

Gene: BRCA1 - Sequence: NG_005905.2
Transcript: NM_007294.3 - Protein: NP_009225.1
Date : March 2, 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

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. . . . . . . . . . . . . . . .
tacttatatttaccgaaactggagacctccattagggcggaagagtgggggattgggac

. . . . . . . . . . . . . . . .
ctcttcttacgactgctttggacaataggtagcgattctgaccttcgtacagcaattact

. . . . . . . . . . . . . . . .
gtgatgcaataagccgcaactggaagagtagaggctagagggcaggcactttatggcaaa

. . . . . . . . . . . . . . . .
ctcaggtagaattcttcctcttccgtctctttccttttacgtcatccgggggcagactgg

. . . . . . . . . . . . . . . .
gtggccaatccagagccccgagagacgcttggtctttctgtccctcccatcctctgatt

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

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

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

|-49       |-39       |-29       .       .       .       .
TCAGGAGGCCTTCACCTCTGCTCTGGGTAAAGgtagtagagtcccgggaaagggacagg

. . . . . . . . . . . . . . . .
gggcccaagtgatgctctgggtactggcgtgggagagtggatttccgaagctgacagat

. . . . . . . . . . . . . . . .
gggtattctttgacgggggtagggcggaacctgagaggcgtaaggcgttgtgaaccct

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

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

```
. . . . .
aggctaccaccacctacccggtcagtcactcctctgtagctttctctttcttggagaaag

. . . . .
gaaaaagaccaaggggttggcagcaatatgtgaaaaaattcagaatttatgttgtctaata

. . . . .
tacaaaaagcaacttctagaatctttaaaaaataaaggacgttgtcattagttctttgggtt

. . . . .
tgtattattctaaaaccttccaaatcttaaatttactttattttaaaatgataaaatgaa

. . . . .
gttgtcattttataaaccttttaaaaagatatatatatgtttttctaattgtgttaaag

|-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      . . . . .
CATTAATGCTATGCAGAAAATCTTAGAGTGTCCCATCTGgtaagtcagcacaagagtgtga
I N A M Q K I L E C P I C
      |21

. . . . .
ttaatttgggattcctatgattatctcctatgcaaataaacagaattgaccttacatact

. . . . .
agggagaaaaagacatgtctagtaagattaggctattgtaattgctgattttcttaactg

. . . . .
aagaactttaaaaaatatagaaaatgattccttgttctccatccactctgcctctcccact

. . . . .
cctctccttttcaacacaaatcctgtggtccgggaaagacagggactctgtcttgattgg

. . . . .
ttctgcactggggcaggaatctagtttagattaactggc
```

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

```
. . . . .
aattcgtacgaactattatcaactaatcttttaaagtctgatgatagatagagtattga
. . . . .
agggatcaatataaattctgttttgatatctgaaagctcactgaaggtaaggatcgtattc
. . . . .
tctgctgtattctcagttcctgacacagcagacatttaataaaatattgaacgaacttgag
. . . . .
gccttatgttgactcagtcataacagctcaaagttgaacttattcactaagaatagcttt
. . . . .
atttttaaataaattattgagcctcatttattttctttttctccccctaccctgctag

|81      |91      |101     |111     |121     |131     .
TCTGGAGTTGATCAAGGAACCTGTCTCCACAAAGTGTGACCACATATTTTGCAAgtaagt
  L  E  L  I  K  E  P  V  S  T  K  C  D  H  I  F  C  K
      |31                               |41

. . . . .
ttgaatgtgttatgtggctccattattagcttttgttttgtccttcataaaccaggaaa
. . . . .
cacctaactttatagaagctttactttcttcaattaagtgagaacgaaaaatccaactcc
. . . . .
atttcattctttctcagagagtatatagttatcaaaagttggttgtaatcatagttcctg
. . . . .
gtaaagttttgacatatattatcttttttttttttttgagacaaagtctcgctctgtcg
. . . . .
cccaggtctggagtgcagtggcatgatcttggtcactgcaacctccgcccccg
```

