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HCN2 siRNA (m): sc-145908

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 four 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 5p12 and 19p13.3, respectively. The genes encoding human HCN3 and HCN4 map to chromosomes 1q22 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. Vaccari, T., et al. 1999. The human gene coding for HCN2, a pacemaker channel of the heart. *Biochim. Biophys. Acta* 1446: 419-425.
3. Wainger, B.J., et al. 2001. Molecular mechanism of cAMP modulation of HCN pacemaker channels. *Nature* 411: 805-810.
4. 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.
5. Chan, C.S., et al. 2004. HCN2 and HCN1 channels govern the regularity of autonomous pacemaking and synaptic resetting in globus pallidus neurons. *J. Neurosci.* 24: 9921-9932.
6. Qu, J., et al. 2004. MiRP1 modulates HCN2 channel expression and gating in cardiac myocytes. *J. Biol. Chem.* 279: 43497-43502.
7. LocusLink Report (LocusID: 609). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: Hcn2 (mouse) mapping to 10 C1.

PRODUCT

HCN2 siRNA (m) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see HCN2 shRNA Plasmid (m): sc-145908-SH and HCN2 shRNA (m) Lentiviral Particles: sc-145908-V as alternate gene silencing products.

For independent verification of HCN2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-145908A, sc-145908B and sc-145908C.

PROTOCOLS

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCL, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

HCN2 siRNA (m) is recommended for the inhibition of HCN2 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HCN2 gene expression knockdown using RT-PCR Primer: HCN2 (m)-PR: sc-145908-PR (20 μ l, 591 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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