

Gene: EGFR - Sequence: NG\_007726.3

Exon 1 | Start: 1 | End: 334 | Length: 333

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ctcccgatccctcctccgccgcctggtcctcctcctcccgccctgcctccccgcgcctc
                                     |-239      |-229      |-21-
ggccccgcgcgagctagacgtccgggcagccCCCCGGCGCAGCGGGCCGAGCAGCCTCC
      |-209      |-199      |-189      |-179      |-169      |-15-
GCCCCCGCACGGTGTGAGCGCCCGACGCGGCCGAGGCGGCCGAGTCCCGAGCTAGCCC
      |-149      |-139      |-129      |-119      |-109      |-99
CGGCGGCCGCCGCCGCCAGACCGGACGACAGGCCACCTCGTCGGCGTCCGCCCGAGTCC
      |-89      |-79      |-69      |-59      |-49      |-39
CCGCCTCGCCGCCAACGCCACAACCACCGCGCACGGCCCCCTGACTCCGTCCAGTATTGA
      |-29      |-19      |-9      |1      |11      |21
TCGGGAGAGCCGGAGCGAGCTCTTCGGGGAGCAGCGATGCGACCCTCCGGGACGGCCGGG
      M R P S G T A G
      |31      |41      |51      |61      |71      |81
GCAGCGCTCCTGGCGCTGCTGGCTGCGCTCTGCCCGCGAGTCGGGCTCTGGAGGAAAAG
A A L L A L L A A L C P A S R A L E E K
AAAGgtaaggcggtgtctcgccggctcccgcgccgccccggatcgcgccccggaccccg
K
cagccccccaaccgcgcaccggcgacccggctc
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Exon 2 | Start: 335 | End: 486 | Length: 151

cccttaatacctggaccttgagggattgttttatttttagtttttctgcatttctcagtat

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                                     |91      |101      |111
ttcatgtgatatctgtctttttcttccagtTTTGCCAAGGCACGAGTAACAAGCTCACGC
                                     V C Q G T S N K L T
    |121      |131      |141      |151      |161      |171
AGTTGGGCACTTTTGAAGATCATTTCAGCCTCCAGAGGATGTTCAATAACTGTGAGG
Q L G T F E D H F L S L Q R M F N N C E
    |181      |191      |201      |211      |221      |231
TGGTCCTTGGGAATTTGGAAATTACCTATGTGCAGAGGAATTATGATCTTCCTTCTTAA
V V L G N L E I T Y V Q R N Y D L S F L
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AGgttggtgacttttgattttcctacacaaataaaattggagaaaatctaagtggagaaag  
K

gcctgggcagaattccacttgaagtgtgttta

Exon 3 | Start: 487 | End: 670 | Length: 183

gcgtcctagggctccctggacccatttttagaccttgagttcttgagttcctcaaaagaga

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                                     |241      |251      |261
aatcacgcatttatgttttctcttcttagaACCATCCAGGAGGTGGCTGGTTATGTCCTC
                                     T I Q E V A G Y V L
|271      |281      |291      |301      |311      |321
ATTGCCCTCAACACAGTGGAGCGAATTCCTTTGGAAAACCTGCAGATCATCAGAGGAAAT
I A L N T V E R I P L E N L Q I I R G N
|331      |341      |351      |361      |371      |381
ATGTACTACGAAAATTCCTATGCCTTAGCAGTCTTATCTAACTATGATGCAAATAAAACC
M Y Y E N S Y A L A V L S N Y D A N K T
|391      |401      |411      |421
GGA CTGAAGGAGCTGCCCATGAGAAATTTACAGGgtgagaggctgggatgccaaggctgg
G L K E L P M R N L Q
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gggttcataaatgcagacagcagttccgatggctcccagcgagcttgtcactcaattcca

cctc

Exon 4 | Start: 671 | End: 805 | Length: 134

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cagaacataaatgcgaagagcacatgcatccttcattgggaatttaaaggagctggaaaga