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

```
. . . . .
tatgaatatatcattaaatatgccatattaactttttattaagttttatgtgatcataaca

. . . . .
gtaagccatatgcatgtaagttcagttttcatagatcattgcttatgtagtttaggtttt

. . . . .
tgcttatgcagcatccaaaaacaattaggaaactattgcttgtaattcacctgccattac

. . . . .
tttttaaattggctcttaagggcagttgtgagattatcttttcattggctatttgccttttg

. . . . .
agtattctttctacaaaaggaagtaaattaaattggtctttctttctttataatttatag

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

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

. . . . .
taggaaaaagtagaaattatttaataacatagcgttcctataaaaccattcatcagaaaa

. . . . .
atttataaaagagttttttagcacacagtaaattatttccaaagttattttcctgaaagtt

. . . . .
ttatgggacatctgccttatacaggtattagaaacttactgcctttctctaattgcttcta

. . . . .
gtgtaaaaacttgcagacttatgtaaagtagggctgtatcgccgtgccccattgtctgt

. . . . .
taatcttggtttttatatt
```

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

.
aaattaaacaaaaaaaaaagtactctagttttctatgcaatgcattatatctgctgtgga

.
tttagggcagattatatcagataaatttttaggcatttggtaggcttaaatgaatgacaaa

.
aagttactaaatcactgccatcacacggtttatacagatgtcaatgatgtattgattata

.
gaggttttctactgttgctgcatcttatttttatttgtttacatgtcttttcttatttta

.
gtgtccttaaaagggttgataatcacttgctgagtggtgttttctcaaacaatttaatttcag

|221	|231	|241	|251	|261	|271																
GAGCCTACAAGAAAGTACGAGATTTAGTCAACTTGTTGAAGAGCTATTGAAAATCATTTG																					
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									
TGCTTTTCAGCTTGACACAGGTTTGGAGTgtaagtggtgaatatcccaagaatgacactc																		
A	F	Q	L	D	T	G	L	E	Y									
										|101								

.
aagtgctgtccatgaaaactcaggaagtttgcaaatctactttctatgacgtggtgataa

.
gaccttttagtctaggttaatttttagttctgtatctgtaatctatttttaaaaaattact

.
cccactggtctcacaccttattttatcaatcgtaagggtgcacatttttcacatcttaaca

.
tctctgaaattgggaacattttactattgaggggtgtgtcatttgtttaatttggtgctt

.
tctttcttagtgatacagaaaataatagt

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

```
. . . . .
tacattggttggtgtccttagcttttagtgaaatacagtattgataggcaaatttcttagtgt

. . . . .
taaggtagaaaacaaggactctaaataactttgatggctctgtgtatttgttttgtttcc

. . . . .
taggagtaaaatttccagttgattttttaaaatttgatttttaaaaaaatcacaggtaa

. . . . .
ccttaatgcattgtcttaacacaacaaagagcatacatagggtttctcttggtttctttg

. . . . .
attataattcatacatTTTTCTCTAACTGCAAACATAATGTTTTCCCTTGATTTTACAG

      |311      |321      |331      |341      |351      |361
ATGCAACAGCTATAATTTGCAAAAAAGGAAAAATAACTCTCCTGAACATCTAAAAGATG
  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 . . . . .
AACCCGAAAAATCCTTCCTTGgtaaaaccatttgttttcttcttcttcttcttcttctt
  P  E  N  P  S  L

. . . . .
cttttttttttcttttttttttttgagatggagctctgctctgtggccaggctagaagc

. . . . .
agtcctcctgccttagcccccttagtagctgggattacaggcacgcgccaccatgccagg

. . . . .
ctaatttttgatatttttagtagagacggggttcatcatgttgccaggctggtctcgaa

. . . . .
ctcctaacctcaggtgatccaccacctcggctcccaaattgctgggattacaggtgtg

. . . . .
agccactgtgcccggccggt
```

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

```
. . . . .
actactactattattttgtagagactgggtctcactctgttgcttatgctgggtcttgaac

. . . . .
tcctggcctcaagcagtcctgctccagcctcccaaagtgctgggattatagggcatgagct

. . . . .
accgctcccagccccagacattttagtggtgtaaattcctgggcattttttccaggcatca

. . . . .
tacatgtagctgactgatgatggcaatttattttgtccatgggtgtcaagtttctcttc

. . . . .
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      .      .
AAGCAGCGGATACAACCTCAAAAGACGTCTGTCTACATTGAATTGGGtaagggcttcagg
K  Q  R  I  Q  P  Q  K  T  S  V  Y  I  E  L  G
          |171                        |181

. . . . .
ttttttaagttatttaataataattgctggattccttatcttatagttttgccccaaatct

. . . . .
tggtcataatttgattttgtggtaggcagctttgggaagtgaattttatgagccctatgg

. . . . .
tgagttataaaaaatgtaaaagacgcagttcccaccttgaagaatcttactttaaaaagg

. . . . .
gagcaaaagaggccaggcatgggtggctcacacctgtaatcccagcactttgggaggccaa

. . . . .
agtgggtggatcacctgaggtcgggagttcgagaccagcctagcca
```


