

Gene: NF1 - Sequence: NG_009018.1

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: 4951 | End: 5393 | Length: 442

```
. . . . .
agggacgctcgccagacggcccagaggagttagatgacgtcacctccaggaggactcgct
. . . . .
ttttcattaatgaaaccggccggcgcgggcgcatgcgcggcaggccgccttcctctcg
. . . . . | -379 | -369 | -359
ttccccctccccctttcccagccgctctcAATCTCTAGCTCGCTCGCGCTCCCTCTCCC
. . . . . | -349 | -339 | -329 | -319 | -309 | -299
CGGGCCGTGGAAAGGATCCCACTTCCGGTGGGGTGTCATGGCGGCGTCTCGGACTGTGAT
. . . . . | -289 | -279 | -269 | -259 | -249 | -239
GGCTGTGGGGAGACGGCGCTAGTGGGGAGAGCGACCAAGAGCCCCCTCCCCTCCCCGG
. . . . . | -229 | -219 | -209 | -199 | -189 | -179
TCCCCTTCCCCTATCCCCCTCCCCCAGCCTCCTTGCCAACGCCCTTTCCCTCTCCCC
. . . . . | -169 | -159 | -149 | -139 | -129 | -119
CTCCCGCTGGGCGCTGACCCCCATCCCCACCCCGTGGGAACACTGGGAGCCTGCACTC
. . . . . | -109 | -99 | -89 | -79 | -69 | -59
CACAGACCTCTCCTTGCTCTTCCCTCACCTCAGCCTCCGCTCCCCGCCCTCTTCCGG
. . . . . | -49 | -39 | -29 | -19 | -9 | 1
CCCAGGGCGCGGCCACCCTTCCCTCCGCGCCCCCGCGCGGGAGGACATGGCCG
. . . . . M A A
. . . . . | 1
. . . . . | 11 | 21 | 31 | 41 | 51
CGCACAGGCCGGTGGAAATGGGTCCAGGCCGTGGTCAGCCGCTTCGACGAGCAGgtaaccg
H R P V E W V Q A V V S R F D E Q
```

|11

.
gcccgtggcgggcgggaggtgggagcggagtgggggtggggacagagtaggtgaggggag
.
gtaggagcggccgcctccccgcggctgcctcaggctctggaggaaaggaagggaaggga
.
agagaagggaaggggggataagt

Exon 2 | Start: 66007 | End: 66150 | Length: 143

.
gattgaaaatcggagtttgagatgcaagtataggtatctgtggttgatgcagttttccta
.
aaacgtcatgattttcaatggcaagtaagttatttatggtcgtttttaaggataagctgt

. |61 |71 |81
taacgtgttttttttttctttttttttcagCTTCCAATAAAAAACAGGACAGCAGAACACA
L P I K T G Q Q N T
|21

|91 |101 |111 |121 |131 |141
CATACCAAAGTCAGTACTGAGCACAAACAAGGAATGTCTAATCAATATTCCAAATACAAG
H T K V S T E H N K E C L I N I S K Y K
|31 |41

|151 |161 |171 |181 |191 |201 .
TTTTCTTTGGTTATAAGCGGCCTCACTACTATTTTAAAGAATGTTAACAATATGgtgagt
F S L V I S G L T T I L K N V N N M
|51 |61

.
atttgggttactgtgttttggggaatttgctttcttttcttttgattaaaaagtttaga

.
acagcatattttgaagtatggaaagtgattttctgtggactttggatataaccattaatc

.
ttattttgtttacgagcacagata

Exon 3 | Start: 69034 | End: 69117 | Length: 83

```
. . . . .
aatcagaaataatatatttaagtagtataaatctgggaggtaaaatggaagactattgt

. . . . .
tgatcttttagtctttcacttttcagatgtgtgttgattggtagcagaaagtgaaactaa

. . . . . |211 |221 |231
cttttatgttctgaatatcttttctgttagAGAATATTTGGAGAAGCTGCTGAAAAAAT
                      R I F G E A A E K N
                      |71

|241 |251 |261 |271 |281 .
TTATATCTCTCTCAGTTGATTATATTGGATACACTGGAAAAATGTCTTGCTGGGgtaagt
L Y L S Q L I I L D T L E K C L A G
|81 |91

. . . . .
aaattgatcttaagtaggcaggctttgtgaatttgatcttgagaatgatcttatgtccca

. . . . .
aagtacagatgtggaccaagaggacagtcctatggacttttgtctgagacatataaatat

. . . . .
gagttttgttaatatagctgacct
```

Exon 4 | Start: 73210 | End: 73400 | Length: 190

```
. . . . .
tgatgaaacgttaacagttgtttaatctaggtggtgtgtatgtaagggttcattatttt

. . . . .
tgttctgtgtgtgtgtttgaaaattttcataatagaaaatgtttacaggtaaaattaaag

. . . . . |291 |301 |311
tttagaataatgtgattattttctattttagCAACCAAAGGACACAATGAGATTAGATGAA
```

Q P K D T M R L D E
|101

|321 |331 |341 |351 |361 |371
ACGATGCTGGTCAAACAGTTGCTGCCAGAAATCTGCCATTTCTTCACACCTGTCGTGAA
T M L V K Q L L P E I C H F L H T C R E
|111 |121

|381 |391 |401 |411 |421 |431
GGAAACCAGCATGCAGCTGAACCTCGGAATTCTGCCTCTGGGGTTTTATTCTCTCAGC
G N Q H A A E L R N S A S G V L F S L S
|131 |141

|441 |451 |461 |471 . . .
TGCAACAACTTCAATGCAGTCTTTAGTCGCATTCTACCAGgtagtggtgtaaataccaca
C N N F N A V F S R I S T R
|151

.
tgggactactgaagtaatatgaatattagaagttttgtttttgtctacataaaaaataaa

.
aagttaatggaaatgaggttttttgtttttgagacaagttcttttgcccctcacagcag

. . .
ctttgacctcc

Exon 5 | Start: 79915 | End: 80021 | Length: 106

.
ttgctatgttgcccaggctgggtcttgaactcctggcctcaagtggtcctcctgccttggc

.
ctcctgaagtgctgggattacaggtgtgagataccacacctgtcccctaataacttaattt

. |481 |491 |501
gataagttaatttttggtttttacttttttagGTTACAGGAATTAAGTGTTCAGAAAGA
L Q E L T V C S E D
|161

|511 |521 |531 |541 |551 |561
CAATGTTGATGTTTCATGATATAGAATTGTTACAGTATATCAATGTGGATTGTGCAAAATT

N V D V H D I E L L Q Y I N V D C A K L
|171 |181

|571 |581
AAAACGACTCCTGAAGGgtaagtttaaagtataatatctgaaaaaatcactgggtc
K R L L K E
|191

.
aaaaactagtatcatgaatgtactaattatattaattgtgctgaactagaacaccaaact

.
ggatTTtataatgacatttccttgTgaataaccagtaatacaaatg

Exon 6 | Start: 91446 | End: 91513 | Length: 67
BE AWARE: This section overlaps with the following exon

.
TTTTGGgtttatgttaggtgtctttacctttcattgcttacagataaatattggagcaaaa

.
gtaatacgtaaatggaaagttattttgctctgagttgtattgtgttaacttattctaga

. |591 |601 |611
gttaatttttaaaaattgtgtttttccagAAACAGCATTAAATTTAAAGCCCTAAAGA
T A F K F K A L K K
|201

|621 |631 |641 |651
AGGTTGCGCAGTTAGCAGTTATAAATAGCCTGGAAAAGgtaagttacaacctctctggta
V A Q L A V I N S L E K
|211

.
ttaaaattttgtttttgatgtaaaatttgctgttgtagcatcctgaatcaaaaagttat

.
gacttgagtgatagtttcacattcattttcaggaagaatacattgtaatattattatgaa

. . .
ggaagtta

Exon 7 | Start: 91734 | End: 91809 | Length: 75

```
. . . . .
tcaaaaagttagtacttgagttagttagttcacattcattttcaggaagaatacattgtaa

. . . . .
tattattatgaaggaagtagaagttgtgacattttatttactgtattacaaaaaatca

. . . . . |661 |671 |681
ctgtaaagacatgtggttctttatttatagGCATTTTGGAAGTGGGTAGAAAATTATCCA
                        A F W N W V E N Y P
                        |221

|691 |701 |711 |721 . .
GATGAATTTACAAACTGTACCAGATCCCACAGACTGATATGGCTGgtaaggatacgatt
D E F T K L Y Q I P Q T D M A E
|231 |241

. . . . .
gattttttttttttttgtcttttaaagcctacttgtagacataaaacctatcatcgt

. . . . .
ttccaagtatttttgttataaaggtgcttttacatcttctattgtcaactgggtgtcaa

. . . .
ataggaaatactgttt
```

Exon 8 | Start: 92532 | End: 92689 | Length: 157

```
. . . . .
cagaatgcatttgtgtagttgcttaaatgaagttccatgtttatcttttaaaatgttgc

. . . . .
ccttgggtttttacatagtgtagcttttactttaatgccagggttttgttcctatcta

. . . . . |731 |741 |751
ataatgtcatttaatatatttttcatgcagAATGTGCAGAAAAGCTATTTGACTTGGTGG
                        C A E K L F D L V D
```


CTGTGTAAAGCAAGTACTTACATCAATTGGGAAGATAACTCTGTCATTTTCCTACTTGTT
 L C K A S T Y I N W E D N S V I F L L V
 |331 |341

|1041 |1051 |1061
 CAGTCCATGGTGGTTGATCTTAAGgtaacatgcttattctttctctactacaaacttta
 Q S M V V D L K
 |351

