

# NHE-3 (19F5): sc-58636

## BACKGROUND

Na<sup>+</sup>/H<sup>+</sup> exchangers-1-8 (also designated NHE-1-8 or Na<sup>+</sup>/H<sup>+</sup> antiporters) 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

1. Orłowski, 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.
2. 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.
3. 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.

## CHROMOSOMAL LOCATION

Genetic locus: Slc9a3 (mouse) mapping to 13 C1.

## SOURCE

NHE-3 (19F5) is a mouse monoclonal antibody raised against amino acids 702-832 of NHE-3 of rabbit origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

NHE-3 (19F5) is recommended for detection of NHE-3 of mouse, rat and rabbit 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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

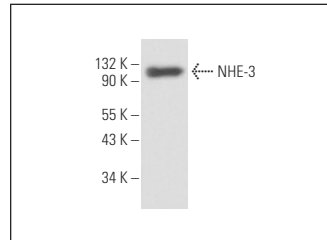
Molecular Weight of glycosylated NHE-3 isoforms: 93/80-100 kDa.

Positive Controls: rat kidney extract: sc-2394.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



NHE-3 (19F5): sc-58636. Western blot analysis of NHE-3 expression in rat kidney tissue extract.

## SELECT PRODUCT CITATIONS

1. Ren, X., et al. 2009. Cellular effect evaluation of micropollutants using transporter functions of renal proximal tubule cells. *Chemosphere* 77: 968-974.
2. Uray, K.S., et al. 2011. Sodium hydrogen exchanger as a mediator of hydrostatic edema-induced intestinal contractile dysfunction. *Surgery* 149: 114-125.
3. Eiam-Ong, S., et al. 2017. Rapid action of aldosterone on protein levels of sodium-hydrogen exchangers and protein kinase C β isoforms in rat kidney. *Int. J. Endocrinol.* 2017: 2975853.
4. Yu, Y., et al. 2022. Assessment of urinary exosomal NHE3 as a biomarker of acute kidney injury. *Diagnostics* 12: 2634.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.