SANTA CRUZ BIOTECHNOLOGY, INC.

NHERF-1 (EBP-10): sc-51684

BACKGROUND

The Na^+/H^+ exchange protein (NHE3) functions in transepithelial Na^+ absorption and is primarily expressed in the intestinal and renal brush border membrane. NHE3 regulatory factor 1 (NHERF-1) interacts with NHE3 through two PDZ (for PSD-95, discs-large and ZO-1 homology) domains, which are protein-protein interaction modules that associate with specific carboxy-terminal motifs on target proteins. Also known as EBP50, NHERF-1 facilitates cAMP inhibition of NHE3 to decrease Na^+ adsorption. NHERF-1 functions as a scaffold for an essential multiprotein complex of Ezrin and NHE3 for cAMP-mediated phosphorylation and consequent inhibition of NHE3. The amino-terminal PDZ domain regulates the dimerization of NHERF-1 *in vivo*. G protein-coupled receptor kinase 6A phosphorylates NHERF-1 at Ser 289 via a PDZ domain-mediated interaction. NHERF-2, also known as E3KARP, is an ubiquitously expressed protein which also functions in NHE2 regulation.

REFERENCES

1. Aronson, P.S., et al. 1986. Molecular-properties and physiological roles of the renal Na^+/H^+ Exchanger. Curr. Top. Mem. Trans. 26: 57-75.
2. Sheng, M. 1996. PDZs and receptor/channel clustering: rounding up the latest suspects. Neuron 17: 575-578.
3. Yun, C.H., et al. 1997. cAMP-mediated inhibition of the epithelial brush border Na^+/H^+ exchanger, NHE3, requires an associated regulatory protein. Proc. Natl. Acad. Sci. USA 94: 3010-3015.
4. Poulat, F., et al. 1997. The human testis determining factor SRY binds a nuclear factor containing PDZ protein interaction domains. J. Biol. Chem. 272: 7167-7172.
5. Imai, K., et al. 1998. Genomic structure and sequence of a human homologue (NTHL1/NTH1) of *Escherichia coli* endonuclease III with those of the adjacent parts of TSC2 and SLC9A3R2 genes. Gene 222: 287-295.
6. Hall, R.A., et al. 1999. G protein-coupled receptor kinase 6A phosphorylates the Na^+/H^+ exchanger regulatory factor via a PDZ domain-mediated interaction. J. Biol. Chem. 274: 24328-24334.
7. Weinman, E.J., et al. 2000. NHERF associations with sodium-hydrogen exchanger isoform 3 (NHE3) and Ezrin are essential for cAMP-mediated phosphorylation and inhibition of NHE3. Biochemistry 39: 6123-6129.
8. Shenolikar, S., et al. 2001. N-terminal PDZ domian is required for NHERF dimerization. FEBS Lett. 489: 233-236.

CHROMOSOMAL LOCATION

Genetic locus: SLC9A3R1 (human) mapping to 17q25.1.

SOURCE

NHERF-1 (EBP-10) is a mouse monoclonal antibody raised against full length NHERF-1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

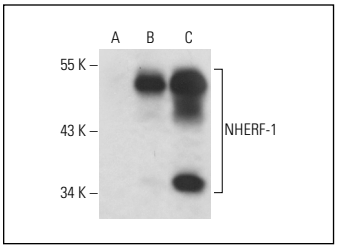
NHERF-1 (EBP-10) is recommended for detection of NHERF of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NHERF-1 siRNA (h): sc-63330, NHERF-1 shRNA Plasmid (h): sc-63330-SH and NHERF-1 shRNA (h) Lentiviral Particles: sc-63330-V.

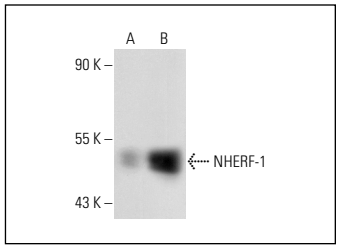
Molecular Weight of NHERF-1: 50 kDa.

Positive Controls: NHERF-1 (h): 293 Lysate: sc-110574, JEG-3 whole cell lysate: sc-364255 or Caki-1 cell lysate: sc-2224.

DATA



NHERF-1 (EBP-10): sc-51684. Western blot analysis of NHERF-1 expression in non-transfected 293T: sc-117752 (**A**), human NHERF-1 transfected 293T: sc-116473 (**B**) and JEG-3 (**C**) whole cell lysates.



NHERF-1 (EBP-10): sc-51684. Western blot analysis of NHERF-1 expression in non-transfected: sc-110760 (**A**) and human NHERF-1 transfected: sc-110574 (**B**) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Kislin, K.L., et al. 2009. NHERF-1: modulator of glioblastoma cell migration and invasion. Neoplasia 11: 377-387.
2. Yanda, M.K., et al. 2020. A new role for heat shock factor 27 in the pathophysiology of Clostridium difficile toxin B. Am. J. Physiol. Gastrointest. Liver Physiol. 318: G120-G129.

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.