

## SUPPLEMENTAL MATERIAL

**Table S1:** Primers used to probe the BAC library

Marker	Source sequence	F Primer	F Seq 5'-3'	R Primer	R Seq 5'-3'
<i>ADH1C</i>	Genbank # AF134056	ADH-F	GGTGATAAAGTCATCCCCTCTT	ADH-R	TCGATCTTGGCCACTGAGAT
<i>ALB</i>	Genbank #AY008769	ALB-F	ACCTGAGAGAAAATGAATGCTTC	ALB-R	CAAAAGCTTCCAAGTCTTAATGTTG
<i>CCNI</i>	Chowdhary <i>et al.</i> 2003	CCNI-F	GGTGCTCACCAAAGAAACATGT AAC	CCNI-R	CATCAGTACATGGTTCTGACCTGC
<i>Clock</i>	Murphy <i>et al.</i> 2007	ClockF1	TTTGATGGGTTGGTGAAGAAGATGA	ClockR1	TGGGTCTATTGTTCTCGCAGCAT
<i>GABRB1</i>	UCSC Consensus	GABRB1-3F	GGCTTCTCTCTTCCCTGTGATGATTACCA	GABRB1-3R	CCGCGCAAGCGAATGTCAATAT
Intergenic Seq. "558"	UCSC Consensus	558-1F	CACTTGGGTTTGTGTTTGGGA	558-1R	TCTCCCTCTGTTACCATTAGAACCC
<i>KDR</i>	UCSC Consensus	KDR-3F	CTCCATTTATTGCTTCTGTTAGTGACCA	KDR-3R	AACTTTTCATCATTAAATTTTGTTCACAGA
<i>KDR5'Ue1</i>	UCSC Consensus	KDR5u-1F	AGCTCAGTGTGGTCCCAGAG	KDRe1-1R	GAAGGCTCAAACCAGACGAG
<i>KIT e21</i>	Genbank #AY874543	KITe21-24F	CAGCCCCCGCCAGGAGAACT	KITstp-R	TCAGACATCTTCGTGGACAAGCAGAGG
<i>HSD17B11</i>	Chowdhary <i>et al.</i> 2003	LOC51170-F	GCTCTGGCAGTCCTCGTTTCT	LOC51170-R	GCATTGAAATGTGAGGTATGTTCTCAA
<i>ENOPH1</i>	Genbank #CX603024	MASA-F	TGAAAATGGTGCATTGATGC	MASA-R	GGGCTCTTCTAGGTCTTATGGAGT
<i>PDGFRA</i>	UCSC Consensus	conPDGFRA-1188F	ARAGGCAAAGGCATCACMATG	conPDGFRA-1484R	CAGTGAGATTTTCAATCAGAGTCAGRTTG
<i>PDLIM5</i>	UCSC Consensus	PDLIM5-1F	GCCCACCAAGAAAACACATT	PDLIM5-1R	AGTGATCTGGGCGAGGATTC
<i>TEC</i>	UCSC Consensus	TEC-3F	GCCCAGTACAAAGTCGCAATCAAAGCTAT	TEC-3R	TCGGAGGAAATTCAGAAGGCAGCC
<i>WDFY3</i>	Genbank #CX599384	WDFY3-F	GCTGCCTGTAGCAGCCCATCCATCT	WDFY3-R	GCCTTTTACATAACCACCAAA GAACAGATATTAG

