Gene: ENSG00000165671 - Sequence: ENST00000439151
Transcript: ENST00000439151 - Protein: ENSP00000395929
Date : March 2, 2015

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

Exon 1 | Start: 1401 | End: 1428 | Length: 27

.   .   .   .
aaccccgaagagtgagagaagggaacgcgcgcgctcggtgggggaaggggtgcgcgcgca

.   .   .   .
ctcggggcccagccgcacgcgggccggcgcgaggcgctcggtcgcacgcgcggccgcggg

.   .   .   .
ggcgcgcgcggtgggggtgtgaggaggaggaggcggcggcggaataggccggggcaggtc

.   .   .   .
gcgctcgctgccttctcccctgaagagagacgcggggggagggggggtgcggcgagcggcc

.   .   .   .
ccgctctctccccaccgctccgctcgcaccccagtgtaatgagggtcaccccctcccccc

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

    .   .   .   .
gcgcgaggagaagggagggaggagggtggccgggcggggaagatggtggtggccgtaagg

    .   .   .   .
tgaggggctcggggggagggccaggcgcgatgcggggttggtggccggcggcgctgcagcc

    .   .   .   .
gccggcctcctcccccctccccctcctccatcactaccagccgggctcaggcctagctggc

    .   .   .   .
cgggctgccgcgaacttcctcccggcgcggcccgtgccccgccggccgcctgcgaacacc

    .   .   .   .   .   .
tcggcctccgcctcccctcaggtagcag

1

Exon 2 | Start: 2563 | End: 3506 | Length: 943

```
    .       .       .       .       .       .       .       .       .       .       .       .
gggaattttgacgggcagagggggtttttaatttttagttcatcccaagtgtccaccagtcta

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

    .       .       .       .       .       .       .       .       .       .       .       .
atggagttttcagaggctcatcgaggccatttttttcatctccagtcggggggaactttttc

    .       .       .       .       .       .       .       .       .       .       .       .
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
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2

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

3

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          |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
              |281                                          |291


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


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


      .      .      .      .      .      .      .      .      .      .      .
aatttgttttttggttgcttatcagttcacagctgaaatcctattgctaatcataagcttt


      .      .      .      .      .      .      .      .      .      .      .
gggcaaaattttactttgattttttaaatttatctctgttgtatgaatttggttgtttttaa


      .      .      .      .      .      .      .      .      .      .      .
gctttttccaaataactcttcattgagagtaggctaatgctttaaaggcatttgattga


      .      .      .      .      .      .      .      .      .
gttcaggtttaatttctcaagttggaggtatacatatatgatta
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4

Exon 3 | Start: 59360 | End: 59495 | Length: 135

```
 .     .     .     .     .     .     .     .     .     .     .     .
ttttctttattgtgtgtgtttttagttctttaaaaataaagccagcttaattttattttc

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

 .     .     .     .     .     .     .     .     .     .     .     .
tatgttatgaacaattaagatggaataatttagttgtacttattttgtaattcttttttag

 .     .     .     .     .     .     .     .     .     .     .     .
gctagagtgttttcattctcaattttttcatacattgctttttcagaaggctaataggaat

 .     .     .     .     .     .     .     .     .     .     .     .
gacaataatgtttcaaaatattttgattcttattgatgccccatgtttttgtctgtctaaa

    |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

    |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 .     .     .     .     .     .     .     .
CATTCAAAAATGAAAGgtaatacttgcagtgattatacatgttaaaggcagttgccttta
 H  S  K  M  K  V
    |351

 .     .     .     .     .     .     .     .     .     .     .     .
gaataactcaattttttgttatcttaataataatatattttttttccttggaacattttgtg

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

 .     .     .     .     .     .     .     .     .     .     .     .
atttaaaccttctctcagtttttttttttttgtttgtttgttttttgagacggagtctcgct

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

 .     .     .     .     .
gagttcaagcgattct
```

5

Exon 4 | Start: 71596 | End: 71768 | Length: 172

```
    .       .       .       .       .       .       .       .       .       .       .       .
ttacctgtctactatcttaatttcttctttgtagttaatctacatttagctggttttgaa

