SANTA CRUZ BIOTECHNOLOGY, INC.

p-NHE-3 (10A8): sc-53961

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Na^+/H^+ exchangers-1-6 (Na^+/H^+ antiporters, NHE-1–6) are integral membrane proteins that are expressed in most mammalian tissues, where they regulate intracellular pH and cell volume. NHEs mediate the secondary active extrusion of hydrogen (H^+) ions out of cells in exchange for extracellular sodium (Na^+). Excluding NHE-1, which is ubiquitously expressed, NHE-2–6 have distinct tissue- and cell type- dependent expression, and inhibitiory characteristics by amiloride analogs. Mammalian NHE-3 protein, also known as solute carrier family 9 isoform-3 or SLC9A3, is a major absorptive NHE in kidney and intestine that influences ion homeostasis by mediating sodium absorption.

REFERENCES

1. Fliegel, L., et al. 1993. Cloning and analysis of the human myocardial Na^+/H^+ exchanger. Mol. Cell. Biochem. 125: 137-143.
2. Biemesderfer, D., et al. 1993. NHE-3: a Na^+/H^+ exchanger isoform of renal brush border. Am. J. Physiol. 265: 736-742.
3. Klanke, C.A., et al. 1995. Molecular cloning and physical and genetic mapping of a novel human Na^+/H^+ exchanger (NHE-5/SLC9A5) to chromosome 16q22.1. Genomics 25: 615-622.
4. Noel, J. and Pouyssegur, J. 1995. Hormonal regulation, pharmacology and membrane sorting of vertebrate Na^+/H^+ exchanger isoforms. Am. J. Physiol. 268: 283-296.

CHROMOSOMAL LOCATION

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

SOURCE

p-NHE-3 (10A8) is a mouse monoclonal antibody raised against a serine-phosphorylated synthetic peptide corresponding to amino acids 594-615 of NHE-3 of rat origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-NHE-3 (10A8) is recommended for detection of NHE-3 (phosphoserine 605) 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) 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 (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 p-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, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A 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.

SELECT PRODUCT CITATIONS

1. Crajoinas, R.O., et al. 2011. Mechanisms mediating the diuretic and natriuretic actions of the incretin hormone glucagon-like peptide-1. Am. J. Physiol. Renal Physiol. 301: F355-F363.
2. Lessa, L.M., et al. 2012. Mechanisms underlying the inhibitory effects of uroguanylin on NHE3 transport activity in renal proximal tubule. Am. J. Physiol. Renal Physiol. 303: F1399-F1408.
3. Li, X.C., et al. 2012. Novel signaling mechanisms of intracellular Angiotensin II-induced NHE3 expression and activation in mouse proximal tubule cells. Am. J. Physiol. Renal Physiol. 303: F1617-F1628.
4. Crajoinas, R.O., et al. 2014. Changes in the activity and expression of protein phosphatase-1 accompany the differential regulation of NHE3 before and after the onset of hypertension in spontaneously hypertensive rats. Acta Physiol. 211: 395-408.
5. Jones, F.E., et al. 2016. ER stress and basement membrane defects combine to cause glomerular and tubular renal disease resulting from Col4a1 mutations in mice. Dis. Model. Mech. 9: 165-176.
6. Masuda, T., et al. 2018. Unmasking a sustained negative effect of SGLT2 inhibition on body fluid volume in the rat. Am. J. Physiol. Renal Physiol. 315: F653-F664.
7. Gilani, A., et al. 2020. Proximal tubular-targeted overexpression of the Cyp4a12-20-HETE synthase promotes salt-sensitive hypertension in male mice. Am. J. Physiol. Regul. Integr. Comp. Physiol. E-published.

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 for detailed protocols and support products.