TPI Appl 1 seq listing_ST25

SEQUENCE LISTING

<110> Sime Darby Technology Centre Sdn Bhd

<120> Methods and Kits for Increasing or Predicting Oil Yield

<130> RDQL-J4831

<160> 9

<170> PatentIn version 3.5

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            20                  25                  30

Pro Ser Ser Asp Val Val Glu Val Val Ile Ser Pro Pro Tyr Val Phe
        35                  40                  45

Leu Pro Leu Val Lys Ser Ser Leu Arg Pro Asp Phe His Val Ala Ala
    50                  55                  60

Gln Asn Cys Trp Val Lys Lys Gly Gly Ala Phe Thr Gly Glu Val Ser
65                  70                  75                  80

Ala Glu Met Leu Lys Asn Ile Asp Ile His Trp Val Ile Leu Gly His
                85                  90                  95

Ser Glu Arg Arg Leu Leu Leu Gly Glu Ser Asn Glu Phe Val Gly Asp
            100                 105                 110

Lys Val Ala Tyr Ala Leu Ser Gln Gly Leu Lys Val Ile Ala Cys Val
        115                 120                 125

Gly Glu Thr Leu Glu Gln Arg Glu Ser Gly Ala Thr Met Asp Val Val
    130                 135                 140

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

Val Val Val Ala Tyr Glu Pro Val Trp Ala Ile Gly Thr Gly Lys Val
                165                 170                 175

Ala Thr Pro Ala Gln Ala Gln Glu Val His Phe Ala Leu Arg Lys Trp
            180                 185                 190

Leu Glu Thr Asn Val Ser Ala Gln Val Ala Glu Ser Thr Arg Ile Ile
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195 200 205

Tyr Gly Gly Ser Val Asn Gly Ala Asn Cys Lys Glu Leu Ala Ala Gln
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Pro Asp Val Asp Gly Phe Leu Val Gly Gly Ala Ser Leu Lys Ala Glu
225 230 235 240

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245 250

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Ala Arg Glu Arg Ala Pro Ser Leu Ser Ser Ile Leu Phe Phe His Gly
20 25 30

