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<130>  US2016/011 US PCT; 15-2048-WO

<150>  US 62/358,404
<151>  2016-07-05

<150>  EP 16306090.8
<151>  2016-07-30

<160>  69

<170>  PatentIn version 3.5

<210>  1
<211>  36
<212>  PRT
<213>  Homo sapiens

<400>  1

Met Asn Tyr Pro Thr Leu Glu Met Asp Leu Glu
Asn Leu Glu Asp Leu
1               5                   10
15


Phe Trp Glu Leu Asp Arg Leu Asp Asn Tyr Asn
Thr Ser Leu Val Glu
            20                  25
30


Asn His Leu Cys
        35


<210>  2
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<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer


<220>
<221>  misc_feature
<222>  (18)..(18)
<223>  n is a, c, g, or t

<400>  2
cttccggaat tcsargtnma gctgsagsag tc
32


<210>  3
<211>  35
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer


<220>
<221>  misc_feature
<222>  (18)..(18)
<223>  n is a, c, g, or t

<400>  3
cttccggaat tcsargtnma gctgsagsag tcwgg
35


<210>  4
<211>  36
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  4
ggaggatcca tagacagatg ggggtgtcgt tttggc
36


<210>  5
<211>  31
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  5
ggagctcgay attgtgmtsa cmcarwctmc a
31


<210>  6
<211>  46
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  6
tatagagctc aagcttggat ggtgggaaga tggatacagt
tggtgc                        46


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

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  7
ccaagctgtg tcctrtcc
18


<210>  8
<211>  32
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  8
cgacaagtcg actagccctt gaccaggcat cc
32


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

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  9
wtctctrgag tcagtggg
18


<210>  10
<211>  32
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic primer

<400>  10
cgactagtcg actggtggga agatggatac ag
32


<210>  11
<211>  112
<212>  PRT
<213>  Mus sp.

<400>  11

Asp Ile Val Met Thr Gln Ala Ala Pro Ser Val
Ala Val Thr Pro Arg
1               5                   10
15


Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys
Ser Leu Leu His Ser
            20                  25
30


Ser Gly Lys Thr Tyr Leu Tyr Trp Phe Leu Gln
Arg Pro Gly Gln Ser
        35                  40
45


Pro Gln Leu Leu Ile Tyr Arg Met Ser Asn Leu
Ala Ser Gly Val Pro
    50                  55                  60


Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ala
Phe Thr Leu Arg Ile
65                  70                  75
80


Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr
Tyr Cys Met Gln His
                85                  90
95


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


<210>  12
<211>  111
<212>  PRT
<213>  Mus sp.

<400>  12

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


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


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


Gly Val Ile Trp Gly Asp Gly Thr Thr Tyr Tyr
Asn Ser Ala Leu Lys
    50                  55                  60


Ser Arg Leu Ser Ile Arg Lys Asp Asn Ser Gln
Ser Gln Val Phe Leu
65                  70                  75
80


Lys Met Asn Ser Leu Gln Thr Asp Asp Thr Ala
Met Tyr Tyr Cys Ala
                85                  90
95


Arg Ile Val Tyr Trp Gly Gln Gly Thr Leu Val
Thr Val Ser Ala
            100                 105
110


<210>  13
<211>  112
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  13

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


Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys
Ser Leu Leu His Ser
            20                  25
30


Ser Gly Lys Thr Tyr Leu Tyr Trp Phe Leu Gln
Arg Pro Gly Gln Ser
        35                  40
45


Pro Gln Leu Leu Ile Tyr Arg Met Ser Asn Leu
Ala Ser Gly Val Pro
    50                  55                  60


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


Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr
Tyr Cys Met Gln His
                85                  90
95


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


<210>  14
<211>  112
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  14

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


Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys
Ser Leu Leu His Ser
            20                  25
30


Ser Gly Lys Thr Tyr Leu Tyr Trp Phe Leu Gln
Arg Pro Gly Gln Ser
        35                  40
45


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


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


Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr
Tyr Cys Met Gln His
                85                  90
95


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


<210>  15
<211>  113
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  15

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


Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys
Ser Leu Leu His Ser
            20                  25
30


Ser Gly Lys Thr Tyr Leu Tyr Trp Phe Leu Gln
Arg Pro Gly Gln Ser
        35                  40
45


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


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


Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val
Tyr Tyr Cys Met Gln
                85                  90
95


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


Lys



<210>  16
<211>  111
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  16

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


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


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


Gly Val Ile Trp Gly Asp Gly Thr Thr Tyr Tyr
Asn Pro Ser Leu Lys
    50                  55                  60


Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys
Ser Gln Val Phe Leu
65                  70                  75
80


Lys Met Asn Ser Leu Thr Ala Ala Asp Thr Ala
Met Tyr Tyr Cys Ala
                85                  90
95


Arg Ile Val Tyr Trp Gly Gln Gly Thr Leu Val
Thr Val Ser Ser
            100                 105
110


<210>  17
<211>  238
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  17

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val
Ala Thr Ala Thr Gly
1               5                   10
15


