SANTA CRUZ BIOTECHNOLOGY, INC.

ACSF1 siRNA (h): sc-96244

BACKGROUND

ACSF1 (acetoacetyl-CoA synthetase), also known as AACS or SUR-5, is a 672 amino acid protein belonging to the ATP-dependent AMP-binding enzyme family. Encoded by a gene that maps to human chromosome 12q24.31, ACSF1 is highly expressed in kidney, heart and brain, and shows similar neural expression as HMGCR (3-hydroxy-3-methylglutaryl-CoA reductase). Existing as three alternatively spliced isoforms, ACSF1 participates in ATP binding, ligase activity, acetoacetate-CoA ligase activity and nucleotide binding. The ACSF1 promoter is a known PPARγ target gene, with the nuclear receptor recruited to the ACSF1 promoter by direct interaction with stimulating protein-1 (Sp1). ACSF1 activates acetoacetate and is highly regulated by modulators that affect HMGCR and cholesterol biosynthesis.

REFERENCES

1. Stern, J.R. 1971. A role of acetoacetyl-CoA synthetase in acetoacetate utilization by rat liver cell fractions. Biochem. Biophys. Res. Commun. 44: 1001-1007.
2. Buckley, B.M., et al. 1975. Acetoacetyl-CoA synthetase; a lipogenic enzyme in rat tissues. FEBS Lett. 60: 7-10.
3. Fukui, T., et al. 1982. Purification and characterization of acetoacetyl-CoA synthetase from Zoogloea ramigera I-16-M. Eur. J. Biochem. 127: 423-428.
4. Ito, M., et al. 1984. Purification and characterization of acetoacetyl-CoA synthetase from rat liver. Biochim. Biophys. Acta 794: 183-193.
5. Bergstrom, J.D., et al. 1984. The regulation of acetoacetyl-CoA synthetase activity by modulators of cholesterol synthesis *in vivo* and the utilization of acetoacetate for cholesterogenesis. J. Biol. Chem. 259: 14548-14553.
6. Ito, M., et al. 1986. Acetoacetyl-CoA synthetase specific activity and concentration in rat tissues. Biochim. Biophys. Acta 876: 280-287.
7. Ohgami, M., et al. 2003. Expression of acetoacetyl-CoA synthetase, a novel cytosolic ketone body-utilizing enzyme, in human brain. Biochem. Pharmacol. 65: 989-994.

CHROMOSOMAL LOCATION

Genetic locus: AACS (human) mapping to 12q24.31.

PRODUCT

ACSF1 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 ACSF1 shRNA Plasmid (h): sc-96244-SH and ACSF1 shRNA (h) Lentiviral Particles: sc-96244-V as alternate gene silencing products.

For independent verification of ACSF1 (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-96244A, sc-96244B and sc-96244C.

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

ACSF1 siRNA (h) is recommended for the inhibition of ACSF1 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 ACSF1 gene expression knockdown using RT-PCR Primer: ACSF1 (h)-PR: sc-96244-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.