

SEQUENCE LISTING

<110> Medizinische Universität Wien
Universität für Bodenkultur Wien

<120> NEW RECOMBINANT DIAMINE OXIDASE AND ITS USE FOR THE TREATMENT OF
DISEASES CHARACTERIZED BY EXCESS HISTAMINE

<130> MU008P

<150> EP 19157932.5

<151> 2019-02-19

<160> 106

<170> PatentIn version 3.5

<210> 1

<211> 751

<212> PRT

<213> Homo sapiens

<400> 1

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 2
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut1

<400> 2

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

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

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 3
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut2

<400> 3

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 4
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut3

<400> 4

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 5
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut4

<400> 5

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 6
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut5

<400> 6

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 7
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut6

<400> 7

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Gly Gln Thr Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 8
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut7

<400> 8

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Arg Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 9

<211> 751

<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Cysmut

<400> 9

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 10

<211> 751

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Hepmut1-Cysmut

<400> 10

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

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

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 11

<211> 751

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Hepmut2-Cysmut

<400> 11

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 12

<211> 751

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Hepmut3-Cysmut

<400> 12

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 13
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut4-Cysmut

<400> 13

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 14
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut5-Cysmut

<400> 14

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 15
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut6-Cysmut

<400> 15

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Gly Gln Thr Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 16
<211> 751
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Hepmut7-Cysmut

<400> 16

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Arg Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750

<210> 17
<211> 2256
<212> DNA
<213> Homo sapiens

<400> 17
atgccggccc tgggctgggc cgtggctgcc atcctgatgc tgcagacggc catggcggag 60
ccctccccgg ggactctgcc caggaaggca ggggtgtttt cagacctaa caaccaagag 120
ctgaaggcag tgcacagctt cctctggtcc aagaaggagc tgaggctgca gccctccagt 180
accaccacca tggccaagaa caccgtgttt ctcacgaga tgctgctgcc caagaagtac 240
catgtgctga ggtttctgga taaaggtgaa aggcacctg tgcgggaagc ccgtgccgtc 300
atcttctttg gtgaccagga gcatcccaat gtcaccgagt ttgctgtggg gcccttgcca 360

gggccctgct acatgcgagc actgtccccc aggcctgggt accagtcctc ctgggcatcg	420
aggcccatct ccacagcaga gtatgccctc ctctaccaca ccctgcagga agccaccaag	480
cccctgcatc agttcttcct caataccaca ggcttctcat tccaagactg ccatgacaga	540
tgcttggcct tcaccgatgt ggccccccgg ggtgtggctt ctggccagcg ccgcagttgg	600
cttatcatac agcgctatgt agaaggctac tttctgcacc cactgggct ggagctcctc	660
gtggatcatg ggagcacaga tgctggggcac tgggccgtgg agcaggtgtg gtacaacggg	720
aagttctatg ggagcccaga ggaactggct cggaagtatg cagatggaga ggtggacgtg	780
gtggtcctgg aggaccgct gcctggggggc aaggggcatg acagcacaga ggagccgccc	840
ctcttctcct cccacaagcc ccgcggggac ttccccagcc ccatccatgt gagcggcccc	900
cgcttgggtcc agccccacgg ccctcgcttc aggctggagg gcaacgctgt gctctacggc	960
ggctggagct ttgccttccg gctgcgctcc tcctccgggc tgcaggtcct gaacgtgcac	1020
ttcggcggag agcgcatatg ctatgaggtc agcgtgcaag aggcagtggc gctgtatgga	1080
ggacacacac ctgcaggcat gcagaccaag tacctcgatg tcggctgggg cctgggcagc	1140
gtcactcatg agttagcccc cggcatcgac tgcccggaga ccgccacctt cctggacact	1200
ttccactact atgatgccga tgaccgggtc cattatcccc gagccctctg cctctttgaa	1260
atgcccacag ggggtgcccct tcggcggcac ttttaattcca actttaaaagg tggcttcaac	1320
ttctatgcgg ggctgaaggg ccagggtgctg gtgctgcgga caacttcaac tgtctacaat	1380
tatgattaca tttgggactt tatcttctac cccaacgggg tgatggaggc caagatgcat	1440
gccactggct acgtccacgc caccttctac acccccgagg ggctgcgcca cggcactcgc	1500
ctgcacaccc acctgattgg caacatacac actcacttgg tgcactaccg cgtagacctg	1560
gatgtggcag gcaccaagaa cagcttccag aactgcaga tgaagctaga aaacatcacc	1620
aacccttga gcccaagaca ccgcgtgggtc cagccaactc tggagcagac gcagtactcc	1680
tgggagcgcc aggcggcctt ccgcttcaaa aggaagctgc ccaagtacct gctctttacc	1740
agcccccagg agaaccctg gggccacaag cgcagctacc gcctgcagat ccactccatg	1800
gccgaccagg tgctgcccc aggctggcag gaggagcagg ccatcacctg ggcaaggtag	1860

cccctggcag tgaccaagta ccgggagtcg gagctgtgca gcagcagcat ctaccaccag	1920
aacgacccct ggaccccgcc cgtggtcttt gagcagtttc ttcacaacaa cgagaacatt	1980
gaaaatgagg acctggtggc ctgggtgacg gtgggcttcc tgcacatccc ccactcagag	2040
gacattccca acacagccac acctgggaac tccgtgggct tcctgctccg gccattcaac	2100
ttcttcccag aggacccctc cctggcatcc agagacactg tgatcgtgtg gcctcgggac	2160
aacggcccca actacgtcca gcgctggatc cctgaggaca gggactgctc gatgcctccc	2220
ccttttagct acaatgggac ctatagacct gtgtga	2256

<210> 18
 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut1

<400> 18	
atgccggccc tgggctgggc cgtggctgcc atcctgatgc tgcagacggc catggcggag	60
ccctccccgg ggactctgcc caggaaggca ggggtgtttt cagacctaa caaccaagag	120
ctgaaggcag tgcacagctt cctctggtcc aagaaggagc tgaggctgca gccctccagt	180
accaccacca tggccaagaa caccgtgttt ctcatcgaga tgctgctgcc caagaagtac	240
catgtgctga ggtttctgga taaagggtgaa aggcaccttg tgcgggaagc ccgtgccgtc	300
atcttctttg gtgaccagga gcatcccaat gtcaccgagt ttgctgtggg gcccctgcc	360
gggccctgct acatgcgagc actgtcccc aggcctgggt accagtcctc ctgggcatcg	420
aggcccatct ccacagcaga gtatgccctc ctctaccaca ccctgcagga agccaccaag	480
cccctgcatc agttcttcct caataccaca ggcttctcat tccaagactg ccatgacaga	540
tgcttgccct tcaccgatgt ggcccccg gggtgtggctt ctggccagcg ccgcagttgg	600
cttatcatatc agcgctatgt agaaggctac tttctgcacc ccactgggct ggagctcctc	660
gtggatcatg ggagcacaga tgctgggcac tgggccgtgg agcaggtgtg gtacaacggg	720
aagttctatg ggagcccaga ggaactggct cggaagtatg cagatggaga ggtggacgtg	780

