Gene: LEPRE1 - Sequence: NG_008123.1
Transcript: NM_001146289.1 - Protein: NP_077002.2
Date : February 11, 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: 5001 | End: 5578 | Length: 577


```
   .      .      .      .      .      .      .      .      .      .      .      .
ggcctgcagctggcggcgctccttgcctttcaaggacccccctcggtccgccccggcgcgg

   .      .      .      .      .      .      .      .      .      .      .      .
cggcgtcctccatgacagcgccttatcctccccactccctgggctgtgcgagtaggaaga

   .      .      .      .      .      .      .      .      .      .      .      .
gcctgcgcataaaggcgcgtgggcggagcttccgtctttcttgtctactgggcgtcagtt

   .      .      .      .      .      .      .      .      .      .      .      .
cgactgagcaaggcctgagctcggaggcggggctccggctgacgcgccgggattcgctga

   .      .      .      .      .      .      .      .      .      .      .      .
gggccggtgggggatccgggctgactgaaaggaaaagaggcggtgcaagcctcgtgggc

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

    |-49     |-39     |-29     |-19     |-9      |1
GACTCCGGCCTTGGTGGCGGGTGGCTGGCGGTTCCGTTAGGTCTGAGGGAGCGATGGCGG
                                                          M   A   V
                                                          |1

    |11      |21      |31      |41      |51      |61
TACGCGCGTTGAAGCTGCTGACCACACTGCTGGCTGTCGTGGCCGCTGCCTCCCAAGCCG
  R   A   L   K   L   L   T   T   L   L   A   V   V   A   A   A   S   Q   A   E
                          |11                                      |21

    |71      |81      |91      |101     |111     |121
AGGTCGAGTCCGAGGCAGGATGGGGCATGGTGACGCCTGATCTGCTCTTCGCCGAGGGGA
  V   E   S   E   A   G   W   G   M   V   T   P   D   L   L   F   A   E   G   T
```

1

```
                              |31                             |41

     |131         |141        |151        |161        |171        |181
CCGCAGCCTACGCGCGCGGGGACTGGCCCGGGGTGGTCCTGAGCATGGAACGGGCGCTGC
   A   A   Y   A   R   G   D   W   P   G   V   V   L   S   M   E   R   A   L   R
                              |51                             |61

     |191        |201        |211        |221        |231        |241
GCTCCCGGGCAGCCCTCCGCGCCCTTCGCCTGCGCTGCCGCACCCAGTGTGCCGCCGACT
   S   R   A   A   L   R   A   L   R   L   R   C   R   T   Q   C   A   A   D   F
                              |71                             |81

     |251        |261        |271        |281        |291        |301
TCCCGTGGGAGCTGGACCCCGACTGGTCCCCCAGCCCGGCCCAGGCCTCGGGCGCCGCCG
   P   W   E   L   D   P   D   W   S   P   S   P   A   Q   A   S   G   A   A   A
                              |91                            |101

     |311        |321        |331        |341        |351        |361
CCCTGCGCGACCTGAGCTTCTTCGGGGGGCCTTCTGCGTCGCGCTGCCTGCCTGCGCCGCT
   L   R   D   L   S   F   F   G   G   L   L   R   R   A   A   C   L   R   R   C
                              |111                           |121

     |371        |381        |391        |401        |411        |421
GCCTCGGGCCGCCGGCCGCCCACTCGCTCAGCGAAGAGATGGAGCTGGAGTTCCGCAAGC
   L   G   P   P   A   A   H   S   L   S   E   E   M   E   L   E   F   R   K   R
                              |131                           |141

     |431        |441        |451        |461        .       .       .       .
GGAGCCCCTACAACTACCTGCAGGTCGCCTACTTCAAGgtgcagacctgcctggaaccag
   S   P   Y   N   Y   L   Q   V   A   Y   F   K
                              |151


    .      .      .      .      .      .      .      .      .      .      .      .
gcggccggggtccttctggggagaggagtgttgcaggggacctgaggagcttgggggatc


    .      .      .      .      .      .      .      .      .      .      .      .
ggggaagtgtccgcagggaggggaaagtggcctcctggctggggagctctcctcggagcc


    .      .      .      .      .      .      .      .      .      .      .      .
ggggagagctgctccctggcaggagaccttcctcgcccagttcgcatgggcagatgctaa


    .      .      .      .      .      .      .      .      .      .      .      .
ccccaaaggtccagcctggggttagggcacaggccaagcaaaactcatggccattttgtt


    .      .      .      .      .      .      .      .
ccctgggaaatctcctggaaggaattaaagcggcagtt
```

