

1632537_1
SEQUENCE LISTING

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 <120> O-mannosyltransferase Deficient Filamentous Fungal Cells and Methods of Use Thereof
 <130> NOVA 0006 WO
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<213> Trichoderma reesei

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20 25 30
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Leu Asp Lys Leu Ser Lys Ala Ala Leu Ser Ser Arg Arg Asn Ile Gln
35 40 45
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Arg Gly Glu Leu Glu His Lys Leu Ala Leu Thr Leu Val Thr Ile Leu
50 55 60
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Gly Phe Val Thr Arg Phe Trp Gly Ile Ser His Pro Asp Glu Val Val
65 70 75 80
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Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr Leu Gln Arg
85 90 95
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Thr Tyr Phe Phe Asp Val His Pro Pro Phe Ala Lys Leu Leu Phe Ala
100 105 110
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Phe Val Gly Trp Leu Val Gly Tyr Asp Gly His Phe His Phe Asp Asn
115 120 125
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Ile Gly Asp Ser Tyr Val Ala Asn Lys Val Pro Tyr Val Ala Phe Arg
130 135 140

Ala Leu Pro Ala Phe Leu Gly Ala Leu Thr Val Ser Val Thr Tyr Leu
145 150 155 160

Ile Met Trp Glu Ser Gly Tyr Ser Val Pro Ala Cys Leu Val Ala Thr
165 170 175

Gly Leu Ile Leu Leu Asp Asn Ala His Ile Gly Gln Thr Arg Leu Ile
180 185 190

Leu Leu Asp Ala Thr Leu Val Leu Ala Met Ala Cys Ser Leu Leu Phe
195 200 205

Tyr Ile Lys Phe Tyr Lys Leu Arg His Glu Pro Phe Ser Arg Lys Trp
210 215 220

Trp Lys Trp Leu Ile Leu Thr Gly Phe Ala Leu Ser Cys Asp Ile Ser
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Thr Lys Tyr Val Gly Leu Phe Ala Phe Val Thr Ile Gly Ser Ala Val
245 250 255

Ile Ile Asp Leu Trp Asp Leu Leu Asp Ile Lys Arg Arg Tyr Gly Ala
260 265 270

Ile Ser Met Pro Glu Phe Gly Lys His Phe Ala Ala Arg Ala Phe Gly
275 280 285

Leu Ile Ile Leu Pro Phe Leu Phe Tyr Leu Phe Trp Phe Gln Val His
290 295 300

Phe Ser Val Leu Thr Arg Ser Gly Pro Gly Asp Asp Phe Met Thr Pro
305 310 315 320

Glu Phe Gln Glu Thr Leu Ser Asp Asn Val Met Leu Ala Ser Ala Val
325 330 335

Asp Ile Gln Tyr Tyr Asp Thr Ile Thr Ile Arg His Lys Glu Thr Lys
340 345 350

Ala Tyr Leu His Ser His Thr Asp Thr Tyr Pro Leu Arg Tyr Asp Asp
355 360 365

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

Asp Thr Asn Asn Tyr Trp Gln Ile Leu Pro Ala Asp Asn Asp Gln Lys
385 390 395 400

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Leu Gly Arg Asn Val Lys Asn Gln Asp Leu Val Arg Leu Arg His Ile
 405 410 415
 Val Thr Asp Lys Ile Leu Leu Ser His Asp Val Ala Ser Pro Tyr Tyr
 420 425 430
 Pro Thr Asn Gln Glu Phe Thr Cys Val Thr Pro Glu Glu Ala Phe Gly
 435 440 445
 Glu Arg Gln Asn Asp Thr Leu Phe Glu Ile Arg Ile Glu Gly Gly Lys
 450 455 460
 Thr Gly Gln Asp Phe Lys Thr Val Ala Ser His Phe Lys Leu Ile His
 465 470 475 480
 Phe Pro Ser Lys Val Ala Met Trp Thr His Thr Thr Pro Leu Pro Glu
 485 490 495
 Trp Ala Tyr Arg Gln Gln Glu Ile Asn Gly Asn Lys Gln Ile Thr Pro
 500 505 510
 Ser Ser Asn Val Trp Ile Ala Glu Asp Ile Pro Ser Leu Pro Glu Asp
 515 520 525
 Asp Ala Arg Arg His Lys Glu Gln Arg Lys Val Lys Ser Leu Pro Phe
 530 535 540
 Leu Arg Lys Trp Phe Glu Leu Gln Arg Ser Met Phe Tyr His Asn Asn
 545 550 555 560
 Lys Leu Thr Ser Ser His Pro Tyr Ser Ser Gln Pro Tyr His Trp Pro
 565 570 575
 Phe Leu Leu Arg Gly Val Ser Phe Trp Thr Gln Asn Asp Thr Arg Gln
 580 585 590
 Gln Ile Tyr Phe Val Gly Asn Pro Ile Gly Trp Trp Leu Ala Ser Ser
 595 600 605
 Leu Leu Ala Val Phe Ala Gly Ile Ile Gly Ala Asp Gln Val Ser Leu
 610 615 620
 Arg Arg Gly Ile Asp Ala Leu Asp His Arg Thr Arg Ser Arg Leu Tyr
 625 630 635 640
 Asn Ser Thr Gly Phe Phe Phe Leu Ala Trp Ala Thr His Tyr Phe Pro
 645 650 655
 Phe Phe Leu Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro Ala
 660 665 670

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His Leu Ala Ser Cys Leu Val Thr Gly Ser Leu Val Glu Phe Ile Phe
675 680 685

Asn Thr Asp Pro Ala Asp Glu Glu Pro Ser Arg Ser Lys Asn Pro Lys
690 695 700

Ala Thr Gly Pro Arg Arg His Ile Thr Ala Arg Glu Arg Phe Ala Gly
705 710 715 720

Lys Ser Met Ala Gly Ala Trp Ile Ala Cys Phe Val Ile Leu Ala Ala
725 730 735

Ala Ala Ala Ser Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly Tyr Pro
740 745 750

Gly Leu Ser Val Glu Glu Val Leu Arg Arg Lys Trp Leu Gly Tyr Asp
755 760 765

Leu His Phe Ala Lys
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<213> Trichoderma reesei

<400> 3

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Ser Lys Ala Ala Lys Lys Asn Ser Ser Tyr Arg Ser Asp Gly Val Ala
35 40 45

Asp Asn Asp Val Phe Leu Leu Pro Gly Ala Asp Tyr Val Ala Ala Leu
50 55 60

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

Pro Thr Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser
85 90 95

Lys Tyr Ile Lys Gly Arg Phe Phe Met Asp Val His Pro Pro Leu Ala
100 105 110

Lys Met Leu Ile Ala Leu Thr Gly Trp Leu Ala Gly Phe Asp Gly Asn
115 120 125

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Phe Asp Phe Lys Asp Ile Gly Lys Asp Tyr Leu Glu Pro Gly Val Pro
 130 135 140

Tyr Val Ala Met Arg Met Phe Pro Ala Val Cys Gly Ile Leu Leu Ala
 145 150 155 160

Pro Phe Met Phe Phe Thr Leu Lys Ala Val Gly Cys Arg Thr Thr Thr
 165 170 175

Ala Ile Leu Gly Ala Ser Phe Ile Ile Phe Glu Asn Gly Leu Leu Thr
 180 185 190

Gln Ala Arg Leu Ile Leu Leu Asp Ser Pro Leu Val Ala Ala Thr Ala
 195 200 205

Phe Thr Ala Met Ser Phe Asn Cys Phe Thr Asn Gln His Glu Gln Gly
 210 215 220

Pro Asp Lys Ala Phe Ser Leu Ser Trp Trp Phe Trp Leu Ala Met Thr
 225 230 235 240

Gly Leu Gly Leu Gly Ile Thr Ser Ser Ile Lys Trp Val Gly Leu Phe
 245 250 255

Thr Ile Ala Trp Val Gly Ser Leu Thr Leu Val Gln Leu Trp Val Leu
 260 265 270

Leu Gly Asp Ser Lys Asn Val Ser Met Arg Leu Trp Phe Lys His Phe
 275 280 285

Met Ala Arg Val Phe Cys Leu Ile Ile Ile Pro Leu Thr Phe Tyr Leu
 290 295 300

Ser Met Phe Ala Ile His Phe Leu Cys Leu Thr Asn Pro Gly Glu Gly
 305 310 315 320

Asp Gly Phe Met Ser Ser Glu Phe Gln Ala Thr Leu Asn Ser Lys Gly
 325 330 335

Met Lys Asp Val Pro Ala Asp Val Val Phe Gly Ser Arg Val Thr Ile
 340 345 350

Arg His Val Asn Thr Gln Gly Gly Tyr Leu His Ser His Pro Leu Met
 355 360 365

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

Asp Glu Asn Asn Ile Trp Ile Met Glu Asn Gln Thr Gln Pro Leu Gly
 385 390 395 400

Val Asp Gly Gln Pro Ile Asn Gly Thr Glu Ala Trp Asp Ala Leu Pro
 405 410 415

Glu Val His His Val Val Asp Gly Ser Val Ile Arg Leu Tyr His Lys
 420 425 430

Pro Thr Phe Arg Arg Leu His Ser His Asp Val Arg Pro Pro Val Thr
 435 440 445

Glu Ala Glu Trp Gln Asn Glu Val Ser Ala Tyr Gly Tyr Glu Gly Phe
 450 455 460

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

Ser Lys Gly Pro Leu Ala Lys Glu Arg Leu Arg Thr Ile Glu Thr Lys
 485 490 495

Phe Arg Leu Ile His Val Met Thr Gly Cys Ala Leu Phe Ser His Lys
 500 505 510

Val Lys Leu Pro Glu Trp Ala Ser Glu Gln Gln Glu Val Thr Cys Ala
 515 520 525

Arg Gly Gly Ser Leu Pro Asn Ser Ile Trp Tyr Ile Glu Tyr Asn Glu
 530 535 540

His Pro Leu Leu Gly Asp Asp Val Glu Lys Val Asn Tyr Ala Asn Pro
 545 550 555 560

Gly Phe Phe Gly Lys Phe Trp Glu Leu His Lys Val Met Trp Lys Thr
 565 570 575

Asn Ala Gly Leu Thr Asp Ser His Ala Trp Asp Ser Arg Pro Pro Ser
 580 585 590

Trp Pro Ile Leu Arg Arg Gly Ile Asn Phe Trp Gly Lys His His Met
 595 600 605

Gln Val Tyr Leu Leu Gly Asn Pro Phe Ile Trp Trp Ser Ser Thr Ala
 610 615 620

Ala Val Ala Ile Trp Val Ile Phe Lys Gly Val Ala Ile Leu Arg Trp
 625 630 635 640

Gln Arg Gly Cys Asn Asp Tyr Ala Ser Ser Thr Phe Lys Arg Phe Asp
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Tyr Glu Ile Gly Thr Ser Val Leu Gly Trp Ala Leu His Tyr Phe Pro
 660 665 670

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Phe Tyr Leu₆₇₅ Met Glu Arg Gln Leu₆₈₀ Phe Leu His His Tyr₆₈₅ Phe Pro Ala
 Leu Tyr₆₉₀ Phe Ala Ile Leu Ala₆₉₅ Leu Cys Gln Met Phe₇₀₀ Asp Phe Ala Thr
 Val₇₀₅ Arg Ile Pro Ala Ala₇₁₀ Leu Gly Tyr Arg Ser₇₁₅ Thr Leu Ile Asn Arg₇₂₀
 Val Gly Thr Val₇₂₅ Ser Leu Leu Val Ile Ser₇₃₀ Ala Ala Val Phe Thr₇₃₅ Leu
 Phe Ala Pro Leu₇₄₀ Ala Tyr Gly Thr Pro₇₄₅ Trp Thr Lys Ala Glu₇₅₀ Cys Asn
 Arg Val Lys₇₅₅ Leu Phe Asp Lys Trp₇₆₀ Asp Phe Asp Cys Asn₇₆₅ Thr Phe Leu
 Asp Asp₇₇₀ Tyr Lys Ser Tyr Thr₇₇₅ Leu Thr Ser Leu Ala₇₈₀ Pro Ser Ser Ile
 Ala₇₈₅ Pro Ser Pro Pro Ala₇₉₀ Ala Asn Val Pro Val₇₉₅ Val Asn Gln Glu Gln₈₀₀
 Lys Pro Leu Ala Lys₈₀₅ Gln Pro Glu Pro Val₈₁₀ Ile Ser Gln Ala Ala Val₈₁₅
 Pro Gln Glu Pro₈₂₀ Gln Ile Leu Ser Lys₈₂₅ Glu Glu Lys Ile Glu₈₃₀ Tyr Arg
 Asp Gln Asp₈₃₅ Gly Asn Leu Leu Asn₈₄₀ Asp Glu Gln Val Lys₈₄₅ Ala Leu Gln
 Gly Lys₈₅₀ Val Glu Phe Lys Thr₈₅₅ Lys Tyr Glu Thr Lys₈₆₀ Thr Arg Val Val
 Asp₈₆₅ Ala Gln Gly His Glu₈₇₀ Ile Pro Val Pro Glu₈₇₅ Gly Gly Trp Pro Asp₈₈₀
 Asp Met Ile Ala Gly₈₈₅ Val Ala Pro Pro His₈₉₀ Pro Asp Val Glu Gly₈₉₅ Val
 Asp Lys Glu Thr₉₀₀ Pro Lys Val Glu Ser₉₀₅ Ala Glu Val Pro Lys₉₁₀ Glu Ala
 Ala Ala Ser₉₁₅ Arg Asp Gly Glu Val₉₂₀ Glu Ala Glu Asn Leu₉₂₅ Lys Ala Lys
 Pro Ala₉₃₀ Ser Glu Gly Gln Glu₉₃₅ Val Glu Ala Thr Val₉₄₀ Gln Glu Glu Leu

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 <212> PRT
 <213> Trichoderma reesei

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Pro Ala Gln Thr Glu Asp Thr Lys Lys Leu Ala Lys Lys Asp Lys Thr
 35 40 45

Phe Val Gln Val Leu Ala Asp Trp Glu Ser Val Leu Ala Pro Leu Ile
 50 55 60

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

Asn Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser Tyr
 85 90 95

Tyr Ile Lys His Glu Tyr Tyr Phe Asp Val His Pro Pro Leu Gly Lys
 100 105 110

Met Leu Val Gly Leu Ser Gly Val Leu Ala Gly Tyr Asn Gly Ser Phe
 115 120 125

Glu Phe Lys Ser Gly Glu Gln Tyr Pro Glu Asp Val Asn Tyr Thr Phe
 130 135 140

Met Arg Ala Phe Asn Ala Ala Phe Gly Ile Ala Cys Ile Pro Met Ala
 145 150 155 160

Tyr Phe Thr Ala Lys Glu Leu Lys Leu Thr Arg Pro Ala Val Trp Phe
 165 170 175

Val Thr Leu Met Val Leu Cys Glu Asn Ser Tyr Thr Thr Ile Ser Arg
 180 185 190

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

Leu Cys Trp Ala Lys Phe His Asn Gln Arg His Asn Ser Phe Glu Pro
 210 215 220

Glu Trp Phe Phe Trp Leu Phe Met Thr Gly Leu Ser Ile Gly Cys Val
 225 230 235 240

Cys Ser Val Lys Leu Val Gly Leu Phe Val Thr Ala Leu Val Gly Leu

Tyr Thr Ile Glu Asp Leu Trp Arg Lys Tyr Gly Asp Arg Lys Met Pro
260 265 270

Ile Pro Val Leu Ala Ala His Phe Ser Ala Arg Val Val Gly Leu Ile
275 280 285

Ile Val Pro Phe Leu Ile Tyr Met Leu Ser Phe Ala Leu His Phe Ala
290 295 300

Ile Leu Asp His Ser Gly Pro Gly Asp Ala Gln Met Ser Ser Leu Phe
305 310 315 320

Gln Ala Asn Leu Lys Gly Thr Glu Val Gly Lys Asn Ser Pro Leu Glu
325 330 335

Ile Ala Leu Gly Ser Arg Ala Thr Ile Lys Asn Met Gly Tyr Gly Gly
340 345 350

Gly Leu Leu His Ser His Val Gln Thr Tyr Pro Glu Gly Ser Gly Gln
355 360 365

Gln Gln Val Thr Cys Tyr His His Lys Asp Ala Asn Asn Asp Trp Phe
370 375 380

Phe Tyr Pro Asn Arg His Glu Pro Asp Tyr Asp Pro Glu Gly Glu Leu
385 390 395 400

Arg Phe Ile Gly Asp Gly Ser Val Ile Arg Leu Ile His Ala Gln Thr
405 410 415

Gly Arg Asn Leu His Ser His Asp Ile Asp Ala Pro Ile Thr Lys Ser
420 425 430

His Arg Glu Val Ser Ser Tyr Gly Asn Leu Thr Val Gly Asp Glu Lys
435 440 445

Asp His Trp Lys Ile Glu Val Val Arg Asp Ala Ala Ser Arg Asp Arg
450 455 460

Ser Arg Ile Arg Thr Leu Thr Thr Ala Phe Arg Leu Lys His Thr Val
465 470 475 480

Leu Gly Cys Tyr Leu Arg Ala Gly Asn Val Asn Leu Pro Gln Trp Gly
485 490 495

Phe Lys Gln Ile Glu Val Thr Cys Asp Lys Gln Asn Asn Pro Arg Asp
500 505 510

Thr Tyr Thr His Trp Asn Val Glu Ala His Trp Asn Asp Arg Leu Pro

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515

520

525

Pro Ser Asp Pro Gly Val Tyr Lys Ser Pro Phe Ile His Asp Phe Ile
 530 535 540

His Leu Asn Val Ala Met Met Thr Ser Asn Asn Ala Leu Val Pro Asp
 545 550 555 560

Pro Asp Lys Gln Asp Asp Leu Ala Ser Gln Trp Trp Gln Trp Pro Ile
 565 570 575

Leu His Val Gly Leu Arg Met Cys Ser Trp Asp Asp Asn Ile Val Lys
 580 585 590

Tyr Phe Leu Leu Gly Asn Pro Phe Val Tyr Trp Ala Ser Thr Ala Ser
 595 600 605

Leu Gly Ala Val Ala Leu Val Ile Ala Trp Tyr Val Val Arg Trp Gln
 610 615 620

Arg Gly Phe Lys Glu Leu Ser Asn Ser Glu Val Asp Gln Ile His Tyr
 625 630 635 640

Ala Gly Ile Tyr Pro Val Ile Gly Trp Phe Leu His Tyr Leu Pro Phe
 645 650 655

Val Ile Met Ala Arg Val Thr Tyr Val His His Tyr Tyr Pro Ala Leu
 660 665 670

Tyr Phe Ala Ile Leu Ser Leu Gly Phe Leu Val Asp Trp Val Leu Arg
 675 680 685

Asn Arg Ala Ala Val Val Gln Gly Val Ala Tyr Gly Ile Leu Tyr Thr
 690 695 700

Val Val Ile Gly Leu Tyr Ile Leu Phe Met Pro Ile Cys Trp Gly Met
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Thr Gly Ser Ser Lys Gln Tyr Ser Tyr Leu Lys Trp Phe Asp Asn Trp
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Arg Ile Ser Asp
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<212> PRT

<213> Aspergillus oryzae

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

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

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Pro Tyr Ala Ser Glu Pro Phe Gln Trp Pro Phe Leu Leu Arg Gly Val
565 570 575

Ser Phe Trp Thr Lys Asn Asp Thr Arg Glu Gln Ile Tyr Phe Leu Gly
580 585 590

Asn Pro Ile Gly Trp Trp Ile Ala Ser Ser Leu Leu Ala Val Phe Ala
595 600 605

Gly Val Ile Gly Ala Asp Gln Leu Ser Leu Arg Arg Gly Val Asp Ala
610 615 620

Val Glu Glu Ile Trp Gly Pro Gly Ala Arg Ser Arg Leu Tyr Asn Ser
625 630 635 640

Thr Gly Phe Leu Phe Leu Cys Trp Gly Ala His Tyr Phe Pro Phe Trp
645 650 655

Leu Met Gly Arg Gln Arg Phe Leu His His Tyr Leu Pro Ala His Leu
660 665 670

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

Gln Pro Val Gln Ala Val Ile Asp Ser Glu Val Asp Pro Ser Gly Lys
690 695 700

Ser Lys Ser Ile Arg Pro Arg His Phe Val Thr Ala Lys Glu Arg Met
705 710 715 720

Ser Arg Lys Ser Leu Val Ala Cys Trp Ile Ala Thr Leu Ser Ile Leu
725 730 735

Ala Val Thr Val Trp Gly Phe Trp Phe Tyr Ala Pro Leu Thr Tyr Gly
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Thr Pro Gly Leu Asp Val Ala Gly Val Asn Ala Arg Arg Trp Leu Gly
755 760 765

Tyr Asp Leu His Phe Ala Lys
770 775

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<212> PRT
<213> Aspergillus niger

<400> 6

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

1632537_1

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

1632537_1

Ser Glu Pro Phe Gln Trp Pro Phe Leu Leu Arg Gly Val Ser Phe Trp
565 570 575

Thr Lys Asn Asp Thr Arg Glu Gln Ile Tyr Phe Leu Gly Asn Pro Val
580 585 590

Gly Trp Trp Ile Ala Ser Ser Leu Leu Ala Val Phe Ala Gly Val Ile
595 600 605

Gly Ala Asp Gln Leu Ser Leu Arg Arg Gly Val Asp Ala Val Glu Glu
610 615 620

Ile Trp Gly Gln Gly Ser Arg Ser Arg Leu Tyr Asn Ser Met Gly Phe
625 630 635 640

Leu Phe Leu Cys Trp Ala Ala His Tyr Phe Pro Phe Trp Leu Met Gly
645 650 655

Arg Gln Arg Phe Leu His His Tyr Leu Pro Ala His Leu Ala Ser Ala
660 665 670

Leu Val Ala Gly Ala Leu Ile Glu Phe Ile Phe Asn Leu Glu Pro Leu
675 680 685

Ser Val Ile Gln Arg Val Arg Ser Glu Asp Asp Pro Ser Gly Lys Ala
690 695 700

Lys Ala Ser Ala Ser Val Gly Arg Phe Val Thr Ala Lys Glu Arg Met
705 710 715 720

Gly Thr Lys Ser Leu Leu Ala Gly Trp Ile Ala Thr Leu Val Ile Leu
725 730 735

Ala Gly Thr Ile Tyr Gly Phe Val Phe Tyr Ala Pro Leu Thr Tyr Gly
740 745 750

Thr Pro Gly Leu Asp Val Pro Gly Ile Leu Ala Arg Lys Trp Leu Gly
755 760 765

Tyr Asp Leu His Phe Ala Lys
770 775

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<212> PRT
<213> Aspergillus nidulans

<400> 7

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1632537_1

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

1632537_1

Trp Phe Gln Val His Phe Ala Ile Leu Thr His Ser Gly Pro Gly Asp
290 295 300

Asp Phe Met Thr Pro Ala Phe Gln Glu Thr Leu Ser Asp Asn Ala Met
305 310 315 320

Ala Ala Gln Ser Val Ser Ile Glu Tyr Phe Asp Thr Ile Thr Met Arg
325 330 335

His Lys Asp Thr Lys Val Phe Leu His Ser His Ser Asp Thr Tyr Pro
340 345 350

Leu Arg Tyr Asp Asp Gly Arg Ile Ser Ser Gln Gly Gln Gln Val Thr
355 360 365

Gly Tyr Pro Tyr Asn Asp Thr Asn Asn His Trp Gln Ile Ile Pro Thr
370 375 380

Val Pro Leu Asp Glu Thr Asp Glu Lys Ser Arg Lys Val Arg Asn Gly
385 390 395 400

Asp Ile Val Gln Leu Arg His Val Ala Thr Asp Thr Ile Leu Leu Thr
405 410 415

His Asp Val Ala Ser Pro Tyr Tyr Pro Thr Asn Gln Glu Phe Thr Thr
420 425 430

Val Ser His Glu Leu Ala Asp Gly Lys Arg His Asn Asp Thr Leu Phe
435 440 445

Glu Ile Arg Val Glu His Gly Lys Ser Lys Gln Glu Phe Arg Thr Leu
450 455 460

Ser Ser Gln Phe Lys Leu Val His Val Pro Thr Lys Val Ala Met Trp
465 470 475 480

Thr His Thr Thr Pro Leu Pro Asp Trp Ala Tyr Lys Gln Ala Glu Ile
485 490 495

Asn Gly Asn Lys Asn Val Leu Gln Ser Ser Asn Ile Trp Tyr Val Glu
500 505 510

Ala Ile Glu Ser Leu Glu Glu Asp Ser Pro Arg Leu Lys Lys Glu Glu
515 520 525

Arg Lys Val Lys His Leu Pro Phe Trp Arg Lys Tyr Ile Glu Leu Gln
530 535 540

Arg Ala Met Phe Phe His Asn Asn Ala Leu Thr Ser Ser His Pro Tyr
545 550 555 560

1632537_1

Ala Ser Glu Pro Phe Gln Trp Pro Phe Leu Leu Arg Gly Val Ser Phe
565 570 575

Trp Thr Lys Ser Asp Thr Arg Glu Gln Ile Tyr Phe Leu Gly Asn Pro
580 585 590

Val Gly Trp Trp Ile Ser Ser Ser Leu Leu Ala Val Phe Ala Gly Val
595 600 605

Ile Gly Ala Asp Gln Leu Ser Leu Arg Arg Gly Val Asp Ala Val Glu
610 615 620

Glu Ile Trp Gly Pro Gly Ser Arg Ser Arg Leu Tyr Asn Ser Thr Gly
625 630 635 640

Phe Leu Phe Leu Cys Trp Ala Ala His Tyr Phe Pro Phe Trp Leu Met
645 650 655

Gly Arg Gln Arg Phe Leu His His Tyr Leu Pro Ala His Val Ala Ser
660 665 670

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

Ile Ser Val Pro Ala Thr Ile Pro Val Ala Ala Asp Asp Pro Thr Gly
690 695 700

Lys Gly Lys Thr Arg Arg Phe Val Thr Ala Arg Glu Arg Met Gly Val
705 710 715 720

Lys Ser Ile Val Ala Gly Trp Ile Ala Ser Leu Thr Ile Leu Ala Ala
725 730 735

Thr Ile Trp Gly Phe Trp Phe Phe Ala Pro Leu Thr Tyr Gly Thr Pro
740 745 750

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

Leu His Phe Ala Lys
770

<210> 8
<211> 774
<212> PRT
<213> Trichoderma virens

<400> 8

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

Val Ala Ser Lys Gln Pro Val Ser Glu Ala Thr Phe Ala Pro Glu Val
Page 20

20

25

30

Glu Leu Asp₃₅ Lys Leu Ser Lys Ala₄₀ Ala Ala Ser Ser Arg₄₅ Gln Asn Ile

Gln Arg₅₀ Gly Glu Thr Glu His₅₅ Arg Val Ala Leu Thr₆₀ Leu Val Thr Ile

Leu Gly Phe Val Thr Arg₇₀ Phe Trp Gly Ile Ser₇₅ His Pro Asp Glu Val₈₀

Val Phe Asp Glu Val₈₅ His Phe Gly Lys Phe₉₀ Ala Ser Tyr Tyr Leu₉₅ Gln

Arg Thr Tyr Phe₁₀₀ Phe Asp Val His Pro₁₀₅ Pro Phe Ala Lys Leu₁₁₀ Leu Phe

Ala Phe Val₁₁₅ Gly Trp Leu Val Gly₁₂₀ Tyr Asp Gly His Phe₁₂₅ His Phe Glu

Asn Ile₁₃₀ Gly Asp Ser Tyr Ile₁₃₅ Ala Asn Lys Val Pro₁₄₀ Tyr Val Ala Phe

Arg Ala Leu Pro Ala Phe₁₅₀ Leu Gly Ala Leu Thr₁₅₅ Val Ser Val Thr Tyr₁₆₀

Leu Ile Met Trp Glu₁₆₅ Ser Gly Tyr Ser Val₁₇₀ Pro Ala Cys Leu Val₁₇₅ Ala

Thr Gly Leu Ile₁₈₀ Leu Leu Asp Asn Ala₁₈₅ His Ile Gly Gln Thr₁₉₀ Arg Leu

Ile Leu Leu₁₉₅ Asp Ala Thr Leu Val₂₀₀ Leu Ala Met Ala Cys₂₀₅ Ser Leu Leu

Phe Tyr₂₁₀ Ile Lys Phe Tyr Lys₂₁₅ Leu Arg His Glu Pro₂₂₀ Phe Ser Arg Lys

Trp Trp Lys Trp Leu Val₂₃₀ Leu Thr Gly Phe Ala₂₃₅ Leu Ser Cys Asp Ile₂₄₀

Ser Thr Lys Tyr Val₂₄₅ Gly Leu Phe Ala Phe₂₅₀ Val Thr Ile Gly Ser₂₅₅ Ala

Val Ile Ile Asp₂₆₀ Leu Trp Glu Leu Leu₂₆₅ Asp Ile Arg Arg Pro₂₇₀ Gly Gly

Ala Ile Ser₂₇₅ Leu Pro Leu Phe Gly₂₈₀ Lys His Phe Ala Ala₂₈₅ Arg Ala Val

Gly Leu Ile Ile Leu Pro Phe Leu Phe Tyr Leu Phe Trp Phe Gln Val

290

295

His Phe Ala Val Leu Thr Arg Ser Gly Pro Gly Asp Asp Phe Met Ser
305 310 315 320

Pro Glu Phe Gln Glu Thr Leu Ser Asp Asn Val Met Leu Ala Ser Ala
325 330 335

Val Asp Ile Gln Tyr Tyr Asp Thr Ile Thr Ile Arg His Lys Glu Thr
340 345 350

Lys Ala Tyr Leu His Ser His Leu Asp Thr Tyr Pro Leu Arg Tyr Asp
355 360 365

Asp Gly Arg Ile Ser Ser Gln Gly Gln Gln Val Thr Gly Tyr Pro His
370 375 380

Asn Asp Thr Asn Asn Tyr Trp Gln Ile Ile Pro Ala Ser Asn Asp Gln
385 390 395 400

Lys Leu Gly Arg Ile Val Arg Asn Gln Glu Leu Val Arg Leu Arg His
405 410 415

Ile Val Thr Asp Lys Ile Leu Leu Ser His Asp Val Ala Ser Pro Tyr
420 425 430

Tyr Pro Thr Asn Gln Glu Phe Thr Ala Val Ser Ala Glu Glu Ala Tyr
435 440 445

Gly Asp Arg Leu Asn Asp Thr Leu Phe Glu Ile Arg Ile Glu Gly Gly
450 455 460

Lys Pro Asn Gln Asp Phe Lys Thr Ile Ala Ser His Phe Lys Leu Ile
465 470 475 480

His Phe Pro Ser Lys Val Ala Met Trp Thr His Thr Thr Pro Leu Pro
485 490 495

Glu Trp Ala Tyr Arg Gln Gln Glu Ile Asn Gly Asn Lys Gln Ile Thr
500 505 510

Pro Ser Ser Asn Val Trp Ile Ala Glu Asp Ile Pro Ser Leu Pro Glu
515 520 525

Asp His Ser Arg Arg Gln Lys Glu Glu Arg Lys Val Lys Ser Leu Pro
530 535 540

Phe Leu Arg Lys Trp Phe Glu Leu Gln Arg Ser Met Phe Tyr His Asn
545 550 555 560

Asn Lys Leu Thr Ser Ser His Pro Tyr Ser Ser Gln Pro Tyr His Trp
Page 22

565

570

575

Pro Phe Leu Leu Arg Gly Val Ser Phe Trp Thr Gln Asn Asp Thr Arg
580 585 590

Gln Gln Ile Tyr Phe Val Gly Asn Pro Ile Gly Trp Trp Leu Ala Ser
595 600 605

Gly Leu Leu Ala Val Phe Ala Gly Ile Ile Gly Ala Asp Gln Val Ser
610 615 620

Leu Arg Arg Gly Ile Asp Ala Leu Asp His Arg Thr Arg Ser Arg Leu
625 630 635 640

Tyr Asn Ser Thr Gly Phe Phe Trp Leu Ala Trp Ala Thr His Tyr Phe
645 650 655

Pro Phe Phe Leu Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro
660 665 670