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

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

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

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

        |1071       |1081       |1091       |1101       |1111       |1121
TTTCCAACCGGAGGCCCTATCGGCAGTACTACGTGGAGGCTTTTGGAGATCCTTCTGAGA
    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

    .       .       .       .       .       .       .       .       .       .       .       .
acgaaaaaggcttttttattgagtgacagaagcaagtaagaaaaagaaagaaaatggcctc

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

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

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

    .       .       .       .       .       .       .       .       .       .       .       .
caggatttcgccatgttggccaggttggtcttgaactcctgagctcaagcagc
```

6

Exon 5 | Start: 77112 | End: 79671 | Length: 2559

```
      .       .       .       .       .       .       .       .       .       .       .       .
ctggccaatatggtgaaacccctattctactgaaaatacaaaaaattagctgggtgtggt

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

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

      .       .       .       .       .       .       .       .       .       .       .       .
caagactctgtctcaaaaaaaaaaaaaaaaaggaataaaaaaaaaagcttctgatttcatc

      .       .       .       .       .       .       .       .       .       .       .       .
tcccttttcccccacccatttctttgataagtgataattctttttctcctttaaatttaa
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       |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
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       |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
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       |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
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       |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


      |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
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      |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
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
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9

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     |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
TCTAAGGTTTTGGTTTCAGGAGGCTCCACACACAATTCAGAGAAAAAGGGAGATGGCACT
 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
GCTTTTTTCAGCCCAAATGGTAAAGAACACAGTGAACCGTAAAGCCTTAAAGACCGAGCGC
 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
```

11

```
        |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


        .       .       .       .       .       .       .       .       .       .       .       .
taaaaaaaaaaaaaattggagaaagtgctgataaacattgtccttctgaaattggtctgtt


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


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


        .       .       .       .       .       .       .       .       .       .       .       .
ctttaccagaagcccttttccccaacctttтcaagtaaatctctataacatctttctttc


        .       .       .       .       .       .       .       .       .
tcactttctctctctctctttctctctctctcttttttttt
```

12

Exon 6 | Start: 103297 | End: 103421 | Length: 124

```
    .       .       .       .       .       .       .       .       .       .       .       .
tacaggtgtcagtgactataagacctggctttaaatttaacctttttccttaattttggat

    .       .       .       .       .       .       .       .       .       .       .       .
gggccacatatattctattatttgtgtatataaggtaacacaagtccttttgtctcccccc

    .       .       .       .       .       .       .       .       .       .       .       .
cagctcctttttgcatatgagaaaacataagccattttgtgcctcttgcatcttaagccat

    .       .       .       .       .       .       .       .       .       .       .       .
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

    .       .       .       .       .       .       .       .       .       .       .       .
gaatctacatattgtatttatttatgtatatattttttccctctttgccttcaaagagtaa

    .       .       .       .       .       .       .       .       .       .       .       .
tgacttaggaatattgttatgatttaatcttaagtaaaaatataggctataaagtgaaat

    .
atata
```

Exon 7 | Start: 105713 | End: 105983 | Length: 270

```
.         .         .         .         .         .         .         .         .         .         .         .
aaattaaaaatcaatacccattaaccaataactccctttttctgctcagcccctggcaatt

.         .         .         .         .         .         .         .         .         .         .         .
gccattctattttctgtctcaagaatttttcttattctagatacctcatatacttgaaatc

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

.         .         .         .         .         .         .         .         .         .         .         .
gttcatccactttttgtagcctttgtcagaatttcattccttttaaagtgtgttattctt

.         .         .         .         .         .         .         .         .         .         .         .
tttgacacttaaattacaacaattttggcctgtggactctattttttatttttttgttctta

          |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
GAGGCTCCGTTTTTGGAGGGCCCCCTTGGCTCAGTCAGAACTTGGAGGTGGACATGCTGAG
E   A   P   F   L   E   G   P   L   A   Q   S   E   L   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

.         .         .         .         .         .         .         .         .         .         .         .
agcagatatgattagaggaagcaggagatttttagtatgttttgatgtaaagccaacattg
```

14

