

Gene: BRCA1 - Sequence: NG_005905.2
 Transcript: NM_007294.3 - Protein: NP_009225.1
 LRG: LRG_292t1 - Date : Thursday 11th June, 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: 92501 | End: 92713 | Length: 212

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. . . . .
tacttatatttaccgaaactggagacctccattagggcggaaagagtgggggattgggac

. . . . .
ctcttcttacgactgctttggacaataggtagcgattctgaccttcgtacagcaattact

. . . . .
gtgatgcaataagccgcaactggaagagtagaggctagagggcaggcactttatggcaaa

. . . . .
ctcaggtagaattcttcctcttccgtctctttcctttacgtcatccgggggcagactgg

. . . . .
gtggccaatccagagccccgagagacgcttggctctttctgtccctcccatcctctgatt

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

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

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

|-49       |-39       |-29
TCAGGAGGCCTTCACCCTCTGCTCTGGGTAAAGgtagtagagtcccggaaggacagg

. . . . .
gggccaagtgatgctctgggggtactggcgtgggagagtggatttccgaagctgacagat

. . . . .
gggtattctttgacgggggtaggggcggaacctgagaggcgtaaggcgttgtgaaccct

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.
ggggaggggggcagttttaggtcgcgaggaagcgctgaggatcaggaagggggcactg

.
agtgtccgtgggggaatcctcgtgataggaactggaatatgccttgagggggacactatg

.
tctttaaaaacgtcggctggtcatgaggtcagg

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

```
. . . . .
aggctaccaccacctacccggtcagtcactcctctgtagctttctctttcttggagaaag
. . . . .
gaaaagaccaaggggttgagcaaatatgtgaaaaattcagaatttatgttgctaat
. . . . .
tacaaaaagcaacttctagaatctttaaaaataaaggacgttgctcattagttctttggtt
. . . . .
tgtattattctaaaaccttccaaatcttaaatcttatttttaaaatgataaaatgaa
. . . . .
gttgctattttataaaccttttaaaagatatatatatgtttttctaattgtgttaaag
|-19      |-9      |1      |11      |21      |31      |41
TTCATTGGAACAGAAAGAAATGGATTATCTGCTCTTCGCGTTGAAGAAGTACAAAATGT
      M D L S A L R V E E V Q N V
      |1                      |11

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

. . . . .
ttaatttgggattcctatgattatctcctatgcaaataacagaattgaccttacatact
. . . . .
agggaagaaaagacatgtctagtaagattaggctattgtaattgctgattttcttaactg
. . . . .
aagaactttaaaaatatagaaaatgattccttggttctccatccactctgcctctccact
. . . . .
cctctccttttcaacacaaatcctgtggtccgggaaagacagggactctgtcttgattgg
. . . . .
ttctgcactggggcaggaatctagtttagattaactggc
```

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

```
. . . . .
aattcgtacgaactattatcaactaatcttttaaagtctgatgatagtatagagtattga
. . . . .
agggatcaatataattctgttttgatatctgaaagctcactgaaggaaggaatcgtattc
. . . . .
tctgctgtattctcagttcctgacacagcagacatttaataaatattgaacgaacttgag
. . . . .
gccttatgttgactcagtcataacagctcaaagttgaacttattcactaagaatagcttt
. . . . .
atttttaataaattattgagcctcatttattttcttttctccccctaccctgctag
|81      |91      |101      |111      |121      |131      .
TCTGGAGTTGATCAAGGAACCTGTCTCCACAAAGTGTGACCACATATTTGCAAgtagt
L E L I K E P V S T K C D H I F C K
      |31                      |41
. . . . .
ttgaatgtgttatgtggctccattattagcttttgttttgtccttcataaccagaaa
. . . . .
cacctaactttatagaagctttactttcttcaattaagtgagaacgaaaaatccaactcc
. . . . .
atttcattctttctcagagagtatatagttatcaaaagttggttgtaatcatagttcctg
. . . . .
gtaaagttttgacatatattatcttttttttttttttgagacaaagtctcgctctgtcg
. . . . .
cccaggctggagtgagtgcatgatcttggtcactgcaacctccgcccccg
```

