abcam

ab110290

Anti-ACAT1 antibody [9H10AB4]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Clone number	9H10AB4
Purification technique	Precipitation Ammonium Sulphate
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purity near homogeneity as judge by SDS-PAGE. The antibody was produced in-vitro using hybridomas grown in serum-free medium and then purified by biochemical fractionation.

Reactivity data

ICC

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	Perform heat mediated antigen retrieval via the pressure cooker method (1 minute, with 1 mmol EDTA at pH8) before commencing with IHC staining protocol.

Target data

See full target information ACAT1

Function This is one of the enzymes that catalyzes the last step of the mitochondrial beta-oxidation pathway, an aerobic process breaking down fatty acids into acetyl-CoA (PubMed:1715688, PubMed:7728148, PubMed:9744475). Using free coenzyme A/CoA, catalyzes the thiolytic cleavage of medium- to long-chain 3-oxoacyl-CoAs into acetyl-CoA and a fatty acyl-CoA shortened by two carbon atoms (PubMed:1715688, PubMed:7728148, PubMed:9744475). The activity of the enzyme is reversible and it can also catalyze the condensation of two acetyl-CoA molecules into acetoacetyl-CoA (PubMed:17371050). Thereby, it plays a major role in ketone body metabolism (PubMed:1715688, PubMed:17371050, PubMed:7728148, PubMed:9744475).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	ACAT1 also known as acyl-CoA:cholesterol acyltransferase 1 is an enzyme that catalyzes the formation of cholesteryl esters from cholesterol and long-chain fatty acyl-CoA. It has a molecular mass of approximately 50 kDa. ACAT1 is present in the endoplasmic reticulum membrane and is expressed widely including in liver adrenal glands and macrophages. The enzyme's activity is significant in lipid metabolism storing cholesterol as cholesteryl esters.
Biological function summary	ACAT1 plays a central role in cellular cholesterol homeostasis and in preventing cholesterol-induced cytotoxicity by converting free cholesterol into inert cholesteryl esters for storage. It functions as a homotetramer suggesting that it works as a part of a larger protein complex. ACAT1 influences lipid accumulation within cells and mediates the regulation of cholesterol levels which is vital for maintaining membrane integrity and cellular function.
Pathways	ACAT1 participates in the cholesterol metabolism pathway and the lipid biosynthesis pathway. It interacts with proteins such as LDLR (low-density lipoprotein receptor) by controlling the availability of free cholesterol within cells. These pathways are critical in maintaining lipid balance and influencing lipoprotein metabolism. ACAT1's enzymatic activity impacts how cells manage cholesterol influx and storage linking to broader lipid regulation networks.
Associated diseases and disorders	ACAT1 is associated with atherosclerosis and Alzheimer's disease. The conversion of cholesterol into cholesteryl esters affects the development of atherosclerotic plaques contributing to cardiovascular disease risk. In Alzheimer's disease ACAT1 may influence the accumulation of amyloid-beta a protein linked to the pathology of the disease. The protein APP (amyloid precursor protein) connects to ACAT1 as

disturbances in cholesterol metabolism can affect amyloid-beta production linking this enzyme to neurodegenerative conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

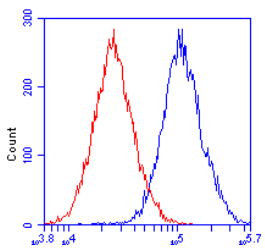
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

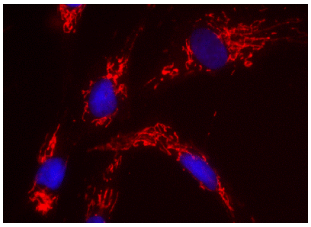
4 product images



Flow Cytometry - Anti-ACAT1 antibody [9H10AB4] (ab110290)

ACAT1 Flow Cytometry staining using mouse Anti-ACAT1 antibody

ab110290, at 1 µg/mL, staining ACAT1 in HeLa (blue) or in an isotype control antibody (red) and analyzed by flow cytometry.

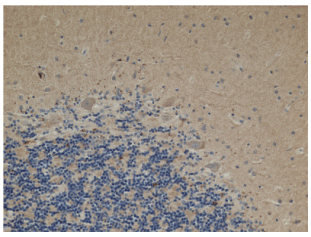


Immunocytochemistry - Anti-ACAT1 antibody [9H10AB4] (ab110290)

ACAT1 Immunocytochemistry staining using mouse Anti-ACAT1 antibody

Immunocytochemistry image of ab110290 stained human HDFn cells. The cells were paraformaldehyde fixed (4%, 20 min) and Triton X-100 permeabilized (0.1%, 15 min). The cells were incubated with the antibody (9H10AB4, 5 µg/ml) for 2 hours at room temperature or over night at 4°C. The secondary antibody was (red) Alexa Fluor® 594 goat anti-mouse IgG (H+L) used at

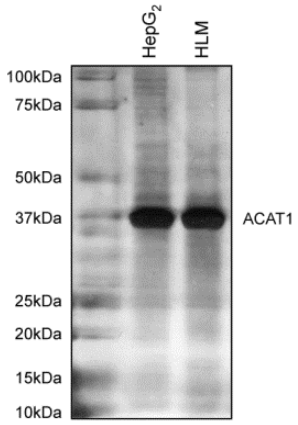
a 1/1000 dilution for 1 hour. 10% Goat serum was used as the blocking agent for all blocking steps. DAPI was used to stain the cell nuclei (blue). Target protein locates mainly in mitochondria.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACAT1 antibody [9H10AB4] (ab110290)

ACAT1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ACAT1 antibody

ACAT1 immunohistochemistry in human cerebellum visualized with ab110290. ACAT1 immunoactivity is most intense in neuronal cell bodies, most notably in the large Purkinje cells. Note the distinctive subcellular localization of ACAT1 immunoreactivity in the Purkinje cell bodies. The functional significance of this pattern is unknown at present but this antibody offers the opportunity to investigate it in more detail.



Immunoprecipitation - Anti-ACAT1 antibody [9H10AB4] (ab110290)

ab110290 immunocaptured from HepG2 cells (lane 1) and Human liver mitochondria (lane 2)

Predicted molecular weight is 44 kDa.
All lanes:
Immunoprecipitation - Anti-ACAT1 antibody [9H10AB4] (ab110290)

Predicted band size: 45 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.