LKB1 Antibody – Rabbit Polyclonal

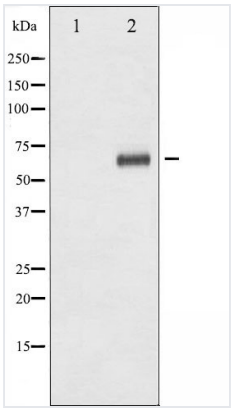
PRODUCT OVERVIEW

Product Name	LKB1, Polyclonal Antibody
Full Product Name	Phospho-LKB1 (Ser428) Antibody
Product Gene Name	anti-LKB1 antibody
Product Synonym Gene Name	STK11
Product Synonym Names	hLKB1; Liver kinase B1; LKB1; PJS; Polarization related protein LKB1; Renal carcinoma antigen NY-REN-19; Serine/Threonine Kinase 11; Serine/threonine protein kinase 11; Serine/threonine protein kinase LKB1; Serine/threonine protein kinase STK11; Serine/threonine-protein kinase 11; Serine/threonine-protein kinase LKB1; Serine/threonine-protein kinase XEEK1; Stk11; STK11_HUMAN
Clonality	Polyclonal
Isotype	IgG
Host	Rabbit
Species Reactivity	Human, Mouse
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purity/Purification	From purified rabbit serum by affinity purification via sequential chromatography on phospho-and non-phospho-peptide affinity columns.
Concentration	1mg/ml (lot specific)
Specificity	Phospho-LKB1 (Ser428) antibody detects endogenous levels of LKB1 only when phosphorylated at Serine 428
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.
Antibody/Peptide Pairs	LKB1 (Ser428) peptide (MBS9615805) is used for blocking the activity of LKB1 (Ser428) antibody (MBS9601222)
Molecular Weight	Observed: 65 kDa Predicted: 49 kDa
3D Structure	ModBase 3D Structure for Q15831
Supply Chain Verification	Manufactured in a lab with traceable raw materials manufactured on site. Coordinated product portfolio of antibodies, pairs, conjugates, recombinant proteins, and immunoassay materials available, please inquire.
Immunogen	A synthesized peptide derived from human LKB1 around the phosphorylation site of Serine 428
Subcellular Location	Nucleus. Cytoplasm. Relocates to the cytoplasm when bound to CAB39 and STRAD or CAB39 and ALS2CR2.
Tissue Specificity	Ubiquitously expressed. Strongest expression in testis and fetal liver.
Predicted Cross Reactivity	**Pig, Bovine, Horse, Sheep, Dog, Xenopus**
Similarity	Pig (100%), Bovine (100%), Horse (100%), Sheep (100%), Dog (100%), Xenopus (89%)
Conjugation	Unconjugated
Epitope	Phospho Ser428
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Applications Tested/Suitable for anti-LKB1 antibody	Western Blot (WB), Immunohistochemisty (IHC), Immunofluorescence (IF), Immunocytochemistry (ICC), ELISA (EIA)

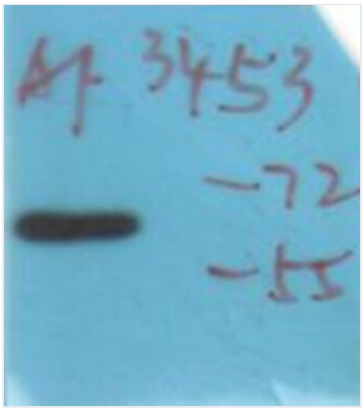
Application Notes for anti-LKB1 antibody	WB: 1:500-1:2000 IHC: 1:50-1:200 IF/ICC: 1:100-1:500
Related Product Information for anti-LKB1 antibody	Description: Ubiquitously expressed kinase of the CAMKL family with a tumor suppressor activity. Phosphorylates AGS3 (activator of G-protein signaling 3) GPR domains, regulating the interaction of GPR-containing proteins with G-proteins. Strongest expression in testis and fetal liver. Mutations in LKB1 lead to the Peutz-Jeghers cancer syndrome. 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 (PubMed:25329316). Subunit Structure: Catalytic component of a trimeric complex composed of STK11/LKB1, STRAD (STRADA or STRADB) and CAB39/MO25 (CAB39/MO25alpha or CAB39L/MO25beta): the complex tethers STK11/LKB1 in the cytoplasm and stimulates its catalytic activity. Found in a ternary complex composed of SMAD4, STK11/LKB1 and STK11IP. Interacts with p53/TP53, SMAD4, STK11IP and WDR6. Interacts with NR4A1. Interacts with NISCH; this interaction may increase STK11 activity. Interacts with PTEN; leading to PTEN phosphorylation. Interacts with SIRT1; the interaction deacetylates STK11. Interacts with CDKN1A. 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 (By similarity). 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 (By similarity). Acetylated. Deacetylation at Lys-48 enhances cytoplasmic localization and kinase activity in vitro. Similarity: Belongs to the protein kinase superfamily. CAMK Ser/Thr protein kinase family. LKB1 subfamily.
Other Notes	Small volumes of anti-LKB1 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for LKB1 purchase	MBS9601222 is an antibody targeting LKB1. Also known as Phospho-LKB1 (Ser428) Antibody. Reactive in Human, Mouse. Host: Rabbit.



