

Gene: EGFR - Sequence: NG_007726.3
 Transcript: NM_005228.3 - Protein: NP_005219.2
 Date : February 20, 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: 5000 | End: 5334 | Length: 334

```

. . . . .
ggggaccgggtccagaggggcagtgctgggaacgcccctctcggaattaactcctcagg

. . . . .
gcacccgctcccctcccatgcgccgcccactcccgccggagactaggtcccggggggc

. . . . .
caccgctgtccaccgcctccggcggcgctggccttggggtccccgctgctggttctcctc

. . . . .
cctcctcctcgattctcctcctcctctgctcctcccgatccctcctccgcccgcctggtc

. . . . .
cctcctcctcccgccctgcctccccgcgcctcggcccgcgagctagacgtccgggcag

      |-239      |-229      |-219      |-209      |-199      |-189
CCCCGGCGCAGCGCGCCGAGCAGCCTCCGCCCCCGCACGGTGTGAGCGCCCGACGCG

      |-179      |-169      |-159      |-149      |-139      |-129
GCCGAGGCGGCGGAGTCCCGAGCTAGCCCCGCGGCGCGCCGCGCCAGACCGGACGAC

      |-119      |-109      |-99      |-89      |-79      |-69
AGGCCACCTCGTCGGCGTCCGCCCCGAGTCCCCGCCTCGCCGCCAACGCCACAACCACCGC

      |-59      |-49      |-39      |-29      |-19      |-9
GCACGGCCCCCTGACTCCGTCCAGTATTGATCGGGAGAGCCGGAGCGAGCTCTTCGGGGA

      |1      |11      |21      |31      |41      |51
GCAGCGATGCGACCCTCCGGGACGCGCGGGGAGCGCTCCTGGCGCTGCTGGCTGCGCTC
      M R P S G T A G A A L L A L L A A L
      |1      |11

      |61      |71      |81      .      .      .      .      .

```

TGCCCCGGCGAGTCGGGCTCTGGAGGAAAAGAAAGgtaaggcggtgtctcgccggctcccg
 C P A S R A L E E K K
 |21

.
 cgccgccccggatcgcgccccggaccccgagcccgcccaaccgcgacccggcgacccg

 gctcggcgcccgccccgcccgtcctttcctgtttccttgagatcagctgcgcccggc

 accgggaccgcgggaggaacgggacgtttcgttcttcggccgggagagtctggggcgggc

 ggaggagagacgcgtgggacacccgggctgcaggccaggcggggaacggccgcccgggacc

 tccggcgccccgaaccgctcccaacttttcttccc

Exon 2 | Start: 128254 | End: 128406 | Length: 152

.
 aattcaatgcattatagggacaagctatctcttattatgaattgcaccttatataaactt

 aaagatcttttatcacaattttctttgctgtgtcctttagtgagaatttgattatcagt

 cactaaagctcactaagtttagtaagctttgcgccagatgacctgggcaggaatgggtga

 gtctctgtgtggagagagtgaagaaactgctacccttaataacctggaccttgagggattg

 ttttatttttagtttttctgcattttctcagtatttcatgtgatatctgtctttttcttcca

|91 |101 |111 |121 |131 |141
 TTGCCAAGGCACGAGTAACAAGCTCACGCAGTTGGGCACTTTTGAAGATCATTCTCTCA
 V C Q G T S N K L T Q L G T F E D H F L
 |31 |41

|151 |161 |171 |181 |191 |201
 GCCTCCAGAGGATGTTCAATAACTGTGAGGTGGTCCTTGGGAATTTGGAAATTACCTATG
 S L Q R M F N N C E V V L G N L E I T Y

|51 |61

|211 |221 |231

TGCAGAGGAATTATGATCTTTCCTTCTTAAAGgttggtgactttgattttcctacacaaa

V Q R N Y D L S F L K

|71

.

taaaattggagaaaatctaagtggagaaaggcctgggcagaattccacttgaagtgtgtt

.

tatTTTTgctatggcaatgacaagtcttacagagctacaaacgagagttttatgagaaag

.

ccattttaccagctaattgtcaagtaataactagaaaaggatatcaaatagaaacaggcta

.

atctggagttccatgtcatcatagacactgacgtttatccctgaccattacctcagtc

.

gatgtgctgccatactcgctcttaaaaacttt

Exon 3 | Start: 129273 | End: 129457 | Length: 184

.

taatttccattttcactggagagtggtgaaccccgtaggcatgagagcacagtgttcca

.

