SEQUENCE LISTING

<110> TRANSGENE SA

<120> Poxviral oncolytic vectors

<130> F2L

<160> 12

<170> PatentIn version 3.4

<210> 1
<211> 373
<212> PRT
<213> Saccharomyces cerevisiae

<400> 1

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Met Val Thr Gly Gly Met Ala Ser Lys Trp Asp Gln Lys Gly Met Asp
1               5                  10                  15

Ile Ala Tyr Glu Glu Ala Ala Leu Gly Tyr Lys Glu Gly Gly Val Pro
            20                  25                  30

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

Gly His Asn Met Arg Phe Gln Lys Gly Ser Ala Thr Leu His Gly Glu
    50                  55                  60

Ile Ser Thr Leu Glu Asn Cys Gly Arg Leu Glu Gly Lys Val Tyr Lys
65                  70                  75                  80

Asp Thr Thr Leu Tyr Thr Thr Leu Ser Pro Cys Asp Met Cys Thr Gly
                85                  90                  95

Ala Ile Ile Met Tyr Gly Ile Pro Arg Cys Val Val Gly Glu Asn Val
            100                 105                 110

Asn Phe Lys Ser Lys Gly Glu Lys Tyr Leu Gln Thr Arg Gly His Glu
        115                 120                 125

Val Val Val Val Asp Asp Glu Arg Cys Lys Lys Ile Met Lys Gln Phe
    130                 135                 140

Ile Asp Glu Arg Pro Gln Asp Trp Phe Glu Asp Ile Gly Glu Ala Ser
145                 150                 155                 160

Glu Pro Phe Lys Asn Val Tyr Leu Leu Pro Gln Thr Asn Gln Leu Leu
                165                 170                 175
```

```
Gly Leu Tyr Thr Ile Ile Arg Asn Lys Asn Thr Thr Arg Pro Asp Phe
            180                 185                 190

Ile Phe Tyr Ser Asp Arg Ile Ile Arg Leu Leu Val Glu Glu Gly Leu
        195                 200                 205

Asn His Leu Pro Val Gln Lys Gln Ile Val Glu Thr Asp Thr Asn Glu
    210                 215                 220

Asn Phe Glu Gly Val Ser Phe Met Gly Lys Ile Cys Gly Val Ser Ile
225                 230                 235                 240

Val Arg Ala Gly Glu Ser Met Glu Gln Gly Leu Arg Asp Cys Cys Arg
                245                 250                 255

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

Leu Pro Lys Leu Phe Tyr Glu Lys Leu Pro Glu Asp Ile Ser Glu Arg
        275                 280                 285

Tyr Val Phe Leu Leu Asp Pro Met Leu Ala Thr Gly Gly Ser Ala Ile
    290                 295                 300

Met Ala Thr Glu Val Leu Ile Lys Arg Gly Val Lys Pro Glu Arg Ile
305                 310                 315                 320

Tyr Phe Leu Asn Leu Ile Cys Ser Lys Glu Gly Ile Glu Lys Tyr His
                325                 330                 335

Ala Ala Phe Pro Glu Val Arg Ile Val Thr Gly Ala Leu Asp Arg Gly
            340                 345                 350

Leu Asp Glu Asn Lys Tyr Leu Val Pro Gly Leu Gly Asp Phe Gly Asp
        355                 360                 365

Arg Tyr Tyr Cys Val
    370
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<210> 2
<211> 373
<212> PRT
<213> Artificial

<220>
<223> derived from Saccharomyces cerevisiae

<400> 2

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Met Val Thr Gly Gly Met Ala Ser Lys Trp Asp Gln Lys Gly Met Asp
1               5                  10                  15

Ile Ala Tyr Glu Glu Ala Ala Leu Gly Tyr Lys Glu Gly Gly Val Pro
            20                  25                  30

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

Gly His Asn Met Arg Phe Gln Lys Gly Ser Ala Thr Leu His Gly Glu
    50                  55                  60

