

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

Aquaporin-5 (AQP5), an apical plasma membrane (APM) water channel in salivary glands, lacrimal glands, and airway epithelium, has an important role in fluid secretion and confers high osmotic water permeability. The activation of M3 muscarinic acetylcholine receptors (mAChRs) or alpha1-adrenoceptors on the salivary glands induces salivary fluid secretion. AQP5 localizes in lipid rafts and activation of the M3 mAChRs or alpha1-adrenoceptors induced its translocation together with the lipid rafts to the APM in the interlobular ducts of rat parotid glands.² AQP5 is also expressed in lung cancer tissue. It was shown that there was an up-regulation of AQP5 expression in cancer tissue compared to surrounding normal tissue. In addition, expression of AQP5 in lung cancer tissue was associated with poor prognosis. Moreover, Studies demonstrated that AQP5-facilitated lung cancer cell proliferation and migration, possibly through activation of the EGFR/ERK/p38 MAPK signaling pathway.³

References:

1. Jensen, M. Ø. Et al: Structure 9:1083-1093, 2001
2. Ishikawa, Y. et al: Biochim. Biophys. Acta 1758:1053-60, 2006
3. Zhang, Z. et al: J Pathol. 221:210-20, 2010

TECHNICAL INFORMATION

Source:

AQP5 Antibody is a rabbit antibody raised against a short peptide from human AQP5 sequence.

Specificity and Sensitivity:

This antibody detects endogenous levels of AQP5 proteins without cross-reactivity with other related proteins.

Storage Buffer: PBS and 30% glycerol

Storage:

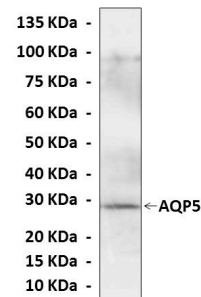
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	n/d
ICC	n/d
FACS	n/d

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

QUALITY CONTROL DATA



Western Blot detection of AQP5 proteins in rat lung tissue lysate using AQP5 Antibody.

