



SUT-1 siRNA (h): sc-89760

BACKGROUND

SUT-1 (sulphate transporter 1), also known as Na⁺/sulfate cotransporter SUT-1 or SLC13A4 (solute carrier family 13 member 4), is a 626 amino acid multi-pass membrane protein that belongs to the SLC13A transporter family and the NADC subfamily. While highly expressed in placenta and testis, SUT-1 is expressed at lower levels in brain, heart, thymus and liver. SUT-1 functions as a sodium/sulfate cotransporter that mediates sulfate reabsorption in the high endothelial venules (HEV). The gene that encodes SUT-1 contains 46,968 bases and maps to human chromosome 7q33. Housing over 1,000 genes, chromosome 7 comprises nearly 5% of the human genome and has been linked to Osteogenesis imperfecta, Pendred syndrome, Lissencephaly, Citrullinemia and Shwachman-Diamond syndrome.

REFERENCES

1. Tsipouras, P., Myers, J.C., Ramirez, F. and Prockop, D.J. 1983. Restriction fragment length polymorphism associated with the proc 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. Girard, J.P., Baekkevold, E.S., Feliu, J., Brandtzaeg, P. and Amalric, F. 1999. Molecular cloning and functional analysis of SUT-1, a sulfate transporter from human high endothelial venules. *Proc. Natl. Acad. Sci. USA* 96: 12772-12777.
4. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 604309. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Iwasaki, S., Usami, S., Abe, S., Isoda, H., Watanabe, T. and Hoshino, T. 2001. Long-term audiological feature in Pendred syndrome caused by PDS mutation. *Arch. Otolaryngol. Head Neck Surg.* 127: 705-708.
6. Markovich, D., Regeer, R.R., Kunzelmann, K. and Dawson, P.A. 2005. Functional characterization and genomic organization of the human Na⁺-sulfate cotransporter hNaS2 gene (SLC13A4). *Biochem. Biophys. Res. Commun.* 326: 729-734.
7. 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.
8. Pajor, A.M. 2006. Molecular properties of the SLC13 family of dicarboxylate and sulfate transporters. *Pflügers Arch.* 451: 597-605.

CHROMOSOMAL LOCATION

Genetic locus: SLC13A4 (human) mapping to 7q33.

PROTOCOLS

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

PRODUCT

SUT-1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SUT-1 shRNA Plasmid (h): sc-89760-SH and SUT-1 shRNA (h) Lentiviral Particles: sc-89760-V as alternate gene silencing products.

For independent verification of SUT-1 (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-89760A, sc-89760B and sc-89760C.

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

SUT-1 siRNA (h) is recommended for the inhibition of SUT-1 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 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 SUT-1 gene expression knockdown using RT-PCR Primer: SUT-1 (h)-PR: sc-89760-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.