

Gene: EGFR - Sequence: NG_007726.3
Date : January 8, 2015

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

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ggaccgggtccagaggggcagtgctgggaacgcccctctcggaattaactcctcagggc
acccgctccccctcccatgcgccgccccactcccgccggagactaggtcccgggggcca
ccgctgtccaccgcctccggcggccgctggccttggggtccccgctgctggttctcctccc
tctcctctcgattctcctcctcctctgctcctcccgatccctcctccgccgcctggtccc
tctcctccccgcctgcctccccgcgcctcggcccgcgcgagctagacgtccgggcagcc

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

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

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

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

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

      |61      |71      |81
TGCCCGGCGAGTCGGGCTCTGGAGGAAAAGAAAGgtaagggcgtgtctcgccggtcccg
C P A S R A L E E K K V
      |21

cgccgcccccgatcgcgccccggaccccgagcccgcccaaccgcgccaccggcgccaccg
gctcggcgcccgcgcccccgcccgctcctttcctgtttccttgagatcagctgcgcccggc
accgggaccgcgggaggaacgggacgtttcgttcttcggccgggagagtctggggcgggc
ggaggaggagacgcgtgggacaccgggctgcaggccaggcggggaacggccgcccgggacc

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tccggcgccccgaaccgctcccaactttcttccc

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

ttcaatgcattatagggacaagctatctcttattatgaattgcaccttatataaacttaa
agatcttttatcacaaatttctttgctgtgtcctttagtgagaatttgattatcagtca
ctaaagctcactaagttagtaagctttgcgcccagatgacctgggcaggaatgggtgagt
ctctgtgtggagagagtgaagaaactgctacccttaataacctggaccttgagggattgtt
ttatttttagtttttctgcatttctcagttattcatgtgatctgtctttttcttccagt

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
TGCAGAGGAATTATGATCTTTCCTTCTTAAAGg		
Q R N Y D L S F L K		
71		

taaaattggagaaaatctaagtgagaaaaggcctgggcagaattccacttgaagtgtgtt
tatttttgctatggcaatgacaagtcttacagagctacaaacgagagttttatgagaaag
ccattttaccagctaattgtcaagtaataactagaaaaggatatcaaatagaaacaggcta
atctggagttccatgtcatcatagacactgacgtttatccctgaccattacctcagtc
gatgtgctgccatactcgctcttaaaaacttt

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

catgcataatcatttatgctgtgaccactgactaaaccattctcttccttccctcccatat
 ttctaaattttctaatacttgctcaaagcccaattcagagaaaaccctagctcctccatgg
 caccatcattaacaattttatctggccgcccccggaagttcactgggctaattgcggg
 actcttggtcgcaccatggcatctcttttagcagaacataaatgcgaagagcacatgcatc
 cttcatgggaattttaaggagctggaaagagtgtccaccgcagttccattctcccgcaga

431	441	451	461	471	481
AAATCCTG	CATGGCG	CGGTGCG	GTTCAGCA	ACAACCCT	GCCCTGTG
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
TCCAGTGG	CGGACAT	AGTCAGC	AGTGACTT	TCTCAGCA	ACATGTCG
Q	W	R	D	I	V
S	S	D	F	L	S
N	M	S	M	D	F
Q	N				
	171				181

551				
ACCACCTGGG				
CAGCTgta				
agtgtcgcata				
cacactatctct				
gcctccagctc				
cctatgggg				
H	L	G	S	C

gacagctctacagcactggggcaggggagagaagccatgttttagtaagtcacattaatca
 gaaacaaaaagtagtaagcaaaatatctgaccactagaaaagcatgtatttaccacggac
 atagagatcggttttttgtggcgggtggcagcccagctggttggcagtgaggccaccgg
 aggcagatcccctgcagggacagcagagcacttgtgtcctgagaagagctgctgttcatg
 gggctggcagcacca

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

gcagattgtaaacaaggaacctcaaattcatgaaaaattcttgcttatgtggcccatgtc
 agtaattactctctgcctcagtttccgcagctgacatgtaaataaaagcagttcatggtt
 catcttcttttcttatcggggtctcaagtattctacaaaccagccagccaaacaatcag

