SANTA CRUZ BIOTECHNOLOGY, INC.

ACSF3 siRNA (h): sc-93074

BACKGROUND

ACSF3 (acyl-CoA synthetase family member 3) is a 576 amino acid protein belonging to the ATP-dependent AMP-binding enzyme family. Encoded by a gene that maps to human chromosome 16q24.3, ACSF3 participates in ATP binding, ligase activity, acid-thiol ligase activity and nucleotide binding. Similar to all enzymatically active acyl-CoA synthetases, ACSF3 contains both motifs I and II. ACSF3 catalyzes the initial reaction in fatty acid metabolism by forming a thioester with CoA. ACSF3 displays a preference for lignoceric acid, a 24 carbon very long-chain fatty acid (VLCFA), but does not significantly activate palmitate, a 6 carbon long-chain fatty acid (LCFA), suggesting ACSF3 may have a preference for very-long-chain substrates. ACSF3 exhibits mitochondrial subcellular localization and exists as two alternatively spliced isoforms.

REFERENCES

1. Fujino, T., et al. 1996. Molecular characterization and expression of rat acyl-CoA synthetase 3. J. Biol. Chem. 271: 16748-16752.
2. Pei, Z., et al. 2004. Mouse very long-chain Acyl-CoA synthetase 3/fatty acid transport protein 3 catalyzes fatty acid activation but not fatty acid transport in MA-10 cells. J. Biol. Chem. 279: 54454-54462.
3. Watkins, P.A., et al. 2007. Evidence for 26 distinct acyl-coenzyme A synthetase genes in the human genome. J. Lipid Res. 48: 2736-2750.
4. Bhalla, K., et al. 2008. Alterations in CDH15 and KIRREL3 in patients with mild to severe intellectual disability. Am. J. Hum. Genet. 83: 703-713.
5. Zhang, E.E., et al. 2009. A genome-wide RNAi screen for modifiers of the circadian clock in human cells. Cell 139: 199-210.
6. Forner, F., et al. 2009. Proteome differences between brown and white fat mitochondria reveal specialized metabolic functions. Cell Metab. 10: 324-335.
7. SWISS-PROT/TrEMBL (Q4G176). World Wide Web URL: http://www.uniprot.org/uniprot/Q4G176

CHROMOSOMAL LOCATION

Genetic locus: ACSF3 (human) mapping to 16q24.3.

PRODUCT

ACSF3 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 ACSF3 shRNA Plasmid (h): sc-93074-SH and ACSF3 shRNA (h) Lentiviral Particles: sc-93074-V as alternate gene silencing products.

For independent verification of ACSF3 (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-93074A, sc-93074B and sc-93074C.

PROTOCOLS

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

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

ACSF3 siRNA (h) is recommended for the inhibition of ACSF3 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.

GENE EXPRESSION MONITORING

ACSF3 (F-5): sc-398650 is recommended as a control antibody for monitoring of ACSF3 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-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (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 ACSF3 gene expression knockdown using RT-PCR Primer: ACSF3 (h)-PR: sc-93074-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.