Ala His Leu Ala Ser Cys Leu Val Thr Gly Ser Leu Val Glu Phe Ile
675 680 685

Phe Asn Thr Asp Pro Ala Asp Glu Glu Pro Ser Arg Ala Thr Asn Pro
690 695 700

Arg Ala Ser Gly Pro Lys Arg His Ile Thr Ala Arg Glu Arg Phe Ala
705 710 715 720

Gly Lys Ser Met Ala Gly Ala Trp Ile Ala Cys Phe Val Ile Leu Thr
725 730 735

Val Ala Ala Ala Ser Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly Tyr
740 745 750

Pro Gly Leu Ser Val Asp Glu Val Asn Arg Arg Lys Trp Leu Gly Tyr
755 760 765

Asp Leu His Phe Ala Lys
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<210> 9

<211> 771

<212> PRT

<213> Trichoderma atroviride

<400> 9

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

1632537_1

Leu Asp Lys₃₅ Leu Ser Lys Ala₄₀ Ala Ala Ser Ser Arg Gln₄₅ Asn Val Gln
 Arg Gly₅₀ Glu Ile Glu His Lys₅₅ Ile Ala Leu Thr Leu₆₀ Val Thr Ile Leu
 Gly₆₅ Phe Val Thr Arg Phe₇₀ Trp Gly Ile Ser His₇₅ Pro Asp Glu Val Val₈₀
 Phe Asp Glu Val His₈₅ Phe Gly Lys Phe Ala₉₀ Ser Tyr Tyr Leu Gln₉₅ Arg
 Thr Tyr Phe Phe₁₀₀ Asp Val His Pro Pro₁₀₅ Phe Ala Lys Leu Leu₁₁₀ Phe Ala
 Phe Val Gly₁₁₅ Trp Leu Val Gly Tyr₁₂₀ Asp Gly His Phe His₁₂₅ Phe Glu Asn
 Ile Gly₁₃₀ Asp Ser Tyr Val Ala₁₃₅ Asn Lys Val Pro Tyr₁₄₀ Val Ala Phe Arg
 Ala₁₄₅ Leu Pro Ala Val Leu₁₅₀ Gly Ala Leu Thr Val₁₅₅ Ser Val Thr Tyr Leu₁₆₀
 Ile Met Trp Glu Ser₁₆₅ Gly Tyr Ser Leu Pro₁₇₀ Ala Cys Leu Val Ala₁₇₅ Thr
 Gly Leu Ile Leu₁₈₀ Leu Asp Asn Ala His₁₈₅ Ile Gly Gln Thr Arg₁₉₀ Leu Ile
 Leu Leu Asp₁₉₅ Ala Thr Leu Val Leu₂₀₀ Ala Met Ala Cys Ser₂₀₅ Leu Leu Phe
 Tyr Ile₂₁₀ Lys Phe Tyr Lys Leu₂₁₅ Arg His Glu Ala Phe₂₂₀ Ser Arg Lys Trp
 Trp₂₂₅ Lys Trp Leu Ile Leu₂₃₀ Thr Gly Phe Ala Leu₂₃₅ Ser Cys Asp Ile Ser₂₄₀
 Thr Lys Tyr Val Gly₂₄₅ Leu Phe Ala Phe Val₂₅₀ Thr Ile Gly Ser Ala₂₅₅ Val
 Ile Ile Asp Leu₂₆₀ Trp Asp Leu Leu Asp₂₆₅ Ile Lys Arg Arg Asn₂₇₀ Gly Ala
 Ile Ser Leu₂₇₅ Gln Leu Phe Gly Lys₂₈₀ His Phe Ala Ala Arg₂₈₅ Ala Ile Gly
 Leu Ile₂₉₀ Val Leu Pro Phe Leu₂₉₅ Phe Tyr Leu Phe Trp₃₀₀ Phe Gln Val His

1632537_1

Phe Ala Val Leu Thr Arg Ser Gly Pro Gly Asp Asp Phe Met Thr Pro
 305 310 315 320
 Glu Phe Gln Glu Thr Leu Ser Asp Asn Val Met Leu Ala Asn Ala Val
 325 330 335
 Asp Ile His Tyr Tyr Asp Tyr Ile Thr Ile Arg His Lys Glu Thr Lys
 340 345 350
 Ala Tyr Leu His Ser His Pro Asp Thr Tyr Pro Leu Arg Tyr Asp Asp
 355 360 365
 Gly Arg Ile Ser Ser Gln Gly Gln Gln Ile Thr Gly Tyr Pro His Asn
 370 375 380
 Asp Thr Asn Asn Tyr Trp Gln Val Leu Pro Ser Asp Asn Val His Asn
 385 390 395 400
 Thr Glu Arg Ile Val Arg Asn Phe Asp Leu Val Arg Leu Arg His Ile
 405 410 415
 Val Thr Asp Lys Ile Leu Leu Ser His Asp Val Ala Ser Pro Tyr Phe
 420 425 430
 Pro Thr Asn Gln Glu Phe Thr Ala Val Thr Ser Glu Glu Ala Phe Gly
 435 440 445
 Glu Arg Gln Asn Asp Thr Leu Phe Glu Ile Arg Val Glu Thr Ala Lys
 450 455 460
 Val Gly Ala Glu Phe Lys Thr Val Ala Ser His Phe Lys Leu Val His
 465 470 475 480
 Phe Pro Ser Lys Val Ala Met Trp Thr His Thr Thr Pro Leu Pro Glu
 485 490 495
 Trp Gly Tyr Lys Gln Gln Glu Ile Asn Gly Asn Lys Gln Val Thr Val
 500 505 510
 Ser Ser Asn Met Trp Ile Ala Glu Asp Ile Pro Ser Leu Pro Gln Asp
 515 520 525
 Asp Ala Arg Arg Gln Lys Glu Gln Arg Gln Val Lys Ser Leu Pro Phe
 530 535 540
 Leu Arg Lys Trp Phe Glu Leu Gln Arg Ser Met Phe Tyr His Asn Asn
 545 550 555 560
 Lys Leu Thr Ser Ser His Pro Tyr Ser Ser Gln Pro Tyr His Trp Pro
 565 570 575

1632537_1

Phe Leu Leu Arg Gly Val Ser Phe Trp Thr Gln Asn Asp Thr Arg Gln
580 585 590

Gln Ile Tyr Phe Val Gly Asn Pro Ile Gly Trp Trp Ile Thr Ser Ser
595 600 605

Leu Leu Ala Val Phe Ala Gly Ile Ile Ala Ala Asp Gln Ile Ser Leu
610 615 620

Arg Arg Asn Ile Asp Ala Leu Asp His Arg Thr Arg Ser Arg Leu Tyr
625 630 635 640

Asn Ser Thr Gly Phe Phe Trp Leu Ala Trp Ala Thr His Tyr Phe Pro
645 650 655

Phe Tyr Leu Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro Ala
660 665 670

His Leu Ala Ser Cys Leu Val Thr Gly Ala Leu Val Glu Phe Ile Phe
675 680 685

Asn Ser Asp Ala Val Glu Glu Glu Ser Ser Lys Ser Gly Asn Arg Ser
690 695 700

Ser Pro Lys Arg His Val Thr Ala Arg Glu Arg Phe Ala Gly Lys Ser
705 710 715 720

Met Leu Gly Ala Trp Ile Ala Cys Gly Val Ile Leu Ser Ala Ala Ala
725 730 735

Ala Cys Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly Tyr Pro Gly Leu
740 745 750

Ser Val Glu Glu Val Val Arg Arg Lys Trp Leu Gly Tyr Asp Leu His
755 760 765

Phe Ala Lys
770

<210> 10
<211> 770
<212> PRT
<213> Fusarium oxysporum

<400> 10

Met Ala Arg Ser Ser Thr Pro Gln Gly Ser Leu Arg Gln Arg Gly Ala
1 5 10 15

Pro Ser Lys Lys Pro Phe Glu Glu Asp Ser Phe Asp Pro Asn Ile Glu
20 25 30

1632537_1

Leu Asp Lys₃₅ Leu Ala Lys Ala Gly₄₀ Ala Gln Arg Ala Ala₄₅ Ala Gln Ser
 Glu Thr₅₀ Glu Tyr Lys Ile Gly₅₅ Leu Phe Leu Ile Thr₆₀ Ile Leu Ser Phe
 Val Thr Arg Phe Trp Gly₇₀ Ile Ser His Pro Asn₇₅ Glu Val Val Phe Asp₈₀
 Glu Val His Phe Gly₈₅ Lys Phe Ala Ser Tyr₉₀ Tyr Leu Glu Arg Thr₉₅ Tyr
 Phe Phe Asp Val₁₀₀ His Pro Pro Phe Gly₁₀₅ Lys Leu Leu Phe Ala₁₁₀ Phe Val
 Gly Trp Leu₁₁₅ Val Gly Tyr Asp Gly₁₂₀ Asn Phe His Phe Glu₁₂₅ Asn Ile Gly
 Asp Ser₁₃₀ Tyr Ile Ala Asn Lys₁₃₅ Val Pro Tyr Val Ala₁₄₀ Tyr Arg Ala Leu
 Pro Ala Thr Leu Gly Ala₁₅₀ Leu Thr Val Ser Val₁₅₅ Thr Tyr Leu Ile Met₁₆₀
 Trp Glu Ser Gly Tyr₁₆₅ Ser Leu Pro Ala Cys₁₇₀ Ile Leu Ala Ala Gly₁₇₅ Leu
 Val Leu Leu Asp₁₈₀ Asn Ala His Ile Gly₁₈₅ Gln Thr Arg Leu Ile₁₉₀ Leu Leu
 Asp Ala Thr₁₉₅ Leu Val Leu Ala Met₂₀₀ Ala Cys Ser Leu Leu₂₀₅ Phe Tyr Ile
 Lys Trp Tyr Lys Leu Arg His₂₁₅ Glu Pro Phe Ser Arg₂₂₀ Lys Trp Trp Lys
 Trp Leu Ile Leu Thr Gly₂₃₀ Phe Ala Leu Ser Cys₂₃₅ Asp Ile Ser Val Lys₂₄₀
 Tyr Val Gly Val Phe₂₄₅ Ala Phe Val Thr Ile₂₅₀ Gly Ser Ala Val Val₂₅₅ Ile
 Asp Leu Trp Asp₂₆₀ Leu Leu Asn Ile Asn₂₆₅ Arg Pro Gly Gly Ala₂₇₀ Ile Ser
 Leu Gln Glu Phe Thr Lys His Phe Ala Ala Arg Ala Phe Gly Leu Ile
 Ile Met₂₉₀ Pro Phe Leu Phe Tyr₂₉₅ Leu Phe Trp Phe Gln₃₀₀ Val His Phe Ala

1632537_1

Val Leu Tyr Arg Ser Gly Pro Gly Asp Asp Phe Met Thr Pro Glu Phe
305 310 315 320

Gln Glu Thr Leu Ser Asp Asn Val Met Leu Ala Asn Ser Ile Asp Ile
325 330 335

Gln Tyr Tyr Asp Gln Ile Thr Ile Arg His Lys Glu Thr Lys Thr Tyr
340 345 350

Leu His Ser His Glu Asp Arg Tyr Pro Leu Arg Tyr Asp Asp Gly Arg
355 360 365

Val Ser Ser Gln Gly Gln Gln Ile Thr Gly Tyr Pro Tyr Asn Asp Thr
370 375 380

Asn Asn Tyr Trp Glu Ile Leu Pro Ala Asn Asn Asp Lys Gln Ile Gly
385 390 395 400

Arg Ile Val Lys Asn His Glu Leu Val Arg Leu Arg His Val Gly Thr
405 410 415

Asp Lys Ile Leu Leu Ser His Asp Val Ala Ser Pro Tyr Tyr Pro Thr
420 425 430

Asn Gln Glu Phe Thr Ala Val Thr Pro Glu Glu Ala Phe Gly Lys Arg
435 440 445

Glu Lys Asp Thr Leu Phe Glu Val Arg Ile Glu His Gly Lys Lys Asn
450 455 460

Gln Asn Phe Lys Thr Val Ala Gly His Phe Lys Leu Ile His Asn Pro
465 470 475 480

Ser Lys Val Ala Met Trp Thr His Thr Lys Pro Leu Pro Glu Trp Gly
485 490 495

Tyr Lys Gln Gln Glu Ile Asn Gly Asn Lys Gln Ile Ala Pro Ser Ser
500 505 510

Asn Val Trp Ile Ala Glu Asp Ile Pro Ser Leu Pro Ala Asp His Pro
515 520 525

Arg Arg Gln Lys Pro Glu Arg Lys Val Lys Ser Leu Pro Phe Leu Gln
530 535 540

Lys Trp Phe Glu Leu Gln Arg Ala Met Phe Tyr His Asn Ser Lys Leu
545 550 555 560

Thr Ser Ser His Pro Tyr Ala Ser His Pro Tyr Gln Trp Pro Phe Leu
565 570 575

1632537_1

Leu Arg Gly Val Ser Phe Trp Thr Gln Ser Glu Thr Arg Gln Gln Ile
580 585 590

Tyr Phe Leu Gly Asn Pro Ile Gly Trp Trp Leu Ala Ser Ser Leu Leu
595 600 605

Ala Val Tyr Ala Gly Ile Leu Leu Ala Asp Gln Val Ser Leu Arg Arg
610 615 620

Gly Val Asp Ala Leu Asp Arg Arg Thr Arg Ser Arg Leu Tyr Asn Ser
625 630 635 640

Thr Gly Phe Phe Phe Leu Ala Trp Ala Thr His Tyr Phe Pro Phe Phe
645 650 655

Leu Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro Ala His Leu
660 665 670

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

Glu Ala Pro Glu Glu Val Thr Ile Lys Asp Lys Lys Gly Pro Val Ser
690 695 700

Pro Arg His His Val Thr Ala Arg Glu Arg Phe Ala Gly Gln Ser Met
705 710 715 720

Leu Gly Ala Trp Ile Ala Cys Gly Val Ile Leu Ser Leu Ile Ile Ala
725 730 735

Gly Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly Tyr Pro Gly Leu Ser
740 745 750

Val Asp Ala Ile Leu Arg Arg Lys Trp Leu Gly Tyr Asp Leu His Phe
755 760 765

Ala Lys
770

<210> 11
<211> 788
<212> PRT
<213> Gibberella zeae

<400> 11

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

Ala Pro Ser Lys Lys Pro Ser Glu Glu Ser Phe Asn Pro Asn Pro Glu
20 25 30

1632537_1

Leu Asp Lys₃₅ Leu Ala Lys Ala Gly₄₀ Ala Gln Arg Ala₄₅ Ala Ala Gln Ser
 Glu Thr₅₀ Glu His Lys Ile Gly₅₅ Leu Ala Val Ile Thr₆₀ Ile Leu Ser Phe
 Val₆₅ Thr Arg Phe Trp Gly₇₀ Ile Ser His Pro Asn₇₅ Glu Val Val Phe Asp₈₀
 Glu Val His Phe Gly₈₅ Lys Phe Ala Ser Tyr₉₀ Tyr Leu Glu Arg Thr₉₅ Tyr
 Phe Phe Asp Val₁₀₀ His Pro Pro Phe Gly₁₀₅ Lys Leu Leu Phe Ala₁₁₀ Phe Val
 Gly Trp Leu₁₁₅ Val Gly Tyr Asp Gly₁₂₀ His Phe His Phe Asp₁₂₅ Asn Ile Gly
 Asp Ser₁₃₀ Tyr Ile Ala Asn Lys₁₃₅ Ile Pro Tyr Val Ala₁₄₀ Phe Arg Ala Leu
 Pro Ala Thr Leu Gly Ala₁₅₀ Leu Thr Val Ala Val₁₅₅ Thr Tyr Leu Ile Met₁₆₀
 Trp Glu Ser Gly Tyr₁₆₅ Ser Leu Pro Ala Cys₁₇₀ Val Leu Ala Ala Gly₁₇₅ Leu
 Leu Leu Asp₁₈₀ Asn Ala His Ile Gly₁₈₅ Gln Thr Arg Leu Ile₁₉₀ Leu Leu
 Asp Ala Thr₁₉₅ Leu Val Leu Ala Met₂₀₀ Ala Cys Ser Leu Leu₂₀₅ Phe Tyr Ile
 Lys Trp₂₁₀ Tyr Lys Leu Arg His₂₁₅ Glu Pro Phe Ser Arg₂₂₀ Lys Trp Trp Lys
 Trp₂₂₅ Leu Ile Leu Thr Gly₂₃₀ Phe Ala Leu Ser Cys₂₃₅ Asp Ile Ser Val Lys₂₄₀
 Tyr Val Gly Val Phe₂₄₅ Ala Phe Val Thr Ile₂₅₀ Gly Cys Ala Val Val₂₅₅ Ile
 Asp Leu Trp Asp₂₆₀ Leu Leu Asn Ile Asn₂₆₅ Arg Pro Gly Gly Ala₂₇₀ Ile Ser
 Met Gln Glu Phe Gly Lys His Phe₂₈₀ Ala Ala Arg Ala Phe₂₈₅ Gly Leu Ile
 Val Leu₂₉₀ Pro Phe Leu Phe Tyr₂₉₅ Leu Phe Trp Phe Gln₃₀₀ Val His Phe Ala

1632537_1

Val	Leu	Tyr	Arg	Ser	Gly	Pro	Gly	Asp	Asp	Phe	Met	Thr	Pro	Glu	Phe
305					310					315					320
Gln	Glu	Thr	Leu	Ser	Asp	Asn	Val	Met	Leu	Ala	Asn	Ala	Ile	Asp	Ile
				325					330					335	
Gln	Tyr	Tyr	Asp	Ser	Ile	Thr	Ile	Arg	His	Lys	Glu	Thr	Lys	Thr	Tyr
			340					345					350		
Leu	His	Ser	His	Glu	Asp	Arg	Tyr	Pro	Leu	Arg	Tyr	Asp	Asp	Gly	Arg
		355					360					365			
Val	Ser	Ser	Gln	Gly	Gln	Gln	Ile	Thr	Gly	Tyr	Pro	Tyr	Asn	Asp	Thr
	370					375					380				
Asn	Asn	Tyr	Trp	Glu	Ile	Trp	Pro	Ala	Asp	Asn	Asn	Lys	Thr	Pro	Gly
385					390					395					400
Arg	Ile	Val	Lys	Asn	His	Asp	Leu	Val	Arg	Leu	Arg	His	Val	Gly	Thr
				405					410					415	
Asp	Lys	Ile	Leu	Leu	Ser	His	Asp	Val	Ala	Ser	Pro	Tyr	Tyr	Pro	Thr
			420					425					430		
Asn	Gln	Glu	Phe	Thr	Ala	Val	Thr	Pro	Glu	Glu	Ala	Leu	Gly	Lys	Arg
		435					440					445			
Glu	Lys	Glu	Thr	Leu	Phe	Glu	Val	Arg	Leu	Glu	His	Gly	Lys	Lys	Asn
	450					455					460				
Gln	Asn	Phe	Lys	Ser	Val	Ala	Gly	His	Phe	Lys	Leu	Ile	His	Asn	Pro
465					470					475					480
Ser	Lys	Val	Ala	Met	Trp	Thr	His	Thr	Lys	Pro	Leu	Pro	Glu	Trp	Gly
				485					490					495	
Tyr	Lys	Gln	Gln	Glu	Ile	Asn	Gly	Asn	Lys	Gln	Ile	Ala	Pro	Ser	Ser
			500					505					510		
Asn	Val	Trp	Ile	Ala	Glu	Asp	Ile	Ala	Ser	Leu	Glu	Ala	Asp	His	Pro
		515					520					525			
Arg	Arg	Gln	Lys	Pro	Glu	Arg	Lys	Val	Lys	Ser	Leu	Pro	Phe	Leu	Gln
	530					535					540				
Lys	Trp	Phe	Glu	Leu	Gln	Arg	Ala	Met	Phe	Tyr	His	Asn	Ser	Lys	Leu
545					550				555						560
Thr	Ser	Ser	His	Pro	Tyr	Ala	Ser	His	Pro	Tyr	Gln	Trp	Pro	Phe	Leu
				565					570					575	

1632537_1

Leu Arg Gly Val Ser Phe Trp Thr Gln Ser Glu Thr Arg Gln Gln Ile
580 585 590

Tyr Phe Leu Gly Asn Pro Val Gly Trp Trp Leu Ala Ser Ser Leu Leu
595 600 605

Ala Val Tyr Ala Gly Ile Leu Leu Ala Asp Gln Val Ser Leu Arg Arg
610 615 620

Gly Ile Asp Ala Leu Asp Arg Arg Lys Leu Met Leu Gln Ser Gln Leu
625 630 635 640

Met Asn Pro Thr Leu Thr Asn Ser Lys Gly Thr Arg Ser Arg Leu Tyr
645 650 655

Asn Ser Thr Gly Phe Phe Phe Leu Ala Trp Ala Thr His Tyr Phe Pro
660 665 670

Phe Phe Leu Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro Ala
675 680 685

His Leu Ala Ser Cys Leu Val Ala Gly Ala Leu Leu Glu Phe Ile Phe
690 695 700

Asn Ser Glu Pro Ala Glu Glu Ile Thr Ile Lys Asp Lys Lys Gly Pro
705 710 715 720

Val Ser Pro Arg His His Val Thr Ala Arg Glu Arg Phe Ser Gly Gln
725 730 735

Ser Met Ala Ser Ala Trp Ile Ala Cys Gly Val Val Leu Ala Leu Val
740 745 750

Val Ala Gly Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly Tyr Pro Gly
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Leu Ser Val Glu Ala Ile Leu Arg Arg Lys Trp Leu Gly Tyr Asp Leu
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His Phe Ala Lys
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<213> Myceliophthora thermophila

<400> 12

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1 5 10 15

Gly Val Ser Thr Lys Lys Pro Lys Asp Gly Ala Ser Ser Asp Val Glu
Page 32

20

25

30

Leu Asp Lys₃₅ Leu Val Lys Ala₄₀ Ala Ala Glu Lys Ser₄₅ Ser Lys Asn Ser

Glu Arg₅₀ Asp Phe Lys Val₅₅ Val Phe Val Val Met Thr₆₀ Ala Leu Ala Phe

Leu Thr Arg Phe Trp Gly₇₀ Ile Ser His Pro Asn₇₅ Glu Val Val Phe Asp₈₀

Glu Val His Phe Gly₈₅ Lys Phe Ala Ser Tyr₉₀ Tyr Leu Glu Arg Thr₉₅ Tyr

Phe Phe Asp Val₁₀₀ His Pro Pro Leu Gly₁₀₅ Lys Leu Leu Phe Ala₁₁₀ Phe Met

Gly Trp Leu₁₁₅ Val Gly Tyr Asp Gly₁₂₀ His Phe His Phe Glu₁₂₅ Asn Ile Gly

Asp Ser₁₃₀ Tyr Ile Val Asn Lys₁₃₅ Val Pro Tyr Val Ala₁₄₀ Phe Arg Ser Leu

Pro Ala Ile Leu Gly Ala₁₅₀ Leu Thr Val Ser Val₁₅₅ Thr Tyr Leu Ile Met₁₆₀

Trp Glu Ser Gly Tyr₁₆₅ Ser Leu Pro Ala Cys₁₇₀ Ile Ile Ala Ala Gly₁₇₅ Leu

Ile Leu Leu Asp₁₈₀ Asn Ala His Ile Gly₁₈₅ Gln Thr Arg Leu Ile₁₉₀ Leu Leu

Asp Ala Thr₁₉₅ Leu Val Phe Ala Met₂₀₀ Ala Cys Ser Leu Leu₂₀₅ Cys Tyr Ile

Lys Phe₂₁₀ Tyr Lys Leu Arg His₂₁₅ Glu Pro Phe Ser Arg₂₂₀ Lys Trp Trp Lys

Trp Leu Ile Leu Thr Gly₂₃₀ Phe Ala Leu Ser Cys₂₃₅ Asp Ile Ser Thr Lys₂₄₀

Tyr Val Gly Leu Phe₂₄₅ Ala Phe Ile Thr Ile₂₅₀ Gly Ser Ala Val Val₂₅₅ Ile

Asp Leu Trp Asp₂₆₀ Leu Leu Asp Ile Lys₂₆₅ Arg Pro Gly Gly Ala₂₇₀ Leu Thr

Leu Ala Glu₂₇₅ Phe Gly Lys His Phe₂₈₀ Ala Ala Arg Ala Phe₂₈₅ Gly Leu Ile

Ile Met Pro Phe Leu Phe Tyr Leu Phe Trp Phe Gln Val His Phe Ser

290

295

Ile Leu Thr Arg Ser Gly Pro Gly Asp Asp Phe Met Thr Pro Glu Phe
305 310 315 320

Gln Glu Thr Leu Ser Asp Asn Ile Met Leu Ala Asn Ala Val Thr Ile
325 330 335

Asp Tyr Tyr Asp Thr Ile Leu Ile Lys His Lys Glu Thr Lys Val Tyr
340 345 350

Leu His Ser His Pro Asp Arg Tyr Pro Leu Arg Tyr Asp Asp Gly Arg
355 360 365

Val Ser Ser Gln Gly Gln Gln Val Thr Gly Tyr Pro Phe Asn Asp Thr
370 375 380

Asn Asn Tyr Trp Gln Ile Leu Pro Gly Gly Ala Asp Asp Gln Lys Leu
385 390 395 400

Gly Arg His Val Arg Asn His Asp Leu Val Arg Leu Arg His Leu Gly
405 410 415

Thr Asp Thr Ile Leu Leu Ser His Asp Val Ala Ser Pro Tyr Tyr Pro
420 425 430

Thr Asn Gln Glu Phe Thr Thr Val Ser Ile Ala Asp Ala Tyr Gly Glu
435 440 445

Arg Ala Ala Asp Thr Leu Phe Glu Ile Arg Ile Glu His Gly Lys Asp
450 455 460

Gly Gln Glu Phe Lys Ser Val Ser Ser His Phe Lys Leu Ile His Asn
465 470 475 480

Pro Ser Lys Val Ala Met Trp Thr His Pro Lys Pro Leu Pro Asp Trp
485 490 495

Gly Tyr Lys Gln Gln Glu Ile Asn Gly Asn Lys Gln Ile Ala Pro Ser
500 505 510

Ser Asn Val Trp Leu Val Glu Asp Ile Val Ser Leu Pro Pro Asp His
515 520 525

Lys Arg Arg Glu Lys Pro Glu Arg Lys Val Lys Thr Leu Pro Phe Leu
530 535 540

Arg Lys Trp Phe Glu Leu Gln Arg Ser Met Phe Trp His Asn Asn Gln
545 550 555 560

Leu Thr Ala Ser His Pro Tyr Ala Ser Leu Pro Tyr Gln Trp Pro Phe
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Leu Leu Arg Gly Val Ser Phe Trp Thr Gln Asn Glu Thr Arg Gln Gln
580 585 590

Ile Tyr Phe Leu Gly Asn Pro Val Gly Trp Trp Ile Ala Ser Ser Val
595 600 605

Leu Ala Ile Tyr Ala Gly Ile Val Leu Ala Asp Gln Phe Ser Leu Arg
610 615 620

Arg Gly Ile Asp Ala Leu Asp His Arg Ser Arg Ser Arg Leu Tyr Asn
625 630 635 640

Ser Thr Gly Phe Phe Phe Leu Ala Trp Ala Thr His Tyr Phe Pro Phe
645 650 655

Tyr Val Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro Ala His
660 665 670

Leu Ala Ser Ala Leu Val Thr Gly Ala Ile Val Glu Phe Ile Phe Ala
675 680 685

Gln Asp Ser Leu Glu His Glu Val Ala Tyr Gln Ala Ala Lys Ala Gly
690 695 700

Lys Lys Thr Gly Val Gln Lys Arg His Leu Ser Ala Arg Glu Arg Phe
705 710 715 720

Ala Gly Gln Ser Met Val Ala Ser Trp Ile Ala Thr Val Val Ile Leu
725 730 735

Ile Ala Val Ala Ala Ser Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly
740 745 750

Tyr Pro Gly Leu Ser Val Asp Gln Val Leu Arg Arg Lys Trp Leu Gly
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Tyr Asp Leu His Phe Ala Lys
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<212> PRT

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Val Pro Ala Ser Ser Lys Lys Ala Lys Asn Gly Val Ser Ser Asp Val
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1632537_1

Glu Thr Asp₃₅ Lys Val Pro Asp₄₀ Ala Val Ala Pro Ala₄₅ Lys Ser Gly Ser
 Glu₅₀ Leu Glu Tyr Lys Leu₅₅ Ala Leu Ile Leu Ile₆₀ Thr Gly Leu Ala Phe
 Leu₆₅ Thr Arg Phe Trp Gly₇₀ Ile Ser His Pro Asp₇₅ Glu Val Val Phe₈₀ Asp
 Glu Val His Phe₈₅ Gly Lys Phe Ala Ser Tyr₉₀ Tyr Leu Glu Arg Thr₉₅ Tyr
 Phe Phe Asp₁₀₀ Val His Pro Pro Phe₁₀₅ Gly Lys Leu Leu Phe₁₁₀ Ala Phe Met
 Gly Trp₁₁₅ Leu Val Gly Tyr Asp₁₂₀ Gly His Phe His Phe₁₂₅ Glu Asn Ile Gly
 Asp₁₃₀ Ser Tyr Ile Arg Asn₁₃₅ Lys Val Pro Tyr Val₁₄₀ Ala Phe Arg Ser Leu
 Pro₁₄₅ Ala Ile Leu Gly₁₅₀ Ala Leu Thr Val Ser₁₅₅ Val Val Tyr Met Ile₁₆₀ Met
 Trp Glu Ser Gly₁₆₅ Tyr Ser Leu Pro Ala₁₇₀ Cys Leu Ile Ala Ala Gly₁₇₅ Leu
 Val Leu Leu Asp₁₈₀ Asn Ala His Ile Gly₁₈₅ Gln Thr Arg Leu₁₉₀ Ile Leu Leu
 Asp Ala Thr₁₉₅ Leu Val Phe Ala₂₀₀ Met Ala Cys Ser Leu₂₀₅ Leu Cys Tyr Ile
 Lys Phe₂₁₀ His Lys Leu Arg His₂₁₅ Glu Pro Phe Ser Arg₂₂₀ Lys Trp Trp Lys
 Trp₂₂₅ Leu Ile Leu Thr Gly₂₃₀ Phe Ala Leu Ser Cys₂₃₅ Asp Ile Ser Thr Lys₂₄₀
 Tyr Val Gly Leu Phe₂₄₅ Ala Phe Ile Thr Ile₂₅₀ Gly Ser Ala Val Cys₂₅₅ Ile
 Asp Leu Trp Asp₂₆₀ Leu Leu Asp Ile₂₆₅ Lys Arg Pro Gly Gly₂₇₀ Ala Leu Thr
 Leu Pro Gln₂₇₅ Phe Gly Lys His Phe₂₈₀ Ala Ala Arg Ala₂₈₅ Phe Gly Leu Ile
 Ile Met₂₉₀ Pro Phe Ile Phe Tyr₂₉₅ Leu Phe Trp Phe Gln₃₀₀ Val His Phe Ser

