SEQUENCE LISTING

<110> Flynn, Daniel L.
Kaufman, Michael D.

<120> DIHYDRONAPHTHYRIDINES AND RELATED COMPOUNDS USEFUL AS KINASE INHIBITORS FOR THE TREATMENT OF PROLIFERATIVE DISEASES

<130> DECP-060/00US

<160> 6

<170> PatentIn version 3.5

<210> 1
<211> 676
<212> PRT
<213> Artificial Sequence

<220>
<223> c-KIT with N-terminal GST fusion

<400> 1

Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro Thr Arg Leu Leu
1 5 10 15

Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu Tyr Glu Arg Asp
20 25 30

Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu Gly Leu Glu Phe
35 40 45

Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys Leu Thr Gln Ser
50 55 60

Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn Met Leu Gly Gly
65 70 75 80

Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu Gly Ala Val Asp
85 90 95

Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser Lys Asp Phe Glu Thr
100 105 110

Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu Met Leu Lys Met Phe
115 120 125

Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn Gly Asp His Val Thr
130 135 140

His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp Val Val Leu Tyr Met
145 150 155 160

Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu Val Cys Phe Lys Lys
165 170 175

```
Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr Leu Lys Ser Ser Lys
            180                 185                 190

Tyr Ile Trp Pro Leu Gln Gly Trp Gln Ala Thr Phe Gly Gly Gly Asp
        195                 200                 205

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

Tyr Lys Lys Ala Gly Ser Ala Ala Ala Val Leu Glu Glu Asn Leu Tyr
225                 230                 235                 240

Phe Gln Gly Thr Tyr Lys Tyr Leu Gln Lys Pro Met Tyr Glu Val Gln
                245                 250                 255

Trp Lys Val Val Glu Glu Ile Asn Gly Asn Asn Tyr Val Tyr Ile Asp
            260                 265                 270

Pro Thr Gln Leu Pro Tyr Asp His Lys Trp Glu Phe Pro Arg Asn Arg
        275                 280                 285

Leu Ser Phe Gly Lys Thr Leu Gly Ala Gly Ala Phe Gly Lys Val Val
    290                 295                 300

Glu Ala Thr Ala Tyr Gly Leu Ile Lys Ser Asp Ala Ala Met Thr Val
305                 310                 315                 320

Ala Val Lys Met Leu Lys Pro Ser Ala His Leu Thr Glu Arg Glu Ala
                325                 330                 335

Leu Met Ser Glu Leu Lys Val Leu Ser Tyr Leu Gly Asn His Met Asn
            340                 345                 350

Ile Val Asn Leu Leu Gly Ala Cys Thr Ile Gly Gly Pro Thr Leu Val
        355                 360                 365

Ile Thr Glu Tyr Cys Cys Tyr Gly Asp Leu Leu Asn Phe Leu Arg Arg
    370                 375                 380

Lys Arg Asp Ser Phe Ile Cys Ser Lys Gln Glu Asp His Ala Glu Ala
385                 390                 395                 400

Ala Leu Tyr Lys Asn Leu Leu His Ser Lys Glu Ser Ser Cys Ser Asp
                405                 410                 415

Ser Thr Asn Glu Tyr Met Asp Met Lys Pro Gly Val Ser Tyr Val Val
            420                 425                 430

Pro Thr Lys Ala Asp Lys Arg Arg Ser Val Arg Ile Gly Ser Tyr Ile
        435                 440                 445
```

```
Glu Arg Asp Val Thr Pro Ala Ile Met Glu Asp Asp Glu Leu Ala Leu
    450                 455                 460

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

Ala Phe Leu Ala Ser Lys Asn Cys Ile His Arg Asp Leu Ala Ala Arg
                485                 490                 495

Asn Ile Leu Leu Thr His Gly Arg Ile Thr Lys Ile Cys Asp Phe Gly
            500                 505                 510

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

Ala Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ser Ile Phe Asn Cys
    530                 535                 540

Val Tyr Thr Phe Glu Ser Asp Val Trp Ser Tyr Gly Ile Phe Leu Trp
545                 550                 555                 560

Glu Leu Phe Ser Leu Gly Ser Ser Pro Tyr Pro Gly Met Pro Val Asp
                565                 570                 575

Ser Lys Phe Tyr Lys Met Ile Lys Glu Gly Phe Arg Met Leu Ser Pro
            580                 585                 590

Glu His Ala Pro Ala Glu Met Tyr Asp Ile Met Lys Thr Cys Trp Asp
        595                 600                 605

Ala Asp Pro Leu Lys Arg Pro Thr Phe Lys Gln Ile Val Gln Leu Ile
    610                 615                 620

Glu Lys Gln Ile Ser Glu Ser Thr Asn His Ile Tyr Ser Asn Leu Ala
625                 630                 635                 640

Asn Cys Ser Pro Asn Arg Gln Lys Pro Val Val Asp His Ser Val Arg
                645                 650                 655

Ile Asn Ser Val Gly Ser Thr Ala Ser Ser Ser Gln Pro Leu Leu Val
            660                 665                 670

His Asp Asp Val
        675
```

