SANTA CRUZ BIOTECHNOLOGY, INC.

SCD4 siRNA (m): sc-270335

BACKGROUND

Stearoyl-CoA desaturase (SCD) is a microsomal enzyme that is required for the synthesis of oleate and palmitoleate. Oleate and palmioleate are the major monounsaturated fatty acids of membrane phospholipids, triglycerides, and cholesterol esters. SCD is also an important regulator of membrane fluidity. It exists as two well characterized isoforms, SCD1 and SCD2. SCD4 (stearoyl-CoA desaturase-4), also known as ACOD4, is a 353 amino acid protein that belongs to the fatty acid desaturase family. Utilizing iron as a cofactor, SCD4 contains a histidine box domain that may be involved in metal ion binding. No known human homolog for SCD4 exists. SCD4 is expressed primarily in the heart, and expression levels may be regulated by leptin. The gene encoding SCD4 maps to mouse chromosome 19 C3.

REFERENCES

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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. Christianson, J.L., et al. 2008. Stearoyl-CoA desaturase 2 is required for peroxisome proliferator-activated receptor γ expression and adipogenesis in cultured 3T3-L1 cells. J. Biol. Chem. 283: 2906-2916.
4. Green, C.D., et al. 2011. Modulation of palmitate-induced endoplasmic reticulum stress and apoptosis in pancreatic β-cells by stearoyl-CoA desaturase and Elovl6. Am. J. Physiol. Endocrinol. Metab. 300: E640-E649.
5. Maier, H., et al. 2011. Normal fur development and sebum production depends on fatty acid 2-hydroxylase expression in sebaceous glands. J. Biol. Chem. 286: 25922-25934.
6. Diez-Roux, G., et al. 2011. A high-resolution anatomical atlas of the transcriptome in the mouse embryo. PLoS Biol. 9: e1000582.
7. Yamazaki, T., et al. 2012. Differential induction of stearoyl-CoA desaturase 1 and 2 genes by fibrates in the liver of rats. Biol. Pharm. Bull. 35: 116-120.

CHROMOSOMAL LOCATION

Genetic locus: Scd4 (mouse) mapping to 19 C3.

PRODUCT

SCD4 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 SCD4 shRNA Plasmid (m): sc-270335-SH and SCD4 shRNA (m) Lentiviral Particles: sc-270335-V as alternate gene silencing products.

For independent verification of SCD4 (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-270335A, sc-270335B and sc-270335C.

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

SCD4 siRNA (m) is recommended for the inhibition of SCD4 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.

GENE EXPRESSION MONITORING

SCD (D-5): sc-515875 is recommended as a control antibody for monitoring of SCD3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SCD4 gene expression knockdown using RT-PCR Primer: SCD4 (m)-PR: sc-270335-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.