1632537_1

Ile Leu Thr Arg Ser Gly Pro Gly Asp Asp Phe Met Thr Pro Glu Phe
305 310 315 320

Gln Glu Thr Leu Ser Asp Asn Ile Met Leu Ala Asn Ala Val Thr Ile
325 330 335

Asp Tyr Tyr Asp Thr Ile Ser Ile Arg His Lys Glu Thr Lys Ala Tyr
340 345 350

Leu His Ser His Pro Asp Lys Tyr Pro Leu Arg Tyr Asp Asp Gly Arg
355 360 365

Val Ser Ser Gln Gly Gln Gln Val Thr Gly Tyr Pro Phe Asn Asp Thr
370 375 380

Asn Asn Tyr Trp Gln Ile Leu Pro Pro Gly Pro Asp Asp Gln Lys Leu
385 390 395 400

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

Thr Asp Thr Ile Leu Leu Ser His Asp Val Ala Ser Pro Tyr Tyr Pro
420 425 430

Thr Asn Gln Glu Phe Thr Thr Val Ser Ile Gly Asp Ala Tyr Gly Asp
435 440 445

Arg Ala Ala Asp Thr Leu Phe Glu Ile Arg Ile Glu His Gly Lys Ala
450 455 460

Asn Gln Glu Phe Lys Ser Ile Ser Ser His Phe Lys Leu Ile His Asn
465 470 475 480

Pro Ser Lys Val Ala Met Trp Thr His Ser Lys Pro Leu Pro Glu Trp
485 490 495

Gly His Lys Gln Gln Glu Ile Asn Gly Asn Lys Gln Leu Ala Gln Ser
500 505 510

Ser Asn Val Trp Leu Val Glu Asp Ile Val Ser Leu Pro Ala Asp His
515 520 525

Ala Arg Arg Glu Lys Pro Glu Lys Lys Val Lys Thr Leu Pro Phe Leu
530 535 540

Arg Lys Trp Phe Glu Leu Gln Arg Ser Met Phe Trp His Asn Asn Gln
545 550 555 560

Leu Thr Ser Ser His Pro Tyr Ala Ser Leu Pro Tyr Gln Trp Pro Phe
565 570 575

1632537_1

Leu Leu Arg Gly Val Ser Phe Trp Thr Gln Asn Asp Thr Arg Gln Gln
580 585 590

Ile Tyr Phe Leu Gly Asn Pro Ile Gly Trp Trp Leu Ala Ser Ser Val
595 600 605

Leu Ala Ile Tyr Ala Gly Ile Ile Leu Ala Asp Gln Phe Ser Leu Arg
610 615 620

Arg Gly Leu Asp Ala Met Asp Arg Arg Thr Arg Ser Arg Leu Tyr Asn
625 630 635 640

Ser Thr Gly Phe Phe Phe Leu Ala Trp Ala Thr His Tyr Phe Pro Phe
645 650 655

Phe Val Met Gly Arg Gln Leu Phe Leu His His Tyr Leu Pro Ala His
660 665 670

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

Thr Asp Ser Ala Glu Pro Glu Tyr Gln Pro Ser Lys Ser Gly Lys Lys
690 695 700

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

Gly Gln Ser Met Ala Gly Ala Trp Ile Ala Thr Ala Val Ile Met Val
725 730 735

Leu Val Ala Phe Gly Trp Tyr Phe Phe Leu Pro Leu Thr Tyr Gly Tyr
740 745 750

Pro Gly Leu Thr Ala Pro Glu Val Asn Arg Arg Lys Trp Leu Gly Tyr
755 760 765

Asp Leu His Phe Ala Lys
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1632537_1

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

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Phe Met Thr Pro Glu Phe Gln Glu Thr Leu Ser Asp Asn Gln Met Thr
 305 310 315 320
 Ala Gln Ser Val Gly Ile Gln Tyr Phe Asp Thr Ile Thr Met Arg His
 325 330 335
 Lys Asp Thr Lys Val Phe Leu His Ser His Trp Asp Lys Tyr Pro Leu
 340 345 350
 Arg Tyr Asp Asp Gly Arg Ile Ser Ser Gln Gly Gln Gln Val Thr Gly
 355 360 365
 Tyr Pro His Asn Asp Thr Asn Asn Gln Trp Gln Ile Leu Pro Ala Glu
 370 375 380
 Pro Leu Ala Asp Ser Ser Glu Pro Lys Ser Val Arg Asn Gly Asp Ile
 385 390 395 400
 Ile Gln Leu Arg His Ile Gly Thr Glu Ser Tyr Leu Leu Thr His Asp
 405 410 415
 Val Ala Ser Pro Phe Phe Pro Thr Asn Gln Glu Phe Thr Thr Val Ser
 420 425 430
 Gln Glu Leu Ala Asp Gly Glu Arg His Asn Asp Thr Leu Phe Glu Leu
 435 440 445
 Lys Ile Glu Ser Gly Lys Thr Ala Gln Glu Phe Arg Thr Leu Ala Ser
 450 455 460
 Leu Phe Lys Leu Val His Val Pro Thr Arg Val Ala Leu Trp Thr His
 465 470 475 480
 Thr Thr Pro Leu Pro Glu Trp Gly Tyr Lys Gln Ala Glu Ile Asn Gly
 485 490 495
 Asn Lys Asn Ile Leu Gln Ser Ser Asn Met Trp Tyr Val Glu Asn Ile
 500 505 510
 Glu Asn Leu Ala Glu Asp Ser Pro Arg Leu Val Lys Glu Glu Arg Lys
 515 520 525
 Val Lys Thr Leu Pro Phe Leu Arg Lys Tyr Phe Glu Leu Gln Gly Ala
 530 535 540
 Met Phe His His Asn Asn Ala Leu Thr Ser Ser His Pro Tyr Ala Thr
 545 550 555 560
 Glu Pro Phe Gln Trp Pro Phe Leu Leu Arg Gly Val Ser Phe Trp Thr
 565 570 575

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Lys Asn Asp Thr Arg Glu Gln Ile Tyr Phe Leu Gly Asn Pro Ile Gly
580 585 590

Trp Trp Ile Ala Ser Ser Ile Leu Ala Val Phe Ala Gly Val Val Gly
595 600 605

Ala Asp Gln Leu Ser Leu Arg Arg Gly Val Asp Ala Leu Glu Glu Ile
610 615 620

Trp Gly Pro Gly Thr Arg Ser Arg Leu Tyr Asn Ser Thr Gly Phe Leu
625 630 635 640

Phe Leu Cys Trp Ala Ala His Tyr Phe Pro Phe Trp Leu Met Gly Arg
645 650 655

Gln Arg Phe Leu His His Tyr Leu Pro Ser His Leu Ala Ser Thr Met
660 665 670

Val Cys Gly Ala Leu Ile Glu Phe Ile Phe Asn Leu Gln Pro Leu Asp
675 680 685

Pro Arg Thr Ala Leu Pro Pro Val Asp Asp Pro Ser Gly Lys Ser Lys
690 695 700

Ala Arg Ser Leu Ser Ser Leu Arg Arg Phe Ile Thr Ala Lys Glu Arg
705 710 715 720

Met Gly Cys Arg Ser Leu Ile Ala Gly Trp Ile Ala Thr Leu Ile Ile
725 730 735

Leu Ala Ala Thr Ile Trp Gly Phe Ile Phe Tyr Ala Pro Leu Thr Tyr
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19

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 gcccgtatct ctaccgaga gacgtcaac tttggctcct tcaacaagta cctctacacc 180
 gctgatggtg gtgagggtgt tgatgcctat gtcattgaca ccggcaccaa catcgagcac 240
 gtcgactttg agggctcgtg caagtggggc aagaccatcc ctgccggcga tgaggacgag 300
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 Phe Glu Ile Lys Arg Ser Ala Asn Lys Ala Phe Thr Gly Arg Asn Gly
 35 40 45
 Pro Leu Ala Leu Ala Arg Thr Tyr Ala Lys Tyr Gly Val Glu Val Pro
 50 55 60
 Lys Thr Leu Val Asp Ala Ile Gln Leu Val Lys Ser Ile Gln Leu Ala
 65 70 75 80
 Lys Arg Asp Ser Ala Thr Val Thr Ala Thr Pro Asp His Asp Asp Ile
 85 90 95
 Glu Tyr Leu Val Pro Val Lys Ile Gly Thr Pro Pro Gln Thr Leu Asn
 100 105 110
 Leu Asp Phe Asp Thr Gly Ser Ser Asp Leu Trp Val Phe Ser Ser Asp
 115 120 125
 Val Asp Pro Thr Ser Ser Gln Gly His Asp Ile Tyr Thr Pro Ser Lys
 130 135 140

1632537_1

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

Gly Asp Arg Ser Ser Ser Ser Gly Asp Val Tyr His Asp Ile Val Ser
165 170 175

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

Val Ser Ala Gln Phe Thr Gln Gly Asn Asn Asp Gly Leu Val Gly Leu
195 200 205

Ala Phe Ser Ser Ile Asn Thr Val Lys Pro Thr Pro Gln Lys Thr Trp
210 215 220

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

Leu Arg His Asp Thr Pro Gly Ser Tyr His Phe Gly Ser Ile Pro Ser
245 250 255

Glu Ala Ser Lys Ala Phe Tyr Ala Pro Ile Asp Asn Ser Lys Gly Phe
260 265 270

Trp Gln Phe Ser Thr Ser Ser Asn Ile Ser Gly Gln Phe Asn Ala Val
275 280 285

Ala Asp Thr Gly Thr Thr Leu Leu Leu Ala Ser Asp Asp Leu Val Lys
290 295 300

Ala Tyr Tyr Ala Lys Val Gln Gly Ala Arg Val Asn Val Phe Leu Gly
305 310 315 320

Gly Tyr Val Phe Asn Cys Thr Thr Gln Leu Pro Asp Phe Thr Phe Thr
325 330 335

Val Gly Glu Gly Asn Ile Thr Val Pro Gly Thr Leu Ile Asn Tyr Ser
340 345 350

Glu Ala Gly Asn Gly Gln Cys Phe Gly Gly Ile Gln Pro Ser Gly Gly
355 360 365

Leu Pro Phe Ala Ile Phe Gly Asp Ile Ala Leu Lys Ala Ala Tyr Val
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Ile Phe Asp Ser Gly Asn Lys Gln Val Gly Trp Ala Gln Lys Lys
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<213> Trichoderma reesei

<400> 19

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Leu Gln Lys Ile Thr Ala Val Arg Asn Lys Asn Tyr Lys Arg His Gly
20 25 30

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

Lys Pro Gly Pro Tyr Phe Gln Gln His Arg Ile His Gln Arg Gly Leu
50 55 60

Ala His Pro Asp Phe Lys Ala Ala Val Gly Gly Arg Val Thr Arg Gln
65 70 75 80

Lys Val Leu Ala Lys Lys Val Lys Glu Asp Gly Thr Val Asp Ala Gly
85 90 95

Gly Ser Lys Thr Gly Glu Val Asp Ala Glu Asp Gln Gln Asn Asp Ser
100 105 110

Glu Tyr Leu Cys Glu Val Thr Ile Gly Thr Pro Gly Gln Lys Leu Met
115 120 125

Leu Asp Phe Asp Thr Gly Ser Ser Asp Leu Trp Val Phe Ser Thr Glu
130 135 140

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

Ser Ser Thr Phe Lys Pro Leu Lys Asp Gln Thr Trp Gln Ile Ser Tyr
165 170 175

Gly Asp Gly Ser Ser Ala Ser Gly Thr Cys Gly Ser Asp Thr Val Thr
180 185 190

Leu Gly Gly Leu Ser Ile Lys Asn Gln Thr Ile Glu Leu Ala Ser Lys
195 200 205

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

Ala Trp Pro Gln Ile Asn Thr Val Gln Thr Asp Gly Arg Pro Thr Pro
225 230 235 240

Ala Asn Thr Pro Val Ala Asn Met Ile Gln Gln Asp Asp Ile Pro Ser
245 250 255

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Asp Ala Gln Leu Phe Thr Ala Ala Phe Tyr Ser Glu Arg Asp Glu Asn
260 265 270

Ala Glu Ser Phe Tyr Thr Phe Gly Tyr Ile Asp Gln Asp Leu Val Ser
275 280 285

Ala Ser Gly Gln Glu Ile Ala Trp Thr Asp Val Asp Asn Ser Gln Gly
290 295 300

Phe Trp Met Phe Pro Ser Thr Lys Thr Thr Ile Asn Gly Lys Asp Ile
305 310 315 320

Ser Gln Glu Gly Asn Thr Ala Ile Ala Asp Thr Gly Thr Thr Leu Ala
325 330 335

Leu Val Ser Asp Glu Val Cys Glu Ala Leu Tyr Lys Ala Ile Pro Gly
340 345 350

Ala Lys Tyr Asp Asp Asn Gln Gln Gly Tyr Val Phe Pro Ile Asn Thr
355 360 365

Asp Ala Ser Ser Leu Pro Glu Leu Lys Val Ser Val Gly Asn Thr Gln
370 375 380

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

Asn Trp Tyr Gly Gly Val Gln Ser Arg Gly Ser Asn Pro Phe Asp Ile
405 410 415

Leu Gly Asp Val Phe Leu Lys Ser Val Tyr Ala Ile Phe Asp Gln Gly
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Gln Pro Pro Gln
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Leu Glu Gly Ser Ser Ile Glu Ala His Val Gln Gln Leu Gly Gln Lys
Page 45

35

40

45

Tyr Met Gly Val Arg Pro Thr Ser Arg Ala Glu Val Met Phe Asn Asp
 50 55 60

Lys Pro Pro Lys Val Gln Gly Gly His Pro Val Pro Val Thr Asn Phe
 65 70 75 80

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

Ser Ser Ser Ser Ser Thr Tyr Lys Pro Asn Gly Ser Asp Phe Glu Ile
 130 135 140

His Tyr Gly Ser Gly Ser Leu Thr Gly Phe Ile Ser Asn Asp Val Val
 145 150 155 160

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

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 Ser Ser Phe Gln Gly Met Asp Phe Pro Glu Pro Val Gly Pro Leu Val
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 Leu His Arg Lys Phe Ser Lys Leu Ile Asn Ala Gly Asn Met Thr Gly
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 Pro Val Lys Ile Gly Thr Pro Pro Gln Thr Leu Pro Leu Asn Leu Asp
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 Gln Val Gln Gly Gln Thr Arg Tyr Asn Val Ser Ala Ser Thr Thr Ala
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 Ser Ala Asn Gly Ile Val Tyr Lys Asp Arg Val Gln Ile Gly Asn Thr
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 Phe Phe Asn Gln Gln Ala Val Glu Ser Ala Val Asn Ile Ser Asn Glu
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 Ile Ser Asp Asp Ser Phe Ser Ser Gly Leu Leu Gly Ala Ala Ser Ser
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 Ala Ala Asn Thr Val Arg Pro Asp Arg Gln Thr Thr Tyr Leu Glu Asn
 225 230 235 240
 Ile Lys Ser Gln Leu Ala Arg Pro Val Phe Thr Ala Asn Leu Lys Lys
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 Gly Lys Pro Gly Asn Tyr Asn Phe Gly Tyr Ile Asn Gly Ser Glu Tyr
 260 265 270
 Ile Gly Pro Ile Gln Tyr Ala Ala Ile Asn Pro Ser Ser Pro Leu Trp
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 Glu Val Ser Val Ser Gly Tyr Arg Val Gly Ser Asn Asp Thr Lys Tyr
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 Val Pro Arg Val Trp Asn Ala Ile Ala Asp Thr Gly Thr Thr Leu Leu
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 Leu Val Pro Asn Asp Ile Val Ser Ala Tyr Tyr Ala Gln Val Lys Gly
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 Ser Thr Phe Ser Asn Asp Val Gly Met Met Leu Val Pro Cys Ala Ala
 340 345 350
 Thr Leu Pro Asp Phe Ala Phe Gly Leu Gly Asn Tyr Arg Gly Val Ile
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 Pro Gly Ser Tyr Ile Asn Tyr Gly Arg Met Asn Lys Thr Tyr Cys Tyr
 370 375 380
 Gly Gly Ile Gln Ser Ser Glu Asp Ala Pro Phe Ala Val Leu Gly Asp
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Asp Thr Gly Ser Ser Asp Leu Trp Val Phe Ser Ser Glu Thr Pro Lys
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Ser Ser Ala Thr Gly His Ala Ile Tyr Thr Pro Ser Lys Ser Ser Thr
      130    135    140
Ser Lys Lys Val Ser Gly Ala Ser Trp Ser Ile Ser Tyr Gly Asp Gly
      145    150    155    160
Ser Ser Ser Ser Gly Asp Val Tyr Thr Asp Lys Val Thr Ile Gly Gly
      165    170    175
Phe Ser Val Asn Thr Gln Gly Val Glu Ser Ala Thr Arg Val Ser Thr
      180    185    190
Glu Phe Val Gln Asp Thr Val Ile Ser Gly Leu Val Gly Leu Ala Phe
      195    200    205
Asp Ser Gly Asn Gln Val Arg Pro His Pro Gln Lys Thr Trp Phe Ser
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Asn Ala Ala Ser Ser Leu Ala Glu Pro Leu Phe Thr Ala Asp Leu Arg
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Ala Lys Gly Pro Val Ala Tyr Thr Pro Val Asp Asn Ser Gln Gly Phe
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Trp Glu Phe Thr Ala Ser Gly Tyr Ser Val Gly Gly Gly Lys Leu Asn
275 280 285

Arg Asn Ser Ile Asp Gly Ile Ala Asp Thr Gly Thr Thr Leu Leu Leu
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Leu Asp Asp Asn Val Val Asp Ala Tyr Tyr Ala Asn Val Gln Ser Ala
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Gln Tyr Asp Asn Gln Gln Glu Gly Val Val Phe Asp Cys Asp Glu Asp
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Leu Pro Ser Phe Ser Phe Gly Val Gly Ser Ser Thr Ile Thr Ile Pro
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Phe Gly Gly Leu Gln Ser Ser Ser Gly Ile Gly Ile Asn Ile Phe Gly
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Glu Val Gln Val Glu Asn Arg Ser Asp Val Ser Tyr Tyr Ala Gln Leu
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Asp Gln Arg Phe Cys Arg Ala Ile Gly Phe Tyr Asp Pro Ser Ser Ser
 100 105 110

Ser Thr Ala Asp Val Thr Ser Gln Ser Ala Arg Leu Arg Tyr Gly Ile
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Gly Ser Ala Asp Val Thr Tyr Val His Asp Thr Ile Ser Leu Pro Gly
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Ser Gly Ser Gly Ser Lys Ala Met Lys Ala Val Gln Phe Gly Val Ala
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Asp Thr Ser Val Asp Glu Phe Ser Gly Ile Leu Gly Leu Gly Ala Gly
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Asn Gly Ile Asn Thr Glu Tyr Pro Asn Phe Val Asp Glu Leu Ala Ala
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Gln Gly Val Thr Ala Thr Lys Ala Phe Ser Leu Ala Leu Gly Ser Lys
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Ala Glu Glu Glu Gly Val Ile Ile Phe Gly Gly Val Asp Thr Ala Lys
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Phe His Gly Glu Leu Ala His Leu Pro Ile Val Pro Ala Asp Asp Ser
 225 230 235 240

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

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

Val Gly Val Ser Gln Ile Ile Val Asn Pro Ser Tyr Asn Asp Arg Thr
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Thr Asp Phe Asp Val Ala Val Trp His Leu Ser Ser Pro Ile Arg Glu
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Ser Ser Thr Ile Gly Tyr Ala Thr Leu Pro Ala Gln Gly Ser Asp Pro

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140

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135

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165 170 175

Val Ala Arg Ser Thr Cys Gln Ala Asp Tyr Arg Ser Gln Gly Leu Ser
180 185 190

Val Thr Asn Asn Met Phe Cys Ala Gly Leu Thr Gln Gly Gly Lys Asp
195 200 205

Ser Cys Ser Gly Asp Ser Gly Gly Pro Ile Val Asp Ala Asn Gly Val
210 215 220

Leu Gln Gly Val Val Ser Trp Gly Ile Gly Cys Ala Glu Ala Gly Phe
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Phe Lys Gly Val Ser Val Gln Leu Lys Asp Leu Asp Asn His Glu Ala
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Lys Ala Gln Gln Met Ala Gln Leu Pro Ala Val Lys Asn Val Trp Pro
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Val Thr Leu Ile Asp Ala Pro Asn Pro Lys Val Glu Trp Val Ala Gly
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Thr Arg Ile Val Glu Ala Gly Val Pro Cys Thr Val Ser Ala Gly Asn
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Glu Gly Asp Ser Gly Leu Phe Phe Ala Ser Thr Ala Ala Asn Gly Lys
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Lys Val Ile Ala Val Ala Ser Val Asp Asn Glu Asn Ile Pro Ser Val
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Leu Ser Val Ala Ser Tyr Lys Ile Asp Ser Gly Ala Ala Gln Asp Phe
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Tyr Ala Val Ser Phe Asp Thr Thr Ile Pro Asp Asp Gly Cys Ser Pro
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 Gly Ala Lys Tyr Leu Leu Tyr Tyr Asn Asn Ile Pro Gly Ala Leu Ala
 420 425 430
 Val Asp Val Ser Ala Val Pro Glu Ile Glu Ala Val Gly Met Val Asp
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 Asp Lys Thr Gly Ala Thr Trp Ile Ala Ala Leu Lys Asp Gly Lys Thr
 450 455 460
 Val Thr Leu Thr Leu Thr Asp Pro Ile Glu Ser Glu Lys Gln Ile Gln
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 Phe Ser Asp Asn Pro Thr Thr Gly Gly Ala Leu Ser Gly Tyr Thr Thr
 485 490 495
 Trp Gly Pro Thr Trp Glu Leu Asp Val Lys Pro Gln Ile Ser Ser Pro
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 Gly Gly Asn Ile Leu Ser Thr Tyr Pro Val Ala Leu Gly Gly Tyr Ala
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 Lys Phe Tyr Asp Phe Leu Ala Pro Val Pro Gln Gln Gly Gly Gly Leu
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 Ile Gln Ala Tyr Asp Ala Ala Phe Ala Thr Thr Leu Leu Ser Pro Ser
 595 600 605
 Ser Leu Ser Phe Asn Asp Thr Asp His Phe Ile Lys Lys Lys Gln Ile
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 Thr Leu Lys Asn Thr Ser Lys Gln Arg Val Thr Tyr Lys Leu Asn His
 625 630 635 640
 Val Pro Thr Asn Thr Phe Tyr Thr Leu Ala Pro Gly Asn Gly Tyr Pro
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Val Phe Pro Thr Pro Pro Arg Asp Val Asp Ala Lys Arg Leu Ala Leu
690 695 700

Trp Ser Gly Tyr Ile Thr Val Asn Gly Thr Asp Gly Thr Ser Leu Ser
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Val Pro Tyr Gln Gly Leu Thr Gly Ser Leu His Lys Gln Lys Val Leu
725 730 735

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

Pro Val Glu Asn Gly Thr Val Phe Thr Ile Pro Ala Pro Gly Asn Ala
755 760 765

Gly Pro Asp Asp Lys Leu Pro Ser Leu Val Val Ser Pro Ala Leu Gly
770 775 780

Ser Arg Tyr Val Arg Val Asp Leu Val Leu Ser Ala Pro Pro His
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Gly Thr Lys Leu Lys Thr Val Lys Phe Leu Asp Thr Thr Ser Ile Gly
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Gln Pro Ala Gly Ser Pro Leu Leu Trp Ile Ser Arg Gly Ala Asn Pro
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Ile Ala Trp Thr Gly Glu Leu Ser Asp Asn Lys Phe Ala Pro Pro Gly
835 840 845

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

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Arg Lys Gly Phe Lys Gly Ser Val Ala Asn Met Ser Leu Gly Gly Gly
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Lys Thr Gln Ala Leu Asp Ala Ala Val Asn Ala Ala Val Arg Ala Gly
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Val His Phe Ala Val Ala Ala Gly Asn Asp Asn Ala Asp Ala Cys Asn
325 330 335

Tyr Ser Pro Ala Ala Ala Thr Glu Pro Leu Thr Val Gly Ala Ser Ala
340 345 350

Leu Asp Asp Ser Arg Ala Tyr Phe Ser Asn Tyr Gly Lys Cys Thr Asp
355 360 365

Ile Phe Ala Pro Gly Leu Ser Ile Gln Ser Thr Trp Ile Gly Ser Lys
370 375 380

Tyr Ala Val Asn Thr Ile Ser Gly Thr Ser Met Ala Ser Pro His Ile
385 390 395 400

Cys Gly Leu Leu Ala Tyr Tyr Leu Ser Leu Gln Pro Ala Gly Asp Ser
405 410 415

Glu Phe Ala Val Ala Pro Ile Thr Pro Lys Lys Leu Lys Glu Ser Val
420 425 430

Ile Ser Val Ala Thr Lys Asn Ala Leu Ser Asp Leu Pro Asp Ser Asp
435 440 445

Thr Pro Asn Leu Leu Ala Trp Asn Gly Gly Gly Cys Ser Asn Phe Ser
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Gln Ile Val Glu Ala Gly Ser Tyr Thr Val Lys Pro Lys Gln Asn Lys
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Gln Ala Lys Leu Pro Ser Thr Ile Glu Glu Leu Glu Glu Ala Ile Glu
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Gly Asp Phe Glu Val Val Ser Gly Glu Ile Val Lys Gly Ala Lys Ser
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Gly Ser Ser Leu Gln Ala Val Asp Glu Ala Ile Ser Gly Leu Val Ser
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Leu Asp Lys Glu Thr Leu Glu Ala Leu Arg Asn His Pro Glu Val Asp
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Tyr Ile Glu Gln Asp Ala Val Val Lys Ile Asn Ala Tyr Val Ser Gln
 100 105 110

Thr Gly Ala Pro Trp Gly Leu Gly Arg Ile Ser His Lys Ala Arg Gly
 115 120 125

Ser Thr Thr Tyr Val Tyr Asp Asp Ser Ala Gly Ala Gly Thr Cys Ser
 130 135 140

Tyr Val Ile Asp Thr Gly Val Asp Ala Thr His Pro Asp Phe Glu Gly
 145 150 155 160

Arg Ala Thr Leu Leu Arg Ser Phe Val Ser Gly Gln Asn Thr Asp Gly
 165 170 175

Asn Gly His Gly Thr His Val Ser Gly Thr Ile Gly Ser Arg Thr Tyr
 180 185 190

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

Ser Gly Ser Gly Ser Phe Ser Thr Val Ile Ala Gly Met Asp Tyr Val
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Ala Ser Asp Ser Gln Thr Arg Asn Cys Pro Asn Gly Ser Val Ala Asn
 225 230 235 240

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Gly Val Asp Ala Arg Asn Thr Ser Pro Ala Ser Glu Pro Thr Val Cys
275 280 285

Thr Val Gly Ala Ser Thr Ser Ser Asp Ala Arg Ala Ser Phe Ser Asn
290 295 300

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

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

Phe Ser Asp Pro Gln Ala Leu Cys Ala Arg Ile Gln Ser Leu Ala Asn
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50 55 60

Met His Thr Trp Arg Ala Met Ala Leu Asp Ala Asp Asp Ile Met Ile
65 70 75 80

Lys Asp Ile Phe Asp Ala Glu Glu Val Ala Tyr Ile Glu Ala Asp Thr
Page 60

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

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Gly Asn Phe
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Asp Ser His Leu Thr Trp Val Lys Asp Leu His Arg Arg Ser Leu Gly
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Lys Arg Ser Thr Ala Gly Val Glu Lys Thr Tyr Asn Ile Asp Ser Trp
 65 70 75 80

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

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

Pro Trp Gly Leu Gly Thr Val Ser His Arg Thr Pro Gly Ser Thr Ser
 130 135 140

Tyr Ile Tyr Asp Thr Ser Ala Gly Ser Gly Thr Phe Ala Tyr Val Val
 145 150 155 160

Asp Ser Gly Ile Asn Ile Ala His Gln Gln Phe Gly Gly Arg Ala Ser
 165 170 175

Leu Gly Tyr Asn Ala Ala Gly Gly Asp His Val Asp Thr Leu Gly His
 180 185 190

Gly Thr His Val Ser Gly Thr Ile Gly Gly Ser Thr Tyr Gly Val Ala
 195 200 205

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Lys Gln Ala Ser Leu Ile Ser Val Lys Val Phe Gln Gly Asn Ser Ala
210 215 220

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

Val Ser Arg Asn Arg Ala Ser Lys Ser Ala Ile Asn Met Ser Leu Gly
245 250 255

Gly Pro Ala Ser Ser Thr Trp Ala Thr Ala Ile Asn Ala Ala Phe Asn
260 265 270

Lys Gly Val Leu Thr Ile Val Ala Ala Gly Asn Gly Asp Ala Leu Gly
275 280 285

Asn Pro Gln Pro Val Ser Ser Thr Ser Pro Ala Asn Val Pro Asn Ala
290 295 300

Ile Thr Val Ala Ala Leu Asp Ile Asn Trp Arg Thr Ala Ser Phe Thr
305 310 315 320

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

Ser Ser Trp Ile Gly Ser Asn Thr Ala Thr Asn Thr Ile Ser Gly Thr
340 345 350

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

Leu Glu Gly Leu Ser Thr Pro Thr Ala Val Thr Asn Arg Ile Lys Ala
370 375 380

Leu Ala Thr Thr Gly Arg Val Thr Gly Ser Leu Asn Gly Ser Pro Asn
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Thr Leu Ile Phe Asn Gly Asn Ser Ala
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<210> 30
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<212> PRT
<213> Trichoderma reesei

<400> 30

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1 5 10 15

Ile Pro Ala Leu Lys Pro Pro His Gly Ser Pro Asp Arg Ala His Thr
20 25 30

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

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Leu Pro Arg Val Val Ser Ile Ser Tyr Gly Ala Asn Glu Gln Leu Phe
305 310 315 320

