Gene: BRCA1 - Sequence: NG_005905.2
Transcript: NM_007294.3 - Protein: NP_009225.1
Date : February 26, 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: 92501 | End: 92713 | Length: 212

.    .    .    .    .    .    .    .    .    .    .    .
ttacttatatttaccgaaactggagacctccattagggcggaaagagtgggggattggga

.    .    .    .    .    .    .    .    .    .    .    .
cctcttcttacgactgctttggacaataggtagcgattctgaccttcgtacagcaattac

.    .    .    .    .    .    .    .    .    .    .    .
tgtgatgcaataagccgcaactggaagagtagaggctagagggcaggcactttatggcaa

.    .    .    .    .    .    .    .    .    .    .    .
actcaggtagaattcttcctcttccgtctctttccttttacgtcatccgggggcagactg

.    .    .    .    .    .    .    .    .    .    .    .
ggtggccaatccagagccccgagagacgcttggctctttctgtccctcccatcctctgat

   |-229     |-219     |-209     |-199     |-189     |-179
GTACCTTGATTTCGTATTCTGAGAGGCTGCTGCTTAGCGGTAGCCCCTTGGTTTCCGTGG

   |-169     |-159     |-149     |-139     |-129     |-119
CAACGGAAAAGCGCGGGAATTACAGATAAATTAAAACTGCGACTGCGCGGCGTGAGCTCG

   |-109     |-99      |-89      |-79      |-69      |-59
CTGAGACTTCCTGGACGGGGGACAGGCTGTGGGGTTTCTCAGATAACTGGGCCCCTGCGC

   |-49      |-39      |-29          .    .    .    .    .
TCAGGAGGCCTTCACCCTCTGCTCTGGGTAAAGgtagtagagtcccgggaaagggacagg

  .    .    .    .    .    .    .    .    .    .    .    .
gggcccaagtgatgctctggggtactggcgtgggagagtggatttccgaagctgacagat

  .    .    .    .    .    .    .    .    .    .    .    .
gggtattctttgacgggggggtaggggcggaacctgagaggcgtaaggcgttgtgaaccct

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

```
ggggaggggggcagtttgtaggtcgcgagggaagcgctgaggatcaggaaggggcactg

   .    .    .    .    .    .    .    .    .    .    .    .
agtgtccgtgggggaatcctcgtgataggaactggaatatgccttgaggggacactatg

   .    .    .    .    .    .    .
tctttaaaaacgtcggctggtcatgaggtcagg
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Exon 2 | Start: 93869 | End: 93967 | Length: 98

.    .    .    .    .    .    .    .    .    .    .    .
aaggctaccaccacctacccggtcagtcactcctctgtagctttctctttcttggagaaa

.    .    .    .    .    .    .    .    .    .    .    .
ggaaaagacccaaggggttggcagcaatatgtgaaaaaattcagaatttatgttgtctaa

.    .    .    .    .    .    .    .    .    .    .    .
ttacaaaaagcaacttctagaatctttaaaaataaaggacgttgtcattagttctttggt

.    .    .    .    .    .    .    .    .    .    .    .
ttgtattattctaaaaccttccaaatcttaaatttactttatttttaaaatgataaaatga

.    .    .    .    .    .    .    .    .    .    .    .
agttgtcattttataaaccttttaaaaagatatatatatatgttttctaatgtgttaaa

|-19      |-9      |1        |11       |21       |31       |41
TTCATTGGAACAGAAAGAAATGGATTTATCTGCTCTTCGCGTTGAAGAAGTACAAAATGT
                  M  D  L  S  A  L  R  V  E  E  V  Q  N  V
                  |1                          |11

         |51       |61       |71           .    .    .    .
CATTAATGCTATGCAGAAAATCTTAGAGTGTCCCATCTGgtaagtcagcacaagagtgta
 I  N  A  M  Q  K  I  L  E  C  P  I  C
                  |21

   .    .    .    .    .    .    .    .    .    .    .    .
ttaatttgggattcctatgattatctcctatgcaaatgaacagaattgaccttacatact

   .    .    .    .    .    .    .    .    .    .    .    .
agggaagaaaagacatgtctagtaagattaggctattgtaattgctgattttcttaactg

   .    .    .    .    .    .    .    .    .    .    .    .
aagaactttaaaaatatagaaaatgattccttgttctccatccactctgcctctcccact

   .    .    .    .    .    .    .    .    .    .    .    .
cctctccttttcaacacaaatcctgtggtccgggaaagacagggactctgtcttgattgg

   .    .    .    .    .    .    .    .
ttctgcactggggcaggaatctagtttagattaactggc
```

```
Exon 3 | Start: 102205 | End: 102258 | Length: 53

.    .    .    .    .    .    .    .    .    .    .    .
gaattcgtacgaactattatcaactaatcttttaaatgctgatgatagtatagagtattg

.    .    .    .    .    .    .    .    .    .    .    .
aagggatcaatataattctgttttgatatctgaaagctcactgaaggtaaggatcgtatt

.    .    .    .    .    .    .    .    .    .    .    .
ctctgctgtattctcagttcctgacacagcagacatttaataaatattgaacgaacttga

.    .    .    .    .    .    .    .    .    .    .    .
ggccttatgttgactcagtcataacagctcaaagttgaacttattcactaagaatagctt

.    .    .    .    .    .    .    .    .    .    .    .
tatttttaaataaattattgagcctcatttatttttcttttttctccccccctaccctgcta

|81       |91       |101      |111      |121      |131    .
TCTGGAGTTGATCAAGGAACCTGTCTCCACAAAGTGTGACCACATATTTTGCAAgtaagt
 L   E   L   I   K   E   P   V   S   T   K   C   D   H   I   F   C   K
           |31                             |41

   .    .    .    .    .    .    .    .    .    .    .    .
ttgaatgtgttatgtggctccattattagcttttgtttttgtccttcataacccaggaaa

   .    .    .    .    .    .    .    .    .    .    .    .
cacctaactttatagaagctttacttttcttcaattaagtgagaacgaaaaatccaactcc

   .    .    .    .    .    .    .    .    .    .    .    .
atttcattctttctcagagagtatatagttatcaaaagttggttgtaatcatagttcctg

   .    .    .    .    .    .    .    .    .    .    .    .
gtaaagttttgacatatattatctttttttttttttttgagacaaagtctcgctctgtcg

   .    .    .    .    .    .    .    .    .    .    .
cccaggctggagtgcagtggcatgatcttggctcactgcaacctccgcccccg
```

```
Exon 4 | Start: 111451 | End: 111528 | Length: 77

.    .    .    .    .    .    .    .    .    .    .    .
ttatgaatatatcattaaatatgccatattaacttttattaagttttatgtgatcataac

.    .    .    .    .    .    .    .    .    .    .    .
agtaagccatatgcatgtaagttcagttttcatagatcattgcttatgtagtttaggttt

.    .    .    .    .    .    .    .    .    .    .    .
ttgcttatgcagcatccaaaaacaattaggaaactattgcttgtaattcacctgccatta

.    .    .    .    .    .    .    .    .    .    .    .
ctttttaaatggctcttaagggcagttgtgagattatcttttcatggctatttgcctttt

.    .    .    .    .    .    .    .    .    .    .    .
gagtattctttctacaaaaggaagtaaattaaattgttctttctttctttataatttata

      |141      |151      |161      |171      |181      |191
ATTTTGCATGCTGAAACTTCTCAACCAGAAGAAAGGGCCTTCACAGTGTCCTTTATGTAA
 F  C  M  L  K  L  L  N  Q  K  K  G  P  S  Q  C  P  L  C  K
               |51                          |61

      |201      |211  .    .    .    .    .    .    .    .
GAATGATATAACCAAAAGgtatataatttggtaatgatgctaggttggaagcaaccacag
 N  D  I  T  K  R
               |71

  .    .    .    .    .    .    .    .    .    .    .    .
taggaaaaagtagaaattatttaataacatagcgttcctataaaaccattcatcagaaaa

  .    .    .    .    .    .    .    .    .    .    .    .
atttataaaagagtttttagcacacagtaaattatttccaaagttattttcctgaaagtt

  .    .    .    .    .    .    .    .    .    .    .    .
ttatgggacatctgccttatacaggtattagaaacttactgcctttctctaatgcttcta

  .    .    .    .    .    .    .    .    .    .    .    .
gtgtaaaaacttgcagacttatgtaaagtagggctgtatcgccgtgcccccattgtctgt

  .    .    .    .
taatcttgtttttatatt
```

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Exon 5 | Start: 113028 | End: 113116 | Length: 88

.    .    .    .    .    .    .    .    .    .    .    .
taaattaaacaaaaaaaaaagtactctagttttctatgcaatgcattatatctgctgtgg