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
GCCAGAAACgtaagtcagtgaaacagcctcagacccatgtgtgaccgcccctctcttcctt
Q K L

cacttgcttaggtgattggatttgtttccctctgaagactccaaagagttactttatta
cagggtcagatgtgaaccagtaggtgaaggacagtcttgcaaactccacgcatgcagtt
aatccagggtgggctattttgggagcttcagcctatcacaataagtgaacatcagcagg
ggctgggcgcggtggctcaccctataatccagcactttgggaggcggaggcggtcgga
tcacgaggt

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

agcaggtatTTTTgttctttgtatgtgctttctgcattgccaagatgcatctaattatt
tagcaggtctcaaagtctagacttgatctcatgagttctcttaagtgattaaaaataaat
caggagaaaaaagaggcaatcagaaaaggcatggtttgacttagtttgaatgtggtttc
gttggaaagcaaagtgtcttcactttttcatgaaaagtctgcaagtgtctgcgacatc
cctgggaaatgatcctaccctcactcttcagctcacagggaacctttgctctttttcagt

631	641	651	661	671	681																
TGACAAAATCATCTGTGCCAGCAGTGCTCCGGGCGCTGCCGTGGCAAGTCCCCAGTG																					
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

taagatgccccctccagcagcctccctggagcaggctggggctgcacccgccccaccaca
 ccaggacagaagacttcctgtgggggagctgtcaattagcatttgtcataacagacagga
 tattgcctctgcctgggtgacaaagtatctttagtatcctgcctccaccactcactgaga
 ccttgggaaaatgatgggactaccatgcctccatttccttacctgacaatgatgcataac
 aaagtctctcccagttgaatgcttaaagatgatgagatgcctgtgatgtccgtcattagga

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

accgctataatgtgtgaactccatcatctatacgttagtaaacagacgtatTTTTatcat
 aatccataaattatgataggtgggacagtgcacctaagaaaaaatggactTTTTtagaga
 agggctcttctgactctgcagagggcgccagctgggttttccacactagtggaaacta
 ggctgcaaagacagtaacttgggcttctgacgggagtcaacaccgtgctgcgcttcctc
 cgtgtgtggcgctgagtgtacttacctcacttggccagcgtgtcctctctcctccatagg

|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

tccttgtcccgtctgtctcctgctgagccctggagtatcccatcttggagagtctttgg

gtggatgtgtttgccttgcttgaggaggcgaccctgtgcccgtccaggcacacaggcga
 ggggaggggctggcttgctaccgaggagcgggcaggtggtggccatctccacccatgggg
 gctgctcagtgcacagggcagatctgggtggccaggccacctcacaggagaaacacctgc
 tgctcagccctcaccactcatc

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

ggtggaggagagggtgaggtgcctgctgggacgcaaaacagctggcccctcaagggacc
 cagtgtttcctgccatgatgaaacacctgtattgtccacattgcggcctagaatgttatt
 aaactcttgaacgggattccttctctatttgcaacctttcattctttgtccttaaagtaa
 ataaagccaaaggaggatggagcctttccatcacccctcaaggaggacctggaccgcctgt
 gtgaggcccgagcacctgggtgccaccgtcatcaccttcctttcatgctctcttccccagg

891	901	911	921	931	941
GTAATTATGTGGTGACAGATCACGGCTCGTGCGTCCGAGCCTGTGGGGCCGACAGCTATG					
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
			C	E	G
				P	C
				R	K
				V	
	321			331	

ggaagcccgcgggtgtgcgacgaggcttgttctcggctgctgaggctgggctctcatgc
 cacctccaaaggaacacatcttctcttctcattaaaaaacaactatacatatcgtttct
 ttaaaacagaagataaagctgtaaagctaggttaggcaatgggaaggcactgaaggttgt
 gacggggtgggggctctgatgagaacagtcacagagccagccccgctcagcagctgcca
 ggtgcccagccctgggggagaatccagggaaggcagagctggaagcagtgacagctcca

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

cagtgcagctccaagcgggcccatgggaaataatgaggagaacgcaaggtcagtgtaggt
gacagggatggcatctcctacaccgccgtagcccccaggtgactataggtcctggtgtc
cccccttcccgctgcactctccccagccccttcagtgtttggtgagtgaatgaaggatg
atgtggcagtgggcggttcgggtgaccggaattccttcctgcttcctctgcctgtggatc
cctagctattcttaatccaacaaatgtgaacggaatacacgtctctcttatctctgcagt