Ala Ser Cys Gln Arg Arg Pro Phe Ser Thr Arg Arg Ala Pro Arg Gly
35 40 45

Val Val Ala Met Ala Gly Thr Gly Lys Phe Phe Val Gly Gly Asn Trp
50 55 60

Lys Cys Asn Gly Met Lys Asp Ser Ile Ser Lys Leu Val Ala Asp Leu
65 70 75 80

Asn Asp Ala Lys Met Glu Asn Asp Val Asp Val Ala Val Ala Pro Pro
85 90 95

Phe Ile Tyr Ile Asp Gln Val Asn Asn Ser Leu Thr Asp Arg Ile Asp
100 105 110

Ile Ser Ala Gln Asn Cys Trp Val Gly Lys Gly Gly Ala Phe Thr Gly
115 120 125

Glu Ile Ser Ala Glu Gln Leu Ile Asp Met Gly Cys Lys Trp Val Ile
130 135 140

Leu Gly His Ser Glu Arg Arg His Ile Ile Gly Glu Asp Asp Gln Phe
145 150 155 160

Ile Gly Lys Lys Ala Ala Tyr Ala Leu Ser Gln Asn Leu Lys Val Ile
165 170 175

Ala Cys Ile Gly Glu Lys Leu Glu Glu Arg Glu Ala Gly Lys Thr Phe
180 185 190

```
Asp Val Cys Phe Gln Gln Met Lys Ala Phe Ala Asp Ser Ile Thr Ser
        195                 200                 205

Trp Glu Asp Val Val Ile Ala Tyr Glu Pro Val Trp Ala Ile Gly Thr
    210                 215                 220

Gly Lys Val Ala Thr Pro Glu Gln Ala Gln Glu Val His Gly Ala Val
225                 230                 235                 240

Arg Asp Trp Leu Lys Lys Asn Ile Ser Glu Glu Val Ala Ser Ser Thr
                245                 250                 255

Arg Ile Ile Tyr Gly Gly Ser Val Asn Gly Ser Asn Cys Ser Glu Leu
            260                 265                 270

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

Lys Gly Pro Glu Phe Gly Thr Ile Val Asn Ser Val Thr Ser Lys Lys
    290                 295                 300

Val Ala Ala
305
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<210> 3
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<213> Elaeis guineensis

<400> 3

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

His His Ile Gly Leu Asn Leu Glu Glu Lys Leu Asp Glu Phe Arg Arg
            20                  25                  30

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

Ala Gly Ala Trp Gly Ser Val Phe Ala Ala Leu Leu Gln Glu Ser Tyr
    50                  55                  60

Gly Gly Phe Arg Asp Lys Phe Gln Ile Arg Ile Trp Arg Arg Ala Gly
65                  70                  75                  80

Arg Ala Val Asp Arg Glu Thr Ala Glu His Leu Phe Glu Val Ile Asn
                85                  90                  95

Ser Arg Glu Asp Ile Leu Arg Arg Leu Ile Arg Arg Cys Ala Tyr Leu
            100                 105                 110
```

```
Lys Tyr Val Glu Ala Arg Leu Gly Asp Arg Thr Leu Tyr Ala Asp Glu
        115                 120                 125

Ile Leu Lys Asp Gly Phe Cys Leu Asn Met Val Asp Thr Pro Leu Cys
    130                 135                 140

Pro Leu Lys Val Val Thr Asn Leu Gln Glu Ala Val Trp Asp Ala Asp
145                 150                 155                 160

Ile Val Val Asn Gly Leu Pro Ser Thr Glu Thr Arg Glu Val Phe Glu
                165                 170                 175

Glu Ile Ser Lys Tyr Trp Lys Glu Arg Ile Thr Val Pro Ile Ile Ile
            180                 185                 190

Ser Leu Ser Lys Gly Ile Glu Thr Ala Leu Glu Pro Val Pro His Ile
        195                 200                 205

Ile Thr Pro Thr Lys Met Ile His Gln Ala Thr Gly Val Pro Ile Asp
    210                 215                 220

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

Lys Glu Tyr Ala Asn Ala Arg Ile Cys Gly Ala Ala Lys Trp Arg Lys
