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<110> Biovalence Sdn, Bhd.

<120> ANTICANCER TREATMENT

<130> FP6546

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<170> PatentIn version 3.5

<210> 1
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<220>
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Arg Gly Ile Cys Arg Cys Ile Cys Gly Val Pro Gly Val Gly Val Pro
        35                  40                  45

Gly Val Gly Gly Ala Thr Gly Ser Asp Val Asn Phe Asp Leu Ser Thr
    50                  55                  60

Ala Thr Ala Lys Thr Tyr Thr Lys Phe Ile Glu Asp Phe Arg Ala Thr
65                  70                  75                  80

Leu Pro Phe Ser His Lys Val Tyr Asp Ile Pro Leu Leu Tyr Ser Thr
                85                  90                  95

Ile Ser Asp Ser Arg Arg Phe Ile Leu Leu Asp Leu Thr Ser Tyr Ala
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Tyr Glu Thr Ile Ser Val Ala Ile Asp Val Thr Asn Val Tyr Val Val
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Ala Tyr Arg Thr Arg Asp Val Ser Tyr Phe Phe Lys Glu Ser Pro Pro
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Glu Ala Tyr Asn Ile Leu Phe Lys Gly Thr Arg Lys Ile Thr Leu Pro
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Tyr Thr Gly Asn Tyr Glu Asn Leu Gln Thr Ala Ala His Lys Ile Arg
                165                 170                 175

Glu Asn Ile Asp Leu Gly Leu Pro Ala Leu Ser Ser Ala Ile Thr Thr
            180                 185                 190

Leu Phe Tyr Tyr Asn Ala Gln Ser Ala Pro Ser Ala Leu Leu Val Leu
        195                 200                 205

Ile Gln Thr Thr Ala Glu Ala Ala Arg Phe Lys Tyr Ile Glu Arg His
    210                 215                 220

Val Ala Lys Tyr Val Ala Thr Asn Phe Lys Pro Asn Leu Ala Ile Ile
225                 230                 235                 240

Ser Leu Glu Asn Gln Trp Ser Ala Leu Ser Lys Gln Ile Phe Leu Ala
                245                 250                 255

Gln Asn Gln Gly Gly Lys Phe Arg Asn Pro Val Asp Leu Ile Lys Pro
            260                 265                 270

Thr Gly Glu Arg Phe Gln Val Thr Asn Val Asp Ser Asp Val Val Lys
        275                 280                 285

Gly Asn Ile Lys Leu Leu Leu Asn Ser Arg Ala Ser Thr Ala Asp Glu
    290                 295                 300

Asn Phe Ile Thr Thr Met Thr Leu Leu Gly Glu Ser Val Val Glu Phe
305                 310                 315                 320

Pro Trp Ala Leu Trp Lys Thr Met Leu Lys Glu Leu Gly Thr Met Ala
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Leu His Ala Gly Lys Ala Ala Leu Gly Ala Ala Ala Asp Thr Ile Ser
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Ala Ala Ala Leu Glu His His His His His His
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<211> 1140
<212> DNA
<213> Artificial Sequence

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<400> 2
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<220>
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<223> Xaa can be any naturally occurring amino acid

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<210> 4
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<220>
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Cys Gly

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<213> Artificial Sequence

<220>
<223> A polypeptide of the present invention

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Thr Lys Phe Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe Ser His Lys
20 25 30

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Val Tyr Asp Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp Ser Arg Arg
        35                  40                  45

Phe Ile Leu Leu Asp Leu Thr Ser Tyr Ala Tyr Glu Thr Ile Ser Val
    50                  55                  60

Ala Ile Asp Val Thr Asn Val Tyr Val Val Ala Tyr Arg Thr Arg Asp
65                  70                  75                  80

Val Ser Tyr Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr Asn Ile Leu
                85                  90                  95

Phe Lys Gly Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly Asn Tyr Glu
            100                 105                 110

Asn Leu Gln Thr Ala Ala His Lys Ile Arg Glu Asn Ile Asp Leu Gly
        115                 120                 125

Leu Pro Ala Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr Tyr Asn Ala
    130                 135                 140

Gln Ser Ala Pro Ser Ala Leu Leu Val Leu Ile Gln Thr Thr Ala Glu
145                 150                 155                 160

Ala Ala Arg Phe Lys Tyr Ile Glu Arg His Val Ala Lys Tyr Val Ala
                165                 170                 175

Thr Asn Phe Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu Asn Gln Trp
            180                 185                 190

Ser Ala Leu Ser Lys Gln Ile Phe Leu Ala Gln Asn Gln Gly Gly Lys
        195                 200                 205

Phe Arg Asn Pro Val Asp Leu Ile Lys Pro Thr Gly Glu Arg Phe Gln
    210                 215                 220

Val Thr Asn Val Asp Ser Asp Val Val Lys Gly Asn Ile Lys Leu Leu
225                 230                 235                 240

Leu Asn Ser Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile Thr Thr Met
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245 250 255

