser Ala Leu Leu Val Pro Tyr  
 20 25 30  
 Phe Ser Trp Lys Ile Ser His Gly Lys His His Lys Ala Thr Gly Asn  
 35 40 45  
 Leu Ala Arg Asp Met Val Phe Val Pro Arg Thr Arg Glu Glu His Ala  
 50 55 60

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

<210> 33  
 <211> 1593  
 <212> DNA  
 <213> *Microdochium nivalae*

<400> 33  
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 ggacggtaag cctctcttga ctcttggtgc cctgcaacca cctgctgact ttttgtgtgt 180  
 ttctcgcctt gccagaccg gatgagaggc tcgtcaacag cccaggagtt cccagacatc 240  
 cagaccatcc gcgatgctat cccaagcac tgctttgagc cctcaacagt ccgttccttg 300  
 agctatgtcg cccgcgatgt aaccatggcc tcggccctca tctgggcggc cgtccgcttc 360  
 atccccaga tcgaggactc ggtcctgcgc ttctcggcct ggatggtcta cggccttgctc 420  
 cagggcatgg tctgcaccgg cgtctggatc ctcgcccacg agtgcgcca cggcgccttc 480  
 agcaagcacc agaccctcaa cgactttgtc ggctgggtcc tgactcgag tctcggcgtc 540  
 ccctacttct catggaagtt ctcacaccac cgccaccacc gtttactgg caacatggag 600  
 aaggacatgg tctttgtccc cgccgtcaag accgaggagc cccctaagcg ccgcctcgcc 660  
 tccttctacc tcgaccctga gatcctcgag gacgccccca ttgtcagcct catccagctc 720  
 attgcccacc agtcgcccgg ctggcagatg tacatgctct tcaacgtctc atcgggcaag 780  
 gacagcaagc agcgcaacca gtctggctgg ctgcgcgtca gccactttga gcccaccagc 840  
 gccgtcttcc gccctagcga ggcctggtac atcttcctcg ccgacgtcgg ccttgctctc 900  
 accggcgccg ccatctacta cggtccacc cttgtcgggt ggcccaccat gttctttgtc 960  
 tactttgtcc cctacatgtg gtggaaccac tggctcgttg ccatcaccta cctccaccac 1020  
 acccaccgga aagtccacca ctacgaggcg gacagctgga cctacgtcaa gggcgccctc 1080  
 gccaccgtcg accgcgactt tggctggatt gacaagcacc tcttccagta cgtttttgac 1140  
 attcgctctg cccatttttg accaacaacg aatgacctac taactctctc cactgcagcg 1200  
 gcatcattgg cttccacgtc atccaccaca tctttgcaa gatccccctt tactacgccg 1260  
 aggaggccac cgcggccatc cagcccgtca ttggcaacca ctaccaccgt gctcccggct 1320  
 ccttcctcgg cgacctctgg ctcaatttca ccaagtgccg cttcgtcgag aaggaccccg 1380  
 agcaccctgg cgccatgcgc tgggtcgcac cccgaagga ccttttagatt ttcttgagc 1440  
 agagactaga gacttatgat ccatcggtgc agaaagctgc cgaggataga tgcgagaaca 1500  
 aaaggcgacc aactccccca ggcccagtag atttgtaaca ggcactagac cctgcagatt 1560  
 ctggacggtt agataaaaaa aaaaaaaaaa aaa 1593

<210> 34  
 <211> 402  
 <212> PRT  
 <213> *Microdochium nivalae*

<400> 34

Met Ile Ala Thr Thr Gln Thr Lys Thr Ala Val Thr Asp Arg Gly Thr  
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 Thr Arg Met Arg Gly Ser Ser Thr Ala Gln Glu Phe Pro Asp Ile Gln  
 20 25 30  
 Thr Ile Arg Asp Ala Ile Pro Lys His Cys Phe Glu Pro Ser Thr Val  
 35 40 45  
 Arg Ser Leu Ser Tyr Val Ala Arg Asp Val Thr Met Ala Ser Ala Leu  
 50 55 60  
 Ile Trp Ala Ala Val Arg Phe Ile Pro Gln Ile Glu Asp Ser Val Leu  
 65 70 75 80  
 Arg Phe Ser Ala Trp Met Val Tyr Gly Leu Val Gln Gly Met Val Cys  
 85 90 95  
 Thr Gly Val Trp Ile Leu Ala His Glu Cys Gly His Gly Ala Phe Ser  
 100 105 110  
 Lys His Gln Thr Leu Asn Asp Phe Val Gly Trp Val Leu His Ser Ser  
 115 120 125  
 Leu Gly Val Pro Tyr Phe Ser Trp Lys Phe Ser His His Arg His His  
 130 135 140  
 Arg Phe Thr Gly Asn Met Glu Lys Asp Met Val Phe Val Pro Ala Val  
 145 150 155 160  
 Lys Thr Glu Glu Pro Pro Lys Arg Arg Leu Ala Ser Phe Tyr Leu Asp  
 165 170 175  
 Pro Glu Ile Leu Glu Asp Ala Pro Ile Val Ser Leu Ile Gln Leu Ile  
 180 185 190  
 Ala His Gln Leu Ala Gly Trp Gln Met Tyr Met Leu Phe Asn Val Ser  
 195 200 205  
 Ser Gly Lys Asp Ser Lys Gln Arg Asn Gln Ser Gly Trp Leu Arg Val  
 210 215 220  
 Ser His Phe Glu Pro Thr Ser Ala Val Phe Arg Pro Ser Glu Ala Trp  
 225 230 235 240  
 Tyr Ile Phe Leu Ala Asp Val Gly Leu Ala Leu Thr Gly Ala Ala Ile  
 245 250 255  
 Tyr Tyr Gly Ser Thr Leu Val Gly Trp Pro Thr Met Phe Phe Val Tyr  
 260 265 270  
 Phe Val Pro Tyr Met Trp Trp Asn His Trp Leu Val Ala Ile Thr Tyr

275

Leu His His Thr His Pro Glu Val His His Tyr Glu Ala Asp Ser Trp  
290 295 300

Thr Tyr Val Lys Gly Ala Leu Ala Thr Val Asp Arg Asp Phe Gly Trp  
305 310 315 320

Ile Asp Lys His Leu Phe His Gly Ile Ile Gly Phe His Val Ile His  
325 330 335

His Ile Phe Ala Lys Ile Pro Phe Tyr Tyr Ala Glu Glu Ala Thr Ala  
340 345 350

Ala Ile Gln Pro Val Ile Gly Asn His Tyr His Arg Ala Pro Gly Ser  
355 360 365

Phe Leu Gly Asp Leu Trp Leu Thr Phe Thr Lys Cys Arg Phe Val Glu  
370 375 380

Lys Asp Pro Glu His Pro Gly Ala Met Arg Trp Val Ala Pro Arg Lys  
385 390 395 400

Asp Leu

<210> 35  
<211> 1557  
<212> DNA  
<213> Periplaneta americana

<400> 35  
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agtgtgggga atttcagcga ttacatcatg gctccgaaca ttacaagttc tcctaccggt 180  
gtcctatttg aggatgatac tatagaaact gtaacattac caacgatcga gactaaaact 240  
gatgattcca aaccagctga gaaatacaaa agaaaaattg tatggagaaa cgctatcctc 300  
tttgtatatt tgcatatggc agcactctac ggggcttacc ttatgctgac atcctgtaaa 360  
ttgatcacag ctatatgggc tattcttctg tatcaggcag gtgggtctagg tataactgca 420  
gggtgcacata gattatgggc acaccgtgct tacaaggcaa agtggccttt gagacttatc 480  
ctcgtgatat tcaacactct tgcattccag aaccacgttt acgaatgggc tcgcgaccac 540  
agagtacacc acaagttcag tgaaactgat gctgaccctc ataatgccaa gcgcggcttc 600  
tttttctctc atgttggttg gctacttgct cgtaagcatc cagatgttaa agtaaagggc 660  
aaaggaatcg atatgtctga tctcgaatgct gatccactca tcgcattcca gaagaagtga 720  
gtatctatct tgtctattgc aataacatga gtcacttaga cctttccatt tacatactat 780  
gtagccatgt atatagttcc ttgtctgata ctaagatatg ttcattcatta aactctggct 840