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

```
. . . . .
tatgaatatatcattaaatatgccatattaactttttattaagttttatgtgatcataaca

. . . . .
gtaagccatatgcatgtaagttcagttttcatagatcattgcttatgtagtttaggtttt

. . . . .
tgcttatgcagcatccaaaaacaattaggaactattgcttgtaattcacctgccattac

. . . . .
tttttaaatggctcttaagggcagttgtgagattatctttcatggctatttgcccttttg

. . . . .
agtattctttctacaaaaggaagtaaattaaattgttctttctttctttataatttatag

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

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

. . . . .
taggaaaaagtagaaattatttaataacatagcgttcctataaaaccattcatcagaaaa

. . . . .
atttataaaagagtttttagcacacagtaaattatttccaaagttattttcctgaaagtt

. . . . .
ttatgggacatctgccttatacaggtattagaaacttactgcctttctctaattgcttcta

. . . . .
gtgtaaaaacttgcagacttatgtaaagtagggctgtatcgccgtgccccattgtctgt

. . . . .
taatcttgtttttatatt
```

aaattaacaaaaaaaaaagtactctagttttctatgcaatgcattatatctgctgtgga
tttagggcagttattatatcagataattttaggcatttggttaggcttaaatgaatgacaaa
aagttactaaatcactgccatcacacggttttatacagatgtcaatgatgtattgattata
gagggttttctactgttgctgcatcttatttttatttgtttacatgtcttttcttatttta
gtgtccttaaaaggttgataatcacttgctgagtgtgttttctcaacaatttaatttcag

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

6

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

.
tacattgttggtgtcttagcttttagtgaaatacagtattgataggcaaatttcttagtgt

.
taaggtagaaaacaaggactctaaataactttgatggctctgtgtatttgttttgtttcc

.
taggagtagaaatttccagttgattttttaaaatttgatttttaaaaaaatcacaggtaa

.
ccttaatgcattgtcttaacacaacaaagagcatatagggtttctcttggtttctttg

.
attataattcatatatttttctctaactgcaaacataatgttttcccttgatttttacag

 |311 |321 |331 |341 |351 |361
ATGCAAAACAGCTATAATTTTGCAAAAAAGGAAAAATAACTCTCCTGAACATCTAAAAGATG
 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
AACCCGAAAAATCCTTCCTTGgtaaaaccatttgttttcttcttcttcttcttcttctt
 P E N P S L

.
cttttttttttctttttttttttgagatggagtccttgctctgtggcccaggctagaagc

.
agtcctcctgccttagcccccttagtagctgggattacaggcacgcgccaccatgccagg

.
ctaatttttgatttttagtagagacggggtttcatcatgttgccaggctggtctcgaa

.
ctcctaacctcagtgatccaccacctcggctcccaaattgctgggattacaggtgtg

.
agccactgtgcccggcggt

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

.
actactactattattttgtagagactgggtctcactctgttgcttatgctggctcttgaac

.
tcctggcctcaagcagtcctgctccagcctcccaaagtgctgggattataggcatgagct

.
accgctcccagccccagacatttttagtggtgtaaattcctgggcattttttccaggcatca

.
tacatgtagctgactgatgatggcaatttattttgtccatgggtgcaagtttctcttc

.
aggaggaaaagcacagaactggccaacaattgcttgactgttctttaccatactgttttag

 |451 |461 |471 |481 |491 |501
CAGGAAACCACTCTCAGTGTCCAACCTCTTAACCTTGGAACCTGTGAGAACTCTGAGGACA
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 . . .
AAGCAGCGGATACAAACCTCAAAAGACGTCTGTCTACATTGAATTGGGtaagggtctcagg
K Q R I Q P Q K T S V Y I E L G
 |171 |181

