

Product Specification Sheet

Na⁺/H⁺ Exchanger 3 (NHE3/NAH3) Antibodies

<input type="checkbox"/> Cat. NHE31-S	Rabbit Anti-Rat NHE3 antiserum # 1	SIZE: 100 ul
<input type="checkbox"/> Cat. NHE31-A	Rabbit Anti- Rat NHE3 IgG # 1 (aff pure)	SIZE: 100 ug
<input type="checkbox"/> Cat. NHE31-P	Rat NHE3 control/blocking peptide # 1	SIZE: 100 ug

Na⁺/H⁺ exchangers (**NHE**) of mammalian cells are plasma membrane intrinsic proteins mediating exchange of N⁺ and H⁺ ions in various tissues. The NHE catalyzes the electroneutral transport of extracellular Na⁺ for intracellular H⁺. They play a major role in regulation of intracellular pH (pHi) in addition to trans-cellular absorption of Na⁺, cell volume regulation and possibly in cell proliferation. These primary functions of the Na⁺/H⁺ exchanger have been related to many pathophysiological states, include hypertension, organ growth and hypertrophy, regression of cancer and renal intestinal disorders. At least 7 NHE isoforms (**NHE1-7**) have been cloned so far. They are all similar in their primary structure and predicted to have 10-12 transmembrane domains. The C-terminal domain of NHEs are predicted to be intracellular.

NHE3 (solute carrier family 9 (sodium/hydrogen exchanger 3), antiporter; NAH3; rat, 831aa; human chromosome 5 p15.3) is involved in trans-epithelial Na-absorption. The NHE3 is found in kidney cortex, medulla, jejunum, ileum, colon and stomach.

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. Plays an important role in signal transduction. **SUBCELLULAR LOCATION:** Membrane; Multi-pass membrane protein.

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

Protein name Sodium/hydrogen exchanger 3

Synonyms Na (+)/H (+) exchanger 3, NHE-8; Solute carrier family 9 member 3

Gene Name: Slc9a3; Synonyms: Nhe3

Source of Antigen and Antibodies

Antigen	22-aa peptide of Rat NHE3/NAH3, Slc9a3 (gene accession # P26433 ; Designated (NHE31-P or control peptide/blocking peptide) conjugated to KLH, Epitope location ~ C-terminal, Cytoplasmic
Ab Host/type	Rabbit, Polyclonal unpurified antiserum (#NHE31-S) and IgG, purified over antigen-agarose (Cat # NHE31-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (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

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 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.

Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using chemiluminescence technique). A band of ~90 kDa has been detected in brush border membrane (2).

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

Histochemistry & Immunofluorescence: we recommend the use of affinity purified antibody at 2-20 ug/ml in formaldehyde fixed tissue. (see published refs using this antibody in 2).

Specificity & Cross-reactivity

Rat NHE31-P sequence has 90% homology with mouse, and 76% homology with the human NHE3. No significant sequence homology exists with other NHE isoforms (NHE1, 2, 4, and 5). Antibody crossreactivity in various 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.

General References: (1) Brant SR et al (1995) Am. J. Physiol.

269, C198-C206; Orłowski J et al (1992) J Biol Chem 267, 9331; Chris Yun CH et al (1995) Am J Physiol. 269, G1-G11 (Review); Josette N and Pouyssegur J (1995) Am J Physiol. 268, C283-C296 (review); Yoshioka et al (1997) JBC 122, 641.

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

Amlal, H, 2003, Kidney Intl. 64, 544-554 WB, IHC Banday AA, 2005, m J Physiol Renal Physiol, WB, Lee J, 2002, "Clin. Exp. Pharmacol. Physiol. 29, 559, WB, Amlal, H, 2001, Kidney Intl. 60, 1824, WB, IHC, Beheray, S, 2000, Kidney Intl. 58, 712, WB,

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

Related Antibodies from ADI...

Antibodies to NHE1-7, NBC, NCX

NHE31-S-A-P 160318SV

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