```
.         .         .         .         .         .         .         .         .         .         .         .
tatctatatacaataaactaccccctttttgtcctgggaaatacttaaaatgatggttaat

.         .         .         .         .         .         .         .         .         .         .         .
tagatatagttactaaccatgaactgtggcacactatcaagaagatgtattttttaataac

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

.         .         .         .         .         .         .
aaccaggataacagggcttcaagaggagtac
```

Exon 8 | Start: 107232 | End: 107341 | Length: 109

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

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

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

     .      .      .      .      .      .      .      .      .      .      .      .
ataagatgacgggggaaaacatcaaaaacattgagattcattttgtgtggtatacagattt

     .      .      .      .      .      .      .      .      .      .      .      .
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

          .      .      .      .      .      .      .      .      .      .      .
tttgtaagttctaaaagaaataaactcaggaaatgagaaattttaaaaatgacattttga

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

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

          .      .      .      .      .      .      .      .      .      .      .
ataaactggtttcaggtttcctttccaagtgaaaaaaattttttaaatgctttgaagatta

          .      .      .      .      .      .      .      .      .      .      .
agtttgtgtttgttataatttctttttctgggttcaaatcctcttacctgt
```

Exon 9 | Start: 111671 | End: 111746 | Length: 75

```
         .       .       .       .       .       .       .       .       .       .       .       .
tgttggtcaggctggtcttttaactctcaacctcaggtgatccacccgcctcagcctccta

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

         .       .       .       .       .       .       .       .       .       .       .       .
gattcctttccccctgaagtttccgttcaacccttactgtggtcaggttgatttctttta

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

         .       .       .       .       .       .       .       .       .       .       .       .
taaagtaaagggtttattttttcattcctctgtaaatggtgttgttttcacttatttata

           |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        .       .       .       .       .       .       .       .
AAAGATTTTGGTGGAGgtgagtattttttgagatttaaaaaacgtaatgcagtagtaagtt
K   D   F   G   G

         .       .       .       .       .       .       .       .       .       .       .       .
tgaagtgctttgtctgttaaccacaaaaattgttacatgtgtaagcccgaccagtgaggt

         .       .       .       .       .       .       .       .       .       .       .       .
acaagtttttaaaactggtttgcccaaaatctgcttcctgaaaaagaaaaaatattgataa

         .       .       .       .       .       .       .       .       .       .       .       .
attgaatatctactctaccaggactttttagtaggaatgctacctgtaatctctctaaagc

         .       .       .       .       .       .       .       .       .       .       .       .
gttacagagagttaggttattatctatagtattcctgtttttatagaagaaatgtgaagat

         .       .       .       .
gaacaaggtagcaagg
```

17

Exon 10 | Start: 114154 | End: 114272 | Length: 118

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

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

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

    .     .     .     .     .     .     .     .     .     .     .     .
taatccacaaagctggagaattaaatgagttttaaggttggttttttattctaataatagg

    .     .     .     .     .     .     .     .     .     .     .     .
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

        .     .     .     .     .     .     .     .     .     .     .     .
tattactcagttcctgatctttttcaccttctaaagagaagctactttttcacgccagaggc

        .     .     .     .     .     .     .     .     .     .     .     .
cacatccctctttcccttgagtttttcttaagaatactattctactgaaatggctgatggc

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

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

        .     .     .     .     .     .     .     .     .     .     .     .
aggtatataagtgtttcatcgttaagtaaacttgtaaaaccggagagtacaatatcaag
```

18

Exon 11 | Start: 115657 | End: 115800 | Length: 143

```
     .      .      .      .      .      .      .      .      .      .      .      .      .
aaataagtaatcaaataaacttaagaatgttttctctcccttagtgaaaccttaaaatgg

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

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

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

     .      .      .      .      .      .      .      .      .      .      .      .      .
gggggtcaaatggaagagacatcaataatacagatgtgggacattattttttctttgcaa

    |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

     .      .      .      .      .      .      .      .      .      .      .      .      .
aatgcttttggatgattccagtggagtcactttctttaaggatttgaccccttttttttct

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

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

     .      .      .      .      .
gcttattcaaatataattctccag
```

Exon 12 | Start: 119206 | End: 119329 | Length: 123

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

