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CaMK2 alpha Recombinant Rabbit mAb

Catalog # AP100283

Product Information

Application	WB, IP
Primary Accession	Q13554
Other Accession	Q13554
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Recombinant
Calculated MW	72678
Physical State	Liquid
Immunogen	A synthesized peptide derived from human CaMKII alpha
Epitope Specificity	34-84
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	10mM phosphate buffered saline(pH 7.4) with 150mM sodium chloride, 0.05% BSA, 0.02% Proclin300 and 50% glycerol.
SIMILARITY	Belongs to the protein kinase superfamily. CAMK Ser/Thr protein kinase family. CaMK subfamily.Contains 1 protein kinase domain.
SUBUNIT	CAMK2 is composed of four different chains: alpha, beta, gamma, and delta. The different isoforms assemble into homo- or heteromultimeric holoenzymes composed of 8 to 12 subunits. Interacts with BAALC, MPDZ, SYN1, CAMK2N2 and SYNGAP1.
Post-translational modifications	Autophosphorylation of Thr-287 following activation by Ca(2+)/calmodulin. Phosphorylation of Thr-287 locks the kinase into an activated state.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Calcium/calmodulin-dependent protein kinase that functions autonomously after Ca2+/calmodulin-binding and autophosphorylation, and is involved in various processes, such as synaptic plasticity, neurotransmitter release and long-term potentiation.Member of the NMDAR signaling complex in excitatory synapses, it regulates NMDAR-dependent potentiation of the AMPAR and therefore excitatory synaptic transmission.

Additional Information

Gene ID	816
Other Names	CAMKA; CaMKIINalpha; CaMKIIalpha; MRD53; MRT63; CAM2; CAMK2; CAMKB; CaMKIIbeta; MRD54; CAMKD; CAMK; CAMK-II; CAMKG; MRD59; 2810011D23Rik; 8030469K03Rik; CaMK II; [d]-CaMKII; CaMKII; mKIAA0968; Ck2b; CAMK1; Camki; RATCAMKI; PK2CDD; PKCCD; KCC2D_BOVIN; CAMK2D; CaM kinase II subunit delta; CaMK-II subunit delta; 2.7.11.17; KCC2B_BOVIN; CAMK2B; CaM kinase II subunit beta; CaMK-II subunit beta; KCC2B_HUMAN; KCC2G_HUMAN; CAMK2G; CaM kinase II subunit gamma; CaMK-II subunit gamma; KCC2D_HUMAN; KCC2A_HUMAN; CAMK2A; CaM kinase II subunit

	alpha; CaMK-II subunit alpha; KIAA0968; KCC2A_MOUSE; KCC2B_MOUSE; KCC2D_MOUSE; Kiaa4163; KCC2G_MOUSE; KCC2B_RAT; KCC2A_RAT; KCC2G_RAT; KCC2D_RAT; calcium/calmodulin dependent protein kinase II alpha; calcium/calmodulin-dependent protein kinase (CaM kinase) II alpha; CaM-kinase II alpha chain; calcium/calmodulin-dependent protein kinase II alpha-B subunit; CaM kinase II alpha subunit; CaMK-II alpha subunit; calcium/calmodulin-dependent protein kinase type II alpha chain
Dilution	WB=1:500-2000,IP=1:20-50,Flow-Cyt=1:50-100
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	CAMK2B
Synonyms	CAM2, CAMK2, CAMKB
Function	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 (PubMed:16690701). 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 (PubMed:16690701). 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. In response to interferon-gamma (IFN-gamma) stimulation, catalyzes phosphorylation of STAT1, stimulating the JAK-STAT signaling pathway (By similarity). Phosphorylates reticulophagy regulator RETREG1 at 'Ser-151' under endoplasmic reticulum stress conditions which enhances RETREG1 oligomerization and its membrane scission and reticulophagy activity (PubMed:31930741).
Cellular Location	Cytoplasm, cytoskeleton. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Sarcoplasmic reticulum membrane; Peripheral membrane protein; Cytoplasmic side. Synapse {ECO:0000250|UniProtKB:P08413} Note=In slow-twitch muscle, evenly distributed between longitudinal SR and junctional SR
Tissue Location	Widely expressed. Expressed in adult and fetal brain. Expression is slightly lower in fetal brain. Expressed in skeletal muscle.

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