Gene: APC - Sequence: NG_008481.4
Transcript: NM_001127511.1 - Protein: NP_001120983.1
Date : March 2, 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: 20001 | End: 20362 | Length: 361

```
.    .    .    .    .    .    .    .    .    .    .    .
gcgtctagtacggggagtagcaaatagtgagcactcgatagatgtttgcggaataatgga

.    .    .    .    .    .    .    .    .    .    .    .
ctagtgtgtgcagaaggatctattaactgggctgcagcacaattcagagaaggccagtaa

.    .    .    .    .    .    .    .    .    .    .    .
gtgctgcaactgagactcggctgcctaggcagcaatggctcacgggacagaacagcgaag

.    .    .    .    .    .    .    .    .    .    .    .
cagtgcccggcaagcggagcgcagcacccattgcgcctgcgcataacaggctctagtctc

.    .    .    .    .    .    .    .    .    .    .    .
cgggctgtgggaagccagcaacacctctcacgcatgcgcattgtagtcttcccacctccc

 |-379     |-369     |-359     |-349     |-339     |-329
ACAAGATGGCGGAGGGCAAGTAGCAAGGGGGCGGGGTGTGGCCGCCGGAAGCCTAGCCGC

 |-319     |-309     |-299     |-289     |-279     |-269
TGCTCGGGGGGGACCTGCGGGCTCAGGCCCGGGAGCTGCGGACCGAGGTTGGCTCGATGC

 |-259     |-249     |-239     |-229     |-219     |-209
TGTTCCCAGGTACTGTTGTTGGCTGTTGGTGAGGAAGGTGAAGCACTCAGTTGCCTTCTC

 |-199     |-189     |-179     |-169     |-159     |-149
GGGCCTCGGCGCCCCCTATGTACGCCTCCCTGGGCTCGGGTCCGGTCGCCCCTTTGCCCG

 |-139     |-129     |-119     |-109     |-99      |-89
CTTCTGTACCACCCTCAGTTCTCGGGTCCTGGAGCACCGGCGGCAGCAGGAGCTGCGTCC

 |-79      |-69      |-59      |-49      |-39      |-29
GGCAGGAGACGAAGAGCCCGGGCGGCGCTCGTACTTCTGGCCACTGGGCGAGCGTCTGGC
```

```
 |-19 .    .    .    .    .    .    .    .    .    .    .
AGgtgagtgaggctgcaggcattgacgtctcctcccggcaaagcttcctcggctttgccc

 .    .    .    .    .    .    .    .    .    .    .    .
cgccgctgctcgggaccctacggtgctcggcccgactctgtggctctcttctctccatgt

 .    .    .    .    .    .    .    .    .    .    .    .
ctcaccctctcccctccccgcactccccattcaggcctccagttggcccctggctttgca

 .    .    .    .    .    .    .    .    .    .    .    .
ggtcctccattctcacgcagtggatgggggtcgcgacgcccgccgtcctccacctttcct

 .    .    .    .    .    .    .    .    .    .    .    .
ggctgctgctggagcttcgcccctgcaagtggtgccccattcgcgttaggtgggtgggtc

 .
gt
```

Exon 4 | Start: 67353 | End: 67505 | Length: 152

```
.    .    .    .    .    .    .    .    .    .    .    .
ccttgaagaaattattacttgatagaaagtttaatccatctgtgagaaggcaaatgtatt

.    .    .    .    .    .    .    .    .    .    .    .
cagacacaactaaagttctctcttctattttaatttcatttatcttgaactaagactcca

.    .    .    .    .    .    .    .    .    .    .    .
ctgtttcatcctcttagatgctgctacttgaacaatattgttttgagaccaaaaactagc

.    .    .    .    .    .    .    .    .    .    .    .
atattaacacaattcttcttaaacgtcttaagagttttgtttccttttacccctttcttta

.    .    .    .    .    .    .    .    .    .    .    .
aaaacaagcagccactaaatttttttagtagtgaatttcaaaatccttttttaaccttatag

         |-9      |1        |11       |21       |31       |41
GTCCAAGGGTAGCCAAGGATGGCTGCAGCTTCATATGATCAGTTGTTAAAGCAAGTTGAG
                 M  A  A  A  S  Y  D  Q  L  L  K  Q  V  E
                 |1                          |11

        |51       |61       |71       |81       |91       |101
GCACTGAAGATGGAGAACTCAAATCTTCGACAAGAGCTAGAAGATAATTCCAATCATCTT
A  L  K  M  E  N  S  N  L  R  Q  E  L  E  D  N  S  N  H  L
                 |21                         |31

        |111      |121      |131    .    .    .    .    .
ACAAAACTGGAAACTGAGGCATCTAATATGAAGgtatcaagactgtgacttttaattgta
T  K  L  E  T  E  A  S  N  M  K
                 |41

  .    .    .    .    .    .    .    .    .    .    .    .
gtttatccatttttattcagtattccctcttgtaaacttgaggtaagacactttacttaa

  .    .    .    .    .    .    .    .    .    .    .    .
aagtgtattttaaattaagcaataatatgtaaactctttcttgcaaaagttagcatttat

  .    .    .    .    .    .    .    .    .    .    .    .
atttttaaataagatatattgaattcattcagtgaatcatataaagaaaataagtgtaaa

  .    .    .    .    .    .    .    .    .    .    .    .
actccaatggctagttagttcttagttctttttaagattaaagagaagagaccaaatata

  .    .    .    .    .    .    .
gcatcactgtactgaggcaaggttttctgtgta
```

Exon 5 | Start: 78806 | End: 78890 | Length: 84

```
.   .   .   .   .   .   .   .   .   .   .   .
ctgaaaaatgagaataatttgcattgttggtttttaggtttgaaataatgaatgtatctt

.   .   .   .   .   .   .   .   .   .   .   .
aaatgtgtttctaataccttgcacagagactccccataatcaccattatctcaaaatatc

.   .   .   .   .   .   .   .   .   .   .   .
actattattatttggccatgatttatttattaataatgaataataggtaatatatataag

.   .   .   .   .   .   .   .   .   .   .   .
gtgcgtgctttgagagtgatctgaatttttttctcagcatacttaaatgtcaagaaatac

.   .   .   .   .   .   .   .   .   .   .   .
agaatcatgtcttgaagttatttagaatttcatgttaatatattgtgttctttttaacag

     |141      |151      |161      |171      |181      |191
GAAGTACTTAAACAACTACAAGGAAGTATTGAAGATGAAGCTATGGCTTCTTCTGGACAG
E  V  L  K  Q  L  Q  G  S  I  E  D  E  A  M  A  S  S  G  Q
               |51                          |61

     |201      |211          .   .   .   .   .   .   .
ATTGATTTATTAGAGCGTCTTAAAGgtagattttaaaaaggtgttttaaaataatttttt
I  D  L  L  E  R  L  K  E
               |71

    .   .   .   .   .   .   .   .   .   .   .   .
aagctcaaattgtcatctttaggtgtgtagatccaagtacagcttctctcgatttgggtg

    .   .   .   .   .   .   .   .   .   .   .   .
ttggtatcagttttcttggtatgttagccttaccctcaggatgtaattgttaaagtacaa

    .   .   .   .   .   .   .   .   .   .   .   .
ataaataaaaaatgtatttgtgtgtcatttcttcagttaaacatttaactggctttgaat

    .   .   .   .   .   .   .   .   .   .   .   .
gaactattttaaatccctcccttaaataattttcggctctttgtaaagcttgttgctatt

    .   .   .   .   .
ctgccagtcactaaatagggcttta
```

```
Exon 6 | Start: 79669 | End: 79870 | Length: 201

.   .   .   .   .   .   .   .   .   .   .   .
gagaaagtgcttgataataattgaagccagacagagaaattacttttggattctaaaata

.   .   .   .   .   .   .   .   .   .   .   .
ttatttagaggaagtctaaggaagtacattttatctaattttcctttaacacactcctta

.   .   .   .   .   .   .   .   .   .   .   .
tttttaccctgacccaagtggacttttcagggaaagtcctaaataatttttgttttcagt

.   .   .   .   .   .   .   .   .   .   .   .
catgtatatttgtggttaaaatgtaaacctaatatttcactttaaaataatatataacatta

.   .   .   .   .   .   .   .   .   .   .   .
agaatattttagactgcttaaagcaattgttgtataaaaacttgtttctattttatttag

|221      |231      |241      |251      |261      |271
AGCTTAACTTAGATAGCAGTAATTTCCCTGGAGTAAAACTGCGGTCAAAAATGTCCCTCC
  L   N   L   D   S   S   N   F   P   G   V   K   L   R   S   K   M   S   L   R
                  |81                                 |91

|281      |291      |301      |311      |321      |331
GTTCTTATGGAAGCCGGGAAGGATCTGTATCAAGCCGTTCTGGAGAGTGCAGTCCTGTTC
  S   Y   G   S   R   E   G   S   V   S   S   R   S   G   E   C   S   P   V   P
                  |101                                |111

|341      |351      |361      |371      |381      |391
CTATGGGTTCATTTCCAAGAAGAGGGTTTGTAAATGGAAGCAGAGAAAGTACTGGATATT
  M   G   S   F   P   R   R   G   F   V   N   G   S   R   E   S   T   G   Y   L
                  |121                                |131

|401      |411      |421  .   .   .   .   .   .   .
TAGAAGAACTTGAGAAAGAGAGgtaacttttcttcatatagtaaacattgccttgtgtac
  E   E   L   E   K   E   R
                  |141

 .   .   .   .   .   .   .   .   .   .   .   .
tccagtttattgttattttgtaatataatatttaaattgtgaatttatagtaggtgatag

 .   .   .   .   .   .   .   .   .   .   .   .
ctaacacttagagcattttgcatttttaaactcaaagatagcatgttattgattgcactt
```

```
 .    .    .    .    .    .    .    .    .    .    .    .
acattaaatctaaaaatataaacaaggccgtttcctgggattctgaagacctattttgtc

 .    .    .    .    .    .    .    .    .    .    .    .
acttattttgtttttttgtttgtttttttggggtttattttgagacagggtgtcactgtgt

 .    .    .    .    .
ctcccaggctggagtgtagtgg
```

