SANTA CRUZ BIOTECHNOLOGY, INC.

ERIS siRNA (h): sc-89146

BACKGROUND

ERIS (endoplasmic reticulum intermembrane small protein), also known as CISD2 (CDGSH iron-sulfur domain-containing protein 2), miner1 (mitoNEET-related 1 protein), NAF-1 (nutrient-deprivation autophagy factor-1) or ZCD2, is a 135 amino acid single-pass membrane protein that belongs to the CISD protein family and CISD2 subfamily. Localizing to the endoplasmic reticulum membrane, as well as the mitochondrion outer membrane, ERIS is expressed in testis, small intestine, kidney, lung, brain, heart, pancreas and platelets. ERIS acts as a regulator of autophagy and may be involved in calcium homeostasis. The gene encoding ERIS maps to human chromosome 4q24. Mutations to this gene have been linked to Wolfram syndrome 2, an autosomal recessive disorder characterized by juvenile-onset Insulin-dependent diabetes, optic atrophy, sensorineural deafness, dementia and psychiatric illnesses. Deletion of the gene encoding ERIS may also be linked to early senescence, thus playing a role in life span.

REFERENCES

1. Amr, S., et al. 2007. A homozygous mutation in a novel zinc-finger protein, ERIS, is responsible for Wolfram syndrome 2. Am. J. Hum. Genet. 81: 673-683.
2. Wiley, S.E., et al. 2007. The outer mitochondrial membrane protein mitoNEET contains a novel redox-active 2Fe-2S cluster. J. Biol. Chem. 282: 23745-23749.
3. Wiley, S.E., et al. 2007. MitoNEET is an iron-containing outer mitochondrial membrane protein that regulates oxidative capacity. Proc. Natl. Acad. Sci. USA 104: 5318-5323.
4. Chen, Y.F., et al. 2009. Cisd2 mediates mitochondrial integrity and life span in mammals. Autophagy 5: 1043-1045.
5. Chen, Y.F., et al. 2009. Cisd2 deficiency drives premature aging and causes mitochondria-mediated defects in mice. Genes Dev. 23: 1183-1194.
6. Conlan, A.R., et al. 2009. Crystal structure of Miner1: The redox-active 2Fe-2S protein causative in Wolfram syndrome 2. J. Mol. Biol. 392: 143-153.
7. Chen, Y.F., et al. 2010. A role for the CISD2 gene in lifespan control and human disease. Ann. N.Y. Acad. Sci. 1201: 58-64.

CHROMOSOMAL LOCATION

Genetic locus: CISD2 (human) mapping to 4q24.

PRODUCT

ERIS 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 ERIS shRNA Plasmid (h): sc-89146-SH and ERIS shRNA (h) Lentiviral Particles: sc-89146-V as alternate gene silencing products.

For independent verification of ERIS (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-89146A, sc-89146B and sc-89146C.

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

ERIS siRNA (h) is recommended for the inhibition of ERIS 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ERIS gene expression knockdown using RT-PCR Primer: ERIS (h)-PR: sc-89146-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.