abcam

ab2862

Anti-CACNA1S antibody [1A]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.05% Sodium azide
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	1A
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Expected

Species	Mouse, Rat, Guinea pig, Human, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

Species	Mouse, Rat, Guinea pig, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Expected

Species	Mouse, Rat, Guinea pig, Human, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

Species	Mouse, Rat, Guinea pig, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Expected

Species	Mouse, Rat, Guinea pig, Human, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-Fr

Expected

Species	Mouse, Rat, Guinea pig, Human, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

ELISA

Expected

Species	Guinea pig, Mouse, Rat, Human, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

FuncS (Neut/Block)

Expected

Species	Mouse, Rat, Guinea pig, Human, Rabbit
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Expected

Species	Mouse
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rat

Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Guinea pig
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Species	Rabbit
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information CACNA1S

Function	Pore-forming, alpha-1S subunit of the voltage-gated calcium channel that gives rise to L-type calcium currents in skeletal muscle. Calcium channels containing the alpha-1S subunit play an important role in excitation-contraction coupling in skeletal muscle via their interaction with RYR1, which triggers Ca(2+) release from the sarcoplasmic reticulum and ultimately results in muscle contraction. Long-lasting (L-type) calcium channels belong to the 'high-voltage activated' (HVA) group.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
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

Supplementary info

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

Activity summary	CACNA1S also known as Cav1.1 is a voltage-dependent calcium channel subunit alpha-1S with a molecular mass of approximately 212 kDa. This protein is expressed prominently in skeletal muscle tissues. It is essential for mediating calcium ion influx across the cell membrane necessary for muscle contraction. CACNA1S is characterized by its role in forming L-type calcium channels which contribute to the excitation-contraction coupling process in muscle cells.
Biological function summary	CACNA1S functions as an important component in the skeletal muscle contraction mechanism. It is part of a large protein complex including other subunits like beta gamma and delta which together form the functional calcium channel. This channel through voltage-sensing and conformational changes in CACNA1S allows the regulated flow of calcium ions into muscle cells triggering biochemical cascades that result in contraction.
Pathways	CACNA1S plays a critical role in the excitation-contraction coupling and calcium signaling pathways. It interacts with proteins such as the ryanodine receptor (RyR1) to ensure effective calcium release from the sarcoplasmic reticulum facilitating proper skeletal muscle function. Additionally it is associated with calmodulin a calcium-binding messenger protein that modulates channel activity and plays a role in muscle fiber function.
Associated diseases and disorders	Alterations in CACNA1S are linked to conditions like hypokalemic periodic paralysis and malignant hyperthermia. In hypokalemic periodic paralysis CACNA1S mutations disrupt normal calcium channel function causing episodes of muscle weakness. Meanwhile its association with malignant hyperthermia reveals connections to the ryanodine receptor where abnormal calcium release during anesthesia can lead to severe reactions. Understanding CACNA1S interactions therefore provides insights into these muscle-related conditions.

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.

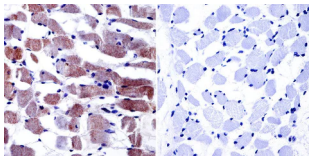
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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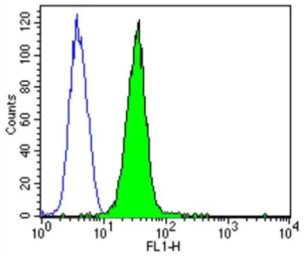
2 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1S antibody [1A] (ab2862)

CACNA1S Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-CACNA1S antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) was performed on normal biopsies of deparaffinized human skeletal muscle tissue. Heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer, microwaved for 8-15 minutes. Tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then incubated with ab2862 (1:20) or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP, followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



Flow Cytometry - Anti-CACNA1S antibody [1A] (ab2862)

CACNA1S Flow Cytometry staining using mouse Anti-CACNA1S antibody

Flow cytometry analysis of Dihydropyridine Receptor alpha-1 in U251 cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5 x10^6 cells/mL, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with a Dihydropyridine Receptor alpha-1 monoclonal antibody at 1 µg/test for 40 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated secondary antibody and re-suspended in PBS for FACS analysis.

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