

SEQUENCE LISTING

<110> STELIC INSTITUTE OF REGENERATIVE MEDICINE
STELIC INSTITUTE & CO.

<120> Glycochain related genes, and use thereof

<130> S10-A0703P

<150> JP 2007-336518

<151> 2007-12-27

<160> 98

<170> PatentIn version 3.3

<210> 1

<211> 9120

<212> DNA

<213> Mus musculus

<400> 1

```

tgtatatctg agtatctgtg tatgtgcata tatgtgtgtc tatgtgtatg tgtggggtttg      60
tgcattgtgtg tctgtgtgta catgtctgtg tgtctctgtg tgtgtctgtg tatgtgtgtt    120
tacatgtgtg tgtgtgtttc tgtgtggacg catgtgtatg tgtctccgtg tgcctgcatg      180
tgtgtttgtg tatgtgtgta ggcattgagta catcatgggtg tacatgtaga aattgagaga    240
gactcttggg tgtggttctc atctcccacc atatctgaag taaatgtctt attcacacca      300
ctgtgcacat cagaaagcta gccttgacct ccaaggaact ctgtctctgt ctctgtctt      360
attgtaggta cctgggggttt ataagcctat gctgctgcat atggcttcac ttgggttctg     420
gggatttgaa cttagggtcct cacagtttta gggcaagcat ttatttact gaacaatctc      480
ccatgatccc tagagtttat tgtaggcaac ttaaccttta gtcgtcattg agatttagca      540
ttgatttcag ttccagttgt attctgatgt tgagcgctac agcagaggta cccaggggact     600
gctgattttc tgtggccatg aatcctctag tgattaataa atttcatcat aatgttctgt      660
ttattttctaa atgtccagac aactctaatt tcaaattaat ctcatcctaa acagcacagg      720
ataaaagtta cagattgtcc tatcttcatt catgtgatgc ctcaaatacag atgtttaatc      780
cttttagtcag ttatttgtga aacggaacct aattacacac actcgcatgc gcgtgcgcg      840
acacacacac acacacacac acacacacac acacacacac acttgtagat ttgccacac      900
agctgcttaa gcaatttgga gcaaatgtag aaatattatg aaatttcaca taaaaatggg     960
ttttcctctg tcttcttgag aaatgtgtga gtttcaatat gacagtaatc ttctggtgtt    1020
ggactataac cacttgaacc cctgaggtag taagtgtgta cctactacgt gcctggattc     1080
catcatttcc ctacttatat aagcttctcc atcctgtaga tcagcactgt gtaatggagt     1140
aacacaagtc attgaatcat gcaatcattt aatcaattta attggcactt ctgataagag     1200
aagtgggcac atatttagtt gtgtttgcag cctgtgctat gtcatttttc tctatatata     1260
ctttaagatt tttttctttt ttccatttac gggggggggg ttattccatt taatttacat     1320
gcttaatgac atataatttg catatcaggt gttcctttct ttagagttaa cttcttttag     1380
gaccattgtt tataatggat gtatatcatc cctaaattaa atcagccatt gtctacttaa     1440
cacaccagtt tctctgatgt ccctctggct cttcctcttc tgaggttcta gttataggaa     1500

```

agtctggcat	tttgatgttt	ttccatggct	tcgtgggctc	tgatcatcca	cttacagtgt	1560
actttcatct	cttgcttaca	aactgcatat	catctattga	tctgcggtca	aggctactac	1620
attttcatgc	aattccactt	tgctgttaaa	ccttttctat	gatccgtttt	tatacttata	1680
aacaatccaa	gtgttgtact	ctttgggtat	aaatgttctg	tatttcacag	gtcttaactt	1740
cttttcagac	tatacaaaga	aagattttct	atttttttta	tttgttgtat	gcattttatg	1800
catttagcac	tgggatttcc	ataacaggca	gttaagatca	ttgaatacat	actttgtgtg	1860
gtaaatataa	tacggcttat	ttgattctcc	cccttaaaat	gctcccatct	tctcagtcac	1920
gtcaggttgc	tatggagtcc	accctgagca	ccatgagtgt	gatgctgtac	agacactcct	1980
gatatgcctt	ctgttatttg	aactccacct	gcaagttttc	attcaagcat	agctcctaata	2040
cccattcagt	gtgcactttt	cttaattgat	ttgctggtag	agagctatat	gtaagcatgg	2100
cttagcatca	aattgaactt	tctcctctcc	ctagcttctt	tccagtatat	tcttcctcac	2160
cttcatcaga	ttttgaggtc	ttgagatcta	aaccttcacg	ttacaatttg	cagagatacc	2220
aggatctcta	tcagacttga	tgtgtctcca	tgtaattcta	gtatcagcct	ttcataagat	2280
aattgcaaaa	tatagaacct	cccctctctc	cttttgacta	ttacagcttt	gtttctctcc	2340
caagttaata	cagatgtatg	caaatcaact	aagaaaagca	aacactgaat	gggataagga	2400
gctatactca	aaagaaagct	tgacgttgga	gttcaaataa	cacaagtgga	accaagagta	2460
tctgcacagc	atcagactca	ctgtgctcag	gatggaatcc	atagcaacct	cccataactg	2520
agaggatgtg	agcccccttt	aaagggaaaa	tcaaataagc	agtattatat	taaccacatg	2580
atgtgtatat	tcaatgtaga	ttgggctgca	ccgaagttaa	gatttttagta	atgagtattt	2640
ctccttgggt	tttcttctgg	accaccctgg	ttttcctttt	aaaaatagta	aaatagcagc	2700
aatgactgct	tctcttaaaa	tctgaacaac	acagagcact	tcagcatcct	ttcaacctat	2760
ctaaatccat	tgtagacctg	cactgacttg	ctgtgagcta	ttgtgtcaca	actattattg	2820
tagctaaaca	ccttgaattt	tcaaagctgc	tctggactgt	gtcttctttt	agaattaaac	2880
ttgctaaaga	tattggactc	tgagatgctt	attcaccact	ttctataaaa	gagtaaggat	2940
gacaatgctt	tgagtagaag	aagattgcat	acgagggtag	cagcatgtca	ttatgtcccc	3000
agcagtcagt	aaagtaagga	tccagtgatg	gtagagttat	tatgtccatt	atggaactaa	3060
tgtaaagtgt	tatcaatgac	tagaatggct	gtaatcacca	atccttagac	aagtgtgagt	3120
aacatcatgc	tcttttctta	taataataga	tagtcacaca	caccatgggc	ttaaacatta	3180
cattttgatt	tttctctttg	tgtctgtctt	ttcgtacctc	tactccactt	acctgagcct	3240
tcagctaggg	ctcctccaag	acggcagtc	cagtactagt	gaggataatt	ctcatatgga	3300
gacctgaagc	agaataacct	tcttccaagg	aaacccaaat	cctagtcaac	atcttctcca	3360
ctctttgggt	atttattttt	atttctattt	ctattttgcc	atttaagaat	ttttaaacct	3420
ttttctgttt	tcttatatat	attctttttt	ttacaacttt	tgatattctt	tatcaaatga	3480
tttatcccat	tgcccttcct	cctgcagcta	tctgtgagtt	ttagcatgga	tattttagaat	3540
acaattggaa	attatgaagg	tcgaataaaa	gttctctaag	agccaggacc	tcactagcct	3600

agttagttgc ttagtttcta atataaggca tggtttatct cctactgtat ggcccttaaa	3660
tccactagac atctgttggc ttccaacagc atacaattgc tgctattgta tgtttaggta	3720
tatatatttta tgaaacacta tattctgatt ggtgttcatt cttcctatga aggggaagat	3780
tttattgcct gctcaaattc aagtcagtcc tttttgagta gacaaagggt gtccaatctt	3840
gctaaaccct tttctttttt gcttggggaa tttctttagg gaaaattctc aacctgaac	3900
caagcctaga gattgataat agctgaaggc agagtagcca gtcttagtaa gggatgagag	3960
aaagactgac caaagactga ataggaaatg gttgatagca ttcattggga ctagacaata	4020
aagttagcta cccaacatg ggcaaatgga gaaaatgggg agagtcatat ggatatgtag	4080
ggaggagaag aaaggaaggg gtgagtttga agtatggaag agcctttaaa gcatttgtaa	4140
gatttgtaag aaaaagcttt tgagagacag agtattacct gccttcaa at cccttcaatt	4200
actgtcccta caagacatac ctgtgctcag ctgctcttgg accacaaggg ggcctaagag	4260
catgtttgtg tccctgtctt tatacaggct tctcatctgt atttctcaaa cgtaaataca	4320
aatgggggag ataacaaatg atatttctaa gtggtacaca ggtatgagaa ctgcacacaa	4380
tctatttata tgtataatgg ccagagctct cagcaggga cagaggaagc ctaggtaact	4440
cctgctccag agcatgtctg tatggagacc tcagttcagc aactatgaaa tctgtgttca	4500
aagggtcatc actggaaca gtttctggaa tagcagacat attcattctc tctctctctc	4560
tctctctctc tctctctctc tctctctctc tctctctctc tctctgtctg tctctgtctc	4620
tctctgtctg tctgtctgtc tctcccttct gtcaggggta tgcatacatg ggctgggaat	4680
tctatcttcc ctgcctgtg tctttgggtg ctcccta atg tgggtgccatg tttacttaac	4740
ctgtctgaaa tggaggataa cctctggtct gataactgtc aagttactga aatgtcaggg	4800
aattgtgaat gaacccctct gaatgctggg cagatgtttt gagcacgtgg gtatccatag	4860
atattttttt cagcaggatt tccttcttta atatatgtg ggaacgaaac attgaagttt	4920
ccaacactaa gaaaagcaat gctctgggtt tgcaaagaag tctccaaagc tgtgggagag	4980
gcaatggctt tgcctcacia aggtgatcct gatttggatt ggggtgttcct cagtctccct	5040
catcctttgt ttgtggacca aacctctgat caaataatca gtatacagac aagtactgac	5100
tgactcctgt cactgtttcc catgtaaatt ctcaaccatg tgtgtcagaa ttgtttgagt	5160
catcaaagtt ccgtgatgct caggatggtg aataccagaa actgaagtct gaaatccaat	5220
ttggcctttc tcgggcactg taaactgagt gcaa atgtgc ccagttccct cgtggcccat	5280
ttatagcaca ataacacagt gcttgcttac aaaatctagt cccgattaaa gtattttattt	5340
aaagttgctt tagacaaata tatttctaaa tggaaggatg aaacagaaag aatattccaa	5400
ctgtacagtc tatattttgt ttctaataat ttttattaga attctgactt ttagaaaaca	5460
aatagatatt caaaaactac ttctttaatt aaataataac atcattatag acattctcca	5520
gccatttaga agtagcatga ttacaaagca ttcattgttcc ctttgttttt tgaaacagaa	5580
gtatttatat gacaaataaa aagcaaaaat ctcatatatg tgatagctat agatgcattg	5640
ataggaatta aatttaataa aaaagaactt ttaatggcaa taatgtggct actaacttca	5700
ttgtttgtaa taatgctgca aatgtttaat gaaaactgtt actaacaata caggagaaga	5760

ttacagatat gattaggtcg tgttgataga aatggaaaga gaaagggtcac tcactacctc	5820
agccacagaa cttgaggaat gtgtgaggggt ttttgaggaa aaaagagaac aatgtaacat	5880
cacagcaaca tcttaatctg aaagtagacg acaaagggtt cagagtaggg gatcagaaat	5940
ttaagtatgc agagaagcaa ggcataatcg gcttagacaa tgtatgaaga acagcagcag	6000
acagcaagtg aaagaaatca cagtccacat ggaaatcaca cagaccacag tgtgcacaca	6060
gagacagaaa tcagcaaggg acacacggct tccagttatg aaagttagac agcaaaattt	6120
aagttgtccc acctaaaaca tgatgtatcg tctctcaaat ggggaagggg aaggagcagc	6180
aaacatctgg atatgtctaa aacctcacag agaacatctg ggatctttgc atttctccct	6240
ctgactttct caatatgtta gctacttcta gatagtttca ataatgggtct ctaattgact	6300
atggagagac aggtctcatg tatgtgaaca tccttaacca ggagatggaa tgtgtttcct	6360
tgtcactcat tttctaagga agtgaattcc ttctgcattg cccaggattg gatgttacgt	6420
gaaactaaaa atcattgatt aaaaagaaat gtcattacca cagttgggtt gaatcaatca	6480
agacttatcc tagttacagg catcacctcc ccttaagcac aaatactgag aacagctaag	6540
ctcactttga aatctgggat gaggaggctt taggtcaagc atctgacaat gtgtgtgtgt	6600
atgtgtgtgt gtgtgtgtgt gtgtagtatg attatatgta tatatgtaga tgtgtgtata	6660
tatttatatg tatatatgta tatgtgagta tgtatatatg tatatgtgtg tatgtgtatg	6720
agtgtgtgta tgtatgacta tgagtgtgta tgtattgtgc aagtgtgtgt atatatgtgt	6780
gtatatgttt atgtatatgt gtattgtatg ggtgtgaatg tattatatat gtgtgtaggt	6840
acatatgtgt atatgtttat gcgtgtatat gtgtatgcat tatatgtatg tgtgtatgtg	6900
tgtatgtttt catgtgtatg tagcatatgt atatgcatgt gtgtgtctgt gtgtgtaagc	6960
atgtattttac taagaaaaaa tcagttttct tagctaataga gtcattgaag tgaagaaacc	7020
ttacgctatc acattactat gtttccagca taaattgcaa tatcagtaag acattcccca	7080
tcataactta atggacactt agattaggtc atgcagcagt aaattatgaa agcgtctatg	7140
ctgagctgag gtgggaaatc gtctttcctg cctccttcct cctgttcttt ctccaaagg	7200
ccctcatcct ctttctcccc ttcttttctt taaaatatt ctatcattga tccaagctaa	7260
ctaacccttc ctttgctcac atgtgacctg cccagaggaa tctatttata gtcaacaata	7320
acaggccaag gacatgcgaa caaatgactt tacttagccc cacttgggtga atctattggg	7380
tgaataggta aggggttatt tataggagct tgactgactg gcacagctgt atctctgaaa	7440
agtcccccaa agcatcatgg gtgggaacta aggaaagccg gaaatgctgg agctggaatc	7500
ccaacctgca gtggctacat gatgaatgtg tctcctttcc tactaaatat ttaagactct	7560
gggcaggctg gttagtcttg taaaagtctt gtgggtttct ggagtcctgg gaggctcact	7620
gtccctgcag aagcttgta ttattgtata tgaaagaaag tgctcaacac tgagtcacaa	7680
aagaagcccc cgagaatcgg tggcagaggt ggaaatagaa gaatccgatg cagttcccg	7740
ggcaagagtt gatcctctcc atggtgacaa gaaaacaaga gccacagaag cctgaaggct	7800
aagactatga cctgtgaggt tctcctctcc taggacttga atgcacttaa ctctgagggc	7860

tagcagggca	gagattcagg	agcgttctca	gaggttgtcc	cttctccttg	tatgattcta	7920
ggagaagctc	agtgcatagg	cagaagttgc	aaactctaac	acattaaccc	acatcctgaa	7980
ttgttttata	tcaattgttt	tataactaca	tgttttaact	tttgttttgg	tttttgaatt	8040
ttgtttgttt	gtttgttttc	tatttttcat	atgtgtgcat	gtgagccaga	agacaggcta	8100
agggactctg	ttctctcttt	ccagcatgtg	ggtttcaggg	atcaaagtta	ggtcccaagg	8160
cttcactggg	caacgggacc	cttagcctct	gagtcactct	cttaatcttt	ttctttgaaa	8220
ctttttcatt	acattgtgtc	agtgcacaca	cacacacaca	cacacatgca	tatacatcca	8280
catgcatata	catccacatg	ccatatgtca	tggcacatgt	gtggaaagaa	atgggtgcct	8340
tgaggaaatc	agttttcttc	ttccatcacg	tggatcttat	gacttcaggt	aacctatctc	8400
tgctcccca	gcatggctac	aagcatttac	ctgccaagtc	atctccctgg	ctcccacatt	8460
aatttataat	aatacaccct	ttcagcctag	agagatgact	cagtgggttaa	gaactctggc	8520
tgtgcttcag	aaggttctga	gttcaattcc	cagcagctat	aaggaggctc	acaactatct	8580
ctaagtgtgt	tttctgtcct	cttctggcat	gcacttgtat	gtgcagatag	agtacttata	8640
tgcataaata	aataataata	cattaataat	cttttaaaaa	gaaggaaaga	ttaaaagaac	8700
aatacaccct	ttcttttaag	taagaaaaca	tgcttagtat	atagaataaa	tgctggtgtt	8760
gaaaggtgaa	attcagaaga	aattataggt	tggaaatatt	tgaactcttt	tgtgtcaaac	8820
caaatggtaa	agatgatgtg	ataataaggt	aagggttttct	tcctacacat	atacttgttt	8880
aataaccagt	ataagactat	gagtgaacat	aactaaaaat	acatgaaaaa	aaactatttt	8940
aaaaaaacat	cactttcaga	tgactctggg	gaaactcact	gataaccagc	aatctctttg	9000
atagaccaga	gtgtccagtc	tgaagttaat	tcttttgctt	tattctcaaa	caatgttgca	9060
gaagtatgaa	ccatagtatc	aagatacact	gtccacatat	gcacctggcc	tgacttgtgt	9120

<210> 2
 <211> 2105
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (418)..(1671)

