

Sptrx-1 siRNA (h): sc-76575

BACKGROUND

Sptrx-1 (spermatid-specific thioredoxin-1), also known as TXNDC2 (thioredoxin domain-containing protein 2) or SPTRX, is a 553 amino acid cytoplasmic protein that contains one thioredoxin domain, plays a role in sperm development and may participate in regulation of fibrous sheath (FS) assembly by supporting the formation of disulfide bonds during sperm tail morphogenesis. Existing as two alternatively spliced isoforms, Sptrx-1 is only expressed in testis during spermiogenesis, prominently in round and elongating spermatids. The gene that encodes Sptrx-1 maps to human chromosome 18, which houses over 300 protein-coding genes and contains nearly 76 million bases. There are a variety of diseases associated with defects in chromosome 18-localized genes, some of which include Trisomy 18 (also known as Edwards syndrome), Niemann-Pick disease, hereditary hemorrhagic telangiectasia, erythropoietic protoporphyria and follicular lymphomas.

REFERENCES

1. Carstea, E.D., et al. 1993. Linkage of Niemann-Pick disease type C to human chromosome 18. *Proc. Natl. Acad. Sci. USA* 90: 2002-2004.
2. Miranda-Vizuet, A., et al. 2001. Characterization of Sptrx, a novel member of the thioredoxin family specifically expressed in human spermatozoa. *J. Biol. Chem.* 276: 31567-31574.
3. Yu, Y., et al. 2002. Developmental expression of spermatid-specific thioredoxin-1 protein: transient association to the longitudinal columns of the fibrous sheath during sperm tail formation. *Biol. Reprod.* 67: 1546-1554.
4. Jimenez, A., et al. 2002. Human spermatid-specific thioredoxin-1 (Sptrx-1) is a two-domain protein with oxidizing activity. *FEBS Lett.* 530: 79-84.
5. Jimenez, A., et al. 2002. Cloning, expression and characterization of mouse spermatid specific thioredoxin-1 gene and protein. *Mol. Hum. Reprod.* 8: 710-718.
6. Petek, E., et al. 2003. Characterisation of a 19-year-old "long-term survivor" with Edwards syndrome. *Genet. Couns.* 14: 239-244.
7. Aurizi, C., et al. 2007. Heterogeneity of mutations in the ferrochelatase gene in Italian patients with erythropoietic protoporphyria. *Mol. Genet. Metab.* 90: 402-407.

CHROMOSOMAL LOCATION

Genetic locus: TXNDC2 (human) mapping to 18p11.22.

PRODUCT

Sptrx-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 Sptrx-1 shRNA Plasmid (h): sc-76575-SH and Sptrx-1 shRNA (h) Lentiviral Particles: sc-76575-V as alternate gene silencing products.

For independent verification of Sptrx-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-76575A, sc-76575B and sc-76575C.

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

Sptrx-1 siRNA (h) is recommended for the inhibition of Sptrx-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 Sptrx-1 gene expression knockdown using RT-PCR Primer: Sptrx-1 (h)-PR: sc-76575-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pereira, L., et al. 2013. Inhibition of p38 MAPK sensitizes tumour cells to cisplatin-induced apoptosis mediated by reactive oxygen species and JNK. *EMBO Mol. Med.* 5: 1759-1774.

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.