SANTA CRUZ BIOTECHNOLOGY, INC.

DCI siRNA (m): sc-142898

BACKGROUND

DCI (dodecenoyl-CoA isomerase) is a 302 amino acid protein that localizes to the mitochondrial matrix and belongs to the enoyl-CoA hydratase/isomerase family. Existing as a homotrimer, DCI functions to catalyze the transformation of both 3-*trans* and 3-*cis* double bonds into 2-*trans* double bonds in a variety of enoyl-CoA proteins. The catalytic activity of DCI is essential for the β-oxidation of unsaturated fatty acids and for proper lipid metabolism. DCI exists as two alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 16, which houses over 900 genes and comprises nearly 3% of the human genome. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome is also associated with chromosome 16, as is Crohn's disease, which is a gastrointestinal inflammatory condition.

REFERENCES

1. Kilponen, J.M., et al. 1994. cDNA cloning and amino acid sequence of human mitochondrial δ 3 δ 2-enoyl-CoA isomerase: comparison of the human enzyme with its rat counterpart, mitochondrial short-chain isomerase. Biochem. J. 300: 1-5.
2. Janssen, U., et al. 1994. Human mitochondrial 3,2-*trans*-enoyl-CoA isomerase (DCI): gene structure and localization to chromosome 16p13.3. Genomics 23: 223-228.
3. He, X.Y., et al. 1997. Glutamate-119 of the large α-subunit is the catalytic base in the hydration of 2-*trans*-enoyl-coenzyme A catalyzed by the multienzyme complex of fatty acid oxidation from *Escherichia coli*. Biochemistry 36: 11044-11049.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600305. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Partanen, S.T., et al. 2004. The 1.3 A crystal structure of human mitochondrial δ3-δ2-enoyl-CoA isomerase shows a novel mode of binding for the fatty acyl group. J. Mol. Biol. 342: 1197-1208.

CHROMOSOMAL LOCATION

Genetic locus: Eci1 (mouse) mapping to 17 A3.3.

PRODUCT

DCI 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 DCI shRNA Plasmid (m): sc-142898-SH and DCI shRNA (m) Lentiviral Particles: sc-142898-V as alternate gene silencing products.

For independent verification of DCI (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-142898A, sc-142898B and sc-142898C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

DCI siRNA (m) is recommended for the inhibition of DCI 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 DCI gene expression knockdown using RT-PCR Primer: DCI (m)-PR: sc-142898-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.