SANTA CRUZ BIOTECHNOLOGY, INC.

NHE-3 (53): sc-136368

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Na^+/H^+ exchangers-1–8 (also designated NHE-1–8 or Na^+/H^+ 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^+) ions out of cells in exchange for extracellular sodium (Na^+) 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. 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.
2. Harris, S.P., et al. 1997. Epithelial localization of a reptilian Na^+/H^+ exchanger homologous to NHE-1. Am. J. Physiol. 272: G1594-G1606.
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 (human) mapping to 5p15.33; Slc9a3 (mouse) mapping to 13 C1.

SOURCE

NHE-3 (53) is a mouse monoclonal antibody raised against amino acids 725-831 of NHE-3 of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-136368 X, 200 µg/0.1 ml.

NHE-3 (53) is available conjugated to agarose (sc-136368 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-136368 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-136368 PE), fluorescein (sc-136368 FITC), Alexa Fluor® 488 (sc-136368 AF488), Alexa Fluor® 594 (sc-136368 AF594) or Alexa Fluor® 647 (sc-136368 AF647), 200 µg/ml, for IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-136368 AF680) or Alexa Fluor® 790 (sc-136368 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

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 (53) 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).

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.

NHE-3 (53) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

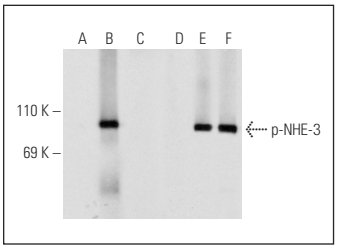
Molecular Weight of glycosylated NHE-3 isoforms: 93/80-100 kDa.

Positive Controls: rat kidney extract: sc-2394.

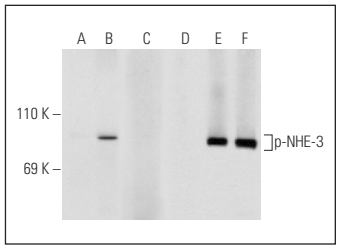
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Western blot analysis of NHE-3 phosphorylation in non-transfected: sc-110760 (**A**,**D**), untreated mouse NHE-3 transfected: sc-179002 (**B**,**E**) and lambda protein phosphatase (sc-200312A) treated mouse NHE-3 transfected: sc-179002 (**C**,**F**) 293 whole cell lysates. Antibodies tested include p-NHE-3 (14D5): sc-53962 (**A**,**B**,**C**) and NHE-3 (53): sc-136368 (**D**,**E**,**F**).



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SELECT PRODUCT CITATIONS

1. Cherezova, A., et al. 2019. Urinary concentrating defect in mice lacking Epac1 or Epac2. FASEB J. 33: 2156-2170.
2. Han, X., et al. 2019. Small molecule-driven NLRP3 inflammation inhibition via interplay between ubiquitination and autophagy: implications for Parkinson disease. Autophagy 15: 1860-1881.
3. Mizuno, T., et al. 2022. Oxidized alkyl phospholipids stimulate sodium transport in proximal tubules via a non-genomic PPARγ-dependent pathway. J. Biol. Chem. E-published.

RESEARCH USE

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