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<220>
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cgtggtacga caacgagtac ggc 23

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<400> 39
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<210> 43
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<213> Saccharomyces cerevisiae

<400> 47

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Pro Asn Gly Leu Thr Tyr Glu Gln Pro Thr Gly Leu Phe Ile Asn Asn
20 25 30

Lys Phe Met Lys Ala Gln Asp Gly Lys Thr Tyr Pro Val Glu Asp Pro
35 40 45

Ser Thr Glu Asn Thr Val Cys Glu Val Ser Ser Ala Thr Thr Glu Asp
50 55 60

Val Glu Tyr Ala Ile Glu Cys Ala Asp Arg Ala Phe His Asp Thr Glu
65 70 75 80

Trp Ala Thr Gln Asp Pro Arg Glu Arg Gly Arg Leu Leu Ser Lys Leu
85 90 95

Ala Asp Glu Leu Glu Ser Gln Ile Asp Leu Val Ser Ser Ile Glu Ala
100 105 110

Leu Asp Asn Gly Lys Thr Leu Ala Leu Ala Arg Gly Asp Val Thr Ile
115 120 125

Ala Ile Asn Cys Leu Arg Asp Ala Ala Ala Tyr Ala Asp Lys Val Asn
130 135 140

Gly Arg Thr Ile Asn Thr Gly Asp Gly Tyr Met Asn Phe Thr Thr Leu
145 150 155 160

Glu Pro Ile Gly Val Cys Gly Gln Ile Ile Pro Trp Asn Phe Pro Ile

165 170 175

Met Met Leu Ala Trp Lys Ile Ala Pro Ala Leu Ala Met Gly Asn Val
180 185 190

Cys Ile Leu Lys Pro Ala Ala Val Thr Pro Leu Asn Ala Leu Tyr Phe
195 200 205

Ala Ser Leu Cys Lys Lys Val Gly Ile Pro Ala Gly Val Val Asn Ile
210 215 220

Val Pro Gly Pro Gly Arg Thr Val Gly Ala Ala Leu Thr Asn Asp Pro
225 230 235 240

Arg Ile Arg Lys Leu Ala Phe Thr Gly Ser Thr Glu Val Gly Lys Ser
245 250 255

Val Ala Val Asp Ser Ser Glu Ser Asn Leu Lys Lys Ile Thr Leu Glu
260 265 270

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

Lys Thr Leu Pro Asn Leu Val Asn Gly Ile Phe Lys Asn Ala Gly Gln
290 295 300

Ile Cys Ser Ser Gly Ser Arg Ile Tyr Val Gln Glu Gly Ile Tyr Asp
305 310 315 320

Glu Leu Leu Ala Ala Phe Lys Ala Tyr Leu Glu Thr Glu Ile Lys Val
325 330 335

Gly Asn Pro Phe Asp Lys Ala Asn Phe Gln Gly Ala Ile Thr Asn Arg
340 345 350

Gln Gln Phe Asp Thr Ile Met Asn Tyr Ile Asp Ile Gly Lys Lys Glu
355 360 365

Gly Ala Lys Ile Leu Thr Gly Gly Glu Lys Val Gly Asp Lys Gly Tyr
370 375 380

Phe Ile Arg Pro Thr Val Phe Tyr Asp Val Asn Glu Asp Met Arg Ile
385 390 395 400

Val Lys Glu Glu Ile Phe Gly Pro Val Val Thr Val Ala Lys Phe Lys
405 410 415

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

Gly Ser Gly Ile Glu Thr Glu Ser Leu Ser Thr Gly Leu Lys Val Ala

435 440 445

Lys Met Leu Lys Ala Gly Thr Val Trp Ile Asn Thr Tyr Asn Asp Phe
450 455 460

Asp Ser Arg Val Pro Phe Gly Gly Val Lys Gln Ser Gly Tyr Gly Arg
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Glu Met Gly Glu Glu Val Tyr His Ala Tyr Thr Glu Val Lys Ala Val
485 490 495

Arg Ile Lys Leu
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<210> 48
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<220>
<223> S. cerevisiae codon optimized to Ustilago maydis

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acctacgagc agcccaccgg cctcttcatc aacaacaagt tcatgaaggc ccaggacggc 120

