ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Anion Exchanger-1 (AE1) Antibodies

Cat. # AE11-P	Rat AE1 Control/blocking Peptide # 1	**SIZE**: 100 ug
Cat. # AE11-S	Rabbit Anti-rat AE1 antiserum # 1	**SIZE**: 100 ul
Cat. # AE11-A	Rabbit Anti-rat AE1 IgG # 1 (aff pure)	**SIZE**: 100 ug

Anion exchangers (AE) are membranes proteins involved in the regulation of intracellular pH, cell volume regulation as well as in transepithelial acid/base transport. AE proteins are sodium–independent exchangers that mediates one-for-one exchange of extracellular Cl- for intracellular HCO3- ions resulting in intracellular acidification. AE proteins are encoded by a family of at least three related genes (**AE1-4**). AE proteins are exemplified by a large N-terminal cytoplasmic domain (~40-75 kDa) that provides binding sites for cytoskeleton protein, glycolytic enzymes and hemoglobin. The N-terminal cytoplasmic domains of AE2 are AE3 are more closely related than AE1. In fact, AE1 NT is 300 aa shorter than both the AE2 and AE3. The CT TM domain (~55 kDa) is highly conserved (~70% identity) among various AE, spans the lipid bilayer 12-14 times, and is able to mediate anion exchange by itself.

AE1 protein (also know as band 3) is the most abundant protein in red cell membrane. Human **AE1** gene (chromosome 17q21-qter) encodes for a protein of 911 aa (rat 927 aa; mouse 929 aa). Several isoforms of AE1 are also transcribed. AE1 is primarily expressed in red cells and kidney. AE1 is dimeric in solution. Defects in AE1/band3 gene are the cause of hereditary ovalocystosis (HO) – a disease associated with high degree of membrane rigidity.

FUNCTION: Band 3 has two functional domains: its integral domain mediates a 1:1 exchange of inorganic anions across the membrane, whereas its cytoplasmic domain provides binding sites for cytoskeletal and other proteins (By similarity).
SUBUNIT: A dimer in solution, it spans the membrane asymmetrically and appears to be tetrameric.
SUBCELLULAR LOCATION: Basolateral cell membrane; Multi-pass membrane protein. Note=In the basolateral membrane of intercalated cells of distal tubules and collecting ducts.
ALTERNATIVE PRODUCTS: 2 named isoforms [FASTA] produced by alternative splicing. Isoform 1 (erythrocytes 927 aa) and isoform 2 (kidney 848aa; missing 1-79 aa)

Source of Antigen and Antibodies

Antigen	20-aa peptide of from the ~ N-terminus Cytoplasmic region of Rat AE1/B3AT, Slc4a1 (protein accession # P23562, refs 1; **Designated (AE11-P or Control peptide)** conjugated to KLH
Ab Host/type	Rabbit, polyclonal Unpurified antiserum **(cat# AE11-S)** Aff pure IgG (**cat #AE11-A**) purified over antigen-agarose column
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (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 antiserum and 1-10 ug/ml for affinity pure IgG using Chemiluminescence technique). 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: We recommend the use of affinity purified antibody at 2-10 ug/ml. (see published refs in 2).

Specificity & Cross-reactivity

AE11-P control peptide is 85% conserved in mouse, 70% in human, and 75% in bovine AE1. AE11-P epitope is conserved in both isoform 1 (erythrocytes) and isoforms 2 (kidney). AE11-A antibodies should detect both forms. No significant sequence homology is detected with other AE or other proteins. Antibody crossreactivity in various other species is not established. The AE11-P 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.

General References:1. Kudrycki KE (1989) JBC 264, 8185; Kopito RR (1985) Nature 316, 234; Raida M (1989) BBA 980, 291; Lux SE (1989) PNAS 86, 9089;

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

Blomqvist SR, , 2004, J Clin Invest 113, 1560-1570, WB, IHC
Zheng W, 2006, AJP Renal Physiol, 292: F456 - F466, , IHC
Bates CM, 2004, Regulatory Peptides 119, 11-20, , IHC
Seshadari RM, 2005, AJPRP, 290: F397 - F408, WB, IHC
Rentsch RL, 2006, J Appl Physiol, 101, 164-168, WB,

product is for In vitro research use only.

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