Common Cysteine Backbone

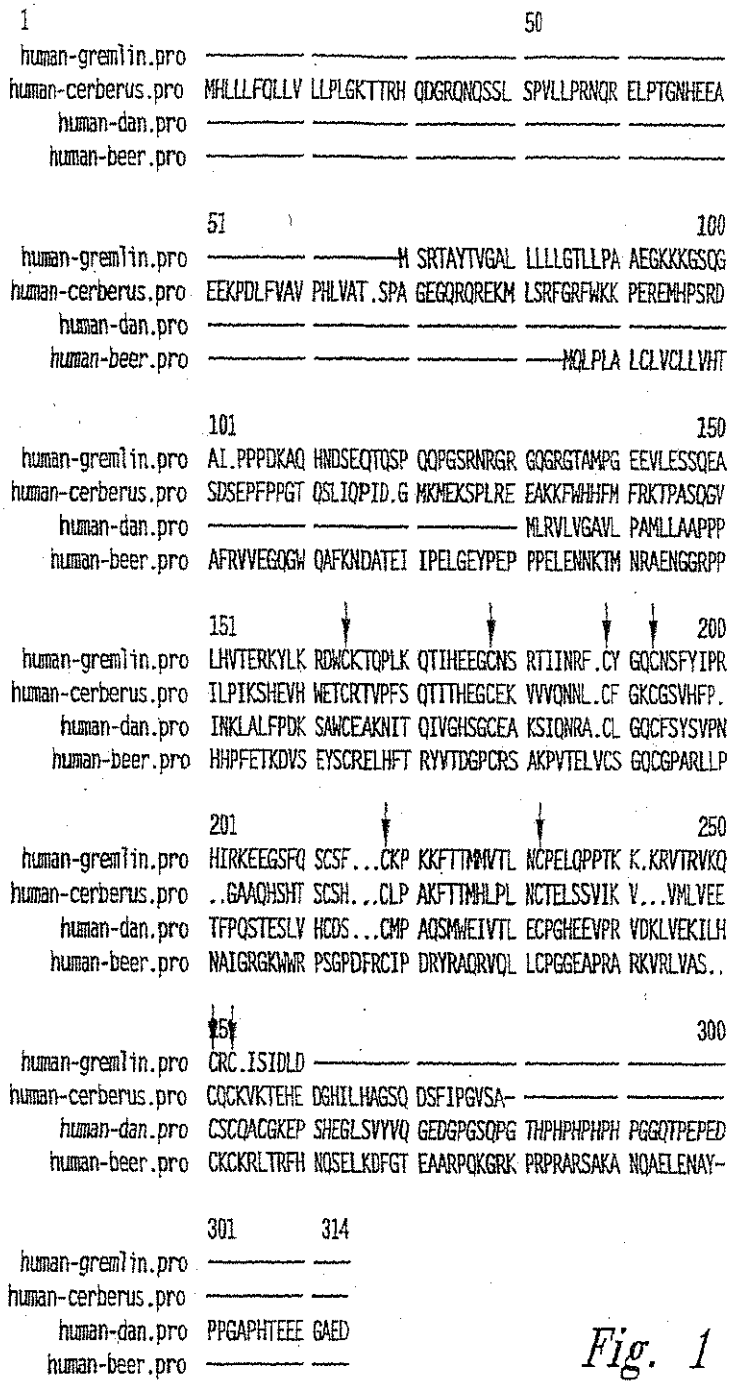


Fig. 1

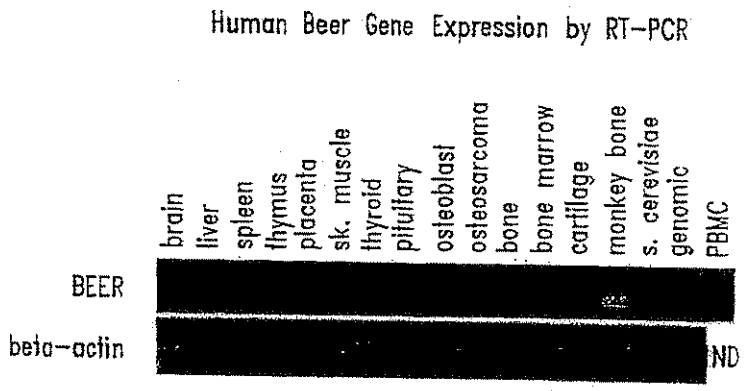
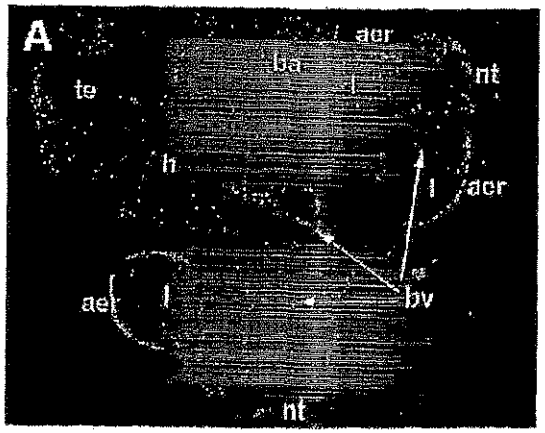

Human Beer Gene Expression by RT-PCR
brain
liver
spleen
thymus
placenta
sk. muscle
thyroid
pituitary
osteoblast
osteosarcoma
bone
bone marrow
cartilage
monkey bone
s. cerevisiae
genomic
PBMC
BEER
beta-actin
ND

Fig. 2

RNA In Situ Hybridization of Mouse Embryo Sections

Fig. 3A



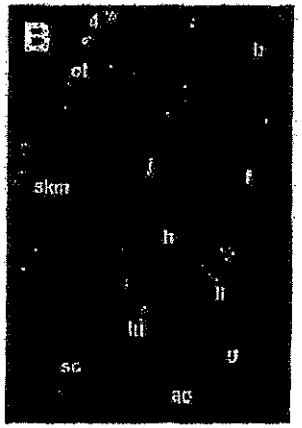


Fig. 3B

Fig. 3C

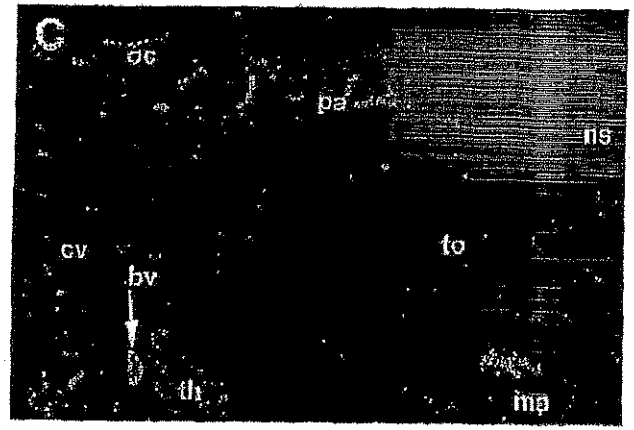
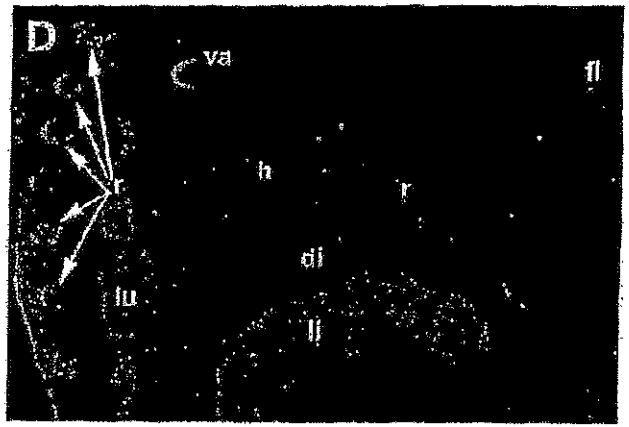


Fig. 3D



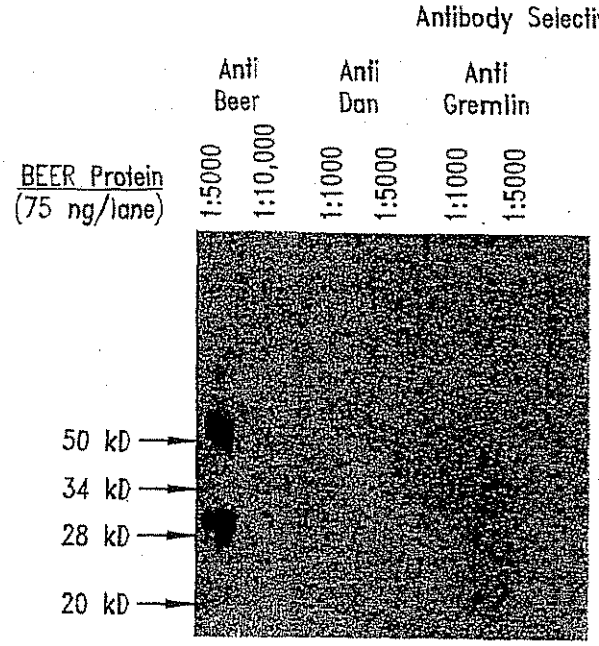


Fig. 4A

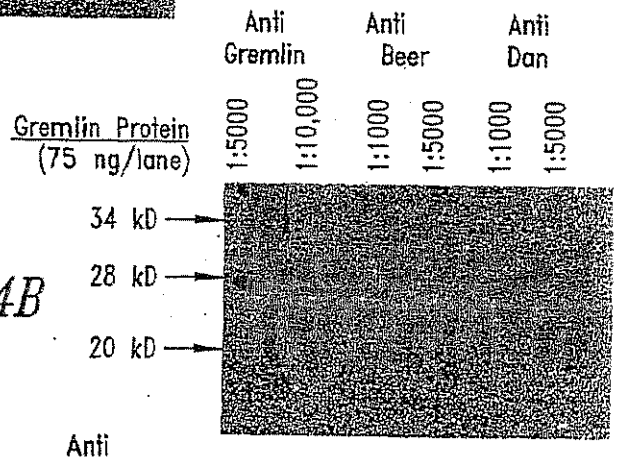


Fig. 4B

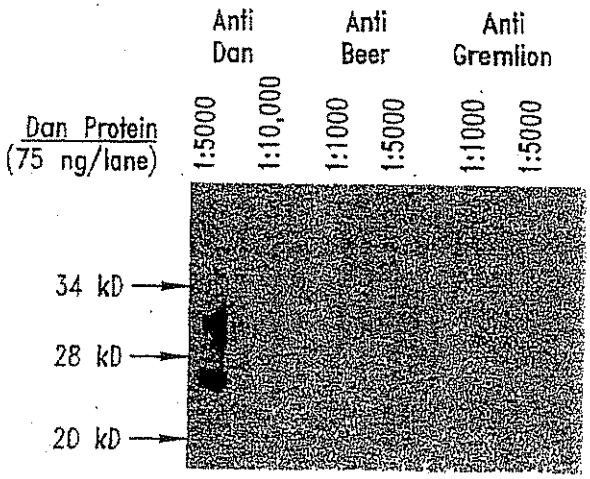


Fig. 4C

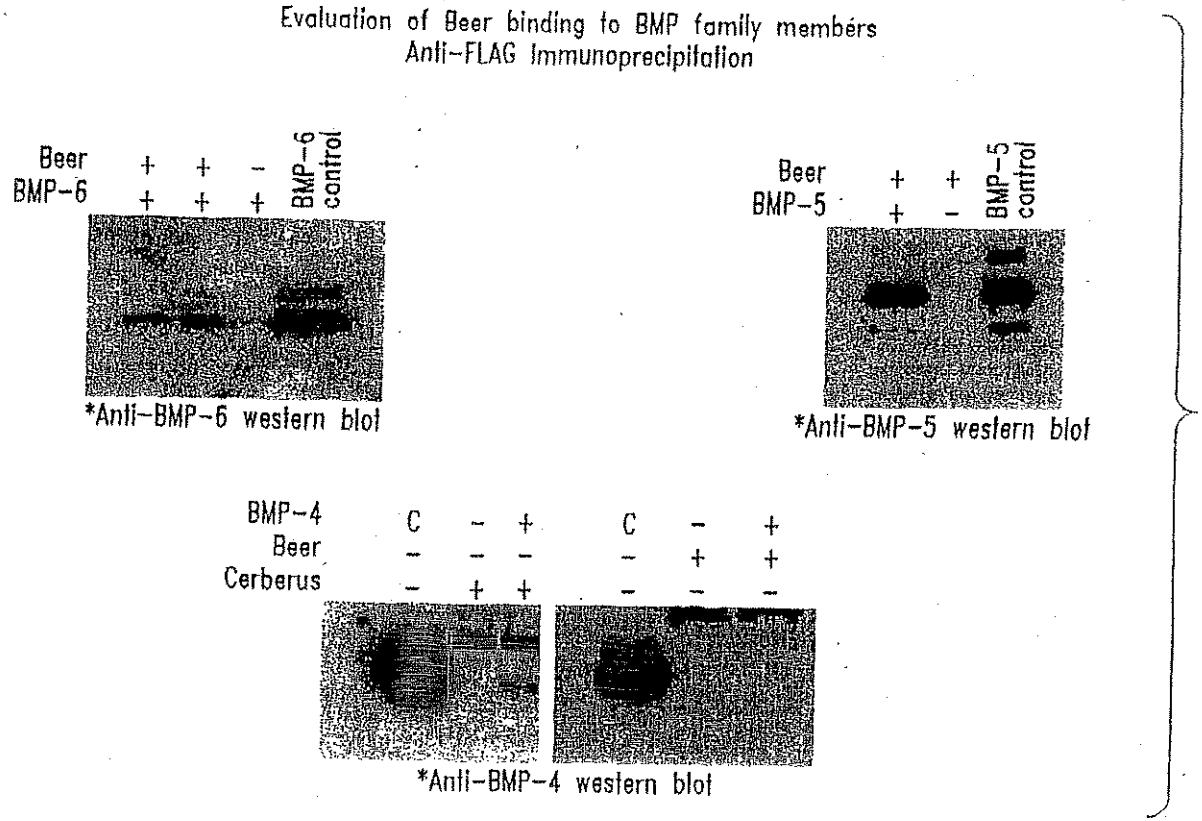

Evaluation of Beer binding to BMP family members
Anti-FLAG Immunoprecipitation
Beer + + -
BMP-6 + + +
BMP-6 control
*Anti-BMP-6 western blot
Beer + +
BMP-5 + -
BMP-5 control
*Anti-BMP-5 western blot
BMP-4 C - + C - +
Beer - - - - + +
Cerberus - + + - - -
*Anti-BMP-4 western blot

Fig. 5

BMP-5/Beer Dissociation Constant Characterization

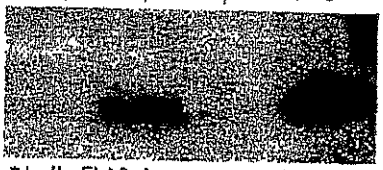
.75 1.5 7.5 15 30 60 120 nM BMP-5



*Anti-FLAG *immunoprecipitation*
*Anti-BMP-5 western blot

Ionic Disruption of BMP-5/Beer Binding

NaCl(mM)	500	150	150	BMP-5 western control
Beer	+	+	–	
BMP-5	+	+	+	



*Anti-FLAG immunoprecipitation
*Anti-BMP-5 western blot

Fig. 6

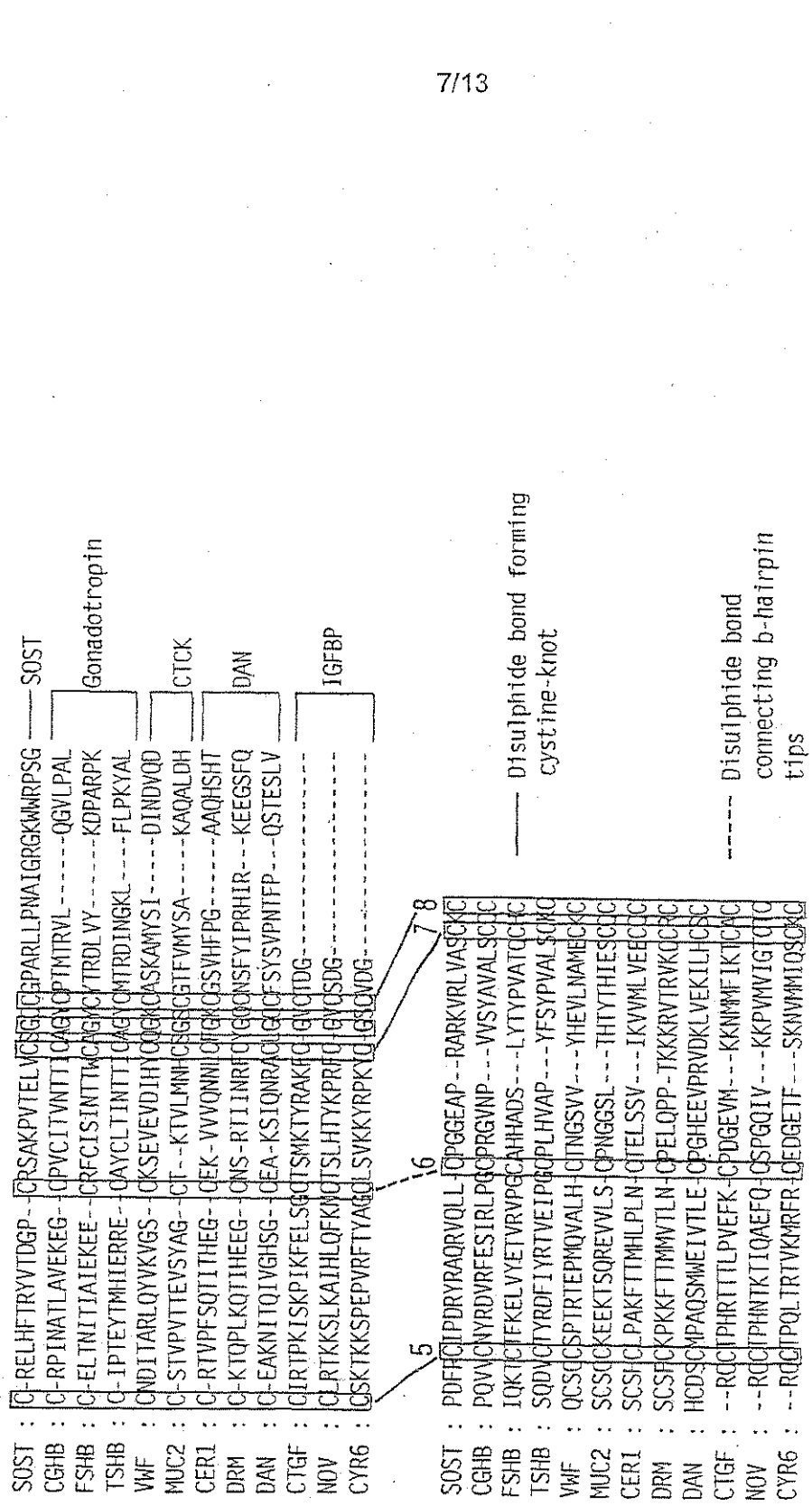

SOST
Gonadotropin
CTCK
DAN
IGFBP
Disulphide bond forming cystine-knot
Disulphide bond connecting b-hairpin tips

FIG. 7

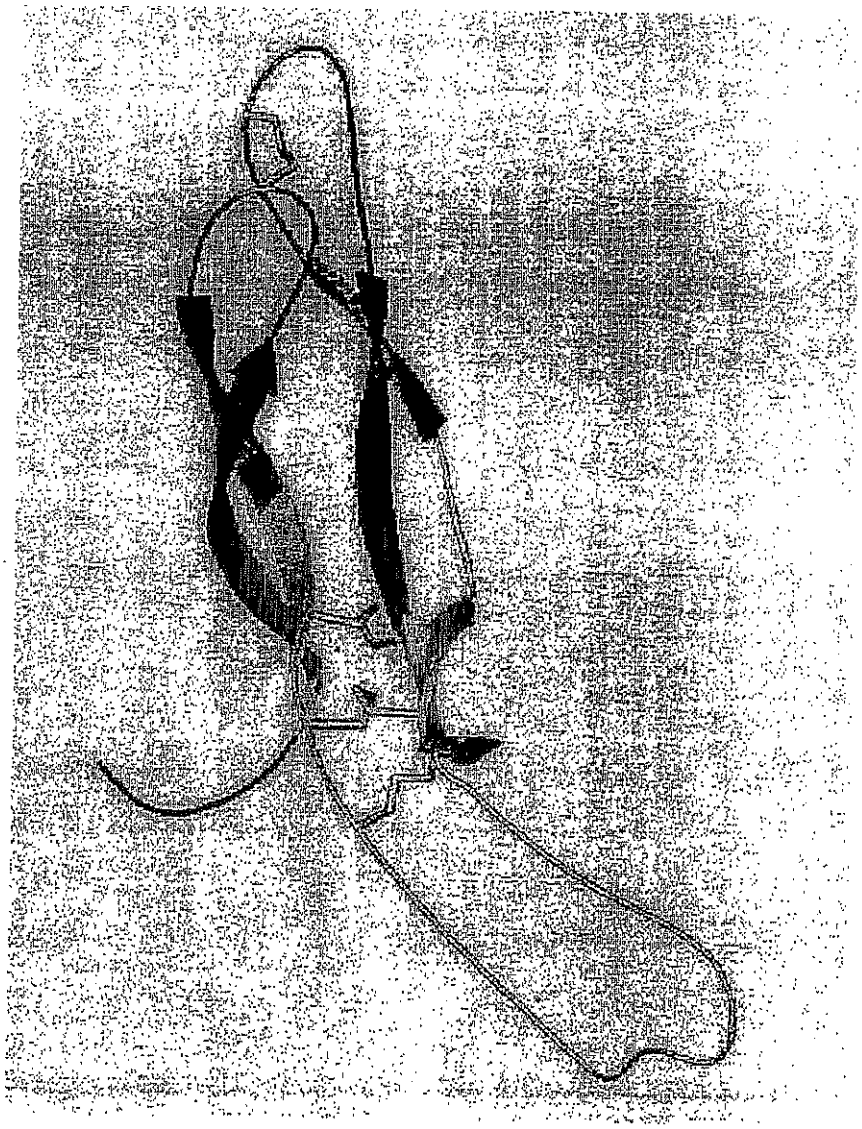


FIG. 8

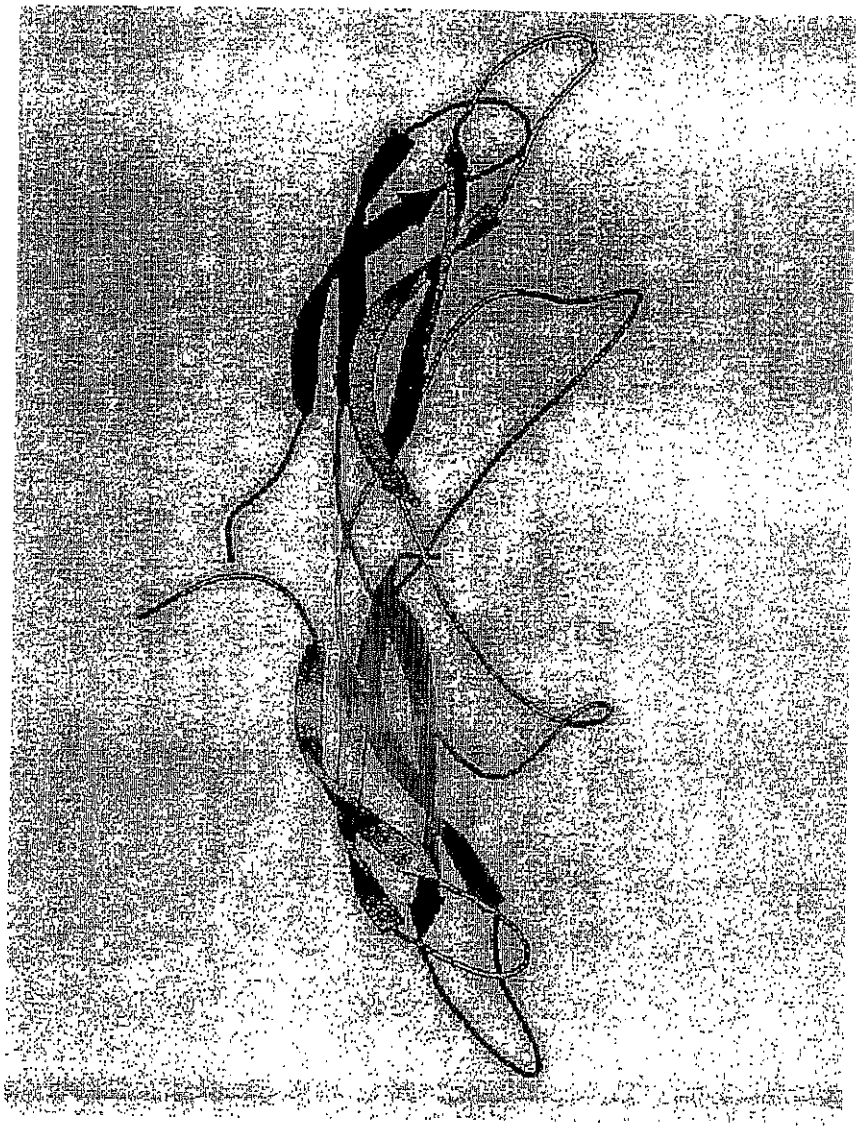


FIG. 9

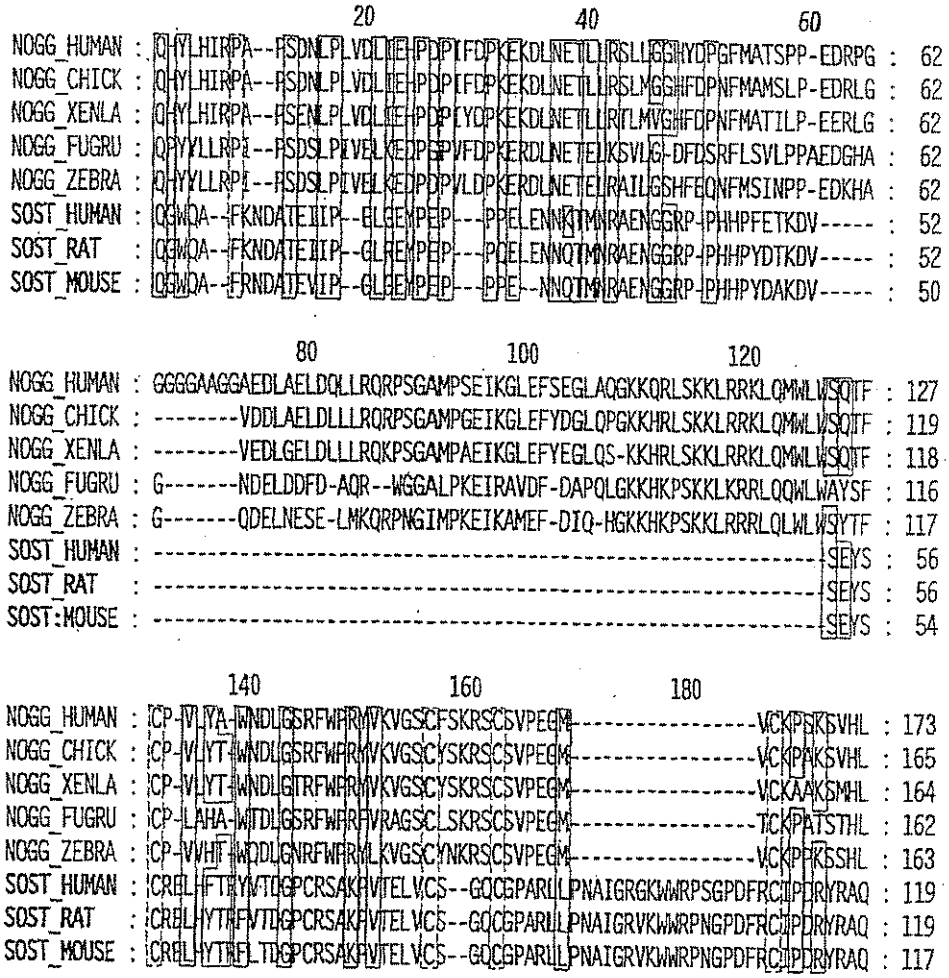


FIG. 10A

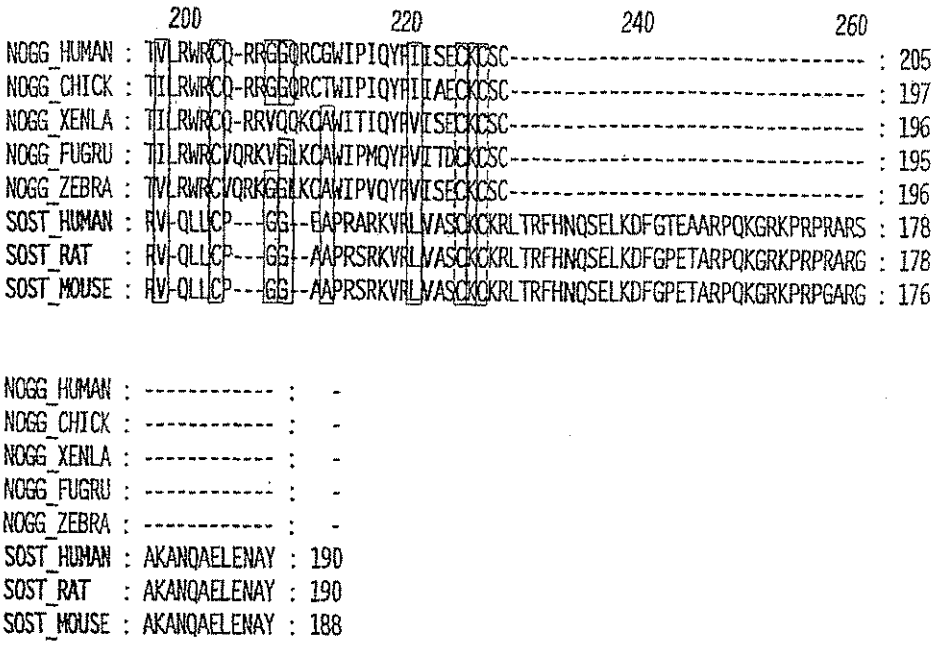

200
220
240
260
NOGG_HUMAN : TVLRWRCQ-RPGGQRCGWIPIQYPIISECKCSC---------- : 205
NOGG_CHICK : TILRWRCQ-RPGGQRCTWIPIQYPIIAECKCSC---------- : 197
NOGG_XENLA : TILRWRCQ-RRVQQKCAWITIQYPVISECKCSC---------- : 196
NOGG_FUGRU : TILRWRCVQRKVGLKCAWIPMQYPVITDCKCSC---------- : 195
NOGG_ZEBRA : TVLRWRCVQRKGGLKCAWIPVQYPVISECKCSC---------- : 196
SOST_HUMAN : RV-QLLCP---GG--EAPRARKVRLVASCKCKRLTRFHNQSELKDFGTEAARPQKGRKPRPRARS : 178
SOST_RAT : RV-QLLCP---GG--AAPRSRKVRLVASCKCKRLTRFHNQSELKDFGPETARPQKGRKPRPRARG : 178
SOST_MOUSE : RV-QLLCP---GG--AAPRSRKVRLVASCKCKRLTRFHNQSELKDFGPETARPQKGRKPRPGARG : 176
NOGG_HUMAN : ---------- : -
NOGG_CHICK : ---------- : -
NOGG_XENLA : ---------- : -
NOGG_FUGRU : ---------- : -
NOGG_ZEBRA : ---------- : -
SOST_HUMAN : AKANQAELENAY : 190
SOST_RAT : AKANQAELENAY : 190
SOST_MOUSE : AKANQAELENAY : 188

FIG. 10B

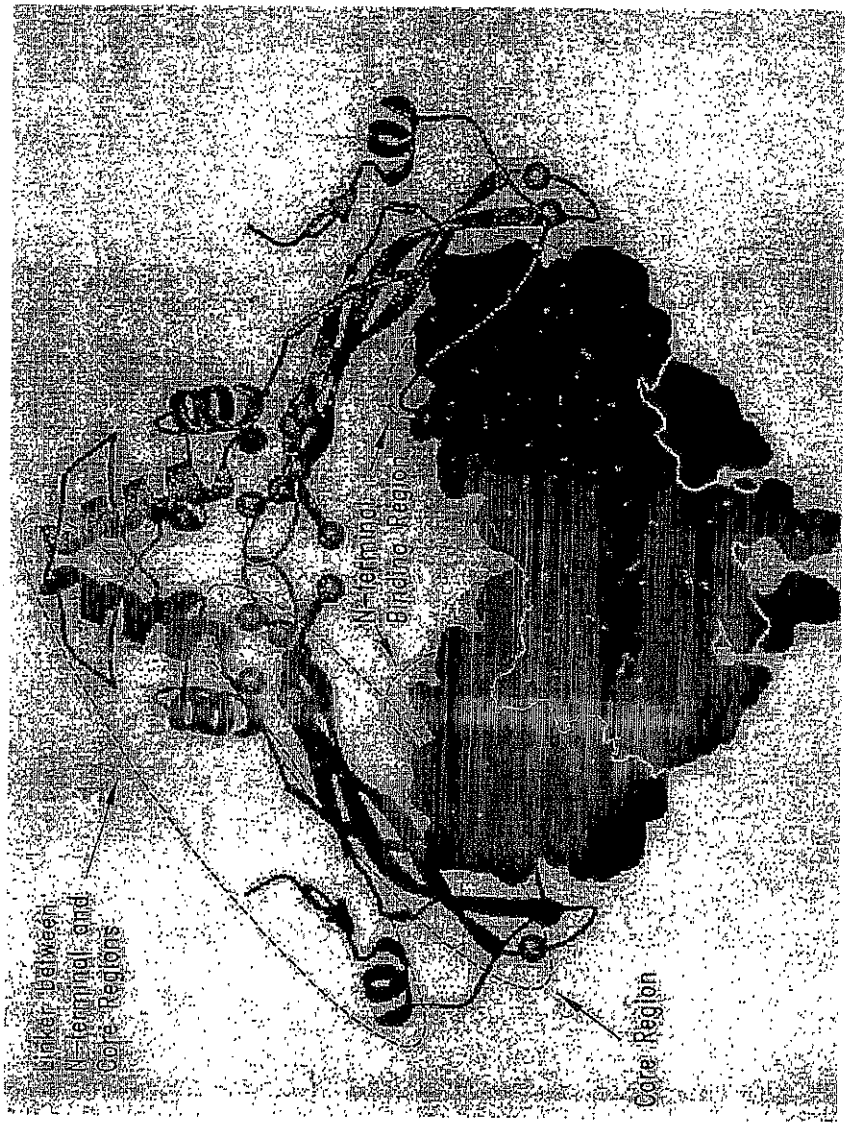

Linker between
N-terminal and
Core Regions
N-terminal
Binding Region
Core Region

FIG. 11


Pro-connected turn
Anchor turn connecting the linker
Phe inserted into the hydrophobic pocket

FIG. 12

SEQUENCE LISTING

<110> Celltech R & D, Inc.

