

## Product datasheet for **SC300004**

### CACNA1A (NM\_000068) Human Untagged Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	CACNA1A (NM_000068) Human Untagged Clone
Tag:	Tag Free
Symbol:	CACNA1A
Synonyms:	APCA; BI; CACNL1A4; CAV2.1; DEE42; EA2; EIEE42; FHM; HPCA; MHP; MHP1; SCA6
Mammalian Cell Selection:	None
Vector:	<u><a href="#">pCMV6-XL5</a></u>
E. coli Selection:	Ampicillin (100 ug/mL)

**Fully Sequenced ORF:** >OriGene ORF sequence for NM\_000068 edited  
 ATGGCCCCGCTTCGGAGACGAGATGCCGGCCCGCTACGGGGGAGGAGGCTCCGGGGCAGCC  
 GCCGGGGTGGTCGTGGGCAGCGGAGCGGGGAGGAGCCGGGGGAGCCGGCAGGGCGGG  
 CAGCCCCGGGGCGCAAAGGATGTACAAGCAGTCAATGGCGCAGAGAGCGCGGACCATGGCA  
 CTCTACAACCCCATCCCCGTCCGACAGAACTGCCTCACGGTTAACCGGTCTCTCTCCTC  
 TTCAGCGAAGACAACGTGGTGAGAAAATACGCCAAAAGATCACCGAATGGCCTCCCTTT  
 GAATATATGATTTTAGCCACCATCATAGCGAATTGCATCGTCCTCGCACTGGAGCAGCAT  
 CTGCCTGATGATGACAAGACCCCGATGTCTGAACGGCTGGATGACACAGAACCATACTTC  
 ATTGGAATTTTTGTTTTGAGGCTGGAATAAAATCATTGCCCTTGGGTTGCCTCCAC  
 AAAGGCTCCTACTTGAGGAATGGCTGGAATGTCATGGACTTTGTGGTGGTCTAACGGGC  
 ATCTTGGCGACAGTTGGGACGGAGTTTGACCTACGGACGCTGAGGGCAGTTCGAGTGCTG  
 CGGCCGCTCAAGCTGGTGTCTGGAATCCCAAGTTTACAAGTCGTCTGAAGTCGATCATG  
 AAGCGATGATCCCTTGTCTGCAGATCGGCCTCCTCTATTTTTTGAATCCTTATTTTT  
 GCAATCATAGGGTTAGAATTTATATGGGAAAATTTACATACCACCTGCTTTGAAGAGGGG  
 ACAGATGACATTAGGGTGTGATCTCCGGCTCCATGTGGGACAGAAGAGCCCGCCCGCACC  
 TGCCCCAATGGGACCAATGTCAGCCCTACTGGGAAGGGCCCAACAACGGGATCACTCAG  
 TTCGACAACATCCTGTTGTCAGTGTGACTGTTTTCCAGTGCATAACCATGGAAGGGTGG  
 ACTGATCTCCTCTACAATAGCAACGATGCCTCAGGGAACACTTGGAACTGGTTGACTTC  
 ATCCCCCTCATCATCGGCTCCTTTTTATGCTGAACCTTGTGCTGGGTGTGCTGTCA  
 GGGGAGTTTGCCAAAGAAAGGGAACGGGTGGAGAACCAGCGGGCTTTTCTGAAGCTGAGG  
 CGGCAACAACAGATTGAACGTGAGCTCAATGGGTACATGGAATGGATCTCAAAGCAGAA  
 GAGGTGATCCTCGCCGAGGATGAAACTGACGGGGAGCAGAGGCATCCCTTTGATGCTCTG  
 CGGAGAACCACCAATAAGAAAAGCAAGACAGATTTGCTCAACCCCGAAGAGGCTGAGGAT  
 CAGCTGGTGATATAGCCTCTGTGGTTCTCCCTTCGCCCAGCCAGCATTAAAAGTGCC  
 AAGCTGGAGAACTCGACTTTTTTCACAAAAGGAGAGGAGGATGCGTTTCTACATCCGC  
 CGCATGGTCAAACTCAGGCCTTCTACTGGACTGTACTCAGTTTGGTAGCTCTCAACACG  
 CTGTGTGTGCTATTGTTCACTACAACCAGCCGAGTGGCTCTCCGACTTCTTTACTAT



