abcam

ab290986

Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 647
Excitation/Emission	Ex: 650nm, Em: 665nm
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR24281-65
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-Fr

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Expected

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

Notes	-

ICC/IF

Expected

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

Target data

See full target information AQP4

Function	Forms a water-specific channel (PubMed:19383790, PubMed:7559426, PubMed:8601457). Plays an important role in brain water homeostasis (PubMed:37143309). It is involved in glymphatic solute transport and is required for a normal rate of water exchange across the blood brain interface. Required for normal levels of cerebrospinal fluid influx into the brain cortex and parenchyma along paravascular spaces that surround penetrating arteries, and for normal drainage of interstitial fluid along paravenous drainage pathways. Thereby, it is required for normal clearance of solutes from the brain interstitial fluid, including soluble beta-amyloid peptides derived from APP. Plays a redundant role in urinary water homeostasis and urinary concentrating ability (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, Store in the dark

Notes

This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com.

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.

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Supplementary info

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

Activity summary	Aquaporin 4 also known as AQP4 functions as a water channel protein that facilitates the transport of water across cell membranes. It is composed of approximately 323 amino acids resulting in a molecular mass of around 34-38 kDa. This target expresses most in the central nervous system especially in the astrocytes of the brain and spinal cord. Other expression sites include skeletal muscle kidneys and lungs. AQP4 is often studied using various tools including anti-aquaporin 4 antibodies and specific reagents like AQP4 Ab and anti-AQP4.
Biological function summary	Water balance and neural activity regulation are significantly influenced by aquaporin 4. This protein forms a part of the orthogonal array of particles (OAPs) in the plasma membrane which enhances its water permeability function. Through its concentration at the blood-brain barrier AQP4 contributes to maintaining brain homeostasis by regulating osmotic gradients and extracellular space ion concentrations. Its expression and activity may affect critical processes like neuroexcitation and neuroprotection.
Pathways	Aquaporin 4 actively engages in critical water transport and blood-brain barrier integrity pathways. The passive yet selective water transport facilitated by AQP4 impacts pathways including the transcellular pathway that helps in maintaining

	the homeostatic and osmotic balance important for brain function. Furthermore AQP4 acts in relation to other proteins such as aquaporin 1 and connexin 43 indicating its role in gap junction communication within the brain.
Associated diseases and disorders	Aquaporin 4 is intricately linked to conditions like neuromyelitis optica (NMO) and cerebral edema. In NMO autoantibodies such as anti-AQP4 target the protein causing demyelination and inflammation of the optic nerve and spinal cord. In cases of cerebral edema an imbalance in AQP4 expression can disrupt water homeostasis leading to exacerbated swelling. AQP4's interaction with proteins like myelin basic protein in these diseases underlines its significance in neurodegeneration and inflammatory processes.

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

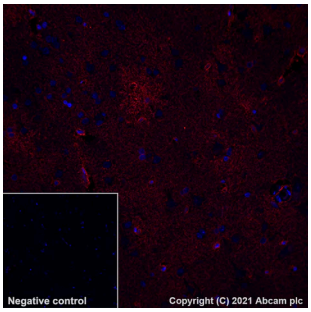
We do not recommend this combination. It is not covered by our product promise.

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

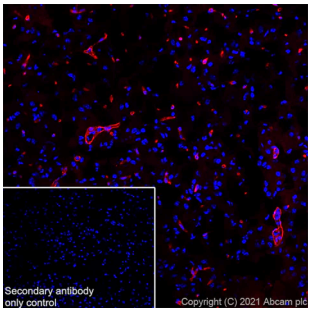


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 4 antibody

Immunohistochemical analysis of paraffin-embedded Human cerebrum tissue labeling Aquaporin 4 with ab290986.

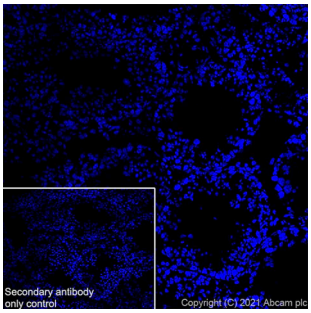
Positive staining on human cerebrum. The section was then incubated overnight at +4°C in TBS containing 0.025% (v/v) Triton X-100 and 1% (w/v) BSA with ab290986 at 1/100 dilution (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. Non-specific protein-protein interactions were then blocked in TBS containing 0.025% (v/v) Triton X-100, 0.3M (w/v) glycine and 1% (w/v) BSA for 1h at room temperature. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Immunohistochemistry (Frozen sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Frozen sections) staining using rabbit Anti-Aquaporin 4 antibody

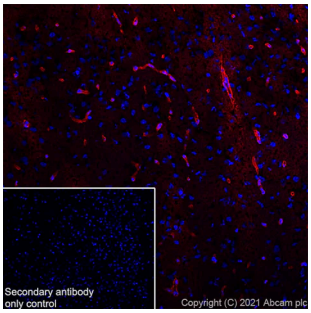
Immunohistochemical analysis of 4% PFA-fixed 0.2% Triton X-100 permeabilized frozen sectioned Mouse cerebrum (fresh) tissue labeling Aquaporin 4 with ab290986 at 1/100 dilution. Positive staining on mouse cerebrum (Red). The nuclear counterstain is DAPI (blue).



