abcam

ab76020

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) is a rabbit monoclonal antibody detecting Sodium Potassium ATPase in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Chinese hamster, Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 290 publications
- Trusted since 2009

Mouse and rat version of this clone also available as ab283318 and ab283345. Same clone, same staining pattern, different species antibody backbone.
Learn more about chimeric antibodies

Lab Essentials | Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
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
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1845Y
Purification technique	Affinity purification Protein A
Specificity	This antibody recognizes an intracellular epitope of Sodium/potassium-transporting ATPase alpha-1 subunit.
Concentration	0.557 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/50 - 1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/50 - 1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Human
Dilution info	1/50 - 1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Expected

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

Predicted

Species	Tilapia
Dilution info	-
Notes	-

WB

Tested

Species	Chinese hamster
Dilution info	1/100000
Notes	**For unpurified, use 1/20000.**

Species	Mouse
Dilution info	1/100000
Notes	**For unpurified, use 1/20000.**

Species	Rat
Dilution info	1/100000
Notes	**For unpurified, use 1/20000.**

Species	Human
Dilution info	1/100000
Notes	**For unpurified, use 1/20000.**

Predicted

Species	Tilapia
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Predicted

Species	Tilapia
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20 - 1/100
Notes	Follow an intracellular staining protocol. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Predicted

Species	Tilapia
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 (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	Conditional Ambient
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

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Flow Cyt (Intra), ICC/IF, IHC-P and WB.

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) was first used in a scientific publication in 2009 and has been cited over 291 times in peer reviewed journals. It's performance in Western Blot in human and mouse samples is trusted by the scientific community.

Abcam's high quality manufacturing and validation processes ensure Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) has 18 independent reviews from customers.

Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) specifically detects Sodium Potassium ATPase (UniProt ID: P05023; Molecular weight: 113kDa) and is sold in a convenient trial size to enable initial testing (20 µL) and larger sizes for subsequent scaling up experiments (100 µL, 250 µL and 1 mL).

Conjugation-ready, carrier free format available for antibody clone EP1845Y - ab167390.

Antibody clone EP1845Y is also available pre-conjugated to a variety of labels for your convenience - HRP, Alexa Fluor® 488, Biotin, Alexa Fluor® 647, PE, Alexa Fluor® 405, Alexa Fluor® 555, APC (ab185065, ab197713, ab198366, ab198367, ab209299, ab210143, ab274883, ab314288).

Top cited antibody on the market with >384 citations. Sodium Potassium ATPase is essential for studying ion transport and cellular homeostasis, aiding research on nerve function, muscle contraction and various physiological processes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

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	Na/K-ATPase also known as the sodium-potassium pump or Na K ATPase pump is a transmembrane protein responsible for maintaining the electrochemical gradient across the plasma membrane. The protein actively transports three sodium ions out of the cell and two potassium ions in which helps generate the resting membrane potential. It comprises an alpha catalytic subunit which has a molecular weight of around 112 kDa to 114 kDa and a beta subunit. Na/K-ATPase is widely expressed across many tissues with high concentrations in nerve cells muscle tissues and epithelial cells.
Biological function summary	The sodium-potassium pump is vital in maintaining cellular homeostasis. It plays a significant role in regulating cell volume controlling the ion balance within cells and enabling proper function of nerve and muscle cells. Na/K-ATPase forms part of a larger transport complex working closely with other ion pumps and exchangers to sustain cellular conditions. This activity ensures that cells respond and adapt to various physiological changes.
Pathways	The Na/K-ATPase functions integrally in cellular signaling and metabolic pathways. It interfaces with the Ras-associated protein 1 (Rap1) pathway which influences cell adhesion and growth. Furthermore Na/K-ATPase is linked to the renin-angiotensin system which modulates blood pressure and fluid balance through its interaction with angiotensin receptors. Through these associations Na/K-ATPase not only maintains cellular environments but also influences systemic physiological processes.
Associated diseases and disorders	Na/K-ATPase malfunctions have connections to conditions like congestive heart failure and certain neurological disorders. Altered activity in the sodium-potassium pump disrupts ion gradients affecting cardiac and neuronal functions. Additionally Na/K-ATPase interacts with the caveolin proteins in cardiovascular diseases where their dysregulation contributes to disease pathogenesis. Understanding and targeting Na/K-ATPase could provide insights into therapeutic strategies for these conditions.

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.

