

# NHE-3 (C-20)-R: sc-16103-R

## BACKGROUND

Na<sup>+</sup>/H<sup>+</sup> exchangers-1-8 (also designated Na<sup>+</sup>/H<sup>+</sup> antiporters or NHE-1-8) are integral membrane proteins that are expressed in most mammalian tissues, where they regulate intracellular pH and cell volume. NHEs mediate the transport of hydrogen (H<sup>+</sup>) ions out of cells in exchange for extracellular sodium (Na<sup>+</sup>) ions. While NHE-1 is ubiquitously expressed, the NHE isoforms 2-8 have distinct tissue- and cell type-dependent expression and inhibitory characteristics. NHE-3 localizes to the apical membrane of renal proximal tubules where it is responsible for most of the sodium transport and fluid reabsorption. NHE-3 translocates to internal pools where it mediates natriuresis when blood pressure increases abruptly. NHE-3 is also expressed in the stomach and functions to protect the mucosa by secreting protons that diffuse into the mucous cells.

## REFERENCES

- Orlowski, J., et al. 1992. Molecular cloning of putative members of the Na/H exchanger gene family. cDNA cloning, deduced amino acid sequence, and mRNA tissue expression of the rat Na/H exchanger NHE-1 and two structurally related proteins. *J. Biol. Chem.* 267: 9331-9339.
- Harris, S.P., et al. 1997. Epithelial localization of a reptilian Na<sup>+</sup>/H<sup>+</sup> exchanger homologous to NHE-1. *Am. J. Physiol.* 272: 1594-1606.
- Kulaksiz, H., et al. 2001. Expression and cell-specific and membrane-specific localization of NHE-3 in the human and guinea pig upper gastrointestinal tract. *Cell Tissue Res.* 303: 337-343.
- LaPointe, M.S., et al. 2002. Na<sup>+</sup>/H<sup>+</sup> exchange activity and NHE-3 expression in renal tubules from the spontaneously hypertensive rat. *Kidney Int.* 62: 157-165.
- Sangan, P., et al. 2002. Cloning and expression of a chloride-dependent Na<sup>+</sup>/H<sup>+</sup> exchanger. *J. Biol. Chem.* 277: 9668-9675.
- Goyal, S., et al. 2003. Renal expression of novel Na<sup>+</sup>/H<sup>+</sup> exchanger isoform NHE-8. *Am. J. Physiol. Renal Physiol.* 284: 467-473.

## CHROMOSOMAL LOCATION

Genetic locus: SLC9A3 (human) mapping to 5p15.33; Slc9a3 (mouse) mapping to 13 C1.

## SOURCE

NHE-3 (C-20)-R is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of NHE-3 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16103 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

NHE-3 (C-20)-R is recommended for detection of NHE-3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

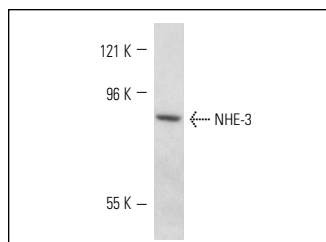
NHE-3 (C-20)-R is also recommended for detection of NHE-3 in additional species, including canine.

Suitable for use as control antibody for NHE-3 siRNA (h): sc-36059, NHE-3 siRNA (m): sc-36060, NHE-3 shRNA Plasmid (h): sc-36059-SH, NHE-3 shRNA Plasmid (m): sc-36060-SH, NHE-3 shRNA (h) Lentiviral Particles: sc-36059-V and NHE-3 shRNA (m) Lentiviral Particles: sc-36060-V.

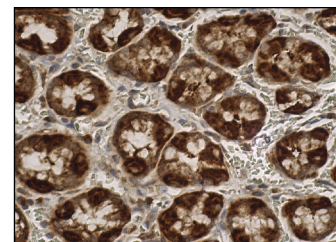
Molecular Weight of glycosylated NHE-3 isoforms: 93/80-100 kDa.

Positive Controls: rat kidney extract: sc-2394 or MDCK cell lysate: sc-2252.

## DATA



NHE-3 (C-20): sc-16103. Western blot analysis of NHE-3 expression in MDCK whole cell lysate.



NHE-3 (C-20)-R : sc-16103-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human stomach tissue showing cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

- Laforenza, U., et al. 2010. Solute transporters and aquaporins are impaired in celiac disease. *Biol. Cell* 102: 457-467.
- Jenkins, E.C., et al. 2012. Intracellular pH regulation by Na<sup>+</sup>/H<sup>+</sup> exchanger-1 (NHE1) is required for growth factor-induced mammary branching morphogenesis. *Dev. Biol.* 365: 71-81.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

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Try **NHE-3 (53): sc-136368**, our highly recommended monoclonal alternative to NHE-3 (C-20).