SEQUENCE LISTING

<110> BLUEROCK THERAPEUTICS LP

<120> METHODS FOR OBTAINING INDUCED PLURIPOTENT STEM CELLS

<130> 025450.WO014

<140>
<141>

<150> 63/166,071
<151> 2021-03-25

<160> 15

<170> PatentIn version 3.5

<210> 1
<211> 233
<212> PRT
<213> Homo sapiens

<400> 1

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Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys
1               5                  10                  15


Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu
            20                  25                  30


Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro
        35                  40                  45


Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala
    50                  55                  60


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


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


Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu
            100                 105                 110
```

```
His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn
        115                 120                 125


Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe
    130                 135                 140


Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln
145                 150                 155                 160


Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp
                165                 170                 175


His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val
            180                 185                 190


Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu
        195                 200                 205


Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val
    210                 215                 220


Leu Leu Gly Ser Leu Phe Ser Arg Lys
225                 230


<210> 2
<211> 254
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
      polypeptide"

<400> 2
Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys
1               5                   10                  15


Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu
```

```
            20                  25                  30

Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro
        35                  40                  45

Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala
    50                  55                  60

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

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

Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu
            100                 105                 110

His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn
        115                 120                 125

Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe
    130                 135                 140

Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln
145                 150                 155                 160

Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp
                165                 170                 175

His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val
            180                 185                 190

Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu
        195                 200                 205

Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val
    210                 215                 220
```

Leu Leu Gly Ser Leu Phe Ser Arg Lys Gly Ser Gly Ala Thr Asn Phe
225 230 235 240

Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu Asn Pro Gly
245 250

<210> 3
<211> 360
<212> PRT
<213> Homo sapiens

<400> 3
Met Ala Gly His Leu Ala Ser Asp Phe Ala Phe Ser Pro Pro Pro Gly
1 5 10 15

Gly Gly Gly Asp Gly Pro Gly Gly Pro Glu Pro Gly Trp Val Asp Pro
20 25 30

Arg Thr Trp Leu Ser Phe Gln Gly Pro Pro Gly Gly Pro Gly Ile Gly
35 40 45

Pro Gly Val Gly Pro Gly Ser Glu Val Trp Gly Ile Pro Pro Cys Pro
50 55 60

Pro Pro Tyr Glu Phe Cys Gly Gly Met Ala Tyr Cys Gly Pro Gln Val
65 70 75 80

Gly Val Gly Leu Val Pro Gln Gly Gly Leu Glu Thr Ser Gln Pro Glu
85 90 95

Gly Glu Ala Gly Val Gly Val Glu Ser Asn Ser Asp Gly Ala Ser Pro
100 105 110

Glu Pro Cys Thr Val Thr Pro Gly Ala Val Lys Leu Glu Lys Glu Lys
115 120 125

Leu Glu Gln Asn Pro Glu Glu Ser Gln Asp Ile Lys Ala Leu Gln Lys
130 135 140

```
Glu Leu Glu Gln Phe Ala Lys Leu Leu Lys Gln Lys Arg Ile Thr Leu
145                 150                 155                 160

Gly Tyr Thr Gln Ala Asp Val Gly Leu Thr Leu Gly Val Leu Phe Gly
                165                 170                 175

Lys Val Phe Ser Gln Thr Thr Ile Cys Arg Phe Glu Ala Leu Gln Leu
            180                 185                 190

Ser Phe Lys Asn Met Cys Lys Leu Arg Pro Leu Leu Gln Lys Trp Val
        195                 200                 205

Glu Glu Ala Asp Asn Asn Glu Asn Leu Gln Glu Ile Cys Lys Ala Glu
    210                 215                 220

Thr Leu Val Gln Ala Arg Lys Arg Lys Arg Thr Ser Ile Glu Asn Arg
225                 230                 235                 240

Val Arg Gly Asn Leu Glu Asn Leu Phe Leu Gln Cys Pro Lys Pro Thr
                245                 250                 255

Leu Gln Gln Ile Ser His Ile Ala Gln Gln Leu Gly Leu Glu Lys Asp
            260                 265                 270

Val Val Arg Val Trp Phe Cys Asn Arg Arg Gln Lys Gly Lys Arg Ser
        275                 280                 285

