LISTAGEM DE SEQUÊNCIAS

<110> FUNDAÇÃO OSWALDO CRUZ E INSTITUTO DE BIOLOGIA MOLECULAR DO PARANÁ - IBMP

<120> "PROTEÍNA RECOMBINANTE OU SINTÉTICA, ÁCIDO NUCLEICO, CASSETE DE EXPRESSÃO, VETOR DE EXPRESSÃO, CÉLULA HOSPEDEIRA, MÉTODO DE PRODUÇÃO DA PROTEÍNA RECOMBINANTE OU SINTÉTICA, COMPOSIÇÃO, USO DA PROTEÍNA RECOMBINANTE OU SINTÉTICA, KIT PARA DIAGNÓSTICO DA DOENÇA DE CHAGAS, E, MÉTODO PARA DIAGNÓSTICO DA DOENÇA DE CHAGAS"

<130> caso 161

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<170> PatentIn versão 3.5

<210> 1
<211> 34
<212> PRT
<213> Sequência Artificial

<220>
<223> Fragmento do vetor pET28

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Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
1 5 10 15

Arg Gly Ser His Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg
20 25 30

Gly Ser

<210> 2
<211> 22
<212> PRT
<213> Trypanosoma cruzi

<400> 2

Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro

1 5 10 15

Ser Pro Phe Gly Gln Ala
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<210> 3
<211> 15
<212> PRT
<213> Trypanosoma cruzi

<400> 3

Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser
1 5 10 15

<210> 4
<211> 343
<212> PRT
<213> Trypanosoma cruzi

<400> 4

Met Val Ser Leu Lys Leu Gln Ala Arg Leu Ala Ala Asp Ile Leu Arg
1 5 10 15

Cys Gly Arg His Arg Val Trp Leu Asp Pro Asn Glu Ala Ser Glu Ile
20 25 30

Ser Asn Ala Asn Ser Arg Lys Ser Val Arg Lys Leu Ile Lys Asp Gly
35 40 45

Leu Ile Ile Arg Lys Pro Val Lys Val His Ser Arg Ser Arg Trp Arg
50 55 60

His Met Lys Glu Ala Lys Ser Met Gly Arg His Glu Gly Ala Gly Arg
65 70 75 80

Arg Glu Gly Thr Arg Glu Ala Arg Met Pro Ser Lys Glu Leu Trp Met

85 90 95

Arg Arg Leu Arg Ile Leu Arg Arg Leu Leu Arg Lys Tyr Arg Glu Glu
100 105 110

Lys Lys Ile Asp Arg His Ile Tyr Arg Glu Leu Tyr Val Lys Ala Lys
115 120 125

Gly Asn Val Phe Arg Asn Lys Arg Asn Leu Met Glu His Ile His Lys
130 135 140

Val Lys Asn Glu Lys Lys Lys Glu Arg Gln Leu Ala Glu Gln Leu Ala
145 150 155 160

Ala Lys Arg Leu Lys Asp Glu Gln His Arg His Lys Ala Arg Lys Gln
165 170 175

Glu Leu Arg Lys Arg Glu Lys Asp Arg Glu Arg Ala Arg Arg Glu Asp
180 185 190

Ala Ala Ala Ala Ala Ala Ala Lys Gln Lys Ala Ala Ala Lys Lys Ala
195 200 205

Ala Ala Pro Ser Gly Lys Lys Ser Ala Lys Ala Ala Ile Ala Pro Ala
210 215 220

Lys Ala Ala Ala Ala Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Ala
225 230 235 240

Ala Ala Ala Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Ala Ala Ala
245 250 255

Ala Pro Ala Lys Ala Ala Thr Ala Pro Ala Lys Ala Ala Ala Ala Pro
260 265 270

```
Ala Lys Thr Ala Ala Ala Pro Ala Lys Ala Ala Ala Pro Ala Lys Ala
        275                 280                 285

Ala Ala Ala Pro Ala Lys Ala Ala Thr Ala Pro Ala Lys Ala Ala Ala
    290                 295                 300

Ala Pro Ala Lys Ala Ala Thr Ala Pro Ala Lys Ala Ala Thr Ala Pro
305                 310                 315                 320

Ala Lys Ala Ala Ala Ala Pro Ala Lys Ala Ala Thr Ala Pro Val Gly
                325                 330                 335

Lys Lys Ala Gly Gly Lys Lys
            340
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<210> 5
<211> 1662
<212> PRT
<213> Trypanosoma cruzi

<400> 5

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Met Leu Pro Arg Val Ala Ala Val Lys Ala Leu Arg Thr His Asn Leu
1               5                   10                  15

Cys Arg Val Thr Gly Ser Ser Gly Arg Arg Arg Glu Gly Arg Glu Gly
            20                  25                  30

Glu Pro Gln Arg Pro Asn Met Ser Arg His His Phe Tyr Ser Ala Val
        35                  40                  45

Pro Leu Leu Leu Leu Val Val Met Met Cys Cys Cys Gly Cys Glu Ala
    50                  55                  60

Ala Ser Ala Asp Gly Ser Ser Gly Glu Gly Lys Ala Val Asp Pro Phe
65                  70                  75                  80
```

```
Gln Gly Thr Thr Pro Ala Pro Tyr Lys Trp Gln Glu Met Thr Gly Ser
                85                  90                  95

Glu Ala Ala Ala Gly Ser Leu Arg Val Pro Ser Leu Ala Glu Val Ala
            100                 105                 110

Gly Gly Val Phe Ala Val Ala Glu Ala Gln Cys Ser Glu Arg Asp Gly
        115                 120                 125

Ala Cys Gly His Ala Ala Ile Ala Thr Thr His Ile Glu Thr Asp Gly
    130                 135                 140

Gly Gly Ser Lys Ala Ile Ser Ala Met Asp Ala Gly Val Ser Leu Val
145                 150                 155                 160

Glu Leu Val Asp Ala Ala Gly Gly Thr Ile Arg Thr Arg Glu Lys Met
                165                 170                 175

Gln Pro Thr Thr Ile Val Ser Gly Asp Ser Ile Tyr Met Ala Leu Gly
            180                 185                 190

Asp Tyr Glu Lys Arg Thr Ser Gly Gly Gln Ala Ala Asp Ala Asp Gly
        195                 200                 205

Trp Arg Leu Leu Leu Thr Arg Gly Thr Leu Thr Glu Asp Gly Gly Gln
    210                 215                 220

Lys Lys Ile Met Trp Asp Asp Ile Arg Ala Val Asp Pro Val Ala Ile
225                 230                 235                 240

Gly Leu Thr Gln Phe Leu Lys Arg Val Ile Gly Gly Gly Gly Ser Gly
                245                 250                 255
```

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

Lys Asp Gly Arg Asn Val Val Leu Ser Met Arg Phe Asn Met Arg Ile
        275                 280                 285

Glu Ala Trp Glu Leu Ser Ser Gly Thr Thr Gly Ile Asn Cys Lys Glu
    290                 295                 300

Pro Ser Ile Ala Asn Leu Glu Gly Asn Leu Ile Leu Ile Thr Ser Cys
305                 310                 315                 320

Ala Ala Gly Tyr Tyr Glu Val Phe Arg Ser Ile Asp Ser Gly Ile Arg
                325                 330                 335

Trp Glu Leu Ser Gly Arg Pro Ile Thr Arg Val Trp Gly Asn Ser Tyr
            340                 345                 350

Gly Arg Lys Gly Tyr Gly Val Arg Cys Gly Leu Thr Thr Val Thr Ile
        355                 360                 365

Glu Gly Arg Glu Val Leu Leu Val Thr Thr Pro Val Tyr Leu Glu Glu
    370                 375                 380

Lys Lys Asp Arg Gly Arg Leu His Leu Trp Val Thr Asp Gly Ala Arg
385                 390                 395                 400

Val His Asp Ala Gly Pro Ile Ser Asp Ala Ala Asp Asp Ala Ala Ala
                405                 410                 415

Ser Ser Leu Leu Ser Ser Ser Gly Gly Asp Leu Ile Ser Leu Tyr Glu
            420                 425                 430

Asn Lys Ser Glu Gly Ser Tyr Gly Leu Val Ala Val His Val Thr Thr
        435                 440                 445
```

```
Gln Leu Glu Arg Ile Lys Thr Val Val Lys Arg Trp Gln Glu Leu Asp
    450                 455                 460

Glu Ala Leu Arg Thr Cys Arg Pro Thr Ala Thr Ile Asp Pro Val Lys
465                 470                 475                 480

Arg Gly Met Cys Ser Arg Pro Ile Leu Thr Asp Gly Leu Val Gly Tyr
                485                 490                 495

Leu Ser Gly Leu Ser Thr Gly Ser Glu Trp Met Asp Glu Tyr Leu Cys
            500                 505                 510

Val Asn Ala Thr Val His Gly Thr Val Arg Gly Phe Ser Asn Gly Val
        515                 520                 525

Thr Phe Glu Gly Pro Gly Ala Gly Ala Gly Trp Pro Val Ala Arg Ser
    530                 535                 540

Gly Gln Asn Gln Pro Tyr His Phe Val His Lys Arg Phe Thr Leu Val
545                 550                 555                 560

Val Met Ala Val Ile His Asp Glu Pro Lys Lys Arg Thr Pro Ile Pro
                565                 570                 575

Leu Ile Arg Val Val Met Asp Asp Lys Asp Lys Thr Val Leu Phe Gly
            580                 585                 590

Val Phe Tyr Thr His Asp Gly Arg Trp Met Thr Ala Ile His Gly Gly
        595                 600                 605

Gly Arg Gln Val Leu Ser Ala Gly Trp Asp Pro Gly Lys Pro Cys Gln
    610                 615                 620
```

```
Val Val Leu Arg His Asp Thr Asp His Trp Asp Leu Tyr Ile Asn Ala
625                 630                 635                 640

Arg Val Ala Tyr Phe Gly Thr Tyr Lys Gly Ser Leu Leu Gln Thr Asn
                645                 650                 655

Ser Ile Ser His Val Gln Phe His Gly Asp Ser Gly Glu Val Ala Glu
            660                 665                 670

Ser Ser His Leu Ser Leu Phe Asn Ala Arg Leu Tyr Asn Arg Arg Leu
        675                 680                 685

Asn Tyr Lys Asp Met Arg Trp Leu Met Val Gly Glu Ala Gly Pro Lys
    690                 695                 700

Tyr Asp Asp Gly Ser Ser Tyr Ser Ala Ser Ala Ser Glu Glu Gly Gly
705                 710                 715                 720

Arg Gly Asp Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg
                725                 730                 735

Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly
            740                 745                 750

Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp
        755                 760                 765

Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Gly Arg Asp Asp Ser
    770                 775                 780

Pro Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser
785                 790                 795                 800

Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met
                805                 810                 815
```

```
Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Asp Asp Ser Ser Met Pro
            820                 825                 830

Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala
        835                 840                 845

Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly
    850                 855                 860

Ala Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala
865                 870                 875                 880

Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser
                885                 890                 895

Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Thr Ser Glu
            900                 905                 910

Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu
        915                 920                 925

Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly
    930                 935                 940

Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser
945                 950                 955                 960

Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg
                965                 970                 975

Asp Asp Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly
            980                 985                 990
```

```
Asp Ser Ser Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
        995                 1000                1005

Ser Ser  Met Pro Ala Gly Ser  Ser Glu Glu Gly Ser  Arg Asp Asp
    1010                1015                1020

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1025                1030                1035

Ser Ser  Met Pro Ala Gly Ser  Ser Glu Glu Gly Ser  Arg Asp Asp
    1040                1045                1050

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1055                1060                1065

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1070                1075                1080

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1085                1090                1095

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1100                1105                1110

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1115                1120                1125

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1130                1135                1140

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1145                1150                1155

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1160                1165                1170
```

```
Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1175                1180                1185

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Asp Asp
    1190                1195                1200

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1205                1210                1215

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1220                1225                1230

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1235                1240                1245

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1250                1255                1260

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1265                1270                1275

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1280                1285                1290