<400>	2	
gagccttccc	ggcgcgtgag	ccggatccgg
gggtggcggc	gagacagggg	gacgcacccg
gcaacctctc	ccgcgcgctc	cggtcgccga
tggactacac	cgggaaaaag	acgcagcctg
tcccaagagc	tcgggagggg	agattctccc
cccggtggcct	ggagagcgct	ggctgtgcc
taatgagggg	agaacgtgcc	ttttacaccc
atg acc cca caa ctc gga acg atg	cgg cta gcc tgc atg ttc tcg tcc	
Met Thr Pro Gln Leu Gly Thr Met Arg Leu Ala Cys Met Phe Ser Ser		
1	5	10
		15

atc ctg ctg ttt gga gct gcg ggc ctg ctc ctc ttc atc agc ctc cag Ile Leu Leu Phe 20 Gly Ala Ala Gly 25 Leu Leu Leu Phe 30 Ile Ser Leu Gln	513
gac cct ata gag ctc agc ccc cag caa gtt cca ggt ata aag ttc agc Asp Pro Ile 35 Glu Leu Ser Pro Gln 40 Gln Val Pro Gly 45 Ile Lys Phe Ser	561
atc agg ccc cag caa ccc cag cat gat agc cac ttg agg ata tcc aca Ile Arg Pro Gln Gln Pro Gln 55 His Asp Ser His 60 Leu Arg Ile Ser Thr	609
gaa aag ggc aca cga gat tca ccc agc ggg tcg cca aga ggc ctc cag Glu Lys Gly Thr Arg Asp 70 Ser Pro Ser Gly 75 Ser Pro Arg Gly Leu Gln 80	657
ctg caa gcg cct gac caa cct cga cct cac ccg aag gca gcg gga tct Leu Gln Ala Pro Asp 85 Gln Pro Arg Pro His 90 Pro Lys Ala Ala Gly 95 Ser	705
cct ttg cgc ctc cgg cag cgc agg cgg aga ctg ctc atc aaa aag atg Pro Leu Arg Leu 100 Arg Gln Arg Arg 105 Arg Arg Leu Leu Ile Lys 110 Lys Met	753
cca gcc gca ggg act aac caa ggc aac aac tcg tcc gaa acc ttt atc Pro Ala Ala Gly Thr Asn Gln Gly 120 Asn Asn Ser Ser 125 Glu Thr Phe Ile	801
cag ccg aga ccc cgc acc atg gac agt cgt tgg gtc agc ctg cac cag Gln Pro 130 Arg Pro Arg Thr Met 135 Asp Ser Arg Trp 140 Val Ser Leu His Gln	849
acc caa cag gag cgc aag cgt gtg atg cga gaa gcc tgc gct aaa tac Thr Gln Gln Glu Arg Lys 150 Arg Val Met Arg Glu Ala Cys Ala Lys Tyr 160	897
agg gcc agc agc agc cgc aga gct gtc act ccc cgc cac gtc tcc cgc Arg Ala Ser Ser Ser 165 Arg Arg Ala Val Thr 170 Pro Arg His Val Ser Arg 175	945
atc ttc gtg gag gac cgc cac cgt gta ctg tac tgt gaa gta ccc aag Ile Phe Val Glu Asp Arg His Arg Val 185 Leu Tyr Cys Glu Val 190 Pro Lys	993
gca ggc tgc tcc aac tgg aag agg gtg ctc atg gtg ctg gca ggg tta Ala Gly Cys Ser Asn Trp Lys Arg 200 Val Leu Met Val Leu Ala Gly Leu 205	1041
gcc tca tcc acg gca gat atc caa cac aac acc gtc cac tat ggc agc Ala Ser 210 Ser Thr Ala Asp Ile Gln His Asn Thr Val 220 His Tyr Gly Ser	1089
gcc ctt aag cgc ctg gat act ttt gac cgg cag ggc ata gtg cac cgc Ala Leu Lys Arg Leu Asp Thr Phe Asp Arg Gln Gly Ile Val His Arg 240	1137
ctc agt acc tac acc aag atg ctc ttt gtc cgg gaa ccc ttt gag cgg Leu Ser Thr Tyr Thr 245 Lys Met Leu Phe Val 250 Arg Glu Pro Phe Glu Arg 255	1185
ctg gtc tct gct ttc cga gac aag ttt gag cat cct aac agc tac tat Leu Val Ser Ala Phe Arg Asp Lys Phe 265 Glu His Pro Asn Ser Tyr Tyr 270	1233
cat cct gtc ttt ggc aag gct atc ctg gcc cgg tac cgc gcc aac gcc His Pro Val Phe Gly Lys Ala Ile Leu Ala Arg Tyr Arg 285 Ala Asn Ala	1281
tcg cgg gag gca ctg cgg act ggc tcc ggt gtg cag ttc ccc gag ttc Ser Arg Glu Ala Leu Arg Thr Gly Ser Gly Val Gln Phe Pro Glu Phe	1329

290	295	300	
gtc cag tac ctg ttg gat gtc cac cgg ccc gtg ggc atg gac atc cac Val Gln Tyr Leu Leu Asp Val His Arg Pro Val Gly Met Asp Ile His 305 310 315 320			1377
tgg gac cat gtt agc cgg ctg tgc agc ccc tgc ctc atc gac tat gac Trp Asp His Val Ser Arg Leu Cys Ser Pro Cys Leu Ile Asp Tyr Asp 325 330 335			1425
ttt gtg ggc aag ttc gag agc atg gaa gac gat gcc aac ttc ttc ctg Phe Val Gly Lys Phe Glu Ser Met Glu Asp Asp Ala Asn Phe Phe Leu 340 345 350			1473
cgt ctc atc cat gcg ccc ggg aac ctg act ttc ccg agg ttc aag gac Arg Leu Ile His Ala Pro Gly Asn Leu Thr Phe Pro Arg Phe Lys Asp 355 360 365			1521
agg cac tcc gag gag gcg cgg acc aca tcg aga atc acc cat cag tac Arg His Ser Glu Glu Ala Arg Thr Thr Ser Arg Ile Thr His Gln Tyr 370 375 380			1569
ttc gct cag ctc tcc tcg ctg cag cga cag cga acc tac gac ttc tac Phe Ala Gln Leu Ser Ser Leu Gln Arg Gln Arg Thr Tyr Asp Phe Tyr 385 390 395 400			1617
tac atg gat tac ctg atg ttc aac tac tcc aaa cct ttc tcg gac ctg Tyr Met Asp Tyr Leu Met Phe Asn Tyr Ser Lys Pro Phe Ser Asp Leu 405 410 415			1665
tac tga gggcggggcc tgctgggtcag gggcggggtc tgccgggtcat gcccactcac Tyr			1721
ctgcgcatag gcggcctccg gggactgagc tctgaggatg tgaggccttg tggtgtggc			1781
cctaggggtgg gccacagagg ccagacaat ggaccttgac ccttgtcca caccatttc			1841
ctcattgggt tggtgagtt tgagacggag cacgactcgg atggatgctt taagaactca			1901
gctgagctat gctgagctat gctgtccagg gaagcctgag acccagaaga gggccccagc			1961
gtcgagggat gtcctacatc cctttatcct ttgccttgta ccaaaccacg tggtttgctg			2021
cttttctatg acccagggtc atctgaataa agcacatggt tttcagagca aaaaaaaaaa			2081
aaaaaaaaaa aaaaaaaaaa aaaa			2105
 <210> 3 <211> 417 <212> PRT <213> Mus musculus <400> 3			
Met Thr Pro Gln Leu Gly Thr Met Arg Leu Ala Cys Met Phe Ser Ser 1 5 10 15			
Ile Leu Leu Phe Gly Ala Ala Gly Leu Leu Leu Phe Ile Ser Leu Gln 20 25 30			
Asp Pro Ile Glu Leu Ser Pro Gln Gln Val Pro Gly Ile Lys Phe Ser 35 40 45			
Ile Arg Pro Gln Gln Pro Gln His Asp Ser His Leu Arg Ile Ser Thr 50 55 60			

Glu Lys Gly Thr Arg Asp Ser Pro Ser Gly Ser Pro Arg Gly Leu Gln
 65 70 75 80
 Leu Gln Ala Pro Asp Gln Pro Arg Pro His Pro Lys Ala Ala Gly Ser
 85 90 95
 Pro Leu Arg Leu Arg Gln Arg Arg Arg Arg Leu Leu Ile Lys Lys Met
 100 105 110
 Pro Ala Ala Gly Thr Asn Gln Gly Asn Asn Ser Ser Glu Thr Phe Ile
 115 120 125
 Gln Pro Arg Pro Arg Thr Met Asp Ser Arg Trp Val Ser Leu His Gln
 130 135 140
 Thr Gln Gln Glu Arg Lys Arg Val Met Arg Glu Ala Cys Ala Lys Tyr
 145 150 155 160
 Arg Ala Ser Ser Ser Arg Arg Ala Val Thr Pro Arg His Val Ser Arg
 165 170 175
 Ile Phe Val Glu Asp Arg His Arg Val Leu Tyr Cys Glu Val Pro Lys
 180 185 190
 Ala Gly Cys Ser Asn Trp Lys Arg Val Leu Met Val Leu Ala Gly Leu
 195 200 205
 Ala Ser Ser Thr Ala Asp Ile Gln His Asn Thr Val His Tyr Gly Ser
 210 215 220
 Ala Leu Lys Arg Leu Asp Thr Phe Asp Arg Gln Gly Ile Val His Arg
 225 230 235 240
 Leu Ser Thr Tyr Thr Lys Met Leu Phe Val Arg Glu Pro Phe Glu Arg
 245 250 255
 Leu Val Ser Ala Phe Arg Asp Lys Phe Glu His Pro Asn Ser Tyr Tyr
 260 265 270
 His Pro Val Phe Gly Lys Ala Ile Leu Ala Arg Tyr Arg Ala Asn Ala
 275 280 285
 Ser Arg Glu Ala Leu Arg Thr Gly Ser Gly Val Gln Phe Pro Glu Phe
 290 295 300
 Val Gln Tyr Leu Leu Asp Val His Arg Pro Val Gly Met Asp Ile His
 305 310 315 320
 Trp Asp His Val Ser Arg Leu Cys Ser Pro Cys Leu Ile Asp Tyr Asp
 325 330 335
 Phe Val Gly Lys Phe Glu Ser Met Glu Asp Asp Ala Asn Phe Phe Leu
 340 345 350

Arg Leu Ile His Ala Pro Gly Asn Leu Thr Phe Pro Arg Phe Lys Asp
355 360 365

Arg His Ser Glu Glu Ala Arg Thr Thr Ser Arg Ile Thr His Gln Tyr
370 375 380

Phe Ala Gln Leu Ser Ser Leu Gln Arg Gln Arg Thr Tyr Asp Phe Tyr
385 390 395 400

Tyr Met Asp Tyr Leu Met Phe Asn Tyr Ser Lys Pro Phe Ser Asp Leu
405 410 415

Tyr

<210> 4
<211> 1369
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (40)..(1281)

<400> 4
attcagacat gaagagagac acagtggctt gaagtggctc atg aaa gcc aaa caa 54
Met Lys Ala Lys Gln
1 5

gtc ttc ttt tct gtc ctg ctg ttt ggg aca gca ggg ctt ctg ctc ttc 102
Val Phe Phe Ser Val Leu Leu Phe Gly Thr Ala Gly Leu Leu Leu Phe
10 15 20

atg tac ttg caa gca tgg att gaa gaa cat cat aca ggg aaa ata gag 150
Met Tyr Leu Gln Ala Trp Ile Glu Glu His His Thr Gly Lys Ile Glu
25 30 35

aag aaa agg gat cag aaa gga gta tcg gtg act acg gga aaa atc cag 198
Lys Lys Arg Asp Gln Lys Gly Val Ser Val Thr Thr Gly Lys Ile Gln
40 45 50

aaa cag atc acg aat cag aac tct gag gtt cac atg cct gaa gat ctg 246
Lys Gln Ile Thr Asn Gln Asn Ser Glu Val His Met Pro Glu Asp Leu
55 60 65

aag aag aaa ggg gga gat ctg ctc aac cta ggg agt cca aca agg gtt 294
Lys Lys Lys Gly Gly Asp Leu Leu Asn Leu Gly Ser Pro Thr Arg Val
70 75 80 85

tta agg aag atc agc cat tca caa agg gag aac gga gct tac aga tca 342
Leu Arg Lys Ile Ser His Ser Gln Arg Glu Asn Gly Ala Tyr Arg Ser
90 95 100

act gaa gca cat caa gga gct aaa att gaa gtt ttt cag aaa ccc atc 390
Thr Glu Ala His Gln Gly Ala Lys Ile Glu Val Phe Gln Lys Pro Ile
105 110 115

cag atg gac tgg cca ctg gtc act cag ccc tta aac aaa agt ttg gtc 438
Gln Met Asp Trp Pro Leu Val Thr Gln Pro Leu Asn Lys Ser Leu Val
120 125 130

caa ggc aac aaa tgg aag aaa gca gat gca acc caa gag aag cgt cgg 486
Gln Gly Asn Lys Trp Lys Lys Ala Asp Ala Thr Gln Glu Lys Arg Arg

135	140	145	
tca ttc ctt cat gag ttt tgc aag aaa tat ggt aga gta aat gat ccc Ser Phe Leu His Glu Phe Cys Lys Lys Tyr Gly Arg Val Asn Asp Pro 150 155 160 165			534
aag ttc aac ctt ttt cat ata gta tct agg ata tat gta gaa gac aaa Lys Phe Asn Leu Phe His Ile Val Ser Arg Ile Tyr Val Glu Asp Lys 170 175 180			582
cac aaa atc ctg tac tgt gaa gta cca aaa gct ggc tgc tct aat tgg His Lys Ile Leu Tyr Cys Glu Val Pro Lys Ala Gly Cys Ser Asn Trp 185 190 195			630
aaa aga att ctg atg gtc cta aat gga ttg gct tcc tct gca tac aat Lys Arg Ile Leu Met Val Asn Gly Leu Ala Ser Ser Ala Tyr Asn 200 205 210			678
atc tcc cat gat act gtg cac tat ggg aag cat ctg aaa aca ctg gat Ile Ser His Asp Thr Val His Tyr Gly Lys His Leu Lys Thr Leu Asp 215 220 225			726
agt ttt gac tta aaa gga gta cac atg cgt ttg aat aca tat acc aaa Ser Phe Asp Leu Lys Gly Val His Met Arg Leu Asn Thr Tyr Thr Lys 230 235 240 245			774
gct gtg ttt gtt aga gat ccc atg gaa aga tta gtc tcc gca ttt agg Ala Val Phe Val Arg Asp Pro Met Glu Arg Leu Val Ser Ala Phe Arg 250 255 260			822
gat aaa ttt gag cat ccc aat agt tac tac cat ccg gtg ttt gga aag Asp Lys Phe Glu His Pro Asn Ser Tyr Tyr His Pro Val Phe Gly Lys 265 270 275			870
gca att atc aag aaa tat cga cca aat gcc tct gca gaa gca tta aat Ala Ile Ile Lys Lys Tyr Arg Pro Asn Ala Ser Ala Glu Ala Leu Asn 280 285 290			918
aat gga tct gga gtc aaa ttc aaa gaa ttc gcc tac tat ttg ctg gat Asn Gly Ser Gly Val Lys Phe Lys Glu Phe Ala Tyr Tyr Leu Leu Asp 295 300 305			966
gct cac cgt cca gta gga atg gat att cac tgg gaa aga gtc agc aaa Ala His Arg Pro Val Gly Met Asp Ile His Trp Glu Arg Val Ser Lys 310 315 320 325			1014
ctg tgt tat ccg tgt ttg atc aac tat gac ttt gta ggg aag ttt gag Leu Cys Tyr Pro Cys Leu Ile Asn Tyr Asp Phe Val Gly Lys Phe Glu 330 335 340			1062
acc tta gga gag gat gcc aat tac ttt cta cag ttg att ggt gct cca Thr Leu Gly Glu Asp Ala Asn Tyr Phe Leu Gln Leu Ile Gly Ala Pro 345 350 355			1110
aaa gag ttg aca ttt cca aac ttt aag gat agg cac tcc tct gat gaa Lys Glu Leu Thr Phe Pro Asn Phe Lys Asp Arg His Ser Ser Asp Glu 360 365 370			1158
aga acc aat gcc cac gtg gta agg cag tat tta aag gac ctg agc aca Arg Thr Asn Ala His Val Val Arg Gln Tyr Leu Lys Asp Leu Ser Thr 375 380 385			1206
gcc gaa aga cag ctc atc tat gac ttc tat cac ttg gac tat ttg atg Ala Glu Arg Gln Leu Ile Tyr Asp Phe Tyr His Leu Asp Tyr Leu Met 390 395 400 405			1254
ttt aat tac aca act cca cat ttg taa tttgcattca tttttctaaa Phe Asn Tyr Thr Thr Pro His Leu 410			1301
gccctacata gatttaatga tgatggcctc aaataagcta ctgtaattgt cctacaattc			1361

tctgtatg

1369

<210> 5
<211> 413
<212> PRT
<213> Mus musculus

<400> 5

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

Gly Leu Leu Leu Phe Met Tyr Leu Gln Ala Trp Ile Glu Glu His His
20 25 30

Thr Gly Lys Ile Glu Lys Lys Arg Asp Gln Lys Gly Val Ser Val Thr
35 40 45

Thr Gly Lys Ile Gln Lys Gln Ile Thr Asn Gln Asn Ser Glu Val His
50 55 60

Met Pro Glu Asp Leu Lys Lys Lys Gly Gly Asp Leu Leu Asn Leu Gly
65 70 75 80

Ser Pro Thr Arg Val Leu Arg Lys Ile Ser His Ser Gln Arg Glu Asn
85 90 95

Gly Ala Tyr Arg Ser Thr Glu Ala His Gln Gly Ala Lys Ile Glu Val
100 105 110

Phe Gln Lys Pro Ile Gln Met Asp Trp Pro Leu Val Thr Gln Pro Leu
115 120 125

Asn Lys Ser Leu Val Gln Gly Asn Lys Trp Lys Lys Ala Asp Ala Thr
130 135 140

Gln Glu Lys Arg Arg Ser Phe Leu His Glu Phe Cys Lys Lys Tyr Gly
145 150 155 160

Arg Val Asn Asp Pro Lys Phe Asn Leu Phe His Ile Val Ser Arg Ile
165 170 175

Tyr Val Glu Asp Lys His Lys Ile Leu Tyr Cys Glu Val Pro Lys Ala
180 185 190

Gly Cys Ser Asn Trp Lys Arg Ile Leu Met Val Leu Asn Gly Leu Ala
195 200 205

Ser Ser Ala Tyr Asn Ile Ser His Asp Thr Val His Tyr Gly Lys His
210 215 220

Leu Lys Thr Leu Asp Ser Phe Asp Leu Lys Gly Val His Met Arg Leu
225 230 235 240

Asn Thr Tyr Thr Lys Ala Val Phe Val Arg Asp Pro Met Glu Arg Leu
 245 250 255
 Val Ser Ala Phe Arg Asp Lys Phe Glu His Pro Asn Ser Tyr Tyr His
 260 265 270
 Pro Val Phe Gly Lys Ala Ile Ile Lys Lys Tyr Arg Pro Asn Ala Ser
 275 280 285
 Ala Glu Ala Leu Asn Asn Gly Ser Gly Val Lys Phe Lys Glu Phe Ala
 290 295 300
 Tyr Tyr Leu Leu Asp Ala His Arg Pro Val Gly Met Asp Ile His Trp
 305 310 315 320
 Glu Arg Val Ser Lys Leu Cys Tyr Pro Cys Leu Ile Asn Tyr Asp Phe
 325 330 335
 Val Gly Lys Phe Glu Thr Leu Gly Glu Asp Ala Asn Tyr Phe Leu Gln
 340 345 350
 Leu Ile Gly Ala Pro Lys Glu Leu Thr Phe Pro Asn Phe Lys Asp Arg
 355 360 365
 His Ser Ser Asp Glu Arg Thr Asn Ala His Val Val Arg Gln Tyr Leu
 370 375 380
 Lys Asp Leu Ser Thr Ala Glu Arg Gln Leu Ile Tyr Asp Phe Tyr His
 385 390 395 400
 Leu Asp Tyr Leu Met Phe Asn Tyr Thr Thr Pro His Leu
 405 410

<210> 6
 <211> 5532
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (369)..(1427)

