

Sequence Listing as filed  
SEQUENCE LISTING

<110> University College Dublin, National University of Ireland,  
Dublin

<120> A modified promoter sequence

<130> P90420PC00

<150> GB0814615.1

<151> 2008-08-11

<160> 129

<170> PatentIn version 3.5

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# Sequence Listing as filed

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32

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acgtccctg cccggccccc gccggaaacc g 91

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<210> 64

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<211> 25

<212> DNA

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<210> 72  
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<210> 73  
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<210> 74  
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<210> 76  
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<400> 76  
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<400> 77  
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<210> 78  
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<210> 80

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21

<210> 81

<211> 22

<212> DNA

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Sequence Listing as filed

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<210> 88  
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<220>  
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<210> 93  
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<220>  
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<400> 93  
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<210> 94  
<211> 30  
<212> DNA  
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<400> 94  
cccgggcccg aggaacatgg ccagcgagg 30

<210> 95



# Sequence Listing as filed

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<400> 95  
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<210> 96  
<211> 32  
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<220>  
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<400> 96  
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<210> 97  
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<223> Synthetic Primer Sequence

<400> 97  
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<210> 98  
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<212> DNA  
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<220>  
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<400> 98  
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<210> 99  
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<213> Unknown

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gggcccgagg ggcgtggcca gcgc

24

<210> 101

<211> 29

<212> DNA

<213> Unknown

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29

<210> 102

<211> 43

<212> DNA

<213> Unknown

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43

<210> 103

<211> 50

<212> DNA

# Sequence Listing as filed

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<400> 103

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<210> 104

<211> 39

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<210> 105

<211> 27

<212> DNA

<213> Unknown

<220>

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<400> 105

tggggaacct gtgctgagtc actggag 27

<210> 106

<211> 21

<212> DNA

<213> Unknown

<220>

<223> Synthetic Primer Sequence

<400> 106

cgttgatga ctcagccgga a 21

<210> 107

<211> 24

<212> DNA

<213> Unknown

Sequence Listing as filed

<220>

<223> Synthetic Primer Sequence

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<210> 109

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<212> DNA

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<400> 109

ctccctctgc ccgccccag ccctcg

26

<210> 110

<211> 30

<212> DNA

<213> Unknown

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<400> 110

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30

<210> 111

<211> 27

<212> DNA

<213> Unknown

# Sequence Listing as filed

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<400> 111

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27

<210> 112

<211> 30

<212> DNA

<213> Unknown

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<223> Synthetic Primer Sequence

<400> 112

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<210> 113

<211> 18

<212> DNA

<213> Unknown

<220>

<223> Synthetic Primer Sequence

<400> 113

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18

<210> 114

<211> 21

<212> DNA

<213> Unknown

<220>

<223> Synthetic Primer Sequence

<400> 114

gatctcgagc aggaagttcg a

21

<210> 115

<211> 27

<212> DNA

<213> Unknown

<220>

# Sequence Listing as filed

<223> Synthetic Primer Sequence

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tgcgcccggc cttccatgct ctttgac

27

<210> 116

<211> 17

<212> DNA

<213> Homo sapiens

<400> 116

gtgcgtggga gtagaat

17

<210> 117

<211> 10

<212> DNA

<213> Homo sapiens

<400> 117

ggggcggggc

10

<210> 118

<211> 23

<212> DNA

<213> Homo sapiens

<400> 118

ctgggtgggg gcgggggcag ctt

23

<210> 119

<211> 19

<212> DNA

<213> Homo sapiens

<400> 119

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19

<210> 120

<211> 31

<212> DNA

<213> Homo sapiens

<400> 120

ggcgggggggt ggggggcggg gggcgggcca a

31

# Sequence Listing as filed

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<212> DNA  
<213> Homo sapiens