Ser Ser Asp Tyr Ala Gln Arg Glu Asp Phe Glu Ala Ala Gly Ser Pro
    290                 295                 300

Phe Ser Gly Gly Pro Val Ser Phe Pro Leu Ala Pro Gly Pro His Phe
305                 310                 315                 320

Gly Thr Pro Gly Tyr Gly Ser Pro His Phe Thr Ala Leu Tyr Ser Ser
                325                 330                 335

Val Pro Phe Pro Glu Gly Glu Ala Phe Pro Pro Val Ser Val Thr Thr
```

340 345 350

Leu Gly Ser Pro Met His Ser Asn
355 360

<210> 4
<211> 380
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 4
Met Ala Gly His Leu Ala Ser Asp Phe Ala Phe Ser Pro Pro Pro Gly
1 5 10 15

Gly Gly Gly Asp Gly Pro Gly Gly Pro Glu Pro Gly Trp Val Asp Pro
20 25 30

Arg Thr Trp Leu Ser Phe Gln Gly Pro Pro Gly Gly Pro Gly Ile Gly
35 40 45

Pro Gly Val Gly Pro Gly Ser Glu Val Trp Gly Ile Pro Pro Cys Pro
50 55 60

Pro Pro Tyr Glu Phe Cys Gly Gly Met Ala Tyr Cys Gly Pro Gln Val
65 70 75 80

Gly Val Gly Leu Val Pro Gln Gly Gly Leu Glu Thr Ser Gln Pro Glu
85 90 95

Gly Glu Ala Gly Val Gly Val Glu Ser Asn Ser Asp Gly Ala Ser Pro
100 105 110

Glu Pro Cys Thr Val Thr Pro Gly Ala Val Lys Leu Glu Lys Glu Lys
115 120 125

```
Leu Glu Gln Asn Pro Glu Glu Ser Gln Asp Ile Lys Ala Leu Gln Lys
    130                 135                 140

Glu Leu Glu Gln Phe Ala Lys Leu Leu Lys Gln Lys Arg Ile Thr Leu
145                 150                 155                 160

Gly Tyr Thr Gln Ala Asp Val Gly Leu Thr Leu Gly Val Leu Phe Gly
                165                 170                 175

Lys Val Phe Ser Gln Thr Thr Ile Cys Arg Phe Glu Ala Leu Gln Leu
            180                 185                 190

Ser Phe Lys Asn Met Cys Lys Leu Arg Pro Leu Leu Gln Lys Trp Val
        195                 200                 205

Glu Glu Ala Asp Asn Asn Glu Asn Leu Gln Glu Ile Cys Lys Ala Glu
    210                 215                 220

Thr Leu Val Gln Ala Arg Lys Arg Lys Arg Thr Ser Ile Glu Asn Arg
225                 230                 235                 240

Val Arg Gly Asn Leu Glu Asn Leu Phe Leu Gln Cys Pro Lys Pro Thr
                245                 250                 255

Leu Gln Gln Ile Ser His Ile Ala Gln Gln Leu Gly Leu Glu Lys Asp
            260                 265                 270

Val Val Arg Val Trp Phe Cys Asn Arg Arg Gln Lys Gly Lys Arg Ser
        275                 280                 285

Ser Ser Asp Tyr Ala Gln Arg Glu Asp Phe Glu Ala Ala Gly Ser Pro
    290                 295                 300

Phe Ser Gly Gly Pro Val Ser Phe Pro Leu Ala Pro Gly Pro His Phe
305                 310                 315                 320

Gly Thr Pro Gly Tyr Gly Ser Pro His Phe Thr Ala Leu Tyr Ser Ser
                325                 330                 335
```

```
Val Pro Phe Pro Glu Gly Glu Ala Phe Pro Pro Val Ser Val Thr Thr
            340                 345                 350


Leu Gly Ser Pro Met His Ser Asn Gly Ser Gly Glu Gly Arg Gly Ser
        355                 360                 365


Leu Leu Thr Cys Gly Asp Val Glu Glu Asn Pro Gly
    370                 375                 380


<210> 5
<211> 413
<212> PRT
<213> Homo sapiens

<400> 5
Met Arg Gln Pro Pro Gly Glu Ser Asp Met Ala Val Ser Asp Ala Leu
1               5                   10                  15


