

**INK2S00024.2R\_APOE\_C156R\_B08\_AA**  
3603 bp

3' GAGTCTACTCAGCCCCAGCGGAGGTGAAGGACGTCTTCCCCAGGACCGGGTGAAGAGCCAGTGAAGCTCAGGGGCTCTAGAAAGAGCTGGGACCCCTGGGAAACCCCTGGCCCTCCAGGT

135  
 APOE  
 APOE-201

AGTCTCAGGAGAGCTACTCGGGTCTGGGCTTGGGAGAGGAGGAGCGGGGGTGAAGCAAGCAGCAGGGGACTGGACCTGGGAAGGGCTGGGACGAGAGACGACCCGACCCGCTAGAAGTGGGGTGGGAGAGC

270  
 APOE  
 APOE-201

AGCTGGACTGGGATGAAGCCATAGCAGGACTCCACGAGTTGTCACTATCATTATCGAGCACCTACTGGGTGCCCAAGTGTCTCAGATCTCCATAACTGGGGAGCCAGGGGACGACACGGTAGCTAGCCG

405  
 APOE  
 APOE-201

TCGATTGGAGAAGCTTTAAATGAGGACTGAATTAGCTCATAAATGGAAACACGGCGTTAACTGTGAGGTTGGAGCTTAGAAATGTGAAGGGAGAAATGAGGAATGCGAGACTGGGACTGAGATGGAACCGCGGTGG

540  
 APOE  
 APOE-201

GGAGGGGGTGGGGGATGGAATTTGAACCCCGGAGAGGAAGATGGAATTTCTATGGAGGCCACTGGGGATGGGGAGATAAGAGAAGACAGGAGGGAGTTAAATAGGGAATGGGTTGGGGCGGCTTGGTA

675  
 APOE  
 APOE-201

AATGTGCTGGGATTAGGCTGTTGACAGATAATGCAACAAGGCTTGAAGGCTAACCTGGGGTGAAGCCGGGTTGGGGCCGGGCTGGGGGTTGGGAGGAGTCTCACTGGCGTTGATTGACAGTTTCTCCTCCCCA

810  
 APOE  
 APOE-201

GACTGGCCAATCACAGGACAGGAAGATGAAGGTTCTGTGGGCTGCGTTGCTGGTACATTCCTGGCAGGATGGGGGCGGGGCTTGTCTGGTTCCCCCGCTCCTCCCTCTCATCCTCACCTCAACCTCCTGGC

945  
 APOE  
 APOE-201

1 5 10  
 M K V L W A A L L V T F L A  
 ENSE00003577086  
 APOE-201

CCCATTGAGGACGACCCCTGGGCCCCCTCTTCTGAGGCTTCTGTGCTGCTTCTGGCTCTGAACAGCGATTGACGCTCTCTGGGCTCGGTTTCCCCATCCTTGAGATAGGAGTTAGAAGTTGTTTGTGTTG

1080  
 APOE  
 APOE-201  
 APOE-201

TTGTTTGTGTTGTTGTTTGTGTTTGTGAGATGAAGTCTCGCTCTGTGCGCCAGGCTGGAGTGCAGTGGCGGGATCTCGGCTCACTGCAAGCTCCGCTCCAGGTCACGCCATTCCTCTGCTCAGCCTCCC

1215  
 APOE  
 APOE-201  
 APOE-201

AAGTAGCTGGACTACAGGACATGCCACCACCCGACTAACTTTTTGATTTTCAAGTAGAGACGGGGTTTACCATGTTGGCCAGGCTGGTCTGGAAGTCTGACCTCAGGTGATCTGCCGTTTCGATCTC

1350  
 APOE  
 APOE-201  
 APOE-201

CCAAAGTGTGGGATTACAGGCGTGAGCCACCACCCGACTGGCTGGGAGTTAGAGGTTTCTAATGCATTGCAAGCCAGATAGTGAATACCAGACACGGGACAGCTGTGATCTTTATCTCCATCACCCACACAGCC

1485  
 APOE  
 APOE-201  
 APOE-201

CTGCTGGGACACAAAGGACTCAATACATGCTTTTCCGCTGGGCGCGGTGGCTCACCCCTGTAATCCAGCACTTTGGGAGGCCAAGGTGGGAGGATCACTTGAGCCAGGAGTTCAACACCGCTGGGCA

1620  
 APOE  
 APOE-201  
 APOE-201

ACATAGTGAGACCCTGCTCTACTAAAAATCAAAAAATGACGAGGATGGTCCACACACCTGTGCTCTCAGCTACTCAGGAGGCTGAGGACGAGGATCGCTTGAGCCAGAAAGGTTCAAGGTTGACGTGAACC

