abcam

ab219055

Anti-Aquaporin 1 antibody [EPR20325]

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	EPR20325
Purification technique	Affinity purification Protein A
Concentration	0.74 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/40
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/700
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information AQP1

Function	Forms a water channel that facilitates the transport of water across cell membranes, playing a crucial role in water homeostasis in various tissues (PubMed:1373524, PubMed:23219802). Could also be permeable to small solutes

including hydrogen peroxide, glycerol and gases such as amonnia (NH3), nitric oxide (NO) and carbon dioxide (CO2) (PubMed:16682607, PubMed:17012249, PubMed:19273840, PubMed:33028705, PubMed:8584435). Recruited to the ankyrin-1 complex, a multiprotein complex of the erythrocyte membrane, it could be part of a CO2 metabolon, linking facilitated diffusion of CO2 across the membrane, anion exchange of Cl(-)/HCO3(-) and interconversion of dissolved CO2 and carbonic acid in the cytosol (PubMed:17012249, PubMed:35835865). In vitro, it shows non-selective gated cation channel activity and may be permeable to cations like K(+) and Na(+) in vivo (PubMed:36949749, PubMed:8703053).

Storage

Shipped at conditions	Conditional Ambient
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

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	Aquaporin 1 also known as Aquaporin-1 AQP-1 or AQP1 is a protein that functions as a water channel facilitating the transport of water across cell membranes. This protein plays an important role in maintaining water homeostasis within cells. Aquaporin 1 has a mass of approximately 28 kDa and is encoded by the AQP1 gene. It is expressed in various tissues and organs including the kidneys lungs and red blood cells indicating its importance in diverse physiological processes.
Biological function summary	Aquaporin 1 is not part of a complex but independently contributes to maintaining osmotic balance and fluid movement across epithelial and endothelial tissues. The protein's selective permeability for water without allowing ions or other solutes highlights its specificity in controlling water transport which is essential for maintaining cellular environment stability.
Pathways	The aquaporin protein is involved in key biological pathways such as the osmoregulatory pathway and the fluid secretion pathway. It maintains efficient water transport in processes like urine concentration in the kidneys and fluid regulation in the pulmonary system. Aquaporins in general are related to similar transport proteins like sodium channels which together play an important role in maintaining osmotic balance across various tissues.
Associated diseases and disorders	Aquaporin 1's dysfunction has been associated with conditions such as nephrogenic diabetes insipidus and pulmonary edema. These are linked to its role in water reabsorption in the kidneys and fluid balance in the lungs. The disorder's connection ties Aquaporin-1 with other regulatory proteins such as vasopressin receptors which work in conjunction to control renal water reabsorption and response to fluid imbalance.

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

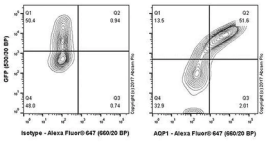
We do not recommend this combination. It is not covered by our product promise.

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.

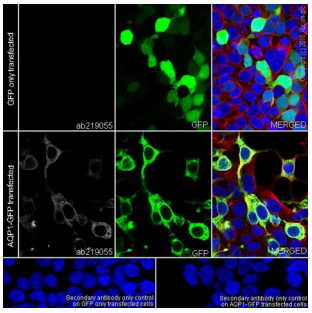
8 product images



Flow Cytometry (Intracellular) - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

Aquaporin 1 Flow Cytometry (Intracellular) staining using rabbit Anti-Aquaporin 1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HEK-293T (Human epithelial cell line from embryonic kidney) transfected with a GFP-tagged human Aquaporin 1 construct cellslabeling Aquaporin 1 with ab219055 at 1/700 dilution (right). Arabbit monoclonal IgG (ab172730) was used as isotype control (left). Goat anti rabbit IgG (Alexa Fluor® 647) (ab150079) at 1/2000 dilution was used as the secondary antibody.
Quadrant markers were set based on control antibody staining (ab172730) and GFP expression. Only GFP positive population (Q2 of right panel) give Aquaporin 1positive staining.



Immunocytochemistry/ Immunofluorescence - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

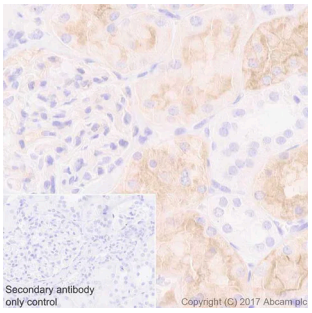
Aquaporin 1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Aquaporin 1 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HEK-293T (Human epithelial cell line from embryonic kidney) cells transfected with a GFP-tagged Aquaporin 1 expression construct or a GFP only control, labeling Aquaporin 1 with ab219055 at 1/1000 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 647) (ab150079) secondary antibody at 1/1000 dilution.
Confocal image showing positive staining on HEK-293T cells transfected with a GFP-tagged Aquaporin 1 expression construct.