.
ttttttaagtatttaataataattgctggattccttatcttatagttttgcaaaaatct

.
tggtcataatttgattttgtggtaggcagctttgggaagtgaattttatgagccctatgg

.
tgagttataaaaaatgtaaaagacgcagttccacctgaagaatcttactttaaaaagg

.
gagcaaaagaggccaggcatgggtggctcacacctgtaatccagcactttgggaggccaa

.
agtgggtggatcacctgaggtcgggagttcgagaccagcctagcca

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

```
. . . . .
tagaaacgggggtctcactttgttggccaggctggtcttgaactcctaacctcaaataat
. . . . .
ccaccatctcggcctcctcaagtgtgggattacaggtgagagccactgtgcctggcga
. . . . .
agcccatgcctttaaccacttctctgtattacatactagcttaactagcattgtacctgc
. . . . .
cacagtagatgctcagtaaataatttctagttgaatatctgtttttcaacaagtacatttt
. . . . .
tttaacccttttaattaagaaaacttttattgatttatttttgggggaaatttttag

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

. . . . .
acctttgtctatgaagctggtattttcctatttagttaatattaaggattgatgtttctc
. . . . .
tctttttaaaaatattttaacttttatttttaggttcagggatgtatgtgcagtttggtat
. . . . .
ataggtaaacacacgacttgggatttggtgtatagattttttcatcatccgggtactaa
. . . . .
gcataccccacagttttttgtttgctttcttctgaatttctccctcttcccaccttctc
. . . . .
ccctcaagtaggctggtgttttctccagactagaatcatggtattgg
```

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

.
gtatttttagtagagatggggtttcaccatgttggccaggctggtcttgaactcatgacc

.
tcaagtgggtccaccgcctcagcctcccaaagtgctggaattacaggcttgagccaccgt

.
gcccagcaaccatttcatttcaactagaagtttctaaaggagagagcagctttcactaac

.
taaataagattggtcagctttctgtaatcgaaagagctaaaatgtttgatcttggtcatt

.
tgacagtcttcgcatatcatgtaactagtgtttcttattaggactctgtcttttccctatag

 |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

.
acaaaatctcttggcagagtttagagtatcattctctgtcaaatgtcgtggtatggtctga

.
tagatttaaattggtactagactaatgtacctataataaaccttctgtaactgattgttg

.
ccctttcgttttttttttgtttgtttgtttgttttttttgagatgggggtctcactctg

.
ttgccaggctggagtg

Exon 10 | Start: 123124 | End: 126549 | Length: 3425
 BE AWARE: Flanking intron is shared with the following exon

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. . . . .
agttttctgatggccaatctgcttttaattcactccttagacgttagagaaataggtgtgg
. . . . .
tttctgcatagggaaaattctgaaattaaaaatttaatggatcctaagtggaaataatct
. . . . .
aggtaaataaggaattaaatgaaagagtatgagctacatcttcagtatacttggtagttta
. . . . .
tgagggttagtttctctaatatagccagttggttgatttccacctccaaggtgtatgaagt
. . . . .
atgtatttttttaatgacaattcagtttttgagtaccttggtatttttgtatatatttcag

|671      |681      |691      |701      |711      |721
CTGCTTGTGAATTTCTGAGACGGATGTAACAAATACTGAACATCATCAACCCAGTAATA
  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
ATGATTGTAACACCACTGAGAAGCGTGCAGCTGAGAGGCATCCAGAAAAGTATCAGGGTA
  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
GTTCTGTTTCAAACCTTGCATGTGGAGCCATGTGGCACAAATACTCATGCCAGCTCATTAC
  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

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| | | | | | |
|---|------|------|------|------|------|
| 971 | 981 | 991 | 1001 | 1011 | 1021 |
| GTAAGGAAACATGTAATGATAGGCGGACTCCCAGCACAGAAAAAAGGTAGATCTGAATG | | | | | |
| K | E | T | C | N | D |
| | | | R | R | T |
| | | | P | S | T |
| | | | E | K | K |
| | | | V | D | L |
| | | | N | A | |
| | | 331 | | | 341 |
| | | | | | |
| 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 |
| CTAGAGATACTGAAGATGTTCTTGGATAACACTAAATAGCAGCATTCAGAAAGTTAATG | | | | | |
| 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 |
| AGTGGTTTTCAGAAAGTGATGAACTGTTAGGTTCTGATGACTCACATGATGGGGAGTCTG | | | | | |
| 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 | 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 |
| CCTATCGGAAGAAGGCAAGCCTCCCCAACTTAAGCCATGTAAGTAAAAATCTAATTATAG | | | | | |
| Y | R | K | K | A | S |
| | | | L | P | N |
| | | | L | S | H |
| | | | V | T | E |
| | | | N | L | I |
| | | | I | I | G |
| | | 471 | | | 481 |
| | | | | | |
| 1451 | 1461 | 1471 | 1481 | 1491 | 1501 |
| GAGCATTGTGTTACTGAGCCACAGATAATACAAGAGCGTCCCCTCACAAATAAATTAAAGC | | | | | |
| 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

