Gene: ENSG00000165671 - Sequence: ENST00000439151
Transcript: ENST00000439151 - Protein: ENSP00000395929
Date : February 25, 2015

1^{st} line: Base numbering. Full stops for intronic +/- 5, 10, 15...
2^{nd} line: Base sequence. lower case Introns, upper case Exons
3^{rd} line: Amino acid sequence. Printed on FIRST base of codon
4^{th} line: Amino acid numbering. Numbered on 1^{st} and increments of 10

```
Exon 1 | Start: 1400 | End: 1428 | Length: 28

.    .    .    .    .    .    .    .    .    .    .    .
aaccccgaagagtgagagaagggaacgcgcgcgctcggtgggggaaggggtgcgcgcgca

.    .    .    .    .    .    .    .    .    .    .    .
ctcggggcccagccgcacgcgggccggcgcgaggcgctcggtcgcacgcgcggccgcggg

.    .    .    .    .    .    .    .    .    .    .    .
ggcgcgcgcggtgggggtgtgaggaggaggaggcggcggcggaataggccggggcaggtc

.    .    .    .    .    .    .    .    .    .    .    .
gcgctcgctgccttctcccctgaagagagacgcgggggggaggggggtgcggcgagcggcc

.    .    .    .    .    .    .    .    .    .    .    .
ccgctctctccccaccgctccgctcgcaccccagtgtaatgagggtcacccccctcccccc

      |-39      |-29      |-19  .    .    .    .    .    .
GCTGGCCCGGGAGGGGGCGCGGGGCACGgtaactagtgcgctggggtgggcggcgggcag

  .    .    .    .    .    .    .    .    .    .    .    .
gcgcgaggagaagggagggaggagggtggccgggcggggaagatggtggtggccgtaagg

  .    .    .    .    .    .    .    .    .    .    .    .
tgaggggctcgggggagggccaggcgcgatgcggggttggtggccggcggcgctgcagcc

  .    .    .    .    .    .    .    .    .    .    .    .
gccggcctcctccccctcccccctcctccatcactaccagccgggctcaggcctagctggc

  .    .    .    .    .    .    .    .    .    .    .    .
cgggctgccgcgaacttcctcccggcgcggcccgtgccccgccggccgcctgcgaacacc

  .    .    .    .    .    .
tcggcctccgcctcccctcaggtagcag
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Exon 2 | Start: 2562 | End: 3506 | Length: 944

.    .    .    .    .    .    .    .    .    .    .    .
gggaattttgacgggcagaggggttttaattttagttcatcccaagtgtccaccagtcta

.    .    .    .    .    .    .    .    .    .    .    .
cagaggaggaaaaagagacgggctgtttctatgtagcaggatcggcccagcttcgggaaa

.    .    .    .    .    .    .    .    .    .    .    .
atggagttttcagaggctcatcgaggccatttttttcatctccagtcgggggaacttttttc

.    .    .    .    .    .    .    .    .    .    .    .
tgcccatggaagtgcagcagaaaggcatagaggccactaggccttgaagtggctgccatt

.    .    .    .    .    .    .    .    .    .    .    .
ttaaagagtcgagtcagatggcctattaactcagattaattgctgtgcttttggattcca

        |-9      |1        |11       |21       |31       |41
GTTGATGCCGGCCCAGGATGGATCAGACCTGTGAACTACCCAGAAGAAATTGTCTGCTGC
                M  D  Q  T  C  E  L  P  R  R  N  C  L  L  P
                |1                          |11

       |51       |61       |71       |81       |91       |101
CCTTTTCCAATCCAGTGAATTTAGATGCCCCTGAAGACAAGGACAGCCCTTTCGGTAATG
  F  S  N  P  V  N  L  D  A  P  E  D  K  D  S  P  F  G  N  G
                |21                         |31

       |111      |121      |131      |141      |151      |161
GTCAATCCAATTTTTCTGAGCCACTTAATGGGTGTACTATGCAGTTATCGACTGTCAGTG
  Q  S  N  F  S  E  P  L  N  G  C  T  M  Q  L  S  T  V  S  G
                |41                         |51

       |171      |181      |191      |201      |211      |221
GAACATCCCAAAATGCTTATGGACAAGATTCTCCATCTTGTTACATTCCACTGCGGAGAC
  T  S  Q  N  A  Y  G  Q  D  S  P  S  C  Y  I  P  L  R  R  L
                |61                         |71

       |231      |241      |251      |261      |271      |281
TACAGGATTTGGCCTCCATGATCAATGTAGAGTATTTAAATGGGTCTGCTGATGGATCAG
  Q  D  L  A  S  M  I  N  V  E  Y  L  N  G  S  A  D  G  S  E
                |81                         |91

       |291      |301      |311      |321      |331      |341
AATCCTTTCAAGACCCTGAAAAAAGTGATTCAAGAGCTCAGACGCCAATTGTTTGCACTT
```

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  S  F  Q  D  P  E  K  S  D  S  R  A  Q  T  P  I  V  C  T  S
                  |101                       |111

      |351      |361      |371      |381      |391      |401
CCTTGAGTCCTGGTGGTCCTACAGCACTTGCTATGAAACAGGAACCCTCTTGTAATAACT
  L  S  P  G  G  P  T  A  L  A  M  K  Q  E  P  S  C  N  N  S
                  |121                       |131

      |411      |421      |431      |441      |451      |461
CCCCTGAACTCCAGGTAAAAGTAACAAAGACTATCAAGAATGGCTTTCTGCACTTTGAGA
  P  E  L  Q  V  K  V  T  K  T  I  K  N  G  F  L  H  F  E  N
                  |141                       |151

      |471      |481      |491      |501      |511      |521
ATTTTACTTGTGTGGACGATGCAGATGTAGATTCTGAAATGGACCCAGAACAGCCAGTCA
  F  T  C  V  D  D  A  D  V  D  S  E  M  D  P  E  Q  P  V  T
                  |161                       |171

      |531      |541      |551      |561      |571      |581
CAGAGGATGAGAGTATAGAGGAGATCTTTGAGGAAACTCAGACCAATGCCACCTGCAATT
  E  D  E  S  I  E  E  I  F  E  E  T  Q  T  N  A  T  C  N  Y
                  |181                       |191

      |591      |601      |611      |621      |631      |641
ATGAGACTAAATCAGAGAATGGTGTAAAAGTGGCCATGGGAAGTGAACAAGACAGCACAC
  E  T  K  S  E  N  G  V  K  V  A  M  G  S  E  Q  D  S  T  P
                  |201                       |211

      |651      |661      |671      |681      |691      |701
CAGAGAGTAGACACGGTGCAGTCAAATCGCCATTCTTGCCATTAGCTCCTCAGACTGAAA
  E  S  R  H  G  A  V  K  S  P  F  L  P  L  A  P  Q  T  E  T
                  |221                       |231

      |711      |721      |731      |741      |751      |761
CACAGAAAAATAAGCAAAGAAATGAAGTGGACGGCAGCAATGAAAAAGCAGCCCTTCTCC
  Q  K  N  K  Q  R  N  E  V  D  G  S  N  E  K  A  A  L  L  P
                  |241                       |251

      |771      |781      |791      |801      |811      |821
CAGCCCCCTTTTCACTAGGAGACACAAACATTACAATAGAAGAGCAATTAAACTCAATAA
  A  P  F  S  L  G  D  T  N  I  T  I  E  E  Q  L  N  S  I  N
                  |261                       |271

      |831      |841      |851      |861      |871      |881
ATTTATCTTTTCAGGATGATCCAGATTCCAGTACCAGTACATTAGGAAACATGCTAGAAT
  L  S  F  Q  D  D  P  D  S  S  T  S  T  L  G  N  M  L  E  L
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                |281                          |291

       |891      |901      |911      |921       .    .    .
TACCTGGAACTTCATCATCATCTACTTCACAGGAATTGCCATTTgtaagcagtttttggt
  P  G  T  S  S  S  S  T  S  Q  E  L  P  F
                |301

   .    .    .    .    .    .    .    .    .    .    .    .
acaacttaaatatatacatatatgtatatatacaggccacttaaagggaaacttgtaaca

   .    .    .    .    .    .    .    .    .    .    .    .
aatttgtttttggttgcttatcagttcacagctgaaatcctattgctaatcataagcttt

   .    .    .    .    .    .    .    .    .    .    .    .
gggcaaaatttactttgatttttaaatttatctctgttgtatgaatttggttgttttaa

   .    .    .    .    .    .    .    .    .    .    .    .
gctttttccaaataactcttcattgagagtaggctaatgcttttaaaggcatttgattga

   .    .    .    .    .    .    .    .    .
gttcaggtttaatttctcaagttggaggtatacatatatgatta


Exon 3 | Start: 59359 | End: 59495 | Length: 136

.    .    .    .    .    .    .    .    .    .    .    .
ttttctttattgtgtgtgtttttagttctttaaaaataaagccagcttaattttattttc

.    .    .    .    .    .    .    .    .    .    .    .
aaaatacggatagattcattatataaaacaattataagttgagaactatgtataaagggc

.    .    .    .    .    .    .    .    .    .    .    .
tatgttatgaacaattaagatggaataatttagttgtacttattttgtaattctttttag

.    .    .    .    .    .    .    .    .    .    .    .
gctagagtgttttcattctcaatttttcatacattgctttttcagaaggctaataggaat

.    .    .    .    .    .    .    .    .    .    .    .
gacaataatgtttcaaaatattttgattcttattgatgccccatgttttgtctgtctaaa

   |931      |941      |951      |961      |971      |981
TGTCAACCTAAGAAAAAGTCTACGCCACTGAAGTATGAAGTTGGAGATCTCATCTGGGCA
C  Q  P  K  K  K  S  T  P  L  K  Y  E  V  G  D  L  I  W  A
   |311                         |321
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   |991      |1001     |1011     |1021     |1031     |1041
AAATTCAAGAGACGCCCATGGTGGCCCTGCAGGATTTGTTCTGATCCGTTGATTAACACA
K  F  K  R  R  P  W  W  P  C  R  I  C  S  D  P  L  I  N  T
   |331                        |341

   |1051     |1061  .    .    .    .    .    .    .    .
CATTCAAAAATGAAAGgtaatacttgcagtgattatacatgttaaaggcagttgcctttta
H  S  K  M  K  V
   |351

.    .    .    .    .    .    .    .    .    .    .    .
gaataactcaatttttgttatcttaataataatatatttttttccttggaacattttgtg

.    .    .    .    .    .    .    .    .    .    .    .
aatgaattggtgttacatattttatcttttggggcttttaaaagttcgttttactctatg

.    .    .    .    .    .    .    .    .    .    .    .
atttaaaccttctctcagtttttttttttttgtttgtttgtttttgagacggagtctcgct

.    .    .    .    .    .    .    .    .    .    .    .
cttgttgcccaggctggactgtagtggtgcaatctcagctcactgcaacctctgacttgt

.    .    .    .
gagttcaagcgattct


Exon 4 | Start: 71595 | End: 71768 | Length: 173

.    .    .    .    .    .    .    .    .    .    .    .
ttacctgtctactatcttaatttcttctttgtagttaatctacatttagctggttttgaa

.    .    .    .    .    .    .    .    .    .    .    .
gctataccacgtcatcagactagactactgattctttcataacctcctgtgtattttctt

.    .    .    .    .    .    .    .    .    .    .    .
gccacacatatataatacttaaaattttccttgtgtatgatctattctaggttgtctagt

.    .    .    .    .    .    .    .    .    .    .    .
tcagtgggcatgttagttgtttccagacagtcttctttggcggcaatgatgtggctgttc

.    .    .    .    .    .    .    .    .    .    .    .
tcttaatgatgagaagtaatttctttgatctaatgattctggttctcttacccttaccta

       |1071     |1081     |1091     |1101     |1111     |1121
TTTCCAACCGGAGGCCCTATCGGCAGTACTACGTGGAGGCTTTTGGAGATCCTTCTGAGA
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  S  N  R  R  P  Y  R  Q  Y  Y  V  E  A  F  G  D  P  S  E  R
                |361                        |371

      |1131     |1141     |1151     |1161     |1171     |1181
GAGCCTGGGTGGCTGGAAAAGCAATCGTCATGTTTGAAGGCAGACATCAATTCGAAGAGC
  A  W  V  A  G  K  A  I  V  M  F  E  G  R  H  Q  F  E  E  L
                |381                        |391

      |1191     |1201     |1211     |1221     |1231     .
TACCTGTCCTTAGGAGAAGAGGGAAACAGAAAGAAAAAGGATATAGGCATAAGgtaggaa
  P  V  L  R  R  R  G  K  Q  K  E  K  G  Y  R  H  K
                |401                        |411

