3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

MONOCLONAL ANTI-NA$^+$/K$^+$-ATPASE (α1 SUBUNIT), CLONE M8-P1-A3
Mouse Ascites Fluid

Product Number **A-277**

Product Description

Monoclonal Anti-Na$^+$/K$^+$-ATPase (α1 subunit) antibody is produced by immunizing mice with purified lamb kidney α1 subunit as the immunogen.

This antibody reacts with the a1 subunit of Na$^+$/K$^+$-ATPase in sheep, canine, rat and pig, but not chicken or *Xenopus*. In rat, shows no reactivity to the α2 or α3 subunits. Epitope mapping studies indicate the epitope is between amino acids 496 and 506 of the lamb kidney Na$^+$/K$^+$-ATPase α1 subunit.

The Na$^+$/K$^+$-ATPase is an integral membrane enzyme found in all cells of higher organisms and is responsible for ATP-dependent transport of Na$^+$ and K$^+$ across cell membranes. This membrane-bound enzyme is related to a number of other ATPases including the SERCA and PMCA. The Na$^+$/K$^+$-ATPase consists of a large, multipass, transmembrane catalytic subunit, termed the α subunit, and an associated smaller glycoprotein, termed the β subunit. Studies indicate that there are three isoforms of the α subunit (α1, α2, α3) and two isoforms of the β subunit (β1 and β2) encoded by two multigene families.

Different isoforms of the Na$^+$/K$^+$-ATPase exhibit tissue-specific and developmental patterns of expression. The α1 and β mRNAs are present in all cell types examined, whereas the α2 and α3 mRNAs exhibit a more restricted pattern of cell-specific expression. The a subunit has been found in kidney, brain, heart, and to a lesser extent liver, skeletal and smooth muscle.

Reagents

Monoclonal Anti-Na$^+$/K$^+$-ATPase (α1 subunit) Antibody is supplied as mouse ascites diluted in phosphate buffered saline (PBS) and contains 0.05% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at –20 °C for up to one month. For extended storage, solution may be frozen in working aliquots. Storage in "frost-free" freezers is not recommended. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation before use.

Product Profile

Recommended starting titers for Monoclonal Anti-Na$^+$/K$^+$-ATPase (α1 subunit) Antibody are 1:450 for immunoblotting and 1:200 for immunohistochemistry.

References

1. Basavappa, S. et al. "Inhibition of Na$^+$/K$^+$-ATPase activates swelling-induced taurine efflux in a human neuroblastoma cell line." *J. Cell Physiol.* **174**, 145-153 (1998).
2. Feschenko, M.S. et al. "Phosphorylation of Na$^+$/K$^+$-ATPase by protein kinase C at Ser18 occurs in intact cells but does not result in direct inhibition of ATP hydrolysis." *J. Biol. Chem.* **272**, 17726-17733 (1997).
3. Malik, B. et al. "Identification of the amino acids comprising a surface-exposed epitope within the nucleotide-binding domain of the Na$^+$/K$^+$-ATPase using a random peptide library." *Protein Sci.* **2**, 2103-2111 (1993).
4. Ball, W.J. et al. "Isolation and characterization of monoclonal antibodies to Na$^+$/K$^+$-ATPase." *Biochim. Biophys. Acta* **719**, 413-423 (1982).

SMS 6/00