[View online »](#)

GCAGAATTCATTTTCTTAGGACTCTTTATGTCCGAAATGTTTATAAAAATGTACGGGCTT  
 GGGACGCGGCCTTACTTCCACTCTTCTTCAACTGCTTTGACTGTGGGTTATCATTGGG  
 AGCATCTTCGAGGTCATCTGGGCTGTCATAAACCTGGCACATCCTTTGGAATCAGCGTG  
 TTACGAGCCCTCAGGTTATTGCGTATTTTCAAAGTCACAAAGTACTGGGCATCTCTCAGA  
 AACCTGGTCGTCTCTCCTCAACTCCATGAAGTCCATCATCAGCCTGTTGTTTCTCCTT  
 TTCCTGTTTATTGTCGTCTTCGCCCTTTTGGGAATGCAACTCTTCGGCGGCCAGTTAAT  
 TTCGATGAAGGGACTCCTCCACCAACTTCGATACTTTTCCAGCAGCAATATGACGGTG  
 TTTTCAGATCCTGACGGGCGAAGACTGGAACGAGTTCATGTACGACGGGATCAAGTCTCAG  
 GGGGGCGTGCAGGGCGGCATGGTGTCTCCATCTATTTTATTGACTGACGCTCTTTGGG  
 AACTACACCTCCTGAATGTGTTCTTGGCCATCGCTGTGGACAATCTGGCCAACGCCAG  
 GAGCTACCAAGGACGAGCAAGAGGAAGAAGAAGCAGCGAACCCAGAACTTGCCCTACAG  
 AAAGCCAAGGAGGTGGCAGAAGTGAATCCTCTGTCCGCGGCCAACATGTCTATAGCTGTG  
 AAAGAGCAACAGAAGAATCAAAGCCAGCCAAGTCCGTGTGGGAGCAGCGGACCAAGTGA  
 ATGCGAAAGCAGAAGTCTGTCGACCGCGGAGGCCCTGTATAACGAAATGGACCCGGAC  
 GAGCGCTGGAAGGCTGCCTACACGCGGCACCTGCGGCCAGACATGAAGACGCACTTGGAC  
 CGGCCGCTGGTGGTGGACCCGCAGGAGAACCAGCAACAACAACCAACAAGAGCCGGGGC  
 GCCGAGCCACCGTGGACCAGCGCCTCGGCCAGCAGCGCGCCGAGGACTTCTCAGGAAA  
 CAGGCCGCTACACGATCGGGCCCGGACCCAGCGGCTCGGGCGGCCTGGACGACCGG  
 AGGCCCTGGGCGGGAAGCCAGGAGGCCGAGCTGAGCCGGGAGGGACCCTACGGCCGCGAG  
 TCGGACCACACGCCCGGGAGGGCAGCCTGGAGCAACCCGGGTTCTGGGAGGGCGAGGCC  
 GAGCGAGGCAAGGCCGGGACCCCAACCGGAGGCACGTGCACCGGAGGGGGGACGACAGG  
 GAGAGCCGACGCGGTCCCGCGCACGGGCGGACGGGGAGCATCGACGTCATCGCGCG  
 CACCGCAGGCCCGGGGAGGAGGGTCCGGAGGACAAGCGGAGCGGAGGGCGCGGCACCGC  
 GAGGGCAGCCCGGCCCGGGCGGCGAGGGCGAGGGCGAGGGCCCGACGGGGCGAG  
 CGCAGGAGAAGGCACCGGCATGGCGCTCCAGCCAGTACGAGGGGACGCGCGGAGGGAG  
 GACAAGGAGCGGAGGCATCGGAGGAGGAAAGAGAACCAGGGCTCCGGGTCCCTGTGTCG  
