ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Hyperpolarization-activated Cyclic Nucleotide-gated channel 1 (HCN1) Antibodies

Cat. # HCN11-S	Rabbit Anti-Human HCN1 antiserum	**SIZE**: 100 ul
Cat. # HCN11-A	Rabbit Anti-Human HCN1 IgG (Aff pure)	**SIZE**: 100 ug
Cat. # HCN11-P	Human HCN1 Control/blocking peptide	**SIZE**: 100 ug

Biological rhythms (beating of the heart, circadian sleep cycles, respiration, and the release of hormones) are necessary to sustain life. Cardiac pacemaking is produced by the slow diastolic depolarization phase of the action potential. The hyperpolarization-activated cation current (termed I_f, I_h, or I_q) plays a key role in the in the initiation and modulation of cardiac and neuronal pacemaker depolarization. The generation of cardiac pacemaker potentials relies on a complex interplay between at least four different types of cation channels: T- and L-type Ca^{2+} channels, K^+ channels, and a cation channel termed I_f (synonymous names are I_h and I_q). Recently, the **hyperpolarization-activated cyclic nucleotide-gated families of ion channel proteins (HCN1-4) have** been identified as the "pacemaker" channel. The amino acid sequences of HCNs predict a structure similar to that of voltage-gated (Kv) channels and cyclic nucleotide-gated (CNG) channels. HCNs proteins (HCN1-4) are characterized by six transmembrane domains (S1-S6), including a including a positively charged voltage-sensing S4 segment and an ion-conducting pore between S5 and S6. In the C terminus the HCNs carry a cyclic nucleotide-binding domain (CNBD), a motif found in several cyclic nucleotide-binding proteins. The core region of HCNs channels (S1 to the C terminus of the CNBD) is highly conserved, whereas the cytoplasmic N and C-termini, vary considerably in their length and share only weak sequence homology.

HCN1, also known as Brain cyclic nucleotide channel gated 1, BCNG1 or HAC-2 (mouse/rat 910 aa, human 749-aa), is primarily expressed in brain. In mouse, HCN1 is mainly expressed in the neocortex, the CA1 region of the hippocampus, the superior colliculus, and in the molecular cell layer of the cerebellum.

Source of Antigen and Antibodies

Antigen	14-aa peptide from (Gene Accession # NP 034538) **human/mouse HCN1 (1)**; **Designation (#HCN11-P, control/blocking peptide**) conjugated to KLH; **Epitope location**~ C-terminal, Cytoplasmic domain
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (#**HCN11**-S) and IgG, purified over antigen-agarose (Cat # **HCN11**-A)
2-Ab	Cat # 20320, **goat anti-rabbit IgG-HRP** (AP, biotin, FITC conjugates also available).
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied in Buffer: 0.05% azide
Reconstitute powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique).

ELISA (1:10K-1:100K; using 50-100 ng of control peptide/well).

Histochemistry & Immunofluorescence: not tested. We recommend the use of affinity pure antibody at 2-20 ug/ml.

Specificity & Cross-reactivity

The HCN11-P peptide is 100% conserved in human, mouse and 92% in rabbit and rat HCN1. No significant sequence homology of HCN11-P is seen with other HCNs or any other protein. Antibody reactivity in various species is not known. The HCN11-P Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).

General References: (1) Santoro B (1997) PNAS 94, 14815; Santoro B (1998) Cell 93, 717; Steven DR (2001) Nature 413, 631; Waigner BJ (2001) Nature 411, 825; Ludwig A (1998) Nature 393, 587; Biel M (2002) Trend Cardiovasc. Med. 12, 206-213 (review)

**This product is for In vitro research use only.*

Related materials available from ADI

HCN11-S-A-P 71214A

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