**Table S2:** Primers used to screen for the distal ECA3 inversion breakpoint (following page)

Trace File Accession #	Human Address (Chr 4: in Mb)	Forward Primer 5'-3'	Reverse Primer 5'-3'
1232739837	55298324	ACACCCAGAAGTGTGGAAGTACAAGTT	GACAGCAATCTGCCATTTTCTGG
1233583097	55301950	GAGTTAGGTACGCAGAACATCATCAGTTTAG	CCGTTGACTGCTTCTAACTCAAGATTTACACACAT
1227284382	55307453	TGGGATGGGTGAACTGACTTTCT	CAAGGAGAGGCAGTTTGACATAGTG
1229378908	55310338	GGCACACGGCTCTCTTCTGTTC	CCTGTTTGGGCTGATTCGTAAGC
1215407695	55312485	GAAAGAGTTTCTCTCATGGGTCTTAAGAAT	CCCTACACAGAAAGATTGAGGAATGAATGTATAT
1221913491	55314718	AAGCCGAGGTGAGGATCAGAAGTCC	GAGGGACGTAGTGGAGGAACTCTTCTT
1213692022	55317198	TGACACCCCGAGGGGACAAAGCCTAGATCCTCAGAA	AATGAAGGCCCTTCTCAGGAGGTGC
1245499501	55326457	CTCAGAGGCTATGTTATCTATTATCAGTGCATTG	GGCTGTAAAGGAGGAACTATTTCTTAAACACAA
1286771643	55330770	CAATCATCGCACTGTGGTGCATTCA	GCAACTCTAAGAATAGGTTTGAAAGGTAGAATG
1220588128	55334058	AGCTCCTATTACGCCAGTCAGAGTAGCA	TGGTGAGAGAGCAGCAGCAATTTTC
1265778766	55337823	TGACTTTCCATATCAAGATGATCACTCTAAATGC	CTTTGCCAATTCCTGAACGTGCCAA
1259352900	55342322	CAACTCCAATAAAACAGCGATAAGATGCC	TGAGCGATCAGGAGCTAAGAAACGTG
1265675448	55344513	GAGTCAGGACAACCTTTCATTTGAGACC	TTAGCCCCACTTCTGGTCGGATTTCG
1260101348	55348752	AGTGGGTCTCTCCTTGATGCACAT	GTTGGGCTAGGTCAAGGGGTGAAGC
1402517247	55350727	GGCGAAGAGCGCTTGAAGTTTC	CCCGTGCTCACTTATTAATGGCC
1258056220	55354791	GTATTGAGTATGCCAGAGGATAAGACTG	ATCCATTTGGTTCTGTTCTCAAC
1440331501	55361984	CACCTGTCCATTATATAGGGAGTTGTT	TTGTCACAGAGTTGTCAGGAGCAGTC
1338406281	55376228	CTGTGAATGCCACACATCCTGACAAATCATCGACTA	AGGCAATGCGCAGAGAGATAAGG
1437760423	55379616	CATTAAGACACACATGGCCCTTGA	CTTGAACCACCACTGCTCTATTGC
1328759699	55394442	CTTGTCTTCTGTCAATTTATGCCACTGTTGAGAAGTTAGC	ACAAGGAGATGAGAGAGGCAAGACAG
1232078874	55398610	GGTCTCACCATTTGCTCCTCTGTG	CTTTAAGGGATAAATGCTCTCACCCC
1250295308	55400840	CTGCCTCCATCAGAGCCTGCA	TCTGAGGATCAGCGGAGGTAGCTAT
1378686387	55402968	TGAGAGCTGTCAAGTTGAGAGGCAGT	TGGAGGTGACACAGTGCACCTTCACT
1204331729	55404879	CTTACTCCCAGCATTATGGCAATTCTT	AGGTGGCAACTGATTGAGGCAA
1215402720	55407922	ATCTAAGAGTATGGCTTCGCCAGGG	GGCACACTGACGCAGAATGCAT
1245284930	55410264	ACTCTGGATAGAGTGACATTGAAAGATTCC	CAGTGTGCAGTGAAGCTAGATCAAG
1345003582	55414317	GAGATGGACTTAATGTGCTTGCTGC	TGCGATGACTGAATGCCTGTCA
1298860477	55417326	CCTCTAATTCACACACTTCCACACAGATT	TAATATTTCTGAAGGCCACAGCTGGACAGACTGA
1266738666	55421178	CGCAGGCTCAATGGTGGGA	GCAGCCCATCAATGCAGCAGTA
1216965093	55425336	TGGAGAACCTTGGAGATCTTGGAAA	CAGAACTAGTCAAATGGGCCTATTCAAC
1239413960	55431143	ATGCATCCAGGTATCCACAGATT	AATGAGATCTACGTTTATTCGGTGGTTCCTCTGAGG
1268260604	55432756	AGTCATAGATACACTTTGCCTTAGGAGACC	TGCGAGTTGGGATGCAATCTTG
1227728487	55434640	TTCATTCTACTCTTGATGGGCATTTGAGTTGACACATTGG	ATGGCATGCAGGTGAGTTTGCT
1330289053	55436289	TCAGAACTGACCCAACGGCACT	GATCCCCAGCTGGAATGATCT
1230077024	55440461	ATTTCCATCACACAAACCCAATGGACGTAAGTAACC	CATGCTCTCAAGGATGCAGAGATCTC
1266571731	55446042	CCTATGCCTGACACAGGGGAAGA	AAGAGAGTGGGCCTGGTCAGCT

