

**PIP5K1A Antibody (N-term) Blocking Peptide**Synthetic peptide  
Catalog # BP8037a**Specification****PIP5K1A Antibody (N-term) Blocking Peptide - Product Information**Primary Accession [Q99755](#)**PIP5K1A Antibody (N-term) Blocking Peptide - 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, PIP5K1alpha, PIP5K1A

**Target/Specificity**

The synthetic peptide sequence used to generate the antibody [<a href=/product/products/AP8037a>AP8037a</a>](#) was selected from the N-term region of human PIP5K1A . A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

**Format**

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

**Storage**

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

**Precautions**

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

**PIP5K1A Antibody (N-term) Blocking Peptide - Protein Information****PIP5K1A Antibody (N-term) Blocking Peptide - Background**

Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the gamma phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, transcription, cell cycle progression, cytoskeletal rearrangement and cell movement, apoptosis, and differentiation. With more than 500 gene products, the protein kinase family is one of the largest families of proteins in eukaryotes. The family has been classified in 8 major groups based on sequence comparison of their tyrosine (PTK) or serine/threonine (STK) kinase catalytic domains.

**PIP5K1A Antibody (N-term) Blocking Peptide - 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).

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

**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:[8955136](http://www.uniprot.org/citations/8955136), PubMed:[21477596](http://www.uniprot.org/citations/21477596), PubMed:[22942276](http://www.uniprot.org/citations/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) (PubMed:[19158393](http://www.uniprot.org/citations/19158393), PubMed:[20660631](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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:<a href="http://www.uniprot.org/citations/19158393" target="\_blank">19158393</a>). 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:<a href="http://www.uniprot.org/citations/20660631" target="\_blank">20660631</a>). 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:<a href="http://www.uniprot.org/citations/18288197" target="\_blank">18288197</a>).

#### 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) Blocking Peptide - Protocols

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

- [Blocking Peptides](#)