                245                 250                 255

Pro Leu Ala Lys Phe Leu Arg Gln Pro His Phe Ile Val Trp Asp Asn
            260                 265                 270

Ser Asp Leu Val Thr His Glu Val Met Gly Gly Leu Lys Asn Val Tyr
        275                 280                 285

Ala Ile Gly Ala Gly Met Val Ala Ala Leu Thr Asn Glu Ser Ala Thr
    290                 295                 300

Ser Lys Ser Val Tyr Phe Ala His Cys Thr Ser Glu Met Ile Phe Ile
305                 310                 315                 320

Thr His Leu Leu Ala Glu Glu Pro Glu Lys Leu Ala Gly Pro Leu Leu
                325                 330                 335

Ala Asp Thr Tyr Val Thr Leu Leu Lys Gly Arg Asn Ala Trp Tyr Gly
            340                 345                 350

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

Ser Gly Lys Gly Met Ile Gln Gly Val Ser Ala Val Gly Ala Phe Tyr
    370                 375                 380
```

```
Gln Leu Leu Ser Gln Ser Ser Leu Ser Ile Leu Pro Ser Glu Glu Lys
385                 390                 395                 400

Lys Pro Val Ala Pro Val Glu Ser Cys Pro Ile Leu Lys Thr Leu Tyr
                405                 410                 415

Lys Ile Leu Ile Thr Arg Glu Gln Ser Thr Gln Ala Ile Leu Gln Ala
            420                 425                 430

Leu Arg Asp Glu Thr Leu Asn Asp Pro Arg Asp Arg Ile Glu Ile Ala
        435                 440                 445

Gln Ser His Ala Phe Tyr Arg Pro Ser Leu Leu Gly Gln Pro
    450                 455                 460
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<213> Elaeis guineensis

<400> 4

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Met Glu Arg Ser Ala Glu Ala Ser Arg Arg Ile Ala Arg Ile Ser Ser
1               5                   10                  15

His Leu Gln Pro Pro Ser Ser Gln Met Glu Glu Ile Ser Leu Leu Arg
            20                  25                  30

Arg Ser Asn Cys Arg Ser Lys Gly Gly Ala Pro Gly Phe Lys Val Ala
        35                  40                  45

Ile Leu Gly Ala Ala Gly Gly Ile Gly Gln Pro Leu Ala Leu Leu Met
    50                  55                  60

Lys Met Asn Pro Leu Val Ser Val Leu His Leu Tyr Asp Val Val Asn
65                  70                  75                  80

Thr Pro Gly Ala Thr Ala Asp Ile Ser His Met Asp Thr Gly Ala Val
                85                  90                  95

Val Arg Gly Phe Leu Gly Gln Pro Gln Leu Glu Ser Ala Leu Ile Gly
            100                 105                 110

Met Gly Leu Val Ile Ile Pro Ala Gly Val Pro Arg Lys Pro Gly Met
        115                 120                 125

Thr Arg Asp Asp Leu Phe Asn Ile Asn Ala Gly Ile Val Arg Thr Leu
    130                 135                 140

Cys Glu Gly Ile Ala Lys Trp Cys Pro Asn Ala Ile Val Asn Val Ile
145                 150                 155                 160
```

```
Ser Asn Pro Leu Asn Ser Thr Val Pro Ile Ala Ala Glu Val Phe Lys
                165                 170                 175

Gln Ala Gly Thr Tyr Asp Pro Lys His Leu Leu Gly Val Thr Thr Leu
            180                 185                 190

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

Pro Arg Glu Val Ser Val Pro Val Val Gly Gly His Ala Gly Val Thr
    210                 215                 220

Ile Leu Pro Leu Leu Ser Gln Val Asn Pro Pro Tyr Ser Phe Thr Thr
225                 230                 235                 240