2

Exon 2 | Start: 9610 | End: 9762 | Length: 152


```
        .       .       .       .       .       .       .       .       .       .       .       .
agcactccccatacaatatgacctttgtttttaaaatggaacattgctacttcctgtaatc

        .       .       .       .       .       .       .       .       .       .       .       .
tggggaaccccctaaatctgacttgggaaagagctacaaatctgcccagggcactatgctc

        .       .       .       .       .       .       .       .       .       .       .       .
ctaatctgtcgtgggtagttcctgcaataggtgtgcttcctggggctggcaggggctggg

        .       .       .       .       .       .       .       .       .       .       .       .
cacgctgagtggagggctcagggaggcagggatttcctgtttatgtggactgctcatgtg

        .       .       .       .       .       .       .       .       .       .       .       .
gacacaaacgttcagagattggatgtgagcattatccaccttctcatgcttcattcttag

     |471       |481       |491       |501       |511       |521
ATCAACAAGTTGGAGAAAGCTGTTGCTGCAGCACACACCTTCTTCGTGGGCAATCCTGAG
I   N   K   L   E   K   A   V   A   A   A   H   T   F   F   V   G   N   P   E
               |161                                   |171

     |531       |541       |551       |561       |571       |581
CACATGGAAATGCAGCAGAACCTAGACTATTACCAAACCATGTCTGGAGTGAAGGAGGCC
H   M   E   M   Q   Q   N   L   D   Y   Y   Q   T   M   S   G   V   K   E   A
               |181                                   |191

     |591       |601       |611         .       .       .       .       .
GACTTCAAGGATCTTGAGACTCAACCCCATATGgtgaaaaaaactttatccccttctttc
D   F   K   D   L   E   T   Q   P   H   M
               |201


        .       .       .       .       .       .       .       .       .       .       .       .
tttctttcttttaaatttattttagagacagagtcttgctctgtcacccaggctggagt

        .       .       .       .       .       .       .       .       .       .       .       .
gcagtggcttgatcatagctcactgtaacctcaaattcccggactcaagagaccctctag

        .       .       .       .       .       .       .       .       .       .       .       .
tctcggcctcctgagtagttgggactacaggcatgcattcttttgtttttttttttaaatga
```

3

```
       .        .        .        .        .        .        .        .        .        .        .        .
cattactaaggttgttttctaattacattacagaagtaatgaatgttcattgtataacat

       .        .        .        .        .        .        .
tgtagaaatgtaggtaagtataaaataaaaagt
```

Exon 3 | Start: 12695 | End: 12884 | Length: 189
BE AWARE: This section overlaps with the following exon

```
       .        .        .        .        .        .        .        .        .        .        .        .
acccaggaggtggaggttgcagtgagctgagattgtgccactgcagtccagcctgggcaa

       .        .        .        .        .        .        .        .        .        .        .        .
cagagtgagactctgtctcaaaaaaagaaaaaaagagctaaatgtttttaaatttccaga

       .        .        .        .        .        .        .        .        .        .        .        .
gctaaatattttgtaaagaccatttacaaaaggccttcattttatagtggtacccaggtc

       .        .        .        .        .        .        .        .        .        .        .        .
acccctttccatccataacctgaggaacaggaaattaggacccctgtgaaggtggctgag

       .        .        .        .        .        .        .        .        .        .        .        .
ggcaaggagagagggttcctcctctgtggcctgcatttgagtgctccttcttcccagtag

   |621       |631       |641       |651       |661       |671
CAAGAATTTCGACTGGGAGTGCGACTCTACTCAGAGGAACAGCCACAGGAAGCTGTGCCC
Q   E   F   R   L   G   V   R   L   Y   S   E   E   Q   P   Q   E   A   V   P
          |211                                 |221

   |681       |691       |701       |711       |721       |731
CACCTAGAGGCGGCGCTGCAAGAATACTTTGTGGCCTATGAGGAGTGCCGTGCCCTCTGC
H   L   E   A   A   L   Q   E   Y   F   V   A   Y   E   E   C   R   A   L   C
          |231                                 |241

   |741       |751       |761       |771       |781       |791
GAAGGGCCCTATGACTACGATGGCTACAACTACCTTGAGTACAACGCTGACCTCTTCCAG
E   G   P   Y   D   Y   D   G   Y   N   Y   L   E   Y   N   A   D   L   F   Q
          |251                                 |261

   |801        .        .        .        .        .        .        .        .        .        .
GCCATCACAGgtgcgtgcagttcagagccagaccttcagccaggcctcctgggactctaa
A   I   T   D
```

4

```
          .         .         .         .         .         .         .         .         .         .
ggtcaccatctgataatataaatggggactcttcaccctcattcctcaatttattaaatc

          .         .         .         .         .         .         .         .         .         .
tgagaagctgatgaaaaattgcttccatttgaatttgttcatcttaaccagaatttgagt

          .         .         .         .         .         .         .         .         .         .
tctaaagagtgacctcatagttattccttctgtttgattcctttcagatcattacatcca

          .         .         .         .         .         .         .         .         .         .
ggtcctcaactgtaagcagaactgtgtcacggagcttgcttcccacccaagtcgagagaa

          .         .
gccctttgaa
```