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 tgtagctatt gtttcagtat attcgccact ctgtcaatta gagttaacgc tagtttcttg 960  
 acattatgaa attgtgatat ttgtttttca gacactacct gatcctcatg ccaattatat 1020  
 gctttattct accaacaatc atacctgtgt atttttgggg tgagacctgg tcaaattgctt 1080  
 ggtttgtggt tgcgatgttt cgctacacct tcactctcaa cgcgtcctgg cttgtgaaca 1140  
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 tcggcgtttc tatgctagct ctgggcgagg gttggcacia ctaccatcac gtgtttcctt 1260  
 gggactacaa gactgccgaa cttggaaact acagcaccaa cttgacgact gcattcatcg 1320  
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 agcagagagt acaacgcaca ggtgacggaa gccatgatgt atgggggttg ggtgacaagg 1440  
 acatgagcca ggaggacatg gatgaggccc tggtcacaa caagaagctc aagtaggact 1500  
 aatcctttgt caggattagt ctcagttccc gcgtactctg cgttgatacc actgctt 1557

<210> 36  
 <211> 357  
 <212> PRT  
 <213> Periplaneta americana  
 <400> 36

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

Asp Thr Ile Glu Thr Val Thr Leu Pro Thr Ile Glu Thr Lys Thr Asp  
 20 25 30

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

Val Ile Leu Phe Val Tyr Leu His Met Ala Ala Leu Tyr Gly Ala Tyr  
 50 55 60

Leu Met Leu Thr Ser Cys Lys Leu Ile Thr Ala Ile Trp Ala Ile Leu  
 65 70 75 80

Leu Tyr Gln Ala Gly Gly Leu Gly Ile Thr Ala Gly Ala His Arg Leu  
 85 90 95

Trp Ser His Arg Ala Tyr Lys Ala Lys Trp Pro Leu Arg Leu Ile Leu  
 100 105 110

Val Ile Phe Asn Thr Leu Ala Phe Gln Asn His Val Tyr Glu Trp Ala  
 115 120 125

Arg Asp His Arg Val His His Lys Phe Ser Glu Thr Asp Ala Asp Pro  
 130 135 140

His Asn Ala Lys Arg Gly Phe Phe Phe Ser His Val Gly Trp Leu Leu

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

&lt;210&gt; 37

&lt;211&gt; 1156

&lt;212&gt; DNA

<213> *Periplaneta americana*

&lt;400&gt; 37

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acaaattccg gcatggcccc taatataact agtactccca cgggagttct atacgaagaa 120

gacttcgctg cagccgaaaa agcaacttca actgagacta aagagggcat taaacctaaa 180

cgggagtaca agaagcaa at tgtgtggccc aacgtgatta tgcatttcct cctccatgtt 240

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tcacatcgct cttataaagc cacatggcag atgaggctga tcctcatgat ttgtcagact 420  
gtgtcttttc agacatctgt tcatgaatgg gctcgaaatc ataggggtgca ccataaacat 480  
agcgacactg atggcgatcc tcacaatgtc aatcgcggtt tgtttttctc tcacgccggt 540  
tggatgatgt gccgtataca tcccgaagtt aaggagaagg gcaagcagat tgacctgtca 600  
gatcttgatg ccgatccaat tctgatgttt caaaaaaagt actacctaata tctcatgccc 660  
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aatgcgtatt ttgttgctgc tatcttccgc catgtgttca ctctgaacat gactttgatg 780  
gtcaacagca tcactcacia tacatgggga aacagaccat atgacaaaaa tattaaccct 840  
gctgaaaatg ctatagtgtc tttgatgacc cttgggtgaag gctggcataa ctaccatcat 900  
gtatttccat gggattacaa aacggccgaa cttggagtct tacgtatcaa tatgacgacg 960  
ctcttcattg atctgtgtgc aaaaattgga tgggcctatg acttgaagac tgtaccaatg 1020  
gatatgggtca aaagaagggt ggaacgcact ggagatggga cgcacgagat ttggggctgg 1080  
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taaaaacgat atttca 1156

<210> 38  
<211> 356  
<212> PRT  
<213> *Periplaneta americana*  
<400> 38

Met Ala Pro Asn Ile Thr Ser Thr Pro Thr Gly Val Leu Tyr Glu Glu  
1 5 10 15

Asp Phe Ala Ala Ala Glu Lys Ala Thr Ser Thr Glu Thr Lys Glu Gly  
20 25 30

Ile Lys Pro Lys Arg Glu Tyr Lys Lys Gln Ile Val Trp Pro Asn Val  
35 40 45

Ile Met His Phe Leu Leu His Val Gly Ala Val Tyr Gly Ala Tyr Leu  
50 55 60

Met Leu Thr Ser Ala Lys Ile Leu Thr Gly Ile Trp Ala Phe Phe Leu  
65 70 75 80

Tyr Glu Val Gly Ile Leu Gly Ile Thr Ala Gly Ala His Arg Leu Trp  
85 90 95

Ser His Arg Ser Tyr Lys Ala Thr Trp Gln Met Arg Leu Ile Leu Met  
100 105 110

Ile Cys Gln Thr Val Ser Phe Gln Thr Ser Val His Glu Trp Ala Arg

115

Asn His Arg Val His His Lys His Ser Asp Thr Asp Gly Asp Pro His  
130 135 140

Asn Val Asn Arg Gly Leu Phe Phe Ser His Ala Gly Trp Met Met Cys  
145 150 155 160

Arg Lys His Pro Glu Val Lys Glu Lys Gly Lys Gln Ile Asp Leu Ser  
165 170 175

Asp Leu Asp Ala Asp Pro Ile Leu Met Phe Gln Lys Lys Tyr Tyr Leu  
180 185 190

Ile Leu Met Pro Phe Met Cys Phe Phe Leu Pro Thr Trp Ile Pro Val  
195 200 205

Tyr Phe Trp Gly Glu Thr Trp His Asn Ala Tyr Phe Val Ala Ala Ile  
210 215 220

Phe Arg His Val Phe Thr Leu Asn Met Thr Leu Met Val Asn Ser Ile  
225 230 235 240

Thr His Asn Thr Trp Gly Asn Arg Pro Tyr Asp Lys Asn Ile Asn Pro  
245 250 255

Ala Glu Asn Ala Ile Val Ser Leu Met Thr Leu Gly Glu Gly Trp His  
260 265 270

Asn Tyr His His Val Phe Pro Trp Asp Tyr Lys Thr Ala Glu Leu Gly  
275 280 285

Val Leu Arg Ile Asn Met Thr Thr Leu Phe Ile Asp Leu Cys Ala Lys  
290 295 300

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

Arg Arg Val Glu Arg Thr Gly Asp Gly Thr His Glu Ile Trp Gly Trp  
325 330 335

Gly Asp Lys Asp Met Thr Glu Lys Glu Arg Glu Ile Ala Gln Ile Ile  
340 345 350

Asn Lys Lys Asp  
355

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<211> 21  
<212> DNA  
<213> synthetic

<400> 39

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<210> 42 <211> 22 <212> DNA <213> synthetic		
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<210> 43 <211> 19 <212> DNA <213> synthetic		
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<210> 44 <211> 21 <212> DNA <213> synthetic		
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<400> 45 caccatcatg gccaccacaa c		21
<210> 46 <211> 21 <212> DNA <213> synthetic		
<400> 46 agctctactc gttgtcggac t		21
<210> 47 <211> 21 <212> DNA		

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 accatggcgg tccgacaacg cacc 24

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 accatggcca ccaccgccat ggctc 25

<210> 60  
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 <400> 61  
 accatggcca ccacaactgc ccgcgc 26

<210> 62  
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ctactcgttg tcggactcag ggcc	24
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accatgggcc atgagtgtgg acacc	25
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accatgattg cgaccacca gac	23
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ctacttgagc ttcttgttga tg	22
<210> 69	
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<400> 69	
accatggccc ctaatataac tag	23
<210> 70	
<211> 24	
<212> DNA	



&lt;213&gt; synthetic

&lt;400&gt; 70

ttaatctttc ttgttgatta ttg

24

&lt;210&gt; 71

&lt;211&gt; 28875

&lt;212&gt; DNA

&lt;213&gt; synthetic

&lt;400&gt; 71

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aaactgaagg cgggaaacga caatcagatc tagtaggaaa cagctatgac catgattacg	180
ccaagcttat ttaaatacga ccgtactagt aacggccgcc agtgtgctgg aattcgcctt	240
taaaaaagat atcgattacg ccaagctatc aactttgtat agaaaagttg ccatgattac	300
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<213> Calendula officinalis

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<400> 73

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 Val Leu Thr Gly Val Trp Val Ile Ala His Glu Cys Gly His His Ala  
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 Phe Arg Leu Ala Met Thr Lys Gly Leu Thr Trp Val Leu Thr Met Tyr  
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 Asp Trp Leu Arg Gly Ala Leu Thr Thr Ile Asp Arg Asp Tyr Gly Ile