<400> 121  
agatgagggg gcagtga 17

<210> 122  
<211> 24  
<212> DNA  
<213> Homo sapiens

<400> 122  
ccaggggtgg ggtgggagga caga 24

<210> 123  
<211> 17  
<212> DNA  
<213> Homo sapiens

<400> 123  
acgggtgggg gccgctg 17

<210> 124  
<211> 954  
<212> DNA  
<213> Homo sapiens

<400> 124  
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cccccatcc ctctgtccta tcaccccacc cctggaaggg gcctcaaata tgtctgtat 180  
gtattaagca gggcatacta ctactgtgtg ccgcgttcca gcgcaccag tgaattgga 240  
gccctggagt ctgggcgacc cccgggagcc gatccgctg gacctgcccc gccccctcca 300  
ggccttgggt gctgcccaga tggtaataa tgcgggcctg gcggcgggag cgccgggaag 360  
aggcctggca gggcgctggg cggctggagg ggctgaggct cccgaggaag cgccccctgcc 420

# Sequence Listing as filed

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 gccaggcccg ggcccaggag gctgggccag cgcagggtgg gcggggctga tgagagacag 600  
 cgggagacag agactggacg gagagagcga gccgcgggct gccagcggcc tacaccgctc 660  
 ccagctcggc ttagcccccg cggaccctc caggccgcga cccaggggcg tcctgtgccg 720  
 ccacgcctc catctgtgtg ggtcctctgc tgggcccgc cctggtcaca gccagactga 780  
 ctcagttcc ctgggaggtc ccgtcgcgc ccgtcctcc cctccctctg cccgccccca 840  
 gccctgccc caccctcggc gcccgcacat ctgcctgctc agctccagac ggcgcccgga 900  
 cccccgggcg cgggatccag ccagggtgga gcccgcaga tgaggtctct gaag 954

<210> 125  
 <211> 954  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (123)..(953)

<400> 125  
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 ctcgagcggc cgccactgtg ctggatatct gcagaattcc accacactgg actagtggat 120  
 cc atg gag acc cct gcc tgg ccc cgg gtc ccg cgc ccc gag acc gcc 167  
 Met Glu Thr Pro Ala Trp Pro Arg Val Arg Pro Glu Thr Ala  
 1 5 10 15

gtc gct cgg acg ctc ctg ctc ggc tgg gtc ttc gcc cag gtg gcc ggc 215  
 Val Ala Arg Thr Leu Leu Leu Gly Trp Val Phe Ala Gln Val Ala Gly  
 20 25 30

gct tca ggc act aca aat act gtg gca gca tat aat tta act tgg aaa 263  
 Ala Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys  
 35 40 45

tca act aat ttc aag aca att ttg gag tgg gaa ccc aaa ccc gtc aat 311  
 Ser Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn  
 50 55 60



# Sequence Listing as filed

caa gtc tac act gtt caa ata agc act aag tca gga gat tgg aaa agc 359  
Gln Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser  
65 70 75

aaa tgc ttt tac aca aca gac aca gag tgt gac ctc acc gac gag att 407  
Lys Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile  
80 85 90 95

gtg aag gat gtg aag cag acg tac ttg gca cgg gtc ttc tcc tac ccg 455  
Val Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro  
100 105 110

gca ggg aat gtg gag agc acc ggt tct gct ggg gag cct ctg tat gag 503  
Ala Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu  
115 120 125

aac tcc cca gag ttc aca cct tac ctg gag aca aac ctc gga cag cca 551  
Asn Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro  
130 135 140

aca att cag agt ttt gaa cag gtg gga aca aaa gtg aat gtg acc gta 599  
Thr Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val  
145 150 155

gaa gat gaa cgg act tta gtc aga agg aac aac act ttc cta agc ctc 647  
Glu Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu  
160 165 170 175

cgg gat gtt ttt ggc aag gac tta att tat aca ctt tat tat tgg aaa 695  
Arg Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys  
180 185 190

tct tca agt tca gga aag aaa aca gcc aaa aca aac act aat gag ttt 743  
Ser Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe  
195 200 205

ttg att gat gtg gat aaa gga gaa aac tac tgt ttc agt gtt caa gca 791  
Leu Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala  
210 215 220

gtg att ccc tcc cga aca gtt aac cgg aag agt aca gac agc ccg gta 839  
Val Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val  
225 230 235

gag tgt atg ggc cag gag aaa ggg gaa ttc aga gaa ata ttc tac atc 887  
Glu Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu Ile Phe Tyr Ile  
240 245 250 255