 GGCCCCAACCTGTCAACCACCGGCCAATCCAGCAGGACCTGGGCCGCCAAGACCCACCC  
 CTGGCAGAGGATTTGACAACATGAAGAACAACAAGCTGGCCACCGGAGTCCGGCCGCT  
 CCCCACGGCAGCCTTGGCCACGCCGCCCTGCCCCAGAGCCAGCCAAGATGGGAAACAGC  
 ACCGACCCCGGCCCATGCTGGCCATCCCTGCCATGGCCACCAACCCCAAGACCGGCC  
 AGCGCCGGACGCCAACACCCGGGGAACCCATCCAATCCCGGCCCCCAAGACCCCC  
 GAGAATAGCCTTATCGTACCAACCCACGCGGCACCCAGACCAATTCAGCTAAGACTGCC  
 AGGAAACCCGACCACACCACAGTGGACATCCCCCAGCCTGCCACCCCCCTCAACCAC  
 ACCGTCGTACAAGTGAACAAAAACGCCAACCCAGACCCACTGCCAAAAAAGAGGAAGAG  
 AAGAAGGAGGAGGAGGAAGACGACCGTGGGGAAGACGGCCCTAAGCCAATGCCTCCCTAT  
 AGCTCCATGTTTCTCCTGTCACGACCAACCCCTTCGCCGCTGTGCCATTACATCCTG  
 AACCTGCGCTACTTTGAGATGTGCATCCTCATGGTTCATTGCCATGAGCAGCATCGCCCTG  
 GCCCGGAGGACCCTGTGCAGCCCAACGCACCTCGGAACAACGTGCTGCGATACTTTGAC  
 TAGTTTTTACAGGCGTCTTACCTTTGAGATGGTGATCAAGATGATTGACCTGGGGCTC  
 GTCCTGCATCAGGGTGCCCTACTTCCGTGACCTCTGGAATATTCTCGACTTCATAGTGTC  
 AGTGGGGCCCTGGTAGCCTTTGCCCTTACTGGCAATAGCAAAGGAAAAGACATCAACACG  
 ATTAATCCCTCCGAGTCTCCGGGTGCTACGACCTCTTAAAACCATCAAGCGGCTGCCA  
 AAGCTCAAGGCTGTGTTGACTGTGTGGTGAACCTCACTTAAAAACGTCTTCAACATCCTC  
 ATCGTCTACATGCTATTGATGTTTCTCGCGTGGTGGCTGTGCAGCTCTTCAAGGGG  
 AAATCTTCCACTGCACTGACGAGTCAAAGAGTTTGAAGAAAGATTGTCGAGGCAATAC  
 CTCCTCTACGAGAAGAATGAGGTGAAGGCGGAGACCGGGAGTGAAGAAGTATGAATTC  
 CATTACGACAATGTGCTGTGGCTCTGCTGACCCTCTTACCCTGTCCACGGGAGAGGC  
 TGGCCACAGTCCCAAGCATTCCGTGGACGCCACCTTTGAGAACCAGGGCCCCAGCCCC  
 GGGTACCGCATGGAGATGTCATTTTCTACGTCGTCTACTTTGTGGTGTCCCTTCTTC  
 TTTGTCAATATCTTTGTGGCCTTGATCATCATCACCTTCCAGGAGCAAGGGGACAAGATG  
 ATGGAGGAATACAGCCTGGAGAAAAATGAGAGGGCCTGCATTGATTTCCGCATCAGCGCC  
 AAGCCGCTGACCCGACACATGCCGAGAACAAGCAGAGCTTCCAGTACCGCATGTGGCAG

