

PhoenixTemp15758.tmp.txt
SEQUENCE LISTING

<110> Novozymes A/S
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<170> PatentIn version 3.5
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<211> 378
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<213> A. oryzae
<400> 1

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Thr Tyr Val Phe Thr Asn Pro Asn Gly Leu Asn Phe Thr Gln Met Asn
          35          40          45

Thr Thr Leu Pro Asn Val Thr Ile Phe Ala Thr Gly Gly Thr Ile Ala
          50          55          60

Gly Ser Ser Ala Asp Asn Thr Ala Thr Thr Gly Tyr Lys Ala Gly Ala
65          70          75          80

Val Gly Ile Gln Thr Leu Ile Asp Ala Val Pro Glu Met Leu Asn Val
          85          90          95

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

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

Cys Asn Asp Pro Thr Met Ala Gly Ala Val Val Thr His Gly Thr Asp
          130          135          140

Thr Leu Glu Glu Ser Ala Phe Phe Leu Asp Ala Thr Val Asn Cys Arg
145          150          155          160

Lys Pro Val Val Ile Val Gly Ala Met Arg Pro Ser Thr Ala Ile Ser
          165          170          175

Ala Asp Gly Pro Leu Asn Leu Leu Gln Ser Val Thr Val Ala Ala Ser
          180          185          190

Pro Lys Ala Arg Asp Arg Gly Ala Leu Ile Val Met Asn Asp Arg Ile
          195          200          205

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Val Ser Ala Phe Tyr Ala Ser Lys Thr Asn Ala Asn Thr Val Asp Thr
210 215 220

