SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase β1 (C464.8): sc-21713

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 to form 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.

CHROMOSOMAL LOCATION

Genetic locus: ATP1B1 (human) mapping to 1q24.2; Atp1b1 (mouse) mapping to 1 H2.2.

SOURCE

Na^+/K^+-ATPase β1 (C464.8) is a mouse monoclonal antibody raised against an epitope mapping to an external domain of the β1 subunit of purified renal outer medulla of rabbit origin.

PRODUCT

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

Na^+/K^+-ATPase β1 (C464.8) is available conjugated to agarose (sc-21713 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-21713 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-21713 PE), fluorescein (sc-21713 FITC), Alexa Fluor® 488 (sc-21713 AF488), Alexa Fluor® 546 (sc-21713 AF546), Alexa Fluor® 594 (sc-21713 AF594) or Alexa Fluor® 647 (sc-21713 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-21713 AF680) or Alexa Fluor® 790 (sc-21713 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Na^+/K^+-ATPase β1 (C464.8) is recommended for detection of Na^+/K^+-ATPase β1 of mouse, rat, human, rabbit and canine 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 immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Na^+/K^+-ATPase β1 siRNA (h): sc-36008, Na^+/K^+-ATPase β1 siRNA (m): sc-36009, Na^+/K^+-ATPase β1 shRNA Plasmid (h): sc-36008-SH, Na^+/K^+-ATPase β1 shRNA Plasmid (m): sc-36009-SH, Na^+/K^+-ATPase β1 shRNA (h) Lentiviral Particles: sc-36008-V and Na^+/K^+-ATPase β1 shRNA (m) Lentiviral Particles: sc-36009-V.

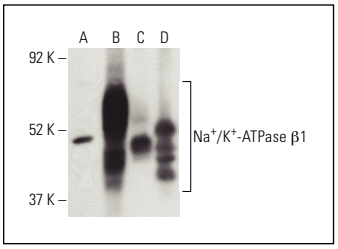
Molecular Weight of Na^+/K^+-ATPase β1: 40-60 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, MDCK cell lysate: sc-2252 or mouse brain extract: sc-2253.

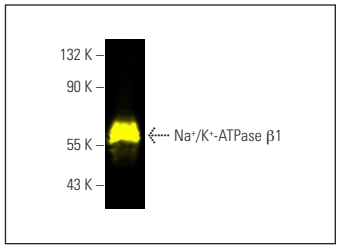
STORAGE

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 β1 (C464.8): sc-21713. Western blot analysis of Na^+/K^+-ATPase β1 expression in SH-SY5Y (**A**) and MDCK (**B**) whole cell lysates and mouse brain (**C**) and rat brain (**D**) tissue extracts. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



Na^+/K^+-ATPase β1 (C464.8) Alexa Fluor® 488: sc-21713 AF488. Direct fluorescent western blot analysis of Na^+/K^+-ATPase β1 expression in MDCK whole cell lysate. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Taub, M., et al. 2004. Regulation of the Na,K-ATPase in MDCK cells by prostaglandin E1: a role for calcium as well as cAMP. Exp. Cell Res. 299: 1-14.
2. Silva, E., et al. 2011. Long-term regulation of Na^+/K^+-ATPase in opossum kidney cells by ouabain. J. Cell. Physiol. 226: 2391-2397.
3. Johar, K., et al. 2012. Regulation of Na^+/K^+-ATPase by nuclear respiratory factor 1: implication in the tight coupling of neuronal activity, energy generation, and energy consumption. J. Biol. Chem. 287: 40381-40390.
4. Huang, J., et al. 2013. Na^+/K^+-ATPase expression changes in the rabbit lacrimal glands during pregnancy. Curr. Eye Res. 38: 18-26.
5. Johar, K., et al. 2014. Regulation of Na^+/K^+-ATPase by neuron-specific transcription factor Sp4: implication in the tight coupling of energy production, neuronal activity and energy consumption in neurons. Eur. J. Neurosci. 39: 566-578.
6. Mewes, M., et al. 2017. Salt-induced Na^+/K^+-ATPase-α/β expression involves soluble adenylyl cyclase in endothelial cells. Pflugers Arch. 469: 1401-1412.
7. Bernhem, K., et al. 2018. Quantification of endogenous and exogenous protein expressions of Na,K-ATPase with super-resolution PALM/STORM imaging. PLoS ONE 13: e0195825.
8. Kalocayová, B., et al. 2019. Alteration of renal Na,K-ATPase in rats following the mediastinal γ-irradiation. Physiol. Rep. 7: e13969.
9. Mutai, H., et al. 2020. Variants encoding a restricted carboxy-terminal domain of SLC12A2 cause hereditary hearing loss in humans. PLoS Genet. 16: e1008643.

RESEARCH USE

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