gaacaatgcttactgctcattatcacaggggtcaaaggctaacgtgcagggattgttgca

.

gatcgtggacatgctgcctcctgtgtccatgactgcaatcgtctacatttttacagttg

.

ttgagcactcgtgtgcattaggggtcaactgggcgtcctagggctccctggacccatttt

.

agaccttgagttcttgagttcctcaaaagagaaatcacgcatttatgttttctcttcta

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

|421
 CAGGgtgagaggctgggatgccaaaggctgggggttcataaatgcagacagcagttccgat
 Q
 |141

Exon 4 | Start: 132574 | End: 132709 | Length: 135

.
 tccttcatgggaatttaaaggagctggaaagagtgctcaccgcagttccattctcccgca

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

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

 |551
 ACCACCTGGGCAGCTgtaagtgtcgcatacacactatctctgcctccagctcctatgggg
 N H L G S

 gacagctctacagcactggggcaggggagagaagccatgttttagtaagtcacattaatca

 gaaacaaaaagtagtaagcaaatatctgaccactagaaaagcatgtatttaccacggac

 atagagatcggttttttgtggcgggtggcagcccagctggttggcagtgaggccaccgg

 aggcagatcccctgcagggacagcagagcacttgtgtcctgagaagagctgctgttcag

 . . .
 gggctggcagcacca

Exon 5 | Start: 137262 | End: 137331 | Length: 69

.
 aagcagattgtaaacaaaggaacctcaaattcatgaaaaattcttgcttatgtggcccatg

 tcagtaattactctctgcctcagtttccgcagctgacatgtaaataaaagcagttcatgg

 ttcatcttcttttcttatcggggtctcaagtattctacaaaccagccagccaaacaatc

.
 agagaataagttgaaaagattgtcttcatttattgaatgtgcttaactcaggcccgaggaa

 agggcgtcatcagtttctcatcatttcactgagatatgcatctattacttttacatttca

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

 |621
 GCCAGAAACgtaagtcagtgacagcctcagaccatgtgtgaccgcccctctcttcctt
 C Q K

 cacttgcttaggtgattggatttgtttccctctgaagactccaaagagttactttatta

 cagggtcagatgtgaaccagtaggtgaaggacagtcttgcaaattccaccgcatgcagtt

 aatccagggtgggctattttgggagcttcagcctatcacaataagtgaaatcagcagg

 ggctgggcgcggtggctcaccctataatccagcactttgggaggcggaggcggtcgga

 . .
 tcacgaggt

Exon 6 | Start: 138514 | End: 138633 | Length: 119

.
 ccagcaggtatTTTTgttctttgtatgtgctttctgcattgcccaagatgcatctaatta

 tttagcaggtctcaaagtctagacttgatctcatgagttctcttaagtgattaaaaataa

 atcaggagaaaaaaggagcaatcagaaaaggcatggtttgacttagtttgaaatgtggtt

 tcgttgggaagcaaatgtgtcttcactttttcatgaaaaagtctgcaagtgtctgcgaca

.
tccctgggaaatgatcctaccctcactcttcagctcacagggaacctttgctctttttca

|631 |641 |651 |661 |671 |681
TGACCAAAATCATCTGTGCCCAGCAGTGCTCCGGGCGCTGCCGTGGCAAGTCCCCCAGTG
L T K I I C A Q Q C S G R C R G K S P S
|211 |221

|691 |701 |711 |721 |731 |741
ACTGCTGCCACAACCAGTGTGCTGCAGGCTGCACAGGCCCCGGGAGAGCGACTGCCTGg
D C C H N Q C A A G C T G P R E S D C L
|231 |241

.
taagatgccccctccagcagcctccctggagcaggctggggctgcacccgccccaccaca

.
ccaggacagaagacttctgtgggggagctgtcaattagcatttgtcataacagacagga

.
tattgccctctgcctgggtgacaaagtatcttttagtatcctgcctccaccactcactgaga

.
ccttgggaaaatgatgggactaccatgcctccatttccttacctgacaatgatgcataac

.
aaagtctctcccagttgaatgcttaaagtatgagatgcctgtgatgtccgtcattagga

Exon 7 | Start: 139979 | End: 140121 | Length: 142

.
tcaccgctataatgtgtgaactccatcatctatacgttagtaaacagacgtatttttatc

.
ataatccataaattatgataggtgggacagtgcacctaagaaaaaatggactttttaga

.
gaagggtctttctgactctgcagagggcgccagctgggttttccacactagtggaaacac

.
taggctgcaaagacagtaacttgggctttctgacgggagtcacaccgtgctgcgcttcc

.

