abcam

ab312321

Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR28035-8
Purification technique	Affinity purification Protein A
Concentration	1.041 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human, Mouse
Dilution info	-

Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human, Mouse
Dilution info	-
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IP

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

Species	Human, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

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. 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. The activity of the enzyme is reversible and it can also catalyze the condensation of two acetyl-CoA molecules into acetoacetyl-CoA. Thereby, it plays a major role in ketone body metabolism.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Notes

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes,

oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

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

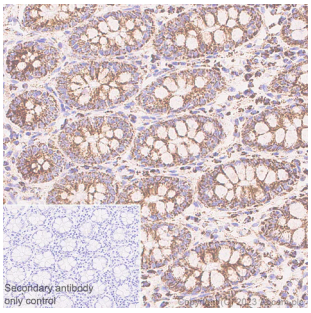
We do not recommend this combination. It is not covered by our product promise.

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.

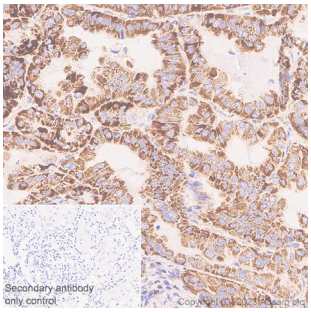
Full details and terms and conditions can be found here:
Terms & Conditions.

12 product images



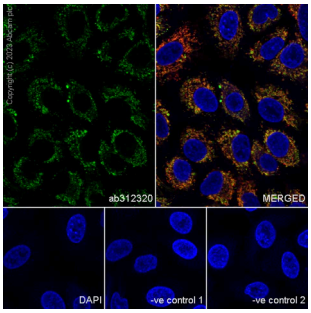
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

This data was developed using ab312320, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Human colon tissue labeling ACAT1 with ab312320 at 1/5000 (0.103 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human colon. The section was incubated with ab312320 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



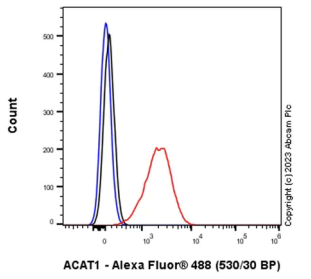
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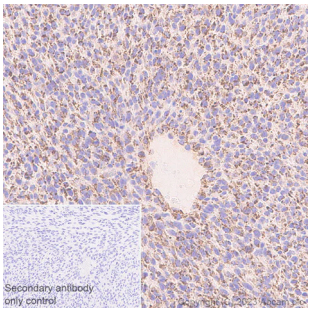
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This data was developed using ab312320, the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized A549 (human lung carcinoma epithelial cell) cells labelling ACAT1 with ab312320 at 1/500 (1.034 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2ug/ml dilution (Green). Confocal image showing mitochondrial staining in A549 cell line.Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). is observed. anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain tubulin at 1/1000 1ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2ug/ml dilution.



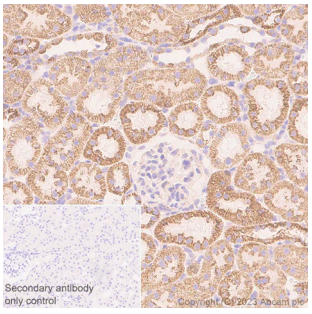
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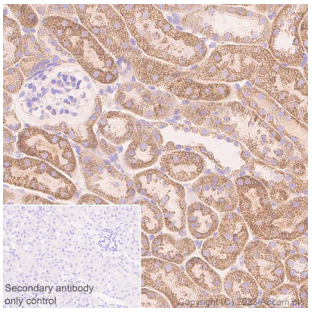
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This data was developed using ab312320, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Mouse squamous cell tissue labeling ACAT1 with ab312320 at 1/5000 (0.103 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on mouse squamous cell carcinoma. The section was incubated with ab312320 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



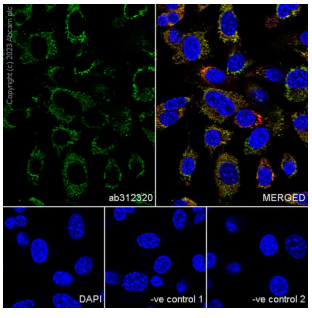
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This data was developed using ab312320, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Rat kidney tissue labeling ACAT1 with ab312320 at 1/5000 (0.103 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on rat kidney. The section was incubated with ab312320 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