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1295                1300                1305

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1310                1315                1320

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1325                1330                1335
```

```
Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1340                1345                1350

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1355                1360                1365

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1370                1375                1380

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1385                1390                1395

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1400                1405                1410

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1415                1420                1425

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Gly  Arg Gly Asp
    1430                1435                1440

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1445                1450                1455

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1460                1465                1470

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1475                1480                1485

Ser Ser  Met Pro Ala Gly Met  Ser Glu Glu Gly Ser  Arg Asp Asp
    1490                1495                1500

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1505                1510                1515
```

Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp
1520 1525 1530

Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp
1535 1540 1545

Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Asp Asp
1550 1555 1560

Ser Ser Met Pro Ala Gly Met Ser Glu Glu Gly Ser Arg Asp Asp
1565 1570 1575

Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp
1580 1585 1590

Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp
1595 1600 1605

Ser Ser Met Pro Ala Gly Met Ser Glu Glu Gly Ser Arg Asp Asp
1610 1615 1620

Ser Ser Asn Ser Glu Ser Ser Ser Gln Lys Glu Ser Glu Glu Val
1625 1630 1635

Ser Phe Val His Glu Ser Val Ser Trp Val Leu Leu Leu Leu Leu
1640 1645 1650

Gly Met Trp Gly Phe Ala Ala Leu Tyr
1655 1660

<210> 6
<211> 1275
<212> PRT
<213> Trypanosoma cruzi

<400> 6

```
Leu Leu Glu Lys Asp Pro Arg Arg Asn Ala Lys Glu Ile Ala Ala Leu
1               5                  10                  15

Glu Glu Ser Met Asn Ala Arg Ala Gln Glu Leu Ala Arg Glu Lys Lys
            20                  25                  30

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

Arg Glu Leu Pro Leu Asp Asp Asp Ser Asp Phe Val Ala Met Glu Gln
    50                  55                  60

Glu Arg Arg Gln Leu Leu Glu Lys Asp Pro Arg Arg Asn Ala Arg Glu
65                  70                  75                  80

Ile Ala Ala Leu Glu Glu Ser Met Asn Ala Arg Ala Gln Glu Leu Ala
                85                  90                  95

Arg Glu Lys Lys Leu Ala Asp Arg Ala Phe Leu Asp Gln Lys Pro Glu
            100                 105                 110

Gly Val Pro Leu Arg Glu Leu Pro Leu Asp Asp Asp Ser Asp Phe Val
        115                 120                 125

Ala Met Glu Gln Glu Arg Arg Gln Leu Leu Glu Lys Asp Pro Arg Arg
    130                 135                 140

Asn Ala Lys Glu Ile Ala Ala Leu Glu Glu Ser Met Asn Ala Arg Ala
145                 150                 155                 160

Gln Glu Leu Ala Arg Glu Lys Lys Leu Ala Asp Arg Ala Phe Leu Asp
                165                 170                 175
```

```
Gln Lys Pro Glu Gly Val Pro Leu Arg Glu Leu Pro Leu Asp Asp Asp
            180                 185                 190

Ser Asp Phe Val Ser Met Glu Gln Glu Arg Arg Gln Leu Leu Glu Lys
        195                 200                 205

Asp Pro Arg Arg Asn Val Gln Lys Ile Ala Asp Leu Glu Glu Ser Met
    210                 215                 220

Asn Ala Arg Ala Gln Glu Leu Ala Arg Glu Lys Lys Leu Ala Asp Arg
225                 230                 235                 240

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

Leu Asp Asp Asp Ser Asp Phe Val Ser Met Glu Gln Glu Arg Arg Gln
            260                 265                 270

Leu Leu Glu Lys Asp Pro Arg Lys Asn Val Gln Ile Val Ala Asp Leu
        275                 280                 285

Glu Glu Ser Met Asn Ala Arg Ala Gln Glu Leu Ala Arg Glu Lys Lys
    290                 295                 300

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

Arg Glu Leu Pro Leu Asp Asp Asp Ser Asp Phe Val Ala Met Glu Gln
                325                 330                 335

Glu Arg Arg Gln Leu Leu Glu Lys Asp Pro His Arg Asn Ala Lys Glu
            340                 345                 350

Ile Ala Ala Leu Glu Glu Ser Met Asn Val Cys Ala Arg Asn Leu Ala
```

```
        355                 360                 365

Phe Asp Ile Arg Ser Arg Glu Arg Asp Phe Leu Asp Asp Val Val Arg
    370                 375                 380

Gly Ile Pro Leu Asp Ala Leu Ser Leu Asn Asp Asp Asn Glu Leu Cys
385                 390                 395                 400

Leu Leu Glu Ala Arg Arg Arg Glu Leu Leu Lys Thr Ser Ser Ala Glu
                405                 410                 415

Asn Ser Pro Glu Leu Val Glu Leu Glu Lys Lys Ile Ala Asp Arg Val
            420                 425                 430

Asp Phe Leu Ala Val Asn Phe Gly Glu His Leu Leu Ser Phe Leu Asp
        435                 440                 445

Ser Lys Pro Glu Gly Ile Ser Leu Ser Glu Leu Glu Leu Asn Gly Asp
    450                 455                 460

Leu Glu Phe Cys Asn Met Glu Arg Val Leu Val Glu Leu Met Arg Ala
465                 470                 475                 480

Arg Arg Gln Asn Ala Glu Ala Ile Lys Asp Gln Gln Tyr Ala Met Asn
                485                 490                 495

Asn Arg Val His Glu Leu Ala Gln Gln Leu Leu Arg Ser Asp Arg Glu
            500                 505                 510

Tyr Leu His Pro Glu Pro Gln Gly Val Pro Gln Gly Asp Leu Pro Leu
        515                 520                 525

Asp Asp Pro Val Phe His Glu Met Glu Leu Gln Arg Arg Lys Leu Lys
    530                 535                 540
```

```
Lys Asp Pro Glu Arg Asn Ala Ile Lys Ile Ser Glu Leu Glu Lys Lys
545                 550                 555                 560

Leu Asn Asp Arg Ala Asp Glu Ile Ala Lys Leu Leu Arg Ala Lys Glu
                565                 570                 575

Arg Ala Phe Leu Glu Leu Glu Pro Glu Gly Ile Pro Ile Glu Arg Leu
            580                 585                 590

Pro Leu Asn Glu Asp Pro Ile Leu His Glu Leu Glu Thr Asn Tyr Arg
        595                 600                 605

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

Glu Glu Lys Ile Arg Ser Arg Val His Glu Leu Ala Val Gln Gln Arg
625                 630                 635                 640

Gly Trp Gln Asp Glu Glu Phe His Glu Ser Asn Lys His Met Ala Glu
                645                 650                 655

Glu Trp Pro Arg Ile Cys Glu Leu Tyr Pro Glu Gly Ile Arg Asp Pro
            660                 665                 670

Val Val Pro Glu Lys Thr Leu Pro Ser Gln Val Ser Ser Ala Pro Leu
        675                 680                 685

Glu Leu Gly Tyr Leu Ala Pro Phe Ile Ala Ala Met Ser Arg His Pro
    690                 695                 700

Pro Leu Ile Asp Arg Leu Phe Asp Ser Lys Glu His Pro Val Asn Gly
705                 710                 715                 720

Pro Tyr Ser Phe Ile Phe Tyr Asp Pro Asn Ser Asn Pro Val Arg Val
```

725 730 735

Glu Ile Asp Asp Arg Val Pro Val Asp Ala Asn Met Glu Pro Lys Phe
740 745 750

Thr Arg Val Pro Lys Arg Ser Trp Tyr Pro Leu Leu Leu Glu Lys Ala
755 760 765

Tyr Ala Lys Phe Val Gly Gly Tyr Ser Arg Leu Asp Gln Cys Thr Pro
770 775 780

His Glu Thr Leu Arg Asp Leu Thr Gly Arg Pro Val Thr His Ile Pro
785 790 795 800

Phe Glu Asp Lys Arg Ala Glu Gly Ile Lys Met Gly Asp Phe Arg Ser
805 810 815

Ala Gln Phe Trp Arg Glu Ile His Ser Asp Leu Ala Lys Gly Asp Ile
820 825 830

Ile Thr Ala Met Ser Asn Lys His Val Pro Asp Gly Ile His Pro Leu
835 840 845

Cys Ser Tyr Ala Leu Phe Ala Val Ile Glu Thr Val Lys Glu Ser Asn
850 855 860

Asp Pro Ala Asp Ile Val Ile Lys Leu His Asn Cys Tyr Phe Asp Glu
865 870 875 880

Pro Phe Tyr Ser Gly Pro Leu Asn Arg Asn Asp Gly Gly Trp Thr Thr
885 890 895

Glu Leu Met Asn Ala Cys Arg Tyr Asn Pro Ser Glu Glu Glu Phe Leu
900 905 910

```
Tyr Leu Pro Gln Ser Val Phe Leu Asn Asn Phe Ser Ser Met Gln Arg
        915                 920                 925

Cys His Ile Asn Cys Gly Asp Arg Leu Thr Ala Ile Gly Glu Trp Asp
    930                 935                 940

Lys Thr Ser Cys Gly Gly Asn Pro Lys Phe Thr Thr Phe Arg Asn Asn
945                 950                 955                 960

Pro Ile Tyr Leu Val Glu Asn Lys Ser Ser Arg Pro Val Arg Ile Leu
                965                 970                 975

Ala Glu Leu Arg His Gln Ala Pro Val Phe Tyr Asp Ala Asp Ser Val
            980                 985                 990

Gly His Tyr His Gln Thr Gly Leu  Ala Leu Leu Gln His  Asp Gly Ser
        995                 1000                1005

Val Ser  Val Leu Ser Gly Ile  Ile Thr Asn Ser Thr  His Asn Phe
    1010                1015                1020

Ile Gln  Lys Gly Ile Met Leu  Asp Thr Arg Glu Val  Cys Ser Arg
    1025                1030                1035

Met Glu  Ile Pro Pro Thr Ser  Thr Cys Ile Leu Ile  Pro Tyr Thr
    1040                1045                1050

Met Lys  Arg Gly Cys Leu Gly  Lys Phe Ser Val Ser  Ile Tyr Pro
    1055                1060                1065

Gly Asp  Ser Ser Val Asn Phe  Met Pro Leu Thr Pro  Leu Ser Val
    1070                1075                1080

Thr His  Gly Phe Cys Asp Val  Asp Val Ile Leu Thr  Pro Gly Ser
```

```
    1085                1090                1095

Arg Glu  Gly Lys Arg Ile Glu  Phe Val Val Asn Gly  Ala Cys Asp
    1100                1105                1110

Ala His  Leu Leu Leu Arg Gln  Asn Lys Ile Thr Asp  Pro Ala Ser
    1115                1120                1125

Ile Lys  Lys Gly Asp Val Leu  Ala Glu Asp Asp Val  Met Met Met
    1130                1135                1140

Leu Tyr  Asp Glu Tyr Met Thr  Arg Leu Ala Ser Thr  Gly Asp Ala
    1145                1150                1155

Thr Ser  Ala Arg Glu His Ser  Leu Ala Leu Gln Leu  Pro Ser Ala
    1160                1165                1170

Gly Arg  Tyr Ser Val Leu Leu  Ala Cys Pro Asn Lys  Pro Val Thr
    1175                1180                1185

Gly Asn  Cys Pro Cys Ser Leu  Tyr Ile Tyr Thr Pro  Lys Gln Ile
    1190                1195                1200

Ala Thr  Arg Ile Leu Pro Arg  Pro Thr Asn Gly Thr  Pro Gln Ile
    1205                1210                1215

Leu Pro  Phe Leu Ser Leu Pro  Gln Ser Ser Lys Gly  Ala Ala Arg
    1220                1225                1230

Gly Asn  Val Lys Gly Lys Val  Ile Gly Ala Gly Asp  Val Ala Thr
    1235                1240                1245

Gly Thr  Gly Asn Arg Pro Val  Glu Thr Gln Gly Met  Lys Leu Pro
    1250                1255                1260
```