1755  
 APOE  
 APOE-201  
 APOE-201

ATGTTTCAAGCCCGCTGCACTCCAGCCTGGGTGACAGACCAAGACCCCTGTTTATAAATACATAATGTTTCCAAGTGATTAAACCGACTCCCCCTCACCTTGCCACCATGGCTCCAAAGAAGCATTTGTGGAGCA

1890

APOE

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APOE-201

CCTTCTGTGTGCCCTTAGGTA TAGATGCCTGGACGGGTGAGAAGGACCCGACCCACCTTGAACCTGTTCACACAGGATGCCAGGCCAAGGTGGAGCAAGCGGTGGAGACAGACGGAGCCCGAGCTGCGC

2025

APOE

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APOE-201

15 G C Q A K V E Q A V E T E P E P E L R  
ENSE00000893952

CAGCAGACCAGGTGGCAGAGCGGCCAGCGCTGGGAACGACTGGGTCGCTTTTGGGATTACCTGCGCTGGGTGCAGACACTGTCTGAGCAGGTGCAAGGAGAGCTGCTCAGCTCCCAGGTCACCCAGGAACTG

2160

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APOE-201

35 Q Q T E W Q S G Q R W E L A L G R F W D Y L R W V Q T 40 45 50 55 60 65 70 75 80  
L S E Q V Q E L L S S Q V T Q E L  
ENSE00000893952

AGTGAGTGTCCTTACTGACCTTACCCTCTGGTGGGCGGTATACCTCCCAGGTCAGGTTTTCATTCTGCCCTGTCGCTAAGTCTTGGGGCGCTGGGTCTCTGCTGTTCTAGCTTCTCTCCCAT

2295

APOE

APOE-201

APOE-201

TTCTGACTCTGGCTTTAGCTCTCTGGAATCTCTCTCTCAGCTTGTCTCTCTCTCTCCCTCTGACTCAGTCTCTCACACTCGTCTCTGCTCTCTGCTCTCTCCCTAGCTCTTTATATAGAGACAGAG

2430

APOE

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APOE-201

AGATGGGGTCTCACTGTTGCCAGGCTGGTCTTGAACCTCTGGGCTCAAGCGATCTCCCGCTCGCCCTCCCAAAGTGCTGGGATTAGAGGCATGAGCCACTTGCCCGGCCCTCCTAGCTCTCTCTCGTCT

2565

APOE

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Sanger Sequence Primer  
cgttccttctctcctccttgg

PCR Forward  
cgttccttctctcctccttgg

CTGCTCTGCCCTCTGCATCTGCTCTCTGCACTGTCTCTGTCTCTCTCTCGGCTCTGCCCGTTCCTTCTCTCTCCTTCTGGTCTCTCTGCTCATCCCATCTGCCCCGCCCATCCCAGCCCTTCTCCC

2700

APOE

APOE-201

APOE-201

CGCTCCCCTCTGCGACACCCTCCCGCCCTCTCGGCCGAGGGCGCTGATGGACGAGACCATGAAGGAGTTGAAGGCCTACAAATCGGAAGTGGAGGAACTGACCCCGGTGGCGGAGGAGACGGGGCACG

2835

APOE

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80 A L M D E T M K E L K A Y K S E L E E Q 85 90 95 100 105 110  
L T P V A E E T R A R  
ENSE00000893954

gRNA Protospacer  
CGGACATGGAGGACTGCG

GCTGTTCAAGGAGCTGCAAGGGCGGCAAGGCCGGCTGGGCGCGGACATGGAGGACTGTGCGGCGCGCTGGTGCAGTACCAGCGGAGGTGCAAGCCATGCTCGGCGGAGGACACCAGGAGCTGCGGGTGCAGCCT

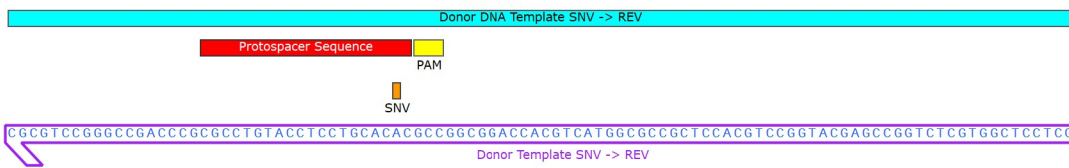
2970

APOE

APOE-201

APOE-201

115 L S K E L Q A A Q 120 125 130 135 140 145 150 155  
C G R L V Q Y R G E V Q A M L G Q S T E E L R V R L  
ENSE00000893954



CGCCCTCCCACTTGGCGCAAGCTGCGTAAGCGGCTCCTCCGCGATGCCGATGACCTGCAGAAAGCGCTGGCAGTGATACAGGCCGGGGCCCGCAGGGCCGCGAGCGCGGCTCAGCGCCATCCCGCAGCGCCTGGG  
GC GGAGGGTGGACGCGTTGACGCGATTGCGCCGAGGAGGCGCTACGGCTACTGGACGTCCTCGCGGACCGTCACATGGTCCGGCCCGGGGCGCTCCCGCGGCTCGCGCCGGAGTCGCGGTAGGGCGCTCGCGGACCC