<210> 2
<211> 469
<212> PRT
<213> Artificial Sequence

<220>
<223> c-KIT (V654A)

<400> 2

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Met Ser Tyr Tyr His His His His His His Asp Tyr Asp Ile Pro Thr
1               5                  10                  15

Thr Glu Asn Leu Tyr Phe Gln Gly Ala Met Leu Val Pro Arg Gly Ser
            20                  25                  30

Pro Trp Gly Ser Thr Tyr Lys Tyr Leu Gln Lys Pro Met Tyr Glu Val
        35                  40                  45

Gln Trp Lys Val Val Glu Glu Ile Asn Gly Asn Asn Tyr Val Tyr Ile
    50                  55                  60

Asp Pro Thr Gln Leu Pro Tyr Asp His Lys Trp Glu Phe Pro Arg Asn
65                  70                  75                  80

Arg Leu Ser Phe Gly Lys Thr Leu Gly Ala Gly Ala Phe Gly Lys Val
                85                  90                  95

Val Glu Ala Thr Ala Tyr Gly Leu Ile Lys Ser Asp Ala Ala Met Thr
            100                 105                 110

Val Ala Val Lys Met Leu Lys Pro Ser Ala His Leu Thr Glu Arg Glu
        115                 120                 125

Ala Leu Met Ser Glu Leu Lys Val Leu Ser Tyr Leu Gly Asn His Met
    130                 135                 140

Asn Ile Ala Asn Leu Leu Gly Ala Cys Thr Ile Gly Gly Pro Thr Leu
145                 150                 155                 160

Val Ile Thr Glu Tyr Cys Cys Tyr Gly Asp Leu Leu Asn Phe Leu Arg
                165                 170                 175

Arg Lys Arg Asp Ser Phe Ile Cys Ser Lys Gln Glu Asp His Ala Glu
            180                 185                 190

Ala Ala Leu Tyr Lys Asn Leu Leu His Ser Lys Glu Ser Ser Cys Ser
        195                 200                 205

Asp Ser Thr Asn Glu Tyr Met Asp Met Lys Pro Gly Val Ser Tyr Val
    210                 215                 220

Val Pro Thr Lys Ala Asp Lys Arg Arg Ser Val Arg Ile Gly Ser Tyr
225                 230                 235                 240

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

Leu Asp Leu Glu Asp Leu Leu Ser Phe Ser Tyr Gln Val Ala Lys Gly
            260                 265                 270
```

```
Met Ala Phe Leu Ala Ser Lys Asn Cys Ile His Arg Asp Leu Ala Ala
        275                 280                 285

Arg Asn Ile Leu Leu Thr His Gly Arg Ile Thr Lys Ile Cys Asp Phe
    290                 295                 300

Gly Leu Ala Arg Asp Ile Lys Asn Asp Ser Asn Tyr Val Val Lys Gly
305                 310                 315                 320

Asn Ala Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ser Ile Phe Asn
                325                 330                 335

Cys Val Tyr Thr Phe Glu Ser Asp Val Trp Ser Tyr Gly Ile Phe Leu
            340                 345                 350

Trp Glu Leu Phe Ser Leu Gly Ser Ser Pro Tyr Pro Gly Met Pro Val
        355                 360                 365

Asp Ser Lys Phe Tyr Lys Met Ile Lys Glu Gly Phe Arg Met Leu Ser
    370                 375                 380

Pro Glu His Ala Pro Ala Glu Met Tyr Asp Ile Met Lys Thr Cys Trp
385                 390                 395                 400

Asp Ala Asp Pro Leu Lys Arg Pro Thr Phe Lys Gln Ile Val Gln Leu
                405                 410                 415

