

NHE-1 (A-2): sc-518041

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

- Sardet, C., et al. 1989. Molecular cloning, primary structure, and expression of the human growth factor-activatable Na⁺/H⁺ antiporter. *Cell* 56: 271-280.
- 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.
- 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.

CHROMOSOMAL LOCATION

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

SOURCE

NHE-1 (A-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 42-61 near the N-terminus of NHE-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NHE-1 (A-2) is available conjugated to agarose (sc-518041 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518041 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518041 PE), fluorescein (sc-518041 FITC), Alexa Fluor[®] 488 (sc-518041 AF488), Alexa Fluor[®] 546 (sc-518041 AF546), Alexa Fluor[®] 594 (sc-518041 AF594) or Alexa Fluor[®] 647 (sc-518041 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-518041 AF680) or Alexa Fluor[®] 790 (sc-518041 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

NHE-1 (A-2) is recommended for detection of NHE-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

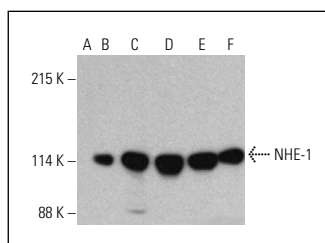
Molecular Weight of NHE-1 dimer: 210 kDa.

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

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.

DATA



NHE-1 (A-2): sc-518041. Western blot analysis of NHE-1 expression in non-transfected (A), mouse NHE-1 transfected (B), K-562 (C), HeLa (D), MOLT-4 (E) and Caki-1 (F) whole cell lysates.

SELECT PRODUCT CITATIONS

- Cao, S., et al. 2022. Inhibition of c-Myc-miRNA 19 pathway sensitized CML K562 cells to Etoposide via NHE1 upregulation. *Oxid. Med. Cell. Longev.* 2022: 9306614.

RESEARCH USE

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