1011	1021	1031	1041	1051	1061
TGTGTAACGGAATAGGTATTGGTGAATTTAAAGACTCACTCTCCATAAATGCTACGAATA					
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
TTAAACACTTCAAAAAGTGCACCTCCATCAGTGGCGATCTCCACATCCTGCCGGTGGCAT					
K H F K N C T S I S G D L H I L P V A F					
	361			371	

1131
TTAGGGGgtgagtcacaggttcagttgcttgataaagaaaaacaaatctgccttttta
R G

actggtagagattggtgatcaataatcacctgttggtttggttcagtgactccttcacac
atactcctcctctggatccacaggaactggatattctgaaaaccgtaaaggaaatcacag
gtttgagctgaattatcacatgaatataaatgggaaatcagtgttttagagagagaactt
ttcgacatatttcctgttccttggaaataaaaacatttcttctgaaattttaccgttaat
ggctgat

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

tctgcctgtggatccctagctattcttaatccaacaaatgtgaacggaatacacgtctct
cttatctctgcagtggtgaacggaataggtattgggtgaatttaaagactcactctccata

aatgctacgaatattaacacttcaaaaactgcacctccatcagtggcgatctccacatc
 ctgccggtggcatttagggggtgagtcacaggttcagttgcttgataaaagaaaaacaaa
 atctgcctttttaactggtagagattgggtgatcaataatcacctgttgttgtttcagt

|1141 |1151 |1161 |1171 |1181 |1191
TGACTCCTTCACACATACTCCTCCTCTGGATCCACAGGAAGTGGATATTCTGAAAACCGT
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
cctcccgcccgccccagccagctgccttgggtggcccataacccctgagggttagaggagg
gggacaggggtagg

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

agcctcttcggggtaatcagatacgcggcgcagcaggggtctcagggccacagccagggg
 ggcggcgggagacatgcggaatcgagcggaaggcgggaggcagctgtgaactgtggctc
 ggcctgcgtccgccctgcgcatgtacactcagagaagatgataatgaaaaagaaagcaaa
 tccaattttccacttactgttcatataatacagagtccctgagagtctagagtaatgtc
 tcatacaaaaaagaaactcctacgtggtgtgtgtctgaagtctttcatctgccttacagg

|1211 |1221 |1231 |1241 |1251 |1261
GGTTTTTGCTGATTGAGGCTTGGCCTGAAAACAGGACGGACCTCCATGCCTTTGAGAACC
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	

attacatttgccttttttagttgaaattaggcttaacaggagagttgctaagataggga
cagagctcctgcattctctcgccggcattcccaaatgctatctcacatgagcaggcacagg
gagcaagactgcacgaccactggcacaggctgtccgctaaccacagacttctcagcgct
cgccagtgttctgtcttctgtgtccactccagatccacattgcacttagttgtcaaac
ttttcagtccatttctaacctatattagctc

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

tcaatttccaggcaaaatgaaaatggagaaaatataatgacattaaggcattttattcat
cctccccatctgccactgggttaaagataactaaataaacaaggaactatcttttgcctgg
aggaactttaaaaacacctgcagttttcaaaaggtgcagtggtgtgcctcccacagcatga
cctaccatcattggaaagcagttttagtcaatcaaaggtggtctggagaaacaaagttt
tcagggatacattgtttttataatttttcaccacatgatttttcttctctccaatgtagt

1301	1311	1321	1331	1341	1351
TGGTCAGTTTTCTTTCAGTCGTCAGCCTGAACATAACATCCTTGGGATTACGCTCCCT					
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
CAAGGAGATAAGTGATGGAGATGTGATAATTTTCAGGAAACAAAAATTTGTGCTATGCAAA					
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
------	------

CAGAGGTGAAAACAGCTGCAgtaagtcaccgctttctgttttagtttatggagttggttct
R G E N S C K

aatgggtcctttatttgtagttagaattgaagggtattcccatttaaattacttttt
tcagttccttaagaagcaaattaaaatcttaagattcctaactgtgaaattaccatgtga
attccattaaaactttttccagatcattaccattcaatgggatgaatttacctgaggtt
taggctaccaattatttgtaatgtaagtaactaaatttagtattagttatattacctttt
agttgtaggtcactctctgc

