

# Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 (K-12): sc-66341

## BACKGROUND

The ubiquitously expressed sodium/potassium-ATPase (Na<sup>+</sup>/K<sup>+</sup>-ATPase) exists as a oligomeric plasma membrane complex that couples the hydrolysis of one molecule of ATP to the importation of three Na<sup>+</sup> ions and two K<sup>+</sup> ions against their respective electrochemical gradients. As a member of the P-type family of ion motives, Na<sup>+</sup>/K<sup>+</sup>-ATPase plays a critical role in maintaining cellular volume, resting membrane potential and Na<sup>+</sup>-coupled solute transport. Multiple isoforms of three subunits, α, β and γ, comprise the Na<sup>+</sup>/K<sup>+</sup>-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<sup>+</sup>/K<sup>+</sup>-ATPase for ATP. The β subunit, but not the γ subunit, is essential for normal activity of Na<sup>+</sup>/K<sup>+</sup>-ATPase.

## REFERENCES

- Hardwicke, P.M., et al. 1981. A proteolipid associated with Na<sup>+</sup>/K<sup>+</sup>-ATPase is not essential for ATPase activity. *Biochem. Biophys. Res. Commun.* 102: 250-257.
- Ackermann, U., et al. 1990. Mutual dependence of Na<sup>+</sup>/K<sup>+</sup>-ATPase α and β subunits for correct posttranslational processing and intracellular transport. *FEBS Lett.* 269: 105-108.
- McDonough, A.A., et al. 1990. The sodium pump needs its β subunit. *FASEB J.* 4: 1598-1605.
- Pedemonte, C.H., et al. 1990. Chemical modification as an approach to elucidation of sodium pump structure-function relations. *Am. J. Physiol.* 258: C1-23.
- Mercer, R.W., et al. 1993. Molecular cloning and immunological characterization of the γ-polypeptide, a small protein associated with Na<sup>+</sup>/K<sup>+</sup>-ATPase. *J. Cell Biol.* 121: 579-586.
- DeTomaso, A.W., et al. 1993. Expression, targeting, and assembly of functional Na<sup>+</sup>/K<sup>+</sup>-ATPase polypeptides in baculovirus-infected insect cells. *J. Biol. Chem.* 268: 1470-1478.
- Scheiner-Bobis, G., et al. 1994. Subunit requirements for expression of functional sodium pumps in yeast cells. *Biochim. Biophys. Acta* 1193: 226-234.
- Lingrel, J.B., et al. 1994. Na<sup>+</sup>/K<sup>+</sup>-ATPase. *J. Biol. Chem.* 269: 19659-19662.
- Blanco, G., et al. 1994. The α subunit of the Na<sup>+</sup>/K<sup>+</sup>-ATPase has catalytic activity independent of the β subunit. *J. Biol. Chem.* 269: 23420-23425.

## CHROMOSOMAL LOCATION

Genetic locus: ATP1B3 (human) mapping to 3q23.

## SOURCE

Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 (K-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 100 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-66341 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 (K-12) is recommended for detection of Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (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<sup>+</sup>/K<sup>+</sup>-ATPase β3 siRNA (h): sc-62002, Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 shRNA Plasmid (h): sc-62002-SH and Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 shRNA (h) Lentiviral Particles: sc-62002-V.

Molecular Weight of Na<sup>+</sup>/K<sup>+</sup>-ATPase β3: 40-60 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.


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Try **Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 (46): sc-135998** our highly recommended monoclonal alternative to Na<sup>+</sup>/K<sup>+</sup>-ATPase β3 (K-12).