abcam

ab3421

Anti-PMP70 antibody

Anti-PMP70 antibody (ab3421) is a rabbit polyclonal antibody detecting PMP70 in **Western Blot, Flow Cytometry, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Over 50 publications
- Trusted since 2003

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS, 0.1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Rat Abcd3 aa 600 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P16970
Purification technique	Affinity purification Immunogen
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Mouse
Dilution info	-
Notes	0.5ug/test.

	ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	-
Notes	0.5ug/test. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/500
Notes	70kDa band represents PMP 70 from peroxisome-enriched fractions from L cells.

Species	Rat
Dilution info	1/500
Notes	70kDa band represents PMP 70 from peroxisome-enriched fractions from L cells.

Expected

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

IHC-P

Tested

Species	Human

Dilution info	1/500
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	1-10 µg/mL
Notes	-

Species	Human
Dilution info	1-10 µg/mL
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
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. Has fatty acyl-CoA thioesterase and ATPase activities (By similarity). 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:10207018).

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

Notes

What is this antibody validated in?
Anti-PMP70 antibody (ab3421) is a rabbit polyclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

Trusted by the scientific community
Anti-PMP70 (ab3421) was first used in a scientific publication in 2003 and has been cited over 50 times in peer-reviewed journals.

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 B-oxidation. By doing this PMP70 contributes significantly to the metabolism of lipids maintaining internal cellular homeostasis.

Pathways	PMP70 integrates into the peroxisomal B-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

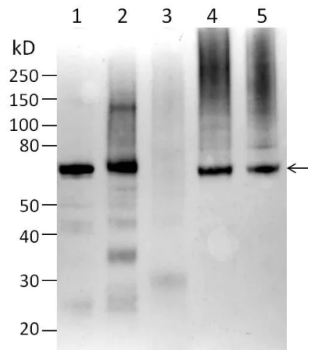
We do not recommend this combination. It is not covered by our product promise.

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.

14 product images



Western blot - Anti-PMP70 antibody (ab3421)

All lanes:
Western blot - Anti-PMP70 antibody (ab3421) at 1/500 dilution

Lane 1:
Rat kidney tissue lysate at 20 µg

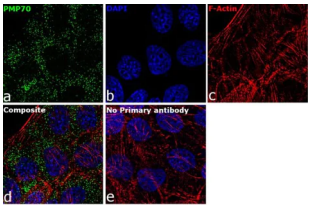
Lane 2:
Rat liver tissue lysate at 20 µg

Lane 3:
Mouse lung tissue lysate at 20 µg

Lane 4:
A431 (Human epidermoid carcinoma cell line) whole cell lysate at 10 µg

Lane 5:
U-2 OS (Human bone osteosarcoma epithelial cell line) whole cell lysate at 10 µg

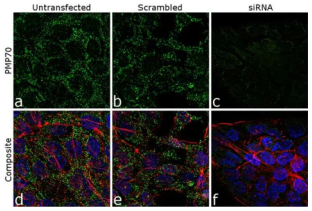
Predicted band size: 75 kDa



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

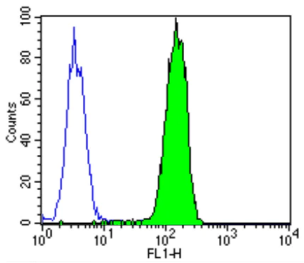
Immunofluorescence analysis of PMP70 was performed using 70% confluent log phase A431 (Human epidermoid carcinoma cell line) cells. The cells were fixed with 4% paraformaldehyde for 10 minutes, permeabilized with 0.1% Triton™ X-100 for 15 minutes, and blocked with 2% BSA for 1 hour at room temperature. The cells were labeled with ab3421 at 5 µg/ml in 0.1% BSA, incubated at 4 degree celsius overnight and then labeled with Goat anti-Rabbit IgG (H+L), Superclonal™ Recombinant Secondary Antibody, Alexa Fluor 488 at a dilution of 1:2000 for 45 minutes at room temperature (Panel a: green). Nuclei (Panel b: blue) were stained with ProLong™ Diamond Antifade Mountant with DAPI. F-actin (Panel c: red) was stained with Rhodamine Phalloidin. Panel d represents the merged image showing cytoplasmic (peroxisomal pattern) localization. Panel e represents control cells with no primary antibody to assess background. The images were captured at 60X magnification.



