

序列表

<110> 北京大学

<120> MG53突变体及其制备方法和用途

<130> 066467-8001W001

<160> 154

<170> PatentIn version 3.5

<210> 1

<211> 477

<212> PRT

<213> 智人

<400> 1

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ser Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
260 265 270

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala

325

330

335

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
 340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
 355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
 370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
 385 390 395 400

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
 405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
 420 425 430

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
 435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
 450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
 465 470 475

<210> 2

<211> 477

<212> PRT

<213> 小鼠

<400> 2

Met Ser Ala Ala Pro Gly Leu Leu Arg Gln Glu Leu Ser Cys Pro Leu
 1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Ile Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Ala Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ser Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Thr Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala Gln Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Met Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Thr Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

Gly Lys Met Arg Met Phe Leu Ala Ala Leu Glu Ser Ser Leu Asp Arg
180 185 190

Glu Ala Glu Arg Val Arg Gly Asp Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Ser Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Phe Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ser Glu Ser Pro
245 250 255

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

Lys Phe Gln Val Trp Lys Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Asp Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Thr Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

Gln Gln Leu Leu Ser Gln Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Met Ala Ala Asp Ala Ser Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Asp Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Pro Pro Ala Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Ala Asp Gly Val Leu Ala Phe Tyr Asp Ala Ser Asn Pro
420 425 430

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

Val Tyr Pro Ile Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Glu Gln Glu Gln Ala
465 470 475

<210> 3
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<213> 大鼠

<400> 3

Met Ser Thr Ala Pro Gly Leu Leu Arg Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Ile Arg Val Ala Gly Glu Pro Ala Asp Asp
35 40 45

Gly Thr Val Ala Cys Pro Cys Cys Gln Ala Ser Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Thr Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Ala Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

Gly Lys Met Arg Met Phe Leu Ala Ala Leu Glu Ser Ser Leu Asp Arg
180 185 190

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Ser Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Phe Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ser Glu Ser Pro
245 250 255

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

Lys Phe Gln Val Trp Lys Lys Met Phe Arg Ala Leu Met Pro Glu Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ala Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro

305 310 315 320

Ala Gly Glu Asp Thr Cys Gln Phe Asp Lys Thr Val Ala Val Val Ala
325 330 335

Lys Gln Leu Leu Ser Gln Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Met Ala Ala Asp Ala Ser Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Asp Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Pro Pro Ala Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Ala Asp Gly Val Leu Thr Phe Tyr Asp Ala Ser Asn Thr
420 425 430

Asp Ala Leu Thr Pro Leu Phe Ser Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Met Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ser
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Asp Ser Glu Gln Ala
465 470 475

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<211> 477

<212> PRT

<213> 猴子

<400> 4

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ser Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
260 265 270

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Gly Pro Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
420 425 430

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ser
450 455 460

Gln Pro Leu Leu Leu Val Gly Ser Glu Gly Ala Glu Ala
465 470 475

<210> 5
<211> 478
<212> PRT
<213> 猪

<400> 5

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Ser Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Gln Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Val Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Gly Val Leu Glu Gln Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

Gly Lys Met Arg Leu Phe Leu Ala Ala Leu Glu Gly Ser Leu Asp Arg
180 185 190

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Lys Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ser Pro
245 250 255

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

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Met
275 280 285

Gln Glu Leu Thr Phe Asp Pro Ser Thr Ala His Pro Ser Leu Val Leu

290

295

300

Ser Ala Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
 305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Thr
 325 330 335

His Gln Leu Leu Ser Glu Gly Glu His Tyr Trp Glu Val Glu Val Gly
 340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Gly Ala Gln Ala Gly Arg
 355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
 370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
 385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Arg Pro Ser Arg Ile Gly Ile Tyr
 405 410 415

Leu Ser Phe Ala Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
 420 425 430

Asp Ala Leu Glu Leu Leu Phe Ala Phe His Glu Arg Leu Pro Gly Pro
 435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
 450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Asp Ser Gly Gly Glu Ala
 465 470 475

<210> 6

<211> 477

<212> PRT

<213> 狗

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Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Ser Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Pro Cys Pro Cys Cys Gln Ala Leu Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Gln Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Leu Leu Glu His Gln Leu Met Glu
145 150 155 160

Val Glu Glu Met Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ser Pro
245 250 255

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

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Val Thr
275 280 285

Lys Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Leu
290 295 300

Ser Pro Ser Gly Arg Arg Val Glu Cys Ser Asp Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Cys Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

Gln Gln Val Leu Ser Asp Gly Glu His Tyr Trp Glu Val Gln Val Gly
340 345 350

Glu Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Gln Ala Ser Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Asp Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Arg Pro Thr Arg Ile Gly Ile Tyr
405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Pro
420 425 430

Asp Ala Leu Glu Leu Leu Phe Ala Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Asp Gly Glu Glu Ala
465 470 475

<210> 7
<211> 477
<212> PRT
<213> 人工序列

<220>
<223> 人MG53 S255A突变体的氨基酸序列

<400> 7

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ala Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
260 265 270

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
420 425 430

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
465 470 475

<210> 8
<211> 477
<212> PRT
<213> 人工序列

<220>
<223> 小鼠MG53 S255A突变体的氨基酸序列

<400> 8

Met Ser Ala Ala Pro Gly Leu Leu Arg Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Ile Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Ala Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ser Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Thr Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala Gln Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Met Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Thr Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

Gly Lys Met Arg Met Phe Leu Ala Ala Leu Glu Ser Ser Leu Asp Arg
180 185 190

Glu Ala Glu Arg Val Arg Gly Asp Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Ser Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Phe Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ser Glu Ala Pro
245 250 255

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

Lys Phe Gln Val Trp Lys Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Asp Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Thr Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

Gln Gln Leu Leu Ser Gln Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Met Ala Ala Asp Ala Ser Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Asp Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Pro Pro Ala Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Ala Asp Gly Val Leu Ala Phe Tyr Asp Ala Ser Asn Pro
420 425 430

