abcam

ab84814

Anti-CACNA1C antibody [S57]

Anti-CACNA1C antibody [S57] (ab84814) is a mouse monoclonal antibody detecting CACNA1C in **Western Blot, Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Human, Mouse,**.

- Recombinant format for unrivalled batch-batch consistency
- Over 20 publications
- Trusted since 2009

Recombinant

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Protein within Rabbit CACNA1C aa 1500-1750. The exact immunogen used to generate this antibody is proprietary information. Database link P15381
Clone number	S57
Purification technique	Affinity purification Protein G
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	1 µg for 10^6 Cells
Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Expected

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

Not recommended

Species	Transfected cell lysate - Rabbit
Dilution info	-
Notes	-

WB

Tested

Species	Transfected cell lysate - Rabbit
Dilution info	1 µg/mL
Notes	If results are poor, use lysate without boiling, heat at 37°C for 15 minutes.

Expected

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

IHC-P

Tested

Species	Mouse

Dilution info	0.1-10 µg/mL
Notes	Use at 0.1-1.0µg/mL (perox), 1.0-10µg/mL (IF).

Species	Human
Dilution info	0.1-10 µg/mL
Notes	Use at 0.1-1.0µg/mL (perox), 1.0-10µg/mL (IF).

Not recommended

Species	Transfected cell lysate - Rabbit
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Rabbit
Dilution info	-
Notes	-

Target data

See full target information CACNA1C

Function	Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents (PubMed:12181424, PubMed:15454078, PubMed:15863612, PubMed:16299511, PubMed:17224476, PubMed:20953164, PubMed:23677916, PubMed:24728418, PubMed:26253506, PubMed:27218670, PubMed:29078335, PubMed:29742403, PubMed:30023270, PubMed:30172029, PubMed:34163037, PubMed:8099908). 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:15454078, PubMed:15863612, PubMed:17224476, PubMed:24728418, PubMed:26253506). 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:28119464). Long-lasting (L-type) calcium channels belong to the 'high-voltage activated' (HVA) group (Probable). Isoform 12. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 13. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 14. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 15. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 16. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 17. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 18. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 19. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 20. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 21. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 22. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 23. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 24. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 25. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 26. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 27. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. Isoform 34. Pore-forming, alpha-1C subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents. (Microbial infection) Acts as a receptor for Influenzavirus (PubMed:29779930). May play a critical role in allowing virus entry when sialylated and expressed on lung tissues (PubMed:29779930).

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

What is this antibody validated in?
Anti-CACNA1C antibody [S57] (ab84814) is a mouse recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, samples.

Trusted by the scientific community
Anti-CACNA1C [S57] (ab84814) was first used in a scientific publication in 2009 and has been cited over 20 times in peer-reviewed journals.

Supplementary info

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

Activity summary	CACNA1C also known as Cav1.2 is a voltage-dependent calcium channel α1C subunit. It primarily facilitates the influx of calcium ions into cells upon depolarization. Cav1.2 weighs approximately 250 kDa and plays an essential role in cellular processes across multiple systems. You can find it highly expressed in the heart brain and smooth muscle tissues. It's significant for conducting electrical signals that control muscle contractions and neurotransmitter release.
Biological function summary	Cav1.2 channels regulate intracellular calcium levels affecting processes such as cardiac contraction neuronal excitability and gene expression. This protein does not function alone; it forms complexes with other auxiliary subunits that modulate its activity and localization. Through this regulation CACNA1C supports critical cellular responses and maintains homeostasis within its expressed organs.
Pathways	Cav1.2 integrates into important pathways like the excitation-contraction coupling in cardiac myocytes and the neural signaling pathways in neurons. Through its interaction with calcium/calmodulin-dependent protein kinase II (CaMKII) CACNA1C affects downstream cascades that influence cellular functions and responses to external stimuli. The protein also interacts with other ion channels facilitating comprehensive cellular communication and function in its specialized tissues.
Associated diseases and disorders	Altered CACNA1C function associates with cardiac diseases like Timothy syndrome and various forms of Long QT syndrome. The abnormal activity of this channel also links to psychiatric disorders such as bipolar disorder where it interacts with proteins involved in mood regulation. Substantial research focuses on targeting

CACNA1C for therapeutic intervention due to its significant role in these disorders highlighting the protein as an important target for new treatments.

