

NHEDC1 siRNA (h): sc-89177

BACKGROUND

The Na⁺/H⁺ exchangers (NHEs) catalyze the transport of Na⁺ in exchange for H⁺ across membranes in organisms and are required for numerous physiological processes. NHEDC1 (Na⁺/H⁺ exchanger domain containing 1), also known as sodium/hydrogen exchanger-like domain-containing protein 1 or NHE domain-containing protein 1, is a 515 amino acid multi-pass membrane protein belonging to the monovalent cation:proton antiporter 1 (CPA1) transporter family. Only expressed in testis, NHEDC1 is highly conserved in mammals including human, mouse, rat and *Macaca fascicularis*. The gene encoding NHEDC1 maps to human chromosome 4, which houses nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all of the human chromosomes. Defects in some of the genes located on chromosome 4 are associated with Huntington's disease, Ellis-van Creveld syndrome, methylmalonic acidemia and polycystic kidney disease.

REFERENCES

1. Bianchini, L. and Poussegur, J. 1994. Molecular structure and regulation of vertebrate Na⁺/H⁺ exchangers. *J. Exp. Biol.* 196: 337-345.
2. Noël, J. and Pouyssegur, J. 1995. Hormonal regulation, pharmacology, and membrane sorting of vertebrate Na⁺/H⁺ exchanger isoforms. *Am. J. Physiol.* 268: C283-C296.
3. Yun, C.H., et al. 1995. Mammalian Na⁺/H⁺ exchanger gene family: structure and function studies. *Am. J. Physiol.* 269: G1-G11.
4. Chen, C.S., et al. 1995. A mapping study of 13 genes on human chromosome bands 4q11→q25. *Cytogenet. Cell Genet.* 69: 260-265.
5. Wiebe, C.A., et al. 2001. Functional role of polar amino acid residues in Na⁺/H⁺ exchangers. *Biochem. J.* 357: 1-10.
6. Ritter, M., et al. 2001. Na⁺/H⁺ exchangers: linking osmotic disequilibrium to modified cell function. *Cell. Physiol. Biochem.* 11: 1-18.
7. Ye, G., et al. 2006. Cloning of a novel human NHEDC1 (Na⁺/H⁺ exchanger like domain containing 1) gene expressed specifically in testis. *Mol. Biol. Rep.* 33: 175-180.

CHROMOSOMAL LOCATION

Genetic locus: SLC9B1 (human) mapping to 4q24.

PRODUCT

NHEDC1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NHEDC1 shRNA Plasmid (h): sc-89177-SH and NHEDC1 shRNA (h) Lentiviral Particles: sc-89177-V as alternate gene silencing products.

For independent verification of NHEDC1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-89177A, sc-89177B and sc-89177C.

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 μl of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μl of RNase-free water makes a 10 μM solution in a 10 μM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

NHEDC1 siRNA (h) is recommended for the inhibition of NHEDC1 expression in human 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 μM in 66 μl. 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 NHEDC1 gene expression knockdown using RT-PCR Primer: NHEDC1 (h)-PR: sc-89177-PR (20 μl). 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.

PROTOCOLS

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