

Gene: EGFR - Sequence: NG_007726.3
Date : January 11, 2015

Exon 1 | Start: 1 | End: 334 | Length: 333

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. . . . .
ggaccgggtccagaggggcagtgtgggaacgcccctctcggaattaactcctcagggc
. . . . .
acccgctccccctcccatgcgccgccccactcccgccggagactaggtcccgggggcca
. . . . .
cogctgtccaccgcctccggcgccgctggccttgggtccccgctgctggttctcctccc
. . . . .
tcctcctcgcatctcctcctcctctgctcctcccgatccctcctccgcccctggtccc
. . . . .
tcctcctcccgccctgcctccccgcctcggcccgcgcgagctagacgtccgggcagcc
      |-239      |-229      |-219      |-209      |-199      |-189
CCCCGGCGCAGCGCGCGCGCAGCAGCCTCCGCCCCCGCACGGTGTGAGCGCCCGACGCG
      |-179      |-169      |-159      |-149      |-139      |-129
GCCGAGGCGCGCGGAGTCCCGAGCTAGCCCCGCGGCGCGCGCGCCGAGACCGGACGAC
      |-119      |-109      |-99       |-89       |-79       |-69
AGGCCACCTCGTCGGCGTCCGCCCCGAGTCCCCGCCTCGCCGCCAACGCCACAACCACCGC
      |-59       |-49       |-39       |-29       |-19       |-9
GCACGGCCCCCTGACTCCGTCCAGTATTGATCGGGAGAGCCGGAGCGAGCTCTTCGGGGA
      |1         |11        |21        |31        |41        |51
GCAGCGATGCGACCCTCCGGGACGGCCGGGCAGCGCTCCTGGCGCTGCTGGCTGCGCTC
      M R P S G T A G A A L L A L L A A L
      |1         |11
      |61        |71        |81        . . . . .
TGCCCGCGGAGTCGGGCTCTGGAGGAAAAGAAAGgtaaggcggtgtctcgccggctcccg
C P A S R A L E E K K V
      |21
. . . . .

```

cgccgccccggatcgcgccccggaccccgagcccgcccaaccgcgacccggcgaccg

.

gctcggcgcccgccccgcccgtcctttcctgtttccttgagatcagctgcgccg

.

accgggaccgcgaggaggaacgggacgtttcgttcttcggccgggagagtctggggcgggc

.

ggaggagagacgcgtgggacacccgggctgcaggccaggcggggaacggcccgccgggacc

.

tccggcgccccgaaccgctcccaactttcttccc

Exon 2 | Start: 335 | End: 486 | Length: 151

.

ttcaatgcattataggacaagctatctcttattatgaattgcaccttatataaacttaa

.

agatcttttatcacaatttctttgctgtgtccttagtgagaatttgattatcagtca

.

ctaaagctcactaagttagtaagctttgcgccagatgacctgggcaggaatgggtgagt

.

ctctgtgtggagagagtgaagaaactgctacccttaataacctggaccttgagggattgtt

.

ttatttttagttttctgcatttctcagtatttcatgtgatctgtctttttcttccagt

|91	|101	|111	|121	|131	|141
TTTGCCAAGGCACGAGTAACAAGCTCACGCAGTTGGGCACTTTTGAAGATCATTCTCA					
C Q G T S N K L T Q L G T F E D H F L S					
|31			|41		
|151	|161	|171	|181	|191	|201
GCCTCCAGAGGATGTTCAATAACTGTGAGGTGGTCCTTGGGAATTTGGAAATTACCTATG					
L Q R M F N N C E V V L G N L E I T Y V					
|51			|61		
|211	|221	|231	.	.	.

TGCAGAGGAATTATGATCTTTCCTTCTTAAAGgttggtgactttgattttcctacacaaa
 Q R N Y D L S F L K
 |71

.
 taaaattggagaaaatctaagtggagaaaggcctgggcagaattccacttgaagtgtgtt

 tatttttgctatggcaatgacaagtcttacagagctacaaacgagagttttatgagaaag

 ccattttaccagctaattgtcaagtaataactagaaaaggatatcaaatagaaacaggcta

 atctggagttccatgtcatcatagacactgacgtttatccctgaccattacctcagtcac

 gatgtgctgccatactcgctcttaaaaacttt

Exon 3 | Start: 487 | End: 670 | Length: 183

.
 atttccattttcactggagagtggtgaaccccgtaggcatgagagcacagtggtccaga

 acaatgcttactgctcattatcacaggggtcaaaggctaacgtgcagggattgttgcaga

 tcgtggacatgctgcctcctgtgtccatgactgcaatcgtctacctattttacagttgtt

 gagcactcgtgtgcattagggttcaactgggcgtcctagggtccctggacccatttttag

 accttgagttccttgagttcctcaaaagagaaatcacgcatttatgttttctcttcttaga

|241	|251	|261	|271	|281	|291
ACCATCCAGGAGGTGGCTGGTTATGTCCTCATTGCCCTCAACACAGTGGAGCGAATTCCT					
T I Q E V A G Y V L I A L N T V E R I P					
|81			|91		
|301	|311	|321	|331	|341	|351

TTGAAAACTGCAGATCATCAGAGGAAATATGTACTACGAAAATTCCTATGCCTTAGCA
 L E N L Q I I R G N M Y Y E N S Y A L A
 |101 |111

 |361 |371 |381 |391 |401 |411
 GTCTTATCTAACTATGATGCAAATAAAACCGGACTGAAGGAGCTGCCCATGAGAAATTA
 V L S N Y D A N K T G L K E L P M R N L
 |121 |131

 |421
 CAGGgtgagaggctgggatgccaggctgggggttcataaatgcagacagcagttccgat
 Q E
 |141

 ggctcccagcgagcttgtcactcaattccacctcggagaaggcttttattttaccagt

 acacgtgcactgagtgccggctgtgtgtaagatactgcaggggaagttactgagaagatg

 gcagatactggaatgggaagatttaagcggggtaccagtgtttacatggacatgaaaaa

 tactgagagatagtaagaaatcgtaaagattctgagtaaaagagagtatgaccaacaag

 .
 ctga

Exon 4 | Start: 671 | End: 805 | Length: 134

.
 catgcataatcatttatgctgtgaccactgactaaaccattctcttccttcctcccatat

 ttctaaatttctaatacttgctcaaagcccaattcagagaaaaccctagctcctccatgg

 caccatcattaacaattttatctggccgcccccggaagttcactgggctaattgcggg

 actcttgttcgcacatggcatctcttagcagaacataaatgcaagagcacatgcatc