.
 gaaaattaaatgaattttctagcataagattatgtcaaagataattgctaacttaaag

.
 ttctgactcttcggtgataagttcataggacttgcttttggttactgtgttc

Exon 10 | Start: 111061 | End: 111183 | Length: 122
 BE AWARE: This section overlaps with the following exon

.
 gatgaaccacagtatgggtgctttgtgcttcttctggcagctggattttactgccatttg

.
 tgtgggtaatgtgttgatgttattacatgtagtaagaaatactgcatgggtatttaaa

. |1071 |1081 |1091
 ggcttttggtttctgttgggggttttatagAACCTGCTTTTAAATCCAAGTAAGCCATTC
 N L L F N P S K P F
 |361

|1101 |1111 |1121 |1131 |1141 |1151
 TCAAGAGGCAGTCAGCCTGCAGATGTGGATCTAATGATTGACTGCCTTGTTTCTTGCTTT
 S R G S Q P A D V D L M I D C L V S C F
 |371 |381

|1161 |1171 |1181
 CGTATAAGCCCTCACAACAACCAACACTTTAAGgtgagagcattgggttttatctaacta
 R I S P H N N Q H F K
 |391

.
 tatttactgatgctgttatcctttataaacaagactatagagattaataggttcact

.
 tttatcggatatttctcactattatgtattgatgttcgtttcaagaccttaaaaacttagt
 .
 gtt

Exon 11 | Start: 111435 | End: 111509 | Length: 74

.
 tcactattatgtattgatgttcgtttcaagaccttaaaaacttagtggttttttttttaa

 ctttctatttgctgttctttttggcttcatttgattactgagtatttttctcatagaaa
 |1191 |1201 |1211
 taatctgctttttttttctttttctatatagATCTGCCTGGCTCAGAATTCACCTTCTACA
 I C L A Q N S P S T
 |401
 |1221 |1231 |1241 |1251 . . .
 TTCACTATGTGCTGGTAAATTCACCTCCATCGAATCATCACCAATgtaagtcctaaaaggt
 F H Y V L V N S L H R I I T N
 |411

 attgctaaattactaaaaaattttttctttcttttctttgcgtatttctttttaagaa

 atgcactcttggttttcaaaaagggttctgaatttagatgtatgaaataggaaaatttctc
 . . .
 catggtgattctatt

Exon 12 | Start: 116264 | End: 116395 | Length: 131

.
 tttgaagacttttgaaatcatggtgtgtgtttgcatggtcttagaaagttcccgacaaaa

.
ggataaaactttaaactacagtgataaacagagcatacaactcacgtaatttgtacttt

. |1261 |1271 |1281
ttcttcctattgggtctttgtttttctctagTCCGCATTGGATTGGTGGCCTAAGATTGAT
S A L D W W P K I D
|421

|1291 |1301 |1311 |1321 |1331 |1341
GCTGTGTATTGTCACTCGGTTGAACTTCGAAATATGTTTGGTGAAACACTTCATAAAGCA
A V Y C H S V E L R N M F G E T L H K A
|431 |441

|1351 |1361 |1371 |1381 |1391 . . .
GTGCAAGGTTGTGGAGCACACCCAGCAATACGAATGGCACCGgtaagataaatcacgaat
V Q G C G A H P A I R M A P
|451 |461

.
tttgaatctcacctcctttctattgcatttttttagtgtctttatcctattcctgctgc

.
tttggttattttagagaattgaatgggtccttcatttcctctaaatggttggtatgttg

. . .
tatctagaatat

Exon 13 | Start: 124475 | End: 124609 | Length: 134

.
tactattgagtggtttctactaataccacacatttggtagtataaaaaatagcttttttca

.
aagggttttaataataaatttcttttaaaagggttgatagctattatcctgagtccttatg

. |1401 |1411 |1421
tctgataccatggttttggtttgttttagAGTCTTACATTTAAAGAAAAAGTAACAAGC
S L T F K E K V T S
|471

|1431 |1441 |1451 |1461 |1471 |1481
CTTAAATTTAAAGAAAAACCTACAGACCTGGAGACAAGAAGCTATAAGTATCTTCTCTTG

L K F K E K P T D L E T R S Y K Y L L L
 |481 |491
 |1491 |1501 |1511 |1521 . . .
 TCCATGGTGAAACTAATTCATGCAGATCCAAAGCTCTTGCTTGTgtaagtatttttta
 S M V K L I H A D P K L L L C
 |501

 tgaaatgtctcaaaattatcacactaagttaattgggttagctgaaacgccaagacctt

 gaggataattttagctcaagagcacttactgatcctttctgatcatacctgaaaactaa
 . . .
 gacgtctctaagaaa

Exon 14 | Start: 129029 | End: 129142 | Length: 113

.
 aaccaccgcgtccagcctagttctagaacattgttatcaccctaaaagaaacttggtac

 ccttttagcagtcactgtctattttctcctccttctaattctctctcgattattttatttt
 |1531 |1541 |1551
 ttaattgaagtttccttttttcttgagAATCCAAGAAAACAGGGGCCGAAACCCAA
 N P R K Q G P E T Q
 |511
 |1561 |1571 |1581 |1591 |1601 |1611
 GGCAGTACAGCAGAATTAATTACAGGGCTCGTCCAAGTGGTCCCTCAGTCACACATGCCA
 G S T A E L I T G L V Q L V P Q S H M P
 |521 |531
 |1621 |1631 |1641.
 GAGATTGCTCAGGAAGCAATGGAGgtaaggggaaaatgaattccatgttcttgaaggaaa
 E I A Q E A M E
 |541

 gattgtaactatgtacattcatgatgttcctttgggtgtgtggtttctgtgagtaacaggt

.
agatgtcatttctggaaatggtatgtttatgtctatacattgttttataaaact

Exon 15 | Start: 131874 | End: 131953 | Length: 79

.
ttctctctttttaccttttactatatattgaaactacaaatgaaagagctcaatttctta

.
gcatttataaaataagtactccagtggttatgtttacaaaaatgttgagtgagtccttct

. |1651 |1661 |1671
ctttgtctttctcttttttaaaaaattcagGCTCTGCTGGTTCTTCATCAGTTAGATAGC
A L L V L H Q L D S
|551

|1681 |1691 |1701 |1711 |1721. .
ATTGATTTGTGGAATCCTGATGCTCCTGTAGAAACATTTTGGGAGATTAGgtatatgtac
I D L W N P D A P V E T F W E I S
|561 |571

.
ttttattttttaaattcaactttttaaatattttgtattttgtcttgaaatattaac

.
tctgtagtacttagtacattgtaaaacttacacttccaaaggttttatgggtttgtattt

.
tatttgacttcaaattatta

Exon 16 | Start: 133468 | End: 133591 | Length: 123

.
actttgataactgtttctctaaaaccttacaagaaaaactaagcttctctaaacttgat

.
tcattatgggagaatgccattcttatgtctgggttatatctgcattaggttattgatgatg

. |1731 |1741 |1751
ctagtaacaatgaactttatggttactgcagCTCACAATGCTTTTTTACATCTGCAAGAA
S Q M L F Y I C K K
|581

|1761 |1771 |1781 |1791 |1801 |1811
ATTAAGTAGTCATCAAATGCTTAGTAGCACAGAAATTCTCAAGTGGTTGCGGGAATATT
L T S H Q M L S S T E I L K W L R E I L
|591 |601

|1821 |1831 |1841
GATCTGCAGGAATAAATTTCTTCTTAAAAATAAGgtaagcaaatgacatatatttaaaaa
I C R N K F L L K N K
|611

.
tggaagaatatttggaatggtaatggtgagagattactaaagtgttttatagccaaatta

.
ggttctatttcagcttctccttcccaatgttctcaaaaggaaatatgtatgcagagg

.
acaa

Exon 17 | Start: 135119 | End: 135274 | Length: 155

.
gtttctagtgaatctccttcaagttggggcatagagattgagaggagaggttttttagga

.
gagtctcaaacaggaagacaactcaaataagtgtttattcctcttggtgtcagtgcttc

. |1851 |1861 |1871
agtaaagcttatttatttttttcttagCAGGCAGATAGAAGTTCCTGTCACTTTCTC
Q A D R S S C H F L
|621

|1881 |1891 |1901 |1911 |1921 |1931
CTTTTTTACGGGGTAGGATGTGATATTCCTTCTAGTGGAATACCAGTCAAATGTCCATG
L F Y G V G C D I P S S G N T S Q M S M
|631 |641

2001.
TCTATGgtcagcttcttctgtactttttctgtatcattttatgtgctctgtttgttttct
S M

Exon 18 | Start: 136459 | End: 136708 | Length: 249

CCGATTTCGCCACAAGCCCAGACCAAACTAGAAGTGGCCTGTACATGTTTCTGTGGAAC
P I C R Q A Q T K L E V A L Y M F L W N

|2161 |2171 |2181 |2191 |2201 |2211
 GATATCCGGTGTGGGGTGGATGAAGTGTCAAGTGCATAACCTCTTGCCCAACTATAACACA

D I R C G V D E V S V H N L L P N Y N T
|721 |731
|2221 |2231 |2241 |2251. . . .
TTCATGGAGTTTGCCTCTGTCAGCAATATGATGTCAACAGgtaaatgtgaatagtggttt
F M E F A S V S N M M S T G
|741 |751
.
tttttactcagtctgcctcaaagcacatggcatctgattttgagaatgtatttaaggtca
.
ctactttgtaagtttacaggggaaattcaagtagcttacttgaaatccttttctgaacaa
. .
agtaagatga

Exon 19 | Start: 137242 | End: 137315 | Length: 73
BE AWARE: This section overlaps with the following exon

