

Recombinant Human KPCZ Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50603

Size: 10ug, 100ug

Protein Name: Protein kinase C zeta type (EC 2.7.11.13) (nPKC-zeta)

Synonym: PRKCZ, PKC2

UniProt ID: Q05513

UniProt Link: www.uniprot.org/uniprotkb/Q05513/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 592 AA

Molecular Weight: 68 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MPSRTGPKMEGSGGRVRLKAHYGGDIFITSVDAATTFEELCEEVRDMCRLHQQHPLTLKWVDSEG
DPCTVSSQMELEEAFLARQCRDEGLIHVFPSTPEQPGLPCGEDKSIYRRGARRWRKLYRANGH
LFQAKRFNRRAYCGQCSEIRWGLARQGYRCINCKLLVHKRCHGLVPLTCRKHMDSVMPSQEPPVD
DKNEDADLPSEETDGIAYISSSRKHDSIKDDSEDLKPVIDGMDGIKISQGLGLQDFDLIRVIGRGSYAK
VLLVRLKKNDQIYAMKVVKELVHDDDEDIDWVQTEKHVFEQASSNPFLVGLHSCFQTTSRLFLVIEYV
NGGDLMFHMQRRKLP EEHARFYAAEICIALNFLHERGIIYRDLKLDNVLLDADGHIKLT DYGMCKEG
LGPGDTTSTFCGTPNYIAPEILRGEEYGFSVDWWALGVLMFEMMAGRSPFDIITDNPDMNTEDYLFQ
VILEKPIRIPRFLSVKASHVLKGFLNKDPKERLGC RPQTGFSDIKSHAFFRSIDWDLLEKKQALPPFQP
QITDDYGLDNFDTQFTSEPVQLTPDDEDAIKRIDQSEFEGFEYINPLLLSTEEVS

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 Protein kinase C zeta type (EC 2.7.11.13) (nPKC-zeta) 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: Calcium- and diacylglycerol-independent serine/threonine-protein kinase that functions in phosphatidylinositol 3-kinase (PI3K) pathway and mitogen-activated protein (MAP) kinase cascade, and is involved in NF-kappa-B activation, mitogenic signaling, cell proliferation, cell polarity, inflammatory response and maintenance of long-term potentiation (LTP). Upon lipopolysaccharide (LPS) treatment in macrophages, or following mitogenic stimuli, functions downstream of PI3K to activate MAP2K1/MEK1-MAPK1/ERK2 signaling cascade independently of RAF1 activation. Required for insulin-dependent activation of AKT3, but may function as an adapter rather than a direct activator. Upon insulin treatment may act as a downstream effector of PI3K and contribute to the activation of translocation of the glucose transporter SLC2A4/GLUT4 and subsequent glucose transport in adipocytes. In EGF-induced cells, binds and activates MAP2K5/MEK5-MAPK7/ERK5 independently of its kinase activity and can activate JUN promoter through MEF2C. Through binding with SQSTM1/p62, functions in interleukin-1 signaling and activation of NF-kappa-B with the specific adapters RIPK1 and TRAF6. Participates in TNF-dependent transactivation of NF-kappa-B by phosphorylating and activating IKBKB kinase, which in turn leads to the degradation of NF-kappa-B inhibitors. In migrating astrocytes, forms a cytoplasmic complex with PARD6A and is recruited by CDC42 to function in the establishment of cell polarity along with the microtubule motor and dynein. In association with FEZ1, stimulates neuronal differentiation in PC12 cells. In the inflammatory response, is required for the T-helper 2 (Th2) differentiation process, including interleukin production, efficient activation of JAK1 and the subsequent phosphorylation and nuclear translocation of STAT6. May be involved in development of allergic airway inflammation (asthma), a process dependent on Th2 immune response. In the NF-kappa-B-mediated inflammatory response, can relieve SETD6-dependent repression of NF-kappa-B target genes by phosphorylating the RELA subunit at 'Ser-311'. Phosphorylates VAMP2 in vitro (PubMed:17313651). Phosphorylates and activates LRRK1, which phosphorylates RAB proteins involved in intracellular trafficking (PubMed:36040231).; [Isoform 2]: Involved in late synaptic long term potentiation phase in CA1 hippocampal cells and long term memory maintenance.

Subcellular Localization: Cytoplasm . Endosome . Cell junction . Membrane ; Peripheral membrane protein . Note=In the retina, localizes in the terminals of the rod bipolar cells (By similarity). Associates with endosomes (PubMed:9566925). Presence of KRIT1, CDH5 and RAP1B is required for its localization to the cell junction (PubMed:7597083). Colocalizes with VAMP2 and WDFY2 in intracellular vesicles (PubMed:17313651). Transiently translocates to the membrane of CA1 hippocampal cells in response to the induction of long term potentiation (By similarity).; [Isoform 2]: 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.