  .     .     .     .     .     .     .     .     .     .     .
acgaaaaaggctttttattgagtgacagaagcaagtaagaaaaagaaagaaaatggcctc

  .     .     .     .     .     .     .     .     .     .     .
ttatttattttcgagacagaactttgctctgtttcccagattggagtacagtggtgcaat

  .     .     .     .     .     .     .     .     .     .     .
ctttgttcactgcaacctccgcgtcccaggttcaagtgattctcgtgcttcagcctcttg

  .     .     .     .     .     .     .     .     .     .     .
agtagctggtattataagcgagcaccaccacgcctggctaacttttgtatttagtagaga

  .     .     .     .     .     .     .     .     .     .
caggatttcgccatgttggccaggttggtcttgaactcctgagctcaagcagc


Exon 5 | Start: 77111 | End: 79671 | Length: 2560

.     .     .     .     .     .     .     .     .     .     .
ctggccaatatggtgaaacccctattctactgaaaatacaaaaaattagctgggtgtggt

.     .     .     .     .     .     .     .     .     .     .
ggcgggtgcctgtaatcccagctactcgggaggctgaggaaggagaatcacttgaacccg

.     .     .     .     .     .     .     .     .     .     .
ggaggcagaggttgtggtgagcgaagattgtgccactgcactccagcctgggcgacagag

.     .     .     .     .     .     .     .     .     .     .
caagactctgtctcaaaaaaaaaaaaaaaaggaataaaaaaaaaagcttctgatttcatc

.     .     .     .     .     .     .     .     .     .     .
tccctttccccccacccatttctttgataagtgataattctttttctcctttaaatttaa
```

```
    |1241     |1251     |1261     |1271     |1281     |1291
GTTCCTCAGAAAATTTTGAGTAAATGGGAAGCCAGTGTTGGACTTGCAGAACAGTATGAT
V  P  Q  K  I  L  S  K  W  E  A  S  V  G  L  A  E  Q  Y  D
                      |421                      |431

    |1301     |1311     |1321     |1331     |1341     |1351
GTTCCCAAGGGGTCAAAGAACCGAAAATGTATTCCTGGTTCAATCAAGTTGGACAGTGAA
V  P  K  G  S  K  N  R  K  C  I  P  G  S  I  K  L  D  S  E
                      |441                      |451

    |1361     |1371     |1381     |1391     |1401     |1411
GAAGATATGCCATTTGAAGACTGCACAAATGATCCTGAGTCAGAACATGACCTGTTGCTT
E  D  M  P  F  E  D  C  T  N  D  P  E  S  E  H  D  L  L  L
                      |461                      |471

    |1421     |1431     |1441     |1451     |1461     |1471
AATGGCTGTTTGAAATCACTGGCTTTTGATTCTGAACATTCTGCAGATGAGAAGGAAAAG
N  G  C  L  K  S  L  A  F  D  S  E  H  S  A  D  E  K  E  K
                      |481                      |491

    |1481     |1491     |1501     |1511     |1521     |1531
CCTTGCGCTAAATCTCGAGCCAGAAAGAGCTCTGATAATCCAAAAAGGACTAGTGTGAAA
P  C  A  K  S  R  A  R  K  S  S  D  N  P  K  R  T  S  V  K
                      |501                      |511

    |1541     |1551     |1561     |1571     |1581     |1591
AAGGGCCACATACAATTTGAAGCACATAAAGATGAACGGAGGGGAAAGATTCCAGAGAAC
K  G  H  I  Q  F  E  A  H  K  D  E  R  R  G  K  I  P  E  N
                      |521                      |531

    |1601     |1611     |1621     |1631     |1641     |1651
CTTGGCCTAAACTTTATCTCTGGGGATATATCTGATACGCAGGCCTCTAATGAACTTTCC
L  G  L  N  F  I  S  G  D  I  S  D  T  Q  A  S  N  E  L  S
                      |541                      |551

    |1661     |1671     |1681     |1691     |1701     |1711
AGGATAGCAAATAGCCTCACAGGGTCCAACACTGCCCCAGGAAGTTTTCTGTTTTCTTCC
R  I  A  N  S  L  T  G  S  N  T  A  P  G  S  F  L  F  S  S
                      |561                      |571

    |1721     |1731     |1741     |1751     |1761     |1771
TGTGGAAAAAACACTGCAAAGAAAGAATTTGAGACTTCAAATGGTGACTCTTTATTGGGC
C  G  K  N  T  A  K  K  E  F  E  T  S  N  G  D  S  L  L  G
                      |581                      |591
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    |1781      |1791      |1801      |1811      |1821      |1831
TTGCCTGAGGGTGCTTTGATCTCAAAGTGTTCTCGAGAGAAGAATAAACCCCAACGAAGC
L  P  E  G  A  L  I  S  K  C  S  R  E  K  N  K  P  Q  R  S
                        |601                            |611

    |1841      |1851      |1861      |1871      |1881      |1891
CTGGTGTGTGGTTCAAAAGTGAAGCTCTGCTATATTGGAGCAGGTGATGAGGAAAAGCGA
L  V  C  G  S  K  V  K  L  C  Y  I  G  A  G  D  E  E  K  R
                        |621                            |631

    |1901      |1911      |1921      |1931      |1941      |1951
AGTGATTCCATTAGTATCTGTACCACTTCTGATGATGGAAGCAGTGACCTGGATCCCATA
S  D  S  I  S  I  C  T  T  S  D  D  G  S  S  D  L  D  P  I
                        |641                            |651

    |1961      |1971      |1981      |1991      |2001      |2011
GAACACAGCTCAGAGTCTGATAACAGTGTCCTTGAAATTCCAGATGCTTTCGATAGAACA
E  H  S  S  E  S  D  N  S  V  L  E  I  P  D  A  F  D  R  T
                        |661                            |671

    |2021      |2031      |2041      |2051      |2061      |2071
GAGAACATGTTATCTATGCAGAAAAATGAAAAGATAAAGTATTCTAGGTTTGCTGCCACA
E  N  M  L  S  M  Q  K  N  E  K  I  K  Y  S  R  F  A  A  T
                        |681                            |691

    |2081      |2091      |2101      |2111      |2121      |2131
AACACTAGGGTAAAAGCAAAACAGAAGCCTCTCATTAGTAACTCACATACAGACCACTTA
N  T  R  V  K  A  K  Q  K  P  L  I  S  N  S  H  T  D  H  L
                        |701                            |711

    |2141      |2151      |2161      |2171      |2181      |2191
ATGGGTTGTACTAAGAGTGCAGAGCCTGGAACCGAGACGTCTCAGGTTAATCTCTCTGAT
M  G  C  T  K  S  A  E  P  G  T  E  T  S  Q  V  N  L  S  D
                        |721                            |731

    |2201      |2211      |2221      |2231      |2241      |2251
CTGAAGGCATCTACTCTTGTTCACAAACCCCAGTCAGATTTTACAAATGATGCTCTCTCT
L  K  A  S  T  L  V  H  K  P  Q  S  D  F  T  N  D  A  L  S
                        |741                            |751

    |2261      |2271      |2281      |2291      |2301      |2311
CCAAAATTCAACCTGTCATCAAGCATATCCAGTGAGAACTCGTTAATAAAGGGTGGGGCA
P  K  F  N  L  S  S  S  I  S  S  E  N  S  L  I  K  G  G  A
                        |761                            |771

    |2321      |2331      |2341      |2351      |2361      |2371
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GCAAATCAAGCTCTATTACATTCGAAAAGCAAACAGCCCAAGTTCCGAAGTATAAAGTGC
A  N  Q  A  L  L  H  S  K  S  K  Q  P  K  F  R  S  I  K  C
                      |781                        |791

    |2381     |2391     |2401     |2411     |2421     |2431
AAACACAAAGAAAATCCAGTTATGGCAGAACCCCCAGTTATAAATGAGGAGTGCAGTTTG
K  H  K  E  N  P  V  M  A  E  P  P  V  I  N  E  E  C  S  L
                      |801                        |811

    |2441     |2451     |2461     |2471     |2481     |2491
AAATGCTGCTCTTCTGATACCAAAGGCTCTCCTTTGGCCAGCATTTCTAAAAGTGGGAAA
K  C  C  S  S  D  T  K  G  S  P  L  A  S  I  S  K  S  G  K
                      |821                        |831

    |2501     |2511     |2521     |2531     |2541     |2551
GTGGATGGTCTAAAACTACTGAACAATATGCATGAGAAAACCAGGGATTCAAGTGACATA
V  D  G  L  K  L  L  N  N  M  H  E  K  T  R  D  S  S  D  I
                      |841                        |851

    |2561     |2571     |2581     |2591     |2601     |2611
GAAACAGCAGTGGTGAAACATGTTTTATCCGAGTTGAAGGAACTCTCTTACAGATCCTTA
E  T  A  V  V  K  H  V  L  S  E  L  K  E  L  S  Y  R  S  L
                      |861                        |871

    |2621     |2631     |2641     |2651     |2661     |2671
GGTGAGGATGTCAGTGACTCTGGAACATCAAAGCCATCAAAACCATTACTTTTCTCTTCT
G  E  D  V  S  D  S  G  T  S  K  P  S  K  P  L  L  F  S  S
                      |881                        |891

    |2681     |2691     |2701     |2711     |2721     |2731
GCTTCTAGTCAGAATCACATACCTATTGAACCAGACTACAAATTCAGTACATTGCTAATG
A  S  S  Q  N  H  I  P  I  E  P  D  Y  K  F  S  T  L  L  M
                      |901                        |911

    |2741     |2751     |2761     |2771     |2781     |2791
ATGTTGAAAGATATGCATGATAGTAAGACGAAGGAGCAGCGGTTGATGACTGCTCAAAAC
M  L  K  D  M  H  D  S  K  T  K  E  Q  R  L  M  T  A  Q  N
                      |921                        |931

    |2801     |2811     |2821     |2831     |2841     |2851
CTGGTCTCTTACCGGAGTCCTGGTCGTGGGGACTGTTCTACTAATAGTCCTGTAGGAGTC
L  V  S  Y  R  S  P  G  R  G  D  C  S  T  N  S  P  V  G  V
                      |941                        |951

    |2861     |2871     |2881     |2891     |2901     |2911
TCTAAGGTTTTGGTTTCAGGAGGCTCCACACACAATTCAGAGAAAAAAGGGAGATGGCACT
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S  K  V  L  V  S  G  G  S  T  H  N  S  E  K  K  G  D  G  T
                        |961                       |971

    |2921     |2931     |2941     |2951     |2961     |2971
CAGAACTCCGCCAATCCTAGCCCTAGTGGGGGTGACTCTGCATTATCTGGCGAGTTGTCT
Q  N  S  A  N  P  S  P  S  G  G  D  S  A  L  S  G  E  L  S
                        |981                       |991

    |2981     |2991     |3001     |3011     |3021     |3031
GCTTCCCTACCTGGCTTACTGTCCGACAAGAGAGACCTCCCTGCTTCTGGTAAAAGTCGT
A  S  L  P  G  L  L  S  D  K  R  D  L  P  A  S  G  K  S  R
                        |1001                      |1011

    |3041     |3051     |3061     |3071     |3081     |3091
TCAGACTGTGTTACTAGGCGCAACTGTGGACGATCAAAGCCTTCATCCAAATTGCGAGAT
S  D  C  V  T  R  R  N  C  G  R  S  K  P  S  S  K  L  R  D
                        |1021                      |1031

    |3101     |3111     |3121     |3131     |3141     |3151
GCTTTTTCAGCCCAAATGGTAAAGAACACAGTGAACCGTAAAGCCTTAAAGACCGAGCGC
A  F  S  A  Q  M  V  K  N  T  V  N  R  K  A  L  K  T  E  R
                        |1041                      |1051

    |3161     |3171     |3181     |3191     |3201     |3211
AAAAGAAAACTGAATCAGCTTCCAAGTGTGACTCTTGATGCTGTACTGCAGGGAGACCGA
K  R  K  L  N  Q  L  P  S  V  T  L  D  A  V  L  Q  G  D  R
                        |1061                      |1071

    |3221     |3231     |3241     |3251     |3261     |3271
GAACGTGGAGGTTCATTGAGAGGTGGGGCAGAAGATCCTAGTAAAGAGGATCCCCTTCAG
E  R  G  G  S  L  R  G  G  A  E  D  P  S  K  E  D  P  L  Q
                        |1081                      |1091

    |3281     |3291     |3301     |3311     |3321     |3331
ATAATGGGCCACTTAACAAGTGAAGATGGTGACCATTTTTCTGATGTGCATTTCGATAGC
I  M  G  H  L  T  S  E  D  G  D  H  F  S  D  V  H  F  D  S
                        |1101                      |1111

    |3341     |3351     |3361     |3371     |3381     |3391
AAGGTTAAGCAATCTGATCCTGGTAAAATTTCTGAAAAAGGACTCTCTTTTGAAAACGGA
K  V  K  Q  S  D  P  G  K  I  S  E  K  G  L  S  F  E  N  G
                        |1121                      |1131

    |3401     |3411     |3421     |3431     |3441     |3451
AAAGGCCCAGAGCTGGACTCTGTAATGAACAGTGAGAATGATGAACTCAATGGTGTAAAT
K  G  P  E  L  D  S  V  M  N  S  E  N  D  E  L  N  G  V  N
```