                                     |431      |441      |451
gtgctcaccgcagttccattctcccgacagaAAATCCTGCATGGCGCCGTGCGGTTCAGCA
                                     E I L H G A V R F S
      |461      |471      |481      |491      |501      |511
ACAACCCTGCCCTGTGCAACGTGGAGAGCATCCAGTGGCGGGACATAGTCAGCAGTGACT
N N P A L C N V E S I Q W R D I V S S D
      |521      |531      |541      |551
TTCTCAGCAACATGTCGATGGACTTCCAGAACCACCTGGGCAGCTgtaagtgtcgcatac
F L S N M S M D F Q N H L G S

acactatctctgcctccagctcctatgggggacagctctacagcactgggggcaggggaga

gaagccatgtttagt
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Exon 5 | Start: 806 | End: 874 | Length: 68

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ttgaatgtgcttaactcaggcccggaaggcgatcagtttctcatcatttcactga

                                     |561      |571      |581
gatatgcatctattacttttacatttcaggGCCAAAAGTGTGATCCAAGCTGTCCCAATG
                                     C Q K C D P S C P N
      |591      |601      |611      |621
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V C R K F R D E A T  
 |781 |791 |801 |811 |821 |831  
 TGCAAGGACACCTGCCCCCACTCATGCTCTACAACCCACACGTACCAGATGGATGTG  
 C K D T C P P L M L Y N P T T Y Q M D V  
 |841 |851 |861 |871 |881  
 AACCCCGAGGGCAAATACAGCTTTGGTGCCACCTGCGTGAAGAAGTGTCCCCgtgagtcc  
 N P E G K Y S F G A T C V K K C P  
  
 tcctctgtgggccctctaactggtcaggcatccttgtcccgctctgtctcctgctgagcc  
  
 ctggagtatcccatcttgaga

Exon 8 | Start: 1136 | End: 1252 | Length: 116

tcacccctcaagaggacctggaccgcctgtgtgaggcccgagcacctggtgccaccgtca  
  
 |891 |901 |911  
 tcaccttcctttcatgctctcttccccaggGTAATTATGTGGTGACAGATCACGGCTCGT  
 R N Y V V T D H G S  
 |921 |931 |941 |951 |961 |971  
 GCGTCCGAGCCTGTGGGGCCGACAGCTATGAGATGGAGGAAGACGGCGTCCGCAAGTGTA  
 C V R A C G A D S Y E M E E D G V R K C  
 |981 |991 |1001  
 AGAAGTGCGAAGGGCCTTGCCGCAAAGgtaggaagcccgccggtgtgcggacgaggcttg  
 K K C E G P C R K  
  
 ttctcggtgctgaggctgggctctcatgccacctccaaaggaacacatcttcctct

Exon 9 | Start: 1253 | End: 1379 | Length: 126

ttccttcctgcttccctctgcctgtggatccctagctattcttaatccaacaaatgtgaa

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                                |1011      |1021      |1031
cggaatacacgtctctcttatctctgcagtTGTGTAACGGAATAGGTATTGGTGAATTTA
                                V C N G I G I G E F
      |1041      |1051      |1061      |1071      |1081      |1091
AAGACTCACTCTCCATAAATGCTACGAATATTAAACACTTCAAAAAGTGCACCTCCATCA
K D S L S I N A T N I K H F K N C T S I
      |1101      |1111      |1121      |1131
GTGGCGATCTCCACATCCTGCCGGTGGCATTTAGGGGgtgagtcacaggttcagttgctt
S G D L H I L P V A F R G
```

gtataaagaaaaacaaaatctgcctttttaactggtagagattgggtgatcaataatcacc

ctgttgt

Exon 10 | Start: 1380 | End: 1453 | Length: 73

ggttcagttgcttgtataaagaaaaacaaaatctgcctttttaactggtagagattgggtg

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                                |1141      |1151      |1111
atcaataatcaccctgttggtttgtttcagtTGACTCCTTCACACATACTCCTCCTCTGGA
                                D S F T H T P P L D
      |1171      |1181      |1191      |1201
TCCACAGGAACTGGATATTCTGAAAACCGTAAAGGAAATCACAGgtttgagctgaattat
P Q E L D I L K T V K E I T
```

cacatgaatataaatgggaaatcagtgtttttagagagagaacttttcgacatatttcctg

ttcccttgaataa

Exon 11 | Start: 1454 | End: 1544 | Length: 90

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acagagtcacctgagagtcctagagtaatgtctcatacaaaaaagaaactcctacgtggtgt