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

Pro Tyr Phe Phe Tyr Pro Pro Val Lys Pro Thr Gly Lys Thr Glu Val
245 250 255

Asp Ile Arg Asn Ile Thr Ser Ile Pro Arg Val Asp Ile Leu Tyr Ser
260 265 270

Tyr Glu Asp Met His Asn Asp Thr Leu Tyr Ser Ala Ile Asp Asn Gly
275 280 285

Ala Lys Gly Ile Val Ile Ala Gly Ser Gly Ser Gly Ser Val Ser Thr
290 295 300

Pro Phe Ser Ala Ala Met Glu Asp Ile Thr Thr Lys His Asn Ile Pro
305 310 315 320

Ile Val Ala Ser Thr Arg Thr Gly Asn Gly Glu Val Pro Ser Ser Ala
325 330 335

Glu Ser Ser Gln Ile Ala Ser Gly Tyr Leu Asn Pro Ala Lys Ser Arg
340 345 350

Val Leu Leu Gly Leu Leu Leu Ala Gln Gly Lys Ser Ile Glu Glu Met
355 360 365

Arg Ala Val Phe Glu Arg Ile Gly Val Ala
370 375

<210> 2
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<213> A. niger

<400> 2

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20 25 30

Thr Asn Ala Asn Gly Leu Asn Phe Thr Gln Met Asn Thr Thr Leu Pro
35 40 45

Asn Val Thr Ile Phe Ala Thr Gly Gly Thr Ile Ala Gly Ser Asp Ser
50 55 60

Ser Ser Thr Ala Thr Thr Gly Tyr Thr Ser Gly Ala Val Gly Val Leu
65 70 75 80

Ser Leu Ile Asp Ala Val Pro Ser Met Leu Asp Val Ala Asn Val Ala
85 90 95

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

Leu Ile Ser Met Ser Lys Lys Leu Asn Arg Val Val Cys Glu Asp Pro
115 120 125

Thr Met Ala Gly Ala Val Ile Thr His Gly Thr Asp Thr Leu Glu Glu
130 135 140

Thr Ala Phe Phe Leu Asp Ala Thr Val Asn Cys Gly Lys Pro Ile Val
145 150 155 160

Ile Val Gly Ala Met Arg Pro Ser Thr Ala Ile Ser Ala Asp Gly Pro
165 170 175

Phe Asn Leu Leu Glu Ala Val Thr Val Ala Ala Ser Thr Ser Ala Arg
180 185 190

Asp Arg Gly Ala Met Val Val Met Asn Asp Arg Ile Ala Ser Ala Tyr
195 200 205

Tyr Val Thr Lys Thr Asn Ala Asn Thr Met Asp Thr Phe Lys Ala Met
210 215 220

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

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

Val Thr Glu Ile Pro Arg Val Asp Ile Leu Phe Ser Tyr Glu Asp Met
260 265 270

His Asn Asp Thr Leu Tyr Asn Ala Ile Ser Ser Gly Ala Gln Gly Ile
275 280 285

Val Ile Ala Gly Ala Gly Ala Gly Gly Val Thr Thr Ser Phe Asn Glu
290 295 300

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

Met Arg Thr Val Asn Gly Glu Val Pro Leu Ser Asp Val Ser Ser Asp
325 330 335

Thr Ala Thr His Ile Ala Ser Gly Tyr Leu Asn Pro Gln Lys Ser Arg
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340

Ile Leu Leu Gly Leu Leu Leu Ser Gln Gly Lys Asn Ile Thr Glu Ile
355 360 365

Ala Asp Val Phe Ala Leu Gly Thr Asp Ala
370 375

<210> 3
<211> 374
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<213> A. fumigatus

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Val Gly Asn Ala Ser Pro Phe Val Tyr Pro Arg Ala Thr Ser Pro Asn
20 25 30

Ser Thr Tyr Val Phe Thr Asn Ser His Gly Leu Asn Phe Thr Gln Met
35 40 45

Asn Thr Thr Leu Pro Asn Val Thr Ile Leu Ala Thr Gly Gly Thr Ile
50 55 60

Ala Gly Ser Ser Asn Asp Asn Thr Ala Thr Thr Gly Tyr Thr Ala Gly
65 70 75 80

Ala Ile Gly Ile Gln Gln Leu Met Asp Ala Val Pro Glu Met Leu Asp
85 90 95

Val Ala Asn Val Ala Gly Ile Gln Val Ala Asn Val Gly Ser Pro Asp
100 105 110

Val Thr Ser Ser Leu Leu Leu His Met Ala Arg Thr Ile Asn Glu Val
115 120 125

Val Cys Asp Asp Pro Thr Met Ser Gly Ala Val Ile Thr His Gly Thr
130 135 140

Asp Thr Leu Glu Glu Thr Ala Phe Phe Leu Asp Ala Thr Val Asn Cys
145 150 155 160

Gly Lys Pro Ile Val Val Val Gly Ala Met Arg Pro Ala Thr Ala Ile
165 170 175

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

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

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Ile Val Ser Ala Tyr Tyr Val Ser Lys Thr Asn Ala Asn Thr Met Asp
210 215 220

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

Lys Pro Tyr Phe Phe Tyr Pro Pro Val Met Pro Thr Gly Lys Thr Thr
245 250 255

Phe Asp Val Arg Asn Val Ala Ser Ile Pro Arg Val Asp Ile Leu Tyr
260 265 270

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

Gly Ala Lys Gly Ile Val Val Arg Ser Val Ser Ser Gly Tyr Tyr Asp
290 295 300

Ala Ile Asp Asp Ile Ala Ser Thr His Ser Leu Pro Val Val Leu Ser
305 310 315 320

Thr Arg Thr Gly Asn Gly Glu Val Ala Ile Thr Asp Ser Glu Thr Thr
325 330 335

Ile Glu Ser Gly Phe Leu Asn Pro Gln Lys Ala Arg Ile Leu Leu Gly
340 345 350

Leu Leu Leu Ala Glu Asp Lys Gly Phe Lys Glu Ile Lys Glu Ala Phe
355 360 365

Ala Lys Asn Gly Val Ala
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<210> 4
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<213> A. nidulans

