

PhoenixTemp5447.tmp.txt
SEQUENCE LISTING

<110> Novozymes A/S
<120> Synthase inhibitor screening method
<130> NZ 11190.204-WO
<160> 67
<170> PatentIn version 3.4
<210> 1
<211> 49
<212> DNA
<213> artificial sequence
<220>
<223> Primer 180804L1
<400> 1
aagggatcct cgaggtacca cgcgtgaatt cactagtgc tgcaagctt 49

<210> 2
<211> 48
<212> DNA
<213> artificial sequence
<220>
<223> Primer 180804L2
<400> 2
gtcacctct agatctcgac ttaattaagc ttgcatgcac tagtgaat 48

<210> 3
<211> 24
<212> DNA
<213> artificial sequence
<220>
<223> Primer 180804L3
<400> 3
gttccggtta cctttgcgga taag 24

<210> 4
<211> 47
<212> DNA
<213> artificial sequence
<220>
<223> Primer oligo21350
<400> 4
gaacccttgt ccccggtccg cgacgagaca tcgtgaagat agaaggc 47

<210> 5
<211> 20
<212> DNA
<213> artificial sequence
<220>
<223> Primer 170904L1
<400> 5

ccatttcact actattatgc 20

<210> 6
 <211> 26
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 190804L1

<400> 6
 ctcggggagg tctcgcagga tctggt 26

<210> 7
 <211> 30
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 190804L2

<400> 7
 gcgagacctc cccgagggcc agcttcccca 30

<210> 8
 <211> 22
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 060302j1

<400> 8
 agagcttaaa gtatgtccct tg 22

<210> 9
 <211> 873
 <212> DNA
 <213> Humicola lanuginosa

<220>
 <221> CDS
 <222> (1)..(873)

<400> 9
 atg agg agc tcc ctt gtg ctg ttc ttt gtc tct gcg tgg acg gcc ttg 48
 Met Arg Ser Ser Leu Val Leu Phe Phe Val Ser Ala Trp Thr Ala Leu
 1 5 10 15

gcc agt cct att cgt cga gag gtc tcg cag gat ctg ttt aac cag ttc 96
 Ala Ser Pro Ile Arg Arg Glu Val Ser Gln Asp Leu Phe Asn Gln Phe
 20 25 30

aat ctc ttt gca cag tat tct gca gcc gca tac tgc gga aaa aac aat 144
 Asn Leu Phe Ala Gln Tyr Ser Ala Ala Ala Tyr Cys Gly Lys Asn Asn
 35 40 45

gat gcc cca gct ggt aca aac att acg tgc acg gga aat gcc tgc ccc 192
 Asp Ala Pro Ala Gly Thr Asn Ile Thr Cys Thr Gly Asn Ala Cys Pro
 50 55 60

gag gta gag aag gcg gat gca acg ttt ctc tac tcg ttt gaa gac tct 240
 Glu Val Glu Lys Ala Asp Ala Thr Phe Leu Tyr Ser Phe Glu Asp Ser
 65 70 75 80

PhoenixTemp5447.tmp.txt

gga	gtg	ggc	gat	gtc	acc	ggc	ttc	ctt	gct	ctc	gac	aac	acg	aac	aaa	288
Gly	Val	Gly	Asp	Val	Thr	Gly	Phe	Leu	Ala	Leu	Asp	Asn	Thr	Asn	Lys	
				85					90					95		
ttg	atc	gtc	ctc	tct	ttc	cgt	ggc	tct	cgt	tcc	ata	gag	aac	tgg	atc	336
Leu	Ile	Val	Leu	Ser	Phe	Arg	Gly	Ser	Arg	Ser	Ile	Glu	Asn	Trp	Ile	
			100					105					110			
ggg	aat	ctt	aac	ttc	gac	ttg	aaa	gaa	ata	aat	gac	att	tgc	tcc	ggc	384
Gly	Asn	Leu	Asn	Phe	Asp	Leu	Lys	Glu	Ile	Asn	Asp	Ile	Cys	Ser	Gly	
		115					120					125				
tgc	agg	gga	cat	gac	ggc	ttc	act	tcg	tcc	tgg	agg	tct	gta	gcc	gat	432
Cys	Arg	Gly	His	Asp	Gly	Phe	Thr	Ser	Ser	Trp	Arg	Ser	Val	Ala	Asp	
	130					135					140					
acg	tta	agg	cag	aag	gtg	gag	gat	gct	gtg	agg	gag	cat	ccc	gac	tat	480
Thr	Leu	Arg	Gln	Lys	Val	Glu	Asp	Ala	Val	Arg	Glu	His	Pro	Asp	Tyr	
145					150					155					160	
cgc	gtg	gtg	ttt	acc	gga	cat	agc	ttg	ggt	ggt	gca	ttg	gca	act	gtt	528
Arg	Val	Val	Phe	Thr	Gly	His	Ser	Leu	Gly	Gly	Ala	Leu	Ala	Thr	Val	
				165					170					175		
gcc	gga	gca	gac	ctg	cgt	gga	aat	ggg	tat	gat	atc	gac	gtg	ttt	tca	576
Ala	Gly	Ala	Asp	Leu	Arg	Gly	Asn	Gly	Tyr	Asp	Ile	Asp	Val	Phe	Ser	
			180					185					190			
tat	ggc	gcc	ccc	cga	gtc	gga	aac	agg	gct	ttt	gca	gaa	ttc	ctg	acc	624
Tyr	Gly	Ala	Pro	Arg	Val	Gly	Asn	Arg	Ala	Phe	Ala	Glu	Phe	Leu	Thr	
		195					200					205				
gta	cag	acc	ggc	gga	aca	ctc	tac	cgc	att	acc	cac	acc	aat	gat	att	672
Val	Gln	Thr	Gly	Gly	Thr	Leu	Tyr	Arg	Ile	Thr	His	Thr	Asn	Asp	Ile	
	210					215					220					
gtc	cct	aga	ctc	ccg	ccg	cgc	gaa	ttc	ggt	tac	agc	cat	tct	agc	cca	720
Val	Pro	Arg	Leu	Pro	Pro	Arg	Glu	Phe	Gly	Tyr	Ser	His	Ser	Ser	Pro	
225				230						235					240	
gaa	tac	tgg	atc	aaa	tct	gga	acc	ctt	gtc	ccc	gtc	cgg	cga	cga	gac	768
Glu	Tyr	Trp	Ile	Lys	Ser	Gly	Thr	Leu	Val	Pro	Val	Arg	Arg	Arg	Asp	
				245					250					255		
atc	gtg	aag	ata	gaa	ggc	atc	gat	gcc	acc	ggc	ggc	aat	aac	cag	cct	816
Ile	Val	Lys	Ile	Glu	Gly	Ile	Asp	Ala	Thr	Gly	Gly	Asn	Asn	Gln	Pro	
			260					265					270			
aac	att	ccg	gat	atc	cct	gcg	cac	cta	tgg	tac	ttc	ggg	tta	att	ggg	864
Asn	Ile	Pro	Asp	Ile	Pro	Ala	His	Leu	Trp	Tyr	Phe	Gly	Leu	Ile	Gly	
		275					280					285				
aca	tgt	ctt														873
Thr	Cys	Leu														
	290															