tccgtgtgtggcgctgagtgtacttacctcacttgcccagcgtgtcctctctcctccata

 |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
ACCTGCGTGAAGAAGTGTCCTCCCGtgagtcctcctctgtgggccctctaactgggcaggca
T C V K K C P
 |291

.
tccttgtcccgcctctgtctcctgctgagccctggagtatcccatcttggagagtctttgg

.
gtggatgtgtttgccttgcttgaggaggcgaccctgtgcccgtccaggcacacaggcga

.
ggggaggggctggcttgctaccgaggagcgggcaggtggtggccatctccacccatgggg

.
gctgctcagtgcacagggcagatctgggtggccaggccacctcacaggagaaacacctgc

.
tgctcagccctcaccactcatc

Exon 8 | Start: 141798 | End: 141915 | Length: 117

.
caggtggaggagagggctgaggtgcctgctgggacgcaaaacagctggcccctcaaggga

.
cccagtgtttcctgccatgatgaaacacctgtattgtccacattgcggcctagaatgtta

.
ttaaactcttgaacgggattccttctctatttgcaacctttcattctttgtccttaaagt

.

aaataaagccaaaggaggatggagcctttccatcacccctcaagaggacctggaccgcct

.
gtgtgaggcccgagcacctggtgccaccgtcatcaccttcctttcatgctctcttcccca

|891 |901 |911 |921 |931 |941
GTAATTATGTGGTGACAGATCACGGCTCGTGCGTCCGAGCCTGTGGGGCCGACAGCTATG
R N Y V V T D H G S C V R A C G A D S Y
|301 |311

|951 |961 |971 |981 |991 |1001
AGATGGAGGAAGACGGCGTCCGCAAGTGTAAGAAGTGCGAAGGGCCTTGCCGCAAAGGta
E M E E D G V R K C K K C E G P C R K
|321 |331

.
ggaagcccgccggtgtgcgagcaggcttgttctcggtgctgaggctgggctctcatgc

.
cacctccaaaggaacacatcttctcttctcattaaaaaacaactatacatatcgtttct

.
ttaaacagaagataaagctgtaaagctaggttaggcaatgggaaggcactgaaggttgt

.
gacggggtggggggtctgatgagaacagtcacagagccagccccgctcagcagctgcca

.
ggtgccagccctggggagaatccagggaaggcagagctggaagcagtcagctcca

Exon 9 | Start: 142501 | End: 142628 | Length: 127
BE AWARE: This intron is shared with the following exon

.
agcagtgagctccaagcgcccatgggaaataatgaggagaacgcaaggtcagtgtag

.
gtgacagggatggcatctcctacaccgccgtagcccaaagtgtactataggtcctggtg

.
tcccccttcccgctgcactctccccagccccttcagtgtttgttgagtgaatgaagga

.
tgatgtggcagtggcggttccggtgaccggaattccttctgcttccctctgcctgtgga

TGTGTAACGGAATAGGTATTGGTGAATTTAAAGACTCACTCTCCATAAATGCTACGAATA
V C N G I G I G E F K D S L S I N A T N

|1011 |1021 |1031 |1041 |1051 |1061
|341 |351

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

Exon 10 | Start: 142727 | End: 142801 | Length: 74
BE AWARE: This intron is shared with the previous exon

. |1141
 ttttaactggtagagattggtgatcaataatcacctgttgtttgtttcaTGACTCCTTC
 D S F
 |381

|1151 |1161 |1171 |1181 |1191 |1201
ACACATACTCCTCCTGTGGATCCACAGGAAGTGGATATTCTGAAAAACCGTAAAGGAAATC
 T H T P P L D P Q E L D I L K T V K E I
 |391 |401

