Na,K-ATPase β1 (D8W8J) Rabbit mAb

**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).

**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 References:**

**For Research Use Only. Not For Use In Diagnostic Procedures.**

**Applications:** Western blotting 1:1000

**Species Cross-Reactivity:** 
- H, M, R

**Molecular Wt:** 45-55 kDa

**Isotype:** Rabbit IgG

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