gtggtcctgg aggacccgct gcctgggggc aaggggcatg acagcacaga ggagccgccc	840
ctctttctcct cccacaagcc ccgcggggac ttccccagcc ccatccatgt gagcggcccc	900
cgcttgggtcc agccccacgg ccctcgcttc aggctggagg gcaacgctgt gctctacggc	960
ggctggagct ttgccttccg gctgcgctcc tcctccgggc tgcaggctcct gaacgtgcac	1020
ttcggcggag agcgcattgc ctatgaggtc agcgtgcaag aggcagtggc gctgtatgga	1080
ggacacacac ctgcaggcat gcagaccaag tacctcgatg tcggctgggg cctgggcagc	1140
gtcactcatg agttagcccc cggcatcgac tgcccggaga ccgccacctt cctggacact	1200
ttccactact atgatgccga tgaccgggtc cattatcccc gagccctctg cctctttgaa	1260
atgcccacag ggggtgcccct tcggcggcac ttttaattcca actttaaagg tggcttcaac	1320
ttctatgcgg ggctgaaggg ccagggtgctg gtgtgcgga caacttcaac tgtctacaat	1380
tatgattaca tttgggactt tatcttctac cccaacgggg tgatggaggc caagatgcat	1440
gccactggct acgtccacgc caccttctac acccccgagg ggctgcgcca cggcactcgc	1500
ctgcacaccc acctgattgg caacatacac actcacttgg tgcactaccg cgtagacctg	1560
gatgtggcag gcaccaagaa cagcttccag aactgcaga tgaagctaga aaacatcacc	1620
aacccttga gcccaagaca ccgcgtgggtc cagccaactc tggagcagac gcagtactcc	1680
tgggagcgcc aggcggcctt cagcttcaaa aggaagctgc ccaagtacct gctctttacc	1740
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<212> DNA
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<220>
<223> hDAO-Hepmut2

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 <212> DNA
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<220>
 <223> hDAO-Hepmut3

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ctgaaggcag tgcacagctt cctctgggtcc aagaaggagc tgaggctgca gccctccagt	180
accaccacca tggccaagaa caccgtgttt ctcatcgaga tgctgctgcc caagaagtac	240
catgtgctga ggtttctgga taaagggtgaa aggcattcctg tgcgggaagc ccgtgccgtc	300
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut4

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cccctgcatc agttcttcct caataccaca ggcttctcat tccaagactg ccatgacaga	540

tgcttgccct tcaccgatgt ggccccccgg ggtgtggctt ctggccagcg ccgcagttgg	600
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<220>
 <223> hDAO-Hepmut5

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 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>

<223> hDAO-Hepmut6

<400> 23

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 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut7

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<220>
 <223> hDAO-Cysmut

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2256

<210> 26

<211> 2256

<212> DNA

<213> Artificial Sequence

<220>

<223> hDAO-Hepmut1-Cysmut

<400> 26

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 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut2-Cysmut

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut3-Cysmut

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 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut4-Cysmut

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 <211> 2256
 <212> DNA

<213> Artificial Sequence

<220>

<223> hDAO-Hepmut5-Cysmut

<400> 30

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cttatcatat agcgctatgt agaaggctac tttctgcacc cactgggct ggagctcctc	660
gtggatcatg ggagcacaga tgctggggcac tgggccgtgg agcagggtgtg gtacaacggg	720
aagttctatg ggagcccaga ggaactggct cggaagtatg cagatggaga ggtggacgtg	780
gtggctcctg aggacccgct gcctggggggc aaggggcatg acagcacaga ggagccgccc	840
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cgcttgggtc agccccacgg ccctcgcttc aggctggagg gcaacgctgt gctctacggc	960
ggctggagct ttgccttccg gctgcgctcc tcctccgggc tgcaggctcct gaacgtgcac	1020
ttcggcggag agcgcatatg ctatgaggct agcgtgcaag aggcagtggc gctgtatgga	1080
ggacacacac ctgcaggcat gcagaccaag tacctcgatg tcggctgggg cctgggcagc	1140
gtcactcatg agttagcccc cggcatcgac tgcccggaga ccgccacctt cctggacact	1200
ttccactact atgatgccga tgacccgggt cattatcccc gagccctctg cctctttgaa	1260
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ctgcacaccc acctgattgg caacatacac actcacttgg tgcactaccg cgtagacctg	1560
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gccgaccagg tgctgcccc aggctggcag gaggagcagg ccatcacctg ggcaaggtag	1860
cccctggcag tgaccaagta ccgggagtcg gagctgtgca gcagcagcat ctaccaccag	1920
aacgaccctt ggcacccgcc cgtgggtctt gagcagtttc ttcacaacaa cgagaacatt	1980
gaaaatgagg acctgggtggc ctgggtgacg gtgggcttcc tgcacatccc cactcagag	2040
gacattccca acacagccac acctgggaac tccgtgggct tcctgctccg gccattcaac	2100
ttcttcccag aggaccctc cctggcatcc agagacactg tgatcgtgtg gcctcgggac	2160
aacggcccca actacgtcca gcgctggatc cctgaggaca gggactgctc gatgcctccc	2220
ccttttagct acaatgggac ctatagacct gtgtga	2256

<210> 31
 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut6-Cysmut

<400> 31	
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ctgaaggcag tgcacagctt cctctggtcc aagaaggagc tgaggctgca gccctccagt	180
accaccacca tggccaagaa caccgtgttt ctcatcgaga tgctgctgcc caagaagtag	240

catgtgctga ggttttctgga taaagggtgaa aggcattcctg tgcgggaagc cctgcccgtc	300
atcttctttg gtgaccagga gcatcccaat gtcaccgagt ttgctgtggg gcccctgcc	360
gggcccgcct acatgcgagc actgtcccc aggcctgggt accagtcctc ctgggcatcg	420
aggcccatct ccacagcaga gtatgccctc ctctaccaca ccctgcagga agccaccaag	480
cccctgcac agttcttcct caataccaca ggcttctcat tccaagactg ccatgacaga	540
tgcctggcct tcaccgatgt ggcccccg ggtgtggctt ctggccagcg ccgcagttgg	600
cttatcatag agcgctatgt agaaggctac tttctgcacc cactgggct ggagctcctc	660
gtggatcatg ggagcacaga tgctgggcac tgggccgtgg agcaggtgtg gtacaacggg	720
aagttctatg ggagcccaga ggaactggct cggaagtatg cagatggaga ggtggacgtg	780
gtggctcctg aggacccgct gcctgggggc aaggggcatg acagcacaga ggagccgccc	840
ctcttctcct cccacaagcc ccgcggggac ttccccagcc ccatccatgt gagcggcccc	900
cgcttgggcc agccccacgg ccctcgcttc aggcctggagg gcaacgctgt gctctacggc	960
ggctggagct ttgccttccg gctgcgctcc tcctccgggc tgcaggtcct gaacgtgcac	1020
ttcggcggag agcgcatatg ctatgaggtc agcgtgcaag aggcagtggc gctgtatgga	1080
ggacacacac ctgcaggcat gcagaccaag tacctcgatg tcggctgggg cctgggcagc	1140
gtcactcatg agttagcccc cggcatcgac tgcccggaga ccgccacctt cctggacact	1200
ttccactact atgatgccga tgacccggtc cattatcccc gagccctctg cctctttgaa	1260
atgcccacag ggggtgcccct tcggcggcac ttttaattcca acttttaaagg tggcttcaac	1320
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tatgattaca tttgggactt tatcttctac cccaacgggg tgatggaggc caagatgcat	1440
gccactggct acgtccacgc caccttctac acccccgagg ggctgcgcca cggcactcgc	1500
ctgcacaccc acctgattgg caacatacac actcacttgg tgcactaccg cgtagacctg	1560
gatgtggcag gcaccaagaa cagcttccag aactgcaga tgaagctaga aaacatcacc	1620
aacccttggg gcccgaagaca ccgcgtggtc cagccaactc tggagcagac gcagtactcc	1680
tgggagcgcc aggcggcctt ccgcttcgga cagacgctgc ccaagtacct gctctttacc	1740