```
                        |1141                       |1151

    |3461     |3471     |3481     |3491     |3501     |3511
CAAGTGGTGCCTAAAAAGCGGTGGCAGCGTTTAAACCAAAGGCGCACTAAACCTCGTAAG
Q  V  V  P  K  K  R  W  Q  R  L  N  Q  R  R  T  K  P  R  K
                        |1161                       |1171

    |3521     |3531     |3541     |3551     |3561     |3571
CGCATGAACAGATTTAAAGAGAAAGAAAACTCTGAGTGTGCCTTTAGGGTCTTACTTCCT
R  M  N  R  F  K  E  K  E  N  S  E  C  A  F  R  V  L  L  P
                        |1181                       |1191

    |3581     |3591     |3601     |3611     |3621     |3631
AGTGACCCTGTGCAGGAGGGGCGGGATGAGTTTCCAGAGCATAGAACTCCTTCAGCAAGC
S  D  P  V  Q  E  G  R  D  E  F  P  E  H  R  T  P  S  A  S
                        |1201                       |1211

    |3641     |3651     |3661     |3671     |3681     |3691
ATACTTGAGGAACCACTGACAGAGCAAAATCATGCTGACTGCTTAGATTCAGCTGGGCCA
I  L  E  E  P  L  T  E  Q  N  H  A  D  C  L  D  S  A  G  P
                        |1221                       |1231

    |3701     |3711     |3721     |3731     |3741     |3751
CGGTTAAATGTTTGTGATAAATCCAGTGCCAGCATTGGTGACATGGAAAAGGAGCCAGGA
R  L  N  V  C  D  K  S  S  A  S  I  G  D  M  E  K  E  P  G
                        |1241                       |1251

    |3761     |3771     |3781     |3791     .     .     .     .
ATTCCCAGTTTGACACCACAGGCTGAGCTCCCTGAACCAGgtaaggacatctaaatgtga
I  P  S  L  T  P  Q  A  E  L  P  E  P  A
                        |1261

    .     .     .     .     .     .     .     .     .     .     .
taaaaaaaaaaaaattggagaaagtgctgataaacattgtccttctgaaattggtctgtt

    .     .     .     .     .     .     .     .     .     .     .
gtaatggtaaagtgaagtataaactagcggggaagaatcatcacttcaatgaagaaggag

    .     .     .     .     .     .     .     .     .     .     .
ttttatgtagaaaggtctgaattttgaagatgagatttccatatatattcaaaagttaaa

    .     .     .     .     .     .     .     .     .     .     .
ctttaccagaagccctttccccaacctttcaagtaaatctctataacatctttctttc

    .     .     .     .     .     .     .     .
tcactttctctctctctctttctctctctctctttttttt
```

```
Exon 6 | Start: 103296 | End: 103421 | Length: 125

.    .    .    .    .    .    .    .    .    .    .    .
tacaggtgtcagtgactataagacctggctttaaatttaacctttccttaattttggat

.    .    .    .    .    .    .    .    .    .    .    .
gggccacatatattctattatttgtgtatataaggtaacacaagtccttttgtctccccc

.    .    .    .    .    .    .    .    .    .    .    .
cagctccttttgcatatgagaaaacataagccattttgtgcctcttgcatcttaagccat

.    .    .    .    .    .    .    .    .    .    .    .
agtctattttactatgtggtttcccatctggttacttttgggagtatcagatggtctcat

.    .    .    .    .    .    .    .    .    .    .    .
aaaaacagtgggttttcctgaagctttttgattaatgttgaatttgtttatcatctttta

    |3801     |3811     |3821     |3831     |3841     |3851
CTGTGCGGTCAGAGAAGAAACGCCTTAGGAAGCCAAGCAAGTGGCTTTTGGAATATACAG
  V  R  S  E  K  K  R  L  R  K  P  S  K  W  L  L  E  Y  T  E
             |1271                          |1281

    |3861     |3871     |3881     |3891     |3901     |3911
AAGAATATGATCAGATATTTGCTCCTAAGAAAAAACAAAAGAAGGTACAGGAGCAGGTGC
  E  Y  D  Q  I  F  A  P  K  K  K  Q  K  K  V  Q  E  Q  V  H
             |1291                          |1301

    |3921.    .    .    .    .    .    .    .    .    .    .
ACAAGgtatgttgcaaaatttcagcaaactttcactggtccttaggaaactgcaatttta
  K


    .    .    .    .    .    .    .    .    .    .    .    .
tcttcaatgtcatactttatcttcatgaaacaataatttccttaactgagatcttgtttt

    .    .    .    .    .    .    .    .    .    .    .    .
ttattctcagcttctagcacagtacttaggatttagtggttattcaggaaatatataaat

    .    .    .    .    .    .    .    .    .    .    .    .
gaatctacatattgtatttatttatgtatatatttttccctctttgccttcaaagagtaa

    .    .    .    .    .    .    .    .    .    .    .    .
tgacttaggaatattgttatgatttaatcttaagtaaaaatataggctataaagtgaaat
```

```
    .
atata


Exon 7 | Start: 105712 | End: 105983 | Length: 271

.    .    .    .    .    .    .    .    .    .    .    .
aaattaaaaatcaatacccattaaccaataactccctttctgctcagcccctggcaatt

.    .    .    .    .    .    .    .    .    .    .    .
gccattctattttctgtctcaagaattttcttattctagatacctcatatacttgaaatc

.    .    .    .    .    .    .    .    .    .    .    .
atacgatatttgttctttgtgtcttaagtaatttcccttagcatacataatgtcttcaag

.    .    .    .    .    .    .    .    .    .    .    .
gttcatccacttttttgtagcctttgtcagaatttcattccttttaaagtgtgttattctt

.    .    .    .    .    .    .    .    .    .    .    .
tttgacacttaaattacaacaattttggcctgtggactctatttttatttttgttctta

         |3931     |3941     |3951     |3961     |3971     |3981
GTAAGTTCCCGCTGTGAAGAGGAAAGCCTTCTAGCCCGAGGTCGATCTAGTGCTCAGAAC
V  S  S  R  C  E  E  E  S  L  L  A  R  G  R  S  S  A  Q  N
         |1311                         |1321

         |3991     |4001     |4011     |4021     |4031     |4041
AAGCAGGTGGACGAGAATTCTTTGATTTCAACCAAAGAAGAGCCTCCAGTTCTTGAAAGG
K  Q  V  D  E  N  S  L  I  S  T  K  E  E  P  P  V  L  E  R
         |1331                         |1341

         |4051     |4061     |4071     |4081     |4091     |4101
GAGGCTCCGTTTTTGGAGGGCCCCTTGGCTCAGTCAGAACTTGGAGGTGGACATGCTGAG
E  A  P  F  L  E  G  P  L  A  Q  S  E  L  G  G  G  H  A  E
         |1351                         |1361

         |4111     |4121     |4131     |4141     |4151     |4161
TTGCCGCAGCTGACCTTGTCTGTGCCTGTGGCTCCGGAAGTCTCTCCACGGCCTGCCCTT
L  P  Q  L  T  L  S  V  P  V  A  P  E  V  S  P  R  P  A  L
         |1371                         |1381

         |4171     |4181     |4191 .    .    .    .    .
GAGTCTGAGGAATTGCTAGTTAAAACGCCAGgtaaggtggggttggggtctcagtatttg
E  S  E  E  L  L  V  K  T  P  G
```

```
         |1391

.    .    .    .    .    .    .    .    .    .    .    .
agcagatatgattagaggaagcaggagattttagtatgttttgatgtaaagccaacattg

.    .    .    .    .    .    .    .    .    .    .    .
tatctatatacaataaactacccccttttgtcctgggaaatacttaaaatgatggttaat

.    .    .    .    .    .    .    .    .    .    .    .
tagatatagttactaaccatgaactgtggcacactatcaagaagatgtatttttaataac

.    .    .    .    .    .    .    .    .    .    .    .
tatgctccttgctccagtgttgctcttcatgattgttgatcagccactgtgtaaattaac

.    .    .    .    .    .    .
aaccaggataacagggcttcaagaggagtac
```

Exon 8 | Start: 107231 | End: 107341 | Length: 110

```
.    .    .    .    .    .    .    .    .    .    .    .
caccaacaatcagttgttataaaggcagttccgtccttctgacttctcccttagtgattt

.    .    .    .    .    .    .    .    .    .    .    .
tgtgagttaaagtcaccacacacacatccctcacattagttggtgcttgcattgaaaact

.    .    .    .    .    .    .    .    .    .    .    .
gtttacttgttttgtttactaatattttataataagcaaattaccatcctgcctcttccc

.    .    .    .    .    .    .    .    .    .    .    .
ataagatgacggggaaaacatcaaaaacattgagattcattttgtgtggtatacagattt

.    .    .    .    .    .    .    .    .    .    .    .
tttaaaaattaacttgtgcccagtttctaaatcatctaatgtaaagatacatgcatttca

        |4201     |4211     |4221     |4231     |4241     |4251
GAAATTATGAAAGTAAACGTCAAAGAAAACCAACTAAGAAACTTCTTGAATCCAATGATT
  N   Y   E   S   K   R   Q   R   K   P   T   K   K   L   L   E   S   N   D   L
        |1401                       |1411

        |4261     |4271     |4281     |4291     |4301 .    .
TAGACCCTGGATTTATGCCCAAGAAGGGGGACCTTGGCCTTTCTAAAAAGgtatgttatt
  D   P   G   F   M   P   K   K   G   D   L   G   L   S   K   K
        |1421                       |1431
```

```
    .    .    .    .    .    .    .    .    .    .    .    .
tttgtaagttctaaaagaaataaactcaggaaatgagaaatttaaaaatgacattttga

    .    .    .    .    .    .    .    .    .    .    .    .
gtagcagttataacattgatgtacatacatatagaaattagtgtgtgtgtcagcagtcat

    .    .    .    .    .    .    .    .    .    .    .    .
acatgatctgagatttcctacatgaaaggctgttttgcagttgtgtgaccatgtatgtgt

    .    .    .    .    .    .    .    .    .    .    .    .
ataaactggtttcaggtttcctttccaagtgaaaaaaatttttaaatgctttgaagatta

    .    .    .    .    .    .    .    .    .    .
agtttgtgtttgttataatttcttttctgggttcaaatcctcttacctgt
```

Exon 9 | Start: 111670 | End: 111746 | Length: 76

```
.    .    .    .    .    .    .    .    .    .    .    .
tgttggtcaggctggtctttaactctcaacctcaggtgatccacccgcctcagcctccta

.    .    .    .    .    .    .    .    .    .    .    .
acgtgctaggattacaggtgtgagccatcatgccctgtctgttggagcattttaaaatct

.    .    .    .    .    .    .    .    .    .    .    .
gattcctttccccctgaagtttccgttcaacccttactgtggtcaggttgatttcttta