ACAGgtttgagctgaattatcacatgaatataaatgggaaatcagtgttttagagagaga
T

acttttcgacatatatttcctgttcccttggaataaaaacatttcttctgaaattttaccgt

taatggctgatgttttgatatatttttcaaaagtgcagttttctcctgcaggcaaaaggggac

acgttaagtccaggcttgggtcattcactgcggtgtaaacacgcctttctccctcccgccc

.
 ggccccagccagctgccttggtggcccataaccctgagggtagagggaggggacagggg
 .
 tagg

Exon 11 | Start: 143631 | End: 143722 | Length: 91

.
 ggagcctcttcgggtaatcagatacgcggcgagcaggggtctcagggccacagccagg

 ggggcggcgggagacatgcggaatcgagcgggaaggcgggagggcagctgtgaactgtggc

 tcggcctgcgtccgcctgcgcatgtacactcagagaagatgataatgaaaaagaagca

 aatccaattttccacttactgttcatataatacagagtcctgagagtctagagtaatg

 tctcatacaaaaaagaactcctacgtggtgtgtgtctgaagctttcatctgccttaca

|1211	|1221	|1231	|1241	|1251	|1261
GGTTTTTGCTGATT	CAGGCTTGGCCTG	AAAACAGGACG	GACCTCCATGC	CTTTGAGAACC	
G	F	L	L	I	Q
		A	W	P	E
		N	R	T	D
		L	H	A	F
		E	N		
		|411			|421

|1271	|1281	|1291	.	.	.	.
TAGAAATCATA	CGCGCAGGACCA	AGCAACAgta	agttgaccacag	ccaaagcctg	gtag	
L	E	I	I	R	G	R
		T	K	Q	H	
		|431				

.
 attacatttgccttttttagttggaattaggcttaacaggagagttgctaagatagggca

 cagagctcctgcattctctcgccggcattcccaaatgctatctcacatgagcaggcacagg

 gagcaagactgcacgaccactggcacaggctgtccgctaaccacagacttctcagcgct

 cgccagtgcttctgcttctgtgtccactccagatcccacattgcacttagttgtcaaadc

.
 tcagttccttaagaagcaaattaaaatcttaagattcctaactgtgaaattaccatgtga

 attccattaaaactttttccagatcattaccattcaatgggatgaatttacctgaggtt

 taggctaccaattatttgaatgtaagtaactaaatttagtattagttatattacctttt

 agttgtaggtcactctctgc

Exon 13 | Start: 147467 | End: 147600 | Length: 133

.
 gaggactcacggcacccccctctcgggtgccagggtgcctggctcccaccaggaggaagac

 ctgtcctccactgtcaggcacatttcagtcttcccagcagccagcacaaactactttgtcc

 ttccagtcacggctcggcctctgggaagcccagtcctgtgtcctcctccttcaggggtagcc

 agcatgtctgtgtcacccaaggtcatggagcacagggccctcccgggaaggtgccgtct

 cctccggccccctcgggtccctgctctgtcactgactgctgtgacctactgtctccgca

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

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

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

.
 tgggcaggacggccatcagagccacttcccagaggagacggcaggcgctgacagcgctgt

 ccgggcagggtgtcggtgacattagcacacacattagcctgcgatgaacattcactcttt

 ctgctgacacccccaaccttatctaagcttatcaaatcctcacatttaacggaggctgtt

 ttcacctggtttcccccatccctgacctagt

Exon 15 | Start: 151248 | End: 151406 | Length: 158

.
 ggttttgccaaaggaaagatgccacaatggttaagcagaatgcaataatgtagagaatat

 catttctttcatgctgggtgtatatcatatgcattcaaaaacagggagaacttctaagcaa

 ctaacagtgaccatatcaagcaggtgcaatcacagaataactgggttttctcctttaagaa

 tttttctatcatttggctttccccactcacacacactaaatattttaagtaaaaagttac

 ttccattttgaaagagaaaagaaagagacatgcatgaacatttttctccaccttggtgca

|1731	|1741	|1751	|1761	|1771	|1781
GGACCAGACA	ACTGTATCC	AGTGTGCC	CACTACATT	GACGGCCCC	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	ACCCTGGT	CTGGAAGT
C	P	A	G	V	M
		G	E	N	N
			T	L	V
			W	K	Y
				A	D
				A	G
		|601		|611	

|1851	|1861	|1871	.	.	.
CATGTGTGC	CACCTGTG	CCATCCAA	ACTGCACCT	ACGGgtgag	tggaaagtga
H	V	C	H	L	C
		H	P	N	C
			T	Y	G
		|621			

