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Villin Mouse mAb

Catalog # AP99419

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	P09327
Other Accession	P09327
Reactivity	Rat, Human, Mouse
Host	Mouse
Clonality	Monoclonal
Calculated MW	92695
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Villin
Isotype	IgG1
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the villin/gelsolin family.Contains 6 gelsolin-like repeats. Contains 1 HP (headpiece) domain
SUBUNIT	Monomer. Homodimer; homodimerization is necessary for actin-bundling. Associates with F-actin; phosphorylation at tyrosines residues decreases the association with F-actin. Interacts (phosphorylated at C-terminus tyrosine phosphorylation sites) with PLCG1 (via the SH2 domains). Interacts (phosphorylated form) with PLCG1; the interaction is enhanced by hepatocyte growth factor (HGF) (By similarity).
Post-translational modifications	Tyrosine phosphorylation is induced by epidermal growth factor (EGF) and stimulates cell migration (By similarity). Phosphorylated on tyrosine residues by SRC. The unphosphorylated form increases the initial rate of actin-nucleating activity, whereas the tyrosine-phosphorlyated form inhibits actin-nucleating activity, enhances actin-bundling activity and enhances actin-severing activity by reducing high Ca(2+) requirements. The tyrosine-phosphorlyated form does not regulate actin-capping activity. Tyrosine phosphorylation is essential for cell migration: tyrosine phosphorylation sites in the N-terminus half regulate actin reorganization and cell morphology, whereas tyrosine phosphorylation sites in the C-terminus half regulate cell migration via interaction with PLCG1.
DISEASE	Note=Biliary atresia is a chronic and progressive cholestatic liver disease of chilhood characterized by an abnormal villin gene expression and severe malformation of canalicular microvillus structure.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Villin can cap, nucleate, sever and bundle actin in a calcium and phosphoinositide regulated manner. It is associated with the microvillar actin core bundle of intestinal and renal brush border implicated in adsorption. Villin is composed of six repeats, each containing 150 residues that together constitute the core domain followed by the carboxyl terminal headpiece domain of 87 residues. The core domain retains the calcium dependent capping nucleating and severing activity, whereas the headpiece domain contributes towards actin filament bundling and binding F actin, independently of Calcium. Function : Epithelial cell-specific Ca(2+)-regulated

actin-modifying protein that modulates the reorganization of microvillar actin filaments. Plays a role in the actin nucleation, actin filament bundle assembly, actin filament capping and severing. Binds phosphatidylinositol 4,5-bisphosphate (PIP2) and lysophosphatidic acid (LPA); binds LPA with higher affinity than PIP2. Binding to LPA increases its phosphorylation by SRC and inhibits all actin-modifying activities. Binding to PIP2 inhibits actin-capping and -severing activities but enhances actin-bundling activity. Regulates the intestinal epithelial cell morphology, cell invasion, cell migration and apoptosis. Protects against apoptosis induced by dextran sodium sulfate (DSS) in the gastrointestinal epithelium. Appears to regulate cell death by maintaining mitochondrial integrity. Enhances hepatocyte growth factor (HGF)-induced epithelial cell motility, chemotaxis and wound repair. Upon S.flexneri cell infection, its actin-severing activity enhances actin-based motility of the bacteria and plays a role during the dissemination.

Additional Information

Gene ID	7429
Other Names	D2S1471; VIL; VILI_HUMAN; VIL1; VILI_MOUSE; villin 1
Dilution	IHC-P=1:200-1000,IHC-F=1:200-1000,IF=1:200-1000,WB=1:500-2000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	VIL1
Synonyms	VIL
Function	Epithelial cell-specific Ca(2+)-regulated actin-modifying protein that modulates the reorganization of microvillar actin filaments. Plays a role in the actin nucleation, actin filament bundle assembly, actin filament capping and severing. Binds phosphatidylinositol 4,5-bisphosphate (PIP2) and lysophosphatidic acid (LPA); binds LPA with higher affinity than PIP2. Binding to LPA increases its phosphorylation by SRC and inhibits all actin-modifying activities. Binding to PIP2 inhibits actin-capping and -severing activities but enhances actin-bundling activity. Regulates the intestinal epithelial cell morphology, cell invasion, cell migration and apoptosis. Protects against apoptosis induced by dextran sodium sulfate (DSS) in the gastrointestinal epithelium. Appears to regulate cell death by maintaining mitochondrial integrity. Enhances hepatocyte growth factor (HGF)-induced epithelial cell motility, chemotaxis and wound repair. Upon S.flexneri cell infection, its actin-severing activity enhances actin-based motility of the bacteria and plays a role during the dissemination.
Cellular Location	Cytoplasm, cytoskeleton. Cell projection, lamellipodium. Cell projection, ruffle. Cell projection, microvillus Cell projection, filopodium tip. Cell projection, filopodium. Note=Relocalized in the tip of cellular protrusions and filipodial extensions upon infection with S.flexneri in primary intestinal epithelial cells (IEC) and in the tail-like structures forming the actin comets of S.flexneri. Redistributed to the leading edge of hepatocyte growth factor (HGF)-induced lamellipodia (By similarity). Rapidly redistributed to ruffles and

	lamellipodia structures in response to autotaxin, lysophosphatidic acid (LPA) and epidermal growth factor (EGF) treatment.
Tissue Location	Specifically expressed in epithelial cells. Major component of microvilli of intestinal epithelial cells and kidney proximal tubule cells. Expressed in canalicular microvilli of hepatocytes (at protein level).

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