agccccagg agaaccctg gggccacaag cgcagctacc gcctgcagat ccactccatg	1800
gccgaccagg tgctgcccc aggctggcag gaggagcagg ccatcacctg ggcaaggtag	1860
cccctggcag tgaccaagta ccgggagtcg gagctgtgca gcagcagcat ctaccaccag	1920
aacgaccctt ggcacccgcc cgtgggtcttt gagcagtttc ttcacaacaa cgagaacatt	1980
gaaaatgagg acctggtggc ctgggtgacg gtgggcttcc tgcacatccc ccactcagag	2040
gacattccca acacagccac acctgggaac tccgtgggct tcctgctccg gccattcaac	2100
ttcttcccag aggaccctc cctggcatcc agagacactg tgatcgtgtg gcctcgggac	2160
aacggcccca actacgtcca gcgctggatc cctgaggaca gggactgctc gatgcctccc	2220
ccttttagct acaatgggac ctatagacct gtgtga	2256

<210> 32
 <211> 2256
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hDAO-Hepmut7-Cysmut

<400> 32	
atgccggccc tgggctgggc cgtggctgcc atcctgatgc tgcagacggc catggcggag	60
ccctccccgg ggactctgcc caggaaggca ggggtgtttt cagacctaag caaccaagag	120
ctgaaggcag tgcacagctt cctctggtcc aagaaggagc tgaggctgca gccctccagt	180
accaccacca tggccaagaa caccgtgttt ctcatcgaga tgctgctgcc caagaagtac	240
catgtgctga ggtttctgga taaagggtgaa aggcatcctg tgcgggaagc ccgtgccgtc	300
atcttctttg gtgaccagga gcatcccaat gtcaccgagt ttgctgtggg gcccctgcca	360
gggcccgcct acatgcgagc actgtcccc aggcctgggt accagtcctc ctgggcatcg	420
aggcccatct ccacagcaga gtatgccctc ctctaccaca ccctgcagga agccaccaag	480
cccctgcac agtttcttct caataccaca ggcttctcat tccaagactg ccatgacaga	540
tgcttgccct tcaccgatgt ggcccccg ggtgtggctt ctggccagcg ccgcagttgg	600
cttatcatat agcgctatgt agaaggctac tttctgcacc ccactgggct ggagctcctc	660

gtggatcatg ggagcacaga tgctgggcac tgggccgtgg agcaggtgtg gtacaacggg	720
aagttctatg ggagcccaga ggaactggct cggaagtatg cagatggaga ggtggacgtg	780
gtggtccttg aggacccgct gcctgggggc aaggggcatg acagcacaga ggagccgccc	840
ctcttctcct cccacaagcc ccgcggggac ttccccagcc ccatccatgt gagcggcccc	900
cgcttgggcc agccccacgg ccctcgcttc aggctggagg gcaacgctgt gctctacggc	960
ggctggagct ttgccttccg gctgcgctcc tcctccgggc tgcaggtcct gaacgtgcac	1020
ttcggcggag agcgcattgc ctatgaggct agcgtgcaag aggcagtggc gctgtatgga	1080
ggacacacac ctgcaggcat gcagaccaag tacctcgatg tcggctgggg cctgggcagc	1140
gtcactcatg agttagcccc cggcatcgac tgcccggaga ccgccacctt cctggacact	1200
ttccactact atgatgccga tgacccggtc cattatcccc gagccctctg cctctttgaa	1260
atgcccacag ggggtgcccct tcggcggcac ttttaattcca actttaaagg tggcttcaac	1320
ttctatgcgg ggctgaaggg ccagggtgctg gtgctgcgga caacttcaac tgtctacaat	1380
tatgattaca tttgggactt tatcttctac cccaacgggg tgatggaggc caagatgcat	1440
gccactggct acgtccacgc caccttctac acccccaggg ggctgcgcca cggcactcgc	1500
ctgcacaccc acctgattgg caacatacac actcacttgg tgcactaccg cgtagacctg	1560
gatgtggcag gcaccaagaa cagcttccag aactgcaga tgaagctaga aaacatcacc	1620
aacccttga gcccaagaca ccgcgtggtc cagccaactc tggagcagac gcagtactcc	1680
tgggagcgcc aggcggcctt cagcttcaaa aggaagctgc ccacgtacct gctctttacc	1740
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gccgaccagg tgctgcccc aggctggcag gaggagcagg ccatcacctg ggcaaggtag	1860
cccctggcag tgaccaagta ccgggagtcg gagctgtgca gcagcagcat ctaccaccag	1920
aacgaccctt ggcaccgcc cgtggtcttt gagcagtttc ttcacaacaa cgagaacatt	1980
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gacattccca acacagccac acctgggaac tccgtgggct tcctgctccg gccattcaac	2100
ttcttcccag aggaccctc cctggcatcc agagacactg tgatcgtgtg gcctcgggac	2160

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ccttttagct acaatgggac ctatagacct gtgtga 2256

<210> 33

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> DAO polypeptide

<400> 33

Ser Phe Lys Ala Lys Leu Pro Lys
1 5

<210> 34

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> DAO polypeptide

<400> 34

Ala Phe Lys Ala Lys Leu Pro Thr
1 5

<210> 35

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> DAO polypeptide

<400> 35

Ala Phe Lys Thr Lys Leu Pro Lys
1 5

<210> 36

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> DAO polypeptide

<400> 36

Ser Phe Lys Thr Lys Leu Pro Lys
1 5

<210> 37

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> DAO polypeptide

<400> 37

Ala Phe Lys Thr Lys Leu Pro Thr
1 5

<210> 38

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> DAO polypeptide

<400> 38

Ser Phe Lys Ala Lys Leu Pro Lys
1 5

<210> 39

<211> 983

<212> PRT

<213> Artificial Sequence

<220>

<223> Fc-hDAO

<400> 39

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr

1	5	10	15
Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro	20	25	30
Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser	35	40	45
Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp	50	55	60
Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn	65	70	75
Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val	85	90	95
Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu	100	105	110
Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys	115	120	125
Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr	130	135	140
Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr	145	150	155
Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu	165	170	175
Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu	180	185	190
Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys	195	200	205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