.    .    .    .    .    .    .    .    .    .    .    .
atttagggcagtattatatcagataattttaggcatttggtaggcttaaatgaatgacaa

.    .    .    .    .    .    .    .    .    .    .    .
aaagttactaaatcactgccatcacacggtttatacagatgtcaatgatgtattgattat

.    .    .    .    .    .    .    .    .    .    .    .
agaggttttctactgttgctgcatcttatttttatttgtttacatgtcttttcttatttt

.    .    .    .    .    .    .    .    .    .    .    .
agtgtccttaaaaggttgataatcacttgctgagtgtgtttctcaaacaatttaatttca

        |221      |231      |241      |251      |261      |271
GAGCCTACAAGAAAGTACGAGATTTAGTCAACTTGTTGAAGAGCTATTGAAAATCATTTG
 S  L  Q  E  S  T  R  F  S  Q  L  V  E  E  L  L  K  I  I  C
                           |81                           |91

        |281      |291      |301 .    .    .    .    .    .
TGCTTTTCAGCTTGACACAGGTTTGGAGTgtaagtgttgaatatcccaagaatgacactc
 A  F  Q  L  D  T  G  L  E  Y
                           |101

   .    .    .    .    .    .    .    .    .    .    .    .
aagtgctgtccatgaaaactcaggaagtttgcacaattactttctatgacgtggtgataa

   .    .    .    .    .    .    .    .    .    .    .    .
gacctttagtctaggttaattttagttctgtatctgtaatctatttttaaaaaattact

   .    .    .    .    .    .    .    .    .    .    .    .
cccactggtctcacaccttattttatcaatcgtaaggtgcacatttttcacatcttaaca

   .    .    .    .    .    .    .    .    .    .    .    .
tctctgaaattgggaacatttactattgagggtgtgtcatttgtttaatttgtgtgctt

   .    .    .    .    .    .
tctttcttagtgatacagaaaataatagt
```

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Exon 6 | Start: 113723 | End: 113862 | Length: 139

.    .    .    .    .    .    .    .    .    .    .    .
ttacattgttggtgtcttagctttagtgaaatacagtattgataggcaaatttcttagtg

.    .    .    .    .    .    .    .    .    .    .    .
ttaaggtagaaaacaaggactctaaataactttgatggtctgtgtatttgtttttgtttc

.    .    .    .    .    .    .    .    .    .    .    .
ctaggagtaaaatttccagttgatttttaaaatttgatttttaaaaaaaatcacaggta

.    .    .    .    .    .    .    .    .    .    .    .
accttaatgcattgtcttaacacaacaaagagcatacatagggtttctcttggtttcttt

.    .    .    .    .    .    .    .    .    .    .    .
gattataattcatacatttttctctaactgcaaacataatgttttcccttgtattttaca

         |311      |321      |331      |341      |351      |361
ATGCAAACAGCTATAATTTTGCAAAAAAGGAAAATAACTCTCCTGAACATCTAAAAGATG
  A  N  S  Y  N  F  A  K  K  E  N  N  S  P  E  H  L  K  D  E
                            |111                          |121

         |371      |381      |391      |401      |411      |421
AAGTTTCTATCATCCAAAGTATGGGCTACAGAAACCGTGCCAAAAGACTTCTACAGAGTG
  V  S  I  I  Q  S  M  G  Y  R  N  R  A  K  R  L  L  Q  S  E
                            |131                          |141

         |431      |441 .    .    .    .    .    .    .    .
AACCCGAAAATCCTTCCTTGgtaaaaccatttgttttcttcttcttcttcttctttt
  P  E  N  P  S  L

    .    .    .    .    .    .    .    .    .    .    .    .
ctttttttttttctttttttttttttgagatggagtcttgctctgtggcccaggctagaagc

    .    .    .    .    .    .    .    .    .    .    .    .
agtcctcctgccttagccccttagtagctgggattacaggcacgcgccaccatgccagg

    .    .    .    .    .    .    .    .    .    .    .    .
ctaatttttgtatttttagtagagacggggtttcatcatgttggccaggctggtctcgaa

    .    .    .    .    .    .    .    .    .    .    .    .
ctcctaacctcaggtgatccacccacctcggctccccaaattgctgggattacaggtgtg

    .    .    .    .
agccactgtgcccggccggt
```

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Exon 7 | Start: 118104 | End: 118209 | Length: 105

.    .    .    .    .    .    .    .    .    .    .    .
tactactactattattttgtagagactgggtctcactctgttgcttatgctggtcttgaa

.    .    .    .    .    .    .    .    .    .    .    .
ctcctggcctcaagcagtcctgctccagcctcccaaagtgctgggattataggcatgagc

.    .    .    .    .    .    .    .    .    .    .    .
taccgctcccagccccagacattttagtgtgtaaattcctgggcatttttttccaggcatc

.    .    .    .    .    .    .    .    .    .    .    .
atacatgttagctgactgatgatggtcaatttatttttgtccatggtgtcaagtttctctt

.    .    .    .    .    .    .    .    .    .    .    .
caggaggaaaagcacagaactggccaacaattgcttgactgttctttaccatactgttta

         |451      |461      |471      |481      |491      |501
CAGGAAACCAGTCTCAGTGTCCAACTCTCTAACCTTGGAACTGTGAGAACTCTGAGGACA
Q  E  T  S  L  S  V  Q  L  S  N  L  G  T  V  R  T  L  R  T
         |151                          |161

         |511      |521      |531      |541       .    .
AAGCAGCGGATACAACCTCAAAAGACGTCTGTCTACATTGAATTGGgtaagggtctcagg
K  Q  R  I  Q  P  Q  K  T  S  V  Y  I  E  L  G
         |171                          |181

.    .    .    .    .    .    .    .    .    .    .    .
ttttttaagtatttaataataattgctggattccttatcttatagttttgccaaaaatct

.    .    .    .    .    .    .    .    .    .    .    .
tggtcataatttgtatttgtggtaggcagctttgggaagtgaattttatgagccctatgg

.    .    .    .    .    .    .    .    .    .    .    .
tgagttataaaaaatgtaaaagacgcagttcccaccttgaagaatcttactttaaaaagg

.    .    .    .    .    .    .    .    .    .    .    .
gagcaaaagaggccaggcatggtggctcacacctgtaatcccagcactttgggaggccaa

.    .    .    .    .    .    .    .    .    .
agtgggtggatcacctgaggtcgggagttcgagaccagcctagcca
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Exon 8 | Start: 120695 | End: 120740 | Length: 45

.    .    .    .    .    .    .    .    .    .    .    .
gtagaaacgggggtctcactttgttggccaggctggtcttgaactcctaacctcaaataa

.    .    .    .    .    .    .    .    .    .    .    .
tccacccatctcggcctcctcaagtgctgggattacaggtgagagccactgtgcctggcg

.    .    .    .    .    .    .    .    .    .    .    .
aagcccatgcctttaaccacttctctgtattacatactagcttaactagcattgtacctg

.    .    .    .    .    .    .    .    .    .    .    .
ccacagtagatgctcagtaaatatttctagttgaatatctgtttttcaacaagtacattt

.    .    .    .    .    .    .    .    .    .    .    .
ttttaacccttttaattaagaaaactttattgatttatttttgggggaaatttttta

   |551      |561      |571      |581      |591   .    .
GATCTGATTCTTCTGAAGATACCGTTAATAAGGCAACTTATTGCAGgtgagtcaaagaga
  S  D  S  S  E  D  T  V  N  K  A  T  Y  C  S
                      |191

.    .    .    .    .    .    .    .    .    .    .    .
acctttgtctatgaagctggtatttcctatttagttaatattaaggattgatgtttctc

.    .    .    .    .    .    .    .    .    .    .    .
tctttttaaaaatattttaacttttatttttaggttcagggatgtatgtgcagtttgttat

.    .    .    .    .    .    .    .    .    .    .    .
ataggtaaacacacgacttgggatttggtgtatagatttttttcatcatccgggtactaa

.    .    .    .    .    .    .    .    .    .    .    .
gcataccccacagtttttttgtttgctttctttctgaatttctccctcttcccaccttcct

.    .    .    .    .    .    .    .    .    .
ccctcaagtaggctggtgtttctccagactagaatcatggtattgg
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Exon 9 | Start: 122062 | End: 122138 | Length: 76

.    .    .    .    .    .    .    .    .    .    .    .
tgtatttttagtagagatggggtttcaccatgttggccaggctggtcttgaactcatgac

.    .    .    .    .    .    .    .    .    .    .    .
ctcaagtggtccacccgcctcagcctcccaaagtgctggaattacaggcttgagccaccg

