ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Aquaporin 2 (AQP-CD or WCH-CD) Antibodies

Cat # AQP21-P	Rat AQP2 control/blocking peptide	**SIZE**: 100 ug
Cat # AQP21-S	Rabbit Anti-rat AQP2 antiserum #1	**SIZE**: 100 ul
Cat # AQP21-A	Rabbit Anti-rat AQP2 IgG #1 (**Aff pure**)	**SIZE**: 100 ug

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 "**aquaporin**". Over the last decade, genes for several members of aquaporin family (**AQP1-9 and AQPAP**) have been cloned, expressed, and their distribution studied in many tissues. **AQP2 or AQP-CD or WCH-CD** (mouse, rat, and human 271 aa; human gene locus 12q13) is the vasopressin-regulated water channel of the apical membrane of collecting duct cells. AQP families of proteins are predicted to contain six transmembrane domains. The N and C-terminus are predicted to be cytoplasmic. Defects in AQP2 are a cause of an autosomal dominant form of nephrogenic diabetes insipidus (NDI).

FUNCTION: Forms a water-specific channel that provides the plasma membranes of renal collecting duct with high permeability to water, thereby permitting water to move in the direction of an osmotic gradient
SUBCELLULAR LOCATION: Apical cell membrane; Cytoplasmic vesicle membrane; **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).
PTM: Ser-256 phosphorylation is necessary and sufficient for expression at the apical membrane. Endocytosis is not phosphorylation-dependent.
SIMILARITY: Belongs to the MIP/aquaporin (TC 1.A.8) family
Protein name Aquaporin-2
Synonyms AQP-2, Aquaporin-CD, AQP-CD, Water channel protein for renal collecting duct, ADH water channel Collecting duct water channel protein, WCH-CD; **Gene name** : Aqp2

Source of Antigen and Antibodies

Antigen	15-aa peptide of Rat AQP2 (protein accession #P47865, refs 1); **Designated (AQP21-P or control peptide /blocking peptide**) conjugated to KLH; epitope location ~ C-terminus
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (#**AQP21**-S) and IgG, purified over antigen-agarose (Cat # **AQP21**-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	# 20009-1, Rabbit (non-immune) 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.

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure antibody using ECL). see refs 2..

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: we recommend the use of affinity purified antibody at 2-10 ug/ml in paraformaldehyde fixed sections of tissues. (see published refs using this antibody in 2).

Specificity & Cross-reactivity

Rat AQP21-P peptide is 100% conserved in mouse, 93% in human and ovine AQP2. Antibody cross-reactivity in various species has not been studied. 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.

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

Buemi M, 2004, Am Journal of Hypertension 17, 1170-1178, WB, ,
Leung JCK, 2005, Nephrology 10, 63-72, WB,, IHC,
Ferguson CJ, 2000, Kidney Intl. 64, 1755-1764, WB,, , IF
Ross, MJ, 2001, J Am Soc Nephrol 2001 12: 2645-2651, , IHC,
Saito O, 2003, Am J Physiol Renal Physiol, 284, 1164-1170, , IHC,
Schneider A, 2002, Am J Physiol Renal Physiol : 284: 411, IHC,
van Vonderen IK, 2004, Domestic Animal Endocrinol. 27, 141-153

*This product is for In vitro research use only.

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