Pro Arg Ser Tyr Ala His Gln Val Cys Asp Met Phe Gly Gln Leu Gly
325 330 335

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

Val Ser Cys Gln Ser Asn Asp Gly Ser Ala Arg Pro Lys Phe Ile Pro
355 360 365

Ser Phe Pro Ala Thr Cys Pro Tyr Val Thr Ser Val Gly Ser Thr Arg
370 375 380

Gly Ile Met Pro Glu Val Ala Ala Ser Phe Ser Ser Gly Gly Phe Ser
385 390 395 400

Asp Tyr Phe Ala Arg Pro Ala Trp Gln Asp Arg Ala Val Gly Ala Tyr
405 410 415

Leu Gly Ala His Gly Glu Glu Trp Glu Gly Phe Tyr Asn Pro Ala Gly
420 425 430

Arg Gly Phe Pro Asp Val Ala Ala Gln Gly Val Asn Phe Arg Phe Arg
435 440 445

Ala His Gly Asn Glu Ser Leu Ser Ser Gly Thr Ser Leu Ser Ser Pro
450 455 460

Val Phe Ala Ala Leu Ile Ala Leu Leu Asn Asp His Arg Ser Lys Ser
465 470 475 480

Gly Met Pro Pro Met Gly Phe Leu Asn Pro Trp Ile Tyr Thr Val Gly
485 490 495

Ser His Ala Phe Thr Asp Ile Ile Glu Ala Arg Ser Glu Gly Cys Pro
500 505 510

Gly Gln Ser Val Glu Tyr Leu Ala Ser Pro Tyr Ile Pro Asn Ala Gly
515 520 525

Trp Ser Ala Val Pro Gly Trp Asp Pro Val Thr Gly Trp Gly Thr Pro
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Leu Phe Asp Arg Met Leu Asn Leu Ser Leu Val
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<210> 31
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<212> PRT

<213> Trichoderma reesei

<400> 31

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 1 5 10 15

Tyr Ala Thr Ala Ser Pro Ala Leu Ser Pro Arg Ser Arg Glu Ile Leu
 20 25 30

Ser Leu Glu Asp Leu Glu Ser Glu Asp Lys Tyr Val Ile Gly Leu Lys
 35 40 45

Gln Gly Leu Ser Pro Thr Asp Leu Lys Lys His Leu Leu Arg Val Ser
 50 55 60

Ala Val Gln Tyr Arg Asn Lys Asn Ser Thr Phe Glu Gly Gly Thr Gly
 65 70 75 80

Val Lys Arg Thr Tyr Ala Ile Gly Asp Tyr Arg Ala Tyr Thr Ala Val
 85 90 95

Leu Asp Arg Asp Thr Val Arg Glu Ile Trp Asn Asp Thr Leu Glu Lys
 100 105 110

Pro Pro Trp Gly Leu Ala Thr Leu Ser Asn Lys Lys Pro His Gly Phe
 115 120 125

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

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

Tyr Met Gly Phe Ser Pro Pro Lys Thr Glu Pro Thr Asp Ile Asn Gly
 165 170 175

His Gly Thr His Val Ala Gly Ile Ile Gly Gly Lys Thr Phe Gly Val
 180 185 190

Ala Lys Lys Thr Gln Leu Ile Gly Val Lys Val Phe Leu Asp Asp Glu
 195 200 205

Ala Thr Thr Ser Thr Leu Met Glu Gly Leu Glu Trp Ala Val Asn Asp
 210 215 220

Ile Thr Thr Lys Gly Arg Gln Gly Arg Ser Val Ile Asn Met Ser Leu
 225 230 235 240

Gly Gly Pro Tyr Ser Gln Ala Leu Asn Asp Ala Ile Asp His Ile Ala
 245 250 255

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Asp Met Gly Ile Leu Pro Val Ala Ala Gly Asn Lys Gly Ile Pro
260 265 270

Ala Thr Phe Ile Ser Pro Ala Ser Ala Asp Lys Ala Met Thr Val Gly
275 280 285

Ala Ile Asn Ser Asp Trp Gln Glu Thr Asn Phe Ser Asn Phe Gly Pro
290 295 300

Gln Val Asn Ile Leu Ala Pro Gly Glu Asp Val Leu Ser Ala Tyr Val
305 310 315 320

Ser Thr Asn Thr Ala Thr Arg Val Leu Ser Gly Thr Ser Met Ala Ala
325 330 335

Pro His Val Ala Gly Leu Ala Leu Tyr Leu Met Ala Leu Glu Glu Phe
340 345 350

Asp Ser Thr Gln Lys Leu Thr Asp Arg Ile Leu Gln Leu Gly Met Lys
355 360 365

Asn Lys Val Val Asn Leu Met Thr Asp Ser Pro Asn Leu Ile Ile His
370 375 380

Asn Asn Val Lys
385

<210> 32
<211> 256
<212> PRT
<213> Trichoderma reesei

<400> 32

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

Arg Arg Ala Gly Arg Arg Ser Ala Pro Phe Arg Asn Asp Thr Ser His
35 40 45

Ala Thr Val Gln Ser Asn Trp Gly Gly Ala Ile Leu Glu Gly Ser Gly
50 55 60

Phe Thr Ala Ala Ser Ala Thr Val Asn Val Pro Arg Gly Gly Gly Gly
65 70 75 80

Ser Asn Ala Ala Gly Ser Ala Trp Val Gly Ile Asp Gly Ala Ser Cys
85 90 95

Gln Thr Ala Ile Leu Gln Thr Gly Phe Asp Trp Tyr Gly Asp Gly Thr
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100

105

110

Tyr Asp Ala Trp Tyr Glu Trp Tyr Pro Glu Phe Ala Ala Asp Phe Ser
 115 120 125

Gly Ile Asp Ile Arg Gln Gly Asp Gln Ile Ala Met Ser Val Val Ala
 130 135 140

Thr Ser Leu Thr Gly Gly Ser Ala Thr Leu Glu Asn Leu Ser Thr Gly
 145 150 155 160

Gln Lys Val Thr Gln Asn Phe Asn Arg Val Thr Ala Gly Ser Leu Cys
 165 170 175

Glu Thr Ser Ala Glu Phe Ile Ile Glu Asp Phe Glu Glu Cys Asn Ser
 180 185 190

Asn Gly Ser Asn Cys Gln Pro Val Pro Phe Ala Ser Phe Ser Pro Ala
 195 200 205

Ile Thr Phe Ser Ser Ala Thr Ala Thr Arg Ser Gly Arg Ser Val Ser
 210 215 220

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

Thr Arg Cys Ser Val Ser Gly Ser Ser Thr Leu Thr Cys Ser Tyr Val
 245 250 255

<210> 33
 <211> 236
 <212> PRT
 <213> Trichoderma reesei

<400> 33

Met Asp Ala Ile Arg Ala Arg Ser Ala Ala Arg Arg Ser Asn Arg Phe
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Gln Ala Gly Ser Ser Lys Asn Val Asn Gly Thr Ala Asp Val Glu Ser
 20 25 30

Thr Asn Trp Ala Gly Ala Ala Ile Thr Thr Ser Gly Val Thr Glu Val
 35 40 45

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

Ser Arg Glu Glu Tyr Cys Gly Ala Ala Trp Val Gly Ile Asp Gly Tyr
 65 70 75 80

Ser Asp Ala Asp Leu Ile Gln Thr Gly Val Leu Trp Cys Val Glu Asp
 85 90 95

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Gly Glu Tyr Leu Tyr Glu Ala Trp Tyr Glu Tyr Leu Pro Ala Ala Leu
100 105 110

Val Glu Tyr Ser Gly Ile Ser Val Thr Ala Gly Ser Val Val Thr Val
115 120 125

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

Gly Gly Lys Thr Val Ser His Thr Phe Ser Arg Gln Asn Ser Pro Leu
145 150 155 160

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

Ser Leu Val Pro Phe Ala Asp Phe Gly Ser Val Thr Phe Thr Gly Ala
180 185 190

Thr Ala Val Val Asn Gly Ala Thr Val Thr Ala Gly Gly Asp Ser Pro
195 200 205

Val Ile Ile Asp Leu Glu Asp Ser Arg Gly Asp Ile Leu Thr Ser Thr
210 215 220

Thr Val Ser Gly Ser Thr Val Thr Val Glu Tyr Glu
225 230 235

<210> 34
<211> 612
<212> PRT
<213> Trichoderma reesei

<400> 34

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Ser Val Gln Val Ser Ala Ser Val His Leu Leu Glu Ser Leu Glu Lys
20 25 30

Leu Pro His Gly Trp Lys Ala Ala Glu Thr Pro Ser Pro Ser Ser Gln
35 40 45

Ile Val Leu Gln Val Ala Leu Thr Gln Gln Asn Ile Asp Gln Leu Glu
50 55 60

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

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

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Ser Ser Ser Ala Val Glu Ser Trp Leu Gln Ser His Gly Val Thr Ser
 100 105 110
 Tyr Thr Lys Gln Gly Ser Ser Ile Trp Phe Gln Thr Asn Ile Ser Thr
 115 120 125
 Ala Asn Ala Met Leu Ser Thr Asn Phe His Thr Tyr Ser Asp Leu Thr
 130 135 140
 Gly Ala Lys Lys Val Arg Thr Leu Lys Tyr Ser Ile Pro Glu Ser Leu
 145 150 155 160
 Ile Gly His Val Asp Leu Ile Ser Pro Thr Thr Tyr Phe Gly Thr Thr
 165 170 175
 Lys Ala Met Arg Lys Leu Lys Ser Ser Gly Val Ser Pro Ala Ala Asp
 180 185 190
 Ala Leu Ala Ala Arg Gln Glu Pro Ser Ser Cys Lys Gly Thr Leu Val
 195 200 205
 Phe Glu Gly Glu Thr Phe Asn Val Phe Gln Pro Asp Cys Leu Arg Thr
 210 215 220
 Glu Tyr Ser Val Asp Gly Tyr Thr Pro Ser Val Lys Ser Gly Ser Arg
 225 230 235 240
 Ile Gly Phe Gly Ser Phe Leu Asn Glu Ser Ala Ser Phe Ala Asp Gln
 245 250 255
 Ala Leu Phe Glu Lys His Phe Asn Ile Pro Ser Gln Asn Phe Ser Val
 260 265 270
 Val Leu Ile Asn Gly Gly Thr Asp Leu Pro Gln Pro Pro Ser Asp Ala
 275 280 285
 Asn Asp Gly Glu Ala Asn Leu Asp Ala Gln Thr Ile Leu Thr Ile Ala
 290 295 300
 His Pro Leu Pro Ile Thr Glu Phe Ile Thr Ala Gly Ser Pro Pro Tyr
 305 310 315 320
 Phe Pro Asp Pro Val Glu Pro Ala Gly Thr Pro Asn Glu Asn Glu Pro
 325 330 335
 Tyr Leu Gln Tyr Tyr Glu Phe Leu Leu Ser Lys Ser Asn Ala Glu Ile
 340 345 350
 Pro Gln Val Ile Thr Asn Ser Tyr Gly Asp Glu Glu Gln Thr Val Pro
 355 360 365

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Arg Ser Tyr Ala Val Arg Val Cys Asn Leu Ile Gly Leu Leu Gly Leu
370 375 380

Arg Gly Ile Ser Val Leu His Ser Ser Gly Asp Glu Gly Val Gly Ala
385 390 395 400

Ser Cys Val Ala Thr Asn Ser Thr Thr Pro Gln Phe Asn Pro Ile Phe
405 410 415

Pro Ala Thr Cys Pro Tyr Val Thr Ser Val Gly Gly Thr Val Ser Phe
420 425 430

Asn Pro Glu Val Ala Trp Ala Gly Ser Ser Gly Gly Phe Ser Tyr Tyr
435 440 445

Phe Ser Arg Pro Trp Tyr Gln Gln Glu Ala Val Gly Thr Tyr Leu Glu
450 455 460

Lys Tyr Val Ser Ala Glu Thr Lys Lys Tyr Tyr Gly Pro Tyr Val Asp
465 470 475 480

Phe Ser Gly Arg Gly Phe Pro Asp Val Ala Ala His Ser Val Ser Pro
485 490 495

Asp Tyr Pro Val Phe Gln Gly Gly Glu Leu Thr Pro Ser Gly Gly Thr
500 505 510

Ser Ala Ala Ser Pro Val Val Ala Ala Ile Val Ala Leu Leu Asn Asp
515 520 525

Ala Arg Leu Arg Glu Gly Lys Pro Thr Leu Gly Phe Leu Asn Pro Leu
530 535 540

Ile Tyr Leu His Ala Ser Lys Gly Phe Thr Asp Ile Thr Ser Gly Gln
545 550 555 560

Ser Glu Gly Cys Asn Gly Asn Asn Thr Gln Thr Gly Ser Pro Leu Pro
565 570 575

Gly Ala Gly Phe Ile Ala Gly Ala His Trp Asn Ala Thr Lys Gly Trp
580 585 590

Asp Pro Thr Thr Gly Phe Gly Val Pro Asn Leu Lys Lys Leu Leu Ala
595 600 605

Leu Val Arg Phe
610

<210> 35
<211> 477
<212> PRT

<213> Trichoderma reesei

<400> 35

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

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Gly Phe Ser Ala Ser Asp Val Asp Thr Pro Asp Val Ser Ala Lys Ala
260 265 270

Val Leu Asp Ser Gly Ser Thr Ile Thr Leu Leu Pro Asp Ala Val Val
275 280 285

Gln Glu Leu Phe Asp Glu Tyr Asp Val Leu Asn Ile Gln Gly Leu Pro
290 295 300

Val Pro Phe Ile Asp Cys Ala Lys Ala Asn Ile Lys Asp Ala Thr Phe
305 310 315 320

Asn Phe Lys Phe Asp Gly Lys Thr Ile Lys Val Pro Ile Asp Glu Met
325 330 335

Val Leu Asn Asn Leu Ala Ala Ala Ser Asp Glu Ile Met Ser Asp Pro
340 345 350

Ser Leu Ser Lys Phe Phe Lys Gly Trp Ser Gly Val Cys Thr Phe Gly
355 360 365

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

Leu Gly Asp Thr Phe Leu Arg Ser Ala Tyr Val Val Tyr Asp Leu Gln
385 390 395 400

Asn Lys Gln Ile Gly Ile Ala Gln Ala Thr Leu Asn Ser Thr Ser Ser
405 410 415

Thr Ile Val Glu Phe Lys Ala Gly Ser Lys Thr Ile Pro Gly Pro Ala
420 425 430

Ser Thr Gly Asp Asp Ser Asp Asp Ser Ser Asp Asp Ser Asp Glu Asp
435 440 445

Ser Ala Gly Ala Ala Leu His Pro Thr Phe Ser Ile Ala Leu Ala Gly
450 455 460

Thr Leu Phe Thr Ala Val Ser Met Met Met Ser Val Leu
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<210> 36

<211> 1263

<212> DNA

<213> Trichoderma reesei

<400> 36

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gtgccttata cggaatcga ctgggtcgcc tacatggagc aagtcacca gttcgtccac 180

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gcgagcagc tctttgccgt gctctacatg gctactctgg cggtcgtcat gacatgctac      360
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gccataccct tcatcacgac aaattggcgc ggctacctcg gccgtgcatt cgagctctcg      720
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cccggctatg tcatgtccac catcttgctg gccaacgtgg tgggactgct gtttgcccgg      1020
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gtcttcccc gcacgcctct tagctcgagc gtcgtggtga gcgtgctggc cgtgacggcg      1200
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taa                                                                    1263

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<210> 37
 <211> 420
 <212> PRT
 <213> Trichoderma reesei

<400> 37

Met Ala Ser Leu Ile Lys Thr Ala Val Asp Ile Ala Asn Gly Arg His
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Ala Leu Ser Arg Tyr Val Ile Phe Gly Leu Trp Leu Ala Asp Ala Val
 20 25 30

Leu Cys Gly Leu Ile Ile Trp Lys Val Pro Tyr Thr Glu Ile Asp Trp
 35 40 45

Val Ala Tyr Met Glu Gln Val Thr Gln Phe Val His Gly Glu Arg Asp
 50 55 60

Tyr Pro Lys Met Glu Gly Gly Thr Gly Pro Leu Val Tyr Pro Ala Ala
 65 70 75 80

His Val Tyr Ile Tyr Thr Gly Leu Tyr Tyr Leu Thr Asn Lys Gly Thr
 85 90 95

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Asp Ile Leu Leu Ala Gln Gln Leu Phe Ala Val Leu Tyr Met Ala Thr
 100 105 110
 Leu Ala Val Val Met Thr Cys Tyr Ser Lys Ala Lys Val Pro Pro Tyr
 115 120 125
 Ile Phe Pro Leu Leu Ile Leu Ser Lys Arg Leu His Ser Val Phe Val
 130 135 140
 Leu Arg Cys Phe Asn Asp Cys Phe Ala Ala Phe Phe Leu Trp Leu Cys
 145 150 155 160
 Ile Phe Phe Phe Gln Arg Arg Glu Trp Thr Ile Gly Ala Leu Ala Tyr
 165 170 175
 Ser Ile Gly Leu Gly Val Lys Met Ser Leu Leu Leu Val Leu Pro Ala
 180 185 190
 Val Val Ile Val Leu Tyr Leu Gly Arg Gly Phe Lys Gly Ala Leu Arg
 195 200 205
 Leu Leu Trp Leu Met Val Gln Val Gln Leu Leu Leu Ala Ile Pro Phe
 210 215 220
 Ile Thr Thr Asn Trp Arg Gly Tyr Leu Gly Arg Ala Phe Glu Leu Ser
 225 230 235 240
 Arg Gln Phe Lys Phe Glu Trp Thr Val Asn Trp Arg Met Leu Gly Glu
 245 250 255
 Asp Leu Phe Leu Ser Arg Gly Phe Ser Ile Thr Leu Leu Ala Phe His
 260 265 270
 Ala Ile Phe Leu Leu Ala Phe Ile Leu Gly Arg Trp Leu Lys Ile Arg
 275 280 285
 Glu Arg Thr Val Leu Gly Met Ile Pro Tyr Val Ile Arg Phe Arg Ser
 290 295 300
 Pro Phe Thr Glu Gln Glu Glu Arg Ala Ile Ser Asn Arg Val Val Thr
 305 310 315 320
 Pro Gly Tyr Val Met Ser Thr Ile Leu Ser Ala Asn Val Val Gly Leu
 325 330 335
 Leu Phe Ala Arg Ser Leu His Tyr Gln Phe Tyr Ala Tyr Leu Ala Trp
 340 345 350
 Ala Thr Pro Tyr Leu Leu Trp Thr Ala Cys Pro Asn Leu Leu Val Val
 355 360 365

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Ala Pro Leu Trp Ala Ala Gln Glu Trp Ala Trp Asn Val Phe Pro Ser
370 375 380

Thr Pro Leu Ser Ser Ser Val Val Val Ser Val Leu Ala Val Thr Val
385 390 395 400

Ala Met Ala Phe Ala Gly Ser Asn Pro Gln Pro Arg Glu Thr Ser Lys
405 410 415

Pro Lys Gln His
420

<210> 38
<211> 445
<212> PRT
<213> Homo sapiens

<400> 38

Met Leu Lys Lys Gln Ser Ala Gly Leu Val Leu Trp Gly Ala Ile Leu
1 5 10 15

Phe Val Ala Trp Asn Ala Leu Leu Leu Phe Phe Trp Thr Arg Pro
20 25 30

Ala Pro Gly Arg Pro Pro Ser Val Ser Ala Leu Asp Gly Asp Pro Ala
35 40 45

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

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

Ser Gln Arg Gly Arg Val Pro Thr Ala Ala Pro Pro Ala Gln Pro Arg
85 90 95

Val Pro Val Thr Pro Ala Pro Ala Val Ile Pro Ile Leu Val Ile Ala
100 105 110

Cys Asp Arg Ser Thr Val Arg Arg Cys Leu Asp Lys Leu Leu His Tyr
115 120 125

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

His Glu Glu Thr Ala Gln Ala Ile Ala Ser Tyr Gly Ser Ala Val Thr
145 150 155 160

His Ile Arg Gln Pro Asp Leu Ser Ser Ile Ala Val Pro Pro Asp His
165 170 175

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Arg Lys Phe Gln Gly Tyr Tyr Lys Ile Ala Arg His Tyr Arg Trp Ala
 180 185 190
 Leu Gly Gln Val Phe Arg Gln Phe Arg Phe Pro Ala Ala Val Val Val
 195 200 205
 Glu Asp Asp Leu Glu Val Ala Pro Asp Phe Phe Glu Tyr Phe Arg Ala
 210 215 220
 Thr Tyr Pro Leu Leu Lys Ala Asp Pro Ser Leu Trp Cys Val Ser Ala
 225 230 235 240
 Trp Asn Asp Asn Gly Lys Glu Gln Met Val Asp Ala Ser Arg Pro Glu
 245 250 255
 Leu Leu Tyr Arg Thr Asp Phe Phe Pro Gly Leu Gly Trp Leu Leu Leu
 260 265 270
 Ala Glu Leu Trp Ala Glu Leu Glu Pro Lys Trp Pro Lys Ala Phe Trp
 275 280 285
 Asp Asp Trp Met Arg Arg Pro Glu Gln Arg Gln Gly Arg Ala Cys Ile
 290 295 300
 Arg Pro Glu Ile Ser Arg Thr Met Thr Phe Gly Arg Lys Gly Val Ser
 305 310 315 320
 His Gly Gln Phe Phe Asp Gln His Leu Lys Phe Ile Lys Leu Asn Gln
 325 330 335
 Gln Phe Val His Phe Thr Gln Leu Asp Leu Ser Tyr Leu Gln Arg Glu
 340 345 350
 Ala Tyr Asp Arg Asp Phe Leu Ala Arg Val Tyr Gly Ala Pro Gln Leu
 355 360 365
 Gln Val Glu Lys Val Arg Thr Asn Asp Arg Lys Glu Leu Gly Glu Val
 370 375 380
 Arg Val Gln Tyr Thr Gly Arg Asp Ser Phe Lys Ala Phe Ala Lys Ala
 385 390 395 400
 Leu Gly Val Met Asp Asp Leu Lys Ser Gly Val Pro Arg Ala Gly Tyr
 405 410 415
 Arg Gly Ile Val Thr Phe Gln Phe Arg Gly Arg Arg Val His Leu Ala
 420 425 430
 Pro Pro Leu Thr Trp Glu Gly Tyr Asp Pro Ser Trp Asn
 435 440 445

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<210> 39
 <211> 447
 <212> PRT
 <213> Homo sapiens

<400> 39

Met Arg Phe Arg Ile Tyr Lys Arg Lys Val Leu Ile Leu Thr Leu Val
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Val Ala Ala Cys Gly Phe Val Leu Trp Ser Ser Asn Gly Arg Gln Arg
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Lys Asn Glu Ala Leu Ala Pro Pro Leu Leu Asp Ala Glu Pro Ala Arg
 35 40 45

Gly Ala Gly Gly Arg Gly Gly Asp His Pro Ser Val Ala Val Gly Ile
 50 55 60

Arg Arg Val Ser Asn Val Ser Ala Ala Ser Leu Val Pro Ala Val Pro
 65 70 75 80

Gln Pro Glu Ala Asp Asn Leu Thr Leu Arg Tyr Arg Ser Leu Val Tyr
 85 90 95

Gln Leu Asn Phe Asp Gln Thr Leu Arg Asn Val Asp Lys Ala Gly Thr
 100 105 110

Trp Ala Pro Arg Glu Leu Val Leu Val Val Gln Val His Asn Arg Pro
 115 120 125

Glu Tyr Leu Arg Leu Leu Leu Asp Ser Leu Arg Lys Ala Gln Gly Ile
 130 135 140

Asp Asn Val Leu Val Ile Phe Ser His Asp Phe Trp Ser Thr Glu Ile
 145 150 155 160

Asn Gln Leu Ile Ala Gly Val Asn Phe Cys Pro Val Leu Gln Val Phe
 165 170 175

Phe Pro Phe Ser Ile Gln Leu Tyr Pro Asn Glu Phe Pro Gly Ser Asp
 180 185 190

Pro Arg Asp Cys Pro Arg Asp Leu Pro Lys Asn Ala Ala Leu Lys Leu
 195 200 205

Gly Cys Ile Asn Ala Glu Tyr Pro Asp Ser Phe Gly His Tyr Arg Glu
 210 215 220

Ala Lys Phe Ser Gln Thr Lys His His Trp Trp Trp Lys Leu His Phe
 225 230 235 240

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Val Trp Glu Arg Val₂₄₅ Lys Ile Leu Arg Asp₂₅₀ Tyr Ala Gly Leu Ile₂₅₅ Leu
 Phe Leu Glu Glu₂₆₀ Asp His Tyr Leu Ala₂₆₅ Pro Asp Phe Tyr His₂₇₀ Val Phe
 Lys Lys Met₂₇₅ Trp Lys Leu Lys Gln₂₈₀ Gln Glu Cys Pro Glu₂₈₅ Cys Asp Val
 Leu Ser₂₉₀ Leu Gly Thr Tyr Ser₂₉₅ Ala Ser Arg Ser Phe₃₀₀ Tyr Gly Met Ala
 Asp₃₀₅ Lys Val Asp Val Lys₃₁₀ Thr Trp Lys Ser Thr₃₁₅ Glu His Asn Met Gly₃₂₀
 Leu Ala Leu Thr Arg₃₂₅ Asn Ala Tyr Gln Lys₃₃₀ Leu Ile Glu Cys Thr₃₃₅ Asp
 Thr Phe Cys Thr₃₄₀ Tyr Asp Asp Tyr Asn₃₄₅ Trp Asp Trp Thr Leu₃₅₀ Gln Tyr
 Leu Thr Val₃₅₅ Ser Cys Leu Pro Lys₃₆₀ Phe Trp Lys Val Leu₃₆₅ Val Pro Gln
 Ile Pro₃₇₀ Arg Ile Phe His Ala₃₇₅ Gly Asp Cys Gly Met₃₈₀ His His Lys Lys
 Thr₃₈₅ Cys Arg Pro Ser Thr₃₉₀ Gln Ser Ala Gln Ile₃₉₅ Glu Ser Leu Leu Asn₄₀₀
 Asn Asn Lys Gln Tyr₄₀₅ Met Phe Pro Glu Thr₄₁₀ Leu Thr Ile Ser Glu₄₁₅ Lys
 Phe Thr Val Val₄₂₀ Ala Ile Ser Pro Pro₄₂₅ Arg Lys Asn Gly Gly₄₃₀ Trp Gly
 Asp Ile Arg₄₃₅ Asp His Glu Leu Cys₄₄₀ Lys Ser Tyr Arg Arg₄₄₅ Leu Gln

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 <213> Trichoderma reesei

<400> 40

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Phe Thr Ile Leu₂₀ Val Phe Tyr Phe Val₂₅ Ser Asn Ser Lys Tyr₃₀ Glu Gly

Val Asp Leu Asn Lys Gly Thr Phe Thr Ala Pro Asp Ser Thr Lys Thr

35

40

45

Thr Pro Lys Pro Pro Ala Thr Gly Asp Ala Lys Asp Phe Pro Leu Ala
 50 55 60

Leu Thr Pro Asn Asp Pro Gly Phe Asn Asp Leu Val Gly Ile Ala Pro
 65 70 75 80

Gly Pro Arg Met Asn
 85

<210> 41
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 gtctttctact ttgtctccaa ttcaaagtat gagggcgtcg atctcaacaa gggcaccttc 120
 acagctccgg attcgaccaa gacgacacca aagccgccag cactggcga tgccaaagac 180
 tttcctctgg ccctgacgcc gaacgatcca ggcttcaacg acctcgtcgg catcgctccc 240
 ggccctcgaa tgaac 255

<210> 42
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 <212> PRT
 <213> Homo sapiens

<400> 42

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

Val Ala Ala Cys Gly Phe Val Leu Trp Ser Ser Asn Gly Arg Gln Arg
 20 25 30

Lys Asn Glu Ala Leu Ala Pro Pro Leu Leu Asp Ala Glu Pro Ala Arg
 35 40 45

Gly Ala Gly Gly Arg Gly Gly Asp His Pro
 50 55

<210> 43
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 <212> PRT
 <213> Trichoderma reesei

<400> 43

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

Phe Thr Ile Leu Val Phe Tyr Phe Val Ser Asn Ser Lys Tyr Glu Gly
 20 25 30

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

Thr Pro Lys
50

<210> 44
<211> 52
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<213> Trichoderma reesei
<400> 44

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

Leu Trp Cys Phe Phe Leu Tyr Gln Leu Leu Arg Pro Ser Ser Ser Tyr
20 25 30

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

Asp Pro Thr Gly
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<210> 45
<211> 33
<212> PRT
<213> Trichoderma reesei
<400> 45

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

Val Phe Phe Leu Ile Ser Arg Ser His Asn Ser Glu Ser Ala Ser Thr
20 25 30

Ser

<210> 46
<211> 84
<212> PRT
<213> Trichoderma reesei
<400> 46

Met Met Pro Arg His His Ser Ser Gly Phe Ser Asn Gly Tyr Pro Arg
1 5 10 15

Ala Asp Thr Phe Glu Ile Ser Pro His Arg Phe Gln Pro Arg Ala Thr
20 25 30

Leu Pro Pro His Arg Lys Arg Lys Arg Thr Ala Ile Arg Val Gly Ile
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35

40

45

Ala Val Val Val Ile Leu Val Leu Val Leu Trp Phe Gly Gln Pro Arg
 50 55 60

Ser Val Ala Ser Leu Ile Ser Leu Gly Ile Leu Ser Gly Tyr Asp Asp
 65 70 75 80

Leu Lys Leu Glu

<210> 47
 <211> 55
 <212> PRT
 <213> Trichoderma reesei

<400> 47

Met Leu Leu Pro Lys Gly Gly Leu Asp Trp Arg Ser Ala Arg Ala Gln
 1 5 10 15

Ile Pro Pro Thr Arg Ala Leu Trp Asn Ala Val Thr Arg Thr Arg Phe
 20 25 30

Ile Leu Leu Val Gly Ile Thr Gly Leu Ile Leu Leu Leu Trp Arg Gly
 35 40 45

Val Ser Thr Ser Ala Ser Glu
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<210> 48
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 tacagaact 69

<210> 49
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 <212> DNA
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<220>
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<400> 49
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 gcttcacag 69

<210> 50
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acagccag 68

<210> 51
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gtggaattgt gagcggataa caatttcaca caggaaacag cgtttaaacc gtccagctcc 60
cgcagcgcc 69

<210> 52
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tcgcctagat ctacgccagg accg 84

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 agcagcga 68

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 tatggcttta gatggggaca 20

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 <400> 57
 tgcgtcgccg tctcgctcct 20

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 <210> 59
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 <400> 59
 cctgtatcgt cctgttcc 18

 <210> 60
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<400> 61
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 caacacctg 69

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 tggcggggga 69

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 gtaaagct 68

<210> 73
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<400> 73
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<400> 74
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 tcgcctagat ctacgccagg accg 84