                                |1211      |1221      |1231
gtgtctgaagtctttcatctgccttacaggGGTTTTTGCTGATTGAGGCTTGGCCTGAAA
                                G F L L I Q A W P E
                                |1241      |1251      |1261      |1271      |1281      |1291
ACAGGACGGACCTCCATGCCTTTGAGAACCTAGAAATCATAACGGCAGGACCAAGCAAC
N R T D L H A F E N L E I I R G R T K Q

Agtaagttgaccacagccaaagcctggtagattacatttgccttttttagttggaaattag
H

gcttaacaggagagttgctaagatagggcac
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Exon 12 | Start: 1545 | End: 1744 | Length: 199

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aatcaaaggtggtctggagaaacaaagttttcagggatacattgtttttataatttttca

                                |1301      |1311      |1321
ccacatgatTTTTCTTCTCTCCAATGtagtTGGTCAGTTTTCTCTTGAGTCGTCAGCCT
                                G Q F S L A V V S L
                                |1331      |1341      |1351      |1361      |1371      |1381
GAACATAACATCCTTGGGATTACGCTCCCTCAAGGAGATAAGTGATGGAGATGTGATAAT
N I T S L G L R S L K E I S D G D V I I
                                |1391      |1401      |1411      |1421      |1431      |1441
TTCAGGAAACAAAAATTTGTGCTATGCAAATACAATAAACTGGAAAAAACTGTTTGGGAC
S G N K N L C Y A N T I N W K K L F G T
                                |1451      |1461      |1471      |1481      |1491
CTCCGGTCAGAAAACCAAAATTATAAGCAACAGAGGTGAAAAACAGCTGCagtaagtcacc
S G Q K T K I I S N R G E N S C