Thr Leu Leu Gly Glu Ser Val Val Glu Phe Pro Trp
260 265

<210> 6
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide of the present invention

<400> 6

Ala Leu Trp Lys Thr Met Leu Lys Glu Leu Gly Thr Met Ala Leu His
1 5 10 15

Ala Gly Lys Ala Ala Leu Gly Ala Ala Ala Asp Thr Ile Ser Gln Gly
20 25 30

Thr Gln

<210> 7
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 7

Gly Phe Cys Arg Cys Leu Cys Arg Arg Gly Val Cys Arg Cys Ile Cys
1 5 10 15

Thr Arg

<210> 8
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta

Defensin proteins

<400> 8

Arg Cys Leu Cys Arg Arg Gly Val Cys Arg Cys Leu Cys Arg Arg Gly
1 5 10 15

Val Cys

<210> 9
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 9

Arg Cys Ile Cys Thr Arg Gly Phe Cys Arg Cys Ile Cys Thr Arg Gly
1 5 10 15

Phe Cys

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

<220>
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<400> 10

Gly Ile Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 11
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
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<400> 11

Gly Ile Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 12
<211> 18
<212> PRT
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<220>
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<400> 12

Arg Ile Cys Arg Cys Ile Cys Gly Arg Arg Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 13
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
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<400> 13

Gly Ile Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 14
<211> 18
<212> PRT

<213> Artificial Sequence

<220>
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<400> 14

Gly Ile Cys Arg Cys Ile Cys Gly Lys Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 15
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 15

Gly Ile Cys Arg Cys Tyr Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 16
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 16

Gly Ile Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Tyr Cys
1 5 10 15

Gly Arg

<210> 17

<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 17

Gly Tyr Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 18
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 18

Gly Ile Cys Arg Cys Ile Cys Gly Arg Gly Tyr Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 19
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 19

Gly Ile Cys Tyr Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 20
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 20

Gly Ile Cys Ile Cys Ile Cys Gly Tyr Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 21
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 21

Gly Ile Cys Ile Cys Ile Cys Gly Arg Gly Ile Cys Tyr Cys Ile Cys
1 5 10 15

Gly Arg

<210> 22
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 22

Gly Ile Cys Ile Cys Ile Cys Gly Arg Gly Ile Cys Tyr Cys Ile Cys
1 5 10 15

Gly Arg

<210> 23
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 23

Arg Gly Cys Ile Cys Arg Cys Ile Gly Arg Gly Cys Ile Cys Arg Cys
1 5 10 15

Ile Gly

<210> 24
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 24

Arg Gly Cys Ile Cys Arg Cys Ile Gly Arg Gly Cys Ile Cys Arg Cys
1 5 10 15

Ile Gly

<210> 25
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 25

Gly Ile Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys Ile Cys
1 5 10 15

Gly Arg

<210> 26
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide sequence of naturally occurring and synthetic theta Defensin proteins

<400> 26

Gly Ile Cys Arg Cys Ile Cys Gly Lys Gly Ile Cys Arg Cys Tyr Cys
1 5 10 15

Gly Arg

<210> 27
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 27

Gly Gly Gly Ser
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<210> 28
<211> 360
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 28

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

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Cys Cys Arg Arg Val Trp Val Pro Gly Val Gly Val Pro Gly Val Gly
        35                  40                  45

Gly Ala Thr Gly Ser Asp Val Asn Phe Asp Leu Ser Thr Ala Thr Ala
    50                  55                  60

Lys Thr Tyr Thr Lys Phe Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe
65                  70                  75                  80

Ser His Lys Val Tyr Asp Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp
                85                  90                  95

Ser Arg Arg Phe Ile Leu Leu Asn Leu Thr Ser Tyr Ala Tyr Glu Thr
            100                 105                 110

Ile Ser Val Ala Ile Asp Val Thr Asn Val Tyr Val Val Ala Tyr Arg
        115                 120                 125

Thr Arg Asp Val Ser Tyr Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr
    130                 135                 140

Asn Ile Leu Phe Lys Gly Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly
145                 150                 155                 160

Asn Tyr Glu Asn Leu Gln Thr Ala Ala His Lys Ile Arg Glu Asn Ile
                165                 170                 175

Asp Leu Gly Leu Pro Ala Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr
            180                 185                 190

Tyr Asn Ala Gln Ser Ala Pro Ser Ala Leu Leu Val Leu Ile Gln Thr
        195                 200                 205

Thr Ala Glu Ala Ala Arg Phe Lys Tyr Ile Glu Arg His Val Ala Lys
    210                 215                 220

Tyr Val Ala Thr Asn Phe Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu
225                 230                 235                 240

Asn Gln Trp Ser Ala Leu Ser Lys Gln Ile Phe Leu Ala Gln Asn Gln
                245                 250                 255
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Gly Gly Lys Phe Arg Asn Pro Val Asp Leu Ile Lys Pro Thr Gly Glu
260 265 270

