

1
SEQUENCE LISTING

<110> Amgen Inc.
BAKKER, Alice

<120> CHIMERIC RECEPTORS TO FLT3 AND METHODS OF USE THEREOF

<130> A-2065-WO-PCT

<140> PCT/US17/25613
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<151> 2016-04-01

<160> 98

<170> PatentIn version 3.5

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35 40 45
Thr Val Ala Phe Ile Ile Phe Trp Val Arg Ser Lys Arg Ser Arg Leu
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Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly Pro Thr
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Arg Ser

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 35 40 45

Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys
 50 55 60

Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg
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Phe Pro Gly Pro Ser Lys Pro
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 35 40 45

Trp Leu Ala His Ile Phe Ser Asn Ala Glu Lys Ser Tyr Arg Thr Ser
 50 55 60

Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Ser Gln Val
 65 70 75 80

Val Leu Thr Met Thr Asn Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr
 85 90 95

Cys Ala Arg Ile Pro Gly Tyr Gly Gly Asn Gly Asp Tyr His Tyr Tyr
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105

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 35 40 45

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

Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Asn Phe Pro Trp
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Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
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<212> PRT

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<211> 9

<212> PRT

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 35 40 45
 Trp Leu Ala His Ile Phe Ser Asn Asp Glu Lys Thr Tyr Ser Thr Ser
 50 55 60
 Leu Lys Ser Arg Leu Thr Ile Ser Arg Asp Thr Ser Lys Gly Gln Val
 65 70 75 80
 Val Leu Thr Met Thr Lys Met Asp Pro Val Asp Thr Ala Thr Tyr Tyr
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 Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
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 Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Tyr Asn Thr Tyr Pro Trp
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 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
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Ala Ala Ser Thr Leu Gln Ser
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<210> 32

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<213> Homo sapiens

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35 40 45Ala Val Ile Trp Tyr Asp Gly Ser Asn Glu Tyr Tyr Gly Asp Pro Val
50 55 60Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Met Leu Tyr
65 70 75 80Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr Ala Val Tyr Tyr Cys
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Gly Thr Leu Val Thr Val Ser Ser
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Gln His Tyr Gly Arg Thr Pro Phe Thr
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Glu Lys Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
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Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ser Leu Leu
35 40 45

Ile Tyr Val Ala Ser Arg Arg Ala Ala Gly Ile Pro Asp Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
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Pro Glu Asp Phe Gly Met Phe Tyr Cys Gln His Tyr Gly Arg Thr Pro
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Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys Arg
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20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Glu Gln Gly Leu Glu Trp Met
4718999_1

35 40 13 45
 Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn Tyr Ala Gln Lys Phe
 50 55 60
 Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser Ile Ser Thr Val Tyr
 65 70 75 80
 Met Asp Leu Ser Arg Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys
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 Ala Arg Ile Arg Gly Gly Asn Ser Val Phe Asp Tyr Trp Gly Gln Gly
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Gly Tyr Tyr Ile His
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Ile Arg Gly Gly Asn Ser Val Phe Asp Tyr
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Glu Arg Ala Thr Ile Asn Cys Lys Ser Thr Gln Ser Ile Leu Tyr Thr
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Ser Asn Asn Lys Asn Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln
 35 40 45

Pro Pro Lys Leu Leu Ile Ser Trp Ala Ser Ile Arg Glu Ser Gly Val
 50 55 60

Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr
 65 70 75 80

Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln
 85 90 95

Tyr Phe Ser Thr Met Phe Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile
 100 105 110

Lys Arg

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<400> 48

Lys Ser Thr Gln Ser Ile Leu Tyr Thr Ser Asn Asn Lys Asn Phe Leu
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Ala

<210> 49
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Trp Ala Ser Ile Arg Glu Ser
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<210> 50

<211> 9

<212> PRT

<213> Homo sapiens

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Gln Gln Tyr Phe Ser Thr Met Phe Ser
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<210> 51

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<212> DNA

<213> Homo sapiens

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tccctgaagc tgaactctgt gactgccgcg gacacggccg tgtattactg tgcgagacaa	300
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<400> 52

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Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly
20 25 30

Ala Tyr Tyr Trp Thr Trp Ile Arg Gln His Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile His Tyr Ser Gly Ser Thr Tyr Ser Asn Pro Ser
50 55 60

Leu Lys Ser Arg Ile Thr Ile Ser Leu Asp Thr Ser Lys Asn Gln Phe
65 70 75 80

Ser Leu Lys Leu Asn Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Gln Glu Asp Tyr Gly Gly Leu Phe Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Leu Val Thr Val Ser Ser
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Ser Gly Ala Tyr Tyr Trp Thr
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Tyr Ile His Tyr Ser Gly Ser Thr Tyr Ser Asn Pro Ser Leu Lys Ser
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Gln Glu Asp Tyr Gly Gly Leu Phe Asp Tyr
 1 5 10

<210> 56
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<400> 57

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Glu Arg Ile Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Thr Thr Asp
 20 25 30

Leu Ala Trp Tyr Gln Gln Met Pro Gly Gln Ala Pro Arg Leu Leu Ile
 35 40 45

Tyr Asp Ala Ser Thr Arg Ala Thr Gly Phe Pro Ala Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala
 65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln His Tyr Lys Thr Trp Pro Leu
 85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg
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Arg Ala Ser Gln Ser Val Thr Thr Asp Leu Ala
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Asp Ala Ser Thr Arg Ala Thr
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<210> 60
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 60

Gln His Tyr Lys Thr Trp Pro Leu Thr
 1 5

<210> 61
 <211> 1482
 <212> DNA
 <213> Homo sapiens

<400> 61
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 agctatcgga cttctctgaa aagtcggctc acgattagta aggacacatc caagagccaa 300
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 cggagacgag gcaagggtca cgatggcttg tatcagggcc tgagtacagc cacaagggac 1440
 acctatgacg ccctccacat gcaggcactg cccccacgct ag 1482

<210> 62
 <211> 493
 <212> PRT
 <213> Homo sapiens

<400> 62

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 20 25 30

Val Lys Pro Thr Glu Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe
 35 40 45

Ser Leu Ile Asn Ala Arg Met Gly Val Ser Trp Ile Arg Gln Pro Pro
 50 55 60
 Gly Lys Ala Leu Glu Trp Leu Ala His Ile Phe Ser Asn Ala Glu Lys
 65 70 75 80
 Ser Tyr Arg Thr Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
 85 90 95
 Ser Lys Ser Gln Val Val Leu Thr Met Thr Asn Met Asp Pro Val Asp
 100 105 110
 Thr Ala Thr Tyr Tyr Cys Ala Arg Ile Pro Gly Tyr Gly Gly Asn Gly
 115 120 125
 Asp Tyr His Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
 130 135 140
 Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly
 145 150 155 160
 Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 165 170 175
 Ser Leu Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile
 180 185 190
 Arg Asn Asp Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 195 200 205
 Arg Leu Ile Tyr Ala Ser Ser Thr Leu Gln Ser Gly Val Pro Ser Arg
 210 215 220
 Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser
 225 230 235 240
 Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Asn
 245 250 255
 Phe Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Ala
 260 265 270
 Ala Ala Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys
 275 280 285
 Ser Asn Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser
 290 295 300
 Pro Leu Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val
 305 310 315 320

Gly	Gly	Val	Leu	Ala 325	Cys	Tyr	Ser	Leu	Leu 330	Val	Thr	Val	Ala	Phe 335	Ile	
Ile	Phe	Trp	Val 340	Arg	Ser	Lys	Arg	Ser 345	Arg	Leu	Leu	His	Ser 350	Asp	Tyr	
Met	Asn	Met 355	Thr	Pro	Arg	Arg	Pro 360	Gly	Pro	Thr	Arg	Lys 365	His	Tyr	Gln	
Pro	Tyr 370	Ala	Pro	Pro	Arg	Asp 375	Phe	Ala	Ala	Tyr	Arg 380	Ser	Arg	Val	Lys	
Phe 385	Ser	Arg	Ser	Ala	Asp 390	Ala	Pro	Ala	Tyr	Gln 395	Gln	Gly	Gln	Asn	Gln 400	
Leu	Tyr	Asn	Glu	Leu 405	Asn	Leu	Gly	Arg	Arg 410	Glu	Glu	Tyr	Asp	Val 415	Leu	
Asp	Lys	Arg	Arg 420	Gly	Arg	Asp	Pro	Glu 425	Met	Gly	Gly	Lys	Pro 430	Arg	Arg	
Lys	Asn	Pro 435	Gln	Glu	Gly	Leu	Tyr 440	Asn	Glu	Leu	Gln	Lys 445	Asp	Lys	Met	
Ala	Glu 450	Ala	Tyr	Ser	Glu	Ile 455	Gly	Met	Lys	Gly	Glu 460	Arg	Arg	Arg	Gly	
Lys 465	Gly	His	Asp	Gly	Leu 470	Tyr	Gln	Gly	Leu	Ser 475	Thr	Ala	Thr	Lys	Asp 480	
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<210>	63
<211>	1455
<212>	DNA
<213>	Homo sapiens

