abcam

ab240011

Anti-ATP7b antibody [EPR6794] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR6794
Purification technique	Affinity purification Protein A
Dissociation constant	1.4 x 10^{-12} M
Concentration	1.019 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human

Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information ATP7B

Function	Copper ion transmembrane transporter involved in the export of copper out of the cells. It is involved in copper homeostasis in the liver, where it ensures the efflux of copper from hepatocytes into the bile in response to copper overload.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab240011 is the carrier-free version of ab124973.

Species reactivity

Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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.

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.

Supplementary info

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

Activity summary	ATP7B also known as Wilson disease protein is a copper-transporting ATPase. This protein has a mass of approximately 146 kDa. It is mainly expressed in the liver kidney placenta and brain. ATP7B functions mechanically by transporting copper across different cellular compartments. It utilizes ATP hydrolysis to pump copper ions helping the body regulate copper homeostasis. This transport activity is located predominantly in the trans-Golgi network where ATP7B assists in incorporating copper into ceruloplasmin a critical copper-carrying blood plasma protein.
Biological function summary	ATP7B plays a significant role in maintaining copper balance within the body. It associates with intracellular vesicles and through its catalytic activity influences various cellular metabolic processes. Although ATP7B does not typically form large complexes its interaction with other proteins and cellular organelles contributes to copper ion binding and transfer. Proper ATP7B function ensures that copper is channeled effectively to places where it is required for enzymatic activity or is expelled from cells to prevent accumulation.
Pathways	ATP7B is a central figure in the copper transport and homeostasis pathway. Its role is directly connected to the biosynthesis of copper-dependent enzymes. The protein impacts the pathway involving ceruloplasmin biosynthesis by regulating copper ion incorporation. ATP7A another copper-transporting ATPase shares similar pathway responsibilities but in different tissues showing divergence in their specific biological roles. Together they ensure whole-body copper balance.
Associated diseases and disorders	ATP7B mutations or dysfunction is strongly implicated in Wilson's disease a genetic disorder characterized by excessive copper accumulation. This can result in hepatic neurological and psychiatric symptoms due to copper buildup. The protein's relationship to Wilson's disease suggests its critical role in preventing copper toxicity. There is also evidence linking ATP7B with Menkes disease but ATP7A plays a more direct role in Menkes highlighting the distinct responsibilities these ATPases have in different tissues and 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.

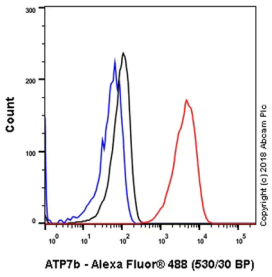
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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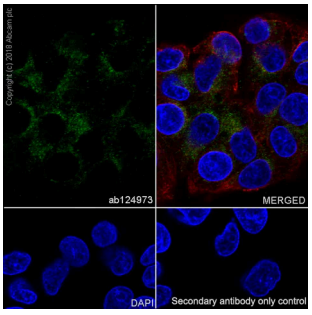
5 product images



Flow Cytometry (Intracellular) - Anti-ATP7b antibody [EPR6794] - BSA and Azide free (ab240011)

ATP7b Flow Cytometry (Intracellular) staining using rabbit Anti-ATP7b antibody

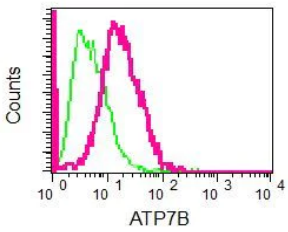
Intracellular Flow Cytometry analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling ATP7b with purified ab124973 at 1/20 dilution (10µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124973).



Immunocytochemistry/ Immunofluorescence - Anti-ATP7b antibody [EPR6794] - BSA and Azide free (ab240011)

ATP7b Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ATP7b antibody

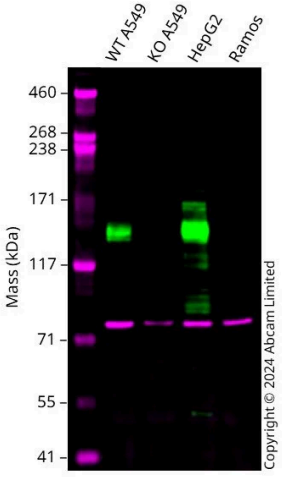
Immunocytochemistry/ Immunofluorescence analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling ATP7b with purified ab124973 at 1:100 dilution (1.2 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124973).



Flow Cytometry (Intracellular) - Anti-ATP7b antibody [EPR6794] - BSA and Azide free (ab240011)

ATP7b Flow Cytometry (Intracellular) staining using rabbit Anti-ATP7b antibody

Intracellular flow cytometric analysis of permeabilized HepG2 (Human liver hepatocellular carcinoma cell line) cells using unpurified anti-ATP7B RabMAb in red (ab124973) or a rabbit IgG in green (negative).
This data was developed using the same antibody clone in a different buffer formulation containingglycerol, tris glycine, tissue culture supernatantand sodium azide (ab124973).



Western blot - Anti-ATP7b antibody [EPR6794] - BSA and Azide free (ab240011)

ATP7b Western blot staining using rabbit Anti-ATP7b antibody

This data was developed using ab124973, the same antibody clone in a different buffer formulation.

Western blot: Rabbit Monoclonal[EPR6794] to ATP7b ab124973 staining at 1/1000 dilution, shown in green; Mouse anti-CANX (ab238078) loading control staining at 1/20,000 dilution, shown in magenta. A band was observed at 153 kDa in Wild-type A549 ab288558 cell lysates with no signal observed at this size in ATP7B knockout A549 cell line (ab326074). To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20,000 dilution.

All lanes:
Western blot - Anti-ATP7b antibody [EPR6794] (ab124973) at 1/1000 dilution

Lane 1:
Wild-type A549 at 10 µg

Lane 2:
Western blot - Human ATP7B knockout A549 cell line (ab326074) at 10 µg

Lane 3:
HepG2 at 10 µg

Lane 4:
Ramos at 10 µg

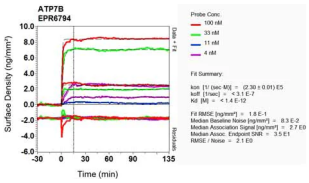
Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 157 kDa

Observed band size: 153 kDa



OI-RD Scanning - Anti-ATP7b antibody [EPR6794] - BSA and Azide free (ab240011)

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'.