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

Val Tyr Pro Ile Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Glu Gln Glu Gln Ala
465 470 475

<210> 9
<211> 477
<212> PRT
<213> 人工序列

<220>
<223> 大鼠MG53 S255A突变体的氨基酸序列

<400> 9

Met Ser Thr Ala Pro Gly Leu Leu Arg Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Ile Arg Val Ala Gly Glu Pro Ala Asp Asp
35 40 45

Gly Thr Val Ala Cys Pro Cys Cys Gln Ala Ser Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Thr Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Ala Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

Gly Lys Met Arg Met Phe Leu Ala Ala Leu Glu Ser Ser Leu Asp Arg
180 185 190

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Ser Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Phe Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ser Glu Ala Pro
245 250 255

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

Lys Phe Gln Val Trp Lys Lys Met Phe Arg Ala Leu Met Pro Glu Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ala Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Thr Cys Gln Phe Asp Lys Thr Val Ala Val Val Ala
325 330 335

Lys Gln Leu Leu Ser Gln Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Met Ala Ala Asp Ala Ser Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Asp Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Pro Pro Ala Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Ala Asp Gly Val Leu Thr Phe Tyr Asp Ala Ser Asn Thr
420 425 430

Asp Ala Leu Thr Pro Leu Phe Ser Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Met Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ser
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Asp Ser Glu Gln Ala
465 470 475

<210> 10

<211> 477

<212> PRT

<213> 人工序列

<220>

<223> 猴子MG53 S255A突变体的氨基酸序列

<400> 10

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ala Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
260 265 270

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Gly Pro Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
420 425 430

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ser
450 455 460

Gln Pro Leu Leu Leu Val Gly Ser Glu Gly Ala Glu Ala
465 470 475

<210> 11

<211> 478

<212> PRT

<213> 人工序列

<220>

<223> 猪MG53 S255A突变体的氨基酸序列

<400> 11

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Ser Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Gln Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Val Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Gly Val Leu Glu Gln Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

Gly Lys Met Arg Leu Phe Leu Ala Ala Leu Glu Gly Ser Leu Asp Arg
180 185 190

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Lys Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ala Pro
245 250 255

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

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Met
275 280 285

Gln Glu Leu Thr Phe Asp Pro Ser Thr Ala His Pro Ser Leu Val Leu
290 295 300

Ser Ala Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Thr
325 330 335

His Gln Leu Leu Ser Glu Gly Glu His Tyr Trp Glu Val Glu Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Gly Ala Gln Ala Gly Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Arg Pro Ser Arg Ile Gly Ile Tyr
405 410 415

Leu Ser Phe Ala Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
420 425 430

Asp Ala Leu Glu Leu Leu Phe Ala Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Asp Ser Gly Gly Glu Ala
465 470 475

<210> 12
<211> 477
<212> PRT
<213> 人工序列

<220>
<223> 狗MG53 S255A突变体的氨基酸序列

<400> 12

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Ser Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Pro Cys Pro Cys Cys Gln Ala Leu Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Gln Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Leu Leu Glu His Gln Leu Met Glu
145 150 155 160

Val Glu Glu Met Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ala Pro
245 250 255

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

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Val Thr
275 280 285

Lys Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Leu
290 295 300

Ser Pro Ser Gly Arg Arg Val Glu Cys Ser Asp Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Cys Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

Gln Gln Val Leu Ser Asp Gly Glu His Tyr Trp Glu Val Gln Val Gly
340 345 350

Glu Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Gln Ala Ser Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Asp Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Thr Pro Glu Arg Arg Pro Thr Arg Ile Gly Ile Tyr
405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Pro
420 425 430

Asp Ala Leu Glu Leu Leu Phe Ala Phe His Glu Arg Leu Pro Gly Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Asp Gly Glu Glu Ala
465 470 475

<210> 13
<211> 1434
<212> DNA
<213> 人工序列

<220>
<223> 人MG53 S255A突变体的编码序列

<400> 13
atgtcggctg cgcccgccct cctgcaccag gagctgtcct gcccgctgtg cctgcagctg 60
ttcgacgcgc ccgtgacagc cgagtgcggc cacagtttct gccgcgcctg cctaggccgc 120
gtggccgggg agccggcggc ggatggcacc gttctctgcc cctgctgcca ggcccccacg 180
cggccgcagg cactcagcac caacctgcag ctggcgcgcc tgggtggaggg gctggcccag 240
gtgccgcagg gccactgcga ggagcacctg gacccgctga gcatctactg cgagcaggac 300
cgcgcgctgg tgtgcggagt gtgcgcctca ctcggctcgc accgcggtca tcgcctcctg 360
cctgccgccg agggccacgc acgcctcaag acacagctgc cacagcagaa actgcagctg 420
caggaggcat gcatgcgcaa ggagaagagt gtggctgtgc tggagcatca gctgggtggag 480
gtggaggaga cagtgcgtca gttccggggg gccgtggggg agcagctggg caagatgcgg 540
gtgttccttg ctgcactgga gggctccttg gaccgcgagg cagagcgtgt acggggtgag 600
gcaggggtcg ccttgcgccg ggagctgggg agcctgaact cttacctgga gcagctgcgg 660
cagatggaga aggtcctgga ggaggtggcg gacaagccgc agactgagtt cctcatgaaa 720
tactgcctgg tgaccagcag gctgcagaag atcctggcag aggctcccc acccgcccgt 780
ctggacatcc agctgccaat tatctcagat gacttcaaat tccaggtgtg gaggaagatg 840
ttccgggctc tgatgccagc gctggaggag ctgacctttg acccgagctc tgcgcacccg 900
agcctggtgg tgtcttcctc tggccgccgc gtggagtgtc cggagcagaa ggccgccccg 960
gccggggagg acccgcgcca gttcgacaag gcggtggcgg tgggtggcgca ccagcagctc 1020
tccgagggcg agcactactg ggaggtggat gttggcgaca agccgcgctg ggcgctgggc 1080
gtgatcgcgg ccgaggcccc ccgcccggg cgctgcacg cggtgccctc gcagggcctg 1140

tggtgctgctgg ggctgcgcga gggcaagatc ctggaggcac acgtggaggc caaggagccg	1200
cgcgctctgc gcagccccga gaggcggccc acgcgcattg gcctttacct gagcttcggc	1260
gacggcgtcc tctccttcta cgatgccagc gacgccgacg cgctcgtgcc gctttttgcc	1320
ttccacgagc gcctgcccag gcccgtgtac cccttcttcg acgtgtgctg gcacgacaag	1380
ggcaagaatg cccagccgct gctgctcgtg ggtcccgaag gcgccgaggc ctga	1434

