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CACNA1C Recombinant Rabbit mAb

Catalog # AP99184

Product Information

Application	IHC-P, IHC-F
Primary Accession	Q01815
Other Accession	Q01815
Reactivity	Rat, Mouse
Host	Rabbit
Clonality	Recombinant
Calculated MW	240138
Physical State	Liquid
Immunogen	Recombinant mouse CACNA1C protein
Epitope Specificity	1651-2050/2139
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the calcium channel alpha-1 subunit (TC 1.A.1.11) family. CACNA1C subfamily.
SUBUNIT	Voltage-dependent calcium channels are multisubunit complexes, consisting of alpha-1, alpha-2, beta and delta subunits in a 1:1:1:1 ratio. The channel activity is directed by the pore-forming and voltage-sensitive alpha-1 subunit. In many cases, this subunit is sufficient to generate voltage-sensitive calcium channel activity. The auxiliary subunits beta and alpha-2/delta linked by a disulfide bridge regulate the channel activity. Interacts with CACNA2D4. Interacts (via the N-terminus and the C-terminal C and IQ motifs) with CABP1. The binding via the C motif is calcium independent whereas the binding via IQ requires the presence of calcium and is mutually exclusive with calmodulin binding. The binding to the cytoplasmic N-terminal domain is calcium independent but is essential for the channel modulation. Interacts (via C-terminal CDB motif) with CABP5; in a calcium-dependent manner (By similarity).
Post-translational modifications	Phosphorylation by PKA activates the channel.
DISEASE	Defects in CACNA1C are the cause of Timothy syndrome (TS) [MIM:601005]. TS is a disorder characterized by multiorgan dysfunction including lethal arrhythmias, webbing of fingers and toes, congenital heart disease, immune deficiency, intermittent hypoglycemia, cognitive abnormalities and autism. Defects in CACNA1C are the cause of Brugada syndrome type 3 (BRGDA3) [MIM:611875]. A heart disease characterized by the association of Brugada syndrome with shortened QT intervals. Brugada syndrome is a tachyarrhythmia characterized by right bundle branch block and ST segment elevation on an electrocardiogram (ECG). It can cause the ventricles to beat so fast that the blood is prevented from circulating efficiently in the body. When this situation occurs (called ventricular fibrillation), the individual will faint and may die in a few minutes if the heart is not reset.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The receptor for the 1,4-dihydropyrodine (DHPR) class of Ca2+ channel is

most abundant in the transverse tubular membranes of skeletal muscle. DHRP is essential in excitation-contraction (E-C) coupling and has been proposed to have a dual function as a calcium channel and voltage sensor. Skeletal muscle DHRP consists of four subunits: alpha1 (170kDa); alpha2 (175kDa non-reduced, 150kDa reduced); beta (52kDa) and gamma (32kDa).

Additional Information

Gene ID	12288
Other Names	CACH2; CACN2; CACNA1C-IT2; CACNL1A1; CCHL1A1; CaV1.2; LQT8; NEDHLSS; TS; TS. LQT8; D930026N18Rik; MBC; MELC-CC; Cacna1c; RATIVS302; CAC1C_HUMAN; Calcium channel, L type, alpha-1 polypeptide, isoform 1, cardiac muscle; Voltage-gated calcium channel subunit alpha Cav1.2; CAC1C_MOUSE; Mouse brain class C (MBC); CAC1C_RABIT; Smooth muscle calcium channel blocker receptor (CACB-receptor); CAC1C_RAT; Rat brain class C (RBC); calcium voltage-gated channel subunit alpha1 C; calcium channel, voltage-dependent, L type, alpha 1C subunit; CACNA1C intronic transcript 2; CACNA1C intronic transcript 2 (non-protein coding);
Dilution	IHC-P=1:50-200,IHC-F=1:50-200
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	Cacna1c
Synonyms	Cach2, Cacn2, Cacnl1a1, Cchl1a1
Function	Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents (PubMed:14609949, PubMed:18586882, PubMed:21216955, PubMed:25368181, PubMed:28119464, PubMed:10973973). Mediates influx of calcium ions into the cytoplasm, and thereby triggers calcium release from the sarcoplasm (By similarity). Plays an important role in excitation-contraction coupling in the heart. Required for normal heart development and normal regulation of heart rhythm (PubMed:21216955). Required for normal contraction of smooth muscle cells in blood vessels and in the intestine. Essential for normal blood pressure regulation via its role in the contraction of arterial smooth muscle cells (PubMed:14609949, PubMed:28119464). Long-lasting (L-type) calcium channels belong to the 'high-voltage activated' (HVA) group (Probable).
Cellular Location	Cell membrane; Multi-pass membrane protein. Cell membrane, sarcolemma; Multi-pass membrane protein. Perikaryon {ECO:0000250|UniProtKB:P22002}. Postsynaptic density membrane {ECO:0000250|UniProtKB:P22002}. Cell projection, dendrite {ECO:0000250|UniProtKB:P22002}. Cell membrane, sarcolemma, T-tubule. Note=Colocalizes with ryanodine receptors in distinct clusters at the junctional membrane, where the sarcolemma and the sarcoplasmic reticulum are in close contact. The interaction between RRAD and CACNB2 promotes the expression of CACNA1C at the cell membrane. Localized in T-tubules, as shown in SERCA2- knockout cardiomyocytes (PubMed:22355118) {ECO:0000250|UniProtKB:P15381, ECO:0000269|PubMed:22355118}

Tissue Location	Detected in embryonic heart (PubMed:10973973, PubMed:21216955). Detected in retina in rod bipolar cells (PubMed:18586882). Detected in tibialis artery (at protein level) (PubMed:14609949). Detected in smooth muscle cells from tibialis artery and in mesenteric artery (PubMed:14609949). High expression in heart, followed by brain and spinal cord (PubMed:1385406)

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