```
Asn Pro  Pro Arg Asn Gly Lys  Pro Lys Tyr His Arg
    1265                1270                1275
```

<210> 7
<211> 1204
<212> PRT
<213> Trypanosoma cruzi

<400> 7

```
Met Gly Lys Thr Val Val Gly Ala Ser Arg Met Phe Trp Leu Met Phe
1               5                   10                  15

Phe Val Pro Leu Leu Leu Ala Leu Cys Pro Ser Glu Pro Ala His Ala
            20                  25                  30

Leu Ala Pro Glu Ser Ser Arg Val Glu Leu Phe Lys Arg Gln Ser Ser
        35                  40                  45

Lys Val Pro Phe Glu Lys Asp Gly Lys Val Thr Asp Arg Val Val His
    50                  55                  60

Ser Phe Arg Leu Pro Ala Leu Val Asn Val Asp Gly Val Met Val Ala
65                  70                  75                  80

Ile Ala Asp Ala Arg Tyr Glu Thr Ser Asn Asp Asn Ser Leu Ile Asp
                85                  90                  95

Thr Val Ala Lys Tyr Ser Val Asp Asp Gly Glu Thr Trp Glu Thr Gln
            100                 105                 110

Ile Ala Ile Lys Asn Ser Arg Val Ser Ser Val Ser Arg Val Val Val
        115                 120                 125

Pro Thr Val Ile Val Lys Gly Asn Lys Leu Tyr Val Leu Val Gly Ser
    130                 135                 140
```

```
Tyr Asn Ser Ser Lys Ser Tyr Trp Thr Trp Gln Pro Asp Gly Ser Asp
145                 150                 155                 160

Trp Asp Ile Leu Leu Ala Val Gly Glu Val Thr Lys Ser Thr Ala Gly
                165                 170                 175

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

Lys Phe Phe Pro Ala Glu Met Glu Gly Met His Thr Asn Gln Phe Leu
        195                 200                 205

Gly Gly Ala Gly Val Ala Ile Val Ala Ser Asn Gly Asn Leu Val Tyr
    210                 215                 220

Pro Val Gln Val Thr Asn Lys Arg Lys Gln Val Phe Ser Lys Ile Phe
225                 230                 235                 240

Tyr Ser Glu Asp Glu Gly Lys Thr Trp Lys Phe Gly Lys Gly Arg Ser
                245                 250                 255

Asp Phe Gly Cys Ser Glu Pro Val Ala Leu Glu Trp Glu Gly Lys Leu
            260                 265                 270

Ile Ile Asn Thr Arg Val Asp Arg Ala Arg Arg Leu Val Tyr Glu Ser
        275                 280                 285

Ser Asp Met Gly Asn Thr Trp Val Glu Ala Val Gly Thr Leu Ser Arg
    290                 295                 300

Val Trp Gly Pro Ser Pro Lys Ser Asp Gln Pro Gly Ser Gln Ser Ser
305                 310                 315                 320
```

```
Phe Thr Ala Val Thr Ile Glu Gly Met Arg Val Met Leu Phe Thr His
                325                 330                 335

Pro Leu Asn Phe Lys Gly Arg Trp Leu Arg Asp Arg Leu Asn Leu Trp
            340                 345                 350

Leu Thr Asp Asn Gln Arg Ile Tyr Asn Val Gly Gln Val Ser Ile Gly
        355                 360                 365

Asp Glu Asn Ala Ala Tyr Ser Ser Val Leu Tyr Lys Asp Asp Lys Leu
    370                 375                 380

Tyr Cys Leu His Glu Ile Asn Thr Asn Glu Val Tyr Ser Leu Val Phe
385                 390                 395                 400

Ala Arg Leu Val Gly Glu Leu Arg Ile Ile Lys Ser Val Leu Gln Ser
                405                 410                 415

Trp Lys Asn Trp Asp Ser His Leu Ser Ser Ile Cys Thr Pro Ala Asp
            420                 425                 430

Pro Ala Ala Ser Ser Ser Glu Arg Gly Cys Gly Pro Ala Val Thr Thr
        435                 440                 445

Val Gly Leu Val Gly Phe Leu Ser Gly Asn Ala Ser Gln Asn Val Trp
    450                 455                 460

Glu Asp Ala Tyr Arg Cys Val Asn Ala Ser Thr Ala Asn Ala Glu Arg
465                 470                 475                 480

Val Pro Asn Gly Leu Lys Phe Ala Gly Val Gly Gly Gly Ala Leu Trp
                485                 490                 495

Pro Val Ser Gln Gln Gly Gln Asn Gln Arg Tyr Arg Phe Ala Asn His
            500                 505                 510
```

```
Ala Phe Thr Leu Val Ala Ser Val Thr Ile His Glu Val Pro Ser Val
        515                 520                 525

Ala Ser Pro Leu Leu Gly Ala Ser Leu Asp Ser Ser Gly Gly Lys Lys
    530                 535                 540

Leu Leu Gly Leu Ser Tyr Asp Lys Lys His Gln Trp Gln Pro Ile Tyr
545                 550                 555                 560

Gly Ser Thr Pro Val Thr Pro Thr Gly Ser Trp Glu Thr Gly Lys Arg
                565                 570                 575

Tyr His Val Val Leu Thr Met Ala Asn Lys Ile Gly Ser Val Tyr Ile
            580                 585                 590

Asp Gly Glu Pro Leu Glu Gly Ser Gly Gln Thr Val Val Pro Asp Gly
        595                 600                 605

Arg Thr Pro Asp Ile Ser His Phe Tyr Val Gly Gly Tyr Lys Arg Ser
    610                 615                 620

Asp Met Pro Thr Ile Ser His Val Thr Val Asn Asn Val Leu Leu Tyr
625                 630                 635                 640

Asn Arg Gln Leu Asn Ala Glu Glu Ile Arg Thr Leu Phe Leu Ser Gln
                645                 650                 655

Asp Leu Ile Gly Thr Glu Ala His Met Asp Ser Ser Ser Asp Ser Ser
            660                 665                 670

Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr
        675                 680                 685
```

```
Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
    690                 695                 700

Ala Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser
705                 710                 715                 720

Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser Thr
                725                 730                 735

Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro
            740                 745                 750

Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser
        755                 760                 765

Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr
    770                 775                 780

Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro
785                 790                 795                 800

Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Ser
                805                 810                 815

Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Gly Thr
            820                 825                 830

Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro
        835                 840                 845

Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Ser
    850                 855                 860

Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Gly Thr
865                 870                 875                 880
```

Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser Thr His Ser Thr Pro
885 890 895

Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Ser
900 905 910

Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr
915 920 925

Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
930 935 940

Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser
945 950 955 960

Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr
965 970 975

Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
980 985 990

Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser
995 1000 1005

Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser
1010 1015 1020

Thr Pro Ser Thr Pro Val Asp Ser Ser Ala His Gly Thr Pro Ser
1025 1030 1035

Thr Pro Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val
1040 1045 1050

```
Asp Ser  Ser Ala His Ser Thr  Pro Ser Thr Pro Val  Asp Ser Ser
    1055                1060                1065

Ala His  Ser Thr Pro Ser Thr  Pro Val Asp Ser Ser  Ala His Ser
    1070                1075                1080

Thr Pro  Ser Thr Pro Val Asp  Ser Ser Ala His Gly  Thr Pro Ser
    1085                1090                1095

Thr Pro  Val Asp Ser Ser Ala  His Gly Thr Pro Ser  Ala Pro Val
    1100                1105                1110

Asp Ser  Ser Ala His Ser Thr  Pro Ser Thr Pro Val  Asp Ser Ser
    1115                1120                1125

Ala His  Ser Thr Pro Ser Thr  Pro Val Asp Ser Ser  Ala His Gly
    1130                1135                1140

Thr Pro  Ser Thr Pro Val Asp  Ser Ser Ala His Ser  Thr Pro Ser
    1145                1150                1155

Thr Pro  Ala Gly Asn Ser Ala  Thr Arg Met Phe Leu  Ile Leu Pro
    1160                1165                1170

Asp Gly  Ala Ala Ile Ser Ala  Phe Ser Gly Gly Gly  Leu Leu Leu
    1175                1180                1185

Cys Ala  Cys Ala Leu Leu Leu  His Val Phe Phe Thr  Ala Val Phe
    1190                1195                1200

Phe
```

<210> 8
<211> 373

<212> PRT
<213> Trypanosoma cruzi

<400> 8

```
Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Ala
1               5                  10                  15

Pro Ala Asp Ser Ser Ala His Ser Thr Pro Leu Thr Pro Ala Asp Asn
            20                  25                  30

Gly Ala His Ser Thr Pro Ser Thr Pro Ala Asp Asn Gly Ala His Ser
        35                  40                  45

Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr
    50                  55                  60

Pro Ala Asp Asn Gly Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser
65                  70                  75                  80

Ser Ala His Ser Thr Pro Ser Ala Pro Ala Asp Ser Ser Ala His Ser
                85                  90                  95

Thr Pro Ser Thr Pro Ala Asp Asn Gly Ala His Ser Thr Pro Ser Thr
            100                 105                 110

Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Ala Pro Ala Asp Ser
        115                 120                 125

Ser Ala His Ser Thr Pro Ser Ala Pro Ala Asp Ser Ser Ala His Ser
    130                 135                 140

Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr
145                 150                 155                 160

Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Ala Pro Ala Asp Ser
```

```
                165                 170                 175

Ser Ala His Ser Thr Pro Ser Thr Pro Ala Asp Asn Gly Ala His Ser
            180                 185                 190

Thr Pro Ser Thr Pro Ala Asp Asn Gly Ala His Ser Thr Pro Ser Thr
        195                 200                 205

Pro Ala Asp Ser Ser Ala His Ser Thr Pro Leu Thr Pro Ala Asp Ser
    210                 215                 220

Ser Ala His Ser Thr Pro Leu Thr Pro Ala Asp Asn Gly Ala His Ser
225                 230                 235                 240

Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr
                245                 250                 255

Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Ala Asp Asn
            260                 265                 270

Gly Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser
        275                 280                 285

Thr Pro Ser Ala Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr
    290                 295                 300

Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Ala Asp Asn
305                 310                 315                 320

Ser Ala His Ser Thr Pro Ser Thr Pro Ala Gly His Gly Ala Thr Gly
                325                 330                 335

Met Val Leu Phe Phe Pro Asp Gly Ala Ala Phe Ser Ala Phe Ser Asp
            340                 345                 350
```

Gly Gly Leu Leu Leu Cys Ala Gly Ala Leu Leu Leu His Val Phe Val
355 360 365

Met Ala Val Phe Phe
370

<210> 9
<211> 786
<212> PRT
<213> Trypanosoma cruzi

<400> 9

Met Ala Leu Arg Pro Thr Lys Leu Asp Ala Val Cys Glu Glu Val His
1 5 10 15

Gly Glu Phe Ala Ser Cys Gly Leu Ala Ser Leu Gln Glu Leu Cys Gln
20 25 30

Gln Val Arg Leu Leu Arg Ala Asn Val Gln Arg Leu Ala Ser Glu Gln
35 40 45

Ile Pro Ser Leu Ser Leu Asp Ile Thr Ala Leu Gln Glu Pro His Leu
50 55 60

His Leu Pro Leu His Thr Asn Phe His Val Gly Met Gln Glu Lys Lys
65 70 75 80

Pro Thr Pro Gly Ser Val Ile Phe Gly Ala Glu Ser Leu Leu Ser His
85 90 95

Cys Lys Arg Leu Thr Ala Asp Cys Thr Arg Gly Ser His Arg Leu Pro
100 105 110

Glu Lys Glu Arg Pro Thr His Met Met Tyr Ala Val Gly Tyr Thr Pro
115 120 125

```
Asn Tyr Pro Asn Arg Lys Met Pro Leu Tyr Asn Ser Thr Lys Tyr Thr
    130                 135                 140

Glu Arg Glu Lys Ile Glu Glu Lys Lys Asp Thr Thr Pro Tyr Ala Pro
145                 150                 155                 160