Ile Ser Thr Leu Glu Asn Cys Gly Arg Leu Glu Gly Lys Val Tyr Lys
65                  70                  75                  80

Asp Thr Thr Leu Tyr Thr Thr Leu Ser Pro Cys Asp Met Cys Thr Gly
                85                  90                  95

Ala Ile Ile Met Tyr Gly Ile Pro Arg Cys Val Val Gly Glu Asn Val
            100                 105                 110

Asn Phe Lys Ser Lys Gly Glu Lys Tyr Leu Gln Thr Arg Gly His Glu
        115                 120                 125

Val Val Val Val Asp Asp Glu Arg Cys Lys Lys Ile Met Lys Gln Phe
    130                 135                 140

Ile Asp Glu Arg Pro Gln Asp Trp Phe Glu Asp Ile Gly Glu Ala Ser
145                 150                 155                 160

Glu Pro Phe Lys Asn Val Tyr Leu Leu Pro Gln Thr Asn Gln Leu Leu
                165                 170                 175

Gly Leu Tyr Thr Ile Ile Ser Asn Lys Asn Thr Thr Arg Pro Asp Phe
            180                 185                 190

Ile Phe Tyr Ser Asp Arg Ile Ile Arg Leu Leu Val Glu Glu Gly Leu
        195                 200                 205

Asn His Leu Pro Val Gln Lys Gln Ile Val Glu Thr Asp Thr Asn Glu
    210                 215                 220

Asn Phe Glu Gly Val Ser Phe Met Gly Lys Ile Cys Gly Val Ser Ile
225                 230                 235                 240

Val Arg Ala Gly Glu Ser Met Glu Gln Gly Leu Arg Asp Cys Cys Arg
                245                 250                 255
```

```
Ser Val Arg Ile Gly Lys Ile Leu Ile Gln Arg Asp Glu Glu Thr Ala
            260                 265                 270

Leu Pro Lys Leu Phe Tyr Glu Lys Leu Pro Glu Asp Ile Ser Glu Arg
        275                 280                 285

Tyr Val Phe Leu Leu Asp Pro Met Leu Ala Thr Gly Gly Ser Ala Ile
    290                 295                 300

Met Ala Thr Glu Val Leu Ile Lys Arg Gly Val Lys Pro Glu Arg Ile
305                 310                 315                 320

Tyr Phe Leu Asn Leu Ile Cys Ser Lys Glu Gly Ile Glu Lys Tyr His
                325                 330                 335

Ala Ala Phe Pro Glu Val Arg Ile Val Thr Gly Ala Leu Asp Arg Gly
            340                 345                 350

Leu Asp Glu Asn Lys Tyr Leu Val Pro Gly Leu Gly Asp Phe Gly Asp
        355                 360                 365