Thr Thr Gly Phe Ser Phe Gln Asp Cys His Asp Arg Cys Leu Ala Phe

405

410

415

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
 565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
 580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
 595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
785 790 795 800

Phe Lys Arg Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu

805

810

815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
 965 970 975

Asn Gly Thr Tyr Arg Pro Val
 980

<210> 40

<211> 983

<212> PRT

<213> Artificial Sequence

<220>

<223> Fc-hDAO-Hepmut1

<400> 40

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr

370

375

380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
 565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro

770

775

780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Ser
 785 790 795 800

Phe Lys Arg Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
 965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 41
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut2

<400> 41

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro

340

345

350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
 355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu

740

745

750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
 755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
 785 790 795 800

Phe Lys Arg Lys Leu Pro Thr Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 42
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut3

<400> 42

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys

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

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr

705		710		715		720
Phe Tyr Thr Pro	Glu Gly Leu Arg His	Gly Thr Arg Leu His	Thr His			
	725		730			735
Leu Ile Gly Asn Ile His Thr His	Leu Val His Tyr Arg Val Asp Leu					
	740		745			750
Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu						
	755		760			765
Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro						
	770		775			780
Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg						
785			790			795
Phe Lys Thr Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu						
	805		810			815
Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met						
	820		825			830
Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr						
	835		840			845
Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu						
	850		855			860
Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val						
865			870			875
Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp						
	885		890			895
Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu						
	900		905			910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 43
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut4

<400> 43

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu

275

280

285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
 305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
 325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
 340 345 350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
 355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser

675

680

685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
 690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
 705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
 725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
 740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
 755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Ser
 785 790 795 800

Phe Lys Thr Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 44
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut5

<400> 44

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly

245

250

255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
 260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
 275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
 305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
 325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
 340 345 350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
 355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly

645

650

655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
 660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
 675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
 690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
 705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
 725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
 740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
 755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
 785 790 795 800

Phe Lys Thr Lys Leu Pro Thr Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 45
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut6

<400> 45

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu

210

215

220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
 245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
 260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
 275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
 305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
 325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
 340 345 350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
 355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro

610

615

620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
 625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
 645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
 660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
 675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
 690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
 705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
 725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
 740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
 755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
 785 790 795 800

Phe Gly Gln Thr Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 46

<211> 983

<212> PRT

<213> Artificial Sequence

<220>

<223> Fc-hDAO-Hepmut7

<400> 46

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu

180

185

190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
 210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
 245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
 260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
 275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
 305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
 325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
 340 345 350

Gly Pro Cys Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
 355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly

580

585

590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
 595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
 610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
 625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
 645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
 660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
 675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
 690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
 705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
 725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
 740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
 755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Ser
785 790 795 800

Phe Lys Arg Lys Leu Pro Thr Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val

980

<210> 47
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Cysmut

<400> 47

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr

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

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu

545				550				555				560			
Arg	Ser	Ser	Ser	Gly 565	Leu	Gln	Val	Leu	Asn 570	Val	His	Phe	Gly	Gly 575	Glu
Arg	Ile	Ala	Tyr 580	Glu	Val	Ser	Val	Gln 585	Glu	Ala	Val	Ala	Leu 590	Tyr	Gly
Gly	His	Thr 595	Pro	Ala	Gly	Met	Gln 600	Thr	Lys	Tyr	Leu	Asp 605	Val	Gly	Trp
Gly	Leu 610	Gly	Ser	Val	Thr	His 615	Glu	Leu	Ala	Pro	Gly 620	Ile	Asp	Cys	Pro
Glu 625	Thr	Ala	Thr	Phe	Leu 630	Asp	Thr	Phe	His	Tyr 635	Tyr	Asp	Ala	Asp	Asp 640
Pro	Val	His	Tyr	Pro 645	Arg	Ala	Leu	Cys	Leu 650	Phe	Glu	Met	Pro	Thr 655	Gly
Val	Pro	Leu	Arg 660	Arg	His	Phe	Asn	Ser 665	Asn	Phe	Lys	Gly	Gly 670	Phe	Asn
Phe	Tyr	Ala 675	Gly	Leu	Lys	Gly	Gln 680	Val	Leu	Val	Leu	Arg 685	Thr	Thr	Ser
Thr 690	Val	Tyr	Asn	Tyr	Asp	Tyr 695	Ile	Trp	Asp	Phe	Ile 700	Phe	Tyr	Pro	Asn
Gly 705	Val	Met	Glu	Ala	Lys 710	Met	His	Ala	Thr	Gly 715	Tyr	Val	His	Ala	Thr 720
Phe	Tyr	Thr	Pro	Glu 725	Gly	Leu	Arg	His	Gly 730	Thr	Arg	Leu	His	Thr 735	His
Leu	Ile	Gly	Asn 740	Ile	His	Thr	His	Leu 745	Val	His	Tyr	Arg	Val 750	Asp	Leu

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
785 790 795 800

Phe Lys Arg Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg

945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 48
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut1-Cysmut

<400> 48

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys

115

120

125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
 130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
 145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
 180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
 210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
 245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
 260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
 275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
 305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His

515

520

525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
 565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
 580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
 595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
 610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
 625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
 645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
 660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
 675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
 690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
 705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Ser
785 790 795 800

Phe Lys Arg Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

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

915

920

925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
 965 970 975

Asn Gly Thr Tyr Arg Pro Val
 980

<210> 49

<211> 983

<212> PRT

<213> Artificial Sequence

<220>

<223> Fc-hDAO-Hepmut2-Cysmut

<400> 49

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
 1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
 20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 65 70 75 80

Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val

85

90

95

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
 115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
 130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
 145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
 180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
 210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
 245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
 260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
 275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu

485

490

495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
 565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
 580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
 595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
 610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
 625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
 645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
 660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
 675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
785 790 795 800

Phe Lys Arg Lys Leu Pro Thr Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp

885

890

895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
 965 970 975

Asn Gly Thr Tyr Arg Pro Val
 980

<210> 50

<211> 983

<212> PRT

<213> Artificial Sequence

<220>

<223> Fc-hDAO-Hepmut3-Cysmut

<400> 50

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
 1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
 20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp

50

55

60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala

450

455

460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
 565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
 580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
 595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
 610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
 625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
 645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
785 790 795 800

Phe Lys Thr Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu

850

855

860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
 965 970 975

Asn Gly Thr Tyr Arg Pro Val
 980

<210> 51
 <211> 983
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fc-hDAO-Hepmut4-Cysmut

<400> 51

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
 1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro

20

25

30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
 115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
 130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
 145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
 180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
 210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp

420

425

430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
 565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
 580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
 595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
 610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Ser
785 790 795 800

