abcam

ab307969

Anti-Aquaporin 3 antibody [EPR28053-11]

Recombinant | RabMAb | Advanced Validation | 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	EPR28053-11
Purification technique	Affinity purification Protein A
Concentration	0.509 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

mIHC

Tested

Species	Human
Dilution info	1/1200 - 1/5000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/5000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

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

Species	Rat
Dilution info	-

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-

Notes	-

IHC-Fr

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Target data

See full target information AQP3

Function	Aquaglyceroporins form homotetrameric transmembrane channels, with each monomer independently mediating glycerol and water transport across the plasma membrane along their osmotic gradient (PubMed:12239222, PubMed:30420639). Could also be permeable to urea (By similarity). Also participates in cell permeability to H2O2 and H2O2-mediated signaling (PubMed:20724658). In skin, transports glycerol to the epidermis and stratum corneum, where it maintains hydration, elasticity, and supports lipid biosynthesis for barrier repair (By similarity). In kidney, contributes to the reabsorption of water, helping the body maintain proper fluid balance (By similarity).

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 3 (AQP3) also known as AQP-3 is a water and glycerol channel protein with a molecular weight of approximately 31 kDa. It facilitates the transport of water glycerol and other small solutes across cell membranes. AQP3 is expressed in a variety of tissues including the epidermis kidney respiratory tract and gastrointestinal tract. The protein's ability to transport glycerol is especially important in maintaining skin hydration and elasticity.
Biological function summary	Aquaporin channels such as AQP3 aid in the osmotic balance and are part of the cell membrane's permeability machinery. AQP3 forms functional homotetrameric structures that integrate into the plasma membrane. Each monomer of AQP3 contains a pore for the passage of water and other small molecules. This structural arrangement allows cells to regulate fluid movement and maintain homeostasis particularly in epithelial tissues.
Pathways	AQP3 engages in the regulation of transepithelial water movement and is involved in glycerol metabolism pathways. It interacts with proteins such as AQP1 and AQP4 supporting fluid transport across various organs. In epidermal cells AQP3 plays a role in the glycerol transport pathway important for skin barrier function and wound healing processes. Its role in these pathways highlights its contribution to cellular hydration and metabolic functions.
Associated diseases and disorders	AQP3 has links to conditions like psoriasis and kidney dysfunction. Aberrant expression of AQP3 can contribute to skin disorders by disrupting hydration balance and affecting glycerol transport. In the kidney altered AQP3 expression impacts water reabsorption and can exacerbate renal pathologies. The interaction of AQP3 with other aquaporins like AQP1 suggests a collaborative role in disease progression through shared pathways involving fluid balance anomalies.

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.

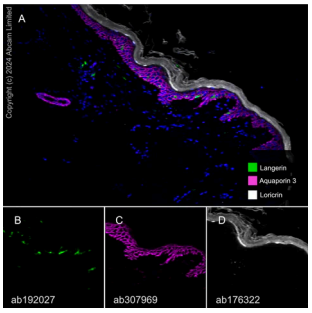
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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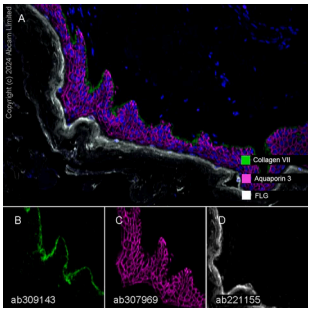
11 product images



Multiplex immunohistochemistry - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Aquaporin 3 Multiplex immunohistochemistry staining using rabbit Anti-Aquaporin 3 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human skin tissue staining Langerin with ab192027 at a 1/1200 dilution, ab176322 anti-Loricrin used at 1/1200 dilution and ab307969 anti-Aquaporin 3 used at a 1/1200 dilution.



Multiplex immunohistochemistry - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Aquaporin 3 Multiplex immunohistochemistry staining of Human skin using rabbit Anti-Aquaporin 3 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human skin staining Collagen VII with ab309143 at a 1/100 dilution, ab307969 anti-Aquaporin 3 used at 1/5000 dilution and ab221155 anti-FLG used at a 1/1000 dilution.
Panel A: merged staining of anti-Collagen VII (green; Opal™520), anti-Aquaporin 3 (magenta; Opal™690) and anti-FLG (gray; Opal™570) on human skin.