```

. . . . .
cttcatgggaatttaaaggagctggaaagagtgctcaccgcagttccattctcccgaga

      |431      |441      |451      |461      |471      |481
AAATCCTGCATGGCGCCGTGCGGTTGAGCAACAACCTGCCCTGTGCAACGTGGAGAGCA
  I  L  H  G  A  V  R  F  S  N  N  P  A  L  C  N  V  E  S  I
                        |151                                |161

      |491      |501      |511      |521      |531      |541
TCCAGTGGCGGGACATAGTCAGCAGTGACTTTCTCAGCAACATGTCGATGGACTTCCAGA
  Q  W  R  D  I  V  S  S  D  F  L  S  N  M  S  M  D  F  Q  N
                        |171                                |181

      |551
ACCACCTGGGCAGCTgtaagtgtcgcatcacactatctctgcctccagctcctatgggg
  H  L  G  S  C

. . . . .
gacagctctacagcactggggcaggggagagaagccatgtttagtaagtcacattaatca

. . . . .
gaaacaaaaagtagtaagcaaaatatctgaccactagaaaagcatgtatttaccacggac

. . . . .
atagagatcggttttttgtggcgggtggcagcccagctggttggcagtgaggccaccgg

. . . . .
aggcagatcccctgcagggacagcagagcacttgtgtcctgagaagagctgctgttcatg

. . . . .
gggctggcagcacca

```

Exon 5 | Start: 806 | End: 874 | Length: 68

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. . . . .
gcagattgtaacaaggaacctcaaattcatgaaaaattcttgcttatgtggcccatgtc

. . . . .
agtaattactctctgcctcagtttccgcagctgacatgtaataaaagcagttcatggtt

```

.
 catcttcttttcttatcgggtctcaagtgattctacaaaccagccagccaacaatcag

 agaataagttgaaaagattgtcttcatttattgaatgtgcttaactcaggcccggaag

 ggcgtcatcagtttctcatcatttcactgagatatgcatctattacttttacatttcagg

 |561 |571 |581 |591 |601 |611
 GCCAAAAGTGTGATCCAAGCTGTCCAATGGGAGCTGCTGGGGTGCAGGAGAGGAGAACT
 Q K C D P S C P N G S C W G A G E E N C
 |191 |201

 |621
 GCCAGAAACgtaagtcagtgaacagcctcagaccatgtgtgaccgcccctctcttcctt
 Q K L

 cacttgcttaggtgattggatttgttttccctctgaagactccaaagagttactttatta

 cagggtcagatgtgaaccagtaggtgaaggacagtcttgcaaattctaccgcatgcagtt

 aatccagggtgggctattttgggagcttcagcctatcacaataagtgaacatcagcagg

 ggctgggcgcggtggctcaccctataatccagcactttgggaggcggaggcggtcgga

 . .
 tcacgaggt

Exon 6 | Start: 875 | End: 993 | Length: 118

.
 agcaggtatTTTTgttcttTgtatgtgcttTctgcattgccaagatgcatctaattatt

 tagcaggtctcaaagtctagacttgatctcatgagttctcttaagtattaaaaataaat

.
 caggagaaaaagaggcaatcagaaaagggcatggtttgacttagtttgaatgtggtttc

 gttggaagcaaagtgtgtcttcactttttcatgaaaaagtctgcaagtgctctgcgacatc

 cctgggaaatgatcctaccctcactcttcagctcacagggaacctttgctctttttcagt
 |631 |641 |651 |661 |671 |681
 TGACCAAAATCATCTGTGCCCAGCAGTGCTCCGGGCGCTGCCGTGGCAAGTCCCCCAGTG
 T K I I C A Q Q C S G R C R G K S P S D
 |211 |221
 |691 |701 |711 |721 |731 |741
 ACTGCTGCCACAACCAGTGTGCTGCAGGCTGCACAGGCCCCGGGAGAGCGACTGCCTGg
 C C H N Q C A A G C T G P R E S D C L
 |231 |241

 taagatgccctccagcagcctccctggagcaggctggggctgcacccgccccaccaca

 ccaggacagaagacttcctgtgggggagctgtcaattagcatttgtcataacagacagga

 tattgccctctgcctgggtgacaaagtatcttttagtatcctgcctccaccactcactgaga

 ccttgggaaatgatgggactaccatgcctcatttccttacctgacaatgatgcataac

 aaagtctctcccagttgaatgcttaaatgatgagatgcctgtgatgtccgtcattagga

Exon 7 | Start: 994 | End: 1135 | Length: 141

.
 accgctataatgtgtgaactccatcatctatacgttagtaaacagacgtatttttatcat

 aatccataaattatgataggtgggacagtgccacctaagaaaaaatggacttttttagaga

.
 aggggtctttctgactctgcagagggcgccagctgggttttcccacactagtggaaacta

 ggctgcaaagacagtaacttgggctttctgacgggagtcaacaccgtgctgcgcttcctc

 cgtgtgtggcgctgagtggtacttacctcacttgcccagcgtgtcctctctcctccatagg
 |751 |761 |771 |781 |791 |801
 GTCTGCCGCAAATTCCGAGACGAAGCCACGTGCAAGGACACCTGCCCCCACTCATGCTC
 V C R K F R D E A T C K D T C P P L M L
 |251 |261
 |811 |821 |831 |841 |851 |861
 TACAACCCACACGTACCAGATGGATGTGAACCCGAGGGCAAATACAGCTTTGGTGCC
 Y N P T T Y Q M D V N P E G K Y S F G A
 |271 |281
 |871 |881
 ACCTGCGTGAAGAAGTGTCCCCgtgagtcctcctctgtgggccctctaactgggtcaggca
 T C V K K C P R
 |291

 tccttgtcccgcctctgtctcctgctgagccctggagtatcccatcttggagagtctttgg

 gtggatgtgtttgccttgcttggaggaggcgaccctgtgcccgtccaggcacacaggcga

 ggggaggggctggcttgctaccgaggagcgggcaggtggtggccatctccacccatgggg

 gctgctcagtgcacagggcagatctgggtggccaggccacctcacaggagaaacacctgc

 tgctcagccctcaccactcatc

Exon 8 | Start: 1136 | End: 1252 | Length: 116

.