.    .    .    .    .    .    .    .    .    .    .    .
tgcccagcaaccatttcatttcaactagaagtttctaaaggagagagcagctttcactaa

.    .    .    .    .    .    .    .    .    .    .    .
ctaaataagattggtcagctttctgtaatcgaaagagctaaaatgtttgatcttggtcat

.    .    .    .    .    .    .    .    .    .    .    .
ttgacagttctgcatacatgtaactagtgtttcttattaggactctgtcttttccctata

       |601      |611      |621      |631      |641      |651
TGTGGGAGATCAAGAATTGTTACAAATCACCCCTCAAGGAACCAGGGATGAAATCAGTTT
 V  G  D  Q  E  L  L  Q  I  T  P  Q  G  T  R  D  E  I  S  L
       |201                          |211

       |661          .    .    .    .    .    .    .    .
GGATTCTGCAAAAAAGGgtaatggcaaagtttgccaacttaacaggcactgaaaagagag
 D  S  A  K  K  A
       |221

 .    .    .    .    .    .    .    .    .    .    .    .
tgggtagatacagtactgtaattagattattctgaagaccatttgggacctttacaaccc

 .    .    .    .    .    .    .    .    .    .    .    .
acaaaatctcttggcagagttagagtatcattctctgtcaaatgtcgtggtatggtctga

 .    .    .    .    .    .    .    .    .    .    .    .
tagatttaaatggtactagactaatgtacctataataagaccttctgtaactgattgttg

 .    .    .    .    .    .    .    .    .    .    .    .
ccctttcgtttttttttttgtttgtttgtttgtttttttttgagatggggtctcactctg

 .    .    .    .
ttgcccaggctggagtg
```

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Exon 10 | Start: 123124 | End: 126549 | Length: 3425

.    .    .    .    .    .    .    .    .    .    .    .
cagttttctgatggccaatctgcttttaattcactcttagacgttagagaaataggtgtg

.    .    .    .    .    .    .    .    .    .    .    .
gtttctgcatagggaaaattctgaaattaaaaatttaatggatcctaagtggaaataatc

.    .    .    .    .    .    .    .    .    .    .    .
taggtaaataggaattaaatgaaagagtatgagctacatcttcagtatacttggtagttt

.    .    .    .    .    .    .    .    .    .    .    .
atgaggttagtttctctaatatagccagttggttgatttccacctccaaggtgtatgaag

.    .    .    .    .    .    .    .    .    .    .    .
tatgtatttttttaatgacaattcagttttgagtaccttgttatttttgtatattttca

|671      |681      |691      |701      |711      |721
CTGCTTGTGAATTTTCTGAGACGGATGTAACAAATACTGAACATCATCAACCCAGTAATA
  A  C  E  F  S  E  T  D  V  T  N  T  E  H  H  Q  P  S  N  N
                   |231                      |241

|731      |741      |751      |761      |771      |781
ATGATTTGAACACCACTGAGAAGCGTGCAGCTGAGAGGCATCCAGAAAAGTATCAGGGTA
  D  L  N  T  T  E  K  R  A  A  E  R  H  P  E  K  Y  Q  G  S
                   |251                      |261

|791      |801      |811      |821      |831      |841
GTTCTGTTTCAAACTTGCATGTGGAGCCATGTGGCACAAATACTCATGCCAGCTCATTAC
  S  V  S  N  L  H  V  E  P  C  G  T  N  T  H  A  S  S  L  Q
                   |271                      |281

|851      |861      |871      |881      |891      |901
AGCATGAGAACAGCAGTTTATTACTCACTAAAGACAGAATGAATGTAGAAAAGGCTGAAT
  H  E  N  S  S  L  L  L  T  K  D  R  M  N  V  E  K  A  E  F
                   |291                      |301

|911      |921      |931      |941      |951      |961
TCTGTAATAAAAGCAAACAGCCTGGCTTAGCAAGGAGCCAACATAACAGATGGGCTGGAA
  C  N  K  S  K  Q  P  G  L  A  R  S  Q  H  N  R  W  A  G  S
                   |311                      |321

|971      |981      |991      |1001     |1011     |1021
GTAAGGAAACATGTAATGATAGGCGGACTCCCAGCACAGAAAAAAAGGTAGATCTGAATG
  K  E  T  C  N  D  R  R  T  P  S  T  E  K  K  V  D  L  N  A
                   |331                      |341
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|1031     |1041     |1051     |1061     |1071     |1081
CTGATCCCCTGTGTGAGAGAAAAGAATGGAATAAGCAGAAACTGCCATGCTCAGAGAATC
  D  P  L  C  E  R  K  E  W  N  K  Q  K  L  P  C  S  E  N  P
                   |351                      |361

|1091     |1101     |1111     |1121     |1131     |1141
CTAGAGATACTGAAGATGTTCCTTGGATAACACTAAATAGCAGCATTCAGAAAGTTAATG
  R  D  T  E  D  V  P  W  I  T  L  N  S  S  I  Q  K  V  N  E
                   |371                      |381

|1151     |1161     |1171     |1181     |1191     |1201
AGTGGTTTTCCAGAAGTGATGAACTGTTAGGTTCTGATGACTCACATGATGGGGAGTCTG
  W  F  S  R  S  D  E  L  L  G  S  D  D  S  H  D  G  E  S  E
                   |391                      |401

|1211     |1221     |1231     |1241     |1251     |1261
AATCAAATGCCAAAGTAGCTGATGTATTGGACGTTCTAAATGAGGTAGATGAATATTCTG
  S  N  A  K  V  A  D  V  L  D  V  L  N  E  V  D  E  Y  S  G
                   |411                      |421

|1271     |1281     |1291     |1301     |1311     |1321
GTTCTTCAGAGAAAATAGACTTACTGGCCAGTGATCCTCATGAGGCTTTAATATGTAAAA
  S  S  E  K  I  D  L  L  A  S  D  P  H  E  A  L  I  C  K  S
                   |431                      |441

|1331     |1341     |1351     |1361     |1371     |1381
GTGAAAGAGTTCACTCCAAATCAGTAGAGAGTAATATTGAAGACAAAATATTTGGGAAAA
  E  R  V  H  S  K  S  V  E  S  N  I  E  D  K  I  F  G  K  T
                   |451                      |461

|1391     |1401     |1411     |1421     |1431     |1441
CCTATCGGAAGAAGGCAAGCCTCCCCAACTTAAGCCATGTAACTGAAAATCTAATTATAG
  Y  R  K  K  A  S  L  P  N  L  S  H  V  T  E  N  L  I  I  G
                   |471                      |481

|1451     |1461     |1471     |1481     |1491     |1501
GAGCATTTGTTACTGAGCCACAGATAATACAAGAGCGTCCCCTCACAAATAAATTAAAGC
  A  F  V  T  E  P  Q  I  I  Q  E  R  P  L  T  N  K  L  K  R
                   |491                      |501

|1511     |1521     |1531     |1541     |1551     |1561
GTAAAAGGAGACCTACATCAGGCCTTCATCCTGAGGATTTTATCAAGAAAGCAGATTTGG
  K  R  R  P  T  S  G  L  H  P  E  D  F  I  K  K  A  D  L  A
                   |511                      |521
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|1571     |1581     |1591     |1601     |1611     |1621
CAGTTCAAAAGACTCCTGAAATGATAAATCAGGGAACTAACCAAACGGAGCAGAATGGTC
  V  Q  K  T  P  E  M  I  N  Q  G  T  N  Q  T  E  Q  N  G  Q
                   |531                      |541

|1631     |1641     |1651     |1661     |1671     |1681
AAGTGATGAATATTACTAATAGTGGTCATGAGAATAAAACAAAAGGTGATTCTATTCAGA
  V  M  N  I  T  N  S  G  H  E  N  K  T  K  G  D  S  I  Q  N
                   |551                      |561

|1691     |1701     |1711     |1721     |1731     |1741
ATGAGAAAAATCCTAACCCAATAGAATCACTCGAAAAAGAATCTGCTTTCAAAACGAAAG
  E  K  N  P  N  P  I  E  S  L  E  K  E  S  A  F  K  T  K  A
                   |571                      |581

|1751     |1761     |1771     |1781     |1791     |1801
CTGAACCTATAAGCAGCAGTATAAGCAATATGGAACTCGAATTAAATATCCACAATTCAA
  E  P  I  S  S  S  I  S  N  M  E  L  E  L  N  I  H  N  S  K
                   |591                      |601

|1811     |1821     |1831     |1841     |1851     |1861
AAGCACCTAAAAAGAATAGGCTGAGGAGGAAGTCTTCTACCAGGCATATTCATGCGCTTG
  A  P  K  K  N  R  L  R  R  K  S  S  T  R  H  I  H  A  L  E
                   |611                      |621

|1871     |1881     |1891     |1901     |1911     |1921
AACTAGTAGTCAGTAGAAATCTAAGCCCACCTAATTGTACTGAATTGCAAATTGATAGTT
  L  V  V  S  R  N  L  S  P  P  N  C  T  E  L  Q  I  D  S  C
                   |631                      |641

|1931     |1941     |1951     |1961     |1971     |1981
GTTCTAGCAGTGAAGAGATAAAGAAAAAAAAAGTACAACCAAATGCCAGTCAGGCACAGCA
  S  S  S  E  E  I  K  K  K  K  Y  N  Q  M  P  V  R  H  S  R
                   |651                      |661

|1991     |2001     |2011     |2021     |2031     |2041
GAAACCTACAACTCATGGAAGGTAAAGAACCTGCAACTGGAGCCAAGAAGAGTAACAAGC
  N  L  Q  L  M  E  G  K  E  P  A  T  G  A  K  K  S  N  K  P
                   |671                      |681

|2051     |2061     |2071     |2081     |2091     |2101
CAAATGAACAGACAAGTAAAAGACATGACAGCGATACTTTCCCAGAGCTGAAGTTAACAA
  N  E  Q  T  S  K  R  H  D  S  D  T  F  P  E  L  K  L  T  N
                   |691                      |701

|2111     |2121     |2131     |2141     |2151     |2161
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ATGCACCTGGTTCTTTTACTAAGTGTTCAAATACCAGTGAACTTAAAGAATTTGTCAATC
  A  P  G  S  F  T  K  C  S  N  T  S  E  L  K  E  F  V  N  P
                   |711                        |721

|2171     |2181     |2191     |2201     |2211     |2221
CTAGCCTTCCAAGAGAAGAAAAAGAAGAGAAACTAGAAACAGTTAAAGTGTCTAATAATG
  S  L  P  R  E  E  K  E  E  K  L  E  T  V  K  V  S  N  N  A
                   |731                        |741

|2231     |2241     |2251     |2261     |2271     |2281
CTGAAGACCCCAAAGATCTCATGTTAAGTGGAGAAAGGGTTTTGCAAACTGAAAGATCTG
  E  D  P  K  D  L  M  L  S  G  E  R  V  L  Q  T  E  R  S  V
                   |751                        |761

|2291     |2301     |2311     |2321     |2331     |2341
TAGAGAGTAGCAGTATTTCATTGGTACCTGGTACTGATTATGGCACTCAGGAAAGTATCT
  E  S  S  S  I  S  L  V  P  G  T  D  Y  G  T  Q  E  S  I  S
                   |771                        |781

|2351     |2361     |2371     |2381     |2391     |2401
CGTTACTGGAAGTTAGCACTCTAGGGAAGGCAAAAACAGAACCAAATAAATGTGTGAGTC
  L  L  E  V  S  T  L  G  K  A  K  T  E  P  N  K  C  V  S  Q
                   |791                        |801

|2411     |2421     |2431     |2441     |2451     |2461
AGTGTGCAGCATTTGAAAACCCCAAGGGACTAATTCATGGTTGTTCCAAAGATAATAGAA
  C  A  A  F  E  N  P  K  G  L  I  H  G  C  S  K  D  N  R  N
                   |811                        |821

|2471     |2481     |2491     |2501     |2511     |2521
ATGACACAGAAGGCTTTAAGTATCCATTGGGACATGAAGTTAACCACAGTCGGGAAACAA
  D  T  E  G  F  K  Y  P  L  G  H  E  V  N  H  S  R  E  T  S
                   |831                        |841

|2531     |2541     |2551     |2561     |2571     |2581
GCATAGAAATGGAAGAAAGTGAACTTGATGCTCAGTATTTGCAGAATACATTCAAGGTTT
  I  E  M  E  E  S  E  L  D  A  Q  Y  L  Q  N  T  F  K  V  S
                   |851                        |861

|2591     |2601     |2611     |2621     |2631     |2641
CAAAGCGCCAGTCATTTGCTCCGTTTTCAAATCCAGGAAATGCAGAAGAGGAATGTGCAA
  K  R  Q  S  F  A  P  F  S  N  P  G  N  A  E  E  E  C  A  T
                   |871                        |881

|2651     |2661     |2671     |2681     |2691     |2701
CATTCTCTGCCCACTCTGGGTCCTTAAAGAAACAAAGTCCAAAAGTCACTTTTGAATGTG
```