Exon 7 | Start: 88109 | End: 88217 | Length: 108

```
.   .   .   .   .   .   .   .   .   .   .   .
acctatcattatattcttagactataaatatgaagaaagcctttggtgaagtgtaagtat

.   .   .   .   .   .   .   .   .   .   .   .
tcttttaaggatgattaccagtttatttagaaaaaaagttctttttaatactctaatttt

.   .   .   .   .   .   .   .   .   .   .   .
aatgactgtaatattctaagtcctacctttaaaaattgaaatcaatgtaaatttttgag

.   .   .   .   .   .   .   .   .   .   .   .
taattcattattagcactttaggtagagaagtttgcaataacaactgatgtaagtattgc

.   .   .   .   .   .   .   .   .   .   .   .
tcttctgcagtctttattagcattgtttaaacgtacctttttttaaaaaaaaaaaaatag

        |431      |441      |451      |461      |471      |481
GTCATTGCTTCTTGCTGATCTTGACAAAGAAGAAAAGGAAAAAGACTGGTATTACGCTCA
 S   L   L   L   A   D   L   D   K   E   E   K   E   K   D   W   Y   Y   A   Q
                             |151                          |161

        |491      |501      |511      |521      |531 .    .
ACTTCAGAATCTCACTAAAAGAATAGATAGTCTTCCTTTAACTGAAAATgtaagtaactt
 L   Q   N   L   T   K   R   I   D   S   L   P   L   T   E   N
                             |171

   .   .   .   .   .   .   .   .   .   .   .   .
ggcagtacaacttatttgaaactttaataacttgatattttaaagtacctaggtaatcca

   .   .   .   .   .   .   .   .   .   .   .   .
ttaaaattcaggataactgaatttatagttatttgtaaattgcaatatgttttacccaac

   .   .   .   .   .   .   .   .   .   .   .   .
tttaggcctgaatatataatagttaatgaatttttgttggtaaagatgataaaactttat

   .   .   .   .   .   .   .   .   .   .   .   .
tgtgctcaaatgtttttatttaaagctcttatttagaaaatctataaagtttgaattctag

   .   .   .   .   .   .   .   .   .   .
aggacctcagggttcaactaggcaactagtttttttaactccgtgtattg
```

```
Exon 8 | Start: 93270 | End: 93383 | Length: 113

.    .    .    .    .    .    .    .    .    .    .    .
tttaacctcactctaactggaccaattatatattttaagtgaaataggccaatctaatta

.    .    .    .    .    .    .    .    .    .    .    .
aagccacttgtgactttggcaaataagtgtttgaattccacgtcacatcagggatccaga

.    .    .    .    .    .    .    .    .    .    .    .
ttgagtctgacacctataatcaaatttaaacactccttggagtaaaaaataattttctca

.    .    .    .    .    .    .    .    .    .    .    .
tgcaccatgactgacgtatttgcttattcattttctttattggttcttatatgctttttt

.    .    .    .    .    .    .    .    .    .    .    .
gcttttactgattaacgtaaatacaagatattgatacttttttattatttgtggttttag

         |541      |551      |561      |571      |581      |591
TTTTCCTTACAAACAGATATGACCAGAAGGCAATTGGAATATGAAGCAAGGCAAATCAGA
F   S   L   Q   T   D   M   T   R   R   Q   L   E   Y   E   A   R   Q   I   R
         |181                          |191

         |601      |611      |621      |631      |641      .
GTTGCGATGGAAGAACAACTAGGTACCTGCCAGGATATGGAAAAACGAGCACAGgtaagt
V   A   M   E   E   Q   L   G   T   C   Q   D   M   E   K   R   A   Q
         |201                          |211

   .    .    .    .    .    .    .    .    .    .    .    .
tacttgtttctaagtgataaaacagcgaagagctattaggaataaaatgaattacagctc

   .    .    .    .    .    .    .    .    .    .    .    .
tgttaatattgattaaatttattaaagacataaggctgtgtttattttggctctatttc

   .    .    .    .    .    .    .    .    .    .    .    .
aaaataagatttatcatggctgctgagcaacataatcaatattcacatagttgtgtcttt

   .    .    .    .    .    .    .    .    .    .    .    .
accatattcatttcccctggtactgttctgttctgccttggaattataagggagagacag

   .    .    .    .    .    .    .    .    .    .    .
agttagatggtggtcttccggtagctaatgactagcttcagttctcctttgaaa
```

```
Exon 9 | Start: 104926 | End: 105009 | Length: 83

.    .    .    .    .    .    .    .    .    .    .    .
tgaggcaaaagaatcacttgaacccggaaggcggaggttgcggtgagctgagattatgcc

.    .    .    .    .    .    .    .    .    .    .    .
actgcactccagccagggcaacagagcgagactctgtctcgaaaaaaaaagaaaaaaaga

.    .    .    .    .    .    .    .    .    .    .    .
aaagaaaaattgaactgaccccaatttgttattaaagggtgaatatatttatatgtctag

.    .    .    .    .    .    .    .    .    .    .    .
ctttttaaatgagaatgatttgacataaccctgagcttttaagtggtagccatagtatga

.    .    .    .    .    .    .    .    .    .    .    .
ttatttctattaatattattaataaaaacataactaattaggtttcttgttttatttag

     |651      |661      |671      |681      |691      |701
CGAAGAATAGCCAGAATTCAGCAAATCGAAAAGGACATACTTCGTATACGACAGCTTTTA
R  R  I  A  R  I  Q  Q  I  E  K  D  I  L  R  I  R  Q  L  L
              |221                          |231

     |711      |721         .    .    .    .    .    .    .
CAGTCCCAAGCAACAGAAGCAGAGgttagtaaattgcctttcttgtttgtgggtataaaa
Q  S  Q  A  T  E  A  E
              |241

   .    .    .    .    .    .    .    .    .    .    .    .
ataggtagttattctgagaaaagaaaacatgtataatttaatgtgacaccattgaaatat

   .    .    .    .    .    .    .    .    .    .    .    .
agatgttctttcagagaatttaaataccgtaatttttttcgtgaaattaaattatcaaag

   .    .    .    .    .    .    .    .    .    .    .    .
atttggactattttgattttatctaacttttaggcagttaaaatttataaaactgtaaat

   .    .    .    .    .    .    .    .    .    .    .    .
atagataccttactttagctgtcagtttacatataatcaaatagttaacttaatttggct

   .    .    .    .    .
actatccagtaagtaaacttttttt
```

```
Exon 10 | Start: 113759 | End: 113863 | Length: 104

.    .    .    .    .    .    .    .    .    .    .    .
ggttatgttcctgatagtaatgtgagcgcagctggtagaggatggcattcctgtgagtct

.    .    .    .    .    .    .    .    .    .    .    .
cagaaaatcctttgtctcgtgcagctctaatgctcaagggacacacttcactttcccctt

.    .    .    .    .    .    .    .    .    .    .    .
accgagatagtcgaccgccaatcgtactggaggttatgaagtgtaatacacagttccatg

.    .    .    .    .    .    .    .    .    .    .    .
cctttatcagtctgtataattgatgcattcagagctttaaagcaaaaaaagaaaaaaagc

.    .    .    .    .    .    .    .    .    .    .    .
cttgggctaagaaagcctacaccatttttgcatgtactgatgttaactccatcttaacag

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

 |791      |801      |811      |821      |831    .    .    .
CAAGGAGTGGGAGAAATCAACATGGCAACTTCTGGTAATGGTCAGgtaaataaattattt
Q  G  V  G  E  I  N  M  A  T  S  G  N  G  Q
                    |271

    .    .    .    .    .    .    .    .    .    .    .    .
tatcatatttttaaaattatttaaatatcagaaaagtatgaagcaagatggttctaaga

    .    .    .    .    .    .    .    .    .    .    .    .
atgatctataaatcttacctattttcttagtcctgaatgcatatttccagaagcattcag

    .    .    .    .    .    .    .    .    .    .    .    .
taccaatgtgctgtcatttctctttattatatcagcaataatgctgtaaggattttctag

    .    .    .    .    .    .    .    .    .    .    .    .
atctatttctatagctatagattgtgtgtttatgttttagtctaaaatgattgtgagtag

    .    .    .    .    .    .    .    .    .
ttttttttaataactctaagctgcattttgattatgtatatgatt
```