.
ctgtgaggttagtgaaaggaagtttttggctttatcatttgaagcatttgctctgctctt
.
cctactccttttgggtggagcttatcaggttctccattggcaggcagggtctaagtga
. |2261 |2271 |2281
gtaacttgatttgctgtgtatttgcttagGAAGAGCAGCACTTCAGAAAAGAGTGATGG
R A A L Q K R V M A
|761
|2291 |2301 |2311 |2321 . . .
CACTGCTGAGGCGCATTGAGCATCCCACTGCAGGAAACACTGAGgtatgcccttagcaac
L L R R I E H P T A G N T E
|771
.
agaaacacccctcccaggcgccaccctcaatttggagcctcttggttacatatgtgtga
.
tcaggaatagcttttgaagtaaattcaagatacgtgcatattacaagtataatatctgag

. . .
tatttaatatat

Exon 20 | Start: 137547 | End: 137630 | Length: 83

.
aatagcttttgaagtaaaccagatacgtgcatattacaagtataatatctgagtattt

.
aatatacatcaagtttgaaacttggctgtagctgattgatgttttagctctagactaagtt

. |2331 |2341 |2351
gctttcaagtgataattgccttcatttttagGCTTGGGAAGATACACATGCAAAATGGGAA
A W E D T H A K W E
|781

|2361 |2371 |2381 |2391 |2401 .
CAAGCAACAAAGCTAATCCTTAACTATCCAAAAGCCAAAATGGAAGATGGCCAGgtaagt
Q A T K L I L N Y P K A K M E D G Q
|791 |801

.
ctgtaaagttgacttttgtctgttaactgatctgctaaatatatgtacttcactttgata

.
atctttcaagagtcgctcagtaaagtaaacatatagctgtgtgaagactgatatttagtt

.
gtggtttatctagacctgtacttt

Exon 21 | Start: 139049 | End: 139489 | Length: 440

.
atgtatatggtaattttatgggttgattttaatgtatatattttacattttttgtacttttg

.
tcatggaagaaatgttgataaagcataatttgtcaagtctcaactaattaaggtttaat


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. . . . . |2411 |2421 |2431
tcatgctttgcacaaaaattttgtgttagGCTGCTGAAAGCCTTCACAAGACCATTGTT
A A E S L H K T I V
|811

|2441 |2451 |2461 |2471 |2481 |2491
AAGAGGCGAATGTCCCATGTGAGTGGAGGAGGATCCATAGATTTGTCTGACACAGACTCC
K R R M S H V S G G G S I D L S D T D S
|821 |831

|2501 |2511 |2521 |2531 |2541 |2551
CTACAGGAATGGATCAACATGACTGGCTTCCTTTGTGCCCTTGGGGGAGTGTGCCTCCAG
L Q E W I N M T G F L C A L G G V C L Q
|841 |851

|2561 |2571 |2581 |2591 |2601 |2611
CAGAGAAGCAATTCTGGCCTGGCAACCTATAGCCACCCATGGGTCCAGTCAGTGAACGT
Q R S N S G L A T Y S P P M G P V S E R
|861 |871

|2621 |2631 |2641 |2651 |2661 |2671
AAGGTTTCTATGATTTCAAGTGTCTTCAGAGGGAAACGCAGATACACCTGTGTCAGCAA
K G S M I S V M S S E G N A D T P V S K
|881 |891

|2681 |2691 |2701 |2711 |2721 |2731
TTTATGGATCGGCTGTGTCCTTAATGGTGTGTAACCATGAGAAAGTGGGACTTCAAATA
F M D R L L S L M V C N H E K V G L Q I
|901 |911

|2741 |2751 |2761 |2771 |2781 |2791
CGGACCAATGTTAAGGATCTGGTGGGTCTAGAATTGAGTCCTGCTCTGTATCCAATGCTA
R T N V K D L V G L E L S P A L Y P M L
|921 |931

|2801 |2811 |2821 |2831 |2841 .
TTTAACAAATTGAAGAATACCATCAGCAAGTTTTTTGACTCCCAAGGACAGgtaaagtgt
F N K L K N T I S K F F D S Q G Q
|941

. . . . .
tctcttatttttcacctttctctatgaatagagtgacttgtttgaaataagcctttttct

. . . . .
ttcagattatttaaattaggtactcacagtttttaaaaatttccaaaaattgcagaaag

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.
aagagtcacatctcaatgtaggg

Exon 22 | Start: 139859 | End: 139998 | Length: 139
BE AWARE: This section overlaps with the following exon

.
cgagtgctcgcgtatatctgtatgcttatttggctctatgcctgtgggtgcacttactct

.
gtgtgttttagatcagtcagtttcatctctctaggggtctgtcttctgggcattgatggc

. |2851 |2861 |2871
aaatcattaatgtatttgttctttcttttagGTTTATTGACTGATACCAATACTCAATTT
V L L T D T N T Q F
|951

|2881 |2891 |2901 |2911 |2921 |2931
GTAGAACAAACCATAGCTATAATGAAGAACTTGCTAGATAATCATACTGAAGGCAGCTCT
V E Q T I A I M K N L L D N H T E G S S
|961 |971

|2941 |2951 |2961 |2971 |2981 . . .
GAACATCTAGGGCAAGCTAGCATTGAAACAATGATGTTAAATCTGGTCAGgtaagcattc
E H L G Q A S I E T M M L N L V R
|981 |991

.
tactgaaatgtagcagaaacattttaagagataagaaaaacctcttacacactgatactg

.
gtagtaattgataaaataactggccattctttactgcacacaaactagggtgtgacagta

.
aggtagccagaagttgtgta

Exon 23 | Start: 140284 | End: 140406 | Length: 122

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. . . . .
gccagaagttgtgtacgttcttttctaaataaatatcttattgttttcaaacttacattt

. . . . .
aattcgttttacttgatgactaaagtatttagaatgccttctcttttgtctatatctgat

. . . . . |2991 |3001 |3011
aatttttttattgtttctatgtctatatagGTATGTTTCGTGTGCTTGGGAATATGGTCCA
                        Y V R V L G N M V H
                        |1001

|3021 |3031 |3041 |3051 |3061 |3071
TGCAATTCAAATAAAAACGAACTGTGTCAATTAGTTGAAGTAATGATGGCAAGGAGAGA
A I Q I K T K L C Q L V E V M M A R R D
      |1011 |1021

|3081 |3091 |3101 |3111 . . . . .
TGACCTCTCATTTTGCCAAGAGATGAAATTTAGgtgagttctcaaagagcaatgtaggg
D L S F C Q E M K F R
      |1031

. . . . .
tcttgtaaactttaatatgtccaatgaagtacagaaaaagagtagatatgcggttattgg

. . . . .
tagaaaggaggacatgaaaagagagcaatttacatgtttgttttctctacatctcttct

.
caa

```

Exon 24 | Start: 140866 | End: 140949 | Length: 83

```

. . . . .
tgtgatagcagtatctcttttataaagtcgtcatgtcacttaggttatctggcaaattat

. . . . .
ttgcactataagaaatcttacgtgactaaagggtgtgtgtgtggcttcaaaaacattgttt

. . . . . |3121 |3131 |3141
gctgtttctcttttctccaccattctatatagGAATAAGATGGTAGAATACCTGACAGACTG
                        N K M V E Y L T D W
                        |1041

```


aggataggaaaataactgtgttttgtgatttttttaagaaagtaatatgatcagtg

Exon 26 | Start: 142724 | End: 142905 | Length: 181
BE AWARE: This section overlaps with the following exon

```
. . . . .
agccaccctggctgattatcgcgagagaggagagaaacagttaaccagggccattcaca

. . . . .
ccatgcacatatgattgttttggaatgtctggtagctttctagttgatacggccttcac

. . . . . |3321 |3331 |3341
tatgtaaaggtcagtccttttatttctcagATACTTCACATTATTTATGAACCTTTGAA
                        Y F T L F M N L L N
                        |1111

|3351 |3361 |3371 |3381 |3391 |3401
TGA CTGCAGTGAAGTTGAAGATGAAAGTGC GCAAACAGGTGGCAGGAAACGTGGCATGTC
D C S E V E D E S A Q T G G R K R G M S
|1121 |1131

|3411 |3421 |3431 |3441 |3451 |3461
TCGGAGGCTGGCATCACTGAGGCACTGTACGGTCCTTGCAATGTCAAACCTTACTCAATGC
R R L A S L R H C T V L A M S N L L N A
|1141 |1151

|3471 |3481 |3491 . . . . .
CAACGTAGACAGTGGTCTCATGCACTCCATAGgtgagatcaaagaaagtttcatataga
N V D S G L M H S I G
|1161

. . . . .
aatacaaaacctagagaactggcatgtaagagaagcaaaaattacttcagcaaggccatg

. . . . .
ttagtaaatttgcacatctgtttgtccacattaggcttaggttaccacaaggatctccagac

.
aa
```

Exon 27 | Start: 143026 | End: 143237 | Length: 211

```
. . . . .
acgtagacagtggtctcatgcactccataggtgagatcaaagtttcatatagaaa

. . . . .
tacaaaacctagagaactggcatgtaagagaagcaaaaattacttcagcaaggccatggt

. . . . . |3501 |3511 |3521
agtaaatttgcacatctgtttgtccacattagGCTTAGGTTACCACAAGGATCTCCAGACAA
                                L G Y H K D L Q T R
                                |1171

|3531 |3541 |3551 |3561 |3571 |3581
GAGCTACATTTATGGAAGTTCTGACAAAAATCCTTCAACAAGGCACAGAATTTGACACAC
A T F M E V L T K I L Q Q G T E F D T L
|1181 |1191

|3591 |3601 |3611 |3621 |3631 |3641
TTGCAGAAACAGTATTGGCTGATCGGTTTGAGAGATTGGTGGAACTGGTCACAATGATGG
A E T V L A D R F E R L V E L V T M M G
|1201 |1211

|3651 |3661 |3671 |3681 |3691 |3701
GTGATCAAGGAGAACTCCCTATAGCGATGGCTCTGGCCAATGTGGTTCCTTGTTCTCAGT
D Q G E L P I A M A L A N V V P C S Q W
|1221 |1231