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

ggactcacggcacccccctctcgggtgccagggtgcctggctcccaccaggaggaagacct
gtcctccactgtcaggcacatttcagtcctcccagcagccagcacaaactactttgtcctt
ccagtcacgggtcggcctctgggaagcccagtcgtgtcctcctccttcaggggtagccag
catgtctgtgtcacccaaggtcatggagcacagggtcccctcccgggaaggtgccgtctcc
tccggccccctcgggtccctgctctgtcactgactgctgtgacccactctgtctccgcaga

|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

tccaggttggtgttagctttacaggcattctgtttgattttctcttccttttattctt

tggccttggcttttggaggttttgggttttctgtggggagacgggaagttgtttgattgc
 gttatttttggcaaatttaagcacaataggaaataagcaagtattattgcctaataataat
 ccaataatttatagaatctcttttctggaagtatcttaaatttttctaagctacaaaaa
 gttcctaagacaa

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

acacctcctcaggactatcttttcttttatcatttggcttgcttacccaatatgcaaaaa
 ctatgctgtagaaaaagcagaaaagatatcttgattatgaatgaagctcctgtgtttact
 cagagagaagatgaccaggattcagttaacaaaatcagctgattatattactatatagt
 cctggagtgcccaactccttgaccattacctcaagttatttgggaattttgaagagggtgatt
 tgtgttcctgcaataatgtctcaggggtgggctgacgggttctcttcctcctctcagt

1641	1651	1661	1671	1681	1691
TGAGCCAAAGGGAGTTTGTGGAGAACTCTGAGTGCATACAGTGCCACCCAGAGTGCCTGCC					
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		

atttcatgggaagggccttcacagaagccgaacagtgatgatggcccagggcacacctgtg
 tgggcaggacggccatcagagccacttcccagaggagacggcaggcgctgacagcgctgt
 ccgggcagggtgtcggtgacattagcacacacattagcctgcatgaacattcactcttt
 ctgctgacacccccaaccttatctaagcttatcaaatcctcacatttaacggaggctgtt
 ttcacctggtttcccccatccctgacctagt

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

ttttgccaaggaaagatgccacaatggttaagcagaatgcaataatgtagagaatatca
 tttctttcatgctggtgtatatcatatgcattcaaaaacaggaggagaacttctaagcaact
 aacagtgaccatatcaagcaggtgcaatcacagaataactggttttctcctttaagaatt
 tttctatcatttggttttccccactcacacacactaaatatTTTtaagtaaaaagttactt
 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	AGGAGTCAT	GGGAGAAA	ACAACACC	TGGTCTGGA	AGTACGCAG
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
CATGTGTGCC	ACCTGTGCC	ATCCAACTG
C A G V M G	E N N T L V	W K Y A D A
	621	

cagaacatttcctctcttgcaaattcagagatcaaaaatgtctcccaagttttccggcaa
 caaattgccgaggtttgtatttgagtcagttacttaagggtgttttggtccccacagccat
 gccagtagcaacttgcttggtgagcaggcctcagtgagtggaatgactctgccatgcac
 cgtgtccccggcgggcctgtgttgcaatgctgcacatcacaacaggagggttaggggg
 acaaaagagcacaggtcctggcagctgccacagtctcc

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

attatctgtgtcaaaagccagatgtgaaaacatctcaataacaaactggctgctttgttc
 aatgctagaacaacgcctgtcacagagtagaaactcaaaaatatttgctgagtgaaatgaa

tccatcggacctcgtcaagaatgaccacactgctgtgggtgaagatgctttcctgcattt
ctgactgtcctctgtcctgatcaagtttctatggctctgggccagcctaccctcagccag
ggtttctgcagagactgccagctggttccacgtggctccacgtgccaactttgtcctca
gtggagggaagtgtgacacacagtgtctggggctgctccctgctccgccgttgctcgatg
catggcctgcctctgaattccttggttccactggttttg

catattttgttaatcaacaaattgaaaaatactcattatatggagaggtccagataaagc
ctcaatttttaaaaatgaggaaaagtgtgcctggtaggggactggggagagcttgagaaa
gttggaacgttgccttagaagcctgttttttctccttttagaagctacatagtgtctca
ctttccaagatcattctacaagatgtcagtgactgaaacatgcaggggcgtgttgagtg
ccaaggccatggaatctgtcagcaacctcacccttccttgttcctccacctcattccagg