<400> 4

Met Gly Leu Arg Val Lys Ala Leu Ala Val Ala Ala Leu Ala Thr Leu
1 5 10 15

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20 25 30

Thr Thr Tyr Ala Phe Thr Asn Ser Asn Gly Leu Asn Phe Thr Gln Met
35 40 45

Asn Thr Thr Leu Pro Asn Val Thr Ile Phe Ala Thr Gly Gly Thr Ile
50 55 60

Ala Gly Ser Ala Ala Ser Asn Thr Ala Thr Thr Gly Tyr Gln Ala Gly
Page 5

65 70 75 80
 Ala Leu Gly Ile Gln Thr Leu Ile Asp Ala Val Pro Glu Met Leu Ser
 85 90 95
 Val Ala Asn Ile Ala Gly Val Gln Ile Ser Asn Val Gly Ser Pro Asp
 100 105 110
 Val Thr Ser Thr Ile Leu Leu Glu Met Ala His Arg Leu Asn Lys Val
 115 120 125
 Val Cys Glu Asp Pro Ser Met Ala Gly Ala Val Val Thr His Gly Thr
 130 135 140
 Asp Thr Leu Glu Glu Thr Ala Phe Phe Leu Asp Ala Thr Val Asn Cys
 145 150 155 160
 Gly Lys Pro Ile Val Ile Val Gly Ala Met Arg Pro Ala Thr Phe Ile
 165 170 175
 Ser Ala Asp Gly Pro Tyr Asn Leu Leu Gln Ala Val Thr Val Ala Ser
 180 185 190
 Thr Lys Glu Ala Arg Asn Arg Gly Ala Met Val Val Met Asn Asp Arg
 195 200 205
 Ile Ala Ser Ala Tyr Tyr Val Ser Lys Thr Asn Ala Asn Thr Met Asp
 210 215 220
 Thr Phe Lys Ala Val Glu Met Gly Tyr Leu Gly Ala Ile Ile Ser Asn
 225 230 235 240
 Thr Pro Phe Phe Tyr Tyr Pro Ala Val Gln Pro Ser Gly Lys Thr Thr
 245 250 255
 Val Asp Val Ser Asn Val Thr Ser Ile Pro Arg Val Asp Ile Leu Tyr
 260 265 270
 Ser Phe Gln Asp Met Thr Asn Asp Thr Leu Tyr Ser Ser Ile Glu Asn
 275 280 285
 Gly Ala Lys Gly Val Val Ile Ala Gly Ser Gly Ala Gly Ser Val Asp
 290 295 300
 Thr Ala Phe Ser Thr Ala Ile Asp Asp Ile Ile Ser Asn Gln Gly Val
 305 310 315 320
 Pro Ile Val Gln Ser Thr Arg Thr Gly Asn Gly Glu Val Pro Tyr Ser
 325 330 335
 Ala Glu Gly Gly Ile Ser Ser Gly Phe Leu Asn Pro Ala Lys Ser Arg
 340 345 350

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Ile Leu Leu Gly Leu Leu Leu Ala Gln Gly Gly Lys Gly Thr Glu Glu
355 360 365

Ile Arg Ala Val Phe Gly Lys Val Ala Val
370 375

<210> 5
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<220>
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<222> (110)..(110)
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Ser Tyr Ala Ser Pro Ile Ile His Ser Arg Ala Ser Asn Thr Ser Tyr
20 25 30

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

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

Asp Lys Thr Ala Thr Ala Gly Tyr Glu Ser Gly Ala Leu Gly Ile Asn
65 70 75 80

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

Ala Val Gln Phe Asp Asn Val Asn Ser Gly Asp Val Ser Xaa Ser Leu
100 105 110

Leu Leu Asn Met Thr His Thr Leu Gln Lys Thr Val Cys Asp Asp Pro
115 120 125

Thr Ile Ser Gly Ala Val Ile Thr His Gly Thr Asp Thr Leu Glu Glu
130 135 140

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

Phe Val Gly Ser Met Arg Pro Ser Thr Ala Ile Ser Ala Asp Gly Pro
165 170 175

Met Asn Leu Leu Gln Gly Val Thr Val Ala Ala Asp Lys Gln Ala Lys
180 185 190

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Asn Arg Gly Ala Leu Val Val Leu Asn Asp Arg Ile Val Ser Ala Phe
195 200 205