14 product images

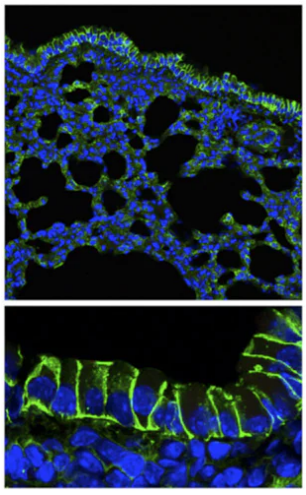
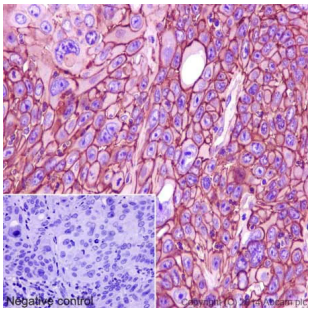


Image from Nieto-Torres JL et al. PLoS Pathog. 2014;10(5):e1004077. Fig 11.; doi: 10.1371/journal.ppat.1004077.

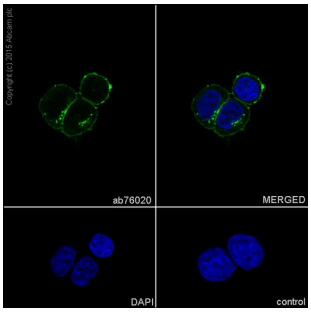
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

ab76020 staining Sodium Potassium ATPase in lung epithelia (top) and bronchiolar epithelia (bottom) from Mouse lung tissue sections by Immunohistochemistry ((IHC) - paraffin-embedded sections). Sections were deparaffined at 60°C and rehydrated by successive incubations in 100% xylol, 100% ethanol and 96% ethanol. Samples were then permeabilized with 0.25% Triton X-100 in PBS for 15 minutes and blocked with 10% bovine serum albumin (BSA) and 0.25% Triton X-100 in PBS for 30 minutes. Samples were incubated with primary antibody (1/100 in 0.25% Triton X-100 and 10% BSA in PBS) for 1 hour 30 minutes at room temperature. An Alexa Fluor®488-conjugated Goat anti-mouse antibody was used as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Immunohistochemical staining of paraffin embedded human cervical carcinoma with purified ab76020 at a working dilution of 1 in 100. The secondary antibody used is a HRP conjugated goat anti-rabbit IgG (H+L), ab97051, at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.

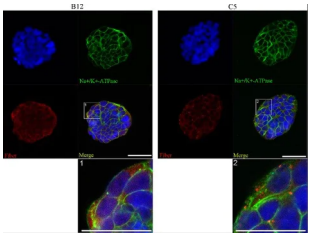


Immunocytochemistry/ Immunofluorescence - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Immunocytochemistry/ Immunofluorescence staining of MCF-7 (human breast carcinoma) cells using rabbit Anti-Sodium Potassium ATPase antibody

Sodium Potassium ATPase immunofluorescence staining of MCF-7 cells using rabbit anti-Sodium Potassium ATPase antibody

Immunocytochemistry/Immunofluorescence analysis of MCF-7 (human breast carcinoma) cells labelling Sodium Potassium ATPase with purified ab76020 at 1/500 dilution. Cells were fixed with 100% methanol. ab150077 Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000 dilution) was used as the secondary antibody. Nuclei were counterstained with DAPI (blue).
Secondary Only Control: PBS was used instead of the primary antibody as the negative control.



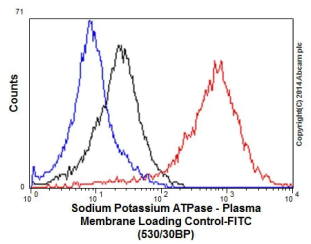
Zhang B et al., PLoS One, 10, e0117976, 2015
Reproduced under the Creative Commons license
http://creativecommons.org/licenses/by/4.0/

Immunocytochemistry/ Immunofluorescence - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Immunocytochemistry/ Immunofluorescence staining of T84 cells using rabbit Anti-Sodium Potassium ATPase antibody

T84 cells (human) cultured on 8-well chamber slides were washed once with ice-cold PBS then fixed with 4% paraformaldehyde for 30 min at 4°C. After fixation cells were permeabilized with 0.5% Triton X-100 for 5 min at room temperature and washed with PBS three times. Following blocking with 2% FCS in PBS for 1 hour at room temperature primary antibody staining was performed at 4°C overnight at 1/200 dilution. Cells were then incubated with protein fractions B12 and C5 at 5x dilutions in fresh media for 1 hour at 37°C. Cells were then fixed permeabilized and co-stained with fiber and sodium potassium ATPase. The nuclei were stained with DAPI using Vectachield mounting medium. Cells were visualized using Zeiss confocal microscopy LSM700. Fiber molecules were found to be predominantly intracellularly following B12 treatment.