|1571 |1581 |1591 |1601 |1611 |1621
 CAGTTCAAAAGACTCCTGAAATGATAAATCAGGGAACCTAACCAACGGAGCAGAATGGTC
 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
 AAGTGATGAATATTACTAATAGTGGTCATGAGAATAAAACAAAAGGTGATTCTATTCTAGA
 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
 CTGAACCTATAAGCAGCAGTATAAGCAATATGGAACCTCGAATTAAATATCCACAATTCAA
 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
 GTTCTAGCAGTGAAGAGATAAAGAAAAAAGTACAACCAAAATGCCAGTCAGGCACAGCA
 S S S E E I K K K Y N Q M P V R H S R
 |651 |661

|1991 |2001 |2011 |2021 |2031 |2041
 GAAACCTACAACCTCATGGAAGGTAAAGAACCTGCAACTGGAGCCAAGAAGAGTAACAAGC
 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 |
| CAATGAACAGACAAGTAAAAGACATGACAGCGATACTTTCCCAGAGCTGAAGTTAACAA | | | | | |
| 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 |
| ATGCACCTGGTTCTTTTACTAAGTGTTCAAATACCAAGTGAAGTTAAAGAATTTGTCAATC | | | | | |
| 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 |
| CTAGCCTTCCAAGAGAAGAAAAAGAAGAGAACTAGAAACAGTTAAAGTGTCTAATAATG | | | | | |
| 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 |
| CTGAAGACCCCAAAGATCTCATGTTAAGTGGAGAAAGGGTTTTGCAAAGTAAAGATCTG | | | | | |
| 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 |
| TAGAGAGTAGCAGTATTTTATTGGTACCTGGTACTGATTATGGCACTCAGGAAAGTATCT | | | | | |
| 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 |
| CGTTACTGGAAGTTAGCACTCTAGGGAAGGCAAAAACAGAACCAAAATAAATGTGTGAGTC | | | | | |
| 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 |
| GCATAGAAATGGAAGAAAGTGAAGTTGATGCTCAGTATTTGCAGAATACATTCAAGGTTT | | | | | |
| 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 | E | C |
| | | | A | T | |
| | | 871 | | | 881 |

| | | | | | |
|--|------|------|------|------|------|
| 2651 | 2661 | 2671 | 2681 | 2691 | 2701 |
| CATTCTCTGCCCACTCTGGGTCCTTAAAGAAACAAAGTCCAAAAGTCACTTTTGAATGTG | | | | | |
| 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 |
| TTCCCATCAAGTCATTTGTTAAACTAAATGTAAGAAAAATCTGCTAGAGGAAAACTTTG | | | | | |
| P | I | K | S | F | V |
| | | K | T | C | K |
| | | K | K | N | L |
| | | 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 | | | | | |
| | | | | 1071 | 1081 |
| | | | | | |
| 3251 | 3261 | 3271 | 3281 | 3291 | 3301 |
| TTAGATTAGGGGTTTGTCAACCTGAGGTCTATAAACAAAGTCTTCCTGGAAGTAATTGTA | | | | | |
| 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 |
| TCTCTCCATATCTGATTTTCAGATAACTTAGAACAGCCTATGGGAAGTAGTCATGCATCTC | | | | | |
| 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 |
| AGGTTTGTCTGAGACACCTGATGACCTGTAGATGATGGTGAAATAAAGGAAGATACTA | | | | | |
| 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 |
| GAGAGCTTAGCAGGAGTCCTAGCCCTTTACCCATACACATTTGGCTCAGGGTTACCGAA | | | | | |
| 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 |
| GAGGGGCCAAGAAATTAGAGTCTCAGAAGAGAACTTATCTAGTGAGGATGAAGAGCTTC | | | | | |
| G A K K L E S S E E N L S S E D E E L P | | | | | |
| | | | | 1211 | 1221 |

.
gctaggacgtcatctttgactgaatg

Exon 11 | Start: 126952 | End: 127040 | Length: 88
 BE AWARE: Flanking intron is shared with the previous exon

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. . . . .
agctttaacatcctaattactggtggacttacttctggtttcattttataaaagcaaadc
. . . . .
caggtgtcccaaagcaaggaatttaatcattttgtgtgacatgaaagtaaaccagtcct
. . . . .
gccaatgagaagaaaaagacacagcaagttgcagcgtttatagtctgcttttacatctga
. . . . .
. . . . . |4101 |4111 |4121 |4131
acctctgtttttgttatttaagGTGAAGCAGCATCTGGGTGTGAGAGTGAAACAAGCGTC
                        E A A S G C E S E T S V
                        |1371