<120> Compositions and Methods for Increasing Bone Mineralization

<130> SP7335A

<150> PCT/US2004/018910
<151> 2004-06-15

<150> US 10/463,190
<151> 2003-06-16

<160> 143

<170> PatentIn version 3.4

<210> 1
<211> 2301
<212> DNA
<213> Homo sapiens

<400> 1
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac 60

tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg 120

ggtggcaggc gttcaagaat gatgccacgg aaatcatccc cgagctcgga gagtaccccg 180

agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc 240

ctccccacca ccccttttgag accaaagacg tgtccgagta cagctgccgc gagctgcact 300

tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt 360

gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt 420

ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc 480

agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt 540

gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg 600

aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca 660

accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc 720

gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat 780

atttcattgt aaatgcctgc aacccagggc aggggggctga gaccttccag gccctgagga 840

atcccgggcg ccggcaaggc ccccctcagc ccgccagctg aggggtccca cggggcaggg 900

gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct 960

ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta 1020

agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc 1080

cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg 1140

caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac 1200

tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa 1260

taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg 1320

cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc 1380

caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa 1440

caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac 1500

tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac 1560

ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt 1620

ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg 1680

acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg 1740

ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga 1800

caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc 1860

tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt 1920

gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa 1980

aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt 2040

tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc 2100

ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat 2160

atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt 2220

aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag 2280

acaatgaatc atgaccgaaa g 2301

<210> 2
<211> 213
<212> PRT
<213> Homo sapiens

<400> 2

Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1 5 10 15

Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
20 25 30

Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
35 40 45

Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
50 55 60

Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65 70 75 80

Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
85 90 95

Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
100 105 110

Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
115 120 125

Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
130 135 140

Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145 150 155 160

Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
165 170 175

Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
180 185 190

Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
195 200 205

Leu Glu Asn Ala Tyr
210

<210> 3
<211> 2301
<212> DNA
<213> Homo sapiens

<400> 3
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac 60

tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggctagg 120

ggtggcaggc gttcaagaat gatgccacgg aaatcatccc cgagctcgga gagtaccccg 180

agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc 240

ctccccacca ccccttgag accaaagacg tgtccgagta cagctgccgc gagctgcact 300

tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt 360

gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt 420

ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc 480

agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt 540

gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg 600

aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca 660

accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc 720

gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat 780

atttcattgt aaatgcctgc aacccagggc aggggggctga gaccttccag gccctgagga 840

atcccgggcg ccggcaaggc ccccctcagc ccgccagctg aggggtccca cggggcaggg 900

gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct 960

ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta 1020

agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc 1080

ccccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg 1140

caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac 1200

tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa 1260

taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg 1320

cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc 1380

caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa 1440

caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac 1500

tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac 1560

ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt 1620

ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg 1680

acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg 1740

ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga 1800

caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc 1860

tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt 1920

gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa 1980

aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt 2040

tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc 2100

ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat 2160

atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt 2220

aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag 2280

acaatgaatc atgaccgaaa g 2301

<210> 4
<211> 23
<212> PRT
<213> Homo sapiens

<400> 4

Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1 5 10 15

Ala Phe Arg Val Val Glu Gly
20

<210> 5
<211> 2301
<212> DNA
<213> Homo sapiens

<400> 5
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac 60

tggccctgtg tctcatctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg 120

ggtggcaggc gttcaagaat gatgccacgg aaatcatccg cgagctcgga gagtaccccg 180
agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc 240
ctccccacca ccccctttgag accaaagacg tgtccgagta cagctgccgc gagctgcact 300
tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt 360
gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt 420
ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc 480
agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt 540
gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg 600
aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca 660
accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc 720
gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat 780
atttcattgt aaatgcctgc aacccagggc agggggctga gaccttccag gccctgagga 840
atcccgggcg ccggcaaggc ccccctcagc ccgccagctg aggggtccca cggggcaggg 900
gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct 960
ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta 1020
agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc 1080
cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg 1140
caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac 1200
tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa 1260
taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg 1320
cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc 1380
caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa 1440
caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac 1500
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac 1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt 1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg 1680
acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg 1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga 1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc 1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt 1920
gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa 1980
aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt 2040
tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc 2100
ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat 2160
atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt 2220

aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag 2280

acaatgaatc atgaccgaaa g 2301

<210> 6
<211> 213
<212> PRT
<213> Homo sapiens

<400> 6

Met Gln Leu Pro Leu Ala Leu Cys Leu Ile Cys Leu Leu Val His Thr
1 5 10 15

Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
20 25 30

Ala Thr Glu Ile Ile Arg Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
35 40 45

Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
50 55 60

Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65 70 75 80

Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
85 90 95

Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
100 105 110

Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
115 120 125

Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
130 135 140

Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145 150 155 160

Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
165 170 175

Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
180 185 190

Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
195 200 205

Leu Glu Asn Ala Tyr
210

<210> 7
<211> 2301
<212> DNA
<213> Homo sapiens

<400> 7
agagcctgtg ctactggaag gtggcgtgcc ctcctctggc tggtaccatg cagctcccac 60
tggccctgtg tctcgtctgc ctgctggtac acacagcctt ccgtgtagtg gagggccagg 120
ggtggcaggc gttcaagaat gatgccacgg aaatcatccg cgagctcgga gagtaccccg 180
agcctccacc ggagctggag aacaacaaga ccatgaaccg ggcggagaac ggagggcggc 240
ctccccacca ccccttttgag accaaagacg tgtccgagta cagctgccgc gagctgcact 300
tcacccgcta cgtgaccgat gggccgtgcc gcagcgccaa gccggtcacc gagctggtgt 360
gctccggcca gtgcggcccg gcgcgcctgc tgcccaacgc catcggccgc ggcaagtggt 420
ggcgacctag tgggcccgac ttccgctgca tccccgaccg ctaccgcgcg cagcgcgtgc 480
agctgctgtg tcccggtggt gaggcgccgc gcgcgcgcaa ggtgcgcctg gtggcctcgt 540
gcaagtgcaa gcgcctcacc cgcttccaca accagtcgga gctcaaggac ttcgggaccg 600
aggccgctcg gccgcagaag ggccggaagc cgcggccccg cgcccggagc gccaaagcca 660
accaggccga gctggagaac gcctactaga gcccgcccgc gcccctcccc accggcgggc 720
gccccggccc tgaacccgcg ccccacattt ctgtcctctg cgcgtggttt gattgtttat 780
atttcattgt aaatgcctgc aacccagggc agggggctga gaccttccag gccctgagga 840
atcccgggcg ccggcaaggc ccccctcagc ccgccagctg aggggtccca cggggcaggg 900
gagggaattg agagtcacag acactgagcc acgcagcccc gcctctgggg ccgcctacct 960
ttgctggtcc cacttcagag gaggcagaaa tggaagcatt ttcaccgccc tggggtttta 1020
agggagcggt gtgggagtgg gaaagtccag ggactggtta agaaagttgg ataagattcc 1080
cccttgcacc tcgctgccca tcagaaagcc tgaggcgtgc ccagagcaca agactggggg 1140
caactgtaga tgtggtttct agtcctggct ctgccactaa cttgctgtgt aaccttgaac 1200
tacacaattc tccttcggga cctcaatttc cactttgtaa aatgagggtg gaggtgggaa 1260
taggatctcg aggagactat tggcatatga ttccaaggac tccagtgcct tttgaatggg 1320
cagaggtgag agagagagag agaaagagag agaatgaatg cagttgcatt gattcagtgc 1380
caaggtcact tccagaattc agagttgtga tgctctcttc tgacagccaa agatgaaaaa 1440
caaacagaaa aaaaaaagta aagagtctat ttatggctga catatttacg gctgacaaac 1500
tcctggaaga agctatgctg cttcccagcc tggcttcccc ggatgtttgg ctacctccac 1560
ccctccatct caaagaaata acatcatcca ttggggtaga aaaggagagg gtccgagggt 1620
ggtgggaggg atagaaatca catccgcccc aacttcccaa agagcagcat ccctcccccg 1680
acccatagcc atgttttaaa gtcaccttcc gaagagaagt gaaaggttca aggacactgg 1740
ccttgcaggc ccgagggagc agccatcaca aactcacaga ccagcacatc ccttttgaga 1800
caccgccttc tgcccaccac tcacggacac atttctgcct agaaaacagc ttcttactgc 1860
tcttacatgt gatggcatat cttacactaa aagaatatta ttgggggaaa aactacaagt 1920

gctgtacata tgctgagaaa ctgcagagca taatagctgc cacccaaaaa tctttttgaa 1980

aatcatttcc agacaacctc ttactttctg tgtagttttt aattgttaaa aaaaaaaagt 2040

tttaaacaga agcacatgac atatgaaagc ctgcaggact ggtcgttttt ttggcaattc 2100

ttccacgtgg gacttgtcca caagaatgaa agtagtggtt tttaaagagt taagttacat 2160

atttattttc tcacttaagt tatttatgca aaagtttttc ttgtagagaa tgacaatgtt 2220

aatattgctt tatgaattaa cagtctgttc ttccagagtc cagagacatt gttaataaag 2280

acaatgaatc atgaccgaaa g 2301

<210> 8
<211> 213
<212> PRT
<213> Homo sapiens

<400> 8

Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Thr
1 5 10 15

Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
20 25 30

Ala Thr Glu Ile Ile Arg Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
35 40 45

Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
50 55 60

Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65 70 75 80

Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
85 90 95

Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
100 105 110

Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
115 120 125

Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
130 135 140

Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
145 150 155 160

Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
165 170 175

Ser Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly
180 185 190

Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu
195 200 205

Leu Glu Asn Ala Tyr
210

<210> 9
<211> 642
<212> DNA
<213> Cercopithecus pygerythrus

<400> 9
atgcagctcc cactggccct gtgtcttgtc tgcctgctgg tacacgcagc cttccgtgta 60

gtggagggcc aggggtggca ggccttcaag aatgatgcca cggaaatcat ccccgagctc 120

ggagagtacc ccgagcctcc accggagctg gagaacaaca agaccatgaa ccgggcggag 180

aatggagggc ggcctcccca ccaccccttt gagaccaaag acgtgtccga gtacagctgc 240

cgagagctgc acttcacccg ctacgtgacc gatgggccgt gccgcagcgc caagccagtc 300

accgagttgg tgtgctccgg ccagtgcggc ccggcacgcc tgctgcccaa cgccatcggc 360

cgcggcaagt ggtggcgccc gagtgggccc gacttccgct gcatccccga ccgctaccgc 420

gcgcagcgtg tgcagctgct gtgtcccggt ggtgccgcgc cgcgcgcgcg caaggtgcgc 480

ctggtggcct cgtgcaagtg caagcgcctc acccgcttcc acaaccagtc ggagctcaag 540

gacttcggtc ccgaggccgc tcggccgcag aagggccgga agccgcggcc ccgcgcccgg 600

ggggccaaag ccaatcaggc cgagctggag aacgcctact ag 642

<210> 10
<211> 213
<212> PRT
<213> Cercopithecus pygerythrus

<400> 10

Met Gln Leu Pro Leu Ala Leu Cys Leu Val Cys Leu Leu Val His Ala
1 5 10 15

Ala Phe Arg Val Val Glu Gly Gln Gly Trp Gln Ala Phe Lys Asn Asp
20 25 30

Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro
35 40 45

Glu Leu Glu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
50 55 60

Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser Cys
65 70 75 80

Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg Ser
85 90 95

```
Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
            100                 105                 110

Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser
        115                 120                 125

Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
    130                 135                 140

Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ala Arg Lys Val Arg
145                 150                 155                 160

Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
                165                 170                 175

Ser Glu Leu Lys Asp Phe Gly Pro Glu Ala Ala Arg Pro Gln Lys Gly
            180                 185                 190

Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu
        195                 200                 205

Leu Glu Asn Ala Tyr
    210
```

<210> 11
<211> 638
<212> DNA
<213> Mus musculus

<400> 11

```
atgcagccct cactagcccc gtgcctcatc tgcctacttg tgcacgctgc cttctgtgct     60
gtggagggcc aggggtggca agccttcagg aatgatgcca cagaggtcat cccagggctt    120
ggagagtacc ccgagcctcc tcctgagaac aaccagacca tgaaccgggc ggagaatgga    180
ggcagacctc cccaccatcc ctatgacgcc aaaggtgtgt ccgagtacag ctgccgcgag    240
ctgcactaca cccgcttcct gacagacggc ccatgccgca gcgccaagcc ggtcaccgag    300
ttggtgtgct ccggccagtg cggccccgcg cggctgctgc ccaacgccat cgggcgcgtg    360
aagtggtggc gcccgaacgg accggatttc cgctgcatcc cggatcgcta ccgcgcgcag    420
cgggtgcagc tgctgtgccc cgggggcgcg gcgccgcgct cgcgcaaggt gcgtctggtg    480
gcctcgtgca agtgcaagcg cctcacccgc ttccacaacc agtcggagct caaggacttc    540
gggccggaga ccgcgcggcc gcagaagggt cgcaagccgc ggcccggcgc ccggggagcc    600
aaagccaacc aggcggagct ggagaacgcc tactagag                            638
```

<210> 12
<211> 211
<212> PRT
<213> Mus musculus

<400> 12

Met Gln Pro Ser Leu Ala Pro Cys Leu Ile Cys Leu Leu Val His Ala
1 5 10 15

Ala Phe Cys Ala Val Glu Gly Gln Gly Trp Gln Ala Phe Arg Asn Asp
20 25 30

Ala Thr Glu Val Ile Pro Gly Leu Gly Glu Tyr Pro Glu Pro Pro Pro
35 40 45

Glu Asn Asn Gln Thr Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro
50 55 60

His His Pro Tyr Asp Ala Lys Asp Val Ser Glu Tyr Ser Cys Arg Glu
65 70 75 80

Leu His Tyr Thr Arg Phe Leu Thr Asp Gly Pro Cys Arg Ser Ala Lys
85 90 95

Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala Arg Leu
100 105 110

Leu Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn Gly Pro
115 120 125

Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu
130 135 140

Leu Cys Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val
145 150 155 160

Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu
165 170 175

Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly Arg Lys
180 185 190

Pro Arg Pro Gly Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu Leu Glu
195 200 205

Asn Ala Tyr
210

<210> 13
<211> 674
<212> DNA
<213> Rattus norvegicus

<400> 13
gaggaccgag tgcccttcct ccttctggca ccatgcagct ctcactagcc ccttgccttg 60

cctgcctgct tgtacatgca gccttcgttg ctgtggagag ccaggggtgg caagccttca 120

agaatgatgc cacagaaatc atcccgggac tcagagagta cccagagcct cctcaggaac 180

tagagaacaa ccagaccatg aaccgggccg agaacggagg cagacccccc caccatcctt 240

atgacaccaa agacgtgtcc gagtacagct gccgcgagct gcactacacc cgcttcgtga 300

ccgacggccc gtgccgcagt gccaagccgg tcaccgagtt ggtgtgctcg ggccagtgcg 360

gccccgcgcg gctgctgccc aacgccatcg ggcgcgtgaa gtggtggcgc ccgaacggac 420

ccgacttccg ctgcatcccg gatcgctacc gcgcgcagcg ggtgcagctg ctgtgccccg 480

gcggcgcggc gccgcgctcg cgcaaggtgc gtctggtggc ctcgtgcaag tgcaagcgcc 540

tcacccgctt ccacaaccag tcggagctca aggacttcgg acctgagacc gcgcggccgc 600

agaagggtcg caagccgcgg ccccgcgccc ggggagccaa agccaaccag gcggagctgg 660

agaacgccta ctag 674

<210> 14
<211> 213
<212> PRT
<213> Rattus norvegicus

<400> 14

Met Gln Leu Ser Leu Ala Pro Cys Leu Ala Cys Leu Leu Val His Ala
1 5 10 15

Ala Phe Val Ala Val Glu Ser Gln Gly Trp Gln Ala Phe Lys Asn Asp
20 25 30

Ala Thr Glu Ile Ile Pro Gly Leu Arg Glu Tyr Pro Glu Pro Pro Gln
35 40 45

Glu Leu Glu Asn Asn Gln Thr Met Asn Arg Ala Glu Asn Gly Gly Arg
50 55 60

Pro Pro His His Pro Tyr Asp Thr Lys Asp Val Ser Glu Tyr Ser Cys
65 70 75 80

Arg Glu Leu His Tyr Thr Arg Phe Val Thr Asp Gly Pro Cys Arg Ser
85 90 95

Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro Ala
100 105 110

Arg Leu Leu Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn
115 120 125

Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val
130 135 140

Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg
145 150 155 160

Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn Gln
165 170 175

Ser Glu Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly
180 185 190

Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln Ala Glu
195 200 205

Leu Glu Asn Ala Tyr
210

<210> 15
<211> 532
<212> DNA
<213> Bos torus

<400> 15
agaatgatgc cacagaaatc atccccgagc tgggcgagta ccccgagcct ctgccagagc 60

tgaacaacaa gaccatgaac cgggcggaga acggagggag acctccccac cacccctttg 120

agaccaaaga cgcctccgag tacagctgcc gggagctgca cttcacccgc tacgtgaccg 180

atgggccgtg ccgcagcgcc aagccggtca ccgagctggt gtgctcgggc cagtgcggcc 240

cggcgcgcct gctgcccaac gccatcggcc gcggcaagtg gtggcgccca agcgggcccg 300

acttccgctg catccccgac cgctaccgcg cgcagcgggt gcagctgttg tgtcctggcg 360

gcgcggcgcc gcgcgcgcgc aaggtgcgcc tggtggcctc gtgcaagtgc aagcgcctca 420

ctcgcttcca caaccagtcc gagctcaagg acttcgggcc cgaggccgcg cggccgcaaa 480

cgggccggaa gctgcggccc cgcgcccggg gcaccaaagc cagccgggcc ga 532

<210> 16
<211> 176
<212> PRT
<213> Bos torus

<400> 16

Asn Asp Ala Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro
1 5 10 15

Leu Pro Glu Leu Asn Asn Lys Thr Met Asn Arg Ala Glu Asn Gly Gly
20 25 30

Arg Pro Pro His His Pro Phe Glu Thr Lys Asp Ala Ser Glu Tyr Ser
35 40 45

Cys Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg
50 55 60

Ser Ala Lys Pro Val Thr Glu Leu Val Cys Ser Gly Gln Cys Gly Pro
65 70 75 80

Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro
85 90 95

Ser Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg

100 105 110

Val Gln Leu Leu Cys Pro Gly Gly Ala Ala Pro Arg Ala Arg Lys Val
115 120 125

Arg Leu Val Ala Ser Cys Lys Cys Lys Arg Leu Thr Arg Phe His Asn
130 135 140

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

Gly Arg Lys Leu Arg Pro Arg Ala Arg Gly Thr Lys Ala Ser Arg Ala
165 170 175

<210> 17
<211> 35828
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (157)..(157)
<223> n is a, c, g, or t

<400> 17
cgcgttttgg tgagcagcaa tattgcgctt cgatgagcct tggcgttgag attgatacct 60
ctgctgcaca aaaggcaatc gaccgagctg gaccagcgca ttcgtgacac cgtctccttc 120
gaacttattc gcaatggagt gtcattcatc aaggacngcc tgatcgcaaa tggtgctatc 180
cacgcagcgg caatcgaaaa ccctcagccg gtgaccaata tctacaacat cagccttggt 240
atcctgcgtg atgagccagc gcagaacaag gtaaccgtca gtgccgataa gttcaaagtt 300
aaacctggtg ttgataccaa cattgaaacg ttgatcgaaa acgcgctgaa aaacgctgct 360
gaatgtgcgg cgctggatgt cacaaagcaa atggcagcag acaagaaagc gatggatgaa 420
ctggcttcct atgtccgcac ggccatcatg atggaatgtt tccccggtgg tgttatctgg 480
cagcagtgcc gtcgatagta tgcaattgat aattattatc atttgcgggt cctttccggc 540
gatccgcctt gttacggggc ggcgacctcg cgggttttcg ctatttatga aaattttccg 600
gtttaaggcg tttccgttct tcttcgtcat aacttaatgt ttttatttaa aataccctct 660
gaaaagaaag gaaacgacag gtgctgaaag cgagcttttt ggcctctgtc gtttcctttc 720
tctgtttttg tccgtggaat gaacaatgga agtcaacaaa aagcagagct tatcgatgat 780
aagcggtcaa acatgagaat tcgcggccgc ataatacgac tcactatagg gatcgacgcc 840
tactccccgc gcatgaagcg gaggagctgg actccgcatg cccagagacg ccccccaacc 900
cccaaagtgc ctgacctcag cctctaccag ctctggcttg ggcttgggcg gggtcaaggc 960
taccacgttc tcttaacagg tggctgggct gtctcttggc cgcgcgtcat gtgacagctg 1020
cctagttctg cagtgaggtc accgtggaat gtctgccttc gttgccatgg caacgggatg 1080
acgttacaat ctgggtgtgg agcttttcct gtccgtgtca ggaaatccaa ataccctaaa 1140

ataccctaga agaggaagta gctgagccaa ggctttcctg gcttctccag ataaagtttg 1200
acttagatgg aaaaaaacaa aatgataaag acccgagcca tctgaaaatt cctcctaatt 1260
gcaccactag gaaatgtgta tattattgag ctcgtatgtg ttcttatttt aaaaagaaaa 1320
ctttagtcat gttattaata agaatttctc agcagtggga gagaaccaat attaacacca 1380
agataaaagt tggcatgatc cacattgcag gaagatccac gttgggtttt catgaatgtg 1440
aagaccccat ttattaaagt cctaagctct gtttttgcac actaggaagc gatggccggg 1500
atggctgagg ggctgtaagg atctttcaat gtcttacatg tgtgtttcct gtcctgcacc 1560
taggacctgc tgcctagcct gcagcagagc cagaggggtt tcacatgatt agtctcagac 1620
acttgggggc aggttgcatg tactgcatcg cttatttcca tacggagcac ctactatgtg 1680
tcaaacacca tatggtgttc actcttcaga acggtggtgg tcatcatggt gcatttgctg 1740
acggttggat tggtggtaga gagctgagat atatggacgc actcttcagc attctgtcaa 1800
cgtggctgtg cattcttgct cctgagcaag tggctaaaca gactcacagg gtcagcctcc 1860
agctcagtcg ctgcatagtc ttagggaacc tctcccagtc ctccctacct caactatcca 1920
agaagccagg gggcttggcg gtctcaggag cctgcttgct gggggacagg ttgttgagtt 1980
ttatctgcag taggttgcct aggcatagtg tcaggactga tggctgcctt ggagaacaca 2040
tcctttgccc tctatgcaaa tctgaccttg acatgggggc gctgctcagc tgggaggatc 2100
aactgcatac ctaaagccaa gcctaaagct tcttcgtcca cctgaaactc ctggaccaag 2160
gggcttccgg cacatcctct caggccagtg agggagtctg tgtgagctgc actttccaat 2220
ctcagggcgt gagaggcaga gggaggtggg ggcagagcct tgcagctctt tcctcccatc 2280
tggacagcgc tctggctcag cagcccatat gagcacaggc acatccccac cccaccccca 2340
cctttcctgt cctgcagaat ttaggctctg ttcacggggg ggggggggag ggggcagtcc 2400
tatcctctct taggtagaca ggactctgca ggagacactg ctttgtaaga tactgcagtt 2460
taaatttgga tgttgtgagg ggaaagcgaa gggcctcttt gaccattcag tcaaggtacc 2520
ttctaactcc catcgtattg gggggctact ctagtgctag acattgcaga gagcctcaga 2580
actgtagtta ccagtgtggt aggattgatc cttcagggag cctgacatgt gacagttcca 2640
ttcttcaccc agtcaccgaa catttattca gtacctaccc cgtaacaggc accgtagcag 2700
gtactgaggg acggaccact caaagaactg acagaccgaa gccttggaat ataaacacca 2760
aagcatcagg ctctgccaac agaacactct ttaacactca ggccctttaa cactcaggac 2820
ccccaccccc accccaagca gttggcactg ctatccacat tttacagaga ggaaaaacta 2880
ggcacaggac gatataagtg gcttgcttaa gcttgtctgc atggtaaatg gcagggctgg 2940
attgagaccc agacattcca actctagggt ctatttttct tttttctcgt tgttcgaatc 3000
tgggtcttac tgggtaaact caggctagcc tcacactcat atccttctcc catggcttac 3060
gagtgctagg attccaggtg tgtgctacca tgtctgactc cctgtagctt gtctatacca 3120
tcctcacaac ataggaattg tgatagcagc acacacaccg gaaggagctg gggaaatccc 3180
acagagggct ccgcaggatg acaggcgaat gcctacacag aaggtgggga agggaagcag 3240

agggaacagc atgggcgtgg gaccacaagt ctatttgggg aagctgccgg taaccgtata 3300
tggctggggt gaggggagag gtcatgagat gaggcaggaa gagccacagc aggcagcggg 3360
tacgggctcc ttattgccaa gaggctcgga tcttcctcct cttcctcctt ccggggctgc 3420
ctgttcattt tccaccactg cctcccatcc aggtctgtgg ctcaggacat cacccagctg 3480
cagaaactgg gcatcaccca cgtcctgaat gctgccgagg gcaggtcctt catgcacgtc 3540
aacaccagtg ctagcttcta cgaggattct ggcatcacct acttgggcat caaggccaat 3600
gatacgcagg agttcaacct cagtgcttac tttgaaaggg ccacagattt cattgaccag 3660
gcgctggccc ataaaaatgg taaggaacgt acattccggc acccatggag cgtaagccct 3720
ctgggacctg cttcctccaa agaggccccc acttgaaaaa ggttccagaa agatcccaaa 3780
atatgccacc aactagggat taagtgtcct acatgtgagc cgatgggggc cactgcatat 3840
agtctgtgcc atagacatga caatggataa taatatttca gacagagagc aggagttagg 3900
tagctgtgct cctttccctt taattgagtg tgcccatttt tttattcatg tatgtgtata 3960
catgtgtgtg cacacatgcc ataggttgat actgaacacc gtcttcaatc gttccccacc 4020
ccaccttatt ttttgaggca gggtctcttc cctgatcctg gggctcattg gtttatctag 4080
gctgctggcc agtgagctct ggagttctgc ttttctctac ctccctagcc ctgggactgc 4140
aggggcatgt gctgggccag gcttttatgt cgcgttgggg atctgaactt aggtccctag 4200
gcctgagcac cgtaaagact ctgccacatc cccagcctgt ttgagcaagt gaaccattcc 4260
ccagaattcc cccagtgggg ctttcctacc cttttattgg ctaggcattc atgagtggtc 4320
acctcgccag aggaatgagt ggccacgact ggctcagggt cagcagccta gagatactgg 4380
gttaagtctt cctgccgctc gctccctgca gccgcagaca gaaagtagga ctgaatgaga 4440
gctggctagt ggtcagacag gacagaaggc tgagagggtc acagggcaga tgtcagcaga 4500
gcagacaggt tctccctctg tgggggaggg gtggcccact gcaggtgtaa ttggccttct 4560
ttgtgctcca tagaggcttc ctgggtacac agcagcttcc ctgtcctggt gattcccaaa 4620
gagaactccc taccactgga cttacagaag ttctattgac tggtgtaacg gttcaacagc 4680
tttggctctt ggtggacggt gcatactgct gtatcagctc aagagctcat tcacgaatga 4740
acacacacac acacacacac acacacacac acacaagcta attttgatat gccttaacta 4800
gctcagtgac tgggcatttc tgaacatccc tgaagttagc acacatttcc ctctggtgtt 4860
cctggcttaa caccttctaa atctatattt tatctttgct gccctgttac cttctgagaa 4920
gcccctaggg ccacttccct tcgcacctac attgctggat ggtttctctc ctgcagctct 4980
taaatctgat ccctctgcct ctgagccatg ggaacagccc aataactgag ttagacataa 5040
aaacgtctct agccaaaact tcagctaaat ttagacaata aatcttactg gttgtggaat 5100
ccttaagatt cttcatgacc tccttcacat ggcacgagta tgaagcttta ttacaattgt 5160
ttattgatca aactaactca taaaaagcca gttgtctttc acctgctcaa ggaaggaaca 5220
aaattcatcc ttaactgatc tgtgcacctt gcacaatcca tacgaatatc ttaagagtac 5280

taagattttg gttgtgagag tcacatgtta cagaatgtac agctttgaca aggtgcatcc 5340
ttgggatgcc gaagtgacct gctgttccag ccccctacct tctgaggctg ttttggaagc 5400
aatgctctgg aagcaacttt aggaggtagg atgctggaac agcgggtcac ttcagcatcc 5460
cgatgacgaa tcccgtcaaa gctgtacatt ctgtaacaga ctgggaaagc tgcagacttt 5520
aaggccaggg ccctatggtc cctcttaatc cctgtcacac ccaacccgag cccttctcct 5580
ccagccgttc tgtgcttctc actctggata gatggagaac acggccttgc tagttaaagg 5640
agtgaggctt caccttctc acatggcagt ggttggtcat cctcattcag ggaactctgg 5700
ggcattctgc ctttacttcc tctttttgga ctacagggaa tatatgctga cttgttttga 5760
ccttgtgtat ggggagactg gatctttggt ctggaatgtt tcctgctagt ttttccccat 5820
cctttggcaa accctatcta tatcttacca ctaggcatag tggccctcgt tctggagcct 5880
gccttcaggc tggttctcgg ggaccatgtc cctggtttct ccccagcata tggtgttcac 5940
agtgttcact gcgggtggtt gctgaacaaa gcggggattg catcccagag ctccggtgcc 6000
ttgtgggtac actgctaaga taaaatggat actggcctct ctctgaccac ttgcagagct 6060
ctggtgcctt gtgggtacac tgctaagata aaatggatac tggcctctct ctatccactt 6120
gcaggactct agggaacagg aatccattac tgagaaaacc aggggctagg agcagggagg 6180
tagctgggca gctgaagtgc ttggcgacta accaatgaat accagagttt ggatctctag 6240
aatactctta aaatctgggt gggcagagtg gcctgcctgt aatcccagaa ctcgggaggc 6300
ggagacaggg aatcatcaga gcaaactggc taaccagaat agcaaaacac tgagctctgg 6360
gctctgtgag agatcctgcc ttaacatata agagagagaa taaaacattg aagaagacag 6420
tagatgccaa ttttaagccc ccacatgcac atggacaagt gtgcgtttga acacacatat 6480
gcactcatgt gaaccaggca tgcacactcg ggcttatcac acacataatt tgaaagagag 6540
agtgagagag gagagtgcac attagagttc acaggaaagt gtgagtgagc acacccatgc 6600
acacagacat gtgtgccagg gagtaggaaa ggagcctggg tttgtgtata agagggagcc 6660
atcatgtgtt tctaaggagg gcgtgtgaag gaggcgttgt gtgggctggg actggagcat 6720
ggttgtaact gagcatgctc cctgtgggaa acaggagggt ggccaccctg cagagggtcc 6780
cactgtccag cgggatcagt aaaagcccct gctgagaact ttaggtaata gccagagaga 6840
gaaaggtagg aaagtggggg gactcccatc tctgatgtag gaggatctgg gcaagtagag 6900
gtgcgtttga ggtagaaaga ggggtgcaga ggagatgctc ttaattctgg gtcagcagtt 6960
tctttccaaa taatgcctgt gaggaggtgt aggtggtggc cattcactca ctcagcagag 7020
ggatgatgat gcccggtgga tgctggaaat ggccgagcat caaccctggc tctggaagaa 7080
ctccatcttt cagaaggaga gtggatctgt gtatggccag cggggtcaca ggtgcttggg 7140
gcccctgggg gactcctagc actgggtgat gtttatcgag tgctcttgtg tgccaggcac 7200
tggcctgggg ctttgtttct gtctctgttt tgtttcgttt tttgagacag actcttgcta 7260
tgtatccgtg tcaatcttgg aatctcactg catagcccag gctgcggaga gaggggaggg 7320
caataggcct tgtaagcaag ccacacttca gagactagac tccaccctgc gaatgatgac 7380