<400> 6
 ccagtgcacg gcggcggcgg caccttcctt ctcgcatccc ggtcgcccgg cccgtgagga 60
 ggcagcggcg gccgcaggcg ccagcagagg aggcggcgga gcatcgagca gaggcgaggc 120
 ggaccggcag gagcgcgcgg ccggagccac gcatcctcac acttgcacac caactcctgc 180
 gcctttcacc ctctagacca gagtcggggc ctcggagagc ctcggtgaag ctacgaggag 240
 ccagctccgg agcccagcca gctctgttct gagcctcccc ggtgctggta cccccgcggc 300
 ggggtccccg cttctgcgct cgggacgcgc ctcccgga gccgggtccc cgcggccagg 360
 acaaagcc atg aag ccg gcg ctg ctg gaa gtg atg agg atg aac aga att 410
 Met Lys Pro Ala Leu Leu Glu Val Met Arg Met Asn Arg Ile
 1 5 10

tgc cgg atg gtg ctg gcc act tgc ttc gga tcc ttt atc ttg gtc atc Cys Arg Met Val Leu Ala Thr Cys Phe Gly Ser Phe Ile Leu Val Ile 15 20 25 30	458
ttc tat ttc caa agt atg ttg cac cca gtc atg cgg agg aac ccc ttc Phe Tyr Phe Gln Ser Met Leu His Pro Val Met Arg Arg Asn Pro Phe 35 40 45	506
ggt gtg gac atc tgc tgc cgg aag gga tgc aga agt ccc ctg cag gag Gly Val Asp Ile Cys Cys Arg Lys Gly Ser Arg Ser Pro Leu Gln Glu 50 55 60	554
ctc tac aat ccc atc cag ctg gag cta tcc aac act gcc atc ctg cac Leu Tyr Asn Pro Ile Gln Leu Glu Leu Ser Asn Thr Ala Ile Leu His 65 70 75	602
cag atg aga cgg gac cag gtg aca gac acc tgc cgg gcc aac agt gcc Gln Met Arg Arg Asp Gln Val Thr Asp Thr Cys Arg Ala Asn Ser Ala 80 85 90	650
atg agc cgc aag cgc agg gtg ctg acc ccc aac gac ctg aag cac ctg Met Ser Arg Lys Arg Arg Val Leu Thr Pro Asn Asp Leu Lys His Leu 95 100 105 110	698
gtg gtg gat gag gac cac gaa ctc atc tac tgc tat gtg ccc aag gta Val Val Asp Glu Asp His Glu Leu Ile Tyr Cys Tyr Val Pro Lys Val 115 120 125	746
gcg tgc acc aac tgg aag agg ctc atg atg gtc ctg agt ggc cgg ggc Ala Cys Thr Asn Trp Lys Arg Leu Met Met Val Leu Ser Gly Arg Gly 130 135 140	794
aag tac agc gat ccc atg gag atc cca gcc aac gaa gcc cac gtg tgc Lys Tyr Ser Asp Pro Met Glu Ile Pro Ala Asn Glu Ala His Val Ser 145 150 155	842
gcc aac ctg aag acc ctt aac cag tac agc atc cca gag atc aac cac Ala Asn Leu Lys Thr Leu Asn Gln Tyr Ser Ile Pro Glu Ile Asn His 160 165 170	890
cgc ttg aaa agc tac atg aag ttc ctg ttc gtg cgg gaa ccc ttc gag Arg Leu Lys Ser Tyr Met Lys Phe Leu Phe Val Arg Glu Pro Phe Glu 175 180 185 190	938
agg ctg gtg tct gcc tac cgc aac aag ttc acg cag aag tac aac acc Arg Leu Val Ser Ala Tyr Arg Asn Lys Phe Thr Gln Lys Tyr Asn Thr 195 200 205	986
tcc ttc cac aag cgc tac ggc acc aag atc atc cga cgc cag cgg aag Ser Phe His Lys Arg Tyr Gly Thr Lys Ile Ile Arg Arg Gln Arg Lys 210 215 220	1034
aac gcc acg cag gag gcc ctg cgc aag ggg gac gat gtc aag ttc gag Asn Ala Thr Gln Glu Ala Leu Arg Lys Gly Asp Asp Val Lys Phe Glu 225 230 235	1082
gag ttc gtg gcc tac ctc atc gac ccc cac acc cag cgg gag gag ccc Glu Phe Val Ala Tyr Leu Ile Asp Pro His Thr Gln Arg Glu Glu Pro 240 245 250	1130
ttc aac gag cac tgg cag acg gtc tac tct ctc tgc cac ccg tgc cac Phe Asn Glu His Trp Gln Thr Val Tyr Ser Leu Cys His Pro Cys His 255 260 265 270	1178
atc cac tac gac ctc gtg ggc aag tat gag aca ctg gag gag gac tcc Ile His Tyr Asp Leu Val Gly Lys Tyr Glu Thr Leu Glu Glu Asp Ser 275 280 285	1226
aat tac gta ctg cag ctg gcc gga gtg agc ggc tac ctg aag ttc ccc Asn Tyr Val Leu Gln Leu Ala Gly Val Ser Gly Tyr Leu Lys Phe Pro 290 295 300	1274

acc tat gca aag tcc acc cga act acc gac gag atg acc acg gag ttc	1322
Thr Tyr Ala Lys Ser Thr Arg Thr Thr Asp Glu Met Thr Thr Glu Phe	
305 310 315	
ttc cag aac atc agc gcc gag cac cag aca cag ctg tac gaa gtc tac	1370
Phe Gln Asn Ile Ser Ala Glu His Gln Thr Gln Leu Tyr Glu Val Tyr	
320 325 330	
aaa ctg gac ttt tta atg ttc aac tac tca gtg cca aac tac ctg aag	1418
Lys Leu Asp Phe Leu Met Phe Asn Tyr Ser Val Pro Asn Tyr Leu Lys	
335 340 345 350	
ttg gat tag agggctgcgg aggggagggg gaggggtggt tgggggagag	1467
Leu Asp	
ggagagaatc ctgcttttta atttaagatt tttatttgtc aaaagaattc tatggagact	1527
gggttatttt gtaagttaat atgtcttcgg gggagatgct gcgagcggca tggtaagaa	1587
ttatttaaaa attctccacg ggggaaggaca gctgtctttg caggggagcg ggggtgaata	1647
tccctgtttt tagaagtgga tactgcaaca ctgtctccaa ggtgtccttg tgttctggtg	1707
aagtcacaaa actgcattcc ataaagtcta atgaatctta tttatagtta tttaaacgtg	1767
gtctgtggca gcagcctgct cctgtctgtg cagaggagag tacagtctgt gcttcgctgg	1827
ctatggctca ttgggggagg ggagggggtt atctcccca ctgaccgtgt gtagaatccc	1887
atggtgacag ctgcgggatg tgtgcctgtg gccattcaag aaaccctgct agaaagaagt	1947
caattgtcct tgcactaaga aacagggatg agactggttc aaaccgattg ctagcaaccc	2007
caaagtcctt tgtagtaaag aaatgcaa atttttaacc caagaagaga gcagatgata	2067
gcgatttctc tttaccgaaa ttagcaggct ataagaatag gctttctgtg gaaatcttta	2127
agtggcactt tccagtgcta gcgaaggcag aataatggtt gttttctagt caataagtat	2187
tgagcatcta ctattctcca ggcttgactg cagatagcac attgagtga accaggagcc	2247
ttggccttca gcaagcttta tgtgaacaca gggcatccag ctcaacagtg aaccaacacc	2307
cccatccctt tggctctcac acagacttta gactattctc aagtggctca gaggggccag	2367
gaccctagca aatttgcgta tttctacagt tcaaatttga aagccacaca tttggatcag	2427
gccacttaac tagctaagta gttcattgcc caacacaaga aatgacagaa acccttttga	2487
tcatgtatat ctagtgcagt gtcttcatag tagaagccta taagccacaa tattctccaa	2547
gcgcaaggat ggaggactgc tgtgattgat tagtgatgtc tgccttgact aaggaaagg	2607
aggaacattt ctcaagggcc tcctactgtg atctccagtc cacatcttgt cctgcctgcc	2667
acttaaaaca gtgcactgca tacatttggg gactggcgga gttcaagtgt gaaggtaaaa	2727
ggtggagtgt tggtaaccac aggcacatgc ccaccctcca tgtcctgcat tggcagagca	2787
tccaggacct ccctctctc cagaagggtg gaaatttgc ttttctgtt ccttgctgat	2847
caatgccccaa acctattcct catttctagt tgtttctgat actttgcggt tgacatttga	2907
gccacattcc catgacagcc agtgtccggg tacgtagcag atgctgtaca tagttctgat	2967
gataagggag ctggtaggct gtaaattttg ctttttgtgt ttttgtggg ttttgtttgt	3027
tttgatgcag tatagagtga agggggtaag aatattctga aaaacataaa attgagtaat	3087

ttattcacag	aaactattaa	aatggtattg	ttaggctcac	aaggaggctg	ggggcagcgg	3147
taactgctac	actgtctcgc	agaggaaatt	attttattta	atgtgagaga	aatgtgagcc	3207
agagtggctg	cctgaggcta	tttataaaac	gcagggtacct	tccccaattt	ctctcccctc	3267
gcctttaata	aatagattta	tgtcatgtgt	gtgaccaaga	acagtgcag	atcttggtg	3327
tccctggaat	agagaggcag	tcatggtgct	caggccctgg	gcgtggtgta	gctgatgcat	3387
gtcccaccga	gcccaggctc	tccaaggcat	cagtttgtgg	tcacatatcc	ttagaaaaca	3447
aaattaagtc	aggttcctgt	ctgcaggagt	tttcagagcc	ttgaatacat	agtctgcctt	3507
gtgaaactgg	gagaatgtag	catttctggg	ctgcatgacc	taggtatcct	gtatggcaga	3567
ccatgtctta	gctgggtttt	cacacagtag	ccttcagtg	gggtgatcta	gcctgtctga	3627
ggtctgcaaa	gattgacagc	tgcttcctag	atccttccac	aaatcagcag	aaacagtgtc	3687
catctgggaa	ctttatgaga	gtgttgcttt	acctagttag	ggtgtcttca	tctggatact	3747
gccccagaga	gtgatcccgt	ccctccaagc	acagcggagg	gaagcctagg	gtgttatgga	3807
gtggggcagg	tggcttaagg	acaccttaaa	ggccacttgg	tggggataat	ggcctcgtgg	3867
ggatactcct	cacttccacc	cacagtttgg	aactgttcac	tgtgtgcttc	aggagtttta	3927
aatggagatt	cgtgttgatt	tccatggtcc	gcactctgtt	gtcttccgtc	tgtggtccag	3987
tgctgtgtgc	agatggtact	tactcccttt	ctctctctta	caggggagaaa	gactgtcctt	4047
ctggggagag	tgatcaata	cgcttcaga	atgagggagt	ctttctcctg	tcttgtgttc	4107
acacttccta	gtgacaattt	tcaaaatatg	tatcggcttg	actgtttatt	gtagagtgt	4167
gaaaggtttc	tgtgttcctg	gctaaagaca	tccattggtg	aaatgtgctt	ggaaatccaa	4227
gtgttttcta	ctgaggaaaa	aaaaatgttg	gaaaagcttt	ctcctgcatg	cctcttgtgc	4287
ttagctagaa	aggggagctg	ccagcgtccc	agctctgagc	cactgttcaa	aggtgcagct	4347
gtgttttagg	actaggtaca	ggcagagtga	taaggacatg	cctgcttagt	gtactcattt	4407
atcgagaaag	tttagactat	gagccacagg	ggtccctgcc	tgcagtccct	atagcctccc	4467
cctgccccag	tgcttttctc	agctggtctg	ggaatcaggg	cagcccattg	aggggggctc	4527
agacaaccct	ttcttcctgg	ttctgggagt	aaggctttct	ctgcagccac	aaggagaaca	4587
tgggaaccag	aaacttctct	ttggtcagcc	cttctgagca	cacaggttta	gcccattgctc	4647
caagaatgct	cctgagcatt	gtataagccc	ctaggactct	tagctcatgt	gataatgatt	4707
gcattactat	cctgctttta	ctgacaaaac	cacagagaat	tttgcttgct	ttcctactct	4767
cttcctctgc	ccaggcctcc	tccatacgta	tacatacaca	catgggcatg	tatacacaca	4827
catgcacaat	agacatgcac	acacacatgc	acacatgggt	atacatatac	acacatgcac	4887
aatagacatg	catatataca	tatacatgca	cacattgata	ggcatacaca	catgcacagt	4947
agacatgcac	acatgggtat	acatagacac	acatgcacag	acatgcatac	acacacatgc	5007
acacataaat	gtgcacacac	acatacaca	attgcccaag	cctgtgcact	cctggtagcc	5067
atgtcccac	ctggcccacc	tcttgtcag	caggactgac	tccatcactc	cctcaggttt	5127
tgcccaccag	cacccccag	ctttcccca	gcagagctaa	acagcccctc	tgaatagaca	5187
acaggacctt	ctagaaacag	ctgaacctt	ggacagcagc	aggcagattt	tgatctgctc	5247

tcatcaggta caaaaggtgg tatccgtatt ctcttctgag catgctcagt aagcatatgg 5307
 acatagaatt taacatctct gtggagtgtg tgttttttac atatttgtat gcagtcgagg 5367
 agggcctgtt gtagaattct ctccctgtat cttactatac tgttaaagaa gctgaattct 5427
 atgttgccaa cagatgcgtg aaatgttcct ccaggaaaag ccattcaagc ctgattattt 5487
 ttctaagtaa cttcaattaa attgaagaag aaaaaaaaaa aaaaa 5532

<210> 7
 <211> 352
 <212> PRT
 <213> Mus musculus

<400> 7

Met Lys Pro Ala Leu Leu Glu Val Met Arg Met Asn Arg Ile Cys Arg
 1 5 10 15

Met Val Leu Ala Thr Cys Phe Gly Ser Phe Ile Leu Val Ile Phe Tyr
 20 25 30

Phe Gln Ser Met Leu His Pro Val Met Arg Arg Asn Pro Phe Gly Val
 35 40 45

Asp Ile Cys Cys Arg Lys Gly Ser Arg Ser Pro Leu Gln Glu Leu Tyr
 50 55 60

Asn Pro Ile Gln Leu Glu Leu Ser Asn Thr Ala Ile Leu His Gln Met
 65 70 75 80

Arg Arg Asp Gln Val Thr Asp Thr Cys Arg Ala Asn Ser Ala Met Ser
 85 90 95

Arg Lys Arg Arg Val Leu Thr Pro Asn Asp Leu Lys His Leu Val Val
 100 105 110

Asp Glu Asp His Glu Leu Ile Tyr Cys Tyr Val Pro Lys Val Ala Cys
 115 120 125

Thr Asn Trp Lys Arg Leu Met Met Val Leu Ser Gly Arg Gly Lys Tyr
 130 135 140

Ser Asp Pro Met Glu Ile Pro Ala Asn Glu Ala His Val Ser Ala Asn
 145 150 155 160

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

Lys Ser Tyr Met Lys Phe Leu Phe Val Arg Glu Pro Phe Glu Arg Leu
 180 185 190

Val Ser Ala Tyr Arg Asn Lys Phe Thr Gln Lys Tyr Asn Thr Ser Phe
 195 200 205

His Lys Arg Tyr Gly Thr Lys Ile Ile Arg Arg Gln Arg Lys Asn Ala
210 215 220

Thr Gln Glu Ala Leu Arg Lys Gly Asp Asp Val Lys Phe Glu Glu Phe
225 230 235 240

Val Ala Tyr Leu Ile Asp Pro His Thr Gln Arg Glu Glu Pro Phe Asn
245 250 255

Glu His Trp Gln Thr Val Tyr Ser Leu Cys His Pro Cys His Ile His
260 265 270

Tyr Asp Leu Val Gly Lys Tyr Glu Thr Leu Glu Glu Asp Ser Asn Tyr
275 280 285

Val Leu Gln Leu Ala Gly Val Ser Gly Tyr Leu Lys Phe Pro Thr Tyr
290 295 300

Ala Lys Ser Thr Arg Thr Thr Asp Glu Met Thr Thr Glu Phe Phe Gln
305 310 315 320

Asn Ile Ser Ala Glu His Gln Thr Gln Leu Tyr Glu Val Tyr Lys Leu
325 330 335

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

<210> 8
<211> 1785
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (149)..(1408)

