

Gene: NF1 - Sequence: NG_009018.1
 Transcript: NM_000267.3 - Protein: NP_001035957.1
 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

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. . . . .
cttccaactccgggagcaatccaaacccggaggccggcgggggaggggacagctgtaggg

. . . . .
ggcgggtggggatgggagtgatgctcccgggtcagctctggcactcgccagctgagccca

. . . . .
gcgccagtctaggtgagccccacggcggtgagggacgctcgccagacggcccagaggagt

. . . . .
tagatgacgtcacctccaggaggactcgctttttcattaatgaaaccggccggcgggc

. . . . .
gcatgcgcggcaggccgccttcctctcgcttccccctcccctttcccagccgcgctctc

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

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

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

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

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

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

```

CTCAGCCTCCGCTCCCCGCCCTCTTCCCGGCCAGGGCGCCGGCCACCCTTCCCTCCGC

 |-19 |-9 |1 |11 |21 |31
CGCCCCCGGCCGCGGGGAGGACATGGCCGCGCACAGGCCGCTGGAATGGGTCCAGGCCG
 M A A H R P V E W V Q A V
 |1 |11

 |41 |51
TGGTCAGCCGCTTCGACGAGCAGGtaaccggcccgtggcgggcgggaggtgggagcggag
V S R F D E Q

.
tgggggtggggacagagtaggtgaggggaggtaggagcggccgcctccccgcggctgcc

.
tcaggctctggaggaaaggaagggaagggaagagaagggaaggggggataagtgggggtg

.
gccaaaggcgggaggtgaggggtaggaggggacagctgggagcttgggcaccctttccctc

.
ctaagtctgggggtggggccttgtccctgaccagcctccgaccctccatcccctttatcc

.
cagcccttccgcttggaaatggg

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

.
ctatctttagatagagatttatgacttccagaaagaaagctgcaaaaatggaagtttcc

.
aaagaatttaagatttgctataataaatgctatcatatattggtgtttgagatgcaaatg

.
tacatatctgtgtatcatatattggaggttgattgaaaatcggagtttgagatgcaagta

.
taggtatctgtggttgatgcagttttcctaaaacgtcatgattttcaatggcaagtaagt

.

|61 |71 |81 |91 |101 |111
CTTCCAATAAAAAACAGGACAGCAGAACACATACCAAAGTCAGTACTGAGCACAAACAAG
L P I K T G Q Q N T H T K V S T E H N K
|21 |31

|121 |131 |141 |151 |161 |171
GAATGTCTAATCAATATTTCCAAATACAAGTTTTCTTGGTTATAAGCGGCCTCACTACT
E C L I N I S K Y K F S L V I S G L T T
|41 |51

|181 |191 |201
ATTTTAAAGAATGTTAAACAATATGgtgagtatttgggttactgtgttttggggaatttgc
I L K N V N N M
|61

tttcttttctttttgattaaagtttagaacagcatattttgaagtatggaaagtgatt

t t c t g t g g a c t t t g g a t a t a a c c a t t a a t c t t a t t t t g t t t a c g a g c a c a g a t a a c c t t t

taattttattttgtcaatttttaatacagctgggttttagattcagtgagcacaagtaac

tgtaaactttcattttaatttattattttcccttagaaacatctcctatcttttgtgaccat

gtctccttttccagtatgtttctt

tggtacaggtctatatgtgtgtctaaatcctacatatTTTTTaaagcatgaagcaaacag

catcttttactgttacaagggttaatggcagactctaataaatgccatttctgtttgcctt

agacttttagtttttatgaggattaggataaaatcagaaataatatatttaagtatagtat

.
 aatctgggaggtaaaatggaagactattggtgatcttttagtctttcacttttcagatgt

 gtggttgattggtagcagaaagtgaactaacttttatgttctgaatatcttttctgtag
 |211 |221 |231 |241 |251 |261
 AGAATATTTGGAGAAGCTGCTGAAAAAATTTATATCTCTCTCAGTTGATTATATTGGAT
 R I F G E A A E K N L Y L S Q L I I L D
 |71 |81
 |271 |281
 ACACTGGAAAAATGTCTTGCTGGGgtaagtaaattgatcttaagtaggcaggcctttgtga
 T L E K C L A G
 |91

 atttgatcttgagaatgatcttatgtcccaaagtacagatgtggaccaagaggacagtcc

 tatggacttttgtctgagacataaaatagagttttgttaatatagctgacctggtgac

 agacaatttttcatgagaaaattttctcatcttttgtaaattaaacagatattaagtta

 cttataaaatgttatgtttcagccacgtatctgtctctcaggttttttaggaaaatatttt

 atgaagagatcactatttgattta

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

.
 cagggaagggtcgtttggtgaacaagagagcaagcaggaatgggaggactggtaaggat

 ggcagggggattgaactttaattgtgattatggggtcagagatggaaccatcctctttat

 taaactatctatagacagatgtagcaaatatgatgaaacgttaacagttgttaaacttag

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. . . . .
gtggtgtgtatgtaagggtgttcattatTTTTgttctgtgtgtgtgttggaaaattttcat

. . . . .
aatagaaaatgtttacagggtaaaattaaagtttagaataatgtgattatttctatttttag

|291      |301      |311      |321      |331      |341
CAACCAAAGGACACAATGAGATTAGATGAAACGATGCTGGTCAAACAGTTGCTGCCAGAA
Q P K D T M R L D E T M L V K Q L L P E
|101      |111

|351      |361      |371      |381      |391      |401
ATCTGCCATTTTCTTCACACCTGTCGTGAAGGAAACCAGCATGCAGCTGAACTTCGGAAT
I C H F L H T C R E G N Q H A A E L R N
|121      |131

|411      |421      |431      |441      |451      |461
TCTGCCTCTGGGGTTTTATTTTCTCTCAGCTGCAACAACCTCAATGCAGTCTTTAGTCGC
S A S G V L F S L S C N N F N A V F S R
|141      |151

|471
ATTTCTACCAGgttagtgtgttaaaccacatgggactactgaagtaatatgaatattaga
I S T R

. . . . .
agttttgtttttgtctacataaaaataaaaagttaatggaaatgagggttttttgtttt

. . . . .
tgagacaagttcttttggccctcacagcagctttgacctccaggcttaggtgatcctcc

. . . . .
tacctcagcctccagagaaatgagtttgtctgggcttgcgtagaaattttatgcattaat

. . . . .
atctttgacattttaattgcgtaatatgtgatattgatatgtgcaattaaataagagca

. . .
ctgttatgaat

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

.
 gctgaagtacagtgggtgtgatcacagctcattgcagcttcaaacttctaggctcaagaga

 tcctcctcccttagcctcctgagtagctgggcctatagggtgtgtgccatcatgccagct

 aatTTTTgtatTTTTTTtagagatgatgtcttgctatgttgcccaggctgggtcttgaact

 cctggcctcaagtggctcctctgccttggcctcctgaagtgtgggattacaggtgtgag

 ataccacacctgtcccctaataacttaatttgataagttaattttggTTTTactTTTTtag
 |481 |491 |501 |511 |521 |531
 GTTACAGGAATTAAGTGTTCAGAAACAATGTTGATGTTGATGATATAGAATTGTT
 L Q E L T V C S E D N V D V H D I E L L
 |161 |171
 |541 |551 |561 |571 |581 . .
 ACAGTATATCAATGTGGATTGTGCAAAATTAACGACTCCTGAAGGgtaagtttaaag
 Q Y I N V D C A K L K R L L K E
 |181 |191

 tataatatatctgaaaaaatcactgggtcaaaaactagtatcatgaatgtactaattat

 attaattgtgctgaactagaacaccaaactggattttataatgacatttccttgtgaaat

 aaccagtaatacaaatgggtaattatTTTTcaatctttgaaaataatgcagtagagaaaa

 tgagcattttaaatcttggcaatggaaagttttgcttaactacaattttgttttcaata

 cagagaatgcaagggtgctattatttcatTTTTctggaatttgatct

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

.
 gctcatggataggaggaaccaatatcctgtatgtgttttataacttttttttgaaaaagca

 agttattaaaagaaaaagctcacaatcattgatgtccaaggcatatttgctgtttatgga

 atttttctttccttagcagacaactatcgagttttgggtttatgttaggtgtctttacctt

 tcattgcttacagataaatattggagcaaaagtaatacgtaaatggaaagtatttttgctc

 tgagttgtatttgtgttaacttattctagagttaatttttaaaaattgtgtttttccag
 |591 |601 |611 |621 |631 |641
 AAACAGCATTTAAATTTAAAGCCCTAAAGAAGGTTGCGCAGTTAGCAGTTATAAATAGCC
 T A F K F K A L K K V A Q L A V I N S L
 |201 |211
 |651
 TGGAAAAGgtaagttacaacctctctggtattaaaattttgtttttgatgtaaaatttgc
 E K

 tgttgtagcatcctgaatcaaaaagtattgacttgagtgatagtttcacattcatttc

 aggaagaatacattgtaattattattatgaagggaagttagaagtttgtagacattttattta

 ctgtattacaaaaaatcactgtaaagacatgtggttctttatttataggcattttggaac

 tgggtagaaaattatccagatgaattttacaaaactgtaccagatcccacagactgatatg
 . . .
 gctggtaa

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

.
 tgtttttccagaaacagcatttaaatttaaagccctaaagaagggtgcgtagtagcag

 ttataaatagcctggaaaaggtaagttacaacctctctggtattaaaatttgtttttga

 tgtaaaatttgctgtttagcatcctgaatcaaaaagttagacttgagttagatagtttc

 acattcattttcaggaagaatacatgtgaatattattatgaaggaagtagaagtttggtg

 acattttatttactgtattacaaaaatcactgtaaagacatgtggttctttatttatag
 |661 |671 |681 |691 |701 |711
 GCATTTTGGAACTGGGTAGAAAATTATCCAGATGAATTTACAAAAGTACCAGATCCCA
 A F W N W V E N Y P D E F T K L Y Q I P
 |221 |231
 |721
 CAGACTGATATGGCTGgtaaggatacgattgattttttttttttttgtccttttaaag
 Q T D M A E
 |241

 cctacttgtgacataaaaacctatcatcgttttccaagttattttgttataaagggtgct

 ttacatcttctattgtcaactgggtgtcaaataaggaaatactgtttttctcttacatttc

 taaattaggcccaacctcttcctttccttgagcaacaaagtagtttgaaatgaaggt

 cagatcttttagagctgtgataggatgggggtgtttggctctttgtttagagaagcatgtg

