

Gene: BRCA1 - Sequence: NG_005905.2
 Transcript: NM_007294.3 - Protein: NP_009225.1
 LRG: LRG_292t1 - Date : Thursday 11th June, 2015

1st line: Base numbering. Full stops for intronic +/- 5, 10, 15...
 2nd line: Base sequence. lower case Introns, upper case Exons
 3rd line: Amino acid sequence. Printed on FIRST base of codon
 4th line: Amino acid numbering. Numbered on 1st and increments of 10

Exon 1 | Start: 92501 | End: 92713 | Length: 212

.
 tacttatatttaccgaaactggagacctccattagggcggaagagtgggggattgggac

.
 ctcttcttacgactgctttggacaataggtagcgattctgaccttcgtacagcaattact

.
 gtgatgcaataagccgcaactggaagagtagaggctagagggcaggcactttatggcaaa

.
 ctcaggtagaattcttcctcttccgtctctttcctttacgtcatccgggggcagactgg

.
 gtggccaatccagagccccgagagacgcttggtctcttctgtccctcccatcctctgatt

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

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

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

|-49 |-39 |-29
 TCAGGAGGCCTTCACCTCTGCTCTGGGTAAAGgtagtagagtcccggaaggacagg

.
 gggcccaagtgatgctctgggtactggcgtgggagagtggatttccgaagctgacagat

.
 ggggtattctttgacgggggtagggcggaacctgagaggcgtaaggcggttgtaaccct

.
ggggaggggggcagttttaggtcgcgaggggaagcgtgaggatcaggaagggggcactg

.
agtgtccgtgggggaatcctcgtgataggaactggaatatgccttgagggggacactatg

.
tctttaaaaacgtcggctggtcatgaggtcagg

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

```
. . . . .
aggctaccaccacctacccggtcagtcactcctctgtagctttctctttcttggagaaag
. . . . .
gaaaagaccaaggggttgagcaaatatgtgaaaaattcagaatttatgttgtctaata
. . . . .
tacaaaaagcaacttctagaatctttaaaaataaaggacgttggtcattagttctttggtt
. . . . .
tgtattattctaaaaccttccaaatcttaaatcttatttttaaaatgataaaatgaa
. . . . .
gttggtcattttataaaccttttaaaagatatatatatgtttttctaattgtgttaaag
|-19      |-9      |1      |11      |21      |31      |41
TTCATTGGAACAGAAAGAAATGGATTATCTGCTCTTCGCGTTGAAGAAGTACAAAATGT
      M D L S A L R V E E V Q N V
      |1                      |11
      |51      |61      |71      . . . . .
CATTAATGCTATGCAGAAAATCTTAGAGTGTCCCATCTGgtaagtcagcacaagagtgtgta
I N A M Q K I L E C P I C
      |21
. . . . .
ttaatttgggattcctatgattatctcctatgcaaataaacagaattgaccttacatact
. . . . .
agggaagaaaagacatgtctagtaagattaggctattgtaattgctgattttcttaactg
. . . . .
aagaactttaaaaatatagaaaatgattccttggttctccatccactctgcctctcccact
. . . . .
cctctccttttcaacacaaatcctgtggtccgggaaagacagggactctgtcttgattgg
. . . . .
ttctgcactggggcaggaatctagtttagattaactggc
```

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

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

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

```
. . . . .
tatgaatatatcattaaatatgccatattaactttttattaagttttatgtgatcataaca

. . . . .
gtaagccatatgcatgtaagttcagttttcatagatcattgcttatgtagtttaggtttt

. . . . .
tgcttatgcagcatccaaaaacaattaggaaactattgcttgtaattcacctgccattac

. . . . .
tttttaaatggctcttaagggcagttgtgagattatctttcatggctatttgcccttttg

. . . . .
agtattctttctacaaaaggaagtaaattaaattgttctttctttctttataatttatag

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

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

. . . . .
taggaaaaagtagaaattatttaataacatagcgttcctataaaaccattcatcagaaaa

. . . . .
atttataaaagagtttttagcacacagtaaattatttccaaagttattttcctgaaagtt

. . . . .
ttatgggacatctgccttatacaggtattagaaacttactgcctttctctaattgcttcta

. . . . .
gtgtaaaaacttgcagacttatgtaaagtagggctgtatcgccgtgccccattgtctgt

. . . . .
taatcttgtttttatatt
```

Exon 5 | Start: 113028 | End: 113116 | Length: 88

.
aaattaaacaaaaaaaaaagtactctagttttctatgcaatgcattatatctgctgtgga

.
tttagggcagtattatatcagataattttaggcatttggtaggcttaaataatgaatgacaaa

.
aagttactaaatcactgccatcacacggtttatacagatgtcaatgatgtattgattata

.
gagggttttctactgttgctgcatcttatttttatttgtttacatgtcttttcttatttta

.
gtgtccttaaaaggttgataatcacttgctgagtggtgtttctcaacaatttaatttcag

|221	|231	|241	|251	|261	|271
GAGCCTACAAGAAAGTACGAGATTTAGTCAACTTGTTGAAGAGCTATTGAAAAATCATTG					
S L Q E S T R F S	Q L V E E L L K I I C				
	|81				|91

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

.
aagtgtgtccatgaaaactcaggaagtttgacaaattactttctatgacgtggtgataa

.
gaccttttagtctagggttaatttttagttctgtatctgtaatctatttttaaaaaattact

.
cccactgggtctcacaccttattttatcaatcgtaagggtgcacatttttcacatcttaaca

.
tctctgaaattgggaacattttactattgagggtgtgtcatttgtttaatttggtgtgctt

.
tctttcttagtgatacagaaaataatagt

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

.
tacattgttggtgtcttagctttagtgaaatacagtattgataggcaaatttcttagtgt

.
taaggtagaaaacaaggactctaaataactttgatggctctgtgtatttgttttgtttcc

.
taggagtaaaatttccagttgattttttaaaatttgatttttaaaaaaatcacaggtaa

.
ccttaatgcattgtcttaacacaacaaagagcatatagggttctcttggtttctttg

.
attataattcatatatttttctctaactgcaaacataatgttttcccttgattttacag

 |311 |321 |331 |341 |351 |361
ATGCAAAACAGCTATAATTTTGCAAAAAAGGAAAAATAACTCTCCTGAACATCTAAAAGATG
 A N S Y N F A K K E N N S P E H L K D E
 |111 |121

 |371 |381 |391 |401 |411 |421
AAGTTTCTATCATCCAAAGTATGGGCTACAGAAACCGTGCCAAAAGACTTCTACAGAGTG
 V S I I Q S M G Y R N R A K R L L Q S E
 |131 |141

 |431 |441
AACCCGAAAATCCTTCCTTGgtaaaaccatttgttttcttcttcttcttcttcttctt
 P E N P S L

