

# Phospho-PKCδ (Thr505) Antibody

✓ 200 µl  
(10 Western mini-blot)

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This product is for *in vitro* research use only and is not intended for use in humans or animals.  
This product is not intended for use as a therapeutic or in diagnostic procedures.

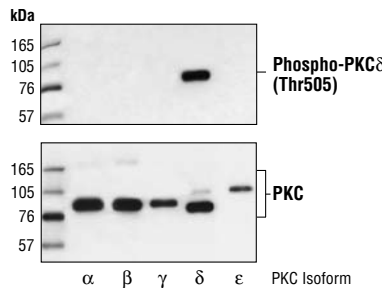
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, M, R, Mk, Hm	78 kDa	Rabbit**

**Background:** Activation of PKC is one of the earliest events in a cascade leading to a variety of cellular responses such as secretion, gene expression, proliferation and muscle contraction (1,2). PKC isoforms have been classified into three groups: classical PKCs, which are calcium-dependent via their C2 domains and are activated by phosphatidylserine (PS), diacylglycerol (DAG) and phorbol esters (TPA or PMA) through their cysteine-rich C1 domains, novel PKCs, which are calcium-independent but are still regulated by PS, DAG and TPA and atypical PKCs, which are calcium-independent and do not require PS, DAG or TPA for their activation (3-7). Members of these three PKC groups contain a pseudo-substrate or autoinhibitory domain that binds to the substrate binding site in the catalytic domain, preventing its activation in the absence of cofactors or activators.

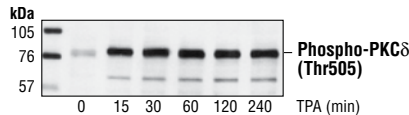
Other members have been recently added to the PKC superfamily based on homology within the catalytic domain. PKC, or PKD, is regulated by DAG and TPA through its C1 domain. However, PKD is distinguished by a PH domain, as well as by its unique substrate recognition and Golgi localization. The PKC-related kinases, or PRKs, lack a C1 domain and do not respond to DAG or phorbol esters. Instead, they can be activated by phosphatidylinositol lipids and their kinase activity is directly regulated by small GTPases of the Rho family through Rho binding to the homology region 1 (HR1).

The activity of PKC is under the control of three distinct phosphorylation events. Specifically, Thr500 in the activation loop, the Thr641 autophosphorylation site and the Ser660 hydrophobic site at the carboxy terminus of PKCβ II are phosphorylated *in vivo* (2). For the atypical PKC isoforms, there is no phosphorylation in the hydrophobic region, which has a glutamic acid residue in place of the serine or threonine residue found in other PKC isoforms. The enzyme PDK1, or a close relative, is responsible for PKC activation.

**Specificity/Sensitivity:** Phospho-PKCδ (Thr505) Antibody detects endogenous levels of PKCδ only when phosphorylated at Thr505. This antibody does not cross-react with the phosphorylated forms of PKC isoforms α, γ, ζ or ε.



Western blot analysis of extracts from Baculovirus-infected cells expressing PKC isoforms α, β, γ, δ or ε, using Phospho-PKCδ (Thr505) Antibody (upper) or control PKCα, β, γ, δ, ε antibodies (lower).



Western blot analysis of extracts from U-937 cells, untreated or TPA treated (0.2 µM), using Phospho-PKCδ (Thr505) Antibody.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic phospho-peptide (KLH-coupled) corresponding to residues around Thr505 of mouse PKCδ. Antibodies are purified by protein A and peptide affinity chromatography.

**Selected Application References:**

- Konishi, H. et al. (2001) Phosphorylation sites of protein kinase C-δ in H202-treated cells and its activation by tyrosine kinase *in vitro*. *Proc. Natl. Acad. Sci.* 98, 6587–6592. Application: W.
- Tan, M. et al. (2003) Thrombin rapidly induces protein kinase D phosphorylation, and protein kinase C δ mediates the activation. *J. Biol. Chem.* 278, 2824–2828. Application: W.

Entrez-Gene ID # 18753  
Swiss-Prot Acc. # P28867

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

\*Species cross-reactivity is determined by Western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**  
Western blotting 1:500

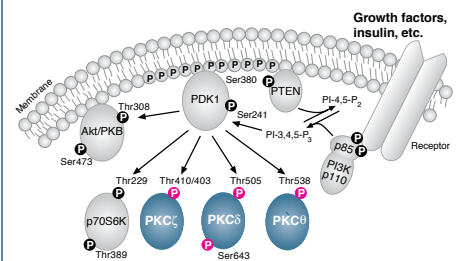
For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

- Companion Products:**
- Phospho-PKD/PKCµ (Ser916) Antibody #2051
  - Phospho-PKD/PKCµ (Ser744/748) Antibody #2054
  - Phospho-(Ser) PKC Substrate Antibody #2261
  - Phospho-PKC (pan) (Bil Ser660) Antibody #9371
  - Phospho-PKCα/β II (Thr638/641) Antibody #9375

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Nishizuka, Y. (1984) *Nature* 308, 693–698.
- (2) Keranen, L.M. et al. (1995) *Curr. Biol.* 5, 1394–1403.
- (3) Newton, A.C. (1995) *J. Biol. Chem.* 270, 28495–28498.
- (4) Mellor, H. and Parker, P.J. (1998) *Biochem J.* 332 (Pt 2), 281–292.
- (5) Ron, D. and Kazanietz, M.G. (1999) *FASEB J.* 13, 1658–1676.
- (6) Way, K.J. et al. (2000) *Trends Pharmacol. Sci.* 21, 181–187.
- (7) Moscat, J. and Diaz-Meco, M.T. (2000) *EMBO Rep.* 1, 399–403.



**IMPORTANT: For Western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine  
Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% sequence homology.