 ctctgaagctttattt

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

.
 ctttgcttgcttggtacatcacactttgcataaggcccttcacagttagactgaatacat

 gatcatccattctaaaatgtgagcttttccaggatagatcaagatagctcttctaacaca

 tagacagtattacattgcttgtctacttaccagaatgcatttgtgtagtgtgcttaaatga

 agttccatgtttatcttttaaaaatgttggccttgggtttttacatagtgtagctttta

 ctttaatgccagggattttgttcctatctaataatgtcatttaatatatttttcatgcag
 |731 |741 |751 |761 |771 |781
 AATGTGCAGAAAAGCTATTTGACTTGGTGGATGGTTTTGCTGAAAGCACCAAACGTAAAG
 C A E K L F D L V D G F A E S T K R K A
 |251 |261
 |791 |801 |811 |821 |831 |841
 CAGCAGTTTGGCCACTACAAATCATTCTCCTTATCTTGTGTCCAGAAATAATCCAGGATA
 A V W P L Q I I L L I L C P E I I Q D I
 |271 |281
 |851 |861 |871 |881
 TATCCAAAGACGTGGTTGATGAAAACAACATGAATAAGgtaaggaggggcaaaattatttc
 S K D V V D E N N M N K
 |291

 cattatatctagatgtgaagcagtttattttactcaagggtgtgtattactttaggcttat

 tatttaagcaaagtatttcagggaaccatttaaatgatcattttaggtttctttgtttga

 tggacttagaagagacatactatacataattttatttggcagagggaaaataataaccag

 gcaatgaacaaagatttaaaataatcccttagtttcattcttttgtctgagaagactaaa

cgatacctctgttattattaaacgtagtttctctaata

Exon 9 | Start: 110446 | End: 110619 | Length: 173

BE AWARE: This section overlaps with the following exon

.
gaagacaccatcttgggaaaaaaaaaaaaagaagttcagaaaacagcttggttggaag

.
gactgtttttgtattcctttaataattcaataaagaaaatagaaaaggatttttttta

.
aatttgagaacatttaaatgatgaccactacttaaattatgaaattgaaaccacaaat

.
ataaattatgcattctttatagtatgagttttagaggctgtaatttgctataatattag

.
ctacatctggaatagaagaaacttcatatattatcttatcgctatatttgaattctgtag

|891 |901 |911 |921 |931 |941
AAGTTATTTCTGGACAGTCTACGAAAAGCTCTTGCTGGCCATGGAGGAAGTAGGCAGCTG
K L F L D S L R K A L A G H G G S R Q L
|301 |311

|951 |961 |971 |981 |991 |1001
ACAGAAAGTGCTGCAATTGCCTGTGTCAAAGTGTGTAAAGCAAGTACTTACATCAATTGG
T E S A A I A C V K L C K A S T Y I N W
|321 |331

|1011 |1021 |1031 |1041 |1051 |1061 .
GAAGATAACTCTGTCAATTTCTACTTGTTTCAGTCCATGGTGGTTGATCTTAAGgtaaca
E D N S V I F L L V Q S M V V D L K
|341 |351

.
tgcttattctttcttactacaaactttaagaaaattaaatgaattttctagcataagta

.
ttatgtcaaagataattgctaacattaaagttctgactcttcgttgataagttcatagga

.

aaaaagactatagagattaataggttcactttttatcggtattttctcactattatgtattg

 atgttcgtttcaagaccttaaaaacttagtggttttttttaaaactttctatttgctggt

 ctttttggcttcatttgattactgagtatttttctcatagaaataatctgcttttttt

 ttctttttctatagatctgcctggctcagaattcaccttctacatttcactatgtgctgg
 .
 taa

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

.
 ccttgtttcttgctttcgtataagccctcacaacaaccaacactttaaggtgagagcatt

 ggtttttatctaactatatttactgatgctgttatcctttataaacaagactataga

 gattaataggttcacttttatcggtattttctcactattatgtattgatgttcgtttcaag

 accttaaaaacttagtggttttttttaaaactttctatttgctgttcttttggcttcat

 ttgtattactgagtatttttctcatagaaataatctgcttttttttctttttctatag

1191	1201	1211	1221	1231	1241
ATCTGCCTGGCTCAGAATTCACCTTCTACATTTC	ACTATGTGCTGGTAAATTC	ACTCCAT			
I	C	L	A	Q	N
	S	P	S	T	F
			H	Y	V
			L	V	N
			S	L	H
	401			411	
1251					
CGAATCATCA	CCAATg	taagtc	caaaag	tattg	ctaaatt
R	I	I	T	N	

.

ttcttttctttgcgtatttctttttaagaaatgcactcttggttttcaaaaaggttctga

 atttagatgtatgaaataggaaaatttctccatggtgattctatttgataattgataaat

 atttgtatttttcatattaagtcttgaccgaaggaccatattaaggaagatggagttaa

 taagatgcttttgaaagattaaatctaaaacgttttattcagatcagaagcccttgagaa

 aaatgtcactgaaaa

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

.
 ctgaagactttatttttcaaattcactggctaatacatcgagaaaagatgtctcacatgca

 catgctcataaagtgggcaatttgtctcatgctcactattatgttttataataataatg

 tatgagttagtgtttgaattaaagacgttgtttgaagactttggaaatcatggtgtgtgt

 ttgcatggtccttagaaagttcccgacaaaaggataaaaacttaaaactacagtataaaca

 gagcatacaactcacgtaattttgtactttttcttcctattggtctttgtttttctctag

1261	1271	1281	1291	1301	1311
TCCGCATTGGATTGGTGGCCTAAGATTGATGCTGTGTATTGTCACCTCGGTTGAACTTCGA					
S A L D W W P K I D A V Y C H S V E L R					
421			431		

1321	1331	1341	1351	1361	1371
AATATGTTTGGTGAAACACTTCATAAAGCAGTGCAAGGTTGTGGAGCACACCCAGCAATA					
N M F G E T L H K A V Q G C G A H P A I					
441			451		

1381	1391
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| 461

cttaaaactttt

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

| 1511

GAGACAAGAAGCTATAAGTATCTTCTCTTGTCCATGGTGAAACTAATTCATGCAGATCCA
 E T R S Y K Y L L L S M V K L I H A D P
 |491 |501

|1521
 AAGCTCTTGCTTTGTgtaagtatTTTTTTatgaaatgtctcaaaattatcacactaagtt
 K L L L C

.
 aattgggttagctgaaacgccaaagaccttgaggataatTTTtagctcaagagcacttac

 tgatcctttctgatcatacctgaaaactaagacgtctctaagaaaactaatgtataatga

 atactaatataaattagatcagattcttaattgcccttatcatttcctaacatttctcttt

 cttcttaatttccttatcattaaactaacatactttgatgagatctctgttctcatccta

 ttactaagttatata

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

.
 gggaccacaggcgcgatgccaccacgcctgggctaatttttatatttttagtagagatagaa

 tttcaccatattggtcaggctgggtctcaaactcctgacttcaggatccacccgccact

 acctcccaaagtcctgggcttacaggcgtgaaccaccgcgtccagcctagttctagaaca

 ttgttatcaccctaaaagaaacttggtagcccttttagcagtcactgtctatttcttctctc

 cttctaattctctctcgatttatTTTtttttaattgaagtttccttttttccttgag
 |1531 |1541 |1551 |1561 |1571 |1581

AATCCAAGAAAACAGGGGCCCCGAAACCCAAGGCAGTACAGCAGAATTAATTACAGGGCTC
N P R K Q G P E T Q G S T A E L I T G L
|511 |521

|1591 |1601 |1611 |1621 |1631 |1641.
GTCCAACCTGGTCCCTCAGTCACACATGCCAGAGATTGCTCAGGAAGCAATGGAGgtaagg
V Q L V P Q S H M P E I A Q E A M E
|531 |541

.
ggaaaatgaattccatgttcttgaaggaaagattgtaactatgtacattcatgatgttcc
.
tttggtgtgtggtttctgtgagtaacaggtagatgtcatttctggaaatggtatgtttat
.
gtctatacattgttttataaaactccatggagaaagaaggggtttacttgctttgtatca
.
catagcaataacattgtacaaattctgatgcttaataaaatagttcgagattttctaatt
.
gcagttgacttttaaaatttttaaaatattattattaaatattaataaaataactaa

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

.
tttgtttcttaaagcagtttttacagttatatattgttccgaattcatcatttagcttta
.
tatgtacatgccagtttagagtcagaatgatgggaataaaatgatttcattctgtctgtat
.
tattccctagaggtttgtgttcaccagagtttctctctttttaccttttactatatattg
.
aaactacaaatgaaagagctcaatttcttagcattttataaaataagtactccagtgttat
.
gtttacaaaaatgtttgagtgagtccttctctttgtctttctcttttttaaaaaattcag
|1651 |1661 |1671 |1681 |1691 |1701

GCTCTGCTGGTTCTTCATCAGTTAGATAGCATTGATTTGTGGAATCCTGATGCTCCTGTA
A L L V L H Q L D S I D L W N P D A P V
|551 |561

|1711 |1721.
GAAACATTTTGGGAGATTAGgtatatgtacttttattttttaattcaacttttaaat
E T F W E I S
|571

.
tattttgtattttgtccttgaaatattaactctgtagtacttagtacattgtaaaactta
.
cacttcaaagggttttatgggtttgtattttatttgacttcaaattattagaatttcttg
.
ttttaactgtaagaaaagtatcacagcaatttagaaaataaattttaagaatagtgctaa
.
attttgtcaccctaacataagtactgttggttggtatattacttttttcagatttcaatg
.
tggttactactgtattttta

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

.
gtttattgtttcttcttatgtctactacaaggatgagatacatggatagaaacactggga
.
gtttaatgaaacatagggggcttatagataaatacttgcttttttctataacctgtaga
.
cttatttcctttgattataatgctattgacactttgataactgtttctctaaaccttac
.
aagaaaaactaagcttctctaaacttgatttcattatgggagaatgccattcttatgtct
.
ggttatatctgcattaggttattgatgatgctagtaacaatgaactttatgttactgcag
|1731 |1741 |1751 |1761 |1771 |1781

CTCACAAATGCTTTTTTACATCTGCAAGAAATTAAGTAGTCATCAAATGCTTAGTAGCAC
 S Q M L F Y I C K K L T S H Q M L S S T
 |581 |591

|1791 |1801 |1811 |1821 |1831 |1841
 AGAAATTCTCAAGTGGTTGCGGAAATATTGATCTGCAGGAATAAATTTCTTCTTAAAAA
 E I L K W L R E I L I C R N K F L L K N
 |601 |611

TAAGgtaagcaaaatgacatatatttaaaaaatggaagaatatttggaatggtaatgggtgag
 K

agattactaaagtggttttatagccaaattaggttctatttcagcttctcctcctcccaa

tgttctcaaaaggaaatatgtatgcagaggacaatgactggcaaatcagcattttaaaaa

ttattctgaggctttggccttagaaccacactgttgatgaattctagttctagttgagtt