gctttctgttttagtttatggagttggttctaattgggtcctttatttgtatttagaatatt
```

gaagggtattcccatTTAA

Exon 13 | Start: 1745 | End: 1877 | Length: 132

cagggtccctcccggaagggtgctgtctcctccgggtccctgctgtgact  
gactgctgtgacctctgtctccgcagaAGGCCACAGGCCAGGTCTGCCATGCCTTGT  
K A T G Q V C H A L  
GCTCCCCGAGGGCTGCTGGGGCCCGAGCCAGGGACTGCGTCTCTTGCCGGAATGTCA  
C S P E G C W G P E P R D C V S C R N V  
GCCGAGGCAGGAATGCGTGGACAAGTGCAACCTTCTGGAGGGgtaggaggttatttctt  
S R G R E C V D K C N L L E G  
taatcccttgcttgatcaaaataaggctccagggttggttatagctttacaggcat  
tctgtttgatttt

Exon 14 | Start: 1878 | End: 1968 | Length: 90

caagttatttggaattttgaagaggtgatttggttcctgcaataatgtctcaggggtgg  
gctgacgggtttcctcttcctcctcctcagtTGAGCCAAGGGAGTTTGTGGAGAACTCTGA  
E P R E F V E N S E



|1671      |1681      |1691      |1701      |1711      |1127  
 GTGCATACAGTGCCACCCAGAGTGCCTGCCTCAGGCCATGAACATCACCTGCACAGGACG  
 C I Q C H P E C L P Q A M N I T C T G R  
 Ggtaagagccccttgctgctatccacgtccatttcatgggaagggccttcacagaagccg  
 aacagtgatgatggcccaggcatcctgtgt

Exon 15 | Start: 1969 | End: 2126 | Length: 157

acactaaatattttaagtaaaaagttacttccattttgaaagagaaaagaaagagacatg  
 |1731      |1741      |1115  
 catgaacatttttctccaccttggtgcaggGGACCAGACAACTGTATCCAGTGTGCCCAC  
 G P D N C I Q C A H  
 |1761      |1771      |1781      |1791      |1801      |1111  
 TACATTGACGGCCCCCACTGCGTCAAGACCTGCCCGGCAGGAGTCATGGGAGAAAAACAAC  
 Y I D G P H C V K T C P A G V M G E N N  
 |1821      |1831      |1841      |1851      |1861      |1117  
 ACCCTGGTCTGGAAGTACGCAGACCGGCCATGTGTGCCACCTGTGCCATCCAAACTGC  
 T L V W K Y A D A G H V C H L C H P N C  
 ACCTACGGgtgagtggaaagtgaaggagaaacagaacatttcctctcttgcaaattcagag  
 T Y G  
 atcaaaaatgtctccaagttttccggcaacaaattgc

Exon 16 | Start: 2127 | End: 2165 | Length: 38



tgggtccccctgctgggccatgtctggcactgctttccagcatggtgagggctgaggtgac  
  
 ccttgtctctgtgttcttgtccccccagcCTTGTGGAGCCTTTACACCCAGTGGAGAA  
 L V E P L T P S G E  
 |2101 |2111 |2121 |2131 |2141 |2151  
 GCTCCCAACCAAGCTCTCTTGAGGATCTTGAAGGAACTGAATTCAAAAAGATCAAAGTG  
 A P N Q A L L R I L K E T E F K K I K V  
 |2161 |2171 |2181  
 CTGGGCTCCGGTCCGTTCCGGCACGGTGTATAAGgtaaggtccctggcacaggcctctggg  
 L G S G A F G T V Y K  
  
 ctggggccgcagggcctctcatggtctggtggggagcccagagtccttgcaagctgtatat  
  
 ttc

Exon 19 | Start: 2431 | End: 2529 | Length: 98

tcgctggtaacatccaccagatcactgggcagcatgtggcaccatctcacaattgccag  
  
 ttaacgtcttccttctctctgtcataggGGA CTCTGGATCCCAGAAGGTGAGAAAAGTT  
 G L W I P E G E K V  
 |2221 |2231 |2241 |2251 |2261 |2272  
 AAAATTCCCGTCGCTATCAAGGAATTAAGAGAAGCAACATCTCCGAAAGCCAACAAGGAA  
 K I P V A I K E L R E A T S P K A N K E  
 |2281  
 ATCCTCGATgtgagtttctgctttgctgtgtgggggtccatggctctgaacctcaggccc  
 I L D  
  
 accttttctcatgtctggcagctgctctgctctagaccc

Exon 20 | Start: 2530 | End: 2715 | Length: 185

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t t c a t g c g t c t t c a c c t g g a a g g g t c c a t g t g c c c c t c t t c t g g c c a c c a t g c g a a g c

                                     |2291      |2301      |2321
c a c a c t g a c g t g c c t c t c c c t c c c t c c a g g G A A G C C T A C G T G A T G G C C A G C G T G G A C A A C
                                     E   A   Y   V   M   A   S   V   D   N
      |2321      |2331      |2341      |2351      |2361      |2321
C C C C A C G T G T G C C G C C T G C T G G G C A T C T G C C T C A C C T C C A C C G T G C A G C T C A T C A C G C A G
P   H   V   C   R   L   L   G   I   C   L   T   S   T   V   Q   L   I   T   Q
      |2381      |2391      |2401      |2411      |2421      |2421
C T C A T G C C C T T C G G C T G C C T C C T G G A C T A T G T C C G G A A C A C A A G A C A A T A T T G G C T C C
L   M   P   F   G   C   L   L   D   Y   V   R   E   H   K   D   N   I   G   S
      |2441      |2451      |2461
