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STK11 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1491a

Product Information

Application	WB, FC, E
Primary Accession	Q15831
Reactivity	Human, Mouse, Monkey
Host	Mouse
Clonality	Monoclonal
Clone Names	4H12
Isotype	IgG1
Calculated MW	48636
Description	Essential role in G1 cell cycle arrest. Phosphorylates and activates members of the AMPK-related subfamily of protein kinases. Tumor suppressor.serine/threonine kinase 11,with two alternatively spliced isoforms,expressed in all tissues,strongly homolog of Xenopus early embryonic kinase 1 (XEEK1),tumor suppressor gene in hamartomas syndrome and in left sided colon carcinogenesis,mutated in sporadic testicular cancer,malignant melanomas and laryngeal tumors,playing a minor role in the development of ovarian carcinoma.LKB1 is a potential target for atherosclerosis and cancer and is shown to be mutated in patients with Peutz-Jeghers cancer syndrome. Tissue specificity: Ubiquitously expressed. Strongest expression in testis and fetal liver.
Immunogen	Purified recombinant fragment of human STK11 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	6794
Other Names	Serine/threonine-protein kinase STK11, 2.7.11.1, Liver kinase B1, LKB1, hLKB1, Renal carcinoma antigen NY-REN-19, STK11, LKB1, PJS
Dilution	WB~~1/500 - 1/2000 FC~~1/200 - 1/400 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	STK11 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	STK11 (HGNC:11389)
Synonyms	LKB1, PJS
Function	Tumor suppressor serine/threonine-protein kinase that controls the activity of AMP-activated protein kinase (AMPK) family members, thereby playing a role in various processes such as cell metabolism, cell polarity, apoptosis and DNA damage response (PubMed:12805220, PubMed:14517248, PubMed:14976552, PubMed:15016379, PubMed:15733851). Acts by phosphorylating the T-loop of AMPK family proteins, thus promoting their activity: phosphorylates PRKAA1, PRKAA2, BRSK1, BRSK2, MARK1, MARK2, MARK3, MARK4, NUAK1, NUAK2, SIK1, SIK2, SIK3 and SNRK but not MELK (PubMed:12805220, PubMed:14517248, PubMed:14976552, PubMed:15016379, PubMed:15733851). Also phosphorylates non-AMPK family proteins such as STRADA, PTEN and possibly p53/TP53 (PubMed:11430832, PubMed:15987703). Acts as a key upstream regulator of AMPK by mediating phosphorylation and activation of AMPK catalytic subunits PRKAA1 and PRKAA2 and thereby regulates processes including: inhibition of signaling pathways that promote cell growth and proliferation when energy levels are low, glucose homeostasis in liver, activation of autophagy when cells undergo nutrient deprivation, and B- cell differentiation in the germinal center in response to DNA damage (PubMed:14976552). Also acts as a regulator of cellular polarity by remodeling the actin cytoskeleton (PubMed:15016379). Required for cortical neuron polarization by mediating phosphorylation and activation of BRSK1 and BRSK2, leading to axon initiation and specification (PubMed:14976552). Involved in DNA damage response: interacts with p53/TP53 and recruited to the CDKN1A/WAF1 promoter to participate in transcription activation (PubMed:11430832, PubMed:17108107, PubMed:21317932). Able to phosphorylate p53/TP53; the relevance of such result in vivo is however unclear and phosphorylation may be indirect and mediated by downstream STK11/LKB1 kinase NUAK1 (PubMed:11430832, PubMed:17108107, PubMed:21317932). Also acts as a mediator of p53/TP53-dependent apoptosis via interaction with p53/TP53: translocates to the mitochondrion during apoptosis and regulates p53/TP53-dependent apoptosis pathways (PubMed:11430832, PubMed:17108107, PubMed:21317932). Regulates UV radiation-induced DNA damage response mediated by CDKN1A (PubMed:25329316). In association with NUAK1, phosphorylates CDKN1A in response to UV radiation and contributes to its degradation which is necessary for optimal DNA repair (PubMed:25329316).
Cellular Location	Nucleus. Cytoplasm. Membrane {ECO:0000250|UniProtKB:Q9WTK7} Mitochondrion. Late endosome {ECO:0000250|UniProtKB:Q9WTK7}. Note=A small fraction localizes at membranes (By similarity). Relocates to the cytoplasm when bound to STRAD (STRADA or STRADB) and CAB39/MO25 (CAB39/MO25alpha or CAB39L/MO25beta) (PubMed:18854309). Translocates to the mitochondrion during apoptosis. PTEN promotes cytoplasmic localization (PubMed:11430832). Translocates to late endosomes in response to calorie restriction (By similarity). {ECO:0000250|UniProtKB:Q9WTK7, ECO:0000269|PubMed:11430832, ECO:0000269|PubMed:18854309}
Tissue Location	Ubiquitously expressed. Strongest expression in testis and fetal liver

References

1. Sci Signal. 2009 Jul 21;2(80):ra35. 2. Sci Signal. 2009 Sep 1;2(86):pe55.

Images

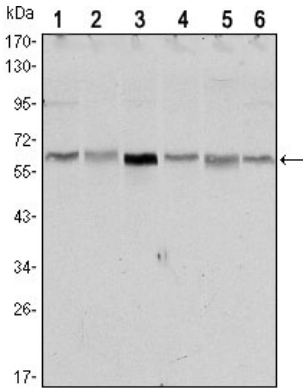


Figure 1: Western blot analysis using STK11 mouse mAb against NIH/3T3 (1),Raw246.7 (2), COS7 (3), Jurkat (4), HEK293 (5) and A431 (6) cell lysate.

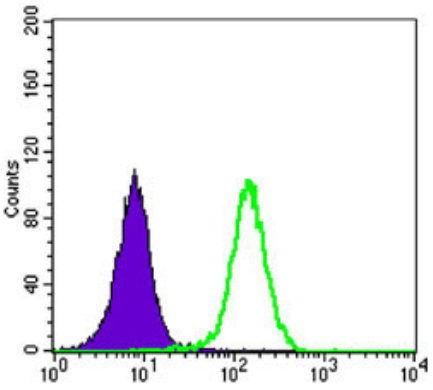


Figure 2: Flow cytometric analysis of K562 cells using STK11 mouse mAb (green) and negative control (purple).

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