. . . . .
GGgtaagtgattagagtaagcggggaagaaaagtgccctggcacatagcaaataccttcaga

. . . . .
atatatttgttcaataaatgtttgttgatgaattgataaaatttcagagccagaagaaa

. . . . .
gatgttttagttaggtgatttttcagctgtagg
```

Exon 28 | Start: 145635 | End: 145796 | Length: 161
BE AWARE: This section overlaps with the following exon

.
 aatctcaggataaatattaatcagtcacatcatttgccttaatttagcaagtgggtgtcaac

 ttgggtttacatttttgcctactcttagcttcctacctaagaataaaaatgggattgtt

 |3711 |3721 |3731
 tgcactaacctgattttgtttgttctcagGATGAACTAGCTCGAGTTCTGGTTACTCTG
 D E L A R V L V T L
 |1241

 |3741 |3751 |3761 |3771 |3781 |3791
 TTGATTCTCGGCATTACTCTACCAACTGCTCTGGAACATGTTTTCTAAAGAAGTAGAA
 F D S R H L L Y Q L L W N M F S K E V E
 |1251 |1261

 |3801 |3811 |3821 |3831 |3841 |3851
 TTGGCAGACTCCATGCAGACTCTCTCCGAGGCAACAGCTTGCCAGTAAAATAATGACA
 L A D S M Q T L F R G N S L A S K I M T
 |1271 |1281

 |3861
 TTCTGTTTCAAGgtttgtatcattcattttgtgtgtatgtgtgtgctgagggtatgtcaag
 F C F K

.
 taatgattatgtacagaatgtgcagggtgattgtcttcttttaaggtaaaatatatgga

 gcagggtataataaactcctattcgtgcatttctgttaggtata

Exon 29 | Start: 145942 | End: 146045 | Length: 103

.
 tcaagggtttgtatcattcattttgtgtgtatgtgtgtgctgagggtatgtcaagtaatgat

 tatgtacagaatgtgcagggtgattgtcttcttttaaggtaaaatatatggagcaggta

```

. . . . . |3871 |3881 |3891
taataaaactcctattcgtgcatttctgtagGTATATGGTGCTACCTATCTACAAAACTC
V Y G A T Y L Q K L
|1291

```

```

|3901 |3911 |3921 |3931 |3941 |3951
CTGGATCCTTTATTACGAATTGTGATCACATCCTCTGATTGGCAACATGTTAGCTTTGAA
L D P L L R I V I T S S D W Q H V S F E
|1301 |1311

```

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|3961 |3971 . . . . .
GTGGATCCTACCAGgtttgtcatctttcacatagaaccgctgtttttgtttttttttt
V D P T R
|1321

```

```

. . . . .
tttgttgtttgttttactaacactgcatgaagcaaggcaccttctccccttgatcatta

. . . . .
aaattagtttttaattataaaaagttatatatacaatacacgtttc

```

Exon 30 | Start: 159008 | End: 159143 | Length: 135

```

. . . . .
tttttttttatagttggttggttaaagattccaatgaagtctacacgttgccacttggtg

. . . . .
taatgtctgtataagagtctcttttaaggagtgtttttgttatttgttttaaaaaag

. . . . . |3981 |3991 |4001
tgtaggatttttatttttattttttgttagGTTAGAACCATCAGAGAGCCTTGAGGAAAA
L E P S E S L E E N
|1331

```

```

|4011 |4021 |4031 |4041 |4051 |4061
CCAGCGGAACCTCCTTCAGATGACTGAAAAGTTCTTCCATGCCATCATCAGTTCCTCCTC
Q R N L L Q M T E K F F H A I I S S S S
|1341 |1351

```

```

|4071 |4081 |4091 |4101 . . .
AGAATTCCTCCCTCAACTTCGAAGTGTGTGCCACTGTTTATACCAGgtatgcttacagtt
E F P P Q L R S V C H C L Y Q

```


|1361

.
agagattaccattattaatctaaagttaaattatgaagaatgctttatcaaagaaggatc
.
tagctgctgatgggtgtgtggttaactataatactgagtcagtttgatgaataatacatt
.
gagaattgttgaatt

Exon 32 | Start: 168368 | End: 168526 | Length: 158

.
gttttgggagaagaaaaaatagaaatatgtcattcatgaggactgattgattcagagtt
.
tttatgcaaagtttgacctttgaactctttgttttcatgtctttatattaattcaaacct

. |4111 |4121 |4131
tatactcaattctcaactccttggttttagGTGGTTAGCCAGCGTTCCCTCAGAACAGC
V V S Q R F P Q N S
|1371

|4141 |4151 |4161 |4171 |4181 |4191
ATCGGTGCAGTAGGAAGTGCCATGTTCTCAGATTTATCAATCCTGCCATTGTCTCACCG
I G A V G S A M F L R F I N P A I V S P
|1381 |1391

|4201 |4211 |4221 |4231 |4241 |4251
TATGAAGCAGGGATTTTAGATAAAAAGCCACCACCTAGAATCGAAAGGGGCTTGAAGTTA
Y E A G I L D K K P P P R I E R G L K L
|1401 |1411

|4261
ATGTCAAAGgtgaattattttgataatctagctatcttaaattccccttccaactaaatt
M S K
|1421

.
ttcagcttttcttacagtacttcctcttacatttatatttgaaataccctatggttttca

.
gttatgtgcttttgttttatattgattatattacaaagga

Exon 33 | Start: 169056 | End: 169153 | Length: 97

.
aaaataatttatagaatgaggaatgtttgatttttaagtactagcagaaattatatcaat

.
gagaaaattcatgtttttaagaatgtcttaatgtatagacttcatacaataaataatct

. |4271 |4281 |4291
gattattttataaccctgttttattgtgttagTACTTCAGAGTATTGCCAATCATGTTCTC
I L Q S I A N H V L
|1431

|4301 |4311 |4321 |4331 |4341 |4351
TTCACAAAAGAAGAACATATGCGGCCTTTCAATGATTTTGTGAAAAGCAACTTTGATGCA
F T K E E H M R P F N D F V K S N F D A
|1441 |1451

|4361
GCACGCAGgtaattttcttgccacttactcagttgctctgttgatcaaataattttcgg
A R R

.
tttcacataaatccatgtacctgtttttacatgaagttcctgtgtaagtttttttcttttc

.
ctgctctagggtcaagacatagcttgtcttattttattt

Exon 34 | Start: 170393 | End: 170539 | Length: 146

.
ctttgtctaattgtcaagtcacattgtgtgaacaagccctccatatttgtaatcttagtta

.

cttcacaaagttacttcttataaaatttaattcaaacataagtctgggtgtatctgggtgtt

. |4371 |4381 |4391
gaaaattctaatactttgcatttttgaagGTTTTTCCTTGATATAGCATCTGATTGTCC
F F L D I A S D C P
|1461

|4401 |4411 |4421 |4431 |4441 |4451
TACAAGTGATGCAGTAAATCATAGTCTTTTCCTTCATAAGTGACGGCAATGTGCTTGCTTT
T S D A V N H S L S F I S D G N V L A L
|1471 |1481

|4461 |4471 |4481 |4491 |4501 |4511
ACATCGTCTACTCTGGAACAATCAGGAGAAAAATGGGCAGTATCTTTCCAGCAACAGgta
H R L L W N N Q E K I G Q Y L S S N R
|1491 |1501

.
agatttcccagtcatggggatagtgaacactctccgtttaatttagattaatacaatta

.
ttggtcatgaatagtgccttttactttgcatcttcttgactaagaattatgggttagaa

.
agagaaagattccttttttcaaaaaa

Exon 35 | Start: 171735 | End: 171881 | Length: 146

.
gattgaagtagacatgggtcctgaggtccttttgggtgctgtttacaaatcagctgacagta

.
aaaggaaaagcaaccagttacaagttaagaaatgtgtagtgctaaatgtgaactgctaa

. |4521 |4531 |4541
tttttttctaagtagtttgctgtatctagGGATCATAAAGCTGTTGGAAGACGACCTTT
D H K A V G R R P F
|1511

|4551 |4561 |4571 |4581 |4591 |4601
TGATAAGATGGCAACACTTCTTGACATACCTGGGTCTCCAGAGCACAAACCTGTGGCAGA
D K M A T L L A Y L G P P E H K P V A D

```

|1521
|1531
|4611 |4621 |4631 |4641 |4651 |4661
TACACACTGGTCCAGCCTTAACCTTACCAGTTCAAAGTTTGAGGAATTTATGACTAGgta
T H W S S L N L T S S K F E E F M T R
|1541 |1551
. . . . .
aagtacaaccttgaaatagttgattgctttcttttggttgagaaggagagtttgccacc
. . . . .
aggccacttgtagatatgatagaagactatgaggaaagatgtatttaataatcacattg
. . . . .
ccatgtttggggaatccaactatatat

