SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase α (M7-PB-E9): sc-58628

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 (M7-PB-E9) is a mouse monoclonal antibody raised against Na^+/K^+-ATPase α of ovine 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 α (M7-PB-E9) is available conjugated to agarose (sc-58628 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-58628 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-58628 PE), fluorescein (sc-58628 FITC), Alexa Fluor® 488 (sc-58628 AF488), Alexa Fluor® 546 (sc-58628 AF546), Alexa Fluor® 594 (sc-58628 AF594) or Alexa Fluor® 647 (sc-58628 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-58628 AF680) or Alexa Fluor® 790 (sc-58628 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 (M7-PB-E9) is recommended for detection of all α isoforms of Na^+/K^+-ATPase of mouse and human origin and Na^+/K^+-ATPase α3 of rat 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). Na^+/K^+-ATPase α (M7-PB-E9) is also recommended for detection of all α isoforms of Na^+/K^+-ATPase in additional species, including ovine, bovine, porcine and 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.

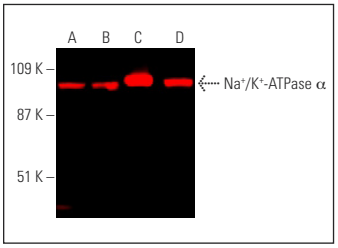
Molecular Weight of Na^+/K^+-ATPase α isoforms: 100-113 kDa.

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

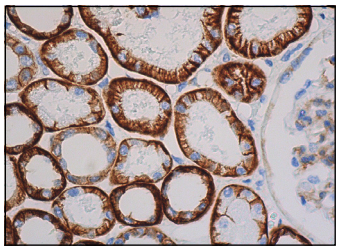
STORAGE

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 (M7-PB-E9): sc-58628. Near-infrared western blot analysis of Na^+/K^+-ATPase α expression in MDCK (**A**) and Hep G2 (**B**) whole cell lysates and human brain (**C**) and human kidney (**D**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.



Na^+/K^+-ATPase α (M7-PB-E9): sc-58628. 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.

SELECT PRODUCT CITATIONS

1. Namkung, W., et al. 2009. *In situ* measurement of airway surface liquid K^+ using a ratioable K^+-sensitive fluorescent dye. J. Biol. Chem. 284: 15916-15926.
2. Gospe, S.M., et al. 2010. Facilitative glucose transporter Glut1 is actively excluded from rod outer segments. J. Cell Sci. 123: 3639-3644.
3. Fang, F., et al. 2013. Adiponectin attenuates angiotensin II-induced oxidative stress in renal tubular cells through AMPK and cAMP-Epac signal transduction pathways. Am. J. Physiol. Renal Physiol. 304: F1366-F1374.
4. Zhang, M., et al. 2014. Localization of Na^+-K^+-ATPase α/β, Na^+-K^+-$2Cl^-$ cotransporter 1 and aquaporin-5 in human eccrine sweat glands. Acta Histochem. 116: 1374-1381.
5. Pan, Y., et al. 2014. TRIP8b is required for maximal expression of HCN1 in the mouse retina. PLoS ONE 9: e85850.
6. Laird, J.G., et al. 2015. Identification of a VxP targeting signal in the flagellar Na^+/K^+-ATPase. Traffic 16: 1239-1253.
7. Salinas, R.Y., et al. 2017. Photoreceptor discs form through peripherin-dependent suppression of ciliary ectosome release. J. Cell Biol. 216: 1489-1499.
8. Dash, B., et al. 2018. Multiple myosin motors interact with sodium/potassium-ATPase α 1 subunits. Mol. Brain 11: 45.
9. Gospe, S.M., et al. 2019. Photoreceptors in a mouse model of leigh syndrome are capable of normal light-evoked signaling. J. Biol. Chem. 294: 12432-12443.
10. Ropelewski, P. and Imanishi, Y. 2020. RPE cells engulf microvesicles secreted by degenerating rod photoreceptors. eNeuro 7: ENEURO.0507-19.2020.

RESEARCH USE

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