abcam

ab2872

Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control

Lab Essentials

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	M8-P1-A3
Purification technique	Affinity purification Protein A
Epitope	This antibody recognizes an epitope between amino acid residues 496-506 of lamb kidney sodium/potassium ATPase.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/2000

Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/20 - 1/100
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	1/200 - 1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50 - 1/200
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 (PubMed:29499166, PubMed:30388404). 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	The alpha 1 Sodium Potassium ATPase often called Na+/K+ ATPase or Na K ATPase plays a critical role in cellular processes by maintaining the electrochemical gradients of sodium (Na+) and potassium (K+) across the plasma membrane. Also known as ATP1 or anti sodium this enzyme facilitates the active transport of Na+ and K+ ions against their concentration gradients a vital function for cellular homeostasis. The molecular weight of this enzyme is approximately 112 kDa with expression observed in various tissues including neuronal and muscular tissues indicating its importance in both central and peripheral cellular functions.
Biological function summary	The alpha 1 Sodium Potassium ATPase establishes ionic balance and is a component of the larger Na K ATPase complex which comprises multiple subunits. This complex not only aids in nerve impulse transmission but also supports muscle contraction and intracellular fluid regulation. Through its activity it significantly influences cellular volume and internal osmotic conditions thereby affecting overall tissue functionality.
Pathways	Alpha 1 Sodium Potassium ATPase is an important player in ion transport and cellular signaling pathways. It closely interacts with pathways such as the renin-angiotensin-aldosterone system and is vital for maintaining blood pressure homeostasis. The enzyme also interacts with several proteins including ankyrin and phospholemman which modulate its activity and are integral to various signaling cascades involved in cardiovascular and renal function.
Associated diseases and disorders	The dysregulation of alpha 1 Sodium Potassium ATPase activity is linked to conditions like hypertension and congestive heart failure. Malfunctions in this enzyme can lead to improper ionic balance contributing to these diseases. The enzyme interacts with other proteins such as aldosterone synthase in hypertension and these interactions are critical in understanding their pathogenic mechanisms. A greater understanding of these associations may guide therapeutic strategies targeting ion transport abnormalities.

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

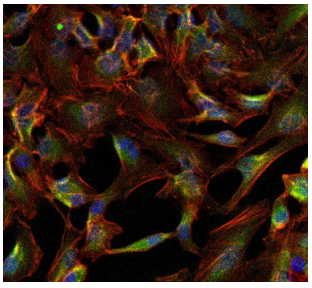
We do not recommend this combination. It is not covered by our product promise.

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.

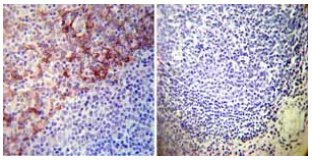
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Immunocytochemistry/ Immunofluorescence staining using mouse Anti-alpha 1 Sodium Potassium ATPase antibody

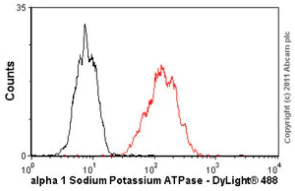
Immunocytochemistry/Immunofluorescence analysis of alpha 1 Sodium Potassium ATPase (green) in HeLa cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 15 minutes at room temperature and blocked with 0.3% BSA for 15 minutes at room temperature. Cells were incubated with ab2872 (1:100) for at least 1 hour at room temperature, washed with PBS, and incubated with a DyLight 488-conjugated goat anti-mouse IgG secondary antibody (1:500) for 30 minutes at room temperature. F-actin (red) was stained with DyLight 594 Phalloidin and nuclei (blue) were stained with Hoechst 33342 dye. Images were taken at 20X magnification.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-alpha 1 Sodium Potassium ATPase 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 1:50 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase alpha-1 ab2872 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.

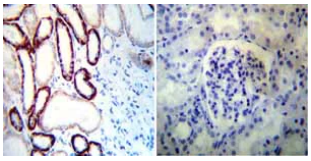


Flow Cytometry - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Flow Cytometry staining using mouse Anti-alpha 1 Sodium Potassium ATPase antibody

Overlay histogram showing HEK293 cells stained with ab2872 (red line). The cells were fixed with 100% 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 (ab2872, 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. This antibody gave a positive signal in HEK293 cells fixed with 4% paraformaldehyde used under the same conditions.

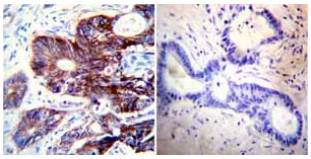
Please note that Abcam do not have any data for use of this antibody on non-fixed cells. We welcome any customer feedback.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-alpha 1 Sodium Potassium ATPase antibody

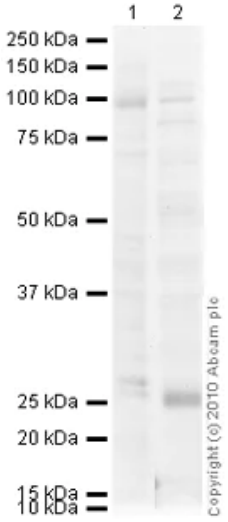
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human kidney tissue tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:100 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase alpha-1 ab2872 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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-alpha 1 Sodium Potassium ATPase 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 1:200 with a mouse monoclonal antibody recognizing Sodium/Potassium ATPase alpha-1 ab2872 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.



Western blot - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Western blot staining using mouse Anti-alpha 1 Sodium Potassium ATPase antibody

The 100 kDa band observed is comparable to the molecular weight seen with other commercially available antibodies to alpha 1 Sodium Potassium ATPase.
All lanes:
Western blot - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872) at 1/500 dilution

Lane 1:
Human brain normal tissue lysate - membrane extract (ab29456) at 10 µg

Lane 2:
Human testis tissue lysate - total protein (ab30257) at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 1/5000 dilution

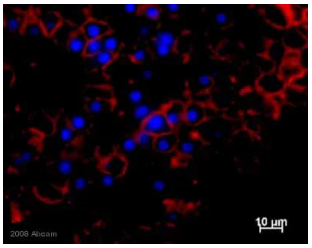
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 113 kDa

Observed band size: 100 kDa, 25 kDa, 70 kDa

Exposure time: 8min



This image is courtesy of an anonymous customer review

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha 1 Sodium Potassium ATPase antibody [M8-P1-A3] - Plasma Membrane Loading Control (ab2872)

Alpha 1 Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-alpha 1 Sodium Potassium ATPase antibody

ab2872 staining pig hepatocyte tissue sections by IHC-P. The section was fixed with Bouins and subjected to heat mediated antigen retrieval (at pH 9) prior to incubating with the primary antibody, diluted 1/2000, for 1 hour at 20°C. A Cy3® conjugated goat anti-mouse IgG antibody was used as the secondary.

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