<210> 10
 <211> 291
 <212> PRT
 <213> Humicola lanuginosa
 <400> 10

Met	Arg	Ser	Ser	Leu	Val	Leu	Phe	Phe	Val	Ser	Ala	Trp	Thr	Ala	Leu
1				5					10					15	

Ala Ser Pro Ile Arg Arg Glu Val Ser Gln Asp Leu Phe Asn Gln Phe
 20 25 30
 Asn Leu Phe Ala Gln Tyr Ser Ala Ala Ala Tyr Cys Gly Lys Asn Asn
 35 40 45
 Asp Ala Pro Ala Gly Thr Asn Ile Thr Cys Thr Gly Asn Ala Cys Pro
 50 55 60
 Glu Val Glu Lys Ala Asp Ala Thr Phe Leu Tyr Ser Phe Glu Asp Ser
 65 70 75 80
 Gly Val Gly Asp Val Thr Gly Phe Leu Ala Leu Asp Asn Thr Asn Lys
 85 90 95
 Leu Ile Val Leu Ser Phe Arg Gly Ser Arg Ser Ile Glu Asn Trp Ile
 100 105 110
 Gly Asn Leu Asn Phe Asp Leu Lys Glu Ile Asn Asp Ile Cys Ser Gly
 115 120 125
 Cys Arg Gly His Asp Gly Phe Thr Ser Ser Trp Arg Ser Val Ala Asp
 130 135 140
 Thr Leu Arg Gln Lys Val Glu Asp Ala Val Arg Glu His Pro Asp Tyr
 145 150 155 160
 Arg Val Val Phe Thr Gly His Ser Leu Gly Gly Ala Leu Ala Thr Val
 165 170 175
 Ala Gly Ala Asp Leu Arg Gly Asn Gly Tyr Asp Ile Asp Val Phe Ser
 180 185 190
 Tyr Gly Ala Pro Arg Val Gly Asn Arg Ala Phe Ala Glu Phe Leu Thr
 195 200 205
 Val Gln Thr Gly Gly Thr Leu Tyr Arg Ile Thr His Thr Asn Asp Ile
 210 215 220
 Val Pro Arg Leu Pro Pro Arg Glu Phe Gly Tyr Ser His Ser Ser Pro
 225 230 235 240
 Glu Tyr Trp Ile Lys Ser Gly Thr Leu Val Pro Val Arg Arg Arg Asp
 245 250 255
 Ile Val Lys Ile Glu Gly Ile Asp Ala Thr Gly Gly Asn Asn Gln Pro
 260 265 270
 Asn Ile Pro Asp Ile Pro Ala His Leu Trp Tyr Phe Gly Leu Ile Gly
 275 280 285
 Thr Cys Leu

290

<210> 11
 <211> 1029
 <212> DNA
 <213> Nectria sp

<220>
 <221> CDS
 <222> (1)..(1029)

