abcam

ab109448

Anti-PMP70 antibody [EPR5614]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR5614
Purification technique	Affinity purification Protein A
Dissociation constant	4.1×10^{-11} M
Concentration	1.158 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/250
Notes	-

Species	Mouse
Dilution info	1/250
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100 - 1/500
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Mouse
Dilution info	1/100 - 1/500
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information ABCD3

Function Broad substrate specificity ATP-dependent transporter of the ATP-binding cassette (ABC) family that catalyzes the transport of long-chain fatty acids (LCFA)-CoA, dicarboxylic acids-CoA, long-branched-chain fatty acids-CoA and bile acids from the cytosol to the peroxisome lumen for beta-oxydation (PubMed:11248239, PubMed:24333844, PubMed:25168382, PubMed:29397936). Has fatty acyl-CoA thioesterase and ATPase activities (PubMed:29397936). Probably hydrolyzes fatty acyl-CoAs into free fatty acids prior to their ATP-dependent transport into peroxisomes (By similarity). Thus, play a role in regulation of LCFAs and energy

metabolism namely, in the degradation and biosynthesis of fatty acids by beta-oxidation (PubMed:24333844, PubMed:25944712).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Stable for 12 months at -20°C

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.

Supplementary info

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

Activity summary	PMP70 also known as ABCD3 is a peroxisomal membrane protein with a molecular weight of approximately 70 kDa. It belongs to the ATP-binding cassette (ABC) transporter family and localizes on the peroxisomal membrane predominantly expressed in liver kidney and testes. PMP70 plays an important mechanical role in the transportation of very long-chain fatty acids (VLCFAs) across the peroxisomal membrane.
Biological function summary	This protein operates as part of a heterodimeric complex with its related transporter protein ALDP (ABCD1). PMP70 facilitates the import of VLCFAs into peroxisomes which are then subjected to β-oxidation. By doing this PMP70 contributes significantly to the metabolism of lipids maintaining internal cellular homeostasis.

Pathways	PMP70 integrates into the peroxisomal β-oxidation pathway alongside other proteins such as ALDP and ACSVL1. It ensures the proper flux of VLCFAs into peroxisomes which is essential for their breakdown and energy production. The protein also interacts with metabolic pathways linked to lipid biosynthesis and degradation illustrating its multifaceted role in cellular lipid management.
Associated diseases and disorders	PMP70's dysfunction relates to X-linked adrenoleukodystrophy (X-ALD) a severe genetic disorder affecting the nervous system and adrenal glands. Mutations in PMP70 and related proteins particularly ALDP disrupt VLCFA degradation leading to toxic accumulation. This highlights the clinical significance of PMP70 and its potential as a therapeutic target in metabolic and neurodegenerative diseases.

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

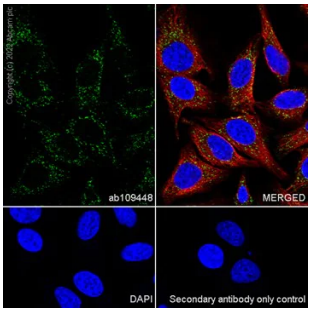
We do not recommend this combination. It is not covered by our product promise.

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.

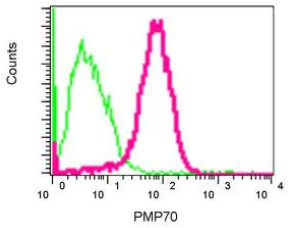
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody [EPR5614] (ab109448)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

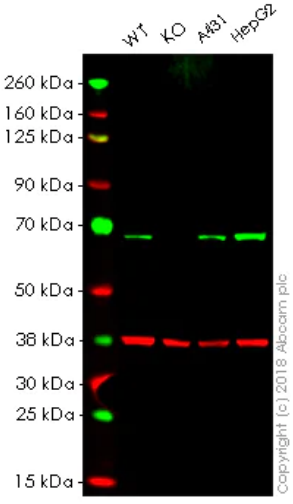
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labelling PMP70 with primary antibody anti-PMP70 (ab109448) at 1/250 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 594) (ab150081) secondary antibody at 1/1000 dilution (2.0 µg/mL). Confocal image showing cytoplasmic staining on HeLa cells. Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) (ab195889) was used to counterstain tubulin at 1/200 dilution (2.5 µg/mL). The nuclear counter stain is DAPI (blue).
The secondary antibody only control is : Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 594) at 1/1000 dilution (2.0 µg/mL).



