CaV1.3 Antibody / CACNA1D Polyclonal Antibody (R31742)

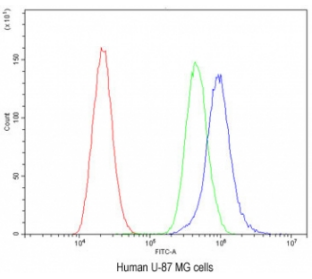
Catalog No.	Formulation	Size
R31742	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide
Gene ID	776
Applications	Western blot: 0.5-1ug/ml FACS: 1-3ug/10^6 cells
Limitations	This CaV1.3 Antibody / CACNA1D Polyclonal Antibody is available for research use only.



CaV1.3 Antibody Western Blot Analysis of Rat and Mouse Brain Lysates. Western blot analysis of rat brain (lane 1) and mouse brain (lane 2) lysates using CACNA1D Polyclonal Antibody. Immunoreactive bands are detected near the 200 kDa molecular weight marker in both samples, compared with the predicted CaV1.3 molecular weight of approximately 245 kDa.



CaV1.3 Antibody FACS Staining of Human U-87 MG Cells. Flow cytometry analysis of fixed and permeabilized human U-87 MG cells using CACNA1D Polyclonal Antibody at 1 ug per 10^6 cells following blocking with goat serum. The blue histogram represents antibody-stained cells, the green histogram represents the isotype control, and the red histogram represents unstained cells. The antibody-stained population shows a rightward fluorescence shift relative to the controls.

Description

CaV1.3 Antibody / CACNA1D Polyclonal Antibody targets the voltage-dependent L-type calcium channel subunit alpha-1D, encoded by the CACNA1D gene. CaV1.3 is a pore-forming alpha-1 subunit of voltage-gated calcium channels that mediate calcium influx in response to membrane depolarization. These channels convert changes in membrane potential into intracellular calcium signals that regulate electrical excitability, neurotransmitter release, hormone secretion, gene expression, and other calcium-dependent processes. CaV1.3 belongs to the CaV1 family of L-type calcium channels, which also includes CaV1.1, CaV1.2, and CaV1.4.

CaV1.3 channels are distinguished by their ability to activate at relatively negative membrane potentials compared with several other L-type calcium channel subtypes. This property allows them to contribute to calcium signaling during modest depolarizations and participate in sustained electrical activity. CaV1.3 is particularly important in auditory hair cells, where calcium entry through these channels triggers synaptic vesicle release and transmission of auditory information. The channel also contributes to pacemaker activity in selected neuronal populations and cardiac sinoatrial node cells, helping regulate rhythmic electrical signaling.

The functional CaV1.3 channel complex contains the alpha-1D pore-forming subunit together with auxiliary beta and alpha-2/delta subunits that influence channel trafficking, membrane expression, and electrophysiological properties. The alpha-1D protein contains four homologous domains, each with six transmembrane segments, forming the voltage-sensing and ion-conducting machinery. Alternative splicing of CACNA1D generates channel variants with different regulatory characteristics, including changes in calcium-dependent inactivation and voltage-dependent gating. These mechanisms help adapt CaV1.3 activity to the signaling requirements of different cell types.

Alterations in CACNA1D function have been associated with several human disorders. Loss-of-function variants can impair auditory signaling, while certain gain-of-function mutations increase calcium channel activity and have been linked to primary aldosteronism and neurological abnormalities. Somatic CACNA1D mutations have also been identified in aldosterone-producing adrenal lesions. The CaV1.3 Antibody is relevant to research investigating the expression and regulation of this channel, its contribution to cellular excitability, and the molecular consequences of altered calcium signaling in neurological, endocrine, and cardiovascular physiology.

CaV1.3 is one of several voltage-gated ion channels involved in neuronal excitability and calcium-dependent signaling, making it an important target within neuroscience research.

Application Notes

Variations in secondary/substrate sensitivities and test protocols may require the CaV1.3 Antibody / CACNA1D Polyclonal Antibody to be titrated for optimal performance.

Immunogen

Human partial recombinant protein (AA 1-180) was used as the immunogen for this CaV1.3 antibody.

Storage

After reconstitution, the CaV1.3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

CACNA1D antibody, CaV1.3 calcium channel antibody, Voltage-dependent L-type calcium channel subunit alpha-1D antibody, Calcium channel alpha-1D subunit antibody, L-type calcium channel alpha-1D antibody, Voltage-gated calcium channel alpha-1D antibody, Calcium channel voltage-dependent L type alpha 1D subunit antibody

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