```
          .       .       .       .       .       .       .       .       .       .       .       .
ACAGgtaaagtagatatcgaacggtcttcctccaaagaaagtttgaattttaagttttttc
T  G

          .       .       .       .       .       .       .       .       .       .       .       .
aggaaagacatttattggagacactattttgtggcaacactgggctagttgttacagata

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

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

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

          .
ttga
```

Exon 13 | Start: 124427 | End: 124627 | Length: 200

```
.         .         .         .         .         .         .         .         .         .         .         .
cctgtaaacttgtagttagtccaggggcttgattaggtttaatttcagttttttcttttt

.         .         .         .         .         .         .         .         .         .         .         .
ttggcggggggtgccagcggcaagcattttctgtagacaatatgtactttctgttgtatca

.         .         .         .         .         .         .         .         .         .         .         .
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

.         .         .         .         .         .         .         .         .         .         .         .
tcagtttaattggcaacagatattttcttttttctttcttttttttttttttttttttgga

.         .         .         .         .         .         .         .         .         .         .         .
gacagagtctcgctgtgttgccgaggctggagtgcagtggcgtgatcttggcccactgca
```

21

```
    .       .       .       .       .       .       .       .       .       .       .       .
agctccgcctcctgggttcacgccattctcctgcttcagcctcctgagtagctgggacta

    .       .       .       .       .       .       .       .       .       .       .       .
caggcgcctgccaccatgcctggctaattttttttgtattttttagtagagacggggtttca

    .       .       .       .       .
ccgtgttagccaggatggtct
```

Exon 14 | Start: 127465 | End: 127644 | Length: 179

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

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

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

.     .     .     .     .     .     .     .     .     .     .     .
ggtcattccttctatttgtgacattttttcagtgctaacaaatagacttgaataactcac

.     .     .     .     .     .     .     .     .     .     .     .
attctttttatatttaatatttttgtttttcttttgcttgtccctgattttcctgcttta
```

```
    |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
GGCGGGGGCTGCCGAAATCATGAGCATGTTAATGTTAGCTGGTGCTTTGTGTGCTCAGAAG
  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

    .     .     .     .     .     .     .     .     .     .     .     .
tttttttttttttttttgagacaacgtttcactctgttgcccaggctggagtgctatggca

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

Exon 15 | Start: 135038 | End: 135194 | Length: 156

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

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

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

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

.     .     .     .     .     .     .     .     .     .     .     .     .
atgtacacatacatgacttgcagtcttgtgatctgaatgccacattttttttattcccaca

      |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

.     .     .     .     .     .     .     .     .     .     .     .     .
atgatctacttaattactcatggtactcctcccctcttcttcttgatttttttttccttata

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

.     .     .     .     .     .     .     .     .     .     .     .     .
attttttttttcttttgtgtattttgtgaaaagttttttttttttttttttaaatgaaaaga

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

24

Exon 16 | Start: 137078 | End: 137283 | Length: 205

```
   .        .        .        .        .        .        .        .        .        .        .        .
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       .        .        .        .        .        .
AGGAGTGGATGGGACATATAAAAAAGgtaactttatccttttttgtttctcaggcaaacac
 G   V   D   G   T   Y   K   K   A
        |1831

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

   .        .        .        .        .        .        .        .        .        .        .        .
ctgcctttgtcctctcagggcattatctggctgcaaatacagtattttgcaaggaagttg
```

25

```
   .       .       .       .       .       .       .       .       .       .       .       .
acccatgtaactcattattttttgagccttaacctttacttaatttgaatttccttgagct

   .       .       .       .       .       .       .       .       .       .       .       .
tttttttgacttatcagttgttttgtcagcattccatcaaataatggagttctgaaacta

   .       .       .       .       .       .
tttcatagaagaaacacttcagtttg
```

Exon 17 | Start: 141148 | End: 141260 | Length: 112

```
     .      .      .      .      .      .      .      .      .      .      .      .      .
taagcaaaaaaagttctcgtattcagatggatggatgccagtgatctaaagggtgatagtc

     .      .      .      .      .      .      .      .      .      .      .      .      .
tgtattgtgccatttagttctggattatgttttgtcttaatactatgtctgaataccctt