**Fig. S1.** Sequence surrounding the proximal breakpoint of the ECA3 inversion (Primers and breakpoint (BP) highlighted)

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1   CTTTGCTCTT GTGTTACAGG TTCACTCAGA GAACGCAAGC TTTGGTGCAC
51  CTTTTTCATTA CACTGCCTGT AAGGCTTCCA GGAATGAGTG CGGGCGATTT
101 GCTGTGTTTTT GACATTTTTTT TCCCCTTTCT GAGAGCTGTC AGTTGAGAGG
151 CAGTATCCTC TTGTGAGAGA GTTTGGTGCC GGCTGCAAAA TTAAAGGCAA
201 GAAATAACCA CAAATAAGAG AGCATGAGTG GCCAGATATC TCTCAATCCT
251 GATATGGGCT GTGGAAGGCC ATGTGTGTTT ATGTCCTCCC TCCAGCTGGA
301 GCCAAGAAGA GGCATCCGGA GTGATGGCAT CCAGAGGCTG CAGGAGGCAG
351 GGCCTGTGGG GGTATAAAGG CAGTGGGATG ACAGGGGGCG TTCTGCTGGA
401 AGGTGTACGA GGCCCTTGTT GAAGCCAGTG AAGTGCACTG TGTACCTCC
451 AGTTTTCTTG GGGCTGGACT GGGCTATCCA TTGAAGAAAT GGGGTGGAGA
501 ACCCAGGCTT AGTCATTTTT TTCCTCCCA GTTTCOGCTG GTTGTGGGCT
551 GGAATGTGAC ATGTTGTTTT CTTACTAAT TGGGTCATAA TTTTAAAAG
601 CTGATGATCT CCTTTCCTTA AAGTACCAGG TCTCCATATC AAACCAGGGG
651 AAAGTGTGCC GTGGGGTTGC TGGTGAGTCT TGCTCCCTAG AAGCCCTGTA
701 GGTGATCTGT GTCGTCAGAA GACAGAAGGA GGAATGGGGG TTCCCTCCCT
751 ACTGCTCTGG AGAACTGTGC TCTAGCAAGG GTGGAGCATG TTTCATTAAG

                                     ECA3F
801 TTTCTGGGG GCAAACAGAG GGCCAAATGA TAGATCAGTG TAGACGTAGT
   ECA3F                               BP
851 GTGACAGAGA CCCAGGCAGA GCTCTGCCTC CCGGCCTGCA GCAGGGGCTC
901 CCGACTTCCT TGAGTATGTG AATTTCTCTT TCAAACCCA GAATCATCA
951 GAACCTATGC TAGAGTGGGA GTAGCTGTTG ACTGAGAAAA CGAAAGATGA
   ECA3R
1001 TTCAAAAAT TATTAAATAT GCTTAAAACC ATATTTGAGT ACAACGAGAG
1051 GCACTCACAA CTAGAAAACA CAACTATGTA CTGGGGGGCT TTGGGGAGAA
1101 AAAGAAGAAA AAAAGAAGAT TGGTAATAGT TGTTAGCTTA GGTACCAATC
1151 TTTTAAAAA AAAAGCATAT TACTCGATAA TCAAGTTATA TAATGGCATA
1201 CAGTTAAAC CAAAGTTGTA AAGGGACCAT CACAATCGTT TCTGCAATTG
1251 GACAAATACT CAACACACAC CCCTTGTGTC GATTCATCCC ACTCTGGCA