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


Thr Leu Arg Gln Ala Gly Ala Pro Asn Asn Arg Trp Arg Glu Glu Leu
        35                  40                  45


Ser His Met Lys Arg Leu Pro Pro Val Leu Pro Gly Arg Pro Tyr Asp
    50                  55                  60


Leu Ala Ala Ala Thr Val Ala Thr Asp Leu Glu Ser Gly Gly Ala Gly
65                  70                  75                  80


Ala Ala Cys Gly Gly Ser Asn Leu Ala Pro Leu Pro Arg Arg Glu Thr
                85                  90                  95


Glu Glu Phe Asn Asp Leu Leu Asp Leu Asp Phe Ile Leu Ser Asn Ser
            100                 105                 110


Leu Thr His Pro Pro Glu Ser Val Ala Ala Thr Val Ser Ser Ser Ala
        115                 120                 125
```

```
Ser Ala Ser Ser Ser Ser Ser Pro Ser Ser Ser Gly Pro Ala Ser Ala
    130                 135                 140

Pro Ser Thr Cys Ser Phe Thr Tyr Pro Ile Arg Ala Gly Asn Asp Pro
145                 150                 155                 160

Gly Val Ala Pro Gly Gly Thr Gly Gly Gly Leu Leu Tyr Gly Arg Glu
                165                 170                 175

Ser Ala Pro Pro Pro Thr Ala Pro Phe Asn Leu Ala Asp Ile Asn Asp
            180                 185                 190

Val Ser Pro Ser Gly Gly Phe Val Ala Glu Leu Leu Arg Pro Glu Leu
        195                 200                 205

Asp Pro Val Tyr Ile Pro Pro Gln Gln Pro Gln Pro Pro Gly Gly Gly
    210                 215                 220

Leu Met Gly Lys Phe Val Leu Lys Ala Ser Leu Ser Ala Pro Gly Ser
225                 230                 235                 240

Glu Tyr Gly Ser Pro Ser Val Ile Ser Val Ser Lys Gly Ser Pro Asp
                245                 250                 255

Gly Ser His Pro Val Val Val Ala Pro Tyr Asn Gly Gly Pro Pro Arg
            260                 265                 270

Thr Cys Pro Lys Ile Lys Gln Glu Ala Val Ser Ser Cys Thr His Leu
        275                 280                 285

Gly Ala Gly Pro Pro Leu Ser Asn Gly His Arg Pro Ala Ala His Asp
    290                 295                 300

Phe Pro Leu Gly Arg Gln Leu Pro Ser Arg Thr Thr Pro Thr Leu Gly
305                 310                 315                 320
```

Leu Glu Glu Val Leu Ser Ser Arg Asp Cys His Pro Ala Leu Pro Leu
325 330 335

Pro Pro Gly Phe His Pro His Pro Gly Pro Asn Tyr Pro Ser Glu Leu
340 345 350

Met Pro Pro Gly Ser Cys Met Pro Glu Glu Pro Lys Pro Lys Arg Gly
355 360 365

Arg Arg Ser Trp Pro Arg Lys Arg Thr Ala Thr His Thr Cys Asp Tyr
370 375 380

Ala Gly Cys Gly Lys Thr Tyr Thr Lys Ser Ser His Leu Lys Ala His
385 390 395 400

Arg Ser Asp His Leu Ala Leu His Met Lys Arg His Phe
405 410

<210> 6
<211> 493
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 6
Pro Met Ala Val Ser Asp Ala Leu Leu Pro Ser Phe Ser Thr Phe Ala
1 5 10 15

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

Asn Asn Arg Trp Arg Glu Glu Leu Ser His Met Lys Arg Leu Pro Pro
35 40 45

Val Leu Pro Gly Arg Pro Tyr Asp Leu Ala Ala Ala Thr Val Ala Thr
50 55 60

```
Asp Leu Glu Ser Gly Gly Ala Gly Ala Ala Cys Gly Gly Ser Asn Leu
65                  70                  75                  80

Ala Pro Leu Pro Arg Arg Glu Thr Glu Glu Phe Asn Asp Leu Leu Asp
                85                  90                  95

