

p-PKC θ (Thr 538): sc-33885

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 (α , β 1, β II and γ) and novel (n) PKC isoforms (δ , ϵ , ζ , η and θ). PKC isoforms can be activated through tyrosine phosphorylation and catalytically activated upon treatment with H2O2. The Tyr 155, 525, 523 and 565 residues in the catalytic domain are crucial for activation of these enzymes. The residue Ser 643 appears to be an autophosphorylation site. PKC η can undergo autophosphorylation on Serine 676 (Ser 676) in the turn loop and Serine 695 (Ser 695) in the hydro-phobic loop. Phosphorylation of Ser 676 may negatively regulate activation of NF κ B. Ser 695 is crucial to activate the phosphorylation Threonine 692 (Thr 692) and Threonine 703 (Thr 703) residues, both of which are necessary for mobility shift.

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.
3. Kikkawa, U., et al. 1983. Protein kinase C as a possible receptor of tumor-promoting phorbol esters. *J. Biol. Chem.* 258: 11442-11445.
4. Nishizuka, Y. 1984. The role of protein kinase C in cell surface signal transduction and tumour promotion. *Nature* 308: 693-698.
5. Nishizuka, Y. 1984. Turnover of inositol phospholipids and signal transduction. *Science* 225: 1365-1370.
6. Osada, S., et al. 1992. A new member of the protein kinase C family, nPKC θ , predominantly expressed in skeletal muscle. *Mol. Cell. Biol.* 12: 3930-3938.

CHROMOSOMAL LOCATION

Genetic locus: PRKCQ (human) mapping to 10p15.1; Prkcq (mouse) mapping to 2 A1.

SOURCE

p-PKC θ (Thr 538) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Thr 538 phosphorylated PKC θ of mouse origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-33885 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

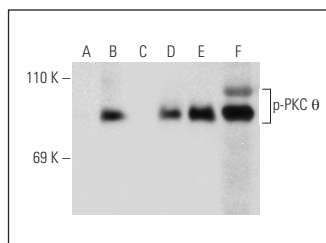
p-PKC θ (Thr 538) is recommended for detection of Thr 538 phosphorylated PKC θ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PKC θ siRNA (h): sc-36252, PKC θ siRNA (m): sc-36247, PKC θ shRNA Plasmid (h): sc-36252-SH, PKC θ shRNA Plasmid (m): sc-36247-SH, PKC θ shRNA (h) Lentiviral Particles: sc-36252-V and PKC θ shRNA (m) Lentiviral Particles: sc-36247-V.

Molecular Weight of p-PKC θ : 82 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, Jurkat + PMA cell lysate: sc-24718 or Jurkat + anti-CD3 cell lysate: sc-24710.

DATA



Western blot analysis of PKC θ phosphorylation in untreated (A, D), PMA treated (B, E) and PMA and lambda protein phosphatase (sc-200312A) treated (C, F) Jurkat whole cell lysates. Antibodies tested include p-PKC θ (Thr 538): sc-33885 (A, B, C) and PKC θ (1C2): sc-81534 (D, E, F).

SELECT PRODUCT CITATIONS

1. Hanschen, M., et al. 2011. Injury induces early activation of T-cell receptor signaling pathways in CD4⁺ regulatory T cells. *Shock* 35: 252-257.
2. Shyu, Y.C., et al. 2014. Tight regulation of a timed nuclear import wave of EKLF by PKC θ and FOE during Pro-E to Baso-E transition. *Dev. Cell* 28: 409-422.

STORAGE

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

RESEARCH USE

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



Try p-PKC θ (A-11): sc-271922 or p-PKC θ (A-4): sc-271920, our highly recommended monoclonal alternatives to p-PKC θ (Thr 538).