Ser Asn Pro Ser His Ala Asp Ala Gln Lys Ser Phe Asn Pro Ser Thr
                165                 170                 175

Asp Lys Leu Lys Ile Asn Gln Gln Asn Lys Pro His Ile Ala Asn Asn
            180                 185                 190

Lys Gln Lys Thr Thr Leu Glu Lys Thr Gln Thr Glu Gln Lys Thr Ala
        195                 200                 205

Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln
    210                 215                 220

Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly
225                 230                 235                 240

Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Pro
                245                 250                 255

Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln
            260                 265                 270

Ala Ala Ala Gly Asp Lys Leu Ser Leu Phe Gly Gln Ala Ala Ala Gly
        275                 280                 285

Asp Lys Pro Ala Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser
    290                 295                 300
```

```
Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln
305                 310                 315                 320

Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly
                325                 330                 335

Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser
            340                 345                 350

Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln
        355                 360                 365

Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly
    370                 375                 380

Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser
385                 390                 395                 400

Leu Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln
                405                 410                 415

Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Glu Gly
            420                 425                 430

Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ala
        435                 440                 445

Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ala Pro Phe Gly Gln
    450                 455                 460

Ala Ala Ala Ala Asp Lys Pro Ser Leu Phe Gly Gln Ala Ala Ala Gly
465                 470                 475                 480

Asp Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ala
                485                 490                 495
```

```
Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Leu Ser Leu Phe Gly Gln
            500                 505                 510

Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly
        515                 520                 525

Asp Lys Pro Ser Leu Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser
    530                 535                 540

Pro Phe Gly Gln Ala Ala Ala Gly Gly Lys Pro Ser Pro Phe Gly Gln
545                 550                 555                 560

Ala Ala Ala Gly Gly Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly
                565                 570                 575

Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Gly Lys Pro Ser
            580                 585                 590

Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln
        595                 600                 605

Gly Thr Ala Phe Asp Ala Ser Arg Ser Thr Val Phe Ala Asn Ala Pro
    610                 615                 620

Gly Val Ala Gln Val Ser Phe Gly Lys Pro Ser Thr Ala Phe Ala Thr
625                 630                 635                 640

Thr Ser Phe Ala Ala Gly Gly Gly Phe Gly Ala Pro Ser Ala Phe Gly
                645                 650                 655

Ser Met Leu Gln Asn Val His Ala Thr Leu Pro Ala Gly Ser Ala Leu
            660                 665                 670
```

```
Pro His Ile Gly Ser Ala Phe Gly Ser Pro Gly Met His Ser Gly Gly
        675                 680                 685

Ala Phe Gly Gly Thr Gly Val Ser Gly Pro Ala Ile Gly Gly Gly Lys
    690                 695                 700

Pro Ser Val Leu Glu Gly Ser Gly Phe Gly Gln Ala Phe Gly Ala Phe
705                 710                 715                 720

Gly Asn His Ala Ser Thr Val Leu Gly Gly Phe Gly Arg Asn Glu Gly
                725                 730                 735

Asp Gly Thr Phe Gly Ala Val Gly Ala His Gly Thr Gly Ser Ala Thr
            740                 745                 750

Pro Phe Ser Lys Thr Ser Thr Thr Phe Gln Ser Ser Ser Phe Ser Ser
        755                 760                 765

Ile Ala Gly Asn Tyr Lys Ala Pro Pro Gln Phe Lys Ser Val Phe Gly
    770                 775                 780

Pro His
785
```

<210> 10
<211> 1253
<212> PRT
<213> Trypanosoma cruzi

<400> 10

```
Met Ala Leu Arg Pro Thr Lys Leu Asp Ala Val Cys Glu Glu Val His
1               5                  10                  15

Gly Glu Phe Ala Ser Cys Gly Leu Ala Ser Leu Gln Glu Leu Cys Gln
            20                  25                  30
```

```
Gln Val Arg Leu Leu Arg Ala Asn Val Gln Arg Leu Ala Ser Glu Gln
        35                  40                  45

Ile Pro Ser Leu Ser Leu Asp Ile Thr Ala Leu Gln Glu Pro His Leu
    50                  55                  60

His Leu Pro Leu His Thr Asn Phe His Val Gly Met Gln Glu Lys Lys
65                  70                  75                  80

Pro Ala Pro Gly Ser Val Ile Phe Gly Ala Glu Ser Leu Leu Ser His
                85                  90                  95

Cys Lys Arg Leu Thr Ala Asp Cys Thr Arg Gly Ser His Arg Leu Pro
            100                 105                 110

Glu Lys Glu Arg Pro Thr His Met Met Tyr Ala Val Gly Tyr Thr Pro
        115                 120                 125

His Tyr Pro Asn Arg Lys Met Pro Leu Tyr Asn Ser Thr Lys Tyr Asn
    130                 135                 140

Glu Arg Glu Lys Ile Glu Glu Lys Lys Asp Thr Thr Ser Tyr Thr Pro
145                 150                 155                 160

Ser Asn Pro Ser Gln Ser Asn Ala Gln Lys Asn Phe Asn Pro Cys Thr
                165                 170                 175

Asp Lys Leu Lys Ile Asn Gln Gln Ile Lys Pro His Ile Thr Asn Asn
            180                 185                 190

Lys Gln Lys Thr Thr Leu Glu Lys Thr Lys Thr Glu Gln Lys Thr Ala
        195                 200                 205

Pro Phe Val Gln Gly Ala Ala Gly Asp Lys Pro Pro Phe Gly Gln Ala
```

```
    210                 215                 220

Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Lys Ala Ala Ala Gly Asp
225                 230                 235                 240

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
                245                 250                 255

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Pro Leu Phe Gly Gln Ala
            260                 265                 270

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

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
    290                 295                 300

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Pro Pro Phe Gly Gln Ala
305                 310                 315                 320

Ala Ala Gly Asp Arg Pro Ser Leu Phe Gly Gln Ala Ala Ala Gly Asp
                325                 330                 335

Lys Pro Ser Pro Phe Gly Gln Ala Ser Ala Asp Asp Lys Pro Ser Pro
            340                 345                 350

Phe Gly Gln Ala Ala Ala Gly Asp Arg Pro Ser Pro Phe Gly Gln Ala
        355                 360                 365

Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
    370                 375                 380

Lys Pro Ser Pro Phe Glu Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
385                 390                 395                 400
```

```
Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala
                405                 410                 415

Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
            420                 425                 430

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
        435                 440                 445

Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Pro Pro Phe Glu Gln Ala
    450                 455                 460

Ser Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
465                 470                 475                 480

Lys Pro Pro Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
                485                 490                 495

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala
            500                 505                 510

Ala Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala Ala Ala Gly Asp
        515                 520                 525

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
    530                 535                 540

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala
545                 550                 555                 560

Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
                565                 570                 575

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
```

```
            580                 585                 590

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala
        595                 600                 605

Ser Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
    610                 615                 620

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Thr Ser Pro
625                 630                 635                 640

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala
                645                 650                 655

Ala Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala Ser Ala Gly Asp
            660                 665                 670

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro
        675                 680                 685

Phe Gly Gln Ala Ala Ala Gly Asp Lys Thr Ser Pro Phe Gly Gln Ala
    690                 695                 700

Ala Ala Gly Asp Lys Pro Ser Leu Phe Gly Gln Ala Val Ala Gly Asp
705                 710                 715                 720

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Leu
                725                 730                 735

Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala
            740                 745                 750

Ser Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
        755                 760                 765
```

```
Lys Pro Ser Pro Phe Glu Gln Ala Ser Ala Gly Asp Lys Pro Ser Pro
    770                 775                 780

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala
785                 790                 795                 800

Ala Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala Ser Ala Gly Asp
                805                 810                 815

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Leu
            820                 825                 830

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala
        835                 840                 845

Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
    850                 855                 860

Lys Pro Pro Leu Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Ser Pro
865                 870                 875                 880

Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala
                885                 890                 895

Val Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
            900                 905                 910

Lys Pro Ser Leu Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Ser Pro
        915                 920                 925

Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Leu Phe Gly Gln Ala
    930                 935                 940

Val Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
```

945 950 955 960

Lys Pro Pro Leu Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Ser Pro
965 970 975

Phe Gly Gln Ala Val Ala Gly Asp Lys Pro Ser Pro Phe Glu Gln Ala
980 985 990

Ala Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Val Ala Gly Asp
995 1000 1005

Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser
1010 1015 1020

Leu Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Leu Phe Gly
1025 1030 1035

Gln Gly Val Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala
1040 1045 1050

Ala Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
1055 1060 1065

Lys Pro Ser Pro Phe Gly Gln Arg Thr Val Phe Asp Ala Ser Arg
1070 1075 1080

Ser Thr Val Phe Ala Asn Ala Pro Gly Val Ala Gln Val Ser Phe
1085 1090 1095

Gly Lys Pro Ser Thr Thr Phe Ala Thr Thr Ser Phe Ala Ala Gly
1100 1105 1110

Gly Gly Phe Gly Thr Pro Ser Ala Phe Gly Ser Ile Leu Gln Asn
1115 1120 1125

Val His Ala Thr Leu Pro Ala Gly Ser Ala Leu Ser His Ile Gly
1130 1135 1140

Ser Ala Leu Val Ser Pro Gly Met His Ser Gly Gly Ala Phe Gly
1145 1150 1155

Gly Ala Gly Val Ser Gly Pro Ala Ile Gly Gly Gly Lys Leu Ser
1160 1165 1170

Ala Leu Glu Gly Ser Gly Phe Gly Gln Ala Phe Ser Ala Phe Gly
1175 1180 1185

Asn His Ala Ser Thr Val Leu Gly Asn Phe Gly Gln Lys Glu Gly
1190 1195 1200

Glu Gly Thr Phe Gly Thr Val Gly Ala His Gly Thr Gly Ser Ala
1205 1210 1215

Thr Pro Phe Ser Lys Thr Ser Thr Thr Phe Gln Ser Ser Ser Phe
1220 1225 1230

Ser Ser Ile Ala Gly Asn Tyr Lys Ala Ala Pro Gln Phe Lys Ser
1235 1240 1245

Val Phe Gly Pro His
1250

<210> 11
<211> 68
<212> PRT
<213> Trypanosoma cruzi

<400> 11

Arg Val Ala Glu Ala Glu Lys Gln Arg Ala Ala Glu Ala Thr Lys Val
1 5 10 15

```
Ala Glu Ala Glu Lys Gln Lys Ala Ala Glu Ala Thr Lys Val Ala Glu
            20                  25                  30

Ala Glu Lys Gln Arg Ala Ala Glu Ala Thr Lys Val Ala Glu Ala Glu
        35                  40                  45

Lys Gln Lys Ala Ala Glu Ala Thr Lys Val Ala Glu Ala Glu Lys Gln
    50                  55                  60

Lys Ala Ala Glu
65
```

<210> 12
<211> 818
<212> PRT
<213> Trypanosoma cruzi

<400> 12

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

Ile Gly Phe Leu Thr Asp Ala Ser Thr Pro Ile Thr Lys Met Thr Asp
            20                  25                  30

Gly Thr Leu Val Phe Pro Val Gln Phe Leu Thr Met Gly Gly Asn Thr
        35                  40                  45

Ala Ser Thr Ile Met Tyr Met Asn Pro Gly Gln Gln His Trp Thr Phe
    50                  55                  60

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

Trp Glu Ala Gly Lys Ile Ile Met Ile Thr Ser Cys Glu Tyr Gly Arg
```