Exon 11 | Start: 127975 | End: 128073 | Length: 98

```
.    .    .    .    .    .    .    .    .    .    .    .
tggttttatttatttagatctatgaaaaattactaccctagaatttcttcagtctttggt

.    .    .    .    .    .    .    .    .    .    .    .
taagtccattctgcagtttaatgctcatatgcaagaaactctcttttctttagtttttct

.    .    .    .    .    .    .    .    .    .    .    .
ctaaaacatacttagtaagcgtataggtaaaaaatattttgaacagttataatggtcata

.    .    .    .    .    .    .    .    .    .    .    .
cttttatgatgtatttaattgtttatcatacagacacttcatttggagtaccttaacatg

.    .    .    .    .    .    .    .    .    .    .    .
atgttatctgtatttacctatagtctaaattataccatctataatgtgcttaatttttag

      |841      |851      |861      |871      |881      |891
GGTTCAACTACACGAATGGACCATGAAACAGCCAGTGTTTTGAGTTCTAGTAGCACACAC
G  S  T  T  R  M  D  H  E  T  A  S  V  L  S  S  S  S  T  H
      |281                         |291

      |901      |911      |921      |931   .    .    .    .
TCTGCACCTCGAAGGCTGACAAGTCATCTGGGAACCAAGgtaacagaagattacaaaccc
S  A  P  R  R  L  T  S  H  L  G  T  K
      |301                         |311

   .    .    .    .    .    .    .    .    .    .    .    .
tggtcactaatgccatgactactttgctaagacattcttggccaggtgcagtggctcaca

   .    .    .    .    .    .    .    .    .    .    .    .
cctgtaatcccagcattttgggaggccaaggcaggtggatcacttgaggccaggagttca

   .    .    .    .    .    .    .    .    .    .    .    .
agaccagcctgggcaacgtggcaaaaccccatctctactaaaaatacaaaaatttagcca

   .    .    .    .    .    .    .    .    .    .    .    .
gtgtggtggcacacacctgtggtcccagctactcaggaggctgaggcatgagaatagttg

   .    .    .    .    .    .    .    .
gaacccaggaggcagaggttgcagtgagctgagattaca
```

```
Exon 12 | Start: 131446 | End: 131824 | Length: 378

.    .    .    .    .    .    .    .    .    .    .    .
aggcaaacagcactaacagtttgttagtgagtatgcaaaaacctacttttgcttttaata

.    .    .    .    .    .    .    .    .    .    .    .
ctgtatattaccactcatactatttactcacataaacaaattggtgatgatacatagatt

.    .    .    .    .    .    .    .    .    .    .    .
ttgaaataacactgattacttcatcctggaaaggtttccggtttttgtttttttttg

.    .    .    .    .    .    .    .    .    .    .    .
gcgggggggttgttttgtttttttagagttatagtaaatatcccattcatcacttaatt

.    .    .    .    .    .    .    .    .    .    .    .
ggtttttggcttttggatattaaagtcgtaattttgtttctaaactcatttggcccacag

       |941      |951      |961      |971      |981      |991
GTGGAAATGGTGTATTCATTGTTGTCAATGCTTGGTACTCATGATAAGGATGATATGTCG
V  E  M  V  Y  S  L  L  S  M  L  G  T  H  D  K  D  D  M  S
                          |321                          |331

       |1001     |1011     |1021     |1031     |1041     |1051
CGAACTTTGCTAGCTATGTCTAGCTCCCAAGACAGCTGTATATCCATGCGACAGTCTGGA
R  T  L  L  A  M  S  S  S  Q  D  S  C  I  S  M  R  Q  S  G
                          |341                          |351

       |1061     |1071     |1081     |1091     |1101     |1111
TGTCTTCCTCTCCTCATCCAGCTTTTACATGGCAATGACAAAGACTCTGTATTGTTGGGA
C  L  P  L  L  I  Q  L  L  H  G  N  D  K  D  S  V  L  L  G
                          |361                          |371

       |1121     |1131     |1141     |1151     |1161     |1171
AATTCCCGGGGCAGTAAAGAGGCTCGGGCCAGGGCCAGTGCAGCACTCCACAACATCATT
N  S  R  G  S  K  E  A  R  A  R  A  S  A  A  L  H  N  I  I
                          |381                          |391

       |1181     |1191     |1201     |1211     |1221     |1231
CACTCACAGCCTGATGACAAGAGAGGCAGGCGTGAAATCCGAGTCCTTCATCTTTTGGAA
H  S  Q  P  D  D  K  R  G  R  R  E  I  R  V  L  H  L  L  E
                          |401                          |411
```

```
       |1241     |1251     |1261     |1271     |1281     |1291
CAGATACGCGCTTACTGTGAAACCTGTTGGGAGTGGCAGGAAGCTCATGAACCAGGCATG
Q  I  R  A  Y  C  E  T  C  W  E  W  Q  E  A  H  E  P  G  M
                         |421                          |431

       |1301     |1311 .    .    .    .    .    .    .    .
GACCAGGACAAAAATCCAAgtatgttctctatagtgtacatcgtagtgcatgtttcaaag
D  Q  D  K  N  P  M

   .    .    .    .    .    .    .    .    .    .    .    .
caaatgtgaaatttttaaacagaaaacatgtttagttaatatgctgtctttatgactaag

   .    .    .    .    .    .    .    .    .    .    .    .
aggagaaaattcatatcagccatttgtgctactcatatttaaaagattaagtctgtattt

   .    .    .    .    .    .    .    .    .    .    .    .
ccctagaaaaatttagcaaaggaaaatgttatgtgcactactataagaacagtaagtcaa

   .    .    .    .    .    .    .    .    .    .    .    .
gagaaatttatacaatcatagcatagtagggccttagtagagctagaaagaacttgagca

   .    .    .    .
attatgttgcccatctttc
```

```
Exon 13 | Start: 134376 | End: 134471 | Length: 95

.    .    .    .    .    .    .    .    .    .    .    .
caacataattttaagttattagctatatgagtaatagcataaacctcctagacttattct

.    .    .    .    .    .    .    .    .    .    .    .
aagagacttagtcaagggcagatgagtggtaaacatttttatggaaacaaatccctttat

.    .    .    .    .    .    .    .    .    .    .    .
tcctatttttgttccacatttgtagtatttattcatcctttcagcaaatatttgttgat

.    .    .    .    .    .    .    .    .    .    .    .
ccactaaaattccgtgaattagggttatattagtgatccctgcatatttttaaagtacaa

.    .    .    .    .    .    .    .    .    .    .    .
taaacatcattgctcttcaaataacaaagcattatggtttatgttgattttatttttcag

        |1321     |1331     |1341     |1351     |1361     |1371
TGCCAGCTCCTGTTGAACATCAGATCTGTCCTGCTGTGTGTGTTCTAATGAAACTTTCAT
  P   A   P   V   E   H   Q   I   C   P   A   V   C   V   L   M   K   L   S   F
        |441                          |451

        |1381     |1391     |1401       .    .    .    .
TTGATGAAGAGCATAGACATGCAATGAATGAACTAGgtaagacaaaaatgtttttaatg
  D   E   E   H   R   H   A   M   N   E   L   G
        |461

.    .    .    .    .    .    .    .    .    .    .    .
acatagacaattactggtggatttttaaatcatggtagaaattcagtatagtaaataaag

.    .    .    .    .    .    .    .    .    .    .    .
atttttaatcattgatgaattaggatataaggccaccaacttctgttatcagctgcttcc

.    .    .    .    .    .    .    .    .    .    .    .
tctgtgtagcaaaaaattgtaccctggtttccagcatagaaaggatcctgaatcacagaa

.    .    .    .    .    .    .    .    .    .    .    .
actgctaccctgtcataagctaacttttcaaaatcgaagccggagattgaaaaaaaatg

.    .    .    .    .    .    .    .
acaaaatgggtcactctttgtccctttgccaaagt
```

```
Exon 14 | Start: 139588 | End: 139727 | Length: 139

.   .   .   .   .   .   .   .   .   .   .   .
cactgttggcaaggtgcagtgtatatgcagtaaatagaaaataattatttcgctcagcaa

.   .   .   .   .   .   .   .   .   .   .   .
gataaggggctgggggtggagaaactggcataaaatggaataattgtcagttgtacttta

.   .   .   .   .   .   .   .   .   .   .   .
taaatatattatacagaagttctttataacagttttgtagcttataattctaaaggcaa

.   .   .   .   .   .   .   .   .   .   .   .
atttaaaccatatattctcattgattgagtttttttttcctagtatttaagttaccaact

.   .   .   .   .   .   .   .   .   .   .   .
tggtaccagtttgttttatttagatgattgtctttttcctcttgccctttttaaattag

  |1411     |1421     |1431     |1441     |1451     |1461
GGGGACTACAGGCCATTGCAGAATTATTGCAAGTGGACTGTGAAATGTATGGGCTTACTA
  G   L   Q   A   I   A   E   L   L   Q   V   D   C   E   M   Y   G   L   T   N
  |471                          |481

  |1471     |1481     |1491     |1501     |1511     |1521
ATGACCACTACAGTATTACACTAAGACGATATGCTGGAATGGCTTTGACAAACTTGACTT
  D   H   Y   S   I   T   L   R   R   Y   A   G   M   A   L   T   N   L   T   F
  |491                          |501

  |1531     |1541       .   .   .   .   .   .   .   .
TTGGAGATGTAGCCAACAAGgtatgtttttataacatgtatttcttaagatagctcaggt
  G   D   V   A   N   K
  |511

    .   .   .   .   .   .   .   .   .   .   .   .
atgagttaatttactttcatacaaatacattttactgattttctttttttttcactctcct

    .   .   .   .   .   .   .   .   .   .   .   .
cattaaacaatgactgataaaaacctgtgcttcacattcgcttatctttactcatttgtt

    .   .   .   .   .   .   .   .   .   .   .   .
tgtcttatgcctaaacaaaggcaaaggtacatctacagatggaacacagtagtgaattta

    .   .   .   .   .   .   .   .   .   .   .   .
tgtaattgcattaaaaacaccattcataagaatatacttgtagggatcatttctgtgatc

    .   .   .   .
cattactagagaagtttaac
```

```
Exon 15 | Start: 140409 | End: 140486 | Length: 77

.    .    .    .    .    .    .    .    .    .    .    .
tgttacacacacattgattccatccaaataagaggctttactctaaaacctgttgcttat

.    .    .    .    .    .    .    .    .    .    .    .
catttctcaccacttattcactttatttctctagtttgacaaaggaagaacagatagcaa

.    .    .    .    .    .    .    .    .    .    .    .
agaattaggagaatatttgtcttttatttaggtaatcttattctagatttttatgagtg

.    .    .    .    .    .    .    .    .    .    .    .
aagtatcagttatgattaaaacaaaataatgaaaactgaattagacatttagtagccaaa

.    .    .    .    .    .    .    .    .    .    .    .
aataaagcttggcttcaagttgtctttttaatgatcctctattctgtatttaatttacag

  |1551     |1561     |1571     |1581     |1591     |1601
GCTACGCTATGCTCTATGAAAGGCTGCATGAGAGCACTTGTGGCCCAACTAAAATCTGAA
A  T  L  C  S  M  K  G  C  M  R  A  L  V  A  Q  L  K  S  E
           |521                          |531

  |1611     |1621     .    .    .    .    .    .    .    .
AGTGAAGACTTACAGCAGgtactatttagaatttcacctgtttttctttttctctttttt
S  E  D  L  Q  Q
           |541

  .    .    .    .    .    .    .    .    .    .    .    .
ctttgaggcagggtctcactctgtcacccaggcttagagggcagttgtgcaatctcagct

  .    .    .    .    .    .    .    .    .    .    .    .
cactgcaacctctgcctccagggttcaagcaatcctcccacttcagcctctcgaggctgg

  .    .    .    .    .    .    .    .    .    .    .    .
gcctacaggtgcacaccaccatgccaaacgaatttttgtatttttttatagagacggggtt

  .    .    .    .    .    .    .    .    .    .    .    .
tcaccacacctgggctcaagcaatctgcccacctcagcatctcaaaatgctgggattaca

  .    .    .    .
ggcgtgtgccaccacacc
```

```
Exon 16 | Start: 141336 | End: 141452 | Length: 116

.   .   .   .   .   .   .   .   .   .   .   .
tgcttcagcctcccaagtagctagaactactgcaggcgcatgccaccatgcccagctaat

.   .   .   .   .   .   .   .   .   .   .   .
ttttaaaaagttttcatagagacagggtctcactgtgttacccagaaggtcttgaactcc

.   .   .   .   .   .   .   .   .   .   .   .
tggtctcaggagatcctcctgcctcagcctcccaaagtgataggattacaggcgtgagtc

.   .   .   .   .   .   .   .   .   .   .   .
accacggctagccagaatttctttcttaatagatttctattcttactgctagcattaaaa

.   .   .   .   .   .   .   .   .   .   .   .
acaaaaaagcaactagtatgattttatgtataaattaatctaaaattgattaatttgcag

    |1631     |1641     |1651     |1661     |1671     |1681
GTTATTGCGAGTGTTTTGAGGAATTTGTCTTGGCGAGCAGATGTAAATAGTAAAAAGACG
V  I  A  S  V  L  R  N  L  S  W  R  A  D  V  N  S  K  K  T
                      |551                          |561

    |1691     |1701     |1711     |1721     |1731     |1741
TTGCGAGAAGTTGGAAGTGTGAAAGCATTGATGGAATGTGCTTTAGAAGTTAAAAAGgta
L  R  E  V  G  S  V  K  A  L  M  E  C  A  L  E  V  K  K
                      |571                          |581

 .   .   .   .   .   .   .   .   .   .   .   .
cctttgaaaacatttagtactataatatgaatttcatgtttggctttttttgctgcctt

 .   .   .   .   .   .   .   .   .   .   .   .
cttttagccatgagatttcctaatttcttacctgtgtattattcagtactataatatgaa

 .   .   .   .   .   .   .   .   .   .   .   .
tttcatgtttagctttttttgctgccttcttttagccatgagattccctaatttcttttt

 .   .   .   .   .   .   .   .   .   .   .   .
tgagatggggtctctttctctcgcccaggctggagtgcagtggtctgatcttggctcact

 .   .   .   .   .   .   .   .   .   .   .   .
gcaacctccgtctcccatgttcaagtgattctcctgcctcagcctcctgagtagctg
```

```
Exon 17 | Start: 147431 | End: 147645 | Length: 214

.   .   .   .   .   .   .   .   .   .   .   .
atgcacatcagttgtgcctcatattctaagatgtgtgtactatctaaacacttagaataa

.   .   .   .   .   .   .   .   .   .   .   .
agtttataaaagtcattagttaaatattgtgttctgcttgttttatagagatatcactga

.   .   .   .   .   .   .   .   .   .   .   .
tataaatactatttggtattttatgaacatttttctaaatggaaagttcttaatttacca

.   .   .   .   .   .   .   .   .   .   .   .
gtgagggacgggcaataggatagattaaaaaatagcttttattcaatatcagtaacatag

.   .   .   .   .   .   .   .   .   .   .   .
aagttaatgagagacaaattccaactctaattagatgacccatattctgtttcttactag

       |1751     |1761     |1771     |1781     |1791     |1801
GAATCAACCCTCAAAAGCGTATTGAGTGCCTTATGGAATTTGTCAGCACATTGCACTGAG
E   S   T   L   K   S   V   L   S   A   L   W   N   L   S   A   H   C   T   E
                           |591                            |601

       |1811     |1821     |1831     |1841     |1851     |1861
AATAAAGCTGATATATGTGCTGTAGATGGTGCACTTGCATTTTTGGTTGGCACTCTTACT
N   K   A   D   I   C   A   V   D   G   A   L   A   F   L   V   G   T   L   T
                           |611                            |621

       |1871     |1881     |1891     |1901     |1911     |1921
TACCGGAGCCAGACAAACACTTTAGCCATTATTGAAAGTGGAGGTGGGATATTACGGAAT
Y   R   S   Q   T   N   T   L   A   I   I   E   S   G   G   G   I   L   R   N
                           |631                            |641

       |1931     |1941     |1951         .   .   .   .   .
GTGTCCAGCTTGATAGCTACAAATGAGGACCACAGgtatatatagagttttatattactt
V   S   S   L   I   A   T   N   E   D   H   R
                           |651

    .   .   .   .   .   .   .   .   .   .   .   .
ttaaagtacagaattcatactctcaaaaagacctaattgtaagcaatgttttatataatc

    .   .   .   .   .   .   .   .   .   .   .   .
atgaaagttttaagccaaaatatatttattactgtgaaaagataactactaactcttagt
```

```
    .    .    .    .    .    .    .    .    .    .    .    .
ttaactcattagtgtacttaatgtaataacagtttatagtattatagaggagactaaatt

    .    .    .    .    .    .    .    .    .    .    .    .
aagcaaattatagttgagaggtgtagcccataggtggaggaaaaaatagtcacaaatatt

    .    .    .    .    .    .    .
gtaacaaaataatccatttctattagtatagtata
```

