abcam

ab2826

Anti-ATP1A3 antibody [XVIF9-G10]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.2 Preservative: 0.05% Sodium azide Constituents: 0.88% Sodium chloride, 0.42% Tripotassium orthophosphate
Form	Liquid
Clonality	Monoclonal
Clone number	XVIF9-G10
Purification technique	Affinity purification Protein A
Specificity	The immunogen used for this product shares 89% homology with ATP1A2. Cross-reactivity with this protein has not been confirmed experimentally
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	1/50 - 1/200
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Expected

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

Predicted

Species	Primates, Amphibian, Sheep, Rabbit, Guinea pig, Dog, Cow, Pig, Shark
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Rat
Dilution info	5 µg/mL
Notes	-

Species	Human
Dilution info	5 µg/mL
Notes	-

Expected

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

Predicted

Species	Primates, Amphibian, Sheep, Rabbit, Guinea pig, Dog, Cow, Pig, Shark
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Primates, Amphibian, Sheep, Rabbit, Guinea pig, Dog, Cow, Pig, Shark
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1 µg/mL
Notes	-

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

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

Predicted

Species	Primates, Amphibian, Sheep, Rabbit, Guinea pig, Dog, Cow, Pig, Shark
Dilution info	-
Notes	-

Target data

See full target information Sodium/potassium-transporting ATPase subunit alpha-3

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	ATP1A3 also known as the alpha3 subunit of the sodium-potassium ATPase is an ion pump that functions to maintain the electrochemical gradients of sodium and potassium ions across the plasma membrane. It is a protein with a molecular mass of approximately 110 kDa. ATP1A3 expression is found mainly in neurons of the central nervous system. By actively transporting three sodium ions out of the cell and two potassium ions into the cell ATP1A3 helps sustain the resting potential essential for neuronal excitability and signaling.
Biological function summary	The sodium-potassium ATPase where ATP1A3 serves acts as a vital component in maintaining ion homeostasis. This protein resides in cell membranes and forms a part of the larger complex required for normal neuron function. Its activity also influences other cell functions like cell volume regulation and signal transduction processes. The alpha3 subunit specifically exhibits specialized roles in neuronal

	tissues where rapid Na+ and K+ exchange is necessary contributing significantly to nerve impulse transmission.
Pathways	The function of ATP1A3 is integral in the maintenance of the membrane potential which is an important part of many physiological pathways including the action potential propagation in neurons. Another pathway where its activity is significant involves synaptic vesicle cycling which depends on ATP1A3 to maintain ionic conditions for synaptic transmission. Proteins such as the beta subunit of the sodium-potassium ATPase ATP1B1 closely associate with ATP1A3 and modulate its activity and stability.
Associated diseases and disorders	Mutations in ATP1A3 have associations with neurological conditions such as Alternating Hemiplegia of Childhood (AHC) and Rapid-Onset Dystonia-Parkinsonism (RDP). These disorders are characterized by sudden severe disruptions in motor function that relate to impaired ion gradients caused by dysfunctional ATP1A3. In AHC the disrupted interaction of ATP1A3 with other ion pumps like ATP1A2 exacerbates neurological function deficits.

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

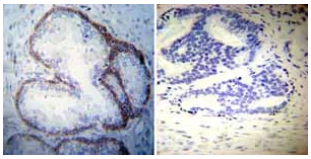
We do not recommend this combination. It is not covered by our product promise.

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.

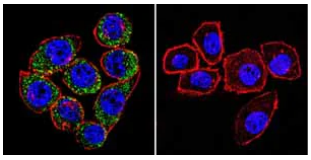
8 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATP1A3 antibody [XVIF9-G10] (ab2826)

ATP1A3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATP1A3 antibody

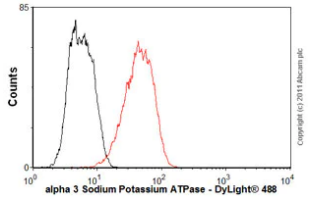
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human prostate carcinoma tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at 1/50 dilution with ab2826 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-ATP1A3 antibody [XVIF9-G10] (ab2826)

ATP1A3 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP1A3 antibody

Immunofluorescent analysis of Sodium/Potassium ATPase alpha-3 using ab2826 shows staining in U251 glioma cells. Sodium/Potassium ATPase alpha-3 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 probed without (control) or with or an antibody recognizing Sodium/Potassium ATPase alpha-3 ab2826 at a dilution of 1:20 over night at 4 °C washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.