aaataggtctctatggggcaggcctaggaaaagtgggggctgctataaccagagtagctt

gagg

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

ttcatcacagtagatttatattgttgatgttttactcatgtttatgtcagacttaatttat

atttgtagaatctactgtttctgatgatttagagaatgggaaactgaaagaaattttaaa

gaattaagtaaaccttggtttgttctaattgggtttctagtgaatctccttcaagttggggc

atagagattgagaggagaggttttttaggagagtctcaaacaggaagacaactcaaataa

.
 gtgtttattcctcttggtgtcagtgcttcagtaaagcttattttatttttttctag

 |1851 |1861 |1871 |1881 |1891 |1901
 CAGGCAGATAGAAGTTCCTGTCACTTTCTCCTTTTACGGGGTAGGATGTGATATTCCT
 Q A D R S S C H F L L F Y G V G C D I P
 |621 |631

 |1911 |1921 |1931 |1941 |1951 |1961
 TCTAGTGGAAATACCAGTCAAATGTCCATGGATCATGAAGAATTACTACGTACTCCTGGA
 S S G N T S Q M S M D H E E L L R T P G
 |641 |651

 |1971 |1981 |1991 |2001. . . .
 GCCTCTCTCCGGAAGGGAAGGAACTCCTCTATGgtcagcttcttctgtactttttct
 A S L R K G K G N S S M
 |661

 gtatcattttatgtgctctgtttgttttctgaatgaaatttggttaaattcatctaggta

 atatagtgtaatagtgaaaaactgcttagaatctagttctattactgctctttgtggaac

 tttgggcaagttcttaacatccttgcttcctcagttcctcaactttaaaatggggacagta

 atagttcctgccccagagttgttaagagggttaaataaaaggatgtgtaaatagcactt

 gacacttacaagctatatctgataattataattatt

Exon 18 | Start: 136459 | End: 136708 | Length: 249
 BE AWARE: This section overlaps with the following exon

.
 tagaatcagtttacatttctggaatctggaataggataatatctatttgatttgaaattg

 aacagatggtagcattatgttggtccagataatctcatttctcatttggacaagatattt

. . .
tttacaaca

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

.
tgttactatcagttatgattatgtaatttactctgcctaagttgtagatagtgaagtttt

.
acaaacattggcgtatgttttgagtaaattgtaggtgggaatagctattttattctgtgg

.
acattgtagagtcgaagataagtacctttcctgtgaggttagtgaaaggaagtttttggc

.
tttatcatttgaagcatttgctctgctcttcctactccttttgggtggagcttatcaggt

.
tctccattggcaggcagggtcctaagtgacagtaacttgatttgctgttgatttgcttag

|2261 |2271 |2281 |2291 |2301 |2311
GAAGAGCAGCACTTCAGAAAAGAGTGATGGCACTGCTGAGGCGCATTGAGCATCCCACTG
R A A L Q K R V M A L L R R I E H P T A
|761 |771

|2321
CAGGAAACACTGAGgtatgcccttagcaacagaaacacccctcccaggcgcccaccctca
G N T E

.
atttggaaagcctcttggttacatatgtgtgatcaggaatagcttttgaagtaaatacaaga

.
tacgtgcatattacaagtataatatctgagtatattaatacatcaagtttgaaacttgg

.
ctgtagctgattgatgttttagctctagactaagttgctttcaagtataattgccttcac

.

tttaggcttggaagatacacatgcaaaatgggaacaagcaacaaagctaataccttaact

. . .
atccaaaagccaaa

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

.
gcagcacttcagaaaagagtgatggcactgctgaggcgcatgagcatcccactgcagga

.
aacactgaggtatgcccttagcaacagaaacaccctcccaggcgcccaccctcaatttg

.
gaagcctcttgttacatatgtgtgatcaggaatagcttttgaagtaaatccaagatacgt

.
gcatattacaagtataatatctgagtatttaataatacatcaagtttgaaacttggctgta

.
gctgattgatgttttagctctagactaagttgctttcaagtataattgccttcattttag

2331	2341	2351	2361	2371	2381
GCTTGGGAAGATACACATGCAAAATGGGAACAAGCAACAAAGCTAATCCTTA	ACTATCCA				
A	W	E	D	T	H
		A	K	W	E
		Q	A	T	K
			L	I	L
				N	Y
				P	
		781		791	

2391	2401
AAAGCCAAAATGGAAGATGGCCAG	gtaagtctgtaaagttgactttt	gtctgttaactga
K	A	K
M	E	D
G	Q	
	801	

.
tctgctaaatatatgtacttcactttgataatctttcaagagtcgctcagtaaagtaaac

.
atatagctgtgtgaagactgatatttagttgtggtttatctagacctgtactttgtaatg

.
tggtagctactagctatgtgtgactatttaacttaaattttaacataattaaaattaaat

.

aaaatttagttcctcaatcatatagtaaccacatcgcaagtaccagtagccacatatgac

.
aattacttactctattggacagca

Exon 21 | Start: 139049 | End: 139489 | Length: 440
BE AWARE: This section overlaps with the following exon

.
tagaatatgtgggcttttgtgattagcttctttcacttagcatgatgtttccaaggttca

.
tccatgtgaaatcaaaacttttttaaagaatttgacactcggctgattatattagtgtga

.
tgataaaaatagatcagtggtctctttaaaatgtatatggttaattttatgggttgatttt

.
aatgtatatattttacattttttgtacttttgtcatggaagaaatgttgataaagcataat

.
ttgtcaagtctcaactaattaagggtttaattcatgctttgcacaaaaattttgtgttttag

2411	2421	2431	2441	2451	2461
GCTGCTGAAAGCCTTCACAAGACCATTGTTAAGAGGCGAATGTCCCATGTGAGTGGAGGA					
A A E S L H K T I V K R R M S H V S G G					
	811				821

2471	2481	2491	2501	2511	2521
GGATCCATAGATTTGTCTGACACAGACTCCCTACAGGAATGGATCAACATGACTGGCTTC					
G S I D L S D T D S L Q E W I N M T G F					
	831				841

2531	2541	2551	2561	2571	2581
CTTTGTGCCCTTGGGGGAGTGTGCCTCCAGCAGAGAAGCAATTCTGGCCTGGCAACCTAT					
L C A L G G V C L Q Q R S N S G L A T Y					
	851				861

2591	2601	2611	2621	2631	2641
AGCCACCCATGGGTCCAGTCAGTGAACGTAAGGGTTCTATGATTTTCAGTGATGTCTTCA					
S P P M G P V S E R K G S M I S V M S S					
	871				881

|2651 |2661 |2671 |2681 |2691 |2701
 GAGGGAAACGCAGATACACCTGTCAGCAAATTTATGGATCGGCTGTTGTCCTTAATGGTG
 E G N A D T P V S K F M D R L L S L M V
 |891 |901

|2711 |2721 |2731 |2741 |2751 |2761
 TGTAACCATGAGAAAAGTGGGACTTCAAATACGGACCAATGTTAAGGATCTGGTGGGTCTA
 C N H E K V G L Q I R T N V K D L V G L
 |911 |921

|2771 |2781 |2791 |2801 |2811 |2821
 GAATTGAGTCCTGCTCTGTATCCAATGCTATTTAACAAATTGAAGAATACCATCAGCAAG
 E L S P A L Y P M L F N K L K N T I S K
 |931 |941

|2831 |2841
 TTTTTGACTCCCAAGGACAGgtaaagtggtctcttatttttcacctttctctatgaata
 F F D S Q G Q

.
 gagtgacttggttgaaataagcctttttctttcagattatttaaattaggtactcacagt

.
 ttttaaaaatttccaaaaattgcagaaagaagagtcacatctcaatgtaggggtcagcttg

.
 cctcttaggaactctgggtgtgtatgtgtgcctaagggtatacgtgccctgtgtatgggta

.
 cgagtgtctgcgtatatctgtatgcttatttggctctatgcctgtgggtgcacttactct

.
 gtgtgttagatcagtcagtt

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

.
 ttcagattatttaaattaggtactcacagtttttaaaaatttccaaaaattgcagaaag

.
 aagagtcacatctcaatgtaggggtcagcttgcctcttaggaactctggtgtgtatgtgtgc

 ctaagggtatacgtgccctgtgtatgggtacgagtgtctgcgtatatctgtatgcttatt

 tggctctatgcctgtgggtgcacttactctgtgtgttagatcagtcagtttcatctctc

 tagggggtctgtcttctgggcattgatggcaaatacattaatgtatttgttctttctttag
 |2851 |2861 |2871 |2881 |2891 |2901
 GTTTTATTGACTGATACCAATACTCAATTTGTAGAACAAACCATAGCTATAATGAAGAAC
 V L L T D T N T Q F V E Q T I A I M K N
 |951 |961
 |2911 |2921 |2931 |2941 |2951 |2961
 TTGCTAGATAATCATACTGAAGGCAGCTCTGAACATCTAGGGCAAGCTAGCATTGAAACA
 L L D N H T E G S S E H L G Q A S I E T
 |971 |981
 |2971 |2981
 ATGATGTTAAATCTGGTCAGgtaagcattctactgaaatgtagcagaaacattttaagag
 M M L N L V R
 |991

 ataagaaaacctcttacacactgatactggttagtaattgataaaataactggccattct

 ttactgcacacaaactagggtgtgacagtaaggtagccagaagttgtgtacgttcttttc

 taaataaatatcttattgttttcaaacttacatttaattcgttttacttgatgactaaag

 tatttagaatgccttctctttgtctatatctgataattttttattgtttctatgtcta

 tataggtatgttcgtgtgct

Exon 23 | Start: 140284 | End: 140406 | Length: 122
 BE AWARE: This section overlaps with the following exon

.
gttaaactctggtcaggtaagcattctactgaaatgtagcagaaacattttaagagataag

.
aaaaacctcttacacactgatactggtagtaattgataaaataactggccattctttact

.
gcacacaaactaggggtgtgacagtaaggtagccagaagttgtgtacgttcttttctaaat

.
aaatatcttattgttttcaaacttacatttaattcgttttacttgatgactaaagtattt

.
agaatgccttctcttttgtctatatctgataatttttttattgtttctatgtctatatag

|2991 |3001 |3011 |3021 |3031 |3041
GTATGTTTCGTGTGCTTGGGAATATGGTCCATGCAATTCAAATAAAAACGAAACTGTGTCA
Y V R V L G N M V H A I Q I K T K L C Q
 |1001 |1011

|3051 |3061 |3071 |3081 |3091 |3101
ATTAGTTGAAGTAATGATGGCAAGGAGAGATGACCTCTCATTTTGCCAAGAGATGAAATT
L V E V M M A R R D D L S F C Q E M K F
 |1021 |1031

|3111
TAGgtgagttctcaaagagcaatgtagggcttgtaaactttaatatgtccaatgaagt
R

.
acagaaaaagagtagatatgcggttattggtagaaaggaggacatgaaaagagagcaatt

.
tacatgtttgtttttctctacatctcttctcaaatttcctaagctttgtgcctgtgaca

.
atgctccctttttctaaaactgtgctatacttgagctaagaatttgattctatttccaat

.
ctgataccataactaagggccatgatggaggataaatatccatgttgcttgttcccttct

.

ggc

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