.
cttttttttttctttttttttttgagatggagtccttgctctgtggcccaggctagaagc

.
agtcctcctgccttagcccccttagtagctgggattacaggcacgcgccaccatgccagg

.
ctaatttttgatttttagtagagacggggtttcatcatgttgccaggctggtctcgaa

.
ctcctaacctcagtgatccaccacctcggctcccaaattgctgggattacaggtgtg

.
agccactgtgcccggcggt

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

```
. . . . .
actactactattattttgtagagactgggtctcactctgttgcttatgctggctcttgaac
. . . . .
tcctggcctcaagcagtcctgctccagcctcccaaagtgctgggattataggcatgagct
. . . . .
accgctcccagccccagacatttttagtggtgtaaattcctgggcattttttccaggcatca
. . . . .
tacatgtagctgactgatgatggcaatttattttgtccatgggtgcaagtttctcttc
. . . . .
aggaggaaaagcacagaactggccaacaattgcttgactgttctttaccatactgtttag
      |451      |461      |471      |481      |491      |501
CAGGAAACCACTCTCAGTGTCCAACCTCTTAACCTTGGAACCTGTGAGAACTCTGAGGACA
Q E T S L S V Q L S N L G T V R T L R T
      |151      |161
      |511      |521      |531      |541      . .
AAGCAGCGGATACAAACCTCAAAAGACGTCTGTCTACATTGAATTGGGtaagggtctcagg
K Q R I Q P Q K T S V Y I E L G
      |171      |181
. . . . .
ttttttaagtatttaataataattgctggattccttatcttatagttttgcaaaaatct
. . . . .
tggtcataatttgatattgtggttaggcagctttgggaagtgaattttatgagccctatgg
. . . . .
tgagttataaaaaatgtaaaagacgcagttccacctgaagaatcttactttaaaagg
. . . . .
gagcaaaagaggccaggcatgggtggctcacacctgtaatccagcactttgggaggccaa
. . . . .
agtgggtggatcacctgaggtcgggagttcgagaccagcctagcca
```


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

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

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

. . . . .
acctttgtctatgaagctggtattttcctatttagttaatattaaggattgatgtttctc
. . . . .
tctttttaaaaatattttaacttttatttttaggttcagggatgtatgtgcagtttggtat
. . . . .
ataggtaaacacacgacttgggatttggtgtatagattttttcatcatccgggtactaa
. . . . .
gcataccccacagtttttgtttgctttcttctgaatttctccctcttcccaccttctc
. . . . .
ccctcaagtaggctggtgtttctccagactagaatcatggtattgg
```

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

.
gtatttttagtagagatggggtttcaccatgttggccaggctggtcttgaactcatgacc

.
tcaagtgggtccaccgcctcagcctcccaaagtgtggaattacaggcttgagccaccgt

.
gccagcaaccatttcatttcaactagaagtttctaaaggagagagcagctttcactaac

.
taaataagattggtcagctttctgtaatcgaaagagctaaaatgtttgatcttggtcatt

.
tgacagttctgcatacatgtaactagtgtttcttattaggactctgtctttccctatag

 |601 |611 |621 |631 |641 |651
TGTGGGAGATCAAGAATTGTTACAAATCACCCCTCAAGGAACCAGGGATGAAATCAGTTT
V G D Q E L L Q I T P Q G T R D E I S L
 |201 |211

 |661
GGATTCTGCAAAAAGGgtaatggcaaagtttgccaacttaacaggcactgaaaagagag
D S A K K A
 |221

.
tgggtagatacagtactgtaattagattattctgaagaccatttgggacctttacaaccc

.
acaaaatctcttggcagagtttagagtatcattctctgtcaaatgtcgtggtatggtctga

.
tagatttaaattggtactagactaatgtacctataataaaccttctgtaactgattgttg

.
ccctttcgttttttttttgtttgtttgtttgttttttttgagatgggggtctcactctg

.
ttgccaggctggagtg

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

```

. . . . .
agttttctgatggccaatctgcttttaattcactccttagacgttagagaaataggtgtgg
. . . . .
tttctgcatagggaaaattctgaaattaaaaatttaatggatcctaagtggaaataatct
. . . . .
aggtaaataaggaattaaatgaaagagtatgagctacatcttcagtatacttggtagttta
. . . . .
tgagggttagtttctctaatatagccagttggttgatttccacctccaaggtgtatgaagt
. . . . .
atgtatTTTTTTaatgacaattcagtttttgagtaccttggtatTTTTgtatatTTTcag

|671      |681      |691      |701      |711      |721
CTGCTTGTGAATTTTCTGAGACGGATGTAACAAATACTGAACATCATCAACCCAGTAATA
  A C E F S E T D V T N T E H H Q P S N N
                        |231                        |241

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

|791      |801      |811      |821      |831      |841
GTTCTGTTTCAAACCTTGCATGTGGAGCCATGTGGCACAAATACTCATGCCAGCTCATTAC
  S V S N L H V E P C G T N T H A S S L Q
                        |271                        |281

|851      |861      |871      |881      |891      |901
AGCATGAGAACAGCAGTTTATTACTCACTAAAGACAGAATGAATGTAGAAAAGGCTGAAT
  H E N S S L L L T K D R M N V E K A E F
                        |291                        |301

|911      |921      |931      |941      |951      |961
TCTGTAATAAAAGCAAACAGCCTGGCTTAGCAAGGAGCCAACATAACAGATGGGCTGGAA
  C N K S K Q P G L A R S Q H N R W A G S
                        |311                        |321

