SANTA CRUZ BIOTECHNOLOGY, INC.

ISCA2 siRNA (h): sc-92109

BACKGROUND

ISCA2 (mitochondrial iron-sulfur cluster assembly 2 homolog, HESB-like domain-containing protein 1) is a mitochondrial protein believed to be involved in the assembly of iron and sulfur containing proteins. Iron-sulfur (Fe-S) clusters are cofactors that are essential for a wide variety of processes, including facilitation of electron transfer processes in oxidative phosphorylation, catalysis of enzymatic reactions in aconitase and dehydratases and maintenance of structural integrity in the DNA repair enzyme endonuclease III. In bacteria and eukaryotes, several new genes are implicated in the biogenesis of Fe-S cluster-containing proteins. ISCA2 is found on chromosome 14 which contains about 700 genes and 106 million base pairs and makes up about 3.5% of human cellular DNA.

REFERENCES

1. Skovran, E. and Downs, D.M. 2000. Metabolic defects caused by mutations in the isc gene cluster in *Salmonella enterica* serovar typhimurium: implications for thiamine synthesis. J. Bacteriol. 182: 3896-3903.
2. Morimoto, K., et al. 2003. A HEAT-repeats containing protein, IaiH, stabilizes the iron-sulfur cluster bound to the cyanobacterial IscA homologue, ISCA2. J. Biochem. 134: 211-217.
3. Cózar-Castellano, I., et al. 2004. hISCA: a protein implicated in the biogenesis of iron-sulfur clusters. Biochim. Biophys. Acta 1700: 179-188.
4. Berndt, C., et al. 2004. Characterization and reconstitution of a 4Fe-4S adenylyl sulfate/phosphoadenylyl sulfate reductase from *Bacillus subtilis*. J. Biol. Chem. 279: 7850-7855.
5. Jarrett, J.T. 2005. The novel structure and chemistry of iron-sulfur clusters in the adenosylmethionine-dependent radical enzyme biotin synthase. Arch. Biochem. Biophys. 433: 312-321.
6. Parikh, H., et al. 2008. Molecular correlates for maximal oxygen uptake and type 1 fibers. Am. J. Physiol. Endocrinol. Metab. 294: E1152-E1159.
7. Nilsson, R., et al. 2009. Discovery of genes essential for heme biosynthesis through large-scale gene expression analysis. Cell Metab. 10: 119-130.
8. Crooks, D.R., et al. 2010. Posttranslational stability of the heme biosynthetic enzyme ferrochelatase is dependent on iron availability and intact iron-sulfur cluster assembly machinery. Blood 115: 860-869.

CHROMOSOMAL LOCATION

Genetic locus: ISCA2 (human) mapping to 14q24.3.

PRODUCT

ISCA2 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 ISCA2 shRNA Plasmid (h): sc-92109-SH and ISCA2 shRNA (h) Lentiviral Particles: sc-92109-V as alternate gene silencing products.

For independent verification of ISCA2 (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-92109A, sc-92109B and sc-92109C.

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

ISCA2 siRNA (h) is recommended for the inhibition of ISCA2 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 ISCA2 gene expression knockdown using RT-PCR Primer: ISCA2 (h)-PR: sc-92109-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.