290

295

300

Leu Asn Lys Val Phe His Asn Ile Thr Asp Thr His Val Ala His His  
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Leu Phe Ser Thr Met Pro His Tyr His Ala Met Glu Ala Thr Lys Val  
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Ile Lys Pro Ile Leu Gly Asp Tyr Tyr Gln Phe Asp Gly Thr Ser Ile  
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Phe Lys Ala Met Tyr Arg Glu Thr Lys Glu Cys Ile Tyr Val Asp Lys  
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&lt;212&gt; DNA

<213> *Perilla fruticosa*

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 <213> *Perilla frutescens*

<400> 75

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Ile Arg Ala Ala Ile Pro Ala His Cys Trp Val Lys Asn Pro Trp Arg  
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Ser Leu Ser Tyr Val Val Trp Asp Val Ala Ala Val Phe Ala Leu Leu  
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Ala Ala Ala Val Tyr Ile Asn Ser Trp Ala Phe Trp Pro Val Tyr Trp  
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Ile Ala Gln Gly Thr Met Phe Trp Ala Leu Phe Val Leu Gly His Asp  
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Cys Gly His Gly Ser Phe Ser Asp Asn Thr Thr Leu Asn Asn Val Val  
 115 120 125

Gly His Val Leu His Ser Ser Ile Leu Val Pro Tyr His Gly Trp Arg  
 130 135 140

Ile Ser His Arg Thr His His Gln Asn His Gly His Val Glu Lys Asp  
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Glu Ser Trp Val Pro Leu Pro Glu Asn Leu Tyr Lys Lys Leu Asp Phe  
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Ser Thr Lys Phe Leu Arg Tyr Lys Ile Pro Phe Pro Met Phe Ala Tyr  
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Pro Leu Tyr Leu Trp Tyr Arg Ser Pro Gly Lys Thr Gly Ser His Phe  
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Asn Pro Tyr Ser Asp Leu Phe Lys Pro Asn Glu Arg Gly Leu Ile Val  
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Thr Ser Thr Met Cys Trp Ala Ala Met Gly Val Phe Leu Leu Tyr Ala  
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Ser Thr Ile Val Gly Pro Asn Met Met Phe Lys Leu Tyr Gly Val Pro  
 Seite 66

Tyr Leu Ile Phe Val Met Trp Leu Asp Thr Val Thr Tyr Leu His His  
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His Gly Tyr Asp Lys Lys Leu Pro Trp Tyr Arg Ser Lys Glu Trp Ser  
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Tyr Leu Arg Gly Gly Leu Thr Thr Val Asp Gln Asp Tyr Gly Phe Phe  
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Asn Lys Ile His His Asp Ile Gly Thr His Val Ile His His Leu Phe  
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Pro Gln Ile Pro His Tyr His Leu Val Glu Ala Thr Arg Glu Ala Lys  
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Arg Val Leu Gly Asn Tyr Tyr Arg Glu Pro Arg Lys Ser Gly Pro Val  
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Pro Leu His Leu Ile Pro Ala Leu Leu Lys Ser Leu Gly Arg Asp His  
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 <213> Brassica napus

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 <212> DNA  
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 <211> 216  
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 <213> Cauliflower mosaic virus

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<210> 80  
 <211> 1000  
 <212> DNA  
 <213> Brassica napus

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 atatcatcag ctgttgagaa ggaagatggg taatagaaag ggtctttctt tcacattttg 480  
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<210> 81  
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 <212> DNA  
 <213> Brassica napus

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 ctctctctat ttgtcgactg aaaacttttg ggttacacat gaaagctttt tctttttcta 180  
 aaatccaaaa tgaaagagtt gtattaacag atacataagt gaaagagtag tccctaagat 240  
 gacactagct tcatttataa acaatcctat cacattgtat atacaggtta tgattttattc 300  
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 <212> DNA  
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 acctgcatcc acatttcaag ttttttcaaa ccgttcggct cctatccacc ggggtgtaaca 180  
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 acatgcgtgc atgcattatt acacgtgatc gccatgcaaa tctcctttat agcctataaa 600  
 ttaactcatc ggcttcactc tttactcaaa ccaaaactca tcaatacaaa caagattaaa 660  
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 <212> DNA  
 <213> Pisum sativum

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 agttaatgaa tgatatggtc cttttgttca ttctcaaatt aatattatctt gttttttctc 180  
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 aaaatgtgtc aaatcgtggc ctctaataac cgaagttaat atgaggagta aaacacttgt 300  
 agttgtacca ttatgcttat tcactaggca acaaatatat tttcagacct agaaaagctg 360  
 caaatgttac tgaatacaag tatgtcctct tgtgttttag acatttatga actttccttt 420  
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 <212> DNA  
 <213> *Linum usitatissimum*

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 acaatttcgg tcatgagttg caaattcaag tatatcgttc gattatgaaa attttcgaag 180  
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 tctcaccct aatagaatca gtattttcct tcgacgttaa ttgatcctac actatgtagg 660  
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 aatatgaacg gccaaggtaa gagaataaaa ataatccaaa ttaaagcaag agaggccaag 780  
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 attcccacac attattaaaa taccgtatat gtattggctg catttgcattg aataatacta 900  
 cgtgtaagcc caaagaacc cacgtgtagc ccatgcaaag ttaacactca cgacccatt 960  
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 acaactcact ctcacacct 1039

<210> 85  
 <211> 192  
 <212> DNA  
 <213> *Agrobacterium tumefaciens*

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 attctaataa atatatcacc cgttactatc gtatttttat gaataatatt ctccgttcaa 180  
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<210> 86  
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 <212> DNA  
 <213> *Vicia faba*

<400> 86

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gtgttaaaat	taatgtgttg	taaccaccac	tacctttagt	aagtattata	agaaaattgt	960
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 <212> DNA  
 <213> Vicia faba

<400> 87	
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<210> 89  
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<400> 89 sagarytkbg gtggsm	16
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<400> 90 gtdatr vaca rccartg	17
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<210> 91  
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<210> 93  
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<400> 100  
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<210> 101  
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<212> DNA  
<213> Synthetic

<400> 101  
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<210> 102  
<211> 1401  
<212> DNA  
<213> Brassica napus

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<210> 103  
<211> 466  
<212> PRT  
<213> Brassica napus

<400> 103

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 35 40 45  
 Ala Ala Ala Ser Gly Val Phe Leu Ser Tyr Leu Ser Phe Gly Phe Ser  
 50 55 60  
 Ser Asn Leu His Phe Leu Val Pro Met Thr Ile Gly Tyr Ala Ser Met  
 65 70 75 80  
 Ala Met Tyr Arg Pro Lys Cys Gly Ile Ile Thr Phe Phe Leu Gly Phe  
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 Ala Tyr Leu Ile Gly Cys His Val Phe Tyr Met Ser Gly Asp Ala Trp  
 100 105 110  
 Lys Glu Gly Gly Ile Asp Ser Thr Gly Ala Leu Met Val Leu Thr Leu  
 115 120 125  
 Lys Val Ile Ser Cys Ala Val Asn Tyr Asn Asp Gly Met Leu Lys Glu  
 130 135 140  
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 Ser Leu Ile Glu Tyr Phe Gly Tyr Cys Leu Cys Cys Gly Ser His Phe  
 165 170 175  
 Ala Gly Pro Val Tyr Glu Met Lys Asp Tyr Leu Gln Trp Thr Glu Gly  
 180 185 190  
 Thr Gly Ile Trp Asp Ser Ser Glu Lys Arg Lys Gln Pro Ser Pro Tyr  
 195 200 205  
 Leu Ala Thr Leu Arg Ala Ile Phe Gln Ala Gly Ile Cys Met Ala Leu  
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 Tyr Leu Tyr Leu Val Pro Gln Phe Pro Leu Thr Arg Phe Thr Glu Pro  
 225 230 235 240  
 Val Tyr Gln Glu Trp Gly Phe Trp Lys Lys Phe Gly Tyr Gln Tyr Met  
 245 250 255  
 Ala Gly Gln Thr Ala Arg Trp Lys Tyr Tyr Phe Ile Trp Ser Ile Ser  
 260 265 270  
 Glu Ala Ser Ile Ile Ile Ser Gly Leu Gly Phe Ser Gly Trp Thr Asp  
 Seite 76

275

280

285

Asp Asp Ala Ser Pro Lys Pro Lys Trp Asp Arg Ala Lys Asn Val Asp  
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Ile Leu Gly Val Glu Leu Ala Lys Ser Ala Val Gln Ile Pro Leu Val  
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Trp Asn Ile Gln Val Ser Thr Trp Leu Arg His Tyr Val Tyr Glu Arg  
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Leu Val Lys Ser Gly Lys Lys Ala Gly Phe Phe Gln Leu Leu Ala Thr  
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Gln Thr Val Ser Ala Val Trp His Gly Leu Tyr Pro Gly Tyr Met Met  
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Phe Phe Val Gln Ser Ala Leu Met Ile Ala Gly Ser Arg Val Ile Tyr  
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Arg Trp Gln Gln Ala Ile Ser Pro Lys Leu Gly Val Leu Arg Ser Met  
 385 390 395 400