Exon 4 | Start: 13102 | End: 13233 | Length: 131

```
          .         .         .         .         .         .         .         .         .         .
ccgtgccctctgcgaagggccctatgactacgatggctacaactaccttgagtacaacgc

          .         .         .         .         .         .         .         .         .         .
tgacctcttccaggccatcacaggtgcgtgcagttcagagccagaccttcagccaggcct

          .         .         .         .         .         .         .         .         .         .
cctgggactctaaggtcaccatctgataatataaatggggactcttcaccctcattcctc

          .         .         .         .         .         .         .         .         .         .
aatttattaaatctgagaagctgatgaaaaattgcttccatttgaatttgttcatcttaa

          .         .         .         .         .         .         .         .         .         .
ccagaatttgagttctaaagagtgacctcatagttattccttctgtttgattcctttcag

   |811       |821       |831       |841       |851       |861
ATCATTACATCCAGGTCCTCAACTGTAAGCAGAACTGTGTCACGGAGCTTGCTTCCCACC
  H  Y  I  Q  V  L  N  C  K  Q  N  C  V  T  E  L  A  S  H  P
  |271                                   |281

   |871       |881       |891       |901       |911       |921
CAAGTCGAGAGAAGCCCTTTGAAGACTTCCTCCCATCGCATTATAATTATCTGCAGTTTG
  S  R  E  K  P  F  E  D  F  L  P  S  H  Y  N  Y  L  Q  F  A
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 |291                              |301

 |931            .       .       .       .       .       .       .       .       .
CCTACTATAACAgtaaggcctactttccttcctctttctctgctggctaactaagaagct
  Y  Y  N  I
 |311

      .       .       .       .       .       .       .       .       .       .
aaaggcaaggtgggcagggattacagccacttacttcctcaaggtgtttggcttatttca

      .       .       .       .       .       .       .       .       .       .
gtagctatgggaggcaccatgccaagtgatccctgggtagtttgttataaacaactggcc

      .       .       .       .       .       .       .       .       .       .
taggaagccaataccagcaacccaaaaagctgggggagggagacttaggacctcatctct

      .       .       .       .       .       .       .       .       .       .
tgtcccttctataacttgtaatctatttttgcttttgaattaaagttaatagcaaaataa

      .       .       .
gggtatgccaca


Exon 5 | Start: 14163 | End: 14302 | Length: 139


      .       .       .       .       .       .       .       .       .       .
attatttgtgaatcttaaaagatgtgggcatgcagagaattctgattcttttctgtttca

      .       .       .       .       .       .       .       .       .       .
ttgttaggcagccctgaggacattgaccacctcaccttaaaattaatcacacattctatg

      .       .       .       .       .       .       .       .       .       .
tgtattacttaactcctgcccctgaaatcaggccatcatgttaagtagcaggcaccagct

      .       .       .       .       .       .       .       .       .       .
tgtcatgctgccattgcctcaagctttgtggagactgaacactaagtggtccctggtgct

      .       .       .       .       .       .       .       .       .       .
aggattttatcctttccttttgactctttcctctcagccattcttctttccactttgcag

|941       |951       |961       |971       |981       |991
TTGGGAATTATACACAGGCTGTTGAATGTGCCAAGACCTATCTTCTCTTCTTCCCCAATG
  G   N   Y   T   Q   A   V   E   C   A   K   T   Y   L   L   F   F   P   N   D
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6

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                        |321                          |331

|1001      |1011      |1021      |1031      |1041      |1051
ACGAGGTGATGAACCAAAATTTGGCCTATTATGCAGCTATGCTTGGAGAAGAACACACCA
  E   V   M   N   Q   N   L   A   Y   Y   A   A   M   L   G   E   E   H   T   R
                        |341                          |351

|1061      |1071        .    .    .    .    .    .    .    .
GATCCATCGGCCCCCGTGAGgtgagagacttccttctgttatgacagctgccagctgaac
  S   I   G   P   R   E


      .    .    .    .    .    .    .    .    .    .    .    .
  tcagacctgagggcggaagagtggggtagcagaggggagtaggcgctgtgcgtgcagggc


      .    .    .    .    .    .    .    .    .    .    .    .
  aggggccagatgtcagtgttggggccagatgtgagttcagtcactcggcttgttattcag


      .    .    .    .    .    .    .    .    .    .    .    .
  aggagaagggagcacagggagggagtgtggggagtacacaggagcctcaattagcgttat


      .    .    .    .    .    .    .    .    .    .    .    .
  ctgggcccagaagtctattctctgagtcccgcagaactgcgcggtgagcatattctttcc


      .    .    .    .
  cctcttggcacccctaactt




Exon 6 | Start: 16448 | End: 16537 | Length: 89
BE AWARE: This section overlaps with the following exon



      .    .    .    .    .    .    .    .    .    .    .    .
  gaatcatcagattatctgtcctagagactaatgggggttgggatggggggaggagcagggc


      .    .    .    .    .    .    .    .    .    .    .    .
  tttttcccttaaggaaagcctggttattccagtacctcagaggtactgttgcttgtgcca


      .    .    .    .    .    .    .    .    .    .    .    .
  ggcagaggacacagaaattagactttgtctcaaactggggaacagacagagagcattgg


      .    .    .    .    .    .    .    .    .    .    .    .
  tagggagaggaggcctcaggtcacatgggagcatcagtgtggggtgccagggaggggaac




                              7
```

```
     .         .         .         .         .         .         .         .         .         .
     tcccagagaggttaaaagacagggctgagttctgggggatttgtttgctttttttaccctcag

     |1081      |1091      |1101      |1111      |1121      |1131
     AGTGCCAAGGAGTACCGACAGCGAAGCCTACTGGAAAAAGAACTGCTTTTCTTCGCTTAT
     S   A   K   E   Y   R   Q   R   S   L   L   E   K   E   L   L   F   F   A   Y
     |361                                        |371

     |1141      |1151      |1161      .         .         .         .         .         .
     GATGTTTTTGGAATTCCCTTTGTGGATCCGgtgagctagggtacaggagccggaagggag
     D   V   F   G   I   P   F   V   D   P
     |381

          .         .         .         .         .         .         .         .         .         .
     cggggaaagagtgagcaggagagatgaatggggaggaggggaacactgtgcgattctgag

          .         .         .         .         .         .         .         .         .         .
     agaaaacttgctggaggctgagcctagcctgggatctgtgcaaggcagggatgagagaca

          .         .         .         .         .         .         .         .         .         .
     gatgaaaggggaacactgggcagctagaagggacttagatgtggaaacctcccattttgt

          .         .         .         .         .         .         .         .         .         .
     ctcctgaaaggaagagggtgataagctggattactcctgtgggccttattttatgcattg

          .         .         .         .         .         .
     agacacctggaagattaagtagatcatctt


     Exon 7 | Start: 16868 | End: 16920 | Length: 52
     BE AWARE: This section overlaps with the following exon


          .         .         .         .         .         .         .         .         .         .
     cggggaaagagtgagcaggagagatgaatggggaggaggggaacactgtgcgattctgag

          .         .         .         .         .         .         .         .         .         .
     agaaaacttgctggaggctgagcctagcctgggatctgtgcaaggcagggatgagagaca

          .         .         .         .         .         .         .         .         .         .
     gatgaaaggggaacactgggcagctagaagggacttagatgtggaaacctcccattttgt

          .         .         .         .         .         .         .         .         .         .
     ctcctgaaaggaagagggtgataagctggattactcctgtgggccttattttatgcattg
```

