abcam

ab84816

Anti-HCN1 antibody [S70]

Recombinant

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Rat Hcn1 aa 750 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link Q9JKB0
Clone number	S70
Purification technique	Affinity purification Protein G
Specificity	No cross reactivity against HCN2
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	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

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

WB

Tested

Species	Rat
Dilution info	1-10 µg/mL
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IHC-Fr

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information HCN1

Function	Hyperpolarization-activated ion channel that are permeable to sodium and potassium ions (PubMed:15351778, PubMed:28086084). Displays lower selectivity for K(+) over Na(+) ions (PubMed:28086084). Contributes to the native pacemaker currents in heart (If) and in the generation of the I(h) current which controls neuron excitability (PubMed:29936235, PubMed:30351409). Participates in cerebellar mechanisms of motor learning (By similarity). May mediate responses to sour stimuli (By similarity).

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 S70-28 to N70/28, both clone numbers name the same antibody clone.

Supplementary info

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

Activity summary	The HCN1 protein also known as hyperpolarization-activated cyclic nucleotide-gated channel 1 or HCN1 receptor is an important component in cellular electrical activity. It has a molecular mass of approximately 91 kDa. HCN1 channels are highly expressed in the heart and nervous system particularly in regions like the cortex and hippocampus. Their principal role is serving as pacemaker channels that regulate rhythmic activity in both neurons and cardiac cells.
Biological function summary	HCN1 channels contribute to the generation and modulation of electrical impulses. They belong to a family of ion channels activated by membrane hyperpolarization and modulated by cyclic nucleotides. These channels are part of a larger molecular complex that includes other HCN family members such as HCN2 and HCN4 which together generate coordinated ionic currents essential for maintaining the rhythmic activity.
Pathways	HCN1 channels significantly affect the pacing of cardiac and neuronal circuits. Within the cardiac tissue they partake in regulating heart rate through the If current or pacemaker current together with related proteins like HCN4. In the central nervous system their role extends to neuronal excitability and synaptic transmission interacting with signaling pathways that involve other ion channels and second messengers contributing to complex neuronal network activities.
Associated diseases and disorders	Alterations in HCN1 function or expression levels can lead to various conditions. In the heart dysregulation of HCN1 is associated with arrhythmias potentially involving interactions with proteins like the HCN4 channel. In the nervous system abnormal HCN1 activity has been linked to epilepsy with potential involvement of other ion channel dysfunctions. Understanding these associations provides insight into treatment strategies targeting these specific ion channel pathways.

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

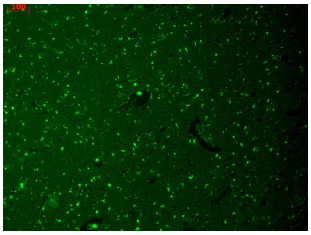
We do not recommend this combination. It is not covered by our product promise.

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.

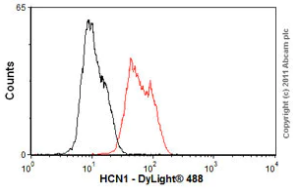
7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HCN1 antibody [S70] (ab84816)

HCN1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-HCN1 antibody

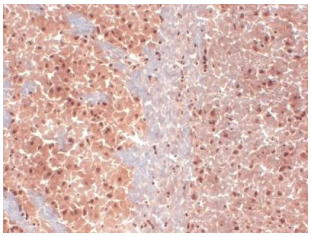
Immunohistochemical analysis of paraffin-embedded (Bouin's Fixative - picric acid, acetic acid and formaldehyde) human hippocampus tissue labelling HCN1 with ab84816 at 1/1000 dilution, for 1 hour at RT followed by secondary antibody Goat Anti-Mouse (FITC) at 1/50 dilution, for 1 hour at RT. Membrane and cytosolic staining on human hippocampus tissue is observed.