.    .    .    .    .    .    .    .    .    .    .    .
attgctaaaacaagtcaaaattcaatatccatggcagctgacaattcagactttggcata

.    .    .    .    .    .    .    .    .    .    .    .
taaagtaaagggtttatttttttcattcctctgtaaatggtgttgttttcacttatttata

        |4311     |4321     |4331     |4341     |4351     |4361
TGCTATGAAGCTGGTCACCTGGAGAATGGCATAACTGAATCTTGTGCCACATCTTATTCA
C  Y  E  A  G  H  L  E  N  G  I  T  E  S  C  A  T  S  Y  S
                 |1441                        |1451

        |4371      .    .    .    .    .    .    .    .
AAAGATTTTGGTGGAGgtgagtatttttgagatttaaaaaacgtaatgcagtagtaagtt
K  D  F  G  G  G

.    .    .    .    .    .    .    .    .    .    .    .
tgaagtgctttgtctgttaaccacaaaaattgttacatgtgtaagcccgaccagtgaggt
```

```
.    .    .    .    .    .    .    .    .    .    .    .
acaagttttaaaactggtttgcccaaaatctgcttcctgaaaaagaaaaaatattgataa

.    .    .    .    .    .    .    .    .    .    .    .
attgaatatctactctaccaggacttttagtaggaatgctacctgtaatctctctaaagc

.    .    .    .    .    .    .    .    .    .    .    .
gttacagagagttaggttattatctatagtattcctgttttatagaagaaatgtgaagat

.    .    .    .
gaacaaggtagcaagg
```

Exon 10 | Start: 114153 | End: 114272 | Length: 119

```
.    .    .    .    .    .    .    .    .    .    .    .
gatttaattcctttgaagaactacaagatttgtcatttcaatcatataaattaaaatttc

.    .    .    .    .    .    .    .    .    .    .    .
tgtaataacctatacacttactatttaatctatatgagggagcagttacatatatgtagc

.    .    .    .    .    .    .    .    .    .    .    .
catttcccttcttgttatgtcatcatgagttagtctcaattattatttcccccgttttcc

.    .    .    .    .    .    .    .    .    .    .    .
taatccacaaagctggagaattaaatgagttttaaggttggtttttattctaataatagg

.    .    .    .    .    .    .    .    .    .    .    .
ataagagattttggacatgtgtgttagtagccagcagttaacacctattttcctgtcata

  |4381     |4391     |4401     |4411     |4421     |4431
GCACTACCAAGATATTTGACAAGCCAAGGAAGCGAAAACGACAGAGGCATGCTGCAGCCA
  T  T  K  I  F  D  K  P  R  K  R  K  R  Q  R  H  A  A  A  K
  |1461                        |1471

  |4441     |4451     |4461     |4471     |4481     |4491
AGATGCAGTGTAAAAAAGTGAAAAATGATGACTCGTCAAAAGAGATTCCAGGCTCAGAGg
  M  Q  C  K  K  V  K  N  D  D  S  S  K  E  I  P  G  S  E
  |1481                        |1491

   .    .    .    .    .    .    .    .    .    .    .    .
tattactcagttcctgatcttttcaccttctaaagagaagctacttttcacgccagaggc

   .    .    .    .    .    .    .    .    .    .    .    .
```

```
cacatccctctttcccttgagttttcttaagaatactattctactgaaatggctgatggc

   .    .    .    .    .    .    .    .    .    .    .    .
cataaggaatcttggaggaaaagtagagccttatcctaataataaggcaaggcatgtatt

   .    .    .    .    .    .    .    .    .    .    .    .
gcagctgtcaatatggtctttttaaaagatcatcacatcctatgctgtaggtgtccaatc

   .    .    .    .    .    .    .    .    .    .    .    .
aggtatataagtgtttcatcgttaagtaaacttgtaaaaccggagagtacaatatcaag


Exon 11 | Start: 115656 | End: 115800 | Length: 144

.    .    .    .    .    .    .    .    .    .    .    .
aaataagtaatcaaataaacttaagaatgttttctctcccttagtgaaaccttaaaatgg

.    .    .    .    .    .    .    .    .    .    .    .
aacagctcagaaagttccagtggaacaaacagcctcagagcagttagtggcagggcatga

.    .    .    .    .    .    .    .    .    .    .    .
ggcgcccactacccgcccaatcacagcagggttagaactaacattgcatgcagtccgccc

.    .    .    .    .    .    .    .    .    .    .    .
gagtgattggctgaacatctgtaagtgcttaatggctagacaaatagcagcccagaggga

.    .    .    .    .    .    .    .    .    .    .    .
gggggtcaaatggaagagacatcaataatacagatgtgggacattatttttctttgcaa

   |4501     |4511     |4521     |4531     |4541     |4551
GGAGAACTAATGCCTCACAGGACGGCCACAAGCCCCAAGGAGACTGTTGAGGAAGGTGTA
G  E  L  M  P  H  R  T  A  T  S  P  K  E  T  V  E  E  G  V
   |1501                        |1511

   |4561     |4571     |4581     |4591     |4601     |4611
GAACACGATCCCGGGATGCCTGCCTCTAAAAAAATGCAGGGTGAACGCGGTGGAGGAGCT
E  H  D  P  G  M  P  A  S  K  K  M  Q  G  E  R  G  G  G  A
   |1521                        |1531

   |4621     |4631     |4641.    .    .    .    .    .    .
GCACTCAAGGAGAATGTCTGTCAGgtagagaaatgtttgcccacttgtgttttcattgca
A  L  K  E  N  V  C  Q
   |1541

   .    .    .    .    .    .    .    .    .    .    .    .
```

```
tgttcatctttaaagggaaacccactccatctctttatgatggtttcttggtagaataac

   .    .    .    .    .    .    .    .    .    .    .    .
aatgcttttggatgattccagtggagtcactttctttaaggatttgacccctttttttct

   .    .    .    .    .    .    .    .    .    .    .    .
ccccacaaagaaagatacttggagaaatagtttagtgttggtgaaccacgtgcccttaag

   .    .    .    .    .    .    .    .    .    .    .    .
gcccatgaaggaatatatgccgcgaaacaagtctgagatggaatatgtgaatctctggtt

   .    .    .    .    .
gcttattcaaatataattctccag


Exon 12 | Start: 119205 | End: 119329 | Length: 124

.    .    .    .    .    .    .    .    .    .    .    .
agtagctttctggtttatctctatgctcttttctgacctttctactcttgaactcgtttt

.    .    .    .    .    .    .    .    .    .    .    .
ccatgtagcagtcagaacagtctttttaaaaatgaatacctgattttagctttcctttgt

.    .    .    .    .    .    .    .    .    .    .    .
taaagctctccaatggtacacctttgtaactagactaaaatctacaactacgggcccttg

.    .    .    .    .    .    .    .    .    .    .    .
cctctttctcacctccttttctgccacttttaacctttgtttactttaacccactgacac

.    .    .    .    .    .    .    .    .    .    .    .
tggttttactcttgattctcaaacatggaaaaacagatagatgttttctttctcttaaca

         |4651     |4661     |4671     |4681     |4691     |4701
AATTGTGAAAAATTGGGTGAGCTGCTGTTATGTGAGGCTCAGTGCTGTGGGGCTTTCCAC
N  C  E  K  L  G  E  L  L  L  C  E  A  Q  C  C  G  A  F  H
         |1551                         |1561

         |4711     |4721     |4731     |4741     |4751     |4761
CTGGAGTGCCTTGGATTGACTGAGATGCCAAGAGGAAAATTTATCTGCAATGAATGTCGC
L  E  C  L  G  L  T  E  M  P  R  G  K  F  I  C  N  E  C  R
         |1571                         |1581

        .    .    .    .    .    .    .    .    .    .    .
ACAGgtaaagtagatatcgaacggtcttcctccaaagaaagtttgaattttaagtttttc
T  G
```

```
   .    .    .    .    .    .    .    .    .    .    .    .
aggaaagacatttattggagacactattttgtggcaacactgggctagttgttacagata

   .    .    .    .    .    .    .    .    .    .    .    .
tagaaatggtgctgtggggtcactgctttcagaaaagctaccaagtgaataataaatggg

   .    .    .    .    .    .    .    .    .    .    .    .
tagcataatacagtgcaaaaagcattgtgttggtgatacatttagaatgtaatgtaagca

   .    .    .    .    .    .    .    .    .    .    .    .
aagatgagctgatgccatagaggaagatatctgtgtttagctttaagagagaaagagaaa

   .
ttga
```

Exon 13 | Start: 124426 | End: 124627 | Length: 201

```
.    .    .    .    .    .    .    .    .    .    .    .
cctgtaaacttgtagttagtccaggggcttgattaggtttaatttcagtttttctttttt

.    .    .    .    .    .    .    .    .    .    .    .
ttggcgggggtgccagcggcaagcattttctgtagacaatatgtactttctgttgtatca

.    .    .    .    .    .    .    .    .    .    .    .
cgtcagggagtatctattaccagattgttcatttataataatactaagattgttacagtg

.    .    .    .    .    .    .    .    .    .    .    .
ggttcagacgatgtcaaaccgatcagtccattataaaatttcttatgaacttttcaccta

.    .    .    .    .    .    .    .    .    .    .    .
atggtttagcatttggtagattcttgaattcttactaatttatcttcttttggcttctca

     |4771     |4781     |4791     |4801     |4811     |4821
GAATCCATACCTGTTTTGTATGTAAGCAGAGTGGGGAAGATGTTAAAAGGTGCCTTCTAC
  I  H  T  C  F  V  C  K  Q  S  G  E  D  V  K  R  C  L  L  P
     |1591                       |1601

     |4831     |4841     |4851     |4861     |4871     |4881
CCTTGTGTGGAAAGTTTTACCATGAAGAGTGTGTCCAGAAGTACCCACCCACTGTTATGC
  L  C  G  K  F  Y  H  E  E  C  V  Q  K  Y  P  P  T  V  M  Q
     |1611                       |1621
```

```
     |4891     |4901     |4911     |4921     |4931     |4941
AGAACAAGGGCTTCCGGTGCTCCCTCCACATCTGTATAACCTGTCATGCTGCTAATCCAG
  N  K  G  F  R  C  S  L  H  I  C  I  T  C  H  A  A  N  P  A
     |1631                       |1641

     |4951     |4961     .    .    .    .    .    .    .
CCAATGTTTCTGCATCTAAAGgtatggatttcttatgtggaccagtctaattgtaaaacc
  N  V  S  A  S  K  G
     |1651

.    .    .    .    .    .    .    .    .    .    .    .
tcagtttaattggcaacagatattttcttttttctttctttttttttttttttttttgga

.    .    .    .    .    .    .    .    .    .    .    .
gacagagtctcgctgtgttgccgaggctggagtgcagtggcgtgatcttggcccactgca

.    .    .    .    .    .    .    .    .    .    .    .
agctccgcctcctgggttcacgccattctcctgcttcagcctcctgagtagctgggacta

.    .    .    .    .    .    .    .    .    .    .    .
caggcgcctgccaccatgcctggctaatttttttgtatttttagtagagacggggtttca

.    .    .    .    .
ccgtgttagccaggatggtct
```

Exon 14 | Start: 127464 | End: 127644 | Length: 180

```
.    .    .    .    .    .    .    .    .    .    .    .
tctccctatttattctggggctgatttcctagttgtcaggacagtggtttgagttgggct

.    .    .    .    .    .    .    .    .    .    .    .
ttcccttgttgaagcaggctcactgacagttacgggatttgattccttttggagacttat

.    .    .    .    .    .    .    .    .    .    .    .
cacatagctcccatctgagttttcttgatggatcgagtgtttaagatccatcatcttagt

.    .    .    .    .    .    .    .    .    .    .    .
ggtcattccttctatttgtgacatttttcagtgctaacaaatagacttgaataactcac

