abcam

Product datasheet

Anti-CACNA1S antibody ab96413

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Overview

Product name	Anti-CACNA1S antibody
Description	Rabbit polyclonal to CACNA1S
Host species	Rabbit
Tested applications	**Suitable for:** WB, IHC-P
Species reactivity	**Reacts with:** Human **Predicted to work with:** Mouse, Rat, Rabbit, Cat
Immunogen	Recombinant fragment, corresponding to a region within the internal sequence amino acids 544-855 of Human CACNA1S.
Positive control	293T, A431, H1299, HeLa, HepG2, MOLT4, Raji cell lysates Cal27 xenograft (IHC)
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C or -80°C. Avoid repeated freeze / thaw cycles.
Storage buffer	pH: 7.00 Preservative: 0.01% Thimerosal (merthiolate) Constituents: 89.99% PBS, 10% Glycerol (glycerin, glycerine)
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

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The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab96413 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB	★★★☆☆ (1)	1/500 - 1/3000. Predicted molecular weight: 212 kDa.
IHC-P		1/100 - 1/500. Antigen retrieval is not essential but may optimise staining.

Target

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-1S 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, benzothiazepines, and by omega-agatoxin-IIIA (omega-Aga-IIIA). They are however insensitive to omega-conotoxin-GVIA (omega-CTx-GVIA) and omega-agatoxin-IVA (omega-Aga-IVA). Calcium channels containing the alpha-1S subunit play an important role in excitation-contraction coupling in skeletal muscle.

Tissue specificity Skeletal muscle specific.

Involvement in disease Defects in CACNA1S are the cause of periodic paralysis hypokalemic type 1 (HOKPP1) [MIM:170400]; also designated HYPOPP. HOKPP1 is an autosomal dominant disorder manifested by episodic flaccid generalized muscle weakness associated with falls of serum potassium levels.
Defects in CACNA1S are the cause of malignant hyperthermia susceptibility type 5 (MHS5) [MIM:601887]; an autosomal dominant disorder that is potentially lethal in susceptible individuals on exposure to commonly used inhalational anesthetics and depolarizing muscle relaxants.
Defects in CACNA1S are the cause of susceptibility to thyrotoxic periodic paralysis type 1 (TTPP1) [MIM:188580]. A sporadic muscular disorder characterized by episodic weakness and hypokalemia during a thyrotoxic state. It is clinically similar to hereditary hypokalemic periodic paralysis, except for the fact that hyperthyroidism is an absolute requirement for disease manifestation. The disease presents with recurrent episodes of acute muscular weakness of the four extremities that vary in severity from paresis to complete paralysis. Attacks are triggered by ingestion of a high carbohydrate load or strenuous physical activity followed by a period of rest. Thyrotoxic periodic paralysis can occur in association with any cause of hyperthyroidism, but is most commonly associated with Graves disease.

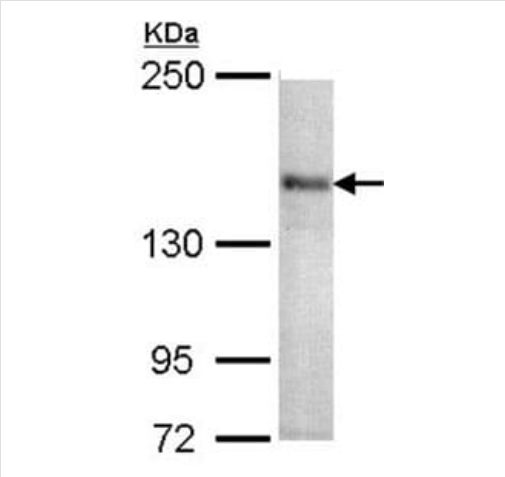
Sequence similarities Belongs to the calcium channel alpha-1 subunit (TC 1.A.1.11) family. CACNA1S subfamily.

Domain Each of the four internal repeats contains five hydrophobic transmembrane segments (S1, S2, S3, S5, S6) and one positively charged transmembrane segment (S4). S4 segments probably represent the voltage-sensor and are characterized by a series of positively charged amino acids at every third position.
The loop between repeats II and III interacts with the ryanodine receptor, and is therefore important for calcium release from the endoplasmic reticulum necessary for muscle contraction.

Post-translational modifications Phosphorylation by PKA activates the calcium channel.

Cellular localization Membrane.

Images

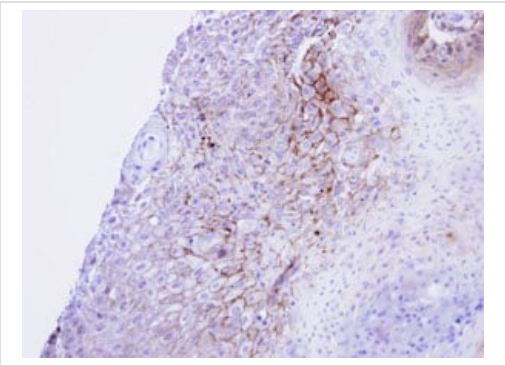


Western blot - Anti-CACNA1S antibody (ab96413)

Anti-CACNA1S antibody (ab96413) at 1/1000 dilution + 293T whole cell lysate at 30 µg

Predicted band size: 212 kDa

5% SDS PAGE



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1S antibody (ab96413)

Immunohistochemical analysis of paraffin-embedded Cal27 xenograft, using ab96413 at 1:100 dilution.

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