Arg Tyr Tyr Cys Val
    370
```

<210> 3
<211> 644
<212> PRT
<213> Artificial

<220>
<223> derived from Saccharomyces cerevisiae

<400> 3

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Met Val Ser Asn Asn Ala Leu Glu Thr Ile Ile Asn Ala Arg Leu Pro
1               5                   10                  15

Gly Glu Glu Gly Leu Trp Gln Ile His Leu Gln Asp Gly Lys Ile Ser
            20                  25                  30

Ala Ile Asp Ala Gln Ser Gly Val Met Pro Ile Thr Glu Asn Ser Leu
        35                  40                  45

Asp Ala Glu Gln Gly Leu Val Ile Pro Pro Phe Val Glu Pro His Ile
    50                  55                  60

His Leu Asp Thr Thr Gln Thr Ala Gly Gln Pro Asn Trp Asn Gln Ser
65                  70                  75                  80
```

```
Gly Thr Leu Phe Glu Gly Ile Glu Arg Trp Ala Glu Arg Lys Ala Leu
                85                  90                  95

Leu Thr His Asp Asp Val Lys Gln Arg Ala Trp Gln Thr Leu Lys Trp
            100                 105                 110

Gln Ile Ala Asn Gly Ile Gln His Val Arg Thr His Val Asp Val Ser
        115                 120                 125

Asp Ala Thr Leu Thr Ala Leu Lys Ala Met Leu Glu Val Lys Gln Glu
    130                 135                 140

Val Ala Pro Trp Ile Asp Leu Gln Ile Val Ala Phe Pro Gln Glu Gly
145                 150                 155                 160

Ile Leu Ser Tyr Pro Asn Gly Glu Ala Leu Leu Glu Glu Ala Leu Arg
                165                 170                 175

Leu Gly Ala Asp Val Val Gly Ala Ile Pro His Phe Glu Phe Thr Arg
            180                 185                 190

Glu Tyr Gly Val Glu Ser Leu His Lys Thr Phe Ala Leu Ala Gln Lys
        195                 200                 205

Tyr Asp Arg Leu Ile Asp Val His Cys Asp Glu Ile Asp Asp Glu Gln
    210                 215                 220

Ser Arg Phe Val Glu Thr Val Ala Ala Leu Ala His His Glu Gly Met
225                 230                 235                 240

Gly Ala Arg Val Thr Ala Ser His Thr Thr Ala Met His Ser Tyr Asn
                245                 250                 255

Gly Ala Tyr Thr Ser Arg Leu Phe Arg Leu Leu Lys Met Ser Gly Ile
            260                 265                 270

Asn Phe Val Ala Asn Pro Leu Val Asn Ile His Leu Gln Gly Arg Phe
        275                 280                 285

Asp Thr Tyr Pro Lys Arg Arg Gly Ile Thr Arg Val Lys Glu Met Leu
    290                 295                 300

Glu Ser Gly Ile Asn Val Cys Phe Gly His Asp Asp Val Phe Asp Pro
305                 310                 315                 320

Trp Tyr Pro Leu Gly Thr Ala Asn Met Leu Gln Val Leu His Met Gly
                325                 330                 335
```

```
Leu His Val Cys Gln Leu Met Gly Tyr Gly Gln Ile Asn Asp Gly Leu
            340                 345                 350

Asn Leu Ile Thr His His Ser Ala Arg Thr Leu Asn Leu Gln Asp Tyr
        355                 360                 365

Gly Ile Ala Ala Gly Asn Ser Ala Asn Leu Ile Ile Leu Pro Ala Glu
    370                 375                 380

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

Arg Gly Gly Lys Val Ile Ala Ser Thr Gln Pro Ala Gln Thr Thr Val
                405                 410                 415

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

Asn Gly Val Met Ala Lys Ile Val Glu Val Lys His Pro Leu Val Lys
        435                 440                 445

His Lys Leu Gly Leu Met Arg Glu Gln Asp Ile Ser Thr Lys Arg Phe
    450                 455                 460

Arg Glu Leu Ala Ser Glu Val Gly Ser Leu Leu Thr Tyr Glu Ala Thr
465                 470                 475                 480

Ala Asp Leu Glu Thr Glu Lys Val Thr Ile Glu Gly Trp Asn Gly Pro
                485                 490                 495