Val His Ser Asp Ile Val Met Thr Gln Ser Ala
Leu Ser Val Ala Val
            20                  25
30


Thr Pro Gly Glu Ser Val Ser Ile Ser Cys Arg
Ser Ser Lys Ser Leu
        35                  40
45


Leu His Ser Ser Gly Lys Thr Tyr Leu Tyr Trp
Phe Leu Gln Arg Pro
    50                  55                  60


Gly Gln Ser Pro Gln Leu Leu Ile Tyr Arg Met
Ser Asn Leu Ala Ser
65                  70                  75
80


Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser
Gly Thr Ala Phe Thr
                85                  90
95


Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val
Gly Val Tyr Tyr Cys
            100                 105
110


Met Gln His Leu Glu Tyr Pro Tyr Thr Phe Gly
Gly Gly Thr Lys Leu
        115                 120
125


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


Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser
Val Val Cys Leu Leu
145                 150                 155
160


Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln
Trp Lys Val Asp Asn
                165                 170
175


Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val
Thr Glu Gln Asp Ser
            180                 185
190


Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu
Thr Leu Ser Lys Ala
        195                 200
205


Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu
Val Thr His Gln Gly
    210                 215
220


Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg
Gly Glu Cys
225                 230                 235


<210>  18
<211>  731
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polynucleotide

<400>  18
gctagcacca tgggctggag ctgcatcatc ctgttcctgg
tggccaccgc caccggcgtg       60

cacagcgaca tcgtgatgac ccagagcgcc ctcagcgtgg
ccgtgacccc cggcgagagc      120

gtgagcatca gctgccgcag cagcaagagc ctgctgcaca
gcagcggcaa gacctacctg      180

tactggttcc tgcagcgccc cggccagagc ccccagctgc
tgatctaccg catgagcaac      240

ctggccagcg gcgtgcccga ccgcttcagc ggcagcggca
gcggcaccgc cttcaccctg      300

aagatcagcc gcgtggaggc cgaggacgtg ggcgtgtact
actgcatgca gcacctggag      360

taccсctaca ccttcggcgg cggcaccaag ctggagatca
agcgtacggt ggccgctcct      420

tccgtgttca tcttccctcc ctccgacgag cagctgaagt
ccggcaccgc ctccgtggtg      480

tgtctgctga acaacttcta ccctcgggag gccaaggtgc
agtggaaggt ggacaacgcc      540

ctgcagtccg gcaactccca ggagtccgtc accgagcagg
actccaagga cagcacctac      600

tccctgtcct ccaccctgac cctgtccaag gccgactacg
agaagcacaa ggtgtacgcc      660

tgtgaggtga cccaccaggg cctgtccagc cctgtgacca
agtccttcaa ccggggcgag      720

tgctgaagct t
731


<210>  19
<211>  238
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  19

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val
Ala Thr Ala Thr Gly
1               5                   10
15


Val His Ser Asp Ile Val Met Thr Gln Ser Ala
Leu Ser Val Ala Val
            20                  25
30


Thr Pro Gly Glu Ser Val Ser Ile Ser Cys Arg
Ser Ser Lys Ser Leu
        35                  40
45


Leu His Ser Ser Gly Lys Thr Tyr Leu Tyr Trp
Phe Leu Gln Arg Pro
    50                  55                  60


Gly Gln Ser Pro Gln Leu Leu Ile Tyr Arg Leu
Ser Asn Leu Ala Ser
65                  70                  75
80


Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser
Gly Thr Ala Phe Thr
                85                  90
95


Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val
Gly Val Tyr Tyr Cys
            100                 105
110


Met Gln His Leu Glu Tyr Pro Tyr Thr Phe Gly
Gly Gly Thr Lys Leu
        115                 120
125


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


Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser
Val Val Cys Leu Leu
145                 150                 155
160


Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln
Trp Lys Val Asp Asn
                165                 170
175


Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val
Thr Glu Gln Asp Ser
            180                 185
190


Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu
Thr Leu Ser Lys Ala
        195                 200
205


Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu
Val Thr His Gln Gly
    210                 215
220


Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg
Gly Glu Cys
225                 230                 235


<210>  20
<211>  731
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polynucleotide

<400>  20
gctagcacca tgggctggag ctgcatcatc ctgttcctgg
tggccaccgc caccggcgtg       60