<400>	63									
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aggcaacccc	ctggcaaggc	tctggaatgg	ctcgctcaca	tattcagcaa	tgccgaaaaa					240
agctaccgga	caagcctgaa	atcccgccctg	actattttcca	aggacacttc	taagtctcag					300
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ggcacaaccg	taacggtctc	aagcgggtggg	ggaggctcag	ggggcggagg	ctccggaggt					480
ggcgggtccg	acattcagat	gacccaaagc	ccgtccagcc	tgtccgccag	cctgggagat					540
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gttccttccc gattttcagg tagcgggtcc ggtacagagt tcaccctcac gataagctca      720
ctccagcctg aggatttcgc aacgtactac tgcctccagc acaacaattt tccctggact      780
ttcggccagg gcaccaaggt ggagatcaag agggccgctg cccttgataa tgaaaagtca      840
aacggaacaa tcattcacgt gaagggcaag cacctctgtc cgtcaccctt gttccctgggt      900
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<210> 64
<211> 484
<212> PRT
<213> Homo sapiens

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<400> 64
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Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
1          5          10          15
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```
His Ala Ala Arg Pro Gln Val Thr Leu Lys Glu Ser Gly Pro Val Leu
20          25          30
```

```
Val Lys Pro Thr Glu Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe
35          40          45
```

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Ser Leu Ile Asn Ala Arg Met Gly Val Ser Trp Ile Arg Gln Pro Pro
50          55          60
```

```
Gly Lys Ala Leu Glu Trp Leu Ala His Ile Phe Ser Asn Ala Glu Lys
65          70          75          80
```

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Ser Tyr Arg Thr Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
85          90          95
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Ser Lys Ser Gln Val Val Leu Thr Met Thr Asn Met Asp Pro Val Asp
100         105         110
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Thr Ala Thr Tyr Tyr Cys Ala Arg Ile Pro Gly Tyr Gly Gly Asn Gly
 115 120 125
 Asp Tyr His Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
 130 135 140
 Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 145 150 155 160
 Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 165 170 175
 Ser Leu Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile
 180 185 190
 Arg Asn Asp Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 195 200 205
 Arg Leu Ile Tyr Ala Ser Ser Thr Leu Gln Ser Gly Val Pro Ser Arg
 210 215 220
 Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser
 225 230 235 240
 Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Asn
 245 250 255
 Phe Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Ala
 260 265 270
 Ala Ala Leu Asp Asn Glu Lys Ser Asn Gly Thr Ile Ile His Val Lys
 275 280 285
 Gly Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro Ser Lys Pro
 290 295 300
 Phe Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys Tyr Ser Leu
 305 310 315 320
 Leu Val Thr Val Ala Phe Ile Ile Phe Trp Val Arg Ser Lys Arg Ser
 325 330 335
 Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly
 340 345 350
 Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala
 355 360 365
 Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala
 370 375 380

Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg
385 390 395 400

Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu
405 410 415

Met Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn
420 425 430

Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met
435 440 445

Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly
450 455 460

Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala
465 470 475 480

Leu Pro Pro Arg

<210> 65
<211> 1563
<212> DNA
<213> Homo sapiens

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gggaccactg ttaccgtgtc cagcgggggt ggtggcagcg gaggtggagg gagcgggtgt 480
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 gagatcggca tgaagggcga gcggagacga ggcaagggtc acgatggctt gtatcagggc 1500
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 tag 1563

<210> 66
 <211> 520
 <212> PRT
 <213> Homo sapiens

<400> 66

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

Val Lys Pro Thr Glu Thr Leu Thr Leu Thr Cys Thr Val Ser Gly Phe
 35 40 45

Ser Leu Ile Asn Ala Arg Met Gly Val Ser Trp Ile Arg Gln Pro Pro
 50 55 60

Gly Lys Ala Leu Glu Trp Leu Ala His Ile Phe Ser Asn Ala Glu Lys
 65 70 75 80

Ser Tyr Arg Thr Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr
 85 90 95

Ser Lys Ser Gln Val Val Leu Thr Met Thr Asn Met Asp Pro Val Asp
 100 105 110

Thr Ala Thr Tyr Tyr Cys Ala Arg Ile Pro Gly Tyr Gly Gly Asn Gly
 115 120 125

Asp Tyr His Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
 130 135 140

Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
 145 150 155 160

Gly Gly Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 165 170 175
 Ser Leu Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile
 180 185 190
 Arg Asn Asp Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 195 200 205
 Arg Leu Ile Tyr Ala Ser Ser Thr Leu Gln Ser Gly Val Pro Ser Arg
 210 215 220
 Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser
 225 230 235 240
 Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Asn
 245 250 255
 Phe Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Ala
 260 265 270
 Ala Ala Leu Ser Asn Ser Ile Met Tyr Phe Ser His Phe Val Pro Val
 275 280 285
 Phe Leu Pro Ala Lys Pro Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr
 290 295 300
 Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala
 305 310 315 320
 Cys Arg Pro Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe
 325 330 335
 Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly Val
 340 345 350
 Leu Leu Leu Ser Leu Val Ile Thr Leu Tyr Cys Asn His Arg Asn Arg
 355 360 365
 Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro
 370 375 380
 Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro
 385 390 395 400
 Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg Ser Ala
 405 410 415
 Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu
 420 425 430

Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly
 435 440 445

Arg Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu
 450 455 460

Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser
 465 470 475 480

Glu Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly
 485 490 495

Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu
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His Met Gln Ala Leu Pro Pro Arg
 515 520

<210> 67
 <211> 1464
 <212> DNA
 <213> Homo sapiens

<400> 67
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 ctgtcatgcg tggcgtctgg cttcacattc aagaactacg gcatgcactg ggtgcgacag 180
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atgcaggcac tgccccacg ctacg 1464

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<210> 68
<211> 487
<212> PRT
<213> Homo sapiens
<400> 68

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Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe
35     40     45
Thr Phe Lys Asn Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys
50     55     60
Gly Leu Glu Trp Val Ala Val Ile Trp Tyr Asp Gly Ser Asn Glu Tyr
65     70     75     80
Tyr Gly Asp Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser
85     90     95
Lys Asn Met Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr
100    105    110
Ala Val Tyr Tyr Cys Ala Arg Ser Gly Ile Ala Val Ala Gly Ala Phe
115    120    125
Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
130    135    140
Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Leu
145    150    155    160
Thr Gln Ser Pro Asp Thr Leu Ser Leu Ser Pro Gly Glu Lys Ala Thr
165    170    175
Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser Phe Leu Ala Trp
180    185    190

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Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ser Leu Leu Ile Tyr Val Ala
 195 200 205
 Ser Arg Arg Ala Ala Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser
 210 215 220
 Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe
 225 230 235 240
 Gly Met Phe Tyr Cys Gln His Tyr Gly Arg Thr Pro Phe Thr Phe Gly
 245 250 255
 Pro Gly Thr Lys Val Asp Ile Lys Arg Ala Ala Ala Ile Glu Val Met
 260 265 270
 Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly Thr Ile Ile
 275 280 285
 His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu Phe Pro Gly Pro
 290 295 300
 Ser Lys Pro Phe Trp Val Leu Val Val Val Gly Gly Val Leu Ala Cys
 305 310 315 320
 Tyr Ser Leu Leu Val Thr Val Ala Phe Ile Ile Phe Trp Val Arg Ser
 325 330 335
 Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg
 340 345 350
 Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg
 355 360 365
 Asp Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg Ser Ala Asp
 370 375 380
 Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn
 385 390 395 400
 Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg
 405 410 415
 Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly
 420 425 430
 Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu
 435 440 445
 Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu
 450 455 460

Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His
 465 470 475 480

Met Gln Ala Leu Pro Pro Arg
 485

<210> 69
 <211> 1437
 <212> DNA
 <213> Homo sapiens

<400> 69
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 ctctcttggt tggcaagcgg atttaccttt aagaactatg gcatgcactg ggtgaggcag 180
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 tacctgcaaa tgaactctct gcgcgctgat gacactgccg tgtattattg cgctcggagt 360
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 ccaagcttgc tgatctacgt ggccagccgc cgggccgcag gcatccctga taggttttagc 660
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 ggaatgtttt attgccagca ctacggaaga actccattca cctttggccc gggaacgaag 780
 gtagacatca agagagcagc agccctcgac aacgagaaat ccaatggaac cattatccat 840
 gtgaagggga aacatctctg cccttcacca ttgttccctg gaccagcaa gccttttttg 900
 gttctggtcg tgggtggggg cgctctggct tgttactccc tcctcgttac agtcgccttc 960
 ataatctttt gggtttagatc caaaagaagc cgctgtctcc atagcgatta catgaatatg 1020
 actccacgcc gccctggccc cacaaggaaa cactaccagc cttacgcacc acctagagat 1080
 ttcgctgcct atcggagccg agtgaaattt tctagatcag ctgatgtctc cgcctatcag 1140
 cagggacaga atcaacttta caatgagctg aacctgggtc gcagagaaga gtacgacgtt 1200
 ttggacaaac gccggggccg agatcctgag atggggggga agccgagaag gaagaatcct 1260
 caagaaggcc tgtacaacga gcttcaaaaa gacaaaatgg ctgaggcgta ctctgagatc 1320
 ggcatgaagg gcgagcggag acgaggcaag ggtcacgatg gcttgtatca gggcctgagt 1380
 acagccacaa aggacaccta tgacgccctc cacatgcagg cactgcccc acgctag 1437

<210> 70
 <211> 478
 <212> PRT
 <213> Homo sapiens

<400> 70

Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
 1 5 10 15
 His Ala Ala Arg Pro Gln Ile Gln Leu Val Glu Ser Gly Gly Gly Val
 20 25 30
 Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Val Ala Ser Gly Phe
 35 40 45
 Thr Phe Lys Asn Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys
 50 55 60
 Gly Leu Glu Trp Val Ala Val Ile Trp Tyr Asp Gly Ser Asn Glu Tyr
 65 70 75 80
 Tyr Gly Asp Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser
 85 90 95
 Lys Asn Met Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr
 100 105 110
 Ala Val Tyr Tyr Cys Ala Arg Ser Gly Ile Ala Val Ala Gly Ala Phe
 115 120 125
 Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
 130 135 140
 Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Leu
 145 150 155 160
 Thr Gln Ser Pro Asp Thr Leu Ser Leu Ser Pro Gly Glu Lys Ala Thr
 165 170 175
 Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser Phe Leu Ala Trp
 180 185 190
 Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ser Leu Leu Ile Tyr Val Ala
 195 200 205
 Ser Arg Arg Ala Ala Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser
 210 215 220
 Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe
 225 230 235 240
 Gly Met Phe Tyr Cys Gln His Tyr Gly Arg Thr Pro Phe Thr Phe Gly
 245 250 255
 Pro Gly Thr Lys Val Asp Ile Lys Arg Ala Ala Ala Leu Asp Asn Glu
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			260					265		31			270			
Lys	Ser	Asn 275	Gly	Thr	Ile	Ile	His 280	Val	Lys	Gly	Lys	His 285	Leu	Cys	Pro	
Ser	Pro 290	Leu	Phe	Pro	Gly	Pro 295	Ser	Lys	Pro	Phe	Trp 300	Val	Leu	Val	Val	
Val 305	Gly	Gly	Val	Leu	Ala 310	Cys	Tyr	Ser	Leu	Leu 315	Val	Thr	Val	Ala	Phe 320	
Ile	Ile	Phe	Trp	Val 325	Arg	Ser	Lys	Arg	Ser 330	Arg	Leu	Leu	His	Ser 335	Asp	
Tyr	Met	Asn 340	Met	Thr	Pro	Arg	Arg	Pro 345	Gly	Pro	Thr	Arg	Lys 350	His	Tyr	
Gln	Pro	Tyr 355	Ala	Pro	Pro	Arg	Asp 360	Phe	Ala	Ala	Tyr	Arg 365	Ser	Arg	Val	
Lys	Phe 370	Ser	Arg	Ser	Ala	Asp 375	Ala	Pro	Ala	Tyr	Gln 380	Gln	Gly	Gln	Asn	
Gln 385	Leu	Tyr	Asn	Glu	Leu 390	Asn	Leu	Gly	Arg	Arg 395	Glu	Glu	Tyr	Asp	Val 400	
Leu	Asp	Lys	Arg	Arg 405	Gly	Arg	Asp	Pro	Glu 410	Met	Gly	Gly	Lys	Pro 415	Arg	
Arg	Lys	Asn 420	Pro	Gln	Glu	Gly	Leu	Tyr 425	Asn	Glu	Leu	Gln	Lys 430	Asp	Lys	
Met	Ala	Glu 435	Ala	Tyr	Ser	Glu	Ile 440	Gly	Met	Lys	Gly	Glu 445	Arg	Arg	Arg	
Gly	Lys 450	Gly	His	Asp	Gly	Leu 455	Tyr	Gln	Gly	Leu	Ser 460	Thr	Ala	Thr	Lys	
Asp 465	Thr	Tyr	Asp	Ala	Leu 470	His	Met	Gln	Ala	Leu 475	Pro	Pro	Arg			

<210>	71
<211>	1545
<212>	DNA
<213>	Homo sapiens

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<400> 71
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ccgcagatac agcttgtcga atccggtggc ggggtggtgc agcctggacg cagcctgcgg      120
ctttcttgcg tggccagcgg atttaccttc aagaactacg ggatgcattg ggtccgccag      180
gcacccgga aaggccttga gtgggttgca gtgatctggt acgacggcag taacgagtat      240
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tatggcgacc ccgtgaaggg aaggtttact atttcaagag ataatagtaa gaacatgttg 300
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 ggcatcgctg tggcaggggc ctttgactac tggggtcagg ggacgctggt cacggttagt 420
 tccgggggcg gtggttccgg aggaggcggg tccggcggcg gcggatcaga aatcgttctt 480
 actcagagtc ccgatacgtc gtccttgtct ccgggagaaa aagccacact gagctgccga 540
 gcctcacagt cagtaagttc ttcattcctc gcctggtacc agcaaaaacc ggggcaggcc 600
 ccttccctgc ttatctacgt ggcctctagg agagccgccg gtattcctga ccggttcagc 660
 ggaagtgggt ccgggactga ttttacgctc acgatctccc gattggagcc cgaggatttc 720
 gggatgttct actgtcagca ttatggaaga acgcccttta ccttcggtcc gggaactaag 780
 gttgatatta agcgggctgc tgcccttagc aactccatca tgtatttttc tcacttcgtg 840
 ccagtattcc tgccagccaa accgaccaca accccagcac ctagacctcc tactcccgt 900
 cccaccatag cttcacagcc gctgagtttg aggccagagg cctgtcggcc tgctgcaggc 960
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 aatagatcca aaagaagccg cctgctccat agcgattaca tgaatatgac tccacgccgc 1140
 cctggcccca caaggaaaca ctaccagcct tacgcaccac ctagagattt cgctgcctat 1200
 cggagccgag tgaaattttc tagatcagct gatgctccc cctatcagca gggacagaat 1260
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 cggggccgag atcctgagat gggggggaag ccgagaagga agaatcctca agaaggcctg 1380
 tacaacgagc ttcaaaaaga caaatggct gaggcgtact ctgagatcgg catgaagggc 1440
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 gacacctatg acgccctcca catgcaggca ctgccccac gctag 1545

<210> 72
 <211> 514
 <212> PRT
 <213> Homo sapiens

<400> 72

Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
 1 5 10 15

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

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

Thr Phe Lys Asn Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys
 50 55 60

Gly Leu Glu Trp Val Ala Val Ile Trp Tyr Asp Gly Ser Asn Glu Tyr
 65 70 75 80
 Tyr Gly Asp Pro Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser
 85 90 95
 Lys Asn Met Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Asp Asp Thr
 100 105 110
 Ala Val Tyr Tyr Cys Ala Arg Ser Gly Ile Ala Val Ala Gly Ala Phe
 115 120 125
 Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
 130 135 140
 Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Leu
 145 150 155 160
 Thr Gln Ser Pro Asp Thr Leu Ser Leu Ser Pro Gly Glu Lys Ala Thr
 165 170 175
 Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser Phe Leu Ala Trp
 180 185 190
 Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ser Leu Leu Ile Tyr Val Ala
 195 200 205
 Ser Arg Arg Ala Ala Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser
 210 215 220
 Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe
 225 230 235 240
 Gly Met Phe Tyr Cys Gln His Tyr Gly Arg Thr Pro Phe Thr Phe Gly
 245 250 255
 Pro Gly Thr Lys Val Asp Ile Lys Arg Ala Ala Ala Leu Ser Asn Ser
 260 265 270
 Ile Met Tyr Phe Ser His Phe Val Pro Val Phe Leu Pro Ala Lys Pro
 275 280 285
 Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala
 290 295 300
 Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly
 305 310 315 320
 Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile
 325 330 335

Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val
 340 345 350

Ile Thr Leu Tyr Cys Asn His Arg Asn Arg Ser Lys Arg Ser Arg Leu
 355 360 365

Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly Pro Thr
 370 375 380

Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr
 385 390 395 400

Arg Ser Arg Val Lys Phe Ser Arg Ser Ala Asp Ala Pro Ala Tyr Gln
 405 410 415

Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu Gly Arg Arg Glu
 420 425 430

Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp Pro Glu Met Gly
 435 440 445

Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu Tyr Asn Glu Leu
 450 455 460

Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly
 465 470 475 480

Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser
 485 490 495

Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro
 500 505 510

Pro Arg

<210> 73
 <211> 1476
 <212> DNA
 <213> Homo sapiens

<400> 73
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 ccgcaggtgc agctggtgca gagtggggca gaagtaaaga agcctggtgc ctctgtcaaa 120
 gttagtgtgca aagcatctgg gtatactttc accggttact atatcattg ggttcggcag 180
 gccccggagc agggactgga gtggatgggc tggatcaacc caaattcagg cggcactaac 240
 tatgtcaaaa agttccaggg cagggtcaca atggcccggg atacttcaat tagcaccgtc 300
 tatatggatc ttagtcggct gcgcagtgc gataccgctg tctactattg cgcaaggatc 360
 aggggaggca attctgtttt tgactattgg ggccagggaa cactggtgac cgtctcctct 420
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ggtaggagcg gtagtggtgg aggcgggtcc ggaggagggg gctccgatat agtgatgact 480
caaagtcccg atagcttggc agtatctctt ggggaacgcg ccactattaa ctgtaaatcc 540
acccagtcca ttctctatac ctctaacaac aagaatttcc tcgctgggta tcagcaaaaa 600
cccgggcagc cacctaaact gcttatatcc tgggccagca tcaggagagtc cggcgtccct 660
gatcgggttca gcggtagtg gacggggaca gacttcgctc tgaccatcag tagcctccag 720
gctgaagatg tcgcagtgta ttattgccag cagtacttca gcacgatggt tagcttcggg 780
cagggaaacca agctggaaat aaagagagct gcagcaatcg aggtgatgta cccacctcca 840
tatctggaca atgaaaagtc caatggcact atcatacacg tgaagggcaa acacctgtgt 900
ccatctccac ttttcccggg cccgtctaaa cttttctggg tgctggtggt ggtgggcgga 960
gttctggcct gttattcact gctggtcacc gtggctttca tcattttttg ggtaagatcc 1020
aaaagaagcc gcctgtcca tagcgattac atgaatatga ctccacgccg ccctggcccc 1080
acaaggaaac actaccagcc ttacgcacca cctagagatt tcgctgccta tcggagccga 1140
gtgaaatfff ctagatcagc tgatgctccc gcctatcagc agggacagaa tcaactttac 1200
aatgagctga acctgggtcg cagagaagag tacgacgttt tggacaaacg ccggggccga 1260
gatcctgaga tgggggggaa gccgagaagg aagaatcctc aagaaggcct gtacaacgag 1320
cttcaaaaag acaaaatggc tgaggcgtac tctgagatcg gcatgaaggg cgagcggaga 1380
cgaggcaagg gtcacgatgg cttgtatcag ggcctgagta cagccacaaa ggacacctat 1440
gacgccctcc acatgcaggc actgccccca cgctag 1476

```

```

<210> 74
<211> 491
<212> PRT
<213> Homo sapiens

```

```
<400> 74
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Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
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```

```
His Ala Ala Arg Pro Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val
          20          25          30
```

```
Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr
          35          40          45
```

```
Thr Phe Thr Gly Tyr Tyr Ile His Trp Val Arg Gln Ala Pro Glu Gln
          50          55          60
```

```
Gly Leu Glu Trp Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn
65          70          75          80
```

```
Tyr Ala Gln Lys Phe Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser
          85          90          95
```

Ile Ser Thr Val Tyr Met Asp Leu Ser Arg Leu Arg Ser Asp Asp Thr
 100 105 110
 Ala Val Tyr Tyr Cys Ala Arg Ile Arg Gly Gly Asn Ser Val Phe Asp
 115 120 125
 Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly
 130 135 140
 Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Val Met Thr
 145 150 155 160
 Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile
 165 170 175
 Asn Cys Lys Ser Thr Gln Ser Ile Leu Tyr Thr Ser Asn Asn Lys Asn
 180 185 190
 Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu
 195 200 205
 Ile Ser Trp Ala Ser Ile Arg Glu Ser Gly Val Pro Asp Arg Phe Ser
 210 215 220
 Gly Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Ser Ser Leu Gln
 225 230 235 240
 Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Tyr Phe Ser Thr Met
 245 250 255
 Phe Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala
 260 265 270
 Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn
 275 280 285
 Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro Leu
 290 295 300
 Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val Gly Gly
 305 310 315 320
 Val Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile Ile Phe
 325 330 335
 Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn
 340 345 350
 Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr
 355 360 365

Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser
370 375 380

Arg Ser Ala Asp Ala Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr
385 390 395 400

Asn Glu Leu Asn Leu Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys
405 410 415

Arg Arg Gly Arg Asp Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn
420 425 430

Pro Gln Glu Gly Leu Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu
435 440 445

Ala Tyr Ser Glu Ile Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly
450 455 460

His Asp Gly Leu Tyr Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr
465 470 475 480

Asp Ala Leu His Met Gln Ala Leu Pro Pro Arg
485 490

<210> 75
<211> 1449
<212> DNA
<213> Homo sapiens

<400> 75
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ccgcaggtac agctggtgca gagcggggcc gaggtcaaaa agcccggggc ttcagttaag 120
gtagctgca aggcttccgg ctacaccttt accggttact atattcactg ggtagacag 180
gcacctgagc aaggactgga gtggatgggg tggattaacc ccaatagcgg tgggaccaac 240
tacgcccaga agtttcaagg ccgagtgaca atggcacgag acacctccat ttccactgtg 300
tacatggact tgagccgcct caggtcagac gacaccgcag tgtactactg tgcgcgaaatc 360
cgcgggcgaa acagcgtggt tgactactgg ggtcagggca cgttggtgac cgtgtcttcc 420
ggaggggggg gatctggtgg cgggggctcc ggcggaggcg gtagtgatat tgtgatgact 480
cagtcaccgg acagtcttgc tgtttcactt ggtgagaggg ccaccataaa ttgtaaaagc 540
accagagca ttctctacac atctaacaac aaaaatttcc tggcctggta ccagcagaag 600
cccggacagc cacccaaatt gctgattagc tgggccagca ttcgagaatc tggggttccg 660
gaccgctttt ccgggtctgg ctctgggacc gacttcgctt tgaccataag ctctcttcag 720
gccgaagacg tcgcagtata ctattgtcaa cagtattttt ctaccatgtt ttccttcggc 780
cagggaaacta agttggagat caagagagca gctgcattgg ataagagaa gtccaatggc 840
actattatcc acgtgaaagg taaacacctg tgtccctcac ccctgtttcc aggacctagt 900
4718999_1

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aaaccattct gggctcttggg tgtagtcggg ggcgttttgg catgttattc ccttcttgtg      960
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tacatgaata tgactccacg ccgccctggc cccacaagga aacactacca gccttacgca      1080
ccacctagag atttcgctgc ctatcggagc cgagtgaat tttctagatc agctgatgct      1140
cccgctatc agcagggaca gaatcaactt tacaatgagc tgaacctggg tcgcagagaa      1200
gagtacgacg ttttggacaa acgccggggc cgagatcctg agatgggggg gaagccgaga      1260
aggaagaatc ctcaagaagg cctgtacaac gagcttcaaa aagacaaaat ggctgaggcg      1320
tactctgaga tcggcatgaa gggcgagcgg agacgaggca agggtcacga tggcttgtat      1380
cagggcctga gtacagccac aaaggacacc tatgacgccc tccacatgca ggcactgccc      1440
ccacgctag                                     1449

```

