SEQUENCE LISTING

<110> Rinat Neuroscience Corp.
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Abdiche, Yasmin
Pons, Jaume
Sierra, Jones
Rosenthal, Arnon

<120> Antagonist Antibodies Directed Against Calcitonin Gene-Related Peptide and Methods of Using Same

<130> PC19499A

<160> 47

<170> PatentIn version 3.3

<210> 1
<211> 122
<212> PRT
<213> Artificial Sequence

<220>
<223> Heavy chain variable region of humanized antibody

<400> 1

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

Trp Ile Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Glu Ile Arg Ser Glu Ser Asp Ala Ser Ala Thr His Tyr Ala Glu
50 55 60

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

Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
85 90 95

Tyr Cys Leu Ala Tyr Phe Asp Tyr Gly Leu Ala Ile Gln Asn Tyr Trp
100 105 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 2
<211> 107
<212> PRT
<213> Artificial Sequence

<220>

<223> Light chain variable region of humanized antibody

<400> 2

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Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1               5                  10                  15

Glu Arg Ala Thr Leu Ser Cys Lys Ala Ser Lys Arg Val Thr Thr Tyr
            20                  25                  30

Val Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
        35                  40                  45

Tyr Gly Ala Ser Asn Arg Tyr Leu Gly Ile Pro Ala Arg Phe Ser Gly
    50                  55                  60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65                  70                  75                  80

Glu Asp Phe Ala Val Tyr Tyr Cys Ser Gln Ser Tyr Asn Tyr Pro Tyr
                85                  90                  95

Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100                 105
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<210> 3
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR H1 of humanized antibody

<400> 3

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Gly Phe Thr Phe Ser Asn Tyr Trp Ile Ser
1               5                  10
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<210> 4
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR H2 of humanized antibody

<400> 4

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Glu Ile Arg Ser Glu Ser Asp Ala Ser Ala Thr His Tyr Ala Glu Ala
1               5                  10                  15

Val Lys Gly
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<210> 5
<211> 11
<212> PRT

<213> Artificial Sequence

<220>
<223> CDR H3 of humanized antibody

<400> 5

Tyr Phe Asp Tyr Gly Leu Ala Ile Gln Asn Tyr
1 5 10

<210> 6
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR L1 of humanized antibody

<400> 6

Lys Ala Ser Lys Arg Val Thr Thr Tyr Val Ser
1 5 10

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

<220>
<223> CDR L2 of humanized antibody

<400> 7

Gly Ala Ser Asn Arg Tyr Leu
1 5

<210> 8
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR L3 of humanized antibody

<400> 8

Ser Gln Ser Tyr Asn Tyr Pro Tyr Thr
1 5

<210> 9
<211> 366
<212> DNA
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<220>
<223> Heavy chain variable region of a humanized antibody

<400> 9
gaagttcagc tggttgaatc cggtggtggt ctggttcagc caggtggttc cctgcgtctg 60

tcctgcgctg cttccggttt caccttctcc aactactgga tctcctgggt tcgtcaggct 120

cctggtaaag gtctggaatg ggttgctgaa atccgttccg aatccgacgc gtccgctacc 180

cattacgctg aagctgttaa aggtcgtttc accatctccc gtgacaacgc taagaactcc 240

ctgtacctgc agatgaactc cctgcgtgct gaagacaccg ctgtttacta ctgcctggct 300

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tcctcc 366

<210> 10
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Light chain variable region of a humanized antibody

