SANTA CRUZ BIOTECHNOLOGY, INC.

TXNDC4 siRNA (h): sc-92957

BACKGROUND

TXNDC4 (thioredoxin domain containing 4), also known as ERP44, is a 406 amino acid protein that contains one thioredoxin domain, a motif that participates in various redox reactions throughout the cell. Localized to the lumen of the endoplasmic reticulum (ER), TXNDC4 functions to inhibit the activity of IP3R-I (inositol 1,4,5-triphosphate receptor,type 1) within calcium channels. In addition, TXNDC4 is thought to regulate oxidative protein folding within the ER and may be involved in retaining proteins, such as Ero1-Lβ and Ero1-Lα, in the ER. TXNDC4 expression is induced by ER stress, further suggesting an important role for TXNDC4 in the maintenance of intraluminal conditions. TXNDC4 contains an N-terminal ER targeting sequence, as well as a C-terminal ER retention signal (RDEL), both of which keep TXNDC4 within the ER.

REFERENCES

1. Nagase, T., et al. 1998. Prediction of the coding sequences of unidentified human genes. IX. The complete sequences of 100 new cDNA clones from brain which can code for large proteins *in vitro*. DNA Res. 5: 31-39.
2. Anelli, T., et al. 2002. ERp44, a novel endoplasmic reticulum folding assistant of the thioredoxin family. EMBO J. 21: 835-844.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609170. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Anelli, T., et al. 2003. Thiol-mediated protein retention in the endoplasmic reticulum: the role of ERp44. EMBO J. 22: 5015-5022.
5. Breuza, L., et al. 2004. Proteomics of endoplasmic reticulum-Golgi intermediate compartment (ERGIC) membranes from brefeldin A-treated Hep G2 cells identifies ERGIC-32, a new cycling protein that interacts with human Erv46. J. Biol. Chem. 279: 47242-47253.
6. Higo, T., et al. 2005. Subtype-specific and ER lumenal environment-dependent regulation of inositol 1,4,5-trisphosphate receptor type 1 by ERp44. Cell 120: 85-98.
7. Otsu, M., et al. 2006. Dynamic retention of Ero1α and Ero1β in the endoplasmic reticulum by interactions with PDI and ERp44. Antioxid. Redox Signal. 8: 274-282.

CHROMOSOMAL LOCATION

Genetic locus: ERP44 (human) mapping to 9q31.1.

PRODUCT

TXNDC4 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 TXNDC4 shRNA Plasmid (h): sc-92957-SH and TXNDC4 shRNA (h) Lentiviral Particles: sc-92957-V as alternate gene silencing products.

For independent verification of TXNDC4 (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-92957A, sc-92957B and sc-92957C.

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

TXNDC4 siRNA (h) is recommended for the inhibition of TXNDC4 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

TXNDC4 (E-6): sc-393687 is recommended as a control antibody for monitoring of TXNDC4 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 TXNDC4 gene expression knockdown using RT-PCR Primer: TXNDC4 (h)-PR: sc-92957-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.