3105

APOE

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A S H L R K L R K R L L R D A D D L Q K R L A V Y Q A G A R E G A E R G L S A I R E R L G

ENSE0000893954

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CTACGGCTACTGGACGTCCT  
PCR Reverse

GCCCTGGTGGAAACAGGGCCGCGTGGGGCCGCCACTGTGGGCTCCCTGGCCGGCCAGCCGCTACAGGAGCGGGCCAGGCCCTGGGGCGAGCGGCTCGCGCGCGGATGGAGGAGATGGGCAGCCGGACCCGCGA  
CGGGACCACTTGTCCCGGCGCAGCCCGCGGTGACACCCGAGGGACCGCGGTCGGCGATGTCTCGCCGGGTCCGGACCCGCTCGCGGACGCGCGGCTACCTCCTACCCGTCGGGCTGGGCGCT

3240

APOE

APOE-201

P L V E Q G R V R A A T V G S L A G Q P L Q E R A Q A W G E R L R A R M E E M G S R T R D

ENSE0000893954

APOE-201

CCGCCTGGACGAGGTGAAGGAGCAGGTGGCGGAGGTGCGCGCAAGCTGGAGGAGCAGGCCAGCAGATACGCCTGCAGGGCCGAGGCCCTCAAGAGCTGGTTGAGCCCTGGTGGAGACAT  
GGCGGACCTGCTCCACTTCTCGTCCACCGCTCCACGCGGGTTCGACCTCCTCGTCCGGGTCTGTCTATGCGGACGTCGGGCTCCGGAAAGTCCGGGCGGAGTTCTCGACCAAGCTCGGGGACCACTTCTGTGA

3375

APOE

APOE-201

R L D E V K E Q V A E V R A K L E E Q A Q Q I R L Q A E A F Q A R L K S W F E P L V E D M

ENSE0000893954

APOE-201

GCAGCGCCAGTGGGGCCGGGCTGGTGGAGAAAGTGCAGGCTGCCGTGGGCACCGCGCCCGCTGTGCCAGCGCAATCACTGAACGCCGAAAGCCTGCAGCCATGCGACCCACGCCACCCCGTGCCTCCTGCC  
CGTCCGGTCAACCGCCGACCACTCTTCCACGTCGACGGCACCCGTTGTCGGCGGGGACACGGGTCGCTGTTAGTGACTTGGGCTTCGGACGTCGGTACGCTGGGGTGGCGTGGGGCACGGAGGACGG

3510

APOE

APOE-201

Q R Q W A G L V E K V Q A A V G T S A A P V P S D N H

ENSE0000893954

APOE-201

TCCGGCAGCCTGCAGCGGGAGACCTGTCCCGCCCGAGCCGTCCTCGGGTGGACCTAGTTTAAATAAGATTACCAAGTTTCACGCA  
AGGCGGTCGGACGTCGCCCTCTGGGACAGGGGCGGGTGGGACAGGAGGACCCACCTGGGATCAAATTTCTAAGTGGTTCAAAGTGCCT

3'

3603

5'