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

```
. . . . .
tagaaacgggggtctcactttgttggccaggctggctcttgaactcctaacctcaaataat

. . . . .
ccacccatctcggcctcctcaagtgtctgggattacagggtgagagccactgtgcctggcga

. . . . .
agcccatgcctttaaccacttctctgtattacatactagcttaactagcattgtacctgc

. . . . .
cacagtagatgctcagtaaataatttctagttgaatatctgtttttcaacaagtacatttt

. . . . .
ttaaacccttttaattaagaaaacttttattgatttattttttgggggaaatttttag

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

. . . . .
acctttgtctatgaagctggtattttcctatttagttaatattaaggattgatgtttctc

. . . . .
tctttttaaaaaatattttaacttttatttttaggttcagggatgtatgtgcagtttgttat

. . . . .
ataggtaaacacacgacttgggatttgggtgtatagattttttcatcatccgggtactaa

. . . . .
gcataccccacagttttttgtttgctttctttctgaatttctccctcttcccaccttcct

. . . . .
ccctcaagtaggctggtgtttctccagactagaatcatgggtattgg
```

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

.
gtatttttagtagagatggggtttcaccatggtggccaggctggtcttgaactcatgacc

.
tcaagtggccacccgcctcagcctcccaaagtgctggaattacaggcttgagccaccgt

.
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
GGATTCTGCAAAAAAGGgtaatggcaaagtttgccaacttaacaggcactgaaaagagag
D S A K K A
 |221

.
tgggtagatacagtactgtaattagattattctgaagaccatttgggacctttacaaccc

.
acaaaatctcttggcagagttagagtatcattctctgtcaaatgtcgtggtatggtctga

.
tagatttaaattggtactagactaatgtacctataataagaccttctgtaactgattgttg

.
ccctttcgttttttttttgtttgtttgtttgttttttttgagatggggtctcactctg

.
ttgccaggtggagtg

Exon 10 | Start: 123124 | End: 126549 | Length: 3425

```
. . . . .
agttttctgatggccaatctgcttttaattcactccttagacgtttagagaaataggtgtgg

. . . . .
tttctgcatagggaaaattctgaaattaaatttaattggtatcctaagtggaaataatct

. . . . .
aggtaaataggaattaaatgaaagagtatgagctacatcttcagtatacttggtagttta

. . . . .
tgaggttagtttctctaatatagccagttggttgatttccacctccaaggtgtatgaagt

. . . . .
atgtatTTTTTaatgacaattcagtttttgagtaccttggtatttttgtatatTTTcag

|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
ATGATTTGAAACACCACTGAGAAGCGTGCAGCTGAGAGGCATCCAGAAAAGTATCAGGGTA
  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
TCTGTAATAAAAAGCAAACAGCCTGGCTTAGCAAGGAGCCAACATAACAGATGGGCTGGAA
  C  N  K  S  K  Q  P  G  L  A  R  S  Q  H  N  R  W  A  G  S
                        |311                        |321
```

|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
 CTGATCCCCTGTGTGAGAGAAAAAGAATGGAATAAGCAGAAACTGCCATGCTCAGAGAATC
 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
 CTAGAGATACTGAAGATGTTCTTGATAACACTAAATAGCAGCATTGAGAAAGTTAATG
 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
 AGTGGTTTTCCAGAAGTGATGAACTGTTAGGTTCTGATGACTCACATGATGGGGAGTCTG
 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
 GTTCTTCAGAGAAAAATAGACTTACTGGCCAGTGATCCTCATGAGGCTTTAATATGTAAAA
 S S E K I D L 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
 CCTATCGGAAGAAGGCAAGCTCCCCAACTTAAGCCATGTAAGTAAAAATCTAATTATAG
 Y R K K A S L P N L S H V T E N L I I G
 |471 |481