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

ccccgacaggaacaagggccagccccgagaacggggccattagcagttgtgtatgttagat
acataattgtattatgatgcagaaagaatctctgaatgtgcagttatacccagttgggta
catgttggtacatccatccgaggaaatggcaatgtttctaggctgcacccttcaatgtcc
acaaagctgtgtggcatctgcttaggacccgggtgcctgtgtgtgcataggaggaggcca
ggaagcctggctgttgatccca

cctaccggaggttttcaatccagttaataggcgtggaacagacatagaaattgtgtttgt
tgaaaggtagctgttcagttaaagaacacctgtatcagagcctgtgtttctaccaacttc
tgtcaagctctgtagagaaggcgtacatttgtccttccaaatgagctggcaagtgccgtg
tcctggcacccaagcccatgccgtggctgctgggtccccctgctgggccatgtctggcact
gctttccagcatggtaggggctgaggtgaccttgtctctgtgtttcttgtccccccagc

AAGGAAACTGAATTCAAAAAGATCAAAGTGCTGGGCTCCGGTGC GTTCGGCACGGTGTAT

K E T E F K K I K V L G S G A F G T V Y

gggagcccagagtccttgcaagctgtatattccatcatctactttactctttgtttcac

tgagtgtttgggaaactccagtgtttttcccaagttattgagaggaaatcttttataacc
acagtaatcagtggctcctgtgagaccaattcacagaccaaaggcatttttatgaaagggg
ccattgaccttgccatggggtgcagcacaggcgaggaggccgcctctcaccgcacg
gca

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

taggcctagacgcagcatcattaaattctggatgaaatgatccacacggactttataaca
ggctttacaagcttgagattcttttatctaaataatcagtgtgattcgtggagcccaaca
gctgcagggtgcggggcggtcacagccccagcaatatcagccttaggtgcggctccac
agccccagtggtccctcaccttcggggtgcatcgttgtaacatccaccagatcactggg
cagcatgtggcaccatctcacaattgccagttaacgtcttccttctctctgtcatagg

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
tctagaccctgctcatctccacatcctaaatgttcactttctatgtctttccctttctag
ctctagtgggtataactccctccccttagagacagcactggcctctcccatgctggtatc
caccckaaaaggctggaaacaggcaattactggcatctaccagcactagtttcttgaca
cgcatgatgagtgagtgtcttgggtgagcctgggagcatg

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

ggtgactccgactcctcctttatccaatgtgctcctcatggccactgttgccctgggcctc
tctgtcatggggaatccccagatgcacccaggagggggccctctcccactgcatctgtcac
ttcacagccctgcgtaaacgtccctgtgctaggtccttttgaggcacagcttttctcca
tgagtacgtattttgaaactcaagatcgcatcattcatgcgtcttcacctggaaggggtccat
gtgcccctccttctggccaccatgcgaagccacactgacgtgcctctccctccctccagg

2291	2301	2311	2321	2331	2341
GAAGCCTACGTGATGGCCAGCGTGGACAACCCACGTGTGCCGCTGCTGGGCATCTGC					
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

tgcggctctgcgctcctgggatagcaagagtttgccatggggatatgtgtgtgcgtgcatg
cagcacacacacattcctttatgttgattcaatcaagttgatcttcttgtgcacaaatc
agtgcctgtcccatctgcatgtggaaactctcatcaatcagctaccttgaagaattttc
tctttattgagtgtcagtggtgtgatgtctctgttcttatttctctggaattctttg
tgaata

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

agttcaagcccaggtctcaactgggcagcagagctcctgctcttctttgtcctcatatac
gagcacctctggacttaaaacttgaggaactggatggagaaaagttaatggtcagcagcg
ggttacatcttctttcatgcgctttccattctttggatcagtagtcactaacgttcgcc
agccataagtcctcgacgtggagaggctcagagcctggcatgaacatgacctgaattcg
gatgcagagcttcttcccatgatgatctgtccctcacagcagggtcttctctgtttcagg