Phe Ala Thr Lys Thr Asn Ala Asn Thr Met Asp Thr Phe Lys Ala Tyr
210 215 220

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

Tyr Pro Ala Val Glu Pro Asn Ala Lys His Val Val His Leu Asp Asp
245 250 255

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

His Ser Asp Ser Leu His Ser Ala Ile Lys Asn Gly Ala Lys Gly Ile
275 280 285

Val Val Ala Gly Glu Gly Ala Gly Gly Ile Ser Thr Asp Phe Ser Asp
290 295 300

Thr Ile Asp Glu Ile Ala Ser Lys His Gln Ile Pro Ile Ile Leu Ser
305 310 315 320

His Arg Thr Val Asn Gly Glu Val Pro Thr Ala Asp Ile Thr Gly Asp
325 330 335

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

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

Ile Arg Thr Ile Phe Gly Lys Ala Thr Val Ala
370 375

<210> 6
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<212> PRT
<213> A. terreus
<400> 6

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

Val Phe Thr Asn Ala His Gly Leu Asn Phe Thr Gln Met Asn Thr Thr
35 40 45

Leu Pro Asn Val Thr Ile Leu Ala Thr Gly Gly Thr Ile Ala Gly Ser
50 55 60

Ser Ala Asp Asn Thr Ala Thr Thr Gly Tyr Lys Ala Gly Ala Ile Gly
65 70 75 80

Ile Gln Gln Leu Ile Asp Ala Val Pro Glu Met Leu Asn Val Ala Asn
85 90 95

Val Ala Gly Val Gln Val Thr Asn Val Gly Ser Pro Asp Val Thr Ser
100 105 110

His Ile Leu Leu Asp Met Val Arg Met Leu Asp Glu Leu Val Cys Gln
115 120 125

Asp Glu Thr Met Ala Gly Ala Val Ile Thr His Gly Thr Asp Thr Leu
130 135 140

Glu Glu Thr Ala Phe Phe Leu Asp Ala Thr Met Pro Cys Arg Lys Pro
145 150 155 160

Val Val Val Val Gly Ala Met Arg Pro Ser Thr Ala Ile Ser Ala Asp
165 170 175

Gly Pro Phe Asn Leu Leu Gln Ser Val Thr Val Ala Ala Thr Pro Ala
180 185 190

Ala Arg Asp Arg Gly Ala Leu Val Val Leu Asn Asp Arg Val Leu Ser
195 200 205

Ala Phe Tyr Thr Ser Lys Thr Asn Ala Asn Thr Met Asp Thr Phe Lys
210 215 220

Ala Ile Glu Met Gly Ala Leu Ala Ala Ile Val Ser Asn Lys Pro Tyr
225 230 235 240

Phe Tyr Tyr Pro Pro Val Arg Pro Thr Gly His Glu Phe Phe Asp Val
245 250 255

Arg Asn Val Ser Ala Leu Pro Arg Val Asp Ile Leu Tyr Ser Tyr Gln
260 265 270

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

Gly Ile Val Ile Ala Gly Ser Gly Ala Gly Ser Val Ser Ser Gly Phe
290 295 300

Ser Ala Ala Ile Glu Asp Val Met Asp Thr Tyr His Ile Pro Val Val
305 310 315 320

Ala Ser Thr Arg Thr Gly Asn Gly Glu Val Pro Pro Ser Asp Asp Gly
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330

325

335

Ala Ile Gly Ser Gly Phe Leu Asn Pro Gln Lys Ser Arg Ile Trp Leu
340 345 350

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Phe Ala Lys Val Ala Val Ala
370 375

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41

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<213> AsparaC R primer
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<213> Inferred ancestral sequence node19
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<400> 9

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20 25 30

Asp Leu Ala Asn Val Lys Gly Glu Gln Val Ala Asn Ile Gly Ser Glu
35 40 45

Asp Met Asn Asn Glu Ile Leu Leu Lys Leu Gly Ile Val Ile Thr His
50 55 60

Gly Thr Asp Thr Leu **Glu** Glu Thr Ala Tyr **Phe** Leu Asn Leu Thr Val
65 70 75 80

