10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

PC-PLD4 Polyclonal Antibody

Catalog # AP71805

Product Information

Application	WB, IHC-P
Primary Accession	Q96BZ4
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	55626

Additional Information

Gene ID	122618
Other Names	PLD4; C14orf175; Phospholipase D4; PLD 4; Choline phosphatase 4; Phosphatidylcholine-hydrolyzing phospholipase D4
Dilution	WB~~Western Blot: 1/500 - 1/2000. ELISA: 1/5000. Not yet tested in other applications. IHC-P~~N/A
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
Storage Conditions	-20℃

Protein Information

Name	PLD4 {ECO:0000303|PubMed:30111894, ECO:0000312|HGNC:HGNC:23792}
Function	5'->3' exonuclease that hydrolyzes the phosphodiester bond of single-stranded DNA (ssDNA) and RNA molecules to form nucleoside 3'-monophosphates and 5'-end 5'-hydroxy deoxyribonucleotide/ribonucleotide fragments (PubMed:30111894, PubMed:34620855, PubMed:38537643, PubMed:39423811). Partially redundant with PLD3, can cleave all four nucleotides displaying higher efficiency for ssDNA and RNA fragments initiated with uridine and guanosine residues and lower efficiency for cytidine-initiated substrates (PubMed:30111894, PubMed:34620855, PubMed:38537643, PubMed:39423811). As a result, it does not always degrade polynucleotides to the single nucleotide level, it can stall at specific sites sparing certain fragments from exonucleolytic degradation (PubMed:30111894, PubMed:34620855, PubMed:38537643, PubMed:39423811). Processes self and pathogenic ssDNA and RNA molecules that reach the endolysosomal compartment via phagocytosis or autophagy and may serve as 'danger' signals for recognition by innate immune receptors such as toll-like receptors (TLRs) (PubMed:38697119). 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 (PubMed:38697119). In plasmacytoid dendritic cells, it cooperates with endonuclease RNASET2 to release 2',3'-cyclic guanosine monophosphate (2',3'-cGMP), a potent stimulatory ligand for TLR7 (PubMed:38697119). Produces 2',3'-cGMPs and cytidine-rich RNA fragments that occupy TLR7 ligand-binding pockets and trigger a signaling- competent state (PubMed:38697119). Can exert polynucleotide phosphatase activity toward 5'-phosphorylated ssDNA substrates although at a slow rate (PubMed:38537643). Transphosphatidylase that catalyzes the exchange with R to S stereo-inversion of the glycerol moiety between (S,R)-lysophosphatidylglycerol (LPG) and monoacylglycerol (MAG) substrates to yield (S,S)-bis(monoacylglycero)phosphate (BMP) (PubMed:39423811). Can synthesize a variety of (S,S)-BMPs representing the main phospholipid constituent of lysosomal intralumenal vesicle (ILV) membranes that bind acid hydrolases for lipid degradation (PubMed:39423811). 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 (By similarity).

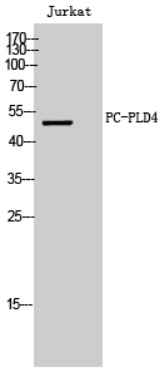
Cellular Location

Endoplasmic reticulum membrane {ECO:0000250|UniProtKB:Q8BG07}; Single-pass type II membrane protein {ECO:0000250|UniProtKB:Q8BG07}. Golgi apparatus, trans-Golgi network membrane {ECO:0000250|UniProtKB:Q8BG07}; Single-pass type II membrane protein {ECO:0000250|UniProtKB:Q8BG07}. Nucleus {ECO:0000250|UniProtKB:Q8BG07}. Early endosome {ECO:0000250|UniProtKB:Q8BG07}. Cytoplasmic vesicle, phagosome {ECO:0000250|UniProtKB:Q8BG07}. Lysosome Note=Activation of microglia induces translocation of PLD4 from the nucleus to the phagosomes. {ECO:0000250|UniProtKB:Q8BG07}

Tissue Location

Expressed in plasmacytoid dendritic cells and monocytes (at protein level).

Images



Western Blot analysis of Jurkat cells using PC-PLD4 Polyclonal Antibody