Leu Asp Phe Ile Leu Ser Asn Ser Leu Thr His Pro Pro Glu Ser Val
            100                 105                 110

Ala Ala Thr Val Ser Ser Ser Ala Ser Ala Ser Ser Ser Ser Ser Pro
        115                 120                 125

Ser Ser Ser Gly Pro Ala Ser Ala Pro Ser Thr Cys Ser Phe Thr Tyr
    130                 135                 140

Pro Ile Arg Ala Gly Asn Asp Pro Gly Val Ala Pro Gly Gly Thr Gly
145                 150                 155                 160

Gly Gly Leu Leu Tyr Gly Arg Glu Ser Ala Pro Pro Pro Thr Ala Pro
                165                 170                 175

Phe Asn Leu Ala Asp Ile Asn Asp Val Ser Pro Ser Gly Gly Phe Val
            180                 185                 190

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

Gln Pro Gln Pro Pro Gly Gly Gly Leu Met Gly Lys Phe Val Leu Lys
    210                 215                 220

Ala Ser Leu Ser Ala Pro Gly Ser Glu Tyr Gly Ser Pro Ser Val Ile
225                 230                 235                 240

Ser Val Ser Lys Gly Ser Pro Asp Gly Ser His Pro Val Val Val Ala
                245                 250                 255

Pro Tyr Asn Gly Gly Pro Pro Arg Thr Cys Pro Lys Ile Lys Gln Glu
```

260 265 270

Ala Val Ser Ser Cys Thr His Leu Gly Ala Gly Pro Pro Leu Ser Asn
275 280 285

Gly His Arg Pro Ala Ala His Asp Phe Pro Leu Gly Arg Gln Leu Pro
290 295 300

Ser Arg Thr Thr Pro Thr Leu Gly Leu Glu Glu Val Leu Ser Ser Arg
305 310 315 320

Asp Cys His Pro Ala Leu Pro Leu Pro Pro Gly Phe His Pro His Pro
325 330 335

Gly Pro Asn Tyr Pro Ser Phe Leu Pro Asp Gln Met Gln Pro Gln Val
340 345 350

Pro Pro Leu His Tyr Gln Glu Leu Met Pro Pro Gly Ser Cys Met Pro
355 360 365

Glu Glu Pro Lys Pro Lys Arg Gly Arg Arg Ser Trp Pro Arg Lys Arg
370 375 380

Thr Ala Thr His Thr Cys Asp Tyr Ala Gly Cys Gly Lys Thr Tyr Thr
385 390 395 400

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

Pro Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser
420 425 430

Asp Glu Leu Thr Arg His Tyr Arg Lys His Thr Gly His Arg Pro Phe
435 440 445

Gln Cys Gln Lys Cys Asp Arg Ala Phe Ser Arg Ser Asp His Leu Ala
450 455 460

Leu His Met Lys Arg His Phe Gly Ser Gly Gln Cys Thr Asn Tyr Ala
465 470 475 480

Leu Leu Lys Leu Ala Gly Asp Val Glu Ser Asn Pro Gly
485 490

<210> 7
<211> 317
<212> PRT
<213> Homo sapiens

<400> 7
Met Tyr Asn Met Met Glu Thr Glu Leu Lys Pro Pro Gly Pro Gln Gln
1 5 10 15

Thr Ser Gly Gly Gly Gly Gly Asn Ser Thr Ala Ala Ala Ala Gly Gly
20 25 30

Asn Gln Lys Asn Ser Pro Asp Arg Val Lys Arg Pro Met Asn Ala Phe
35 40 45

Met Val Trp Ser Arg Gly Gln Arg Arg Lys Met Ala Gln Glu Asn Pro
50 55 60

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

Leu Leu Ser Glu Thr Glu Lys Arg Pro Phe Ile Asp Glu Ala Lys Arg
85 90 95

Leu Arg Ala Leu His Met Lys Glu His Pro Asp Tyr Lys Tyr Arg Pro
100 105 110

Arg Arg Lys Thr Lys Thr Leu Met Lys Lys Asp Lys Tyr Thr Leu Pro
115 120 125

Gly Gly Leu Leu Ala Pro Gly Gly Asn Ser Met Ala Ser Gly Val Gly
130 135 140

