

NaS-1 siRNA (m): sc-149836

BACKGROUND

NaS-1, also known as SLC13A1 (solute carrier family 13 (sodium/sulfate symporters), member 1), renal sodium/sulfate cotransporter, hNaSi-1 or NAS11, is a 595 amino acid multi-pass membrane protein that is highly expressed in kidney, where it regulates sulfate reabsorption. A member of the SLC13A transporter (TC 2.A.47) family and NADC subfamily, NaS-1 is encoded by a gene that maps to human chromosome 7q31.32. Chromosome 7 houses over 1,000 genes and comprises nearly 5% of the human genome. Chromosome 7 has been linked to osteogenesis imperfecta, Pendred syndrome, lissencephaly, citrullinemia and Shwachman-Diamond syndrome. The deletion of a portion of the q arm of chromosome 7 is associated with Williams-Beuren syndrome, a condition characterized by mild mental retardation, an unusual comfort and friendliness with strangers and an elfin appearance. Deletions of portions of the q arm of chromosome 7 are also seen in a number of myeloid disorders including cases of acute myelogenous leukemia and myelodysplasia.

REFERENCES

1. Tsipouras, P., Myers, J.C., Ramirez, F. and Prockop, D.J. 1983. Restriction fragment length polymorphism associated with the pro α 2(I) gene of human type I procollagen. Application to a family with an autosomal dominant form of osteogenesis imperfecta. *J. Clin. Invest.* 72: 1262-1267.
2. Liang, H., Fairman, J., Claxton, D.F., Nowell, P.C., Green, E.D. and Nagarajan, L. 1998. Molecular anatomy of chromosome 7q deletions in myeloid neoplasms: evidence for multiple critical loci. *Proc. Natl. Acad. Sci. USA* 95: 3781-3785.
3. Lee, A., Beck, L. and Markovich, D. 2000. The human renal sodium sulfate cotransporter (SLC13A1; hNaSi-1) cDNA and gene: organization, chromosomal localization, and functional characterization. *Genomics* 70: 354-363.
4. Li, H. and Pajor, A.M. 2003. Mutagenesis of the N-glycosylation site of hNaSi-1 reduces transport activity. *Am. J. Physiol., Cell Physiol.* 285: C1188-C1196.
5. Li, H. and Pajor, A.M. 2003. Serines 260 and 288 are involved in sulfate transport by hNaSi-1. *J. Biol. Chem.* 278: 37204-37212.
6. Dawson, P.A., Beck, L. and Markovich, D. 2003. Hyposulfatemia, growth retardation, reduced fertility, and seizures in mice lacking a functional NaSi-1 gene. *Proc. Natl. Acad. Sci. USA* 100: 13704-13709.
7. Osborne, L.R., Joseph-George, A.M. and Scherer, S.W. 2006. Williams-Beuren syndrome diagnosis using fluorescence *in situ* hybridization. *Methods Mol. Med.* 126: 113-128.
8. Reiner, O., Sapoznik, S. and Sapir, T. 2006. Lissencephaly 1 linking to multiple diseases: mental retardation, neurodegeneration, schizophrenia, male sterility, and more. *Neuromolecular Med.* 8: 547-565.
9. Pajor, A.M. 2006. Molecular properties of the SLC13 family of dicarboxylate and sulfate transporters. *Pflugers Arch.* 451: 597-605.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: Slc13a1 (mouse) mapping to 6 A3.1.

PRODUCT

NaS-1 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NaS-1 shRNA Plasmid (m): sc-149836-SH and NaS-1 shRNA (m) Lentiviral Particles: sc-149836-V as alternate gene silencing products.

For independent verification of NaS-1 (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-149836A, sc-149836B and sc-149836C.

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

NaS-1 siRNA (m) is recommended for the inhibition of NaS-1 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 NaS-1 gene expression knockdown using RT-PCR Primer: NaS-1 (m)-PR: sc-149836-PR (20 μ l). 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.