

# Recombinant Human PK3CD Protein

**For Research Use Only**

## 1. Basic Product Information

Catalog No.: REP50789

Size: 10ug, 100ug

Protein Name: Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit delta isoform (PI3-kinase subunit delta) (PI3K-delta) (PI3Kdelta) (PtdIns-3-kinase subunit delta) (EC 2.7.1.137) (EC 2.7.1.153) (Phosphatidylinositol 4,5-bisphosphate 3-kinase 110 kDa catalytic subunit delta) (PtdIns-3-kinase subunit p110-delta) (p110delta)

Synonym: PIK3CD

UniProt ID: O00329

UniProt Link: [www.uniprot.org/uniprotkb/O00329/entry](http://www.uniprot.org/uniprotkb/O00329/entry)

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1044 AA

Molecular Weight: 119 KD

Protein Tag: C-terminal His6

## 2. Amino Acid Sequence

MPPGVDCPMEFWTKEENQSVVVDLPTGVYLNFPVSRNANLSTIKQLLWHRAQYEPLFHMLSGPE  
AYVFTCINQTAEQQELEDQRRLCDVQPFPLVRLVAREGDRVKKLINSQISLLIGKGLHEFDSLCDP  
EVNDFRAKMCQFCEEAAARRQQLGWEAWLQYSFPLQLEPSAQTWGPGTLRLPNRALLNVNKFEG  
SEESFTFQVSTKDVPLALMACALRKKATVFRQPLVEQPEDYTLQVNGRHEYLYGSYPLCQFQYICSC  
LHSGLTPLHTMVHSSILAMRDEQSNPAPQVQKPRAKPPPIPAKKPSSVSLWSLEQPFRIELIQGSKV  
NADERMKLVVQAGLFHGNEMLCKTVSSSEVSVCSEPVWKQRLEFDINICDLPRMARLCFALYAVIEK  
AKKARSTKKKSKKADCPICAWANLMLFDYKDQLKTGERCLYMWPSVPDEKGELLNPTGTVRNPNTD  
SAAALLICLPEVAPHPVYYPALKILELGRHSECVHVTEEEQLQLREILERRGSGELYEHEKDLVWKL  
RHEVQEHFPEALARLLLVTWKWKHEDVAQMLYLLCSWPELPVLSALELLDFSFPDCHVGVSFAIKSLR  
KLTDDELQYLLQLVQVLKYESYLDCELTKFLLDRALANRKIGHFLFWHLRSEMHVPSVALRFGILILEA  
YCRGSTHHMKVLMKQGEALSKLKALNDFVKLSSQKTPKPKQTKELMHLCMRQEAYLEALSHLQSPLD  
PSTLLAEVCVEQCTFMDSKMKPLWIMYSNEEAGSGGSGVGIIFKNGDDLQDMLTLQMIQLMDVLWK  
QEGDLRMTPTYGCLPTGDRGLIEVVLRSDTIANIQLNKSNAATAAFNKDALLNWLKSNNPGEALD  
RAIEEFTLSCAGYCVATYVLGIGDRHSDNIMIRESGQLFHIDFGHFLGNFKTKFGINRERVPFILTYDFV  
HVIQQGKTNNSEKFERFRGYCERAYTILRRHGLLFLHLFALMRAAGLPELSCSKDIQYKDSLALGKT  
EEEALKHFRVKFNEALRESWKTKVNWLAHNVSKDNRQ



### 3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

### 4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

### 5. Product Description

This product is recombinant Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit delta isoform (PI3-kinase subunit delta) (PI3K-delta) (PI3Kdelta) (PtdIns-3-kinase subunit delta) (EC 2.7.1.137) (EC 2.7.1.153) (Phosphatidylinositol 4,5-bisphosphate 3-kinase 110 kDa catalytic subunit delta) (PtdIns-3-kinase subunit p110-delta) (p110delta) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

**Protein Function:** Phosphoinositide-3-kinase (PI3K) phosphorylates phosphatidylinositol (PI) and its phosphorylated derivatives at position 3 of the inositol ring to produce 3-phosphoinositides (PubMed:9235916). Uses ATP and PtdIns(4,5)P<sub>2</sub> (phosphatidylinositol 4,5-bisphosphate) to generate phosphatidylinositol 3,4,5-trisphosphate (PIP<sub>3</sub>) (PubMed:15135396). PIP<sub>3</sub> plays a key role by recruiting PH domain-containing proteins to the membrane, including AKT1 and PDK1, activating signaling cascades involved in cell growth, survival, proliferation, motility and morphology. Mediates immune responses. Plays a role in B-cell development, proliferation, migration, and function. Required for B-cell receptor (BCR) signaling. Mediates B-cell proliferation response to anti-IgM, anti-CD40 and IL4 stimulation. Promotes cytokine production in response to TLR4 and TLR9. Required for antibody class switch mediated by TLR9. Involved in the antigen presentation function of B-cells. Involved in B-cell chemotaxis in response to CXCL13 and sphingosine 1-phosphate (S1P). Required for proliferation, signaling and cytokine production of naive, effector and memory T-cells. Required for T-cell receptor (TCR) signaling. Mediates TCR signaling events at the immune synapse. Activation by TCR leads to antigen-dependent memory T-cell migration and retention to antigenic tissues. Together with PIK3CG participates in T-cell development. Contributes to T-helper cell expansion and differentiation. Required for T-cell migration mediated by homing receptors SELL/CD62L, CCR7 and S1PR1 and antigen dependent recruitment of T-cells. Together with PIK3CG is involved in natural killer (NK) cell development and migration towards the sites of inflammation. Participates in NK cell receptor activation. Plays a role in NK cell maturation and cytokine production. Together with PIK3CG is involved in neutrophil chemotaxis and extravasation. Together with PIK3CG participates in neutrophil respiratory burst. Plays important roles in mast-cell development and mast cell mediated allergic response. Involved in stem cell factor (SCF)-mediated proliferation, adhesion and migration. Required for allergen-IgE-induced degranulation and cytokine release. The lipid kinase activity is required for its biological function. Isoform 2 may be involved in stabilizing total RAS levels, resulting in increased ERK phosphorylation and increased PI3K activity.

Subcellular Localization: Cytoplasm .

### 6. Notes



- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.