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 agcagcga 68

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cagccttct 69

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

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

Leu Ile Asn Ser Val Ala Phe Ser Leu Trp Leu Asn Asp Leu Asp Ala
195 200 205

Ser Thr Gly Ser Ile Leu Phe Gly Gly Ile Asp Thr Glu Lys Tyr His
210 215 220

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

Phe Thr Glu Phe Ala Val Asn Leu Tyr Ser Val Gln Ala Thr Ser Pro
245 250 255

Ser Gly Thr Asp Thr Leu Ser Thr Ser Glu Asp Thr Leu Ile Ala Val
260 265 270

Leu Asp Ser Gly Thr Thr Leu Thr Tyr Leu Pro Gln Asp Met Ala Glu
275 280 285

Glu Ala Trp Asn Glu Val Gly Ala Glu Tyr Ser Asn Glu Leu Gly Leu
290 295 300

Ala Val Val Pro Cys Ser Val Gly Asn Thr Asn Gly Phe Phe Ser Phe
305 310 315 320

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

Leu Val Leu Asp Leu Phe Ser Gly Gly Pro Ala Pro Arg Phe Ser Ser
340 345 350

Gly Pro Asn Lys Gly Gln Ser Ile Cys Glu Phe Gly Ile Gln Asn Gly
355 360 365

Thr Gly Ser Pro Phe Leu Leu Gly Asp Thr Phe Leu Arg Ser Ala Phe
370 375 380

Val Val Tyr Asp Leu Val Asn Asn Gln Ile Ala Ile Ala Pro Thr Asn
385 390 395 400

Phe Asn Ser Thr Arg Thr Asn Val Val Ala Phe Ala Ser Ser Gly Ala
405 410 415

Pro Ile Pro Ser Ala Thr Ala Ala Pro Asn Gln Ser Arg Thr Gly His
420 425 430

Ser Ser Ser Thr His Ser Gly Leu Ser Ala Ala Ser Gly Phe His Asp
435 440 445

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Gly Asp Asp Glu Asn Ala Gly Ser Leu Thr Ser Val Phe Ser Gly Pro
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Gly Met Ala Val Val Gly Met Thr Ile Cys Tyr Thr Leu Leu Gly Ser
465 470 475 480

Ala Ile Phe Gly Ile Gly Trp Leu
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20 25 30

Arg Tyr Thr Leu Thr Thr Thr Lys Gly Ala Thr Ser Lys His Leu His
35 40 45

Arg Arg Gln Asp Ser Ala Asp Leu Met Ser Gln Gln Thr Gly Tyr Phe
50 55 60

Tyr Ser Ile Gln Leu Glu Ile Gly Thr Pro Pro Gln Ala Val Ser Val
65 70 75 80

Asn Phe Asp Thr Gly Ser Ser Glu Leu Trp Val Asn Pro Val Cys Ser
85 90 95

Lys Ala Thr Asp Pro Ala Phe Cys Lys Thr Phe Gly Gln Tyr Asn His
100 105 110

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

Thr Gly Phe Val Asp Phe Asn Tyr Gly Tyr Asp Tyr Val Gln Leu Gly
130 135 140

Ser Leu Arg Ile Asn Gln Gln Val Phe Gly Val Ala Thr Asp Ser Glu
145 150 155 160

Phe Ala Ser Val Gly Ile Leu Gly Ala Gly Pro Asp Leu Ser Gly Trp
165 170 175

Thr Ser Pro Tyr Pro Phe Val Ile Asp Asn Leu Val Lys Gln Gly Phe
180 185 190

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Ile Lys Ser Arg Ala Phe Ser Leu Asp Ile Arg Gly Leu Asp Ser Asp
195 200 205

Arg Gly Ser Val Thr Tyr Gly Gly Ile Asp Ile Lys Lys Phe Ser Gly
210 215 220

Pro Leu Ala Lys Lys Pro Ile Ile Pro Ala Ala Gln Ser Pro Asp Gly
225 230 235 240

Tyr Thr Arg Tyr Trp Val His Met Asp Gly Met Ser Ile Thr Lys Glu
245 250 255

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

Leu Leu Asp Ser Gly Tyr Thr Val Ser Thr Leu Pro Gly Pro Leu Met
275 280 285

Asp Lys Ile Leu Glu Ala Phe Pro Ser Ala Arg Leu Glu Ser Thr Ser
290 295 300

Gly Asp Tyr Ile Val Asp Cys Asp Ile Ile Asp Thr Pro Gly Arg Val
305 310 315 320

Asn Phe Lys Phe Gly Asn Val Val Val Asp Val Glu Tyr Lys Asp Phe
325 330 335

Ile Trp Gln Gln Pro Asp Leu Gly Ile Cys Lys Leu Gly Val Ser Gln
340 345 350

Asp Asp Asn Phe Pro Val Leu Gly Asp Thr Phe Leu Arg Ala Ala Tyr
355 360 365

Val Val Phe Asp Trp Asp Asn Gln Glu Val His Ile Ala Ala Asn Glu
370 375 380

Asp Cys Gly Asp Glu Leu Ile Pro Ile Gly Ser Gly Pro Asp Ala Ile
385 390 395 400

Pro Ala Ser Ala Ile Gly Lys Cys Ser Pro Ser Val Lys Thr Asp Thr
405 410 415

Thr Thr Ser Val Ala Glu Thr Thr Ala Thr Ser Ala Ala Ala Ser Thr
420 425 430

Ser Glu Leu Ala Ala Thr Thr Ser Glu Ala Ala Thr Thr Ser Ser Glu
435 440 445

Ala Ala Thr Thr Ser Ala Ala Ala Glu Thr Thr Ser Val Pro Leu Asn
450 455 460

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Thr Ala Pro Ala Thr Thr Gly Leu Leu Pro Thr Thr Ser His Arg Phe
 465 470 475 480
 Ser Asn Gly Thr Ala Pro Tyr Pro Ile Pro Ser Leu Ser Ser Val Ala
 485 490 495
 Ala Ala Ala Gly Ser Ser Thr Val Pro Ser Glu Ser Ser Thr Gly Ala
 500 505 510
 Ala Ala Ala Gly Thr Thr Ser Ala Ala Thr Gly Ser Gly Ser Gly Ser
 515 520 525
 Gly Ser Gly Asp Ala Thr Thr Ala Ser Ala Thr Tyr Thr Ser Thr Phe
 530 535 540
 Thr Thr Thr Asn Val Tyr Thr Val Thr Ser Cys Pro Pro Ser Val Thr
 545 550 555 560
 Asn Cys Pro Val Gly His Val Thr Thr Glu Val Val Val Ala Tyr Thr
 565 570 575
 Thr Trp Cys Pro Val Glu Asn Gly Pro His Pro Thr Ala Pro Pro Lys
 580 585 590
 Pro Ala Ala Pro Glu Ile Thr Ala Thr Phe Thr Leu Pro Asn Thr Tyr
 595 600 605
 Thr Cys Ser Gln Gly Lys Asn Thr Cys Ser Asn Pro Lys Thr Ala Pro
 610 615 620
 Asn Val Ile Val Val Thr Pro Ile Val Thr Gln Thr Ala Pro Val Val
 625 630 635 640
 Ile Pro Gly Ile Ala Ala Pro Thr Pro Thr Pro Ser Val Ala Ala Ser
 645 650 655
 Ser Pro Ala Ser Pro Ser Val Val Pro Ser Pro Thr Ala Pro Val Ala
 660 665 670
 Thr Ser Pro Ala Gln Ser Ala Tyr Tyr Pro Pro Pro Pro Pro Glu
 675 680 685
 His Ala Val Ser Thr Pro Val Ala Asn Pro Pro Ala Val Thr Pro Ala
 690 695 700
 Pro Ala Pro Phe Pro Ser Gly Gly Leu Thr Thr Val Ile Ala Pro Gly
 705 710 715 720
 Ser Thr Gly Val Pro Ser Gln Pro Ala Gln Ser Gly Leu Pro Pro Val
 725 730 735

1632537_1

Pro Ala Gly Ala Ala Gly Phe Arg Ala Pro Ala Ala Val Ala Leu Leu
 740 745 750

Ala Gly Ala Val Ala Ala Ala Leu Leu
 755 760

<210> 136
 <211> 439
 <212> PRT
 <213> Neurospora crassa

<400> 136

Met Val Ala Leu Thr Asn Leu Leu Leu Thr Thr Leu Leu Ala Ser Ala
 1 5 10 15

Gly Leu Gly Ala Ala Leu Pro Pro Arg Ile Gly Ser Thr Val Ile Glu
 20 25 30

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

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

Tyr Lys Thr Tyr Leu Lys Tyr Gly Ala Pro Val Pro Asp His Leu Val
 65 70 75 80

Gln Ala Val Ala Asn His Leu Gly Ile Ser Val Glu Glu Val His Asn
 85 90 95

Tyr Ala Asn Thr Thr Ala Asn Ala Arg Arg Asp Gln Gly Ser Ala Thr
 100 105 110

Ala Ala Pro Ile Asp Gln Ser Asp Ser Ala Tyr Ile Thr Pro Val Ser
 115 120 125

Ile Gly Thr Pro Ala Gln Thr Leu Asn Leu Asp Phe Asp Thr Gly Ser
 130 135 140

Ser Asp Leu Trp Val Phe Ser Asn Ser Leu Pro Ser Ser Gln Arg Ala
 145 150 155 160

Gly His Thr Ile Tyr Asn Pro Ser Lys Ser Ser Thr Ala Lys Arg Val
 165 170 175

Asn Gly Ala Ser Trp Asp Ile Ser Tyr Gly Asp Gly Ser Ser Ser Lys
 180 185 190

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

Asn Gln Ala Val Glu Thr Ala Gln Gln Val Ser Gln Ser Phe Thr Ala
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1632537_1
220

210

215

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

Thr Val Arg Pro Arg Gln Gln Lys Thr Trp Phe Glu Asn Ala Ile Gly
245 250 255

Gln Leu Asp Gln Pro Leu Phe Ala Ala Asp Leu Lys Tyr Glu Ala Ser
260 265 270

Gly Thr Tyr Asp Phe Gly Phe Ile Asp Pro Ala Lys His Thr Gly Asp
275 280 285

Ile Thr Tyr Val Pro Val Asn Thr Asn Pro Gly Tyr Trp Thr Trp Thr
290 295 300

Ser Thr Gly Tyr Gln Val Gly Ser Ser Pro Phe Val Ser Gln Ser Ile
305 310 315 320

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

Ile Leu Arg Ala Tyr Tyr Gly Gln Ile Arg Gly Ala Thr Asn Ser Gln
340 345 350

Ser Tyr Gly Gly Tyr Val Phe Pro Cys Ser Thr Glu Ala Pro Asp Phe
355 360 365

Thr Phe Gly Val Thr Asp Glu Ala Thr Ile Thr Ile Pro Gly Arg Phe
370 375 380

Ile Asn Tyr Gly Pro Val Thr Asp Asp Gly Glu Thr Cys Phe Gly Gly
385 390 395 400

Leu Gln Thr Ser Ser Asp Val Gly Ile Asn Ile Phe Gly Asp Val Ala
405 410 415

Leu Lys Ala Ala Tyr Val Val Phe Lys Gly Gly Asp Ser Pro Ser Leu
420 425 430

Gly Trp Ala Ser Lys Gln Leu
435

<210> 137
<211> 417
<212> PRT
<213> Myceliophthora thermophila

<400> 137

Met His Leu Thr Pro Ala Leu Val Ala Ala Thr Cys Ala Val Glu Val
1 5 10 15

1632537_1

Cys Ala Gly Val₂₀ Leu Pro Arg Ser₂₅ Ser Thr Pro Thr₃₀ Phe Gly
 Ser Gly Thr₃₅ Leu Ser Leu Lys₄₀ Val Arg Asn Pro₄₅ Asn Phe Val Arg
 Asn Gly₅₀ Pro Val Gln Leu Ala₅₅ Arg Ile Tyr His₆₀ Lys Tyr Gly Val Pro
 Leu₆₅ Pro His Asp Leu Arg₇₀ Glu Ala Val Ala₇₅ Arg Phe Arg Ala Glu Ile₈₀
 Arg Lys Arg Ser₈₅ Asn Gly Ser Thr Glu₉₀ Thr Asn Pro Glu Thr₉₅ Asn Asp
 Val Glu Tyr₁₀₀ Leu Thr Pro Val Ser₁₀₅ Ile Gly Thr Pro Pro₁₁₀ Gln Val Leu
 Asn Leu₁₁₅ Asp Phe Asp Thr Gly Ser₁₂₀ Ser Asp Leu Trp Val₁₂₅ Phe Ser Ser
 Glu Thr₁₃₀ Arg Ser Ser Asp Val₁₃₅ Gln Gly Gln Thr₁₄₀ Ile Tyr Asp Pro Asn
 Glu₁₄₅ Ser Ser Thr Ala Gln₁₅₀ Lys Leu Gln Gly Tyr₁₅₅ Ser Trp Gln Ile Ser₁₆₀
 Tyr Gly Asp Gly₁₆₅ Ser Ser Ser Ser Gly₁₇₀ Asp Val Tyr Thr Asp Ala Val₁₇₅
 Thr Val Gly₁₈₀ Gly Leu Thr Val Pro Ser₁₈₅ Gln Ala Val Glu Val₁₉₀ Ala Arg
 Arg Val₁₉₅ Ser Asp Glu Phe Thr Ser₂₀₀ Asp Pro Asn Asn₂₀₅ Asp Gly Leu Leu
 Gly Leu₂₁₀ Gly Phe Ser Ser Ile₂₁₅ Asn Thr Val Gln Pro Val Pro Gln Lys
 Thr₂₂₅ Phe Phe Asp Asn Ala₂₃₀ Lys Ala Asp Leu Asp₂₃₅ Ala Pro Ile Phe Thr₂₄₀
 Ala Asp Leu Lys Ala₂₄₅ Ser Ala Pro Gly Phe₂₅₀ Phe Asn Phe Gly Tyr₂₅₅ Ile
 Asp His Gly₂₆₀ Ala Tyr Thr Gly Glu Ile₂₆₅ Thr Tyr Met Pro Val₂₇₀ Asp Ser
 Ser Asp Gly₂₇₅ Phe Trp Ala Trp Thr₂₈₀ Ser Pro Gly Tyr Ala₂₈₅ Val Gly Ser

1632537_1

Gly Ser Phe Lys Arg Thr Thr Ile Gln Gly Ile Ala Asp Thr Gly Thr
290 295 300

Ser Leu Phe Leu Leu Pro Ser Ser Val Val Ser Ala Tyr Tyr Gly Gln
305 310 315 320

Ile Ser Gly Ala Lys Tyr Asp Ser Ile Gln Gly Gly Tyr Thr Leu Pro
325 330 335

Cys Ser Gly Ser Val Pro Asp Phe Ala Phe Gly Ile Gly Asp Ser Asn
340 345 350

Thr Thr Ile Ser Val Pro Gly Asp Tyr Val Arg Tyr Ala Ala Thr Asp
355 360 365

Ser Ser Gly Ile Ile Cys Phe Gly Gly Ile Gln Ala Asn Thr Gly Ile
370 375 380

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

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

Ser

<210> 138
<211> 434
<212> PRT
<213> Neurospora crassa

<400> 138

Met Leu Leu Phe Pro Thr Ile Leu Thr Ala Ala Leu Ala Ala Thr Gly
1 5 10 15

Met Ala Ala Ala Ile Pro Ser Arg Asp Asp Thr Thr Ala Asn Lys Gly
20 25 30

Thr Ala Ser Leu Leu Gln Val Arg Asn Pro Ser Phe Glu Phe Arg His
35 40 45

Gly Pro Leu Ala Leu Ala Lys Ala Tyr Gln Lys Phe Gly Ala Pro Met
50 55 60

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

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

1632537_1

Tyr Leu Thr Pro Ile Ser Val Gly Thr Pro Ser Gln Asp Leu Val Val
 100 105 110
 Asp Phe Asp Thr Gly Ser Ser Asp Leu Trp Val Phe Ser Thr Glu Met
 115 120 125
 Ser Thr Ser Asp Ile Lys Gly Gln Thr Val Tyr Asp Pro Asn Asn Ser
 130 135 140
 Ser Thr Ser Glu Lys Val Gln Gly Ser Thr Trp Lys Ile Thr Tyr Gly
 145 150 155 160
 Asp Gly Ser Ser Ser Gly Asp Val Tyr Leu Asp Thr Val Thr Ile
 165 170 175
 Gly Asn Leu Thr Val Pro Ser Gln Ala Val Glu Ala Ala Lys Lys Val
 180 185 190
 Ser Ser Glu Phe Thr Asp Asp Ser His Asn Asp Gly Leu Leu Gly Leu
 195 200 205
 Gly Phe Ser Ala Ile Asn Ala Val Glu Pro Thr Pro Gln Asn Thr Phe
 210 215 220
 Phe Asp Asn Ile Lys Gly Ser Leu Asp Ala Pro Leu Phe Thr Val Asp
 225 230 235 240
 Leu Lys His Gly Thr Pro Gly Ser Phe Asn Phe Gly Tyr Ile Asp Pro
 245 250 255
 Ala Ala Tyr Ile Gly Asn Ile Ser Trp Thr Pro Val Asp Ser Ser Gln
 260 265 270
 Gly Tyr Trp Gly Phe Thr Ser Pro Gly Tyr Ala Val Gly Thr Gly Ala
 275 280 285
 Phe Arg Asn His Ser Ile Ser Gly Ile Ala Asp Thr Gly Thr Thr Leu
 290 295 300
 Leu Leu Leu Pro Lys Ser Val Val Ser Ala Tyr Tyr Lys Glu Ile Gln
 305 310 315 320
 Gly Ala Gln Tyr Asp Ser Asp Gln Gly Gly Tyr Ile Phe Pro Cys Ser
 325 330 335
 Pro Thr Pro Pro Asp Phe Val Phe Gly Val Asn Lys Gly Ile Val Thr
 340 345 350
 Val Pro Gly Asp Met Val Ser Tyr Ala Pro Ala Asp Ser Ala Asn Gln
 355 360 365

1632537_1

Asn Cys Phe Gly Gly Ile Gln Thr Asp Thr Gly Ile Gly Phe Ser Ile
370 375 380

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

Ile Val Pro Gly Tyr Tyr Ala Asp Cys Ala Met Arg Phe Asn Arg Met
405 410 415

Leu Arg Ser Tyr Ser Asn Asp Gln Leu Val Asp Phe Ser Ser Ser Gly
420 425 430

Pro Leu

<210> 139
<211> 466
<212> PRT
<213> Myceliophthora thermophila
<400> 139

Met Asp Ala Leu Phe Glu Thr His Ala Lys Leu Arg Lys Arg Met Ala
1 5 10 15

Leu Tyr Arg Val Arg Ala Val Pro Asn Gln Asn Tyr Gln Arg Asp Gly
20 25 30

Thr Lys Ser Tyr Val Ser Val Leu Asn Arg Phe Gly Phe Gln Pro Thr
35 40 45

Lys Pro Gly Pro Tyr Phe Gln Ile Phe Glu Glu Ser Glu Glu Ala Pro
50 55 60

Ser Met Ser Ala Ala Pro Gly Val Lys Pro Gly His Val Trp Gln Gly
65 70 75 80

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

Glu Asp Gln Gln Asn Asp Ser Glu Tyr Leu Cys Glu Val Met Ile Gly
100 105 110

Thr Ala Trp Thr Ala Glu Arg Gln Ile Val Lys Met Asp Phe Asp Thr
115 120 125

Gly Leu Ala Asp Phe Trp Val Ser Gln Lys Ser Phe Asp Pro Lys Lys
130 135 140

Ser Val Thr Trp Gln Leu Ala Lys Asp Lys Ser Trp Lys Val Gln Tyr
145 150 155 160

1632537_1

Gly Asp Gly Ser Ser₁₆₅ Ala Ser Gly Ile Val₁₇₀ Gly His Asp Ile Leu₁₇₅ Ile

Ile Gly Gly Ile₁₈₀ Gln Ile Lys Arg Gln₁₈₅ Ala Ile Glu Ile Ala₁₉₀ Thr Glu

Met Ser Ala₁₉₅ Gln Phe Ser Glu Gly₂₀₀ Thr Met Asp Gly Ile₂₀₅ Leu Gly Leu

Ala Phe₂₁₀ Ser Lys Leu Asn Thr₂₁₅ Val Gln Thr Asp Gly₂₂₀ Lys Pro Asp Pro

Gln Arg Thr Val Val Asp₂₃₀ Asn Met Met Ala Gln₂₃₅ Asp Asp Ile Pro Pro₂₄₀

Glu Ala Glu Leu Phe₂₄₅ Ser Thr Ala Leu Tyr₂₅₀ Ser Asn Arg Glu Asp₂₅₅ Asp

Gln Arg Ser Phe₂₆₀ Tyr Thr Phe Gly Trp₂₆₅ Ile Asp Glu Asp Leu₂₇₀ Val Lys

Ala Ser Gly₂₇₅ Glu Glu Ile Val Trp₂₈₀ Thr Asp Val Asp Asn₂₈₅ Ser Glu Gly

Phe Trp₂₉₀ Met Phe Ser Ser Glu₂₉₅ His Val Thr Ile Asp₃₀₀ Gly Gln Gln Val

Arg Ile Glu Gly Asn Lys₃₁₀ Ala Ile Ala Asp Thr₃₁₅ Gly Thr Ser Leu Val₃₂₀

Leu Val Ser Asp Gln₃₂₅ Val Cys Asp Ala Leu₃₃₀ Tyr Ala His Ile Pro₃₃₅ Ser

Ala Glu Tyr Ser₃₄₀ Glu Glu Tyr Gln Gly₃₄₅ Trp Thr Phe Pro Gln₃₅₀ Glu Thr

Glu Val Asp₃₅₅ Lys Leu Pro Glu Phe₃₆₀ Ser Ile Ala Ile Gly₃₆₅ Asp Lys Glu

Phe Val₃₇₀ Leu Gln Lys Glu Asp₃₇₅ Leu Ile Phe Ala Pro₃₈₀ Ala Asp Glu Arg

Val Phe Tyr Gly Ser Val₃₉₀ Gln Ser Arg Gly Glu₃₉₅ Asn Pro Phe Asp Ile₄₀₀

Leu Gly Ile Ala Phe₄₀₅ Leu Lys Ser Ile Tyr₄₁₀ Ala Ile Trp Asp Gln₄₁₅ Gly

His Lys Arg Phe₄₂₀ Gly Ala Val Pro Lys₄₂₅ Met Glu Ala Phe Val₄₃₀ Pro Pro

1632537_1

Thr Lys Tyr Asp Arg Pro Arg Leu Thr Asp Gln Asp Arg Lys Asp Leu
 435 440 445

Gly Val Thr Ile Gly Tyr Gly Asp Ile Ser Ser Thr Phe Phe Glu Lys
 450 455 460

Arg Ala
 465

<210> 140
 <211> 481
 <212> PRT
 <213> Neurospora crassa

<400> 140

Met Gly Ser Met Tyr Gln Val Gln Ser Lys Leu Arg Gln Asp Leu Gly
 1 5 10 15

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

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

Glu Glu Ser Arg Phe Phe His Leu Lys Lys Thr Asp Leu Thr Lys Glu
 50 55 60

Phe Gln Arg Arg Gly Tyr Ile Arg His Trp Glu Gln Leu Val Arg Thr
 65 70 75 80

Pro Gln Glu Arg Pro Asp Asp Pro His Thr Asp Asn Glu Pro Val Pro
 85 90 95

Ala Glu Asp Gln Gln Tyr Asp Thr Gln Tyr Leu Cys Glu Ile Gly Ile
 100 105 110

Gly Thr Pro Gln Gln Lys Val Lys Leu Asp Phe Asp Thr Gly Ser Ala
 115 120 125

Asp Leu Trp Val Arg Cys Thr Asp Ser Ser Leu Leu His His Ala Asp
 130 135 140

Lys Lys Phe Asp Pro Lys Lys Ser Asp Thr Phe Gln Glu Ser Lys Thr
 145 150 155 160

Asp Gln Thr Trp Lys Ile Gln Tyr Gly Asp Gly Ser Thr Ala Ser Gly
 165 170 175

Thr Val Gly Thr Asp Val Ile Thr Val Gly Gly Leu Gln Ile Lys Asn
 180 185 190

Gln Ala Ile Glu Leu Ala Lys Lys Val Ser Ser Ala Phe Ser Ser Gly
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195 200 205
 Glu Ala Asp Gly Leu Leu Gly Leu Ala Phe Ser Thr Ile Asn Thr Ile
 210 215 220
 Glu Ser Asp Gly Lys Pro Asp Pro Gln Pro Thr Pro Val Glu Asn Met
 225 230 235 240
 Ile Ser Gln Glu Asp Ile Pro Lys Glu Ala Glu Leu Phe Thr Ser Ala
 245 250 255
 Phe Tyr Ser Ala Arg Asp Asp Lys Ser Glu Glu Lys Ser Phe Tyr Thr
 260 265 270
 Phe Gly Trp Val Asp Glu Asp Leu Val Lys Ala Ser Gly Lys Asp Ile
 275 280 285
 Thr Trp Thr Pro Ile Asp Asn Ser Glu Gly Phe Trp Lys Phe Pro Ser
 290 295 300
 Glu Ser Ala Thr Val Asp Gly Asp Asn Val Ser Val Ser Gly Asn Thr
 305 310 315
 Ala Ile Ala Asp Thr Gly Thr Thr Leu Ala Leu Val Ser Asp Thr Val
 325 330 335
 Cys Lys Ala Leu Tyr Ala Lys Ile Pro Gly Ser Lys Tyr Ser Tyr Arg
 340 345 350
 Tyr Gln Gly Tyr Leu Ile Pro Ser Thr Ile Thr Ala Asp Gln Leu Pro
 355 360 365
 Gln Leu Ser Val Ala Val Gly Gly Glu Gln Phe Val Ile Gln Asn Glu
 370 375 380
 Asp Leu Leu Leu Ala Pro Ala Asp Asp Asp His Trp Tyr Gly Gly Val
 385 390 395 400
 Gln Ser Arg Gly Thr Met Pro Phe Asp Ile Leu Gly Asp Thr Phe Leu
 405 410 415
 Lys Ser Ile Tyr Ala Ile Trp Asp Gln Gly Asn Asn Arg Phe Gly Ala
 420 425 430
 Val Pro Lys Ile Glu Val Asn Gln His Thr Val Phe Pro Asp Thr Glu
 435 440 445
 Pro Ser Pro Glu Ala Ser Ser Pro Glu Pro Ala Asp Lys Val Gly Asp
 450 455 460
 Val Ser Pro Val Glu Gln Val Lys Gly Ala Val Lys Ser Leu Lys Val
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465 470 475 480

Leu

<210> 141
 <211> 397
 <212> PRT
 <213> Myceliophthora thermophila

<400> 141

Met Lys Asp Ala Phe Leu Leu Thr Ala Ala Val Leu Leu Gly Ser Ala
 1 5 10 15

Gln Gly Ala Val His Lys Met Lys Leu Gln Lys Ile Pro Leu Ser Glu
 20 25 30

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

Lys Tyr Met Gly Leu Arg Pro Arg Glu Ser Gln Ala Asp Ala Ile Phe
 50 55 60

Lys Gly Met Val Ala Asp Val Lys Gly Asn His Pro Ile Pro Ile Ser
 65 70 75 80

Asn Phe Met Asn Ala Gln Tyr Phe Ser Glu Ile Thr Ile Gly Thr Pro
 85 90 95

Pro Gln Ser Phe Lys Val Val Leu Asp Thr Gly Ser Ser Asn Leu Trp
 100 105 110

Val Pro Ser Val Glu Cys Gly Ser Ile Ala Cys Tyr Leu His Ser Lys
 115 120 125

Tyr Asp Ser Ser Ala Ser Ser Thr Tyr Lys Lys Asn Gly Thr Ser Phe
 130 135 140

Glu Ile Arg Tyr Gly Ser Gly Ser Leu Ser Gly Phe Val Ser Gln Asp
 145 150 155 160

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

Ala Thr Ser Glu Pro Gly Leu Ala Phe Ala Phe Gly Arg Phe Asp Gly
 180 185 190

Ile Leu Gly Leu Gly Tyr Asp Arg Ile Ser Val Asn Gly Ile Val Pro
 195 200 205

Pro Phe Tyr Lys Met Val Glu Gln Lys Leu Ile Asp Glu Pro Val Phe
 210 215 220

1632537_1

Ala Phe Tyr Leu Ala Asp Thr Asn Gly Gln Ser Glu Val Val Phe Gly
 225 230 235 240

Gly Val Asp His Asp Lys Tyr Lys Gly Lys Ile Thr Thr Ile Pro Leu
 245 250 255

Arg Arg Lys Ala Tyr Trp Glu Val Asp Phe Asp Ala Ile Ser Tyr Gly
 260 265 270

Asp Asp Thr Ala Glu Leu Glu Asn Thr Gly Ile Ile Leu Asp Thr Gly
 275 280 285

Thr Ser Leu Ile Ala Leu Pro Ser Gln Leu Ala Glu Met Leu Asn Ala
 290 295 300

Gln Ile Gly Ala Lys Lys Ser Tyr Thr Gly Gln Tyr Thr Ile Asp Cys
 305 310 315 320

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

Asn Phe Thr Leu Gly Pro Tyr Asp Tyr Val Leu Glu Val Gln Gly Ser
 340 345 350

Cys Ile Ser Thr Phe Met Gly Met Asp Phe Pro Ala Pro Thr Gly Pro
 355 360 365

Leu Ala Ile Leu Gly Asp Ala Phe Leu Arg Arg Tyr Tyr Ser Ile Tyr
 370 375 380

Asp Leu Gly Ala Asp Thr Val Gly Leu Ala Glu Ala Lys
 385 390 395

<210> 142
 <211> 396
 <212> PRT
 <213> Neurospora crassa

<400> 142

Met Lys Gly Ala Leu Leu Thr Ala Ala Met Leu Leu Gly Ser Ala Gln
 1 5 10 15

Ala Gly Val His Thr Met Lys Leu Lys Lys Val Pro Leu Ala Glu Gln
 20 25 30

Leu Glu Ser Val Pro Ile Asp Val Gln Val Gln His Leu Gly Gln Lys
 35 40 45

Tyr Thr Gly Leu Arg Thr Glu Ser His Thr Gln Ala Met Phe Lys Ala
 50 55 60

1632537_1

Thr Asp Ala Gln Val Ser Gly Asn His Pro Val Pro Ile Thr Asn Phe
65 70 75 80

Met Asn Ala Gln Tyr Phe Ser Glu Ile Thr Ile Gly Thr Pro Pro Gln
85 90 95

Thr Phe Lys Val Val Leu Asp Thr Gly Ser Ser Asn Leu Trp Val Pro
100 105 110

Ser Ser Gln Cys Gly Ser Ile Ala Cys Tyr Leu His Asn Lys Tyr Glu
115 120 125

Ser Ser Glu Ser Ser Thr Tyr Lys Lys Asn Gly Thr Ser Phe Lys Ile
130 135 140

Glu Tyr Gly Ser Gly Ser Leu Ser Gly Phe Val Ser Gln Asp Arg Met
145 150 155 160

Thr Ile Gly Asp Ile Thr Ile Asn Asp Gln Leu Phe Ala Glu Ala Thr
165 170 175

Ser Glu Pro Gly Leu Ala Phe Ala Phe Gly Arg Phe Asp Gly Ile Leu
180 185 190

Gly Leu Gly Tyr Asp Arg Ile Ala Val Asn Gly Ile Thr Pro Pro Phe
195 200 205

Tyr Lys Met Val Glu Gln Lys Leu Val Asp Glu Pro Val Phe Ser Phe
210 215 220

Tyr Leu Ala Asp Gln Asp Gly Glu Ser Glu Val Val Phe Gly Gly Val
225 230 235 240

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

Lys Ala Tyr Trp Glu Val Asp Phe Asp Ala Ile Gly Tyr Gly Lys Asp
260 265 270

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

Leu Ile Ala Leu Pro Ser Gln Leu Ala Glu Met Leu Asn Ala Gln Ile
290 295 300

Gly Ala Lys Lys Ser Trp Asn Gly Gln Phe Thr Ile Asp Cys Gly Lys
305 310 315 320

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

1632537_1

Thr Leu Gly Pro Glu Asp Tyr Ile Leu Glu Ala Ser Gly Ser Cys Leu
340 345 350

Ser Thr Phe Met Gly Met Asp Met Pro Ala Pro Val Gly Pro Leu Ala
355 360 365

Ile Leu Gly Asp Ala Phe Leu Arg Lys Tyr Tyr Ser Ile Tyr Asp Leu
370 375 380

Gly Ala Asp Thr Val Gly Ile Ala Thr Ala Lys Arg
385 390 395

<210> 143
<211> 454
<212> PRT
<213> Myceliophthora thermophila

<400> 143

Met Lys Phe Ala Ala Leu Ala Leu Ala Ala Ser Leu Val Ala Ala Ala
1 5 10 15

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

Gly Gly Thr Lys Phe Lys Leu Gly Gln Ile His Asn Asp Leu Phe Arg
35 40 45

Gln His Gly Arg Gly Pro Arg Ala Leu Ala Lys Ala Tyr Glu Lys Tyr
50 55 60

Asn Ile Glu Leu Pro Pro Asn Leu Leu Glu Val Val Gln Arg Ile Leu
65 70 75 80

Lys Asp Leu Gly Ile Glu Pro His Ser Lys Lys Ile Pro Gly Ser Lys
85 90 95

Ser Ser Tyr Gly Asn Gly Ala Pro Tyr Thr Asn Glu Thr Asp Asp Ser
100 105 110

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

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

Thr Gly Ser Ser Asp Leu Trp Val Phe Ser Ser Glu Thr Pro Ser Arg
145 150 155 160

Gln Gln Asn Gly Gln Lys Ile Tyr Lys Ile Glu Glu Ser Ser Thr Ala
165 170 175

1632537_1
Arg Arg Leu Ser₁₈₀ Asn His Thr Trp Ser₁₈₅ Ile Gln Tyr Gly Asp₁₉₀ Gly Ser
Arg Ser Ala Gly Asn Val Tyr Leu₂₀₀ Asp Thr Val Ser Val₂₀₅ Gly Gly Val
Asn Val₂₁₀ Phe Asn Gln Ala Val₂₁₅ Glu Ser Ala Thr Phe Val Ser Ser Ser
Phe Val Thr Asp Ala Ala₂₃₀ Ser Ser Gly Leu Leu₂₃₅ Gly Leu Gly Phe Asp₂₄₀
Ser Ile Asn Thr Val₂₄₅ Lys Pro Thr Lys Gln₂₅₀ Lys Thr Phe Ile Ser₂₅₅ Asn
Ala Leu Glu Ser₂₆₀ Leu Glu Met Gly Leu₂₆₅ Phe Thr Ala Asn Leu₂₇₀ Lys Lys
Ala Glu Pro Gly Asn Tyr Asn Phe₂₈₀ Gly Phe Ile Asp Glu₂₈₅ Thr Glu Phe
Val Gly₂₉₀ Pro Leu Ser Phe Ile₂₉₅ Asp Val Asp Ser Thr₃₀₀ Asp Gly Phe Trp
Gln Phe Asp Ala Thr Gly₃₁₀ Tyr Ser Ile Gln Leu₃₁₅ Pro Glu Pro Ser Gly₃₂₀
Asn Ile Thr Gly Thr₃₂₅ Pro Phe Arg Ala Val₃₃₀ Ala His Thr Ala Ile₃₃₅ Ala
Asp Thr Gly Thr₃₄₀ Thr Leu Leu Leu Leu₃₄₅ Pro Pro Gly Ile Ala₃₅₀ Gln Ala
Tyr Tyr Trp₃₅₅ Gln Val Gln Gly Ala₃₆₀ Arg Gln Ala Pro Glu₃₆₅ Val Gly Gly
Trp Val₃₇₀ Met Pro Cys Asn Ala₃₇₅ Ser Met Pro Asp Leu₃₈₀ Thr Leu His Ile
Gly Thr Tyr Lys Ala Val₃₉₀ Ile Pro Gly Glu Leu₃₉₅ Ile Pro Tyr Ala Pro₄₀₀
Val Asp Thr Asp Asp₄₀₅ Met Asp Thr Ala Thr₄₁₀ Val Cys Tyr Gly Gly₄₁₅ Ile
Gln Ser Ala Ser₄₂₀ Gly Met Pro Phe Ala₄₂₅ Ile Tyr Gly Asp Ile₄₃₀ Phe Phe
Lys Ala Gln₄₃₅ Phe Thr Val Phe Asp₄₄₀ Val Glu Asn Leu Lys₄₄₅ Leu Gly Phe

