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LKB1 Antibody
Catalog # ASC10479

Specification

LKB1 Antibody - Product Information

Application	**WB**
Primary Accession	Q15831
Other Accession	AAH19334, 17939640
Reactivity	**Human, Mouse**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**IgG**
Application Notes	**LKB1 antibody can be used for detection of LKB1 by Western blot at 1 µg/mL. LKB1 often migrates at a higher than expected molecular weight in SDS-PAGE.**

LKB1 Antibody - Additional Information

Gene ID **6794**

Other Names
LKB1 Antibody: PJS, LKB1, hLKB1, PJS, Liver kinase B1, serine/threonine kinase 11

Target/Specificity
STK11;

Reconstitution & Storage
LKB1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

Precautions
LKB1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

LKB1 Antibody - 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. 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. 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 (PubMed:25329316).

Cellular Location
Nucleus. Cytoplasm. Membrane. Mitochondrion. 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) Translocates to the mitochondrion during apoptosis. PTEN promotes cytoplasmic localization.

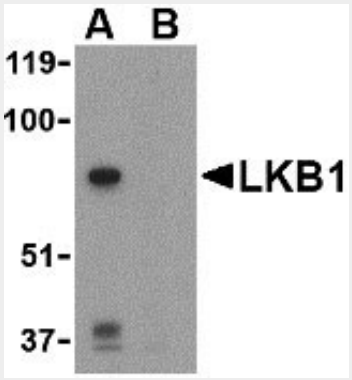
Tissue Location
Ubiquitously expressed. Strongest expression in testis and fetal liver

LKB1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

LKB1 Antibody - Images



Western blot analysis of LKB1 in PC-3 cell lysate with LKB1 antibody at 1 µg/mL in the (A) absence

or (B) presence of blocking peptide.

LKB1 Antibody - Background

LKB1 Antibody: The LKB1 serine/threonine protein kinase was initially identified as a tumor suppressor gene mutated in human Peutz-Jeghers syndrome (PJS), a condition resulting in the growth of numerous intestinal polyps classed as hamartomas. LKB1 exists as a heterotrimeric complex with two other proteins, Ste20-related adaptor protein (STRAD) and MO25. Together, this complex can phsophorylate and activate the AMP-activate protein kinase (AMPK). Following AMPK activation by LKB1, AMPK then phosphorylates TSC1 and TSC2, key components of the metabolism-regulating TOR signaling pathway, which antagonizes the activation for the TOR pathway. LKB1 has also been shown to play a fundamental role in controlling the spatial orientation of structures required to maintain an ordered, polarized epithelium.

LKB1 Antibody - References

Hemminki A, Markie D, Tomlinson I, et al. A serine/threonine kinase gene defective in Peutz-Jeghers syndrome. Nature 1998; 391:184-7.
Boudeau J, Baas AF, Deak M, et al. MO25α/β interact with STRADα/β enhancing their ability to bind, activate and localize LKB1 in the cytoplasm. EMBO J. 2003; 22:5102-14.
Hawley SA, Boudeau J, Reid JL, et al. Complexes between the LKB1 tumor suppressor, STRADα/β and MO25α/β are upstream kinases in the AMP-activated protein kinase cascade. J. Biol. 2003; 2:28