aagacctacc ccgtcgagga cccctcgacc gagaacaccg tctgcgaggt cagctcggcc 180

accaccgagg acgtggagta cgccatcgag tgcgccgacc gcgccttcca cgacaccgag 240

tgggccaccc aggaccctcg cgagcgcggt cgcctcctct ccaaactcgc cgacgaactc 300

gagtcgcaga tcgacctcgt cagctcgatc gaggccctcg acaacggcaa gaccctcgcc 360

ctcgctcgcg gcgacgtgac gatcgccatc aactgcctcc gcgacgccgc tgcctacgcc 420

gacaaggtca acggccgcac catcaacacc ggcgacggct acatgaactt caccaccctc 480

gagcccatcg gcgtctgcgg ccagatcatc ccctggaact tccccatcat gatgctcgcc 540

tggaagatcg cccctgccct cgccatgggc aacgtctgca tcctcaagcc tgccgccgtc 600

acccccctca acgccctcta cttcgcctcg ctctgcaaga aggtcggcat ccctgccggc 660

gtcgtcaaca tcgtccctgg ccctggccgc accgtcggcg ctgccctcac caacgacccc 720

cgcatccgca agctcgcctt caccggctcg accgaggtcg gcaagtcggt cgccgtcgac 780

tcgtcggagt cgaacctcaa gaagatcacg ctcgaactcg gcggcaagtc ggcccacctc 840

gtgtttgacg acgccaacat caagaaaacc ctccctaacc tcgtcaacgg catcttcaag 900

aacgccggcc agatctgctc gtcgggctcg cgcatctacg tccaggaagg catctacgac 960

gaactcctcg ccgccttcaa ggcctacctc gaaaccgaga tcaaggtcgg caacccccttc 1020

gacaaggcca acttccaggg cgccatcacc aaccgccagc agttcgacac catcatgaac 1080

tacatcgaca tcggcaagaa ggaaggcgct aagatcctca cgggcggtga aaaggtcggc 1140

gacaagggct acttcatccg ccccaccgtc ttttacgacg tgaacgagga catgcgcatc 1200

gtcaaggaag agatcttcgg ccccgtcgtc accgtcgcca agttcaagac cctcgaagag 1260

ggcgtcgaga tggctaactc gagcgaattt ggcctcggct cgggcatcga aaccgagtcg 1320

ctctcgaccg gcctcaaggt cgccaagatg ctcaaggccg gcaccgtctg gatcaacacc 1380

tacaacgact tcgactcgcg cgtccccttc ggcggcgtca agcagtcggg ctacggccgc 1440

gagatgggcg aggaagtcta ccacgcctac accgaggtca aggccgtccg catcaagctc 1500

tgatga 1506

<210> 49
<211> 1506
<212> DNA
<213> Artificial Sequence

<220>
<223> S. cerevisiae codon optimized to Rhizopus oryzae

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acttatgaac aaccaacagg tctttttatc aacaacaaat ttatgaaagc tcaggatggt 120

aaaacatatc cagttgaaga tccatcaaca gaaaatacag tttgtgaagt ttcatcagct 180

acaacagagg atgttgaata tgctattgaa tgtgctgatc gagctttca tgatacagaa 240

tgggctacac aagatccacg agaacgaggt cgacttcttt caaaacttgc tgatgaactt 300

gaatcacaaa ttgatcttgt ttcatcaatc gaagctcttg ataatggtaa aacacttgct 360

cttgctcgag gtgatgttac aattgctatc aattgtttgc gagatgctgc tgcttatgct 420

gataaagtta atggtcgaac aattaataca ggtgatggtt atatgaattt tacaacgctt 480

gaaccaattg gtgtttgtgg tcaaattatt ccatggaact ttccaattat gatgcttgct 540

tggaaaattg ctccagctct tgctatgggt aatgtttgta ttcttaaacc agctgctgtt 600

acaccactta atgcacttta ttttgcttca ctttgtaaaa aagttggtat tccagctggt 660

gttgttaata ttgttccagg tccaggtcga acagttggtg ctgctcttac aaatgatcca 720

cgtattcgaa aacttgcttt tacaggttca acagaagttg gtaaatcagt tgctgttgat 780

tcatcagagt caaacttgaa aaaaatcact cttgaacttg gtggtaaatc agctcatctt 840

gtctttgatg atgctaacat caaaaaaaca cttccaaacc ttgtcaatgg tatctttaaa 900

aacgctggtc aaatttgttc atcaggttca cgaatttatg tccaagaggg tatctatgat 960

gaacttcttg ctgcttttaa agcatatctt gagacagaaa ttaaagtcgg taacccattt 1020

gataaagcta attttcaagg tgctatcaca aatcgacaac aatttgatac gatcatgaac 1080

tatattgata tcggtaaaaa agaaggtgct aaaattctta caggtggtga aaaagttggt 1140

gataaaggtt attttatccg accaacagtc ttttatgatg tcaatgaaga tatgcgaatt 1200

gtcaaagaag aaatttttgg tccagttgtt acagttgcta aattcaagac acttgaagag 1260

ggtgttgaaa tggctaattc atcagaattt ggtcttggtt caggtattga aacagaatca 1320

ctttcaacag gtcttaaagt cgctaaaatg cttaaagctg gtacagtttg gattaacacg 1380

tataacgatt ttgattcacg agttccattt ggtggtgtta aacaatcagg ttatggtcga 1440

gaaatgggtg aagaagttta tcacgcttat acagaagtta aagctgtccg aatcaaactt 1500

taataa 1506

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<211> 683
<212> PRT
<213> Saccharomyces cerevisiae

