

AQP0 (B-11): sc-376445



The Power to Question

BACKGROUND

Aquaporins (AQPs) are a large family of integral membrane channel proteins that facilitate the transport of water through the cell membrane. Aquaporins are widely distributed and are involved in renal water absorption, generation of pulmonary secretions, lacrimation, and the secretion and reabsorption of cerebrospinal fluid and aqueous humor. AQP0 is the most abundant endogenous protein in the plasma membrane of lens fiber cells where it functions not only as a water pore, but it is also involved in fiber-fiber adhesion and is crucial for fiber cell structure and organization. AQP0 contains an additional pore constriction, not seen in any other aquaporin structures, which may be responsible for pore gating. The closed AQP0 pore holds just three water molecules, which are spaced too far apart to form hydrogen bonds with each other. The C-terminal domain of AQP0 undergoes extensive post-translational modification, including many truncations, during lens aging due to the actions of m-calpain, proteases or non-enzymatic mechanisms. These truncation sites may be involved in the development of cataracts.

REFERENCES

- Shiels, A., et al. 2000. Disruption of lens fiber cell architecture in mice expressing a chimeric AQP0-LTR protein. *FASEB J.* 14: 2207-2212.
- Zampighi, G.A., et al. 2002. Structure of functional single AQP0 channels in phospholipid membranes. *J. Mol. Biol.* 325: 201-210.
- Zampighi, G.A., et al. 2002. Micro-domains of AQP0 in lens equatorial fibers. *Exp. Eye Res.* 75: 505-519.

CHROMOSOMAL LOCATION

Genetic locus: MIP (human) mapping to 12q13.3; Mip (mouse) mapping to 10 D3.

SOURCE

AQP0 (B-11) is a mouse monoclonal antibody raised against amino acids 220-263 mapping within a C-terminal cytoplasmic domain of AQP0 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AQP0 (B-11) is available conjugated to agarose (sc-376445 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376445 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376445 PE), fluorescein (sc-376445 FITC), Alexa Fluor® 488 (sc-376445 AF488), Alexa Fluor® 546 (sc-376445 AF546), Alexa Fluor® 594 (sc-376445 AF594) or Alexa Fluor® 647 (sc-376445 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376445 AF680) or Alexa Fluor® 790 (sc-376445 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

AQP0 (B-11) is recommended for detection of AQP0 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for AQP0 siRNA (h): sc-42361, AQP0 siRNA (m): sc-42362, AQP0 shRNA Plasmid (h): sc-42361-SH, AQP0 shRNA Plasmid (m): sc-42362-SH, AQP0 shRNA (h) Lentiviral Particles: sc-42361-V and AQP0 shRNA (m) Lentiviral Particles: sc-42362-V.

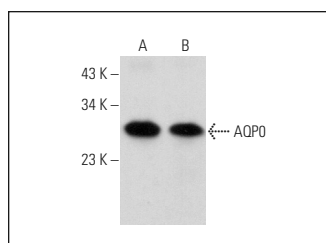
Molecular Weight of AQP0: 28 kDa.

Positive Controls: mouse eye extract: sc-364241 or rat eye extract: sc-364805.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



AQP0 (B-11): sc-376445. Western blot analysis of AQP0 expression in rat eye (A) and mouse eye (B) tissue extracts.

SELECT PRODUCT CITATIONS

- Song, Y.C., et al. 2015. Regulatory effect of miRNA 320a on expression of aquaporin 4 in brain tissue of epileptic rats. *Asian Pac. J. Trop. Med.* 8: 807-812.
- Varadaraj, K., et al. 2019. Deletion of seventeen amino acids at the C-terminal end of aquaporin 0 causes distortion aberration and cataract in the lenses of AQP0ΔC/ΔC mice. *Invest. Ophthalmol. Vis. Sci.* 60: 858-867.
- Nakazawa, Y., et al. 2021. Effect of α-glucosyl-hesperidin consumption on lens sclerosis and presbyopia. *Cells* 10: 382.

RESEARCH USE

For research use only, not for use in diagnostic procedures.