85 90 95

Arg Arg Val Tyr Glu Ser Thr Asp Lys Gly Asn Thr Trp Thr Glu Ala
100 105 110

Val Gly Thr Leu Ser Arg Val Trp Ser Asn Ser Leu Ala Gly Leu Gly
115 120 125

Leu His Ile Gln Gly Gly Phe Ile Thr Ala Thr Ile Asp Gly Lys Lys
130 135 140

Leu Ile Leu Leu Thr Gln Leu Glu Tyr Phe Gly Asp Lys Glu Arg Ser
145 150 155 160

Glu Ile Arg Leu Trp Leu Thr Asp Thr Asn Arg Ile Tyr Gln Val Gly
165 170 175

Leu Leu Pro Thr Gly Asn Ser Ala Thr Ser Ser Ser Leu Leu Tyr Ala
180 185 190

Asn Asp Lys Leu Tyr Cys Leu Tyr Glu Ala Gly Val Gly Ser Ser Ser
195 200 205

Gly Ala Phe Phe Leu Asp Leu Ala Ser Glu Leu His Trp Ile Arg His
210 215 220

Ala Leu Asp Thr Trp Ala Ala Lys Asp Asn Ala Leu Ser Arg Gln Cys
225 230 235 240

Gly Ser Met Ala Ser Gly Ala Ala Leu Ser Arg Gly Asn Cys Ser Val
245 250 255

Pro Ile Pro Thr Ala Gly Leu Val Gly His Leu Ala Asp Arg Leu Arg
260 265 270

```
Gly Asp Lys Trp Glu Asp Glu Tyr Leu Gly Val Asn Ala Val Val Arg
        275                 280                 285

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

Ala Arg Ala Glu Trp Pro Val Asp Lys Gln Trp Pro Asn Arg Pro Leu
305                 310                 315                 320

His Phe Ala Asn Tyr Gly Phe Thr Leu Ala Ala Thr Val Ser Ile His
                325                 330                 335

Glu Val Pro Lys Gly Ile Thr Pro Leu Met Gly Leu Lys Lys Met Gly
            340                 345                 350

Lys Thr Thr Leu Leu Gly Leu Leu Tyr Asp Asn Asn Met Glu Trp Ser
        355                 360                 365

Val Val His Gly Ser Tyr Gln Asn Tyr Phe Ala Lys Trp Glu Leu Asp
    370                 375                 380

Lys Thr Tyr His Val Val Leu Lys Met His Asp Gly Val Gly Ser Val
385                 390                 395                 400

Tyr Val Asp Gly Thr Pro Leu Trp Asn Met Arg Leu Arg Asn Ser Phe
                405                 410                 415

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

Glu Gln Leu Ser Ser Gly Lys Ile His Ala Thr Val Ala Asn Val Phe
        435                 440                 445

Leu Tyr Asn Arg Pro Leu Asn Glu Thr Glu Ile Gly Ala Leu Asn Ala
```

```
    450                 455                 460

Asn Lys Val Thr Ile Pro Pro Pro Lys Ser Ala Glu Pro Lys Pro Ala
465                 470                 475                 480

Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu
                485                 490                 495

Pro Lys Pro Ala Glu Pro Lys Pro Val Glu Pro Lys Pro Ala Glu Pro
            500                 505                 510

Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys
        515                 520                 525

Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro
    530                 535                 540

Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala
545                 550                 555                 560

Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu
                565                 570                 575

Pro Lys Pro Val Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro
            580                 585                 590

Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys
        595                 600                 605

Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro
    610                 615                 620

Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Glu
625                 630                 635                 640
```

Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu
645 650 655

Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro
660 665 670

Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys
675 680 685

Pro Ala Glu Pro Lys Ser Gly Glu Pro Lys Pro Ala Glu Pro Lys Pro
690 695 700

Ala Glu Pro Lys Pro Ala Glu Pro Asn Ala Ala Thr Ser Ser Ala Arg
705 710 715 720

Glu Gly Thr Ala Asp Gln Pro Ala Ser Ala Thr Ser Ser Asp Glu His
725 730 735

Glu Ala Leu Ala Ser Val Thr Ser Ser Ser Val Ala Ile Thr Asn Val
740 745 750

Gly Ala Ser Ser Ser Asp Asp Ala Gln Thr Val Gly Thr Glu Ser Gly
755 760 765

Asp Met Met Gln Ala Asp Gln Pro Thr Gln Phe Ser Val Gly Thr Pro
770 775 780

Asp Ala Ala Asn Ala Ala Thr His Asn Ala Glu Gly Lys Gly Gln Glu
785 790 795 800

Gly Leu His Pro Gln Val Lys Glu Ala Glu Ala Ala Thr Leu Ser Ser
805 810 815

Ser Leu

<210> 13
<211> 357
<212> PRT
<213> Trypanosoma cruzi

<400> 13

```
Met Val Ser Leu Lys Leu Gln Ala Arg Leu Ala Ala Asp Ile Leu Arg
1               5                  10                  15


Cys Gly Arg His Arg Val Trp Leu Asp Pro Asn Glu Ala Ser Glu Ile
            20                  25                  30


Ser Asn Ala Asn Ser Arg Lys Ser Val Arg Lys Leu Ile Lys Asp Gly
        35                  40                  45


Leu Ile Ile Arg Lys Pro Val Lys Val His Ser Arg Ser Arg Trp Arg
    50                  55                  60


His Met Lys Glu Ala Lys Ser Met Gly Arg His Glu Gly Ala Gly Arg
65                  70                  75                  80


Arg Glu Gly Thr Arg Glu Ala Arg Met Pro Ser Lys Glu Leu Trp Met
                85                  90                  95


Arg Arg Leu Arg Ile Leu Arg Arg Leu Leu Arg Lys Tyr Arg Glu Glu
            100                 105                 110


Lys Lys Ile Asp Arg His Ile Tyr Arg Glu Leu Tyr Val Lys Ala Lys
        115                 120                 125


Gly Asn Val Phe Arg Asn Lys Arg Asn Leu Met Glu His Ile His Lys
    130                 135                 140
```

```
Val Lys Asn Glu Lys Lys Lys Glu Arg Gln Leu Ala Glu Gln Leu Ala
145                 150                 155                 160

Ala Lys Arg Leu Lys Asp Glu Gln His Arg His Lys Ala Arg Lys Gln
                165                 170                 175

Glu Leu Arg Lys Arg Glu Lys Asp Arg Glu Arg Ala Arg Arg Glu Asp
            180                 185                 190

Ala Ala Ala Ala Ala Ala Ala Lys Gln Lys Ala Ala Ala Lys Lys Ala
        195                 200                 205

Ala Ala Pro Ser Gly Lys Lys Ser Ala Lys Ala Ala Ala Pro Ala Lys
    210                 215                 220

Ala Ala Ala Ala Pro Ala Lys Thr Ala Ala Pro Pro Ala Lys Ala Ala
225                 230                 235                 240

Ala Pro Pro Ala Lys Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Pro
                245                 250                 255

Pro Ala Lys Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Pro Pro Ala
            260                 265                 270

Lys Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Pro Pro Ala Lys Ala
        275                 280                 285

Ala Ala Pro Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Thr Ala Ala
    290                 295                 300

Pro Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Thr Ala Ala Pro Pro
305                 310                 315                 320

Ala Lys Thr Ala Ala Pro Pro Ala Lys Ala Ala Thr Pro Pro Ala Lys
                325                 330                 335
```

Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Ala Pro Val Gly Lys Lys
340 345 350

Ala Gly Gly Lys Lys
355

<210> 14
<211> 18
<212> PRT
<213> Sequência Artificial

<220>
<223> Fragmento do vetor pET28

<400> 14

Ser Ser Val Asp Lys Leu Ala Ala Ala Leu Glu His His His His His
1 5 10 15

His Leu

<210> 15
<211> 1133
<212> PRT
<213> Trypanosoma cruzi

<400> 15

Met Leu Ser Arg Val Ala Ala Val Lys Ala Pro Arg Ile His Asn Arg
1 5 10 15

Arg Arg Gly Thr Gly Ser Ser Gly Arg Arg Arg Glu Gly Arg Glu Ser
20 25 30

Glu Pro Gln Arg Pro Asn Val Ser Arg Arg Val Phe Thr Ser Ala Val
35 40 45

```
Leu Leu Leu Leu Phe Phe Leu Ala Cys Ala Ala Ala Gly Pro Val Gln
    50                  55                  60

Ala Gln Asn Tyr Gly Thr Arg Val Gly Asp Ser Tyr Gly Arg His Ser
65                  70                  75                  80

Leu Glu Gln Leu Gln Arg Gly His Gln Ala Ala Asn Pro Pro Ile Pro
                85                  90                  95

Gly His Ile Phe Arg Asn Pro His Leu Val Asn Val Asn Gly Met Leu
            100                 105                 110

Leu Ala Ile Ala Gly Ala Gln Phe Asn Arg Thr Val Gly Ser Gly Ser
        115                 120                 125

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

Trp Arg Ser Tyr Ala Gly Pro Glu Asp Leu Asp Ala Phe Ala Ala Ser
145                 150                 155                 160

Pro His Arg Met Ser Phe Pro Ser Ser Phe Gly Pro Leu Gly Ser Ile
                165                 170                 175

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

Tyr Ala Asn Arg Trp Gly Gly Ser Gly Val Glu Ser Val Ile His Phe
        195                 200                 205

Leu Glu Thr Gly Pro Arg Arg Ser Gly Gly Leu Ser Met Ser Ser Val
    210                 215                 220

Ser Met Ser Ile Arg Leu Pro Tyr Pro His Lys Ser Gly Asp Met Ile
```

225 230 235 240

Gly Phe Leu Asn Asp Ala Ser Thr Pro Ile Thr Lys Met Thr Asp Gly
245 250 255

Thr Leu Val Phe Pro Val Gln Phe Leu Thr Met Gly Gly Asp Thr Ala
260 265 270

Ser Thr Ile Met Tyr Met Asn Pro Gly Gln Gln His Trp Thr Phe Ala
275 280 285

Asn Ser Ala Thr His Ala Gly Cys Ile Glu Pro Ser Ile Leu Glu Trp
290 295 300

Glu Ala Gly Lys Ile Ile Met Ile Thr Ser Cys Lys Tyr Gly Arg Arg
305 310 315 320

Arg Val Tyr Glu Ser Thr Asp Lys Gly Asn Thr Trp Thr Glu Ala Val
325 330 335

Gly Thr Leu Ser Arg Val Trp Ser Asn Pro Leu Ala Gly Ser Gly Leu
340 345 350

His Ile Gln Gly Gly Phe Ile Thr Ala Thr Ile Asp Gly Lys Lys Val
355 360 365

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

Ile His Leu Trp Leu Thr Asp Thr Asn Arg Ile Tyr Gln Val Gly Leu
385 390 395 400

Leu Pro Thr Gly Asn Ser Ala Thr Ser Ser Ser Leu Leu Tyr Ala Asn
405 410 415

```
Asp Lys Leu Tyr Cys Leu Tyr Glu Ala Ser Val Gly Ser Asp Ser Val
            420                 425                 430

Pro Tyr Pro Leu Asp Leu Thr Leu Glu Leu Gln Arg Ile Arg His Ala
        435                 440                 445

Leu Ser Thr Trp Ala Val Lys Asp Asn Ala Leu Arg Gln Cys Gly Leu
    450                 455                 460

Met Ala Ser Gly Ala Ala Leu Ser Arg Gly Asn Cys Ser Val Pro Ile
465                 470                 475                 480

Pro Met Ala Gly Leu Val Gly His Leu Ala Asp Thr Leu Arg Gly Asp
                485                 490                 495

Lys Trp Glu Asp Glu Tyr Leu Gly Val Asn Ala Val Val Arg Gly Ala
            500                 505                 510

Ala Lys Lys Ala Pro Ser Gly Trp Thr Phe Glu Gly His Asp Ala Gly
        515                 520                 525

Ala Glu Trp Pro Val Gly Lys Gln Trp Pro Lys Met Pro Phe His Phe
    530                 535                 540

Ala Asn Tyr Gly Phe Thr Leu Ala Ala Thr Val Ser Ile His Glu Val
545                 550                 555                 560

Pro Lys Gly Ile Thr Pro Leu Met Gly Leu Lys Lys Met Gly Lys Thr
                565                 570                 575

Thr Leu Leu Gly Leu Ser Tyr Asp Asn Asn Met Glu Trp Ser Val Glu
            580                 585                 590

His Glu Leu Phe Pro Lys His Phe Thr Ala Trp Glu Leu Asp Lys Thr
```