C A G T A C C T G C T C A A C T G G T G T G T G C A G A T C G C A A A G g t a a t c a g g g a a g g g a g a t a c g g g
Q   Y   L   L   N   W   C   V   Q   I   A   K

g a g g g g a g a t a a g g a g c c a g g a t c c t c a c a t g c g g t c t g c g c t c c t g g g a t a g c a a g a g t

t t g c c a
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Exon 21 | Start: 2716 | End: 2871 | Length: 155

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g a g c c t g g c a t g a a c a t g a c c c t g a a t t c g g a t g c a g a g c t t c t t c c c a t g a t g a t c t g t

                                     |2471      |2481      |2491
c c c t c a c a g c a g g g t c t t c t c t g t t t c a g g G G C A T G A A C T A C T T G G A G G A C C G T C G C T T G
                                     G   M   N   Y   L   E   D   R   R   L
      |2501      |2511      |2521      |2531      |2541      |2551
G T G C A C C G C G A C C T G G C A G C C A G G A A C G T A C T G G T G A A A A C A C C G C A G C A T G T C A A G A T C
V   H   R   D   L   A   A   R   N   V   L   V   K   T   P   Q   H   V   K   I
      |2561      |2571      |2581      |2591      |2601      |2611
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ACAGATTTTGGGCTGGCCAAACTGCTGGGTGCGGAAGAGAAAGAATACCATGCAGAAGGA  
T D F G L A K L L G A E E K E Y H A E G  
|2621  
GGCAAAgtaaggaggtggcttttaggtcagccagcattttcctgacaccagggaccaggct  
G K  
gccttcccactagctgtattgtttaacacatgcagg

Exon 22 | Start: 2872 | End: 2947 | Length: 75

cactcgttaattaggtccagagtgagttaactttttccaacagagggaaactaatagttgt  
|2631 |2641 |2651  
ctcactgcctcatctctcaccatcccaaggGTGCCTATCAAGTGGATGGCATTGGAATCA  
V P I K W M A L E S  
|2661 |2671 |2681 |2691 |2701  
ATTTTACACAGAATCTATACCCACCAGAGTGATGTCTGGAGCTACGgtgagtcataatcc  
I L H R I Y T H Q S D V W S Y  
tgatgctaataagttgtactgaggccaagctggcttttattgttagttaatttacatta  
tatacctctgacatgca

Exon 23 | Start: 2948 | End: 3094 | Length: 146

aacagtaaccagtaatgatgactaaagcaagggttgattgtgattgttcattcatgatccac  
|2711 |2721 |2137  
tgccttcttttcttgcttcacacctcagggGGGTGACCGTTTGGGAGTTGATGACCTTTG

G V T V W E L M T F  
 |2741 |2751 |2761 |2771 |2781 |2197  
 GATCCAAGCCATATGACGGAATCCCTGCCAGCGAGATCTCCTCCATCCTGGAGAAAGGAG  
 G S K P Y D G I P A S E I S S I L E K G  
 |2801 |2811 |2821 |2831 |2841  
 AACGCCTCCCTCAGCCACCCATATGTACCATCGATGTCTACATGATCATGGTCAAGTgtg  
 E R L P Q P P I C T I D V Y M I M V K  
  
 agtgactgggtgggtctgtccacactgcctagctgagccttgggtggctgctcttagccaaa  
  
 cagctgaggcctttgcatccctggaga

Exon 24 | Start: 3095 | End: 3192 | Length: 97

cgcatcaccaatgccttctttaagcaatgccatctttatcatttcttccagtgttctaata  
  
 |2851 |2861 |2871  
 tgcaactgttttttctcattccttccccaggGCTGGATGATAGACGCAGATAGTCGCCCAA  
 C W M I D A D S R P  
 |2881 |2891 |2901 |2911 |2921 |2931  
 AGTTCCGTGAGTTGATCATCGAATTCTCCAAAATGGCCCGAGACCCCAGCGCTACCTTG  
 K F R E L I I E F S K M A R D P Q R Y L  
 |2941  
 TCATTAGgtacaaattgcagtctgtgcttccattgggaagagtccttctaataagcatc  
 V I Q  
  
 tcatgtcactgtgttctgtcacatgccagcctggcctc

Exon 25 | Start: 3193 | End: 3360 | Length: 167

ctgctggcaatagacccctgctcctatagccaagaagtggaatagcatctctacgggcca

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                                     |2951      |2961      |2971
ttctaatagcctcaaaatctctgcaccaggGGGGATGAAAGAATGCATTGCCAAGTCCT
                                     G D E R M H L P S P
      |2981      |2991      |3001      |3011      |3021      |3031
ACAGACTCCAACCTTCTACCGTGCCCTGATGGATGAAGAAGACATGGACGACGTGGTGGAT
T D S N F Y R A L M D E E D M D D V V D
      |3041      |3051      |3061      |3071      |3081      |3091
GCCGACGAGTACCTCATCCACAGCAGGGCTTCTTCAGCAGCCCCTCCACGTCACGGACT
A D E Y L I P Q Q G F F S S P S T S R T
      |3101      |3111
CCCCCTCCTGAGCTCTCTGgtatgaaatctctgtctctctctctctcaagctgtgtcta
P L L S S L
```