Phe Lys Thr Lys Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met

820

825

830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
 965 970 975

Asn Gly Thr Tyr Arg Pro Val
 980

<210> 52

<211> 983

<212> PRT

<213> Artificial Sequence

<220>

<223> Fc-hDAO-Hepmut5-Cysmut

<400> 52

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn

385		390		395		400									
Thr	Thr	Gly	Phe	Ser	Phe	Gln	Asp	Cys	His	Asp	Arg	Cys	Leu	Ala	Phe
				405					410					415	
Thr	Asp	Val	Ala	Pro	Arg	Gly	Val	Ala	Ser	Gly	Gln	Arg	Arg	Ser	Trp
			420					425					430		
Leu	Ile	Ile	Gln	Arg	Tyr	Val	Glu	Gly	Tyr	Phe	Leu	His	Pro	Thr	Gly
			435				440					445			
Leu	Glu	Leu	Leu	Val	Asp	His	Gly	Ser	Thr	Asp	Ala	Gly	His	Trp	Ala
	450					455					460				
Val	Glu	Gln	Val	Trp	Tyr	Asn	Gly	Lys	Phe	Tyr	Gly	Ser	Pro	Glu	Glu
465					470					475					480
Leu	Ala	Arg	Lys	Tyr	Ala	Asp	Gly	Glu	Val	Asp	Val	Val	Val	Leu	Glu
				485					490					495	
Asp	Pro	Leu	Pro	Gly	Gly	Lys	Gly	His	Asp	Ser	Thr	Glu	Glu	Pro	Pro
			500					505					510		
Leu	Phe	Ser	Ser	His	Lys	Pro	Arg	Gly	Asp	Phe	Pro	Ser	Pro	Ile	His
			515				520					525			
Val	Ser	Gly	Pro	Arg	Leu	Val	Gln	Pro	His	Gly	Pro	Arg	Phe	Arg	Leu
	530					535					540				
Glu	Gly	Asn	Ala	Val	Leu	Tyr	Gly	Gly	Trp	Ser	Phe	Ala	Phe	Arg	Leu
545					550					555					560
Arg	Ser	Ser	Ser	Gly	Leu	Gln	Val	Leu	Asn	Val	His	Phe	Gly	Gly	Glu
				565					570					575	
Arg	Ile	Ala	Tyr	Glu	Val	Ser	Val	Gln	Glu	Ala	Val	Ala	Leu	Tyr	Gly
			580					585					590		

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg

785 790 795 800

Phe Lys Thr Lys Leu Pro Thr Tyr Leu Leu Phe Thr Ser Pro Gln Glu
805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 53
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut6-Cysmut

<400> 53

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly
325 330 335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser

355

360

365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
 530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
 545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His
725 730 735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu

755

760

765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Arg
 785 790 795 800

Phe Gly Gln Thr Leu Pro Lys Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
 930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
 945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 54
<211> 983
<212> PRT
<213> Artificial Sequence

