

Gene: AIRE - Sequence: NG_009556.1

Date : January 14, 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: 1 | End: 259 | Length: 258

.
gccccattcgagcagggccctcgccgaggcaggacagggccacattcggaagtgagagtt

.
ctctgagtcgccacagagcgagtctctgtccccagcccccaaggcagctgccctgggtgg

.
gtgagtcaggccaggcccgagacttcccagagcgagggagggacagcagcgcctccat

.
cacagggaagtgtccctgcgggaggccctggccctgattgggcgccggggcgaggcggcc

.
tttgctctttgcgtggtcgcggggtataacagcggcgcgctggctcgcagaccgggga

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

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

|1 |11 |21 |31 |41 |51
CCACCCCATGGCGACGGACGCGGCGCTACGCCGGCTTCTGAGGCTGCACCGCACGGAGAT
M A T D A A L R R L L R L H R T E I
|1 |11

|61 |71 |81 |91 |101 |111
CGCGGTGGCCGTGGACAGCGCCTTCCCACTGCTGCACGCGCTGGCTGACCACGACGTGGT
A V A V D S A F P L L H A L A D H D V V
|21 |31

|121 |131

CCCCGAGGACAAGTTTCAGgtgggctccccgccccccccctgccccaggccctgtg
P E D K F Q
|41

.
agccagggatagttccccggggaagttccaggaggacccgcccctccagatccccaagcc
.
cctccagccttccccaaactccctccccacaaggagccagggcgctccctgatgacaagtt
.
agaagttggtccccttccccagccgtccccacacctaccccccaagccaagggaatggc
.
ctccaggttccccagccccaccctcaacaccctacaccaccacctgactccaccacaa
.
gccgaggagatgggcgtgg

Exon 2 | Start: 260 | End: 434 | Length: 174

.
tccctccccacaaggagccagggcgctccctgatgacaagttagaagttggtccccttcc
.
cccagccgtccccacacctaccccccaagccaagggaatggcctccaggttccccagcc
.
ccaccctcaacaccctacaccaccacctgactccaccacaagccgaggagatgggcgtg
.
gagctgtccaggtcgccagcgcctctgcctgggagctccaccctctagtcatgatggaga
.
tgggcaggccgcagggtgtgggggaccatggcagggaccctcatgccaccccactgcagg

141	151	161	171	181	191
GAGACGCTTCATCTGAAGGAAAAGGAGGGCTGCCCCAGGCCTTCCACGCCCTCCTGTCC					
E T L H L K E K E G C P Q A F H A L L S					
	51			61	
201	211	221	231	241	251

TGGCTGCTGACCCAGGACTCCACAGCCATCCTGGACTTCTGGAGGGTGCTGTTCAAGGAC
W L L T Q D S T A I L D F W R V L F K D
|71 |81

|261 |271 |281 |291 |301 .
TACAACCTGGAGCGCTATGGCCGGCTGCAGCCCATCCTGGACAGCTTCCCCAAAGgtggg
Y N L E R Y G R L Q P I L D S F P K D
|91 |101

.
tcctggtggactcagccatgctgggggcctggggcagctgctgtcacctgctcagcccag
.
ctggactggaaccggagtgggtgtttgaggagcccgtgggtgatgttccaggaccgtcttg
.
gatcctaagaggcaaaggggccaggcctcacctgtctggccaaggtgtccagttctgggg
.
cccaccctaccctggagaaaaccctgaggttgggaccctgctcctgcccctgagctgca
.
gatgtggacctcagccagccccggaaggggaggaagccccggccgtccccaagg

Exon 3 | Start: 435 | End: 590 | Length: 155

.
caacctggagcgctatggccggctgcagcccacatcctggacagcttcccaaaggtgggtc
.
ctggtggactcagccatgctgggggcctggggcagctgctgtcacctgctcagcccagct
.
ggactggaaccggagtgggtgtttgaggagcccgtgggtgatgttccaggaccgtcttga
.
tcctaagaggcaaaggggccaggcctcacctgtctggccaaggtgtccagttctggggcc
.
cacctaccctggagaaaaccctgaggttgggaccctgctcctgcccctgagctgcaga
|311 |321 |331 |341 |351 |361