.
 cagaacatttcctctcttgcaaattcagagatcaaaaatgtctcccaagttttccggcaa

 caaattgccgaggtttgtatttgagtcagttacttaaggtgttttggtccccacagccat

 gccagtagcaacttgcttgtagcaggcctcagtgagtggaatgactctgccatgcac

 cgtgtccccggcgggcctgtgttgcaatgctgcacatcacaacaggagggtagggg

 acaaaagagcacaggtcctggcagctgccacagtctcc

Exon 16 | Start: 157143 | End: 157182 | Length: 39

.
 caattatctgtgtcaaaagccagatgtgaaaacatctcaataacaaactggctgctttgt

 tcaatgctagaacaacgcctgtcacagagtagaaactcaaaaatatttgctgagtgaatg

 aacaaatgaataaatgcataataaataattaaccaccaatccaacatccagacacatagt

 gattttaattatttaagagtagtttagcatatattgctttatgatttaattaaaaatctc

 caaaatatatgccaaagaagtagaatgagaaaaatgtatatatttctctttcacttcctaca
 |1881 |1891 |1901 |1911
 ATGCACTGGGCCAGGTCTTGAAGGCTGTCCAACGAATGGgtaagtgttcacagctctgtg
 C T G P G L E G C P T N G
 |631

 tcacatggacctcgtcaagaatgaccacactgctgtgggtgaagatgctttcctgcattt

 ctgactgtcctctgtcctgatcaagtttctatggctctgggccagcctaccctcagccag

.
 ggtttctgcagagactgccagctggttccacgtggctccacgtgccaactttgtcctca

 gtggagggaagttggacacacagtgtctggggctgtccctgtctccgccgttgctcgatg

 catggcctgcctctgaattccttggttccactggttttg

Exon 17 | Start: 158951 | End: 159093 | Length: 142

.
 atcatatTTTgttaatcaacaaattgaaaaatactcattatatggagaggtccagataaa

 gcctcaatTTTaaaaaatgaggaaaagtgctgcctggtaggggactggggagagcttgaga

 aagttggaacgttgcttagaagcctgttttttctccttttagaagctacatagtgtct

 cactttccaagatcatctacaagatgtcagtgactgaaacatgcaggggcgtgttgag

 tgccaaggccatggaatctgtcagcaacctcaccttccttggttcctccacctcattcca

|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	H	I
V	R	K	R	T	L
R					
|661			|671		

|2041	|2051	|2061.	.	.	.	.	.
GAGGCTGCTGCAGGAGAGGGAGgtgagtgccagtcctgggtgggctcaggagccctcgca							
R	L	L	Q	E	R	E	
|681							

.
 ccccgacaggaacaagggccagccccgagaacgggccattagcagttgtgtatgttagat

.
 acataattgtattatgatgcagaaagaatctctgaatgtgcagttataccagttggtga

 catgttggtacatccatccgaggaaatggcaatgtttctaggctgcacccttcaatgtcc

 acaaagctgtgtggcatctgcttaggacccggtgcctgtgtgtgcataggaggaggcca

 ggaagcctggctgttgatccca

Exon 18 | Start: 159889 | End: 160012 | Length: 123

.
 tccctaccggagttttcaatccagttaataggcgtggaacagacatagaaattgtgttt

 gttgaaaggtagctgttcagttaaagaacacctgtatcagagcctgtgtttctaccaact

 tctgtcaagctctgtagagaaggcgtacatttgccttccaaatgagctggcaagtgcg

 tgtcctggcacccaagcccatgccgtggctgctgggtccccctgctgggccatgtctggca

 ctgctttccagcatggtgagggctgaggtgacccttgtctctgtgttctgtcccccca

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

.
 AAGgtaaggtccctggcacaggcctctgggctgggccgcagggcctctcatggctctggtg
 K

.
 gggagcccagagtccttgcaagctgtatatttccatcatctactttactctttgtttcac

 tgagtgtttgggaaactccagtgtttttcccaagttattgagaggaaatctttataacc

 acagtaatcagtggctcctgtgagaccaattcacagaccaaaggcatttttatgaaagggg

 ccattgaccttgccatggggtgcagcacaggcgaggaggaggccgcctctcaccgcacg
 .
 gca

Exon 19 | Start: 160690 | End: 160789 | Length: 99

.
 gttaggcctagacgcagcatcattaaattctggatgaaatgatccacacggactttataa

 caggctttacaagcttgagattcttttatctaataatcagtgtgattcgtggagcccaa

 cagctgcagggctgcggggcgctcacagccccagcaatatcagccttaggtgcggctcc

 acagccccagtggtccctcaccttcggggtgcatcgctggtaacatccaccagatcactg

 ggcagcatgtggcaccatctcacaattgccagttaacgtcttccttctctctgtcata

|2191	|2201	|2211	|2221	|2231	|2241
GGACTCTGGATCCCAGAAGGTGAGAAAAGTTAAAAATCCCGTCGCTATCAAGGAATTAAGA					
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