. . . . .
TCTGAAGACTGCTCAGGGCTATCCTCTCAGAGTGACATTTTAACCACTCAGgtaaaaagc
S E D C S G L S S Q S D I L T T Q
. . . . . |1381 |1391

. . . . .
gtgtgtgtgtgtgcacatgcgtgtgtgtgtgtcctttgcattcagtagtatgtatccca
. . . . .
cattcttaggtttgctgacatcatctctttgaattaatggcacaattgtttgtggttcac
. . . . .
tgtctccttaaattagactgtaagcaccttgatggaactcatactaccttttatttcaca
. . . . .
cacacgcacacgcgcacacacagcctacacatacactgcctagctcattgtagcatacta
. . . . .
aatactgatttttaataagtaaaccttcgaaaccatttgctaatacc

```

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

```
. . . . .
tattttttcactccctagcttttaaagaaaataaccaacttcaaaaggacatcacataa

. . . . .
catcaagtctatttgggggaatttgaggatttttccctcactaacatcatttggaata

. . . . .
atttcatgggcattaattgcatgaatgtggttagattaaaaggtgttcagctagaacttg

. . . . .
tagttccatactaggtgatttcaattcctgtgctaaaattaatttgatgatataatttc

. . . . .
atttaatggaaagcttctcaaagtatttcattttcttggtgccatttatcgtttttgaag

      |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

. . . . .
tgttggccaaactgatatcttaagcaaaattctttccttcccctttatctccttctga

. . . . .
agagtaaggacctagctccaacattttatgatccttgctcagcacatgggtaattatgga

. . . . .
gccttggttcttgtccctgctcacaactaatataaccagtcagagggacccaaggcagtca

. . . . .
ttcatgtgtcatctgagtacctacaacaagtagatgctatggggagcccatggaagata
```

.
catggtatacaacatagctcttgctctattggaagctaagtggaatgggaga

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

```
. . . . .
tcaggccaaggaatatagatttttttttcagccttgctcagctgggtgtctttattt

. . . . .
actctgtcttaaagtggtccttttattatcattatttttttaattcattgaattccatt

. . . . .
tggtgctagcatctgtctgttgcttgcttggtttataaaattctgcctgatatacttg

. . . . .
tttaaaaaccaatttggtgatcatagattgatgcttttgaaaaaatcagtattctaacc

. . . . .
tgaattatcactatcagaacaaagcagtaaagtagatttgtttctcattccatttaaag

|4361      |4371      |4381      |4391      |4401      |4411
CAGTATTAAC TTCACAGAAAAGTAGTGAATACCCTATAAGCCAGAATCCAGAAGGCCTTT
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
TGGAAGGtaagaaacatcaatgtaaagatgctgtggtatctgacatctttatttatatt
E R

. . . . .
gaactctgattgttaatttttttcaccatactttctccagttttttgcatacaggcattt

. . . . .
atacacttttattgctctaggatacttcttttgtttaacacctatataggttttttgaacc

. . . . .
tataacataagctacaacatgagaaatgtgcggttagatagatatgtcccttctgaaggt

. . . . .
cagaaaaaatataatggaggtaaaacctgaacaagcttggaactgatggttagacttct

. .
tcaaggc
```

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

.
agcctcccgagtagctgagattacaggcgccagccaccacaccagctactgacctgctt

.
ttaaacagctgggagatatggtgcctcagaccaaccaaccccatgttatatgtcaaccc

.
tgacatattggcaggcaacatgaatccagacttctaggctgtcttgcgggctcttttttg

.
ccagtcatttctgatctctctgacatgagctgtttcatttatgctttggctgccagcaa

.
gtatgatttgtcctttcacaattggtggcgatggttttctccttcatttatctttctag

 |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
GAGTCTTCAGAATAGAACTACCCATCTCAAGAGGAGCTCATTAAGGTTGTTGATGTGGA
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
GGAGCAACAGCTGGAAGAGTCTGGGCCACACGATTTGACGGAACATCTTACTTGCCAAG
E Q Q L E E S G P H D L T E T S Y L P R
 |1541 |1551

 |4671
GCAAGATCTAGgtaatatatttcattctgctgtattggaacaaacactttgattttactctga
Q D L E

.
atcctacataaagatattctggttaaccaacttttagatgtactagtctatcatggacac

.
ttttgttatacttaattaagcccacttttagaaaaatagctcaagtgttaatcaagggtta

.
cttgaaaattattgaaactgttaatccatctatatattttaattaatggtttaactaatgat

.
tttgaggatgagggagtcttggtgtactctaaatgtattatttcaggccaggcatagtgg

. . .
ctcacgcctgt

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