Arg Phe Gln Val Thr Asn Val Asp Ser Asp Val Val Lys Gly Asn Ile
275 280 285

Lys Leu Leu Leu Asn Ser Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile
290 295 300

Thr Thr Met Thr Leu Leu Gly Glu Ser Val Val Asn Ser Cys Ala Ser
305 310 315 320

Arg Cys Lys Gly His Cys Arg Ala Arg Arg Cys Gly Tyr Tyr Val Ser
325 330 335

Val Leu Tyr Arg Gly Arg Cys Tyr Cys Lys Cys Leu Arg Cys Val Pro
340 345 350

Gly Val Gly Val Pro Gly Val Gly
355 360

<210> 29
<211> 401
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 29

Leu Glu Lys Arg Lys Trp Lys Leu Phe Lys Lys Ile Glu Lys Val Gly
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Gln Arg Val Arg Asp Ala Val Ile Ser Ala Gly Pro Ala Val Ala Thr
20 25 30

Val Ala Gln Ala Thr Ala Leu Ala Lys Asn Val Pro Gly Val Gly Val
35 40 45

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

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Gly Ala Thr Ser Lys Lys Lys Val Tyr Phe Ile Ser Asn Leu Arg Lys
65                  70                  75                  80

Ala Leu Pro Asn Glu Lys Lys Leu Tyr Asp Ile Pro Leu Val Arg Ser
                85                  90                  95

Ser Ser Gly Ser Lys Ala Thr Ala Tyr Thr Leu Asn Leu Ala Asn Pro
            100                 105                 110

Ser Ala Ser Gln Tyr Ser Ser Phe Leu Asp Gln Ile Arg Asn Asn Val
        115                 120                 125

Arg Asp Thr Ser Leu Ile Tyr Gly Gly Thr Asp Val Ala Val Ile Gly
    130                 135                 140

Ala Pro Ser Thr Thr Asp Lys Phe Leu Arg Leu Asn Phe Gln Gly Pro
145                 150                 155                 160

Arg Gly Thr Val Ser Leu Gly Leu Arg Arg Glu Asn Leu Tyr Val Val
                165                 170                 175

Ala Tyr Leu Ala Met Asp Asn Ala Asn Val Asn Arg Ala Tyr Tyr Phe
            180                 185                 190

Lys Asn Gln Ile Thr Ser Ala Glu Leu Thr Ala Leu Phe Pro Glu Val
        195                 200                 205

Val Val Ala Asn Gln Lys Gln Leu Glu Tyr Gly Glu Asp Tyr Gln Ala
    210                 215                 220

Ile Glu Lys Asn Ala Lys Ile Thr Thr Gly Asp Gln Ser Arg Lys Glu
225                 230                 235                 240

Leu Gly Leu Gly Ile Asn Leu Leu Ile Thr Met Ile Asp Gly Val Asn
                245                 250                 255

Lys Lys Val Arg Val Val Lys Asp Glu Ala Arg Phe Leu Leu Ile Ala
            260                 265                 270

Ile Gln Met Thr Ala Glu Ala Ala Arg Phe Arg Tyr Ile Gln Asn Leu
        275                 280                 285
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Val Thr Lys Asn Phe Pro Asn Lys Phe Asp Ser Glu Asn Lys Val Ile
290 295 300

Gln Phe Gln Val Ser Trp Ser Lys Ile Ser Thr Ala Ile Phe Gly Asp
305 310 315 320

Cys Lys Asn Gly Val Phe Asn Lys Asp Tyr Asp Phe Gly Phe Gly Lys
325 330 335

Val Arg Gln Ala Lys Asp Leu Gln Met Gly Leu Leu Lys Tyr Leu Gly
340 345 350

Arg Pro Lys Ser Ser Ser Ile Glu Ala Asn Ser Thr Asp Asp Thr Ala
355 360 365

Asp Val Leu Val Pro Gly Val Gly Val Pro Gly Val Gly Lys Thr Cys
370 375 380

Glu Asn Leu Ala Asp Thr Phe Arg Gly Pro Cys Phe Ala Thr Ser Asn
385 390 395 400

Cys

<210> 30
<211> 297
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 30

Met Gly Arg Ile Cys Arg Cys Ile Cys Gly Arg Gly Ile Cys Arg Cys
1 5 10 15

Ile Cys Gly Val Pro Gly Val Gly Val Pro Gly Val Gly Gly Ser Asp
20 25 30

Val Asn Phe Asp Leu Ser Thr Ala Thr Ala Lys Thr Tyr Thr Lys Phe
35 40 45

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Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe Ser His Lys Val Tyr Asp
    50                  55                  60

Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp Ser Arg Arg Phe Ile Leu
65                  70                  75                  80

Leu Asp Leu Thr Ser Tyr Ala Tyr Glu Thr Ile Ser Val Ala Ile Asp
                85                  90                  95

Val Thr Asn Val Tyr Val Val Ala Tyr Arg Thr Arg Asp Val Ser Tyr
            100                 105                 110

Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr Asn Ile Leu Phe Lys Gly
        115                 120                 125

Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly Asn Tyr Glu Asn Leu Gln
    130                 135                 140

Thr Ala Ala His Lys Ile Arg Glu Asn Ile Asp Leu Gly Leu Pro Ala
145                 150                 155                 160

Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr Tyr Asn Ala Gln Ser Ala
                165                 170                 175

Pro Ser Ala Leu Leu Val Leu Ile Gln Thr Thr Ala Glu Ala Ala Arg
            180                 185                 190

Phe Lys Tyr Ile Glu Arg His Val Ala Lys Tyr Val Ala Thr Asn Phe
        195                 200                 205

Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu Asn Gln Trp Ser Ala Leu
    210                 215                 220

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

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

Val Asp Ser Asp Val Val Lys Gly Asn Ile Lys Leu Leu Leu Asn Ser
            260                 265                 270
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Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile Thr Thr Met Thr Leu Leu
275 280 285

Gly Glu Ser Val Val Glu Phe Pro Trp
290 295

<210> 31
<211> 297
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 31

Met Gly Ser Asp Val Asn Phe Asp Leu Ser Thr Ala Thr Ala Lys Thr
1 5 10 15

Tyr Thr Lys Phe Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe Ser His
20 25 30

Lys Val Tyr Asp Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp Ser Arg
35 40 45

Arg Phe Ile Leu Leu Asp Leu Thr Ser Tyr Ala Tyr Glu Thr Ile Ser
50 55 60

Val Ala Ile Asp Val Thr Asn Val Tyr Val Val Ala Tyr Arg Thr Arg
65 70 75 80

Asp Val Ser Tyr Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr Asn Ile
85 90 95

Leu Phe Lys Gly Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly Asn Tyr
100 105 110

Glu Asn Leu Gln Thr Ala Ala His Lys Ile Arg Glu Asn Ile Asp Leu
115 120 125

Gly Leu Pro Ala Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr Tyr Asn
130 135 140

```
Ala Gln Ser Ala Pro Ser Ala Leu Leu Val Leu Ile Gln Thr Thr Ala
145                 150                 155                 160

Glu Ala Ala Arg Phe Lys Tyr Ile Glu Arg His Val Ala Lys Tyr Val
                165                 170                 175

Ala Thr Asn Phe Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu Asn Gln
            180                 185                 190

Trp Ser Ala Leu Ser Lys Gln Ile Phe Leu Ala Gln Asn Gln Gly Gly
        195                 200                 205

Lys Phe Arg Asn Pro Val Asp Leu Ile Lys Pro Thr Gly Glu Arg Phe
    210                 215                 220

Gln Val Thr Asn Val Asp Ser Asp Val Val Lys Gly Asn Ile Lys Leu
225                 230                 235                 240

Leu Leu Asn Ser Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile Thr Thr
                245                 250                 255

Met Thr Leu Leu Gly Glu Ser Val Val Glu Phe Pro Trp Val Pro Gly
            260                 265                 270

Val Gly Val Pro Gly Val Gly Gly Arg Ile Cys Arg Cys Ile Cys Gly
        275                 280                 285

Arg Gly Ile Cys Arg Cys Ile Cys Gly
    290                 295
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<210> 32
<211> 313
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<220>
<223> An example of fusion proteins according to the present invention

<400> 32

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Met Gly Ser Asp Val Asn Phe Asp Leu Ser Thr Ala Thr Ala Lys Thr
1               5                   10                  15
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Tyr Thr Lys Phe Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe Ser His
            20                  25                  30

Lys Val Tyr Asp Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp Ser Arg
        35                  40                  45

Arg Phe Ile Leu Leu Asp Leu Thr Ser Tyr Ala Tyr Glu Thr Ile Ser
    50                  55                  60

Val Ala Ile Asp Val Thr Asn Val Tyr Val Val Ala Tyr Arg Thr Arg
65                  70                  75                  80

Asp Val Ser Tyr Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr Asn Ile
                85                  90                  95

Leu Phe Lys Gly Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly Asn Tyr
            100                 105                 110

Glu Asn Leu Gln Thr Ala Ala His Lys Ile Arg Glu Asn Ile Asp Leu
        115                 120                 125

Gly Leu Pro Ala Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr Tyr Asn
    130                 135                 140

Ala Gln Ser Ala Pro Ser Ala Leu Leu Val Leu Ile Gln Thr Thr Ala
145                 150                 155                 160

Glu Ala Ala Arg Phe Lys Tyr Ile Glu Arg His Val Ala Lys Tyr Val
                165                 170                 175

Ala Thr Asn Phe Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu Asn Gln
            180                 185                 190

Trp Ser Ala Leu Ser Lys Gln Ile Phe Leu Ala Gln Asn Gln Gly Gly
        195                 200                 205

Lys Phe Arg Asn Pro Val Asp Leu Ile Lys Pro Thr Gly Glu Arg Phe
    210                 215                 220

Gln Val Thr Asn Val Asp Ser Asp Val Val Lys Gly Asn Ile Lys Leu
225                 230                 235                 240
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Leu Leu Asn Ser Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile Thr Thr
245 250 255

Met Thr Leu Leu Gly Glu Ser Val Val Glu Phe Pro Trp Val Pro Gly
260 265 270

Val Gly Val Pro Gly Val Gly Ala Leu Trp Lys Thr Met Leu Lys Glu
275 280 285

Leu Gly Thr Met Ala Leu His Ala Gly Lys Ala Ala Leu Gly Ala Ala
290 295 300

Ala Asp Thr Ile Ser Gln Gly Thr Gln
305 310

<210> 33
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<220>
<223> An example of fusion proteins according to the present invention

<400> 33

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

Gly Thr Gln Val Pro Gly Val Gly Val Pro Gly Val Gly Gly Ser Asp
35 40 45

Val Asn Phe Asp Leu Ser Thr Ala Thr Ala Lys Thr Tyr Thr Lys Phe
50 55 60

Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe Ser His Lys Val Tyr Asp
65 70 75 80

Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp Ser Arg Arg Phe Ile Leu
85 90 95

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

Val Thr Asn Val Tyr Val Val Ala Tyr Arg Thr Arg Asp Val Ser Tyr
        115                 120                 125

Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr Asn Ile Leu Phe Lys Gly
    130                 135                 140

Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly Asn Tyr Glu Asn Leu Gln
145                 150                 155                 160

Thr Ala Ala His Lys Ile Arg Glu Asn Ile Asp Leu Gly Leu Pro Ala
                165                 170                 175

Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr Tyr Asn Ala Gln Ser Ala
            180                 185                 190

Pro Ser Ala Leu Leu Val Leu Ile Gln Thr Thr Ala Glu Ala Ala Arg
        195                 200                 205

Phe Lys Tyr Ile Glu Arg His Val Ala Lys Tyr Val Ala Thr Asn Phe
    210                 215                 220

Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu Asn Gln Trp Ser Ala Leu
225                 230                 235                 240

Ser Lys Gln Ile Phe Leu Ala Gln Asn Gln Gly Gly Lys Phe Arg Asn
                245                 250                 255

Pro Val Asp Leu Ile Lys Pro Thr Gly Glu Arg Phe Gln Val Thr Asn
            260                 265                 270

Val Asp Ser Asp Val Val Lys Gly Asn Ile Lys Leu Leu Leu Asn Ser
        275                 280                 285

Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile Thr Thr Met Thr Leu Leu
    290                 295                 300

Gly Glu Ser Val Val Glu Phe Pro Trp
305                 310
```