<400> 50

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Ala Leu Lys Ala Pro Gln His Phe Tyr Asn Ser Gln Pro Gly Lys Gly
20 25 30

Tyr Val Thr Asp Met Gln His Tyr Gln Glu Met Tyr Gln Gln Ser Ile
35 40 45

Asn Glu Pro Glu Lys Phe Phe Asp Lys Met Ala Lys Glu Tyr Leu His
50 55 60

Trp Asp Ala Pro Tyr Thr Lys Val Gln Ser Gly Ser Leu Asn Asn Gly
65 70 75 80

Asp Val Ala Trp Phe Leu Asn Gly Lys Leu Asn Ala Ser Tyr Asn Cys
85 90 95

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

Glu Ala Asp Asp Glu Ser Asp Asn Lys Ile Ile Thr Phe Gly Glu Leu
115 120 125

Leu Arg Lys Val Ser Gln Ile Ala Gly Val Leu Lys Ser Trp Gly Val
130 135 140

Lys Lys Gly Asp Thr Val Ala Ile Tyr Leu Pro Met Ile Pro Glu Ala
145 150 155 160

Val Ile Ala Met Leu Ala Val Ala Arg Ile Gly Ala Ile His Ser Val
165 170 175

Val Phe Ala Gly Phe Ser Ala Gly Ser Leu Lys Asp Arg Val Val Asp
180 185 190

Ala Asn Ser Lys Val Val Ile Thr Cys Asp Glu Gly Lys Arg Gly Gly
195 200 205

Lys Thr Ile Asn Thr Lys Lys Ile Val Asp Glu Gly Leu Asn Gly Val
210 215 220

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Asp Leu Val Ser Arg Ile Leu Val Phe Gln Arg Thr Gly Thr Glu Gly
225                 230                 235                 240

Ile Pro Met Lys Ala Gly Arg Asp Tyr Trp Trp His Glu Glu Ala Ala
                245                 250                 255

Lys Gln Arg Thr Tyr Leu Pro Pro Val Ser Cys Asp Ala Glu Asp Pro
            260                 265                 270

Leu Phe Leu Leu Tyr Thr Ser Gly Ser Thr Gly Ser Pro Lys Gly Val
        275                 280                 285

Val His Thr Thr Gly Gly Tyr Leu Leu Gly Ala Ala Leu Thr Thr Arg
    290                 295                 300

Tyr Val Phe Asp Ile His Pro Glu Asp Val Leu Phe Thr Ala Gly Asp
305                 310                 315                 320

Val Gly Trp Ile Thr Gly His Thr Tyr Ala Leu Tyr Gly Pro Leu Thr
                325                 330                 335

Leu Gly Thr Ala Ser Ile Ile Phe Glu Ser Thr Pro Ala Tyr Pro Asp
            340                 345                 350

Tyr Gly Arg Tyr Trp Arg Ile Ile Gln Arg His Lys Ala Thr His Phe
        355                 360                 365

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

Glu Ile Ala Lys Tyr Asp Thr Ser Ser Leu Arg Val Leu Gly Ser Val
385                 390                 395                 400

Gly Glu Pro Ile Ser Pro Asp Leu Trp Glu Trp Tyr His Glu Lys Val
                405                 410                 415

Gly Asn Lys Asn Cys Val Ile Cys Asp Thr Met Trp Gln Thr Glu Ser
            420                 425                 430

Gly Ser His Leu Ile Ala Pro Leu Ala Gly Ala Val Pro Thr Lys Pro
        435                 440                 445

Gly Ser Ala Thr Val Pro Phe Phe Gly Ile Asn Ala Cys Ile Ile Asp
    450                 455                 460

Pro Val Thr Gly Val Glu Leu Glu Gly Asn Asp Val Glu Gly Val Leu
465                 470                 475                 480

Ala Val Lys Ser Pro Trp Pro Ser Met Ala Arg Ser Val Trp Asn His
                485                 490                 495
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His Asp Arg Tyr Met Asp Thr Tyr Leu Lys Pro Tyr Pro Gly His Tyr
500 505 510