```

Exon 36 | Start: 175253 | End: 175363 | Length: 110

```

. . . . .
gtgcatgttgccaaattaccctttagaatgcctgttgcttttaaaatatttttcatttt
. . . . .
agtattttattgtttatccaattatagacttttttacatactcagtagacaacataaagc
. . . . . |4671 |4681 |4691
ctcataattactctgttatttttcttttagGCATCAGGTACATGAAAAAGAAGAATTCAA
H Q V H E K E E F K
|1561
|4701 |4711 |4721 |4731 |4741 |4751
GGCTTTGAAAACGTTAAGTATTTTCTACCAAGCTGGGACTTCCAAAGCTGGGAATCCTAT
A L K T L S I F Y Q A G T S K A G N P I
|1571 |1581
|4761 |4771 . . . . .
TTTTTATTATGTTGCACGGAGgtaagaaatactatgttttgggtctcttaacagaatttt
F Y Y V A R R
|1591
. . . . .
ttaaattatagcaaatatagagagatggcaagtttggtttttcccagttgacttaacagg

```

.
aattgaagacaagtttacttgggagcatatagcagggtaaatagcctgcgt

Exon 37 | Start: 235844 | End: 236276 | Length: 432

.
actgatttaaaaaatgaatccagactttgaagaattgttttatattattctctctagaaa

.
atgaatcataaaataaaattgattagtggcatctgtatatttattttaaacactgctaata

. |4781 |4791 |4801
aatctttgtcctttttgtcattttccttagGTTCAAAACTGGTCAAATCAATGGTGATTT
F K T G Q I N G D L
|1601

|4811 |4821 |4831 |4841 |4851 |4861
GCTGATATACCATGTCTTACTGACTTTAAAGCCATATTATGCAAAGCCATATGAAATTGT
L I Y H V L L T L K P Y Y A K P Y E I V
|1611 |1621

|4871 |4881 |4891 |4901 |4911 |4921
AGTGACCTTACCCATACCGGGCTAGCAATCGCTTTAAACAGACTTTCTCTCTAAGTG
V D L T H T G P S N R F K T D F L S K W
|1631 |1641

|4931 |4941 |4951 |4961 |4971 |4981
GTTTGTTGTTTTCTGGCTTTGCTTACGACAACGTCTCCGCAGTCTATATCTATAACTG
F V V F P G F A Y D N V S A V Y I Y N C
|1651 |1661

|4991 |5001 |5011 |5021 |5031 |5041
TAACTCCTGGGTCAGGGAGTACACCAAGTATCATGAGCGGCTGCTGACTGGCCTCAAAGG
N S W V R E Y T K Y H E R L L T G L K G
|1671 |1681

|5051 |5061 |5071 |5081 |5091 |5101
TAGCAAAAGGCTTGTTTTCATAGACTGTCCTGGGAAACTGGCTGAGCACATAGAGCATGA
S K R L V F I D C P G K L A E H I E H E
|1691 |1701

|5111 |5121 |5131 |5141 |5151 |5161

ACAACAGAAACTACCTGCTGCCACCTTGGCTTTAGAAGAGGACCTGAAGGTATTCCACAA
 Q Q K L P A A T L A L E E D L K V F H N
 |1711 |1721

|5171 |5181 |5191 |5201 . . .
 TGCTCTCAAGCTAGCTCACAAAGACACCAAAGTTTCTATTAAAgtaagttccagtctgtg
 A L K L A H K D T K V S I K
 |1731

.
 ttttgtaaacgattcattgcttttcttgactaactagactatatcctggcctccctaggt

 gtcctaccctatatagtggtgtataaaatgtcacgtaaggctgtcgcggtggctcagcct
 . . .
 gtaatccaagcac

Exon 38 | Start: 237523 | End: 237863 | Length: 340

.
 attactgaaccatttgaatatacaatggtgggaactcttccttaaattggcatagtgtttt

 gtttggttggttggttcttgagccttttagaattttatgtaaaagagtttaattcttct
 |5211 |5221 |5231
 ccacttcaccccgtcaccaccactttccagGTTGGTTCTACTGCTGTCCAAGTAACTTCA
 V G S T A V Q V T S
 |1741

|5241 |5251 |5261 |5271 |5281 |5291
 GCAGAGCGAACAAAAGTCCTAGGGCAATCAGTCTTTCTAAATGACATTATTATGCTTCG
 A E R T K V L G Q S V F L N D I Y Y A S
 |1751 |1761

|5301 |5311 |5321 |5331 |5341 |5351
 GAAATTGAAGAAATCTGCCTAGTAGATGAGAACCAGTTCACCTTAACCATTGCAAACCAG
 E I E E I C L V D E N Q F T L T I A N Q
 |1771 |1781

|5361 |5371 |5381 |5391 |5401 |5411

GGCAGCCGCTCACCTTCATGCACCAGGAGTGTGAAGCCATTGTCCAGTCTATCATTTCAT
 G T P L T F M H Q E C E A I V Q S I I H
 |1791 |1801

|5421 |5431 |5441 |5451 |5461 |5471
 ATCCGGACCCGCTGGGAACTGTCACAGCCCGACTCTATCCCCAACACACCAAGATTTCGG
 I R T R W E L S Q P D S I P Q H T K I R
 |1811 |1821

|5481 |5491 |5501 |5511 |5521 |5531
 CCAAAAGATGTCCCTGGGACACTGCTCAATATCGCATTACTTAATTTAGGCAGTTCTGAC
 P K D V P G T L L N I A L L N L G S S D
 |1831 |1841

|5541
 CCGAGTTTACGgtaggttttttaaattctcttcagtttgatttggggtttggtgctttt
 P S L R

.
 aaaatgagaccatttaaatgaattttaaaacagcctctacctaattgttaaattggaag

.
 gtatgcagtggttggttaaccactgtgacctcatcaagttgt

Exon 39 | Start: 240320 | End: 240522 | Length: 202

.
 aattataacatcttattttctaactgatcataaaatttaaaatagttgatcatactttgt

.
 aacagaatcacaattgtatggttatgaaaaattttggaactataaggaaaaatacgttt

. |5551 |5561 |5571
 taaaacaacttcatttggtgttttctcctagGTCAGCTGCCTATAATCTTCTGTGTGCCTT
 S A A Y N L L C A L
 |1851

|5581 |5591 |5601 |5611 |5621 |5631
 AACTTGTACCTTTAATTTAAAAATCGAGGGCCAGTTACTAGAGACATCAGGTTTATGTAT
 T C T F N L K I E G Q L L E T S G L C I
 |1861 |1871

.
taattacttttaaattaaactgaacttttttgctaaaactttgagtcctcatgtttttt
.
tttttaaaaaaaaaaatcctg

Exon 42 | Start: 246659 | End: 246938 | Length: 279

.
tcttttgccttctgtactatagcatatctgttttatcatcaggagggtttttgttttgta
.
attacttttaaattaaactgaacttttttgctaaaactttgagtcctcatgtttttttt
. |6091 |6101 |6111
tttaaaaaaaaaaatcctgcttctttacagGTTATTGGAAGGATGTGCAAAATAATTGAC
V I G R M C K I I D
|2031
|6121 |6131 |6141 |6151 |6161 |6171
AAGACATGCTTATCTCCAACCTCCTACTTTAGAACAAACATCTTATGTGGGATGATATTGCT
K T C L S P T P T L E Q H L M W D D I A
|2041 |2051
|6181 |6191 |6201 |6211 |6221 |6231
ATTTTAGCAGCTACATGCTGATGCTGTCCTTCAACAATTCCCTTGATGTGGCAGCTCAT
I L A R Y M L M L S F N N S L D V A A H
|2061 |2071
|6241 |6251 |6261 |6271 |6281 |6291
CTTCCCTACCTCTTCCACGTTGTTACTTTCTTAGTAGCCACAGGTCCGCTCTCCCTTAGA
L P Y L F H V V T F L V A T G P L S L R
|2081 |2091
|6301 |6311 |6321 |6331 |6341 |6351
GCTTCCACACATGGACTGGTCATTAATATCATTCACTCTCTGTGTACTTGTTCACAGCTT
A S T H G L V I N I I H S L C T C S Q L
|2101 |2111
|6361
CATTTTAGTGgtaagttctaggaaggaatttggtgtttaccagttcctttctccatttta
H F S E

|2121

.
cttcacctgatcaatatagattatcttattttatgtttgtgctctaacaccaagttgctaa
.
tttaagcctccagtaatgacatgaaatattaccaaaaaga

Exon 43 | Start: 247392 | End: 247606 | Length: 214
BE AWARE: This section overlaps with the following exon

.
atacaatgtatctagaggtttgatttagggaacatgattatgtaatttttatatgttatt
.
caaattttctaaattcaaaatgaaacatggaactttagaaattaaaaagtaatattttct
. |6371 |6381 |6391
gtctttacttggttcctttattctcttacagAAGAGACCAAGCAAGTTTGGAGACTCAGTC
E T K Q V L R L S L
|2131

|6401 |6411 |6421 |6431 |6441 |6451
TGACAGAGTTCTCATTACCCAAATTTTACTTGCTGTTTGGCATTAGCAAAGTCAAGTCAG
T E F S L P K F Y L L F G I S K V K S A
|2141 |2151

|6461 |6471 |6481 |6491 |6501 |6511
CTGCTGTCATTGCCTTCCGTTCCAGTTACCGGGACAGGTCATTCTCTCCTGGCTCCTATG
A V I A F R S S Y R D R S F S P G S Y E
|2161 |2171

|6521 |6531 |6541 |6551 |6561 |6571
AGAGAGAGACTTTTGCTTTGACATCCTTGGAACAGTCACAGAAGCTTTGTTGGAGATCA
R E T F A L T S L E T V T E A L L E I M
|2181 |2191

TGGAGgtatagaagccaaaatgataagaaactaagttaaaatctttttttaaaaatatgt
E

.
 taatactatatagaagaatatattggttttattgtgctatattgtacttaatgcttaaataa

 aaacacttgcacatgactgtgtttattggtaacaggt

Exon 44 | Start: 247843 | End: 247904 | Length: 61
 BE AWARE: This section overlaps with the following exon

