SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase β3 (46): sc-135998

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.

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.

CHROMOSOMAL LOCATION

Genetic locus: ATP1B2 (human) mapping to 3q23.

SOURCE

Na^+/K^+-ATPase β3 (46) is a mouse monoclonal antibody raised against amino acids 124-243 of Na^+/K^+-ATPase β3 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.

APPLICATIONS

Na^+/K^+-ATPase β3 (46) is recommended for detection of Na^+/K^+-ATPase β3 of human 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 β3 siRNA (h): sc-62002, Na^+/K^+-ATPase β3 shRNA Plasmid (h): sc-62002-SH and Na^+/K^+-ATPase β3 shRNA (h) Lentiviral Particles: sc-62002-V.

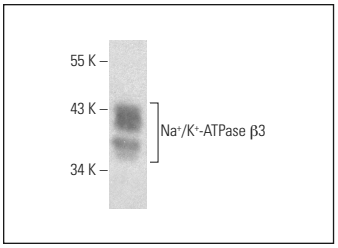
Molecular Weight of Na^+/K^+-ATPase β3: 40-60 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or human endothlial whole cell lysate.

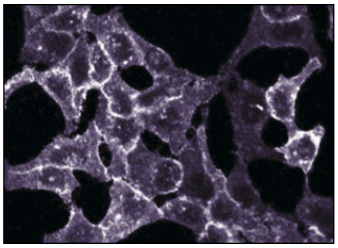
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Na^+/K^+-ATPase β3 (46): sc-135998. Western blot analysis of Na^+/K^+-ATPase β3 expression in A-431 whole cell lysate.



Na^+/K^+-ATPase β3 (46): sc-135998. Immunofluorescence staining of HeLa cells showing membrane staining.

SELECT PRODUCT CITATIONS

1. Bhat, N.M., et al. 2015. Identification of cell surface straight chain poly-N-acetyl-lactosamine bearing protein ligands for VH4-34-encoded natural IgM antibodies. J. Immunol. 195: 5178-5188.
2. Abello, J., et al. 2019. Biodistribution of gadolinium- and near infrared-labeled human umbilical cord mesenchymal stromal cell-derived exosomes in tumor bearing mice. Theranostics 9: 2325-2345.
3. Hirakawa, T., et al. 2022. Na^+/K^+ ATPase α1 and β3 subunits are localized to the basolateral membrane of trophectoderm cells in human blastocysts. Hum. Reprod. 37: 1423-1430.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.