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Anti-Aquaporin 4 Antibody

Catalog # AP50937

Product Information

Application	WB, IHC, IF/IC
Primary Accession	P55087
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	34830

Additional Information

Gene ID	361
Other Names	Aquaporin-4; AQP-4; Mercurial-insensitive water channel; MIWC; WCH4
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the center region of human Aquaporin 4. The exact sequence is proprietary.
Dilution	WB~~ 1:500 IHC~~1:100~500 IF/IC~~N/A
Format	Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	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).
Cellular Location	Cell membrane; Multi-pass membrane protein. Basolateral cell membrane {ECO:0000250|UniProtKB:P55088}; Multi-pass membrane protein. Endosome membrane {ECO:0000250|UniProtKB:P47863}. Cell membrane, sarcolemma; Multi-pass membrane protein. Cell projection

{ECO:0000250|UniProtKB:P47863}. Note=Activation of the vasopressin receptor AVPR1A triggers AQP4 phosphorylation at Ser-180 and promotes its internalization from the cell membrane. Detected on brain astrocyte processes and astrocyte endfeet close to capillaries {ECO:0000250|UniProtKB:P47863}

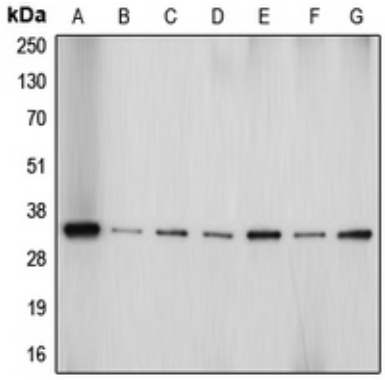
Tissue Location

Detected in skeletal muscle (PubMed:29055082). Detected in stomach, along the glandular base region of the fundic gland (at protein level) (PubMed:8601457). Detected in brain, lung and skeletal muscle, and at much lower levels in heart and ovary (PubMed:7559426, PubMed:8601457).

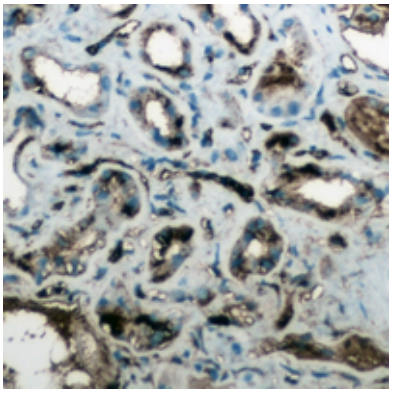
References

Yang B.,et al.J. Biol. Chem. 270:22907-22913(1995).
Misaka T.,et al.FEBS Lett. 381:208-212(1996).
Lu M.,et al.Proc. Natl. Acad. Sci. U.S.A. 93:10908-10912(1996).
Nusbaum C.,et al.Nature 437:551-555(2005).
Lanciotti A.,et al.Hum. Mol. Genet. 21:2166-2180(2012).

Images

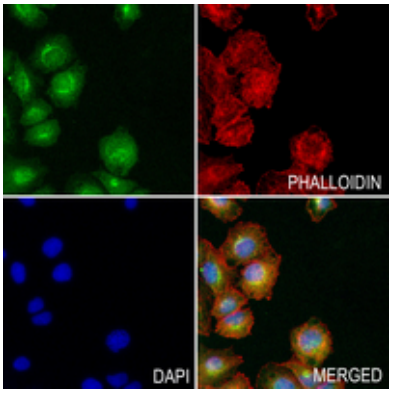


Western blot analysis of Aquaporin 4 expression in HeLa (A), Jurkat (B), PC12 (C), SP2/0 (D), HepG2 (E), U87MG (F), mouse brain (G) whole cell lysates. (Predicted band size: 34 kD; Observed band size: 35 kD)



Immunohistochemical analysis of Aquaporin 4 staining in human lung cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

Immunofluorescent analysis of Aquaporin 4 staining in H460 cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a hidified chamber. Cells were washed with PBST and incubated with a AF488-conjugated secondary antibody (green) in PBS at room temperature in the dark. Phalloidin - AF594



was used to stain Actin filaments (red). DAPI was used to stain the cell nuclei (blue).

Citations

- Atorvastatin ameliorates early brain injury through inhibition of apoptosis and ER stress in a rat model of subarachnoid hemorrhage.

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