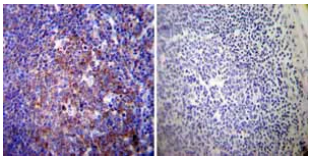


Flow Cytometry - Anti-ATP1A3 antibody [XVIF9-G10] (ab2826)

ATP1A3 Flow Cytometry staining using mouse Anti-ATP1A3 antibody

Overlay histogram showing SH-SY5Y cells stained with ab2826 (red line). The cells were fixed with 4% paraformaldehyde 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 (ab2826, 1µg/1x10^6 cells) 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.

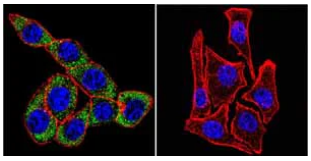


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATP1A3 antibody [XVIF9-G10] (ab2826)

ATP1A3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATP1A3 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

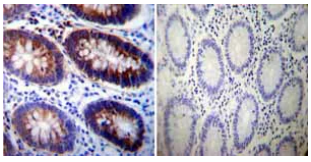
performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at 1/200 dilution with ab2826 or without primary antibody (negative control) overnight at 4°C in 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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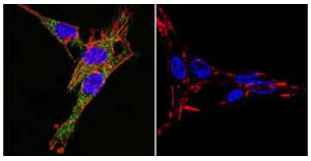
Immunofluorescent analysis of Sodium/Potassium ATPase alpha-3 using ab2826 shows staining in HeLa cells. Sodium/Potassium ATPase alpha-3 staining (green) F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with or an antibody recognizing Sodium/Potassium ATPase alpha-3 ab2826 at a dilution of 1:20 over night 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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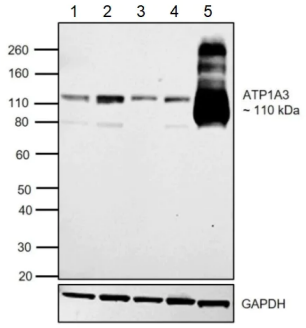
Immunohistochemistry was performed on both normal and cancer biopsies of deparaffinized Human colon tissue tissues. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at 1/200 dilution with ab2826 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-ATP1A3 antibody [XVIF9-G10] (ab2826)

ATP1A3 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ATP1A3 antibody

Immunofluorescent analysis of Sodium/Potassium ATPase alpha-3 using ab2826 shows staining in C6 glioma cells. Sodium/Potassium ATPase alpha-3 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 probed without (control) or with or an antibody recognizing Sodium/Potassium ATPase alpha-3 ab2826 at a dilution of 1:20 over night at 4 °C washed with PBS and incubated with a DyLight-488 conjugated secondary antibody. Images were taken at 60X magnification.



Western blot - Anti-ATP1A3 antibody [XVIF9-G10] (ab2826)

Samples were electrophoresed using NuPAGE™ 4-12% Bis-Tris Protein Gel. Resolved proteins were then transferred onto a Nitrocellulose membrane by iBlot® 2 Dry Blotting System. Chemiluminescent detection was performed using Novex® ECL Chemiluminescent Substrate Reagent Kit.
All lanes:
Western blot - Anti-ATP1A3 antibody [XVIF9-G10] (ab2826) at 1 µg/mL

Lane 1:
SH-SY5Y (Human neuroblastoma cell line from bone marrow) whole cell lysate at 30 µg

Lane 2:
IMR-32 (Human brain neuroblast cell line) whole cell lysate at 30 µg

Lane 3:
SK-OV-3 (Human ovarian cancer cell line) whole cell lysate at 30 µg

Lane 4:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 30 µg

Lane 5:
Mouse brain tissue lysate at 30 µg

Secondary

All lanes:
Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP at 1/4000 dilution

Predicted band size: 111 kDa

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