Phe Thr Gly Asp Gly Ala Gly Arg Asp His Asp Gly Tyr Tyr Trp Ile
515 520 525

Arg Gly Arg Val Asp Asp Val Val Asn Val Ser Gly His Arg Leu Ser
530 535 540

Thr Ser Glu Ile Glu Ala Ser Ile Ser Asn His Glu Asn Val Ser Glu
545 550 555 560

Ala Ala Val Val Gly Ile Pro Asp Glu Leu Thr Gly Gln Thr Val Val
565 570 575

Ala Tyr Val Ser Leu Lys Asp Gly Tyr Leu Gln Asn Asn Ala Thr Glu
580 585 590

Gly Asp Ala Glu His Ile Thr Pro Asp Asn Leu Arg Arg Glu Leu Ile
595 600 605

Leu Gln Val Arg Gly Glu Ile Gly Pro Phe Ala Ser Pro Lys Thr Ile
610 615 620

Ile Leu Val Arg Asp Leu Pro Arg Thr Arg Ser Gly Lys Ile Met Arg
625 630 635 640

Arg Val Leu Arg Lys Val Ala Ser Asn Glu Ala Glu Gln Leu Gly Asp
645 650 655

Leu Thr Thr Leu Ala Asn Pro Glu Val Val Pro Ala Ile Ile Ser Ala
660 665 670

Val Glu Asn Gln Phe Phe Ser Gln Lys Lys Lys
675 680

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<223> S.cerevisiae codon optimized to Ustilago maydis

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caggagatgt accagcagtc gatcaacgag cccgagaagt tcttcgacaa gatggccaag 180

gagtacctcc actgggacgc cccctacacc aaggtccagt cgggctcgct caacaacggc 240

gatgtcgcct ggttcctcaa cggcaagctc aacgcctcgt acaactgcgt cgaccgccac 300

gccttcgcca accccgacaa gcccgccctc atctacgagg ccgacgacga gtcggacaac 360

aagatcatca ccttcggcga actcctccgc aaggtctcgc agatcgccgg cgtcctcaag 420

tcgtggggcg tcaagaaggg cgacaccgtc gccatctacc tccccatgat ccccgaggcc 480

gtcatcgcca tgctcgccgt cgcccgcatc ggcgccatcc actcggtcgt ctttgccggc 540

ttctcggccg gctcgctcaa ggaccgcgtc gtcgatgcca actcgaaggt cgtcatcacc 600

tgcgacgagg gcaagcgcgg tggcaagacc atcaacacca agaagatcgt cgacgaaggc 660

ctcaacggcg tcgacctcgt ctcgcgcatc ctcgtctttc agcgcaccgg caccgagggc 720

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gccgccgtcg tcggcatccc cgacgaactc accggccaga ccgtcgtcgc ctacgtctcg 1740

ctcaaggacg gctacctcca gaacaacgcc accgagggcg acgccgagca catcaccccc 1800

gacaacctcc gccgcgaact catcctccag gtccgcggcg agatcggccc cttcgcctcg 1860

cccaagacca tcatcctcgt ccgcgacctc cctcgcaccc gctcgggcaa gatcatgcgc 1920

cgcgtcctcc gcaaggtcgc ctcgaacgag gccgagcagc ttggtgacct caccaccctc 1980

gccaaccctg aggtcgtccc cgccatcatc tcggccgtcg agaaccagtt cttctcgcaa 2040

aagaagaagt ga 2052

<210> 52
<211> 611
<212> PRT
<213> Rhizopus oryzae

<400> 52

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Met Ser Lys Leu Arg Arg Arg Lys Gln Glu Lys Thr Thr Lys Thr Asn
1               5                  10                  15

Asp Gln Glu Leu Pro Glu Asp Ile Met Ala Asp Ser Ala Ala Asn Val
            20                  25                  30

Phe Lys Glu Lys Arg Pro Phe Trp Gly Arg Lys Arg Phe Asn Phe Ile
        35                  40                  45

Val Gly Leu Ser Val Gly Leu Leu Ala Met Tyr Ala Ala Ser Thr Thr
    50                  55                  60

Pro Val Ala Gln Ser His Ile Asn Ser Leu Gln His Tyr Leu Leu Leu
65                  70                  75                  80

Gln Leu Ala Asp Ile Asp Leu Ala Ser Ile Leu Pro Ala Thr Glu Met
                85                  90                  95

Val Asp Glu Phe Leu Gly Asn Phe Thr Asn Leu Ile Thr Pro Thr Pro
            100                 105                 110

Ala Thr Glu Met Ser Phe Met Pro Ala Leu Glu Tyr Lys Glu Ser Leu
        115                 120                 125

Asp Leu Lys Pro Gln Phe Pro Val Val Met Ile Pro Ala Met Val Arg
    130                 135                 140

Ser Val Leu Leu Asp Lys Glu Ser Trp Thr Glu His Ile Met Leu Asp
145                 150                 155                 160

Pro Glu Thr Gly Leu Asp Pro Pro Gly Tyr Lys Val Arg Ala Val His
                165                 170                 175

Glu Lys Lys Gly Val Glu Ala Ala Asp Tyr Phe Ile Thr Gly Tyr Trp
            180                 185                 190

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

Asn Asn Met Tyr Phe Ala Ser Tyr Asp Trp Arg Leu Ser Phe Ser Asn
    210                 215                 220

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

Leu Ser Lys Lys Gln Ser Gly Gln Lys Ser Val Ile Ile Thr His Ser
                245                 250                 255

