iFluor™ 647 Conjugated Anti-Sodium Potassium ATPase Antibody [ST0533]

HA720176F

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	IF-Tissue, FC
Molecular Wt:	100 kDa
Clone number:	ST0533

Description: The sodium–potassium pump (sodium–potassium adenosine triphosphatase, also known as Na^+/K^+-ATPase, Na^+/K^+ pump, or sodium–potassium ATPase) is an enzyme (an electrogenic transmembrane ATPase) found in the membrane of all animal cells. It performs several functions in cell physiology. The Na^+/K^+-ATPase helps maintain resting potential, affects transport, and regulates cellular volume. It also functions as a signal transducer/integrator to regulate the MAPK pathway, reactive oxygen species (ROS), as well as intracellular calcium. In fact, all cells expend a large fraction of the ATP they produce (typically 30% and up to 70% in nerve cells) to maintain their required cytosolic Na and K concentrations. For neurons, the Na^+/K^+-ATPase can be responsible for up to 3/4 of the cell's energy expenditure. In many types of tissue, ATP consumption by the Na^+/K^+-ATPases have been related to glycolysis. This was first discovered in red blood cells (Schrier, 1966), but has later been evidenced in renal cells, smooth muscles surrounding the blood vessels,[6] and cardiac purkinje cells. Recently, glycolysis has also been shown to be of particular importance for Na^+/K^+-ATPases in skeletal muscles, where inhibition of glycogen breakdown (a substrate for glycolysis) leads to reduced Na^+/K^+-ATPase activity and lower force production.

Conjugate:	iFluor™ 647, Ex: 656nm; Em: 670nm.
Immunogen:	Synthetic peptide within Human ATP1A1 aa 39-83 / 1023.
Positive control:	Rat kidney tissue, human liver tissue, Hela.
Subcellular location:	Cell membrane, Melanosome.
Database links:	SwissProt: P05023 Human | P05026 Human | Q13733 Human | P06685 Rat | P07340 Rat | Q64541 Rat
Recommended Dilutions:	
IF-Tissue	1:100
FC	1:500-1:1,000
Storage Buffer:	Preservative: 0.02% Sodium azide Constituents: 30% Glycerol, 1% BSA, 68.98% PBS.
Storage Instruction:	Store at +4℃ after thawing. Aliquot store at -20℃ or -80℃. Avoid repeated freeze / thaw cycles.
Purity:	Protein A affinity purified.

Images

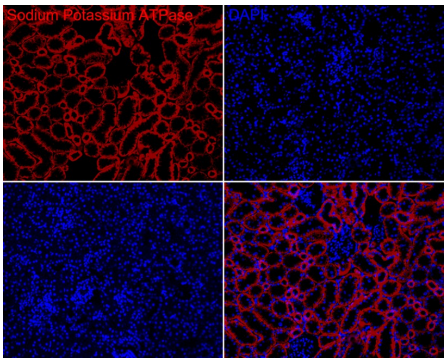

Fig1: Immunofluorescence analysis of paraffin-embedded rat kidney tissue labeling Sodium Potassium ATPase (HA720176F).

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS. And then probed with the primary antibody Sodium Potassium ATPase (HA720176F, iFluor™ 647) at 1/100 dilution overnight at 4 ℃, washed with PBS. DAPI was used as nuclear counterstain.

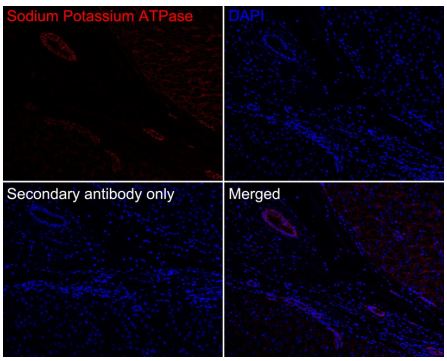

Fig2: Immunofluorescence analysis of paraffin-embedded human liver tissue labeling Sodium Potassium ATPase (HA720176F).

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS. And then probed with the primary antibody Sodium Potassium ATPase (HA720176F, iFluor™ 647) at 1/100 dilution overnight at 4 ℃, washed with PBS. DAPI was used as nuclear counterstain.

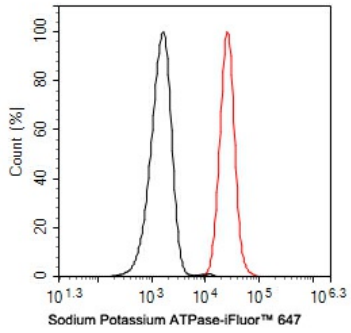

Fig3: Flow cytometric analysis of Hela cells labeling Sodium Potassium ATPase.

Cells were fixed and permeabilized. Then incubated for 1 hour at +4℃ with Sodium Potassium ATPase (HA720176F, red, 1ug/ml). Unlabelled sample was used as a control (cells without incubation with primary antibody; black).

Note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

Background References

1. Yang SH et al. The lamellae-free-type pseudobranch of the euryhaline milkfish (Chanos chanos) is a Na(+), K(+)-ATPase-abundant organ involved in hypoosmoregulation. Comp Biochem Physiol A Mol Integr Physiol 170:15-25 (2014).
2. R der PV et al. The role of SGLT1 and GLUT2 in intestinal glucose transport and sensing. PLoS One 9:e89977 (2014).