ATGTGGACCTCAGCCAGCCCCGGAAGGGGAGGAAGCCCCGGCCGTCCCCAAGGCTTTGG
 V D L S Q P R K G R K P P A V P K A L V
 |111 |121
 |371 |381 |391 |401 |411 |421
 TACCGCCACCCAGACTCCCCACCAAGAGGAAGGCCTCAGAAGAGGCTCGAGCTGCCGCGC
 P P P R L P T K R K A S E E A R A A A P
 |131 |141
 |431 |441 |451 |461
 CAGCAGCCCTGACTCCAAGGGGCACCGCCAGCCCAAGtaccctccctgcagggaagcca
 A A L T P R G T A S P G
 |151

.
 gccagggtctccagtcttcccgggcttccccgggagcccacgccccctccccaccgggc

 tcccaccactgggtgtggggccagcctgcctggggctgtgggggtctcctctgggtact

 agaccacacactggaccagcctctcagctccctcctgcctgaaggctgagctccccgga

 gctggtgaagtaggcgggcggtctcatttcccttttactgatgagaaaccagagcccgg

 caaagggactaccagcactggaccgccccctccac

Exon 4 | Start: 591 | End: 665 | Length: 74

.
 tcccaccactgggtgtggggccagcctgcctggggctgtgggggtctcctctgggtact

 agaccacacactggaccagcctctcagctccctcctgcctgaaggctgagctccccgga

 gctggtgaagtaggcgggcggtctcatttcccttttactgatgagaaaccagagcccgg

 caaagggactaccagcactggaccgccccctccacgccctcccaccgcgggcccctgcc

.
 caccggcactcacccccactgagaggggaggccaggctgccccagctccccattcagg

 |471 |481 |491 |501 |511 |521
 GCTCTCAACTGAAGGCCAAGCCCCCAAGAAGCCGGAGAGCAGCGCAGAGCAGCAGCGCC
 S Q L K A K P P K K P E S S A E Q Q R L
 |161 |171

 |531
 TTCCACTCGGGAACGgtgagcggggcccagtgaggagcgctcccttctccctggccaggg
 P L G N G

 gcaaggggtcaggggtcagagcagggcctgcccctctgagaccctgtcctaggggctgggg

 acgtgctggcctggtgtgtcattccaagggcctaagctgcaccaccagaccaggaagg

 gacaccttgggtctaagcatgatcttgccagtcgcccctgccccactgcaccctggttc

 tgggacccccttctcaggcaccttctctgcccgtccactccctatccttcaggaccagcc

 . . .
 tagacatagcttcct

Exon 5 | Start: 666 | End: 779 | Length: 113

.
 atgtcatgggggggtgggtctggtcattggtcatgccttcctatccattgtgccagctct

 gctgacactgccacccccagcacacgcacacttgggtgcacacacgaacacacacattc

 tcatgtctctgcacttacctgtgggctgtctgcacatggcagggtgggtcccctccttg

 gcctgcccctggctggaaggaaagggtctgcagcccagtgctgcctgcttctggcataga

.
 gtatgtgcttggaacagtcttccccacgggtgacccaatgggtgttccctttccagg

 |541 |551 |561 |571 |581 |591
 GGATTGACCATGTCAGCTTCAGTCCAGAGAGCTGTGGCCATGTCCTCCGGGGACGTCC
 I Q T M S A S V Q R A V A M S S G D V P
 |181 |191

 |601 |611 |621 |631 |641 |651 .
 CGGGAGCCCGAGGGGCGTGGAGGGGATCCTCATCCAGCAGGTGTTGAGTCAGgtagac
 G A R G A V E G I L I Q Q V F E S G
 |201 |211