<400> 11
 atg cgt ctt ctc cct gcc ctc tcc gtg gtc ggc gtt gcc agc gct gcc 48
 Met Arg Leu Leu Pro Ala Leu Ser Val Val Gly Val Ala Ser Ala Ala
 1 5 10 15
 tcc atc aag agc tat ctt cat gcc ttt gag gag cga gct gtt act gtg 96
 Ser Ile Lys Ser Tyr Leu His Ala Phe Glu Glu Arg Ala Val Thr Val
 20 25 30
 acc tcc cag aac ctc gca aac ttc aag ttc tac gtc cag cat gcc act 144
 Thr Ser Gln Asn Leu Ala Asn Phe Lys Phe Tyr Val Gln His Ala Thr
 35 40 45
 gcc gcg tac tgt aac tac gac cgc gca gct gga gcc ttg att tca tgc 192
 Ala Ala Tyr Cys Asn Tyr Asp Arg Ala Ala Gly Ala Leu Ile Ser Cys
 50 55 60
 tcg agc aac tgc cca agt att gaa agc aat gct gct aag att gtg gga 240
 Ser Ser Asn Cys Pro Ser Ile Glu Ser Asn Ala Ala Lys Ile Val Gly
 65 70 75 80
 tcc ttc gga ggc gag gat acg ggc att gca ggc tac gtc tca act gac 288
 Ser Phe Gly Gly Glu Asp Thr Gly Ile Ala Gly Tyr Val Ser Thr Asp
 85 90 95
 gca act cgc aag gag att gtc gtc tct atc cgt ggc agt att aac gtc 336
 Ala Thr Arg Lys Glu Ile Val Val Ser Ile Arg Gly Ser Ile Asn Val
 100 105 110
 cgc aac tgg atc aca aac ctc gac ttc gtc tgg agt tcc tgc tca gat 384
 Arg Asn Trp Ile Thr Asn Leu Asp Phe Val Trp Ser Ser Cys Ser Asp
 115 120 125
 ctg tcg agc aac tgc aag gcc cac gct ggc ttc aaa gat gct tgg gat 432
 Leu Ser Ser Asn Cys Lys Ala His Ala Gly Phe Lys Asp Ala Trp Asp
 130 135 140
 gag atc tcc acc gct gcc aaa gct gca gtc gtc tcg gcg aag aag gcc 480
 Glu Ile Ser Thr Ala Ala Lys Ala Ala Val Val Ser Ala Lys Lys Ala
 145 150 155 160
 aac cca agc tac acc atc gtc gcc acg gga cac tcc ctt ggt ggt gct 528
 Asn Pro Ser Tyr Thr Ile Val Ala Thr Gly His Ser Leu Gly Gly Ala
 165 170 175
 gtt gct acc tta gca gct gct tac atc cga gct gct gga tat agt gtc 576
 Val Ala Thr Leu Ala Ala Ala Tyr Ile Arg Ala Ala Gly Tyr Ser Val
 180 185 190
 gat ctg tac acg ttc ggc tcg cca cgt gta gga aat gac tac ttc gcc 624
 Asp Leu Tyr Thr Phe Gly Ser Pro Arg Val Gly Asn Asp Tyr Phe Ala
 195 200 205
 aac ttc gtc acc agc caa gcc gga gct gaa tac cgc gtg aca cac ctc 672
 Asn Phe Val Thr Ser Gln Ala Gly Ala Glu Tyr Arg Val Thr His Leu
 210 215 220

PhoenixTemp5447.tmp.txt

gac Asp 225	gac Asp	cct Pro	gtt Val	cct Pro	cgt Arg 230	ctt Leu	cca Pro	ccc Pro	atc Ile	ctc Leu 235	ttt Phe	ggc Gly	tac Tyr	cg Arg	cat His 240	720
acg Thr	tct Ser	cct Pro	gag Glu	tac Tyr 245	tgg Trp	ctg Leu	tca Ser	aac Asn	gga Gly 250	ggc Gly	gct Ala	act Thr	acg Thr	acg Thr 255	acc Thr	768
tat Tyr	agt Ser	ctg Leu	tca Ser 260	gac Asp	atc Ile	gtg Val	gta Val	tgc Cys 265	gag Glu	ggc Gly	atc Ile	gcc Ala	aac Asn 270	acc Thr	gac Asp	816
tgc Cys	aat Asn	gcc Ala 275	ggc Gly	acg Thr	ctt Leu	ggc Gly	ctt Leu 280	gat Asp	att Ile	att Ile	gcc Ala	cac His 285	ctc Leu	ata Ile	tac Tyr	864
ttc Phe	cag Gln 290	gat Asp	act Thr	tcg Ser	gca Ala	tgc Cys 295	aac Asn	acc Thr	gga Gly	ttc Phe	acg Thr 300	tgg Trp	aag Lys	cg Arg	gac Asp	912
acg Thr 305	ttg Leu	tcg Ser	gat Asp	gca Ala	gag Glu 310	ctc Leu	gag Glu	gag Glu	atg Met	gtg Val 315	aac Asn	aag Lys	tgg Trp	gct Ala	gag Glu 320	960
cag Gln	gat Asp	gtc Val	gaa Glu	tac Tyr 325	gtc Val	gcc Ala	aat Asn	ttg Leu	acg Thr 330	acg Thr	acc Thr	gcg Ala	tcg Ser	aag Lys 335	cga Arg	1008
tgg Trp	aaa Lys	gga Gly	gca Ala 340	gtg Val	gct Ala	aac Asn										1029

