SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase α1 (C464.6): sc-21712

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The ubiquitously expressed sodium/potassium-ATPase (Na^+/K^+-ATPase) exists as a 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.

CHROMOSOMAL LOCATION

Genetic locus: ATP1A1 (human) mapping to 1p13.1; Atp1a1 (mouse) mapping to 3 F2.2.

SOURCE

Na^+/K^+-ATPase α1 (C464.6) is a mouse monoclonal antibody raised against purified renal outer medulla of rabbit 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.

Na^+/K^+-ATPase α1 (C464.6) is available conjugated to agarose (sc-21712 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-21712 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-21712 PE), fluorescein (sc-21712 FITC), Alexa Fluor® 488 (sc-21712 AF488), Alexa Fluor® 546 (sc-21712 AF546), Alexa Fluor® 594 (sc-21712 AF594) or Alexa Fluor® 647 (sc-21712 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-21712 AF680) or Alexa Fluor® 790 (sc-21712 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 α1 (C464.6) is recommended for detection of Na^+/K^+-ATPase α1 of broad species 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

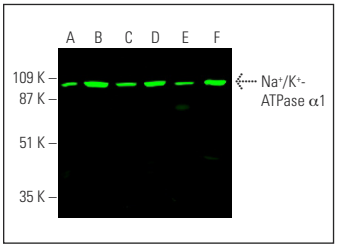
Suitable for use as control antibody for Na^+/K^+-ATPase α1 siRNA (h): sc-36010, Na^+/K^+-ATPase α1 siRNA (m): sc-36011, Na^+/K^+-ATPase α1 shRNA Plasmid (h): sc-36010-SH, Na^+/K^+-ATPase α1 shRNA Plasmid (m): sc-36011-SH, Na^+/K^+-ATPase α1 shRNA (h) Lentiviral Particles: sc-36010-V and Na^+/K^+-ATPase α1 shRNA (m) Lentiviral Particles: sc-36011-V.

Molecular Weight of Na^+/K^+-ATPase α1: 100 kDa.

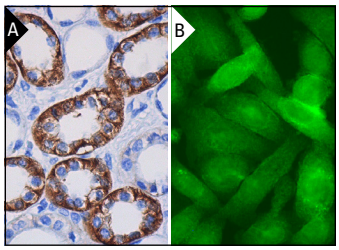
STORAGE

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 α1 (C464.6): sc-21712. Near-infrared western blot analysis of Na^+/K^+-ATPase α1 expression in HeLa (**A**), MDCK (**B**) and KNRK (**D**) whole cell lysates and rat placenta (**C**), mouse placenta (**E**) and human kidney (**F**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



Na^+/K^+-ATPase α1 (C464.6): sc-21712. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing membrane and cytoplasmic staining of cells in tubules (**A**). Na^+/K^+-ATPase α1 (C464.6) Alexa Fluor® 488: sc-21712 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**B**).

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. Marek, L.A., et al. 2014. Nonamplified FGFR1 is a growth driver in malignant pleural mesothelioma. Mol. Cancer Res. 12: 1460-1469.
3. Ferru-Clément, R., et al. 2015. Involvement of the Cdc42 pathway in CFTR post-translational turnover and in its plasma membrane stability in airway epithelial cells. PLoS ONE 10: e0118943.
4. Eskiocak, U., et al. 2016. Synergistic effects of ion transporter and MAP kinase pathway inhibitors in melanoma. Nat. Commun. 7: 12336.
5. Gao, Q., et al. 2017. The signalling receptor MCAM coordinates apical-basal polarity and planar cell polarity during morphogenesis. Nat. Commun. 8: 15279.
6. Mi, Y., et al. 2018. EGCG stimulates the recruitment of brite adipocytes, suppresses adipogenesis and counteracts TNF-α-triggered Insulin resistance in adipocytes. Food Funct. 9: 3374-3386.
7. Coy-Vergara, J., et al. 2019. A trap mutant reveals the physiological client spectrum of TRC40. J. Cell Sci. 132: jcs230094.
8. Soupene, E., et al. 2020. Requirement of the acyl-CoA carrier ACBD6 in myristoylation of proteins: activation by ligand binding and protein interaction. PLoS ONE 15: e0229718.
9. Shimizu, S., et al. 2021. Class II phosphatidylinositol 3-kinase-C2α is essential for Notch signaling by regulating the endocytosis of γ-secretase in endothelial cells. Sci. Rep. 11: 5199.

RESEARCH USE

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