cacagcgaca tcgtgatgac ccagagcgcc ctcagcgtgg
ccgtgacccc cggcgagagc      120

gtgagcatca gctgccgcag cagcaagagc ctgctgcaca
gcagcggcaa gacctacctg      180

tactggttcc tgcagcgccc cggccagagc ccccagctgc
tgatctaccg cctgagcaac      240

ctggccagcg gcgtgcccga ccgcttcagc ggcagcggca
gcggcaccgc cttcaccctg      300

aagatcagcc gcgtggaggc cgaggacgtg ggcgtgtact
actgcatgca gcacctggag      360

taccсctaca ccttcggcgg cggcaccaag ctggagatca
agcgtacggt ggccgctcct      420

tccgtgttca tcttccctcc ctccgacgag cagctgaagt
ccggcaccgc ctccgtggtg      480

tgtctgctga acaacttcta ccctcgggag gccaaggtgc
agtggaaggt ggacaacgcc      540

ctgcagtccg gcaactccca ggagtccgtc accgagcagg
actccaagga cagcacctac      600

tccctgtcct ccaccctgac cctgtccaag gccgactacg
agaagcacaa ggtgtacgcc      660

tgtgaggtga cccaccaggg cctgtccagc cctgtgacca
agtccttcaa ccggggcgag      720

tgctgaagct t
731


<210>  21
<211>  238
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  21

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val
Ala Thr Ala Thr Gly
1               5                   10
15


Val His Ser Asp Ile Val Met Thr Gln Ser Ala
Leu Ser Val Ala Val
            20                  25
30


Thr Pro Gly Glu Ser Val Ser Ile Ser Cys Arg
Ser Ser Lys Ser Leu
        35                  40
45


Leu His Ser Ser Gly Lys Thr Tyr Leu Tyr Trp
Phe Leu Gln Arg Pro
    50                  55                  60


Gly Gln Ser Pro Gln Leu Leu Ile Tyr Arg Leu
Ser Ser Leu Ala Ser
65                  70                  75
80


Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser
Gly Thr Ala Phe Thr
                85                  90
95


Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val
Gly Val Tyr Tyr Cys
            100                 105
110


Met Gln His Leu Glu Tyr Pro Tyr Thr Phe Gly
Gly Gly Thr Lys Leu
        115                 120
125


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


Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser
Val Val Cys Leu Leu
145                 150                 155
160


Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln
Trp Lys Val Asp Asn
                165                 170
175


Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val
Thr Glu Gln Asp Ser
            180                 185
190


Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu
Thr Leu Ser Lys Ala
        195                 200
205


Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu
Val Thr His Gln Gly
    210                 215
220


Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg
Gly Glu Cys
225                 230                 235


<210>  22
<211>  731
<212>  DNA
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polynucleotide

<400>  22
gctagcacca tgggctggag ctgcatcatc ctgttcctgg
tggccaccgc caccggcgtg       60

cacagcgaca tcgtgatgac ccagagcgcc ctcagcgtgg
ccgtgacccc cggcgagagc      120

gtgagcatca gctgccgcag cagcaagagc ctgctgcaca
gcagcggcaa gacctacctg      180

tactggttcc tgcagcgccc cggccagagc ccccagctgc
tgatctaccg cctgagcagc      240

ctggccagcg gcgtgcccga ccgcttcagc ggcagcggca
gcggcaccgc cttcaccctg      300

aagatcagcc gcgtggaggc cgaggacgtg ggcgtgtact
actgcatgca gcacctggag      360

taccсctaca ccttcggcgg cggcaccaag ctggagatca
agcgtacggt ggccgctcct      420

tccgtgttca tcttccctcc ctccgacgag cagctgaagt
ccggcaccgc ctccgtggtg      480

tgtctgctga acaacttcta ccctcgggag gccaaggtgc
agtggaaggt ggacaacgcc      540

ctgcagtccg gcaactccca ggagtccgtc accgagcagg
actccaagga cagcacctac      600

tccctgtcct ccaccctgac cctgtccaag gccgactacg
agaagcacaa ggtgtacgcc      660

tgtgaggtga cccaccaggg cctgtccagc cctgtgacca
agtccttcaa ccggggcgag      720

tgctgaagct t
731


<210>  23
<211>  456
<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Description of Artificial Sequence:
Synthetic polypeptide

<400>  23

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val
Ala Thr Ala Thr Gly
1               5                   10
15


Val His Ser Gln Val Gln Leu Gln Glu Ser Gly
Pro Gly Leu Val Ala
            20                  25
30


Pro Ser Glu Ser Leu Ser Ile Thr Cys Thr Val
Ser Gly Phe Ser Leu
        35                  40
45


Ile Asp Tyr Gly Val Asn Trp Ile Arg Gln Pro
Pro Gly Lys Gly Leu
    50                  55                  60


Glu Trp Leu Gly Val Ile Trp Gly Asp Gly Thr
Thr Tyr Tyr Asn Pro
65                  70                  75
80


Ser Leu Lys Ser Arg Leu Ser Ile Ser Lys Asp
Asn Ser Lys Ser Gln
                85                  90
95


Val Phe Leu Lys Met Asn Ser Leu Thr Ala Ala
Asp Thr Ala Met Tyr
            100                 105
110


Tyr Cys Ala Arg Ile Val Tyr Trp Gly Gln Gly
Thr Leu Val Thr Val
        115                 120
125


Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
Pro Leu Ala Pro Cys
    130                 135
140


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


Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
Asn Ser Gly Ala Leu
                165                 170
175


Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
Gln Ser Ser Gly Leu
            180                 185
190


Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
Ser Ser Leu Gly Thr
        195                 200
205


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