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  F  S  A  H  S  G  S  L  K  K  Q  S  P  K  V  T  F  E  C  E
                    |891                        |901

|2711     |2721     |2731     |2741     |2751     |2761
AACAAAAGGAAGAAAATCAAGGAAAGAATGAGTCTAATATCAAGCCTGTACAGACAGTTA
  Q  K  E  E  N  Q  G  K  N  E  S  N  I  K  P  V  Q  T  V  N
                    |911                        |921

|2771     |2781     |2791     |2801     |2811     |2821
ATATCACTGCAGGCTTTCCTGTGGTTGGTCAGAAAGATAAGCCAGTTGATAATGCCAAAT
  I  T  A  G  F  P  V  V  G  Q  K  D  K  P  V  D  N  A  K  C
                    |931                        |941

|2831     |2841     |2851     |2861     |2871     |2881
GTAGTATCAAAGGAGGCTCTAGGTTTTGTCTATCATCTCAGTTCAGAGGCAACGAAACTG
  S  I  K  G  G  S  R  F  C  L  S  S  Q  F  R  G  N  E  T  G
                    |951                        |961

|2891     |2901     |2911     |2921     |2931     |2941
GACTCATTACTCCAAATAAACATGGACTTTTACAAAACCCATATCGTATACCACCACTTT
  L  I  T  P  N  K  H  G  L  L  Q  N  P  Y  R  I  P  P  L  F
                    |971                        |981

|2951     |2961     |2971     |2981     |2991     |3001
TTCCCATCAAGTCATTTGTTAAAACTAAATGTAAGAAAAATCTGCTAGAGGAAAACTTTG
  P  I  K  S  F  V  K  T  K  C  K  K  N  L  L  E  E  N  F  E
                    |991                        |1001

|3011     |3021     |3031     |3041     |3051     |3061
AGGAACATTCAATGTCACCTGAAAGAGAAATGGGAAATGAGAACATTCCAAGTACAGTGA
  E  H  S  M  S  P  E  R  E  M  G  N  E  N  I  P  S  T  V  S
                    |1011                       |1021

|3071     |3081     |3091     |3101     |3111     |3121
GCACAATTAGCCGTAATAACATTAGAGAAAATGTTTTTAAAGAAGCCAGCTCAAGCAATA
  T  I  S  R  N  N  I  R  E  N  V  F  K  E  A  S  S  S  N  I
                    |1031                       |1041

|3131     |3141     |3151     |3161     |3171     |3181
TTAATGAAGTAGGTTCCAGTACTAATGAAGTGGGCTCCAGTATTAATGAAATAGGTTCCA
  N  E  V  G  S  S  T  N  E  V  G  S  S  I  N  E  I  G  S  S
                    |1051                       |1061

|3191     |3201     |3211     |3221     |3231     |3241
GTGATGAAAACATTCAAGCAGAACTAGGTAGAAACAGAGGGCCAAAATTGAATGCTATGC
  D  E  N  I  Q  A  E  L  G  R  N  R  G  P  K  L  N  A  M  L
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                    |1071                       |1081

|3251     |3261     |3271     |3281     |3291     |3301
TTAGATTAGGGGTTTTGCAACCTGAGGTCTATAAACAAAGTCTTCCTGGAAGTAATTGTA
  R  L  G  V  L  Q  P  E  V  Y  K  Q  S  L  P  G  S  N  C  K
                    |1091                       |1101

|3311     |3321     |3331     |3341     |3351     |3361
AGCATCCTGAAATAAAAAAGCAAGAATATGAAGAAGTAGTTCAGACTGTTAATACAGATT
  H  P  E  I  K  K  Q  E  Y  E  E  V  V  Q  T  V  N  T  D  F
                    |1111                       |1121

|3371     |3381     |3391     |3401     |3411     |3421
TCTCTCCATATCTGATTTCAGATAACTTAGAACAGCCTATGGGAAGTAGTCATGCATCTC
  S  P  Y  L  I  S  D  N  L  E  Q  P  M  G  S  S  H  A  S  Q
                    |1131                       |1141

|3431     |3441     |3451     |3461     |3471     |3481
AGGTTTGTTCTGAGACACCTGATGACCTGTTAGATGATGGTGAAATAAAGGAAGATACTA
  V  C  S  E  T  P  D  D  L  L  D  D  G  E  I  K  E  D  T  S
                    |1151                       |1161