<400> 8
ggcgatttcg gctgcagaat cagcatcacc agcaacagca gcagcggcgg tgactgtggc 60
gggcgctagg tccgtctcct agggaccatg tcccagctgt gcacaaggct gaagtgaagg 120
gccaggagtg ggcccagccc agggcagc atg acc aag ccg cgg ctc ttc cgg 172
Met Thr Lys Pro Arg Leu Phe Arg
1 5
ctg tgg ctg gta cta ggg tcg gct ctc atg atc ctt ttg atc att gta 220
Leu Trp Leu Val Leu Gly Ser Ala Leu Met Ile Leu Leu Ile Ile Val
10 15 20
tat tgg gac aac gtg gga acc gcc cac ttc tat ctg cac acg tct ctc 268
Tyr Trp Asp Asn Val Gly Thr Ala His Phe Tyr Leu His Thr Ser Leu
25 30 35 40
tcc agg cca cac atc cta gaa ccc ctt ccc acc cag gga ttg gtg gag 316
Ser Arg Pro His Ile Leu Glu Pro Leu Pro Thr Gln Gly Leu Val Glu
45 50 55
gag aac gtg ttc aca tct gac gtg gat gag ttt ttg gat act ctc ctt 364
Glu Asn Val Phe Thr Ser Asp Val Asp Glu Phe Leu Asp Thr Leu Leu
60 65 70

agt tct gac gcg aag cac aac gac ctt tcc agg aga aaa act gag cag Ser Ser Asp Ala Lys His Asn Asp Leu Ser Arg Arg Lys Thr Glu Gln 75 80 85	412
ccc ccg gcg ccc gcc ccc agc aag cca gtc ttg agc cac atg gag gag Pro Pro Ala Pro Ala Pro Ser Lys Pro Val Leu Ser His Met Glu Glu 90 95 100	460
aac gtg aga ggc tac gac tgg tcc act cat gat gcc cat cag aac cct Asn Val Arg Gly Tyr Asp Trp Ser Thr His Asp Ala His Gln Asn Pro 105 110 115 120	508
gac cgg gac agg cag cag gcc gag agg agg agc ctg ctg aga gac ttc Asp Arg Asp Arg Gln Gln Ala Glu Arg Arg Ser Leu Leu Arg Asp Phe 125 130 135	556
tgt gcc aac gcc agc ctg gca ttc ccc acc aag gac cgc tct ttt gag Cys Ala Asn Ala Ser Leu Ala Phe Pro Thr Lys Asp Arg Ser Phe Asp 140 145 150	604
gac atc ccc aac tac gaa ctg aac cac ctg atc gtg gac gac cgc cac Asp Ile Pro Asn Tyr Glu Leu Asn His Leu Ile Val Asp Asp Arg His 155 160 165	652
ggg gtc atc tac tgc tac gtg ccc aag gtg gcc tgc acc aac tgg aag Gly Val Ile Tyr Cys Tyr Val Pro Lys Val Ala Cys Thr Asn Trp Lys 170 175 180	700
cga gtg atg atc gtg ctg agc gag agc ctg ctg gac cgg gcc agc ccc Arg Val Met Ile Val Leu Ser Glu Ser Leu Leu Asp Arg Gly Ser Pro 185 190 195 200	748
tac cga gac ccc ctg gac atc ccc cgg gaa cac gtg cac aac acc agc Tyr Arg Asp Pro Leu Asp Ile Pro Arg Glu His Val His Asn Thr Ser 205 210 215	796
acg cac ctc acc ttc aac aag ttc tgg cgc cgc tac gga aag ttc tcc Thr His Leu Thr Phe Asn Lys Phe Trp Arg Arg Tyr Gly Lys Phe Ser 220 225 230	844
cgt cac ctc atg aag gtg aag ctg aag aag tac acc aag ttc ctg ttc Arg His Leu Met Lys Val Lys Leu Lys Lys Tyr Thr Lys Phe Leu Phe 235 240 245	892
gtg cgc gac ccc ttt gtg cgc ctc atc tca gcc ttc cgc agc aag ttc Val Arg Asp Pro Phe Val Arg Leu Ile Ser Ala Phe Arg Ser Lys Phe 250 255 260	940
gag ctg gag aac gaa gag ttt tac cgc aag ttc gcg gtg ccc atg ctc Glu Leu Glu Asn Glu Glu Phe Tyr Arg Lys Phe Ala Val Pro Met Leu 265 270 275 280	988
cga ctg tac gcc aac cac acc agc ctg ccc gcc tcg gtg agt gag gct Arg Leu Tyr Ala Asn His Thr Ser Leu Pro Ala Ser Val Ser Glu Ala 285 290 295	1036
ttc agc gcc ggg ctc aag gtc tcc ttc gcc aac ttc atc cag tac ctc Phe Ser Ala Gly Leu Lys Val Ser Phe Ala Asn Phe Ile Gln Tyr Leu 300 305 310	1084
cta gac cca cac acg gag aag ctg gcg cct ttc aac gag cac tgg cga Leu Asp Pro His Thr Glu Lys Leu Ala Pro Phe Asn Glu His Trp Arg 315 320 325	1132
cag gtg tac cgc ctc tgc cac ccg tgc cag ata gac tat gac ttc gtg Gln Val Tyr Arg Leu Cys His Pro Cys Gln Ile Asp Tyr Asp Phe Val 330 335 340	1180
ggg aag ctg gag acg ctc gat gag gac gct gcc cag ctc ctg agg ttc Gly Lys Leu Glu Thr Leu Asp Glu Asp Ala Ala Gln Leu Leu Arg Phe 345 350 355 360	1228

ctc aag gta gac tcc cag ctc cac ttc ccc ccc agt tat cgg aac agg	1276
Leu Lys Val Asp Ser Gln Leu His Phe Pro Pro Ser Tyr Arg Asn Arg	
365 370 375	
acg gcc agc agc tgg gag gaa gac tgg ttt gcc aac atc ccc ctg gca	1324
Thr Ala Ser Ser Trp Glu Glu Asp Trp Phe Ala Asn Ile Pro Leu Ala	
380 385 390	
tgg agg caa cag ctc tat aaa ctc tac gag gcc gac ttt gtt ctc ttt	1372
Trp Arg Gln Gln Leu Tyr Lys Leu Tyr Glu Ala Asp Phe Val Leu Phe	
395 400 405	
ggc tac ccc aag cca gaa aac ctg ctc agg gac tga gccccagaa	1418
Gly Tyr Pro Lys Pro Glu Asn Leu Leu Arg Asp	
410 415	
gcccctcacgc tgcccccaac aaattgaatg gctgtcccat gaggccgtcc tttgaggatg	1478
ggaccctgtg gcctcctggg ttctctcctg gcttcctttg cttcctggtg tgacaggcag	1538
aggattccac gcccccccct cgcattctgga gaccgtggta cagccaagac cgaagcacct	1598
cactctccag agttttgctg tccccacccc cgcccttttg caatctggat ttgtttactc	1658
cacagcctgt attcatggaa cactgtgtta aatactgttt tctaagatta atatatttca	1718
gatatatatta atacgaaagt gggaggaagc tggagtaaag tgtggcgccc gcaaaaaaaaa	1778
aaaaaaaa	1785

<210> 9
 <211> 419
 <212> PRT
 <213> Mus musculus

<400> 9

Met Thr Lys Pro Arg Leu Phe Arg Leu Trp Leu Val Leu Gly Ser Ala	
1 5 10 15	
Leu Met Ile Leu Leu Ile Ile Val Tyr Trp Asp Asn Val Gly Thr Ala	
20 25 30	
His Phe Tyr Leu His Thr Ser Leu Ser Arg Pro His Ile Leu Glu Pro	
35 40 45	
Leu Pro Thr Gln Gly Leu Val Glu Glu Asn Val Phe Thr Ser Asp Val	
50 55 60	
Asp Glu Phe Leu Asp Thr Leu Leu Ser Ser Asp Ala Lys His Asn Asp	
65 70 75 80	
Leu Ser Arg Arg Lys Thr Glu Gln Pro Pro Ala Pro Ala Pro Ser Lys	
85 90 95	
Pro Val Leu Ser His Met Glu Glu Asn Val Arg Gly Tyr Asp Trp Ser	
100 105 110	
Thr His Asp Ala His Gln Asn Pro Asp Arg Asp Arg Gln Gln Ala Glu	
115 120 125	

Arg Arg Ser Leu Leu Arg Asp Phe Cys Ala Asn Ala Ser Leu Ala Phe
 130 135 140
 Pro Thr Lys Asp Arg Ser Phe Asp Asp Ile Pro Asn Tyr Glu Leu Asn
 145 150 155 160
 His Leu Ile Val Asp Asp Arg His Gly Val Ile Tyr Cys Tyr Val Pro
 165 170 175
 Lys Val Ala Cys Thr Asn Trp Lys Arg Val Met Ile Val Leu Ser Glu
 180 185 190
 Ser Leu Leu Asp Arg Gly Ser Pro Tyr Arg Asp Pro Leu Asp Ile Pro
 195 200 205
 Arg Glu His Val His Asn Thr Ser Thr His Leu Thr Phe Asn Lys Phe
 210 215 220
 Trp Arg Arg Tyr Gly Lys Phe Ser Arg His Leu Met Lys Val Lys Leu
 225 230 235 240
 Lys Lys Tyr Thr Lys Phe Leu Phe Val Arg Asp Pro Phe Val Arg Leu
 245 250 255
 Ile Ser Ala Phe Arg Ser Lys Phe Glu Leu Glu Asn Glu Glu Phe Tyr
 260 265 270
 Arg Lys Phe Ala Val Pro Met Leu Arg Leu Tyr Ala Asn His Thr Ser
 275 280 285
 Leu Pro Ala Ser Val Ser Glu Ala Phe Ser Ala Gly Leu Lys Val Ser
 290 295 300
 Phe Ala Asn Phe Ile Gln Tyr Leu Leu Asp Pro His Thr Glu Lys Leu
 305 310 315 320
 Ala Pro Phe Asn Glu His Trp Arg Gln Val Tyr Arg Leu Cys His Pro
 325 330 335
 Cys Gln Ile Asp Tyr Asp Phe Val Gly Lys Leu Glu Thr Leu Asp Glu
 340 345 350
 Asp Ala Ala Gln Leu Leu Arg Phe Leu Lys Val Asp Ser Gln Leu His
 355 360 365
 Phe Pro Pro Ser Tyr Arg Asn Arg Thr Ala Ser Ser Trp Glu Glu Asp
 370 375 380
 Trp Phe Ala Asn Ile Pro Leu Ala Trp Arg Gln Gln Leu Tyr Lys Leu
 385 390 395 400
 Tyr Glu Ala Asp Phe Val Leu Phe Gly Tyr Pro Lys Pro Glu Asn Leu
 405 410 415

Leu Arg Asp

<210> 10
 <211> 1728
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (1)..(1116)

```

<400> 10
atg act gtc gcc tgc cac gcg tgc cag gca cag cat ggg aag acg ctc      48
Met Thr Val Ala Cys His Ala Cys Gln Ala Gln His Gly Lys Thr Leu
1      5      10
ctg ttg cag gcg gcc ctt gcc ggt ggt ggc aag tct ggg tgc tgc act      96
Leu Leu Gln Ala Ala Leu Ala Gly Gly Gly Lys Ser Gly Cys Cys Thr
20      25      30
cct gct cct gtg cgc cct gcg tcc cgg gta acc aca gga aag gat gcc      144
Pro Ala Pro Val Arg Pro Ala Ser Arg Val Thr Thr Gly Lys Asp Ala
35      40      45
cag gac act gaa tgg cag gcc tcc cca aaa gcc ctt ttg ggg gtt ccg      192
Gln Asp Thr Glu Trp Gln Gly Ser Pro Lys Ala Leu Leu Gly Val Pro
50      55      60
aca ttt gaa aat aaa gct ctg gcc tcc agc tgg ttc ggt gga gtg agg      240
Thr Phe Glu Asn Lys Ala Leu Gly Ser Ser Trp Phe Gly Gly Val Arg
65      70      75
aag agt ccc cta cag ctg ttg cgt gac ctg gac cag ggt cca cgc tcc      288
Lys Ser Pro Leu Gln Leu Leu Arg Asp Leu Asp Gln Gly Pro Arg Ser
85      90      95
gcg atg gcc gag gtg cac cag cag cgg cgt gag ctg ctg cgc cgg gcc      336
Ala Met Ala Glu Val His Gln Gln Arg Arg Glu Leu Leu Arg Arg Ala
100      105      110
tgc agc cgc cac acg cga cgc caa cgc ctg ctg cag ccg gag gac ctg      384
Cys Ser Arg His Thr Arg Arg Gln Arg Leu Leu Gln Pro Glu Asp Leu
115      120      125
cgt cac gtg ctg gtg gac gac gcg cac cgg ctg ctg tac tgc tac gtg      432
Arg His Val Leu Val Asp Asp Ala His Arg Leu Leu Tyr Cys Tyr Val
130      135      140
cct aag gtg gcc tgc acc aac tgg aag cgt gtg atg ctg gcg ttg cgc      480
Pro Lys Val Ala Cys Thr Asn Trp Lys Arg Val Met Leu Ala Leu Arg
145      150      155
ggc cgt ggg gat cca agc gca atc cct gcg cac gag gcg cat gcg cct      528
Gly Arg Gly Asp Pro Ser Ala Ile Pro Ala His Glu Ala His Ala Pro
165      170      175
ggc ctg ctg ccc tcg ctg gcc gac ttt gcg ccg gct gag gtc aac tgg      576
Gly Leu Leu Pro Ser Leu Ala Asp Phe Ala Pro Ala Glu Val Asn Trp
180      185      190
cgg ctg cgc gac tac ctg acc ttt ctc ttc gtg cgg gag ccc ttc gag      624
Arg Leu Arg Asp Tyr Leu Thr Phe Leu Phe Val Arg Glu Pro Phe Glu
195      200      205
cgc ctg gcg tca gcc tac cgc aac aag ctg gcg cgg cca cac agc gcg      672
Arg Leu Ala Ser Ala Tyr Arg Asn Lys Leu Ala Arg Pro His Ser Ala
210      215      220

```

gcc ttc cag cgg cgc tat ggc aca cgc atc gtg cgt cgc cta cga cca Ala Phe Gln Arg Arg Tyr Gly Thr Arg Ile Val Arg Arg Leu Arg Pro 225 230 235 240	720
cac gcg cag ccc gat gcg ctg gcc cgc ggc cac gac gtg cgc ttc gcc His Ala Gln Pro Asp Ala Leu Ala Arg Gly His Asp Val Arg Phe Ala 245 250 255	768
gag ttc ctg gcc tac ctg ctc gac ccg cgc acg cgc cgt cat gag ccc Glu Phe Leu Ala Tyr Leu Leu Asp Pro Arg Thr Arg Arg His Glu Pro 260 265 270	816
ttc aac gaa cac tgg gag cgc gca cac gcg ctg tgc cat ccg tgc cta Phe Asn Glu His Trp Glu Arg Ala His Ala Leu Cys His Pro Cys Leu 275 280 285	864
gtg cgc tat gat gta gtg ggc aag ttt gag acg ata gca gat gat gct Val Arg Tyr Asp Val Val Gly Lys Phe Glu Thr Ile Ala Asp Asp Ala 290 295 300	912
gcc ttc gtg ctg gac ctg gtg ggt gag cct ggg cta cgt ttc cct gct Ala Phe Val Leu Asp Leu Val Gly Glu Pro Gly Leu Arg Phe Pro Ala 305 310 315 320	960
cca ccg ctg agg cca gag aag gac ctt acg cgt gag cag gcc cgg cgc Pro Pro Leu Arg Pro Glu Lys Asp Leu Thr Arg Glu Gln Ala Arg Arg 325 330 335	1008
ctt ttc cag gac atc agc ccc ttc tac cag cgt cgc ctc ttt aac ctc Leu Phe Gln Asp Ile Ser Pro Phe Tyr Gln Arg Arg Leu Phe Asn Leu 340 345 350	1056
tat aag atg gac ttt ctg ctc ttc aat tac tct gcc cct tcc tac ctg Tyr Lys Met Asp Phe Leu Leu Phe Asn Tyr Ser Ala Pro Ser Tyr Leu 355 360 365	1104
cga ctg caa taa ggggtgttggg tgcaatagag ccagtggctg ctgtgaccag Arg Leu Gln 370	1156
gaggccacca ggaggctctgg aacgaacctg gttgtgtgga ttggagacct tatccagtgg	1216
gcctgaccaa gagtctggcc actggtcaca ctcatccga ctgggtaggg tacaggttgc	1276
tttaggtgac cataaccttg tcaggccggt tctgctgtta gtttgatgtg tgtctcttcc	1336
tcccactctg cagatgtcag gcttcttcct aggactccag gttttagtct ctttggtttg	1396
gtttgagagg ccatttctca gtcttgtctg tgtagaacct gtccgtggca tgggtgctaca	1456
agacagaatg tcatggcttg gttcagtgtg gcctaaggtc ttgtcagcat ttactgctta	1516
ggagttaaca tgagctgcct gccaccccag cagtcacagg atggtgagca ctaccactcc	1576
acatctacct ggctgatcta cttttgatct cagccttgca agaggctgga tcttcccctg	1636
tgtcagcaaa ggccaagatg caatactgtg gcagcttttc cagctcactt ttatTTTTTT	1696
tgttgtTTTT ttaaataaat atgttttgtt ac	1728

<210> 11
 <211> 371
 <212> PRT
 <213> Mus musculus

<400> 11

Met Thr val Ala Cys His Ala Cys Gln Ala Gln His Gly Lys Thr Leu
1 5 10 15

Leu Leu Gln Ala Ala Leu Ala Gly Gly Gly Lys Ser Gly Cys Cys Thr
 20 25 30
 Pro Ala Pro Val Arg Pro Ala Ser Arg Val Thr Thr Gly Lys Asp Ala
 35 40 45
 Gln Asp Thr Glu Trp Gln Gly Ser Pro Lys Ala Leu Leu Gly Val Pro
 50 55 60
 Thr Phe Glu Asn Lys Ala Leu Gly Ser Ser Trp Phe Gly Gly Val Arg
 65 70 75 80
 Lys Ser Pro Leu Gln Leu Leu Arg Asp Leu Asp Gln Gly Pro Arg Ser
 85 90 95
 Ala Met Ala Glu Val His Gln Gln Arg Arg Glu Leu Leu Arg Arg Ala
 100 105 110
 Cys Ser Arg His Thr Arg Arg Gln Arg Leu Leu Gln Pro Glu Asp Leu
 115 120 125
 Arg His Val Leu Val Asp Asp Ala His Arg Leu Leu Tyr Cys Tyr Val
 130 135 140
 Pro Lys Val Ala Cys Thr Asn Trp Lys Arg Val Met Leu Ala Leu Arg
 145 150 155 160
 Gly Arg Gly Asp Pro Ser Ala Ile Pro Ala His Glu Ala His Ala Pro
 165 170 175
 Gly Leu Leu Pro Ser Leu Ala Asp Phe Ala Pro Ala Glu Val Asn Trp
 180 185 190
 Arg Leu Arg Asp Tyr Leu Thr Phe Leu Phe Val Arg Glu Pro Phe Glu
 195 200 205
 Arg Leu Ala Ser Ala Tyr Arg Asn Lys Leu Ala Arg Pro His Ser Ala
 210 215 220
 Ala Phe Gln Arg Arg Tyr Gly Thr Arg Ile Val Arg Arg Leu Arg Pro
 225 230 235 240
 His Ala Gln Pro Asp Ala Leu Ala Arg Gly His Asp Val Arg Phe Ala
 245 250 255
 Glu Phe Leu Ala Tyr Leu Leu Asp Pro Arg Thr Arg Arg His Glu Pro
 260 265 270
 Phe Asn Glu His Trp Glu Arg Ala His Ala Leu Cys His Pro Cys Leu
 275 280 285
 Val Arg Tyr Asp Val Val Gly Lys Phe Glu Thr Ile Ala Asp Asp Ala

290 295 300
 Ala Phe Val Leu Asp Leu Val Gly Glu Pro Gly Leu Arg Phe Pro Ala
 305 310 315 320
 Pro Pro Leu Arg Pro Glu Lys Asp Leu Thr Arg Glu Gln Ala Arg Arg
 325 330 335
 Leu Phe Gln Asp Ile Ser Pro Phe Tyr Gln Arg Arg Leu Phe Asn Leu
 340 345 350
 Tyr Lys Met Asp Phe Leu Leu Phe Asn Tyr Ser Ala Pro Ser Tyr Leu
 355 360 365
 Arg Leu Gln
 370

<210> 12
 <211> 2073
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (129)..(1259)

