

BACKGROUND

Aquaporins (AQPs) are membrane water channels that play critical roles in controlling the water contents of cells. These channels are widely distributed in all kingdoms of life, including bacteria, plants, and mammals. More than ten different aquaporins have been found in human body, and several diseases, such as congenital cataracts and nephrogenic diabetes insipidus, are connected to the impaired function of these channels. They form tetramers in the cell membrane, and facilitate the transport of water and, in some cases, other small solutes across the membrane. However, the water pores are completely impermeable to charged species, such as protons, a remarkable property that is critical for the conservation of membrane's electrochemical potential, but paradoxical at the same time, since protons can usually be transferred readily through water molecules. Water molecules passing the channel are forced, by the protein's electrostatic forces, to flip at the center of the channel, thereby breaking the alternative donor-acceptor arrangement that is necessary for proton translocation.¹

AQP1 is the predominant and least specialized subtype. It plays a major role in constitutive water transport through the membranes of several cell types including endothelial cells, red blood cells, and renal proximal tubule cells. It has been shown that AQP1 may also function as a cyclic nucleotide-gated cation channel that is activated mainly by cGMP and indirectly also by cAMP. It was reported that AQP-1 transports small gas molecules such as carbon dioxide and NO in cells.² Moreover, ion currents of native aquaporins were confirmed in choroid plexus epithelium and shown to modulate fluid transport of those cells. Furthermore, it was shown that PKC positively regulates both water permeability and ionic conductance of AQP1 channels.³

References:

1. Jensen, M. Ø. Et al: Structure 9:1083-1093, 2001
2. Herrera, M. et al: Hypertension.48:157-64, 2006
3. Zhang, W. et al: J. Biol. Chem. 282:20933-40, 2007

TECHNICAL INFORMATION

Source: Anti-AQP1 is a rabbit polyclonal antibody raised against a synthetic peptide corresponding to a sequence mapping near the C-terminal of human AQP1, identical to the related mouse sequence.

Specificity and Sensitivity: Anti-AQP1 reacts specifically with AQP1 of human, rabbit, mouse & rat origin in Immunohistochemical and western blotting, no cross-reactivity with other members of the family.

Storage Buffer: PBS and 30% glycerol

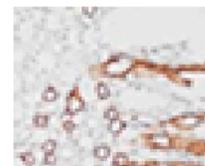
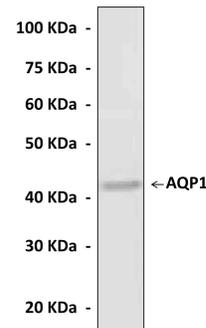
Storage: Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

| Application: | *Dilution: |
|--------------|----------------|
| WB | 1:500 – 1:1000 |
| IP | 1:50 – 1:200 |
| IHC | n/d |
| ICC | n/d |
| FACS | n/d |

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Top: Detection of Aquaporin-1 from rat kidney lysate in Western blot assay, using Anti-Aquaporin 1 (AAQP-1) Antibody. **Bottom:** Immunohistochemical staining of paraffin-embedded rat kidney tissue using Anti-Aquaporin 1 (AAQP-1) Antibody.