```
. . . . .
agctttgtgcctgtgacaatgctcccttttctaaaactgtgctatacttgagctaagaa
. . . . .
tttgattctatttccaatctgataccataactaagggccatgatggaggataaatatcca
. . . . .
tgttgcttggtcccttctggcttttatgtctgtgatagcagtatctctttataaagtcg
. . . . .
tcatgtcacttaggttatctggcaaattatttgcactataagaaatcttacgtgactaaa
. . . . .
ggtgtgtgtgtggcttcaaaaacattgtttgctgtttctcttttctccaccattctatag
      |3121      |3131      |3141      |3151      |3161      |3171
GAATAAGATGGTAGAATACCTGACAGACTGGGTTATGGGAACATCAAACCAAGCAGCAGA
  N  K  M  V  E  Y  L  T  D  W  V  M  G  T  S  N  Q  A  A  D
      |1041                        |1051

      |3181      |3191      . . . . .
TGATGATGTAAATGTCTTACAAGgtaaaaaagaatgaccttcaagtattagtgggttt
  D  D  V  K  C  L  T  R
      |1061

. . . . .
tactgtgagagttataactacttaattacagctttatacttgatattttgtgtgtatttaa
. . . . .
acttttgagatgtcaaacttttggtttgaaatatgtaaagatgctaacttttattactg
. . . . .
cttttttttgactgatagactttcagtaaaattaaatgtgaaagagtgatatgtttggga
. . . . .
agttagtgtgtcagtttatgaagaatagtctacagttattgggaaataagatacataaa
. . . . .
```

gcctcagattgcatttggttatg

Exon 25 | Start: 142097 | End: 142213 | Length: 116
BE AWARE: This section overlaps with the following exon

.
atggatatagaactcactgatacagagggccattgtacatgcttctgatttaaggtagc

.
cattttgccagattactttgtagaaagtaagtattaccttctccccatttgagatgatt

.
ttgtattctgggatctgcatattaactcaaattatttgggtgtgctaataatttgttta

.
atgaaataggtagttcctaaggtttatatctgtagtaagaggtttatttgaggggaagt

.
gaaagaacttgaaagattcatggtctctaaattttttttttttttttttttttcag

3201	3211	3221	3231	3241	3251
AGATTTGGACCAGGCAAGCATGGAAGCAGTAGTTCACTTCTAGCTGGTCTCCCTCTGCA					
D L D Q A S M E A V V S L L A G L P L Q					
	1071			1081	

3261	3271	3281	3291	3301	3311
GCCTGAAGAAGGAGATGGTGTGGAATTGATGGAAGCCAAATCACAGTTATTTCTTA					Agta
P E E G D G V E L M E A K S Q L F L K					
	1091			1101	

.
aatttcagtcaccaaaaaacataaagcaaaaagcaaataaagccccccaccacacaaaaa

.
aagcaaagaaataatacccatgacaggactaggtataggaaaataactgtgttttgatt

.
tttttaaagaaagtaatatgatcagtgaaattttgcttataataaaaccagattgcttc

.
attaagtcatttacaaaagtgacattgtctaagctgtttggaccactaattttatatact

.
aacattaaaagtgacacatttaccaggtaattgcatctatttgatgctaattgta

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

.
tctaagctgtttggaccactaattttatataactaacattaaaagtgacacatttaccagg

.
taatattgcatctatttgatgctaattgttatgaaaggtatactaggctatatcaggtaaa

.
atcatgtccaacatagcacacttcataataagccaccctggctgattatcgcgagagagg

.
agagaaacagttaaccagggccattcacaccatgcacatatgattgttttggaatgtct

.
ggttagctttctagttgatacggccttcactatgtaaaggtcagtcctttttatttctcag

3321	3331	3341	3351	3361	3371																
ATACTTCACATTATTTATGAACCTTTTGAATGACTGCAGTGAAGTTGAAGATGAAAGTGC																					
Y	F	T	L	F	M	N	L	L	N	D	C	S	E	V	E	D	E	S	A		
										1111											1121

3381	3391	3401	3411	3421	3431																
GCAAACAGGTGGCAGGAAACGTGGCATGTCTCGGAGGCTGGCATCACTGAGGCACTGTAC																					
Q	T	G	G	R	K	R	G	M	S	R	R	L	A	S	L	R	H	C	T		
										1131											1141

3441	3451	3461	3471	3481	3491																
GGTCCTTGCAATGTCAAACCTTACTCAATGCCAACGTAGACAGTGGTCTCATGCACTCCAT																					
V	L	A	M	S	N	L	L	N	A	N	V	D	S	G	L	M	H	S	I		
										1151											1161

.
AGgtgagatcaaataaggtttcatatagaaatacaaaacctagagaactggcatgtaag
G

.

AGAGATTGGTGGAAGTGGTCACAATGATGGGTGATCAAGGAGAACTCCCTATAGCGATGG
 R L V E L V T M M G D Q G E L P I A M A
 |1211 |1221

|3681 |3691 |3701
 CTCTGGCCAATGTGGTTCCTTGTCTCAGTGGGtaagtgattagagtaagcggggaagaa
 L A N V V P C S Q W
 |1231

.
 aagtgccctggcacatagcaaatccttcagaatatatttggtcaataaatgtttgttgaat

 gaattgataaaatttcagagccagaagaagatgtttagttaggtgatttttcagctgta

 gggaagtgggtggcaccactagacctgactagtgttctgtatcatttcactactactaaaa

 aattccatttaaacgcattaaaaatcactgatctactctgggtgtcttcatatatttgata

 aggtaattaggttaaaccctaatttttagttagt

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

.
 tttgtgatgtaatttgagctgaatccttgagattttgtctcctagtaaagcgtaggcctc

 tcttaatagcttttacgggttaatccttggaattaacagctatcatagacattgtatata

 gtcactatcataaacaatgtacactgttaaactctcaggataaatattaatcagtcatca

 tttgccttaatttagcaagtgggtgtcaactttgggtttacatttttgctactctttagc

 ttcttacctaagaataaaaatgggattgtttgcactaacctgattttgtttgttctcag

3711	3721	3731	3741	3751	3761
GATGAACTAGCTCGAGTTCTGGTTACTCTGTTTGATTCTCGGCATTTACTCTACCAACTG					
D	E	L	A	R	V
			L	V	T
			L	F	D
			S	R	H
			L	L	Y
			Q	L	
	1241			1251	
3771	3781	3791	3801	3811	3821
CTCTGGAACATGTTTTCTAAAGAAGTAGAATTGGCAGACTCCATGCAGACTCTCTTCCGA					
L	W	N	M	F	S
			K	E	V
			E	L	A
			D	S	M
			Q	T	L
			F	R	
	1261			1271	
3831	3841	3851	3861	.	.
GGCAACAGCTTGCCAGTAAAATAATGACATTCTGTTTCAAGgtttgtatcattcatttt					
G	N	S	L	A	S
			K	I	M
			T	F	C
			F	K	
	1281				
.
.
gtgtgtatgtgtgtgtgaggtatgtcaagtaatgattatgtacagaatgtgcagggtg					
.
.
attgtcttcttttaaggtaaaatatatggagcaggtataataaactcctattcgtgcatt					
.
.
tctgtaggtatatggtgctacctatctacaaaaactcctggatcctttattacgaattgt					
.
.
gatcacatcctctgattggcaacatgttagctttgaagtggatcctaccagggtttgtcat					
.
.
cttttcacatagaaccgctgttttttgttttttttttttgt					

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

.
.
tagctcgagttctggttactctgtttgattctcggcatttactctaccaactgctctgga					
.
.
acatgttttctaaagaagtagaattggcagactccatgcagactctcttccgaggcaaca					
.
.
gcttggccagtaaaataatgacattctgtttcaagggttgtatcattcattttgtgtgta					
.
.

tgtgtgtgctgaggtatgtcaagtaatgattatgtacagaatgtgcagggtgattgtct

.
tcttttaaggtaaaatatatggagcaggtataataaaactcctattcgtgcatttctgtag

|3871 |3881 |3891 |3901 |3911 |3921
GTATATGGTGCTACCTATCTACAAAACTCCTGGATCCTTTATTACGAATTGTGATCACA
V Y G A T Y L Q K L L D P L L R I V I T
|1291 |1301

|3931 |3941 |3951 |3961 |3971 . . .
TCCTCTGATTGGCAACATGTTAGCTTTGAAGTGGATCCTACCAGgtttgtcatcttttca
S S D W Q H V S F E V D P T R
|1311 |1321

.
catagaaccgctgttttttgtttttttttttgtttgtttgtttactaacactgcatg

.
aagcaaggcaccttctccccttgatcattaaaattagtttttaattataaaagttatata

.
caaatacacgtttctttaatgatctgtgaattttttttaagggtatccttttatttgcc

.
ttagatccagggacaaactagagaaaggtgtctttgacttccacctccagagactgttac

.
tagttaagtctgttcccctgtcctttttccatgcatttacatat

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

.
gactaatttttgtatttttagtagagatgggggtttcaccatgttggccaggctggctcttg

.
aactcctgacctcaaagatctgtcagccttggcctcccaaagtactgggattgcaggcg

.
taagccatccagccctgtcaaagttgtcttttttttttatagttggttgtttaaagat

.

tccaatgaagtctacacgttgacttggttaaatgtctgtataagagtctcttttaagga

.

gtgatttttgttatttgttttaacaaaagtgttaggattttatttttattttttgtag

 |3981 |3991 |4001 |4011 |4021 |4031

GTTAGAACCATCAGAGAGCCTTGAGGAAAACCAGCGGAACCTCCTTCAGATGACTGAAAA

 L E P S E S L E E N Q R N L L Q M T E K

 |1331 |1341

 |4041 |4051 |4061 |4071 |4081 |4091

GTTCTTCCATGCCATCATCAGTTCCTCCTCAGAATCCCCCTCAACTCGAAGTGTGTG

 F F H A I I S S S E F P P Q L R S V C

 |1351 |1361

 |4101

CCACTGTTTATACCAGgtatgcttacagtttagagattaccattattaatctaaagttaa

 H C L Y Q

.

ttatgaagaatgctttatcaaagaaggatctagctgctgatgggtgtgtggttaactataa

.

tactgagtcagtttggatgaataatacattgagaattgttgaattgtctttgaaaaaa

.

cttaaataattacttaggcaacagtttgaagtaagagaataactttaaaatactaaatttta

.

cttgcatggggagcaagtttaaaatgcagtgaatccattgggtatgatggatgtggctga

.

aatgaacatattatgg

Exon 32 | Start: 168368 | End: 168526 | Length: 158
 BE AWARE: This section overlaps with the following exon

.

acatgcagtataagtgatgatacagtgaagatcttttttcaggtttcttctacccatctc

.

atccatgaggtttttctttcctctgagataccttaattgtactttaatatgatataagac

 tagaattgagaggaaactttattttctcatgttttgggagaagaaaaaatagaaatatg

 tcattcatgaggactgattgattcagagtttttatgcaaagtttgacctttgaactcttt

 gttttcatgtctttatattaattcaaacttatactcaattctcaactccttgtttttag
 |4111 |4121 |4131 |4141 |4151 |4161
 GTGGTTAGCCAGCGTTTCCCTCAGAACAGCATCGGTGCAGTAGGAAGTGCCATGTTCCCTC
 V V S Q R F P Q N S I G A V G S A M F L
 |1371 |1381
 |4171 |4181 |4191 |4201 |4211 |4221
 AGATTTATCAATCCTGCCATTGTCTCACCGTATGAAGCAGGGATTTTAGATAAAAAGCCA
 R F I N P A I V S P Y E A G I L D K K P
 |1391 |1401
 |4231 |4241 |4251 |4261
 CCACCTAGAATCGAAAGGGGCTTGAAGTTAATGTCAAAGgtgaattattttgataatcta
 P P R I E R G L K L M S K
 |1411 |1421

 gctatcttaaattccccttccaactaaattttcagctttttcttacagtacttcctcttac

 atttatatttgaaataccctatggttttcagttatgtgcttttgttttatttgtttatat

 tacaaggaattcattagttaggtacctgatggaccttattttcatgataaaacatttta

 ttatagcagatgtccttggttatgaagatcattttttgcgtaatcattctagacattctg

 aaacagactagaatgtagactataggattttttatttta

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

.
 tcattttttgcgtaatcattctagacattctgaaacagactagaatgtagactataggat

 tttttattttaaaagtcattaacattttttaatatgtatttttacatgtaaatataataa

 ttatatattgggaaggttagaaacactacctaataatttatagaatgaggaatgtttga

 tttttaagtactagcagaaattatatcaatgagaaaattcatgtttttaagaatgtctt

 aatgtatagacttcatacaataaataatctgattatttataaccctgttttattgtgtag

 |4271 |4281 |4291 |4301 |4311 |4321
 A T A C T T C A G A G T A T T G C C A A T C A T G T T C T C T T C A C A A A A G A A G A A C A T A T G C G G C C T T T C
 I L Q S I A N H V L F T K E E H M R P F
 |1431 |1441

 |4331 |4341 |4351 |4361
 A A T G A T T T T G T G A A A A G C A A C T T T G A T G C A G C A C G C A G g t a a t t t t c t t g c c a c t t a c t c
 N D F V K S N F D A A R R
 |1451

 agttgctctgtttgaatcaaataattttcggtttcacataaatccatgtacctgttttaca

 tgaagttcctgtgtaagtttttttcttttctgctctaggtcaagacatagcttgtctta

 ttttattttactataaaagacagtcataaataaattaatattttttataaatttgtagt

 gattttcatatttgaaaaccaagagggtttttgacatgtctaattaaataaaggatttg

 aggatggtacaatatgtggacaaggaagaagtaggatt

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

.
 tctggaccttcatttccttatctgtaaaatactagcctctttccaaagtttcatccatct

 taattttgttgttgtttaacttcagagcctactttgaagctgaagccgggtatcagaaat

 ggaaagccaactttctccttgctcctttttgctttgtctaagtcaagtcacattgtgtga

 acaagccctccatatttgtaatcttagttacttcacaaagttacttcttataaattta

 tcaaacataagtctgggtgtatctgggtgtgaaaattctaatactttgcatttttgaag

 |4371 |4381 |4391 |4401 |4411 |4421
 GTTTTTCCTTGATATAGCATCTGATTGTCCTACAAGTGATGCAGTAAATCATAGTCTTTC
 F F L D I A S D C P T S D A V N H S L S
 |1461 |1471

 |4431 |4441 |4451 |4461 |4471 |4481
 CTCATAAGTGACGGCAATGTGCTTGCTTTACATCGTCTACTCTGGAACAATCAGGAGAA
 F I S D G N V L A L H R L L W N N Q E K
 |1481 |1491

 |4491 |4501 |4511
 AATTGGGCAGTATCTTCCAGCAACAGgtaagatttcccagtcatggggatagtgaaac
 I G Q Y L S S N R
 |1501

 tctccgtttaaatntagattaatacaattattggtcatgaatagtgctttttactttgca

 tcttcttggactaagaattatgggttagaaagagaaagattcttttttcaaaaaatac

 aaacaaaagggttaagtcattataaataatcaacaaacctacctagggtccagtggtcatt

 attattattttttgtcaggttaagaaatcacagatttgctctttgggtttttatggctt

 gcagattgttatagatccaaagaagtt

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