Flow Cytometry - Anti-HCN1 antibody [S70] (ab84816)

HCN1 Flow Cytometry staining using mouse Anti-HCN1 antibody

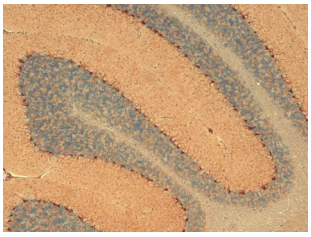
Overlay histogram showing SH-SY5Y cells stained with ab84816 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab84816, 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 IgG1 [ICIGG1] (ab91353, 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 (Frozen sections) - Anti-HCN1 antibody [S70] (ab84816)

HCN1 Immunohistochemistry (Frozen sections) staining using mouse Anti-HCN1 antibody

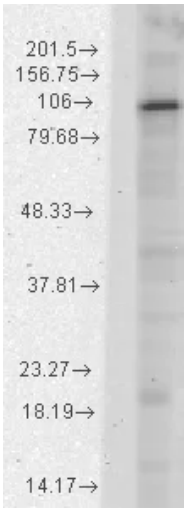
Immunohistochemistry analysis of 10% formalin-fixed mouse frozen brain section labelling HCN1 with ab84816 at 1/1000 dilution for 1 hour at room temperature, followed by biotinylated Goat Anti-Mouse antibody (brown) for 30 minutes at room temperature. Counterstain: Hematoxylin (purple/blue) nuclear stain at 250-500 µl for 5 minutes at room temperature. HRP/DAB detection.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HCN1 antibody [S70] (ab84816)

HCN1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse Cerebellum using mouse Anti-HCN1 antibody

Immunohistochemistry analysis using Anti-HCN1 Antibody [S70] (ab84816). Fixation: 10% Formalin Solution for 12-24 hours at RT. Primary antibody ab84816 was used at 1:1000 for 1 hour at RT. Secondary Antibody: HRP/DAB Detection System: Biotinylated Goat Anti-Mouse, Streptavidin Peroxidase, DAB Chromogen (brown) for 30 minutes at RT. Counterstain: Mayer Hematoxylin (purple/blue) nuclear stain at 250-500 µl for 5 minutes at RT. Localization: Cytoplasmic staining of Purkinje cells.



Western blot - Anti-HCN1 antibody [S70] (ab84816)

All lanes:
Western blot - Anti-HCN1 antibody [S70] (ab84816) at 1/1000 dilution

All lanes:
Rat brain membrane lysates at 15 µg

Secondary

All lanes:
HRP-Sheep Anti-Mouse IgG antibody

Predicted band size: 99 kDa

Observed band size: 99 kDa

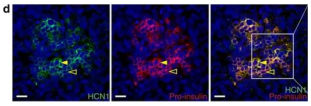


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Immunohistochemistry - Anti-HCN1 antibody [S70] (ab84816)

HCN1 Immunohistochemistry staining using mouse Anti-HCN1 antibody

Immunohistochemistry-immunofluorescence using Anti-HCN1 antibody [S70], ab84816. Publication image from Kaestner, K. H. et al., 2016, Nat Commun, 27399229. Legend direct from paper.

β cell heterogeneity in normal pancreatic tissue sections.(a) Human pancreas co-labelled with antibodies recognizing CD9 and proinsulin. Most proinsulin+ β cells were CD9− (hollow arrows) but a subset was CD9+ (solid arrows). (b) Tissue co-labelled with antibodies recognizing ST8SIA1 and proinsulin. Most proinsulin+ β cells were ST8SIA1− (hollow arrows) but a subset was ST8SIA1+ (solid arrows). (c) Compound labelling of proinsulin, CD9 and ST8SIA1 reveals proinsulin+ cells expressing every combination of the other markers; examples of β1 (CD9−ST8SIA1−), β2 (CD9+ST8SIA1−), β3 (CD9−ST8SIA1+) and β4 (CD9+ST8SIA1+) cells are indicated. Note that both CD9 and ST8SIA1 are found on proinsulin− (non-β) cell types as well, as shown in Supplementary Fig. 1. (d) HCN1 was detected in a subset of proinsulin+ β cells; examples of high/positive and low/negative cells are indicated with solid and hollow arrows, respectively. Tissues illustrated are 5 µm cryosections of normal human pancreas. Scale bar, 25 µm.

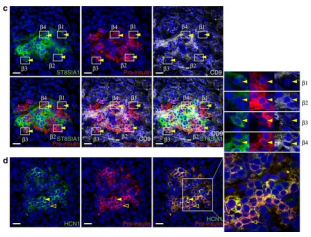


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Immunohistochemistry - Anti-HCN1 antibody [S70] (ab84816)

HCN1 Immunohistochemistry staining using mouse Anti-HCN1 antibody

Immunohistochemistry-immunofluorescence using Anti-HCN1 antibody [S70], ab84816. Publication image from Kaestner, K. H. et al., 2016, Nat Commun, 27399229. Legend direct from paper.

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