2471	2481	2491	2501	2511	2521
GGCATGAACTACTTGGAGGACCGTCGCTTGGTGCACCGCGACCTGGCAGCCAGGAACGTA					
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
GCGGAAGAGAAAGAATACCATGCAGAAGGAGGCAA	Agtaaggaggtggctttaggtcagc		
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
cctggggatgatctggctcgtctgtgtgtgtcactcgtaattaggtccagagtgaagtaac
ttttccaacagaggaaactaatagttgtctcactgcctcatctctcaccatcccaagg
|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
GATGTCTGGAGCTACGgtgagtcataatcctgatgctaatagtttgtactgaggccaag
D V W S Y G
|901
ctggcttttattgttagttaatttacattatatcctctgacatgcaagtattttctttcg
agataatgactaatgataatgtaatcattgctgtctatctattgtactgagaaaacacgg
cagaggaaatcgagtcagctgccgtccaaaagtcactggagattgcaatgagctcgtct
ggcagggtggggggtatgggagggaagagcttaggaaacggctctccctgcaaagtcca
accaaactttaacggt

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

ttaattaccaaagttaccacttatcagtcacttactacttgctgggcattgcactaagc
atttcagttgtattatcttggtgggtccttacagcaatcctgtgaaacagatactgctat
taccctctttatagagaggtagactgaggcttcagcattgaagcaaattgccaagac
tacagaaatgtaggtttctaaacatcaagaaacagtaaccagtaatgatgactaaagcaa
gggattgtgattgttcattcatgatccactgccttcttttcttgcttcacctctcagg
|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

ctggcctccctgtgtcccagatcgattattaaaccctccagcgcattagagcaagcctc
 agtaaggcgcaggccacatcgtgaactaagcagcatccgtgagtggggcccaccaactc
 catctccccctccccgtctgaactctcctctgggtgctcgtcctcactgtccggctagcca
 aagcctcagctgggtctaagagagaagcatggtctatt

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

acagcaaggtgcacactcgatgaatgctgcagcttcttccctttctgtttcctcagaagc
 tatttgaatctcatgtaggggctttcaagcatcaaaggatgggtcatgttttattttaag
 gcaccacatcatgtcatgaggggagggcagctataatttagagaaccaagggggatttca
 ttataacaaaattggcaaacacacaggcacctgctggcaatagaccctgctcctatagc
 caagaagtggaatagcatctctacggggcatttctaatagcctcaaaatctctgcaccagg

2951	2961	2971	2981	2991	3001
GGGGATGAAAGAATGCATTTGCCAAGTCCTACAGACTCCAACCTTCTACCGTGCCCTGATG					
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			

tgtctctctctctctctcaagctgtgtctactcatttgaacaaattgaattttagggaaa
 ataaccatctagtgaactcacatggatatgaagtcaattttaaccaaattggtaaaatca
 aatcaaaataaattaagtgtattaattatgttgcattgcaacaacttgattgtaag
 ccttttaggtccactatggaatgtaattaaatcaaaactaaacctagttgctctaaaact

aacgattaagacaaaaattaaacaccttcacaatataccctccatgag

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

ctagtgaactcacatggatatgaagtcaattttaaccaaattggtaaaatcaaaatcaaa
ataaattaagtgtattaattatgttgcttgcaacaacttgattgtaagccttttag
gtccactatggaatgtaattaaatcaaaactaaacctagttgctctaaaactaacgatta
agacaaaaattaaacaccttcacaatataccctccatgaggcacaccacctgcattcagg
aaaagtggaatgagatgtggtacaagcattccatgggcaacttctctgtttcttttcaga

