SANTA CRUZ BIOTECHNOLOGY, INC.

ERp46 siRNA (h): sc-60601

BACKGROUND

Endoplasmic reticulum proteins (ERps) are widely expressed proteins and localize to the ER. ERp19, ERp29, ERp46, ERp57 and ERp72 may act as proteases, protein disulfide isomerases, thiol-disulfide oxidases, phospholipases or a combination of these. ERp19, also designated thioredoxin domain-containing protein 12 (TXNDC12), and ERp46, also designated thioredoxin domain containing 5 (TXNDC5), belong to the thioredoxin superfamily and contain a thioredoxin fold with a consensus active-site sequence (CxxC). Both ERp19 and ERp46 are widely expressed ER luminal proteins that are most abundant in the liver and are enriched in purified liver ER vesicles. ERp46 reduces Insulin disulfide bonds and also complements protein disulfide-isomerase deficiency in yeast. ERp46 may protect hypoxic cells from apoptosis, as its expression is induced by hypoxia.

REFERENCES

1. Alanen, H.I., et al. 2003. Functional characterization of ERp18, a new endoplasmic reticulum-located thioredoxin superfamily member. J. Biol. Chem. 278: 28912-28920.
2. Sullivan, D.C., et al. 2003. EndoPDI, a novel protein-disulfide isomerase-like protein that is preferentially expressed in endothelial cells acts as a stress survival factor. J. Biol. Chem. 278: 47079-47088.
3. Liu, F., et al. 2003. Isolation and chara encoding a secretory protein. Gene 315: 71-78.
4. Knoblach, B., et al. 2003. ERp19 and ERp46, new members of the thioredoxin family of endoplasmic reticulum proteins. Mol. Cell. Proteomics 2: 1104-1119.

CHROMOSOMAL LOCATION

Genetic locus: TXNDC5 (human) mapping to 6p24.3.

PRODUCT

ERp46 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 ERp46 shRNA Plasmid (h): sc-60601-SH and ERp46 shRNA (h) Lentiviral Particles: sc-60601-V as alternate gene silencing products.

For independent verification of ERp46 (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-60601A, sc-60601B and sc-60601C.

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

ERp46 siRNA (h) is recommended for the inhibition of ERp46 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

ERp46 (C-11): sc-271667 is recommended as a control antibody for monitoring of ERp46 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 ERp46 gene expression knockdown using RT-PCR Primer: ERp46 (h)-PR: sc-60601-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, S.O., et al. 2014. The orphan nuclear receptor NR4A1 (Nur77) regulates oxidative and endoplasmic reticulum stress in pancreatic cancer cells. Mol. Cancer Res. 12: 527-538.
2. Peng, F., et al. 2018. Cetuximab enhances cisplatin-induced endoplasmic reticulum stress-associated apoptosis in laryngeal squamous cell carcinoma cells by inhibiting expression of TXNDC5. Mol. Med. Rep. 17: 4767-4776.

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.