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SANTA CRUZ BIOTECHNOLOGY, INC.

SCD5 siRNA (h): sc-106535

BACKGROUND

Stearoyl-CoA desaturase (SCD) is an integral membrane protein of the endoplasmic reticulum that catalyzes the formation of monounsaturated fatty acids from saturated fatty acids. SCD may be a key regulator of energy metabolism with a role in obesity and dislipidemia. Four SCD isoforms, Scd1 through Scd4, have been identified in mouse. In contrast, only two SCD isoforms, SCD1 and SCD5, have been identified in human. SCD5 (stearoyl-CoA desaturase 5) is a 330 amino acid multi-pass membrane protein that belongs to the fatty acid desaturase family. Like other SCDs, SCD5 contains a unique N terminus followed by a 5-transmembrane region and 3 catalytic histidine boxes that are thought to bind nonheme iron required for enzymatic activity. SCD5 is detected in adult brain, fetal brain and pancreas, and at lower levels in kidney, fetal kidney and lung. Existing as two alternatively spliced isoforms, the SCD5 gene is conserved in chimpanzee, canine, bovine, chicken, zebrafish, fruit fly and *P. falciparum,* and maps to human chromosome 4q21.22. The SCD5 gene contains 5 exons and spans approximately 169 kb.

REFERENCES

1. Beiraghi, S., et al. 2003. Identification and characterization of a novel gene disrupted by a pericentric inversion inv(4)(p13.1q21.1) in a family with cleft lip. Gene 309: 11-21.
2. Miyazaki, M., et al. 2003. Identification and characterization of murine SCD4, a novel heart-specific stearoyl-CoA desaturase isoform regulated by leptin and dietary factors. J. Biol. Chem. 278: 33904-33911.
3. Online Mendelian Inheritance in Man, OMIM™. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 608370. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Wang, J., et al. 2005. Characterization of HSCD5, a novel human stearoyl-CoA desaturase unique to primates. Biochem. Biophys. Res. Commun. 332: 735-742.
5. Zhang, S., et al. 2005. Characterization of human SCD2, an oligomeric desaturase with improved stability and enzyme activity by cross-linking in intact cells. Biochem. J. 388: 135-142.
6. Hillier, L.W., et al. 2005. Generation and annotation of the DNA sequences of human chromosomes 2 and 4. Nature 434: 724-731.

CHROMOSOMAL LOCATION

Genetic locus: SCD5 (human) mapping to 4q21.22.

PRODUCT

SCD5 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 SCD5 shRNA Plasmid (h): sc-106535-SH and SCD5 shRNA (h) Lentiviral Particles: sc-106535-V as alternate gene silencing products.

For independent verification of SCD5 (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-106535A, sc-106535B and sc-106535C.

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

SCD5 siRNA (h) is recommended for the inhibition of SCD5 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 SCD5 gene expression knockdown using RT-PCR Primer: SCD5 (h)-PR: sc-106535-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.