Met Val Phe Ile Asn Phe Leu Tyr Thr Val Leu Val Leu Asn Tyr Ser  
 405 410 415

Ala Val Gly Phe Met Val Leu Ser Leu His Glu Thr Leu Thr Ala Tyr  
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Glu Glu  
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<210> 104  
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 <212> DNA  
 <213> Brassica napus

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<210> 105  
 <211> 465  
 <212> PRT  
 <213> Brassica napus

<400> 105

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 35 40 45

Ala Ala Ala Ser Gly Val Phe Leu Ser Tyr Leu Ser Phe Gly Phe Ser  
 50 55 60

Ser Asn Leu His Phe Leu Val Pro Met Thr Ile Gly Tyr Ala Ser Met  
 65 70 75 80

Ala Met Tyr Arg Pro Lys Cys Gly Ile Ile Ser Phe Phe Leu Gly Phe  
 85 90 95

Ala Tyr Leu Ile Gly Cys His Val Phe Tyr Met Ser Gly Asp Ala Trp  
 Seite 78

100

105

110

Lys Glu Gly Gly Ile Asp Ser Thr Gly Ala Leu Met Val Leu Thr Leu  
 115 120 125  
 Lys Val Ile Ser Cys Ala Val Asn Tyr Asn Asp Gly Met Leu Lys Glu  
 130 135 140  
 Glu Gly Leu Arg Glu Ala Gln Lys Lys Asn Arg Leu Ile Glu Met Pro  
 145 150 155 160  
 Ser Leu Ile Glu Tyr Phe Gly Tyr Cys Leu Cys Cys Gly Ser His Phe  
 165 170 175  
 Ala Gly Pro Val Tyr Glu Met Lys Asp Tyr Leu Gln Trp Thr Glu Gly  
 180 185 190  
 Thr Gly Ile Trp Asp Ser Ser Glu Lys Arg Lys Gln Pro Ser Pro Tyr  
 195 200 205  
 Leu Ala Thr Leu Arg Ala Ile Phe Gln Ala Gly Ile Cys Met Ala Leu  
 210 215 220  
 Tyr Leu Tyr Leu Val Pro Gln Phe Pro Leu Thr Arg Phe Thr Glu Pro  
 225 230 235 240  
 Val Tyr Gln Glu Trp Gly Phe Trp Lys Lys Phe Gly Tyr Gln Tyr Met  
 245 250 255  
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 260 265 270  
 Glu Ala Ser Ile Ile Ile Ser Gly Leu Gly Phe Ser Gly Trp Thr Asp  
 275 280 285  
 Asp Ala Ser Pro Lys Pro Lys Trp Asp Arg Ala Lys Asn Val Asp Ile  
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 Thr Val Ser Ala Val Trp His Gly Leu Tyr Pro Gly Tyr Met Met Phe  
 355 360 365  
 Phe Val Gln Ser Ala Leu Met Ile Ala Gly Ser Arg Val Ile Tyr Arg  
 370 375 380

Trp Gln Gln Ala Ile Ser Pro Lys Leu Ala Ile Leu Arg Ser Ile Met  
385 390 395 400

Val Phe Ile Asn Phe Leu Tyr Thr Val Leu Val Leu Asn Tyr Ser Ala  
405 410 415

Val Gly Phe Met Val Leu Ser Leu His Glu Thr Leu Thr Ala Tyr Gly  
420 425 430

Ser Val Tyr Tyr Ile Gly Thr Ile Ile Pro Val Gly Leu Ile Leu Leu  
435 440 445

Ser Tyr Val Val Pro Ala Lys Pro Ser Arg Pro Lys Pro Arg Lys Glu  
450 455 460

Glu  
465

<210> 106  
<211> 1404  
<212> DNA  
<213> Brassica napus

<400> 106  
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cgtttcctac tctgcttcgt cgcaacgatc ccagtctcct tcgctgggag attcgtcccg 120  
agtcgactcg gtaaacacat ctactcagct gcttctggag ccctcctctc ttacctctcc 180  
tttggttct cgtcgaatct tcacttcctc gttcccatga ccattggcta cgcttcgatg 240  
gcgatatata gaccaatgtg tggattcatc actttcttcc tcggtttcgc ttatctcatt 300  
ggctgtcatg tgttttatat gagtggggat gcttggaag aaggaggcat tgactctact 360  
ggagctttga tgggtgttgac gttgaaagt atacgtgtt ctataaacta caacgatggg 420  
atgttgaagg aagagactct ccgtgaggct cagaggaaga accgtttggg tcggatgcct 480  
tctctcattg agtactttgg ttactgcctt tgctgcggaa gccacttcgc tggccctgtc 540  
ttcgaaatga aagactatct tgaatggacc gaagagaaag gaatttgggc tgttacttct 600  
gggaaagggg agagaccatc gccttacgga gcaacacttc gagctatatt acaagctggg 660  
atctgtatgg ctctgtatct ctacttagtc cctcagttcc cattaaccg gttcactgag 720  
ccagtgtacc atgaatgggg tttctggaga agattcgggt accaatacat ggccggtttc 780  
acggctcgtt ggaagtacta cttcatctgg tcgatctcag aggcttccat catcatctcc 840  
ggtttgggtt tcagtgggtg gaccgacgaa aacactcaaa caaaggccaa atgggaccgt 900  
gcaaagaacg tcgatatctt aggtgttgag ctagccaaga gtgctgttca gattcctctt 960  
gtgtggaaca tacaagtcag cacttggtc cgctactatg tgtatgagag aattgtgaag 1020  
ccagggaaga aagctggctt cttccagctg ctagctactc aaaccgttag tgccgtgtgg 1080  
catggactgt atcctggata cattatattc tttgttcaat cagcattgat gatcgatggt 1140



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tcaaaagcta tttaccgttg gcaacaagca atgcctccga agatggcaat gctgagaagt	1200
gttatggttt tcatcaactt cctctacaca gttttggttc tcaattactc ctccgttggt	1260
ttcatgggtat tgagcttgca cgaaacactc gtggcctaca agagtgtata tttcataggc	1320
actgtagtgc ctattgttgt gattctgctc agctatttgg ttcctgtgaa gcctgtgaga	1380
ccaaagaccc ggaaagaaga ataa	1404

<210> 107  
 <211> 467  
 <212> PRT  
 <213> Brassica napus

<400> 107

Met	Glu	Ser	Leu	Asp	Met	Ser	Ser	Met	Ala	Ala	Ser	Ile	Gly	Val	Ser
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Val	Ala	Val	Leu	Arg	Phe	Leu	Leu	Cys	Phe	Val	Ala	Thr	Ile	Pro	Val
			20					25					30		

Ser	Phe	Ala	Trp	Arg	Phe	Val	Pro	Ser	Arg	Leu	Gly	Lys	His	Ile	Tyr
		35					40					45			

Ser	Ala	Ala	Ser	Gly	Ala	Leu	Leu	Ser	Tyr	Leu	Ser	Phe	Gly	Phe	Ser
	50					55					60				

Ser	Asn	Leu	His	Phe	Leu	Val	Pro	Met	Thr	Ile	Gly	Tyr	Ala	Ser	Met
65					70					75					80

Ala	Ile	Tyr	Arg	Pro	Met	Cys	Gly	Phe	Ile	Thr	Phe	Phe	Leu	Gly	Phe
				85					90					95	

Ala	Tyr	Leu	Ile	Gly	Cys	His	Val	Phe	Tyr	Met	Ser	Gly	Asp	Ala	Trp
			100					105					110		

Lys	Glu	Gly	Gly	Ile	Asp	Ser	Thr	Gly	Ala	Leu	Met	Val	Leu	Thr	Leu
		115					120					125			

Lys	Val	Ile	Ser	Cys	Ser	Ile	Asn	Tyr	Asn	Asp	Gly	Met	Leu	Lys	Glu
	130					135					140				

Glu	Thr	Leu	Arg	Glu	Ala	Gln	Arg	Lys	Asn	Arg	Leu	Val	Arg	Met	Pro
145					150					155					160

Ser	Leu	Ile	Glu	Tyr	Phe	Gly	Tyr	Cys	Leu	Cys	Cys	Gly	Ser	His	Phe
				165					170					175	

Ala	Gly	Pro	Val	Phe	Glu	Met	Lys	Asp	Tyr	Leu	Glu	Trp	Thr	Glu	Glu
			180					185					190		

