

# ACAT-2 (4A5): sc-293307

## BACKGROUND

ACAT-1 (acetyl-coenzyme A acetyltransferase 1), also known as acetoacetyl coenzyme A thiolase or mitochondrial acetoacetyl-CoA thiolase, is an enzyme involved in the formation and degradation of ketone bodies and is necessary for the proper metabolic processing of isoleucine. ACAT-2 (acetyl-CoA acetyltransferase 2), also known as acetyl-CoA transferase-like protein or cytosolic acetoacetyl-CoA thiolase, is a 397 amino acid protein that belongs to the thiolase family and exists as a homotetramer. Both acetoacetyl-CoA specific thiolases, ACAT-1 and ACAT-2, catalyze the formation of acetoacetyl-CoA from two acetyl-CoA molecules. These enzymes are also capable of the reverse reaction, the cleavage of acetoacetyl-CoA into two acetyl-CoA molecules.

## REFERENCES

- Groot, C.J., et al. 1977. A patient with severe neurologic symptoms and acetoacetyl-CoA thiolase deficiency. *Pediatr. Res.* 11: 1112-1116.
- Willison, K., et al. 1987. The human homologue of the mouse t-complex gene, TCP1, is located on chromosome 6 but is not near the HLA region. *EMBO J.* 6: 1967-1974.
- Igual, J.C., et al. 1992. Phylogenetic analysis of the thiolase family. Implications for the evolutionary origin of peroxisomes. *J. Mol. Evol.* 35: 147-155.
- Ashworth, A. 1993. Two acetyl-CoA acetyltransferase genes located in the t-complex region of mouse chromosome 17 partially overlap the *Tcp-1* and *Tcp-1x* genes. *Genomics* 18: 195-198.
- Song, X.Q., et al. 1994. Molecular cloning and nucleotide sequence of complementary DNA for human hepatic cytosolic acetoacetyl-coenzyme A thiolase. *Biochem. Biophys. Res. Commun.* 201: 478-485.
- Masuno, M., et al. 1996. Assignment of the human cytosolic acetoacetyl-coenzyme A thiolase (ACAT2) gene to chromosome 6q25.3-q26. *Genomics* 36: 217-218.
- Haapalainen, A.M., et al. 2007. Crystallographic and kinetic studies of human mitochondrial acetoacetyl-CoA thiolase: the importance of potassium and chloride ions for its structure and function. *Biochemistry* 46: 4305-4321.

## CHROMOSOMAL LOCATION

Genetic locus: ACAT2 (human) mapping to 6q25.3; *Acat2* (mouse) mapping to 17 A1.

## SOURCE

ACAT-2 (4A5) is a mouse monoclonal antibody raised against amino acids 1-397 representing full length ACAT-2 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## APPLICATIONS

ACAT-2 (4A5) is recommended for detection of ACAT-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ACAT-2 siRNA (h): sc-61908, ACAT-2 siRNA (m): sc-61909, ACAT-2 shRNA Plasmid (h): sc-61908-SH, ACAT-2 shRNA Plasmid (m): sc-61909-SH, ACAT-2 shRNA (h) Lentiviral Particles: sc-61908-V and ACAT-2 shRNA (m) Lentiviral Particles: sc-61909-V.

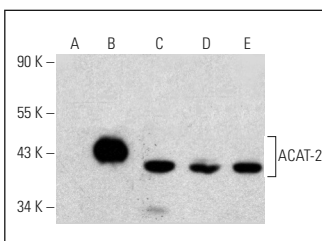
Molecular Weight of ACAT-2: 41 kDa.

Positive Controls: ACAT-2 (m): 293T Lysate: sc-118189, Hep G2 cell lysate: sc-2227 or Jurkat whole cell lysate: sc-2204.

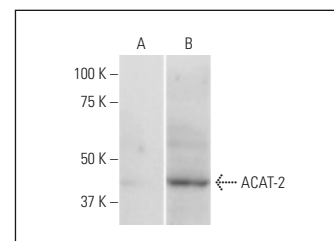
## RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



ACAT-2 (4A5): sc-293307. Western blot analysis of ACAT-2 expression in non-transfected 293T: sc-117752 (A), mouse ACAT-2 transfected 293T: sc-118189 (B), Hep G2 (C) and Jurkat (D) whole cell lysates and mouse liver tissue extract (E).



ACAT-2 (4A5): sc-293307. Western blot analysis of ACAT-2 expression in non-transfected (A) and ACAT-2 transfected (B) 293T whole cell lysates.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or for detailed protocols and support products.