Ile Glu Lys Gln Ile Ser Glu Ser Thr Asn His Ile Tyr Ser Asn Leu
            420                 425                 430

Ala Asn Cys Ser Pro Asn Arg Gln Lys Pro Val Val Asp His Ser Val
        435                 440                 445

Arg Ile Asn Ser Val Gly Ser Thr Ala Ser Ser Ser Gln Pro Leu Leu
    450                 455                 460

Val His Asp Asp Val
465
```

<210> 3
<211> 620
<212> PRT
<213> Artificial Sequence

<220>
<223> c-KIT (D816H)

<400> 3

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Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
1               5                   10                  15
```

```
Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
            20                  25                  30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu
        35                  40                  45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
    50                  55                  60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn
65                  70                  75                  80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu
                85                  90                  95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser
            100                 105                 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu
        115                 120                 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn
    130                 135                 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp
145                 150                 155                 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu
                165                 170                 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr
            180                 185                 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
        195                 200                 205

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

Phe Gln Gly Pro Glu Phe Lys Gly Leu Arg Arg Gln Thr Tyr Lys Tyr
225                 230                 235                 240

Leu Gln Lys Pro Met Tyr Glu Val Gln Trp Lys Val Val Glu Glu Ile
                245                 250                 255

Asn Gly Asn Asn Tyr Val Tyr Ile Asp Pro Thr Gln Leu Pro Tyr Asp
            260                 265                 270

His Lys Trp Glu Phe Pro Arg Asn Arg Leu Ser Phe Gly Lys Thr Leu
        275                 280                 285
```

```
Gly Ala Gly Ala Phe Gly Lys Val Val Glu Ala Thr Ala Tyr Gly Leu
    290                 295                 300

Ile Lys Ser Asp Ala Ala Met Thr Val Ala Val Lys Met Leu Lys Pro
305                 310                 315                 320

Ser Ala His Leu Thr Glu Arg Glu Ala Leu Met Ser Glu Leu Lys Val
                325                 330                 335

Leu Ser Tyr Leu Gly Asn His Met Asn Ile Val Asn Leu Leu Gly Ala
            340                 345                 350

Cys Thr Ile Gly Gly Pro Thr Leu Val Ile Thr Glu Tyr Cys Cys Tyr
        355                 360                 365

Gly Asp Leu Leu Asn Phe Leu Arg Arg Lys Arg Asp Ser Phe Ile Cys
    370                 375                 380

Ser Lys Gln Glu Asp His Ala Glu Ala Ala Leu Tyr Lys Asn Leu Leu
385                 390                 395                 400

His Ser Lys Glu Ser Ser Cys Ser Asp Ser Thr Asn Glu Tyr Met Asp
                405                 410                 415

Met Lys Pro Gly Val Ser Tyr Val Val Pro Thr Lys Ala Asp Lys Arg
            420                 425                 430

Arg Ser Val Arg Ile Gly Ser Tyr Ile Glu Arg Asp Val Thr Pro Ala
        435                 440                 445

Ile Met Glu Asp Asp Glu Leu Ala Leu Asp Leu Glu Asp Leu Leu Ser
    450                 455                 460

Phe Ser Tyr Gln Val Ala Lys Gly Met Ala Phe Leu Ala Ser Lys Asn
465                 470                 475                 480

Cys Ile His Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu Thr His Gly
                485                 490                 495

Arg Ile Thr Lys Ile Cys Asp Phe Gly Leu Ala Arg His Ile Lys Asn
            500                 505                 510

Asp Ser Asn Tyr Val Val Lys Gly Asn Ala Arg Leu Pro Val Lys Trp
        515                 520                 525

Met Ala Pro Glu Ser Ile Phe Asn Cys Val Tyr Thr Phe Glu Ser Asp
    530                 535                 540

Val Trp Ser Tyr Gly Ile Phe Leu Trp Glu Leu Phe Ser Leu Gly Ser
545                 550                 555                 560
```

```
Ser Pro Tyr Pro Gly Met Pro Val Asp Ser Lys Phe Tyr Lys Met Ile
                565                 570                 575

Lys Glu Gly Phe Arg Met Leu Ser Pro Glu His Ala Pro Ala Glu Met
            580                 585                 590

Tyr Asp Ile Met Lys Thr Cys Trp Asp Ala Asp Pro Leu Lys Arg Pro
        595                 600                 605

Thr Phe Lys Gln Ile Val Gln Leu Ile Glu Lys Gln
    610                 615                 620
```