```

<210> 76
<211> 482
<212> PRT
<213> Homo sapiens

```

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<400> 76
```

```

Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
1          5          10          15

```

```

His Ala Ala Arg Pro Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val
20          25          30

```

```

Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr
35          40          45

```

```

Thr Phe Thr Gly Tyr Tyr Ile His Trp Val Arg Gln Ala Pro Glu Gln
50          55          60

```

```

Gly Leu Glu Trp Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn
65          70          75          80

```

```

Tyr Ala Gln Lys Phe Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser
85          90          95

```

```

Ile Ser Thr Val Tyr Met Asp Leu Ser Arg Leu Arg Ser Asp Asp Thr
100          105          110

```

```

Ala Val Tyr Tyr Cys Ala Arg Ile Arg Gly Gly Asn Ser Val Phe Asp
115          120          125

```

```

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly
130          135          140

```

```

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Val Met Thr
145          150          155          160

```

Gln Ser Pro Asp Ser₁₆₅ Leu Ala Val Ser₁₇₀ Leu Gly Glu Arg Ala Thr₁₇₅ Ile
 Asn Cys Lys Ser₁₈₀ Thr Gln Ser Ile Leu₁₈₅ Tyr Thr Ser Asn₁₉₀ Asn Lys Asn
 Phe Leu Ala₁₉₅ Trp Tyr Gln Gln Lys₂₀₀ Pro Gly Gln Pro₂₀₅ Pro Lys Leu Leu
 Ile Ser₂₁₀ Trp Ala Ser Ile Arg₂₁₅ Glu Ser Gly Val Pro₂₂₀ Asp Arg Phe Ser
 Gly₂₂₅ Ser Gly Ser Gly Thr₂₃₀ Asp Phe Ala Leu Thr₂₃₅ Ile Ser Ser Leu Gln₂₄₀
 Ala Glu Asp Val₂₄₅ Ala Val Tyr Tyr Cys Gln₂₅₀ Gln Tyr Phe Ser Thr₂₅₅ Met
 Phe Ser Phe Gly₂₆₀ Gln Gly Thr Lys Leu₂₆₅ Glu Ile Lys Arg Ala₂₇₀ Ala Ala
 Leu Asp Asn₂₇₅ Glu Lys Ser Asn Gly₂₈₀ Thr Ile Ile His Val₂₈₅ Lys Gly Lys
 His Leu₂₉₀ Cys Pro Ser Pro Leu₂₉₅ Phe Pro Gly Pro Ser₃₀₀ Lys Pro Phe Trp
 Val₃₀₅ Leu Val Val Val Gly₃₁₀ Gly Val Leu Ala Cys₃₁₅ Tyr Ser Leu Leu Val₃₂₀
 Thr Val Ala Phe Ile₃₂₅ Ile Phe Trp Val Arg₃₃₀ Ser Lys Arg Ser Arg₃₃₅ Leu
 Leu His Ser Asp₃₄₀ Tyr Met Asn Met Thr₃₄₅ Pro Arg Arg Pro Gly₃₅₀ Pro Thr
 Arg Lys His₃₅₅ Tyr Gln Pro Tyr Ala₃₆₀ Pro Pro Arg Asp Phe₃₆₅ Ala Ala Tyr
 Arg Ser₃₇₀ Arg Val Lys Phe Ser₃₇₅ Arg Ser Ala Asp Ala₃₈₀ Pro Ala Tyr Gln
 Gln Gly Gln Asn Gln Leu₃₉₀ Tyr Asn Glu Leu Asn₃₉₅ Leu Gly Arg Arg Glu₄₀₀
 Glu Tyr Asp Val₄₀₅ Leu Asp Lys Arg Arg Gly₄₁₀ Arg Asp Pro Glu Met Gly₄₁₅
 Gly Lys Pro Arg₄₂₀ Arg Lys Asn Pro Gln₄₂₅ Glu Gly Leu Tyr Asn₄₃₀ Glu Leu

Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile Gly Met Lys Gly
 435 440 445

Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr Gln Gly Leu Ser
 450 455 460

Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met Gln Ala Leu Pro
 465 470 475 480

Pro Arg

<210> 77
 <211> 1557
 <212> DNA
 <213> Homo sapiens

<400> 77
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 gtgtcttgca aagccagcgg atacacattt accgggtact atattcactg ggtgaggcag 180
 gcccctgaac agggccttga atggatgggg tggatcaatc caaattccgg gggaaccaat 240
 tatgctcaga aatttcaggg cagagtgaca atggccaggg acacctcaat cagcacagtc 300
 tacatggacc tgagccgcct gaggtctgat gacacagccg tctactactg tgcccggatc 360
 agaggggggaa acagtgtctt cgactattgg gggcagggaa ccctggtgac tgtctcctcc 420
 gggggagggg gtagcggggg aggcggcagc ggcgggggtg gttctgacat tgttatgacc 480
 caatccccag actctctggc cgtgagcctg ggtgagagag ccaccatcaa ttgcaagtcc 540
 acccagagca tactctatac gtcaaacaat aagaatttcc tggcgtggta tcagcaaaag 600
 ccgggtcaac caccgaagtt gttgattagc tgggcatcaa ttcgagaatc tggcgtccct 660
 gataggttta gcgggagcgg tagtggaacc gactttgcgc tgaccatttc atcccttcag 720
 gcagaggacg tggctgtgta ttactgtcaa cagtacttca gcacgatgtt ttctttcggc 780
 caggggacga agctggagat aaagcgggcc gcagcactca gcaacagcat catgtacttt 840
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 actccacgcc gccctggccc cacaaggaaa cactaccagc cttacgcacc acctagagat 1200
 ttcgctgcct atcggagccg agtgaaattt tctagatcag ctgatgctcc cgcctatcag 1260
 cagggacaga atcaacttta caatgagctg aacctgggtc gcagagaaga gtacgacgtt 1320
 ttggacaaac gccggggccg agatcctgag atggggggga agccgagaag gaagaatcct 1380
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caagaaggcc tgtacaacga gcttcaaaaa gacaaaatgg ctgaggcgta ctctgagatc 1440
 ggcatgaagg gcgagcggag acgaggcaag ggtcacgatg gcttgtatca gggcctgagt 1500
 acagccacaa aggacaccta tgacgccctc cacatgcagg cactgcccc acgctag 1557

<210> 78
 <211> 518
 <212> PRT
 <213> Homo sapiens

<400> 78

Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
 1 5 10 15
 His Ala Ala Arg Pro Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val
 20 25 30
 Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr
 35 40 45
 Thr Phe Thr Gly Tyr Tyr Ile His Trp Val Arg Gln Ala Pro Glu Gln
 50 55 60
 Gly Leu Glu Trp Met Gly Trp Ile Asn Pro Asn Ser Gly Gly Thr Asn
 65 70 75 80
 Tyr Ala Gln Lys Phe Gln Gly Arg Val Thr Met Ala Arg Asp Thr Ser
 85 90 95
 Ile Ser Thr Val Tyr Met Asp Leu Ser Arg Leu Arg Ser Asp Asp Thr
 100 105 110
 Ala Val Tyr Tyr Cys Ala Arg Ile Arg Gly Gly Asn Ser Val Phe Asp
 115 120 125
 Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly
 130 135 140
 Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Val Met Thr
 145 150 155 160
 Gln Ser Pro Asp Ser Leu Ala Val Ser Leu Gly Glu Arg Ala Thr Ile
 165 170 175
 Asn Cys Lys Ser Thr Gln Ser Ile Leu Tyr Thr Ser Asn Asn Lys Asn
 180 185 190
 Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu
 195 200 205
 Ile Ser Trp Ala Ser Ile Arg Glu Ser Gly Val Pro Asp Arg Phe Ser
 4718999_1

