abcam

ab283345

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric)

Rat Recombinant Monoclonal alpha 1 Sodium Potassium ATPase antibody. Suitable for IHC-P, WB, ICC/IF, Flow Cyt (Intra) and reacts with Mouse, Rat, Human samples.

This antibody is the chimeric Rat version of clone EP1845Y, available in rabbit as ab76020 with over 250 publications. Same clone, same staining pattern, different species antibody backbone.
Learn more about chimeric antibodies

Lab Essentials | Recombinant | 20ul selling size

Key facts

Isotype	IgG2a
Host species	Rat
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Clone number	EP1845Y
Purification technique	Ion exchange chromatography
Concentration	0.937 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/5000
Notes	-

Species	Rat
Dilution info	1/5000
Notes	-

Species	Human
Dilution info	1/5000
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Notes

This rat monoclonal chimeric antibody has been engineered from a RabMAb parent antibody (ab76020). By necessity, some rabbit sequence is retained as part of the variable domain. When multiplexing with other rabbit-derived antibodies, using cross absorbed Fc-reactive secondary antibodies are recommended.
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.

Supplementary info

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

Activity summary	The Sodium Potassium ATPase also known as Na/K-ATPase or NaK Pump is an essential enzyme that performs active transport of sodium (Na+) and potassium (K+) ions across the plasma membrane. This transmembrane protein has a molecular weight typically ranging from 100 to 120 kDa. It is expressed in most cell types particularly abundant in nerve and muscle cells. The ATPase hydrolyzes ATP to drive the exchange of three intracellular sodium ions for two extracellular potassium ions maintaining vital gradients across the cell membrane.
Biological function summary	The Na/K ATPase plays an important role in maintaining cellular homeostasis and membrane potential. It is an integral component of the cell membrane often operating as part of larger multiprotein complexes. This pump is responsible for providing the driving force behind secondary transport systems by maintaining ionic gradients. The presence of Na/K ATPase is also important for the functioning of the nervous system as it helps propagate action potentials in neurons.
Pathways	The Na/K ATPase is integral to the regulation of cardiac contraction and nerve signal transmission. It participates in pathways like the cardiac glycoside pharmacodynamics and the sodium ion transport pathway. It interacts with proteins such as ankyrin which link the ATPase to the cellular cytoskeleton facilitating its distribution and stability within the cell membrane. These interactions are significant for ensuring precise ion homeostasis and efficient cellular operation.

Associated diseases and disorders	Na/K ATPase is linked to conditions such as hypertension and congestive heart failure. These diseases are associated with improper functioning or regulation of the ATPase which affects sodium and potassium balance and blood pressure regulation. The target also interacts with the protein PLM (phospholemman) which modulates its activity under different physiological and pathological conditions. Malfunction or mutations in the genes encoding Na/K ATPase subunits can contribute to neurological and cardiovascular disorders making it a therapeutic target in associated treatment strategies.

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

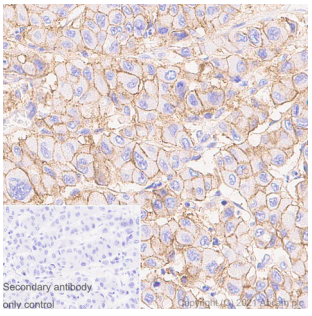
We do not recommend this combination. It is not covered by our product promise.

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



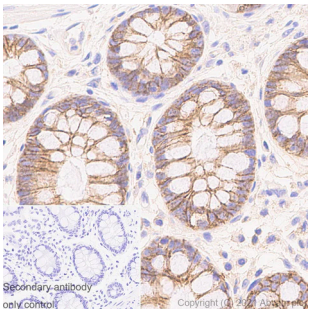
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Sodium Potassium ATPase antibody

Immunohistochemical analysis of paraffin-embedded Human hepatocellular carcinoma tissue labeling Sodium Potassium ATPase with ab283345 at 1/5000 (0.222 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Membranous staining on human

hepatocellular carcinoma. The section was incubated with ab283345 for 10 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins

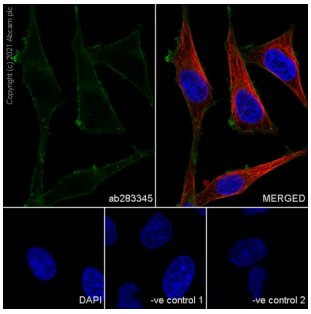


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Sodium Potassium ATPase antibody

Immunohistochemical analysis of paraffin-embedded Human colon tissue labeling Sodium Potassium ATPase with ab283345 at 1/5000 (0.222 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Membranous staining on human colon. The section was incubated with ab283345 for 10 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

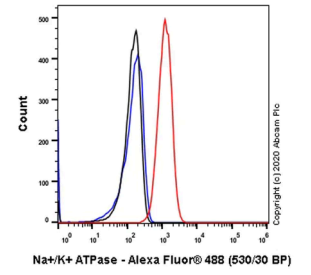
Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



Immunocytochemistry/ Immunofluorescence - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunocytochemistry/ Immunofluorescence staining using rat Anti-Sodium Potassium ATPase antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa cells labelling Sodium Potassium ATPase with ab283345 at 1/50 (22.18 ug/ml) dilution, followed by ab150161 Goat F(ab')2 Anti-Rat IgG Fc (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). Confocal image showing membranous staining in HeLa cell line. ab179513 Anti-beta Tubulin rabbit monoclonal antibody was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is ab150161 Goat F(ab')2 Anti-Rat IgG Fc (Alexa Fluor® 488) preadsorbed at 1/1000 dilution.