ggtggaggagagggctgaggtgcctgctgggacgcaaaacagctggcccctcaagggacc

 cagtgtttcctgccatgatgaaacacctgtattgtccacattgcggcctagaatgttatt

 aaactcttgaacgggattccttctctatttgcaacctttcattctttgtccttaaagtaa

 ataaagccaaaggaggatggagcctttccatcacccctcaaggaggacctggaccgcctgt

 gtgaggcccgagcacctgggtgccaccgtcatcaccttcctttcatgctctcttcccagg
 |891 |901 |911 |921 |931 |941
 GTAATTATGTGGTGACAGATCACGGCTCGTGGCTCCGAGCCTGTGGGGCCGACAGCTATG
 N Y V V T D H G S C V R A C G A D S Y E
 |301 |311
 |951 |961 |971 |981 |991 |1001
 AGATGGAGGAAGACGGCGTCCGCAAGTGTAAGAAGTGCGAAGGGCCTTGCCGCAAAGgta
 M E E D G V R K C K K C E G P C R K V
 |321 |331

 ggaagcccgccggtgtgaggacgaggcttgttctcggctgctgaggctgggctctcatgc

 cacctccaaaggaacacatcttctcttctcattaaaaacaactatacatatcgtttct

 ttaaaacagaagataaagctgtaaagctaggtaggcaatgggaaggcactgaagggtgt

 gacgggggtggggggctctgatgagaacagtcacagagccagccccgctcagcagctgcca

 ggtgcccagccctggggagaatccagggaaggcagagctggaagcagtgagctcca

Exon 9 | Start: 1253 | End: 1379 | Length: 126

.

cagtgacagctccaagcggcccatgggaaataatgaggagaacgcaaggtcagtgtaggt
.
gacagggatggcatctcctacaccgccgtagccccaagtgtactataggtcctggtgtc
.
cccccttcccgctgcactctccccagccccttcagtgtttgttgagtgaatgaaggatg
.
atgtggcagtgggcgttccggtgaccggaattccttcctgcttcctctgcctgtggatc
.
cctagctattcttaatccaacaaatgtgaacggaatacacgtctctcttatctctgcagt

|1011 |1021 |1031 |1041 |1051 |1061
TGTAACGGAATAGGTATTGGTGAATTTAAAGACTCACTCTCCATAAATGCTACGAATA
C N G I G I G E F K D S L S I N A T N I
|341 |351

|1071 |1081 |1091 |1101 |1111 |1121
TTAAACACTTCAAAAACTGCACCTCCATCAGTGGCGATCTCCACATCCTGCCGGTGGCAT
K H F K N C T S I S G D L H I L P V A F
|361 |371

|1131
TTAGGGGgtgagtcacagggttcagttgcttgataaagaaaaacaaatctgccttttta
R G

.
actggtagagattggtgatcaataatcacctgttgtttgtttcagtgactccttcacac
.
atactcctcctctggatccacaggaactggatattctgaaaaccgtaaaggaaatcacag
.
gtttgagctgaattatcacatgaatataaatgggaaatcagtgttttagagagagaactt
.
ttcgacatatttcctgttccttggaaataaaaacatttcttctgaaattttaccgttaat
.
ggctgat

Exon 10 | Start: 1380 | End: 1453 | Length: 73

```
. . . . .
tctgcctgtggatccctagctattcttaatccaacaaatgtgaacggaatacacgtctct

. . . . .
cttatctctgcagtggtgaacggaatagggtattggtgaatttaaagactcactctccata

. . . . .
aatgctacgaatattaaacacttcaaaaactgcacctccatcagtggcgatctccacatc

. . . . .
ctgccggtggcatttagggggtgagtcacaggttcagttgcttgataaagaaaaacaaa

. . . . .
atctgcctttttaactggtagagattggtgatcaataatcacctggtgtttgtttcagt

      |1141      |1151      |1161      |1171      |1181      |1191
TGACTCCTTCACACATACTCCTCCTCTGGATCCACAGGAACTGGATATTCTGAAAACCGT
D S F T H T P P L D P Q E L D I L K T V
      |381                      |391

      |1201
AAAGGAAATCACAGgtttgagctgaattatcacatgaatataaatgggaaatcagtgttt
K E I T G
      |401

. . . . .
tagagagagaacttttcgacatatttcctgttccttggaataaaaacatttcttctgaa

. . . . .
attttaccgttaatggctgatgttttgatatttttcaaagtgcagtttctcctgcaggc

. . . . .
aaaaggggacacgttaagtccaggcttgggtcattcactgcggtgtaaacacgctttctc

. . . . .
cctcccggccgccccagccagctgccttggtggcccataaccctgagggtagaggag

. . .
gggacaggggtagg
```

Exon 11 | Start: 1454 | End: 1544 | Length: 90

```
. . . . .
agcctcttcgggtaatcagatacgcggcgagcaggggtctcagggccacagccagggg
. . . . .
ggcggcgggagacatgcggaatcgagcggaaggcgggaggcagctgtgaactgtggctc
. . . . .
ggcctgcgtccgccctgcgcatgtacactcagagaagatgataatgaaaagaaagcaaa
. . . . .
tccaattttcccacttactgttcatataatacagagtccttgagagtctagagtaatgtc
. . . . .
tcatacaaaaaagaaactcctacgtggtgtgtgtctgaagtctttcatctgccttacagg
      |1211      |1221      |1231      |1241      |1251      |1261
GGTTTTTGCTGATTCAGGCTTGGCCTGAAAACAGGACGGACCTCCATGCCTTTGAGAACC
      F L L I Q A W P E N R T D L H A F E N L
                        |411                        |421

      |1271      |1281      |1291      . . . . .
TAGAAATCATACGCGGCAGGACCAAGCAACAgtaagttgaccacagccaaagcctggtag
      E I I R G R T K Q H
                        |431

. . . . .
attacatttgccttttttagttggaattaggcttaacaggagagttgctaagatagggca
. . . . .
cagagctcctgcattctctcgccggcattcccaaatgctatctcacatgagcaggcacagg
. . . . .
gagcaagactgcacgaccactggcacaggctgtccgctaaccacagacttctcagcgct
. . . . .
cgccagtgcttctgcttctgtgtccactccagatccacattgcacttagttgtcaaadc
. . . . .
ttttcagtcatttctaacctatattagctc
```

