

Aquaporin4

Cat.No. 429 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For reconstitution add 100 µl H ₂ O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 5000 up to 1 : 10000 AP staining IP: yes ICC: 1 : 1000 IHC: 1 : 500 up to 1 : 1000 IHC-P: 1 : 1000
Immunogen	Recombinant protein corresponding to AA 249 to 323 from mouse Aquaporin-4 isoform 2 (UniProt Id: P55088-1)
Reactivity	Reacts with: rat (P47863), mouse (P55088-1). Other species not tested yet.
Specificity	Specific for Aquaporin- 4, detects all described isoforms.
Matching control	429-0P

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

Aquaporin4, or AQP4, also known as Mercurial-insensitive water channel (MIWC), is a member of the aquaporin water channel family. This osmoreceptor regulates body water balance and mediates water flow within the central nervous system.

Selected References for 429 004

40 Hz light flickering facilitates the glymphatic flow via adenosine signaling in mice.
Sun X, Dias L, Peng C, Zhang Z, Ge H, Wang Z, Jin J, Jia M, Xu T, Guo W, Zheng W, et al.
Cell discovery (2024) 101: 81. . **IP; tested species: mouse**

Evaluation of gliovascular functions of Aqp4 readthrough isoforms.
Mueller SM, White KM, Fass SB, Chen S, Shi Z, Ge X, Engelbach JA, Gaines SH, Bice AR, Vasek MJ, Garbow JR, et al.
bioRxiv : the preprint server for biology (2023) : . . **WB; tested species: mouse**

The NKCC1 ion transporter modulates microglial phenotype and inflammatory response to brain injury in a cell-autonomous manner.

Tóth K, Lénárt N, Berki P, Fekete R, Szabadits E, Pósfai B, Cserép C, Alatshan A, Benkő S, Kiss D, Hübner CA, et al.
PLoS biology (2022) 201: e3001526. . **IHC; tested species: mouse**

Astrocyte TrkB promotes brain injury and edema formation in ischemic stroke.

Colombo E, Bacigaluppi M, Bartocchetti M, Triolo D, Bassani C, Bergamaschi A, Descamps HC, Gullotta GS, Henley M, Piccoli M, Anastasia L, et al.
Neurobiology of disease (2024) 201: 106670. . **IHC; tested species: mouse**

Microglia directly associate with pericytes in the central nervous system.

Morris GP, Foster CG, Courtney JM, Collins JM, Cashion JM, Brown LS, Howells DW, DeLuca GC, Canty AJ, King AE, Ziebell JM, et al.
Glia (2023) : . . **IHC; tested species: mouse**

Microglia modulate blood flow, neurovascular coupling, and hypoperfusion via purinergic actions.

Császár E, Lénárt N, Cserép C, Környei Z, Fekete R, Pósfai B, Balázsfi D, Hangya B, Schwarcz AD, Szabadits E, Szöllösi D, et al.
The Journal of experimental medicine (2022) 2193: . . **IHC; tested species: mouse**

Update on Perineuronal Net Staining With Wisteria floribunda Agglutinin (WFA).

Härtig W, Meinicke A, Michalski D, Schob S, Jäger C
Frontiers in integrative neuroscience (2022) 16: 851988. . **IHC; tested species: mouse**

SARS-CoV-2 infects neurons and induces neuroinflammation in a non-human primate model of COVID-19.

Beckman D, Bonillas A, Diniz GB, Ott S, Roh JW, Elizaldi SR, Schmidt BA, Sammak RL, Van Rompay KKA, Iyer SS, Morrison JH, et al.
Cell reports (2022) 415: 111573. . **IHC; tested species: monkey**

Regionally Altered Immunsignals of Surfactant Protein-G, Vascular and Non-Vascular Elements of the Neurovascular Unit after Experimental Focal Cerebral Ischemia in Mice, Rats, and Sheep.

Michalski D, Reimann W, Spielvogel E, Mages B, Biedermann B, Barthel H, Nitzsche B, Schob S, Härtig W
International journal of molecular sciences (2022) 2311: . . **IHC; tested species: mouse**

Selected General References

Radial glial elements in the cerebral cortex of the lesser hedgehog tenrec.

Mack AF et al. Brain Struct Funct (2018) PubMed:30094606

Expression and Distribution Pattern of Aquaporin 4, 5 and 11 in Retinas of 15 Different Species.

Amann B et al. Int J Mol Sci (2016) PubMed:27438827

Physiological roles of aquaporin-4 in brain.

Nagelhus EA et al. Physiol. Rev. (2013) PubMed:24137016

Access the online factsheet including applicable protocols at <https://sysy.com/product/429004> or scan the QR-code.



FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot a 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.