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Product datasheet for SC323546

CAMK2A (NM_171825) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	CAMK2A (NM_171825) Human Untagged Clone
Tag:	Tag Free
Symbol:	CAMK2A
Synonyms:	CAMKA; CaMKIIalpha; CaMKIINalpha; MRD53; MRT63
Mammalian Cell Selection:	None
Vector:	pCMV6-XL5
E. coli Selection:	Ampicillin (100 ug/mL)

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Fully Sequenced ORF:

>OriGene ORF within SC323546 sequence for NM_171825 edited (data generated by NextGen Sequencing)

ATGGCCACCATCACCTGCACCCGCTTCACGGAAGAGTACCAGCTCTTCGAGGAATTGGGC
AAGGGAGCCTTCTCGGTGGTGCGAAGGTGTGTGAAGGTGCTGGCTGGCCAGGAGTATGCT
GCCAAGATCATCAACACAAAGAAGCTGTCAGCCAGAGACCATCAGAAGCTGGAGCGTGAA
GCCCGCATCTGCCGCCTGCTGAAGCACCCCAACATCGTCCGACTACATGACAGCATCTCA
GAGGAGGGACACCACTACCTGATCTTCGACCTGGTCACTGGTGGGGAACTGTTTGAAGAT
ATCGTGGCCCGGGAGTATTACAGTGAGGCGGATGCCAGTCACTGTATCCAGCAGATCCTG
GAGGCTGTGCTGCACTGCCACCAGATGGGGGTGGTGCACCGGGACCTGAAGCCTGAGAAT
CTGTTGCTGGCCTCCAAGCTCAAGGGTGCCGCAGTGAAGCTGGCAGACTTTGGCCTGGCC
ATAGAGGTGGAGGGGGAGCAGCAGGCATGGTTTGGGTTTGCAGGGACTCCTGGATATCTC
TCCCCAGAAGTGCTGCGGAAGGACCCGTACGGGAAGCCTGTGGACCTGTGGGCTTGTGGG
GTCATCCTGTACATCCTGCTGGTTGGGTACCCCCCGTTCTGGGATGAGGACCAGCACCGC
CTGTACCAGCAGATCAAAGCCGGCGCCTATGATTTCCCATCGCCGGAATGGGACACTGTC
ACCCCGGAAGCCAAGGATCTGATCAATAAGATGCTGACCATTAACCCATCCAAACGCATC
ACAGCTGCCGAAGCCCTTAAGCACCCCTGGATCTCGCACCGCTCCACCGTGGCATCCTGC
ATGCACAGACAGGAGACCGTGGACTGCCTGAAGAAGTTCAATGCCAGGAGGAAACTGAAG
GGAGCCATTCTCACCACGATGCTGGCCACCAGGAACTTCTCCGGAGGGAAGAGTGGGGGA
AACAAGAAGAGCGATGGTGTGAAGGAATCCTCAGAGAGCACCAACACCACCATCGAGGAT
GAAGACACCAAAGTGCGGAAACAGGAAATTATAAAAGTGACAGAGCAGCTGATTGAAGCC
ATAAGCAATGGAGATTTTGAGTCCTACACGAAGATGTGCGACCCTGGCATGACAGCCTTC
GAACCTGAGGCCCTGGGGAACCTGGTTGAGGGCCTGGACTTCCATCGATTCTATTTTGAA
AACCTGTGGTCCCGGAACAGCAAGCCCGTGCACACCACCATCCTGAATCCCCACATCCAC
CTGATGGGCGACGAGTCAGCCTGCATCGCCTACATCCGCATCACGCAGTACCTGGACGCT
GGCGGCATCCCACGCACCGCCCAGTCGGAGGAGACCCGTGTCTGGCACCGCCGGGATGGC
AAATGGCAGATCGTCCACTTCCACAGATCTGGGGCGCCCTCCGTCCTGCCCCACTGA

Clone variation with respect to NM_171825.2

5' Read Nucleotide Sequence:

>OriGene 5' read for mutant NM_171825 unedited

CCGCCGTTTCAGCAATGGGCGGTAGGCGTTGTACGGTGGGAGGTTCTATATAAGCAGAGCTCATATTAGG
TTGACACTATAGAATACAAGCTACTATGTTCTTTTTGCAGCGGCCGCGAATTTCGGCACGAGGCTCGTCA
GTCAAACCGGTACTCTGTTTGCACTCGGCAGCACGGGCAGGCAAGAGGTCCCTAGGTTCGGGAGCAGAGC
AGCAGCGCCTCAGTCCTGGTCCCCCAGTCCCAAGCCTCACCTGCCTGCCCAGCGCCAGGATGGCCACCAT
CACCTGCACCCGCTTCACGGAAGAGTACCAGCTCTTCGAGGAATTGGGCAAGGGAGCCCTTCTCGGGTGG
TGCGGAAGGTGTGTGGAAGTTGCTTGGCTTGGCCAGAAGTATTGGCTGGCCTTGATTCTTCAACACCAAA
AAAACCTGTCACCCAGAGAACAATTCGAGAGCCCTGGAAGCGTTGAGCCCCCGCATCCTGCGCGCCTGCT
GAACACCCCCCACCATCGTTCGACACTACTGAAAACCATCCTCAAAAGAAGGAAACCCCCTTTCCTGATT
TTTCACCCGGGTCCTGGGGGGGGAAACGGTTTTAAAAAATTTTGGGCCCCGGGGTTTTTAACTGGAGGGG
GGGAACCCCTTTCCGGGTTCCCCCCAAAATCCGGGGGCGGTGGGTGCTCCCTGCCCCCAAAAGGGGGGGG
GGCCCCCCGGAGCCGTAAACCCCTGAAAATTTTTTTGGGGCCCCCAACTCCCAGGGGGGCCCCCTGAGAC
CCGGGAAATTTTTGCCCCCCCCCTAGGGGGGGGGGGGGAACCCCCCAGGTTTTTTTATATTCCTGAAGAA
CCCCCCCAGGGGACCCCGGGGCCCCGGGGTTTTGGGGCACCCCGCACCCCGCGGGGTGGGGAACCACCCC
TTTTGGGAGAAGAGAACACACGCCCGTATACACCATATACACCGGCCGCTGTAGATTCTCCTCCGCGAGT
GAATGTAGTACCCCCCACACGCAGACGTGATTATATAAGTGTATACGA

Kinase Domain Sequence:

>SC323546 kinase domain raw sequence. By performing BLASTX analysis with this sequence against NCBI refernce protein database, you can confirm the presence of the kinase-deficient mutation

ASAATGMGCAATGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCATTTAGGTGACACT
ATAGAATACAAGCTACTTGTTCTTTTTGCAGCGGCCGCGAATTCGGCACGAGGCTCGTCAGTCAAACCGG
TTCTCTGTTTGCACTCGGCAGCACGGGCAGGCAAGTGGTCCCTAGGTTCGGGAGCAGAGCAGCAGCGCCT
CAGTCCTGGTCCCCCAGTCCCAAGCCTCACCTGCCTGCCCAGCGC

Restriction Sites:	Please inquire
ACCN:	NM_171825
Insert Size:	4700 bp
OTI Disclaimer:	Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).
OTI Annotation:	This kinase-deficient mutant clone was generated by created by site-directed mutagenesis from the corresponding wild-type clone. See details in "Application of active and kinase-deficient kinome collection for identification of kinases regulating hedgehog signaling." Cell. 2008 May p536-548.
Components:	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).
Reconstitution Method:	1. Centrifuge at 5,000xg for 5min. 2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA. 3. Close the tube and incubate for 10 minutes at room temperature. 4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom. 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.
RefSeq:	NM_171825.1, NP_741960.1
RefSeq Size:	4803 bp
RefSeq ORF:	1437 bp
Locus ID:	815
UniProt ID:	Q9UQM7
Cytogenetics:	5q32
Protein Families:	Druggable Genome, Protein Kinase
Protein Pathways:	Calcium signaling pathway, ErbB signaling pathway, Glioma, GnRH signaling pathway, Long-term potentiation, Melanogenesis, Neurotrophin signaling pathway, Olfactory transduction, Oocyte meiosis, Wnt signaling pathway

Gene Summary:

The product of this gene belongs to the serine/threonine protein kinases family, and to the Ca(2+)/calmodulin-dependent protein kinases subfamily. Calcium signaling is crucial for several aspects of plasticity at glutamatergic synapses. This calcium calmodulin-dependent protein kinase is composed of four different chains: alpha, beta, gamma, and delta. The alpha chain encoded by this gene is required for hippocampal long-term potentiation (LTP) and spatial learning. In addition to its calcium-calmodulin (CaM)-dependent activity, this protein can undergo autophosphorylation, resulting in CaM-independent activity. Several transcript variants encoding distinct isoforms have been identified for this gene. [provided by RefSeq, Jun 2018]

Transcript Variant: This variant (2) differs in the 5' UTR and lacks an alternate in-frame exon compared to variant 3. The resulting isoform (2) has the same N- and C-termini but is shorter compared to isoform 1. Variants 2 and 4 both encode the same isoform (2). Isoforms 2 and 5 are the same length but differ in sequence. Sequence Note: The RefSeq transcript and protein were derived from transcript and genomic sequence to make the sequence consistent with the reference genome assembly. The genomic coordinates used for the transcript record were based on alignments.