 gctgtggcggggagatggggctgatggggagaccaggctccaagatggaaggaggacca

 cgccccttgcacacctggtgggtccacagcagaccggactgttgctcaggtagccagagt

 ttctgcctgtggttctgctgactttggaggaggagggtgagcactgaagtctccctgtcg

 ggggaccttctgcaaggccagcgggtccaggcccacatccccaccgggatgtacagcact

 cccagtcacctccatccatgtgcatggggccctcctgggcatgggggttgcac

Exon 6 | Start: 780 | End: 925 | Length: 145

.
 cttatggtccagtgtgacctcatcttaactaatcacatctacaaagaccctgatttcaag

 taaggtcacactctgaggttctgggtggacgtgaacttcgggggacgctgttgaacaccc

 tgggtgtagatccaggacaatccccgggcccagactcgactgggggtggggcgggctgga

 ggaatgcaggctgtgggaactccacctgtctctgctagacccaccctggggcctacacg

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. . . . .
actgccaaaggcaggtcctgctgggcgggtgagccaggaccagccggcatctcctcccagg

      |661      |671      |681      |691      |701      |711
GCGGCTCCAAGAAGTGCATCCAGGTTGGCGGGGAGTTCTACACTCCCAGCAAGTTCGAAG
  G  S  K  K  C  I  Q  V  G  G  E  F  Y  T  P  S  K  F  E  D
      |221                        |231

      |721      |731      |741      |751      |761      |771
ACTCCGGCAGTGGGAAGAACAAGGCCCGCAGCAGCAGTGGCCCGAAGCCTCTGGTTCGAG
  S  G  S  G  K  N  K  A  R  S  S  S  G  P  K  P  L  V  R  A
      |241                        |251

      |781      |791      . . . . .
CCAAGGGAGCCCAGGGCGCTGCCCCGtaagcacctgaccttcctggggagcctggctc
  K  G  A  Q  G  A  A  P
      |261

. . . . .
ttgatgccccccgccccaggaacagcgttgcctctgggggagtggtctctgctgggggctg

. . . . .
ggggctgctgccgagagacgcctggtgccacagccatgtgcaccctcgctgctgaggctg

. . . . .
ccccattgctgacgcccctcttccttgccagggtggagggtaggctaggctgggccagca

. . . . .
gggcagcggtcccgcctctggccctcccagtgacccccagctccaccaggtaatgcc

. . . . .
ctagaccacaggagaggcccctgtct

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Exon 7 | Start: 926 | End: 1006 | Length: 80

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. . . . .
gagttctacactcccagcaagttcgaagactccggcagtggggaagaacaaggcccgcagc

