SANTA CRUZ BIOTECHNOLOGY, INC.

Sptrx-2 siRNA (h): sc-89740

BACKGROUND

Sptrx-2 (spermatid-specific thioredoxin-2), also known as NME8, CILD6, SPTRX2 or TXNDC3 (thioredoxin domain-containing protein 3), is a 588 amino acid cytoplasmic and testis-specific protein belonging to the NDK family. Expressed only in primary spermatocytes and round spermatids, Sptrx-2 may be required during the final stages of sperm tail maturation in the testis and/or epididymis, where extensive disulfide bonding of fibrous sheath (FS) proteins occur. Sptrx-2 contains a thioredoxin domain and three inactive NDK domains that each lack the active His residue, suggesting that they are not capable of NDP kinase activity. Defects in the gene encoding Sptrx-2 are the cause of primary ciliary dyskinesia type 6, an autosomal recessive disorder characterized by axonemal abnormalities of motile cilia. Primary ciliary dyskinesia associated with situs inversus is referred to as Kartagener syndrome.

REFERENCES

1. Sadek, C.M., et al. 2001. Sptrx-2, a fusion protein composed of one thioredoxin and three tandemly repeated NDP-kinase domains is expressed in human testis germ cells. Genes Cells 6: 1077-1090.
2. Mahr, S., et al. 2006. *Cis*- and *trans*-acting gene regulation is associated with osteoarthritis. Am. J. Hum. Genet. 78: 793-803.
3. Loughlin, J., et al. 2007. Genetic association analysis of RHOB and TXNDC3 in osteoarthritis. Am. J. Hum. Genet. 80: 383-386.
4. Duriez, B., et al. 2007. A common variant in combination with a nonsense mutation in a member of the thioredoxin family causes primary ciliary dyskinesia. Proc. Natl. Acad. Sci. USA 104: 3336-3341.
5. Shi, D., et al. 2008. Association of single-nucleotide polymorphisms in RHOB and TXNDC3 with knee osteoarthritis susceptibility: two case-control studies in East Asian populations and a meta-analysis. Arthritis Res. Ther. 10: R54.
6. Geremek, M., et al. 2008. Sequence analysis of 21 genes located in the Kartagener syndrome linkage region on chromosome 15q. Eur. J. Hum. Genet. 16: 688-695.
7. Failly, M., et al. 2008. DNAI1 mutations explain only 2% of primary ciliary dykinesia. Respiration 76: 198-204.

CHROMOSOMAL LOCATION

Genetic locus: NME8 (human) mapping to 7p14.1.

PRODUCT

Sptrx-2 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 Sptrx-2 shRNA Plasmid (h): sc-89740-SH and Sptrx-2 shRNA (h) Lentiviral Particles: sc-89740-V as alternate gene silencing products.

For independent verification of Sptrx-2 (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-89740A, sc-89740B and sc-89740C.

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

Sptrx-2 siRNA (h) is recommended for the inhibition of Sptrx-2 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.

GENE EXPRESSION MONITORING

Sptrx-2 (KK-M5): sc-135567 is recommended as a control antibody for monitoring of Sptrx-2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Sptrx-2 gene expression knockdown using RT-PCR Primer: Sptrx-2 (h)-PR: sc-89740-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.