TTCGTGGTGTCTCCGCCCTTCGAGTACACGATCATGGCCATGATCGCCCTCAACACCATC  
 GTGCTTATGATGAAGTTCTATGGGGCTTCTGTTGCTTATGAAAATGCCCTGCGGGTGTT  
 AACATCGTCTTACCTCCCTCTTCTCTCTGGAATGTGTGCTGAAAGTCATGGCTTTTGGG  
 ATTCTGAATTATTTCCGCGATGCCTGGAACATCTTCGACTTTGTGACTGTTCTGGGCAGC  
 ATCACCATATCCTCGTACTGAGTTTGGGAATAACTTCATCAACCTGAGCTTTCTCCGC  
 CTCTCCGAGCTGCCCGGCTCATCAAACCTCCTCGTCAGGGTTACACCATCCGCATTCTT  
 CTCTGGACCTTTGTGCAGTCTTCAAGGCCCTGCCTTATGTCTGTCTGCTGATCGCCATG  
 CTCTTCTCATCTATGCCATCATTGGGATGCAGGTGTTTGGTAACATTGGCATCGACGTG  
 GAGGACGAGGACAGTGATGAAGATGAGTTCAAAATCACTGAGCACAATAACTTCCGGACC  
 TTCTTCCAGGCCCTCATGCTTCTTCCGGAGTGCCACCGGGGAAGCTTGGCACAACATC  
 ATGCTTTCCTGCCTCAGCGGAAACCGTGTGATAAGAATCTGGCATCCTGACTCGAGAG  
 TGTGGCAATGAATTTGCTTATTTTTACTTTGTTTCCTTCATCTTCTCTGCTCGTTTCTG  
 ATGCTGAATCTTTGTGCGGTCATCATGGACAATTTGAGTACCTCACCCGAGACTCC  
 TCCATCCTGGGCCCCACCCTGGATGAGTACGTGCGTGTCTGGGCCGAGTATGACCCC  
 GCAGCTTGCGGTCCGATTATTATAAGGATATGTACAGTTTATTACGAGTAATATCTCCC  
 CCTCTCGGCTTAGCAAGAAATGCCTCATAGGGTTGCTTGAAGCGGCTTCTGCGGATG  
 GACCTGCCCGTCGCAGATGACAACCCGTCACCTTCAATTCCACCCTCATGGCTCTGATC  
 CGCACAGCCCTGGACATCAAGATTGCCAAGGGAGGAGCCGACAAACAGCAGATGGACGCT  
 GAGCTGCGGAAGGAGATGATGGCGATTTGGCCCAATCTGTCCCAGAAGACGCTAGACCTG  
 CTGGTCACACCTCACAAGTCCACGGACCTACCGTGGGGAAGATCTACGCAGCCATGATG  
 ATCATGGAGTACTACCGCAGAGCAAGGCCAAGAAGCTGCAGGCCATGCGCGAGGAGCAG  
 GACCGGACACCCCTCATGTTCCAGCGCATGGAGCCCCGTCCCCAACGCAGGAAGGGGGA  
 CCTGGCCAGAACGCCCTCCCTCCACCCAGCTGGACCCAGGAGGAGCCCTGATGGCTCAC  
 GAAAGCGGCTCAAGGAGAGCCCGTCTGGGTGACCCAGCGTGCCAGGAGATGTTCCAG  
 AAGACGGGCACATGGAGTCCGGAACAAGGCCCCCTACCGACATGCCCAACAGCCAGCCT  
 AACTCTCAGTCCGTGGAGATGCGAGAGATGGGCAGAGATGGTACTCCGACAGCGAGCAC  
 TACCTCCCATGGAAGGCCAGGGCCGGGCTGCCTCCATGCCCCGCTCCCTGCAGAGAAC  
 CAGAGGAGAAGGGGCCGGCCACGTGGGAATAACCTCAGTACCATCTCAGACACCAGCCCC  
 ATGAAGCGTTCAGCTCCGTGCTGGGCCCAAGGCCGACGCCTGGACGATTACTCGCTG  
 GAGCGGGTCCC GCCGAGGAGAACCAGCGCACACCAGCGGCGCCGACCGCAGCCAC  
 CGCGCCTCTGAGCGCTCCCTGGGCGCTACACCGATGTGGACACAGGCTTGGGGACAGAC  
 CTGAGCATGACCACCAATCCGGGGACCTGCCGTGCAAGGAGCGGGACCAGGAGCGGGGC  
 CGGCCAAGGATCGGAAGCATCGACAGCACACCACCACCACCACCACCACCACCACCC  
 CCGCCCCCGACAAGGACCGCTATGCCAGGAACGGCCGGACCACGGCCGGGCACGGGCT  
 CGGGACACGCGTGGTCCCGCTCGCCAGCGAGGGCCGAGAGCACATGGCGCACCCGGCAG  
 TAG