Exon 18 | Start: 150033 | End: 158719 | Length: 8686

```
.   .   .   .   .   .   .   .   .   .   .   .
tgttatatgaatagagtaaatgtatgtgccccacccccctgcaaatgttttaagctattgg

.   .   .   .   .   .   .   .   .   .   .   .
gtcagaataggaaatgtagaattgacaaaaaataacacctttacttttttttagtgtgaca

.   .   .   .   .   .   .   .   .   .   .   .
gattagtactttaaaacattaaacattacatgaaattagaacaaaaggagatgtggaata

.   .   .   .   .   .   .   .   .   .   .   .
cttggaatttataggataattggtacaatcatattatgccttttgtcttctatcctttta

.   .   .   .   .   .   .   .   .   .   .   .
tttgttgttactgcatacacattgtgaccttaattttgtgatctcttgattttatttcag

  |1961     |1971     |1981     |1991     |2001     |2011
GCAAATCCTAAGAGAGAACAACTGTCTACAAACTTTATTACAACACTTAAAATCTCATAG
 Q  I  L  R  E  N  N  C  L  Q  T  L  L  Q  H  L  K  S  H  S
                     |661                      |671

  |2021     |2031     |2041     |2051     |2061     |2071
TTTGACAATAGTCAGTAATGCATGTGGAACTTTGTGGAATCTCTCAGCAAGAAATCCTAA
 L  T  I  V  S  N  A  C  G  T  L  W  N  L  S  A  R  N  P  K
                     |681                      |691

  |2081     |2091     |2101     |2111     |2121     |2131
AGACCAGGAAGCATTATGGGACATGGGGGCAGTTAGCATGCTCAAGAACCTCATTCATTC
 D  Q  E  A  L  W  D  M  G  A  V  S  M  L  K  N  L  I  H  S
                     |701                      |711

  |2141     |2151     |2161     |2171     |2181     |2191
AAAGCACAAAATGATTGCTATGGGAAGTGCTGCAGCTTTAAGGAATCTCATGGCAAATAG
 K  H  K  M  I  A  M  G  S  A  A  A  L  R  N  L  M  A  N  R
                     |721                      |731

  |2201     |2211     |2221     |2231     |2241     |2251
GCCTGCGAAGTACAAGGATGCCAATATTATGTCTCCTGGCTCAAGCTTGCCATCTCTTCA
 P  A  K  Y  K  D  A  N  I  M  S  P  G  S  S  L  P  S  L  H
                     |741                      |751
```

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  |2261     |2271     |2281     |2291     |2301     |2311
TGTTAGGAAACAAAAAGCCCTAGAAGCAGAATTAGATGCTCAGCACTTATCAGAAACTTT
 V  R  K  Q  K  A  L  E  A  E  L  D  A  Q  H  L  S  E  T  F
                    |761                      |771

  |2321     |2331     |2341     |2351     |2361     |2371
TGACAATATAGACAATTTAAGTCCCAAGGCATCTCATCGTAGTAAGCAGAGACACAAGCA
 D  N  I  D  N  L  S  P  K  A  S  H  R  S  K  Q  R  H  K  Q
                    |781                      |791

  |2381     |2391     |2401     |2411     |2421     |2431
AAGTCTCTATGGTGATTATGTTTTTGACACCAATCGACATGATGATAATAGGTCAGACAA
 S  L  Y  G  D  Y  V  F  D  T  N  R  H  D  D  N  R  S  D  N
                    |801                      |811

  |2441     |2451     |2461     |2471     |2481     |2491
TTTTAATACTGGCAACATGACTGTCCTTTCACCATATTTGAATACTACAGTGTTACCCAG
 F  N  T  G  N  M  T  V  L  S  P  Y  L  N  T  T  V  L  P  S
                    |821                      |831

  |2501     |2511     |2521     |2531     |2541     |2551
CTCCTCTTCATCAAGAGGAAGCTTAGATAGTTCTCGTTCTGAAAAAGATAGAAGTTTGGA
 S  S  S  S  R  G  S  L  D  S  S  R  S  E  K  D  R  S  L  E
                    |841                      |851

  |2561     |2571     |2581     |2591     |2601     |2611
GAGAGAACGCGGAATTGGTCTAGGCAACTACCATCCAGCAACAGAAAATCCAGGAACTTC
 R  E  R  G  I  G  L  G  N  Y  H  P  A  T  E  N  P  G  T  S
                    |861                      |871

  |2621     |2631     |2641     |2651     |2661     |2671
TTCAAAGCGAGGTTTGCAGATCTCCACCACTGCAGCCCAGATTGCCAAAGTCATGGAAGA
 S  K  R  G  L  Q  I  S  T  T  A  A  Q  I  A  K  V  M  E  E
                    |881                      |891

  |2681     |2691     |2701     |2711     |2721     |2731
AGTGTCAGCCATTCATACCTCTCAGGAAGACAGAAGTTCTGGGTCTACCACTGAATTACA
 V  S  A  I  H  T  S  Q  E  D  R  S  S  G  S  T  T  E  L  H
                    |901                      |911

  |2741     |2751     |2761     |2771     |2781     |2791
TTGTGTGACAGATGAGAGAAATGCACTTAGAAGAAGCTCTGCTGCCCATACACATTCAAA
 C  V  T  D  E  R  N  A  L  R  R  S  S  A  A  H  T  H  S  N
                    |921                      |931
```