aggtcagagc tgagttccgg aagatttttt ttccagctgc caggtggagt gtggagtggc 7440
agctagcggc aagggtagag ggcgagctcc ctgtgcagga gaaatgcaag caagagatgg 7500
caagccagtg agttaagcat tctgtgtggg gagcaggtgg atgaagagag aggctgggct 7560
ttcgcctctg ggggggggt gaggggtggg gatgaggtga gaggagggca gctccctgca 7620
gtgtgatgag atttttcctg acagtgacct ttggcctctc cctcccccac ttcccttctt 7680
tcctttcttc ccaccattgc tttccttgtc cttgagaaat tctgagtttc cacttcactg 7740
gtgatgcaga cggaaacaga agccgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt 7800
gtgtgtgtgt ttgtgtgtat gtgtgtgtgt gtgtttgtgt gtatgtgtgt cagtgggaat 7860
ggctcatagt ctgcaggaag gtgggcagga aggaataagc tgtaggctga ggcagtgtgg 7920
gatgcaggga gagaggagag gagggatacc agagaaggaa attaagggag ctacaagagg 7980
gcattgttgg ggtgtgtgtg tgtgtgtgtt gtttatattt gtattggaaa tacattcttt 8040
taaaaaatac ttatccattt atttatttt atgtgcacgt gtgtgtgcct gcatgagttc 8100
atgtgtgcca cgtgtgtgcg ggaacccttg gaggccacaa gggggcatct gatcccctgg 8160
aactggagtt ggaggaggtt gtgagtcccc tgacatgttt gctgggaact gaaccccggt 8220
cctatgcaag agcaggaagt gcagttatct gctgagccat ctctccagtc ctgaaatcca 8280
ttctcttaaa atacacgtgg cagagacatg atgggattta cgtatggatt taatgtggcg 8340
gtcattaagt tccggcacag gcaagcacct gtaaagccat caccacaacc gcaacagtga 8400
atgtgaccat caccccatg ttcttcatgt cccctgtccc ctccatcctc cattctcaag 8460
cacctcttgc tctgcctctg tcgctggaga acagtgtgca tctgcacact cttatgtcag 8520
tgaagtcaca cagcctgcac cccttcctgg tctgagtatt tgggttctga ctctgctatc 8580
acacactact gtactgcatt ctctcgctct ctttttttaa acatattttt atttgtttgt 8640
gtgtatgcac atgtgccaca tgtgtacaga tactatggag gccagaagag gccatggccg 8700
tccctggagc tggagttaca ggcagcgtgt gagctgcctg gtgtgggtgc tgggaaccaa 8760
acttgaatct aaagcaagca cttttaactg ctgaggcagc tctcagtacc cttcttcatt 8820
tctccgcctg ggttccattg tatggacaca tgtagctaga atatcttgct tatctaatta 8880
tgtacattgt tttgtgctaa gagagagtaa tgctctatag cctgagctgg cctcaacctt 8940
gccatcctcc tgcctcagcc tcctcctcct gagtgctagg atgacaggcg agtggtaact 9000
tacatggttt catgttttgt tcaagactga aggataacat tcatacagag aaggtctggg 9060
tcacaaagtg tgcagttcac tgaatggcac aacccgtgat caagaaacaa aactcagggg 9120
ctggagagat ggcactgact gctcttccag aggtccggag ttcaattccc agcaaccaca 9180
tggtggctca cagccatcta taacgagatc tgacgccctc ttctggtgtg tctgaagaca 9240
gctacagtgt actcacataa aataaataaa tctttaaaac acacacacac acacaattac 9300
caccccagaa agcccactcc atgttccctc ccacgtctct gcctacagta ctcccaggtt 9360
accactgttc aggcttctaa caacctggtt tacttgggcc tcttttctgc tctgtggagc 9420

cacacatttg tgtgcctcat acacgttctt tctagtaagt tgcatattac tctgcgtttt 9480
tacatgtatt tatttattgt agttgtgtgt gcgtgtgggc ccatgcatgg cacagtgtgt 9540
ggggatgtca gagtattgtg aacaggggac agttcttttc ttcaatcatg tgggttccag 9600
aggttgaact caggtcatca tgtgtggcag caaatgcctt tacccactga gacatctcca 9660
tattcttttt ttttcccctg aggtgggggc ttgttccata gcccaaactg gctttgcact 9720
tgcagttcaa agtgactccc tgtctccacc tcttagagta ttggaattac gatgtgtact 9780
accacacctg actggatcat taattctttg atgggggcgg ggaagcgcac atgctgcagg 9840
tgaagggatg actggactgg acatgagcgt ggaagccaga gaacagcttc agtctaatgc 9900
tctcccaact gagctatttc ggtttgccag agaacaactt acagaaagtt ctcagtgcca 9960
tgtggattcg gggttggagt tcaactcatc agcttgacat tggctcctct acccactgag 10020
ccttctcact actctctacc tagatcatta attctttttt aaaaagactt attagggggc 10080
tggagagatg gctcagccgt taagagcacc gaatgccctt ccagaggtcc tgagttcaat 10140
tcccagcatg ccattgctgg gcagtagggg gcgcaggtgt tcaacgtgag tagctgttgc 10200
cagttttccg cggtggagaa cctcttgaca ccctgctgtc cctggtcatt ctgggtgggt 10260
gcatggtgat atgcttgttg tatggaagac tttgactgtt acagtgaagt tgggcttcca 10320
cagttaccac gtctcccctg tttcttgcag gccgggtgct tgtccattgc cgcgagggct 10380
acagccgctc cccaacgcta gttatcgcct acctcatgat gcggcagaag atggacgtca 10440
agtctgctct gagtactgtg aggcagaatc gtgagatcgg ccccaacgat ggcttcctgg 10500
cccaactctg ccagctcaat gacagactag ccaaggaggg caaggtgaaa ctctagggtg 10560
cccacagcct cttttgcaga ggtctgactg ggagggccct ggcagccatg tttaggaaac 10620
acagtatacc cactccctgc accaccagac acgtgcccac atctgtccca ctctggtcct 10680
cgggggccac tccaccctta gggagcacat gaagaagctc cctaagaagt tctgctcctt 10740
agccatcctt tcctgtaatt tatgtctctc cctgaggtga ggttcaggtt tatgtccctg 10800
tctgtggcat agatacatct cagtgaccca gggtgggagg gctatcaggg tgcatggccc 10860
gggacacggg cactcttcat gacccctccc ccacctgggt tcttcctgtg tggtccagaa 10920
ccacgagcct ggtaaaggaa ctatgcaaac acaggccctg acctccccat gtctgttcct 10980
ggtcctcaca gcccgacacg ccctgctgag gcagacgaat gacattaagt tctgaagcag 11040
agtggagata gattagtgac tagatttcca aaaagaagga aaaaaaaggc tgcattttaa 11100
aattatttcc ttagaattaa agatactaca taggggccct tgggtaagca aatccatttt 11160
tcccagaggc tatcttgatt ctttggaatg tttaaagtgt gccttgccag agagcttacg 11220
atctatatct gctgcttcag agccttcccc gaggatggct ctgttccttt gcttgttaga 11280
agagcgatgc cttgggcagg gtttcccccc tttcagaata cagggtgtaa agtccagcct 11340
attacaaaca aacaaacaaa caaacaaaca aaggacctcc atttggagaa ttgcaaggat 11400
tttatcctga attatagtgt tggtgagttc aagtcatcac gccaagtgct tgccatcctg 11460
gttgctattc taagaataat taggaggagg aacctagcca attgcagctc atgtccgtgg 11520

gtgtgtgcac gggtgcatat gttggaaggg gtgcctgtcc ccttggggac agaaggaaaa 11580
tgaaaggccc ctctgctcac cctggccatt tacgggaggc tctgctggtt ccacggtgtc 11640
tgtgcaggat cctgaaactg actcgctgga cagaaacgag acttggcggc accatgagaa 11700
tggagagaga gagagcaaag aaagaaacag cctttaaaag aactttctaa gggtggtttt 11760
tgaacctcgc tggaccttgt atgtgtgcac atttgccaga gattgaacat aatcctcttg 11820
ggacttcacg ttctcattat ttgtatgtct ccggggtcac gcagagccgt cagccaccac 11880
cccagcaccc ggcacatagg cgtctcataa aagcccattt tatgagaacc agagctgttt 11940
gagtaccccg tgtatagaga gagttgttgt cgtggggcac ccggatccca gcagcctggt 12000
tgcctgcctg taggatgtct tacaggagtt tgcagagaaa ccttccttgg agggaaagaa 12060
atatcaggga tttttgttga atatttcaaa ttcagcttta agtgtaagac tcagcagtgt 12120
tcatggttaa ggtaaggaac atgccttttc cagagctgct gcaagaggca ggagaagcag 12180
acctgtctta ggatgtcact cccagggtaa agacctctga tcacagcagg agcagagctg 12240
tgcagcctgg atggtcattg tcccctattc tgtgtgacca cagcaaccct ggtcacatag 12300
ggctggtcat cctttttttt ttttttttt ttttttttg gcccagaatg aagtgaccat 12360
agccaagttg tgtacctcag tctttagttt ccaagcggct ctcttgctca atacaatgtg 12420
catttcaaaa taacactgta gagttgacag aactggttca tgtgttatga gagaggaaaa 12480
gagaggaaag aacaaaacaa aacaaaacac cacaaaccaa aaacatctgg gctagccagg 12540
catgattgca atgtctacag gcccagttca tgagaggcag agacaggaag accgccgaaa 12600
ggtcaaggat agcatggtct acgtatcgag actccagcca gggctacggt cccaagatcc 12660
taggttttgg attttgggct ttggtttttg agacagggtt tctctgtgta gccctggctg 12720
tcctggaact cgctctgtag accaggctgg cctcaaactt agagatctgc ctgactctgc 12780
ctttgagggc tgggacgaat gccaccactg cccaactaag attccattaa aaaaaaaaaa 12840
agttcaagat aattaagagt tgccagctcg ttaaagctaa gtagaagcag tctcaggcct 12900
gctgcttgag gctgttcttg gcttggacct gaaatctgcc cccaacagtg tccaagtgca 12960
catgactttg agccatctcc agagaaggaa gtgaaaattg tggctcccca gtcgattggg 13020
acacagtctc tctttgtcta ggtaacacat ggtgacacat agcattgaac tctccactct 13080
gagggtgggt ttccctcccc ctgcctcttc tgggttggtc accccatagg acagccacag 13140
gacagtcact agcacctact ggaaacctct ttgtgggaac atgaagaaag agcctttggg 13200
agattcctgg ctttccatta gggctgaaag tacaacggtt cttggttggc tttgcctcgt 13260
gtttataaaa ctagctacta ttcttcaggt aaaataccga tgttgtggaa aagccaaccc 13320
cgtggctgcc cgtgagtagg gggtggggtt gggaatcctg gatagtgttc tatccatgga 13380
aagtggtgga ataggaatta agggtgttcc ccccccccccc aacctcttcc tcagacccag 13440
ccactttcta tgacttataa acatccaggt aaaaattaca aacataaaaa tggtttctct 13500
tctcaatctt ctaaagtctg cctgcctttt ccaggggtag gtctgtttct ttgctgttct 13560

attgtcttga gagcacagac taacacttac caaatgaggg aactcttggc ccatactaag 13620
gctcttctgg gctccagcac tcttaagtta ttttaagaat tctcacttgg cctttagcac 13680
acccgccacc cccaagtggg tgtggataat gccatggcca gcaggggca ctgttgaggc 13740
gggtgccttt ccaccttaag ttgcttatag tatttaagat gctaaatgtt ttaatcaaga 13800
gaagcactga tcttataata cgaggataag agattttctc acaggaaatt gtctttttca 13860
taattctttt acaggctttg tcctgatcgt agcatagaga gaatagctgg atatttaact 13920
tgtattccat tttcctctgc cagcgttagg ttaactccgt aaaaagtgat tcagtggacc 13980
gaagaggctc agagggcagg ggatggtggg gtgaggcaga gcactgtcac ctgccaggca 14040
tgggaggtcc tgccatccgg gaggaaaagg aaagtttagc ctctagtcta ccaccagtgt 14100
taacgcactc taaagttgta accaaaataa atgtcttaca ttacaaagac gtctgttttg 14160
tgtttccttt tgtgtgtttg ggctttttat gtgtgcttta taactgctgt ggtggtgctg 14220
ttgttagttt tgaggtagga tctcaggctg gccttgaact tctgatcgcc tgcccctgcc 14280
cctgcccctg cccctgtccc tgcctccaag tgctaggact aaaagcacat gccaccacac 14340
cagtacagca tttttctaac atttaaaaat aatcacctag gggctggaga gagggttcca 14400
gctaagagtg cacactgctc ttgggtagga cctgagttta gttcccagaa cctatactgg 14460
gtggctccag gtccagagga tccaggacct ctggcctcca tgggcatctg ctcttagcac 14520
atacccacat acagatacac acataaaaat aaaatgaagc ctttaaaaac ctcctaaaac 14580
ctagcccttg gaggtacgac tctggaaagc tggcatactg tgtaagtcca tctcatggtg 14640
ttctggctaa cgtaagactt acagagacag aaaagaactc agggtgtgct gggggttggg 14700
atggaggaag agggatgagt agggggagca cggggaactt gggcagtgaa aattctttgc 14760
aggacactag aggaggataa ataccagtca ttgcacccac tactggacaa ctccagggaa 14820
ttatgctggg tgaaaagaga aggccccagg tattggctgc attggctgca tttgcgtaac 14880
atttttttaa attgaaaaga aaaagatgta aatcaaggtt agatgagtgg ttgctgtgag 14940
ctgagagctg gggtgagtga gacatgtgga caactccatc aaaaagcgac agaaagaacg 15000
ggctgtggtg acagctacct ctaatctcca cctccgggag gtgatcaagg ttagccctca 15060
gctagcctgt ggtgcatgag accctgtttc aaaaacttta ataaagaaat aatgaaaaaa 15120
gacatcaggg cagatccttg gggccaaagg cggacaggcg agtctcgtgg taaggtcgtg 15180
tagaagcgga tgcatgagca cgtgccgcag gcatcatgag agagccctag gtaagtaagg 15240
atggatgtga gtgtgtcggc gtcggcgcac tgcacgtcct ggctgtggtg ctggactggc 15300
atctttggtg agctgtggag gggaaatggg tagggagatc ataaaatccc tccgaattat 15360
ttcaagaact gtctattaca attatctcaa aatattaaaa aaaaagaaga attaaaaaac 15420
aaaaaaccta tccaggtgtg gtggtgtgca cctatagcca cgggcacttg gaaagctgga 15480
gcaagaggat ggcgagtttg aaggtatctg gggctgtaca gcaagaccgt cgtccccaaa 15540
ccaaaccaaa cagcaaaccc attatgtcac acaagagtgt ttatagtgag cggcctcgct 15600
gagagcatgg ggtgggggtg ggggtggggg acagaaatat ctaaactgca gtcaataggg 15660

atccactgag accctggggc ttgactgcag cttaaccttg ggaaatgata agggttttgt 15720
gttgagtaaa agcatcgatt actgacttaa cctcaaatga agaaaaagaa aaaaagaaaa 15780
caacaaaagc caaaccaagg ggctggtgag atggctcagt gggtaagagc acccgactgc 15840
tcttccgaag gtccagagtt caaatcccag caaccacatg gtggctcaca accatctgta 15900
acgagatatg atgccctctt ctggtgtgtc tgaagacagc tacagtgtac ttacatataa 15960
taaataaatc ttaaaaaaaa aaaaaaaaaa aaaagccaaa ccgagcaaac caggccccca 16020
aacagaaggc aggcacgacg gcaggcacca cgagccatcc tgtgaaaagg cagggctacc 16080
catgggccga ggagggtcca gagagatagg ctggtaagct cagtttctct gtataccctt 16140
tttcttgttg acactacttc aattacagat aaaataacaa ataaacaaaa tctagagcct 16200
ggccactctc tgctcgcttg atttttcctg ttacgtccag caggtggcgg aagtgttcca 16260
aggacagatc gcatcattaa ggtggccagc ataatctccc atcagcaggt ggtgctgtga 16320
gaaccattat ggtgctcaca gaatcccggg cccaggagct gccctctccc aagtctggag 16380
caataggaaa gctttctggc ccagacaggg ttaacagtcc acattccaga gcaggggaaa 16440
aggagactgg aggtcacaga caaaagggcc agcttctaac aacttcacag ctctggtagg 16500
agagatagat caccccaac aatggccaca gctggttttg tctgccccga aggaaactga 16560
cttaggaagc aggtatcaga gtccccttcc tgaggggact tctgtctgcc ttgtaaagct 16620
gtcagagcag ctgcattgat gtgtgggtga cagaagatga aaaggaggac ccaggcagat 16680
cgccacagat ggaccggcca cttacaagtc gaggcaggtg gcagagcctt gcagaagctc 16740
tgcaggtgga cgacactgat tcattaccca gttagcatac cacagcgggc taggcggacc 16800
acagcctcct tcccagtctt cctccagggc tggggagtcc tccaaccttc tgtctcagtg 16860
cagcttccgc cagcccctcc tccttttgca cctcaggtgt gaaccctccc tcctctcctt 16920
ctccctgtgg catggccctc ctgctactgc aggctgagca ttggatttct ttgtgcttag 16980
atagacctga gatggctttc tgatttatat atatatatcc atcccttgga tcttacatct 17040
aggacccaga gctgtttgtg ataccataag aggctgggga gatgatatgg taagagtgct 17100
tgctgtacaa gcatgaagac atgagttcga atccccagca accatgtgga aaaataacct 17160
tctaacctca gagttgaggg gaaaggcagg tggattctgg gggcttactg gccagctagc 17220
cagcctaacc taaatgtctc agtcagagat cctgtctcag ggaataactt gggagaatga 17280
ctgagaaaga cacctcctca ggtctcccat gcacccacac agacacacgg gggggggta 17340
atgtaataag ctaagaaata atgagggaaa tgatttttg ctaagaaatg aaattctgtg 17400
ttggccgcaa gaagcctggc cagggaagga actgcctttg gcacaccagc ctataagtca 17460
ccatgagttc cctggctaag aatcacatgt aatggagccc aggtccctct tgcctggtgg 17520
ttgcctctcc cactggtttt gaagagaaat tcaagagaga tctccttggt cagaattgta 17580
ggtgctgagc aatgtggagc tggggtcaat gggattcctt taaaggcatc cttcccaggg 17640
ctgggtcata cttcaatagt agggtgcttg cacagcaagc gtgagaccct aggttagagt 17700

ccccagaatc tgcccccaac cccccaaaaa ggcatccttc tgcctctggg tgggtggggg 17760
gagcaaacac ctttaactaa gaccattagc tggcaggggt aacaaatgac cttggctaga 17820
ggaatttggt caagctggat tccgccttct gtagaagccc cacttgtttc ctttgttaag 17880
ctggcccaca gtttgttttg agaatgcctg aggggcccag ggagccagac aattaaaagc 17940
caagctcatt ttgatatctg aaaaccacag cctgactgcc ctgcccgtgg gaggtactgg 18000
gagagctggc tgtgtccctg cctcaccaac gccccccccc ccaacacaca ctcctcgggt 18060
cacctgggag gtgccagcag caatttggaa gtttactgag cttgagaagt cttgggaggg 18120
ctgacgctaa gcacacccct tctccacccc cccccacccc acccccgtga ggaggagggt 18180
gaggaaacat gggaccagcc ctgctccagc ccgtccttat tggctggcat gaggcagagg 18240
gggctttaaa aaggcaaccg tatctaggct ggacactgga gcctgtgcta ccgagtgccc 18300
tcctccacct ggcagcatgc agccctcact agccccgtgc ctcatctgcc tacttgtgca 18360
cgctgccttc tgtgctgtgg agggccaggg gtggcaagcc ttcaggaatg atgccacaga 18420
ggtcatccca gggcttggag agtaccccga gcctcctcct gagaacaacc agaccatgaa 18480
ccgggcggag aatggaggca gacctcccca ccatccctat gacgccaaag gtacgggatg 18540
aagaagcaca ttagtggggg gggggtcct gggaggtgac tggggtggtt ttagcatctt 18600
cttcagaggt ttgtgtgggt ggctagcctc tgctacatca gggcagggac acatttgcct 18660
ggaagaatac tagcacagca ttagaacctg gagggcagca ttgggggct ggtagagagc 18720
acccaaggca gggtggaggc tgaggtcagc cgaagctggc attaacacgg gcatgggctt 18780
gtatgatggt ccagagaatc tcctcctaag gatgaggaca caggtcagat ctagctgctg 18840
accagtgggg aagtgatatg gtgaggctgg atgccagatg ccatccatgg ctgtactata 18900
tcccacatga ccaccacatg aggtaaagaa ggccccagct tgaagatgga gaaaccgaga 18960
ggctcctgag ataaagtcac ctgggagtaa gaagagctga gactggaagc tggtttgatc 19020
cagatgcaag gcaaccctag attgggtttg ggtgggaacc tgaagccagg aggaatccct 19080
ttagttcccc cttgcccagg gtctgctcaa tgagcccaga gggttagcat taaaagaaca 19140
gggtttgtag gtggcatgtg acatgagggg cagctgagtg aaatgtcccc tgtatgagca 19200
caggtggcac cacttgccct gagcttgcac cctgacccca gctttgcctc attcctgagg 19260
acagcagaaa ctgtggaggc agagccagca cagagagatg cctggggtgg gggtgggggt 19320
atcacgcacg gaactagcag caatgaatgg ggtggggtgg cagctggagg gacactccag 19380
agaaatgacc ttgctggtca ccatttgtgt gggaggagag ctcattttcc agcttgccac 19440
cacatgctgt ccctcctgtc tcctagccag taagggatgt ggaggaaagg gccaccccaa 19500
aggagcatgc aatgcagtca cgtttttgca gaggaagtgc ttgacctaag ggcactattc 19560
ttggaaagcc ccaaaactag tccttccctg ggcaaacagg cctcccccac ataccacctc 19620
tgcaggggtg agtaaattaa gccagccaca gaagggtggc aaggcctaca cctcccccct 19680
gttgtgcccc ccccccccc gtgaaggtgc atcctggcct ctgcccctct ggctttggta 19740
ctgggatttt ttttttcctt ttatgtcata ttgatcctga caccatggaa cttttggagg 19800

tagacaggac ccacacatgg attagttaaa agcctcccat ccatctaagc tcatggtagg 19860
agatagagca tgtccaagag aggagggcag gcatcagacc tagaagatat ggctgggcat 19920
ccaacccaat ctccttcccc ggagaacaga ctctaagtca gatccagcca cccttgagta 19980
accagctcaa ggtacacaga acaagagagt ctggtataca gcaggtgcta aacaaatgct 20040
tgtggtagca aaagctatag gttttgggtc agaactccga cccaagtcgc gagtgaagag 20100
cgaaaggccc tctactcgcc accgccccgc ccccacctgg ggtcctataa cagatcactt 20160
tcacccttgc gggagccaga gagccctggc atcctaggta gccccccccg ccccccccca 20220
gcaagcagcc cagccctgcc tttggggcaa gttcttttct cagcctggac ctgtgataat 20280
gaggggggttg gacgcgccgc ctttggtcgc tttcaagtct aatgaattct tatccctacc 20340
acctgccctt ctaccccgct cctccacagc agctgtcctg atttattacc ttcaattaac 20400
ctccactcct ttctccatct cctgggatac cgcccctgtc ccagtggctg gtaaaggagc 20460
ttaggaagga ccagagccag gtgtggctag aggctaccag gcagggctgg ggatgaggag 20520
ctaaactgga agagtgtttg gttagtaggc acaaagcctt gggtgggatc cctagtaccg 20580
gagaagtgga gatgggcgct gagaagttca agaccatcca tccttaacta cacagccagt 20640
ttgaggccag cctgggctac ataaaaaccc aatctcaaaa gctgccaatt ctgattctgt 20700
gccacgtagt gcccgatgta atagtggatg aagtcgttga atcctggggc aacctatttt 20760
acagatgtgg ggaaaagcaa ctttaagtac cctgcccaca gatcacaaag aaagtaagtg 20820
acagagctcc agtgtttcat ccctgggttc caaggacagg gagagagaag ccagggtggg 20880
atctcactgc tccccggtgc ctccttccta taatccatac agattcgaaa gcgcagggca 20940
ggtttggaaa aagagagaag ggtggaagga gcagaccagt ctggcctagg ctgcagcccc 21000
tcacgcatcc ctctctccgc agatgtgtcc gagtacagct gccgcgagct gcactacacc 21060
cgcttcctga cagacggccc atgccgcagc gccaagccgg tcaccgagtt ggtgtgctcc 21120
ggccagtgcg gccccgcgcg gctgctgccc aacgccatcg ggcgcgtgaa gtggtggcgc 21180
ccgaacggac cggatttccg ctgcatcccg gatcgctacc gcgcgcagcg ggtgcagctg 21240
ctgtgccccg ggggcgcggc gccgcgctcg cgcaaggtgc gtctggtggc ctcgtgcaag 21300
tgcaagcgcc tcacccgctt ccacaaccag tcggagctca aggacttcgg gccggagacc 21360
gcgcggccgc agaagggtcg caagccgcgg cccggcgccc ggggagccaa agccaaccag 21420
gcggagctgg agaacgccta ctagagcgag cccgcgccta tgcagccccc gcgcgatccg 21480
attcgttttc agtgtaaagc ctgcagccca ggccaggggt gccaaacttt ccagaccgtg 21540
tggagttccc agcccagtag agaccgcagg tccttctgcc cgctgcgggg gatggggagg 21600
gggtggggtt cccgcgggcc aggagaggaa gcttgagtcc cagactctgc ctagccccgg 21660
gtgggatggg ggtctttcta ccctcgccgg acctatacag gacaaggcag tgtttccacc 21720
ttaaagggaa gggagtgtgg aacgaaagac ctgggactgg ttatggacgt acagtaagat 21780
ctactccttc cacccaaatg taaagcctgc gtgggctaga tagggtttct gaccctgacc 21840

tggccactga gtgtgatgtt gggctacgtg gttctctttt ggtacggtct tctttgtaaa 21900
atagggaccg gaactctgct gagattccaa ggattggggt accccgtgta gactggtgag 21960
agagaggaga acaggggagg ggttagggga gagattgtgg tgggcaaccg cctagaagaa 22020
gctgtttgtt ggctcccagc ctcgccgcct cagaggtttg gcttccccca ctccttcctc 22080
tcaaatctgc cttcaaatcc atatctggga tagggaaggc cagggtccga gagatggtgg 22140
aagggccaga aatcacactc ctggcccccc gaagagcagt gtcccgcccc caactgcctt 22200
gtcatattgt aaagggattt tctacacaac agtttaaggt cgttggagga aactgggctt 22260
gccagtcacc tcccatcctt gtcccttgcc aggacaccac ctcctgcctg ccacccacgg 22320
acacatttct gtctagaaac agagcgtcgt cgtgctgtcc tctgagacag catatcttac 22380
attaaaaaga ataatacggg gggggggggc ggagggcgca agtgttatac atatgctgag 22440
aagctgtcag gcgccacagc accacccaca atctttttgt aaatcatttc cagacacctc 22500
ttactttctg tgtagatttt aattgttaaa aggggaggag agagagcgtt tgtaacagaa 22560
gcacatggag gggggggtag gggggttggg gctggtgagt ttggcgaact ttccatgtga 22620
gactcatcca caaagactga aagccgcgtt ttttttttta agagttcagt gacatattta 22680
ttttctcatt taagttattt atgccaacat ttttttcttg tagagaaagg cagtgttaat 22740
atcgctttgt gaagcacaag tgtgtgtggt tttttgtttt ttgttttttc cccgaccaga 22800
ggcattgtta ataaagacaa tgaatctcga gcaggaggct gtggtcttgt tttgtcaacc 22860
acacacaatg tctcgccact gtcatctcac tcccttccct tggtcacaag acccaaacct 22920
tgacaacacc tccgactgct ctctggtagc ccttgtggca atacgtgttt cctttgaaaa 22980
gtcacattca tcctttcctt tgcaaacctg gctctcattc cccagctggg tcatcgtcat 23040
accctcaccc cagcctccct ttagctgacc actctccaca ctgtcttcca aaagtgcacg 23100
tttcaccgag ccagttccct ggtccaggtc atcccattgc tcctccttgc tccagaccct 23160
tctcccacaa agatgttcat ctcccactcc atcaagcccc agtggccctg cggctatccc 23220
tgtctcttca gttagctgaa tctacttgct gacaccacat gaattccttc ccctgtctta 23280
aggttcatgg aactcttgcc tgcccctgaa ccttccagga ctgtcccagc gtctgatgtg 23340
tcctctctct tgtaaagccc caccccacta tttgattccc aattctagat cttcccttgt 23400
tcattccttc acgggatagt gtctcatctg gccaagtcct gcttgatatt gggataaatg 23460
caaagccaag tacaattgag gaccagttca tcattgggcc aagctttttc aaaatgtgaa 23520
ttttacacct atagaagtgt aaaagccttc caaagcagag gcaatgcctg gctcttcctt 23580
caacatcagg gctcctgctt tatgggtctg gtggggtagt acattcataa acccaacact 23640
aggggtgtga aagcaagatg attgggagtt cgaggccaat cttggctatg aggccctgtc 23700
tcaacctctc ctccctccct ccagggtttt gttttgtttt gttttttga tttgaaactg 23760
caacacttta aatccagtca agtgcatctt tgcgtgaggg gaactctatc cctaatataa 23820
gcttccatct tgatttgtgt atgtgcacac tgggggttga acctgggcct ttgtacctgc 23880
cgggcaagct ctctactgct ctaaacccag ccctcactgg ctttctgttt caactcccaa 23940

tgaattcccc taaatgaatt atcaatatca tgtctttgaa aaataccatt gagtgctgct 24000
ggtgtccctg tggttccaga ttccaggaag gacttttcag ggaatccagg catcctgaag 24060
aatgtcttag agcaggaggc catggagacc ttggccagcc ccacaaggca gtgtggtgca 24120
gagggtgagg atggaggcag gcttgcaatt gaagctgaga cagggtactc aggattaaaa 24180
agcttccccc aaaacaattc caagatcagt tcctggtact tgcacctgtt cagctatgca 24240
gagcccagtg ggcataggtg aagacaccgg ttgtactgtc atgtactaac tgtgcttcag 24300
agccggcaga gacaaataat gttatggtga ccccagggga cagtgattcc agaaggaaca 24360
cagaagagag tgctgctaga ggctgcctga aggagaaggg gtcccagact ctctaagcaa 24420
agactccact cacataaaga cacaggctga gcagagctgg ccgtggatgc agggagccca 24480
tccaccatcc tttagcatgc ccttgtattc ccatcacatg ccagggatga ggggcatcag 24540
agagtccaag tgatgcccaa acccaaacac acctaggact tgctttctgg gacagacaga 24600
tgcaggagag actaggttgg gctgtgatcc cattaccaca aagagggaaa aaacaaaaaa 24660
caaacaaaca aacaaaaaaa aacaaaacaa aacaaaaaaa aacccaaggt ccaaattgta 24720
ggtcaggtta gagtttattt atggaaagtt atattctacc tccatggggt ctacaaggct 24780
ggcgcccatc agaaagaaca aacaacaggc tgatctggga ggggtggtac tctatggcag 24840
ggagcacgtg tgcttggggt acagccagac acggggcttg tattaatcac agggcttgta 24900
ttaataggct gagagtcaag cagacagaga gacagaagga aacacacaca cacacacaca 24960
cacacacaca cacacacaca catgcacaca ccactcactt ctcactcgaa gagcccctac 25020
ttacattcta agaacaaacc attcctcctc ataaaggaga caaagttgca gaaacccaaa 25080
agagccacag ggtccccact ctctttgaaa tgacttggac ttgttgcagg gaagacagag 25140
gggtctgcag aggcttcctg ggtgacccag agccacagac actgaaatct ggtgctgaga 25200
cctgtataaa ccctcttcca caggttccct gaaaggagcc cacattcccc aaccctgtct 25260
cctgaccact gaggatgaga gcacttgggc cttccccatt cttggagtgc accctggttt 25320
ccccatctga gggcacatga ggtctcaggt cttgggaaag ttccacaagt attgaaagtg 25380
ttcttgtttt gtttgtgatt taatttaggt gtatgagtgc ttttgcttga atatatgcct 25440
gtgtagcatt tacaagcctg gtgcctgagg agatcagaag atggcatcag ataccctgga 25500
actggacttg cagacagtta tgagccactg tgtgggtgct aggaacagaa cctggatcct 25560
ccggaagagc agacagccag cgctcttagc cactaagcca tcactgaggt tctttctgtg 25620
gctaaagaga caggagacaa aggagagttt cttttagtca ataggaccat gaatgttcct 25680
cgtaacgtga gactagggca gggtgatccc ccagtgacac cgatggccct gtgtagttat 25740
tagcagctct agtcttattc cttaataagt cccagtttgg ggcaggagat atgtattccc 25800
tgctttgaag tggctgaggt ccagttatct acttccaagt acttgtttct ctttctggag 25860
ttggggaagc tccctgcctg cctgtaaatg tgtccattct tcaaccttag acaagatcac 25920
tttccctgag cagtcaggcc agtccaaagc ccttcaattt agctttcata aggaacaccc 25980