Ala Pro Lys Pro Glu Leu
450

<210> 144
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<212> PRT
<213> Myceliophthora thermophila
<400> 144

Met Ala Ile Pro Val Leu Phe Ser Ala Leu Val Leu Leu Val Ala Leu
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Leu Cys Cys His Ala Thr Ala Ala Leu Gln Gln Leu Ala His Asp Val
20 25 30

Gly Cys Val His Leu Pro Val Val His Ser Thr Lys Val Asp Arg Phe
35 40 45

Ser Asp Lys Arg Gly Ile Gln Leu Gln Leu Ala Asn Arg Ser Asp Val
50 55 60

Ala Tyr Tyr Ala Gln Leu Ser Ile Gly Thr Pro Pro Gln Pro Val Phe
65 70 75 80

Val Gln Leu Asp Thr Gly Ser Phe Glu Leu Trp Val Asn Pro Asp Cys
85 90 95

Thr Thr Val Ser Gly Ser Asp Ala Val Phe Cys Glu Arg Ala Gly Arg
100 105 110

Tyr Asp Val Thr Lys Ser Ser Thr Ala Thr Ser Leu Gly Thr Asn Arg
115 120 125

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

Thr Ile Ser Leu Ala Gly Ser Pro Met Met Leu Gln Asp Val Gln Phe
145 150 155 160

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

Gly Tyr Gly Lys Gly Ile Gly Thr Gly Tyr Pro Asn Phe Val Asp Gln
180 185 190

Leu Trp Glu Gln Asn Val Thr Arg Val Lys Ala Tyr Thr Leu Ala Leu
195 200 205

Gly Ser Lys Asp Ser Gln Glu Gly Val Ile Val Phe Gly Gly Val Asp
210 215 220

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

<210> 145

<211> 518
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<400> 145

Met Ala Ala Phe Pro Phe Leu Ser Ala Ser Phe Val Leu Leu Gln Leu
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His Leu Thr Gly His Thr Pro Gly Asp Gly Cys Val His Leu Pro Ile
 35 40 45

Ile His Ser Thr Asn Thr Asp His Phe Ala Arg Arg Gly Ile Gln Leu
 50 55 60

Ala Leu Asn Asn Arg Ser Asp Val Ala Tyr Tyr Ala Gln Leu Glu Ile
 65 70 75 80

Gly Thr Pro Pro Gln Thr Val Tyr Thr Gln Leu Asp Thr Gly Ser Phe
 85 90 95

Glu Leu Trp Val Asn Pro Asp Cys Thr Thr Val Ser Pro Ser Asp Ser
 100 105 110

Ser Phe Cys Asp His Ile Gly Phe Tyr Asn Ala Ser Leu Ser Ser Thr
 115 120 125

Ser Lys Ser Leu Gly Thr Ser Lys Thr Leu Arg Tyr Gly Ile Gly Ala
 130 135 140

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

Thr Ser Leu Lys Asp Ile Gln Phe Gly Val Ala Thr Ser Ser Lys Asp
 165 170 175

Ala Phe Ser Gly Ile Leu Gly Ile Gly Tyr Gly Gln Gly Leu Ala Thr
 180 185 190

Lys Tyr Pro Asn Phe Ile Asp Gln Leu Tyr Ala Gln Lys Ile Thr Lys
 195 200 205

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

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

Gly Arg Leu Pro Ile Ile Pro Ala Glu Asp Ser Pro Asp Gly Val Pro
 245 250 255

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

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<210> 146
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 <212> PRT
 <213> Myceliophthora thermophila

<400> 146

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Met Arg Gly Tyr Ala Ala Val Ala Phe Gly Ala Ile Leu Ala Gly Ala
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Val His Ala Ser Ala Gly Asn Gly Val Val Gln Trp Asp Ile Arg Arg
      20      25      30

Thr Gln Arg Gln Glu Glu Leu Gln Arg Leu Asn Arg Arg Leu Arg Lys
      35      40      45

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

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

Leu Gln Leu Asp Thr Gly Ser Ser Asp Ile Trp Val Pro Asp Ser Ala
      85      90      95

Ala Gln Val Cys Arg Glu Ile Gly Thr Glu Gly Cys Ala Leu Gly Thr
      100      105      110

Phe Asn Pro Asn Arg Ser Ser Ser Phe Glu Val Ile Gly Glu Gly Gln
      115      120      125

Phe Asp Ile Glu Tyr Val Asp Gly Ser Ser Ser Lys Gly Asp Tyr Phe
      130      135      140

Thr Asp Val Phe Gln Ile Gly Asp Ile Ser Val Gln Asn Met Thr Met
      145      150      155      160

Gly Leu Gly Leu His Thr Asp Ile Ala Tyr Gly Leu Val Gly Val Gly
      165      170      175

Tyr Ala Ile Asn Glu Ala Ile Val Ala Thr Thr Gln Ser Arg Asp Ser
      180      185      190

Val Tyr Pro Asn Leu Pro Val Gln Met Val Asp Gln Gly Leu Ile Asn
      195      200      205

Thr Val Ala Tyr Ser Leu Trp Leu Asn Asp Leu Asp Ala Ser Ser Gly
      210      215      220

Ser Ile Leu Phe Gly Gly Ile Asp Thr Glu Lys Tyr Gln Gly Glu Leu
      225      230      235      240
    
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Thr Arg Ile Asp Ile Tyr Pro Thr Ser Gln Gly Asp Phe Ser Ser Phe
 245 250 255
 Val Val Ala Leu Thr Ser Leu Glu Ala Arg Ser Pro Ser Gly Gln Asp
 260 265 270
 Thr Leu Thr Ser Gln Glu Phe Pro Ile Pro Val Val Leu Asp Ser Gly
 275 280 285
 Thr Thr Leu Ser Tyr Leu Pro Thr Asp Leu Ala Thr Gln Ala Trp Lys
 290 295 300
 Glu Val Gly Ala Phe Tyr Leu Pro Glu Val Gly Ala Ala Val Leu Pro
 305 310 315 320
 Cys Asp Met Glu Asn Ser Lys Gly Ser Phe Ser Phe Gly Phe Ala Gly
 325 330 335
 Pro Asp Gly Pro Arg Ile Thr Val Gly Met Asp Glu Leu Val Leu Asp
 340 345 350
 Met Thr Asp Gly Gln Ala Pro Gln Phe Leu Ser Gly Pro Tyr Lys Gly
 355 360 365
 Arg Asp Val Cys Gln Phe Gly Ile Gln Asn Phe Thr Ser Ala Pro Phe
 370 375 380
 Leu Leu Gly Asp Thr Phe Leu Arg Ser Ala Tyr Val Val Tyr Asp Leu
 385 390 395 400
 Val Asn Asn Gln Ile Gly Ile Ala Ala Thr Asp Phe Asn Ser Thr Asp
 405 410 415
 Ser Asn Ile Val Pro Phe Pro Ser Met Gly Ala Pro Ile Pro Ser Ala
 420 425 430
 Thr Val Ala Ala Asn Gln Arg Glu Val Thr Arg Val Pro Thr Val Thr
 435 440 445
 Glu Pro Ala Tyr Ser Ala Ser Gln Gly Phe Met Glu Ser Ala Ser Gly
 450 455 460
 Glu Glu Ser Leu Ala Pro Gly Met Pro Ala Ala Trp Gly Met Gly Gln
 465 470 475 480
 Leu Leu Val Val Gly Val Thr Met Ala Leu Thr Ala Leu Gly Ser Gly
 485 490 495
 Leu Phe Phe Val Leu
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<210> 147
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 <212> PRT
 <213> Neurospora crassa

<400> 147

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

Arg Ala Gly Pro Thr His Gln Ala Ile Leu Gln Asn Glu Gln Ala Arg
 50 55 60

Gly Gly Tyr Phe Ala Thr Cys Ala Met Gly Thr Pro Gly Gln Lys Val
 65 70 75 80

Thr Leu Gln Leu Asp Thr Gly Ser Ser Asp Val Trp Val Pro Asp Ser
 85 90 95

Thr Ala Ser Ile Cys Asn Lys Gly Ala Cys Asp Leu Gly Ser Trp Gln
 100 105 110

Gly Glu Phe Asp Ile Ser Tyr Val Asp Gly Ser Ser Ser Lys Gly Asp
 115 120 125

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

Thr Met Gly Leu Gly Ala Gln Thr Asp Ile Ala Tyr Gly Leu Val Gly
 145 150 155 160

Ile Gly Tyr Ala Ile Asn Glu Ala Ile Val Gly Asn Ser His Ser Leu
 165 170 175

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

Ile Asn Thr Ile Ala Tyr Ser Leu Trp Leu Asn Asp Leu Asp Ala Gly
 195 200 205

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

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

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Ser Phe Ile Val Ala₂₄₅ Leu Thr Ser Leu Gln₂₅₀ Ala Ile Ser Pro Ser Gly₂₅₅
 Asn Asp Thr Leu₂₆₀ Thr Ser Gln Glu Phe₂₆₅ Pro Ile Pro Val Val₂₇₀ Leu Asp
 Ser Gly Thr₂₇₅ Thr Leu Ser Tyr Leu₂₈₀ Pro Gln Asp Ile Val₂₈₅ Asp Gln Ile
 Trp Gln Glu Val Gly Ala Glu₂₉₅ Tyr Ser Asp Arg Leu₃₀₀ Glu Leu Ala Val
 Ile₃₀₅ Pro Cys Ser Lys Lys₃₁₀ Ser Ser Asn Gly Tyr₃₁₅ Phe Ser Phe Gly Phe₃₂₀
 Ala Gly Pro Asp Gly₃₂₅ Pro Arg Ile Thr Val₃₃₀ Arg Met Asp Glu Leu₃₃₅ Val
 Leu Asp Leu Thr₃₄₀ Ser Gly Asp Pro Pro₃₄₅ Lys Tyr Thr Ser Gly₃₅₀ Pro Asn
 Lys Gly Gln₃₅₅ Asp Val Cys Glu Phe₃₆₀ Gly Ile Gln Asn Ser₃₆₅ Thr Ser Ala
 Pro Tyr₃₇₀ Leu Leu Gly Asp Thr₃₇₅ Phe Leu Arg Ser Ala₃₈₀ Tyr Val Val Tyr
 Asp₃₈₅ Leu Val Asn Asn Glu₃₉₀ Ile Gly Leu Ala Glu₃₉₅ Thr Asp Phe Asn Ser₄₀₀
 Thr Glu Ser Asn Ile₄₀₅ Val Ala Phe Ala Ser₄₁₀ Met Ser Ala Thr Ile₄₁₅ Pro
 Ser Ala Thr Gln₄₂₀ Ala Pro Asn Gln Ala₄₂₅ Ala Val Thr Asn Arg Pro Val
 Ala Thr Met₄₃₅ Pro Ser Phe Ala Ala₄₄₀ Ser Ser Gly Phe Ser₄₄₅ Asp Thr Gly
 Gly Ser₄₅₀ Gly Asn Asp Gly Lys₄₅₅ Asp Glu Asn Ala Ser₄₆₀ Ala Gly Met Pro
 Ser Ala Phe Gly Val Ala₄₇₀ Gln Met Ser Val Met₄₇₅ Gly Ile Ala Met Val₄₈₀
 Phe Ala Met Val Gly₄₈₅ Ser Gly Val Phe Val₄₉₀ Leu Leu

<210> 148
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 <212> PRT
 <213> Myceliophthora thermophila

1632537_1

<400> 148

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

260

265

270

Thr Pro Asp Gly Gly Lys Gly Gln Pro Val Leu Leu Asp Ser Gly Tyr
 275 280 285

Thr Leu Ser Ala Leu Pro Arg Pro Ile Phe Gln Lys Leu Val Ala Ala
 290 295 300

Phe Pro Ser Ala Gln Tyr Val Ser Ser Ala Asp Val Tyr Val Val Asp
 305 310 315 320

Cys Val Asp His Gly Glu Gly Gly Ser Leu Asp Phe Ile Phe Gly Gly
 325 330 335

Lys Thr Ile Asn Val Pro Tyr His Glu Phe Val Trp Ala Gln Pro Glu
 340 345 350

Ser Asn Thr Cys Val Leu Gly Ala Phe Glu Asp Asp Phe Pro Val Leu
 355 360 365

Gly Asp Thr Phe Leu Arg Ser Ala Tyr Val Val Tyr Asp Trp Asp Asn
 370 375 380

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

Ala Ile Gly Ser Gly Pro Asp Ala Val Pro Ser Ile Val Gly Glu Cys
 405 410 415

Gly Lys Pro Lys Pro Thr Ser Thr Ser Thr Phe Ser Lys Thr Ser Ser
 420 425 430

Lys Thr Ser Thr Ala Ser Lys Thr Ser Ser Thr Ser Asp Ser Thr Ser
 435 440 445

Ser Ser Ser Ser His Val Thr Thr Ser Ser Ser Thr Thr Ala Thr
 450 455 460

Thr Leu Ser Thr His Lys Pro Pro Phe Pro Thr Ala Ser Gly Asn Phe
 465 470 475 480

Thr Thr Thr Arg Ser Pro Thr Thr Thr Thr Ala Ser Ser Thr Ile Ser
 485 490 495

Lys Ser Thr Leu Thr Ile Thr Ser Ala Thr Thr Tyr Thr Ile Thr Ser
 500 505 510

Cys Pro Pro Thr Val Thr Arg Cys Pro Ala His Glu Val Thr Thr Glu
 515 520 525

Ile Ile Thr Lys Thr Thr Ala Val Cys Pro Glu Thr Thr Ala Thr Tyr
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1632537_1
540

530

535

Thr Ile Pro Arg Thr Ile Thr Cys Pro Gly Ser Gly Gly Gly Asp Asp
545 550 555 560

Cys Pro Pro Gly Ala Thr Arg Thr Thr Thr Leu Thr Val Thr Leu Ser
565 570 575

Pro Val Gly Pro Thr Asp Arg Thr Thr His Val Val Pro Gly Val Thr
580 585 590

Thr Thr Thr Pro Thr Thr Ile Thr Ala Pro Pro Thr Gly Gln Thr Thr
595 600 605

Thr Thr Leu Val Pro Ala Leu Pro Pro Thr Thr Thr Thr Met Ser Gly
610 615 620

His Arg Gly Ile Asn Gly Thr Val Thr Ala Thr Ser Lys Pro Pro Ala
625 630 635 640

Val Thr Ala Gly Ser Ala Lys Val Gly Leu Val Ser Gly Ala Thr Ala
645 650 655

Ile Val Ala Gly Val Met Ala Val Leu Met Ala Leu
660 665

<210> 149
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<212> PRT
<213> Neurospora crassa

<400> 149

Met Leu Pro Val Pro Leu Thr Thr Leu Ser Leu Tyr Val Val Ala Leu
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Leu Ser Pro Pro Ala Ala Ala Gly Val Leu Ala Ser Ala Thr Thr Lys
20 25 30

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

Thr Ala Ala Ser Pro Ser Leu Thr Ser Arg Ser Ser Ser Ser Gly Asn
50 55 60

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

Leu Arg Arg Arg Gln Glu Asp Glu Gly Leu Lys Asn Gln Asn Leu Gly
85 90 95

Thr Thr Tyr Thr Ile Asp Ile Asp Ile Gly Thr Pro Pro Gln Thr Val
100 105 110

1632537_1

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

1632537_1

Val Cys Val Val Gly Val Leu Pro Thr Asp Asp Glu Pro Val Phe Gly
385 390 395 400

Asp Ser Phe Leu Arg Ala Ala Tyr Val Val Phe Asp Gln Asp Asn Arg
405 410 415

Asn Leu His Leu Ala Gln Ala Ala Asn Cys Gly Glu Gln Ile Val Glu
420 425 430

Ile Gly Ser Gly Gln Asp Ala Val Pro Ser Ser Thr Gly Lys Cys Lys
435 440 445

Asp Gly Ser Ala Gly Ser Thr Lys Thr Ala Gly Gly Gly Gly Leu Asp
450 455 460

Val Thr Ala Thr Arg Ala Pro Thr Arg Thr Ala Gly Gly Ser Gly Pro
465 470 475 480

Ala Val Thr Asn Ser Asp Phe Gly Pro Gly Pro Ala Gly Thr Arg Val
485 490 495

Ser Thr Gly Gly Ile Gly Leu Pro Thr Gly Thr Gly Gly Gly Gly Gly
500 505 510

Ser Gly Asp Gly Asn Gly Asn Asn Asp Asp Asp Asp Ser Ala Ala Ser
515 520 525

Gly Leu Asp Val Gly Val Thr Ala Ala Ala Val Leu Ala Gly Leu Asn
530 535 540

Met Leu Ile Val Trp Leu Leu
545 550

<210> 150
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<212> PRT
<213> Neurospora crassa

<400> 150

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

Phe Arg Val Gly Asn Val Arg Gln Asn Val Lys Arg Asp Thr Tyr Ser
35 40 45

Gln Ala Leu Ile Asn Asn Ile Thr Gly Gly Ala Tyr Tyr Ala Glu Val
50 55 60

1632537_1

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

1632537_1

Gly Ala Asn Ala Thr Ile Ser Val Pro Val Trp Glu Leu Val Leu Asp
340 345 350

Leu Leu Gly Glu Ser Gln Ser Glu Leu Pro Phe Lys Met Pro Phe Lys
355 360 365

Asn Ala Cys Ile Phe Gly Ile Gln Ser Thr Ala Gly Phe Gln Glu Asp
370 375 380

Asn Phe Asp Glu Asp Trp Ala Leu Leu Gly Glu Thr Phe Leu Arg Ser
385 390 395 400

Ala Tyr Val Val Tyr Asp Leu Thr His His Gln Ile Gly Ile Ala Gln
405 410 415

Ala Asn Leu Asn Ser Thr Thr Thr Asp Ile Val Glu Leu Ser Gly Ala
420 425 430

Asp Gly Gly Leu Pro Thr Gly Leu Thr Gly Val Lys Glu Gln Gln Thr
435 440 445

Ser Asn Asp Pro Ser Gly Asn Ala Gly Ser Gly Ser Gly Ser Ser Thr
450 455 460

Asp Lys Asp Gly Ala Lys Glu Thr Glu Thr Val Thr Ala Gly Ser Thr
465 470 475 480

Ala Ala Thr Gly Thr Ala Ala Ser Gly Ala Lys Glu Thr Asp Ser Ala
485 490 495

Ala Ala Gly Leu Ser Ala Arg Gly Gly Ala Val Gly Ala Leu Ala Val
500 505 510

Ala Ser Leu Thr Gly Phe Leu Ala Leu Val Gly Gly Ala Val Val Ala
515 520 525

Leu

<210> 151
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<212> PRT
<213> Myceliophthora thermophila

<400> 151

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

1632537_1

Arg Thr Pro₃₅ Leu Ser Phe Pro₄₀ Leu Thr Arg Arg₄₅ Glu Thr Tyr Ser
 Glu Arg₅₀ Leu Ile Asn Asn₅₅ Ile Ala Gly Gly Gly Tyr₆₀ Tyr Val Gln Val
 Gln Val Gly Thr Pro₇₀ Gln Asn Leu Thr Met₇₅ Leu Leu Asp Thr Gly₈₀
 Ser Ser Asp Ala Trp₈₅ Val Leu Ser His Glu₉₀ Ala Asp Leu Cys Ile₉₅ Ser
 Pro Ala Leu Gln₁₀₀ Asp Phe Tyr Gly Met₁₀₅ Pro Cys Thr Asp Thr₁₁₀ Tyr Asp
 Pro Ser Lys₁₁₅ Ser Ser Ser Lys Lys₁₂₀ Met Val Glu Glu Gly₁₂₅ Gly Phe Lys
 Ile Thr Tyr Leu Asp Gly Gly₁₃₅ Thr Ala Ser Gly Asp₁₄₀ Tyr Ile Thr Asp
 His Phe Thr Ile Gly Gly₁₅₀ Val Thr Val Gln Ser₁₅₅ Leu Gln Met Ala Cys₁₆₀
 Val Thr Lys Ala Val₁₆₅ Arg Gly Thr Gly Ile₁₇₀ Leu Gly Leu Gly Phe Ser₁₇₅
 Ile Ser Glu Arg₁₈₀ Ala Ser Thr Lys Tyr₁₈₅ Pro Asn Ile Ile Asp₁₉₀ Glu Met
 Tyr Ser Gln₁₉₅ Gly Leu Ile Lys Ser₂₀₀ Lys Ala Phe Ser Leu₂₀₅ Tyr Leu Asn
 Asp Arg₂₁₀ Arg Ala Asp Ser Gly₂₁₅ Thr Leu Leu Phe Gly₂₂₀ Gly Ile Asp Thr
 Asp Lys Phe Ile Gly Pro₂₃₀ Leu Gly Val Leu Pro₂₃₅ Leu His Lys Pro Pro₂₄₀
 Gly Asp Arg Asp Tyr₂₄₅ Ser Ser Phe Glu Val₂₅₀ Asn Phe Thr Ser Val₂₅₅ Ser
 Leu Thr Tyr Thr₂₆₀ Asn Gly Ser Arg His₂₆₅ Thr Ile Pro Thr Ala₂₇₀ Ile Leu
 Asn His Pro₂₇₅ Ala Pro Ala Val Leu₂₈₀ Asp Ser Gly Thr Thr₂₈₅ Leu Ser Tyr
 Leu Pro₂₉₀ Asp Glu Leu Ala Asp₂₉₅ Pro Ile Asn Thr Ala₃₀₀ Leu Asp Thr Phe

1632537_1

Tyr Asp Asp Arg Leu Gln Met Thr Leu Ile Asp Cys Ser His Pro Leu
 305 310 315 320
 Leu Arg Thr Asp Pro Asp Phe His Leu Ala Phe Thr Phe Thr Pro Thr
 325 330 335
 Thr Ser Ile Thr Val Pro Leu Gly Asp Leu Val Leu Asp Ile Leu Pro
 340 345 350
 Pro Thr Tyr Pro Gln Ser Asn Ser Asn Asn Asn Asn Glu Val Glu Asp
 355 360 365
 Asp Asp Asp Asp Asp Asp Asp Asp Asp Asp Asp Lys Val Pro Pro
 370 375 380
 Ala Thr Glu Arg Arg Trp Cys Val Phe Gly Ile Gln Ser Thr Thr Arg
 385 390 395 400
 Phe Ala Ala Ser Ser Gly Gln Ser Glu Ala Asn Phe Thr Leu Leu Gly
 405 410 415
 Asp Thr Phe Leu Arg Ser Ala Tyr Val Val Tyr Asp Leu Ser His Tyr
 420 425 430
 Gln Ile Gly Leu Ala Gln Ala Asn Leu Asn Ser Ser Ser Ser Thr
 435 440 445
 Asn Thr Asn Thr Ile Val Glu Leu Thr Ala Asp Asn His Asp Asp Gly
 450 455 460
 Ala Ser Glu Arg Gly Glu Gly Ala Gly Ala Gly Ala Asp Ala Gly Thr
 465 470 475 480
 Arg Thr Val Ile Ala Gly Gly Leu Pro Ser Gly Leu Met Gly Val Glu
 485 490 495
 Ala Gln Gln Thr Thr Phe Thr Pro Thr Ala Thr Ala Asn Gly His Pro
 500 505 510
 Gly Tyr Gly Gly Gly Pro Gly Gly Ser Thr Arg Pro Gly Ser Glu Arg
 515 520 525
 Asn Ala Ala Ala Gly Gly Phe Thr Ala Val Arg Thr Gly Leu Leu Gly
 530 535 540
 Glu Leu Val Gly Val Ala Ala Val Thr Ala Leu Phe Ile Leu Leu Gly
 545 550 555 560
 Gly Ala Leu Ile Ala Val
 565

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<210> 152
 <211> 897
 <212> PRT
 <213> Myceliophthora thermophila