<210> 12
 <211> 343
 <212> PRT
 <213> Nectria sp

<400> 12

Met 1	Arg	Leu	Leu	Pro 5	Ala	Leu	Ser	Val	Val 10	Gly	Val	Ala	Ser	Ala 15	Ala
Ser	Ile	Lys	Ser 20	Tyr	Leu	His	Ala	Phe 25	Glu	Glu	Arg	Ala	Val 30	Thr	Val
Thr	Ser	Gln 35	Asn	Leu	Ala	Asn	Phe 40	Lys	Phe	Tyr	Val	Gln 45	His	Ala	Thr
Ala	Ala 50	Tyr	Cys	Asn	Tyr	Asp 55	Arg	Ala	Ala	Gly	Ala 60	Leu	Ile	Ser	Cys
Ser 65	Ser	Asn	Cys	Pro	Ser 70	Ile	Glu	Ser	Asn	Ala 75	Ala	Lys	Ile	Val	Gly 80
Ser	Phe	Gly	Gly	Glu 85	Asp	Thr	Gly	Ile	Ala 90	Gly	Tyr	Val	Ser	Thr 95	Asp
Ala	Thr	Arg	Lys 100	Glu	Ile	Val	Val	Ser 105	Ile	Arg	Gly	Ser	Ile 110	Asn	Val

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

<210> 13
 <211> 999
 <212> DNA
 <213> Fusarium sp

<220>
 <221> CDS
 <222> (1)..(999)

PhoenixTemp5447.tmp.txt

```

<400> 13
atg atg ctc gtc cta tct ttt ctc tcc ata att gcc ttt gcg gca gct 48
Met Met Leu Val Leu Ser Phe Leu Ser Ile Ile Ala Phe Ala Ala
1 5 10 15

agc cca gtg ccc tcc att gat gag aat act cag gta ctt gag cat cga 96
Ser Pro Val Pro Ser Ile Asp Glu Asn Thr Gln Val Leu Glu His Arg
20 25 30

gct gtg aca gtc acg aca cag gac ctg tca aac ttc agg ttt tat ctc 144
Ala Val Thr Val Thr Thr Gln Asp Leu Ser Asn Phe Arg Phe Tyr Leu
35 40 45

cag cat gct gat gct gcg tat tgc aat ttc aat acg gca gtt ggc aaa 192
Gln His Ala Asp Ala Ala Tyr Cys Asn Phe Asn Thr Ala Val Gly Lys
50 55 60

cca gtc cac tgt ggt gcc ggg aac tgc cct gat att gaa aag gac gct 240
Pro Val His Cys Gly Ala Gly Asn Cys Pro Asp Ile Glu Lys Asp Ala
65 70 75 80

gcc atc gtt gtc gga tcg gta gtt ggt acg aag acg ggc atc ggt gcg 288
Ala Ile Val Val Gly Ser Val Val Gly Thr Lys Thr Gly Ile Gly Ala
85 90 95

tat gtg gca act gac aac gct cgt aag gag atc gtt gtg tct gtg cgt 336
Tyr Val Ala Thr Asp Asn Ala Arg Lys Glu Ile Val Val Ser Val Arg
100 105 110

ggc agc atc aac gtg cga aac tgg atc aca aac ttc aac ttt ggt caa 384
Gly Ser Ile Asn Val Arg Asn Trp Ile Thr Asn Phe Asn Phe Gly Gln
115 120 125

aag acc tgc gat ctc gtt gct ggc tgc ggg gtt cac acc ggc ttc ttg 432
Lys Thr Cys Asp Leu Val Ala Gly Cys Gly Val His Thr Gly Phe Leu
130 135 140

gac gct tgg gag gag gtt gca gcc aat atc aaa gct gct gtc tcc tca 480
Asp Ala Trp Glu Glu Val Ala Ala Asn Ile Lys Ala Ala Val Ser Ser
145 150 155 160

gcg aag act gca aac ccg act ttc aag ttc gtc gtt acc gga cac tcc 528
Ala Lys Thr Ala Asn Pro Thr Phe Lys Phe Val Val Thr Gly His Ser
165 170 175

ctc ggt ggt gcc gtc gct act gtc gcg gct gcg tac ctg cgc aaa gac 576
Leu Gly Gly Ala Val Ala Thr Val Ala Ala Tyr Leu Arg Lys Asp
180 185 190

ggc ttt cct ttt gac ctc tac acc tac ggc tcc cca aga gtt gga aac 624
Gly Phe Pro Phe Asp Leu Tyr Thr Tyr Gly Ser Pro Arg Val Gly Asn
195 200 205

gac ttt ttc gcc aac ttc gtc acc caa cag acg ggc gct gaa tat cgc 672
Asp Phe Phe Ala Asn Phe Val Thr Gln Gln Thr Gly Ala Glu Tyr Arg
210 215 220

gtc acg cat ggt gat gac ccc gtc cca cgt ctt cct ccc atc gtc ttt 720
Val Thr His Gly Asp Asp Pro Val Pro Arg Leu Pro Pro Ile Val Phe
225 230 235 240

gga tac cgt cat act agc cca gag tac tgg ctt gac ggt ggc cca ctc 768
Gly Tyr Arg His Thr Ser Pro Glu Tyr Trp Leu Asp Gly Gly Pro Leu
245 250 255

gat aag gac tac acc gtg agc gag atc aag gtt tgt gag ggc att gcg 816
Asp Lys Asp Tyr Thr Val Ser Glu Ile Lys Val Cys Glu Gly Ile Ala
260 265 270

