SANTA CRUZ BIOTECHNOLOGY, INC.

TXNL6 siRNA (h): sc-97771

BACKGROUND

Thioredoxins are small redox active proteins that play a variety of roles throughout the cell. TXNL6 (thioredoxin-like 6), also known as NXNL1 (nucleoredoxin-like 1) or RDCVF (rod-derived cone viability factor), is a 212 amino acid nuclear outer membrane protein belonging to the nucleoredoxin family. Containing one thioredoxin domain, TXNL6 may work with NFκB to protect cone photoreceptor cells from photooxidative stress-induced apoptosis. Mutations in the gene encoding TNXL6 may be associated with age-related reduction of cone and rod function, which leads to rod-cone dystrophies such as retinitis pigmentosa (RP), an untreatable, inherited retinal disease that commonly results in blindness. TNXL6 is considered a potential target in developing therapeutic treatments for human retinal neurodegenerative diseases. TNXL6 is encoded by a gene located on human chromosome 19p13.11.

REFERENCES

1. Leveillard, T., et al. 2004. Identification and characterization of rod-derived cone viability factor. Nat. Genet. 36: 755-759.
2. Sahel, J.A., et al. 2005. Neuroprotection of photoreceptor cells in rod-cone dystrophies: from cell therapy to cell signalling. C. R. Biol. 328: 163-168.
3. Hanein, S., et al. 2006. Disease-associated variants of the rod-derived cone viability factor (RdCVF) in Leber congenital amaurosis. Rod-derived cone viability variants in LCA. Adv. Exp. Med. Biol. 572: 9-14.
4. Chalmel, F., et al. 2007. Rod-derived cone viability factor-2 is a novel bifunctional-thioredoxin-like protein with therapeutic potential. BMC Mol. Biol. 8: 74.
5. Wang, X.W., et al. 2008. Thioredoxin-like 6 protects retinal cell line from photooxidative damage by upregulating NFκB activity. Free Radic. Biol. Med. 45: 336-344.
6. Fridlich, R., et al. 2009. The thioredoxin-like protein rod-derived cone viability factor (RdCVFL) interacts with Tau and inhibits its phosphorylation in the retina. Mol. Cell. Proteomics 8: 1206-1218.
7. Yang, Y., et al. 2009. Functional cone rescue by RdCVF protein in a dominant model of retinitis pigmentosa. Mol. Ther. 17: 787-795.
8. Cronin, T., et al. 2010. The disruption of the rod-derived cone viability gene leads to photoreceptor dysfunction and susceptibility to oxidative stress. Cell Death Differ. 17: 1199-1210.

CHROMOSOMAL LOCATION

Genetic locus: NXNL1 (human) mapping to 19p13.11.

PRODUCT

TXNL6 siRNA (h) is a target-specific 19-25 nt siRNA 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 TXNL6 shRNA Plasmid (h): sc-97771-SH and TXNL6 shRNA (h) Lentiviral Particles: sc-97771-V as alternate gene silencing products.

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

TXNL6 siRNA (h) is recommended for the inhibition of TXNL6 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

TXNL6 (3-RE25): sc-135593 is recommended as a control antibody for monitoring of TXNL6 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 TXNL6 gene expression knockdown using RT-PCR Primer: TXNL6 (h)-PR: sc-97771-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.