<210> 14
 <211> 1434
 <212> DNA
 <213> 人工序列

<220>
 <223> 小鼠MG53 S255A突变体的编码序列

<400> 14	
atgtcggctg caccggcct tctgcgtcag gaactgtcct gccactgtg cttgcagctg	60
ttcgatgcgc cagtgcggc tgagtgtggc cacagtttct gccgtgcctg cctgatccgg	120
gtggcagggg agcctgctgc ggacggcaca gttgcctgtc cctgttgtca ggcacctaca	180
cggccgcagg ctctaagcac taacctccag ttgtcacgcc ttgtggaggg tttggcgcaa	240
gtgccccaaag gccactgcga ggaacacctg gatccactga gcatctactg cgagcaggac	300
cgcacacttg tgtgtgggtg gtgtgcctcg ctcggttctc accgtgggtca tcgtctcctg	360
cctgccgctg aagcccaagc acgcctcaag acacagcttc cacagcagaa gatgcagctg	420
caggaggcat gcatgcgcaa ggagaagact gtagcgggtg tggagcatca gctggtggag	480
gtggaggaga cagtgcgcca gttccgggga gctgtcgggg agcagctggg gaagatgcgg	540
atgttcctgg ctgccctaga aagttctctg gaccgtgaag cagaaagggt tcggggtgat	600
gctgggggttg ccttgcgtcg ggagctgtca agcctgaact cttacctaga gcaactgagg	660
cagatggaga aggtgctgga ggagggtggct gacaagccac agacagaatt cctcatgaaa	720
ttctgcctgg taaccagcag gctgcagaag atcctgtcag aggcaccacc accggcaagg	780
ctagatatcc agctgcctgt catctcagat gacttcaaat tccagggtgtg gaagaagatg	840
ttccgggctc tgatgccagc gctggaggaa ctgacttttg accccagctc tgcgcacccg	900

agcctggtgg tgtcctcctc tggtcgccga gtggagtgtc cagaccagaa ggcgccgcca	960
gcggggagaag acacgcgtca gttcgacaag gcagtagcgg tggtaggcgca gcagctgtctg	1020
tcacagggcg agcactattg ggaggtggag gtgggcgaca aaccacgctg ggccctggga	1080
gtgatggcgg ctgacgcttc ccgccgtggc cggctgcacg cggtagccctc acaggggctg	1140
tggctgtctgg gtctgcgcga tggcaagatc ctggaggcgc acgtggaggc caaggagccg	1200
cgggcactgc gcaccccaga gaggcctccg gcgcgcattg gcctctacct aagcttcgca	1260
gatggcgtcc tggcttttcta tgatgcgagc aaccccgacg tactttacgcc aatcttttct	1320
ttccacgagc gtctgcccgg gccggtgtac cccatctttg acgtgtgctg gcacgacaag	1380
ggcaagaatg cccagccccct gctgcttgtg gggccggagc aggaacaggc ctga	1434

<210> 15
 <211> 1434
 <212> DNA
 <213> 人工序列

<220>
 <223> 大鼠MG53 S255A突变体的编码序列

<400> 15	
atgtcgactg caccaggcct tttgcgccag gaactgtctt gcccgctgtg cttgcagctg	60
ttcgatgcac cagtgaccgc tgagtgtggc cacagtttct gccgtgcctg cctgatccgt	120
gtggcagggg agcctgccga cgatggcacg gttgcctgtc cctgttgtca ggcatctact	180
cggccacagg cgctaagcac taacctccag ttggcacgcc ttgtggaggg tttggcaciaa	240
gtgccccaaag gccactgcga ggaacacctg gatccactga gcatctactg cgagcaggac	300
cgcacacttg tgtgtggtgt gtgtgcctct ctcggttcac accgtgggtca ccgtcttctg	360
cctgccgcag aagcccatgc acgtctcaag acacagcttc cacaacagaa ggcccagctg	420
caggaggcat gcatgcgcaa ggagaagagt gtagcagtcc tggagcatca gctggtggag	480
gtggaggaga ccgtgcgtca gttccgggga gctgttgggg agcagctggg gaagatgcgg	540
atgttcctgg ctgccctaga aagttctttg gaccgtgaag cagaaagggg tcgaggtgag	600
gcaggggttg ccttgccggcg ggagctgtca agcctgaact cttacctgga gcaactgagg	660

cagatggaga aggtgctgga ggaggtggct gacaagccac agacagaatt cctcatgaaa	720
ttctgcctgg tgaccagcag gctgcagaag attctgtcag aggcaccacc cccagcaagg	780
ctagatatcc agctgcctgt catctcagat gacttcaaatt tccaggtgtg gaagaagatg	840
ttccgggctc tgatgccaga gttggaggaa ctgacttttg accccagctc tgcgcacccg	900
agcctgggtg tgtccgcctc tggtcgccga gtggagtgtc cggagcagaa ggcgccgcca	960
gcaggagaag acacgtgccca gttcgacaag acggtagcgg tagtggcgaa gcagctgtctg	1020
tcacaggggg agcactactg ggaggtggag gtgggcgaca agccacgctg ggccctgggt	1080
gtgatggcgg ctgacgcttc ccgtcgtggc cgcctgcacg cggtgccctc acaggggctg	1140
tggttgctcg gcctgcgcga tggcaagatc ctggaggcac acgtggaggc caaggagcca	1200
cgggcactgc gcaccccaga gaggccacca gcgcgcattg gcctctacct aagctttgca	1260
gatggcgtcc tgactttcta tgatgcaagc aacaccgacg cgcttacacc gctcttttct	1320
tttcatgagc gtctgcctgg gccggtgtac cccatgtttg acgtgtgctg gcacgacaag	1380
ggcaagaatt ctcagccgct gttgctcgtg gggccagaca gtgagcaggc ctga	1434