ctcatttgaacaaattgaatttttagggaaaataaccatctagtgaac

Exon 26 | Start: 3361 | End: 3408 | Length: 47

cctccatgaggcacaccacctgcattcaggaaaagtggatgagatgtggtacaagcattc

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                                     |3121      |3131      |3143
catgggcaacttctctgtttctttttcagaAGTGCAACCAGCAACAATTCCACCGTGGCT
                                     S A T S N N S T V A
      |3151      |3161
TGCATTGATAGAAATGGGgtatgtatgaacaccttataagccagaatttacagctctcca
C I D R N G
```

ctatggctctattttacatggaaaatgccttaacctaaataatttta

Exon 27 | Start: 3409 | End: 3517 | Length: 108

gcattctcaaggagatctcgggtgatttttgcaaactgaagttggggcagccctgaccg

gagtaaccttcctcatttcctcctgcagcCTGCAAAGCTGTCCCATCAAGGAAGACAGC  
L Q S C P I K E D S

TTCTTGCGGATACAGCTCAGACCCACAGGCGCCTTGACTGAGGACAGCATAGACGAC  
F L Q R Y S S D P T G A L T E D S I D D

ACCTTCCTCCAGTGCCTGgtgagtggtgtgtctggaacagtcctgctcctcaacctcc  
T F L P V P

tcgaccactcagcagcagccagtctccagtgtccaagccaggtgctcc

Exon 28 | Start: 3518 | End: 5600 | Length: 2082

gaggacattcacagggttcagaacccagggatcctgcatgggatggtgctttgctgatta

cttcacctctgattttctttccactttcagaAATACATAAACAGTCCGTTCCTCCAAAAGGC  
E Y I N Q S V P K R

CCGCTGGCTCTGTGCAGAATCCTGTCTATCACAATCAGCCTCTGAACCCCGCGCCAGCA  
P A G S V Q N P V Y H N Q P L N P A P S

GAGACCCACACTACCAGGACCCCGACAGCACTGCAGTGGGCAACCCCGAGTATCTCAACA  
R D P H Y Q D P H S T A V G N P E Y L N

CTGTCCAGCCACCTGTGTCAACAGCACATTCGACAGCCCTGCCCAGTGGGCCAGAAAG  
T V Q P T C V N S T F D S P A H W A Q K

GCAGCCACCAAATTAGCCTGGACAACCTGACTACCAGCAGGACTTCTTTCCCAAGGAAG  
G S H Q I S L D N P D Y Q Q D F F P K E

CCAAGCCAAATGGCATCTTTAAGGGCTCCACAGCTGAAAATGCAGAATACCTAAGGGTCG



A K P N G I F K G S T A E N A E Y L R V  
 |3611 |3621 |3631 |3641 |3651 |3166  
 CGCCACAAAGCAGTGAATTTATTGGAGCATGACCACGGAGGATAGTATGAGCCCTAAAAA  
 A P Q S S E F I G A  
 |3671 |3681 |3691 |3701 |3711 |3127  
 TCCAGACTCTTTGATACCCAGGACCAAGCCACAGCAGGTCCTCCATCCCAACAGCCATG  
  
 |3731 |3741 |3751 |3761 |3771 |3187  
 CCCGCATTAGCTCTTAGACCCACAGACTGGTTTTGCAACGTTTACACCGACTAGCCAGGA  
  
 |3791 |3801 |3811 |3821 |3831 |3148  
 AGTACTTCCACCTCGGGCACATTTTGGGAAGTTGCATTCCCTTGTCTTCAAACGTGAAG  
  
 |3851 |3861 |3871 |3881 |3891 |3109  
 CATTTACAGAAACGCATCCAGCAAGAATATTGTCCCTTTGAGCAGAAATTTATCTTTCAA  
  
 |3911 |3921 |3931 |3941 |3951 |3169  
 AGAGGTATATTTGAAAAAAAAAAAAAGTATATGTGAGGATTTTATTGATTGGGGATCTT  
  
 |3971 |3981 |3991 |4001 |4011 |4120  
