

Product datasheet for **MR220945**

Camk2b (NM_007595) Mouse Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Camk2b (NM_007595) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Camk2b
Synonyms:	CaMKII
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin



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ORF Nucleotide Sequence:

>MR220945 representing NM_007595
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**GCGATCGCC**

ATGGCCACCACGGTGACCTGCACCCGTTTCACCGACGAGTACCAGCTATACGAGGATATTGGCAAGGGG
 CTTTCTCTGTGGTCCGACGCTGTGTCAAGCTCTGTACCGCCATGAGTATGCAGCCAAGATCATTAAATAC
 CAAGAAGCTGTCGGCCAGAGATCACCAGAACTGGAGAGAGAAGCTCGGATCTGCCGCCTGCTGAAGCAT
 TCCAACATTGTACGCCTCCATGACAGCATCTCTGAAGAGGGCTTCCACTACCTGGTCTTCGATCTGGTCA
 CTGGTGGGAGCTCTTTGAAGACATCGTGGCAAGAGAGTACTACAGTGAAGCTGATGCCAGTCACTGCAT
 CCAGCAGATCCTGGAAGCTGTTCTCCATTGTACCAAAATGGGGTCTCCACAGAGACCTCAAGCCTGAG
 AACCTGCTTCTGGCCAGCAAATGCAAAGGCGCCGAGTGAAGCTGGCAGACTTCGGCCTGGCCATCGAGG
 TTCAGGGAGACCAGCAGGCATGGTTTGGATTTGCGGGAACGCCAGGCTACCTGTCTCCGAGGTCTTCCG
 GAAGGAGGCCTACGGCAAACCTGTGGACATCTGGGCATGTGGGGTATCTGTATATCCTGCTGGTGGGC
 TACCCACCTTTCTGGGATGAGGACCAACAAGCTGTACCAGCAGATCAAGGCTGGGGCGTATGATTTC
 CATCCCCTGAGTGGGACACCGTTACTCCTGAAGCCAAAAACCTCATCAACCAGATGCTGACCATCAACCC
 TGCCAAGCGCATCACGGCCATGAGGCCCTGAAGCACCCATGGGTCTGCCAACGTTCCACCGTGGCCTCT
 ATGATGCACAGACAGGAGACTGTGGAATGTCTGAAGAAGTTCAATGCAAGGAGGAAGCTCAAGGGAGCCA
 TCCTCACCCTATGTGGCCACACGGAATTTCTCAGTGGGCGAGACAGACCACCGCTCCGGCCACAATGTC
 CACCGCGGCTCCGGCACCACCATGGGGCTGGTGAACAAGCCAAGAGTTTACTCAACAAGAAAGCAGAT
 GGAGTCAAGCCCCAGACAACAGCACCAAAAACAGCTCGGCCATCACCAGCCCCAAGGATCTCTCCCTC
 CTGCTGCCCTGGAGCCTCAAACCACCGTTATCCATAACCCAGTGGACGGGATTAAGGAATCTTCCGACAG
 CACCAACACAACCATAGAGGATGAAGATGCCAAAAGCCCGAAGCAGGAAATCATCAAGACCACAGAGCAG
 CTCATTGAGGCCGTCAACAATGGGGACTTTGAGGCCTATGCGAAAATCTGTGACCCAGGCCGTGACCTCAT
 TTGAGCCTGAAGCTCTGGCAACCTGGTGAAGGGATGGATTTCCACAGATTCTACTTTGAGAACCTGCT
 GGCCAAGAACAGCAAGCCGATCCACACCACCATCTGAACCCGCACGTGCACGTATTGGCGAGGATGCG
 GCATGCATCGCTACATCCGCCTCACACAGTACATCGATGGCCAGGGCAGACCCCGTACCAGCCAGTCCG
 AAGAGACCCGTGTGTGGCACCGCCGACGGCAAGTGGCAGAATGTACATTTCCACTGCTCGGGCGCTCC
 AGTGGCCCCGCTGCAG

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

Protein Sequence:

>MR220945 representing NM_007595
 Red=Cloning site Green=Tags(s)