<210> 34
<211> 328
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 34

```
Val Pro Gly Val Gly Val Pro Gly Val Gly Lys Trp Cys Phe Arg Val
1               5                  10                  15

Cys Tyr Arg Gly Ile Cys Tyr Arg Arg Cys Arg Val Pro Gly Val Gly
            20                  25                  30

Val Pro Gly Val Gly Gly Ala Thr Gly Ser Asp Val Asn Phe Asp Leu
        35                  40                  45

Ser Thr Ala Thr Ala Lys Thr Tyr Thr Lys Phe Ile Glu Asp Phe Arg
    50                  55                  60

Ala Thr Leu Pro Phe Ser His Lys Val Tyr Asp Ile Pro Leu Leu Tyr
65                  70                  75                  80

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

Tyr Ala Tyr Glu Thr Ile Ser Val Ala Ile Asp Val Thr Asn Val Tyr
            100                 105                 110

Val Val Ala Tyr Arg Thr Arg Asp Val Ser Tyr Phe Phe Lys Glu Ser
        115                 120                 125

Pro Pro Glu Ala Tyr Asn Ile Leu Phe Lys Gly Thr Arg Lys Ile Thr
    130                 135                 140

Leu Pro Tyr Thr Gly Asn Tyr Glu Asn Leu Gln Thr Ala Ala His Lys
145                 150                 155                 160

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

```
Thr Thr Leu Phe Tyr Tyr Asn Ala Gln Ser Ala Pro Ser Ala Leu Leu
            180                 185                 190

Val Leu Ile Gln Thr Thr Ala Glu Ala Ala Arg Phe Lys Tyr Ile Glu
        195                 200                 205

Arg His Val Ala Lys Tyr Val Ala Thr Asn Phe Lys Pro Asn Leu Ala
    210                 215                 220

Ile Ile Ser Leu Glu Asn Gln Trp Ser Ala Leu Ser Lys Gln Ile Phe
225                 230                 235                 240

Leu Ala Gln Asn Gln Gly Gly Lys Phe Arg Asn Pro Val Asp Leu Ile
                245                 250                 255

Lys Pro Thr Gly Glu Arg Phe Gln Val Thr Asn Val Asp Ser Asp Val
            260                 265                 270

Val Lys Gly Asn Ile Lys Leu Leu Leu Asn Ser Arg Ala Ser Thr Ala
        275                 280                 285