```
. . . . .
aggaagaatgagtccaaattatTTTTaaatgccataaaaatgattagcacattcacggg

. . . . .
aaaagtagtggactgtgaagctaagggtgaagcaattgggagatgggagtttaaatgacag

. . . . .
ggcattttaatcttttatgaattattaatgattgaagtagacatggctcctgaggtcttt

. . . . .
ttggtgctgtttacaaatcagctgacagtaaaaggaaaagcaaccagttacaagttaaag

. . . . .
aatgtgtagtgctaaatgtgaactgctaattTTTTTctaagtagtttgctgtatctag

      |4521      |4531      |4541      |4551      |4561      |4571
GGATCATAAAGCTGTTGGAAGACGACCTTTTGATAAGATGGCAACACTTCTTGCATACCT
D H K A V G R R P F D K M A T L L A Y L
      |1511                        |1521

      |4581      |4591      |4601      |4611      |4621      |4631
GGGTCCTCCAGAGCACAAACCTGTGGCAGATACACACTGGTCCAGCCTTAACCTTACCAG
G P P E H K P V A D T H W S S L N L T S
      |1531                        |1541

      |4641      |4651      |4661. . . . .
TTCAAAGTTTGAGGAATTTATGACTAGgtaaagtacaaccttgaaatagttgattgcttt
S K F E E F M T R
      |1551