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Fig. S1. Con't

1301 GTGCATCCTG TCGATGTGTA CAATGGCAGC CATGATGCGT TCCTCCATTT  
 1351 CCTCAGGACT ATGAGACTCT TGGTGTATGC CCACGAGATG TCAATGGTGT  
 1401 GATGACCTGA GCTCCCGGGT GGCTGCTGCT CCAGAGTTAA GTCAATGTTT  
 1451 AAATAGAAAG CCCTACCCAG TGCCCTGGGA TAGATTCATG AAAGAACTTC  
 1501 TGGACTGCTG GAAAATGAGG TTTCAAAGAC TTCCTGAAGC TGTGGGGAAA  
 1551 CCCCTTCAGT GTATCCTGAC ACTATGTTCT TCACACACAC ACACACAGAG  
 1601 TTGGCATCTG TATTGATGTA TCACAAAAGT CATGGGGGAT CCCTTACACG  
 1651 TTCAATCACC ACGTGTGGT ATTTGGTGCC CCGTATATGG ATGCTGTGAA  
 1701 GAATCACATT TTTAGTGAAA TGAACACAGA CTTATCATTG AATTTGAGAC  
 1751 AACCTGCAAA GGCAACTTCG TCTTCTGTCT GAGTCTGAAA GCAGCAGCTG  
 1801 AAGTTTTATC GTTTTACCCC ATCTGCCTCC ATCAGAGCCT GCAGAGGGTG  
 1851 CAAGAAGGTT TCATCTTCCA TCGCTTATGG AGAAGGTGCC AGACCATGGT  
 1901 CTGAGGAACA CAATACTCTC AGCCAGCCCT CTTTATGGAC TCCTTGGGGC  
 1951 TCTGCTGAAT GAGACAAAAA TGATTCCGTT TTCTTAAGAC ATGTGAAATG  
 2001 TAAGCACACA CAAGTTGGTG CCTACTACAT GTTGCTAGTC ATTGAGTAGT  
 2051 ACATTTTTTT CTTCAAAGCG TTCAATTTTT TGAATCATCA TGTACATACT  
 2101 GGCCAAAAAC TACAAGTAAC GCTTTTGAGT TAATTTGCAT TTTTCTCATC  
 2151 ACCAAAGCAT CTAAACACAC CATAAATAG TTAGACACAT ATACATCATA  
 2201 CCACAGTAAT GTGGCCCTTT ATAAAGTGGC ATACTTTTTA TAGCTACCTC  
 2251 CGCTGATCCT CAGAAAAATC CTGTACGATA TGCACCATGA TCCCCATTTT  
 2301 GCAGATAAGG AACTGGGAC TCAGAGAGAC AGCCACTGAT CAAGGTCTTG  
 2351 CACACAGCAG ATTGTGGAAC TAGGATTCCC TTCAGGCCTG GAAACCCACA  
 2401 GCCGCTCCTA CACCATGTGG CCTTCTCAA TAAGGAAAAA CCTCTGATTT  
 2451 CTTAAATAG TATTGTGCTA TTATTCTCTT TTCTTGGTAT ATAAAAGTAA  
 2501 AGGTTTAAAT CTGGCATTTT GTTTGTGTA TTAGGTTGAA GTGTGCGAAA  
 2551 CTGCTGATAC TTACCATTTT TGACCTACGT CAACCTATAG TTT

**Fig. S2.** Sequence surrounding the distal breakpoint of the ECA3 inversion (Primers and breakpoint (bp) highlighted)

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1  AGCTCCATGT GGTGGATTCA GCCACCATTC TCAGAGATTC CTTAGTGAGG
51  GGAGTATTTA TCTCTAATGC AGGTGCTTAC TGCATTCAA GTGTCCAGTA
101 GTCCAATTCT GGTATTCTCT CTCCTCTAGT TCCCTACAAG ATTTCTACTT
151 GTCTCACCAT CAGCATATCT CTGATCCCTT CATAAATGCA ATAGAAGCCA
201 CCAATGGGGA GAGTGCCTAG CCACCTCCTG CTCCAGTTCT TGTCTATACC
251 TCCTAGCGTC CATGCTTCCG ACTCCTAAGG TTCACACTTT CACCTGCACA
301 CTTTGCCCTT CTTAAATTAC ACCACCAATT TGCTCTGGTC TTTTCTAGAT
351 ATTCTATTTT CACTTCTCTC TAACCTTTCA CCACAGAAAT ATACTCAGGT
401 TCCCTCCTTC CATATTTATT TTTAAAAATG AACAAATGTA CTTTTCTGAA
451 CTCTTATACC CTTCAAATTG AAACCTGTCT CCCTCCTTCT CTTAGTCACC
501 AAATTATTTA ACAGAAATTG CCCACACTTG TTTCCCAAT TTCCCAATC
551 CGCATCACCT AAATCGATTA AAATTGACT TCCATCTCCA CCATTCTAAT
601 AAAATCACAC TCACAGACAT CGCAAGAGGT CCAAATTTCC AAATCCAAAT
651 GGGCTATTTG CAAACTCTCT GATATGCCTG TTGTCAACCA TCAAATCCTT
701 TTCTTTAAGG CTCTTTTTTT CTCTTGCTCT TATTTGTTT AAATAAGCTC
751 TCAGTTTTTCT GTGCACACGG AGACCACAGG GCTTCTACTT CCCTGTGACC
801 TTTGGTAGAA ATGTCAGCTT ACTTTCAGCA TTTGCGCTGA CCAAAGCTGT
851 ATTCATTCTC AACATCCTGA AACTCATCAA CTCTTGGTTA ATTGTCCTTG
901 AGATAACTTC TCAAGATAGC CACTACTTTT TTGTTATTGT TGCTAATTCC
951 TTAAATATAG GTTTTGCAA AGTTCGTCTC ATTTGCTGCT GCATGCCTTT
1001 TCTTAATCAC GTTTATTGGC AACCGTGTCT CATTCTTTCT CCTGGATTGC
1051 CATTCTTTTC CTTATCTTCC TAGAAAATGT TAAATCCCTA CTCCATTCTC
1101 TCTGGCTCTC TCTCTTTTCT TAATGAAGC CTTCTTCAGG CCTCATGGAT
1151 TATTGCAACG ACTCCTTAAT TTGACTTCTT GGCACCTAAC CCTCCAGTCT
1201 ATCTTCTGCA CTATTGTCTG GTTGTATACC AAAAAATAAA TCCAATATTA
1251 AAAATATTTCT ATTTGCTCTC TACTGCATAG AGAAATGGTC TCCACATGGA
1301 GGTGTAAGTG CCCTAATGTG GACACAAACA ACCCACATGG CTGGAAGAAC
1351 AGAGCATCAG GTGTGTGTCC NTATGCATTC CATACAAAGT TGTACTGNAG

