Antibodies to Water channel/glycerol channel proteins

Anti-Aqp11 (AQP11-1101AP)

Water channel proteins, known as aquaporins, are transmembrane proteins that mediate osmotic water permeability. The discovery of aquaporin (AQP) has made a great impact on life sciences. AQPs are a family of homologous water channels widely distributed in plants, unicellular organisms, invertebrates, and vertebrates. Aquaporins are selective water/glycerol channels involved in the maintenance of volume homeostasis and ionic/osmotic balance. These water channels also enhance cellular tolerance against rapid freezing, which suggest that they might have some ecological relevance also. Early work of Nobel Prize winner, Peter Agre and his group first clone a 269 amino acid protein from RBC and kidney libraries that has a 6 TMD (1). The amino terminal end of the protein was in the membrane and has 2 repeats that are at 180° each other and are responsible for water selectivity. Now there are at least 12 isoforms of Aquaporins are cloned. In brain, three main AQPs AQP1, AQP4 and AQP9 are expressed and are implicated in numerous physiological functions. Aquaporins are characterized by presence of highly conserved asparagine proline alanine (NPA) boxes that are important for the formation of a water-permeating pore. AQP1 has a role in cerebrospinal fluid formation, whereas AQP4 is involved in water homeostasis and extracellular osmotic pressure in brain parenchyma. AQP4 seems also to have an important function in oedema formation after brain trauma or brain ischemia. AQP9 is implicated in brain energy metabolism (2). AQP1 and 4 are also implicated in water balance in retina and other eye components. Studies also suggest that AQP9 may be responsible for tumor angiogenesis and in the development of effusions or edema fluid and led to high vascular permeability and interstitial fluid pressure in tumors of the brain, colon, breast and pancreas.

The expression of AQP11 is found in multiple rat tissues, including kidney, liver, testes and brain. AQP11 has a unique distribution in brain, appearing in Purkinje cell dendrites, hippocampal neurons of CA1 and CA2, and cerebral cortical neurons. Immunofluorescent staining of Purkinje cells indicates that AQP11 is intracellular. Unlike other aquaporins, Xenopus oocytes expressing AQP11 in the plasma membrane failed to transport water, glycerol, urea, or ions. AQP11 is functionally distinct from other proteins of the aquaporin superfamily and could represent a new aquaporin subfamily. The intracellular 11 and 12 are localized intracellularly and have positively charged amino acid clusters at the C-terminal end identical to di-lysine (KKXX) motif for an endoplasmic retention signal. Disruption of AQP11 led to fatal polyuric kidneys (4). Further studies are necessary to elucidate the role of AQP11 in the brain (3).

The Anti-AQP11 selective antibodies were generated against conserved sequences at or near C-terminal end of the protein that is unique to rat/mouse aquaporin 9 protein. The AQP11-selective antibodies are affinity purified against immobilized antigen based affinity chromatography which yielded epitope-specific antibodies. The AQP11 antibodies label a 29 kDa protein in Western blot using Western blot positive control for AQP11 (PC-AQP11). Anti-AQP11-selective antibodies are also available in affinity-purified form for confocal, Western blotting and immunocytochemical analyses. FabGennix Inc. will also conjugate antibodies with fluorescent probes upon request at extra charge. Limited quantities of antigentic peptide is also available (inquire before ordering). FabGennix Inc. also provides antibodies to other family members of aquaporins and aquaglyceroporins including AQP1-AQP12. FabGennix Inc employs cyclic peptide methodology for generating antibodies, which results in higher titers and specificity. FabGennix Int. Inc., will also provide Western blot positive controls for most of these antibodies in ready-to-use buffer for easy identification of respective proteins. Limited quantities of antibodies are also available for blocking studies. Please enquire for their availability before ordering.

<table>
<thead>
<tr>
<th>Catalog #</th>
<th>Host Species</th>
<th>Nature</th>
<th>Cross reactivity</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQP11-1101AP</td>
<td>Rabbit</td>
<td>Affinity purified AQP11 antibody</td>
<td>R, M</td>
<td>150-175ul</td>
</tr>
<tr>
<td>PC-AQP11</td>
<td>n/a</td>
<td>Western blot positive control</td>
<td>n/a</td>
<td>5 appl</td>
</tr>
<tr>
<td>P-AQP11</td>
<td>n/a</td>
<td>Antigenic blocking peptide</td>
<td>n/a</td>
<td>250 ug</td>
</tr>
</tbody>
</table>

**Immunogen:** Synthetic C-terminal amidated peptide for Aquaporin 11(aa 145-162) was conjugated to KLH & used to generate antibodies in rabbit.

**Concentration:** AQP11-1101AP 0.85-1.30 mg/ml of antibody stabilization buffer

**Applications:** AQP11-1101AP is tested for WB application at 1:500 dilution. Other applications for this antibody is not tested. WB: > 1:500, IVM & I.P pull-down assays; n.d; IHC n.d (Antibody dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions).

**Protocols:** Standard protocol for various applications (WB, IVM, IHC) of this antibody can be obtained upon request. The specification sheet for AQP11 antibody will be supplied with each product. FabGennix Inc., strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

**From/Storage:** The antigen is supplied in antibody stabilization buffer. Store at -20°C for long-term storage. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi-use antibody dilution buffer (DiluBuffer, Car# FGI 1962). Working solutions of antibodies in DiluBuffer should be filtered through 0.45 μm filter after every use for long-term storage.

**Notes:** Now Aquaporin blots can now easily be stripped and recycle using our specially formulated StripuBuffer (Cat # FGI-1989). This stripping buffer does not require heating or have any pungent smell.

**References:**

*For users who may require large amounts of AQP11-1101AP, please enquire about bulk material discounts.*

This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.