**Restriction Sites:** Please inquire  
**ACCN:** NM\_000068  
**Insert Size:** 7100 bp

<b>OTI Disclaimer:</b>	<p>Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at <a href="mailto:custsupport@origene.com">custsupport@origene.com</a> or by calling 301.340.3188 option 3 for pricing and delivery.</p> <p>The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. <a href="#">More info</a></p>
<b>OTI Annotation:</b>	<p>The open reading frame of this clone has been fully sequenced and found a three base deletion and one SNP within the protein associated with this reference, NM_000068.2. This SNP doesn't change amino acid.</p>
<b>Components:</b>	<p>The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).</p>
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
<b>RefSeq:</b>	<p><a href="#">NM_000068.2</a>, <a href="#">NP_000059.2</a></p>
<b>RefSeq Size:</b>	<p>7807 bp</p>
<b>RefSeq ORF:</b>	<p>6786 bp</p>
<b>Locus ID:</b>	<p>773</p>
<b>UniProt ID:</b>	<p><a href="#">O00555</a></p>
<b>Cytogenetics:</b>	<p>19p13.13</p>
<b>Protein Families:</b>	<p>Druggable Genome, Ion Channels: Calcium, Transmembrane</p>
<b>Protein Pathways:</b>	<p>Calcium signaling pathway, Long-term depression, MAPK signaling pathway, Taste transduction, Type II diabetes mellitus</p>

**Gene Summary:**

Voltage-dependent calcium channels mediate the entry of calcium ions into excitable cells, and are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, and gene expression. Calcium channels are multisubunit complexes composed of alpha-1, beta, alpha-2/delta, and gamma subunits. The channel activity is directed by the pore-forming alpha-1 subunit, whereas, the others act as auxiliary subunits regulating this activity. The distinctive properties of the calcium channel types are related primarily to the expression of a variety of alpha-1 isoforms, alpha-1A, B, C, D, E, and S. This gene encodes the alpha-1A subunit, which is predominantly expressed in neuronal tissue. Mutations in this gene are associated with 2 neurologic disorders, familial hemiplegic migraine and episodic ataxia 2. This gene also exhibits polymorphic variation due to (CAG)<sub>n</sub>-repeats. Multiple transcript variants encoding different isoforms have been found for this gene. In one set of transcript variants, the (CAG)<sub>n</sub>-repeats occur in the 3' UTR, and are not associated with any disease. But in another set of variants, an insertion extends the coding region to include the (CAG)<sub>n</sub>-repeats which encode a polyglutamine tract. Expansion of the (CAG)<sub>n</sub>-repeats from the normal 4-18 to 21-33 in the coding region is associated with spinocerebellar ataxia 6. [provided by RefSeq, Jul 2016]

**Transcript Variant:** This variant (1) uses an alternate splice site in the 3' coding region that results in a frameshift, compared to variant 2. The resulting isoform (1) has a shorter and distinct C-terminus that does not include the polyglutamine tract, compared to isoform 2.

**Sequence Note:** This RefSeq record was created from transcript and genomic sequence data because no quality transcript was available for the full length of the gene. The extent of this transcript is supported by transcript alignments.