Met Gly Gly Thr Met Phe Pro Tyr Phe Leu Lys Trp Val Glu Ser Lys
            260                 265                 270
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Gly His Gly Gln Gly Gly Gln Lys Trp Val Asp Glu His Ile Glu Ser
        275                 280                 285

Phe Val Asn Ile Ala Ala Pro Leu Val Gly Val Pro Lys Ala Val Thr
    290                 295                 300

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

Gly Ala Tyr Val Leu Glu Lys Phe Phe Ser Arg Arg Glu Arg Ala Lys
                325                 330                 335

Leu Met Arg Ser Trp Met Gly Gly Ala Ser Met Leu Pro Lys Gly Gly
            340                 345                 350

Glu Ala Ile Trp Gly Arg Gly Gly Asn Ala Pro Asp Asp Glu Glu Asp
        355                 360                 365

Glu Lys Tyr Gln Ser Phe Gly Asn Met Ile Ser Phe Val Pro Arg Pro
    370                 375                 380

Glu Gly Phe Asn Glu Asn Ser Thr Asp Ile Pro Ser Asn Ser Gly Asp
385                 390                 395                 400

Pro Leu Val Arg Asn Tyr Thr Val Gln Gly Ser Ile Gln Leu Leu Thr
                405                 410                 415

Lys Asn Ala Asp Ile Lys Phe Gly Lys Gln Leu Tyr Ala Asn Tyr Ser
            420                 425                 430

Phe Gly Leu Thr Thr Ser Ser Lys Gln Leu Lys Arg Asn Glu Asn Asp
        435                 440                 445

Pro Thr Lys Trp Ser Asn Pro Leu Glu Ser Arg Leu Pro Asn Ala Pro
    450                 455                 460

Asn Met Lys Ile Tyr Cys Phe Tyr Gly Ile Glu Val Pro Thr Glu Arg
465                 470                 475                 480

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

His Ser Asn Ser Thr Ala Glu Cys Thr Thr Glu Gln Asn Ala Glu Pro
            500                 505                 510

Asn Ser Ser Pro Ala Val Ala Lys Thr Ser Ser Ala Ala Phe Pro Asp
        515                 520                 525

Lys Thr Pro Ser Leu His Ile Asp Ala Ser Ile Asn Asp Pro Val Gln
    530                 535                 540
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Arg Ile Glu Thr Gly Ile Arg Phe Ser Asn Gly Asp Gly Thr Val Pro
545                 550                 555                 560

Leu Leu Ser Leu Gly Tyr Met Cys Ala Pro Ser Gly Gly Trp Arg Lys
                565                 570                 575

His Ala Asp Leu Tyr Asn Pro Gly His Ser Pro Val Val Leu Arg Glu
            580                 585                 590

Tyr Lys His Glu Val Ser Thr Ser Lys Leu Asp Val Arg Gly Gly Trp
        595                 600                 605

Ile Ser Tyr
    610
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<210> 53
<211> 1836
<212> DNA
<213> Artificial Sequence

<220>
<223> Rhizopus oryzae codon optimized to Ustilago maydis

<400> 53

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atgtcgaagc tccgccgtcg caagcaggaa aagaccacca agaccaacga ccaggaactc       60

cccgaggaca tcatggctga ctcggccgcc aacgtcttta aggagaagcg ccccttctgg      120

ggccgcaagc gcttcaactt catcgtcggc ctcagcgtcg gcctcctcgc catgtacgcc      180

gccagcacca cccctgtcgc ccagtcgcac atcaactcgc tccagcacta cctcctcctc      240

caactcgccg acatcgacct cgcctcgatc ctccccgcca ccgagatggt cgacgagttc      300

ctcggcaact tcaccaacct catcaccccc acccctgcta cggagatgtc gttcatgccc      360

gccctcgagt acaaggagtc gctcgacctc aagccccagt tccccgtcgt catgatcccc      420

gctatggtcc gctcggtcct cctcgacaag gaaagctgga ccgagcacat catgctcgac      480

cccgaaacgg gcctcgaccc acccggctac aaggtccgcg ccgtccacga gaagaagggc      540

gtcgaggccg ccgactactt catcaccggc tactgggtct gggccaaggt catcgagaac      600

ctcgccacca tcggctacga caccaacaac atgtacttcg cctcgtacga ctggcgcctc      660

tcgttctcga acctcgaagt ccgcgacggc tacttctcga agctcaagca caccatcgaa      720

ctctcgaaga agcagtcggg ccagaagtcg gtcatcatca cccactcgat gggcggcacc      780

atgttccctt actttctcaa gtgggtcgag tcgaagggcc acggccaggg cggtcagaag      840

tgggtcgacg agcacatcga gtcgttcgtc aacatcgctg ccccctcgt cggcgtcccc      900

aaggccgtca cctcgctcct ctcgggcgag acccgcgaca ccatggccct cggctcgttc      960

ggcgcctacg tcctcgagaa gttcttctcg cgtcgagagc gcgccaagct catgcgctcg     1020

tggatgggcg gtgcctcgat gctccccaag ggcggcgagg ctatctgggg tcgcggcggt     1080

aacgcccccg acgacgagga ggacgagaag taccaatcgt tcggtaacat gatctcgttc     1140
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gtccctcgcc ccgagggctt caacgagaac tcgaccgaca tcccctcgaa ctcgggcgac 1200

