abcam

ab2873

Anti-ATP1B1 antibody [M17-P5-F11]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Sheep Sodium/potassium-transporting ATPase subunit beta-1. Database link P05028
Clone number	M17-P5-F11
Purification technique	Affinity purification Protein A
Epitope	This antibody recognizes an epitope between amino acid residues 195-199 of sheep sodium/potassium ATPase beta 1.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/100

Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Rabbit, Chimpanzee, Cynomolgus monkey
Dilution info	-
Notes	-

WB

Tested

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

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

Predicted

Species	Rabbit, Chimpanzee, Cynomolgus monkey
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200
Notes	-

Expected

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

Predicted

Species	Rabbit, Chimpanzee, Cynomolgus monkey
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	-

Expected

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

Predicted

Species	Rabbit, Chimpanzee, Cynomolgus monkey
Dilution info	-
Notes	-

Target data

See full target information ATP1B1

Function	This is the non-catalytic component of the active enzyme, which catalyzes the hydrolysis of ATP coupled with the exchange of Na(+) and K(+) ions across the plasma membrane. The beta subunit regulates, through assembly of alpha/beta heterodimers, the number of sodium pumps transported to the plasma membrane (PubMed:19694409). Plays a role in innate immunity by enhancing virus-triggered induction of interferons (IFNs) and interferon stimulated genes (ISGs). Mechanistically, enhances the ubiquitination of TRAF3 and TRAF6 as well as the phosphorylation of TAK1 and TBK1 (PubMed:34011520). Involved in cell adhesion and establishing epithelial cell polarity.

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

Supplementary info

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

Activity summary	ATP1B1 also known as the beta-1 subunit of Na+/K+ ATPase plays an essential role in ion transport across the plasma membrane. The protein works as part of the sodium-potassium pump which helps maintain the cellular electrochemical gradient. The molecular mass of ATP1B1 is approximately 35 kDa. This target is expressed in various tissues including the heart kidney and brain where it supports the critical functions of excitable tissues and epithelial cell polarization.
Biological function summary	ATP1B1 contributes to establishing and maintaining cellular homeostasis as part of the Na+/K+ ATPase complex. This complex regulates the balance of sodium and potassium ions within cells important for nerve impulse transmission and muscle contraction. ATP1B1 interacts with the alpha subunit to modulate the enzyme's activity and transport kinetics highlighting its role in cell volume regulation and epithelial layer development.

Pathways	ATP1B1 is actively involved in the ion transport pathway and cellular signaling pathways such as WNT signaling. It works closely with proteins such as ATP1A1 and ATP1A2 which are different alpha subunits of the Na+/K+ ATPase. Through these pathways ATP1B1 affects cellular processes like membrane potential maintenance and intercellular communication essential for proper cellular function and organismal health.
Associated diseases and disorders	ATP1B1 shows a link to hypertension and polycystic ovary syndrome (PCOS). Mutations or dysfunctional expression of ATP1B1 can disrupt ion gradients contributing to these conditions. The protein connects with regulatory proteins including G-protein signaling regulators which can alter cellular responses in disease contexts. Understanding ATP1B1's involvement in these disorders helps in exploring therapeutic targets and improving patient outcomes.

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

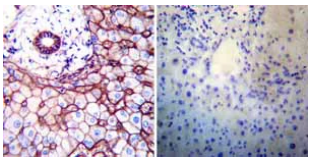
We do not recommend this combination. It is not covered by our product promise.

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.

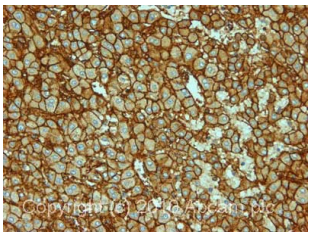
9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATP1B1 antibody

Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human liver tissue tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:200 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase beta ab2873 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.

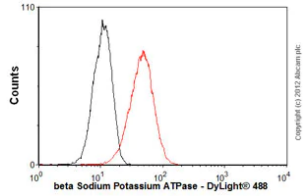


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IHC image of ab2873 staining in human normal liver formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab2873, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.

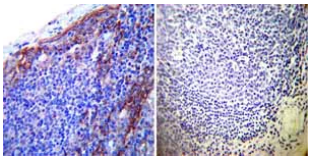


Flow Cytometry - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Flow Cytometry staining using mouse Anti-ATP1B1 antibody

Overlay histogram showing HEK293 cells stained with ab2873 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab2873, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HEK293 cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

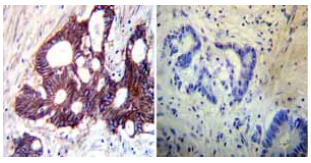
Please note that Abcam do not have any data for use of this antibody on non-fixed cells. We welcome any customer feedback.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATP1B1 antibody

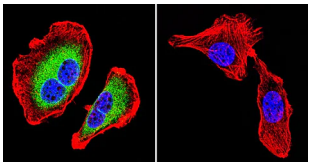
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human tonsil tissue tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:200 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase beta ab2873 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



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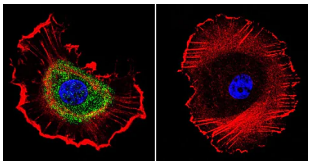
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human colon carcinoma tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:200 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase beta ab2873 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



Immunocytochemistry/ Immunofluorescence - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP1B1 antibody

Immunocytochemistry/Immunofluorescence analysis of ATP1B1 shows staining in U251 cells. ATP1B1 staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2873 (1:200) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated goat anti-mouse secondary antibody. Images were taken at 60X magnification.

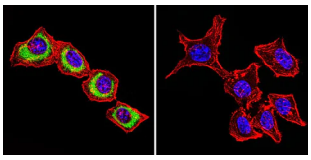


Immunocytochemistry/ Immunofluorescence - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP1B1 antibody

Immunocytochemistry/Immunofluorescence analysis of ATP1B1 shows staining in MCF-7 cells. ATP1B1 staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2873 (1:200) overnight at 4°C, washed with PBS and

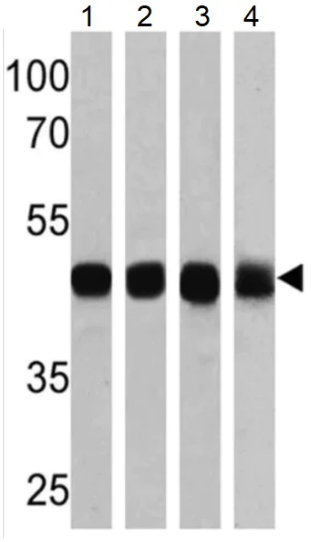
incubated with a DyLight-488 conjugated goat anti-mouse secondary antibody. Images were taken at 60X magnification.



Immunocytochemistry/ Immunofluorescence - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP1B1 antibody

Immunocytochemistry/Immunofluorescence analysis of ATP1B1 shows staining in HeLa cells. ATP1B1 staining (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2873 (1:200) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated goat anti-mouse secondary antibody. Images were taken at 60X magnification.



Western blot - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873)

ATP1B1 Western blot staining using mouse Anti-ATP1B1 antibody

Chemiluminescent detection was performed using Pierce ECL Plus Western Blotting Substrate.
All lanes:
Western blot - Anti-ATP1B1 antibody [M17-P5-F11] (ab2873) at 1/5000 dilution

Lane 1:
Human brain lysates at 25 µg

Lane 2:
Human liver lysates at 25 µg

Lane 3:
Human kidney lysates at 25 µg

Lane 4:
Mouse kidney lysates at 25 µg

Secondary

All lanes:
HRP-conjugated secondary antibody

Predicted band size: 35 kDa

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