|1451 |1461 |1471 |1481 |1491 |1501
 GAGCATTTGTTACTGAGCCACAGATAATACAAGAGCGTCCCCTCACAAATAAATTAAAGC
 A F V T E P Q I I Q E R P L T N K L K R
 |491 |501

|2051	|2061	|2071	|2081	|2091	|2101																
CAAATGAACAGACAAGTAAAAGACATGACAGCGATACTTTCCAGAGCTGAAGTTAACAA																					
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																
ATGCACCTGGTTCTTTTACTAAGTGTTCAAATACCAGTGAACCTTAAAGAATTTGTCAATC																					
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																
CTGAAGACCCCAAAGATCTCATGTTAAGTGGAGAAAGGGTTTTGCAAACCTGAAAGATCTG																					
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																
TAGAGAGTAGCAGTATTTTCATTGGTACCTGGTACTGATTATGGCACTCAGGAAAAGTATCT																					
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																
CGTTACTGGAAGTTAGCACTCTAGGGAAGGCAAAAACAGAACCAAATAAATGTGTGAGTC																					
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																
GCATAGAAATGGAAGAAAGTGAACCTTGATGCTCAGTATTTGCAGAATACATTCAAGGTTT																					
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
 ATATCACTGCAGGCTTTCCTGTGGTTGGTCAGAAAAGATAAGCCAGTTGATAATGCCAAAT
 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
 TTCCCATCAAGTCATTTGTTAAAACTAAATGTAAGAAAAATCTGCTAGAGGAAAACCTTG
 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
 AGGAACATTCAATGTCACCTGAAAGAGAAAATGGGAAATGAGAACATTCCAAGTACAGTGA
 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

.
gctaggacgtcatctttgactgaatgagctttaacatcctaattactggaggacttactt
.
ctggtttcattttataaaaagcaaaccaggtgtcccaaagcaaggaatttaatcattttg
. .
tgtgac

Exon 11 | Start: 126952 | End: 127040 | Length: 88

```
. . . . .
aaaggaactgcttcttaaacttgaaacatgttcctcctaaggtgcttttcatagaaaaa

. . . . .
gtccttcacacagctaggacgtcatctttgactgaatgagctttaacatcctaattactg

. . . . .
gtggacttacttctggtttcattttataaaaagcaaataccagggtgtcccaaagcaaggaat

. . . . .
ttaatcattttgtgtgacatgaaagtaaataccagtcctgccaatgagaagaaaaagacac

. . . . .
agcaagttgcagcgtttatagctgcttttacatctgaacctctgtttttgttatttaag

      |4101      |4111      |4121      |4131      |4141      |4151
GTGAAGCAGCATCTGGGTGTGAGAGTGAAACAAGCGTCTCTGAAGACTGCTCAGGGCTAT
  E  A  A  S  G  C  E  S  E  T  S  V  S  E  D  C  S  G  L  S
                |1371                                |1381

      |4161      |4171      |4181      . . . . .
CCTCTCAGAGTGACATTTTAACCACTCAGgtaaaaagcgtgtgtgtgtgtgcacatgcgt
  S  Q  S  D  I  L  T  T  Q
                |1391

. . . . .
gtgtgtggtgtcctttgcattcagtagtatgtatcccacattcttaggtttgctgacatc

. . . . .
atctctttgaattaatggcacaattgtttgtggttcattgtctccttaaattagactgta

. . . . .
agcaccttgatggaactcatactaccttttatttcacacacacgcacacgcgcacacaca

. . . . .
gcctacacatacactgcctagctcattgtagcataactaaatactgattttaatgaataag

. . . . .
ctaaaccttcgaaacccatttgctaatacc
```

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

```
. . . . .
tattttttcactccctagctttaaaagaaaataaccaacttcaaaaggacatcacaataa

. . . . .
catcaagtctatttgggggaatttgaggatttttccctcactaacatcatttggaaata

. . . . .
atttcatgggcattaattgcatgaatgtggttagattaaaagggtgttcagctagaacttg

. . . . .
tagttccatactagggtgatttcaattcctgtgctaaaattaatttgtatgatatatatttc

. . . . .
atttaatggaaagcttctcaaagtatttcattttcttggtgccatttatcgtttttgaag

      |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

. . . . .
tgttggccaaacactgatatcttaagcaaaattctttccttcccctttatctccttctga

. . . . .
agagtaaggacctagctccaacattttatgatccttgctcagcacatgggtaattatgga

. . . . .
gccttggttcttgtccctgctcacaactaatataaccagtcagagggaccaaggcagtc

. . . . .
ttcatgttgtcatctgagtacctacaacaagtagatgctatggggagcccatggaagata

. . . . .
catggtataacaacatagctcttgctctattggaagctaagtggaatgggaga
```