 ctctagtgggtataactccctccccttagagacagcactggcctctcccatgctggtatc

 caccctaaaaggctggaaacaggcaattactggcatctaccagcactagtttcttgaca

 cgcgatgatgagtgagtgtcttgggtgagcctggagcatg

Exon 20 | Start: 167261 | End: 167447 | Length: 186

.
 caggtgactccgactcctcctttatccaatgtgtcctcatggccactgttgccctgggcc

 tctctgtcatggggaatccccagatgcacccaggaggggccctctcccactgcatctgtc

 acttcacagccctgcgtaaactgcctgtgctaggtcttttgcaggcacagcttttcctc

 catgagtacgtattttgaaactcaagatcgcatcattcatgcgtcttcacctggaaggggtcc

 atgtgcccctccttctggccaccatgcgaagccacactgacgtgcctctccctccctcca

|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

GCAAAGtaatcaggggaaggagatacggggaggggagataaggagccaggatcctcaca
A K

tgcggtctgcgctcctgggatagcaagagtttgccatggggatatgtgtgtgcgtgcatg
cagcacacacacattcctttattttgattcaatcaagttgatcttcttgcacaaatc
agtgcctgtcccatctgcatgtggaactctcatcaatcagctacctttgaagaattttc
tctttattgagtgcctcagtggtctgatgtctctgttcttatttctctggaattcttg
tgaata

Exon 21 | Start: 177687 | End: 177843 | Length: 156

taagttcaagcccaggtctcaactgggcagcagagctcctgctcttcttgcctcatat
acgagcacctctggacttaaaacttgaggaactggatggagaaaagttaatggtcagcag
cgggttacatcttctttcatgcgctttccattctttggatcagtagtcactaacgttcg
ccagccataagtcctcgacgtggagaggctcagagcctggcatgaacatgaccctgaatt
cggatgcagagcttcttcccatgatgatctgtccctcacagcagggtcttctctgtttca

|2471	|2481	|2491	|2501	|2511	|2521
GGCATGAACTACTTGGAGGACCGTCGCTTG	GGTGCACCGCGACCTGGCAGCCAGGAACGTA				
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
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CTGGTGAAAAACACCGCAGCATGTCAAGATCACAGATTTTGGGCTGGCCAAACTGCTGGGT
 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
 GCGGAAGAGAAAGAATACCATGCAGAAGGAGGCAAAGtaaggaggtggctttaggtcagc
 A E E K E Y H A E G G K
 |871

.
 cagcattttcctgacaccagggaccaggctgccttcccactagctgtattgtttaacaca

 tgcaggggaggtatgctctccagacattctgggtgagctcgagcagctgctgctggcagc

 tgggtccagccaggtctcctggtagtgtgagccagagctgcttgggaacagtacttgc

 tgggacagtgaatgaggatgttatccccaggtgatcattagcaaattgttaggtttcagtc

 tctccctgcaggatatataagtccccttcaatagcg

Exon 22 | Start: 178734 | End: 178810 | Length: 76

.
 ctgggccctgaaaacacacgcagacctggatgagtgaggccactgggcacaaccagggt

 cccagctcaccagagcagcctgggacacagagggtgctcagaaacctaccagagcagccc

 tgaactccgtcagactgaaatcccctgttgccgggaggaggcgccgggcctgggggacgg

 gtcctggggtgatctggctcgtctgtgtgtgtcactcgtaattaggtccagagttagtta

 actttttccaacagagggaactaatagttgtctcactgcctcatctctcaccatcccaa

|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.
 GATGTCTGGAGCTACGgtgagtcataatcctgatgctaagagtttgactgaggccaag
 D V W S Y

.
 ctggcttttattgtagttaatttacattatatcctctgacatgcaagtattttctttcg

 agataatgactaatgataatgtaatcattgctgtctatctattgtactgagaaaacacgg

 cagaggaaatcgagtccagctgccgtccaaaagtcactggagattgcaatgagctcgtct

 ggcagggtggggggtatgggagggaaagagcttaggaaacggctctccctgcaaagtcca

 accaaactttaacgtt

Exon 23 | Start: 184685 | End: 184832 | Length: 147

.
 tgttaattaccaaagttaccacttatcagtcacttactacttgctgggcattgcactaa

 gcatttcagttgtattatcttggtgggtccttacagcaatcctgtgaaacagatactgct

 attacccacttttatagagaggtagactgaggcttcagcattgaagcaaattgccaag

 actacagaaatgtaggtttctaacatcaagaaacagtaaccagtaatgatgactaaagc

 aagggtattgtgattgttcattcatgatcccactgccttcttttcttgcttcacctctca

|2711 |2721 |2731 |2741 |2751 |2761
 GGGTGACCGTTTGGGAGTTGATGACCTTTGGATCCAAGCCATATGACGGAATCCCTGCCA
 G V T V W E L M T F G S K P Y D G I P A
 |901 |911

