

#4020 Store at -20°C

Phospho-Na,K-ATPase $\alpha 1$ (Ser16) Antibody

100 μl
 (10 western blots)



Orders ■ 877-616-CELL (2355)
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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Entrez-Gene ID #476
Swiss-Prot Acc. #P05023

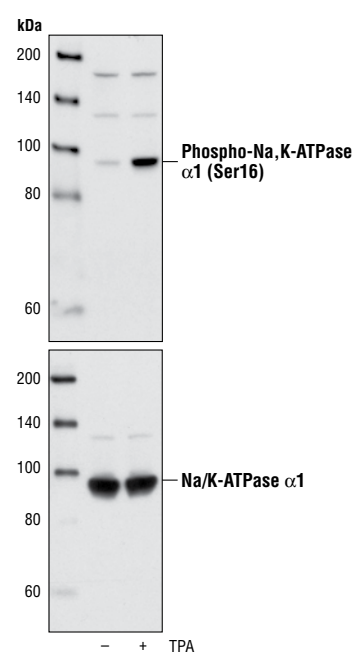
Applications W Endogenous	Species Cross-Reactivity* R, (M, B, Pg)	Molecular Wt. 100 kDa	Source Rabbit**
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Background: The Na,K-ATPase is an integral membrane heterodimer belonging to the P-type ATPase family. This ion channel uses the energy derived from ATP hydrolysis to maintain membrane potential by driving sodium export and potassium import across the plasma membrane against their electrochemical gradients. It is composed of a catalytic α subunit and a β subunit (reviewed in 1). Several phosphorylation sites have been identified for the $\alpha 1$ subunit. Tyr10 is phosphorylated by an as yet undetermined kinase (2), Ser16 and Ser23 are phosphorylated by PKC, and Ser943 is phosphorylated by PKA (3-5). All of these sites have been implicated in the regulation of enzyme activity in response to hormones and neurotransmitters, altering trafficking and kinetic properties of Na,K-ATPase. Altered phosphorylation in response to angiotensin II stimulates activity in rat proximal tubule (6). Na,K-ATPase is also involved in other signal transduction pathways. Insulin regulates its localization in differentiated primary human skeletal muscle cells, and this regulation is dependent on ERK1/2 phosphorylation of the α subunit (7). Na,K-ATPase and Src form a signaling receptor complex that affects regulation of Src kinase activity and, subsequently, its downstream effectors (8,9).

Specificity/Sensitivity: Phospho-Na,K-ATPase $\alpha 1$ (Ser16) Antibody recognizes endogenous levels of Na,K-ATPase $\alpha 1$ only when phosphorylated at Ser16. The residue number, Ser16, is based on the sequence of the immature form of the protein, corresponding to Ser11 of the mature cleaved form.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser16 of rat Na,K-ATPase $\alpha 1$. Antibodies are purified using protein A and peptide affinity chromatography.

- Background References:**
- Therien, A.G. and Blostein, R. (2000) *Am. J. Physiol. Cell Physiol.* 279, C541–566.
 - Férraille, E. et al. (1999) *Mol. Biol. Cell* 10, 2847–2859.
 - Fisone, G. et al. (1994) *J. Biol. Chem.* 269, 9368–9373.
 - Feschenko, M.S. and Sweadner, K.J. (1995) *J. Biol. Chem.* 270, 14072–14077.



Western blot analysis of extracts from PC-12 cells, untreated or TPA-treated, using Phospho-Na,K-ATPase $\alpha 1$ (Ser16) Antibody (upper) or total Na,K-ATPase $\alpha 1$ Antibody #3010 (lower).

- Beguin, P. et al. (1994) *J. Biol. Chem.* 269, 24437–24445.
- Yingst, D.R. et al. (2004) *Am. J. Physiol. Renal Physiol.* 287, F713–F721.
- Al-Khalili, L. et al. (2004) *J. Biol. Chem.* 279, 25211–25218.
- Tian, J. et al. (2006) *Mol. Biol. Cell* 17, 317–326.
- Liang, M. et al. (2006) *J. Biol. Chem.* 281, 19709–19719.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 $\mu\text{g}/\text{ml}$ BSA and 50% glycerol. Store at -20°C . Do not aliquot the antibody.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:
 Western blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignaling.com.

Please visit www.cellsignaling.com for a complete listing of recommended companion products.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.