<400> 10
gaaatcgttc tgacccagtc cccggctacc ctgtccctgt ccccaggtga acgtgctacc 60

ctgtcctgca aagcttccaa acgggttacc acctacgttt cctggtacca gcagaaaccc 120

ggtcaggctc ctcgtctgct gatctacggt gcttccaacc gttacctcgg tatcccagct 180

cgtttctccg gttccggttc cggtaccgac ttcaccctga ccatctcctc cctggaaccc 240

gaagacttcg ctgtttacta ctgcagtcag tcctacaact acccctacac cttcggtcag 300

ggtaccaaac tggaaatcaa a 321

<210> 11
<211> 448
<212> PRT
<213> Artificial Sequence

<220>
<223> Heavy chain full-length of a humanized antibody

<400> 11

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

Trp Ile Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Glu Ile Arg Ser Glu Ser Asp Ala Ser Ala Thr His Tyr Ala Glu
50 55 60

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

Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
85 90 95

Tyr Cys Leu Ala Tyr Phe Asp Tyr Gly Leu Ala Ile Gln Asn Tyr Trp

100 105 110

Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
115 120 125

Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr
130 135 140

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
145 150 155 160

Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
165 170 175

Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
180 185 190

Val Pro Ser Ser Asn Phe Gly Thr Gln Thr Tyr Thr Cys Asn Val Asp
195 200 205

His Lys Pro Ser Asn Thr Lys Val Asp Lys Thr Val Glu Arg Lys Cys
210 215 220

Cys Val Glu Cys Pro Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser
225 230 235 240

Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
245 250 255

Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
260 265 270

Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
275 280 285

Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val
290 295 300

Ser Val Leu Thr Val Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
305 310 315 320

Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr
325 330 335

Ile Ser Lys Thr Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
340 345 350

Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys
355 360 365

Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
370 375 380

Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp
385 390 395 400

Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
405 410 415

Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
420 425 430

Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
435 440 445

<210> 12
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Light chain full-length of a humanized antibody

<400> 12

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Lys Ala Ser Lys Arg Val Thr Thr Tyr
20 25 30

Val Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
35 40 45

Tyr Gly Ala Ser Asn Arg Tyr Leu Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Ser Gln Ser Tyr Asn Tyr Pro Tyr
85 90 95

Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala
100 105 110

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln

145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
210

<210> 13
<211> 1347
<212> DNA
<213> Artificial Sequence

<220>
<223> Heavy chain full-length of a humanized antibody

<400> 13
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tcctgcgctg cttccggttt caccttctcc aactactgga tctcctgggt tcgtcaggct 120