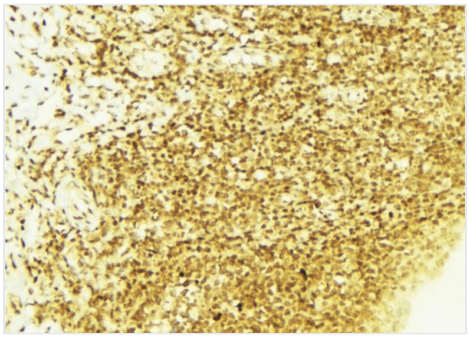
Immunohistochemistry (IHC) of anti-LKB1 antibody
MBS9601222 at 1/100 staining human lung tissues sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at142 degree C.



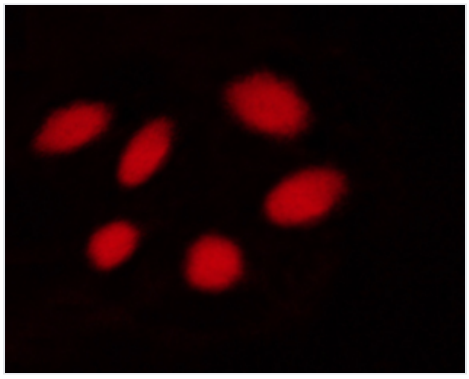
Western Blot (WB) of anti-LKB1 antibody
Western blot analysis of LKB1 phosphorylation expression in PMA treated HeLa whole cell lysates, The lane on the left is treated with the antigen-specific peptide.



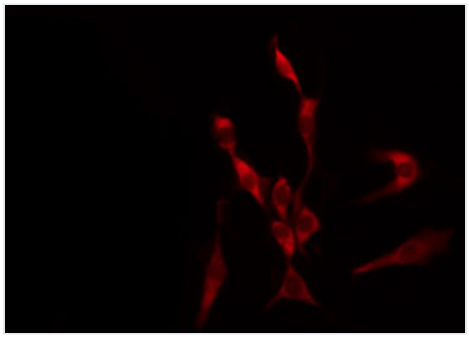
Western Blot (WB) of anti-LKB1 antibody
Western blot analysis of Phospho-LKB1 (Ser428) Antibody expression in PMA treated Hela cells lysates.The lane on the right is treated with the antigen-specific peptide.



Immunohistochemistry (IHC) of anti-LKB1 antibody
MBS9601222 at 1/100 staining Mouse liver tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.



Immunofluorescence (IF) of anti-LKB1 antibody
MBS9601222 staining COS7 cells by ICC/IF. Cells were fixed with PFA and permeabilized in 0.1% saponin prior to blocking in 10% serum for 45 minutes at 37 degree C. The primary antibody was diluted 1/400 and incubated with the sample for 1 hour at 37 degree C. A Alexa Fluor 594 conjugated goat polyclonal to rabbit IgG (H+L), diluted 1/600 was used as secondary antibody.



Immunofluorescence (IF) of anti-LKB1 antibody
MBS9601222 staining HeLa by IF/ICC. The sample were fixed with PFA and permeabilized in 0.1% Triton X-100, then blocked in 10% serum for 45 minutes at 25 degree C. The primary antibody was diluted at 1/200 and incubated with the sample for 1 hour at 37 degree C. An Alexa Fluor 594 conjugated goat anti-rabbit IgG (H+L) Ab, diluted at 1/600, was used as the secondary antibody.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for LKB1. It may not necessarily be applicable to this product.

NCBI GI #	4507271
NCBI GeneID	6794
NCBI Accession #	NP_000446.1

UniProt Primary Accession #	Q15831
UniProt Secondary Accession #	B2RBX7; E7EW76
UniProt Related Accession #	Q15831
GenBank Nucleotide #	NM_000455.4
NCBI Official Full Name	serine/threonine-protein kinase STK11
NCBI Official Synonym Full Names	serine/threonine kinase 11
NCBI Official Symbol	STK11
NCBI Official Synonym Symbols	PJS; LKB1; hLKB1
UniProt Protein Name	Serine/threonine-protein kinase STK11
UniProt Synonym Protein Names	Liver kinase B1; LKB1; hLKB1; Renal carcinoma antigen NY-REN-19
Protein Family	Serine/threonine-protein kinase
UniProt Gene Name	STK11
UniProt Synonym Gene Names	LKB1; PJS; LKB1; hLKB1
NCBI Protein Information	serine/threonine-protein kinase STK11
NCBI Summary for LKB1	This gene, which encodes a member of the serine/threonine kinase family, regulates cell polarity and functions as a tumor suppressor. Mutations in this gene have been associated with Peutz-Jeghers syndrome, an autosomal dominant disorder characterized by the growth of polyps in the gastrointestinal tract, pigmented macules on the skin and mouth, and other neoplasms. Alternate transcriptional splice variants of this gene have been observed but have not been thoroughly characterized. [provided by RefSeq, Jul 2008]
UniProt Comments for LKB1	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 (PubMed:25329316).
Research Articles on LKB1	**1.** LKB1 performed as a tumor suppressor in lung cancer inhibiting proliferation of lung cancer cells and inducing their apoptosis. LKB1 also inhibited the in vivo growth of lung cancer. After treatment with cyclopamine, the activated Shh signaling pathway induced by LKB1 silencing was suppressed, and the inactivated Shh signaling pathway induced by LKB1 over-expression was enhanced.
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