```
  |2801     |2811     |2821     |2831     |2841     |2851
CACTTACAATTTCACTAAGTCGGAAAATTCAAATAGGACATGTTCTATGCCTTATGCCAA
 T  Y  N  F  T  K  S  E  N  S  N  R  T  C  S  M  P  Y  A  K
                    |941                      |951

  |2861     |2871     |2881     |2891     |2901     |2911
ATTAGAATACAAGAGATCTTCAAATGATAGTTTAAATAGTGTCAGTAGTAGTGATGGTTA
 L  E  Y  K  R  S  S  N  D  S  L  N  S  V  S  S  S  D  G  Y
                    |961                      |971

  |2921     |2931     |2941     |2951     |2961     |2971
TGGTAAAAGAGGTCAAATGAAACCCTCGATTGAATCCTATTCTGAAGATGATGAAAGTAA
 G  K  R  G  Q  M  K  P  S  I  E  S  Y  S  E  D  D  E  S  K
                    |981                      |991

  |2981     |2991     |3001     |3011     |3021     |3031
GTTTTGCAGTTATGGTCAATACCCAGCCGACCTAGCCCATAAAATACATAGTGCAAATCA
 F  C  S  Y  G  Q  Y  P  A  D  L  A  H  K  I  H  S  A  N  H
                    |1001                     |1011

  |3041     |3051     |3061     |3071     |3081     |3091
TATGGATGATAATGATGGAGAACTAGATACACCAATAAATTATAGTCTTAAATATTCAGA
 M  D  D  N  D  G  E  L  D  T  P  I  N  Y  S  L  K  Y  S  D
                    |1021                     |1031

  |3101     |3111     |3121     |3131     |3141     |3151
TGAGCAGTTGAACTCTGGAAGGCAAAGTCCTTCACAGAATGAAAGATGGGCAAGACCCAA
 E  Q  L  N  S  G  R  Q  S  P  S  Q  N  E  R  W  A  R  P  K
                    |1041                     |1051

  |3161     |3171     |3181     |3191     |3201     |3211
ACACATAATAGAAGATGAAATAAAACAAAGTGAGCAAAGACAATCAAGGAATCAAAGTAC
 H  I  I  E  D  E  I  K  Q  S  E  Q  R  Q  S  R  N  Q  S  T
                    |1061                     |1071

  |3221     |3231     |3241     |3251     |3261     |3271
AACTTATCCTGTTTATACTGAGAGCACTGATGATAAACACCTCAAGTTCCAACCACATTT
 T  Y  P  V  Y  T  E  S  T  D  D  K  H  L  K  F  Q  P  H  F
                    |1081                     |1091