Lys	Gly	Ile	Trp	Ala	Val	Thr	Ser	Gly	Lys	Gly	Lys	Arg	Pro	Ser	Pro
		195					200					205			

Tyr Gly Ala Thr Leu Arg Ala Ile Leu Gln Ala Gly Ile Cys Met Ala  
 210 215 220  
 Leu Tyr Leu Tyr Leu Val Pro Gln Phe Pro Leu Thr Arg Phe Thr Glu  
 225 230 235 240  
 Pro Val Tyr His Glu Trp Gly Phe Trp Arg Arg Phe Gly Tyr Gln Tyr  
 245 250 255  
 Met Ala Gly Phe Thr Ala Arg Trp Lys Tyr Tyr Phe Ile Trp Ser Ile  
 260 265 270  
 Ser Glu Ala Ser Ile Ile Ile Ser Gly Leu Gly Phe Ser Gly Trp Thr  
 275 280 285  
 Asp Glu Asn Thr Gln Thr Lys Ala Lys Trp Asp Arg Ala Lys Asn Val  
 290 295 300  
 Asp Ile Leu Gly Val Glu Leu Ala Lys Ser Ala Val Gln Ile Pro Leu  
 305 310 315 320  
 Val Trp Asn Ile Gln Val Ser Thr Trp Leu Arg His Tyr Val Tyr Glu  
 325 330 335  
 Arg Ile Val Lys Pro Gly Lys Lys Ala Gly Phe Phe Gln Leu Leu Ala  
 340 345 350  
 Thr Gln Thr Val Ser Ala Val Trp His Gly Leu Tyr Pro Gly Tyr Ile  
 355 360 365  
 Ile Phe Phe Val Gln Ser Ala Leu Met Ile Asp Gly Ser Lys Ala Ile  
 370 375 380  
 Tyr Arg Trp Gln Gln Ala Met Pro Pro Lys Met Ala Met Leu Arg Ser  
 385 390 395 400  
 Val Met Val Phe Ile Asn Phe Leu Tyr Thr Val Leu Val Leu Asn Tyr  
 405 410 415  
 Ser Ser Val Gly Phe Met Val Leu Ser Leu His Glu Thr Leu Val Ala  
 420 425 430  
 Tyr Lys Ser Val Tyr Phe Ile Gly Thr Val Val Pro Ile Val Val Ile  
 435 440 445  
 Leu Leu Ser Tyr Leu Val Pro Val Lys Pro Val Arg Pro Lys Thr Arg  
 450 455 460  
 Lys Glu Glu  
 465

<210> 108  
 <211> 1179  
 <212> DNA  
 <213> Brassica napus

<400> 108  
 atggaatcgg agctaaagaa tatgaattcg aatccaccga cgagcaagga ggagcgccca 60  
 ttgctcaa at cggaatccga tgtctccgcc gccattgaag agctcgacaa aaagttcgcg 120  
 ccttacgcga ggacggactt gtacgggacg atgggggttg gtccttttcc ggcgggcgag 180  
 aaagtcaagc tcgcggtggc gatggtgacg cttgtgcccg ttcggtttgt tctggcgatg 240  
 acgatcttgc ttctgtatta cttgatatgc aggggtgttta ctctgttctc gtctccgcat 300  
 cgtgaagaag aggaagaaga ggaagttgtt caggaagatt atgctcacat gggaggggtg 360  
 agacggagtg tgatcgtgcg gtgtgggagg tttctctcga gggtttttgct tttcgtgttt 420  
 gggttttatt ggattcctga gagacgtccg gatcgagatt cagcagctga ttccaatccc 480  
 aaaacaagtt cttctgagat tgcagagaaa ggggaaaccg ataaggagga acctgaaaga 540  
 cctgggggtca ttgtgtctaa tcacgtttcg tacctggaca ttttgtatca tatgtctgct 600  
 tctttcccta gttttgttgc caagagatca gtgggcaaac ttcctcttgt tggcctcatc 660  
 agcaagtgcc ttggttgctg ctatgtccag cgagaagcaa aatcacctga tttcaaggg 720  
 gtatctggca cagtaaatga gagagttaga gaagctcata ggaataaatc tgctccaact 780  
 attatgcttt ttccagaagg aacaaccacc aacggagact acttacttac attcaagaca 840  
 ggtgcatttt tggcaggaac tcctgttctt cctgttattt taaaataccc gtacgagcgt 900  
 ttcagtgcag catgggatac aatatccgga gcacgtcacg ttctcttcct tctctgtcaa 960  
 ttcgtaaacc acttgagggt gatacggtta cctgtatact acccttcaca agaagagaaa 1020  
 gataatccca aactatatgc tagcaacgtc cggaactaa tggccagcga gggtaacatg 1080  
 atactgtcgg atttgggact tggagacaaa aggatatatc acgcgaccct caatggtaat 1140  
 cttagtcaac tccgtgtttt ccatcagaaa gaagaataa 1179

<210> 109  
 <211> 392  
 <212> PRT  
 <213> Brassica napus

<400> 109

Met Glu Ser Glu Leu Lys Asn Met Asn Ser Asn Pro Pro Thr Ser Lys  
 1 5 10 15

Glu Glu Arg Pro Leu Leu Lys Ser Glu Ser Asp Val Ser Ala Ala Ile  
 20 25 30

Glu Glu Leu Asp Lys Lys Phe Ala Pro Tyr Ala Arg Thr Asp Leu Tyr  
 35 40 45

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

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

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

Leu Met Ala Ser Glu Gly Asn Met Ile Leu Ser Asp Leu Gly Leu Gly  
           355                                  360                                  365

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

Arg Val Phe His Gln Lys Glu Glu  
   385                                  390

<210> 110  
 <211> 1194  
 <212> DNA  
 <213> Brassica napus

<400> 110  
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 cccttgctca aatcggaatc cgacgtctcc gccgccatcg aagagctcga caaaaagtcc 120  
 gcgccttacg cgaggacgga cttgtacggg acgatggggg tgggtccttt tccggcggcg 180  
 gagaaagtca agctcgcggg ggcgatgggt acgcttggtc ccgttcgggt tgttctggcg 240  
 atgacgatct tgcttctgta ttacttggtg tgtagggtgt ttacgctgtt ctcgtctccg 300  
 tatcgtggag gagaggagga ggaggaggag gaggaggagg ttgttcagga ggattatgct 360  
 catatgggag ggtggagaag ggttgatgat gtgcgggtgt ggaggtttct ttcaagagtt 420  
 ttgctttttg tttttgggtt ttattggatt cctgagagct gtccagatcg agatgcagca 480  
 gctgattcca atcccaaac aagttcttct gagattgcag agaatggtga aactgataag 540  
 gaggaacctg aaaggcctgg tgtcattgtg tctaatacag tgtcgtacct ggacattttg 600  
 tatcatatgt ctgcttcttt cccaagtttt gtcgccaaga gatcagtggg caaacttcct 660  
 ctcgttggcc tcatcagcaa atgtcttggt tgcgtctatg ttcagcgaga agctaaatct 720  
 cctgatttca aggggtgtatc tggcacagtg aatgaaagag ttagagaagc tcataggaac 780  
 aaatctgctc caactattat gctttttcca gaaggaacaa ctaccaatgg agactacttg 840  
 cttcaattca agacaggtgc atttcttgcc ggaactccgg ttcttcctgt tattttaaaa 900  
 tatccgtacg agcgtttcag tgtggcatgg gatacaatct ccggggcacg ccacattatc 960  
 ttccttctct gccaaactcg aaaccatttg gaggtgatac ggttacctgt atactaccct 1020  
 tcacaagaag agaaagataa tcccaaactg tacgctagca atgtccggag attaatggcc 1080  
 actgagggta acttgattct gtcggatttg ggacttggag acaagaggat atatcacgcg 1140  
 accctcaatg gtaatctcag acaactccgt gttttccatc agaaagaaga atga 1194

