SANTA CRUZ BIOTECHNOLOGY, INC.

SOAT1 (ACAT-1): sc-69836

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

SOAT1 (sterol O-acyltransferase-1), also designated ACAT1, is a homotetrameric enzyme that catalyzes the formation of cholesterol esters from cholesterol and long chain fatty acyl-coenzyme A (acyl-CoA). The gene encoding human SOAT1 maps to chromosome 1 and is expressed as a protein that localizes to the endoplasmic reticulum (ER) in several tissues, including liver, kidney, adrenal glands and macrophages. SOAT1 is involved in cellular cholesterol homeostasis as well as in foam cell formation and the subsequent progression of atherosclerosis. Several SOAT inhibitors have been developed for the treatment of atherosclerosis. SOAT2 (sterol O-acyltransferase-2), also known as ACAT2 (acyl-CoA:cholesterol acyltransferase-2), participates in lipoprotein assembly, catalyzing cholesterol esterification in mammalian cells. SOAT2 is an integral membrane protein that localizes to the endoplasmic reticulum of human intestinal cells. SOAT2 deficiency contributes to severe mental retardation and hypotonus.

CHROMOSOMAL LOCATION

Genetic locus: SOAT1 (human) mapping to 1q25.2.

SOURCE

SOAT1 (ACAT-1) is a mouse monoclonal antibody raised against recombinant protein corresponding to amino acids 1-131 of SOAT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SOAT1 (ACAT-1) is available conjugated to agarose (sc-69836 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-69836 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-69836 PE), fluorescein (sc-69836 FITC), Alexa Fluor® 488 (sc-69836 AF488), Alexa Fluor® 546 (sc-69836 AF546), Alexa Fluor® 594 (sc-69836 AF594) or Alexa Fluor® 647 (sc-69836 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-69836 AF680) or Alexa Fluor® 790 (sc-69836 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

SOAT1 (ACAT-1) is recommended for detection of SOAT1 of 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for SOAT1 siRNA (h): sc-29624, SOAT1 shRNA Plasmid (h): sc-29624-SH and SOAT1 shRNA (h) Lentiviral Particles: sc-29624-V.

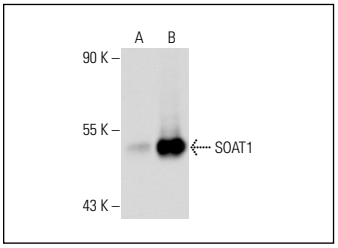
Molecular Weight of SOAT1: 50 kDa.

Positive Controls: SOAT1 (h): 293T Lysate: sc-113987 or THP-1 cell lysate: sc-2238.

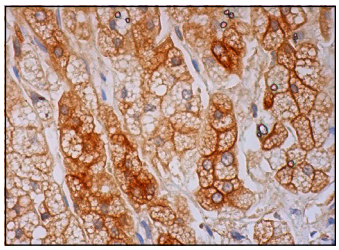
STORAGE

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

DATA



SOAT1 (ACAT-1): sc-69836. Western blot analysis of SOAT1 expression in non-transfected: sc-117752 (**A**) and human SOAT1 transfected: sc-113987 (**B**) 293T whole cell lysates.



SOAT1 (ACAT-1): sc-69836. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Qiao, Y., et al. 2015. Oxidized-low density lipoprotein accumulates cholesterol esters via the PKCα-adipophilin-ACAT1 pathway in RAW 264.7 cells. Mol. Med. Rep. 12: 3599-3606.
2. Geng, F., et al. 2016. Inhibition of SOAT1 suppresses glioblastoma growth via blocking SREBP-1-mediated lipogenesis. Clin. Cancer Res. 22: 5337-5348.
3. Ruhanen, H., et al. 2020. ANGPTL3 deficiency alters the lipid profile and metabolism of cultured hepatocytes and human lipoproteins. Biochim. Biophys. Acta Mol. Cell Biol. Lipids 1865: 158679.
4. van Koetsveld, P.M., et al. 2020. The efficacy of mitotane in human primary adrenocortical carcinoma cultures. J. Clin. Endocrinol. Metab. 105: 407-417.
5. Biswas, D., et al. 2020. Adverse outcomes in obese cardiac surgery patients correlates with altered branched-chain amino acid catabolism in adipose tissue and heart. Front. Endocrinol. 11: 534.
6. Guo, X., et al. 2022. Comprehensive analysis of sterol O-acyltransferase 1 as a prognostic biomarker and its association with immune infiltration in glioma. Front. Oncol. 12: 896433.
7. Warde, K.M., et al. 2022. Mitotane targets lipid droplets to induce lipolysis in adrenocortical carcinoma. Endocrinology 163: bqac102.
8. Zipinotti Dos Santos, D., et al. 2022. Atorvastatin improves cisplatin sensitivity through modulation of cholesteryl ester homeostasis in breast cancer cells. Discov. Oncol. 13: 135.
9. Liu, X., et al. 2022. Targeting LIPA independent of its lipase activity is a therapeutic strategy in solid tumors via induction of endoplasmic reticulum stress. Nat. Cancer 3: 866-884.

RESEARCH USE

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