```
Val Gly Ala Gly Leu Gly Ala Gly Val Asn Gln Arg Met Asp Ser Tyr
145                 150                 155                 160

Ala His Met Asn Gly Trp Ser Asn Gly Ser Tyr Ser Met Met Gln Asp
                165                 170                 175

Gln Leu Gly Tyr Pro Gln His Pro Gly Leu Asn Ala His Gly Ala Ala
            180                 185                 190

Gln Met Gln Pro Met His Arg Tyr Asp Val Ser Ala Leu Gln Tyr Asn
        195                 200                 205

Ser Met Thr Ser Ser Gln Thr Tyr Met Asn Gly Ser Pro Thr Tyr Ser
    210                 215                 220

Met Ser Tyr Ser Gln Gln Gly Thr Pro Gly Met Ala Leu Gly Ser Met
225                 230                 235                 240

Gly Ser Val Val Lys Ser Glu Ala Ser Ser Ser Pro Pro Val Val Thr
                245                 250                 255

Ser Ser Ser His Ser Arg Ala Pro Cys Gln Ala Gly Asp Leu Arg Asp
            260                 265                 270

Met Ile Ser Met Tyr Leu Pro Gly Ala Glu Val Pro Glu Pro Ala Ala
        275                 280                 285

Pro Ser Arg Leu His Met Ser Gln His Tyr Gln Ser Gly Pro Val Pro
    290                 295                 300

Gly Thr Ala Ile Asn Gly Thr Leu Pro Leu Ser His Met
305                 310                 315
```

<210> 8
<211> 318
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 8

```
Pro Met Tyr Asn Met Met Glu Thr Glu Leu Lys Pro Pro Gly Pro Gln
1               5                  10                  15

Gln Thr Ser Gly Gly Gly Gly Gly Asn Ser Thr Ala Ala Ala Ala Gly
            20                  25                  30

Gly Asn Gln Lys Asn Ser Pro Asp Arg Val Lys Arg Pro Met Asn Ala
        35                  40                  45

Phe Met Val Trp Ser Arg Gly Gln Arg Arg Lys Met Ala Gln Glu Asn
    50                  55                  60

Pro Lys Met His Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Glu Trp
65                  70                  75                  80

Lys Leu Leu Ser Glu Thr Glu Lys Arg Pro Phe Ile Asp Glu Ala Lys
                85                  90                  95

Arg Leu Arg Ala Leu His Met Lys Glu His Pro Asp Tyr Lys Tyr Arg
            100                 105                 110

Pro Arg Arg Lys Thr Lys Thr Leu Met Lys Lys Asp Lys Tyr Thr Leu
        115                 120                 125

Pro Gly Gly Leu Leu Ala Pro Gly Gly Asn Ser Met Ala Ser Gly Val
    130                 135                 140

Gly Val Gly Ala Gly Leu Gly Ala Gly Val Asn Gln Arg Met Asp Ser
145                 150                 155                 160

Tyr Ala His Met Asn Gly Trp Ser Asn Gly Ser Tyr Ser Met Met Gln
                165                 170                 175
```

```
Asp Gln Leu Gly Tyr Pro Gln His Pro Gly Leu Asn Ala His Gly Ala
            180                 185                 190

Ala Gln Met Gln Pro Met His Arg Tyr Asp Val Ser Ala Leu Gln Tyr
        195                 200                 205

Asn Ser Met Thr Ser Ser Gln Thr Tyr Met Asn Gly Ser Pro Thr Tyr
    210                 215                 220

Ser Met Ser Tyr Ser Gln Gln Gly Thr Pro Gly Met Ala Leu Gly Ser
225                 230                 235                 240

Met Gly Ser Val Val Lys Ser Glu Ala Ser Ser Ser Pro Pro Val Val
                245                 250                 255

Thr Ser Ser Ser His Ser Arg Ala Pro Cys Gln Ala Gly Asp Leu Arg
            260                 265                 270

Asp Met Ile Ser Met Tyr Leu Pro Gly Ala Glu Val Pro Glu Pro Ala
        275                 280                 285

Ala Pro Ser Arg Leu His Met Ser Gln His Tyr Gln Ser Gly Pro Val
    290                 295                 300