<400> 12
 ccggcccttg tccctgcctg caccgccgga gctggccacc cactatccct cccctcccga 60
 gacctccagc ccctgctgca gtcacctccc ctgcagcctc gaggtcggcg aggtctggcc 120
 gcagcacc atg ttt ccc cgc cct ctg acc cca ctg gct gcc ccg aaa agc 170
 1 Met Phe Pro Arg 5 Leu Thr Pro Leu 10 Ala Ala Pro Lys Ser
 gcg gag acc ctg ggc cgc acg cca agg cgg gcc cca ttg ggc cgg gcc 218
 15 Ala Glu Thr Leu Gly 20 Arg Thr Pro Arg Arg 25 Ala Pro Leu Gly Arg Ala 30
 cgg gct ggg ctc ggg ggg ccg ccc ctg ctg ccg tcc atg ctg atg 266
 Arg Ala Gly Leu 35 Gly Gly Pro Pro Leu 40 Leu Leu Pro Ser Met 45 Leu Met
 ttc gct gta atc gtg gcc tcc agc gga ctg ctg ctc atg atc gag cga 314
 Phe Ala Val 50 Ile Val Ala Ser Ser 55 Gly Leu Leu Leu Met 60 Ile Glu Arg
 ggc atc cta tcg gag atg aaa ccc ctt ccc ctg cac cct ccc agc cac 362
 Gly Ile Leu 65 Ser Glu Met Lys 70 Leu Pro Leu His 75 Pro Pro Ser His
 aaa ggc gcg gcc tgg agc ggg aca gat cct aag cct aga ggc cta tcc 410
 Lys 80 Gly Ala Ala Trp Ser 85 Thr Asp Pro Lys 90 Pro Arg Gly Leu Ser
 ttg gat gct ggg gac tcg gac ttg caa gtg agg gag gac atc cga aac 458
 Leu Asp Ala Gly Asp 100 Ser Asp Leu Gln Val 105 Glu Asp Ile Arg Asn 110
 cgg acc ttg agg gcc gtg tgc gga caa cca ggc atg ccc cgg gac ccc 506
 Arg Thr Leu Arg 115 Val Cys Gly Gln 120 Pro Gly Met Pro Arg Asp Pro 125
 tgg gac ttg ccg gtg gga cag cgg cgc acc ctg ctg cgc cac att ctc 554

Trp	Asp	Leu	Pro	Val	Gly	Gln	Arg	Arg	Thr	Leu	Leu	Arg	His	Ile	Leu		
			130					135					140				
gta	agt	gac	cgc	tac	cgc	ttc	ctc	tac	tgc	tat	gtc	ccc	aaa	gtg	gcc	602	
Val	Ser	Asp	Arg	Tyr	Arg	Phe	Leu	Tyr	Cys	Tyr	Val	Pro	Lys	Val	Ala		
		145					150					155					
tgc	tct	aac	tgg	aaa	cgt	gtg	ctg	aag	gtg	ctg	gct	ggc	gtc	ctg	aac	650	
Cys	Ser	Asn	Trp	Lys	Arg	Val	Leu	Lys	Val	Leu	Ala	Gly	Val	Leu	Asn		
		160					165				170						
aac	gtg	gat	gtc	cgc	ctc	aag	atg	gac	cac	ccc	agt	gac	ttg	gtg	ttt	698	
Asn	Val	Asp	Val	Arg	Leu	Lys	Met	Asp	His	Pro	Ser	Asp	Leu	Val	Phe		
		175				180				185					190		
ctg	gca	gac	ctg	cgg	cct	gag	gag	att	cgc	tac	cgt	ctg	cag	cac	tac	746	
Leu	Ala	Asp	Leu	Arg	Pro	Glu	Glu	Ile	Arg	Tyr	Arg	Leu	Gln	His	Tyr		
				195					200					205			
ttc	aag	ttc	ctg	ttt	gtg	cga	gac	ccc	ttg	gaa	cgc	ctc	ctg	tct	gct	794	
Phe	Lys	Phe	Leu	Phe	Val	Arg	Asp	Pro	Leu	Glu	Arg	Leu	Leu	Ser	Ala		
			210					215					220				
tac	cgt	aac	aag	ttt	gga	gag	atc	cga	gag	tac	cag	cag	cga	tat	ggg	842	
Tyr	Arg	Asn	Lys	Phe	Gly	Glu	Ile	Arg	Glu	Tyr	Gln	Gln	Arg	Tyr	Gly		
		225					230					235					
gcc	gaa	att	gtc	agg	cgc	tac	agg	gct	gga	gct	ggt	ccc	agc	cct	gca	890	
Ala	Glu	Ile	Val	Arg	Arg	Tyr	Arg	Ala	Gly	Ala	Gly	Pro	Ser	Pro	Ala		
		240					245				250						
ggg	gac	gat	gtc	acc	ttc	cca	gag	ttc	ctg	aga	tac	ctg	gtg	gat	gag	938	
Gly	Asp	Asp	Val	Thr	Phe	Pro	Glu	Phe	Leu	Arg	Tyr	Leu	Val	Asp	Glu		
					260					265					270		
gat	cct	gaa	cat	atg	aat	gag	cat	tgg	atg	cct	gtg	tac	cac	ctg	tgc	986	
Asp	Pro	Glu	His	Met	Asn	Glu	His	Trp	Met	Pro	Val	Tyr	His	Leu	Cys		
				275					280					285			
caa	cca	tgt	gct	gtg	cac	tac	gac	ttc	gtg	ggt	tcc	tat	gag	agg	ctg	1034	
Gln	Pro	Cys	Ala	Val	His	Tyr	Asp	Phe	Val	Gly	Ser	Tyr	Glu	Arg	Leu		
			290					295					300				
gag	gct	gat	gcc	aac	cag	gtg	ctg	gag	tgg	gtg	cgg	gcc	cca	ccc	cat	1082	
Glu	Ala	Asp	Ala	Asn	Gln	Val	Leu	Glu	Trp	Val	Arg	Ala	Pro	Pro	His		
		305					310					315					
gtc	cgg	ttc	cca	gct	cgc	cag	gcc	tgg	tac	cgg	cca	gcc	agc	cca	gaa	1130	
Val	Arg	Phe	Pro	Ala	Arg	Gln	Ala	Trp	Tyr	Arg	Pro	Ala	Ser	Pro	Glu		
						325					330						
agt	ctg	cat	tac	cac	ttg	tgc	aat	gtt	cca	cgg	gcc	ctg	ctt	caa	gat	1178	
Ser	Leu	His	Tyr	His	Leu	Cys	Asn	Val	Pro	Arg	Ala	Leu	Leu	Gln	Asp		
					340					345					350		
gtg	cta	cct	aag	tat	atc	ctg	gac	ttc	tcc	ctc	ttt	gct	tac	cca	ctg	1226	
Val	Leu	Pro	Lys	Tyr	Ile	Leu	Asp	Phe	Ser	Leu	Phe	Ala	Tyr	Pro	Leu		
				355					360					365			
ccc	aat	gtc	acc	aag	gaa	gcc	tgt	cac	caa	tga	cagtaggcca	gcaccttttg				1279	
Pro	Asn	Val	Thr	Lys	Glu	Ala	Cys	His	Gln								
			370					375									
gagtttg	gggt	ttaatgat	at	cagcttt	ggg	atgtcttt	cca	gagaaact	cc	tggtct	tg	gg				1339	
tggtctt	cctg	gtttctct	ag	gtgtct	ccat	atctcagt	gg	taaggact	gt	ccttg	gag	gt				1399	
ccttg	tccac	agtggct	cag	aggacag	agc	tagaaagg	ag	gcctgct	gct	ttcact	gg	tg				1459	
aactgc	ctct	cttagggg	gcc	tgtggt	atcc	gtgtct	gcag	ggcacc	agtg	gttatt	aaag					1519	

ccatatgttt gatcgaaaga ctgacttcag ccccttggt gctgggtcta tgcagtccac 1579
ctggtctgtt gtaatttaac ctgtggccaa atcccaaata tgacactagc caagcacatg 1639
atcatgccta ggaccaatgg ctgtgacccc ctattcaccc atcccatgga cctcaggact 1699
ggagtgcgct gtggtgcctt agaaatgaaa tgtgtgcaat tctactccag acttttacat 1759
ttcctcctct tgctaggtct gaatcatttt tctaaggaaa gagaaacgga agtggggccc 1819
ttacctcgaa gctctaaagc ccagcccctc aagcatccaa agacgcctgt gcctgacctc 1879
ttcctagggc tcctggagca tcttcaataa gcctcccttc cctacaaacc tttggagact 1939
atgtgagact gtatggccca tataatctggc tgtcacttgt ctaatgcatt tattttaaat 1999
gtgtatatatt taataggatc cttgtaaggg ctgactttta ataaagcttt ttcatatata 2059
aaaaaaaaa aaaa 2073

<210> 13
<211> 376
<212> PRT
<213> Mus musculus

<400> 13

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

Thr Leu Gly Arg Thr Pro Arg Arg Ala Pro Leu Gly Arg Ala Arg Ala
20 25 30

Gly Leu Gly Gly Pro Pro Leu Leu Leu Pro Ser Met Leu Met Phe Ala
35 40 45

Val Ile Val Ala Ser Ser Gly Leu Leu Leu Met Ile Glu Arg Gly Ile
50 55 60

Leu Ser Glu Met Lys Pro Leu Pro Leu His Pro Pro Ser His Lys Gly
65 70 75 80

Ala Ala Trp Ser Gly Thr Asp Pro Lys Pro Arg Gly Leu Ser Leu Asp
85 90 95

Ala Gly Asp Ser Asp Leu Gln Val Arg Glu Asp Ile Arg Asn Arg Thr
100 105 110

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

Leu Pro Val Gly Gln Arg Arg Thr Leu Leu Arg His Ile Leu Val Ser
130 135 140

Asp Arg Tyr Arg Phe Leu Tyr Cys Tyr Val Pro Lys Val Ala Cys Ser
145 150 155 160

Asn Trp Lys Arg Val Leu Lys Val Leu Ala Gly Val Leu Asn Asn Val
165 170 175

Asp Val Arg Leu Lys Met Asp His Pro Ser Asp Leu Val Phe Leu Ala
 180 185 190
 Asp Leu Arg Pro Glu Glu Ile Arg Tyr Arg Leu Gln His Tyr Phe Lys
 195 200 205
 Phe Leu Phe Val Arg Asp Pro Leu Glu Arg Leu Leu Ser Ala Tyr Arg
 210 215 220
 Asn Lys Phe Gly Glu Ile Arg Glu Tyr Gln Gln Arg Tyr Gly Ala Glu
 225 230 235 240
 Ile Val Arg Arg Tyr Arg Ala Gly Ala Gly Pro Ser Pro Ala Gly Asp
 245 250 255
 Asp Val Thr Phe Pro Glu Phe Leu Arg Tyr Leu Val Asp Glu Asp Pro
 260 265 270
 Glu His Met Asn Glu His Trp Met Pro Val Tyr His Leu Cys Gln Pro
 275 280 285
 Cys Ala Val His Tyr Asp Phe Val Gly Ser Tyr Glu Arg Leu Glu Ala
 290 295 300
 Asp Ala Asn Gln Val Leu Glu Trp Val Arg Ala Pro Pro His Val Arg
 305 310 315 320
 Phe Pro Ala Arg Gln Ala Trp Tyr Arg Pro Ala Ser Pro Glu Ser Leu
 325 330 335
 His Tyr His Leu Cys Asn Val Pro Arg Ala Leu Leu Gln Asp Val Leu
 340 345 350
 Pro Lys Tyr Ile Leu Asp Phe Ser Leu Phe Ala Tyr Pro Leu Pro Asn
 355 360 365
 Val Thr Lys Glu Ala Cys His Gln
 370 375

<210> 14
 <211> 6000
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (496)..(1914)

<400> 14
 cttagccact gaaccatctc tccagcctct gttttggggt gtttgtttga gacagaatca 60
 aaaggctggc ctaaagtaca tattgtagct aaagatggct tccaactcct gccttgccctc 120
 cagagtgtta ggggtgtgacc tttaaataac ctattaaaga aaccccaaca ggtgtagagt 180
 acacctgtga tcccagctct taggaggttg gacagatgga taaagagggtc cagggtgtccc 240

ggactacata gagagaccct atctcaaaag agaggcgaag acttaggttt tgagagtggg	300
cctgaggtct ctcttcaaaa gttttataga aagatgtctc tgttccctgt ctatgaacac	360
ggatggcctg agcacctgtc tcttcacagg atcagagtgt cccccacctg aagagggctg	420
attgggtccc aagctatgct cctgagctga gtgcctgcag ccagtctgag gaactccatg	480
gcgccccctc tcccc atg gag aaa gga ctc gct ttg cct cag gat ttc cgg Met Glu Lys Gly Leu Ala Leu Pro Gln Asp Phe Arg 1 5 10	531
gac ctt gta cac agc cta aag att cga ggc aga tac gtc ttg ttc ctg Asp Leu Val His Ser Leu Lys Ile Arg Gly Arg Tyr Val Leu Phe Leu 15 20 25	579
gca ttt gtg gtc ata gtt ttt atc ttc att gaa aag gaa aat aaa atc Ala Phe Val Val Ile Val Phe Ile Phe Ile Glu Lys Glu Asn Lys Ile 30 35 40	627
ata tcc agg gtc tcc gac aag ctg aag cag atc cct cat ttt gtg gca Ile Ser Arg Val Ser Asp Lys Leu Lys Gln Ile Pro His Phe Val Ala 45 50 55 60	675
gat gcc aac agc act gac cca gcc ctg ctc tta tcg gag aat gca tct Asp Ala Asn Ser Thr Asp Pro Ala Leu Leu Leu Ser Glu Asn Ala Ser 65 70 75	723
ctc ttg tcc ctg agc gag ttg gat tcc acc ttt tcc cat ctg cgg agc Leu Leu Ser Leu Ser Glu Leu Asp Ser Thr Phe Ser His Leu Arg Ser 80 85 90	771
cgc ctg cac aac ctg agc ctg cag ctg ggc gtg gag cca gca atg gag Arg Leu His Asn Leu Ser Leu Gln Leu Gly Val Glu Pro Ala Met Glu 95 100 105	819
agc cag gag gct ggg gca gag aag cca tcc cag cag gct gga gca ggg Ser Gln Glu Ala Gly Ala Glu Lys Pro Ser Gln Gln Ala Gly Ala Gly 110 115 120	867
acc cgg cgc cac gtg ctt ctc atg gcc acc acc cgc acg ggt tcc tcg Thr Arg Arg His Val Leu Leu Met Ala Thr Thr Arg Thr Gly Ser Ser 125 130 135 140	915
ttc gtg ggc gag ttc ttc aac cag cag ggc aat atc ttc tac ctc ttc Phe Val Gly Glu Phe Phe Asn Gln Gln Gly Asn Ile Phe Tyr Leu Phe 145 150 155	963
gag cca ctg tgg cac atc gag cgc acc gtg ttc ttc cag cag cga ggc Glu Pro Leu Trp His Ile Glu Arg Thr Val Phe Phe Gln Gln Arg Gly 160 165 170	1011
gcc agc gcg gct ggt tca gcc ttg gtc tac cgt gat gtc ctc aag cag Ala Ser Ala Ala Gly Ser Ala Leu Val Tyr Arg Asp Val Leu Lys Gln 175 180 185	1059
ttg ttg cta tgc gac ctg tat gtg ctg gag ccc ttc atc agc cct ccg Leu Leu Leu Cys Asp Leu Tyr Val Leu Glu Pro Phe Ile Ser Pro Pro 190 195 200	1107
ccc gag gac cac ttg act cag ttc ctg ttc cgc cgg gga tcc agc cgt Pro Glu Asp His Leu Thr Gln Phe Leu Phe Arg Arg Gly Ser Ser Arg 205 210 215 220	1155
tca ctc tgc gag gat ccg gtg tgc aca ccc ttc gtc aag aag gtc ttt Ser Leu Cys Glu Asp Pro Val Cys Thr Pro Phe Val Lys Lys Val Phe 225 230 235	1203
gag aag tac cac tgc agg aac cgt cgc tgc ggg cca ctc aac gtg acc Glu Lys Tyr His Cys Arg Asn Arg Arg Cys Gly Pro Leu Asn Val Thr 240 245 250	1251

240	245	250	
ttg gcg ggc gag gcc tgc cgc cgc aag gac cac gtg gcc ctc aag gct Leu Ala Gly Glu Ala Cys Arg Arg Lys Asp His Val Ala Leu Lys Ala	255 260	265	1299
gtg cgc atc cgt cag ctg gag ttc ctg cag ccg cta gtt gag gac ccg Val Arg Ile Arg Gln Leu Glu Phe Leu Gln Pro Leu Val Glu Asp Pro	270 275	280	1347
agg ttg gat cta cga gtc att cag ctg gtg cgc gac ccc cgg gcc gtg Arg Leu Asp Leu Arg Val Ile Gln Leu Val Arg Asp Pro Arg Ala Val	285 290	295 300	1395
ctg gct tca cgc ata gtg gcc ttt cgc ggc aag tat gag aac tgg aag Leu Ala Ser Arg Ile Val Ala Phe Ala Gly Lys Tyr Glu Asn Trp Lys	305	310 315	1443
aag tgg ctg tcc gag ggg cag gac cag ctg agc gag gat gag gtg cag Lys Trp Leu Ser Glu Gly Gln Asp Gln Leu Ser Glu Asp Glu Val Gln	320 325	330	1491
cga ttg cgg ggc aac tgt gag agc atc cgc ctg tct gca gag ctg ggc Arg Leu Arg Gly Asn Cys Glu Ser Ile Arg Leu Ser Ala Glu Leu Gly	335 340	345	1539
ttg cgg cag cca gcc tgg ctg cgc ggt cgt tac atg ctg gtg cgc tat Leu Arg Gln Pro Ala Trp Leu Arg Gly Arg Tyr Met Leu Val Arg Tyr	350 355	360	1587
gag gat gtg gca cgc agg cca ctg cag aag gcc cga gag atg tac agc Glu Asp Val Ala Arg Pro Leu Gln Lys Ala Arg Glu Met Tyr Ser	365 370	375 380	1635
ttt gcg ggc atc ccc ttg acc ccg cag gtg gag gac tgg atc cag aag Phe Ala Gly Ile Pro Leu Thr Pro Gln Val Glu Asp Trp Ile Gln Lys	385	390 395	1683
aac acg cag gcg aca cgc gac agc agc gat gtc tac tcc act cag aaa Asn Thr Gln Ala Thr Arg Asp Ser Ser Asp Val Tyr Ser Thr Gln Lys	400 405	410	1731
aac tct tct gag cag ttt gag aag tgg cgc ttc agc atg cct ttc aag Asn Ser Ser Glu Gln Phe Glu Lys Trp Arg Phe Ser Met Pro Phe Lys	415 420	425	1779
ctg gca cag gtg gta cag gct gcc tgt ggc ccg acc atg cac ctc ttt Leu Ala Gln Val Val Gln Ala Ala Cys Gly Pro Thr Met His Leu Phe	430 435	440	1827
ggc tac aag ttg gcc agg gat gcc gcc tca ctc acc aac cgc tcc atc Gly Tyr Lys Leu Ala Arg Asp Ala Ala Ser Leu Thr Asn Arg Ser Ile	445 450	455 460	1875
agc ctg ctg gag gag cgg ggc acc ttc tgg gtc acg tag tgggggatgt Ser Leu Leu Glu Glu Arg Gly Thr Phe Trp Val Thr	465 470		1924
ctgggaccct tggaactcct tcttgtgaaa ggctggccct gcttccctca caccagcct			1984
ggcagtgaga catagccctg gcagaaagtc aaaatgggga gcgatgatgg gaacatagcc			2044
cctggctgta gcggtagggc cccctgccag ctagactccc cagagcagct acagctaggg			2104
ccttgggctc ctctgaggac accctgtctc cttagtggta ctggtcataa ggtgtcctca			2164
ccctatgacc tgcagtgtcc cgagcaggtc aaggtagggt cctgtgtgtg gacacacctc			2224
cctagctctt tctcacacag tctacacgaa gcctgtaaag gcctgtaggt tgtgtgggct			2284
ggagtccaag tatttaacaa ccagaagggg tgtagaccct ctgcagcctc tcagacctcc			2344