Sequence Listing as filed

att gga gct gtg gta ttt gtg gtc atc atc ctt gtc atc atc ctg gct 935  
 Ile Gly Ala Val Val Phe Val Val Ile Ile Leu Val Ile Ile Leu Ala  
 260 265 270

ata tct cta cac aag tgt a 954  
 Ile Ser Leu His Lys Cys  
 275

<210> 126  
 <211> 277  
 <212> PRT  
 <213> Homo sapiens

<400> 126

Met Glu Thr Pro Ala Trp Pro Arg Val Pro Arg Pro Glu Thr Ala Val  
 1 5 10 15

Ala Arg Thr Leu Leu Leu Gly Trp Val Phe Ala Gln Val Ala Gly Ala  
 20 25 30

Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 35 40 45

Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 50 55 60

Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 65 70 75 80

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 85 90 95

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

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
 115 120 125

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
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Sequence Listing as filed

130 135 140

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
145 150 155 160

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
165 170 175

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
180 185 190

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
195 200 205

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
210 215 220

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
225 230 235 240

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu Ile Phe Tyr Ile Ile  
245 250 255

Gly Ala Val Val Phe Val Val Ile Ile Leu Val Ile Ile Leu Ala Ile  
260 265 270

Ser Leu His Lys Cys  
275

<210> 127  
<211> 896  
<212> DNA  
<213> Homo sapiens

<400> 127  
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acacttggtg agagatatag ccaggatgat gacaaggatg atgaccacaa ataccacagc 120

# Sequence Listing as filed

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gtagtcttct cctttatcca catcaatcaa aaactcatta gtgtttgttt tggctgtttt 300  
ctttctgaa ctggaagatt tccaataata aagtgtataa attaagtctt tgccaaaaac 360  
atcccgaggg ctaggaaag tgtgttcct tctgactaaa gtccgttcac cttctacgg 420  
cacattcact ttgttccca cctgttcaaa actctgaatt gttggctgtc cgaggtttgt 480  
ctccaggtaa ggtgtgaact ctggggagtt ctcatacaga ggctcccag cagaaccgg 540  
gtctccaca ttccctgccg ggtaggagaa gaccctgcc aagtacgtct gcttcacac 600  
cttcacaatc tcgtcgggtg ggtcacactc tgtgtctgtt gtgtaaaagc atttgctttt 660  
ccaatctcct gacttagtgc ttattgaac agtgtagact tgattgacgg gtttgggttc 720  
ccactccaaa attgtcttga aattagtga tttccaagtt aaattatatg ctgccacagt 780  
attgtagtg cctgaagcgc cggccacctg ggccaagacc cagccgagca ggagcgtccg 840  
agcgacggcg gtctcggggc gcgggacccg gggccaggca ggggtctcca tggatc 896

<210> 128  
<211> 896  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (6)..(896)

<400> 128  
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1 5 10 15

gtc gct cgg acg ctc ctg ctc ggc tgg gtc ttc gcc cag gtg gcc ggc 98  
Val Ala Arg Thr Leu Leu Leu Gly Trp Val Phe Ala Gln Val Ala Gly  
20 25 30

gct tca ggc act aca aat act gtg gca gca tat aat tta act tgg aaa 146  
Ala Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys  
35 40 45

# Sequence Listing as filed

tca act aat ttc aag aca att ttg gag tgg gaa ccc aaa ccc gtc aat 194  
 Ser Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn  
 50 55 60

caa gtc tac act gtt caa ata agc act aag tca gga gat tgg aaa agc 242  
 Gln Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser  
 65 70 75

aaa tgc ttt tac aca aca gac aca gag tgt gac ctc acc gac gag att 290  
 Lys Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile  
 80 85 90 95

gtg aag gat gtg aag cag acg tac ttg gca cgg gtc ttc tcc tac ccg 338  
 Val Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro  
 100 105 110

gca ggg aat gtg gag agc acc ggt tct gct ggg gag cct ctg tat gag 386  
 Ala Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu  
 115 120 125

aac tcc cca gag ttc aca cct tac ctg gag aca aac ctc gga cag cca 434  
 Asn Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro  
 130 135 140

aca att cag agt ttt gaa cag gtg gga aca aaa gtg aat gtg acc gta 482  
 Thr Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val  
 145 150 155

gaa gat gaa cgg act tta gtc aga agg aac aac act ttc cta agc ctc 530  
 Glu Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu  
 160 165 170 175

cgg gat gtt ttt ggc aag gac tta att tat aca ctt tat tat tgg aaa 578  
 Arg Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys  
 180 185 190

tct tca agt tca gga aag aaa aca gcc aaa aca aac act aat gag ttt 626  
 Ser Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe  
 195 200 205

ttg att gat gtg gat aaa gga gaa aac tac tgt ttc agt gtt caa gca 674  
 Leu Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala  
 210 215 220

gtg att ccc tcc cga aca gtt aac cgg aag agt aca gac agc ccg gta 722  
 Val Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val  
 225 230 235

