abcam

ab171449

Alexa Fluor® 488 Anti-CPT1A antibody [8F6AE9]

Anti-CPT1A antibody [8F6AE9] conjugated to Alexa Fluor® 488 - suitable for intracellular flow cytometry, ICC/IF, and reacts with human samples. Clone [8F6AE9] is a mouse monoclonal antibody cited in 6 publications.

Design your panel with our interactive flow cytometry panel builder. Click here.

KO Validated

Key facts

Isotype	IgG2b
Host species	Mouse
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	8F6AE9
Purification technique	Precipitation Ammonium Sulphate
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purity is near homogeneity as judged by SDS-PAGE. ab171449 was produced in vitro using hybridomas grown in serum-free medium, and then concentrated by ammonium sulfate precipitation.

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	5 µg/mL
Notes	ab171465 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Not recommended

Species	Cow
Dilution info	-
Notes	ab171465 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Species	Mouse
Dilution info	-
Notes	-

Species	Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Not recommended

Species	Cow, Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information CPT1A

Function	Catalyzes the transfer of the acyl group of long-chain fatty acid-CoA conjugates onto carnitine, an essential step for the mitochondrial uptake of long-chain fatty acids and their subsequent beta-oxidation in the mitochondrion (PubMed:11350182, PubMed:14517221, PubMed:16651524, PubMed:9691089). Also possesses a lysine succinyltransferase activity that can regulate enzymatic activity of substrate proteins such as ENO1 and metabolism independent of its classical carnitine O-palmitoyltransferase activity (PubMed:29425493). Plays an important role in hepatic triglyceride metabolism (By similarity). Also plays a role in inducible regulatory T-cell (iTreg) differentiation once activated by butyryl-CoA that antagonizes malonyl-CoA-mediated CPT1A repression (By similarity). Sustains the IFN-I response by recruiting ZDHCC4 to palmitoylate MAVS at the mitochondria leading to MAVS stabilization and activation (PubMed:38016475). Promotes ROS-induced oxidative stress in liver injury via modulation of NFE2L2 and NLRP3-mediated signaling pathways (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Avoid freeze / thaw cycle, Stable for 12 months at -20°C, Store in the dark

Notes

What is this antibody validated in?
Alexa Fluor® 488 Anti-CPT1A antibody [8F6AE9] (ab171449) is a mouse monoclonal antibody and is validated for use in Flow Cytometry (Intra), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

Trusted by the scientific community
Anti-CPT1A [8F6AE9] Alexa Fluor® 488 (ab171449) was first used in a scientific publication in 2013 and has been cited over 10 times in peer-reviewed journals.

Related products
Antibody clone 8F6AE9 is also available pre-conjugated to a variety of labels for your convenience – Anti-CPT1A Alexa Fluor® 488 [8F6AE9] (ab171449).

Specificity confirmed
The specificity of Alexa Fluor® 488 Anti-CPT1A antibody [8F6AE9] (ab171449) has been confirmed by Flow Cytometry testing in CPT1A Knockout HAP1 cells.

Other related products
We have a range of other formats of antibody clone [8F6AE9] also available for your convenience: ab128568, Alexa Fluor® 488 - ab171449, HRP - ab198494, Carrier free - ab300265

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Supplementary info

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

Activity summary	CPT1A also known as carnitine palmitoyltransferase 1A is a vital enzyme involved in the transport of long-chain fatty acids across the mitochondrial membrane. This protein facilitates the conversion of fatty acids into acyl-carnitine a process necessary for beta-oxidation within the mitochondria. The molecular weight of CPT1A is approximately 88 kDa. CPT1A predominantly expresses in liver cells where energy metabolism from fatty acids is important. Alternate names for this target include CPT 1 and CTP1A reflecting its central role in metabolic processes related to lipid utilization.
Biological function summary	CPT1A plays a vital role in energy production by facilitating mitochondrial fatty acid oxidation. It does not function as a solitary enzyme but often associates with other enzymes forming a multiprotein complex that includes acyl-CoA synthetase. This complex enables efficient fatty acid transport and oxidation converting stored fats into usable energy. As CPT1A primarily operates in the liver its activity significantly impacts overall lipid and energy homeostasis demonstrating its critical regulatory role.
Pathways	CPT1A is central to the fatty acid beta-oxidation pathway an important process for breaking down fatty acids to produce energy. This pathway also involves proteins such as CPT1B a related isoform present in muscle tissues. CPT1A's function is important in the liver's capacity to regulate energy balance and respond to metabolic demands. Additionally CPT1A interacts within the signaling pathway of AMPK (AMP-activated protein kinase) which further integrates it into broader metabolic regulation networks linking energy status to cellular function.
Associated diseases and disorders	CPT1A is notably associated with metabolic syndromes and fatty liver disease. Mutations or deficiencies in CPT1A can lead to disorders like hepatic carnitine palmitoyltransferase 1A deficiency characterized by hypoketotic hypoglycemia and hepatomegaly. Furthermore its dysregulation can impact proteins such as ACC1

(acetyl-CoA carboxylase) in the context of metabolic syndrome. Research continues to explore the implications of CPT1A in non-alcoholic steatohepatitis highlighting its relevance in liver energy metabolism disorders and their pathophysiology.

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

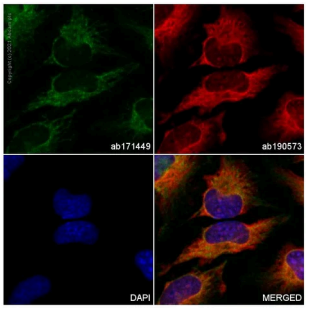
We do not recommend this combination. It is not covered by our product promise.

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.

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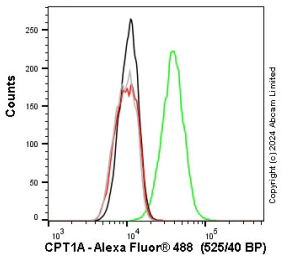
2 product images



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-CPT1A antibody [8F6AE9] (ab171449)

CPT1A Immunocytochemistry/ Immunofluorescence staining using mouse Anti-CPT1A antibody

ab171449 staining CPT1A in HeLa cells. The cells were fixed with 100% methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab171449 at 1/1000 dilution (shown in green) and ab190573, Rabbit monoclonal to alpha Tubulin (Alexa Fluor® 647), at 1/250 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-CPT1A antibody [8F6AE9] (ab171449)

CPT1A Flow Cytometry (Intracellular) staining using mouse Anti-CPT1A antibody

Flow cytometry overlay histogram showing wild-type HAP1 (green line) and CPT1A knockout HAP1 stained with ab171449 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab171449) (1x 106 in 100µl at 1.0 µg/ml (1/500)) for 30min at 22°C.

Isotype control antibody Alexa Fluor 488 Mouse IgG2b kappa [MPC-11] - Isotype Control was used at the same concentration and conditions as the primary antibody (wild-type HAP1 - black line, CPT1A knockout HAP1 - grey line). Unlabelled sample was also used as a control (this line is not shown for the purpose of simplicity).

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

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