tactgtatta agtggttaacc tcttccgctc tgagtcagag aagctgggat ctggctgagt	2404
cctgggaagg aggaggacag cctaggggtga ggaaggggac ctttgaagct cctcagggaa	2464
cagtggctgt gtaccagctc atagaaaatg gtttgatcag ctgttctagt cactcatgag	2524
tatcaatcag cctgtgtaga gcaagacaca caaagtgcac tgaaaacaga caaggccagg	2584
ggtgtggctc agcggtaaag cccttgccctc tctcatgccc agggccctag gtgtgattct	2644
tagcactata aatataaggg aaaataagcc atacatacgt gtgcagtaca gagagagaca	2704
gaaaagcgta ataaacattc cccctctcctc taagcacacg ctctgcctct gtctctgtct	2764
ctgtctctct ctgtctctgt ctctctctgt ctctctctct cactctctct ctctctctct	2824
ctctctcaca cacacacaca cacacacaca cacaaacaca cacacacaca ctggtacaga	2884
aaagcttccc ttctccactc tttatgctca ccatgttttt aggatttttg tttgtttgtt	2944
ttgttttggg tttctatata tctaaacaag gagccttaaa ttacatcttt ttgggattac	3004
gtggcgaggg ggagcagcag ggagcatttg cttctggtaa aaggatagac cagaaaggac	3064
ttcccccttg atgatcggag tcatgcagag cccccagggt cccacatggt ctgtgtgaac	3124
ttcatgtgga atgactcaca gaagtgacta ccttaggcgc tcgctctgta gctcaatgtg	3184
cgtagagttt gtctattgta taggaagccc tgggttctgt gccctgcccc acaccatata	3244
ggtatgatgg cgtgtaccca tatcccagca ttcaggaaat caaaggttgg cgggtcaaaag	3304
ttcaagggtgc agctatgtat cttttgagat gtccgagtct ataagctccc tctactgaga	3364
gctgctagta ttctttctca agaacagggt atttgaaaat ctcttcttgt aagccccaac	3424
atttggggga ggggaggatg ggggaactct tgactgagca gctaggtttc cccaagcaga	3484
agttcttctc tcccagtga agctgagggt tagtgccccg gctagcctcg gaactggctc	3544
agtgggggtt ggcacgctga cttcctggac aattgctgca tctgacactg tgagcgccca	3604
ggacaccgga tgtgtagcat ggatgtgggc ctagcacagg tgtggaagag gacagtcagg	3664
acactcactg ttggtgtttg ttatccacct gtccagccgc cgggtccac acatagggtca	3724
tctttcgtca ctcaagccgg cctctgtttt tgattttaac aatccaagag caagtgtgta	3784
ggggacaaag agacaccagc tcttcatact tgatggagac cgggacagga tgctgcaggc	3844
aggctcggga gtgcattatc gtttcttctg agctcttcat ccaggccata ttcccccttc	3904
tgcatcgcat ctgggggtggg aggggctgag ctgggagttt ccgtccttct tccctgtggg	3964
ggtgggagat ggggctcaag gtctccatct ctcggctccc tgaggacaga acccccacag	4024
tggacctttg ggccttctca ggacattgac aatgttgtgt gcaactgcaag ttgactttat	4084
ttattttgta ggaaaaagag atggtattct ttagcaggat ctgaaactgt accctagtca	4144
agaagtacaa ttaataacat tattattaat aacaattggg atgattcaaa ggtcacacac	4204
acaccagacc acccaagaac catgtaggag atgaggcgga gccaggctcat ggaagcccag	4264
aatgctacag agattctgtg ggtctattat tgatcagaaa atacaacatg ggggggcctt	4324
ttctatggca taactcaggt gtctgcaaag acagagcagc tcagggtgggt ggataggcag	4384
gcagatggag ccttgaatca catccccctga ggctcagcca gccagtgcga atcctcaagg	4444

```

ttcggaaagg gacagtgtag cggcaaacta ctgggcatct tctctgatgc ttagaggctc 4504
ttaccaagga gcttgatgga gaaagtggcc atgttggtgg catgggacaa ctgctcacc 4564
aacttcaaag atcaaagggc acccaggtgg cctatgacag tgacactctt tcctaccatt 4624
aggggtgtct gccccactg aaagccatga aatttctggc cctaaggggg taggaaggac 4684
ttaggagtag cagatggttt gatcccatcc cccccacaca cacacacaca tccctcagct 4744
gtcttccaca ttagagccac ttcagttgtc catggacttg tccctttgag acatcctgga 4804
ttttgaagga tagaaacatc cccaagatgg tctcgtgtta atcccacaac agaggcagaa 4864
gggtcatact gagagagaga gagagagaga gagagagaga gagaggagtg ggggccagac 4924
cctcaagaag ccaagtgggt ctggtcaacc tgtgcacatg agaaggaggg aacatcacta 4984
aaatcagggc ctgggctggt gtgttgttgg tgagatcccg tggagtggct ggctagatat 5044
ggatgagttt tctgagcatg ctcacacacc cccaacttca cattcttaga aatagcacaa 5104
ccataatgcc ttacctcaaa aggatgaggc aaagcttgca attaatccc agtgtctgaa 5164
gacctccggg atcctttgag ctgtgtgtcc ttgtcagtac atggggacag gctccttagg 5224
tattcctgac atagaggtaa ggtgctgccc ttgctgcctt gcataagctg tgacaagctt 5284
cttactgggc acatagaacg gctctgtcat ctgcttccac taaatttggg cttggacttt 5344
gcctcctgcc aaatctccat ctctgctgga tagtctagtc cctagggctt aaccaccacc 5404
ctccacttcc tgggtgggtcc tacaagcgct gtctttgtgc cagtaccggg atgggtgtcct 5464
gcctcatggc taaatggtac aggacatctt cccagactga gtggatcatg catgtgcatg 5524
tatgttcatg agtacatgca tgggtgtgtg ggggtggatg gtgcattctg ttctgcttct 5584
gggtgcagct cacagccaca acctctttct gtcattgacc ttcttgggtt tcttgtagcc 5644
acagataatc ttccaatgcc cgattctgct gttctcatct gagagctgac aaccagcgc 5704
tcagagtaga gttcatgacc taggaaaccc ttctcctggg agcttactga acttatttaa 5764
ttaaaaacga acatataggg gttggagaga tgggttcattg gttaagagca ccggctgctt 5824
ttgcaaagga cctgagttca aatcccagca accatatggt ggcttacaac catctgtaat 5884
gagttctggt gccctcttct ggcatgcagg tgtacatgca gatagagcac tcctatgcat 5944
aaaataaata aatcttttaa ataaataaat aaatgaacat gaaaaaaaaa aaaaaa 6000

```

```

<210> 15
<211> 472
<212> PRT
<213> Mus musculus

```

```
<400> 15
```

```
Met Glu Lys Gly Leu Ala Leu Pro Gln Asp Phe Arg Asp Leu Val His
1           5           10           15
```

```
Ser Leu Lys Ile Arg Gly Arg Tyr Val Leu Phe Leu Ala Phe Val Val
20           25           30
```

```
Ile Val Phe Ile Phe Ile Glu Lys Glu Asn Lys Ile Ile Ser Arg Val
35           40           45
```

Ser Asp Lys Leu Lys Gln Ile Pro His Phe Val Ala Asp Ala Asn Ser
 50 55 60
 Thr Asp Pro Ala Leu Leu Leu Ser Glu Asn Ala Ser Leu Leu Ser Leu
 65 70 75 80
 Ser Glu Leu Asp Ser Thr Phe Ser His Leu Arg Ser Arg Leu His Asn
 85 90 95
 Leu Ser Leu Gln Leu Gly Val Glu Pro Ala Met Glu Ser Gln Glu Ala
 100 105 110
 Gly Ala Glu Lys Pro Ser Gln Gln Ala Gly Ala Gly Thr Arg Arg His
 115 120 125
 Val Leu Leu Met Ala Thr Thr Arg Thr Gly Ser Ser Phe Val Gly Glu
 130 135 140
 Phe Phe Asn Gln Gln Gly Asn Ile Phe Tyr Leu Phe Glu Pro Leu Trp
 145 150 155 160
 His Ile Glu Arg Thr Val Phe Phe Gln Gln Arg Gly Ala Ser Ala Ala
 165 170 175
 Gly Ser Ala Leu Val Tyr Arg Asp Val Leu Lys Gln Leu Leu Leu Cys
 180 185 190
 Asp Leu Tyr Val Leu Glu Pro Phe Ile Ser Pro Pro Pro Glu Asp His
 195 200 205
 Leu Thr Gln Phe Leu Phe Arg Arg Gly Ser Ser Arg Ser Leu Cys Glu
 210 215 220
 Asp Pro Val Cys Thr Pro Phe Val Lys Lys Val Phe Glu Lys Tyr His
 225 230 235 240
 Cys Arg Asn Arg Arg Cys Gly Pro Leu Asn Val Thr Leu Ala Gly Glu
 245 250 255
 Ala Cys Arg Arg Lys Asp His Val Ala Leu Lys Ala Val Arg Ile Arg
 260 265 270
 Gln Leu Glu Phe Leu Gln Pro Leu Val Glu Asp Pro Arg Leu Asp Leu
 275 280 285
 Arg Val Ile Gln Leu Val Arg Asp Pro Arg Ala Val Leu Ala Ser Arg
 290 295 300
 Ile Val Ala Phe Ala Gly Lys Tyr Glu Asn Trp Lys Lys Trp Leu Ser
 305 310 315 320
 Glu Gly Gln Asp Gln Leu Ser Glu Asp Glu Val Gln Arg Leu Arg Gly
 325 330 335

Asn Cys Glu Ser Ile Arg Leu Ser Ala Glu Leu Gly Leu Arg Gln Pro
 340 345 350
 Ala Trp Leu Arg Gly Arg Tyr Met Leu Val Arg Tyr Glu Asp Val Ala
 355 360 365
 Arg Arg Pro Leu Gln Lys Ala Arg Glu Met Tyr Ser Phe Ala Gly Ile
 370 375 380
 Pro Leu Thr Pro Gln Val Glu Asp Trp Ile Gln Lys Asn Thr Gln Ala
 385 390 395 400
 Thr Arg Asp Ser Ser Asp Val Tyr Ser Thr Gln Lys Asn Ser Ser Glu
 405 410 415
 Gln Phe Glu Lys Trp Arg Phe Ser Met Pro Phe Lys Leu Ala Gln Val
 420 425 430
 Val Gln Ala Ala Cys Gly Pro Thr Met His Leu Phe Gly Tyr Lys Leu
 435 440 445
 Ala Arg Asp Ala Ala Ser Leu Thr Asn Arg Ser Ile Ser Leu Leu Glu
 450 455 460
 Glu Arg Gly Thr Phe Trp Val Thr
 465 470

<210> 16
 <211> 2080
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (147)..(1601)

<400> 16
 caccgcccgg ctgctccact ccgctccacc caacattgag ggagacccga agaggccgga 60
 gccgaggact ttgggctggg ttttctggac agaaccagca ggcgctact ctgctctggg 120
 tggggagagt gaggattcgg tgaact atg aag ggc cgg cgg cgg cgc cga 173
 Met Lys Gly Arg Arg Arg Arg Arg
 1 5
 aag tat tgc aag ttc acg ctg ctc ttg gcg ctg tac acg ctt ttg cta 221
 Lys Tyr Cys Lys Phe Thr Leu Leu Leu Ala Leu Tyr Thr Leu Leu Leu
 10 15 20 25
 ctt ctt gtc ccc tct gta ctg gac agc cac agc gag cag gac aag ggc 269
 Leu Leu Val Pro Ser Val Leu Asp Ser His Ser Glu Gln Asp Lys Gly
 30 35 40
 agg aac tgc ccc ggc ctg cag cgc agc ttg ggt gtg tgg agc ctg gag 317
 Arg Asn Cys Pro Gly Leu Gln Arg Ser Leu Gly Val Trp Ser Leu Glu
 45 50 55
 gcg gcg gcg gcc ggg gaa cgt gag cag ggc gct gag gtg cgg tcc ctg 365
 Ala Ala Ala Ala Gly Glu Arg Glu Gln Gly Ala Glu Val Arg Ser Leu

60	65	70	
gcc gaa gga aac ccg gat cga tcc ccc ggg tcc ccc ggc aac ctc agc Ala Glu Gly Asn Pro Asp Arg Ser Pro Gly Ser Pro Gly Asn Leu Ser 75 80 85			413
gcc gtc ggt gag gcg gtg acc cag gaa aag caa cac atc tat gtg cat Ala Val Gly Glu Ala Val Thr Gln Glu Lys Gln His Ile Tyr Val His 90 95 100 105			461
gcc acc tgg cgc acc ggc tcg tcc ttc ttg ggc gaa ctc ttc aac cag Ala Thr Trp Arg Thr Gly Ser Ser Phe Leu Gly Glu Leu Phe Asn Gln 110 115 120			509
cac ccg gac gtt ttc tac ttg tac gac ccc atg tgg cat ctg tgg cag His Pro Asp Val Phe Tyr Leu Tyr Asp Pro Met Trp His Leu Trp Gln 125 130 135			557
gca ctg tat ccg ggc gac gcg gag agc ctg cag ggc gca cta aga gac Ala Leu Tyr Pro Gly Asp Ala Glu Ser Leu Gln Gly Ala Leu Arg Asp 140 145 150			605
atg ctg cgc tcc ctc ttc cgc tgt gat ttc tct gtg ctg cgc ctg tac Met Leu Arg Ser Leu Phe Arg Cys Asp Phe Ser Val Leu Arg Leu Tyr 155 160 165			653
gcg cag cct ggg gac cct ggg gag cga gca ccg gac tcg gcc aac ctc Ala Gln Pro Gly Asp Pro Gly Glu Arg Ala Pro Asp Ser Ala Asn Leu 170 175 180 185			701
acc acg gcc atg ctt ttc cgc tgg cgg acc aac aag gtc atc tgc tgc Thr Thr Ala Met Leu Phe Arg Trp Arg Thr Asn Lys Val Ile Cys Ser 190 195 200			749
ccg cct ctg tgc ccc gcc gcg ccc cgg gca cgc gcg gac gtg gga ctc Pro Pro Leu Cys Pro Ala Ala Pro Arg Ala Arg Ala Asp Val Gly Leu 205 210 215			797
gtc gag gac aaa gcc tgc gaa agt acc tgc ccg ccc gtt tcg ctc cgc Val Glu Asp Lys Ala Cys Glu Ser Thr Cys Pro Pro Val Ser Leu Arg 220 225 230			845
gcc ctg gag gcc gag tgc cgc aag tac ccg gtg gtg gtc atc aaa gac Ala Leu Glu Ala Glu Cys Arg Lys Tyr Pro Val Val Val Ile Lys Asp 235 240 245			893
gtg cgg cta ctg gac ctg gga gtg ctg gtc cct ctg ctg cgt gac cca Val Arg Leu Leu Asp Leu Gly Val Leu Val Pro Leu Leu Arg Asp Pro 250 255 260 265			941
ggc ctc aac cta aag gtg gtg caa ctc ttc cga gac cct cgg gcc gtg Gly Leu Asn Leu Lys Val Val Gln Leu Phe Arg Asp Pro Arg Ala Val 270 275 280			989
cac aac tcg cgc ctc aag tcg agg cag gga ctg ctg cgc gaa agc atc His Asn Ser Arg Leu Lys Ser Arg Gln Gly Leu Leu Arg Glu Ser Ile 285 290 295			1037
cag gtg ctg cgc acg cgc cag agg ggc gac cac ttc cac cgg gtg ctg Gln Val Leu Arg Thr Arg Gln Arg Gly Asp His Phe His Arg Val Leu 300 305 310			1085
ctg gcg cat gga gtg gat gcc cgt ccg gga ggc cag gcc cgg gct ctg Leu Ala His Gly Val Asp Ala Arg Pro Gly Gly Gln Ala Arg Ala Leu 315 320 325			1133
ccc tcg gcg cca cgc gct gat ttc ttc tta acc agc gcg ctt gag gtg Pro Ser Ala Pro Arg Asp Phe Phe Leu Thr Ser Ala Leu Glu Val 330 335 340 345			1181
atc tgt gaa gcg tgg ctt cgc gac ctg cta ttc acc cgc ggc gcg ccc			1229

Ile Cys Glu Ala Trp Leu Arg Asp Leu Leu Phe Thr Arg Gly Ala Pro	
350 355 360	
gcc tgg ctg agg cgt cgc tac ctg cgg ctg cgt tat gag gac ctg gtg	1277
Ala Trp Leu Arg Arg Arg Tyr Leu Arg Leu Arg Tyr Glu Asp Leu Val	
365 370 375	
tgg cag ccc caa gcc cag ctg cgc cgc ctg ctg cgc ttc tct ggg ttg	1325
Trp Gln Pro Gln Ala Gln Leu Arg Arg Leu Leu Arg Phe Ser Gly Leu	
380 385 390	
cgg aca ctc gcc gcg ctt gat gcc ttc gca ttc aat atg acg cgg ggc	1373
Arg Thr Leu Ala Ala Leu Asp Ala Phe Ala Phe Asn Met Thr Arg Gly	
395 400 405	
tcg gcc tac ggc gcc gat cgt ccc ttc cac ttg tct gcg cgg gac gcc	1421
Ser Ala Tyr Gly Ala Asp Arg Pro Phe His Leu Ser Ala Arg Asp Ala	
410 415 420 425	
cga gag gct gtg cac gcc tgg cgc gaa cgt ctg agc caa gag cag gtg	1469
Arg Glu Ala Val His Ala Trp Arg Glu Arg Leu Ser Gln Glu Gln Val	
430 435 440	
cgc caa gtg gaa acc gcc tgc gcc cct gcc atg cgt ctg ctt gcc tac	1517
Arg Gln Val Glu Thr Ala Cys Ala Pro Ala Met Arg Leu Leu Ala Tyr	
445 450 455	
cct cga agt ggg gac gaa cgc gac agg aag acc gtc agg gaa ggg gag	1565
Pro Arg Ser Gly Asp Glu Arg Asp Arg Lys Thr Val Arg Glu Gly Glu	
460 465 470	
aca cca ctg gag acc aag gcc aat tgg gct gtg taa taccctgac	1611
Thr Pro Leu Glu Thr Lys Ala Asn Trp Ala Val	
475 480	
cctgaaccct gccccggggc gtattcaggt cagtggccat aaaaagggtga actcagcatg	1671
ctgccccgc actggagagg ctgcacggtg gaggcgatct atcacactgt gagacactgg	1731
gactgatttg gtatcaactg ctgtgccatt ctcttggtca ggagcatcac aagctgttaa	1791
gtaatgacag acaccttggc tgagatgaag tttccagaaa ggaagtaaca gtgcaatgtg	1851
gatattttgtg accacaacat aggaaaagct gtacttccca ggctgaactt ggctcagctt	1911
gagccatttc aacaaggcat ctcacaata atgaagagat gtgatctggt ttcctttcac	1971
atcagccaag atgtctggac aaaaccatca atgtgaataa gggccaagtg cagttgtgtc	2031
tctcttgatt aaattacttc atattaaata aaaaaaaaaa aaaaaaaaaa	2080
<210> 17	
<211> 484	
<212> PRT	
<213> Mus musculus	
<400> 17	
Met Lys Gly Arg Arg Arg Arg Arg Arg Lys Tyr Cys Lys Phe Thr Leu	
1 5 10 15	
Leu Leu Ala Leu Tyr Thr Leu Leu Leu Leu Val Pro Ser Val Leu	
20 25 30	
Asp Ser His Ser Glu Gln Asp Lys Gly Arg Asn Cys Pro Gly Leu Gln	
35 40 45	