Exon 12 | Start: 1545 | End: 1744 | Length: 199

```
. . . . .
tcaatttccaggcaaaatgaaaatggagaaaatataatgacattaaggcattttattcat

. . . . .
cctccccatctgccactgggttaaagataactaaataaacaaggaactatcttttgcctgg

. . . . .
aggaactttaaaaacacctgcagttttcaaagggtgcagtggtgtgcctcccacagcatga

. . . . .
cctaccatcattggaaagcagttttagtcaatcaaagggtgtctggagaaacaaagttt

. . . . .
tcagggatacattgtttttataatttttcaccacatgatttttcttctctccaatgtagt

|1301      |1311      |1321      |1331      |1341      |1351
TGGTCAGTTTTCTCTTGCAGTCGTCAGCCTGAACATAACATCCTTGGGATTACGCTCCCT
G  Q  F  S  L  A  V  V  S  L  N  I  T  S  L  G  L  R  S  L
                        |441                                |451

|1361      |1371      |1381      |1391      |1401      |1411
CAAGGAGATAAGTGATGGAGATGTGATAATTTGAGGAAACAAAAATTTGTGCTATGCAAA
K  E  I  S  D  G  D  V  I  I  S  G  N  K  N  L  C  Y  A  N
                        |461                                |471

|1421      |1431      |1441      |1451      |1461      |1471
TACAATAAACTGGAAAAAACTGTTTGGGACCTCCGGTCAGAAAACAAAATTATAAGCAA
T  I  N  W  K  K  L  F  G  T  S  G  Q  K  T  K  I  I  S  N
                        |481                                |491

|1481      |1491
CAGAGGTGAAAACAGCTGCAGtaagtcaccgctttctgtttagtttatggagttggttct
R  G  E  N  S  C  K

. . . . .
aatgggtcctttattttgtatttagaatattgaagggtctattcccatttaaattacttttt

. . . . .
tcagttccttaagaagcaaattaaaatcttaagattcctaactgtgaaattaccatgtga

. . . . .
```

attccattaaaactttttccagatcattaccattcaatgggatgaatttacccctgaggtt

 taggctaccaattatttgaatgtaagtaactaaatttagtattagttatattacctttt

 agttgtaggtcactctctgc

Exon 13 | Start: 1745 | End: 1877 | Length: 132

.
 ggactcacggcaccccctctcgggtgccagggtgcctggctcccaccaggaggaagacct

 gtcctccactgtcaggcacatttcagtcctcccagcagccagcacaaactactttgtcctt

 ccagtcacggctcggcctctgggaagcccagtcctgtgtcctcctccttcaggggtagccag

 catgtctgtgtcacccaaggctcatggagcacagggccctcccgggaagggtgccgtctcc

 tccggccccctcgggtccctgctctgtcactgactgctgtgacctctgtctccgcaga

|1501	|1511	|1521	|1531	|1541	|1551
AGGCCACAGGCCAGGTCTGCCATGCCTTGTGCTCCCCGAGGGCTGCTGGGGCCCGGAGC					
A	T	G	Q	V	C
H			A	L	C
S			P	E	G
C			W	G	P
E			P		
|501			|511		

|1561	|1571	|1581	|1591	|1601	|1611
CCAGGGACTGCGTCTCTTGCCGGAATGTCAGCCGAGGCAGGGAATGCGTGGACAAGTGCA					
R	D	C	V	S	C
R		N	V	S	R
G		R	E	C	V
D		K	C	N	
|521			|531		

|1621	|1631.	.	.	.	.
ACCTTCTGGAGGGgtaggaggttatttctttaatccccttgcgttgatcaaaaataaggc					
L	L	E	G		
|541					

.
 tccaggttggtgttatagctttacaggcattctgtttgattttctcttccttttattctt

.
 tgccttggcttttgaggtttgggttttctgtggggagacgggaagttgtttgattgc

 gttatttttggcaaatttaagcacaataggaaataagcaagtattattgcctaataaat

 ccaataatttatagaatctcttttctggaagtatcttaaatttttctaagctacaaaaa

 gttcctaagacaa

Exon 14 | Start: 1878 | End: 1968 | Length: 90

.
 acacctcctcaggactatcttttcttttatcatttggcttgcttacccaatatgcaaaaa

 ctatgctgtagaaaaagcagaaaagatatcttgattatgaatgaagctcctgtgtttact

 cagagagaagatgaccaggattcagttaacaaaatcagctgattatattactatatagt

 cctggagtcccaactccttgaccattacctcaagttatttgaattttgaagaggtgatt

 tgtgttcctgcaataatgtctcaggggtgggctgacgggtttcctcttcctcctcctcagt

|1641	|1651	|1661	|1671	|1681	|1691
TGAGCCAAGGGAGTTTGTGGAGAACTCTGAGTGCATACAGTGCCACCCAGAGTGCCTGCC					
E P R E F V E N S E C I Q C H P E C L P					
|551			|561		

|1701	|1711	|1721	.	.	.	.
TCAGGCCATGAACATCACCTGCACAGGACGGgtaagagccccttgctgctatccacgtcc						
Q A M N I T C T G R						
|571						

.
 atttcatgggaagggccttcacagaagccgaacagtgatgatggcccagggcatcctgtg

.
 tgggcaggacggccatcagagccacttcccagaggagacggcaggcgctgacagcgctgt

 ccgggcagggtgtcggtgacattagcacacacattagcctgcgatgaacattcactcttt

 ctgctgacacccccaaccttatctaagcttatcaaatcctcacatttaacggaggctgtt

 ttcacctgggtttcccccatccctgacctagt

Exon 15 | Start: 1969 | End: 2126 | Length: 157

.
 ttttgccaaggaaagatgccacaatggttaagcagaatgcaataatgtagagaatatca

 tttctttcatgctggtgtatatcatatgcattcaaaaacagggagaacttctaagcaact

 aacagtgaccatatcaagcaggtgcaatcacagaataactggttttctcctttaagaatt

 tttctatcatttggctttccccactcacacactaaatattttaagtaaaaagttactt

 ccattttgaaagagaaaagaaagagacatgcatgaacatttttctccaccttggtgcagg

|1731	|1741	|1751	|1761	|1771	|1781
GGACCAGACA	ACTGTATCC	AGTGTGCCC	ACTACATTG	ACGGCCCC	ACTGCGTCA
G	P	D	N	C	I
	Q	C	A	H	Y
	I	D	G	P	H
				C	V
				K	T
	|581			|591	

|1791	|1801	|1811	|1821	|1831	|1841
TGCCCCGGC	AGGAGTC	ATGGGAGA	AAAAACA	ACCCTGG	TCTGGAAG
C	P	A	G	V	M
	G	E	N	N	T
	L	V	W	K	Y
			A	D	A
	|601			|611	

|1851	|1861	|1871	.	.	.
CATGTGTGC	CACCTGT	GCCATCC	AACTGC	CCTACGG	gtgagtgg
					aaagtga
					aggagaa

