

# HCN4 (C-16): sc-19714

## 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 1q22 and 15q24.1, respectively.

## REFERENCES

- Ludwig, A., et al. 1999. Two pacemaker channels from human heart with profoundly different activation kinetics. *EMBO J.* 18: 2323-2329.
- 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

HCN4 (C-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus 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.

Blocking peptide available for competition studies, sc-19714 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

HCN4 (C-16) 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).

HCN4 (C-16) is also recommended for detection of HCN4 in additional species, including bovine and porcine.

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

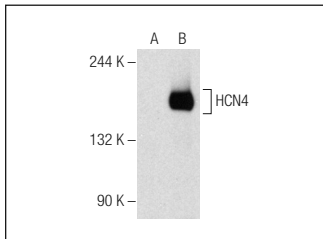
Molecular Weight of HCN4: 150 kDa.

Positive Controls: HCN4 (h): 293T Lysate: sc-372174.

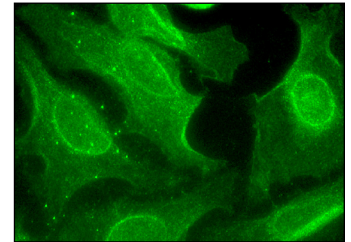
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



HCN4 (C-16): sc-19714. Western blot analysis of HCN4 expression in non-transfected: sc-117752 (A) and human HCN4 transfected: sc-372174 (B) 293T whole cell lysates.



HCN4 (C-16): sc-19714. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization.

## SELECT PRODUCT CITATIONS

- Morel, E., et al. 2008. Identification and distribution of interstitial Cajal cells in human pulmonary veins. *Heart Rhythm* 5: 1063-1067.
- Morikawa, K., et al. 2010. Identification, isolation and characterization of HCN4-positive pacemaking cells derived from murine embryonic stem cells during cardiac differentiation. *Pacing Clin. Electrophysiol.* 33: 290-303.
- Rusznák, Z., et al. 2013. The hyperpolarization-activated non-specific cation current (I<sub>h</sub>) adjusts the membrane properties, excitability, and activity pattern of the giant cells in the rat dorsal cochlear nucleus. *Eur. J. Neurosci.* 37: 876-890.

## STORAGE

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

## RESEARCH USE

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


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Try **HCN4 (SHG 1E5): sc-58622**, our highly recommended monoclonal alternative to HCN4 (C-16).