SANTA CRUZ BIOTECHNOLOGY, INC.

NHE-1 (54): sc-136239

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, the NHE isoforms (NHE-2–6) have distinct tissue- and cell type-dependent expression and inhibitory characteristics by amiloride analogs. Human NHE-1 protein, known also as solute carrier family 9 isoform-1, SLC9A1, is a ten transmembrane domain-spanning receptor that contains an N-terminal amphiphatic domain and two putative N-glycosylation sites.

CHROMOSOMAL LOCATION

Genetic locus: SLC9A1 (human) mapping to 1p36.11; Slc9a1 (mouse) mapping to 4 D2.3.

SOURCE

NHE-1 (54) is a mouse monoclonal antibody raised against amino acids 682-801 of NHE-1 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.

NHE-1 (54) is available conjugated to agarose (sc-136239 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-136239 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

Blocking peptide available for competition studies, sc-136239 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

NHE-1 (54) is recommended for detection of NHE-1 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

NHE-1 (54) is also recommended for detection of NHE-1 in additional species, including canine.

Suitable for use as control antibody for NHE-1 siRNA (h): sc-42650, NHE-1 siRNA (m): sc-42651, NHE-1 shRNA Plasmid (h): sc-42650-SH, NHE-1 shRNA Plasmid (m): sc-42651-SH, NHE-1 shRNA (h) Lentiviral Particles: sc-42650-V and NHE-1 shRNA (m) Lentiviral Particles: sc-42651-V.

Molecular Weight of NHE-1 precursor: 90 kDa.

Molecular Weight of glycosylated NHE-1: 110-130 kDa.

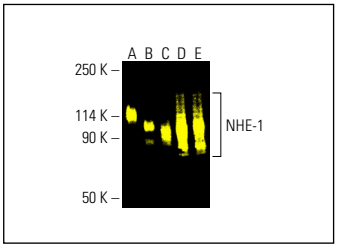
Molecular Weight of NHE-1 dimer: 210 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, MOLT-4 cell lysate: sc-2233 or HeLa whole cell lysate: sc-2200.

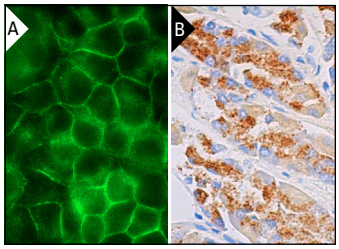
STORAGE

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

DATA



NHE-1 (54): sc-136239. Fluorescent western blot analysis of NHE-1 expression in MOLT-4 (**A**), K-562 (**B**), HeLa (**C**), NIH/3T3 (**D**) and KNRK (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_1 BP-CFL 488: sc-533661.



NHE-1 (54): sc-136239. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization (**A**). NHE-1 (54) HRP: sc-136239 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human stomach tissue showing cytoplasmic staining of glandular cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214 (**B**).

SELECT PRODUCT CITATIONS

1. Veland, I.R., et al. 2013. Inversin/Nephrocystin-2 is required for fibroblast polarity and directional cell migration. PLoS ONE 8: e60193.
2. Zhu, W., et al. 2016. Glioma-mediated microglial activation promotes glioma proliferation and migration: roles of Na^+/H^+ exchanger isoform 1. Carcinogenesis 37: 839-851.
3. Castella, B., et al. 2017. The ATP-binding cassette transporter A1 regulates phosphoantigen release and Vγ9Vδ2 T cell activation by dendritic cells. Nat. Commun. 8: 15663.
4. Andersen, A.P., et al. 2018. The net acid extruders NHE1, NBCn1 and MCT4 promote mammary tumor growth through distinct but overlapping mechanisms. Int. J. Cancer 142: 2529-2542.
5. Wang, J., et al. 2019. CIAPIN1 targeted NHE1 and ERK1/2 to suppress NSCLC cells' metastasis and predicted good prognosis in NSCLC patients receiving pulmonectomy. Oxid. Med. Cell. Longev. 2019: 1970818.
6. Sun, Z., et al. 2020. NHE1 mediates 5-Fu resistance in gastric cancer via STAT3 signaling pathway. Onco Targets Ther. 13: 8521-8532.
7. Su, H., et al. 2021. Cancer cells escape autophagy inhibition via NRF2-induced macropinocytosis. Cancer Cell 39: 678-693.e11.
8. Bera, K., et al. 2022. Extracellular fluid viscosity enhances cell migration and cancer dissemination. Nature 611: 365-373.
9. Martinez, M.L., et al. 2024. Novel kinase regulators of extracellular matrix internalisation identified by high-content screening modulate invasive carcinoma cell migration. PLoS Biol. 22: e3002930.

RESEARCH USE

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