3121	3131	3141	3151	3161
AGTGCAACCAGCAACAATTCCACCGTGGCTTGCAATTGATAGAAATGGG	gtatgtaac			
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: 3409 | End: 3517 | Length: 108

tcacacatgtgaagtgtccagtagccacacgtggctagtggtgaccgtattgaagagcac
cgctcatagcacacctccctcactgcggaagtctgtgtgtacagcaccagcacagccc
tgctgcccaccctgcagcctgtggcccagtagcaccagcaccaccagggtgcagactct
caggcctgcccacactactaatcagaaccagcatctcaaggagatctcgggtgatttttg

caaacactgaagttggggcagccctgaccggagtaaccttccctcatttcctcctgcagc

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
GGCGCCTTGACTGAGGACAGCATAGACGACACCTTCCTCCCAGTGCCTGgtgagtggtt				
G A L T E D S I D D T F L P V P E				
	1081			1091

gtctggaacagtcctgctcctcaacctcctcgacccactcagcagcagccagtcctccag
tgtccaagccaggtgctccctccagcatctccagagggggaacagtggtgagatttgagc
acacagtggaagggcgtaaggagcagataaacacatgaccgagcctgcacaagctctttgt
tgtgtctggttggttgctgtacctctgttgtaagaatgaatctgcaaaatttctagctta
tgaagcaaatcacggacatacacatctgtgtgtgtgagtggtcatgatg

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

cacatcacacatatatgtatacatgcatacacatacacacacacatacacacactctcct
caaggcagtttatcctctgagaactttaatttacaagaacacatatgtccattacttt
gagaaggacaggaaagaacccactttcttttgagcaacagcaagagggccctcccaggg
ctcctgctccctgtcataagtctccttggttgaggacattcacagggttcagaaccaggg
atcctgcatgggatgggtgctttgctgattacttcacctctgatttctttccactttcaga

3281	3291	3301	3311	3321	3331
AAATACATAAACAGTCCGTTCCCAAAAGGCCCGCTGGCTCTGTGCAGAATCCTGTCTATC					
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
 CTGCAGTGGGCAACCCCGAGTATCTCAACACTGTCCAGCCCACCTGTGTCAACAGCACAT
 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
 TCGACAGCCCTGCCCCTGCGGCCAGAAAGGCAGCCACCAAATTAGCCTGGACAACCCTG
 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 |+1
 CAGCTGAAAATGCAGAATACCTAAGGGTCGCGCCACAAAGCAGTGAATTTATTGGAGCAT
 A E N A E Y L R V A P Q S S E F I G A *
 |1201 |1211

