

Product Specification Sheet

**Na<sup>+</sup>/H<sup>+</sup> Exchanger 2 (NHE2) Antibodies**

<b>Cat.</b> NHE21-S	Rabbit Anti-Rat NHE2 (Antiserum # 1)	<b>SIZE:</b> 100 ul
<b>Cat.</b> NHE21-A	Rabbit Anti- Rat NHE2 (affinity pure) Ig G #1	<b>SIZE:</b> 100 ug
<b>Cat.</b> NHE21-P	Rat NHE2 control/blocking peptide	<b>SIZE:</b> 100 ug

Na<sup>+</sup>/H<sup>+</sup> exchangers (**NHE**) of mammalian cells are plasma membrane intrinsic proteins mediating exchange of Na<sup>+</sup> and H<sup>+</sup> ions in various tissues. The NHE catalyzes the electroneutral transport of extracellular Na<sup>+</sup> for intracellular H<sup>+</sup>. They play a major role in regulation of intracellular pH (pHi) in addition to trans-cellular absorption of Na<sup>+</sup>, cell volume regulation and possibly in cell proliferation. These primary functions of the Na<sup>+</sup>/H<sup>+</sup> exchanger have been related to many pathophysiological states, include hypertension, organ growth and hypertrophy, regression of cancer and renal intestinal disorders. Five NHE isoforms (NHE1-5) have been cloned so far. They are all similar in their primary structure and predicted to have 10-12 transmembrane domains. The COOH-terminals of NHE1, NHE2 and NHE3 are intracellular.

**NHE2** (rat 813 aa; human chromosome 2 and rat chromosome 9) has been implicated in volume regulation in renal inner medullary collecting duct cells. Its mRNA is found in kidney medulla, cortex, colon, jejunum, ileum, human jejunum, ileum, duodenum, stomach and adrenal glands (1).

**FUNCTION:** Involved in pH regulation to eliminate acids generated by active metabolism or to counter adverse environmental conditions. Major proton extruding system driven by the inward sodium ion chemical gradient. Seems to play an important role in colonic sodium absorption.

**SUBCELLULAR LOCATION:** Membrane; Multi-pass membrane protein.

**SIMILARITY:** Belongs to the Na<sup>(+)</sup>/H<sup>(+)</sup> exchanger (TC 2.A.36.5.1) family [view classification].

**Protein name** Sodium/hydrogen exchanger 2

**Synonyms** Na<sup>(+)</sup>/H<sup>(+)</sup> exchanger 2

NHE-2, Solute carrier family 9 member 2

H7

**Gene name** Name: Slc9a2 ; Synonyms: Nhe2

**Source of Antigen and Antibodies**

<b>Antigen</b>	20-aa peptide of Rat NHE2 ; (gene accession # P48763) <b>Designated (NHE21-P or control peptide or blocking peptide)</b> conjugated to KLH, Epitope location~C-terminus, Cytoplasmic domain
<b>Ab Host/type</b>	Rabbit, Polyclonal unpurified antiserum (#NHE21-S) and IgG, purified over antigen-agarose (Cat # NHE21-A)
<b>2-Ab</b>	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
<b>-ve control</b>	# 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 1 mg/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 using Chemiluminescence technique). NHE2 is ~90 kDa (2).

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

**Histochemistry & Immunofluorescence:** Not tested. we recommend the use of affinity purified antibody at 2-20 ug/ml in formaldehyde fixed tissue.

**Specificity & Cross-reactivity**

The 20-aa rat NHE21-P sequence shows 100% homology with mouse, human, and 85% with the rabbit NHE2. No significant sequence homology exist with other NHE isoforms (NHE1-5). Actual crossreactivity of antibodies in all species is not established. 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: [www.4adi.com/data/abblock.html](http://www.4adi.com/data/abblock.html)).

**General References:** Wang Z (1993) JBC 268, 11925; Collins JF (1990) PNAS 90, 9398; Ghishan FK (1995) Genomics 30, 25; Chris Yun CH (1995) Am J Physiol. 269, G1-G11 (Review); Josette N (1995) Am J Physiol. 268, C283-C296 (review); Brookstein C (1994) JBC 269, 29704.

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

Cetin S, 2004, Surgery, 136, 375-383, WB, IHC  
Ford P, 2002, J of Membrane Biology 2002 in press, WB

\*This product is for in vitro research use only.

**Some New Antibodies from ADI...**

AVP, NBC1-5, NKCC, AQP1-10, NHE1-6

NHE21-S-A-P 70904.J

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