cccctcgtcc gcaactacac cgtccagggc tcgatccagc tcctcaccaa gaacgccgac 1260

atcaagttcg gcaagcagct ctacgccaac tactcgttcg gcctcaccac ctcgtcgaag 1320

cagctcaagc gcaacgagaa cgaccccacc aagtggtcga acccctcga gtcgcgcctc 1380

cccaacgccc ccaacatgaa gatctactgc ttctacggca tcgaggtccc caccgaacgc 1440

tcgtactact acgccatcct caacgagaac atggaccagg agtgcggcca ctcgaactcg 1500

accgccgagt gcaccaccga gcagaacgcc gagcccaact cgtcgcctgc tgtcgccaag 1560

acctcgtcgg ccgccttccc cgacaagacc ccttcgctcc acatcgacgc ctcgatcaac 1620

gaccctgtcc agcgcatcga gaccggcatc cgcttctcga acggcgacgg caccgtcccg 1680

ctcctctcgc tcggctacat gtgcgccccc tcgggcggtt ggcgcaagca cgccgacctc 1740

tacaaccccg gccactcgcc cgtcgtcctc cgcgagtaca agcacgaggt ctcgacctcg 1800

aagctcgatg tccgcggtgg ctggatctcg tactga 1836

<210> 54
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 54
gaggtygtcg tykcycctcc yg 22

<210> 55
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 55
gcgaccttrc crgtrccgat rgccc 25

<210> 56
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 56
aacaacccaa tcaacaccca tatcc 25

<210> 57
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 57
ttttgagcag caaccttgat ttcc 24

<210> 58
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 58
cgggatcccg gaattccagc ctctctaaac gagagttatc cc 42

<210> 59
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 59
tccccccggg cctgcagggt tgaatatata aagtttttt ttagaaaaaa 50

<210> 60
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 60
ggtgtctccg tcattgcctg tattg 25

<210> 61
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 61
gtcgctcgtc aaatgaaggc tattg 25

<210> 62
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 62
gctctagagc ctgcagggtt gcttcgctcc cctccc 36

<210> 63
<211> 33
<212> DNA

<213> Artificial Sequence

<220>
<223> primer

<400> 63
cgggatcccg cactgccaga ctaaacgcca gag 33

<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 64
cggtaagggt tcyttcaagt acgc 24

<210> 65
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 65
ggaagacgga grggcttgt 19

<210> 66
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 66
ttgtacttgg gggtctcgaa cttcc 25

<210> 67
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 67
gataccacgc tcagcttcag cc 22

<210> 68
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 68
ggatggatgg atggatgcat agtatg 26

<210> 69
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 69
cacaacactt ctccaaatct gagaagc 27

<210> 70
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 70
cccaagcttg ggagcaatgc taaaaaagcc tgg 33

<210> 71
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 71
tgtgtgcctg caggtttgaa taactatagt atagattttt agtacatcga tgg 53

<210> 72
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 72
gggatggaac aaggagacca agg 23

<210> 73
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 73
gactctcctc gaagccatcg atg 23

<210> 74
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 74
ccaaggccgc cgcc 14

<210> 75
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 75
gcccttgtat aaagtgtgct tttgg 25

<210> 76
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 76
tccccccggg cctgcaggat tgctacctgc tagtttttc tt 42

<210> 77
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 77
ggaattccaa aagtcttttt gggtgtcttt ag 32

<210> 78
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (14)..(14)
<223> n is a, c, g, or t

<400> 78
tcaccaacaa cmancgtaty gt 22

<210> 79
<211> 23
<212> DNA
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<220>
<223> primer

<220>
<221> misc_feature
<222> (18)..(18)
<223> n is a, c, g, or t

<400> 79
tggaaacgma ggttytcnar aag 23

<210> 80
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 80
caacagcctc accgttggg 19

<210> 81
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 81
gcagcacctt gttcaagggc 20

<210> 82
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 82
gacactgttt tgaaatgcct aacccatac 29

<210> 83
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 83
gtacggaaaa cagagtcatg gtgc 24

<210> 84
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 84
tccccgcggg gatcccaagg cactaccact acttc 35

<210> 85
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 85
gctctagagc ctgcagggat taattatatg attcaatgat gaagataa 48

<210> 86
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 86
ctcgacggaa ccatcgaaac g 21

<210> 87
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 87
gaaggacaat acgaccaata cgaccg 26

<210> 88
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 88
ggcttctttc cttggtgaat aaagtgagtt ac 32

<210> 89
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 89
cggaaattat ccgttcaaac tatcgccc 28