Glu Glu Ile Arg Tyr Leu Thr Asp Arg Ile Gln Asn Gly Gly Thr Glu
                245                 250                 255

Val Val Glu Ala Lys Ala Gly Ala Gly Ser Ala Thr Leu Ser Met Ala
            260                 265                 270

Tyr Ala Ala Ala Lys Phe Ala Asp Ala Cys Leu Arg Gly Leu Arg Gly
        275                 280                 285

Asp Ala Gly Ile Val Glu Cys Ser Leu Leu Leu Leu
    290                 295                 300
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<213> Elaeis guineensis

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

Asn Tyr Lys Gln Leu Pro Ile Gln Arg Met Leu Asp Phe Asp Phe Leu
            20                  25                  30

Cys Gly Arg Glu Thr Pro Ser Val Ala Gly Val Ile Asn Pro Gly Ser
        35                  40                  45

Glu Gly Phe Gln Lys Leu Phe Phe Gly Gln Glu Glu Ile Ala Ile Pro
    50                  55                  60

Val His Ser Ser Ile Glu Ala Ala Cys Asn Ala His Pro Thr Ala Asp
65                  70                  75                  80

Val Phe Ile Asn Phe Ala Ser Phe Arg Ser Ala Ala Ala Ser Thr Met
                85                  90                  95

Ser Ala Leu Arg Gln Pro Thr Ile Lys Val Val Ala Ile Ile Ala Glu
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100 105 110

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

Asn Asn Lys Val Val Ile Gly Pro Ala Thr Val Gly Gly Ile Gln Ala
130 135 140

Gly Ala Phe Lys Ile Gly Asp Thr Ala Gly Thr Ile Asp Asn Ile Ile
145 150 155 160

His Cys Lys Leu Tyr Arg Pro Gly Ser Val Gly Phe Val Ser Lys Ser
165 170 175

Gly Gly Met Ser Asn Glu Leu Tyr Asn Thr Ile Ala Arg Val Thr Asp
180 185 190

Gly Ile Tyr Glu Gly Ile Ala Ile Gly Gly Asp Val Phe Pro Gly Ser
195 200 205

Thr Leu Ser Asp His Val Leu Arg Phe Asn Asn Ile Pro Gln Val Lys
210 215 220

Met Met Val Val Leu Gly Glu Leu Gly Gly Arg Asp Glu Tyr Ser Leu
225 230 235 240

Val Glu Ala Leu Lys Glu Gly Arg Val His Lys Pro Val Val Ala Trp
245 250 255

Val Ser Gly Thr Cys Ala Arg Leu Phe Lys Ser Glu Val Gln Phe Gly
260 265 270

His Ala Gly Ala Lys Ser Gly Gly Glu Leu Glu Ser Ala Gln Ala Lys
275 280 285

Asn Glu Ala Leu Arg Glu Ala Gly Ala Val Val Pro Thr Ser Tyr Glu
290 295 300

Ala Leu Glu Gly Ala Ile Lys Glu Thr Phe Gln Lys Leu Val Glu Glu
305 310 315 320

Gly Lys Ile Ala Pro Val Ser Glu Val Lys Pro Pro Gln Ile Pro Glu
325 330 335

Asp Leu Asn Ile Ala Ile Lys Ser Gly Lys Val Arg Ala Pro Thr His
340 345 350

Ile Ile Ser Thr Ile Ser Asp Asp Arg Gly Asp Glu Pro Cys Tyr Gly
355 360 365

Gly Val Pro Met Ser Thr Ile Val Glu Gln Gly Tyr Gly Val Gly Asp

370 375 380

Val Ile Ser Leu Leu Trp Phe Lys Arg Ser Leu Pro Arg Tyr Cys Thr
385 390 395 400

Lys Phe Ile Glu Ile Cys Ile Met Leu Cys Ala Asp His Gly Pro Cys
405 410 415

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

Leu Val Ser Ser Leu Val Ser Gly Leu Leu Thr Ile Gly Pro Arg Phe
435 440 445

Gly Gly Ala Ile Asp Asp Ala Ala Arg Tyr Phe Lys Asp Ala Tyr Asp
450 455 460

Arg Gly Leu Thr Pro Tyr Glu Phe Val Glu Gly Met Lys Lys Lys Gly
465 470 475 480

Ile Arg Val Pro Gly Ile Gly His Arg Ile Lys Ser Arg Asp Asn Arg
485 490 495

Asp Lys Arg Val Gln Leu Leu Gln Gln Tyr Ala His Thr His Phe Pro
500 505 510

Ser Val Lys Tyr Met Glu Tyr Ala Val Gln Val Glu Thr Tyr Thr Leu
515 520 525

Ser Lys Ala Asn Asn Leu Val Leu Asn Val Asp Gly Ala Ile Gly Ser
530 535 540

