Revision 1

Store at -20C

#44276

ACAT1 Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	42	Rabbit	#P24752	38

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

ACAT1 Antibody recognizes endogenous levels of total ACAT1 protein. This antibody does not cross-react with ACAT2 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human ACAT1 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Mitochondrial acetyl-coenzyme A (CoA) acetyltransferase 1 (ACAT1) plays a pivotal role in ketogenesis and branched chain amino acid metabolism (1-3). Research studies have demonstrated that ACAT1 also plays a key role in carbohydrate metabolism of tumor cells by directly acetylating and inhibiting the activity of the pyruvate dehydrogenase complex (PDH) and PDH phosphatase, which leads to decreased carbon flux through PDH and increased glycolysis (4,5). Mechanistically, it has been shown that numerous oncogenic tyrosine kinases directly phosphorylate ACAT1 at Y407, which promotes tetramerization and stabilization of the active enzyme in order to drive glycolysis and tumor growth (5).

Background References

1. Balasse, E.O. and Féry, F. (1989) *Diabetes Metab Rev* 5, 247-70.
2. Pohl, J. et al. (2006) *Eur J Gastroenterol Hepatol* 18, 69-74.
3. Haapalainen, A.M. et al. (2007) *Biochemistry* 46, 4305-21.
4. Fan, J. et al. (2014) *Mol Cell* 53, 534-48.
5. Fan, J. et al. (2016) *Mol Cell* 64, 859-874.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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Limited Uses

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