595 600 605

Tyr His Val Val Leu Lys Met His Asp Gly Val Gly Ser Val Tyr Val
610 615 620

Asp Gly Thr Leu Leu Trp Asn Met Ser Leu Arg Asn Ser Phe Asn Glu
625 630 635 640

Gly Leu Asp Ala Val Ser His Phe Tyr Phe Gly Ala Tyr Asp Glu Gln
645 650 655

Leu Ser Ser Gly Lys Ile His Ala Thr Val Ala Asn Val Phe Leu Tyr
660 665 670

Asn Arg Pro Leu Asn Glu Thr Glu Ile Gly Ala Leu Asn Ala Asn Lys
675 680 685

Val Thr Ile Pro Pro Pro Glu Arg Lys Ser Ala Lys Ala Ser Thr Ala
690 695 700

Thr Ser Pro Ser Val Glu Ser Ala Asn Asp Arg Val Asn Thr Asn Thr
705 710 715 720

Gln Pro Thr Val Pro Ala Pro Thr Pro Ala Ala Pro Gln Pro Thr Glu
725 730 735

Gln Ala Thr Leu Asn Thr Ser Ser Val Pro Ser Gly Gly Ala Pro Ser
740 745 750

Thr Pro Ala Glu Pro Lys Ser Ala Gly Pro Lys Pro Ala Glu Pro Lys
755 760 765

Ser Ala Gly Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro
770 775 780

```
Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala
785                 790                 795                 800

Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu
                805                 810                 815

Ser Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro
            820                 825                 830

Lys Pro Ala Glu Ser Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys
        835                 840                 845

Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro
    850                 855                 860

Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala
865                 870                 875                 880

Glu Pro Lys Pro Ala Glu Ser Lys Ser Ala Gly Pro Lys Pro Ala Glu
                885                 890                 895

Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro
            900                 905                 910

Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys
        915                 920                 925

Ser Ala Glu Pro Lys Pro Ala Glu Pro Asn Ser Ala Glu Pro Lys Pro
    930                 935                 940

Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala
945                 950                 955                 960

Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu
```

965 970 975

Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro
980 985 990

Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys
995 1000 1005

Ser Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Ala Glu Pro Lys
1010 1015 1020

Pro Ala Glu Pro Asn Ala Ala Thr Ser Ser Ala Arg Glu Gly Thr
1025 1030 1035

Ala Asp Gln Pro Ala Ser Ala Thr Phe Ser Asp Gly His Glu Ala
1040 1045 1050

Val Thr Ser Val Ile Phe Ser Ser Ala Ala Ile Thr Asp Val Gly
1055 1060 1065

Ala Ser Ser Ser Asp Asp Ala Gln Thr Val Gly Thr Glu Gly Gly
1070 1075 1080

Ala Val Met Gln Ala Asp Gln Pro Thr Gln Phe Ser Val Gly Thr
1085 1090 1095

Pro Asp Ala Ala Asn Ala Ala Thr His Asn Ala Glu Arg Lys Gly
1100 1105 1110

Gln Glu Gly Leu His Pro Gln Val Lys Glu Ala Glu Ala Ala Thr
1115 1120 1125

Leu Ser Ser Ser Leu
1130

<210> 16
<211> 1662
<212> PRT
<213> Trypanosoma cruzi

<400> 16

```
Met Leu Pro Arg Val Ala Ala Val Lys Ala Leu Arg Thr His Asn Leu
1               5                  10                  15

Cys Arg Val Thr Gly Ser Ser Gly Arg Arg Arg Glu Gly Arg Glu Gly
            20                  25                  30

Glu Pro Gln Arg Pro Asn Met Ser Arg His His Phe Tyr Ser Ala Val
        35                  40                  45

Pro Leu Leu Leu Leu Val Val Met Met Cys Cys Cys Gly Cys Glu Ala
    50                  55                  60

Ala Ser Ala Asp Gly Ser Ser Gly Glu Gly Lys Ala Val Asp Pro Phe
65                  70                  75                  80

Gln Gly Thr Thr Pro Ala Pro Tyr Lys Trp Gln Glu Met Thr Gly Ser
                85                  90                  95

Glu Ala Ala Ala Gly Ser Leu Arg Val Pro Ser Leu Ala Glu Val Ala
            100                 105                 110

Gly Gly Val Phe Ala Val Ala Glu Ala Gln Cys Ser Glu Arg Asp Gly
        115                 120                 125

Ala Cys Gly His Ala Ala Ile Ala Thr Thr His Ile Glu Thr Asp Gly
    130                 135                 140

Gly Gly Ser Lys Ala Ile Ser Ala Met Asp Ala Gly Val Ser Leu Val
145                 150                 155                 160
```

```
Glu Leu Val Asp Ala Ala Gly Gly Thr Ile Arg Thr Arg Glu Lys Met
                165                 170                 175

Gln Pro Thr Thr Ile Val Ser Gly Asp Ser Ile Tyr Met Ala Leu Gly
            180                 185                 190

Asp Tyr Glu Lys Arg Thr Ser Gly Gly Gln Ala Ala Asp Ala Asp Gly
        195                 200                 205

Trp Arg Leu Leu Leu Thr Arg Gly Thr Leu Thr Glu Asp Gly Gly Gln
    210                 215                 220

Lys Lys Ile Met Trp Asp Asp Ile Arg Ala Val Asp Pro Val Ala Ile
225                 230                 235                 240

Gly Leu Thr Gln Phe Leu Lys Arg Val Ile Gly Gly Gly Gly Ser Gly
                245                 250                 255

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

Lys Asp Gly Arg Asn Val Val Leu Ser Met Arg Phe Asn Met Arg Ile
        275                 280                 285

Glu Ala Trp Glu Leu Ser Ser Gly Thr Thr Gly Ile Asn Cys Lys Glu
    290                 295                 300

Pro Ser Ile Ala Asn Leu Glu Gly Asn Leu Ile Leu Ile Thr Ser Cys
305                 310                 315                 320

Ala Ala Gly Tyr Tyr Glu Val Phe Arg Ser Ile Asp Ser Gly Ile Arg
                325                 330                 335
```

```
Trp Glu Leu Ser Gly Arg Pro Ile Thr Arg Val Trp Gly Asn Ser Tyr
            340                 345                 350

Gly Arg Lys Gly Tyr Gly Val Arg Cys Gly Leu Thr Thr Val Thr Ile
        355                 360                 365

Glu Gly Arg Glu Val Leu Leu Val Thr Thr Pro Val Tyr Leu Glu Glu
    370                 375                 380

Lys Lys Asp Arg Gly Arg Leu His Leu Trp Val Thr Asp Gly Ala Arg
385                 390                 395                 400

Val His Asp Ala Gly Pro Ile Ser Asp Ala Ala Asp Asp Ala Ala Ala
                405                 410                 415

Ser Ser Leu Leu Ser Ser Ser Gly Gly Asp Leu Ile Ser Leu Tyr Glu
            420                 425                 430

Asn Lys Ser Glu Gly Ser Tyr Gly Leu Val Ala Val His Val Thr Thr
        435                 440                 445

Gln Leu Glu Arg Ile Lys Thr Val Val Lys Arg Trp Gln Glu Leu Asp
    450                 455                 460

Glu Ala Leu Arg Thr Cys Arg Pro Thr Ala Thr Ile Asp Pro Val Lys
465                 470                 475                 480

Arg Gly Met Cys Ser Arg Pro Ile Leu Thr Asp Gly Leu Val Gly Tyr
                485                 490                 495

Leu Ser Gly Leu Ser Thr Gly Ser Glu Trp Met Asp Glu Tyr Leu Cys
            500                 505                 510

Val Asn Ala Thr Val His Gly Thr Val Arg Gly Phe Ser Asn Gly Val
        515                 520                 525
```

```
Thr Phe Glu Gly Pro Gly Ala Gly Ala Gly Trp Pro Val Ala Arg Ser
    530                 535                 540

Gly Gln Asn Gln Pro Tyr His Phe Val His Lys Arg Phe Thr Leu Val
545                 550                 555                 560

Val Met Ala Val Ile His Asp Glu Pro Lys Lys Arg Thr Pro Ile Pro
                565                 570                 575

Leu Ile Arg Val Val Met Asp Asp Lys Asp Lys Thr Val Leu Phe Gly
            580                 585                 590

Val Phe Tyr Thr His Asp Gly Arg Trp Met Thr Ala Ile His Gly Gly
        595                 600                 605

Gly Arg Gln Val Leu Ser Ala Gly Trp Asp Pro Gly Lys Pro Cys Gln
    610                 615                 620

Val Val Leu Arg His Asp Thr Asp His Trp Asp Leu Tyr Ile Asn Ala
625                 630                 635                 640

Arg Val Ala Tyr Phe Gly Thr Tyr Lys Gly Ser Leu Leu Gln Thr Asn
                645                 650                 655

Ser Ile Ser His Val Gln Phe His Gly Asp Ser Gly Glu Val Ala Glu
            660                 665                 670

Ser Ser His Leu Ser Leu Phe Asn Ala Arg Leu Tyr Asn Arg Arg Leu
        675                 680                 685

Asn Tyr Lys Asp Met Arg Trp Leu Met Val Gly Glu Ala Gly Pro Lys
    690                 695                 700
```

```
Tyr Asp Asp Gly Ser Ser Tyr Ser Ala Ser Ala Ser Glu Glu Gly Gly
705                 710                 715                 720

Arg Gly Asp Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg
                725                 730                 735

Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly
            740                 745                 750

Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp
        755                 760                 765

Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Gly Arg Asp Asp Ser
    770                 775                 780

Pro Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser
785                 790                 795                 800

Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met
                805                 810                 815

Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg Asp Asp Ser Ser Met Pro
            820                 825                 830

Ala Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala
        835                 840                 845

Gly Ala Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly
    850                 855                 860

Ala Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala
865                 870                 875                 880

Ser Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser
                885                 890                 895
```

```
Glu Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Thr Ser Glu
            900                 905                 910

Glu Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu
        915                 920                 925

Gly Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly
    930                 935                 940

Ser Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser
945                 950                 955                 960

Arg Gly Asp Ser Ser Met Pro Ala Gly Ala Ser Glu Glu Gly Ser Arg
                965                 970                 975

Asp Asp Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly
            980                 985                 990

Asp Ser Ser Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
        995                 1000                1005

Ser Ser  Met Pro Ala Gly Ser  Ser Glu Glu Gly Ser  Arg Asp Asp
    1010                1015                1020

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1025                1030                1035

Ser Ser  Met Pro Ala Gly Ser  Ser Glu Glu Gly Ser  Arg Asp Asp
    1040                1045                1050

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1055                1060                1065
```

```
Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1070                1075                1080

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1085                1090                1095

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1100                1105                1110

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1115                1120                1125

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1130                1135                1140

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1145                1150                1155

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1160                1165                1170

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1175                1180                1185

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Asp Asp
    1190                1195                1200

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1205                1210                1215

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1220                1225                1230

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1235                1240                1245
```

```
Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1250                1255                1260

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1265                1270                1275

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1280                1285                1290

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1295                1300                1305

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1310                1315                1320

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1325                1330                1335

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1340                1345                1350

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1355                1360                1365

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1370                1375                1380

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1385                1390                1395

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1400                1405                1410
```

```
Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1415                1420                1425

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Gly  Arg Gly Asp
    1430                1435                1440

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1445                1450                1455

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1460                1465                1470

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1475                1480                1485

Ser Ser  Met Pro Ala Gly Met  Ser Glu Glu Gly Ser  Arg Asp Asp
    1490                1495                1500

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1505                1510                1515

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Gly Asp
    1520                1525                1530

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1535                1540                1545

Ser Ser  Met Pro Ala Gly Thr  Ser Glu Glu Gly Ser  Arg Asp Asp
    1550                1555                1560

Ser Ser  Met Pro Ala Gly Met  Ser Glu Glu Gly Ser  Arg Asp Asp
    1565                1570                1575

Ser Ser  Met Pro Ala Gly Ala  Ser Glu Glu Gly Ser  Arg Gly Asp
    1580                1585                1590
```