```
. . . . .
tctaaaattatactattcctatgactaaacctttgcatatatcttttatctccctaggat

. . . . .
atatttctaaaactagcattgttgactgaaagtgtaaatacgtgttaaggtgtttgctac

. . . . .
ataatgccatatttccttttaggaaactaagctactttggattccaccaacactgtat

. . . . .
tcatgtaccatttttctcttaacctactttattggctcttttaattcttaacagagac

. . . . .
cagaactttgtaattcaacattcatcgttggtgtgtaaattaaacttctcccattcctttcag

      |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
CTTCTGAAGACAGAGCCCCAGAGTCAGCTCGTGTGGCAACATACCATCTTCAACCTCTG
  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
CATTGAAAGTTCCCAATTGAAAGTTGCAGAATCTGCCAGAGTCCAGCTGCTGCTCATA
  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      . . . . .
CAGAAGAATTTgtgagtgatccatatgtatctccctaatagacttaacaacatt
      E   E   F
      |1661

. . . . .
ctggaaagagttttatgtaggtattgtcaattaataacctagaggaagaatctagaaa

. . . . .
caatcacagttctgtgtaatttaatttcgattactaatttctgaaaatttagatctagat

. . . . .
aaagctatagtggtgattattttatgtatatattacttgagaaaataattattaaatatta

. . . . .
gtggaaaagctatactttgggtatgatataggactttcgaattggaattttcctttctat

. . . . .
ctgtaaaagca

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

```
. . . . .
gagacttcaggtgtcttagaattttttaaatgtacccttctgagaaaaacagagactta
. . . . .
aagctaggataactgggtattctatttttttttttttttttttttacctccagcctgggt
. . . . .
gacagagcaagactctgtctaaaaaaaaaaaaaaaaaattcactttaaatagttccagg
. . . . .
acacgtgtagaacgtgcaggattgctacataggtaaacatatgccatggtggaataacta
. . . . .
gtattctgagctgtgtgctagaggtaactcatgataatggaatatttgatttaatttcag
|4991      |5001      |5011      |5021      |5031      |5041
ATGCTCGTGTAAGTTTGCCAGAAAACACCACATCACTTTAACTAATCTAATTACTGAA
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
. . . . .
ggtgaaaccccgctctctactaaaaataaaaaattagctgggtgtggtcgcgtgcgcct
. . . . .
gtagtcccagctactcgtgaggctgaggcaggagaatcacttgaaccggggagatggagg
. . . . .
ttgcagtgagccgagatcatgccactgc
```

Exon 17 | Start: 154033 | End: 154110 | Length: 77
BE AWARE: Flanking intron is shared with the following exon

.
tataatggagatctatagctagccttggcgtctagaagatgggtgttgagaagagggagt
.
ggacagatatcttctgtgtcttaacttcatatcagcctcccctagacttccaaatatcc
.
atacctgctggttataattagtggtgttttcagcctctgattctgtcaccaggggtttta
.
gaatcataaatccagattgatcttgggagtgtaaaaaactgaggctcttttagcttcttag
.
gacagcacttcctgattttgttttcaacttctaatacctttgagtgtttttcattctgcag

 |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
GGGTAGTTAGCTATTCTGtaagtataataactatttctcccctcctccctttaacacctc
 V V S Y F W

.
agaattgcatttttacacctaacgtttaacacctaagggttttgctgatgctgagtctga
.
gttacaaaaggctctttaattgtaataactaaactacttttatctttaatatcactttggt
.
cagataagctggtgatgctgggaaaatgggtctcttttataactaataggacctaacttg
.
ctcctagcaatgtagcatatgagctag