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971	981	991	1001	1011	1021
GTAAGGAAACATGTAATGATAGGCGGACTCCCAGCACAGAAAAAAGGTAGATCTGAATG					
K	E	T	C	N	D
			R	R	T
			P	S	T
			E	K	K
			V	D	L
			N	A	
		|331			|341
|1031	|1041	|1051	|1061	|1071	|1081
CTGATCCCCTGTGTGAGAGAAAAGAATGGAATAAGCAGAAACTGCCATGCTCAGAGAATC					
D	P	L	C	E	R
			K	E	W
			N	K	Q
			K	L	P
			C	S	E
			N	P	
		|351			|361
|1091	|1101	|1111	|1121	|1131	|1141
CTAGAGATACTGAAGATGTTCTTGGATAACACTAAATAGCAGCATTCAGAAAAGTTAATG					
R	D	T	E	D	V
			P	W	I
			T	L	N
			S	S	I
			Q	K	V
			N	E	
		|371			|381
|1151	|1161	|1171	|1181	|1191	|1201
AGTGGTTTTCAGAAAGTGATGAACTGTTAGGTTCTGATGACTCACATGATGGGGAGTCTG					
W	F	S	R	S	D
			E	L	L
			G	S	D
			D	S	H
			D	G	E
			S	E	
		|391			|401
|1211	|1221	|1231	|1241	|1251	|1261
AATCAAATGCCAAAGTAGCTGATGTATTGGACGTTCTAAATGAGGTAGATGAATATTCTG					
S	N	A	K	V	A
			D	V	L
			D	V	L
			N	E	V
			D	E	Y
			S	G	
		|411			|421
|1271	|1281	|1291	|1301	|1311	|1321
GTTCTTCAGAGAAAATAGACTTACTGGCCAGTGATCCTCATGAGGCTTTAATATGTAAAA					
S	S	E	K	I	D
			L	A	S
			D	P	H
			E	A	L
			I	C	K
			S		
		|431			|441
|1331	|1341	|1351	|1361	|1371	|1381
GTGAAAGAGTTCACTCCAAATCAGTAGAGAGTAATATTGAAGACAAAATATTTGGGAAAA					
E	R	V	H	S	K
			S	V	E
			S	N	I
			E	D	K
			I	F	G
			K	T	
		|451			|461
|1391	|1401	|1411	|1421	|1431	|1441
CCTATCGGAAGAAGGCAAGCCTCCCCAACTTAAGCCATGTAAGTAAAAATCTAATTATAG					
Y	R	K	K	A	S
			L	P	N
			L	S	H
			V	T	E
			N	L	I
			I	I	G
		|471			|481
|1451	|1461	|1471	|1481	|1491	|1501
GAGCATTGTGTTACTGAGCCACAGATAATACAAGAGCGTCCCCTCACAAATAAATTAAAGC					
A	F	V	T	E	P
			Q	I	I
			Q	E	R
			P	L	T
			N	K	L
			K	R	
		|491			|501

|1511 |1521 |1531 |1541 |1551 |1561
 GTAAAAGGAGACCTACATCAGGCCTTCATCCTGAGGATTTTATCAAGAAAGCAGATTTGG
 K R R P T S G L H P E D F I K K A D L A
 |511 |521

|1571 |1581 |1591 |1601 |1611 |1621
 CAGTTCAAAAGACTCCTGAAATGATAAATCAGGGAACCTAACCAACGGAGCAGAATGGTC
 V Q K T P E M I N Q G T N Q T E Q N G Q
 |531 |541

|1631 |1641 |1651 |1661 |1671 |1681
 AAGTGATGAATATTACTAATAGTGGTCATGAGAATAAAACAAAAGGTGATTCTATTCTAGA
 V M N I T N S G H E N K T K G D S I Q N
 |551 |561

|1691 |1701 |1711 |1721 |1731 |1741
 ATGAGAAAAATCCTAACCCAATAGAATCACTCGAAAAAGAATCTGCTTTCAAAACGAAAG
 E K N P N P I E S L E K E S A F K T K A
 |571 |581

|1751 |1761 |1771 |1781 |1791 |1801
 CTGAACCTATAAGCAGCAGTATAAGCAATATGGAACCTCGAATTAAATATCCACAATTCAA
 E P I S S S I S N M E L E L N I H N S K
 |591 |601

|1811 |1821 |1831 |1841 |1851 |1861
 AAGCACCTAAAAAGAATAGGCTGAGGAGGAAGTCTTCTACCAGGCATATTCATGCGCTTG
 A P K K N R L R R K S S T R H I H A L E
 |611 |621

|1871 |1881 |1891 |1901 |1911 |1921
 AACTAGTAGTCAGTAGAAATCTAAGCCCACCTAATTGTACTGAATTGCAAATTGATAGTT
 L V V S R N L S P P N C T E L Q I D S C
 |631 |641

|1931 |1941 |1951 |1961 |1971 |1981
 GTTCTAGCAGTGAAGAGATAAAGAAAAAAGTACAACCAAAATGCCAGTCAGGCACAGCA
 S S S E E I K K K Y N Q M P V R H S R
 |651 |661

|1991 |2001 |2011 |2021 |2031 |2041
 GAAACCTACAACCTCATGGAAGGTAAAGAACCTGCAACTGGAGCCAAGAAGAGTAACAAGC
 N L Q L M E G K E P A T G A K K S N K P
 |671 |681

