

PIP5K1A Antibody (N-term)
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8037a

Specification

PIP5K1A Antibody (N-term) - Product Information

Application	WB,E
Primary Accession	Q99755
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Antigen Region	19-50

PIP5K1A Antibody (N-term) - Additional Information

Gene ID 8394

Other Names

Phosphatidylinositol 4-phosphate 5-kinase type-1 alpha, PIP5K1-alpha, PtdIns(4)P-5-kinase 1 alpha, 68 kDa type I phosphatidylinositol 4-phosphate 5-kinase alpha, Phosphatidylinositol 4-phosphate 5-kinase type I alpha, PIP5KIalpha, PIP5K1A

Target/Specificity

This PIP5K1A antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 19-50 amino acids from the N-terminal region of human PIP5K1A.

Dilution

WB~~1:1000

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

PIP5K1A Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

PIP5K1A Antibody (N-term) - Protein Information

Name PIP5K1A ([HGNC:8994](#))

Function Catalyzes the phosphorylation of phosphatidylinositol 4- phosphate (PtdIns(4)P/PI4P) to form phosphatidylinositol 4,5- biphosphate (PtdIns(4,5)P2/PIP2), a lipid second messenger that

regulates several cellular processes such as signal transduction, vesicle trafficking, actin cytoskeleton dynamics, cell adhesion, and cell motility (PubMed:[21477596](#), PubMed:[22942276](#), PubMed:[8955136](#)). PtdIns(4,5)P₂ can directly act as a second messenger or can be utilized as a precursor to generate other second messengers: inositol 1,4,5- trisphosphate (IP₃), diacylglycerol (DAG) or phosphatidylinositol- 3,4,5-trisphosphate (PtdIns(3,4,5)P₃/PIP₃) (PubMed:[19158393](#), PubMed:[20660631](#)). PIP5K1A-mediated phosphorylation of PtdIns(4)P is the predominant pathway for PtdIns(4,5)P₂ synthesis (By similarity). Can also use phosphatidylinositol (PtdIns) as substrate in vitro (PubMed:[22942276](#)). Together with PIP5K1C, is required for phagocytosis, both enzymes regulating different types of actin remodeling at sequential steps (By similarity). Promotes particle ingestion by activating the WAS GTPase-binding protein that induces Arp2/3 dependent actin polymerization at the nascent phagocytic cup (By similarity). Together with PIP5K1B, is required, after stimulation by G-protein coupled receptors, for the synthesis of IP₃ that will induce stable platelet adhesion (By similarity). Recruited to the plasma membrane by the E-cadherin/beta-catenin complex where it provides the substrate PtdIns(4,5)P₂ for the production of PtdIns(3,4,5)P₃, IP₃ and DAG, that will mobilize internal calcium and drive keratinocyte differentiation (PubMed:[19158393](#)). Positively regulates insulin-induced translocation of SLC2A4 to the cell membrane in adipocytes (By similarity). Together with PIP5K1C has a role during embryogenesis (By similarity). Independently of its catalytic activity, is required for membrane ruffling formation, actin organization and focal adhesion formation during directional cell migration by controlling integrin-induced translocation of the small GTPase RAC1 to the plasma membrane (PubMed:[20660631](#)). Also functions in the nucleus where it acts as an activator of TUT1 adenylyltransferase activity in nuclear speckles, thereby regulating mRNA polyadenylation of a select set of mRNAs (PubMed:[18288197](#)).

Cellular Location

Cell membrane {ECO:0000250|UniProtKB:P70182}. Cytoplasm {ECO:0000250|UniProtKB:P70182}. Nucleus. Nucleus speckle. Cell projection, ruffle. Cell projection, lamellipodium. Note=Colocalizes with RAC1 at actin-rich membrane ruffles (PubMed:20660631). Localizes to nuclear speckles and associates with TUT1 to regulate polyadenylation of selected mRNAs (PubMed:18288197).

Tissue Location

Highly expressed in heart, placenta, skeletal muscle, kidney and pancreas. Detected at lower levels in brain, lung and liver.

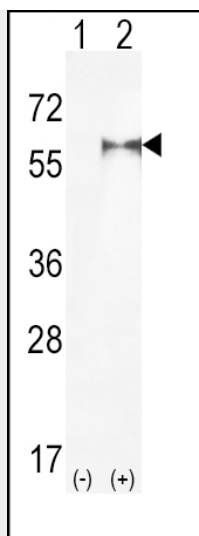
PIP5K1A Antibody (N-term) - Protocols

Provided below are standard protocols that you may find useful for product applications.

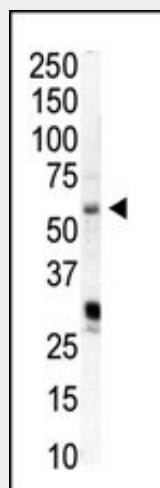
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

PIP5K1A Antibody (N-term) - Images





Western blot analysis of PIP5K1A (arrow) using rabbit polyclonal hPIP5K1A-R34 (Cat. #AP8037a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected (Lane 2) with the PIP5K1A gene.



Western blot analysis of anti-PIP5K1A Pab (Cat. #AP8037a) in HeLa cell lysate. PIP5K1A (arrow) was detected using purified Pab. Secondary HRP-anti-rabbit was used for signal visualization with chemiluminescence.

PIP5K1A Antibody (N-term) - Background

Overexpression of phosphatidylinositol phosphate 5-kinase alpha (PIP5K1alpha), which synthesizes PIP2, suppresses apoptosis, whereas a kinase-deficient mutant does not. Protection by the wild-type PIP5K1alpha is accompanied by decreases in the generation of activated caspases and of caspase 3-cleaved PARP. Protection is not mediated through PIP3 or Akt activation. An anti-apoptotic role for PIP(2) is substantiated by the finding that PIP5K1alpha is cleaved by caspase 3 during apoptosis, and cleavage inactivates PIP5K1alpha in vitro. Mutation of the P(4) position (D279A) of the PIP5K1alpha caspase 3 cleavage consensus prevents cleavage in vitro, and during apoptosis in vivo. Significantly, the caspase 3-resistant PIP5K1alpha mutant is more effective in suppressing apoptosis than the wild-type kinase. PIP2 is a direct regulator of apical and effector caspases in the death receptor and mitochondrial pathways, and PIP5K1alpha inactivation contributes to the progression of apoptosis.

PIP5K1A Antibody (N-term) - References

Doughman, R.L., et al., J. Biol. Chem. 278(25):23036-23045 (2003).

Loijens, J.C., et al., J. Biol. Chem. 271(51):32937-32943 (1996).

Xie, Y., et al., Cytogenet. Cell Genet. 88 (3-4), 197-199 (2000).

PIP5K1A Antibody (N-term) - Citations

- [Regulation of conformer-specific activation of the integrin LFA-1 by a chemokine-triggered Rho signaling module.](#)
- [Gene expression profiling in phosphatidylethanolamine N-methyltransferase knockout mice.](#)