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

```
. . . . .
tcagggccaaggaatatagatttttttttcagccttgtctcagctgggtgtctttattt

. . . . .
actctgtcttaaagtgttccttttattatcattattattttttaatcattgaattccatt

. . . . .
tggtgctagcatctgtctgttgcatctgtgtgtttataaaaattctgcctgatatacttg

. . . . .
tttaaaaaccaatttgtgtatcatagattgatgcttttgaaaaaatcagtattctaacc

. . . . .
tgaattatcactatcagaacaaagcagtaaagtagatttgttttctcattccatttaaag

      |4361      |4371      |4381      |4391      |4401      |4411
CAGTATTAACCTCACAGAAAAGTAGTGAATACCCTATAAGCCAGAATCCAGAAGGCCTTT
  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

. . . . .
atacactttttattgctctaggatacttcttttgtttaatcctatataggttttttgaacc

. . . . .
tataacataagctacaacatgagaaatgtgcggttagatagatatgtcccttctgaaggt

. . . . .
cagaaaaaaatataatggaggtaaaccctgaacaagcttgaaaactgatggtagacttct

. . .
tcaaggc
```

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

```
. . . . .
agcctcccgagtagctgagattacagggcgccagccaccacacccagctactgacctgctt

. . . . .
ttaaacagctgggagatatggtgcctcagaccaaccaaccccatggttatatgtcaaccc

. . . . .
tgacatattggcaggcaacatgaatccagacttctaggctgtcttgcgggctcttttttg

. . . . .
ccagtcatttctgatctctctgacatgagctgtttcatttatgctttggctgccagcaa

. . . . .
gtatgatttgtcctttcacaattggtggcgatggttttctccttccatttatctttctag

      |4491      |4501      |4511      |4521      |4531      |4541
GTCATCCCCTTCTAAATGCCCATCATTAGATGATAGGTGGTACATGCACAGTTGCTCTGG
  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
GAGTCTTCAGAATAGAACTACCCATCTCAAGAGGAGCTCATTAAAGTTGTTGATGTGGA
  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
GGAGCAACAGCTGGAAGAGTCTGGGCCACACGATTTGACGGAAACATCTTACTTGCCAAG
  E  Q  Q  L  E  E  S  G  P  H  D  L  T  E  T  S  Y  L  P  R
                |1541                                |1551

      |4671
GCAAGATCTAGgtaatatattcatctgctgtattggaacaaacactttgattttactctga
  Q  D  L  E

. . . . .
atcctacataaagatattctggttaaccaacttttagatgtactagtctatcatggacac

. . . . .
ttttgttatacttaattaagcccactttagaaaaatagctcaagtgttaatcaagggttta

. . . . .
cttgaaaattattgaaactgttaatccatctatattttaattaatggtttaactaatgat
```

.
tttgaggatgagggagtcttggtgtactctaaatgtattatttcaggccaggcatagtgg

. . .
ctcacgcctgt

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

.
tctaaaattatactattcctatgactaaacctttgcatatatcttttatctccctaggat
.
atatttctaaaactagcattggtgactgaaagtgtaaatacgtgttaagggtgtttgctac
.
ataatgccatatttccttttttaggaaactaagctacttttgatttccaccaacactgtat
.
tcatgtacccatttttctcttaaccttaattgttctttttaattcttaacagagac
.
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
CATTGAAAGTTCCCAATTGAAAGTTGCAGAATCTGCCCAGAGTCCAGCTGCTGCTCATA
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      .      .      .      .      .      .      .      .
CAGAAGAATTTgtgagtgatccatatgtatctccctaataagacttaacaacatt
      E      E      F
      |1661

.      .      .      .      .      .      .      .      .      .
ctggaaagagttttatgtaggtattgtcaattaataacctagaggaagaaatctagaaaa

.      .      .      .      .      .      .      .      .      .
caatcacagttctgtgtaatttaatttcgattactaatttctgaaaatttagatctagat