|2051	|2061	|2071	|2081	|2091	|2101
CAATGAACAGACAAGTAAAAGACATGACAGCGATACTTTCCCAGAGCTGAAGTTAACAA					
N	E	Q	T	S	K
			R	H	D
			S	D	T
			F	P	E
			L	K	L
			T	N	
		|691			|701
|2111	|2121	|2131	|2141	|2151	|2161
ATGCACCTGGTTCTTTTACTAAGTGTTCAAATACCAAGTGAAGTTAAAGAATTTGTCAATC					
A	P	G	S	F	T
			K	C	S
			N	T	S
			E	L	K
			E	F	V
			N	P	
		|711			|721
|2171	|2181	|2191	|2201	|2211	|2221
CTAGCCTTCCAAGAGAAGAAAAAGAAGAGAACTAGAAACAGTTAAAGTGTCTAATAATG					
S	L	P	R	E	E
			K	E	E
			K	L	E
			T	V	K
			V	S	N
			N	A	
		|731			|741
|2231	|2241	|2251	|2261	|2271	|2281
CTGAAGACCCCAAAGATCTCATGTTAAGTGGAGAAAGGGTTTTGCAAAGTAAAGATCTG					
E	D	P	K	D	L
			M	L	S
			G	E	R
			V	L	Q
			T	E	R
			S	V	
		|751			|761
|2291	|2301	|2311	|2321	|2331	|2341
TAGAGAGTAGCAGTATTTTATTGGTACCTGGTACTGATTATGGCACTCAGGAAAGTATCT					
E	S	S	S	I	S
			L	V	P
			G	T	D
			Y	G	T
			Q	E	S
			I	S	
		|771			|781
|2351	|2361	|2371	|2381	|2391	|2401
CGTTACTGGAAGTTAGCACTCTAGGGAAGGCAAAAACAGAACCAAAATAAATGTGTGAGTC					
L	L	E	V	S	T
			L	G	K
			A	K	T
			E	P	N
			K	C	V
			S	Q	
		|791			|801
|2411	|2421	|2431	|2441	|2451	|2461
AGTGTGCAGCATTTGAAAACCCCAAGGGACTAATTCATGGTTGTTCCAAAGATAATAGAA					
C	A	A	F	E	N
			P	K	G
			L	I	H
			G	C	S
			K	D	N
			R	N	
		|811			|821
|2471	|2481	|2491	|2501	|2511	|2521
ATGACACAGAAGGCTTTAAGTATCCATTGGGACATGAAGTTAACCACAGTCGGGAAACAA					
D	T	E	G	F	K
			Y	P	L
			G	H	E
			V	N	H
			S	R	E
			T	S	
		|831			|841
|2531	|2541	|2551	|2561	|2571	|2581
GCATAGAAATGGAAGAAAGTGAAGTTGATGCTCAGTATTTGCAGAATACATTCAAGGTTT					
I	E	M	E	E	S
			E	L	D
			A	Q	Y
			L	Q	N
			T	F	K
			V	S	
		|851			|861

|2591	|2601	|2611	|2621	|2631	|2641
CAAAGCGCCAGTCATTTGCTCCGTTTTCAAATCCAGGAAATGCAGAAGAGGAATGTGCAA					
K	R	Q	S	F	A
	P	F	S	N	P
			G	N	A
				E	E
				E	C
					A
					T
		|871			|881
|2651	|2661	|2671	|2681	|2691	|2701
CATTCTCTGCCCACTCTGGGTCCTTAAAGAAACAAAGTCCAAAAGTCACTTTTGAATGTG					
F	S	A	H	S	G
	S	L	K	K	Q
			S	P	K
				V	T
				F	E
					C
					E
		|891			|901
|2711	|2721	|2731	|2741	|2751	|2761
AACAAAAGGAAGAAAATCAAGGAAAGAATGAGTCTAATATCAAGCCTGTACAGACAGTTA					
Q	K	E	E	N	Q
	G	K	N	E	S
			N	I	K
				P	V
				Q	T
					V
					N
		|911			|921
|2771	|2781	|2791	|2801	|2811	|2821
ATATCACTGCAGGCTTTCCTGTGGTTGGTCAGAAAGATAAGCCAGTTGATAATGCCAAAT					
I	T	A	G	F	P
	V	V	G	Q	K
			D	K	P
				V	D
				N	A
					K
					C
		|931			|941
|2831	|2841	|2851	|2861	|2871	|2881
GTAGTATCAAAGGAGGCTCTAGGTTTTGTCTATCATCTCAGTTCAGAGGCAACGAAACTG					
S	I	K	G	G	S
	R	F	C	L	S
			S	Q	F
				R	G
				N	E
					T
					G
		|951			|961
|2891	|2901	|2911	|2921	|2931	|2941
GACTCATTACTCCAAATAAACATGGACTTTTACAAAACCCATATCGTATACCACCACTTT					
L	I	T	P	N	K
	H	G	L	L	Q
			N	P	Y
				R	I
				P	P
					L
					F
		|971			|981
|2951	|2961	|2971	|2981	|2991	|3001
TTCCCATCAAGTCATTTGTTAAACTAAATGTAAGAAAAATCTGCTAGAGGAAAACTTTG					
P	I	K	S	F	V
	K	T	K	C	K
			K	N	L
				L	E
				E	N
					F
					E
		|991			|1001
|3011	|3021	|3031	|3041	|3051	|3061
AGGAACATTCAATGTCACCTGAAAGAGAAATGGGAAATGAGAACATTCCAAGTACAGTGA					
E	H	S	M	S	P
	E	R	E	M	G
			N	E	N
				I	P
				S	T
					V
					S
		|1011			|1021
|3071	|3081	|3091	|3101	|3111	|3121
GCACAATTAGCCGTAATAACATTAGAGAAAATGTTTTTAAAGAAGCCAGCTCAAGCAATA					
T	I	S	R	N	N
			I	R	E
			N	V	F
				K	E
				A	S
					S
					S
					N
					I
		|1031			|1041

