

#5016 Store at -20°C

# Phospho-PKC (pan) ( $\zeta$ Thr410) (190D10) Rabbit mAb (Biotinylated)

✓ 100  $\mu$ l  
(10 western blots)



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New 01/10

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Entrez-Gene ID #5590  
Swiss-Prot Acc. #Q05513

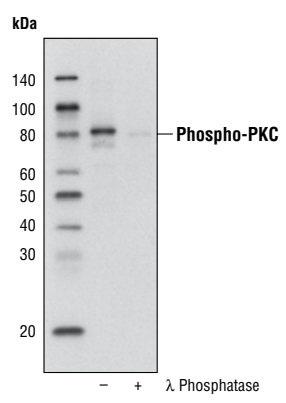
Applications W Endogenous	Species Cross-Reactivity* H, M, R, Mk	Molecular Wt. 76-85 kDa	Isotype Rabbit IgG
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**Description:** This Cell Signaling Technology (CST) antibody is conjugated to biotin under optimal conditions. The unconjugated Phospho-PKC (pan) ( $\zeta$  Thr410) (190D10) Rabbit mAb #2060 reacts with human, mouse, rat and monkey phospho-PKC. CST expects that Phospho-PKC (pan) ( $\zeta$  Thr410) (190D10) Rabbit mAb (Biotinylated) will also recognize phospho-PKC in these species.

**Background:** Activation of protein kinase C (PKC) is one of the earliest events in a cascade that controls a variety of cellular responses, including secretion, gene expression, proliferation and muscle contraction (1,2). PKC isoforms belong to three groups based on calcium dependency and activators. Classical PKCs are calcium-dependent via their C2 domains and are activated by phosphatidylserine (PS), diacylglycerol (DAG) and phorbol esters (TPA, PMA) through their cysteine-rich C1 domains. Both novel and atypical PKCs are calcium-independent, but only novel PKCs are activated by PS, DAG and phorbol esters (3-5). Members of these three PKC groups contain a pseudo-substrate or autoinhibitory domain that binds to substrate-binding sites in the catalytic domain to prevent activation in the absence of cofactors or activators.

Control of PKC activity is regulated through three distinct phosphorylation events. Phosphorylation of Thr500 in the activation loop, the autophosphorylation site at Thr641 and at carboxy-terminal hydrophobic site Ser660 occurs *in vivo* (2). Atypical PKC isoforms lack hydrophobic region phosphorylation, which correlates with the presence of glutamic acid rather than the serine or threonine residues found in more typical PKC isoforms. Either the enzyme PDK1 or a close relative is responsible for PKC activation.

A recent addition to the PKC superfamily is PKC $\mu$  (PKD), which is regulated by DAG and TPA through its C1 domain. PKD is distinguished by the presence of a PH domain and by its unique substrate recognition and Golgi localization (6). PKC-related kinases (PRK) lack the C1 domain and do not respond to DAG or phorbol esters. Phosphatidylinositol lipids activate PRKs and small Rho-family GTPases bind to the homology region 1 (HR1) to regulate PRK kinase activity (7).



Western blot analysis of extracts from NIH/3T3 cells, untreated or  $\lambda$  phosphatase-treated, using Phospho-PKC (pan) ( $\zeta$  Thr410) (190D10) Rabbit mAb (Biotinylated) and developed with Streptavidin-HRP #3999.

**Specificity/Sensitivity:** Phospho-PKC (pan) ( $\zeta$  Thr410) (190D10) Rabbit mAb (Biotinylated) detects endogenous levels of PKC  $\alpha$ ,  $\beta$  I,  $\beta$  II,  $\gamma$ ,  $\delta$ ,  $\epsilon$ ,  $\eta$ ,  $\theta$  and  $\iota$  isoforms only when phosphorylated at a residue homologous to Thr410 of human PKC $\zeta$ .

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide (KLH-coupled) corresponding to residues surrounding Thr410 of human PKC  $\zeta$ .

**Storage:** Supplied in 136 mM NaCl, 2.6 mM KCl, 12 mM sodium phosphate (pH 7.4) dibasic, 2 mg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot antibody.

\*Species cross reactivity other than mouse is determined by western blot using the unconjugated antibody.

Biotinylated antibodies are designed to be detected using streptavidin conjugates.

**Recommended Antibody Dilutions:**  
Western blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit 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) Mellor, H. and Parker, P.J. (1998) *Biochem J.* 332 (Pt 2), 281-292.
- (4) Ron, D. and Kazanietz, M.G. (1999) *FASEB J.* 13, 1658-1676.
- (5) Moscat, J. and Diaz-Meco, M.T. (2000) *EMBO Rep.* 1, 399-403.
- (6) Baron, C.L. and Malhotra, V. (2002) *Science* 295, 325-328.
- (7) Flynn, P. et al. (2000) *J. Biol. Chem.* 275, 11064-11070.

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

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**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—zebrafish B—bovine  
Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.