|+11 |+21 |+31 |+41 |+51 |+61
 GACCACGGAGGATAGTATGAGCCCTAAAAATCCAGACTCTTTCGATACCCAGGACCAAGC

|+71 |+81 |+91 |+101 |+111 |+121
 CACAGCAGGTCTCCATCCCAACAGCCATGCCCGCATTAGCTCTTAGACCCACAGACTGG

|+131 |+141 |+151 |+161 |+171 |+181
 TTTTGCAACGTTTACACCGACTAGCCAGGAAGTACTTCCACCTCGGGCACATTTTGGGAA

|+191 |+201 |+211 |+221 |+231 |+241
 GTTGCATTCTTTGTCTTCAAACCTGTGAAGCATTTACAGAAACGCATCCAGCAAGAATAT

|+251 |+261 |+271 |+281 |+291 |+301
 TGTCCCTTTGAGCAGAAATTTATCTTTCAAAGAGGTATATTGAAAAAAAAAAAAAGTAT

|+311 |+321 |+331 |+341 |+351 |+361
 ATGTGAGGATTTTTATTGATTGGGGATCTTGAGTTTTTTCATTGTCGCTATTGATTTTGA

|+371 |+381 |+391 |+401 |+411 |+421
 CTTCAATGGGCTCTTCCAACAAGGAAGAAGCTTGCTGGTAGCACTTGCTACCCTGAGTTC

|+431 |+441 |+451 |+461 |+471 |+481
 ATCCAGGCCCAACTGTGAGCAAGGAGCACAAGCCACAAGTCTTCCAGAGGATGCTTGATT

|+491 |+501 |+511 |+521 |+531 |+541

CCAGTGGTTCTGCTTCAAGGCTTCCACTGCAAAACACTAAAGATCCAAGAAGGCCTTCAT

 |+551 |+561 |+571 |+581 |+591 |+601
GGCCCCAGCAGGCCGGATCGGTACTGTATCAAGTCATGGCAGGTACAGTAGGATAAGCCA

 |+611 |+621 |+631 |+641 |+651 |+661
CTCTGTCCCTTCTCTGGGCAAAGAAGAAACGGAGGGGATGGAATTCTTCCTTAGACTTACT

 |+671 |+681 |+691 |+701 |+711 |+721
TTTGTA AAAATGTCCCCACGGTACTTACTCCCCACTGATGGACCAGTGGTTTCCAGTCAT

 |+731 |+741 |+751 |+761 |+771 |+781
GAGCGTTAGACTGACTTGTTTGTCTTCCATTCCATTGTTTTGAAACTCAGTATGCTGCC

 |+791 |+801 |+811 |+821 |+831 |+841
CTGTCTTGCTGTGTCATGAAATCAGCAAGAGAGGATGACACATCAAATAATAACTCGGATTC

 |+851 |+861 |+871 |+881 |+891 |+901
CAGCCCACATTGGATTCATCAGCATTTGGACCAATAGCCCACAGCTGAGAATGTGGAATA

 |+911 |+921 |+931 |+941 |+951 |+961
CCTAAGGATAGCACCGCTTTTGTCTCGCAAAAACGTATCTCCTAATTTGAGGCTCAGAT

 |+971 |+981 |+991 |+1001 |+1011 |+1021
GAAATGCATCAGGTCCTTTGGGGCATAGATCAGAAGACTACAAAAATGAAGCTGCTCTGA

 |+1031 |+1041 |+1051 |+1061 |+1071 |+1081
AATCTCCTTTAGCCATCACCCCAACCCCCAAAAATTAGTTTGTGTTACTTATGGAAGATA

 |+1091 |+1101 |+1111 |+1121 |+1131 |+1141
GTTTTCTCCTTTTACTTCACTTCAAAAGCTTTTACTCAAAGAGTATATGTTCCCTCCAG

 |+1151 |+1161 |+1171 |+1181 |+1191 |+1201
GTCAGCTGCCCCCAAACCCCTCCTTACGCTTTGTACACAAAAAGTGTCTCTGCCTTGA

 |+1211 |+1221 |+1231 |+1241 |+1251 |+1261
GTCATCTATTCAAGCACTTACAGCTCTGGCCACAACAGGGCATTTTACAGGTGCGAATGA

 |+1271 |+1281 |+1291 |+1301 |+1311 |+1321
CAGTAGCATTATGAGTAGTGTGGAATTCAGGTAGTAAATATGAAACTAGGGTTTGAAATT

 |+1331 |+1341 |+1351 |+1361 |+1371 |+1381
GATAATGCTTTACAAACATTTGCAGATGTTTTAGAAGGAAAAAAGTTCCTTCCTAAAATA

 |+1391 |+1401 |+1411 |+1421 |+1431 |+1441
ATTTCTCTACAATTGGAAGATTGGAAGATTCAGCTAGTTAGGAGCCCACCTTTTTTCCTA

|+1451 |+1461 |+1471 |+1481 |+1491 |+1501
 ATCTGTGTGTGCCCTGTAACTGACTGGTTAACAGCAGTCCTTTGTAAACAGTGTTTTAA

|+1511 |+1521 |+1531 |+1541 |+1551 |+1561
 ACTCTCCTAGTCAATATCCACCCCATCCAATTTATCAAGGAAGAAATGGTTCAGAAAAATA

|+1571 |+1581 |+1591 |+1601 |+1611 |+1621
 TTTTCAGCCTACAGTTATGTTTCAGTCACACACACATACAAAATGTTCCCTTTTGCTTTTAA

|+1631 |+1641 |+1651 |+1661 |+1671 |+1681
 AGTAATTTTGGACTCCCAGATCAGTCAGAGCCCCTACAGCATTGTTAAGAAAGTATTGA

|+1691 |+1701 |+1711 |+1721
 TTTTGTCTCAATGAAAAATAAACTATATTCAATTTCCACTCTAttatgctctcaaatacc

cctaagcatctatactagcctgggtatgggtatgaaagatacaaagataaataaaacatag

tccctgattctaagaaattcacaatntagcaaaggaaatggactcatagatgctaacctt

aaaacaacgtgacaaatgccagacaggaccccatcagccaggcactgtgagagcacagagc

agggagggtgggtcctgcctgaggagacctggaaggaggcctcacaggaggatgaccag

gtctcagtcagcggggagggtggaaagtgcaggtgcatcagggg