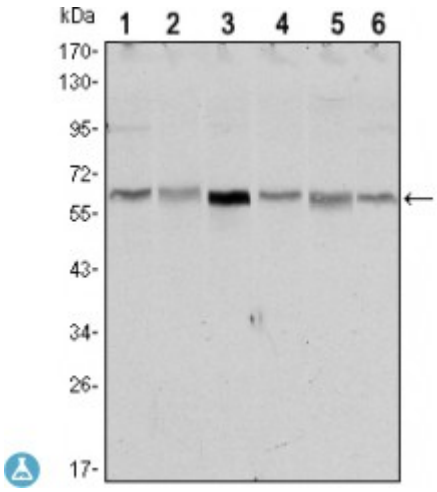
Anti-LKB1 antibody



Description	Mouse monoclonal to LKB1.

Model	STJ98220
Host	Mouse
Reactivity	Human, Mouse, Simian
Applications	ELISA, FC, WB
Immunogen	Purified recombinant fragment of human LKB1 expressed in E. Coli.
Gene ID	6794
Gene Symbol	STK11
Dilution range	WB 1:500-1:2000FC 1:200-1:400ELISA 1:10000
Specificity	LKB1 Monoclonal Antibody detects endogenous levels of LKB1 protein.
Tissue Specificity	Ubiquitously expressed. Strongest expression in testis and fetal liver.
Purification	Affinity purification
Clone ID	4H12
Note	For Research Use Only (RUO).
Protein Name	Serine/threonine-protein kinase STK11 Liver kinase B1 LKB1 hLKB1 Renal carcinoma antigen NY-REN-19
Clonality	Monoclonal
Conjugation	Unconjugated
Isotype	IgG1

Formulation	Ascitic fluid containing 0.03% sodium azide.
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:11389OMIM:175200
Alternative Names	Serine/threonine-protein kinase STK11 Liver kinase B1 LKB1 hLKB1 Renal carcinoma antigen NY-REN-19
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. 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. Also phosphorylates non-AMPK family proteins such as STRADA, PTEN and possibly p53/TP53. 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. Also acts as a regulator of cellular polarity by remodeling the actin cytoskeleton. Required for cortical neuron polarization by mediating phosphorylation and activation of BRSK1 and BRSK2, leading to axon initiation and specification. Involved in DNA damage response: interacts with p53/TP53 and recruited to the CDKN1A/WAF1 promoter to participate in transcription activation. 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. 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. In vein endothelial cells, inhibits PI3K/Akt signaling activity and thus induces apoptosis in response to the oxidant peroxynitrite (in vitro). Regulates UV radiation-induced DNA damage response mediated by CDKN1A. In association with NUAK1, phosphorylates CDKN1A in response to UV radiation and contributes to its degradation which is necessary for optimal DNA repair . Isoform 2: Has a role in spermiogenesis.
Cellular Localization	Nucleus. Cytoplasm. Membrane Mitochondrion. A small fraction localizes at membranes . Relocates to the cytoplasm when bound to STRAD (STRADA or STRADB) and CAB39/MO25 (CAB39/MO25alpha or CAB39L/MO25beta). Translocates to the mitochondrion during apoptosis. Translocates to the cytoplasm in response to metformin or peroxynitrite treatment. PTEN promotes cytoplasmic localization. Isoform 2: Nucleus Cytoplasm. Predominantly nuclear, but translocates to the cytoplasm in response to metformin or peroxynitrite treatment.
Post-translational Modifications	Phosphorylated by ATM at Thr-363 following ionizing radiation (IR). Phosphorylation at Ser-428 by RPS6KA1 and/or some PKA is required to inhibit cell growth. Phosphorylation at Ser-428 is also required during neuronal polarization to mediate phosphorylation of BRSK1 and BRSK2 . Phosphorylation by PKC/PRKCZ at Ser-428 promotes peroxynitrite-induced nuclear export of STK11, leading to PTEN activation and subsequent inhibition of AKT signaling. Phosphorylation by PKC/PRKCZ at Ser-399 in

isoform 2 promotes metformin (or peroxynitrite)-induced nuclear export of STK11 and activation of AMPK. UV radiation-induced phosphorylation at Thr-363 mediates CDKN1A degradation . Acetylated. Deacetylation at Lys-48 enhances cytoplasmic localization and kinase activity in vitro.