Panel B: anti-Collagen VII staining basement membrane in human skin.

Panel C: anti-Aquaporin 3 staining squamous epithelium in human skin.

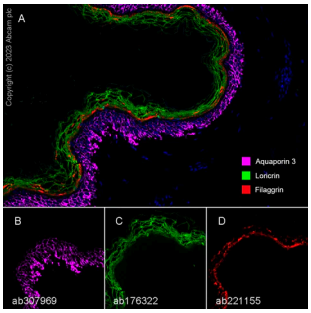
Panel D: anti-FLG staining maturing squamous cells in human skin.

Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab309143, ab307969 and ab221155 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

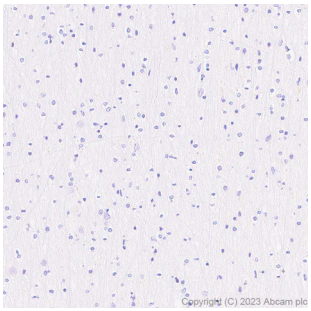
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Multiplex immunohistochemistry - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

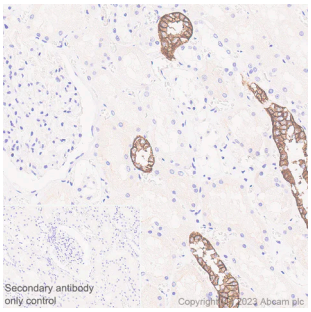
Aquaporin 3 Multiplex immunohistochemistry staining using rabbit Anti-Aquaporin 3 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human skin tissue labelling Aquaporin 3 with ab307969 at 1/5000 dilution (0.094 µg/mL) (B), Loricrin with ab176322 at 1/3000 dilution (0.031 µg/ml) (C) and Filaggrin with ab221155 at 1/2000 dilution (0.523 µg/ml) (D). Opal Polymer HRP Ms + Rb was used as a secondary antibody, and DAPI was used for a nuclear counter stain. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins. Panel A: merged staining of anti-Aquaporin 3 (magenta; Opal™690), anti-Loricrin (green; Opal™520) and anti-Filaggrin (red; Opal™570) on human skin. Panel B: anti-Aquaporin 3 stained on keratinocytes from the stratum basale to the stratum granulosum of the epidermis. Panel C: anti-Loricrin stained on stratum corneum. Panel D: anti-Filaggrin stained on the granular to stratum corneum transition. The section was incubated in three rounds of staining: in the order of ab307969, ab176322, and ab221155 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.



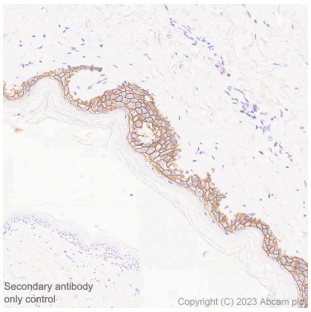
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Immunohistochemical analysis of paraffin-embedded human cerebrum tissue labeling Aquaporin 3 with ab307969 at 1/5000 dilution (0.094 ug/ml) followed by ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Negative control: no staining on human cerebrum. The section was incubated with ab307969 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



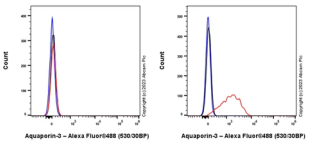
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Immunohistochemical analysis of paraffin-embedded human kidney tissue labeling Aquaporin 3 with ab307969 at 1/5000 dilution (0.094 ug/ml) followed by ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Positive staining on human kidney. The section was incubated with ab307969 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



