SANTA CRUZ BIOTECHNOLOGY, INC.

# NHERF-1 (A-7): sc-271552

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## 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.

## CHROMOSOMAL LOCATION

Genetic locus: SLC9A3R1 (human) mapping to 17q25.1; Slc9a3r1 (mouse) mapping to 11 E2.

## SOURCE

NHERF-1 (A-7) is a mouse monoclonal antibody raised against amino acids 241-340 mapping near the C-terminus of NHERF-1 of human 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.

NHERF-1 (A-7) is available conjugated to agarose (sc-271552 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271552 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271552 PE), fluorescein (sc-271552 FITC), Alexa Fluor® 488 (sc-271552 AF488), Alexa Fluor® 546 (sc-271552 AF546), Alexa Fluor® 594 (sc-271552 AF594) or Alexa Fluor® 647 (sc-271552 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271552 AF680) or Alexa Fluor® 790 (sc-271552 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

NHERF-1 (A-7) is recommended for detection of NHERF-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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

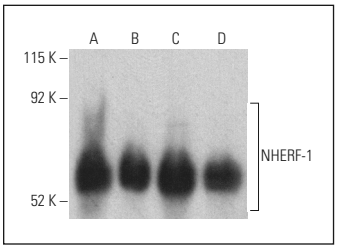
Suitable for use as control antibody for NHERF-1 siRNA (h): sc-63330, NHERF-1 siRNA (m): sc-63331, NHERF-1 siRNA (r): sc-156113, NHERF-1 shRNA Plasmid (h): sc-63330-SH, NHERF-1 shRNA Plasmid (m): sc-63331-SH, NHERF-1 shRNA Plasmid (r): sc-156113-SH, NHERF-1 shRNA (h) Lentiviral Particles: sc-63330-V, NHERF-1 shRNA (m) Lentiviral Particles: sc-63331-V and NHERF-1 shRNA (r) Lentiviral Particles: sc-156113-V.

Molecular Weight of NHERF-1: 50 kDa.

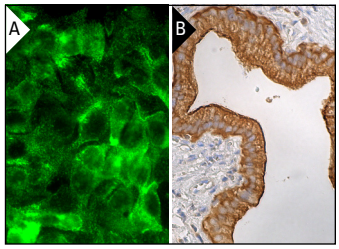
## STORAGE

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

## DATA




NHERF-1 (A-7) HRP: sc-271552 HRP. Direct western blot analysis of NHERF-1 expression in ZR-75-1 (**A**), NCI-H929 (**B**), T-47D (**C**) and MCF7 (**D**) whole cell lysates.




NHERF-1 (A-7): sc-271552. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic staining of glandular cells (**B**).

## SELECT PRODUCT CITATIONS


1. Wu, Y., et al. 2012. A chemokine receptor CXCR2 macromolecular complex regulates neutrophil functions in inflammatory diseases. J. Biol. Chem. 287: 5744-5755.
2. Wang, S., et al. 2013. CXCR2 macromolecular complex in pancreatic cancer: a potential therapeutic target in tumor growth. Transl. Oncol. 6: 216-225.
3. Alshafie, W., et al. 2014. VIP regulates CFTR membrane expression and function in Calu-3 cells by increasing its interaction with NHERF1 and P-ERM in a VPAC1- and PKCε-dependent manner. Am. J. Physiol., Cell Physiol. 307: C107-C119.
4. Zhou, X., et al. 2017. Progression of experimental autoimmune encephalomyelitis is associated with up-regulation of major sodium transporters in the mouse kidney cortex under a normal salt diet. Cell. Immunol. 317: 18-25.
5. Chen, M., et al. 2018. Extracellular anti-angiogenic proteins augment an endosomal protein trafficking pathway to reach mitochondria and execute apoptosis in HUVECs. Cell Death Differ. 25: 1905-1920.
6. Matos, A.M., et al. 2019. Inhibition of Calpain 1 restores plasma membrane stability to pharmacologically rescued Phe508del-CFTR variant. J. Biol. Chem. 294: 13396-13410.
7. Kim, O.H., et al. 2020. High-phytate/low-calcium diet is a risk factor for crystal nephropathies, renal phosphate wasting, and bone loss. Elife 9: e52709.
8. Zhang, W., et al. 2021. GPR43 regulation of mitochondrial damage to alleviate inflammatory reaction in sepsis. Aging 13: 22588-22610.


## RESEARCH USE

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