abcam

ab65837

Anti-Aquaporin 1 antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: 2% Trehalose, 0.45% Sodium chloride, 0.1% Disodium hydrogenorthophosphate
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human AQP1. The exact immunogen used to generate this antibody is proprietary information. Database link P29972
Purification technique	Affinity purification Immunogen
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	0.1-0.5 µg/mL
Notes	-

Species	Rat
Dilution info	0.1-0.5 µg/mL

Notes	-

Expected

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

IHC-P

Tested

Species	Rat
Dilution info	2-5 µg/mL
Notes	-

Species	Human
Dilution info	2-5 µg/mL
Notes	-

Expected

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

IHC-Fr

Tested

Species	Rat
Dilution info	2-5 µg/mL
Notes	-

Expected

Species	Mouse, Human

Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1-3 µg/cells for 6 µg/cells
Notes	-

Expected

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

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	Blue Ice
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	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.

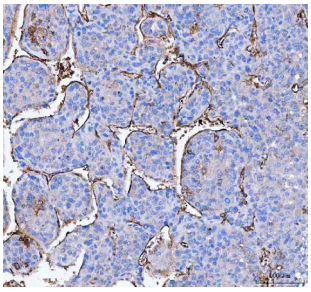
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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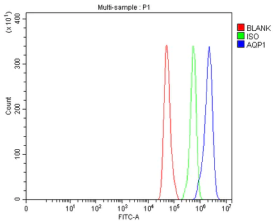
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 1 antibody (ab65837)

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

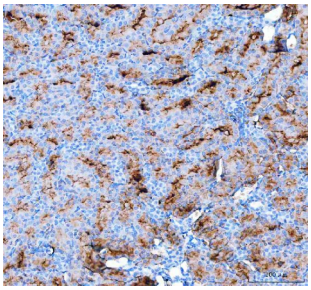
AQP1 was detected in a paraffin-embedded section of human liver cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml ab65837 overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit with DAB as the chromogen.



Flow Cytometry - Anti-Aquaporin 1 antibody (ab65837)

Aquaporin 1 Flow Cytometry staining using rabbit Anti-Aquaporin 1 antibody

Overlay histogram showing Hela cells stained with ab65837 (Blue). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with ab65837 at 1 µg/1x10^6 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG at 5-10 µg/1x10^6 cells was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green) was rabbit IgG (1 µg/1x10^6) used under the same conditions. Unlabelled sample (Red) was also used as a control.

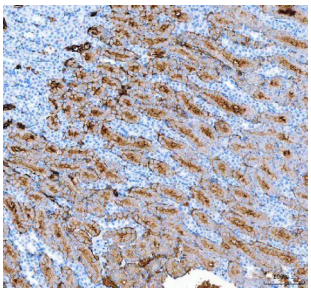


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 1 antibody (ab65837)

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

AQP1 was detected in a paraffin-embedded section of rat kidney tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml ab65837 overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and

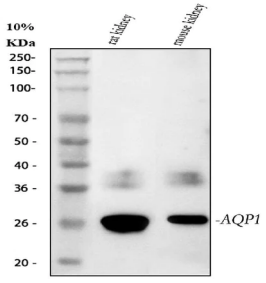
incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit with DAB as the chromogen.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 1 antibody (ab65837)

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

AQP1 was detected in a paraffin-embedded section of mouse kidney tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml ab65837 overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit with DAB as the chromogen.



Western blot - Anti-Aquaporin 1 antibody (ab65837)

Aquaporin 1 Western blot staining using rabbit Anti-Aquaporin 1 antibody

Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with ab65837 at 0.5 µg/mL overnight at 4°C, then washed with TBS-0.1% Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1/5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit with Tanon 5200 system. A specific band was detected for AQP1 at approximately 29 kDa. The expected band size for Aquaporin 1 is at 29 kDa.
All lanes:
Western blot - Anti-Aquaporin 1 antibody (ab65837) at 0.5 µg/mL

Lane 1:
rat kidney tissue lysates at 30 µg

Lane 2:
mouse kidney tissue lysates at 30 µg

Secondary

All lanes:
goat anti-rabbit IgG-HRP at 1/5000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

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