Flow Cytometry (Intracellular) - Anti-PMP70 antibody [EPR5614] (ab109448)

PMP70 Flow Cytometry (Intracellular) staining using rabbit Anti-PMP70 antibody

ab109448 at 1/100 dilution staining PMP70 in permeabilized HepG2 cells by intracellular flow cytometry (shown in red). Rabbit IgG negative control (shown in green).



Western blot - Anti-PMP70 antibody [EPR5614] (ab109448)

PMP70 Western blot staining using rabbit Anti-PMP70 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab109448 observed at 75 kDa. Red - loading control, ab9484, observed at 37 kDa.
ab109448 was shown to specifically react with PMP70 in wild-type HAP1 cells as signal was lost in ABCD3 (PMP70) knockout cells. Wild-type and ABCD3 (PMP70) knockout samples were subjected to SDS-PAGE. ab109448 and ab9484 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-PMP70 antibody [EPR5614] (ab109448) at 1/1000 dilution

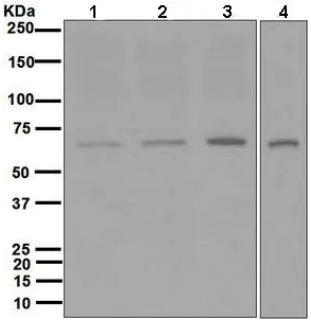
Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
ABCD3 (PMP70) knockout HAP1 whole cell lysate at 20 µg

Lane 3:
A431 whole cell lysate at 20 µg

Lane 4:
HEPG2 whole cell lysate at 20 µg

Predicted band size: 75 kDa



Western blot - Anti-PMP70 antibody [EPR5614] (ab109448)

All lanes:
Western blot - Anti-PMP70 antibody [EPR5614] (ab109448) at 1/1000 dilution

Lane 1:
293T cell lysate at 10 µg

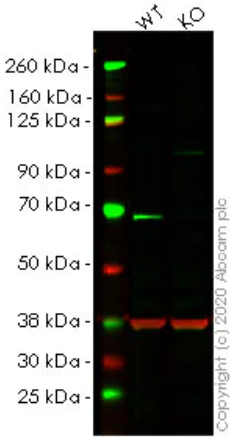
Lane 2:
SH SY5Y cell lysate at 10 µg

Lane 3:
Caco2 cell lysate at 10 µg

Lane 4:
HepG2 cell lysate at 10 µg

Predicted band size: 75 kDa

Observed band size: 70 kDa



Western blot - Anti-PMP70 antibody [EPR5614] (ab109448)

Lanes 1- 2: Merged signal (red and green). Green - ab109448 observed at 75 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab109448 was shown to react with PMP70 in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab265294 (knockout cell lysate ab257134) was used. Wild-type HeLa and ABCD3 knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab109448 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye®800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye®680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-PMP70 antibody [EPR5614] (ab109448) at 1/1000 dilution

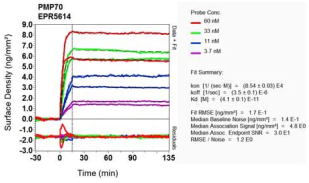
Lane 1:
Wild-type HeLa cell lysate at 40 µg

Lane 2:
ABCD3 knockout HeLa cell lysate at 40 µg

Performed under reducing conditions.

Predicted band size: 75 kDa

Observed band size: 75 kDa



OI-RD Scanning - Anti-PMP70 antibody [EPR5614] (ab109448)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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