Exon 18 | Start: 154611 | End: 154651 | Length: 40
 BE AWARE: Flanking intron is shared with the previous exon

```

. . . . .
ggatttattttaatagtcggcaggaatccatgtgcagcaggcaaacttataatgtttaaat
. . . . .
taaacatcaactctgtctccagaaggaaactgctgctacaagccttattaaagggtgtg
. . . . .
gcttttagagggaaggacctctcctctgtcattcttcctgtgctcttttgtgaatcgtga
. . . . .
cctctctatctccgtgaaaagagcacgttcttctgctgtatgtaacctgtcttttctatg
. . . . .
. . . . .
atctcttttagGGGTGACCCAGTCTATTAAGAAAAGAAAAATGCTGAATGAGgtaagtact
      |5161      |5171      |5181      |5191      .
      V T Q S I K E R K M L N E
      |1721                        |1731
. . . . .
tgatgttacaaactaaccagagatattcattcagtcatatagttaaaaatgtatttgctt
. . . . .
ccttccatcaatgcaccactttccttaacaatgcacaaattttccatgataatgaggatc
. . . . .
atcaagaattatgcaggcctgcactgtggctcatacctataatcccagcgctttgggagg
. . . . .
ctgaggcgcttggtacacctgatgtcgggagttcaagaccagcctgaccaacatggagaa
. . . . .
accccgtttctactaaaaatacaaaattagccgggcttggtggcacttgcc

```

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

```
. . . . .
gcattcaaaagattctcctgcctcagcctcccaagtagctgggattacaggtgcctgcc
. . . . .
ccacgcccaactaatttttgtatttttagtagagatgaggtttcaccatgttggtcaga
. . . . .
ctggtgtcgaactcctgacctcaagtgatctgcctgcctcagtctcccaaagtgctagga
. . . . .
ttacaggggtgagccactgcgcctggcctgaatgccttaaatatgacgtgtctgctccac
. . . . .
ttccattgaaggaagcttctctttcttcttatcctgatgggttggttggtttctttcag
      |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

. . . . .
cccaccactctgtattccactcccctttgcagagatgggccgcttcattttgtaagactt
. . . . .
attacatacatcacagtgctagatactttcacacaggttcttttttctactcttccatcc
. . . . .
caaccacataaataagtattgtctctactttatgaatgataaaactaagagatttagaga
. . . . .
ggctgtgtaatttggattcccgctctcgggttcagatcttagctgataagtggaagagctg
. . . . .
ggactttaagcagatgagaatcta
```

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

```
. . . . .
cttggcctgattggtgacaaaagtgagatgctcagtccttgaatgacaaagaatgcctgt

. . . . .
agagtgcagggtcaactacatatgcacttcaagaagatcttctgaaatccagtagtggtct

. . . . .
ggacattggactgcttgctccctgggaagtagcagcagaaatcatcaggtggtgaacagaa

. . . . .
gaaaaagaaaagctcttcctttttgaaagtctgttttttgaataaaagccaatattcttt

. . . . .
tataactagattttccttctctccattcccctgtccctctctcttcctctcttctccag

    |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

. . . . .
agcaagatcccacgatgggggttcctcagattgctgaaatggttagaggctattctatt

. . . . .
tctctaccactctccaaacaaaacagcacctaaatgttatcctatggcaaaaaaaaacta

. . . . .
taccttgcccccttctcaagagcatgaagggtggttaatagttaggattcagtatgttat

. . . . .
gtgttcagatggcggttgagctgctgtagtgccaacatgttagtgagaaaaatc
```

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

.
attaatggaaattagatctttgattttttttctttcaagcattttatttgagagactat

.
caaaccttataccaagtggccttatggagactgataaccagagtacatggcatatcagtg

.
gcaaattgacttaaaatccatacccctactattttaagaccattgtcctttggagcagag

.
agacagactctccattgagaggtcttgctataagccttcacccggagagtgtagggtag

.
agggcctgggttaagtatgcagattactgcagtgattttacatctaaatgtccattttag

 |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
TCACCCTTGGCACAgtaagtattgggtgccctgtcagagaggaggacacaatattctct
 T L G T
 |1801

