SANTA CRUZ BIOTECHNOLOGY, INC.

Ero1-Lβ siRNA (m): sc-144936

BACKGROUND

Catalysis of disulfide bond formation is an integral component of protein biogenesis in the secretory pathway. Conserved between yeast and mammals, endoplasmic reticulum oxidoreductases (EROs) are essential for the formation of disulfide bonds. Ero1-Lβ (endoplasmic oxidoreductin-1-like protein B), also known as oxidoreductin-1-L-β, is a 467 amino acid protein that localizes to the endoplasmic reticulum and belongs to the ERO family. Ero1-Lβ is widely expressed at low levels but is greatly enriched in pancreas and in lower digestive tract. Ero1-Lβ, along with Ero1-Lα, transfer oxidative analogs to protein disulfide isomerase (PDI), which in turn oxidizes cargo proteins. Regulated by glutathione and induced by unfolded protein response (UPR), Ero1-Lβ promotes Insulin biogenesis and glucose homeostasis. Ero1-Lβ exists as both a monomer and homodimer.

REFERENCES

1. Benham, A.M., et al. 2000. The CXXCXXC motif determines the folding, structure and stability of human Ero1-Lα. EMBO J. 19: 4493-4502.
2. Pagani, M., et al. 2000. Endoplasmic reticulum oxidoreductin 1-lβ (ERO1-Lβ), a human gene induced in the course of the unfolded protein response. J. Biol. Chem. 275: 23685-23692.
3. Cabibbo, A., et al. 2000. ERO1-L, a human protein that favors disulfide bond formation in the endoplasmic reticulum. J. Biol. Chem. 275: 4827-4833.
4. Mezghrani, A., et al. 2001. Manipulation of oxidative protein folding and PDI redox state in mammalian cells. EMBO J. 20: 6288-6296.
5. Dias-Gunasekara, S., et al. 2005. Tissue-specific expression and dimerization of the endoplasmic reticulum oxidoreductase Ero1β. J. Biol. Chem. 280: 33066-33075.
6. 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.
7. Dias-Gunasekara, S., et al. 2006. Mutations in the FAD binding domain cause stress-induced misoxidation of the endoplasmic reticulum oxidoreductase Ero1β. J. Biol. Chem. 281: 25018-25025.

CHROMOSOMAL LOCATION

Genetic locus: Ero1lb (mouse) mapping to 13 A1.

PRODUCT

Ero1-Lβ siRNA (m) 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 Ero1-Lβ shRNA Plasmid (m): sc-144936-SH and Ero1-Lβ shRNA (m) Lentiviral Particles: sc-144936-V as alternate gene silencing products.

For independent verification of Ero1-Lβ (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-144936A, sc-144936B and sc-144936C.

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

Ero1-Lβ siRNA (m) is recommended for the inhibition of Ero1-Lβ expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Ero1-Lβ gene expression knockdown using RT-PCR Primer: Ero1-Lβ (m)-PR: sc-144936-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.