.    .    .    .    .    .    .    .    .    .    .    .
attctttttatatttaatatttttgtttttctttgcttgtccctgattttcctgcttta

    |4971     |4981     |4991     |5001     |5011     |5021
GTCGGTTGATGCGCTGTGTCCGCTGTCCTGTGGCATACCACGCCAATGACTTTTGCCTGG
```

```
  R  L  M  R  C  V  R  C  P  V  A  Y  H  A  N  D  F  C  L  A
             |1661                       |1671

    |5031     |5041     |5051     |5061     |5071     |5081
CTGCTGGGTCAAAGATCCTTGCATCTAATAGTATCATCTGCCCTAATCACTTTACCCCTA
  A  G  S  K  I  L  A  S  N  S  I  I  C  P  N  H  F  T  P  R
             |1681                       |1691

    |5091     |5101     |5111     |5121     |5131     |5141
GGCGGGGCTGCCGAAATCATGAGCATGTTAATGTTAGCTGGTGCTTTGTGTGCTCAGAAG
  R  G  C  R  N  H  E  H  V  N  V  S  W  C  F  V  C  S  E  G
             |1701                       |1711

    .     .     .     .     .     .     .     .     .     .     .
gtaagaaatcatttcttcctctatttgtagtctaaaaagggattaaatcaatgttttaat

    .     .     .     .     .     .     .     .     .     .     .
tggaacaaaaatacttttcatcatattgccactggaaaaaatattagaaatgatactatt

    .     .     .     .     .     .     .     .     .     .     .
catctgccattcaggaaatgatgtcccgaattaatgattacatagcagaacttttttttt

    .     .     .     .     .     .     .     .     .     .     .
ttttttttttttttttgagacaacgtttcactctgttgcccaggctggagtgctatggca

    .     .     .     .     .     .     .     .     .     .     .
caatctcagctaactgcagcctccacctcccaggttcaagcagttctcctgcctcagcct
```

Exon 15 | Start: 135037 | End: 135194 | Length: 157

```
.     .     .     .     .     .     .     .     .     .     .
acagatgtggttattgtttattagagaaaactccttaccgctgaggaaattatagctcag

.     .     .     .     .     .     .     .     .     .     .
caaggaaagtgaatttcccaagggcctgtggtcctagagctagaattccaacctgaacct

.     .     .     .     .     .     .     .     .     .     .
gacgagagttaaataaagcttatgctgtttatactctggtcattatgtgtcactgataat

.     .     .     .     .     .     .     .     .     .     .
gtttttatttagtatatcttttagtgaagagaaagaaaatatatatatatatgtgtatgg

.     .     .     .     .     .     .     .     .     .     .
atgtacacatacatgacttgcagtcttgtgatctgaatgccacatttttttattcccaca
```

```
    |5151     |5161     |5171     |5181     |5191     |5201
GAGGCAGCCTTCTGTGCTGTGATTCTTGCCCTGCTGCTTTTCATCGTGAATGCCTGAACA
  G  S  L  L  C  C  D  S  C  P  A  A  F  H  R  E  C  L  N  I
             |1721                       |1731

    |5211     |5221     |5231     |5241     |5251     |5261
TTGATATCCCTGAAGGAAACTGGTATTGCAATGACTGTAAAGCAGGCAAAAAGCCACACT
  D  I  P  E  G  N  W  Y  C  N  D  C  K  A  G  K  K  P  H  Y
             |1741                       |1751

    |5271     |5281     |5291     |5301  .     .     .     .
ACAGGGAGATTGTCTGGGTAAAAGTTGGACGATACAGgtaagcctgaagaatagcactca
  R  E  I  V  W  V  K  V  G  R  Y  R
             |1761

 .     .     .     .     .     .     .     .     .     .     .
tctcttttaccatcctctgtttcttgagacctctcagatacaatgcttaacgtatttcta

 .     .     .     .     .     .     .     .     .     .     .
atgatctacttaattactcatggtactcctcccctcttcttcttgatttttttccttata

 .     .     .     .     .     .     .     .     .     .     .
ggaagagaaacctaactttatgatttacaattataggaataatacatgttctctgtcgaa

 .     .     .     .     .     .     .     .     .     .     .
attttttttttctttgtgtattttgtgaaaagttttttttttttttttttaaatgaaaaga

 .     .     .     .     .     .     .     .
cagtaataatctcacaaggcaggcgcattgttaacat
```

Exon 16 | Start: 137077 | End: 137283 | Length: 206

```
.     .     .     .     .     .     .     .     .     .     .
tcagtgaatgttattgtcataactctctgttcctatatcattatttcctttaagtagaat

.     .     .     .     .     .     .     .     .     .     .
ccttgaagtagaataattgagtctaagggagtgcgcgcctgtgtgggaatgtgggcagat

.     .     .     .     .     .     .     .     .     .     .
gttttccagcttctagcacatacgacttgtttgtgttctagttaggttgtaagaatgccg

.     .     .     .     .     .     .     .     .     .     .
taagatggactttaatgtggacagacagacattgctaatccttacttttatatgagtagg
```

```
.    .    .    .    .    .    .    .    .    .    .    .
ttattttcctaatgccttgcagccttctagaggttttccttctccttttcacctttccca

       |5311     |5321     |5331     |5341     |5351     |5361
GTGGTGGCCAGCTGAGATCTGCCATCCTCGAGCTGTTCCTTCCAACATTGATAAGATGAG
 W  W  P  A  E  I  C  H  P  R  A  V  P  S  N  I  D  K  M  R
       |1771                       |1781

       |5371     |5381     |5391     |5401     |5411     |5421
ACATGATGTGGGAGAGTTCCCAGTCCTCTTTTTTGGATCTAATGACTATTTGTGGACTCA
 H  D  V  G  E  F  P  V  L  F  F  G  S  N  D  Y  L  W  T  H
       |1791                       |1801

       |5431     |5441     |5451     |5461     |5471     |5481
CCAGGCCCGAGTCTTCCCTTACATGGAGGGTGACGTGAGCAGCAAGGATAAGATGGGCAA
 Q  A  R  V  F  P  Y  M  E  G  D  V  S  S  K  D  K  M  G  K
       |1811                       |1821

       |5491     |5501        .    .    .    .    .    .
AGGAGTGGATGGGACATATAAAAAAGgtaactttatccttttgtttctcaggcaaacac
 G  V  D  G  T  Y  K  K  A
       |1831

.    .    .    .    .    .    .    .    .    .    .    .
agacctctgttacctgagtgtctgatctgttttagaattcacatatgctccattttgaaa

.    .    .    .    .    .    .    .    .    .    .    .
ctgcctttgtcctctcagggcattatctggctgcaaatacagtattttgcaaggaagttg

.    .    .    .    .    .    .    .    .    .    .    .
acccatgtaactcattatttttgagccttaacctttacttaatttgaatttccttgagct

.    .    .    .    .    .    .    .    .    .    .    .
ttttttgacttatcagttgttttgtcagcattccatcaaataatggagttctgaaacta

.    .    .    .    .    .
tttcatagaagaaacacttcagtttg


Exon 17 | Start: 141147 | End: 141260 | Length: 113

.    .    .    .    .    .    .    .    .    .    .    .
taagcaaaaaagttctcgtattcagatggatggatgccagtgatctaaagggtgatagtc
```

```
.    .    .    .    .    .    .    .    .    .    .    .
tgtattgtgccatttagttctggattatgttttgtcttaatactatgtctgaataccctt

.    .    .    .    .    .    .    .    .    .    .    .
tggactacattacctgtttgaaaatagctgttatgtgttttctttttcatatagcattgg

.    .    .    .    .    .    .    .    .    .    .    .
tcgatttttgtgtaaaacatggagtttctccaacttaaaggggaaaaagtaaaaaataag

.    .    .    .    .    .    .    .    .    .    .    .
tgaataaataagtaattccacccagagattttgaagtgacttgtgctgtctgttttcata

 |5511     |5521     |5531     |5541     |5551     |5561
CTCTTCAGGAAGCTGCAGCAAGGTTTGAGGAATTAAAGGCCCAAAAAGAGCTAAGACAGC
  L  Q  E  A  A  A  R  F  E  E  L  K  A  Q  K  E  L  R  Q  L
          |1841                          |1851

 |5571     |5581     |5591     |5601     |5611     |5621 .
TGCAGGAAGACCGAAAGAATGACAAGAAGCCACCACCTTATAAACATATAAAGgtgagga
  Q  E  D  R  K  N  D  K  K  P  P  P  Y  K  H  I  K
          |1861                          |1871

  .    .    .    .    .    .    .    .    .    .    .    .
gaaaatcttgggggaccttctctagaagagaaatggaatagctggctcttcccactctgt

  .    .    .    .    .    .    .    .    .    .    .    .
tcatgacaagaacggaagcacaagcatagttcgttttaggtagaggtatgagcttaaaag

  .    .    .    .    .    .    .    .    .    .    .    .
aagatcagaaatagccgggcacggtggctcacgcttgtaatcccagcactttgggaggcc

  .    .    .    .    .    .    .    .    .    .    .    .
gaggcgggcggatcacctgaagtcaggagtttgagaccagcctggccaggcaggtgcctg

  .    .    .    .    .    .    .    .    .    .    .
taattccagctacttgggaggctgaggctggagaattgcttgaacccgggagg


Exon 18 | Start: 148040 | End: 148310 | Length: 270

.    .    .    .    .    .    .    .    .    .    .    .
accgtacctggctcgtattttatttttttgagatggaatctcaacatatcggccaggctg

.    .    .    .    .    .    .    .    .    .    .    .
gagtgcagtggtgaaatcttgtctcactgcaacctccgcctcctgggttcaagcaattct
```

```
.    .    .    .    .    .    .    .    .    .    .    .
tgtggagttcatatttgtatgtcaagtgaggctctgtttttatatgaaactaagtgttg

.    .    .    .    .    .    .    .    .    .    .    .
atagttcaaaatcatgggaaatgtggctgcaacttcaaggaaaaaaagtttgccttttc

.    .    .    .    .    .    .    .    .    .    .    .
aggacgtgaattgtcttctgctgacttgttttatgcggtgtactttgtgttacttttcca

        |5631     |5641     |5651     |5661     |5671     |5681
GTAAACCGTCCTATTGGCAGGGTACAGATCTTCACTGCAGACTTATCTGAAATACCCCGT
V  N  R  P  I  G  R  V  Q  I  F  T  A  D  L  S  E  I  P  R
                 |1881                       |1891

        |5691     |5701     |5711     |5721     |5731     |5741
TGCAACTGTAAAGCTACTGATGAGAACCCCTGTGGGATAGACTCTGAATGCATCAACCGC
C  N  C  K  A  T  D  E  N  P  C  G  I  D  S  E  C  I  N  R
                 |1901                       |1911

        |5751     |5761     |5771     |5781     |5791     |5801
ATGCTGCTCTATGAGTGCCACCCCACAGTGTGTCCTGCCGGAGGGCGCTGTCAAAACCAG
M  L  L  Y  E  C  H  P  T  V  C  P  A  G  G  R  C  Q  N  Q
                 |1921                       |1931

        |5811     |5821     |5831     |5841     |5851     |5861
TGCTTTTCCAAGCGCCAATATCCAGAGGTTGAAATTTTCCGCACATTACAGCGGGGTTGG
C  F  S  K  R  Q  Y  P  E  V  E  I  F  R  T  L  Q  R  G  W
                 |1941                       |1951

        |5871     |5881     |5891 .    .    .    .    .    .
GGTCTACGGACAAAAACAGATATTAAAAAGgttagaaaaagctaaattaccatatacttt
G  L  R  T  K  T  D  I  K  K
                 |1961

    .    .    .    .    .    .    .    .    .    .    .    .
ctcctctttgcagttgcttgatatcattgatccttgacattagaaaattcatcatagaag

    .    .    .    .    .    .    .    .    .    .    .    .
aaaataacacagttaataattaaccttattgttgtgtcttgccatatccttctaccgttt

    .    .    .    .    .    .    .    .    .    .    .    .
agaggcttacgaatggatggttttgatctcccaagtcctttgtattgatcatggtcactg

    .    .    .    .    .    .    .    .    .    .    .    .
tgtaggaggttggaaaaaatgggacattcatagagatgctatggctttgtttgctttttt
```

```
    .    .    .    .    .    .
gtgaatatcctacagctggtaattaagaga
```

Exon 19 | Start: 149940 | End: 150057 | Length: 117

```
.    .    .    .    .    .    .    .    .    .    .    .
agattggccatccatctctctttataaggacgctctagtttacttactaatcttccattc