|3131	|3141	|3151	|3161	|3171	|3181
TTAATGAAGTAGGTTCCAGTACTAATGAAGTGGGCTCCAGTATTAATGAAATAGGTTCCA					
N E V G S S T N E V G S S I N E I G S S					
				|1051	|1061
|3191	|3201	|3211	|3221	|3231	|3241
GTGATGAAAACATTCAAGCAGAACTAGGTAGAAACAGAGGGCCAAAATTGAATGCTATGC					
D E N I Q A E L G R N R G P K L N A M L					
				|1071	|1081
|3251	|3261	|3271	|3281	|3291	|3301
TTAGATTAGGGGTTTGTCAACCTGAGGTCTATAAACAAAGTCTTCCTGGAAGTAATTGTA					
R L G V L Q P E V Y K Q S L P G S N C K					
				|1091	|1101
|3311	|3321	|3331	|3341	|3351	|3361
AGCATCCTGAAATAAAAAAGCAAGAATATGAAGAAGTAGTTCAGACTGTTAATACAGATT					
H P E I K K Q E Y E E V V Q T V N T D F					
				|1111	|1121
|3371	|3381	|3391	|3401	|3411	|3421
TCTCTCCATATCTGATTTTCAGATAACTTAGAACAGCCTATGGGAAGTAGTCATGCATCTC					
S P Y L I S D N L E Q P M G S S H A S Q					
				|1131	|1141
|3431	|3441	|3451	|3461	|3471	|3481
AGGTTTGTCTGAGACACCTGATGACCTGTAGATGATGGTGAAATAAAGGAAGATACTA					
V C S E T P D D L L D D G E I K E D T S					
				|1151	|1161
|3491	|3501	|3511	|3521	|3531	|3541
GTTTTGCTGAAAATGACATTAAGGAAAGTTCTGCTGTTTTTAGCAAAAGCGTCCAGAAAG					
F A E N D I K E S S A V F S K S V Q K G					
				|1171	|1181
|3551	|3561	|3571	|3581	|3591	|3601
GAGAGCTTAGCAGGAGTCCTAGCCCTTTCACCCATACACATTTGGCTCAGGGTTACCGAA					
E L S R S P S P F T H T H L A Q G Y R R					
				|1191	|1201
|3611	|3621	|3631	|3641	|3651	|3661
GAGGGGCCAAGAAATTAGAGTCTCAGAAGAGAAGTTATCTAGTGAGGATGAAGAGCTTC					
G A K K L E S S E E N L S S E D E E L P					
				|1211	|1221

.
gctaggacgtcatctttgactgaatg

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

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

                        |4141      |4151      |4161      |4171      |4181      .
TCTGAAGACTGCTCAGGGCTATCCTCTCAGAGTGACATTTTAACCACTCAGgtaaaaagc
S E D C S G L S S Q S D I L T T Q
                        |1381                        |1391

. . . . .
gtgtgtgtgtgtgcacatgcgtgtgtgtggtgtcctttgcattcagtagtatgtatccca
. . . . .
cattcttaggtttgctgacatcatctctttgaattaatggcacaattgtttgtggttcac
. . . . .
tgtctccttaaattagactgtaagcaccttgatggaactcatactaccttttatttcaca
. . . . .
cacacgcacacgcgcacacacagcctacacatacactgcctagctcattgtagcatacta
. . . . .
aatactgatttttaataagctaaaccttcgaaaccatttgctaatacc
```

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

```
. . . . .
tattttttcactccctagcttttaaagaaaataaccaacttcaaaaggacatcacataa

. . . . .
catcaagtctatttgggggaatttgaggatttttccctcactaacatcatttggaata

. . . . .
atthcatgggcattaattgcatgaatgtggttagattaaaaggtgttcagctagaacttg

. . . . .
tagttccatactaggtgatttcaattcctgtgctaaaattaatttgatgatataatttc

. . . . .
atthaatggaaagcttctcaaagtatttcattttcttggtgccatttatcgtttttgaag

      |4191      |4201      |4211      |4221      |4231      |4241
CAGAGGGATACCATGCAACATAACCTGATAAAGCTCCAGCAGGAAATGGCTGAACTAGAA
Q R D T M   Q H N L I K L Q Q E M A E L E
           |1401                        |1411

      |4251      |4261      |4271      |4281      |4291      |4301
GCTGTGTTAGAACAGCATGGGAGCCAGCCTTCTAACAGCTACCCTTCCATCATAAGTGAC
A V L E Q   H G S Q P S N S Y P S I I S D
           |1421                        |1431

      |4311      |4321      |4331      |4341      |4351      .
TCTTCTGCCCTTGAGGACCTGCGAAATCCAGAACAAAGCACATCAGAAAAAGgtgtgtat
S S A L E D L R N P E Q S T S E K A
           |1441                        |1451

. . . . .
tgttggccaaactgatatcttaagcaaaattctttccttcccctttatctccttctga

. . . . .
agagtaaggacctagctccaacattttatgatccttgctcagcacatgggtaattatgga

. . . . .
gccttggttcttgtccctgctcacaactaatataaccagtcagagggacccaaggcagtca

. . . . .
ttcatgtgtcatctgagtacctacaacaagtagatgctatggggagcccatggaagata
```

.
catggtatacaacatagctcttgctctattggaagctaagtggaatgggaga

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

```
. . . . .
tcagggccaaaggaatatagatttttttttcagccttgtctcagctgggtgtctttattt

. . . . .
actctgtcttaaagtggttccttttattatcattatttttttaatcattgaattccatt

. . . . .
tggtgctagcatctgtctgttgcatgcttggtgtttataaaattctgcctgatatacttg

. . . . .
tttaaaaaccaatttggtgatcatagattgatgcttttgaaaaaatcagtattctaacc

. . . . .
tgaattatcactatcagaacaaagcagtaaagtagatttgttttctcattccatttaaag

|4361      |4371      |4381      |4391      |4401      |4411
CAGTATTAAC TTCACAGAAAAGTAGTGAATACCCTATAAGCCAGAATCCAGAAGGCCTTT
V L T S Q K S S E Y P I S Q N P E G L S
|1461                                |1471

|4421      |4431      |4441      |4451      |4461      |4471
CTGCTGACAAGTTTGAGGTGTCTGCAGATAGTTCTACCAGTAAAAATAAAGAACCAGGAG
A D K F E V S A D S S T S K N K E P G V
|1481                                |1491