<220>
<223> Fc-hDAO-Hepmut7-Cysmut

<400> 54

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

Ala Met Ala Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro
20 25 30

Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
35 40 45

Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
50 55 60

Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
65 70 75 80

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

Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
100 105 110

Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys
115 120 125

Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
130 135 140

Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr
145 150 155 160

Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
165 170 175

Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
180 185 190

Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
195 200 205

Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
210 215 220

Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
225 230 235 240

Lys Glu Pro Lys Ser Ala Asp Lys Thr His Thr Glu Pro Ser Pro Gly
245 250 255

Thr Leu Pro Arg Lys Ala Gly Val Phe Ser Asp Leu Ser Asn Gln Glu
260 265 270

Leu Lys Ala Val His Ser Phe Leu Trp Ser Lys Lys Glu Leu Arg Leu
275 280 285

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

Glu Met Leu Leu Pro Lys Lys Tyr His Val Leu Arg Phe Leu Asp Lys
305 310 315 320

Gly Glu Arg His Pro Val Arg Glu Ala Arg Ala Val Ile Phe Phe Gly

325

330

335

Asp Gln Glu His Pro Asn Val Thr Glu Phe Ala Val Gly Pro Leu Pro
 340 345 350

Gly Pro Ala Tyr Met Arg Ala Leu Ser Pro Arg Pro Gly Tyr Gln Ser
 355 360 365

Ser Trp Ala Ser Arg Pro Ile Ser Thr Ala Glu Tyr Ala Leu Leu Tyr
 370 375 380

His Thr Leu Gln Glu Ala Thr Lys Pro Leu His Gln Phe Phe Leu Asn
 385 390 395 400

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

Thr Asp Val Ala Pro Arg Gly Val Ala Ser Gly Gln Arg Arg Ser Trp
 420 425 430

Leu Ile Ile Gln Arg Tyr Val Glu Gly Tyr Phe Leu His Pro Thr Gly
 435 440 445

Leu Glu Leu Leu Val Asp His Gly Ser Thr Asp Ala Gly His Trp Ala
 450 455 460

Val Glu Gln Val Trp Tyr Asn Gly Lys Phe Tyr Gly Ser Pro Glu Glu
 465 470 475 480

Leu Ala Arg Lys Tyr Ala Asp Gly Glu Val Asp Val Val Val Leu Glu
 485 490 495

Asp Pro Leu Pro Gly Gly Lys Gly His Asp Ser Thr Glu Glu Pro Pro
 500 505 510

Leu Phe Ser Ser His Lys Pro Arg Gly Asp Phe Pro Ser Pro Ile His
 515 520 525

Val Ser Gly Pro Arg Leu Val Gln Pro His Gly Pro Arg Phe Arg Leu
530 535 540

Glu Gly Asn Ala Val Leu Tyr Gly Gly Trp Ser Phe Ala Phe Arg Leu
545 550 555 560

Arg Ser Ser Ser Gly Leu Gln Val Leu Asn Val His Phe Gly Gly Glu
565 570 575

Arg Ile Ala Tyr Glu Val Ser Val Gln Glu Ala Val Ala Leu Tyr Gly
580 585 590

Gly His Thr Pro Ala Gly Met Gln Thr Lys Tyr Leu Asp Val Gly Trp
595 600 605

Gly Leu Gly Ser Val Thr His Glu Leu Ala Pro Gly Ile Asp Cys Pro
610 615 620

Glu Thr Ala Thr Phe Leu Asp Thr Phe His Tyr Tyr Asp Ala Asp Asp
625 630 635 640

Pro Val His Tyr Pro Arg Ala Leu Cys Leu Phe Glu Met Pro Thr Gly
645 650 655

Val Pro Leu Arg Arg His Phe Asn Ser Asn Phe Lys Gly Gly Phe Asn
660 665 670

Phe Tyr Ala Gly Leu Lys Gly Gln Val Leu Val Leu Arg Thr Thr Ser
675 680 685

Thr Val Tyr Asn Tyr Asp Tyr Ile Trp Asp Phe Ile Phe Tyr Pro Asn
690 695 700

Gly Val Met Glu Ala Lys Met His Ala Thr Gly Tyr Val His Ala Thr
705 710 715 720

Phe Tyr Thr Pro Glu Gly Leu Arg His Gly Thr Arg Leu His Thr His

725

730

735

Leu Ile Gly Asn Ile His Thr His Leu Val His Tyr Arg Val Asp Leu
 740 745 750

Asp Val Ala Gly Thr Lys Asn Ser Phe Gln Thr Leu Gln Met Lys Leu
 755 760 765

Glu Asn Ile Thr Asn Pro Trp Ser Pro Arg His Arg Val Val Gln Pro
 770 775 780

Thr Leu Glu Gln Thr Gln Tyr Ser Trp Glu Arg Gln Ala Ala Phe Ser
 785 790 795 800

Phe Lys Arg Lys Leu Pro Thr Tyr Leu Leu Phe Thr Ser Pro Gln Glu
 805 810 815

Asn Pro Trp Gly His Lys Arg Ser Tyr Arg Leu Gln Ile His Ser Met
 820 825 830

Ala Asp Gln Val Leu Pro Pro Gly Trp Gln Glu Glu Gln Ala Ile Thr
 835 840 845

Trp Ala Arg Tyr Pro Leu Ala Val Thr Lys Tyr Arg Glu Ser Glu Leu
 850 855 860

Cys Ser Ser Ser Ile Tyr His Gln Asn Asp Pro Trp His Pro Pro Val
 865 870 875 880

Val Phe Glu Gln Phe Leu His Asn Asn Glu Asn Ile Glu Asn Glu Asp
 885 890 895

Leu Val Ala Trp Val Thr Val Gly Phe Leu His Ile Pro His Ser Glu
 900 905 910

Asp Ile Pro Asn Thr Ala Thr Pro Gly Asn Ser Val Gly Phe Leu Leu
 915 920 925

Arg Pro Phe Asn Phe Phe Pro Glu Asp Pro Ser Leu Ala Ser Arg Asp
930 935 940

Thr Val Ile Val Trp Pro Arg Asp Asn Gly Pro Asn Tyr Val Gln Arg
945 950 955 960

Trp Ile Pro Glu Asp Arg Asp Cys Ser Met Pro Pro Pro Phe Ser Tyr
965 970 975

Asn Gly Thr Tyr Arg Pro Val
980

<210> 55
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc

<400> 55

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln

290

295

300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
 465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
 485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu

690

695

700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 56
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut1

<400> 56

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly

260

265

270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
 275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

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

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly

660

665

670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 57
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut2

<400> 57

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly

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

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln

625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 58
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut3

<400> 58

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu

195

200

205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
 210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
 225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
 245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
 260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
 275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly

595

600

605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
 610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
 625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
 645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
 660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut4

<400> 59

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp

165

170

175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
 180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
 195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
 210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
 225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
 245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
 260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
 275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Thr Lys Leu Pro Lys Tyr

565

570

575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
 580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
 595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
 610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
 625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
 645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
 660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu

965

970

975

Ser Leu Ser Pro Gly Lys
980

<210> 60

<211> 982

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Fc-Hepmut5

<400> 60

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser

130

135

140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
 145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
 165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
 180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
 195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
 210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
 225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
 245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
 260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
 275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser

530

535

540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
 545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Thr Tyr
 565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
 580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
 595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
 610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
 625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
 645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
 660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys

930

935

940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 965 970 975

Ser Leu Ser Pro Gly Lys
 980

<210> 61

<211> 982

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Fc-Hepmut6

<400> 61

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
 1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
 35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
 50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
 65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
 85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr

100	105	110
Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu		
115	120	125
Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser		
130	135	140
Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys		
145	150	155
Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp		
165	170	175
Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val		
180	185	190
Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu		
195	200	205
Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly		
210	215	220
Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly		
225	230	235
Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly		
245	250	255
Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly		
260	265	270
His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg		
275	280	285
Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln		
290	295	300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His

500

505

510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
 515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
 530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
 545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Gly Gln Thr Leu Pro Lys Tyr
 565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
 580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
 595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
 610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
 625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
 645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
 660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile

900

905

910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 965 970 975

Ser Leu Ser Pro Gly Lys
 980

<210> 62
 <211> 982
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> hDAO-Fc-Hepmut7

<400> 62

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
 1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
 35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
 50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr

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

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His

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

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu

865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 965 970 975

Ser Leu Ser Pro Gly Lys
 980

<210> 63
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Cysmut

<400> 63

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu

35

40

45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
 50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
 65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
 85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
 100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
 115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
 130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
 145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
 165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
 180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
 195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
 210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
 225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln

435

440

445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
 465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
 485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
 500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
 515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
 530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
 545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Lys Tyr
 565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
 580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
 595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
 610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
 625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp

835

840

845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 965 970 975

Ser Leu Ser Pro Gly Lys
 980

<210> 64

<211> 982

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Fc-Hepmut1-Cysmut

<400> 64

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr

1	5	10	15
Ala Met Ala Glu Pro Ser Pro Gly Thr Leu Pro Arg Lys Ala Gly Val	20	25	30
Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu	35	40	45
Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met	50	55	60
Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr	65	70	75
His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu	85	90	95
Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr	100	105	110
Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu	115	120	125
Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser	130	135	140
Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys	145	150	155
Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp	165	170	175
Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val	180	185	190
Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu	195	200	205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu

405

410

415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
 465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
 485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
 500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
 515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
 530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
 545 550 555 560

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

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
 580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
 595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly

805

810

815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 965 970 975

Ser Leu Ser Pro Gly Lys
 980

<210> 65

<211> 982

<212> PRT

<213> Artificial Sequence

<220>

<223> hDAO-Fc-Hepmut2-Cysmut

<400> 65

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu

370

375

380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
 465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
 485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
 500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
 515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
 530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
 545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Arg Lys Leu Pro Thr Tyr
 565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

770

775

780

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 66
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut3-Cysmut

<400> 66

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val

340

345

350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
 465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
 485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
 500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
 515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
 530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu

740

745

750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
 885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 67
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut4-Cysmut

<400> 67

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly

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

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp

705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 68
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut5-Cysmut

<400> 68

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg

275

280

285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
 450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
 465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Lys Thr Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro

675

680

685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
 850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 69
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut6-Cysmut

<400> 69

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly

245

250

255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
 260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
 275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
 420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
 435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Arg Phe Gly Gln Thr Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn

645

650

655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
 660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 70
<211> 982
<212> PRT
<213> Artificial Sequence

<220>
<223> hDAO-Fc-Hepmut7-Cysmut

<400> 70

Met Pro Ala Leu Gly Trp Ala Val Ala Ala Ile Leu Met Leu Gln Thr
1 5 10 15

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Ala Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Asn Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly

210

215

220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
 225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
 245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
 260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
 275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
 290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
 305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
 325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
 340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
 370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
 405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Arg Lys Leu Pro Thr Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val

610

615

620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
 625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
 645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
 660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
 675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
 690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
 705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
 725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val Glu
 740 745 750

