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PIP5KI gamma (PIP5K1G) Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8039b

Product Information

Application	WB, IHC-P, E
Primary Accession	O60331
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	73260
Antigen Region	637-668

Additional Information

Gene ID	23396
Other Names	Phosphatidylinositol 4-phosphate 5-kinase type-1 gamma, PIP5K1-gamma, PtdIns(4)P-5-kinase 1 gamma, Phosphatidylinositol 4-phosphate 5-kinase type I gamma, PIP5KIgamma, PIP5K1C, KIAA0589
Target/Specificity	This PIP5KI gamma (PIP5K1G) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 637-668 amino acids from the C-terminal region of human PIP5KI gamma (PIP5K1G).
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	PIP5KI gamma (PIP5K1G) Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIP5K1C (HGNC:8996)
Synonyms	KIAA0589
Function	Catalyzes the phosphorylation of phosphatidylinositol 4- phosphate

	(PtdIns(4)P/PI4P) to form phosphatidylinositol 4,5- bisphosphate (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:12422219, PubMed:22942276). 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) (Probable). PIP5K1A-mediated phosphorylation of PtdIns(4)P is the predominant pathway for PtdIns(4,5)P2 synthesis (By similarity). Together with PIP5K1A, is required for phagocytosis, both enzymes regulating different types of actin remodeling at sequential steps (By similarity). Promotes particle attachment by generating the pool of PtdIns(4,5)P2 that induces controlled actin depolymerization to facilitate Fc-gamma-R clustering. Mediates RAC1-dependent reorganization of actin filaments. Required for synaptic vesicle transport (By similarity). Controls the plasma membrane pool of PtdIns(4,5)P2 implicated in synaptic vesicle endocytosis and exocytosis (PubMed:12847086). Plays a role in endocytosis mediated by clathrin and AP-2 (adaptor protein complex 2) (PubMed:12847086). Required for clathrin-coated pits assembly at the synapse (PubMed:17261850). Participates in cell junction assembly (PubMed:17261850). Modulates adherens junctions formation by facilitating CDH1/cadherin trafficking (PubMed:17261850). Required for focal adhesion dynamics. Modulates the targeting of talins (TLN1 and TLN2) to the plasma membrane and their efficient assembly into focal adhesions (PubMed:12422219). Regulates the interaction between talins (TLN1 and TLN2) and beta-integrins (PubMed:12422219). Required for uropodium formation and retraction of the cell rear during directed migration (By similarity). Has a role in growth factor-stimulated directional cell migration and adhesion (By similarity). Required for talin assembly into nascent adhesions forming at the leading edge toward the direction of the growth factor (PubMed:17635937). Negative regulator of T-cell activation and adhesion (By similarity). Negatively regulates integrin alpha-L/beta-2 (LFA-1) polarization and adhesion induced by T-cell receptor (By similarity). Together with PIP5K1A has a role during embryogenesis and together with PIP5K1B may have a role immediately after birth (By similarity).
Cellular Location	Cell membrane; Peripheral membrane protein; Cytoplasmic side {ECO:0000250|UniProtKB:Q5I6B8}. Endomembrane system {ECO:0000250|UniProtKB:Q5I6B8}. Cytoplasm {ECO:0000250|UniProtKB:O70161}. Cell junction, focal adhesion. Cell junction, adherens junction. Cell projection, ruffle membrane {ECO:0000250|UniProtKB:Q5I6B8}. Cell projection, phagocytic cup {ECO:0000250|UniProtKB:O70161}. Cell projection, uropodium {ECO:0000250|UniProtKB:O70161}. Note=Detected in plasma membrane invaginations. Isoform 3 is detected in intracellular vesicle-like structures
Tissue Location	[Isoform 1]: Isoform 1 is strongly expressed in brain and also detected in heart and lung [Isoform 3]: Isoform 3 is detected in large amounts in heart and large intestine, is also present in lung, pancreas and thyroid, and to a lesser extent in brain, stomach and kidney

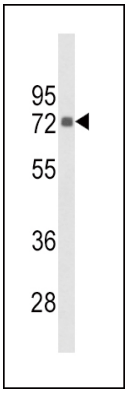
Background

PIP5K1G is a member of the type I phosphatidylinositol-4-phosphate 5-kinase family of enzymes. A similar protein in mice is found in synapses and focal adhesion plaques, and binds the FERM domain of talin through its C-terminus.

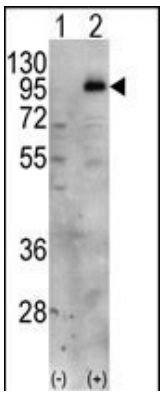
References

Ling, K., et al., Nature 420(6911):89-93 (2002).
Di Paolo, G., et al., Nature 420(6911):85-89 (2002).
Ishihara, H., et al., J. Biol. Chem. 273(15):8741-8748 (1998).

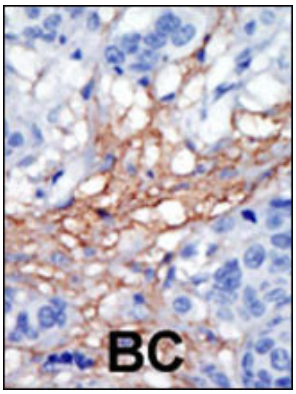
Images



Western blot analysis of hPIP5K1G-L652 (Cat. #AP8039b) in Hela cell line lysates (35ug/lane).PIP5K1G (arrow) was detected using the purified Pab.



Western blot analysis of PIP5K1C (arrow) using PIP5K1G Antibody (C-term) (Cat.#AP8039b).293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the PIP5K1C gene (Lane 2) (Origene Technologies).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

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