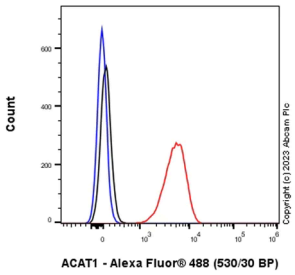
This data was developed using ab312320, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Mouse kidney tissue labeling ACAT1 with ab312320 at 1/5000 (0.103 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on mouse kidney. The section was incubated with ab312320 for 30 mins at room temperature.The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunocytochemistry/ Immunofluorescence - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

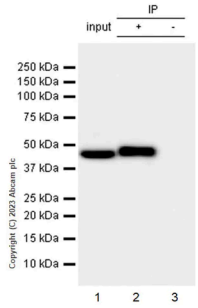
This data was developed using ab312320, the same antibody clone in a different buffer formulation. Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labelling ACAT1 with ab312320 at 1/500 (1.034 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2ug/ml dilution (Green). Confocal image showing mitochondrial staining in NIH/3T3 cell line.Image was taken with a confocal microscope(Leica-Microsystems, TCS

SP8). is observed. anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain tubulin at 1/1000 1ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2ug/ml dilution.



Flow Cytometry (Intracellular) - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

This data was developed using ab312320, the same antibody clone in a different buffer formulation. Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labelling ACAT1 with ab312320 at 1/500 dilution (0.1 ug)/Red (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

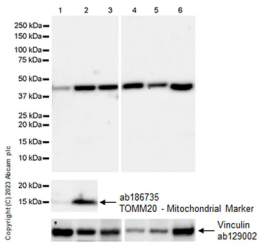
This data was developed using ab312320, the same antibody clone in a different buffer formulation. ACAT1 was immunoprecipitated from 0.35 mg NIH/3T3 (mouse embryonic fibroblast) whole cell lysate with ab312320 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab312320 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution. Lane 1: NIH/3T3 (mouse embryonic fibroblast) whole cell lysate Lane 2: ab312320 IP in NIH/3T3 (mouse embryonic fibroblast) whole cell lysate Lane 3:Rabbit monoclonal IgG (ab172730) instead of ab312320 in NIH/3T3 whole cell lysate Blocking and dilution buffer and concentration: 5% NFDM/TBST. Exposure time: 10 seconds
All lanes:
Immunoprecipitation - Anti-ACAT1 antibody [EPR28035-8] (ab312320) at 1/30 dilution

All lanes:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 10s



Western blot - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

ACAT1 Western blot staining using rabbit Anti-ACAT1 antibody

This data was developed using ab312320, the same antibody clone in a different buffer formulation. Blocking and diluting buffer and concentration: 5% NFDM/TBST Anti-TOMM20 antibody [EPR15581-54] (ab186735). In Western blot, anti-TOMM20 antibody [EPR15581-54] (ab186735) staining at 1/1000 dilution. Anti- Vinculin antibody (ab129002) loading control staining at 1/10000 dilution. Exposure time: 10 seconds.
All lanes:
Western blot - Anti-ACAT1 antibody [EPR28035-8] (ab312320) at 1/1000 dilution

Lane 1:

NIH/3T3 (mouse embryonic fibroblast) non-mitochondrial fraction at 20 µg

Lane 2:
NIH/3T3 mitochondria fraction at 20 µg

Lane 3:
Neuro-2a (mouse neuroblastoma neuroblast) whole cell lysate at 20 µg

Lane 4:
HepG2 (human hepatocellar carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 5:
A549 (human lu carcinoma epithelial cell) whole cell lysate at 20 µg

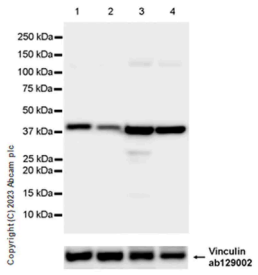
Lane 6:
PC-3 (human prostate adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 45 kDa

Exposure time: 10s



Western blot - Anti-ACAT1 antibody [EPR28035-8] - BSA and Azide free (ab312321)

ACAT1 Western blot staining using rabbit Anti-ACAT1 antibody

This data was developed using ab312320, the same antibody clone in a different buffer formulation. Blocking and diluting buffer and concentration: 5% NFDM/TBST In Western blot, anti-Vinculin antibody (ab129002) loading control staining at 1/10000 dilution. Exposure time: 8 seconds.
All lanes:
Western blot - Anti-ACAT1 antibody [EPR28035-8] (ab312320) at 1/1000 dilution

Lane 1:
NIH/3T3 (mouse embryonic fibroblast) transfected with scrambled siRNA control whole cell lysate at 20 µg

Lane 2:
NIH/3T3 transfected with siRNA specifically targeti ACAT1 whole cell lysate at 20 µg

Lane 3:
Mouse liver tissue lysate at 20 µg

Lane 4:
Rat liver tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 45 kDa

Exposure time: 8s

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