cttttgttgg gtggaggtag cacttgcctt gaatcccagc attaagaagg cagagacagt 26040
cggatctctg tgagttcaca gccagcctgg tctacggagt gagttccaag acagccaggc 26100
ctacacagag aaaccctgtc tcgaaaaaaa caaaaacaaa agaaataaag aaaaagaaaa 26160
caaaaacgaa caaacagaaa aacaagccag agtgtttgtc cccgtatttt attaatcata 26220
tttttgtccc tttgccattt tagactaaaa gactcgggaa agcaggtctc tctctgtttc 26280
tcatccggac acacccagaa ccagatgtat ggaagatggc taatgtgctg cagttgcaca 26340
tctggggctg ggtggattgg ttagatggca tgggctgggt gtggttacga tgactgcagg 26400
agcaaggagt atgtggtgca tagcaaacga ggaagtttgc acagaacaac actgtgtgta 26460
ctgatgtgca ggtatgggca catgcaagca gaagccaagg gacagcctta gggtagtgtt 26520
tccacagacc cctccccccc tttaacatgg gcatctctca ttggcctgga gcttgccaac 26580
tgggctgggc tggctagctt gtaggtccca gggatctgca tatctctgcc tccctagtgc 26640
tgggattaca gtcatatatg agcacacctg gctttttttat gtgggttctg ggctttgaac 26700
ccagatctga gtgcttgcaa ggcaatcggt tgaatgactg cttcatctcc ccagaccctg 26760
ggattctact ttctattaaa gtatttctat taaatcaatg agcccctgcc cctgcactca 26820
gcagttctta ggcctgctga gagtcaagtg gggagtgaga gcaagcctcg agaccccatc 26880
agcgaagcag aggacaaaga aatgaaaact tgggattcga ggctcgggat atggagatac 26940
agaaagggtc agggaaggaa atgaaccaga tgaatagagg caggaagggt agggccctgc 27000
atacatggaa cctggtgtac atgttatctg catggggttt gcattgcaat ggctcttcag 27060
caggttcacc acactgggaa acagaagcca aaaagaagag taggtggtgt tggagtcaga 27120
tactgtcagt catgcctgaa gaaatggaag caattaacga tgcgccgcaa ttaggatatt 27180
agctccctga agaaaggcaa gaagctgggc tgtgggcact gaagggagct ttgaatgatg 27240
tcacattctc tgtatgccta gcagggcagt attggagact gagacttgac ttgtgtgtcc 27300
atatgattcc tccttttcct acagtcatct ggggctcctg agcttcgtcc ttgtccaaga 27360
acctggagct ggcagtgggc agctgcagtg atagatgtct gcaagaaaga tctgaaaaga 27420
gggaggaaga tgaaggaccc agaggaccac cgacctctgc tgcctgacaa agctgcagga 27480
ccagtctctc ctacagatgg gagacagagg cgagagatga atggtcaggg gaggagtcag 27540
agaaaggaga gggtgaggca gagaccaaag gagggaaaca cttgtgctct acagctactg 27600
actgagtacc agctgcgtgg cagacagcca atgccaaggc tcggctgatc atggcacctc 27660
gtgggactcc tagcccagtg ctggcagagg ggagtgctga atggtgcatg gtttggatat 27720
gatctgaatg tggtccagcc ctagtttcct tccagttgct gggataaagc accctgacca 27780
aagctacttt tttgtttgtt tgttttggtt tggttttgtt tggtttttcg aggcagggtt 27840
tctctgtatc accctagctg tcctggaact cactctgtag accaggctgg cctcgaactc 27900
agaaatcccc ctgcctctgc ctcctaagtg ctggaattaa aggcctgcgc caccactgcc 27960
ggcccaaagc tactttaaga gagagagagg aatgtataag tattataatt ccaggttata 28020
gttcattgct gtagaattgg agtcttcata ttccaggtaa tctcccacag acatgccaca 28080

aaacaacctg ttctacgaaa tctctcatgg actcccttcc ccagtaattc taaactgtgt 28140
caaatctaca agaaatagtg acagtcacag tctctaacgt tttgggcatg agtctgaagt 28200
ctcattgcta agtactggga agatgaaaac tttacctagt gtcagcattt ggagcagagc 28260
ctttgggatt tgagatggtc ttttgcagag ctcctaatgg ctacatggag agaggggcc 28320
tgggagagac ccatacacct tttgctgcct tatgtcacct gacctgctcc ttgggaagct 28380
ctagcaagaa ggccttccct ggatcaccca ccaccttgca cctccagaac tcagagccaa 28440
attaaacttt cttgttactg tcgtcaaagc acagtcggtc tgggttgtat cactgtcaat 28500
gggaaacaga cttgcctgga tggataactt gtacattgca taatgtctag aaatgaaaag 28560
tcctatagag aaaaagaaaa ttagctggca cacagataga ggccctggag gaggctggct 28620
ttgtcctccc cgaggaggtg gcgagtaagg tgtaaatgtt catggatgta aatgggccca 28680
tatatgaggg tctggggtaa caagaaggcc tgtgaatata aagcactgaa ggtatgtcta 28740
gtctggagaa ggtcactaca gagagttctc caactcagtg cccatacaca cacacacaca 28800
cacacacaca cacacacaca cacacacaca ccacaaagaa aaaaaggaag aaaaatctga 28860
gagcaagtac agtacttaaa attgtgtgat tgtgtgtgtg actctgatgt cacatgctca 28920
tcttgcccta tgagttgaaa accaaatggc ccctgagagg cataacaacc acactgttgg 28980
ctgtgtgctc acgtttttct taaagcgtct gtctggtttg ctgctagcat caggcagact 29040
tgcagcagac tacatatgct cagccctgaa gtccttctag ggtgcatgtc tcttcagaat 29100
ttcagaaagt catctgtggc tccaggaccg cctgcactct ccctctgccg cgaggctgca 29160
gactctaggc tggggtggaa gcaacgctta cctctgggac aagtataaca tgttggcttt 29220
tctttccctc tgtggctcca acctggacat aaaatagatg caagctgtgt aataaatatt 29280
tcctcccgtc cacttagttc tcaacaataa ctactctgag agcacttatt aataggtggc 29340
ttagacataa gctttggctc attcccccac tagctcttac ttctttaact ctttcaaacc 29400
attctgtgtc ttccacatgg ttagttacct ctccttccat cctggttcgc ttcttccttc 29460
gagtcgccct cagtgtctct aggtgatgct tgtaagatat tctttctaca aagctgagag 29520
tggtggcact ctgggagttc aaagccagcc tgatctacac agcaagctcc aggatatcca 29580
gggcaatgtt gggaaaacct ttctcaaaca aaaagagggg ttcagttgtc aggaggagac 29640
ccatgggtta agaagtctag acgagccatg gtgatgcata cctttcatcc aagcacttag 29700
gaggcaaaga aaggtgaaac tctttgactt tgaggccagc taggttacat agtgataccc 29760
tgcttagtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtaatt taaaagtcta 29820
aaaatgcatt cttttaaaaa tatgtataag tatttgcctg cacatatgta tgtatgtatg 29880
tataccatgt gtgtgtctgg tgctgaagga ctaggcatag actccctaga actagagtca 29940
tagacagttg tgacactccc caacccccca ccatgtgggt gcttgaagct aaactcctgt 30000
cctttgtaaa gcagcaggtg tctatgaacc ctgaaccatc tctccagtct ccagatgtgc 30060
attctcaaag aggagtcctt catatttccc taaactgaac atccttatca gtgagcatcc 30120

tcgagtcacc aaagctactg caaaccctct tagggaacat tcactattca cttctacttg 30180
gctcatgaaa cttaagtaca cacacacaaa cacacacaca cacacagagt catgcactca 30240
caaaagcatg catgtacacc attcttatta gactatgctt tgctaaaaga ctttcctaga 30300
tactttaaaa catcacttct gccttttggt gggcaggttc caagattggt actggcgtac 30360
tggaaactga acaaggtaga gatctagaaa tcacagcagg tcagaagggc cagcctgtac 30420
aagagagagt tccacacctt ccaggaacac tgagcagggg gctgggacct tgcctctcag 30480
cccaagaaac tagtgcgttt cctgtatgca tgcctctcag agattccata agatctgcct 30540
tctgccataa gatctcctgc atccagacaa gcctagggga agttgagagg ctgcctgagt 30600
ctctcccaca ggccccttct tgcctggcag tatttttta tctggaggag aggaatcagg 30660
gtgggaatga tcaaatacaa ttatcaagga aaaagtaaaa aacatatata tatatatatt 30720
aactgatcta gggagctggc tcagcagtta agagttctgg ctgcccttgc ttcagatctt 30780
gctttgattc ccagcaccca catgatggct ttcaactgta tctctgcttc caggggatcc 30840
aacagcctct tctgacctcc atagacaaga cctagtcctc tgcaagagca ccaaatgctc 30900
ttatctgttg atccatctct ctagcctcat gccagatcat ttaaaactac tggacactgt 30960
cccattttac gaagatgtca ctgcccagtc atttgccatg agtggatatt tcgattcttt 31020
ctatgttctc acccttgcaa tttataagaa agatatctgc atttgtctcc tgagagaaca 31080
aagggtggag ggctactgag atggctctag gggtaaaggt gcttgccaca aaatctgaca 31140
acttaagttt ggtcttggaa tccacatggt ggagagagag aagagattcc cgtaagttgt 31200
cctcaaactt cccacacatg tgctgtggct tatgtgtaac cccaataagt aaagatagtt 31260
ttaaacacta cataaggtag ggtttcttca tgaccccaag gaatgatgcc cctgatagag 31320
cttatgctga aaccccatct ccattgtgcc atctggaaag agacaattgc atcccggaaa 31380
cagaatcttc atgaatggat taatgagcta ttaagaaagt ggcttggtta ttgcacatgc 31440
tggcggcgta atgacctcca ccatgatgtt atccagcatg aaggtcctca ccagaagtca 31500
tacaaatctt cttaggcttc cagagtcgtg agcaaaaaaa gcacacctct aaataaatta 31560
actagcctca ggtagttaac caccgaaaat gaaccaaggc agttctaata caaaaccact 31620
tcccttccct gttcaaacca cagtgcccta ttatctaaaa gataaacttc aagccaagct 31680
tttaggttgc cagtatttat gtaacaacaa ggcccgttga cacacatctg taactcctag 31740
tactgggcct caggggcaga gacaggtgga gccctggagt ttgaattcca ggttctgtga 31800
gaaactctgt ctgaaaagac aatatggtga gtgacccggg aggatatctg atattgactt 31860
ctggccaaca cacagccatc tctgcacatc tgtagttgca agccttttgc actaagtttg 31920
gccagagtca gagtttgcaa gtgtttgtgg actgaatgca cgtgttgctg gtgatctaca 31980
aagtcaccct ccttctcaag ctagcagcac tggcttcggc cagctgctca ttcaagcctc 32040
tttgcagagt catcacgggg atgggggagc agggcccctc cctagaacac caagcctgtg 32100
gttgtttatt caggacatta ttgagggcca agatgacaga taactctatc acttggccaa 32160
cagtcgggtg ttgcggtgtt aggttatttc tgtgtctgca gaaaacagtg caacctggac 32220

aaaagaaata aatgatatca tttttcattc aggcaactag attccgtggt acaaaaggct 32280
ccctggggaa cgaggccggg acagcgcggc tcctgagtcg ctatttccgt ctgtcaactt 32340
ctctaatctc ttgatttcct ccctctgtct gtttccttcc tcttgctggg gcccagtgga 32400
gtctgtgtac tcacagggag gagggtggca aagccctggt cctctacggg ctgggggaag 32460
gggggaagct gtcggcccag tgacttttttc ccctttctct ttttcttaga aaccagtctc 32520
aatttaagat aatgagtctc ctcattcacg tgtgctcact attcataggg acttatccac 32580
ccccgccctg tcaatctggc taagtaagac aagtcaaatt taaaagggaa cgtttttcta 32640
aaaatgtggc tggaccgtgt gccggcacga aaccagggat ggcggtctaa gttacatgct 32700
ctctgccagc cccggtgcct tttcctttcg gaaaggagac ccggaggtaa aacgaagttg 32760
ccaacttttg atgatggtgt gcgccgggtg actctttaaa atgtcatcca tacctgggat 32820
agggaaggct cttcagggag tcatctagcc ctcccttcag gaaaagattc cacttccggt 32880
ttagttagct tccacctggt cccttatccg ctgtctctgc ccactagtcc tcatccatcc 32940
ggtttccgcc ctcatccacc ttgccctttt agttcctaga aagcagcacc gtagtcttgg 33000
caggtgggcc attggtcact ccgctaccac tgttaccatg gccaccaagg tgtcatttaa 33060
atatgagctc actgagtcct gcgggatggc ttggttggta atatgcttgc tgcaaaatcg 33120
tgagaactgg agttcaattc ccagcacatg gatgtatttc cagcacctgg aaggcaggga 33180
gcagagatct taaagctcct ggccagacag cccagcctaa ttagtaatca gtgagagacc 33240
ctgtctcaag aaacaagatg gaacatcaaa ggtcaacctc ttgtctccac acacacaaat 33300
acacacatgc acatacatcc acacacaggc aaacacatgc acacacctga acaccctcca 33360
caaatacata cataaaaaaa taaatacata cacacataca tacatacacc aacattccct 33420
ctccttagtc tcctggctac gctcttgtca cccccactaa ggcttcaact tcttctattt 33480
cttcatcttg actcctctgt actttgcatg ccttttccag caaaggcttt tctttaaatc 33540
tccgtcattc ataaactccc tctaaatttc ttcccctgcc cttttctttc tctctaggga 33600
gataaagaca cacactacaa agtcaccgtg ggaccagttt attcacccac ccacccctgc 33660
ttctgttcat ccggccagct aagtagtcca acctctctgg tgctgtaccc tggaccctgg 33720
cttcaccaca gctcctccat gctacccagc cctgcaaacc ttcagcctag cctctggttc 33780
tccaaccagc acaggcccag tctggcttct atgtcctaga aatctccttc attctctcca 33840
tttccctcct gaatctacca ccttctttct cccttctcct gacctctaat gtcttggtca 33900
aacgattaca aggaagccaa tgaaattagc agtttggggt acctcagagt cagcagggga 33960
gctgggatga attcacattt ccaggccttt gctttgctcc ccggattctg acaggcagtt 34020
ccgaagctga gtccaggaag ctgaatttaa aatcacactc cagctgggtt ctgaggcagc 34080
cctaccacat cagctggccc tgactgagct gtgtctgggt ggcagtggtg ctggtggtgc 34140
tggtggtgct ggtggtggtg gtggtggtgg tggtggtggt ggtggtggtg tgtgtgtgtg 34200
ttttctgctt ttacaaaact tttctaattc ttatacaaag gacaaatctg cctcatatag 34260

gcagaaagat gacttatgcc tatataagat ataaagatga ctttatgcca cttattagca 34320
atagttactg tcaaaagtaa ttctatttat acacccttat acatggtatt gcttttgttg 34380
gagactctaa aatccagatt atgtatttaa aaaaaaattc cccagtcctt aaaaggtgaa 34440
gaatggaccc agatagaagg tcacggcaca agtatggagt cggagtgtgg agtcctgcca 34500
atggtctgga cagaagcatc cagagagggt ccaagacaaa tgcctcgcct cctaaggaac 34560
actggcagcc ctgatgaggt accagagatt gctaagtgga ggaatacagg atcagaccca 34620
tggaggggct taaagcgtga ctgtagcagc cctccgctga ggggctccag gtgggcgccc 34680
aaggtgctgc agtgggagcc acatgagagg tgatgtcttg gagtcacctc gggtaccatt 34740
gtttagggag gtggggattt gtggtgtgga gacaggcagc ctcaaggatg cttttcaaca 34800
atggttgatg agttggaact aaaacagggg ccatcacact ggctcccata gctctgggct 34860
tgccagcttc cacatctgcc ccccaccccc tgtctggcac cagctcaagc tctgtgattc 34920
tacacatcca aaagaggaag agtagcctac tgggcatgcc acctcttctg gaccatcagg 34980
tgagagtgtg gcaagcccta ggctcctgtc caggatgcag ggctgccaga taggatgctc 35040
agctatctcc tgagctggaa ctattttagg aataaggatt atgcccgccc ggggttggcc 35100
agcaccccag cagcctgtgc ttgcgtaaaa gcaagtgctg ttgatttatc taaaaacaga 35160
gccgtggacc cacccacagg acaagtatgt atgcatctgt ttcatgtatc tgaaaagcga 35220
cacaaccatt tttcacatca tggcatcttc ctaaccccca ttctttttttg ttttgttttt 35280
ttgagacagg gtttctctgt gtagtcctgg ctgtcctgga actcactttg tagaccaggc 35340
tggcctcgaa ctcagaaatc ctgggattaa aggtgtgtgc caccacgccc ggccctaacc 35400
cccattctta atggtgatcc agtggttgaa atttcgggcc acacacatgt ccattaggga 35460
ttagctgctg tcttctgagc tacctggtac aatctttatc ccctggggcc tgggctcctg 35520
atccctgact cgggcccgat caagtccagt tcctgggccc gatcaagtcc agttcctggg 35580
cccgaacaag tccagtccct agctcgatta gctcatcctg gctccctggc ctgttcttac 35640
ttacactctt ccccttgctc tggacttgtt gctttcttta ctcaagttgt ctgccacagt 35700
ccctaagcca cctctgtaag acaactaaga taatacttcc ctcaagcacg gaaagtcctg 35760
agtcaccaca ccctctggag gtgtgtggac acatgttcat gcgtgtggtt gcgcttacgt 35820
acgtgtgc 35828

<210> 18
<211> 9301
<212> DNA
<213> Homo sapiens

<400> 18
tagaggagaa gtctttgggg agggtttgct ctgagcacac ccctttccct ccctccgggg 60
ctgagggaaa catgggacca gccctgcccc agcctgtcct cattggctgg catgaagcag 120
agaggggctt taaaaaggcg accgtgtctc ggctggagac cagagcctgt gctactggaa 180
ggtggcgtgc cctcctctgg ctggtaccat gcagctccca ctggccctgt gtctcgtctg 240

cctgctggta cacacagcct tccgtgtagt ggagggccag gggtggcagg cgttcaagaa 300
tgatgccacg gaaatcatcc ccgagctcgg agagtacccc gagcctccac cggagctgga 360
gaacaacaag accatgaacc gggcggagaa cggagggcgg cctccccacc acccctttga 420
gaccaaaggt atggggtgga ggagagaatt cttagtaaaa gatcctgggg aggttttaga 480
aacttctctt tgggaggctt ggaagactgg ggtagaccca gtgaagattg ctggcctctg 540
ccagcactgg tcgaggaaca gtcttgcctg gaggtggggg aagaatggct cgctggtgca 600
gccttcaaat tcaggtgcag aggcatgagg caacagacgc tggtgagagc ccagggcagg 660
gaggacgctg gggtggtgag ggtatggcat cagggcatca gaacaggctc aggggctcag 720
aaaagaaaag gtttcaaaga atctcctcct gggaatatag gagccacgtc cagctgctgg 780
taccactggg aagggaacaa ggtaagggag cctcccatcc acagaacagc acctgtgggg 840
caccggacac tctatgctgg tggtggctgt ccccaccaca cagacccaca tcatggaatc 900
cccaggaggt gaacccccag ctcgaagggg aagaaacagg ttccaggcac tcagtaactt 960
ggtagtgaga agagctgagg tgtgaacctg gtttgatcca actgcaagat agccctggtg 1020
tgtgggggg tgtgggggac agatctccac aaagcagtgg ggaggaaggc cagagaggca 1080
cccctgcagt gtgcattgcc catggcctgc ccagggagct ggcacttgaa ggaatgggag 1140
ttttcggcac agttttagcc cctgacatgg gtgcagctga gtccaggccc tggaggggag 1200
agcagcatcc tctgtgcagg agtagggaca tctgtcctca gcagccaccc cagtcccaac 1260
cttgcctcat tccaggggag ggagaaggaa gaggaaccct gggttcctgg tcaggcctgc 1320
acagagaagc ccaggtgaca gtgtgcatct ggctctataa ttggcaggaa tcctgaggcc 1380
atgggggcgt ctgaaatgac acttcagact aagagcttcc ctgtcctctg gccattatcc 1440
aggtggcaga gaagtccact gcccaggctc ctggacccca gccctccccg cctcacaacc 1500
tgttgggact atggggtgct aaaaagggca actgcatggg aggccagcca ggaccctccg 1560
tcttcaaaat ggaggacaag ggcgcctccc cccacagctc cccttctagg caaggtcagc 1620
tgggctccag cgactgcctg aagggctgta aggaacccaa acacaaaatg tccaccttgc 1680
tggactccca cgagaggcca cagcccctga ggaagccaca tgctcaaaac aaagtcatga 1740
tctgcagagg aagtgcctgg cctaggggcg ctattctcga aaagccgcaa aatgcccccт 1800
tccctgggca aatgcccccc tgaccacaca cacattccag ccctgcagag gtgaggatgc 1860
aaaccagccc acagaccaga aagcagcccc agacgatggc agtggccaca tctcccctgc 1920
tgtgcttgct cttcagagtg ggggtggggg gtggccttct ctgtccctc tctggtttgg 1980
tcttaagact atttttcatt ctttcttgtc acattggaac tatccccatg aaacctttgg 2040
gggtggactg gtactcacac gacgaccagc tatttaaaaa gctcccaccc atctaagtcc 2100
accataggag acatggtcaa ggtgtgtgca ggggatcagg ccaggcctcg gagcccaatc 2160
tctgcctgcc cagggagtat caccatgagg cgcccattca gataacacag aacaagaaat 2220
gtgcccagca gagagccagg tcaatgtttg tggcagctga acctgtaggt tttgggtcag 2280
agctcagggc ccctatggta ggaaagtaac gacagtaaaa agcagccctc agctccatcc 2340

cccagcccag cctcccatgg atgctcgaac gcagagcctc cactcttgcc ggagccaaaa 2400
ggtgctggga ccccagggaa gtggagtccg gagatgcagc ccagcctttt gggcaagttc 2460
ttttctctgg ctgggcctca gtattctcat tgataatgag ggggttggac acactgcctt 2520
tgattccttt caagtctaat gaattcctgt cctgatcacc tccccttcag tccctcgcct 2580
ccacagcagc tgccctgatt tattaccttc aattaacctc tactcctttc tccatcccct 2640
gtccaccccc cccaagtggc tggaaaagga atttgggaga agccagagcc aggcagaagg 2700
tgtgctgagt acttaccctg cccaggccag ggaccctgcg gcacaagtgt ggcttaaatc 2760
ataagaagac cccagaagag aaatgataat aataatacat aacagccgac gctttcagct 2820
atatgtgcca aatggtattt tctgcattgc gtgtgtaatg gattaactcg caatgcttgg 2880
ggcggcccat tttgcagaca ggaagaagag agaggttaag gaacttgccc aagatgacac 2940
ctgcagtgag cgatggagcc ctggtgtttg aaccccagca gtcatttggc tccgagggga 3000
cagggtgcgc aggagagctt tccaccagct ctagagcatc tgggaccttc ctgcaataga 3060
tgttcagggg caaaagcctc tggagacagg cttggcaaaa gcagggctgg ggtggagaga 3120
gacgggccgg tccagggcag gggtggccag gcgggcggcc accctcacgc gcgcctctct 3180
ccacagacgt gtccgagtac agctgccgcg agctgcactt cacccgctac gtgaccgatg 3240
ggccgtgccg cagcgccaag ccggtcaccg agctggtgtg ctccggccag tgcggcccgg 3300
cgcgcctgct gcccaacgcc atcggccgcg gcaagtggtg gcgacctagt gggcccgact 3360
tccgctgcat ccccgaccgc taccgcgcgc agcgcgtgca gctgctgtgt cccggtggtg 3420
aggcgccgcg cgcgcgcaag gtgcgcctgg tggcctcgtg caagtgcaag cgcctcaccc 3480
gcttccacaa ccagtcggag ctcaaggact tcgggaccga ggccgctcgg ccgcagaagg 3540
gccggaagcc gcggccccgc gcccggagcg ccaaagccaa ccaggccgag ctggagaacg 3600
cctactagag cccgcccgcg cccctcccca ccggcgggcg ccccggccct gaacccgcgc 3660
cccacatttc tgtcctctgc gcgtggtttg attgtttata tttcattgta aatgcctgca 3720
acccagggca gggggctgag accttccagg ccctgaggaa tcccgggcgc cggcaaggcc 3780
cccctcagcc cgccagctga ggggtcccac ggggcagggg agggaattga gagtcacaga 3840
cactgagcca cgcagccccg cctctggggc cgcctacctt tgctggtccc acttcagagg 3900
aggcagaaat ggaagcattt tcaccgccct ggggttttaa gggagcggtg tgggagtggg 3960
aaagtccagg gactggttaa gaaagttgga taagattccc ccttgcacct cgctgcccat 4020
cagaaagcct gaggcgtgcc cagagcacaa gactgggggc aactgtagat gtggtttcta 4080
gtcctggctc tgccactaac ttgctgtgta accttgaact acacaattct ccttcgggac 4140
ctcaatttcc actttgtaaa atgagggtgg aggtgggaat aggatctcga ggagactatt 4200
ggcatatgat tccaaggact ccagtgcctt ttgaatgggc agaggtgaga gagagagaga 4260
gaaagagaga gaatgaatgc agttgcattg attcagtgcc aaggtcactt ccagaattca 4320
gagttgtgat gctctcttct gacagccaaa gatgaaaaac aaacagaaaa aaaaaagtaa 4380

agagtctatt tatggctgac atatttacgg ctgacaaact cctggaagaa gctatgctgc 4440
ttcccagcct ggcttccccg gatgtttggc tacctccacc cctccatctc aaagaaataa 4500
catcatccat tggggtagaa aaggagaggg tccgagggtg gtgggaggga tagaaatcac 4560
atccgcccca acttcccaaa gagcagcatc cctcccccga cccatagcca tgttttaaag 4620
tcaccttccg aagagaagtg aaaggttcaa ggacactggc cttgcaggcc cgagggagca 4680
gccatcacaa actcacagac cagcacatcc cttttgagac accgccttct gcccaccact 4740
cacggacaca tttctgccta gaaaacagct tcttactgct cttacatgtg atggcatatc 4800
ttacactaaa agaatattat tgggggaaaa actacaagtg ctgtacatat gctgagaaac 4860
tgcagagcat aatagctgcc acccaaaaat ctttttgaaa atcatttcca gacaacctct 4920
tactttctgt gtagttttta attgttaaaa aaaaaaagtt ttaaacagaa gcacatgaca 4980
tatgaaagcc tgcaggactg gtcgtttttt tggcaattct tccacgtggg acttgtccac 5040
aagaatgaaa gtagtggttt ttaaagagtt aagttacata tttatttttct cacttaagtt 5100
atttatgcaa aagtttttct tgtagagaat gacaatgtta atattgcttt atgaattaac 5160
agtctgttct tccagagtcc agagacattg ttaataaaga caatgaatca tgaccgaaag 5220
gatgtggtct cattttgtca accacacatg acgtcatttc tgtcaaagtt gacacccttc 5280
tcttggtcac tagagctcca accttggaca cacctttgac tgctctctgg tggcccttgt 5340
ggcaattatg tcttcctttg aaaagtcatg tttatccctt cctttccaaa cccagaccgc 5400
atttcttcac ccagggcatg gtaataacct cagccttgta tccttttagc agcctcccct 5460
ccatgctggc ttccaaaatg ctgttctcat tgtatcactc ccctgctcaa aagccttcca 5520
tagctccccc ttgcccagga tcaagtgcag tttccctatc tgacatggga ggccttctct 5580
gcttgactcc cacctcccac tccaccaagc ttcctactga ctccaaatgg tcatgcagat 5640
ccctgcttcc ttagtttgcc atccacactt agcaccccca ataactaatc ctctttcttt 5700
aggattcaca ttacttgtca tctcttcccc taaccttcca gagatgttcc aatctcccat 5760
gatccctctc tcctctgagg ttccagcccc ttttgtctac accactactt tggttcctaa 5820
ttctgttttc catttgacag tcattcatgg aggaccagcc tggccaagtc ctgcttagta 5880
ctggcataga caacacaaag ccaagtacaa ttcaggacca gctcacagga aacttcatct 5940
tcttcgaagt gtggatttga tgcctcctgg gtagaaatgt aggatcttca aaagtgggcc 6000
agcctcctgc acttctctca aagtctcgcc tccccaaggt gtcttaatag tgctggatgc 6060
tagctgagtt agcatcttca gatgaagagt aaccctaaag ttactcttca gttgccctaa 6120
ggtgggatgg tcaactggaa agctttaaat taagtccagc ctaccttggg ggaacccacc 6180
cccacaaaga aagctgaggt ccctcctgat gacttgtcag tttaactacc aataacccac 6240
ttgaattaat catcatcatc aagtctttga taggtgtgag tgggtatcag tggccggtcc 6300
cttcctgggg ctccagcccc cgaggaggcc tcagtgagcc cctgcagaaa atccatgcat 6360
catgagtgtc tcagggccca gaatatgaga gcaggtagga aacagagaca tcttccatcc 6420
ctgagaggca gtgcggtcca gtgggtgggg acacgggctc tgggtcaggt ttgtgttgtt 6480

tgtttgtttg ttttgagaca gagtctcgct ctattgccca ggctggagtg cagtgtcaca 6540
atctcggctt actgcaactt ctgccttccc ggattcaagt gattctcctg cctcagcctc 6600
cagagtagct gggattacag gtgcgtgcca ccacgcctgg ctaatttttg tatttttgat 6660
agagacgggg tttcaccatg ttggccaggc tagtctcgaa ctcttgacct caagtgatct 6720
gcctgcctcg gcctcccaaa gtgctgggat tacaggcgtg agccaccaca cccagcccca 6780
ggttggtgtt tgaatctgag gagactgaag caccaagggg ttaaatgttt tgcccacagc 6840
catacttggg ctcagttcct tgccctaccc ctcacttgag ctgcttagaa cctggtgggc 6900
acatgggcaa taaccaggtc acactgtttt gtaccaagtg ttatgggaat ccaagatagg 6960
agtaatttgc tctgtggagg ggatgaggga tagtggttag ggaaagcttc acaaagtggg 7020
tgttgcttag agattttcca ggtggagaag ggggcttcta ggcagaaggc atagcccaag 7080
caaagactgc aagtgcatgg ctgctcatgg gtagaagaga atccaccatt cctcaacatg 7140
taccgagtcc ttgccatgtg caaggcaaca tgggggtacc aggaattcca agcaatgtcc 7200
aaacctaggg tctgctttct gggacctgaa gatacaggat ggatcagccc aggctgcaat 7260
cccattacca cgagggggaa aaaaacctga aggctaaatt gtaggtcggg ttagaggtta 7320
tttatggaaa gttatattct acctacatgg ggtctataag cctggcgcca atcagaaaag 7380
gaacaaacaa cagacctagc tgggaggggc agcattttgt tgtagggggc ggggcacatg 7440
ttctgggggt acagccagac tcagggcttg tattaatagt ctgagagtaa gacagacaga 7500
gggatagaag gaaataggtc cctttctctc tctctctctc tctctctctc actctctctc 7560
tctctcacac acacacacag acacacacac acgctctgta ggggtctact tatgctccaa 7620
gtacaaatca ggccacattt acacaaggag gtaaaggaaa agaacgttgg aggagccaca 7680
ggaccccaaa attccctgtt ttccttgaat caggcaggac ttacgcagct gggagggtgg 7740
agagcctgca gaagccacct gcgagtaagc caagttcaga gtcacagaca ccaaaagctg 7800
gtgccatgtc ccacacccgc ccacctccca cctgctcctt gacacagccc tgtgctccac 7860
aacccggctc ccagatcatt gattatagct ctggggcctg caccgtcctt cctgccacat 7920
ccccacccca ttcttggaac ctgccctctg tcttctccct tgtccaaggg caggcaaggg 7980
ctcagctatt gggcagcttt gaccaacagc tgaggctcct tttgtggctg gagatgcagg 8040
aggcagggga atattcctct tagtcaatgc gaccatgtgc ctggtttgcc cagggtggtc 8100
tcgtttacac ctgtaggcca agcgtaatta ttaacagctc ccacttctac tctaaaaaat 8160
gacccaatct gggcagtaaa ttatatggtg cccatgctat taagagctgc aacttgctgg 8220
gcgtggtggc tcacacctgt aatcccagta ctttgggacg tcaaggcggg tggatcacct 8280
gaggtcacga gttagagact ggcctggcca gcatggcaaa accccatctt tactaaaaat 8340
acaaaaatta gcaaggcatg gtggcatgca cctgtaatcc caggtactcg ggaggctgag 8400
acaggagaat ggcttgaacc caggaggcag aggttgcagt gagccaagat tgtgccactg 8460
ccctccagcc ctggcaacag agcaagactt catctcaaaa gaaaaaggat actgtcaatc 8520

actgcaggaa gaacccaggt aatgaatgag gagaagagag gggctgagtc accatagtgg 8580

cagcaccgac tcctgcagga aaggcgagac actgggtcat gggtactgaa gggtgccctg 8640

aatgacgttc tgctttagag accgaacctg agccctgaaa gtgcatgcct gttcatgggt 8700

gagagactaa attcatcatt ccttggcagg tactgaatcc tttcttacgg ctgccctcca 8760

atgcccaatt tccctacaat tgtctggggt gcctaagctt ctgcccacca agagggccag 8820

agctggcagc gagcagctgc aggtaggaga gataggtacc cataagggag gtgggaaaga 8880

gagatggaag gagaggggtg cagagcacac acctcccctg cctgacaact tcctgagggc 8940

tggtcatgcc agcagattta aggcggaggc aggggagatg gggcgggaga ggaagtgaaa 9000

aaggagaggg tggggatgga gaggaagaga gggtgatcat tcattcattc cattgctact 9060

gactggatgc cagctgtgag ccaggcacca ccctagctct gggcatgtgg ttgtaatctt 9120

ggagcctcat ggagctcaca gggagtgctg gcaaggagat ggataatgga cggataacaa 9180

ataaacattt agtacaatgt ccgggaatgg aaagttctcg aaagaaaaat aaagctggtg 9240

agcatataga cagccctgaa ggcggccagg ccaggcattt ctgaggaggt ggcatttgag 9300

c 9301

<210> 19
<211> 21
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 19
ccggagctgg agaacaacaa g 21