. . . . .
agcagtgggcccgaagcctctggttcgagccaaggagcccaggcgctgccccgtaagc

```

.
 acctgaccttcctggggagcctggctcttgatgcccccgccccaggaacagcgttgcc

 tctgggggagtggtctgctgctgggggctgggggctgctgccgagagacgcctgggtgccaca

 gccatgtgcaccctcgtgctgaggctgccccattgctgacgcccctcttccttgagg
 |801 |811 |821 |831 |841 |851
 GGTGGAGGTGAGGCTAGGCTGGGCCAGCAGGGCAGCGTTCCCGCCCCTCTGGCCCTCCCC
 G G G E A R L G Q Q G S V P A P L A L P
 |271 |281
 |861 |871
 AGTGACCCCCAGCTCCACCAAGtaatgccctagaccacaggagaggcccctgtctgccct
 S D P Q L H Q
 |291

 tgctcccctcgggtgggtcctgctgcctctgcctttacctgggcactcagggatgagcac

 cggggcctgagcccctaccacaggggtacagctcttttctttaatagacagtattttt

 tcctgataatacgcaatggtaatagtttaaatgagtcagagaaagtgaggtcttctcagg

 ctcttaagagcatggcgtttggtccaggctgtaccgctgctctcagctgggcccgtggg

 tgggccgggcgcccctgctat

Exon 8 | Start: 1007 | End: 1122 | Length: 115

.
 aggaagggttcatgtggttggtgtacagttccggggcccctggaacgcagcagcctgcaa

 gaaaccgggttttcttcccaatagggatggccccggggggtgtctgttgagaccagatg

.
 gatggggaacaggtggtcagggcagaatttcaggccctggcagcatgggagcagggcaga

 gactggggagttcaggtacccagagatgctgctgggggagctgttttgggaaggaggtgg

 ctctcaggaggggtgctgcaccccagcccagtcctgcatgggcgtctcttgctgtgccaga
 |881 |891 |901 |911 |921 |931
 AAGAATGAGGACGAGTGTGCCGTGTGTCGGGACGGCGGGGAGCTCATCTGCTGTGACGGC
 K N E D E C A V C R D G G E L I C D G
 |301 |311
 |941 |951 |961 |971 |981 |991
 TGCCCTCGGGCCTTCCACCTGGCCTGCCTGTCCCTCCGCTCCGGGAGATCCCCAGtga
 C P R A F H L A C L S P P L R E I P S
 |321 |331

 gcctgcacctctgccagcgcaaccaggccaccccggttcacggccgcctccacccactga

 ccctgaagggaagccaccccaagcctctcccatccaagatggaaaggggttctgagtcag

 gtcaactgggcccgtggggccggggcctgggggttttccaccctgccacctgcctcccggtc

 tggccacacctgctgcccagcctggacagctggggcccctgagggcagcaaagcagaacag

 agggccagggcgaagatgccaccctgtccaagctcatcccaggctgcagcccacgc

Exon 9 | Start: 1123 | End: 1222 | Length: 99

.
 gggcccagccctgagaggcaggcaaagccaccagggtcgcaggtgttggggattcctgg

 ggttcacagagagcacgccaaggggaccctgatcacgctggccagggccacccacgaa

.
 gggtaaagtccccctgctgggctctcccttcctgtgtctctgcccattctctgtgtg

 cctcggttccccctctgtgaaaagacatggtcggagccctggagctccaccgtgggttt

 ggggatctgtcaccgcgtgtcttgttctgcatgtctctgactgggtggacacacgagcagt
 |1001 |1011 |1021 |1031 |1041 |1051
 TGGGACCTGGAGGTGCTCCAGCTGCCTGCAGGCAACAGTCCAGGAGGTGCAGCCCCGGGC
 G T W R C S S C L Q A T V Q E V Q P R A
 |341 |351
 |1061 |1071 |1081 |1091
 AGAGGAGCCCCGGCCCCAGGAGCCACCCGTGGAGACCCCGtatggccacgccccctcct
 E E P R P Q E P P V E T P
 |361

 agccgggccacccctcctgtccacatggccacgccccctcctaggctgggccacccctc

 ctgtccgtctgtcccctggagtcctgtgggacaggactgccccagccatagcactatgtc

 ccccatgcccaagcccggtccttgtggtctcctgcagtgaggatcccatcatggttcctg

 tgggcctaaaccagctctcctggctgcgggtccacccggggggcactatgagcattga

 taacggccccggaagatgtgttccttgttctgctgtgtg

Exon 10 | Start: 1223 | End: 1405 | Length: 182

.
 ctgctgtgagggtagtaggtctactgtgcacagaccagtgttccctctgacagccctga

 gggccagggggcccccggtgtgtagacgggggaggaggaggaccacagagccaggaagt

.
 gccacagcctttccactcagtggtggacgccttccaccatgccagccctccgccccacc

 atgccaggcctctgccccaccctgctgccctgggtttcagggtcccagtcactgac

 tcctgggtggtgccgggcaggcgcccgctgccctctgatgctgacccttgggttccagc
 |1101 |1111 |1121 |1131 |1141 |1151
 CTCCCCCGGGGCTTAGGTTCGGCGGGAGAGGTAAGAGGTCCACCTGGGGAACCCCTA
 L P P G L R S A G E E V R G P P G E P L
 |371 |381
 |1161 |1171 |1181 |1191 |1201 |1211
 GCCGGCATGGACACGACTCTTGTCTACAAGCACCTGCCGGCTCCGCCTTCTGCAGCCCCG
 A G M D T T L V Y K H L P A P P S A A P
 |391 |401
 |1221 |1231 |1241 |1251 |1261 |1271
 CTGCCAGGGCTGGACTCCTCGGCCCTGCACCCCTACTGTGTGTGGTCTGAGGGTCAG
 L P G L D S S A L H P L L C V G P E G Q
 |411 |421

 CAGgtgagcggggagtgggggtcagggtgggctcttcaaggagcccaggacctacggggc
 Q

 ggatgaattcacctgaaacaggaggagagggaggccaggcgagaaaggctccgggaggca

 cagggcctggggctgtggggggagcgtggggggctgcggggggaaggggacgctcctaga

 cctccactccagctcctggccctgggcattactgctccccccacaaggcaggacaatgaa

 ggggggggatgtcccagcacacgtgggagccctcccctccctgcctcaattcccttcctg
 .
 cac

Exon 11 | Start: 1406 | End: 1527 | Length: 121