<210> 111  
 <211> 397  
 <212> PRT  
 <213> Brassica napus

&lt;400&gt; 111

Met Glu Ser Glu Leu Lys Asp Met Asn Pro Asn Pro Pro Ser Ser Ser  
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 Lys Glu Asp Arg Pro Leu Leu Lys Ser Glu Ser Asp Val Ser Ala Ala  
 20 25 30  
 Ile Glu Glu Leu Asp Lys Lys Phe Ala Pro Tyr Ala Arg Thr Asp Leu  
 35 40 45  
 Tyr Gly Thr Met Gly Leu Gly Pro Phe Pro Ala Ala Glu Lys Val Lys  
 50 55 60  
 Leu Ala Val Ala Met Val Thr Leu Val Pro Val Arg Phe Val Leu Ala  
 65 70 75 80  
 Met Thr Ile Leu Leu Leu Tyr Tyr Leu Val Cys Arg Val Phe Thr Leu  
 85 90 95  
 Phe Ser Ser Pro Tyr Arg Gly Gly Glu Glu Glu Glu Glu Glu Gly  
 100 105 110  
 Gly Val Val Gln Glu Asp Tyr Ala His Met Gly Gly Trp Arg Arg Val  
 115 120 125  
 Val Ile Val Arg Cys Gly Arg Phe Leu Ser Arg Val Leu Leu Phe Val  
 130 135 140  
 Phe Gly Phe Tyr Trp Ile Pro Glu Ser Cys Pro Asp Arg Asp Ala Ala  
 145 150 155 160  
 Ala Asp Ser Asn Pro Lys Thr Ser Ser Ser Glu Ile Ala Glu Asn Gly  
 165 170 175  
 Glu Thr Asp Lys Glu Glu Pro Glu Arg Pro Gly Val Ile Val Ser Asn  
 180 185 190  
 His Val Ser Tyr Leu Asp Ile Leu Tyr His Met Ser Ala Ser Phe Pro  
 195 200 205  
 Ser Phe Val Ala Lys Arg Ser Val Gly Lys Leu Pro Leu Val Gly Leu  
 210 215 220  
 Ile Ser Lys Cys Leu Gly Cys Val Tyr Val Gln Arg Glu Ala Lys Ser  
 225 230 235 240  
 Pro Asp Phe Lys Gly Val Ser Gly Thr Val Asn Glu Arg Val Arg Glu  
 245 250 255  
 Ala His Arg Asn Lys Ser Ala Pro Thr Ile Met Leu Phe Pro Glu Gly  
 260 265 270

Thr Thr Thr Asn Gly Asp Tyr Leu Leu Gln Phe Lys Thr Gly Ala Phe  
 275 280 285

Leu Ala Gly Thr Pro Val Leu Pro Val Ile Leu Lys Tyr Pro Tyr Glu  
 290 295 300

Arg Phe Ser Val Ala Trp Asp Thr Ile Ser Gly Ala Arg His Ile Ile  
 305 310 315 320

Phe Leu Leu Cys Gln Leu Val Asn His Leu Glu Val Ile Arg Leu Pro  
 325 330 335

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

Ser Asn Val Arg Arg Leu Met Ala Thr Glu Gly Asn Leu Ile Leu Ser  
 355 360 365

Asp Leu Gly Leu Gly Asp Lys Arg Ile Tyr His Ala Thr Leu Asn Gly  
 370 375 380

Asn Leu Arg Gln Leu Arg Val Phe His Gln Lys Glu Glu  
 385 390 395

<210> 112  
 <211> 1584  
 <212> DNA  
 <213> Brassica napus

<400> 112  
 atggcgaatc ctgatttgct ttctcctctg atcacatccg atcaaccaga ggtcttcatc 60  
 tctatcgatg acgacgacgg agatgacaac caccctcgtg gtttcgaatt cgaccatctt 120  
 aatccgatca accctttcgg gtttctcacc gacgccgagc ctccgggttca gagtccaacg 180  
 acggtggatc cgttccggaa cgatactcct ggagtttgcg gactctacga agcgggtcaag 240  
 atcgtgattt gcctcccgat tgcgttggtt cggcttgctc tgtttggtgt tagcttagct 300  
 gttggttact tggcaacgaa gctagcactt gctgggtgga gagatagaca caaccctatg 360  
 cctcaatgga gatgcagagt catgtgggtt actcgcttct gtaccagatg catcctcttc 420  
 tcttttggtt atcagtggat aagacggaaa gggaaacctg ctccggaggga gattgctccc 480  
 atcattgtat caaacatgt ctcgtatatt gaaccaatct tctacttcta tgagctatca 540  
 cccaccattg ttgcatcgga gtcacatgat tcacttcctt tgggttgaac tattatcagg 600  
 gctatgcagg tgatatatgt taatagattc tcacaggcat caaggaagga cgctgtgggt 660  
 gaaataaaga gaaaagcctc ctccgataga ttccccgctc tgctgctatt ccctgaagga 720  
 accaccacca atgggaaagt tctcatctcc ttccagctcg gcgctttcat ccctgggttac 780  
 cctattcaac ctgtagtagt ccggtatccc catgtacatt ttgatcaatc ctgggggaat 840  
 atttctttgt tgatgctcat gtttagaatg ttcactcaat ttcacaactt catggagggt 900

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gaataccttc cagtaatcta tcccagtgac actcagaaac agaatgctgt gcgtctctca	960
cagaagacca gtcatgcat tgcaacatct ttgaacgtgg tccaaacatc tcattcttat	1020
ggggacctca tgctattgaa cagagcaact gagttaaagc tggaaaaccc ctcaaattac	1080
atggttgaaa tggccaaggt tgcacgcta ttccatataa gcagtttaga ggcagttcgg	1140
tatttgata cttttcttc catgaatccg gactctagt gacgtgttac tctacatgac	1200
tttcttcgag ttcttagact gaagccttgc actctctcta aagggatatt cgggttcac	1260
gatgtggaga aagctggatc aataactttc agacagttct tgtttgcctc ggctcatgta	1320
tcggcacagc cactttttca gcaaactgc gagctagcat tttctcactg tgacgcagat	1380
ggagatggct ttatctccat tcaagaactt ggagacgcgc tgaaactcac aataccaaac	1440
tcgaacaagg acgagataca agggatgtac attttgctag acgaggacaa agatcaaaga	1500
atcagcaagg atgacttctt gtcctgctta agaagaaacc ctctgctcat agctgtcttt	1560
tcccctatct tgtccccaac ataa	1584

<210> 113  
 <211> 527  
 <212> PRT  
 <213> Brassica napus

<400> 113

Met Ala Asn Pro Asp Leu Ser Ser Pro Leu Ile Thr Ser Asp Gln Pro  
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Glu Val Phe Ile Ser Ile Asp Asp Asp Asp Gly Asp Asp Asn His Pro  
 20 25 30

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

Leu Thr Asp Ala Glu Pro Pro Val Gln Ser Pro Thr Thr Val Asp Pro  
 50 55 60

Phe Arg Asn Asp Thr Pro Gly Val Cys Gly Leu Tyr Glu Ala Val Lys  
 65 70 75 80

Ile Val Ile Cys Leu Pro Ile Ala Leu Val Arg Leu Val Leu Phe Gly  
 85 90 95

Val Ser Leu Ala Val Gly Tyr Leu Ala Thr Lys Leu Ala Leu Ala Gly  
 100 105 110

Trp Arg Asp Arg His Asn Pro Met Pro Gln Trp Arg Cys Arg Val Met  
 115 120 125

Trp Val Thr Arg Phe Cys Thr Arg Cys Ile Leu Phe Ser Phe Gly Tyr  
 130 135 140

Gln Trp Ile Arg Arg Lys Gly Lys Pro Ala Arg Arg Glu Ile Ala Pro



145                      150                      155                      160  
 Ile Ile Val Ser Asn<sub>165</sub> His Val Ser Tyr Ile<sub>170</sub> Glu Pro Ile Phe Tyr<sub>175</sub> Phe  
 Tyr Glu Leu Ser<sub>180</sub> Pro Thr Ile Val Ala<sub>185</sub> Ser Glu Ser His Asp<sub>190</sub> Ser Leu  
 Pro Leu Val<sub>195</sub> Gly Thr Ile Ile Arg<sub>200</sub> Ala Met Gln Val Ile<sub>205</sub> Tyr Val Asn  
 Arg Phe<sub>210</sub> Ser Gln Ala Ser Arg<sub>215</sub> Lys Asp Ala Val Gly<sub>220</sub> Glu Ile Lys Arg  
 Lys<sub>225</sub> Ala Ser Ser Asp Arg<sub>230</sub> Phe Pro Arg Leu Leu<sub>235</sub> Leu Phe Pro Glu Gly<sub>240</sub>  
 Thr Thr Thr Asn Gly<sub>245</sub> Lys Val Leu Ile Ser<sub>250</sub> Phe Gln Leu Gly Ala<sub>255</sub> Phe  
 Ile Pro Gly Tyr<sub>260</sub> Pro Ile Gln Pro Val<sub>265</sub> Val Val Arg Tyr Pro<sub>270</sub> His Val  
 His Phe Asp<sub>275</sub> Gln Ser Trp Gly Asn<sub>280</sub> Ile Ser Leu Leu Met<sub>285</sub> Leu Met Phe  
 Arg Met<sub>290</sub> Phe Thr Gln Phe His<sub>295</sub> Asn Phe Met Glu Val<sub>300</sub> Glu Tyr Leu Pro  
 Val<sub>305</sub> Ile Tyr Pro Ser Asp<sub>310</sub> Thr Gln Lys Gln Asn<sub>315</sub> Ala Val Arg Leu Ser<sub>320</sub>  
 Gln Lys Thr Ser His<sub>325</sub> Ala Ile Ala Thr Ser<sub>330</sub> Leu Asn Val Val Gln Thr<sub>335</sub>  
 Ser His Ser Tyr<sub>340</sub> Gly Asp Leu Met Leu<sub>345</sub> Leu Asn Arg Ala Thr<sub>350</sub> Glu Leu  
 Lys Leu Glu<sub>355</sub> Asn Pro Ser Asn Tyr<sub>360</sub> Met Val Glu Met Ala<sub>365</sub> Lys Val Ala  
 Ser Leu<sub>370</sub> Phe His Ile Ser Ser<sub>375</sub> Leu Glu Ala Val Arg<sub>380</sub> Tyr Leu Asp Thr  
 Phe<sub>385</sub> Ser Ser Met Asn Pro<sub>390</sub> Asp Ser Ser Gly Arg<sub>395</sub> Val Thr Leu His Asp<sub>400</sub>  
 Phe Leu Arg Val Leu<sub>405</sub> Arg Leu Lys Pro Cys<sub>410</sub> Thr Leu Ser Lys Gly<sub>415</sub> Ile  
 Phe Gly Phe Ile<sub>420</sub> Asp Val Glu Lys Ala<sub>425</sub> Gly Ser Ile Thr Phe<sub>430</sub> Arg Gln