The nuclear counterstain is DAPI (blue).

Tubulin is detected with ab195889 (Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594)) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat anti-rabbit IgG (Alexa Fluor® 647) (ab150079) at 1/1000 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

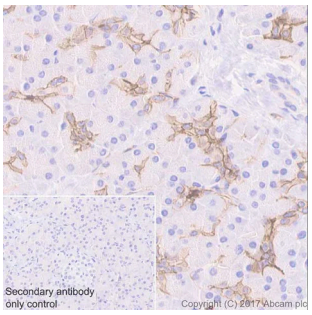
Aquaporin 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 1 antibody

Immunohistochemical analysis of paraffin-embedded human kidney tissue labeling Aquaporin 1 with ab219055 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous staining on proximal tubules of human kidney is observed [PMID: 14592814].

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

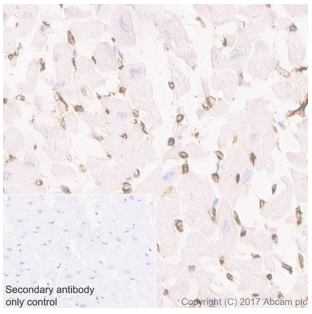
Aquaporin 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 1 antibody

Immunohistochemical analysis of paraffin-embedded human pancreas tissue labeling Aquaporin 1 with ab219055 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous staining on centroacinar cells of human pancreas is observed [PMID: 12801959].

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

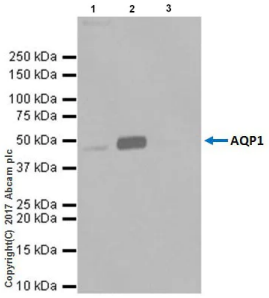
Aquaporin 1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 1 antibody

Immunohistochemical analysis of paraffin-embedded human cardiac muscle tissue labeling Aquaporin 1 with ab219055 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use.
Membranous staining on vessels of human cardiac muscle is observed [PMID: 14592814].

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunoprecipitation - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

Aquaporin 1 was immunoprecipitated from 0.35 mg of whole cell lysate from HEK-293T (Human epithelial cell line from embryonic kidney) transfected with a GFP-tagged human Auaporin 1 construct, with ab219055 at 1/40 dilution.
Western blot was performed from the immunoprecipitate using ab219055 at 1/1000 dilution.

VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.

Lane 1: Whole cell lysate from HEK-293T transfected with a GFP-tagged human Auaporin 1 construct, 10 µg (Input).

Lane 2: ab219055 IP in whole cell lysate from HEK-293T transfected with a GFP-tagged human Auaporin 1 construct.

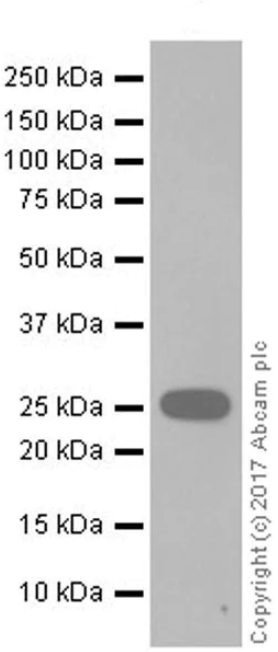
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab219055 in whole cell lysate from HEK-293T transfected with a GFP-tagged human Auaporin 1 construct.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 1 second.
All lanes:
Immunoprecipitation - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

Predicted band size: 28 kDa

Observed band size: 48 kDa



Western blot - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

Aquaporin 1 Western blot staining of Human fetal kidney lysate using rabbit Anti-Aquaporin 1 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Aquaporin 1 antibody [EPR20325] (ab219055) at 1/1000 dilution

All lanes:
Human fetal kidney lysate at 20 µg

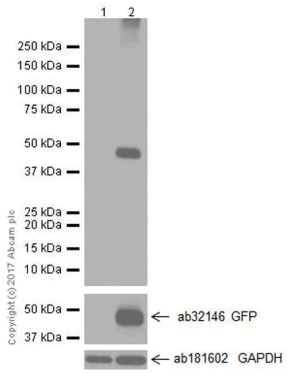
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 28 kDa

Observed band size: 28 kDa

Exposure time: 3s



Western blot - Anti-Aquaporin 1 antibody [EPR20325] (ab219055)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Aquaporin 1 antibody [EPR20325] (ab219055) at 1/1000 dilution

Lane 1:
Whole cell lysate from HEK-293T (Human epithelial cell line from embryonic kidney) transfected with an empty expression vector at 10 µg

Lane 2:
Whole cell lysate from HEK-293T transfected with a GFP-tagged human Aquaporin 1 construct at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 28 kDa

Observed band size: 48 kDa

Exposure time: 2s

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