|3491     |3501     |3511     |3521     |3531     |3541
GTTTTGCTGAAAATGACATTAAGGAAAGTTCTGCTGTTTTTAGCAAAAGCGTCCAGAAAG
  F  A  E  N  D  I  K  E  S  S  A  V  F  S  K  S  V  Q  K  G
                    |1171                       |1181

|3551     |3561     |3571     |3581     |3591     |3601
GAGAGCTTAGCAGGAGTCCTAGCCCTTTCACCCATACACATTTGGCTCAGGGTTACCGAA
  E  L  S  R  S  P  S  P  F  T  H  T  H  L  A  Q  G  Y  R  R
                    |1191                       |1201

|3611     |3621     |3631     |3641     |3651     |3661
GAGGGGCCAAGAAATTAGAGTCCTCAGAAGAGAACTTATCTAGTGAGGATGAAGAGCTTC
  G  A  K  K  L  E  S  S  E  E  N  L  S  S  E  D  E  E  L  P
                    |1211                       |1221

|3671     |3681     |3691     |3701     |3711     |3721
CCTGCTTCCAACACTTGTTATTTGGTAAAGTAAACAATATACCTTCTCAGTCTACTAGGC
  C  F  Q  H  L  L  F  G  K  V  N  N  I  P  S  Q  S  T  R  H
                    |1231                       |1241

|3731     |3741     |3751     |3761     |3771     |3781
ATAGCACCGTTGCTACCGAGTGTCTGTCTAAGAACACAGAGGAGAATTTATTATCATTGA
  S  T  V  A  T  E  C  L  S  K  N  T  E  E  N  L  L  S  L  K
                    |1251                       |1261
```

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|3791     |3801     |3811     |3821     |3831     |3841
AGAATAGCTTAAATGACTGCAGTAACCAGGTAATATTGGCAAAGGCATCTCAGGAACATC
  N  S  L  N  D  C  S  N  Q  V  I  L  A  K  A  S  Q  E  H  H
                   |1271                       |1281

|3851     |3861     |3871     |3881     |3891     |3901
ACCTTAGTGAGGAAACAAAATGTTCTGCTAGCTTGTTTTCTTCACAGTGCAGTGAATTGG
  L  S  E  E  T  K  C  S  A  S  L  F  S  S  Q  C  S  E  L  E
                   |1291                       |1301

|3911     |3921     |3931     |3941     |3951     |3961
AAGACTTGACTGCAAATACAAACACCCAGGATCCTTTCTTGATTGGTTCTTCCAAACAAA
  D  L  T  A  N  T  N  T  Q  D  P  F  L  I  G  S  S  K  Q  M
                   |1311                       |1321

|3971     |3981     |3991     |4001     |4011     |4021
TGAGGCATCAGTCTGAAAGCCAGGGAGTTGGTCTGAGTGACAAGGAATTGGTTTCAGATG
  R  H  Q  S  E  S  Q  G  V  G  L  S  D  K  E  L  V  S  D  D
                   |1331                       |1341

|4031     |4041     |4051     |4061     |4071     |4081
ATGAAGAAAGAGGAACGGGCTTGGAAGAAAATAATCAAGAAGAGCAAAGCATGGATTCAA
  E  E  R  G  T  G  L  E  E  N  N  Q  E  E  Q  S  M  D  S  N
                   |1351                       |1361

|4091    .    .    .    .    .    .    .    .    .
ACTTAGgtattggaaccaggtttttgtgtttgccccagtctatttatagaagtgagctaa
  L  G

.    .    .    .    .    .    .    .    .    .    .    .
atgtttatgcttttggggagcacattttacaaatttccaagtatagttaaaggaactgct

.    .    .    .    .    .    .    .    .    .    .    .
tcttaaacttgaaacatgttcctcctaaggtgcttttcatagaaaaaagtccttcacaca

.    .    .    .    .    .    .    .    .    .    .    .
gctaggacgtcatctttgactgaatgagctttaacatcctaattactggtggacttactt

.    .    .    .    .    .    .    .    .    .    .    .
ctggtttcattttataaaagcaaatccaggtgtcccaaagcaaggaatttaatcattttg

.    .
tgtgac
```

```
Exon 11 | Start: 126952 | End: 127040 | Length: 88

.    .    .    .    .    .    .    .    .    .    .    .
taaaggaactgcttcttaaacttgaaacatgttcctcctaaggtgcttttcatagaaaaa

.    .    .    .    .    .    .    .    .    .    .    .
agtccttcacacagctaggacgtcatctttgactgaatgagctttaacatcctaattact

.    .    .    .    .    .    .    .    .    .    .    .
ggtggacttacttctggtttcattttataaaagcaaatccaggtgtcccaaagcaaggaa

.    .    .    .    .    .    .    .    .    .    .    .
tttaatcattttgtgtgacatgaaagtaaatccagtcctgccaatgagaagaaaaagaca

.    .    .    .    .    .    .    .    .    .    .    .
cagcaagttgcagcgtttatagtctgcttttacatctgaacctctgtttttgttatttaa

    |4101     |4111     |4121     |4131     |4141     |4151
GTGAAGCAGCATCTGGGTGTGAGAGTGAAACAAGCGTCTCTGAAGACTGCTCAGGGCTAT
  E  A  A  S  G  C  E  S  E  T  S  V  S  E  D  C  S  G  L  S
             |1371                          |1381

    |4161     |4171     |4181    .    .    .    .    .    .
CCTCTCAGAGTGACATTTTAACCACTCAGgtaaaaagcgtgtgtgtgtgtgcacatgcgt
  S  Q  S  D  I  L  T  T  Q
             |1391

   .    .    .    .    .    .    .    .    .    .    .    .
gtgtgtggtgtcctttgcattcagtagtatgtatcccacattcttaggtttgctgacatc

   .    .    .    .    .    .    .    .    .    .    .    .
atctctttgaattaatggcacaattgtttgtggttcattgtctccttaaattagactgta

   .    .    .    .    .    .    .    .    .    .    .    .
agcaccttgatggaactcatactacctttttatttcacacacacgcacacgcgcacacaca

   .    .    .    .    .    .    .    .    .    .    .    .
gcctacacatacactgcctagctcattgtagcatactaaatactgattttaatgaataag

   .    .    .    .    .    .
ctaaaccttcgaaacccatttgctaatcc
```

```
Exon 12 | Start: 135409 | End: 135580 | Length: 171

.    .    .    .    .    .    .    .    .    .    .    .
ttatttttttcactccctagctttaaaagaaaataaccaacttcaaaaggacatcacaata

.    .    .    .    .    .    .    .    .    .    .    .
acatcaagtctatttgggggaatttgaggatttttttccctcactaacatcatttggaaat

.    .    .    .    .    .    .    .    .    .    .    .
aatttcatgggcattaattgcatgaatgtggttagattaaaaggtgttcagctagaactt

.    .    .    .    .    .    .    .    .    .    .    .
gtagttccatactaggtgatttcaattcctgtgctaaaattaatttgtatgatatatttt

.    .    .    .    .    .    .    .    .    .    .    .
catttaatggaaagcttctcaaagtatttcattttcttggtgccatttatcgttttgaa

     |4191     |4201     |4211     |4221     |4231     |4241
CAGAGGGATACCATGCAACATAACCTGATAAAGCTCCAGCAGGAAATGGCTGAACTAGAA
Q  R  D  T  M  Q  H  N  L  I  K  L  Q  Q  E  M  A  E  L  E
               |1401                          |1411

     |4251     |4261     |4271     |4281     |4291     |4301
GCTGTGTTAGAACAGCATGGGAGCCAGCCTTCTAACAGCTACCCTTCCATCATAAGTGAC
A  V  L  E  Q  H  G  S  Q  P  S  N  S  Y  P  S  I  I  S  D
               |1421                          |1431

     |4311     |4321     |4331     |4341     |4351      .
TCTTCTGCCCTTGAGGACCTGCGAAATCCAGAACAAAGCACATCAGAAAAAGgtgtgtat
S  S  A  L  E  D  L  R  N  P  E  Q  S  T  S  E  K  A
               |1441                          |1451

 .    .    .    .    .    .    .    .    .    .    .    .
tgttggccaaacactgatatcttaagcaaaattctttccttccccttatctccttctga

 .    .    .    .    .    .    .    .    .    .    .    .
agagtaaggacctagctccaacattttatgatccttgctcagcacatgggtaattatgga

 .    .    .    .    .    .    .    .    .    .    .    .
gccttggttcttgtccctgctcacaactaatataccagtcagagggacccaaggcagtca

 .    .    .    .    .    .    .    .    .    .    .    .
ttcatgttgtcatctgagtacctacaacaagtagatgctatggggagcccatggaagata

 .    .    .    .    .    .    .    .    .    .    .
catggtatacaacatagctcttgctctattggaagctaagtggaatgggaga
```

```
Exon 13 | Start: 141370 | End: 141496 | Length: 126

.    .    .    .    .    .    .    .    .    .    .    .
ttcagggccaaggaatatagatttttttttcagccttgtctcagctgggtgtctttatt

.    .    .    .    .    .    .    .    .    .    .    .
tactctgtcttaaagtgttccttttattatcattattatttttaatcattgaattccat

.    .    .    .    .    .    .    .    .    .    .    .
ttggtgctagcatctgtctgttgcattgcttgtgtttataaaattctgcctgatatactt

.    .    .    .    .    .    .    .    .    .    .    .
gtttaaaaaccaatttgtgtatcatagattgatgcttttgaaaaaaatcagtattctaac

.    .    .    .    .    .    .    .    .    .    .    .
ctgaattatcactatcagaacaaagcagtaaagtagatttgttttctcattccatttaaa

   |4361     |4371     |4381     |4391     |4401     |4411
CAGTATTAACTTCACAGAAAAGTAGTGAATACCCTATAAGCCAGAATCCAGAAGGCCTTT
  V  L  T  S  Q  K  S  S  E  Y  P  I  S  Q  N  P  E  G  L  S
                      |1461                        |1471

   |4421     |4431     |4441     |4451     |4461     |4471
CTGCTGACAAGTTTGAGGTGTCTGCAGATAGTTCTACCAGTAAAAATAAAGAACCAGGAG
  A  D  K  F  E  V  S  A  D  S  S  T  S  K  N  K  E  P  G  V
                      |1481                        |1491

   |4481   .    .    .    .    .    .    .    .    .    .
TGGAAAGgtaagaaacatcaatgtaaagatgctgtggtatctgacatctttatttatatt
  E  R

 .    .    .    .    .    .    .    .    .    .    .    .
gaactctgattgttaatttttttcaccatactttctccagtttttgcatacaggcattt

 .    .    .    .    .    .    .    .    .    .    .    .
atacacttttattgctctaggatacttcttttgtttaatcctatataggtttttgaacc

 .    .    .    .    .    .    .    .    .    .    .    .
tataacataagctacaacatgagaaatgtgcggttagatagatatgtcccttctgaaggt

 .    .    .    .    .    .    .    .    .    .    .    .
cagaaaaaaatataatggaggtaaaacctgaacaagcttggaaactgatggtagacttct

 .    .
tcaaggc
```

```
Exon 14 | Start: 143463 | End: 143653 | Length: 190

.    .    .    .    .    .    .    .    .    .    .    .
cagcctcccgagtagctgagattacaggcgccagccaccacacccagctactgacctgct

.    .    .    .    .    .    .    .    .    .    .    .
tttaaacagctgggagatatggtgcctcagaccaacccaacccccatgttatatgtcaacc

.    .    .    .    .    .    .    .    .    .    .    .
ctgacatattggcaggcaacatgaatccagacttctaggctgtcttgcgggctcttttt

.    .    .    .    .    .    .    .    .    .    .    .
gccagtcatttctgatctctctgacatgagctgtttcatttatgctttggctgcccagca

.    .    .    .    .    .    .    .    .    .    .    .
agtatgatttgtcctttcacaattggtggcgatggttttctccttccatttatctttcta

      |4491     |4501     |4511     |4521     |4531     |4541
GTCATCCCCTTCTAAATGCCCATCATTAGATGATAGGTGGTACATGCACAGTTGCTCTGG
 S  S  P  S  K  C  P  S  L  D  D  R  W  Y  M  H  S  C  S  G
               |1501                       |1511

      |4551     |4561     |4571     |4581     |4591     |4601
GAGTCTTCAGAATAGAAACTACCCATCTCAAGAGGAGCTCATTAAGGTTGTTGATGTGGA
 S  L  Q  N  R  N  Y  P  S  Q  E  E  L  I  K  V  V  D  V  E
               |1521                       |1531

      |4611     |4621     |4631     |4641     |4651     |4661
GGAGCAACAGCTGGAAGAGTCTGGGCCACACGATTTGACGGAAACATCTTACTTGCCAAG
 E  Q  Q  L  E  E  S  G  P  H  D  L  T  E  T  S  Y  L  P  R
               |1541                       |1551

      |4671    .    .    .    .    .    .    .    .
GCAAGATCTAGgtaatatttcatctgctgtattggaacaaacactttgattttactctga
 Q  D  L  E

.    .    .    .    .    .    .    .    .    .    .    .
atcctacataaagatattctggttaaccaacttttagatgtactagtctatcatggacac

.    .    .    .    .    .    .    .    .    .    .    .
ttttgttatacttaattaagcccactttagaaaaatagctcaagtgttaatcaaggttta

.    .    .    .    .    .    .    .    .    .    .    .
cttgaaaattattgaaactgttaatccatctatattttaattaatggtttaactaatgat

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

tttgaggatgagggagtcttggtgtactctaaatgtattatttcaggccaggcatagtgg

. . .
ctcacgcctgt