|4481
TGGAAGGtaagaaacatcaatgtaaagatgctgtggtatctgacatctttatttatatt
E R

. . . . .
gaactctgattgttaatttttttcaccatactttctccagttttttgcatacaggcattt

. . . . .
atacacttttattgctctaggatacttcttttgtttaacacctatataggttttttgaacc

. . . . .
tataacataagctacaacatgagaaatgtgcggttagatagatatgtcccttctgaaggt

. . . . .
cagaaaaaatataatggaggtaaaacctgaacaagcttggaactgatggttagacttct

. .
tcaaggc
```

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

.
agcctcccgagtagctgagattacaggcgccagccaccacacccagctactgacctgctt

.
ttaaacagctgggagatatggtgcctcagaccaaccaaccccatgttatatgtcaaccc

.
tgacatatggcaggcaacatgaatccagacttctaggctgtcttgcgggctcttttttg

.
ccagtcatttctgatctctctgacatgagctgtttcatttatgctttggctgccagcaa

.
gtatgatttgtcctttcacaattggtggcgatggttttctccttcatttatctttctag

|4491	|4501	|4511	|4521	|4531	|4541
GTCATCCCTTCTAAATGCCCATCATTAGATGATAGGTGGTACATGCACAGTTGCTCTGG					
S S P S K C P S L D D R W Y M H S C S G					
	|1501			|1511	

|4551	|4561	|4571	|4581	|4591	|4601
GAGTCTTCAGAATAGAACTACCCATCTCAAGAGGAGCTCATTAAGGTTGTTGATGTGGA					
S L Q N R N Y P S Q E E L I K V V D V E					
	|1521			|1531	

|4611	|4621	|4631	|4641	|4651	|4661
GGAGCAACAGCTGGAAGAGTCTGGGCCACACGATTTGACGGAACATCTTACTTGCCAAG					
E Q Q L E E S G P H D L T E T S Y L P R					
	|1541			|1551	

|4671	. . . . .
GCAAGATCTAGgtaatatatttcacatctgctgtattggaacaaacactttgattttactctga	
Q D L E	

.
atcctacataaagatatattctggttaaccaacttttagatgtactagtctatcatggacac

.
ttttgttatacttaattaagcccacttttagaaaaatagctcaagtgttaatcaagggtta

.
cttgaaaattattgaaactgttaatccatctatatattttaattaatggtttaactaatgat

.
tttgaggatgagggagtcttggtgtactctaaatgtattatttcaggccaggcatagtgg

. . .
ctcacgcctgt

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

```
. . . . .
tctaaaattatactattcctatgactaaacctttgcatatatcttttatctccctaggat

. . . . .
atatttctaaaactagcattgttgactgaaagtgtaaatacgtgttaaggtgtttgctac

. . . . .
ataatgccatatttccttttaggaaactaagctactttggatttccaccaacactgtat

. . . . .
tcatgtaccatttttctcttaaccttaactttattggctcttttaattcttaacagagac

. . . . .
cagaactttgtaattcaacattcatcgttggtgtgtaaattaaacttctcccattcctttcag

      |4681      |4691      |4701      |4711      |4721      |4731
AGGGAACCCCTTACCTGGAATCTGGAATCAGCCTCTTCTCTGATGACCCTGAATCTGATC
  G  T  P  Y  L  E  S  G  I  S  L  F  S  D  D  P  E  S  D  P
      |1561                                |1571

      |4741      |4751      |4761      |4771      |4781      |4791
CTTCTGAAGACAGAGCCCCAGAGTCAGCTCGTGTGGCAACATACCATCTTCAACCTCTG
  S  E  D  R  A  P  E  S  A  R  V  G  N  I  P  S  S  T  S  A
      |1581                                |1591

      |4801      |4811      |4821      |4831      |4841      |4851
CATTGAAAGTTCCCAATTGAAAGTTGCAGAATCTGCCAGAGTCCAGCTGCTGCTCATA
  L  K  V  P  Q  L  K  V  A  E  S  A  Q  S  P  A  A  A  H  T
      |1601                                |1611

      |4861      |4871      |4881      |4891      |4901      |4911
CTACTGATACTGCTGGGTATAATGCAATGGAAGAAAGTGTGAGCAGGGAGAAGCCAGAAT
  T  D  T  A  G  Y  N  A  M  E  E  S  V  S  R  E  K  P  E  L
      |1621                                |1631

      |4921      |4931      |4941      |4951      |4961      |4971
TGACAGCTTCAACAGAAAGGGTCAACAAAAGAATGTCCATGGTGGTGTCTGGCCTGACCC
  T  A  S  T  E  R  V  N  K  R  M  S  M  V  V  S  G  L  T  P
      |1641                                |1651
```

```

      |4981      . . . . .
CAGAAGAATTTgtgagtgatccatatgtatctccctaatagacttaacaacatt
      E  E  F
      |1661

. . . . .
ctggaaagagttttatgtaggtattgtcaattaataacctagaggaagaatctagaaa

. . . . .
caatcacagttctgtgtaatttaatttcgattactaatttctgaaaatttagatctagat

. . . . .
aaagctatagtggtgattatttatgtatatattacttgagaaaataattattaaatatta

. . . . .
gtggaaaagctatactttgggtatgatataggactttcgaattggaattttcctttctat

. . . . .
ctgtaaaagca

```

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

```
. . . . .
gagacttcaggtgtcttagaattttttaaatgtaccctttctgagaaaaacagagactta
. . . . .
aagctaggataactgggtattctatttttttttttttttttttttacctccagcctgggt
. . . . .
gacagagcaagactctgtctaaaaaaaaaaaaaaaaaattcactttaaatagttccagg
. . . . .
acacgtgtagaacgtgcaggattgctacataggtaaacatatgccatggtggaataacta
. . . . .
gtattctgagctgtgtgctagaggtaactcatgataatggaatatttgatttaatttcag
|4991      |5001      |5011      |5021      |5031      |5041
ATGCTCGTGTAACAAGTTTGCCAGAAAACACCACATCACTTTAACTAATCTAATTACTGAA
M L V Y K F A R K H H I T L T N L I T E
|1671      |1681

|5051      |5061      |5071      . . . . .
GAGACTACTCATGTTGTTATGAAAACAGgtataccaagaacctttacagaataccttgca
E T T H V V M K T D
|1691