<210> 16
 <211> 1434
 <212> DNA
 <213> 人工序列

<220>
 <223> 猴子MG53 S255A突变体的编码序列

<400> 16	
atgtcggctg cgccgggcct cctgcaccag gagctgtcct gcccgtgtg cctgcagctg	60
ttcgacgcgc ccgtgacagc cgagtgcggc cacagtttct gtcgcgcctg cctgggccgc	120
gtggccgggg aaccggcggc ggatggcacc gttctctgcc cctgctgtca ggccccacg	180
cggccgcagg cactcagcac caacctgcag ctggcgcgcc tggtagggg gctggcccag	240
gtgccgcagg gccactgcga ggagcacctg gaccgctga gcatctactg tgagcaggac	300
cgcgcgctgg tgtgcggagt gtgcgcctca ctcggctcgc acccggtca tcgcctgtg	360
ccgcccgcg agggccacgc acgcctcaag acgcagctgc cacagcagaa actgcagctg	420

caggaggcat gcatgcgcaa ggagaagagt gtagctgtgc tggagcatca gttggtggaa	480
gtggaggaga cagtgcgtca gttccggggg gccgtggggg agcagctggg caagatgcgg	540
gtgttcctgg ctgcactgga gggctccttg gaccgtgagg cagagcgtgt gcgggggtgag	600
gcaggggtcg ccttgcgccg ggagctgggg agcctgaact cttacctgga gcagctgcgg	660
cagatggaga aggtgctgga ggaggtggcc gacaagccgc agactgagtt cctaataaaa	720
tactgcctgg tgaccagcag gctgcagaag atcctggcag aggctcccc acccgcccgt	780
ctggacatcc agctgccaat catctcagat gacttcaaat tccaggtgtg gaggaagatg	840
ttccgggctc tgatgccagc gctggaggag ctgacctttg acccgagctc tgcgcacccc	900
agcctggtgg tgtcttcctc cggccgccgc gtggagtgtc cggagcagaa ggccgcccg	960
gcgggggagg acccgcgcca gttcgacaag gcggtagcgg tggtagcgca ccagcagctc	1020
tccgagggcg aacactactg ggaggtggag gtgggcgaca agccgcgctg ggcgctgggt	1080
gtgatcgcg ccgaggggcc ccgtcgcggg cgctgcacg cggtgccctc gcagggcctg	1140
tggctgctgg ggctgcgtga gggcaagatc ctggaggctc acgtggaggc caaggagccg	1200
cgcgctctgc gcagccccga gcggcgggcc acgcgcatcg gcctctacct gagcttcggc	1260
gacggcgtcc tctccttcta cgatgccagc gacgccgacg cgctcgtgcc gctttttgcc	1320
ttccacgagc gcctgcctgg gcccgtgtac cccttcttcg acgtgtgctg gcacgacaag	1380
ggcaagaact cccagccgct gctgctcgtg ggggtccgaag gcgccgaagc ctga	1434

<210> 17
 <211> 1437
 <212> DNA
 <213> 人工序列

<220>
 <223> 猪MG53 S255A突变体的编码序列

<400> 17	
atgtcagctg cgcccggcct cctgcaccag gagctgtcct gtccgctgtg cctgcagctg	60
ttcgatgcgc cggtagcggc tgagtgcggc cacagcttct gccgcgcctg cctgggcccgc	120
gtggcagggg agccagccgc ggatggcacg gtgctctgcc ccagctgcca ggcacccacg	180

cggccgcagg cgctcagcac caaccagcag ctggcgcgcc tggaggagg gctggcgcag	240
gtgccgcagg gccactgcga ggagcaccta gacccgctca gcatctactg cgagcaggac	300
cgcggtgctcg tgtgcggcgt ctgcgcctcg ctgggttcgc accgcggcca ccgcctgctg	360
cccgccgccg aagcccatgc gcgccttaag acgcagctcc cgcagcagaa gctgcagctg	420
caggaggcgt gtatgcggaa ggagaagagc gtgggtgtgc tggagcaaca actggtggaa	480
gtggaggaga cgggtcgtca gttccggggg gcagtggggg agcagctggg caagatgcgg	540
ttgttcctgg ctgcactgga gggctccttg gaccgagaag cagagcgtgt gcggggtgag	600
gcgggggtcg ccttgcggag ggagctgggg agcctgaagt cttacttgga gcagctgcgg	660
cagatggaga aggtgctgga ggaggtggca gacaagcccc agaccgagtt cctcatgaaa	720
tactgcctgg tgaccagcag gctgcagaag atcctggcag aggcgcccc acctgccccg	780
ctggacattc agctgcctgt catctcagac gacttcaa at tccaggtgtg gagaaagatg	840
ttccgggccc tgatgccagc gatgcaggag ctgaccttg accccagcac ggcccacccg	900
agcctggtgc tgtcggcctc gggccgccgc gtggagtgtc cggagcagaa ggcgccgccg	960
gccggagagg acccgcgcca gttcgacaag gcggtggcgg tggtgacgca ccagctgctg	1020
tcggaaggcg agcactactg ggaggtggag gtgggcgaca agccacgctg ggcgctgggc	1080
gtgatcgggg cccaggccgg tcgcccggc cggctgcacg ccgtgccctc gcagggcctc	1140
tggctgctcg ggctgcgcga gggcaagatc ctggaggctc acgtcgaggc caaggagccg	1200
cgcgccctgc gcaccccgga gaggcggccg tcgcgcatcg ggatctacct gagcttcgcg	1260
gatggcgtcc tctcgttcta cgacgccagc gacgccgacg cgctggagct gctcttcgcc	1320
ttccacgaac gcctgccggg ccccggtgtac cccttcttcg acgtgtgctg gcacgacaag	1380
ggcaagaacg ctcagccgct cctgctggtg gggcccgaca gcggcgggga ggcctga	1437