.    .    .    .    .    .    .    .    .    .    .    .
tggaggatctttagtatccagtgtatcctaatctttctgctgctgacagtggtaggagta

.    .    .    .    .    .    .    .    .    .    .    .
aggaggtgtttctcattatcaaatagttggggatcgtaaagtaattatgtgtgcctaaaa

.    .    .    .    .    .    .    .    .    .    .    .
ttatactcatgtaatctgctttgtagaatgtgatgttttcattaatttttaaaaaaatg

.    .    .    .    .    .    .    .    .    .    .    .
tatacatttggataccagtgtccttttttgccattaagtcaggaggtatttcttgttcta

        |5901     |5911     |5921     |5931     |5941     |5951
GGTGAATTTGTGAATGAGTATGTGGGTGAGCTTATAGATGAAGAAGAATGCAGAGCTCGA
G  E  F  V  N  E  Y  V  G  E  L  I  D  E  E  E  C  R  A  R
                 |1971                         |1981

        |5961     |5971     |5981     |5991     |6001
ATTCGCTATGCTCAAGAACATGATATCACTAATTTCTATATGCTCACCCTAGACAAAgta
I  R  Y  A  Q  E  H  D  I  T  N  F  Y  M  L  T  L  D  K
                 |1991                         |2001

 .    .    .    .    .    .    .    .    .    .    .    .
agtaatgggaaatgctgttttcactgttacaagattgtaaatttgtgttgtcccagccat

 .    .    .    .    .    .    .    .    .    .    .    .
agtatttgtaggcatgtaacgcagttcccaaggtagggtcttttcccatacccattggga

 .    .    .    .    .    .    .    .    .    .    .    .
ttgctggattggggttctggagtaggtaagagtgctcattttctgggtattcatggccag

 .    .    .    .    .    .    .    .    .    .    .    .
aggcaatacagcagcttttagcattgtttttgaacaattcaatgaaaattggagcttata

 .    .    .    .    .    .    .    .    .    .    .    .
```

```
tctttgagtatttttctacaggattacaagtttgaactcagaaaagtacataattc
```

Exon 20 | Start: 151262 | End: 151404 | Length: 142

```
.    .    .    .    .    .    .    .    .    .    .    .
tcaatgtagtcagaaacccctggcagccttgttatatataacgcagaatgctgcacccca

.    .    .    .    .    .    .    .    .    .    .    .
cagtctctgctttagtgtatttgaagcacaacccaggaatttgcatgtctaacaaattgc

.    .    .    .    .    .    .    .    .    .    .    .
caaatggtgatggtgctggtccagggatcacactttgagaaccaaagttctttgggatct

.    .    .    .    .    .    .    .    .    .    .    .
tttctctgagaggttcagtctttacaaatagaaactccaacttattagagagaatagtca

.    .    .    .    .    .    .    .    .    .    .    .
aattttaatccacagcagaggtctcaggaagtctgatgtgtagcttcttttggaattcta

 |6011     |6021     |6031     |6041     |6051     |6061
GACCGAATCATTGATGCTGGTCCCAAAGGAAACTATGCTCGGTTCATGAATCATTGCTGC
D  R  I  I  D  A  G  P  K  G  N  Y  A  R  F  M  N  H  C  C
                   |2011                          |2021

 |6071     |6081     |6091     |6101     |6111     |6121
CAGCCCAACTGTGAAACACAGAAGTGGTCTGTGAATGGAGATACCCGTGTAGGCCTTTTT
Q  P  N  C  E  T  Q  K  W  S  V  N  G  D  T  R  V  G  L  F
                   |2031                          |2041

 |6131     |6141     |6151.    .    .    .    .    .    .
GCACTAAGTGACATTAAAGCAGgtaagaatcatttcaggattctgcagctgacatctgaa
A  L  S  D  I  K  A  G
                   |2051

 .    .    .    .    .    .    .    .    .    .    .    .
tttcagggcttttgtttttttacaaacagcttcctcagattataatttttaaacatttctat

 .    .    .    .    .    .    .    .    .    .    .    .
atgtaccgttctctggaattaagttcatttacatttttgtgcaaccatcaccaccatccg

 .    .    .    .    .    .    .    .    .    .    .    .
tctccagaactcttttcatcttcccctgctaaaactctatacctactaaacactaagtcc

 .    .    .    .    .    .    .    .    .    .    .    .
```

```
ccattcttcttttttcttcacagcccctggcaactaccattctactttctgtctctgaatt

 .    .    .    .    .
tgactactatatgtacttcata
```

Exon 21 | Start: 156294 | End: 156401 | Length: 107

```
.    .    .    .    .    .    .    .    .    .    .    .
gaattaacatattttgaatctgaatggttaataaacaaatgaaaaacaacttgaggtaat

.    .    .    .    .    .    .    .    .    .    .    .
taacacctctggaggaagagttatcttaaatattacttgttaagccatttaagttttctc

.    .    .    .    .    .    .    .    .    .    .    .
tgttaaattgtattacctgattattaatgttataagattagaattaattaaaatatagga

.    .    .    .    .    .    .    .    .    .    .    .
ttagagctaaattctttttaaaattaatctgttctcttgggagttggtatcctttgtaat

.    .    .    .    .    .    .    .    .    .    .    .
taatacagaaataatgtaattaaaaccatagatattaatattttcacggtctcttatgca

         |6161     |6171     |6181     |6191     |6201     |6211
GCACTGAACTTACCTTCAACTACAACCTAGAATGTCTTGGGAATGGAAAGACTGTTTGCA
  T  E  L  T  F  N  Y  N  L  E  C  L  G  N  G  K  T  V  C  K
                            |2061                          |2071

         |6221     |6231     |6241     |6251       .    .
AATGTGGAGCCCCGAACTGCAGTGGCTTCTTGGGTGTAAGGCCAAAGgtaccacccttct
  C  G  A  P  N  C  S  G  F  L  G  V  R  P  K
                            |2081

 .    .    .    .    .    .    .    .    .    .    .    .
agacttctgctttgggattagtggtgcggtcctccctccctaacagtgttagggcagtct

 .    .    .    .    .    .    .    .    .    .    .    .
acattttaagaagaaatctctttgaaattaatgacattcagccaggcatggtggctcatg

 .    .    .    .    .    .    .    .    .    .    .    .
cctgtaatcccagcactttgggaggctgaggtgggcggatcacctgaggtcaggagttcg

 .    .    .    .    .    .    .    .    .    .    .    .
agaccagcctggccaacatgatgaaaccccatctctaataagaatagaaaaattagctgg
```

```
  .    .    .    .    .    .    .    .    .    .
gccgtggtggcatgtgcttgtagtcccagctactcaggaggctgagg
```

Exon 22 | Start: 159429 | End: 159634 | Length: 205

```
.    .    .    .    .    .    .    .    .    .    .    .
gaaaaataaataaattaattaactaataaaacttatgaaaggcatgtcatttaacaccag

.    .    .    .    .    .    .    .    .    .    .    .
ccttatggatcagcaaaaacacaaagatttttgtcttctgttttgttcaggtggcaggag

.    .    .    .    .    .    .    .    .    .    .    .
tagttgatacaaaaattattgctacgtatctgtgatgtaccaggtacctttcctgcattt

.    .    .    .    .    .    .    .    .    .    .    .
tatcttcatgacaatctcttttcccagagaagagaatgaggctcagagagggtagttaac

.    .    .    .    .    .    .    .    .    .    .    .
ccggttaagattggtactaatgtgttcacagaatgctgactgttcaatatctgacctgta

  |6261     |6271     |6281     |6291     |6301     |6311
AATCAACCCATTGCCACGGAAGAAAAGTCAAAGAAATTCAAGAAGAAGCAACAGGGAAAG
N  Q  P  I  A  T  E  E  K  S  K  K  F  K  K  K  Q  Q  G  K
           |2091                     |2101

  |6321     |6331     |6341     |6351     |6361     |6371
CGCAGGACCCAGGGTGAAATCACAAAGGAGCGAGAAGATGAGTGTTTTAGTTGTGGGGAT
R  R  T  Q  G  E  I  T  K  E  R  E  D  E  C  F  S  C  G  D
           |2111                     |2121

  |6381     |6391     |6401     |6411     |6421     |6431
GCTGGCCAGCTCGTCTCCTGCAAGAAACCAGGCTGCCCAAAAGTTTACCACGCAGACTGT
A  G  Q  L  V  S  C  K  K  P  G  C  P  K  V  Y  H  A  D  C
           |2131                     |2141

  |6441     |6451     |6461  .    .    .    .    .    .    .
CTCAATCTGACCAAGCGACCAGCAGgttggtgccaaaatccatttgtaccgctactcgtt
L  N  L  T  K  R  P  A  G
           |2151

    .    .    .    .    .    .    .    .    .    .    .    .
ctctccatcatactcagggtctcatgccatttgcatcagccttgaagaaagtgccatttg

    .    .    .    .    .    .    .    .    .    .    .    .
```

```
gtctttccatgcataattttgaggggtatggtctattttcttattttggaaataatgaaa

    .    .    .    .    .    .    .    .    .    .    .    .
gcaaaggcttagaattcttagttatgaagaatgggacagcggtgcacttgctgtgtttca

    .    .    .    .    .    .    .    .    .    .    .    .
ggtcctttacttacagtcatgtttatttcattcccccagcagcccataatggttggtttt

    .    .    .    .    .
cttccataatgcatgtgaagaaaca
```

Exon 23 | Start: 161307 | End: 167691 | Length: 6384

```
.    .    .    .    .    .    .    .    .    .    .    .
cccgccccccccctcacctccttgctggaaatagtcatagaaataccaatttactcttctg

.    .    .    .    .    .    .    .    .    .    .    .
cttgtatatttagttgatagtagttgctatttgataattcgctgttactttatgtattct

.    .    .    .    .    .    .    .    .    .    .    .
gtgcacaaaaagaagctggaattctggggcaagaggtggctggtgagtggcataagctct

.    .    .    .    .    .    .    .    .    .    .    .
ctgaagcagggacagtgtgaaggaaggtcatcatccacaccttcggactgtagcatagcc

.    .    .    .    .    .    .    .    .    .    .    .
ttggcccatgtgatatgtatctctttttttcctaaacttttgatttacttctgtgttttca

       |6471     |6481     |6491     |6501     |6511     |6521
GGAAATGGGAATGTCCGTGGCATCAGTGTGACATCTGCGGGAAGGAAGCAGCCTCCTTCT
  K  W  E  C  P  W  H  Q  C  D  I  C  G  K  E  A  A  S  F  C
                |2161                       |2171

       |6531     |6541     |6551     |6561     |6571     |6581
GTGAGATGTGCCCCAGCTCCTTTTGTAAGCAGCATCGAGAAGGGATGCTTTTCATTTCCA
  E  M  C  P  S  S  F  C  K  Q  H  R  E  G  M  L  F  I  S  K
                |2181                       |2191

       |6591     |6601     |6611     |6621     |6631     |6641
AACTGGATGGGCGTCTGTCTTGTACTGAGCATGACCCCTGTGGGCCCAATCCTCTGGAAC
  L  D  G  R  L  S  C  T  E  H  D  P  C  G  P  N  P  L  E  P
                |2201                       |2211

       |6651     |6661     |6671     |6681     |6691     |6701
```

```
CTGGGGAGATCCGTGAGTATGTGCCTCCCCCAGTACCGCTGCCTCCAGGGCCAAGCACTC
  G  E  I  R  E  Y  V  P  P  P  V  P  L  P  P  G  P  S  T  H
                  |2221                       |2231

       |6711      |6721      |6731      |6741      |6751      |6761
ACCTGGCAGAGCAATCAACAGGAATGGCTGCTCAGGCACCCAAAATGTCAGATAAACCTC
  L  A  E  Q  S  T  G  M  A  A  Q  A  P  K  M  S  D  K  P  P
                  |2241                       |2251

       |6771      |6781      |6791      |6801      |6811      |6821
CTGCTGACACCAACCAGATGCTGTCGCTCTCCAAAAAAGCTCTGGCAGGGACTTGTCAGA
  A  D  T  N  Q  M  L  S  L  S  K  K  A  L  A  G  T  C  Q  R
                  |2261                       |2271