.
 gtgctatattgtacttaatgcttaaataaaaacacttgcacatgactgtgtttattggtaac

 aggtcacttaatgacatcataataaacattatttaaacagttctaaaaacatttatgtac
 |6581 |6591 |6601
 aatatgtattcagagtatcccccttttttagGCATGCATGAGAGATATTCCAACGTGCAAG
 A C M R D I P T C K
 |2201
 |6611 |6621 |6631 |6641.
 TGGCTGGACCACTGGACAGAACTAGCTCAAAGgtatgtcctaaattaaatataagttgta
 W L D Q W T E L A Q R
 |2211

 aaaatatgcatattgttgaaaatacagctattactgtatgatcaatgttataatttatta

 tttagtatatataaacacaaaggtttttataagttctgtggatcttttaattgcagattt
 .
 gc

Exon 45 | Start: 248049 | End: 248163 | Length: 114

.
 tcaaaggtatgtcctaaattaaatataagttgtaaaaaatatgcatattgttgaaaatata

```

. . . . .
gctattactgtatgatcaatggttataatattatttagtatatataaacacaaaggttt

. . . . . |6651 |6661 |6671
ttataagttctgtggatcttttaattgcagATTGCAATCCAATATAATCCATCCCTGCA
          F A F Q Y N P S L Q
                      |2221

|6681 |6691 |6701 |6711 |6721 |6731
ACCAAGAGCTCTTGTGTCTTTGGGTGTATTAGCAAACGAGTGTCTCATGGGCAGATAAA
P R A L V V F G C I S K R V S H G Q I K
          |2231 |2241

|6741 |6751 . . . . .
GCAGATAATCCGTATTCTTAGCAAGgtacctgtccgccctcacttctcccaaattatta
Q I I R I L S K
          |2251

. . . . .
tggttctcaagttgtaaagcatatctttcatttttctaaaagacgtttaatttgaggtc

. . . . .
aatgaaatatcttatatgttacttattaagcctttaaatgtattttgattattt

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Exon 46 | Start: 248728 | End: 248829 | Length: 101

```

. . . . .
taagctagctaccaagatcaccatagcatgagaaatcattctagcatttattaaataagt

. . . . .
aatggttcctgaattcattccgagattcagtttaggagttaatgttttatttcaatgaaa

. . . . . |6761 |6771 |6781
gtaaaataaaaaattctgttttcctaaaagGCACTTGAGAGTTGCTTAAAAGGACCTGAC
          A L E S C L K G P D
                      |2261

|6791 |6801 |6811 |6821 |6831 |6841
ACTTACAACAGTCAAGTTCTGATAGAAGCTACAGTAATAGCACTAACCAGCAATTACAGCCA
T Y N S Q V L I E A T V I A L T K L Q P
          |2271 |2281

```

|6851
 CTTCTTAATAAGtaattactgtatagaaaatgagtgcattcattttgggtatcagtggt
 L L N K

.
 gaatgttactttctttcaaagagtttagaaaataagatgaattgagaataagttataaag

 aaaaaactatagttaaagtagaacctcttaaagtttagttgt

Exon 47 | Start: 250529 | End: 250669 | Length: 140

.
 tgaagagcttactcatatctttatcttcccaaaagagaaaacatgggtaatttaggaag

 ataagctgctttatttttaactgcagtggtgttttgaaagagactatgtcatgattcatct
 |6861 |6871 |6881
 tactagcctcaaacatatcttctttgccagGACTCGCCTCTGCACAAAGCCCTCTTTTGG
 D S P L H K A L F W
 |2291

|6891 |6901 |6911 |6921 |6931 |6941
 GTAGCTGTGGCTGTGCTGCAGCTTGATGAGGTCAACTTGTATTTCAGCAGGTACCGCACTT
 V A V A V L Q L D E V N L Y S A G T A L
 |2301 |2311

|6951 |6961 |6971 |6981 |6991 .
 CTTGAACAAAACCTGCATACTTTAGATAGTCTCCGTATATTCAATGACAAGgtaagcaaa
 L E Q N L H T L D S L R I F N D K
 |2321 |2331

.
 ctttgccttgaggttcctagattactcaaatttagtactcttccatcttttcttggtgct

 attcttttaaaatcacaagaagtcataacttaagtaggaatttgtataatgtaacttat

tgtgagtatatatttccttacca

Exon 48 | Start: 253033 | End: 253159 | Length: 126

```
. . . . .
tctgtggttttctgcagtcactgaaaataatttctctcaaattgaaaggattacttatc

. . . . .
ttgtcatactattgaacacaaaattaagtgagcctttaagaaagctactgtgtgaacct

. . . . . |7001 |7011 |7021
catcaaccatctcatgattatctttaatagAGTCCAGAGGAAGTATTTATGGCAATCCGG
                               S P E E V F M A I R
                               |2341

|7031 |7041 |7051 |7061 |7071 |7081
AATCCTCTGGAGTGGCACTGCAAGCAAATGGATCATTTTGTGGACTCAATTTCAACTCT
N P L E W H C K Q M D H F V G L N F N S
                |2351                |2361

|7091 |7101 |7111 |7121 . . . .
AACTTTAACTTTGCATTGGTTGGACACCTTTTAAAAGgtaaaaaagccttatttagaata
N F N F A L V G H L L K G
                |2371

. . . . .
tttttatgaagtactattaagaaccagaagtaatttgaataagtgattacttgaaataa

. . . . .
attgaagtaagttagcccttatgtcttactttaaatgcaaactaggccaggcgtggtggc

. . .
tcacgtc
```

Exon 49 | Start: 259144 | End: 259275 | Length: 131

```
. . . . .
ttttaccttcccaaattggctatttcttgaaagtaggagttatatttcctttccttgcaga
```

```

. . . . .
gttgtagtcagggaagaagacctcagcagatgcttggtcaaaaaattaattcttacttg

. . . . . |7131 |7141 |7151
tttgtttgtttgtttgtttgtttttgttagGGTACAGGCATCCTTCACCTGCTATTGTTG
Y R H P S P A I V A
|2381

|7161 |7171 |7181 |7191 |7201 |7211
CAAGAACAGTCAGAATTTTACATACACTACTAACTCTGGTTAACAACACAGAAATTGTG
R T V R I L H T L L T L V N K H R N C D
|2391 |2401

|7221 |7231 |7241 |7251 . . .
ACAAATTTGAAGTGAATACACAGAGCGTGGCCTACTTAGCAGgtaaaaacacaaaataaa
K F E V N T Q S V A Y L A A
|2411

. . . . .
caaaattaatcttgctacatctatatataaggatcacccaaaaagtacaaatacctatag

. . . . .
gttttttggcggttgctggcagagcagaaagttcacagtctagtccttttagtggtggtt

. . .
acaattttgaga

```

Exon 50 | Start: 260207 | End: 260342 | Length: 135

```

. . . . .
ctctgtatatttcacatttatgtagtcttccaaaatatgtgcacatttaacaggtactat

. . . . .
gctctttaggagactgtaagaagttcatcctgttttaagtcacacttgatgtttgttaaa

. . . . . |7261 |7271 |7281
ttttttaacctgccaccgttttccttttagCTTTACTTACAGTGTCTGAAGAAGTTCGAA
L L T V S E E V R S
|2421

|7291 |7301 |7311 |7321 |7331 |7341

```


GTCGCTGCAGCCTAAAACATAGAAAGTCACTTCTTCTTACTGATATTTCAATGGAAAATG
R C S L K H R K S L L L T D I S M E N V
|2431 |2441

|7351 |7361 |7371 |7381 |7391 . .
TTCCTATGGATACATATCCCATTTCATCATGGTGACCCCTTCCTATAGgtaagtggatttac
P M D T Y P I H H G D P S Y R
|2451 |2461

.
tctcctataattacataatcataatcaagtttcaattttccaactaatggaggcaagcag

.
cagagtaatctagaaggtaacatgggagaaatctagagatggcctaggaagagtaagtga

. . . .
aactcattttataaat

Exon 51 | Start: 262281 | End: 262438 | Length: 157

.
agagtttgtatcctaagccctttaagtgcaattttaaaattaattgattgctgtgtgtt

.
aggaaataggacagccacttggaaggagcaaacgatgggtgtatttgtcaccatattaat

. |7401 |7411 |7421
tgatttttctctattgttttcatctttcagGACACTAAAGGAGACTCAGCCATGGTCCTC
T L K E T Q P W S S
|2471

|7431 |7441 |7451 |7461 |7471 |7481
TCCCAAAGTTCTGAAGGATACCTTGCAGCCACCTATCCAAGTGTGCGCCAGACCAGTCC
P K G S E G Y L A A T Y P T V G Q T S P
|2481 |2491

|7491 |7501 |7511 |7521 |7531 |7541
CCGAGCCAGGAAATCCATGAGCCTGGACATGGGGCAACCTTCTCAGGCCAACACTAAGAA
R A R K S M S L D M G Q P S Q A N T K K
|2501 |2511

|7551

GTTGCTTGgttagtttatctaaattatgtagatTTTTTTTattatttaaaaaaatagata
L L G

.
tttttactcttggaattatttgaaatttcaggattatcaaaattttccatgtcagtg

.
agcaaagtttttgatgccatttaaaagagagtttgata

Exon 52 | Start: 266484 | End: 266606 | Length: 122

.
aaagaaactgctccagggatgtattagagctttctttgagtcctcagtgaagcttaaac

.
actttatgtccaaacattttcttttttagtgtattcccatttatagacactgtagttaatg

. |7561 |7571 |7581
aacttgcatattcttaacttttgtttatagGAACAAGGAAAAGTTTGTCACTTGATAT
T R K S F D H L I S
|2521

|7591 |7601 |7611 |7621 |7631 |7641
CAGACACAAAGGCTCCTAAAAGGCAAGAAATGGAATCAGGGATCACACACCCCCAAAA
D T K A P K R Q E M E S G I T T P P K M
|2531 |2541

|7651 |7661 |7671
TGAGGAGAGTAGCAGAAACTGATTATGAAATGGgtgagaacaaagtattgatctagatc
R R V A E T D Y E M E
|2551

.
attgaaaataaggtgggagagtacatgaaagtcagtttattttccagccatttcttaga

.
atcttttagagtgaatatagaaacgtttgccatttctcaaaagataaactctaccattca

.
aga

Exon 53 | Start: 266984 | End: 267114 | Length: 130
 BE AWARE: This section overlaps with the following exon