<400> 152

Met Val Arg Leu Asp Trp Ala Ala Val Leu Leu Ala Ala Thr Ala Val
 1 5 10 15

Ala Lys Ala Val Thr Pro His Thr Pro Ser Phe Val Pro Gly Ala Tyr
 20 25 30

Ile Val Glu Tyr Glu Glu Asp Gln Asp Ser His Ala Phe Val Asn Lys
 35 40 45

Leu Gly Gly Lys Ala Ser Leu Arg Lys Asp Leu Arg Phe Lys Leu Phe
 50 55 60

Lys Gly Ala Ser Ile Gln Phe Lys Asp Thr Glu Thr Ala Asp Gln Met
 65 70 75 80

Val Ala Lys Val Ala Glu Met Pro Lys Val Lys Ala Val Tyr Pro Val
 85 90 95

Arg Arg Tyr Pro Val Pro Asn His Val Val His Ser Thr Gly Asn Val
 100 105 110

Ala Asp Glu Val Leu Val Lys Arg Gln Ala Ala Gly Asn Asp Thr Phe
 115 120 125

Ser Thr His Leu Met Thr Gln Val Asn Lys Phe Arg Asp Ala Gly Ile
 130 135 140

Thr Gly Lys Gly Ile Lys Ile Ala Val Ile Asp Thr Gly Ile Asp Tyr
 145 150 155 160

Leu His Glu Ala Leu Gly Gly Cys Phe Gly Pro Asp Cys Leu Val Ser
 165 170 175

Tyr Gly Thr Asp Leu Val Gly Asp Asp Phe Asn Gly Ser Asn Thr Pro
 180 185 190

Lys Pro Asp Pro Asp Pro Ile Asp Asn Cys Gln Gly His Gly Thr His
 195 200 205

Val Ala Gly Ile Ile Ala Ala Gln Thr Asn Asn Pro Phe Gly Ile Ile
 210 215 220

Gly Ala Ala Thr Asp Val Thr Leu Gly Ala Tyr Arg Val Phe Gly Cys
 225 230 235 240

Asn Gly Asp Thr Pro Asn Asp Val Leu Ile Ala Ala Tyr Asn Met Ala
 Page 134

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

515

520

525

Thr Ser Met Ala Cys Pro Leu Ala Ala Ala Ile Tyr Ala Leu Leu Ile
 530 535 540

Asn Thr Arg Gly Thr Lys Asp Pro Lys Thr Leu Glu Asn Leu Ile Ser
 545 550 555 560

Ser Thr Ala Arg Pro Asn Leu Phe Arg Leu Asn Gly Glu Ser Leu Pro
 565 570 575

Leu Leu Ala Pro Val Pro Gln Gln Gly Gly Gly Ile Val Gln Ala Trp
 580 585 590

Asp Ala Ala Gln Ala Thr Thr Leu Leu Ser Val Ser Ser Leu Ser Phe
 595 600 605

Asn Asp Thr Asp His Phe Lys Pro Val Gln Thr Phe Thr Ile Thr Asn
 610 615 620

Thr Gly Lys Lys Ala Val Thr Tyr Ser Leu Ser Asn Val Gly Ala Ala
 625 630 635 640

Thr Ala Tyr Thr Phe Ala Asp Ala Lys Ser Ile Glu Pro Ala Pro Phe
 645 650 655

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

Arg Leu Thr Ile Pro Ala Gly Lys Arg Gln Thr Val Thr Val Ile Ala
 675 680 685

Lys Pro Ser Glu Gly Val Asp Ala Lys Arg Leu Pro Val Tyr Ser Gly
 690 695 700

Tyr Ile Ala Ile Asn Gly Ser Asp Ser Ser Ala Leu Ser Leu Pro Tyr
 705 710 715 720

Leu Gly Val Val Gly Ser Leu His Ser Ala Val Val Leu Asp Ser Asn
 725 730 735

Gly Ala Arg Ile Ser Leu Ala Ser Asp Asp Thr Asn Lys Pro Leu Pro
 740 745 750

Ala Asn Thr Ser Phe Val Leu Pro Pro Ala Gly Phe Pro Asn Asp Thr
 755 760 765

Ser Tyr Ala Asn Ser Thr Asp Leu Pro Lys Leu Val Val Asp Leu Ala
 770 775 780

Met Gly Ser Ala Leu Leu Arg Ala Asp Val Val Pro Leu Ser Gly Gly
 Page 136

785 790 795 800

Ala Ala Thr Ala Thr 805 Ala Arg Leu Thr Arg 810 Thr Val Phe Gly Thr 815 Arg

Thr Ile Gly Gln 820 Pro Tyr Gly Leu Pro 825 Ala Arg Tyr Asn Pro 830 Arg Gly

Thr Phe Glu 835 Tyr Ala Trp Asp Gly 840 Arg Leu Asp Asp Gly 845 Ser Tyr Ala

Pro Ala Gly Arg Tyr Arg Phe 855 Ala Val Lys Ala Leu Arg 860 Ile Phe Gly

Asp Ala Lys Arg Ala Arg 870 Glu Tyr Asp Ala 875 Ala Glu Thr Val Glu Phe 880

Asn Ile Glu Tyr Leu 885 Pro Gly Pro Ser Ala 890 Lys Phe Arg Arg Arg 895 Leu

Phe

<210> 153

<211> 876

<212> PRT

<213> Neurospora crassa

<400> 153

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

Ala Gln Ala Ala 20 His Gln Lys Ala 25 Pro Ala Val Val Pro 30 Gly Ala Tyr

Ile Val Glu 35 Tyr Glu Asp Ser 40 His Asp Pro Thr Ser 45 Ile Leu Ala Ser

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

Lys 65 Gly Ala Ser Phe 70 Gln Phe Lys Asp Leu 75 Asn Lys Ala Asp Asp 80 Leu

Ala Ser Lys Val 85 Ala Ala Met Ser Gly 90 Val Lys Ala Leu Tyr 95 Pro Val

Arg Arg Tyr 100 Ser Ile Pro Glu His 105 Thr Val His Ser Thr 110 Gly Ser Ala

Val Gln Glu 115 Val Val Ala Lys 120 Arg Asp Thr Gly Asn 125 Asp Thr Phe Ser

1632537_1

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

1632537_1

Phe Val Gln Lys Ala₄₀₅ Gln Asn Ala Ala Ala₄₁₀ Lys Gly Ala Lys Tyr₄₁₅ Ile
 Ile Tyr Tyr Asn₄₂₀ Asn Ala Ser Gly₄₂₅ Thr Lys Val Asp₄₃₀ Val Ser Ala
 Val Ala Asp₄₃₅ Val Lys Ala Ala Ala₄₄₀ Met Val Thr Ser Glu₄₄₅ Thr Gly Ala
 Ala Trp₄₅₀ Ile Lys Ala Leu Gln₄₅₅ Ala Gly Thr Gln Val₄₆₀ Thr Val Asn Met
 Ala₄₆₅ Asp Pro Glu Thr Ala₄₇₀ Pro Lys Asn Leu Asn₄₇₅ Asn Phe Pro Asn Thr₄₈₀
 Ala Thr Pro Gly Phe₄₈₅ Leu Ser Thr Tyr Thr₄₉₀ Ser Trp Gly Pro Thr₄₉₅ Tyr
 Glu Val Asp Val₅₀₀ Lys Pro Gln Ile Ser₅₀₅ Ser Pro Gly Gly Met₅₁₀ Ile Leu
 Ser Thr Tyr₅₁₅ Pro Arg Ala Leu Gly₅₂₀ Ser Tyr Ala Val Leu₅₂₅ Ser Gly Thr
 Ser Met₅₃₀ Ala Cys Pro Leu Ala₅₃₅ Ala Ala Thr Trp Ala₅₄₀ Leu Val Met Gln
 Lys₅₄₅ Arg Gly Thr Lys Asp₅₅₀ Pro Lys Val Leu Glu₅₅₅ Asn Leu Phe Ser Ala₅₆₀
 Thr Ala His Pro Asn₅₆₅ Leu Phe Asn Asp Gly₅₇₀ Thr Lys Thr Tyr Pro Met₅₇₅
 Leu Ala Pro Val₅₈₀ Ala Gln Gln Gly Ala₅₈₅ Gly Leu Ile Gln Ala₅₉₀ Trp Asp
 Ala Ala Asn₅₉₅ Ala Asn Ala Leu Leu₆₀₀ Ser Val Ser Ser Ile₆₀₅ Ser Phe Asn
 Asp Thr₆₁₀ Glu His Phe Lys Pro₆₁₅ Leu Gln Ser Phe Glu₆₂₀ Val Thr Asn Thr
 Gly₆₂₅ Lys Lys Ala Val Thr₆₃₀ Tyr Gln Leu Gly His₆₃₅ Thr Ser Ala Ala Thr₆₄₀
 Ala Tyr Thr Phe Ala₆₄₅ Asn Asp Thr Ser Ile₆₅₀ Gly Pro Ala Ala Phe₆₅₅ Pro
 Asn Glu Leu Val₆₆₀ Asp Ala Lys Ala Thr₆₆₅ Leu Val Leu Thr Pro₆₇₀ Ala Lys

1632537_1

Leu Thr Leu Asn Pro Gly Gln Lys Lys Thr Val Thr Val Leu Ala Ile
675 680 685

Pro Pro Leu Gly Leu Asp Ala Lys Arg Leu Pro Val Tyr Ser Gly Tyr
690 695 700

Ile Thr Leu Asn Gly Thr Asp Ser Thr Gly Tyr Ser Leu Pro Tyr Gln
705 710 715 720

Gly Val Val Gly Ser Met Arg Ser Val Thr Val Leu Asp Lys Gln Asn
725 730 735

Ser Tyr Leu Ser Gln Ser Ser Asp Ala Thr Tyr Ala Pro Val Ala Ala
740 745 750

Gly Thr Thr Phe Thr Leu Pro Pro Ala Gly Lys Ala Asn Asp Thr Leu
755 760 765

Tyr Ala Thr Thr Val Tyr Pro Thr Ile Val Leu Thr Leu Ser Met Gly
770 775 780

Ser Ala Glu Val His Ala Asp Val Val Asn Ser Lys Gly Lys Thr Ile
785 790 795 800

Gly Gln Val Leu Thr Phe Pro Ala Arg Trp Asn Pro Arg Gly Thr Phe
805 810 815

Glu Trp Asn Trp Asp Gly Ala Leu Ser Asp Gly Thr Tyr Ala Pro Ala
820 825 830

Asp Thr Tyr Lys Ile Thr Leu Lys Ala Leu Lys Ile Tyr Gly Asn Ser
835 840 845

Lys Trp Pro Leu Asp Trp Glu Thr Gln Thr Thr Glu Pro Phe Thr Ile
850 855 860

Lys Tyr Ala Ala Lys Ser Lys Arg Ala Phe Thr Ala
865 870 875

<210> 154
<211> 534
<212> PRT
<213> Myceliophthora thermophila

<400> 154

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

1632537_1

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

1632537_1

Thr Val Asn Ala Ala Val Ser Val Gly Ile His Phe Ala Val Ala Ala
305 310 315 320

Gly Asn Asp Asn Ala Asp Ala Cys Asn Tyr Ser Pro Ala Ala Ala Glu
325 330 335

Lys Ala Val Thr Val Gly Ala Ser Ala Ile Asp Asp Ser Arg Ala Tyr
340 345 350

Phe Ser Asn Tyr Gly Lys Cys Thr Asp Ile Phe Ala Pro Gly Leu Ser
355 360 365

Ile Leu Ser Thr Trp Ile Gly Ser Lys Tyr Ala Thr Asn Thr Ile Ser
370 375 380

Gly Thr Ser Met Ala Ser Pro His Ile Ala Gly Leu Leu Ala Tyr Tyr
385 390 395 400

Leu Ser Leu Gln Pro Ala Thr Asp Ser Glu Tyr Ser Val Ala Pro Ile
405 410 415

Thr Pro Glu Lys Met Lys Ser Asn Leu Leu Lys Ile Ala Thr Gln Asp
420 425 430

Ala Leu Thr Asp Ile Pro Asp Glu Thr Pro Asn Leu Leu Ala Trp Asn
435 440 445

Gly Gly Gly Cys Asn Asn Tyr Thr Ala Ile Val Glu Ala Gly Gly Tyr
450 455 460

Lys Ala Lys Lys Lys Thr Thr Thr Asp Lys Val Asp Ile Gly Ala Ser
465 470 475 480

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

Gly Lys Val Val Lys Gly Val Ser Ser Phe Ala Asp Lys Ala Glu Lys
500 505 510

Phe Ser Glu Lys Ile His Glu Leu Val Asp Glu Glu Leu Lys Glu Phe
515 520 525

Leu Glu Asp Ile Ala Ala
530

<210> 155
<211> 396
<212> PRT
<213> Neurospora crassa
<400> 155

1632537_1

Met Lys Leu Ser Ala Val Leu Ala Leu Leu Pro Leu Ala Met Ala Ala
 1 5 10 15
 Pro Ser Ala Pro Ile Asp Lys Arg Ala Pro Ile Leu Glu Ala Arg Ala
 20 25 30
 Gly Thr Gln Ala Val Pro Gly Lys Tyr Ile Val Lys Leu Arg Glu Thr
 35 40 45
 Ala Ser Asp Asp Asp Leu Asp Lys Ala Val Lys Lys Leu Gly Asn Ser
 50 55 60
 Lys Ala Asp His Val Tyr Lys His Ala Phe Arg Gly Phe Ala Gly Arg
 65 70 75 80
 Ile Asp Asp Lys Thr Leu Asp Asp Ile Arg Ser Leu Pro Glu Val Glu
 85 90 95
 Tyr Val Glu Gln Glu Ala Val Phe Thr Ile Asn Thr Tyr Thr Ser Gln
 100 105 110
 Ser Ser Val Pro Ser Trp Gly Leu Ala Arg Leu Ser Ser Lys Thr Thr
 115 120 125
 Gly Lys Thr Thr Tyr Val Tyr Asp Ser Ser Ala Gly Ala Gly Thr Cys
 130 135 140
 Ala Tyr Ile Ile Asp Thr Gly Ile Asn Thr Ala His Ser Asp Phe Gly
 145 150 155 160
 Gly Arg Ala Thr Trp Leu Ala Asn Tyr Ala Gly Asp Gly Ile Asn Ser
 165 170 175
 Asp Gly Asn Gly His Gly Thr His Val Ala Gly Thr Val Gly Gly Thr
 180 185 190
 Thr Tyr Gly Val Ala Lys Lys Thr Gln Leu Tyr Ala Val Lys Val Leu
 195 200 205
 Asp Ser Asn Gly Ser Gly Ser Asn Ser Gly Val Ile Ala Gly Met Asn
 210 215 220
 Phe Val Ala Gln Asp Ala Gln Ser Arg Asn Cys Pro Asn Gly Thr Val
 225 230 235 240
 Ala Asn Met Ser Leu Gly Gly Gly Tyr Ser Ala Ser Thr Asn Ser Ala
 245 250 255
 Ala Ala Ala Met Val Arg Ala Gly Val Phe Leu Ala Val Ala Ala Gly
 260 265 270

1632537_1

Asn Asp Gly Ala Asn Ala Ala Asn Tyr Ser Pro Ala Ser Glu Pro Thr
 275 280 285

Val Cys Thr Val Gly Ala Thr Thr Ser Ala Asp Ala Ile Ala Tyr Tyr
 290 295 300

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

Thr Ser Ala Trp Ile Gly Ser Thr Thr Ala Lys Asn Thr Ile Ser Gly
 325 330 335

Thr Ser Met Ala Thr Pro His Ile Thr Gly Leu Gly Ala Tyr Leu Leu
 340 345 350

Thr Leu Leu Gly Lys Lys Ser Pro Ala Ala Leu Cys Ser Tyr Ile Ala
 355 360 365

Ser Thr Ala Asn Ser Gly Val Ile Ser Gly Ile Pro Arg Gly Thr Val
 370 375 380

Asn Lys Leu Ala Phe Asn Gly Asn Pro Ser Ala Tyr
 385 390 395

<210> 156
 <211> 392
 <212> PRT
 <213> Myceliophthora thermophila

<400> 156

Met His Phe Ser Thr Ala Leu Leu Ala Phe Leu Pro Ala Ala Leu Ala
 1 5 10 15

Ala Pro Thr Ala Glu Thr Leu Asp Lys Arg Ala Pro Ile Leu Thr Ala
 20 25 30

Arg Ala Gly Gln Val Val Pro Gly Lys Tyr Ile Ile Lys Leu Arg Asp
 35 40 45

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

Lys Ala Asp His Val Tyr Arg Gly Lys Phe Arg Gly Phe Ala Gly Lys
 65 70 75 80

Leu Glu Asp Asp Val Leu Asp Ala Ile Arg Leu Leu Pro Glu Val Glu
 85 90 95

Tyr Val Glu Glu Glu Ala Ile Phe Thr Ile Asn Ala Tyr Thr Ser Gln
 100 105 110

Ser Asn Ala Pro Trp Gly Leu Ala Arg Leu Ser Ser Lys Thr Ala Gly
 Page 144

115

120

125

Ser Thr Thr Tyr Thr Tyr Asp Thr Ser Ala Gly Glu Gly Thr Cys Ala
 130 135 140

Tyr Val Ile Asp Thr Gly Ile Tyr Thr Ser His Ser Asp Phe Gly Gly
 145 150 155 160

Arg Ala Thr Phe Ala Ala Asn Phe Val Asp Ser Ser Asn Thr Asp Gly
 165 170 175

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

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

Asp Gly Ser Gly Thr Thr Ser Gly Val Ile Ala Gly Ile Asn Phe Val
 210 215 220

Ala Asp Asp Ala Pro Lys Arg Ser Cys Pro Lys Gly Val Val Ala Asn
 225 230 235 240

Met Ser Leu Gly Gly Ser Tyr Ser Ala Ser Ile Asn Asn Ala Ala Ala
 245 250 255

Ala Leu Val Arg Ser Gly Val Phe Leu Ala Val Ala Ala Gly Asn Glu
 260 265 270

Asn Gln Asn Ala Ala Asn Ser Ser Pro Ala Ser Glu Ala Ser Ala Cys
 275 280 285

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

Tyr Gly Ser Val Val Asp Ile Gln Ala Pro Gly Ser Asn Ile Leu Ser
 305 310 315 320

Thr Trp Ile Gly Ser Thr Ser Ala Thr Asn Thr Ile Ser Gly Thr Ser
 325 330 335

Met Ala Ser Pro His Ile Ala Gly Leu Gly Ala Tyr Leu Leu Ala Leu
 340 345 350

Glu Gly Ser Lys Thr Pro Ala Glu Leu Cys Asn Tyr Ile Lys Ser Thr
 355 360 365

Gly Asn Ala Ala Ile Thr Gly Val Pro Ser Gly Thr Thr Asn Arg Ile
 370 375 380

Ala Phe Asn Gly Asn Pro Ser Ala

385

390

<210> 157
 <211> 433
 <212> PRT
 <213> Neurospora crassa

<400> 157

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

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

Asn Thr Gly Ala Thr Ala Gly Asn Ala Ala Gly Val Pro Val Ala Asn
 35 40 45

Ser Asp Ile Ser Asn Ile Ile Pro Gly Arg Tyr Ile Val Val Tyr Asn
 50 55 60

Asn Thr Phe Gly Glu Glu Ala Ile Asn Ala His Gln Ile Lys Val Thr
 65 70 75 80

Ser Leu Val Ala Lys Arg Asn Leu Gly Lys Arg Asp Ala Lys Thr Gly
 85 90 95

Arg Ile Met Ser Pro Ser Val Lys Ala Phe Lys Met Gly Thr Trp Arg
 100 105 110

Ala Met Ala Leu Asp Ala Asp Asp Met Ile Asn Asp Ile Asn Ser
 115 120 125

Ala Gln Glu Val Glu Tyr Ile Glu Ala Asp Gln Tyr Val Lys Leu Asn
 130 135 140

Ala Leu Thr Ser Gln Asn Ser Thr Thr Thr Gly Leu Ala Arg Leu Ser
 145 150 155 160

His Ala Gly Pro Ser Lys Lys Ala Ala Pro Tyr Ile Phe Asp Ser Ser
 165 170 175

Ala Gly Glu Gly Ile Thr Ala Phe Val Val Asp Thr Gly Ile Arg Val
 180 185 190

Thr His Ser Glu Tyr Glu Gly Arg Ala Thr Phe Ala Ala Asn Phe Val
 195 200 205

Asn Asn Val Asp Thr Asp Glu Asn Gly His Gly Ser His Val Ala Gly
 210 215 220

Thr Ile Ala Gly Ala Thr Phe Gly Val Ala Lys Lys Ala Lys Leu Val
 225 230 235 240

1632537_1

Ala Val Lys Val Leu Asp Gly Ser Gly Ser Gly Ser Asn Ser Gly Val
245 250 255

Leu Gln Gly Met Gln Phe Val Ala Asp Thr Ala Thr Ser Gln Lys Leu
260 265 270

Gly Gly Lys Ala Val Leu Asn Met Ser Leu Gly Gly Gly Lys Ser Arg
275 280 285

Ala Ile Asn Ser Ala Ile Asn Gln Ile Ala Ala Ala Gly Val Val Pro
290 295 300

Val Val Ala Ala Gly Asn Glu Asn Gln Asp Thr Ala Asn Thr Ser Pro
305 310 315 320

Gly Ser Ala Pro Ala Ala Ile Thr Val Gly Ala Ile Asp Gln Arg Thr
325 330 335

Asp Ala Arg Ala Ser Phe Ser Asn Phe Gly Ala Gly Val Asp Ile Phe
340 345 350

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

Thr Asp Thr Leu Ser Gly Thr Ser Met Ala Ser Pro His Val Ala Gly
370 375 380

Leu Ala Ala Tyr Leu Met Ala Leu Glu Gly Leu Thr Asp Val Thr Ala
385 390 395 400

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

Thr Asn Asn Val Arg Gly Thr Thr Ser Leu Ile Ala Asn Asn Gly Asn
420 425 430

Leu

<210> 158
<211> 420
<212> PRT
<213> Myceliophthora thermophila

<400> 158

Met Ala Gly Arg Leu Leu Leu Cys Leu Thr Ala Ala Leu Ser Ala Leu
1 5 10 15

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

1632537_1

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

1632537_1

Thr Ser Pro Gly Ser Ala Glu Ala Ala Ile Thr Val Gly Ala Ile Asp
305 310 315 320

Gln Thr Asn Asp Arg Met Ala Ser Phe Ser Asn Phe Gly Glu Leu Val
325 330 335

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

Asp Thr Ser Thr Asn Thr Leu Ser Gly Thr Ser Met Ala Ser Pro His
355 360 365

Val Ala Gly Leu Ala Ala Tyr Ile Met Ser Leu Glu Asn Ile Thr Gly
370 375 380

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

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

Asn Gly Phe Ala
420

<210> 159
<211> 421
<212> PRT
<213> Neurospora crassa
<400> 159

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

Pro Ala Ser Ile Thr Trp Ala Ala Pro Ile Ile Glu Val Glu Thr Lys
20 25 30

Pro Ile Pro Glu Lys Tyr Ile Val Leu Leu Lys Pro His Ala Asp Leu
35 40 45

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

Arg Arg Asp Thr Ala Gly Val His Lys Ala Trp Ser Val Gly Ser Lys
65 70 75 80

Phe Lys Ala Tyr Ala Gly Glu Phe Asp Glu Glu Thr Leu Lys Ile Ile
85 90 95

Gln Arg Asp Glu Arg Asn Val His Ser Ile Glu Pro Asp Lys Ser Trp
100 105 110

1632537_1

Arg Leu Tyr₁₁₅ Lys Ser Asn Lys Lys₁₂₀ Asp Asn Asp Asp Ser₁₂₅ Asn Ser Asp

Asn Thr₁₃₀ Thr Ile Ile Thr Gln₁₃₅ Lys Gln Ala Pro Trp₁₄₀ Gly Leu Gly Tyr

Leu Ser His Lys Gly Lys₁₅₀ Thr Ser Ser Asp Tyr₁₅₅ Val Tyr Asn Ser Thr₁₆₀

Ala Gly Thr Gly Thr₁₆₅ Tyr Ala Tyr Val Val₁₇₀ Asp Thr Gly Cys Trp₁₇₅ Lys

Asp His Val Glu₁₈₀ Phe Glu Gly Arg Val₁₈₅ Gln Leu Gly Tyr Asn₁₉₀ Ala Tyr

Pro Asp Ser₁₉₅ Pro Phe Ile Asp Met₂₀₀ Asp Gly His Gly Thr₂₀₅ His Val Thr

Gly Thr₂₁₀ Leu Ile Ser Lys Thr₂₁₅ Tyr Gly Val Ala Lys₂₂₀ Asn Ala Thr Val

Ile Cys Val Lys Val Phe₂₃₀ His Gly Gly Gly Ser₂₃₅ Ala Asn Thr Ile Val₂₄₀

Met Asp Gly Phe Glu₂₄₅ Trp Ala Val Lys Asp₂₅₀ Ile Ile Ala Lys Lys₂₅₅ Arg

Gln Arg Asn Ser₂₆₀ Val Ile Asn Met Ser₂₆₅ Leu Gly Cys Asp Arg₂₇₀ Ser Glu

Ala Phe Asn₂₇₅ Ala Ile Val Asp Ala₂₈₀ Ala Tyr Asp Gln Gly₂₈₅ Ile Leu Thr

Val Val₂₉₀ Ala Ala Gly Asn Glu₂₉₅ Asn Gln Pro Ala Ala₃₀₀ Leu Val Ser Pro

Ala Ser Ser Ala Arg Ala₃₁₀ Phe Ser Val Gly Ala₃₁₅ Ile Asp Asn Lys Asn₃₂₀

Thr Arg Ala Tyr Phe₃₂₅ Ser Asn Tyr Gly Ala₃₃₀ Ile Val Asp Ile Phe₃₃₅ Ala

Pro Gly Val Asn₃₄₀ Ile Val Ser Thr Tyr₃₄₅ Ile Gly Lys Lys Asp₃₅₀ Gly Asp

Asn Asn Arg₃₅₅ Thr Met Thr Met Ser₃₆₀ Gly Thr Ser Met Ala₃₆₅ Ser Pro His

Val Ala₃₇₀ Gly Leu Ala Leu Tyr₃₇₅ Leu Lys Ser Leu Asp₃₈₀ Pro Glu Lys Tyr

1632537_1

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

Asp Lys Val Trp Asp Ala Gly Glu Met Ser Pro Asn Leu Val Ala Tyr
 405 410 415

Asn Gly Val Gln Gly
 420

<210> 160
 <211> 243
 <212> PRT
 <213> Myceliophthora thermophila

<400> 160

Met Lys Leu Ala Val Leu Ile Ala Thr Thr Ala Gly Leu Ala Ala Ala
 1 5 10 15

Leu Pro Gln Gly Val Ala Arg Arg Gly Val Gly Arg Pro Leu His His
 20 25 30

Ser Gly Pro Asn Ile Arg Asn Thr Thr Tyr Pro Gln Tyr Ser Ser Asn
 35 40 45

Trp Ala Gly Ala Val Gln Ile Gly Thr Gly Phe Thr Ser Val Tyr Gly
 50 55 60

Thr Ile Thr Val Pro Ser Val His Asp Arg Asn Pro Asn Ala Ala Ala
 65 70 75 80

Ser Ala Trp Val Gly Ile Asp Gly Asp Thr Cys Gln Gln Ala Ile Leu
 85 90 95

Gln Thr Gly Val Ser Phe Tyr Gly Asp Gly Ser Phe Asp Ala Trp Tyr
 100 105 110

Glu Trp Ile Pro Asp Tyr Ala Tyr Ser Phe Ser Asn Phe Arg Leu Ser
 115 120 125

Ala Gly Asp Gln Ile Arg Met Ser Val Glu Ala Ser Ser Lys Arg Ala
 130 135 140

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

Thr Phe Thr Ser Thr Pro Ser Thr Leu Cys Glu Thr Asn Ala Glu Trp
 165 170 175

Ile Val Glu Asp Phe Gln Glu Gly Ser Ser Leu Val Pro Phe Ala Asp
 180 185 190

Phe Gly Thr Val Thr Phe Thr Asp Ala Tyr Ala Thr Gly Ser Ser Gly
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195