. . . . .
tctgctgcataaaaccacatgaggcgaggcacggtggcgcatgcctgtaatcgcagcact
. . . . .
ttgggaggccgaggcgggcagatcacgagattaggagatcgagaccatcctggccagcat
. . . . .
ggtgaaaccccgctctctactaaaaataaaaaaattagctgggtgtggtcgcgtgcgcct
. . . . .
gtagtcccagctactcgtgaggctgaggcaggagaatcacttgaaccggggagatggagg
. . . . .
ttgcagtgagccgagatcatgccactgc
```

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

.
 tataatggagatctatagctagccttggcgtctagaagatgggtgttgagaagagggagt

 ggacagatatcttctgtgtcttaacttcatatcagcctcccctagacttccaaatatcc

 atacctgctggttataattagtgggtgttttcagcctctgattctgtcaccaggggtttta

 gaatcataaatccagattgatcttgggagtgtaaaaaactgaggctcttttagcttcttag

 gagagcacttcctgattttgttttcaacttctaatacctttgagtgtttttcattctgcag

|5081	|5091	|5101	|5111	|5121	|5131
ATGCTGAGTTTGTGTGTGAACGGACACTGAAATATTTTCTAGGAATTGCGGGAGGAAAAT					
A E F V C E R T L K Y F L G I A G G K W					
	|1701				|1711

|5141	|5151	.	.	.	.	.	.	.
GGGTAGTTAGCTATTCTGtaagtataataactatttctcccctcctccctttaacacctc								
V V S Y F W								

.
 agaattgcatttttacacctaacgtttaacacctaagggttttgctgatgctgagtctga

 gttacaaaaggctctttaattgtaataactaaactacttttatctttaatatcactttgtt

 cagataagctggtgatgctgggaaaatgggtctcttttataactaataggacctaacttg

 ctccctagcaatgtagcatatgagctag

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

```

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

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

```
. . . . .
gcattcaaaagattctcctgcctcagcctcccaagtagctgggattacaggtgcctgcc
. . . . .
ccacgccaactaatttttgtatttttagtagagatgaggtttcaccatgttggtcaga
. . . . .
ctggtgtcgaactcctgacctcaagtgatctgcctgcctcagtctcccaaagtgctagga
. . . . .
ttacaggggtgagccactgcgcctggcctgaatgccttaaatatgacgtgtctgctccac
. . . . .
ttccattgaaggaagcttctctttcttcttatcctgatgggttggtttggtttctttcag
      |5201      |5211      |5221      |5231      |5241      |5251
CATGATTTTGAAGTCAGAGGAGATGTGGTCAATGGAAGAAACCACCAAGGTCCAAAGCGA
H D F E V R G D V V N G R N H Q G P K R
                        |1741                        |1751

      |5261      |5271      . . . . .
GCAAGAGAATCCCAGGACAGAAAGgtaaagctccctccctcaagttgacaaaaatctcac
A R E S Q D R K

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

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

```
. . . . .
cttggcctgattggtgacaaaagtgagatgctcagtccttgaatgacaaagaatgcctgt

. . . . .
agagtgcagggtcaactacatatgcacttcaagaagatcttctgaaatccagtagtggtct

. . . . .
ggacattggactgcttgtccctgggaagtagcagcagaaatcatcaggtggtgaacagaa

. . . . .
gaaaaagaaaagctcttcctttttgaaagtctgttttttgaataaaagccaatattcttt

. . . . .
tataactagattttccttctctccattcccctgtccctctctctcctctcttcttccag

    |5281    |5291    |5301    |5311    |5321    |5331 .
ATCTTCAGGGGGCTAGAAATCTGTTGCTATGGGCCCTTCACCAACATGCCCACAGgtaag
I  F  R  G  L  E  I  C  C  Y  G  P  F  T  N  M  P  T  D
    |1761                                |1771