<210> 20
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 20
gcactggccg gagcacacc 19

<210> 21
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 21
aggccaaccg cgagaagatg acc 23

<210> 22
<211> 21
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 22
gaagtccagg gcgacgtagc a 21

<210> 23
<211> 25
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 23
aagcttggta ccatgcagct cccac 25

<210> 24
<211> 50
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 24
aagcttctac ttgtcatcgt cgtccttgta gtcgtaggcg ttctccagct 50

<210> 25
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 25
gcactggccg gagcacacc 19

<210> 26
<211> 39
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 26
gtcgtcggat ccatggggtg gcaggcgttc aagaatgat 39

<210> 27
<211> 57
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 27
gtcgtcaagc ttctacttgt catcgtcctt gtagtcgtag gcgttctcca gctcggc 57

<210> 28

<211> 29
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 28
gacttggatc ccaggggtgg caggcgttc 29

<210> 29
<211> 29
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 29
agcataagct tctagtaggc gttctccag 29

<210> 30
<211> 29
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 30
gacttggatc cgaagggaaa aagaaaggg 29

<210> 31
<211> 29
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 31
agcataagct tttaatccaa atcgatgga 29

<210> 32
<211> 33
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 32
actacgagct cggccccacc acccatcaac aag 33

<210> 33
<211> 34
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 33
acttagaagc tttcagtcct cagccccctc ttcc 34

<210> 34
<211> 66
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 34
aatctggatc cataacttcg tatagcatac attatacgaa gttatctgca ggattcgagg 60

gcccct 66

<210> 35
<211> 82
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 35
aatctgaatt ccaccggtgt taattaaata acttcgtata atgtatgcta tacgaagtta 60

tagatctaga gtcagcttct ga 82

<210> 36
<211> 62
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 36
atttaggtga cactatagaa ctcgagcagc tgaagcttaa ccacatggtg gctcacaacc 60

at 62

<210> 37
<211> 54
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 37
aacgacggcc agtgaatccg taatcatggt catgctgcca ggtggaggag ggca 54

<210> 38
<211> 31
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 38
attaccaccg gtgacacccg cttcctgaca g 31

<210> 39

<211> 61
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 39
attacttaat taaacatggc gcgccatatg gccggcccct aattgcggcg catcgttaat 60

t 61

<210> 40
<211> 34
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 40
attacggccg gccgcaaagg aattcaagat ctga 34

<210> 41
<211> 34
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer for PCR

<400> 41
attacggcgc gcccctcaca ggccgcaccc agct 34

<210> 42
<211> 184
<212> PRT
<213> Homo sapiens

<400> 42

Met Ser Arg Thr Ala Tyr Thr Val Gly Ala Leu Leu Leu Leu Leu Gly
1 5 10 15

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

Ile Pro Pro Pro Asp Lys Ala Gln His Asn Asp Ser Glu Gln Thr Gln
35 40 45

Ser Pro Gln Gln Pro Gly Ser Arg Asn Arg Gly Arg Gly Gln Gly Arg
50 55 60

Gly Thr Ala Met Pro Gly Glu Glu Val Leu Glu Ser Ser Gln Glu Ala
65 70 75 80

Leu His Val Thr Glu Arg Lys Tyr Leu Lys Arg Asp Trp Cys Lys Thr
85 90 95

Gln Pro Leu Lys Gln Thr Ile His Glu Glu Gly Cys Asn Ser Arg Thr

100 105 110

Ile Ile Asn Arg Phe Cys Tyr Gly Gln Cys Asn Ser Phe Tyr Ile Pro
115 120 125

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

Lys Pro Lys Lys Phe Thr Thr Met Met Val Thr Leu Asn Cys Pro Glu
145 150 155 160

Leu Gln Pro Pro Thr Lys Lys Lys Arg Val Thr Arg Val Lys Gln Cys
165 170 175

Arg Cys Ile Ser Ile Asp Leu Asp
180

<210> 43
<211> 267
<212> PRT
<213> Homo sapiens

<400> 43

Met His Leu Leu Leu Phe Gln Leu Leu Val Leu Leu Pro Leu Gly Lys
1 5 10 15

Thr Thr Arg His Gln Asp Gly Arg Gln Asn Gln Ser Ser Leu Ser Pro
20 25 30

Val Leu Leu Pro Arg Asn Gln Arg Glu Leu Pro Thr Gly Asn His Glu
35 40 45

Glu Ala Glu Glu Lys Pro Asp Leu Phe Val Ala Val Pro His Leu Val
50 55 60

Ala Thr Ser Pro Ala Gly Glu Gly Gln Arg Gln Arg Glu Lys Met Leu
65 70 75 80

Ser Arg Phe Gly Arg Phe Trp Lys Lys Pro Glu Arg Glu Met His Pro
85 90 95

Ser Arg Asp Ser Asp Ser Glu Pro Phe Pro Pro Gly Thr Gln Ser Leu
100 105 110

Ile Gln Pro Ile Asp Gly Met Lys Met Glu Lys Ser Pro Leu Arg Glu
115 120 125

Glu Ala Lys Lys Phe Trp His His Phe Met Phe Arg Lys Thr Pro Ala
130 135 140

Ser Gln Gly Val Ile Leu Pro Ile Lys Ser His Glu Val His Trp Glu
145 150 155 160

Thr Cys Arg Thr Val Pro Phe Ser Gln Thr Ile Thr His Glu Gly Cys
165 170 175

Glu Lys Val Val Val Gln Asn Asn Leu Cys Phe Gly Lys Cys Gly Ser
180 185 190

Val His Phe Pro Gly Ala Ala Gln His Ser His Thr Ser Cys Ser His
195 200 205

Cys Leu Pro Ala Lys Phe Thr Thr Met His Leu Pro Leu Asn Cys Thr
210 215 220

Glu Leu Ser Ser Val Ile Lys Val Val Met Leu Val Glu Glu Cys Gln
225 230 235 240

Cys Lys Val Lys Thr Glu His Glu Asp Gly His Ile Leu His Ala Gly
245 250 255

Ser Gln Asp Ser Phe Ile Pro Gly Val Ser Ala
260 265

<210> 44
<211> 180
<212> PRT
<213> Homo sapiens

<400> 44

Met Leu Arg Val Leu Val Gly Ala Val Leu Pro Ala Met Leu Leu Ala
1 5 10 15

Ala Pro Pro Pro Ile Asn Lys Leu Ala Leu Phe Pro Asp Lys Ser Ala
20 25 30

Trp Cys Glu Ala Lys Asn Ile Thr Gln Ile Val Gly His Ser Gly Cys
35 40 45

Glu Ala Lys Ser Ile Gln Asn Arg Ala Cys Leu Gly Gln Cys Phe Ser
50 55 60

Tyr Ser Val Pro Asn Thr Phe Pro Gln Ser Thr Glu Ser Leu Val His
65 70 75 80

Cys Asp Ser Cys Met Pro Ala Gln Ser Met Trp Glu Ile Val Thr Leu
85 90 95

Glu Cys Pro Gly His Glu Glu Val Pro Arg Val Asp Lys Leu Val Glu
100 105 110

Lys Ile Leu His Cys Ser Cys Gln Ala Cys Gly Lys Glu Pro Ser His
115 120 125

Glu Gly Leu Ser Val Tyr Val Gln Gly Glu Asp Gly Pro Gly Ser Gln

130 135 140

Pro Gly Thr His Pro His Pro His Pro His Pro Gly Gly Gln
145 150 155 160

Thr Pro Glu Pro Glu Asp Pro Pro Gly Ala Pro His Thr Glu Glu Glu
165 170 175

Gly Ala Glu Asp
180

<210> 45
<211> 642
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(639)

<400> 45
atgcagctcc cactggccct gtgtctcgtc tgcctgctgg tacacacagc cttccgtgta 60

gtggagggcc aggggtggca ggcgttcaag aatgatgcca cggaaatcat ccccgagctc 120

ggagagtacc ccgagcctcc accggagctg gagaacaaca agaccatgaa ccgggcggag 180

aacggagggc ggcctcccca ccaccccttt gagaccaaag acgtgtccga gtacagctgc 240

cgcgagctgc acttcacccg ctacgtgacc gatgggccgt gccgcagcgc caagccggtc 300

accgagctgg tgtgctccgg ccagtgcggc ccggcgcgcc tgctgcccaa cgccatcggc 360

cgcggcaagt ggtggcgacc tagtgggccc gacttccgct gcatccccga ccgctaccgc 420

gcgcagcgcg tgcagctgct gtgtcccggt ggtgaggcgc cgcgcgcgcg caaggtgcgc 480

ctggtggcct cgtgcaagtg caagcgcctc acccgcttcc acaaccagtc ggagctcaag 540

gacttcggga ccgaggccgc tcggccgcag aagggccgga agccgcggcc ccgcgcccgg 600

agcgccaaag ccaaccaggc cgagctggag aacgcctact ag 642

<210> 46
<211> 190
<212> PRT
<213> Homo sapiens

<400> 46

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Glu
1 5 10 15

Leu Gly Glu Tyr Pro Glu Pro Pro Pro Glu Leu Glu Asn Asn Lys Thr
20 25 30

Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro Phe Glu
35 40 45

Thr Lys Asp Val Ser Glu Tyr Ser Cys Arg Glu Leu His Phe Thr Arg
50 55 60

```
Tyr Val Thr Asp Gly Pro Cys Arg Ser Ala Lys Pro Val Thr Glu Leu
65                  70                  75                  80

Val Cys Ser Gly Gln Cys Gly Pro Ala Arg Leu Leu Pro Asn Ala Ile
                85                  90                  95

Gly Arg Gly Lys Trp Trp Arg Pro Ser Gly Pro Asp Phe Arg Cys Ile
            100                 105                 110

Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro Gly Gly
        115                 120                 125

Glu Ala Pro Arg Ala Arg Lys Val Arg Leu Val Ala Ser Cys Lys Cys
    130                 135                 140

Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly
145                 150                 155                 160

Thr Glu Ala Ala Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Arg Ala
                165                 170                 175

Arg Ser Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr
            180                 185                 190
```

<210> 47
<211> 20
<212> PRT
<213> Homo sapiens

<400> 47

```
Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Glu
1               5                   10                  15

Leu Gly Glu Tyr
            20
```

<210> 48
<211> 20
<212> PRT
<213> Homo sapiens

<400> 48

```
Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro Glu
1               5                   10                  15

Leu Glu Asn Asn
            20
```

<210> 49
<211> 20
<212> PRT
<213> Homo sapiens

<400> 49

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

Glu Asn Gly Gly
20

<210> 50
<211> 20
<212> PRT
<213> Homo sapiens

<400> 50

Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro
1 5 10 15

Phe Glu Thr Lys
20

<210> 51
<211> 16
<212> PRT
<213> Homo sapiens

<400> 51

Arg Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser
1 5 10 15

<210> 52
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 52

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Glu
1 5 10 15

Leu Gly Glu Tyr Cys
20

<210> 53
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 53

Thr Glu Ile Ile Pro Glu Leu Gly Glu Tyr Pro Glu Pro Pro Pro Glu
1 5 10 15

Leu Glu Asn Asn Cys

20

<210> 54
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 54

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

Glu Asn Gly Gly Cys
20

<210> 55
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 55

Lys Thr Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro
1 5 10 15

Phe Glu Thr Lys Cys
20

<210> 56
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 56

Arg Pro Pro His His Pro Phe Glu Thr Lys Asp Val Ser Glu Tyr Ser
1 5 10 15

Cys

<210> 57
<211> 24
<212> PRT
<213> Rattus norvegicus

<400> 57

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Gly
1 5 10 15

Leu Arg Glu Tyr Pro Glu Pro Pro

20

<210> 58
<211> 20
<212> PRT
<213> Rattus norvegicus

<400> 58

Pro Glu Pro Pro Gln Glu Leu Glu Asn Asn Gln Thr Met Asn Arg Ala
1 5 10 15

Glu Asn Gly Gly
20

<210> 59
<211> 20
<212> PRT
<213> Rattus norvegicus

<400> 59

Glu Asn Gly Gly Arg Pro Pro His His Pro Tyr Asp Thr Lys Asp Val
1 5 10 15

Ser Glu Tyr Ser
20

<210> 60
<211> 20
<212> PRT
<213> Rattus norvegicus

<400> 60

Thr Glu Ile Ile Pro Gly Leu Arg Glu Tyr Pro Glu Pro Pro Gln Glu
1 5 10 15

Leu Glu Asn Asn
20

<210> 61
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 61

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Gly
1 5 10 15

Leu Arg Glu Tyr Pro Glu Pro Pro Cys
20 25

<210> 62
<211> 21
<212> PRT

<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 62

Pro Glu Pro Pro Gln Glu Leu Glu Asn Asn Gln Thr Met Asn Arg Ala
1 5 10 15

Glu Asn Gly Gly Cys
20

<210> 63
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 63

Glu Asn Gly Gly Arg Pro Pro His His Pro Tyr Asp Thr Lys Asp Val
1 5 10 15

Ser Glu Tyr Ser Cys
20

<210> 64
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 64

Thr Glu Ile Ile Pro Gly Leu Arg Glu Tyr Pro Glu Pro Pro Gln Glu
1 5 10 15

Leu Glu Asn Asn Cys
20

<210> 65
<211> 190
<212> PRT
<213> Rattus norvegicus

<400> 65

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Gly
1 5 10 15

Leu Arg Glu Tyr Pro Glu Pro Pro Gln Glu Leu Glu Asn Asn Gln Thr
20 25 30

Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro Tyr Asp
35 40 45

Thr Lys Asp Val Ser Glu Tyr Ser Cys Arg Glu Leu His Tyr Thr Arg
50 55 60

Phe Val Thr Asp Gly Pro Cys Arg Ser Ala Lys Pro Val Thr Glu Leu
65 70 75 80

Val Cys Ser Gly Gln Cys Gly Pro Ala Arg Leu Leu Pro Asn Ala Ile
85 90 95

Gly Arg Val Lys Trp Trp Arg Pro Asn Gly Pro Asp Phe Arg Cys Ile
100 105 110

Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro Gly Gly
115 120 125

Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val Ala Ser Cys Lys Cys
130 135 140

Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly
145 150 155 160

Pro Glu Thr Ala Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Arg Ala
165 170 175

Arg Gly Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr
180 185 190

<210> 66
<211> 20
<212> PRT
<213> Homo sapiens

<400> 66

Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro Gly
1 5 10 15

Gly Glu Ala Pro
20

<210> 67
<211> 20
<212> PRT
<213> Homo sapiens

<400> 67

Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
1 5 10 15

Leu Val Ala Ser
20

<210> 68
<211> 21

<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 68

Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro Gly
1 5 10 15

Gly Glu Ala Pro Cys
20

<210> 69
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 69

Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg
1 5 10 15

Leu Val Ala Ser Cys
20

<210> 70
<211> 17
<212> PRT
<213> Rattus norvegicus

<400> 70

Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro Gly
1 5 10 15

Gly

<210> 71
<211> 16
<212> PRT
<213> Rattus norvegicus

<400> 71

Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val Ala Ser
1 5 10 15

<210> 72
<211> 18
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 72

Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Ser Pro Gly
1 5 10 15

Gly Cys

<210> 73
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 73

Pro Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val Ala Ser
1 5 10 15

Cys

<210> 74
<211> 20
<212> PRT
<213> Homo sapiens

<400> 74

Cys Gly Pro Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp
1 5 10 15

Trp Arg Pro Ser
20

<210> 75
<211> 16
<212> PRT
<213> Homo sapiens

<400> 75

Ile Gly Arg Gly Lys Trp Trp Arg Pro Ser Gly Pro Asp Phe Arg Cys
1 5 10 15

<210> 76
<211> 18
<212> PRT
<213> Rattus norvegicus

<400> 76

Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn Gly Pro Asp
1 5 10 15

Phe Arg

<210> 77

<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic peptide

<400> 77

Pro Asn Ala Ile Gly Arg Val Lys Trp Trp Arg Pro Asn Gly Pro Asp
1 5 10 15

Phe Arg Cys

<210> 78
<211> 20
<212> PRT
<213> Homo sapiens

<400> 78

Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly
1 5 10 15

Thr Glu Ala Ala
20

<210> 79
<211> 20
<212> PRT
<213> Homo sapiens

<400> 79

Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly Arg
1 5 10 15

Lys Pro Arg Pro
20

<210> 80
<211> 20
<212> PRT
<213> Homo sapiens

<400> 80

Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys
1 5 10 15

Ala Asn Gln Ala
20

<210> 81
<211> 16
<212> PRT
<213> Homo sapiens

<400> 81

Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr
1 5 10 15

<210> 82
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 82

Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly
1 5 10 15

Thr Glu Ala Ala Cys
20

<210> 83
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 83

Glu Leu Lys Asp Phe Gly Thr Glu Ala Ala Arg Pro Gln Lys Gly Arg
1 5 10 15

Lys Pro Arg Pro Cys
20

<210> 84
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 84

Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Arg Ala Arg Ser Ala Lys
1 5 10 15

Ala Asn Gln Ala Cys
20

<210> 85
<211> 17
<212> PRT
<213> Artificial sequence

<220>
<223> Human SOST peptide fragment with additional cysteine added

<400> 85

Arg Ala Arg Ser Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr

1 5 10 15

Cys

<210> 86
<211> 23
<212> PRT
<213> Rattus norvegicus

<400> 86

Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly
1 5 10 15

Pro Glu Thr Ala Arg Pro Gln
20

<210> 87
<211> 23
<212> PRT
<213> Rattus norvegicus

<400> 87

Lys Gly Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln
1 5 10 15

Ala Glu Leu Glu Asn Ala Tyr
20

<210> 88
<211> 24
<212> PRT
<213> Rattus norvegicus

<400> 88

Ser Glu Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly
1 5 10 15

Arg Lys Pro Arg Pro Arg Ala Arg
20

<210> 89
<211> 24
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 89

Lys Arg Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly
1 5 10 15

Pro Glu Thr Ala Arg Pro Gln Cys
20

<210> 90
<211> 24
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 90

Lys Gly Arg Lys Pro Arg Pro Arg Ala Arg Gly Ala Lys Ala Asn Gln
1 5 10 15

Ala Glu Leu Glu Asn Ala Tyr Cys
20

<210> 91
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> Rat SOST peptide fragment with additional cysteine added

<400> 91

Ser Glu Leu Lys Asp Phe Gly Pro Glu Thr Ala Arg Pro Gln Lys Gly
1 5 10 15

Arg Lys Pro Arg Pro Arg Ala Arg Cys
20 25

<210> 92
<211> 56
<212> PRT
<213> Homo sapiens

<400> 92

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Glu
1 5 10 15

Leu Gly Glu Tyr Pro Glu Pro Pro Pro Glu Leu Glu Asn Asn Lys Thr
20 25 30

Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro Phe Glu
35 40 45

Thr Lys Asp Val Ser Glu Tyr Ser
50 55

<210> 93
<211> 56
<212> PRT
<213> Rattus norvegicus

<400> 93

Gln Gly Trp Gln Ala Phe Lys Asn Asp Ala Thr Glu Ile Ile Pro Gly
1 5 10 15

Leu Arg Glu Tyr Pro Glu Pro Pro Gln Glu Leu Glu Asn Asn Gln Thr
20 25 30

Met Asn Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro Tyr Asp
35 40 45

Thr Lys Asp Val Ser Glu Tyr Ser
50 55

<210> 94
<211> 32
<212> PRT
<213> Homo sapiens

<400> 94

Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro
1 5 10 15

Gly Gly Glu Ala Pro Arg Ala Arg Lys Val Arg Leu Val Ala Ser Cys
20 25 30

<210> 95
<211> 32
<212> PRT
<213> Rattus norvegicus

<400> 95

Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro
1 5 10 15

Gly Gly Ala Ala Pro Arg Ser Arg Lys Val Arg Leu Val Ala Ser Cys
20 25 30

<210> 96
<211> 44
<212> PRT
<213> Homo sapiens

<400> 96

Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly Thr Glu
1 5 10 15

Ala Ala Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Arg Ala Arg Ser
20 25 30

Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr
35 40

<210> 97
<211> 44
<212> PRT
<213> Rattus norvegicus

<400> 97

Leu Thr Arg Phe His Asn Gln Ser Glu Leu Lys Asp Phe Gly Pro Glu
1 5 10 15

Thr Ala Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Arg Ala Arg Gly
20 25 30

Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr
35 40

<210> 98
<211> 26
<212> PRT
<213> Homo sapiens

<400> 98

Cys Gly Pro Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp
1 5 10 15

Trp Arg Pro Ser Gly Pro Asp Phe Arg Cys
20 25

<210> 99
<211> 26
<212> PRT
<213> Rattus norvegicus

<400> 99

Cys Gly Pro Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg Val Lys Trp
1 5 10 15

Trp Arg Pro Asn Gly Pro Asp Phe Arg Cys
20 25

<210> 100
<211> 570
<212> DNA
<213> Homo sapiens

<400> 100
caggggtggc aggcgttcaa gaatgatgcc acggaaatca tccccgagct cggagagtac 60

cccgagcctc caccggagct ggagaacaac aagaccatga accgggcgga gaacggaggg 120

cggcctcccc accacccctt tgagaccaaa gacgtgtccg agtacagctg ccgcgagctg 180

cacttcaccc gctacgtgac cgatgggccg tgccgcagcg ccaagccggt caccgagctg 240

gtgtgctccg gccagtgcgg cccggcgcgc ctgctgccca acgccatcgg ccgcggcaag 300

tggtggcgac ctagtgggcc cgacttccgc tgcatccccg accgctaccg cgcgcagcgc 360

gtgcagctgc tgtgtcccgg tggtgaggcg ccgcgcgcgc gcaaggtgcg cctggtggcc 420

tcgtgcaagt gcaagcgcct cacccgcttc cacaaccagt cggagctcaa ggacttcggg 480

accgaggccg ctcggccgca gaagggccgg aagccgcggc cccgcgcccg gagcgccaaa 540

gccaaccagg ccgagctgga gaacgcctac 570

<210> 101
<211> 570
<212> DNA
<213> Rattus norvegicus

<400> 101
caggggtggc aagccttcaa gaatgatgcc acagaaatca tcccgggact cagagagtac 60

ccagagcctc ctcaggaact agagaacaac cagaccatga accgggccga gaacggaggc 120

agacccccc accatcctta tgacaccaaa gacgtgtccg agtacagctg ccgcgagctg 180

cactacaccc gcttcgtgac cgacggcccg tgccgcagtg ccaagccggt caccgagttg 240

gtgtgctcgg gccagtgcgg ccccgcgcgg ctgctgccca acgccatcgg gcgcgtgaag 300

tggtggcgcc cgaacggacc cgacttccgc tgcatcccgg atcgctaccg cgcgcagcgg 360

gtgcagctgc tgtgccccgg cggcgcggcg ccgcgctcgc gcaaggtgcg tctggtggcc 420

tcgtgcaagt gcaagcgcct cacccgcttc cacaaccagt cggagctcaa ggacttcgga 480

cctgagaccg cgcggccgca gaagggtcgc aagccgcggc cccgcgcccg gggagccaaa 540

gccaaccagg cggagctgga gaacgcctac 570

<210> 102
<211> 532
<212> PRT
<213> Homo sapiens

<400> 102

Met Thr Gln Leu Tyr Ile Tyr Ile Arg Leu Leu Gly Ala Tyr Leu Phe
1 5 10 15

Ile Ile Ser Arg Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
20 25 30

Thr Gly Met Lys Ser Asp Ser Asp Gln Lys Lys Ser Glu Asn Gly Val
35 40 45

Thr Leu Ala Pro Glu Asp Thr Leu Pro Phe Leu Lys Cys Tyr Cys Ser
50 55 60

Gly His Cys Pro Asp Asp Ala Ile Asn Asn Thr Cys Ile Thr Asn Gly
65 70 75 80

His Cys Phe Ala Ile Ile Glu Glu Asp Asp Gln Gly Glu Thr Thr Leu
85 90 95

Ala Ser Gly Cys Met Lys Tyr Glu Gly Ser Asp Phe Gln Cys Lys Asp
100 105 110

Ser Pro Lys Ala Gln Leu Arg Arg Thr Ile Glu Cys Cys Arg Thr Asn
115 120 125

Leu Cys Asn Gln Tyr Leu Gln Pro Thr Leu Pro Pro Val Val Ile Gly
130 135 140

```
Pro Phe Phe Asp Gly Ser Ile Arg Trp Leu Val Leu Leu Ile Ser Met
145                 150                 155                 160

Ala Val Cys Ile Ile Ala Met Ile Ile Phe Ser Ser Cys Phe Cys Tyr
                165                 170                 175

Lys His Tyr Cys Lys Ser Ile Ser Ser Arg Arg Arg Tyr Asn Arg Asp
            180                 185                 190

Leu Glu Gln Asp Glu Ala Phe Ile Pro Val Gly Glu Ser Leu Lys Asp
        195                 200                 205

Leu Ile Asp Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu Pro Leu
    210                 215                 220

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Arg Gln Val
225                 230                 235                 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
                245                 250                 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
            260                 265                 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
        275                 280                 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
    290                 295                 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Phe
305                 310                 315                 320

Leu Lys Cys Ala Thr Leu Asp Thr Arg Ala Leu Leu Lys Leu Ala Tyr
                325                 330                 335

Ser Ala Ala Cys Gly Leu Cys His Leu His Thr Glu Ile Tyr Gly Thr
            340                 345                 350

Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
        355                 360                 365

Leu Ile Lys Lys Asn Gly Ser Cys Cys Ile Ala Asp Leu Gly Leu Ala
    370                 375                 380

Val Lys Phe Asn Ser Asp Thr Asn Glu Val Asp Val Pro Leu Asn Thr
385                 390                 395                 400

Arg Val Gly Thr Lys Arg Tyr Met Ala Pro Glu Val Leu Asp Glu Ser
                405                 410                 415
```

Leu Asn Lys Asn His Phe Gln Pro Tyr Ile Met Ala Asp Ile Tyr Ser
420 425 430

Phe Gly Leu Ile Ile Trp Glu Met Ala Arg Arg Cys Ile Thr Gly Gly
435 440 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr Tyr Asn Met Val Pro Ser Asp
450 455 460

Pro Ser Tyr Glu Asp Met Arg Glu Val Val Cys Val Lys Arg Leu Arg
465 470 475 480

Pro Ile Val Ser Asn Arg Trp Asn Ser Asp Glu Cys Leu Arg Ala Val
485 490 495

Leu Lys Leu Met Ser Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
500 505 510

Thr Ala Leu Arg Ile Lys Lys Thr Leu Ala Lys Met Val Glu Ser Gln
515 520 525

Asp Val Lys Ile
530

<210> 103
<211> 502
<212> PRT
<213> Homo sapiens

<400> 103

Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
20 25 30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
35 40 45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
50 55 60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65 70 75 80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
85 90 95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
100 105 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu

115 120 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
130 135 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145 150 155 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
165 170 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
180 185 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
195 200 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
210 215 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225 230 235 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
245 250 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
260 265 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
275 280 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
290 295 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305 310 315 320

Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys
325 330 335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
340 345 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
355 360 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
370 375 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385 390 395 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
405 410 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
420 425 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
435 440 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
450 455 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465 470 475 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
485 490 495

Ser Gln Asp Ile Lys Leu
500

<210> 104
<211> 502
<212> PRT
<213> Homo sapiens

<400> 104

Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
20 25 30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
35 40 45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
50 55 60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65 70 75 80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
85 90 95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
100 105 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
115 120 125

```
Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
    130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
            180                 185                 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
        195                 200                 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
    210                 215                 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225                 230                 235                 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
                245                 250                 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
            260                 265                 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
        275                 280                 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
    290                 295                 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305                 310                 315                 320

Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys
                325                 330                 335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
            340                 345                 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
        355                 360                 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
    370                 375                 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385                 390                 395                 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
```

405 410 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
420 425 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
435 440 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
450 455 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465 470 475 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
485 490 495

Ser Gln Asp Ile Lys Leu
500

<210> 105
<211> 532
<212> PRT
<213> Rattus sp.

