abcam

ab225410

Alexa Fluor® 488 Anti-ABCD1/ALD antibody [EPR15929]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR15929
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/1000
Notes	This product gave a positive signal in HepG2 cells fixed with 4% formaldehyde (10 min) and 100% methanol (5 min)

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

Target data

See full target information ABCD1

Function	ATP-dependent transporter of the ATP-binding cassette (ABC) family involved in the transport of very long chain fatty acid (VLCFA)-CoA from the cytosol to the peroxisome lumen (PubMed:11248239, PubMed:15682271, PubMed:16946495, PubMed:18757502, PubMed:21145416, PubMed:23671276, PubMed:29397936, PubMed:33500543). Coupled to the ATP-dependent transporter activity also has a fatty acyl-CoA thioesterase activity (ACOT) and hydrolyzes VLCFA-CoA into VLCFA prior their ATP-dependent transport into peroxisomes, the ACOT activity is essential during this transport process (PubMed:29397936, PubMed:33500543). Thus, plays a role in regulation of VLCFAs and energy metabolism namely, in the degradation and biosynthesis of fatty acids by beta-oxidation, mitochondrial function and microsomal fatty acid elongation (PubMed:21145416,

PubMed:23671276). Involved in several processes; namely, controls the active myelination phase by negatively regulating the microsomal fatty acid elongation activity and may also play a role in axon and myelin maintenance. Also controls the cellular response to oxidative stress by regulating mitochondrial functions such as mitochondrial oxidative phosphorylation and depolarization. And finally controls the inflammatory response by positively regulating peroxisomal beta-oxidation of VLCFAs (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle, Stable for 12 months at -20°C, Store in the dark

Notes

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.

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Supplementary info

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

Activity summary	ABCD1 also known as the ABCD1 protein or ALD protein is encoded by the ABCD1 gene and belongs to the ATP-binding cassette (ABC) transporter family. It functions mechanically by transporting very long-chain fatty acids (VLCFAs) into peroxisomes where they can be metabolized. ABCD1 has a mass of approximately 80 kDa. Expression of ABCD1 is significant in tissues such as the liver adrenal glands and brain where it plays a role in lipid metabolism and cellular detoxification processes.
Biological function summary	ABCD1 contributes to the maintenance of normal fatty acid levels within cells. It is not known as part of a larger protein complex but it cooperates closely with other peroxisomal enzymes to facilitate the beta-oxidation of VLCFAs. This action ensures the breakdown of toxic compounds and has a significant role in maintaining cellular homeostasis. The proper function of ABCD1 is essential for preventing the accumulation of VLCFAs which can affect cellular function and viability.
Pathways	ABCD1 is integral to the metabolic pathway of peroxisomal beta-oxidation. This pathway is important for the degradation of excess VLCFAs which are otherwise difficult to break down in mitochondria. ABCD1 works in concert with related proteins such as ABCD2 and ABCD3 playing differentiated yet sometimes overlapping roles in lipid transport and metabolism. This cooperation is important for maintaining normal cellular metabolism and preventing lipid accumulation.
Associated diseases and disorders	Defects in ABCD1 are directly associated with X-linked adrenoleukodystrophy (X-ALD) a neurodegenerative disorder characterized by the accumulation of VLCFAs in tissues. This condition leads to severe neurological impairment due to the toxic buildup of these lipids which disrupts normal brain function. Additionally the ABCD1 protein's dysfunction can indirectly affect the function of other proteins involved in lipid metabolism potentially exacerbating conditions related to peroxisomal disorders.

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.

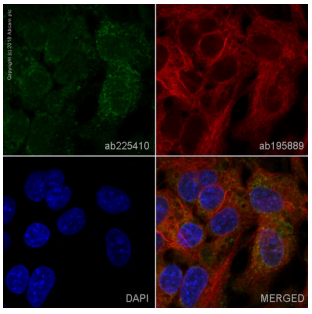
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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:
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2 product images

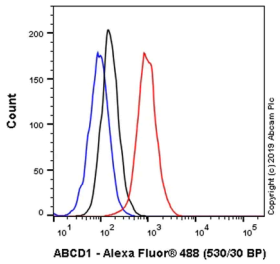


Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-ABCD1/ALD antibody [EPR15929] (ab225410)

ABCD1/ALD Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ABCD1/ALD antibody

ab225410 staining ABCD1/ALD in HepG2 cells. The cells were fixed with 100% methanol (5 min), 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 ab225410 at 1/1000 dilution (shown in green) and ab195889, Mouse monoclonal to alpha Tubulin (Alexa Fluor® 594), 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).

This product also gave a positive signal under the same testing conditions in HepG2 cells fixed with 4% formaldehyde (10 min).



Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-ABCD1/ALD antibody [EPR15929] (ab225410)

ABCD1/ALD Flow Cytometry (Intracellular) staining using rabbit Anti-ABCD1/ALD antibody

Overlay histogram showing HepG2 cells stained with ab225410 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab225410, 1/50 dilution) for 30 min at 22°C.
Isotype control antibody (black line) was Rabbit IgG (monoclonal) Alexa Fluor® 488 (ab199091) used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 50 mW Blue laser (488nm) and 530/30 bandpass filter.

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