SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase β1 (E-4): sc-376406

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 sNa^+/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.

REFERENCES

1. Hardwicke, P.M., et al. 1981. A proteolipid associated with Na,K-ATPase is not essential for ATPase activity. Biochem. Biophys. Res. Commun. 102: 250-257.
2. Ackermann, U., et al. 1990. Mutual dependence of Na,K-ATPase α- and β-subunits for correct post-translational processing and intracellular transport. FEBS Lett. 269: 105-108.
3. McDonough, A.A., et al. 1990. The sodium pump needs its β subunit. FASEB J. 4: 1598-1605.
4. Pedemonte, C.H., et al. 1990. Chemical modification as an approach to elucidation of sodium pump structure-function relations. Am. J. Physiol. 258: C1-C23.

CHROMOSOMAL LOCATION

Genetic locus: ATP1B1 (human) mapping to 1q24.2.

SOURCE

Na^+/K^+-ATPase β1 (E-4) is a mouse monoclonal antibody raised against amino acids 41-155 of Na^+/K^+-ATPase β1 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.

Na^+/K^+-ATPase β1 (E-4) is available conjugated to agarose (sc-376406 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376406 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376406 PE), fluorescein (sc-376406 FITC), Alexa Fluor® 488 (sc-376406 AF488), Alexa Fluor® 546 (sc-376406 AF546), Alexa Fluor® 594 (sc-376406 AF594) or Alexa Fluor® 647 (sc-376406 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376406 AF680) or Alexa Fluor® 790 (sc-376406 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

Na^+/K^+-ATPase β1 (E-4) is recommended for detection of Na^+/K^+-ATPase β1 of 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 Na^+/K^+-ATPase β1 siRNA (h): sc-36008, Na^+/K^+-ATPase β1 shRNA Plasmid (h): sc-36008-SH and Na^+/K^+-ATPase β1 shRNA (h) Lentiviral Particles: sc-36008-V.

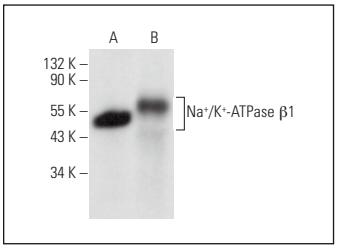
Molecular Weight of Na^+/K^+-ATPase β1: 40-60 kDa.

Positive Controls: human kidney extract: sc-363764, Caki-1 cell lysate: sc-2224 or human brain extract: sc-364375.

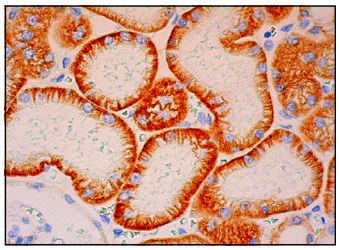
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Na^+/K^+-ATPase β1 (E-4): sc-376406. Western blot analysis of Na^+/K^+-ATPase β1 expression in human brain (**A**) and human kidney (**B**) tissue extracts.



Na^+/K^+-ATPase β1 (E-4): sc-376406. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing basolateral membrane staining of cells in tubules.

SELECT PRODUCT CITATIONS

1. Ferencic, A., et al. 2020. Left ventricular hypertrophy is associated with overexpression of HSP60, TLR2, and TLR4 in the myocardium. Scand. J. Clin. Lab. Invest. 80: 236-246.

RESEARCH USE

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

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