H V C H L C H P N C T Y G
|621

.
cagaacatttcctctcttgcaaattcagagatcaaaaatgtctccaagttttccggcaa
.
caaattgccgaggtttgtatttgagtcagttacttaagggttttgggtccccacagccat
.
gccagtagcaacttgcttgtagcaggcctcagtgagtggaatgactctgccatgcac
.
cgtgtccccggcgggctgtgttgcaatgctgcacatcacaacaggagggtagggg
.
acaaaagagcacaggtcctggcagctgccacagtctcc

Exon 16 | Start: 2127 | End: 2165 | Length: 38

.
attatctgtgtcaaaagccagatgtgaaaacatctcaatacaaaactggctgctttgttc
.
aatgctagaacaacgcctgtcacagagtagaaactcaaaaatatttgctgagtgaatgaa
.
caaatgaataaatgcataataataattaaccaccaatccaacatccagacacatagtga
.
ttttaattatttaagagtagtttagcatatattgctttatgatttaattaaaaatctcca
.
aaatatatgccaaagaagtagaatgagaaaaatgtatatttctctttcacttcctacaga
|1881 |1891 |1901 |1911
ATGCACTGGGCCAGGTCTTGAAGGCTGTCCAACGAATGGtaagtgttcacagctctgtg
C T G P G L E G C P T N G
|631

.
tcacatggacctcgtcaagaatgaccacactgctgtgggtgaagatgctttcctgcattt

.
 ctgactgtcctctgtcctgatcaagtttctatggctctgggccagcctaccctcagccag

 ggtttctgcagagactgccagctggttccacgtggctccacgtgccaaactttgtcctca

 gtggagggaagttggacacacagtgtctggggctgtccctgtctccgccgttgctcgatg

 catggcctgcctctgaattccttggttccactggttttg

Exon 17 | Start: 2166 | End: 2307 | Length: 141

.
 catattttgttaatcaacaaattgaaaaatactcattatatggagaggtccagataaagc

 ctcaattttaaaaaatgaggaaaagtgtgcctggtaggggactggggagagccttgagaaa

 gttggaaacgttgccttagaagcctgttttttctccttttagaagctacatagtgtctca

 ctttccaagatcattctacaagatgtcagtgactgaaacatgcaggggcgtgttgagtg

 ccaaggccatggaatctgtcagcaacctcaccttccttggttcctccacctcattccagg

|1921	|1931	|1941	|1951	|1961	|1971
GCCTAAGATCCCGTCCATCGCCACTGGGATGGTGGGGGCCCTCCTCTTGCTGCTGGTGGT					
P K I P S I A T G M V G A L L L L L V V					
|641			|651		

|1981	|1991	|2001	|2011	|2021	|2031
GGCCCTGGGGATCGGCCTCTTCATGCGAAGGCGCCACATCGTTCGGAAGCGCACGCTGCG					
A L G I G L F M R R R H I V R K R T L R					
|661			|671		

|2041	|2051	|2061.	.	.	.	.	.
GAGGCTGCTGCAGGAGAGGGAGgtgagtgccagtcctgggtgggctcaggagccctcgca							

R L L Q E R E
|681

ccccgacaggaacaagggccagccccgagaacgggccattagcagttgtgtatgttagat
.
acataattgtattatgatgcagaaagaatctctgaatgtgcagttataccagttggta
.
catgttggtacatccatccgaggaaatggcaatgtttctaggctgcacccttcaatgtcc
.
acaaagctgtgtggcatctgcttaggacccggtgcctgtgtgtgcataggaggaggcca
.
ggaagcctggctgttgatccca

Exon 18 | Start: 2308 | End: 2430 | Length: 122

cctaccggagttttcaatccagttaataggcgtggaaacagacatagaaattgtgtttgt
.
tgaaggtagctgttcagttaaagaacacctgtatcagagcctgtgtttctaccaacttc
.
tgtcaagctctgtagagaaggcgtacatttgtccttccaaatgagctggcaagtgccgtg
.
tcctggcacccaagcccatgccgtggctgctgggtccccctgctgggccatgtctggcact
.
gctttccagcatggtgagggctgaggtgaccttctgtctgtgtttcttgtccccccagc

|2071 |2081 |2091 |2101 |2111 |2121
 CTTGTGGAGCCTCTTACACCCAGTGGAGAAGCTCCCAACCAAGCTCTCTTGAGGATCTTG
 L V E P L T P S G E A P N Q A L L R I L
 |691 |701

 |2131 |2141 |2151 |2161 |2171 |2181
 AAGGAAACTGAATTCAAAAAGATCAAAGTGCTGGGCTCCGGTGC GTTCGGCACGGTGTAT

K E T E F K K I K V L G S G A F G T V Y
 |711 |721

.
 AAGgtaaggtccctggcacaggcctctgggctgggccgcagggcctctcatggtctggtg
 K

.
 gggagcccagagtccttgcaagctgtatatttccatcatctactttactctttgtttcac

 tgagtgtttgggaaactccagtgtttttcccaagttattgagaggaaatctttataacc

 acagtaatcagtggctcctgtgagaccaattcacagaccaaaggcatttttatgaaagggg

 ccattgaccttgccatggggtgcagcacaggcgaggaggggccgcctctcaccgcacg
 .
 gca

Exon 19 | Start: 2431 | End: 2529 | Length: 98

.
 taggcctagacgcagcatcattaaattctggatgaaatgatccacacggactttataaca

 ggctttacaagcttgagattctttatctaaataatcagtgtgattcgtggagcccaaca

 gctgcagggtgcggggcggtcacagccccagcaatatcagccttaggtgcgggtccac

 agccccagtggtccctcaccttcgggggtgcatcgctggttaacatccaccagatcactggg

 cagcatgtggcaccatctcacaattgccagttaacgtcttccttctctctgtcatagg
 |2191 |2201 |2211 |2221 |2231 |2241
 GGA CTCTGGATCCCAGAAGGTGAGAAAAGTTAAAAATCCCGTCGCTATCAAGGAATTAAGA

G L W I P E G E K V K I P V A I K E L R
 |731 |741

|2251 |2261 |2271 |2281
 GAAGCAACATCTCCGAAAGCCAACAAGGAAATCCTCGATgtgagtttctgctttgctgtg
 E A T S P K A N K E I L D
 |751 |761