Pro Gly Thr Ala Ile Asn Gly Thr Leu Pro Leu Ser His Met
305                 310                 315
```

<210> 9
<211> 439
<212> PRT
<213> Homo sapiens

<400> 9

```
Met Pro Leu Asn Val Ser Phe Thr Asn Arg Asn Tyr Asp Leu Asp Tyr
1               5                   10                  15

Asp Ser Val Gln Pro Tyr Phe Tyr Cys Asp Glu Glu Glu Asn Phe Tyr
            20                  25                  30
```

```
Gln Gln Gln Gln Gln Ser Glu Leu Gln Pro Pro Ala Pro Ser Glu Asp
        35                  40                  45

Ile Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser Pro Ser
    50                  55                  60

Arg Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr Pro Phe
65                  70                  75                  80

Ser Leu Arg Gly Asp Asn Asp Gly Gly Gly Gly Ser Phe Ser Thr Ala
                85                  90                  95

Asp Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp Met Val Asn
            100                 105                 110

Gln Ser Phe Ile Cys Asp Pro Asp Asp Glu Thr Phe Ile Lys Asn Ile
        115                 120                 125

Ile Ile Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys Leu
    130                 135                 140

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

Ser Pro Asn Pro Ala Arg Gly His Ser Val Cys Ser Thr Ser Ser Leu
                165                 170                 175

Tyr Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro Ser
            180                 185                 190

Val Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser Cys
        195                 200                 205

Ala Ser Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu Leu
    210                 215                 220

Ser Ser Thr Glu Ser Ser Pro Gln Gly Ser Pro Glu Pro Leu Val Leu
225                 230                 235                 240
```

```
His Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu Gln
                245                 250                 255

Glu Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln Ala
            260                 265                 270

Pro Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His Ser
        275                 280                 285

Lys Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser Thr
    290                 295                 300

His Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr Pro
305                 310                 315                 320

Ala Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln Ile
                325                 330                 335

Ser Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu Glu
            340                 345                 350

Asn Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg Asn
        355                 360                 365

Glu Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu Leu
    370                 375                 380

Glu Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala Thr
385                 390                 395                 400

Ala Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser Glu
                405                 410                 415

Glu Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu Glu
            420                 425                 430
```

Gln Leu Arg Asn Ser Cys Ala
435

<210> 10
<211> 440
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polypeptide"

<400> 10
Pro Met Pro Leu Asn Val Ser Phe Thr Asn Arg Asn Tyr Asp Leu Asp
1 5 10 15

Tyr Asp Ser Val Gln Pro Tyr Phe Tyr Cys Asp Glu Glu Glu Asn Phe
20 25 30

Tyr Gln Gln Gln Gln Gln Ser Glu Leu Gln Pro Pro Ala Pro Ser Glu
35 40 45

Asp Ile Trp Lys Lys Phe Glu Leu Leu Pro Thr Pro Pro Leu Ser Pro
50 55 60

Ser Arg Arg Ser Gly Leu Cys Ser Pro Ser Tyr Val Ala Val Thr Pro
65 70 75 80

Phe Ser Leu Arg Gly Asp Asn Asp Gly Gly Gly Gly Ser Phe Ser Thr
85 90 95

Ala Asp Gln Leu Glu Met Val Thr Glu Leu Leu Gly Gly Asp Met Val
100 105 110

Asn Gln Ser Phe Ile Cys Asp Pro Asp Asp Glu Thr Phe Ile Lys Asn
115 120 125

Ile Ile Ile Gln Asp Cys Met Trp Ser Gly Phe Ser Ala Ala Ala Lys
130 135 140

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

Gly Ser Pro Asn Pro Ala Arg Gly His Ser Val Cys Ser Thr Ser Ser
                165                 170                 175

Leu Tyr Leu Gln Asp Leu Ser Ala Ala Ala Ser Glu Cys Ile Asp Pro
            180                 185                 190

Ser Val Val Phe Pro Tyr Pro Leu Asn Asp Ser Ser Ser Pro Lys Ser
        195                 200                 205

Cys Ala Ser Gln Asp Ser Ser Ala Phe Ser Pro Ser Ser Asp Ser Leu
    210                 215                 220

Leu Ser Ser Thr Glu Ser Ser Pro Gln Gly Ser Pro Glu Pro Leu Val
225                 230                 235                 240

Leu His Glu Glu Thr Pro Pro Thr Thr Ser Ser Asp Ser Glu Glu Glu
                245                 250                 255

Gln Glu Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg Gln
            260                 265                 270

Ala Pro Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly His
        275                 280                 285

Ser Lys Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val Ser
    290                 295                 300

Thr His Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp Tyr
305                 310                 315                 320

Pro Ala Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg Gln
                325                 330                 335

Ile Ser Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr Glu
```