Phe Leu Phe Ala Ser Ala His Val Ser Ala Gln Pro Leu Phe Gln Gln  
 435 440 445

Thr Cys Glu Leu Ala Phe Ser His Cys Asp Ala Asp Gly Asp Gly Phe  
 450 455 460

Ile Ser Ile Gln Glu Leu Gly Asp Ala Leu Lys Leu Thr Ile Pro Asn  
 465 470 475 480

Ser Asn Lys Asp Glu Ile Gln Gly Met Tyr Ile Leu Leu Asp Glu Asp  
 485 490 495

Lys Asp Gln Arg Ile Ser Lys Asp Asp Phe Leu Ser Cys Leu Arg Arg  
 500 505 510

Asn Pro Leu Leu Ile Ala Val Phe Ser Pro Ile Leu Ser Pro Thr  
 515 520 525

<210> 114  
 <211> 20  
 <212> DNA  
 <213> Synthetic

<400> 114  
 atgatatcga tggacatgga 20

<210> 115  
 <211> 23  
 <212> DNA  
 <213> Synthetic

<400> 115  
 ttattcttct ttacgtggct ttg 23

<210> 116  
 <211> 23  
 <212> DNA  
 <213> Synthetic

<400> 116  
 atgatatcga tggacatgaa ttc 23

<210> 117  
 <211> 23  
 <212> DNA  
 <213> Synthetic

<400> 117  
 ttattcctct ttacgtggct ttg 23

<210> 118  
 <211> 20  
 <212> DNA  
 <213> Synthetic

<400> 118  
 atggaatcgc tcgacatgag 20

<210>	119	
<211>	23	
<212>	DNA	
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<210>	120	
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	atggaatcgg agctaaagaa	20
<210>	121	
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<212>	DNA	
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<400>	121	
	ttattcttct ttctgatgga aaac	24
<210>	122	
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&lt;213&gt; Stagonospora nodorum