<210> 18
 <211> 1434
 <212> DNA
 <213> 人工序列

<220>

<223> 狗MG53 S255A突变体的编码序列

<400> 18

atgtcggccg cgccgggcct cctgcaccag gagctgtcct gcccgtcttg cctgcagctg	60
tttgacgcgc cgggtgaccgc cgagtgcggc cacagtttct gccgcgcctg cctgagccgc	120
gtggctgggg agccggcggc ggacggcacc gtgccctgcc cgtgctgcca ggcactcacg	180
cggccacagg cgctcagcac caaccagcag ctggcgcgcc tggaggagg gctggcgcag	240
gtgccgcagg gccactgcga ggagcaccta gaccgcctca gcatctactg cgagcaggat	300
cgagcgctcg tgtgcggcgt gtgcgcctcg ctgggctcgc accgcggcca ccgcctgctg	360
cccgccgccg aagcccacgc gcgcctcaag acacagctgc cacagcagaa actgcagctg	420
caggaggcat gtatgcgcaa ggagaagagt gtggctctgc tggagcatca gctcatggaa	480
gtggaggaga tgggtgcgtca gttccggggg gctgtagggg agcagctggg caagatgcgg	540
gtgttcctgg ctgcactgga gggctccttg gaccgtgagg cagagcgctg gcggggagag	600
gcaggggttg ccctgcggcg ggagctgggg agcctgaact cttacctgga gcagttgcgt	660
cagatggaga aggtgctgga ggaggtggcc gacaagccac agactgagtt cctcatgaaa	720
tactgcctgg tgaccagcag gctacagaag atcctggcag aagcaccacc gcctgcccgt	780
ttggacatcc agctgcctgt catctcagat gacttcaa at tccaggtgtg gaggaagatg	840
ttccgggctc tgatgccagt taaaaaggag ctgacctttg acccgagctc tgcgcacccg	900
agcctggtgc tgtctccctc cggtcgccgc gtggagtgtc cggaccagaa ggcgccgccg	960
gccggggagg atccgtgcca gttcgacaag gccgtggcgg tggtaggcga gcaggtgctg	1020
tccgacggcg agcactactg ggaggtgcag gtgggcgaga agccgcgctg ggccctcggc	1080
gtgatcgcg cccaggccag ccgccgcggc cggctgcacg ccgtcccctc gcagggcctc	1140
tggctgctcg ggctgcggga cggcaagatc ctggaggcgc acgtcgaagc caaggagccg	1200
cgcgcgctgc gcaccccgga gaggcggccc acgcgcatcg ggatctacct aagcttcggc	1260
gacggagtcc tctcctttta tgatgccagt gaccccgacg ccctcgagct gctctttgcc	1320
ttccacgagc gcctgcccgg gcccggtgtac cccttcttcg acgtatgctg gcacgacaag	1380
ggcaaaaatg ctcagccgct gctgctggtg gggcctgatg gcgaggaggc ctga	1434

<210> 19
<211> 1434
<212> DNA
<213> 智人

<400> 19
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<210> 26
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<210> 27
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<210> 29
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<210> 30
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<210> 40
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<210> 41
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<210> 43
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<212> DNA
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<210> 44
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<210> 51
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<220>

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<210> 52
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<220>
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<210> 56
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Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

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

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
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Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
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Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

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

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly

370

375

380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
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Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
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Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
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Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
 435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
 450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
 465 470 475

<210> 140

<211> 333

<212> PRT

<213> 智人

<400> 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
 1 5 10 15

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
 20 25 30

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
 50 55 60

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
65 70 75 80

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
85 90 95

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

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
115 120 125

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

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
145 150 155 160

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
165 170 175

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

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
195 200 205

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
210 215 220

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
225 230 235 240

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

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
260 265 270

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
275 280 285

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
290 295 300

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
305 310 315 320

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
325 330

<210> 141
<211> 333
<212> PRT
<213> 智人

<400> 141

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
1 5 10 15

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
20 25 30

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
50 55 60

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
65 70 75 80

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
85 90 95

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ser Pro

100

105

110

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
 115 120 125

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

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
 145 150 155 160

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Gly Gln Lys Ala Pro Pro
 165 170 175

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

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
 195 200 205

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
 210 215 220

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
 225 230 235 240

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

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
 260 265 270

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
 275 280 285

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
 290 295 300

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
305 310 315 320

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
325 330

<210> 142
<211> 269
<212> PRT
<213> 智人

<400> 142

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ser Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser
260 265

