SANTA CRUZ BIOTECHNOLOGY, INC.

ACAA1 siRNA (h): sc-78077

BACKGROUND

Mammalian tissues contain five types of thiolases, all of which participate in the metabolism of various compounds throughout the body. ACAA1 (acetyl-coenzyme A acyltransferase 1), also known as Peroxisomal 3-oxoacyl-CoA thiolase, is a 424 amino acid member of the thiolase family of enzymes and is involved in lipid metabolism. Localized to the peroxisome, ACAA1 catalyzes the conversion of acyl-CoA and acetyl-CoA to 3-oxoacyl-CoA in the fatty acid oxidation pathway. ACAA1 shows high enzymatic activity in liver, kidney, intestine and white adipose tissue in rats, where it exists as two types, namely type A and type B. Human ACAA1 shares 86% amino acid identity with its rat counterpart, suggesting a conserved function for ACAA1 among different species.

REFERENCES

1. Miyazawa, S., et al. 1981. Properties of peroxisomal 3-ketoacyl-coA thiolase from rat liver. J. Biochem. 90: 511-519.
2. Hijikata, M., et al. 1987. Structural analysis of cDNA for rat peroxisomal 3-ketoacyl-CoA thiolase. J. Biol. Chem. 262: 8151-8158.
3. Bodnar, A.G. and Rachubinski, R.A. 1990. Cloning and sequence determination of cDNA encoding a second rat liver peroxisomal 3-ketoacyl-CoA thiolase. Gene 91: 193-199.
4. Hijikata, M., et al. 1990. Rat peroxisomal 3-ketoacyl-CoA thiolase gene. Occurrence of two closely related but differentially regulated genes. J. Biol. Chem. 265: 4600-4606.
5. Swinkels, B.W., et al. 1991. A novel, cleavable peroxisomal targeting signal at the amino-terminus of the rat 3-ketoacyl-CoA thiolase. EMBO J. 10: 3255-3262.
6. Chevillard, G., et al. 2004. Molecular cloning, gene structure and expression profile of two mouse peroxisomal 3-ketoacyl-CoA thiolase genes. BMC Biochem. 5: 3.

CHROMOSOMAL LOCATION

Genetic locus: ACAA1 (human) mapping to 3p22.2.

PRODUCT

ACAA1 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 ACAA1 shRNA Plasmid (h): sc-78077-SH and ACAA1 shRNA (h) Lentiviral Particles: sc-78077-V as alternate gene silencing products.

For independent verification of ACAA1 (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-78077A, sc-78077B and sc-78077C.

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

ACAA1 siRNA (h) is recommended for the inhibition of ACAA1 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

ACAA1 (C-8): sc-514051 is recommended as a control antibody for monitoring of ACAA1 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 ACAA1 gene expression knockdown using RT-PCR Primer: ACAA1 (h)-PR: sc-78077-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.