     .      .      .      .      .      .      .      .      .      .      .      .      .
tggactacattacctgtttgaaaatagctgttatgtgtttctttttcatatagcattgg

     .      .      .      .      .      .      .      .      .      .      .      .      .
tcgattttgtgtaaaacatggagtttctccaacttaaaggggaaaaagtaaaaaataag

     .      .      .      .      .      .      .      .      .      .      .      .      .
tgaataaataagtaattccacccagagattttgaagtgacttgtgctgtctgtttttcata

 |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

     .      .      .      .      .      .      .      .      .      .      .      .      .
gaaaatcttggggggaccttctctagaagagaaatggaatagctggctcttcccactctgt

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

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

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

     .      .      .      .      .      .      .      .      .      .      .      .      .
taattccagctacttgggaggctgaggctggagaattgcttgaacccgggagg
```
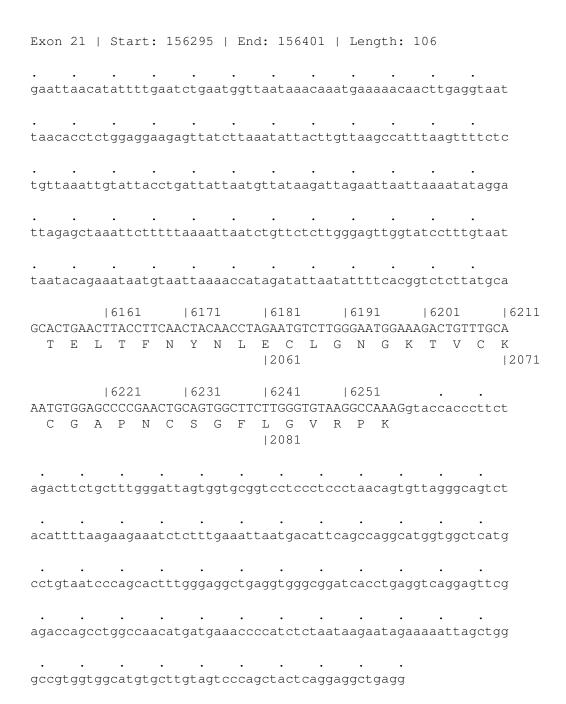
Exon 18 | Start: 148041 | End: 148310 | Length: 269

```
    .     .     .     .     .     .     .     .     .     .     .     .
accgtacctggctcgtattttattttttttgagatggaatctcaacatatcggccaggctg

    .     .     .     .     .     .     .     .     .     .     .     .
gagtgcagtggtgaaatcttgtctcactgcaacctccgcctcctgggttcaagcaattct

    .     .     .     .     .     .     .     .     .     .     .     .
tgtggagttcatattttgtatgtcaagtgaggctctgtttttatatgaaactaagtgttg

    .     .     .     .     .     .     .     .     .     .     .     .
atagttcaaaatcatgggaaatgtggctgcaacttcaaggaaaaaaagtttgccttttttc

    .     .     .     .     .     .     .     .     .     .     .     .
aggacgtgaattgtcttctgctgacttgtttttatgcggtgtactttgtgttacttttcca
```

```
        |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
TGCTTTTTCCAAGCGCCAATATCCAGAGGTTGAAATTTTCCGCACATTACAGCGGGGTTGG
 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
```

28

```
          .     .     .     .     .     .     .     .     .     .     .     .
aaaataacacagttaataattaaccttattgttgtgtcttgccatatccttctaccgttt

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

          .     .     .     .     .     .     .     .     .     .     .     .
tgtaggaggttggaaaaaatgggacattcatagagatgctatggctttgtttgctttttt

          .     .     .     .     .     .
gtgaatatcctacagctggtaattaagaga
```

Exon 19 | Start: 149941 | End: 150057 | Length: 116

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

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

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

      .        .        .        .        .        .        .        .        .        .        .        .
ttatactcatgtaatctgctttgtagaatgtgatgttttcattaattttttaaaaaaatg

      .        .        .        .        .        .        .        .        .        .        .        .
tatacatttggataccagtgtcctttttttgccattaagtcaggaggtatttcttgttcta
```

```
          |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

      .        .        .        .        .        .        .        .        .        .        .        .
aggcaatacagcagcttttagcattgttttttgaacaattcaatgaaaattggagcttata

      .        .        .        .        .        .        .        .        .        .        .        .
tctttgagtattttttttctacaggattacaagtttgaactcagaaaagtacataattc
```

