

Recombinant Rat PLD3 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52471

Size: 10ug, 100ug

Protein Name: 5'-3' exonuclease PLD3 (EC 3.1.16.1) ((S,S)-bis(monoacylglycero)phosphate synthase PLD3) (EC 2.3.1.-) (Phospholipase D3)

Synonym: Pld3

UniProt ID: Q5FVH2

UniProt Link: www.uniprot.org/uniprotkb/Q5FVH2/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 488 AA

Molecular Weight: 54 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MKPKLMYQELKVPVEEPAGELPMNEIEAWKAAEKKARWVLLVLILAVVGFGALMTQLFLWEYGDLHL
FGPNQHPAPCYDPCEAVLVESIEGLEFPNATTSNPSTSQAWLGLLAGAHSSLDIASFYWTLTNNDT
HTQEPSAQQGEEVLQQLQALAPRGVKVRIAVSKPNGPLADLQSLQSGAQVRMVDQMQLTHGVLH
TKFWVVDQTHFYLG SANMDWRS LTQVKELGVVMYNC SCLARDLTKIFEAYWFLGQAGSSIPSTWP
RPF DTRYNQETPMEICLNGTPALAYLASAPPPLCPGGRTPD LKALLSVVDNARSFIYI VMNYLPTME
FSHPRRFWPAID DGLRRAAYERGVKVRLLISCWGHSEPSMRSFLLSLAALRDNHTHSDIQVKLFVVP
ADEAQARIPYARVNH NKYMTERTTYIGTSNWSGSYFTETAGTSLLVTQNGHGGLRSQLEAVFLRD
WESPYSHNLDTSADSVGNACRLL

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 5'-3' exonuclease PLD3 (EC 3.1.16.1) ((S,S)-bis(monoacylglycero)phosphate synthase PLD3) (EC 2.3.1.-) (Phospholipase D3) 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: Lysosomal 5'→3' exonuclease that functions in nucleic-acid sensing by immune cells. Hydrolyzes phosphodiester bond in single-stranded RNA and DNA molecules, with a higher efficiency for molecules with 5' uridine and guanosine residues. It can stall at certain sites and does not necessarily proceed to complete exonucleolytic degradation, thereby producing nucleoside 3'-monophosphates but also 5'-end 5'-hydroxy deoxyribonucleotide/ribonucleotide fragments. Through the processing of self and exogenous RNA and DNA molecules, provides molecular signals to toll-like receptors (TLRs) in innate immunity. Partially redundant with PLD4, it cooperates with the RNase T2/RNASET2 to generate 2',3'-cGMP and cytidine-rich RNA fragments that occupy the two TLR7 ligand-binding pockets, to trigger receptor activation and signaling. Degrades mitochondrial CpG-rich ssDNA fragments to prevent TLR9 activation and autoinflammatory response, but it can cleave viral RNA to generate ligands for TLR7 activation and initiate antiviral immune responses. Can exert polynucleotide phosphatase activity toward 5'-phosphorylated single-stranded DNA substrates although at a slow rate. Regulates the homeostasis and interorganellar communication of the endolysosomal system with an overall impact on cellular removal of dysfunctional organelles via autophagy as well as proper protein and lipid turnover. May play a role in myotube formation in response to ER stress.; Can alternatively catalyze the transfer (transphosphatidylolation) of a glycerol group between (S,R)-lysophosphatidylglycerol (LPG) and monoacylglycerol (MAG). The reaction is characterized by an R-to-S stereo-inversion which is essential for the resistance of the produced (S,S)-bis(monoacylglycero)phosphates (BMPs) to lysosomal degradation. The resulting BMPs, are phospholipids required for the formation of lysosomal intraluminal vesicles (ILVs) where lipid degradation can occur.

Subcellular Localization: Lysosome lumen . Early endosome membrane ; Single-pass type II membrane protein . Late endosome membrane ; Single-pass type II membrane protein . Endosome membrane ; Single-pass type II membrane protein . Endoplasmic reticulum membrane ; Single-pass type II membrane protein . Golgi apparatus membrane ; Single-pass type II membrane protein .
Note=Localizes to ER-associated vesicles in differentiating myotubes. Sorted into intraluminal vesicles (ILVs) in lysosomes. The soluble form in lysosome arises by proteolytic processing of the membrane-bound form. Colocalizes with APP in endosomes.

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.