cctggtaaag gtctggaatg ggttgctgaa atccgttccg aatccgacgc gtccgctacc 180

cattacgctg aagctgttaa aggtcgtttc accatctccc gtgacaacgc taagaactcc 240

ctgtacctgc agatgaactc cctgcgtgct gaagacaccg ctgtttacta ctgcctggct 300

tactttgact acggtctggc tatccagaac tactggggtc agggtaccct ggttaccgtt 360

tcctccgcct ccaccaaggg cccatctgtc ttcccactgg ccccatgctc ccgcagcacc 420

tccgagagca cagccgccct gggctgcctg gtcaaggact acttcccaga acctgtgacc 480

gtgtcctgga actctggcgc tctgaccagc ggcgtgcaca ccttcccagc tgtcctgcag 540

tcctcaggtc tctactccct cagcagcgtg gtgaccgtgc catccagcaa cttcggcacc 600

cagacctaca cctgcaacgt agatcacaag ccaagcaaca ccaaggtcga caagaccgtg 660

gagagaaagt gttgtgtgga gtgtccacct tgtccagccc ctccagtggc cggaccatcc 720

gtgttcctgt tccctccaaa gccaaaggac accctgatga tctccagaac cccagaggtg 780

acctgtgtgg tggtggacgt gtcccacgag gacccagagg tgcagttcaa ctggtatgtg 840

gacggagtgg aggtgcacaa cgccaagacc aagccaagag aggagcagtt caactccacc 900

ttcagagtgg tgagcgtgct gaccgtggtg caccaggact ggctgaacgg aaaggagtat 960

aagtgtaagg tgtccaacaa gggactgcca tccagcatcg agaagaccat ctccaagacc 1020

aagggacagc caagagagcc acaggtgtat accctgcccc catccagaga ggagatgacc 1080

aagaaccagg tgtccctgac ctgtctggtg aagggattct atccatccga catcgccgtg 1140

gagtgggagt ccaacggaca gccagagaac aactataaga ccacccctcc aatgctggac 1200

tccgacggat ccttcttcct gtattccaag ctgaccgtgg acaagtccag atggcagcag 1260

ggaaacgtgt tctcttgttc cgtgatgcac gaggccctgc acaaccacta tacccagaag 1320

agcctgtccc tgtctccagg aaagtaa 1347

<210> 14
<211> 645
<212> DNA
<213> Artificial Sequence

<220>
<223> Light chain full-length of a humanized antibody

<400> 14
gaaatcgttc tgacccagtc cccggctacc ctgtccctgt ccccaggtga acgtgctacc 60

ctgtcctgca aagcttccaa acgggttacc acctacgttt cctggtacca gcagaaaccc 120

ggtcaggctc ctcgtctgct gatctacggt gcttccaacc gttacctcgg tatcccagct 180

cgtttctccg gttccggttc cggtaccgac ttcaccctga ccatctcctc cctggaaccc 240

gaagacttcg ctgtttacta ctgcagtcag tcctacaact acccctacac cttcggtcag 300

ggtaccaaac tggaaatcaa acgcactgtg gctgcaccat ctgtcttcat cttcctcca 360

tctgatgagc agttgaaatc cggaactgcc tctgttgtgt gcctgctgaa taacttctat 420

ccgcgcgagg ccaaagtaca gtggaaggtg gataacgccc tccaatccgg taactcccag 480

gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacc 540

ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600

ctgagttctc cagtcacaaa gagcttcaac cgcggtgagt gctaa 645

<210> 15
<211> 37
<212> PRT
<213> human

<400> 15

Ala Cys Asp Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu
1 5 10 15

Ser Arg Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val
20 25 30

Gly Ser Lys Ala Phe
35

<210> 16
<211> 30
<212> PRT
<213> human

<400> 16

Val Thr His Arg Leu Ala Gly Leu Leu Ser Arg Ser Gly Gly Val Val

1 5 10 15

Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser Lys Ala Phe
20 25 30

<210> 17
<211> 19
<212> PRT
<213> human

<400> 17

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Lys Ala Phe

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

<220>
<223> variant of fragment of human alpha-CGRP

<400> 18

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

Lys Ala Phe

<210> 19
<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 19

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Ala Ala Phe

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

<220>
<223> Fragement, variant of human alpha-CGRP

<400> 20

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Glu Ala Phe

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

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 21

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Met Ala Phe

<210> 22
<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 22

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Gln Ala Phe

<210> 23
<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 23

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Lys Ala Ala

<210> 24
<211> 14
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 24

Asn Asn Phe Val Pro Thr Asn Val Gly Ser Lys Ala Phe Ala
1 5 10

<210> 25
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 25

Asn Asn Phe Val Pro Thr Asn Val Gly Ser Lys Ala Phe
1 5 10

<210> 26
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 26

Asn Asn Ala Val Pro Thr Asn Val Gly Ser Lys Ala Phe
1 5 10

<210> 27
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 27

Asn Asn Phe Ala Pro Thr Asn Val Gly Ser Lys Ala Phe
1 5 10

<210> 28
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 28

Asn Asn Phe Val Ala Thr Asn Val Gly Ser Lys Ala Phe
1 5 10

<210> 29

<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 29

Asn Asn Phe Val Pro Ala Asn Val Gly Ser Lys Ala Phe
1 5 10

<210> 30
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 30

Asn Asn Phe Val Pro Thr Ala Val Gly Ser Lys Ala Phe
1 5 10

<210> 31
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 31

Asn Asn Phe Val Pro Thr Asn Ala Gly Ser Lys Ala Phe
1 5 10

<210> 32
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 32

Asn Asn Phe Val Pro Thr Asn Val Ala Ser Lys Ala Phe
1 5 10

<210> 33
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 33

Asn Asn Phe Val Pro Thr Asn Val Gly Ala Lys Ala Phe
1 5 10

<210> 34
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment, variant of human alpha-CGRP