210 215 220
 Gly Ser Gly Ser Gly Thr Asp Phe Ala Leu Thr Ile Ser Ser Leu Gln
 225 230 235 240
 Ala Glu Asp Val Ala Val Tyr Tyr Cys Gln Gln Tyr Phe Ser Thr Met
 245 250 255
 Phe Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala
 260 265 270
 Leu Ser Asn Ser Ile Met Tyr Phe Ser His Phe Val Pro Val Phe Leu
 275 280 285
 Pro Ala Lys Pro Thr Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala
 290 295 300
 Pro Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg
 305 310 315 320
 Pro Ala Ala Gly Gly Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys
 325 330 335
 Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu
 340 345 350
 Leu Ser Leu Val Ile Thr Leu Tyr Cys Asn His Arg Asn Arg Ser Lys
 355 360 365
 Arg Ser Arg Leu Leu His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg
 370 375 380
 Pro Gly Pro Thr Arg Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp
 385 390 395 400
 Phe Ala Ala Tyr Arg Ser Arg Val Lys Phe Ser Arg Ser Ala Asp Ala
 405 410 415
 Pro Ala Tyr Gln Gln Gly Gln Asn Gln Leu Tyr Asn Glu Leu Asn Leu
 420 425 430
 Gly Arg Arg Glu Glu Tyr Asp Val Leu Asp Lys Arg Arg Gly Arg Asp
 435 440 445
 Pro Glu Met Gly Gly Lys Pro Arg Arg Lys Asn Pro Gln Glu Gly Leu
 450 455 460
 Tyr Asn Glu Leu Gln Lys Asp Lys Met Ala Glu Ala Tyr Ser Glu Ile
 465 470 475 480
 Gly Met Lys Gly Glu Arg Arg Arg Gly Lys Gly His Asp Gly Leu Tyr
 4718999_1

485 490 43 495

Gln Gly Leu Ser Thr Ala Thr Lys Asp Thr Tyr Asp Ala Leu His Met
500 505 510

Gln Ala Leu Pro Pro Arg
515

<210> 79
<211> 1461
<212> DNA
<213> Homo sapiens

<400> 79
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ccgcaggtgc agctccaaga gtcaggacca ggacttgtca aaccaagcca gaccctcagc 120
cttacctgca ccgtcagcgg gggctccatc agctctgggg cttactactg gacatggata 180
cgacagcatc ccggtaaagg tctggagtgg atcgggtaca tacactatag tggttccaca 240
tattctaata catctcttaa gagtcgaatt acaatttcac tcgatacttc aaagaatcag 300
ttcagcttga aactgaactc cgtgaccgcg gctgacaccg ccgtgtacta ctgtgcacgc 360
caagaggatt atggcggact gttcgattat tgggggcagg gaactctcgt gacagtgagc 420
tccggcgggg gcggcagcgg tgggggtgga agtgggtggag ggggcagcga gatcgtgatg 480
accagagtc ctgccacact gtcagtgagt cctggggagc gaatcacact ttcctgtcga 540
gCGTctcagt ccgtgaccac ggacctggcg tgggtaccagc agatgccagg ccaggcgcca 600
agactcctga tctacgacgc ttctacccgc gctactgggt tccccgccag attctccgga 660
agcgggtccg ggacggattt tacacttacc atctcttcac tgcaggctga ggattttgcc 720
gtgtactact gtcagcatta caaacctgg cccctcactt tcgggggcgg aacaaaagtg 780
gaaattaaac gggcagcagc tattgagggt atgtaccac cccctacct ggacaacgag 840
aaatccaatg gcaccatcat ccacgttaag ggtaagcact tgtgtccctc accactcttc 900
cctgggccta gcaagccatt ctgggtcctg gtggtcgtgg gaggcgtgct ggcctgctat 960
tccctcctgg ttaccgttgc ctttatcata ttttgggtca gatccaaaag aagccgcctg 1020
ctccatagcg attacatgaa tatgactcca cgccgccctg gccccacaag gaaacactac 1080
cagccttacg caccacctag agatttcgct gcctatcgga gccgagtga attttctaga 1140
tcagctgatg ctcccgcta tcagcaggga cagaatcaac tttaaatga gctgaacctg 1200
ggtcgagag aagagtacga cgttttggac aaacgccggg gccgagatcc tgagatgggg 1260
gggaagccga gaaggaagaa tcctcaagaa ggcctgtaca acgagcttca aaaagacaaa 1320
atggctgagg cgtactctga gatcggcatg aagggcgagc ggagacgagg caagggctac 1380
gatggcttgt atcagggcct gagtacagcc acaaaggaca cctatgacgc cctccacatg 1440
caggcactgc cccacgcta g 1461

<210> 80
 <211> 486
 <212> PRT
 <213> Homo sapiens

<400> 80

Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
 1 5 10 15

His Ala Ala Arg Pro Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu
 20 25 30

Val Lys Pro Ser Gln Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly
 35 40 45

Ser Ile Ser Ser Gly Ala Tyr Tyr Trp Thr Trp Ile Arg Gln His Pro
 50 55 60

Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile His Tyr Ser Gly Ser Thr
 65 70 75 80

Tyr Ser Asn Pro Ser Leu Lys Ser Arg Ile Thr Ile Ser Leu Asp Thr
 85 90 95

Ser Lys Asn Gln Phe Ser Leu Lys Leu Asn Ser Val Thr Ala Ala Asp
 100 105 110

Thr Ala Val Tyr Tyr Cys Ala Arg Gln Glu Asp Tyr Gly Gly Leu Phe
 115 120 125

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
 130 135 140

Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Met
 145 150 155 160

Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly Glu Arg Ile Thr
 165 170 175

Leu Ser Cys Arg Ala Ser Gln Ser Val Thr Thr Asp Leu Ala Trp Tyr
 180 185 190

Gln Gln Met Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Asp Ala Ser
 195 200 205

Thr Arg Ala Thr Gly Phe Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly
 210 215 220

Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Phe Ala
 225 230 235 240

Val Tyr Tyr Cys Gln His Tyr Lys Thr Trp Pro Leu Thr Phe Gly Gly
 4718999_1

245 250⁴⁵ 255
 Gly Thr Lys Val₂₆₀ Glu Ile Lys Arg Ala₂₆₅ Ala Ala Ile Glu Val₂₇₀ Met Tyr
 Pro Pro Pro₂₇₅ Tyr Leu Asp Asn Glu₂₈₀ Lys Ser Asn Gly Thr₂₈₅ Ile Ile His
 Val Lys₂₉₀ Gly Lys His Leu Cys₂₉₅ Pro Ser Pro Leu Phe₃₀₀ Pro Gly Pro Ser
 Lys₃₀₅ Pro Phe Trp Val Leu₃₁₀ Val Val Val Gly Gly₃₁₅ Val Leu Ala Cys Tyr₃₂₀
 Ser Leu Leu Val Thr₃₂₅ Val Ala Phe Ile Ile₃₃₀ Phe Trp Val Arg Ser₃₃₅ Lys
 Arg Ser Arg Leu₃₄₀ Leu His Ser Asp Tyr₃₄₅ Met Asn Met Thr Pro₃₅₀ Arg Arg
 Pro Gly Pro₃₅₅ Thr Arg Lys His Tyr₃₆₀ Gln Pro Tyr Ala Pro₃₆₅ Pro Arg Asp
 Phe Ala₃₇₀ Ala Tyr Arg Ser Arg₃₇₅ Val Lys Phe Ser Arg₃₈₀ Ser Ala Asp Ala
 Pro₃₈₅ Ala Tyr Gln Gln Gly₃₉₀ Gln Asn Gln Leu Tyr₃₉₅ Asn Glu Leu Asn Leu₄₀₀
 Gly Arg Arg Glu₄₀₅ Glu Tyr Asp Val Leu Asp₄₁₀ Lys Arg Arg Gly Arg₄₁₅ Asp
 Pro Glu Met Gly₄₂₀ Gly Lys Pro Arg Arg₄₂₅ Lys Asn Pro Gln Glu Gly Leu
 Tyr Asn Glu₄₃₅ Leu Gln Lys Asp Lys₄₄₀ Met Ala Glu Ala Tyr₄₄₅ Ser Glu Ile
 Gly Met₄₅₀ Lys Gly Glu Arg Arg₄₅₅ Arg Gly Lys Gly His₄₆₀ Asp Gly Leu Tyr
 Gln Gly Leu Ser Thr Ala₄₇₀ Thr Lys Asp Thr Tyr₄₇₅ Asp Ala Leu His Met₄₈₀
 Gln Ala Leu Pro Pro Arg₄₈₅

