

# Na<sup>+</sup>/K<sup>+</sup>-ATPase $\alpha$ 1 (N-15): sc-16041

## 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,  $\alpha$ ,  $\beta$  and  $\gamma$ , comprise the Na<sup>+</sup>/K<sup>+</sup>-ATPase oligomer. The  $\alpha$  subunit contains the binding sites for ATP and the cations; the glycosylated  $\beta$  subunit ensures correct folding and membrane insertion of the  $\alpha$  subunits. The small  $\gamma$  subunit co-localizes with the  $\alpha$  subunit in nephron segments, where it increases the affinity of Na<sup>+</sup>/K<sup>+</sup>-ATPase for ATP. The  $\beta$  subunit, but not the  $\gamma$  subunit, is essential for normal activity of Na<sup>+</sup>/K<sup>+</sup>-ATPase.

## CHROMOSOMAL LOCATION

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

## SOURCE

Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (N-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16041 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (N-15) is recommended for detection of Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:1000-1:10000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], 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).

Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (N-15) is also recommended for detection of Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 siRNA (h): sc-36010, Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 siRNA (m): sc-36011, Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 shRNA Plasmid (h): sc-36010-SH, Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 shRNA Plasmid (m): sc-36011-SH, Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 shRNA (h) Lentiviral Particles: sc-36010-V and Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 shRNA (m) Lentiviral Particles: sc-36011-V.

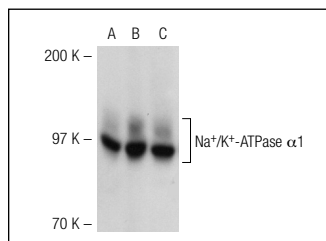
Molecular Weight of Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1: 100 kDa.

Positive Controls: Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (h): 293T Lysate: sc-116148, HeLa whole cell lysate: sc-2200 or KNRK whole cell lysate: sc-2214.

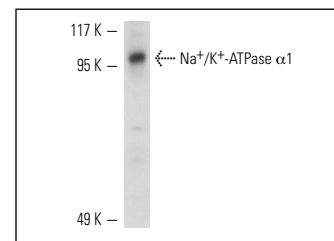
## STORAGE

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

## DATA



Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (N-15): sc-16041. Western blot analysis of Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 expression in non-transfected 293T: sc-117752 (A), human Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 transfected 293T: sc-116148 (B) and HeLa (C) whole cell lysates.



Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (N-15): sc-16041. Western blot analysis of Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 expression in PMA treated KNRK whole cell lysate.

## SELECT PRODUCT CITATIONS

- Erin, N., et al. 2003. Calcium-dependent interaction of calcineurin with Bcl-2 in neuronal tissue. *Neuroscience* 117: 541-555.
- Zhang, L., et al. 2005. Role for the pleckstrin homology domain-containing protein CKIP-1 in AP-1 regulation and apoptosis. *EMBO J.* 24: 766-778.
- Giampuzzi, M., et al. 2005.  $\beta$ -catenin signaling and regulation of cyclin D1 promoter in NRK-49F cells transformed by down-regulation of the tumor suppressor lysyl oxidase. *Biochim. Biophys. Acta* 1745: 370-381.
- Ubels, J.L., et al. 2006. Gene expression in rat lacrimal gland duct cells collected using laser capture microdissection: evidence for K<sup>+</sup> secretion by duct cells. *Invest. Ophthalmol. Vis. Sci.* 47: 1876-1885.
- Andrade, L., et al. 2007. Leptospirosis leads to dysregulation of sodium transporters in the kidney and lung. *Am. J. Physiol. Renal Physiol.* 292: F586-F592.
- Tamiya, S., et al. 2007. Purinergic agonists stimulate lens Na-K-ATPase-mediated transport via a Src tyrosine kinase-dependent pathway. *Am. J. Physiol., Cell Physiol.* 293: C790-C796.
- Moreno, M., et al. 2009. Chronic 17 $\beta$ -estradiol treatment improves skeletal muscle Insulin signaling pathway components in Insulin resistance associated with aging. *Age* 32: 1-13.

## RESEARCH USE

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



Try **Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (C464.6): sc-21712** or **Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (O.T.1): sc-71638**, our highly recommended monoclonal alternatives to Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (N-15). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **Na<sup>+</sup>/K<sup>+</sup>-ATPase  $\alpha$ 1 (C464.6): sc-21712**.