APOE

APOE-201

Feature	Location	Size	Type
<b>APOE</b>	1 .. 3603	3603 bp	gene
/note	= gene <a href="#">ENSG00000130203</a> Protein coding		
<b>APOE-204</b>	1 .. 3154	3154 bp	prim_transcript
/note	= primary transcript <a href="#">ENST00000446996</a>		
<b>APOE-201</b>	6 .. 3603	3598 bp	prim_transcript
/note	= primary transcript <a href="#">ENST00000252486</a>		
<b>APOE-205</b>	6 .. 1536	1531 bp	prim_transcript
/note	= primary transcript <a href="#">ENST00000485628</a> Retained intron		
<b>APOE-203</b>	22 .. 3235	3214 bp	prim_transcript
/note	= primary transcript <a href="#">ENST00000434152</a>		
<b>APOE-203</b>	79 .. 3235	3157 bp	CDS
▶ 4 segments = 807 bp			
/note	= coding sequence <a href="#">ENSP00000413653</a>		
/translation	= MSSGASRKSWDPGNPWPP,,DWPITGRKMKVLWAAALLVTFLA,,GCQAKVEQAVETEPPELRQQTTEWQSGQRWELALGRFWDYLRWVQTLSEVQVEELLSSQVTQELR,,ALMDETMKELKAYKSELEEQLTPVAEETRARLSKELQAAQARLGADMEDVCGRLVQYRGEVQAMLGQSTEELRVRLASHLRKLRKLLRDADDLQKRLAVYQAGAREGAERGLSAIRERLGPLVEQGRVRAATVGSLAGQPLQERAQAWGERLARMEEMGSRT 269 amino acids = 30.6 kDa		
<b>APOE-202</b>	570 .. 3164	2595 bp	prim_transcript
/note	= primary transcript <a href="#">ENST00000425718</a>		
<b>APOE-201</b>	835 .. 3460	2626 bp	CDS
▶ 3 segments = 954 bp			
/note	= coding sequence <a href="#">ENSP00000252486</a>		
/translation	= MKVLWAAALLVTFLA,,GCQAKVEQAVETEPPELRQQTTEWQSGQRWELALGRFWDYLRWVQTLSEVQVEELLSSQVTQELR,,ALMDETMKELKAYKSELEEQLTPVAEETRARLSKELQAAQARLGADMEDVCGRLVQYRGEVQAMLGQSTEELRVRLASHLRKLRKLLRDADDLQKRLAVYQAGAREGAERGLSAIRERLGPLVEQGRVRAATVGSLAGQPLQERAQAWGERLARMEEMGSRTDRDLDEVKEQVAEVRKLEEQAQIRLQAEAFQAR MSEVFRRLVEEEMQRYAQLVEKVAAVGTSAAPVPSDNH*		
<b>APOE-202</b>	835 .. 3164	2330 bp	CDS
▶ 3 segments = 658 bp			
/note	= coding sequence <a href="#">ENSP00000410423</a>		
/translation	= MKVLWAAALLVTFLA,,GCQAKVEQAVETEPPELRQQTTEWQSGQRWELALGRFWDYLRWVQTLSEVQVEELLSSQVTQELR,,ALMDETMKELKAYKSELEEQLTPVAEETRARLSKELQAAQARLGADMEDVCGRLVQYRGEVQAMLGQSTEELRVRLASHLRKLRKLLRDADDLQKRLAVYQAGAREGAERGLSAIRERLGPLVEQGRVRAATVGSLAGQ 219 amino acids = 24.9 kDa		
<b>APOE-204</b>	835 .. 3154	2320 bp	CDS
▶ 3 segments = 648 bp			
/note	= coding sequence <a href="#">ENSP00000413135</a>		
/translation	= MKVLWAAALLVTFLA,,GCQAKVEQAVETEPPELRQQTTEWQSGQRWELALGRFWDYLRWVQTLSEVQVEELLSSQVTQELR,,ALMDETMKELKAYKSELEEQLTPVAEETRARLSKELQAAQARLGADMEDVCGRLVQYRGEVQAMLGQSTEELRVRLASHLRKLRKLLRDADDLQKRLAVYQAGAREGAERGLSAIRERLGPLVEQGRVRAATVGSLS 216 amino acids = 24.6 kDa		
<b>Donor DNA Template SNV -&gt; REV</b>	2858 .. 2957	100 bp	misc_feature
<b>Protospacer Sequence</b>	2876 .. 2895	20 bp	misc_feature
<b>SNV</b>	2894 .. 2894	1 bp	misc_feature
/note	= SNV = C REV = T		
<b>PAM</b>	2896 .. 2898	3 bp	misc_feature
	3585 .. 9178	5594 bp	gene
/note	= gene <a href="#">ENSG00000280087</a> TEC		
	3585 .. 9178	5594 bp	prim_transcript
/note	= primary transcript <a href="#">ENST00000623895</a> TEC		

Primer	Length	Binding Sites	Tm	Date Added
✓ <b>PCR Forward</b>	21-mer	2630 .. 2650	58°C	Aug 31, 2022
/sequence = cgttccttctctccctctTGG 57% GC / 6266.1 Da				
✓ <b>Sanger Sequence Primer</b>	21-mer	2630 .. 2650	58°C	Aug 31, 2022
/sequence = cgttccttctctccctctTGG 57% GC / 6266.1 Da				
✓ <b>Donor Template SNV -&gt; REV</b>	100-mer	2858 .. 2957	89°C	Aug 31, 2022
/sequence = GCTCCTCGGTGCTCTGGCCGAGCATGGCCTGCACCTCGCCGCGGTACTGCACCAGGCGGCCGCACACGTCCTCCATGTCCGCGCCAGCCGGGCCTGCGC 75% GC / 30,562.6 Da				
✓ <b>gRNA Protospacer</b>	20-mer	2876 .. 2893	60°C	Oct 12, 2022
/sequence = GCGGACATGGAGGACGTGCG 70% GC / 6248.1 Da				
✓ <b>PCR Reverse</b>	20-mer	3011 .. 3030	59°C	Aug 31, 2022
/sequence = TTCTGCAGGTCATCGGCATC 55% GC / 6084.0 Da				