<210> 81
 <211> 1434
 <212> DNA
 <213> Homo sapiens

<400> 81
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 ccgcaggtgc agttgcagga gagcgggcca ggcctggtga agcccagcca aacactgagc 120
 ctcacctgta ctgtgtccgg tggtagcatt tccagcgggg cgtattattg gacatggata 180
 cgccaacacc ctggaaaagg gttggagtgg attggataca tccattattc tgggtccacc 240
 tatagtaacc cttctctcaa gtctcgcat actattagtt tggatacctc taagaatcag 300
 tttagtctga agctgaacag tgtaaccgcc gccgacaccg cggctacta ctgtgctagg 360
 caggaggatt acgggggact gttcgattac tggggccagg ggacattggt caccgtttca 420
 agcgggggcg gcggatctgg cggaggggga tctggaggcg gaggctctga gatcgtaatg 480
 actcagagcc cagccaccct gtccgtctct cccggcgaac gcatcactct gagctgtagg 540
 gcatcacagt ctgttaccac agatctggct tggatatcaac aaatgcctgg gcaggccccg 600
 cgactgttga tttatgacgc ctctacgagg gccacaggat ttctgcccgt gttctccggg 660
 tctggttctg gcaccgattt taccttgaca atcagtagct tgcaggcaga agatttcgct 720
 gtgtattact gccaacatta taagacatgg ctttgacat tcggcggggg aaccaaagtg 780
 gagatcaaac gcgccgcagc cctggacaat gagaagtcta atgggaccat cattcacgtc 840
 aaagggaaac acctgtgccc ctctcctctg ttcccaggcc cttctaagcc cttctggggt 900
 ctctggtggtg tgggcggtgt cctggcctgc tattcccttc ttgtgacagt ggcctttatc 960
 attttttggg tgagatccaa aagaagccgc ctgctccata gcgattacat gaatatgact 1020
 ccacgccgcc ctggccccac aaggaaacac taccagcctt acgcaccacc tagagatttc 1080
 gctgcctatc ggagccgagt gaaattttct agatcagctg atgctcccgc ctatcagcag 1140
 ggacagaatc aactttacaa tgagctgaac ctgggtcgca gagaagagta cgacgttttg 1200
 gacaaacgcc ggggccgaga tcctgagatg ggggggaagc cgagaaggaa gaatcctcaa 1260
 gaaggcctgt acaacgagct tcaaaaagac aaaatggctg aggcgtactc tgagatcggc 1320
 atgaagggcg agcggagacg aggcaagggt cacgatggct tgtatcaggg cctgagtaca 1380
 gccacaaagg acacctatga cgccctccac atgcaggcac tgccccacg ctag 1434

<210> 82
 <211> 477
 <212> PRT
 <213> Homo sapiens

<400> 82

Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
 1 5 10 15

His Ala Ala Arg Pro Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu
 20 25 30

Val Lys Pro Ser Gln Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly
 35 40 45

Ser Ile Ser Ser Gly Ala Tyr Tyr Trp Thr Trp Ile Arg Gln His Pro
 50 55 60
 Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile His Tyr Ser Gly Ser Thr
 65 70 75 80
 Tyr Ser Asn Pro Ser Leu Lys Ser Arg Ile Thr Ile Ser Leu Asp Thr
 85 90 95
 Ser Lys Asn Gln Phe Ser Leu Lys Leu Asn Ser Val Thr Ala Ala Asp
 100 105 110
 Thr Ala Val Tyr Tyr Cys Ala Arg Gln Glu Asp Tyr Gly Gly Leu Phe
 115 120 125
 Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
 130 135 140
 Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Met
 145 150 155 160
 Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly Glu Arg Ile Thr
 165 170 175
 Leu Ser Cys Arg Ala Ser Gln Ser Val Thr Thr Asp Leu Ala Trp Tyr
 180 185 190
 Gln Gln Met Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Asp Ala Ser
 195 200 205
 Thr Arg Ala Thr Gly Phe Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly
 210 215 220
 Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Phe Ala
 225 230 235 240
 Val Tyr Tyr Cys Gln His Tyr Lys Thr Trp Pro Leu Thr Phe Gly Gly
 245 250 255
 Gly Thr Lys Val Glu Ile Lys Arg Ala Ala Ala Leu Asp Asn Glu Lys
 260 265 270
 Ser Asn Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser
 275 280 285
 Pro Leu Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val
 290 295 300
 Gly Gly Val Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile
 305 310 315 320

<400>	83						
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ttgacttgca	ccgtctcagg	aggaagcatt	tccagtgggg	cttattattg	gacttggatt		180
cggcagcatc	ctgggaaagg	gttggaatgg	atcggttata	ttcattatag	cggtagcacc		240
tattccaatc	cgtctttgaa	aagcagaatc	actatttcac	tcgacacctc	taagaaccag		300
ttcagtctca	aactgaactc	cgtgacagcg	gccgacacag	ctgtgtacta	ctgtgcacgg		360
caagaagatt	atgggggggct	gttcgattat	tggggccaag	gcacactggt	gacagtatca		420
agcggtgagg	gaggctccgg	gggcggagga	agtggaggcg	gggggagcga	aattgtgatg		480
accagtcctc	cagccacgct	gtcagtgtct	ccgggagaac	gcataaccct	ctcctgccgg		540
gccagtcagt	ccgtcacgac	cgatttggct	tggtatcaac	agatgcctgg	gcaggcccc		600
cgcttgctga	tctatgacgc	ctccaccaga	gcaactgggt	tccccgcccg	gttcagcgga		660

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tctggaagcg gtacagattt tacacttacc atctcatcat tgcaagctga ggattttgcc      720
gtgtactact gccagcacta caagacctgg cttttgacgt tcggcggcgg aacaaaagtg      780
gagattaaaa gagccgctgc cctcagtaac tcaatcatgt actttagtca ctttgtgcct      840
gtgtttctgc cagcaaagcc aacaaccaca ccagcacccc gccctccaac gcctgccccca      900
accatcgcct cccagcctct gagcttgagg cctgaggctt gtcgcccagc tgctggagggt      960
gctgtgcata cacgaggact ggatttcgcc tgcgatatct atatctgggc accacttgcc     1020
ggactttgtg gtgtgttgct gctctcactg gtcatcacgc tgtactgtaa ccataggaat     1080
agatccaaaa gaagccgcct gctccatagc gattacatga atatgactcc acgccgcctt     1140
ggccccacaa ggaaacacta ccagccttac gcaccaccta gagatttcgc tgcctatcgg     1200
agccgagtga aattttctag atcagctgat gctccgcctt atcagcaggg acagaatcaa     1260
ctttacaatg agctgaacct gggtcgcaga gaagagtacg acgttttgga caaacgccgg     1320
ggccgagatc ctgagatggg ggggaagccg agaaggaaga atcctcaaga aggctgtac      1380
aacgagcttc aaaaagacaa aatggctgag gcgtactctg agatcggcat gaagggcgag     1440
cggagacgag gcaaggttca cgatggcttg tatcagggcc tgagtacagc cacaaaggac     1500
acctatgacg ccctccacat gcaggcactg cccccacgct ag                        1542

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```

<210> 84
<211> 513
<212> PRT
<213> Homo sapiens

```

```
<400> 84
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Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
1          5          10          15
```

```
His Ala Ala Arg Pro Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu
20          25          30
```

```
Val Lys Pro Ser Gln Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly
35          40          45
```

```
Ser Ile Ser Ser Gly Ala Tyr Tyr Trp Thr Trp Ile Arg Gln His Pro
50          55          60
```

```
Gly Lys Gly Leu Glu Trp Ile Gly Tyr Ile His Tyr Ser Gly Ser Thr
65          70          75          80
```

```
Tyr Ser Asn Pro Ser Leu Lys Ser Arg Ile Thr Ile Ser Leu Asp Thr
85          90          95
```

```
Ser Lys Asn Gln Phe Ser Leu Lys Leu Asn Ser Val Thr Ala Ala Asp
100         105         110
```