. . . . .
agcctgggagaaccccagagttccagcaccagcctttgtcttacatagtggagtattata

. . . . .
agcaagatcccacgatgggggttcctcagattgctgaaatggttagaggctattctatt

. . . . .
tctctaccactctccaaacaaaacagcacctaaatgttatcctatggcaaaaaaaaacta

. . . . .
taccttgcccccttctcaagagcatgaagggtggttaatagttaggattcagtatgttat

. . . . .
gtgttcagatggcggttgagctgctgttagtgccaacatgttagtgagaaaatatc
```

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

.
attaatggaaattagatctttgattttttttctttcaagcattttatttgagagactat

.
caaaccttataccaagtggccttatggagactgataaccagagtacatggcatatcagtg

.
gcaaattgacttaaaatccatacccctactattttaagaccattgtcctttggagcagag

.
agacagactctccattgagaggtcttgctataagccttcacccggagagtgtagggtag

.
agggcctgggttaagtatgcagattactgcagtgattttacatctaaatgtccattttag

 |5341 |5351 |5361 |5371 |5381 |5391
ATCAACTGGAATGGATGGTACAGCTGTGTGGTGCTTCTGTGGTGAAGGAGCTTTCATCAT
 Q L E W M V Q L C G A S V V K E L S S F
 |1781 |1791

 |5401
TCACCCTTGGCACAgtaagtattgggtgccctgtcagagaggaggacacaatattctct
 T L G T
 |1801

.
cctgtgagcaagactggcacctgtcagtccttatggatgccctactgtagcctcagaag

.
tcttctctgcccacatacctgtgccaaaagactccatctgtaagggatgggtaaggattt

.
gagaactgcacatattaaatatactgaggggaagactttttccctctaactctttttcca

.
tatgtccctccccctcctctctgtgactgccccagcatactgtgtttcaacaaatcatca

. . . .
agaaatgatgggct

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

.
ccaggagtttgagaccagcctgggcaacatggcaaaaccctgtctctacaaaaatacaa

.
aaaaattagccaggggtggtgtacgtgtctgtagttccagctacttaggaggctgagat

.
ggaaggattgcttgagcccaggaggcagaggtggcagtgagctgagatcacaccactgca

.
ctccagcctgggtgacagagcaagaccctgtctcaaaaacaaacaaaaaaatgatgaag

.
tgacagttccagtagtcctactttgacactttgaatgctctttccttccctggggatccag

 |5411 |5421 |5431 |5441 |5451 |5461
GGTGTCCACCCAATTGTGGTTGTGCAGCCAGATGCCTGGACAGAGGACAATGGCTTCCAT
G V H P I V V V Q P D A W T E D N G F H
 |1811 |1821

.
Ggtaaggtagcctgcatgtacctgtgctatatggggtccttttgcatggggttggtttatc
A

.
actcattacctggtgcttgagtagcacagttcttggcacattttaaatatttggtgaatg

.
aatggctaaaatgtctttttgatgtttttattggtatttggtttatattgtaaaagtaat

.
acatgaactgtttccatgggggtgggagtaagatatgaatgttcatcacaaaaacataaat

.
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.
g

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

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. . . . .
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. . . . .
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. . . . .
ccatcacactctagcctcggcgacagagcaagactccgtctcaaaaaaaaaaaaaaaaaa

. . . . .
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. . . . .
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      |5471      |5481      |5491      |5501      |5511      |5521
CAATTGGGCAGATGTGTGAGGCACCTGTGGTGACCCGAGAGTGGGTGTTGGACAGTGTAG
      I   G   Q   M   C   E   A   P   V   V   T   R   E   W   V   L   D   S   V   A
                                |1831                                |1841

      |5531      |5541      |5551      |5561      |5571      |5581
CACTCTACCAGTGCCAGGAGCTGGACACCTACCTGATACCCAGATCCCCACAGCCACT
      L   Y   Q   C   Q   E   L   D   T   Y   L   I   P   Q   I   P   H   S   H   Y
                                |1851                                |1861

      |5591      |*11      |*21      |*31      |*41      |*51
ACTGACTGCAGCCAGCCACAGGTACAGAGCCACAGGACCCCAAGAATGAGCTTACAAAGT
      *

      |*61      |*71      |*81      |*91      |*101     |*111
GGCCTTTCCAGGCCCTGGGAGCTCCTCTCACTCTTCAGTCCTTCTACTGTCCTGGCTACT

      |*121     |*131     |*141     |*151     |*161     |*171
AAATATTTTATGTACATCAGCCTGAAAAGGACTTCTGGCTATGCAAGGGTCCCTTAAAGA

      |*181     |*191     |*201     |*211     |*221     |*231
TTTTCTGCTTGAAGTCTCCCTTGAAATCTGCCATGAGCACAAAATTATGGTAATTTTTC

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

|*301	|*311	|*321	|*331	|*341	|*351
TTTATCAGCCCTATTCTTTCTATT	CAGGCTGTTGTTGGCTTAGGGCTGGAAGCACAGAGT				
|*361	|*371	|*381	|*391	|*401	|*411
GGCTTGGCCTCAAGAGAATAGCTGGTTTCCCTAAGTTTACTTCTCTAAAACCTGTGTTT					
|*421	|*431	|*441	|*451	|*461	|*471
ACAAAGGCAGAGAGTCAGACCCTTCAATGGAAGGAGAGTGCTTGGGATCGATTATGTGAC					
|*481	|*491	|*501	|*511	|*521	|*531
TTAAAGTCAGAATAGTCCTTGGGCAGTTCTCAAATGTTGGAGTGGAACATTGGGGAGGAA					
|*541	|*551	|*561	|*571	|*581	|*591
ATTCTGAGGCAGGTATTAGAAATGAAAAGGAAACTTGAAACCTGGGCATGGTGGCTCACG					
|*601	|*611	|*621	|*631	|*641	|*651
CCTGTAATCCCAGCACTTTGGGAGGCCAAGGTGGGCAGATCACTGGAGGTCAGGAGTTTCG					
|*661	|*671	|*681	|*691	|*701	|*711
AAACCAGCCTGGCCAACATGGTGAAACCCCATCTCTACTAAAAATACAGAAATTAGCCGG					
|*721	|*731	|*741	|*751	|*761	|*771
TCATGGTGGTGGACACCTGTAATCCCAGCTACTCAGGTGGCTAAGGCAGGAGAATCACTT					
|*781	|*791	|*801	|*811	|*821	|*831
CAGCCCGGGAGGTGGAGGTTGCAGTGAGCCAAGATCATACCACGGCACTCCAGCCTGGGT					
|*841	|*851	|*861	|*871	|*881	|*891
GACAGTGAGACTGTGGCTCAAAAAAAAAAAAAAAAAAGGAAAATGAACTAGAAGAGAT					
|*901	|*911	|*921	|*931	|*941	|*951
TTCTAAAAGTCTGAGATATATTGCTAGATTTCTAAAGAATGTGTTCTAAACAGCAGAA					
|*961	|*971	|*981	|*991	|*1001	|*1011
GATTTTCAAGAACCGGTTTCCAAAGACAGTCTTCTAATTCCTCATTAGTAATAAGTAAAA					
|*1021	|*1031	|*1041	|*1051	|*1061	|*1071
TGTTTATTGTTGTAGCTCTGGTATATAATCCATTCCTCTTAAAAATATAAGACCTCTGGCA					
|*1081	|*1091	|*1101	|*1111	|*1121	|*1131
TGAATATTTTATATCTATAAAATGACAGATCCCACCAGGAAGGAAGCTGTTGCTTTCTTT					
|*1141	|*1151	|*1161	|*1171	|*1181	|*1191
GAGGTGATTTTTTCTTTGCTCCCTGTTGCTGAAACCATACAGCTTCATAAATAATTTT					

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

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

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

|*1381
 CACTTCCAccatgaatgactgttcttgagacttaggccagccgactttctcagagccttt

.
 tcactgtgcttcagtctcccactctgtaaaatgggggtaatgatagtatctacctcctag

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 gatttattgaggcagcttaaataccttttgatcttctgttgctgcaaaacaaattgtt

.
 gcaaggtcagaagtctgaggtggctcaactgtttctttgtttcaggtttcatgaggccaa

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 aataaaggtgttcgcagggcggttcccttctagaggctctgggtccttgagttctagg

. .
 actaagat

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