```
Exon 15 | Start: 146746 | End: 147056 | Length: 310

.    .    .    .    .    .    .    .    .    .    .    .
ttctaaaattatactattcctatgactaaacctttgcatatatcttttatctccctagga

.    .    .    .    .    .    .    .    .    .    .    .
tatatttctaaaactagcattgttgactgaaagtgtaaatacgtgttaaggtgtttgcta

.    .    .    .    .    .    .    .    .    .    .    .
cataatgccatatttccttttaggaaactaagctactttggatttccaccaacactgta

.    .    .    .    .    .    .    .    .    .    .    .
ttcatgtacccatttttctcttaacctaactttattggtctttttaattcttaacagaga

.    .    .    .    .    .    .    .    .    .    .    .
ccagaactttgtaattcaacattcatcgttgtgtaaattaaacttctcccattcctttca

     |4681     |4691     |4701     |4711     |4721     |4731
AGGGAACCCCTTACCTGGAATCTGGAATCAGCCTCTTCTCTGATGACCCTGAATCTGATC
  G  T  P  Y  L  E  S  G  I  S  L  F  S  D  D  P  E  S  D  P
     |1561                        |1571

     |4741     |4751     |4761     |4771     |4781     |4791
CTTCTGAAGACAGAGCCCCAGAGTCAGCTCGTGTTGGCAACATACCATCTTCAACCTCTG
  S  E  D  R  A  P  E  S  A  R  V  G  N  I  P  S  S  T  S  A
     |1581                        |1591

     |4801     |4811     |4821     |4831     |4841     |4851
CATTGAAAGTTCCCCAATTGAAAGTTGCAGAATCTGCCCAGAGTCCAGCTGCTGCTCATA
  L  K  V  P  Q  L  K  V  A  E  S  A  Q  S  P  A  A  A  H  T
     |1601                        |1611

     |4861     |4871     |4881     |4891     |4901     |4911
CTACTGATACTGCTGGGTATAATGCAATGGAAGAAAGTGTGAGCAGGGAGAAGCCAGAAT
  T  D  T  A  G  Y  N  A  M  E  E  S  V  S  R  E  K  P  E  L
     |1621                        |1631

     |4921     |4931     |4941     |4951     |4961     |4971
TGACAGCTTCAACAGAAAGGGTCAACAAAAGAATGTCCATGGTGGTGTCTGGCCTGACCC
  T  A  S  T  E  R  V  N  K  R  M  S  M  V  V  S  G  L  T  P
     |1641                        |1651

     |4981     .    .    .    .    .    .    .    .
CAGAAGAATTTgtgagtgtatccatatgtatctccctaatgactaagacttaacaacatt
  E  E  F
     |1661
```

```
.    .    .    .    .    .    .    .    .    .    .    .
ctggaaagagttttatgtaggtattgtcaattaataacctagaggaagaaatctagaaaa

.    .    .    .    .    .    .    .    .    .    .    .
caatcacagttctgtgtaatttaatttcgattactaatttctgaaaatttagatctagat

.    .    .    .    .    .    .    .    .    .    .    .
aaagctatagtgtggattattttatgtatatttacttgagaaaataattattaaatatta

.    .    .    .    .    .    .    .    .    .    .    .
gtggaaaagctatactttgggtatgatataggactttcgaattggaattttcctttctat

.    .    .
ctgtaaaagca
```

Exon 16 | Start: 150289 | End: 150376 | Length: 87

```
.    .    .    .    .    .    .    .    .    .    .    .
cgagacttcaggtgtcttagaatttttaaatgtacccttctgagaaaaacagagactt