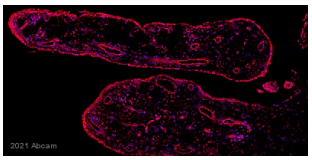
For full image see PubMed: 25723153.



Flow Cytometry (Intracellular) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Flow Cytometry (Intracellular) staining of HeLa cells using rabbit Anti-Sodium Potassium ATPase antibody

Overlay histogram showing HeLa cells fixed in 80% methanoland stained with purified ab76020 at a dilution of 1 in 100 (red line). The secondary antibody used was FITC goat anti-rabbit at a dilution of 1 in 150. Rabbit monoclonal IgG was used as an isotype control (black line) and the blue line shows cells incubated without primary or secondary antibody.

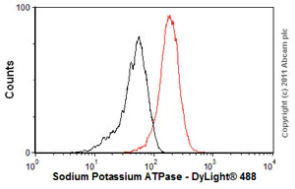


This image is courtesy of an customer review submitted by Dylan Windell

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of human tonsil tissue using rabbit Anti-Sodium Potassium ATPase antibody

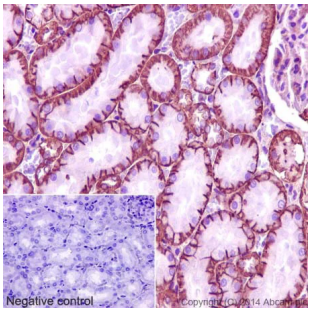
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of paraformaldehyde fixed human tonsil tissue permeabilized with 0.3% Triton X-100, staining with ab76020 at 5 µg/ml. Secondary used was ab150075 at 1/500 dilution. Blocking was done using Donkey Serum 10% + 3% BSA for 25 hours at 4°C. The sample was incubated with the primary antibody for 1 hour at 20°C. Antigen retrieval method was heat mediated Citrate pH 6 & TRIS pH 9. Validated on GE Cell DIVE.



Flow Cytometry (Intracellular) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Flow Cytometry (Intracellular) staining of HeLa cells using rabbit Anti-Sodium Potassium ATPase antibody

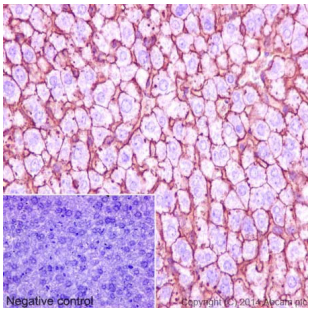
Overlay histogram showing HeLa cells stained with unpurified ab76020 (red line). The cells were fixed with 80% methanol (5 min) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab76020 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5000 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-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

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

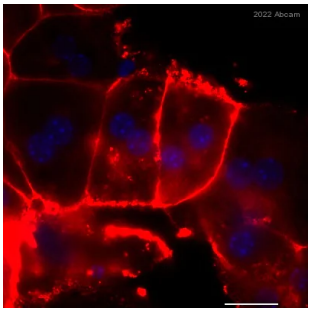
Immunohistochemical staining of paraffin embedded rat kidney with purified ab76020 at a dilution of 1/100. The secondary antibody used is a HRP conjugated goat anti-rabbit IgG (H+L), ab97051, at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of mouse liver tissue using rabbit Anti-Sodium Potassium ATPase antibody

Immunohistochemical staining of paraffin embedded mouse liver with purified ab76020 at a working dilution of 1 in 100. The secondary antibody used is a HRP conjugated goat anti-rabbit IgG (H+L) ab97051 at a dilution of 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer pH 9.0. PBS was used instead of the primary antibody as the negative control and is shown in the inset.

