SANTA CRUZ BIOTECHNOLOGY, INC.

Na^+/K^+-ATPase α3 (6D135): sc-71640

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.
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.
5. Mercer, R.W., et al. 1993. Molecular cloning and immunological chracterization of the γ-polypeptide, a small protein associated with Na,K-ATPase. J. Cell Biol. 121: 579-586.

CHROMOSOMAL LOCATION

Genetic locus: ATP1A3 (human) mapping to 19q13.2; Atp1a3 (mouse) mapping to 7 A3.

SOURCE

Na^+/K^+-ATPase α3 (6D135) is s a mouse monoclonal antibody raised against cardiac microsomes of canine 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.

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.

APPLICATIONS

Na^+/K^+-ATPase α3 (6D135) is recommended for detection of Na^+/K^+-ATPase α3 of mouse, rat and 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).

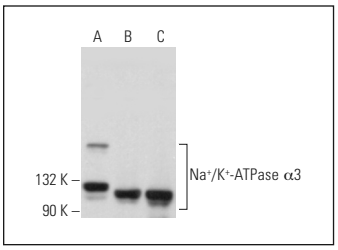
Na^+/K^+-ATPase α3 (6D135) is also recommended for detection of Na^+/K^+-ATPase α3 in additional species, including canine.

Suitable for use as control antibody for Na^+/K^+-ATPase α3 siRNA (h): sc-36012, Na^+/K^+-ATPase α3 siRNA (m): sc-36013, Na^+/K^+-ATPase α3 shRNA Plasmid (h): sc-36012-SH, Na^+/K^+-ATPase α3 shRNA Plasmid (m): sc-36013-SH, Na^+/K^+-ATPase α3 shRNA (h) Lentiviral Particles: sc-36012-V and Na^+/K^+-ATPase α3 shRNA (m) Lentiviral Particles: sc-36013-V.

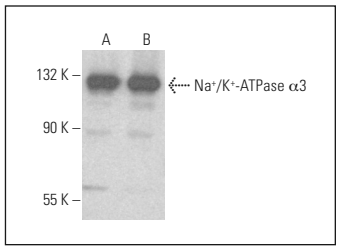
Molecular Weight of Na^+/K^+-ATPase α3: 113 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, IMR-32 cell lysate: sc-2409 or NCI-H292 whole cell lysate: sc-364179.

DATA



Na^+/K^+-ATPase α3 (6D135): sc-71640. Western blot analysis of Na^+/K^+-ATPase α3 expression in THP-1 (**A**), Y79 (**B**) and AN3 CA (**C**) whole cell lysates.



Na^+/K^+-ATPase α3 (6D135): sc-71640. Western blot analysis of Na^+/K^+-ATPase α3 expression in NCI-H292 (**A**) and IMR-32 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Xiao, Y., et al. 2017. Ouabain targets the Na^+/K^+-ATPase α3 isoform to inhibit cancer cell proliferation and induce apoptosis. Oncol. Lett. 14: 6678-6684.
2. Su, Q., et al. 2022. Na^+/K^+-ATPase α 2 isoform elicits Rac1-dependent oxidative stress and TLR4-induced inflammation in the hypothalamic paraventricular nucleus in high salt-induced hypertension. Antioxidants 11: 288.

PROTOCOLS

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