8

```
     .        .        .        .        .        .        .        .        .        .        .        .
agacacctggaagattaagtagatcatcttaccttttttcatttcttcctgacctacttag

|1171     |1181     |1191     |1201     |1211     |1221     .
GATTCATGGACTCCAGAAGAAGTGATTCCCAAGAGATTGCAAGAGAAACAGAAgtgagga
D   S   W   T   P   E   E   V   I   P   K   R   L   Q   E   K   Q   K
|391                                     |401


     .        .        .        .        .        .        .        .        .        .        .        .
ccttgaagaaactgcatggttggatcagtctgatgaagcacttgaggcttcctgagccca

     .        .        .        .        .        .        .        .        .        .        .        .
ggcagatgtgaactcctggcaagggggtgggcaggtccagtttgggaagtcggggtggagc

     .        .        .        .        .        .        .        .        .        .        .        .
ccagggctggccctggaatgcagtcctcagagcggctgtgctcataggtcagaacgggaa

     .        .        .        .        .        .        .        .        .        .        .        .
acagccgtacgcatctcccaggagattgggaaccttatgaaggaaatcgagacccttgtg

     .        .        .        .        .        .        .        .        .        .        .        .
gaagagaagaccaaggagtcactggatgtgagcagactgacccgggaaggtga


Exon 8 | Start: 17095 | End: 17216 | Length: 121


     .        .        .        .        .        .        .        .        .        .        .        .
attttatgcattgagacacctggaagattaagtagatcatcttaccttttttcatttcttc

     .        .        .        .        .        .        .        .        .        .        .        .
ctgacctacttaggattcatggactccagaagaagtgattcccaagagattgcaagagaa

     .        .        .        .        .        .        .        .        .        .        .        .
acagaagtgaggaccttgaagaaactgcatggttggatcagtctgatgaagcacttgagg

     .        .        .        .        .        .        .        .        .        .        .        .
cttcctgagcccaggcagatgtgaactcctggcaagggggtgggcaggtccagtttgggaa

     .        .        .        .        .        .        .        .        .        .        .        .
gtcggggtggagcccagggctggccctggaatgcagtcctcagagcggctgtgctcatag

          |1231     |1241     |1251     |1261     |1271     |1281
```