Leu Phe Leu Asp Leu Leu Ser Gly Ser Gly Met Phe Asn Lys Gln Glu
545 550 555 560

Ile Asp Glu Ile Ile Glu Ile Gly Tyr Leu Asn Gly Leu Phe Val Leu
565 570 575

Ala Arg Ser Ile Gly Leu Ile Gly His Thr Phe Asp Gln Lys Arg Leu
580 585 590

Lys Gln Pro Leu Tyr Arg His Pro Trp Glu Asp Val Leu Tyr Thr Lys
595 600 605

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<213> Elaeis guineensis

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Met Phe Val Val Gly Val Asn Glu Lys Glu Tyr Lys Ser Asp Ile Asn
1 5 10 15

Val Val Ser Asn Ala Ser Cys Thr Thr Asn Cys Leu Ala Pro Leu Ala
20 25 30

Lys Val Ile His Asp Lys Phe Gly Ile Val Glu Gly Leu Met Thr Thr
35 40 45

Val His Ser Ile Thr Ala Thr Gln Lys Thr Val Asp Gly Pro Ser Ser
50 55 60

Lys Asp Trp Arg Gly Gly Arg Ala Ala Ser Phe Asn Ile Ile Pro Ser
65 70 75 80

Ser Thr Gly Ala Ala Lys Ala Val Gly Lys Val Leu Pro Ala Leu Asn
85 90 95

Gly Lys Leu Thr Gly Met Ala Phe Arg Val Pro Thr Val Asp Val Ser
100 105 110

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

Ile Lys Asp Ala Ile Lys Glu Glu Ser Glu Gly Lys Met Lys Gly Ile
130 135 140

Leu Gly Tyr Val Asp Glu Asp Leu Val Ser Thr Asp Phe Leu Gly Asp
145 150 155 160

Ser Arg Ser Ser Ile Phe Asp Ala Lys Ala Gly Ile Ala Leu Asn Gly
165 170 175

Asn Phe Val Lys Leu Val Ser Trp Tyr Asp Asn Glu Trp Gly Tyr Ser
180 185 190

Ser Arg Val Val Asp Leu Ile Arg His Ile His Gly Thr Gln
195 200 205

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<213> Elaeis guineensis

<400> 7

Met Ala Ser Ala Thr Leu Leu Lys Ser Ser Phe Leu Pro Lys Lys Ser
1 5 10 15

Glu Trp Leu Asn Ala Arg Pro Ser Ser Thr Ser Gln Pro Met Ala Val
20 25 30

Ser Phe Thr Val Arg Ala Gly Ala Tyr Ala Asp Glu Leu Val Lys Thr
35 40 45

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

Ser Asn Ala Thr Cys Gly Lys Arg Leu Ala Ser Ile Gly Leu Glu Asn
65 70 75 80

Thr Glu Ala Asn Arg Gln Ala Tyr Arg Thr Leu Leu Ile Thr Ala Pro
85 90 95

Gly Leu Gly Gln Tyr Val Ser Gly Ala Ile Leu Phe Glu Glu Thr Leu
100 105 110

Tyr Gln Ser Thr Thr Asp Gly Lys Lys Met Val Asp Val Leu Val Ser
115 120 125

Gln Asn Ile Met Pro Gly Ile Lys Val Asp Lys Gly Leu Val Pro Leu
130 135 140

Ala Gly Ser Asn Asp Glu Ser Trp Cys Gln Gly Leu Asp Gly Leu Ala
145 150 155 160

Ser Arg Cys Ala Ala Tyr Tyr Gln Gln Gly Ala Arg Phe Ala Lys Trp
165 170 175

Arg Thr Val Val Ser Ile Pro Asn Gly Pro Ser Ala Leu Ala Val Lys
180 185 190

Glu Ala Ala Trp Gly Leu Ala Arg Tyr Ala Ala Ile Ala Gln Asp Asn
195 200 205

Gly Leu Val Pro Ile Val Glu Pro Glu Ile Leu Leu Asp Gly Asp His
210 215 220

Gly Ile Glu Arg Thr Phe Glu Val Ala Gln Lys Val Trp Ala Glu Val
225 230 235 240

Phe Phe Tyr Met Ala Glu Asn Asn Val Met Tyr Glu Gly Ile Leu Leu
245 250 255

Lys Pro Ser Met Val Thr Pro Gly Ala Glu Cys Lys Glu Arg Ala Thr
260 265 270

Pro Glu Gln Val Ala Glu Tyr Thr Leu Lys Leu Leu His Arg Arg Ile
275 280 285

Pro Pro Ala Val Pro Gly Ile Met Phe Leu Ser Gly Gly Gln Ser Glu
290 295 300

Val Glu Ala Thr Leu Asn Leu Asn Ala Met Asn Gln Ser Pro His Pro
305 310 315 320

Trp His Val Ser Phe Ser Phe Ala Arg Ala Leu Gln Asn Thr Cys Leu
325 330 335

Lys Thr Trp Gly Gly Arg Pro Glu Asn Val Lys Ala Ala Gln Asp Ala
340 345 350

Leu Leu Ile Arg Ala Lys Ala Asn Ser Leu Ala Gln Leu Gly Lys Tyr
355 360 365

Thr Gly Glu Gly Glu Ser Ala Glu Ala Lys Glu Gly Met Tyr Val Lys
370 375 380

Asn Tyr Ser Tyr
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<213> Elaeis guineensis