Arg Ser Leu Gly Val Trp Ser Leu Glu Ala Ala Ala Ala Gly Glu Arg
 50 55 60
 Glu Gln Gly Ala Glu Val Arg Ser Leu Ala Glu Gly Asn Pro Asp Arg
 65 70 75 80
 Ser Pro Gly Ser Pro Gly Asn Leu Ser Ala Val Gly Glu Ala Val Thr
 85 90 95
 Gln Glu Lys Gln His Ile Tyr Val His Ala Thr Trp Arg Thr Gly Ser
 100 105 110
 Ser Phe Leu Gly Glu Leu Phe Asn Gln His Pro Asp Val Phe Tyr Leu
 115 120 125
 Tyr Asp Pro Met Trp His Leu Trp Gln Ala Leu Tyr Pro Gly Asp Ala
 130 135 140
 Glu Ser Leu Gln Gly Ala Leu Arg Asp Met Leu Arg Ser Leu Phe Arg
 145 150 155 160
 Cys Asp Phe Ser Val Leu Arg Leu Tyr Ala Gln Pro Gly Asp Pro Gly
 165 170 175
 Glu Arg Ala Pro Asp Ser Ala Asn Leu Thr Thr Ala Met Leu Phe Arg
 180 185 190
 Trp Arg Thr Asn Lys Val Ile Cys Ser Pro Pro Leu Cys Pro Ala Ala
 195 200 205
 Pro Arg Ala Arg Ala Asp Val Gly Leu Val Glu Asp Lys Ala Cys Glu
 210 215 220
 Ser Thr Cys Pro Pro Val Ser Leu Arg Ala Leu Glu Ala Glu Cys Arg
 225 230 235 240
 Lys Tyr Pro Val Val Val Ile Lys Asp Val Arg Leu Leu Asp Leu Gly
 245 250 255
 Val Leu Val Pro Leu Leu Arg Asp Pro Gly Leu Asn Leu Lys Val Val
 260 265 270
 Gln Leu Phe Arg Asp Pro Arg Ala Val His Asn Ser Arg Leu Lys Ser
 275 280 285
 Arg Gln Gly Leu Leu Arg Glu Ser Ile Gln Val Leu Arg Thr Arg Gln
 290 295 300
 Arg Gly Asp His Phe His Arg Val Leu Leu Ala His Gly Val Asp Ala
 305 310 315 320
 Arg Pro Gly Gly Gln Ala Arg Ala Leu Pro Ser Ala Pro Arg Ala Asp
 325 330 335

Phe Phe Leu Thr Ser Ala Leu Glu Val Ile Cys Glu Ala Trp Leu Arg
 340 345 350
 Asp Leu Leu Phe Thr Arg Gly Ala Pro Ala Trp Leu Arg Arg Arg Tyr
 355 360 365
 Leu Arg Leu Arg Tyr Glu Asp Leu Val Trp Gln Pro Gln Ala Gln Leu
 370 375 380
 Arg Arg Leu Leu Arg Phe Ser Gly Leu Arg Thr Leu Ala Ala Leu Asp
 385 390 395 400
 Ala Phe Ala Phe Asn Met Thr Arg Gly Ser Ala Tyr Gly Ala Asp Arg
 405 410 415
 Pro Phe His Leu Ser Ala Arg Asp Ala Arg Glu Ala Val His Ala Trp
 420 425 430
 Arg Glu Arg Leu Ser Gln Glu Gln Val Arg Gln Val Glu Thr Ala Cys
 435 440 445
 Ala Pro Ala Met Arg Leu Leu Ala Tyr Pro Arg Ser Gly Asp Glu Arg
 450 455 460
 Asp Arg Lys Thr Val Arg Glu Gly Glu Thr Pro Leu Glu Thr Lys Ala
 465 470 475 480
 Asn Trp Ala Val

<210> 18
 <211> 4713
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (514)..(2199)

<400> 18
 ggaaatctgg catTTTTTaa agtttgcgcc ccacaaagag gaaatattcc aaaggtactc 60
 aggatgtaaa aggggagatc ttcacagatg cctccgtgga tggcatggca atccatccat 120
 caatgagaag accatgattt cttttaattt tctgtgtgtt tccacattcc ccagtgagaa 180
 ttcttccacc tttttttgtg ccatgggaaa aacctgaagg gcaggcagag ctgctcccga 240
 acttgtgacc ttctctgagg ttgcagcggc tcttgtagaa catgactctg ggacatcact 300
 tccttttggt ttctttcgga gctgaaccaa agaatgtgca ccctctttct ctagtgtgtg 360
 ggtgtctgct tatttttgta tttgtgcttt ccatccatct tctgtgatca caaggcattc 420
 ttaaggTTTT ctagcacgac ttgcggacat ccagactcgt ggggggcca cccatggctc 480
 ggtaagccag cagcccaggg cactggcact acc atg agg cac tgc att aat tgc 534
 Met Arg His Cys Ile Asn Cys
 1 5

tgc Cys	ata Ile	cag Gln 10	ctg Leu	tta Leu	ccc Pro	gac Asp	ggc Gly 15	gca Ala	cac His	aag Lys	cag Gln 20	cag Gln	gtc Val	aac Asn	tgc Cys	582
caa Gln	ggg Gly 25	ggc Gly	ccc Pro	cat His	cac His	ggt Gly 30	cac His	cag Gln	gcg Ala	tgc Cys	ccc Pro 35	acg Thr	tgc Cys	aaa Lys	gga Gly	630
gaa Glu 40	aac Asn	aaa Lys	att Ile	ctg Leu	ttt Phe 45	cgt Arg	gtg Val	gac Asp	agt Ser	aag Lys 50	cag Gln	atg Met	aac Asn	ttg Leu	ctt Leu 55	678
gct Ala	gtt Val	ctc Leu	gaa Glu	gtg Val 60	agg Arg	act Thr	gaa Glu	ggg Gly	aac Asn 65	gaa Glu	aac Asn	tgg Trp	ggt Gly 70	ggg Gly 70	ttt Phe	726
ttg Leu	cgc Arg	ttc Phe	aaa Lys 75	aag Lys	ggg Gly	aag Lys	cga Arg	tgt Cys 80	agc Ser	ctc Leu	gtt Val	ttt Phe 85	gga Gly 85	ctg Leu	ata Ile	774
ata Ile	atg Met	acc Thr 90	ttg Leu	gta Val	atg Met	gct Ala	tct Ser 95	tac Tyr	atc Ile	ctt Leu	tct Ser	ggg Gly 100	gcc Ala	cac His	caa Gln	822
gag Glu	ctt Leu 105	ctg Leu	atc Ile	tca Ser	tca Ser	cct Pro 110	ttc Phe	cat His	tac Tyr	gga Gly	ggc Gly 115	ttc Phe	ccc Pro	agc Ser	aac Asn	870
ccc Pro 120	agc Ser	ttg Leu	atg Met	gac Asp	agc Ser 125	gaa Glu	aac Asn	cca Pro	agt Ser	gac Asp 130	aca Thr	aag Lys	gag Glu	cat His	cac His 135	918
cac His	caa Gln	tcc Ser	tct Ser	gta Val 140	aat Asn	aat Asn	att Ile	tca Ser	tac Tyr 145	atg Met	aag Lys	gac Asp	tat Tyr	cca Pro 150	agc Ser	966
att Ile	aaa Lys	tta Leu	att Ile 155	atc Ile	aac Asn	agc Ser	atc Ile	aca Thr 160	act Thr	agg Arg	att Ile	gag Glu	ttc Phe 165	acg Thr	acc Thr	1014
aga Arg	cag Gln	ctc Leu 170	cca Pro	gac Asp	tta Leu	gaa Glu	gac Asp 175	ctt Leu	aag Lys	aag Lys	cag Gln	gag Glu 180	ttg Leu	cat His	atg Met	1062
ttt Phe 185	tca Ser	gtc Val	atc Ile	ccc Pro	aac Asn	aaa Lys 190	ttc Phe	ctt Leu	cca Pro	aac Asn	agt Ser 195	aag Lys	agc Ser	ccc Pro	tgt Cys	1110
tggt Trp 200	tac Tyr	gag Glu	gag Glu	ttc Phe	tgc Ser 205	ggg Gly	cag Gln	aac Asn	acc Thr	acc Thr 210	gac Asp	ccc Pro	tac Tyr	ctc Leu	acc Thr 215	1158
aac Asn	tcc Ser	tac Tyr	gtg Val	ctc Leu 220	tac Tyr	tcc Ser	aag Lys	cg Arg	ttc Phe 225	cg Arg	tcc Ser	acc Thr	ttc Phe	gac Asp 230	gcc Ala	1206
ctg Leu	cg Arg	aag Lys	gcc Ala 235	ttc Phe	tggt Trp	ggc Gly	cac His	ctg Leu 240	gag Ala	cac His	gag Ala	cac His	ggg Gly 245	aag Lys	cac His	1254
ttc Phe	cg Arg	ctg Leu 250	cg Arg	tgc Cys	ctg Leu	ccg Pro	cac His 255	ttc Phe	tac Tyr	atc Ile	ata Ile	ggg Gly 260	cag Gln	ccc Pro	aag Lys	1302
tgc Cys	ggg Gly 265	acc Thr	aca Thr	gac Asp	ctc Leu	tat Tyr 270	gac Asp	cg Arg	ctg Leu	cg Arg	ctg Leu 275	cac His	cct Pro	gag Glu	gtc Val	1350
aag Lys	ttc Phe	tcc Ser	gcc Ala	atc Ile	aag Lys	gag Glu	cca Pro	cac His	tgg Trp	tgg Trp	acc Thr	cg Arg	aag Lys	cg Arg	ttt Phe	1398

280		285		290		295	
gga atc gtc cgc cta aga gat ggg ctg cga gac cgc tat ccc gtg gaa	1446						
Gly Ile Val Arg Leu Arg Asp Gly Leu Arg Asp Arg Tyr Pro Val Glu		300		305		310	
gat tat ctg gac ctc ttt gac ctg gcc gca cac cag atc cat caa gga	1494						
Asp Tyr Leu Asp Leu Phe Asp Leu Ala Ala His Gln Ile His Gln Gly		315		320		325	
ctg cag gcc agc tct gca aag gag cag agc aag atg aat aca atc att	1542						
Leu Gln Ala Ser Ser Ala Lys Glu Gln Ser Lys Met Asn Thr Ile Ile		330		335		340	
atc ggg gag gcc agt gcc tcc acg atg tgg gat aat aat gcc tgg acg	1590						
Ile Gly Glu Ala Ser Ala Tcc Thr Met Trp Asp Asn Asn Ala Trp Thr		345		350		355	
ttc ttc tac gac aac agc acg gat gcc gag cca ccg ttt ctg acg cag	1638						
Phe Phe Tyr Asp Asn Ser Thr Asp Gly Glu Pro Pro Phe Leu Thr Gln		360		365		370	375
gac ttc atc cac gcc ttt cag cca aat gcc aga ctg att gtc atg ctc	1686						
Asp Phe Ile His Ala Phe Gln Pro Asn Ala Arg Leu Ile Val Met Leu		380		385		390	
agg gac cct gtg gag agg ttg tac tca gac tat ctg tac ttt gca agt	1734						
Arg Asp Pro Val Glu Arg Leu Tyr Ser Asp Tyr Leu Tyr Phe Ala Ser		395		400		405	
tcg aat aaa tcc gcg gac gac ttc cat gag aaa gtg aca gaa gca ctg	1782						
Ser Asn Lys Ser Ala Asp Asp Phe His Glu Lys Val Thr Glu Ala Leu		410		415		420	
cag ctg ttt gaa aat tgc atg ctt gat tat tca ctg cgc gcc tgc gtc	1830						
Gln Leu Phe Glu Asn Cys Met Leu Asp Tyr Ser Leu Arg Ala Cys Val		425		430		435	
tac aac aac acc ctc aac aac gcc atg cct gtg agg ctc cag gtt ggg	1878						
Tyr Asn Asn Thr Leu Asn Asn Ala Met Pro Val Arg Leu Gln Val Gly		440		445		450	455
ctc tat gct gtg tac ctt ctg gac tgg ctc agc gtt ttt gac aag caa	1926						
Leu Tyr Ala Val Tyr Leu Leu Asp Trp Leu Ser Val Phe Asp Lys Gln		460		465		470	
cag ttt ctc att ctt cgc ctg gaa gat cat gca tcc aac gtc aag tac	1974						
Gln Phe Leu Ile Leu Arg Leu Glu Asp His Ala Ser Asn Val Lys Tyr		475		480		485	
acc atg cac aag gtc ttc cag ttt ctg aac cta ggg ccc tta agt gag	2022						
Thr Met His Lys Val Phe Gln Phe Leu Asn Leu Gly Pro Leu Ser Glu		490		495		500	
aag cag gag gct ttg atg acc aag agc ccc gca tcc aat gca cgg cgt	2070						
Lys Gln Glu Ala Leu Met Thr Lys Ser Pro Ala Ser Asn Ala Arg Arg		505		510		515	
ccc gag gac cgg aac ctg ggg ccc atg tgg ccc atc aca cag aag att	2118						
Pro Glu Asp Arg Asn Leu Gly Pro Met Trp Pro Ile Thr Gln Lys Ile		520		525		530	535
ctg cgg gat ttc tac agg ccc ttc aac gct agg ctg gcg cag gtc ctc	2166						
Leu Arg Asp Phe Tyr Arg Pro Phe Asn Ala Arg Leu Ala Gln Val Leu		540		545		550	
gcg gat gag gcg ttt gcg tgg aag acg acg tga gagctgaatt gttgctgcac	2219						
Ala Asp Glu Ala Phe Ala Trp Lys Thr Thr		555		560			
gtgctggggcc cgccaatgcc gtcatcatca ggattttaca aatctctttg cggggaactg	2279						

tttcactcat ggtatggaaa accccaggac tctgccactc taggcacaca tgaattataa	2339
ccatTTTtTga atttCcttCg tgatgttCga gagctcagca atggaccCct cacagagctc	2399
ctctatccga ggccattTga gacCCcagtt tctcaagaat tcagctctgc tctgagcgtc	2459
ctggagcttg gggatgcagc cagctggcct gcaCtgggtg tggagagaac acctagggaa	2519
ggcagcctgg cCctgcccgc ctccgccttc tggagagcct ctgggttctg agtcagcaag	2579
ccagaggtca tgccacaggc ctggctggaa cttacacttc acgttccCtt tttttccccc	2639
tagagatggg gtctcgccgt gttgcacaga ctgtctgtat tcaatggcta tcttcacagg	2699
tgtgatcata ccacattcac ttctgaaaca ctcttgttgc gatcgctaac ctcaCtggga	2759
cagagaaccg cagtctttcga agaatggagg ctcttcattt tttttttctc ctttactcca	2819
aactcagccc tccagtttct tcagatgtaa accctgttaa cgTcaCtgtt tccaaaagga	2879
aaaaaataag tcagtttttg gcagcacctt catctttctg acctcctcct attctgtcct	2939
tgtggactta tgtttaacat agaaaatgaa tgcgtttaaa acaaaaccac tttctgcatt	2999
taaccagtcc tggctctctc tctgtgcct cttcatacgt tttctcaaga acttcagttt	3059
ataattggaa gagaaatttt tgctgttaat gccagaatga gcaacctcaa ggaattgaac	3119
acttcttTga aaatctaggt aattcaagcc ctcatcaggt ttacaagatc atcagagaaa	3179
cagaggattt taatttttag ttctggccgg ctacaggctc catttctctg ccttcccatt	3239
ggaaatagtt tatttccaca ttctccactg cgtgtgtgta aagtccctca cccagcaagg	3299
gactatagat actcgtgtcc caattccaaa acacaatgca caagctgaac ttgggctgaa	3359
cgtggcgtgt tgagatttgg aatgaggttt ctaagagccg tgttcttcat ggaattttcc	3419
aggccacttg gcagcttggt ttaccgatgg atgggctaga gatcttgtcg tttcttggaa	3479
gtcacagggg agattgaaga gaacgcttga gcatccttgg caacagccca ggtgggacct	3539
ggatgaagct ttgcaCtcaa gtattgtcaa gggaaCcttc ctgtgaacca aagtctcag	3599
gccaaCgtct cgccaccaa agccagaaag tgcaagcacc cgtctaccca gctctaactt	3659
gtatgtgtga gacagaccag gcttcggggg taggaggatc tgcagttgtt cagccgtctt	3719
tctgtgtgtg ttgtctttct gccatcagag aagggacaca cagcccgttc gaagggtgtgc	3779
agagggctct gagcgccagg atggccaggg ctgtttttgc tactgaagga gcgtgtgtcc	3839
tgaactccca cttgcaggga cagtccccac ctctcttata gccggcactg ggagcagccg	3899
ccagcaggga aatctggcct gagcacaagg atgctttagg gagagatcac ttcagtgtgt	3959
gtgtatatatt atttgcagta cagtgcgcgc gtgtgtgtgt gtgtacgcgc acgtgtgggt	4019
gagtgcgtct tctgagtggg ttctgttcag ttgctaatga ggctcctccg ctctggacac	4079
aaccctttta tagattaatt tctctgcaa ttaacttgtc attttcagta catattttac	4139
tattccacac caaccataat tacaacaagg gatTTTTctt atgcactcct atgcatgtga	4199
ataacatgtg gtgtaattct gcttcttaca gaagtattac tgaaggattt atttccaata	4259
ttatttggtt tattatgcgg atctttttta tatatgcagt cccatccCtt ctgtgccact	4319
caatgccatc cagacatggg ttttccctcc aggggccttt ctctccagag ggcacttcgg	4379

```

ctgcctctgc ttcctctcat tcgaggcccg gctcttgctg acagaatagg ttccgttctg 4439
ggcgggtggtt ctcgagcctg ccattcaaaa ccaaagcaaa ttggagcatt tctcacaaca 4499
tggtattgaa gttccttttt gttctcaaaa gttgtgaccg tgttaaattg tactccctta 4559
gtcctgtaag gtatgtaag tgaatcgag ttacgctgta cttttattaa tatttaacat 4619
aattaaagat ggaccataa gagtgacgcc tgtggagcgc gtgctcttcc tctgcagcca 4679
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 4713