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Fig. S2. Con't

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1401 AAAATGTCTA TTACATGAAA GTATGCAAGA ATTCCCTTAT CAAAGGGTGT
1451 AGTGAAAATG TGCAGTACTC ATAATACATT CTTATTTTTA CATATTCTCT
1501 ATGCTTTTAT TGCAAATATA TGTTGCAAAA AGTACAGCAT TTAAATTACA
      bp
1551 ATCTGCTGTG TACTTCTGTG TATACTGCTC TGAATAAATA TCTGAAATGC
1601 CTTGAGTGTG GAATGCCAAA GATGATTGAA ATCCCTCTGA GCCGTAAATT
1651 TAAAATGTGT TCTATGTGCT GAAGATTTTG CATTATGTGA AAGACATAAT
      ECArR
1701 TGGATACTCT GTGGTGAAAG ACAGGATAAA TGTTACAGAA TTCTCTGTAC
      ECArR
1751 CTAATTCCTC TCCTTTTAAA AGTAAAAATA AATTGTATCA GCTTACATGA
1801 AAGTAGAAAA TAAAATATAA AATGATACAA ATCCACATCT ATTTTTTTCT
1851 CTCTGATTCA AGTAGCCCCT AATTTAAACA CACAGACTAG CAGCTGAATT
1901 TTTGTTGTTA TTGTTAAAGT CAGTCTAGCA CTTCATTGAA TGAAGAAGAA
1951 TCCGCTGTGT TAGTGAGGAA TTAGGTCCTC TGAAACTTCA GACAGTCTGC
2001 CAAACCTCAG AGATTCTGAC CTTCTGCTAC CACTGCCAAA TCATACCAGA
2051 GTCATTTGTC AGCAGAATTT TCCAAACAGG GTTAGCCAGA TAGATGAGCA
2101 GACATTACAC GGCTGCTTAA AACCTCTAAT TTCAGTGGCA CTGAATAGGC
2151 TGACAATTC CCAAGCCGAC TAGAGAGAAA CAAGCGTTTA AAAGATTTAT
2201 GCTTACGCTT TAAAGACTTT TAGAGGGTGA AAAATCATGT TTTATATGTC
2251 AGTCATTTTT AACTTAAGAA TTTAATTTAA AAGAATTGGT TTACCTGATT
2301 TAATTAATAA ATATAATCGC CTATAAGCAG AGTCCTAAAA AACGTATGTT
2351 GGCTAAGAGG AAATAAATCA GATGCAAGCA TTAACTCATC CTGGCGCTGT
2401 TTGGCACAGC AGCAGGCAGG AGTCAATAAG TTAATAACAG GTGCTAGGAT
2451 GGGTGTGCAG GGTACACAGT GGTAACGGAG GAGCAGGCAA TGAAAGAGCA
2501 AGGAGAAGAT GAAGACGTTT TTAACTACAT AATTTTGCCC AGAGTCAGCT
2551 CAATTACCAG GTAAATAAAA TTCCCTGTGT GTTTTTTTGG GATGAGAAAT
2601 AATGTTTAAA ATCATTCAAT TCTAGAAACC CTGCCAATCA AATGGAAAGA
2651 TGACTIONAT GTTTGTTCOA TTGGCAGATG GTTTGGATGT TGATTTTGTG
2701 AATATATAAG CTGTTTGGCT TGGGTGTCTG CATATTGCTT TTTGAAGGTG
2751 ACTAAAAATC TCTGCACCTG CCAAATCTCA TACTTAACAT TCAACAGTTG
2801 GTGGTGCTGG CAGGAATATC ATTCAGACAT GAAAATCTCT ATTACTCATT
2851 TCAGTTT