. . . . .
cttttgggttgagaaggagagtttgccaccaggccacttgtagatatgatagaagacta

. . . . .
tgaggaaagatgtatttaataatcacattgccatgtttggggaatccaactatatattat

. . . . .
ttatatatatagggtgtgttttattttatatattgattgtcataacaatagtaacaaatc

. . . . .
```

atattttatcatcttgctttcataagttttcacatttaatacttaccagggagtgaagac

.
aacattattttcaaattatagttaagg

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

.
tgaattattttaaaaaatcataaacttctgtctgggacaaaaatgtcatgagtaaaaccaa

.
tcctatgggtaatatcttgcccagtagttctcttagaatagtcctaaaagtgccttttgt

.
ggttcaaagagtaataccttgaaattttgggtgcatggtgcaaattaccctttagaatg

.
cctgttgcttttaaaatatttttcatcttagtattttattgtttatccaattatagact

.
tttttacatactcagtagacaacataaagcctcataattactctgttatttttcttttag

4671	4681	4691	4701	4711	4721
GCATCAGGTACATGAAAAAGAAGAATTCAAGGCTTTGAAAAACGTTAAGTATTTTCTACCA					
H	Q	V	H	E	K
			E	F	K
			A	L	K
			T	L	S
			I	F	Y
			Q		
	1561			1571	

4731	4741	4751	4761	4771	.
AGCTGGGACTTCCAAAGCTGGGAATCCTATTTTTTATTATGTTGCACGGAGgtaagaaat					
A	G	T	S	K	A
					G
					N
					P
					I
					F
					Y
					Y
					V
					A
					R
					R
	1581			1591	

.
actatgttttgggtctcttaacagaattttttaattatagcaaatatagagagatggca

.
agtttgggttttcccagttgacttaacaggaattgaagacaagtttacttgggagcatat

.
agcagggtaaatagcctgcgttttcctaaaatgatggtcggtatctagtagctgcttttca

.

tactacccatttcattgcttactctgtcctacatcattttttaaaatactgcctgcaa

.
tggattaattaccaagagttaaaaacccacaaagaatcttttgttttcaag

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

.
ttggtgggccctgcaggcaaccaactaattcccactgttttcttcctttcttgactcatg

.
ggcaaatttttattgtgtcgtggctcaaaattttgaattggagattgtctcttctc

.
ttagccttatttctcagtggtccaaaaacaactgatttaaaaaatgaatccagactttga

.
agaattgttttatattattctctctagaaaatgaatcataaaataaaattgattagtggc

.
atctgtatattttattttaaacactgctaataatctttgtctttttgtcattttccttag

4781	4791	4801	4811	4821	4831
GTTCAAAACTGGTCAAATCAATGGTGATTTGCTGATATACCATGTCTTACTGACTTTAAA					
F	K	T	G	Q	I
		N	G	D	L
			L	I	Y
			H	V	L
			L	T	L
					K
			1601		1611

4841	4851	4861	4871	4881	4891
GCCATATTATGCAAAGCCATATGAAATTGTAGTGGACCTTACCCATACCGGGCCTAGCAA					
P	Y	Y	A	K	P
		Y	E	I	V
		V	D	L	T
			H	T	G
			P	S	N
			1621		1631

4901	4911	4921	4931	4941	4951
TCGCTTTAAACAGACTTTCTCTAAGTGGTTGTTGTTTTCTGGCTTTGCTTACGA					
R	F	K	T	D	F
		L	S	K	W
			F	V	V
			F	P	G
			F	A	Y
			1641		1651

4961	4971	4981	4991	5001	5011
CAACGTCTCCGCAGTCTATATCTATAACTGTAACTCCTGGGTCAGGGAGTACACCAAGTA					
N	V	S	A	V	Y
		I	Y	N	C
		N	S	W	V
			R	E	Y
			T	K	Y
			1661		1671

.
 ttgtttcttttgagaacatttatcataataattactgaaccatttgaatataacaatggtg

 ggaactcttccttaaatggcatagtgttttgttggttggttggtttctggagcctttta

 gaattttatgtaaaagagtttaattcttctccacttcaccccgtcaccaccactttccag

 |5211 |5221 |5231 |5241 |5251 |5261
 GTTGGTTCTACTGCTGTCCAAGTAACTTCAGCAGAGCGAACAAAAGTCCTAGGGCAATCA
 V G S T A V Q V T S A E R T K V L G Q S
 |1741 |1751

 |5271 |5281 |5291 |5301 |5311 |5321
 GTCTTTCTAAATGACATTTATTATGCTTCGGAAATTGAAGAAATCTGCCTAGTAGATGAG
 V F L N D I Y Y A S E I E E I C L V D E
 |1761 |1771

 |5331 |5341 |5351 |5361 |5371 |5381
 AACCAGTTCACCTTAACCATTGCAAACCAGGGCAGCCGCTCACCTTCATGCACCAGGAG
 N Q F T L T I A N Q G T P L T F M H Q E
 |1781 |1791

 |5391 |5401 |5411 |5421 |5431 |5441
 TGTGAAGCCATTGTCCAGTCTATCATTTCATATCCGGACCCGCTGGGAACTGTACAGCCC
 C E A I V Q S I I H I R T R W E L S Q P
 |1801 |1811

 |5451 |5461 |5471 |5481 |5491 |5501
 GACTCTATCCCCAACACACCAAGATTCGGCCAAAAGATGTCCCTGGGACACTGCTCAAT
 D S I P Q H T K I R P K D V P G T L L N
 |1821 |1831

 |5511 |5521 |5531 |5541 . . .
 ATCGCATTACTTAATTTAGGCAGTTCTGACCCGAGTTTACGtaggttttttaaaattct
 I A L L N L G S S D P S L R
 |1841

 cttcagtttgatttgggggtttgttgcttttaaaatgagaccatttaataatgaatttttaa

 agcctctaccttaatatgttaaattggaaggtatgcagtggttggttaaccactgtgacct

.
catcaagttgtgggtattcacatgaactgtggaattccaaacagggtgattcacactaa
.
accaatatatgtcctttctccatcatgtaaaacaacacgacatagcagatTTTTTTTcc
.
aaagtatcctaaattaagTTTTTcttctctaagtcctcta

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

.
atattttatgtctcagtgagatgtattttaggaaagcctataccccgcccctctgtcata
.
ggagcctcacagtgctcttatgggtatatcaagtggtccctttttataaaatccctaaa
.
tgattaaggggtattttgggtttactgtagaattataacatcttatttctaactgatcat
.
aaaatttaaaaatagttgatcatactttgtaacagaatcacaaattgtatgttatgaaa
.
aattttggaactataaggaaaaatacgttttaaaacaacttcatttggttttctcctag

5551	5561	5571	5581	5591	5601
GTCAGCTGCCTATAATCTTCTGTGTGCCTTAACCTGTACCTTTAATTTAAAAATCGAGGG					
S	A	A	Y	N	L
L	L	C	A	L	T
C	T	F	N	L	K
I	E	G			
1851	1861				

5611	5621	5631	5641	5651	5661
CCAGTTACTAGAGACATCAGGTTTATGTATCCCTGCCAACAACACCCTCTTTATTGTCTC					
Q	L	L	E	T	S
G	L	C	I	P	A
N	N	T	L	F	I
V	S				
1871	1881				

5671	5681	5691	5701	5711	5721
TATTAGTAAGACACTGGCAGCCAATGAGCCACACCTCACGTTAGAATTTTGGGAAGAGTG					
I	S	K	T	L	A
A	A	N	E	P	H
L	T	L	E	F	L
E	E	C			
1891	1901				

5731	5741
------	------	---	---	---	---	---	---

TATTTCTGGATTTAGCAAATCTAgtaagtaatgataatTTTctTTaactaacaattat
 I S G F S K S S
 |1911

.
 tctaagagaattcaaagaaaaccctttcatttcagaatTTTccagtgaagactTTTcactt

 acatTTTtactTTTTTtcttctgattttatatctgtggtatcctgtaactgaaggaa

 ctctgaaggaaactTTTtggtaggccacattgagaaatccacaaaattctgataataaaa

 gcaaagcggcaagagTTtggtactttacacacctctggaccacttacaaagtattTTtctt

 cactgTTgcagTTtaattagctt

Exon 40 | Start: 244862 | End: 245055 | Length: 193

.
 attaccacatttcctTTtataatgagaataaaacaactTTTtaacaagaaaggactaaaa

 tggaggaaaataagacaaaactTTTcaaaaattggcTTactggcTTTtaaattactTTt

 ttcaaggactgTTtcttcttcgcctctacaaaaatatattgccaagtgTctTTTtcca

 ggctgattctaggtaatagTctttacctTTTaccattTTTtcccgaattctTTtatgTT

 aaataattgTTgatgtgattTTTcattgaccatcacatgctaatagtgtattTTTtccag

5751	5761	5771	5781	5791	5801
GTATTGAATTGAAACACCTTTGTTTGAATACATGACTCCATGGCTGTCAAATCTAGTTC					
I	E	L	K	H	L
		C	L	E	Y
			M	T	P
				W	L
				S	N
					L
					V
					R

|1921 |1931

5811	5821	5831	5841	5851	5861
------	------	------	------	------	------

GTTTTTCGAAGCATAATGATGATGCCAAACGACAAAGAGTTACTGCTATTCTTGACAAGC
 F C K H N D D A K R Q R V T A I L D K L
 |1941 |1951

 |5871 |5881 |5891 |5901 |5911 |5921
 TGATAACAATGACCATCAATGAAAAACAGATGTACCCATCTATTCAAGCAAAAATATGGG
 I T M T I N E K Q M Y P S I Q A K I W G
 |1961 |1971

 |5931 |5941
 GAAGCCTTGGGCAGgtattgagtttgctcaaataattatctagtatctcctttgtgcaca
 S L G Q
 |1981

 tatttatctggtgccacattgggcaaagcactgcgctagacactagggatagagttgtaa

 aaaacacagtttcctccttcagaaagcatgtagacactcaccagctcttcacatctggttc

 aaaattgtaaatgtctagtgcacgtctcagagccagagaaaagctagttatttgcacagt

 ctccttcaaggcataattatatatatatatatatataattatgccttgaaggagactg

 tgcaaataactaga

Exon 41 | Start: 246357 | End: 246497 | Length: 140
 BE AWARE: This section overlaps with the following exon

.
 tgtcttagaaaagcatagagatactttgcaagtgactgaagatagtagtattgatagagattt

 aaaatTTTTgaataccaatctcttaattctctgaaggagtcaaatgaatatactcatcctt

 tactggatattttataataaattgtattttactgacaggcctgtaaataaaatctagtatt

tttgaggcctcaggtaaaatagaattttcatattgattaggctgttccaatgaatatttt

 ttaattaaaaattaaattggtagagtgattaaaaacatgttattttccttcttcaactag

 |5951 |5961 |5971 |5981 |5991 |6001
 ATTACAGATCTGCTTGATGTTGTACTAGACAGTTTCATCAAAACCAGTGCAACAGGTGGC
 I T D L L D V V L D S F I K T S A T G G
 |1991 |2001

 |6011 |6021 |6031 |6041 |6051 |6061
 TTGGGATCAATAAAAGCTGAGGTGATGGCAGATACTGCTGTAGCTTTGGCTTCTGGAAAT
 L G S I K A E V M A D T A V A L A S G N
 |2011 |2021

 |6071 |6081
 GTGAAATTGGTTTCAAGCAAGgtaatcacttttcttttgccttctgtactatagcatatc
 V K L V S S K

 tgttttatcatcaggaggtttttgttttgtaattacttttaaattaaactgaacttttt

 tgtgctaaaacttttgagtcccatgttttttttttaaaaaaaaaaatcctgcttctttac

 aggttattggaaggatgtgcaaaataattgacaagacatgcttatctccaactcctactt

 tagaacaacatcttatgtgggatgatattgctatttttagcacgctacatgctgatgctgt

 ccttcaacaattcccttgatg

Exon 42 | Start: 246659 | End: 246938 | Length: 279
 BE AWARE: This section overlaps with the following exon

.
 tacagatctgcttgatgttgtagtagacagtttcatcaaaaccagtgcaacaggtggcctt

gggatcaataaaagctgaggtgatggcagatactgctgtagctttggcttctggaaatgt

.
gaaattggtttcaagcaaggtaatcacttttctttgccttctgtactatagcatatctg

.
ttttatcatcaggaggtttttgttttgtaattacttttaaaattaaactgaacttttttg

.
tgctaaaactttgagtcacctgttttttttttaaaaaaaaaaatcctgcttctttacag

 |6091 |6101 |6111 |6121 |6131 |6141
GTTATTGGAAGGATGTGCAAAATAATTGACAAGACATGCTTATCTCCAACCTCCTACTTTA
V I G R M C K I I D K T C L S P T P T L
 |2031 |2041

 |6151 |6161 |6171 |6181 |6191 |6201
GAACAACATCTTATGTGGGATGATATTGCTATTTTAGCACGCTACATGCTGATGCTGTCC
E Q H L M W D D I A I L A R Y M L M L S
 |2051 |2061

 |6211 |6221 |6231 |6241 |6251 |6261
TTCAACAATTCCCTTGATGTGGCAGCTCATCTCCCTACCTCTCCACGTTGTTACTTTC
F N N S L D V A A H L P Y L F H V V T F
 |2071 |2081

 |6271 |6281 |6291 |6301 |6311 |6321
TTAGTAGCCACAGGTCGCTCTCCCTTAGAGCTTCCACACATGGACTGGTCATTAATATC
L V A T G P L S L R A S T H G L V I N I
 |2091 |2101

 |6331 |6341 |6351 |6361
ATCACTCTCTGTGTACTTGTTACAGCTTCATTTTAGTGgtaagttctaggaaaggaat
I H S L C T C S Q L H F S E
 |2111 |2121

.
ttgtgtttaccagttcctttctccattttacttcacctgatcaatatagattatcttatt

.
tatgtttgtgctctaacaccaagttgctaatttaagcctccagtaatgacatgaaatatt

.
accaaaaagaaaataaattacttccattccatatcaagctatagtaaagattttctatgc

.

.
 ttactgtatgatcaatggttataatttattatttagtatatatataaacacaaagggttttat

 aagttctgtggatcttttaattgcagatttgcattccaatataatccatccctgcaacca

 agagctcttgttctttgggtgtattagcaaacgagtgtctcatgggcagataaagcag

 ataatccgtattcttagcaagggtacctgttccgcctcacttctcccaaattttatggt
 .
 tc

Exon 45 | Start: 248049 | End: 248163 | Length: 114