```


PhoenixTemp5447.tmp.txt

aac gta atg tgc aat ggt ggc aca ata ggt ctg gac att ctt gcg cac 864
Asn Val Met Cys Asn Gly Gly Thr Ile Gly Leu Asp Ile Leu Ala His
275 280 285

atc acc tat ttc cag agc atg gcc act tgt gcg cca atc gcc atc cca 912
Ile Thr Tyr Phe Gln Ser Met Ala Thr Cys Ala Pro Ile Ala Ile Pro
290 295 300

tgg aag agg gac atg tca gat gag gag ttg gac aag aag ttg act caa 960
Trp Lys Arg Asp Met Ser Asp Glu Glu Leu Asp Lys Lys Leu Thr Gln
305 310 315 320

tat agc gag atg gat caa gaa ttt gtt aag cag atg act 999
Tyr Ser Glu Met Asp Gln Glu Phe Val Lys Gln Met Thr
325 330

<210> 14
<211> 333
<212> PRT
<213> Fusarium sp

<400> 14

Met Met Leu Val Leu Ser Phe Leu Ser Ile Ile Ala Phe Ala Ala Ala
1 5 10 15

Ser Pro Val Pro Ser Ile Asp Glu Asn Thr Gln Val Leu Glu His Arg
20 25 30

Ala Val Thr Val Thr Thr Gln Asp Leu Ser Asn Phe Arg Phe Tyr Leu
35 40 45

Gln His Ala Asp Ala Ala Tyr Cys Asn Phe Asn Thr Ala Val Gly Lys
50 55 60

Pro Val His Cys Gly Ala Gly Asn Cys Pro Asp Ile Glu Lys Asp Ala
65 70 75 80

Ala Ile Val Val Gly Ser Val Val Gly Thr Lys Thr Gly Ile Gly Ala
85 90 95

Tyr Val Ala Thr Asp Asn Ala Arg Lys Glu Ile Val Val Ser Val Arg
100 105 110

Gly Ser Ile Asn Val Arg Asn Trp Ile Thr Asn Phe Asn Phe Gly Gln
115 120 125

Lys Thr Cys Asp Leu Val Ala Gly Cys Gly Val His Thr Gly Phe Leu
130 135 140

Asp Ala Trp Glu Glu Val Ala Ala Asn Ile Lys Ala Ala Val Ser Ser
145 150 155 160

Ala Lys Thr Ala Asn Pro Thr Phe Lys Phe Val Val Thr Gly His Ser
165 170 175

Leu Gly Gly Ala Val Ala Thr Val Ala Ala Ala Tyr Leu Arg Lys Asp
180 185 190

Gly Phe Pro Phe Asp Leu Tyr Thr Tyr Gly Ser Pro Arg Val Gly Asn
195 200 205

Asp Phe Phe Ala Asn Phe Val Thr Gln Gln Thr Gly Ala Glu Tyr Arg
210 215 220

Val Thr His Gly Asp Asp Pro Val Pro Arg Leu Pro Pro Ile Val Phe
225 230 235 240

Gly Tyr Arg His Thr Ser Pro Glu Tyr Trp Leu Asp Gly Gly Pro Leu
245 250 255

Asp Lys Asp Tyr Thr Val Ser Glu Ile Lys Val Cys Glu Gly Ile Ala
260 265 270

Asn Val Met Cys Asn Gly Gly Thr Ile Gly Leu Asp Ile Leu Ala His
275 280 285

Ile Thr Tyr Phe Gln Ser Met Ala Thr Cys Ala Pro Ile Ala Ile Pro
290 295 300

Trp Lys Arg Asp Met Ser Asp Glu Glu Leu Asp Lys Lys Leu Thr Gln
305 310 315 320

Tyr Ser Glu Met Asp Gln Glu Phe Val Lys Gln Met Thr
325 330

<210> 15
<211> 1047
<212> DNA
<213> Gibberella zeae

<220>
<221> CDS
<222> (1)..(1047)

<400> 15
atg cgt ctc ctg tca ctc ctc tca gtt gtc acc ctt gca gta gcc agc 48
Met Arg Leu Leu Ser Leu Leu Ser Val Val Thr Leu Ala Val Ala Ser
1 5 10 15

cct ctg agc gtt gaa gaa tac gcc aag gct ctc gat gaa cga gct gtc 96
Pro Leu Ser Val Glu Glu Tyr Ala Lys Ala Leu Asp Glu Arg Ala Val
20 25 30

tct gtc tcc acc acc gac ttt ggc aac ttc aag ttc tac atc cag cac 144
Ser Val Ser Thr Thr Asp Phe Gly Asn Phe Lys Phe Tyr Ile Gln His
35 40 45

ggc gcc gca gca tac tgc aac tcc gaa gcc ccg gcc ggt gca aag gtc 192
Gly Ala Ala Ala Tyr Cys Asn Ser Glu Ala Pro Ala Gly Ala Lys Val
50 55 60

acc tgc agc gga aac ggc tgt cca act gtt cag tcc aac ggt gct acc 240
Thr Cys Ser Gly Asn Gly Cys Pro Thr Val Gln Ser Asn Gly Ala Thr
Page 10