<210> 90
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 90
agccaaaagt tgaattcgac 20

<210> 91
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 91
cccaagcttc ctgcaggttt tagaatttat gaaatatata tataaaaga tataatatg 59

<210> 92
<211> 2052
<212> DNA
<213> Artificial Sequence

<220>
<223> S.cerevisiae codon optimized to Rhizopus oryzae

<400> 92
atgacaatta aagaacataa agtcgtttat gaagctcata atgttaaagc tcttaaagca 60

ccacaacatt tctataattc acaaccaggt aaaggttatg tcacagatat gcagcattat 120

caagaaatgt atcaacaatc aatcaacgaa ccagagaaat ttttcgataa gatggctaaa 180

gaatatcttc attgggatgc tccatataca aaagttcaat caggttcact taacaatggt 240

gatgttgctt ggtttcttaa tggtaaactt aacgcttcat ataattgtgt tgatcgacat 300

gcttttgcta atccagataa accagctctt atctatgaag ctgatgatga atcagataac 360

aaaatcatca catttggtga acttttgcga aaagtttcac aaattgctgg tgttcttaaa 420

tcatggggtg ttaaaaaagg tgatacagtt gctatctatc ttccaatgat tcctgaagct 480

gttattgcta tgcttgctgt tgctcgaatt ggtgctattc attcagttgt ttttgctggt 540

ttttcagctg gttcacttaa agatcgagtt gttgatgcta attcaaaagt tgttatcaca 600

tgtgatgaag gtaaacgagg tggtaaaaca attaacacga aaaaaatcgt tgatgaaggt 660

cttaatggtg ttgatcttgt ttcacgtatt cttgtttttc aacgaacagg tactgaaggt 720

attccaatga aagctggtcg agattattgg tggcatgaag aagctgctaa acaacgaaca 780

tatcttccac cagtttcatg tgatgctgaa gatccacttt ttcttttgta tacatctggt 840

tcaacaggtt ctccaaaagg tgttgttcat acaacaggtg gttatcttct tggtgctgct 900

cttacaacac gatatgtctt tgatattcat ccagaagatg ttctttttac agcaggtgat 960

gttggttgga ttacaggtca tacttatgca ctttatggtc cacttacact tggtacagct 1020

tcaattatct ttgaatcaac gccagcttat ccagattatg gtcgatattg gcgaattatt 1080

caacgacata aagctacaca tttttatgtc gctccaacag cacttcgact tattaaacga 1140

gttggtgaag ctgaaattgc aaaatatgat acatcatcac ttcgagttct tggttcagtt 1200

ggtgaaccaa tttcaccaga tctttgggaa tggtatcatg aaaaagttgg taacaaaaat 1260

tgtgttatct gtgatacaat gtggcaaaca gaatcaggtt ctcatcttat tgctccactt 1320

gctggtgctg ttccaacaaa accaggttca gctacagttc catttttgg tatcaatgct 1380

tgtattattg atccagttac aggtgttgaa cttgaaggta atgatgttga aggtgttctt 1440

gctgttaaat caccatggcc atcaatggct cgatcagttt ggaatcatca tgatcgttat 1500

atggatacgt atcttaaacc atatccaggt cactatttta caggtgatgg tgcaggtcga 1560

gatcatgatg gttattattg gattcgaggt cgagttgatg atgttgttaa tgtttcaggt 1620

catcgacttt caacatcaga aattgaagca tcaatttcaa accatgaaaa tgtttcagaa 1680

gctgctgttg ttggtattcc agatgaactt acaggtcaaa cagttgttgc ttatgtctct 1740

cttaaagatg gttatcttca aaacaatgct actgaaggtg atgctgaaca tattacacca 1800

gataatcttc gacgagaact tattcttcaa gttcgaggtg aaattggtcc atttgcttca 1860

ccaaaaacaa ttattcttgt tcgagatctt ccacgaacac gatcaggtaa aatcatgcga 1920

cgagttcttc gaaaagttgc ttcaaatgaa gctgaacaac ttggtgatct tacaacactt 1980

gcaaatccag aagttgttcc agctattatt tcagctgtcg aaaaccagtt tttctcacag 2040

aaaaagaagt aa 2052

<210> 93
<211> 1836
<212> DNA
<213> Artificial Sequence

<220>
<223> Rhizopus oryzae codon optimized to Rhizopus oryzae

<400> 93
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cctgaagata ttatggctga ttcagctgct aatgtcttta aagagaaacg accattttgg 120