<210> 4
<211> 698
<212> PRT
<213> Artificial Sequence

<220>
<223> c-KIT (D816V)

<400> 4

```
Met Glu His His His His His His His His Glu Tyr Met Pro Met Glu
1               5                   10                  15

Met Ala Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
            20                  25                  30

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
        35                  40                  45

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu
    50                  55                  60

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
65                  70                  75                  80

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn
                85                  90                  95

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu
            100                 105                 110

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser
        115                 120                 125

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu
    130                 135                 140

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn
145                 150                 155                 160

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp
                165                 170                 175
```

```
Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu
            180                 185                 190

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr
        195                 200                 205

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
    210                 215                 220

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg
225                 230                 235                 240

His Asn Gln Thr Ser Leu Tyr Lys Lys Ala Gly Ser Ala Ala Ala Val
                245                 250                 255

Leu Glu Glu Asn Leu Tyr Phe Gln Gly Thr Tyr Lys Tyr Leu Gln Lys
            260                 265                 270

Pro Met Tyr Glu Val Gln Trp Lys Val Val Glu Glu Ile Asn Gly Asn
        275                 280                 285

Asn Tyr Val Tyr Ile Asp Pro Thr Gln Leu Pro Tyr Asp His Lys Trp
    290                 295                 300

Glu Phe Pro Arg Asn Arg Leu Ser Phe Gly Lys Thr Leu Gly Ala Gly
305                 310                 315                 320

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

Asp Ala Ala Met Thr Val Ala Val Lys Met Leu Lys Pro Ser Ala His
            340                 345                 350

Leu Thr Glu Arg Glu Ala Leu Met Ser Glu Leu Lys Val Leu Ser Tyr
        355                 360                 365

Leu Gly Asn His Met Asn Ile Val Asn Leu Leu Gly Ala Cys Thr Ile
    370                 375                 380

Gly Gly Pro Thr Leu Val Ile Thr Glu Tyr Cys Cys Tyr Gly Asp Leu
385                 390                 395                 400

Leu Asn Phe Leu Arg Arg Lys Arg Asp Ser Phe Ile Cys Ser Lys Gln
                405                 410                 415

Glu Asp His Ala Glu Ala Ala Leu Tyr Lys Asn Leu Leu His Ser Lys
            420                 425                 430

Glu Ser Ser Cys Ser Asp Ser Thr Asn Glu Tyr Met Asp Met Lys Pro
        435                 440                 445
```

Gly Val Ser Tyr Val Val Pro Thr Lys Ala Asp Lys Arg Arg Ser Val
450 455 460

Arg Ile Gly Ser Tyr Ile Glu Arg Asp Val Thr Pro Ala Ile Met Glu
465 470 475 480

Asp Asp Glu Leu Ala Leu Asp Leu Glu Asp Leu Leu Ser Phe Ser Tyr
485 490 495

Gln Val Ala Lys Gly Met Ala Phe Leu Ala Ser Lys Asn Cys Ile His
500 505 510

Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu Thr His Gly Arg Ile Thr
515 520 525

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

Tyr Val Val Lys Gly Asn Ala Arg Leu Pro Val Lys Trp Met Ala Pro
545 550 555 560

Glu Ser Ile Phe Asn Cys Val Tyr Thr Phe Glu Ser Asp Val Trp Ser
565 570 575

Tyr Gly Ile Phe Leu Trp Glu Leu Phe Ser Leu Gly Ser Ser Pro Tyr
580 585 590

Pro Gly Met Pro Val Asp Ser Lys Phe Tyr Lys Met Ile Lys Glu Gly
595 600 605

Phe Arg Met Leu Ser Pro Glu His Ala Pro Ala Glu Met Tyr Asp Ile
610 615 620

Met Lys Thr Cys Trp Asp Ala Asp Pro Leu Lys Arg Pro Thr Phe Lys
625 630 635 640

Gln Ile Val Gln Leu Ile Glu Lys Gln Ile Ser Glu Ser Thr Asn His
645 650 655

Ile Tyr Ser Asn Leu Ala Asn Cys Ser Pro Asn Arg Gln Lys Pro Val
660 665 670

Val Asp His Ser Val Arg Ile Asn Ser Val Gly Ser Thr Ala Ser Ser
675 680 685

Ser Gln Pro Leu Leu Val His Asp Asp Val
690 695

<210> 5
<211> 696

<212> PRT
<213> Artificial Sequence

<220>
<223> CKIT-VVDV

<400> 5

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Met Glu His His His His His His His His Glu Tyr Met Pro Met Glu
1               5                  10                  15