65											70											75											80	
atc Ile	gtg Val	gca Ala	tcc Ser	ttc Phe 85	act Thr	gga Gly	tcc Ser	aag Lys	act Thr 90	gga Gly	att Ile	ggc Gly	ggc Gly	tac Tyr 95	gtc Val	288																		
gct Ala	aca Thr	gac Asp	cct Pro 100	aca Thr	cgc Arg	aag Lys	gag Glu	atc Ile 105	gtc Val	gtc Val	tcg Ser	ttc Phe	cgt Arg 110	ggg Gly	agc Ser	336																		
atc Ile	aac Asn	atc Ile 115	cgc Arg	aac Asn	tgg Trp	ctt Leu	acc Thr 120	aac Asn	ctc Leu	gac Asp	ttc Phe	gac Asp 125	cag Gln	gac Asp	gac Asp	384																		
tgc Cys	agc Ser 130	ctg Leu	acc Thr	tcg Ser	ggc Gly	tgt Cys 135	ggg Gly	gtt Val	cac His	tca Ser	ggc Gly 140	ttc Phe	cag Gln	aat Asn	gcc Ala	432																		
tgg Trp 145	aac Asn	gag Glu	atc Ile	tca Ser	gcc Ala 150	gca Ala	gca Ala	acc Thr	gcc Ala	gct Ala 155	gtc Val	gca Ala	aag Lys	gcc Ala	cgc Arg 160	480																		
aag Lys	gca Ala	aac Asn	cct Pro	tcg Ser 165	ttc Phe	aag Lys	gtc Val	gtc Val	tcc Ser 170	gta Val	ggg Gly	cac His	tcc Ser	ctg Leu 175	ggg Gly	528																		
ggg Gly	gct Ala	gta Val	gct Ala 180	aca Thr	ctg Leu	gca Ala	ggc Gly	gca Ala 185	aat Asn	ctg Leu	cga Arg	att Ile	ggg Gly 190	gga Gly	aca Thr	576																		
ccc Pro	ctt Leu	gac Asp 195	atc Ile	tac Tyr	acc Thr	tac Tyr	ggg Gly 200	tca Ser	ccc Pro	cga Arg	ggt Val	gga Gly 205	aac Asn	aca Thr	cag Gln	624																		
ctc Leu	gct Ala 210	gcc Ala	ttt Phe	gtc Val	tcg Ser	aac Asn 215	cag Gln	gct Ala	ggg Gly	gga Gly	gag Glu 220	ttc Phe	cgc Arg	gtt Val	acg Thr	672																		
aac Asn 225	gcc Ala	aag Lys	gac Asp	ccc Pro	gtg Val 230	cct Pro	cgt Arg	ctc Leu	ccc Pro	cct Pro 235	ctg Leu	atc Ile	ttt Phe	gga Gly	tac Tyr 240	720																		
cga Arg	cac His	aca Thr	tcc Ser	ccc Pro 245	gag Glu	tac Tyr	tgg Trp	ctg Leu	tct Ser 250	ggc Gly	agc Ser	gga Gly	ggg Gly	gac Asp 255	aag Lys	768																		
atc Ile	gac Asp	tac Tyr	acc Thr 260	atc Ile	aac Asn	gat Asp	gtc Val	aag Lys 265	gtc Val	tgt Cys	gag Glu	ggg Gly	gcc Ala 270	gcc Ala	aac Asn	816																		
ctc Leu	cag Gln	tgc Cys 275	aac Asn	ggg Gly	gga Gly	aca Thr	ctc Leu 280	gga Gly	ttg Leu	gat Asp	atc Ile	gat Asp 285	gcc Ala	cat His	ctc Leu	864																		
cac His	tac Tyr 290	ttc Phe	cag Gln	gca Ala	acc Thr	gat Asp 295	gct Ala	tgc Cys	tct Ser	gct Ala	ggc Gly 300	ggc Gly	atc Ile	tcg Ser	tgg Trp	912																		
aga Arg 305	aga Arg	tac Tyr	agg Arg	agt Ser	gcc Ala 310	aag Lys	cgt Arg	gag Glu	agc Ser	atc Ile 315	tca Ser	gag Glu	agg Arg	gct Ala	acc Thr 320	960																		
atg Met	acc Thr	gat Asp	gcc Ala	gag Glu 325	ctc Leu	gag Glu	aag Lys	aag Lys	ctt Leu 330	aac Asn	agc Ser	tat Tyr	gtt Val	gag Glu 335	atg Met	1008																		
gat Asp	aag Lys	gag Glu	tat Tyr 340	atc Ile	aag Lys	act Thr	cac His	gcc Ala 345	agc Ser	cgc Arg	tca Ser	tca Ser				1047																		