Ser Ser Met Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Asp
1595 1600 1605

Ser Ser Met Pro Ala Gly Met Ser Glu Glu Gly Ser Arg Asp Asp
1610 1615 1620

Ser Ser Asn Ser Glu Ser Ser Ser Gln Lys Glu Ser Glu Glu Val
1625 1630 1635

Ser Phe Val His Glu Ser Val Ser Trp Val Leu Leu Leu Leu Leu
1640 1645 1650

Gly Met Trp Gly Phe Ala Ala Leu Tyr
1655 1660

<210> 17
<211> 964
<212> PRT
<213> Trypanosoma cruzi

<400> 17

Met Gly Lys Thr Val Val Gly Ala Ser Arg Met Phe Trp Leu Met Val
1 5 10 15

Phe Val Pro Leu Leu Leu Ala Ile Cys Pro Ser Glu Pro Ala His Ala
20 25 30

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

Lys Val Pro Phe Glu Lys Asp Gly Lys Val Thr Asp Arg Val Val His
50 55 60

Ser Phe Arg Leu Pro Ala Leu Val Asn Val Asp Gly Val Met Val Ala

65 70 75 80

Ile Ala Asp Ala Arg Tyr Asp Thr Ser Asn Asp Asn Ser Leu Ile Asp
85 90 95

Thr Val Ala Lys Tyr Ser Val Asp Asp Gly Glu Thr Trp Glu Thr Gln
100 105 110

Ile Ala Ile Lys Asn Ser Arg Ala Ser Ser Val Ser Arg Val Val Asp
115 120 125

Pro Thr Val Ile Val Lys Gly Asn Lys Leu Tyr Val Leu Val Gly Ser
130 135 140

Tyr Asn Ser Ser Arg Ser Tyr Trp Thr Trp Gln Pro Asp Gly Ser Asp
145 150 155 160

Trp Asp Ile Leu Leu Ala Val Gly Glu Val Thr Lys Ser Thr Ala Gly
165 170 175

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

Lys Phe Phe Pro Ala Glu Met Glu Gly Met Gln Thr Asn Gln Phe Leu
195 200 205

Gly Gly Ala Gly Val Ala Ile Val Ala Ser Asn Gly Asn Leu Val Tyr
210 215 220

Pro Val Gln Val Thr Asn Met Lys Lys Gln Ile Phe Ser Lys Ile Phe
225 230 235 240

Tyr Ser Ala Asp Glu Gly Lys Thr Trp Asn Phe Gly Lys Gly Arg Ser
245 250 255

```
Asp Phe Gly Cys Ser Glu Pro Val Ala Leu Glu Trp Glu Gly Lys Leu
            260                 265                 270

Ile Ile Asn Thr Arg Val Asp Arg Lys Arg Arg Leu Val Tyr Glu Ser
        275                 280                 285

Ser Asp Met Gly Asn Thr Trp Val Glu Ala Val Gly Thr Leu Ser Arg
    290                 295                 300

Val Trp Gly Pro Ser Pro Lys Ser Asp Gln Pro Gly Ser Gln Ser Ser
305                 310                 315                 320

Phe Thr Ala Val Thr Ile Glu Gly Met Arg Val Met Leu Phe Thr His
                325                 330                 335

Pro Leu Asn Phe Lys Gly Lys Trp Leu Arg Asp Arg Leu Asn Leu Trp
            340                 345                 350

Leu Thr Asp Asn Gln Arg Ile Tyr Asn Val Gly Gln Ile Ser Ile Gly
        355                 360                 365

Asp Glu Asn Ser Ala Tyr Ser Ser Val Leu Tyr Lys Asp Asp Lys Leu
    370                 375                 380

Tyr Cys Leu His Glu Ile Asn Thr Asn Glu Val Tyr Ser Leu Val Phe
385                 390                 395                 400

Ala Arg Leu Val Gly Glu Leu Arg Ile Ile Lys Ser Val Leu Gln Ser
                405                 410                 415

Trp Lys Asn Trp Asp Ser His Leu Ser Ser Ile Cys Thr Pro Ala Asp
            420                 425                 430

Pro Ala Ala Ser Ser Ser Glu Arg Gly Cys Gly Pro Ala Val Thr Thr
```

435 440 445

Val Gly Leu Val Gly Phe Leu Ser Gly Asn Ala Ser Gln Asn Val Trp
450 455 460

Glu Asp Ala Tyr Arg Cys Val Asn Ala Ser Thr Ala Asn Ala Glu Arg
465 470 475 480

Val Arg Asn Gly Leu Lys Phe Ala Gly Val Gly Gly Gly Ala Leu Trp
485 490 495

Pro Val Ser Gln Gln Gly Gln Asn Gln Arg Tyr Arg Phe Ala Asn His
500 505 510

Ala Phe Thr Leu Val Ala Ser Val Thr Ile His Glu Ala Pro Arg Ala
515 520 525

Ala Ser Pro Leu Leu Gly Ala Ser Leu Asp Ser Ser Gly Gly Lys Lys
530 535 540

Leu Leu Gly Leu Ser Tyr Asp Glu Lys His Gln Trp Gln Pro Ile Tyr
545 550 555 560

Gly Ser Thr Pro Val Thr Pro Thr Gly Ser Trp Glu Thr Gly Lys Arg
565 570 575

Tyr His Leu Val Leu Thr Met Ala Asn Lys Ile Gly Ser Val Tyr Ile
580 585 590

Asp Gly Lys Leu Leu Glu Gly Ser Gly Gln Thr Val Val Pro Asp Glu
595 600 605

Gly Thr Pro Asp Ile Ser His Phe Tyr Val Gly Gly Tyr Gly Arg Ser
610 615 620

```
Asp Met Pro Thr Ile Ser His Val Thr Val Asn Asn Val Leu Leu Tyr
625                 630                 635                 640

Asn Arg Gln Leu Asn Ala Glu Glu Ile Lys Thr Leu Phe Leu Ser Gln
                645                 650                 655

Asp Leu Ile Gly Thr Glu Ala His Met Asp Ser Ser Ser Asp Ser Ser
            660                 665                 670

Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Thr Ala His Gly Thr
        675                 680                 685

Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
    690                 695                 700

Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Ser
705                 710                 715                 720

Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr
                725                 730                 735

Pro Ser Thr Pro Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
            740                 745                 750

Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser
        755                 760                 765

Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr
    770                 775                 780

Pro Ser Thr Pro Ala Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro
785                 790                 795                 800

Val Asp Ser Ser Ala His Gly Thr Pro Ser Thr Pro Val Asp Ser Ser
```

805 810 815

Ala His Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr
820 825 830

Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
835 840 845

Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Thr
850 855 860

Ala His Gly Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr
865 870 875 880

Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro
885 890 895

Val Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Val Asp Ser Thr
900 905 910

Ala His Gly Thr Pro Ser Thr Pro Ala Gly Asn Gly Ala Asn Gly Thr
915 920 925

Val Leu Ile Leu Pro Asp Gly Ala Ala Leu Ser Thr Phe Ser Gly Gly
930 935 940

Gly Leu Leu Leu Cys Ala Cys Ala Leu Leu Leu His Val Phe Phe Thr
945 950 955 960

Ala Val Phe Phe

<210> 18
<211> 738
<212> PRT

<213> Trypanosoma cruzi

<400> 18

```
Met Gly Pro Ser Ala Gln Asn Tyr Asp Thr Gln Glu Glu Glu Asp Val
1               5                  10                  15


Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp
            20                  25                  30


Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Gln
        35                  40                  45


Glu Glu Gln Glu Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe
    50                  55                  60


Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr
65                  70                  75                  80


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


Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro
            100                 105                 110


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


Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser Thr Thr
    130                 135                 140


Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu
145                 150                 155                 160


Pro Leu Glu Glu Gln Glu Asp Val Gly Pro Arg His Val Asp Pro Asp
                165                 170                 175
```

```
His Phe Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser
            180                 185                 190

Ala Tyr Lys Arg Ala Leu Pro Gln Glu Glu Gln Glu Asp Val Gly Pro
        195                 200                 205

Arg His Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp Ala Tyr
    210                 215                 220

Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Leu Glu Glu
225                 230                 235                 240

Gln Glu Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser
                245                 250                 255

Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg
            260                 265                 270

Ala Leu Leu Leu Glu Glu Glu Glu Asp Val Gly Pro Arg His Val Asp
        275                 280                 285

Pro Asp His Phe Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp
    290                 295                 300

Pro Ser Ala Tyr Lys Arg Ala Leu Pro Leu Glu Glu Glu Glu Asp Val
305                 310                 315                 320

Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp
                325                 330                 335

Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Gln
            340                 345                 350
```

```
Glu Glu Gln Glu Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe
        355                 360                 365

Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr
    370                 375                 380

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

Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp Thr Tyr Arg Pro
                405                 410                 415

Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Gln Glu Glu Gln Glu
            420                 425                 430

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

Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu
    450                 455                 460

Pro Gln Glu Glu Glu Glu Asp Val Gly Pro Arg His Val Asp Pro Asp
465                 470                 475                 480

His Phe Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser
                485                 490                 495

Ala Tyr Lys Arg Ala Leu Pro Gln Glu Glu Gln Glu Asp Val Gly Pro
            500                 505                 510

Arg His Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp Ala Tyr
        515                 520                 525

Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Leu Glu Glu
    530                 535                 540
```

```
Glu Glu Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser
545                 550                 555                 560

Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg
                565                 570                 575

Ala Leu Pro Gln Glu Glu Gln Glu Asp Val Gly Pro Arg His Val Asp
            580                 585                 590

Pro Asp His Phe Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp
        595                 600                 605

Pro Ser Ala Tyr Lys Arg Ala Leu Pro Gln Glu Glu Gln Glu Asp Val
    610                 615                 620

Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp
625                 630                 635                 640

Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Gln
                645                 650                 655

Glu Glu Gln Glu Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe
            660                 665                 670

Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro Val Asp Pro Ser Ala Tyr
        675                 680                 685

Lys Arg Ala Leu Pro Gln Glu Glu Gln Glu Asp Val Gly Pro Arg His
    690                 695                 700

Val Asp Pro Asp His Phe Arg Ser Thr Thr Gln Asp Ala Tyr Arg Pro
705                 710                 715                 720
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Val Asp Pro Ser Ala Tyr Lys Arg Ala Leu Pro Gln Glu Glu Gln Glu
725 730 735

Asp Val

<210> 19
<211> 92
<212> PRT
<213> Trypanosoma cruzi

<400> 19

Met Ala Thr Thr Tyr Glu Glu Phe Ser Ala Lys Leu Asp Arg Leu Asp
1 5 10 15

Ala Glu Phe Ser Lys Lys Met Glu Glu Gln Asn Lys Lys Phe Phe Ala
20 25 30

Asp Lys Pro Asp Glu Ser Thr Leu Ser Pro Glu Met Lys Glu His Tyr
35 40 45

Glu Lys Phe Glu Lys Met Ile Gln Glu His Thr Asp Lys Phe Asn Lys
50 55 60

Lys Met Arg Glu His Ser Glu His Phe Lys Thr Lys Phe Ala Glu Leu
65 70 75 80

Leu Glu Gln Gln Lys Asn Ala Gln Phe Pro Gly Lys
85 90

<210> 20
<211> 68
<212> PRT
<213> Trypanosoma cruzi

<400> 20

Met Glu Gln Glu Arg Arg Gln Leu Leu Glu Lys Asp Pro Arg Arg Asn
1 5 10 15

Ala Lys Glu Ile Ala Ala Leu Glu Glu Ser Met Asn Ala Arg Ala Gln
20 25 30

Glu Leu Ala Arg Glu Lys Lys Leu Ala Asp Arg Ala Phe Leu Asp Gln
35 40 45

Lys Pro Glu Arg Val Pro Leu Ala Asp Val Pro Leu Asp Asp Asp Ser
50 55 60

Asp Phe Val Ala
65

<210> 21
<211> 128
<212> PRT
<213> Sequência Artificial

<220>
<223> Proteína recombinante IBMP 8-1

<400> 21

Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
1 5 10 15

Arg Gly Ser His Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg
20 25 30

Gly Ser Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp
35 40 45

Lys Pro Ser Pro Phe Gly Gln Ala Gly Ser Gly Ala Glu Pro Lys Ser
50 55 60

Ala Glu Pro Lys Pro Ala Glu Pro Lys Ser Gly Ser Gly Lys Ala Ala
65 70 75 80

Ile Ala Pro Ala Lys Ala Ala Ala Ala Pro Ala Lys Ala Ala Thr Ala
85 90 95

Pro Ala Gly Thr Ser Glu Glu Gly Ser Arg Gly Gly Ser Ser Met Pro
100 105 110

Ser Gly Thr Ser Glu Glu Gly Ser Arg Gly Gly Ser Ser Met Pro Ala
115 120 125

<210> 22
<211> 251
<212> PRT
<213> Sequência Artificial

<220>
<223> Proteína recombinante IBMP 8-2

<400> 22

Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
1 5 10 15

Arg Gly Ser His Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg
20 25 30

Gly Ser Lys Lys Leu Ala Asp Arg Ala Phe Leu Glu Gln Lys Pro Glu
35 40 45

Gly Val Pro Leu Arg Glu Leu Pro Leu Asp Asp Asp Ser Asp Phe Val
50 55 60

Ala Met Glu Gln Glu Arg Arg Gln Leu Leu Glu Lys Asp Pro Arg Arg
65 70 75 80

