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PIP5K2 Alpha (PIP5K2A) Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8041b

Product Information

Application	WB, IHC-P, E
Primary Accession	P48426
Other Accession	Q9R0I8, O13010, O70172, NP_005019
Reactivity	Human
Predicted	Mouse, Pig, Rat, Bovine, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	46225
Antigen Region	303-335

Additional Information

Gene ID	5305
Other Names	Phosphatidylinositol 5-phosphate 4-kinase type-2 alpha, 1-phosphatidylinositol 5-phosphate 4-kinase 2-alpha, Diphosphoinositide kinase 2-alpha, PIP5KIII, Phosphatidylinositol 5-phosphate 4-kinase type II alpha, PI(5)P 4-kinase type II alpha, PIP4KII-alpha, PtdIns(4)P-5-kinase B isoform, PtdIns(4)P-5-kinase C isoform, PtdIns(5)P-4-kinase isoform 2-alpha, PIP4K2A, PIP5K2, PIP5K2A
Target/Specificity	This PIP4K2 Alpha (PIP4K2A) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 303-335 amino acids from the C-terminal region of human PIP4K2 Alpha (PIP4K2A).
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	PIP5K2 Alpha (PIP5K2A) Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PIP4K2A (HGNC:8997)

Function	Catalyzes the phosphorylation of phosphatidylinositol 5- phosphate (PtdIns5P) on the fourth hydroxyl of the myo-inositol ring, to form phosphatidylinositol 4,5-bisphosphate (PtdIns(4,5)P2) (PubMed:23326584, PubMed:9367159). Has both ATP- and GTP-dependent kinase activities (PubMed:26774281). May exert its function by regulating the levels of PtdIns5P, which functions in the cytosol by increasing AKT activity and in the nucleus signals through ING2 (PubMed:18364242). May regulate the pool of cytosolic PtdIns5P in response to the activation of tyrosine phosphorylation (By similarity). Required for lysosome-peroxisome membrane contacts and intracellular cholesterol transport through modulating peroxisomal PtdIns(4,5)P2 level (PubMed:29353240). In collaboration with PIP4K2B, has a role in mediating autophagy in times of nutrient stress (By similarity). Required for autophagosome-lysosome fusion and the regulation of cellular lipid metabolism (PubMed:31091439). May be involved in thrombopoiesis, and the terminal maturation of megakaryocytes and regulation of their size (By similarity). Negatively regulates insulin signaling through a catalytic-independent mechanism (PubMed:31091439). PIP4Ks interact with PIP5Ks and suppress PIP5K-mediated PtdIns(4,5)P2 synthesis and insulin-dependent conversion to PtdIns(3,4,5)P3 (PubMed:31091439).
Cellular Location	Cell membrane {ECO:0000250|UniProtKB:O70172}. Nucleus. Lysosome {ECO:0000250|UniProtKB:O70172}. Cytoplasm. Photoreceptor inner segment {ECO:0000250|UniProtKB:O70172}. Cell projection, cilium, photoreceptor outer segment {ECO:0000250|UniProtKB:O70172}. Note=May translocate from the cytosol to the cell membrane upon activation of tyrosine phosphorylation. May translocate from the inner to the outer segments of the rod photoreceptor cells in response to light (By similarity) Localization to the nucleus is modulated by the interaction with PIP4K2B. {ECO:0000250|UniProtKB:O70172, ECO:0000269|PubMed:20583997}
Tissue Location	Expressed ubiquitously, with high levels in the brain. Present in most tissues, except notably skeletal muscle and small intestine.

Background

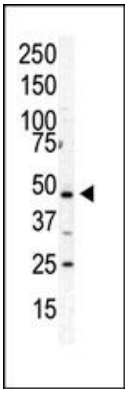
Phosphatidylinositol-4,5-bisphosphate, the precursor to second messengers of the phosphoinositide signal transduction pathways, is thought to be involved in the regulation of secretion, cell proliferation, differentiation, and motility. TPIP5K2A is one of a family of enzymes capable of catalyzing the phosphorylation of phosphatidylinositol-4-phosphate on the fifth hydroxyl of the myo-inositol ring to form phosphatidylinositol-4,5-bisphosphate. The amino acid sequence of this enzyme does not show homology to other kinases, but the recombinant protein does exhibit kinase activity. The protein is a member of the phosphatidylinositol-4-phosphate 5-kinase family.

References

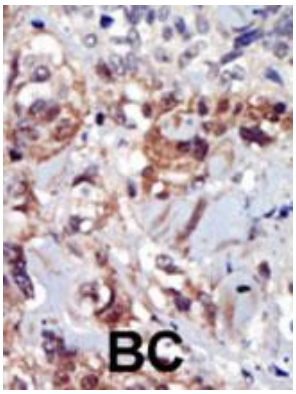
Rozenvayn, N., et al., J. Biol. Chem. 278(10):8126-8134 (2003).
Boronenkov, I.V., et al., J. Biol. Chem. 270(7):2881-2884 (1995).
Loijens, J.C., et al., Adv. Enzyme Regul. 36, 115-140 (1996).
Divecha, N., et al., Biochem. J. 309 (Pt 3), 715-719 (1995).

Images

Western blot analysis of anti-PIP5K2A Pab (Cat. #AP8041b) in HL60 cell lysate. PIP5K2A (arrow) was detected using purified Pab. Secondary HRP-anti-rabbit was used for signal visualization with



chemiluminescence.



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.

Citations

- Light-induced tyrosine phosphorylation of rod outer segment membrane proteins regulate the translocation, membrane binding and activation of type II □ phosphatidylinositol-5-phosphate 4-kinase.
- PIP4Kbeta interacts with and modulates nuclear localization of the high-activity PtdIns5P-4-kinase isoform PIP4Kalpha.
- Regulation of extranuclear PtdIns5P production by phosphatidylinositol phosphate 4-kinase 2alpha.
- PtdIns5P is an oxidative stress-induced second messenger that regulates PKB activation.
- Regulation of phosphatidylinositol-5-phosphate signaling by Pin1 determines sensitivity to oxidative stress.

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