10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

CACNA1H Antibody

Catalog # ASC11871

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	O95180
Other Accession	NP_066921, 53832009
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	259163
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	CACNA1H antibody can be used for detection of CACNA1H by Western blot at 1 - 2 μg/ml. Antibody can also be used for immunohistochemistry starting at 5 μg/mL. For immunofluorescence start at 20 μg/mL.

Additional Information

Gene ID	8912
Other Names	Voltage-dependent T-type calcium channel subunit alpha-1H, Low-voltage-activated calcium channel alpha1 3.2 subunit, Voltage-gated calcium channel subunit alpha Cav3.2, CACNA1H
Target/Specificity	CACNA1H; CACNA1H antibody is human, mouse and rat reactive. Multiple isoforms of CACNA1H are known to exist.
Reconstitution & Storage	CACNA1H antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	CACNA1H Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CACNA1H (HGNC:1395)
Function	Voltage-sensitive calcium channel that gives rise to T-type calcium currents. T-type calcium channels belong to the 'low-voltage activated (LVA)' group. A particularity of this type of channel is an opening at quite negative potentials, and a voltage-dependent inactivation (PubMed:27149520, PubMed:9670923, PubMed:9930755). T-type channels serve pacemaking functions in both central neurons and cardiac nodal cells and support calcium signaling in secretory cells and vascular smooth muscle (Probable). They may also be involved in the modulation of firing patterns of neurons (PubMed:15048902). In the adrenal zona glomerulosa, participates in the signaling pathway leading

	to aldosterone production in response to either AGT/angiotensin II, or hyperkalemia (PubMed:25907736, PubMed:27729216).
Cellular Location	Cell membrane; Multi-pass membrane protein. Note=Interaction with STAC increases expression at the cell membrane.
Tissue Location	Expressed in the adrenal glomerulosa (at protein level) (PubMed:25907736, PubMed:27729216). In nonneuronal tissues, the highest expression levels are found in the kidney, liver, and heart. In the brain, most abundant in the amygdala, caudate nucleus, and putamen (PubMed:9670923, PubMed:9930755). In the heart, expressed in blood vessels. [Isoform 2]: Expressed in testis, primarily in the germ cells, but not in other portions of the reproductive tract, such as ductus deferens (PubMed:11751928). Not expressed in the brain (PubMed:11751928).

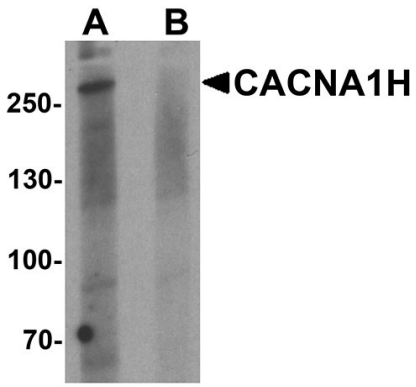
Background

The calcium channel protein CACNA1H is a T-type member of the alpha-1 subunit family that is part of the voltage-dependent calcium channel complex which mediates the influx of calcium ions into the cell upon membrane polarization (1,2). CACNA1H is a subunit of Cav3.2 T-type calcium channel that is involved in neurological disorders such as epilepsy and pain (2,3). CACNA1H associates with the caveolin protein Cav-3 and it is thought that Cav-3 regulates the Protein Kinase A (PKA) modulation of CACNA1H-containing Cav3.2 T-type calcium channels (4).

References

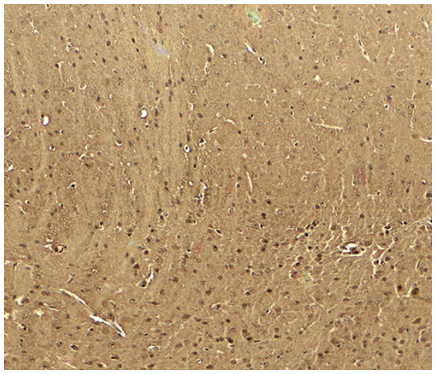
Cribbs LL, Lee JH, Yang J, et al. Cloning and characterization of alpha1H from human heart, a member of the T-type CA2+ channel gene family. Circ. Res. 1998; 83:103-9.
Sekiguchi F and Kawabata A. T-type calcium channels: functional regulation and implication in pain signaling. J. Pharmacol. Sci. 2013; 122:244-50.
McGivern JG. Targeting N-type and T-type calcium channels for the treatment of pain. Drug Discov. Today 2006; 11:245-53.
Markandeya YS, Fahey JM, Pluteanu F, et al. Caveolin-3 regulates protein kinase A modulation of the Cav3.2 (a1H) T-type Ca2+ channels. J. Biol. Chem. 2011; 286:2433-2444.

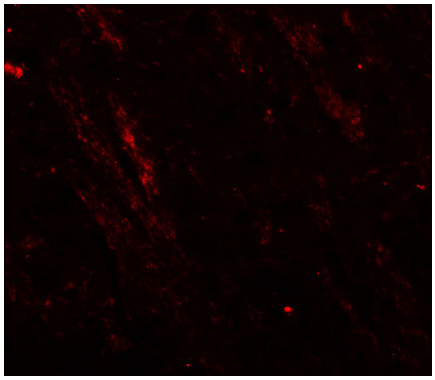
Images



Western blot analysis of CACNA1H in 293 cell lysate with CACNA1H antibody at 1 µg/ml in (A) the absence and (B) the presence of blocking peptide.

Immunohistochemistry of CACNA1H in mouse brain tissue with CACNA1H antibody at 5 µg/ml.





Immunofluorescence of CACNA1H in mouse brain tissue with CACNA1H antibody at 20 µg/ml.