Asp Glu Asn Phe Ile Thr Thr Met Thr Leu Leu Gly Glu Ser Val Val
    290                 295                 300

Asn Val Pro Gly Val Gly Val Pro Gly Val Gly His Gly Val Ser Gly
305                 310                 315                 320

His Gly Gln His Gly Val His Gly
                325
```

<210> 35
<211> 336
<212> PRT
<213> Artificial Sequence

<220>
<223> An example of fusion proteins according to the present invention

<400> 35

```
Val Pro Gly Val Gly Val Pro Gly Val Gly Phe Leu Pro Leu Leu Ala
1               5                   10                  15

Gly Leu Ala Ala Asn Phe Leu Pro Thr Ile Ile Cys Phe Ile Ser Tyr
```

```
            20                  25                  30

Lys Cys Val Pro Gly Val Gly Val Pro Gly Val Gly Gly Ala Thr Gly
        35                  40                  45

Ser Asp Val Asn Phe Asp Leu Ser Thr Ala Thr Ala Lys Thr Tyr Thr
    50                  55                  60

Lys Phe Ile Glu Asp Phe Arg Ala Thr Leu Pro Phe Ser His Lys Val
65                  70                  75                  80

Tyr Asp Ile Pro Leu Leu Tyr Ser Thr Ile Ser Asp Ser Arg Arg Phe
                85                  90                  95

Ile Leu Leu Asn Leu Thr Ser Tyr Ala Tyr Glu Thr Ile Ser Val Ala
            100                 105                 110

Ile Asp Val Thr Asn Val Tyr Val Val Ala Tyr Arg Thr Arg Asp Val
        115                 120                 125

Ser Tyr Phe Phe Lys Glu Ser Pro Pro Glu Ala Tyr Asn Ile Leu Phe
    130                 135                 140

Lys Gly Thr Arg Lys Ile Thr Leu Pro Tyr Thr Gly Asn Tyr Glu Asn
145                 150                 155                 160

Leu Gln Thr Ala Ala His Lys Ile Arg Glu Asn Ile Asp Leu Gly Leu
                165                 170                 175

Pro Ala Leu Ser Ser Ala Ile Thr Thr Leu Phe Tyr Tyr Asn Ala Gln
            180                 185                 190

Ser Ala Pro Ser Ala Leu Leu Val Leu Ile Gln Thr Thr Ala Glu Ala
        195                 200                 205

Ala Arg Phe Lys Tyr Ile Glu Arg His Val Ala Lys Tyr Val Ala Thr
    210                 215                 220