Exon 20 | Start: 151263 | End: 151404 | Length: 141

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

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

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

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

.       .       .       .       .       .       .       .       .       .       .       .
aattttaatccacagcagaggtctcaggaagtctgatgtgtagcttctttttggaattcta

 |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

.       .       .       .       .       .       .       .       .       .       .       .
tttcagggcttttgttttttacaaacagcttcctcagattataattttaaacatttctat

.       .       .       .       .       .       .       .       .       .       .       .
atgtaccgttctctggaattaagttcatttacattttgtgcaaccatcaccaccatccg

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

.       .       .       .       .       .       .       .       .       .       .       .
ccattcttctttttcttcacagcccctggcaactaccattctactttctgtctctgaatt

.       .       .       .       .       .
tgactactatatgtacttcata
```

31

Exon 21 | Start: 156295 | End: 156401 | Length: 106

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

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

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

       .      .      .      .      .      .      .      .      .      .      .      .
ttagagctaaattcttttaaaattaatctgttctcttgggagttggtatcctttgtaat

       .      .      .      .      .      .      .      .      .      .      .      .
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: 159430 | End: 159634 | Length: 204

```
     .      .      .      .      .      .      .      .      .      .      .      .
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
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          .         .         .         .         .         .         .         .         .         .         .         .
gcaaaggcttagaattcttagttatgaagaatgggacagcggtgcacttgctgtgtttca

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

          .         .         .         .         .
cttccataatgcatgtgaagaaaca
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Exon 23 | Start: 161308 | End: 167691 | Length: 6383

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    .     .     .     .     .     .     .     .     .     .     .     .
cccgccccccccctcacctccttgctggaaatagtcatagaaataccaatttactcttctg

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

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

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

    .     .     .     .     .     .     .     .     .     .     .     .
ttggcccatgtgatatgtatctcttttttcctaaacttttgatttacttctgtgttttca

        |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
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       |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
    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
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        |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   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
        |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
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        |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
GAGGGGAAATCTTTTCTTTCTTTCCCCCTTAAAAAAAAACACATCTGCCCCGAACACTTT


        |*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


        |*361       |*371       |*381       |*391       |*401       |*411
AAGCGATTTCCCCAACCAGACAGAGCCCCATTGAGGGCACCTAGGAACCCTTGGGAGGAA


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

        |*1261         |*1271         |*1281         |*1291         |*1301         |*1311
TTAACTGCTGATTATCTGTTACTGCTGCCCTGAGCTGGGGCCCAAGGGCTGGGAAATCTG

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

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

        |*3121      |*3131      |*3141      |*3151      |*3161      |*3171
ACTTAAATCACTGTGTTGACCCTCTTCTGAACCAAATCTTTAGCATTGATGAAAATAGTT
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        |*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

        |*4021     |*4031     |*4041     |*4051     |*4061     |*4071
CTGGAGCAGGTTGTTAGAGAGCTCTGGTTGTTGGGTCTTCCTCAGCTCCCTTCTGCCCCT
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        |*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
GGGGTCGGGGGGATCAGCCAAGGTCCATCATTGCTTTTTTGCCGCGCCCCCCCCCCCCCG

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

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

        |*4741     |*4751     .         .         .         .         .         .         .
GTAAAGTTTAACTTTACTCATATAtggcccttgccctgtgttttgtttttattggctgtgg

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

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

    .         .         .         .         .         .         .         .         .         .         .
agcacgtcatgggaatagtgtgtttcctctcagcagccacagggctgcccaagcctcttt
```

```
          .         .         .         .         .         .         .         .         .         .         .         .
ctccctctgttgggagtggctggtttcagtttcagtctccctccacaggaagcccccatc

          .         .         .         .         .
actcatgaaggaagggcagtttga
```

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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
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