<400> 34

Asn Asn Phe Val Pro Thr Asn Val Gly Ser Lys Ala Ala
1 5 10

<210> 35
<211> 12
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 35

Asn Phe Val Pro Thr Asn Val Gly Ser Lys Ala Phe
1 5 10

<210> 36
<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 36

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Lys Ala Phe

<210> 37
<211> 18
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 37

Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Lys Ala

<210> 38

<211> 36
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 38

Ala Cys Asp Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu
1 5 10 15

Ser Arg Ser Gly Gly Val Val Lys Asn Asn Phe Val Pro Thr Asn Val
20 25 30

Gly Ser Lys Ala
35

<210> 39
<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 39

Ala Cys Asp Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu
1 5 10 15

Ser Arg Ser

<210> 40
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of human alpha-CGRP

<400> 40

Ala Cys Asp Thr Ala Thr Cys Val Thr His Arg Leu Ala
1 5 10

<210> 41
<211> 37
<212> PRT
<213> Rat

<400> 41

Ser Cys Asn Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu
1 5 10 15

Ser Arg Ser Gly Gly Val Val Lys Asp Asn Phe Val Pro Thr Asn Val
20 25 30

Gly Ser Glu Ala Phe
35

<210> 42
<211> 19
<212> PRT
<213> Artificial sequence

<220>
<223> Fragment of rat alpha-CGRP

<400> 42

Ser Gly Gly Val Val Lys Asp Asn Phe Val Pro Thr Asn Val Gly Ser
1 5 10 15

Glu Ala Phe

<210> 43
<211> 37
<212> PRT
<213> Human

<400> 43

Ala Cys Asn Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu
1 5 10 15

Ser Arg Ser Gly Gly Met Val Lys Ser Asn Phe Val Pro Thr Asn Val
20 25 30

Gly Ser Lys Ala Phe
35

<210> 44
<211> 37
<212> PRT
<213> Rat

<400> 44

Ser Cys Asn Thr Ala Thr Cys Val Thr His Arg Leu Ala Gly Leu Leu
1 5 10 15

Ser Arg Ser Gly Gly Val Val Lys Asp Asn Phe Val Pro Thr Asn Val
20 25 30

Gly Ser Lys Ala Phe
35

<210> 45
<211> 32
<212> PRT
<213> Human

<400> 45

Cys Gly Asn Leu Ser Thr Cys Met Leu Gly Thr Tyr Thr Gln Asp Phe
1 5 10 15

Asn Lys Phe His Thr Phe Pro Gln Thr Ala Ile Gly Val Gly Ala Pro
20 25 30

<210> 46
<211> 37
<212> PRT
<213> Human

<400> 46

Lys Cys Asn Thr Ala Thr Cys Ala Thr Gln Arg Leu Ala Asn Phe Leu
1 5 10 15

Val His Ser Ser Asn Asn Phe Gly Ala Ile Leu Ser Ser Thr Asn Val
20 25 30

Gly Ser Asn Thr Tyr
35

<210> 47
<211> 52
<212> PRT
<213> Human

<400> 47

Tyr Arg Gln Ser Met Asn Asn Phe Gln Gly Leu Arg Ser Phe Gly Cys
1 5 10 15

Arg Phe Gly Thr Cys Thr Val Gln Lys Leu Ala His Gln Ile Tyr Gln
20 25 30

Phe Thr Asp Lys Asp Lys Asp Asn Val Ala Pro Arg Ser Lys Ile Ser
35 40 45

Pro Gln Gly Tyr
50