<400> 105

Met Thr Gln Leu Tyr Thr Tyr Ile Arg Leu Leu Gly Ala Cys Leu Phe
1 5 10 15

Ile Ile Ser His Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
20 25 30

Thr Gly Met Lys Ser Asp Val Asp Gln Lys Lys Pro Glu Asn Gly Val
35 40 45

Thr Leu Ala Pro Glu Asp Thr Leu Pro Phe Leu Lys Cys Tyr Cys Ser
50 55 60

Gly His Cys Pro Asp Asp Ala Ile Asn Asn Thr Cys Ile Thr Asn Gly
65 70 75 80

His Cys Phe Ala Ile Ile Glu Glu Asp Asp Gln Gly Glu Thr Thr Leu
85 90 95

Thr Ser Gly Cys Met Lys Tyr Glu Gly Ser Asp Phe Gln Cys Lys Asp
100 105 110

Ser Pro Lys Ala Gln Leu Arg Arg Thr Ile Glu Cys Cys Arg Thr Asn
115 120 125

Leu Cys Asn Gln Tyr Leu Gln Pro Thr Leu Pro Pro Val Val Ile Gly
130 135 140

Pro Phe Phe Asp Gly Ser Val Arg Trp Leu Ala Val Leu Ile Ser Met
145 150 155 160

Ala Val Cys Ile Val Ala Met Ile Val Phe Ser Ser Cys Phe Cys Tyr
165 170 175

Lys His Tyr Cys Lys Ser Ile Ser Ser Arg Gly Arg Tyr Asn Arg Asp
180 185 190

Leu Glu Gln Asp Glu Ala Phe Ile Pro Val Gly Glu Ser Leu Lys Asp
195 200 205

Leu Ile Asp Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu Pro Leu
210 215 220

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Arg Gln Val
225 230 235 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
245 250 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
260 265 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
275 280 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
290 295 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Phe
305 310 315 320

Leu Lys Cys Ala Thr Leu Asp Thr Arg Ala Leu Leu Lys Leu Ala Tyr
325 330 335

Ser Ala Ala Cys Gly Leu Cys His Leu His Thr Glu Ile Tyr Gly Thr
340 345 350

Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
355 360 365

Leu Ile Lys Lys Asn Gly Ser Cys Cys Ile Ala Asp Leu Gly Leu Ala
370 375 380

Val Lys Phe Asn Ser Asp Thr Asn Glu Val Asp Ile Pro Leu Asn Thr
385 390 395 400

Arg Val Gly Thr Arg Arg Tyr Met Ala Pro Glu Val Leu Asp Glu Ser
405 410 415

Leu Ser Lys Asn His Phe Gln Pro Tyr Ile Met Ala Asp Ile Tyr Ser
420 425 430

Phe Gly Leu Ile Ile Trp Glu Met Ala Arg Arg Cys Ile Thr Gly Gly
435 440 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr Tyr Asn Met Val Pro Ser Asp
450 455 460

Pro Ser Tyr Glu Asp Met Arg Glu Val Val Cys Val Lys Arg Leu Arg
465 470 475 480

Pro Ile Val Ser Asn Arg Trp Asn Ser Asp Glu Cys Leu Arg Ala Val
485 490 495

Leu Lys Leu Met Ser Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
500 505 510

Thr Ala Leu Arg Ile Lys Lys Thr Leu Ala Lys Met Val Glu Ser Gln
515 520 525

Asp Val Lys Ile
530

<210> 106
<211> 532
<212> PRT
<213> Rattus norvegicus

<400> 106

Met Thr Gln Leu Tyr Thr Tyr Ile Arg Leu Leu Gly Ala Cys Leu Phe
1 5 10 15

Ile Ile Ser His Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
20 25 30

Thr Gly Met Lys Ser Asp Val Asp Gln Lys Lys Pro Glu Asn Gly Val
35 40 45

Thr Leu Ala Pro Glu Asp Thr Leu Pro Phe Leu Lys Cys Tyr Cys Ser
50 55 60

Gly His Cys Pro Asp Asp Ala Ile Asn Asn Thr Cys Ile Thr Asn Gly
65 70 75 80

His Cys Phe Ala Ile Ile Glu Glu Asp Asp Gln Gly Glu Thr Thr Leu
85 90 95

Thr Ser Gly Cys Met Lys Tyr Glu Gly Ser Asp Phe Gln Cys Lys Asp
100 105 110

Ser Pro Lys Ala Gln Leu Arg Arg Thr Ile Glu Cys Cys Arg Thr Asn
115 120 125

```
Leu Cys Asn Gln Tyr Leu Gln Pro Thr Leu Pro Pro Val Val Ile Gly
    130                 135                 140

Pro Phe Phe Asp Gly Ser Val Arg Trp Leu Ala Val Leu Ile Ser Met
145                 150                 155                 160

Ala Val Cys Ile Val Ala Met Ile Val Phe Ser Ser Cys Phe Cys Tyr
                165                 170                 175

Lys His Tyr Cys Lys Ser Ile Ser Ser Arg Gly Arg Tyr Asn Arg Asp
            180                 185                 190

Leu Glu Gln Asp Glu Ala Phe Ile Pro Val Gly Glu Ser Leu Lys Asp
        195                 200                 205

Leu Ile Asp Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu Pro Leu
    210                 215                 220

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Arg Gln Val
225                 230                 235                 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
                245                 250                 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
            260                 265                 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
        275                 280                 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
    290                 295                 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Phe
305                 310                 315                 320

Leu Lys Cys Ala Thr Leu Asp Thr Arg Ala Leu Leu Lys Leu Ala Tyr
                325                 330                 335

Ser Ala Ala Cys Gly Leu Cys His Leu His Thr Glu Ile Tyr Gly Thr
            340                 345                 350

Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
        355                 360                 365

Leu Ile Lys Lys Asn Gly Ser Cys Cys Ile Ala Asp Leu Gly Leu Ala
    370                 375                 380

Val Lys Phe Asn Ser Asp Thr Asn Glu Val Asp Ile Pro Leu Asn Thr
385                 390                 395                 400
```

Arg Val Gly Thr Arg Arg Tyr Met Ala Pro Glu Val Leu Asp Glu Ser
405 410 415

Leu Ser Lys Asn His Phe Gln Pro Tyr Ile Met Ala Asp Ile Tyr Ser
420 425 430

Phe Gly Leu Ile Ile Trp Glu Met Ala Arg Arg Cys Ile Thr Gly Gly
435 440 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr Tyr Asn Met Val Pro Ser Asp
450 455 460

Pro Ser Tyr Glu Asp Met Arg Glu Val Val Cys Val Lys Arg Leu Arg
465 470 475 480

Pro Ile Val Ser Asn Arg Trp Asn Ser Asp Glu Cys Leu Arg Ala Val
485 490 495

Leu Lys Leu Met Ser Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
500 505 510

Thr Ala Leu Arg Ile Lys Lys Thr Leu Ala Lys Met Val Glu Ser Gln
515 520 525

Asp Val Lys Ile
530

<210> 107
<211> 532
<212> PRT
<213> Rattus norvegicus

<400> 107

Met Thr Gln Leu Tyr Thr Tyr Ile Arg Leu Leu Gly Ala Cys Leu Phe
1 5 10 15

Ile Ile Ser His Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
20 25 30

Thr Gly Met Lys Ser Asp Val Asp Gln Lys Lys Pro Glu Asn Gly Val
35 40 45

Thr Leu Ala Pro Glu Asp Thr Leu Pro Phe Leu Lys Cys Tyr Cys Ser
50 55 60

Gly His Cys Pro Asp Asp Ala Ile Asn Asn Thr Cys Ile Thr Asn Gly
65 70 75 80

His Cys Phe Ala Ile Ile Glu Glu Asp Asp Gln Gly Glu Thr Thr Leu
85 90 95

Thr Ser Gly Cys Met Lys Tyr Glu Gly Ser Asp Phe Gln Cys Lys Asp

100 105 110

Ser Pro Lys Ala Gln Leu Arg Arg Thr Ile Glu Cys Cys Arg Thr Asn
115 120 125

Leu Cys Asn Gln Tyr Leu Gln Pro Thr Leu Pro Pro Val Val Ile Gly
130 135 140

Pro Phe Phe Asp Gly Ser Val Arg Trp Leu Ala Val Leu Ile Ser Met
145 150 155 160

Ala Val Cys Ile Val Ala Met Ile Val Phe Ser Ser Cys Phe Cys Tyr
165 170 175

Lys His Tyr Cys Lys Ser Ile Ser Ser Arg Gly Arg Tyr Asn Arg Asp
180 185 190

Leu Glu Gln Asp Glu Ala Phe Ile Pro Val Gly Glu Ser Leu Lys Asp
195 200 205

Leu Ile Asp Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu Pro Leu
210 215 220

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Arg Gln Val
225 230 235 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
245 250 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
260 265 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
275 280 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
290 295 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Phe
305 310 315 320

Leu Lys Cys Ala Thr Leu Asp Thr Arg Ala Leu Leu Lys Leu Ala Tyr
325 330 335

Ser Ala Ala Cys Gly Leu Cys His Leu His Thr Glu Ile Tyr Gly Thr
340 345 350

Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
355 360 365

Leu Ile Lys Lys Asn Gly Ser Cys Cys Ile Ala Asp Leu Gly Leu Ala
370 375 380

Val Lys Phe Asn Ser Asp Thr Asn Glu Val Asp Ile Pro Leu Asn Thr
385 390 395 400

Arg Val Gly Thr Arg Arg Tyr Met Ala Pro Glu Val Leu Asp Glu Ser
405 410 415

Leu Ser Lys Asn His Phe Gln Pro Tyr Ile Met Ala Asp Ile Tyr Ser
420 425 430

Phe Gly Leu Ile Ile Trp Glu Met Ala Arg Arg Cys Ile Thr Gly Gly
435 440 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr Tyr Asn Met Val Pro Ser Asp
450 455 460

Pro Ser Tyr Glu Asp Met Arg Glu Val Val Cys Val Lys Arg Leu Arg
465 470 475 480

Pro Ile Val Ser Asn Arg Trp Asn Ser Asp Glu Cys Leu Arg Ala Val
485 490 495

Leu Lys Leu Met Ser Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
500 505 510

Thr Ala Leu Arg Ile Lys Lys Thr Leu Ala Lys Met Val Glu Ser Gln
515 520 525

Asp Val Lys Ile
530

<210> 108
<211> 502
<212> PRT
<213> Homo sapiens

<400> 108

Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
20 25 30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
35 40 45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
50 55 60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65 70 75 80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
85 90 95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
100 105 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
115 120 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
130 135 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145 150 155 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
165 170 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
180 185 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
195 200 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
210 215 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225 230 235 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
245 250 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
260 265 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
275 280 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
290 295 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305 310 315 320

Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys
325 330 335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
340 345 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro

355 360 365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
370 375 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385 390 395 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
405 410 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
420 425 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
435 440 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
450 455 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465 470 475 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
485 490 495

Ser Gln Asp Ile Lys Leu
500

<210> 109
<211> 502
<212> PRT
<213> Homo sapiens

<400> 109

Met Leu Leu Arg Ser Ala Gly Lys Leu Asn Val Gly Thr Lys Lys Glu
1 5 10 15

Asp Gly Glu Ser Thr Ala Pro Thr Pro Arg Pro Lys Val Leu Arg Cys
20 25 30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
35 40 45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
50 55 60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
65 70 75 80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
85 90 95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
100 105 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
115 120 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
130 135 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145 150 155 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
165 170 175

Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
180 185 190

Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
195 200 205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
210 215 220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225 230 235 240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
245 250 255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
260 265 270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
275 280 285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
290 295 300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305 310 315 320

Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys
325 330 335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
340 345 350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
355 360 365

```
Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
    370                 375                 380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385                 390                 395                 400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
                405                 410                 415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
            420                 425                 430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
        435                 440                 445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
    450                 455                 460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465                 470                 475                 480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
                485                 490                 495

Ser Gln Asp Ile Lys Leu
            500
```

<210> 110
<211> 532
<212> PRT
<213> Rattus sp.

<400> 110

```
Met Thr Gln Leu Tyr Thr Tyr Ile Arg Leu Leu Gly Ala Cys Leu Phe
1               5                   10                  15

Ile Ile Ser His Val Gln Gly Gln Asn Leu Asp Ser Met Leu His Gly
            20                  25                  30

Thr Gly Met Lys Ser Asp Val Asp Gln Lys Lys Pro Glu Asn Gly Val
        35                  40                  45

Thr Leu Ala Pro Glu Asp Thr Leu Pro Phe Leu Lys Cys Tyr Cys Ser
    50                  55                  60

Gly His Cys Pro Asp Asp Ala Ile Asn Asn Thr Cys Ile Thr Asn Gly
65                  70                  75                  80

His Cys Phe Ala Ile Ile Glu Glu Asp Asp Gln Gly Glu Thr Thr Leu
                85                  90                  95

Thr Ser Gly Cys Met Lys Tyr Glu Gly Ser Asp Phe Gln Cys Lys Asp
            100                 105                 110
```

Ser Pro Lys Ala Gln Leu Arg Arg Thr Ile Glu Cys Cys Arg Thr Asn
115 120 125

Leu Cys Asn Gln Tyr Leu Gln Pro Thr Leu Pro Pro Val Val Ile Gly
130 135 140

Pro Phe Phe Asp Gly Ser Val Arg Trp Leu Ala Val Leu Ile Ser Met
145 150 155 160

Ala Val Cys Ile Val Ala Met Ile Val Phe Ser Ser Cys Phe Cys Tyr
165 170 175

Lys His Tyr Cys Lys Ser Ile Ser Ser Arg Gly Arg Tyr Asn Arg Asp
180 185 190

Leu Glu Gln Asp Glu Ala Phe Ile Pro Val Gly Glu Ser Leu Lys Asp
195 200 205

Leu Ile Asp Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu Pro Leu
210 215 220

Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Arg Gln Val
225 230 235 240

Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg Gly Glu
245 250 255

Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser Trp Phe
260 265 270

Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu Asn Ile
275 280 285

Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp Thr Gln
290 295 300

Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr Asp Phe
305 310 315 320

Leu Lys Cys Ala Thr Leu Asp Thr Arg Ala Leu Leu Lys Leu Ala Tyr
325 330 335

Ser Ala Ala Cys Gly Leu Cys His Leu His Thr Glu Ile Tyr Gly Thr
340 345 350

Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys Asn Ile
355 360 365

Leu Ile Lys Lys Asn Gly Ser Cys Cys Ile Ala Asp Leu Gly Leu Ala
370 375 380

Val Lys Phe Asn Ser Asp Thr Asn Glu Val Asp Ile Pro Leu Asn Thr
385 390 395 400

Arg Val Gly Thr Arg Arg Tyr Met Ala Pro Glu Val Leu Asp Glu Ser
405 410 415

Leu Ser Lys Asn His Phe Gln Pro Tyr Ile Met Ala Asp Ile Tyr Ser
420 425 430

Phe Gly Leu Ile Ile Trp Glu Met Ala Arg Arg Cys Ile Thr Gly Gly
435 440 445

Ile Val Glu Glu Tyr Gln Leu Pro Tyr Tyr Asn Met Val Pro Ser Asp
450 455 460

Pro Ser Tyr Glu Asp Met Arg Glu Val Val Cys Val Lys Arg Leu Arg
465 470 475 480

Pro Ile Val Ser Asn Arg Trp Asn Ser Asp Glu Cys Leu Arg Ala Val
485 490 495

Leu Lys Leu Met Ser Glu Cys Trp Ala His Asn Pro Ala Ser Arg Leu
500 505 510

Thr Ala Leu Arg Ile Lys Lys Thr Leu Ala Lys Met Val Glu Ser Gln
515 520 525

Asp Val Lys Ile
530

<210> 111
<211> 530
<212> PRT
<213> Homo sapiens

<400> 111

Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1 5 10 15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
20 25 30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
35 40 45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
50 55 60

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

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr

85 90 95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
100 105 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr
115 120 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
130 135 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145 150 155 160

Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
165 170 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
180 185 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
195 200 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
210 215 220

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

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
245 250 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
260 265 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
275 280 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
290 295 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
325 330 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe
340 345 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu
355 360 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
370 375 380

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

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
405 410 415

Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
420 425 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
435 440 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
450 455 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465 470 475 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
485 490 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
500 505 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
515 520 525

Arg Arg
530

<210> 112
<211> 530
<212> PRT
<213> Homo sapiens

<400> 112

Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1 5 10 15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
20 25 30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
35 40 45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
50 55 60

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

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr
85 90 95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
100 105 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr
115 120 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
130 135 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145 150 155 160

Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
165 170 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
180 185 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
195 200 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
210 215 220

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

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
245 250 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
260 265 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
275 280 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
290 295 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
325 330 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe

340 345 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu
355 360 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
370 375 380

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

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
405 410 415

Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
420 425 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
435 440 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
450 455 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465 470 475 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
485 490 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
500 505 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
515 520 525

Arg Arg
530

<210> 113
<211> 1037
<212> PRT
<213> Homo sapiens

<400> 113

Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1 5 10 15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
20 25 30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
35 40 45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
50 55 60

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

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr
85 90 95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
100 105 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr
115 120 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
130 135 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145 150 155 160

Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
165 170 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
180 185 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
195 200 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
210 215 220

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

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
245 250 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
260 265 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
275 280 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
290 295 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
325 330 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe
340 345 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu
355 360 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
370 375 380

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

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
405 410 415

Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
420 425 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
435 440 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
450 455 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465 470 475 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
485 490 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
500 505 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
515 520 525

Arg Asn Leu Ser His Asn Arg Arg Val Pro Lys Ile Gly Pro Tyr Pro
530 535 540

Asp Tyr Ser Ser Ser Ser Tyr Ile Glu Asp Ser Ile His His Thr Asp
545 550 555 560

Ser Ile Val Lys Asn Ile Ser Ser Glu His Ser Met Ser Ser Thr Pro
565 570 575

Leu Thr Ile Gly Glu Lys Asn Arg Asn Ser Ile Asn Tyr Glu Arg Gln
580 585 590

Ala Gln Ala Arg Ile Pro Ser Pro Glu Thr Ser Val Thr Ser Leu Ser

595 600 605

Thr Asn Thr Thr Thr Thr Asn Thr Thr Gly Leu Thr Pro Ser Thr Gly
610 615 620

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

Thr Thr Asn Val Ala Gln Ser Ile Gly Pro Thr Pro Val Cys Leu Gln
645 650 655

Leu Thr Glu Glu Asp Leu Glu Thr Asn Lys Leu Asp Pro Lys Glu Val
660 665 670

Asp Lys Asn Leu Lys Glu Ser Ser Asp Glu Asn Leu Met Glu His Ser
675 680 685

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

Leu Leu Tyr Pro Leu Ile Lys Leu Ala Val Glu Ala Thr Gly Gln Gln
705 710 715 720

Asp Phe Thr Gln Thr Ala Asn Gly Gln Ala Cys Leu Ile Pro Asp Val
725 730 735

Leu Pro Thr Gln Ile Tyr Pro Leu Pro Lys Gln Gln Asn Leu Pro Lys
740 745 750

Arg Pro Thr Ser Leu Pro Leu Asn Thr Lys Asn Ser Thr Lys Glu Pro
755 760 765

Arg Leu Lys Phe Gly Ser Lys His Lys Ser Asn Leu Lys Gln Val Glu
770 775 780

Thr Gly Val Ala Lys Met Asn Thr Ile Asn Ala Ala Glu Pro His Val
785 790 795 800

Val Thr Val Thr Met Asn Gly Val Ala Gly Arg Asn His Ser Val Asn
805 810 815

Ser His Ala Ala Thr Thr Gln Tyr Ala Asn Gly Thr Val Leu Ser Gly
820 825 830

Gln Thr Thr Asn Ile Val Thr His Arg Ala Gln Glu Met Leu Gln Asn
835 840 845

Gln Phe Ile Gly Glu Asp Thr Arg Leu Asn Ile Asn Ser Ser Pro Asp
850 855 860

Glu His Glu Pro Leu Leu Arg Arg Glu Gln Gln Ala Gly His Asp Glu
865 870 875 880

Gly Val Leu Asp Arg Leu Val Asp Arg Arg Glu Arg Pro Leu Glu Gly
885 890 895

Gly Arg Thr Asn Ser Asn Asn Asn Asn Ser Asn Pro Cys Ser Glu Gln
900 905 910

Asp Val Leu Ala Gln Gly Val Pro Ser Thr Ala Ala Asp Pro Gly Pro
915 920 925

Ser Lys Pro Arg Arg Ala Gln Arg Pro Asn Ser Leu Asp Leu Ser Ala
930 935 940

Thr Asn Val Leu Asp Gly Ser Ser Ile Gln Ile Gly Glu Ser Thr Gln
945 950 955 960

Asp Gly Lys Ser Gly Ser Gly Glu Lys Ile Lys Lys Arg Val Lys Thr
965 970 975

Pro Tyr Ser Leu Lys Arg Trp Arg Pro Ser Thr Trp Val Ile Ser Thr
980 985 990

Glu Ser Leu Asp Cys Glu Val Asn Asn Asn Gly Ser Asn Arg Ala Val
995 1000 1005

His Ser Lys Ser Ser Thr Ala Val Tyr Leu Ala Glu Gly Gly Thr
1010 1015 1020

Ala Thr Thr Met Val Ser Lys Asp Ile Gly Met Asn Cys Leu
1025 1030 1035

<210> 114
<211> 1038
<212> PRT
<213> Homo sapiens

<400> 114

Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1 5 10 15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
20 25 30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
35 40 45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
50 55 60

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

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr
85 90 95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
100 105 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr
115 120 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
130 135 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145 150 155 160

Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
165 170 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
180 185 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
195 200 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
210 215 220

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

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
245 250 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
260 265 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
275 280 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
290 295 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
325 330 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe
340 345 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu

355 360 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
370 375 380

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

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
405 410 415

Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
420 425 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
435 440 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
450 455 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465 470 475 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
485 490 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
500 505 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
515 520 525

Arg Asn Leu Ser His Asn Arg Arg Val Pro Lys Ile Gly Pro Tyr Pro
530 535 540

Asp Tyr Ser Ser Ser Ser Tyr Ile Glu Asp Ser Ile His His Thr Asp
545 550 555 560

Ser Ile Val Lys Asn Ile Ser Ser Glu His Ser Met Ser Ser Thr Pro
565 570 575

Leu Thr Ile Gly Glu Lys Asn Arg Asn Ser Ile Asn Tyr Glu Arg Gln
580 585 590

Gln Ala Gln Ala Arg Ile Pro Ser Pro Glu Thr Ser Val Thr Ser Leu
595 600 605

Ser Thr Asn Thr Thr Thr Thr Asn Thr Thr Gly Leu Thr Pro Ser Thr
610 615 620

Gly Met Thr Thr Ile Ser Glu Met Pro Tyr Pro Asp Glu Thr Asn Leu
625 630 635 640

His Thr Thr Asn Val Ala Gln Ser Ile Gly Pro Thr Pro Val Cys Leu
645 650 655

Gln Leu Thr Glu Glu Asp Leu Glu Thr Asn Lys Leu Asp Pro Lys Glu
660 665 670

Val Asp Lys Asn Leu Lys Glu Ser Ser Asp Glu Asn Leu Met Glu His
675 680 685

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

Ser Leu Leu Tyr Pro Leu Ile Lys Leu Ala Val Glu Ala Thr Gly Gln
705 710 715 720

Gln Asp Phe Thr Gln Thr Ala Asn Gly Gln Ala Cys Leu Ile Pro Asp
725 730 735

Val Leu Pro Thr Gln Ile Tyr Pro Leu Pro Lys Gln Gln Asn Leu Pro
740 745 750

Lys Arg Pro Thr Ser Leu Pro Leu Asn Thr Lys Asn Ser Thr Lys Glu
755 760 765

Pro Arg Leu Lys Phe Gly Ser Lys His Lys Ser Asn Leu Lys Gln Val
770 775 780

Glu Thr Gly Val Ala Lys Met Asn Thr Ile Asn Ala Ala Glu Pro His
785 790 795 800

Val Val Thr Val Thr Met Asn Gly Val Ala Gly Arg Asn His Ser Val
805 810 815

Asn Ser His Ala Ala Thr Thr Gln Tyr Ala Asn Arg Thr Val Leu Ser
820 825 830

Gly Gln Thr Thr Asn Ile Val Thr His Arg Ala Gln Glu Met Leu Gln
835 840 845

Asn Gln Phe Ile Gly Glu Asp Thr Arg Leu Asn Ile Asn Ser Ser Pro
850 855 860

Asp Glu His Glu Pro Leu Leu Arg Arg Glu Gln Gln Ala Gly His Asp
865 870 875 880

Glu Gly Val Leu Asp Arg Leu Val Asp Arg Arg Glu Arg Pro Leu Glu
885 890 895

Gly Gly Arg Thr Asn Ser Asn Asn Asn Asn Ser Asn Pro Cys Ser Glu
900 905 910

Gln Asp Val Leu Ala Gln Gly Val Pro Ser Thr Ala Ala Asp Pro Gly
915 920 925

Pro Ser Lys Pro Arg Arg Ala Gln Arg Pro Asn Ser Leu Asp Leu Ser
930 935 940

Ala Thr Asn Val Leu Asp Gly Ser Ser Ile Gln Ile Gly Glu Ser Thr
945 950 955 960

Gln Asp Gly Lys Ser Gly Ser Gly Glu Lys Ile Lys Lys Arg Val Lys
965 970 975

Thr Pro Tyr Ser Leu Lys Arg Trp Arg Pro Ser Thr Trp Val Ile Ser
980 985 990

Thr Glu Ser Leu Asp Cys Glu Val Asn Asn Asn Gly Ser Asn Arg Ala
995 1000 1005

Val His Ser Lys Ser Ser Thr Ala Val Tyr Leu Ala Glu Gly Gly
1010 1015 1020

Thr Ala Thr Thr Met Val Ser Lys Asp Ile Gly Met Asn Cys Leu
1025 1030 1035

<210> 115
<211> 1038
<212> PRT
<213> Homo sapiens

<400> 115

Met Thr Ser Ser Leu Gln Arg Pro Trp Arg Val Pro Trp Leu Pro Trp
1 5 10 15

Thr Ile Leu Leu Val Ser Thr Ala Ala Ala Ser Gln Asn Gln Glu Arg
20 25 30

Leu Cys Ala Phe Lys Asp Pro Tyr Gln Gln Asp Leu Gly Ile Gly Glu
35 40 45

Ser Arg Ile Ser His Glu Asn Gly Thr Ile Leu Cys Ser Lys Gly Ser
50 55 60

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

Lys Gln Gly Cys Trp Ser His Ile Gly Asp Pro Gln Glu Cys His Tyr
85 90 95

Glu Glu Cys Val Val Thr Thr Thr Pro Pro Ser Ile Gln Asn Gly Thr
100 105 110

Tyr Arg Phe Cys Cys Cys Ser Thr Asp Leu Cys Asn Val Asn Phe Thr

```
        115                 120                 125

Glu Asn Phe Pro Pro Pro Asp Thr Thr Pro Leu Ser Pro Pro His Ser
    130                 135                 140

Phe Asn Arg Asp Glu Thr Ile Ile Ile Ala Leu Ala Ser Val Ser Val
145                 150                 155                 160

Leu Ala Val Leu Ile Val Ala Leu Cys Phe Gly Tyr Arg Met Leu Thr
                165                 170                 175

Gly Asp Arg Lys Gln Gly Leu His Ser Met Asn Met Met Glu Ala Ala
            180                 185                 190

Ala Ser Glu Pro Ser Leu Asp Leu Asp Asn Leu Lys Leu Leu Glu Leu
        195                 200                 205

Ile Gly Arg Gly Arg Tyr Gly Ala Val Tyr Lys Gly Ser Leu Asp Glu
    210                 215                 220

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

Ile Asn Glu Lys Asn Ile Tyr Arg Val Pro Leu Met Glu His Asp Asn
                245                 250                 255

Ile Ala Arg Phe Ile Val Gly Asp Glu Arg Val Thr Ala Asp Gly Arg
            260                 265                 270

Met Glu Tyr Leu Leu Val Met Glu Tyr Tyr Pro Asn Gly Ser Leu Cys
        275                 280                 285

Lys Tyr Leu Ser Leu His Thr Ser Asp Trp Val Ser Ser Cys Arg Leu
    290                 295                 300

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

Arg Gly Asp His Tyr Lys Pro Ala Ile Ser His Arg Asp Leu Asn Ser
                325                 330                 335

Arg Asn Val Leu Val Lys Asn Asp Gly Thr Cys Val Ile Ser Asp Phe
            340                 345                 350

Gly Leu Ser Met Arg Leu Thr Gly Asn Arg Leu Val Arg Pro Gly Glu
        355                 360                 365

Glu Asp Asn Ala Ala Ile Ser Glu Val Gly Thr Ile Arg Tyr Met Ala
    370                 375                 380

Pro Glu Val Leu Glu Gly Ala Val Asn Leu Arg Asp Cys Glu Ser Ala
385                 390                 395                 400
```

Leu Lys Gln Val Asp Met Tyr Ala Leu Gly Leu Ile Tyr Trp Glu Ile
405 410 415

Phe Met Arg Cys Thr Asp Leu Phe Pro Gly Glu Ser Val Pro Glu Tyr
420 425 430

Gln Met Ala Phe Gln Thr Glu Val Gly Asn His Pro Thr Phe Glu Asp
435 440 445

Met Gln Val Leu Val Ser Arg Glu Lys Gln Arg Pro Lys Phe Pro Glu
450 455 460

Ala Trp Lys Glu Asn Ser Leu Ala Val Arg Ser Leu Lys Glu Thr Ile
465 470 475 480

Glu Asp Cys Trp Asp Gln Asp Ala Glu Ala Arg Leu Thr Ala Gln Cys
485 490 495

Ala Glu Glu Arg Met Ala Glu Leu Met Met Ile Trp Glu Arg Asn Lys
500 505 510

Ser Val Ser Pro Thr Val Asn Pro Met Ser Thr Ala Met Gln Asn Glu
515 520 525

Arg Asn Leu Ser His Asn Arg Arg Val Pro Lys Ile Gly Pro Tyr Pro
530 535 540

Asp Tyr Ser Ser Ser Ser Tyr Ile Glu Asp Ser Ile His His Thr Asp
545 550 555 560

Ser Ile Val Lys Asn Ile Ser Ser Glu His Ser Met Ser Ser Thr Pro
565 570 575

Leu Thr Ile Gly Glu Lys Asn Arg Asn Ser Ile Asn Tyr Glu Arg Gln
580 585 590

Gln Ala Gln Ala Arg Ile Pro Ser Pro Glu Thr Ser Val Thr Ser Leu
595 600 605

Ser Thr Asn Thr Thr Thr Thr Asn Thr Thr Gly Leu Thr Pro Ser Thr
610 615 620

Gly Met Thr Thr Ile Ser Glu Met Pro Tyr Pro Asp Glu Thr Asn Leu
625 630 635 640

His Thr Thr Asn Val Ala Gln Ser Ile Gly Pro Thr Pro Val Cys Leu
645 650 655

Gln Leu Thr Glu Glu Asp Leu Glu Thr Asn Lys Leu Asp Pro Lys Glu
660 665 670

Val Asp Lys Asn Leu Lys Glu Ser Ser Asp Glu Asn Leu Met Glu His
675 680 685

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

Ser Leu Leu Tyr Pro Leu Ile Lys Leu Ala Val Glu Ala Thr Gly Gln
705 710 715 720

Gln Asp Phe Thr Gln Thr Ala Asn Gly Gln Ala Cys Leu Ile Pro Asp
725 730 735

Val Leu Pro Thr Gln Ile Tyr Pro Leu Pro Lys Gln Gln Asn Leu Pro
740 745 750

Lys Arg Pro Thr Ser Leu Pro Leu Asn Thr Lys Asn Ser Thr Lys Glu
755 760 765

Pro Arg Leu Lys Phe Gly Ser Lys His Lys Ser Asn Leu Lys Gln Val
770 775 780

Glu Thr Gly Val Ala Lys Met Asn Thr Ile Asn Ala Ala Glu Pro His
785 790 795 800

Val Val Thr Val Thr Met Asn Gly Val Ala Gly Arg Asn His Ser Val
805 810 815

Asn Ser His Ala Ala Thr Thr Gln Tyr Ala Asn Arg Thr Val Leu Ser
820 825 830

Gly Gln Thr Thr Asn Ile Val Thr His Arg Ala Gln Glu Met Leu Gln
835 840 845

Asn Gln Phe Ile Gly Glu Asp Thr Arg Leu Asn Ile Asn Ser Ser Pro
850 855 860

Asp Glu His Glu Pro Leu Leu Arg Arg Glu Gln Gln Ala Gly His Asp
865 870 875 880

Glu Gly Val Leu Asp Arg Leu Val Asp Arg Arg Glu Arg Pro Leu Glu
885 890 895

Gly Gly Arg Thr Asn Ser Asn Asn Asn Asn Ser Asn Pro Cys Ser Glu
900 905 910

Gln Asp Val Leu Ala Gln Gly Val Pro Ser Thr Ala Ala Asp Pro Gly
915 920 925

Pro Ser Lys Pro Arg Arg Ala Gln Arg Pro Asn Ser Leu Asp Leu Ser
930 935 940

Ala Thr Asn Val Leu Asp Gly Ser Ser Ile Gln Ile Gly Glu Ser Thr
945 950 955 960

Gln Asp Gly Lys Ser Gly Ser Gly Glu Lys Ile Lys Lys Arg Val Lys
965 970 975

Thr Pro Tyr Ser Leu Lys Arg Trp Arg Pro Ser Thr Trp Val Ile Ser
980 985 990

Thr Glu Ser Leu Asp Cys Glu Val Asn Asn Asn Gly Ser Asn Arg Ala
995 1000 1005

Val His Ser Lys Ser Ser Thr Ala Val Tyr Leu Ala Glu Gly Gly
1010 1015 1020

Thr Ala Thr Thr Met Val Ser Lys Asp Ile Gly Met Asn Cys Leu
1025 1030 1035

<210> 116
<211> 2932
<212> DNA
<213> Homo sapiens

<400> 116
gctccgcgcc gagggctgga ggatgcgttc cctggggtcc ggacttatga aaatatgcat 60

cagtttaata ctgtcttgga attcatgaga tggaagcata ggtcaaagct gtttggagaa 120

aatcagaagt acagttttat ctagccacat cttggaggag tcgtaagaaa gcagtgggag 180

ttgaagtcat tgtcaagtgc ttgcgatctt ttacaagaaa atctcactga atgatagtca 240

tttaaattgg tgaagtagca agaccaatta ttaaaggtga cagtacacag gaaacattac 300

aattgaacaa tgactcagct atacatttac atcagattat tgggagccta tttgttcatc 360

atttctcgtg ttcaaggaca gaatctggat agtatgcttc atggcactgg gatgaaatca 420

gactccgacc agaaaaagtc agaaaatgga gtaaccttag caccagagga taccttgcct 480

tttttaaagt gctattgctc agggcactgt ccagatgatg ctattaataa cacatgcata 540

actaatggac attgctttgc catcatagaa gaagatgacc agggagaaac cacattagct 600

tcagggtgta tgaaatatga aggatctgat tttcagtgca aagattctcc aaaagcccag 660

ctacgccgga caatagaatg ttgtcggacc aatttatgta accagtattt gcaacccaca 720

ctgccccctg ttgtcatagg tccgtttttt gatggcagca ttcgatggct ggttttgctc 780

atttctatgg ctgtctgcat aattgctatg atcatcttct ccagctgctt ttgttacaaa 840

cattattgca agagcatctc aagcagacgt cgttacaatc gtgatttgga acaggatgaa 900

gcatttattc cagttggaga atcactaaaa gaccttattg accagtcaca aagttctggt 960

agtgggtctg gactaccttt attggttcag cgaactattg ccaaacagat tcagatggtc 1020

cggcaagttg gtaaaggccg atatggagaa gtatggatgg gcaaatggcg tggcgaaaaa 1080

gtggcggtga aagtattctt taccactgaa gaagccagct ggtttcgaga aacagaaatc 1140

taccaaactg tgctaatgcg ccatgaaaac atacttggtt tcatagcggc agacattaaa 1200

ggtacaggtt cctggactca gctctatttg attactgatt accatgaaaa tggatctctc 1260
tatgacttcc tgaaatgtgc tacactggac accagagccc tgcttaaatt ggcttattca 1320
gctgcctgtg gtctgtgcca cctgcacaca gaaatttatg gcacccaagg aaagcccgca 1380
attgctcatc gagacctaaa gagcaaaaac atcctcatca agaaaaatgg gagttgctgc 1440
attgctgacc tgggccttgc tgttaaattc aacagtgaca caaatgaagt tgatgtgccc 1500
ttgaatacca gggtgggcac caaacgctac atggctcccg aagtgctgga cgaaagcctg 1560
aacaaaaacc acttccagcc ctacatcatg gctgacatct acagcttcgg cctaatcatt 1620
tgggagatgg ctcgtcgttg tatcacagga gggatcgtgg aagaatacca ttgccatat 1680
tacaacatgg taccgagtga tccgtcatac gaagatatgc gtgaggttgt gtgtgtcaaa 1740
cgtttgcggc caattgtgtc taatcggtgg aacagtgatg aatgtctacg agcagttttg 1800
aagctaatgt cagaatgctg ggcccacaat ccagcctcca gactcacagc attgagaatt 1860
aagaagacgc ttgccaagat ggttgaatcc caagatgtaa aaatctgatg gttaaaccat 1920
cggaggagaa actctagact gcaagaactg tttttaccca tggcatgggt ggaattagag 1980
tggaataagg atgttaactt ggttctcaga ctctttcttc actacgtgtt cacaggctgc 2040
taatattaaa cctttcagta ctcttattag gatacaagct gggaacttct aaacacttca 2100
ttctttatat atggacagct ttattttaaa tgtggttttt gatgcctttt tttaagtggg 2160
tttttatgaa ctgcatcaag acttcaatcc tgattagtgt ctccagtcaa gctctgggta 2220
ctgaattgcc tgttcataaa acggtgcttt ctgtgaaagc cttaagaaga taaatgagcg 2280
cagcagagat ggagaaatag actttgcctt ttacctgaga cattcagttc gtttgtattc 2340
tacctttgta aaacagccta tagatgatga tgtgtttggg atactgctta ttttatgata 2400
gtttgtcctg tgtccttagt gatgtgtgtg tgtctccatg cacatgcacg ccgggattcc 2460
tctgctgcca tttgaattag aagaaaataa tttatatgca tgcacaggaa gatattggtg 2520
gccggtggtt ttgtgcttta aaaatgcaat atctgaccaa gattcgccaa tctcatacaa 2580
gccatttact ttgcaagtga gatagcttcc ccaccagctt tatttttaa catgaaagct 2640
gatgccaagg ccaaaagaag tttaaagcat ctgtaaattt ggactgtttt ccttcaacca 2700
ccatttttt tgtggttatt atttttgtca cggaaagcat cctctccaaa gttggagctt 2760
ctattgccat gaaccatgct tacaaagaaa gcacttctta ttgaagtgaa ttcctgcatt 2820
tgatagcaat gtaagtgcct ataaccatgt tctatattct ttattctcag taacttttaa 2880
aagggaagtt atttatattt tgtgtataat gtgctttatt tgcaaatcac cc 2932