Asn Phe Lys Pro Asn Leu Ala Ile Ile Ser Leu Glu Asn Gln Trp Ser
225                 230                 235                 240
```

Ala Leu Ser Lys Gln Ile Phe Leu Ala Gln Asn Gln Gly Gly Lys Phe
245 250 255

Arg Asn Pro Val Asp Leu Ile Lys Pro Thr Gly Glu Arg Phe Gln Val
260 265 270

Thr Asn Val Asp Ser Asp Val Val Lys Gly Asn Ile Lys Leu Leu Leu
275 280 285

Asn Ser Arg Ala Ser Thr Ala Asp Glu Asn Phe Ile Thr Thr Met Thr
290 295 300

Leu Leu Gly Glu Ser Val Val Asn Val Pro Gly Val Gly Val Pro Gly
305 310 315 320

Val Gly Lys Leu Ala Lys Leu Ala Lys Lys Leu Ala Lys Leu Ala Lys
325 330 335

<210> 36
<211> 325
<212> PRT
<213> Artificial Sequence

<220>
<223> Polypeptide sequence of RetroGAD1

<400> 36

Gly Ile Cys Arg Cys Ile Gly Arg Gly Ile Cys Arg Cys Ile Cys Gly
1 5 10 15

Arg Val Pro Gly Val Gly Val Pro Gly Val Gly Gly Ala Thr Gly Ser
20 25 30

Gly Leu Asp Thr Val Ser Phe Ser Thr Lys Gly Ala Thr Tyr Ile Thr
35 40 45

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

Asn Ser His Gly Ile Pro Leu Leu Arg Lys Lys Cys Asp Asp Pro Gly
65 70 75 80

Lys Cys Phe Val Leu Val Ala Leu Ser Asn Asp Asn Gly Gln Leu Ala

85 90 95

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

Arg Asn Arg Ser Tyr Phe Phe Lys Asp Ala Pro Asp Ala Ala Tyr Glu
115 120 125

Gly Leu Phe Lys Asn Thr Ile Lys Thr Arg Leu His Phe Gly Gly Ser
130 135 140

Tyr Pro Ser Leu Glu Gly Glu Lys Ala Tyr Arg Glu Thr Thr Asp Leu
145 150 155 160

Gly Ile Glu Pro Leu Arg Ile Gly Ile Lys Lys Leu Asp Glu Asn Ala
165 170 175

Ile Asp Asn Tyr Lys Pro Thr Glu Ile Ala Ser Ser Leu Leu Val Val
180 185 190

Ile Gln Met Val Ser Glu Ala Ala Arg Phe Thr Phe Ile Glu Asn Gln
195 200 205

Ile Arg Asn Asn Phe Gln Gln Arg Ile Arg Pro Ala Asn Asn Thr Ile
210 215 220

Ser Leu Glu Asn Lys Trp Gly Lys Leu Ser Phe Gln Ile Arg Thr Ser
225 230 235 240

Gly Ala Asn Gly Met Phe Ser Glu Ala Val Glu Leu Glu Arg Ala Asn
245 250 255

Gly Lys Lys Tyr Tyr Val Thr Ala Val Asp Gln Val Lys Pro Lys Ile
260 265 270

Ala Leu Leu Lys Phe Val Asp Lys Asp Pro Lys Gly Leu Trp Ser Lys
275 280 285

Ile Lys Glu Ala Ala Lys Ala Ala Gly Lys Ala Ala Leu Asn Ala Val
290 295 300

Thr Gly Leu Val Asn Gln Gly Asp Gln Pro Ser Val Pro Gly Val Gly
305 310 315 320

Val Pro Gly Val Gly
325

<210> 37
<211> 1185
<212> DNA
<213> Artificial Sequence

<220>
<223> Coding sequence of Amatilin

<400> 37
gggcagtgag cggaaggccc atgaggccag ttaattaaga ggtaccgaat tctcattcgg 60

tttgtgtaga ttgagaagag gtttctgtgc tcacggtaga tgtagattcc catccatccc 120

aatcggtaga tgttccagat tcgttcagtg ttgtagaaga gtttgggtcc caggtgttgg 180

tgttccaggt gttggaggtg ctactggttc tgatgttaac ttcgacttgt ccactgctac 240

tgctaagact tacactaagt tcatcgagga cttcagagct actttgccat tctcccacaa 300

ggtttacgac atccctttgt tgtactccac tatctccgac tccagaagat tcatcttgtt 360

gaacttgact tcctacgctt acgagactat ctccgttgct atcgacgtta caaacgttta 420

cgttgttgct tacagaacta gagatgtttc ctacttcttc aaagagtccc caccagaggc 480

ttacaacatc ttgttcaagg gtactagaaa gatcactttg ccatacactg gtaactacga 540

gaacttgcag actgctgctc acaagatcag agagaacatc gacttgggtt tgccagcttt 600

gtcctccgct atcactactt tgttctacta caacgctcag tccgctccat ccgctttgtt 660

ggttttgatc cagactactg ctgaggctgc tagattcaag tacatcgaga gacacgttgc 720

taagtacgtt gctacaaact tcaagccaaa cttggctatc atctccttgg agaaccagtg 780

gtctgctttg tccaagcaga tcttcttggc tcaaaaccag ggtggtaagt tcagaaaccc 840

agtcgacttg atcaagccaa ccggtgagag attccaggtt actaatgttg actccgacgt 900

tgttaagggt aacatcaagt tgttgttgaa ctccagagct tccactgctg acgagaactt 960

catcactact atgactttgt tgggtgagtc cgttgttaac tcctgtgctt ccagatgtaa 1020

gggtcactgt agagctagaa gatgtggtta ctacgtttcc gttctgtaca gaggtagatg 1080

ttactgtaaa tgtttgagat gtgtccccgg tgttggagtc cctggtgtcg gtgcggccgc 1140

gagctcatgg cgcgcctagg ccttgacggc cttccgccaa ttcgc 1185

<210> 38
<211> 1084
<212> DNA
<213> Artificial Sequence

<220>
<223> Coding sequence for RetroGAD1

<400> 38