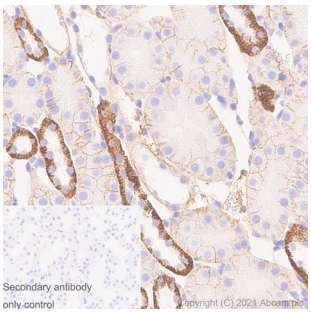


Flow Cytometry (Intracellular) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Flow Cytometry (Intracellular) staining using rat Anti-Sodium Potassium ATPase antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling Sodium Potassium ATPase with

ab283345 at 1/100 dilution (1ug) (Red) compared with a Rat monoclonal IgG (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat F(ab)2 Anti-Rat IgG Fc (Alexa Fluor® 488, ab150161) at 1/2000 dilution was used as the secondary antibody.

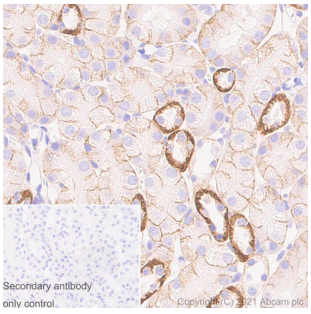


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Sodium Potassium ATPase antibody

Immunohistochemical analysis of paraffin-embedded Rat kidney tissue labeling Sodium Potassium ATPase with ab283345 at 1/5000 (0.222 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Mainly membranous staining on rat kidney. The section was incubated with ab283345 for 10 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins

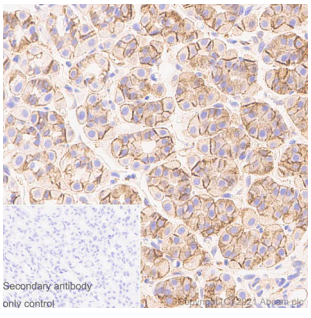


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Sodium Potassium ATPase antibody

Immunohistochemical analysis of paraffin-embedded Mouse kidney tissue labeling Sodium Potassium ATPase with ab283345 at 1/5000 (0.222 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Mainly membranous staining on mouse kidney. The section was incubated with ab283345 for 10 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



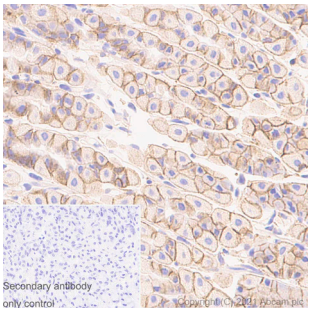
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Sodium Potassium ATPase antibody

Immunohistochemical analysis of paraffin-embedded Rat stomach tissue labeling Sodium Potassium ATPase with ab283345 at 1/5000 (0.222 ug/ml) dilution followed by a ready to use

LeicaDS9800 (Bond™ Polymer Refine Detection). Membranous staining on rat stomach. The section was incubated with ab283345 for 10 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins

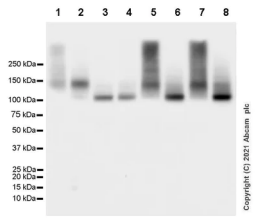


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rat Anti-Sodium Potassium ATPase antibody

Immunohistochemical analysis of paraffin-embedded Mouse stomach tissue labeling Sodium Potassium ATPase with ab283345 at 1/5000 (0.222 ug/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Membranous staining on mouse stomach. The section was incubated with ab283345 for 10 mins at room temperature and followed by rat IgG antibody (ab102248) for 8 mins. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345)

Sodium Potassium ATPase Western blot staining using rat Anti-Sodium Potassium ATPase antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST Samples of Lanes 3, 4, 6, 8 are non-boiled as boiling may cause protein aggregates. Exposure time: 1 second
All lanes:
Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Rat IgG2a (Chimeric) (ab283345) at 1/1000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell), whole cell lysate prepared from RIPA lysis method at 20 µg

Lanes 2 and 4:
HeLa whole cell lysate prepared from 1% SDS HOT lysis method at 20 µg

Lane 3:
HeLa whole cell lysate prepared from RIPA lysis method at 20 µg

Lane 5:
RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage), whole cell lysate at 20 µg

Lane 6:
RAW264.7 whole cell lysate at 20 µg

Lane 7:
C6 (rat glial tumor glial cell), whole cell lysate at 20 µg

Lane 8:
C6 whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rat IgG (H+L), HRP) (ab205720) at 1/5000 dilution

Predicted band size: 113 kDa

Observed band size: 100 kDa

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