<210> 117
<211> 1575
<212> DNA
<213> Homo sapiens

<400> 117
gcaaacttcc ttgataacat gcttttgcga agtgcaggaa aattaaatgt gggcaccaag 60
aaagaggatg gtgagagtac agcccccacc ccccgtccaa aggtcttgcg ttgtaaatgc 120

caccaccatt gtccagaaga ctcagtcaac aatatttgca gcacagacgg atattgtttc 180
acgatgatag aagaggatga ctctgggttg cctgtggtca cttctggttg cctaggacta 240
gaaggctcag attttcagtg tcgggacact cccattcctc atcaaagaag atcaattgaa 300
tgctgcacag aaaggaacga atgtaataaa gacctacacc ctacactgcc tccattgaaa 360
aacagagatt ttgttgatgg acctatacac cacagggctt tacttatatc tgtgactgtc 420
tgtagtttgc tcttggtcct tatcatatta ttttgttact tccggtataa aagacaagaa 480
accagacctc gatacagcat tgggttagaa caggatgaaa cttacattcc tcctggagaa 540
tccctgagag acttaattga gcagtctcag agctcaggaa gtggatcagg cctccctctg 600
ctggtccaaa ggactatagc taagcagatt cagatggtga aacagattgg aaaaggtcgc 660
tatggggaag tttggatggg aaagtggcgt ggcgaaaagg tagctgtgaa agtgttcttc 720
accacagagg aagccagctg gttcagagag acagaaatat atcagacagt gttgatgagg 780
catgaaaaca ttttgggttt cattgctgca gatatcaaag ggacagggtc ctggacccag 840
ttgtacctaa tcacagacta tcatgaaaat ggttcccttt atgattatct gaagtccacc 900
accctagacg ctaaatcaat gctgaagtta gcctactctt ctgtcagtgg cttatgtcat 960
ttacacacag aaatctttag tactcaaggc aaaccagcaa ttgcccatcg agatctgaaa 1020
agtaaaaaca ttctggtgaa gaaaaatgga acttgctgta ttgctgacct gggcctggct 1080
gttaaattta ttagtgatac aaatgaagtt gacataccac ctaacactcg agttggcacc 1140
aaacgctata tgcctccaga agtgttggac gagagcttga acagaaatca cttccagtct 1200
tacatcatgg ctgacatgta tagttttggc ctcatccttt gggaggttgc taggagatgt 1260
gtatcaggag gtatagtgga agaataccag cttccttatc atgacctagt gcccagtgac 1320
ccctcttatg aggacatgag ggagattgtg tgcatcaaga agttacgccc ctcattccca 1380
aaccggtgga gcagtgatga gtgtctaagg cagatgggaa aactcatgac agaatgctgg 1440
gctcacaatc ctgcatcaag gctgacagcc ctgcgggtta agaaaacact tgccaaaatg 1500
tcagagtccc aggacattaa actctgatag gagaggaaaa gtaagcatct ctgcagaaag 1560
ccaacaggta ccctt 1575

<210> 118
<211> 2032
<212> DNA
<213> Homo sapiens

<400> 118
cgcggggcgc ggagtcggcg gggcctcgcg ggacgcgggc agtgcggaga ccgcggcgct 60
gaggacgcgg gagccgggag cgcacgcgcg gggtggagtt cagcctactc tttcttagat 120
gtgaaaggaa aggaagatca tttcatgcct tgttgataaa ggttcagact tctgctgatt 180
cataaccatt tggctctgag ctatgacaag agaggaaaca aaaagttaaa cttacaagcc 240
tgccataagt gagaagcaaa cttccttgat aacatgcttt tgcgaagtgc aggaaaatta 300
aatgtgggca ccaagaaaga ggatggtgag agtacagccc ccacccccg tccaaaggtc 360

ttgcgttgta aatgccacca ccattgtcca gaagactcag tcaacaatat ttgcagcaca 420
gacggatatt gtttcacgat gatagaagag gatgactctg ggttgcctgt ggtcacttct 480
ggttgcctag gactagaagg ctcagatttt cagtgtcggg acactcccat tcctcatcaa 540
agaagatcaa ttgaatgctg cacagaaagg aacgaatgta ataaagacct acaccctaca 600
ctgcctccat tgaaaaacag agattttgtt gatggaccta tacaccacag ggctttactt 660
atatctgtga ctgtctgtag tttgctcttg gtccttatca tattattttg ttacttccgg 720
tataaaagac aagaaaccag acctcgatac agcattgggt tagaacagga tgaaacttac 780
attcctcctg gagaatccct gagagactta attgagcagt ctcagagctc aggaagtgga 840
tcaggcctcc ctctgctggt ccaaaggact atagctaagc agattcagat ggtgaaacag 900
attggaaaag gtcgctatgg ggaagtttgg atgggaaagt ggcgtggcga aaaggtagct 960
gtgaaagtgt tcttcaccac agaggaagcc agctggttca gagagacaga aatatatcag 1020
acagtgttga tgaggcatga aaacattttg ggtttcattg ctgcagatat caaagggaca 1080
gggtcctgga cccagttgta cctaatcaca gactatcatg aaaatggttc cctttatgat 1140
tatctgaagt ccaccaccct agacgctaaa tcaatgctga agttagccta ctcttctgtc 1200
agtggcttat gtcatttaca cacagaaatc tttagtactc aaggcaaacc agcaattgcc 1260
catcgagatc tgaaaagtaa aaacattctg gtgaagaaaa atggaacttg ctgtattgct 1320
gacctgggcc tggctgttaa atttattagt gatacaaatg aagttgacat accacctaac 1380
actcgagttg gcaccaaacg ctatatgcct ccagaagtgt tggacgagag cttgaacaga 1440
aatcacttcc agtcttacat catggctgac atgtatagtt ttggcctcat cctttgggag 1500
gttgctagga gatgtgtatc aggaggtata gtggaagaat accagcttcc ttatcatgac 1560
ctagtgccca gtgacccctc ttatgaggac atgagggaga ttgtgtgcat caagaagtta 1620
cgcccctcat tcccaaaccg gtggagcagt gatgagtgtc taaggcagat gggaaaactc 1680
atgacagaat gctgggctca caatcctgca tcaaggctga cagccctgcg ggttaagaaa 1740
acacttgcca aaatgtcaga gtcccaggac attaaactct gataggagag gaaaagtaag 1800
catctctgca gaaagccaac aggtactctt ctgtttgtgg gcagagcaaa agacatcaaa 1860
taagcatcca cagtacaagc cttgaacatc gtcctgcttc ccagtgggtt cagacctcac 1920
ctttcaggga gcgacctggg caaagacaga gaagctccca gaaggagaga ttgatccgtg 1980
tctgtttgta ggcggagaaa ccgttgggta acttgttcaa gatatgatgc at 2032

<210> 119
<211> 3167
<212> DNA
<213> Rattus sp.

<400> 119
gaattcatga gatggaaaca taggtcaaag ctgtttggag aaattggaac tacagtttta 60
tctagccaca tctctgagaa gtctgaagaa agcagcaggt gaaagtcatt gtcaagtgat 120
tttgttcttc tgtaaggaaa cctcgttcag taaggccgtt tacttcagtg aaacagcagg 180

accagtaatc aaggtggccc ggacaggaca cgtgcgaatt ggacaatgac tcagctatac 240
acttacatca gattactggg agcctgtctg ttcatcattt ctcatgttca agggcagaat 300
ctagatagta tgctccatgg tactggtatg aaatcagacg tggaccagaa gaagccggaa 360
aatggagtga cgttagcacc agaggacacc ttacctttct taaaatgcta ttgctcagga 420
cactgcccag atgacgctat taataacaca tgcataacta atggccattg ctttgccatt 480
atagaagaag atgatcaggg agaaaccacg ttaacttctg ggtgtatgaa gtatgaaggc 540
tctgattttc aatgcaagga ttcaccaaaa gcccagctac gcaggacaat agaatgttgt 600
cggaccaatt tgtgcaacca atatttgcag cctacactgc cccctgtcgt tataggccca 660
ttctttgatg gcagcgtccg atggctggct gtgctcatct ctatggctgt ctgtattgtc 720
gccatgatcg tcttctccag ctgcttctgt tacaaacatt actgtaagag tatctcaagc 780
agaggtcgtt acaaccgtga cttggaacag gatgaagcat ttattccagt aggagaatca 840
ctgaaagacc tgattgacca gtcacaaagc tctggtagtg gatctggatt acctttattg 900
gttcagcgaa ctattgccaa acagattcag atggttcggc aggttggtaa aggccggtat 960
ggagaagtat ggatgggtaa atggcgtggt gaaaaagtgg ctgtcaaagt atttttacc 1020
actgaagaag ctagctggtt tagagaaaca gaaatctacc agacggtgtt aatgcgtcat 1080
gaaaatatac ttggttttat agctgcagac attaaaggca ccggttcctg gactcagctg 1140
tatttgatta ctgattacca tgagaatggg tctctctatg acttcctgaa atgtgccacc 1200
ctggacacca gagccctact caagttagct tattctgctg cctgtggtct gtgccacctc 1260
cacacagaaa tttatggcac gcaaggcaag cctgcaattg ctcatcgaga cctgaagagc 1320
aaaaacatcc ttattaagaa aaatggtagt tgctgtattg ctgacctggg cctagctgtt 1380
aaattcaaca gtgacacaaa tgaagttgac ataccccttga acaccagggt gggcaccagg 1440
cggtacatgg ctccagaagt gctggacgag agcctgagta aaaaccattt ccagccctac 1500
atcatggctg acatctacag ctttggtttg atcatttggg agatggcccg tcgctgtatt 1560
acaggaggaa tcgtggagga atatcaatta ccatattaca acatggtgcc tagtgaccca 1620
tcttatgaag acatgcgtga ggtcgtgtgt gtgaaacgct tgcggccaat cgtctctaac 1680
cgctggaaca gtgatgaatg tcttcgagcc gttttgaagc tgatgtcaga atgctgggcc 1740
cataatccag catccagact cacagctttg agaatcaaga agacgctcgc aaagatggtt 1800
gaatcccagg atgtaaagat ttgacaaaca gttttgagaa agaatttaga ctgcaagaaa 1860
ttcacccgag gaagggtgga gttagcatgg actaggatgt cggcttggtt tccagactct 1920
ctcctctaca tcttcacagg ctgctaacag taaactttca ggactctgca gaatgcaggg 1980
ttggagcttc agacatagga cttcagacat gctgttcttt gcgtatggac agctttgttt 2040
taaatgtggg cttttgatgc ctttttggtt tttatgaatt gcatcaagac tccaatcctg 2100
ataagaagtc tctggtcaaa ctctggttac tcactatcct gtccataaag tggtgctttc 2160
tgtgaaagcc ttaaggaaat tagtgagctc agcagagatg gagaaaggca tatttgccct 2220

ctacagagaa aatatctgtc tgtgttctgt ctctgtaaac agcctggact atgatctctt 2280
tgggatgctg cctggttgat gatggtgcat catgcctctg atatgcatac cagacttcct 2340
ctgctgccat gggcttacaa gacaagaatg tgaaggttgc acaggacggt atttgtggcc 2400
agtggtttaa atatgcaata tctaatcgac attcgccaat ctcataaaag ccatctacct 2460
tgtaactgaa gtaacttctc taccaacttt atttttagca taatagttgt aaaggccaaa 2520
ctatgtataa agtgtccata gactcgaact gttttcctcc agtcaccatt ttgttttcct 2580
tttggtaatt atttttgtta tataattcct cctatccaga attggcgctc actgtcttga 2640
accatacttt gaaagaaatg cctcttcctg gagtctgcct tactgcatct gatcaccatg 2700
tgcatacctc tgatcaaatt ctggagtctt tgttctcggt acctcttaaa aagggaaatt 2760
gtgtatcatg tgtagtgtgc ttttattttc aaaatcttca tagcctttat tctagccatt 2820
tttacctaca tactcattct gtacaaaaca gctcactcgg tctcacggct gatcctcagt 2880
ggaaatgatt taaagtagag ctgtgtacga atttcagaat tcatgtattt aaaaacttca 2940
cactaacact ttactaagat attgtctcat atcttttatg aggatgtcag ctgattttca 3000
atgactataa atgtatctta gctatctaaa tcttttgaaa tttggtttta taatttctgg 3060
tccctaactt gtgaagacaa agaggcagaa gtacccagtc taccacattt acactgtaca 3120
ttattaaata aaaaaatgta tattttaaaa aaaaaaaaaa aaaaaaa 3167

<210> 120
<211> 3167
<212> DNA
<213> Rattus norvegicus

<400> 120
gaattcatga gatggaaaca taggtcaaag ctgtttggag aaattggaac tacagtttta 60
tctagccaca tctctgagaa gtctgaagaa agcagcaggt gaaagtcatt gtcaagtgat 120
tttgttcttc tgtaaggaaa cctcgttcag taaggccgtt tacttcagtg aaacagcagg 180
accagtaatc aaggtggccc ggacaggaca cgtgcgaatt ggacaatgac tcagctatac 240
acttacatca gattactggg agcctgtctg ttcatcattt ctcatgttca agggcagaat 300
ctagatagta tgctccatgg tactggtatg aaatcagacg tggaccagaa gaagccggaa 360
aatggagtga cgttagcacc agaggacacc ttacctttct taaaatgcta ttgctcagga 420
cactgcccag atgacgctat taataacaca tgcataacta atggccattg ctttgccatt 480
atagaagaag atgatcaggg agaaaccacg ttaacttctg ggtgtatgaa gtatgaaggc 540
tctgattttc aatgcaagga ttcaccaaaa gcccagctac gcaggacaat agaatgttgt 600
cggaccaatt tgtgcaacca atatttgcag cctacactgc cccctgtcgt tataggccca 660
ttctttgatg gcagcgtccg atggctggct gtgctcatct ctatggctgt ctgtattgtc 720
gccatgatcg tcttctccag ctgcttctgt tacaaacatt actgtaagag tatctcaagc 780
agaggtcgtt acaaccgtga cttggaacag gatgaagcat ttattccagt aggagaatca 840
ctgaaagacc tgattgacca gtcacaaagc tctggtagtg gatctggatt acctttattg 900

gttcagcgaa ctattgccaa acagattcag atggttcggc aggttggtaa aggccggtat 960
ggagaagtat ggatgggtaa atggcgtggt gaaaaagtgg ctgtcaaagt atttttacc 1020
actgaagaag ctagctggtt tagagaaaca gaaatctacc agacggtgtt aatgcgtcat 1080
gaaaatatac ttggttttat agctgcagac attaaaggca ccggttcctg gactcagctg 1140
tatttgatta ctgattacca tgagaatggg tctctctatg acttcctgaa atgtgccacc 1200
ctggacacca gagccctact caagttagct tattctgctg cctgtggtct gtgccacctc 1260
cacacagaaa tttatggcac gcaaggcaag cctgcaattg ctcatcgaga cctgaagagc 1320
aaaaacatcc ttattaagaa aaatggtagt tgctgtattg ctgacctggg cctagctgtt 1380
aaattcaaca gtgacacaaa tgaagttgac ataccttga acaccagggt gggcaccagg 1440
cggtacatgg ctccagaagt gctggacgag agcctgagta aaaaccattt ccagccctac 1500
atcatggctg acatctacag ctttggtttg atcatttggg agatggcccg tcgctgtatt 1560
acaggaggaa tcgtggagga atatcaatta ccatattaca acatggtgcc tagtgaccca 1620
tcttatgaag acatgcgtga ggtcgtgtgt gtgaaacgct tgcggccaat cgtctctaac 1680
cgctggaaca gtgatgaatg tcttcgagcc gttttgaagc tgatgtcaga atgctgggcc 1740
cataatccag catccagact cacagctttg agaatcaaga agacgctcgc aaagatggtt 1800
gaatcccagg atgtaaagat ttgacaaaca gttttgagaa agaatttaga ctgcaagaaa 1860
ttcacccgag gaagggtgga gttagcatgg actaggatgt cggcttggtt tccagactct 1920
ctcctctaca tcttcacagg ctgctaacag taaactttca ggactctgca gaatgcaggg 1980
ttggagcttc agacatagga cttcagacat gctgttcttt gcgtatggac agctttgttt 2040
taaatgtggg cttttgatgc ctttttggtt tttatgaatt gcatcaagac tccaatcctg 2100
ataagaagtc tctggtcaaa ctctggttac tcactatcct gtccataaag tggtgctttc 2160
tgtgaaagcc ttaaggaaat tagtgagctc agcagagatg gagaaaggca tatttgccct 2220
ctacagagaa aatatctgtc tgtgttctgt ctctgtaaac agcctggact atgatctctt 2280
tgggatgctg cctggttgat gatggtgcat catgcctctg atatgcatac cagacttcct 2340
ctgctgccat gggcttacaa gacaagaatg tgaaggttgc acaggacggt atttgtggcc 2400
agtggtttaa atatgcaata tctaatcgac attcgccaat ctcataaaag ccatctacct 2460
tgtaactgaa gtaacttctc taccaacttt atttttagca taatagttgt aaaggccaaa 2520
ctatgtataa agtgtccata gactcgaact gttttcctcc agtcaccatt ttgttttcct 2580
tttggtaatt atttttgtta tataattcct cctatccaga attggcgctc actgtcttga 2640
accatacttt gaaagaaatg cctcttcctg gagtctgcct tactgcatct gatcaccatg 2700
tgcatacctc tgatcaaatt ctggagtctt tgttctcggt acctcttaaa aagggaaatt 2760
gtgtatcatg tgtagtgtgc ttttattttc aaaatcttca tagcctttat tctagccatt 2820
tttacctaca tactcattct gtacaaaaca gctcactcgg tctcacggct gatcctcagt 2880
ggaaatgatt taaagtagag ctgtgtacga atttcagaat tcatgtattt aaaaacttca 2940
cactaacact ttactaagat attgtctcat atcttttatg aggatgtcag ctgattttca 3000

atgactataa atgtatctta gctatctaaa tcttttgaaa tttggtttta taatttctgg 3060

tccctaactt gtgaagacaa agaggcagaa gtacccagtc taccacattt acactgtaca 3120

ttattaaata aaaaaatgta tattttaaaa aaaaaaaaaa aaaaaaa 3167

<210> 121
<211> 3003
<212> DNA
<213> Rattus norvegicus

<400> 121
cgttcagtaa ggccgtttac ttcagtgaaa cagcaggacc agtaatcaag gtggcccgga 60

caggacacgt gcgaattgga caatgactca gctatacact tacatcagat tactgggagc 120

ctgtctgttc atcatttctc atgttcaagg gcagaatcta gatagtatgc tccatggtac 180

tggtatgaaa tcagacgtgg accagaagaa gccggaaaat ggagtgacgt tagcaccaga 240

ggacacctta cctttcttaa aatgctattg ctcaggacac tgcccagatg acgctattaa 300

taacacatgc ataactaatg gccattgctt tgccattata gaagaagatg atcagggaga 360

aaccacgtta acttctgggt gtatgaagta tgaaggctct gattttcaat gcaaggattc 420

accaaaagcc cagctacgca ggacaataga atgttgtcgg accaatttgt gcaaccaata 480

tttgcagcct acactgcccc ctgtcgttat aggcccattc tttgatggca gcgtccgatg 540

gctggctgtg ctcatctcta tggctgtctg tattgtcgcc atgatcgtct tctccagctg 600

cttctgttac aaacattact gtaagagtat ctcaagcaga ggtcgttaca accgtgactt 660

ggaacaggat gaagcattta ttccagtagg agaatcactg aaagacctga ttgaccagtc 720

acaaagctct ggtagtggat ctggattacc tttattggtt cagcgaacta ttgccaaaca 780

gattcagatg gttcggcagg ttggtaaagg ccggtatgga gaagtatgga tgggtaaatg 840

gcgtggtgaa aaagtggctg tcaaagtatt ttttaccact gaagaagcta gctggtttag 900

agaaacagaa atctaccaga cggtgttaat gcgtcatgaa aatatacttg gttttatagc 960

tgcagacatt aaaggcaccg gttcctggac tcagctgtat ttgattactg attaccatga 1020

gaatgggtct ctctatgact tcctgaaatg tgccaccctg gacaccagag ccctactcaa 1080

gttagcttat tctgctgcct gtggtctgtg ccacctccac acagaaattt atggcacgca 1140

aggcaagcct gcaattgctc atcgagacct gaagagcaaa aacatcctta ttaagaaaaa 1200

tggtagttgc tgtattgctg acctgggcct agctgttaaa ttcaacagtg acacaaatga 1260

agttgacata cccttgaaca ccagggtggg caccaggcgg tacatggctc cagaagtgct 1320

ggacgagagc ctgagtaaaa accatttcca gccctacatc atggctgaca tctacagctt 1380

tggtttgatc atttgggaga tggcccgtcg ctgtattaca ggaggaatcg tggaggaata 1440

tcaattacca tattacaaca tggtgcctag tgacccatct tatgaagaca tgcgtgaggt 1500

cgtgtgtgtg aaacgcttgc ggccaatcgt ctctaaccgc tggaacagtg atgaatgtct 1560

tcgagccgtt ttgaagctga tgtcagaatg ctgggcccat aatccagcat ccagactcac 1620

agctttgaga atcaagaaga cgctcgcaaa gatggttgaa tcccaggatg taaagatttg 1680

acaaacagtt ttgagaaaga atttagactg caagaaattc acccgaggaa gggtggagtt 1740
agcatggact aggatgtcgg cttggtttcc agactctctc ctctacatct tcacaggctg 1800
ctaacagtaa actttcagga ctctgcagaa tgcagggttg gagcttcaga cataggactt 1860
cagacatgct gttctttgcg tatggacagc tttgttttaa atgtgggctt ttgatgcctt 1920
tttggttttt atgaattgca tcaagactcc aatcctgata agaagtctct ggtcaaactc 1980
tggttactca ctatcctgtc cataaagtgg tgctttctgt gaaagcctta aggaaattag 2040
tgagctcagc agagatggag aaaggcatat ttgccctcta cagagaaaat atctgtctgt 2100
gttctgtctc tgtaaacagc ctggactatg atctctttgg gatgctgcct ggttgatgat 2160
ggtgcatcat gcctctgata tgcataccag acttcctctg ctgccatggg cttacaagac 2220
aagaatgtga aggttgcaca ggacggtatt tgtggccagt ggtttaaata tgcaatatct 2280
aatcgacatt cgccaatctc ataaaagcca tctaccttgt aactgaagta acttctctac 2340
caactttatt tttagcataa tagttgtaaa ggccaaacta tgtataaagt gtccatagac 2400
tcgaactgtt ttcctccagt caccattttg ttttcctttt ggtaattatt tttgttatat 2460
aattcctcct atccagaatt ggcgctcact gtcttgaacc atactttgaa agaaatgcct 2520
cttcctggag tctgccttac tgcatctgat caccatgtgc atacctctga tcaaattctg 2580
gagtctttgt tctcggtacc tcttaaaaag ggaaattgtg tatcatgtgt agtgtgcttt 2640
tattttcaaa atcttcatag cctttattct agccattttt acctacatac tcattctgta 2700
caaaacagct cactcggtct cacggctgat cctcagtgga aatgatttaa agtagagctg 2760
tgtacgaatt tcagaattca tgtatttaaa aacttcacac taacacttta ctaagatatt 2820
gtctcatatc ttttatgagg atgtcagctg attttcaatg actataaatg tatcttagct 2880
atctaaatct tttgaaattt ggttttataa tttctggtcc ctaacttgtg aagacaaaga 2940
ggcagaagta cccagtctac cacatttaca ctgtacatta ttaaataaaa aaatgtatat 3000
ttt 3003

<210> 122
<211> 2063
<212> DNA
<213> Homo sapiens

<400> 122
gaattccggt gatgatgatg gtgatggtga tgatggtgat gaggatgatg gtgatgatga 60
tgatggtgtt ggtgatggtt tttgcatctt ccattcatga actaagtact cttattagtg 120
aatttctttt ctttgccctc ctgattcttg gctggcccag ggatgacttc ctcgctgcag 180
cggccctggc gggtgccctg gctaccatgg accatcctgc tggtcagcac tgcggctgct 240
tcgcagaatc aagaacggct atgtgcgttt aaagatccgt atcagcaaga ccttgggata 300
ggtgagagta gaatctctca tgaaaatggg acaatattat gctcgaaagg tagcacctgc 360
tatggccttt gggagaaatc aaaaggggac ataaatcttg taaaacaagg atgttggtct 420
cacattggag atccccaaga gtgtcactat gaagaatgtg tagtaactac cactcctccc 480

tcaattcaga atggaacata ccgtttctgc tgttgtagca cagatttatg taatgtcaac 540

tttactgaga attttccacc tcctgacaca acaccactca gtccacctca ttcatttaac 600

cgagatgaga caataatcat tgctttggca tcagtctctg tattagctgt tttgatagtt 660

gccttatgct ttggatacag aatgttgaca ggagaccgta aacaaggtct tcacagtatg 720

aacatgatgg aggcagcagc atccgaaccc tctcttgatc tagataatct gaaactgttg 780

gagctgattg gccgaggtcg atatggagca gtatataaag gctccttgga tgagcgtcca 840

gttgctgtaa aagtgttttc ctttgcaaac cgtcagaatt ttatcaacga aaagaacatt 900

tacagagtgc ctttgatgga acatgacaac attgcccgct ttatagttgg agatgagaga 960

gtcactgcag atggacgcat ggaatatttg cttgtgatgg agtactatcc caatggatct 1020

ttatgcaagt atttaagtct ccacacaagt gactgggtaa gctcttgccg tcttgctcat 1080

tctgttacta gaggactggc ttatcttcac acagaattac cacgaggaga tcattataaa 1140

cctgcaattt cccatcgaga tttaaacagc agaaatgtcc tagtgaaaaa tgatggaacc 1200

tgtgttatta gtgactttgg actgtccatg aggctgactg gaaatagact ggtgcgccca 1260

ggggaggaag ataatgcagc cataagcgag gttggcacta tcagatatat ggcaccagaa 1320

gtgctagaag gagctgtgaa cttgagggac tgtgaatcag ctttgaaaca agtagacatg 1380

tatgctcttg gactaatcta ttgggagata tttatgagat gtacagacct cttcccaggg 1440

gaatccgtac cagagtacca gatggctttt cagacagagg ttggaaacca tcccactttt 1500

gaggatatgc aggttctcgt gtctagggaa aaacagagac ccaagttccc agaagcctgg 1560

aaagaaaata gcctggcagt gaggtcactc aaggagacaa tcgaagactg ttgggaccag 1620

gatgcagagg ctcggcttac tgcacagtgt gctgaggaaa ggatggctga acttatgatg 1680

atttgggaaa gaaacaaatc tgtgagccca acagtcaatc caatgtctac tgctatgcag 1740

aatgaacgta ggtgagtcaa cacaagatgg caaatcagga tcaggtgaaa agatcaagaa 1800

acgtgtgaaa actccctatt ctcttaagcg gtggcgcccc tccacctggg tcatctccac 1860

tgaatcgctg gactgtgaag tcaacaataa tggcagtaac agggcagttc attccaaatc 1920

cagcactgct gtttaccttg cagaaggagg cactgctaca accatggtgt ctaaagatat 1980

aggaatgaac tgtctgtgaa atgttttcaa gcctatggag tgaaattatt ttttgcatca 2040

tttaaacatg cagaagatgt tta 2063

<210> 123
<211> 1964
<212> DNA
<213> Homo sapiens

<400> 123
atttcttttc tttgccctcc tgattcttgg ctggcccagg gatgacttcc tcgctgcagc 60

ggccctggcg ggtgccctgg ctaccatgga ccatcctgct ggtcagcact gcggctgctt 120

cgcagaatca agaacggcta tgtgcgttta aagatccgta tcagcaagac cttgggatag 180

gtgagagtag aatctctcat gaaaatggga caatattatg ctcgaaaggt agcacctgct 240

atggcctttg ggagaaatca aaaggggaca taaatcttgt aaaacaagga tgttggtctc 300
acattggaga tccccaagag tgtcactatg aagaatgtgt agtaactacc actcctccct 360
caattcagaa tggaacatac cgtttctgct gttgtagcac agatttatgt aatgtcaact 420
ttactgagaa ttttccacct cctgacacaa caccactcag tccacctcat tcatttaacc 480
gagatgagac aataatcatt gctttggcat cagtctctgt attagctgtt ttgatagttg 540
ccttatgctt tggatacaga atgttgacag gagaccgtaa acaaggtctt cacagtatga 600
acatgatgga ggcagcagca tccgaaccct ctcttgatct agataatctg aaactgttgg 660
agctgattgg ccgaggtcga tatggagcag tatataaagg ctccttggat gagcgtccag 720
ttgctgtaaa agtgttttcc tttgcaaacc gtcagaattt tatcaacgaa aagaacattt 780
acagagtgcc tttgatggaa catgacaaca ttgcccgctt tatagttgga gatgagagag 840
tcactgcaga tggacgcatg gaatatttgc ttgtgatgga gtactatccc aatggatctt 900
tatgcaagta tttaagtctc cacacaagtg actgggtaag ctcttgccgt cttgctcatt 960
ctgttactag aggactggct tatcttcaca cagaattacc acgaggagat cattataaac 1020
ctgcaatttc ccatcgagat ttaaacagca gaaatgtcct agtgaaaaat gatggaacct 1080
gtgttattag tgactttgga ctgtccatga ggctgactgg aaatagactg gtgcgcccag 1140
gggaggaaga taatgcagcc ataagcgagg ttggcactat cagatatatg gcaccagaag 1200
tgctagaagg agctgtgaac ttgagggact gtgaatcagc tttgaaacaa gtagacatgt 1260
atgctcttgg actaatctat tgggagatat ttatgagatg tacagacctc ttcccagggg 1320
aatccgtacc agagtaccag atggcttttc agacagaggt tggaaaccat cccacttttg 1380
aggatatgca ggttctcgtg tctagggaaa aacagagacc caagttccca gaagcctgga 1440
aagaaaatag cctggcagtg aggtcactca aggagacaat cgaagactgt tgggaccagg 1500
atgcagaggc tcggcttact gcacagtgtg ctgaggaaag gatggctgaa cttatgatga 1560
tttgggaaag aaacaaatct gtgagcccaa cagtcaatcc aatgtctact gctatgcaga 1620
atgaacgtag gtgagtcaac acaagatggc aaatcaggat caggtgaaaa gatcaagaaa 1680
cgtgtgaaaa ctccctattc tcttaagcgg tggcgcccct ccacctgggt catctccact 1740
gaatcgctgg actgtgaagt caacaataat ggcagtaaca gggcagttca ttccaaatcc 1800
agcactgctg tttaccttgc agaaggaggc actgctacaa ccatggtgtc taaagatata 1860
ggaatgaact gtctgtgaaa tgttttcaag cctatggagt gaaattattt tttgcatcat 1920
ttaaacatgc agaagatgtt taaaaataaa aaaaaaactg cttt 1964