```
Asn Ala Arg Glu Ile Ala Ala Leu Glu Glu Ser Met Asn Ala Arg Ala
                85                  90                  95

Gln Glu Leu Ala Arg Glu Leu Leu Ile Gly Thr Glu Ala His Met Asp
            100                 105                 110

Ser Ser Ser Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Ala Asp
        115                 120                 125

Ser Ser Ala Leu Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His
    130                 135                 140

Ser Thr Pro Ser Thr Pro Ala Asp Ser Ser Ala His Ser Thr Pro Ser
145                 150                 155                 160

Thr Pro Ala Gly His Gly Ala Arg Gly Met Val Leu Ile Leu Pro Asp
                165                 170                 175

Val Asp Lys Leu Ala Ala Ala Ala Asp Ala Gln Lys Ser Phe Asn Pro
            180                 185                 190

Ser Thr Asp Lys Leu Lys Ile Asn Gln Gln Asn Lys Pro His Ile Ala
        195                 200                 205

Asn Asn Lys Gln Lys Thr Thr Leu Glu Lys Thr Gln Thr Glu Gln Lys
    210                 215                 220

Thr Ala Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Thr Ile
225                 230                 235                 240

Trp Thr Gly Pro Arg Glu Ser Leu Val Asn Ser
                245                 250
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<210> 23
<211> 214

<212> PRT
<213> Sequência Artificial

<220>
<223> Proteína recombinante IBMP 8-3

<400> 23

Met Ala Gly Ser Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys
1 5 10 15

Pro Ser Pro Phe Gly Gln Ala Ala Ala Gly Asp Lys Pro Ser Pro Phe
20 25 30

Gly Gln Ala Ala Ala Gly Asp Lys Pro Gly Ser Lys Val Ala Glu Ala
35 40 45

Glu Lys Gln Lys Ala Ala Glu Ala Thr Lys Val Ala Glu Ala Glu Lys
50 55 60

Gln Lys Ala Ala Glu Ala Thr Lys Val Ala Glu Ala Glu Lys Gln Lys
65 70 75 80

Ala Ala Glu Ala Thr Lys Leu Pro Ser Leu Ser Arg Ser Pro Lys Pro
85 90 95

Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala
100 105 110

Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu
115 120 125

Pro Lys Pro Ala Glu Pro Lys Pro Ala Glu Lys Leu Pro Ser Leu Ser
130 135 140

Arg Ser Pro Ala Lys Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Pro
145 150 155 160

Pro Ala Lys Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Pro Pro Ala
165 170 175

Lys Ala Ala Ala Pro Pro Ala Lys Ala Ala Ala Pro Pro Ala Lys Ala
180 185 190

Ala Ala Pro Lys Leu Ser Ser Val Asp Lys Leu Ala Ala Ala Leu Glu
195 200 205

His His His His His His
210

<210> 24
<211> 306
<212> PRT
<213> Sequência Artificial

<220>
<223> Proteína recombinante IBMP 8-4

<400> 24

Met Ala Gly Ser Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Ala
1 5 10 15

Gly Asp Lys Pro Ser Pro Phe Gly Gln Ala Ala Glu Pro Lys Ser Ala
20 25 30

Glu Pro Lys Pro Ala Glu Pro Lys Ser Lys Ala Ala Ile Ala Pro Ala
35 40 45

Lys Ala Ala Ala Ala Pro Ala Lys Ala Ala Thr Ala Pro Ala Ser Ser
50 55 60

Met Pro Ser Gly Thr Ser Glu Glu Gly Ser Arg Gly Gly Ser Ser Met
65 70 75 80

```
Pro Ala Glu Phe Tyr Asp Ser Thr Ala His Gly Thr Pro Ser Thr Pro
                85                  90                  95

Ala Asp Ser Ser Ala His Ser Thr Pro Ser Thr Pro Ala Tyr Glu Lys
            100                 105                 110

Gln Lys Ala Ala Glu Ala Thr Lys Val Ala Glu Ala Glu Lys Gln Arg
        115                 120                 125

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

Gln Glu Asp Val Gly Pro Arg His Val Asp Pro Asp His Phe Arg Ser
145                 150                 155                 160

Thr Thr Gln Asp Ala Tyr Pro Arg Val Asp Pro Ser Ala Tyr Lys Arg
                165                 170                 175

Lys Leu Lys Phe Ala Glu Leu Leu Glu Gln Gln Lys Asn Ala Gln Phe
            180                 185                 190

Pro Gly Lys Glu Leu Lys Phe Ala Glu Leu Leu Glu Gln Gln Lys Asn
        195                 200                 205

Ala Gln Phe Pro Gly Lys Glu Leu Thr Ser Met Glu Gln Glu Arg Arg
    210                 215                 220

Gln Leu Leu Glu Lys Asp Pro Arg Arg Asn Ala Lys Glu Ile Ala Ala
225                 230                 235                 240

Leu Glu Glu Ser Met Asn Ala Arg Ala Gln Glu Leu Ala Arg Glu Lys
                245                 250                 255
```

Lys Leu Ala Asp Arg Ala Phe Leu Asp Gln Lys Pro Glu Arg Val Pro
260 265 270

Leu Ala Asp Val Pro Leu Asp Asp Asp Ser Asp Phe Val Ala Ala Asn
275 280 285

Ser Ser Val Asp Lys Leu Ala Ala Ala Leu Glu His His His His His
290 295 300

His Leu
305

<210> 25
<211> 317
<212> DNA
<213> Sequência Artificial

<220>
<223> Ácido nucleico que codifica a proteína recombinante IBMP 8-1

<400> 25
ccatggctgg atccggagac aaaccgagtc cctttggtca ggctgctgca ggggataagc 60

cgtcaccgtt cggccaagca ggtagcggtg ccgaaccgaa aagcgctgaa cctaaaccag 120

cagagcccaa gtcaggaagt ggtaaagcag caattgcacc ggcaaaagca gcagcagctc 180

cagccaaagc agccacggct cctgcaggga cctcggaaga aggctcgcgt ggtgggagca 240

gcatgccttc tggcacaagt gaggagggct caagaggtgg ctcttctatg ccagcagcga 300

attcctgata aaagctt 317

<210> 26
<211> 686
<212> DNA
<213> Sequência Artificial

<220>
<223> Ácido nucleico que codifica a proteína recombinante IBMP 8-2

<400> 26
ccatggctgg atccaagaag ctggcagatc gtgcgtttct cgaacagaaa ccagaaggtg 60

ttcccctgcg tgagttaccc ctggatgacg atagtgattt tgtggcaatg gaacaagagc 120

ggaggcaatt gttagagaaa gacccgcgtc gcaacgctcg cgaaatcgct gcgcttgaag 180

aatctatgaa tgcaagagcc caagagttag ccagagaact actgattggt accgaagccc 240

atatggatag ctctagcgat agctcagccc actcaacacc gtcaacacca gcggattctt 300

ccgcactgag tacgccttcc acccccgctg attctagtgc ccattctacg ccgtcgactc 360

ctgcggattc gagcgcacac tcaactccga gcactccggc agggcatggt gcacgaggca 420

tggtattgat tctgccagac gtcgataaac tggctgcagc tgcggacgca cagaaatcat 480

tcaacccgag tactgacaaa ctcaaaatca atcagcagaa caaaccacat atagccaata 540

ataagcagaa aacgaccctg gaaaagaccc aaacagaaca gaaaacggct ccgtttggac 600

aggcagcagc aggcgacaaa ccttcgacca tttggacagg tcctcgcgag agcttggtta 660

acagtgcgaa ttcctgataa aagctt 686

<210> 27
<211> 620
<212> DNA
<213> Sequência Artificial

<220>
<223> Ácido nucleico que codifica a proteína recombinante IBMP 8-3

<400> 27
ccatggctgg atccggatct ccgagtcctt ttgggcaggc tgctgcaggc gataaaccgt 60

caccgtttgg ccaggcagca gcaggggaca aaccaagtcc ttttggtcag gcagcagccg 120

gtgataagcc gggtagcaaa gtagccgaag cggagaaaca aaaggcagcg gaggcgacga 180

aagttgcgga agccgagaag caaaaggctg cagaagccac caaggtcgca gaagccgaaa 240

aacagaaagc agcggaagcc acaaaactac caagtctcag ccgttcaccg aaaccagccg 300

aaccgaagcc agccgagccc aaaccagccg aacctaaacc agccgaaccg aaacccgcag 360

aacctaaacc cgcagagccc aaaccggcag aaccgaaacc ggcagaacct aaacctgcag 420

agaaacttcc ttcgctgagc agatctccgg caaaggcagc agctccaccg gctaaagcag 480

cagcaccgcc agccaaagca gcagctcctc cggctaaggc agcagctcct cccgcaaaag 540

cagcagctcc acccgctaaa gcagctgctc cgccggctaa agcagcagca cctaaactgg 600

cgaattcctg ataaaagctt 620

<210> 28
<211> 881
<212> DNA
<213> Sequência Artificial

<220>
<223> Ácido nucleico que codifica a proteína recombinante IBMP 8-4

<400> 28
ccatggctgg atccggtgac aaaccgtctc cgtttggcca ggcagctgca ggcgataaac 60

cgtccccgtt tggtcaggcc gcagaaccaa aaagcgctga accgaaaccg gcggaaccga 120

aaagcaaagc tgcgattgca ccggctaaag cggcagctgc gccggcgaaa gctgcaactg 180

caccagcgtc ctctatgcca agcggtacct ctgaagaggg ttcccgtggt ggttcctcta 240

tgccggctga attctacgac tctactgccc acggcactcc aagcactcca gcagattcta 300

gcgcacactc taccccaagc accccagcgt acgagaaaca gaaagctgcc gaagcgacca 360

aagttgcgga agccgagaaa cagcgtgctg cagaagctac caaagtggcg gaagctgctc 420

tgccgcagga agaacaggaa gacgtaggtc cacgtcatgt agacccggac cactttcgtt 480

ctaccacgca ggacgcctat ccacgcgtgg atccgtccgc ttacaaacgc aaactgaaat 540

tcgcagagct gctggagcag cagaaaaacg cgcagttccc aggcaaagaa ctcaaattcg 600

cggaactgct ggagcagcag aaaaacgctc agttcccagg caaagaactg acctccatgg 660

aacaggaacg ccgtcagctg ctggagaaag atccacgtcg caacgctaaa gagatcgcag 720

ccctggagga atctatgaac gctcgtgcac aggagctggc gcgtgaaaaa aaactggccg 780

atcgtgcgtt cctggaccag aaaccggaac gcgttccact ggcggatgtt ccgctggacg 840

atgactctga tttcgtcgcg gcgaattcct gataaaagct t 881