<210> 143
<211> 1434
<212> DNA
<213> 智人

<400> 143
atgtcggctg cgcccgccct cctgcaccag gagctgtcct gcccgctgtg cctgcagctg 60
ttcgacgcgc ccgtgacagc cgagtgcggc cacagtttct gccgcgcctg cctaggccgc 120
gtggccgggg agccggcggc ggatggcacc gttctctgcc cctgctgcca ggccccacg 180
cggccgcagg cactcagcac caacctgcag ctggcgcgcc tgggtggaggg gctggcccag 240
gtgccgcagg gccactgcga ggagcacctg gacccgctga gcatctactg cgagcaggac 300

cgcgcgctgg tgtgcggagt gtgcgcctca ctcggctcgc accgcggtca tcgcctcctg	360
cctgccgccg agggccacgc acgcctcaag acacagctgc cacagcagaa actgcagctg	420
caggaggcat gcatgcgtaa ggagaagagt gtggctgtgc tggagcatca gctggtggag	480
gtggaggaga cagtgcgtca gttccggggg gccgtggggg agcagctggg caagatgcgg	540
gtgttcctgg ctgcactgga gggctccttg gactgcgagg cagagcgtgt acggggtgag	600
gcaggggtcg ccttgccgcc ggagctgggg agcctgaact cttacctgga gcagctgcgg	660
cagatggaga aggtcctgga ggaggtggcg gacaagccgc agactgagtt cctcatgaaa	720
tactgcctgg tgaccagcag gctgcagaag atcctggcag agtctcccc acccgcccgt	780
ctggacatcc agctgccaat tatctcagat gacttcaaat tccaggtgtg gaggaagatg	840
ttccgggctc tgatgccagc gctggaggag ctgaccttg acccgagctc tgcgcacccg	900
agcctggtgg tgtcttcctc tggccgccgc gtggagtgtc cggagcagaa ggccgccccg	960
gccggggagg acccgcgcca gttcgacaag gcggtggcgg tggtaggcga ccagcagctc	1020
tccgaggggc agcactactg ggaggtggat gttggcgaca agccgcgctg ggcgctgggc	1080
gtgatcgccg ccgaggcccc ccgccgcggg cgcctgcacg cggtagccctc gcagggcctg	1140
tggctgctgg ggctgcgcga gggcaagatc ctggaggcac acgtggaggc caaggagccg	1200
cgcgctctgc gcagccccga gaggcggccc acgcgcattg gcctttacct gagcttcggc	1260
gacggcgtcc tctccttcta cgatgccagc gacgccgacg cgctcgtgcc gctttttgcc	1320
ttccacgagc gcctgcccag gcccggtgtac cccttcttcg acgtgtgctg gcacgacaag	1380
ggcaagaatg cccagccgct gctgctcgtg ggtcccgaag gcgccgaggc ctga	1434

<210> 144
 <211> 1002
 <212> DNA
 <213> 智人

<400> 144	
atgcgcaagg agaagagtgt ggctgtgctg gagcatcagc tggtaggagt ggaggagaca	60
gtgcgtcagt tccggggggc cgtgggggag cagctgggca agatgcgggt gttcctggct	120
gcactggagg gctccttgga ccgcgaggca gagcgtgtac ggggtgaggc aggggtcgcc	180

ttgcgccggg agctggggag cctgaactct tacctggagc agctgcggca gatggagaag	240
gtcctggagg aggtggcgga caagccgcag actgagttcc tcatgaaata ctgcctggtg	300
accagcaggc tgcagaagat cctggcagag tctccccac ccgcccgtct ggacatccag	360
ctgccaatta tctcagatga cttcaaattc caggtgtgga ggaagatgtt ccgggctctg	420
atgccagcgc tggaggagct gacctttgac ccgagctctg cgcacccgag cctggtggtg	480
tcttcctctg gccgccgct ggagtgtctg gagcagaagg cgccgccggc cggggaggac	540
ccgcgccagt tcgacaaggc ggtggcggtg gtggcgcacc agcagctctc cgagggcgag	600
cactactggg aggtggatgt tggcgacaag ccgcgctggg cgctgggcgt gatcgcggcc	660
gaggcccccc gccgcgggcg cctgcacgcg gtgccctcgc agggcctgtg gctgctgggg	720
ctgcgcgagg gcaagatcct ggaggcacac gtggaggcca aggagccgcg cgctctgcgc	780
agccccgaga ggcgggccac gcgcattggc ctttacctga gcttcggcga cggcgtcctc	840
tccttctacg atgccagcga cgccgacgcg ctcgtgccgc tttttgcctt ccacgagcgc	900
ctgcccaggc ccgtgtaccc cttcttcgac gtgtgctggc acgacaaggg caagaatgcc	960
cagccgctgc tgctcgtggg tcccgaaggc gccgaggcct ga	1002

<210> 145
 <211> 1002
 <212> DNA
 <213> 智人

<400> 145	
atgcgtaagg agaagagtgt ggctgtgctg gagcatcagc tggaggaggt ggaggagaca	60
gtgcgtcagt tccggggggc cgtggggggag cagctgggca agatgcgggt gttcctggct	120
gcactggagg gctccttgga ccgcgaggca gagcgtgtac ggggtgaggc aggggtcgcc	180
ttgcgccggg agctggggag cctgaactct tacctggagc agctgcggca gatggagaag	240
gtcctggagg aggtggcgga caagccgcag actgagttcc tcatgaaata ctgcctggtg	300
accagcaggc tgcagaagat cctggcagag tctccccac ccgcccgtct ggacatccag	360
ctgccaatta tctcagatga cttcaaattc caggtgtgga ggaagatgtt ccgggctctg	420

atgccagcgc tggaggagct gacctttgac ccgagctctg cgcacccgag cctggtggtg	480
tcttcctctg gccgccgct ggagtgtctg gggcagaagg cgccgccggc cggggaggac	540
ccgcgccagt tcgacaaggc ggtggcggtg gtggcgacc agcagctctc cgagggcgag	600
cactactggg aggtggatgt tggcgacaag ccgcgctggg cgctgggcgt gatcgcggcc	660
gaggcccccc gccgcgggcg cctgcacgcg gtgccctcgc agggcctgtg gctgctgggg	720
ctgcgcgagg gcaagatcct ggaggcacac gtggaggcca aggagccgcg cgctctgcgc	780
agccccgaga ggcgggccac gcgcattggc ctttacctga gcttcggcga cggcgtcctc	840
tccttctacg atgccagcga cgccgacgcg ctcgtgccgc tttttgcctt ccacgagcgc	900
ctgcccaggc ccgtgtaccc cttcttcgac gtgtgtggc acgacaaggg caagaatgcc	960
cagccgctgc tgctcgtggg tcccgaaggc gccgaggcct ga	1002