```
Thr Ala Val Tyr Tyr Cys Ala Arg Gln Glu Asp Tyr Gly Gly Leu Phe
4718999_1

```

115 120 50 125
 Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly
 130 135 140
 Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Ile Val Met
 145 150 155 160
 Thr Gln Ser Pro Ala Thr Leu Ser Val Ser Pro Gly Glu Arg Ile Thr
 165 170 175
 Leu Ser Cys Arg Ala Ser Gln Ser Val Thr Thr Asp Leu Ala Trp Tyr
 180 185 190
 Gln Gln Met Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Asp Ala Ser
 195 200 205
 Thr Arg Ala Thr Gly Phe Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly
 210 215 220
 Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Phe Ala
 225 230 235 240
 Val Tyr Tyr Cys Gln His Tyr Lys Thr Trp Pro Leu Thr Phe Gly Gly
 245 250 255
 Gly Thr Lys Val Glu Ile Lys Arg Ala Ala Ala Leu Ser Asn Ser Ile
 260 265 270
 Met Tyr Phe Ser His Phe Val Pro Val Phe Leu Pro Ala Lys Pro Thr
 275 280 285
 Thr Thr Pro Ala Pro Arg Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser
 290 295 300
 Gln Pro Leu Ser Leu Arg Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly
 305 310 315 320
 Ala Val His Thr Arg Gly Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp
 325 330 335
 Ala Pro Leu Ala Gly Thr Cys Gly Val Leu Leu Leu Ser Leu Val Ile
 340 345 350
 Thr Leu Tyr Cys Asn His Arg Asn Arg Ser Lys Arg Ser Arg Leu Leu
 355 360 365
 His Ser Asp Tyr Met Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg
 370 375 380
 Lys His Tyr Gln Pro Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg
 4718999_1

Asn Cys Gln Pro His Phe Asp Leu Gln Asn Arg Gly Val Val Ser Met
 115 120 125
 Val Ile Leu Lys Met Thr Glu Thr Gln Ala Gly Glu Tyr Leu Leu Phe
 130 135 140
 Ile Gln Ser Glu Ala Thr Asn Tyr Thr Ile Leu Phe Thr Val Ser Ile
 145 150 155 160
 Arg Asn Thr Leu Leu Tyr Thr Leu Arg Arg Pro Tyr Phe Arg Lys Met
 165 170 175
 Glu Asn Gln Asp Ala Leu Val Cys Ile Ser Glu Ser Val Pro Glu Pro
 180 185 190
 Ile Val Glu Trp Val Leu Cys Asp Ser Gln Gly Glu Ser Cys Lys Glu
 195 200 205
 Glu Ser Pro Ala Val Val Lys Lys Glu Glu Lys Val Leu His Glu Leu
 210 215 220
 Phe Gly Thr Asp Ile Arg Cys Cys Ala Arg Asn Glu Leu Gly Arg Glu
 225 230 235 240
 Cys Thr Arg Leu Phe Thr Ile Asp Leu Asn Gln Thr Pro Gln Thr Thr
 245 250 255
 Leu Pro Gln Leu Phe Leu Lys Val Gly Glu Pro Leu Trp Ile Arg Cys
 260 265 270
 Lys Ala Val His Val Asn His Gly Phe Gly Leu Thr Trp Glu Leu Glu
 275 280 285
 Asn Lys Ala Leu Glu Glu Gly Asn Tyr Phe Glu Met Ser Thr Tyr Ser
 290 295 300
 Thr Asn Arg Thr Met Ile Arg Ile Leu Phe Ala Phe Val Ser Ser Val
 305 310 315 320
 Ala Arg Asn Asp Thr Gly Tyr Tyr Thr Cys Ser Ser Ser Lys His Pro
 325 330 335
 Ser Gln Ser Ala Leu Val Thr Ile Val Glu Lys Gly Phe Ile Asn Ala
 340 345 350
 Thr Asn Ser Ser Glu Asp Tyr Glu Ile Asp Gln Tyr Glu Glu Phe Cys
 355 360 365
 Phe Ser Val Arg Phe Lys Ala Tyr Pro Gln Ile Arg Cys Thr Trp Thr
 370 375 380

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Phe Ser Arg Lys Ser Phe Pro Cys Glu Gln Lys Gly Leu Asp Asn Gly
 385 390 395 400
 Tyr Ser Ile Ser Lys Phe Cys Asn His Lys His Gln Pro Gly Glu Tyr
 405 410 415
 Ile Phe His Ala Glu Asn Asp Asp Ala Gln Phe Thr Lys Met Phe Thr
 420 425 430
 Leu Asn Ile Arg Arg Lys Pro Gln Val Leu Ala Glu Ala Ser Ala Ser
 435 440 445
 Gln Ala Ser Cys Phe Ser Asp Gly Tyr Pro Leu Pro Ser Trp Thr Trp
 450 455 460
 Lys Lys Cys Ser Asp Lys Ser Pro Asn Cys Thr Glu Glu Ile Thr Glu
 465 470 475 480
 Gly Val Trp Asn Arg Lys Ala Asn Arg Lys Val Phe Gly Gln Trp Val
 485 490 495
 Ser Ser Ser Thr Leu Asn Met Ser Glu Ala Ile Lys Gly Phe Leu Val
 500 505 510
 Lys Cys Cys Ala Tyr Asn Ser Leu Gly Thr Ser Cys Glu Thr Ile Leu
 515 520 525
 Leu Asn Ser Pro Gly Pro Phe Pro Phe Ile Gln Asp Asn Ile Ser Phe
 530 535 540
 Tyr Ala Thr Ile Gly Val Cys Leu Leu Phe Ile Val Val Leu Thr Leu
 545 550 555 560
 Leu Ile Cys His Lys Tyr Lys Lys Gln Phe Arg Tyr Glu Ser Gln Leu
 565 570 575
 Gln Met Val Gln Val Thr Gly Ser Ser Asp Asn Glu Tyr Phe Tyr Val
 580 585 590
 Asp Phe Arg Glu Tyr Glu Tyr Asp Leu Lys Trp Glu Phe Pro Arg Glu
 595 600 605
 Asn Leu Glu Phe Gly Lys Val Leu Gly Ser Gly Ala Phe Gly Lys Val
 610 615 620
 Met Asn Ala Thr Ala Tyr Gly Ile Ser Lys Thr Gly Val Ser Ile Gln
 625 630 635 640
 Val Ala Val Lys Met Leu Lys Glu Lys Ala Asp Ser Ser Glu Arg Glu
 645 650 655
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Ala Leu Met Ser Glu Leu Lys Met Met Thr Gln Leu Gly Ser His Glu
 660 665 670
 Asn Ile Val Asn Leu Leu Gly Ala Cys Thr Leu Ser Gly Pro Ile Tyr
 675 680 685
 Leu Ile Phe Glu Tyr Cys Cys Tyr Gly Asp Leu Leu Asn Tyr Leu Arg
 690 695 700
 Ser Lys Arg Glu Lys Phe His Arg Thr Trp Thr Glu Ile Phe Lys Glu
 705 710 715 720
 His Asn Phe Ser Phe Tyr Pro Thr Phe Gln Ser His Pro Asn Ser Ser
 725 730 735
 Met Pro Gly Ser Arg Glu Val Gln Ile His Pro Asp Ser Asp Gln Ile
 740 745 750
 Ser Gly Leu His Gly Asn Ser Phe His Ser Glu Asp Glu Ile Glu Tyr
 755 760 765
 Glu Asn Gln Lys Arg Leu Glu Glu Glu Glu Asp Leu Asn Val Leu Thr
 770 775 780
 Phe Glu Asp Leu Leu Cys Phe Ala Tyr Gln Val Ala Lys Gly Met Glu
 785 790 795 800
 Phe Leu Glu Phe Lys Ser Cys Val His Arg Asp Leu Ala Ala Arg Asn
 805 810 815
 Val Leu Val Thr His Gly Lys Val Val Lys Ile Cys Asp Phe Gly Leu
 820 825 830
 Ala Arg Asp Ile Met Ser Asp Ser Asn Tyr Val Val Arg Gly Asn Ala
 835 840 845
 Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ser Leu Phe Glu Gly Ile
 850 855 860
 Tyr Thr Ile Lys Ser Asp Val Trp Ser Tyr Gly Ile Leu Leu Trp Glu
 865 870 875 880
 Ile Phe Ser Leu Gly Val Asn Pro Tyr Pro Gly Ile Pro Val Asp Ala
 885 890 895
 Asn Phe Tyr Lys Leu Ile Gln Asn Gly Phe Lys Met Asp Gln Pro Phe
 900 905 910
 Tyr Ala Thr Glu Glu Ile Tyr Ile Ile Met Gln Ser Cys Trp Ala Phe
 915 920 925

Asp Ser Arg Lys Arg Pro Ser Phe Pro Asn Leu Thr Ser Phe Leu Gly
 930 935 940

Cys Gln Leu Ala Asp Ala Glu Glu Ala Met Tyr Gln Asn Val Asp Gly
 945 950 955 960

Arg Val Ser Glu Cys Pro His Thr Tyr Gln Asn Arg Arg Pro Phe Ser
 965 970 975

Arg Glu Met Asp Leu Gly Leu Leu Ser Pro Gln Ala Gln Val Glu Asp
 980 985 990

Ser

<210> 86
 <211> 63
 <212> DNA
 <213> Homo sapiens

<400> 86
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 ccg 63

<210> 87
 <211> 21
 <212> PRT
 <213> Homo sapiens

<400> 87
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