9

```
GTCAGAACGGGAAACAGCCGTACGCATCTCCCAGGAGATTGGGAACCTTATGAAGGAAAT
  S   E   R   E   T   A   V   R   I   S   Q   E   I   G   N   L   M   K   E   I
      |411                                       |421

          |1291       |1301       |1311       |1321       |1331       |1341
CGAGACCCTTGTGGAAGAGAAGACCAAGGAGTCACTGGATGTGAGCAGACTGACCCGGGA
  E   T   L   V   E   E   K   T   K   E   S   L   D   V   S   R   L   T   R   E
      |431                                       |441


         .         .         .         .         .         .         .         .         .         .
AGgtgagaggacagaaataggggcatgtctggctgttgtcagggagccaggcaggtcacc
 G


         .         .         .         .         .         .         .         .         .         .
ccacatttgccaggcagcgctccaccccagcattgcagagctcaccatgagccagccacc

         .         .         .         .         .         .         .         .         .         .
cttagggtgcaagttcagtggacatccttcctaactcaccagcgggactttcagctggaa

         .         .         .         .         .         .         .         .         .         .
agagcactgagaatcagcctttggctcagaaatcagactccaggatgtagtggtgcacac

         .         .         .         .         .         .         .         .         .         .
ccgtaatcccagctacttggcaggctgaggcaggaggatcgcttgagcccaggagtttga

         .
at




Exon 9 | Start: 19421 | End: 19548 | Length: 127
BE AWARE: This section overlaps with the following exon



         .         .         .         .         .         .         .         .         .         .
gttcttcctcgttcccgagctcatgttttaggattgtgtttctgatgtttcctcaagagt

         .         .         .         .         .         .         .         .         .         .
gtgtcatggcccaaaagccagcagctatttggtcatggagctgggactgggaatctcatc

         .         .         .         .         .         .         .         .         .         .
tttcagctctatgttctgtcctctggactattctacctttgaaaatgacctagcgggaga

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

```
ttttgctggtgaaaaggaaacagctggaatttctatttgtgacgaggaggcaatatccaa

    .      .      .      .      .      .      .      .      .      .
tggagagtctttggtctagctgctgctagatttagctagagttttgtcattgctttgcag

       |1351     |1361     |1371     |1381     |1391     |1401
GTGGCCCCCTGCTGTATGAAGGCATCAGTCTCACCATGAACTCCAAACTCCTGAATGGTT
  G  P  L  L  Y  E  G  I  S  L  T  M  N  S  K  L  L  N  G  S
       |451                               |461

       |1411     |1421     |1431     |1441     |1451     |1461
CCCAGCGGGTGGTGATGGACGGCGTAATCTCTGACCACGAGTGTCAGGAGCTGCAGAGAC
  Q  R  V  V  M  D  G  V  I  S  D  H  E  C  Q  E  L  Q  R  L
       |471                               |481

       |1471     .      .      .      .      .      .      .      .      .
TGACCAATgtaagggaagcccagtgactgcaccttcccccaagggtccagcatcccccca
  T  N
       |491

    .      .      .      .      .      .      .      .      .      .
ccaagtgccccttgggtggtagccttcgccttcctcttcctggccacagttgaccacctc

    .      .      .      .      .      .      .      .      .      .
ttctcaagccctcagctgccctggctaacatcaccttgtgtttttgggccttgtaggtggc

    .      .      .      .      .      .      .      .      .      .
agcaacctcaggagatggctaccggggtcagacctcccacatactcccaatgaaaagtt

    .      .      .      .      .      .      .      .      .      .
ctatggtgtcactgtcttcaaagccctcaaggtaagatcaacactgggcattctagagtg

    .      .
tggagaaa


Exon 10 | Start: 19716 | End: 19811 | Length: 95


    .      .      .      .      .      .      .      .      .      .
tgcaggtggcccccTGCTGTATGAAGGCATCAGTCTCACCATGAACTCCAAACTCCTGAA

    .      .      .      .      .      .      .      .      .      .
tggttcccagcgggtggtgatggacggcgtaatctctgaccacgagtgtcaggagctgca
```

```
           .         .         .         .         .         .         .         .         .         .
           gagactgaccaatgtaagggaagcccagtgactgcaccttcccccaagggtccagcatcc

           .         .         .         .         .         .         .         .         .         .
           ccccaccaagtgccccttgggtggtagccttcgccttcctcttcctggccacagttgacc

           .         .         .         .         .         .         .         .         .         .
           acctcttctcaagccctcagctgccctggctaacatcaccttgtgttttgggccttgtag
                 |1481      |1491      |1501      |1511      |1521      |1531
           GTGGCAGCAACCTCAGGAGATGGCTACCGGGGTCAGACCTCCCCACATACTCCCAATGAA
           V   A   A   T   S   G   D   G   Y   R   G   Q   T   S   P   H   T   P   N   E
                                                   |501                                  |511

                 |1541      |1551      |1561         .         .         .         .
           AAGTTCTATGGTGTCACTGTCTTCAAAGCCCTCAAGgtaagatcaacactgggcattcta
           K   F   Y   G   V   T   V   F   K   A   L   K
                                                   |521