340 345 350

Glu Asn Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg Arg
355 360 365

Asn Glu Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro Glu
370 375 380

Leu Glu Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys Ala
385 390 395 400

Thr Ala Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile Ser
405 410 415

Glu Glu Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys Leu
420 425 430

Glu Gln Leu Arg Asn Ser Cys Ala
435 440

<210> 11
<211> 620
<212> PRT
<213> Homo sapiens

<400> 11
Met Ala Glu Ala Arg Thr Ser Leu Ser Ala His Cys Arg Gly Pro Leu
1 5 10 15

Ala Thr Gly Leu His Pro Asp Leu Asp Leu Pro Gly Arg Ser Leu Ala
20 25 30

Thr Pro Ala Pro Ser Cys Tyr Leu Leu Gly Ser Glu Pro Ser Ser Gly
35 40 45

Leu Gly Leu Gln Pro Glu Thr His Leu Pro Glu Gly Ser Leu Lys Arg
50 55 60

Cys Cys Val Leu Gly Leu Pro Pro Thr Ser Pro Ala Ser Ser Ser Pro

65 70 75 80

Cys Ala Ser Ser Asp Val Thr Ser Ile Ile Arg Ser Ser Gln Thr Ser
85 90 95

Leu Val Thr Cys Val Asn Gly Leu Arg Ser Pro Pro Leu Thr Gly Asp
100 105 110

Leu Gly Gly Pro Ser Lys Arg Ala Arg Pro Gly Pro Ala Ser Thr Asp
115 120 125

Ser His Glu Gly Ser Leu Gln Leu Glu Ala Cys Arg Lys Ala Ser Phe
130 135 140

Leu Lys Gln Glu Pro Ala Asp Glu Phe Ser Glu Leu Phe Gly Pro His
145 150 155 160

Gln Gln Gly Leu Pro Pro Pro Tyr Pro Leu Ser Gln Leu Pro Pro Gly
165 170 175

Pro Ser Leu Gly Gly Leu Gly Leu Gly Leu Ala Gly Arg Val Val Ala
180 185 190

Gly Arg Gln Ala Cys Arg Trp Val Asp Cys Cys Ala Ala Tyr Glu Gln
195 200 205

Gln Glu Glu Leu Val Arg His Ile Glu Lys Ser His Ile Asp Gln Arg
210 215 220

Lys Gly Glu Asp Phe Thr Cys Phe Trp Ala Gly Cys Val Arg Arg Tyr
225 230 235 240

Lys Pro Phe Asn Ala Arg Tyr Lys Leu Leu Ile His Met Arg Val His
245 250 255

Ser Gly Glu Lys Pro Asn Lys Cys Met Phe Glu Gly Cys Ser Lys Ala
260 265 270

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

Glu Lys Pro Tyr Leu Cys Gln His Pro Gly Cys Gln Lys Ala Phe Ser
    290                 295                 300

Asn Ser Ser Asp Arg Ala Lys His Gln Arg Thr His Leu Asp Thr Lys
305                 310                 315                 320

Pro Tyr Ala Cys Gln Ile Pro Gly Cys Ser Lys Arg Tyr Thr Asp Pro
                325                 330                 335

Ser Ser Leu Arg Lys His Val Lys Ala His Ser Ala Lys Glu Gln Gln
            340                 345                 350

Val Arg Lys Lys Leu His Ala Gly Pro Asp Thr Glu Ala Asp Val Leu
        355                 360                 365

Thr Glu Cys Leu Val Leu Gln Gln Leu His Thr Ser Thr Gln Leu Ala
    370                 375                 380

Ala Ser Asp Gly Lys Gly Gly Cys Gly Leu Gly Gln Glu Leu Leu Pro
385                 390                 395                 400