<210> 146
 <211> 810
 <212> DNA
 <213> 智人

<400> 146	
atgtcggctg cgcccgccct cctgcaccag gagctgtcct gcccgctgtg cctgcagctg	60
ttcgacgcgc ccgtgacagc cgagtgcggc cacagtttct gccgcgcctg cctaggccgc	120
gtggccgggg agccggcggc ggatggcacc gttctctgcc cctgctgcca ggcccccacg	180
cggccgcagg cactcagcac caacctgcag ctggcgcgcc tgggtggagg gctggcccag	240
gtgccgcagg gccactgcga ggagcacctg gacccgctga gcatctactg cgagcaggac	300
cgcgcgctgg tgtgcggagt gtgcgcctca ctcggctcgc accgcggtca tcgcctcctg	360
cctgccgccg agggccacgc acgcctcaag acacagctgc cacagcagaa actgcagctg	420
caggaggcat gcatgcgtaa ggagaagagt gtggctgtgc tggagcatca gctggtggag	480
gtggaggaga cagtgcgtca gttccggggg gccgtggggg agcagctggg caagatgcgg	540
gtgttcctgg ctgcactgga gggctccttg gaccgcgagg cagagcgtgt acggggtgag	600
gcaggggtcg ccttgcgccg ggagctgggg agcctgaact cttacctgga gcagctgcgg	660
cagatggaga aggtcctgga ggaggtggcg gacaagccgc agactgagtt cctcatgaaa	720

tactgcctgg tgaccagcag gctgcagaag atcctggcag agtctcccc acccgccgt 780
ctggacatcc agctgccaat tatctcctga 810

<210> 147
<211> 477
<212> PRT
<213> 人工序列

<220>
<223> 人MG53亚型 S255A突变体的氨基酸序列

<400> 147

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ala Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
260 265 270

Lys Phe Gln Val Trp Arg Lys Met Phe Arg Ala Leu Met Pro Ala Leu
275 280 285

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
290 295 300

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
305 310 315 320

Ala Gly Glu Asp Pro Arg Gln Phe Asp Lys Ala Val Ala Val Val Ala
325 330 335

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
340 345 350

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
355 360 365

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
370 375 380

Leu Arg Glu Gly Lys Ile Leu Glu Ala His Val Glu Ala Lys Glu Pro
385 390 395 400

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
405 410 415

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
420 425 430

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
435 440 445

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
450 455 460

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
465 470 475

<210> 148

<211> 333

<212> PRT

<213> 人工序列

<220>

<223> 人MG53亚型 S255A突变体的氨基酸序列

<400> 148

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
1 5 10 15

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
20 25 30

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
50 55 60

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
65 70 75 80

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
85 90 95

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

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
115 120 125

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

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
145 150 155 160

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Glu Gln Lys Ala Pro Pro
165 170 175