 GGAGTTTTTCATTGTCGCTATTGATTTTTACTTCAATGGGCTCTTCCAACAAGGAAGAAG  
  
 |4031 |4041 |4051 |4061 |4071 |4180  
 CTTGCTGGTAGCACTTGTACCCTGAGTTCATCCAGGCCCAACTGTGAGCAAGGAGCACA  
  
 |4091 |4101 |4111 |4121 |4131 |4141  
 AGCCACAAGTCTTCCAGAGGATGCTTGATTCCAGTGGTTCTGCTTCAAGGCTTCCACTGC  
  
 |4151 |4161 |4171 |4181 |4191 |4102  
 AAAACACTAAAGATCCAAGAAGGCCTTCATGGCCCCAGCAGGCCGGATCGGTACTGTATC  
  
 |4211 |4221 |4231 |4241 |4251 |4162  
 AAGTCATGGCAGGTACAGTAGGATAAGCCACTCTGTCCCTTCTGGGCAAAGAAGAAACG  
  
 |4271 |4281 |4291 |4301 |4311 |4123  
 GAGGGGATGGAATTCTTCCTTAGACTTACTTTTGTA AAAATGTCCCCACGGTACTTACTC  
  
 |4331 |4341 |4351 |4361 |4371 |4183  
 CCCACTGATGGACCAAGTGGTTTCCAGTCATGAGCGTTAGACTGACTTGTTTGTCTTCCAT  
  
 |4391 |4401 |4411 |4421 |4431 |4144  
 TCCATTGTTTTGAAACTCAGTATGCTGCCCTGTCTTGCTGTCATGAAATCAGCAAGAGA  
  
 |4451 |4461 |4471 |4481 |4491 |4105  
 GGATGACACATCAAATAAATAACTCGGATTCCAGCCCACATTGGATTCATCAGCATTTGGA

4511	4521	4531	4541	4551	4165
CCAATAGCCACAGCTGAGAATGTGAATACCTAAGGATAGCACCGCTTTTGTTCGCA					
4571	4581	4591	4601	4611	4126
AAAACGTATCTCCTAATTGAGGCTCAGATGAAATGCATCAGGTCCTTTGGGGCATAGAT					
4631	4641	4651	4661	4671	4186
CAGAAGACTACAAAAATGAAGCTGCTCTGAAATCTCCTTTAGCCATCACCCCAACCCCC					
4691	4701	4711	4721	4731	4147
AAAATTAGTTTGTGTTACTTATGGAAGATAGTTTCTCCTTTACTTCACTTCAAAAGCT					
4751	4761	4771	4781	4791	4108
TTTTACTCAAAGAGTATATGTTCCCTCCAGGTCAGCTGCCCCAAACCCCTCCTTACGC					
4811	4821	4831	4841	4851	4168
TTTGTACACAAAAAGTGTCTCTGCCTTGAGTCATCTATTCAAGCACTTACAGCTCTGGC					
4871	4881	4891	4901	4911	4129
CACACAGGGCATTTTACAGGTGCGAATGACAGTAGCATTATGAGTAGTGTGGAATTGAG					
4931	4941	4951	4961	4971	4189
GTAGTAAATATGAACTAGGGTTTGAAATTGATAATGCTTTCACAACATTGTCAGATGTT					
4991	5001	5011	5021	5031	5140
TTAGAAGGAAAAAAGTTCCTTCCTAAAATAATTTCTCTACAATTGGAAGATTGGAAGATT					
5051	5061	5071	5081	5091	5101
CAGCTAGTTAGGAGCCACCTTTTTTCCTAATCTGTGTGTGCCCTGTAACCTGACTGGTT					
5111	5121	5131	5141	5151	5161
AACAGCAGTCCTTTGTAAACAGTGTTTTAACTCTCCTAGTCAATATCCACCCCATCCAA					
5171	5181	5191	5201	5211	5122
TTTATCAAGGAAGAAATGGTTCAGAAAAATATTTTCAGCCTACAGTTATGTTTCAGTCACAC					
5231	5241	5251	5261	5271	5182
ACACATACAAAATGTTTCCTTTTGCTTTTAAAGTAATTTTTGACTCCCAGATCAGTCAGAG					
5291	5301	5311	5321	5331	5143
CCCCTACAGCATTGTTAAGAAAGTATTTGATTTTGTCTCAATGAAAATAAACTATATT					
5351					
CATTTCCACTCTAttatgctctcaaataccctaagcatctatactagcctggatatgggt					

atgaaagatacaaagataaataaaacatagtcacctgattctaa