```
. . . . .
cctttcaggagactcccgactcagccccaaggaggccaggcccgccaagcaggagaga
. . . . .
gggtgcgggcgccaggcttgaggcagcagcctgagggtgcttgggtcgcccctgcctcct
. . . . .
ggggatgggactggtcccgtgtcctgcagcctgcgtggcacctgaggctcctcacttg
. . . . .
cgcctagaccgcggtccagccctgggtgggtcccaggggagagcgcacagggtcgggtt
. . . . .
cgggttcagctacatttccccggcccccggtcacccgcgctgttgctccacaga
|1281 |1291 |1301 |1311 |1321 |1331
AACCTGGCTCCTGGTGCGGTTGCGGGGTGTGCGGAGATGGTACGGACGTGCTGCGGTGT
N L A P G A R C G V C G D G T D V L R C
|431 |441
|1341 |1351 |1361 |1371 |1381 |1391
ACTCACTGCGCGCTGCCTTCCACTGGCGCTGCCACTTCCAGCGGCACCTCCCGGCC
T H C A A A F H W R C H F P A G T S R P
|451 |461
. . . . .
GGgtgagtgagcgtggtcggcggggaggcctgaaccacacccacaccctacacccacc
G
. . . . .
ccacactccccaccacatcatacagcccacaaccacacccacccacacccacactcc
. . . . .
caccacaccttgacccccacccacacccatgccctgcacccacaccctacactccaca
. . . . .
gccacactccaccacacccccacccacaccctactccccacctcataccctgcacctcac
. . . . .
cacactccacagccacacccccacccacacccacactcccacccacaccctacacccac
```

.
cc

Exon 12 | Start: 1528 | End: 1630 | Length: 102

.
acacccccacccacaccctactccccacctcataccctgcacctcaccacactccacagc

.
cacacccccccccacacccacactcccacccacaccctacacccacccccacaccctaca

.
cccaacccaaacccacccaaacccaccactcccactctccacccacacccacacccttc

.
ctcacacccccacacccccatccccactcaccacccacgcccacacccccacccccatac

.
cccggaggtggcactcctgctccccccagggctggcagcccctcatcctctgctgcagg

|1401 |1411 |1421 |1431 |1441 |1451
GACGGGCGCTGCGCTGCAGATCCTGCTCAGGAGACGTGACCCAGCCCCTGTGGAGGGGT
T G L R C R S C S G D V T P A P V E G V
|471 |481

|1461 |1471 |1481 |1491 |1501 . . .
GCTGGCCCCCAGCCCCGCCGCTGGCCCTGGGCTGCCAAGgtcagtgccgcaggggc
L A P S P A R L A P G P A K
|491 |501

.
cctccatgcatgccggtgctgggggtggggaaccccttgggttggtgttgggggagcaca

.
tctcagggcagaccctgggtgccagcttcgagggcttgaccagacgcactgaccatgtg

.
ctcattatctgtagaaaaatatttcccctttaaaccaattcttttggcaacttaaata

.
gttaaaaaggaagctcccccgagggttggtggctgacgtcacggttggtgtgtggcgcg

.
cctcacagcatgagcctgagagtcctgccagggtccctggtg

Exon 13 | Start: 1631 | End: 1693 | Length: 62

.
cctctcagagtgggactccttgctggttcctgagctccctcgttttcccaggaggcca

.
cacagtgtggaggctgtctgggggccgtgggcagctggccgtgggcaggaccctggggag

.
gcagcccagccccatcatgccacgcagccctgtgccccaccccagtggagctgggt

.
gtaagaattcccatctcagtgtgggggaaacacccccgcggcccctaggccctgcggcct

.
ctgtacccccaccagggtgtgggagttgggctgacctcttctctttactgggttcagg

1511	1521	1531	1541	1551	1561
GATGACACTGCCAGTCACGAGCCCGCTCTGCACAGGGATGACCTGGAGTCCCTTCTGAGC					
D D T A S H E P A L H R D D L E S L L S					
			511		
				521	

.
GAGgtaacgcctcccctggcctcctggtgctcctccactccccctcccctgcctcagccg
E

.
gcacccaggctccccactctgggggaggactgccggccccactgctcttgagccgtgga

.
aactcaggctgtccctgctccacccaccaggagccccagtgtgtgagcacctggcacc

.
ccccacaggagccccctagcccccttgacaggagccccccccggcccctcccctgcggg

.
agcccagtgtgtgagcgccccagcccctccccaacaagagccccacacggcccctc

.
ccc

Exon 14 | Start: 1694 | End: 2257 | Length: 563

