SANTA CRUZ BIOTECHNOLOGY, INC.

ERdj4 siRNA (m): sc-144922

BACKGROUND

Members of the heat shock protein 40 (HSP 40) family of proteins all contain a highly conserved J domain that associates with members of the HSP 70 family of proteins and regulates their function by activating their adenosine triphosphatase activity. ERdj4 (endoplasmic reticulum-localized DnaJ type II homolog 4), also known as microvascular endothelial differentiation gene 1 protein (Mdg-1), is a member of the HSP 40 family of DnaJ-like proteins. It is ubiquitously expressed and localizes to the membrane of the ER with its J domain in the ER lumen. ERdj4 interacts with GRP 78 and its J domain activates the ATPase activity of GRP 78. ERdj4 may play a role in ER protein folding as a co-factor of GRP 78 or it may be involved in mediating the translocation of misfolded proteins for ER-associated degradation. Transcription of the gene encoding ERdj4 is regulated by XBP-1 and its expression is upregulated during ER stress. The overexpression of ERdj4 results in suppression of cell death.

REFERENCES

1. Shen, Y., et al. 2002. Identification and characterization of a novel endoplasmic reticulum (ER) DnaJ homologue, which stimulates ATPase activity of BiP *in vitro* and is induced by ER stress. J. Biol. Chem. 277: 15947-15956.
2. Chung, K.T., et al. 2002. BAP, a mammalian BiP-associated protein, is a nucleotide exchange factor that regulates the ATPase activity of BiP. J. Biol. Chem. 277: 47557-47563.
3. Lee, A.H., et al. 2003. XBP-1 regulates a subset of endoplasmic reticulum resident chaperone genes in the unfolded protein response. Mol. Cell. Biol. 23: 7448-7459.
4. Berger, B.J., et al. 2003. High levels of the molecular chaperone Mdg1/ERdj4 reflect the activation state of endothelial cells. Exp. Cell Res. 290: 82-92.
5. Kurisu, J., et al. 2003. MDG1/ERdj4, an ER-resident DnaJ family member, suppresses cell death induced by ER stress. Genes Cells. 8: 189-202.
6. Kim, A.J., et al. 2004. Valproate protects cells from ER stress-induced lipid accumulation and apoptosis by inhibiting glycogen synthase kinase-3. J. Cell Sci. 118: 89-99.

CHROMOSOMAL LOCATION

Genetic locus: Dnajb9 (mouse) mapping to 12 B3.

PRODUCT

ERdj4 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 ERdj4 shRNA Plasmid (m): sc-144922-SH and ERdj4 shRNA (m) Lentiviral Particles: sc-144922-V as alternate gene silencing products.

For independent verification of ERdj4 (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-144922A, sc-144922B and sc-144922C.

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

ERdj4 siRNA (m) is recommended for the inhibition of ERdj4 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 ERdj4 gene expression knockdown using RT-PCR Primer: ERdj4 (m)-PR: sc-144922-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.