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Ser Ile Trp Thr Glu Ser Ala Gln Arg Ser Leu Cys Ile Phe Phe Gln
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Gly Phe Ser Leu Leu Thr His Ser Phe Arg Trp Cys Ser Arg Phe His
20 25 30

Arg Val Arg Arg Val Pro Ser Pro Ser Tyr Asp Arg Thr Asp Thr Asp
35 40 45

Lys Arg Thr Gln Lys Asn Pro Ala Ser Ser Pro Ser Ser Ser Phe Leu
50 55 60

Asn Ser Pro Arg Leu Leu Phe Leu Ile Leu Glu Thr Trp Met Ala Thr
65 70 75 80

Ala Thr Glu Ile Gly Ser Leu Ala Ala Arg Ile Arg Pro Ser Ser Gly
85 90 95

Gly Asp Gln Ala Gly Leu Ala Ser Ser Arg Arg Ser Leu Asp Arg Ser
100 105 110

Leu Leu Arg Ala Gly Thr Val Cys Arg Ala Pro Gln Pro Ala Arg Trp
115 120 125

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

Val Asp Val Val Gly Thr Ser Asn Gly Pro Val Ser Ser Glu Ile Ser
145 150 155 160

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Asn Ser Ser Phe Ala Leu Pro Ser Thr Glu His Ser Leu Glu Glu Thr
                165                 170                 175

Arg Val Val Ser Asn Pro Arg Arg Lys Thr Lys Ile Val Cys Thr Ile
            180                 185                 190

Gly Pro Ser Thr Asn Thr Arg Glu Met Ile Trp Lys Leu Ala Glu Ala
        195                 200                 205

Gly Met Asn Val Ala Arg Leu Asn Met Ser His Gly Asp His Glu Ser
    210                 215                 220

His Gln Lys Ile Ile Asp Leu Val Lys Glu Tyr Asn Ala Gln Ser Lys
225                 230                 235                 240

Gly Asn Val Ile Ala Ile Met Leu Asp Thr Lys Gly Pro Glu Val Arg
                245                 250                 255

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

Asn Phe Thr Ile Lys Arg Gly Val Ser Ser Glu Asp Thr Val Ser Val
        275                 280                 285

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

Val Asp Gly Gly Met Met Ser Leu Ala Val Arg Ser Lys Thr Val Asp
305                 310                 315                 320

Thr Val Lys Cys Glu Val Ile Asp Gly Gly Glu Leu Lys Ser Arg Arg
                325                 330                 335

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

Lys Asp Trp Glu Asp Ile Lys Phe Gly Val Asp His Lys Val Asp Phe
        355                 360                 365

Tyr Ala Val Ser Phe Val Lys Asp Ala Lys Val Val His Glu Leu Lys
    370                 375                 380

Asp Tyr Leu Lys Arg Cys Asn Ala Asp Ile His Val Ile Val Lys Ile
385                 390                 395                 400

Glu Ser Ala Asp Ser Ile Gln Asn Leu His Ser Ile Ile Ser Ala Ser
                405                 410                 415

Asp Gly Ala Met Val Ala Arg Gly Asp Leu Gly Ala Glu Leu Pro Ile
            420                 425                 430
```

```
Glu Glu Val Pro Leu Leu Gln Glu Glu Ile Ile Asn Arg Cys Arg Ser
        435                 440                 445

Met Glu Lys Pro Val Ile Val Ala Thr Asn Met Leu Glu Ser Met Ile
    450                 455                 460

Asn His Pro Thr Pro Thr Arg Ala Glu Val Ser Asp Ile Ala Ile Ala
465                 470                 475                 480

Val Arg Glu Gly Ala Asp Ala Ile Met Leu Ser Gly Glu Thr Ala His
                485                 490                 495

Gly Lys Tyr Pro Leu Lys Ala Val Lys Val Met His Thr Val Ala Trp
            500                 505                 510

Arg Thr Glu Ser Thr Gln Ser Thr Ser Asn Asn Gln Pro Val Leu Pro