<210> 124
<211> 3611
<212> DNA
<213> Homo sapiens

<400> 124
cgcccccga ccccggatcg aatccccgcc ctccgcaccc tggatatgtt ttctcccaga 60
cctggatatt tttttgatat cgtgaaacta cgagggaaat aatttggggg atttcttctt 120

ggctccctgc tttccccaca gacatgcctt ccgtttggag ggccgcggca ccccgtccga 180
ggcgaaggaa ccccccccagc cgcgagggag agaaatgaag ggaatttctg cagcggcatg 240
aaagctctgc agctaggtcc tctcatcagc catttgtcct ttcaaactgt attgtgatac 300
gggcaggatc agtccacggg agagaagacg agcctcccgg ctgtttctcc gccggtctac 360
ttcccatatt tcttttcttt gccctcctga ttcttggctg gcccagggat gacttcctcg 420
ctgcagcggc cctggcgggt gccctggcta ccatggacca tcctgctggt cagcactgcg 480
gctgcttcgc agaatcaaga acggctatgt gcgtttaaag atccgtatca gcaagacctt 540
gggataggtg agagtagaat ctctcatgaa aatgggacaa tattatgctc gaaaggtagc 600
acctgctatg gcctttggga gaaatcaaaa ggggacataa atcttgtaaa acaaggatgt 660
tggtctcaca ttggagatcc ccaagagtgt cactatgaag aatgtgtagt aactaccact 720
cctccctcaa ttcagaatgg aacataccgt ttctgctgtt gtagcacaga tttatgtaat 780
gtcaacttta ctgagaattt tccacctcct gacacaacac cactcagtcc acctcattca 840
tttaaccgag atgagacaat aatcattgct ttggcatcag tctctgtatt agctgttttg 900
atagttgcct tatgctttgg atacagaatg ttgacaggag accgtaaaca aggtcttcac 960
agtatgaaca tgatggaggc agcagcatcc gaaccctctc ttgatctaga taatctgaaa 1020
ctgttggagc tgattggccg aggtcgatat ggagcagtat ataaaggctc cttggatgag 1080
cgtccagttg ctgtaaaagt gttttccttt gcaaaccgtc agaattttat caacgaaaag 1140
aacatttaca gagtgccttt gatggaacat gacaacattg cccgctttat agttggagat 1200
gagagagtca ctgcagatgg acgcatggaa tatttgcttg tgatggagta ctatcccaat 1260
ggatctttat gcaagtattt aagtctccac acaagtgact gggtaagctc ttgccgtctt 1320
gctcattctg ttactagagg actggcttat cttcacacag aattaccacg aggagatcat 1380
tataaacctg caatttccca tcgagattta aacagcagaa atgtcctagt gaaaaatgat 1440
ggaacctgtg ttattagtga ctttggactg tccatgaggc tgactggaaa tagactggtg 1500
cgcccagggg aggaagataa tgcagccata agcgaggttg gcactatcag atatatggca 1560
ccagaagtgc tagaaggagc tgtgaacttg agggactgtg aatcagcttt gaaacaagta 1620
gacatgtatg ctcttggact aatctattgg gagatattta tgagatgtac agacctcttc 1680
ccaggggaat ccgtaccaga gtaccagatg gcttttcaga cagaggttgg aaaccatccc 1740
acttttgagg atatgcaggt tctcgtgtct agggaaaaac agagacccaa gttcccagaa 1800
gcctggaaag aaaatagcct ggcagtgagg tcactcaagg agacaatcga agactgttgg 1860
gaccaggatg cagaggctcg gcttactgca cagtgtgctg aggaaaggat ggctgaactt 1920
atgatgattt gggaaagaaa caaatctgtg agcccaacag tcaatccaat gtctactgct 1980
atgcagaatg aacgcaacct gtcacataat aggcgtgtgc caaaaattgg tccttatcca 2040
gattattctt cctcctcata cattgaagac tctatccatc atactgacag catcgtgaag 2100
aatatttcct ctgagcattc tatgtccagc acacctttga ctatagggga aaaaaaccga 2160

aattcaatta actatgaacg acagcaagca caagctcgaa tccccagccc tgaaacaagt 2220
gtcaccagcc tctccaccaa cacaacaacc acaaacacca caggactcac gccaagtact 2280
ggcatgacta ctatatctga gatgccatac ccagatgaaa caaatctgca taccacaaat 2340
gttgcacagt caattgggcc aacccctgtc tgcttacagc tgacagaaga agacttggaa 2400
accaacaagc tagacccaaa agaagttgat aagaacctca aggaaagctc tgatgagaat 2460
ctcatggagc actctcttaa acagttcagt ggcccagacc cactgagcag tactagttct 2520
agcttgcttt acccactcat aaaacttgca gtagaagcaa ctggacagca ggacttcaca 2580
cagactgcaa atggccaagc atgtttgatt cctgatgttc tgcctactca gatctatcct 2640
ctccccaagc agcagaacct tcccaagaga cctactagtt tgcctttgaa caccaaaaat 2700
tcaacaaaag agccccggct aaaatttggc agcaagcaca aatcaaactt gaaacaagtc 2760
gaaactggag ttgccaagat gaatacaatc aatgcagcag aacctcatgt ggtgacagtc 2820
accatgaatg gtgtggcagg tagaaaccac agtgttaact cccatgctgc cacaacccaa 2880
tatgccaatg ggacagtact atctggccaa acaaccaaca tagtgacaca tagggcccaa 2940
gaaatgttgc agaatcagtt tattggtgag gacacccggc tgaatattaa ttccagtcct 3000
gatgagcatg agcctttact gagacgagag caacaagctg gccatgatga aggtgttctg 3060
gatcgtcttg tggacaggag ggaacggcca ctagaaggtg gccgaactaa ttccaataac 3120
aacaacagca atccatgttc agaacaagat gttcttgcac agggtgttcc aagcacagca 3180
gcagatcctg ggccatcaaa gcccagaaga gcacagaggc ctaattctct ggatctttca 3240
gccacaaatg tcctggatgg cagcagtata cagataggtg agtcaacaca agatggcaaa 3300
tcaggatcag gtgaaaagat caagaaacgt gtgaaaactc cctattctct taagcggtgg 3360
cgcccctcca cctgggtcat ctccactgaa tcgctggact gtgaagtcaa caataatggc 3420
agtaacaggg cagttcattc caaatccagc actgctgttt accttgcaga aggaggcact 3480
gctacaacca tggtgtctaa agatatagga atgaactgtc tgtgaaatgt tttcaagcct 3540
atggagtgaa attatttttt gcatcattta aacatgcaga agatgtttaa aaataaaaaa 3600
aaaactgctt t 3611

<210> 125
<211> 3871
<212> DNA
<213> Homo sapiens

<400> 125
ggcctccgca ccctggatat gttttctccc agacctggat attttttga tatcgtgaaa 60
ctacgaggga aataatttgg gggatttctt cttggctccc tgctttcccc acagacatac 120
cttccgtttg gagggccgcg gcaccccgtc cgaggcgaag gaacccccc atccgcgagg 180
gagagaaatg aagggaattt ctgcagcggc atgaaagctc tgcagctagg tcctctcatc 240
agccatttgt cctttcaaac tgtattgtga tacgggcagg atcagtccac gggagagaag 300
acgagcctcc cggctgtttc tccgccggtc tacttcccat atttcttttc tttgccctcc 360

tgattcttgg ctggcccagg gatgacttcc tcgctgcagc ggccctggcg ggtgccctgg 420
ctaccatgga ccatcctgct ggtcagcact gcggctgctt cgcagaatca agaacggcta 480
tgtgcgttta aagatccgta tcagcaagac cttgggatag gtgagagtag aatctctcat 540
gaaaatggga caatattatg ctcgaaaggt agcacctgct atggcctttg ggagaaatca 600
aaaggggaca taaatcttgt aaaacaagga tgttggtctc acattggaga tccccaagag 660
tgtcactatg aagaatgtgt agtaactacc actcctccct caattcagaa tggaacatac 720
cgtttctgct gttgtagcac agatttatgt aatgtcaact ttactgagaa ttttccacct 780
cctgacacaa caccactcag tccacctcat tcatttaacc gagatgagac aataatcatt 840
gctttggcat cagtctctgt attagctgtt ttgatagttg ccttatgctt tggatacaga 900
atgttgacag gagaccgtaa acaaggtctt cacagtatga acatgatgga ggcagcagca 960
tccgaaccct ctcttgatct agataatctg aaactgttgg agctgattgg ccgaggtcga 1020
tatggagcag tatataaagg ctccttggat gagcgtccag ttgctgtaaa agtgttttcc 1080
tttgcaaacc gtcagaattt tatcaacgaa aagaacattt acagagtgcc tttgatggaa 1140
catgacaaca ttgcccgctt tatagttgga gatgagagag tcactgcaga tggacgcatg 1200
gaatatttgc ttgtgatgga gtactatccc aatggatctt tatgcaagta tttaagtctc 1260
cacacaagtg actgggtaag ctcttgccgt cttgctcatt ctgttactag aggactggct 1320
tatcttcaca cagaattacc acgaggagat cattataaac ctgcaatttc ccatcgagat 1380
ttaaacagca gaaatgtcct agtgaaaaat gatggaacct gtgttattag tgactttgga 1440
ctgtccatga ggctgactgg aaatagactg gtgcgcccag gggaggaaga taatgcagcc 1500
ataagcgagg ttggcactat cagatatatg gcaccagaag tgctagaagg agctgtgaac 1560
ttgagggact gtgaatcagc tttgaaacaa gtagacatgt atgctcttgg actaatctat 1620
tgggagatat ttatgagatg tacagacctc ttcccagggg aatccgtacc agagtaccag 1680
atggcttttc agacagaggt tggaaaccat cccacttttg aggatatgca ggttctcgtg 1740
tctagggaaa aacagagacc caagttccca gaagcctgga aagaaaatag cctggcagtg 1800
aggtcactca aggagacaat cgaagactgt tgggaccagg atgcagaggc tcggcttact 1860
gcacagtgtg ctgaggaaag gatggctgaa cttatgatga tttgggaaag aaacaaatct 1920
gtgagcccaa cagtcaatcc aatgtctact gctatgcaga atgaacgcaa cctgtcacat 1980
aataggcgtg tgccaaaaat tggtccttat ccagattatt cttcctcctc atacattgaa 2040
gactctatcc atcatactga cagcatcgtg aagaatattt cctctgagca ttctatgtcc 2100
agcacacctt tgactatagg ggaaaaaaac cgaaattcaa ttaactatga acgacagcaa 2160
gcacaagctc gaatccccag ccctgaaaca agtgtcacca gcctctccac caacacaaca 2220
accacaaaca ccacaggact cacgccaagt actggcatga ctactatatc tgagatgcca 2280
tacccagatg aaacaaatct gcataccaca aatgttgcac agtcaattgg gccaacccct 2340
gtctgcttac agctgacaga agaagacttg gaaaccaaca agctagaccc aaaagaagtt 2400
gataagaacc tcaaggaaag ctctgatgag aatctcatgg agcactctct taaacagttc 2460

agtggcccag acccactgag cagtactagt tctagcttgc tttacccact cataaaactt 2520
gcagtagaag caactggaca gcaggacttc acacagactg caaatggcca agcatgtttg 2580
attcctgatg ttctgcctac tcagatctat cctctcccca agcagcagaa ccttcccaag 2640
agacctacta gtttgccttt gaacaccaaa aattcaacaa aagagccccg gctaaaattt 2700
ggcagcaagc acaaatcaaa cttgaaacaa gtcgaaactg gagttgccaa gatgaataca 2760
atcaatgcag cagaacctca tgtggtgaca gtcaccatga atggtgtggc aggtagaaac 2820
cacagtgtta actcccatgc tgccacaacc caatatgcca ataggacagt actatctggc 2880
caaacaacca acatagtgac acatagggcc caagaaatgt tgcagaatca gtttattggt 2940
gaggacaccc ggctgaatat taattccagt cctgatgagc atgagccttt actgagacga 3000
gagcaacaag ctggccatga tgaaggtgtt ctggatcgtc ttgtggacag gagggaacgg 3060
ccactagaag gtggccgaac taattccaat aacaacaaca gcaatccatg ttcagaacaa 3120
gatgttcttg cacagggtgt tccaagcaca gcagcagatc ctgggccatc aaagcccaga 3180
agagcacaga ggcctaattc tctggatctt tcagccacaa atgtcctgga tggcagcagt 3240
atacagatag gtgagtcaac acaagatggc aaatcaggat caggtgaaaa gatcaagaaa 3300
cgtgtgaaaa ctccctattc tcttaagcgg tggcgcccct ccacctgggt catctccact 3360
gaatcgctgg actgtgaagt caacaataat ggcagtaaca gggcagttca ttccaaatcc 3420
agcactgctg tttaccttgc agaaggaggc actgctacaa ccatggtgtc taaagatata 3480
ggaatgaact gtctgtgaaa tgttttcaag cctatggagt gaaattattt tttgcatcat 3540
ttaaacatgc agaagatgtt taccgggcgg ggtgacagga gagagcgtca gcggcaagct 3600
gtggaggatg gggctcagaa tgcagacctg ggctggccgc atggcctctc cctgagccct 3660
gatttgtggt agggaagcag tatgggtgca gtcccctcct aggcctccct ctggggtccc 3720
ccgatcctat cccacctctt cagggtgagc cagcctcacc tcttcctagt cctgagggtg 3780
agggcaggct gaggcaacga gtgggaggtt caaacaagag tgggctggag ccaagggaaa 3840
atagagatga tgtaatttct ttccggaatt c 3871

<210> 126
<211> 88
<212> PRT
<213> Homo sapiens

<400> 126

Cys Arg Glu Leu His Phe Thr Arg Tyr Val Thr Asp Gly Pro Cys Arg
1 5 10 15

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

Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg Gly Lys Trp Trp Arg Pro
35 40 45

Ser Gly Pro Asp Phe Arg Cys Ile Pro Asp Arg Tyr Arg Ala Gln Arg
50 55 60

Val Gln Leu Leu Cys Pro Gly Gly Glu Ala Pro Arg Ala Arg Lys Val
65 70 75 80

Arg Leu Val Ala Ser Cys Lys Cys
85

<210> 127
<211> 82
<212> PRT
<213> Homo sapiens

<400> 127

Cys Arg Pro Ile Asn Ala Thr Leu Ala Val Glu Lys Glu Gly Cys Pro
1 5 10 15

Val Cys Ile Thr Val Asn Thr Thr Ile Cys Ala Gly Tyr Cys Pro Thr
20 25 30

Met Thr Arg Val Leu Gln Gly Val Leu Pro Ala Leu Pro Gln Val Val
35 40 45

Cys Asn Tyr Arg Asp Val Arg Phe Glu Ser Ile Arg Leu Pro Gly Cys
50 55 60

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

Gln Cys

<210> 128
<211> 82
<212> PRT
<213> Homo sapiens

<400> 128

Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys Glu Glu Cys Arg
1 5 10 15

Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys Tyr Thr
20 25 30

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

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

Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr Gln Cys
65 70 75 80

His Cys

<210> 129
<211> 84
<212> PRT
<213> Homo sapiens

<400> 129

Cys Ile Pro Thr Glu Tyr Thr Met His Ile Glu Arg Arg Glu Cys Ala
1 5 10 15

Tyr Cys Leu Thr Ile Asn Thr Thr Ile Cys Ala Gly Tyr Cys Met Thr
20 25 30

Arg Asp Ile Asn Gly Lys Leu Phe Leu Pro Lys Tyr Ala Leu Ser Gln
35 40 45

Asp Val Cys Thr Tyr Arg Asp Phe Ile Tyr Arg Thr Val Glu Ile Pro
50 55 60

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

Ser Cys Lys Cys

<210> 130
<211> 83
<212> PRT
<213> Homo sapiens

<400> 130

Cys Asn Asp Ile Thr Ala Arg Leu Gln Tyr Val Lys Val Gly Ser Cys
1 5 10 15

Lys Ser Glu Val Glu Val Asp Ile His Tyr Cys Gln Gly Lys Cys Ala
20 25 30

Ser Lys Ala Met Tyr Ser Ile Asp Ile Asn Asp Val Gln Asp Gln Cys
35 40 45

Ser Cys Cys Ser Pro Thr Arg Thr Glu Pro Met Gln Val Ala Leu His
50 55 60

Cys Thr Asn Gly Ser Val Val Tyr His Glu Val Leu Asn Ala Met Glu
65 70 75 80

Cys Lys Cys

<210> 131
<211> 80

<212> PRT
<213> Homo sapiens

<400> 131

Cys Ser Thr Val Pro Val Thr Thr Glu Val Ser Tyr Ala Gly Cys Thr
1 5 10 15

Lys Thr Val Leu Met Asn His Cys Ser Gly Ser Cys Gly Thr Phe Val
20 25 30

Met Tyr Ser Ala Lys Ala Gln Ala Leu Asp His Ser Cys Ser Cys Cys
35 40 45

Lys Glu Glu Lys Thr Ser Gln Arg Glu Val Val Leu Ser Cys Pro Asn
50 55 60

Gly Gly Ser Leu Thr His Thr Tyr Thr His Ile Glu Ser Cys Gln Cys
65 70 75 80

<210> 132
<211> 80
<212> PRT
<213> Homo sapiens

<400> 132

Cys Arg Thr Val Pro Phe Ser Gln Thr Ile Thr His Glu Gly Cys Glu
1 5 10 15

Lys Val Val Val Gln Asn Asn Leu Cys Phe Gly Lys Cys Gly Ser Val
20 25 30

His Phe Pro Gly Ala Ala Gln His Ser His Thr Ser Cys Ser His Cys
35 40 45

Leu Pro Ala Lys Phe Thr Thr Met His Leu Pro Leu Asn Cys Thr Glu
50 55 60

Leu Ser Ser Val Ile Lys Val Val Met Leu Val Glu Glu Cys Gln Cys
65 70 75 80

<210> 133
<211> 85
<212> PRT
<213> Homo sapiens

<400> 133

Cys Lys Thr Gln Pro Leu Lys Gln Thr Ile His Glu Glu Gly Cys Asn
1 5 10 15

Ser Arg Thr Ile Ile Asn Arg Phe Cys Tyr Gly Gln Cys Asn Ser Phe
20 25 30

Tyr Ile Pro Arg His Ile Arg Lys Glu Glu Gly Ser Phe Gln Ser Cys
35 40 45

Ser Phe Cys Lys Pro Lys Lys Phe Thr Thr Met Met Val Thr Leu Asn
50 55 60

Cys Pro Glu Leu Gln Pro Pro Thr Lys Lys Lys Arg Val Thr Arg Val
65 70 75 80

Lys Gln Cys Arg Cys
85

<210> 134
<211> 86
<212> PRT
<213> Homo sapiens

<400> 134

Cys Glu Ala Lys Asn Ile Thr Gln Ile Val Gly His Ser Gly Cys Glu
1 5 10 15

Ala Lys Ser Ile Gln Asn Arg Ala Cys Leu Gly Gln Cys Phe Ser Tyr
20 25 30

Ser Val Pro Asn Thr Phe Pro Gln Ser Thr Glu Ser Leu Val His Cys
35 40 45

Asp Ser Cys Met Pro Ala Gln Ser Met Trp Glu Ile Val Thr Leu Glu
50 55 60

Cys Pro Gly His Glu Glu Val Pro Arg Val Asp Lys Leu Val Glu Lys
65 70 75 80

Ile Leu His Cys Ser Cys
85

<210> 135
<211> 70
<212> PRT
<213> Homo sapiens

<400> 135

Cys Ile Arg Thr Pro Lys Ile Ser Lys Pro Ile Lys Phe Glu Leu Ser
1 5 10 15

Gly Cys Thr Ser Met Lys Thr Tyr Arg Ala Lys Phe Cys Gly Val Cys
20 25 30

Thr Asp Gly Arg Cys Cys Thr Pro His Arg Thr Thr Thr Leu Pro Val
35 40 45

Glu Phe Lys Cys Pro Asp Gly Glu Val Met Lys Lys Asn Met Met Phe
50 55 60

Ile Lys Thr Cys Ala Cys

65 70

<210> 136
<211> 70
<212> PRT
<213> Homo sapiens

<400> 136

Cys Leu Arg Thr Lys Lys Ser Leu Lys Ala Ile His Leu Gln Phe Lys
1 5 10 15

Asn Cys Thr Ser Leu His Thr Tyr Lys Pro Arg Phe Cys Gly Val Cys
20 25 30

Ser Asp Gly Arg Cys Cys Thr Pro His Asn Thr Lys Thr Ile Gln Ala
35 40 45

Glu Phe Gln Cys Ser Pro Gly Gln Ile Val Lys Lys Pro Val Met Val
50 55 60

Ile Gly Thr Cys Thr Cys
65 70

<210> 137
<211> 70
<212> PRT
<213> Homo sapiens

<400> 137

Cys Ser Lys Thr Lys Lys Ser Pro Glu Pro Val Arg Phe Thr Tyr Ala
1 5 10 15

Gly Cys Leu Ser Val Lys Lys Tyr Arg Pro Lys Tyr Cys Gly Ser Cys
20 25 30

Val Asp Gly Arg Cys Cys Thr Pro Gln Leu Thr Arg Thr Val Lys Met
35 40 45

Arg Phe Arg Cys Glu Asp Gly Glu Thr Phe Ser Lys Asn Val Met Met
50 55 60

Ile Gln Ser Cys Lys Cys
65 70

<210> 138
<211> 205
<212> PRT
<213> Homo sapiens

<400> 138

Gln His Tyr Leu His Ile Arg Pro Ala Pro Ser Asp Asn Leu Pro Leu
1 5 10 15

Val Asp Leu Ile Glu His Pro Asp Pro Ile Phe Asp Pro Lys Glu Lys

20 25 30

Asp Leu Asn Glu Thr Leu Leu Arg Ser Leu Leu Gly Gly His Tyr Asp
35 40 45

Pro Gly Phe Met Ala Thr Ser Pro Pro Glu Asp Arg Pro Gly Gly Gly
50 55 60

Gly Gly Ala Ala Gly Gly Ala Glu Asp Leu Ala Glu Leu Asp Gln Leu
65 70 75 80

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

Glu Phe Ser Glu Gly Leu Ala Gln Gly Lys Lys Gln Arg Leu Ser Lys
100 105 110

Lys Leu Arg Arg Lys Leu Gln Met Trp Leu Trp Ser Gln Thr Phe Cys
115 120 125

Pro Val Leu Tyr Ala Trp Asn Asp Leu Gly Ser Arg Phe Trp Pro Arg
130 135 140

Tyr Val Lys Val Gly Ser Cys Phe Ser Lys Arg Ser Cys Ser Val Pro
145 150 155 160

Glu Gly Met Val Cys Lys Pro Ser Lys Ser Val His Leu Thr Val Leu
165 170 175

Arg Trp Arg Cys Gln Arg Arg Gly Gly Gln Arg Cys Gly Trp Ile Pro
180 185 190

Ile Gln Tyr Pro Ile Ile Ser Glu Cys Lys Cys Ser Cys
195 200 205

<210> 139
<211> 197
<212> PRT
<213> Gallus gallus

<400> 139

Gln His Tyr Leu His Ile Arg Pro Ala Pro Ser Asp Asn Leu Pro Leu
1 5 10 15

Val Asp Leu Ile Glu His Pro Asp Pro Ile Phe Asp Pro Lys Glu Lys
20 25 30

Asp Leu Asn Glu Thr Leu Leu Arg Ser Leu Met Gly Gly His Phe Asp
35 40 45

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

Asp Leu Ala Glu Leu Asp Leu Leu Leu Arg Gln Arg Pro Ser Gly Ala
65 70 75 80

Met Pro Gly Glu Ile Lys Gly Leu Glu Phe Tyr Asp Gly Leu Gln Pro
85 90 95

Gly Lys Lys His Arg Leu Ser Lys Lys Leu Arg Arg Lys Leu Gln Met
100 105 110

Trp Leu Trp Ser Gln Thr Phe Cys Pro Val Leu Tyr Thr Trp Asn Asp
115 120 125

Leu Gly Ser Arg Phe Trp Pro Arg Tyr Val Lys Val Gly Ser Cys Tyr
130 135 140

Ser Lys Arg Ser Cys Ser Val Pro Glu Gly Met Val Cys Lys Pro Ala
145 150 155 160

Lys Ser Val His Leu Thr Ile Leu Arg Trp Arg Cys Gln Arg Arg Gly
165 170 175

Gly Gln Arg Cys Thr Trp Ile Pro Ile Gln Tyr Pro Ile Ile Ala Glu
180 185 190

Cys Lys Cys Ser Cys
195

<210> 140
<211> 196
<212> PRT
<213> Xenopus laevis

<400> 140

Gln His Tyr Leu His Ile Arg Pro Ala Pro Ser Glu Asn Leu Pro Leu
1 5 10 15

Val Asp Leu Ile Glu His Pro Asp Pro Ile Tyr Asp Pro Lys Glu Lys
20 25 30

Asp Leu Asn Glu Thr Leu Leu Arg Thr Leu Met Val Gly His Phe Asp
35 40 45

Pro Asn Phe Met Ala Thr Ile Leu Pro Glu Glu Arg Leu Gly Val Glu
50 55 60

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

Met Pro Ala Glu Ile Lys Gly Leu Glu Phe Tyr Glu Gly Leu Gln Ser
85 90 95

Lys Lys His Arg Leu Ser Lys Lys Leu Arg Arg Lys Leu Gln Met Trp

100 105 110

Leu Trp Ser Gln Thr Phe Cys Pro Val Leu Tyr Thr Trp Asn Asp Leu
115 120 125

Gly Thr Arg Phe Trp Pro Arg Tyr Val Lys Val Gly Ser Cys Tyr Ser
130 135 140

Lys Arg Ser Cys Ser Val Pro Glu Gly Met Val Cys Lys Ala Ala Lys
145 150 155 160

Ser Met His Leu Thr Ile Leu Arg Trp Arg Cys Gln Arg Arg Val Gln
165 170 175

Gln Lys Cys Ala Trp Ile Thr Ile Gln Tyr Pro Val Ile Ser Glu Cys
180 185 190

Lys Cys Ser Cys
195

<210> 141
<211> 195
<212> PRT
<213> Takifugu rubripes

<400> 141

Gln Pro Tyr Tyr Leu Leu Arg Pro Ile Pro Ser Asp Ser Leu Pro Ile
1 5 10 15

Val Glu Leu Lys Glu Asp Pro Gly Pro Val Phe Asp Pro Lys Glu Arg
20 25 30

Asp Leu Asn Glu Thr Glu Leu Lys Ser Val Leu Gly Asp Phe Asp Ser
35 40 45

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

Asp Glu Leu Asp Asp Phe Asp Ala Gln Arg Trp Gly Gly Ala Leu Pro
65 70 75 80

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

His Lys Pro Ser Lys Lys Leu Lys Arg Arg Leu Gln Gln Trp Leu Trp
100 105 110

Ala Tyr Ser Phe Cys Pro Leu Ala His Ala Trp Thr Asp Leu Gly Ser
115 120 125

Arg Phe Trp Pro Arg Phe Val Arg Ala Gly Ser Cys Leu Ser Lys Arg
130 135 140

Ser Cys Ser Val Pro Glu Gly Met Thr Cys Lys Pro Ala Thr Ser Thr
145 150 155 160

His Leu Thr Ile Leu Arg Trp Arg Cys Val Gln Arg Lys Val Gly Leu
165 170 175

Lys Cys Ala Trp Ile Pro Met Gln Tyr Pro Val Ile Thr Asp Cys Lys
180 185 190

Cys Ser Cys
195

<210> 142
<211> 196
<212> PRT
<213> Danio rerio

<400> 142

Gln His Tyr Tyr Leu Leu Arg Pro Ile Pro Ser Asp Ser Leu Pro Ile
1 5 10 15

Val Glu Leu Lys Glu Asp Pro Asp Pro Val Leu Asp Pro Lys Glu Arg
20 25 30

Asp Leu Asn Glu Thr Glu Leu Arg Ala Ile Leu Gly Ser His Phe Glu
35 40 45

Gln Asn Phe Met Ser Ile Asn Pro Pro Glu Asp Lys His Ala Gly Gln
50 55 60

Asp Glu Leu Asn Glu Ser Glu Leu Met Lys Gln Arg Pro Asn Gly Ile
65 70 75 80

Met Pro Lys Glu Ile Lys Ala Met Glu Phe Asp Ile Gln His Gly Lys
85 90 95

Lys His Lys Pro Ser Lys Lys Leu Arg Arg Arg Leu Gln Leu Trp Leu
100 105 110

Trp Ser Tyr Thr Phe Cys Pro Val Val His Thr Trp Gln Asp Leu Gly
115 120 125

Asn Arg Phe Trp Pro Arg Tyr Leu Lys Val Gly Ser Cys Tyr Asn Lys
130 135 140

Arg Ser Cys Ser Val Pro Glu Gly Met Val Cys Lys Pro Pro Lys Ser
145 150 155 160

Ser His Leu Thr Val Leu Arg Trp Arg Cys Val Gln Arg Lys Gly Gly
165 170 175

Leu Lys Cys Ala Trp Ile Pro Val Gln Tyr Pro Val Ile Ser Glu Cys

180 185 190

Lys Cys Ser Cys
195

<210> 143
<211> 188
<212> PRT
<213> Mus musculus

<400> 143

Gln Gly Trp Gln Ala Phe Arg Asn Asp Ala Thr Glu Val Ile Pro Gly
1 5 10 15

Leu Gly Glu Tyr Pro Glu Pro Pro Pro Glu Asn Asn Gln Thr Met Asn
20 25 30

Arg Ala Glu Asn Gly Gly Arg Pro Pro His His Pro Tyr Asp Ala Lys
35 40 45

Gly Val Ser Glu Tyr Ser Cys Arg Glu Leu His Tyr Thr Arg Phe Leu
50 55 60

Thr Asp Gly Pro Cys Arg Ser Ala Lys Pro Val Thr Glu Leu Val Cys
65 70 75 80

Ser Gly Gln Cys Gly Pro Ala Arg Leu Leu Pro Asn Ala Ile Gly Arg
85 90 95

Val Lys Trp Trp Arg Pro Asn Gly Pro Asp Phe Arg Cys Ile Pro Asp
100 105 110

Arg Tyr Arg Ala Gln Arg Val Gln Leu Leu Cys Pro Gly Gly Ala Ala
115 120 125

Pro Arg Ser Arg Lys Val Arg Leu Val Ala Ser Cys Lys Cys Lys Arg
130 135 140

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

Thr Ala Arg Pro Gln Lys Gly Arg Lys Pro Arg Pro Gly Ala Arg Gly
165 170 175

Ala Lys Ala Asn Gln Ala Glu Leu Glu Asn Ala Tyr
180 185