  |3281     |3291     |3301     |3311     |3321     |3331
TGGACAGCAGGAATGTGTTTCTCCATACAGGTCACGGGGAGCCAATGGTTCAGAAACAAA
 G  Q  Q  E  C  V  S  P  Y  R  S  R  G  A  N  G  S  E  T  N
                    |1101                     |1111
```

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  |3341     |3351     |3361     |3371     |3381     |3391
TCGAGTGGGTTCTAATCATGGAATTAATCAAAATGTAAGCCAGTCTTTGTGTCAAGAAGA
 R  V  G  S  N  H  G  I  N  Q  N  V  S  Q  S  L  C  Q  E  D
                    |1121                     |1131

  |3401     |3411     |3421     |3431     |3441     |3451
TGACTATGAAGATGATAAGCCTACCAATTATAGTGAACGTTACTCTGAAGAAGAACAGCA
 D  Y  E  D  D  K  P  T  N  Y  S  E  R  Y  S  E  E  E  Q  H
                    |1141                     |1151

  |3461     |3471     |3481     |3491     |3501     |3511
TGAAGAAGAAGAGAGACCAACAAATTATAGCATAAAATATAATGAAGAGAAACGTCATGT
 E  E  E  E  R  P  T  N  Y  S  I  K  Y  N  E  E  K  R  H  V
                    |1161                     |1171

  |3521     |3531     |3541     |3551     |3561     |3571
GGATCAGCCTATTGATTATAGTTTAAAATATGCCACAGATATTCCTTCATCACAGAAACA
 D  Q  P  I  D  Y  S  L  K  Y  A  T  D  I  P  S  S  Q  K  Q
                    |1181                     |1191

  |3581     |3591     |3601     |3611     |3621     |3631
GTCATTTTCATTCTCAAAGAGTTCATCTGGACAAAGCAGTAAAACCGAACATATGTCTTC
 S  F  S  F  S  K  S  S  S  G  Q  S  S  K  T  E  H  M  S  S
                    |1201                     |1211

  |3641     |3651     |3661     |3671     |3681     |3691
AAGCAGTGAGAATACGTCCACACCTTCATCTAATGCCAAGAGGCAGAATCAGCTCCATCC
 S  S  E  N  T  S  T  P  S  S  N  A  K  R  Q  N  Q  L  H  P
                    |1221                     |1231

  |3701     |3711     |3721     |3731     |3741     |3751
AAGTTCTGCACAGAGTAGAAGTGGTCAGCCTCAAAAGGCTGCCACTTGCAAAGTTTCTTC
 S  S  A  Q  S  R  S  G  Q  P  Q  K  A  A  T  C  K  V  S  S
                    |1241                     |1251

  |3761     |3771     |3781     |3791     |3801     |3811
TATTAACCAAGAAACAATACAGACTTATTGTGTAGAAGATACTCCAATATGTTTTTCAAG
 I  N  Q  E  T  I  Q  T  Y  C  V  E  D  T  P  I  C  F  S  R
                    |1261                     |1271

  |3821     |3831     |3841     |3851     |3861     |3871
ATGTAGTTCATTATCATCTTTGTCATCAGCTGAAGATGAAATAGGATGTAATCAGACGAC
 C  S  S  L  S  S  L  S  S  A  E  D  E  I  G  C  N  Q  T  T
                    |1281                     |1291
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  |3881     |3891     |3901     |3911     |3921     |3931
ACAGGAAGCAGATTCTGCTAATACCCTGCAAATAGCAGAAATAAAAGAAAAGATTGGAAC
 Q  E  A  D  S  A  N  T  L  Q  I  A  E  I  K  E  K  I  G  T
                    |1301                     |1311

  |3941     |3951     |3961     |3971     |3981     |3991
TAGGTCAGCTGAAGATCCTGTGAGCGAAGTTCCAGCAGTGTCACAGCACCCTAGAACCAA
 R  S  A  E  D  P  V  S  E  V  P  A  V  S  Q  H  P  R  T  K
                    |1321                     |1331

  |4001     |4011     |4021     |4031     |4041     |4051
ATCCAGCAGACTGCAGGGTTCTAGTTTATCTTCAGAATCAGCCAGGCACAAAGCTGTTGA
 S  S  R  L  Q  G  S  S  L  S  S  E  S  A  R  H  K  A  V  E
                    |1341                     |1351

  |4061     |4071     |4081     |4091     |4101     |4111
ATTTTCTTCAGGAGCGAAATCTCCCTCCAAAAGTGGTGCTCAGACACCCAAAAGTCCACC
 F  S  S  G  A  K  S  P  S  K  S  G  A  Q  T  P  K  S  P  P
                    |1361                     |1371

  |4121     |4131     |4141     |4151     |4161     |4171
TGAACACTATGTTCAGGAGACCCCACTCATGTTTAGCAGATGTACTTCTGTCAGTTCACT
 E  H  Y  V  Q  E  T  P  L  M  F  S  R  C  T  S  V  S  S  L
                    |1381                     |1391

  |4181     |4191     |4201     |4211     |4221     |4231
TGATAGTTTTGAGAGTCGTTCGATTGCCAGCTCCGTTCAGAGTGAACCATGCAGTGGAAT
 D  S  F  E  S  R  S  I  A  S  S  V  Q  S  E  P  C  S  G  M
                    |1401                     |1411

  |4241     |4251     |4261     |4271     |4281     |4291
GGTAAGTGGCATTATAAGCCCCAGTGATCTTCCAGATAGCCCTGGACAAACCATGCCACC
 V  S  G  I  I  S  P  S  D  L  P  D  S  P  G  Q  T  M  P  P
                    |1421                     |1431

  |4301     |4311     |4321     |4331     |4341     |4351
AAGCAGAAGTAAAACACCTCCACCACCTCCTCAAACAGCTCAAACCAAGCGAGAAGTACC
 S  R  S  K  T  P  P  P  P  P  Q  T  A  Q  T  K  R  E  V  P
                    |1441                     |1451

  |4361     |4371     |4381     |4391     |4401     |4411
TAAAAATAAAGCACCTACTGCTGAAAAGAGAGAGAGTGGACCTAAGCAAGCTGCAGTAAA
 K  N  K  A  P  T  A  E  K  R  E  S  G  P  K  Q  A  A  V  N
                    |1461                     |1471
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  |4421     |4431     |4441     |4451     |4461     |4471
TGCTGCAGTTCAGAGGGTCCAGGTTCTTCCAGATGCTGATACTTTATTACATTTTGCCAC
 A  A  V  Q  R  V  Q  V  L  P  D  A  D  T  L  L  H  F  A  T
                     |1481                     |1491

  |4481     |4491     |4501     |4511     |4521     |4531
GGAAAGTACTCCAGATGGATTTTCTTGTTCATCCAGCCTGAGTGCTCTGAGCCTCGATGA
 E  S  T  P  D  G  F  S  C  S  S  S  L  S  A  L  S  L  D  E
                     |1501                     |1511

  |4541     |4551     |4561     |4571     |4581     |4591
GCCATTTATACAGAAAGATGTGGAATTAAGAATAATGCCTCCAGTTCAGGAAAATGACAA
 P  F  I  Q  K  D  V  E  L  R  I  M  P  P  V  Q  E  N  D  N
                     |1521                     |1531

  |4601     |4611     |4621     |4631     |4641     |4651
TGGGAATGAAACAGAATCAGAGCAGCCTAAAGAATCAAATGAAAACCAAGAGAAAGAGGC
 G  N  E  T  E  S  E  Q  P  K  E  S  N  E  N  Q  E  K  E  A
                     |1541                     |1551

  |4661     |4671     |4681     |4691     |4701     |4711
AGAAAAAACTATTGATTCTGAAAAGGACCTATTAGATGATTCAGATGATGATGATATTGA
 E  K  T  I  D  S  E  K  D  L  L  D  D  S  D  D  D  D  I  E
                     |1561                     |1571

  |4721     |4731     |4741     |4751     |4761     |4771
AATACTAGAAGAATGTATTATTTCTGCCATGCCAACAAAGTCATCACGTAAAGCAAAAAA
 I  L  E  E  C  I  I  S  A  M  P  T  K  S  S  R  K  A  K  K
                     |1581                     |1591

  |4781     |4791     |4801     |4811     |4821     |4831
GCCAGCCCAGACTGCTTCAAAATTACCTCCACCTGTGGCAAGGAAACCAAGTCAGCTGCC
 P  A  Q  T  A  S  K  L  P  P  P  V  A  R  K  P  S  Q  L  P
                     |1601                     |1611

  |4841     |4851     |4861     |4871     |4881     |4891
TGTGTACAAACTTCTACCATCACAAAACAGGTTGCAACCCCAAAAGCATGTTAGTTTTAC
 V  Y  K  L  L  P  S  Q  N  R  L  Q  P  Q  K  H  V  S  F  T
                     |1621                     |1631

  |4901     |4911     |4921     |4931     |4941     |4951
ACCGGGGGATGATATGCCACGGGTGTATTGTGTTGAAGGGACACCTATAAACTTTTCCAC
 P  G  D  D  M  P  R  V  Y  C  V  E  G  T  P  I  N  F  S  T
                     |1641                     |1651
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  |4961     |4971     |4981     |4991     |5001     |5011
AGCTACATCTCTAAGTGATCTAACAATCGAATCCCCTCCAAATGAGTTAGCTGCTGGAGA
 A  T  S  L  S  D  L  T  I  E  S  P  P  N  E  L  A  A  G  E
                    |1661                     |1671

  |5021     |5031     |5041     |5051     |5061     |5071
AGGAGTTAGAGGAGGGGCACAGTCAGGTGAATTTGAAAAACGAGATACCATTCCTACAGA
 G  V  R  G  G  A  Q  S  G  E  F  E  K  R  D  T  I  P  T  E
                    |1681                     |1691

  |5081     |5091     |5101     |5111     |5121     |5131
AGGCAGAAGTACAGATGAGGCTCAAGGAGGAAAAACCTCATCTGTAACCATACCTGAATT
 G  R  S  T  D  E  A  Q  G  G  K  T  S  S  V  T  I  P  E  L
                    |1701                     |1711

  |5141     |5151     |5161     |5171     |5181     |5191
GGATGACAATAAAGCAGAGGAAGGTGATATTCTTGCAGAATGCATTAATTCTGCTATGCC
 D  D  N  K  A  E  E  G  D  I  L  A  E  C  I  N  S  A  M  P
                    |1721                     |1731

  |5201     |5211     |5221     |5231     |5241     |5251
CAAAGGGAAAAGTCACAAGCCTTTCCGTGTGAAAAAGATAATGGACCAGGTCCAGCAAGC
 K  G  K  S  H  K  P  F  R  V  K  K  I  M  D  Q  V  Q  Q  A
                    |1741                     |1751

  |5261     |5271     |5281     |5291     |5301     |5311
ATCTGCGTCTTCTTCTGCACCCAACAAAAATCAGTTAGATGGTAAGAAAAAGAAACCAAC
 S  A  S  S  S  A  P  N  K  N  Q  L  D  G  K  K  K  K  P  T
                    |1761                     |1771

  |5321     |5331     |5341     |5351     |5361     |5371
TTCACCAGTAAAACCTATACCACAAAATACTGAATATAGGACACGTGTAAGAAAAAATGC
 S  P  V  K  P  I  P  Q  N  T  E  Y  R  T  R  V  R  K  N  A
                    |1781                     |1791

  |5381     |5391     |5401     |5411     |5421     |5431
AGACTCAAAAAATAATTTAAATGCTGAGAGAGTTTTCTCAGACAACAAAGATTCAAAGAA
 D  S  K  N  N  L  N  A  E  R  V  F  S  D  N  K  D  S  K  K
                    |1801                     |1811

  |5441     |5451     |5461     |5471     |5481     |5491
ACAGAATTTGAAAAATAATTCCAAGGTCTTCAATGATAAGCTCCCAAATAATGAAGATAG