           .         .         .         .         .         .         .         .         .         .
           gagtgtggagaaaggggtggggaaggggggaagctcaggctttgaggaagagttggggctg

           .         .         .         .         .         .         .         .         .         .
           gtggcaggaaaggtgaagagggtccacctgccaacattcttgttgccaggaagcgaggat

           .         .         .         .         .         .         .         .         .         .
           gagttatgttgcgtgaggttcacttttgaatcctgttagaccgagtgtaatcaaaacaaa

           .         .         .         .         .         .         .         .         .         .
           gtgagcaggataagactgttcgccaaagctatgagaatgctttcttttagaaaggctgatt

           .         .         .         .         .         .
           ctagagggctgtgcttctgtgcaggatgcacagtgt


Exon 11 | Start: 21749 | End: 21899 | Length: 150


           .         .         .         .         .         .         .         .         .         .
           acggggtggctggccgggctgaggggctcctcacttcccagtaggggcggccgggcagag

           .         .         .         .         .         .         .         .         .         .
           gcgcccctcacctcccggacgcaaactcccattttttttaaagccaccagatctcgtgaga
```

```
           .         .         .         .         .         .         .         .         .         .         .         .
           cttattcagtattatgagaacagcacgggaaagatccaccccattattcagtcatctcc

           .         .         .         .         .         .         .         .         .         .         .         .
           caccaggtcccttccacaacacatgggaattatgggaactacaagataagatttgggtag

           .         .         .         .         .         .         .         .         .         .         .         .
           ggacacagagccaaaccatatcagtcgttgagggcagctgaccatctgtctccttggcag

            |1571      |1581      |1591      |1601      |1611      |1621
           CTGGGGCAAGAAGGCAAAGTTCCTCTGCAGAGTGCCCACCTGTACTACAACGTGACGGAG
           L  G  Q  E  G  K  V  P  L  Q  S  A  H  L  Y  Y  N  V  T  E
                                 |531                              |541

            |1631      |1641      |1651      |1661      |1671      |1681
           AAGGTGCGGCGCATCATGGAGTCCTACTTCCGCCTGGATACGCCCCTCTACTTTTCCTAC
           K  V  R  R  I  M  E  S  Y  F  R  L  D  T  P  L  Y  F  S  Y
                                 |551                              |561

            |1691      |1701      |1711       .         .         .         .         .
           TCTCATCTGGTGTGCCGCACTGCCATCGAAGgtgggcctcattacccctgcagcacccgc
           S  H  L  V  C  R  T  A  I  E  E
                                 |571

           .         .         .         .         .         .         .         .         .         .         .         .
           ccccgcatgctgtacctcagctctgtgctggatgctgaagacacagagagaacaggatgc

           .         .         .         .         .         .         .         .         .         .         .         .
           ggtcccttttcttcagttggggaaccaatgtaaatacatgggtggcatcccagtgtgatg

           .         .         .         .         .         .         .         .         .         .         .         .
           catgccacagtagcatggaggaagttatagtcaacctacctggggatcaagaaggcttcc

           .         .         .         .         .         .         .         .         .         .         .         .
           cagagggaaatggggtgcagccagaaaggggggccacccgtcacttgtcacacaacgcact

           .         .         .         .         .         .         .
           ttaatggggaagctggtgctaaaccattcat


Exon 12 | Start: 23768 | End: 23885 | Length: 117
BE AWARE: This section overlaps with the following exon
```

13

```
        .         .         .         .         .         .         .         .         .         .         .         .
        tttgtattttgtaaagtccagctacaaaccagggttgtgccattctgcccaggatctgcc

        .         .         .         .         .         .         .         .         .         .         .         .
        cttggttggagcccttcattcctgcttgccacaccctgctcacttctgccaagaactgtc

        .         .         .         .         .         .         .         .         .         .         .         .
        ctaggaagcctgcagacttgtcctgacccctaggcttgtggcttagccaaagacacccc

        .         .         .         .         .         .         .         .         .         .         .         .
        ctagttcattgggcattccgtagactcaaacacattttgggaagcacctcccctgccaag

        .         .         .         .         .         .         .         .         .         .         .         .
        aagagagctatgccgtctcccgaggtgctcccttgctaacatgtgtgacattggccccag

        |1721      |1731      |1741      |1751      |1761      |1771
        AGGTCCAGGCAGAGAGGAAGGATGATAGTCATCCAGTCCACGTGGACAACTGCATCCTGA
         V  Q  A  E  R  K  D  D  S  H  P  V  H  V  D  N  C  I  L  N
                                   |581                      |591

        |1781      |1791      |1801      |1811      |1821      |1831
        ATGCCGAGACCCTCGTGTGTGTCAAAGAGCCCCCAGCCTACACCTTCCGCGACTACAGgt
          A  E  T  L  V  C  V  K  E  P  P  A  Y  T  F  R  D  Y  S
                                   |601                      |611

