

AQP4 (F-7): sc-390636

BACKGROUND

In skeletal muscle, AQP4 (aquaporin 4, also known as mercurial insensitive water channel), localizes to the sarcolemma of fast-twitch muscle fibers. Aquaporins (AQPs) are a large family of integral membrane water transport channel proteins that facilitate the transport of water through the cell membrane. This function is conserved in animals, plants and bacteria. Many isoforms of aquaporin have been identified in mammals, designated AQP0 through AQP10. Aquaporins are widely distributed and it is not uncommon for more than one type of AQP to be present in the same cell. Although most aquaporins are only permeable to water, AQP3, AQP7, AQP9 and one of the two AQP10 transcripts are also permeable to urea and glycerol. AQP2 is the only water channel that is activated by vasopressin to enhance water reabsorption in the kidney collecting duct. Aquaporins are involved in renal water absorption, generation of pulmonary secretions, lacrimation and the secretion and reabsorption of cerebrospinal fluid and aqueous humor.

REFERENCES

1. Preston, G.M., et al. 1991. Isolation of the cDNA for erythrocyte integral membrane protein of 28 kilodaltons: member of an ancient channel family. *Proc. Natl. Acad. Sci. USA* 88: 11110-11114.
2. Deen, P.M., et al. 1994. Requirement of human renal water channel aquaporin-2 for vasopressin-dependent concentration of urine. *Science* 264: 92-95.
3. Ishibashi, K., et al. 1995. Structure and chromosomal localization of a human water channel (AQP3) gene. *Genomics* 27: 352-354.
4. Yang, B., et al. 1995. cDNA cloning, gene organization, and chromosomal localization of a human mercurial insensitive water channel. Evidence for distinct transcriptional units. *J. Biol. Chem.* 270: 22907-22913.
5. Lee, M.D., et al. 1996. The human aquaporin 5 gene. Molecular characterization and chromosomal localization. *J. Biol. Chem.* 271: 8599-8604.
6. Turtzo, L.C., et al. 1997. Cloning and chromosomal localization of mouse aquaporin 4: exclusion of a candidate mutant phenotype, ataxia. *Genomics* 41: 267-270.
7. Frigeri, A., et al. 1998. Expression of aquaporin-4 in fast-twitch fibers of mammalian skeletal muscle. *J. Clin. Invest.* 102: 695-703.

CHROMOSOMAL LOCATION

Genetic locus: AQP4 (human) mapping to 18q11.2; Aqp4 (mouse) mapping to 18 A1.

SOURCE

AQP4 (F-7) is a mouse monoclonal antibody raised against amino acids 244-323 mapping at the C-terminus of AQP4 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.

APPLICATIONS

AQP4 (F-7) is recommended for detection of AQP4 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 AQP4 siRNA (h): sc-29715, AQP4 siRNA (m): sc-29716, AQP4 shRNA Plasmid (h): sc-29715-SH, AQP4 shRNA Plasmid (m): sc-29716-SH, AQP4 shRNA (h) Lentiviral Particles: sc-29715-V and AQP4 shRNA (m) Lentiviral Particles: sc-29716-V.

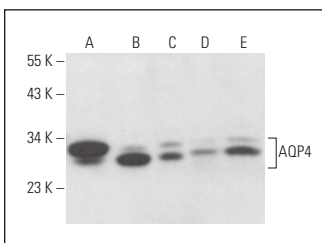
Molecular Weight of AQP4: 34 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, human stomach extract: sc-363780 or human skeletal muscle extract: sc-363776.

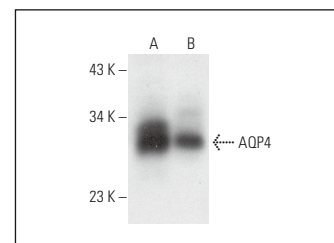
RECOMMENDED SUPPORT REAGENTS

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



AQP4 (F-7): sc-390636. Western blot analysis of AQP4 expression in NIH/3T3 (A), U-87 MG (B), SJRH30 (C), Sol8 (D) and A-10 (E) whole cell lysates.



AQP4 (F-7): sc-390636. Western blot analysis of AQP4 expression in human stomach (A) and human skeletal muscle (B) tissue extracts.

SELECT PRODUCT CITATIONS

1. Gartling, G.J., et al. 2021. A comparison of the localization of integral membrane proteins in human and rabbit vocal folds. *Laryngoscope* 131: E1265-E1271.

STORAGE

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

RESEARCH USE

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