Met Ala Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
            20                  25                  30

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
        35                  40                  45

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu
    50                  55                  60

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
65                  70                  75                  80

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn
                85                  90                  95

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu
            100                 105                 110

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser
        115                 120                 125

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu
    130                 135                 140

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn
145                 150                 155                 160

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp
                165                 170                 175

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu
            180                 185                 190

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr
        195                 200                 205

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
    210                 215                 220

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg
225                 230                 235                 240
```

```
His Asn Gln Thr Ser Leu Tyr Lys Lys Ala Gly Ser Ala Ala Ala Val
                245                 250                 255

Leu Glu Glu Asn Leu Tyr Phe Gln Gly Thr Tyr Lys Tyr Leu Gln Lys
            260                 265                 270

Pro Met Tyr Glu Val Gln Trp Lys Glu Glu Ile Asn Gly Asn Asn Tyr
        275                 280                 285

Val Tyr Ile Asp Pro Thr Gln Leu Pro Tyr Asp His Lys Trp Glu Phe
    290                 295                 300

Pro Arg Asn Arg Leu Ser Phe Gly Lys Thr Leu Gly Ala Gly Ala Phe
305                 310                 315                 320

Gly Lys Val Val Glu Ala Thr Ala Tyr Gly Leu Ile Lys Ser Asp Ala
                325                 330                 335

Ala Met Thr Val Ala Val Lys Met Leu Lys Pro Ser Ala His Leu Thr
            340                 345                 350

Glu Arg Glu Ala Leu Met Ser Glu Leu Lys Val Leu Ser Tyr Leu Gly
        355                 360                 365

Asn His Met Asn Ile Val Asn Leu Leu Gly Ala Cys Thr Ile Gly Gly
    370                 375                 380

Pro Thr Leu Val Ile Thr Glu Tyr Cys Cys Tyr Gly Asp Leu Leu Asn
385                 390                 395                 400

Phe Leu Arg Arg Lys Arg Asp Ser Phe Ile Cys Ser Lys Gln Glu Asp
                405                 410                 415

His Ala Glu Ala Ala Leu Tyr Lys Asn Leu Leu His Ser Lys Glu Ser
            420                 425                 430

Ser Cys Ser Asp Ser Thr Asn Glu Tyr Met Asp Met Lys Pro Gly Val
        435                 440                 445

Ser Tyr Val Val Pro Thr Lys Ala Asp Lys Arg Arg Ser Val Arg Ile
    450                 455                 460

Gly Ser Tyr Ile Glu Arg Asp Val Thr Pro Ala Ile Met Glu Asp Asp
465                 470                 475                 480

Glu Leu Ala Leu Asp Leu Glu Asp Leu Leu Ser Phe Ser Tyr Gln Val
                485                 490                 495

Ala Lys Gly Met Ala Phe Leu Ala Ser Lys Asn Cys Ile His Arg Asp
            500                 505                 510
```

```
Leu Ala Ala Arg Asn Ile Leu Leu Thr His Gly Arg Ile Thr Lys Ile
        515                 520                 525

Cys Asp Phe Gly Leu Ala Arg Val Ile Lys Asn Asp Ser Asn Tyr Val
    530                 535                 540

Val Lys Gly Asn Ala Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ser
545                 550                 555                 560

Ile Phe Asn Cys Val Tyr Thr Phe Glu Ser Asp Val Trp Ser Tyr Gly
                565                 570                 575

Ile Phe Leu Trp Glu Leu Phe Ser Leu Gly Ser Ser Pro Tyr Pro Gly
            580                 585                 590

Met Pro Val Asp Ser Lys Phe Tyr Lys Met Ile Lys Glu Gly Phe Arg
        595                 600                 605

Met Leu Ser Pro Glu His Ala Pro Ala Glu Met Tyr Asp Ile Met Lys
    610                 615                 620

Thr Cys Trp Asp Ala Asp Pro Leu Lys Arg Pro Thr Phe Lys Gln Ile
625                 630                 635                 640

Val Gln Leu Ile Glu Lys Gln Ile Ser Glu Ser Thr Asn His Ile Tyr
                645                 650                 655

