abcam

ab2871

Anti-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Sheep ATP1A1. The exact immunogen used to generate this antibody is proprietary information. Database link P04074
Clone number	M7-PB-E9
Purification technique	Affinity purification Protein A
Specificity	Detects pan alpha sodium / potassium ATPase. The antibody binds all alpha subunits in sheep, dog, pig, human and chicken. It does not bind alpha 1 or 2 in rat, but does bind alpha 3.
Epitope	This antibody recognizes an epitope between amino acid residues 646 and 652 of the sheep kidney alpha sodium / potassium ATPase.
Concentration	1.87 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/100 - 1/200
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/100
Notes	ab170190 - Mouse monoclonal IgG1, 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	Rat
Dilution info	-

Notes	-

WB

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/200
Notes	-

Expected

Species	Mouse
Dilution info	1/100 - 1/200
Notes	-

Species	Rat

Dilution info	1/100 - 1/200
Notes	-

Species	Human
Dilution info	1/100 - 1/200
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information ATP1A1

Function	This is the catalytic component of the active enzyme, which catalyzes the hydrolysis of ATP coupled with the exchange of sodium and potassium ions across the plasma membrane. This action creates the electrochemical gradient of sodium and potassium ions, providing the energy for active transport of various nutrients (By similarity). Could also be part of an osmosensory signaling pathway that senses body-fluid sodium levels and controls salt intake behavior as well as voluntary water intake to regulate sodium homeostasis (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

Supplementary info

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

Activity summary	Pan ATPase Alpha also known as 'alpha pan' or 'pb alpha' is a protein complex with an approximate molecular mass of 100 kDa. It is part of a larger family of ATPases which hydrolyze ATP to ADP releasing energy used in various cellular processes. The protein is expressed in diverse tissues in the body reflecting its essential role in cellular metabolism. It consists of multiple subunits that work together to maintain the proton gradient across membranes important for energy homeostasis.
Biological function summary	Different subunits of ATPase Alpha are important for cellular energy metabolism and are part of a larger enzymatic complex. This complex facilitates proton translocation in cellular organelles contributing to energy conversion processes. Through ATP hydrolysis this protein helps maintain ion gradients which are employed by cells for multiple functions such as nutrient uptake and pH balance. The machinery provided by ATPase Alpha is vital for cell survival and function.
Pathways	The activity of ATPase Alpha integrates into significant metabolic pathways such as oxidative phosphorylation and glycolysis. It is central in energy transduction providing ATP required for many cellular activities. The protein modulates activity in conjunction with other components like the cytochrome c oxidase complex in the mitochondrial electron transport chain playing a role in producing the cell's energy currency. Pan ATPase Alpha's ability to interface with glycolysis allows cells to effectively manage energy production and consumption.
Associated diseases and disorders	Abnormal levels of ATPase Alpha are linked to conditions such as metabolic syndrome and neurodegenerative diseases. In metabolic syndrome dysregulation of ATPase Alpha may contribute to impaired energy metabolism and insulin resistance. Additionally alterations in its function can relate to neurodegenerative disorders where mitochondrial dysfunction is prevalent. In these diseases ATPase Alpha interacts with other key proteins such as amyloid precursor protein in

Alzheimer's disease indicating its possible role in disease pathogenesis and progression.

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

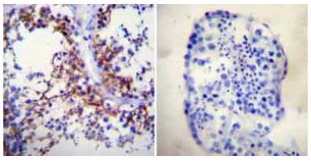
We do not recommend this combination. It is not covered by our product promise.

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.

8 product images

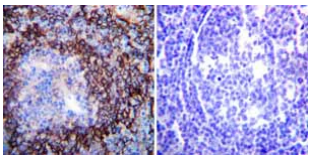


Immunohistochemistry paraffin embedded sections - Anti-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control (ab2871)

Pan ATPase Alpha Immunohistochemistry paraffin embedded sections staining using mouse Anti-pan ATPase Alpha antibody

Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human testis 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 alpha ab2871 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.

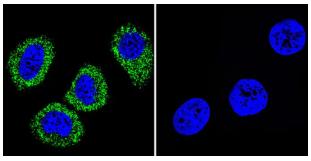
Tissues were counterstained with hematoxylin and prepped for mounting.



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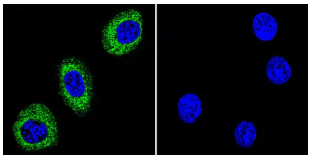
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human tonsil tissue tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked 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 alpha ab2871 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-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control (ab2871)

Pan ATPase Alpha Immunocytochemistry/ Immunofluorescence staining using mouse Anti-pan ATPase Alpha antibody

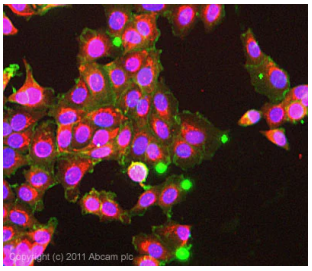
Immunocytochemistry/Immunofluorescence analysis of ATP1A2 shows staining in MCF-7 cells. ATP1A2 (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2871 (1:20) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.



Immunocytochemistry/ Immunofluorescence - Anti-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control (ab2871)

Pan ATPase Alpha Immunocytochemistry/ Immunofluorescence staining using mouse Anti-pan ATPase Alpha antibody

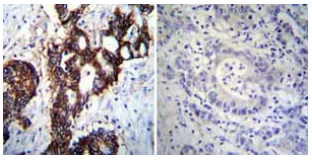
Immunocytochemistry/Immunofluorescence analysis of ATP1A2 shows staining in U251 cells. ATP1A2 (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were incubated without (control) or with ab2871 (1:20) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.



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Pan ATPase Alpha Immunocytochemistry/ Immunofluorescence staining using mouse Anti-pan ATPase Alpha antibody

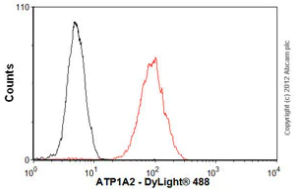
ICC/IF image of ab2871 stained MCF7 cells. The cells were 100% methanol fixed (5 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab2871, 10µg/ml) overnight at +4°C. The secondary antibody (green) was ab96879, DyLight® 488 goat anti-mouse IgG (H+L) used at a 1/250 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) at a concentration of 1.43µM.



Immunohistochemistry paraffin embedded sections - Anti-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control (ab2871)

Pan ATPase Alpha Immunohistochemistry paraffin embedded sections staining using mouse Anti-pan ATPase Alpha antibody

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 1:100 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase alpha ab2871 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.

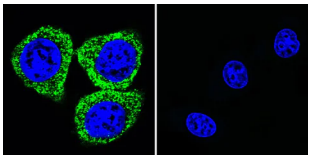


Flow Cytometry - Anti-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control (ab2871)

Pan ATPase Alpha Flow Cytometry staining using mouse Anti-pan ATPase Alpha antibody

Overlay histogram showing HEK293 cells stained with ab2871 (red line). The cells were fixed with 80% methanol (5 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 (ab28711, 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 IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.

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



Immunocytochemistry/ Immunofluorescence - Anti-pan ATPase Alpha antibody [M7-PB-E9] - Plasma Membrane Loading Control (ab2871)

Pan ATPase Alpha Immunocytochemistry/ Immunofluorescence staining using mouse Anti-pan ATPase Alpha antibody

Immunocytochemistry/Immunofluorescence analysis of ATP1A2 shows staining in HeLa cells. ATP1A2 (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 ab2871 (1:20) overnight at 4°C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.

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