SANTA CRUZ BIOTECHNOLOGY, INC.

HCN4 (H-300): sc-28750

The Power to Question

BACKGROUND

Hyperpolarization-activated, cyclic nucleotide-binding channels (HCN) are voltage-gated cation channels that are activated by direct binding of intracellular cyclic nucleotides. The HCN family consists of 4 members (HCN1-4), each with a core transmembrane segment domain and a carboxy-terminal 120 amino-acid cyclic nucleotide-binding domain motif. HCN channels are expressed in the brain, heart, thalamus and testis. The pacemaker properties of HCN channels contribute to spontaneous rhythmic activity in the brain and heart. The genes encoding human HCN1 and HCN2 map to chromosomes 5 and 19p13.3, respectively. The genes encoding HCN3 and HCN4 map to chromosomes 1q21.3 and 15q24.1, respectively.

REFERENCES

1. Ludwig, A., et al. 1999. Two pacemaker channels from human heart with profoundly different activation kinetics. EMBO J. 18: 2323-2329.
2. Seifert, R., et al. 1999. Molecular characterization of a slowly gating human hyperpolarization-activated channel predominantly expressed in thalamus, heart, and testis. Proc. Natl. Acad. Sci. USA 96: 9391-9396.
3. Vaccari, T., et al. 1999. The human gene coding for HCN2, a pacemaker channel of the heart. Biochim. Biophys. Acta 1446: 419-425.
4. Wainger, B.J., et al. 2001. Molecular mechanism of cAMP modulation of HCN pacemaker channels. Nature 411: 805-810.
5. Stieber, J., et al. 2003. Molecular basis for the different activation kinetics of the pacemaker channels HCN2 and HCN4. J. Biol. Chem. 278: 33672-33680.
6. Stieber, J., et al. 2003. The hyperpolarization-activated channel HCN4 is required for the generation of pacemaker action potentials in the embryonic heart. Proc. Natl. Acad. Sci. USA 100: 15235-15240.
7. Ueda, K., et al. 2004. Functional characterization of a trafficking-defective HCN4 mutation, D553N, associated with cardiac arrhythmia. J. Biol. Chem. 279: 27194-27198.
8. LocusLink Report (LocusID: 609). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: HCN4 (human) mapping to 15q24.1; Hcn4 (mouse) mapping to 9 B.

SOURCE

HCN4 (H-300) is a rabbit polyclonal antibody raised against amino acids 904-1203 mapping within a C-terminal cytoplasmic domain of HCN4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

HCN4 (H-300) is recommended for detection of HCN4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HCN4 siRNA (h): sc-42473, HCN4 siRNA (m): sc-42474, HCN4 siRNA (r): sc-270294, HCN4 shRNA Plasmid (h): sc-42473-SH, HCN4 shRNA Plasmid (m): sc-42474-SH, HCN4 shRNA Plasmid (r): sc-270294-SH, HCN4 shRNA (h) Lentiviral Particles: sc-42473-V, HCN4 shRNA (m) Lentiviral Particles: sc-42474-V and HCN4 shRNA (r) Lentiviral Particles: sc-270294-V.

Molecular Weight of HCN4: 150 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Harris, B.S., et al. 2012. Remodeling of the peripheral cardiac conduction system in response to pressure overload. Am. J. Physiol. Heart Circ. Physiol. 302: H1712-H1725.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

MONOS Satisfation Guaranteed

Try **HCN4 (SHG 1E5): sc-58622**, our highly recommended monoclonal alternative to HCN4 (H-300).