Immunohistochemistry (Frozen sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Frozen sections) staining using rabbit Anti-Aquaporin 4 antibody

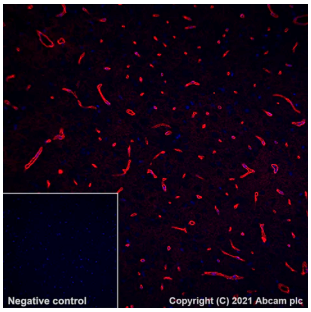
Immunohistochemical analysis of 4% PFA-fixed 0.2% Triton X-100 permeabilized frozen sectioned Mouse testis (fresh) tissue with ab290986 at 1/100 dilution. Negative control (PMID: 16840793). No staining on mouse testis. Nuclear counterstain is DAPI (blue).



Immunohistochemistry (Frozen sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Frozen sections) staining using rabbit Anti-Aquaporin 4 antibody

Immunohistochemical analysis of 4% PFA-fixed 0.2% Triton X-100 permeabilized frozen sectioned Rat cerebrum (fresh) tissue labeling Aquaporin 4 with ab290986 at 1/500 dilution. Positive staining on rat cerebrum (Red). The nuclear counterstain is DAPI (blue).

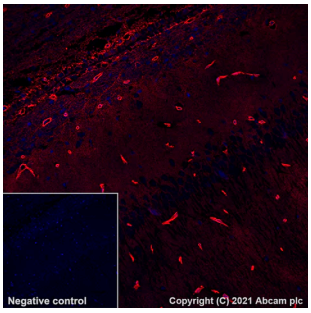


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 4 antibody

Immunohistochemical analysis of paraffin-embedded Mouse cerebrum tissue labeling Aquaporin 4 with ab290986.

Positive staining on mouse cerebrum. The section was then incubated overnight at +4°C in TBS containing 0.025% (v/v) Triton X-100 and 1% (w/v) BSA with ab290986 at 1/100 dilution (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. Non-specific protein-protein interactions were then blocked in TBS containing 0.025% (v/v) Triton X-100, 0.3M (w/v) glycine and 1% (w/v) BSA for 1h at room temperature. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

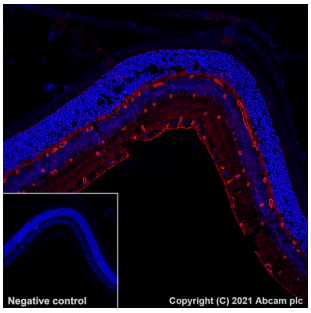


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 4 antibody

Immunohistochemical analysis of paraffin-embedded Rat cerebrum tissue labeling Aquaporin 4 with ab290986.

Positive staining on rat cerebrum. The section was then incubated overnight at +4°C in TBS containing 0.025% (v/v) Triton X-100 and 1% (w/v) BSA with ab290986 at 1/100 dilution (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. Non-specific protein-protein interactions were then blocked in TBS containing 0.025% (v/v) Triton X-100, 0.3M (w/v) glycine and 1% (w/v) BSA for 1h at room temperature. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

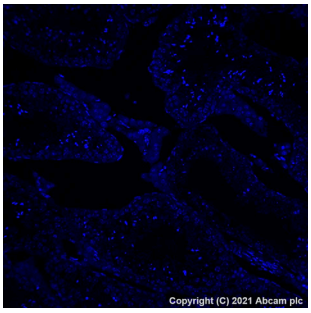


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 4 antibody

Immunohistochemical analysis of paraffin-embedded Mouse retina tissue labeling Aquaporin 4 with ab290986.

Positive staining on mouse retina. The section was then incubated overnight at +4°C in TBS containing 0.025% (v/v) Triton X-100 and 1% (w/v) BSA with ab290986 at 1/100 dilution (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. Non-specific protein-protein interactions were then blocked in TBS containing 0.025% (v/v) Triton X-100, 0.3M (w/v) glycine and 1% (w/v) BSA for 1h at room temperature. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Aquaporin 4 antibody [EPR24281-65] (ab290986)

Aquaporin 4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Aquaporin 4 antibody

Immunohistochemical analysis of paraffin-embedded Mouse testis tissue labeling Aquaporin 4 with ab290986.

Negative control: no staining on mouse testis. The section was then incubated overnight at +4°C in TBS containing 0.025% (v/v) Triton X-100 and 1% (w/v) BSA with ab290986 at 1/100 dilution (shown in red). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®. Non-specific protein-protein interactions were then blocked in TBS containing 0.025% (v/v) Triton X-100, 0.3M (w/v) glycine and 1% (w/v) BSA for 1h at room temperature. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

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