Na+/K+ ATPase β3 (Extracellular)

Mouse Monoclonal IgG1

IP-MS Validated

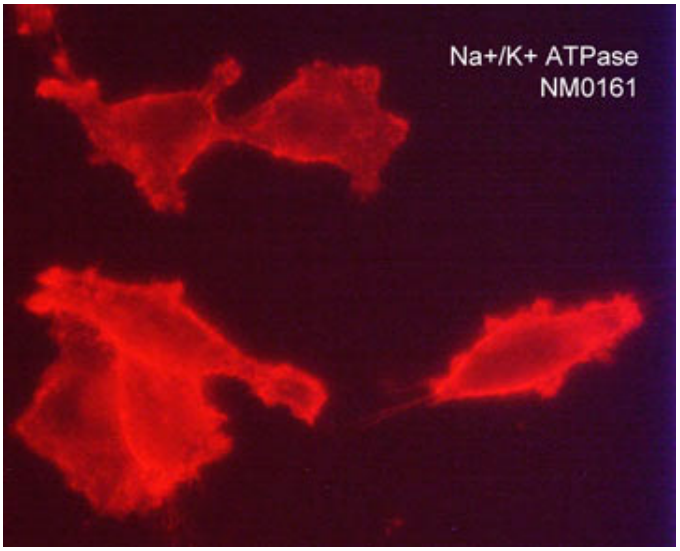
Cat. # NM0161
Size 100 µl

Background

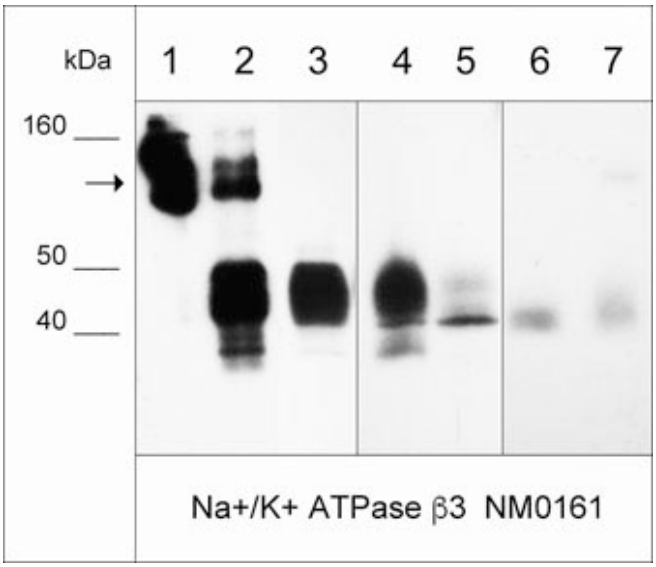
The Na+/K+ ATPase is an integral membrane heterodimer belonging to the P-type ATPase family. This ion channel uses the energy derived from ATP hydrolysis to maintain membrane potential by driving Na+ export and K+ import across the plasma membrane. It is composed of a large catalytic α subunit and a membrane-spanning auxiliary β subunit. In humans, the Na(+) /K(+) -ATPase is a binary complex of an α subunit that has four isoforms (α1-α4) and a β-subunit that has three isoforms (β1 -β3). Na+/K+ ATPase subunit expression has been shown to be upregulated in cancers, and inhibition of Na +/K+ ATPase activity can cause anti-cancer effects. The β3 subunit of Na+/K+ ATPase has increased expression in human gastric cancer tissues and cell lines, and increased β3 subunit expression predicts poor patient outcome. β3 subunit knockdown significantly inhibited cell proliferation, colony-formation ability, migration, and invasion in human gastric carcinoma cell lines. Thus, the β3 subunit of the Na+/K+ ATPase may be an interesting biomarker and target for cancer therapies.

Background References

Yoshimura, SH et al. (2008) J Cell Sci. 121:2159.
Clausen, MV et al. (2017) Front Physiol. 8:371.
Li, L et al. (2017) Oncotarget. 8(48):84285.



Immunocytochemical labeling of Na+/K+ ATPase β3 in paraformaldehyde fixed human MDA-MB-231 cells. The cells were labeled with mouse monoclonal anti-Na+/K+ ATPase β3 (clone M016). The antibody was detected using goat anti-mouse Ig DyLight® 594.



Western blot of NM0161 immunoprecipitates (IP) and whole lysates. The NM0161 antibody only (lane 1), IP from A431 cell lysate (lane 2), A431 cell input (lane 3), LNCaP cells (lane 4), MeWo cells (lane 5), and normal human lung (lane 6) and skin (lane 7). The blot was probed with anti-Na +/K+ ATPase β3 NM0161 (lanes 1-7). The arrow designates native antibody, while the β3 subunit migrates around 40 kDa.

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Immunogen

Clone (M016) was generated from a proprietary antigen related to the native human Na+/K+ ATPase β3 subunit expressed in A431 epidermoid carcinoma cell line.

Buffer and Storage

Mouse monoclonal antibody purified with protein A chromatography is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at –20°C. Stable for 1 year.

Applications

WB	1:1000
ELISA	1:2000
ICC	1:50
IP-MS	1:50

Species Reactivity

Hu

End user should determine optimal dilution for their particular applications and experiments.
Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.
Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

Clone M016 mouse monoclonal antibody detects a 40 kDa* protein on SDS-PAGE "Native" immunoblots of human A431, LNCaP, MeWo, MDA-MB-231, and MCF7 cells. This antibody does not detect denatured Na+/K+ ATPase β3 subunit. In addition, mass spectrometry analysis of immunoprecipitates using NM0161 in human A431 cell lysates confirms that this antibody only detects Na+/K+ ATPase β3 protein.The antibody works for western blot, immunoprecipitation, ELISA, and immunocytochemistry, as well as detects the β3 subunit on live cells.

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.
"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

NM0201	Na+/K+ ATPase β3 Mouse Monoclonal
AK7600	Actin Filament Regulation Immunocytochemistry Kit
CK7700	Cell Structure Labeling Immunocytochemistry Kit
CK7720	Cytoskeletal Filament Labeling Immunocytochemistry Kit
CM4961	Connexin-43 (C-terminal region) Mouse Monoclonal

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