ggtcgaaaac gatttaactt tatcgttggt ctttcagttg gtcttttggc aatgtatgct 180

gcttcaacaa caccagttgc tcaatcacat attaactcac ttcagcacta tcttttgctt 240

caacttgctg atattgatct tgcttcaatt cttccagcta cagaaatggt tgatgaattt 300

cttggtaact ttacaaatct tatcacacca acaccagcaa cagaaatgtc atttatgcca 360

gctcttgaat ataaagagtc acttgatctt aaaccacaat ttccagttgt tatgattcca 420

gctatggttc gatcagttct tcttgataaa gaatcatgga cagaacatat tatgcttgat 480

ccagaaacag gtcttgatcc accaggttat aaagttcgag ctgtccatga aaaaaaaggt 540

gttgaagctg ctgattattt cattacaggt tattgggttt gggctaaagt tattgaaaat 600

cttgctacga ttggttatga tacgaacaac atgtattttg cttcatatga ttggcgactt 660

tcattttcaa atcttgaagt ccgagatggt tatttttcaa aacttaaaca cacgatcgag 720

ctttcaaaaa aacaatcagg tcagaaatca gtcattatca cacattcaat gggtggtaca 780

atgtttccat attttcttaa atgggtcgaa tcaaaaggtc atggtcaagg tggtcaaaaa 840

tgggttgatg aacatattga atcatttgtc aatattgctg ctccacttgt tggtgttcca 900

aaagctgtta catcacttct ttcaggtgaa acacgagata caatggctct tggttcattt 960

ggtgcttatg tccttgagaa attcttttca cgacgagaac gagctaaact tatgcgatca 1020

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ccacttgttc gaaattatac agtccaaggt tcaattcaac ttcttacgaa aaacgctgat 1260

atcaaatttg gtaaacagct ttatgctaac tattcatttg gtcttacaac atcatcaaaa 1320

cagcttaaac gaaatgaaaa cgatccaaca aaatggtcaa atccacttga atcacgactt 1380

ccaaatgctc caaacatgaa aatctattgt ttttatggta ttgaagttcc aacagagcga 1440

tcatattatt atgctatcct taacgaaaat atggatcaag aatgtggtca ttcaaattca 1500

acagctgaat gtacaacaga acaaaatgct gaaccaaatt catcaccagc tgttgctaaa 1560

acatcatcag ctgcttttcc agataaaaca ccatcacttc atattgatgc ttcaattaat 1620

gatccagtcc aacgaattga aacaggtatt cgattttcaa atggtgatgg tacagttcca 1680

cttctttcac ttggttatat gtgtgctcca tcaggtggtt ggcgaaaaca tgctgatttg 1740

tataatccag gtcattcacc agttgttctt cgagaatata aacatgaagt ctcaacgtca 1800

aaacttgatg ttcgaggtgg ttggatttca tattaa 1836

<210> 94
<211> 1701
<212> DNA
<213> Saccharomyces cerevisiae

<400> 94
atgtctgaaa ttactttggg taaatatttg ttcgaaagat taaagcaagt caacgttaac 60

accgttttcg gtttgccagg tgacttcaac ttgtccttgt tggacaagat ctacgaagtt 120

gaaggtatga gatgggctgg taacgccaac gaattgaacg ctcgttacgc cgctgatggt 180

tacgctcgta tcaagggtat gtcttgtatc atcaccacct tcggtgtcgg tgaattgtct 240

gctttgaacg gtattgccgg ttcttacgct gaacacgtcg gtgttttgca cgttgttggt 300

gtcccatcca tctcttctca agctaagcaa ttgttgttgc accacacctt gggtaacggt 360

gacttcactg ttttccacag aatgtctgcc aacatttctg aaaccactgc tatgatcact 420

gacatctgta ccgccccagc tgaaattgac agatgtatca gaaccactta cgtcacccaa 480

agaccagtct acttaggttt gccagctaac ttggtcgact tgaacgtccc agctaagttg 540

ttgcaaactc caattgacat gtctttgaag ccaaacgatg ctgaatccga aaaggaagtc 600

attgacacca tcttggtctt ggctaaggat gctaagaacc cagttatctt ggctgatgct 660

tgttgttcca gacacgacgt caaggctgaa actaagaagt tgattgactt gactcaattc 720

ccagctttcg tcaccccaat gggtaagggt tccattagcg aacaacaccc aagatacggt 780

ggtgtttacg tcggtacctt gtccaagcca gaagttaagg aagccgttga atctgctgac 840

ttgattttgt ctgtcggtgc tttgttgtct gatttcaaca ccggttcttt ctcttactct 900

tacaagacca agaacattgt cgaattccac tccgaccaca tgaagatcag aaacgccact 960

ttcccaggtg tccaaatgaa attcgttttg caaaagttgt tgaccaatat tgctgacgcc 1020

gctaagggtt acaagccagt tgctgtccca gctagaactc cagctaacgc tgctgtccca 1080

gcttctaccc cattgaagca agaatggatg tggaaccaat tgggtaactt cttgcaagaa 1140

ggtgatgttg tcattgctga aaccggtacc tccgctttcg gtatcaacca aaccactttc 1200

ccaaacaaca cctacggtat ctctcaagtc ttatggggtt ccattggttt caccactggt 1260

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