

Na⁺/K⁺-ATPase α1 (6D134): sc-71639

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

- 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.
- 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.
- 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-C23.
- Mercer, R.W., et al. 1993. Molecular cloning and immunological characterization of the γ-polypeptide, a small protein associated with Na,K-ATPase. *J. Cell Biol.* 121: 579-586.
- DeTomaso, A.W., et al. 1993. Expression, targeting, and assembly of functional Na,K-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⁺,K⁺-ATPase. *J. Biol. Chem.* 269: 19659-19662.
- Blanco, G., et al. 1994. The α-subunit of the Na,K-ATPase has catalytic activity independent of the β-subunit. *J. Biol. Chem.* 269: 23420-23425.

CHROMOSOMAL LOCATION

Genetic locus: ATP1A1 (human) mapping to 1p13.1; Atp1a1 (mouse) mapping to 3 F2.2.

SOURCE

Na⁺/K⁺-ATPase α1 (6D134) is a mouse monoclonal antibody raised against Na⁺/K⁺-ATPase α1 of ovine origin.

PRODUCT

Each vial contains 200 μg IgG₁ in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Na⁺/K⁺-ATPase α1 (6D134) is recommended for detection of Na⁺/K⁺-ATPase α1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with the α1 isoform in *Xenopus* or chicken, or the α2 or α3 isoform in rat.

Na⁺/K⁺-ATPase α1 (6D134) is also recommended for detection of Na⁺/K⁺-ATPase α1 in additional species, including ovine, porcine and canine.

Suitable for use as control antibody for Na⁺/K⁺-ATPase α1 siRNA (h): sc-36010, Na⁺/K⁺-ATPase α1 siRNA (m): sc-36011, Na⁺/K⁺-ATPase α1 shRNA Plasmid (h): sc-36010-SH, Na⁺/K⁺-ATPase α1 shRNA Plasmid (m): sc-36011-SH, Na⁺/K⁺-ATPase α1 shRNA (h) Lentiviral Particles: sc-36010-V and Na⁺/K⁺-ATPase α1 shRNA (m) Lentiviral Particles: sc-36011-V.

Molecular Weight of Na⁺/K⁺-ATPase α1: 100 kDa.

Positive Controls: KNRK + PMA cell lysate: sc-24725, HeLa whole cell lysate: sc-2200 or KNRK whole cell lysate: sc-2214.

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.

PROTOCOLS

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



See **Na⁺/K⁺-ATPase α1 (C464.6): sc-21712** for Na⁺/K⁺-ATPase α1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.