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

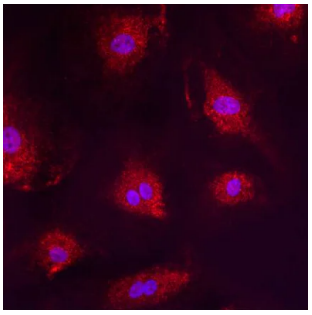
Knockdown of PMP70 was achieved by transfecting A431 (Human epidermoid carcinoma cell line) cells with PMP70 specific siRNA. Immunofluorescence analysis was performed on A-431 cells (untransfected, panel a,d), transfected with non-specific scrambled siRNA (panels b,e) and transfected with PMP70 specific siRNA (panel c,f). Cells were fixed, permeabilized, and labelled with PMP70 Rabbit Polyclonal Antibody (5 µg/ml), followed by Goat anti-Rabbit IgG (H+L) Superclonal™ Recombinant Secondary Antibody, Alexa Fluor® 488 (1:2000). Nuclei (blue) were stained using ProLong™ Diamond Antifade Mountant with DAPI, and Rhodamine Phalloidin (1:300) was used for cytoskeletal F-actin (red) staining. Reduction of specific signal was observed upon siRNA mediated knockdown (panel c,f) confirming specificity of the antibody to PMP70 (green). The images were captured at 60X magnification.



Flow Cytometry - Anti-PMP70 antibody (ab3421)

PMP70 Flow Cytometry staining using rabbit Anti-PMP70 antibody

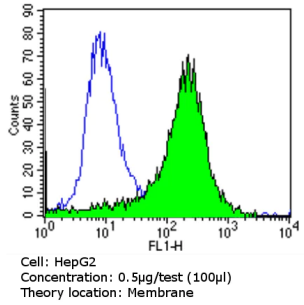
Flow cytometry analysis of PMP70 in HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/ml, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with ab3421 at a dilution of 0.5 ug/test for 60 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Goat anti-Rabbit IgG (H+L) Secondary Antibody, Alexa Fluor 488 and re-suspended in PBS for FACS analysis.



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

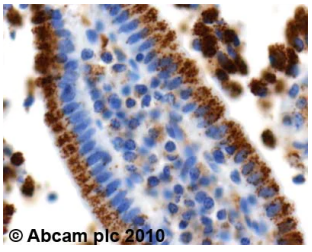
Immunofluorescence analysis of PMP70 using ab3421 shows staining in HMVEC (Human microvascular endothelial cell line) cells.



Flow Cytometry - Anti-PMP70 antibody (ab3421)

PMP70 Flow Cytometry staining using rabbit Anti-PMP70 antibody

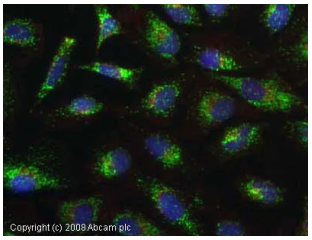
Flow cytometry analysis of PMP70 in HepG2 (Human liver hepatocellular carcinoma cell line) cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/ml, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with ab3421 at a dilution of 0.5 ug/test for 60 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Goat anti-Rabbit IgG (H+L) Secondary Antibody, Alexa Fluor 488 and re-suspended in PBS for FACS analysis.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PMP70 antibody (ab3421)

PMP70 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PMP70 antibody

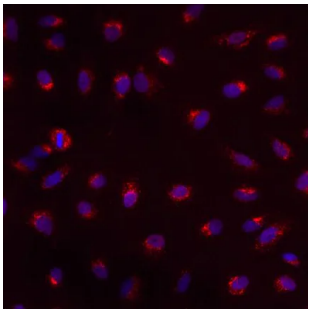
ab3421 (2µg/ml) staining PMP70 in human duodenum using an automated system (DAKO Autostainer Plus). Using this protocol there is apical cytoplasmic staining and staining of the endoplasmic reticulum in the epithelium.
Sections were rehydrated and antigen retrieved with the Dako 3 in 1 AR buffer EDTA pH 9.0 in a DAKO PT Link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 mins. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 min and detected with Dako Envision Flex amplification kit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that, for manual staining, optimization of primary antibody concentration and incubation time is recommended. Signal amplification may be required.



