abcam

ab62388

Anti-nNav1.5 antibody [4G8:1G7]

Key facts

Isotype	IgM
Host species	Mouse
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human SCN5A. The exact immunogen used to generate this antibody is proprietary information. Database link Q14524
Clone number	4G8:1G7
Purification technique	Affinity purification Immunogen
Specificity	The immunogen used was 14 amino acids long and only 6 are specific for the neonatal variant therefore it is possible it may also bind the adult splice variant.
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	1-2 µg for 10^6 Cells
Notes	ab91545 - Mouse monoclonal IgM, is suitable for use as an isotype control with this antibody.

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information SCN5A

Function

Pore-forming subunit of Nav1.5, a voltage-gated sodium (Nav) channel that directly mediates the depolarizing phase of action potentials in excitable membranes. Navs, also called VGSCs (voltage-gated sodium channels) or VDSCs (voltage-dependent sodium channels), operate by switching between closed and open conformations depending on the voltage difference across the membrane. In the open conformation they allow Na(+) ions to selectively pass through the pore, along their electrochemical gradient. The influx of Na(+) ions provokes membrane depolarization, initiating the propagation of electrical signals throughout cells and tissues (PubMed:1309946, PubMed:21447824, PubMed:23085483, PubMed:23420830, PubMed:25370050, PubMed:26279430, PubMed:26392562, PubMed:26776555). Nav1.5 is the predominant sodium channel expressed in myocardial cells and it is responsible for the initial upstroke of the action potential in cardiac myocytes, thereby initiating the heartbeat (PubMed:11234013, PubMed:11804990, PubMed:12569159, PubMed:1309946). Required for normal electrical conduction including formation of the infranodal ventricular conduction system and normal action potential configuration, as a result of its interaction with XIRP2 (By similarity).

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	The protein nNav1.5 also known as SCN5A functions as a voltage-gated sodium channel often referred to as Na 1.5. It allows the rapid influx of sodium ions into cells aiding in the generation and propagation of action potentials especially within cardiac myocytes. The protein has a molecular mass of approximately 260 kDa. This channel finds high expression in cardiac tissues contributing significantly to the electrical activity of the heart muscle. While nNav1.5 is mostly found in the heart its expression can be detected albeit less prominently in other tissues like the gastrointestinal tract.
Biological function summary	NNav1.5 plays an important role in maintaining normal cardiac rhythm. It is part of a complex that includes various auxiliary proteins such as the beta subunits which modulate its activity and trafficking. nNav1.5's main function involves the initiation and conduction of electrical signals in cardiac cells synchronizing heartbeats. Besides its central role in excitability nNav1.5 may engage in other cellular processes such as mechanoelectric feedback and response to oxidative stress.
Pathways	NNav1.5 is an essential player in cardiac conduction and excitation-contraction coupling pathways. Within these pathways it interacts closely with proteins like calcium channels and potassium channels which regulate action potentials' phases and heart muscle contraction. These pathways show the intricate balance of ion exchanges responsible for cardiac rhythm and function highlighting nNav1.5's influence in the orderly contraction of the heart.
Associated diseases and disorders	Mutations or dysfunctions in nNav1.5 can lead to cardiac arrhythmias and dilated cardiomyopathy. In conditions like Long QT Syndrome nNav1.5 mutations can cause delayed repolarization of the cardiac cells leading to irregular heartbeats. Another related disorder is Brugada syndrome where nNav1.5 malfunction leads to erratic electrical activity and a risk of sudden cardiac death. The interaction of nNav1.5 with other proteins like connexins affects these diseases as connexins influence gap junction communication essential for synchronized cardiac activity.

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.

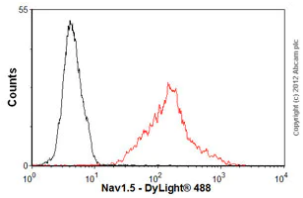
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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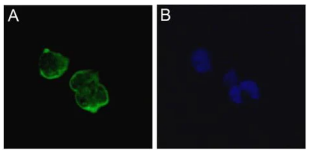
2 product images



Flow Cytometry - Anti-nNav1.5 antibody [4G8:1G7] (ab62388)

NNav1.5 Flow Cytometry staining using mouse Anti-nNav1.5 antibody

Overlay histogram showing SHSY-5Y cells stained with ab62388 (red line). The cells were fixed with 80% methanol (5 min) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab62388, 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 IgM [ICIGM] (ab91545, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive result in 4% paraformaldehyde (10 min) fixed SHSY-5Y cells used under the same conditions.
Please note that Abcam do not have any data for use of this antibody on non-fixed cells. We welcome any customer feedback.



Immunocytochemistry/ Immunofluorescence - Anti-nNav1.5 antibody [4G8:1G7] (ab62388)

NNav1.5 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-nNav1.5 antibody

ab62388 (10ug/ml) staining human Nav1.5 in Nav1.5-HEK293 recombinant cell line by immunocytochemistry.

A: Plasma membrane localisation of Nav1.5 identified by ab62388 detected by anti-mouse Alexa Fluor-488 conjugated antibody.

B: DAP1 co-staining of cell nuclei.

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