 Q  N  L  K  N  N  S  K  V  F  N  D  K  L  P  N  N  E  D  R
                    |1821                     |1831
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  |5501     |5511     |5521     |5531     |5541     |5551
AGTCAGAGGAAGTTTTGCTTTTGATTCACCTCATCATTACACGCCTATTGAAGGAACTCC
 V  R  G  S  F  A  F  D  S  P  H  H  Y  T  P  I  E  G  T  P
                    |1841                     |1851

  |5561     |5571     |5581     |5591     |5601     |5611
TTACTGTTTTTCACGAAATGATTCTTTGAGTTCTCTAGATTTTGATGATGATGATGTTGA
 Y  C  F  S  R  N  D  S  L  S  S  L  D  F  D  D  D  D  V  D
                    |1861                     |1871

  |5621     |5631     |5641     |5651     |5661     |5671
CCTTTCCAGGGAAAAGGCTGAATTAAGAAAGGCAAAAGAAAATAAGGAATCAGAGGCTAA
 L  S  R  E  K  A  E  L  R  K  A  K  E  N  K  E  S  E  A  K
                    |1881                     |1891

  |5681     |5691     |5701     |5711     |5721     |5731
AGTTACCAGCCACACAGAACTAACCTCCAACCAACAATCAGCTAATAAGACACAAGCTAT
 V  T  S  H  T  E  L  T  S  N  Q  Q  S  A  N  K  T  Q  A  I
                    |1901                     |1911

  |5741     |5751     |5761     |5771     |5781     |5791
TGCAAAGCAGCCAATAAATCGAGGTCAGCCTAAACCCATACTTCAGAAACAATCCACTTT
 A  K  Q  P  I  N  R  G  Q  P  K  P  I  L  Q  K  Q  S  T  F
                    |1921                     |1931

  |5801     |5811     |5821     |5831     |5841     |5851
TCCCCAGTCATCCAAAGACATACCAGACAGAGGGGCAGCAACTGATGAAAAGTTACAGAA
 P  Q  S  S  K  D  I  P  D  R  G  A  A  T  D  E  K  L  Q  N
                    |1941                     |1951

  |5861     |5871     |5881     |5891     |5901     |5911
TTTTGCTATTGAAAATACTCCGGTTTGCTTTTCTCATAATTCCTCTCTGAGTTCTCTCAG
 F  A  I  E  N  T  P  V  C  F  S  H  N  S  S  L  S  S  L  S
                    |1961                     |1971

  |5921     |5931     |5941     |5951     |5961     |5971
TGACATTGACCAAGAAAACAACAATAAAGAAAATGAACCTATCAAAGAGACTGAGCCCCC
 D  I  D  Q  E  N  N  N  K  E  N  E  P  I  K  E  T  E  P  P
                    |1981                     |1991

  |5981     |5991     |6001     |6011     |6021     |6031
TGACTCACAGGGAGAACCAAGTAAACCTCAAGCATCAGGCTATGCTCCTAAATCATTTCA
 D  S  Q  G  E  P  S  K  P  Q  A  S  G  Y  A  P  K  S  F  H
                    |2001                     |2011
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  |6041     |6051     |6061     |6071     |6081     |6091
TGTTGAAGATACCCCAGTTTGTTTCTCAAGAAACAGTTCTCTCAGTTCTCTTAGTATTGA
 V  E  D  T  P  V  C  F  S  R  N  S  S  L  S  S  L  S  I  D
                      |2021                       |2031

  |6101     |6111     |6121     |6131     |6141     |6151
CTCTGAAGATGACCTGTTGCAGGAATGTATAAGCTCCGCAATGCCAAAAAAGAAAAAGCC
 S  E  D  D  L  L  Q  E  C  I  S  S  A  M  P  K  K  K  K  P
                      |2041                       |2051

  |6161     |6171     |6181     |6191     |6201     |6211
TTCAAGACTCAAGGGTGATAATGAAAAACATAGTCCCAGAAATATGGGTGGCATATTAGG
 S  R  L  K  G  D  N  E  K  H  S  P  R  N  M  G  G  I  L  G
                      |2061                       |2071

  |6221     |6231     |6241     |6251     |6261     |6271
TGAAGATCTGACACTTGATTTGAAAGATATACAGAGACCAGATTCAGAACATGGTCTATC
 E  D  L  T  L  D  L  K  D  I  Q  R  P  D  S  E  H  G  L  S
                      |2081                       |2091

  |6281     |6291     |6301     |6311     |6321     |6331
CCCTGATTCAGAAAATTTTGATTGGAAAGCTATTCAGGAAGGTGCAAATTCCATAGTAAG
 P  D  S  E  N  F  D  W  K  A  I  Q  E  G  A  N  S  I  V  S
                      |2101                       |2111

  |6341     |6351     |6361     |6371     |6381     |6391
TAGTTTACATCAAGCTGCTGCTGCTGCATGTTTATCTAGACAAGCTTCGTCTGATTCAGA
 S  L  H  Q  A  A  A  A  A  C  L  S  R  Q  A  S  S  D  S  D
                      |2121                       |2131

  |6401     |6411     |6421     |6431     |6441     |6451
TTCCATCCTTTCCCTGAAATCAGGAATCTCTCTGGGATCACCATTTCATCTTACACCTGA
 S  I  L  S  L  K  S  G  I  S  L  G  S  P  F  H  L  T  P  D
                      |2141                       |2151

  |6461     |6471     |6481     |6491     |6501     |6511
TCAAGAAGAAAAACCCTTTACAAGTAATAAAGGCCCACGAATTCTAAAACCAGGGGAGAA
 Q  E  E  K  P  F  T  S  N  K  G  P  R  I  L  K  P  G  E  K
                      |2161                       |2171

  |6521     |6531     |6541     |6551     |6561     |6571
AAGTACATTGGAAACTAAAAAGATAGAATCTGAAAGTAAAGGAATCAAAGGAGGAAAAAA
 S  T  L  E  T  K  K  I  E  S  E  S  K  G  I  K  G  G  K  K
                      |2181                       |2191
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  |6581     |6591     |6601     |6611     |6621     |6631
AGTTTATAAAAGTTTGATTACTGGAAAAGTTCGATCTAATTCAGAAATTTCAGGCCAAAT
 V  Y  K  S  L  I  T  G  K  V  R  S  N  S  E  I  S  G  Q  M
                    |2201                     |2211

  |6641     |6651     |6661     |6671     |6681     |6691
GAAACAGCCCCTTCAAGCAAACATGCCTTCAATCTCTCGAGGCAGGACAATGATTCATAT
 K  Q  P  L  Q  A  N  M  P  S  I  S  R  G  R  T  M  I  H  I
                    |2221                     |2231

  |6701     |6711     |6721     |6731     |6741     |6751
TCCAGGAGTTCGAAATAGCTCCTCAAGTACAAGTCCTGTTTCTAAAAAAGGCCCACCCCT
 P  G  V  R  N  S  S  S  S  T  S  P  V  S  K  K  G  P  P  L
                    |2241                     |2251

  |6761     |6771     |6781     |6791     |6801     |6811
TAAGACTCCAGCCTCCAAAAGCCCTAGTGAAGGTCAAACAGCCACCACTTCTCCTAGAGG
 K  T  P  A  S  K  S  P  S  E  G  Q  T  A  T  T  S  P  R  G
                    |2261                     |2271

  |6821     |6831     |6841     |6851     |6861     |6871
AGCCAAGCCATCTGTGAAATCAGAATTAAGCCCTGTTGCCAGGCAGACATCCCAAATAGG
 A  K  P  S  V  K  S  E  L  S  P  V  A  R  Q  T  S  Q  I  G
                    |2281                     |2291

  |6881     |6891     |6901     |6911     |6921     |6931
TGGGTCAAGTAAAGCACCTTCTAGATCAGGATCTAGAGATTCGACCCCTTCAAGACCTGC
 G  S  S  K  A  P  S  R  S  G  S  R  D  S  T  P  S  R  P  A
                    |2301                     |2311

  |6941     |6951     |6961     |6971     |6981     |6991
CCAGCAACCATTAAGTAGACCTATACAGTCTCCTGGCCGAAACTCAATTTCCCCTGGTAG
 Q  Q  P  L  S  R  P  I  Q  S  P  G  R  N  S  I  S  P  G  R
                    |2321                     |2331

  |7001     |7011     |7021     |7031     |7041     |7051
AAATGGAATAAGTCCTCCTAACAAATTATCTCAACTTCCAAGGACATCATCCCCTAGTAC
 N  G  I  S  P  P  N  K  L  S  Q  L  P  R  T  S  S  P  S  T
                    |2341                     |2351

  |7061     |7071     |7081     |7091     |7101     |7111
TGCTTCAACTAAGTCCTCAGGTTCTGGAAAAATGTCATATACATCTCCAGGTAGACAGAT
 A  S  T  K  S  S  G  S  G  K  M  S  Y  T  S  P  G  R  Q  M
                    |2361                     |2371
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  |7121     |7131     |7141     |7151     |7161     |7171
GAGCCAACAGAACCTTACCAAACAAACAGGTTTATCCAAGAATGCCAGTAGTATTCCAAG
 S  Q  Q  N  L  T  K  Q  T  G  L  S  K  N  A  S  S  I  P  R
                    |2381                    |2391

  |7181     |7191     |7201     |7211     |7221     |7231
AAGTGAGTCTGCCTCCAAAGGACTAAATCAGATGAATAATGGTAATGGAGCCAATAAAAA
 S  E  S  A  S  K  G  L  N  Q  M  N  N  G  N  G  A  N  K  K
                    |2401                    |2411

  |7241     |7251     |7261     |7271     |7281     |7291
GGTAGAACTTTCTAGAATGTCTTCAACTAAATCAAGTGGAAGTGAATCTGATAGATCAGA
 V  E  L  S  R  M  S  S  T  K  S  S  G  S  E  S  D  R  S  E
                    |2421                    |2431

  |7301     |7311     |7321     |7331     |7341     |7351
AAGACCTGTATTAGTACGCCAGTCAACTTTCATCAAAGAAGCTCCAAGCCCAACCTTAAG
 R  P  V  L  V  R  Q  S  T  F  I  K  E  A  P  S  P  T  L  R
                    |2441                    |2451

  |7361     |7371     |7381     |7391     |7401     |7411
AAGAAAATTGGAGGAATCTGCTTCATTTGAATCTCTTTCTCCATCATCTAGACCAGCTTC
 R  K  L  E  E  S  A  S  F  E  S  L  S  P  S  S  R  P  A  S
                    |2461                    |2471

  |7421     |7431     |7441     |7451     |7461     |7471
TCCCACTAGGTCCCAGGCACAAACTCCAGTTTTAAGTCCTTCCCTTCCTGATATGTCTCT
 P  T  R  S  Q  A  Q  T  P  V  L  S  P  S  L  P  D  M  S  L
                    |2481                    |2491

  |7481     |7491     |7501     |7511     |7521     |7531
ATCCACACATTCGTCTGTTCAGGCTGGTGGATGGCGAAAACTCCCACCTAATCTCAGTCC
 S  T  H  S  S  V  Q  A  G  G  W  R  K  L  P  P  N  L  S  P
                    |2501                    |2511

  |7541     |7551     |7561     |7571     |7581     |7591
CACTATAGAGTATAATGATGGAAGACCAGCAAAGCGCCATGATATTGCACGGTCTCATTC
 T  I  E  Y  N  D  G  R  P  A  K  R  H  D  I  A  R  S  H  S
                    |2521                    |2531

  |7601     |7611     |7621     |7631     |7641     |7651
TGAAAGTCCTTCTAGACTTCCAATCAATAGGTCAGGAACCTGGAAACGTGAGCACAGCAA
 E  S  P  S  R  L  P  I  N  R  S  G  T  W  K  R  E  H  S  K
                    |2541                    |2551
