

# p-PKC $\beta$ II/ $\delta$ (E-7): sc-365463

## BACKGROUND

Members of the protein kinase C (PKC) family play a key regulatory role in a variety of cellular functions including cell growth and differentiation, gene expression, hormone secretion and membrane function. PKCs were originally identified as serine/threonine protein kinases whose activity was dependent on calcium and phospholipids. Diacylglycerols (DAG) and tumor promoting phorbol esters bind to and activate PKC. PKCs can be subdivided into at least two major classes including conventional (c) PKC isoforms ( $\alpha$ ,  $\beta$ ,  $\beta$ II and  $\gamma$ ) and novel (n) PKC isoforms ( $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$  and  $\theta$ ). Patterns of expression for each PKC isoform differ among tissues and PKC family members exhibit clear differences in their cofactor dependencies. For instance, the kinase activities of nPKC  $\delta$  and  $\epsilon$  are independent of  $\text{Ca}^{2+}$ . On the other hand, nPKC  $\delta$  and  $\epsilon$ , as well as all of the cPKC members, possess phorbol ester-binding activities and kinase activities.

## REFERENCES

1. Takai, Y., et al. 1979. Calcium-dependent activation of a multifunctional protein kinase by membrane phospholipids. *J. Biol. Chem.* 254: 3692-3695.
2. Castagna, M., et al. 1982. Direct activation of calcium-activated, phospholipid-dependent protein kinase by tumor-promoting phorbol esters. *J. Biol. Chem.* 257: 7847-7851.

## CHROMOSOMAL LOCATION

Genetic locus: PRKCB (human) mapping to 16p12.2, PRKCD (human) mapping to 3p21.1; Prkcb (mouse) mapping to 7 F3, Prkcd (mouse) mapping to 14 B.

## SOURCE

p-PKC  $\beta$ II/ $\delta$  (E-7) is a mouse monoclonal antibody specific for an epitope corresponding to an amino acid sequence containing Ser 660 phosphorylated PKC  $\beta$ II of human origin.

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-PKC  $\beta$ II/ $\delta$  (E-7) is available conjugated to agarose (sc-365463 AC), 500  $\mu\text{g}$ /0.25 ml agarose in 1 ml, for IP; to HRP (sc-365463 HRP), 200  $\mu\text{g}/\text{ml}$ , for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365463 PE), fluorescein (sc-365463 FITC), Alexa Fluor® 488 (sc-365463 AF488), Alexa Fluor® 546 (sc-365463 AF546), Alexa Fluor® 594 (sc-365463 AF594) or Alexa Fluor® 647 (sc-365463 AF647), 200  $\mu\text{g}/\text{ml}$ , for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365463 AF680) or Alexa Fluor® 790 (sc-365463 AF790), 200  $\mu\text{g}/\text{ml}$ , for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365463 P, (100  $\mu\text{g}$  peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

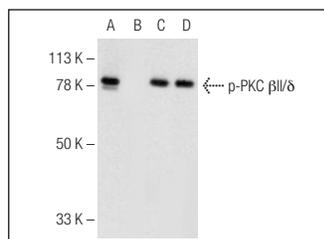
p-PKC  $\beta$ II/ $\delta$  (E-7) is recommended for detection of Ser 660 phosphorylated PKC  $\beta$ II of mouse, rat and human origin, correspondingly Ser 662 phosphorylated PKC  $\delta$  of mouse and rat origin, and correspondingly Ser 664 phosphorylated PKC  $\delta$  of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of p-PKC  $\beta$ : 80 kDa.

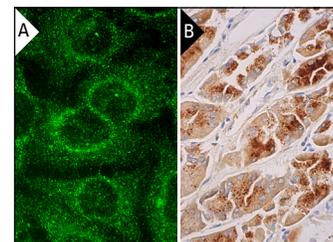
Molecular Weight of p-PKC  $\delta$ : 78 kDa.

Positive Controls: U-937 cell lysate: sc-2239 or HeLa whole cell lysate: sc-2200.

## DATA



Western blot analysis of PKC  $\beta$ II/ $\delta$  phosphorylation in untreated (A, C) and lambda protein phosphatase (sc-200312A) treated (B, D) HeLa whole cell lysates. Antibodies tested include p-PKC  $\beta$ II/ $\delta$  (E-7): sc-365463 (A, B) and PKC $\delta$  (C-20): sc-937 (C, D).



p-PKC  $\beta$ II/ $\delta$  (E-7): sc-365463. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

1. Nguyen Dinh Cat, A., et al. 2018. Vascular dysfunction in obese diabetic db/db mice involves the interplay between aldosterone/mineralocorticoid receptor and Rho kinase signaling. *Sci. Rep.* 8: 2952.
2. Zheng, W., et al. 2019. Carvedilol alleviates diabetic cardiomyopathy in diabetic rats. *Exp. Ther. Med.* 17: 479-487.
3. Yoon, J., et al. 2020. A Jun N-terminal kinase inhibitor induces ectodomain shedding of the cancer-associated membrane protease Prss14/epithin via protein kinase C $\beta$ II. *J. Biol. Chem.* 295: 7168-7177.
4. Njau, F., et al. 2021. Calcium dobesilate modulates PKC $\delta$ -NADPH oxidase-MAPK-NF $\kappa$ B signaling pathway to reduce CD14, TLR4, and MMP9 expression during monocyte-to-macrophage differentiation: potential therapeutic implications for atherosclerosis. *Antioxidants* 10: 1798.
5. Liu, Y., et al. 2022. Role of moesin in the effect of glucagon-like peptide-1 on advanced glycation end products-induced endothelial barrier dysfunction. *Cell. Signal.* 90: 110193.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.