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

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
195 200 205

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
210 215 220

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
225 230 235 240

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

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
260 265 270

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
275 280 285

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
290 295 300

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
305 310 315 320

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
325 330

<210> 149
<211> 333
<212> PRT
<213> 人工序列

<220>
<223> 人MG53亚型 S255A突变体的氨基酸序列

<400> 149

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
1 5 10 15

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
20 25 30

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
50 55 60

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
65 70 75 80

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
85 90 95

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

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser Asp Asp Phe
115 120 125

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

Glu Glu Leu Thr Phe Asp Pro Ser Ser Ala His Pro Ser Leu Val Val
145 150 155 160

Ser Ser Ser Gly Arg Arg Val Glu Cys Ser Gly Gln Lys Ala Pro Pro
165 170 175

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

His Gln Gln Leu Ser Glu Gly Glu His Tyr Trp Glu Val Asp Val Gly
195 200 205

Asp Lys Pro Arg Trp Ala Leu Gly Val Ile Ala Ala Glu Ala Pro Arg
210 215 220

Arg Gly Arg Leu His Ala Val Pro Ser Gln Gly Leu Trp Leu Leu Gly
225 230 235 240

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

Arg Ala Leu Arg Ser Pro Glu Arg Arg Pro Thr Arg Ile Gly Leu Tyr
260 265 270

Leu Ser Phe Gly Asp Gly Val Leu Ser Phe Tyr Asp Ala Ser Asp Ala
275 280 285

Asp Ala Leu Val Pro Leu Phe Ala Phe His Glu Arg Leu Pro Arg Pro
290 295 300

Val Tyr Pro Phe Phe Asp Val Cys Trp His Asp Lys Gly Lys Asn Ala
305 310 315 320

Gln Pro Leu Leu Leu Val Gly Pro Glu Gly Ala Glu Ala
325 330

<210> 150
<211> 269
<212> PRT
<213> 人工序列

<220>
<223> 人MG53亚型 S255A突变体的氨基酸序列

<400> 150

Met Ser Ala Ala Pro Gly Leu Leu His Gln Glu Leu Ser Cys Pro Leu
1 5 10 15

Cys Leu Gln Leu Phe Asp Ala Pro Val Thr Ala Glu Cys Gly His Ser
20 25 30

Phe Cys Arg Ala Cys Leu Gly Arg Val Ala Gly Glu Pro Ala Ala Asp
35 40 45

Gly Thr Val Leu Cys Pro Cys Cys Gln Ala Pro Thr Arg Pro Gln Ala
50 55 60

Leu Ser Thr Asn Leu Gln Leu Ala Arg Leu Val Glu Gly Leu Ala Gln
65 70 75 80

Val Pro Gln Gly His Cys Glu Glu His Leu Asp Pro Leu Ser Ile Tyr
85 90 95

Cys Glu Gln Asp Arg Ala Leu Val Cys Gly Val Cys Ala Ser Leu Gly
100 105 110

Ser His Arg Gly His Arg Leu Leu Pro Ala Ala Glu Ala His Ala Arg
115 120 125

Leu Lys Thr Gln Leu Pro Gln Gln Lys Leu Gln Leu Gln Glu Ala Cys
130 135 140

Met Arg Lys Glu Lys Ser Val Ala Val Leu Glu His Gln Leu Val Glu
145 150 155 160

Val Glu Glu Thr Val Arg Gln Phe Arg Gly Ala Val Gly Glu Gln Leu
165 170 175

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

Glu Ala Glu Arg Val Arg Gly Glu Ala Gly Val Ala Leu Arg Arg Glu
195 200 205

Leu Gly Ser Leu Asn Ser Tyr Leu Glu Gln Leu Arg Gln Met Glu Lys
210 215 220

Val Leu Glu Glu Val Ala Asp Lys Pro Gln Thr Glu Phe Leu Met Lys
225 230 235 240

Tyr Cys Leu Val Thr Ser Arg Leu Gln Lys Ile Leu Ala Glu Ala Pro
245 250 255

Pro Pro Ala Arg Leu Asp Ile Gln Leu Pro Ile Ile Ser
260 265

<210> 151
<211> 1434
<212> DNA
<213> 人工序列

<220>
<223> 人MG53亚型 S255A突变体的编码核酸序列

<400> 151
atgtcggctg cgccccggcct cctgcaccag gagctgtcct gcccgtgtg cctgcagctg 60
ttcgacgcgc ccgtgacagc cgagtgcggc cacagtttct gccgcgcctg cctaggccgc 120
gtggccgggg agccggcggc ggatggcacc gttctctgcc cctgctgcca ggccccacg 180
cggccgcagg cactcagcac caacctgcag ctggcgcgcc tggaggagg gctggcccag 240
gtgccgcagg gccactgcga ggagcacctg gacccgctga gcatctactg cgagcaggac 300
cgcgcgctgg tgtgcggagt gtgcgcctca ctgggctcgc accgcggtca tcgcctcctg 360
cctgccgccg agggccacgc acgcctcaag acacagctgc cacagcagaa actgcagctg 420
caggaggcat gcatgcgtaa ggagaagagt gtggctgtgc tggagcatca gctggtggag 480
gtggaggaga cagtgcgtca gttccggggg gccgtggggg agcagctggg caagatgcgg 540
gtgttcctgg ctgcactgga gggctccttg gactgcgagg cagagcgtgt acggggtgag 600
gcaggggtcg ccttgcgccg ggagctgggg agcctgaact cttacctgga gcagctgcgg 660
cagatggaga aggtcctgga ggaggtggcg gacaagccgc agactgagtt cctcatgaaa 720
tactgcctgg tgaccagcag gctgcagaag atcctggcag aggctcccc acccgcccgt 780
ctggacatcc agctgccaat tatctcagat gacttcaa at tccagggtgt gaggaagatg 840
ttccgggctc tgatgccagc gctggaggag ctgaccttg acccgagctc tgcgcacccg 900
agcctggtgg tgtcttcctc tggccgccgc gtggagtgtc cggagcagaa ggccgccgccg 960
gccggggagg acccgcgcca gttcgacaag gcggtggcgg tggaggcgca ccagcagctc 1020
tccgagggcg agcactactg ggaggtggat gttggcgaca agccgcgctg ggcgctgggc 1080
gtgatcgcg ccgaggcccc ccgcccggg cgctgcacg cggtgccctc gcagggcctg 1140
tggctgctgg ggctgcgcga gggcaagatc ctggaggcac acgtggaggc caaggagccg 1200

cgcgctctgc gcagccccga gaggcggccc acgcgcattg gcctttacct gagcttcggc	1260
gacggcgtcc tctccttcta cgatgccagc gacgccgacg cgctcgtgcc gctttttgcc	1320
ttccacgagc gcctgcccag gcccggtgtac cccttcttcg acgtgtgctg gcacgacaag	1380
ggcaagaatg cccagccgct gctgctcgtg ggtcccgaag gcgccgaggc ctga	1434

<210> 152
 <211> 1002
 <212> DNA
 <213> 人工序列

<220>
 <223> 人MG53亚型 S255A突变体的编码核酸序列

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ctgcccaggc ccgtgtaccc cttcttcgac gtgtgctggc acgacaaggg caagaatgcc	960

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<210> 153
<211> 1002
<212> DNA
<213> 人工序列

<220>
<223> 人MG53亚型 S255A突变体的编码核酸序列

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gcactggagg gctccttggg ccgcgaggca gagcgtgtac ggggtgaggc aggggtcgcc 180
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<210> 154
<211> 810

<212> DNA

<213> 人工序列

<220>

<223> 人MG53亚型 S255A突变体的编码核酸序列

<400> 154

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gtggccgggg agccggcggc ggatggcacc gttctctgcc cctgctgcca ggcccccacg	180
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gtgccgcagg gccactgcga ggagcacctg gaccgcctga gcatctactg cgagcaggac	300
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caggaggcat gcatgcgtaa ggagaagagt gtggctgtgc tggagcatca gctggtggag	480
gtggaggaga cagtgcgtca gttccggggg gccgtggggg agcagctggg caagatgcgg	540
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