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

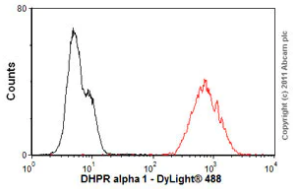
We do not recommend this combination. It is not covered by our product promise.

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.

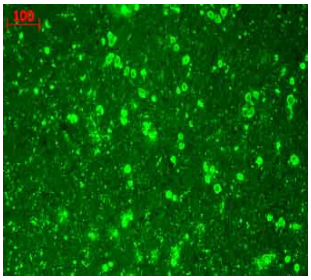
5 product images



Flow Cytometry - Anti-CACNA1C antibody [S57] (ab84814)

CACNA1C Flow Cytometry staining using mouse Anti-CACNA1C antibody

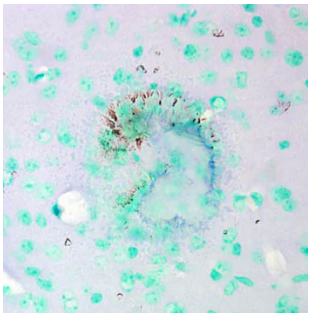
Overlay histogram showing SH-SY5Y cells stained with ab84814 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab84814, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2b [PLPV219] (ab91366, 2µg/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 min)/permeabilized in 0.1% PBS-Tween for 20 min used under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1C antibody [S57] (ab84814)

CACNA1C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-CACNA1C antibody

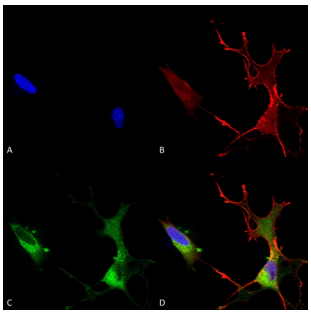
ab84814 staining CACNA1C in human hippocampus tissue section by Immunohistochemistry (Bouin's fixative fixed paraffin embedded tissue sections). Tissue underwent heat mediate fixation in microwave and in citrate buffer. The primary antibody was used at 1/100 dilution. A Fluorophore conjugated goat anti-mouse was used as secondary at 1/50 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1C antibody [S57] (ab84814)

CACNA1C Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-CACNA1C antibody

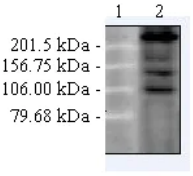
ab84814 staining CACNA1C in mouse brain tissue section by immunohistochemistry (Bouin's fixed paraffin embedded tissue section. Tissue underwent heat mediated fixation in microwave and in citrate buffer. The primary antibody was used at 1/100 dilution. A HRP conjugated secondary was used at 10 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-CACNA1C antibody [S57] (ab84814)

CACNA1C Immunocytochemistry/ Immunofluorescence staining of SH-SY5Y (Human Neuroblastoma Cell Line) using mouse Anti-CACNA1C antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed SH-SY5Y (Human Neuroblastoma Cell Line) cells labelling CACNA1C with ab84814 at 1/50 dilution, followed by Alexa Fluor® 488 anti Mouse secondary antibody at 1/1000 dilution (green). Cytoplasmic staining on SH-SY5Y. 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) CACNA1C Antibody (D) Composite image.



Western blot - Anti-CACNA1C antibody [S57] (ab84814)

All lanes:
Western blot - Anti-CACNA1C antibody [S57] (ab84814) at 1 µg/mL

All lanes:
Cell lysates prepared from DHPR alpha 1 transfected CHO cells

Predicted band size: 248 kDa

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