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Recombinant Anti-MLCK1 Rabbit mAb

Catalog # AP94915

Product Information

Application	WB, IHC, FC, IF/IC
Primary Accession	Q15746
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Monoclonal
Calculated MW	210715

Additional Information

Gene ID	4638
Other Names	MLCK; MLCK1; MYLK1; Myosin light chain kinase, smooth muscle; MLCK; smMLCK; Kinase-related protein; KRP; Telokin
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within human MLCK1 protein. The exact sequence is proprietary.
Dilution	WB~~WB (1/500 - 1/1000) IHC~~1:100~500 FC~~1:10~50 IF/IC~~N/A
Format	Liquid in PBS, pH 7.3, 50% glycerol, 0.05% BSA, and 0.05% Proclin300.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	MYLK (HGNC:7590)
Synonyms	MLCK, MLCK1, MYLK1
Function	Calcium/calmodulin-dependent myosin light chain kinase implicated in smooth muscle contraction via phosphorylation of myosin light chains (MLC) (PubMed:11113114). Also regulates actin-myosin interaction through a non-kinase activity (PubMed:11113114). Phosphorylates PTK2B/PYK2 and myosin light-chains (PubMed:11113114, PubMed:18587400). Involved in the inflammatory response (e.g. apoptosis, vascular permeability, leukocyte diapedesis), cell motility and morphology, airway hyperreactivity and other activities relevant to asthma (PubMed:20139351). Required for tonic airway smooth muscle contraction that is necessary for physiological and asthmatic airway resistance (By similarity). Necessary for gastrointestinal motility (By similarity). Implicated in the regulation of endothelial as well as vascular permeability, probably via the regulation of cytoskeletal rearrangements (By similarity). In the nervous system it has been shown to control the growth initiation of astrocytic processes in culture and to participate in transmitter

release at synapses formed between cultured sympathetic ganglion cells (PubMed:20375339). Critical participant in signaling sequences that result in fibroblast apoptosis (PubMed:20453870). Plays a role in the regulation of epithelial cell survival (PubMed:16723733). Required for epithelial wound healing, especially during actomyosin ring contraction during purse-string wound closure (PubMed:15825080). Mediates RhoA-dependent membrane blebbing (PubMed:20181817). Triggers TRPC5 channel activity in a calcium-dependent signaling, by inducing its subcellular localization at the plasma membrane (PubMed:16284075). Promotes cell migration (including tumor cells) and tumor metastasis (PubMed:18710790, PubMed:19826488). PTK2B/PYK2 activation by phosphorylation mediates ITGB2 activation and is thus essential to trigger neutrophil transmigration during acute lung injury (ALI) (PubMed:18587400). May regulate optic nerve head astrocyte migration (PubMed:20375339). Probably involved in mitotic cytoskeletal regulation (PubMed:15020676). Regulates tight junction probably by modulating ZO-1 exchange in the perijunctional actomyosin ring (By similarity). Mediates burn-induced microvascular barrier injury; triggers endothelial contraction in the development of microvascular hyperpermeability by phosphorylating MLC (By similarity). Essential for intestinal barrier dysfunction (By similarity). Mediates Giardia spp.-mediated reduced epithelial barrier function during giardiasis intestinal infection via reorganization of cytoskeletal F- actin and tight junctional ZO-1 (By similarity). Necessary for hypotonicity-induced Ca(2+) entry and subsequent activation of volume- sensitive organic osmolyte/anion channels (VSOAC) in cervical cancer cells (PubMed:11976941). Responsible for high proliferative ability of breast cancer cells through anti-apoptosis (PubMed:20453870).

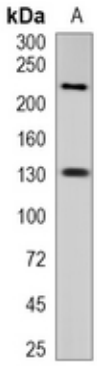
Cellular Location

Cytoplasm. Cell projection, lamellipodium. Cleavage furrow. Cytoplasm, cytoskeleton, stress fiber. Note=Localized to stress fibers during interphase and to the cleavage furrow during mitosis

Tissue Location

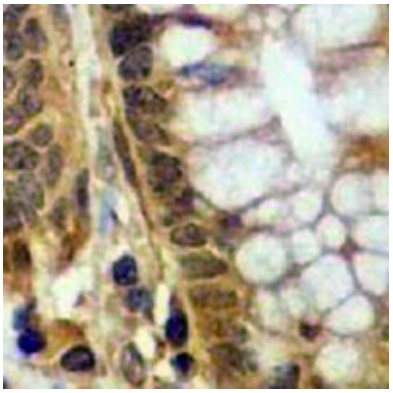
Smooth muscle and non-muscle isozymes are expressed in a wide variety of adult and fetal tissues and in cultured endothelium with qualitative expression appearing to be neither tissue- nor development-specific. Non-muscle isoform 2 is the dominant splice variant expressed in various tissues. Telokin has been found in a wide variety of adult and fetal tissues. Accumulates in well differentiated enterocytes of the intestinal epithelium in response to tumor necrosis factor (TNF).

Images

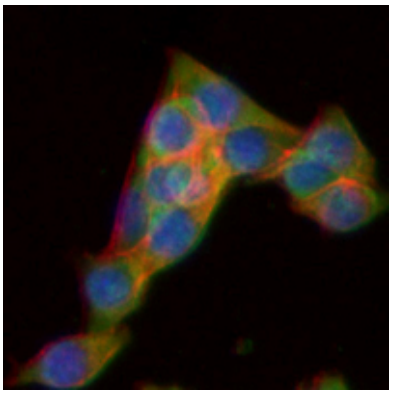


Western blot analysis of MLCK1 expression in HUVEC (A) whole cell lysates. (Predicted band size: 211 kD; Observed band size: 130, 210 kD)

Immunohistochemical analysis of MLCK1 staining in human colon formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The



section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of MLCK1 staining in HUVEC cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a hidified chamber. Cells were washed with PBST and incubated with an AF488-conjugated secondary antibody (green) in PBS at room temperature in the dark. Phalloidin - AF594 was used to stain Actin filaments (red). DAPI was used to stain the cell nuclei (blue).

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