Ser Asn Leu Ala Asn Cys Ser Pro Asn Arg Gln Lys Pro Val Val Asp
            660                 665                 670

His Ser Val Arg Ile Asn Ser Val Gly Ser Thr Ala Ser Ser Ser Gln
        675                 680                 685

Pro Leu Leu Val His Asp Asp Val
    690                 695
```

<210> 6
<211> 469
<212> PRT
<213> Artificial Sequence

<220>
<223> cKIT-T670I

<400> 6

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Met Ser Tyr Tyr His His His His His His Asp Tyr Asp Ile Pro Thr
1               5                   10                  15

Thr Glu Asn Leu Tyr Phe Gln Gly Ala Met Leu Val Pro Arg Gly Ser
            20                  25                  30

Pro Trp Gly Ser Thr Tyr Lys Tyr Leu Gln Lys Pro Met Tyr Glu Val
        35                  40                  45
```

```
Gln Trp Lys Val Val Glu Glu Ile Asn Gly Asn Asn Tyr Val Tyr Ile
    50                  55                  60

Asp Pro Thr Gln Leu Pro Tyr Asp His Lys Trp Glu Phe Pro Arg Asn
65                  70                  75                  80

Arg Leu Ser Phe Gly Lys Thr Leu Gly Ala Gly Ala Phe Gly Lys Val
                85                  90                  95

Val Glu Ala Thr Ala Tyr Gly Leu Ile Lys Ser Asp Ala Ala Met Thr
            100                 105                 110

Val Ala Val Lys Met Leu Lys Pro Ser Ala His Leu Thr Glu Arg Glu
        115                 120                 125

Ala Leu Met Ser Glu Leu Lys Val Leu Ser Tyr Leu Gly Asn His Met
    130                 135                 140

Asn Ile Val Asn Leu Leu Gly Ala Cys Thr Ile Gly Gly Pro Thr Leu
145                 150                 155                 160

Val Ile Ile Glu Tyr Cys Cys Tyr Gly Asp Leu Leu Asn Phe Leu Arg
                165                 170                 175

Arg Lys Arg Asp Ser Phe Ile Cys Ser Lys Gln Glu Asp His Ala Glu
            180                 185                 190

Ala Ala Leu Tyr Lys Asn Leu Leu His Ser Lys Glu Ser Ser Cys Ser
        195                 200                 205

Asp Ser Thr Asn Glu Tyr Met Asp Met Lys Pro Gly Val Ser Tyr Val
    210                 215                 220

Val Pro Thr Lys Ala Asp Lys Arg Arg Ser Val Arg Ile Gly Ser Tyr
225                 230                 235                 240

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

Leu Asp Leu Glu Asp Leu Leu Ser Phe Ser Tyr Gln Val Ala Lys Gly
            260                 265                 270

Met Ala Phe Leu Ala Ser Lys Asn Cys Ile His Arg Asp Leu Ala Ala
        275                 280                 285

Arg Asn Ile Leu Leu Thr His Gly Arg Ile Thr Lys Ile Cys Asp Phe
    290                 295                 300

Gly Leu Ala Arg Asp Ile Lys Asn Asp Ser Asn Tyr Val Val Lys Gly
305                 310                 315                 320
```

```
Asn Ala Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ser Ile Phe Asn
                325                 330                 335

Cys Val Tyr Thr Phe Glu Ser Asp Val Trp Ser Tyr Gly Ile Phe Leu
            340                 345                 350

Trp Glu Leu Phe Ser Leu Gly Ser Ser Pro Tyr Pro Gly Met Pro Val
        355                 360                 365

Asp Ser Lys Phe Tyr Lys Met Ile Lys Glu Gly Phe Arg Met Leu Ser
    370                 375                 380

Pro Glu His Ala Pro Ala Glu Met Tyr Asp Ile Met Lys Thr Cys Trp
385                 390                 395                 400

Asp Ala Asp Pro Leu Lys Arg Pro Thr Phe Lys Gln Ile Val Gln Leu
                405                 410                 415

Ile Glu Lys Gln Ile Ser Glu Ser Thr Asn His Ile Tyr Ser Asn Leu
            420                 425                 430

Ala Asn Cys Ser Pro Asn Arg Gln Lys Pro Val Val Asp His Ser Val
        435                 440                 445

Arg Ile Asn Ser Val Gly Ser Thr Ala Ser Ser Ser Gln Pro Leu Leu
    450                 455                 460

Val His Asp Asp Val
465
```