```

```

<210> 19
<211> 561
<212> PRT
<213> Homo sapiens

```

```

<400> 19

```

```

Met Arg His Cys Ile Asn Cys Cys Ile Gln Leu Leu Pro Asp Gly Ala
1          5          10          15

```

```

His Lys Gln Gln Val Asn Cys Gln Gly Gly Pro His His Gly His Gln
          20          25          30

```

```

Ala Cys Pro Thr Cys Lys Gly Glu Asn Lys Ile Leu Phe Arg Val Asp
          35          40          45

```

```

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

```

```

Asn Glu Asn Trp Gly Gly Phe Leu Arg Phe Lys Lys Gly Lys Arg Cys
65          70          75          80

```

```

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

```

```

Ile Leu Ser Gly Ala His Gln Glu Leu Leu Ile Ser Ser Pro Phe His
100          105          110

```

```

Tyr Gly Gly Phe Pro Ser Asn Pro Ser Leu Met Asp Ser Glu Asn Pro
115          120          125

```

```

Ser Asp Thr Lys Glu His His His Gln Ser Ser Val Asn Asn Ile Ser
130          135          140

```

```

Tyr Met Lys Asp Tyr Pro Ser Ile Lys Leu Ile Ile Asn Ser Ile Thr
145          150          155          160

```

```

Thr Arg Ile Glu Phe Thr Thr Arg Gln Leu Pro Asp Leu Glu Asp Leu
165          170          175

```

```

Lys Lys Gln Glu Leu His Met Phe Ser Val Ile Pro Asn Lys Phe Leu
180          185          190

```

```

Pro Asn Ser Lys Ser Pro Cys Trp Tyr Glu Glu Phe Ser Gly Gln Asn
195          200          205

```

Thr Thr Asp Pro Tyr Leu Thr Asn Ser Tyr Val Leu Tyr Ser Lys Arg
 210 215 220
 Phe Arg Ser Thr Phe Asp Ala Leu Arg Lys Ala Phe Trp Gly His Leu
 225 230 235 240
 Ala His Ala His Gly Lys His Phe Arg Leu Arg Cys Leu Pro His Phe
 245 250 255
 Tyr Ile Ile Gly Gln Pro Lys Cys Gly Thr Thr Asp Leu Tyr Asp Arg
 260 265 270
 Leu Arg Leu His Pro Glu Val Lys Phe Ser Ala Ile Lys Glu Pro His
 275 280 285
 Trp Trp Thr Arg Lys Arg Phe Gly Ile Val Arg Leu Arg Asp Gly Leu
 290 295 300
 Arg Asp Arg Tyr Pro Val Glu Asp Tyr Leu Asp Leu Phe Asp Leu Ala
 305 310 315 320
 Ala His Gln Ile His Gln Gly Leu Gln Ala Ser Ser Ala Lys Glu Gln
 325 330 335
 Ser Lys Met Asn Thr Ile Ile Ile Gly Glu Ala Ser Ala Ser Thr Met
 340 345 350
 Trp Asp Asn Asn Ala Trp Thr Phe Phe Tyr Asp Asn Ser Thr Asp Gly
 355 360 365
 Glu Pro Pro Phe Leu Thr Gln Asp Phe Ile His Ala Phe Gln Pro Asn
 370 375 380
 Ala Arg Leu Ile Val Met Leu Arg Asp Pro Val Glu Arg Leu Tyr Ser
 385 390 395 400
 Asp Tyr Leu Tyr Phe Ala Ser Ser Asn Lys Ser Ala Asp Asp Phe His
 405 410 415
 Glu Lys Val Thr Glu Ala Leu Gln Leu Phe Glu Asn Cys Met Leu Asp
 420 425 430
 Tyr Ser Leu Arg Ala Cys Val Tyr Asn Asn Thr Leu Asn Asn Ala Met
 435 440 445
 Pro Val Arg Leu Gln Val Gly Leu Tyr Ala Val Tyr Leu Leu Asp Trp
 450 455 460
 Leu Ser Val Phe Asp Lys Gln Gln Phe Leu Ile Leu Arg Leu Glu Asp
 465 470 475 480
 His Ala Ser Asn Val Lys Tyr Thr Met His Lys Val Phe Gln Phe Leu
 485 490 495

Asn Leu Gly Pro Leu Ser Glu Lys Gln Glu Ala Leu Met Thr Lys Ser
500 505 510

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

Trp Pro Ile Thr Gln Lys Ile Leu Arg Asp Phe Tyr Arg Pro Phe Asn
530 535 540

Ala Arg Leu Ala Gln Val Leu Ala Asp Glu Ala Phe Ala Trp Lys Thr
545 550 555 560

Thr

<210> 20
<211> 536
<212> DNA
<213> Mus musculus

<400> 20
acaaagccat gaagccggcg ctgctggaag tgatgaggat gaacagaatt tgccggatgg 60
tgctggccac ttgcttcgga tcctttatct tggatcatctt ctattttcaa agtatgttgc 120
accagtcac gcggaggaac cccttcggtg tggacatctg ctgccggaag ggatcgagaa 180
gtccccctgca ggagctctac aatcccatcc agctggagct atccaacact gccatcctgc 240
accagatgag acgggaccag gtgacagaca cctgccgggc caacagtgcc atgagccgca 300
agcgcagggt gctgaccccc aacgacctga agcacctggt ggtggatgag gaccacgaac 360
tcatctactg ctatgtgccc aaggtagcgt gcaccaactg gaagaggctc atgatggtcc 420
tgagtggccg gggcaagtac agcgatccca tggagatccc agccaacgaa gcccacgtgt 480
cggccaacct gaagaccctt aaccagtaca gcatcccaga gatcaaccac cgcttg 536

<210> 21
<211> 660
<212> DNA
<213> Mus musculus

<400> 21
gccaggagtg ggcccagccc agggcagcat gaccaagccg cggtctttcc ggctgtggct 60
ggtactaggg tcggctctca tgatcctttt gatcattgta tattgggaca acgtgggaac 120
cgccacttc tatctgcaca cgtctctctc caggccacac atcctagaac cccttcccac 180
ccagggattg gtggaggaga acgtgttcac atctgacgtg gatgagtttt tggatactct 240
ccttagttct gacgcaagc acaacgacct ttccaggaga aaaactgagc agccccggc 300
gcccgccttc agcaagccag tcttgagcca catggaggag aacgtgagag gctacgactg 360
gtccactcat gatgcccac agaaccctga ccgggacagg cagcaggccg agaggaggag 420
cctgctgaga gacttctgtg ccaacgccag cctggcattc cccaccaagg accgctcttt 480
tgacgacatc cccaactacg aactgaacca cctgatcgtg gacgaccgcc acgggggtcat 540

ctactgctac gtgccaagg tggcctgcac caactggaag cgagtgatga tcgtgctgag 600
cgagagcctg ctggaccggg gcagccccta ccgagacccc ctggacatcc cccgggaaca 660

<210> 22
<211> 600
<212> DNA
<213> Mus musculus

<400> 22
atgactgtcg cctgccacgc gtgccaggca cagcatggga agacgctcct gttgcaggcg 60
gcccttgccg gtggtggcaa gtctgggtgc tgcactcctg ctctgtgctg ccctgcgtcc 120
cgggtaacca caggaaagga tgcccaggac actgaatggc agggctcccc aaaagccctt 180
ttgggggttc cgacatttga aaataaagct ctgggctcca gctggttcgg tggagtgagg 240
aagagtcccc tacagctgtt gcgtgacctg gaccagatgt ttggcagctg tgagctatgg 300
gtagtgcagt gggagcggca gaaagtgggt ccacgctccg cgatggccga ggtgcaccag 360
cagcggcgtg agctgctgct cggggcctgc agccgccaca cgcgacgcca acgcctgctg 420
cagccggagg acctgctgca cgtgctggtg gacgacgctg accggctgct gtactgctac 480
gtgcctaagg tggcctgcac caactggaag cgtgtgatgc tggcgttgcg cggccgtggg 540
gatccaagcg caatccctgc gcacgaggcg catgcgcctg gcctgctgcc ctgcgtggcc 600

<210> 23
<211> 600
<212> DNA
<213> Mus musculus

<400> 23
gcgccccctc tccccatgga gaaaggactc gctttgcctc aggatttccg ggaccttgta 60
cacagcctaa agattcgagg cagatacgtc ttgttccttg catttggtgt catagttttt 120
atcttcattg aaaaggaaaa taaaatcata tccagggtct ccgacaagct gaagcagatc 180
cctcattttg tggcagatgc caacagcact gaccagccc tgctcttata ggagaatgca 240
tctctcttgt ccttgagcga gttggattcc accttttccc atctgcggag ccgcctgcac 300
aacctgagcc tgcagctggg cgtggagcca gcaatggaga gccaggaggc tggggcagag 360
aagccatccc agcaggctgg agcagggacc cggcgccacg tgcttctcat ggccaccacc 420
cgcacgggtt cctcgttcgt gggcgagttc ttcaaccagc agggcaatat cttctacctc 480
ttcgagccac tgtggcacat cgagcgacc gtgttcttcc agcagcgagg cgccagcgcg 540
gctgggtcag ctttgggtcta ccgtgatgtc ctcaagcagt tgttgctatg cgacctgtat 600

<210> 24
<211> 720
<212> DNA
<213> Mus musculus

<400> 24
tggggagagt gaggattcgg tgaactatga agggccggcg gcggcggcgc cgagagtatt 60
gcaagttcac gctgctcttg gcgctgtaca cgcttttgct acttcttgtc ccctctgtac 120
tggacagcca cagcgagcag gacaagggca ggaactgccc cggcctgcag cgcagcttgg 180

gtgtgtggag cctggaggcg gcggcgccg gggaacgtga gcagggcgct gaggtgcggt	240
ccctggccga aggaaacccg gatcgatccc ccgggtcccc cggaacctc agcgccgtcg	300
gtgaggcggg gaccaggaa aagcaacaca tctatgtgca tgccacctgg cgcaccggct	360
cgctcttctt gggcgaactc ttcaaccagc acccggaact tttctacttg tacgagccca	420
tgtggcatct gtggcaggca ctgtatccgg gcgacgcgga gagcctgcag ggcgcactaa	480
gagacatgct gcgctccctc ttccgctgtg atttctctgt gctgcgcctg tacgcgcagc	540
ctggggaccc tggggagcga gcaccggact cgccaacct caccacggcc atgcttttcc	600
gctggcggac caacaaggta atctgctcgc cgctctgtg ccccgccgcg ccccgggcac	660
gcgcggacgt gggactcgtc gaggacaaag cctgcgaaag tacctgcccg cccgtttcgc	720

<210> 25
 <211> 27
 <212> RNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 25	
ggagcagagc aagaugaaua caaucag	27

<210> 26
 <211> 27
 <212> RNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 26	
gauuguauuc aucuugcucu gcuccau	27

<210> 27
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 27	
gtgagttctg ctgcggtcca	20

<210> 28
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 28	
agtccatgct gatgccaga g	21

<210> 29
 <211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence
 <400> 29
 acccgatggc aacaatgga 19

<210> 30
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence
 <400> 30
 accagcaggg ccttggtcac 20

<210> 31
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence
 <400> 31
 catccgtaaa gacctctatg ccaac 25

<210> 32
 <211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence
 <400> 32
 atggagccac cgatccaca 19

<210> 33
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence
 <400> 33
 ttctggccaa cggtctagac aac 23

<210> 34
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence
 <400> 34
 ccagtggctc tgggtgtgctg a 21

<210> 35
 <211> 25
 <212> DNA

<213> Artificial
 <220>
 <223> an artificially synthesized sequence
 <400> 35
 acccccaact cggaacgatg cggct 25

 <210> 36
 <211> 24
 <212> DNA
 <213> Artificial
 <220>
 <223> an artificially synthesized sequence
 <400> 36
 tgcattgttct cgtccatcct gctg 24

 <210> 37
 <211> 26
 <212> DNA
 <213> Artificial
 <220>
 <223> an artificially synthesized sequence
 <400> 37
 cgccaccgtg tactgtactg tgaagt 26

 <210> 38
 <211> 25
 <212> DNA
 <213> Artificial
 <220>
 <223> an artificially synthesized sequence
 <400> 38
 aggctgctcc aactggaaga ggggtg 25

 <210> 39
 <211> 24
 <212> DNA
 <213> Artificial
 <220>
 <223> an artificially synthesized sequence
 <400> 39
 atatagtatc taggatatat gtag 24

 <210> 40
 <211> 25
 <212> DNA
 <213> Artificial
 <220>
 <223> an artificially synthesized sequence
 <400> 40
 gaagtaccaa aagctggctg ctcta 25

 <210> 41
 <211> 26

<212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 41
 ttctatcact tggactatTT gatgtt 26

 <210> 42
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 42
 tacacaactc cacatttgta atttg 25

 <210> 43
 <211> 24
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 43
 ccagaagcca agctcattgt tatg 24

 <210> 44
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 44
 ctgtggagag gttgtactca gacta 25

 <210> 45
 <211> 26
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 45
 atttgcctgg aagacaacgt gagagc 26

 <210> 46
 <211> 27
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 46
 gtcccttctg cagaagctgg gccact 27

 <210> 47

<211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 47
 gcgccccctc tccccatgga gaaag 25

<210> 48
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 48
 gctttgcctc aggatttccg ggacc 25

<210> 49
 <211> 27
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 49
 ggttcagcct tggctaccg tgatgtc 27

<210> 50
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 50
 gcagttgttg ctatgcgacc tgtat 25

<210> 51
 <211> 23
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 51
 tgttcctggc atttgtggc ata 23

<210> 52
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 52
 ccaactcgct cagggacaag a 21

<210> 53
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 53
 gtgtggagca acatgtggaa ctcta 25

<210> 54
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 54
 ttggttcagc cactgcccga 20

<210> 55
 <211> 50
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 55
 acaaagccat gaagccggcg ctgctggaag tgatgaggat gaacagaatt 50

<210> 56
 <211> 26
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 56
 caacctgaag acccttaacc agtaca 26

<210> 57
 <211> 26
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 57
 gcatcccaga gatcaaccac cgcttg 26

<210> 58
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 58
 gccaggagtg ggcccagccc agggc 25

<210> 59
 <211> 27
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 59
 atgaccaagc cgcggctctt ccggctg 27

 <210> 60
 <211> 28
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 60
 agagcctgct ggaccggggc agccccta 28

 <210> 61
 <211> 28
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 61
 gagacccctt ggacatcccc cggaaca 28

 <210> 62
 <211> 26
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 62
 atgactgtcg cctgccacgc gtgcca 26

 <210> 63
 <211> 26
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 63
 cagcatggga agacgctcct gttgca 26

 <210> 64
 <211> 28
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 64
 tccaagcgca atccctgcgc acgaggcg 28

<210> 65
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized sequence

 <400> 65
 gcctggcctg ctgccctcgc tggcc 25

<210> 66
 <211> 18
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 66
 ctgccaagta tgacatca 18

<210> 67
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 67
 tactccttgg aggccatgta g 21

<210> 68
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 68
 gtggatgagg accacgaact 20

<210> 69
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 69
 cttttcaagc ggtggttgat 20

<210> 70
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence

 <400> 70

acctcctaga cccacacacg	20
<210> 71	
<211> 20	
<212> DNA	
<213> Artificial	
<220>	
<223> an artificially synthesized primer sequence	
<400> 71	
ggatgttggc aaaccagtct	20
<210> 72	
<211> 20	
<212> DNA	
<213> Artificial	
<220>	
<223> an artificially synthesized primer sequence	
<400> 72	
atgagccctt caacgaacac	20
<210> 73	
<211> 20	
<212> DNA	
<213> Artificial	
<220>	
<223> an artificially synthesized primer sequence	
<400> 73	
tggtagaagg ggctgatgtc	20
<210> 74	
<211> 19	
<212> DNA	
<213> Artificial	
<220>	
<223> an artificially synthesized primer sequence	
<400> 74	
ttccaggctt tgggcatca	19
<210> 75	
<211> 24	
<212> DNA	
<213> Artificial	
<220>	
<223> an artificially synthesized primer sequence	
<400> 75	
atgttcagca tgttcagcag tgtg	24
<210> 76	
<211> 25	
<212> DNA	
<213> Artificial	
<220>	
<223> an artificially synthesized primer sequence	

<400> 76
 catccgtaaa gacctctatg ccaac 25

<210> 77
 <211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 77
 atggagccac cgatccaca 19

<210> 78
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 78
 tgtgtggaca cacctcccta 20

<210> 79
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 79
 cttcaaaggt ccccttcctc 20

<210> 80
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 80
 cagcttgagc catttcaaca 20

<210> 81
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized primer sequence

<400> 81
 gggtaggcc tttaggaaac 20

<210> 82
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 82
 gcgccccctc tccccatgga gaaag 25

<210> 83
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 83
 gctttgcctc aggatttcg ggacc 25

<210> 84
 <211> 27
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 84
 ggttcagcct tggctaccg tgatgac 27

<210> 85
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 85
 gcagttgttg ctatgcgacc tgtat 25

<210> 86
 <211> 24
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 86
 tggggagagt gaggattcgg tgaa 24

<210> 87
 <211> 27
 <212> DNA
 <213> Artificial

<220>
 <223> an artificially synthesized sequence

<400> 87
 cggacgtggg actcgtcgag gacaaag 27

<210> 88
 <211> 26
 <212> DNA
 <213> Artificial

<220>

<223> an artificially synthesized sequence
 <400> 88
 cgaaagtacc tgcccgcccg tttcgc 26

 <210> 89
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence
 <400> 89
 ctgtgagccc aagtgtgtgg a 21

 <210> 90
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> an artificially synthesized primer sequence
 <400> 90
 gtctcgaaac atggcaacag ga 22

 <210> 91
 <211> 27
 <212> RNA
 <213> Artificial

 <220>
 <223> An artificially synthesized siRNA sequence
 <400> 91
 gcagcccagc aaugaaua agaucag 27

 <210> 92
 <211> 27
 <212> RNA
 <213> Artificial

 <220>
 <223> An artificially synthesized siRNA sequence
 <400> 92
 gaucuauuc aucuugcugg gcugcau 27

 <210> 93
 <211> 25
 <212> DNA
 <213> Artificial

 <220>
 <223> An artificially synthesized primer sequence
 <400> 93
 catccgtaaa gacctctatg ccaac 25

 <210> 94
 <211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> An artificially synthesized primer sequence
 <400> 94
 atggagccac cgatccaca 19

<210> 95
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> An artificially synthesized primer sequence
 <400> 95
 caggagggag aacagaaact cca 23

<210> 96
 <211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> An artificially synthesized primer sequence
 <400> 96
 cctggttggc tgcttgctt 19

<210> 97
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> An artificially synthesized primer sequence
 <400> 97
 ctgccctggc tatggtcaca 20

<210> 98
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> An artificially synthesized primer sequence
 <400> 98
 agacaggtag ttgggtcggt tca 23