<210> 16
 <211> 349
 <212> PRT
 <213> Gibberella zeae

<400> 16

```

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

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

Ser Val Ser Thr Thr Asp Phe Gly Asn Phe Lys Phe Tyr Ile Gln His
35     40     45

Gly Ala Ala Ala Tyr Cys Asn Ser Glu Ala Pro Ala Gly Ala Lys Val
50     55     60

Thr Cys Ser Gly Asn Gly Cys Pro Thr Val Gln Ser Asn Gly Ala Thr
65     70     75     80

Ile Val Ala Ser Phe Thr Gly Ser Lys Thr Gly Ile Gly Gly Tyr Val
85     90     95

Ala Thr Asp Pro Thr Arg Lys Glu Ile Val Val Ser Phe Arg Gly Ser
100    105    110

Ile Asn Ile Arg Asn Trp Leu Thr Asn Leu Asp Phe Asp Gln Asp Asp
115    120    125

Cys Ser Leu Thr Ser Gly Cys Gly Val His Ser Gly Phe Gln Asn Ala
130    135    140

Trp Asn Glu Ile Ser Ala Ala Ala Thr Ala Ala Val Ala Lys Ala Arg
145    150    155    160

Lys Ala Asn Pro Ser Phe Lys Val Val Ser Val Gly His Ser Leu Gly
165    170    175

Gly Ala Val Ala Thr Leu Ala Gly Ala Asn Leu Arg Ile Gly Gly Thr
180    185    190

Pro Leu Asp Ile Tyr Thr Tyr Gly Ser Pro Arg Val Gly Asn Thr Gln
195    200    205

Leu Ala Ala Phe Val Ser Asn Gln Ala Gly Gly Glu Phe Arg Val Thr
210    215    220

Asn Ala Lys Asp Pro Val Pro Arg Leu Pro Pro Leu Ile Phe Gly Tyr
225    230    235    240
    
```

PhoenixTemp5447.tmp.txt

Ile Asp Tyr Thr Ile Asn Asp Val Lys Val Cys Glu Gly Ala Ala Asn
260 265 270

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

His Tyr Phe Gln Ala Thr Asp Ala Cys Ser Ala Gly Gly Ile Ser Trp
290 295 300

Arg Arg Tyr Arg Ser Ala Lys Arg Glu Ser Ile Ser Glu Arg Ala Thr
305 310 315 320

Met Thr Asp Ala **Glu** Leu Glu Lys Lys **Leu** Asn Ser Tyr Val **Glu** Met
325 330 335

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

<210>	17
<211>	45
<212>	DNA
<213>	artificial sequence

<220>
<223> Primer 220506L1rev

<400> 17
gcagtatgct gcgggcgccgt gctggacgta gaacttgaag tttgc 45

<210>	18
<211>	46
<212>	DNA
<213>	artificial sequence

<220>
<223> Primer 220506L1fwp

<400> 18
cagcacggcg ccgcagcata ctgcaactac gaccgcgcag ctggag 46

<210>	19
<211>	47
<212>	DNA
<213>	artificial sequence

<220>
<223> Primer 220506L2rev

<400> 19
actgccacgg atagagacga caatctcctt gcgagttgcg tcagttg 47

<210>	20
<211>	45
<212>	DNA
<213>	artificial sequence

<220>
 <223> Primer 220506L2fwp
 <400> 20
 attgtcgtct ctatccgtgg cagtattaac gtccgcaact ggatc 45
 <210> 21
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L3rev
 <400> 21
 tgcaccaccc aagctatgtc cggtagcgac gatggtgtag cttgg 45
 <210> 22
 <211> 48
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L3fwp
 <400> 22
 accggacata gcttgggtgg tgcagttgct accttagcag ctgcttac 48
 <210> 23
 <211> 41
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L4rev
 <400> 23
 gtttccaact cggggtgaac cgaacgtgta cagatcgaca c 41
 <210> 24
 <211> 42
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L4fwp
 <400> 24
 gggtcacccc gagttggaaa cgactacttc gccaaacttcg tc 42
 <210> 25
 <211> 42
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L5rev
 <400> 25
 gggtggaaga cgaggaacag ggtcgtcgag gtgtgtcacg cg 42
 <210> 26
 <211> 44

<212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L5fwp
 <400> 26
 cctgttcctc gtcttcacc catcctcttt ggctaccgtc atac 44

<210> 27
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L6rev
 <400> 27
 gaggtgggca ataatatcaa ggccaagcgt gccggcattg cagtc 45

<210> 28
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L6fwp
 <400> 28
 ggccttgata ttattgccca cctcatatac ttccaggata cttcg 45

<210> 29
 <211> 29
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 230506L1
 <400> 29
 ggcaagcttc cgccaggtgt cagtcaccc 29

<210> 30
 <211> 46
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L7rev
 <400> 30
 gcagtatgct gcggcgccgt gctggagata aaacctgaag ttgac 46

<210> 31
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L7fwp
 <400> 31
 cagcacggcg ccgcagcata ctgcaatttc aatacggcag ttggc 45

<210> 32
 <211> 47
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L8rev

 <400> 32
 actgccacgg atagagacga caatctcctt acgagcggtg tcagttg 47

 <210> 33
 <211> 45
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L8fwp

 <400> 33
 attgtcgtct ctatccgtgg cagtatcaac gtgcgaaact ggatc 45

 <210> 34
 <211> 45
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L9rev

 <400> 34
 tgcaccaccc aagctatgtc cggtaacgac gaacttgaaa gtcgg 45

 <210> 35
 <211> 45
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L9fwp

 <400> 35
 accggacata gcttgggtgg tgcagtcgct actgtcgcgg ctgcg 45

 <210> 36
 <211> 42
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L10rev

 <400> 36
 gtttccaact cggggtgaac cgtaggtgta gaggtcaaaa gg 42

 <210> 37
 <211> 42
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L10fwp

<400> 37
 gggtcacccc gagttggaag cgactttttc gccaaacttcg tc 42

<210> 38
 <211> 42
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 220506L11rev