Pro Lys Ser Ala Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 755 760 765

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

Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 785 790 795 800

Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 805 810 815

Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
820 825 830

Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
835 840 845

Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro
850 855 860

Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
865 870 875 880

Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn
885 890 895

Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
900 905 910

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
915 920 925

Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
930 935 940

Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
945 950 955 960

Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
965 970 975

Ser Leu Ser Pro Gly Lys
980

<210> 71
<211> 2952
<212> DNA
<213> Artificial Sequence

<220>

<223> Fc-hDAO

<400> 71

atgccggccc tgggctgggc cgtggctgcc atcctgatgc tgcagacggc catggcggag	60
tgccccccct gccccgcccc ccccgctggc ggccccctccg tgttcctggt ccccccaag	120
cccaaggaca ccctgatgat ctccaggacc cccgaggtga cctgcgtggt ggtggacgtg	180
tcccacgagg accccgaggt gaagttcaac tggtagctgg acggcgtgga ggtgcacaac	240
gccaagacca agcccaggga ggagcagtac aactccacct acagggtggt gtccgtgctg	300
accgtgctgc accaggactg gctgaacggc aaggagtaca agtgcaagggt gtccaacaag	360
ggcctgccct cctccatcga gaagaccatc tccaaggcca agggccagcc caggagagccc	420
cagggtgtaca ccctgcccc ctccaggag gagatgacca agaaccagggt gtccctgacc	480
tgcttggtga agggcttcta cccctccgac atcgccgtgg agtgggagtc caacggccag	540
cccgagaaca actacaagac ccccccccc gtgctggact ccgacggctc cttcttcctg	600
tactccaagc tgaccgtgga caagtccagg tggcagcagg gcaacgtggt ctctgtctcc	660
gtgatgcacg agggcctgca caaccactac acccagaagt ccctgtccct gtccccggc	720
aaggagccca agtccgccga caagaccac accgagccct ccccggggac tctgcccagg	780
aaggcagggg tgttttcaga cctaagcaac caagagctga aggagtgca cagcttcctc	840
tggccaaga aggagctgag gctgcagccc tccagtacca ccaccatggc caagaacacc	900
gtgttttctca tcgagatgct gctgccccaa aagtacatg tgctgagggt tctggataaa	960
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tccccaggc ctgggtacca gtcctcctgg gcatcgaggc ccatctccac agcagagtat	1140
gccctcctct accacaccct gcaggaagcc accaagcccc tgcacagtt cttcctcaat	1200
accacaggct tctcattcca agactgccat gacagatgcc tggccttcac cgatgtggcc	1260
ccccggggtg tggcttctgg ccagcgccgc agttggctta tcatacagcg ctatgtagaa	1320
ggctactttc tgcacccac tgggctggag ctctcgtgg atcatgggag cacagatgct	1380

gggcactggg ccgtggagca ggtgtggtac aacgggaagt tctatgggag cccagaggaa	1440
ctggctcgga agtatgcaga tggagagggtg gacgtgggtg tcctggagga cccgctgcct	1500
gggggcaagg ggcatgacag cacagaggag ccgccccctct tctcctccca caagccccgc	1560
ggggacttcc ccagccccat ccatgtgagc ggcccccgct tgggtccagcc ccacggccct	1620
cgcttcaggc tggagggcaa cgctgtgctc tacggcggct ggagctttgc cttccggctg	1680
cgctcctcct ccgggctgca ggtcctgaac gtgcacttcg gcggagagcg cattgcctat	1740
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accaagtacc tcgatgtcgg ctggggcctg ggcagcgtca ctcattgagtt agccccggc	1860
atcgactgcc cggagaccgc caccttcctg gacactttcc actactatga tgccgatgac	1920
ccggtccatt atccccgagc cctctgcctc tttgaaatgc ccacaggggt gcccttcgg	1980
cggcacttta attccaactt taaagggtggc ttcaacttct atgcggggct gaagggccag	2040
gtgctggtgc tgcggacaac ttcaactgtc tacaattatg attacatttg ggactttatc	2100
ttctacccca acgggggtgat ggaggccaag atgcatgcca ctggctacgt ccacgccacc	2160
ttctacaccc ccgaggggct gcgccacggc actcgcctgc acaccacct gattggcaac	2220
atacacactc acttgggtgca ctaccgcgta gacctggatg tggcaggcac caagaacagc	2280
ttccagacac tgcagatgaa gctagaaaac atcaccaacc cctggagccc aagacaccgc	2340
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ttcaaaagga agctgccccaa gtacctgctc ttaccagcc cccaggagaa cccctggggc	2460
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<223> Fc-hDAO-Hepmut5

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<220>

<223> Fc-hDAO-Hepmut7-Cysmut

<400> 86

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aacgccaaga ccaagcccag ggaggagcag tacaactcca cctacagggt ggtgtccgtg	2520
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ctgtactcca agctgaccgt ggacaagtcc aggtggcagc agggcaacgt gttctcctgc	2880
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 <212> PRT
 <213> Homo sapiens

<400> 103

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Glu	Asn	Phe	Lys	Ala	Leu	Val	Leu	Ile	Ala	Phe	Ala	Gln	Tyr	Leu	Gln
	20							25					30		

Gln	Cys	Pro	Phe	Glu	Asp	His	Val	Lys	Leu	Val	Asn	Glu	Val	Thr	Glu
	35						40					45			

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

Ser	Leu	His	Thr	Leu	Phe	Gly	Asp	Lys	Leu	Cys	Thr	Val	Ala	Thr	Leu
65					70					75					80

Arg	Glu	Thr	Tyr	Gly	Glu	Met	Ala	Asp	Cys	Cys	Ala	Lys	Gln	Glu	Pro
				85					90					95	

Glu	Arg	Asn	Glu	Cys	Phe	Leu	Gln	His	Lys	Asp	Asp	Asn	Pro	Asn	Leu
		100						105					110		

Pro Arg Leu Val Arg Pro Glu Val Asp Val Met Cys Thr Ala Phe His
115 120 125

Asp Asn Glu Glu Thr Phe Leu Lys Lys Tyr Leu Tyr Glu Ile Ala Arg
130 135 140

Arg His Pro Tyr Phe Tyr Ala Pro Glu Leu Leu Phe Phe Ala Lys Arg
145 150 155 160

Tyr Lys Ala Ala Phe Thr Glu Cys Cys Gln Ala Ala Asp Lys Ala Ala
165 170 175

Cys Leu Leu Pro Lys Leu Asp Glu Leu Arg Asp Glu Gly Lys Ala Ser
180 185 190

Ser Ala Lys Gln Arg Leu Lys Cys Ala Ser Leu Gln Lys Phe Gly Glu
195 200 205

Arg Ala Phe Lys Ala Trp Ala Val Ala Arg Leu Ser Gln Arg Phe Pro
210 215 220

Lys Ala Glu Phe Ala Glu Val Ser Lys Leu Val Thr Asp Leu Thr Lys
225 230 235 240

Val His Thr Glu Cys Cys His Gly Asp Leu Leu Glu Cys Ala Asp Asp
245 250 255

Arg Ala Asp Leu Ala Lys Tyr Ile Cys Glu Asn Gln Asp Ser Ile Ser
260 265 270

Ser Lys Leu Lys Glu Cys Cys Glu Lys Pro Leu Leu Glu Lys Ser His
275 280 285

Cys Ile Ala Glu Val Glu Asn Asp Glu Met Pro Ala Asp Leu Pro Ser
290 295 300

Leu Ala Ala Asp Phe Val Glu Ser Lys Asp Val Cys Lys Asn Tyr Ala
305 310 315 320

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

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

Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp Pro His Glu
355 360 365

Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro Leu Val Glu Glu Pro
370 375 380

Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln Leu Gly Glu
385 390 395 400

Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys Lys Val Pro
405 410 415

Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser Arg Asn Leu Gly Lys
420 425 430

Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala Lys Arg Met Pro Cys
435 440 445

Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln Leu Cys Val Leu His
450 455 460

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

Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu Glu Val Asp Glu Thr
485 490 495

Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe His Ala Asp
500 505 510

Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys Gln Thr Ala
515 520 525

Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys Glu Gln Leu
530 535 540

Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys Cys Cys Lys
545 550 555 560

Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys Lys Leu Val
565 570 575

Ala Ala Ser Gln Ala Ala Leu Gly Leu
580 585

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<212> DNA
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<220>
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<400> 104
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<210> 105
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<212> DNA
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<223> reverse primer

<400> 105
gaggaagaac tgatgcag 18

<210> 106
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<212> PRT
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<223> hDAO-Hepmut4 Asn168Gln

<400> 106

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

Phe Ser Asp Leu Ser Asn Gln Glu Leu Lys Ala Val His Ser Phe Leu
35 40 45

Trp Ser Lys Lys Glu Leu Arg Leu Gln Pro Ser Ser Thr Thr Thr Met
50 55 60

Ala Lys Asn Thr Val Phe Leu Ile Glu Met Leu Leu Pro Lys Lys Tyr
65 70 75 80

His Val Leu Arg Phe Leu Asp Lys Gly Glu Arg His Pro Val Arg Glu
85 90 95

Ala Arg Ala Val Ile Phe Phe Gly Asp Gln Glu His Pro Asn Val Thr
100 105 110

Glu Phe Ala Val Gly Pro Leu Pro Gly Pro Cys Tyr Met Arg Ala Leu
115 120 125

Ser Pro Arg Pro Gly Tyr Gln Ser Ser Trp Ala Ser Arg Pro Ile Ser
130 135 140

Thr Ala Glu Tyr Ala Leu Leu Tyr His Thr Leu Gln Glu Ala Thr Lys
145 150 155 160

Pro Leu His Gln Phe Phe Leu Gln Thr Thr Gly Phe Ser Phe Gln Asp
165 170 175

Cys His Asp Arg Cys Leu Ala Phe Thr Asp Val Ala Pro Arg Gly Val
180 185 190

Ala Ser Gly Gln Arg Arg Ser Trp Leu Ile Ile Gln Arg Tyr Val Glu
195 200 205

Gly Tyr Phe Leu His Pro Thr Gly Leu Glu Leu Leu Val Asp His Gly
210 215 220

Ser Thr Asp Ala Gly His Trp Ala Val Glu Gln Val Trp Tyr Asn Gly
225 230 235 240

Lys Phe Tyr Gly Ser Pro Glu Glu Leu Ala Arg Lys Tyr Ala Asp Gly
245 250 255

Glu Val Asp Val Val Val Leu Glu Asp Pro Leu Pro Gly Gly Lys Gly
260 265 270

His Asp Ser Thr Glu Glu Pro Pro Leu Phe Ser Ser His Lys Pro Arg
275 280 285

Gly Asp Phe Pro Ser Pro Ile His Val Ser Gly Pro Arg Leu Val Gln
290 295 300

Pro His Gly Pro Arg Phe Arg Leu Glu Gly Asn Ala Val Leu Tyr Gly
305 310 315 320

Gly Trp Ser Phe Ala Phe Arg Leu Arg Ser Ser Ser Gly Leu Gln Val
325 330 335

Leu Asn Val His Phe Gly Gly Glu Arg Ile Ala Tyr Glu Val Ser Val
340 345 350

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

Thr Lys Tyr Leu Asp Val Gly Trp Gly Leu Gly Ser Val Thr His Glu
370 375 380

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

Phe His Tyr Tyr Asp Ala Asp Asp Pro Val His Tyr Pro Arg Ala Leu
405 410 415

Cys Leu Phe Glu Met Pro Thr Gly Val Pro Leu Arg Arg His Phe Asn
420 425 430

Ser Asn Phe Lys Gly Gly Phe Asn Phe Tyr Ala Gly Leu Lys Gly Gln
435 440 445

Val Leu Val Leu Arg Thr Thr Ser Thr Val Tyr Asn Tyr Asp Tyr Ile
450 455 460

Trp Asp Phe Ile Phe Tyr Pro Asn Gly Val Met Glu Ala Lys Met His
465 470 475 480

Ala Thr Gly Tyr Val His Ala Thr Phe Tyr Thr Pro Glu Gly Leu Arg
485 490 495

His Gly Thr Arg Leu His Thr His Leu Ile Gly Asn Ile His Thr His
500 505 510

Leu Val His Tyr Arg Val Asp Leu Asp Val Ala Gly Thr Lys Asn Ser
515 520 525

Phe Gln Thr Leu Gln Met Lys Leu Glu Asn Ile Thr Asn Pro Trp Ser
530 535 540

Pro Arg His Arg Val Val Gln Pro Thr Leu Glu Gln Thr Gln Tyr Ser
545 550 555 560

Trp Glu Arg Gln Ala Ala Phe Ser Phe Lys Thr Lys Leu Pro Lys Tyr
565 570 575

Leu Leu Phe Thr Ser Pro Gln Glu Asn Pro Trp Gly His Lys Arg Ser
580 585 590

Tyr Arg Leu Gln Ile His Ser Met Ala Asp Gln Val Leu Pro Pro Gly
595 600 605

Trp Gln Glu Glu Gln Ala Ile Thr Trp Ala Arg Tyr Pro Leu Ala Val
610 615 620

Thr Lys Tyr Arg Glu Ser Glu Leu Cys Ser Ser Ser Ile Tyr His Gln
625 630 635 640

Asn Asp Pro Trp His Pro Pro Val Val Phe Glu Gln Phe Leu His Asn
645 650 655

Asn Glu Asn Ile Glu Asn Glu Asp Leu Val Ala Trp Val Thr Val Gly
660 665 670

Phe Leu His Ile Pro His Ser Glu Asp Ile Pro Asn Thr Ala Thr Pro
675 680 685

Gly Asn Ser Val Gly Phe Leu Leu Arg Pro Phe Asn Phe Phe Pro Glu
690 695 700

Asp Pro Ser Leu Ala Ser Arg Asp Thr Val Ile Val Trp Pro Arg Asp
705 710 715 720

Asn Gly Pro Asn Tyr Val Gln Arg Trp Ile Pro Glu Asp Arg Asp Cys
725 730 735

Ser Met Pro Pro Pro Phe Ser Tyr Asn Gly Thr Tyr Arg Pro Val
740 745 750