Gly Val Tyr Pro Gly Ser Ile Thr Pro His Asn Gly Leu Ala Ser Gly
                405                 410                 415

Leu Leu Pro Pro Ala His Asp Val Pro Ser Arg His His Pro Leu Asp
            420                 425                 430

Ala Thr Thr Ser Ser His His His Leu Ser Pro Leu Pro Met Ala Glu
        435                 440                 445

Ser Thr Arg Asp Gly Leu Gly Pro Gly Leu Leu Ser Pro Ile Val Ser
    450                 455                 460

Pro Leu Lys Gly Leu Gly Pro Pro Pro Leu Pro Pro Ser Ser Gln Ser
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Gly Tyr Gln Gly Ser Phe His Ser Ile Gln Ser Cys Phe Pro Tyr Gly
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Gly Glu Thr His Gly Phe Asn Pro Leu Arg Pro Asn Gly Tyr His Ser
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Leu Ser Thr Pro Leu Pro Ala Thr Gly Tyr Glu Ala Leu Ala Glu Ala
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Ser Cys Pro Thr Ala Leu Pro Gln Gln Pro Ser Glu Asp Val Val Ser
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Glu Thr Val Ser Pro Leu Pro Ser Ser Met Asp Leu Leu Ile Gln Asp
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Ser Pro Asp Ser Ser Thr Ser Pro Lys Gly Lys Gln Pro Thr Ser Ala
65                  70                  75                  80

Glu Lys Ser Val Ala Lys Lys Glu Asp Lys Val Pro Val Lys Lys Gln
                85                  90                  95

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

Arg Phe Gln Arg Gln Lys Tyr Leu Ser Leu Gln Gln Met Gln Glu Leu
        115                 120                 125

Ser Asn Ile Leu Asn Leu Ser Tyr Lys Gln Val Lys Thr Trp Phe Gln
    130                 135                 140

Asn Gln Arg Met Lys Ser Lys Arg Trp Gln Lys Asn Asn Trp Pro Lys
145                 150                 155                 160

Asn Ser Asn Gly Val Thr Gln Lys Ala Ser Ala Pro Thr Tyr Pro Ser
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Leu Tyr Ser Ser Tyr His Gln Gly Cys Leu Val Asn Pro Thr Gly Asn
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Leu Pro Met Trp Ser Asn Gln Thr Trp Asn Asn Ser Thr Trp Ser Asn
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Gln Thr Gln Asn Ile Gln Ser Trp Ser Asn His Ser Trp Asn Thr Gln
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Asn Ser Pro Ala Ser Asp Leu Glu Ala Ala Leu Glu Ala Ala Gly Glu
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Gly Leu Asn Val Ile Gln Gln Thr Thr Arg Tyr Phe Ser Thr Pro Gln
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Val
305
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Ser Gln Val Leu Arg Gly Thr Gly His Cys Lys Trp Phe Asn Val Arg
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Met Gly Phe Gly Phe Ile Ser Met Ile Asn Arg Glu Gly Ser Pro Leu
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Asp Ile Pro Val Asp Val Phe Val His Gln Ser Lys Leu Phe Met Glu
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Gly Phe Arg Ser Leu Lys Glu Gly Glu Pro Val Glu Phe Thr Phe Lys
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Ser Pro Cys Leu Gly Ser Glu Arg Arg Pro Lys Gly Lys Thr Leu Gln
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Lys Arg Lys Pro Lys Gly Asp Arg Cys Tyr Asn Cys Gly Gly Leu Asp
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His His Ala Lys Glu Cys Ser Leu Pro Pro Gln Pro Lys Lys Cys His
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Tyr Cys Gln Ser Ile Met His Met Val Ala Asn Cys Pro His Lys Asn
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Val Ala Gln Pro Pro Ala Ser Ser Gln Gly Arg Gln Glu Ala Glu Ser
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Gln Pro Cys Thr Ser Thr Leu Pro Arg Glu Val Gly Gly Gly His Gly
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Cys Thr Ser Pro Pro Phe Pro Gln Glu Ala Arg Ala Glu Ile Ser Glu
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Arg Ser Gly Arg Ser Pro Gln Glu Ala Ser Ser Thr Lys Ser Ser Ile
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