MATTVTCTRFTDEYQLYEDIGKGAFSVVRRCVKLCTGHEYAAKIINTKKLSARDHQKLEREARICRLLKH
 SNIVRLHDSISEEGFHYLVFDLVTGGELFEDIVAREYYSEADASHCIQQILEAVLHCHQMVGVVHRDLKPE
 NLLLASKCKGAAVKLAFLGLAIEVQGDQQAQWFGFAGTPGYLSPEVLRKEAYGKPVDIWACGVILYILLVG
 YPPFWDEDQHKLYQQIKAGAYDFPSPEWDTVTPEAKNLINQMLTINPAKRITAHEALKHPWVCQRSTVAS
 MMHRQETVECLKKFNARRKLGAILTTMLATRNFSVGRQTTAPATMSTAASGTTMGLVEQAKSLLNKKAD
 GVKPQTNSTKNSSAITSKGLSPPAALEPQTTVIHNPVDGIKSSDSTNTTIEDEDAKARKQEIITTEQ
 LIEAVNNGDFEAYAKICDPGLTSFEPEALGNLVEGMDFHRFYFENLLAKNSKPIHTTILNPHVHVEDA
 ACIAYIRLTQYIDGQGRPRTSQSEETRVWHRDGGKQNVHVFHCSGAPVAPLQ

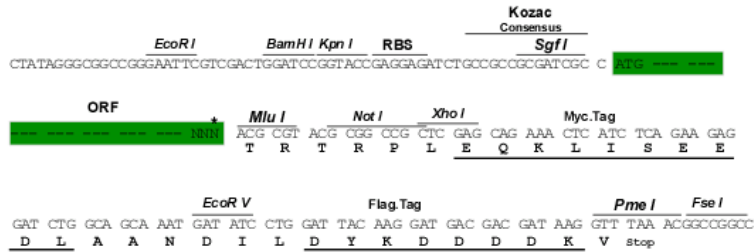
TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Restriction Sites:

Sgfl-MluI

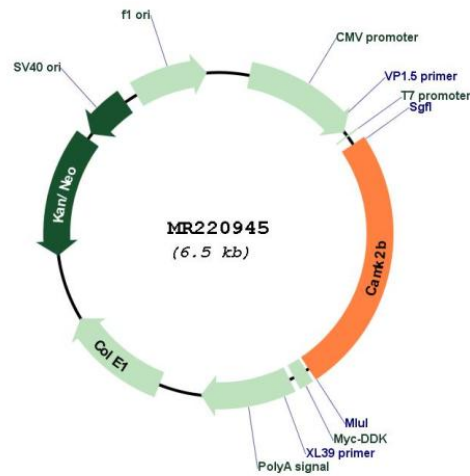
Cloning Scheme:

Cloning sites used for ORF Shuttling:



* The last codon before the Stop codon of the ORF

Plasmid Map:



ACCN:	NM_007595
ORF Size:	1626 bp
OTI Disclaimer:	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. More info
OTI Annotation:	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
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:	<ol style="list-style-type: none">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_007595.5 , NP_031621.3
RefSeq Size:	4025 bp
RefSeq ORF:	1629 bp
Locus ID:	12323
UniProt ID:	P28652
Cytogenetics:	11 3.89 cM
MW:	60.9 kDa

Gene Summary:

Calcium/calmodulin-dependent protein kinase that functions autonomously after Ca(2+)/calmodulin-binding and autophosphorylation, and is involved in dendritic spine and synapse formation, neuronal plasticity and regulation of sarcoplasmic reticulum Ca(2+) transport in skeletal muscle. In neurons, plays an essential structural role in the reorganization of the actin cytoskeleton during plasticity by binding and bundling actin filaments in a kinase-independent manner. This structural function is required for correct targeting of CaMK2A, which acts downstream of NMDAR to promote dendritic spine and synapse formation and maintain synaptic plasticity which enables long-term potentiation (LTP) and hippocampus-dependent learning. In developing hippocampal neurons, promotes arborization of the dendritic tree and in mature neurons, promotes dendritic remodeling. Also regulates the migration of developing neurons (PubMed:29100089). Participates in the modulation of skeletal muscle function in response to exercise. In slow-twitch muscles, is involved in regulation of sarcoplasmic reticulum (SR) Ca(2+) transport and in fast-twitch muscle participates in the control of Ca(2+) release from the SR through phosphorylation of triadin, a ryanodine receptor-coupling factor, and phospholamban (PLN/PLB), an endogenous inhibitor of SERCA2A/ATP2A2 (PubMed:21752990).[UniProtKB/Swiss-Prot Function]