

# ACAA2 siRNA (h): sc-72424

## BACKGROUND

Mammalian tissues contain five types of thiolases, all of which participate in metabolism of various compounds throughout the body. ACAA2 (acetyl-coenzyme A acyltransferase 2), also known as DSAEC, is a 397 amino acid member of the thiolase family of enzymes and is involved in lipid metabolism. Localized to the mitochondrion, ACAA2 catalyzes the last step, namely the conversion of acetyl-CoA to 3-oxoacyl-CoA, in the fatty acid oxidation pathway. ACAA2 is highly expressed in liver, fibroblasts and intercostal muscle and contains an N-terminal targeting signal that, unlike other mitochondrial proteins, is non-cleavable. Human ACAA2 shares 86.6% amino acid identity with its rat counterpart, suggesting a conserved function for ACAA2 among different species.

## REFERENCES

1. Abe, H., Ohtake, A., Yamamoto, S., Satoh, Y., Takayanagi, M., Amaya, Y., Takiguchi, M., Sakuraba, H., Suzuki, Y. and Mori, M. 1993. Cloning and sequence analysis of a full length cDNA encoding human mitochondrial 3-oxoacyl-CoA thiolase. *Biochim. Biophys. Acta.* 1216: 304-306.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604770. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Doi, M., Kondo, Y. and Tsutsumi, K. 2003. Lipoprotein lipase activator NO-1886 (ibrolipim) accelerates the mRNA expression of fatty acid oxidation-related enzymes in rat liver. *Metab. Clin. Exp.* 52: 1547-1550.
4. Aboulaich, N., Vainonen, J.P., Stralfors, P. and Vener, A.V. 2004. Vectorial proteomics reveal targeting, phosphorylation and specific fragmentation of polymerase I and transcript release factor (PTRF) at the surface of caveolae in human adipocytes. *Biochem. J.* 383: 237-248.
5. de Boer, V.C., van Schothorst, E.M., Dihal, A.A., van der Woude, H., Arts, I.C., Rietjens, I.M., Hollman, P.C. and Keijer, J. 2006. Chronic quercetin exposure affects fatty acid catabolism in rat lung. *Cell. Mol. Life Sci.* 63: 2847-2858.

## CHROMOSOMAL LOCATION

Genetic locus: ACAA2 (human) mapping to 18q21.1.

## PRODUCT

ACAA2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ACAA2 shRNA Plasmid (h): sc-72424-SH and ACAA2 shRNA (h) Lentiviral Particles: sc-72424-V as alternate gene silencing products.

For independent verification of ACAA2 (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-72424A, sc-72424B and sc-72424C.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

ACAA2 siRNA (h) is recommended for the inhibition of ACAA2 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  $\mu$ M in 66  $\mu$ l. 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

ACAA2 (192): sc-100847 is recommended as a control antibody for monitoring of ACAA2 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 ACAA2 gene expression knockdown using RT-PCR Primer: ACAA2 (h)-PR: sc-72424-PR (20  $\mu$ l). 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.