

Anti-Aquaporin 2 Antibody
Catalog # ABO11050**Specification**

Anti-Aquaporin 2 Antibody - Product Information

Application	WB, IHC-P, IHC-F
Primary Accession	P41181
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized

Description

Rabbit IgG polyclonal antibody for Aquaporin-2(AQP2) detection. Tested with WB, IHC-P, IHC-F in Human;Mouse;Rat.

Reconstitution

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Anti-Aquaporin 2 Antibody - Additional Information

Gene ID 359

Other Names

Aquaporin-2, AQP-2, ADH water channel, Aquaporin-CD, AQP-CD, Collecting duct water channel protein, WCH-CD, Water channel protein for renal collecting duct, AQP2

Calculated MW

28837 MW KDa

Application Details

Immunohistochemistry(Frozen Section), 0.5-1 µg/ml, Rat, Human, Mouse
Immunohistochemistry(Paraffin-embedded Section), 0.5-1 µg/ml, Rat, Human, Mouse, By Heat
Western blot, 0.1-0.5 µg/ml, Human, Mouse, Rat

Subcellular Localization

Apical cell membrane ; Multi-pass membrane protein . Basolateral cell membrane ; Multi-pass membrane protein . Cytoplasmic vesicle membrane ; Multi-pass membrane protein . Golgi apparatus, trans-Golgi network membrane ; Multi-pass membrane protein . Shuttles from vesicles to the apical membrane. Vasopressin-regulated phosphorylation is required for translocation to the apical cell membrane. PLEKHA8/FAPP2 is required to transport AQP2 from the TGN to sites where AQP2 is phosphorylated.

Tissue Specificity

Expressed in renal collecting tubules.

Protein Name

Aquaporin-2(AQP-2)

Contents

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na₂HPO₄, 0.05mg Thimerosal, 0.05mg NaN₃.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human Aquaporin 2 (245-260aa DWEEREVRRRQSVELH), identical to the related rat and mouse sequences.

Purification

Immunogen affinity purified.

Cross Reactivity

No cross reactivity with other proteins

Storage

At -20°C for one year. After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for a longer time. Avoid repeated freezing and thawing.

Sequence Similarities

Belongs to the MIP/aquaporin (TC 1.A.8) family.

Anti-Aquaporin 2 Antibody - Protein Information

Name AQP2 ([HGNC:634](#))

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 (PubMed: [15509592](http://www.uniprot.org/citations/15509592)), PubMed: [7510718](http://www.uniprot.org/citations/7510718), PubMed: [7524315](http://www.uniprot.org/citations/7524315), PubMed: [8140421](http://www.uniprot.org/citations/8140421), PubMed: [8584435](http://www.uniprot.org/citations/8584435)). Plays an essential role in renal water homeostasis (PubMed: [15509592](http://www.uniprot.org/citations/15509592), PubMed: [7524315](http://www.uniprot.org/citations/7524315), PubMed: [8140421](http://www.uniprot.org/citations/8140421), PubMed: [8584435](http://www.uniprot.org/citations/8584435)). Could also be permeable to glycerol (PubMed: [8584435](http://www.uniprot.org/citations/8584435)).

Cellular Location

Apical cell membrane; Multi-pass membrane protein. Basolateral cell membrane {ECO:0000250|UniProtKB:P34080}; Multi-pass membrane protein. Cell membrane; Multi-pass membrane protein. Cytoplasmic vesicle membrane; Multi-pass membrane protein. Golgi apparatus, trans-Golgi network membrane; Multi-pass membrane protein. Note=Shuttles from vesicles to the apical membrane (PubMed:15509592). Vasopressin-regulated phosphorylation is required for translocation to the apical cell membrane (PubMed:15509592). PLEKHA8/FAPP2 is required to transport AQP2 from the TGN to sites where AQP2 is phosphorylated (By similarity) {ECO:0000250|UniProtKB:P34080, ECO:0000269|PubMed:15509592}

