ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Putative Anion Transporter (PAT-1) Antibodies

Cat # PAT11-A	Rabbit Anti-Human PAT-1 IgG, aff pure	**SIZE**: 100 ug
Cat. # PAT11-P	Human PAT-1 Control/blocking peptide	**SIZE**: 100 ug

A variety of different transporter families is known in living organisms. A classical transporter family consists of anion exchangers of the SLC4 family, which facilitate the electroneutral exchange of Cl^- for HCO_3^- across the plasma membrane of mammalian cells and thus contribute to regulation of intracellular pH, Cl^- concentration, and cell volume. SLC4A1 (also known as the erythroid band 3 protein or AE1) was the first anion exchanger identified, followed by its homologs SLC4A2 (AE2) and SLC4A3 (AE3). The SLC4 family, including the electroneutral Cl^-/HCO_3^- exchangers SLC4A1 to A3 and electrogenic Na^+/HCO_3^- co-transporters SLC4A4 to A9, has been recently redefined as bicarbonate transporter superfamily.
A family of anion exchangers, which include down-regulated in adenoma (DRA, or SLC26A3), pendrin (PDS, or SLC26A4), DTDST (SLC26A4) and putative anion transporter (PAT-1, or SLC26A6) has recently been identified. None of these transporters are structurally related to the AE (AE-1, 3 and 3) family. The homology at the amino acid level between DRA, PDS, or PAT-1 and AE family members is <15%. DRA, PDS and DTDST can transport with different specificities the chloride, iodine, bicarbonate, oxalate, and hydroxyl anions, whereas prestin (SLC26A5) was suggested to act as the motor protein of the cochlear outer hair cell. DRA and PDS mediate Cl^-/HCO_3^- exchange. DRA is abundantly expressed on the apical membranes of colonocytes, whereas PDS is expressed on the apical membranes of thyroid follicular cells and kidney cortical collecting ducts. Mutations in DRA cause congenital chloride diarrhea, which presents with severe diarrhea, volume depletion, and metabolic alkalosis. Mutations in PDS cause pendred syndrome, which is characterized by deafness, goiter, and impaired iodine organification, as evidenced by a positive perchlorate test. Both diseases are autosomal recessive hereditary disorders.

PAT-1 was recently cloned from the pancreas based on homology to DRA and pendrin. PAT1 maps to chromosome 3 and encodes a 738 aa protein. Immunohistochemical studies localized PAT-1 to the apical membranes of the pancreatic duct cells and kidney tubules. A mouse ortholog of PAT-1 was recently cloned and found to be expressed on the apical membranes of the kidney proximal tubule. Expression studies in Xenopus oocytes demonstrated that PAT-1 functions in Cl^-/HCO_3^- exchange mode. Tissue distribution studies indicated that the expression of PAT-1 is highly abundant in the small intestine but is low in the colon, a pattern opposite that of DRA. PAT-1 was also abundantly detected in stomach and heart. Immunoblot analysis studies identified PAT-1 as a ~90 kDa protein in the duodenum. Immunohistochemical studies localized PAT-1 to the brush border membranes of the villus cells of the duodenum. PAT-1 is proposed to be an apical Cl^-/HCO_3^- exchanger in the small intestine.

Source of Antigen, Antibodies

Antigen	Purified 15 aa peptide of human PAT-1 (gene accession # Q9BXS9); **Designated (# PAT11-P)** conjugated to KLH. Epitope location ~ N-terminus (1)
Ab Host/type	Rabbit, polyclonal IgG (cat # PAT11-A), purified over antigen-Agarose
2-Ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	**# 20009-1, Rabbit (non-immune) IgG**, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in Buffer: PBS+0.1% BSA.

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 -20^{O}C and powder at 4^{O}C or -20^{O}C.

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

Stability: 6-12 months at –20^{O}C or below.

Shipping: 4^{O}C for solutions and room temp for powder.

Recommended Usage

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

Western Blot: (1:50-2000)

Histochemistry & **Immunofluorescence**. Not tested.

Specificity & Cross-reactivity

The PAT11-P peptide is 100% conserved in human solute carrier family 26, member 6 (SLC26A6, PAT-1), protein, isoforms a, b, and c, 92% conserved in mouse SLC26A6 protein. Purified human PAT11-P peptide is available for control studies. Because of its low mol. Wt (< 3 kDa), it 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) to confirm antibody specificity (see detailed protocol at: www.4adi.com/data/abblock.html).

General References: (1) Wang Z. et al. (2002) Am. J. Physiol. Gastrointest Liver Physiol., 282, G573-G579; Lohi H. et al. (2000) Genomics, 70, 102-112; Rajendran V.M. et al. (2000) Am. J. Physiol. Gastrointest Liver Physiol., 279, G931-G942; Soleimani M. et al. (2001) Am. J. Physiol. Renal Physiol., 280, F356-F364; Lohi H. et al. (2003) Am. J. Physiol. Cell Physiol., 284, C769-C779.

*This product is for In vitro research use only.

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