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  |7661     |7671     |7681     |7691     |7701     |7711
ACATTCATCATCCCTTCCTCGAGTAAGCACTTGGAGAAGAACTGGAAGTTCATCTTCAAT
 H  S  S  S  L  P  R  V  S  T  W  R  R  T  G  S  S  S  S  I
                    |2561                     |2571

  |7721     |7731     |7741     |7751     |7761     |7771
TCTTTCTGCTTCATCAGAATCCAGTGAAAAAGCAAAAAGTGAGGATGAAAAACATGTGAA
 L  S  A  S  S  E  S  S  E  K  A  K  S  E  D  E  K  H  V  N
                    |2581                     |2591

  |7781     |7791     |7801     |7811     |7821     |7831
CTCTATTTCAGGAACCAAACAAAGTAAAGAAAACCAAGTATCCGCAAAAGGAACATGGAG
 S  I  S  G  T  K  Q  S  K  E  N  Q  V  S  A  K  G  T  W  R
                    |2601                     |2611

  |7841     |7851     |7861     |7871     |7881     |7891
AAAAATAAAAGAAAATGAATTTTCTCCCACAAATAGTACTTCTCAGACCGTTTCCTCAGG
 K  I  K  E  N  E  F  S  P  T  N  S  T  S  Q  T  V  S  S  G
                    |2621                     |2631

  |7901     |7911     |7921     |7931     |7941     |7951
TGCTACAAATGGTGCTGAATCAAAGACTCTAATTTATCAAATGGCACCTGCTGTTTCTAA
 A  T  N  G  A  E  S  K  T  L  I  Y  Q  M  A  P  A  V  S  K
                    |2641                     |2651

  |7961     |7971     |7981     |7991     |8001     |8011
AACAGAGGATGTTTGGGTGAGAATTGAGGACTGTCCCATTAACAATCCTAGATCTGGAAG
 T  E  D  V  W  V  R  I  E  D  C  P  I  N  N  P  R  S  G  R
                    |2661                     |2671

  |8021     |8031     |8041     |8051     |8061     |8071
ATCTCCCACAGGTAATACTCCCCCGGTGATTGACAGTGTTTCAGAAAAGGCAAATCCAAA
 S  P  T  G  N  T  P  P  V  I  D  S  V  S  E  K  A  N  P  N
                    |2681                     |2691

  |8081     |8091     |8101     |8111     |8121     |8131
CATTAAAGATTCAAAAGATAATCAGGCAAAACAAAATGTGGGTAATGGCAGTGTTCCCAT
 I  K  D  S  K  D  N  Q  A  K  Q  N  V  G  N  G  S  V  P  M
                    |2701                     |2711

  |8141     |8151     |8161     |8171     |8181     |8191
GCGTACCGTGGGTTTGGAAAATCGCCTGAACTCCTTTATTCAGGTGGATGCCCCTGACCA
 R  T  V  G  L  E  N  R  L  N  S  F  I  Q  V  D  A  P  D  Q
                    |2721                     |2731
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  |8201     |8211     |8221     |8231     |8241     |8251
AAAAGGAACTGAGATAAAACCAGGACAAAATAATCCTGTCCCTGTATCAGAGACTAATGA
 K  G  T  E  I  K  P  G  Q  N  N  P  V  P  V  S  E  T  N  E
                    |2741                     |2751

  |8261     |8271     |8281     |8291     |8301     |8311
AAGTTCTATAGTGGAACGTACCCCATTCAGTTCTAGCAGCTCAAGCAAACACAGTTCACC
 S  S  I  V  E  R  T  P  F  S  S  S  S  S  S  K  H  S  S  P
                    |2761                     |2771

  |8321     |8331     |8341     |8351     |8361     |8371
TAGTGGGACTGTTGCTGCCAGAGTGACTCCTTTTAATTACAACCCAAGCCCTAGGAAAAG
 S  G  T  V  A  A  R  V  T  P  F  N  Y  N  P  S  P  R  K  S
                    |2781                     |2791

  |8381     |8391     |8401     |8411     |8421     |8431
CAGCGCAGATAGCACTTCAGCTCGGCCATCTCAGATCCCAACTCCAGTGAATAACAACAC
 S  A  D  S  T  S  A  R  P  S  Q  I  P  T  P  V  N  N  N  T
                    |2801                     |2811

  |8441     |8451     |8461     |8471     |8481     |8491
AAAGAAGCGAGATTCCAAAACTGACAGCACAGAATCCAGTGGAACCCAAAGTCCTAAGCG
 K  K  R  D  S  K  T  D  S  T  E  S  S  G  T  Q  S  P  K  R
                    |2821                     |2831

  |8501     |8511     |8521     |8531      |*11      |*21
CCATTCTGGGTCTTACCTTGTGACATCTGTTTAAAAGAGAGGAAGAATGAAACTAAGAAA
 H  S  G  S  Y  L  V  T  S  V  *
                    |2841

    |*31      |*41      |*51      |*61      |*71      |*81
ATTCTATGTTAATTACAACTGCTATATAGACATTTTGTTTCAAATGAAACTTTAAAAGAC

    |*91      |*101     |*111     |*121     |*131     |*141
TGAAAAATTTTGTAAATAGGTTTGATTCTTGTTAGAGGGTTTTTGTTCTGGAAGCCATAT

    |*151     |*161     |*171     |*181     |*191     |*201
TTGATAGTATACTTTGTCTTCACTGGTCTTATTTTGGGAGGCACTCTTGATGGTTAGGAA

    |*211     |*221     |*231     |*241     |*251     |*261
AAAAATAGTAAAGCCAAGTATGTTTGTACAGTATGTTTTACATGTATTTAAAGTAGCATC

    |*271     |*281     |*291     |*301     |*311     |*321
CCATCCCAACTTCCTTTAATTATTGCTTGTCTTAAAATAATGAACACTACAGATAGAAAA
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    |*331     |*341     |*351     |*361     |*371     |*381
TATGATATATTGCTGTTATCAATCATTTCTAGATTATAAACTGACTAAACTTACATCAGG

    |*391     |*401     |*411     |*421     |*431     |*441
GAAAAATTGGTATTTATGCAAAAAAAAATGTTTTTGTCCTTGTGAGTCCATCTAACATCA

    |*451     |*461     |*471     |*481     |*491     |*501
TAATTAATCATGTGGCTGTGAAATTCACAGTAATATGGTTCCCGATGAACAAGTTTACCC

    |*511     |*521     |*531     |*541     |*551     |*561
AGCCTGCTTTGCTTTACTGCATGAATGAAACTGATGGTTCAATTTCAGAAGTAATGATTA

    |*571     |*581     |*591     |*601     |*611     |*621
ACAGTTATGTGGTCACATGATGTGCATAGAGATAGCTACAGTGTAATAATTTACACTATT

    |*631     |*641     |*651     |*661     |*671     |*681
TTGTGCTCCAAACAAAACAAAAATCTGTGTAACTGTAAAACATTGAATGAAACTATTTTA

    |*691     |*701     |*711     |*721     |*731     |*741
CCTGAACTAGATTTTATCTGAAAGTAGGTAGAATTTTTGCTATGCTGTAATTTGTTGTAT

    |*751     |*761     |*771     |*781     |*791     |*801
ATTCTGGTATTTGAGGTGAGATGGCTGCTCTTTTATTAATGAGACATGAATTGTGTCTCA

    |*811     |*821     |*831     |*841     |*851     |*861
ACAGAAACTAAATGAACATTTCAGAATAAATTATTGCTGTATGTAAACTGTTACTGAAAT

    |*871     |*881     |*891     |*901     |*911     |*921
TGGTATTTGTTTGAAGGGTCTTGTTTCACATTTGTATTAATAATTGTTTAAAATGCCTCT

    |*931     |*941     |*951     |*961     |*971     |*981
TTTAAAAGCTTATATAAATTTTTTTCTTCAGCTTCTATGCATTAAGAGTAAAATTCCTCT

    |*991     |*1001    |*1011    |*1021    |*1031    |*1041
TACTGTAATAAAAACAATTGAAGAAGACTGTTGCCACTTAACCATTCCATGCGTTGGCAC

    |*1051    |*1061    |*1071    |*1081    |*1091    |*1101
TTATCTATTCCTGAAATTTCTTTTATGTGATTAGCTCATCTTGATTTTTAATATTTTTCC

    |*1111    |*1121    |*1131    |*1141    |*1151    |*1161
ACTTAAACTTTTTTTTCTTACTCCACTGGAGCTCAGTAAAAGTAAATTCATGTAATAGCA

    |*1171    |*1181    |*1191    |*1201    |*1211    |*1221
ATGCAAGCAGCCTAGCACAGACTAAGCATTGAGCATAATAGGCCCACATAATTTCCTCTT
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    |*1231    |*1241    |*1251    |*1261    |*1271    |*1281
TCTTAATATTATAGAATTCTGTACTTGAAATTGATTCTTAGACATTGCAGTCTCTTCGAG

    |*1291    |*1301    |*1311    |*1321    |*1331    |*1341
GCTTTACAGTGTAAACTGTCTTGCCCCTTCATCTTCTTGTTGCAACTGGGTCTGACATGA

    |*1351    |*1361    |*1371    |*1381    |*1391    |*1401
ACACTTTTTATCACCCTGTATGTTAGGGCAAGATCTCAGCAGTGAAGTATAATCAGCACT

    |*1411    |*1421    |*1431    |*1441    |*1451    |*1461
TTGCCATGCTCAGAAAATTCAAATCACATGGAACTTTAGAGGTAGATTTAATACGATTAA

    |*1471    |*1481    |*1491    |*1501    |*1511    |*1521
GATATTCAGAAGTATATTTTAGAATCCCTGCCTGTTAAGGAAACTTTATTTGTGGTAGGT

    |*1531    |*1541    |*1551    |*1561    |*1571    |*1581
ACAGTTCTGGGGTACATGTTAAGTGTCCCCTTATACAGTGGAGGGAAGTCTTCCTTCCTG

    |*1591    |*1601    |*1611    |*1621    |*1631    |*1641
AAGGAAAATAAACTGACACTTATTAACTAAGATAATTTACTTAATATATCTTCCCTGATT

    |*1651    |*1661    |*1671    |*1681    |*1691    |*1701
TGTTTTAAAAGATCAGAGGGTGACTGATGATACATGCATACATATTTGTTGAATAAATGA

    |*1711    |*1721    |*1731    |*1741    |*1751    |*1761
AAATTTATTTTTAGTGATAAGATTCATACACTCTGTATTTGGGGAGGGAAAACCTTTTTA

    |*1771    |*1781    |*1791    |*1801    |*1811    |*1821
AGCATGGTGGGGCACTCAGATAGGAGTGAATACACCTACCTGGTGCCTTGAAAATCACAT

    |*1831    |*1841    |*1851    |*1861    |*1871    |*1881
CAAGTAGTTAATTATCTACCCCTTACCTGTGTTTATAACTTCCAGGTAATGAGAATGATT

    |*1891    |*1901    |*1911    |*1921    |*1931    |*1941
TTTTTTAAAGCTAAAATGCCAGTAAATAAAAGTGCTATGACTTGAGCTAAGATATTTGAC

    |*1951    |*1961    |*1971    |*1981    |*1991    |*2001
TCCAATGCCTGTACTGTGTCTACTGCACCACTTTGTAAACACTTCAATTTACTATCTTTG

    |*2011    |*2021    |*2031    |*2041    |*2051    |*2061
AAATGATTGACCTTTAAATTTTTGCCAAATGTTATCTGAAATTGTCTATGAATACCATCT

    |*2071    |*2081    |*2091    |*2101    |*2111 .    .
ACTTCTGTTGTTTTCCCAGGCTTCCATAAACAATGGAGATACATGCAtataggtcatact
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 .    .    .    .    .    .    .    .    .    .    .    .
ggtttcctttcatttttgattttctatttctaattttctgaattactgcatgccagttg

 .    .    .    .    .    .    .    .    .    .    .    .
ttgcaaaccacttcaagtacttctatggaaagagatggatgttagtcaattagataaact

 .    .    .    .    .    .    .    .    .    .    .    .
tgccttttaattcaaataaggaagaaaatataaatgctgaaaatgaacattccacatgcc

 .    .    .    .    .    .    .    .    .    .    .    .
agaaaagtggaatttttgtaggcaacacttgagtgggggggagacgggccagtctatacta

 .    .    .    .    .    .    .    .    .    .
cccattgaagtaaagactgctggatgaggccctctgttagagatagt
```

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LRG 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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