

NHE-1 (4E9): sc-58635

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.

REFERENCES

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- Fliegel, L., et al. 1993. Cloning and analysis of the human myocardial Na⁺/H⁺ exchanger. *Mol. Cell. Biochem.* 125: 137-143.
- Biemesderfer, D., et al. 1993. NHE-3: a Na⁺/H⁺ exchanger isoform of renal brush border. *Am. J. Physiol.* 265: 736-742.
- Noel, J. and Pouyssegur, J. 1995. Hormonal regulation, pharmacology, and membrane sorting of vertebrate Na⁺/H⁺ exchanger isoforms. *Am. J. Physiol.* 268: 283-296.
- 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.
- Cox, G.A., et al. 1997. Sodium/hydrogen exchanger gene defect in slow-wave epilepsy mutant mice. *Cell* 91: 139-148.
- Denker, S.P., et al. 2001. Direct binding of the Na/H exchanger NHE1 to ERM proteins regulates the cortical cytoskeleton and cell shape independently of H⁺ translocation. *Mol. Cell* 6: 1425-1436.

CHROMOSOMAL LOCATION

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

SOURCE

NHE-1 (4E9) is a mouse monoclonal antibody raised against NHE-1 fusion protein containing the entire hydrophilic C-terminal domain of porcine origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

NHE-1 (4E9) is recommended for detection of NHE-1 of broad origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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.

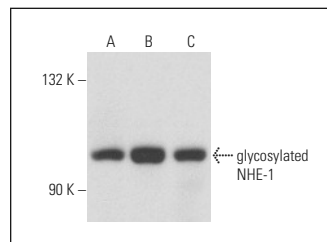
Molecular Weight of NHE-1 precursor: 90 kDa.

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

Molecular Weight of NHE-1 dimer: 210 kDa.

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

DATA



NHE-1 (4E9): sc-58635. Western blot analysis of NHE-1 expression in MOLT-4 (A), K-562 (B) and HeLa (C) whole cell lysates.

SELECT PRODUCT CITATIONS

- Brisson, L., et al. 2013. NaV1.5 Na⁺ channels allosterically regulate the NHE-1 exchanger and promote the activity of breast cancer cell invadopodia. *J. Cell Sci.* 126: 4835-4842.

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.