200

205

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

Glu Val Leu Thr Asn Cys Ala Thr Ser Gly Ser Asp Leu Thr Cys Ser
 225 230 235 240

Tyr Thr Gly

<210> 161
 <211> 288
 <212> PRT
 <213> Neurospora crassa

<400> 161

Met Lys Leu Leu Ser Pro Ala Ile Ser Leu Leu Gly Val Ile Ser Gln
 1 5 10 15

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

Val Pro Val Pro Gln Ala Glu Thr Asp Leu Lys Pro Phe Lys Pro Gly
 35 40 45

Thr Leu Gly Arg Ile Arg Ser Arg Thr Asp Asp Asp Ser Gly Pro Glu
 50 55 60

Ile Gly Thr Thr Thr Leu Arg Arg Val Lys Arg Thr Asn Pro Thr Ala
 65 70 75 80

Asn Ser Asn Asn Trp Cys Gly Ser Val Gln Ser Thr Thr Ser Ser Asn
 85 90 95

Gln Ile Lys Leu Val His Gly Thr Phe Gln His Pro Thr Cys Thr Gln
 100 105 110

Arg Pro Gly Val Thr Gln Tyr Pro Gln Ala Ala Ala Ala Trp Ile Gly
 115 120 125

Ile Asp Gly Asp Ser Trp Thr Ser Ala Leu Leu Gln Ala Gly Thr Val
 130 135 140

Cys Lys Ile Asn Asn Ser Thr Gly Ile Val Glu Asn Glu Val Trp Trp
 145 150 155 160

Gln Trp Val Pro Asn Gly Ala Tyr Thr Ile Thr Asn Ile Pro Val Phe
 165 170 175

Ala Gly Asp Trp Phe Asp Ile Thr Ile Asn Thr Thr Ser Ser Thr Ala
 180 185 190

1632537_1

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

Ala Trp Gln Gly Ala Thr Leu Ala Arg Val Asp Ala Asp Trp Val Val
210 215 220

Glu Arg Pro Tyr Tyr Gly Ser Thr Leu Ala Gly Phe Ala Gln Phe Thr
225 230 235 240

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

Ser Leu Gly Ile Thr Gly Ala Lys Gln Tyr Gln Ile Pro Gly Gly Cys
260 265 270

Ala Ser Ala Glu Tyr Asp Asn Ser Lys Leu Tyr Ala Ala Val Ala Ala
275 280 285

<210> 162
<211> 285
<212> PRT
<213> Myceliophthora thermophila

<400> 162

Met Trp Ser Ile Val Arg Ser Leu Ser Leu Ala Ser Leu Ile Ser Ser
1 5 10 15

Ala Cys Thr Val Thr Ala Gln Leu Ser Phe Val Ala Ser Val Lys Gln
20 25 30

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

Pro Leu Glu His Arg Trp His Ala Ser Arg Pro Arg Arg Gly Gln Asn
50 55 60

Asn Arg Thr Val Glu Arg Asp Ala Val Ser Tyr Ser Ala Asn Trp Cys
65 70 75 80

Gly Ala Ser Gln His Ala Ser Asp Ser Asp Gly Ile Lys Ser Val Leu
85 90 95

Gly Tyr Phe Thr Ala Pro Asp Leu Thr Leu Arg Pro Gly Thr Pro Ala
100 105 110

Pro Gln Phe Ala Ala Ala Trp Val Gly Ile Asp Gly Ala Ala Cys Asn
115 120 125

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

1632537_1

Gly Gln Ser Ala Ser Ala Trp Trp Glu Trp Tyr Pro Glu Ala Ser Tyr
145 150 155 160

Thr Ile Ser Gly Leu Lys Val Lys Ala Gly Glu Trp Met Ser Val Asn
165 170 175

Ile Thr Thr Lys Asp Ala Ser Ser Ala Ile Leu Val Ile Glu Asn Ala
180 185 190

Asp Thr Gly Thr Ser Val Thr Leu Glu Leu Asn Asn Gly Pro Gln Leu
195 200 205

Cys Arg Arg Asp Ala Glu Trp Ile Leu Glu Asp Phe Tyr Glu Ser Gly
210 215 220

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

Gly Ala Thr Thr Val Gly Gly Lys Asn Val Gly Phe Asp Gly Ala Thr
245 250 255

Met Val His Leu Arg Asp Glu Asn Gly Asn Val Leu Cys Ser Pro Glu
260 265 270

Pro Tyr Asp Asn Ser Asn Phe Val Val Val Ser Lys Pro
275 280 285

<210> 163
<211> 307
<212> PRT
<213> Myceliophthora thermophila

<400> 163

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

Ala Ala Thr Pro Ala Ile Pro Gly Tyr Ser Pro Arg Thr Arg Gly Met
20 25 30

Asn Pro His His His Ala Pro Leu Arg Leu Leu His Thr Phe Thr Pro
35 40 45

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

Ser Thr Lys Gly Gly Ala Ile Leu Gly Leu Pro Asp Asn Asp Leu Ser
65 70 75 80

Thr Val Arg Thr Thr Ile Arg Ile Pro Ala Ala Lys Met Pro Thr Ala
85 90 95

1632537_1

Gly Pro Thr Ala Asn Asn Thr Val Gly Glu Tyr Ala Ala Ser Phe Trp
100 105 110

Val Gly Ile Asp Ser Ala Thr Asp Ala Cys Gly Ala Gly Gly Ser Leu
115 120 125

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

Thr Pro Phe Ala Trp Tyr Gln Gly Pro Gly Gln Ala Asp Val Val Gly
145 150 155 160

Phe Gly Gly Gly Phe Pro Val Gly Glu Gly Asp Leu Val Arg Leu Thr
165 170 175

Leu Glu Ala Gly Pro Ala Gly Gly Glu Glu Ile Ala Val Val Ala Glu
180 185 190

Asn Phe Gly Arg Asn Val Thr Arg Ala Asp Glu Gly Ala Val Pro Val
195 200 205

Arg Lys Val Arg Lys Val Leu Pro Ala Glu Ala Gly Gly Gln Lys Leu
210 215 220

Cys Arg Gly Glu Ala Ala Trp Met Val Glu Asp Phe Pro Leu Gln Gly
225 230 235 240

Arg Pro Glu Phe Pro Thr Ala Leu Ala Asn Phe Thr Ser Val Thr Phe
245 250 255

Asn Thr Gly Ile Thr Leu Asp Asp Gly Thr Glu Lys Asp Leu Thr Gly
260 265 270

Ala Glu Val Leu Asp Ile Gln Leu Glu Ala Gln Gly Gly Arg Leu Thr
275 280 285

Ser Cys Glu Val Val Asp Asp Arg Asn Val Lys Cys Ala Arg Val Val
290 295 300

Gly Asp Asn
305

<210> 164
<211> 197
<212> PRT
<213> Myceliophthora thermophila

<400> 164

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

Gln Ala Leu Ala Glu Leu Thr Phe Thr Val Glu Ala Thr Arg Asn Gly
Page 155

20

25

30

Val Pro Ile Pro Ala Ser Glu Ile Arg Leu Glu Pro Phe Glu Pro Gly
 35 40 45

Arg Thr Arg Met Gly Ala Val Ala Glu Ala Pro Arg Ala Gln Arg Lys
 50 55 60

Thr Arg Arg Ser Asn Ala Gln Ala Asp Ser Ala Asn Trp Cys Gly Ser
 65 70 75 80

Val Asn Met Ala Pro Thr Gly Thr Asn Ile Gln Leu Ala His Gly Ser
 85 90 95

Phe Gln His Pro Ser Cys Ser Ile Arg Pro Gly Tyr Thr Phe Pro Gln
 100 105 110

Ala Ala Ala Ser Trp Val Gly Ile Asp Gly Asp Ser Tyr Arg Asp Ala
 115 120 125

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

Val Arg His Glu Ala Trp Trp Gln Trp Val Pro Ser Ala Ala Phe Thr
 145 150 155 160

Ile Thr Ser Met Pro Gly Gln Ser Asn Thr Thr Gly Phe Cys Ile Pro
 165 170 175

Tyr Ser Ala Pro Phe Val Ser Leu Cys Phe Phe Gly Arg Thr Arg Thr
 180 185 190

Cys Leu Phe Leu His
 195

<210> 165
 <211> 621
 <212> PRT
 <213> Myceliophthora thermophila

<400> 165

Met Leu Arg Asn Ile Phe Leu Thr Ala Ala Leu Ala Ala Phe Gly Gln
 1 5 10 15

Cys Gly Ser Thr Val Phe Glu Ser Val Pro Ala Lys Pro Arg Gly Trp
 20 25 30

Thr Arg Leu Gly Asp Ala Ser Ala Asp Gln Pro Leu Arg Leu Arg Ile
 35 40 45

Ala Leu Gln Gln Pro Asn Glu Asp Leu Phe Glu Arg Thr Leu Tyr Glu
 50 55 60

1632537_1

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

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Phe Ser Tyr Leu₃₄₀ Leu Lys Leu Pro Asp₃₄₅ Ser Glu Leu Pro Gln₃₅₀ Thr Leu
 Thr Thr Ser₃₅₅ Tyr Gly Glu Asp₃₆₀ Gln Ser Val Pro Arg₃₆₅ Pro Tyr Ala
 Glu Lys Val Cys Gln Met Ile₃₇₅ Gly Gln Leu Gly Ala₃₈₀ Arg Gly Val Ser
 Val₃₈₅ Ile Phe Ser Ser Gly₃₉₀ Asp Thr Gly Val Gly₃₉₅ Ser Ala Cys Gln Thr₄₀₀
 Asn Asp Gly Lys Asn₄₀₅ Thr Thr Arg Phe Leu₄₁₀ Pro Ile Phe Pro Gly₄₁₅ Ala
 Cys Pro Tyr Val₄₂₀ Thr Ser Ile Gly Ala₄₂₅ Thr Arg Tyr Val Glu₄₃₀ Pro Glu
 Gln Ala Ala₄₃₅ Ala Phe Ser Ser Gly₄₄₀ Gly Phe Ser Asp Ile₄₄₅ Phe Lys Arg
 Pro Ala Tyr Gln Glu Ala Ala₄₅₅ Val Ser Thr Tyr Leu₄₆₀ His Lys His Leu
 Gly₄₆₅ Ser Arg Trp Lys Gly₄₇₀ Leu Tyr Asn Pro Gln₄₇₅ Gly Arg Gly Phe Pro₄₈₀
 Asp Val Ser Ala Gln₄₈₅ Gly Val Ala Tyr His₄₉₀ Val Phe Ser Gln Asp₄₉₅ Lys
 Asp Ile Lys Val₅₀₀ Ser Gly Thr Ser Ala₅₀₅ Ser Ala Pro Leu Phe₅₁₀ Ala Ala
 Leu Val Ser₅₁₅ Leu Leu Asn Asn Ala₅₂₀ Arg Leu Ala Gln Gly₅₂₅ Arg Pro Pro
 Leu Gly₅₃₀ Phe Leu Asn Pro Trp₅₃₅ Leu Tyr Ser Glu Lys₅₄₀ Val Gln Lys Ala
 Gly₅₄₅ Ala Leu Thr Asp Ile₅₅₀ Val His Gly Gly Ser₅₅₅ Ser Gly Cys Thr Gly₅₆₀
 Lys Asp Met Tyr Ser₅₆₅ Gly Leu Pro Thr Pro₅₇₀ Tyr Val Pro Tyr Ala₅₇₅ Ser
 Trp Asn Ala Thr₅₈₀ Pro Gly Trp Asp Pro₅₈₅ Val Thr Gly Leu Gly₅₉₀ Thr Pro
 Val Phe Asp₅₉₅ Lys Leu Leu Glu Leu₆₀₀ Ser Ser Pro Gly Lys₆₀₅ Lys Leu Pro

1632537_1

His Ile Gly Gly Gly His Gly His Gly Ala Gly Gly His
610 615 620

<210> 166
<211> 587
<212> PRT
<213> Neurospora crassa

<400> 166

Met Leu Trp Ser Val Leu Leu Leu Ala Ala Gly Ala Ser Ala His Val
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Lys Ser Ser Leu Pro Ser Val Pro Ser Gly Trp Lys Lys Val Arg Ala
20 25 30

Ala Ser Ala Asp Glu Ser Val Ser Leu Lys Ile Ala Leu Pro Ala His
35 40 45

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

His His Glu Tyr Gly Met His Leu Ser Ser Glu Glu Val Arg Ser Leu
65 70 75 80

Val Ala Pro Ala Asp Glu Thr Thr Asp Ala Val Thr Ser Trp Leu Asn
85 90 95

Arg Asn Gly Ile Lys Gly Lys Val Asp Asn Asp Trp Val Ser Phe Thr
100 105 110

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

Tyr Gln Gln Asp Gly Asp Lys Thr Gly Pro Lys Leu Arg Thr Leu Gln
130 135 140

Tyr Ser Val Pro Asp Glu Leu Asp Ala His Val Asp Met Ile Gln Pro
145 150 155 160

Thr Thr Arg Phe Gly Lys Leu Ala Ala Lys Ala Ser Thr Ile Phe Glu
165 170 175

Ile Phe Asp Glu Pro Glu Pro Lys Asn Ile Ala Asn Val Lys Val Gly
180 185 190

Gly Asp His Pro Thr Cys Thr Gly Cys Ile Tyr Pro Asp Glu Ile Arg
195 200 205

Ser Leu Tyr Asn Ile Lys Tyr Lys Pro Ser Ala Ser Asp Lys Asn Thr
210 215 220

1632537_1

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

1632537_1

Ala Gly Leu Val Ala Leu Leu Asn Ala Ala Arg Lys Ser His Gly Leu
500 505 510

Pro Ser Leu Gly Phe Ile Asn Pro Leu Leu Tyr Ala Ser Lys Asp Ala
515 520 525

Phe Thr Asp Ile Val Asn Gly Ala Gly Thr Gly Cys Arg Gly Arg Pro
530 535 540

Glu Phe Ala Gly Asp Val Gly Gly Thr Ala Lys Trp Asn Ala Thr Glu
545 550 555 560

Gly Trp Asp Pro Val Thr Gly Leu Gly Thr Pro Lys Phe Asp Lys Leu
565 570 575

Leu Ala Leu Ala Ala Pro Gly Val Lys Asn Ala
580 585

<210> 167
<211> 720
<212> PRT
<213> Myceliophthora thermophila
<400> 167

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

Leu Gly Thr Ala Ser Gly Ala Arg Ile Ser Ser Arg Asp Met Leu Ser
20 25 30

Arg Arg Val Val Pro Pro Ser His Thr Leu His Glu Arg His Glu Ala
35 40 45

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

Thr Val Pro Val Arg Ile Gly Leu Lys Gln Ser Asn Val Asp Ala Ala
65 70 75 80

His Asp Leu Leu Met Asp Ile Ser Asp Pro Arg Ser Pro Asn Tyr Gly
85 90 95

Lys His Leu Ser Arg Ser Glu Val Glu Asp Leu Phe Ala Pro Arg Glu
100 105 110

His Ser Val Ala Lys Val Lys Arg Trp Leu Ala Ser Ala Gly Val Asp
115 120 125

Glu Gly Arg Ile Ser Gln Ser Ala Asn Lys Gln Trp Ile Gln Phe Asp
130 135 140

1632537_1

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

1632537_1

Ala Thr Pro Glu Gln Gly Gly Tyr Ala Gly Ala Leu Met Cys Gly Arg
420 425 430

His Arg Pro Thr Ser Val Val Ser Val Ser Tyr Ser Gly Thr Glu Asp
435 440 445

Ser Trp Pro Ala Ser Tyr Met Arg Arg Gln Cys Leu Glu Val Leu Lys
450 455 460

Leu Ala Leu Gln Gly Val Thr Val Val Glu Ser Ser Gly Asp Phe Gly
465 470 475 480

Val Gly Gly Arg Pro Phe Asp Pro Arg Ala Gly Cys Leu Gly Pro Asp
485 490 495

Arg Ala Val Phe Ser Pro Arg Val Met Ala Asn Cys Pro Tyr Val Leu
500 505 510

Ser Val Gly Ala Thr Ala Leu Val Asp Pro Glu Gln Glu Gln Gln Gln
515 520 525

Gln His Ala Asp Arg Gly Gly Ser Gly Lys Glu Pro Arg Leu Val Glu
530 535 540

Val Ala Ala Arg Thr Phe Ala Ser Gly Gly Gly Phe Ser Asn Ile Phe
545 550 555 560

Gly Arg Pro Lys Trp Gln Asp Arg His Val Arg Glu Tyr Leu Arg Lys
565 570 575

Thr Asn Leu Ser Glu Leu Gly Tyr Asp Asn Ala Ala Gly Met Ser Phe
580 585 590

Asp Ser Leu Arg Pro Pro Pro Ala Gly Gly Lys Leu Phe Asn Arg Leu
595 600 605

Gly Arg Gly Tyr Pro Asp Val Ala Ala Val Gly Gln Asn Phe Arg Val
610 615 620

Val Leu Arg Gly Tyr Pro Asn Arg Met His Gly Thr Ser Ala Ala Ala
625 630 635 640

Pro Val Trp Ala Ser Ile Leu Thr Leu Ile Asn Glu Glu Arg Arg Ala
645 650 655

Val Gly Lys Gly Pro Val Gly Phe Val His Gln Val Leu Tyr Gln His
660 665 670

Pro Glu Val Phe Thr Asp Ile Thr Val Gly Ser Asn Pro Gly Cys Gly
675 680 685

1632537_1

Thr Asp Gly Phe Pro Val Glu Glu Gly Trp Asp Pro Val Thr Gly Leu
690 695 700

Gly Ser Pro Ile Tyr Pro Lys Leu Leu Lys Leu Phe Met Ser Leu Pro
705 710 715 720

<210> 168
<211> 719
<212> PRT
<213> Neurospora crassa

<400> 168

Met Phe Arg Phe His Leu Trp Thr Leu Leu Arg Leu Phe Ala Leu Leu
1 5 10 15

Ser Ser Leu Val Thr Ala Ser Arg Ile Val Leu Glu Glu Ala Gly His
20 25 30

Leu Pro Ala Gly Trp Lys Val Glu Arg His Ala Thr Ala Ser Asp Arg
35 40 45

Ile Gln Leu Ser Ile Ala Leu Lys Glu Pro Gly Ile Glu Glu Leu Lys
50 55 60

Arg Arg Leu Leu Gln Gln Ser Thr Ser Asp Asp His Pro Asn Ser Arg
65 70 75 80

Gln Phe Thr Lys Glu Glu Val Glu Lys His Arg Gln Pro Asp Gln Arg
85 90 95

Ser Val Thr Ala Val Gly Arg Trp Leu Gln Ser His Gly Ile Lys Ser
100 105 110

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

Val Gln Met Leu Phe Glu Ala Asp Leu Ala Tyr Tyr Ser Tyr Asn Gly
130 135 140

Asp Pro Ser Thr Gln Ile Leu Arg Ser Arg Ser Tyr Thr Ile Pro Arg
145 150 155 160

Trp Leu Ser Asp Asp Ile Asp Phe Val His Pro Leu Thr Asn Phe Met
165 170 175

Pro Pro Arg Asn Arg Asn Asp Gly Thr Leu Gly Ile Gly Arg Arg Gln
180 185 190

Pro Ile Gln Pro Lys Leu Ser Ala Arg Glu Asp Phe Phe Ala Pro Pro
195 200 205

Cys Trp Thr Gly Thr Phe Pro Gly Cys Ile Arg Lys Leu Tyr Asn Leu
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215

Thr Tyr Thr Pro Ser Pro Asp Phe Arg Ser Pro Ser Pro Val Arg Phe
225 230 235 240

Gly Ile Ala Ser Phe Leu Glu Gln Tyr Ile Thr His Arg Asp Val Thr
245 250 255

Ser Phe Leu Ala Thr Tyr Ala Arg Glu Leu Leu Pro Leu Arg Pro Thr
260 265 270

Pro Ser Arg Gly Gly Ser Gly Gly Ser Leu Thr Leu Pro Pro Val Thr
275 280 285

Asn Thr Thr Ser Glu Pro Pro Tyr Asn Ile Thr Ile Thr Leu Leu Asn
290 295 300

Asn Ala Thr Arg Trp Asp Pro His Ser Thr Asp Pro Ala Leu Ser Gly
305 310 315 320

Leu Glu Ala Asn Leu Asp Val Gln Tyr Ala Leu Ser Leu Gly His Pro
325 330 335

Thr Arg Val Ile Tyr Tyr Ala Thr Gly Gly Arg Gly Thr Lys Leu Asp
340 345 350

Ser Ser Gly Arg Pro Leu Pro Thr Asn Asp Pro Arg Ala Asn Asn Glu
355 360 365

Pro Phe Leu Glu Phe Leu Gln Ala Leu Leu Ala Leu Pro Asp Asn Gln
370 375 380

Ile Pro His Val Leu Ser Ile Ser Tyr Ala Asp Asp Glu Gln Ser Val
385 390 395 400

Pro Arg Lys Tyr Ala His Arg Val Cys Asp Leu Phe Ala Ala Val Ala
405 410 415

Ala Arg Gly Thr Ser Val Leu Val Ala Thr Gly Asp Gly Gly Ala Ala
420 425 430

Gly Ile Gly Phe Ser Ala Gly Gly Gly Asp Thr Cys Ile Lys Asn Asp
435 440 445

Gly Ser Gly Arg Arg Ala Phe Val Pro Thr Phe Pro Ala Ser Cys Pro
450 455 460

Trp Val Thr Ser Val Gly Ala Thr Asp Asn Thr Ala Leu Asn Leu Thr
465 470 475 480

Gly Ala Ala Phe Ser Ser Gly Gly Phe Ser Glu Tyr Phe Asp Arg Pro
Page 165

Leu Trp Gln Arg Ala Ala Val Asp Pro Tyr Val Ser Ser Leu Leu Arg
500 505 510

Ser Arg Ser Ser Lys Pro Gly Gln Pro Ser Gln Pro Arg Asp Leu Lys
515 520 525

Gly Val Tyr Phe Ser His Asn Gly Arg Gly Met Pro Asp Met Ala Ala
530 535 540

Ile Gly Ser Gly Phe Gln Ile Ile His Arg Gly Glu Met Val Glu Val
545 550 555 560

Arg Gly Thr Ser Ala Ser Thr Pro Val Val Ala Ala Met Val Ala Leu
565 570 575

Val Asn Asp Gln Arg Leu Arg Gln Gly Lys Arg Ser Leu Gly Trp Leu
580 585 590

Asn Gly His Leu Tyr Leu Asp Pro Arg Val Arg Arg Val Leu Thr Asp
595 600 605

Val Lys Trp Gly Arg Ser Glu Gly Cys Val Phe Pro Gly Glu Ala Leu
610 615 620

Glu Glu Gly Arg Gly Lys Gly Lys Glu Lys Tyr Trp Arg His Ser Val
625 630 635 640

Val Glu Lys Arg Gln Gly Asn Ser Glu Glu Asp Gly Gly Thr His Gly
645 650 655

Gly Asp Gly Glu Gly Lys Ala Asp Glu Glu Asp Trp Gly Gly Glu Gly
660 665 670

Glu Val Gly Glu Gly Glu Gly Asp Gln Ser Glu Asn Val Ile Leu Gly
675 680 685

Gly Trp Asp Ala Arg Lys Gly Trp Asp Pro Val Thr Gly Leu Gly Val
690 695 700

Pro Gly Asp Phe Gln Glu Met Leu Lys Val Leu Gly Ser Val Trp
705 710 715

<210> 169

<211> 454

<212> PRT

<213> Neurospora crassa

<400> 169

Met Arg Ala Thr Leu Val Val Val Leu Cys His Leu Ser Leu Ala Phe
1 5 10 15

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Ala Leu Ala Ile Ser Pro Ala Ala Ser His Trp Lys Arg Ser Ala Arg
20 25 30

Leu Ala Ser Asp Gln Thr Ala Ser Glu Arg Tyr Ser Leu Pro Ser Arg
35 40 45

Val Ala Arg Tyr Ile Asp Tyr Val Leu Pro Ala Pro Asp Pro Asp Pro
50 55 60

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

Lys Gly Val Ile Gly Ala Arg Gln Thr Arg Asp Val Asp Cys Leu Gln
85 90 95

Tyr Ile Ala Pro Gln Cys Leu Arg Gln Leu Ala Trp Leu Ala Glu Asp
100 105 110

Leu Asp Met Phe Phe Gly Asp Phe Ala Pro Asp Leu Leu Thr Asn Phe
115 120 125

Asn Leu Glu Pro Asn Leu Asp Tyr Lys Tyr Thr Met Ala Met Ala Lys
130 135 140

Pro Ile Pro Val Thr Asn Ile Gln Val Gly Asp Phe Val Val Gln Gly
145 150 155 160

Asn Met Asn Ile Met Leu Ala Ala Phe Asn Ala His Tyr Cys Arg Thr
165 170 175

Gly Leu Asp Pro Gln Phe Asp Pro Val Tyr Pro Asn Pro Ala Pro Gly
180 185 190

Gly Tyr Asn Ala Ser Asp Cys Gly Thr His Val Pro Pro Arg Val Ile
195 200 205

Ala Ile Met Tyr Ala Trp Asn Lys Ala Trp Tyr Ser Asp Ala Asp Phe
210 215 220

Ala Ser Ile Phe Pro Ala Ser Asp Pro Trp Val Thr Ser Val Gly Gly
225 230 235 240

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

Ser Ser Gly Met Pro Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
260 265 270

Ser Ser Ser Ser Ser Ser Ser Ser Leu Phe Pro Gly Glu Thr Ala
275 280 285

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Leu Asp Asp Asn Asn Thr Gly Ser Ser Gly Gly Ser Phe Ser Arg Leu
290 295 300

Phe Pro Gly Pro Trp Tyr Gln Gly Asn Leu Thr Arg Glu Tyr Leu Ala
305 310 315 320

Ser Ala Pro Gly Ala Ala Glu Leu Ala Arg Gln Gly Tyr Phe Asn Gly
325 330 335

Ser Gly Arg Gly Tyr Pro Asp Ile Ser Ala Met Ala Arg Ser Phe Leu
340 345 350

Val Ala Leu His Gly Gly Tyr His Ala Val Ser Gly Thr Ser Ala Ser
355 360 365

Thr Pro Val Val Ala Ala Met Val Ala Lys Ile Asn Asp Ala Arg Leu
370 375 380

His Ala Gly Lys Ser Thr Val Gly Phe Leu Asn Pro Val Leu Tyr Ser
385 390 395 400

Ala Ala Ala Gly Lys Ala Gly Val Leu Arg Asp Val Pro Leu Gly Lys
405 410 415

Asn His Asp Cys Gly Val Gly Glu Ala Phe Pro Ala Arg Arg Ala Trp
420 425 430

Asp Ala Val Thr Gly Leu Gly Thr Pro Asp Phe Glu Lys Leu Lys Glu
435 440 445

Leu Tyr Leu Gly Leu Pro
450

<210> 170
<211> 50
<212> PRT
<213> Aspergillus niger

<400> 170

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser His Tyr
1 5 10 15

Leu Lys Arg Glu Phe Tyr Phe Asp Val His Pro Pro Leu Gly Lys Met
20 25 30

Leu Val Gly Leu Ser Gly Phe Leu Ala Gly Tyr Asn Gly Ser Phe Glu
35 40 45

Phe Lys
50

1632537_1

<210> 171
 <211> 50
 <212> PRT
 <213> *Aspergillus oryzae*

<400> 171

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser His Tyr
 1 5 10 15

Leu Lys Arg Glu Phe Tyr Phe Asp Val His Pro Pro Leu Gly Lys Met
 20 25 30

Leu Val Gly Leu Ser Gly Tyr Leu Ala Gly Tyr Asn Gly Ser Phe Glu
 35 40 45

Phe Lys
 50

<210> 172
 <211> 50
 <212> PRT
 <213> *Aspergillus nidulans*

<400> 172

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser His Tyr
 1 5 10 15

Leu Lys Arg Glu Phe Tyr Phe Asp Val His Pro Pro Leu Gly Lys Met
 20 25 30

Leu Val Gly Leu Ser Gly Leu Leu Ala Gly Tyr Asn Gly Ser Phe Glu
 35 40 45

Phe Lys
 50

<210> 173
 <211> 50
 <212> PRT
 <213> *Myceliophthora thermophila*

<400> 173

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser His Tyr
 1 5 10 15

Leu Lys Arg Glu Phe Tyr Phe Asp Val His Pro Pro Ala Gly Lys Leu
 20 25 30

Leu Val Gly Leu Ser Gly Tyr Leu Ala Gly Tyr Asn Gly Ser Phe Glu
 35 40 45

Phe Lys
 50

1632537_1

<210> 174
 <211> 50
 <212> PRT
 <213> *Neurospora crassa*

<400> 174

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser His Tyr
 1 5 10 15

Leu Lys Arg Glu Phe Tyr Phe Asp Val His Pro Pro Ala Gly Lys Leu
 20 25 30

Leu Val Gly Leu Ser Gly Leu Leu Ala Gly Tyr Asn Gly Ser Phe Glu
 35 40 45

Phe Lys
 50

<210> 175
 <211> 50
 <212> PRT
 <213> *Trichoderma virens*

<400> 175

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser Tyr Tyr
 1 5 10 15

Ile Lys His Glu Tyr Tyr Phe Asp Val His Pro Pro Leu Gly Lys Met
 20 25 30

Leu Val Gly Leu Ser Gly Val Leu Ala Gly Tyr Asn Gly Ser Phe Glu
 35 40 45

Phe Lys
 50

<210> 176
 <211> 50
 <212> PRT
 <213> *Trichoderma reesei*

<400> 176

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser Tyr Tyr
 1 5 10 15

Ile Lys His Glu Tyr Tyr Phe Asp Val His Pro Pro Leu Gly Lys Met
 20 25 30

Leu Val Gly Leu Ser Gly Val Leu Ala Gly Tyr Asn Gly Ser Phe Glu
 35 40 45

Phe Lys

50

<210> 177
 <211> 50
 <212> PRT
 <213> *Fusarium oxysporum*

<400> 177

Ile Val Thr Trp Asp Glu Ala His Phe Gly Lys Phe Gly Ser Tyr Tyr
 1 5 10 15

Ile Lys His Glu Tyr Tyr Phe Asp Val His Pro Pro Leu Gly Lys Met
 20 25 30

Leu Val Gly Leu Ser Gly Val Leu Ala Gly Tyr Asn Gly Thr Phe Glu
 35 40 45

Phe Lys
 50

<210> 178
 <211> 50
 <212> PRT
 <213> *Neurospora crassa*

<400> 178

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser Lys Tyr
 1 5 10 15

Ile Lys Gly Lys Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Leu
 20 25 30

Met Ile Thr Leu Phe Gly Trp Leu Ala Gly Phe Asp Gly Ser Phe Asp
 35 40 45

Phe Lys
 50

<210> 179
 <211> 50
 <212> PRT
 <213> *Myceliophthora thermophila*

<400> 179

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Thr Lys Tyr
 1 5 10 15

Ile Lys Gly Lys Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Leu
 20 25 30

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

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Phe Lys
50

<210> 180
<211> 50
<212> PRT
<213> Trichoderma virens

<400> 180

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser Lys Tyr
1 5 10 15

Ile Lys Gly Lys Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Met
20 25 30

Leu Ile Ala Leu Thr Gly Trp Leu Ala Gly Phe Asp Gly Asn Phe Asp
35 40 45

Phe Lys
50

<210> 181
<211> 50
<212> PRT
<213> Trichoderma atroviride

<400> 181

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser Lys Tyr
1 5 10 15

Ile Lys Gly Arg Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Met
20 25 30

Leu Ile Ala Leu Thr Gly Trp Leu Ala Gly Phe Asp Gly Asp Phe Asp
35 40 45

Phe Lys
50

<210> 182
<211> 50
<212> PRT
<213> Trichoderma reesei

<400> 182

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser Lys Tyr
1 5 10 15

Ile Lys Gly Arg Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Met
20 25 30

Leu Ile Ala Leu Thr Gly Trp Leu Ala Gly Phe Asp Gly Asn Phe Asp
35 40 45

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Phe Lys
50

<210> 183
<211> 50
<212> PRT
<213> *Fusarium oxysporum*

<400> 183

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Thr Lys Tyr
1 5 10 15

Ile Lys Gly Lys Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Met
20 25 30

Leu Ile Ala Leu Thr Gly Trp Leu Ala Gly Phe Asp Gly Ser Phe Asp
35 40 45

Phe Lys
50

<210> 184
<211> 50
<212> PRT
<213> *Aspergillus nidulans*

<400> 184

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Thr Lys Tyr
1 5 10 15

Ile Lys Gly Arg Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Leu
20 25 30

Leu Ile Thr Leu Ala Gly Trp Leu Ala Gly Phe Lys Gly Asp Phe Asp
35 40 45

Phe Lys
50

<210> 185
<211> 50
<212> PRT
<213> *Aspergillus oryzae*

<400> 185

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser Lys Tyr
1 5 10 15

Ile Lys Gly Arg Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Leu
20 25 30

Leu Ile Thr Leu Ala Gly Trp Leu Ala Gly Phe Asn Gly Asp Phe Asp
35 40 45

Phe Lys
50

<210> 186
<211> 50
<212> PRT
<213> *Aspergillus niger*

<400> 186

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Thr Lys Tyr
1 5 10 15

Ile Lys Gly Arg Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Leu
20 25 30

Leu Ile Thr Leu Ala Gly Trp Leu Ala Gly Phe Asp Gly Glu Phe Asp
35 40 45

Phe Lys
50

<210> 187
<211> 50
<212> PRT
<213> *Penicillium chrysogenum*

<400> 187

Ser Val Val Phe Asp Glu Val His Phe Gly Gly Phe Ala Ser Lys Tyr
1 5 10 15

Ile Lys Gly Lys Phe Phe Met Asp Val His Pro Pro Leu Ala Lys Leu
20 25 30

Leu Leu Thr Leu Ala Gly Trp Leu Ala Gly Phe Asp Gly Asn Phe Asp
35 40 45

Phe Lys
50

<210> 188
<211> 50
<212> PRT
<213> *Trichoderma reesei*

<400> 188

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Gln Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Ala Lys Leu
20 25 30

Leu Phe Ala Phe Val Gly Trp Leu Val Gly Tyr Asp Gly His Phe His
Page 174

35

40

45

Phe Asp
50

<210> 189
<211> 50
<212> PRT
<213> *Trichoderma virens*

<400> 189

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Gln Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Ala Lys Leu
20 25 30

Leu Phe Ala Phe Val Gly Trp Leu Val Gly Tyr Asp Gly His Phe His
35 40 45

Phe Glu
50

<210> 190
<211> 50
<212> PRT
<213> *Fusarium oxysporum*

<400> 190

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Glu Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Gly Lys Leu
20 25 30

Leu Phe Ala Phe Val Gly Trp Leu Val Gly Tyr Asp Gly Asn Phe His
35 40 45

Phe Glu
50

<210> 191
<211> 50
<212> PRT
<213> *Gibberella zeae*

<400> 191

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Glu Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Gly Lys Leu
20 25 30

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Leu Phe Ala Phe Val Gly Trp Leu Val Gly Tyr Asp Gly His Phe His
 35 40 45

Phe Asp
 50

<210> 192
 <211> 50
 <212> PRT
 <213> Myceliophthora thermophila

<400> 192

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
 1 5 10 15

Leu Glu Arg Thr Tyr Phe Phe Asp Val His Pro Pro Leu Gly Lys Leu
 20 25 30

Leu Phe Ala Phe Met Gly Trp Leu Val Gly Tyr Asp Gly His Phe His
 35 40 45

Phe Glu
 50

<210> 193
 <211> 50
 <212> PRT
 <213> Neurospora crassa

<400> 193

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
 1 5 10 15

Leu Glu Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Gly Lys Leu
 20 25 30

Leu Phe Ala Phe Met Gly Trp Leu Val Gly Tyr Asp Gly His Phe His
 35 40 45

Phe Glu
 50

<210> 194
 <211> 50
 <212> PRT
 <213> Aspergillus nidulans

<400> 194

Gln Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
 1 5 10 15

Leu Arg Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Ala Lys Leu
 20 25 30

1632537_1

Leu Leu Ala Phe Thr Gly Trp Leu Val Gly Tyr Asp Gly His Phe Leu
35 40 45

Phe Glu
50

<210> 195
<211> 50
<212> PRT
<213> Aspergillus niger

<400> 195

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Gln Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Gly Lys Leu
20 25 30

Leu Phe Ala Phe Met Gly Trp Leu Val Gly Tyr Asp Gly His Phe Leu
35 40 45

Phe Asp
50

<210> 196
<211> 50
<212> PRT
<213> Aspergillus oryzae

<400> 196

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Gln Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Gly Lys Leu
20 25 30

Leu Phe Ala Ala Val Gly Trp Leu Ile Gly Tyr Asp Gly His Phe Leu
35 40 45

Phe Glu
50

<210> 197
<211> 50
<212> PRT
<213> Penicillium chrysogenum

<400> 197

Glu Val Val Phe Asp Glu Val His Phe Gly Lys Phe Ala Ser Tyr Tyr
1 5 10 15

Leu Gln Arg Thr Tyr Phe Phe Asp Val His Pro Pro Phe Gly Lys Leu
20 25 30

1632537_1

Leu Phe Ala Leu Met Gly Trp Leu Val Gly Phe Asp Gly Ser Phe Leu
35 40 45

Phe Glu
50