Val Glu Ile Asp Gln Ile Lys Gly Lys Lys Ile Thr Val Val Pro Ile
            500                 505                 510

Leu Arg Ala Gly Leu Gly Met Met Asp Gly Val Leu Glu Asn Val Pro
        515                 520                 525

Ser Ala Arg Ile Ser Val Val Gly Met Tyr Arg Asn Glu Glu Thr Leu
    530                 535                 540

Glu Pro Val Pro Tyr Phe Gln Lys Leu Val Ser Asn Ile Asp Glu Arg
545                 550                 555                 560

Met Ala Leu Ile Val Asp Pro Met Leu Ala Thr Gly Gly Ser Val Ile
                565                 570                 575
```

```
Ala Thr Ile Asp Leu Leu Lys Lys Ala Gly Cys Ser Ser Ile Lys Val
            580                 585                 590

Leu Val Leu Val Ala Ala Pro Glu Gly Ile Ala Ala Leu Glu Lys Ala
        595                 600                 605

His Pro Asp Val Glu Leu Tyr Thr Ala Ser Ile Asp Gln Gly Leu Asn
    610                 615                 620

Glu His Gly Tyr Ile Ile Pro Gly Leu Gly Asp Ala Gly Asp Lys Ile
625                 630                 635                 640

Phe Gly Thr Lys
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<210> 4
<211> 158
<212> PRT
<213> Saccharomyces cerevisiae

<400> 4

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Met Val Thr Gly Gly Met Ala Ser Lys Trp Asp Gln Lys Gly Met Asp
1               5                   10                  15

Ile Ala Tyr Glu Glu Ala Ala Leu Gly Tyr Lys Glu Gly Gly Val Pro
            20                  25                  30

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

Gly His Asn Met Arg Phe Gln Lys Gly Ser Ala Thr Leu His Gly Glu
    50                  55                  60

Ile Ser Thr Leu Glu Asn Cys Gly Arg Leu Glu Gly Lys Val Tyr Lys
65                  70                  75                  80

Asp Thr Thr Leu Tyr Thr Thr Leu Ser Pro Cys Asp Met Cys Thr Gly
                85                  90                  95

Ala Ile Ile Met Tyr Gly Ile Pro Arg Cys Val Val Gly Glu Asn Val
            100                 105                 110

Asn Phe Lys Ser Lys Gly Glu Lys Tyr Leu Gln Thr Arg Gly His Glu
        115                 120                 125

Val Val Val Val Asp Asp Glu Arg Cys Lys Lys Ile Met Lys Gln Phe
    130                 135                 140
```

```
Ile Asp Glu Arg Pro Gln Asp Trp Phe Glu Asp Ile Gly Glu
145                 150                 155


<210>  5
<211>  150
<212>  PRT
<213>  Candida albicans

<400>  5

Met Ala Phe Asp Asp Lys Lys Gly Leu Gln Val Ala Leu Asp Gln Ala
1               5                   10                  15


Lys Lys Ser Tyr Ser Glu Gly Gly Ile Pro Ile Gly Ser Cys Ile Ile
            20                  25                  30


Ser Ser Asp Asp Thr Val Leu Gly Gln Gly His Asn Glu Arg Ile Gln
        35                  40                  45


Lys His Ser Ala Ile Leu His Gly Glu Met Ser Ala Leu Glu Asn Ala
    50                  55                  60


Gly Arg Leu Pro Gly Lys Thr Tyr Lys Asp Cys Thr Ile Tyr Thr Thr
65                  70                  75                  80


Leu Ser Pro Cys Ser Met Cys Thr Gly Ala Ile Leu Leu Tyr Gly Phe
                85                  90                  95


Lys Arg Val Val Met Gly Glu Asn Val Asn Phe Leu Gly Asn Glu Lys
            100                 105                 110


Leu Leu Ile Glu Asn Gly Val Glu Val Val Asn Leu Asn Asp Gln Glu
        115                 120                 125


Cys Ile Asp Leu Met Ala Lys Phe Ile Lys Glu Lys Pro Gln Asp Trp
    130                 135                 140


Asn Glu Asp Ile Gly Glu
145                 150


<210>  6
<211>  432
<212>  PRT
<213>  Escherichia coli

<400>  6

Met Trp Arg Leu Thr Val Ser Asn Asn Ala Leu Gln Thr Ile Ile Asn
1               5                   10                  15


Ala Gln Leu Pro Gly Lys Glu Gly Leu Trp Gln Ile His Leu His Asp
```

```