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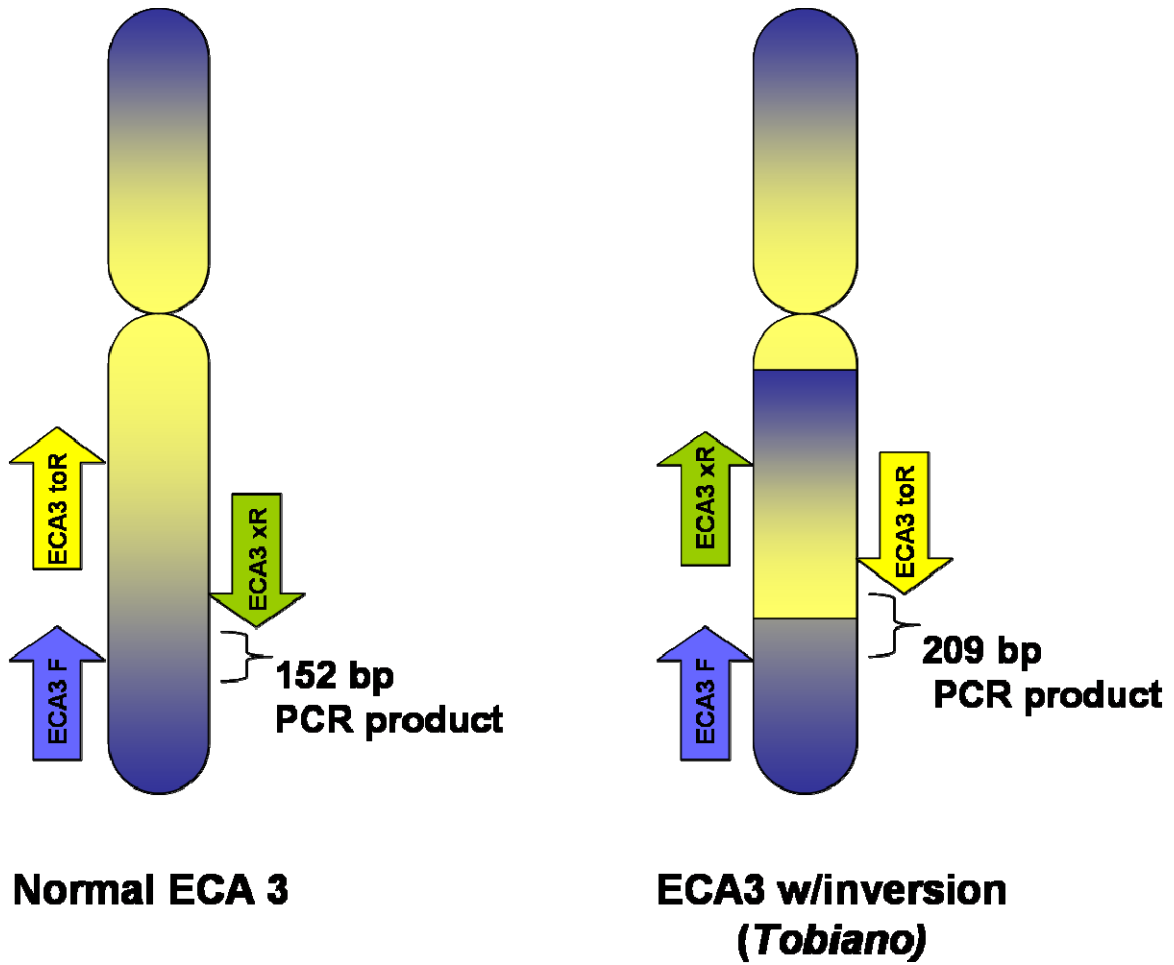


Fig. S3. Schematic diagram of the primer strategy used to detect the ECA3 inversion.