        515                 520                 525

Ser Ala Val Gln Ala Ala Ile Cys Gly Glu Phe Ser Gln Arg His Met
    530                 535                 540

Ser Ala Met Phe Ala Ala His Ala Thr Thr Met Ala Asn Thr Leu Gly
545                 550                 555                 560

Thr Pro Ile Ile Val Phe Thr Gln Thr Gly Ser Met Ala Ile Leu Leu
                565                 570                 575

Ser His Tyr Arg Pro Ser Ser Thr Ile Phe Ala Phe Thr Asn Glu Glu
            580                 585                 590

Arg Ile Lys Gln Arg Leu Ala Leu Tyr His Gly Val Leu Pro Ile His
        595                 600                 605

Met Gln Phe Ser Asn Asp Ala Glu Glu Thr Phe Ser Arg Ala Ile Lys
    610                 615                 620

Tyr Leu Leu Asp Arg Lys Tyr Leu Glu Lys Glu Glu Tyr Val Thr Leu
625                 630                 635                 640

Val Gln Ser Gly Ile His Ser Ile Trp Arg Gln Glu Ser Thr His His
                645                 650                 655

Ile Gln Val Arg Lys Val Gln Gly
            660
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<213> Elaeis guineensis

<400> 9

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Met Met Thr Ala Gly Ala Leu Thr Arg Ser Ser Ser Ser Arg Leu Ser
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```
1               5                  10                  15

Phe Pro Leu Ser Ala Ala Ala Lys Ser Ser Ser His Leu Thr Ala Pro
            20                  25                  30

Pro Ser Ser Pro Pro Pro Ser Pro Ser Asn Pro Ser Pro Arg Ser Pro
        35                  40                  45

Ile Pro Pro Ser Arg His Ser Pro Ala Leu Phe Ser Ser Phe Ala Arg
    50                  55                  60

Tyr Phe Gly Asp Trp Arg Ser Pro Leu Ser Gln Arg Ala Gln Ile Arg
65                  70                  75                  80

Tyr Ser Ala Ala Val Ala Glu Arg Phe Glu Arg Tyr Phe Ala Thr Met
                85                  90                  95

Ala Thr Arg Asn Ala Tyr Glu Ser Ile Leu Thr Ser Leu Pro Lys Pro
            100                 105                 110

Gly Gly Gly Glu Phe Gly Lys Tyr Tyr Ser Leu Pro Ala Leu Asn Asp
        115                 120                 125

Pro Arg Ile Asp Arg Leu Pro Tyr Ser Ile Arg Ile Leu Leu Glu Ser
    130                 135                 140

Ala Ile Arg Asn Cys Asp Glu Phe Gln Val Thr Gly Lys Asp Val Glu
145                 150                 155                 160

Lys Ile Leu Asp Trp Glu Asn Thr Ser Pro Lys Gln Val Glu Ile Pro
                165                 170                 175

Phe Lys Pro Ala Arg Val Leu Leu Gln Asp Phe Thr Gly Val Pro Ala
            180                 185                 190

Val Val Asp Leu Ala Cys Met Arg Asp Ala Met Lys Arg Leu Gly Ser
        195                 200                 205

Asp Ser Asn Lys Ile Asn Pro Leu Val Pro Val Asp Leu Val Ile Asp
    210                 215                 220

His Ser Val Gln Val Asp Val Ala Arg Ser Glu Asn Ala Val Gln Ala
225                 230                 235                 240

Asn Met Glu Leu Glu Phe His Arg Asn Lys Glu Arg Phe Gly Phe Leu
                245                 250                 255

Lys Trp Gly Ser Ser Ala Phe His Asn Met Leu Val Val Pro Pro Gly
            260                 265                 270

Ser Gly Ile Val His Gln Val Asn Leu Glu Tyr Leu Ala Arg Val Val
```

