Revision 4

Store at -20C

#62849

Na,K-ATPase β1 (D8W8J) Rabbit mAb

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3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R	Endogenous	45-55	Rabbit IgG	#P05026	481

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Na,K-ATPase β1 (D8W8J) Rabbit mAb recognizes endogenous levels of total Na,K-ATPase β1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Lys85 of human Na,K-ATPase β1 protein.

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 α1 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 the 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).
Na,K-ATPase β1 is the non-catalytic subunit of Na,K-ATPase. It is required for stabilization, maturation, and translocation of the catalytic α subunit to the plasma membrane(10-12). Na,K-ATPase β1 also mediates the trans-dimerization of Na,K-ATPase between neighboring cells where it regulates the integrity of tight junctions (13-17). Glutathionylation of NA,K-ATPase β1 regulates the ion pump activity of Na,K-ATPase (18). Research studies have shown that Na,K-ATPase β1 is a target of the Sonic Hedgehog signaling pathway and may be involved in suppressing tumor development and progression (19). *ATP1B1*, the gene encoding Na,K-ATPase β1, is epigenetically silenced by promoter methylation in both renal cell carcinoma cell lines and patient tissues (20).

Background References

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Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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