Tissue Location

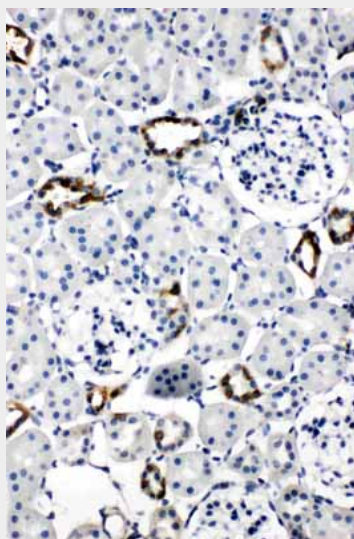
Expressed in collecting tubules in kidney medulla (at protein level) (PubMed:7510718). Detected in kidney (PubMed:7510718).

Anti-Aquaporin 2 Antibody - Protocols

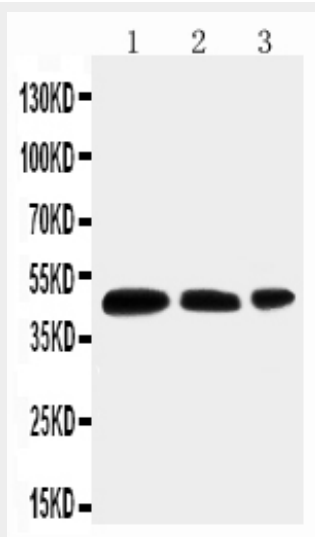
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

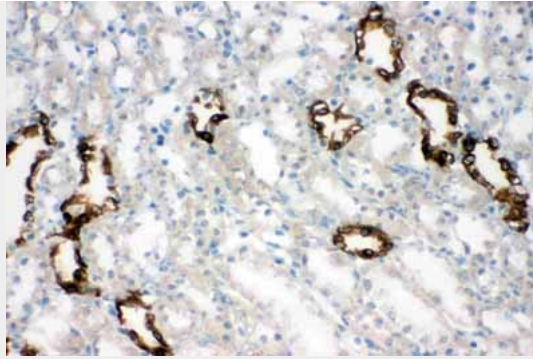
Anti-Aquaporin 2 Antibody - Images



Anti-Aquaporin 2 antibody, ABO11050, IHC(P)IHC(P): Rat Kidney Tissue



Anti-Aquaporin 2 antibody, ABO11050, Western blotting
Lane 1: MCF-7 Cell Lysate
Lane 2: SW620 Cell Lysate
Lane 3: HT1080 Cell Lysate



Anti-Aquaporin 2 antibody, ABO11050, IHC(F)IHC(F): Rat Kidney Tissue

Anti-Aquaporin 2 Antibody - Background

AQP2(Aquaporin 2) also called AQUAPORIN-CD, is found in the apical cell membranes of the kidney's collecting duct principal cells and in intracellular vesicles located throughout the cell. The AQP2 gene is mapped to chromosome 12q13, very close to the site of major intrinsic protein by situ hybridization. The investigators suggested that a defect in the AQP2 gene is the basis of the autosomal form of nephrogenic diabetes insipidus. The functional expression and the limited localization suggested that AQP2 is the vasopressin-regulated water channel. Using rat kidney slices and porcine kidney cells stably expressing rat Aqp2, AQP2 trafficking can be stimulated by cAMP-independent pathways that utilize nitric oxide(NO). The NO donors sodium nitroprusside(SNP) and NONOate and the NO synthase substrate L-arginine mimicked the effect of vasopressin(VP), stimulating relocation of Aqp2 from cytoplasmic vesicles to the apical plasma membrane. SNP increased intracellular cGMP rather than cAMP, and exogenous cGMP stimulated AQP2 membrane insertion. Atrial natriuretic factor, which signals via cGMP, also stimulated AQP2 translocation. AQP2 expression in kidney connecting tubules is sufficient for survival and that AQP2 expression in collecting ducts is required to regulate body water balance. The S256L substitution in the cytoplasmic tail of the Aqp2 protein prevented phosphorylation at S256 and the subsequent accumulation of Aqp2 on the apical membrane of the collecting duct principal cells.