       |6831      |6841      |6851      |6861      |6871      |6881
GGCCATTGCTACCTGAAAGACCTCTTGAGAGAACTGACTCCAGGCCCCAGCCTTTAGATA
  P  L  L  P  E  R  P  L  E  R  T  D  S  R  P  Q  P  L  D  K
                  |2281                       |2291

       |6891      |6901      |6911      |6921      |6931      |6941
AGGTCAGAGACCTCGCTGGGTCAGGGACCAAATCCCAATCCTTGGTTTCCAGCCAGAGGC
  V  R  D  L  A  G  S  G  T  K  S  Q  S  L  V  S  S  Q  R  P
                  |2301                       |2311

       |6951      |6961      |6971      |6981      |6991      |7001
CACTGGACAGGCCACCAGCAGTGGCAGGACCAAGACCCCAGCTAAGCGACAAACCCTCTC
  L  D  R  P  P  A  V  A  G  P  R  P  Q  L  S  D  K  P  S  P
                  |2321                       |2331

       |7011      |7021      |7031      |7041      |7051      |7061
CAGTGACCAGCCCAAGCTCCTCACCCTCAGTCAGGTCCCAACCACTGGAAAGACCTCTGG
  V  T  S  P  S  S  S  P  S  V  R  S  Q  P  L  E  R  P  L  G
                  |2341                       |2351

       |7071      |7081      |7091      |7101      |7111      |7121
GGACGGCTGACCCAAGGCTGGATAAATCCATAGGTGCTGCCAGCCCAAGGCCCCAGTCAC
  T  A  D  P  R  L  D  K  S  I  G  A  A  S  P  R  P  Q  S  L
                  |2361                       |2371

       |7131      |7141      |7151      |7161      |7171      |7181
TGGAGAAAACCTCAGTTCCCACTGGCCTGAGACTTCCGCCGCCAGACAGACTGCTCATTA
  E  K  T  S  V  P  T  G  L  R  L  P  P  P  D  R  L  L  I  T
                  |2381                       |2391

       |7191      |7201      |7211      |7221      |7231      |7241
CTAGCAGTCCCAAACCCCAGACTTCAGACAGGCCTACTGACAAACCCCATGCCTCTTTGT
```

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  S  S  P  K  P  Q  T  S  D  R  P  T  D  K  P  H  A  S  L  S
                |2401                       |2411

      |7251     |7261     |7271     |7281     |7291     |7301
CCCAGAGACTCCCACCTCCTGAGAAAGTACTATCAGCTGTGGTCCAGACCCTTGTAGCTA
  Q  R  L  P  P  P  E  K  V  L  S  A  V  V  Q  T  L  V  A  K
                |2421                       |2431

      |7311     |7321     |7331     |7341     |7351     |7361
AAGAAAAAGCACTGAGGCCTGTGGACCAGAATACTCAGTCAAAAAATAGAGCTGCTTTGG
  E  K  A  L  R  P  V  D  Q  N  T  Q  S  K  N  R  A  A  L  V
                |2441                       |2451

      |7371     |7381     |7391     |7401     |7411     |7421
TGATGGATCTCATAGACCTAACTCCTCGCCAGAAGGAGCGGGCAGCTTCACCTCATCAGG
  M  D  L  I  D  L  T  P  R  Q  K  E  R  A  A  S  P  H  Q  V
                |2461                       |2471

      |7431     |7441     |7451     |7461     |7471     |7481
TCACACCACAGGCTGATGAGAAGATGCCAGTGTTGGAGTCAAGTTCATGGCCTGCCAGCA
  T  P  Q  A  D  E  K  M  P  V  L  E  S  S  S  W  P  A  S  K
                |2481                       |2491

      |7491     |7501     |7511     |7521     |7531     |7541
AAGGTCTGGGGCATATGCCGAGAGCTGTTGAGAAAGGCTGTGTGTCAGATCCTCTTCAGA
  G  L  G  H  M  P  R  A  V  E  K  G  C  V  S  D  P  L  Q  T
                |2501                       |2511

      |7551     |7561     |7571     |7581     |7591     |7601
CATCTGGGAAAGCAGCAGCCCCTTCAGAGGACCCCTGGCAAGCTGTTAAATCACTCACCC
  S  G  K  A  A  A  P  S  E  D  P  W  Q  A  V  K  S  L  T  Q
                |2521                       |2531

      |7611     |7621     |7631     |7641     |7651     |7661
AGGCCAGACTTCTTTCTCAGCCTCCTGCCAAGGCCTTTTTATATGAGCCAACAACTCAGG
  A  R  L  L  S  Q  P  P  A  K  A  F  L  Y  E  P  T  T  Q  A
                |2541                       |2551

      |7671     |7681     |7691     |7701     |7711     |7721
CCTCAGGAAGAGCTTCTGCAGGGGCTGAGCAGACCCCAGGGCCTCTTAGCCAATCCCCGG
  S  G  R  A  S  A  G  A  E  Q  T  P  G  P  L  S  Q  S  P  G
                |2561                       |2571

      |7731     |7741     |7751     |7761     |7771     |7781
GCCTGGTGAAGCAGGCGAAGCAGATGGTCGGAGGCCAGCAACTACCTGCACTTGCCGCCA
  L  V  K  Q  A  K  Q  M  V  G  G  Q  Q  L  P  A  L  A  A  K
```

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                |2581                          |2591

       |7791     |7801     |7811     |7821     |7831     |7841
AGAGTGGGCAATCTTTTAGGTCTCTCGGGAAGGCCCCAGCCTCCCTCCCCACTGAAGAAA
  S  G  Q  S  F  R  S  L  G  K  A  P  A  S  L  P  T  E  E  K
                |2601                          |2611

       |7851     |7861     |7871     |7881     |7891     |7901
AGAAGTTGGTAACCACAGAGCAAAGTCCCTGGGCCCTGGGAAAAGCCTCATCACGGGCAG
  K  L  V  T  T  E  Q  S  P  W  A  L  G  K  A  S  S  R  A  G
                |2621                          |2631

       |7911     |7921     |7931     |7941     |7951     |7961
GGCTCTGGCCCATAGTGGCTGGACAGACACTGGCACAGTCTTGCTGGTCTGCTGGGAGCA
  L  W  P  I  V  A  G  Q  T  L  A  Q  S  C  W  S  A  G  S  T
                |2641                          |2651

       |7971     |7981     |7991     |8001     |8011     |8021
CACAGACATTGGCACAGACTTGCTGGTCTCTTGGAAGAGGGCAAGACCCCAAACCAGAGC
  Q  T  L  A  Q  T  C  W  S  L  G  R  G  Q  D  P  K  P  E  Q
                |2661                          |2671

       |8031     |8041     |8051     |8061     |8071     |8081
AAAATACACTTCCAGCTCTTAACCAGGCTCCTTCCAGTCACAAGTGTGCAGAATCAGAAC
  N  T  L  P  A  L  N  Q  A  P  S  S  H  K  C  A  E  S  E  Q
                |2681                          |2691

       |8091      |*11      |*21      |*31      |*41      |*51
AGAAGTAGTACCAATCAATGTCACATGAACAAACAAGCTGCCCCCAGGGTACCATTTGGG
  K  *


        |*61      |*71      |*81      |*91      |*101     |*111
GAGGGGAAATCTTTTCTTTCTTTCCCCCTTAAAAAAAAAACACATCTGCCCCGAACACTTT

        |*121     |*131     |*141     |*151     |*161     |*171
CCCACTGTTATTCTTTCCTCATATCCCAACACTCAGAACTCTTGTGACATTAGCCAGTGG

        |*181     |*191     |*201     |*211     |*221     |*231
GGGCTTATGGTTGTGTGAACCATGTATGAAAATCCAGTGGGCCCCAACCAAGGAGACAGA

        |*241     |*251     |*261     |*271     |*281     |*291
CAGACTTGGGTCTCTTTCCCCCAACTTTTCCACATGGTCATCGTGAAATAAAAAGTCCAC

        |*301     |*311     |*321     |*331     |*341     |*351
TCTGGAGTCAAGTATGGAATTCAATTCCGCTGGTCAGGTTGGAAGGTATAGGGGCTCTCA
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        |*361      |*371      |*381      |*391      |*401      |*411
AAGCGATTTCCCCAACCAGACAGAGCCCCATTGAGGGCACCTAGGAACCCTTGGGAGGAA

        |*421      |*431      |*441      |*451      |*461      |*471
ATGGTGTTCTTTCAAATCAGTGGCGATTTCCTGAGCATTCACGTGTTCTAGGCCGGGTGC

        |*481      |*491      |*501      |*511      |*521      |*531
TAGTCACTGATGAGAGATACAGGCCTCATCCCTGTGAGCCTGGATTCCAAGGCTTTCAGG

        |*541      |*551      |*561      |*571      |*581      |*591
AACCTTTGACCAGGAAGTAACAGGAAGTTCTGAGGGGCCCTGGGGCTTTAGACTCATTTT

        |*601      |*611      |*621      |*631      |*641      |*651
GAAATGTCCTTTGTGGCACCAGAAGTGGTTGTGTTGAGGAAGTGTCTCTTGGCTGCGGTG

        |*661      |*671      |*681      |*691      |*701      |*711
TGCATGGGTGCGTGTGCATGCGCGCACACTCACAGAGGTCTCCTCTATAGATGCAAGGGT

        |*721      |*731      |*741      |*751      |*761      |*771
GCTGCATTGAGGCCAGCAAGGCTGTTGGCTGTGGGGTCGCCGCTGCTGCTTTTGTCTGGG

        |*781      |*791      |*801      |*811      |*821      |*831
CTGTGCAGAGTCTCAAGATCAGTCCTTGGAGGAGCAGGTGGTCAGGGGCAGTCGGGCTCT

        |*841      |*851      |*861      |*871      |*881      |*891
GTGCGAATGTAGATTTCCAGCAGTGGAAGAAGGCATTTGGCAAGCTTCTCTTTCTTTGCT

        |*901      |*911      |*921      |*931      |*941      |*951
TTTGTTTCTACCTATTTTTCTCTTTGTACATGAATCCACCCCATCCCTATTTCCCTAAAA

        |*961      |*971      |*981      |*991      |*1001     |*1011
CACTCAGGTGCTTTCAGATTTCAGAGCCTCGGGCAGTGGACATAGGGAATCTCTGGCAAG

        |*1021     |*1031     |*1041     |*1051     |*1061     |*1071
CTCTGAGCTAGACACACCAGCTTCAGGAAGAGTACCAGATCCTGATGGGAAATTTCTTTT

        |*1081     |*1091     |*1101     |*1111     |*1121     |*1131
CCCCATTCCTTTTCCCTCCTGAGTGGAGGGAGTCCTCTTCTTCGCCTCCCTGAGAATTGC

        |*1141     |*1151     |*1161     |*1171     |*1181     |*1191
TGTGCTCTGTATTGAGAGCACCTGCCTGCTGACTTAGCTCAAAGGCAAGCCAGAACCCTT

        |*1201     |*1211     |*1221     |*1231     |*1241     |*1251
CCCTGAAGACTGGCAAGAGGTGGTGTTTAGAGCAACGTCCAGGCTAAGAGATGACTCCTA
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        |*1261     |*1271     |*1281     |*1291     |*1301     |*1311
TTAACTGCTGATTATCTGTTACTGCTGCCCTGAGCTGGGGCCCAAGGGCTGGGAAATCTG

        |*1321     |*1331     |*1341     |*1351     |*1361     |*1371
TTGGTGCTACCCTGCCCTACCATTCACCCAGCTCACAGACTGCCAACAGGAAGTGCTGTT

        |*1381     |*1391     |*1401     |*1411     |*1421     |*1431
TGGCTAGTTTCCTCCCACTTGTCTACCCCTCCTTTGTCCTTAGACCAACATGTTTACCTC

        |*1441     |*1451     |*1461     |*1471     |*1481     |*1491
TCTGCTTTGCCAACTTAGCCAGCAGGCCATCCCCGGCCCTAACGTCTCCTGGCCATTATC

        |*1501     |*1511     |*1521     |*1531     |*1541     |*1551
TCTTAGTTATGGCTTTCACGCTCTCAATAGGATTCTGTATTTGGTCCCAATTTCCTCAAG

        |*1561     |*1571     |*1581     |*1591     |*1601     |*1611
TTCTTATTGAGGTTACTCCCATCAATTCCACGGAGGGAACAGTAGTTATTATAGAAGCAT

