SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase α (H-3): sc-48345

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The ubiquitously expressed sodium/potassium-ATPase (Na^+/K^+-ATPase) exists as an oligomeric plasma membrane complex that couples the hydrolysis of one molecule of ATP to the importation of three Na^+ ions and two K^+ ions against their respective electrochemical gradients. As a member of the P-type family of ion motives, Na^+/K^+-ATPase plays a critical role in maintaining cellular volume, resting membrane potential and Na^+-coupled solute transport. Multiple isoforms of three subunits, α, β and γ, comprise the Na^+/K^+-ATPase oligomer. The α subunit contains the binding sites for ATP and the cations; the glycosylated β subunit ensures correct folding and membrane insertion of the α subunits. The small γ subunit co-localizes with the α subunit in nephron segments, where it increases the affinity of Na^+/K^+-ATPase for ATP. The β subunit, but not the γ subunit, is essential for normal activity of Na^+/K^+-ATPase.

SOURCE

Na^+/K^+-ATPase α (H-3) is a mouse monoclonal antibody raised against amino acids 551-850 of Na^+/K^+-ATPase α1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Na^+/K^+-ATPase α (H-3) is available conjugated to agarose (sc-48345 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-48345 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-48345 PE), fluorescein (sc-48345 FITC), Alexa Fluor® 488 (sc-48345 AF488), Alexa Fluor® 546 (sc-48345 AF546), Alexa Fluor® 594 (sc-48345 AF594) or Alexa Fluor® 647 (sc-48345 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-48345 AF680) or Alexa Fluor® 790 (sc-48345 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Na^+/K^+-ATPase α (H-3) is recommended for detection of Na^+/K^+-ATPase α1, 2 and 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:2000, dilution range 1:2000-1:10000), 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).

Na^+/K^+-ATPase α (H-3) is also recommended for detection of Na^+/K^+-ATPase α1, 2 and 3 in additional species, including canine.

Suitable for use as control antibody for Na^+/K^+-ATPase α siRNA (h): sc-43956, Na^+/K^+-ATPase α siRNA (m): sc-45886, Na^+/K^+-ATPase α shRNA Plasmid (h): sc-43956-SH, Na^+/K^+-ATPase α shRNA Plasmid (m): sc-45886-SH, Na^+/K^+-ATPase α shRNA (h) Lentiviral Particles: sc-43956-V and Na^+/K^+-ATPase α shRNA (m) Lentiviral Particles: sc-45886-V.

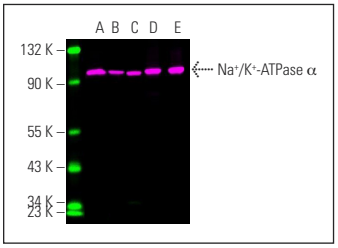
Molecular Weight of Na^+/K^+-ATPase α isoforms: 100-113 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, human kidney extract: sc-363764 or MDCK cell lysate: sc-2252.

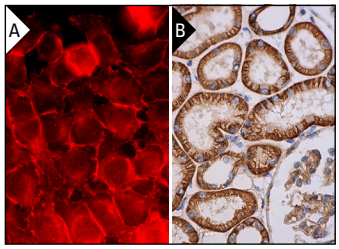
STORAGE

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

DATA



Na^+/K^+-ATPase α (H-3) Alexa Fluor® 546: sc-48345 AF546. Direct fluorescent western blot analysis of Na^+/K^+-ATPase α expression in PC-12 (**A**), Hep G2 (**B**) and MDCK (**C**) whole cell lysates and human kidney (**D**) and human brain (**E**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 680: sc-516730.



Na^+/K^+-ATPase α (H-3): sc-48345. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and membrane and cytoplasmic staining of cells in tubules (**B**).

SELECT PRODUCT CITATIONS

1. Bochkis, I.M., et al. 2008. Hepatocyte-specific ablation of Foxa2 alters bile acid homeostasis and results in endoplasmic reticulum stress. Nat. Med. 14: 828-836.
2. Madunic, I.V., et al. 2017. Expression profiling and immunolocalization of Na^+-D-glucose-cotransporter 1 in mice employing knockout mice as specificity control indicate novel locations and differences between mice and rats. Pflugers Arch. 469: 1545-1565.
3. Velázquez-Villegas, L.A., et al. 2018. Recycling of glucagon receptor to plasma membrane increases in adipocytes of obese rats by soy protein; implications for glucagon resistance. Mol. Nutr. Food Res. 55: 5031-5046.
4. Ko, J., et al. 2019. Paricalcitol attenuates TGF-β1-induced phenotype transition of human peritoneal mesothelial cells (HPMCs) via modulation of oxidative stress and NLRP3 inflammasome. FASEB J. 33: 3035-3050.
5. Talwar, D., et al. 2020. A role for annexin A2 in scaffolding the peroxiredoxin 2-STAT3 redox relay complex. Nat. Commun. 11: 4512.
6. Tsai, K.L., et al. 2021. Dapagliflozin attenuates hypoxia/reoxygenation-caused cardiac dysfunction and oxidative damage through modulation of AMPK. Cell Biosci. 11: 44.
7. Widmark, A., et al. 2022. ADAR1- and ADAR2-mediated regulation of maturation and targeting of miR-376b to modulate GABA neurotransmitter catabolism. J. Biol. Chem. 298: 101682.
8. Scarpetta, V., et al. 2023. Morphological and mitochondrial changes in murine choroid plexus epithelial cells during healthy aging. Fluids Barriers CNS 20: 19.

RESEARCH USE

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