

APD839Hu01 100µg

Active Phospholipase C Delta 4 (PLCd4)

Organism Species: *Homo sapiens (Human)*

Instruction manual

FOR RESEARCH USE ONLY

NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Prokaryotic expression.

Host: *E. coli*

Residues: Met1~Asp250

Tags: N-terminal His-tag

Purity: >90%

Endotoxin Level: <1.0EU per 1µg (determined by the LAL method).

Buffer Formulation: PBS, pH7.4, containing 0.01% Sarcosyl, 5%Trehalose .

Original Concentration: 200µg/mL

Applications: Activity Assays.

(May be suitable for use in other assays to be determined by the end user.)

Predicted isoelectric point: 4.8

Predicted Molecular Mass: 32.8kDa

Accurate Molecular Mass: 34kDa as determined by SDS-PAGE reducing conditions.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

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MASLLQDQLT TDQDLLLMQE GMPMRKVRSK SWKKLRYFRL QNDGMTVWHA RQARGSAKPS FSISDVETIR  
NGHDSELLRS LAEELPLEQG FTIVFHGRRS NLDLMANSVE EAQIWMRGLQ LLVDLVTSMQ HQERLDQWLS  
DWFQRGDKNQ DGKMSFQEVQ RLLHLMNVEM DQEYAFSLFQ AADTSQSGTL EGEEFVQFYK ALTKRAEVQE  
LFESFSADGQ KLTLLFELDF LQEEQKERDC TSELALELID
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[ACTIVITY]

Phospholipase C Delta 4 (PLCd4) is a specialized phospholipid-hydrolyzing enzyme that catalyzes PIP₂ cleavage to generate secondary messengers which activate the inositol trisphosphate receptor (ITPR1), triggering calcium release from the endoplasmic reticulum. This functional coupling establishes PLCd4 as a central regulator of calcium signaling pathways, with particularly crucial roles in mammalian reproduction. Its testis-specific expression drives the calcium oscillations essential for egg activation during fertilization, and complete PLCd4 deficiency results in male infertility through profound sperm functional defects. Beyond reproduction, emerging evidence implicates PLCd4 in diverse physiological and pathological processes including cancer progression and cellular differentiation. The enzyme's activity is tightly regulated through conserved structural domains, enabling its precise integration into complex calcium-dependent signaling networks that underscore its multifaceted cellular functions. To assess the biological activity of PLCd4, a functional binding ELISA was performed to evaluate the interaction between recombinant human PLCd4 and recombinant human ITPR1. Briefly, biotin-linked PLCd4 were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100 μl were then transferred to ITPR1-coated microtiter wells and incubated for 1h at 37 °C. Wells were washed with PBST 3 times and incubation with Streptavidin-HRP for 30min,

then wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37 °C . Finally, add 50μl stop solution to the wells and read at 450nm immediately. The binding activity of PLCd4 and ITPR1 was shown in Figure 1, the EC₅₀ for this effect is 0.11μg/mL.

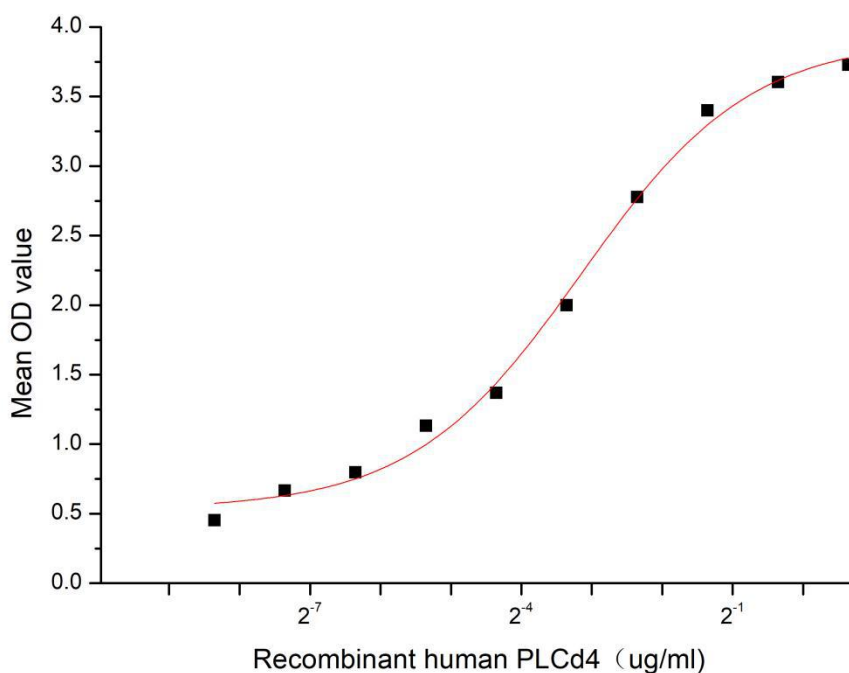


Figure 1. The binding activity of recombinant human PLCd4 and recombinant human ITPR1

[IDENTIFICATION]



Figure 2. SDS-PAGE

Sample: Active recombinant PLCd4, Human

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.