Lys Ser Asp Lys Pro Val Val Leu Val Gly Ala Met Arg Pro Ala Thr
85 90 95

Ala Ile Ser Ala Asp Gly Pro Met Asn Leu Tyr Asn Ala Val Ala Val
100 105 110

Ala Ala Asp Lys Glu Ala Arg Gly Lys Gly Val Leu Val Val Met Asn
Page 10

115

Asp Arg Ile Gly Ser Ala Arg Tyr Val Thr Lys Thr Asn Thr Thr Thr
130 135 140

Val Asp Ala Phe Lys Ala Pro Gly Tyr Leu Gly Val Ile Val Asn Gly
145 150 155 160

Lys Val Tyr Phe Phe Thr Arg Pro His Thr Thr Asn Ser Glu Phe Asp
165 170 175

Val Arg Lys Ile Asp Ser Leu Pro Lys Val Asp Ile Leu Tyr Ser Tyr
180 185 190

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

Thr Gly Asn Gly Ser Val Ser Lys Arg Ala Lys Ala Gly Leu Lys Lys
210 215 220

Ala Gly Ile Val Val Val Arg Ser Ser Arg Val Gly Asn Gly Leu Asn
225 230 235 240

Pro Gln Lys Ala Arg Ile Leu Leu Met Leu Ala Leu Thr Gln Thr
245 250 255

<210> 10
<211> 255
<212> PRT
<213> Inferred ancestral sequence node20
<400> 10

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

Asp Leu Ala Asn Val Lys Gly Glu Gln Val Ala Asn Ile Gly Ser Glu
35 40 45

Asp Met Asn Asn Glu Ile Leu Leu Lys Leu Gly Ile Val Ile Thr His
50 55 60

Gly Thr Asp Thr Leu Glu Glu Thr Ala Tyr Phe Leu Asn Leu Thr Val
65 70 75 80

Lys Ser Asp Lys Pro Val Val Leu Val Gly Ala Met Arg Pro Ala Thr
85 90 95

Ala Ile Ser Ala Asp Gly Pro Met Asn Leu Tyr Asn Ala Val Ala Val
100 105 110

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

Asp Arg Ile Gln Ser Ala Arg Tyr Val Thr Lys Thr Asn Thr Thr Asn
130 135 140

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

Lys Val Tyr Phe Phe Arg Ser Pro His Thr Thr Asn Ser Glu Phe Asp
165 170 175

Val Arg Lys Ile Asp Ser Leu Pro Lys Val Asp Ile Leu Tyr Ser Tyr
180 185 190

Ala Asn Ala Leu Ile Asp Asn Gly Ala Lys Gly Ile Val His Ala Gly
195 200 205

Thr Gly Asn Gly Ser Ile Ser Lys Arg Leu Lys Asp Ala Leu Lys Lys
210 215 220

Ala Gly Ile Val Val Val Arg Ser Ser Arg Val Gly Gln Gly Leu Asn
225 230 235 240

Pro Gln Lys Ala Arg Ile Leu Leu Met Leu Ala Leu Thr Gln Thr
245 250 255

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<212> PRT
<213> Inferred ancestral sequence V19

<400> 11

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20 25 30

Thr Thr Gly Tyr Thr Ala Gly Ala Val Gly Val Asp Thr Leu Ile Ala
35 40 45

Ala Val Pro Glu Leu Lys Asp Leu Ala Asn Val Ala Gly Glu Gln Val
50 55 60

Ala Asn Ile Asp Ser Glu Asp Ile Thr Asn Ala Ile Leu Leu Lys Leu
65 70 75 80

Ala Lys Arg Val Asn Ala Leu Leu Ala Asp Pro Asp Val Asp Gly Ile
85 90 95

Val Ile Thr His Gly Thr Asp Thr Leu Glu Glu Thr Ala Tyr Phe Leu
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100