275 280 285

Phe Asn Asn Gly Gly Met Leu Tyr Pro Asp Ser Val Val Gly Thr Asp
290 295 300

Ser His Thr Thr Met Val Asp Gly Leu Gly Val Ser Gly Trp Gly Val
305 310 315 320

Gly Gly Ile Glu Ala Glu Ala Ala Met Leu Gly Gln Pro Met Ser Met
325 330 335

Val Leu Pro Gly Val Val Gly Phe Lys Leu Ser Gly Lys Leu Arg Asn
340 345 350

Gly Val Thr Ala Thr Asp Leu Val Leu Thr Val Thr Gln Met Leu Arg
355 360 365

Lys His Gly Val Val Gly Lys Phe Val Glu Phe Tyr Gly Glu Gly Met
370 375 380

Ser Glu Leu Ser Leu Ala Asp Arg Ala Thr Ile Ala Asn Met Ser Pro
385 390 395 400

Glu Tyr Gly Ala Thr Met Gly Phe Phe Pro Val Asp His Val Thr Leu
405 410 415

Gln Tyr Leu Lys Leu Thr Gly Arg Asn Asp Asp Thr Val Ala Met Ile
420 425 430

Glu Ser Tyr Leu Arg Ala Asn Lys Leu Phe Val Asp Tyr Ser Gln Pro
435 440 445

Gln Thr Glu Arg Val Tyr Ser Ser Tyr Leu Glu Leu Asn Leu Glu Asp
450 455 460

Val Glu Pro Cys Val Ser Gly Pro Lys Arg Pro His Asp Arg Val Pro
465 470 475 480

Leu Lys Val Met Lys Ala Asp Trp His Ser Cys Leu Asp Asn Lys Val
485 490 495

Gly Phe Lys Gly Phe Ala Val Pro Lys Glu Ala Gln Asn Lys Val Ala
500 505 510

Glu Phe Ser Phe His Gly Thr Pro Ala Gln Ile Lys His Gly Asp Val
515 520 525

Val Ile Ala Ala Ile Thr Ser Cys Thr Asn Thr Ser Asn Pro Ser Val
530 535 540

Met Leu Gly Ala Ala Leu Val Ala Lys Lys Ala Cys Glu Leu Gly Leu

545 550 555 560

Glu Val Lys Pro Trp Ile Lys Thr Ser Leu Ala Pro Gly Ser Gly Val
565 570 575

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

Leu Gly Phe His Ile Val Gly Tyr Gly Cys Thr Thr Cys Ile Gly Asn
595 600 605

Ser Gly Asp Leu Asp Glu Thr Val Ser Ala Ala Ile Ser Glu Asn Asp
610 615 620

Ile Val Ala Ala Ala Val Leu Ser Gly Asn Arg Asn Phe Glu Gly Arg
625 630 635 640

Val His Pro Leu Thr Arg Ala Asn Tyr Leu Ala Ser Pro Pro Leu Val
645 650 655

Val Ala Tyr Ala Leu Ala Gly Thr Val Asp Ile Asp Phe Glu Thr Glu
660 665 670

Pro Ile Gly Thr Ser Asn Asp Gly Lys Lys Val Tyr Phe Lys Asp Ile
675 680 685

Trp Pro Ser Thr Glu Glu Ile Ala Asn Val Val Gln Ser Ser Val Leu
690 695 700

Pro Asp Met Phe Lys Gly Thr Tyr Gln Ala Ile Thr Lys Gly Asn Pro
705 710 715 720

Met Trp Asn Gln Leu Leu Val Pro Ser Ser Thr Leu Tyr Thr Trp Asp
725 730 735

Pro Ser Ser Thr Tyr Ile His Glu Pro Pro Tyr Phe Lys Asp Met Thr
740 745 750

Met Ser Pro Pro Gly Pro His Pro Val Lys Asp Ala Tyr Cys Leu Leu
755 760 765

Asn Phe Gly Asp Ser Ile Thr Thr Asp His Ile Ser Pro Ala Gly Ser
770 775 780

Ile His Lys Asp Ser Pro Ala Ala Lys Tyr Leu Met Glu Arg Gly Val
785 790 795 800

Glu Arg Lys Asp Phe Asn Ser Tyr Gly Ser Arg Arg Gly Asn Asp Glu
805 810 815

Val Met Ala Arg Gly Thr Phe Ala Asn Ile Arg Leu Val Asn Lys Leu

820 825 830

Leu Lys Gly Glu Ala Gly Pro Lys Thr Ile His Ile Pro Ser Gly Glu
835 840 845

Lys Leu Ser Val Phe Asp Ala Ala Met Arg Tyr Lys Ser Glu Glu His
850 855 860

Asp Thr Val Ile Leu Ala Gly Ala Glu Tyr Gly Ser Gly Ser Ser Arg
865 870 875 880

Asp Trp Ala Ala Lys Gly Pro Met Leu Leu Gly Val Lys Ala Val Ile
885 890 895

Ala Lys Ser Phe Glu Arg Ile His Arg Ser Asn Leu Val Gly Met Gly
900 905 910

Ile Ile Pro Leu Cys Phe Lys Pro Gly Glu Asp Ala Glu Thr Leu Gly
915 920 925

Leu Thr Gly His Glu Arg Tyr Thr Ile Asn Leu Pro Asp Asn Val Ser
930 935 940

Asp Ile Lys Pro Gly Gln Asp Val Thr Val Val Thr Asp Asn Gly Lys
945 950 955 960

Ser Phe Thr Cys Thr Val Arg Phe Asp Thr Glu Val Glu Leu Ala Tyr
965 970 975

Tyr Asn His Gly Gly Ile Leu Pro Phe Val Ile Arg Asn Leu Ile Asn
980 985 990

Ser Lys His
995