.    .    .    .    .    .    .    .    .    .    .    .
aaagctaggataactggtattctatttttttttttttttttttttacctccagcctggg

.    .    .    .    .    .    .    .    .    .    .    .
tgacagagcaagactctgtctaaaaaaaaaaaaaaaaaaattcactttaaatagttccag

.    .    .    .    .    .    .    .    .    .    .    .
gacacgtgtagaacgtgcaggattgctacataggtaaacatatgccatggtggaataact

.    .    .    .    .    .    .    .    .    .    .    .
agtattctgagctgtgtgctagaggtaactcatgataatggaatatttgatttaatttca

    |4991     |5001     |5011     |5021     |5031     |5041
ATGCTCGTGTACAAGTTTGCCAGAAAACACCACATCACTTTAACTAATCTAATTACTGAA
M  L  V  Y  K  F  A  R  K  H  H  I  T  L  T  N  L  I  T  E
                       |1671                          |1681

    |5051     |5061     |5071   .    .    .    .    .    .
GAGACTACTCATGTTGTTATGAAAACAGgtataccaagaacctttacagaataccttgca
E  T  T  H  V  V  M  K  T  D
                       |1691

  .    .    .    .    .    .    .    .    .    .    .    .
tctgctgcataaaaccacatgaggcgaggcacggtggcgcatgcctgtaatcgcagcact

  .    .    .    .    .    .    .    .    .    .    .    .
ttgggaggccgaggcgggcagatcacgagattaggagatcgagaccatcctggccagcat

  .    .    .    .    .    .    .    .    .    .    .    .
ggtgaaaccccgtctctactaaaaaatataaaaaaattagctgggtgtggtcgcgtgcgcct

  .    .    .    .    .    .    .    .    .    .    .    .
gtagtcccagctactcgtgaggctgaggcaggagaatcacttgaaccggggagatggagg

  .    .    .    .    .    .
ttgcagtgagccgagatcatgccactgc
```

```
Exon 17 | Start: 154033 | End: 154110 | Length: 77

.    .    .    .    .    .    .    .    .    .    .    .
ctataatggagatctatagctagccttggcgtctagaagatgggtgttgagaagagggag

.    .    .    .    .    .    .    .    .    .    .    .
tggacagatatttcctctggtcttaacttcatatcagcctcccctagacttccaaatatc

.    .    .    .    .    .    .    .    .    .    .    .
catacctgctggttataattagtggtgttttcagcctctgattctgtcaccaggggtttt

.    .    .    .    .    .    .    .    .    .    .    .
agaatcataaatccagattgatcttgggagtgtaaaaaactgaggctctttagcttctta

.    .    .    .    .    .    .    .    .    .    .    .
ggacagcacttcctgattttgttttcaacttctaatcctttgagtgttttcattctgca

      |5081     |5091     |5101     |5111     |5121     |5131
ATGCTGAGTTTGTGTGTGAACGGACACTGAAATATTTTCTAGGAATTGCGGGAGGAAAAT
  A  E  F  V  C  E  R  T  L  K  Y  F  L  G  I  A  G  G  K  W
                         |1701                         |1711

      |5141     |5151 .    .    .    .    .    .    .    .
GGGTAGTTAGCTATTTCTgtaagtataatactatttctcccctcctccctttaacacctc
  V  V  S  Y  F  W

  .    .    .    .    .    .    .    .    .    .    .    .
agaattgcatttttacacctaacgtttaacacctaaggtttttgctgatgctgagtctga

  .    .    .    .    .    .    .    .    .    .    .    .
gttaccaaaaggtctttaattgtaatactaaactacttttatctttaatatcactttgtt

  .    .    .    .    .    .    .    .    .    .    .    .
cagataagctggtgatgctgggaaaatgggtctcttttataactaataggacctaatctg

  .    .    .    .    .    .    .    .    .    .    .    .
ctcctagcaatgttagcatatgagctagggatttatttaatagtcggcaggaatccatgt

  .    .    .    .
gcagcaggcaaacttata
```

```
Exon 18 | Start: 154611 | End: 154651 | Length: 40

.    .    .    .    .    .    .    .    .    .    .    .
tataactaataggacctaatctgctcctagcaatgttagcatatgagctagggatttatt

.    .    .    .    .    .    .    .    .    .    .    .
taatagtcggcaggaatccatgtgcagcaggcaaacttataatgtttaaattaaacatca

.    .    .    .    .    .    .    .    .    .    .    .
actctgtctccagaaggaaactgctgctacaagccttattaaagggctgtggctttagag

.    .    .    .    .    .    .    .    .    .    .    .
ggaaggacctctcctctgtcattcttcctgtgctcttttgtgaatcgctgacctctctat

.    .    .    .    .    .    .    .    .    .    .    .
ctccgtgaaaagagcacgttcttctgctgtatgtaacctgtcttttctatgatctcttta

        |5161     |5171     |5181     |5191  .    .    .
GGGTGACCCAGTCTATTAAAGAAAGAAAAATGCTGAATGAGgtaagtacttgatgttaca
  V  T  Q  S  I  K  E  R  K  M  L  N  E
        |1721                         |1731

.    .    .    .    .    .    .    .    .    .    .    .
aactaaccagagatattcattcagtcatatagttaaaaatgtatttgcttccttccatca

.    .    .    .    .    .    .    .    .    .    .    .
atgcaccactttccttaacaatgcacaaattttccatgataatgaggatcatcaagaatt

.    .    .    .    .    .    .    .    .    .    .    .
atgcaggcctgcactgtggctcatacctataatcccagcgctttgggaggctgaggcgct

.    .    .    .    .    .    .    .    .    .    .    .
tggatcacctgatgtcgggagttcaagaccagcctgaccaacatggagaaaccccgtttc

.    .    .    .    .    .    .    .    .
tactaaaaatacaaaattagccgggcttggtggcacttgcc
```

```
Exon 19 | Start: 160849 | End: 160932 | Length: 83

.    .    .    .    .    .    .    .    .    .    .    .
tgcattcaaaagattctcctgcctcagcctcccaagtagctgggattacaggtgcctgcc

.    .    .    .    .    .    .    .    .    .    .    .
accacgcccaactaatttttgtatttttagtagagatgaggtttcaccatgttggtcag

.    .    .    .    .    .    .    .    .    .    .    .
actggtgtcgaactcctgacctcaagtgatctgcctgcctcagtctcccaaagtgctagg

.    .    .    .    .    .    .    .    .    .    .    .
attacaggggtgagccactgcgcctggcctgaatgccttaaatatgacgtgtctgctcca

.    .    .    .    .    .    .    .    .    .    .    .
cttccattgaaggaagcttctctttctcttatcctgatgggttgtgtttggtttctttca

       |5201     |5211     |5221     |5231     |5241     |5251
CATGATTTTGAAGTCAGAGGAGATGTGGTCAATGGAAGAAACCACCAAGGTCCAAAGCGA
H  D  F  E  V  R  G  D  V  V  N  G  R  N  H  Q  G  P  K  R
                         |1741                         |1751

       |5261     |5271      .    .    .    .    .    .    .
GCAAGAGAATCCCAGGACAGAAAGgtaaagctccctccctcaagttgacaaaaatctcac
A  R  E  S  Q  D  R  K

   .    .    .    .    .    .    .    .    .    .    .    .
cccaccactctgtattccactccccttgcagagatgggccgcttcattttgtaagactt

   .    .    .    .    .    .    .    .    .    .    .    .
attacatacatacacagtgctagatactttcacacaggttctttttcactcttccatcc

   .    .    .    .    .    .    .    .    .    .    .    .
caaccacataaataagtattgtctctactttatgaatgataaaactaagagatttagaga

   .    .    .    .    .    .    .    .    .    .    .    .
ggctgtgtaatttggattcccgtctcgggttcagatcttagctgataagtggaagagctg

   .    .    .    .    .
ggactttaagcagatgagaatcta
```

```
Exon 20 | Start: 166867 | End: 166921 | Length: 54

.    .    .    .    .    .    .    .    .    .    .    .
ccttggcctgattggtgacaaaagtgagatgctcagtccttgaatgacaaagaatgcctg

.    .    .    .    .    .    .    .    .    .    .    .
tagagtgcaggtcaactacatatgcacttcaagaagatcttctgaaatccagtagtgttc

.    .    .    .    .    .    .    .    .    .    .    .
tggacattggactgcttgtccctgggaagtagcagcagaaatcatcaggtggtgaacaga

.    .    .    .    .    .    .    .    .    .    .    .
agaaaaagaaaagctcttccttttttgaaagtctgtttttttgaataaaagccaatattctt