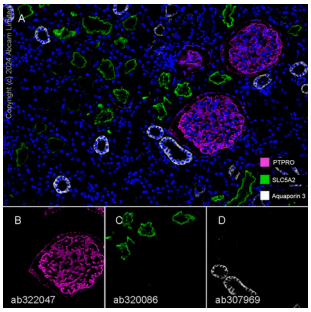
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Immunohistochemical analysis of paraffin-embedded human skin tissue labeling Aquaporin 3 with ab307969 at 1/5000 dilution (0.094 ug/ml) followed by ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Positive staining on human skin. The section was incubated with ab307969 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



Flow Cytometry (Intracellular) - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized U-87 MG (human glioblastoma-astrocytoma epithelial cell) (Left panel) compared to A431 (human epidermoid carcinoma epithelial cell) (Right panel) cells labelling Aquaporin 3 with ab307969 at 1/500 dilution (0.1 ug) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



Multiplex immunohistochemistry - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Aquaporin 3 Multiplex immunohistochemistry staining of human kidney tissue using rabbit Anti-Aquaporin 3 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human kidney tissue staining GLEPP1/PTPRO with ab322047 at a 1:2000 (0.261 ug/ml) dilution, ab320086 anti-SLC5A2 used at 1:1000 (0.508 ug/ml) dilution and ab307969 anti-Aquaporin 3 used at a 1:5000 (0.0941 ug/ml) dilution.

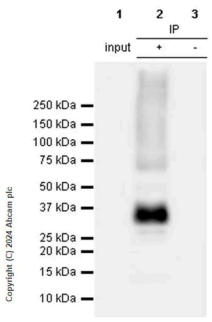
Panel A: merged staining of anti-PTPRP (magenta; Opal™690), anti-SLC5A2 (green; Opal™520) and anti-Aquaporin 3 (gray; Opal™570) on human kidney.
Panel B: anti-PTPRP staining glomerulus in human kidney.
Panel C: anti-SLC5A2 staining proximal tubules in human kidney.
Panel D: anti-Aquaporin 3 staining collecting tubules in human kidney.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab322047, ab320086 and ab307969 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Nuclear counter stain with DAPI.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunoprecipitation - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Aquaporin 3 was immunoprecipitated from 0.35 mg A431 (human epidermoid carcinoma epithelial cell) whole cell lysate with ab307969 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab307969 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.

Lane 1: A431 (human epidermoid carcinoma epithelial cell) whole cell lysate
Lane 2: ab307969 IP in A431 (human epidermoid carcinoma epithelial cell) whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab307969 in A431 (human epidermoid carcinoma epithelial cell) whole cell lysate

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

All lanes:
Immunoprecipitation - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969) at 1/30 dilution

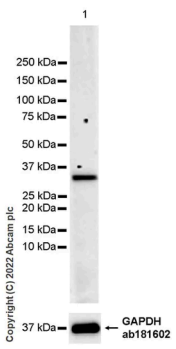
All lanes:
A431 (human epidermoid carcinoma epithelial cell) whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Predicted band size: 31 kDa

Observed band size: 31 kDa



Western blot - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Blocking and diluting buffer and concentration: 5% NFDM/TBST In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution. Exposure time: 180 seconds
All lanes:
Western blot - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969) at 1/1000 dilution

All lanes:
HEK-293 (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

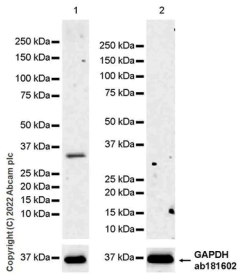
Secondary

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

Predicted band size: 31 kDa

Observed band size: 35 kDa

Exposure time: 180s



Western blot - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Blocking and diluting buffer and concentration: 5% NFDM/TBST Negative control: brain(PMID: 10737773) In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution. Exposure time: 180 seconds Negative control: brain(PMID: 10737773)
All lanes:
Western blot - Anti-Aquaporin 3 antibody [EPR28053-11] (ab307969)

Lane 1:
Human kidney tissue lysate at 20 mg/mL

Lane 2:
Human brain tissue lysate at 20 mg/mL

Secondary

All lanes:
Western blot - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/1000 dilution

Predicted band size: 31 kDa

Observed band size: 35 kDa

Exposure time: 180s

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