cgaattggcg gaaggccgtc aaggccacgt gtcttgtcca ggtaccgaat tcggaatctg 60

tagatgcatc tgcggtagag gtatctgcag atgtatttgt ggaagagtcc caggtgttgg 120

tgttccaggt gttggaggtg ctactggttc tggtttggac actgtttcat tctccactaa 180

gggtgctact tacatcactt acgttaactt tttgaacgag ttgagagtta agttgaagcc 240

agagggtaac tcccacggta tccctttgtt gagaaagaag tgtgacgacc caggtaagtg 300

tttcgttttg gttgctttgt ccaacgacaa cggtcagttg gctgagattg ctatcgacgt 360

tacttccgtt tacgttgttg gttaccaggt tagaaacaga tcctacttct tcaaggacgc 420

tccagacgct gcttacgaag gtttgttcaa gaacactatc aagactagat tgcacttcgg 480

tggttcctac ccatctttgg aaggtgagaa ggcttacaga gagactactg acttgggtat 540

cgagccattg agaatcggta tcaagaagtt ggacgagaac gctatcgaca actacaagcc 600

aactgagatc gcttcctcct tgttggttgt tatccagatg gtttccgagg ctgctagatt 660

cactttcatc gagaaccaga tcagaaacaa cttccagcag agaatcagac cagctaacaa 720

cactatttcc ttggagaaca agtggggtaa gttgtccttc cagatcagaa catccggtgc 780

taacggtatg ttctctgagg ctgttgagtt ggagagagct aacggtaaga agtactacgt 840

tactgctgtt gaccaggtta agccaaagat cgctttgttg aagttcgttg acaaggaccc 900

aaagggtttg tggtccaaga tcaaagaggc tgctaaggct gctggtaagg ctgctttgaa 960

tgctgttact ggtttggtta accagggtga ccaaccatct gtccctggtg ttggagtccc 1020

tggtgtcggt gcggccgcga gctctggagc acaagactgg cctcatgggc cttccgctca 1080

ctgc 1084

<210> 39
<211> 998
<212> DNA
<213> Artificial Sequence

<220>
<223> Coding sequence of Tampal 1

<400> 39
ggatccgttc cgggtgtggg tgttccgggt gttggtaaat ggtgtttcgt gtttgttatc 60

gcggtatttg ttatcgtcgt tgtcgtgtgc caggcgttgg cgttccaggc gtgggtggtg 120

caaccggtag tgatgttaat tttgatctga gcaccgcaac cgcaaaaacc tataccaaat 180

ttatcgaaga ttttcgtgca accctgccgt ttagccataa agtttatgat attccgctgc 240

tgtatagcac cattagcgat agccgtcgtt ttattctgct gaatctgacc agctatgcct 300

atgaaaccat tagcgttgca attgatgtga ccaatgttta tgttgttgca tatcgtaccc 360

gtgatgtgag ctatttttc aaagaaagcc ctccggaagc ctataacatt ctgtttaaag 420

gcacccgcaa aatcaccctg ccgtataccg gtaattatga aaatctgcag accgcagcac 480

ataaaattcg cgaaaatatt gatctgggtc tgcctgcact gagcagcgca attaccaccc 540

tgttttatta caatgcacag agcgcaccga gcgcactgct ggttctgatt cagaccaccg 600

cagaagcagc acgctttaaa tacattgaac gtcatgttgc caaatacgtg gccaccaact 660

ttaaaccgaa tctggcaatt attagcctgg aaaatcagtg gtcagcactg agcaaacaaa 720

tttttctggc acagaatcag ggtggcaaat ttcgtaatcc ggttgatctg attaaaccga 780

ccggtgaacg ttttcaggtt accaatgttg atagtgatgt ggtgaaaggc aacattaaac 840

tgctgctgaa tagccgtgca agcaccgcag atgaaaactt tattaccacc atgaccctgc 900

tgggtgaaag cgttgttaat gttcctggtg ttggcgtgcc tggtgttggt catggtgtta 960

gcggtcatgg tcagcatggt gttcatggtt aaaagctt 998

<210> 40
<211> 1023
<212> DNA
<213> Artificial Sequence

<220>
<223> Coding sequence of K5

<400> 40
ggatccgttc cgggtgtggg tgttccgggt gttggctttc tgggtgcact gtttaaagtt 60

gcaagcaaag ttctgccgag cgttaaatgt gcaattacca aaaaatgtgt tcctggcgtt 120

ggtgttccag gcgtgggtgg tgcaaccggt agtgatgtta attttgatct gagcaccgca 180

accgcaaaaa cctataccaa atttatcgaa gattttcgtg caaccctgcc gtttagccat 240

aaagtttatg atattccgct gctgtatagc accattagcg atagccgtcg ttttattctg 300

ctgaatctga ccagctatgc ctatgaaacc attagcgttg caattgatgt gaccaatgtt 360

tatgttgttg catatcgtac ccgtgatgtg agctattttt tcaaagaaag ccctccggaa 420

gcctataaca ttctgtttaa aggcacccgc aaaatcaccc tgccgtatac cggtaattat 480

gaaaatctgc agaccgcagc acataaaatt cgcgaaaata ttgatctggg tctgcctgca 540

ctgagcagcg caattaccac cctgttttat tacaatgcac agagcgcacc gagcgcactg 600

ctggttctga ttcagaccac cgcagaagca gcacgcttta aatacattga acgtcatgtt 660

gccaaatacg tggccaccaa ctttaaaccg aatctggcaa ttattagcct ggaaaatcag 720

tggtcagcac tgagcaaaca aatttttctg gcacagaatc agggtggcaa atttcgtaat 780

ccggttgatc tgattaaacc gaccggtgaa cgttttcagg ttaccaatgt tgatagtgat 840

gtggtgaaag gcaacattaa actgctgctg aatagccgtg caagcaccgc agatgaaaac 900

tttattacca ccatgaccct gctgggtgaa agcgttgtta atgttccagg tgttggtgtg 960

cctggtgtgg gtaaactggc aaaactggcc aaaaaactgg ctaagctggc gaaataaaag 1020

ctt 1023