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LIM Kinase 1 (LIMK1) Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7813A

Product Information

Application	WB, IHC-P, E
Primary Accession	P53667
Other Accession	P53669, P53668
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB3078
Calculated MW	72585
Antigen Region	1-30

Additional Information

Gene ID	3984
Other Names	LIM domain kinase 1, LIMK-1, LIMK1, LIMK
Target/Specificity	This LIM Kinase 1 (LIMK1) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 1-30 amino acids from the N-terminal region of human LIM Kinase 1 (LIMK1).
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	LIM Kinase 1 (LIMK1) Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	LIMK1
Synonyms	LIMK
Function	Serine/threonine-protein kinase that plays an essential role in the

	regulation of actin filament dynamics. Acts downstream of several Rho family GTPase signal transduction pathways (PubMed:10436159, PubMed:11832213, PubMed:12807904, PubMed:15660133, PubMed:16230460, PubMed:18028908, PubMed:22328514, PubMed:23633677). Activated by upstream kinases including ROCK1, PAK1 and PAK4, which phosphorylate LIMK1 on a threonine residue located in its activation loop (PubMed:10436159). LIMK1 subsequently phosphorylates and inactivates the actin binding/depolymerizing factors cofilin-1/CFL1, cofilin-2/CFL2 and destrin/DSTN, thereby preventing the cleavage of filamentous actin (F-actin), and stabilizing the actin cytoskeleton (PubMed:11832213, PubMed:15660133, PubMed:16230460, PubMed:23633677). In this way LIMK1 regulates several actin-dependent biological processes including cell motility, cell cycle progression, and differentiation (PubMed:11832213, PubMed:15660133, PubMed:16230460, PubMed:23633677). Phosphorylates TPPP on serine residues, thereby promoting microtubule disassembly (PubMed:18028908). Stimulates axonal outgrowth and may be involved in brain development (PubMed:18028908).
Cellular Location	Cytoplasm. Nucleus. Cytoplasm, cytoskeleton. Cell projection, lamellipodium {ECO:0000250|UniProtKB:P53668} Note=Predominantly found in the cytoplasm. Localizes in the lamellipodium in a CDC42BPA, CDC42BPB and FAM89B/LRAP25-dependent manner. {ECO:0000250|UniProtKB:P53668}
Tissue Location	Highest expression in both adult and fetal nervous system. Detected ubiquitously throughout the different regions of adult brain, with highest levels in the cerebral cortex. Expressed to a lesser extent in heart and skeletal muscle

Background

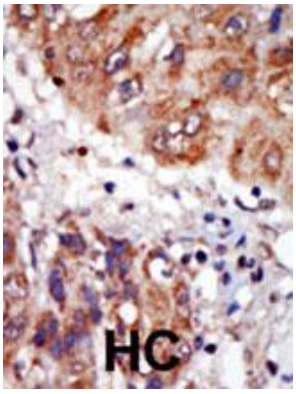
LIMK1, a member of the Ser/Thr protein kinase family, may be a component of an intracellular signaling pathway and may be involved in brain development. It phosphorylates and inactivates the actin binding/depolymerizing factor cofilin and induces actin cytoskeletal changes. The LIM domain interacts with the cytoplasmic domain of NRG1, and this cytoplasmic protein also binds ROCK1, whic phosphorylates LIMK1 on serine and/or threonine residues. Highest expression occurs in both adult and fetal nervous systems. It is detected ubiquitously throughout the different regions of adult brain, with highest levels in the cerebral cortex, and is expressed to a lesser extent in heart and skeletal muscle. Haploinsufficiency of LIMK1 may be the cause of certain cardiovascular and musculo-skeletal abnormalities observed in Williams-Beuren syndrome (WBS), a rare developmental disorder. It is a contiguous gene deletion syndrome involving genes from chromosome band 7q11.23. This protein contains 2 LIM zinc-binding domains and 1 PDZ/DHR domain.

References

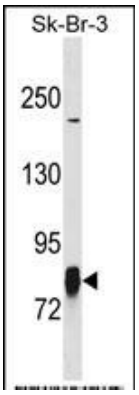
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Maekawa, M., et al., Science 285(5429):895-898 (1999).
Edwards, D.C., et al., J. Biol. Chem. 274(16):11352-11361 (1999).
Osborne, L.R., et al., Genomics 36(2):328-336 (1996).
Frangiskakis, J.M., et al., Cell 86(1):59-69 (1996).

Images

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical



relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



LIMK1 Antibody (T9) (Cat. #AP7813a) western blot analysis in SK-BR-3 cell line lysates (35ug/lane).This demonstrates the LIMK1 antibody detected the LIMK1 protein (arrow).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.