 BE AWARE: This section overlaps with the following exon

.
 taacaggtcacttaatgacatcataataaacattatttaaacagttctaaaaacatttat

 gtacaatatgtattcagagtatccccttttttaggcatgcatgagagatattccaacgtg

 caagtggctggaccagtggacagaactagctcaaagggtatgtcctaaattaaatataagt

 tgtaaaaatatgcatattgttgaaaatacagctattactgtatgatcaatggttataattt

 attatttagtatatatataaacacaaagggtttttataagttctgtggatcttttaattgcag

	6651	6661	6671	6681	6691	6701
	ATTGTCATTCCAATATAATCCATCCCTGCAACCAAGAGCTCTTGTTGTCTTTGGGTGTAT					
	F	A	F	Q	Y	N
		P	S	L	Q	P
				R	A	L
				V	V	F
					G	C
						I
		2221			2231	
	6711	6721	6731	6741	6751	.
	TAGCAAACGAGTGTCTCATGGGCAGATAAAGCAGATAATCCGTATTCTTAGCAAGgtacc					

S K R V S H G Q I K Q I I R I L S K
 |2241 |2251

.
 tgttcgccctcacttctcccaaataatttatggttctcaagttgtaaagcataatctttca

 tttttctaaaagacgtttaaatgtgaggtcaatgaaatatcttatatgttacttattaag

 cctttaaaatgtatgttgattatttattgtaattctttgaagaagtcttctctaaagaag

 ctgtctttatatgtaaactctgattacttcattaaggaagatgtctttaaaataaaatat

 gttgcctcttttgctaagcaggtacacttagtatgtttaccagttttcaaagcatt

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

.
 aggtacacttagtatgtttaccagttttcaaagcatttaattatatggtaagactatagcc

 ttgcataaaattatttaatttgtaattactataataatgtctgactcttataatgtagaa

 atgtcaaaaaataagaaaacaaatgtacattaagctagctaccaagatcaccatagcatg

 agaaatcattctagcatttatttaaataagtaaatgttcctgaattcattccgagattcag

 tttaggagttaatgtttttatttcaatgaaagtaaaataaaaaattctgttttcctaaaag

|6761 |6771 |6781 |6791 |6801 |6811
 GCACTTGAGAGTTGCTTAAAAGGACCTGACACTTACAACAGTCAAGTTCTGATAGAAGCT
 A L E S C L K G P D T Y N S Q V L I E A
 |2261 |2271

|6821 |6831 |6841 |6851 . . .
 ACAGTAATAGCACTAACCAAATTACAGCCACTTCTTAATAAGgtaattactgtatagaaa

T V I A L T K L Q P L L N K
|2281

.
atgagtgcattcattttgggtatcagtggtgaatgttactttctttcaaagagtttagaa
.
aataagatgaattgagaataagttataaagaaaaactatagttaaagtagaacctctta
.
aagtttagttgtttgaagtagtcatattagaagaagagtaagtatggatagtatgttctc
.
aagcgcttgtaagtttttgggtctcatcagtgctaaaggaaagataggtatatattcttaa
.
ttattttatcttataactattaattatctgctattgccaagt

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

.
tgacaaaagatacaaaagagactactctagaagaatcaacaaaccttggtgactggattt
.
agaaatcaaagaacagggagaagtcaaaggaggtgctaagtaacgttctcagtcagcta
.
acagtgtcttttagttatacatatggaaaagtgaagagcttactcatatctttatcttccc
.
caaaagagaaaacatgggtaatttaggaagataagctgctttatttttaactgcagtggtg
.
ttttgaaagagactatgtcatgattcatcttactagcctcaaacatatcttctttgccag

|6861 |6871 |6881 |6891 |6901 |6911
GACTCGCCTCTGCACAAAGCCCTCTTTTGGGTAGCTGTGGCTGTGCTGCAGCTTGATGAG
D S P L H K A L F W V A V A V L Q L D E
|2291 |2301

|6921 |6931 |6941 |6951 |6961 |6971
GTCAACTTGTATTTCAGCAGGTACCGCACTTCTTGAACAAAACCTGCATACTTTAGATAGT

V N L Y S A G T A L L E Q N L H T L D S
|2311 |2321

|6981 |6991
CTCCGTATATTCAATGACAAGgtaagcaaactttgccttgaggttccttagattactcaaa
L R I F N D K
|2331

.
tttagtactcttccatcttttcttggtgctattcttttaaaatcacaagaagtcataaac
.
ttaagtaggaatttgataatgtaacttattgtgagtatatcttaccagctcataaa
.
gaactatgtaaacttgaatgcataatttttacataaaaaatagcaaaaaaaaaaaaaacaaa
.
aaaaaacagtactggcctaatactagtagaattacagaataaggataaataatacatga
.
tcaccttacagaatgagcat

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

.
tcagagttaataagcatgttaaaagtcaccgggatgtaattgacagtcatttattttgt
.
attgtaaataaaagtgatttcattctccaccatcttcttatttatatgcttgactgtctt
.
gcaccagttaattttagtagctaaaatgttctgtgggttttctgcagtcaactgaaaata
.
atttctctcaaattgaaaggattacttatcttgatcactattgaacacaaaattaagtg
.
agcctttaaagaagctactgtgtgaacctcatcaaccatctcatgattatctttaatag
|7001 |7011 |7021 |7031 |7041 |7051
AGTCCAGAGGAAGTATTTATGGCAATCCGGAATCCTCTGGAGTGGCAAGCAAATG

S P E E V F M A I R N P L E W H C K Q M
 |2341 |2351

 |7061 |7071 |7081 |7091 |7101 |7111
 GATCATTTTGGTGGACTCAATTTCAACTCTAACTTTAACTTTGCATTGGTTGGACACCTT
 D H F V G L N F N S N F N F A L V G H L
 |2361 |2371

 |7121
 TTAAAAGgtaaaaagccttatttagaatatTTTTatgaagtactattaagaaaccagaa
 L K G

 gtaatttgaataagtgattacttgaataaattgaagtaagttagcccttatgtcttact

 ttaaattgcaaactaggccaggcgtggctggctcacgtctgtaataccaacattttgggagg

 ctgaggcaggaggatcacttgaggctaggagtttgaggccagcctgggcaacatagttag

 acttcatctctacagaaaatttaaaattagccaggcatggcggcacgtgctttagtcc

 . .
 cagctac

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

.
 tgcttttagggaatagaagatctgaaagactatcatgtttttaattttcctcttctgga

 gtactgtagagttctagggaatattatattctacacatttttggtacttaatttatata

 taattaattattctcattcacatatgcatgttttaccttcccaaatggctattcttgga

 agtaggagttatatttccttcttgcagagttgttagtcagggaagaagacctcagcag

.
atgcttggttcaaaaaattaattcttacttgtttggttggttggttggttggttgtag

 |7131 |7141 |7151 |7161 |7171 |7181
GGTACAGGCATCCTTCACCTGCTATTGTTGCAAGAACAGTCAGAATTTTACATACACTAC
 Y R H P S P A I V A R T V R I L H T L L
 |2381 |2391

 |7191 |7201 |7211 |7221 |7231 |7241
TAACTCTGGTTAACAACACAGAAATTGTGACAAATTTGAAGTGAATACACAGAGCGTGG
 T L V N K H R N C D K F E V N T Q S V A
 |2401 |2411

 |7251
CCTACTTAGCAGgttaaaaacacaaaataaacaataatcttgctacatctatatataa
 Y L A A

.
ggatcacccaaaaagtacaaatacctataggttttttggcgggtgcgtggcagagcagaa

.
agttcacagtctagtccttttagtggtggttacaattttgagagttttgccagaacatttt

.
tctgtaggaaaaaatttaattcccattaaaatctgaaatgtgtcccttggtcatctttg

.
gttcaagacactacagtggctctctgttatctgtcataaaatctgaatgcttcagtctag

.
cacctgggtcc

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

.
tgtttgaaccgtatcatcttgagcaaatcatttaacatctcagtatTTTTTctcattcag

.
cttaataatacctgcctgcctactttgtgtttgttaaagatcaaagtatatataaagaa

.

cttggaaaataaaagatgcttattaaatctctctgtatatatttcacatttatgtagtcttc

 caaaatatgtgcacatttaacaggtactatgctcttttaggagactgtaagaagttcatcc

 tgttttaagtcacacttgatgtgtaaaatttttaacctgccaccgttttccttttag
 |7261 |7271 |7281 |7291 |7301 |7311
 CTTTACTTACAGTGTCTGAAGAAGTTCGAAGTCGCTGCAGCCTAAAACATAGAAAGTCAC
 L L T V S E E V R S R C S L K H R K S L
 |2421 |2431
 |7321 |7331 |7341 |7351 |7361 |7371
 TTCTTCTTACTGATATTCAATGGAAAATGTTCTTATGGATACATATCCCATTTCATCATG
 L L T D I S M E N V P M D T Y P I H H G
 |2441 |2451
 |7381 |7391
 GTGACCCTTCTATAGgtaagtggtttactctcctataattacataatcataatcaagt
 D P S Y R
 |2461

 ttcaattttccaactaatggaggcaagcagcagagtaatctagaaggtaacatgggagaa

 atctagagatggcctaggaagagtaagtgaactcattttataaatgtgtggtattttat

 gtgggttagtaggaaagttattcttccagtctgattgtgctaatgttaacattagtttgc

 ctctgaagcacagaccaaataaacaatgaaaagagatgctcttgaaaatattaggttgca

 gggaagggcctgggg

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

.
 gctaagagattggacacccctgttgctatacctttttatttgtcagcttttaaaaattgc

.
agtacagatctttttgttcagcatttggtgagtagctactatgtgcaagatactatggca

.
agaaagttgataattcctagggatacaccaagagtttgtatcctaaagccctttaagtg

.
caattttaaaattaattgattgctgttgtaggaaataggacagccacttggaaggagca

.
aacgatggttgattttgtcaccatattaattgatttttctctattgttttcatctttcag

7401	7411	7421	7431	7441	7451																
GACACTAAAGGAGACTCAGCCATGGTCCTCTCCCAAAGGTTCTGAAGGATACCTTGACGC																					
T	L	K	E	T	Q	P	W	S	S	P	K	G	S	E	G	Y	L	A	A		
										2471											2481

7461	7471	7481	7491	7501	7511																
CACCTATCCAAGTGTGCGCCAGACCAGTCCCCGAGCCAGGAAATCCATGAGCCTGGACAT																					
T	Y	P	T	V	G	Q	T	S	P	R	A	R	K	S	M	S	L	D	M		
										2491											2501

7521	7531	7541	7551							
GGGGCAACCTTCTCAGGCCAACACTAAGAAGTTGCTTGgtagtttatctaaattatgta															
G	Q	P	S	Q	A	N	T	K	K	L	L	G			
													2511		

.
gattttttttattatttaaaaaatagatatttttactcttggaattatttgaaattt

.
caggattatcaaaattttccatgtcagtgtagcaaagttttgatgccatttaaaagaga

.
gtttgatagatcagttaagcattataagttgagatagagaaatgagaatgggaccttgaa

.
acagttttttctgaatcttataactaaatattgtgactctccttattttgttttgcccttg

.
ctggccagcaggaatgggactctgagacatattagat

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

BE AWARE: This section overlaps with the following exon

.
atcatatttggtgatttacctccagtgtagtttggtttacctccagtgtagacagaatacaa

.
tctcagtttaatttgaccagtaaggtgcaacctatcctgaaacagaaagctatgggaac

.
aaaaccctttgagaagatggaaaataaaggaaagaaactgctccagggatgtattagagc

.
tttctttgagtcctcagtgaaagcttaaacactttatgtccaaacattttcttttttagtg

.
tattcccatttatagacactgtagttaatgaacttgcataatcctaacttttggttatag

7561	7571	7581	7591	7601	7611
GAACAAGGAAAAAGTTTGTGATCACTTGATATCAGACACAAAGGCTCCTAAAAGGCAAGAAA					
T R K S F D H L I S D T K A P K R Q E M					
2521			2531		

7621	7631	7641	7651	7661	7671
TGGAATCAGGGATCACAAACCCCCCAAAATGAGGAGAGTAGCAGAAACTGATTATGAAA					
E S G I T T P P K M R R V A E T D Y E M					
2541			2551		

.
TGGgtgagaaacaaagtattgatctagatcattgaaaataaggtgggagagtacatgaaa
E

.
gtcatgtttattttccagccatttcttagaatcttagagtgaatatagaaacgtttgc

.
catttctcaaagataaactctaccattcaagacagttatcttgaagcttggtgtaaaaat

.
taatcatatatattatatacagcattgtaaataaggtagccaaaacttttggtgtaggcgaa

.
tagtaattctctatgatgtttatgttagtattttaagtatctactaaagaaagctgttga

.
att

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

.
at t t c t t a g a a t c t t t a g a g t g a a a t a t a g a a a c g t t t g c c a t t t c t c a a a g a t a a a c t
.
c t a c c a t t c a a g a c a g t t a t c t t g a a g c t t g t g t a a a a t t a a t c a t a t a t a t t a t a t a c
.
a g c a t t g t a a a t a g g t a g c c a a a c t t t t g t g t a g g c g a a t a g t a a t t c t c t a t g a t g t t
.
t a t g t t a g t a t t t t a a g t a t c t a c t a a a g a a g c t g t t g a a t t t t a g a a g t a a c a t t g a a
.
a t a g t t a g g t g a a g t g a t t a t c c a g g t g t t t g a t c a c g t t a a t t c c c t a t c t t g c t g c a g