105

110

Asn Leu Thr Leu Lys Ser Ala Lys Pro Val Val Leu Val Gly Ala Met
 115 120 125

Arg Pro Ala Thr Ala Leu Ser Ala Asp Gly Pro Leu Asn Leu Tyr Asn
 130 135 140

Ala Val Ala Val Ala Ala Asp Lys Ala Ala Arg Gly Lys Gly Val Leu
 145 150 155 160

Val Ala Met Asn Asp Arg Ile Gly Ser Ala Arg Phe Val Thr Lys Ala
 165 170 175

Asn Thr Thr Asp Leu Asp Ala Phe Lys Ala Pro Glu Gln Gly Asn Leu
 180 185 190

Gly Ala Ile Ala Asn Gly Lys Val Tyr Phe Phe Thr Ser Pro Ala Lys
 195 200 205

Arg His Thr Leu Asp Ser Glu Phe Asp Arg Ala Ile Asp Ser Leu Pro
 210 215 220

Lys Val Asp Ile Leu Tyr Asp Tyr Gln Asp Ala Asp Ala Asp Ala Tyr
 225 230 235 240

Asp Ala Ala Ile Asp Asn Gly Ala Lys Gly Ile Val Ile Ala Gly Ser
 245 250 255

Gly Asn Gly Ser Val Ser Lys Arg Ala Lys Ala Ala Ala Lys Lys Ala
 260 265 270

Ala Lys Glu Gly Ile Ile Val Val Arg Ser Ser Arg Val Gly Asn Gly
 275 280 285

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

Asn Pro Gln Lys Ala Arg Ile Leu Leu Met Leu Ala Leu Thr Lys Thr
 305 310 315 320

Lys Asp Pro Glu Glu Ile Gln Arg Tyr Phe Asp Gln Tyr
 325 330

<210> 12

<211> 332

<212> PRT

<213> Inferred ancestral sequence V20

<400> 12

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

Gly Tyr Thr Ala Gly Lys Val Gly Val Asp Thr Leu Ile Ala Ala Val
35 40 45

Pro Glu Leu Lys Asp Leu Ala Asn Val Ala Gly Glu Gln Val Ala Asn
50 55 60

Ile Asp Ser Glu Asp Ile Thr Asn Glu Ile Leu Leu Lys Leu Ala Lys
65 70 75 80

Arg Val Asn Ala Leu Leu Asp Asp Pro Asp Val Asp Gly Ile Val Ile
85 90 95

Thr His Gly Thr Asp Thr Leu Glu Glu Thr Ala Tyr Phe Leu Asn Leu
100 105 110

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

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

Ala Val Ala Ala Asp Lys Ala Ala Arg Gly Lys Gly Val Leu Val Ala
145 150 155 160

Met Asn Asp Arg Ile Gly Ser Ala Arg Asp Val Ala Lys Ala Asn Thr
165 170 175

Thr Asp Leu Asp Ala Phe Lys Ser Pro Phe Gly Pro Leu Gly Ala Ile
180 185 190

Ala Asn Gly Lys Val Tyr Phe Phe Arg Ser Pro Ala Lys Arg His Thr
195 200 205

Leu Asp Ser Glu Phe Asp Val Arg Ala Ile Asp Ser Leu Pro Lys Val
210 215 220

Asp Ile Leu Tyr Ser Tyr Ala Asn Ala Asp Ala Asp Ala Tyr Lys Ala
225 230 235 240

Leu Ala Asp Asn Gly Ala Lys Gly Ile Val His Ala Gly Ser Gly Asn
245 250 255

Gly Ser Val Ser Lys Arg Ala Lys Ala Ala Leu Lys Lys Ala Ala Lys
260 265 270

Glu Gly Ile Ile Val Val Arg Ser Ser Arg Val Asn Asn Gly Val Leu
275 280 285

PhoenixTemp15758.tmp.txt

Asp Ala Ala Asp Asp Ala Lys Leu Gly Val Ala Ala Gly Asp Leu Asn
290 295 300

Pro Gln Lys Ala Arg Ile Leu Leu Met Leu Ala Leu Thr Lys Thr Lys
305 310 315 320

Asp Pro Lys Glu Ile Gln Arg Tyr Phe Asp Glu Tyr
325 330