C W M I D A D S R P K F R E L I I E F S
 |951 |961

 |2911 |2921 |2931 |2941
 AAATGGCCCGAGACCCCGAGCGCTACCTTGTCATTCAGgtacaaattgcagtctgtgctt
 K M A R D P Q R Y L V I Q
 |971 |981

 ccattgggaagagtccttctaattgagcatctcatgtcactgtgttctgtcacatgccagc

 ctggcctccctgtgtcccagatcgattattaaaccctccagcgcattagagcaagcctc

 agtaaggcgcaggccacatcgtgaactaagcagcatccgtgagtggggccaccaactc

 catctccccctccccgtctgaactctcctctggtgctcgtcctcactgtccggctagcca

 aagcctcagctgggtctaagagagaagcatggtctatt

Exon 25 | Start: 187156 | End: 187324 | Length: 168

.
 tcacagcaaggtgcacactcgaatgctgcagcttcttccctttctgttccctcagaa

 gctatttgaatctcatgtaggggctttcaagcatcaaaggatgggttcattttatttta

 aggcacccacatcatgtcatgaggggaggcagctataatttagagaaccaaggggattt

 cattataacaaaattggcaaacacacaggcacctgctggcaatagaccctgctcctata

 gccaaagaagtggaaatagcatctctacgggccattctaatagcctcaaaatctctgcacca

 |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
GATGAAGAAGACATGGACGACGTGGTGGATGCCGACGAGTACCTCATCCCACAGCAGGGC					
D	E	E	D	M	D
D	V	D	A	D	E
				Y	L
				I	P
				Q	Q
				G	
		|1011			|1021

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

.

tgtctctctctctctcaagctgtgtctactcatttgaacaaattgaattttagggaaa

.

ataaccatctagtgaactcacatggatatgaagtcaattttaaccaaattggtaaaatca

.

aatcaaaaataaattaagtgatttaattattttgttgcatgcaacaacttgattgtaag

.

ccttttaggtccactatggaatgtaattaaatcaaaactaaacctagttgctctaaaact

.

aacgattaagacaaaaattaaacaccttcacaatataccctccatgag

Exon 26 | Start: 187703 | End: 187751 | Length: 48

.

atctagtgaactcacatggatatgaagtcaattttaaccaaattggtaaaatcaaaatca

.

aaataaattaagtgatttaattattttgttgcatgcaacaacttgattgtaagcctttt

.

aggtccactatggaatgtaattaaatcaaaactaaacctagttgctctaaaactaacgat

.

taagacaaaaattaaacaccttcacaatataccctccatgaggcacaccacctgcattca

.

ggaaaagtggatgagatgtggtacaagcattccatgggcaacttctctgtttctttttca

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

.
 accttataagccagaattttacagctctccactatggctctattttacatggaaaatgcct

 taacctaaataattttaaccagataatcttgagttttcttctgtgtgggtttttccct

 gcacggctgtcacgcctcacagtgccgttcaaagcgtgactcctggaccagtagtagcat

 cgcctggccttggttagaaacgccatttttcaggccactgccccagtttgaccaaatacagg

 acctctgggggtggcacccagtagtctatgtttgagccactttccagg

Exon 27 | Start: 188485 | End: 188594 | Length: 109

.
 tctcacacatgtgaagtgtccagtagccacacgtggctagtggtagcgtattgaagagc

 accgctcatagcacacctccctcactgcggaaagtctgtgtacagcacccagcacagc

 cctgtgcccaccctgcagcctgtggcccagtagcaccagcacccaccaggggtgcagact

 ctcaggcctgcccacactactaatcagaaccagcatctcaaggagatctcgggtgat

 tgcaaactgaagtggggcagccctgaccggagtaaccttcctcatttcctcctgca

|3171 |3181 |3191 |3201 |3211 |3221
 CTGCAAAGCTGTCCCATCAAGGAAGACAGCTTCTTGACGCGATACAGCTCAGACCCACA
 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.
 GGCGCCTTGACTGAGGACAGCATAGACGACACCTTCCTCCCAGTGCCTGgtgagtggc
 G A L T E D S I D D T F L P V P

|1081

.
gtctggaacagtcctgctcctcaacctcctcgacccactcagcagcagccagtcctccag
.
tgtccaagccaggtgctccctccagcatctccagagggggaacagtggcagatttgacag
.
acacagtgaagggcgtaaggagcagataaacacatgaccgagcctgcacaagctctttgt
.
tgtgtctggttggttgctgtacctctgttgtaagaatgaatctgaaaatttctagctta
.
tgaagcaaatcacggacatacacatctgtgtgtgtgagtgttcatgatg