|7681 |7691 |7701 |7711 |7721 |7731
A A A C T C A G A G G A T T T C C T C A T C A C A A C A G C A C C C A C A T T T A C G T A A A G T T T C A G T G T C T G
T Q R I S S S Q Q H P H L R K V S V S E
|2561 |2571
|7741 |7751 |7761 |7771 |7781 |7791
A A T C A A A T G T T C T C T T G G A T G A A G A A G T A C T T A C T G A T C C G A A G A T C C A G G C G C T G C T T C
S N V L L D E E V L T D P K I Q A L L L
|2581 |2591
|7801
T T A C T G T T C T A g t a a g g a t t t c c c t t t t t g a g t c c c c c a c c c t c a a a t t t t t a t t c c a g
T V L
|2601
.
t c t a c t t t t a g g a g g c c c t t a a a t a t t a a a a c a t g a a t a g g a t a c a g t c t t c t a c t t c t
.
c a c c c a a a c a g a t a a c a a t t c a g c c a c a a a g t a a a a t g t t g t g t g t t t a c t t t t t t g c a

.
 tgagggttaagattagttttgacctactagatctattagaaagtttataaggaaagactt

 ttaaaaaatctggttgattttatttaagtggtttttttgatgatcattgctcattttcct

 cacttagaagcaaactattagactgctatatctaaatcagc

Exon 55 | Start: 268504 | End: 268646 | Length: 142
 BE AWARE: This section overlaps with the following exon

.
 ccttgtcttaagcaaacatttaccgtatatggttacacatggttatatgacactaccagt

 tgtttgttttcacaatttcttcctggtgactaaaaacaaaagacaaacaaaacagaca

 cacacacatgttcattgtagaaaatttggaatgaagaaatgcccagaaagtaaaaag

 cactcatctccctttaattttggcacattattctggggaatgtatattatgttttcact

 acatattttcatttaattttcctctaaaatgttcctctgttgacttttttttcttttag

7911	7921	7931	7941	7951	7961
GCATAATTTGTTGGACTCTAAGATCAACACCCTGTTATCATTGTGCCAAGATCCAAATTT					
H N L L D S K I N T L L S L C Q D P N L					
	2641			2651	

7971	7981	7991	8001	8011	8021
GTTAAATCCAATCCATGGAATTGTGCAGAGTGTGGTGTACCATGAAGAATCCCCACCACA					
L N P I H G I V Q S V V Y H E E S P P Q					
	2661			2671	

8031	8041
ATACCAAACATCTTACCTGCAAAgtaaataaatgtatctggagaaggatggttgatgaac		
Y Q T S Y L Q S		
	2681	

.
 ttgctaacatgcgcgctgttgtagaatgcactgactacagaattctttataagggataga

 ctgttccatactttttatccatattccatttttttactctctcaactgtatgtccaatg

 taactggttgacaactttttatgctgagtatatatttaagtaggttttagttgctttgaca

 ctcatctaaaaacatgttttcaacatgtacatagggtttatatatcatcagctatatga

 cttatttaatttctgttacaatt

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

.
 tgcgcgctgttgtagaatgcactgactacagaattctttataagggatagacttgttcat

 acttttatttccatattccatttttttactctctcaactgtatgtccaatgtaactgggt

 gacaactttttatgctgagtatatatttaagtaggttttagttgctttgacactcattcta

 aaaacatgttttcaacatgtacatagggtttatatatcatcagctatatgacttatttaa

 tttctgttacaattaaaagataccttgcttggtataagagtaaaatttgatttggtgcag
 |8051 |8061 |8071 |8081 |8091 . .
 GTTTTGGTTTAAATGGCTTGTTGGCGGTTTGCAGGACCGTTTCAAAGgtaagaaaatata
 F G F N G L W R F A G P F S K
 |2691

.
 ttttctctaacttttggcaaaatgaaggtttctgttcaaattagtatgcctgctttaag

 aacacacaatgtgctgaaaaccagaaaaataattcacaataaacacatatgttactttta

.
 taaaaagtttctcatcacaaggtttttccaggaggcagcatggtgttggggtgtgtgt

 attcacttttacaacaaagtcaacttatgatcaatttttcagaagagtatgataaacct

 ctgtgataacttttctgccacagtcccttgtgtatttgataaatcttaa

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

.
 ttggaaaattggctagacatcattcctggtgattgtattgtctcagtattacattcagtc

 tgtcttgtgcatggctttcagaaaatgcaggttcatctggaagctttaagctgaatagaa

 ctccctgttgaagtcctatggtagtctataaatattactccactccccttttttaatga

 taagtaatacaaaggaagaaaaatagtaaattaagtccaaacaaaattaatatttttggc

 ttcagatggggatttacttaaaaaaaaggaactaaaataatttcctattttccattacag

8101	8111	8121	8131	8141	8151
CAAACACAAATTCCAGACTATGCTGAGCTTATTGTTAAGTTTCTTGATGCCTTGATTGAC					
Q	T	Q	I	P	D
	Y	A	E	L	I
			V	K	F
			L	D	A
					L
					I
					D
2701		2711			

8161	8171	8181	8191	8201	8211
ACGTACCTGCCTGGAATTGATGAAGAAACCAGTGAAGAATCCCTCCTGACTCCCACATCT					
T	Y	L	P	G	I
	D	E	E	T	S
			E	E	S
			L	L	T
					P
					T
					S
2721		2731			

8221	8231	8241	8251	8261	8271
CCTTACCCTCCTGCACTGCAGAGCCAGCTTAGTATCACTGCCAACCTTAACCTTTCTAAT					
P	Y	P	P	A	L
	Q	S	Q	L	S
			I	T	A
			N	L	N
					L
					S
					N
2741		2751			

+761	+771	+781	+791	+801	+811
TTTTTCTCCAGTTGATTATCTTTTAATTTTAATTTTGCTAAAGGTGGTTTTTTGTGT					
+821	+831	+841	+851	+861	+871
TTTGTTTTTTGTAAACCAAACTATACTAAGTATAGTAATTATATATATATATATATTTT					
+881	+891	+901	+911	+921	+931
TTCCCTCCCCCTCTTCTTCTAACTAATTCTGAGCAGGGTAATCAGTGAACAAAGTGT					
+941	+951	+961	+971	+981	+991
TGAAAATTGTTCCAGAAGGTAATTTTCATAGATGTTTGCATTAGCTCCATAGCAAAATG					
+1001	+1011	+1021	+1031	+1041	+1051
GAATGGTACGTGACATTTAGGGTAGCTGATATTTTATTTTGTTAAATAATTTCCAAGAA					
+1061	+1071	+1081	+1091	+1101	+1111
TAGAGTATGGTGTATATTATAAATTCTTTGATAAGATGTATTTGAATGTCTTTTAATC					
+1121	+1131	+1141	+1151	+1161	+1171
TTCCTCCTCCTCTCCAAAAAATCAGAAACCTCTTTAAGAAAACATGTAGGTTATATATG					
+1181	+1191	+1201	+1211	+1221	+1231
CTAGAATTGCATTTAATCACTGTGAAAAGACTGGTCAGCCTGCATTAGTATGACAGTAGG					
+1241	+1251	+1261	+1271	+1281	+1291
GGGGCTGTTAGAATTGCTGCTATACTGGTGGTATGGATTATCATGGCATTGGAATTTTCA					
+1301	+1311	+1321	+1331	+1341	+1351
TAGTAATGCAGATCCAATTTCTTTGTGGTACCTGCAGTTTACAAAATAATTTGACTTCAG					
+1361	+1371	+1381	+1391	+1401	+1411
TGAGCATATTGGTATCTGGATGTTCCAATTTAGAACTAAACCATATTTATTACAAAAAGA					
+1421	+1431	+1441	+1451	+1461	+1471
TATTAATCCCTCTACTCCCAGGTTCCCTTTATATGTTAAGATATAATGGCTTTGAGGGGG					
+1481	+1491	+1501	+1511	+1521	+1531
GAAAAAATAAACCTAGGGGAGAGGGGAGTTTCCTGTAGTGCTGTTTCATTAGAGGATTTT					
+1541	+1551	+1561	+1571	+1581	+1591
AGTAAATTAAATTCCACAGCTAATTCAATAAATAATGGTACATTTAAGTGTTCTGATTTT					
+1601	+1611	+1621	+1631	+1641	+1651
AATAATATATTTTACATTTTATCCACACAGTAACAATGTAATATGTTAATGTAAATAAAAT					
+1661	+1671	+1681	+1691	+1701	+1711

TGGTTTTGATACTCAGAAATAACAAGAATTTAATTTTTTAAATTTGTTTACAGTCCTGGG
 | +1721 | +1731 | +1741 | +1751 | +1761 | +1771
 AAAAGTAAGAATTATTTGCCAAAATAAGAGGAAAGAAAACCTTAGTATTATTAATGAGTT
 | +1781 | +1791 | +1801 | +1811 | +1821 | +1831
 TACCATAGAATTGTTGGAAATACTGAAGACAGGTGCAATTTACTAACTTTTGTITTTTAA
 | +1841 | +1851 | +1861 | +1871 | +1881 | +1891
 ACTATTGTAGAGGCTGCATTAGAGAAAATGTTTATAATGACAGAGCAACTATGACTATA
 | +1901 | +1911 | +1921 | +1931 | +1941 | +1951
 TAAAAAAGCTGAAATTAGAACTGTGTTTAGAAATAGATCAGTAACCCAGTGCCAAGGATG
 | +1961 | +1971 | +1981 | +1991 | +2001 | +2011
 CCAAGCTGCCACCATGGTCTTGGCTCTCCACAACCCAGTGTTCCTGGGGTAAGTTTCAC
 | +2021 | +2031 | +2041 | +2051 | +2061 | +2071
 AGTTTCTAGGCCCTGGAATAGCAGGCAGTGTAAGCCTTTGATAACTTTAGTTCGATGTTT
 | +2081 | +2091 | +2101 | +2111 | +2121 | +2131
 TTCTTGTTTTTGTGTTGGTTTGGTGCATATGATAGTGGGTGTTATGCTATTTTGCTCT
 | +2141 | +2151 | +2161 | +2171 | +2181 | +2191
 TCCCATCAAAATAAAGAACTTCCAGAGGTTTACTGTAAAAATACTGATATTTCCATAA
 | +2201 | +2211 | +2221 | +2231 | +2241 | +2251
 ACGGGTTTACCAAGGTGTAGTATTTTCATACCGCCTGAAATGATCAGCATTGGCACAAAT
 | +2261 | +2271 | +2281 | +2291 | +2301 | +2311
 CAAAATTGAGCCGCCTTTGAAATGAAAAATACCTTTGACTAGTAAGTACATCCTAGGAG
 | +2321 | +2331 | +2341 | +2351 | +2361 | +2371
 TTTGAAACTTAACCTAAGGTTTAAAAATTTACCTTGTTTAAAGAACTTCTGACTTTTGAGG
 | +2381 | +2391 | +2401 | +2411 | +2421 | +2431
 AAAATCTAGCTTTCCAAGTAACCTAAAAATGTACATGAGATAAACCTCTCACCCTATGTGT
 | +2441 | +2451 | +2461 | +2471 | +2481 | +2491
 CCCTTGAGAAATGCAACACTTTTTTAGTCTTCATACTTGTAATCTATAAAAGAAATCTG
 | +2501 | +2511 | +2521 | +2531 | +2541 | +2551
 AAGTTTAGACCAAGTTGCCCATTCTGCGTAATTGACATAAGTTCTGTAAAAATATTAT
 | +2561 | +2571 | +2581 | +2591 | +2601 | +2611
 AAGTAATTCGTTTCGGTTTGTAGATGTTTCCCCTGACTTGTTAAAGAGGAAACCAGGAAC

|+2621 |+2631 |+2641 |+2651 |+2661 |+2671
 TCAGTCATGTTTTGTCCTGGATAATCTACCTGTTATGCCAGTACTCCCATCCGAGGGGC

|+2681 |+2691 |+2701 |+2711 |+2721 |+2731
 ATGCCCTTAGTTGCCCAGATGGAGATGCAGTTCAGTAGATTGGGGCAAAGTGGCTACAG

|+2741 |+2751 |+2761 |+2771 |+2781 |+2791
 CTCTGTCTTCCATTCACCTCAACACCTGTTTCATGACTGAGCCAGGTGCCCAGGACACATCC

|+2801 |+2811 |+2821 |+2831 |+2841 |+2851
 TAAACAGTCAGCTTCTATCCTGTGTCCTAGTTGGGGAGACAGAGTGCCAGCCAGCAACCC

|+2861 |+2871 |+2881 |+2891 |+2901 |+2911
 TCCCAGGTTTGTAGGTTTGTAGGGTTTTCAGTTTGTGTTGGGTTTTTGTGTTTTGTTTT

|+2921 |+2931 |+2941 |+2951 |+2961 |+2971
 TGTTTCTACATCCTTCCCCGACTCCCAGGCATAATGAGGCATGTCTTACTCAATGTTATG

|+2981 |+2991 |+3001 |+3011 |+3021 |+3031
 CAATGGATTTAGGCAAAAATTCATTCTTAGTGTGAGCCACACAATTTTTTTAATGCAGT

|+3041 |+3051 |+3061 |+3071 |+3081 |+3091
 ATATTCACCTGTAAATAGTTTGTGTAAAATTTGACAAAAAAGTATATTTACTATACTGT

|+3101 |+3111 |+3121 |+3131 |+3141 |+3151
 AAATATATGTGATGATATATTGTATTATTTGCTTTTTGTAAAGCAGTTAGTTGCTGCA

|+3161 |+3171 |+3181 |+3191 |+3201 |+3211
 CATGGATAACAACAAAAATTTGATTATTCTCGTGTTAGTATTGTAACTTCTTTTTGCGA

|+3221 |+3231 |+3241 |+3251 |+3261 |+3271
 CTGCGTTACATCATTTAAAGAAAATGCTGTGTATTGTAACTTAAATTGTATATGATAAC

|+3281 |+3291 |+3301 |+3311 |+3321 |+3331
 TTACTGTCTTTCCATCCGGGCCTAAACTTTGGCAGTTCCTTTGTCTACAACCTTGTTAA

|+3341 |+3351 |+3361 |+3371 |+3381 |+3391
 TACTGTAAACAGTTGTACGCCAGCAGGAAAAATACTGCCCAACAGACAAAATCGATCATT

|+3401 |+3411 |+3421 |+3431 |+3441 |+3451
 GTAGGGGAAAAATCATAGAAATCCATTTTCAGATCTTTATTGTTCCCTCACCCCATTTTCCTC

|+3461 |+3471 |+3481 |+3491 |+3501 |+3511
 CTTGTGTATGTACTTCCCCACCCCTTTTTTTAAGTAAAATGTAAATTCAATCTGCTC

|+3521.
 TAAGAtatgaggagttatTTAATTtcttcagatgtatcgagctctgttttcttcccccg

 agtcctccaatcttttgaaacattaaggccatttcttaaggatgttttggctctcc

 tactccccgtgagaaagatctttccatttccagaacttctccacactaaaagtgaatat

 ttttgtgaaatgcttttttagggcctgccaaactcaggtgagtcgttctctgggataag

 ctggcttctcttaaaatgaagccagtcagaaatgtcagggcatccaagattgaccagtc
 .
 agagg

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 Control: Version: 0.2, Version Date: 11/02/2015