

## Product datasheet for **RG227689**

### PIP5K1 alpha (PIP5K1A) (NM\_001135638) Human Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	PIP5K1 alpha (PIP5K1A) (NM_001135638) Human Tagged ORF Clone
Tag:	TurboGFP
Symbol:	PIP5K1A
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>RG227689 representing NM\_001135638  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGGCGTCGGCCTCTCCGGCCGTCGCTTCGGTCGGTTTTTCATCCTTTGATCCCGCGGTCCCTTCT  
 GTACCTTGTCCTCAGCAGCATCTGGAATCAAGAGACCCATGGCATCTGAGGTCTTGAAGCTAGACAGGA  
 TTCTTACATCTCATTGGTGCCTTATGCCTCTGGCATGCCATCAAGAAAATAGGCCATAGAAGTGTGAT  
 TCCTCAGGAGAGACAACATATAAAAAGACAACCTCATCAGCCTTAAAAGGTGCCATCCAGTTAGGCATTA  
 CCCACACTGTGGGGAGCCTGAGTACAAACCAGAGCGTATGTCCTCATGCAAGATTTCTACGTGGTTGA  
 GAGTATCTTCTTCCAGTGAAGGGAGCAACCTGACCCCTGCTCATCACTACAATGACTTTCGTTTCAAG  
 ACCTATGCACCTGTTGCCTTCCGCTACTCCGGGAGCTATTTGGTATCCGGCCCGATGATTACTTGTATT  
 CCCTCTGCAGTGAGCCGCTGATTGAACTCTGTAGCTCTGGAGCTAGTGGTCCCTATTCTATGTGCCAG  
 CGACGATGAGTTCATTATTAAGACAGTCCAACATAAAGAGCGGAATTTCTGCAGAAGCTGCTTCCAGGA  
 TACTACATGAACCTCAACCAGAACCCTCGACTTTGCTGCCTAAATTTCTATGGACTGTACTGTGTCAGG  
 CAGGTGGCAAGAACATTCGGATTGTGGTATGAACAATCTTTTACCAAGATCGGTAAAAATGCATATCAA  
 ATATGACCTCAAAGGCTCAACCTACAAACGGCGGGCTTCCAGAAAAGAGCGAGAGAAGCCTCTTCCACAA  
 TTTAAAGACCTAGACTTCTTACAAGACATCCCTGATGGTCTTTTTTTGGATGCTGACATGTACAACGCTC  
 TCTGTAAGACCTGCAGCGTACTGTTTGGTGTGCAGAGCTTCAAGATAATGGATTACAGCCTCTTGAT  
 GTCAATCCATAATATAGATCATGCACAACGAGAGCCCTAAGCAGTGAACACAGTACTCAGTTGACT  
 CGAAGACCGGCCCCCAAAAGGCTCTGTATCCACAGCCATGGAATCCATCCAGGGAGAGGCTCGACGGG  
 GTGGTACCATGGAGACTGATGACCATATGGTGGCATCCCTGCCCGGAATAGTAAAGGGAAAGGCTTCT  
 GCTTTTATATTGGCATCATTGACATTCTACAGTCTTACAGTCTTACAGTCTTGTAAAGAAGTTGGAGCACTCTTGAAA  
 GCCCTGGTACATGACGGAGACTGTCTCAGTGCATCGCCAGGCTTCTACGCTGAACGGTTCACGCGCT  
 TCATGTGCAACACAGTATTTAAGAAGATTCCTTGAAGCCTTCTCCTTCCAAAAAGTTTCGGTCTGGCTC  
 ATCTTTCTCTCGGCGAGCAGGCTCCAGTGGCAACTCCTGCATTACTTACCAGCCATCGGTCTCTGGGGAA  
 CACAAGGCACAAGTGACAACAAAGGCAGAAGTGGAGCCAGGCGTTCACCTTGGTCTGCTGATGTTTTAC  
 CTCAGACTCCACCTTTGGAGGAAATCAGTGAGGGCTCGCCTATTCTGACCCAGTTTCTCACCTTAGT  
 TGGAGAGACTTTGCAAATGCTAACTACAAGTACAACCTTGAAAAGCTTGAAGTTCAGAGTCAGAGTTC  
 ACCCAT

**ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA**

**Protein Sequence:**

>RG227689 representing NM\_001135638  
 Red=Cloning site Green=Tags(s)

MASASSGPSSSVGFSSFDPAVPSCTLSSAASGIKRPMASEVLEARQDSYISLVPYASGMPIKKIGHRSVD  
 SSGETTYKKTSSALKGAIQLGITHTVGLSTKPERDVLMDQFYVVESIFFPSEGSNLTPAHHYNDFRFK  
 TYAPVAFRYFRELFGIRPDDYLYSLCSEPLIELCSSGASGLFYVSSDDEFIIKTVQHKEAEFLQKLLPG  
 YMNLNQNPRLLPKFYGLYCVQAGGKNIRIVVMNLLPRSVKMHKYDLKLGSTYKRRASQKEREKPLPT  
 FKDLDFLQDIPDGLFLDADMYNALCKTLQRDCLVLQSFKIMDYSLLMSIHNIDHAQREPLSSETQYSVD  
 RRPAPQKALYSTAMESIQGEARRGTMETDDHMGGIPARNSKGERLLLYIGIIDILQSYRFVKKLEHSWK  
 ALVHDGDTVSVHRPFGFYAERFQRFMCNTVFKKIPLKPSKFRSGSSFRRAGSSGNSCITYQPSVSGE  
 HKAQVTTKAEVEPGVHLGRPDVLPQTPPLEEISEGSPIDPSFSPLVGETLQMLTSTTTLEKLEVAESEF  
 TH

**TRTRPLE - GFP Tag - V**

**Restriction Sites:**

SgfI-MluI



<b>ORF Size:</b>	1686 bp
<b>OTI Disclaimer:</b>	The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_001135638.2</a>
<b>RefSeq Size:</b>	3824 bp
<b>RefSeq ORF:</b>	1689 bp
<b>Locus ID:</b>	8394
<b>UniProt ID:</b>	<a href="#">Q99755</a>
<b>Cytogenetics:</b>	1q21.3
<b>Protein Families:</b>	Druggable Genome
<b>Protein Pathways:</b>	Endocytosis, Fc gamma R-mediated phagocytosis, Inositol phosphate metabolism, Metabolic pathways, Phosphatidylinositol signaling system, Regulation of actin cytoskeleton

**Gene Summary:**

Catalyzes the phosphorylation of phosphatidylinositol 4-phosphate (PtdIns4P) to form phosphatidylinositol 4,5-bisphosphate (PtdIns(4,5)P<sub>2</sub>). PtdIns(4,5)P<sub>2</sub> is involved in a variety of cellular processes and is the substrate to form phosphatidylinositol 3,4,5-trisphosphate (PtdIns(3,4,5)P<sub>3</sub>), another second messenger. The majority of PtdIns(4,5)P<sub>2</sub> is thought to occur via type I phosphatidylinositol 4-phosphate 5-kinases given the abundance of PtdIns4P. Participates in a variety of cellular processes such as actin cytoskeleton organization, cell adhesion, migration and phagocytosis. Required for membrane ruffling formation, actin organization and focal adhesion formation during directional cell migration by controlling integrin-induced translocation of RAC1 to the plasma membrane. Together with PIP5K1C is required for phagocytosis, but they regulate different types of actin remodeling at sequential steps. Promotes particle ingestion by activating WAS that induces Arp2/3 dependent actin polymerization at the nascent phagocytic cup. Together with PIP5K1B is required after stimulation of G-protein coupled receptors for stable platelet adhesion. Plays a role during calcium-induced keratinocyte differentiation. Recruited to the plasma membrane by the E-cadherin/beta-catenin complex where it provides the substrate PtdIns(4,5)P<sub>2</sub> for the production of PtdIns(3,4,5)P<sub>3</sub>, diacylglycerol and inositol 1,4,5-trisphosphate that mobilize internal calcium and drive keratinocyte differentiation. Together with PIP5K1C have a role during embryogenesis. Functions also in the nucleus where acts as an activator of TUT1 adenylyltransferase activity in nuclear speckles, thereby regulating mRNA polyadenylation of a select set of mRNAs (PubMed:18288197, PubMed:19158393, PubMed:20660631). Positively regulates insulin-induced translocation of SLC2A4 to the cell membrane in adipocytes (By similarity).[UniProtKB/Swiss-Prot Function]