Exon 28 | Start: 191224 | End: 193307 | Length: 2083

.
tacacatcacacatatatgtatacatgcatacacatacacacacatacacacactctc
.
ctcaaggcagtttatcctctgagaactttaatttacaaaagacacatatgtccattact
.
ttgagaaggacaggaaagaaccactttcttttgacgcaacagcaagagggccctccga
.
ggctcctgctccctgtcataagtctccttggtgaggacattcacagggttcagaaccag
.
ggatcctgcatgggatggtgctttgctgattacttcacctctgatttctttccactttca

 |3281 |3291 |3301 |3311 |3321 |3331
AATACATAAAACAGTCCGTTCCCAAAAGGCCGCTGGCTCTGTGCAGAATCCTGTCTATC
E Y I N Q S V P K R P A G S V Q N P V Y
|1091 |1101

 |3341 |3351 |3361 |3371 |3381 |3391
ACAATCAGCCTCTGAACCCCGCGCCAGCAGAGACCCACACTACCAGGACCCCAACAGCA
H N Q P L N P A P S R D P H Y Q D P H S
|1111 |1121

|+481 |+491 |+501 |+511 |+521 |+531
 CCAGTGGTTCTGCTTCAAGGCTTCCACTGCAAAACACTAAAGATCCAAGAAGGCCTTCAT

|+541 |+551 |+561 |+571 |+581 |+591
 GGCCCCAGCAGGCCGGATCGGTACTGTATCAAGTCATGGCAGGTACAGTAGGATAAGCCA

|+601 |+611 |+621 |+631 |+641 |+651
 CTCTGTCCCTTCTGGGCAAAGAAGAAACGGAGGGGATGGAATTCTTCCTTAGACTTACT

|+661 |+671 |+681 |+691 |+701 |+711
 TTTGTAAAAATGTCCCCACGGTACTTACTCCCCACTGATGGACCAGTGGTTTCCAGTCAT

|+721 |+731 |+741 |+751 |+761 |+771
 GAGCGTTAGACTGACTTGTGTTTGTCTTCCATTCCATTGTTTTGAAACTCAGTATGCTGCCC

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

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

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

|+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
 CAGTAGCATTATGAGTAGTGTGGAATTCAGGTAGTAAATATGAACTAGGGTTTGAAATT

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

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

ATTTCTCTACAATTGGAAGATTGGAAGATTGAGCTAGTTAGGAGCCCACCTTTTTTCCTA
 |+1441 |+1451 |+1461 |+1471 |+1481 |+1491
 ATCTGTGTGTGCCCTGTAACCTGACTGGTTAACAGCAGTCCTTTGTAAACAGTGTTTTAA
 |+1501 |+1511 |+1521 |+1531 |+1541 |+1551
 ACTCTCCTAGTCAATATCCACCCCATCCAATTTATCAAGGAAGAAATGGTTCAGAAAATA
 |+1561 |+1571 |+1581 |+1591 |+1601 |+1611
 TTTTCAGCCTACAGTTATGTTTCACTCACACACATACAAAATGTTTCCTTTTGCTTTTAA
 |+1621 |+1631 |+1641 |+1651 |+1661 |+1671
 AGTAATTTTGGACTCCCAGATCAGTCAGAGCCCTACAGCATTGTTAAGAAAGTATTGA
 |+1681 |+1691 |+1701 |+1711 . . .
 TTTTGTCTCAATGAAAATAAACTATATTTCATTTCCTCTAttatgctctcaaatacc

 cctaagcatctatactagcctgggtatgggtatgaaagatacaaagataaataaaacatag

 tccctgattctaagaaattcacaatttagcaaaggaaatggactcatagatgctaacctt

 aaaacaacgtgacaaatgccagacaggacccatcagccaggcactgtgagagcacagagc

 agggagggtgggtcctgcctgaggagacctggaaggaggcctcacaggaggatgaccag

 gtctcagtcagcggggagggtggaaagtgcaggtgcatcagggg

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