            20                  25                  30

Gly Lys Ile Ser Ala Ile Asp Ala Gln Ser Gly Val Met Pro Val Thr
        35                  40                  45

Glu Asn Ser Leu Asp Ala Glu Gln Gly Leu Val Leu Pro Pro Phe Val
    50                  55                  60

Glu Pro His Ile His Leu Asp Thr Thr Gln Thr Ala Gly Gln Pro Asn
65                  70                  75                  80

Trp Asn Gln Ser Gly Thr Leu Phe Glu Gly Ile Glu Arg Trp Ala Glu
                85                  90                  95

Arg Lys Ala Leu Leu Thr His Asp Asp Val Lys Gln Arg Ala Trp Gln
            100                 105                 110

Thr Leu Lys Trp Gln Ile Ala Asn Gly Ile Gln His Val Arg Thr His
        115                 120                 125

Val Asp Val Ser Asp Ala Thr Leu Thr Ala Leu Lys Ala Met Leu Glu
    130                 135                 140

Val Lys Gln Glu Val Ala Pro Trp Ile Asp Leu Gln Ile Val Ala Phe
145                 150                 155                 160

Pro Gln Glu Gly Ile Leu Ser Tyr Pro Asn Gly Glu Ala Leu Leu Glu
                165                 170                 175

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

Glu Phe Thr Arg Glu Tyr Gly Val Glu Ser Leu His Lys Thr Phe Ala
        195                 200                 205

Leu Ala Gln Lys Tyr Asp Arg Leu Ile Asp Val His Cys Asp Glu Ile
    210                 215                 220

Asp Asp Glu Gln Ser Arg Phe Val Glu Thr Val Ala Ala Leu Ala His
225                 230                 235                 240

Arg Glu Gly Met Gly Ala Arg Val Thr Ala Ser His Thr Thr Ala Met
                245                 250                 255

His Ser Tyr Asn Gly Ala Tyr Thr Ser Arg Leu Phe Arg Leu Leu Lys
            260                 265                 270
```

```
Met Ser Gly Ile Asn Phe Val Ala Asn Pro Leu Val Asn Ile His Leu
        275                 280                 285

Gln Gly Arg Phe Asp Thr Tyr Pro Lys Arg Arg Gly Ile Thr Arg Val
    290                 295                 300

Lys Glu Met Leu Glu Ser Gly Ile Asn Val Cys Phe Gly His Asp Asp
305                 310                 315                 320

Val Phe Asp Pro Trp Tyr Pro Leu Gly Thr Ala Asn Met Leu Gln Val
                325                 330                 335

Leu His Met Gly Leu His Val Cys Gln Leu Met Gly Tyr Gly Gln Ile
            340                 345                 350

Asn Asp Gly Leu Asn Leu Ile Thr His His Ser Ala Arg Thr Leu Asn
        355                 360                 365

Leu Gln Asp Tyr Gly Ile Ala Ala Gly Asn Ser Ala Asn Leu Ile Ile
    370                 375                 380

Leu Pro Ala Glu Asn Gly Phe Asp Ala Leu Arg Arg Gln Val Pro Val
385                 390                 395                 400

Arg Tyr Ser Val Arg Gly Gly Lys Val Ile Ala Ser Thr Gln Pro Ala
                405                 410                 415

Gln Thr Thr Val Tyr Leu Glu Gln Pro Glu Ala Ile Asp Tyr Lys Arg
            420                 425                 430
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<210> 7
<211> 31
<212> DNA
<213> Artificial

<220>
<223> Oligonucleotides

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cgcggatccg aaagcgatga actaaatgtt c 31

<210> 8
<211> 33
<212> DNA
<213> Artificial

<220>
<223> Oligonucleotides

<400> 8
tcccccgggg ttagtttcct taacaaatct aac 33

<210> 9
<211> 31
<212> DNA
<213> Artificial

<220>
<223> oligonucleotides

<400> 9
gcctggccaa caaatagagg agatcaaggg t 31

<210> 10
<211> 33
<212> DNA
<213> Artificial

<220>
<223> oligonucleotides

<400> 10
gcccagctga ccactacatc aattttacaa aag 33

<210> 11
<211> 32
<212> DNA
<213> Artificial

<220>
<223> oligonucleotides

<400> 11
gccgcatgct ccagaattga tcatagtgga ta 32

<210> 12
<211> 32
<212> DNA
<213> Artificial

<220>
<223> oligonucleotides

<400> 12
gctctagagt tagtttcctt aacaaatcta ac 32