ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Aquaporin 1 (AQP1; CHIP; CHIP28)

Cat # AQP12-P	Rat AQP1 Control/blocking peptide	**SIZE**: 100 ug
Cat # AQP12-S	Chicken Anti-rat AQP1 antiserum #1	**SIZE**: 100 ul

Water is a critical component of all living cells. Interestingly, tissue membranes show a great degree of water permeability. Mammalian red cells, renal proximal tubules, and descending thin limb of Henle are extraordinarily permeable to water. Water crosses hydrophobic plasma membranes either by simple diffusion or through a facilitative transport mechanism mediated by special protein "aquaporins". Over the last decade, genes for several members of aquaporin family have been cloned, expressed, and their distribution studied in many tissues. AQP0 or MIP26 (major intrinsic protein 26 kDa), and Aquaporin-1 (AQP1, purified from red cells) also called CHIP-28 (channel forming integral protein, 28 kDa; 268 AA; gene locus 7p14) has been the foundation of the growing family of aquaporin. The lens specific AQP0 represents up to 80% of total lens membrane protein.

FUNCTION: Forms a water-specific channel that provides the plasma membranes of red cells and kidney proximal tubules with high permeability to water, thereby permitting water to move in the direction of an osmotic gradient.
SUBUNIT: Homotetramer (By similarity).
SUBCELLULAR LOCATION:; Multi-pass membrane protein.
TISSUE SPECIFICITY: Erythrocytes and renal tubules.
DOMAIN: Aquaporins contain two tandem repeats each containing three membrane-spanning domains and a pore-forming loop with the signature motif Asn-Pro-Ala (NPA).
MISCELLANEOUS: Pharmacologically inhibited by submillimolar concentrations of mercury.
SIMILARITY: Belongs to the MIP/aquaporin (TC 1.A.8) family [view classification].
Protein name Aquaporin-1
Synonyms AQP-1, Aquaporin-CHIP, Chip28
Water channel protein for red blood cells and kidney proximal tubule
Gene name Aqp1

Source of Antigen and Antibodies

Antigen	19-aa peptide of Rat AQP1 (protein accession #P29975, refs 1) **Designated (AQP12-P or or control peptide)** conjugated to KLH; epitope location ~ C-terminus
Ab Host/type	**Chicken**, polyclonal Unpurified antiserum (cat # AQP12-S) Aff pure IgG1 (**cat #AQP12-A**)
2-ab	**Goat Anti-chicken IgG-HRP** cat # 60320 (AP, biotin, FITC conjugates also available))
-ve control IgG	Cat # 20010-1, Chicken (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied in Buffer: 0.05% azide
Reconstitute powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 µg/ml for affinity pure using Chemiluminescence technique). See refs 2.

ELISA (1:100K; using 50-100 ng control peptide/well).

Histochemistry & Immunofluorescence: we recommend the use of affinity purified antibody at 2-10 µg/ml (see refs 2).

Specificity & Cross-reactivity

The 19 AA AQP12-P peptide is 100% homologous in Mouse, Rat, Human, and Bovine AQP1. Antibody cross-reactivity in various species is not known. The control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at the web site).

General References: Lanahan, A. et al (1992) MCB, 12:3919-3929; Deen, P. et al (1992) Biochem.Biophys Res Comm. 188:1267-1273; Moon, C. et al (1993) JBC. 268:15772-15778; Patil, R. et al (1994)) Biochem.Biophys Res Comm. 204:861-866; Smith, B. and Agre, P. (1991) JBC 266:6407-6415.

(2) Citations of ADI's Antibodies (see web site for updated list)

Bachmann S,2004,Am J Physiol Renal Physiol, 288, 559-567,wb,
Rogers LK,2006,Toxicology and Applied Pharmacology, 217, 289-298,,IHC
Fujita Y,2004,T Engineering 10, 711-722,,
Leung JCK,2005,Nephrology 10, 1, 63-72,WB,,IHC
Sawada S,2003,Hearing Res., 181, s 1-2, 15-19,,IHC 4%PF
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Amlal H,2003,Kidney Intl. 64, 2, 544-554,WB,,
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Kuang K,2004,Exp. Eye Res. 78, 791-798,,IHC

*This product is for in vitro research use only.

AQP12-S-P 70910A

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