<400> 38
 ggggtggaaga cgaggaacag ggatcatcacc atgcgtgacg cg 42

<210> 39
 <211> 44
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 220506L11fwp

<400> 39
 cctgttcctc gtcttccacc catcgtcttt ggataccgctc atac 44

<210> 40
 <211> 43
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 220506L12rev

<400> 40
 gaggtgggca ataatatcaa ggcctattgt gccaccattg cac 43

<210> 41
 <211> 45
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 220506L12fwp

<400> 41
 ggccttgata ttattgccca cctcacctat ttccagagca tggcc 45

<210> 42
 <211> 43
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 220506L13rev

<400> 42
 gcagtatgct gcggcgccgt gctgtgcaaa gagattgaac tgg 43

<210> 43
 <211> 46
 <212> DNA
 <213> artificial sequence

<220>
 <223> Primer 220506L13fwp
 <400> 43
 cagcacggcg ccgcagcata ctgcggaaaa aacaatgatg ccccag 46
 <210> 44
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L14rev
 <400> 44
 actgccacgg atagagacga caatcaattt gttcgtgttg tcgag 45
 <210> 45
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L14fwp
 <400> 45
 attgtcgtct ctatccgtgg cagtcgttcc atagagaact ggatc 45
 <210> 46
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L15rev
 <400> 46
 tgcaccaccc aagctatgtc cggtaaacac cagcgcgatag tcggg 45
 <210> 47
 <211> 46
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L15fwp
 <400> 47
 accggacata gcttgggtgg tgcattggca actgttgccg gagcag 46
 <210> 48
 <211> 42
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L16rev
 <400> 48
 gtttccaact cggggtgaac catatgaaaa cacgtcgata tc 42
 <210> 49
 <211> 42

<212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L16fwp
 <400> 49
 gggtcacccc gagttggaaa cagggctttt gcagaattcc tg 42

<210> 50
 <211> 42
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L17rev
 <400> 50
 ggggtgaaga cgaggaacag gatcattggt gtgggtaatg cg 42

<210> 51
 <211> 44
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L17fwp
 <400> 51
 cctgttcctc gtcttcacc ccgcgaattc ggttacagcc attc 44

<210> 52
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L18rev
 <400> 52
 gaggtgggca ataatatcaa ggccgtagg ctggttattg ccgcc 45

<210> 53
 <211> 45
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 220506L18fwp
 <400> 53
 ggccttgata ttattgcca cctctggtac ttcgggttaa ttggg 45

<210> 54
 <211> 32
 <212> DNA
 <213> artificial sequence
 <220>
 <223> Primer 230506L2
 <400> 54
 ggcggatcca tatgctctc ctgtcactcc tc 32

<210> 55
 <211> 45
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L19rev

 <400> 55
 gcagtatgct gcggcgccgt gctggatgta gaacttgaag ttgcc 45

<210> 56
 <211> 46
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L19fwp

 <400> 56
 cagcacggcg ccgcagcata ctgcaactcc gaagccccgg ccggtg 46

<210> 57
 <211> 47
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L20rev

 <400> 57
 actgccacgg atagagacga caatctcctt gcgtgtaggg tctgtag 47

<210> 58
 <211> 47
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L20fwp

 <400> 58
 attgtcgtct ctatccgtgg cagtatcaac atccgcaact ggcttac 47

<210> 59
 <211> 45
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L21rev

 <400> 59
 tgcaccaccc aagctatgtc cgggtggagac gaccttgaac gaagg 45

<210> 60
 <211> 45
 <212> DNA
 <213> artificial sequence

 <220>
 <223> Primer 220506L21fwp

<400> 60
accggacata gcttgggtgg tgcagtagct acactggcag gcgcg 45

<210> 61
<211> 42
<212> DNA
<213> artificial sequence

<220>
<223> Primer 220506L22rev

<400> 61
gtttccaact cggggtgaac cgtaggtgta gatgtcaagg gg 42

<210> 62
<211> 42
<212> DNA
<213> artificial sequence

<220>
<223> Primer 220506L22fwp

<400> 62
ggttcacccc gagttggaac cacacagctc gctgcctttg tc 42

<210> 63
<211> 42
<212> DNA
<213> artificial sequence

<220>
<223> Primer 220506L23rev

<400> 63
gggtggaaga cgaggaacag ggtccttggc gttcgtaacg cg 42

<210> 64
<211> 42
<212> DNA
<213> artificial sequence

<220>
<223> Primer 220506L23fwp

<400> 64
cctgttcctc gtcttcacc cctgatcttt ggataccgac ac 42

<210> 65
<211> 45
<212> DNA
<213> artificial sequence

<220>
<223> Primer 220506L24rev

<400> 65
gaggtgggca ataatatcaa ggccgagtgt tccaccgttg cactg 45

<210> 66
<211> 46
<212> DNA
<213> artificial sequence

<220>

<223> Primer 220506L24fwp

<400> 66

ggccttgata ttattgccca cctccactac ttccaggcaa ccgatg

46

<210> 67

<211> 32

<212> DNA

<213> artificial sequence

<220>

<223> Primer 230506L3

<400> 67

cttaagcttg gctatgatga gcggctggcg tg

32