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gtgtggaaca tacaagtcag cacttggtc cgctactatg tgtatgagag aattgtgaag     1020
ccagggaaga aagctggctt cttccagctg ctagctactc aaaccgttag tgccgtgtgg     1080
catggactgt atcctggata cattatcttc tttgttcaat cagcattgat gatcgatggt     1140
tctaaagcta tttaccgttg gcaacaatca atgcctccga agatggcaat gctgagaagt     1200
gttatggttt tcatcaactt cctctacaca gttttggttc tcaattactc atccgttggt     1260
ttcatgggtg tgagcttgca cgaaacactc gtggcctaca agagtgtata tttcatagga     1320
acagtgggtg ctattgctgt gattctactc agctacttgg ttcctgtgaa gcctgtgaga     1380
ccaaagaccc ggaaagaaga ataa                                             1404

```

<210> 136  
 <211> 467  
 <212> PRT  
 <213> Brassica napus

<400> 136

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

Val Ala Val Leu Arg Phe Leu Leu Cys Phe Val Ala Thr Ile Pro Val  
 20 25 30

Ser Phe Ala Trp Arg Phe Val Pro Ser Arg Leu Gly Lys His Ile Tyr  
 35 40 45

Ser Ala Ala Ser Gly Ala Leu Leu Ser Tyr Leu Ser Phe Gly Phe Ser  
 50 55 60

Ser Asn Leu His Phe Leu Val Pro Met Thr Ile Gly Tyr Ala Ser Met  
 65 70 75 80

Ala Ile Tyr Arg Pro Met Ser Gly Phe Ile Thr Phe Phe Leu Gly Phe  
 85 90 95

Ala Tyr Leu Ile Gly Cys His Val Phe Tyr Met Ser Gly Asp Ala Trp  
 100 105 110

Lys Glu Gly Gly Ile Asp Ser Thr Gly Ala Leu Met Val Leu Thr Leu  
 115 120 125

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

Val Met Val Phe Ile Asn Phe Leu Tyr Thr Val Leu Val Leu Asn Tyr  
 405 410 415

Ser Ser Val Gly Phe Met Val Leu Ser Leu His Glu Thr Leu Val Ala  
 420 425 430

Tyr Lys Ser Val Tyr Phe Ile Gly Thr Val Val Pro Ile Ala Val Ile  
 435 440 445

Leu Leu Ser Tyr Leu Val Pro Val Lys Pro Val Arg Pro Lys Thr Arg  
 450 455 460

Lys Glu Glu  
 465

<210> 137  
 <211> 1401  
 <212> DNA  
 <213> Brassica napus

<400> 137  
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 cgcttcctcc tctgcttcgt cgccaccatc cccgtctcct tcttctggcg aatcggtccg 120  
 agtcgactcg gcaagcacgt ctacgccgcc gcttcaggcg tgttcctctc ttacctctcc 180  
 ttcggcttct cctcgaatct ccacttcctc gtcccgatga cgatcggata cgcttccatg 240  
 gcgatgtatc ggccaagtg tggaatcatc actttcttcc tcggctttgc ttatctcatc 300  
 ggctgtcatg tgttttacat gagtgggtgat gcgtggaaag aaggagggat cgactccact 360  
 ggagcgtaa tggtgttaac gctgaagggt atctcgtgtg cggttaatta caatgatggg 420  
 atgttgaagg aggaaggctt acgtgaagct cagaagaaga acagactgat cgagatgccg 480  
 tctttgatcg agtactttgg ttactgtctc tgttgcggtg gccatttcgc tggctcctgtt 540  
 tacgaaatga aagattatct tcaatggaca gagggaacag gaatttgga tagttccgag 600  
 aaacgaaagc agccatcgcc ttatttagct acactgagag ctatcttcca agctgggatt 660  
 tgcattgctt tgcattctta tctagtcctt cagttcccggt tgactcgggt cactgaaccc 720  
 gtgtaccaag aatggggatt ttttaagaag tttggttacc agtacatggc gggacagacg 780  
 gctcgctgga agtattactt catctgggtc atctcagagg cttctattat catctctggt 840  
 ttgggtttca gcggctggac tgatgatgag gcttcgcaa aaccctaatg ggaccgtgcc 900  
 aagaacgtag acatactcgg tgttgaactt gctaagagcg ctgttcagat tccgcttgtg 960  
 tggaacatac aagtcagcac ctggctccgt cactacgtgt atgagagact agtgaagagt 1020  
 gggaagaagg caggtttctt ccagttacta gctacacaaa ccgttagtgc ggtttggcat 1080  
 ggactgtatc ctggttacat gatgttcttt gttcagtcag ctttgatgat cgctggctca 1140  
 cgggttattt accgatggca acaagctatt agtccgaaat tgggagtgtg gagaagtatg 1200  
 atggtgttca tcaacttcct ttactactgt ttggttctca actactcagc cgtcgggtttc 1260  
 atggttttaa gcttgcacga aacgctcact gcatacggga gcgtatacta cataggaaca 1320

atcatacctg ttggattgat tctcctcagc tacgttggtc ctgcgaaacc ctatcgagca 1380  
aagccacgta aagaagaata a 1401

<210> 138  
<211> 466  
<212> PRT  
<213> Brassica napus

<400> 138

Met Ile Ser Met Asp Met Asp Ser Met Ala Ala Ser Ile Gly Val Ser  
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Val Ala Val Leu Arg Phe Leu Leu Cys Phe Val Ala Thr Ile Pro Val  
20 25 30

Ser Phe Phe Trp Arg Ile Val Pro Ser Arg Leu Gly Lys His Val Tyr  
35 40 45

Ala Ala Ala Ser Gly Val Phe Leu Ser Tyr Leu Ser Phe Gly Phe Ser  
50 55 60

Ser Asn Leu His Phe Leu Val Pro Met Thr Ile Gly Tyr Ala Ser Met  
65 70 75 80

Ala Met Tyr Arg Pro Lys Cys Gly Ile Ile Thr Phe Phe Leu Gly Phe  
85 90 95

Ala Tyr Leu Ile Gly Cys His Val Phe Tyr Met Ser Gly Asp Ala Trp  
100 105 110

Lys Glu Gly Gly Ile Asp Ser Thr Gly Ala Leu Met Val Leu Thr Leu  
115 120 125

Lys Val Ile Ser Cys Ala Val Asn Tyr Asn Asp Gly Met Leu Lys Glu  
130 135 140

Glu Gly Leu Arg Glu Ala Gln Lys Lys Asn Arg Leu Ile Glu Met Pro  
145 150 155 160

Ser Leu Ile Glu Tyr Phe Gly Tyr Cys Leu Cys Cys Gly Ser His Phe  
165 170 175

Ala Gly Pro Val Tyr Glu Met Lys Asp Tyr Leu Gln Trp Thr Glu Gly  
180 185 190

Thr Gly Ile Trp Asp Ser Ser Glu Lys Arg Lys Gln Pro Ser Pro Tyr  
195 200 205

Leu Ala Thr Leu Arg Ala Ile Phe Gln Ala Gly Ile Cys Met Ala Leu  
210 215 220

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

<210> 139  
 <211> 1398  
 <212> DNA  
 <213> Brassica napus

BPS65916PC-2009062707

<400> 139  
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cgcttcctcc aatgcttcgt cgccacgatc cccgtctcct tcttctggcg aatcgttccg 120  
agtcgactcg gcaagcacat ctacgccgcc gcttcaggcg tattcctctc ttacctctcc 180  
ttcggcttct cctcaaactc ccacttcctc gttccgatga cgatcggata cgcttccatg 240  
gcgatgtatc gacccaagtg tggaatcatc agtttcttcc tcggcttcgc ttatctcatc 300  
ggctgtcatg tgttttacat gagtgggtgat gcgtggaaag aagggtggcat cgactccact 360  
ggagcgtaa tggtgttaac gctgaagggt atctcatgtg cgggtaatta caatgatggg 420  
atgttgaagg aggaaggctt acgtgaagct cagaagaaga acagactgat cgagatgccg 480  
tctttgatcg agtactttgg ttactgtctc tggtgcggta gccatttcgc tggctcctgtt 540  
tacgaaatga aagattatct ccaatggaca gagggaacag gaatttgga tagttccgag 600  
aaaagaaagc agccatcgcc ttatttagct acactgagag ctatcttcca agctgggatt 660  
tgcattggctc tgcattctta tctagtcctt cagttcccggt tgactcgggt cactgaacca 720  
gtgtaccaag aatggggggt ttggaagaag tttggttacc agtacatggc gggacagacg 780  
gctcgtgga agtattactt catctggctg atctcggagg cttctattat catctctggt 840  
ttgggtttca gtggctggac tgatgatgct tcgccaaaac ccaaattgga ccgtgccaaag 900  
aacgtggaca tcctcgggtg agaacttgct aagagcgcgg ttcagattcc gcttgtgtgg 960  
aacatacaag tcagcacctg gctccgtcac tacgtgtatg agagacttgt gaagagtggg 1020  
aagaaagcag gtttctttca gttactaggt acacaaaccg tcagtgcggg ttggcatgga 1080  
ctgtatcctg gttacatgat gttctttgtt caatcagctt tgatgattgc tggctcaaga 1140  
gttattttacc gatggcaaca agctatcagt ccgaaactag caatcctgag aagtatcatg 1200  
gtgttcatca actttcttta caccgtcttg gttctcaact actcagccgt tggtttcatg 1260  
gttttaagct tgcacgaaac gctcactgcc tacgggagcg tatattacat tggaacaatc 1320  
atacctgttg gattgattct cctcagctac gtggttcctg cgaagccctc tcggccaaag 1380  
ccacgtaaag aggaataa 1398

<210> 140  
<211> 465  
<212> PRT  
<213> Brassica napus

<400> 140  
Met Ile Ser Met Asp Met Asn Ser Met Ala Ala Ser Ile Gly Val Ser  
1 5 10 15  
Val Ala Val Leu Arg Phe Leu Gln Cys Phe Val Ala Thr Ile Pro Val  
20 25 30  
Ser Phe Phe Trp Arg Ile Val Pro Ser Arg Leu Gly Lys His Ile Tyr  
35 40 45



Ala Ala Ala Ser Gly Val Phe Leu Ser Tyr Leu Ser Phe Gly Phe Ser  
 50 55 60

Ser Asn Leu His Phe Leu Val Pro Met Thr Ile Gly Tyr Ala Ser Met  
 65 70 75 80

Ala Met Tyr Arg Pro Lys Cys Gly Ile Ile Ser Phe Phe Leu Gly Phe  
 85 90 95

Ala Tyr Leu Ile Gly Cys His Val Phe Tyr Met Ser Gly Asp Ala Trp  
 100 105 110

Lys Glu Gly Gly Ile Asp Ser Thr Gly Ala Leu Met Val Leu Thr Leu  
 115 120 125

Lys Val Ile Ser Cys Ala Val Asn Tyr Asn Asp Gly Met Leu Lys Glu  
 130 135 140

Glu Gly Leu Arg Glu Ala Gln Lys Lys Asn Arg Leu Ile Glu Met Pro  
 145 150 155 160

Ser Leu Ile Glu Tyr Phe Gly Tyr Cys Leu Cys Cys Gly Ser His Phe  
 165 170 175

Ala Gly Pro Val Tyr Glu Met Lys Asp Tyr Leu Gln Trp Thr Glu Gly  
 180 185 190

Thr Gly Ile Trp Asp Ser Ser Glu Lys Arg Lys Gln Pro Ser Pro Tyr  
 195 200 205

Leu Ala Thr Leu Arg Ala Ile Phe Gln Ala Gly Ile Cys Met Ala Leu  
 210 215 220

Tyr Leu Tyr Leu Val Pro Gln Phe Pro Leu Thr Arg Phe Thr Glu Pro  
 225 230 235 240

Val Tyr Gln Glu Trp Gly Phe Trp Lys Lys Phe Gly Tyr Gln Tyr Met  
 245 250 255

Ala Gly Gln Thr Ala Arg Trp Lys Tyr Tyr Phe Ile Trp Ser Ile Ser  
 260 265 270

Glu Ala Ser Ile Ile Ile Ser Gly Leu Gly Phe Ser Gly Trp Thr Asp  
 275 280 285

Asp Ala Ser Pro Lys Pro Lys Trp Asp Arg Ala Lys Asn Val Asp Ile  
 290 295 300

Leu Gly Val Glu Leu Ala Lys Ser Ala Val Gln Ile Pro Leu Val Trp  
 305 310 315 320

Asn Ile Gln Val Ser Thr Trp Leu Arg His Tyr Val Tyr Glu Arg Leu  
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Val Lys Ser Gly Lys Lys Ala Gly Phe Phe Gln Leu Leu Gly Thr Gln  
 340 345 350

Thr Val Ser Ala Val Trp His Gly Leu Tyr Pro Gly Tyr Met Met Phe  
 355 360 365

Phe Val Gln Ser Ala Leu Met Ile Ala Gly Ser Arg Val Ile Tyr Arg  
 370 375 380

Trp Gln Gln Ala Ile Ser Pro Lys Leu Ala Ile Leu Arg Ser Ile Met  
 385 390 395 400

Val Phe Ile Asn Phe Leu Tyr Thr Val Leu Val Leu Asn Tyr Ser Ala  
 405 410 415

Val Gly Phe Met Val Leu Ser Leu His Glu Thr Leu Thr Ala Tyr Gly  
 420 425 430

Ser Val Tyr Tyr Ile Gly Thr Ile Ile Pro Val Gly Leu Ile Leu Leu  
 435 440 445

Ser Tyr Val Val Pro Ala Lys Pro Ser Arg Pro Lys Pro Arg Lys Glu  
 450 455 460

Glu  
 465