.      .      .      .      .      .      .      .      .      .
aaagctatagtggtgattattttatgtatatttacttgagaaaataattattaaatatta

.      .      .      .      .      .      .      .      .      .
gtggaaaagctatactttgggtatgatataggactttcgaattggaattttcctttctat

.      .      .
ctgtaaaagca

```

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

```
. . . . .
gagacttcaggtgtcttagaattttttaaatgtaccctttctgagaaaaacagagactta

. . . . .
aagctaggataactggtattctatttttttttttttttttttttttacctccagcctgggt

. . . . .
gacagagcaagactctgtctaaaaaaaaaaaaaaaaaattcactttaaatagttccagg

. . . . .
acacgtgtagaacgtgcaggattgctacataggtaaacatatgccatggtggaataacta

. . . . .
gtattctgagctgtgtgctagaggtaactcatgataatggaatatttgatttaatttcag

      |4991      |5001      |5011      |5021      |5031      |5041
ATGCTCGTGTACAAGTTTGCCAGAAAACACCACATCACTTTAACTAATCTAATTACTGAA
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

. . . . .
tctgctgcataaaaccacatgaggcgaggcacggtggcgcatgcctgtaatcgagcact

. . . . .
ttgggaggccgaggcgggcagatcacgagattaggagatcgagaccatcctggccagcat

. . . . .
ggtgaaaccccgctcttactaaaaataaaaaaattagctgggtgtggtcgcgtgcgct

. . . . .
gtagtcccagctactcgtgaggctgaggcaggagaatcacttgaaccggggagatggagg

. . . . .
ttgcagtgagccgagatcatgccactgc
```

Exon 17 | Start: 154033 | End: 154110 | Length: 77

.
tataatggagatctatagctagccttggcgtctagaagatgggtggtgagaagagggagt

.
ggacagataatttcctctggtcttaacttcatatcagcctcccctagacttccaaatatcc

.
atacctgctggttataaattagtggtgttttcagcctctgattctgtcaccaggggtttta

.
gaatcataaatccagattgatcttgggagtgtaaaaaactgaggctctttagcttcttag

.
gacagcacttcctgattttgttttcaacttctaatacctttgagtgtttttcattctgcag

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

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

.
agaattgcattttttacacctaacgtttaacacctaagggttttttgctgatgctgagtctga

.
gttaccaaaaggctctttaattgtaataactaaactacttttatctttaatatcactttgtt

.
cagataagctggtgatgctgggaaaatgggtctcttttataactaataggacctaatactg

.
ctcctagcaatgtagcatatgagctagggatttatttaatagtcggcaggaatccatgt

.
gcagcaggcaaacttata

Exon 18 | Start: 154611 | End: 154651 | Length: 40

```
. . . . .
ataactaataggacctaatactgctcctagcaatgttagcatatgagctagggatttattt
. . . . .
aatagtcggcaggaatccatgtgcagcaggcaaacttataatgtttaaattaaacatcaa
. . . . .
ctctgtctccagaaggaaactgctgctacaagccttattaaagggctgtggcttttagagg
. . . . .
gaaggacctctcctctgtcattcttcctgtgctcttttgtgaatcgctgacctctctatc
. . . . .
tccgtgaaaagagcacgttcttctgctgtatgtaacctgtcttttctatgatctctttag
      |5161      |5171      |5181      |5191      . . . .
GGGTGACCCAGTCTATTAAAGAAAGAAAAATGCTGAATGAGgtaagtacttgatgttaca
  V  T  Q  S  I  K  E  R  K  M  L  N  E
      |1721                        |1731
. . . . .
aactaaccagagatattcattcagtcatatagttaaaaatgtatttgcttccttccatca
. . . . .
atgcaccactttccttaacaatgcacaaattttccatgataatgaggatcatcaagaatt
. . . . .
atgcaggcctgcactgtggctcatacctataatcccagcgctttgggaggctgaggcgct
. . . . .
tggatcacctgatgtcgggagttcaagaccagcctgaccaacatggagaaaccccgtttc
. . . . .
tactaaaaatacaaaaattagccgggcttgggtggcacttgcc
```

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