# Sequence Listing as filed

gag tgt atg ggc cag gag aaa ggg gaa ttc aga gaa ata ttc tac atc 770  
 Glu Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu Ile Phe Tyr Ile  
 240 245 250 255

att gga gct gtg gta ttt gtg gtc atc atc ctt gtc atc atc ctg gct 818  
 Ile Gly Ala Val Val Phe Val Val Ile Ile Leu Val Ile Ile Leu Ala  
 260 265 270

ata tct cta cac aag tgt aga aag gca gga gtg ggg cag agc tgg aag 866  
 Ile Ser Leu His Lys Cys Arg Lys Ala Gly Val Gly Gln Ser Trp Lys  
 275 280 285

gag aac tcc cca ctg aat gtt tca taa aag 896  
 Glu Asn Ser Pro Leu Asn Val Ser Lys  
 290 295

<210> 129  
 <211> 295  
 <212> PRT  
 <213> Homo sapiens

<400> 129

Met Glu Thr Pro Ala Trp Pro Arg Val Pro Arg Pro Glu Thr Ala Val  
 1 5 10 15

Ala Arg Thr Leu Leu Leu Gly Trp Val Phe Ala Gln Val Ala Gly Ala  
 20 25 30

Ser Gly Thr Thr Asn Thr Val Ala Ala Tyr Asn Leu Thr Trp Lys Ser  
 35 40 45

Thr Asn Phe Lys Thr Ile Leu Glu Trp Glu Pro Lys Pro Val Asn Gln  
 50 55 60

Val Tyr Thr Val Gln Ile Ser Thr Lys Ser Gly Asp Trp Lys Ser Lys  
 65 70 75 80

Cys Phe Tyr Thr Thr Asp Thr Glu Cys Asp Leu Thr Asp Glu Ile Val  
 85 90 95

Lys Asp Val Lys Gln Thr Tyr Leu Ala Arg Val Phe Ser Tyr Pro Ala

Sequence Listing as filed

100                      105                      110

Gly Asn Val Glu Ser Thr Gly Ser Ala Gly Glu Pro Leu Tyr Glu Asn  
115                      120                      125

Ser Pro Glu Phe Thr Pro Tyr Leu Glu Thr Asn Leu Gly Gln Pro Thr  
130                      135                      140

Ile Gln Ser Phe Glu Gln Val Gly Thr Lys Val Asn Val Thr Val Glu  
145                      150                      155                      160

Asp Glu Arg Thr Leu Val Arg Arg Asn Asn Thr Phe Leu Ser Leu Arg  
165                      170                      175

Asp Val Phe Gly Lys Asp Leu Ile Tyr Thr Leu Tyr Tyr Trp Lys Ser  
180                      185                      190

Ser Ser Ser Gly Lys Lys Thr Ala Lys Thr Asn Thr Asn Glu Phe Leu  
195                      200                      205

Ile Asp Val Asp Lys Gly Glu Asn Tyr Cys Phe Ser Val Gln Ala Val  
210                      215                      220

Ile Pro Ser Arg Thr Val Asn Arg Lys Ser Thr Asp Ser Pro Val Glu  
225                      230                      235                      240

Cys Met Gly Gln Glu Lys Gly Glu Phe Arg Glu Ile Phe Tyr Ile Ile  
245                      250                      255

Gly Ala Val Val Phe Val Val Ile Ile Leu Val Ile Ile Leu Ala Ile  
260                      265                      270

Ser Leu His Lys Cys Arg Lys Ala Gly Val Gly Gln Ser Trp Lys Glu  
275                      280                      285

Asn Ser Pro Leu Asn Val Ser  
290                      295