```

. . . . .
tgtaggcgaatagtaattctctatgatgtttatgtagtattttaagtatctactaaaga

. . . . .
aagctgttgaatTTtagaagtaacattgaaatagttaggtgaagtgattatccaggtgtt

. . . . . |7681 |7691 |7701
tgatcacgttaattccctatcttgctgcagAAACTCAGAGGATTCCTCATCACAACAGC
                        T Q R I S S S Q Q H
                        |2561

|7711 |7721 |7731 |7741 |7751 |7761
ACCCACATTTCAGTAAAGTTTCAGTGTCTGAATCAAATGTTCTCTTGGATGAAGAAGTAC
P H L R K V S V S E S N V L L D E E V L
|2571 |2581

|7771 |7781 |7791 |7801 . . .
TTACTGATCCGAAGATCCAGGCGCTGCTTCTTACTGTTCTAgtaaggatttccccttttt
T D P K I Q A L L L T V L
|2591 |2601

. . . . .
gagtccccaccctcaaatttttattccagtctacttttaggaggcccttaaataataaa

. . . . .
aacatgaataggatacagtccttctacttctcacccaaacagataacaattcagccacaaa

. . .
gtaaaaatggtt

```

Exon 54 | Start: 267293 | End: 267393 | Length: 100

```

. . . . .
accctcaaatttttattccagtctacttttaggaggcccttaaataataaaaaacatgaat

```

.
aggatacagtccttctacttctcacccaaacagataacaattcagccacaaagtaaaaatg

. |7811 |7821 |7831
ttgtgtgtttacttttttgcacatcttggcagGCTACACTGGTAAAATATACCACAGATGAG
A T L V K Y T T D E
|2611

|7841 |7851 |7861 |7871 |7881 |7891
TTTGATCAACGAATTCTTTATGAATACTTAGCAGAGGCCAGTGTGTGTTCCCAAAGTC
F D Q R I L Y E Y L A E A S V V F P K V
|2621 |2631

|7901
TTTCCTGTTGTgtaagtatctccttttgattttaattcaccttcgtgcctgtctttaagt
F P V V

.
taaatgcttaccagtaatgtgcactgggttgcaaagagggcaaatgagatattgtgata

.
gtgatttttagctttgagacagtaggtttaatgagggttaag

Exon 55 | Start: 268504 | End: 268646 | Length: 142

.
aaatgaagaaatgccccagaaagtaaaaagcactcatctccctttaattttggcacatta

.
ttctggggaatgtatattatgttttccactacatattttcatttaattttcctctaaaat

. |7911 |7921 |7931
gttcctctgttgacttttttttcttttagGCATAATTTGTTGGACTCTAAGATCAACAC
H N L L D S K I N T
|2641

|7941 |7951 |7961 |7971 |7981 |7991
CCTGTTATCATTGTGCCAAGATCCAAATTTGTTAAATCCAATCCATGGAATTGTGCAGAG
L L S L C Q D P N L L N P I H G I V Q S
|2651 |2661

|8001 |8011 |8021 |8031 |8041 .
 TGTGGTGTACCATGAAGAATCCCCACCACAATACCAAACATCTTACCTGCAAAgtaaata
 V V Y H E E S P P Q Y Q T S Y L Q S
 |2671 |2681

.
 aatgtatctggagaaggatgggtgatgaacttgctaacatgcgcgctgttgtagaatgca

 ctgactacagaattctttataagggatagacttggttcatacttttatttccatattccat

 ttttttactctctcaactgtatg

Exon 56 | Start: 268993 | End: 269039 | Length: 46

.
 taggttttagttgctttgacactcattctaaaaacatgttttcaacatgtacatagggtt

 tatatatcatcagctatatgacttatttaatttctgttacaattaaaagataccttgctt
 |8051 |8061 |8071
 gttataagagtaaaatttgatttgtgcagGTTTGGTTTTAATGGCTTGTGGCGGTTTG
 F G F N G L W R F A
 |2691

|8081 |8091
 CAGGACCGTTTTCAAAGgtaagaaaatatatttttctctaacttttggcaaatgaaggt
 G P F S K

.
 ttctgttcaaattagtatgcctgctttaagaacacacaatgtgctgaaaaccagaaaaat

 aattcacaataaacacatatgttacttttataaaaagtttctcatca

Exon 57 | Start: 270511 | End: 270727 | Length: 216

```

. . . . .
aaatattactccactccccttttttaatgataagtaatacaaaaggaagaaaaatagtaaa

. . . . .
ttaagtccaaacaaaattaatatTTTTGGCTTCAGATGGGGATTtacttaaaaaaaagga

. . . . . |8101 |8111 |8121
actaaaataatttcctattttccattacagCAAACACAAATTCAGACTATGCTGAGCTT
Q T Q I P D Y A E L
|2701

|8131 |8141 |8151 |8161 |8171 |8181
ATTGTTAAGTTTCTTGATGCCTTGATTGACACGTACCTGCCTGGAATTGATGAAGAAACC
I V K F L D A L I D T Y L P G I D E E T
|2711 |2721

|8191 |8201 |8211 |8221 |8231 |8241
AGTGAAGAATCCCTCCTGACTCCCACATCTCCTACCCTCCTGCACTGCAGAGCCAGCTT
S E E S L L T P T S P Y P P A L Q S Q L
|2731 |2741

|8251 |8261 |8271 |8281 |8291 |8301
AGTATCACTGCCAACCTTAACCTTTCTAATTCATGACCTCACTTGCAACTTCCCAGCAT
S I T A N L N L S N S M T S L A T S Q H
|2751 |2761

|8311 . . . . .
TCCCCAGgtcagtaaatgtgatctttatatgactttgagcaacaatataagacaccaaca
S P G
|2771