```
. . . . .
gcattcaaaaagattctcctgcctcagcctcccaagtagctgggattacaggtgcctgcc
. . . . .
ccacgcccaactaatttttgtatttttagtagagatgaggtttcaccatgttggtcaga
. . . . .
ctggtgtcgaactcctgacctcaagtgatctgcctgcctcagtctcccaaagtgctagga
. . . . .
ttacaggggtgagccactgcgcctggcctgaatgccttaaatatgacgtgtctgtccac
. . . . .
ttccattgaaggaagcttctctttctcttatcctgatgggttggtttggtttcttcag
      |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      . . . . .
GCAAGAGAATCCCAGGACAGAAAAGttaaagctccctccctcaagttgacaaaaatctcac
A R E S Q D R K

. . . . .
cccaccactctgtattccactcccctttgcagagatgggccgcttcattttgtaagactt
. . . . .
attacatacatcacagtgctagatactttcacacagggttcttttttctactcttccatcc
. . . . .
caaccacataaataagtattgtctctactttatgaatgataaaactaagagatttagaga
. . . . .
ggctgtgtaatttgattcccgtctcgggttcagatcttagctgataagtggaagagctg
. . . . .
ggactttaagcagatgagaatcta
```

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

```
. . . . .
cttggcctgattggtgacaaaagtgagatgctcagtccttgaatgacaaagaatgcctgt
. . . . .
agagtgcaggtcaactacatatgcacttcaagaagatcttctgaaatccagtagtggtct
. . . . .
ggacattggactgcttgtccctgggaagtagcagcagaaatcatcaggtggtgaacagaa
. . . . .
gaaaaagaaaagctcttcctttttgaaagtctgttttttgaataaaagccaatattcttt
. . . . .
tataactagattttccttctctccattcccctgtccctctctcttcctctcttcttccag
      |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

. . . . .
agcctgggagaaccccagagttccagcaccagcctttgtcttacatagtgaggtattata
. . . . .
agcaagatcccacgatgggggttcctcagattgctgaaatgttctagaggctattctatt
. . . . .
tctctaccactctccaaacaaaacagcacctaaatgttatcctatggcaaaaaaaaaacta
. . . . .
taccttgtcccccttctcaagagcatgaagggtggttaatagttaggattcagtatgttat
. . . . .
gtgttcagatggcgttgagctgctgttagtgccaacatgttagtgagaaaaatc
```

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

.
attaatggaaattagatctttgattttttttttctttcaagcattttatttgagagactat
.
caaaccttataccaagtggccttatggagactgataaccagagtacatggcatatcagtg
.
gcaaattgacttaaaatccatacccctactattttaagaccattgtcctttggagcagag
.
agacagactctcccattgagaggtcttgctataagccttcacccggagagtgtagggtag
.
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
TCACCCCTTGGCACAgtaagtattgggtgccctgtcagagagggaggacacaatattctct
T L G T
|1801

.
cctgtgagcaagactggcacctgtcagtcctatgggatgccctactgtagcctcagaag
.
tcttctctgcccacatacctgtgccaaaagactccatctgtaagggatgggtaaggattt
.
gagaactgcacatattaaatatactgaggggaagactttttccctctaactctttttccca
.
tatgtccctccccctcctctctgtgactgccccagcatactgtgtttcaacaaatcatca
. . .
agaaatgatgggct

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

```
. . . . .
ccaggagtttgagaccagcctgggcaacatggcaaaaccctgtctctaccaaaaatacaa
. . . . .
aaaaattagccaggggtggtggtacgtgtctgtagttccagctacttaggaggctgagat
. . . . .
ggaaggattgcttgagcccaggaggcagaggtggcagtgagctgagatcacaccactgca
. . . . .
ctccagcctgggtgacagagcaagaccctgtctcaaaaacaaacaaaaaaaaatgatgaag
. . . . .
tgacagttccagtagtcctactttgacactttgaatgctctttccttcctggggatccag
      |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

. . . . .
Ggtaagggtgcctgcatgtacctgtgctatatggggtccttttgcatgggtttggtttatc
A
. . . . .
actcattacctgggtgcttgagtagcacagttcctggcacattttaaatatttggtgaatg
. . . . .
aatggctaaaatgtctttttgatgtttttattgttatttgttttatattgtaaaagtaat
. . . . .
acatgaactgtttccatggggtgggagtaagatatgaatgttcatcacaaaaacataaat
. . . . .
caaggccgggcatggtggctcatgcctataattccagcactttgggagggtcaagatggag
.
g
```


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