.
 tgggggtccatggctctgaacctcaggccaccttttctcatgtctggcagctgctctgc

 tctagaccctgctcatctccacatcctaaatgttcacttttctatgtctttccctttctag

 ctctagtgggtataactccctccccttagagacagcactggcctctcccatgctgtgctac

 caccctaaaaggctggaacaggcaattactggcatctaccagcactagtttcttgaca

 cgcctgatgagtgagtgctcttggtgagcctggagcatg

Exon 20 | Start: 2530 | End: 2715 | Length: 185

.
 ggtgactccgactcctcctttatccaatgtgctcctcatggccactgttgccctgggcctc

 tctgtcatggggaatcccagatgcacccaggaggggcccctctccactgcatctgtcac

 ttcacagccctgcgtaaacgtccctgtgctaggtcttttgaggcacagcttttctcca

 tgagtacgtattttgaaactcaagatcgcatcattcatgcgtcttcacctggaaggggtccat

 gtgcccctccttctggccaccatgcgaagccacactgacgtgcctctccctccctccagg
 |2291 |2301 |2311 |2321 |2331 |2341
 GAAGCCTACGTGATGGCCAGCGTGGACAACCCCCACGTGTGCCGCTGCTGGGCATCTGC

E A Y V M A S V D N P H V C R L L G I C
 |771 |781
 |2351 |2361 |2371 |2381 |2391 |2401
 CTCACCTCCACCGTGCAGCTCATCACGCAGCTCATGCCCTTCGGCTGCCTCCTGGACTAT
 L T S T V Q L I T Q L M P F G C L L D Y
 |791 |801
 |2411 |2421 |2431 |2441 |2451 |2461
 GTCCGGGAACACAAAGACAATATTGGCTCCCAGTACCTGCTCAACTGGTGTGTGCAGATC
 V R E H K D N I G S Q Y L L N W C V Q I
 |811 |821

GCAAAGgtaatcaggggaaggagatacggggaggggagataaggagccaggatcctcaca
 A K

.
 tgcggtctgcgctcctgggatagcaagagtttgccatggggatatgtgtgtgcgtgcatg

 cagcacacacacattcctttattttggattcaatcaagttgatcttcttgtgcacaaatc

 agtgcctgtcccatctgcatgtggaactctcatcaatcagctacctttgaagaattttc

 tctttattgagtgctcagtggtgctgatgtctctgttcttatttctctggaattctttg
 . . .
 tgaata

Exon 21 | Start: 2716 | End: 2871 | Length: 155

.
 agttcaagcccagggtctcaactgggcagcagagctcctgctcttctttgtcctcatatac

 gagcacctctggacttaaaacttgaggaactggatggagaaaagttaatggtcagcagcg

ggttacatcttctttcatgcgctttccattctttggatcagtagtcactaacgttcgcc

 agccataagtcctcgacgtggagaggctcagagcctggcatgaacatgaccctgaattcg

 gatgcagagcttcttcccatgatgatctgtccctcacagcagggtcttctctgtttcagg
 |2471 |2481 |2491 |2501 |2511 |2521
 GGCATGAACTACTTGGAGGACCGTCGCTTGGTGACCGCGACCTGGCAGCCAGGAACGTA
 G M N Y L E D R R L V H R D L A A R N V
 |831 |841
 |2531 |2541 |2551 |2561 |2571 |2581
 CTGGTGAAAACACCGCAGCATGTCAAGATCACAGATTTTGGGCTGGCCAAACTGCTGGGT
 L V K T P Q H V K I T D F G L A K L L G
 |851 |861
 |2591 |2601 |2611 |2621
 GCGGAAGAGAAAGAATACCATGCAGAAGGAGGCAAAGtaaggaggtggcttttaggtcagc
 A E E K E Y H A E G G K
 |871

 cagcattttcctgacaccagggaccaggctgccttcccactagctgtattgtttaacaca

 tgcaggggaggatgctctccagacattctgggtgagctcgagcagctgctgctggcagc

 tgggtccagccagggtctcctggtagtgtgagccagagctgctttgggaacagtacttgc

 tgggacagtgaatgaggatgttatccccaggatgatcattagcaaagttaggtttcagtc

 tctccctgcaggatatataagtccccttcaatagcg

Exon 22 | Start: 2872 | End: 2947 | Length: 75

.
 gggccctgaaaacacacgcagacctggatgagtgaggccactgggcacaaccagggtcc

.
 cagctcaccagagcagcctgggacacagagggtgctcagaaacctaccagagcagccctg

 aactccgtcagactgaaatcccctgttgccgggaggaggcgccgggcctgggggacgggt

 cctggggtgatctggctcgtctgtgtgtgtcactcgtaattaggtccagagtgagttaac

 tttttccaacagaggaaactaatagttgtctcactgcctcatctctcaccatcccaagg
 |2631 |2641 |2651 |2661 |2671 |2681
 GTGCCTATCAAGTGGATGGCATTGGAATCAATTTACACAGAATCTATACCCACCAGAGT
 V P I K W M A L E S I L H R I Y T H Q S
 |881 |891
 |2691 |2701.
 GATGCTCTGGAGCTACGtgagtcataatcctgatgctaataagttgtactgaggccaag
 D V W S Y G
 |901

 ctggcttttattgttagttaatttacattatatcctctgacatgcaagtattttctttcg

 agataatgactaatgataatgtaatcattgctgtctatctattgtactgagaaaacacgg

 cagaggaaatcgagtcagctgccgtccaaaagtcactggagattgcaatgagctcgtct

 ggcagggtggggggtatgggagggaagagcttaggaaacggctctccctgcaaagtcca

 accaaactttaacgtt

Exon 23 | Start: 2948 | End: 3094 | Length: 146

.
 ttaattaccaaagtttaccacttatcagtcacttactacttgctgggcattgcactaagc

.
 atttcagttgtattatcttgttgggtccttacagcaatcctgtgaaacagatactgctat

 taccctactttatagagaggttagactgaggcttccagcattgaagcaaattgcccaagac

 tacagaaatgtaggtttctaacaatcaagaaacagtaaccagtaatgatgactaaagcaa

 gggattgtgattgttcattcatgatcccactgccttcttttcttgcttcatcctctcagg
 |2711 |2721 |2731 |2741 |2751 |2761
 GGGTGACCGTTTGGGAGTTGATGACCTTTGGATCCAAGCCATATGACGGAATCCCTGCCA
 V T V W E L M T F G S K P Y D G I P A S
 |911 |921
 |2771 |2781 |2791 |2801 |2811 |2821
 GCGAGATCTCCTCCATCCTGGAGAAAGGAGAACGCCTCCCTCAGCCACCCATATGTACCA
 E I S S I L E K G E R L P Q P P I C T I
 |931 |941
 |2831 |2841
 TCGATGTCTACATGATCATGGTCAAGTgtgagtgactgggtgggtctgtccacactgccta
 D V Y M I M V K C