. . . . .
ttaggaattcccttgatcagtttatagcaaatttgctcctttttcttatgagattca

. . . . .
ccttacatttcttctttaccttgtaactgacttgact

```

Exon 58 | Start: 284037 | End: 287701 | Length: 3664

.

tgtaagtacactccacaatatatttgacagacaaaatcgctaatgattgtttcctagaat

 gtgtccccgttggttaagcgacacatgactgcaatgaaattcagtcctggaagaaaagaa
 |8321 |8331 |8341
 gaagtaactggctgttctctttttctccagGAATCGACAAGGAGAACGTTGAACTCTCCC
 I D K E N V E L S P
 |2781
 |8351 |8361 |8371 |8381 |8391 |8401
 CTACCACTGGCCACTGTAACAGTGGACGAACCTGCCACGGATCCGCAAGCCAAGTGCAGA
 T T G H C N S G R T R H G S A S Q V Q K
 |2791 |2801
 |8411 |8421 |8431 |8441 |8451 |+1
 AGCAAAGAAGCGCTGGCAGTTTCAAACGTAATAGCATTAAAGAAGATCGTGTGAAGCTTGC
 Q R S A G S F K R N S I K K I V *
 |2811
 |+11 |+21 |+31 |+41 |+51 |+61
 TTGCTTTCTTTTTTAAAAATCAACTTAACATGGGCTCTTCACTAGTGACCCCTTCCCTGTG
 |+71 |+81 |+91 |+101 |+111 |+121
 CTGCCCCTTCCCCCATGTTGTAATGCTGCACTTCTGTTTATAATGAACCCATCCGG
 |+131 |+141 |+151 |+161 |+171 |+181
 TTTGCCATGTTGCCAGATGATCAACTCTTCGAAGCCTTGCCTAAATTTAATGCTGCCTTT
 |+191 |+201 |+211 |+221 |+231 |+241
 TCTTTAACTTTTTTTCTTCTACTTTTGGCGTGTATCTGGTATATGTAAGTGTTTCAGAACAA
 |+251 |+261 |+271 |+281 |+291 |+301
 ACTGCAAAGAAAGTGGGAGGTCAGGAACTTTTAACTGAGAAATCTCAATTGTAAGAGAG
 |+311 |+321 |+331 |+341 |+351 |+361
 GATGAATTCTTGAATACTGCTACTACTGGCCAGTGATGAAAGCCATTTGCACAGAGCTCT
 |+371 |+381 |+391 |+401 |+411 |+421
 GCCTTCTGTGGTTTTCCCTTCTTCATCCTACAGAGTAAAGTGTTAGTCCTATTTATACAT
 |+431 |+441 |+451 |+461 |+471 |+481
 TTTTCAAGATACAAGTTTATGAGAGAAATAGTATTATAACCCAGTATGTTTAATCTTTT
 |+491 |+501 |+511 |+521 |+531 |+541
 AGCTGTGGACTTTTTTTTTTAACCGTACAAAAGTGAAGAACCATAGAGGTCAAGCCTCAG

+551	+561	+571	+581	+591	+601
TGA CTTGAC ACCATAAAGCCACAGACAAGGTACTTGGGGGGGAGGGCAGGGAAATTCAT					
+611	+621	+631	+641	+651	+661
ATTTTATAGTGGATTCTTAAGAAATACTAACACTTGAGTATTAGCAATAATTACAGGAAA					
+671	+681	+691	+701	+711	+721
ATAAGTGC GACCACATATATCTTAACATTACTGAATTA AAACTATGGCTTCTAAGTCCTT					
+731	+741	+751	+761	+771	+781
ATCCAAACTCAGTCATCCAAACTAGTTTATTTTTTTCTCCAGTTGATTATCTTTTAATTT					
+791	+801	+811	+821	+831	+841
TTAATTTTGCTAAAGGTGGTTTTTTTGTGTTTTGTTTTTTGTAAACCAAACTATACTAA					
+851	+861	+871	+881	+891	+901
GTATAGTAATTATATATATATATATATTTTTTCCCCTCCCCCTCTTCTTTCCTAACTAAT					
+911	+921	+931	+941	+951	+961
TCTGAGCAGGGTAATCAGTGAACAAAGTGTTGAAAATTGTTCCAGAAGGTAATTTTCAT					
+971	+981	+991	+1001	+1011	+1021
AGATGTTTGCATTAGCTCCATAGCAAAATGGAATGGTACGTGACATTTAGGGTAGCTGAT					
+1031	+1041	+1051	+1061	+1071	+1081
ATTTTTATTTTGTTAAATAATTTCCAAGAATAGAGTATGGTGTATATTATAAATTTCTTT					
+1091	+1101	+1111	+1121	+1131	+1141
GATAAGATGTATTTTGAATGTCTTTTAATCTTCCTCCTCCTCCTCCAAAAAATCAGAAAC					
+1151	+1161	+1171	+1181	+1191	+1201
CTCTTTAAGAAAACATGTAGGTTATATATGCTAGAAATTGCATTTAATCACTGTGAAAAGA					
+1211	+1221	+1231	+1241	+1251	+1261
CTGGTCAGCCTGCATTAGTATGACAGTAGGGGGCTGTTAGAATTGCTGCTATACTGGTG					
+1271	+1281	+1291	+1301	+1311	+1321
GTATGGATTATCATGGCATTGGAATTTTCATAGTAATGCAGATCCAATTTCTTTGTGGTA					
+1331	+1341	+1351	+1361	+1371	+1381
CCTGCAGTTTACAAAATAATTTGACTTCAGTGAGCATATTGGTATCTGGATGTTCCAATT					
+1391	+1401	+1411	+1421	+1431	+1441
TAGAACTAAACCATATTTATTACAAAAAGATATTAATCCCTCTACTCCAGGTTCCCTTT					

+1451	+1461	+1471	+1481	+1491	+1501
ATATGTTAAGATATAATGGCTTTGAGGGGGAAAAATAAACCTAGGGGAGAGGGGAGTT					
+1511	+1521	+1531	+1541	+1551	+1561
TCCTGTAGTGCTGTTTCATTAGAGGATTTTCAGTAAATTAAATCCACAGCTAATTCAATA					
+1571	+1581	+1591	+1601	+1611	+1621
AATAATGGTACATTTAAGTGTTCTGATTTTAATAATATATTTCACATTTATCCACACAGT					
+1631	+1641	+1651	+1661	+1671	+1681
ACAATGTAATATGTTAATGTAAATAAAATTGGTTTTGATACTCAGAAATAACAAGAATT					
+1691	+1701	+1711	+1721	+1731	+1741
TAATTTTTTAAATTTGTTTACAGTCCTGGGAAAAGTAAGAATTATTTGCCAAAATAAGAG					
+1751	+1761	+1771	+1781	+1791	+1801
GAAAGAAAACCTTAGTATTATTAATGAGTTTACCATAGAATTGTTGGAAATACTGAAGAC					
+1811	+1821	+1831	+1841	+1851	+1861
AGGTGCAATTTACTAACTTTTGTTTTAACTATTGTAGAGGCTGCATTAGAAGAAAAT					
+1871	+1881	+1891	+1901	+1911	+1921
GTTTATAATGACAGAGCAACTATGACTATATAAAAAAGCTGAAATTAGAACTGTGTTTAG					
+1931	+1941	+1951	+1961	+1971	+1981
AAATAGATCAGTAACCCAGTGCCAAGGATGCCAAGCTGCCACCATGGTCTTGGCTCTCCC					
+1991	+2001	+2011	+2021	+2031	+2041
ACAACCCAGTGTTTCTGGGGTAAGTTTCACAGTTTCTAGGCCCTGGAATAGCAGGCAGTG					
+2051	+2061	+2071	+2081	+2091	+2101
TAAGCCTTTGATAACTTTAGTTCGATGTTTTTCTGTTTTTGTGTTGGTTTGGTGCAT					
+2111	+2121	+2131	+2141	+2151	+2161
ATGATAGTGGGTGTTATGCTATTTTGCTCTTCCCATCAAAATAAAGAACTTCCAGAGGT					
+2171	+2181	+2191	+2201	+2211	+2221
TTACTGTTAAAAATACTGATATTTCCATAAACGGGTTTACCAAGGGTGTAGTATTTTCATA					
+2231	+2241	+2251	+2261	+2271	+2281
CCGCCTGAAATGATCAGCATTGGCACAATCAAAATTCAGCCGCCTTTGAAATGCAAAAA					
+2291	+2301	+2311	+2321	+2331	+2341
TACCTTTGACTAGTAAGTACATCCTAGGAGTTTGAAAACTTAACCTAAGGTTTAAATTTA					
+2351	+2361	+2371	+2381	+2391	+2401

CCTTGTTTAAAGAACTTCTGACTTTTGAGGAAAATCTAGCTTTCCAAGTAACTAAAATGT
 |+2411 |+2421 |+2431 |+2441 |+2451 |+2461
 ACATGAGATAAACCTCTCACCCTATGTGTCCCTTGAGAAATGCAACACTTTTTAGTCT
 |+2471 |+2481 |+2491 |+2501 |+2511 |+2521
 TCATACTTGTAATCTATAAAAGAAATTCTGAAGTTTAGACCAAGTTGCCATTTCTGCGT
 |+2531 |+2541 |+2551 |+2561 |+2571 |+2581
 AATTGACATAAGTTCTGTAAAAATATTATAAGTAATTCGTTTCGGTTTGTAGATGTTTC
 |+2591 |+2601 |+2611 |+2621 |+2631 |+2641
 CCCTGACTTGTTAAAGAGGAAACCAGGAACCTCAGTCATGTTTTGTCTGGATAATCTAC
 |+2651 |+2661 |+2671 |+2681 |+2691 |+2701
 CTGTTATGCCAGTACTCCCATCCGAGGGGCATGCCCTTAGTTGCCAGATGGAGATGCAG
 |+2711 |+2721 |+2731 |+2741 |+2751 |+2761
 TTCAGTAGATTTGGGGCAAAGTGGCTACAGCTCTGTCTTCCATTCACTCAACACCTGTTCT
 |+2771 |+2781 |+2791 |+2801 |+2811 |+2821
 ATGACTGAGCCAGGTGCCAGGACACATCCTAAACAGTCAGCTTCTATCCTGTGTCCTAG
 |+2831 |+2841 |+2851 |+2861 |+2871 |+2881
 TTGGGGAGACAGAGTGCCAGCCAGCAACCCTCCAGGTTTGTAGGTTTTAGGGGTTTCA
 |+2891 |+2901 |+2911 |+2921 |+2931 |+2941
 GTTTTGTTTGGGTTTTTTGTTTTTTGTTTTTTGTTTCTACATCCTTCCCCGACTCCCAGGC
 |+2951 |+2961 |+2971 |+2981 |+2991 |+3001
 ATAATGAGGCATGTCTTACTCAATGTTATGCAATGGATTTAGGCAAAAATTCATTCTTAG
 |+3011 |+3021 |+3031 |+3041 |+3051 |+3061
 TGTGAGCCACACAATTTTTTTAATGCAGTATATTCACCTGTAAATAGTTTGTGTAATAAT
 |+3071 |+3081 |+3091 |+3101 |+3111 |+3121
 TTGACAAAAAAGTATATTTACTATACTGTAAATATATGTGATGATATATTGTATTATTT
 |+3131 |+3141 |+3151 |+3161 |+3171 |+3181
 TGCTTTTTTGTAAGCAGTTAGTTGCTGCACATGGATAACAACAAAAATTTGATTATTCT
 |+3191 |+3201 |+3211 |+3221 |+3231 |+3241
 CGTGTTAGTATTGTAACTTCTTTTTGCGACTGCGTTACATCATTTAAAGAAAATGCTGT
 |+3251 |+3261 |+3271 |+3281 |+3291 |+3301
 GTATTGTAACTTAAATTGTATATGATAACTTACTGTCCTTTCCATCCGGGCCTAAACTT

|+3311 |+3321 |+3331 |+3341 |+3351 |+3361
 TGGCAGTTCCTTTGTCTACAACCTTGTTAATACTGTAAACAGTTGTACGCCAGCAGGAAA

 |+3371 |+3381 |+3391 |+3401 |+3411 |+3421
 AATACTGCCCAACAGACAAAATCGATCATTGTAGGGGAAAATCATAGAAATCCATTTCAG

 |+3431 |+3441 |+3451 |+3461 |+3471 |+3481
 ATCTTTATTGTTCTCACCCATTTCTCCTTGTTGTATGTACTTCCCCACCCCCCTTT

 |+3491 |+3501 |+3511 |+3521. . . .
 TTTTAAGTAAAATGTAAATTCAATCTGCTCTAAGAtatgaggagttatttaatttcttca

 gatgtatcgagctctgttttcttcccccgagtcctcccaatcttttgaaacattaaggc

 cattttccttaaggatgttttggctctcctactccccgtgagaaagatctttccatttc

 .
 cagaa

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