.
cctgtgagcaagactggcacctgtcagtccttatggatgccctactgtagcctcagaag

.
tcttctctgcccacatacctgtgccaaaagactccatctgtaagggatgggtaaggattt

.
gagaactgcacatattaaatatactgaggggaagactttttccctctaactctttttcca

.
tatgtccctccccctcctctctgtgactgccccagcatactgtgtttcaacaaatcatca

. . . .
agaaatgatgggct

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

.
ccaggagtttgagaccagcctgggcaacatggcaaaaccctgtctctacaaaaatacaa

.
aaaaattagccagggtggtgtgtacgtgtctgttagttccagctacttaggaggctgagat

.
ggaaggattgcttgagcccaggaggcagaggtggcagtgagctgagatcacaccactgca

.
ctccagcctgggtgacagagcaagaccctgtctcaaaaacaaacaaaaaaatgatgaag

.
tgacagttccagtagtcctactttgacactttgaatgctctttccttccctggggatccag

 |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

.
actcattacctggtgcttgagtagcacagtTccttggcacattttaaatatttgTtgaatg

.
aatggctaaaatgTctttttgatgtttttattgttatttgTtttatattgtaaaagtaat

.
acatgaactgtttccatggggTgggagtaagatatgaatgttcatcacaaaaacataaat

.
caaggccgggcatggtggctcatgcctataattccagcactttgggaggtcaagatggag

.
g

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

```
. . . . .
taaaaatacaaaaattagctgggtgtgatggcatgtgcctgtaattccagctactcagga
. . . . .
ggcagagacaggagaattgcttgaaccaggaggcggagggttgatgagccgagattgcg
. . . . .
ccatcacactctagcctcggcgacagagcaagactccgtctcaaaaaaaaaaaaaaaaa
. . . . .
ttagcttctacctcattaatcctaagaactcatacaaccaggaccctggagtcgattgat
. . . . .
tagagcctagtccaggagaatgaattgacactaatctctgcttggttctctgtctccag

|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
CACTCTACCAGTGCCAGGAGCTGGACACCTACCTGATACCCAGATCCCCACAGCCACT
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
TTTTCTGCTTGAAGTCTCCCTTGAAATCTGCCATGAGCACAAAATTATGGTAATTTTC

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

| | | | | | |
|---|-------|-------|-------|-------|-------|
| *301 | *311 | *321 | *331 | *341 | *351 |
| TTTATCAGCCCTATTCTTTCTATTTCAGGCTGTTGTTGGCTTAGGGCTGGAAGCACAGAGT | | | | | |
| *361 | *371 | *381 | *391 | *401 | *411 |
| GGCTTGGCCTCAAGAGAATAGCTGGTTTCCCTAAGTTTACTTCTCTAAAACCTGTGTTC | | | | | |
| *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 |
| CCTGTAATCCCAGCACTTTGGGAGGCCAAGGTGGGCAGATCACTGGAGGTCAGGAGTTTCG | | | | | |
| *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 |
| GACAGTGAGACTGTGGCTCAAAAAAAAAAAAAAAAAAGGAAAATGAAACTAGAAGAGAT | | | | | |
| *901 | *911 | *921 | *931 | *941 | *951 |
| TTCTAAAAGTCTGAGATATATTGCTAGATTTCTAAAGAATGTGTTCTAAACAGCAGAA | | | | | |
| *961 | *971 | *981 | *991 | *1001 | *1011 |
| GATTTTCAAGAACCGGTTTCCAAAGACAGTCTTCTAATTCCTCATTAGTAATAAGTAAAA | | | | | |
| *1021 | *1031 | *1041 | *1051 | *1061 | *1071 |
| TGTTTATTGTTGTAGCTCTGGTATATAATCCATTCCTCTTAAAAATATAAGACCTCTGGCA | | | | | |
| *1081 | *1091 | *1101 | *1111 | *1121 | *1131 |
| TGAATATTTTCATATCTATAAAATGACAGATCCCACCAGGAAGGAAGCTGTTGCTTTCTTT | | | | | |
| *1141 | *1151 | *1161 | *1171 | *1181 | *1191 |
| GAGGTGATTTTTTCTTTGCTCCCTGTTGCTGAAACCATAACAGCTTCATAAATAATTTT | | | | | |

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

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

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

|*1381
 CACTTCCAccatgaatgactgttcttgagacttaggccagccgactttctcagagccttt

.
 tcactgtgcttcagtctcccactctgtaaaatgggggtaatgatagtatctacctcctag

.
 gatttattgaggcagcttaaataccttttgatcttctgttgctgcaaaacaaattgtt

.
 gcaaggtcagaagtctgaggtggctcaactgtttctttgtttcaggtttcatgaggccaa

.
 aataaaggtgttcgcagggcggttcccttctagaggctctgggtccttgagttctagg

. .
 actaagat

LRG Parser: Version: 1.3, Version Date: 11/02/2015
Reader: Version: 1.3, Version Date: 11/02/2015
Writer: Version: 1.3, Version Date: 11/02/2015
Control: Version: 1.3, Version Date: 11/02/2015