```
. . . . .
tgccatggggatgtgccctgggcttataggatgtggtgaagtacacaggacagggtcctc
. . . . .
ggtctggcctgtgccatggggaccttgggcctcagtttccccacctttgatggaatacgg
. . . . .
tgaagtgcacaggacagggtcctcccagactggcctgtgccatggggcctcgggcctca
. . . . .
gtttccccacctttgacttagaggaagggttgatggtgacttcttgtaacgatggccat
. . . . .
gattctgtggctgcggcgggggcgcacctggaggttctcaccgtcactctgtcccgcagc

      |1571      |1581      |1591      |1601      |1611      |1621
CACACCTTCGATGGCATCCTGCAGTGGGCCATCCAGAGCATGCCCCGTCGGGCGGCCCCC
H T F D G I L Q W A I Q S M A R P A A P
                        |531                        |541

      |1631      |+1      |+11      |+21      |+31      |+41
TTCCCCCTCCTGACCCAGATGGCCGGGACATGCAGCTCTGATGAGAGAGTGCTGAGAAGG
F P S *

      |+51      |+61      |+71      |+81      |+91      |+101
ACACCTCCTTCCTCAGTCCTGGAAGCCGGCCGGCTGGGATCAAGAAGGGGACAGCGCCAC

      |+111      |+121      |+131      |+141      |+151      |+161
CTCTTGTCAGTGCTCGGCTGTAAACAGCTCTGTGTTTCTGGGGACACCAGCCATCATGTG

      |+171      |+181      |+191      |+201      |+211      |+221
CCTGGAAATTAACCCCTGCCCCACTTCTCTACTCTGGAAGTCCCCGGGAGCCTCTCCTTG

      |+231      |+241      |+251      |+261      |+271      |+281
CCTGGTGACCTACTAAAAATATAAAAAATTAGCTGGGTGTGGTGGTGGTGCCTGTAATCC
```

+291	+301	+311	+321	+331	+341
CAGCTACATGGGAGCCTGAGGCATGAGAATCACTTGAACTCGGGAGGTGGAGGTTGCAGT					
+351	+361	+371	+381	+391	+401
GAGCTGAGATTGCGCCACTGCACTCCAGTCTGGTCGGCAAGAGTGAGACTCCGTCTCAAA					
+411	+421	+431	+441	+451	+461
AACAAAACAAAACAAAAAACCACATAACATAAATTTATCATCTCGACCACTTTTCAGTT					
+471	+481	+491	.	.	.
CAGTGGCATTCACATCTCATGTAAccattgccaccaccatctgcagagctgttcagctt					
.
cctgaatggaaactctggcccatgaaacactcactccccattcccctccaacccctgg					
.
caccctccactctactttctgtctctatgacttctccaggacctcatggaagtggaatc					
.
acacagtatctgtccttttgtgtctgtcttattttactcagcatggtggccccaaggttc					
.
atccatgttgtagcatgtgccgaaatctgcttccttttttaaggctgagtaatattccag					
.
cacatggatggactgcattgtgtt					