abcam

ab85491

Anti-CaV1.3 antibody [S48]

Recombinant

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Rat Cacna1d aa 850-900. The exact immunogen used to generate this antibody is proprietary information. Database link P27732
Clone number	S48
Purification technique	Affinity purification Protein G
Specificity	No cross reactivity against CaV1.2.
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human

Dilution info	0.5-1 µg for 10^5 Cells
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Hamster
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

Predicted

Species	Hamster
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Hamster
Dilution info	-
Notes	-

Target data

See full target information CACNA1D

Function

Voltage-sensitive calcium channels (VSCC) mediate the entry of calcium ions into excitable cells and are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression, cell motility, cell division and cell death. The isoform alpha-1D gives rise to L-type calcium currents. Long-lasting (L-type) calcium channels belong to the 'high-voltage activated' (HVA) group. They are blocked by dihydropyridines (DHP), phenylalkylamines, and by benzothiazepines. Isoform Neuronal-type. Voltage-sensitive calcium channels (VSCC) mediate the entry of calcium ions into excitable cells and are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression, cell motility, cell division and cell death. The isoform alpha-1D gives rise to L-type calcium currents. Isoform 3. Voltage-sensitive calcium channels (VSCC) mediate the entry of calcium ions into excitable cells and are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression, cell motility, cell division and cell death. The isoform alpha-1D gives rise to L-type calcium currents. Isoform 4. Voltage-sensitive calcium channels (VSCC) mediate the entry of calcium ions into excitable cells and are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression, cell motility, cell division and cell death. The isoform alpha-1D gives rise to L-type calcium currents.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

The clone number has been updated from S48A-9 to L48A/9, both clone numbers name the same antibody clone.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	CaV1.3 also known as CACNA1D is a type of L-type voltage-gated calcium channel. It displays a molecular mass of around 250 kDa. This protein predominantly functions in the central nervous system heart and pancreas. It plays an important role in calcium ion influx which is critical for various physiological processes. CaV1.3 channels like other L-type channels are sensitive to dihydropyridines which are commonly used in antihypertensive therapies.
Biological function summary	CaV1.3 channels contribute to the electrical excitability and signaling in cells. They are involved in muscle contraction neurotransmitter release and gene expression. CaV1.3 is part of a calcium signaling complex that tightly regulates intracellular calcium concentration. It interacts with other cellular components to achieve precise control over calcium-dependent processes which is critical for maintaining cellular homeostasis and function.
Pathways	CaV1.3 channels play significant roles in the excitation-contraction coupling pathway in cardiac muscle cells and the insulin secretion pathway in pancreatic beta cells. Their function is closely related to other voltage-gated calcium channels

	like CaV1.2 which are also part of the calcium signaling pathway. These channels ensure that physiological functions requiring rapid calcium signaling occur efficiently.
Associated diseases and disorders	CaV1.3 is linked to various conditions including cardiac arrhythmias and neurodegenerative diseases such as Parkinson's disease. Dysregulation of CaV1.3 expression or function may lead to abnormal calcium signaling. In Parkinson's disease altered CaV1.3 activity affects dopaminergic neurons with potential involvement of alpha-synuclein a protein that aggregates in the disease. Understanding these connections provides insights into potential therapeutic targets.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

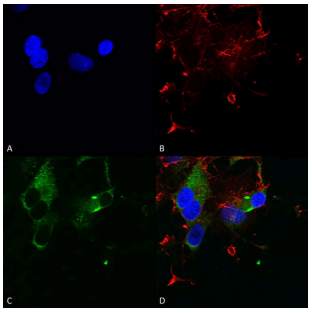
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

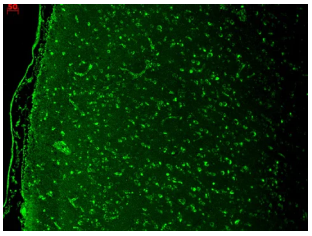
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-CaV1.3 antibody [S48] (ab85491)

CaV1.3 Immunocytochemistry/ Immunofluorescence staining of Neuroblastoma cells (SH-SY5Y) using mouse Anti-CaV1.3 antibody

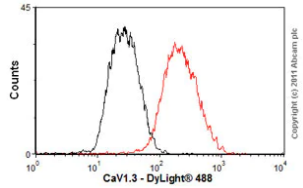
Immunocytochemistry/Immunofluorescence analysis on Neuroblastoma cells (SH-SY5Y) using ab85491. Fixation: 4% PFA for 15 min. Primary Antibody: ab85491 at 1:50 for overnight at 4°C with slow rocking. Secondary Antibody: AlexaFluor 488 at 1:1000 for 1 hour at RT. Counterstain: Phalloidin-iFluor 647 (red) F-Actin stain; Hoechst (blue) nuclear stain at 1:800, 1.6mM for 20 min at RT. (A) Hoechst (blue) nuclear stain. (B) Phalloidin-iFluor 647 (red) F-Actin stain. (C) Cav1.3 Antibody (D) Merged.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CaV1.3 antibody [S48] (ab85491)

CaV1.3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-CaV1.3 antibody

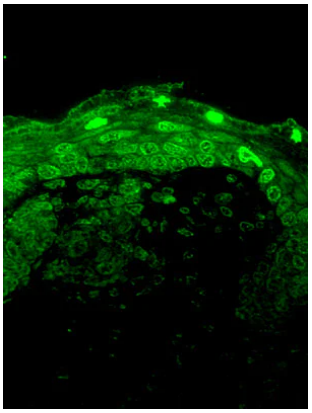
ab85491 staining CaV1.3 in human hippocampus tissue by IHC-P (Bouin's fixed paraffin embedded tissue sections). The primary antibody was used at 1:1000 for 1 hour at RT. Secondary Antibody: FITC Goat Anti-Mouse (green) at 1:50 for 1 hour at RT.



Flow Cytometry - Anti-CaV1.3 antibody [S48] (ab85491)

CaV1.3 Flow Cytometry staining using mouse Anti-CaV1.3 antibody

Overlay histogram showing SH-SY5Y (Human neuroblastoma cell line from bone marrow) cells stained with ab85491 (red line). The cells were fixed with 80% methanol (5 minutes) and then permeabilized with 0.1% PBS-Tween for 20 minutes. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab85491, 0.5 µg/1x10^6 cells) for 30 minutes at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 minutes at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 1 µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive result in SH-SY5Y cells fixed with 4% paraformaldehyde (10 minutes)/permeabilized in 0.1% PBS-Tween for 20 minutes used under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CaV1.3 antibody [S48] (ab85491)

CaV1.3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-CaV1.3 antibody

ab85491 staining CaV1.3 in mouse backskin tissue by IHC-P (Bouin's fixed paraffin embedded tissue sections).
Tissue underwent antigen retrieval using microwave in citrate buffer. The primary antibody was used at 1/100 dilution and then sections were incubated with Fluorophore conjugated goat anti mouse at 1/50 dilution.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.