 gctgagccttggtggctgctcttagccaaacagctgaggcctttgcatccctggagaaat

 gtcacacattacttaaggcaggcacacaaatccagaaacatctgtaaatacccttcaa

 gcattcttttaagacacttcttgactcattgggcagtatgacctgacatttgcccatgt

 ttgcaagcaaataaaactaaagtcttccgcaagccattacacaaaaatattctatt

 cgctgagttactcaatgaaataccgag

Exon 24 | Start: 3095 | End: 3192 | Length: 97

.
 agaccacactgctccatcccctcaggcgtaacacaggatgctgacccaggaagagtgg

 gcgtagaaaaactagagggcattattgttattctgattcaaagtacagtgcctggcatgg

 tctttaaacagtaaccagtactagctggccaagacagaaaagtctaccacaaagacttgg

 ttctttcatcacttatttgactggaagtgtcgcacaccaaagccttctttaagcaatgc

 catctttatcatttcttccagtgttctaattgcactgttttttctcattccttccccagg
 |2851 |2861 |2871 |2881 |2891 |2901
 GCTGGATGATAGACGAGATAGTCGCCAAAGTTCCGTGAGTTGATCATCGAATTCTCCA
 W M I D A D S R P K F R E L I I E F S K
 |951 |961
 |2911 |2921 |2931 |2941
 AAATGGCCCGAGACCCCGAGCGCTACCTTGTTCATTGAGgtacaaattgcagtctgtgctt
 M A R D P Q R Y L V I Q
 |971 |981

 ccattgggaagagtccctctaatagagcatctcatgtcactgtgttctgtcacatgccagc

 ctggcctccctgtgtcccagatcgattattaaaccctccagcgcattagagcaagcctc

 agtaaggcgcaggccacatcgtgaactaagcagcatccgtgagtggggccacccaactc

 catctccccctccccgtctgaactctcctctgggtgctcgtcctcactgtccggctagcca

 aagcctcagctgggtctaagagagaagcatgggtctatt

Exon 25 | Start: 3193 | End: 3360 | Length: 167

.
acagcaaggtgcacactcgatgaatgctgcagcttcttcctttctgtttcctcagaagc

.
tatttgaatctcatgtaggggctttcaagcatcaaaggatggttcatgttttattttaag

.
gcaccacatcatgtcatgaggggagggcagctataatttagagaaccaagggggatttca

.
ttataacaaaattggcaaacacacaggcacctgctggcaatagaccctgctcctatagc

.
caagaagtggaatagcatctctacgggccattctaatagcctcaaatctctgcaccagg

 |2951 |2961 |2971 |2981 |2991 |3001
GGGGATGAAAGAATGCATTTGCCAAGTCCTACAGACTCCAATTCTACCGTGCCCTGATG
G D E R M H L P S P T D S N F Y R A L M
 |991 |1001

 |3011 |3021 |3031 |3041 |3051 |3061
GATGAAGAAGACATGGACGACGTGGTGGATGCCGACGAGTACCTCATCCACAGCAGGGC
D E E D M D D V V D A D E Y L I P Q Q G
 |1011 |1021

 |3071 |3081 |3091 |3101 |3111 . . .
TTCTTCAGCAGCCCCCTCCACGTCACGGACTCCCTCCTGAGCTCTCTGgtatgaaatctc
F F S S P S T S R T P L L S S L
 |1031

.
tgtctctctctctctcaagctgtgtctactcatttgaacaaattgaatttttagggaaa

.
ataaccatctagtgaactcacatggatatgaagtcaattttaaccaaattggtaaaatca

.
aatcaaaataaattaagtgtattaattatttgttgcatgcaacaacttgattgtaag

.
ccttttaggtccactatggaatgtaattaaatcaaaactaaacctagttgctctaaaact

.

aacgattaagacaaaaattaaacaccttcacaatataccctccatgag

Exon 26 | Start: 3361 | End: 3408 | Length: 47

.
ctagtgaactcacatggatatgaagtcaattttaaccaaattggtaaaatcaaatcaaa

.
ataaattaagtgtattaattatgttgcatgcaacaacttgattgtaagccttttag

.
gtccactatggaatgtaattaaatcaaaactaaacctagttgctctaaaactaacgatta

.
agacaaaaattaaacaccttcacaatataccctccatgaggcacaccacctgcattcagg

.
aaaagtggaatgagatgtggtacaagcattccatgggcaacttctctgtttcttttcaga

 |3121 |3131 |3141 |3151 |3161 . . .
AGTGCAACCAGCAACAATTCCACCGTGGCTTGCATTGATAGAAATGGGgtatgtatgaac
S A T S N N S T V A C I D R N G
 |1041 |1051

.
accttataagccagaatttacagctctccactatggctctattttacatggaaaatgcct

.
taacctaaataattttaaccagataatcttgagttttcttctgtgtgggtttttccct

.
gcacggctgtcacgcctcacagtgccgttcaaagcgtgactcctggaccagtagtagcat

.
cgctggccttggttagaaacgccatttttcaggccactgcccagtttgaccaaacagg

.
acctctgggggtggcaccagtagtctatgtttgagccactttccagg

Exon 27 | Start: 3409 | End: 3517 | Length: 108

.
 tcacacatgtgaagtgtccagtagccacacgtggctagtggtagaccgtattgaagagcac

 cgctcatagcacacctccctcactgcggaaagttctgctgtacagcaccagcacagccc

 tgctgcccaccctgcagcctgtggcccagtagcaccagcaccaccagggtgcagactct

 caggcctgcccacctaataatcagaaccagcatctcaaggagatctcgggtgatttttg

 caaacactgaagttggggcagccctgaccggagtaaccttcctcatttcctcctgcagc
 |3171 |3181 |3191 |3201 |3211 |3221
 CTGCAAAGCTGTCCCATCAAGGAAGACAGCTTCTTGCAGCGATACAGCTCAGACCCACACA
 L Q S C P I K E D S F L Q R Y S S D P T
 |1061 |1071
 |3231 |3241 |3251 |3261 |3271 .
 GGCGCCTTGACTGAGGACAGCATAGACGACACCTTCCTCCAGTGCCTGgtgagtggtt
 G A L T E D S I D D T F L P V P E
 |1081 |1091