        |*1621     |*1631     |*1641     |*1651     |*1661     |*1671
TTGCGCTTTATCTAAAGATTAAAAATAGAATCTGCTTTTATTTCCCAAAGTCTGTCTCTG

        |*1681     |*1691     |*1701     |*1711     |*1721     |*1731
AGGTTGAGACACTTGAACTCAGGCAGAGGGACGAGGCTGGGCAGGGCTGTCCTGAGTTTA

        |*1741     |*1751     |*1761     |*1771     |*1781     |*1791
GGGGCCTATCCCTGCATTTCACTGAGACCTCGGAATCTCCTCTGTGAATTCCACCTGCCT

        |*1801     |*1811     |*1821     |*1831     |*1841     |*1851
AGTTCTCCCCTTTCATCCTCTCTCTCTTCCCACATCATCAAAGAGGAAAAGCTCTTTGTT

        |*1861     |*1871     |*1881     |*1891     |*1901     |*1911
CAAAAGGAAGAGAAAACGTAAAGCATCTTATTTTCTTTTAAAAGAATTTTAAACCATGAA

        |*1921     |*1931     |*1941     |*1951     |*1961     |*1971
AAAGATATTTTTAAAGAAATTCACCGAGAACATTAAAGTTCATTATATTAAGTATTTATC

        |*1981     |*1991     |*2001     |*2011     |*2021     |*2031
ATGTGTGAGAATAATAAATATATAACTGCAGCTAGTAGGTCCCTTTCCCTAATCTTTTAG

        |*2041     |*2051     |*2061     |*2071     |*2081     |*2091
GTCATATGAGTAGGGTTTGCTTGGTGCCAGTCCTGTGCCCTTTTCTCTCCAGTCATCTGT

        |*2101     |*2111     |*2121     |*2131     |*2141     |*2151
AGTTGTGATCAGAAAAAGGTATCTGCACTGCACTGTCAGAGTCTCCTTTCACTATGTTGT

        |*2161     |*2171     |*2181     |*2191     |*2201     |*2211
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GTGTTAAATTACCGTAGCTCTTTGTTTCATGAAATAAACTGTGAATTTGGGGGGGGCGGG

        |*2221     |*2231     |*2241     |*2251     |*2261     |*2271
GGGAGGGCGTGCAGGCCATGTAAAAATTTTCCGTGGAGAAGTTTGATTCTAAAGTAGCTT

        |*2281     |*2291     |*2301     |*2311     |*2321     |*2331
CTCTAAAGTAGGCTTTGGTAGGTAATCAACTTGACAGCAGTCTAGATGTCTCACAGGACA

        |*2341     |*2351     |*2361     |*2371     |*2381     |*2391
GGAGGGAGTGAGGGAAAGGGGCCATGATTGGCTGCTTTGTGGTTTTATTTTGGTTCTTTC

        |*2401     |*2411     |*2421     |*2431     |*2441     |*2451
CATTCTCCGCCATTCATTGGAGGCTTCGTTCCAGACCTGCCTGGGAAAACAGCTTCTGAG

        |*2461     |*2471     |*2481     |*2491     |*2501     |*2511
CCATTTTGGGGAGCAGTTCTTCATCTGAATGGATGGACATCTGGGCTTCCTTCAAGGGCC

        |*2521     |*2531     |*2541     |*2551     |*2561     |*2571
ATTGAATGGGAACTAGAAAACCACTGGAAACTAGAAATTTGAGCTATTGGGCCCACCAGT

        |*2581     |*2591     |*2601     |*2611     |*2621     |*2631
AGCAGCATGTGATACTAGATGGTTAAAATCATGAAAGCAGTCACTATCCAATTAGAAGCA

        |*2641     |*2651     |*2661     |*2671     |*2681     |*2691
GAGTCACAACAACTGTTGGGAAATGTGACTCTTGGAGGAAGGTGGGGAGGGAGTGGCCTT

        |*2701     |*2711     |*2721     |*2731     |*2741     |*2751
GCCAGCCCTGTGGGACGTCCCCTGAAGTTTGTAATAAGACCCCTTTTCCAAAGGGATGTG

        |*2761     |*2771     |*2781     |*2791     |*2801     |*2811
AATTGGAGTGAAAAGGAAATCTTTCATCTTAGAAAACTTCTGGTCCTTAACGCAGGGTGG

        |*2821     |*2831     |*2841     |*2851     |*2861     |*2871
TATTTGGGTATGTGCTTGGAAATTGAGATCTCAAGAGTGTTTGCCTTGGAGCCAGCTCCC

        |*2881     |*2891     |*2901     |*2911     |*2921     |*2931
CAGGAGGCCTTTTCCAGGGACAAGGCAAAAGTTGAAATTCTCCATGGGTAGCTAGAAAGC

        |*2941     |*2951     |*2961     |*2971     |*2981     |*2991
CAATACATCTAGCCCTGCTAAGTCAGAAAAAGATTATGAAAAATGTTGAAATTTACATTC

        |*3001     |*3011     |*3021     |*3031     |*3041     |*3051
AAAGCCTCATTTGCTTATCTTGCTGGAGCCAACCCAGTCTAATAGCAAAATAGCTGTCAT

        |*3061     |*3071     |*3081     |*3091     |*3101     |*3111
TGATACAGAAACATCCTCATTTTTAAATGTCTGCTTTACCCTGTTACTGAGTTTGAGATG
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        |*3121     |*3131     |*3141     |*3151     |*3161     |*3171
ACTTAAATCACTGTGTTGACCCTCTTCTGAACCAAATCTTTAGCATTGATGAAAATAGTT

        |*3181     |*3191     |*3201     |*3211     |*3221     |*3231
ATTTTATTCTTTACATCCTTCACCCCACACTATGGTCAGGGCATGAAACACCCTGTTGAT

        |*3241     |*3251     |*3261     |*3271     |*3281     |*3291
CCCTTCCCAGGCTCGGCACTGTCTGCTCACTGGAGCCGGACTCCCAGGTTGTAATTCTAA

        |*3301     |*3311     |*3321     |*3331     |*3341     |*3351
TGTTGCCTCATGAGAACAGAATGGCAGAAAGTTTAGTCCTGACAGATTCCCCCATAGGGA

        |*3361     |*3371     |*3381     |*3391     |*3401     |*3411
GTAATGAGGACAGCATGAAACTTGGATAGGTTTTACCCTTAGTCCCTATAAGGTGGATTT

        |*3421     |*3431     |*3441     |*3451     |*3461     |*3471
TACTAAGGTTTTTTAAATGATACTGTCATCCTCTTGGGGTTTATCAGCCAGGTTAGAGGA

        |*3481     |*3491     |*3501     |*3511     |*3521     |*3531
GCCCAGTGTCCTAACCTCTCTCAGATCATGGCAGAGAAGGAGCTGCCTCCAGCCCCTTTC

        |*3541     |*3551     |*3561     |*3571     |*3581     |*3591
TTGCTGAGTTTCATTTGAGCAGTTCCATGTGTAGACATTCCAAGTCACTGCTTGGTAGTT

        |*3601     |*3611     |*3621     |*3631     |*3641     |*3651
GCTGTGGGAGCCTGTCATTGGCTATGGCCAGTTAGTTCTCAGCTGAGCTTCCTAGGGCCA

        |*3661     |*3671     |*3681     |*3691     |*3701     |*3711
GTGCAACAGGGCCAGAGGCTGCTATAGTGTAAATTGAAATAAGAATAGATCATTGTTTTG

        |*3721     |*3731     |*3741     |*3751     |*3761     |*3771
TACACACACACAATAAAATGTAATGATGGTGCTAATTTCACGGTATAAATAAGCACTGCC

        |*3781     |*3791     |*3801     |*3811     |*3821     |*3831
AAGGGTTGAGGGACTGGCAGCTCAAGAAACCCGGGTTCCTGTTTGGGAGGAGATTTTATG

        |*3841     |*3851     |*3861     |*3871     |*3881     |*3891
TAGAAAAGTTTGAGGCTTTGTTAAAAGTGGGGAGAAGGAAGATCCTCAGTGAAGCCTGCA

        |*3901     |*3911     |*3921     |*3931     |*3941     |*3951
CCCAACCCTGGAGTGGCCCAGTGCAATCCAGAGGTGGAAGAGATCCTATATCCAGGTGAA

        |*3961     |*3971     |*3981     |*3991     |*4001     |*4011
GGTGGCCATTGAGTTTCTCAGGGCTGGGGCCACCTTGTCCATAGCCTCCGTCCACGCTGC
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        |*4021     |*4031     |*4041     |*4051     |*4061     |*4071
CTGGAGCAGGTTGTTAGAGAGCTCTGGTTGTTGGGTCTTCCTCAGCTCCCTTCTGCCCCT

        |*4081     |*4091     |*4101     |*4111     |*4121     |*4131
CTCTACCTCTTCCACTCATGGAAGCCCCTCTACTGCTTATGAAGATTAAGGGTAGTATTT

        |*4141     |*4151     |*4161     |*4171     |*4181     |*4191
TCTAAGGAAGTGGAAAGAATTAAACTAGAAATCCACAACCTCGGAAGAAGTGTTTCGAGT

        |*4201     |*4211     |*4221     |*4231     |*4241     |*4251
TTAACATGCGCTGTTTCTGCTTATGTGGTTCCTTCTCTAGAGCTGCTTTCCCATGGCTTT

        |*4261     |*4271     |*4281     |*4291     |*4301     |*4311
CAAAACATCAGGTTATTGTGGGGCTTCAGGTGTAAGGTCCTGGAAGTTCAGCAAAGTTTC

        |*4321     |*4331     |*4341     |*4351     |*4361     |*4371
GTGGACAAGACATGGGCACAGAGAGTAGAAGCAGAAATAAATGGTTCTATGTTTTCAACT

        |*4381     |*4391     |*4401     |*4411     |*4421     |*4431
TCCAGGGTTGGGGCAGGCCAGAGCAAGGCGGTCTCATCGAGGTGGGTGCTACCTGTGTGT

        |*4441     |*4451     |*4461     |*4471     |*4481     |*4491
GTGTAGATGAGTGTGCTGAAGGTGGGGAGGGCAGCACACAGCAGCTCATGGCAGAGCCGC

        |*4501     |*4511     |*4521     |*4531     |*4541     |*4551
CTCCTAGGTCTTGGCAAAGAGGCAAGCTGACGATAGACATCTACCTATATTGTTAAGAAA

        |*4561     |*4571     |*4581     |*4591     |*4601     |*4611
GGGGTCGGGGGGATCAGCCAAGGTCCATCATTGCTTTTTTGCCGCGCCCCCCCCCCCCG

        |*4621     |*4631     |*4641     |*4651     |*4661     |*4671
CCCCCATAGATTGTCAGCTGTAAGTGAAACTCCTAGTGAAAAAGAGGGGAGCCCTGTGTT

        |*4681     |*4691     |*4701     |*4711     |*4721     |*4731
AGGAGTCCCCATAAACATGTACTGTAATTCTTTGTATATAGAAAAAAAATTTACTGTAAA

        |*4741     |*4751     .     .     .     .     .     .     .
GTAAAGTTTAACTTTACTCATATAtggcccttgccctgtgttttgttttattggctgtgg

   .     .     .     .     .     .     .     .     .     .     .     .
ggagttgtagtctaacaggagggaggattgtttggggtgagagcagaagccagccccaga

   .     .     .     .     .     .     .     .     .     .     .     .
gatagtacgaggtgggggggcgggggggcgcagggatactgtgaagctaagcccttcctcca

   .     .     .     .     .     .     .     .     .     .     .     .
```

```
agcacgtcatgggaatagtgtgtttcctctcagcagccacagggctgcccaagcctcttt

   .    .    .    .    .    .    .    .    .    .    .    .
ctccctctgttgggagtggctggtttcagtttcagtctccctccacaggaagccccccatc

   .    .    .    .    .
actcatgaaggaagggcagtttga


GBK Parser: Version: 1.1, Version Date: 11/02/2015
Reader: Version: 1, Version Date: 11/02/2015
Writer: Version: 1, Version Date: 11/02/2015
Control: Version: 1, Version Date: 11/02/2015
```