.    .    .    .    .    .    .    .    .    .    .    .
ttataactagattttccttctctccattcccctgtccctctctcttcctctcttcttcca

   |5281     |5291     |5301     |5311     |5321     |5331 .
ATCTTCAGGGGGCTAGAAATCTGTTGCTATGGGCCCTTCACCAACATGCCCACAGgtaag
I  F  R  G  L  E  I  C  C  Y  G  P  F  T  N  M  P  T  D
   |1761                        |1771

    .    .    .    .    .    .    .    .    .    .    .    .
agcctgggagaaccccagagttccagcaccagcctttgtcttacatagtggagtattata

    .    .    .    .    .    .    .    .    .    .    .    .
agcaagatcccacgatgggggttcctcagattgctgaaatgttctagaggctattctatt

    .    .    .    .    .    .    .    .    .    .    .    .
tctctaccactctccaaacaaaacagcacctaaatgttatcctatggcaaaaaaaaacta

    .    .    .    .    .    .    .    .    .    .    .    .
taccttgtccccttctcaagagcatgaaggtggttaatagttaggattcagtatgttat

    .    .    .    .    .    .    .    .    .    .    .
gtgttcagatggcgttgagctgctgttagtgccaacatgttagtgagaaaatatc
```

```
Exon 21 | Start: 168790 | End: 168863 | Length: 73

.    .    .    .    .    .    .    .    .    .    .    .
aattaatggaaattagatctttgatttttttttctttcaagcattttatttgagagacta

.    .    .    .    .    .    .    .    .    .    .    .
tcaaaccttataccaagtggccttatggagactgataaccagagtacatggcatatcagt

.    .    .    .    .    .    .    .    .    .    .    .
ggcaaattgacttaaaatccatacccctactattttaagaccattgtcctttggagcaga

.    .    .    .    .    .    .    .    .    .    .    .
gagacagactctcccattgagaggtcttgctataagccttcatccggagagtgtagggta

.    .    .    .    .    .    .    .    .    .    .    .
gagggcctgggttaagtatgcagattactgcagtgattttacatctaaatgtccatttta

        |5341     |5351     |5361     |5371     |5381     |5391
ATCAACTGGAATGGATGGTACAGCTGTGTGGTGCTTCTGTGGTGAAGGAGCTTTCATCAT
  Q  L  E  W  M  V  Q  L  C  G  A  S  V  V  K  E  L  S  S  F
        |1781                       |1791

        |5401     .    .    .    .    .    .    .    .    .
TCACCCTTGGCACAgtaagtattgggtgccctgtcagagagggaggacacaatattctct
  T  L  G  T
        |1801

   .    .    .    .    .    .    .    .    .    .    .    .
cctgtgagcaagactggcacctgtcagtccctatggatgcccctactgtagcctcagaag

   .    .    .    .    .    .    .    .    .    .    .    .
tcttctctgcccacatacctgtgccaaaagactccatctgtaagggatgggtaaggattt

   .    .    .    .    .    .    .    .    .    .    .    .
gagaactgcacatattaaatatactgagggaagacttttccctctaactctttttccca

   .    .    .    .    .    .    .    .    .    .    .    .
tatgtccctccccctcctctctgtgactgccccagcatactgtgtttcaacaaatcatca

   .    .    .
agaaatgatgggct
```

Exon 22 | Start: 170281 | End: 170341 | Length: 60

```
.    .    .    .    .    .    .    .    .    .    .    .
cccaggagtttgagaccagcctgggcaacatggcaaaaccctgtctctaccaaaaataca

.    .    .    .    .    .    .    .    .    .    .    .
aaaaaattagccaggggtggtggtacgtgtctgtagttccagctacttaggaggctgaga

.    .    .    .    .    .    .    .    .    .    .    .
tggaaggattgcttgagcccaggaggcagaggtggcagtgagctgagatcacaccactgc

.    .    .    .    .    .    .    .    .    .    .    .
actccagcctgggtgacagagcaagaccctgtctcaaaaacaaacaaaaaaaatgatgaa

.    .    .    .    .    .    .    .    .    .    .    .
gtgacagttccagtagtcctactttgacactttgaatgctctttccttcctggggatcca

    |5411     |5421     |5431     |5441     |5451     |5461
GGTGTCCACCCAATTGTGGTTGTGCAGCCAGATGCCTGGACAGAGGACAATGGCTTCCAT
G  V  H  P  I  V  V  V  Q  P  D  A  W  T  E  D  N  G  F  H
                       |1811                        |1821

     .    .    .    .    .    .    .    .    .    .    .
Ggtaaggtgcctgcatgtacctgtgctatatggggtccttttgcatgggtttggtttatc
A

.    .    .    .    .    .    .    .    .    .    .    .
actcattacctggtgcttgagtagcacagttcttggcacattttaaatatttgttgaatg

.    .    .    .    .    .    .    .    .    .    .    .
aatggctaaaatgtctttttgatgttttattgttatttgttttatattgtaaaagtaat

.    .    .    .    .    .    .    .    .    .    .    .
acatgaactgtttccatggggtgggagtaagatatgaatgttcatcacaaaaacataaat

.    .    .    .    .    .    .    .    .    .    .    .
caaggccgggcatggtggctcatgcctataattccagcactttgggaggtcaagatggag

.
g
```

```
Exon 23 | Start: 172182 | End: 173689 | Length: 1507

.    .    .    .    .    .    .    .    .    .    .    .
ctaaaaatacaaaaattagctgggtgtgatggcatgtgcctgtaattccagctactcagg

.    .    .    .    .    .    .    .    .    .    .    .
aggcagagacaggagaattgcttgaacccaggaggcggaggttgaatgagccgagattgc

.    .    .    .    .    .    .    .    .    .    .    .
gccatcacactctagcctcggcgacagagcaagactccgtctcaaaaaaaaaaaaaaaaa

.    .    .    .    .    .    .    .    .    .    .    .
attagcttctacctcattaatcctaagaactcatacaaccaggaccctggagtcgattga

.    .    .    .    .    .    .    .    .    .    .    .
ttagagcctagtccaggagaatgaattgacactaatctctgcttgtgttctctgtctcca

   |5471     |5481     |5491     |5501     |5511     |5521
CAATTGGGCAGATGTGTGAGGCACCTGTGGTGACCCGAGAGTGGGTGTTGGACAGTGTAG
  I  G  Q  M  C  E  A  P  V  V  T  R  E  W  V  L  D  S  V  A
                       |1831                          |1841

   |5531     |5541     |5551     |5561     |5571     |5581
CACTCTACCAGTGCCAGGAGCTGGACACCTACCTGATACCCCAGATCCCCCACAGCCACT
  L  Y  Q  C  Q  E  L  D  T  Y  L  I  P  Q  I  P  H  S  H  Y
                       |1851                          |1861

   |5591       |*11      |*21      |*31      |*41      |*51
ACTGACTGCAGCCAGCCACAGGTACAGAGCCACAGGACCCCAAGAATGAGCTTACAAAGT
  *

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

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

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

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

     |*301     |*311     |*321     |*331     |*341     |*351
TTTATCAGCCCTATTCTTTCTATTCAGGCTGTTGTTGGCTTAGGGCTGGAAGCACAGAGT
```

```
     |*361      |*371      |*381      |*391      |*401      |*411
GGCTTGGCCTCAAGAGAATAGCTGGTTTCCCTAAGTTTACTTCTCTAAAACCCTGTGTTC

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

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

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

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

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

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

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

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

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

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

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

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

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

     |*1201     |*1211     |*1221     |*1231     |*1241     |*1251
GCTTGCTGAAGGAAGAAAAAGTGTTTTTCATAAACCCATTATCCAGGACTGTTTATAGCT

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

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GTTGGAAGGACTAGGTCTTCCCTAGCCCCCCCCAGTGTGCAAGGGCAGTGAAGACTTGATT

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

     |*1381 .     .     .     .     .     .     .     .     .     .
CACTTCCAccatgaatgactgttcttgagacttaggccagccgactttctcagagccttt

   .     .     .     .     .     .     .     .     .     .     .     .
tcactgtgcttcagtctcccactctgtaaaatgggggtaatgatagtatctacctcctag

   .     .     .     .     .     .     .     .     .     .     .     .
gatttattgaggcagcttaaataccttttgtatttcctgttgctgccaaaacaaattgtt

   .     .     .     .     .     .     .     .     .     .     .     .
gcaaggtcagaagtctgaggtggctcaactgtttctttgtttcaggtttcatgaggccaa

   .     .     .     .     .     .     .     .     .     .     .     .
aataaaggtgttcgcagggcgtgttcccttctagaggctctgggtccttgcagttctagg

   .     .
actaagat
```

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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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