Product Information

3050 Spruce Street, Saint Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Monoclonal Anti- LKB1
Clone Ley37D/G6
produced in mouse, purified immunoglobulin

Catalog Number **L9168**

Product Description

Monoclonal Anti-LKB1 (mouse IgG2b isotype) is derived from the hybridoma Ley37D/G6 produced by the fusion of mouse myeloma cells (p3-NS1/Ag4-1) and splenocytes from BALB/c mice immunized with LKB1 recombinant protein (Gene ID: 6794).[1] The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-LKB1 specifically recognizes human[1, 2] LKB1. The antibody can be used in various applications: ELISA, immunoblotting (~55 kDa),[1, 2] immunoprecipitation, immunocytochemistry,[1] and immunohistochemistry.[1]

Peutz-Jeghers syndrome (PJS) is a rare inherited disease characterized by mucocutaneous pigmentation and multiple gastrointestinal hamartomatous polyps. This syndrome is associated with an increased risk for several types of cancer, particularly those of the gastrointestinal and reproductive systems. Most cases of PJS have been associated with mutations of the ubiquitously expressed LKB1 gene (also termed STK11 and PJS). LKB1 (55 kDa) is a serine-threonine kinase with highest homology to the cytoplasmic xenopus protein kinase XEEK1, and weak similarity to many other mammalian protein kinases.[3] It is widely expressed during murine embryonic development, is essential for normal fetal development, and is present in apoptotic intestinal cells. Because PJS patients are at an increased risk of developing multiple types of cancer, it has been suggested that LKB1 may function as a tumor suppressor.[4] This protein is involved in p53-mediated apoptosis. *In vitro*, LKB1 induces a G_1 cell cycle arrest in tumor cell lines that have lost endogenous LKB1 expression.[5] LKB1 interacts with the chromatin remodeling protein Brg1,[6] and also with the cell cycle regulatory proteins, LKB1-interacting protein 1 (LIP1) and WAF1.[7] It has also been proposed to be involved in Wnt signaling[8] and to regulate cell polarity.[9] The molecular mechanisms by which LKB1 mediates its functions are poorly understood. It has been shown to be phosphorylated by c-AMP-dependent protein kinase (PKA) and prenylated *in vivo*.[10]

LKB1 forms complexes with two proteins STRAD and MO25 that localize LKB1 to the cytoplasm, excluding it from the nucleus, and enhancing its catalytic activty.[11, 12] LKB1 protein functions as a master upstream kinase of a group of protein kinases named AMPK-related kinases, homologous to the AMP-activated protein kinase. Among them is AMPK, a sensor of cellular energy status.[13] It has been shown that AMPK can phosphorylate and activate tuberin protein (TSC2). Furthermore, LKB1 is required for the repression of mTOR under low ATP conditions, *in vitro*, in an AMPK and TSC2-dependent manner.[14] In lung cancer cells, LKB1 deficiency impairs inhibition of mTOR activity in response to agents elevating intracellular levels of AMP but not deprivation of growth factors.[1]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For extended storage, freeze at -20 °C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discard if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 2-4 µg/mL is recommended using total cell extract of A431 cells.

Note: In order to obtain the best results in various techniques and preparations, we recommend determining optimal working concentration by titration.

References

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EK,KAA,PHC 01/08-1