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

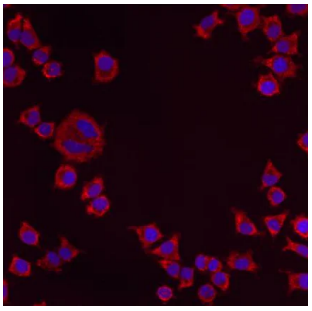
ICC/IF image of ab3421 stained human HeLa (Human epithelial adenocarcinoma cell line) cells. The cells were 4% PFA fixed (10 min) and then incubated in 1% BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab3421, 1 µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue). This antibody also gave a positive IF result in Hek293, HepG2 and MCF7 cells.



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

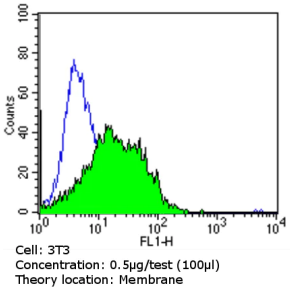
Immunofluorescence analysis of PMP70 using ab3421 shows staining in A549 (Human lung carcinoma cell line) cells.



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

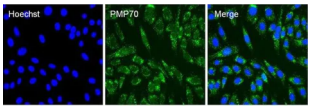
Immunofluorescence analysis of PMP70 using ab3421 shows staining in NS-1 (Mouse myeloma cell line) cells.



Flow Cytometry - Anti-PMP70 antibody (ab3421)

PMP70 Flow Cytometry staining using rabbit Anti-PMP70 antibody

Flow cytometry analysis of PMP70 in NIH/3T3 (Mouse embryo fibroblast cell line) whole cells (green) compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/ml, fixed with 2% paraformaldehyde and washed with PBS. Cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with ab3421 at a dilution of 0.5 ug/test for 60 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Goat anti-Rabbit IgG (H+L) Secondary Antibody, Alexa Fluor 488 and re-suspended in PBS for FACS analysis.

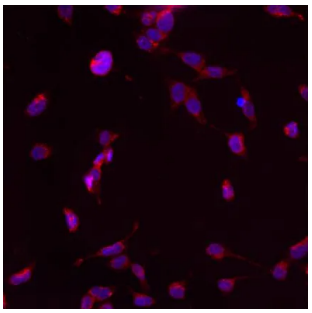


Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

Immunofluorescent analysis of PMP70 (green) in NIH/3T3 (Mouse embryo fibroblast cell line) ells. The cells were permeabilized with 0.1% Triton X-100 in TBS for 15 minutes, and blocked with 3% Blocker BSA in PBS for 15 minutes at room temperature. Cells were stained with ab3421 at 10

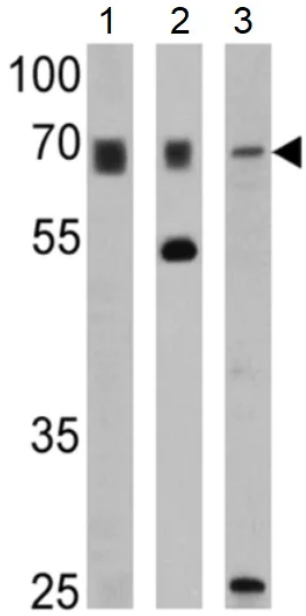
µg/mL in blocking buffer for at least 1 hour at room temperature, and then incubated with a Goat anti-Rabbit IgG Superclonal secondary antibody, Alexa Fluor 488 conjugate at a dilution of 1:1000 for 30 minutes at room temperature (green). Nuclei (blue) were stained with Hoechst 33342 dye. Images were taken on a Thermo Scientific ToxInsight Instrument at 20X magnification.



Immunocytochemistry/ Immunofluorescence - Anti-PMP70 antibody (ab3421)

PMP70 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PMP70 antibody

Immunofluorescence analysis of PMP70 using ab3421 shows staining in P19 (Mouse embryonal carcinoma cell line) cells.



Western blot - Anti-PMP70 antibody (ab3421)

All lanes:
Western blot - Anti-PMP70 antibody (ab3421) at 1/1000 dilution

Lane 1:
Mouse lung tissue lysate at 25 µg

Lane 2:
Mouse liver tissue lysate at 25 µg

Lane 3:
HepG2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 25 µg

Predicted band size: 75 kDa

Observed band size: 70 kDa

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