```
. . . . .
taaaaaatacaaaaattagctgggtgtgatggcatgtgcctgtaattccagctactcagga

. . . . .
ggcagagacaggagaattgcttgaacccaggaggcgagggtgaatgagccgagattgcg

. . . . .
ccatcacactctagcctcggcgacagagcaagactccgtctcaaaaaaaaaaaaaaaaaa

. . . . .
ttagcttctacctcattaatcctaagaactcatacaaccaggaccctggagtcgattgat

. . . . .
tagagcctagtcaggagaatgaattgacactaatctctgcttgtgttctctgtctccag

|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
TTTTCTGCTTGAAGTCTCCCTTGGAATCTGCCATGAGCACAAAATTATGGTAATTTTTC

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

|*301	|*311	|*321	|*331	|*341	|*351
TTTATCAGCCCTATTCTTTCTATTTCAGGCTGTTGTTGGCTTAGGGCTGGAAGCACAGAGT					
|*361	|*371	|*381	|*391	|*401	|*411
GGCTTGGCCTCAAGAGAATAGCTGGTTTCCCTAAGTTTACTTCTCTAAAACCCTGTGTTC					
|*421	|*431	|*441	|*451	|*461	|*471
ACAAAGGCAGAGAGTCAGACCCTTCAATGGAAGGAGAGTGCTTGGGATCGATTATGTGAC					
|*481	|*491	|*501	|*511	|*521	|*531
TTAAAGTCAGAATAGTCCTTGGGCAGTTCTCAAATGTTGGAGTGGAACATTGGGGAGGAA					
|*541	|*551	|*561	|*571	|*581	|*591
ATTCTGAGGCAGGTATTAGAAATGAAAAGGAACTTGAAACCTGGGCATGGTGGCTCAGC					
|*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
GACAGTGAGACTGTGGCTCAAAAAAAAAAAAAAAAAAAGGAAAATGAAACTAGAAGAGAT					
|*901	|*911	|*921	|*931	|*941	|*951
TTCTAAAAGTCTGAGATATATTTGCTAGATTTCTAAAGAATGTGTTCTAAAACAGCAGAA					
|*961	|*971	|*981	|*991	|*1001	|*1011
GATTTTCAAGAACCGTTTCCAAAGACAGTCTTCTAATTCCTCATTAGTAATAAGTAAAA					
|*1021	|*1031	|*1041	|*1051	|*1061	|*1071
TGTTTATTGTTGTAGCTCTGGTATATAATCCATTCTTCTTAAAAATATAAGACCTCTGGCA					
|*1081	|*1091	|*1101	|*1111	|*1121	|*1131
TGAATATTTTCATATCTATAAAATGACAGATCCCACCAGGAAGGAAGCTGTTGCTTTCTTT					
|*1141	|*1151	|*1161	|*1171	|*1181	|*1191
GAGGTGATTTTTTTTCCCTTTGCTCCCTGTTGCTGAAACCATACAGCTTCATAAATAATTTT					

|*1201	|*1211	|*1221	|*1231	|*1241	|*1251
GCTTGCTGAAGGAAGAAAAAGTGTTCATTAACCCATTATCCAGGACTGTTTATAGCT					
|*1261	|*1271	|*1281	|*1291	|*1301	|*1311
GTTGGAAGGACTAGGTCTTCCCTAGCCCCCAGTGTGCAAGGGCAGTGAAGACTTGATT					
|*1321	|*1331	|*1341	|*1351	|*1361	|*1371
GTACAAAATACGTTTTGTAAATGTTGTGCTGTAACTGCAAATAAACTTGGTAGCAAA					
|*1381	.	.	.	.	.
CACTTCCAccatgaatgactgttcttgagacttaggccagccgactttctcagagccttt					
.
tcactgtgcttcagctctccactctgtaaaatgggggtaatgatagtatctacctcctag					
.
gatttattgaggcagcttaaataccttttgatttcctgttgctgcaaaacaaattggt					
.
gcaaggtcagaagtctgaggtggctcaactgtttctttgtttcaggtttcatgaggccaa					
.
aataaaggtgttcgcagggcgtgttcccttctagaggctctgggtccttgacgttctagg					
.	.				
actaagat					

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Control: Version: 1, Version Date: 11/02/2015