 gtctggaacagtcctgctcctcaacctcctcgaccactcagcagcagccagtctccag

 tgtccaagccaggtgctccctccagcatctccagagggggaacagtggtgagatttgag

 acacagtggaagggcgtaaggagcagataaacacatgaccgagcctgcacaagctctttgt

 tgtgtctggttggttgctgtacctctgttgtaagaatgaatctgcaaaatttctagctta

 tgaagcaaatacacggacatacacatctgtgtgtgtgagtggtcatgatg

Exon 28 | Start: 3518 | End: 5600 | Length: 2082

.
cacatcacatatatgtatacatgcatacacatacacacacatacacacactctcct

.
caaggcagtttatcctctgagaactttaatttacaaaagacacatatgtccattacttt

.
gagaaggacaggaaagaacccactttcttttgagcaacagcaagagggccctcccagg

.
ctcctgctccctgtcataagtctccttggtgaggacattcacagggttcagaaccagg

.
atcctgcatgggatggtgctttgctgattacttcacctctgatttctttccactttcaga

|3281	|3291	|3301	|3311	|3321	|3331
AATACATAAACCAAGTCCGTTCCCAAAAGGCCCGCTGGCTCTGTGCAGAATCCTGTCTATC					
Y	I	N	Q	S	V
	P	K	R	P	A
				G	S
				V	Q
				N	P
				V	Y
				H	
			|1101		|1111

|3341	|3351	|3361	|3371	|3381	|3391
ACAATCAGCCTCTGAACCCCGCGCCAGCAGAGACCCACACTACCAGGACCCCCACAGCA					
N	Q	P	L	N	P
	A	P	S	R	D
				P	H
				Y	Q
				D	P
				H	S
				T	
			|1121		|1131

|3401	|3411	|3421	|3431	|3441	|3451
CTGCAGTGGGCAACCCCGAGTATCTCAAACTGTCCAGCCACCTGTGTCAACAGCAT					
A	V	G	N	P	E
	Y	L	N	T	V
			Q	P	T
			C	V	N
				S	T
				F	
			|1141		|1151

|3461	|3471	|3481	|3491	|3501	|3511
TCGACAGCCCTGCCCCTGGGCCAGAAAAGGCAGCCACCAAATTAGCCTGGACAACCCTG					
D	S	P	A	H	W
		A	Q	K	G
				S	H
				Q	I
				S	L
				D	N
				P	D
			|1161		|1171

|3521	|3531	|3541	|3551	|3561	|3571
ACTACCAGCAGGACTTCTTTCCCAAGGAAGCCAAGCCAAATGGCATCTTTAAGGGCTCCA					
Y	Q	Q	D	F	F
	P	K	E	A	K
				P	N
				G	I
				F	K
				G	S
				T	
			|1181		|1191

|3581	|3591	|3601	|3611	|3621	|3631
CAGCTGAAAATGCAGAATACCTAAGGGTCGCGCCACAAAGCAGTGAATTTATTGGAGCAT					
A	E	N	A	E	Y
	L	R	V	A	P
			Q	S	S
				E	F
				I	G
				A	*

| 1211

|+781 |+791 |+801 |+811 |+821 |+831
 CTGTCTTGCTGTCATGAAATCAGCAAGAGAGGATGACACATCAAATAATAACTCGGATTC

|+841 |+851 |+861 |+871 |+881 |+891
 CAGCCCACATTGGATTCATCAGCATTTGGACCAATAGCCCACAGCTGAGAATGTGGAATA

 |+901 |+911 |+921 |+931 |+941 |+951
 CCTAAGGATAGCACCCTTTTGTCTCGCAAAAACGTATCTCCTAATTTGAGGCTCAGAT

 |+961 |+971 |+981 |+991 |+1001 |+1011
 GAAATGCATCAGGTCCTTTGGGGCATAGATCAGAAGACTACAAAAATGAAGCTGCTCTGA

 |+1021 |+1031 |+1041 |+1051 |+1061 |+1071
 AATCTCCTTTAGCCATCACCCCAACCCCCAAAATTAGTTTGTGTTACTTATGGAAGATA

 |+1081 |+1091 |+1101 |+1111 |+1121 |+1131
 GTTTTCTCCTTTTACTTCACTTCAAAAGCTTTTACTCAAAGAGTATATGTTCCCTCCAG

 |+1141 |+1151 |+1161 |+1171 |+1181 |+1191
 GTCAGCTGCCCCAAACCCCTCCTTACGCTTTGTACACAAAAAGTGTCTCTGCCTTGA

 |+1201 |+1211 |+1221 |+1231 |+1241 |+1251
 GTCATCTATTCAAGCACTTACAGCTCTGGCCACAACAGGGCATTTTACAGGTGCGAATGA

 |+1261 |+1271 |+1281 |+1291 |+1301 |+1311
 CAGTAGCATTATGAGTAGTGTGGAATTCAGGTAGTAAATATGAAACTAGGGTTTGAAATT

 |+1321 |+1331 |+1341 |+1351 |+1361 |+1371
 GATAATGCTTTCACAACATTTGCAGATGTTTTAGAAGGAAAAAAGTTCCTTCCTAAAATA

 |+1381 |+1391 |+1401 |+1411 |+1421 |+1431
 ATTTCTCTACAATTGGAAGATTGGAAGATTACAGCTAGTTAGGAGCCCACCTTTTTTCCTA

 |+1441 |+1451 |+1461 |+1471 |+1481 |+1491
 ATCTGTGTGTGCCCTGTAACCTGACTGGTTAACAGCAGTCCTTTGTAAACAGTGTTTTAA

 |+1501 |+1511 |+1521 |+1531 |+1541 |+1551
 ACTCTCCTAGTCAATATCCACCCGATCCAATTTATCAAGGAAGAAATGGTTCAGAAAAATA

 |+1561 |+1571 |+1581 |+1591 |+1601 |+1611
 TTTTCAGCCTACAGTTATGTTTCAGTCACACACATACAAAATGTTTCCTTTTGCTTTTAA

 |+1621 |+1631 |+1641 |+1651 |+1661 |+1671
 AGTAATTTTGGACTCCCAGATCAGTCAGAGCCCTACAGCATTGTTAAGAAAAGTATTTGA

 |+1681 |+1691 |+1701 |+1711 |+1721 . .
 TTTTGTCTCAATGAAAATAAACTATATTTCATTTCCTCTAttatgctctcaaatacc

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