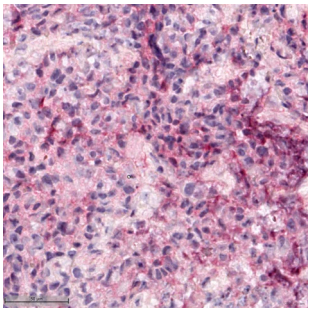


This image is courtesy of a customer review submitted by Armen Petrosyan

Immunocytochemistry/ Immunofluorescence - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

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

Immunocytochemistry analysis of formaldehyde-fixed rat hepatocytes permeabilized with 0.2% Triton X-100 in PBS staining with ab76020 at 1/50 dilution. Secondary antibody was Alexa Fluor™ 594 Donkey anti-Rb at 1/200 dilution.Cells were incubated with the primary antibody with 1% donkey serum in PBST for 2 hours at 22°C. Blocking was done with 1% donkey serum in PBST for 1 hour at 22°C.

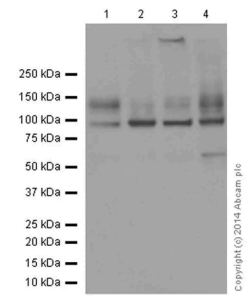


This image is courtesy of a customer review submitted by Armen Petrosyan.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Sodium Potassium ATPase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of mouse prostate tissue using rabbit Anti-Sodium Potassium ATPase antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse prostate tissue permeabilized with 0.2% Triton X-100 in PBS. Stained with ab76020 at 1/50 dilution. Secondary antibody used was Biotinylated Goat Anti-Rabbit. Blocking was done with 1% ab64261 Rabbit specific HRP/DAB (ABC) Detection IHC Kit plus goat serum for 1 hour at 37°C. The sample was incubated with the primary antibody, diluted in Protein Block from ab64261 for 2 hours at 37°C. Antigen retrieval method was heat mediated with Tris-EDTA buffer (pH 9.0).



Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

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

Blocking and diluting buffer: 5% NFDM/TBST.
We suggest not to boil the sample after lysis.

All lanes:
Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) at 1/100000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
MCF-7 (Human breast adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 3:
HEK-293 (Human embryonic kidney epithelial cell) whole cell lysates at 20 µg

Lane 4:
A431 (Human epidermoid carcinoma epithelial cell) whole cell lysates at 20 µg

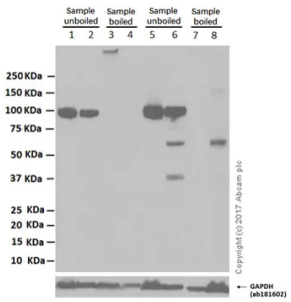
Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/20000 dilution

Predicted band size: 113 kDa

Observed band size: 100 kDa

Exposure time: 2min



Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

Blocking/Diluting buffer and concentration 5% NFDM/TBST
We suggest not to boil the sample after lysis.

All lanes:
Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) at 1/100000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate prepared from RIPA lysis method at 15 µg

Lane 2:
HeLa whole cell lysate prepared from 1% SDS HOT lysis method at 15 µg

Lane 3:
HeLa whole cell lysate prepared from RIPA lysis method at 15 µg

Lane 4:
HeLa whole cell lysate prepared from 1%SDS HOT lysis method at 15 µg

Lane 5:
Raw264.7 (Mouse abelson murine leukemia virus-induced tumor) whole cell lysate prepared from RIPA lysis method at 15 µg

Lanes 6 and 8:
Raw264.7 whole cell lysate prepared from 1%SDS HOT lysis method at 15 µg

Lane 7:
Raw264.7 whole cell lysate prepared from RIPA lysis method at 15 µg

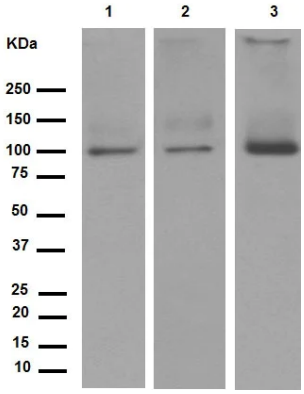
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 113 kDa

Observed band size: 100 kDa

Exposure time: 10s



Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020)

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

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST

We suggest not to boil the sample after lysis.

All lanes:
Western blot - Anti-Sodium Potassium ATPase antibody [EP1845Y] - Plasma Membrane Loading Control (ab76020) at 1/100000 dilution

Lane 1:
CHO (Chinese hamster ovary cell line) cell lysate at 20 µg

Lane 2:
C6 (Rat glial tumor cell line) cell lysate at 20 µg

Lane 3:
Mouse brain at 20 µg

Secondary

All lanes:
HRP goat anti-rabbit (H+L) at 1/1000 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'.