         .         .         .         .         .         .         .         .         .         .         .         .
        gagtgcggggcaggtgcagggtgaggaggtctgtgccctcctcagaggccccacagtgcc

         .         .         .         .         .         .         .         .         .         .         .         .
        ctgcactctactaccccaccctagcacacacacactggttggggctagctgttcccagag

         .         .         .         .         .         .         .         .         .         .         .         .
        tccaatcctttatccccaaacccgctggataagaagataggcaaagagggaatcatatcg

         .         .         .         .         .         .         .         .         .         .         .         .
        tggtgtgacaagaacggtagtgtgagtgggcacaggggactctaaggcgagggtggagag

         .         .         .         .         .         .         .         .         .         .         .         .
        tggaaaggtggagtttgtacggcatcagtataggttcttaaaggtttccctcccacac
```

Exon 13 | Start: 24287 | End: 24362 | Length: 75
BE AWARE: This section overlaps with the following exon

```
        .         .         .         .         .         .         .         .         .         .         .         .
        tggggctagctgttcccagagtccaatcctttatccccaaacccgctggataagaagata

        .         .         .         .         .         .         .         .         .         .         .         .
        ggcaaagagggaatcatatcgtggtgtgacaagaacggtagtgtgagtgggcacaggggga

        .         .         .         .         .         .         .         .         .         .         .         .
        ctctaaggcgagggtggagagtggaaaggtggagtttgtacggcatcagtataggttctt

        .         .         .         .         .         .         .         .         .         .         .         .
        aaaggtttccctcccacacaaagccaccctcctgctgctggttgagagcacctggaggtg

        .         .         .         .         .         .         .         .         .         .         .         .
        aaggctcaggggaaagggaggcagggaagggccatgatgagatgtctctgcctttcccag

          |1841      |1851      |1861      |1871      |1881      |1891
        CGCCATCCTTTACCTAAATGGGGACTTCGATGGCGGAAACTTTTATTTCACTGAACTGGA
         A  I  L  Y  L  N  G  D  F  D  G  G  N  F  Y  F  T  E  L  D
                                   |621                              |631

          |1901      |1911      .         .         .         .         .         .
        TGCCAAGACCGTGACGgtgagtgctcccttgtccttgtccctgggagataaaaagtctgt
         A  K  T  V  T


        .         .         .         .         .         .         .         .         .         .         .         .
        tttctacagctgatgttcccaaagtgcagtggacaaaaataaccaactgggcttcccagt

        .         .         .         .         .         .         .         .         .         .         .         .
        gggcggtacccttcccccatccagaggggctttgagacgtgtccatcactcctctaacca

        .         .         .         .         .         .         .         .         .         .         .         .
        gtcaccctttctctttagttctggtcttagggaagccatactgaagagctgccctcggtc

        .         .         .         .         .         .         .         .         .         .         .         .
        gtgagccctaatgagcccatgtctcttctgagagtggattacagtctttgtcctgtgcaa

        .         .         .         .
        cccccctccctttctg



        Exon 14 | Start: 24673 | End: 25750 | Length: 1077
```

```
      .         .         .         .         .         .         .         .         .         .         .         .
      ccttgtccttgtccctgggagataaaaagtctgttttctacagctgatgttcccaaagtg

      .         .         .         .         .         .         .         .         .         .         .         .
      cagtggacaaaaataaccaactgggcttcccagtgggcggtacccttcccccatccagag

      .         .         .         .         .         .         .         .         .         .         .         .
      gggctttgagacgtgtccatcactcctctaaccagtcaccctttctctttagttctggtc

      .         .         .         .         .         .         .         .         .         .         .         .
      ttagggaagccatactgaagagctgccctcggtcgtgagccctaatgagcccatgtctct

      .         .         .         .         .         .         .         .         .         .         .         .
      tctgagagtggattacagtctttgtcctgtgcaacccccctccctttctgtccccctta

         |1921      |1931      |1941      |1951      |1961      |1971
      GCAGAGGTGCAGCCTCAGTGTGGAAGAGCCGTGGGATTCTCTTCAGGCACTGAAAACCCA
      A   E   V   Q   P   Q   C   G   R   A   V   G   F   S   S   G   T   E   N   P
         |641                                         |651

         |1981      |1991      |2001      |2011      |2021      |2031
      CATGGAGTGAAGGCTGTCACCAGGGGGCAGCGCTGTGCCATCGCCCTGTGGTTCACCCTG
      H   G   V   K   A   V   T   R   G   Q   R   C   A   I   A   L   W   F   T   L
         |661                                         |671

         |2041      |2051      |2061      |2071      |2081      |2091
      GACCCTCGACACAGCGAGCGGGTGAGAGCAGCTCGAGCGGGTGAGAGCAGCTGGTGCTGT
      D   P   R   H   S   E   R   V   R   A   A   R   A   G   E   S   S   W   C   C
         |681                                         |691

         |2101      |2111      |2121      |2131      |2141      |2151
      GGTGACCCGTTCCCAGAGCGCCCTTGGTTTGCCTTTCTCTTCCCCAAATCCCATTGCCAG
      G   D   P   F   P   E   R   P   W   F   A   F   L   F   P   K   S   H   C   Q
         |701                                         |711

         |2161      |2171      |2181      |2191      |2201      |2211
      TGGCTGAGACACGAAAGGAGCACTTGGGACACCAGCTCCAACGCCCTGTCATTATGGTCA
      W   L   R   H   E   R   S   T   W   D   T   S   S   N   A   L   S   L   W   S
         |721                                         |731

         |2221      |2231      |2241      |2251      |2261      |2271
      CATTGCCTTGTCCTCCCTGGGCCTGCTGTGAACGGGATCCAGGTGGGGAAAGAGGTCAAG
      H   C   L   V   L   P   G   P   A   V   N   G   I   Q   V   G   K   E   V   K
         |741                                         |751
```

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        |2281       |2291       |2301       |2311       |2321       |2331
ACAGGGAGCGATGCTGAGTTCTTGGTTCCCTCCTTGGGCCCCACTTCAGCTGTCCTTTTC
T  G  S  D  A  E  F  L  V  P  S  L  G  P  T  S  A  V  L  F
        |761                                |771

        |2341       |2351       |2361       |2371       |2381       |2391
CAGAGAGTAGGACCTGCTGGGAAGGAGATGAGCCTGGGGCCATTAAGGAACCTTCCTTGT
Q  R  V  G  P  A  G  K  E  M  S  L  G  P  L  R  N  L  P  C
        |781                                |791

        |2401       |2411|+1        |+11        |+21        |+31
CCCCTGGGAAGTAGCAGCTGAGAGATAGCGAGTGTCTGGAGCGGAGGCCTCTCTGAATGG
P  L  G  S  S  S  *
        |801

 |+41        |+51        |+61        |+71        |+81        |+91
GCAGGGGTTTGTCCTTGCAGGACAGGGTGCAGGCAGATGACCTGGTGAAGATGCTCTTCA

 |+101       |+111       |+121       |+131       |+141       |+151
GCCCAGAAGAGATGGACCTCTCCCAGGAGCAGCCCCTGGATGCCCAGCAGGGCCCCCCCG

 |+161       |+171       |+181       |+191       |+201       |+211
AACCTGCACAAGAGTCTCTCTCAGGCAGTGAATCGAAGCCCAAGGATGAGCTATGACAGC

 |+221       |+231       |+241       |+251       |+261       |+271
GTCCAGGTCAGACGGATGGGTGACTAGACCCATGGAGAGGAACTCTTCTGCACTCTGAGC

 |+281       |+291       |+301       |+311       |+321       |+331
TGGCCAGCCCCTCGGGGCTGCAGAGCAGTGAGCCTACATCTGCCACTCAGCCGAGGGGAC

 |+341       |+351       |+361       |+371       |+381       |+391
CCTGCTCACAGCCTTCTACATGGTGCTACTGCTCTTGGAGTGGACATGACCAGACACCGC

 |+401       |+411       |+421       |+431       |+441       |+451
ACCCCCTGGATCTGGCTGAGGGCTCAGGACACAGGCCCAGCCACCCCCAGGGGCCTCCAC

 |+461       |+471       |+481       |+491       |+501       |+511
AGGCCGCTGCATGACAGCGATACAGTACTTAAGTGTCTGTGTAGACAACCAAAGAATAAA

 |+521       |+531       |+541       |+551       |+561       |+571
TGATTCATGGTTTTTTTTTACTTGGTTTGTTCAGACAATGGAAATTTGCCCATTCTGTCcc

     .     .     .     .     .     .     .     .     .     .     .     .
     agaggtctcacttgataaaaattgctctaggcaggacccagtggcaggtgtgggacgaga
```

```
          .         .         .         .         .         .         .         .         .         .         .         .
agtcctggcttggcacctggctcaaccacttgctgtgcagccacaggccagacacttaac

          .         .         .         .         .         .         .         .         .         .         .         .
cttcagcacctcggggttgtcatctgtataatggggatcatagtcctccctctgctcacc

          .         .         .         .         .         .         .         .         .         .         .         .
ttctggggcagctgtatggcccagatgcaatatcggatgtgacaacacttttgtaaacgg

          .         .         .         .         .         .         .         .         .         .         .         .
taaagctctgggtgaatggttgggattattgttaatcctcttctggcagggagcggcg

LRG Parser: Version: 0.2, Version Date: 11/02/2015
Reader: Version: 0.2, Version Date: 11/02/2015
Writer: Version: 0.2, Version Date: 11/02/2015
Control: Version: 0.2, Version Date: 11/02/2015
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